

Forklift Starter and Alternator

Forklift Starters and Alternators - The starter motor these days is normally either a series-parallel wound direct current electric motor that consists of a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. When 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 which is located on the driveshaft and meshes the pinion using 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. Once 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 an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance because the driver did not release the key once the engine starts or if the solenoid remains engaged since there is a short. This causes the pinion to spin separately of its driveshaft.

This aforesaid action stops the engine from driving the starter. This is an important step because this particular type of back drive will allow the starter to spin so fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement will stop using the starter as a generator if it was employed in the hybrid scheme mentioned prior. Typically a standard starter motor is designed for intermittent use which will prevent it being utilized as a generator.

The electrical components are made to function for more or less 30 seconds 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 the reason nearly all owner's handbooks intended for automobiles recommend the driver to pause for at least 10 seconds after every ten or fifteen seconds of cranking the engine, whenever 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 used. This particular drive system works 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 allows it to ride forward on the helix, therefore engaging with the ring gear. Once 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 hence 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 made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights within the body of the drive unit. This was much better since the average Bendix drive utilized to be able to disengage from the ring when the engine fired, though it did not stay running.

As soon as the starter motor is engaged and begins turning, the drive unit is forced forward on the helical shaft by inertia. It then 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, 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 allows the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be prevented before a successful engine start.