

Forklift Alternators and Starters

Forklift Starter and Alternator - 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. As soon as current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is situated on the driveshaft and meshes the pinion with the starter ring gear which is seen on the flywheel of the engine.

As soon as the starter motor begins to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid consists of a key operated switch that 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 permits the pinion to transmit drive in only a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, for instance in view of the fact that the driver did not release the key once the engine starts or if the solenoid remains engaged as there is a short. This causes the pinion to spin separately of its driveshaft.

This aforementioned action prevents the engine from driving the starter. This is an important step for the reason that this particular type of back drive will enable the starter to spin really fast that it would fly apart. Unless adjustments were made, the sprag clutch arrangement will stop using the starter as a generator if it was employed in the hybrid scheme discussed earlier. Typically a regular starter motor is designed for intermittent use that will prevent it being utilized as a generator.

The electrical components are made to be able to function for approximately thirty seconds so as to prevent overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are meant to save cost and weight. This is truly the reason nearly all owner's manuals intended for automobiles recommend the driver to stop for at least ten seconds right after each 10 or 15 seconds of cranking the engine, if trying to start an engine that does not turn over instantly.

In the early part of the 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. As soon as the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear allows 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 hence out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was developed. 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 along with a set of flyweights inside the body of the drive unit. This was better because the average Bendix drive used so as to disengage from the ring once the engine fired, although it did not stay functioning.

When 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. 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 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 avoided previous to a successful engine start.