

Forklift Alternators and Starters

Forklift Starters and Alternators - The starter motor these days is normally either a series-parallel wound direct current electric motor which has a starter solenoid, that is similar to a relay mounted on it, or it can 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 that pushes out the drive pinion which is positioned on the driveshaft and meshes the pinion utilizing the starter ring gear that is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. Once the engine starts, the key operated switch is opened and a spring in 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 one direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion remains engaged, for instance because the driver did not 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 aforesaid action stops the engine from driving the starter. This is actually an essential step because this particular type of back drive will allow the starter to spin very fast that it can fly apart. Unless adjustments were done, the sprag clutch arrangement would preclude using the starter as a generator if it was utilized in the hybrid scheme discussed prior. Usually a regular starter motor is meant for intermittent use which will preclude it being used as a generator.

The electrical components are made so as to operate for around 30 seconds to be able to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are meant to save cost and weight. This is the reason the majority of owner's manuals meant for automobiles suggest the driver to stop for at least ten seconds right after each and every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was launched onto the market during the early 1960's. Before the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft that consists of a starter drive pinion placed on it. As soon as 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. When 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 which was made and introduced during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights in the body of the drive unit. This was an improvement since the typical Bendix drive utilized so as to disengage from the ring when the engine fired, though it did not stay running.

The drive unit is forced 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, for instance it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be prevented previous to a successful engine start.