

Forklift Alternators and Starters

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

Once the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid has 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 means of an overrunning clutch. This allows the pinion to transmit drive in only a single direction. Drive is transmitted in this method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example because the operator fails to release the key when the engine starts or if the solenoid remains engaged in view of the fact that there is a short. This causes the pinion to spin independently of its driveshaft.

The actions mentioned above will prevent the engine from driving the starter. This important step stops the starter from spinning very fast that it will fly apart. Unless adjustments were made, the sprag clutch arrangement would prevent the use of the starter as a generator if it was used in the hybrid scheme discussed earlier. Usually an average starter motor is designed for intermittent utilization which would prevent it being utilized as a generator.

The electrical parts are made in order to work for roughly 30 seconds to be able to stop 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 actually the reason most owner's instruction manuals utilized for automobiles recommend the operator to stop for a minimum of ten seconds after each and every 10 or 15 seconds of cranking the engine, if trying to start an engine which does not turn over right away.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus 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 point, the drive pinion is forced back down the helical shaft and hence out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, developed and launched during the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights within the body of the drive unit. This was an improvement in view of the fact that the typical Bendix drive used so as to disengage from the ring once the engine fired, although it did not stay running.

The drive unit if force forward by inertia on the helical shaft when the starter motor is engaged and starts turning. After that the starter motor becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is achieved 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 enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be avoided previous to a successful engine start.