

Forklift Starters and Alternators

Forklift Starters and Alternators - A starter motor today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid installed on it. As soon as 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 which is situated on the driveshaft and meshes the pinion with the starter ring gear that is found on the engine flywheel.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid has a key operated switch that opens the spring assembly to pull 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 a single direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion continues to be engaged, like for instance in view of the fact that the driver fails to release the key when the engine starts or if there is a short and the solenoid remains engaged. This 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 kind of back drive will allow the starter to spin really fast that it can fly apart. Unless adjustments were made, the sprag clutch arrangement would stop utilizing the starter as a generator if it was utilized in the hybrid scheme mentioned prior. Typically a standard starter motor is designed for intermittent use that would preclude it being utilized as a generator.

Thus, the electrical parts are meant to be able to operate for about under thirty seconds so as to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical components are intended to save weight and cost. This is the reason nearly all owner's handbooks utilized for vehicles recommend the driver to stop for at least ten seconds after each ten or fifteen seconds of cranking the engine, if trying to start an engine which does not turn over instantly.

In the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was utilized. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, therefore engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to surpass the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and thus out of mesh with the ring gear.

The development of Bendix drive was developed during the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, developed and launched during the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was an enhancement since the typical Bendix drive used to be able to disengage from the ring when the engine fired, even if it did not stay running.

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