

Starters for Forklifts

Forklift Starters - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. When current from the starting battery is applied to the solenoid, mainly through 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 using the starter ring gear that is seen on the flywheel of the engine.

When the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid has a key operated switch which opens the spring assembly 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 just a single direction. Drive is transmitted in this particular manner through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for instance in view of the fact that the operator did not release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

This above mentioned action prevents the engine from driving the starter. This is an important step because this particular type of back drive will allow the starter to spin very fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement would preclude utilizing the starter as a generator if it was made use of in the hybrid scheme mentioned prior. Usually a regular starter motor is meant for intermittent utilization that will prevent it being utilized as a generator.

Therefore, the electrical parts are meant to work for around less than 30 seconds so as to avoid overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical components are designed to save weight and cost. This is the reason the majority of owner's guidebooks intended for vehicles recommend the driver to stop for at least 10 seconds after every ten or fifteen seconds of cranking the engine, whenever trying to start an engine that does not turn over at once.

The overrunning-clutch pinion was launched onto the market in the early 1960's. Previous to the 1960's, a Bendix drive was utilized. This particular drive system operates on a helically cut driveshaft which consists of a starter drive pinion placed on it. When the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear allows the pinion to surpass 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.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was developed and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights inside the body of the drive unit. This was a lot better in view of the fact that the standard Bendix drive utilized to be able to disengage from the ring once the engine fired, even if it did not stay running.

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. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for instance 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 can be prevented previous to a successful engine start.