

Starter for Forklift

Forklift Starters - A starter motor today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. As soon as current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the flywheel of the engine.

As soon as the starter motor begins 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 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 allows the pinion to transmit drive in just one direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance in view of the fact that the operator fails to release the key once 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 prevents the engine from driving the starter. This is actually an essential step since this particular kind of back drive would enable the starter to spin very fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement will stop using the starter as a generator if it was used in the hybrid scheme mentioned prior. Usually an average starter motor is meant for intermittent utilization which will preclude it being utilized as a generator.

Therefore, the electrical components are meant to operate for about under 30 seconds to be able to prevent overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are designed to save cost and weight. This is really the reason the majority of owner's handbooks meant for vehicles suggest the operator to pause for a minimum of 10 seconds right after every 10 or 15 seconds of cranking the engine, when trying to start an engine that does not turn over instantly.

The overrunning-clutch pinion was introduced onto the market during the early 1960's. Before the 1960's, a Bendix drive was used. This particular drive system functions on a helically cut driveshaft which consists of a starter drive pinion placed on it. When the starter motor begins turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond 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 developed. The overrunning-clutch design which was made and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was an improvement in view of the fact that the standard Bendix drive used to be able to disengage from the ring when the engine fired, though it did not stay running.

Once the starter motor is engaged and starts 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, like for instance 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, hence unwanted starter disengagement could be avoided prior to a successful engine start.