

Forklift Starter

Forklift Starters - The starter motor these days is usually either a series-parallel wound direct current electric motor which consists of a starter solenoid, which is similar to a relay mounted on it, or it could be a permanent-magnet composition. 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 utilizing the starter ring gear that is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which 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 means of an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular manner through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example because the driver 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 separately of its driveshaft.

This aforesaid action stops the engine from driving the starter. This is an important step since this particular kind of back drive would allow the starter to spin so fast that it will fly apart. Unless modifications were made, the sprag clutch arrangement will stop using the starter as a generator if it was used in the hybrid scheme discussed prior. Usually a regular starter motor is meant for intermittent utilization that would preclude it being utilized as a generator.

Thus, the electrical components are meant to function for roughly less than 30 seconds to avoid overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are designed to save weight and cost. This is really the reason nearly all owner's instruction manuals meant for vehicles recommend the operator to stop for at least ten seconds right after each and every ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over right away.

During the early 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, hence engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this instant, 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 during the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, made and introduced during the 1960s. The Folo-Thru drive consists of a latching mechanism along 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 utilized to be able to disengage from the ring as soon as the engine fired, even if it did not stay functioning.

The drive unit is force forward by inertia on the helical shaft as soon as the starter motor is engaged and starts turning. Next the starter motor becomes latched into the engaged position. As soon as 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 afterward the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement could be prevented prior to a successful engine start.