

Forklift Starters

Starter for Forklift - The starter motor of today is typically either a series-parallel wound direct current electric motor which includes a starter solenoid, that is similar to a relay mounted on it, or it can be a permanent-magnet composition. 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 that is located on the driveshaft and meshes the pinion with the starter ring gear that is seen on the flywheel of the engine.

Once the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch that opens the spring assembly to be able 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 an overrunning clutch. This allows the pinion to transmit drive in just one direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion remains engaged, for instance since the driver fails to release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin independently of its driveshaft.

The actions discussed above would prevent the engine from driving the starter. This vital step stops the starter from spinning very fast that it can fly apart. Unless adjustments 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 prevent it being used as a generator.

Thus, the electrical parts are meant to work for around less than thirty seconds in order to avoid overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical components are designed to save weight and cost. This is the reason most owner's handbooks intended for vehicles recommend the driver to stop for a minimum of 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. Before that time, a Bendix drive was utilized. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. Once 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. When the engine starts, the backdrive caused from the ring gear allows 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 therefore out of mesh with the ring gear.

The development of Bendix drive was made in 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 enhancement because the average Bendix drive utilized so as to disengage from the ring when the engine fired, though it did not stay running.

The drive unit is forced forward by inertia on the helical shaft when the starter motor is engaged and begins turning. Afterward the starter motor becomes latched into the engaged position. Once 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 permits the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be avoided previous to a successful engine start.