

Forklift Starters

Forklift Starters - The starter motor nowadays is typically either a series-parallel wound direct current electric motor which includes a starter solenoid, which 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, mainly through 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 using the starter ring gear that is found on the engine flywheel.

When the starter motor begins to turn, the solenoid closes the high-current contacts. Once 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 permits the pinion to transmit drive in only a single direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example 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 actually causes the pinion to spin separately of its driveshaft.

The actions mentioned above would stop the engine from driving the starter. This vital step prevents the starter from spinning so 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 employed in the hybrid scheme discussed earlier. Normally a standard starter motor is designed for intermittent use which would prevent it being used as a generator.

The electrical components are made in order to work for approximately thirty seconds to be able to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are intended to save cost and weight. This is the reason the majority of owner's handbooks utilized for automobiles suggest the driver to stop for at least ten seconds after each 10 or 15 seconds of cranking the engine, whenever trying to start an engine which does not turn over right away.

In the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Previous to that time, a Bendix drive was utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. When 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.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was developed and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better since the standard Bendix drive utilized to disengage from the ring once the engine fired, even if it did not stay running.

The drive unit if force forward by inertia on the helical shaft when the starter motor is engaged and begins 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, like for example it is backdriven by the running engine, and next the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement can be avoided prior to a successful engine start.