

Forklift Starters

Forklift Starters - The starter motor these days is normally either a series-parallel wound direct current electric motor which consists of a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. Once current from the starting battery is applied to the solenoid, basically 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 with the starter ring gear which is seen on the flywheel of the engine.

When the starter motor begins to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid has a key operated switch which opens the spring assembly so as 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 means of an overrunning clutch. This allows the pinion to transmit drive in only a single direction. Drive is transmitted in this method through the pinion to the flywheel ring gear. The pinion remains engaged, like for example for the reason that the driver did not release the key when 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 prevents the engine from driving the starter. This is an important step for the reason that this particular kind of back drive would allow the starter to spin very fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement would preclude using the starter as a generator if it was made use of in the hybrid scheme mentioned earlier. Typically a standard starter motor is meant for intermittent use which would stop it being utilized as a generator.

Thus, the electrical parts are designed to be able to function for about less than thirty seconds to be able to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are designed to save weight and cost. This is really the reason nearly all owner's manuals meant for automobiles recommend the operator to stop for a minimum of ten seconds right after every 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over instantly.

During 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 operates by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor begins spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this point, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design which 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 in the body of the drive unit. This was better since the average Bendix drive used to be able to disengage from the ring once the engine fired, even 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. Next the starter motor becomes latched into the engaged position. Once 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 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 can be prevented before a successful engine start.