

Forklift Starter

Forklift Starters - The starter motor nowadays is typically either a series-parallel wound direct current electric motor that consists of a starter solenoid, that is similar to a relay mounted on it, or it can 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 that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion utilizing the starter ring gear which is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that 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 an overrunning clutch. This permits the pinion to transmit drive in only one direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion remains engaged, like for example as the operator fails to release the key as soon as the engine starts or if the solenoid remains engaged as there is a short. This actually causes the pinion to spin separately of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is actually an important step in view of the fact that this 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 utilizing the starter as a generator if it was made use of in the hybrid scheme mentioned prior. Normally a regular starter motor is intended for intermittent use that would stop it being utilized as a generator.

Hence, the electrical parts are designed to function for about less than 30 seconds to be able to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical parts are meant to save cost and weight. This is truly the reason most owner's guidebooks used for vehicles recommend the operator to stop for a minimum of 10 seconds right after every 10 or 15 seconds of cranking the engine, whenever trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was introduced onto the market during the early part of the 1960's. Previous to the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft that consists of a starter drive pinion placed on it. Once 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 allows the pinion to surpass 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.

The development of Bendix drive was developed during the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, made and launched during the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better since the average Bendix drive utilized to disengage from the ring when the engine fired, even though it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and starts turning. After that 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, 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.