

Starter for Forklifts

Starter for Forklifts - The starter motor these days is usually either a series-parallel wound direct current electric motor that has a starter solenoid, which 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, mainly via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which 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 starts to turn, the solenoid closes the high-current contacts. When 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 an overrunning clutch. This allows the pinion to transmit drive in just one direction. Drive is transmitted in this particular way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for instance 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 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 because this type of back drive will enable the starter to spin really fast that it could fly apart. Unless adjustments were done, the sprag clutch arrangement would preclude making use of the starter as a generator if it was utilized in the hybrid scheme mentioned prior. Typically an average starter motor is meant for intermittent utilization that will preclude it being used as a generator.

The electrical parts are made in order to work for approximately 30 seconds to be able to prevent overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are meant to save weight and cost. This is truly the reason the majority of owner's instruction manuals used for vehicles suggest the driver to stop for at least 10 seconds after each 10 or 15 seconds of cranking the engine, if trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was introduced onto the market in the early 1960's. Prior to the 1960's, a Bendix drive was utilized. This drive system operates on a helically cut driveshaft which consists of a starter drive pinion placed on it. When the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence 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 instant, the drive pinion is forced back down the helical shaft and hence out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design which was developed and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights within the body of the drive unit. This was an enhancement in view of the fact that the standard Bendix drive utilized to disengage from the ring when the engine fired, even if it did not stay functioning.

The drive unit is forced 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. When the drive unit is spun at a speed higher than what is attained by the starter motor itself, like for example it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement could be prevented before a successful engine start.