

Starters for Forklifts

Starter for Forklifts - The starter motor of today is typically either a series-parallel wound direct current electric motor [forklift parts](#) which includes a starter solenoid, which is similar to a relay mounted on it, or it could be a permanent-magnet composition. As soon as 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 which is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. After the engine starts, the key operated switch is opened and a spring inside the solenoid assembly pulls 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 one direction. Drive is transmitted in this manner through the pinion to the flywheel ring gear. The pinion remains engaged, like for example as the operator did not release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

The actions discussed above will stop the engine from driving the starter. This significant step stops the starter from spinning really fast that it will fly apart. Unless adjustments were made, the sprag clutch arrangement would stop making use of the starter as a generator if it was used in the hybrid scheme discussed prior. Normally a regular starter motor is meant for intermittent use which will preclude it being utilized as a generator.

Therefore, the electrical components are intended to be able to function for around less than 30 seconds to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical components are designed to save weight and cost. This is really the reason most owner's handbooks meant for vehicles recommend the driver to stop for at least ten seconds right after each 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over at once.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was used. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, therefore engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and hence out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, developed and introduced 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 an enhancement since the standard Bendix drive utilized to be able to disengage from the ring as soon as the engine fired, even if it did not stay running.

Once the starter motor is engaged and begins turning, the drive unit is forced forward on the helical shaft by inertia. It then becomes latched into the engaged position. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for instance it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented prior to a successful engine start.