

## Starter for Forklift

Forklift Starters - The starter motor these days 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 could be a permanent-magnet composition. Once current from the starting battery is applied to the solenoid, mainly 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 which is seen on the flywheel of the engine.

As soon as the starter motor begins to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch that opens the spring assembly to be able 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 permits the pinion to transmit drive in only a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, like for example in view of the fact that the operator fails to 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 independently of its driveshaft.

This aforementioned action prevents the engine from driving the starter. This is an important step as this kind of back drive would allow the starter to spin so fast that it could fly apart. Unless modifications were made, the sprag clutch arrangement would preclude the use of the starter as a generator if it was made use of in the hybrid scheme mentioned prior. Usually a standard starter motor is designed for intermittent use that will stop it being utilized as a generator.

Hence, the electrical components are designed to be able to function for more or less 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 meant to save weight and cost. This is really the reason most owner's guidebooks used for automobiles recommend the driver to stop for a minimum of 10 seconds after each and every 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over instantly.

In the early part of the 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 allows it to ride forward on the helix, thus 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 moment, the drive pinion is forced back down the helical shaft and hence 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 together with a set of flyweights within the body of the drive unit. This was an improvement since the standard Bendix drive used so as to disengage from the ring once the engine fired, although 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. As soon as 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 afterward 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 prevented prior to a successful engine start.