

## Forklift Starter

Forklift Starters - A starter motor today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. When 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 using the starter ring gear that is found on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. Once 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 particular 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 way via the pinion to the flywheel ring gear. The pinion continues to be engaged, like for example because the operator fails to release the key as soon as the engine starts or if the solenoid remains engaged in view of the fact that there is a short. This causes the pinion to spin independently of its driveshaft.

This above mentioned action prevents the engine from driving the starter. This is actually an important step in view of the fact that this type of back drive would allow the starter to spin really fast that it will fly apart. Unless adjustments were made, the sprag clutch arrangement will prevent utilizing the starter as a generator if it was made use of in the hybrid scheme discussed earlier. Usually a regular starter motor is meant for intermittent utilization which will prevent it being utilized as a generator.

Hence, the electrical parts are intended to be able to function for around 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 cost and weight. This is actually the reason nearly all owner's handbooks for automobiles recommend the driver to stop for at least ten seconds right after each 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over immediately.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this instant, 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 made during the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, developed and introduced in the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was an improvement in view of the fact that the typical Bendix drive used to be able to disengage from the ring as soon as the engine fired, though it did not stay running.

The drive unit is forced forward by inertia on the helical shaft once 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, 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 can be prevented before a successful engine start.