

## Forklift Starter

Starters for Forklifts - The starter motor nowadays is normally 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. As soon as current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is located on the driveshaft and meshes the pinion using the starter ring gear which is seen on the flywheel of the engine.

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 in 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 an overrunning clutch. This permits the pinion to transmit drive in only a single direction. Drive is transmitted in this method via the pinion to the flywheel ring gear. The pinion remains engaged, for example because the driver fails to release the key as soon as 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.

The actions discussed above will stop the engine from driving the starter. This vital step prevents the starter from spinning really fast that it would fly apart. Unless modifications were done, the sprag clutch arrangement would preclude using the starter as a generator if it was utilized in the hybrid scheme mentioned earlier. Typically a standard starter motor is designed for intermittent utilization that would stop it being used as a generator.

The electrical parts are made in order to function for more or less 30 seconds in order to stop overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical parts are intended to save cost and weight. This is the reason most owner's guidebooks intended for automobiles suggest the operator to stop for at least 10 seconds right after each ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over right away.

During the early part of the 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. When the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus engaging with the ring gear. As soon as 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 thus 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 launched during the 1960s. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was an enhancement since the average Bendix drive used so as 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. 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 enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented before a successful engine start.