

## Forklift Starters

Forklift Starters - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. When 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 that is located on the driveshaft and meshes the pinion using the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. When the engine starts, the key operated switch is opened and a spring within 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 an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular manner through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example since 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 independently of its driveshaft.

The actions discussed above would prevent the engine from driving the starter. This significant step stops the starter from spinning so fast that it will fly apart. Unless modifications were done, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was made use of in the hybrid scheme discussed earlier. Typically an average starter motor is designed for intermittent use that would stop it being used as a generator.

Thus, the electrical components are intended to operate for approximately less than thirty seconds to be able to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical parts are meant to save weight and cost. This is the reason most owner's manuals for automobiles suggest the operator to stop for a minimum of 10 seconds after each and every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over right away.

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 operates by placing the starter drive pinion on a helically cut driveshaft. When the starter motor starts turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. Once 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 therefore out of mesh with the ring gear.

The development of Bendix drive was made in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, made and launched in the 1960s. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights in the body of the drive unit. This was better in view of the fact that the standard Bendix drive utilized to be able to disengage from the ring as soon as the engine fired, although it did not stay running.

The drive unit is force forward by inertia on the helical shaft when 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 instance it is backdriven by the running engine, and next the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be avoided previous to a successful engine start.