## Forklift Starter and Alternator

Forklift Starters and Alternators - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid mounted on it. As soon as 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 that is situated on the driveshaft and meshes the pinion utilizing the starter ring gear that is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that 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 particular action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by means of an overrunning clutch. This allows the pinion to transmit drive in only one direction. Drive is transmitted in this method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example as the operator fails to 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.

This aforementioned action stops the engine from driving the starter. This is an important step because this particular kind of back drive will allow the starter to spin very fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Usually a regular starter motor is meant for intermittent use which would prevent it being used as a generator.

The electrical parts are made to be able to function for more or less 30 seconds so as to prevent overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are designed to save weight and cost. This is the reason the majority of owner's instruction manuals intended for vehicles suggest the operator to stop for at least ten seconds after every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over immediately.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before 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, therefore 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 moment, 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 developed during the 1930's with the overrunning-clutch design known 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 within the body of the drive unit. This was a lot better in view of the fact that the average Bendix drive utilized to be able to disengage from the ring as soon as the engine fired, even though it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft as soon as the starter motor is engaged and begins turning. Afterward 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, 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, therefore unwanted starter disengagement could be prevented previous to a successful engine start.