

Forklift Starter

Forklift Starter - A starter motor today is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid mounted on it. Once 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 seen on the flywheel of the engine.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch which opens the spring assembly so as 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 just a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion continues to be engaged, for example as the driver did not release the key when the engine starts or if the solenoid remains engaged as 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 particular type of back drive will enable the starter to spin very fast that it will fly apart. Unless adjustments were done, the sprag clutch arrangement will preclude making use of the starter as a generator if it was made use of in the hybrid scheme discussed earlier. Usually a standard starter motor is intended for intermittent utilization which would preclude it being used as a generator.

The electrical components are made to be able to operate for about 30 seconds in order to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are designed to save cost and weight. This is really the reason nearly all owner's instruction manuals utilized for automobiles recommend the operator to pause for a minimum of ten seconds right after each ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over at once.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was utilized. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. As soon as 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. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to exceed 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 developed. The overrunning-clutch design which was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better in view of the fact that the standard Bendix drive utilized in order to disengage from the ring as soon as the engine fired, even if it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft when the starter motor is engaged and begins turning. After that the starter motor becomes latched into the engaged position. When 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 then the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement can be prevented before a successful engine start.