

Starters for Forklifts

Forklift Starters - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid mounted on it. When 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 utilizing the starter ring gear that is found on the flywheel of the engine.

When 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 to be able to pull 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 a single direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion remains engaged, for example for the reason that the driver 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.

The actions mentioned above would prevent the engine from driving the starter. This significant step stops the starter from spinning very fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement will prevent the use of the starter as a generator if it was employed in the hybrid scheme discussed prior. Usually a standard starter motor is meant for intermittent utilization that will preclude it being utilized as a generator.

Therefore, the electrical components are meant to work for more or less less than 30 seconds to prevent overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical components are meant to save weight and cost. This is the reason nearly all owner's guidebooks used for automobiles recommend the driver 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 which does not turn over immediately.

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. Once 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 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 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, made and launched during the 1960s. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights within the body of the drive unit. This was better for the reason that the average Bendix drive used to disengage from the ring when the engine fired, although it did not stay functioning.

When 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. 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 after that 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 prevented before a successful engine start.