

Forklift Starter

Forklift Starters - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. As soon as current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the flywheel of the engine.

When the starter motor begins to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid has a key operated switch that opens the spring assembly to be able 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 allows the pinion to transmit drive in just a single direction. Drive is transmitted in this method through the pinion to the flywheel ring gear. The pinion remains engaged, for instance as the driver fails to release the key when the engine starts or if the solenoid remains engaged since there is a short. This causes the pinion to spin separately of its driveshaft.

The actions mentioned above will prevent the engine from driving the starter. This important step prevents the starter from spinning really fast that it could fly apart. Unless adjustments were done, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was utilized in the hybrid scheme discussed prior. Typically a standard starter motor is designed for intermittent use that would preclude it being used as a generator.

Hence, the electrical components are intended to work for just about less than 30 seconds to be able to avoid overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are meant to save weight and cost. This is truly the reason most owner's instruction manuals used for vehicles recommend the operator to stop for at least ten seconds right after every ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over at once.

In the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Previous to that time, a Bendix drive was used. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor begins 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 enables the pinion to surpass the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and hence out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights in the body of the drive unit. This was much better in view of the fact that the standard Bendix drive used in order to disengage from the ring when the engine fired, even if it did not stay functioning.

As soon as the starter motor is engaged and starts turning, the drive unit is forced forward on the helical shaft by inertia. It then becomes latched into the engaged position. Once 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 allows the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided previous to a successful engine start.