

Starter for Forklift

Forklift Starters - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. When current from the starting battery is applied to the solenoid, basically via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is located on the driveshaft and meshes the pinion using the starter ring gear which is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that begins to turn. Once 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 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 one direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance in view of the fact that the driver fails to release the key when the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin separately of its driveshaft.

The actions discussed above would prevent the engine from driving the starter. This vital step prevents the starter from spinning really fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement will prevent the use of the starter as a generator if it was made use of in the hybrid scheme discussed earlier. Usually a regular starter motor is meant for intermittent use that will preclude it being used as a generator.

Thus, the electrical components are intended to be able to function for roughly less than thirty seconds in order to prevent overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical components are intended to save cost and weight. This is the reason most owner's manuals for automobiles recommend the driver 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 right away.

During 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. 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. As soon as the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was made and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was an enhancement because the standard Bendix drive utilized so as to disengage from the ring when the engine fired, though it did not stay running.

The drive unit is forced forward by inertia on the helical shaft as soon as the starter motor is engaged and starts turning. After that 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 example it is backdriven by the running engine, and then the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented before a successful engine start.