

Starters 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 through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is positioned on the driveshaft and meshes the pinion with the starter ring gear which is found on the engine flywheel.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as 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 means of an overrunning clutch. This permits the pinion to transmit drive in just a single direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion remains engaged, for example in view of the fact that the operator did not release the key when the engine starts or if the solenoid remains engaged as there is a short. This actually causes the pinion to spin independently of its driveshaft.

The actions discussed above will prevent the engine from driving the starter. This significant step stops the starter from spinning really fast that it can fly apart. Unless modifications were done, the sprag clutch arrangement will stop making use of the starter as a generator if it was utilized in the hybrid scheme mentioned earlier. Normally a standard starter motor is intended for intermittent utilization that will prevent it being used as a generator.

The electrical parts are made in order to operate for more or less thirty seconds to stop overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are intended to save weight and cost. This is actually the reason nearly all owner's instruction manuals for automobiles recommend the operator to stop for at least ten seconds right after every ten or fifteen seconds of cranking the engine, if 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 utilized. The Bendix system operates by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor begins turning, the inertia of the drive pinion assembly enables 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 hence out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was developed 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 as the average Bendix drive utilized to disengage from the ring once the engine fired, even if it did not stay running.

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. Once the drive unit is spun at a speed higher than what is attained by the starter motor itself, for example it is backdriven by the running engine, and afterward 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.