

Starter for Forklift

Forklift Starters - 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. As soon as current from the starting battery is applied to the solenoid, mainly through 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 which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. When the engine starts, the key operated switch is opened and a spring inside 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 means of an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular manner through the pinion to the flywheel ring gear. The pinion remains engaged, like for example in view of the fact that the driver did not release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

This above mentioned action prevents the engine from driving the starter. This is an important step in view of the fact that this type of back drive will allow the starter to spin really fast that it can fly apart. Unless adjustments were done, the sprag clutch arrangement will stop making use of the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Typically a standard starter motor is designed for intermittent utilization which will preclude it being utilized as a generator.

Thus, the electrical components are designed to function for about less than 30 seconds in order to avoid overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical components are designed to save weight and cost. This is truly the reason most owner's handbooks for vehicles suggest the operator to stop for a minimum of 10 seconds after each ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over instantly.

The overrunning-clutch pinion was introduced onto the market in the early 1960's. Before the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft which has a starter drive pinion placed on it. Once the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, therefore engaging with the ring gear. When 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 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 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 in the body of the drive unit. This was an improvement for the reason that the standard Bendix drive used to be able to disengage from the ring once the engine fired, although it did not stay functioning.

When 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. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for instance 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, therefore unwanted starter disengagement can be prevented prior to a successful engine start.