

Starter for Forklifts

Forklift Starters - The starter motor of today is normally either a series-parallel wound direct current electric motor which includes a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. Once 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 seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that begins to turn. When the engine starts, the key operated switch is opened and a spring within the solenoid assembly pulls 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 an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for instance as the driver did not release the key when 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 stops the engine from driving the starter. This is actually an important step in view of the fact that this particular kind of back drive would allow the starter to spin really fast that it will fly apart. Unless adjustments were made, the sprag clutch arrangement will stop making use of the starter as a generator if it was employed in the hybrid scheme mentioned prior. Normally a standard starter motor is meant for intermittent utilization which would preclude it being utilized as a generator.

The electrical components are made in order to work for around 30 seconds so as to stop overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are intended to save cost and weight. This is the reason most owner's handbooks used for vehicles recommend the driver to stop for at least 10 seconds after each ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over instantly.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. When 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. 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 instant, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

The development of Bendix drive was made in the 1930's with the overrunning-clutch design called 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 as the standard Bendix drive utilized in order to disengage from the ring once the engine fired, although 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. As soon as the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for example 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, hence unwanted starter disengagement can be prevented before a successful engine start.