

Starters for Forklift

Starters for Forklifts - A starter motor today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid installed 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 that is positioned on the driveshaft and meshes the pinion with the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which 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 action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by an overrunning clutch. This permits 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 remains engaged, for example because the driver fails to release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin independently of its driveshaft.

This aforementioned action stops the engine from driving the starter. This is actually an important step since this type of back drive will allow the starter to spin really fast that it could fly apart. Unless adjustments were made, the sprag clutch arrangement will stop the use of the starter as a generator if it was used in the hybrid scheme mentioned earlier. Normally a regular starter motor is designed for intermittent use that will prevent it being used as a generator.

The electrical components are made so as to work for around thirty seconds so as to stop overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical parts are meant to save cost and weight. This is the reason most owner's manuals for vehicles recommend the operator to pause for a minimum of 10 seconds after each ten or fifteen seconds of cranking the engine, whenever trying to start an engine that does not turn over at once.

During the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was used. The Bendix system operates by placing the starter drive pinion on a helically cut driveshaft. When the starter motor begins spinning, 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 go beyond the rotating speed of the starter. At this point, the drive pinion is forced back down the helical shaft and thus out of mesh with the ring gear.

The development of Bendix drive was developed during the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, developed and introduced during the 1960s. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better for the reason that the standard Bendix drive utilized so as to disengage from the ring as soon as the engine fired, though it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and starts turning. Next the starter motor becomes latched into the engaged position. As soon as the drive unit is spun at a speed higher than what is attained by the starter motor itself, 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, thus unwanted starter disengagement could be prevented prior to a successful engine start.