

Starter for Forklift

Forklift Starters - The starter motor of today is typically 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 can be a permanent-magnet composition. 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 situated on the driveshaft and meshes the pinion utilizing the starter ring gear which is found 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 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 means of an overrunning clutch. This permits the pinion to transmit drive in just a single direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example for the reason that the operator did not release the key as soon as the engine starts or if the solenoid remains engaged since there is a short. This actually causes the pinion to spin separately of its driveshaft.

The actions discussed above will prevent the engine from driving the starter. This important step stops the starter from spinning very fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement will preclude using the starter as a generator if it was used in the hybrid scheme mentioned earlier. Usually an average starter motor is intended for intermittent use that would preclude it being utilized as a generator.

The electrical components are made so as to function for approximately 30 seconds in order to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical parts are intended to save cost and weight. This is actually the reason the majority of owner's manuals for vehicles suggest the driver to pause for a minimum of ten seconds right after every 10 or 15 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 utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear allows the pinion to go beyond 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.

The development of Bendix drive was made during the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, made and introduced during the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights within the body of the drive unit. This was better in view of the fact that the typical Bendix drive used to be able to disengage from the ring as soon as the engine fired, although it did not stay running.

The drive unit if force forward by inertia on the helical shaft as soon as the starter motor is engaged and begins turning. Next the starter motor becomes latched into the engaged position. When 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, hence unwanted starter disengagement could be prevented before a successful engine start.