

Starters for Forklifts

Starter for Forklift - The starter motor of today is normally either a series-parallel wound direct current electric motor which has a starter solenoid, which 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, mainly via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is located on the driveshaft and meshes the pinion utilizing the starter ring gear which is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. Once 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 a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, like for example for the reason that the operator did not release the key once 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.

The actions discussed above will prevent the engine from driving the starter. This significant step stops the starter from spinning really fast that it would fly apart. Unless adjustments were made, the sprag clutch arrangement will prevent making use of the starter as a generator if it was made use of in the hybrid scheme discussed prior. Typically a standard starter motor is intended for intermittent use that will preclude it being used as a generator.

Thus, the electrical parts are designed to operate for around under 30 seconds to be able to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are designed to save weight and cost. This is the reason most owner's manuals used for vehicles recommend the driver to pause for at least ten seconds right after each and every 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 launched onto the market in the early 1960's. Before the 1960's, a Bendix drive was used. This particular drive system functions on a helically cut driveshaft which has a starter drive pinion placed on it. As soon as the starter motor begins spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus 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 instant, 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 made in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, developed and introduced in 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 much better in view of the fact that the standard Bendix drive used so as to disengage from the ring once the engine fired, even if 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, like 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, thus unwanted starter disengagement could be prevented previous to a successful engine start.