

Starter for Forklift

Starters for Forklift - Today's starter motor is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. When current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is situated on the driveshaft and meshes the pinion with the starter ring gear that is seen on the engine flywheel.

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 an overrunning clutch. This permits the pinion to transmit drive in only one direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion remains engaged, like for example since the operator did not release the key when 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 aforesaid action prevents the engine from driving the starter. This is actually an important step since this type of back drive will enable the starter to spin very fast that it would fly apart. Unless adjustments were made, the sprag clutch arrangement will preclude making use of the starter as a generator if it was utilized in the hybrid scheme discussed earlier. Normally a regular starter motor is intended for intermittent utilization that would prevent it being utilized as a generator.

The electrical components are made so as to function for approximately thirty seconds to prevent overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are designed to save weight and cost. This is the reason most owner's handbooks intended for vehicles suggest the operator to pause for at least ten seconds after each and every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over instantly.

The overrunning-clutch pinion was introduced onto the market during the early part of the 1960's. Previous to the 1960's, a Bendix drive was utilized. This drive system operates on a helically cut driveshaft that has a starter drive pinion placed on it. When the starter motor starts turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear enables 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 therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design which was made and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights in the body of the drive unit. This was much better since the standard Bendix drive used to disengage from the ring once the engine fired, although it did not stay functioning.

As soon as 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, like 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 previous to a successful engine start.