

Starter for Forklift

Forklift Starter - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. Once current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the engine flywheel.

Once the starter motor begins to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid has a key operated switch that opens the spring assembly in order to pull 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 means of an overrunning clutch. This allows the pinion to transmit drive in only a single direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example for the reason that the driver fails to release the key once the engine starts or if the solenoid remains engaged since there is a short. This causes the pinion to spin separately of its driveshaft.

The actions discussed above would prevent the engine from driving the starter. This important step prevents the starter from spinning so fast that it could fly apart. Unless adjustments were made, the sprag clutch arrangement would prevent using the starter as a generator if it was utilized in the hybrid scheme mentioned earlier. Typically a standard starter motor is designed for intermittent use that would stop it being used as a generator.

The electrical components are made in order to operate for around thirty seconds so as to avoid 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 intended for vehicles recommend the operator to pause for a minimum of 10 seconds after every 10 or 15 seconds of cranking the engine, if trying to start an engine that does not turn over right away.

In 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 starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to surpass 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 known as the Bendix Folo-Thru drive, developed and introduced in the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was better because the typical Bendix drive utilized to disengage from the ring when the engine fired, even if it did not stay functioning.

As soon as 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 afterward the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided prior to a successful engine start.