

Starter for Forklift

Forklift Starters - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. 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 that is located on the driveshaft and meshes the pinion with the starter ring gear which is seen on the engine flywheel.

Once the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch which opens the spring assembly so as to pull 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 manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance as the operator did not release the key as soon as the engine starts or if the solenoid remains engaged as there is a short. This causes the pinion to spin separately of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is an important step because this kind of back drive would allow the starter to spin very fast that it can fly apart. Unless modifications were done, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was made use of in the hybrid scheme mentioned earlier. Typically a regular starter motor is designed for intermittent use which will prevent it being used as a generator.

The electrical parts are made to be able to function for approximately 30 seconds in order to prevent overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are intended to save weight and cost. This is the reason the majority of owner's guidebooks meant for vehicles recommend the operator to stop for at least 10 seconds right after every 10 or 15 seconds of cranking the engine, whenever trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was introduced onto the market in the early 1960's. Prior to the 1960's, a Bendix drive was used. This particular drive system works on a helically cut driveshaft which has a starter drive pinion placed on it. When the starter motor begins spinning, the inertia of the drive pinion assembly allows 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 surpass the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and hence 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 developed and launched in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights within the body of the drive unit. This was a lot better as the average Bendix drive utilized in order to disengage from the ring when the engine fired, even if 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. Then the starter motor 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, for example it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided before a successful engine start.