

Forklift Starter

Forklift Starters - A starter motor today is normally 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, mainly through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is situated on the driveshaft and meshes the pinion with the starter ring gear that is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. After 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 particular 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 particular manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance for the reason that the driver did not release the key when 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 aforementioned action prevents the engine from driving the starter. This is an important step because this particular kind of back drive would allow the starter to spin so fast that it can fly apart. Unless adjustments were made, the sprag clutch arrangement would prevent making use of the starter as a generator if it was utilized in the hybrid scheme discussed prior. Usually a standard starter motor is designed for intermittent utilization which will stop it being utilized as a generator.

The electrical components are made to operate for more or less 30 seconds so as 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 truly the reason most owner's instruction manuals meant for automobiles recommend the operator to stop for a minimum of ten seconds after each ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over at once.

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 drive system operates on a helically cut driveshaft which has a starter drive pinion placed on it. Once the starter motor begins turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, therefore engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this point, 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 that was made 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, though it did not stay running.

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. 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 next 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 prevented previous to a successful engine start.