

Starters for Forklift

Starters for Forklift - The starter motor these days is normally either a series-parallel wound direct current electric motor that has a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. 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 situated on the driveshaft and meshes the pinion using the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which starts to turn. Once the engine starts, the key operated switch is opened and a spring in 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 allows the pinion to transmit drive in just a single direction. Drive is transmitted in this particular manner through the pinion to the flywheel ring gear. The pinion remains engaged, for example in view of the fact that the driver did not release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin independently of its driveshaft.

The actions mentioned above will stop the engine from driving the starter. This vital step prevents the starter from spinning so fast that it could fly apart. Unless modifications were made, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was employed in the hybrid scheme discussed earlier. Usually a regular starter motor is intended for intermittent utilization which would preclude it being used as a generator.

Thus, the electrical parts are meant to work for more or less less than 30 seconds so as to prevent overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical components are meant to save weight and cost. This is truly the reason most owner's manuals for automobiles suggest the operator to stop for a minimum of 10 seconds after every ten or fifteen seconds of cranking the engine, if trying to start an engine which does not turn over at once.

The overrunning-clutch pinion was launched onto the market in the early 1960's. Prior to the 1960's, a Bendix drive was used. This drive system functions 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, hence engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this point, 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 developed in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, made and introduced during 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 since the average Bendix drive utilized to be able to disengage from the ring once 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. Once the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for example it is backdriven by the running engine, and after that the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be avoided prior to a successful engine start.