

Forklift Starters and Alternators

Forklift Alternators and Starters - The starter motor of today is normally either a series-parallel wound direct current electric motor that has a starter solenoid, which is similar to a relay mounted on it, or it can be a permanent-magnet composition. When current from the starting battery is applied to the solenoid, mainly through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is positioned on the driveshaft and meshes the pinion using the starter ring gear that is found on the engine flywheel.

As soon as the starter motor begins to turn, the solenoid closes the high-current contacts. As soon as 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 means of an overrunning clutch. This permits the pinion to transmit drive in just a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example in view of the fact that the driver fails to release the key once the engine starts or if the solenoid remains engaged since there is a short. This actually causes the pinion to spin separately of its driveshaft.

This above mentioned action prevents the engine from driving the starter. This is actually an essential step for the reason that this particular kind of back drive will enable the starter to spin very fast that it can fly apart. Unless adjustments were made, the sprag clutch arrangement would prevent using the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Typically a standard starter motor is intended for intermittent use that will preclude it being used as a generator.

The electrical parts are made so as to function for approximately thirty seconds to be able to stop 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 actually the reason nearly all owner's handbooks meant for vehicles suggest the driver to pause for a minimum of 10 seconds right after every 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over right away.

The overrunning-clutch pinion was introduced onto the market during the early 1960's. Prior to the 1960's, a Bendix drive was used. This particular drive system works on a helically cut driveshaft that consists of a starter drive pinion placed on it. As soon as the starter motor begins spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus 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 during the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, made and launched in 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 in view of the fact that the standard Bendix drive used in order to disengage from the ring as soon as the engine fired, although it did not stay running.

The drive unit is forced forward by inertia on the helical shaft as soon as the starter motor is engaged and begins turning. Afterward the starter motor becomes latched into the engaged position. When the drive unit is spun at a speed higher than what is attained 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 allows the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be avoided previous to a successful engine start.