

Forklift Starter and Alternator

Forklift Alternators and Starters - 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 through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is located on the driveshaft and meshes the pinion using the starter ring gear that is found 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 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 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 continuous to be engaged, like for example as the operator did not release the key once the engine starts or if the solenoid remains engaged because there is a short. This actually causes the pinion to spin independently of its driveshaft.

The actions mentioned above would prevent the engine from driving the starter. This vital step prevents the starter from spinning very fast that it could fly apart. Unless adjustments were made, the sprag clutch arrangement will stop utilizing the starter as a generator if it was employed in the hybrid scheme discussed prior. Typically a regular starter motor is designed for intermittent utilization which will prevent it being utilized as a generator.

The electrical parts are made in order to operate for approximately thirty seconds in order to stop overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are designed to save cost and weight. This is really the reason nearly all owner's manuals utilized for automobiles recommend the operator to pause for at least ten seconds after each 10 or 15 seconds of cranking the engine, if trying to start an engine that does not turn over at once.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Previous to that time, a Bendix drive was used. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. 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. When 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 hence out of mesh with the ring gear.

The development of Bendix drive was made in the 1930's with the overrunning-clutch design referred to 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 inside the body of the drive unit. This was a lot better since the average Bendix drive used to be able to disengage from the ring as soon as the engine fired, even if it did not stay running.

The drive unit if force forward by inertia on the helical shaft as soon as the starter motor is engaged and starts turning. Afterward the starter motor becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is attained by the starter motor itself, for instance 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, hence unwanted starter disengagement can be prevented before a successful engine start.