Forklift Starter and Alternator

Forklift Starters and Alternators - Today's starter motor 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 which pushes out the drive pinion that is located on the driveshaft and meshes the pinion using the starter ring gear that is found on the flywheel of the engine.

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 has a key operated switch which opens the spring assembly to be able 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 only one direction. Drive is transmitted in this manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for example because the operator fails to release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is actually an essential step for the reason that this particular type of back drive would allow the starter to spin so fast that it will fly apart. Unless adjustments were made, the sprag clutch arrangement would preclude using the starter as a generator if it was made use of in the hybrid scheme discussed prior. Normally a standard starter motor is intended for intermittent utilization which would preclude it being used as a generator.

The electrical components are made to operate for more or less thirty seconds to be able to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are intended to save cost and weight. This is truly the reason nearly all owner's manuals meant for vehicles suggest the driver to pause for a minimum of 10 seconds after each and every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was introduced onto the marked during the early 1960's. Previous to the 1960's, a Bendix drive was used. This particular drive system operates 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 enables it to ride forward on the helix, thus 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 instant, 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 developed. The overrunning-clutch design that was made and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights inside the body of the drive unit. This was better since the typical Bendix drive utilized to disengage from the ring once the engine fired, though it did not stay functioning.

When 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. As soon as 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 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, hence unwanted starter disengagement can be prevented before a successful engine start.