Forklift Starter and Alternator

Forklift Starter and Alternator - A starter motors today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid mounted on it. As soon as 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 utilizing the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. When the engine starts, the key operated switch is opened and a spring within 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 permits the pinion to transmit drive in only one direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for instance as the driver fails to release the key when the engine starts or if the solenoid remains engaged because there is a short. This causes the pinion to spin independently of its driveshaft.

The actions mentioned above would prevent the engine from driving the starter. This significant step stops the starter from spinning really fast that it can fly apart. Unless modifications were done, the sprag clutch arrangement will prevent making use of the starter as a generator if it was employed in the hybrid scheme mentioned prior. Usually a regular starter motor is intended for intermittent utilization which would prevent it being used as a generator.

The electrical parts are made so as to operate for more or less 30 seconds so as to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are meant to save weight and cost. This is the reason nearly all owner's instruction manuals for automobiles recommend the driver to pause for at least ten seconds right after every ten or fifteen seconds of cranking the engine, when trying to start an engine which does not turn over immediately.

During the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was used. The Bendix system operates by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor starts turning, 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 go beyond the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, made and launched in the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was an improvement as the typical Bendix drive utilized so as to disengage from the ring when the engine fired, though it did not stay functioning.

When 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, for instance it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement could be prevented prior to a successful engine start.