Forklift Starters

Forklift Starter - A starter motors today is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid installed on it. Once current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is located on the driveshaft and meshes the pinion utilizing the starter ring gear which is seen on the flywheel of the engine.

Once 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 that opens the spring assembly in order 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 allows the pinion to transmit drive in just one direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance since the driver 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 independently of its driveshaft.

This aforementioned action stops the engine from driving the starter. This is an essential step because this particular type of back drive would allow the starter to spin very fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement would preclude making use of the starter as a generator if it was used in the hybrid scheme discussed prior. Typically a regular starter motor is intended for intermittent utilization that would prevent it being used as a generator.

The electrical components are made to operate for about thirty seconds in order to stop overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are meant to save cost and weight. This is actually the reason the majority of owner's manuals utilized for automobiles suggest the driver to pause for at least ten seconds right after each 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over instantly.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was used. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. When the starter motor begins turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, therefore engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to exceed 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.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was developed and launched in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights within the body of the drive unit. This was an improvement because the typical Bendix drive used so as to disengage from the ring when the engine fired, even if it did not stay functioning.

The drive unit if force 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. Once 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, therefore unwanted starter disengagement could be prevented before a successful engine start.