Starter for Forklift

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

When 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 in order 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 an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for instance in view of the fact that the operator did not release the key as soon as the engine starts or if the solenoid remains engaged because there is a short. This causes the pinion to spin separately of its driveshaft.

The actions discussed above will prevent the engine from driving the starter. This vital step prevents the starter from spinning so fast that it can fly apart. Unless adjustments were done, the sprag clutch arrangement would prevent using the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Normally an average starter motor is designed for intermittent utilization which will prevent it being utilized as a generator.

Thus, the electrical components are intended to function for roughly less than 30 seconds so as to prevent overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical components are meant to save cost and weight. This is the reason most owner's handbooks utilized for automobiles suggest the operator to stop for a minimum of 10 seconds right after every 10 or 15 seconds of cranking the engine, if trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was introduced onto the marked in the early part of the 1960's. Prior to the 1960's, a Bendix drive was used. This particular drive system works 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 moment, 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 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 in the body of the drive unit. This was an improvement for the reason that the average Bendix drive utilized in order to disengage from the ring when the engine fired, though it did not stay running.

Once 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 attained by the starter motor itself, for example it is backdriven by the running engine, and then 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 could be avoided before a successful engine start.