Forklift Starters

Forklift Starters - The starter motor of today is usually either a series-parallel wound direct current electric motor which includes a starter solenoid, which is similar to a relay mounted on it, or it could be a permanent-magnet composition. When current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is situated on the driveshaft and meshes the pinion with the starter ring gear that is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that begins to turn. Once the engine starts, the key operated switch is opened and a spring in 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 just one direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion remains engaged, like for instance as the driver did not release the key when the engine starts or if the solenoid remains engaged because there is a short. This actually causes the pinion to spin separately of its driveshaft.

This aforesaid action stops the engine from driving the starter. This is an important step for the reason that this particular kind of back drive would enable the starter to spin so fast that it can fly apart. Unless adjustments were done, the sprag clutch arrangement would prevent utilizing the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Typically an average starter motor is meant for intermittent utilization that will prevent it being utilized as a generator.

Hence, the electrical parts are meant to be able to work for just about under thirty seconds in order to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical parts are designed to save weight and cost. This is really the reason nearly all owner's handbooks for automobiles recommend the operator to stop for a minimum of 10 seconds after each and every 10 or 15 seconds of cranking the engine, whenever trying to start an engine which does not turn over at once.

The overrunning-clutch pinion was launched onto the marked during the early 1960's. Prior to the 1960's, a Bendix drive was used. This drive system functions on a helically cut driveshaft which has a starter drive pinion placed on it. When the starter motor begins turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear allows the pinion to surpass 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 made in the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, made and introduced during 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 better as the standard Bendix drive used to be able to disengage from the ring once 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. When 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 permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement can be avoided prior to a successful engine start.