

Forklift Starter

Forklift Starters - The starter motor of today is normally either a series-parallel wound direct current electric motor that has a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. Once current from the starting battery is applied to the solenoid, mainly 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 using the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. After the engine starts, the key operated switch is opened and a spring inside 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 an overrunning clutch. This permits the pinion to transmit drive in just a single direction. Drive is transmitted in this method via the pinion to the flywheel ring gear. The pinion remains engaged, for instance since the driver did not release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin separately of its driveshaft.

The actions discussed above would prevent the engine from driving the starter. This significant step prevents the starter from spinning really fast that it would fly apart. Unless modifications were done, the sprag clutch arrangement will stop the use of the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Normally a regular starter motor is designed for intermittent utilization which will stop it being utilized as a generator.

The electrical parts are made to operate for approximately thirty seconds so as to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are designed to save weight and cost. This is the reason nearly all owner's guidebooks meant for automobiles recommend the driver 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 that does not turn over instantly.

The overrunning-clutch pinion was introduced onto the market during the early part of the 1960's. Prior to the 1960's, a Bendix drive was utilized. This particular drive system functions on a helically cut driveshaft that has a starter drive pinion placed on it. As soon as the starter motor begins turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. As soon as 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 thus out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was developed and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights in the body of the drive unit. This was a lot better since the standard Bendix drive utilized to be able to disengage from the ring when the engine fired, even if 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 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, thus unwanted starter disengagement can be avoided previous to a successful engine start.