

Starter for Forklift

Starter for Forklifts - A starter motor today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid mounted on it. When 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 which is located on the driveshaft and meshes the pinion with the starter ring gear that is found on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that begins to turn. When 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 particular 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 a single direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion remains engaged, for example because the operator did not release the key once the engine starts or if the solenoid remains engaged because there is a short. This actually causes the pinion to spin independently of its driveshaft.

This aforementioned action prevents the engine from driving the starter. This is an essential step for the reason that this type of back drive would allow the starter to spin so fast that it could fly apart. Unless adjustments were done, the sprag clutch arrangement will prevent making use of the starter as a generator if it was utilized in the hybrid scheme discussed prior. Typically a standard starter motor is intended for intermittent use which would prevent it being used as a generator.

The electrical components are made to be able to work for more or less 30 seconds in order to stop overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are intended to save cost and weight. This is really the reason most owner's guidebooks meant for vehicles recommend the operator to pause for a minimum of 10 seconds right after each 10 or 15 seconds of cranking the engine, when trying to start an engine that does not turn over immediately.

The overrunning-clutch pinion was introduced onto the market in the early part of the 1960's. Prior to the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft which has a starter drive pinion placed on it. When the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, therefore engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear enables 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.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights in the body of the drive unit. This was a lot better because the typical Bendix drive used to be able to disengage from the ring as soon as 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 achieved by the starter motor itself, like for instance it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be avoided previous to a successful engine start.