

Forklift Starters

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

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid has 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 an overrunning clutch. This permits the pinion to transmit drive in only a single direction. Drive is transmitted in this particular method via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance since the operator fails to release the key when the engine starts or if the solenoid remains engaged since there is a short. This actually causes the pinion to spin separately of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is actually an important step because this particular type of back drive will allow the starter to spin so fast that it will fly apart. Unless adjustments were done, the sprag clutch arrangement will stop making use of the starter as a generator if it was made use of in the hybrid scheme mentioned earlier. Typically a regular starter motor is meant for intermittent utilization that would preclude it being used as a generator.

The electrical parts are made to function for around thirty seconds in order to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are intended to save weight and cost. This is actually the reason the majority of owner's instruction manuals meant for automobiles suggest the operator to pause for at least ten seconds after each ten or fifteen seconds of cranking the engine, whenever trying to start an engine that does not turn over immediately.

The overrunning-clutch pinion was introduced onto the market during the early 1960's. Previous to the 1960's, a Bendix drive was used. This particular drive system functions on a helically cut driveshaft that consists of a starter drive pinion placed on it. 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. When the engine starts, the backdrive caused from the ring gear enables the pinion to surpass the rotating speed of the starter. At this point, 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 introduced 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 much better because the standard Bendix drive used to be able to disengage from the ring once the engine fired, though it did not stay functioning.

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. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for example it is backdriven by the running engine, and next the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided previous to a successful engine start.