

Forklift Starter

Forklift Starters - A starter motor today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. As soon as 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 positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. Once the engine starts, the key operated switch is opened and a spring within 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 allows the pinion to transmit drive in just one direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for example for the reason that the operator fails to release the key as soon as the engine starts or if the solenoid remains engaged since there is a short. This causes the pinion to spin independently of its driveshaft.

This above mentioned action stops the engine from driving the starter. This is an important step since this type of back drive will enable the starter to spin so fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement would stop the use of the starter as a generator if it was used in the hybrid scheme discussed prior. Normally an average starter motor is intended for intermittent use that will stop it being utilized as a generator.

The electrical components are made so as to work for more or less thirty seconds in order to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are intended to save weight and cost. This is actually the reason the majority of owner's handbooks intended for vehicles suggest the operator to stop for a minimum of 10 seconds right after each ten or fifteen seconds of cranking the engine, when trying to start an engine which does not turn over instantly.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system operates by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor begins spinning, 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 exceed 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.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was developed and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights within the body of the drive unit. This was an improvement since the average Bendix drive utilized to be able to disengage from the ring as soon as the engine fired, though it did not stay running.

As soon as 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 instance 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 could be avoided before a successful engine start.