

Forklift Starter

Starter for Forklift - The starter motor nowadays is typically either a series-parallel wound direct current electric motor which consists of 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 via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which 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 means of an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion continuous to be engaged, for instance since the operator did not release the key when the engine starts or if the solenoid remains engaged in view of the fact that there is a short. This causes the pinion to spin independently of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is actually an important step for the reason that this particular kind of back drive will allow the starter to spin so fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was utilized in the hybrid scheme discussed prior. Typically a regular starter motor is meant for intermittent utilization that will prevent it being used as a generator.

Therefore, the electrical parts are designed to be able to operate for around under 30 seconds to be able to avoid overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are intended to save weight and cost. This is the reason most owner's manuals used for automobiles suggest the operator to stop for a minimum of 10 seconds right after every ten or fifteen seconds of cranking the engine, when trying to start an engine which does not turn over immediately.

In the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Previous to that time, a Bendix drive was utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. When the starter motor starts spinning, the inertia of the drive pinion assembly enables 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.

The development of Bendix drive was developed during the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, made and launched during the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights inside the body of the drive unit. This was an enhancement in view of the fact that the standard Bendix drive utilized to disengage from the ring when the engine fired, although it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and starts turning. Next the starter motor becomes latched into the engaged position. As soon as the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for example it is backdriven by the running engine, and after that 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 could be prevented prior to a successful engine start.