

Starters for Forklift

Forklift Starter - The starter motor of today is typically either a series-parallel wound direct current electric motor which includes a starter solenoid, that 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 with the starter ring gear that is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins 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 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 one direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance since the driver fails to release the key as soon as the engine starts or if the solenoid remains engaged because there is a short. This causes the pinion to spin independently of its driveshaft.

This aforementioned action prevents the engine from driving the starter. This is actually an essential step as this particular type of back drive would allow the starter to spin very fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement will prevent utilizing the starter as a generator if it was utilized in the hybrid scheme discussed earlier. Normally an average starter motor is intended for intermittent use that will prevent it being utilized as a generator.

Therefore, the electrical components are intended to be able to operate for around under 30 seconds to be able to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical components are intended to save cost and weight. This is truly the reason most owner's guidebooks intended for automobiles recommend the operator to pause for at least 10 seconds right after every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over immediately.

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

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, developed and launched in the 1960s. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights in the body of the drive unit. This was much better since the standard Bendix drive used to disengage from the ring when the engine fired, even if it did not stay running.

As soon as 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. Once the drive unit is spun at a speed higher than what is attained by the starter motor itself, like for example 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 could be prevented prior to a successful engine start.