

Starter for Forklift

Forklift Starters - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. When current from the starting battery is applied to the solenoid, mainly through 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 utilizing the starter ring gear that is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, which starts 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 an overrunning clutch. This permits the pinion to transmit drive in only a single direction. Drive is transmitted in this particular manner 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 there is a short and the solenoid remains engaged. This causes the pinion to spin independently of its driveshaft.

This aforementioned action stops the engine from driving the starter. This is actually an essential step for the reason that this type of back drive will enable the starter to spin so fast that it will fly apart. Unless modifications were done, the sprag clutch arrangement will stop utilizing the starter as a generator if it was utilized in the hybrid scheme discussed earlier. Typically a regular starter motor is designed for intermittent utilization that will stop it being utilized as a generator.

Hence, the electrical components are designed to function for just about under thirty seconds so as to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are meant to save weight and cost. This is the reason most owner's manuals intended for automobiles recommend the operator to stop for a minimum of 10 seconds right after every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over right away.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Previous to that time, a Bendix drive was utilized. The Bendix system operates by placing the starter drive pinion on a helically cut driveshaft. When the starter motor begins spinning, 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 allows the pinion to surpass the rotating speed of the starter. At this point, 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 made during the 1930's with the overrunning-clutch design known as the Bendix Folo-Thru drive, made and introduced 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 a lot better in view of the fact that the standard Bendix drive used so as to disengage from the ring once the engine fired, even though it did not stay running.

When 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 achieved by the starter motor itself, for instance it is backdriven by the running engine, and then the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be prevented before a successful engine start.