

Forklift Starter

Starter for Forklift - The starter motor these days is typically either a series-parallel wound direct current electric motor which has a starter solenoid, that is similar to a relay mounted on it, or it can be a permanent-magnet composition. As soon as current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is situated on the driveshaft and meshes the pinion with the starter ring gear that is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins 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 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 only a single direction. Drive is transmitted in this particular way via the pinion to the flywheel ring gear. The pinion remains engaged, like for example in view of the fact that the operator fails to release the key once the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin independently of its driveshaft.

The actions mentioned above will prevent the engine from driving the starter. This significant step prevents the starter from spinning so fast that it will fly apart. Unless modifications were made, the sprag clutch arrangement would preclude 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 intended for intermittent utilization that will stop it being used as a generator.

Therefore, the electrical components are designed to operate for more or less under 30 seconds in order to avoid overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical parts are intended to save weight and cost. This is truly the reason nearly all owner's manuals used for vehicles recommend the operator to pause for a minimum of ten seconds right after each and every ten or fifteen seconds of cranking the engine, if trying to start an engine which does not turn over at once.

During the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was used. The Bendix system works 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, therefore engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear enables the pinion to exceed the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and therefore 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, made and launched in 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 better since the standard Bendix drive utilized in order to disengage from the ring once the engine fired, although it did not stay running.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and begins turning. Then the starter motor 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, like for example it is backdriven by the running engine, and then 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 before a successful engine start.