

Commutator starter motor

As you press the ignition key, the battery activates and transfers power to the solenoid. The solenoid further transfers power to the starter motor. When the starter motor gets power, it pushes the pinion gears forward to mesh with the engine flywheel. The flywheel is connected to the crankshaft of the engine. As the motor turns, the flywheel also turns, which further turns the crankshaft of the engine. When the crankshaft turns, the engine starts, and the combustion process of the air-fuel mixture starts. As the combustion process starts, the motor stops, and the engine further gets power through the combustion of the air-fuel mixture.

Parts of Starter The starter motor has the following parts: Commutator, Armature, Brushes, Lever Fork, Piston or Plunger, Solenoid, Field Coils, Pinion.

1) **Commutator** It is an electrical switch that periodically reverses the current between the external circuit and the motor. The commutator consists of two plates attached to an armature shaft. These plates ensure proper connection for the coils of the electromagnet.

2) **Armature** The armature is one of the parts of the starter. It is installed on the bearing or driveshaft for a guide. The armature consists of a laminated soft iron core. Multiple conductor windings or loops use to cover this core.

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6) **Solenoid** The solenoid or electromagnet has two coils wound around an iron core. It acts as a switch to start and stop the electricity flow between the car battery and the starter motor.

7) **Field Coils** The field coils are installed inside the casing of the starter motor. The motor has two or more coils connected in series. As the coils get electricity from the battery, they convert it into an electromagnet and rotate the armature. When the armature rotates, the magnetic field is produced around the armature.

The planetary gear starter motor contains three planetary carrier gears and one sun gear. The sun gear installs at the armature end while the planetary gears install within the ring gear and held stationary.

2) **Direct Drive (DD) Starter Motor** It is one of the most famous and oldest types of starters in the market. The working of the direct drive is simple as other types. It is a solenoid-operated device. There are multiple designs of direct drive starters available in the market. The solenoid is directly connected to the vehicle battery. As you press the ignition switch, the solenoid receives power from the vehicle battery.

The 12V solenoid of the starter has three terminals and heavy-duty construction to reduce the current requirement. This type doesn't contain a field coil. Therefore, the brush and commutator transmit power directly to the armature.

They start the engine powerfully and very quickly. They are best suitable for high speeds. The weight linked to the torque capacity of the starter motor is very low.

5) **Off-Set Gear Reduction (OSGR)** These types of starter motors operate at low currents and high speeds. Off-set gear reduction starters have a lightweight, easy assembly, and compact design. They are most commonly used on 4WD vehicles because they increase starting torque.

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The lifespan of a starter motor depends on the vehicle model and how you maintain it. However, you can expect to get about 100,000 miles out of the factory starter.

Do you know cranking the starter motor continuously for a long time without taking a break, is extremely dangerous to the health of the starter?

It is because it is designed to operate only for a few seconds. Since an internal combustion engine can not start itself, it needs an external force to get it up to minimal RPM to run smoothly without help. Definitely, a starter does this job.

A starter motor is an electrical device, used to crank the engine. The Starter motor is one of the most crucial parts that make the starting system.

On this page, you will find useful, effective, and practical information and tips about starters. Here you will find eleven parts of a starter motor, functions, working operations, types, and many more things explained in easily understandable language backed by science.

The vehicle starter motor is the primary starter system component that cranks the engine; we people mistakenly think that the starter motor is the collection of the solenoid and motor body, but that is not true.

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Web: <https://www.kary.com.pl/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

