



General Information About Power Steering and Their Advantages and Disadvantages

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It's no secret that in recent years, a completely new stage has begun in the world automobile industry due to the introduction of the latest advances in science and technology and information technology. As a result, automatic side windows or fuel sensors in cars, and functions that were greeted with great joy in their time as innovations, are now remembered as inventions of the past.

Once upon a time, we had no idea how much energy we use to turn a mechanical steering wheel at the expense of the pleasure we get from driving a car. Currently, most of our compatriots, who are used to driving modern cars equipped with various power steering amplifiers, completely give up driving them because it takes some effort to turn the steering wheel in cars without such power amplifiers.

Currently, most of our compatriots, who are used to driving modern cars equipped with various power steering amplifiers, completely give up driving them because it takes some effort to turn the steering wheel in cars without such power amplifiers. Their function is very simple, it is to facilitate the turning of the front wheels of the car through the steering wheel, not only to create comfort for the driver, but also to ensure the safety of the driver and passengers.

With hydraulic booster steering wheel – The interconnecting conduit, designed for the movement of special liquid under high and low pressure, includes pipes, and the liquid in them is pumped into the system using a pump (Fig. 1). Special power steering fluid is stored in a box connected to the pump. In the process of turning the steering wheel, this fluid is transferred under pressure to the control mechanism through the distributor. Here, fluid is drawn into the hydraulic cylinder to create pressure that makes it easier to turn the steering wheel.

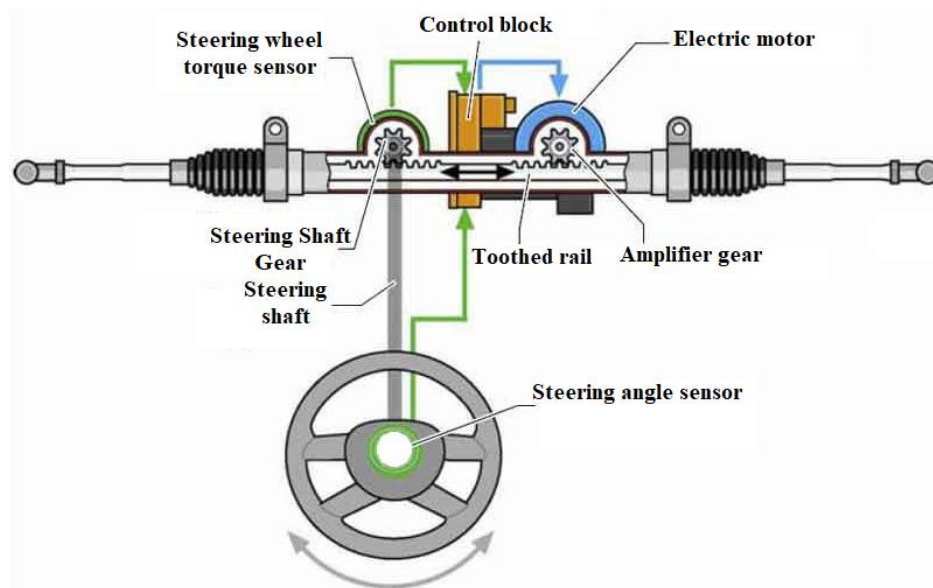
When the car is moving in the right direction, the special fluid transferred to the steering mechanism falls back into the box.



Figure 1. With hydraulic booster steering wheel.

1-pump; 2-distributor housing; 3-steering mechanism; 4-steering wheel; 5-connecting tube; 6-chamber.

With electric amplifier steering wheel – includes a system consisting of an electric motor and an electronic control unit. Unlike hydraulic power steering, electric power steering is mounted directly on the steering wheel or steering shaft. The twisting moment is carried out by a shaft mounted transversely to the steering system (Fig. 2).



2-rasm. With electric amplifier steering wheel.

If in hydraulic power steering the force on the steering wheel is lightened by the fluid moving in the system, then in electric power steering this work is done directly using electricity. For example, when the power is transmitted to the steering mechanism through the transverse shaft while the steering wheel is turning, the torque sensor of the electric amplifier solves the situation by sending this movement to the control unit.

With hydraulic booster steering advantage.

1. It is distinguished by its low price.
2. Compared to power steering, the torque transmission power to the steering mechanism is much greater, which provides hold under high pressure.

With hydraulic booster disadvantages of steering.

1. In cars equipped with power steering, the steering wheel cannot be held in the last position for more than five seconds. Because many repetitions of this situation lead to heating of the special fluid in the system and failure of the power steering.
2. Power steering is directly dependent on the operation of the engine, and when the pump starts to work, it takes part of the engine's power for itself. And when driving at high speed on a straight road, a certain power of the engine that the pump pulls is wasted. Because at such a time there is almost no need for power steering.
3. In cars equipped with power steering, it is not possible for the driver to adjust the operation of the power steering depending on the driving and operating conditions of the car. When driving at a high speed, the sensitivity of the hydraulic booster to the movement of the steering wheel decreases. This does not allow the driver to make sudden short maneuvers at such a time.

With electric amplifier steering advantage.

1. Simplicity of structure and use. The driver driving a car equipped with such a steering wheel is only required to monitor the condition of the oscillating bearings.
2. The compact size of the power steering allows you to save space. In some cars, it is installed in the interior of the car, not under the hood, but integrated with the steering shaft.
3. Thanks to the electric power steering, it is possible to save fuel. Because in electric power steering, in contrast to hydraulic power steering, the pump motor is activated only when the steering wheel is turned. In addition, it does not stress the engine and does not take away its power.
4. With the help of EBU, the operation status of the power amplifier can be adjusted according to your needs and specific conditions of use.
5. In cars with electric power steering, the steering wheel can be easily held in the last position without time restrictions.
6. When driving at high speed, sensitivity to small movements of the steering wheel increases.

With electric amplifier disadvantages of steering.

1. The height of the price.
2. Due to the low power of the electric motor, it cannot be installed on slightly heavier vehicles, including large crossovers, pickup trucks, and trucks.

Conclusion

It should be noted that both cars with power steering are designed to provide comfort to drivers, as well as their safety. Therefore, we do not recommend paying special attention to this aspect when buying a car. Matiz, Nexia, Cobalt, Lacetti, Captiva cars and Spark's LS M/T, LT M/T modifications from the cars produced at the GM Uzbekistan automobile plant are equipped with power steering.

Malibu, Orlando cars and Spark's LT A/T modification are equipped with electric power steering.

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