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# **Methods for Increasing the Power of the Valve Generators**

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**ABSTRACT:** In this article, the data on automobile electric energy consumers and their operating modes are presented, as well as scientific research work on increasing the power of generators "ALTERNATOR" vented has been studied and analyzed. According to the results of the analysis, recommendations were made to increase the power of generators.

**KEYWORDS:** valve generator, rectifier block, voltage regulators, accumulator battery, power boost, magnetic field induction, magnetic core, semiconductor bridge scheme, integrated voltage regulator.

## **I. INTRODUCTION**

Nowadays, it is impossible to imagine all the countries of the world without cars, as well as countries that produce automotive extout parts, there are 49 in the world. In these countries, there are enterprises that produce more than 77 600 automotive spare parts. In particular, in the Republic of Uzbekistan there are plants that produce automotive spare parts in more than 280 places. Uzbekistan ranks 26th in the world in the production of automobile spare parts. Currently, the type and scope of cars and extrovert parts has grown significantly.

The modernity of cars is determined by the abundance of cases of compactness in them. In turn, this situation imposes on the car generator the need to provide more quality electrical energy. Therefore, it is considered important to have a sufficient level of reliability, long-term operation and power of the existing light-duty cars and trucks-mounted generators.

At present, the electric energy consumers of cars consume unchanged electricity. The car's power supply system is one of its main systems. With the launch of the internal combustion engine, the car generator provides electricity for charging the existing electric consumers in the car, as well as the accumulator battery. [3]

The car power supply system consists of accumulator battery, generator rectifier blocks, voltage regulator, conductor wires, switching circuits and devices that protect against possible adverse conditions. Generator in cars, the voltage regulator, the rectifier blocks together form the device generator. In modern cars, the generators are made up of alternating current generating generators, which basically consist of three-phase rectifier blocks that transform the alternating current into an alternating current. The main requirement for the devices of car generators is the provision of electricity consumers with the same stable voltage in different modes. The suitability of the power supply system of electrical equipment in modern cars is a condition that its internal combustion engine operation, ignition, lighting and safety conditions, etc., are taken into account. Reliable operation of the generator of the car in any operational conditions is the main condition of the power supply system.

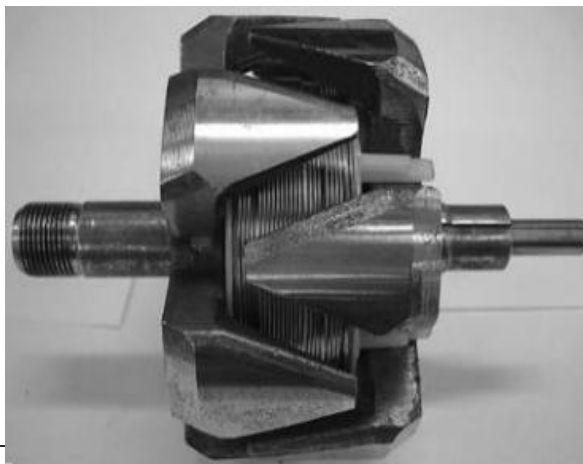
Generator as a device, a device with a built-in semiconductor and integrated voltage regulator with a clear pole generator is used. Recently, in addition to the voltage regulator, voltage regulator devices are used, which are used as additional functional lines that work at a certain voltage.

Currently, light cars produced in the Republic of Uzbekistan are mainly used in the "General motors" and "DAEWU" cars with variable three-phase generators of small capacity "ALTERNATOR". Their failure to power the power supply of modern cars, which are currently being updated, and as a result of their work with overloading, a sharp decrease in the service period and excessive loading, leads to the cases of outage of the generators in the cars.

In this case, it also negatively affects the entire accumulator battery system. As a result, many circulations are emerging on the issues of increasing the power of car generators. The solution of such problems is to increase the power of np08, NP10 Russian alternator vented generators, which are currently put on light cars manufactured in the Navoi free economic zone.

## II. SYSTEM ANALYSIS

The absence of a large amount of changes in the constructive state of generators produced in the Navoi free economic zone in the Republic of Uzbekistan and the tasks of reducing material waste further complicate its solution. Companies and enterprises producing automotive extout parts from a number of leading countries have introduced several methods to increase the power of car generators. For example, one of them is the increase in magnetization of the yakor material of the generator by using lithium material, which leads to an increase in the self-induction current in its yakor excitation system, which is seen as a solution of amammo in quality, and this is theoretically analyzed. [1]



**Fig. 2.1 General view of the Valve generator rotor**

- The car power supply system is autonomous so it also works with accumulator batteries generator connected to the scanner. In addition, the following requirements are imposed on the generator:
- Have a simple structure, technology and preparation;
- Long-term operation and reliability;
- Small size, low mass and setback;
- -High comparable capacity;
- The ability of the engine to provide accumulator battery even in the small frequency rotation of the Val in the salt state of motion;
- Constructive and technological compatibility of the generator produced. [2]

A number of scientists of the Russian Federation have studied the vented car generators, many of which work on the calculation and modeling of vented synchronous generators, including the first scientific research works on the theory of vented generators as part of the combination of the vented car scientists have studied. [4]

Scientific research work on mathematical modeling, development methods and tools of the generators of the Ventilli was carried out at the Moscow Institute of energy (Rusakova A. M., Rozovaova N. M., Tyricheva P. A., Sugrobova A. M. scientists of the Research Institute of Electronics and automobile equipment (Kupeeva yu. A., Evgrafova V. I., L. P. Leikina) scientists and Moscow Institute of automotive mechanics (C B. Akimov, A. B. Akimov) in the works of scientists developed the principles of construction and characterization of mathematical models of It is used for theoretical analysis of several techniques to increase the power of car valve generators, for example mathematical statistics on these, the theory of accuracy of electric machines, the theory of extimoller, mathematical and imitation modeling. [3]

Currently, 80% of the cars based on the internal combustion engine that we are working on are generators of the "ALTERNATOR" with a vent, that is, the series of variable-current generators increased rapidly after the launch of production and also had its own shortcomings.

These are the dimensions of the vine of the vented generators brought in it a number of problems, the time to come to exploitation did not exceed 30 000 hours, and a sharp increase in power and a sharp change in the mode of automobile power consumption reduced the operating time by negatively affecting the vents in it and generator performance. Also the dimensions of the structure of its mass has come to a contraction strength failure. This in turn reduced the coefficient of profitable work.

Today, the following models of car generators are being produced in Navoi economic region:

MODEL		NP08	NP10
Performance (Amp 1800/6500 rpm, 14 V, 25 °C)		40/90	50/100
Temperature Capability (°C)		125	
Package (mm)	D1	120	126
	D2	133	144
	L	141	141
Rotor Inertia (kg · sm <sup>2</sup> )		15	15
VDA Efficiency (%)		64	66
Typical Mass (kg)		4.5	5.3
Noise (dB)		Standard	
Speed Capability (rpm) (Continuous/Intermittenuous)		18000/21000	

The following recommendations were developed by analyzing the research work under review advanced electrical and magnetic multiplex electronic element structural circuits using more integrated circuits;

- increase the rotor rotation frequency of the device generator ;
- increase the cooling efficiency of the elements and rotor main disadvantage;
- optimal optimize your devices and and its elements;
- application of new technologies on the basis of effective preparation, processing of constructive and basic materials;
- generator improvement and processing of construction design and calculation methods;
- to create a new mathematical model to make mathematical mode of operation using techniques.

### III. CONCLUSION

In conclusion, taking into account the above recommendations, we can say that the initiation of the "ALTERNATOR" gives a high efficiency in increasing the power of the generator by increasing the phase current generated in the stator by powering the magnetization of the steppe.



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