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Abstract.*Need Obosnovыvaetsya yskusstvennoho doobluchenyya plants dlynnovolnovыm ultrafyoletovыm radiation at Growing plants in soil constructions of zaschyschennoy.*
Keywords: Requirements, spectrum, radiation, plants

Annotation.*The necessity of lamplight of plants is grounded long-wave ultraviolet radiation at growing of plants in building of the protected soil.*
Key words: requirements, spectrum, radiation, plants

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AUTONOMOUS ELECTROMECHANICS COMPLEX
With compensated asynchronous machine

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Abstract.*The design of autonomous electromechanical set of compensated induction machines.*
Keywords: autonomous electromechanical complex compensated induction motor

Formulation of the problem. Important for practice, but very difficult regime for electric cars is the joint work in an autonomous system commensurate largest power generator and engine. It is especially

difficult for both cars in such a system, a process of starting and acceleration induction motor with squirrel cage rotor of the alternator. Large inrush current at low motor starting torque, depending on the square (U^2) supply voltage, this voltage reduction with limited power generator reduces the blood pressure satisfactory start in the autonomous system. Four or five times forcing synchronous generator excitation voltage level supported load surge

load provides startup and normal operation of induction motors up to 70% of the power generator [2]. Using asynchronous generator with a sharp decrease in voltage at load surge load with the need of large reactive power to compensate for it to load and excitation of the generator, the complexity of regulations and maintain stability voltage virtually eliminated in autonomous power systems with a load in the form of an asynchronous motor commensurate with the power generator.

The purpose of research - Development of complex autonomous electromechanical compensated for induction machines.

Materials and methods of research. Inside capacitive reactive power compensation improves the properties and enhances teamwork compensated both asynchronous machines in off so named electromechanical sector.

So compensated asynchronous generator increases the voltage level and severity of external characteristics, the conditions for stable operation with increasing load current, possibly speeding up the excitement level to support load surge voltage at the load; the engine increases starting torque and reduces inrush current. This allows asynchronous generators and motors work together in a single autonomous system. In generator and motor at their joint work in the autonomous electromechanical complex is a common operating voltage $\dot{U}$ and current $\dot{I}$. The generator must provide voltage level required to create the engine torque that satisfies the condition starting, acceleration and steady mode of the engine with a given load.

During the start-up and acceleration the engine must create torque M exceeding the time Ms load on its shaft at (10-15)%. That is unprofitable (redundant) time ΔM the engine should be $\Delta M = M - M_c \geq (0{,}1 \div 0{,}15)M$ at all points of the mechanical characteristics of the engine during acceleration slip s = 1 $S \approx S_н^{'} + 0{,}01$ That is to slip $s_н'$ Close to its value at the load. Only in the steady state of sliding $s_н'$ Corresponding to a given engine load, its time entirely counterbalances moment load M = Ms. This slide $s_н'$ depends on the load on the shaft and can vary from the nominal $s_н$ Corresponding to the rated

load moment Mn. Calculation mode as the engine and generator feeding it, spend a given engine load and slip it within (0≤s≤1), including at $s_н$ for nominal App. For asynchronous generator as well as for the engine, in the autonomous system can use different methods of compensation, but the oscillator should prefer the maximum degree of compensation - summary (UKAAH), providing its collaboration with any induction motor (Fig. 1) capacity to 70% of the rated power of the generator. This value of maximum allowable engine power is accepted, and in the autonomous system with synchronous generator (SG), which creates conditions for an objective comparative assessment of autonomous systems and SG UKAAH. The most favorable conditions to work in an autonomous system created under the scheme of Fig. 1, and where both machines (UKAAH and UKAD) have properties of increased efficiency in the generalized capacitive reactive power compensation.

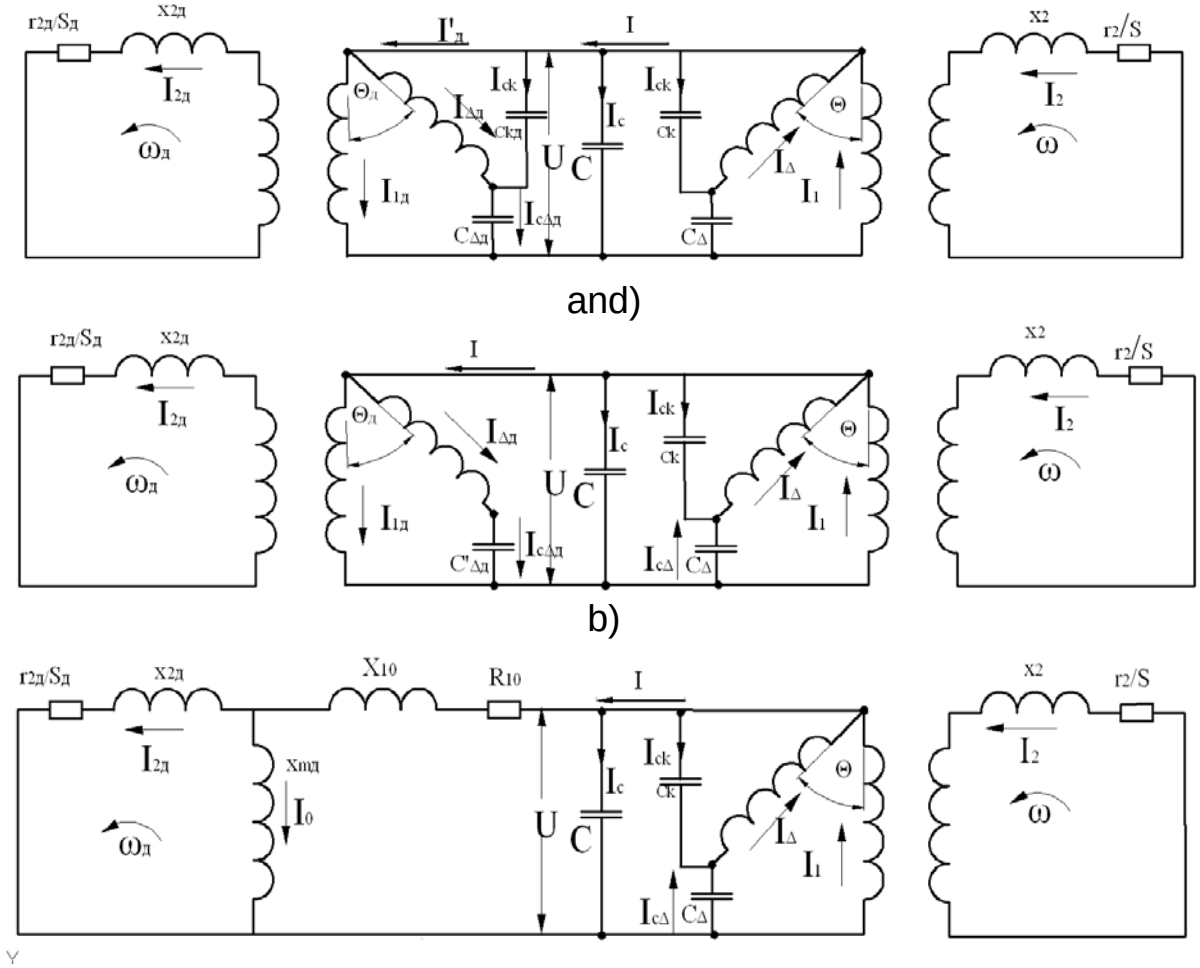
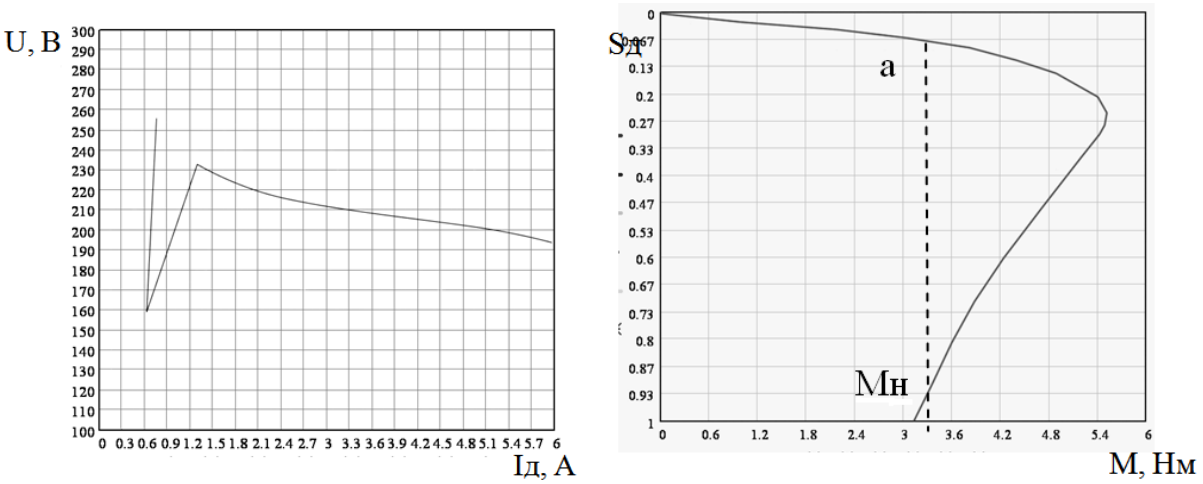


Fig. 1. The principle of independent electrical circuit when operating complex electromechanical generalized induction generator (UKAAH) for induction motor UKAD - and, KAD - would base AD - and.

Satisfactory under certain parameters generalized capacitive compensation possible and to work UKAAH serial asynchronous motor (Fig. 1) the commensurate (70%) of his capacity. If the start-up and acceleration of AD in this version will give acceptable results, in other ways (Fig. 1b) of UKAAH with compensated engines (KAD) they are usually better.

Results. As an example, we present the result of calculating the characteristics of cars and determine the conditions of their work together in complex electromechanical accept generalized offset generator (UKAAH), made on the basis of AD 4A71V2 $P_н = 1{,}1$ serial kW induction motor 4A71A2 $P_н$ = 0.75 kW, $I_н$ = 1.7 A, $U_н$ = 220, $M_н$ = 2.54 Nm x_{m0} = 337.2 ohms and other parameters in [1].

But autonomous system engine capacity C shunt resistance x_c to compensate its reactive power for excitation of the generator. Total resistance $Z = \frac{-jx_c Z_д}{Z_д - jx_c} = r + jx$ the output of the generator while reducing slip $S_д$ Engine changes unlike the changes resistance $Z_д$ engine. So for small capacity with increasing resistance $x_д$ with a small slide $s_д$ total reactance x as part of $Z = r + jx$ changes its sign, passing through x = 0. This again reduces the voltage generator. First there was a decline in the early start-up of the engine at $s_д = 1$, Small bearings Z_2 and $Z_д$ maximum load surge and inrush current $I_д$, With a decrease in starting torque. When the $s_д$ 0,2-0,1 values in the transition of general reactance x the output of the generator through zero and change its sign there is a second recession voltage generator, and therefore reduction in the engine. For small load continues acceleration engine with increased stress, overcome by reducing the moment. When loading, the relevant point and mechanical characteristics, the engine switches to steady process with low speed and poor indicators of current, power loss, resistance to changes in the load. Effect on change of its capacitive generator parameters $x_c, x_{c\Delta}, x_{ck}$ may weaken or even exclude certain shortcomings in the process of starting and acceleration AD. So by increasing the capacity of "C" at the output of the generator (taking $x_c = 50$ Ohm) total resistance $Z = r + jx$ during acceleration the engine gradually increases without changing their active-capacitive nature. Increasing the voltage level of the generator when starting the engine and its starting point. The engine accelerates the stress and running in steady steady (Fig. 2).



and) b)

Fig. 2. External characteristics compensated oscillator (UKAAH) based 4A71V2 (a) and mechanical characteristics of induction motor 4A71A2 (b) during their collaboration: with $x_{c\Delta}$ = 150 ohms, x_{ck} = 50 ohms, x_c = 100 ohms.

Satisfactory results of joint work UKAAH (or KAAH) and serial blood pressure commensurate with generator power and can be achieved by other compensating volume ratio generator corresponding to a given mode of autonomous electromechanical industry. It should be borne in mind that in combination C, C_Δ, C_k volume C provides the reactive power load and excitation generator reactive power capacity C_Δ also excites the generator and its pidzbudzhuye with increased load capacity using C_k forcing excitation and maintaining the generator voltage at load surge load. At the end of the starting operation of engine capacity C_k generator can be turned off or transferred to the compensation of reactive power load.

Conclusion. Stand Alone Complex consisting of electromechanical compensated induction generator - compensated induction motor has a higher energy performance compared with a set consisting compensated induction generator - induction motor under identical conditions from the side of the generator.

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Abstract.*Constructions proposals autonomous ɜlektromehanycheskoho kompensyrovannыmy asynhronnыmy with complex machines.*

Keywords: avtonomnыy эlektromehanycheskyy complex kompensyrovannыy asynhronnыy engine

Annotation.*The construction of autonomous electromechanics complex with compensated asynchronous machines is offered.*

Key words: autonomous electromechanical complex, compensated induction motor

UDC 629,631,554

IMPROVING THE PROCESS OF transporting grain harvesters Tipper trucks

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Abstract.*Grounded improvement process transporting grain from combines and semitrailers tippers specified on rational method of determining the parameters for the application in the field of movable carts.*

Keywords: transportation of grain harvesters napivchovnykovyy movement tipper, podkatnymi vozok, performance

Formulation of the problem. The use of motor vehicle (NP) trucks as interoperable joints in the technological chain "harvesting combines (CAR) - Vehicles (vehicle)" becomes practical application in recent years in connection with the development and introduction of special truck tractor coupling for a similar construction of the road [1]. This device greatly reduces the time spent on coupling - vidchiplennya emergency and increases the efficiency of the grain transportation technology by eliminating idle cars. But the industrial use of such a device is limited by two factors: 1) truck towing device is installed manufacturing plants only on some brands of tractors, 2) the use of the device increases the load on the tractor wheels of emergency, which leads to soil compaction.

Therefore, the actual improvement of the process of transporting grain from combines Tipper trucks

preserving its positive characteristics and deficiencies, and accordingly refine the methodology for determining sustainable transportation options.

Analysis of recent research. The known method improving the efficiency of harvesting and transport complex (ZTK) for crops using car jacks as emergency trucks during the organization napivchovnykovoho