

INCREASE OF EFFICIENCY OF PROCESS OF START-UP OF TRACTION ELECTRIC MOTORS OF THE ROLLING STOCK OF CITY ELECTRIC TRANSPORT

I. Kostenko

Kharkiv National Academy of Municipal Economy

City electric transport is one of the most important municipal services branch which satisfies needs of the population in transportations. It is a non-polluting type of transport.

Ability to live of the enterprises, the organisations and town establishments appreciably depends on a level of development of a transport network, movement of transport streams and reliability of work of electrotransport.

Throughout last years the tendency to reduction of volume of transportations of passengers and deterioration of indicators of quality and safety of their transport service was outlined in work of city electrotransport.

The electric equipment of maintained trolley buses of series 3iy (TROLZA), got during the last years, does not meet modern requirements on power inputs.

From the economic point of view it is expedient to improve technical and economic indicators of existing structure at the expense of improvement of a traction electric equipment.

Lacks of nowadays existing images of regulation of easing of a field are:

- At regulation of a field with use of switching of windings ТЕД it is necessary to have additional taps from excitation windings. Sectioning of windings provides stabler high-speed and traction characteristics ТЕД because degree of easing of a field is not influenced practically by temperature of windings of excitation;

- At regulation of a field with use of active resistance except resistors and контакторов additional elements - inductive shunts are necessary. Also use resistors leads to a deviation of characteristics of management. Also there are energy losses into a stake.

- In occasions with traction engines it is possible to apply to field easing DC/DC the converter

- Use DC/DC of the converter for easing of a magnetic field of traction electric motors of city electric transport and its advantage.

The scheme of inclusion of the converter for easing of field TED mixed excitation is resulted on fig. 1. On the scheme contactors K1 - K5 are intended for current contraflow in a winding of parallel excitation. Contactor K1 connects increases DC/DC the converter to in parallel consecutive winding. The presented scheme allows to regulate smoothly easing of a field of the engine at the expense of change of size of a current in a parallel winding and thus energy expenses will be absent practically.

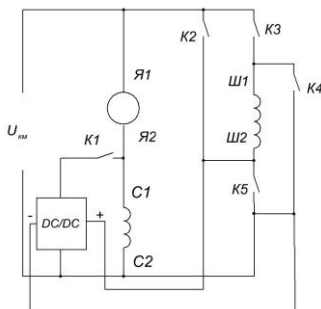


Fig. 1. Easing of a field with use DC/DC of the converter for TED the mixed excitation

Application in design DC/DC of the converter of modern power semi-conductor devices (BTI3, To - MOH the transistors completely operated тиристоров) provides the minimum dimensions, weight and device cost. The fulfilled methods of calculations of similar converters, presence of the wide nomenclature of power devices which work on high frequencies of transformation (10 kilohertz) and integrated drivers of management provide with them efficiency of application of this method.

Application of the offered schemes on city electric transport will allow to reduce expenses of the electric power a rolling stock.

References

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