The second variant is intended for the use at the reversible transformers, which were carried out by the cross scheme of connecting of two valve completes, every of which consist in valve groups, which let go pass the current of load at one direction with the use of three-winding matching transformer, which contains two repeated windings, voltage in which depending on direction of winding can be at the phase of at the antiphase to each other. This way is differ by simultaneous giving of unlock impulses to next valves in composition of valve groups of first complete, which are connected to the lead of one of the repeated winding, and also depending on the scheme of connection of repeated windings of transformer or to the antiphased to the mentioned valve groups of second complete, which are connected to the leads of other repeated winding of transformer, the voltages in which change in phase to the mentioned or at the of the same name of mentioned valve groups of second complete, which are connected to the leads of other repeated winding, voltages in which change in antiphase to the voltage of mentioned winding.

Third variant is invented for use in N-scheme, which contains three-winding transformer with combined with the help of reactor average points of two similar repeated windings and two valve completes, the half of valve group of each of which is connected to the leads of one, and other half to the lead of other of mentioned windings. This way is differ by simultaneous giving of unlock impulses to the next valves in the composition of dissimilar valve groups of first complete, which are connected to the leads of different repeated windings, and also to the valves of second complete, which are in the composition of antiphase to the mentioned valve groups, which are connected into a parallel to the same repeated windings of transformers.

Therefore, offered way of direction in all mentioned variants of carrying out of strength scheme leads to the similar positive result – the full removal in conditions of momentary commutation of equalizing voltage and current in static and dynamical modes of work of transformer. This behavior allows to guarantee the combination of qualities of combined and separate direction, and more exactly to except from the composition of transformer the equalizing reactors while the saving of momentary readiness to the change of mode of work, which removes the possibility of appearance the interrupted current of load.

References

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OVERALL INDUSTRIAL EQUIPMENT EFFECTIVENESS

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Overall Equipment Effectiveness (OEE) is one of the most important indices reflecting a degree of equipment maintenance effectiveness in industrial enterprises.

Most industrial enterprises despite of a character of their production have a problem of low effectiveness of equipment operation. The problem is characterized by occurrence of everyday losses resulting from downtime and unforeseen stoppages of equipment, speed decrease of product treatment and faulty units manufacture.

There is a technique of overall equipment effectiveness assessment which is considering the influence of the above mentioned losses and allowing to fully analyze equipment operation both at particular procedures and within a framework of the whole production cycle [1].

The overall equipment effectiveness is calculated by the following technique:

OEE= readiness × output × quality × 100%,
where: readiness – is a ratio of net production time of the item by an equipment to a total time of production cycle;

output – is a ratio of actual output to a scheduled production output;

quality – is a ratio of number of quality products to a total quantity of manufactured goods.

The analysis of overall equipment effectiveness assumes that factory personnel are involved in a permanent monitoring and registration of indices which reflect current equipment condition and production process. Overall equipment effectiveness is a balanced index which allows to optimize production process resulting in optimal output capacity of the equipment and high quality of the manufactured goods that is, to our opinion, of necessity to many industrial enterprises.

References

1. Overall equipment effectiveness: Translation from English; edited by V.Boltrukevich. – M.: Institute of complex strategic investigations, 2007. – 120 p.