

## **Investigation of dangerous disturbances of large power units.**

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The T3V-1200-2 generators are featured by significant design complexity and large electromagnetic and mechanical loads. To reduce the rated and short-circuit currents, the stator winding is made of a six-phase split into two three-phase systems with a shift of 30 degrees, while they form phase-matching first harmonics of magnetic field induction in the air gap of the machine. The presence of mutual inductance of three-phase systems by stator leakage magnetic fluxes and mutual magnetic flux determines the specifics of transient processes during disturbances. An important task is to study the processes of short circuits at the terminals of the windings, which is necessary, among other things, to evaluate requirements for generator switches and their control devices. The purpose of the article is to determine the most dangerous emergency impacts during short circuits on the side of the generator voltage. It is shown that non-simultaneous short circuits are the most dangerous.

*Key words: synchronous generator, split stator winding, three-phase short circuit, non-simultaneous short circuit*