

**COMPRESSOR BLADES TECHNICAL CONDITION MONITORING SYSTEM  
OF TURBINE AERO-ENGINES IN REGARD TO BIRDS STRIKES ASPECT**

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**Abstract**

Problem of compressor blades technical condition estimation in regard to birds strike aspect is particularly important for flight safety and economy. It was investigated that compressor rotor blades of engines with compressor entry guide vanes in case of bird ingestion can be subjected to heavy fluctuation of forces (synchronous with rotational speed). The rotor blades resonance vibrations are heavily amplified. Stresses within blades are increased along with the amplitude of vibrations which during long flight may lead to initiation and propagation of fatigue cracks in the blades. The paper describes the system SNDŁ-1b/SPŁ-2b designed for in flight compressor rotor blades vibration dynamics monitoring of SO-3 engine which powers TS-11 Iskra aircraft. The system measures I stage compressor rotor blades vibrations with application of noninterferent discretephase method (DPhM). The structure of a computer based aero-engine compressor blades system has been discussed and presented in the paper.

**Key words:** birds strike, blades vibrations, resonant vibrations, monitoring system

