

FEATURES OF TEST OF AIR-FUEL SYSTEM OF GAS TURBINE ENGINE

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The article is devoted to the problem of ensuring the operability of rotary bearings of a gas turbine engine (GTE) with an air-fuel lubrication system. The relevance of the article is due to the unexplored processes occurring in the supports of the rotors of a GTE, in which the lubrication and cooling of the bearings is carried out by an air-fuel mixture. This makes it much more difficult to select the optimal parameters of the air-fuel mixture and the operating modes of the engine, ensuring the operability of its rotary bearings with the least loss of fuel and air pressure behind the compressor, which can lead to a significant deterioration of the main parameters of the GTE. The solution to this problem requires bench tests of the air-fuel lubrication system of the GTE under different operating conditions.

The purpose of this work is to develop a schematic diagram of the unit, which allows testing the GTE rotary bearings lubricated with an air-fuel mixture under different operating conditions (operating modes, parameters of an air-fuel mixture).

The paper identifies the parameters that affect the operability of lubricated with air-fuel mixture bearings, a universal scheme of unit for autonomous test of an air-fuel lubrication system GTE is proposed. The use of the data obtained from the results of these tests in the design of a promising gas turbine engine with an air-fuel lubrication system will be possible to select the optimal parameters of the air-fuel mixture and the operating modes of the developed engine, which will increase its reliability, efficiency and resource.

Keywords: gas turbine engine, air-fuel mixture, lubrication system, bearing.

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