Title (en)

METHOD FOR REAL-TIME ADJUSTMENT OF THE RADIAL CLEARANCE BETWEEN ROTOR AND STATOR OF A TURBO MACHINE

Publication

EP 0288356 B1 19910227 (FR)

Application

EP 88400883 A 19880413

Priority

FR 8705314 A 19870415

Abstract (en)

[origin: US4849895A] The real-time adjustment system according to the invention utilizes an air flow regulating valve in an air conduit circuit activated by an output signal of an electronic computer. The computer determines a desired radial clearance at an operational time T of the gas turbine engine, which may be stored in the computer memory and may be based on a quantified engine model having the mechanical and thermal features of the rotor and stator elements which are to be controlled as function of engine thermodynamic parameters and the geometry of the elements, with the actual radial clearance computed in operation at the time T by the computer from data sensed in real-time and provided to the computer. The system also senses the maximum admissible stator temperature as well as the maximum temperatures and temperature gradients for the rotor. These limits are considered by the computer prior to emitting the output control signal to the valve. The output signal may also be modified by sensing the effect of the radial clearance by the tapping of the air flow from the compressor, by misalignment of the air between the rotor and stator elements and by the effect of the aerodynamic loses caused by the air tapped from the compressor on the specific consumption of the gas turbine engine.

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IPC 8 full level

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CPC (source: EP US)

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Cited by

FR2662469A1; FR2692936A1; EP1785593A3; EP0481150A1; EP0424253A1; FR2653171A1; EP3106628A1; FR2698406A1; EP1795708A3; FR2630500A1; DE102009010647A1; FR2971291A1; FR3137119A1; GB2310255A; US5772400A; GB2310255B; EP2025878A3; US8936429B2; US8834108B2; US11434822B2; US11746702B2

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