Title (en)
METHOD OF RECOGNITION OF A SHAFT RUPTURE IN A TURBO-ENGINE

Title (de)
VERFAHREN ZUM ERKENNEN EINES WELLENBRUCHES IN EINER STRÖMUNGSKRAFTMASCHINE

Title (fr)
PROCEDE POUR IDENTIFIER UNE RUPTURE D'ARBRE DANS UNE TURBOMACHINE

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Application
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Abstract (en)
[origin: DE19857552A1] The invention relates to a method of recognition of a shaft rupture in a turbo-engine with the purpose of initiating a suitable speed range limiting measure, especially an emergency shut-down of the fuel supply in a gas turbine system of an aircraft. According to the inventive method, a torque-supplying turbine rotor and a torque-absorbing unit are linked with one another via the shaft (3) which is to be monitored for a rupture and the ends of which are arranged on at least two roller bearings (6, 7). The rotary frequencies (fn1, fn2) of the two ends of the shaft in the roller bearings (6, 7) of the shaft (3) are detected and compared continuously and substantially in real time. If the rotary frequency (fn1) at the roller bearing (7) at the turbine rotor's end is higher than the rotary frequency (fn2) at the roller bearing (6) of the torque-absorbing unit, rupture of the shaft (3) is assumed. Preferably, the rotary frequency of the respective end of the shaft is determined via fast-Fourier transmission and an arithmetic processor for both roller bearings (6, 7) via separate measuring channels. The measurement is based on one or several typical roller bearing frequencies that are emitted by said roller bearings when they rotate.

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