عنوان مقاله:

Effect of Aging on operating conditions and Dynamic Behavior of Gas Turbine engines

محل انتشار:

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نویسندگان:

Mohsen Reza Soltani - *Power & Propulsion Group Middle east Petro Gas (MPG) Company*

Hiwa Khaledi

Seyyed Hamid Reza Hosseini

خلاصه مقاله:

Dynamic simulation of gas turbine is useful in a variety of design analysis and test applications. Mathematical models employing estimated or experimentally derived component characteristic have been widely used, especially for near design point studies of acceleration and deceleration transient and control strategies. Most of the dynamics simulations results emphasis on the behavior of healthy engine at different condition. In this paper a different approach has been considered. In addition to investigating the dynamic simulation and behavior of healthy engine, the effect of aging on the performance and behavior of the engine is evaluated using a new fault model for the whole engine. These results show that two parameters affect torque requirement of sample gas turbine (in this case Siemens V94.2): fuel flow and speed. If fuel flow is kept at its maximum available value, aging causes reduction in gas turbine speed at a fixed demanded torque. Therefore it could be concluded that two reasons cause reduction in power and torque with considering aging effect. First to keep exhaust temperature constant (try not to increase in TIT) and .(second to keep speed constant (for a single shaft gas turbine

کلمات کلیدی:

Aging, operating condition, Dynamic Behavior, Gas Turbine