Improved Coolant Dispersion in Gas Turbines

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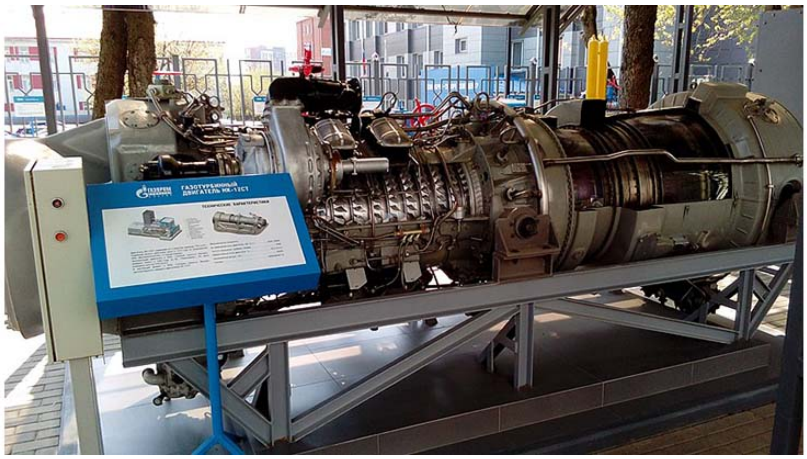

Example turbine engine

Technology Summary

Disclosed here is the design for a shaped film cooling hole. The shaped film cooling consists of a metering section through the material of a gas path component and a diffuser that spreads coolant over the surface of the gas path component. In order to spread the coolant, the diffuser is angled outward from the metering section and expands the coolant.

Application & Market Utility

The film cooling holes can be utilized in any type of film cooled component such as blades or stators. The holes help compensate for the extreme temperatures generated by the turbine's combustion on any gas path components. The unique shape of the holes. Offsetting the diffuser from the metering section affects the dispersing of the cooling fluid along the surface of the gas path component including the film cooling hole and has a positive effect on the efficacy of the film cooling.

Next Steps

Patent 10,392,943 issued 8/27/2019. Experiments have been completed to verify effects; seeking non-exclusive licensing opportunities.

TECHNOLOGY READINESS LEVEL 4-7

Seeking

Investment | Licensing | Research

Keywords

- turbine
- internal-combustion
- aircraft
- diffuser
- film cooling holes

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