



Intelligent Engine Systems: Thermal Management and Advanced Cooling

By Robert Bergholz

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.The objective of the Advanced Turbine Cooling and Thermal Management program is to develop intelligent control and distribution methods for turbine cooling, while achieving a reduction in total cooling flow and assuring acceptable turbine component safety and reliability. The program also will develop embedded sensor technologies and cooling system models for real-time engine diagnostics and health management. Both active and passive control strategies will be investigated that include the capability of intelligent modulation of flow quantities, pressures, and temperatures both within the supply system and at the turbine component level. Thermal management system concepts were studied, with a goal of reducing HPT blade cooling air supply temperature. An assessment will be made of the use of this air by the active clearance control system as well. Turbine component cooling designs incorporating advanced, high-effectiveness cooling features, will be evaluated. Turbine cooling flow control concepts will be studied at the cooling system level and the component level. Specific cooling features or sub-elements of an advanced HPT blade cooling design will be downselected for core fabrication and casting demonstrations.



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