Title (en)

System and method for passively controlling clearance in a gas turbine engine

Title (de)

System und Verfahren zur passiven Steuerung des Abstands in einem Gasturbinenmotor

Title (fr)

Système et procédé permettant de commander passivement le jeu dans un moteur de turbine à gaz

Publication

EP 2554797 A2 20130206 (EN)

Application

EP 12177897 A 20120725

Priority

US 201113195273 A 20110801

Abstract (en)

A system for passively controlling clearance in a turbine engine (100) comprises a static assembly (160) arranged circumferentially about an engine rotor assembly (170) and defining a gap (150) between a tip end (112) of the rotor assembly (170) and an adjacent inner surface (132) of the static assembly (160). The static assembly includes a gap control member (130) that defines the inner surface (132), is exposed to the engine working fluid, and comprises a shape memory material selected and preconditioned to deform in a preselected manner in response to a temperature of the engine working fluid. Alternatively, airfoil blades of the rotor assembly include the gap control member (230). A method for passively controlling clearance in a turbine engine (100) comprises assembling the engine so as to define an initial set of build clearances, operating the engine to observe running clearances, configuring a gap control member (130) comprising a shape memory material and re-assembling the engine with the gap control member (130).

IPC 8 full level

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