

46ESS-60: Gas Turbine Repair

MARC SCHNEIDER

The conditions experienced by gas turbine engines during operation provoke a number of damage mechanisms affecting individual engine components. Ensuing component degradation causes gas turbine engines to adopt performance characteristics varying from their new condition. At an early stage a decline of engine performance parameters of major relevance to the operator such as efficiency and power output may result, while persistent deterioration or exceptional events during operation may well cause more severe forms of damage, ultimately bringing about failure and unavailability of the machine. The deterioration or damage suffered by the engine may be partly or wholly rectified by corrective actions referred to as repairs. This paper aims to present the industrial relevance of repair measures and to differentiate repairs from other operations influencing engine condition and performance. Repair methods commonly applied in gas turbine industry as well as advanced repair technologies are presented in this work. It is based on literature research and other sources available in the public domain. Gas turbine operators, manufacturers and academia from related engineering disciplines may find insight into popular practises and technologies ensuring gas turbine engines to operate satisfactorily in this paper.