

Health management for aircraft gearboxes

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Gearboxes are critical drive train components in fixed and rotating wing aircraft. Their role is to match speeds and loads for rotating power, often changing the direction of shafts. Through design, materials, lubrication, quality, maintenance and performance management, they have a very long useful life. This presentation will illustrate how modern aircraft depend on gearboxes for power conversion for a range of purposes, and how they differ from ground-based machines. It will then examine the effects of potential degradation, and methods for diagnosis and prognosis, with references to Super Puma and Sea Hawk. Finally the latest developments in health monitoring will be discussed, with a strategy for robust health assurance in variable load and speed machines.