Ridgetop Group Inc
ENGINEERING INNOVATION

CEO's Corner

Reducing Life Cycle Costs on Complex Systems

By Doug Goodman

With large cuts to the defense budget, much attention is being focused on reducing the overall cost of ownership. Aircraft and systems must last for decades operating in severe environments. It has been shown that system life-cycle costs can be reduced with condition-based maintenance (CBM). Instead of scheduling maintenance by an arbitrary number of hours or equal time intervals, CBM schedules the equipment maintenance based on its physical condition. Systems subjected to different environments will have different wear patterns and CBM can reduce support costs through scheduling based on condition.

Ridgetop excels in providing innovative tools that can be employed to protect the functionality of complex systems that are deployed in harsh environments. Whether it is an aerospace system or a piece of industrial equipment, untimely failures can cause tremendous disruption, present potential safety problems, and add to skyrocketing life-cycle support costs.

Prediction of failures before they occur (prognostics) relies upon an analysis of the system's existing or projected system and subsystem failure rates, with a corresponding Pareto chart to rank the likelihood of failures. Taking the highly ranked "problem" modules, whether they are a power driver to an actuator, mechanical wear on a landing strut, or an intermittency of an interconnection, there are usually telltale signatures that reveal degradation and the impending failure looming ahead. The signatures, since they present direct evidence of degradation, are far superior to statistical estimates that have often guided maintenance actions in the past.

Ridgetop Prognostic Tools, including the Sentinel Network™ Prognostic Analysis Platform, support CBM by providing extraction and processing of degradation signatures into meaningful state-of-health (SoH) and remaining useful life (RUL) metrics. Over the years, Ridgetop has designed and implemented advanced diagnostic and prognostic tools for a number of complex aerospace and industrial systems. Forward-thinking companies such as Boeing, Raytheon and others have selected Ridgetop as their vendor to work closely with them on addressing these issues.

Think about a well-bounded Pilot Project to validate prognostics in a controlled environment. We would be glad to help. Please give us a call. You will be glad that you did!

Have a great 2012!

Doug Goodman

CEO