



## **HUMS 2001 - DSTO International Conference on Health and Usage Monitoring**

**Duxton Hotel, 328 Flinders Street, Melbourne, 19-20  
February 2001 in conjunction with the Australian  
International Airshow**

Proceedings from this conference were issued in two ways; an initial hardcopy well before the conference and a CD-ROM close to the event. The CD-ROM also included a pdf version of the hardcopy Proceedings.

Papers marked in the [Timetable](#) with a number beginning with "4" were included in the printed Proceeding; these can be opened by clicking on [DSTO-GD-0262](#) and navigating to the page indicated.

- 4-1 **The Development of an Expert System for Wear Debris Analysis**, [Zhongxiano Peng](#) and S. Goodwin, James Cook University Townsville. Page5 in DSTO-GD-0262.
- 4-2 **Application Of LaserNet Fines To Mechanical Wear And Hydraulic Monitoring**, [J. Reintjes](#), J. E. Tucker & A. V. Schultz (US Naval Research Laboratory), L. L Tankersley (US Naval Academy), C. Lu (Towson University), P. L. Howard (PL Howard Enterprises) and T. Sebok & C. Holloway (Lockheed Martin). Page 13 in DSTO-GD-0262.
- 4-3 **Static Balancing Rotor Blades to Maintain Interchangeability and Facilitate Rapid Track and Balance**, [Norman L. Beachum](#), Avion, Inc. Page 23 in DSTO-GD-0262.
- 4-4 **Distributed Modular HUMS**, Keith Mowbray, Helitune Ltd. Page 33 in DSTO-GD-0262.
- 4-5 **Simulation of Vibration Signals from a Rolling Element Bearing Defect**, N. S. Feng, E. J. Hahn and R.B. Randall, University of NSW, Sydney. Page 37 in DSTO-GD-0262.
- 4-6 **Specifications for an Unified Strain and Flight Parameter Based Aircraft Fatigue Usage Monitoring System**, L. Molent and S. Inan, DSTO. Page 53 in DSTO-GD-0262.
- 4-7 **USN Development Strategy, Fault Testing Results, and Future Plans for Diagnostics, Prognostics and Health Management of Helicopter Drive Train Systems**, William Hardman, Andrew Hess and Rebecca Ahne (NAWCAD) and David Blunt, DSTO, Page 69 in DSTO-GD-0262).
- 4-8 **Vibration and Usage Monitoring System for the Kaman SH-2G(A) Helicopter**, [Polis Vrionides](#) and Amy Curtin, Kaman Aerospace Corporation Page 79 in DSTO-GD-0262.

The CD\_ROM also included a number of additional full papers and a number of papers as copies of the Powerpoint Presentation. Using the numbering of the abstracts included in the printed Proceedings, those included as full papers were:-

- 5-6 **Advanced Knowledge Management for Helicopter HUMS**, R. Hamza, S.Menon (Honeywell) and S. McRoberts (Chadwick-Helmuth) ([5-06.pdf](#)).

- 5-7 **A Review of Permanently Installed Helicopter Gearbox Vibration Monitoring Systems in the Australian Defence Force**, Andrew Becker, David Blunt and David Forrester, DSTO ([5-07.pdf](#)).
- 5-8 **The OTHER added values of HUMS**", Marcia Shamo, RSL Electronics. ([5-08.pdf](#))
- 5-9 **Certification of Engine Usage Monitoring Systems**, SQNLDR R Matchett, RAAF ([5-09.pdf](#)).
- 5-12 **Model-Based Decision Support Tools for T700 Engine Health Monitoring**, Peter Frith and George Karvounis, DSTO ([5-12.pdf](#)).
- 5-13 **Using Econometric Modelling to Determine and Demonstrate HUMS Affordability**, Graham F Forsyth and Scott A. Dutton, DSTO ([5-13.pdf](#)).
- 5-14 **Vibration-Based Helicopter Gearbox Health Monitoring - An Overview of the Research Program in DSTO**, A.K. Wong ([5-14.pdf](#)).
- 5-16-2 **The U.S. Navy/BFGoodrich Integrated Mechanical Diagnostics COSSI Program - an Update**, Alan Duke (BFGoodrich Aerospace), Mark E. Bailer (USN IMD HUMS IPT Leader), LCDR Paul Thitchener (USN Multi-Mission Helicopters PO) and Uwe Gebauer (USN H-53/ExecHeli PO). ([5-16-2.pdf](#)).

Those included as Powerpoint only were:-

- 5-1 **An Affordable *Modular* HUMS Certification Program in an EMS Helicopter**; Mr. Rodney C. Wainwright, WTI Aeronautics. (5-01.pdf)
- 5-2 **Smiths Industries Generic Health and Usage Monitoring System (GenHUMS) - A Modular Approach to Aircraft Data Management**; Charles Trammel, Smiths Industries Aerospace. (5-02.pdf)
- 5-4 **Implementing HUMS in the Military Operational Environment**, M Augustin (Bell Helicopter Textron), A. Heather (Smith Industries Aerospace – DMS Europe) and Lt Col Harley Rogers (Canadian Defense Forces). (5-04.pdf)
- 5-5 **Structural In-Service Monitoring of Advanced Combat Aircraft: Operational Benefits**, Xavier Labourdette (Dassault) (5-05.pdf).

A number of papers presented were not on the CD-ROM. These were:-

- 5-03 **Smart Structures Technologies for Structural Health Monitoring**", S.C. Galea, N. Rajic, I. G. Powlesland, S. Moss, M. Konak, S. Van der Velden, A. A. Baker, DSTO, and I. McKenzie, Y.L. Koh and W.K. Chiu, DSTO – COE for Structural Mechanics, Monash University.
- 5-10 **Diagnostic Sensor Fusion Test Program and Results**, Dr John Reintjes, Dr John Tucker (NRL), Paul L Howard (PLH Enterprises), Dr Brian Roylance, Dr Trevor Sperring and Dan Price (Swansea Uni).
- 5-11 **Comprehensive HUMS (CHUMS)**, Richard Healing, Director, US Navy Office of Safety and Survivability.
- 5-15 **Project AIR87: Armed Reconnaissance Helicopter HUMS Requirements**, CAPT M. Millar and MAJ P. Harris, Project AIR87 Office.
- 5-16-1 **Engine Vibration Control for HUMS**, Francois Cantegreil, SEMIA.
- 5-16-3 **Potential HUMS Benefits from the S-70A-9 Black Hawk Flight Loads Survey**", R Boykett, DSTO; C Crawford, GTRI, and Dr Tom Christian, USAF WR-ALC
- 5-16-4 **Surveillance of System**, Patrice Samon Eurocopter.