

## **Quotes from Scientific and Engineering Organisations On CVM From Its Origins as the Davey System, Released In 1995.**

" The low cost, the potential breadth of application and the ease of usage of the Davey System means that few other systems are competitive. Another attractive feature of this system, which gives it a further advantage, is its ability to deliver 'real time' information thereby allowing continuous monitoring." Professor Rhys Jones, Monash University, Melbourne, Australia 1995.

" It is cheap, easy to use, portable, can be used in many environments, and can be used for continual monitoring. . . . As a potentially very cheap method it has the added advantage of being able to continuously monitor a component while in operation. The SIM appears to have many possible applications." T. Jackson & A. Nealon, Department of Mechanical Engineering, Monash University, Australia 1996.

" The Structural Integrity Monitor was found to be very simple to use and apply . . . able to detect cracks not located by conventional methods . . . and was able to reliably locate three of five cracks, the other two being near the detection limit in size." P.K. Sharp, D.E. Rowlands & G. Clark, Defence Science Technology Organisation – Airframes and Engines Division – AMRL, Melbourne, Australia 1996.

" The sensitivity of the device looks very promising to find fatigue cracks early enough for most civil aircraft applications. Its ability to be buried in places inaccessible to other methods of non-destructive inspection could allow the lifting of some life limits on major aircraft parts (such as wing spars) in general aviation aircraft. This could save each aircraft owner tens of thousands of dollars." Steve Swift, Principal Airframe Engineer, Civil Air Services Australia, 1996.

" It demonstrates considerable promise as a method for detecting and monitoring cracks in structures. It has the advantage that it measures a change in properties not a 'number' and therefore could be used as an in-situ patch. The Structural Integrity Monitor has potential as an in-situ monitor which could provide long term cost reductions in aircraft maintenance." K Davey, P.E. Kristensen, P.K. Sharp & G. Clark, *Paper Presented International Aerospace Congress, Sydney, Australia, 1997.*

" The pressure pad sensors consistently out-performed conventional wire sensors and appeared to give accurate, repeatable results . . . staff reported that the pressure sensor pads can be fitted with minimal training. . . . Following this evaluation program, initial impressions of the Davey crack detection system are favourable. Results were better than expected, with the system proving to be very reliable and accurate. There is no doubt that this system has great potential." P.W. Griffiths & P. Hardiman, British Aerospace, Filton UK, October 1998

" The Davey System seems to provide a much better option, being simple to use, fairly sensitive and relatively trouble free . . . the tests were quite successful, with the system demonstrating the ability to detect cracks having a surface length of 0.013". . .This system appears to have several advantageous features. It is self contained and easy to operate with minimal experience. It requires very little data acquisition, which should be easy to accommodate in the test data acquisition system. . . .Furthermore it demonstrated that the monitoring of two or more locations simultaneously presents no problem . . . There appears to be no problem with pad failure under high strains since the pads are not rigid and can flex. . . . Finally it should be noted that monitoring using the Davey system can be done on a loaded structure. This would have the effect of opening cracks that are present, improving the probability that they can be detected."

S.Weller & R. Braemer, Defence Science Technology Organisation – Airframes & Engines Division, 2000.

"The SMS system is user friendly...Minimal surface preparation and setup time is required...The SMS system provides an alternate means of surface crack initiation detection and crack growth monitoring for the laboratory environment. The vacuum-based sensors are most similar in sensitivity and use to typical electronic crack detection and crack propagation gages, but this system may have more flexibility with sensor design and area coverage. Complex surface curvatures and/or shapes is not an issue for the vacuum-based technology. The system is applicable to nearly any material that has surface breaking flaws...

A potential application for the SMS system is on-aircraft crack initiation and crack growth monitoring. "

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