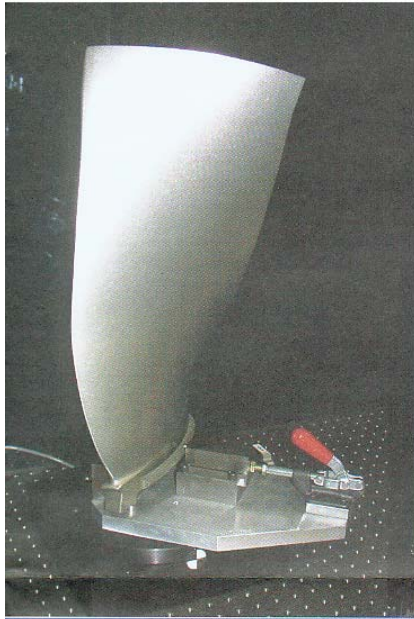


New Vision System for Rolls-Royce Canada Photogrammetry



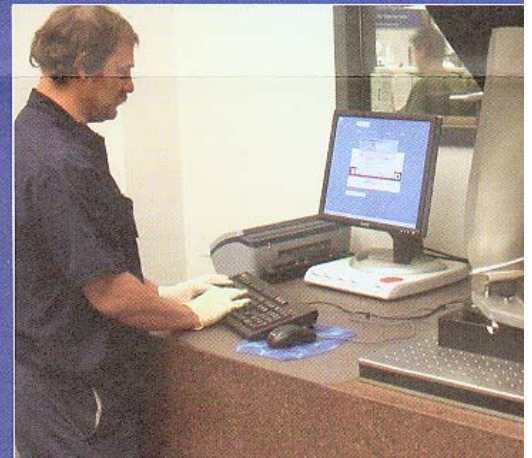
Rolls-Royce Canada is leading the way in the industry in measurement technology. The introduction of a vision system based on photogrammetry is a clear demonstration of RRC distinguished initiative towards an innovative future. After a year and a half of arduous work in a small and restricted area of the Fan Blade cell, we were able to introduce into production this ingenious machine, creating a new era in measurement technology. The advantage of this system is that it's compact, user friendly, rapid to use, low maintenance and less costly than a coordinate measuring machine (CMM) for use on Fan blades. The system is now being used for production in the Fan Blade Center of Excellence.

The principle of photogrammetry is to measure objects using a 2-D and 3-D model from photographic perspectives. This system, developed by RRC in conjunction with SPG Hydro International inc., allows automatic acquisition and processing of data to measure the fan blades chord width, reducing the inspection time by half compared to a conventional CMM. The most unique feature of this system is that the objects are not being physically touched when measured, the measurements being performed remotely by cameras.

Following numerous analysis done on the software with the use of artefacts to obtain constant repeatability, our metrology department concluded that the system efficiency is reliable, with remarkable precision and repeatability. Furthermore, a reference 'master' fan blade is measured before and after processing a set of blades to confirm operational production measurements and accuracy of the system. This system is also connected to a RRC database to keep in archive all the blades data processed with this

system for future references at next shop visit. The implementation of this system clearly gives RRC an edge in measurement technology over the competition.

Moreover, this process does not only limit itself to fan blades. RRC's vision of the future for this system is to measure thickness of fan blades, chord width of turbine & compressor blades, and most probably many more applications related to visual inspection.



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