

ABSTRACT

DETECTION AND ASSESSMENT OF DAMAGE TO COMPOSITE STRUCTURE

A method for monitoring structural integrity of a repaired aircraft (202) component made of composite material. The method (100) comprises: (a) placing a multiplicity of plies (36a-36c) of repair composite material over a repair site (32) on the component with a sensor (10) disposed between two plies (36a-36c); (b) curing the plies (36a-36c) of repair composite material so that the repair composite material, with the sensor (10) embedded therein, is bonded to the repair site (32); (c) acquiring first sensor data from the sensor (10) before a flight of the aircraft (202); (d) acquiring second sensor data from the sensor (10) during or after the flight; (e) comparing the first sensor data to the second sensor data; (f) identifying differences between the first and second sensor data indicative of structural change; and (g) determining whether the identified differences indicate structural change in excess of a specified threshold. Steps (c) through (g) are performed by a computer system.

Fig. 4