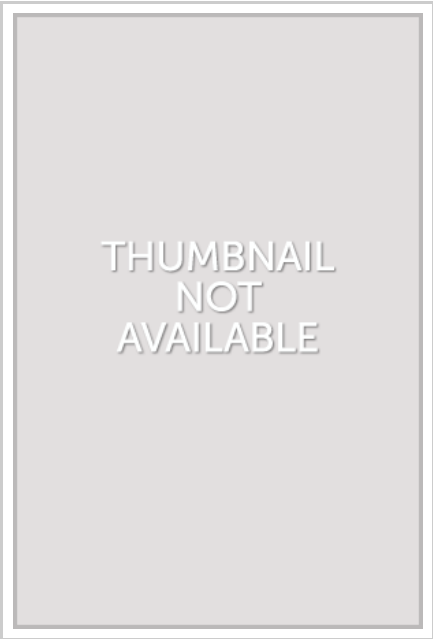

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Structural Integrity Assessment and Large Deformation Analysis of Metallic Components

By Hu Shaowei

Yellow River Conservancy Press, 2006. Soft cover. Book Condition: New. 185¿260mm. Language: English, Size: 185¿260mm /169 with figures . The objectives of the book were to develop a methodology for fatigue reliability and lifetime prediction of metallic aircraft components (such as wing and engine disk) within the framework of condition based maintenance. Toward this aim, a simple scheme for stress and crack analysis based on the finite element method of lines (FEMOL) was developed and combined with fatigue reliability modeling using the first order reliability method (FORM). As proof of concept, the combined techniques were applied to a test case consisting of fatigue reliability assessment of a crack emanating from a weep hole in a C141 airplane wing. A novel method of fitting a closed form mathematical expression for POD to experimental C-scan inspection data from C141 weep holes was used in the analysis. The another objective of the book was to analyze disk structural integrity using large deformation theories.

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