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Monitoring of Omega-Stringer Stiffened CFRP Structures by Acousto Ultrasonics

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Omega-type stringers are widely used in the CFRP fuselage of modern civil aircraft such as the A350XWB. In this work, the monitoring of these by utilizing Guided Ultrasonic Waves (GUW) is studied. Besides the wave guidance by the stringer feet, multiple reflections and mode conversions can be observed. Not only that the additional stringer feet lead to two additional discontinuities in a wave path perpendicular to the stringer. Moreover the stringer itself provides an additional wave path. This in turn provides a mean to detect stringer head damage by transducers on the skin. In this work the wave propagation is experimentally investigated by damping in selected areas of the wave paths and the influence in the case of stringer debonding and stringer head and web delamination on the wave propagation is studied.

Ключевые слова:

Содержание.

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