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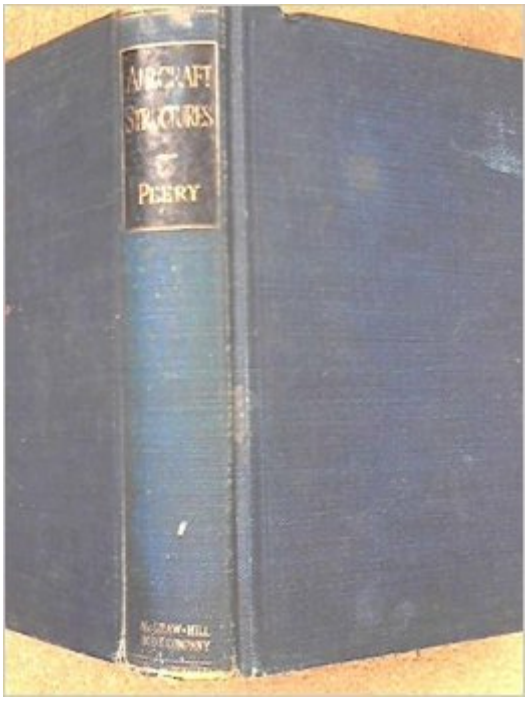
Aircraft Structures



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Synopsis

Still relevant decades after its 1950 publication, this legendary reference text on aircraft stress analysis is considered the best book on the subject. It emphasizes basic structural theory, which remains unchanged with the development of new materials and construction methods, and the application of the elementary principles of mechanics to the analysis of aircraft structures.Suitable for undergraduate students, this volume covers equilibrium of forces, space structures, inertia forces and load factors, shear and bending stresses, and beams with unsymmetrical cross sections. Additional topics include spanwise air-load distribution, external loads on the airplane, joints and fittings, deflections of structures, and special methods of analysis. Topics involving a knowledge of aerodynamics appear in final chapters, allowing students to study the prerequisite aerodynamics topics in concurrent courses. --This text refers to the Paperback edition.

Book Information

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Customer Reviews

David J. Perry’s "Aircraft Structures" is indisputably a classic reference for the students and practicing engineers as well, and most likely a best text book ever written on the subject of the static strength and stability of metallic aircraft structures and its components.However, both editions, the original from 1950, and 2nd from 1982, contain a minor error in "Joints and Fittings" Chapter (page 304 of 1950 edition, page 397 of 2nd edition):The last paragraph contains a statement: " ... in Fig. 12.15.(c), which yields maximum bearing stresses, 4P/tb at the inside corner and 2P/tb at the outside corners." Conversely, these bearing stress expressions don’t agree with those (i.e., 4P/td, 2P/td) shown in Fig. 12.15.(c). Because the text doesn’t corroborate how it was arrived to the maximum pin bending moment 4Pt/27 [InLb] shown on page 305, this discrepancy may confuse the

issue.That this indeed may lead to the confusion is evident in Michael Niu's "Airframe Stress Analysis and Sizing", 2nd edition, page 275, Eq. 9.1.1. Here in all likelihood Niu copied Peery's equation (12.8), but apparently unable to reconcile mentioned discrepancies, in the equation simply left out plate width "b", and not addressing the maximum bearing stress in question, boldly claims that this tensile stress is for "1.0 inch - wide strap".In the equation (12.8) Peery logically concludes, that if the axial stresses (as derived from the equation P/A Ã Â M/W at both plate faces) are four times (resp. two times) of the average stress value, then same should be valid for the pin bearing stresses too. In other words, at a point, the load intensity (unit loading) producing maximum axial stress in the plate has to be equal to the load intensity causing the maximum bearing stress on the pin.

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