

Advances
in
Aircraft Structures

Editor

Jaffar Syed Mohamed Ali

Erwin Sulaema



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Chapter 4

Simulation of Fuselage Model for Laboratory Purpose

Y. Aminanda, Muhammad Idzwein, Najwan Bin Najib

Abstract

This chapter is regarding the simulation of a fuselage for lab purpose. The main objective of this chapter relates to analyze the fuselage while applying load at a point on the structure. The fuselage is made up of a frame and skin of aluminum material while 8 stringers which are made up of mild steel beam. The analysis is done based on the concept of a plane doing a wind cross landing on 1 landing gear where a force is applied towards the fuselage. Early calculation is done on the fuselage with a specific configuration and structural size or dimension. A Finite Element Analysis model is proposed to simulate the state of stresses at different locations of fuselage structure such as: skins, stringers or frames. The state of stresses obtained from theoretical calculation is compared to the simulation results to validate the proposed model.

Keywords: *fuselage, FEA simulation, strength, strain gage, aircraft structure, fuselage.*

1. Introduction

Finite element analysis is a powerful tool for numerical solution of a wide range of engineering problem. Applications range from deformation and stress analysis of automotive, aircraft, building and other structure to analyze heat flux, fluid flow, magnetic flux, seepage and other problem. With the advances in computer