

**Advances**  
**in**  
**Aircraft Structures**

**Editor**

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# Chapter 12

## Experimental Study of Indentation on Composite Structure

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### Abstract

*Due to high stiffness and strength, composite structures of different orientation are used increasingly not only in aerospace applications, but other area as well, like automotive and building construction. In this study, plate specimens were formed from carbon-epoxy and glass epoxy for six orientations of plies. A 3 bending point (cylindrical and spherical) was used to compress the specimens, with reaction forces were recorded until the plates thoroughly brake. The ultimate strength of the plates is accurately estimated using the present method of deflection or stiffness modification. At the end, the graphs of force versus displacement are plotted. From the indentation test, the energy absorb by the specimen will be calculated from the force and velocity during the impact. All the energy absorbs are plotted based on the different specimen orientation, specimen types and different indenters.*

**Keywords:** *composite, carbon fiber, 3 points bending, indentation, glass fiber, experimental*

### 1. Introduction

The composite materials that used in this chapter are carbon and glass fiber which are needed to fabricate to become a composite plate specimen. The type of matrix used is epoxy that mix with the hardener in a standard ratio. In order to fulfill the