

MODES OF VIBRATION OF AN AEROPLANE MODEL

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## S U M M A R Y

This project outlines a general procedure for modal testing, the main purpose of which is to find the mode shapes of vibrations of the aeroplane model and thus by studying these deficiencies suggest improvements to the dynamics of the structure.

It was necessary first to study the theory behind vibrations in structure in order to acquire more knowledge and be able to interpret the experimental results more thoroughly.

To obtain these mode shapes a testing had to be conducted on a simple construction of an aeroplane model. The testing layout involved many components which had to be studied theoretically before applying them in practice, and this is the purpose for including the chapter of Mobility Measurement Techniques as well as a brief description of the most important testing equipment.

The results obtained from the testing were further processed using a computer program to obtain the required form in order to enable the drawing of the mode shapes.

From the mode shapes acquired from the testing some suggestions were made for improving the structure, such as strengthening the structure to specific points where deficiencies were detected. Moreover some suggestion on newly developed high strength materials (like Keflar, Carbon, Titanium, Aluminium-Lithium) as well as high performance fibers and plastics.

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