

ABSTRACT

This thesis deals with the experimental study of the drag coefficient on a scaled model of a commercial aircraft as well as the measurement of the boundary layer on the surface of the wings and the calculation of the critical angle of attack.

All the experiments were conducted in the wind tunnel which is located in the fluid dynamics laboratory of the Mechanical Engineering department of Cyprus University of Technology. The experimental model was an Airbus A320-200 scaled 1:109.

Moreover, the theoretical background that is related to the various experiments is being discussed. Such as the creation of forces which act on the aircraft during a flight and how can the results from the experiments be transferred on a real scale aircraft, using dynamic similarity.

Although all of the scheduled experiments were fully conducted, the experiments for the measurement of the lift coefficient and the calculation of the critical angle of attack did not return the anticipated results due to the low sensitivity of the force transducer used.