AN EXPERIMENTAL STUDY OF FLOW DEFLECTION PASSING ON THE FLAT PLATE WITH VARIETY LEADING EDGE SLENDERNESS
(ANGLE OF ATTACK = 12°, 14°)

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ABSTRACT
Theories of external flow passing through a body are generally applicable in daily life both industrial or transportation problem. In order to get a suitable shape needed, many researches about external flow passing through a body had been done. For example the influence of curvature gradient with angle of attack into aerodynamics force and also the influence of boundary layer characteristic developmental over along the surface of body. Flow with angle of attack made the flow deflection stronger. Strong deflection and also strong acceleration can affect flow stability on the boundary layer at upperside and bubble separation existence, and finally will affect the turbulent intensity of flow on upperside flat plate.

In this research, the experimental test is done into a wind tunnel with Reynolds( 64000 ) and angle of attack 12°, 14°. The test model is a flat plate with the variety of slenderness of leading edge. The geometrical ratio is (a/t) = 0.2, 0.5 and 1. The measurement of pressure distribution and visualization of flow at mid span. By measured the distribution of pressure on contour leading edge and flat plate and also the flow of visualization with oil flow picture method, so the flow characteristic can be observed.
The Final results of this research is the finding of bubble separation on leading edge area for slenderness leading edge \( \alpha/t = 1 \) and on leading edge \( \alpha/t \) 0.2 also 0.5, the flow cannot follow on that surface plate because it is separated before come to the end of leading edge curve.

Key word : angle of attack, slenderness of leading edge and flow deflection