

Abstract Submitted
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Trailing Edge Flow Modification on a Wing by a Near-Trailing-Edge Gurney Flap¹ DOUGLAS SMITH, PATRICK SHEA, University of Wyoming — A Gurney flap is a small, perpendicular tab placed at or near the trailing edge of an airfoil. The effect of the tab is to augment the lift of the airfoil with no attendant increase in drag. A set of experiments were performed on a wing section at low-to- moderate angles of attack with a 2% x/C Gurney flap located at $x/C = 0.95$ on the lower surface of the airfoil. The configuration was tested at $Re_c = 1.45 \times 10^5$ to determine the sectional lift and quarter-chord pitching moment characteristics for the Gurney flap when not located exactly at the trailing edge. For this flap position, an increment in lift was still observed and was accompanied by an associated decrease in the pitching moment. Two-component velocity measurements were taken with PIV in the near wake region of the model to develop of an understanding of the flow physics in the wake of the Gurney flap. These measurements revealed that the closed recirculation region present in the lee of the flap at low angles of attack decreased in size as the angle of attack increased and eventually was eliminated completely when the angle of attack reached 12° .

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