Effect of geometric dihedral on low-speed static stability characteristics of a 40 degree swept-back wing

Royal Institute of Technology, Division of Aeronautics - PHAK

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An introduction to wing design

Since the CL increases with an increase in AOA, at some point the CL peaks and then begins to drop off. A single, centerline vertical tail has additional disadvantages for modern high performance aircraft. The horizontal tail surfaces, or horizontal stabilizers, are mounted behind the wing near the rear of the aircraft.

An introduction to wing design

The Cessna 210 has a single piston engine while the Beech Baron is a twin. One of the direct results of ground effect is the variation of induced drag with wing height above the ground at a constant CL. Aircraft that do not have the category placard are designs that were constructed under earlier engineering requirements in which no operational restrictions were specifically given to the pilots.

Aircraft Wing Area and Aspect Ratio

Description TECHNICAL FIELD This invention relates generally to aircraft and more particularly to a particular arrangement of components in aircraft design for providing increased directional stability at high angles of attack, a means to reduce the overall drag of the aircraft, and the capability to build an aircraft structure having a greater stiffness for a given aircraft weight.

Aircraft Wing Area and Aspect Ratio

In the civil arena, the supersonic transport not only requires good supersonic cruising efficiency but must also be able to fly efficiently at subsonic speeds for route segments over land such aircraft are forbidden to fly at supersonic speeds over land because of the sonic boom and for holding in the terminal area.

Positive static spiral stability??? [Archive]

The heavier and slower the aircraft, the greater the AOA and the stronger the wingtip vortices. The rudder is used to correct any deviation between the straight track of the nose and tail of the aircraft. Each aircraft has a particular AOA where the airflow separates from the upper surface of the wing and the stall occurs.

IHS ESDU: NACA for Aerodynamics

Examine Figure 4-9, noting how the CL increases until the critical AOA is reached, then decreases rapidly with any further increase in the AOA. This is a single-engined, fourth generation fighter capable of speeds greater than twice the speed of sound Mach 2. While this might now seem obvious, pioneering efforts concentrated on the torsional stiffness of the fin only.

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