Stability and control considerations for STOL aircraft

Agard - A Report on Stability and Control Testing of a Tilt Wing V/STOL Aircraft

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-Stability and control considerations for STOL aircraft
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Aircraft Stability and Control

A typical level flight cruise condition has been selected for this exercise defined by the following parameters: Weight W 155,000 Lb Mass m 4814 slug Moment of inertia in pitch I y 251,0000 slugft 2 Mean geometric chord mgc c ¯ 18. Design recommendations relevant to light aircraft are made in order to ensure recovery from spins.

A Report on Stability and Control Testing of a Tilt Wing V/STOL Aircraft

The control requirement for trim is addressed, as is the requirement for roll-yaw control coupling, which must be correctly harmonised. Design requirements for longitudinal stability and control characteristics — basically those specified in the airworthiness regulations — form the starting point for the derivation of limits to the location of the center of gravity in connection with the size of the horizontal tailplane. This updated edition includes new developments in propulsion-controlled aircraft, fly-by-wire technology, redundancy management, applications, and safety.

Preliminary tailplane design

For small angles it will be a fixed point on the centreline.

Preliminary tailplane design

The data should be read in the context of the longitudinal geometry of the CV-880 shown in Fig. FSUBD uses the Safety of Life at Sea SOLAS probabilistic method, including the study of intermediate flooding, to calculate the A and R values for the ship. For example, a downward aileron will twist the trailing edge up and leading edge down, thereby decreasing the angle of attack and consequently also the lift over that wing rather than increasing it.

Preliminary tailplane design

The slope of the stick force against airspeed curve must be stable and have a gradient not less than 1 lb per 6 knots 0.

STOL Landing Gear

Search within a range of numbers Put. At each speed, the elevator angle required to trim the aircraft is observed, and is plotted against the lift coefficient corresponding to the observed speed. In general, the qualitative assessment made thus far of the handling qualities of the CL-84 has proven the adequacy of the established criteria for stability and control performance for systems as complex as that of the CL-84.

Airplane Stability and Control, Second Edition

It is profusely illustrated with photographs and figures and includes brief biographies of noted stability and control figures along with a core bibliography. Cook BSc, MSc, CEng, FRAeS, CMath, FIMA, in , 2013 15. The control forces involved must be acceptable to pilots, with the airplane both in trimmed and out-of-trim conditions.

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