



# NASA's Flight Aerodynamics Introduction (Annotated and Illustrated)

*Theodore A. Talay*

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The science of aerodynamics can be traced back thousands of years to its beginnings but, remarkably, only one human life span has separated the first heavier-than-air powered airplane flight at Kitty Hawk from the first manned moon landing. The last few decades have witnessed phenomenal growth in the science and technology of aerodynamics and no letup is in sight. For those who possess an interest, the task of education encompassing all the various aspects of the subject is staggering. Specialization is indicated but a background knowledge is an essential of any education.

This volume is a result of several semesters of the author's teaching of an introductory course in aerodynamics to apprentices and technicians at the NASA Langley Research Center. The problem faced was to provide more than a layman's treatment of the subject but not the detail as taught in many individual courses on the college level. The result is a highly qualitative, illustrated set of notes which, through the teaching process, was modified to fulfill the objectives better.

A thorough revision of these notes with considerable up-to-date material has resulted in the text as presented herein. It is hoped that this volume will stimulate the reader's interest to pursue more specialized education in the many topics of aerodynamics.

Bonus chapter (Aerodynamics Overview) included.

Hyperlinked index for easy navigation. 251 pages. 171 illustrations and diagrams.

Includes the following sections:

Foreword

I. A Short History of Flight

II. Background Information

The Atmosphere

Winds and Turbulence

The Airplane

III. FLUID FLOW

The Fluid

The Flow

Ideal Fluid Flow

Real Fluid Flow

IV. SUBSONIC FLOW EFFECTS

Airfoils and Wings

Aerodynamic Devices

Propellers and Rotors

V. TRANSONIC FLOW

VI. SUPERSONIC FLOW

The SST

Sonic Boom

VII. BEYOND THE SUPERSONIC

Hypersonic Flight

Lifting Bodies

Space Shuttle

VIII. PERFORMANCE

Motions of an Airplane

Class 1 Motion

Class 2 Motion

Class 3 Motion-Hovering Flight

IX. STABILITY AND CONTROL

Stability

Control

Appendix A - AERONAUTICAL NOMENCLATURE

Appendix B - DIMENSIONS AND UNITS

Appendix C - COORDINATE SYSTEMS

Bibliography

Bonus Material

Aerodynamics: An Explanation

Overview

History

Design issues with increasing speed

Continuity assumption

Laws of conservation

Incompressible aerodynamics

Subsonic flow

Transonic flow

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