RESEARCH MEMORANDUM

To:

By authority of NACA Memo 7-PA-9, Date 9-1-39

BIBLIOGRAPHY OF NACA REPORTS RELATED TO

AIRCRAFT CONTROL AND GUIDANCE SYSTEMS

JANUARY 1949 - APRIL 1954

By Roy J. Niewald and Jack D. Brewer

NACA Headquarters
Washington, D. C.

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BIBLIOGRAPHY OF NACA REPORTS RELATED TO AIRCRAFT
CONTROL AND GUIDANCE SYSTEMS

January 1949 - April 1954

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FOREWORD

This bibliography of NACA reports relating to aircraft control and guidance systems has been prepared as a means of assisting in the codification and dissemination of technical information in this important and rapidly expanding field. The need for a bibliography of this nature has been expressed by representatives of the aircraft industry concerned with control system design, in particular those who are members of the NACA Subcommittee on Stability and Control.

This report lists pertinent NACA papers presenting research results which have a direct bearing on control system design and performance for both piloted and automatically controlled aircraft. Limited reference is also made to NACA reports on aircraft engine controls and to research techniques and instrumentation pertinent to the study of control systems and aircraft dynamics in flight. Reports published between January, 1949, and April, 1954, are listed in chronological order and cross referenced where appropriate according to the subject headings given in the Index on the following page.

It may be noted that NACA reports concerned with purely aerodynamic aspects of control system design, such as control effectiveness and hinge moments, damping derivatives of wings and bodies, etc., are not included in this bibliography. However, two NACA reports summarizing recent information on controls may be of interest in this regard. These reports are RM L53117a, entitled "Recent Information on Flap and Tip Controls," by Douglas R. Lord and K. R. Czarnecki, and RM L53124a, entitled "Data on Spoiler-type Ailerons," by John G. Lowry.
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**Control and airplane response statistics**


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Automatic control and guidance


Noise Inputs

Atmospheric turbulence


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Radar

Airplane Dynamics

Frequency response and transfer functions


Holleman, Euclid C.: Longitudinal Frequency-Response and Stability Characteristics of the Douglas D-558-II Airplane as Determined from Transient Response to a Mach Number of 0.96. NACA RM L52E02, 1952.


Airplane Dynamics (Continued)

Longitudinal


D'Aiutolo, Charles T., and Mason, Homer P.: Preliminary Results of the Flight Investigation Between Mach Numbers of 0.80 and 1.36 of a Rocket-Powered Model of a Supersonic Airplane Configuration Having a Tapered Wing with Circular-Arc Sections and 40° Sweepback. NACA RM L50H29a, 1950.
Airplane Dynamics (Continued)

Longitudinal (continued)


Angle, Ellwyn E., and Holleman, Euclid C.: Determination of Longitudinal Stability of the Bell X-1 Airplane From Transient Responses at Mach Numbers up to 1.12 at Lift Coefficients of 0.3 and 0.6. NACA RM I50106a, 1950.


Vitale, A. James, McFall, John C., Jr., and Morrow, John D.: Longitudinal Stability and Drag Characteristics at Mach Numbers From 0.75 to 1.5 of an Airplane Configuration Having a 60° Swept Wing of Aspect Ratio 2.24 as Obtained from Rocket-Propelled Models. NACA RM I51K06, 1952.


Gillespie, Warren, Jr., and Dietz, Albert E.: Use of an Aerodynamically Pulsed All-Movable Horizontal Tail to Obtain Longitudinal Characteristics of Rocket-Powered Models in Free Flight and Some Initial Results from an Arrow-Wing-Body-Tail Configuration. NACA RM I52C10, 1952.

Airplane Dynamics (Continued)

**Longitudinal (continued)**


Campbell, George S., and Weil, Joseph: The Interpretation of Nonlinear Pitching Moments in Relation to the Pitch-Up Problem. NACA RM L53I02, 1953.


Airplane Dynamics (Continued)


Airplane Dynamics (Continued)

Lateral (continued)


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MISSILE FLIGHT CONTROL
Dynamic stability and control


Zarovsky, Jacob, and Gardiner, Robert A.: Flight Investigation of a Roll-Stabilized Missile Configuration at Varying Angles of Attack at Mach Numbers Between 0.8 and 1.79. NACA RM L50H21, 1951.


Dynamic stability and control (continued)


Bond, Aleck C., and Swanson, Andrew G.: Rocket-Model Investigation of the Longitudinal Stability, Drag, and Duct Performance of a 60° Delta-Wing Canard Aircraft with Twin Side Inlets at Mach Numbers from 0.80 to 1.70. NACA RM L53D10a, 1954.


Moul, Martin T., and Baber, Hal T., Jr.: A Flight Investigation at Mach Numbers from 0.67 to 1.81 of the Longitudinal Stability and Control Characteristics of a 60° Delta-Wing Missile Configuration Having an All-Movable Tail. NACA RM L53G29, 1953.


Dynamic stability and control (continued)


Gillespie, Warren, Jr., and Dietz, Albert E.: Rocket-Powered Model Investigation of Lift, Drag, and Stability of a Body-Tail Configuration at Mach Numbers From 0.8 to 2.3 and Angles of Attack Between ±6.5°. NACA RM L54C04, 1954.
Missile Flight Control (Continued)

Automatic control and guidance


Seaberg, Ernest C.: Laboratory Investigation of an Autopilot Utilizing a Mechanical Linkage with a Dead Spot to Obtain an Effective Rate Signal. NACA RM L9F15a, 1949.


Zarovsky, Jacob, and Gardiner, Robert A.: Flight Investigation of a Roll-Stabilized Missile Configuration at Varying Angles of Attack at Mach Numbers Between 0.8 and 1.79. NACA RM L50H21, 1951.


Automatic control and guidance (continued)


Automatic control and guidance (continued)


ENGINE CONTROLS
Turbojet


Turbojet (Continued)


Dandois, Marcel, and Novik, David: Application of Linear Analysis to an Experimental Investigation of a Turbojet Engine with Proportional Speed Control. NACA TN 2642, 1953.


Turbine Propeller


Lazar, James, and DeRocher, Wilfred L., Jr.: Correlation of Analog Solutions with Experimental Sea-Level Transient Data for Controlled Turbine-Propeller Engine, Including Analog Results at Altitudes. NACA RM E51B08, 1951.


Ram-Jet


ANALYTICAL TECHNIQUES
Aircraft Dynamics


Flight Analysis Techniques


Shinbrot, Marvin: A Description and a Comparison of Certain Nonlinear Curve-Fitting Techniques, With Applications to the Analysis of Transient-Response Data. NACA TN 2622, 1952.


Flight Analysis Techniques (Continued)


Eggleston, John M.: A Method of Deriving Frequency-Response Data for Motion of the Center of Gravity from Data Measured on an Aircraft at Locations Other Than the Center of Gravity. NACA TN 3021, 1953.

Servo-System Analyses and Syntheses


Servo-System Analyses and Syntheses (Continued)


