1990 *Journal of Aircraft* Index

How to Use the Index

In the Subject Index, pages 1090–1095, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, pages 1096–1097, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 1097–1103, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1990, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Iterative Algorithm for Correlation of Strain Gauge Data with Aerodynamic Load C90-114

Aerodynamics

Airfoil Design for Endurance Unmanned Air Vehicles C90-161
Design of a Natural Laminar Flow Airfoil for a Light Aircraft C90-159
Feasibility Study on the Design of a Laminar Flow Nacelle C90-158
Determination of the Aerodynamic Characteristics of the Mission Adaptive Wing C90-157
Applications of an Euler Aerodynamic Method to Free-Vortex Flow Simulation C90-156
Series Complex-Potential Solution of Flow Around Arbitrary Airfoils C90-155
Turbulent-Flow Calculations for Flow over Wings near Maximum Lift C90-154
Transonic Wind-Tunnel Wall Interference Prediction Code C90-151
Prediction of Vortical Flows on Wings Using Incompressible Navier-Stoke Equations C90-150
Accurate Method for Calculating Initial Development of Vortex Sheets C90-149
Combined Effects of Nose Bluntness and Surface Perturbations on Asymmetric Flow Past Slender Bodies C90-148
Transonic Computational Method for an Aft-Mounted Nacelle/Pylon with Power Effect C90-144
Application of Lagrangian Blending Functions for Grid Generation Around Airplane Geometries C90-143
Zonal Approach to V/STOL Aerodynamics C90-142
Effect of a Single Strake on the Forebody Vortex Asymmetry C90-137
Thermoviscoplastic Analysis of Hypersonic Structures Subjected to Severe Aerodynamic Heating C90-135
Ideal Efficiency of Propellers: Theodorsen Revisited C90-133
Velocity Field of a Cylinder in the Wake of a Rotor in Forward Flight C90-132
Prediction of Unsteady Blade Surface Pressures on an Advanced Propeller at an Angle of Attack C90-131
Experimental Study of Rotor/Body Aerodynamic Interactions C90-130
Application of a Patched-Grid Algorithm to the F/A-18 Forebody-Leading-Edge Extension Configuration C90-126
Navier-Stokes Solutions About the F/A-18 Forebody-Leading-Edge Extension Configuration C90-125
Comparison of One- and Two-Interface Methods for Tunnel Wall Interference Calculation C90-124
TRANAIR Applications to Engine/Airframe Integration C90-121
Experimental Investigation of Multielement Airfoil Ice Accretion and Resulting Performance Degradation C90-117
Yaw Damping of Elliptic Bodies at High Angles of Attack C90-115
Minimum Induced Drag for Wings with Spanwise Camber C90-108
Experimental Study of the Turbulent Boundary Layer on a Transport Wing in Subsonic Flow C90-103
Flow Structure Generated by Oscillating Delta-Wing Segments C90-100
Comparison of High-Angle-of-Attack Slender-Body Theory and Exact Solutions for Potential Flow over an Ellipsoid C90-098
Improved, Robust, Axial Line Singularity Method for Bodies of Revolution C90-094
Investigation of the Near Wake of a Propfan C90-092
Drag Measurements on a Modified Prolate Spheroid Using a Magnetic Suspension and Balance System C90-090
Flow Visualization Studies of the Mach Number Effects on Dynamic Stall of an Oscillating Airfoil C90-089
Determination of Aerodynamic Sensitivity Coefficients Based on the Transonic Small Perturbation Formulation C90-088
Sidewall Boundary-Layer Removal and Wall Adaptation Studies C90-086
Various Sources of Wing Rock C90-085
Strake Camber and Thickness Design Procedure for Low Alpha Supersonic Flow C90-084
Connection Between Leading-Edge Sweep, Vortex Lift, and Vortex Strength for Delta Wings C90-080
Freestream Turbulence Effects on Airfoil Boundary-Layer Behavior at Low Reynolds Numbers C90-078
Low-Speed Pressure Distribution on Semi-Infinite Two-Dimensional Bodies with Elliptical Noses C90-076
Control of Asymmetric Vortical Flows over Delta Wings at High Angles of Attack C90-069
Effect of Vertical-Ejector Jet on the Aerodynamics of Delta Wings C90-065
Finite Element Simulation of Complex Jets in a Crossflow for V/STOL Applications C90-063
Simple Marching-Vortex Model for Two-Dimensional Unsteady Aerodynamics C90-057
Analytical Method for the Ditching Analysis of an Airborne Vehicle C90-049
Static Stability and Control Characteristics of Scissor Wing Configurations C90-046
Wind-Tunnel Investigation of Wing-in-Ground Effects C90-045
Effects of a Contoured Apex on Vortex Breakdown C90-044
Qualitative and Quantitative Comparison of Government and Industry Agility Metrics C90-042
Measured Forces and Moments on a Delta Wing During Pitch-Up C90-040
Fourth-Order Accurate Three-Dimensional Compressible Boundary-Layer Calculations C90-039

Application of Multiple Grids Topology to Supersonic Internal/External Flow Interactions C90-038
Comparison of Model- and Full-Scale Wind-Tunnel Performance C90-036
Efficient Method for Computing Transonic and Supersonic Flows About Aircraft C90-035
Measurements on an Oscillating 70-Deg Delta Wing in Subsonic Flow C90-033
Propeller-Wing Interaction Using a Frequency Domain Panel Method C90-031
Incompressible Viscous Flow About Aircraft Configurations C90-028
Study of Vortex Breakdown of F-106B by Euler Code C90-027
Leading- and Trailing-Edge Flaps on Supersonic Delta Wings C90-023
Flight and Wind-Tunnel Investigations on Boundary-Layer Transition C90-021
Vortex Dynamics on a Pitching Delta Wing C90-019
Effects of Nonplanar Outboard Wing Forms on a Wing C90-017
Unsteady Supersonic Computations of Arbitrary Wing-Body Configurations Including External Stores C90-016
Unsteady Transonic Aerodynamics of Oscillating Airfoils in Supersonic Freestream C90-015
Effects of Pressure Gradient on Reattaching Flow Downstream of a Rearward-Facing Step C90-012
Unsteady Pressure and Structural Response Measurements on an Elastic Supercritical Wing C90-009
Estimate of Loads During Wing-Vortex Interactions by Munk's Transverse-Flow Method C90-008
Further Investigations of Transonic Shock-Wave Boundary-Layer Interaction with Passive Control C90-007
Effect of Moving Surfaces on the Airfoil Boundary-Layer Control C90-005
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part II: Harmonic Analysis C90-004
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part I: Test Program C90-003
Improved Thin-Airfoil Theory C88-182
Drag Reduction Factor Due to Ground Effect C88-176

Aeroelasticity and Aeroservoelasticity

Integrated Aerodynamic-Structural Design of a Transport Wing C90-172
Aeroelastic Characteristics of a Highly Flexible Aircraft C90-147
Stability Sensitivity Studies for Synthesis of Aeroelastic Systems C90-139
Static Aeroelastic Analysis of Fighter Aircraft Using a Three-Dimensional Navier-Stokes Algorithm C90-134
Aeroelastic Stability of Aircraft with Circulation Control Wings C90-129
Supersonic Far-Field Boundary Conditions for Transonic Small-Disturbance Theory C90-128
Method for Simultaneous Wing Aerodynamic and Structural Load Prediction C90-118
NASA Investigation of a Claimed 'Overlap' between Two Gust Response Analysis Methods C90-105
Static Aeroelastic Tailoring for Oblique Wing Lateral Trim C90-095
Reduced-Order Aeroelastic Models via Dynamic Residualization C90-072
Euler Flutter Analysis of Airfoils Using Unstructured Dynamic Meshes C90-070
Sensitivity Derivatives of Flutter Characteristics and Stability Margins for Aeroservoelastic Design C90-056
Flight Testing a Highly Flexible Aircraft: Case Study on the MIT Light Eagle C90-053
Active Flutter Suppression for a Wing Model C90-052
Integrated Structure/Control Concepts for Oblique Wing Roll Control and Trim C90-051
Unsteady Pressure and Structural Response Measurements on an Elastic Supercritical Wing C90-009

Aerospace Plane

Pressure and Heat-Transfer Investigation of a Hypersonic Configuration C90-067
Comparison Between Experimental and Numerical Results for a Research Hypersonic Aircraft C90-047
Hypersonic Aerospace Sizing Analysis for the Preliminary Design of Aerospace Vehicles C90-014

Cabin Environment, Crew Training, and Life Support

Interior Noise in the Untreated Gulfstream II Propfan Test Assessment Aircraft C90-111

Civil Missions and Transportation

Minimizing Life Cycle Cost for Subsonic Commercial Aircraft C90-020
Hypersonic Aerospace Sizing Analysis for the Preliminary Design of Aerospace Vehicles C90-014

Communication and Air Traffic Control

Low-Level Windshear Alert Systems and Doppler Radar in Aircraft Terminal Operations C90-068
Charging of Aircraft: High-Velocity Collisions C90-034

Configuration Design

Aircraft Design Optimization with Dynamic Performance Constraints C90-174
Integrated Aerodynamic-Structural Design of a Transport Wing C90-172
Aircraft Design for Mission Performance Using Nonlinear Multiobjective Optimization Methods C90-171
Application of Global Sensitivity Equations in Multidisciplinary Aircraft Synthesis C90-166
Sensitivity Analysis and Multidisciplinary Optimization for Aircraft Design: Recent Advances and Results C90-165
Feasibility Study on the Design of a Laminar Flow Nacelle C90-158
Application of Lagrangian Blending Functions for Grid Generation Around Airplane Geometries C90-143
Elevated Temperature Aluminum Alloys for Advanced Fighter Aircraft C90-136
Off-Design Performance of Hypersonic Waveriders C90-110
Determination of Aerodynamic Sensitivity Coefficients Based on the Transonic Small Perturbation Formulation C90-088
Minimizing Life Cycle Cost for Subsonic Commercial Aircraft C90-020
Hypersonic Aerospace Sizing Analysis for the Preliminary Design of Aerospace Vehicles C90-014

Deceleration Systems

Preliminary Characterization of Parachute Wake Recontact C90-087
Wall-Interference Corrections for Parachutes in a Closed Wind Tunnel C90-050
Numerical Simulation of Unsteady Flow About Cambered Plates C90-006

Economics

Minimizing Life Cycle Cost for Subsonic Commercial Aircraft C90-020

Flight Mechanics

Analyses of Arrow Air DC-8-63 Accident of December 12, 1985: Gander, Newfoundland C90-093
Flight Testing a Highly Flexible Aircraft: Case Study on the MIT Light Eagle C90-053
Static Stability and Control Characteristics of Scissor Wing Configurations C90-046
Qualitative and Quantitative Comparison of Government and Industry Agility Metrics C90-042

Flight Operations

Wind Measurements from Four Airliners in 1988 Denver Microburst C90-153
Optimization of Glides for Constant Wind Fields and Course Headings C90-109
Flight Testing a Highly Flexible Aircraft: Case Study on the MIT Light Eagle C90-053
Estimate of Loads During Wing-Vortex Interactions by Munk's Transverse-Flow Method C90-008

Ground Effect Machines

Wind-Tunnel Investigation of Wing-in-Ground Effects C90-045
Drag Reduction Factor Due to Ground Effect C88-176

Ground Support

Elastic-Viscoplastic Finite-Element Program for Modeling Tire/Soil Interaction C90-054

Noise

Cabin Noise Control Ground Tests for Ultra High Bypass Aircraft C90-146
Analytical Study of Wind-Tunnel Acoustic Testing of Propellers C90-140
Interior Noise in the Untreated Gulfstream II Propfan Test Assessment Aircraft C90-111
Investigation of the Near Wake of a Propfan C90-092
Acoustics of Ultralight Airplanes C90-091
Installation Effects on Propeller Wake/Vortex-Induced Structure-Borne Noise Transmissions C90-071
Acoustic Characteristics of Counterrotating Unducted Fans from Model Scale Tests C90-041
Charging of Aircraft: High-Velocity Collisions C90-034

Performance

Aircraft Design Optimization with Dynamic Performance Constraints C90-174
Aircraft Design for Mission Performance Using Nonlinear Multiobjective Optimization Methods C90-171
Airfoil Design for Endurance Unmanned Air Vehicles C90-161

Design of a Natural Laminar Flow Airfoil for a Light Aircraft C90-159
Determination of the Aerodynamic Characteristics of the Mission Adaptive Wing C90-157
Experimental Investigation of Multielement Airfoil Ice Accretion and Resulting Performance Degradation C90-117
Development of a Real-Time Aeroperformance Analysis Technique for the X-29A Advanced Technical Demonstrator C90-113
Off-Design Performance of Hypersonic Waveriders C90-110

Powerplant Integration

Constant Swirl Angle Inlet Guide Vanes C90-162
TRANAIR Applications to Engine/Airframe Integration C90-121
Interior Noise in the Untreated Gulfstream II Propfan Test Assessment Aircraft C90-111
Takeoff Characteristics of Turbofan Engines C90-074

Propeller and Rotor Systems

Analytical Study of Wind-Tunnel Acoustic Testing of Propellers C90-140
Ideal Efficiency of Propellers: Theodorsen Revisited C90-133
Investigation of the Near Wake of a Propfan C90-092
Acoustics of Ultralight Airplanes C90-091
Propeller-Wing Interaction Using a Frequency Domain Panel Method C90-031

Rotorcraft

Velocity Field of a Cylinder in the Wake of a Rotor in Forward Flight C90-132
Experimental Study of Rotor/Body Aerodynamic Interactions C90-130
Thin-Walled Composite Beams Under Bending, Torsional, and Extensional Loads C90-107
Simulator Networking in Helicopter Air-to-Air Combat Training C90-059
Rotor/Fuselage Vibration Isolation Studies by a Floquet-Harmonic Iteration Technique C90-010

Safety

Finite Element Studies of the Electro Impulse De-Icing System C90-127
Modeling of Turbulence and Downbursts for Flight Simulators C90-119
Low-Level Windshear Alert Systems and Doppler Radar in Aircraft Terminal Operations C90-068
Charging of Aircraft: High-Velocity Collisions C90-034
Airborne Doppler Radar Detection of Low-Altitude Wind Shear C90-022

Simulation

Synchronization and Time Tagging in Distributed Real Time Simulation C90-138
Stereopsis as a Visual Cue in Flight Simulation C90-123
Modeling of Turbulence and Downbursts for Flight Simulators C90-119
Alternate Table Look-Up Routine for Real-Time Digital Flight Simulation C90-079
Simulator Networking in Helicopter Air-to-Air Combat Training C90-059
Augmenting Flight Simulator Motion Response to Turbulence C90-048
Multiple Vortex Ring Model of the DFW Microburst C90-024

STOL/VTOL/STOVL

Three-Dimensional Turbulent Flow Code Calculations of Hot Gas Ingestion C90-101
Finite Element Simulation of Complex Jets in a Crossflow for V/STOL Applications C90-063

Structural Design (Including Loads)

Computer-Aided Optimization of Aircraft Structures C90-177
Efficient Optimization for Aircraft Structures with a Large Number of Design Variables C90-176
Strategy for Multilevel Optimization of Aircraft C90-175
Integrated Aerodynamic-Structural Design of a Transport Wing C90-172
ASTROS—A Multidisciplinary Automated Structural Design Tool C90-168
Stability Sensitivity Studies for Synthesis of Aeroelastic Systems C90-139
Method for Simultaneous Wing Aerodynamic and Structural Load Prediction C90-118
NASA Investigation of a Claimed 'Overlap' between Two Gust Response Analysis Methods C90-105
Optimum Design of Thin-Walled Box Beams with Coupled Bending and Torsion Using Frequency Constraints C90-075
Integrated Structure/Control Concepts for Oblique Wing Roll Control and Trim C90-051

Structural Materials

Low Density, High-Stiffness, Aluminum-Lithium Materials C90-073

Testing, Flight and Ground

Two-Dimensional Wind-Tunnel Wall Interference C90-163
Determination of the Aerodynamic Characteristics of the Mission Adaptive Wing C90-157
Cabin Noise Control Ground Tests for Ultra High Bypass Aircraft C90-146
Analytical Study of Wind-Tunnel Acoustic Testing of Propellers C90-140
Comparison of One- and Two-Interface Methods for Tunnel Wall Interference Calculation C90-124
Development of a Real-Time Aeroperformance Analysis Technique for the X-29A Advanced Technical Demonstrator C90-113
In-Flight Flow Visualization Using Infrared Imaging C90-106
Sidewall Boundary-Layer Removal and Wall Adaptation Studies C90-086
Elastic-Viscoplastic Finite-Element Program for Modeling Tire/Soil Interaction C90-054
Wall-Interference Corrections for Parachutes in a Closed Wind Tunnel C90-050
Comparison of Model- and Full-Scale Wind-Tunnel Performance C90-036

Vibration

Rotor/Fuselage Vibration Isolation Studies by a Floquet-Harmonic Iteration Technique C90-010

Weather Hazards

DFW Microburst Model Based on AA-539 Data C90-152
Finite Element Studies of the Electro Impulse De-Icing System C90-127
Modeling of Turbulence and Downbursts for Flight Simulators C90-119
Experimental Investigation of Multielement Airfoil Ice Accretion and Resulting Performance Degradation C90-117
NASA Investigation of a Claimed 'Overlap' between Two Gust Response Analysis Methods C90-105
Analyses of Arrow Air DC-8-63 Accident of December 12, 1985: Gander, Newfoundland C90-093
Cloud-to-Ground Strikes to the NASA F-106 Airplane C90-077
Low-Level Windshear Alert Systems and Doppler Radar in Aircraft Terminal Operations C90-068
Multiple Vortex Ring Model of the DFW Microburst C90-024
Airborne Doppler Radar Detection of Low-Altitude Wind Shear C90-022

Energy

Conservation

Optimization of Glides for Constant Wind Fields and Course Headings C90-109
Effect of Detailed Surface Geometry on Riblet Drag Reduction Performance C90-099

Rotating Machinery

Constant Swirl Angle Inlet Guide Vanes C90-162

Fluid Dynamics

Aeroacoustics

Prediction of Unsteady Blade Surface Pressures on an Advanced Propeller at an Angle of Attack C90-131
Twin-Jet Screech Suppression C90-120
Acoustics of Ultralight Airplanes C90-091
Installation Effects on Propeller Wake/Vortex-Induced Structure-Borne Noise Transmissions C90-071
Acoustic Characteristics of Counterrotating Unducted Fans from Model Scale Tests C90-041
Rotor Noise Due to Atmospheric Turbulence Ingestion—Part II: Aeroacoustic Results C90-002
Rotor Noise Due to Atmospheric Turbulence Ingestion—Part I: Fluid Mechanics C90-001

Boundary Layers and Heat Transfer—Laminar

Fourth-Order Accurate Three-Dimensional Compressible Boundary-Layer Calculations C90-039
Laminar Flow Control Leading-Edge Systems in Simulated Airline Service C90-037
Flight and Wind-Tunnel Investigations on Boundary-Layer Transition C90-021

Boundary Layers and Heat Transfer—Turbulent

Interactive Boundary-Layer Method for Unsteady Airfoil Flows: Quasisteady Model C90-116
Experimental Study of the Turbulent Boundary Layer on a Transport Wing in Subsonic Flow C90-103

Effect of Detailed Surface Geometry on Riblet Drag Reduction Performance C90-099
Evaluation of Three Turbulence Models in Static Air Loads and Dynamic Stall Predictions C90-060
Control of Turbulent Separated Flow over a Rearward-Facing Ramp Using Longitudinal Grooves C90-043
Further Investigations of Transonic Shock-Wave Boundary-Layer Interaction with Passive Control C90-007

Boundary-Layer Stability and Transition

Feasibility Study on the Design of a Laminar Flow Nacelle C90-158
Integral Method for the Calculation of Incompressible Two-Dimensional Transitional Boundary Layers C90-141
In-Flight Flow Visualization Using Infrared Imaging C90-106
Freestream Turbulence Effects on Airfoil Boundary-Layer Behavior at Low Reynolds Numbers C90-078
Laminar Flow Control Leading-Edge Systems in Simulated Airline Service C90-037
Design of Low Reynolds Number Airfoils: Part I C90-032
Flight and Wind-Tunnel Investigations on Boundary-Layer Transition C90-021

Computational Fluid Dynamics

Design of a Natural Laminar Flow Airfoil for a Light Aircraft C90-159
Applications of an Euler Aerodynamic Method to Free-Vortex Flow Simulation C90-156
Turbulent-Flow Calculations for Flow over Wings near Maximum Lift C90-154
Transonic Wind-Tunnel Wall Interference Prediction Code C90-151
Prediction of Vortical Flows on Wings Using Incompressible Navier-Stoke Equations C90-150
Numerical Simulation of an F-16A at Angle of Attack C90-145
Transonic Computational Method for an Aft-Mounted Nacelle/Pylon with Power Effect C90-144
Static Aeroelastic Analysis of Fighter Aircraft Using a Three-Dimensional Navier-Stokes Algorithm C90-134
Ideal Efficiency of Propellers: Theodorsen Revisited C90-133
Application of a Patched-Grid Algorithm to the F/A-18 Forebody-Leading-Edge Extension Configuration C90-126
Navier-Stokes Solutions About the F/A-18 Forebody-Leading-Edge Extension Configuration C90-125
TRANAIR Applications to Engine/Airframe Integration C90-121
Interactive Boundary-Layer Method for Unsteady Airfoil Flows: Quasisteady Model C90-116
Zonal Navier-Stokes Methodology for Flow Simulation about a Complete Aircraft C90-102
Three-Dimensional Turbulent Flow Code Calculations of Hot Gas Ingestion C90-101
Dynamic Stall of a Constant-Rate Pitching Airfoil C90-064
Analytical Method for the Ditching Analysis of an Airborne Vehicle C90-049
Fourth-Order Accurate Three-Dimensional Compressible Boundary-Layer Calculations C90-039
Application of Multiple Grids Topology to Supersonic Internal/External Flow Interactions C90-038
Efficient Method for Computing Transonic and Supersonic Flows About Aircraft C90-035
Propeller-Wing Interaction Using a Frequency Domain Panel Method C90-031
Incompressible Viscous Flow About Aircraft Configurations C90-028
Comparison of Several Finite-Difference Methods C90-011
Numerical Simulation of Unsteady Flow About Cambered Plates C90-006

Hydrodynamics

Flow Structure Generated by Oscillating Delta-Wing Segments C90-100
Comparison of High-Angle-of-Attack Slender-Body Theory and Exact Solutions for Potential Flow over an Ellipsoid C90-098
Improved, Robust, Axial Line Singularity Method for Bodies of Revolution C90-094
Analytical Method for the Ditching Analysis of an Airborne Vehicle C90-049

Hypersonic Flow

Off-Design Performance of Hypersonic Waveriders C90-110
Pressure and Heat-Transfer Investigation of a Hypersonic Configuration C90-067

Inlet, Nozzle, Diffusor, and Channel Flows

Blockage Corrections at High Angles of Attack in a Wind Tunnel C90-066

Jets, Wakes, and Viscid-Inviscid Flow Interactions

Measurements and Implications of Vortex Motions Using Two Flow-Visualization Techniques C90-160
Accurate Method for Calculating Initial Development of Vortex Sheets C90-149
Zonal Approach to V/STOL Aerodynamics C90-142
Experimental Study of Rotor/Body Aerodynamic Interactions C90-130
Twin-Jet Screech Suppression C90-120
Three-Dimensional Turbulent Flow Code Calculations of Hot Gas Ingestion C90-101
Drag Reduction by Controlling Flow Separation Using Stepped Afterbodies C90-096
Preliminary Characterization of Parachute Wake Recontact C90-087
Effect of Vertical-Ejector Jet on the Aerodynamics of Delta Wings C90-065
Finite Element Simulation of Complex Jets in a Crossflow for V/STOL Applications C90-063
Incompressible Viscous Flow About Aircraft Configurations C90-028
Comparison of Several Finite-Difference Methods C90-011
Estimate of Loads During Wing-Vortex Interactions by Munk's Transverse-Flow Method C90-008

Separated Flows

Combined Effects of Nose Bluntness and Surface Perturbations on Asymmetric Flow Past Slender Bodies C90-148
Zonal Navier-Stokes Methodology for Flow Simulation about a Complete Aircraft C90-102
Drag Reduction by Controlling Flow Separation Using Stepped Afterbodies C90-096
Flow Visualization Studies of the Mach Number Effects on Dynamic Stall of an Oscillating Airfoil C90-089
Connection Between Leading-Edge Sweep, Vortex Lift, and Vortex Strength for Delta Wings C90-080
Unsteady Inviscid and Viscous Computations for Vortex-Dominated Flows C90-062
Control of Turbulent Separated Flow over a Rearward-Facing Ramp Using Longitudinal Grooves C90-043
Vortex Dynamics on a Pitching Delta Wing C90-019
Effects of Pressure Gradient on Reattaching Flow Downstream of a Rearward-Facing Step C90-012
Effect of Moving Surfaces on the Airfoil Boundary-Layer Control C90-005

Subsonic Flow

Turbulent-Flow Calculations for Flow over Wings near Maximum Lift C90-154
Prediction of Vortical Flows on Wings Using Incompressible Navier-Stoke Equations C90-150
Application of a Patched-Grid Algorithm to the F/A-18 Forebody-Leading-Edge Extension Configuration C90-126
Comparison of One- and Two-Interface Methods for Tunnel Wall Interference Calculation C90-124
Yaw Damping of Elliptic Bodies at High Angles of Attack C90-115
Experimental Study of the Turbulent Boundary Layer on a Transport Wing in Subsonic Flow C90-103
Comparison of High-Angle-of-Attack Slender-Body Theory and Exact Solutions for Potential Flow over an Ellipsoid C90-098
Low-Speed Pressure Distribution on Semi-Infinite Two-Dimensional Bodies with Elliptical Noses C90-076
Blockage Corrections at High Angles of Attack in a Wind Tunnel C90-066
Wall-Interference Corrections for Parachutes in a Closed Wind Tunnel C90-050
Study of Vortex Breakdown of F-106B by Euler Code C90-027
Effect of Moving Surfaces on the Airfoil Boundary-Layer Control C90-005

Supersonic Flow

Strake Camber and Thickness Design Procedure for Low Alpha Supersonic Flow C90-084
Application of Multiple Grids Topology to Supersonic Internal/External Flow Interactions C90-038
Unsteady Transonic Aerodynamics of Oscillating Airfoils in Supersonic Freestream C90-015

Transonic Flow

Transonic Wind-Tunnel Wall Interference Prediction Code C90-151
Numerical Simulation of an F-16A at Angle of Attack C90-145
Transonic Computational Method for an Aft-Mounted Nacelle/Pylon with Power Effect C90-144
Supersonic Far-Field Boundary Conditions for Transonic Small-Disturbance Theory C90-128
Navier-Stokes Solutions About the F/A-18 Forebody-Leading-Edge Extension Configuration C90-125

Zonal Navier-Stokes Methodology for Flow Simulation about a Complete Aircraft C90-102
Determination of Aerodynamic Sensitivity Coefficients Based on the Transonic Small Perturbation Formulation C90-088
Nonlinear Effects in the Two-Dimensional Adaptive-Wall Outer-Flow Problem C90-081
Euler Flutter Analysis of Airfoils Using Unstructured Dynamic Meshes C90-070
Efficient Method for Computing Transonic and Supersonic Flows About Aircraft C90-035
Integral Solution of Unsteady Full-Potential Equation for a Transonic Pitching Airfoil C90-018
Unsteady Pressure and Structural Response Measurements on an Elastic Supercritical Wing C90-009
Further Investigations of Transonic Shock-Wave Boundary-Layer Interaction with Passive Control C90-007

Unsteady Flows

Velocity Field of a Cylinder in the Wake of a Rotor in Forward Flight C90-132
Prediction of Unsteady Blade Surface Pressures on an Advanced Propeller at an Angle of Attack C90-131
Supersonic Far-Field Boundary Conditions for Transonic Small-Disturbance Theory C90-128
Interactive Boundary-Layer Method for Unsteady Airfoil Flows: Quasisteady Model C90-116
Flow Visualization Studies of the Mach Number Effects on Dynamic Stall of an Oscillating Airfoil C90-089
Various Sources of Wing Rock C90-085
Reduced-Order Aeroelastic Models via Dynamic Residualization C90-072
Euler Flutter Analysis of Airfoils Using Unstructured Dynamic Meshes C90-070
Dynamic Stall of a Constant-Rate Pitching Airfoil C90-064
Unsteady Inviscid and Viscous Computations for Vortex-Dominated Flows C90-062
Simple Marching-Vortex Model for Two-Dimensional Unsteady Aerodynamics C90-057
Measured Forces and Moments on a Delta Wing During Pitch-Up C90-040
Measurements on an Oscillating 70-Deg Delta Wing in Subsonic Flow C90-033
Integral Solution of Unsteady Full-Potential Equation for a Transonic Pitching Airfoil C90-018
Unsteady Transonic Aerodynamics of Oscillating Airfoils in Supersonic Freestream C90-015
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part II: Harmonic Analysis C90-004
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part I: Test Program C90-003

Viscous Non-boundary-Layer Flows

Measurements and Implications of Vortex Motions Using Two Flow-Visualization Techniques C90-160

Vortices

Yaw Damping of Elliptic Bodies at High Angles of Attack C90-115
Flow Structure Generated by Oscillating Delta-Wing Segments C90-100
Various Sources of Wing Rock C90-085
Connection Between Leading-Edge Sweep, Vortex Lift, and Vortex Strength for Delta Wings C90-080
Control of Asymmetric Vortical Flows over Delta Wings at High Angles of Attack C90-069
Unsteady Inviscid and Viscous Computations for Vortex-Dominated Flows C90-062
Effects of a Contoured Apex on Vortex Breakdown C90-044
Measured Forces and Moments on a Delta Wing During Pitch-Up C90-040
Measurements on an Oscillating 70-Deg Delta Wing in Subsonic Flow C90-033
Study of Vortex Breakdown of F-106B by Euler Code C90-027
Multiple Vortex Ring Model of the DFW Microburst C90-024
Vortex Dynamics on a Pitching Delta Wing C90-019
Numerical Simulation of Unsteady Flow About Cambered Plates C90-006
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part II: Harmonic Analysis C90-004
Low-Speed Unsteady Aerodynamics of a Pitching Straked Wing at High Incidence —Part I: Test Program C90-003

Guidance, Control, and Dynamics Technology

Aircraft Dynamics

Qualitative and Quantitative Comparison of Government and Industry Agility Metrics C90-042

Aircraft Stability and Control

Wind Measurements from Four Airliners in 1988 Denver Microburst C90-153
Aeroelastic Stability of Aircraft with Circulation Control Wings C90-129
Sensitivity Derivatives of Flutter Characteristics and Stability Margins for Aeroservoelastic Design C90-056
Static Stability and Control Characteristics of Scissor Wing Configurations C90-046

Avionics Systems

Airborne Doppler Radar Detection of Low-Altitude Wind Shear C90-022

Computer Science

Sensitivity Analysis and Multidisciplinary Optimization for Aircraft Design: Recent Advances and Results C90-165

Flight Mechanics

Hypervelocity, Minimum-Radii, Coordinated Turns C90-097

Software Technology

Computer-Aided Optimization of Aircraft Structures C90-177
Applications of Structural Optimization Software in the Design Process C90-173
Aircraft Design for Mission Performance Using Nonlinear Multiobjective Optimization Methods C90-171
Stereopsis as a Visual Cue in Flight Simulation C90-123

Interdisciplinary Topics

Analytical and Numerical Methods

Fitting Atmospheric Parameters Using Parabolic Blending C90-178
Strategy for Multilevel Optimization of Aircraft C90-175
Implementation of Generalized Optimality Criteria in a Multidisciplinary Environment C90-170
Aeroelastic Design Optimization Program C90-169
Application of Global Sensitivity Equations in Multidisciplinary Aircraft Synthesis C90-166
Sensitivity Analysis and Multidisciplinary Optimization for Aircraft Design: Recent Advances and Results C90-165
Series Complex-Potential Solution of Flow Around Arbitrary Airfoils C90-155
Application of Lagrangian Blending Functions for Grid Generation Around Airplane Geometries C90-143
Alternate Table Look-Up Routine for Real-Time Digital Flight Simulation C90-079
Simple Marching-Vortex Model for Two-Dimensional Unsteady Aerodynamics C90-057
Sensitivity Derivatives of Flutter Characteristics and Stability Margins for Aeroservoelastic Design C90-056

Atmospheric and Space Sciences

Fitting Atmospheric Parameters Using Parabolic Blending C90-178
Wind Measurements from Four Airliners in 1988 Denver Microburst C90-153
Analyses of Arrow Air DC-8-63 Accident of December 12, 1985: Gander, Newfoundland C90-093

Human Factors

Stereopsis as a Visual Cue in Flight Simulation C90-123

Reliability, Maintainability, and Logistics Support

Demonstration of Probabilistic-Based Durability Analysis Method for Metallic Airframes C90-025

Research Facilities and Instrumentation

Constant Swirl Angle Inlet Guide Vanes C90-162
Drag Measurements on a Modified Prolate Spheroid Using a Magnetic Suspension and Balance System C90-090
Nonlinear Effects in the Two-Dimensional Adaptive-Wall Outer-Flow Problem C90-081

Safety

Cloud-to-Ground Strikes to the NASA F-106 Airplane C90-077

Launch Vehicle and Missile (LV/M) Technology

Aerodynamics

Drag Reduction by Controlling Flow Separation Using Stepped Afterbodies C90-096
New Analysis Tool for Tow Target Trajectory Predictions C90-061
Wind-Tunnel Investigation of Wing-in-Ground Effects C90-045

Missile System

New Analysis Tool for Tow Target Trajectory Predictions C90-061

Simulation

Fitting Atmospheric Parameters Using Parabolic Blending C90-178
Alternate Table Look-Up Routine for Real-Time Digital Flight Simulation C90-079

Structural Design (Including Loads)

Strategy for Multilevel Optimization of Aircraft C90-175

Testing, Flight and Ground

New Analysis Tool for Tow Target Trajectory Predictions C90-061

Propulsion

Airbreathing Propulsion

Acoustic Characteristics of Counterrotating Unducted Fans from Model Scale Tests C90-041

Engine Performance

Development of a Real-Time Aeroperformance Analysis Technique for the X-29A Advanced Technical Demonstrator C90-113

Structural Mechanics and Materials

Aeroelasticity and Control

Aeroelastic Design Optimization Program C90-169
ASTROS—A Multidisciplinary Automated Structural Design Tool C90-168
Towards Integrated Multidisciplinary Synthesis of Actively Controlled Fiber Composite Wings C90-164
Aeroelastic Characteristics of a Highly Flexible Aircraft C90-147
Stability Sensitivity Studies for Synthesis of Aeroelastic Systems C90-139
Aeroelastic Stability of Aircraft with Circulation Control Wings C90-129
Parametric Aeroelastic Stability Analysis of a Generic X-Wing Aircraft C90-112
Static Aeroelastic Tailoring for Oblique Wing Lateral Trim C90-095
Active Flutter Suppression for a Wing Model C90-052
Integrated Structure/Control Concepts for Oblique Wing Roll Control and Trim C90-051

Materials Structural Properties

Elevated Temperature Aluminum Alloys for Advanced Fighter Aircraft C90-136

Structural Composite Materials

Structural Efficiency Study of Graphite-Epoxy Aircraft Rib Structures C90-167
Hygrothermal Effects on Structure-Borne Noise Transmission of Stiffened Laminated Composite Plates C90-122
Thin-Walled Composite Beams Under Bending, Torsional, and Extensional Loads C90-107
Importance of Anisotropy on Design of Compression-Loaded Composite Corrugated Panels C90-058
Random Response and Noise Transmission of Discretely Stiffened Composite Panels C90-026

Structural Design

Efficient Optimization for Aircraft Structures with a Large Number of Design Variables C90-176
Applications of Structural Optimization Software in the Design Process C90-173
Implementation of Generalized Optimality Criteria in a Multidisciplinary Environment C90-170
Aeroelastic Design Optimization Program C90-169
Application of Global Sensitivity Equations in Multidisciplinary Aircraft Synthesis C90-166
Towards Integrated Multidisciplinary Synthesis of Actively Controlled Fiber Composite Wings C90-164
Residual Strains Surrounding Split-Sleeve Cold Expanded Holes in 7075-T651 Aluminum C90-104
Optimum Design of Thin-Walled Box Beams with Coupled Bending and Torsion Using Frequency Constraints C90-075
Importance of Anisotropy on Design of Compression-Loaded Composite Corrugated Panels C90-058

Structural Durability (including Fatigue and Fracture, and Environmental Degradation)

Thermoviscoplastic Analysis of Hypersonic Structures Subjected to Severe Aerodynamic Heating C90-135
Residual Strains Surrounding Split-Sleeve Cold Expanded Holes in 7075-T651 Aluminum C90-104
Low Density, High-Stiffness, Aluminum-Lithium Materials C90-073
Proposed Integration of Notch-Strain and Fatigue Crack-Growth Analyses C90-055
Demonstration of Probabilistic-Based Durability Analysis Method for Metallic Airframes C90-025

Structural Dynamics and Characterization

ASTROS—A Multidisciplinary Automated Structural Design Tool C90-168
Towards Integrated Multidisciplinary Synthesis of Actively Controlled Fiber Composite Wings C90-164
Aeroelastic Characteristics of a Highly Flexible Aircraft C90-147
Hygrothermal Effects on Structure-Borne Noise Transmission of Stiffened Laminated Composite Plates C90-122
Parametric Aeroelastic Stability Analysis of a Generic X-Wing Aircraft C90-112
Random Response and Noise Transmission of Discretely Stiffened Composite Panels C90-026

Structural Finite Elements

Parametric Aeroelastic Stability Analysis of a Generic X-Wing Aircraft C90-112
Elastic-Viscoplastic Finite-Element Program for Modeling Tire/Soil Interaction C90-054

Structural Modeling

Hygrothermal Effects on Structure-Borne Noise Transmission of Stiffened Laminated Composite Plates C90-122
Thin-Walled Composite Beams Under Bending, Torsional, and Extensional Loads C90-107

Structural Optimization

Optimum Design of Thin-Walled Box Beams with Coupled Bending and Torsion Using Frequency Constraints C90-075
Importance of Anisotropy on Design of Compression-Loaded Composite Corrugated Panels C90-058

Structural Stability

Structural Efficiency Study of Graphite-Epoxy Aircraft Rib Structures C90-167

Thermal Effects

Method for Simultaneous Wing Aerodynamic and Structural Load Prediction C90-118

Thermophysics and Heat Transfer

Aerothermodynamics/ Thermal Protection

Pressure and Heat-Transfer Investigation of a Hypersonic Configuration C90-067

Melting/ Solidification

Finite Element Studies of the Electro Impulse De-Icing System C90-127