

Chronological Index

C81-019 Critical Field Length Calculations for Preliminary Design. Sidney A. Powers, *Vought Corporation* (JA 18, 2, p. 103) Article

Technical Comment by Andrzej Wortman, *ISTAR Inc.* (JA 19, 3, p. 255)

Reply (JA 19, 3, p. 256)

C81-041 Analytical Prediction of Vortex Lift. James W. Purvis, *Sandia National Laboratories* (JA 18, 4, p. 225) Article based on AIAA Paper 79-0363

Technical Comment by John E. Lamar, *NASA Langley Research Center* (JA 19, 4, p. 350)

Reply (JA 19, 4, p. 350)

C81-063 Effects of Fan, Ducting and Powerplant Characteristics on the Cushion Stability of Air Cushion Vehicles. Hideo Matsuo, *Kumamoto University*; and Kensuke Matsuo, *Kumamoto Institute of Technology* (JA 18, 5, p. 372) Article

Technical Comment by P. A. Sullivan, *University of Toronto* (JA 19, 2, p. 191)

Reply (JA 19, 2, p. 192)

C81-096 Rational Design of an Airfoil for a High-Performance Jet Trainer. S. A. Powers and D. F. Sattler, *The Vought Corporation* (JA 18, 7, p. 521) Article based on AIAA Paper 80-0328

Technical Comment by Andrzej Wortman, *ISTAR Inc.* (JA 19, 7, p. 607)

Reply (JA 19, 7, p. 608)

C81-121 An Optimization Method for the Determination of the Important Flutter Modes. E. Nissim and I. Lottati, *Technion - Israel Institute of Technology* (JA 18, 8, p. 663) Article based on AIAA Paper 80-0790 CP804

Technical Comment by L. T. Niblett, *Royal Aircraft Establishment (England)* (JA 19, 10, p. 896)

Reply (JA 19, 10, p. 896)

C81-160 Estimation of Flutter Boundary from Random Responses Due to Turbulence at Subcritical Speeds. Yuji Matsuzaki and Yasukatsu Ando, *National Aerospace Laboratory, Japan* (JA 18, 10, p. 862) Article

Technical Comment by C. D. Turner, *North Carolina State University* (JA 19, 7, p. 606)

Reply (JA 19, 7, p. 606)

C81-165 Prediction of Range and Endurance of Jet Aircraft at Constant Altitude. Charles W. Bert, *University of Oklahoma* (JA 18, 10, p. 890) Engineering Note

Technical Comment by Seppo Laine, *Helsinki University of Technology (Finland)* (JA 19, 8, p. 704)

Reply (JA 19, 8, p. 704)

C81-194 Symmetric Flow Characteristics of Thin Rectangular Wings. Erik S. Larson, *The Aeronautical Research Institute of Sweden* (JA 18, 12, p. 1070) Engineering Note

Errata (JA 19, 4, p. 352)

C82-001 On Making Things the Best--Aeronautical Uses of Optimization. Holt Ashley, *Stanford University* (JA 19, 1, p. 5) Lecture based on AIAA Paper 81-1738

C82-002 Rarefaction Wave Effects Upon Compressor Performance. R. E. Peacock, *Naval Postgraduate School*; O. C. Eralp, *Middle East Technical University (Turkey)*; and D. K. Das, *Cranfield Institute of Technology (United Kingdom)* (JA 19, 1, p. 29) Synoptic based on AIAA Paper 80-1080

C82-003 Analysis of Interior Noise-Control Treatments for High-Speed Propeller-Driven Aircraft. J. D. Revell and F. J. Balena, *Lockheed-California Company*; and L. R. Koval, *University of Missouri* (JA 19, 1, p. 31) Article based on AIAA Paper 80-1000

C82-004 Interior Noise Control by Fuselage Design for High-Speed Propeller-Driven Aircraft. J. D. Revell and F. J. Balena, *Lockheed-California Company*; and L. R. Koval, *University of Missouri* (JA 19, 1, p. 39) Article based on AIAA Paper 80-1001

C82-005 Compact Diffusers for Centrifugal Compressors. L. W. Blair and C. J. Russo, *General Electric Company* (JA 19, 1, p. 46) Article based on AIAA Paper 80-1077

C82-006 Part-Span Variable Inlet Guide Vanes for V/STOL Fan Thrust Modulation. Vernon L. Reed and Paul W. Schneider, *General Electric Company* (JA 19, 1, p. 52) Article based on AIAA Paper 80-1248

C82-007 Some Effects of Cruise Speed and Engine Matching on Supersonic Inlet Design. L. H. Bangert, D. M. Santman, G. Horie and L. D. Miller, *Lockheed-California Company* (JA 19, 1, p. 58) Article based on AIAA Paper 80-1807

C82-008 Noninterference Technique for Measurement of Turbine Engine Compressor Blade Stress. P. E. McCarty, J. W. Thompson Jr. and R. S. Ballard, *Sverdrup/ARO, Inc.* (JA 19, 1, p. 65) Article based on AIAA Paper 80-1141

C82-009 Aerodynamic Forces on Finite Wings in Oblique Gusts. M. H. Patel, *University College London* (JA 19, 1, p. 71) Article

C82-010 Computer Graphics Display Technique for the Examination of Aircraft Design Data. Noel A. Talcott Jr., *NASA Langley Research Center* (JA 19, 1, p. 76) Article based on AIAA Paper 81-0370

C82-011 Effect on Surface Pressures of Trapezoidal Holes in a T-38 Stabilator. J. C. Westkaemper and R. M. Chandrasekharan, *The University of Texas at Austin* (JA 19, 1, p. 81) Engineering Note

C82-012 New Frequency Parameter for Unsteady Aerodynamics. S. R. Anthony and M. R. Myers, *Lockheed-Georgia Company* (JA 19, 1, p. 82) Engineering Note based on AIAA Paper 81-0649 CP812

C82-013 Propeller Tip Vortex: A Possible Contributor to Aircraft Cabin Noise. Brent A. Miller, James H. Dittmar and Robert J. Jeracki, *NASA Lewis Research Center* (JA 19, 1, p. 84) Engineering Note

C82-014 Estimate of Human Control over Mid-Air Collisions. J. N. Anno, *Research Dynamics, Inc.* (JA 19, 1, p. 86) Engineering Note

C82-015 Subsonic Flow over Airborne Optical Turrets. A. J. Laderman, *Ford Aerospace and Communications Corporation*; and R. de Jonckheere, *Air Force Weapons Laboratory* (JA 19, 1, p. 88) Engineering Note

C82-016 ADEN Plume Flow Properties for Infrared Analysis. Chong-Wei Chu and Joe Der Jr., *Northrop Corporation* (JA 19, 1, p. 90) Engineering Note

C82-017 Take-Off Ground Roll of Propeller Driven Aircraft. Roger J. Hawks, *Tri-State University* (JA 19, 1, p. 92) Engineering Note

C82-018 Kelvin-Helmholtz Stability Analysis of Air Cushion Landing Gear Trunk Flutter. Michael Hinchey and Philip Sullivan, *Institute for Aerospace Studies, University of Toronto* (JA 19, 1, p. 94) Engineering Note

C82-019 Blade Loading and Spanwise Effects on Wake Characteristics of Compressor Rotor Blade. B. Reynolds and B. Lakshminarayana, *The Pennsylvania State University* (JA 19, 2, p. 97) Article based on AIAA Paper 80-0201

C82-020 Acoustic Pressures on a Prop-Fan Aircraft Fuselage Surface. B. Magliozzi, *United Technologies* (JA 19, 2, p. 104) Article based on AIAA Paper 80-1002

C82-021 Zero-Length Slotted-Lip Inlet for Subsonic Military Aircraft. E. R. Glasgow and W. E. Beck, *Lockheed-California Company*; and R. R. Woollett, *NASA Lewis Research Center* (JA 19, 2, p. 112) Article based on AIAA Paper 80-1245

C82-022 Study of Chattering Cruise. S. C. Houlihan, E. M. Cliff and H. J. Kelley, *Virginia Polytechnic Institute and State University* (JA 19, 2, p. 119) Article based on AIAA Paper 80-1661

C82-023 CTOL/VSTOL Comparison—A View from the Deck. N. Vignevic and W. Riviere, *Naval Air Engineering Center* (JA 19, 2, p. 125) Article based on AIAA Paper 80-1812

C82-025 Handling Qualities Specifications for U.S. Military Helicopters. David L. Key, *U. S. Army Research and Technology Laboratories (AVRADCOM)-Ames Research Center* (JA 19, 2, p. 138) Article based on AIAA Paper 80-1592 CP806

C82-026 Numerical Optimization of Circulation Control Airfoils. Tsze C. Tai, *David Taylor Naval Ship Research and Development Center*; George H. Kidwell Jr., *NASA Ames Research Center*; and Garret N. Vanderplaats, *Naval Postgraduate School* (JA 19, 2, p. 145) Article based on AIAA Paper 81-0016

C82-027 Characterization of Winds Potentially Hazardous to Aircraft. R. Craig Goff, *FAA Technical Center* (JA 19, 2, p. 151) Article based on AIAA Paper 81-0387

C82-028 Prediction of Subsonic Aerodynamic Characteristics: A Case for Low-Order Panel Methods. Brian Maskew, *Analytical Methods, Inc.* (JA 19, 2, p. 157) Article based on AIAA Paper 81-0252

C82-029 Failure Stress Correlation of Composite Laminates Containing a Crack. C. S. Chu and O. L. Freyre, *Lockheed-Georgia Company* (JA 19, 2, p. 164) Article based on AIAA Paper 80-0712 CP804

C82-030 F-16 Flutter Suppression System Investigation Feasibility Study and Wind Tunnel Tests. R. P. Peloubet Jr., R. L. Haller and R. M. Bolding, *General Dynamics* (JA 19, 2, p. 169) Article based on AIAA Paper 80-0768 CP804

C82-031 Computer-Aided Design System Geared Toward Conceptual Design in a Research Environment. Sharon H. Stack, *NASA Langley Research Center* (JA 19, 2, p. 176) Article based on AIAA Paper 81-0372

C82-032 Pulsed Doppler Radar Detects Weather Hazards to Aviation. D. S. Zrnic and J. T. Lee, *National Severe Storms Laboratory, NOAA* (JA 19, 2, p. 183) Article based on AIAA Paper 81-0235

C82-035 Effect of Propeller on Engine Cooling System Drag and Performance. Joseph Katz, Victor R. Corsiglia and Philip R. Barlow, *NASA Ames Research Center* (JA 19, 3, p. 193) Article based on AIAA Paper 80-1872

C82-036 Dynamic Analysis of the Flat Spin Mode of a General Aviation Aircraft. M. B. Tischler, *Systems Technology, Inc.*; and J. B. Barlow, *University of Maryland* (JA 19, 3, p. 198) Article based on AIAA Paper 80-1565 CP806

C82-037 Aircraft Lateral Parameter Estimation from Flight Data with Unsteady Aerodynamic Modeling. William R. Wells, *Wright State University*; Siva S. Banda, *Air Force Wright Aeronautical Laboratories*; and David L. Quam, *University of Dayton* (JA 19, 3, p. 206) Article based on AIAA Paper 81-0221

C82-038 Application of Transonic Codes to Flutter Analysis of Conventional and Supercritical Airfoils. T. Y. Yang, *Purdue University*; P. Guruswamy, *Informatics, Inc.*; and Alfred G. Striz, *University of Oklahoma* (JA 19, 3, p. 211) Article based on AIAA Paper 81-0603 CP812

C82-039 Design for Active Flutter Suppression and Gust Alleviation Using State-Space Aeroelastic Modeling. Mordechay Karpel, *Stanford University* (JA 19, 2, p. 221) Article based on AIAA Paper 80-0766 CP804

C82-040 Minimum Mass Sizing of a Large Low-Aspect Ratio Airframe for Flutter-Free Performance. William H. Greene and Jaroslaw Sobieszczanski-Sobieski, *NASA Langley Research Center* (JA 19, 3, p. 228) Article based on AIAA Paper 80-0724 CP804

C82-041 AV-8B Composite Fuselage Design. James C. Watson, *McDonnell Aircraft Company* (JA 19, 3, p. 235) Article based on AIAA Paper 81-0232

C82-042 New Airborne Weather Radar Systems. G. A. Lucchi, *Sperry Flight Systems* (JA 19, 3, p. 239) Article based on AIAA Paper 81-0237

C82-043 Electromagnetic Measurement of Lightning Strikes to Aircraft. Felix L. Pitts, *NASA Langley Research Center* (JA 19, 3, p. 246) Article based on AIAA Paper 81-0083

C82-044 Static Pressure in the Slipstream of a Propeller. G. Schouten, *Delft University of Technology (The Netherlands)* (JA 19, 3, p. 251) Engineering Note

C82-045 Design Considerations for Duty Cycle, Life, and Reliability of Small Limited-Life Engines. Donald A. Gries, *Williams International Corporation* (JA 19, 3, p. 253) Engineering Note based on AIAA Paper 81-1402

C82-048 Benefits of Cruise Design Optimization for High-Performance, Single-Engine Airplanes. Bruce J. Holmes, *NASA Langley Research Center* (JA 19, 4, p. 257) Article based on AIAA Paper 80-1846

C82-049 Simulation of Atmospheric Turbulent Gusts and Gust Gradients. Frank B. Tatom and Stephen R. Smith, *Engineering Analysis, Inc.*; George H. Fichtl and C. Warren Campbell, *NASA Marshall Space Flight Center* (JA 19, 4, p. 264) Article based on AIAA Paper 81-0300

C82-050 Cloud Encounter and Particle Number Density Variabilities from GASP Data. G. D. Nastrom, *Control Data Corporation*; J. D. Holdeman, *NASA Lewis Research Center*; and R. E. Davis, *NASA Langley Research Center* (JA 19, 4, p. 272) Article based on AIAA Paper 81-0308

C82-051 Hinged Strakes for Enhanced Maneuverability at High Angles of Attack. Dhanvada M. Rao, *Vigyan Research Associates, Inc.*; and Jarrett K. Huffman, *NASA Langley Research Center* (JA 19, 4, p. 278) Article based on AIAA Paper 81-0357

C82-052 A Cost-Effective Method for Shock-Free Supercritical Wing Design. Pradeep Raj and Luis R. Miranda, *Lockheed-California Company*; and A. Richard Seebass, *University of Arizona* (JA 19, 4, p. 283) Article based on AIAA Paper 81-0383

C82-053 Theoretical Analysis of Parachute Inflation Including Fluid Kinetics. James W. Purvis, *Sandia National Laboratories* (JA 19, 4, p. 290) Article based on AIAA Paper 81-1925

C82-054 Response Characteristics of a Linear Rotorcraft Vibration Model. Donald L. Kunz, *Ames Research Center* (JA 19, 4, p. 297) Article based on AIAA Paper 81-0616 CP812

C82-055 Sonic Fatigue Testing of an Advanced Composite Aileron. J. Soovere, *Lockheed-California Company* (JA 19, 4, p. 304) Article based on AIAA Paper 81-0634 CP812

C82-056 Model-Based Handling Qualities Assessment Technique for Large Commercial Transports. William H. Levison, *Bolt, Beranek, and Newman, Inc.* (JA 19, 4, p. 311) Article based on AIAA Paper 80-1573 CP806

C82-057 In-Flight Evaluation of Control System Pure Time Delays. Donald T. Berry, Bruce G. Powers, Kenneth J. Szalai and R. J. Wilson, *NASA Dryden Flight Research Center* (JA 19, 4, p. 318) Article based on AIAA Paper 80-1626 CP806

C82-058 Fuel Optimal Trajectory Computation. James W. Burrows, *Boeing Computer Services Company* (JA 19, 4, p. 324) Article

C82-059 Objective Predictions of Thunderstorm Location and Severity for Aviation. Gregory S. Wilson and Robert E. Turner, *NASA Marshall Space Flight Center* (JA 19, 4, p. 330) Article based on AIAA Paper 81-0238

C82-060 Testing of Unpowered Advanced Underwater Vehicles at Very High Reynolds Numbers. A. Wortman, *ISTAR Inc.* (JA 19, 4, p. 339) Engineering Note

C82-061 Portable Servoactuator Test System. G. L. Bame Jr., *Wright Patterson AFB* (JA 19, 4, p. 340) Engineering Note based on AIAA Paper 81-1620

C82-062 Wing/Control Surface Flutter Analysis Using Experimentally Corrected Aerodynamics. C. D. Turner, *North Carolina State University* (JA 19, 4, p. 342) Engineering Note

C82-063 Navy A-7 Fuel Conservation Program. W. E. Mallett *Vought Corporation*, and Michael Herskovitz, *Naval Air Development Center* (JA 19, 4, p. 344) Engineering Note based on AIAA Paper 81-1681

C82-064 Expansion Series of Integral Functions Occurring in Unsteady Aerodynamics. T. Ueda, *Princeton University* (JA 19, 4, p. 345) Engineering Note

C82-065 Evolution of Swirl in Two-Dimensional-Nozzle Flow. Joe Der Jr., Chong-Wei Chu, B. L. Hunt and Dale, J. Lorincz, *Northrop Corporation* (JA 19, 4, p. 347) Engineering Note

C82-069 Active Flutter Suppression on an F-4F Aircraft. O. Sensburg and H. Honlinger, *Messerschmitt-Bolkow-*

Blohm (West Germany); T. E. Noll and L. J. Huttssell, *Air Force Wright Aeronautical Laboratories* (JA 19, 5, p. 354) Article based on AIAA Paper 80-0770 CP804

C82-070 Effects of Increased Jet Fuel Freeze Point on Cold Start Ability. William L. Macmillan, *National Defence Headquarters (Canada)* (JA 19, 5, p. 360) Article based on AIAA Paper 79-7009

C82-071 Effect of Side Fences on Powered-Lift Augmentation for USB Configurations. Masataka Maita, Tadao Torisaki and Masakatsu Matsuki, *National Aerospace Laboratory* (JA 19, 5, p. 364) Article based on AIAA Paper 80-1244

C82-072 Experimental Study of Oscillating-Wing Propulsion. J. D. DeLaurier, *University of Toronto (Canada)*; and J. M. Marris, *Battelle Memorial Institute* (JA 19, 5, p. 368) Article

C82-073 Non-Gaussian Atmospheric Turbulence Model for Flight Simulator Research. C. J. Jansen, *National Aerospace Laboratory NLR (The Netherlands)* (JA 19, 5, p. 374) Article based on AIAA Paper 80-1568 CP806

C82-074 Advanced Engine Technology and Its Influence on Aircraft Performance. Ulf Olsson, *Volvo Flygmotor AB (Sweden)* (JA 19, 5, p. 380) Article

C82-075 Theoretical Investigation of Sailing Airfoils Taking Account of Elasticities. H. Murai and S. Maruyama, *Tohoku University (Japan)* (JA 19, 5, p. 385) Article

C82-076 Improved Potential Gradient Method to Calculate Airloads on Oscillating Supersonic Interfering Surfaces. M. H. L. Hounjet, *National Aerospace Laboratory (The Netherlands)* (JA 19, 5, p. 390) Article based on AIAA Paper 81-0646 CP812

C82-077 Wind-Tunnel Study of the Flutter Characteristics of a Supercritical Wing. R. Houwink, *National Aerospace Laboratory (The Netherlands)*; A. N. Kraan and R. J. Zawaan, *National Aerospace Laboratory* (JA 19, 5, p. 400) Article based on AIAA Paper 81-0651 CP812

C82-078 Fully Laminar Flow Airfoil Sections. J. Sapuppo, *University of New South Wales (Australia)*; and R. D. Archer, *United States Naval Academy* (JA 19, 5, p. 406) Article

C82-079 Effect of Downwash on the Induced Drag of Canard-Wing Combinations. G. F. Butler, *Royal Aircraft Establishment (United Kingdom)* (JA 19, 5, p. 410) Engineering Note

C82-080 Aircraft Pitch Attitude as a Performance Parameter. M. E. Eshelby, *Cranfield Institute of Technology (England)* (JA 19, 5, p. 412) Engineering Note

C82-081 Added Mass and the Dynamic Stability of Parachutes. John A. Eaton, *Edgley Aircraft Ltd. (England)* (JA 19, 5, p. 414) Engineering Note

C82-082 Force Measurements on a Reflex Cambered Delta Wing. V. S. Holla, M. D. Aravamudhan and P. Jagadeesha Rao, *Indian Institute of Science* (JA 19, 6, p. 417) Synoptic

C82-083 Noise from a Vibrating Propeller. H. L. Runyan, *The George Washington University* (JA 19, 6, p. 419) Article based on AIAA Paper 80-1011

C82-084 Stalling Characteristics of a General Aviation Aircraft. Robert F. Stengel and W. Barry Nixon, *Princeton University* (JA 19, 6, p. 425) Article

C82-085 Experimental Investigation of a Wing with Controlled Midspan Flow Separation. V. F. Meznarsic and L. W. Gross, *McDonnell Douglas Corporation* (JA 19, 6, p. 435) Article based on AIAA Paper 80-1804

C82-086 Water-Tunnel Studies of Leading-Edge Vortices. Gary E. Erickson, *Northrop Corporation* (JA 19, 6, p. 442) Article based on AIAA Paper 80-1423

C82-087 An Airspeed Vector Sensor for V/STOL Aircraft. Enoch Durbin, *Princeton University*; and Tad McGeer, *Stanford University* (JA 19, 6, p. 449) Article based on AIAA Paper 80-1938

C82-088 Prediction and Experimental Verification of Transient Airfoil Motion. Stephen M. Rock, *Systems Control Technology*; and Daniel B. DeBra, *Stanford University* (JA 19, 6, p. 456) Article based on AIAA Paper 81-0052

C82-089 Wind-Tunnel Wall Interference Corrections for Three-Dimensional Flows. M. H. Rizk and M. G. Smithmeyer, *Flow Research Company* (JA 19, 6, p. 465) Article

C82-090 Fuel Efficiency of Small Aircraft. B. H. Carson, *U. S. Naval Academy* (JA 19, 6, p. 473) Article based on AIAA Paper 80-1847

C82-091 Finite-Element Modeling of a Fighter Aircraft Canopy Acrylic Panel. John J. Labra, *Southwest Research Institute* (JA 19, 6, p. 480) Article

C82-092 Structural Weight Comparison of a Joined Wing and a Conventional Wing. Mary Fairchild Samuels, *University of Texas* (JA 19, 6, p. 485) Article based on AIAA Paper 81-0366

C82-093 Evaluation of Methods for Prediction and Prevention of Wing/Store Flutter. S. J. Pollock, W. A. Sotomayer, L. J. Huttshell and D. E. Cooley, *Air Force Wright Aeronautical Laboratories* (JA 19, 6, p. 492) Article

C82-094 Structural Modification to Achieve Antiresonance in Helicopters. B. P. Wang, L. Kitis, W. D. Pilkey and A. Palazzolo, *University of Virginia* (JA 19, 6, p. 499) Article

C82-095 Inflatable System for Fast Deployment of Parachutes at Low Altitudes. H. O. Buckner, *Sao Paulo (Brazil)* (JA 19, 6, p. 505) Engineering Note based on AIAA Paper 81-1953

C82-096 Department of Defense Flight Testing: An Overview. James C. O'Connor, *USAAVRADCOM* (JA 19, 6, p. 506) Engineering Note based on AIAA Paper 81-2443

C82-097 Incompressible Symmetric Flow Characteristics of Sharp-Edged Rectangular Wings. Erik S. Larson, *The Aeronautical Research Institute of Sweden* (JA 19, 6, p. 508) Engineering Note

C82-098 Advanced-Range Instrumentation Aircraft Improvement and Modernization Program. James S. Nash, *Wright-Patterson Air Force Base* (JA 19, 6, p. 510) Engineering Note based on AIAA Paper 81-2368

C82-099 Inlet Design Studies for a Mach 2.2 Advanced Supersonic Cruise Vehicle. K. M. Shimabukuro, H. R. Welge and A. C. Lee, *McDonnell Douglas Corporation* (JA 19, 7, p. 513) Article based on AIAA Paper 79-1814

C82-100 Lifting-Surface Theory for Skewed and Swept Subsonic Wings. Neal T. Frink, *North Carolina State University* (JA 19, 7, p. 519) Article based on AIAA Paper 79-0551

C82-101 Cooling Air Inlet and Exit Geometries on Aircraft Engine Installations. Joseph Katz, Victor R. Corsiglia and

Philip R. Barlow, *NASA Ames Research Center* (JA 19, 7, p. 525) Article based on AIAA Paper 80-1242

C82-102 Flow Control for an Airborne Laser Turret. James R. Schonberger, Allen E. Fuhs and Alan M. Mandigo, *Naval Postgraduate School* (JA 19, 7, p. 531) Article

C82-103 Extension of Local Momentum Theory to Hovering Rotor with Distorted Wake. Keiji Kawachi, *University of Tokyo* (JA 19, 7, p. 538) Article

C82-104 A Variational Technique for Smoothing Flight-Test and Accident Data. Ralph E. Bach Jr., *NASA Ames Research Center* (JA 19, 7, p. 546) Article based on AIAA Paper 80-1601 CP806

C82-105 On-Line Wind Shear Generation for Flight Simulator Applications. A. B. Markov, L. D. Reid and R. B. MacKenzie, *University of Toronto* (JA 19, 7, p. 553) Article based on AIAA Paper 81-0970 CP813

C82-106 Effects of Holes on Graphite Cloth Epoxy Laminates Tension Strength. J. A. Bailie, M. F. Duggan, L. M. Fisher and R. C. Yee, *Lockheed Missiles and Space Company, Inc.* (JA 19, 7, p. 559) Article based on AIAA Paper 80-0710 CP804

C82-107 Stretched C-141: Cost Effective Application of Structural Technology. P. W. Horton and R. L. McDougal, *Lockheed-Georgia Company* (JA 19, 7, p. 567) Article based on AIAA Paper 81-0514 CP811

C82-108 Effect of Store Aerodynamics on Wing/Store Flutter. C. D. Turner, *North Carolina State University* (JA 19, 7, p. 574) Article based on AIAA Paper 81-0604 CP812

C82-109 Evaluation of Bonding Parameters on Random Fatigue Life of Bonded Aluminum Joints. H. F. Wolfe and C. L. Rupert, *Flight Dynamics Laboratory, AFWAL, WPAFB*; and H. S. Schwartz, *Materials Laboratory, AFWAL, WPAFB* (JA 19, 7, p. 581) Article based on AIAA Paper 81-0627 CP812

C82-110 Flight Flutter Test and Data Analysis Techniques Applied to a Drone Aircraft. Robert M. Bennett and Irving Abel, *NASA Langley Research Center* (JA 19, 7, p. 589) Article based on AIAA Paper 81-0652 CP812

C82-111 Aerodynamic Lag Functions, Divergence, and the British Flutter Method. William P. Rodden and E. Dean Bellingier, *The MacNeal-Schwendler Corporation* (JA 19, 7, p. 596) Engineering Note

C82-112 Stress Measurements in a Ribbon Parachute Canopy. Thomas A. Konicke, *U. S. Air Force, Edwards Air Force Base*; and William L. Garrard, *University of Minnesota* (JA 19, 7, p. 598) Engineering Note based on AIAA Paper 81-1944

C82-113 Development of the ARIES Parachute System. W. B. Pepper, *Sandia National Laboratories*; and F. M. Collins, *NASA Goddard Space Flight Center* (JA 19, 7, p. 600) Engineering Note based on AIAA Paper 81-1949

C82-114 STOL Aircraft Response to Turbulence Generated by a Tall Upwind Building. Lloyd D. Reid, *University of Toronto* (JA 19, 7, p. 601) Engineering Note

C82-115 Turbulence Measurements in an Ejector Wing Flow-field. G. D. Catalano, *Louisiana State University*; H. E. Wright, D. G. Stephens and K. S. Nagaraja, *Wright Patterson Air Force Base*; and R. E. Walterick, *Georgia Institute of Technology* (JA 19, 7, p. 603) Engineering Note based on AIAA Paper 81-1712

C82-120 Air-Inlet Engine Matching Problems Encountered in a Jet Trainer Re-engining Program. Sridhar M. Ramachandra, K. Sudhakar, P. V. K. Perumal and P. Jayasimha, *Hindustan Aeronautics Limited (India)* (JA 19, 8, p. 609) Article based on AIAA Paper 79-7004

C82-121 CF6-50 Short Core Exhaust Nozzle. Donald J. Dusa, *General Electric Company*; and Frank J. Hrach, *NASA Lewis Research Center* (JA 19, 8, p. 615) Article based on AIAA Paper 80-1196

C82-122 Effect of Local Parameters on Gas Turbine Emissions. C. W. Kauffman, S. M. Correa and N. J. Orozco, *University of Michigan* (JA 19, 8, p. 619) Article based on AIAA Paper 80-1290

C82-123 Aerodynamic Characteristics of a Large-Scale, Twin Tilt-Nacelle V/STOL Model. Michael D. Falarski and Michael R. Dudley, *NASA Ames Research Center*; W. Buchmann, *Grumman Aerospace Corporation*; and A. Pisano, *Naval Air Systems Command* (JA 19, 8, p. 627) Article based on AIAA Paper 81-0150

C82-124 Unsteady Lifting Case by Means of the Interior-Singularity Panel Method. Shi-Jung Chen and Charles Dalton, *University of Houston* (JA 19, 8, p. 634) Article

C82-125 Aerodynamic Features of Designed Strake-Wing Configurations. John E. Lamar and Neal T. Frink, *NASA Langley Research Center* (JA 19, 8, p. 639) Article based on AIAA Paper 81-1214

C82-126 Icing-Tunnel Tests of a Glycol-Exuding, Porous Leading-Edge Ice Protection System. D. L. Kohlman and W. G. Schweikhard, *University of Kansas*; and P. Evanich, *NASA Lewis Research Center* (JA 19, 8, p. 647) Article based on AIAA Paper 81-0405

C82-127 Quiet Short-Haul Research Aircraft Joint Navy/NASA Sea Trials. S. Queen, *Naval Air Test Center*; and J. Cochran, *NASA Ames Research Center* (JA 19, 8, p. 655) Article based on AIAA Paper 81-0152

C82-128 Design Allowables for T300/5208 Graphite/Epoxy Composite Materials. J. C. Ekvall and C. F. Griffin, *Lockheed-California Company* (JA 19, 8, p. 661) Article based on AIAA Paper 81-0541 CP811

C82-129 Influence of Unsteady Aerodynamics on Hingeless Rotor Ground Resonance. Wayne Johnson, *NASA Ames Research Center* (JA 19, 8, p. 668) Article

C82-130 Structural Analysis of Aerostat Flexible Structure by the Finite-Element Method. John D. Hunt, *TCOM Corporation* (JA 19, 8, p. 674) Article based on AIAA Paper 81-1342 CP815

C82-131 Nonlinear Dynamic Simulation of a Tethered Aerostat. S. P. Jones and J. A. Krausman, *TCOM Corporation* (JA 19, 8, p. 679) Article based on AIAA Paper 81-1340 CP815

C82-132 Large Structural Titanium Castings. W. J. Barice, *Precision Castparts Corp.* (JA 19, 8, p. 687) Article based on AIAA Paper 81-1403

C82-133 Effects of Flexibility on Stability of Small Ribbon Parachutes. Terry Weber, *McDonnell Aircraft Company*; and William L. Garrard, *University of Minnesota* (JA 19, 8, p. 692) Engineering Note based on AIAA Paper 81-1923

C82-134 U.S. Marine Corps AV-8A Maintenance Experience. L. Scott and R. W. Morrissey, *Naval Air Rework Facility*,

MCAS (JA 19, 8, p. 694) Engineering Note based on AIAA Paper 81-2657

C82-135 Air-Launched Balloon System Phase II Test Results. Andrew S. Carten Jr., *Air Force Geophysics Laboratory*; and Michael R. Wuest, *6520th Test Group, Edwards Air Force Base* (JA 19, 8, p. 697) Article based on AIAA Paper 81-1930

C82-136 Estimation of the Peak Count of Actively Controlled Aircraft. Norman J. Meyerhoff and Jeffrey Garlitz, *U. S. Department of Transportation* (JA 19, 8, p. 698) Engineering Note

C82-137 Air Traffic Control Computer Performance in the National Airspace System. Jacques Press, *Federal Aviation Administration Technical Center* (JA 19, 8, p. 700) Engineering Note based on AIAA Paper 81-2203 CP817

C82-140 Stability of Asymmetric Equilibrium Flight States. J. E. Cochran Jr., C.-S. Ho and G. A. Castleberry, *Auburn University* (JA 19, 9, p. 705) Synoptic based on AIAA Paper 80-1567 CP806

C82-141 Particle Dynamics of Inlet Flowfields with Swirling Vanes. A. Hamed, *University of Cincinnati* (JA 19, 9, p. 707) Article based on AIAA Paper 81-0001

C82-142 Effect of Unsteady Forcing on the Sinusoidal Instability of Vortex Wakes. Donald B. Bliss, *Princeton University* (JA 19, 9, p. 713) Article

C82-143 Analysis of Lift Losses for a Round Planform with a Central Jet. K. T. Yen, *Naval Air Development Center* (JA 19, 9, p. 722) Article based on AIAA Paper 81-0011

C82-144 Design of a Longitudinal Ride-Control System by Zakian's Method of Inequalities. T. R. Crossley, *University of Salford (England)*; and A. M. Dahshan, *Military Technical College (Egypt)* (JA 19, 9, p. 730) Article

C82-145 Afterbody Configuration Effects on Model Forebody and Afterbody Drag. E. R. Thompson and C. L. Smith, *Arnold Engineering Development Center, Arnold Air Force Station* (JA 19, 9, p. 739) Article based on AIAA Paper 81-1443

Technical Comment by Felix Aulehla and Geert Besigk, *Messerschmitt-Bolkow-Blohm GmbH* (JA 19, 9, p. 798) Reply (JA 19, 9, p. 800)

C82-146 Criteria for Side-Force Control in Air-to-Ground Target Acquisition and Tracking. Robert I. Sammonds and Walter E. McNeill, *NASA Ames Research Center*; and John W. Bunnell, *Air Force Wright Aeronautical Laboratories* (JA 19, 9, p. 744) Article based on AIAA Paper 80-1628 CP806

C82-147 Operational Concepts for Multiple Instrument Approaches. A. L. Haines, R. M. Harris and A. N. Sinha, *The MITRE Corporation* (JA 19, 9, p. 752) Article based on AIAA Paper 81-0801 and 81-0802

C82-148 Low-Visibility Visual Simulation with Real Fog. Wendell D. Chase, *NASA Ames Research Center* (JA 19, 9, p. 757) Article based on AIAA Paper 81-0982 CP813

C82-149 TA-4J Spin Training Through Simulation. S. Ramachandran, *Goodyear Aerospace Corporation*; and R. T. Galloway, *Naval Training Equipment Center* (JA 19, 9, p. 765) Article based on AIAA Paper 81-0965 CP813

C82-150 Fatigue Behavior of Weldbonded Joints. Gregory V. Scarich and Govind R. Chanani, *Northrop Corporation* (JA 19, 9, p. 773) Article

C82-151 Flutter and Oscillatory Pressure Tests on a 727 Aileron in a Wind Tunnel. K. S. Nagaraja, G. C. Lakin and J. B. Bartley, *Boeing Commercial Airplane Company* (JA 19, 9, p. 781) Article based on AIAA Paper 81-0656 CP812

C82-152 Bulkheads in Airships. Donald E. Woodward, *Association of Balloon and Airship Constructors* (JA 19, 9, p. 787) Article based on AIAA Paper 81-1328 CP815

C82-153 Minimum Induced Drag of Canard Configurations. Ilan M. Kroo, *Stanford University* (JA 19, 9, p. 792) Engineering Note

C82-154 Estimation of the Number of In-Flight Aircraft on Instrument Flight Rules. Norman Meyerhoff and Jeffrey Garlitz, *U. S. Department of Transportation* (JA 19, 9, p. 794) Engineering Note

C82-155 Unrestrained Aeroelastic Divergence in a Dynamic Stability Analysis. William P. Rodden and E. Dean Bellinger, *The MacNeal-Schwendler Corporation* (JA 19, 9, p. 796) Engineering Note

C82-158 Review of Flight-Wind-Tunnel Drag Correlation. Edwin J. Saltzman and Theodore G. Ayers, *NASA Ames Research Center* (JA 19, 10, p. 801) Survey Paper based on AIAA Paper 81-2475

C82-159 Control of Forebody Vortex Orientation to Enhance Departure Recovery of Fighter Aircraft. Andrew M. Skow, William A. Moore and Dale J. Lorincz, *Northrop Corporation* (JA 19, 10, p. 812) Article based on AIAA Paper 80-0173

C82-160 A Subsonic Panel Method for Iterative Design of Complex Aircraft Configurations. J. B. Malone, *Lockheed-Georgia Company* (JA 19, 10, p. 820) Article based on AIAA Paper 81-1254

C82-161 Dynamics and Control of a Heavy Lift Airship Hovering in a Turbulent Cross Wind. B. L. Nagabhushan and N. P. Tomlinson, *Goodyear Aerospace Corporation* (JA 19, 10, p. 826) Article based on AIAA Paper 81-1334 CP815

C82-162 Load Distribution on Multielement Deformed Airfoils with Gap Effects. J. M. Abernathy and J. E. Burkhalter, *Auburn University* (JA 19, 10, p. 831) Article based on AIAA Paper 81-0364

C82-163 Computation of Inviscid Flow Over Blunt Bodies Having Large Embedded Subsonic Regions. K. James Weilmuenster and H. Harris Hamilton II, *NASA Langley Research Center* (JA 19, 10, p. 839) Article based on AIAA Paper 81-1203

C82-164 Design Concepts for Minimizing Hot-Gas Ingestion in V/STOL Aircraft. R. E. Kuhn, *Consultant, Newport News* (JA 19, 10, p. 845) Article based on AIAA Paper 81-1624

C82-165 Pneumatic Tire Model for Aircraft Simulation. J. R. Kilner, *Boeing Military Airplane Company* (JA 19, 10, p. 851) Article

C82-166 Attenuation of Propeller-Related Vibration and Noise. J. F. Johnston and R. E. Donham, *Lockheed-California Company* (JA 19, 10, p. 858) Article based on AIAA Paper 81-0521 CP811

C82-167 Designing for Aircraft Structural Crashworthiness. Robert G. Thomson, *NASA Langley Research Center*; and Ceasar Caiafa, *Federal Aviation Administration* (JA 19, 10, p. 868) Article based on AIAA Paper 81-0803

C82-168 Transonic Flutter and Response Analyses of Two 3-Degree-of-Freedom Airfoils. T. Y. Yang and C. H. Chen, *Purdue University* (JA 19, 10, p. 875) Article

C82-169 Active Control of Forward-Swept Wings with Divergence and Flutter Aeroelastic Instabilities. Kenneth E. Griffin, *U. S. Air Force Academy*; and Franklin E. Eastep, *University of Dayton* (JA 19, 10, p. 885) Article based on AIAA Paper 81-0637 CP812

C82-170 Three-Dimensional Inviscid Analysis of the Scramjet Inlet Flowfield. Ajay Kumar, *NASA Langley Research Center* (JA 19, 10, p. 892) Engineering Note based on AIAA Paper 82-0060

C82-171 Higher-Order Flow Angle Corrections for Three-Dimensional Wind Tunnel Wall Interference. Magdi H. Rizk, *Flow Research Company* (JA 19, 10, p. 893) Engineering Note

C82-174 Departure Susceptibility and Uncoordinated Roll-Reversal Boundaries for Fighter Configurations. William Bihrl Jr. and Billy Barnhart, *Bihrl Applied Research, Inc.* (JA 19, 11, p. 897) Article based on AIAA Paper 80-1566 CP806

C82-175 Detection of Clear Air Turbulence Using a Diagnostic Richardson Number Tendency Formulation. John L. Keller and Patrick A. Haines, *University of Dayton Research Institute* (JA 19, 11, p. 904) Article based on AIAA Paper 81-0301

C82-176 Improved g-Cueing System. E. B. Bose, W. P. Leavy and S. Ramachandran, *Goodyear Aerospace Corporation* (JA 19, 11, p. 909) Article based on AIAA Paper 81-0987 CP813

C82-177 Combat Survivability with Advanced Aircraft Propulsion Development. Les Thronson, *Naval Weapons Center* (JA 19, 11, p. 915) Article based on AIAA Paper 81-1506

C82-178 Load Distribution on Deformed Wings in Supersonic Flow. John E. Burkhalter, *Auburn University* (JA 19, 11, p. 921) Article

C82-179 Flow Visualization Reveals Causes of Shuttle Nonlinear Aerodynamics. J. Peter Reding and Lars E. Ericsson, *Lockheed Missiles and Space Company, Inc.* (JA 19, 11, p. 928) Article based on AIAA Paper 81-1661

C82-180 Application of Pulse Code Modulation Technology to Aircraft Dynamics Data Acquisition. Dansen Brown, *Flight Dynamics Laboratory, Wright-Patterson AFB* (JA 19, 11, p. 934) Article based on AIAA Paper 81-1736

C82-181 Tests of a Thermal Acoustic Shield with a Supersonic Jet. N. Pickup, R. A. Mangiarotty and J. V. O'Keefe, *The Boeing Company* (JA 19, 11, p. 940) Article based on AIAA Paper 81-2021

C82-182 Development of New Lifting-Parachute Designs with Increased Trim Angle. W. R. Bolton, *Sandia National Laboratories (Livermore)*; I. T. Holt and C. W. Peterson, *Sandia National Laboratories (Albuquerque)* (JA 19, 11, p. 947) Article based on AIAA Paper 81-1921

C82-183 Rotor Wake Characteristics Relevant to Rotor-Stator Interaction Noise Generation. Loretta M. Shaw and Joseph R. Balombin, *NASA Lewis Research Center* (JA 19, 11, p. 954) Article based on AIAA Paper 81-2031

C82-184 Comparison of Computational and Experimental Jet Effects. J. L. Jacobs, W. L. Peters and F. C. Guyton, *Calspan Field Services, Inc., Arnold AFS* (JA 19, 11, p. 963) Article based on AIAA Paper 81-1492

C82-185 Estimation of Aircraft Fuel Consumption. Bela P. Collins, *The MITRE Corporation* (JA 19, 11, p. 969) Article based on AIAA Paper 81-0789

C82-186 Critique of the Gravity Vector Alignment Method for Motion Simulation. Howard Jaslow, *Gould Inc.* (JA 19, 11, p. 976) Article based on AIAA Paper 81-0985 CP813

C82-187 Ice Detector Evaluation for Aircraft Hazard Warning and Undercooled Water Content Measurements. E. N. Brown, *National Center for Atmospheric Research* (JA 19, 11, p. 980) Article

C82-188 Air Bag Impact Attenuation System for the AQM-34V Remote Piloted Vehicle. C. T. Turner, *Teledyne Ryan Aeronautical*; and L. A. Girard Jr., *Goodyear Aerospace Corporation* (JA 19, 11, p. 984) Article based on AIAA Paper 81-1917

C82-189 Advanced Facility for Processing Aircraft Dynamic Test Data. D. J. Stouder, *Douglas Aircraft Company* (JA 19, 11, p. 990) Article based on AIAA Paper 81-2398

C82-190 Prediction of Transonic Flutter for a Supercritical Wing by Modified Strip Analysis. E. Carson Yates Jr., Eleanor C. Wynne, Moses G. Farmer and Robert N. Desmarais, *NASA Langley Research Center* (JA 19, 11, p. 999) Article based on AIAA Paper 81-0609 CP812

C82-191 In-Flight Structural Dynamic Characteristics of the XV-15 Tilt-Rotor Research Aircraft. J. M. Bilger, R. L. Marr and Ahmad Zahedi, *Bell Helicopter Textron* (JA 19, 11, p. 1005) Article based on AIAA Paper 81-0612 CP812

C82-192 Analysis and Flight Data for a Drone Aircraft with Active Flutter Suppression. Jerry R. Newsom, *NASA Langley Research Center*; and Anthony S. Pototzky, *Kentron International* (JA 19, 11, p. 1012) Article based on AIAA Paper 81-0640 CP812

C82-193 Swept Composite Wing Aeroelastic Divergence Experiments. Maxwell Blair, *Air Force Wright Aeronautical Laboratories*; and Terrence A. Weisshaar, *Purdue University* (JA 19, 11, p. 1019) Article based on AIAA Paper 81-1670

C82-194 Conflict of Interest Wind Modeling in Aircraft Response Study. A. B. Markov, *Defence Research Establishment Suffield (Canada)*; and L. D. Reid, *Institute for Aerospace Studies, University of Toronto* (JA 19, 12, p. 1025) Article

C82-195 Composite Fan Exit Guide Vanes for High Bypass Ratio Gas Turbine Engines. S. S. Blecherman and T. N. Stankunas, *Pratt & Whitney Aircraft Group, United Technologies Corporation* (JA 19, 12, p. 1032) Article based on AIAA Paper 81-1357

C82-196 Prediction of Jet Exhaust Noise on Airframe Surfaces During Low-Speed Flight. L. M. Butzel, *Boeing Commercial Aircraft Company* (JA 19, 12, p. 1038) Article based on AIAA Paper 81-2035

C82-197 Assessment of Inflow Control Structure Effectiveness and Design System Development. A. A. Peracchio, *Pratt & Whitney Aircraft Group* (JA 19, 12, p. 1045) Article based on AIAA Paper 81-2048

C82-198 Noise and Detectability Characteristics of Small-Scale Remotely Piloted Vehicle Propellers. D. S. JanakiRam, *Hughes Helicopters, Inc.*; and B. W. Scruggs, *Applied Technology Laboratories* (JA 19, 12, p. 1052) Article based on AIAA Paper 81-2005

C82-199 Flight Test of the 747JT9D for Airframe Noise. Oscar Kipersztok and Gautam Sengupta, *Boeing Commercial Airplane Company* (JA 19, 12, p. 1061) Article based on AIAA Paper 81-2037

C82-200 A New Approach to Weapon Separation Aerodynamics. F. A. Tessitore, A. Cenko and R. C. Meyer, *Grumman Aerospace Corporation*; R. D. Dyer and J. D. Waskiewicz, *Air Force Wright Aeronautical Laboratories, WPAFB* (JA 19, 12, p. 1070) Article based on AIAA Paper 81-1654

C82-201 Selected Results from the Quiet Short-Haul Research Aircraft Flight Research Program. John A. Cochrane, Dennis W. Riddle, Victor C. Stevens and Michael D. Shovlin, *NASA Ames Research Center* (JA 19, 12, p. 1076) Article based on AIAA Paper 81-2625

C82-202 Airframe Effects on a Top-Mounted Fighter Inlet System. D. B. Smeltzer and W. P. Nelms, *NASA Ames Research Center*; and T. L. Williams, *Northrop Corporation* (JA 19, 12, p. 1083) Article based on AIAA Paper 81-2631

C82-203 In-Flight Deflection Measurement of the HiMAT Aeroelastically Tailored Wing. V. Michael DeAngelis, *NASA Ames Research Center* (JA 19, 12, p. 1088) Article based on AIAA Paper 81-2450

C82-204 Calculated and Experimental Stress Distributions in a Ribbon Parachute Canopy. W. L. Garrard and K. K. Muramoto, *University of Minnesota* (JA 19, 12, p. 1095) Engineering Note

C82-205 Wall Interference Evaluation from Pressure Measurements on Control Surfaces. R. Gopinath, *NASA Langley Research Center* (JA 19, 12, p. 1097) Engineering Note

C82-206 Existing Time Limit for Overwater Operations—Its Validity. R. Saha, *Technical Centre (India)* (JA 19, 12, p. 098) Engineering Note

C82-207 Laser Velocimeter for Large Wind Tunnels. Michael S. Reinath, *NASA Ames Research Center* (JA 19, 12, p. 1100) Engineering Note

C82-208 Helicopter Rotor Performance Evaluation Using Oscillatory Airfoil Data. V. S. Holla, *Indian Institute of Science*; A. R. Manjunath and J. Nagabhushanam, *Hindustan Aeronautics Ltd. (India)* (JA 19, 12, p. 1102) Engineering Note

From the AIAA Progress in Astronautics and Aeronautics Series . . .

VISCOUS FLOW DRAG REDUCTION—v. 72

Edited by Gary R. Hough, Vought Advanced Technology Center

One of the most important goals of modern fluid dynamics is the achievement of high speed flight with the least possible expenditure of fuel. Under today's conditions of high fuel costs, the emphasis on energy conservation and on fuel economy has become especially important in civil air transportation. An important path toward these goals lies in the direction of drag reduction, the theme of this book. Historically, the reduction of drag has been achieved by means of better understanding and better control of the boundary layer, including the separation region and the wake of the body. In recent years it has become apparent that, together with the fluid-mechanical approach, it is important to understand the physics of fluids at the smallest dimensions, in fact, at the molecular level. More and more, physicists are joining with fluid dynamicists in the quest for understanding of such phenomena as the origins of turbulence and the nature of fluid-surface interaction. In the field of underwater motion, this has led to extensive study of the role of high molecular weight additives in reducing skin friction and in controlling boundary layer transition, with beneficial effects on the drag of submerged bodies. This entire range of topics is covered by the papers in this volume, offering the aerodynamicist and the hydrodynamicist new basic knowledge of the phenomena to be mastered in order to reduce the drag of a vehicle.

456 pp., 6×9, illus., \$25.00 Mem., \$40.00 List

TO ORDER WRITE: Publications Dept., AIAA, 1290 Avenue of the Americas, New York, N.Y. 10104

From the AIAA Progress in Astronautics and Aeronautics Series . . .

COMBUSTION EXPERIMENTS IN A ZERO-GRAVITY LABORATORY—v. 73

Edited by Thomas H. Cochran, NASA Lewis Research Center

Scientists throughout the world are eagerly awaiting the new opportunities for scientific research that will be available with the advent of the U.S. Space Shuttle. One of the many types of payloads envisioned for placement in earth orbit is a space laboratory which would be carried into space by the Orbiter and equipped for carrying out selected scientific experiments. Testing would be conducted by trained scientist-astronauts on board in cooperation with research scientists on the ground who would have conceived and planned the experiments. The U.S. National Aeronautics and Space Administration (NASA) plans to invite the scientific community on a broad national and international scale to participate in utilizing Spacelab for scientific research. Described in this volume are some of the basic experiments in combustion which are being considered for eventual study in Spacelab. Similar initial planning is underway under NASA sponsorship in other fields—fluid mechanics, materials science, large structures, etc. It is the intention of AIAA, in publishing this volume on combustion-in-zero-gravity, to stimulate, by illustrative example, new thought on kinds of basic experiments which might be usefully performed in the unique environment to be provided by Spacelab, i.e., long-term zero gravity, unimpeded solar radiation, ultra-high vacuum, fast pump-out rates, intense far-ultraviolet radiation, very clear optical conditions, unlimited outside dimensions, etc. It is our hope that the volume will be studied by potential investigators in many fields, not only combustion science, to see what new ideas may emerge in both fundamental and applied science, and to take advantage of the new laboratory possibilities.

280 pp., 6×9, illus., \$20.00 Mem., \$35.00 List

TO ORDER WRITE: Publications Dept., AIAA, 1290 Avenue of the Americas, New York, N.Y. 10104