NASA Technical Memorandum 85735

Scientific and Technical Information
Output of the Langley Research Center for Calendar Year 1983

JANUARY 1984
Scientific and Technical Information
Output of the Langley Research Center
for Calendar Year 1983

Compiled by
Research Information and Applications Division
Langley Research Center
Hampton, Virginia
FOREWORD

This report contains a listing of Langley Research Center's scientific and technical research output for calendar year 1983.

The intent of this report is to provide a greater awareness of the broad scope of results and the importance of the research and development work conducted by scientists and engineers at Langley. This current awareness is mandated by the National Aeronautics and Space Act of 1958, which provides for the widest practical dissemination of NASA research.

During the calendar year 1983, Langley's contributions to NASA and non-NASA literature included 157 NASA Formal Reports, 121 Quick-Release Technical Memorandums, 260 Contractor Reports, 168 Journal Articles and Other Publications, 477 Meeting Presentations, 206 Technical Talks, 8 Computer Programs, 136 Tech Briefs, and 28 Patents. In addition, during the year 19 conferences, symposia, and workshops were sponsored or cosponsored by Langley and held locally.

Comments or suggestions concerning this publication should be addressed to the Research Information and Applications Division, Mail Stop 180A, NASA Langley Research Center, Hampton, Virginia 23665.

Jess G. Ross
Chief, Research Information and Applications Division
<table>
<thead>
<tr>
<th>Title of conference</th>
<th>Date</th>
<th>Langley contacts</th>
<th>Langley speakers</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ICASE - Computational Aeroacoustics Workshop</td>
<td>Jan. 3-6</td>
<td>Milton E. Rose</td>
<td>4</td>
<td>52</td>
</tr>
<tr>
<td>4. Langley Conference on Shuttle Performance: Lessons Learned</td>
<td>Mar. 8-10</td>
<td>Jim J. Jones and</td>
<td>11</td>
<td>287</td>
</tr>
<tr>
<td></td>
<td></td>
<td>James P. Arrington</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. NASA Space Station Technology Workshop</td>
<td>Mar. 28-31</td>
<td>Robert L. Wright and</td>
<td>1</td>
<td>740</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aubrey G. Price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. NASA Workshop on Tough Composite Materials</td>
<td>May 24-26</td>
<td>Louis F. Vosteen</td>
<td>6</td>
<td>130</td>
</tr>
<tr>
<td>8. NASA/ASTM Second United States/Japan Conference on Composite Materials</td>
<td>June 6-8</td>
<td>George L. Roderick</td>
<td>1</td>
<td>168</td>
</tr>
<tr>
<td>9. NASA Workshop on Transonic Unsteady Aerodynamics and Aeroelasticity</td>
<td>June 22-23</td>
<td>John W. Edwards</td>
<td>7</td>
<td>97</td>
</tr>
<tr>
<td>10. NASA/MSFC Applications of Tethers in Space Workshop</td>
<td>June 15-17</td>
<td>Paul M. Siemers III</td>
<td>3</td>
<td>250</td>
</tr>
<tr>
<td>11. STEP Experiment Requirements Workshop</td>
<td>June 29 -</td>
<td>Marcus L. Brumfield</td>
<td>10</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>July 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Workshop on Advanced Materials/Structures Technology for Rotorcraft</td>
<td>Aug. 17-19</td>
<td>Robert J. Huston</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Craig L. Streett</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. 1st Annual NASA Aircraft Controls Workshop</td>
<td>Oct. 25-27</td>
<td>Gary F. Beasley</td>
<td>9</td>
<td>130</td>
</tr>
<tr>
<td>16. SIAM Conference on Parallel Processing for Scientific Computing</td>
<td>Nov. 10-11</td>
<td>Milton E. Rose</td>
<td>2</td>
<td>450</td>
</tr>
<tr>
<td>17. NASA/AHS Annual Meeting</td>
<td>Nov. 29 -</td>
<td>Otis S. Childress, Jr.</td>
<td>8</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Dec. 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>115</td>
<td>3566</td>
</tr>
</tbody>
</table>
INTRODUCTION

The NASA Langley Research Center is one of the Nation's leading laboratories for research and development in the sciences of aeronautics and space technology. Langley conducts basic and applied research in fluid and flight mechanics, structures and materials, acoustics and noise reduction, measurement and instrumentation systems, numerical methods and techniques, data systems, electronics, physics, chemistry, and Earth and space sciences.

This publication is a compilation of Langley's scientific and technical research output for 1983 which is processed through the Center's Research Information and Applications Division, an integral part of NASA's Agency-wide Scientific and Technical Information (STI) system. This document is intended as a reference summary for researchers and as a current awareness publication for the scientific, research, and academic community.

The results of Langley's research are disseminated in a variety of NASA and non-NASA scientific and technical media and information systems. Details of the availability of the research references in this document are found in the section, "Availability," on page vii.

The citations are grouped first by Langley Directorates, then by the Langley Office or Division to which the senior author or innovator belongs. Citations are listed alphabetically by author or innovator under the following headings: Formal Reports (Technical Papers, Technical Memorandums, Conference Publications, Reference Publications, and Special Publications), Quick-Release Technical Memorandums, Contractor Reports, Journal Articles and Other Publications, Meeting Presentations, Technical Talks, Computer Programs, Tech Briefs, and Patents. If a citation has more than one author, it is listed only once under the first author's name. The subject category number used to index the citation and the Research Technology Objectives and Plans (RTOP) number are noted below citations when appropriate.

Computer Programs listed are those which were submitted by Langley to COSMIC in 1983.

The NASA Tech Briefs cited have either been published or submitted in 1983 for publication in "NASA Tech Briefs," a quarterly journal for United States industry, entrepreneurs, and academia. Subscriptions to this journal are available through the NASA Technology Utilization Program by writing to the Director, Technology Transfer Division, NASA Scientific and Technical Information, P. O. Box 8757, Baltimore/Washington International Airport, Maryland 21240.

Patents listed, which are owned in whole or in part by Langley Research Center personnel, have been published in issues of "Scientific and Technical Aerospace Reports" (STAR), a NASA announcement journal for report literature. A subscription to STAR is available from the U.S. Government Printing Office (GPO) or to qualified recipients from the NASA Scientific and Technical Information Facility (STIF).
<table>
<thead>
<tr>
<th>Category</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Reports</td>
<td>National Technical Information Service (NTIS) 5285 Port Royal Road Springfield, VA 22161</td>
</tr>
<tr>
<td>Quick-Release Technical Memorandums</td>
<td>NASA Scientific and Technical Information Facility (STIF) P. O. Box 8757 Baltimore/Washington International Airport, MD 21240</td>
</tr>
<tr>
<td>Contractor Reports</td>
<td>NASA Industrial Applications Centers (IAC) (See Appendix for addresses of IAC's)</td>
</tr>
<tr>
<td>Computer Programs</td>
<td>Computer Software Management and Information Center (COSMIC) 112 Barrow Hall University of Georgia Athens, GA 30602</td>
</tr>
<tr>
<td>Langley Tech Briefs</td>
<td>Office of Technology Utilization and Applications Mail Stop 139A NASA Langley Research Center Hampton, VA 23665</td>
</tr>
<tr>
<td>(also Technical Support Packages (TSP's))</td>
<td></td>
</tr>
<tr>
<td>Patents:</td>
<td></td>
</tr>
<tr>
<td>Patent Application Specifications</td>
<td>National Technical Information Service (NTIS)</td>
</tr>
<tr>
<td>Printed Copies</td>
<td>Commissioner of Patents and Trademarks U.S. Patent and Trademark Office Washington, DC 20231</td>
</tr>
<tr>
<td>CONTENTS</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>FOREWORD ................................................................. iii</td>
<td></td>
</tr>
<tr>
<td>LANGLEY CONFERENCES, SYMPOSIA, AND WORKSHOPS FOR 1983 ................ iv</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION .................................................................. v</td>
<td></td>
</tr>
<tr>
<td>AVAILABILITY ................................................................... vii</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF THE DIRECTOR .................................................. 1</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR PROJECTS ....................................... 9</td>
<td></td>
</tr>
<tr>
<td>AERONAUTICAL SYSTEMS OFFICE ......................................... 11</td>
<td></td>
</tr>
<tr>
<td>SPACE TECHNOLOGY FLIGHT EXPERIMENTS OFFICE .................... 16</td>
<td></td>
</tr>
<tr>
<td>SCOUT PROJECT OFFICE .................................................... 17</td>
<td></td>
</tr>
<tr>
<td>AIRCRAFT ENERGY EFFICIENCY PROJECT OFFICE ....................... 18</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR ELECTRONICS ................................. 22</td>
<td></td>
</tr>
<tr>
<td>ANALYSIS AND COMPUTATION DIVISION .................................. 23</td>
<td></td>
</tr>
<tr>
<td>INSTRUMENT RESEARCH DIVISION ....................................... 26</td>
<td></td>
</tr>
<tr>
<td>FLIGHT DYNAMICS AND CONTROL DIVISION ............................. 36</td>
<td></td>
</tr>
<tr>
<td>FLIGHT ELECTRONICS DIVISION ......................................... 43</td>
<td></td>
</tr>
<tr>
<td>FLIGHT CONTROL SYSTEMS DIVISION .................................... 50</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR STRUCTURES .................................. 61</td>
<td></td>
</tr>
<tr>
<td>MATERIALS DIVISION ....................................................... 62</td>
<td></td>
</tr>
<tr>
<td>ACOUSTICS AND NOISE REDUCTION DIVISION ......................... 81</td>
<td></td>
</tr>
<tr>
<td>STRUCTURES AND DYNAMICS DIVISION ................................ 89</td>
<td></td>
</tr>
<tr>
<td>LOADS AND AEROELASTICITY DIVISION .................................. 101</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR AERONAUTICS ................................. 112</td>
<td></td>
</tr>
<tr>
<td>LOW-SPEED AERODYNAMICS DIVISION .................................. 113</td>
<td></td>
</tr>
<tr>
<td>TRANSONIC AERODYNAMICS DIVISION ................................... 120</td>
<td></td>
</tr>
<tr>
<td>HIGH-SPEED AERODYNAMICS DIVISION .................................. 135</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR SPACE ........................................ 146</td>
<td></td>
</tr>
<tr>
<td>ATMOSPHERIC SCIENCES DIVISION ...................................... 147</td>
<td></td>
</tr>
<tr>
<td>SPACE SYSTEMS DIVISION .................................................. 163</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR SYSTEMS ENGINEERING AND OPERATIONS .... 180</td>
<td></td>
</tr>
<tr>
<td>FABRICATION DIVISION .................................................... 181</td>
<td></td>
</tr>
<tr>
<td>SYSTEMS ENGINEERING DIVISION ...................................... 183</td>
<td></td>
</tr>
<tr>
<td>FACILITIES ENGINEERING DIVISION .................................... 187</td>
<td></td>
</tr>
<tr>
<td>OPERATIONS SUPPORT DIVISION ....................................... 189</td>
<td></td>
</tr>
<tr>
<td>OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS .................. 191</td>
<td></td>
</tr>
<tr>
<td>ARMY STRUCTURES LABORATORY, USARTL (AVRADCOM) ............... 193</td>
<td></td>
</tr>
<tr>
<td>APPENDIX ..................................................................... 194</td>
<td></td>
</tr>
<tr>
<td>AUTHOR INDEX ................................................................. 196</td>
<td></td>
</tr>
</tbody>
</table>
Formal Reports

No formal reports.

Quick-Release Technical Memorandums

   (Avail: NTIS Subject Category 99)

   (Avail: NTIS Subject Category 99)

Contractor Reports

   (Avail: NTIS Subject Category 64 RTOP 505-31-83)

   (Avail: NTIS Subject Category 64 RTOP 505-31-83)

   (Avail: NTIS Subject Category 62 RTOP 505-31-83)

   (Avail: NTIS Subject Category 62 RTOP 505-31-83)

   (Avail: NTIS Subject Category 59 RTOP 505-31-83)


(Avail: NTIS Subject Category 64 RTOP 505-31-83)

(Avail: NTIS Subject Category 64 RTOP 505-31-83)

(Avail: NTIS Subject Category 64 RTOP 505-31-83)

(Avail: NTIS Subject Category 64 RTOP 505-31-83)

(Avail: NTIS Subject Category 61 RTOP 505-31-83)

(Avail: NTIS Subject Category 24 RTOP 505-31-83)

(Avail: NTIS Subject Category 80)

(Avail: NTIS Subject Category 02 RTOP 505-31-83)

(Avail: NTIS Subject Category 59 RTOP 505-31-83)

(Avail: NTIS Subject Category 64 RTOP 505-31-83)
Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks


Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

PUBLICATIONS FOR OFFICE OF DIRECTOR FOR PROJECTS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

   (Subject Category 05 RTOP 534-02-13)

Technical Talks

   (Subject Category 05 RTOP 534-02-13)

Computer Programs

No computer programs.

Tech Briefs

Formal Reports


Quick-Release Technical Memorandums


(Avail: NTIS Subject Category 02 RTOP 505-43-43)

(Avail: NTIS Subject Category 02 RTOP 505-43-43)

(Avail: NTIS Subject Category 02 RTOP 505-43-43)

(Avail: NTIS Subject Category 01 RTOP 505-43-43)

(Avail: NTIS Subject Category 99 RTOP 505-43-43)

(Avail: NTIS Subject Category 99 RTOP 505-43-43)

(Avail: NTIS Subject Category 01 RTOP 505-43-43)

(Avail: NTIS Subject Category 01 RTOP 505-43-43)

(Avail: STIF Subject Category 01 RTOP 505-43-43)

Contractor Reports

(Avail: NTIS Subject Category 05 RTOP 505-43-53)

(Avail: STIF Subject Category 05 RTOP 505-43-43)


Journal Articles and Other Publications


Meeting Presentations


Technical Talks


106. Driver, Cornelius: Progress in Supersonic Cruise Technology. Presented at the Aerodynamics Institute Seminar on Supersonic Transport Technology, October 14, 1983, Aachen, West Germany. (Subject Category 02 RTOP 505-43-33)


Computer Programs

No computer programs.

Tech Briefs


Patents

No patents.
Formal Reports

(Avail: NTIS Subject Category 15 RTOP 506-62-23)

(Avail: NTIS Subject Category 15 RTOP 506-62-23)

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
PUBLICATIONS FOR SCOUT PROJECT OFFICE

Formal Reports
No formal reports.

Quick-Release Technical Memorandums
No quick-release technical memorandums.

Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations
No meeting presentations.

Technical Talks
No technical talks.

Computer Programs
No computer programs.

Tech Briefs

Patents
No patents.
Formal Reports

(Avail: NTIS Subject Category 24 RTOP 534-03-13)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 39 RTOP 534-03-13)

(Avail: NTIS Subject Category 01 RTOP 505-45-63)

(Avail: IAC Subject Category 02 RTOP 534-01-13)

Contractor Reports

(Avail: IAC Subject Category 24 RTOP 534-03-13)

(Avail: IAC Subject Category 24 RTOP 534-03-13)

(Avail: IAC Subject Category 24 RTOP 534-03-13)


Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations


Technical Talks

136. Chapman, Andrew J.; and Bohon, Herman L.: Application of Composites to Transport Aircraft Structures. Presented at the Society of Experimental Stress Analysis 1983 Fall Meeting, November 7-9, 1983, Salt Lake City, Utah. (Subject Category 39 RTOP 534-06-13)


Computer Programs

No computer programs.
Tech Briefs


Patents

No patents.
PUBLICATIONS FOR OFFICE OF DIRECTOR FOR ELECTRONICS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
Formal Reports

   (Avail: NTIS Subject Category 61 RTOP 505-31-83)

   (Avail: NTIS Subject Category 04 RTOP 534-04-13)

Quick-Release Technical Memorandums

   (Avail: NTIS Subject Category 61 RTOP 992-16-05)

Contractor Reports

   (Avail: STIF CR-166059 RTOP 505-31-83)

   (Avail: IAC Subject Category 05 RTOP 505-45-23)

Journal Articles and Other Publications

   (Subject Category 61 RTOP 505-31-83)

   (Subject Category 61 RTOP 506-61-13)

   (Subject Category 74 RTOP 505-31-83)

Meeting Presentations


Technical Talks


Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
PUBLICATIONS FOR INSTRUMENT RESEARCH DIVISION

Formal Reports

   (Avail: NTIS Subject Category 35 RTOP 505-31-53)

   (Avail: NTIS Subject Category 48 RTOP 506-61-73)

   (Avail: NTIS Subject Category 35 RTOP 505-33-53)

   (Avail: NTIS Subject Category 35 RTOP 505-33-53)

   (Avail: NTIS Subject Category 66 RTOP 505-31-53)

Quick-Release Technical Memorandums

   (Avail: NTIS Subject Category 35 RTOP 505-33-43)

   (Avail: NTIS Subject Category 35 RTOP 505-31-53)

   (Avail: NTIS Subject Category 27 RTOP 179-80-70)

   (Avail: NTIS Subject Category 14 RTOP 542-03-30)
(Avail: NTIS Subject Category 35 RTOP 505-31-53)

(Avail: NTIS Subject Category 35 RTOP 505-31-53)

(Avail: NTIS Subject Category 14 RTOP 506-63-32)

(Avail: NTIS Subject Category 35 RTOP 505-33-53)

Contractor Reports

(Avail: NTIS Subject Category 36 RTOP 506-54-13)

(Avail: STIF Subject Category 35 RTOP 323-51-61)

Journal Articles and Other Publications

(Subject Category 23 RTOP 179-80-10)

(Subject Category 35 RTOP 665-40-40)

(Subject Category 48 RTOP 506-61-73)

(Subject Category 48 RTOP 506-61-73)
(Subject Category 35 RTOP 505-31-63)

(Subject Category 35 RTOP 505-32-03)

(Subject Category 71 RTOP 505-32-03)

Meeting Presentations

(Subject Category 71 RTOP 505-33-23)

(Subject Category 71 RTOP 505-33-23)

(Subject Category 35 RTOP 505-31-53)

(Subject Category 35 RTOP 505-31-53)

(Subject Category 71 RTOP 505-33-23)

(Subject Category 71 RTOP 505-33-23)
191. Cantrell, John H., Jr.: Assessment of Burn Depth With Ultrasound: A Promising Methodology in Burn Research. Presented at the Burn Conference "Where are the Frontiers in the Understanding of Burn Injuries?", September 26-28, 1983, Washington, DC. (Subject Category 71 RTOP 505-33-23)


198. Heyman, Joseph S.; and Yoder, L.: An Interferometric Measurement of the Acoustoelastic Constant of Rock Core Samples. Presented at the IEEE 1983 Ultrasonics Symposium, October 31 - November 2, 1983, Atlanta, Georgia. Proceedings Pending. (Subject Category 71 RTOP 505-33-23)


204. Li, Peter; Winfree, William P.; Yost, W. T.; and Cantrell, John H., Jr.: Observation of Collinear Beam-Mixing by an Amplitude Modulated Ultrasonic Wave in a Solid. Presented at the IEEE 1983 Ultrasonics Symposium, October 31 - November 2, 1983, Atlanta, Georgia. Proceedings Pending. (Subject Category 71 RTOP 505-33-23)


210. Upchurch, Billy T.; Wood, George M.; Swann, Robert T.; Allen, Gayle J.; Miller, Irvin M.; and Hoyt, Ronald F.: Mass Spectrometric Investigation of Isotope Exchange Reactions of Molecular Oxygen With Several Oxide Surfaces. Presented at the 35th Southeastern Regional Meeting of the American Chemical Society, November 9-11, 1983, Charlotte, North Carolina. (Subject Category 23 RTOP 307-03-02)


(Subject Category 71 RTOP 505-32-03)

Technical Talks

(Subject Category 26 RTOP 179-80-70)

(Subject Category 23 RTOP 506-34-13)

219. Crouch, Roger K.; Debnam, W. J.; and Taylor, Ray: Thermal Diffusivity Measurements in PbTe and PbSnTe from Room Temperature to 1000°C. Presented at the South Dakota School of Mines and Technology, 18th International Thermal Conductivity Conference, October 3-5, 1983, Rapid City, South Dakota. 
(Subject Category 27 RTOP 179-80-70)

(Subject Category 09 RTOP 505-31-53)

(Subject Category 32 RTOP 506-54-13)

(Subject Category 74 RTOP 506-58-13)

(Subject Category 34 RTOP 506-58-13)

(Subject Category 71 RTOP 505-33-23)


230. Rayborn, Grayson H.; Wood, George M.; Upchurch, Billy T.; and Howard, Samuel J.: Resolution of Fused Chromatography Peaks by Deconvolution With Extension of the Fourier Spectrum. Presented at the American Chemical Society Symposium, April 26, 1983, Jackson, Mississippi. (Subject Category 23 RTOP 506-54-23)


Computer Programs

No computer programs.


*Army Structures Laboratory, USARTL (AVRADCOM)
247. Singh, Jag J. (Langley Research Center); Khandelwal, G. S. (Old Dominion University); and Mall, Gerald H. (Computer Sciences Corporation): Radionuclide Counting Technique Measures Wind Velocity. NASA Tech Brief LAR-12971.


Patents


252. Fripp, Archibald L.; Robertson, James B.; and Breckenridge, Roger A.: Pyroelectric Detector Arrays. U.S. Patent 4,379,970. Issued April 12, 1983. (Subject Category 33)


PUBLICATIONS FOR FLIGHT DYNAMICS AND CONTROL DIVISION

Formal Reports


Quick-Release Technical Memorandums


Contractor Reports


Journal Articles and Other Publications


Meeting Presentations


(Subject Category 20 RTOP 506-57-13)

(Subject Category 20 RTOP 506-57-13)

(Subject Category 20 RTOP 506-57-13)

(Subject Category 31 RTOP 506-57-13)

(Subject Category 08 RTOP 505-34-03)

(Subject Category 18 RTOP 506-57-13)

(Subject Category 18 RTOP 506-54-73)

(Subject Category 18 RTOP 506-57-13)

(Subject Category 62 RTOP 506-54-63)


299. Suit, William T.; Compton, Harold R.; Scallion, William I.; Schiess, James R.; and Gahan, L. Sue: Analysis of Shuttle Oscillation in the Mach Number = 1.7 to Mach Number = 1.0 Range. Presented at the Langley Conference on Shuttle Performance: Lessons Learned, March 8-10, 1983, Hampton, Virginia. In NASA CP-2283. (Subject Category 18 RTOP 505-34-03)


303. Taylor, L. W., Jr.: A Laboratory Experiment Used to Evaluate Control Laws for Flexible Spacecraft...A NASA/IEEE Design Challenge. Presented at the VPI&SU/AIAA Fourth Symposium on Dynamics and Control of Large Structures, June 6-8, 1983, Blacksburg, Virginia. Proceedings Pending. (Subject Category 18 RTOP 506-57-13)


Technical Talks


Computer Programs

No computer programs.

Tech Briefs


Patents

PUBLICATIONS FOR FLIGHT ELECTRONICS DIVISION

Formal Reports


Quick-Release Technical Memorandums


Contractor Reports

(Avail: NTIS Subject Category 16 RTOP 506-62-43)

(Avail: NTIS Subject Category 06 RTOP 505-41-63)

(Avail: NTIS Subject Category 43 RTOP 506-61-03)

(Avail: IAC Subject Category 43 RTOP 619-12-01)

(Avail: STIF Subject Category 33 RTOP 506-61-33)

(Avail: STIF Subject Category 60 RTOP 506-58-13)

(Avail: NTIS Subject Category 43 RTOP 506-58-13)

Journal Articles and Other Publications

(Subject Category 48 RTOP 307-02-02)

(Subject Category 23 RTOP 179-80-10)
330. Croswell, W. F.; Fedors, J. C.; Hoge, F. E.; Swift, R. N.; and
Johnson, J. C.: Ocean Experiments and Remotely Sensed Images of Chemically
Dispersed Oil Spills. IEEE Transactions on Geoscience and Remote Sensing,
(Subject Category 45 RTOP 176-30-34)

331. Huck, F. O.; Fales, C. L.; Park, S. K.; Speray, D. E.; and Self, M. O.:
Application of Information Theory to the Design of Line-Scan and Sensor-
Array Imaging Systems. Optics and Laser Technology, Volume 30,
February 1983, p. 21-34.
(Subject Category 35 RTOP 506-58-13)

332. Meredith, B. D.; Carney, P. C.; and LaBaugh, R. J.: Laboratory System for
Demonstrating Spacecraft Processing of Multispectral Image Data. Optical
(Subject Category 60 RTOP 506-61-03)

Meeting Presentations

333. Bair, Clayton H.: CO₂ Laser Development and Option. Presented at the
NASA/MSFC Second Multiagency Lidar Backscatter Workshop, April 12-13, 1983,
Huntsville, Alabama.
(Subject Category 35 RTOP 506-54-23)

Estimation of Spectral Reflectance Signatures From Spectral Radiance
Profiles. Presented at the Environmental Research Institute of Michigan
Seventeenth International Symposium on Remote Sensing of Environment, May
(Subject Category 43 RTOP 506-53-13)

335. Davis, Richard E.; and Fischer, Michael C.: Cloud Particle Effects on
Laminar Flow and Instrumentation for Their Measurement Aboard a NASA LFC
Aircraft. Presented at the AIAA/AHS/IES/SETP 2nd Flight Testing Conference
No. 83-2734.
(Subject Category 02 RTOP 534-01-13)

Presented at the NASA/MSFC Second Multiagency Lidar Backscatter Workshop,
April 12-13, 1983, Huntsville, Alabama.
(Subject Category 35 RTOP 506-54-23)

Multiagency Lidar Backscatter Workshop, April 12-13, 1983, Huntsville,
Alabama.
(Subject Category 35 RTOP 506-54-23)


Technical Talks


352. Hunter, Monica Y.: Development of the Pushbroom Microwave Radiometer. Presented at the National Technical Association Student Technical Symposium, July 25-30, 1983, Kissimmee, Florida. (Subject Category 33 RTOP 506-54-23)


Computer Programs

No computer programs.

Tech Briefs


360. Crouch, Roger K.; and Debnam, W. J. (Langley Research Center); and Ryan, R. (BOMCO, Inc.): Ampoule With Integral Feedthroughs. NASA Tech Brief LAR-12899.


Patents

No patents.
Formal Reports

(Avail: NTIS Subject Category 03 RTOP 505-35-23)

(Avail: NTIS Subject Category 06 RTOP 505-35-23)

(Avail: NTIS Subject Category 06 RTOP 505-35-23)

(Avail: NTIS Subject Category 01 RTOP 505-34-13)

(Avail: NTIS Subject Category 01 RTOP 505-35-23)

(Avail: NTIS Subject Category 59 RTOP 505-35-33)

(Avail: NTIS Subject Category 06 RTOP 505-35-23)

(Avail: NTIS Subject Category 06 RTOP 534-04-13)

(Avail: NTIS Subject Category 08 RTOP 505-34-13)

(Avail: NTIS Subject Category 06 RTOP 534-04-13)


378. Parrish, Russell V.; McKissick, Burnell T.; and Ashworth, Billy R.: Comparison of Simulator Fidelity Model Predictions With In-Simulator Evaluation Data. NASA TP-2106, February 1983, 37 p. (Avail: NTIS Subject Category 05 RTOP 505-35-33)


Quick-Release Technical Memorandums


*Army Structures Laboratory, USARLT (AVRADCOM)

Contractor Reports


(Avail: IAC Subject Category 62 RTOP 505-34-13)

(Avail: NTIS Subject Category 05 RTOP 534-04-13)

(Avail: STIF Subject Category 08 RTOP 505-43-13)

(Avail: STIF Subject Category 08 RTOP 505-43-13)

(Avail: STIF Subject Category 08 RTOP 505-43-13)

(Avail: IAC Subject Category 02 RTOP 505-34-13)

(Avail: NTIS Subject Category 53 RTOP 503-35-23)

(Avail: NTIS Subject Category 08 RTOP 505-45-33)

(Avail: NTIS Subject Category 03 RTOP 505-35-23)
Journal Articles and Other Publications

(Subject Category 08 RTOP 505-41-63)

Meeting Presentations

(Subject Category 06 RTOP 505-35-23)

(Subject Category 59 RTOP 505-34-13)

(Subject Category 47 RTOP 505-34-13)

(Subject Category 08 RTOP 505-35-73)

(Subject Category 61 RTOP 505-34-13)

(Subject Category 08 RTOP 534-04-13)

(Subject Category 18 RTOP 506-57-33)
(Subject Category 05   RTOP 505-34-13)

(Subject Category 08   RTOP 505-34-13)

(Subject Category 08   RTOP 505-43-33)

(Subject Category 06   RTOP 505-34-13)

(Subject Category 65   RTOP 505-34-13)

(Subject Category 59   RTOP 505-34-13)

(Subject Category 59   RTOP 505-34-13)

(Subject Category 05   RTOP 505-35-33)

(Subject Category 66   RTOP 505-34-13)


447. Spady, Amos A., Jr.; Harris, Randall L., Sr.; and Comstock, Raymond: Flight Versus Simulator Scan Behavior. Presented at the Ohio State University Second Symposium on Aviation Psychology, April 26-27, 1983, Columbus, Ohio. (Subject Category 53 RTOP 534-04-13)

   (Subject Category 01 RTOP 505-45-73)

   (Subject Category 54 RTOP 505-35-23)

   (Subject Category 06 RTOP 505-35-23)

Technical Talks

   (Subject Category 59 RTOP 505-34-13)

   (Subject Category 01 RTOP 505-35-73)

   (Subject Category 59 RTOP 505-34-13)

   (Subject Category 61 RTOP 505-34-13)

   (Subject Category 09 RTOP 534-04-13)

   (Subject Category 66 RTOP 505-34-13)


460. Spitzer, Cary R.: Planetary Exploration. Presented at the NASA/ASEE Summer Faculty Research Program Lecture Series, June 14, 1983, Hampton, Virginia. (Subject Category 91 RTOP 505-34-23)


Computer Programs

No computer programs.

Tech Briefs


Patents

PUBLICATIONS FOR OFFICE OF DIRECTOR FOR STRUCTURES

Formal Reports
No formal reports.

Quick-Release Technical Memorandums
No quick-release technical memorandums.

Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations
No meeting presentations.

Technical Talks

Computer Programs
No computer programs.

Tech Briefs
No tech briefs.

Patents
No patents.
PUBLICATIONS FOR MATERIALS DIVISION

Formal Reports

   (Avail: NTIS Subject Category 24 RTOP 506-53-23)

   (Avail: NTIS Subject Category 24 RTOP 505-33-33)

   (Avail: NTIS Subject Category 26 RTOP 505-43-43)

   (Avail: NTIS Subject Category 26 RTOP 505-43-43)

Quick-Release Technical Memorandums

   (Avail: NTIS Subject Category 24 RTOP 505-42-23)

   (Avail: NTIS Subject Category 26 RTOP 505-33-13)

   (Avail: NTIS Subject Category 27 RTOP 505-33-33)

   (Avail: STIF Subject Category 24 RTOP 505-42-23)

   (Avail: NTIS Subject Category 24 RTOP 505-42-23)

*Army Structures Laboratory, USARTL (AVRADCOM)


*Army Structures Laboratory, USARTL (AVRADCOM)
(Avail: NTIS Subject Category 24 RTOP 505-33-23)

Contractor Reports

(Avail: NTIS Subject Category 39 RTOP 505-33-33)

(Avail: NTIS Subject Category 26 RTOP 506-53-33)

(Avail: NTIS Subject Category 24 RTOP 506-53-23)

(Avail: NTIS Subject Category 24 RTOP 506-53-23)

(Avail: STIF Subject Category 24 RTOP 505-33-33)

(Avail: NTIS Subject Category 27 RTOP 505-33-33)

(Avail: NTIS Subject Category 39 RTOP 505-33-23)

(Avail: NTIS Subject Category 52 RTOP 141-20-20)

(Avail: NTIS Subject Category 27 RTOP 505-33-33)


Journal Articles and Other Publications


520. Farley, Gary L.; and Baker, Donald J.: In-Plane Shear Test of Thin Panels. Experimental Mechanics, Volume 23, March 1983, p. 81-88. (Subject Category 24 RTOP 532-06-13)


525. Maahs, Howard G.: Measurements of the Oxidation Rate of Sulfur (IV) by Ozone in Aqueous Solution and Their Relevance to SO2 Conversion in Nonurban Tropospheric Clouds. Atmospheric Environment, Volume 17, 1983, p. 341-345. (Subject Category 23 RTOP 307-01-02)

*Army Structures Laboratory, USARTL (AVRADCOM)


530. Wakelyn, N. T.; Levy, Gerald F.; and Salop, John: Comment on "The Application of Forest Classification From Landsat Data as a Basis for Natural Hydrocarbon Emission Estimation and Photochemical Oxidant Model Simulations in Southeastern Virginia." *Journal of the Air Pollution Control Association*, Volume 33, June 1983, p. 606-607. (Subject Category 45 RTOP 505-33-33)


Meeting Presentations


*Army Structures Laboratory, USARL (AVRACOM)*


537. Brewer, William D.: Effects of Thermal Treatments on the Flexure Properties and Microstructure of SiC-w/M2124 Aluminum Composites. Presented at the American Ceramic Society 7th Annual Conference on Composites and Advanced Materials, January 16-23, 1983, Cocoa Beach, Florida. NASA CP 2291. (Subject Category 24 RTOP 505-33-13)


*Army Structures Laboratory, USARTL (AVRADCOM)
Presented at the NASA Workshop on Tough Composite Materials, May 24-26, 
1983, Hampton, Virginia. NASA CP Pending. 
(Subject Category 24 RTOP 506-53-23)

Adhesive Debonding. Presented at the ASTM Symposium on Delamination and 
ASTM STP Pending. 
(Subject Category 39 RTOP 505-33-33)

AHS Mideast Region Composite Structures Specialists' Meeting, March 23-25, 
(Subject Category 24 RTOP 532-06-13)

545. Hanky, Annemarie O.; and St. Clair, Terry L.: Acetylene-Terminated Polyimide 
Adhesives. Presented at the 28th National SAMPE Symposium and Exhibition, 
p. 711-727. 
(Subject Category 27 RTOP 505-33-33)

Presented at the 186th National Meeting of the American Chemical Society, 
August 28 - September 2, 1983, Washington, DC. In Polymer Preprints, 
(Subject Category 27 RTOP 505-33-33)

547. Hergenrother, P. M.: High Temperature Polymers. Presented at the 17th ACS 
Middle Atlantic Regional Meeting, April 6-8, 1983, White Haven, 
Pennsylvania. 
(Subject Category 27 RTOP 505-33-33)

548. Hergenrother, P. M.: Status of High Temperature Adhesives. Presented at the 
American Chemical Society Symposium on Recent Developments in Adhesive 
(Subject Category 27 RTOP 505-33-33)

549. Hergenrother, Paul M.; and Jensen, Brian J.: Ethynyl-Terminated 
Polysulfones: Preliminary Mechanical Properties. Presented at the 
American Chemical Society Symposium on Plastics and Composites for 
914-918. 
(Subject Category 27 RTOP 505-33-33)

*Army Structures Laboratory, USARL (AVRADCOM)


*Army Structures Laboratory, USARTL (AVRADCOM)


*Army Structures Laboratory, USARL (AVRADCOM)


572. St. Clair, Anne K.; and Stoakley, Diane M.: Chromium Ion-Containing Epoxies. Presented at the 35th Southeastern Regional Meeting of the American Chemical Society, November 9-11, 1983, Charlotte, North Carolina. (Subject Category 27 RTOP 534-03-23)


575. Stoakley, Diane M.; and St. Clair, Anne K.: Cobalt Ion Containing Epoxies. Presented at the 35th Southeastern Regional Meeting of the American Chemical Society, November 9-11, 1983, Charlotte, North Carolina. (Subject Category 27 RTOP 534-03-23)


Technical Talks

580. Bales, Thomas T.; Royster, Dick M.; and Wiart, H. Ross: Brazed Borsic®/Aluminum Structural Panels for High Speed Aircraft. Presented at the 28th National SAMPE Symposium and Exhibition, April 12-14, 1983, Anaheim, California. (Subject Category 24 RTOP 505-33-13)


588. Hergenrother, P. M.: Recent Advances in Structural Resins for Aerospace Applications. Presented at the Plastics Institute of America, 22nd Annual Meeting and Research Symposium, April 21, 1983, Hoboken, New Jersey. (Subject Category 27 RTOP 505-33-33)

589. Hergenrother, P. M.: High Performance High Temperature Polymers. Presented at the Naval Research Laboratory Chemistry Division Lecture Series, April 28, 1983, Washington, DC. (Subject Category 27 RTOP 505-33-33)


*Army Structures Laboratory, USARTL (AVRADCOM)


*Army Structures Laboratory, USARL (AVRADCOM)
   (Subject Category 24 RTOP 506-53-23)

   (Subject Category 24 RTOP 506-53-23)

   (Subject Category 24 RTOP 506-53-33)

   (Subject Category 24 RTOP 505-33-33)

   (Subject Category 27 RTOP 505-33-33)

   (Subject Category 27 RTOP 505-33-33)

   (Subject Category 27 RTOP 505-33-33)

   (Subject Category 27 RTOP 505-33-33)

   (Subject Category 25 RTOP 505-33-13)

   (Subject Category 24 RTOP 506-53-23)

*Army Structures Laboratory, USARTL (AVRADCOM)

Computer Programs


Tech Briefs


*Army Structures Laboratory, USARTL (AVRADCOM)

626. St. Clair, Terry L.; St. Clair, Anne K.; and Barrick, John D. (Langley Research Center); Wolfe, James F. (Virginia Polytechnic Institute and State University); and Greenwood, Thomas D. (King College): Thermoset/Thermoplastic Aromatic Polyamides for Composites. NASA Tech Brief LAR-12723.


Patents


PUBLICATIONS FOR ACOUSTICS AND NOISE REDUCTION DIVISION

Formal Reports

(Avail: NTIS Subject Category 71 RTOP 505-35-13)

(Avail: NTIS Subject Category 71 RTOP 505-35-13)

(Avail: NTIS Subject Category 71 RTOP 505-32-03)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)

(Avail: NTIS Subject Category 71 RTOP 505-42-23)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)

(Avail: NTIS Subject Category 45 RTOP 505-35-13)

(Avail: NTIS Subject Category 71 RTOP 505-32-03)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)
(Avail: NTIS Subject Category 53 RTOP 505-35-13)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 71 RTOP 505-35-13)

(Avail: NTIS Subject Category 71 RTOP 532-06-13)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)

(Avail: NTIS Subject Category 71 RTOP 505-40-12)

Contractor Reports

(Avail: NTIS Subject Category 71 RTOP 505-31-33)

(Avail: NTIS Subject Category 71 RTOP 505-33-53)

(Avail: IAC Subject Category 71 RTOP 505-09-23)

(Avail: NTIS Subject Category 71 RTOP 505-35-13)

(Avail: NTIS Subject Category 71 RTOP 505-31-33)
(NAS1-16392 United Technologies Research Center.) NASA CR-3744, October 
(Avail: NTIS Subject Category 71 RTOP 532-06-13)

659. Shepherd, K. P.; and Hubbard, Harvey H.: Measurements and Observations of 
Noise From a 4.2 Megawatt (WTS-4) Wind Turbine Generator. (NAS1-16978 and 
NAG1-166 The Bionetics Corporation and The College of William and Mary.) 
(Avail: NTIS Subject Category 71 RTOP 776-33-41)

660. Stearns, John; Brown, Ron; and Neiswander, Paul: A Pilot Study of Human 
Response to General Aviation Aircraft Noise. (NAS1-15388 Wyle 
(Avail: NTIS Subject Category 71 RTOP 505-09-13)

Thickness and Loading Sources: Validation of Helicopter Noise Prediction 
Techniques. (NAS1-16886 Bolt Beranek and Newman Inc.) NASA CR-166097, 
April 1983, 90 p. 
(Avail: NTIS Subject Category 71 RTOP 505-42-23)

Windows. (NAS1-16117 Modern Analysis, Inc.) NASA CR-172182, October 1983, 
92 p. 
(Avail: NTIS Subject Category 71 RTOP 505-33-53)

663. Yoerkie, C. A.; Moore, J. A.; and Manning, J. E.: Development of Rotorcraft 
Interior Noise Control Concepts - Phase I: Definition Study. (NAS1-16932 
(Avail: NTIS Subject Category 71 RTOP 532-06-13)

Journal Articles and Other Publications

664. Bayliss, Alvin; and Maestrello, Lucio: On the Interaction of a Sound Pulse 
With the Shear Layer of an Axisymmetric Jet, Part 2. Journal of Sound and 
Subject Category 71 RTOP 505-32-03

665. Farassat, F.; and Martin, R. M.: A Note on the Tip Noise of Rotating 
Blades. Journal of Sound and Vibration, Volume 86, February 8, 1983, 
p. 449-453. 
Subject Category 71 RTOP 505-41-43

666. McGary, Michael C.; and Mayes, William H.: A New Measurement Method for 
Separating Airborne and Structureborne Aircraft Interior Noise. Noise 
Subject Category 71 RTOP 505-33-53
(Subject Category 71 RTOP 535-03-13)

(Subject Category 71 RTOP 505-33-53)

(Subject Category 71 RTOP 505-32-03)

(Subject Category 71 RTOP 505-32-03)

(Subject Category 71 RTOP 505-33-53)

(Subject Category 71 RTOP 505-32-03)

(Subject Category 71 RTOP 776-33-41)

(Subject Category 71 RTOP 505-32-03)

(Subject Category 71 RTOP 505-32-03)
Meeting Presentations


(Subject Category 53  RTOP 505-35-13)


(Subject Category 71  RTOP 505-32-03)


(Subject Category 71  RTOP 505-32-03)


(Subject Category 71  RTOP 505-32-03)


(Subject Category 71  RTOP 505-33-53)


(Subject Category 71  RTOP 505-32-03)


(Subject Category 71  RTOP 505-31-33)


(Subject Category 71  RTOP 505-32-03)

*Army Structures Laboratory, USARTL (AVRADCOM)
692. Stephens, David G.; and Powell, Clemans A.: Human Response to Aircraft and Other Noise Events. Presented at the INT 4th International Congress on Noise as a Public Health Problem, June 21-25, 1983, Turin, Italy. (Subject Category 71 RTOP 505-35-13)


Technical Talks


701. Lamkin, Stanley L.; and Hardin, Jay C.: Aeroacoustic Computation From 
Vortex-Pair Merging. Presented at the SIAM 1983 Fall Meeting, 
November 7-9, 1983, Norfolk, Virginia. 
(Subject Category 76 RTOP 505-31-33)

Presented at the 106th Acoustical Society of America Meeting, November 
8-11, 1983, San Diego, California. 
(Subject Category 71 RTOP 505-35-13)

the 106th Acoustical Society of America Meeting, November 8-11, 1983, 
San Diego, California. 
(Subject Category 71 RTOP 505-35-13)

Computer Programs

No computer programs.

Tech Briefs

704. Leatherwood, Jack D.; Dempsey, Thomas K.; Clevenson, Sherman A.; and 

705. Rennison, D. C.; and Wilby, J. F. (Bolt Beranek and Newman Inc.): Noise 
Control in Propeller-Driven Aircraft. NASA Tech Brief LAR-12954.


Patents

707. Leatherwood, Jack D.; Dempsey, Thomas K.; Clevenson, Sherman A.; and 
November 8, 1983. 
(Subject Category 71)
(Avail: NTIS Subject Category 39 RTOP 506-53-33)

(Avail: NTIS Subject Category 39 RTOP 506-53-43)

(Avail: NTIS Subject Category 15 RTOP 506-57-13)

(Avail: NTIS Subject Category 03 RTOP 505-33-53)

(Avail: NTIS Subject Category 05 RTOP 505-45-23)

(Avail: NTIS Subject Category 39 RTOP 506-53-43)

(Avail: NTIS Subject Category 18 RTOP 506-53-43)

(Avail: NTIS Subject Category 39 RTOP 505-45-23)

(Avail: NTIS Subject Category 24 RTOP 534-03-23)

(Avail: NTIS Subject Category 15 RTOP 506-53-53)

(Avail: NTIS Subject Category 39 RTOP 506-53-43)
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Author(s)</th>
<th>Summary</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
<td>Buckling and Failure Characteristics of Graphite-Polyimide Shear Panels</td>
<td>Shuart, Mark J.; and Hagaman, Jane A.</td>
<td>NASA TP-2153, May 1983, 23 p.</td>
<td>NTIS Subject Category 24 RTOP 505-33-33</td>
</tr>
<tr>
<td>721</td>
<td>A Solution Procedure for Behavior of Thick Plates on a Nonlinear Foundation and Postbuckling Behavior of Long Plates</td>
<td>Stein, Manuel; and Stein, Peter A.</td>
<td>NASA TP-2174, September 1983, 38 p.</td>
<td>NTIS Subject Category 39 RTOP 505-33-33</td>
</tr>
<tr>
<td>723</td>
<td>Tire Modeling</td>
<td>Tanner, John A. (Compiler)</td>
<td>NASA CP-2264, March 1983, 248 p.</td>
<td>NTIS Subject Category 39 RTOP 505-45-23</td>
</tr>
</tbody>
</table>

Quick-Release Technical Memorandums

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Author(s)</th>
<th>Summary</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>726</td>
<td>Advanced Structures Technology and Aircraft Safety</td>
<td>McComb, Harvey G., Jr.</td>
<td>NASA TM-85664, July 1983, 15 p.</td>
<td>NTIS Subject Category 39 RTOP 505-45-23</td>
</tr>
<tr>
<td>729</td>
<td>Vertical Drop Test of a Transport Fuselage Section Located Forward of the Wing</td>
<td>Williams, M. Susan; and Hayduk, Robert J.</td>
<td>NASA TM-85679, August 1983, 56 p.</td>
<td>NTIS Subject Category 39 RTOP 505-33-53</td>
</tr>
</tbody>
</table>
730. Williams, M. Susan; and Hayduk, Robert J.: Vertical Drop Test of a Transport Fuselage Center Section Including the Wheel Wells. NASA TM-85706, October 1983, 58 p. (Avail: NTIS Subject Category 39 RTOP 505-33-53)


Contractor Reports


(Avail: NTIS Subject Category 39 RTOP 506-53-43)

(Avail: NTIS Subject Category 66 RTOP 505-37-13)

(Avail: NTIS Subject Category 61 RTOP 505-37-13)

(Avail: NTIS Subject Category 39 RTOP 506-53-43)

(Avail: NTIS Subject Category 39 RTOP 505-45-23)

(Avail: STIF Subject Category 39 RTOP 505-33-53)

(Avail: STIF Subject Category 39 RTOP 506-53-43)

(Avail: NTIS Subject Category 39 RTOP 505-33-53)

Journal Articles and Other Publications

(Subject Category 39 RTOP 506-53-41)
(Subject Category 62 RTOP 505-33-63)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 506-53-43)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 506-53-43)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 505-45-23)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 506-53-43)

(Subject Category 39 RTOP 506-53-41)
Meeting Presentations


(Subject Category 39 RTOP 505-33-33)

(Subject Category 39 RTOP 506-53-53)

(Subject Category 39 RTOP 505-33-73)

(Subject Category 39 RTOP 506-53-43)

(Subject Category 24 RTOP 505-33-33)

(Subject Category 39 RTOP 534-03-23)

(Subject Category 24 RTOP 505-33-33)

(Subject Category 05 RTOP 505-44-33)

(Subject Category 14 RTOP 505-45-23)
(Subject Category 05   RTOP 505-45-23)

Technical Talks

(Subject Category 62   RTOP 505-37-13)

(Subject Category 62   RTOP 505-37-13)

(Subject Category 39   RTOP 506-53-53)

(Subject Category 39   RTOP 506-53-43)

(Subject Category 62   RTOP 505-37-13)

(Subject Category 60   RTOP 505-37-13)

(Subject Category 39   RTOP 505-33-53)

(Subject Category 39   RTOP 506-53-53)

804. Yager, Thomas J.: Results from Previous Aircraft Ground Handling Performance Studies and an Overview of On-Going Research Efforts. Presented at the 1983 SAE Aerospace Congress & Exposition, October 3-6, 1983, Long Beach, California. (Subject Category 05 RTOP 505-45-23)

Computer Programs


Tech Briefs


815. Erickson, Wayne J.; Gray, Frederic P.; Comfort, Dennis L.; and Wahlstrom, Stig O. (Boeing Commercial Airplane Company); and Von Limbach, Geoffrey (Boeing Computer Services Company); and Storaasli, Olaf O. (Langley Research Center): Relational Information Management Data Base System. NASA Tech Brief LAR-12943.


821. Skoumal, Donald E.; and Cushman, James B. (Boeing Aerospace Company): Bonded and Bolted Graphite/Polyimide Composite Joints. NASA Tech Brief LAR-13090.

822. Skoumal, Donald E.; and Cushman, James B. (Boeing Aerospace Company): Hybrid Joints for Improved Efficiency. NASA Tech Brief LAR-13091.


Patents

Formal Reports

(Avail: NTIS Subject Category 02 RTOP 534-02-13)

(Avail: NTIS Subject Category 02 RTOP 534-02-13)

(Avail: NTIS Subject Category 34 RTOP 506-53-63)

(Avail: NTIS Subject Category 34 RTOP 506-53-53)

(Avail: NTIS Subject Category 34 RTOP 506-53-53)

(Avail: NTIS Subject Category 02 RTOP 505-42-13)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 34 RTOP 506-53-53)

(Avail: NTIS Subject Category 34 RTOP 506-51-23)


841. McCain, William E.: Comparison of Analytical and Experimental Steady- and Unsteady-Pressure Distributions at Mach Number 0.78 for a High-Aspect-Ratio Supercritical Wing Model With Oscillating Control Surfaces. NASA TM-84589, January 1983, 55 p. (Avail: IAC Subject Category 02 RTOP 505-33-53)


*Army Structures Laboratory, USARL (AVRADCOM)
(Avail: NTIS Subject Category 39 RTOP 505-33-43)

(Avail: NTIS Subject Category 02 RTOP 505-33-43)

(Avail: IAC Subject Category 02 RTOP 505-33-43)

(Avail: NTIS Subject Category 39 RTOP 505-33-43)

(Avail: NTIS Subject Category 02 RTOP 505-33-43)

(Avail: NTIS Subject Category 05 RTOP 505-33-53)

(Avail: NTIS Subject Category 02 RTOP 505-33-43)

(Avail: NTIS Subject Category 34 RTOP 506-53-33)

(Avail: NTIS Subject Category 39 RTOP 505-42-23)

*Army Structures Laboratory, USARTL (AVRADCOM)
Contractor Reports


Journal Articles and Other Publications


Meeting Presentations


*Army Structures Laboratory, USARL (AVRADCOM)


Technical Talks


906. Sobieszczanski-Sobieski, Jaroslaw: Large-Scale Structural Optimization. Presented at the University of Iowa 18th Midwestern Mechanics Conference, May 16-18, 1983, Iowa City, Iowa. (Subject Category 05 RTOP 505-33-53)

*Army Structures Laboratory, USARTL (AVRADCOM)

908. Sobieszczanski-Sobieski, Jaroslaw: Multi-Disciplinary Analysis and Optimization. Presented at the University of Iowa, 18th Midwestern Mechanics Conference, May 16-18, 1983, Iowa City, Iowa. (Subject Category 05 RTOP 505-33-53)


Computer Programs

No computer programs.

Tech Briefs


915. Rogers, James L., Jr.; and Sobieszczanski-Sobieski, Jaroslaw (Langley Research Center); Bhat, Rama B. (George Washington University); Dovi, A. R.; and Riley, K. M. (Kentron International, Inc.): Structural Optimization. NASA Tech Brief LAR-13010.

Patents


PUBLICATIONS FOR OFFICE OF DIRECTOR FOR AERONAUTICS

Formal Reports
No formal reports.

Quick-Release Technical Memorandums
No quick-release technical memorandums.

Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations
No meeting presentations.

Technical Talks
No technical talks.

Computer Programs
No computer programs.

Tech Briefs
No tech briefs.

Patents
No patents.
<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Title</th>
<th>Author(s)</th>
<th>Availability Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>919</td>
<td>Flow Improvements in the Circuit of the Langley 4- by 7-Meter Tunnel</td>
<td>Applin, Zachary T.</td>
<td>NTIS Subject Category 02 RTOP 505-42-23</td>
</tr>
<tr>
<td>920</td>
<td>Low-Speed Aerodynamic Characteristics of a Highly Swept, Untwisted, Uncambered Arrow Wing</td>
<td>Coe, Paul L., Jr.; Kjelgaard, Scott O.; and Gentry, Carl L., Jr.</td>
<td>NTIS Subject Category 02 RTOP 505-45-43</td>
</tr>
<tr>
<td>921</td>
<td>High-Angle-of-Attack Stability Characteristics of a Three-Surface Fighter Configuration</td>
<td>Grafton, Sue B.; Croom, Mark A.; and Nguyen, Luat T.</td>
<td>NTIS Subject Category 08 RTOP 505-43-13</td>
</tr>
<tr>
<td>922</td>
<td>Preliminary Rotor Wake Measurements With a Laser Velocimeter</td>
<td>Hoad, Danny R.; Rhodes, David B.; and Meyers, James F.</td>
<td>NTIS Subject Category 34 RTOP 505-42-23</td>
</tr>
<tr>
<td>923</td>
<td>Tabulations of Recorded Gust and Maneuver Accelerations, and Derived Gust Velocities for Airplanes in the NASA VGH General Aviation Program</td>
<td>Jewel, Joseph W., Jr.</td>
<td>NTIS Subject Category 03 RTOP 505-45-03</td>
</tr>
<tr>
<td>924</td>
<td>Flow Visualization of the Wake of a Transport Aircraft Model With Lateral-Control Oscillations</td>
<td>Jordan, Frank L., Jr.</td>
<td>NTIS Subject Category 01 RTOP 505-31-93</td>
</tr>
<tr>
<td>925</td>
<td>Flap Effectiveness on Subsonic Longitudinal Aerodynamic Characteristics of a Modified Arrow Wing</td>
<td>Quinto, P. Frank; and Paulson, John W., Jr.</td>
<td>NTIS Subject Category 02 RTOP 505-43-23</td>
</tr>
<tr>
<td>926</td>
<td>Thrust-Induced Effects on Subsonic Longitudinal Aerodynamic Characteristics of a Vectored-Engine-Over-Wing Configuration</td>
<td>Quinto, P. Frank; and Paulson, John W., Jr.</td>
<td>NTIS Subject Category 02 RTOP 505-43-23</td>
</tr>
<tr>
<td>927</td>
<td>Comparison of Low-Altitude Wind-Shear Statistics Derived From Measured and Proposed Standard Wind Profiles</td>
<td>Usry, J. W.</td>
<td>NTIS Subject Category 05 RTOP 505-45-03</td>
</tr>
</tbody>
</table>

*Army Structures Laboratory, USARTL (AVRADCOM)
Quick-Release Technical Memorandums


Contractor Reports


Journal Articles and Other Publications


Meeting Presentations


*Army Structures Laboratory, USARTL (AVRADCOM)


948. Mazur, Vladislav; Fisher, Bruce D.; and Gerlach, John C.: Conditions Conducive to Lightning Striking an Aircraft in a Thunderstorm. Presented at the NASA/FAA et al., 8th International Aerospace and Ground Conference on Lightning and Static Electricity, June 21-23, 1983, Ft. Worth, Texas. (Subject Category 03 RTOP 505-44-13)


954. Sellers, William L., III; and *Elliott, Joe N.: Recent Applications of a Laser Velocimeter in the Langley 4- by 7-Meter Wind Tunnel. Presented at the University of Missouri-Rolla 8th Biennial Symposium on Turbulence, September 26-28, 1983, Rolla, Missouri. Proceedings Pending. (Subject Category 01 RTOP 505-45-43)


956. Stickle, Joseph W.; and Hall, Albert W.: Operating Safely in Adverse Weather Environments. Presented at the 36th International Air Safety Seminar, November 7-11, 1983, Rio de Janeiro, Brazil. (Subject Category 03 RTOP 505-45-13)


Technical Talks


963. Cokeley, Ralph C.; and Person, Lee H., Jr.: Relaxed Stability Flight Test in Lockheed L-1011. Presented at the Society of Experimental Test Pilots Symposium, September 29 – October 1, 1983, Los Angeles, California. (Subject Category 01 RTOP 534-02-13)


965. Holmes, Bruce J.: Laminar Flow Applications for Practical Airplanes. Presented at the 1983 Experimental Aircraft Association Annual Convention, July 30 – August 6, 1983, Oshkosh, Wisconsin. (Subject Category 02 RTOP 505-45-43)


967. Holmes, Bruce J.: Viscous Drag Reduction Research. Presented at the University of Kansas/Texas A&M University/NASA Meeting on Aeronautics Research, September 27, 1983, Lawrence, Kansas. (Subject Category 02 RTOP 505-45-43)

968. Liu, Chen-Huei; and Ting, Lu: Boundary Conditions for Navier Stokes Solutions Merging With Boundary Layer and Potential Solutions. Presented at the SIAM 1983 Fall Meeting, November 7-9, 1983, Norfolk, Virginia. (Subject Category 02 RTOP 505-31-03)


Computer Programs

No computer programs.

Tech Briefs


Patents

No patents.
PUBLICATIONS FOR TRANSONIC AERODYNAMICS DIVISION

Formal Reports

   (Avail: IAC Subject Category 02 RTOP 505-31-23)

   (Avail: NTIS Subject Category 02 RTOP 505-43-23)

   (Avail: NTIS Subject Category 02 RTOP 505-43-23)

   (Avail: NTIS Subject Category 02 RTOP 505-31-53)

   (Avail: NTIS Subject Category 02 RTOP 505-43-43)

   (Avail: NTIS Subject Category 02 RTOP 505-43-43)

   (Avail: NTIS Subject Category 34 RTOP 505-31-53)

   (Avail: NTIS Subject Category 09 RTOP 505-31-33)

   (Avail: STIF Subject Category 02 RTOP 505-31-23)

   (Avail: NTIS Subject Category 02 RTOP 505-31-23)


994. Mann, Michael J.; Huffman, Jarrett K.; Fox, Charles H., Jr.; and Campbell, Richard L.: Experimental Study of Wing Leading-Edge Devices for Improved Maneuver Performance of a Supercritical Maneuvering Fighter Configuration. NASA TP-2125, March 1983, 82 p. (Avail: NTIS Subject Category 02 RTOP 505-31-03)


(Avail: NTIS Subject Category 09 RTOP 505-31-53)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 02 RTOP 505-31-53)

(Avail: IAC Subject Category 02 RTOP 505-31-23)

(Avail: NTIS Subject Category 02 RTOP 505-31-53)

(Avail: NTIS Subject Category 02 RTOP 534-02-13)

(Avail: NTIS Subject Category 34 RTOP 505-31-03)

(Avail: IAC Subject Category 02 RTOP 505-31-23)

(Avail: IAC Subject Category 02 RTOP 505-31-23)

(Avail: NTIS Subject Category 18 RTOP 505-31-53)

Contractor Reports

(Avail: NTIS Subject Category 02 RTOP 505-31-23)


1017. Chao, Der-Chang; and Lan, C. Edward: Calculation of Wing Response to Gusts and Blast Waves With Vortex Lift Effect. (NAG1-75 The University of Kansas Center for Research, Inc.) NASA CR-172232, October 1983, 65 p. (Avail: NTIS Subject Category 02 RTOP 505-31-23)


1021. Kuhlman, John M.: Longitudinal Aerodynamic Characteristics of a Wing-Winglet Model Designed at M = 0.8, $C_L = 0.4$ Using Linear Aerodynamic Theory. (NSG-1357 Old Dominion University Research Foundation.) NASA CR-172186, July 1983, 232 p. (Avail: NTIS Subject Category 02 RTOP 505-31-23)


Journal Articles and Other Publications

(Subject Category 34 RTOP 505-04-13)

(Subject Category 02 RTOP 505-31-03)

(Subject Category 02 RTOP 505-31-03)

(Subject Category 02 RTOP 505-31-53)

(Subject Category 02 RTOP 505-32-13)

(Subject Category 64 RTOP 505-31-03)

(Subject Category 64 RTOP 505-31-03)

(Subject Category 64 RTOP 505-31-03)

Meeting Presentations

(Subject Category 09 RTOP 505-31-63)


1045. Dagenhart, J. Ray; and Saric, William S.: An Orthogonal Coordinate Grid Following the Three-Dimensional Viscous Flow Over a Concave Surface. Presented at the ASME Fluids Engineering Conference, Mini-Symposium on Advances in Grid Generation, June 20-22, 1983, Houston, Texas. (Subject Category 64 RTOP 505-31-33)


1060. McCarthy, D. R.; and Swanson, R. C.: Embedded Mesh Multigrid Treatment of Two-Dimensional Transonic Flows. Presented at the Colorado State University, AFOSR/NASA International Multigrid Conference, April 6-8, 1983, Copper Mountain, Colorado. (Subject Category 64 RTOP 505-31-03)


1068. Ray, E. J.; and Ladson, C. L.: Review of the Advanced Technology Airfoil Test (ATAT) Program in the 0.3-M TCT. Presented at the NASA Wind-Tunnel Wall-Interference Assessment/Correction Workshop, January 25-26, 1983, Hampton, Virginia. NASA CP Pending. (Subject Category 09 RTOP 505-31-53)


1075. Streett, Craig L.; Zang, Thomas A.; and Hussaini, M. Youssuff: Spectral Multigrid Methods With Applications to Transonic Potential Flow. Presented at the Colorado State University, AFSOR/NASA International Multigrid Conference, April 6-8, 1983, Copper Mountain, Colorado. (Subject Category 64 RTOP 505-31-03)


1077. Thames, Frank C.: Multigrid Applications to Three-Dimensional Elliptic Coordinate Generation. Presented at the Colorado State University, AFSOR/NASA International Multigrid Conference, April 6-8, 1983, Copper Mountain, Colorado. (Subject Category 64 RTOP 505-31-03)


Technical Talks


1092. Melson, N. Duane: Input for the TAWFIVE Code - Control Parameters. Presented at the TAWFIVE Workshop, October 20, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)

1094. Melson, N. Duane; and Streett, Craig L.: Running Strategies for the TAWFIVE Code and Questions. Presented at the TAWFIVE Workshop, October 20, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)


1097. Salas, M. D.: On the Nonuniqueness Problem of the Potential Equation. Presented at the NASA Workshop on Transonic Unsteady Aerodynamics and Aeroelasticity, June 22-23, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)

1098. Somers, Dan M.: How to Pick the Right Airfoil. Presented at the 1983 Annual Convention of the Experimental Aircraft Association, July 30 - August 6, 1983, Oshkosh, Wisconsin. (Subject Category 02 RTOP 505-31-23)

1099. South, Jerry C., Jr.: Numerical Simulation of Transonic Flow. Presented at the SIAM 1983 Fall Meeting, Symposium on Computational Aerodynamics, November 7-9, 1983, Norfolk, Virginia. (Subject Category 64 RTOP 505-31-03)


1102. Streett, Craig L.: Engineering Aspects of the TAWFIVE Code. Presented at the TAWFIVE Workshop, October 20, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)

1103. Thames, Frank C.: Elliptic Grid Generation and Experiences With the Brackbill-Saltzman Method. Presented at the ICASE Workshop on Grid Methods, September 26-27, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)

1105. Wedan, B.; and South, J. C., Jr.: Cartesian Grid Methods for Compressible Fluids. Presented at the ICASE Workshop on Grid Methods, September 26-27, 1983, Hampton, Virginia. (Subject Category 64 RTOP 505-31-03)

Computer Programs


Tech Briefs


Patents

(Subject Category 71)

(Subject Category 02)

*Army Structures Laboratory, USARTL (AVRADCOM)
PUBLICATIONS FOR HIGH-SPEED AERODYNAMICS DIVISION

Formal Reports

1117. Allen, Jerry M.; Hernandez, Gloria; and Lamb, Milton: Body-Surface Pressure Data on Two Monoplane-Wing Missile Configurations With Elliptical Cross Sections at Mach 2.50. NASA TM-85645, September 1983, 156 p. (Avail: NTIS Subject Category 02 RTOP 505-43-23)


No quick-release technical memorandums.

Contractor Reports


Journal Articles and Other Publications


1160. Walsh, Michael J.: Riblets as a Viscous Drag Reduction Technique. AIAA Journal, Volume 21, No. 4, April 1983, p. 485-486. (Subject Category 34 RTOP 505-31-23)

Meeting Presentations


<table>
<thead>
<tr>
<th>Citation Number</th>
<th>Author(s)</th>
<th>Title</th>
<th>Conference/Event</th>
<th>Paper Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Subject Category 25 RTOP 505-32-83)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-31-23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-31-23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-31-13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-32-73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 02 RTOP 505-31-02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-31-13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 34 RTOP 505-31-23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Subject Category 02 RTOP 505-43-23)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


1196. Zang, Thomas A.; and Hussaini, M. Y.: Recent Applications of Spectral Methods in Fluid Dynamics. Presented at the AMS 1983 Summer Seminar on Large-Scale Computations in Fluid Mechanics, June 27 - July 1, 1983, LaJolla, California. Proceedings Pending. (Subject Category 02 RTOP 505-31-03)

Technical Talks


1201. Sawyer, Wallace C.: Missile Aerodynamics. Presented at the University of Tennessee Space Institute Short Course on Missile Aerodynamics, May 20, 1983, Tullahoma, Tennessee. (Subject Category 02 RTOP 505-43-23)


Computer Programs


Tech Briefs


144


Patents

No patents.
PUBLICATIONS FOR OFFICE OF DIRECTOR FOR SPACE

Formal Reports
No formal reports.

Quick-Release Technical Memorandums
No quick-release technical memorandums.

Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations


Technical Talks

1216. Pritchard, E. Brian: Space Station: Gateway to the Future. Presented at the Annual Meeting of the Association of Professional Engineers of the Province of Ontario, The Niagara Chapter, October 18, 1983, Ontario, Canada. (Subject Category 15 RTOP 506-64-13)

Computer Programs
No computer programs.

Tech Briefs
No tech briefs.

Patents
No patents.
PUBLICATIONS FOR ATMOSPHERIC SCIENCES DIVISION

Formal Reports

(Avail: NTIS Subject Category 46 RTOP 176-20-10)

(Avail: NTIS Subject Category 48 RTOP 146-40-15)

(Avail: NTIS Subject Category 45 RTOP 925-81-01)

(Avail: NTIS Subject Category 46 RTOP 665-10-40)

(Avail: NTIS Subject Category 46 RTOP 665-10-40)

(Avail: NTIS Subject Category 35 RTOP 678-12-03)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 74 RTOP 678-14-03)

Contractor Reports

(Avail: NTIS Subject Category 51 RTOP 805-01-00)
Journal Articles and Other Publications


(Subject Category 74 RTOP 619-12-20)

(Subject Category 45 RTOP 146-20-10)

(Subject Category 47 RTOP 146-60-02)

(Subject Category 46 RTOP 146-20-08)

(Subject Category 46 RTOP 176-10-05)

(Subject Category 47 RTOP 619-12-20)

(Subject Category 45 RTOP 146-20-10)

(Subject Category 47 RTOP 146-10-06)

(Subject Category 48 RTOP 146-40-15)


1252. McNeal, Robert J.; Mugler, John P., Jr.; Harriss, Robert C.; and Hoell, James M., Jr.: The NASA Global Tropospheric Experiment. EOS, Volume 64, No. 38, September 1983, p. 561-562. (Subject Category 46 RTOP 176-20-09)


Meeting Presentations


1289. Minnis, Patrick; Gibson, Gary G.; and Denn, Frederick M.: Diurnal Cloud Variations Over South America and the Southeastern Pacific. Presented at the AMS/INPE/BMS First International Conference on Southern Hemisphere Meteorology, July 31 - August 6, 1983, Sao Jose dos Campos, Brazil. In Proceedings. (Subject Category 47 RTOP 672-22-04)


1301. Stuhlmann, Rolf; Minnis, Patrick; and Smith, G. Louis: A Comparison of Experimental and Theoretical Bidirectional Reflectance Functions. Presented at the AMS Fifth Conference on Atmospheric Radiation, October 31 - November 3, 1983, Baltimore, Maryland. In Proceedings. (Subject Category 47 RTOP 672-40-06)


Technical Talks


1316. Grose, W. L.; and Boville, B.: The Role of Radiative-Dynamical Processes in the Maintenance of the Zonal Mean Circulation in the Lower Stratosphere. Presented at the XVIII General Assembly of the IUGG, August 15-27, 1983, Hamburg, Germany. (Subject Category 47 RTOP 147-32-07)


1318. Grose, William L.; Remsberg, Ellis E.; Russell, James M., III; and Gapcynski, John P.: Derived Dynamical Quantities From Nimbus 7 LIMS Measurements and Application to the Study of a Sudden Stratospheric Warming. Presented at the XVIII General Assembly of the IUGG, August 15-27, 1983, Hamburg, Germany. (Subject Category 47 RTOP 147-32-07)

1319. Harrison, Edwin F.; and Minnis, Patrick: Diurnal Cloud Variations for Several Seasons. Presented at the XVIII General Assembly of the IUGG, August 15-27, 1983, Hamburg, Germany. (Subject Category 47 RTOP 672-22-04)


1326. McCormick, M. P.: Stratospheric Aerosol Climatology in the Polar Regions as Observed by SAM II. Presented at the XVIII General Assembly of the IUGG, August 15-27, 1983, Hamburg, Germany. (Subject Category 46 RTOP 665-10-40)


1337. Shipley, S. T.; Browell, E. V.; Orndorff, B. L.; and McDougal, D. S.: Airborne Lidar Observations of Long-Range Transport in the Free Troposphere. Presented at the American Meteorological Society Sixth Symposium on Turbulence and Diffusion, March 22-25, 1983, Boston, Massachusetts. (Subject Category 47 RTOP 146-20-10)


Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
PUBLICATIONS FOR SPACE SYSTEMS DIVISION

Formal Reports


1356. Townsend, Lawrence W.; Wilson, John W.; and Bidasaria, Hari B.: Heavy-Ion Total and Absorption Cross Sections Above 25 MeV/Nucleon. NASA TP-2138, April 1983, 42 p. (Avail: NTIS Subject Category 73 RTOP 199-20-76)


Quick-Release Technical Memorandums


1363. Bradley, Pamela F.; Siemers, Paul M., III; Flanagan, Paul F.; and Henry, Martin W.: Pressure Distributions Obtained on a 0.04-Scale and 0.02-Scale Model of the Space Shuttle Orbiter's Forward Fuselage in the Langley 20-Inch Mach 6 Air Tunnel. NASA TM-84629, March 1983, 43 p. (Avail: NTIS Subject Category 12 RTOP 506-63-32)

1364. Bradley, Pamela F.; Siemers, Paul M., III; Flanagan, Paul F.; and Henry, Martin W.: Pressure Distributions Obtained on a 0.04-Scale and 0.02-Scale Model of the Space Shuttle Orbiter's Forward Fuselage in the Langley Continuous Flow Hypersonic Tunnel. NASA TM-84630, March 1983, 62 p. (Avail: NTIS Subject Category 12 RTOP 506-63-32)


Contractor Reports


(Subject Category 05 RTOP 505-43-53)

(Subject Category 45 RTOP 540-01-13)

(Subject Category 34 RTOP 506-51-13)

(Subject Category 18 RTOP 506-62-43)

(Subject Category 15 RTOP 540-03-13)

(Subject Category 26 RTOP 506-55-43)

(Subject Category 26 RTOP 506-55-43)

(Subject Category 18 RTOP 506-51-33)

(Subject Category 19 RTOP 506-63-32)

(Subject Category 34 RTOP 506-51-13)

(Subject Category 34 RTOP 506-51-33)

1409. Townsend, L. W.: Abrasion Cross Sections for $^{20}$Ne Projectiles at 2.1 GeV/Nucleon. Canadian Journal of Physics, Volume 61, No. 1, January 1983, p. 93-98. (Subject Category 73 RTOP 199-20-76)


Meeting Presentations


   (Subject Category 15 RTOP 506-62-43)

   (Subject Category 01 RTOP 506-51-13)

   (Subject Category 18 RTOP 506-62-23)

   (Subject Category 65 RTOP 506-62-23)

   (Subject Category 61 RTOP 506-62-23)

   (Subject Category 18 RTOP 506-62-43)

   (Subject Category 34 RTOP 506-51-13)

   (Subject Category 34 RTOP 506-51-13)

   (Subject Category 34 RTOP 506-51-23)


(Subject Category 34 RTOP 506-51-13)

(Subject Category 73 RTOP 199-20-76)

(Subject Category 93 RTOP 199-20-76)

(Subject Category 44 RTOP 506-55-43)

(Subject Category 14 RTOP 506-51-13)

(Subject Category 14 RTOP 506-51-13)

(Subject Category 02 RTOP 506-51-13)

(Subject Category 34 RTOP 506-51-13)

(Subject Category 59 RTOP 506-51-13)

1471. Wilson, John W.; and Stock, L. V.: Equivalent Electron Fluence for Solar Proton Damage in GaAs Shallow Junction Cells. Presented at the NASA Lewis Research Center Sixth Space Photovoltaic Research and Technology Meeting, October 18-20, 1983, Cleveland, Ohio. Proceedings Pending. (Subject Category 73 RTOP 506-55-43)

1472. Witcofski, Robert D.: Space-Station Crew-Safety Requirements. Presented at the NSIA/AIA/USAF/NASA 1983 Conference and Workshops on Mission Assurance, June 7-9, 1983, Los Angeles, California. (Subject Category 15 RTOP 906-54-20)


Technical Talks


1482. Townsend, L. W.; and Bidasaria, H. B.: Analytic Determinations of Single-Folding Optical Potentials. Presented at the 1983 Spring Meeting of the American Physical Society, April 18-21, 1983, Baltimore, Maryland. (Subject Category 73 RTOP 199-20-76)

1483. Townsend, Lawrence W.; and Wilson, John W.: Overview of Space Radiation Protection Methods. Presented at the NASA Space Radiation Effects Workshop, November 16-18, 1983, Houston, Texas. (Subject Category 93 RTOP 199-20-76)


Computer Programs


Tech Briefs


1492. Hohl, Frank (Langley Research Center); and Zang, Thomas A. (College of William and Mary): Two and Three-Dimensional Galaxy Simulations. NASA Tech Brief LAR-12907.


Patents

(Subject Category 44)
PUBLICATIONS FOR OFFICE OF DIRECTOR FOR SYSTEMS ENGINEERING AND OPERATIONS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations


Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
PUBLICATIONS FOR FABRICATION DIVISION

Formal Reports


Quick-Release Technical Memorandums


Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations


Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs


Patents

PUBLICATIONS FOR SYSTEMS ENGINEERING DIVISION

Formal Reports

(Avail: NTIS Subject Category 37 RTOP 141-20-10)

(Avail: NTIS Subject Category 05 RTOP 505-42-39)

(Avail: NTIS Subject Category 18 RTOP 986-15-10)

(Avail: NTIS Subject Category 09 RTOP 505-31-53)

Quick-Release Technical Memorandums

(Avail: NTIS Subject Category 39 RTOP 542-04-13)

Contractor Reports

(Avail: STIF Subject Category 05 RTOP 513-52-01)

(Avail: NTIS Subject Category 26 RTOP 505-31-53)

Journal Articles and Other Publications

(Subject Category 37 RTOP 141-20-10)
1521. *Boen, James M.; and Bement, Laurence J.: How to Evaluate Service Life of Explosive Components. Astronautics and Aeronautics, Volume 21, No. 4, April 1983, p. 76-77. (Subject Category 03 RTOP 505-32-49)


Meeting Presentations


*Army Structures Laboratory, USARTL (AVRADCOM)


Technical Talks


1533. Young, C. P., Jr.: Cryogenic Technology Model Development. Presented at the NASA/ASEE Summer Faculty Research Program Lecture Series, June 23, 1983, Hampton, Virginia. (Subject Category 09 RTOP 505-31-53)

Computer Programs

No computer programs.

Tech Briefs


Patents


PUBLICATIONS FOR FACILITIES ENGINEERING DIVISION

Formal Reports
No formal reports.

Quick-Release Technical Memorandums


Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations


Technical Talks
No technical talks.

Computer Programs
No computer programs.

Tech Briefs
No tech briefs.
PUBLICATIONS FOR OPERATIONS SUPPORT DIVISION

Formal Reports
No formal reports.

Quick-Release Technical Memorandums
No quick-release technical memorandums.

Contractor Reports
No contractor reports.

Journal Articles and Other Publications
No journal articles and other publications.

Meeting Presentations
No meeting presentations.

Technical Talks
No technical talks.

Computer Programs
No computer programs.

Tech Briefs


*Army Structures Laboratory, USARTL (AVRADCOM)


Patents

No patents.

*Army Structures Laboratory, USARTL (AVRADCOM)
PUBLICATIONS FOR OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums


Contractor Reports


Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations


Technical Talks


Computer Programs

No computer programs.

Tech Briefs


Patents

No patents.
Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

(Avail: NTIS Subject Category 39 RTOP 505-10-39)

Journal Articles and Other Publications

(Subject Category 39 RTOP 505-42-39)

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.
APPENDIX

INDUSTRIAL APPLICATIONS CENTERS

Aerospace Research Applications Center
Indianapolis Center for Advanced Research
1201 East 38th Street
P. O. Box 647
Indianapolis, IN 46223
(317) 264-4644

Kerr Industrial Applications Center
Southeastern Oklahoma State University
Station A, Box 2584
Durant, OK 74701
(405) 924-6822

NASA Industrial Applications Center
710 LIS Building
University of Pittsburgh
Pittsburgh, PA 15260
(412) 624-5211

NASA Industrial Applications Center
University of Southern California
Research Annex, Room 200
3716 South Hope Street
Los Angeles, CA 90007
(213) 743-6132

New England Research Applications Center
Mansfield Professional Park
Storrs, CT 06268
(203) 486-4533

North Carolina Science and Technology Research Center
Post Office Box 12235
Research Triangle Park, NC 27709
(919) 549-0671

Technology Applications Center
University of New Mexico
Albuquerque, NM 87131
(505) 277-3622

NASA/Florida State Technology Applications Center
State University System of Florida
500 Weil Hall
Gainesville, FL 32611
(904) 392-6626
<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aanstoos, J. V.</td>
<td>344</td>
</tr>
<tr>
<td>Abarbanel, S. S.</td>
<td>1161, 1170, 1198</td>
</tr>
<tr>
<td>Abassy, I.</td>
<td>262, 286</td>
</tr>
<tr>
<td>Abbott, T. S.</td>
<td>366, 424</td>
</tr>
<tr>
<td>Abel, I.</td>
<td>843, 882, 884</td>
</tr>
<tr>
<td>Abolhassani, J. S.</td>
<td>159</td>
</tr>
<tr>
<td>Abrahamson, A. L.</td>
<td>653</td>
</tr>
<tr>
<td>ACEE Composites Project Office</td>
<td>115</td>
</tr>
<tr>
<td>Adams, B. R.</td>
<td>1189</td>
</tr>
<tr>
<td>Adams, J. J.</td>
<td>367, 368</td>
</tr>
<tr>
<td>Adams, L. M.</td>
<td>3, 4, 5, 6, 50</td>
</tr>
<tr>
<td>Adams, L. R.</td>
<td>740</td>
</tr>
<tr>
<td>Adams, R. R.</td>
<td>179, 249</td>
</tr>
<tr>
<td>Adams, W. M., Jr.</td>
<td>272, 273</td>
</tr>
<tr>
<td>Adcock, J. B.</td>
<td>1033, 1038, 1039, 1049, 1082</td>
</tr>
<tr>
<td>Adelman, H. M.</td>
<td>832, 839, 877, 899</td>
</tr>
<tr>
<td>Ahl, E. L., Jr.</td>
<td>1524</td>
</tr>
<tr>
<td>Albertson, C. W.</td>
<td>873</td>
</tr>
<tr>
<td>Alfaro-Bou, E.</td>
<td>711</td>
</tr>
<tr>
<td>Allen, G.</td>
<td>576</td>
</tr>
<tr>
<td>Allen, G. J.</td>
<td>210</td>
</tr>
<tr>
<td>Allen, J. H., Sr.</td>
<td>910</td>
</tr>
<tr>
<td>Allen, J. M.</td>
<td>1117, 1120, 1155, 1162</td>
</tr>
<tr>
<td>Allen, R. J.</td>
<td>1228</td>
</tr>
<tr>
<td>Allison, D. O.</td>
<td>980</td>
</tr>
<tr>
<td>Allison, S. G.</td>
<td>185, 186, 197, 231</td>
</tr>
<tr>
<td>Alpers, W.</td>
<td>328</td>
</tr>
<tr>
<td>Alpert, J. C.</td>
<td>1308</td>
</tr>
<tr>
<td>Altschul, R. E.</td>
<td>408, 409</td>
</tr>
<tr>
<td>Alvarez, J. M.</td>
<td>1269</td>
</tr>
<tr>
<td>Ames, K. R.</td>
<td>153</td>
</tr>
<tr>
<td>Amiet, R. K.</td>
<td>658</td>
</tr>
<tr>
<td>Amin, S. P.</td>
<td>930</td>
</tr>
<tr>
<td>Amos, A. K.</td>
<td>717</td>
</tr>
<tr>
<td>Anders, J. B.</td>
<td>1163, 1172</td>
</tr>
<tr>
<td>Anderson, C. M.</td>
<td>15</td>
</tr>
<tr>
<td>Anderson, G. Y.</td>
<td>1164</td>
</tr>
<tr>
<td>Anderson, I. C.</td>
<td>1270, 1287</td>
</tr>
<tr>
<td>Anderson, J. D., Jr.</td>
<td>1153</td>
</tr>
<tr>
<td>Anderson, M. S.</td>
<td>748, 759, 805</td>
</tr>
<tr>
<td>Anderson, S. B.</td>
<td>959</td>
</tr>
<tr>
<td>Anderson, T.</td>
<td>144</td>
</tr>
<tr>
<td>Anderson, W. W.</td>
<td>763</td>
</tr>
<tr>
<td>Aniversario, R. B.</td>
<td>119, 120</td>
</tr>
<tr>
<td>Anon.:</td>
<td>1, 2, 7, 369, 386, 387, 1217</td>
</tr>
<tr>
<td>Antcliff, R. R.</td>
<td>1152, 1165</td>
</tr>
<tr>
<td>Applin, Z. T.</td>
<td>919</td>
</tr>
<tr>
<td>Arbuckle, P. D.</td>
<td>274, 297</td>
</tr>
<tr>
<td>Armstrong, E. S.</td>
<td>275, 306, 307, 308</td>
</tr>
<tr>
<td>Arrington, J. P.</td>
<td>1346, 1347, 1416, 1473, 1479</td>
</tr>
<tr>
<td>Ashby, G. C., Jr.</td>
<td>1489</td>
</tr>
<tr>
<td>Ashkenas, I. L.</td>
<td>267</td>
</tr>
<tr>
<td>Ashworth, B. R.</td>
<td>378, 438</td>
</tr>
<tr>
<td>Augustsson, T. R.</td>
<td>1226, 1232, 1233, 1271, 1274, 1287, 1325</td>
</tr>
<tr>
<td>Averill, R. D.</td>
<td>1541</td>
</tr>
<tr>
<td>Avery, D. E.</td>
<td>833, 874, 910</td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Bahei-El-Din, Y. A.</td>
<td>467, 613, 615</td>
</tr>
<tr>
<td>Bailey, J. P.</td>
<td>887</td>
</tr>
<tr>
<td>Bailey, J. W.</td>
<td>1535, 1542</td>
</tr>
<tr>
<td>Bailey, M. C.</td>
<td>318</td>
</tr>
<tr>
<td>Bailey, P. L.</td>
<td>1260</td>
</tr>
<tr>
<td>Bair, C. H.</td>
<td>333, 338</td>
</tr>
<tr>
<td>Baker, A. J.</td>
<td>1138, 1204</td>
</tr>
<tr>
<td>Baker, D. J.</td>
<td>470, 520, 532, 617, 1550</td>
</tr>
<tr>
<td>Balasubramanian, R.</td>
<td>1139, 1183</td>
</tr>
<tr>
<td>Balch, C. D.</td>
<td>829, 830</td>
</tr>
<tr>
<td>Bales, K. S.</td>
<td>724</td>
</tr>
<tr>
<td>Bales, T. T.</td>
<td>468, 469, 580, 812, 825</td>
</tr>
<tr>
<td>Ballard, G. K.</td>
<td>910</td>
</tr>
<tr>
<td>Bangert, L. H.</td>
<td>1009</td>
</tr>
<tr>
<td>Banks, D. W.</td>
<td>938, 953</td>
</tr>
<tr>
<td>Banks, H. T.</td>
<td>8, 9, 10, 11, 275</td>
</tr>
<tr>
<td>Bar-Gill, A.</td>
<td>388</td>
</tr>
<tr>
<td>Barber, P.</td>
<td>217</td>
</tr>
<tr>
<td>Bare, E. A.</td>
<td>981, 982, 993</td>
</tr>
<tr>
<td>Barker, L. K.</td>
<td>255, 256, 263, 264</td>
</tr>
<tr>
<td>Barkstrom, B. R.</td>
<td>1272, 1306</td>
</tr>
<tr>
<td>Barnett, J. J.</td>
<td>1285, 1322</td>
</tr>
<tr>
<td>Barnwell, R. W.</td>
<td>1038, 1039, 1083</td>
</tr>
<tr>
<td>Barrick, J. D.</td>
<td>626</td>
</tr>
<tr>
<td>Barthelmy, J-F. M.</td>
<td>854, 863, 864</td>
</tr>
<tr>
<td>Bartlett, F. D., Jr.</td>
<td>1561</td>
</tr>
<tr>
<td>Bartlett, K. B.</td>
<td>1261</td>
</tr>
<tr>
<td>Barton, C. K.</td>
<td>668</td>
</tr>
<tr>
<td>Baruh, H.</td>
<td>287</td>
</tr>
<tr>
<td>Basiulis, A.</td>
<td>834, 837, 876</td>
</tr>
<tr>
<td>Basnett, C. B.</td>
<td>1072, 1113</td>
</tr>
<tr>
<td>Bates, B. L.</td>
<td>1454</td>
</tr>
<tr>
<td>Batten, C. E.</td>
<td>533</td>
</tr>
<tr>
<td>Batterson, J. G.</td>
<td>257, 260, 276, 277, 286</td>
</tr>
<tr>
<td>Batts, C. N.</td>
<td>233</td>
</tr>
<tr>
<td>Baucom, R. M.</td>
<td>534, 614, 630</td>
</tr>
</tbody>
</table>
Bauer, F.: 1010
Baugh, B. T.: 1497, 1498
Bavuso, S. J.: 425, 436, 437, 452
Bayless, G. B.: 1547
Bayliss, A.: 33, 664
Beach, H. L., Jr.: 1118
Beck, S. A.: 1314
Beckwith, I. E.: 1119, 1166, 1207, 1209
Beissner, F. L.: 91, 93
Belcastro, C. M.: 374, 375
Belcastro, C. M.: 383, 426
Bell, V. L.: 518
Belvin, W. K.: 760, 775
Bement, L. J.: 1513, 1514, 1520, 1521, 1525, 1534, 1535, 1542
Bendura, R. J.: 1254, 1277
Benepe, D. B., Sr.: 1375
Benner, D. C.: 1223, 1293
Bennett, R. M.: 849, 888, 889
Benz, H. F.: 355
Bergeron, H. P.: 370, 427, 453
Berman, H. A.: 1153
Berman, W. J.: 268
Bernot, P. T.: 1348
Berrier, B. L.: 981, 1040, 1041, 1069
Berry, J. D.: 936
Berry, R. P., Jr.: 1504, 1506
Berry, V. L.: 810
Bey, K. S.: 835, 852, 897
Bhartia, P.: 1243
Bhat, R. B.: 915
Bidasaria, H. B.: 1355, 1356, 1371, 1387, 1388, 1411, 1417, 1462, 1482
Bigelow, C. A.: 467, 613, 615
Billyard, J. A.: 914
Bilyeu, G. D.: 1381
Bionetics Corporation: 1558
Blackburn, C. L.: 738, 749
Blackburn, L. B.: 471, 535
Blackshear, W. T.: 1317
Blackstock, T. A.: 1444, 1454
Blair, A. B., Jr.: 1120, 1121, 1155
Blair, W.: 890
Blanchard, D. K.: 1213
Blau, S. R.: 836, 865, 875
Block, F. J. W.: 676
Blosser, M. L.: 708, 709, 761, 817
Bluck, R. M.: 732, 807, 808
Blume, H-J. C.: 328
Bobbitt, P. J.: 1042, 1047
Boduroglu, H.: 487
Boen, J. M.: 1521
Bohun, H. L.: 116, 136, 762
Bolt, P. A.: 168, 912
Bono, P.: 138
Borland, C. J.: 1011
Brocchi, W. J.: 1225, 1322
Bostaph, G. M.: 536
Bostic, S. W.: 725, 795
Botez, D.: 176, 238
Boughner, R. E.: 1229
Boville, B.: 1316
Bowker, D. E.: 312, 334
Bowles, R. L.: 376
Bowman, J. S., Jr.: 960
Boyden, R. P.: 983, 1000
Bracalette, E. M.: 347
Brad, J. A.: 1012, 1013
Bradley, P. F.: 1362, 1363, 1364, 1418, 1456
Braman, R. S.: 351
Brandl, D.: 1220, 1221
Braslow, A. L.: 419
Breckenridge, R. A.: 252
Brentner, K. S.: 1137
Brewer, D. A.: 1226, 1271, 1274
Brewer, W. D.: 178, 329, 537, 574, 581, 599, 600
Brien, E. P.: 1442, 1495
Brinkley, J. D.: 421
Brinson, H. F.: 507
Bristow, D. R.: 929
Britcher, C. P.: 1014, 1015
Britt, C. L.: 347
Brookman, P.: 338
Brooks, C. W., Jr.: 826, 827
Brooks, T. F.: 677
Broome, P. A.: 321
Broussard, J. R.: 389, 390, 391, 392
Browell, E. V.: 1227, 1228, 1259, 1275, 1281, 1288, 1295, 1307, 1310, 1337
Brown, C. A., Jr.: 1218
Brown, P. W.: 955, 961
Brown, R.: 660
Brown, R. D.: 576
Brown, W. H.: 706
Bruce, W. E.: 1084
Bruckner, A. P.: 1376
Brumfield, M. L.: 710
Bryant, L. E.: 1507
Buckley, J. D.: 628, 1503, 1510
Buglia, J. J.: 1276
Bullock, G. P.: 1458
Bundick, W. T.: 374, 382, 432
Bunin, B. L.: 121, 124
Buoncristiani, A. M.: 1349, 1389, 1490
Burk, H. O.: 1150
Burks, H. D.: 472, 569, 625
Burner, A. W.: 169, 187, 188
Bush, H. G.: 714, 727, 768, 808, 809
Bushnell, D. M.: 1163, 1167, 1171, 1172, 1197
Bussoletti, J. E.: 1023
Butler, C. F.: 1228
Butler, R. W.: 428, 443, 454, 455
Butterfield, A. J.: 419, 1224
Byrdsong, T. A.: 826, 827
Byvik, C. E.: 1349, 1389, 1490, 1491, 1496

Caglayan, A. K.: 401
Caiafa, C.: 728
Callis, L. B.: 1229, 1230, 1308, 1309, 1323, 1335
Calloway, R. L.: 1350, 1419
Camarda, C. J.: 834, 837, 876
Campbell, J. F.: 1057, 1085
Campbell, J. W.: 1231
Campbell, R. E.: 356
Campbell R. H.: 309
Campbell, R. L.: 994, 1059
Cantrell, J. H., Jr.: 189, 190, 191, 192, 193, 194, 204, 215, 236, 250
Canuto, C.: 12
Canuto, V. M.: 1232, 1233
Capone, F. J.: 984, 985, 995, 1043
Card, M. F.: 750, 763
Carden, H. D.: 764, 810, 811
Carlin, C. M.: 416, 417, 418
Carlson, A. B.: 1515
Carlson, C. H.: 1140, 1175
Carlson, F. M.: 171
Carlson, H. W.: 111, 1141, 1154, 1205, 1208, 1210
Carney, P. C.: 332
Carson, G. T., Jr.: 1043
Carta, F. O.: 861, 862
Carter, A. F.: 1228, 1310
Carter, V.: 1242
Casas, J. C.: 1267, 1292
Cash, B.: 357, 358
Castle, C. B.: 711
Cerro, J. A.: 787, 788
Chakravarthy, S.: 44
Chambers, J. R.: 962
Chan, K. S.: 496
Chang, A. C.: 531, 578, 579, 629
Chang, C. Y.: 323
Chang, J-F.: 1016, 1110
Chao, D-C.: 1017
Chapin, W. G.: 163
Chapman, A. J., III: 116, 136, 762
Chapman, G. C.: 393
Chen, F-J.: 1119, 1166
Chen, G.: 13, 14
Cheo, P. K.: 353
Chern, E. J.: 194
Chestnutt, D.: 687
Chinitz, W.: 1158
Chipman, R.: 900
Choi, L.: 514, 515
Chu, W. P.: 1234, 1269, 1311
Chuan, R. L.: 1268, 1312
Chun, H. M.: 777, 802
Chung, B. T. F.: 1546
Clark, I. O.: 170, 171, 178, 218, 329
Clark, R. K.: 538, 631
Clauer, R. O.: 234, 235, 236, 237
Clemmons, J. L., Jr.: 251
Clevenson, S. A.: 638, 648, 678, 684, 704, 707
Clever, W. C.: 1142
Cline, J. H.: 870, 878
Cline, M. C.: 1030
Coates, G. D.: 397, 398
Cockrell, C. E.: 1523, 1531
Coe, P. L., Jr.: 920
Cofer, W. R., III: 1235, 1277
Cokeley, R. C.: 963
Cole, K. N.: 1548
Cole, S. R.: 901, 986
Collins, W. R.: 145
Comfort, D. L.: 815
Compton, H. R.: 298, 299, 1399, 1420, 1427, 1435, 1436, 1452, 1454
Compton, W. B., III: 1044
Comstock, R.: 447
Connolly, J. C.: 238
Conway, E. J.: 1351, 1422
Cooper, P. A.: 765
Cordle, V. M.: 1555
Costen, R. C.: 1278
Couch, R. H.: 359, 1510
Coultrip, R. H.: 1510
Courville, G.: 200
Covell, P. F.: 1122, 1134
Covington, E. W., III: 1507
Cox, J. D.: 1385
Cox, J. M.: 745
Crabill, N. L.: 964
Craidon, C. B.: 139
Craighead, N. D.: 746
Craven, J.: 1243
Crawford, R. F.: 818
Creadon, J. F.: 375, 429
Creel, T. R., Jr.: 1119, 1166, 1168, 1209
Crisp, V. K.: 1469
Cronkhite, J. D.: 810
Croom, C. C.: 949, 974
Croom, M. A.: 921, 950
Crossley, E. A.: 1536
Croswell, W. F.: 330
Crowley, J. M.: 8
Crum, P. J.: 1238
Cunnington, G. R.: 488
Cushman, J. B.: 733, 734, 821, 822

D
Dadfar, M. B.: 15
Dadone, A.: 43
Dagenhart, J. R.: 1045
Dahlburg, R. B.: 16
Dahlgren, J. B.: 278
Dale, W. J.: 1507
Daniel, P. L.: 275
Darnell, W. L.: 1236, 1283, 1300, 1342
Dash, S. M.: 690
Daugherty, R. H.: 712, 766
Davidson, D. L.: 496
Davidson, J. R.: 539, 632
Davis, G. W.: 745
Davis, J. G.: 137
Davis, R. C.: 468, 767, 788, 812, 817
Davis, R. E.: 334, 335, 343
Davis, S. F.: 17
Davis, W. J.: 295
Davis, W. T.: 165, 166, 168, 208, 912
Deal, P. L.: 258
Dehning, B.: 891
Deaton, J. W.: 540, 541, 616
Debina, W. J.: 170, 171, 178, 219, 329, 360, 361
Deepak, A.: 179
Delmore, V. E.: 313, 314
DeLoach, R.: 679
DeLoatch, S. J.: 142
Dempsey, T. K.: 639, 704, 707
Demurie, R.: 1073
Denn, F. M.: 1289
Dennis, D. V.: 362
DeRyder, D. D.: 1373, 1374, 1421, 1450, 1474, 1475
Deveikis, W. D.: 828
Dexter, H. B.: 473
DeYoung, R. J.: 1351, 1413, 1422
Dharani, L. R.: 489
Dholaikia, A. R.: 239
DiCarlo, D. J.: 957
Dickerson, G. E.: 1508
Dillenius, M. F. E.: 1155, 1211
Dimiceli, E. V.: 1382
DiPiano, M. T.: 1148
DiPrima, R. C.: 18
Dixon, N. H.: 205
Doggett, R. V.: 872, 917, 918
Donahue, M. J.: 1023
Dorsey, J. T.: 713, 768
Dotson, E. H.: 1018
Dotson, R. D.: 813
Dovi, A.: 850, 893
Dovi, A. R.: 915
Dow, N. F.: 122
Dowell, E. H.: 865
Downing, D. R.: 930
Dreisbach, R. L.: 1023
Dress, D. A.: 1001, 1090
Drewry, L. L.: 581
Dries, G. A.: 538
Drummond, J. P.: 1153, 1169, 1182
Duckett, R. J.: 1423, 1543
Duh, J.: 1560
Dumas, K. L.: 746
Dunn, M. H.: 19
Durling, B. J.: 805, 814
Dusa, D. J.: 1046
Dworkin, L. U.: 221
Dwyer, D. L.: 1156, 1161, 1170, 1198
Dwyer, T. A. W., III: 755
Dyer, R. D.: 1180

E
Echols, F. L.: 321
Eckhardt, D. E., Jr.: 371
Edeahl, R. A., Jr.: 1240
Edson, R.: 744
Edwards, C. L. W.: 986, 1047, 1515, 1528, 1529
Edwards, H. B.: 240
Edwards, J. W.: 836, 866, 867, 875, 902
Edwards, S. F.: 202
Egolf, T. A.: 855, 856
Eide, D. G.: 213, 1424, 1448
Elber, W.: 466, 480, 481, 536, 542, 568, 582, 583, 584, 585
Eldred, C. H.: 1367, 1425
Knight, N. F., Jr.: 754, 778
Knott, J. D.: 741, 742
Knox, C. E.: 373, 385, 434, 462
Koch, T. L.: 177
Koenig, R. W.: 76, 108
Kolb, W.: 463, 1488
Kolstad, R. B.: 309
Kopriva, D. A.: 39, 64, 1054, 1179, 1200
Korn, S. C.: 1180
Koval, L. R.: 650, 688
Kowitz, H. R.: 363
Krause, P.: 309
Krauze, L. D.: 1379
Krivec, D. K.: 1009
Ku, T. J.: 1109
Kubendran, L. R.: 1024
Kudlinski, R. A.: 156, 162
Kuhlman, J. M.: 1021, 1026, 1109
Kulfan, R. M.: 1029
Kumar, A.: 1181, 1182
Kunisch, K.: 10
Kurzeja, R. J.: 1323
Kurzweg, U. H.: 1385
Kyser, A. C.: 743

Lee, L. D.: 435
Lee, R. B., III: 67
Legeckis, R.: 1242
Leighty, B. D.: 182, 245
LeMessurier, R. W.: 1368, 1439
Leonis, A.: 1493
Lester, H. C.: 34, 641, 685, 699, 700
LeVeque, R. J.: 40
Levine, J. S.: 1225, 1226, 1232, 1233, 1245, 1270, 1274, 1286, 1287, 1324, 1325
Levitt, K. N.: 402
Levy, G. F.: 527, 530
Lewis, B. W.: 213
Leybold, H. A.: 116, 762
Li, P.: 204
Lightner, E. B.: 112, 113
Lilley, D. E.: 1012, 1013
Lin, J. C.: 1183
Lindberg, S. E.: 1246
Lindenmeyer, F. H.: 501
Lisagor, W. B.: 631
Little, B. D.: 1510
Liu, C. H.: 30, 937, 943, 947, 968
Liu, D. H.: 498
Liu, G. C.: 76
Liu, W. K.: 860
Long, E. R., Jr.: 621
Long, L. N.: 643
Long, M. J.: 1537
Longman, R. W.: 783
Looney, K. T.: 229
Lotts, C. G.: 805, 814
Lovelace, U. M.: 1400, 1438
Lovelady, R. W.: 319
Lovell, D.: 1032, 1050, 1051
Lovell, D. R.: 1052
Lovell, W. A.: 91, 93
Lowrie, J. W.: 323
Lowry, D. W.: 502
Lucas, W. H.: 421
Luckring, J. M.: 958
Lucy, M. H.: 1517, 1538, 1539, 1540
Lustman, L. R.: 1144
Lyjak, L. V.: 1315
Lytle, C. D.: 338

M

Maahs, H. G.: 525
MacCamy, R. C.: 35
MacConochie, I. O.: 249, 758, 1367, 1368, 1439, 1442, 1481, 1494, 1495
MacCormack, R. W.: 1365, 1433

204
<table>
<thead>
<tr>
<th>Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ortiz, J. A.</td>
<td>320</td>
</tr>
<tr>
<td>Orville, R. E.</td>
<td>1225</td>
</tr>
<tr>
<td>Orzechowski, J. A.</td>
<td>1138, 1204</td>
</tr>
<tr>
<td>Osborne, R. S.</td>
<td>1366</td>
</tr>
<tr>
<td>Osher, S.</td>
<td>44</td>
</tr>
<tr>
<td>Ostowari, C.</td>
<td>1028</td>
</tr>
<tr>
<td>Ostroff, A. J.</td>
<td>374, 375, 432</td>
</tr>
<tr>
<td>Outlaw, R. A.</td>
<td>1352, 1402, 1403, 1451, 1497, 1498</td>
</tr>
<tr>
<td>Owen, F. K.</td>
<td>1003, 1065</td>
</tr>
<tr>
<td>Palmer, J. M., Jr.</td>
<td>125</td>
</tr>
<tr>
<td>Palmer, L. W.</td>
<td>913, 914</td>
</tr>
<tr>
<td>Palmer, M. T.</td>
<td>1374, 1475</td>
</tr>
<tr>
<td>Palmer, R. J.</td>
<td>824</td>
</tr>
<tr>
<td>Palumbo, D. L.</td>
<td>443</td>
</tr>
<tr>
<td>Pamadi, B. N.</td>
<td>291, 304</td>
</tr>
<tr>
<td>Pao, S. P.</td>
<td>670</td>
</tr>
<tr>
<td>Pappa, R. S.</td>
<td>719, 779</td>
</tr>
<tr>
<td>Park, J. H.</td>
<td>1222, 1253, 1302</td>
</tr>
<tr>
<td>Park, S. K.</td>
<td>146, 152, 331, 340, 341, 354</td>
</tr>
<tr>
<td>Parkinson, R. C. H.</td>
<td>407</td>
</tr>
<tr>
<td>Parks, R. W.</td>
<td>1382</td>
</tr>
<tr>
<td>Parrish, R. V.</td>
<td>376, 377, 378, 379, 438</td>
</tr>
<tr>
<td>Parrott, T. L.</td>
<td>644, 674, 685</td>
</tr>
<tr>
<td>Parsons, J. T.</td>
<td>119, 120</td>
</tr>
<tr>
<td>Patmore, L. C.</td>
<td>415</td>
</tr>
<tr>
<td>Patrick, M.</td>
<td>50</td>
</tr>
<tr>
<td>Patten, A. B.</td>
<td>1528, 1529</td>
</tr>
<tr>
<td>Patterson, J. C., Jr.</td>
<td>1053, 1111</td>
</tr>
<tr>
<td>Patton, J. M., Jr.</td>
<td>960</td>
</tr>
<tr>
<td>Paulin, P. A.</td>
<td>213</td>
</tr>
<tr>
<td>Paulson, J. W., Jr.</td>
<td>925, 926, 938, 953</td>
</tr>
<tr>
<td>Pearson, R. A.</td>
<td>517</td>
</tr>
<tr>
<td>Pearson, R. M.</td>
<td>127</td>
</tr>
<tr>
<td>Pellett, G. L.</td>
<td>1189, 1254, 1277</td>
</tr>
<tr>
<td>Pendergraft, O. C., Jr.</td>
<td>982</td>
</tr>
<tr>
<td>Penland, J. A.</td>
<td>1132</td>
</tr>
<tr>
<td>Pennington, J. E.</td>
<td>261, 264, 292</td>
</tr>
<tr>
<td>Peralta, R. A.</td>
<td>411</td>
</tr>
<tr>
<td>Person, L. H., Jr.</td>
<td>963</td>
</tr>
<tr>
<td>Peterson, D. C.</td>
<td>119, 120</td>
</tr>
<tr>
<td>Peterson, D. T.</td>
<td>1403</td>
</tr>
<tr>
<td>Peterson, J. B.</td>
<td>1096</td>
</tr>
<tr>
<td>Petley, D. H.</td>
<td>1515, 1528, 1529</td>
</tr>
<tr>
<td>Pezdirtz, G. F.</td>
<td>518</td>
</tr>
<tr>
<td>Phillips, D. H.</td>
<td>207</td>
</tr>
<tr>
<td>Phillips, T. N.</td>
<td>45, 46, 47, 48, 49</td>
</tr>
<tr>
<td>Phillips, W. H.</td>
<td>310, 311</td>
</tr>
<tr>
<td>Phillips, W. P.</td>
<td>1452</td>
</tr>
<tr>
<td>Phuc, D. B.</td>
<td>394</td>
</tr>
<tr>
<td>Pickett, S. J.</td>
<td>1480</td>
</tr>
<tr>
<td>Pickhardt, V. Y.</td>
<td>364</td>
</tr>
<tr>
<td>Pierce, G. A.</td>
<td>932, 933</td>
</tr>
<tr>
<td>Pikfo, A. B.</td>
<td>772</td>
</tr>
<tr>
<td>Pinckney, S. Z.</td>
<td>1192</td>
</tr>
<tr>
<td>Pinelli, T. E.</td>
<td>1555</td>
</tr>
<tr>
<td>Pinson, L. D.</td>
<td>717, 753</td>
</tr>
<tr>
<td>Pittman, C. M.</td>
<td>896</td>
</tr>
<tr>
<td>Pittman, J. L.</td>
<td>1157, 1162, 1185, 1187</td>
</tr>
<tr>
<td>Pitts, F. L.</td>
<td>384</td>
</tr>
<tr>
<td>Pitts, J. I.</td>
<td>156</td>
</tr>
<tr>
<td>Pitts, M. C.</td>
<td>1285, 1322</td>
</tr>
<tr>
<td>Plaisted, D. A.</td>
<td>412</td>
</tr>
<tr>
<td>Plumer, J. A.</td>
<td>941</td>
</tr>
<tr>
<td>Poe, C. C., Jr.</td>
<td>526, 603</td>
</tr>
<tr>
<td>Polcyn, F. C.</td>
<td>1242</td>
</tr>
<tr>
<td>Polhamus, E. C.</td>
<td>1066</td>
</tr>
<tr>
<td>Pond, J. E.</td>
<td>1384</td>
</tr>
<tr>
<td>Poole, B. D., Jr.</td>
<td>249</td>
</tr>
<tr>
<td>Poole, L. R.</td>
<td>1255</td>
</tr>
<tr>
<td>Pope, L. D.</td>
<td>671</td>
</tr>
<tr>
<td>Postuchow, J. R.</td>
<td>1499</td>
</tr>
<tr>
<td>Potetzky, A. S.</td>
<td>843, 884</td>
</tr>
<tr>
<td>Powell, C. A.</td>
<td>645, 688, 692</td>
</tr>
<tr>
<td>Powell, R. W.</td>
<td>887, 1449, 1454</td>
</tr>
<tr>
<td>Powers, R. W.</td>
<td>878</td>
</tr>
<tr>
<td>Pozner, A. N.</td>
<td>410</td>
</tr>
<tr>
<td>Praharaj, S. C.</td>
<td>1377</td>
</tr>
<tr>
<td>Pratt, T. W.</td>
<td>41, 50</td>
</tr>
<tr>
<td>Preisser, J. S.</td>
<td>672, 685, 687</td>
</tr>
<tr>
<td>Price, D. B.</td>
<td>279, 293, 294</td>
</tr>
<tr>
<td>Price, J. E.</td>
<td>93</td>
</tr>
<tr>
<td>Price, J. M.</td>
<td>1404, 1453</td>
</tr>
<tr>
<td>Pritchard, E. B.</td>
<td>1215, 1216</td>
</tr>
<tr>
<td>Pritchett, L. D.</td>
<td>119, 120</td>
</tr>
<tr>
<td>Progar, D. J.</td>
<td>478, 559, 623, 634, 1510</td>
</tr>
<tr>
<td>Proni, J. R.</td>
<td>1242</td>
</tr>
<tr>
<td>Pruett, C. D.</td>
<td>1405</td>
</tr>
<tr>
<td>Prydz, R.</td>
<td>667</td>
</tr>
<tr>
<td>Puster, R. L.</td>
<td>166, 208</td>
</tr>
<tr>
<td>Putnam, L. E.</td>
<td>999, 1034, 1067</td>
</tr>
<tr>
<td>Pyle, J. A.</td>
<td>1285, 1322</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarteroni, A.</td>
</tr>
<tr>
<td>Quinto, P. F.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raju, I. S.</td>
</tr>
<tr>
<td>Raju, S.</td>
</tr>
<tr>
<td>Ralston, J. N.</td>
</tr>
<tr>
<td>Ramkumar, R. L.</td>
</tr>
<tr>
<td>Ramsey, J. W., Jr.</td>
</tr>
</tbody>
</table>
Spearman, M. L.: 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 97, 102, 103, 104, 1202
Speir, D. W.: 1046
Spencer, B., Jr.: 1465, 1466
Spencer, J. H.: 52
Spencer, J. L.: 448
Speray, D. E.: 157, 331
Spinhirne, J. D.: 1265
Spitzer, C. R.: 449, 459, 460
Springfield, R. D.: 1008
Sprinkle, D. R.: 175
Sproles, D. W.: 205
Sritharah, S. S.: 53
Stack, S. H.: 1132
Staff of Boeing Commercial Airplane Company: 94, 128, 129, 130
Staff of Douglas Aircraft Company: 131
Staff of ICASE: 54
Staff of Texas Instruments Incorporated: 325
Stainback, P. C.: 1003, 1065, 1072, 1101, 1112, 1113
Stallings, R. L., Jr.: 1159
Stallman, S. T.: 392
Stalnaker, W. A.: 1530
Stanewsky, E.: 1001, 1073
Starnes, J. H., Jr.: 716, 752, 790, 803
Staton, L. D.: 338
Staylor, W. F.: 1283, 1300, 1342
St. Clair, A. K.: 482, 483, 484, 528, 570, 571, 572, 575, 624, 626, 635
St. Clair, T. L.: 472, 475, 483, 521, 523, 545, 569, 570, 571, 573, 606, 607, 608, 609, 624, 625, 626, 627, 635, 636, 637, 1510
Stearns, J.: 660
Steele, H. M.: 1264
Stein, B. A.: 574, 579, 610, 628, 1510
Stein, M.: 721, 757, 784, 785
Stein, P. A.: 721
Steinmetz, G. G.: 379, 441
Stephens, A. T.: 420
Stephens, C. O.: 125
Stephens, D. G.: 639, 673, 692, 693, 703, 704, 707
Stearling, S. E., Jr.: 628
Stermer, R. L., Jr.: 365, 232
Stern, A. D.: 416, 417, 418
Stewart, E. C.: 955, 957
St. Hilaire, A. O.: 861, 862
Stickel, J. W.: 956
Stith, J. J.: 1361
Stoakley, D. M.: 482, 572, 575
Stock, L. V.: 1361, 1471
Stone, R. H.: 132, 511, 512
Storaasli, O. O.: 749, 799, 800, 815
Stough, H. P.: 957, 969, 970
Streett, C. L.: 37, 1005, 1074, 1075, 1094, 1102
Strohkorb, G. A.: 722
Strong, E. G.: 999
Stroud, W. J.: 805
Stuhlmann, R.: 1301
Sturm, M. J.: 931
Succi, G. P.: 661
Suit, W. T.: 298, 299, 1420, 1454
Sullivan, E. M.: 1222
Sun, C. T.: 786
Sundararajan, N.: 271, 300, 301, 302
Supersonic Cruise and Maneuver Study Group: 90
Surber, L. E.: 1069
Sutter, T. R.: 738
Suttles, J. T.: 1342
Sutton, J. O.: 125
Swann, R. T.: 210, 576
Swanson, E. E.: 91
Swanson, R. C.: 1060, 1076
Swern, F. L.: 404, 436, 437
Swift, R. N.: 330
Swissler, T. J.: 1250, 1258, 1264, 1265
Taback, I.: 419, 1224
Tadmor, E.: 28, 55, 56, 57, 58
Tai, H.: 904
Talay, T. A.: 1448, 1459
Tam, C. K. W.: 706
Tanna, H. K.: 706
Tanner, J. A.: 715, 723
Taylor, A. B.: 133
Taylor, A. H.: 758, 787, 788, 817, 823
Taylor, E. C.: 1507, 1511
Taylor, J. V.: 461
Taylor, L. T.: 484, 528
Taylor, L. W., Jr.: 278, 291, 303, 304
Taylor, N. L.: 141
Taylor, R.: 219, 361
Teglas, R.: 38, 59
Tenney, D. R.: 611
Tennyson, R. C.: 513
Tepper, W. D.: 1422
Tesche, F. M.: 394
Thames, F. C.: 1037, 1077, 1103, 1156
Theobald, M. A.: 655
Thibodeaux, J. J.: 998, 1063, 1064
Thorn, R. D.: 177
Thomas, G. L.: 326
Thomas, H. M.: 323
Thomas, J. L.: 939, 947, 958, 972
Thomas, M.: 1381
Thomas, M. E.: 384
Thomas, P. D.: 1114
Thomas, S. R.: 1135
Thompson, J. E.: 1546
Thompson, R. E.: 1222, 1302
Thomson, R. G.: 381
Throckmorton, D. A.: 1407, 1408, 1460, 1461
Tietz, J. C.: 323
Tiffany, S. H.: 272, 273
Ting, L.: 968
Tiwari, S. N.: 159
Tole, J. R.: 420
Tomkins, S. S.: 574
Torrence, M. G.: 1124
Townsend, J. C.: 1191
Townsend, L. W.: 1355, 1356, 1371, 1387, 1388, 1409, 1410, 1411, 1417, 1462, 1463, 1482, 1483
Trefethen, L. N.: 40
Trepte, C. R.: 1251, 1343
Trexler, C. A.: 1192
Tripp, J. S.: 167
Tucci, A. T.: 824
Tung, C.: 947
Turkel, E.: 29
Turner, C. D.: 894
Turner, J. D.: 777, 802
Turner, R. E.: 327, 1317
Turner, R. R.: 1266
Turner, T. L.: 440
Turner, T. M.: 235
Turrisiani, R. V.: 93
Tuttle, M. H.: 1000
Tyeryar, J. R.: 628
Tyson, R. W.: 895

U

Unnam, J.: 581
Upchurch, B. T.: 210, 213, 214, 230, 345, 576
Usry, J. W.: 927

V

Vaicaitis, R.: 662, 668
Vaidyanathan, A. R.: 932, 933
Van Ausdal, R. K.: 1518
Van Dam, C. P.: 935, 949
Van Landingham, H. F.: 421
Van Leer, B.: 60, 61
Van Rosendale, J.: 24, 50, 62, 63
Varholic, M. C.: 72
Venkaya, V. B.: 717
Vernon, R. M.: 746
Vicroy, D. D.: 385
Vivaudou, M.: 420
Vogt, F. H.: 412
Voigt, R. G.: 5, 6, 50
Voland, R. T.: 727
Vondran, R. F.: 1555
Von Limbach, G.: 815
Von Ofenheim, W. H. C.: 334
Vosteen, L. F.: 612

W

Wade, J. C.: 236
Waggoner, E. G.: 1078, 1104
Wagner, R. D.: 117, 134, 135
Wahlstrom, S. O.: 815
Wakelyn, N. T.: 527, 529, 530
Walberg, G. D.: 1351, 1484
Walker, G. H.: 1352, 1464
Walkley, K. B.: 111, 1141, 1143, 1205, 1206, 1208, 1212
Wallace, M. C.: 450
Wallio, H. A.: 1267, 1292, 1303, 1304
Wallson, R. E.: 714, 809
Walsh, J. L.: 852, 897
Walsh, M. J.: 1160, 1171, 1174, 1183
Walter, D. J.: 1242
Walters, R. W.: 1170, 1198
Wang, P-H.: 1344
Wang, S. S.: 514, 515
Ward, S. H.: 733, 734
Ward, S. W.: 1552
Ware, G. M.: 1465, 1466
Washburn, F. F.: 93
Waters, C.: 871
Waters, M. H.: 415, 977
Waters, W. A.: 790, 791, 803
Watson, J. J.: 845, 847, 872, 886
Watson, R. D.: 1183
Watson, S. A.: 77
Watson, W. R.: 644, 694
Weaver, W. R., Jr.: 1500
Webb, G. L.: 538, 869, 891, 896
Webster, T. J.: 1027
Wedan, B.: 1079, 1105
Weidner, E. H.: 1190
Weilmuenster, K. J.: 1357, 1418, 1456, 1467, 1485
Weinstein, L. M.: 1184, 1214
Weinstein, N. H.: 1385
Weislogel, G. S.: 422
Wells, W. L.: 1358, 1372, 1468
Wentz, F. J.: 347
Wentz, W. H., Jr.: 1028
Wery, A. C.: 1029
Weston, R. P.: 971
While, D. M.: 976
Whipkey, R. R.: 1012, 1013
Whipple, R. D.: 485, 486, 565, 577, 605
Whitcomb, J. D.: 485, 486, 565, 577, 605
Whitcomb, R. T.: 1080
White, D. C.: 1247
White, E. R.: 945
White, F. A.: 254
White, H. H.: 180
White, M. J.: 463, 1386, 1488
White, R.: 975
White, W. L.: 979
Whiteman, T. C.: 1495
Whitesides, J. L.: 1044
Whitfield, D. L.: 939, 972
Whitlow, W., Jr.: 851, 867, 889
Whitworth, S. L.: 1278
Wiant, H. R.: 468, 580
Wielicki, B. A.: 1305
Wieting, A. R.: 833, 852, 874, 897
Wightman, J. P.: 478, 559
Wigley, D. A.: 1519, 1531
Wilby, E. G.: 671
Wilby, J. F.: 705
Wilder, S. E.: 1369, 1447
Wilhite, A. W.: 1412, 1416, 1469
Wilkerson, T. D.: 1281
Wilkinson, S. P.: 1193, 1194
Williams, D. H.: 380, 381, 451
Williams, F. W.: 748, 759
Williams, H. E.: 203
Williams, J. B.: 359
Williams, J. G.: 716, 789, 790, 791, 803, 824
Williams, J. P.: 287, 302, 305
Williams, L. J.: 73
Williams, M. H.: 865
Williams, M. S.: 729, 730
Willis, C. M.: 671
Willshire, K. F.: 693, 695
Willshire, W. L., Jr.: 651, 675
Wilmoth, R. G.: 1030
Wilson, D. R.: 119, 120
Wilson, J. W.: 1355, 1356, 1359, 1360, 1361, 1388, 1411, 1417, 1462, 1463, 1470, 1471, 1483, 1486
Wilson, M. L.: 910, 1481, 1507
Wilson, R. G.: 1458
Winfree, W. P.: 193, 204, 211
Wininger, M. T.: 508
Winter, R.: 772
Witcofski, R. D.: 1472
Wittlin, G.: 747
Wogulis, E. R.: 119, 120
Wolf, D. E.: 690
Wolf, H.: 1405, 1456, 1457
Wolfe, J. F.: 626, 636
Wong, M.: 1486
Wong, Y. S.: 65
Wood, D. A.: 71
Wood, E. R.: 878
Wood, R. M.: 1136, 1137, 1187, 1188, 1195
Woodbury, G. E.: 1256
Woods, C. A.: 500
Woods, D. C.: 1219, 1268, 1312, 1345
Woods, W. C., Jr.: 1473
Wornom, D. E.: 1254
Wornom, S. F.: 1081
Wright, A. S., Jr.: 117, 134
Wright, C. J.: 748
Wright, H. T.: 69, 70
Wright, R. L.: 1373, 1374, 1400, 1474, 1475
Wurster, K. E.: 887, 1476, 1477
Wylie, D. P.: 347

Yager, T. J.: 731, 792, 793, 794, 804
Yahsi, O. S.: 516
Yamaki, D. A.: 627, 637
Yates, E. C., Jr.: 909
Yeager, W. T., Jr.: 831, 840, 853, 880, 898
Yee, A. F.: 517
Yekrangian, S. A.: 1505
Yoder, L.: 198
Yoerkie, C. A.: 663
Yost, W. T.: 204, 215
Young, C. P., Jr.: 1516, 1532, 1533
Young, D.: 1243
Young, D. F.: 1285, 1322
Young, J. C.: 382
Young, J. W.: 158
Young, L. R.: 420
Young, P. R.: 531, 578, 579, 629
Youngblood, J. W.: 1397, 1478, 1487
Yu, C.: 1505
Yu, J. C.: 696

Z

Zaman, K. B. M. Q.: 697
Zang, T. A.: 16, 36, 37, 39, 49, 64,
   65, 1054, 1075, 1179, 1196, 1200,
   1203, 1492
Zapata, L. E.: 1413
Zaun, N. H.: 350
Zeisel, K. S.: 396
Zerwekh, P. S.: 236, 237
Zheng, Q.: 13, 14
Zimmermann, M.: 1383
Zoby, E. V.: 1393, 1414, 1415, 1434,
   1460, 1461, 1477
Zorumski, W. E.: 652, 698
Zuckerwar, A. J.: 183, 184, 216, 248
Zweiner, J. W.: 171
Zwicke, P. E.: 421
## SUBJECT CATEGORY INDEX

### AERONAUTICS

#### Category 01: Aeronautics (General)

- 64, 85, 88, 89, 90, 94, 102, 103, 104, 105, 108, 117, 291, 369, 370, 449, 453, 924, 928, 945, 954, 955, 963, 1141, 1205, 1386, 1427, 1488

#### Category 02: Aerodynamics


#### Category 03: Air Transportation and Safety

- 366, 386, 387, 393, 422, 444, 711, 923, 941, 948, 951, 956, 1521, 1542

#### Category 04: Aircraft Communications and Navigation

- 140, 401, 406, 413, 442

#### Category 05: Aircraft Design, Testing and Performance


#### Category 06: Aircraft Instrumentation


#### Category 07: Aircraft Propulsion and Power

- 407, 1118, 1124, 1131, 1140, 1164, 1186, 1190, 1192, 1382
Category 08: Aircraft Stability and Control


Category 09: Research and Support Facilities (Air)

199, 220, 456, 879, 987, 1000, 1014, 1015, 1038, 1039, 1049, 1056, 1061, 1063, 1064, 1065, 1068, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1095, 1096, 1101, 1104, 1135, 1178, 1446, 1516, 1532, 1533

ASTRONAUTICS

Category 12: Astronautics (General)

1362, 1363, 1364

Category 14: Ground Support Systems and Facilities (Space)

171, 174, 793, 1072, 1465, 1466

Category 15: Launch Vehicles and Space Vehicles

66, 112, 113, 710, 717, 1215, 1216, 1383, 1401, 1416, 1426, 1449, 1452, 1459, 1472, 1476

Category 16: Space Transportation

321, 887, 1346, 1347, 1366, 1380, 1396, 1412, 1424, 1425, 1442, 1448, 1479, 1484, 1529

Category 18: Spacecraft Design, Testing and Performance

271, 278, 287, 288, 289, 299, 300, 301, 302, 303, 305, 430, 714, 839, 868, 877, 1008, 1367, 1368, 1373, 1374, 1379, 1381, 1400, 1404, 1410, 1418, 1423, 1428, 1431, 1438, 1439, 1453, 1454, 1456, 1457, 1474, 1475, 1481, 1515, 1522

Category 19: Spacecraft Instrumentation

229, 1354, 1405, 1435, 1436

Category 20: Spacecraft Propulsion and Power

259, 281, 282, 283, 284, 1351, 1422, 1441, 1526

CHEMISTRY AND MATERIALS

Category 23: Chemistry and Materials (General)

178, 210, 218, 230, 329, 525
Category 24: Composite Materials


Category 25: Inorganic and Physical Chemistry

205, 533, 610, 1129, 1158, 1165, 1189

Category 26: Metallic Materials

109, 217, 468, 469, 471, 488, 500, 535, 538, 574, 576, 1352, 1402, 1403, 1519, 1531

Category 27: Nonmetallic Materials

170, 219, 472, 475, 480, 482, 483, 484, 492, 495, 507, 509, 517, 518, 521, 522, 523, 528, 529, 531, 545, 546, 547, 548, 549, 550, 551, 569, 570, 571, 572, 573, 575, 578, 579, 585, 587, 588, 589, 590, 606, 607, 608, 609, 633, 634, 635, 636, 637, 1523

ENGINEERING

Category 31: Engineering (General)

22, 23, 285, 1027, 1451

Category 32: Communications

195, 221, 318, 1323

Category 33: Electronics and Electrical Engineering

19, 252, 325, 352, 448, 632

Category 34: Fluid Mechanics and Heat Transfer


216
Category 35: Instrumentation and Photography

Category 36: Lasers and Masers
176, 345, 349, 1353, 1360, 1413, 1505

Category 37: Mechanical Engineering
1512, 1513, 1520, 1524, 1525, 1544

Category 38: Quality Assurance and Reliability
201, 202, 539, 1504

Category 39: Structural Mechanics

GEOSCIENCES

Category 42: Geosciences (General)
1278, 1305

Category 43: Earth Resources
316, 323, 324, 327, 334, 1458

Category 44: Energy Production and Conversion
68, 311, 917, 918, 1349, 1389, 1389, 1464, 1501, 1502, 1543, 1545

Category 45: Environment Pollution
330, 339, 342, 351, 530, 645, 1219, 1229, 1235, 1240, 1246, 1247, 1254, 1256, 1261, 1263, 1266, 1277, 1279, 1288, 1295, 1299, 1304, 1310, 1398
Category 46: Geophysics

350, 527, 1217, 1220, 1221, 1225, 1226, 1228, 1230, 1232, 1233, 1237, 1238, 1243,
1245, 1248, 1249, 1250, 1251, 1252, 1253, 1257, 1258, 1260, 1264, 1265, 1267,
1269, 1270, 1271, 1274, 1276, 1285, 1286, 1287, 1294, 1307, 1308, 1309, 1311,
1312, 1313, 1314, 1315, 1322, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331,
1332, 1333, 1336, 1345

Category 47: Meteorology and Climatology

343, 384, 394, 396, 411, 426, 1227, 1236, 1239, 1241, 1244, 1259, 1262, 1268,
1272, 1273, 1275, 1281, 1282, 1283, 1284, 1289, 1290, 1291, 1292, 1296, 1297,
1300, 1301, 1303, 1306, 1316, 1317, 1318, 1319, 1320, 1334, 1335, 1337, 1338,
1339, 1340, 1341, 1342, 1343, 1344

Category 48: Oceanography

164, 180, 181, 313, 314, 317, 328, 347, 1218, 1231, 1242, 1255

LIFE SCIENCES

Category 51: Life Sciences (General)

508, 1224

Category 52: Aerospace Medicine

494, 1554

Category 53: Behavioral Sciences

292, 397, 398, 420, 445, 446, 447, 648, 678, 684

Category 54: Man/System Technology and Life Support

261, 450, 630, 1480

MATHEMATICAL AND COMPUTER SCIENCES

Category 59: Mathematical and Computer Sciences (General)

7, 11, 15, 54, 57, 142, 147, 154, 155, 156, 157, 159, 161, 162, 264, 371, 403,
404, 408, 409, 425, 436, 437, 452, 454, 1469

Category 60: Computer Operations and and Hardware

320, 326, 332, 344, 735, 800, 1530

Category 61: Computer Programming and Software

24, 41, 50, 62, 63, 139, 141, 144, 145, 148, 152, 153, 266, 268, 405, 412, 428,
455, 725, 736, 738, 742, 806, 1019, 1020, 1370, 1377, 1378, 1384, 1421, 1430, 1450

218
Category 62: Computer Systems
5, 6, 158, 290, 383, 399, 400, 402, 414, 443, 737, 749, 795, 796, 799

Category 63: Cybernetics

Category 64: Numerical Analysis
3, 4, 8, 9, 12, 13, 14, 17, 20, 21, 28, 29, 30, 33, 35, 37, 38, 40, 42, 44, 45, 46, 47, 48, 49, 55, 56, 58, 60, 61, 65, 160, 255, 256, 860, 1035, 1036, 1037, 1045, 1060, 1070, 1071, 1074, 1075, 1077, 1081, 1092, 1093, 1094, 1097, 1099, 1100, 1102, 1103, 1105, 1179

Category 65: Statistics and Probability
149, 150, 151, 435, 1429

Category 66: Systems Analysis
10, 167, 298, 439, 457, 741

PHYSICS

Category 71: Acoustics

Category 72: Atomic and Molecular Physics
1293, 1298, 1302

Category 73: Nuclear and High-Energy Physics
1355, 1356, 1361, 1371, 1387, 1388, 1409, 1411, 1417, 1462, 1471, 1482, 1486

Category 74: Optics
146, 222, 232, 1152, 1223, 1234

Category 75: Plasma Physics
16, 1443

Category 76: Solid-State Physics
207, 701
SOCIAL SCIENCES

Category 80: Social Sciences (General)
   52, 67

Category 82: Documentation and Information Science
   1553, 1555

Category 83: Economics and Cost Analysis
   410

SPACE SCIENCES

Category 91: Lunar and Planetary Exploration
   459, 460, 1321

Category 93: Space Radiation
   1359, 1463, 1470, 1483

GENERAL

Category 99: General
   1, 2, 86, 87, 693, 695, 1202, 1556, 1557
<table>
<thead>
<tr>
<th>RTOP 023-10-08</th>
<th>RTOP 146-40-15</th>
<th>RTOP 176-20-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>1218, 1231, 1242, 1255</td>
<td>1217</td>
</tr>
<tr>
<td>RTOP 023-22-00</td>
<td>RTOP 146-60-01</td>
<td>RTOP 176-30-34</td>
</tr>
<tr>
<td>1544</td>
<td>1243</td>
<td>330</td>
</tr>
<tr>
<td>RTOP 023-25-03</td>
<td>RTOP 146-60-02</td>
<td>RTOP 176-40-04</td>
</tr>
<tr>
<td>1527</td>
<td>1236</td>
<td>1227, 1307</td>
</tr>
<tr>
<td>RTOP 141-20-10</td>
<td>RTOP 147-30-01</td>
<td>RTOP 176-40-05</td>
</tr>
<tr>
<td>1513, 1520, 1525</td>
<td>1229, 1230, 1257, 1263, 1294, 1298, 1309, 1314, 1317, 1323, 1335, 1336</td>
<td>346</td>
</tr>
<tr>
<td>RTOP 141-20-20</td>
<td></td>
<td>RTOP 179-80-10</td>
</tr>
<tr>
<td>494, 1554</td>
<td>RTOP 147-31-05</td>
<td>178, 329</td>
</tr>
<tr>
<td>RTOP 146-10-06</td>
<td>1308</td>
<td>RTOP 179-80-70</td>
</tr>
<tr>
<td>1241, 1262, 1297, 1339</td>
<td>RTOP 147-32-07</td>
<td>170, 217, 219</td>
</tr>
<tr>
<td>RTOP 146-20-08</td>
<td>1316, 1318, 1333, 1341</td>
<td>RTOP 198-30-02</td>
</tr>
<tr>
<td>1237</td>
<td>RTOP 147-33-03</td>
<td>1232</td>
</tr>
<tr>
<td>RTOP 146-20-10</td>
<td>207</td>
<td>RTOP 199-20-76</td>
</tr>
<tr>
<td>205, 353, 1226, 1228, 1235, 1240, 1256, 1275, 1288, 1295, 1310, 1337</td>
<td>RTOP 147-44-02</td>
<td>1355, 1356, 1359, 1371, 1387, 1388, 1409, 1410, 1411, 1417, 1462, 1463, 1470, 1482, 1483, 1486</td>
</tr>
<tr>
<td>RTOP 146-30-01</td>
<td>RTOP 176-10-05</td>
<td>RTOP 199-30-36</td>
</tr>
<tr>
<td>1315</td>
<td>1238, 1313</td>
<td>1247, 1261</td>
</tr>
<tr>
<td>RTOP 146-30-03</td>
<td>RTOP 176-20-02</td>
<td>RTOP 307-01-02</td>
</tr>
<tr>
<td>1281</td>
<td>1245, 1271, 1274, 1286, 1287, 1324, 1325</td>
<td>316, 345, 525, 533</td>
</tr>
<tr>
<td>RTOP 146-40-05</td>
<td>RTOP 176-20-03</td>
<td>RTOP 307-02-02</td>
</tr>
<tr>
<td>317, 347</td>
<td>339, 351, 1270</td>
<td>213, 328, 1225, 1233, 1305</td>
</tr>
<tr>
<td>RTOP 146-40-06</td>
<td></td>
<td>RTOP 307-03-02</td>
</tr>
<tr>
<td>314</td>
<td>1252</td>
<td>210, 576</td>
</tr>
<tr>
<td>RTOP 323-51-61</td>
<td>RTOP 505-31-23</td>
<td>RTOP 505-31-83</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>177</td>
<td>980, 988, 989, 990, 999, 1002, 1006, 1007, 1009, 1016, 1017, 1021, 1024, 1025, 1028, 1057, 1067, 1069, 1080, 1098, 1139, 1160, 1166, 1167, 1172, 1177, 1183, 1184, 1193</td>
<td>3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 139, 142, 144, 146, 147, 148, 149, 150, 151, 152, 154, 155, 156, 157, 158, 159, 160, 161, 162</td>
</tr>
<tr>
<td>420</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-04-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-09-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>660</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-09-23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>655</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-10-39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1560</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-11-33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-31-02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-31-03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>135, 929, 937, 939, 943, 947, 958, 968, 972, 994, 996, 1005, 1010, 1031, 1032, 1035, 1036, 1037, 1050, 1051, 1052, 1054, 1060, 1070, 1071, 1074, 1075, 1077, 1078, 1079, 1081, 1092, 1093, 1094, 1097, 1099, 1100, 1102, 1103, 1105, 1138, 1144, 1147, 1148, 1161, 1179, 1191, 1196, 1198, 1200, 1203</td>
<td>3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 139, 142, 144, 146, 147, 148, 149, 150, 151, 152, 154, 155, 156, 157, 158, 159, 160, 161, 162</td>
<td></td>
</tr>
<tr>
<td>RTOP 505-31-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>228, 1062, 1119, 1123, 1149, 1156, 1163, 1168, 1171, 1174, 1194, 1197, 1199</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTOP 505-31-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>222</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The text appears to be a list of numerical entries, possibly indicating codes or identifiers, but without context, it's difficult to provide a meaningful interpretation.*
RTOP 505-33-13
109, 471, 535, 537, 574, 580, 599, 600, 610
867, 871, 875, 881, 882, 883, 884, 886, 889, 892, 894, 905, 906, 907, 908
RTOP 505-35-23

RTOP 505-33-23
185, 186, 189, 190, 191, 192, 193, 194, 197, 198, 204, 211, 215, 224, 226, 231, 477, 486, 493, 496, 503, 509, 524, 558, 560, 564, 597, 598
722, 749, 863, 864, 893
RTOP 505-33-63

RTOP 505-33-33
257, 258, 260, 262, 265, 266, 267, 270, 272, 273, 274, 276, 277, 279, 280, 286, 293, 294, 295, 297, 299
RTOP 505-34-03

RTOP 505-33-34
168, 517, 838, 842, 843, 845, 846, 847, 848, 849, 851, 866, 888, 900, 901, 902, 903, 904, 909, 961
298
RTOP 505-34-43

RTOP 505-33-43
445
RTOP 505-35-01

RTOP 505-33-53
165, 166, 175, 208, 654, 662, 666, 668, 671, 688, 711, 728, 729, 730, 745, 747, 764, 767, 801, 836, 841, 850, 854, 865
446, 638, 639, 645, 692, 711, 749, 752, 767, 783, 796, 801, 816, 822, 827, 832, 837, 842, 847, 852, 857, 862
RTOP 505-35-13
RTOP 506-64-13
1215, 1216

RTOP 506-64-23
261

RTOP 513-52-01
1518

RTOP 518-22-31
1303

RTOP 530-03-13
1140

RTOP 532-06-13
520, 532, 544, 650, 658, 663, 739, 857, 858

RTOP 533-01-43
73

RTOP 534-01-13
118, 134, 335, 343

RTOP 534-02-13
69, 70, 127, 128, 129, 130, 131, 133, 410, 826, 827, 946, 963, 991, 997, 998, 1004, 1012, 1013, 1061, 1073

RTOP 534-03-13
315, 1292, 1304, 1320

RTOP 534-03-23
480, 497, 514, 515, 572, 575, 581, 716, 784, 790

RTOP 534-04-13
140, 373, 375, 382, 385, 386, 387, 397, 398, 413, 415, 429, 434, 441, 444, 447, 456

RTOP 534-04-13
1401, 1412

RTOP 534-04-13
1458

RTOP 534-04-13
1517, 1522

RTOP 534-04-13
315, 1292, 1304, 1320

RTOP 535-03-13
667

RTOP 535-04-13
1398

RTOP 535-04-13
1401, 1412

RTOP 535-04-13
1458

RTOP 535-04-13
1517, 1522

RTOP 619-12-30
1272, 1276, 1282, 1306, 1343, 1344

RTOP 619-22-31
1267

RTOP 620-14-00
1253

RTOP 665-10-40
1220, 1221, 1249, 1260, 1264, 1279, 1326, 1328, 1329, 1332, 1334

RTOP 665-40-40
179, 1248, 1258, 1311, 1331

RTOP 672-20-07
1244, 1327

RTOP 672-21-13
1268, 1312, 1345

RTOP 672-21-15
1250, 1251, 1265, 1330

RTOP 672-22-04
1278, 1284, 1289, 1290, 1319

RTOP 672-40-06
1273, 1296, 1301, 1338, 1340

RTOP 672-40-07
1283, 1291, 1300, 1342

RTOP 673-41-07
1285, 1322
SCIENTIFIC AND TECHNICAL INFORMATION OUTPUT OF THE LANGLEY RESEARCH CENTER FOR CALENDAR YEAR 1983

Compiled by Research Information and Applications Division

Highlights of the major research accomplishments and applications made at the Langley Research Center during the past year are included in NASA TM-85702 entitled "Research and Technology - 1983 Annual Report of the Langley Research Center."

This document is a compilation of the scientific and technical information that the Langley Research Center has produced during the calendar year 1983. Included are citations for Formal Reports, Quick-Release Technical Memorandums, Contractor Reports, Journal Articles and Other Publications, Meeting Presentations, Technical Talks, Computer Programs, Tech Briefs, and Patents.