PUBLICATIONS ON ACOUSTICS RESEARCH AT THE LANGLEY RESEARCH CENTER —
January 1987-September 1992

Compiled by Linda W. Sutherland

September 1992
This report is a compilation of published and unpublished research generated from January 1987 to September 1992 by the Acoustics Division. The output described in this document is the result of research performed both in-house and by personnel supported entirely or in part by grants and contracts. In addition to being grouped chronologically, the report is divided according to the following general headings:

I. Formal Reports
II. Quick-Release Technical Memorandums
III. Contractor Reports
IV. Journal Articles and Other Publications
V. Meeting Presentations
VI. Technical Talks
VII. Computer Programs
VIII. Tech Briefs
IX. Patents

Included are the generally available NASA Technical Papers and Technical Memoranda (TP- and TM-) and Contractor Reports (CR-), copies of which may be obtained from the National Technical Information Service (NTIS), Springfield, Virginia 22161, for a nominal charge. Meeting/conference papers and associated journal articles are obtainable from NTIS or the sponsors of the meetings and conferences. Tech Briefs are usually available from the NASA Langley Technology Utilization and Applications Office.
1987
PUBLICATIONS FOR ACOUSTICS DIVISION

Formal Reports


High Numbered Technical Memorandums


Contractor Reports


Journal Articles and Other Publications


Meeting Presentations


Technical Talks


Ng, C. F.: Simple and General Formulae for Design of Postbuckled and Curved Plates for Static and Dynamic Characteristics Including Snap-Through Motion. Presented at the Air Force Office of Scientific Research/Army Research Office Conference on Non-Linear Vibrations,


1988
PUBLICATIONS FOR ACOUSTICS DIVISION

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High Numbered Technical Memorandums


Contractor Reports


Journal Articles and Other Publications


**Meeting Presentations**


Technical Talks


Lamkin, S. L. and Hardin, J. C.: Vorticity Dominated Flows with Applications to Aeroacoustics. Presented at the 3rd Int. Conf. on Supercomputing, May 15-20, 1988, Boston, MA.


Ng, C. F.: The Evaluation of the Region of Chaotic Motion in Curved Structures. Presented at the Second Conference on Non-Linear, Stability, and Dynamics of Structures and Mechanisms, June 1-3, 1988, Blacksburg, VA.

Silcox, R. J.; and Lester, H. C.: Sound Transmission and Active Control in Fuselage Models. Presented at the 3rd SAE/NASA Interior Noise Workshop, April 11-12, 1988, Hampton, VA.

PUBLICATIONS FOR ACOUSTICS DIVISION

Formal Reports


Parrott, T. L.; Jones, M. G.; and Albertson, C. W.: Fluctuating Pressures Measured Beneath a High-Temperature, Turbulent Boundary Layer on a Flat Plate at a Mach Number of 5. NASA TP 2947, November 1989.


High Numbered Technical Memorandums


Contractor Reports


Journal Articles and Other Publications


Meeting Presentations


DeBarnardis, E.; and Farassat, F.: On the Possibility of Singularities in the Acoustic Field of Supersonic Sources when BEM is Applied to a Wave Equation. Presented at the International Symposium on Boundary Element Methods, October 2-4, 1989, East Hartford, CT.


Technical Talks


Metcalf, V. L.; and Brown, D. E.: Active Control of Sound Transmission Through an Elastic Plate. Presented at the ASTD/NASA Rotorcraft Technology Transfer Meeting, March 8, 1989, Hampton, VA.


Tech Briefs

PUBLICATIONS FOR ACOUSTICS DIVISION

Formal Reports


High-Numbered Conference Publications


High Numbered Technical Memorandums


Silcox, R. J.; and Elliott, S. J.: Active Control of Multi-Dimensional Random Sound in Ducts. NASA TM 102653, May 1990.


Contractor Reports


Cuschieri, J. M.: Power Flow Analysis of Two Coupled Plates With Arbitrary
Characteristics. (NAG1-685 Florida Atlantic University.) NASA CR-
182033, June 1990, 46 p.

Hassan, A. A.; Tadghighi, H.; and Charles, B. D.: Aerodynamics and Acoustics
of Three-Dimensional Blade-Vortex Interactions. (NAS1-17145 McDonnell

Hubbard, H. H.: Vibration Responses of Two House Structures During the
Edwards Air Force Base Phase of the National Sonic Boom Program.
(NAS1-19000 Lockheed Engineering & Sciences Company.) NASA CR-
182089, August 1990, 57 p.

Hubbard, H. H.; and Maglieri, D. J.: Sonic Boom Signature Data From
Cruciform Microphone Arry Experiments During the 1966-67 EAFB
National Sonic Boom Evaluation Program. (NAS1-19000 Lockheed
Engineering & Sciences Company and NAS9-17900 Eagle Engineering,

Maglieri, D. J.; and Sothcott, V. E.: Summary of Sonic Boom Rise Times
Observed During FAA Community Response Studies Over a 6-Month
Period in the Oklahoma City Area. (NAS9-17900 Eagle Engineering, Inc.)

Morrison, G. L.; and Swan, D. H.: Rectangular Subsonic Jet Flow Field
Measurements. (NAG1-630 Texas A&M University.) NASA CR-181925,
March 1990, 164 p.

Post, J. T.: Active Control of the Forced and Transient Response of a Finite
Beam. (NCC1-14 George Washington University, Joint Institute for

Reinesch, R. J.: Airfoil Parameters That Reduce Blade-Vortex Interaction
Noise. (NAS1-17148 Bell Helicopter Textron Inc.) NASA CR-181946,


Smith, D. E.; and Sigl, D. G.: Flow Over and Behind Various Rotor Blade Tip
Shapes: Wind Tunnel Test Data Report. (NAS1-17148 Bell Helicopter


Journal Articles and Other Publications


**Meeting Presentations**


Fuller, C. R.; Gibbs, G. P.; and Silcox, R. J.: Simultaneous Active Control of Flexural and Extensional Power Flow in Beams. Presented at the


Technical Talks


Farassat, F.: Generalized Function Theory as a Tool in Acoustics and Aerodynamics. Invited lecture at University of Notre Dame, November 8, 1990, Notre Dame, IN.

Maestrello, L.: Active Control of a Panel Structure and Boundary Layer Excitation During Transition. Presented at an invited seminar, Wayne State University, April 19, 1990, Detroit, MI.

Maestrello, L.; and Grosveld, F. W.: Control of Sound-Induced Boundary Layer Transition Induced by Sound Over a Flat Plate. Presented at the 119th Meeting of the Acoustical Society of America, May 21-25, 1990, State College, PA.

Posey, J. W.: Control of Inlet Noise from Turbofan Engines. Seminar presented at the Noise Control Laboratory, May 21, 1990, University Park, PA.


Computer Programs

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Patents

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Formal Reports


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Meeting Presentations


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McCurdy, D. A.: Effects of Wave Shape, Rise Time, and Duration on Subjective Response to Sonic Booms. Presented at the 122nd Meeting of the Acoustical Society of America, November 4-8, 1991, Houston, TX.


Tech Briefs

Patents

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PUBLICATIONS FOR ACOUSTICS DIVISION

Formal Reports


High-Numbered Conference Publications


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Meeting Presentations


Brentner, K. S.: A Consideration of Energy from the Viewpoint of Computational Aeroacoustics. Presented at the LaRC/ICASE Workshop on Computational Aeroacoustics (CAA), April 6-9, 1992, Hampton, VA.


Farassat, F.: The Acoustic Analogy as a Tool of Computational Aeroacoustics. Presented at the LaRC/ICASE Workshop on Computational Aeroacoustics (CAA), April 6-9, 1992, Hampton, VA.


Hardin, J. C.: Numerical Considerations for Computational Aeroacoustics. Presented at the LaRC/ICASE Workshop on Computational Aeroacoustics (CAA), April 6-9, 1992, Hampton, VA.


Zorumski, W. E.: Classical Theoretical Approaches to Computational Aeroacoustics. LaRC/ICASE Workshop on Computational Aeroacoustics (CAA), April 6-9, 1992, Hampton, VA.

Technical Talks

Farassat, F.: Aeroacoustics of Advanced Propellers and Helicopter Rotors in Time Domain. Presented at Department Seminar at University of Minnesota, April 10, 1992, Minneapolis, MN.


This report is a compilation of publications from acoustics research at the Langley Research Center. The reports listed are in chronological order and summarize the research output of the Acoustics Division for the period January 1987-September 1992.