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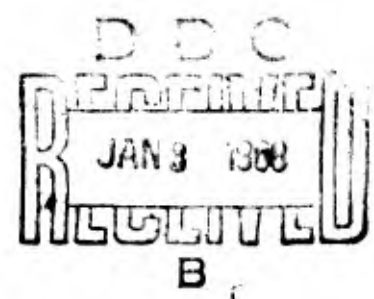


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Technical Memorandum

**TECHNICAL REPRINTS AND
REPORTS RELEASED FOR
UNRESTRICTED CIRCULATION**

1 April 1966 — 30 June 1967



THE JOHNS HOPKINS UNIVERSITY • APPLIED PHYSICS LABORATORY

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THE JOHNS HOPKINS UNIVERSITY • APPLIED PHYSICS LABORATORY
8621 Georgia Avenue, Silver Spring, Maryland 20910
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FOREWORD

The purpose of this report series is to list the journal article reprints and the technical reports issued by the Applied Physics Laboratory and released for unrestricted circulation during each period. This information was formerly included in the Status Report 1B series, the last of which was SR 1B-7 for the period April - June 1964. TG 727-2 covers the period from 1 April 1966 to 30 June 1967 and is a successor to TG 727-1, which covered the period from 1 July 1964 to 31 March 1966. Subsequent issues are scheduled to appear quarterly.

Unless otherwise specified, the authors are members of the staff of the Applied Physics Laboratory.

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Part I

JOURNAL ARTICLE REPRINTS ISSUED

1 April 1966 to 30 June 1967

Reprint No.

- 891 "Determination of Coefficients Associated with the Geopotential Harmonics of Order Thirteen," by S. M. Yionoulis, Journal of Geophysical Research, Vol. 71, No. 6 (15 March 1966), p 1768, reprint issued 4 May 1966.
- 892 "Ionization Enhancement from Van Allen Electrons in the South Atlantic Magnetic Anomaly," by A. J. Zmuda, Journal of Geophysical Research, Vol. 71, No. 7 (1 April 1966), pp 1911-1917, reprint issued 10 May 1966.
- 893 "Computing Center Operations," by R. P. Rich, Journal of Chronic Diseases, Vol. 19 (1966), pp 373-376, reprint issued 15 June 1966.
- 894 "An Investigation of Catalytic Ignition of JP-5 and Air Mixtures," by S. E. Grenleski and F. Falk, Journal of Aircraft, Vol. 3, No. 2 (March-April 1966), pp 141-146, reprint issued 12 May 1966.
- 895 "Error Bounds for Approximations to Expectation Values of Unbounded Operators," by N. W. Bazley, Institut Battelle, Geneva, Switzerland, and D. W. Fox, Journal of Mathematical Physics, Vol. 7, No. 3 (March 1966), pp 413-416, reprint issued 12 May 1966.
- 897 "Bounds to Eigenvalues of Rhombical Membranes," by J. T. Stadter, Journal of the Society for Industrial and Applied Mathematics, Vol. 14, No. 2 (March 1966), pp 324-341, reprint issued 1 June 1966.

Reprint No.

- 898 "Studies of Hydroxyl Radical Kinetics by Quantitative ESR," by G. Dixon-Lewis, The Houldsworth School of Applied Science, The University of Leeds, Leeds, England, W. E. Wilson, and A. A. Westenberg, The Journal of Chemical Physics, Vol. 44, No. 8 (15 April 1966), pp 2877-2884, reprint issued 22 June 1966.
- 899 "Ablating Shield for Plasma Arc Probe," by R. G. Heidelbach, W. H. Avery, and E. A. Bunt, AIAA Journal, Vol. 4, No. 4 (April 1966), pp 751-752, reprint issued 2 June 1966.
- 901 "Evolution of a Rotating Protostar," by J. F. Bird, Progress of Theoretical Physics, Vol. 35, No. 4 (2 April 1966), pp 615-621, reprint issued 27 July 1966.
- 902 "A Method for Finding the m Smallest Values of a Monotonic Function Defined on Ordered Sets of Positive Integers," by V. G. Sigillito, Communications of the ACM, Vol. 9, No. 7 (July 1966), pp 519-521, reprint issued 25 August 1966.
- 903 "Free-Text Inputs to Utility Routines," by B. I. Blum, Communications of the ACM, Vol. 9, No. 7 (July 1966), pp 525-526, reprint issued 8 March 1967.
- 904 "On the Performance of a Heat Pipe," by D. K. Anand, Journal of Spacecraft and Rockets, Vol. 3, No. 5 (May 1966), pp 763-765, reprint issued 29 June 1966.
- 906 "Bistatic Cross Section of the Sea," by V. W. Pidgeon, IEEE Transactions on Antennas and Propagation, Vol. AP-14, No. 3 (May 1966), pp 405-406, reprint issued 8 August 1966.
- 907 "A Critical Survey of the Major Methods for Measuring and Calculating Dilute Gas Transport Properties," by A. A. Westenberg, Advances in Heat Transfer, Vol. 3 (1966), pp 253-302, reprint issued 23 May 1966.

Reprint No.

- 908 "The Strategy of Corporate Research and Development," by R. E. Gibson, California Management Review, Vol. 9, No. 1 (Fall 1966), pp 33-42, reprint issued 9 September 1966.
- 909 " C^{13} Hyperfine Splittings in the Electron Spin Resonance Spectra of HCO and FCO," by E. L. Cochran, F. J. Adrian, and V. A. Bowers, The Journal of Chemical Physics, Vol. 44, No. 12 (June 1966), pp 4626-4629, reprint issued 9 September 1966.
- 910 "A Set of Stability Constraints on the Denominator of a Sampled-Data Filter," by M. L. Cohen, IEEE Transactions on Automatic Control, Vol. AC-11, No. 2 (April 1966), pp 327-328, reprint issued 14 September 1966.
- 911 "Thermal Degradation of Piperazine Polyamides II - Poly (terephthaloyl piperazine), Poly (terephthaloyl 2-methyl-piperazine) and Poly (isophthaloyl trans-2, 5-dimethyl-piperazine)," by S. D. Bruck, Polymer, Vol. 7, No. 5 (May 1966), pp 231-241, reprint issued 16 June 1966.
- 912 "Methods for Lower Bounds to Frequencies of Continuous Elastic Systems," by N. W. Bazley, Institut Battelle, Geneva, Switzerland, and D. W. Fox, Journal of Applied Mathematics and Physics, Vol. 17, No. 1 (1966), pp 1-37, reprint issued 13 May 1966.
- 913 "Ionization Potential of the CH_2 Free Radical by Mass Spectrometry," by S. N. Foner and R. L. Hudson, The Journal of Chemical Physics, Vol. 45, No. 1 (1 July 1966), pp 49-51, reprint issued 27 September 1966.
- 914 "Mass Spectrometry of Free Radicals and Vibronically Excited Molecules Produced by Pulsed Electrical Discharges," by S. N. Foner and R. L. Hudson, The Journal of Chemical Physics, Vol. 45, No. 1 (1 July 1966), pp 40-48, reprint issued 27 September 1966.

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- 915 "Approximate Closed Solutions for Detonation Parameters in Condensed Explosives," by M. H. Friedman, AIAA Journal, Vol. 4, No. 7 (July 1966), pp 1182-1187, reprint issued 12 August 1966.
- 916 "Experiments on Wave Interactions Between Plasma and an Electron Stream in a Magnetic Field," by J. R. Apel and A. M. Stone, Proceedings of the Seventh International Conference on Phenomena in Ionized Gases, Vol. II (1966), pp 405-409, reprint issued 3 March 1967.
- 917 "ESR Intensity Relations and Some Gas-Phase Chemical Kinetics of the OD Radical," by A. A. Westenberg and W. E. Wilson, The Journal of Chemical Physics, Vol. 45, No. 1 (1 July 1966), pp 338-342, reprint issued 26 September 1966.
- 918 "Venting a Ramjet Missile to Prevent Buzz During Boost by Tandem Rocket," by E. A. Bunt, Journal of Spacecraft and Rockets, Vol. 3, No. 7 (July 1966), pp 1140-1141, reprint issued 31 August 1966.
- 919 "Thermal Degradation of Piperazine Polyamides III - The Effect of Ultraviolet Irradiation on Poly (isophthaloyl trans-2, 5-dimethylpiperazine)," by S. D. Bruck, Polymer, Vol. 7, No. 7 (July 1966), pp 321-330, reprint issued 15 August 1966.
- 920 "Stokes Flow About Deformed Spheroids," by V. O'Brien, International Journal of Engineering Science, Vol. 4, No. 2 (April 1966), pp 203-205, reprint issued 8 June 1966.
- 921 "Determination of Coefficients Associated with the Geopotential Harmonic of Degree and Order $(n, m) = (13, 12)$," by S. M. Yionoulis, Journal of Geophysical Research, Vol. 71, No. 16 (15 August 1966), p 4064, reprint issued 18 October 1966.

Reprint No.

- 922 "Remarks on a Recent Method for Lower Bounds to Energy Levels," by N. W. Bazley, Institut Battelle, Geneva, Switzerland, and D. W. Fox, The Physical Review, Vol. 148, No. 1 (5 August 1966), pp 90-91, reprint issued 27 September 1966.
- 923 "Iterative vs a Directive Method for Solving Fourth Order Elliptic Difference Equations," by L. W. Ehrlich, Proceedings of the 21st National Conference of the Association for Computing Machinery (1966), pp 29-35, reprint issued 14 November 1966.
- 924 "All About Hospital Ships," by B. H. Buckingham, Navy Magazine, Vol. 9, No. 7 (July 1966), pp 16-20, reprint issued 4 August 1966.
- 925 "Technical Publications in England Today," by V. M. Root, STWP Review, Vol. 13, No. 3 (July 1966), pp 9-13, reprint issued 18 August 1966.
- 926 "Instrumentation for Space Physics," by C. O. Bostrom and G. H. Ludwig, Goddard Space Flight Center, Greenbelt, Md., Physics Today, Vol. 19, No. 7 (July 1966), pp 43-56, reprint issued 31 August 1966.
- 927 "Pointwise Bounds for Solutions of the First Initial-Boundary Value Problem for Parabolic Equations," by V. G. Sigillito, Journal of the Society for Industrial and Applied Mathematics, Vol. 14, No. 5 (September 1966), pp 1038-1056, reprint issued 11 January 1967.
- 929 "Dynamics of a Satellite Stabilized by Wires," by R. R. Newton, Journal of Spacecraft and Rockets, Vol. 3, No. 10 (October 1966), pp 1469-1475, reprint issued 30 November 1966.
- 930 "Transverse Magnetic Disturbances at 1100 Kilometers in the Auroral Region," by A. J. Zmuda, J. H. Martin, and F. T. Heuring, Journal of Geophysical Research, Vol. 71, No. 21 (1 November 1966), pp 5033-5045, reprint issued 15 December 1966.

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- 931 "Discrete Analogs for Continuous Filters," by H. Shaw, Journal of the Association for Computing Machinery, Vol. 13, No. 4 (October 1966), pp 600-604, reprint issued 21 December 1966.
- 932 "Thermal Diffusion in Polyatomic Gases: A Generalized Stefan-Maxwell Diffusion Equation," by L. Monchick, R. J. Munn, Department of Applied Mathematics, The Queen's University of Belfast, Belfast, North Ireland, and E. A. Mason, Institute for Molecular Physics, University of Maryland, College Park, Md., The Journal of Chemical Physics, Vol. 45, No. 8 (15 October 1966), pp 3051-3058, reprint issued 27 December 1966.
- 933 "Low Altitude Hypersonic Flow Simulation by Means of a Supersonic Compressor," by R. A. Makofski and W. P. Dickens, Journal of Spacecraft and Rockets, Vol. 3, No. 11 (November 1966), pp 1644-1650, reprint issued 29 December 1966.
- 934 "The Computer's Role in Command Decision," by R. M. Hanes and J. W. Gebhard, United States Naval Institute Proceedings, Vol. 92, No. 9 (September 1966), pp 60-68, reprint issued 24 October 1966.
- 935 "A Simple, Mechanized, Non-Computerized System for Serials Control in Small Academic Libraries: A Primer," by W. E. McGrath, South Dakota School of Mines and Technology, Rapid City, South Dakota, and H. Kolbe, Library Resources and Technical Services, Vol. 10, No. 3 (Summer 1966), pp 373-382, reprint issued December 1966.
- 936 "Vibrational Relaxation Times of Deuterium and Hydrogen. A Comparison of Theory and Experiment," by J. G. Parker, The Journal of Chemical Physics, Vol. 45, No. 10 (15 November 1966), pp 3641-3645, reprint issued 23 January 1967.

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- 937 "Design and Operation of the Battery Power Supply of a Hypersonic-Propulsion Facility," by E. A. Bunt, R. T. Cusick, L. W. Bennett, and H. L. Olsen, Proceedings of the IEE, Vol. 113, No. 12 (December 1966), pp 2107-2114, reprint issued 23 January 1967.
- 938 "Penetration of Gaseous Jets Injected into a Supersonic Stream," by J. A. Schetz, University of Maryland, College Park, Md., and F. S. Billig, Journal of Spacecraft and Rockets, Vol. 3, No. 11 (November 1966), pp 1658-1665, reprint issued 29 December 1966.
- 939 "Stellar Photometry from a Satellite Vehicle," by A. M. Smith, The Astrophysical Journal, Vol. 147, No. 1 (January 1967), pp 158-171, reprint issued 13 March 1967.
- 940 "Why and What to Automate," by R. A. Evans, from Papers Presented at the 1965-1966 Meetings of the Documentation Group, Washington, D. C. Chapter, Special Libraries Association, pp 4-8, reprint issued 26 October 1966.
- 941 "Comparison Operators for Lower Bounds to Eigenvalues," by N. W. Bazley, Institut Battelle, Geneva, Switzerland, and D. W. Fox, Journal of Pure and Applied Mathematics, Vol. 223 (1966), pp 142-149, reprint issued 27 October 1966.
- 942 "Satellite Navigation Using Integral Doppler Data - the AN/SRN-9 Equipment," by W. H. Guier, Journal of Geophysical Research, Vol. 71, No. 24 (15 December 1966), pp 5903-5910, reprint issued 10 February 1967.
- 943 "A Modified Newton Method for Polynomials," by L. W. Ehrlich, Communications of the ACM, Vol. 10, No. 2 (February 1967), pp 107-108, reprint issued 20 March 1967.
- 944 "Computational Methods for Determining Lower Bounds for Eigenvalues of Operators in Hilbert Space," by D. W. Fox and W. C. Rheinboldt, Institute for Fluid Dynamics and Applied Mathematics, University of Maryland, College Park, Md., Society for Industrial and Applied Mathematics Review, Vol. 8, No. 4 (October 1966), pp 427-462, reprint issued 14 March 1967.

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- 945 "Scattering Matrix Parameters for Thermal Transducers," by D. K. Anand and L. de Pian, George Washington University, Washington, D. C., Proceedings of the IEE, Vol. 54, No. 12 (December 1966), pp 1999-2000, reprint issued 27 February 1967.
- 946 "Electroabsorption in CdSe Films," by T. O. Poehler and D. Abraham, Physics Letters, Vol. 23, No. 9 (28 November 1966), pp 523-524, reprint issued 30 January 1967.
- 947 "A Graphic Graphics Card Catalog and Computer Index," by B. W. Kuvshinoff, American Documentation, Vol. 18, No. 1 (January 1967), pp 3-9, reprint issued 8 February 1967.
- 948 "Theoretical Study of a Solid Propellant Having a Heterogenous Surface Reaction. I - Acoustic Response, Low and Intermediate Frequencies," by R. W. Hart, R. A. Farrell, and R. H. Cantrell, Combustion and Flame, Vol. 10, No. 4 (December 1966), pp 367-380, reprint issued 14 February 1967.
- 949 "Atom-Molecule Kinetics at High Temperature Using ESR Detection. Technique and Results for $O + H_2$, $O + CH_4$, and $O + C_2H_6$," by A. A. Westenberg and N. de Haas, The Journal of Chemical Physics, Vol. 46, No. 2 (15 January 1967), pp 490-501, reprint issued 28 March 1967.
- 950 "Electron Spin Resonance of Cu^{2+} in Strontium Tartrate," by J. C. Murphy and J. Bohandy, The Journal of Chemical Physics, Vol. 46, No. 3 (1 February 1967), pp 1215-1216, reprint issued 19 April 1967.
- 952 "Wide Band Phase Shifters," by H. Querido, J. Frank, and T. C. Cheston, IEEE Transactions on Antennas and Propagation, Vol. AP-15, No. 2 (March 1967), p 300, reprint issued 15 May 1967.
- 953 "Report of the Director of the Applied Physics Laboratory," by R. E. Gibson, Report of the Faculties and Administration, 1966, The Johns Hopkins University (1966), reprint issued 29 May 1967.

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- 955 "Dayside Magnetic Disturbances at 1100 Kilometers in the Auroral Oval," by A. J. Zmuda, F. T. Heuring, and J. H. Martin, Journal of Geophysical Research, Vol. 72, No. 3 (1 February 1967), pp 1115-1117, reprint issued 20 March 1967.
- 957 "Molecular Transport Properties for Flame Studies," by R. M. Fristrom and A. A. Westenberg, Fire Research Abstracts and Reviews, Vol. 8, No. 3 (1966), pp 155-183, reprint issued 24 February 1967.
- 958 "Tropopause Detected by Radar," by D. Atlas, K. R. Hardy, and K. M. Glover, Air Force Cambridge Research Laboratories, Bedford, Mass, I. Katz, and T. G. Konrad, Science, Vol. 153, No. 3740 (2 September 1966), pp 1110-1112, reprint issued 15 February 1967.
- 959 "Radar Observations of Insects in Free Flight," by K. M. Glover and K. R. Hardy, Air Force Cambridge Research Laboratories, Bedford, Mass., T. G. Konrad, and W. N. Sullivan and A. S. Michaels, U. S. Department of Agriculture, Washington, D. C., Science, Vol. 154, No. 3752 (25 November 1966), pp 967-972, reprint issued 15 February 1967.
- 960 "ESR Spectrum and Structure of O₂F," by F. J. Adrian, The Journal of Chemical Physics, Vol. 46, No. 5 (1 March 1967), pp 1543-1550, reprint issued 29 May 1967.
- 962 "Rate Constant for the Reaction $N + O_2 \rightarrow NO + O$," by W. E. Wilson, The Journal of Chemical Physics, Vol. 46, No. 5 (1 March 1967), pp 2017-2018, reprint issued 29 May 1967.
- 963 "On the Cesari-Cavalieri Area of a Surface," by N. Rubinstein, Duke Mathematical Journal, Vol. 34, No. 1 (March 1967), pp 73-84, reprint issued 26 April 1967.

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- 964 "Use of Malkin's Theorem for Satellite Stability in the Presence of Light Pressure," by D. K. Anand and J. M. Whisnant, Proceedings of the IEEE, Vol. 55, No. 3 (March 1967), pp 444-445, reprint issued 18 May 1967.
- 965 "Spectroscopic Measurements of Combustion Gas Composition in Supersonic Flow," by F. K. Hill, H. J. Unger, and W. P. Dickens, AIAA Journal, Vol. 5, No. 5 (May 1967), pp 874-881, reprint issued 16 June 1967.
- 967 "Latching Ferrite Phase Shifter for Phased Arrays," by J. Frank, J. H. Kuck, and C. A. Shipley, Microwave Journal, Vol. 10, No. 4 (March 1967), pp 97-102, reprint issued 21 April 1967.
- 979 "Voltage Regulation for Large Variations in Load Current," by J. S. King, Jr., QST, Vol. 1001, No. 6 (June 1967), p 50, reprint issued 8 June 1967.

Part II

REPORTS RELEASED FOR UNRESTRICTED CIRCULATION

1 April 1966 to 30 June 1967

CM REPORTS

- 1045 Periodic Boundary Layer Flows over a Flat Plate, by
 V. O'Brien and F. E. Logan, May 1964, AD-607 065.

CONTRACTOR REPORTS (CR)

- 23 An Experimental and Theoretical Investigation of Two-
Dimensional Jet-Flap Aerodynamic Interaction at Super-
sonic Speeds, by N. E. Hawk and J. L. Amick, University
of Michigan, October 1965, AD-637 126.
- 24 Circular-Arc Jet Flaps at Supersonic Speeds - Two-
Dimensional Theory, by J. L. Amick, University of
Michigan, July 1966, AD-645 731.
- 25 Pressure Distributions on Single and Tandem Cylinders
Mounted on a Flat Plate in Mach Number 5.0 Flow, by
W. H. Miller, Defense Research Laboratory, The
University of Texas, 1 June 1966, AD-634 282.

TECHNICAL MEMORANDA (TG)

- 230-B6 Electromagnetic Wave Propagation in Conducting Media-
An Annotated Bibliography, by E. J. Blau and M. J. Lun,
September 1966, AD-644 689.
- 423A Index and Abstracts of APL Reprints, 1962-63, by
S. Goldman, September 1964.

- 533A Motion Picture Catalog, by J. W. Brubaker and B. S. Walker, June 1966, AD-802 944.
- 714 Position of McMurdo Sound, Antarctica Tracking Station as Determined by Artificial Earth Satellites, by F. T. Heuring, July 1965, AD-633 006.
- 727-1 Technical Reprints and Reports Released for Unrestricted Circulation, 1 July 1964 - 31 March 1966, September 1966, AD-640 607.
- 759 Heat Transfer Effects Arising from Arc Rotation in Plasma Arc Heaters of the Self-Induced Magnetic Field Type, by E. A. Bunt, December 1965, AD-632 207.
- 802 A Theta-Pinch Plasma Gun, by R. Turner, December 1965, AD-652 690.
- 803 Extension of an Eigenvalue Estimation Method of D. H. Weinstein, by J. T. Stadter, March 1966, AD-636 931.
- 804 Frequencies of Beams on Partial Elastic Foundations, by N. Rubinstein, March 1966, AD-631 363.
- 806 Evolution of a Plasma Puff in a Longitudinal Magnetic Field, by S. J. Moss, January 1966, AD-633 626.
- 807 Preliminary Report on the Use of Satellites to Navigate Aircraft, by R. H. Bauer, W. A. Bourguignon, and P. G. Ferriter, January 1966, AD-479 129L.
- 809 Air Defense (ADS) Digital System, by Bumblebee Instrumentation Development Group, February 1966, AD-636 930.
- 810 Computational Methods for Determining Lower Bounds for Eigenvalues of Operators in Hilbert Space, by D. W. Fox, and W. C. Rheinboldt, University of Maryland, College Park, Md., March 1966, AD-633 625.
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Poisson's Equation Using A-Priori Pointwise Bounds and
Continuous Approximating Functions, by D. G. Grant,
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- 889 Computer Aided Layout of Ministick Artwork, by R. C. Moore, February 1967, AD-648 324.
- 890 The 5E-5 Rubidium-85 Vapor Magnetometer, by W. E. Radford, February 1967, AD-652 807.
- 892 External Burning Ramjets, Preliminary Feasibility Study, by G. L. Dugger and L. Monchick, March 1967, AD-655 459.
- 895 A Spaceborne Analog to Digital Converter Design, by A. L. Lew, February 1967.
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- 902 An Analytical Method for the Design of Scored Rupture Diaphragms for Use in Shock and Gun Tunnels, by R. W. Henderson, March 1967.
- 903 Thermal Stresses in Finite Length Sandwich Cylinders, by R. M. Rivello, March 1967.
- 905 Tidal Numbers and Phases as Deduced from Satellite Orbits, by R. R. Newton, April 1967, AD-655 458.
- 912 External Burning in Supersonic Streams, by F. S. Billig, May 1967.
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- 929 Performance of the Spin Control System of the DME-A Satellite, by F. F. Mobley, J. W. Teener, R. D. Brown, and B. E. Tossman, June 1967.

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- 230-T441 APL Library Bulletin, Translations Series. Statistical Investigation of the Relationships between Solar Radio Bursts and Other Flare-Complex Phenomena during IGY, by A. Kruger, translated by C. R. Haave, 22 July 1964, AD-448 104.
- 230-T450 APL Library Bulletin, Translations Series. Recording of the Effects of the High-Altitude Thermonuclear Burst of 9 July 1962 by the Satellite "KOSMOS-5," by Yu. I. Gal'perin and A. D. Bolyunova, translated by C. R. Haave, 11 February 1965.
- 230-T451 APL Library Bulletin, Translations Series. Sensitivity of Explosives to Mechanical Effects and Methods of Increasing Their Stability, by G. T. Afanas'ev, V. K. Bobolev, and I. A. Karpukhin, translated by L. J. Holtschlag, 20 May 1965, AD-630 026.
- 230-T452 APL Library Bulletin, Translations Series. Increasing the Specific Impulse of Hybrid Rockets by Adding Hydrogen, by H. Moutet and M. Pugibet, translated by L. J. Holtschlag, 7 May 1965.
- 230-T453 APL Library Bulletin, Translations Series. Contribution to the Problem of Estimating the Length of the Chemical Reaction Zone behind the Front of a Detonation Wave, by G. G. Rempel, translated by L. J. Holtschlag, 30 November 1965, AD-625 574.
- 230-T454 APL Library Bulletin, Translations Series. Laser with Two Kinds of Active Centers, by V. S. Mashkevich, translated by B. W. Kuvshinoff, 1 March 1965.

- 230-T456 APL Library Bulletin, Translations Series. Variational Problems in the Dynamics of Orbital Aircraft, by S. S. Kosmodem'yanskii, translated by B. W. Kuvshinoff, 15 May 1965.
- 230-T457 APL Library Bulletin, Translations Series. Magnetic Tray for Colliding Beams, by Zh. S. Takibaev, translated by B. W. Kuvshinoff, 10 June 1965.
- 230-T458 APL Library Bulletin, Translations Series. Status and Problems of World Marine Geology, by A. P. Lisitsyn and G. B. Udintsev, translated by B. W. Kuvshinoff, 8 June 1965.
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- 230-T460 APL Library Bulletin, Translations Series. Interference Effects Produced by Gaseous Side-Jets Issuing into a Supersonic Stream, by F. Maurer, translated by L. J. Holtschlag, 22 November 1965, AD-625 581.
- 230-T461 APL Library Bulletin, Translations Series. Improvement of Methods for Measuring Detonation Rates, by F. M. Galadzhii, V. N. Zenin, and B. I. Vainshtein, translated by L. J. Holtschlag, 23 November 1965, AD-625 605.
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- 230-T472 APL Library Bulletin, Translations Series. Derivation of a Generalized Function of the Wave Height Distribution on the Surface of a Heavy Liquid, by I. S. Brovikov, translated by L. J. Holtschlag, 26 April 1966, AD-633 635.

- 230-T473 APL Library Bulletin, Translations Series. Calculation of a Laser Monopulse during Instantaneous Switch-in of an Interferometer, by A. M. Samson and V. A. Savva, translated by L. J. Holtschlag, 17 June 1966, AD-635 890.
- 230-T474 APL Library Bulletin, Translations Series. The Radiation Power of Gas Optical Quantum Generators (Lasers) with Plane Mirrors as a Function of the Mirror Misalignment Angle, by B. I. Stepanov and A. P. Prishivalko, translated by L. J. Holtschlag, 20 May 1966, AD-634 247.
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- 230-T485 APL Library Bulletin, Translations Series. Algorithm for Finding the General Formula of Non-negative Solutions of a System of Linear Equations, by N. V. Chernikova, translated by L. J. Holtschlag, 30 June 1966, AD-637 309.
- 230-T486 APL Library Bulletin, Translations Series. A Necessary Condition for Stability of Orbital Motion, by K. V. Kholoshevnikov, translated by L. J. Holtschlag, 16 August 1966, AD-639 907.
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- 230-T490 APL Library Bulletin, Translations Series. The Effect of Chemical Reactions on Diffusion-Convective Energy Transfer (1. Laminar-Diffusion Boundary Layer in the Presence of a Heterogeneous Reaction on a Catalytic Wedge-Shaped Surface), by V. I. Makaryavichyus and M. M. Tamonis, translated by L. J. Holtschlag, 3 August 1966, AD-639 185.
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- 230-T496 APL Library Bulletin, Translations Series. Joint Radar and Aerological Observations in the Lower 1.5-km Layer of the Atmosphere, by G. B. Brylev, I. V. Vasil'chenko, V. I. Selitskaya, and A. A. Federov, translated by C. R. Haave, 18 August 1966, AD-640 610.
- 230-T497 APL Library Bulletin, Translations Series. Linearization of the Equations of Motion of Autonomous Systems with the Aid of Asymptotic Polynomials, by G. O. Yaroshevich, translated by L. J. Holtschlag, 18 August 1966, AD-639 911.

- 230-T498 APL Library Bulletin, Translations Series. Study of the Heating of Solids by Convective and Radiant Fluxes, by V. V. Ivanov and A. V. Furman, translated by L. J. Holtschlag, 17 August 1966, AD-640 608.
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- 230-T500 APL Library Bulletin, Translations Series. On A Priori Estimates of the First Derivatives of Solutions of the Dirichlet Problem for Quasilinear Elliptic Equations in an Unbounded Domain, by A. P. Oskolkov and V. A. Tarasov, translated by L. J. Holtschlag, 12 September 1966, AD-642 623.
- 230-T501 APL Library Bulletin, Translations Series. Numerical Calculation of the Turbulent Mixing of Two Uniform Gas Flows, by P. P. Koryavov, translated by W. R. Blake, 22 September 1966, AD-640 611.
- 230-T502 APL Library Bulletin, Translations Series. A New Method for Determining the Dynamic Characteristics of Automatic Control Plants, by L. I. Voronova and Yu. V. Kremetulo, translated by L. J. Holtschlag, 20 September 1966, AD-642 624.
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- 230-T504 APL Library Bulletin, Translations Series. On the Continuous Dependence of the Solutions of Differential Equations on a Parameter, by N. N. Petrov, translated by N. Rubinstein, 18 November 1966.
- 230-T505 APL Library Bulletin, Translations Series. On a General Method of Investigating Boundary-Value Problems, by A. I. Perov and A. V. Kibenko, translated by L. J. Holtschlag, 14 October 1966, AD-642 625.

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- 230-T507 APL Library Bulletin, Translations Series. On a Boundary Value Problem, by R. I. Anishchenko, translated by L. J. Holtschlag, 8 December 1966.
- 230-T508 APL Library Bulletin, Translations Series. Some Problems in the Theory of Approximating Solutions of Differential-Operator Equations in Hilbert Space, by L. Kh. Liberman, translated by L. J. Holtschlag, 28 November 1966, AD-645 720.
- 230-T509 APL Library Bulletin, Translations Series. Normal Solvability and the Index of the Boundary-Value Problem for a First-Order Elliptic System on an Orientable Surface with a Boundary, by A. B. Yudanina, translated by L. J. Holtschlag, 17 November 1966.
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- 230-T514 APL Library Bulletin, Translations Series. Wave-Height Distribution Functions during Mixed Wave Activity, by I. S. Brovikov, translated by C. R. Haave, 1 March 1967, AD-650 396.
- 230-T515 APL Library Bulletin, Translations Series. Supersonic Gas Flow Past a Cylindrical Protuberance on a Plate, by D. M. Voitenko, A. I. Zubkov, and Yu. A. Panov, translated by L. J. Holtschlag, 31 January 1967, AD-650 960.

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- 230-T521 APL Library Bulletin, Translations Series. On Second-Order Linear Equations of Non-negative Characteristic Shape, by O. A. Oleinik, translated by L. J. Holtschlag, 1 May 1967, AD-654 561.
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- 230-T524 APL Library Bulletin, Translations Series. Short-Period Oscillations in the Earth's Electromagnetic Field, by P. A. Vinogradov, translated by C. R. Haave, 6 June 1967.
- 230-T525 APL Library Bulletin, Translations Series. On the Continuity of a Nonlinear Integral Operator, by P. P. Zabreiko, translated by S. A. Savage, 26 May 1967.

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- 230-527 APL Library Bulletin, Translations Series. Approximate Method of Determining the Concentration Field in a Turbulent Gas Jet, by K. A. Malinovskii, translated by L. J. Holtschlag, 7 June 1967.

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Yionoulis, S. M.	891, 921	
Z		
Zmuda, A. J.	892, 930, 955	

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified

1. ORIGINATING ACTIVITY (Corporate author) The Johns Hopkins Univ., Applied Physics Lab. 8621 Georgia Ave. Silver Spring, Md.	2a. REPORT SECURITY CLASSIFICATION Unclassified
	2b. GROUP

3. REPORT TITLE
**Technical Reprints and Reports Released for Unrestricted Circulation,
1 April 1966 - 30 June 1967**

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)
List of reprints and released reports

5. AUTHOR(S) (First name, middle initial, last name)
None

6. REPORT DATE September 1967	7a. TOTAL NO. OF PAGES 34	7b. NO. OF REFS
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8a. CONTRACT OR GRANT NO. NOw 62-0604-c b. PROJECT NO. All Tasks c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) TG 727-2
	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. DISTRIBUTION STATEMENT
This document has been approved for public release and sale; its distribution is unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Naval Ordnance Systems Command Department of the Navy
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13. ABSTRACT

Part I of this report is a listing of reprints of technical articles prepared by members of the APL staff and made available between 1 April 1966 and 30 June 1967.

Parts II and III are listings of unclassified technical reports and translations, respectively, which are released for unrestricted circulation during the same time interval.

An Author Index is included.

DD FORM 1473
1 NOV 65

UNCLASSIFIED
Security Classification

14.

KEY WORDS

Reprints
Journal articles
Reports
Translations