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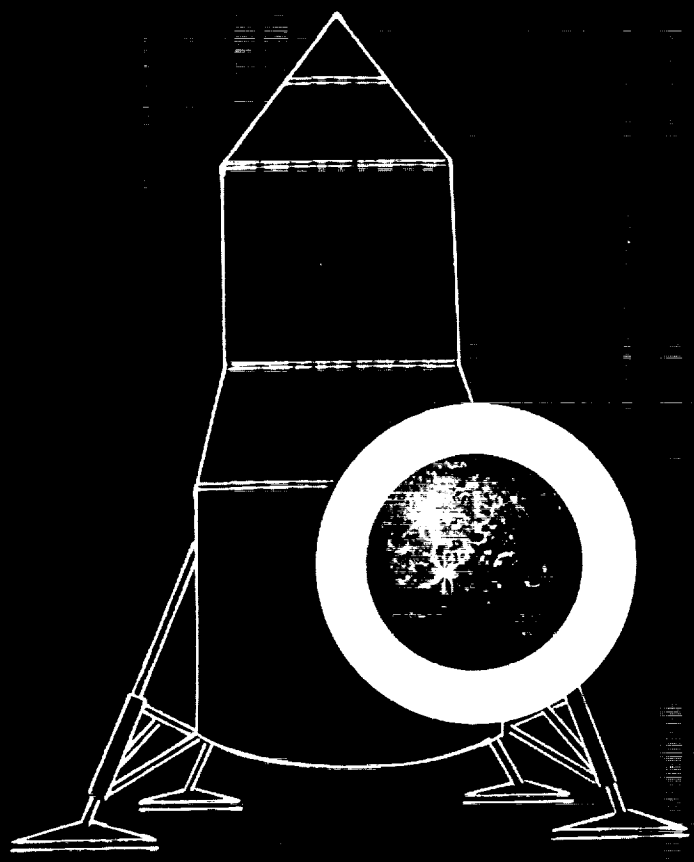

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

1961

LIST OF SELECTED REFERENCES ON NASA PROGRAMS

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NASA SP-3

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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NASA Technical Notes and NASA Technical Translations may be purchased from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. NASA Technical Reports may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Other documents, except articles published in technical journals, may be obtained from the National Aeronautics and Space Administration, Office of Scientific and Technical Information, Code AFSS-AD, Washington 25, D. C.

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The Speeches and Releases listed are available from NASA, Office of Scientific and Technical Information, Code AFSS-AD, Washington 25, D. C. The Informational and Educational publications listed are available from NASA, Office of Educational Programs and Services, Code AFE, Washington 25, D. C.

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INTRODUCTION

This is a list of selected publications and releases of the National Aeronautics and Space Administration issued during the three years following the Agency's establishment in October, 1958. Section I contains all NASA Technical Reports, Technical Notes and Technical Translations, and technical articles having NASA sponsorship and published in scientific journals; Section II contains selected NASA releases, speeches, and general informational and educational publications; and Section III contains Congressional documents relating to NASA activities.

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SECTION I

TECHNICAL PUBLICATIONS

The following subjects have been used as a basis for grouping the items listed in Section I. Each item is listed only in the subject group selected as most pertinent.

Each subject may be interpreted to include all of its aspects except as modified by the scope notes. Where necessary for clarity, the scope notes have been added to indicate specific exclusions and references to other subject headings. See also references are shown only for those closely related subjects that may not be sufficiently obvious. Where possible, closely related subject headings are placed in sequence with the most general subject heading first.

Within each group the NASA technical publication series are listed first, followed by journal articles covering NASA-supported work.

SUBJECTS USED FOR ARRANGEMENT

SUBJECT	SCOPE NOTES	PAGE
AIRCRAFT	Covers specific types of complete aircraft. See also: Aerodynamics of Component Combinations, Stability and Control of Aircraft and Spacecraft, Structural Engineering	4
SPACECRAFT	Covers specific types of space vehicles. See also: Vehicles - General, Aerodynamics of Bodies, Stability and Control of Aircraft and Spacecraft, Structural Engineering	8
VEHICLES - GENERAL	Covers boosters, launch vehicles, missiles, multi-stage rockets. See also: Propulsion - General	13
FLUID MECHANICS	Includes gas dynamics; boundary-layer studies; heating, cooling, and heat transfer connected with fluid flow; turbulence; turbulent flow. See also: Hydrodynamics; Aerodynamics of Bodies of Wings, of Control Surfaces, of Inlets, Ducts, and Nozzles, of Propellers and Rotors, of Component Combinations; Stability and Control of Aircraft and Spacecraft; and Thermal Phenomena	14
HYDRODYNAMICS	Includes hydroskiis, hydrofoils, and hydrodynamic effects of vehicles and bodies. See also: Operating Problems	26
AERODYNAMICS OF BODIES	Includes re-entry bodies and studies of shapes not included in other aerodynamic subjects.	28
AERODYNAMICS OF WINGS	Includes airfoil sections.	38

SUBJECT	SCOPE NOTES	PAGE
AERODYNAMICS OF CONTROL SURFACES	Includes ailerons, spoilers, flaps, slats, slots, rudders, elevators, tabs, and speedbrakes.	47
AERODYNAMICS OF INLETS, DUCTS, AND NOZZLES	Includes cowls, diffusers, and ejectors.	49
AERODYNAMICS OF PROPELLERS AND ROTORS	Includes ducted fans, compressors, turbines, and cascades. See also: Aerodynamics of Wings and Aerodynamics of component combinations.	53
AERODYNAMICS OF COMPONENT COMBINATIONS	Includes aerodynamics of complete aircraft, spacecraft, other vehicles, and combinations of their parts, except where predominant interest is under other subjects.	57
STABILITY AND CONTROL OF AIRCRAFT AND SPACECRAFT	See also: Accessory Equipment and Systems	76
STRUCTURAL ENGINEERING	Includes loads, stresses, vibration, flutter, fatigue, creep, impact, and structural design. See also: Aerodynamics of Bodies, of Wings, of Control Surfaces, of Inlets, Ducts, and Nozzles, of Propellers and Rotors, of Component Combinations, and Hydrodynamics	83
MATERIALS SCIENCE	Includes metallurgy, ceramics, ceramels and cermets, intermetallics, coatings, and plastics. See also: Structural Engineering	95
THERMAL PHENOMENA	Includes heating, cooling, heat transfer, and other thermal effects. See also: Fluid Mechanics, Aerodynamics of Bodies, of Wings, of Control Surfaces, of Inlets, Ducts, and Nozzles, of Propellers and Rotors, and of Component Combinations.	105
PHYSICS AND CHEMISTRY		110
FRICTION, WEAR AND LUBRICATION	Includes friction of tires on runways. See also: Fluid Mechanics and Machine Elements	120
MACHINE ELEMENTS	Includes bearings.	122
PROPULSION - GENERAL	See also: Vehicles - General, Fuels and Propellants, and Auxiliary Power Units	123
FUELS AND PROPELLANTS	Includes combustion and pumping. See also: Physics and Chemistry	124
AIR-BREATHING PROPULSION UNITS	Includes gas turbine, ram jet, and reciprocating engines.	132
ROCKET PROPULSION UNITS	Includes chemical rockets, but excludes Electric and Nuclear Propulsion Units.	135
ELECTRIC PROPULSION	Includes ion, plasma, and cesium engines.	139

SUBJECT	SCOPE NOTES	PAGE
NUCLEAR PROPULSION UNITS	Includes propulsion reactor technology.	142
AUXILIARY POWER UNITS		144
ACCESSORY EQUIPMENT AND SYSTEMS	Includes control systems (manual and automatic); hydraulic, pneumatic, and electronic systems and actuators; and autopilots. See also: Stability and Control of Aircraft and Spacecraft, Electronics and Instrumentation, and Navigation and Guidance	145
ELECTRONICS AND INSTRUMENTATION	See also: Accessory Equipment and Systems, Navigation and Guidance, and Facilities	148
NAVIGATION AND GUIDANCE	Includes orbits, trajectories, landing systems, and related communications and tracking. See also: Stability and Control of Aircraft and Spacecraft, Accessory Equipment and Systems, Electronics and Instrumentation, and Facilities	158
FACILITIES	Includes test facilities, airports, bases, ranges, and related logistics. See also: Accessory Equipment and Systems, Electronics and Instrumentation, and Navigation and Guidance	167
OPERATING PROBLEMS	Includes safety, fire hazards, noise, and take-off, landing, and ditching procedures. See also: Navigation and Guidance, Facilities, and Human Factors	171
HUMAN FACTORS	Includes space medicine, aeromedicine, and human engineering.	177
SPACE SCIENCE	Includes astronomy, astrophysics, cosmology, celestial and space mechanics, and space biology.	181
GEOPHYSICS	Includes meteorology, geodesy, and cartography.	190
MATHEMATICS	Includes data processing, computation methods, and equipment. See also: Electronics and Instrumentation and Facilities.	202
ADMINISTRATION	Includes management, planning, programs, progress, policy; space law and legal matters; and symposia of a broad or general nature.	204

AIRCRAFT

NASA TN D-89

WIND-TUNNEL AND PILOTED FLIGHT SIMULATOR INVESTIGATION OF A DEFLECTED-SLIPSTREAM VTOL AIRPLANE, THE RYAN VZ-3RY. Harry A. James, Rodney C. Wingrove, Curt A. Holzhauser, and Fred J. Drinkwater, III. November 1959. 88 p. diagrs., photos., tabs. OTS price, $2.25.

NASA TN D-251

A SUMMARY OF OPERATING CONDITIONS EXPERIENCED BY TWO HELICOPTERS IN A COMMERCIAL AND A MILITARY OPERATION. Andrew B. Connor and LeRoy H. Ludi. April 1960. 16 p. diagrs., tabs. OTS price, $0.50.

NASA TN D-366

POWER SPECTRAL ANALYSIS OF SOME AIRPLANE RESPONSE QUANTITIES OBTAINED DURING OPERATIONAL TRAINING MISSIONS OF A FIGHTER AIRPLANE. Harold A. Hamer and John P. Mayer. March 1960. 41 p. diagrs., photo. OTS price, $1.25.

NASA TN D-372

A FLIGHT STUDY OF THE CONVERSION MANEUVER OF A TILT-DUCT VTOL AIRCRAFT. Robert J. Tapscott and Henry L. Kelley. November 1960. 12 p. OTS price, $0.50.

NASA TN D-386

STATISTICAL DATA ON CONTROL MOTIONS AND AIRPLANE RESPONSE OF A REPUBLIC F-85F AIRPLANE DURING OPERATIONAL TRAINING MISSIONS. Harold A. Hamer and John P. Mayer. March 1960. 156 p. diagrs., photo., tabs. OTS price, $3.00.

NASA TN D-404

HOVERING AND TRANSITION FLIGHT TESTS OF A 1/5-SCALE MODEL OF A JET-POWERED VERTICAL-ATTITUDE VTOL RESEARCH AIRPLANE. Charles C. Smith, Jr. May 1961. 30 p. film suppl. available on request. OTS price, $0.75.

NASA TN D-423

THE SUPERSONIC TRANSPORT - A TECHNICAL SUMMARY. Langley Research Center Staff. June 1960. i, 94 p. OTS price, $2.25.

NASA TN D-432

A SUMMARY OF OPERATING CONDITIONS EXPERIENCED BY THREE MILITARY HELICOPTERS AND A MOUNTAIN-BASED COMMERCIAL HELICOPTER. Andrew B. Connor. October 1960. 21 p. OTS price, $0.75.

NASA TN D-510

RESPONSE OF A LIGHT AIRPLANE TO ROUGHNESS OF UNPAVED RUNWAYS. Garland J. Morris and Joseph W. Stickle. September 1960. 20 p. OTS price, $0.50.

NASA TN D-529

AERODYNAMIC AND HYDRODYNAMIC CHARACTERISTICS OF A MODEL OF A 500,000-POUND HIGH-SUBSONIC MULTIJET LOGISTICS TRANSPORT SEAPLANE. Walter J. Kapryan, Kenneth W. Goodson, and Irving Weinstein. March 1961. 103 p. OTS price, $2.50.

NASA TN D-615

MEASUREMENTS OF THE MAXIMUM SPEED ATTAINED BY THE X-15 AIRPLANE POWERED WITH INTERIM ROCKET ENGINES. Wendell H. Stillwell and Terry J. Larson. September 1960. 14 p. OTS price, $0.50.

NASA TN D-623

MEASUREMENT OF THE MAXIMUM ALTITUDE ATTAINED BY THE X-15 AIRPLANE POWERED WITH INTERIM ROCKET ENGINES. Wendell H. Stillwell and Terry J. Larson. October 1960. 12 p. OTS price, $0.50.

NASA TN D-624

A PRELIMINARY STUDY OF V/STOL TRANSPORT AIRCRAFT AND BIBLIOGRAPHY OF NASA RESEARCH IN THE VTOL-STOL FIELD. Staff of Langley Research Center. January 1961. 131 p. OTS price, $2.75.

NASA TN D-638

ROCKET-MODEL INVESTIGATION OF LATERAL STABILITY CHARACTERISTICS AND POWER EFFECTS OF A JET-ENGINE AIRPLANE CONFIGURATION WITH TAIL BOOM AT MACH NUMBERS FROM 1.15 TO 1.37. T. Bradley Curry, Jr., and Norman L. Crabill. January 1961. 29 p. OTS price, $0.75.

NASA TN D-723

LAUNCH CHARACTERISTICS OF THE X-15 RESEARCH AIRPLANE AS DETERMINED IN FLIGHT. Gene J. Matranga. February 1961. 31 p. OTS price, $1.00.

NASA TN D-734

CONSIDERATIONS OF METHODS OF IMPROVING HELICOPTER EFFICIENCY. Richard C. Dingeldein. April 1961. 17 p. OTS price, $0.50.

NASA TN D-735

HANDLING QUALITIES EXPERIENCE WITH SEVERAL VTOL RESEARCH AIRCRAFT. John P. Reeder. March 1961. 17 p. OTS price, $0.50.

NASA TN D-736

NOISE CONSIDERATIONS IN THE DESIGN AND OPERATION OF V/STOL AIRCRAFT. Domenic J. Maglieri, David A. Hilton, and Harvey H. Hubbard. April 1961. 15 p. OTS price, $0.50.

NASA TN D-744

AIRSPEED OPERATING PRACTICES OF TURBINE-POWERED COMMERCIAL TRANSPORT AIRPLANES. Thomas L. Coleman, Martin R. Copp, and Walter G. Walker. April 1961. 26 p. OTS price, $0.75.

NASA TN D-786

INVESTIGATION OF THE LONGITUDINAL CHARACTERISTICS OF A LARGE-SCALE JET TRANSPORT MODEL EQUIPPED WITH CONTROLLABLE THRUST REVERSERS. David H. Hickey, William H. Tolhurst, Jr., and Kiyoshi Aoyagi. March 1961. 48 p. OTS price, $1.25.

NASA TN D-814

NOMOGRAPHIC SOLUTION OF THE MOMENTUM EQUATION VTOL-STOL AIRCRAFT. Harry H. Heyson. April 1961. 16 p. OTS price, $0.50.

NASA TN D-862

A FLIGHT EXAMINATION OF OPERATING PROBLEMS OF V/STOL AIRCRAFT IN STOL-TYPE LANDING AND APPROACH. Robert C. Innis and Hervey C. Quigley. June 1961. 43 p. OTS price, $1.25.

NASA TN D-943

AERODYNAMIC CHARACTERISTICS, TEMPERATURE, AND NOISE MEASUREMENTS OF A LARGE-SCALE EXTERNAL-FLOW JET-AUGMENTED-FLAP MODEL WITH TURBOJET ENGINES OPERATING. Marvin P. Fink. September 1961. 46 p. OTS price, $1.25.

NASA MEMO 3-1-59H

FLIGHT STUDIES OF PROBLEMS PERTINENT TO LOW-SPEED OPERATION OF JET TRANSPORTS. Jack Fischel, Stanley P. Butchart, Glenn H. Robinson, and Robert A. Tremant. April 1959. 21 p. diagrs., tab.

NASA MEMO 3-2-59H

FLIGHT STUDIES OF PROBLEMS PERTINENT TO HIGH-SPEED OPERATION OF JET TRANSPORTS. Stanley P. Butchart, Jack Fischel, Robert A. Tremant, and Glenn H. Robinson. April 1959. 17 p. diagrs.

NASA TM X-137

FLIGHT BEHAVIOR OF THE X-2 RESEARCH AIRPLANE TO A MACH NUMBER OF 3.20 AND A GEOMETRIC ALTITUDE OF 126,200 FEET. Richard E. Day and Donald Reisert. September 1959. 22 p. diagrs., photos., tab.

NASA TM X-195

LAUNCH, LOW-SPEED, AND LANDING CHARACTERISTICS DETERMINED FROM THE FIRST FLIGHT OF THE NORTH AMERICAN X-15 RESEARCH AIRPLANE. Thomas W. Finch and Gene J. Matranga. September 1959. 26 p.

NASA TM X-207

MEASUREMENTS OBTAINED DURING THE FIRST LANDING OF THE NORTH AMERICAN X-15 RESEARCH AIRPLANE. James M. McKay. October 1959. 36 p.

NASA TM X-269

AERODYNAMIC AND LANDING MEASUREMENTS OBTAINED DURING THE FIRST POWERED FLIGHT OF THE NORTH AMERICAN X-15 RESEARCH AIRPLANE. Flight Research Center. January 1960. 39 p.

NASA TM X-430

PRELIMINARY FULL-SCALE POWER-OFF DRAG OF THE X-15 AIRPLANE FOR MACH NUMBERS FROM 0.7 TO 3.1. Edwin J. Saltzman. December 1960. 23 p.

AERODYNAMIC DESIGN FOR SUPERSONIC SPEEDS. R. T. Jones, NASA. Proceedings, First International Congress in the Aeronautical Sciences, Madrid, Spain, September 8-13, 1958. V. 1, Advances in Aeronautical Sciences and Space Flight, Theodore Von Karman and others, eds., Pergamon Press, New York, 1959, p. 34-51.

ASSESSMENT OF INFORMATION ON VTOL/STOL AIRCRAFT AS APPLIED TO COMMERCIAL TRANSPORTS. P. Donely and M. O. McKinney, Jr., NASA. Paper, ASME 60-AV-30, American Society of Mechanical Engineers, 1960.

COMMERCIAL SUPERSONIC TRANSPORT AIRCRAFT REPORT. Dept. of Defense - National Aeronautics and Space Administration - Federal Aviation Agency. June 1961. 48 p.

MACH 3-5 AIRLINERS LOOK ECONOMICALLY FEASIBLE. J. L. Jones and D. H. Dennis, NASA. Space/Aeronautics, v. 31, no. 4, April 1959, p.41-43.

NACA RESEARCH ON VTOL AND STOL AEROPLANES. M. O. McKinney, NASA. Sixth Anglo-American Aeronautical Conference, Royal Aeronautical Society and the Institute of the Aeronautical Sciences, Folkestone, England, September 9-12, 1957. J. Bradbrooke and V. A. Libby, eds., Royal Aeronautical Society, London, 1959, p. 1-38.

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RESEARCH ON VTOL AND STOL AIRCRAFT IN THE UNITED STATES. J. P. Campbell, NASA. Proceedings, First International Congress in the Aeronautical Sciences, Madrid, Spain, September 8-13, 1959. Advances in Aeronautical Sciences, v. II, International Series on Aeronautical Sciences and Space Flight, Theodore Von Karman and others, eds., Pergamon Press, New York, 1959, p. 845-.

RESEARCH RELATED TO GROUND EFFECT MACHINES. R. E. Kuhn and A. W. Carter, NASA. Symposium on Ground Effect Phenomena - A Compilation of Papers, Princeton University, October 21-23, 1959. Curtis Press, Philadelphia, 1960, p. 23-43.

SHORT-FIELD AIRLINERS. P. Donely and M. D. McKinney, Jr., Langley Research Center, NASA. Condensed from Paper, ASME 60-AV-30, Commercial VTOL/STOL Aircraft. Annual Meeting and Aviation Conference, American Society of Mechanical Engineers, Dallas, Texas, June 5-9, 1960. Mechanical Engineering, v. 82, no. 10, October 1960, p. 53-56.

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THE SUPERSONIC TRANSPORT-REQUIRED CHARACTERISTICS OF CONFIGURATIONS. M. R. Nichols, Langley Research Center, NASA. Preprint, SAE 341-F, National Aeronautics Meeting, Society of Automotive Engineers, New York, New York, April 4-7, 1961.

THE SYSTEMS DYNAMICS RESEARCH AIRPLANE. E. C. Foudriat and S. A. Sjoberg, NASA. Proceedings, Self Adaptive Flight Control Systems Symposium, Wright Air Development Center, Ohio, January 13-14, 1959. WADC TR 59-49, p. 16-29.

VERTICAL TAKE-OFF AIRCRAFT. J. P. Campbell, Langley Research Center, NASA. Scientific American, v. 203, no. 2, August 1960, p. 41-49.

WHAT PRICE VTOL? M. O. McKinney, Jr., NASA. Space/Aeronautics, v. 31, no. 5, May 1959, p. 46-48.

X-15 PROGRAM STATUS REPORT. R. M. White and J. A. Walker, Flight Research Center, NASA. Annual Symposium, Society of Experimental Test Pilots, Los Angeles, California, October 7, 1960. Interavia, v. XVI, no. 1, January 1961, p. 101-103. Space/Aeronautics, v. 35, no. 2, February 1961, p. 55-58.

NASA TN D-115

PREDICTED CHARACTERISTICS OF AN INFLATABLE ALUMINIZED-PLASTIC SPHERICAL EARTH SATELLITE WITH REGARD TO TEMPERATURE, VISIBILITY, REFLECTION OF RADAR WAVES, AND PROTECTION FROM ULTRAVIOLET RADIATION. George P. Wood and Arlen F. Carter. October 1959. 26 p. diagrs., photo., tab. OTS price, $0.75.

NASA TN D-145

WATER-LANDING IMPACT ACCELERATIONS FOR THREE MODELS OF REENTRY CAPSULES. Victor L. Vaughan, Jr. October 1959. 26 p. diagrs., photos. OTS price, $0.75.

NASA TN D-174

REFLECTION CHARACTERISTICS OF ARTIFICIAL SATELLITES CONSTRUCTED IN THE FORM OF INFLATED POLYHEDRONS. Archibald R. Sinclair. December 1959. 9 p. diagrs., photo. OTS price, $0.50.

NASA TN D-188

STATIC STABILITY AND SEPARATION CHARACTERISTICS OF A TWO-STAGE ROCKET CONFIGURATION AT MACH NUMBERS FROM 1.57 TO 4.50. Kenneth L. Turner, David S. Shaw, and Laurence W. Enderson, Jr. January 1960. 35 p. diagrs., photos. OTS price, $1.00.

NASA TN D-219

A THREE-STAGE SOLID-FUEL SOUNDING ROCKET SYSTEM SUITABLE FOR RESEARCH AT ALTITUDES NEAR 200 NAUTICAL MILES. Waldo L. Dickens and Earl C. Hastings, Jr. December 1959. 25 p. diagrs., photo., tabs. OTS price, $0.75.

NASA TN D-453

LANDING ENERGY DISSIPATION FOR MANNED REENTRY VEHICLES. Lloyd J. Fisher, Jr. September 1960. 16 p. film suppl. available on request. OTS price, $0.50.

NASA TN D-495

VANGUARD I SATELLITE STRUCTURE AND SEPARATION MECHANISM. John T. Shea and Robert C. Baumann. March 1961. 13 p. OTS price, $0.50.

NASA TN D-497

VANGUARD SATELLITE SEPARATION MECHANISMS. Robert C. Baumann. April 1961. 20 p. OTS price, $0.50.

NASA TN D-498

BALANCING VANGUARD SATELLITES. A. Simkovich and Robert C. Baumann. April 1961. 23 p. OTS price, $0.75.

NASA TN D-596

GYROSCOPIC MOTION OF AN UNSYMMETRICAL SATELLITE UNDER NO EXTERNAL FORCES. Manfred E. Kuebler. December 1960. iv, 30 p. OTS price, $1.00.

NASA TN D-601

ARTIFICIAL EARTH SATELLITES AND SUCCESSFUL SOLAR PROBES 1957-1960. Walter H. Stafford and Robert M. Croft. March 1961. 602 p. OTS price, $8.00.

NASA TN D-608

JUNO II SUMMARY PROJECT REPORT. VOLUME I. EXPLORER VII SATELLITE. Marshall Space Flight Center. July 1961. 356 p. OTS price, $5.00.

NASA TN D-628

LANDING CHARACTERISTICS OF A REENTRY CAPSULE WITH A TORUS-SHAPED AIR BAG FOR LOAD ALLEVIATION. John R. McGehee and Melvin E. Hathaway. November 1960. 30 p. OTS price, $0.75.

NASA TN D-653

LANDING CHARACTERISTICS AND FLOTATION PROPERTIES OF A REENTRY CAPSULE. Victor L. Vaughan, Jr. February 1961. 36 p., film suppl. available on request. OTS price, $1.00.

NASA TN D-692

A DESIGN STUDY OF THE INFLATED SPHERE LANDING VEHICLE, INCLUDING THE LANDING PERFORMANCE AND THE EFFECTS OF DEVIATIONS FROM DESIGN CONDITIONS. E. Dale Martin. April 1961. 82 p. OTS price, $2.25

NASA TN D-695

THE IONOSPHERE BEACON SATELLITE, S-45. M. J. Aucremanne, Compiler. January 1961. iv, 28 p. OTS price, $1.00.

NASA TN D-704

INTERACTION OF A CHARGED SATELLITE WITH THE IONOSPHERE. A. H. Davis and I. Harris. September 1961. 7 p. OTS price, $0.50.

NASA TN D-707

STRUCTURE AND DESIGN CONSIDERATIONS OF THE VANGUARD SLV-5 MAGNETIC FIELD SATELLITE. John T. Shea. August 1961. 25 p. OTS price, $0.75.

NASA TN D-771

PROCEEDINGS OF MEETING ON PROBLEMS AND TECHNIQUES ASSOCIATED WITH THE DECONTAMINATION AND STERILIZATION OF SPACECRAFT, JUNE 29, 1960, WASHINGTON, D. C. Jack Posner, Editor. APPENDIX: STERILIZATION OF INTERPLANETARY VEHICLES. Charles R. Phillips and Robert K. Hoffman. January 1961. 57 p. OTS price, $1.50.

NASA TN D-783

A PRELIMINARY STUDY OF THE SOLAR-PROBE MISSION. Duane W. Dugan. April 1961. 58 p. OTS price, $1.50.

NASA TN D-894

INVESTIGATION OF LOW-SUBSONIC FLIGHT CHARACTERISTICS OF A MODEL OF A HYPERSONIC BOOST-GLIDE CONFIGURATION HAVING A 78° DELTA WING. John W. Paulson and Robert E. Shanks. May 1961. 31 p. film suppl. available on request. OTS price, $1.00.

NASA TN D-1064

MEASUREMENTS OF SHEATH CURRENTS AND EQUILIBRIUM POTENTIAL ON THE EXPLORER VIII SATELLITE (1960ξ). R. E. Bourdeau, J. L. Donley, G. P. Serbu, and E. C. Whipple, Jr. July 1961. 25 p. OTS price, $0.75.

NASA MEMO 2-5-59L

FREE-FLIGHT TEST OF A TECHNIQUE FOR INFLATING A NASA 12-FOOT-DIAMETER SPHERE AT HIGH ALTITUDES. Alan B. Kehlet and Herbert G. Patterson. January 1959. 18 p. diagrs., photos.

NASA MEMO 5-25-59W, VOLUME 1

1958 NASA/USAF SPACE PROBES (ABLE-1) FINAL REPORT. VOL. 1 - SUMMARY; VOL. 2 - PAYLOAD AND EXPERIMENTS; VOL. 3 - VEHICLES, TRAJECTORIES, AND FLIGHT HISTORIES; VOL. 4 - CHARACTERISTICS OF THE ABLE-1 ENGINES. Space Technology Laboratories, Inc. June 1959. ix, 84 p. diagrs., photos.

NASA MEMO 5-25-59W, VOLUME 2

1958 NASA/USAF SPACE PROBES (ABLE-1) FINAL REPORT. VOL. 1 - SUMMARY; VOL. 2 - PAYLOAD AND EXPERIMENTS; VOL. 3 - VEHICLES, TRAJECTORIES, AND FLIGHT HISTORIES; VOL. 4 - CHARACTERISTICS OF THE ABLE-1 ENGINES. Space Technology Laboratories, Inc. June 1959. xi, 197 p. diagrs., photos., tabs.

NASA MEMO 5-25-59W, VOLUME 3

1958 NASA/USAF SPACE PROBES (ABLE-1) FINAL REPORT. VOL. 1 - SUMMARY; VOL. 2 - PAYLOAD AND EXPERIMENTS; VOL. 3 - VEHICLES, TRAJECTORIES, AND FLIGHT HISTORIES; VOL. 4 - CHARACTERISTICS OF THE ABLE-1 ENGINES. Space Technology Laboratories, Inc. June 1959. xi, 229 p. diagrs., photos., tabs.

NASA TM X-75

EXPERIMENTAL AND ANALYTICAL STUDY OF ROLLING-VELOCITY AMPLIFICATION DURING THE THRUSTING PROCESS FOR TWO 10-INCH-DIAMETER SPHERICAL ROCKET MOTORS IN FREE FLIGHT. C. William Martz and Robert L. Swain. September 1959. 36 p. diagrs., photos., tab.

NASA TM X-193

INVESTIGATION OF THE LOW SUBSONIC FLIGHT CHARACTERISTICS OF A MODEL OF A FLAT-TOP HYPERSONIC-BOOST GLIDE CONFIGURATION HAVING AN ARROWHEAD WING. Peter C. Boisseau. December 1959. 21 p. film suppl. available on request.

NASA TM X-201

INVESTIGATION OF LOW-SUBSONIC FLIGHT CHARACTERISTICS OF A MODEL OF A FLAT-BOTTOM HYPERSONIC BOOST-GLIDE CONFIGURATION HAVING A 78° DELTA WING. John W. Paulson and Robert E. Shanks. October 1959. 31 p. film suppl. available on request.

NASA TM X-226

A CONCEPT OF A MANNED SATELLITE REENTRY WHICH IS COMPLETED WITH A GLIDE LANDING. Compiled by Donald C. Cheatham. December 1959. 44 p.

NASA TT F-8

"ARTIFICIAL EARTH SATELLITES" NO. 3, 1959. April 1960. i, 11 p. OTS price, $0.50.

NASA TT F-10

THE LIBRATION OF A SATELLITE. V. V. Beletskiy. May 1960. 34 p. OTS price, $1.00.

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NASA TN D-582

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NASA TN D-598

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NASA TN D-782

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NASA TN D-868

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NASA TR R-2

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NASA TR R-4

STABILITY OF A HORIZONTAL FLUID LAYER WITH UNSTEADY HEATING FROM BELOW AND TIME-DEPENDENT BODY FORCE. Arthur W. Goldstein. 1959. 15 p. diagrs., tabs. GPO price, $0.30.

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NASA TR R-17

ANALYSIS OF TURBULENT FLOW AND HEAT TRANSFER ON A FLAT PLATE AT HIGH MACH NUMBERS WITH VARIABLE FLUID PROPERTIES. Robert G. Deissler and Albert L. Loeffler, Jr. 1959. 33 p. diagrs. GPO price, $0.40.

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NASA TR R-63

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NASA TN D-10

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NASA TN D-12

SOLUTIONS OF THE LAMINAR COMPRESSIBLE BOUNDARY LAYER EQUATIONS WITH TRANSPIRATION WHICH ARE APPLICABLE TO THE STAGNATION REGIONS OF AXISYMMETRIC BLUNT BODIES. John T. Howe and William A. Mersman. August 1959. 73 p. diagrs., tabs. OTS price, $2.00.

NASA TN D-15

EXPERIMENTAL INVESTIGATION AT TRANSONIC SPEEDS OF PRESSURE DISTRIBUTIONS OVER WEDGE AND CIRCULAR-ARC AIRFOIL SECTIONS AND EVALUATION OF PERFORATED-WALL INTERFERENCE. Earl D. Knechtel. August 1959. 84 p. diagrs., photo. OTS price, $2.25.

NASA TN D-41

AN APPROXIMATE ANALYSIS OF UNSTEADY VAPORIZATION NEAR THE STAGNATION POINT OF BLUNT BODIES. Leonard Roberts. September 1959. 31 p. diagrs., tab. OTS price, $1.00.

NASA TN D-49

SOME ASPECTS OF AIR-HELIUM SIMULATION AND HYPERSONIC APPROXIMATIONS. Eugene S. Love, Arthur Henderson, Jr., and Mitchel H. Bertram. October 1959. ii, 84 p. diagrs. OTS price, $2.25.

NASA TN D-53

EFFECT OF DISTRIBUTED THREE-DIMENSIONAL ROUGHNESS AND SURFACE COOLING ON BOUNDARY LAYER TRANSITION AND LATERAL SPREAD OF TURBULENCE AT SUPERSONIC SPEEDS. Albert L. Braslow, Eugene C. Knox, and Elmer A. Horton. October 1959. 40 p. diagrs., photos., tab. OTS price, $1.00.

NASA TN D-71

AN APPROXIMATE METHOD FOR CALCULATING SURFACE PRESSURES ON CURVED PROFILE BLUNT PLATES IN HYPERSONIC FLOW. Marcus O. Creager. September 1959. 27 p. diagrs. OTS price, $0.75.

NASA TN D-83

MIXING OF WAKES IN A TURBULENT SHEAR FLOW. Salamon Eskinazi, Syracuse University. September 1959. 53 p. diagrs., photo. OTS price, $1.00.

NASA TN D-85

ANALYSIS OF COMPUTED FLOW PARAMETERS FOR A SET OF SUDDEN STALLS IN LOW-SPEED TWO-DIMENSIONAL FLOW. William T. Evans and Kenneth W. Mort. August 1959. 24 p. diagrs., tab. OTS price, $0.75.

NASA TN D-86

METHODS OF CALCULATING FUNDAMENTAL SOLUTIONS OF THE WAVE EQUATION, WITH TABLES. William A. Mersman. October 1959. 129 p. tabs. OTS price, $2.75.

NASA TN D-87

EFFECTS OF CHEMICAL DISSOCIATION AND MOLECULAR VIBRATIONS ON STEADY ONE-DIMENSIONAL FLOW. Steve P. Heims. August 1959. 66 p. diagrs. OTS price, $1.75.

NASA TN D-93

APPLICATION TO FLUID DYNAMICS OF THE THEORY OF REVERSIBLE HEAT ADDITION. Barrett S. Baldwin, Jr. October 1959. 16 p. diagrs. OTS price, $0.50.

NASA TN D-140

DISSOCIATIVE RELAXATION OF OXYGEN OVER AN ADIABATIC FLAT PLATE AT HYPERSONIC MACH NUMBERS. Paul M. Chung and Aemer D. Anderson. April 1960. 28 p. diagrs. OTS price, $0.75.

NASA TN D-184

AN EXPERIMENTAL INVESTIGATION AT A MACH NUMBER OF 4.95 OF FLOW IN THE VICINITY OF A 90° INTERIOR CORNER ALINED WITH THE FREE-STREAM VELOCITY. P. Calvin Stainback. February 1960. 30 p. diagrs., photo., tab. OTS price, $0.75.

NASA TN D-194

CORRELATION FORMULAS AND TABLES OF DENSITY AND SOME TRANSPORT PROPERTIES OF EQUILIBRIUM DISSOCIATING AIR FOR USE IN SOLUTIONS OF THE BOUNDARY-LAYER EQUATIONS. Nathaniel B. Cohen. February 1960. 37 p. diagrs., tabs. OTS price, $1.00.

NASA TN D-195

EVOLUTION OF AMPLIFIED WAVES LEADING TO TRANSITION IN A BOUNDARY LAYER WITH ZERO PRESSURE GRADIENT. P. S. Klebanoff and K. D. Tidstrom, National Bureau of Standards. September 1959. 67 p. diagrs., photos. OTS price, $1.75.

NASA TN D-231

A STUDY OF EQUILIBRIUM REAL-GAS EFFECTS IN HYPERSONIC AIR NOZZLES, INCLUDING CHARTS OF THERMODYNAMIC PROPERTIES FOR EQUILIBRIUM AIR. Wayne D. Erickson and Helen S. Creekmore. April 1960. 179 p. diagrs. OTS price, $3.00.

NASA TN D-247

EXPERIMENTAL INVESTIGATION OF MIXING OF MACH NUMBER 3.95 STREAM IN PRESENCE OF WALL. Marian Visich, Jr., and Paul A. Libby, Polytechnic Institute of Brooklyn. February 1960. 47 p. diagrs., photos. OTS price, $1.25.

NASA TN D-275

COMPILATION OF THERMODYNAMIC PROPERTIES, TRANSPORT PROPERTIES, AND THEORETICAL ROCKET PERFORMANCE OF GASEOUS HYDROGEN. Charles R. King. April 1960. 71 p. diagrs., tabs. OTS price, $2.00.

NASA TN D-280

FLIGHT MEASUREMENT OF WALL-PRESSURE FLUCTUATIONS AND BOUNDARY-LAYER TURBULENCE. Harold R. Mull and Joseph S. Algranti. October 1960. 26 p. OTS price, $0.75.

NASA TN D-291

LAMINAR BOUNDARY LAYER BEHIND A STRONG SHOCK MOVING INTO AIR. Harold Mirels. February 1961. 15 p. OTS price, $0.50.

NASA TN D-292

AN INTEGRAL METHOD FOR NATURAL-CONVECTION FLOWS AT HIGH AND LOW PRANDTL NUMBERS. Willis H. Braun and John E. Heighway. June 1960. 40 p. OTS price, $1.00.

NASA TN D-297

MEASUREMENT OF SCREEN-SIZE EFFECTS ON INTENSITY, SCALE, AND SPECTRUM OF TURBULENCE IN A FREE SUBSONIC JET. Charles D. Howard and James C. Laurence. August 1960. 38 p. OTS price, $1.00.

NASA TN D-306

A SIMPLIFIED STUDY ON THE NONEQUILIBRIUM COUETTE AND BOUNDARY-LAYER FLOWS WITH AIR INJECTIONS. Paul M. Chung. February 1960. 69 p. diagrs. OTS price, $1.75.

NASA TN D-309

THE BOUNDARY-LAYER TRANSITION CHARACTERISTICS OF TWO BODIES OF REVOLUTION, A FLAT PLATE, AND AN UNSWEPT WING IN A LOW-TURBULENCE WIND TUNNEL. Frederick W. Boltz, George C. Kenyon, and Clyde Q. Allen. April 1960. 45 p. diagrs., photos., tabs. OTS price, $1.25.

NASA TN D-314

AN ANALYSIS OF THE IMPACT MOTION OF AN INFLATED SPHERE LANDING VEHICLE. E. Dale Martin and John T. Howe. April 1960. 45 p. OTS price, $1.25.

NASA TN D-315

GAS DYNAMICS OF AN INFLATED SPHERE STRIKING A SURFACE. John T. Howe and E. Dale Martin. April 1960. 49 p. OTS price, $1.25.

NASA TN D-327

A TECHNIQUE FOR DETERMINING RELAXATION TIMES BY FREE-FLIGHT TESTS OF LOW-FINENESS-RATIO CONES; WITH EXPERIMENTAL RESULTS FOR AIR AT EQUILIBRIUM TEMPERATURES UP TO 3440° K. Jack D. Stephenson. September 1960. 55 p. OTS price, $1.50.

NASA TN D-328

PHOTOGRAPHIC EVIDENCE OF STREAMWISE ARRAYS OF VORTICES IN BOUNDARY-LAYER FLOW. Edward J. Hopkins, Stephen J. Keating, Jr., and Angelo Bandettini. September 1960. 20 p. OTS price, $0.50.

NASA TN D-329

RADIATION SHIELDING OF THE STAGNATION REGION BY TRANSPIRATION OF AN OPAQUE GAS. John Thomas Howe. September 1960. 24 p. OTS price, $0.75.

NASA TN D-340

THE NUMERICAL CALCULATION OF FLOW PAST CONICAL BODIES SUPPORTING ELLIPTIC CONICAL SHOCK WAVES AT FINITE ANGLES OF INCIDENCE. Benjamin R. Briggs. November 1960. 62 p. OTS price, $1.75.

NASA TN D-342

EXPLORATORY STUDY OF THE REDUCTION IN FRICTION DRAG DUE TO STREAMWISE INJECTION OF HELIUM. Byron L. Swenson. January 1961. 29 p. OTS price, $0.75.

NASA TN D-347

ON THE INDUCED FLOW OF AN ELECTRICALLY CONDUCTING LIQUID IN A RECTANGULAR DUCT BY ELECTRIC AND MAGNETIC FIELDS OF FINITE EXTENT. Vernon J. Rossow, Wm. Prichard Jones, and Robert H. Huerta. January 1961. 48 p. OTS price, $1.25.

NASA TN D-349

TRANSITION REYNOLDS NUMBERS OF SEPARATED FLOWS AT SUPERSONIC SPEEDS. Howard K. Larson and Stephen J. Keating, Jr. December 1960. 30 p. OTS price, $0.75.

NASA TN D-350

HEAT TRANSFER TO SURFACES OF FINITE CATALYTIC ACTIVITY IN FROZEN DISSOCIATED HYPERSONIC FLOW. Paul M. Chung and Aemer D. Anderson. January 1961. 36 p. OTS price, $1.00.

NASA TN D-365

SHOCK-WAVE STRUCTURE BASED ON IKENBERRY-TRUESDELL APPROACH TO KINETIC THEORY OF GASES. Robert E. Street, University of Washington. February 1960. 60 p. diagrs. OTS price, $1.50.

NASA TN D-368

PRELIMINARY EXPERIMENTAL INVESTIGATION OF EFFECT OF FREE-STREAM TURBULENCE ON TURBULENT BOUNDARY-LAYER GROWTH. S. J. Kline, A. V. Lisin, and B. A. Waitman, Stanford University. March 1960. 60 p. diagrs., photos., tabs. OTS price, $1.50.

NASA TN D-406

EFFECTS OF AIR CONTAMINATION IN A HELIUM TUNNEL. Arthur Henderson, Jr., and Frank E. Swalley. June 1960. 26 p. OTS price, $0.75.

NASA TN D-462

REAL-GAS CORRECTION FACTORS FOR HYPERSONIC FLOW PARAMETERS IN HELIUM. Wayne D. Erickson. September 1960. 13 p. OTS price, $0.50.

NASA TN D-481

COLLISION INTEGRALS FOR A MODIFIED STOCKMAYER POTENTIAL. Eugene C. Itean, Alan R. Glueck, and Roger A. Svehla. January 1961. 29 p. OTS price, $0.75.

NASA TN D-512

SHOCK-WAVE LAMINAR-BOUNDARY LAYER INTERACTION ON A CONVEX WALL. Isaac Greber, Massachusetts Institute of Technology. October 1960. 28 p. OTS price, $0.75.

NASA TN D-533

PRANDTL NUMBER, THERMAL CONDUCTIVITY, AND VISCOSITY OF AIR-HELIUM MIXTURES. E. R. G. Eckert, W. E. Ibele, and T. F. Irvine, Jr., University of Minnesota. September 1960. 39 p. OTS price, $1.00.

NASA TN D-618

EXTENSION OF BOUNDARY-LAYER-SEPARATION CRITERIA TO A MACH NUMBER OF 6.5 BY UTILIZING FLAT PLATES WITH FORWARD-FACING STEPS. James R. Sterrett and James C. Emery. December 1960. 52 p. OTS price, $1.50.

NASA TN D-687

EXPERIMENTAL AND THEORETICAL STUDY OF HEAT CONDUCTION FOR AIR UP TO 5,000° K. Tzy-Cheng Peng and Warren F. Ahtye. February 1961. 38 p. OTS price, $1.00.

NASA TN D-721

EXPLORATORY INVESTIGATION OF TRANSPIRATION COOLING OF A 40° DOUBLE WEDGE USING NITROGEN AND HELIUM AS COOLANTS AT STAGNATION TEMPERATURES FROM 1,295° F TO 2,910° F. Bernard Rashis. May 1961. 18 p. OTS price, $0.50.

NASA TN D-745

MEASUREMENTS OF AERODYNAMIC HEAT TRANSFER AND BOUNDARY-LAYER TRANSITION ON A 10° CONE IN FREE FLIGHT AT SUPERSONIC MACH NUMBERS UP TO 5.9. Charles B. Rumsey and Dorothy B. Lee. May 1961. 33 p. OTS price, $1.00.

NASA TN D-765

EXPERIMENTAL HEAT TRANSFER AND PRESSURE DROP OF LIQUID HYDROGEN FLOWING THROUGH A HEATED TUBE. R. C. Hendricks, R. W. Graham, Y. Y. Hsu, and R. Friedman. May 1961. 62 p. OTS price, $1.75.

NASA TN D-790

FILM CONDENSATION WITH AND WITHOUT BODY FORCE IN BOUNDARY LAYER FLOW OF VAPOR OVER A FLAT PLATE. Paul M. Chung. April 1961. 35 p. OTS price, $1.00.

NASA TN D-791

NUMERICAL SOLUTIONS FOR SUPERSONIC FLOW OF AN IDEAL GAS AROUND BLUNT TWO-DIMENSIONAL BODIES. Franklyn B. Fuller. July 1961. 47 p. OTS price, $1.25.

NASA TN D-795

A SEMIGRAPHICAL METHOD OF APPLYING IMPACT THEORY TO AN ARBITRARY BODY TO OBTAIN THE HYPERSONIC AERODYNAMIC CHARACTERISTICS AT ANGLE OF ATTACK AND SIDESLIP. Charlie M. Jackson, Jr. May 1961. 18 p. OTS price, $0.50.

NASA TN D-798

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NASA TN D-835

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NASA MEMO 2-10-59L

A GENERALIZED HYDRODYNAMIC-IMPACT THEORY FOR THE LOADS AND MOTIONS OF DEEPLY IMMERSED PRISMATIC BODIES. Melvin F. Markey. March 1959. 27 p. diagrs.

NASA MEMO 2-23-59W

EXPLORATORY STUDY OF VENTILATED FLOWS ABOUT YAWED SURFACE-PIERCING STRUTS. John P. Breslin and Richard Skalak, Stevens Institute of Technology. April 1959. 65 p. diagrs., photos., film suppl. available on request.

NASA MEMO 5-9-59L

HYDRODYNAMIC CHARACTERISTICS OF TWO LOW-DRAG SUPERCAVITATING HYDROFOILS. John R. McGehee and Virgil E. Johnson, Jr. June 1959. 64 p. diagrs., photos.

AERODYNAMICS OF BODIES

NASA TR R-1

SUPERSONIC FLOW PAST A FAMILY OF BLUNT AXISYMMETRIC BODIES. Milton D. Van Dyke and Helen D. Gordon. 1959. 25 p. diagrs., tabs. GPO price, $0.35.

NASA TR R-8

MASS TRANSFER COOLING NEAR THE STAGNATION POINT. Leonard Roberts. 1959. i, 16 p. diagrs. GPO price, $0.30.

NASA TR R-9

A THEORETICAL STUDY OF STAGNATION-POINT ABLATION. Leonard Roberts. 1959. i, 11 p, diagrs. GPO price, $0.30.

NASA TR R-15

APPROXIMATE ANALYTICAL SOLUTIONS FOR HYPERSONIC FLOW OVER SLENDER POWER LAW BODIES. Harold Mirels. 1959. ii, 24 p. diagrs., tabs. GPO price, $0.40.

NASA TR R-16

EFFECTS OF MACH NUMBER AND WALL-TEMPERATURE RATIO ON TURBULENT HEAT TRANSFER AT MACH NUMBERS FROM 3 TO 5. Thorval Tendeland. 1959. i, 15 p. diagrs. GPO price, $0.30.

NASA TR R-29

EFFECT OF FLOW INCIDENCE AND REYNOLDS NUMBER ON LOW-SPEED AERODYNAMIC CHARACTERISTICS OF SEVERAL NONCIRCULAR CYLINDERS WITH APPLICATIONS TO DIRECTIONAL STABILITY AND SPINNING. Edward C. Polhamus. 1959. i, 25 p. diagrs., photo., tab. GPO price, $0.30.

NASA TR R-42

SIMILAR SOLUTIONS FOR THE COMPRESSIBLE BOUNDARY LAYER ON A YAWED CYLINDER WITH TRANSPIRATION COOLING. Ivan E. Beckwith. 1959. i, 37 p.

NASA TR R-45

EFFECT OF BODY PERTURBATIONS ON HYPERSONIC FLOW OVER SLENDER POWER LAW BODIES. Harold Mirels and Philip R. Thornton. 1959. iii, 30 p. GPO price, $0.30.

NASA TR R-46

PRESSURE AND FORCE CHARACTERISTICS OF NONCIRCULAR CYLINDERS AS AFFECTED BY REYNOLDS NUMBER WITH A METHOD INCLUDED FOR DETERMINING THE POTENTIAL FLOW ABOUT ARBITRARY SHAPES. Edward C. Polhamus, Edward W. Geller, and Kalman J. Grunwald. 1959. i, 42 p. diagrs., photo., tabs. GPO price, $0.45.

NASA TR R-47

SECOND-ORDER SLENDER-BODY THEORY—AXISYMMETRIC FLOW. Milton D. Van Dyke. 1959. ii, 26 p. diagrs., tabs. GPO price, $0.40.

NASA TR R-62

AN ANALYSIS OF ABLATION-SHIELD REQUIREMENTS FOR MANNED REENTRY VEHICLES. Leonard Roberts. 1960. ii, 25 p. GPO price, $0.40.

NASA TR R-76

CALCULATED EFFECTS OF BODY SHAPE ON THE BOW-SHOCK OVERPRESSURES IN THE FAR FIELD OF BODIES IN SUPERSONIC FLOW. Donald L. Lansing. 1960, i, 14 p. GPO price, $0.30.

NASA TR R-77

FLOW IN THE BASE REGION OF AXISYMMETRIC AND TWO-DIMENSIONAL CONFIGURATIONS. Milton A. Beheim. 1961. i, 32 p. GPO price, $0.40.

NASA TR R-78

ANALYTIC STUDY OF INDUCED PRESSURE ON LONG BODIES OF REVOLUTION WITH VARYING NOSE BLUNTNESS AT HYPERSONIC SPEEDS. Vernon Van Hise. 1961, i, 18 p. GPO price, $0.30.

NASA TN D-14

TRANSONIC AERODYNAMIC CHARACTERISTICS OF SEVERAL BODIES HAVING ELLIPTICAL CROSS SECTIONS AND VARIOUS PLAN FORMS. Robert A. Taylor. August 1959. 31 p. diagrs., photo., tab. OTS price, $1.00.

NASA TN D-24

CALCULATION OF SUPERSONIC FLOW PAST BODIES SUPPORTING SHOCK WAVES SHAPED LIKE ELLIPTIC CONES. Benjamin R. Briggs. August 1959. 30 p. diagrs., OTS price, $0.75.

NASA TN D-90

A STUDY OF METHODS FOR SIMULATING THE ATMOSPHERE ENTRY OF VEHICLES WITH SMALL-SCALE MODELS. Byron L. Swenson. April 1960. 51 p. OTS price, $1.50.

NASA TN D-118

INVESTIGATION OF THE FLOW OVER A SPIKED-NOSE HEMISPHERE-CYLINDER AT A MACH NUMBER OF 6.8. Davis H. Crawford. December 1959. 59 p. diagrs., photos. OTS price, $1.50.

NASA TN D-120

IMPORTANCE OF THE VARIATION OF DRAG WITH LIFT IN MINIMIZATION OF SATELLITE ENTRY ACCELERATION. Frederick C. Grant. October 1959. 22 p. diagrs. OTS price, $0.75.

NASA TN D-141

EFFECT OF LOCALIZED MASS TRANSFER NEAR THE STAGNATION REGION OF BLUNT BODIES IN HYPERSONIC FLIGHT. Paul M. Chung. May 1960. 16 p. OTS price, $0.50.

NASA TN D-149

EQUATIONS AND CHARTS FOR DETERMINING THE HYPERSONIC STABILITY DERIVATIVES OF COMBINATIONS OF CONE FRUSTUMS COMPUTED BY NEWTONIAN IMPACT THEORY. Lewis R. Fisher. November 1959. 33 p. diagrs. OTS price, $1.00.

NASA TN D-157

EXPERIMENTAL PRESSURE DISTRIBUTIONS OVER BLUNT TWO- AND THREE-DIMENSIONAL BODIES HAVING SIMILAR CROSS SECTIONS AT A MACH NUMBER OF 4.95. Jerome D. Julius. September 1959. 13 p. diagrs., photo. OTS price, $0.50.

NASA TN D-167

INVESTIGATION OF VARIATION IN BASE PRESSURE OVER THE REYNOLDS NUMBER RANGE IN WHICH WAKE TRANSITION OCCURS FOR TWO-DIMENSIONAL BODIES AT MACH NUMBERS FROM 1.95 TO 2.92. Vernon Van Hise. November 1959. 44 p. diagrs., photos., tab. OTS price, $1.25.

NASA TN D-176

WORKING CHARTS FOR RAPID PREDICTION OF FORCE AND PRESSURE COEFFICIENTS ON ARBITRARY BODIES OF REVOLUTION BY USE OF NEWTONIAN CONCEPTS. Robert W. Rainey. December 1959. 36 p. diagrs. OTS price, $1.00.

NASA TN D-179

MEASUREMENTS OF PRESSURE AND LOCAL HEAT TRANSFER ON A 20° CONE AT ANGLES OF ATTACK UP TO 20° FOR A MACH NUMBER OF 4.95. Jerome D. Julius. December 1959. 28 p. diagrs., photo. OTS price, $0.75.

NASA TN D-216

AERODYNAMIC-HEATING DATA OBTAINED FROM FREE-FLIGHT TESTS BETWEEN MACH NUMBERS OF 1 AND 5. Charles B. Rumsey, Robert O. Piland, and Russell N. Hopko. January 1960. 21 p. diagrs., photos. OTS price, $0.75.

NASA TN D-226

EXPERIMENTAL INVESTIGATION AT A MACH NUMBER OF 3.11 OF THE LIFT, DRAG, AND PITCHING-MOMENT CHARACTERISTICS OF FIVE BLUNT LIFTING BODIES. William Letko. April 1960. 13 p. diagrs., photo. OTS price, $0.50.

NASA TN D-242

INVESTIGATION BY SCHLIEREN TECHNIQUE OF METHODS OF FIXING FULLY TURBULENT FLOW ON MODELS AT SUPERSONIC SPEEDS. Mary W. Jackson and K. R. Czarnecki. April 1960. 16 p. diagrs., photos. OTS price, $0.50.

NASA TN D-254

AN ANALYSIS OF NOSE ABLATION FOR BALLISTIC VEHICLES. Leonard Roberts. April 1960. 30 p. OTS price, $0.75.

NASA TN D-284

EFFECTS OF JET BILLOWING ON STABILITY OF MISSILE-TYPE BODIES AT MACH 3.85. Reino J. Salmi. June 1960. 17 p. OTS price, $0.50.

NASA TN D-316

STUDY OF THE AERODYNAMIC FORCES AND MOMENTS ON BODIES OF REVOLUTION IN COMBINED PITCHING AND YAWING MOTIONS. Murray Tobak and Henry C. Lessing. May 1960. 24 p. OTS price, $0.75.

NASA TN D-319

AN APPROXIMATE ANALYTICAL METHOD FOR STUDYING ATMOSPHERE ENTRY OF VEHICLES WITH MODULATED AERODYNAMIC FORCES. Lionel L. Levy, Jr. October 1960. 31 p. OTS price, $1.00.

NASA TN D-334

MOTION AND HEATING DURING ATMOSPHERE REENTRY OF SPACE VEHICLES. Thomas J. Wong, Glen Goodwin, and Robert E. Slye. September 1960. 18 p. OTS price, $0.50.

NASA TN D-353

EXPERIMENTAL DETERMINATION OF THE RECOVERY FACTOR AND ANALYTICAL SOLUTION OF THE CONICAL FLOW FIELD FOR A 20° INCLUDED ANGLE CONE AT MACH NUMBERS OF 4.6 AND 6.0 AND STAGNATION TEMPERATURES TO 2600° R. Frank A. Pfyl and Leroy L. Presley. June 1961. 64 p. OTS price, $1.75.

NASA TN D-354

EFFECTS OF STING-SUPPORT DIAMETER ON THE BASE PRESSURES OF AN ELLIPTIC CONE AT MACH NUMBERS FROM 0.60 TO 1.40. Louis S. Stivers, Jr., and Lionel L. Levy, Jr. February 1961. 30 p. OTS price, $0.75.

NASA TN D-361

FREE-FLIGHT MEASUREMENTS OF THE TRANSONIC DRAG CHARACTERISTICS OF LOW-FINENESS-RATIO CYLINDERS INCLUDING STABILIZING PLATES AND FLARES AND VARYING NOSE BLUNTNESS. Joseph H. Judd and Gerard E. Woodbury. May 1960. 16 p. OTS price, $0.50.

NASA TN D-373

AN INVESTIGATION OF INDUCED-PRESSURE PHENOMENA ON AXIALLY SYMMETRIC, FLOW-ALINED, CYLINDRICAL MODELS EQUIPPED WITH DIFFERENT NOSE SHAPES AT FREE-STREAM MACH NUMBERS FROM 15.6 TO 21 IN HELIUM. James N. Mueller, William H. Close, and Arthur Henderson, Jr. May 1960. 49 p. OTS price, $1.25.

NASA TN D-391

THE INFLUENCE OF LOW WALL TEMPERATURE ON BOUNDARY-LAYER TRANSITION AND LOCAL HEAT TRANSFER ON 2-INCH-DIAMETER HEMISPHERES AT A MACH NUMBER OF 4.95 AND A REYNOLDS NUMBER PER FOOT OF 73.2×10^6. Morton Cooper, Edward E. Mayo, and Jerome D. Julius. July 1960. 37 p. OTS price, $1.00.

NASA TN D-399

VARIATION IN HEAT TRANSFER DURING TRANSIENT HEATING OF A HEMISPHERE AT A MACH NUMBER OF 2. Roland D. English and Howard S. Carter. June 1960. 26 p. OTS price, $0.75.

NASA TN D-408

THE BLUNT PLATE IN HYPERSONIC FLOW. Donald L. Baradell and Mitchel H. Bertram. October 1960. 49 p. OTS price, $1.25.

NASA TN D-416

ANALYTICAL INVESTIGATION OF THE DYNAMIC BEHAVIOR OF A NONLIFTING MANNED REENTRY VEHICLE. Jacob H. Lichtenstein. September 1960. 55 p. OTS price, $1.50.

NASA TN D-430

VIBRATION AND NEAR-FIELD SOUND OF THIN-WALLED CYLINDERS CAUSED BY INTERNAL TURBULENT FLOW. Paul F. R. Weyers, California Institute of Technology. June 1960. 58 p. OTS price, $1.50.

NASA TN D-449

INVESTIGATION OF THE FLOW OVER SIMPLE BODIES AT MACH NUMBERS OF THE ORDER OF 20. Arthur Henderson, Jr. August 1960. 17 p. OTS price, $0.50.

NASA TN D-452

MODULATED ENTRY. Frederick C. Grant. August 1960. 19 p. OTS price, $0.50.

NASA TN D-540

EFFECTS OF FINENESS RATIO AND REYNOLDS NUMBER ON THE LOW-SPEED CROSSWIND DRAG CHARACTERISTICS OF CIRCULAR AND MODIFIED-SQUARE CYLINDERS. Linwood W. McKinney. October 1960. 15 p. OTS price, $0.50.

NASA TN D-625

APPLICATION OF SIMILAR SOLUTIONS TO CALCULATION OF LAMINAR HEAT TRANSFER ON BODIES WITH YAW AND LARGE PRESSURE GRADIENT IN HIGH-SPEED FLOW. Ivan E. Beckwith and Nathaniel B. Cohen. January 1961. 95 p. OTS price, $2.25.

NASA TN D-634

EFFECTS OF CONE ANGLE, MACH NUMBER, AND NOSE BLUNTING ON TRANSITION AT SUPERSONIC SPEEDS. K. R. Czarnecki and Mary W. Jackson. January 1961. 31 p. OTS price, $1.00.

NASA TN D-642

EFFECT OF SHOCK IMPINGEMENT ON THE DISTRIBUTION OF HEAT-TRANSFER COEFFICIENTS ON A RIGHT CIRCULAR CYLINDER AT MACH NUMBERS OF 2.65, 3.51, AND 4.44. Robert A. Newlander. January 1961. 28 p. OTS price, $0.75.

NASA TN D-646

LOW-SUBSONIC-SPEED STATIC STABILITY OF RIGHT-TRIANGULAR-PYRAMID AND HALF-CONE LIFTING REENTRY CONFIGURATIONS. George M. Ware. February 1961. 28 p. OTS price, $0.75.

NASA TN D-648

EXTERNAL-DRAG ESTIMATION FOR SLENDER CONICAL DUCTED BODIES AT HIGH MACH NUMBERS AND ZERO ANGLE OF ATTACK. E. Floyd Valentine. March 1961. 29 p. OTS price, $0.75.

NASA TN D-650

SOME EFFECTS OF NOSE BLUNTNESS AND FINENESS RATIO ON THE STATIC LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF BODIES OF REVOLUTION AT SUBSONIC SPEEDS. William C. Hayes, Jr., and William P. Henderson. February 1961. 65 p. OTS price, $1.75.

NASA TN D-652

THEORETICAL EVALUATION OF THE PRESSURES, FORCES, AND MOMENTS AT HYPERSONIC SPEEDS ACTING ON ARBITRARY BODIES OF REVOLUTION UNDERGOING SEPARATE AND COMBINED ANGLE-OF-ATTACK AND PITCHING MOTIONS. Kenneth Margolis. June 1961. 32 p. & charts in pocket. OTS price, $1.00.

NASA TN D-655

STATIC LONGITUDINAL AND LATERAL STABILITY CHARACTERISTICS OF A RIGHT TRIANGULAR PYRAMIDAL LIFTING REENTRY CONFIGURATION AT TRANSONIC SPEEDS. Walter B. Olstad, John P. Mugler, Jr., and Maurice S. Cahn. April 1961. 62 p. OTS price, $1.75.

NASA TN D-717

EFFECT OF NOSE BLUNTNESS ON TRANSITION FOR A CONE AND A HOLLOW CYLINDER AT MACH NUMBERS 1.41 AND 2.01. William J. Monta, Paul W. Howard, and K. R. Czarnecki. April 1961. 34 p. OTS price, $1.00.

NASA TN D-741

A THEORETICAL ANALYSIS OF EFFECTS OF ABLATION ON HEAT TRANSFER TO AN ARBITRARY AXISYMMETRIC BODY. Robert T. Swann and Jerry South. April 1961. 49 p. OTS price, $1.25.

NASA TN D-752

AERODYNAMIC CHARACTERISTICS OF PARACHUTES AT MACH NUMBERS FROM 1.6 TO 3. Julian D. Maynard. May 1961. 55 p., film suppl. available on request. OTS price, $1.50.

NASA TN D-753

PRESSURE MEASUREMENTS ON SHARP AND BLUNT 5°- AND 15°-HALF-ANGLE CONES AT MACH NUMBER 3.86 AND ANGLES OF ATTACK TO 100°. James L. Amick, University of Michigan. February 1961. 47 p. OTS price, $1.25.

NASA TN D-758

HEAT-TRANSFER TESTS OF 20-MILLIMETER PROJECTILES AT A MACH NUMBER OF 5 WITH AN ANALYSIS BY UNSTEADY SCALING LAWS TO PREDICT COMPONENT TEMPERATURE RISES AFTER FIRING FOR VARIOUS FREE-FLIGHT CONDITIONS. Robert L. Trimpi, James G. Gallagher, and Robert A. Jones. May 1961. 30 p. OTS price, $0.75.

NASA TN D-780

A METHOD FOR OBTAINING THE NONLINEAR AERODYNAMIC STABILITY CHARACTERISTICS OF BODIES OF REVOLUTION FROM FREE-FLIGHT TESTS. Donn B. Kirk. March 1961. 47 p. OTS price, $1.25.

NASA TN D-800

A SENSOR FOR OBTAINING ABLATION RATES. Clyde W. Winters and Emedio M. Bracalente. April 1961. 17 p. OTS price, $0.50. (NASA TECHNICAL NOTE D-800)

NASA TN D-807

FREE-FLIGHT SKIN-TEMPERATURE AND SURFACE-PRESSURE MEASUREMENTS ON A HIGHLY POLISHED NOSE HAVING A 100° TOTAL-ANGLE CONE AND A 10° HALF-ANGLE CONICAL FLARE SECTION UP TO A MACH NUMBER OF 4.08. Bernard Rashis and Aleck C. Bond. April 1961. 23 p. OTS price, $0.75.

NASA TN D-819

CHARTS FOR CONICAL AND TWO-DIMENSIONAL OBLIQUE-SHOCK FLOW PARAMETERS IN HELIUM AT MACH NUMBERS FROM ABOUT 1 TO 100. Arthur Henderson, Jr., and Dorothy O. Braswell. June 1961. 183 p. OTS price, $3.00.

NASA TN D-824

MEASUREMENTS OF AERODYNAMIC HEAT TRANSFER ON A 15° CONE-CYLINDER-FLARE CONFIGURATION IN FREE FLIGHT AT MACH NUMBERS UP TO 4.7. Charles B. Rumsey and Dorothy B. Lee. May 1961. 61 p. OTS price, $1.75.

NASA TN D-840

AERODYNAMIC FORCE CHARACTERISTICS OF A SERIES OF LIFTING CONE AND CONE-CYLINDER CONFIGURATIONS AT A MACH NUMBER OF 6.83 AND ANGLES OF ATTACK UP TO 130°. Jim A. Penland. June 1961. 45 p. OTS price, $1.25.

NASA TN D-859

UNSTEADY AERODYNAMIC FORCES ON A SLENDER BODY OF REVOLUTION IN SUPERSONIC FLOW. Reuben Bond and Barbara B. Packard. May 1961. 32 p. OTS price, $1.00.

NASA TN D-861

AN APPROXIMATE ANALYSIS OF FILM COOLING ON BLUNT BODIES BY GAS INJECTION NEAR THE STAGNATION POINT. Byron L. Swenson. September 1961. 39 p. OTS price, $1.00.

NASA TN D-865

REGIME OF FROZEN BOUNDARY LAYERS IN STAGNATION REGION OF BLUNT REENTRY BODIES. Norman T. Grier and Norman Sands. May 1961. 37 p. OTS price, $1.00.

NASA TN D-888

MEASUREMENTS OF AERODYNAMIC HEAT TRANSFER AND BOUNDARY-LAYER TRANSITION ON A 15° CONE IN FREE FLIGHT AT SUPERSONIC MACH NUMBERS UP TO 5.2. Charles B. Rumsey and Dorothy B. Lee. August 1961. 43 p. OTS price, $1.25.

NASA TN D-889

FREE-FLIGHT AERODYNAMIC-HEATING DATA TO MACH NUMBER 10.4 FOR A MODIFIED VON KARMAN NOSE SHAPE. William M. Bland, Jr., and Katherine A. Collie. May 1961. 28 p. OTS price, $0.75.

NASA TN D-890

SIMPLE FORMULAS FOR STAGNATION-POINT CONVECTIVE HEAT LOADS IN LUNAR RETURN. Frederick C. Grant. July 1961. 21 p. OTS price, $0.75.

NASA TN D-891

LAMINAR HEAT-TRANSFER AND PRESSURE-DISTRIBUTION STUDIES ON A SERIES OF REENTRY NOSE SHAPES AT A MACH NUMBER OF 19.4 IN HELIUM. Richard D. Wagner, Jr., W. Clint Pine, and Arthur Henderson, Jr. June 1961. 39 p. OTS price, $1.00.

NASA TN D-895

APPROXIMATE TEMPERATURE DISTRIBUTIONS AND STREAMWISE HEAT CONDUCTION EFFECTS IN THE TRANSIENT AERODYNAMIC HEATING OF THIN-SKINNED BODIES. Raul J. Conti. September 1961. 90 p. OTS price, $2.25.

NASA TN D-907

LOCAL AERODYNAMIC HEAT TRANSFER AND BOUNDARY LAYER TRANSITION ON ROUGHENED SPHERE-ELLIPSOID BODIES AT MACH NUMBER 3.0. William D. Deveikis and Robert W. Walker. August 1961. 25 p.

NASA TN D-919

WIND-TUNNEL INVESTIGATION OF A BALLOON AS A TOWED DECELERATOR AT MACH NUMBERS FROM 1.47 TO 2.50. John T. McShera and J. Wayne Keyes. August 1961. 75 p. film suppl. available on request. OTS price, $2.00.

NASA TN D-932

BOUNDARY-LAYER TRANSITION ON A GROUP OF BLUNT NOSE SHAPES AT A MACH NUMBER OF 2.20. Mary W. Jackson and K. R. Czarnecki. July 1961. 21 p. OTS price, $0.75.

NASA TN D-951

SUPERSONIC FREE-FLIGHT MEASUREMENT OF HEAT TRANSFER AND TRANSITION ON A 10° CONE HAVING A LOW TEMPERATURE RATIO. Charles F. Merlet and Charles B. Rumsey. August 1961. 24 p. OTS price, $0.75.

NASA TN D-955

HEAT TRANSFER AND BOUNDARY-LAYER TRANSITION ON A HIGHLY POLISHED HEMISPHERE-CONE IN FREE FLIGHT AT MACH NUMBERS UP TO 3.14 AND REYNOLDS NUMBERS UP TO 24×10^6. James J. Buglia. September 1961. 26 p. OTS price, $0.75.

NASA TN D-1037

THE USE OF DRAG MODULATION TO LIMIT THE RATE AT WHICH DECELERATION INCREASES DURING NONLIFTING ENTRY. Lionel L. Levy, Jr. September 1961. 31 p. OTS price, $1.00.

NASA TN D-1047

RECOVERY TEMPERATURE, TRANSITION, AND HEAT-TRANSFER MEASUREMENTS AT MACH 5. Paul F. Brinich. August 1961. 51 p. OTS price, $1.50.

NASA TN D-1050

ESTIMATE OF SHOCK STANDOFF DISTANCE AHEAD OF A GENERAL STAGNATION POINT. Eli Reshotko. August 1961. 20 p. OTS price, $0.50.

NASA MEMO 10-3-58A

INCLINED BODIES OF VARIOUS CROSS SECTIONS AT SUPERSONIC SPEEDS. Leland H. Jorgensen. November 1958. 62 p.

NASA MEMO 10-8-58L

EFFECTS OF YAW ON THE HEAT TRANSFER TO A BLUNT CONE-CYLINDER CONFIGURATION AT A MACH NUMBER OF 1.98. Roland D. English. November 1958. 20 p.

NASA MEMO 12-5-58W

INTERACTION EFFECTS PRODUCED BY JET EXHAUSTING LATERALLY NEAR BASE OF OGIVE-CYLINDER MODEL IN SUPERSONIC MAIN STREAM. P. W. Vinson, J. L. Amick, and H. P. Liepman, University of Michigan. February 1959. 37 p. diagrs., photos.

NASA MEMO 12-25-58A

BOUNDARY-LAYER-TRANSITION MEASUREMENTS ON HEMISPHERES OF VARIOUS SURFACE ROUGHNESSES IN A WIND TUNNEL AT MACH NUMBERS FROM 2.48 TO 3.55. Angelo Bandettini and Walter E. Isler. March 1959. 29 p. diagrs., photos., tab.

NASA MEMO 1-2-59L

A METHOD FOR COMPUTING TURBULENT HEAT TRANSFER IN THE PRESENCE OF A STREAMWISE PRESSURE GRADIENT FOR BODIES IN HIGH-SPEED FLOW. Nathaniel B. Cohen. March 1959. 77 p. diagrs., tabs.

NASA MEMO 1-3-59L

MEASUREMENTS OF LOCAL HEAT TRANSFER AND PRESSURE ON SIX 2-INCH-DIAMETER BLUNT BODIES AT A MACH NUMBER OF 4.95 AND AT REYNOLDS NUMBERS PER FOOT UP TO 81×10^6. Morton Cooper and Edward E. Mayo. March 1959. 39 p. diagrs., photo., tabs.

NASA MEMO 1-6-59L

INVESTIGATION OF SPHERICAL-WAVE-INITIATED FLOW FIELDS AROUND BODIES. Donald R. McFarland. February 1959. 48 p. diagrs., photos., tab.

NASA MEMO 1-20-59A

BOUNDARY-LAYER TRANSITION ON HOLLOW CYLINDERS IN SUPERSONIC FREE FLIGHT AS AFFECTED BY MACH NUMBER AND A SCREW-THREAD TYPE OF SURFACE ROUGHNESS. Carlton S. James. February 1959. 49 p. diagrs., photos.

NASA MEMO 1-22-59A

PRESSURE DISTRIBUTIONS AT TRANSONIC SPEEDS FOR BUMPY AND INDENTED MIDSECTIONS OF A BASIC PARABOLIC-ARC BODY. Robert A. Taylor. February 1959. 68 p. diagrs., photo.

NASA MEMO 1-26-59L

FLIGHT INVESTIGATION OF THE SURFACE PRESSURE DISTRIBUTION AND FLOW FIELD AROUND AN ELLIPTICAL SPINNER. Lovic P. Thomas III. February 1959. 10 p. diagrs., photo.

NASA MEMO 2-8-59L

AN INVESTIGATION OF THE EFFECT OF A HIGHLY FAVORABLE PRESSURE GRADIENT ON BOUNDARY LAYER TRANSITION AS CAUSED BY VARIOUS TYPES OF ROUGHNESSES ON A 10-FOOT-DIAMETER HEMISPHERE AT SUBSONIC SPEEDS. John B. Peterson, Jr., and Elmer A. Horton. April 1959. 32 p. diagrs., photos., tabs.

NASA MEMO 2-22-59L

SOME STATIC, OSCILLATORY, AND FREE-BODY TESTS OF BLUNT BODIES AT LOW SUBSONIC SPEEDS. Jacob H. Lichtenstein, Lewis R. Fisher, Stanley H. Scher, and George F. Lawrence. April 1959. 30 p. diagrs., photos., tabs.

NASA MEMO 2-25-59A

NUMERICAL SOLUTION OF THE FLOW OF A PERFECT GAS OVER A CIRCULAR CYLINDER AT INFINITE MACH NUMBER. Frank M. Hamaker. March 1959. 33 p. diagrs.

NASA MEMO 4-11-59L

LOW-SPEED STATIC STABILITY AND CONTROL CHARACTERISTICS OF A MODEL OF A RIGHT TRIANGULAR PYRAMID REENTRY CONFIGURATION. John W. Paulson. April 1959. 15 p. diagrs., tab.

NASA MEMO 4-13-59L

WIND-TUNNEL INVESTIGATION AT MACH NUMBERS FROM 0.40 TO 1.14 OF THE STATIC AERODYNAMIC CHARACTERISTICS OF A NONLIFTING VEHICLE SUITABLE FOR REENTRY. Albin O. Pearson. May 1959. 14 p. diagrs., photos.

NASA MEMO 5-8-59L

FLUID-DYNAMIC PROPERTIES OF SOME SIMPLE SHARP- AND BLUNT-NOSED SHAPES AT MACH NUMBERS FROM 16 TO 24 IN HELIUM FLOW. Arthur Henderson, Jr., and Patrick J. Johnson. June 1959. 63 p. diagrs., photos.

NASA MEMO 6-4-59L

DISTRIBUTION OF HEAT TRANSFER ON A 10° CONE AT ANGLES OF ATTACK FROM 0° TO 15° FOR MACH NUMBERS OF 2.49 TO 4.65 AND A SOLUTION TO THE HEAT TRANSFER EQUATION THAT PERMITS COMPLETE MACHINE CALCULATIONS. Paige B. Burbank and B. Leon Hodge. June 1959. 45 p. diagrs., photo., tabs.

NASA MEMO 6-10-59L

EXPERIMENTAL INVESTIGATION OF THE HEAT-TRANSFER RATE TO A SERIES OF 20° CONES OF VARIOUS SURFACE FINISHES AT A MACH NUMBER OF 4.95. Jim J. Jones. June 1959. 26 p. diagrs., photos.

NASA TM X-30

THE STABILIZING EFFECTIVENESS OF CONICAL FLARES ON BODIES WITH CONICAL NOSES. Donn B. Kirk and Gary T. Chapman. September 1959. 23 p.

NASA TM X-56

THE EFFECT OF CAMBER ON THE AERODYNAMIC CHARACTERISTICS OF A BODY AT A MACH NUMBER OF 2.01. John P. Gapcynski. September 1959. 18 p. diagrs.

NASA TT F-2

ON THE TEMPERATURE DISTRIBUTION BEHIND CYLINDERS IN A FLOW. (Über die Temperaturverteilung hinter augestromten Zylindern.) Jakob Ackeret. (Presented at the Fall Meeting of the Swiss Physical Society at Bern on August 24, 1952.) August 1959. 18 p. diagrs. OTS price, $0.50.

NASA TT F-35

EFFECT OF SLIGHT BLUNTING OF LEADING EDGE OF AN IMMERSED BODY ON THE FLOW AROUND IT AT HYPERSONIC SPEEDS. G. G. Chernyi. June 1960. 19 p. OTS price, $0.50.

NASA TT F-70

AERODYNAMIC EFFECTS OF METEORITES. A SPECIFIC CASE. (Ob odnom effekte v oblasti aerodinamiki meteorov.) K. P. Stanyukovich. August 1961. 12 p. OTS price, $0.50.

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AERODYNAMICS OF WINGS

NASA TR R-22

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NASA TR R-26

SKIN-FRICTION MEASUREMENTS IN INCOMPRESSIBLE FLOW. Donald W. Smith and John H. Walker, ARC. 1959. 35 p. diagrs., photo., tabs. (Supersedes TN 4231)

NASA TR R-48

A SYSTEMATIC KERNEL FUNCTION PROCEDURE FOR DETERMINING AERODYNAMIC FORCES ON OSCILLATING OR STEADY FINITE WINGS AT SUBSONIC SPEEDS. Charles E. Watkins, Donald S. Woolston, and Herbert J. Cunningham. 1959. i, 21 p. GPO price, $0.35.

NASA TR R-58

CALCULATION OF AERODYNAMIC LOADING AND TWIST CHARACTERISTICS OF A FLEXIBLE WING AT MACH NUMBERS APPROACHING 1.0 AND COMPARISON WITH EXPERIMENT. John P. Mugler, Jr. 1960. i, 17 p. GPO price, $0.30.

NASA TR R-84

ORDINATES AND THEORETICAL PRESSURE-DISTRIBUTION DATA FOR NACA 6- AND 6A-SERIES AIRFOIL SECTIONS WITH THICKNESSES FROM 2 TO 21 AND FROM 2 TO 15 PERCENT CHORD, RESPECTIVELY. Elizabeth W. Patterson and Albert L. Braslow. 1961. i, 86 p. GPO price, $0.70.

NASA TR R-88

THEORETICAL PRESSURE DISTRIBUTIONS ON WINGS OF FINITE SPAN AT ZERO INCIDENCE FOR MACH NUMBERS NEAR 1. Alberta Y. Alksne and John R. Spreiter. 1961. i, 47 p. GPO price, $0.50.

NASA TN D-11

MEASURED AND PREDICTED SECTION WAVE DRAG COEFFICIENTS AT A MACH NUMBER OF 1.6 FOR A DELTA WING WITH TWO AIRFOIL SECTIONS. Frederick C. Grant. September 1959. 41 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-16

LOW-SPEED WIND-TUNNEL INVESTIGATION OF BLOWING BOUNDARY-LAYER CONTROL ON LEADING- AND TRAILING-EDGE FLAPS OF A FULL-SCALE, LOW-ASPECT-RATIO, 42° SWEPT-WING AIRPLANE CONFIGURATION. Ralph L. Maki and Demo J. Giulianetti. August 1959. 29 p. diagrs., photo., tab. OTS price, $0.75.

NASA TN D-18

TWO TECHNIQUES FOR DETECTING BOUNDARY-LAYER TRANSITION IN FLIGHT AT SUPERSONIC SPEEDS AND AT ALTITUDES ABOVE 20,000 FEET. John G. McTigue, John D. Overton, and Gilbert Petty, Jr. August 1959. 30 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-42

INVESTIGATION AT TRANSONIC SPEEDS TO DETERMINE LATERAL CONTROL EFFECTIVENESS OF BLOWING LATERALLY OVER SURFACES OF 30° AND 45° SWEPT WINGS. Alexander D. Hammond and Linwood W. McKinney. October 1959. 53 p. diagrs., tabs. OTS price, $1.50.

NASA TN D-88

WIND-TUNNEL TESTS OF A SEMISPAN WING WITH A FAN ROTATING IN THE PLANE OF THE WING. David H. Hickey and David R. Ellis. October 1959. 44 p. diagrs., photos., tabs. OTS price, $1.25.

NASA TN D-92

MEASURED AND THEORETICAL FLOW FIELDS BEHIND A RECTANGULAR AND A TRIANGULAR WING UP TO HIGH ANGLES OF ATTACK AT A MACH NUMBER OF 2.46. Frank J. Centolanzi. September 1959. 77 p. diagrs. OTS price, $2.00.

NASA TN D-96

A METHOD FOR CALCULATING AERODYNAMIC LOADINGS ON THIN WINGS AT A MACH NUMBER OF 1. John L. Crigler. November 1959. 30 p. diagrs., tabs. OTS price, $0.75.

NASA TN D-138

THE EFFECTS OF AN INVERSE-TAPER LEADING-EDGE FLAP ON THE AERODYNAMIC LOADING CHARACTERISTICS OF A 45° SWEPTBACK WING AT MACH NUMBERS TO 0.90. Fred A. Demele. December 1959. 108 p. diagrs., photo., tabs. OTS price, $2.50.

NASA TN D-142

A METHOD FOR CALCULATING THE AERODYNAMIC FORCES DUE TO ARBITRARY, TIME-DEPENDENT DOWNWASH FOR A CLASS OF THIN, FLEXIBLE WINGS AT SUPERSONIC SPEEDS. Robert W. Warner and Barbara B. Packard. February 1960. 64 p. diagrs. OTS price, $1.75.

NASA TN D-170

LIFT AND DRAG CHARACTERISTICS AT SUBSONIC SPEEDS AND AT A MACH NUMBER OF 1.9 OF A LIFTING CIRCULAR CYLINDER WITH A FINENESS RATIO OF 10. Vernard E. Lockwood and Linwood W. McKinney. December 1959. 21 p. diagrs., photo. OTS price, $0.75.

NASA TN D-209

THE ROLLING MOMENT DUE TO SIDESLIP OF SWEPT WINGS AT SUBSONIC AND TRANSONIC SPEEDS. Edward C. Polhamus and William C. Sleeman, Jr. February 1960. 81 p. diagrs., photos., tabs. OTS price, $2.25.

NASA TN D-229

EXPERIMENTAL INVESTIGATION OF THE EFFECT OF ASPECT RATIO AND MACH NUMBER ON THE FLUTTER OF CANTILEVER WINGS. E. Widmayer, Jr., W. T. Lauten, Jr., and S. A. Clevenson. April 1960. 20 p. OTS price, $0.50.

NASA TN D-244

LIFT GENERATION ON A CIRCULAR CYLINDER BY TANGENTIAL BLOWING FROM SURFACE SLOTS. Vernard E. Lockwood. May 1960. 38 p. OTS price, $1.00.

NASA TN D-282

INVESTIGATION OF AERODYNAMIC EFFECTS OF EXTERNAL COMBUSTION BELOW FLAT-PLATE MODEL IN 10- BY 10-FOOT WIND TUNNEL AT MACH 2.4. Robert G. Dorsch, Harrison Allen, Jr., and Murray Dryer. April 1960. 25 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-310

TESTS OF AN AREA SUCTION FLAP ON AN NACA 64A010 AIRFOIL AT HIGH SUBSONIC SPEEDS. Donald W. Smith and John H. Walker. May 1960. 43 p. OTS price, $1.25.

NASA TN D-313

EFFECT OF LEADING-EDGE THICKNESS ON THE FLOW OVER A FLAT PLATE AT A MACH NUMBER OF 5.7. Marcus O. Creager. May 1960. 31 p. OTS price, $1.00.

NASA TN D-320

AN EXPERIMENTAL INVESTIGATION OF BOUNDARY LAYER CONTROL FOR DRAG REDUCTION OF A SWEPT-WING SECTION AT LOW SPEED AND HIGH REYNOLDS NUMBERS. Donald E. Gault. October 1960. 18 p. OTS price, $0.50.

NASA TN D-338

EFFECTS OF SWEEP ANGLE ON THE BOUNDARY LAYER STABILITY CHARACTERISTICS OF AN UNTAPERED WING AT LOW SPEEDS. Frederick W. Boltz, George C. Kenyon, and Clyde Q. Allen. October 1960. 77 p. OTS price, $2.00.

NASA TN D-339

EXPERIMENTAL AND THEORETICAL STUDY OF A RECTANGULAR WING IN A VORTICAL WAKE AT LOW SPEED. Willard G. Smith and Frank A. Lazzeroni. October 1960. 33 p. OTS price, $1.00.

NASA TN D-344

EXPERIMENTAL DETERMINATION OF THE PRESSURE DISTRIBUTION ON A RECTANGULAR WING OSCILLATING IN THE FIRST BENDING MODE FOR MACH NUMBERS FROM 0.24 TO 1.30. Henry C. Lessing, John L. Troutman and Gene P. Menees. December 1960. 91 p. OTS price, $2.25.

NASA TN D-395

FREE-FLIGHT MEASUREMENTS OF THE ZERO-LIFT DRAG OF SEVERAL WINGS AT MACH NUMBERS FROM 1.4 TO 3.8. H. Herbert Jackson. June 1960. 27 p. OTS price, $0.75.

NASA TN D-417

INVESTIGATION OF EFFECTS OF ROUGHNESS, SURFACE COOLING, AND SHOCK IMPINGEMENT ON BOUNDARY LAYER TRANSITION ON A TWO-DIMENSIONAL WING. K. R. Czarnecki and John R. Sevier, Jr. June 1960. 41 p. OTS price, $1.25.

NASA TN D-422

A WIND-TUNNEL INVESTIGATION OF THE DEVELOPMENT OF LIFT ON WINGS IN ACCELERATED LONGITUDINAL MOTION. Thomas R. Turner. August 1960. 16 p. OTS price, $0.50.

NASA TN D-425

TRIM DRAG AT SUPERSONIC SPEEDS OF VARIOUS DELTA-PLANFORM CONFIGURATIONS. M. E. Graham and B. M. Ryan, Douglas Aircraft Company, Inc. June 1960. i, 98 p. OTS price, $2.25.

NASA TN D-427

STUDY OF EFFECT OF A NON-NEWTONIAN OIL ON FRICTION AND ECCENTRICITY RATIO OF A PLAIN JOURNAL BEARING. G. B. DuBois, F. W. Ocvirk, and R. L. Wehe, Cornell University. May 1960. 43 p. OTS price, $1.25.

NASA TN D-455

EFFECT OF REYNOLDS NUMBER ON THE FORCE AND PRESSURE DISTRIBUTION CHARACTERISTICS OF A TWO-DIMENSIONAL LIFTING CIRCULAR CYLINDER. Vernard E. Lockwood and Linwood W. McKinney. September 1960. 27 p. OTS price, $0.75.

NASA TN D-460

EFFECT OF AERODYNAMIC HEATING ON THE FLUTTER OF A RECTANGULAR WING AT A MACH NUMBER OF 2. Harry L. Runyan and Nan H. Jones. June 1960. 16 p. OTS price, $0.50.

NASA TN D-461

SOME DIVERGENCE CHARACTERISTICS OF LOW-ASPECT-RATIO WINGS AT TRANSONIC AND SUPERSONIC SPEEDS. Donald S. Woolston, Frederick W. Gibson, and Herbert J. Cunningham. September 1960. 43 p. OTS price, $1.25.

NASA TN D-515

USE OF SUBSONIC KERNEL FUNCTION IN AN INFLUENCE-COEFFICIENT METHOD OF AEROELASTIC ANALYSIS AND SOME COMPARISONS WITH EXPERIMENT. John L. Sewall, Robert W. Herr, and Charles E. Watkins. October 1960. 86 p. OTS price, $2.25.

NASA TN D-523

INVESTIGATION OF THE FLOW IN A RECTANGULAR CAVITY IN A FLAT PLATE AT A MACH NUMBER OF 3.55. Russell W. McDearmon. September 1960. 42 p. OTS price, $1.25.

NASA TN D-528

BASIC PRESSURE MEASUREMENTS AT A MACH NUMBER OF 1.43 ON A THIN 45° SWEPTBACK HIGHLY TAPERED WING WITH SYSTEMATIC SPANWISE TWIST VARIATIONS. John P. Mugler, Jr., and Elizabeth R. Woodall. October 1960. 73 p. OTS price, $2.00.

NASA TN D-542

THEORETICAL INVESTIGATION OF THE SUBSONIC AND SUPERSONIC FLUTTER CHARACTERISTICS OF A SWEPT WING EMPLOYING A TUNED STING-MASS FLUTTER SUPPRESSOR. E. Carson Yates, Jr. November 1960. 45 p. OTS price, $1.25.

NASA TN D-545

A NOTE ON THE DRAG DUE TO LIFT OF DELTA WINGS AT MACH NUMBERS UP TO 2.0. Robert S. Osborne and Thomas C. Kelly. November 1960. 14 p. OTS price, $0.50.

NASA TN D-549

HEAT TRANSFER MEASUREMENTS AT A MACH NUMBER OF 4.95 ON TWO 60° SWEPT DELTA WINGS WITH BLUNT LEADING EDGES AND DIHEDRAL ANGLES OF 0° AND 45°. P. Calvin Stainback. January 1961. 50 p. OTS price, $1.25.

NASA TN D-550

HEAT TRANSFER MEASUREMENTS ON THE APEXES OF TWO 60° SWEPTBACK DELTA WINGS (PANEL SEMIAPEX ANGLE OF 30°) HAVING 0° AND 45° DIHEDRAL AT A MACH NUMBER OF 4.95. Charles R. Gunn. January 1961. 51 p. OTS price, $1.50.

NASA TN D-629

AN EXPLORATORY STUDY OF A PARAWING AS A HIGH-LIFT DEVICE FOR AIRCRAFT. Rodger L. Naeseth. November 1960. 31 p. OTS price, $1.00.

NASA TN D-631

CHARACTERISTICS AT MACH NUMBER OF 2.03 OF A SERIES OF WINGS HAVING VARIOUS SPANWISE DISTRIBUTIONS OF THICKNESS RATIO AND CHORD. A. Warner Robins, Roy V. Harris, Jr., and Charlie M. Jackson, Jr. October 1960. 26 p. OTS price, $0.75.

NASA TN D-649

LOADS INDUCED ON A FLAT-PLATE WING BY AN AIR JET EXHAUSTING PERPENDICULARLY THROUGH THE WING AND NORMAL TO A FREE-STREAM FLOW OF MACH NUMBER 2.0. Joseph J. Janos. March 1961. 21 p. OTS price, $0.75.

NASA TN D-657

A THEORETICAL INVESTIGATION OF VORTEX-SHEET DEFORMATION BEHIND A HIGHLY LOADED WING AND ITS EFFECT ON LIFT. Clarence D. Cone, Jr. April 1961. 58 p. OTS price, $1.50.

NASA TN D-688

SURFACE PRESSURES AND HEAT TRANSFER ON UNSWEPT BLUNT PLATES IN HELIUM AT HIGH MACH NUMBERS. Joseph G. Marvin. March 1961. 29 p. OTS price, $0.75.

NASA TN D-689

THE FLOW FIELD OVER BLUNTED FLAT PLATES AND ITS EFFECT ON TURBULENT BOUNDARY LAYER GROWTH AND HEAT TRANSFER AT A MACH NUMBER OF 4.7. Thorval Tendeland, Helmer L. Nielsen, and Melvin J. Fohrman. February 1961. 59 p. OTS price, $1.50.

NASA TN D-712

INVESTIGATION AT TRANSONIC SPEEDS OF THE LOADING OVER A 45° SWEPTBACK WING HAVING AN ASPECT RATIO OF 3, A TAPER RATIO OF 0.2, AND NACA 65A004 AIRFOIL SECTIONS. Jack F. Runckel and Edwin E. Lee, Jr. May 1961. 93 p. OTS price, $2.25.

NASA TN D-788

SUBSONIC LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF DISKS WITH ELLIPTIC CROSS SECTIONS AND THICKNESS-DIAMETER RATIOS FROM 0.225 TO 0.425. Fred A. Demele and Jack J. Brownson. April 1961. 25 p. OTS price, $0.75.

NASA TN D-797

STATIC LONGITUDINAL AERODYNAMIC CHARACTERISTICS AT TRANSONIC SPEEDS OF A BLUNTED RIGHT TRIANGULAR PYRAMIDAL LIFTING REENTRY CONFIGURATION FOR ANGLES OF ATTACK UP TO 110°. John P. Mugler, Jr., and Walter B. Olstad. June 1961. 38 p. OTS price, $1.00.

NASA TN D-801

A METHOD OF DETERMINING AERODYNAMIC-INFLUENCE COEFFICIENTS FROM WIND-TUNNEL DATA FOR WINGS AT SUPERSONIC SPEEDS. Patrick A. Gainer. April 1961. 34 p.

NASA TN D-833

EXPERIMENTAL STUDIES OF FLUTTER OF BUCKLED RECTANGULAR PANELS AT MACH NUMBERS FROM 1.2 TO 3.0 INCLUDING EFFECTS OF PRESSURE DIFFERENTIAL AND OF PANEL WIDTH-LENGTH RATIO. Maurice A. Sylvester. May 1961. 37 p. OTS price, $1.00.

NASA TN D-869

TURBULENT SKIN-FRICTION AND HEAT-TRANSFER COEFFICIENTS FOR AN INCLINED FLAT PLATE AT HIGH HYPERSONIC SPEEDS IN TERMS OF FREESTREAM FLOW PROPERTIES. James F. Schmidt. May 1961. 58 p. OTS price, $1.50.

NASA TN D-896

LOW-SPEED INVESTIGATION OF THE EFFECTS OF FREQUENCY AND AMPLITUDE OF OSCILLATION IN SIDESLIP ON THE LATERAL STABILITY DERIVATIVES OF A 60° DELTA WING, A 45° SWEPTBACK WING, AND AN UNSWEPT WING. Jacob H. Lichtenstein and James L. Williams. May 1961. 19 p. OTS price, $0.50.

NASA TN D-900

AERODYNAMIC LOAD MEASUREMENTS AND OPENING CHARACTERISTICS OF AUTOMATIC LEADING-EDGE SLATS ON A 45° SWEPTBACK WING AT TRANSONIC SPEEDS. Donald D. Arabian, Jack F. Runckel, and Charles F. Reid, Jr. September 1961. 49 p. OTS price, $1.25.

NASA TN D-926

AERODYNAMIC CHARACTERISTICS OF LOW-ASPECT-RATIO WINGS IN CLOSE PROXIMITY TO THE GROUND. Marvin P. Fink and James L. Lastinger. July 1961. 37 p. OTS price, $1.00.

NASA TN D-929

EFFECTS AT MACH NUMBERS OF 1.61 AND 2.01 OF CAMBER AND TWIST ON THE AERODYNAMIC CHARACTERISTICS OF THREE SWEPT WINGS HAVING THE SAME PLANFORM. Emma Jean Landrum and K. R. Czarnecki. August 1961. 48 p. OTS price, $1.25.

NASA TN D-1066

TRANSITION OF THE LAMINAR BOUNDARY LAYER ON A DELTA WING WITH 74° SWEEP IN FREE FLIGHT AT MACH NUMBERS FROM 2.8 TO 5.3. Gary T. Chapman. August 1961. 42 p. OTS price, $1.25.

NASA TN D-1071

EFFECTS OF MACH NUMBER, LEADING-EDGE BLUNTNESS, AND SWEEP ON BOUNDARY LAYER TRANSITION ON A FLAT PLATE. Don W. Jillie and Edward J. Hopkins. September 1961. 30 p. OTS price, $0.75.

NASA TN D-1075

SOME EFFECTS OF LEADING-EDGE SWEEP ON BOUNDARY LAYER TRANSITION AT SUPERSONIC SPEEDS. Gary T. Chapman. September 1961. 33 p. OTS price, $1.00.

NASA MEMO 10-5-58A

LIFT, DRAG, AND PITCHING MOMENT OF AN ASPECT-RATIO-2 TRIANGULAR WING WITH LEADING-EDGE FLAPS DESIGNED TO SIMULATE CONICAL CAMBER. Gene P. Menees. December 1958. 30 p.

NASA MEMO 10-12-58L

TESTS OF AERODYNAMICALLY HEATED MULTIWEB WING STRUCTURES IN A FREE JET AT MACH NUMBER 2. THREE MODELS OF 20-INCH CHORD AND SPAN CONSTRUCTED FROM MAGNESIUM, TITANIUM, AND ALUMINUM ALLOYS, RESPECTIVELY. John R. Davidson and Richard Rosecrans. October 1958. 22 p. diagrs., photos., tabs., film suppl. available on request.

NASA MEMO 10-20-58L

BASIC PRESSURE MEASUREMENTS AT TRANSONIC SPEEDS ON A THIN 45° SWEPTBACK HIGHLY TAPERED WING WITH SYSTEMATIC SPANWISE TWIST VARIATIONS. UNTWISTED WING. John P. Mugler, Jr. December 1958. 93 p. diagrs., tabs.

NASA MEMO 12-15-58L

FREE-FLIGHT INVESTIGATION OF A ROCKET-PROPELLED MODEL TO DETERMINE THE AERODYNAMIC HEATING ON A THIN, UNSWEPT, UNTAPERED, MULTISPAR, ALUMINUM-ALLOY WING AT MACH NUMBERS UP TO 2.22. Emily W. Stephens. January 1959. 38 p. diagrs., photos.

NASA MEMO 12-26-58A

THE EFFECT OF LEADING-EDGE SWEEP AND SURFACE INCLINATION ON THE HYPERSONIC FLOW FIELD OVER A BLUNT FLAT PLATE. Marcus O. Creager. January 1959. 45 p. diagrs., photo., tabs.

NASA MEMO 12-28-58L

BASIC PRESSURE MEASUREMENTS AT TRANSONIC SPEEDS ON A THIN 45° SWEPTBACK HIGHLY TAPERED WING WITH SYSTEMATIC SPANWISE TWIST VARIATIONS. WING WITH LINEAR SPANWISE TWIST VARIATIONS. John P. Mugler, Jr. January 1959. 91 p. diagrs., tabs.

NASA MEMO 1-10-59A

TWO-DIMENSIONAL SUPERSONIC, LINEARIZED FLOW WITH HEAD ADDITION. Harvard Lomax. February 1959. 35 p. diagrs.

NASA MEMO 1-11-59E

EXPERIMENTAL INVESTIGATION OF AERODYNAMIC EFFECTS OF EXTERNAL COMBUSTION IN AIRSTREAM BELOW TWO-DIMENSIONAL SUPERSONIC WING AT MACH 2.5 AND 3.0. Robert G. Dorsch, John S. Serafini, Edward A. Fletcher, and I. Irving Pinkel. March 1959. 19 p. diagrs., photo., tab.

NASA MEMO 1-30-59L

EFFECTS OF CROSS-SECTIONAL SHAPE, SOLIDITY, AND DISTRIBUTION OF HEAT-TRANSFER COEFFICIENT ON THE TORSIONAL STIFFNESS OF THIN WINGS SUBJECTED TO AERODYNAMIC HEATING. Robert G. Thomson. February 1959. 31 p. diagrs.

NASA MEMO 2-9-59L

AN EXPERIMENTAL STUDY AT A MACH NUMBER OF 3 OF THE EFFECT OF TURBULENCE LEVEL AND SANDPAPER-TYPE ROUGHNESS ON TRANSITION ON A FLAT PLATE. Robert A. Jones. March 1959. 43 p. diagrs., photos., tab.

NASA MEMO 2-20-59L

TABLES FOR THE RAPID ESTIMATION OF DOWNWASH AND SIDEWASH BEHIND WINGS PERFORMING VARIOUS MOTIONS AT SUPERSONIC SPEEDS. Percy J. Bobbitt. May 1959. 177 p. diagrs., tabs.

NASA MEMO 2-24-59L

BASIC PRESSURE MEASUREMENTS AT TRANSONIC SPEEDS ON A THIN 45° SWEPTBACK HIGHLY TAPERED WING WITH SYSTEMATIC SPANWISE TWIST VARIATIONS. WING WITH QUADRATIC SPANWISE TWIST VARIATION. John P. Mugler, Jr. April 1959. 148 p. diagrs., tabs.

NASA MEMO 2-27-59A

LOW-SPEED TESTS OF SEMISPAN-WING MODELS AT ANGLES OF ATTACK FROM 0° TO 180°. David G. Koenig. April 1959. 21 p. diagrs.

NASA MEMO 2-27-59L

LOCAL HEAT TRANSFER AND RECOVERY TEMPERATURES ON A YAWED CYLINDER AT A MACH NUMBER OF 4.15 AND HIGH REYNOLDS NUMBERS. Ivan E. Beckwith and James J. Gallagher. April 1959. 59 p. diagrs., photos., tab.

NASA MEMO 3-7-59L

INFLUENCE OF LARGE POSITIVE DIHEDRAL ON HEAT TRANSFER TO LEADING EDGES OF HIGHLY SWEPT WINGS AT VERY HIGH MACH NUMBERS. Morton Cooper and P. Calvin Stainback. April 1959. 18 p. diagrs.

NASA MEMO 3-17-59E

ANALYSIS AND EVALUATION OF SUPERSONIC UNDERWING HEAT ADDITION. Roger W. Luidens and Richard J. Flaherty. APPENDIX C: DERIVATION OF EFFECT OF SUPERSONIC UNDERWING HEAT ADDITION FROM POTENTIAL-FLOW EQUATIONS. Stephen H. Maslen. April 1959. 55 p. diagrs.

NASA MEMO 4-3-59L

FORMULAS PERTINENT TO THE CALCULATION OF FLOW-FIELD EFFECTS AT SUPERSONIC SPEEDS DUE TO WING THICKNESS. Kenneth Margolis and Miriam H. Elliott. May 1959. 26 p. diagrs.

NASA MEMO 4-18-59A

PREDICTED STATIC AEROELASTIC EFFECTS ON WINGS WITH SUPERSONIC LEADING EDGES AND STREAMWISE TIPS. Stuart C. Brown. April 1959. 38 p. diagrs., tabs.

NASA MEMO 4-27-59E

HEAT TRANSFER FROM CYLINDERS IN TRANSITION FROM SLIP FLOW TO FREE-MOLECULE FLOW. Ronald J. Cybulski and Lionel V. Baldwin. May 1959. 49 p. diagrs., tabs.

NASA MEMO 4-30-59L

TRANSONIC AERODYNAMIC CHARACTERISTICS OF TWO WEDGE AIRFOIL SECTIONS INCLUDING UNSTEADY FLOW STUDIES. Patrick J. Johnston. June 1959. 45 p. diagrs., photos.

NASA MEMO 5-1-59H

FLOW CHARACTERISTICS ABOUT TWO THIN WINGS OF LOW ASPECT RATIO DETERMINED FROM SURFACE PRESSURE MEASUREMENTS OBTAINED IN FLIGHT AT MACH NUMBERS FROM 0.73 TO 1.90. Norman V. Taillon. May 1959. 42 p.

NASA MEMO 5-12-59A

SURFACE PRESSURE DISTRIBUTION AT HYPERSONIC SPEEDS FOR BLUNT DELTA WINGS AT ANGLE OF ATTACK. Marcus O. Creager. May 1959. 15 p. diagrs., photo.

NASA MEMO 5-12-59L

BASIC PRESSURE MEASUREMENTS AT TRANSONIC SPEEDS ON A THIN 45° SWEPTBACK HIGHLY TAPERED WING WITH SYSTEMATIC SPANWISE TWIST VARIATIONS. WING WITH CUBIC SPANWISE TWIST VARIATION. John P. Mugler, Jr. June 1959. 148 p. diagrs., tabs.

NASA MEMO 6-1-59L

CHORDWISE PRESSURE DISTRIBUTIONS OVER SEVERAL NACA 16-SERIES AIRFOILS AT TRANSONIC MACH NUMBERS UP TO 1.25. Charles L. Ladson. June 1959. 285 p. diagrs., photos., tabs.

NASA TM X-8

AERODYNAMIC CHARACTERISTICS AT MACH NUMBERS FROM 1.6 TO 2.8 OF 74° SWEPT ARROW WINGS WITH AND WITHOUT CAMBER AND TWIST. Dennis F. Hasson, Ann B. Fichter, and Norman Wong. September 1959. 38 p.

NASA TM X-22

LIFT, DRAG, AND PITCHING MOMENTS OF AN ARROW WING HAVING 80° OF SWEEPBACK AT MACH NUMBERS FROM 2.48 TO 3.51 AND REYNOLDS NUMBERS UP TO 11.0 MILLION. Edward J. Hopkins, Don W. Jillie, and Alan D. Levin. August 1959. 43 p.

NASA TM X-135

TRANSONIC FLUTTER CHARACTERISTICS OF A 45° SWEPTBACK WING WITH VARIOUS DISTRIBUTIONS OF BALLAST ALONG THE LEADING EDGE. John R. Unangst. December 1959. 32 p. diagrs., tabs.

NASA TM X-136

TRANSONIC FLUTTER CHARACTERISTICS OF AN ASPECT-RATIO-4, 45° SWEPTBACK, TAPER-RATIO-0.2 PLAN FORM. John R. Unangst. December 1959. 29 p. diagrs., tabs.

NASA TM X-186

TESTS OF AERODYNAMICALLY HEATED MULTI-WEB WING STRUCTURES IN A FREE JET AT MACH NUMBER 2. FIVE ALUMINUM-ALLOY MODELS OF 20-INCH-CHORD WITH 0.064-INCH-THICK SKIN, 0.025-INCH-THICK WEBS, AND VARIOUS CHORDWISE STIFFENING AT 2° ANGLE OF ATTACK. Donald H. Trussell and Robert G. Thomson. January 1960. 33 p. diagrs., photos., tabs., film suppl. available on request.

NASA TM X-332

AERODYNAMIC CHARACTERISTICS AT MACH NUMBER 2.05 OF A SERIES OF HIGHLY SWEPT ARROW WINGS EMPLOYING VARIOUS DEGREES OF TWIST AND CAMBER. Harry W. Carlson. October 1960. 34 p.

NASA RE 11-21-58W

ON THE STABILITY OF A PANEL MOVING IN A GAS. (Ob Ustoichivosti Paneli, Dvizhushcheisia v Gaze.) A. A. Movchan. January 1959. 23 p. diagrs.

NASA RE 11-22-58W

ON VIBRATIONS OF A PLATE MOVING IN A GAS. (O kolebaniiakh plactinki dvizhushcheisia v gaze.) A. A. Movchan. January 1959. 19 p. diagrs.

NASA RE 3-2-59W

NONLINEAR AIRFOIL THEORY FOR RECTANGULAR WINGS IN COMPRESSIBLE FLOW. (Nichtlineare Tragflächentheorie für Rechteckflügel bei inkompressibler Strömung.) Klaus Gersten. February 1959. 14 p. diagrs., tab.

NASA TT F-26

ON THE RELATION BETWEEN THE GENERATION OF A LIFT FORCE ON A WING AND THE CHARACTER OF THE FLOW IN THE BOUNDARY LAYER. I. V. Ostoslavskii and T. A. Grumondz. May 1960. 12 p. OTS price, $0.50.

NASA TT F-31

ON THE COMPUTATION OF THE CIRCULATION OF A GLIDING WING OF LARGE SPAN. N. M. Monakhov. June 1960. 11 p. OTS price, $0.50.

NASA TT F-58

UNSTEADY MOTION OF A WING OF FINITE SPAN IN A COMPRESSIBLE MEDIUM. E. A. Krasilshchikova. May 1961. 19 p.

NASA TT F-71

THE LAMINAR BOUNDARY LAYER AT HYPERSONIC SPEEDS. (Sullo strato limite laminare in corrente ipersonica.) Carlo Ferrari. September 1961. 56 p. OTS price, $1.50.
(NASA TECHNICAL TRANSLATION F-71. Translation from Aerotecnica, v. 36, no. 2, April 1956, p. 68-94 (Italy).)

A METHOD OF REDUCING AEROELASTIC EFFECTS OF HIGHLY SWEPT WINGS. Edward J. Hopkins, Don W. Jillie, and Raymond M. Hicks, NASA. Reprint from Journal of the Aerospace Sciences, v. 27, no. 8, August 1960, p. 634-635.

A POINT SOURCE TRANSIENT PRESSURE MEASUREMENT SYSTEM, APPENDIX TO INTERACTION OF BLAST WAVES WITH WINGS, PART I. R. W. Morton, NASA. Ten-Foot Diameter Free Jet Shock Tube, by H. B. Pierce, Proceedings, Third Shock Tube Symposium, Old Point Comfort, Fort Monroe, Virginia, March 10-12, 1959. Air Force Special Weapons Center SWR-TM-59-2, 1959, p. 277-291.

FLOW MODELS IN BOUNDARY LAYER STALL INCEPTION. V. A. Sandborn and S. J. Kline, Lewis Research Center, NASA. Paper, ASME 60-WA-149 Winter Annual Meeting, American Society of Mechanical Engineers, New York, New York, November 27-December 2, 1960.

HIGH-ALTITUDE HYPERVELOCITY FLOW OVER SWEPT BLUNT GLIDER WINGS. M. O. Creager, NASA. Paper, IAS 59-113, Institute of Aerospace Sciences, 1959.

INTERACTION OF BLAST WAVES WITH WINGS. PART I, TEN-FOOT DIAMETER FREE JET SHOCK TUBE. H. B. Pierce, NASA. Proceedings, Third Shock Tube Symposium, Old Point Comfort, Fort Monroe, Virginia, March 10-12, 1959. Air Force Special Weapons Center SWR-TM-59-2, 1959, p. 271-275; appendix p. 277-291.

INTERACTION OF THE BLAST WAVE WITH WINGS. PART II. WAVE-TABLE STUDIES. D. R. McFarland, NASA. Proceedings, Third Shock Tube Symposium, Old Point Comfort, Fort Monroe, Virginia, March 19-21, 1959. Air Force Special Weapons Center SWR-TM-59-2, 1959, p. 293-300.

AERODYNAMICS OF CONTROL SURFACES

NASA TN D-32

A LIMITED FLIGHT AND WIND-TUNNEL INVESTIGATION OF PADDLE SPOILERS AS LATERAL CONTROLS. Robert G. Mungall, Harold I. Johnson, and William L. Alford. September 1959. 20 p. diagrs., photos. OTS price, $0.50.

NASA TN D-116

AERODYNAMIC DAMPING AT MACH NUMBERS OF 1.3 AND 1.6 OF A CONTROL SURFACE ON A TWO-DIMENSIONAL WING BY THE FREE-OSCILLATION METHOD. W. J. Tuovila and Robert W. Hess. February 1960. 21 p. diagrs., tabs. OTS price, $0.75.

NASA TN D-124

STATIC TESTS OF AN EXTERNAL-FLOW JET-AUGMENTED FLAP TEST BED WITH A TURBOJET ENGINE. Marvin P. Fink. December 1959. 19 p. diagrs., photos. OTS price, $0.50.

NASA TN D-236

PRESSURE DISTRIBUTIONS AND AERODYNAMIC CHARACTERISTICS OF SEVERAL SPOILER CONTROLS ON A 40° SWEPTBACK WING AT A MACH NUMBER OF 1.61. Emma Jean Landrum and K. R. Czarnecki. April 1960. 66 p. diagrs., tab. OTS price, $1.75.

NASA TN D-241

A FLIGHT INVESTIGATION OF AN ACCELERATION RESTRICTOR. Arthur Assadourian and Donald L. Mallick. April 1960. 29 p. diagrs., photos. OTS price, $0.75.

NASA TN D-250

MEASUREMENT OF AERODYNAMIC HEAT TRANSFER TO A DEFLECTED TRAILING-EDGE FLAP ON A DELTA FIN IN FREE FLIGHT AT MACH NUMBERS FROM 1.5 TO 2.6. Leo T. Chauvin and James J. Buglia. June 1960. 18 p. OTS price, $0.50.

NASA TN D-363

INVESTIGATION OF THE AERODYNAMIC CHARACTERISTICS OF A COMBINATION JET-FLAP AND DEFLECTED-SLIPSTREAM CONFIGURATION AT ZERO AND LOW FORWARD SPEEDS. Kenneth P. Spreemann and Edwin E. Davenport. May 1960. 72 p. OTS price, $2.00.

NASA TN D-379

SUBSONIC KERNEL-FUNCTION FLUTTER ANALYSIS OF A HIGHLY TAPERED TAIL SURFACE AND COMPARISON WITH EXPERIMENTAL RESULTS. Gerald D. Walberg. September 1960. 37 p. OTS price, $1.00.

NASA TN D-383

THEORETICAL CALCULATIONS OF THE PRESSURES, FORCES, AND MOMENTS DUE TO VARIOUS LATERAL MOTIONS ACTING ON TAPERED SWEPTBACK VERTICAL TAILS WITH SUPERSONIC LEADING AND TRAILING EDGES. Kenneth Margolis and Miriam H. Elliott. August 1960. 126 p. OTS price, $2.75.

NASA TN D-434

LOW-SPEED INVESTIGATION OF A FULL-SPAN INTERNAL-FLOW JET-AUGMENTED FLAP ON A HIGH-WING MODEL WITH A 35° SWEPT WING OF ASPECT RATIO 7.0. Thomas R. Turner. August 1960. 42 p. OTS price, $1.25.

NASA TN D-522

EFFECT OF BODY-MOUNTED LATERAL CONTROLS AND SPEED BRAKES ON THE AERODYNAMIC LOAD DISTRIBUTION OVER A 45° SWEPT WING AT MACH NUMBERS FROM 0.80 TO 0.98. F. E. West, Jr. November 1960. 72 p. OTS price, $2.00.

NASA TN D-1033

STATIC STABILITY AND CONTROL OF CANARD CONFIGURATIONS AT MACH NUMBERS FROM 0.70 TO 2.22 - TRIANGULAR WING AND CANARD WITH VERTICAL TAILS. Victor L. Peterson. June 1961. 38 p. OTS price, $1.00.

NASA MEMO 1-27-59L

LOW-SPEED WIND-TUNNEL INVESTIGATION TO DETERMINE THE AERODYNAMIC CHARACTERISTICS OF A RECTANGULAR WING EQUIPPED WITH A FULL-SPAN AND AN INBOARD HALF-SPAN JET-AUGMENTED FLAP DEFLECTED 55°. Thomas G. Gainer. February 1959. 21 p. diagrs.

NASA MEMO 4-23-59L

ANALYTICAL INVESTIGATION OF A FLICKER-TYPE ROLL CONTROL FOR A MACH NUMBER 6 MISSILE WITH AERODYNAMIC CONTROLS OVER AN ALTITUDE RANGE OF 82,000 TO 282,000 FEET. Reginald R. Lundstrom and Ruth I. Whitman. May 1959. 50 p. diagrs., tabs.

NASA MEMO 5-20-59A

AN EXPERIMENTAL INVESTIGATION OF THE EFFECT OF A CANARD CONTROL ON THE LIFT, DRAG, AND PITCHING MOMENT OF AN ASPECT-RATIO-2.0 TRIANGULAR WING INCORPORATING A FORM OF CONICAL CAMBER. Gene P. Menees and John W. Boyd. May 1959. 29 p.

NASA TM X-123

EFFECT OF WING THICKNESS AND SWEEP ON THE OSCILLATING HINGE-MOMENT AND FLUTTER CHARACTERISTICS OF A FLAP-TYPE CONTROL AT TRANSONIC SPEEDS. William C. Moseley, Jr., and Thomas G. Gainer. October 1959. 39 p.

AERODYNAMICS OF DECELERATORS AT SUPERSONIC SPEEDS. Julian D. Maynard, NASA. Reprint from Proceedings of the Recovery of Space Vehicles Symposium, Los Angeles, California, August 31-September 1, 1960. Sponsored by Institute of the Aeronautical Sciences and ARDC.

INTERPRETATION AND APPLICABILITY OF RESULTS OF WIND-TUNNEL FLUTTER AND CONTROL SURFACE BUZZ INVESTIGATIONS. A. Gerald Rainey. (Presented at joint meeting of AGARD Wind Tunnel and Model Testing Panel and Structures and Materials Panel, Copenhagen, Denmark, October 20-21, 1958.) 11 p. & diagrs.

AERODYNAMICS OF INLETS, DUCTS, AND NOZZLES

NASA TR R-6

EXPERIMENTAL AND THEORETICAL STUDIES OF AXISYMMETRIC FREE JETS. Eugene S. Love, Carl E. Grigsby, Louise P. Lee, and Mildred J. Woodling. 1959. iii, 292 p. GPO price, $2.25.

NASA TR R-31

ANALYSIS OF TURBULENT FLOW AND HEAT TRANSFER IN NONCIRCULAR PASSAGES. Robert G. Deissler and Maynard F. Taylor. 1959. i, 18 p. diagrs. GPO price, $0.30.

NASA TR R-33

DESIGN OF AXISYMMETRIC EXHAUST NOZZLES BY METHOD OF CHARACTERISTICS INCORPORATING A VARIABLE ISENTROPIC EXPONENT. Eleanor Costilow Guentert and Harvey E. Neumann. 1959. i, 17 p. diagrs. GPO price, $0.30.

NASA TR R-56

GRAPHICAL PRESENTATION OF DIFFERENCE SOLUTIONS FOR TRANSIENT RADIAL HEAT CONDUCTION IN HOLLOW CYLINDERS WITH HEAT TRANSFER AT THE INNER RADIUS AND FINITE SLABS WITH HEAT TRANSFER AT ONE BOUNDARY. James E. Hatch, Ralph L. Schacht, Lynn U. Albers, and Paul G. Saper. 1960. i, 49 p. diagrs.

NASA TN D-257

PERFORMANCE INVESTIGATION OF A NONPUMPING ROCKET-EJECTOR SYSTEM FOR ALTITUDE SIMULATION. Anthony Fortini. December 1959. 33 p. diagrs. OTS price, $1.00.

NASA TN D-293

PERFORMANCE OF SEVERAL METHOD-OF-CHARACTERISTICS EXHAUST NOZZLES. John M. Farley and Carl E. Campbell. October 1960. 33 p. OTS price, $1.00.

NASA TN D-294

TURBULENCE STUDIES OF A RECTANGULAR SLOTTED NOISE-SUPPRESSOR NOZZLE. James C. Laurence. September 1960. 85 p. OTS price, $2.25.

NASA TN D-298

EXPERIMENTAL EVALUATION OF ROCKET EXHAUST DIFFUSERS FOR ALTITUDE SIMULATION. Joseph N. Sivo, Carl L. Meyer, and Daniel J. Peters. July 1960. 43 p. OTS price, $1.25.

NASA TN D-388

TRANSONIC PERFORMANCE CHARACTERISTICS OF SEVERAL JET NOISE SUPPRESSORS. James W. Schmeer, Leland B. Salters, Jr., and Marlow D. Cassetti. July 1960. 48 p. OTS price, $1.25.

NASA TN D-418

STATIC THRUST OF AN ANNULAR NOZZLE WITH A CONCAVE CENTRAL BASE. Blake W. Corson, Jr., and Charles E. Mercer. September 1960. 18 p. OTS price, $0.50.

NASA TN D-467

PERFORMANCE OF SEVERAL CONICAL CONVERGENT-DIVERGENT ROCKET-TYPE EXHAUST NOZZLES. C. E. Campbell and J. M. Farley. September 1960. 31 p. OTS price, $1.00.

NASA TN D-468

DISTRIBUTION OF TIME-AVERAGED PRESSURE FLUCTUATIONS ALONG THE BOUNDARY OF A ROUND SUBSONIC JET. Walton L. Howes. October 1960. 20 p. OTS price, $0.50.

NASA TN D-544

MEASURED BASE PRESSURES ON SEVERAL TWIN ROCKET-NOZZLE CONFIGURATIONS AT MACH NUMBERS OF 0.6 TO 1.4 WITH EFFECTS DUE TO NOZZLE CANTING AND STABILIZING FINS. James M. Cubbage and Earl H. Andrews, Jr. October 1960. 19 p. OTS price, $0.50.

NASA TN D-660

EFFECTS OF VARIOUS ARRANGEMENTS OF SLOTTED AND ROUND JET EXITS ON THE LIFT AND PITCHING-MOMENT CHARACTERISTICS OF A RECTANGULAR-BASE MODEL AT ZERO FORWARD SPEED. Raymond D. Vogler. February 1961. 25 p. OTS price, $0.75.

NASA TN D-693

CHARTS FOR AIR-FLOW PROPERTIES IN EQUILIBRIUM AND FROZEN FLOWS IN HYPERVELOCITY NOZZLES. Kenneth K. Yoshikawa and Elliott D. Katzen. April 1961. 70 p. OTS price, $1.75.

NASA TN D-743

AERODYNAMIC INTERACTION EFFECTS AHEAD OF A SONIC JET EXHAUSTING PERPENDICULARLY FROM A FLAT PLATE INTO A MACH NUMBER 6 FREE STREAM. David J. Romeo and James R. Sterrett. April 1961. 26 p. OTS price, $0.75.

NASA TN D-751

INVESTIGATION OF A RETROROCKET EXHAUSTING FROM THE NOSE OF A BLUNT BODY INTO A SUPERSONIC FREE STREAM. Nickolai Charczenko and Katherine W. Hennessey. September 1961. 30 p. OTS price, $0.75.

NASA TN D-754

THE EFFECT ON THRUST MINUS BASE DRAG OF EXCHANGING BASE AREA FOR NOZZLE EXPANSION IN SUPERSONIC NOZZLES AT TRANSONIC MACH NUMBERS. Travis H. Slocumb, Jr., and Earl H. Andrews, Jr. April 1961. 30 p. OTS price, $0.75.

NASA TN D-762

INTERNAL-PERFORMANCE EVALUATION OF A TWO-POSITION DIVERGENT SHROUD EJECTOR. James R. Mihaloew and Andrew J. Stofan. January 1961. 19 p. OTS price, $0.50.

NASA TN D-763

INTERNAL-PERFORMANCE EVALUATION OF TWO FIXED-DIVERGENT-SHROUD EJECTORS. James R. Mihaloew. January 1961. 30 p. OTS price, $0.75.

NASA TN D-784

AN EXPERIMENTAL INVESTIGATION OF THE FLOW IN AN AXISYMMETRIC INTERNAL-COMPRESSION INLET FOR M=2.75. Earl C. Watson and William P. Peterson. April 1961. 56 p. OTS price, $1.50.

NASA TN D-846

EXPERIMENTAL STUDY OF EFFECTS OF GEOMETRIC VARIABLES ON PERFORMANCE OF CONICAL ROCKET-ENGINE EXHAUST NOZZLES. Harry E. Bloomer, Robert J. Antl, and Paul E. Renas. June 1961. 61 p. OTS price, $1.75.

NASA TN D-854

INVESTIGATION OF AN AXISYMMETRIC INTERNAL COMPRESSION INLET AT A MACH NUMBER OF ABOUT 3.8. John H. Lundell, Richard Scherrer, and Lewis A. Anderson. June 1961. 31 p. OTS price, $1.00.

NASA TN D-1049

ANNULAR INTERNAL-EXTERNAL-EXPANSION ROCKET NOZZLES FOR LARGE BOOSTER APPLICATIONS. James F. Connors, Robert W. Cubbison, and Glenn A. Mitchell. September 1961. 31 p. OTS price, $1.00.

NASA MEMO 12-21-58L

THE TOTAL-PRESSURE RECOVERY AND DRAG CHARACTERISTICS OF SEVERAL AUXILIARY INLETS AT TRANSONIC SPEEDS. John S. Dennard. March 1959. 58 p. diagrs., photos.

NASA MEMO 1-4-59L

EFFECT OF AFTERBODY-EJECTOR CONFIGURATIONS ON THE PERFORMANCE AT TRANSONIC SPEEDS OF A PYLON-SUPPORTED NACELLE MODEL HAVING A HOT-JET EXHAUST. John M. Swihart, Charles E. Mercer, and Harry T. Norton, Jr. February 1959. 53 p.

NASA MEMO 1-5-59E

ESTIMATED PERFORMANCE OF RADIAL-FLOW EXIT NOZZLES FOR AIR IN CHEMICAL EQUILIBRIUM. Gerald W. Englert and Fred D. Kochendorfer. February 1959. 53 p. diagrs.

NASA MEMO 1-9-59E

EXPERIMENTAL INVESTIGATION OF EXPANDED DUCT SECTIONS AND SCREENS FOR REDUCING FLOW DISTORTIONS AT SUBSONIC FLOWS. Bruce G. Chiccine and Kaleel L. Abdalla. May 1959. 27 p. diagrs., tab.

NASA MEMO 1-10-59E

PRESSURE DRAG OF AXISYMMETRIC COWLS HAVING LARGE INITIAL LIP ANGLES AT MACH NUMBERS FROM 1.90 TO 4.90. Nick E. Samanich. January 1959. 15 p. diagrs., photos., tabs.

NASA MEMO 5-18-59E

PERFORMANCE CHARACTERISTICS OF FLUSH AND SHIELDED AUXILIARY EXITS AT MACH NUMBERS OF 1.5 TO 2.0. Kaleel L. Abdalla. June 1959. 21 p.

NASA MEMO 5-28-59L

INVESTIGATION ON THE USE OF A FREELY ROTATING ROTOR AT THE COWL FACE OF A SUPERSONIC CONICAL INLET TO REDUCE INLET FLOW DISTORTION. Theodore J. Goldberg and Emanuel Boxer. June 1959. 45 p.

NASA TM X-23

CHARACTERISTICS OF FIVE EJECTOR CONFIGURATIONS AT FREE-STREAM MACH NUMBERS FROM 0 TO 2.0. John L. Klann and Ronald G. Huff. August 1959. 41 p.

NASA TM X-49

EFFECT OF EXTERNAL BOUNDARY LAYER ON PERFORMANCE OF AXISYMMETRIC INLET AT MACH NUMBERS OF 3.0 AND 2.5. N. E. Samanich, D. O. Barnett, and R. J. Salmi. September 1959. 14 p.

Jet Propulsion Laboratory, California Institute of Technology. CRITERIA FOR OPTIMUM MIXTURE-RATIO DISTRIBUTION USING SEVERAL TYPES OF IMPINGING-STREAM INJECTOR ELEMENTS. G. W. Elverum, Jr., and T. F. Morey. February 25, 1959. 11 p. JPL Memo 30-5.

APPLICATION OF VARIATIONAL METHODS TO THE THERMAL ENTRANCE REGION OF DUCTS. E. M. Sparrow and R. Siegel, NASA. Reprint from International Journal of Heat and Mass Transfer, v. 1, 1960, p. 161-172.

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HEAT TRANSFER FOR LAMINAR FLOW IN DUCTS WITH ARBITRARY TIME VARIATIONS IN WALL TEMPERATURE. R. Siegel, Lewis Research Center, NASA. Journal of Applied Mechanics: Transactions of the ASME, v. 27, Series E, no. 2, June 1960, p. 241-249.

INLET AND EXIT HEADER SHAPES FOR UNIFORM FLOW THROUGH A RESISTANCE PARALLEL TO THE MAIN STREAM. M. Perlmutter, Lewis Research Center, NASA. Paper, ASME 60-WA-160, 1960 Winter Annual Meeting, American Society of Mechanical Engineers, New York, New York, November 27 - December 2, 1960. Journal of Basic Engineering; Transactions of the ASME, Series D.

INTERACTIONS BETWEEN THE EXTERNAL FLOW AND ROCKET EXHAUST NOZZLE. C. F. Schueller, NASA. Paper, IAS 59-133, Institute of the Aerospace Sciences, 1959.

MEASUREMENTS OF HEAT TRANSFER AND FRICTION COEFFICIENTS FOR HELIUM FLOWING IN A TUBE AT SURFACE TEMPERATURES UP TO 5900 R. Maynard F. Taylor and Thomas A. Kirchgessner, NASA. (Presented at the ARS Semi-Annual Meeting, San Diego, Calif., June 8-12, 1959.) Reprint from Journal of the American Rocket Society, v. 30, no. 9, September 1960, p. 830-832; 889-892.

ONE-DIMENSIONAL FLOW WITH CHEMICAL REACTION IN NOZZLE EXPANSIONS. T. W. Reynolds and L. V. Baldwin, NASA. (Presented at the Symposium on Thermodynamics of Jet and Rocket Propulsion, AIChE Fortieth National Meeting, Kansas City, May 17-20, 1959.) American Institute of Chemical Engineers Preprint 6.

REFLECTION OF WEAK SHOCK WAVES FROM NOZZLES WITH NO FLOW AND CRITICAL FLOW. C. E. Feiler, NASA. ARS Journal, v. 29, no. 4, April 1959, p. 272-275.

SIMULTANEOUS DEVELOPMENT OF VELOCITY AND TEMPERATURE DISTRIBUTIONS IN A FLAT DUCT WITH UNIFORM WALL HEATING. R. Siegel and E. M. Sparrow, NASA. American Institute of Chemical Engineers Journal, v. 5, no. 1, March 1959, p. 73-75.

SOME CONSIDERATIONS OF HYPERSONIC INLETS. James F. Connors and Leonard J. Obery, NASA. Reprint from AGARD Combustion and Propulsion, Fourth AGARD Colloquium, 1961, p. 123-134.

SUPERSONIC INLET DESIGNS. F. A. Wilcox, NASA. SAE Journal, v. 67, no. 1, January 1959, p. 68-70.

TRANSIENT HEAT TRANSFER FOR LAMINAR SLUG FLOW IN DUCTS. R. Siegel, NASA. Journal of Applied Mechanics: Transactions of the ASME, v. 26, no. 1, March 1959, p. 140-142.

TURBULENT DIFFUSION IN THE CORE OF FULLY DEVELOPED PIPE FLOW. Lionel V. Baldwin, NASA, and Thomas J. Walsh, Case Institute of Technology. Reprint from American Institute of Chemical Engineers Journal, v. 7, no. 1, March 1961, p. 53-61.

TURBULENT FLOW IN A CIRCULAR TUBE WITH ARBITRARY INTERNAL HEAT SOURCES AND WALL HEAT TRANSFER. R. Siegel and E. M. Sparrow, NASA. Journal of Heat Transfer, v. 82, no. 4, November 1959, p. 280-290.

UNSTEADY LAMINAR FLOW IN A DUCT WITH UNSTEADY HEAT ADDITION. M. Perlmutter and R. Siegel, NASA. Paper, ASME 60-WA-174, American Society of Mechanical Engineers, 1960.

UNSTEADY TURBULENT HEAT TRANSFER IN TUBES. E. M. Sparrow and R. Siegel, NASA. Reprint from Journal of Heat Transfer, v. 82, no. 3, Series C, August 1960, p. 170-180.

AERODYNAMICS OF PROPELLERS AND ROTORS

NASA TR R-41

NORMAL COMPONENT OF INDUCED VELOCITY FOR ENTIRE FIELD OF A UNIFORMLY LOADED LIFTING ROTOR WITH HIGHLY SWEPT WAKE AS DETERMINED BY ELECTROMAGNETIC ANALOG. Walter Castles, Jr., Howard L. Durham, Jr., and Jirair Kevorkian, Georgia Institute of Technology. 1959. i, 23 p. diagrs., photos., tabs. GPO price, $0.40.

NASA TR R-71

JET-BOUNDARY CORRECTIONS FOR LIFTING ROTORS CENTERED IN RECTANGULAR WIND TUNNELS. Harry H. Heyson. 1960. i, 62 p. GPO price, $0.45.

NASA TN D-31

A DYNAMIC MODEL INVESTIGATION OF THE EFFECT OF A SHARP-EDGE VERTICAL GUST ON BLADE PERIODIC FLAPPING ANGLES AND BENDING MOMENTS OF A TWO-BLADE ROTOR. John Locke McCarty, George W. Brooks, and Domenic J. Maglieri. September 1959. 39 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-35

FULL-SCALE WIND-TUNNEL INVESTIGATION OF THE LONGITUDINAL CHARACTERISTICS OF A TILTING-ROTOR CONVERTIPLANE. David G. Koenig, Richard K. Greif, and Mark W. Kelly. December 1959. 39 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-43

AN EVALUATION OF LINEARIZED VORTEX THEORY AS APPLIED TO SINGLE AND MULTIPLE ROTORS HOVERING IN AND OUT OF GROUND EFFECT. Harry H. Heyson. September 1959. 60 p. diagrs., photos., tabs., film suppl. available on request. OTS price, $1.50.

NASA TN D-73

COMPARISON OF CALCULATED AND MEASURED STALL BOUNDARIES OF A HELICOPTER ROTOR AT ADVANCE RATIOS FROM 0.3 TO 0.4. John L. McCloud III and George B. McCullough. September 1959. 28 p. diagrs., tab. OTS price, $0.75.

NASA TN D-97

A NOTE ON THE CALCULATION OF HELICOPTER PERFORMANCE AT HIGH TIP-SPEED RATIOS. Alfred Gessow. September 1959. 13 p. diagrs., tabs. OTS price, $0.50.

NASA TN D-175

DYNAMIC-MODEL INVESTIGATION OF THE DAMPING OF FLAPWISE BENDING MODES OF TWO-BLADE ROTORS IN HOVERING AND A COMPARISON WITH QUASI-STATIC AND UNSTEADY AERODYNAMIC THEORIES. Milton A. Silveira and George W. Brooks. December 1959. 30 p. diagrs., photos. OTS price, $0.75.

NASA TN D-234

GROUND EFFECT FOR LIFTING ROTORS IN FORWARD FLIGHT. Harry H. Heyson. May 1960. 14 p. OTS price, $0.50.

NASA TN D-240

A NOTE ON THE MEAN VALUE OF INDUCED VELOCITY FOR A HELICOPTER ROTOR. Harry H. Heyson. May 1960. 26 p. OTS price, $0.75.

NASA TN D-243

TABLES AND CHARTS FOR ESTIMATING STALL EFFECTS ON LIFTING-ROTOR CHARACTERISTICS. Alfred Gessow and Robert J. Tapscott. May 1960. 45 p. OTS price, $1.25.

NASA TN D-245

COMPRESSIBILITY EFFECTS ON THE HOVERING PERFORMANCE OF A TWO-BLADE 10-FOOT-DIAMETER HELICOPTER ROTOR OPERATING AT TIP MACH NUMBERS UP TO 0.98. Joseph W. Jewel, Jr. April 1960. 28 p. diagrs., photos. OTS price, $0.75.

NASA TN D-318

A WIND-TUNNEL INVESTIGATION OF THREE PROPELLERS THROUGH AN ANGLE-OF-ATTACK RANGE FROM 0° TO 85°. Paul F. Yaggy and Vernon L. Rogallo. May 1960. 81 p. OTS price, $2.25.

NASA TN D-335

FULL-SCALE WIND-TUNNEL TESTS OF BLOWING BOUNDARY-LAYER CONTROL APPLIED TO A HELICOPTER ROTOR. John L. McCloud III, Leo P. Hall, and James A. Brady. September 1960. 34 p. OTS price, $1.00.

NASA TN D-376

HIGH-TIP-SPEED STATIC-THRUST TESTS OF A ROTOR HAVING NACA $63_{(215)}$A018 AIRFOIL SECTIONS WITH AND WITHOUT VORTEX GENERATORS INSTALLED. James P. Shivers. May 1960. 21 p. OTS price, $0.75.

NASA TN D-382

EFFECT OF BLADE CUTOUT ON POWER REQUIRED BY HELICOPTERS OPERATING AT HIGH TIP-SPEED RATIOS. Alfred Gessow and F. B. Gustafson. September 1960. 18 p. OTS price, $0.50.

NASA TN D-393

MEASUREMENTS OF THE TIME-AVERAGED AND INSTANTANEOUS INDUCED VELOCITIES IN THE WAKE OF A HELICOPTER ROTOR HOVERING AT HIGH TIP SPEEDS. Harry H. Heyson. July 1960. 44 p. OTS price, $1.25.

NASA TN D-394

EQUATIONS FOR THE INDUCED VELOCITIES NEAR A LIFTING ROTOR WITH NONUNIFORM AZIMUTHWISE VORTICITY DISTRIBUTION. Harry H. Heyson. August 1960. 25 p. OTS price, $0.75.

NASA TN D-415

AN EXPERIMENTAL INVESTIGATION OF THE EFFECT OF WIND TUNNEL WALLS ON THE AERODYNAMIC PERFORMANCE OF A HELICOPTER ROTOR. Victor M. Ganzer and William H. Rae, Jr., University of Washington. May 1960. 35 p. OTS price, $1.00.

NASA TN D-458

EXPERIMENTAL SMOKE AND ELECTROMAGNETIC ANALOG STUDY OF INDUCED FLOW FIELD ABOUT A MODEL ROTOR IN STEADY FLIGHT WITHIN GROUND EFFECT. Robin B. Gray, Georgia Institute of Technology. August 1960. 32 p. OTS price, $1.00.

NASA TN D-633

AN ANALYSIS OF THE FLAPWISE BENDING FREQUENCIES AND MODE SHAPES OF ROTOR BLADES HAVING TWO FLAPPING HINGES TO REDUCE VIBRATION LEVELS. George W. Brooks and H. Wayne Leonard. December 1960. 28 p. OTS price, $0.75.

NASA TN D-659

AN ANALYTICAL TREATMENT OF AIRCRAFT PROPELLER PRECESSION INSTABILITY. Wilmer H. Reed III and Samuel R. Bland. January 1961. 53 p. OTS price, $1.50.

NASA TN D-742

HOVERING CHARACTERISTICS OF A ROTOR HAVING AN AIRFOIL SECTION DESIGNED FOR FLYING-CRANE TYPE OF HELICOPTER. James P. Shivers. April 1961. 24 p. OTS price, $0.75.

NASA TN D-759

FLIGHT INVESTIGATION OF EFFECTS OF SELECTED OPERATING CONDITIONS ON THE BENDING AND TORSIONAL MOMENTS ENCOUNTERED BY A HELICOPTER ROTOR BLADE. LeRoy H. Ludi. April 1961. 43 p. OTS price, $1.25.

NASA TN D-776

A WIND-TUNNEL INVESTIGATION OF A 4-FOOT-DIAMETER DUCTED FAN MOUNTED ON THE TIP OF A SEMISPAN WING. Paul F. Yaggy and Kenneth W. Mort. March 1961. 31 p. OTS price, $1.00.

NASA TN D-785

AERODYNAMICS OF A TILTING DUCTED FAN CONFIGURATION. Paul F. Yaggy and Kenneth W. Goodson. March 1961. 15 p. OTS price, $0.50.

NASA TN D-809

TABLES AND CHARTS OF THE NORMAL COMPONENT OF INDUCED VELOCITY IN THE LATERAL PLANE OF A ROTOR WITH HARMONIC AZIMUTHWISE VORTICITY DISTRIBUTION. Harry H. Heyson. April 1961. 200 p. OTS price, $3.00.

NASA TN D-818

METHOD FOR CALCULATING INDUCED VELOCITIES AT THE BLADES OF A SLIGHTLY INCLINED PROPELLER WITH CONSTANT CIRCULATION. Harry H. Heyson. May 1961. 59 p. OTS price, $1.50.

NASA MEMO 11-27-58E

PERFORMANCE OF TYPICAL REAR-STAGE AXIAL-FLOW COMPRESSOR ROTOR BLADE ROW AT THREE DIFFERENT BLADE SETTING ANGLES. Marvin I. Kussoy and Daniel Bachkin. January 1959. 37 p. diagrs., photo., tabs.

NASA MEMO 1-7-59L

A WIND-TUNNEL INVESTIGATION OF ROTOR BEHAVIOR UNDER EXTREME OPERATING CONDITIONS WITH A DESCRIPTION OF BLADE OSCILLATIONS ATTRIBUTED TO PITCH-LAG COUPLING. John W. McKee and Rodger L. Naeseth. January 1959. 44 p. diagrs., photos., tabs., film suppl. available on request.

NASA MEMO 1-23-59L

MAXIMUM MEAN LIFT COEFFICIENT CHARACTERISTICS AT LOW TIP MACH NUMBERS OF A HOVERING HELICOPTER ROTOR HAVING AN NACA 64_1A012 AIRFOIL SECTION. Robert D. Powell, Jr. February 1959. 25 p. diagrs.

NASA MEMO 1-31-59L

PARASITE-DRAG MEASUREMENTS OF FIVE HELICOPTER ROTOR HUBS. Gary B. Churchill and Robert D. Harrington. February 1959. 25 p. diagrs. photos., tabs.

NASA MEMO 2-11-59E

EFFECT OF STATOR AND ROTOR ASPECT RATIO ON TRANSONIC-TURBINE PERFORMANCE. Robert Y. Wong and Daniel E. Monroe. February 1959. 27 p. diagrs., photos., tabs.

NASA MEMO 2-28-59L

COMPARISON OF MEASURED FLAPWISE STRUCTURAL BENDING MOMENTS ON A TEETERING ROTOR BLADE WITH RESULTS CALCULATED FROM THE MEASURED PRESSURE DISTRIBUTION. Alton P. Mayo. March 1959. 32 p. diagrs., photo.

NASA MEMO 3-3-59L

WIND-TUNNEL INVESTIGATION OF THE EFFECT OF ANGLE OF ATTACK AND FLAPPING-HINGE OFFSET ON PERIODIC BENDING MOMENTS AND FLAPPING OF A SMALL ROTOR. John Locke McCarty, George W. Brooks, and Domenic J. Maglieri. March 1959. 44 p. diagrs., photos., tabs.

NASA MEMO 3-9-59A

A WIND-TUNNEL INVESTIGATION OF THE STALL-FLUTTER CHARACTERISTICS OF A SUPERSONIC-TYPE PROPELLER AT POSITIVE AND NEGATIVE THRUST. Vernon L. Rogallo and Paul F. Yaggy. May 1959. 66 p. diagrs., photos., tab.

NASA MEMO 3-16-59W

EFFECT OF CASCADE PARAMETERS ON ROTATING STALL. A. H. Stenning, B. S. Seidel, and Y. Senoo, Massachusetts Institute of Technology. April 1959. 33 p. diagrs., photos.

NASA MEMO 4-15-59L

CHARTS OF THE INDUCED VELOCITIES NEAR A LIFTING ROTOR. Joseph W. Jewel, Jr., and Harry H. Heyson. May 1959. 63 p. diagrs., tab.

NASA MEMO 4-19-59L

FLIGHT PERFORMANCE OF A TRANSONIC TURBINE-DRIVEN PROPELLER DESIGNED FOR MINIMUM NOISE. Thomas C. O'Bryan and Jerome B. Hammack. May 1959. 22 p. diagrs., photo.

NASA MEMO 5-7-59L

FLIGHT INVESTIGATION OF EFFECTS OF TRANSITION, LANDING APPROACHES, PARTIAL-POWER VERTICAL DESCENTS, AND DROOP-STOP POUNDING ON THE BENDING AND TORSIONAL MOMENTS ENCOUNTERED BY A HELICOPTER ROTOR BLADE. LeRoy H. Ludi. May 1959. 38 p. diagrs., photo., tab.

NASA TT F-17

WIND-TUNNEL STUDY OF THE RESPONSE IN LIFT OF A ROTOR TO AN INCREASE IN COLLECTIVE PITCH IN THE CASE OF VERTICAL FLIGHT NEAR THE AUTOROTATIVE REGIME. (Étude en soufflerie de la réponse de la portance d'un rotor à une augmentation de pas général, dans le cas du vol vertical de descente à un régime voisin de l'autorotation.) Jean Rebont, Jacques Valensi, and Jean Soulez-Lariviere. April 1960. 4 p. OTS price, $0.50.

NASA TT F-18

RESPONSE OF ROTOR LIFT TO AN INCREASE IN COLLECTIVE PITCH IN THE CASE OF DESCENDING FLIGHT, THE REGIME OF THE ROTOR BEING NEAR AUTOROTATION. (Réponse de la portance d'un rotor à une augmentation du pas general dans le cas du vol de descente, le régime du rotor étant voisin de l'autorotation.) Jean Rebont, Jean Soulez-Lariviere, and Jacques Valensi. April 1960. 5 p. OTS price, $0.50.

Georgia Institute of Technology, Engineering Experiment Station. WIND-TUNNEL TEST RESULTS ON A SMALL SCALE-MODEL HELICOPTER ROTOR OVER THE USEFUL RANGE OF POSITIVE ROTOR ANGLES OF ATTACK AND A COMPARISON WITH THEORY. Walter Castles, Jr. April 1959. 43 p. NASA Contract NAw-6512. GIT.

FLOW ABOUT AN UNSTEADILY ROTATING DISC. E. M. Sparrow and J. L. Gregg. Journal of the Aero/Space Sciences, v. 27, no. 4, p. 252-257, April 1960.

INDUCED FLOW NEAR A ROTOR AND ITS APPLICATION TO HELICOPTER PROBLEMS. H. H. Heyson, NASA. Proceedings, 14th Annual National Forum, American Helicopter Society, Washington, D. C., April 16-19, 1959. American Helicopter Society, New York, 1959, p. 63-71.

MASS TRANSFER, FLOW, AND HEAT TRANSFER ABOUT A ROTATING DISK. E. M. Sparrow and J. L. Gregg, NASA. (Presented at the American Society of Mechanical Engineers Annual Meeting, Atlantic City, N. J., November 29 - December 4, 1959.) Reprint from Journal of Heat Transfer, v. 82, Series C, no. 4, November 1960, p. 294-302.

NOISE CHARACTERISTICS OF HELICOPTER ROTORS AT TIP SPEEDS UP TO 900 FEET PER SECOND. Harvey H. Hubbard and Domenic J. Maglieri, NASA. Reprint from the Journal of the Acoustical Society of America, v. 32, no. 9, September 1960, p. 1105-1107.

AERODYNAMICS OF COMPONENT COMBINATIONS

NASA TR R-12

EFFECT OF THE PROXIMITY OF THE WING FIRST-BENDING FREQUENCY AND THE SHORT-PERIOD FREQUENCY ON THE AIRPLANE DYNAMIC-RESPONSE FACTOR. Carl R. Huss and James J. Donegan. 1959. i, 20 p. diagrs. GPO price, $0.35.

NASA TR R-18

SEVERAL METHODS FOR AERODYNAMIC REDUCTION OF STATIC-PRESSURE SENSING ERRORS FOR AIRCRAFT AT SUBSONIC, NEAR-SONIC, AND LOW SUPERSONIC SPEEDS. Virgil S. Ritchie. 1959. i, 23 p.

NASA TR R-49

SUMMARY AND ANALYSIS OF HORIZONTAL-TAIL CONTRIBUTION TO LONGITUDINAL STABILITY OF SWEPT-WING AIRPLANES AT LOW SPEEDS. Robert H. Neely and Roland F. Griner. 1959. i, 87 p. diagrs., tabs. GPO price, $0.75.

NASA TR R-57

STATUS OF SPIN RESEARCH FOR RECENT AIRPLANE DESIGN. Anshal I. Neihouse, Walter J. Klinar, and Stanley H. Scher. 1960. ii, 54 p. diagrs., photos., tabs. GPO price, $0.55.

NASA TR R-66

A STUDY OF THE ASYMMETRIC TRANSONIC FLOW PAST A SHARP LEADING EDGE. Howard A. Stine, Cleo B. Wagoner, and Alvin L. Lugn, Jr. 1960. 70 p. GPO price, $0.60.

NASA TR R-69

CALCULATED RESPONSES OF A LARGE SWEPT-WING AIRPLANE TO CONTINUOUS TURBULENCE WITH FLIGHT-TEST COMPARISONS. Floyd V. Bennett and Kermit G. Pratt. 1960. 25 p. GPO price, $0.40.

NASA TR R-72

A SUPERSONIC AREA RULE AND AN APPLICATION TO THE DESIGN OF A WING-BODY COMBINATION WITH HIGH LIFT-DRAG RATIOS. Richard T. Whitcomb and John R. Sevier, Jr. 1960. i, 14 p. GPO price, $0.30.

NASA TR R-74

THE LATERAL RESPONSE OF AIRPLANES TO RANDOM ATMOSPHERIC TURBULENCE. John M. Eggleston and William H. Phillips. 1960. i, 59 p. GPO price, $0.55.

NASA TN D-13

EFFECTIVENESS OF AN ALL-MOVABLE HORIZONTAL TAIL ON AN UNSWEPT-WING AND BODY COMBINATION FOR MACH NUMBERS FROM 0.60 TO 1.40. Louis S. Stivers, Jr. August 1959. 23 p. diagrs., photo. OTS price, $0.75.

NASA TN D-17

WIND-TUNNEL INVESTIGATION OF EFFECT OF RATIO OF WING CHORD TO PROPELLER DIAMETER WITH ADDITION OF SLATS ON THE AERODYNAMIC CHARACTERISTICS OF TILT-WING VTOL CONFIGURATIONS IN THE TRANSITION SPEED RANGE. Robert T. Taylor. September 1959. 42 p. diagrs., photos., tab. OTS price, $1.25.

NASA TN D-19

CONSIDERATION OF SOME AERODYNAMIC CHARACTERISTICS DURING TAKE-OFF AND LANDING OF JET AIRPLANES. John M. Riebe. September 1959. 11 p. diagrs. OTS price, $0.50.

NASA TN D-25

LARGE-SCALE WIND-TUNNEL TESTS OF AN AIRPLANE MODEL WITH AN UNSWEPT, ASPECT-RATIO-10 WING, FOUR PROPELLERS, AND BLOWING FLAPS. James A. Weiberg, and V. Robert Page. September 1959. 39 p. diagrs., photo., tab. OTS price, $1.00.

NASA TN D-30

FLIGHT INVESTIGATION OF THE LIFT AND DRAG CHARACTERISTICS OF A SWEPT-WING, MULTIJET, TRANSPORT-TYPE AIRPLANE. Ronald Tambor. November 1959. 27 p. diagrs., photo., tab. OTS price, $0.75.

NASA TN D-37

EFFECTS OF BODY AND FIN DEFLECTIONS ON THE AERODYNAMIC CHARACTERISTICS IN PITCH OF A 0.065-SCALE MODEL OF A FOUR-STAGE ROCKET CONFIGURATION AT MACH NUMBERS OF 1.41 AND 1.82. Ross B. Robinson. September 1959. 33 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-44

FORCE-TEST INVESTIGATION OF THE STABILITY AND CONTROL CHARACTERISTICS OF A 1/8-SCALE MODEL OF A TILT-WING VERTICAL-TAKE-OFF-AND-LANDING AIRPLANE. Louis P. Tosti. March 1960. 127 p. diagrs., tabs. OTS price, $2.75.

NASA TN D-50

WIND-TUNNEL INVESTIGATION OF THE AERODYNAMIC CHARACTERISTICS OF A MODEL REPRESENTATIVE OF A SUPERSONIC FIGHTER-CLASS AIRPLANE WITH AN EXTERNAL-FLOW JET-AUGMENTED FLAP IN LOW-SPEED FLIGHT. William A. Newsom, Jr. September 1959. 84 p. diagrs., photo., tab. OTS price, $2.25.

NASA TN D-55

WIND-TUNNEL INVESTIGATION OF LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF THREE PROPELLER-DRIVEN VTOL CONFIGURATIONS IN THE TRANSITION SPEED RANGE, INCLUDING EFFECTS OF GROUND PROXIMITY. Richard E. Kuhn and William C. Hayes, Jr. February 1960. 128 p. diagrs., photo. OTS price, $2.75.

NASA TN D-57

LOW-SPEED WIND-TUNNEL INVESTIGATION OF A WINGLESS JET VTOL TRANSPORT MODEL. M. O. McKinney, Jr. October 1959. 77 p. diagrs., photos. OTS price, $2.00.

NASA TN D-72

FULL-SCALE WIND-TUNNEL INVESTIGATION OF THE EFFECTS OF A TARGET-TYPE THRUST REVERSER ON THE LOW-SPEED AERODYNAMIC CHARACTERISTICS OF A SINGLE-ENGINE JET AIRPLANE. William H. Tolhurst, Jr., Mark W. Kelly, and Richard K. Greif. September 1959. 42 p. diagrs., photos. OTS price, $1.25.

NASA TN D-74

AN OPTIMIZATION STUDY OF EFFECTS ON AIRCRAFT PERFORMANCE OF VARIOUS FORMS OF HEAT ADDITION. Barrett S. Baldwin, Jr. March 1960. 48 p. diagrs. OTS price, $1.25.

NASA TN D-100

AN ANALYSIS OF INCREMENTAL HORIZONTAL-TAIL LOADS MEASURED ON A SWEPT-WING BOMBER AIRPLANE IN SIDESLIP MANEUVERS. William A. McGowan. October 1959. 34 p. diagrs., photo., tabs. OTS price, $1.00.

NASA TN D-103

INVESTIGATION OF DOUBLE SLOTTED FLAPS ON A SWEPT-WING TRANSPORT MODEL. Rodger L. Naeseth and Edwin E. Davenport. October 1959. 33 p. diagrs., photo., tabs. OTS price, $1.00.

NASA TN D-112

EXPERIMENTAL INVESTIGATION OF THE PRESSURE FLUCTUATIONS ON A FLAT PLATE AND A CYLINDER IN THE SLIPSTREAM OF A HOVERING ROTOR. John W. McKee. September 1959. 15 p. diagrs., photo. OTS price, $0.50.

NASA TN D-135

FULL-SCALE WIND-TUNNEL TESTS OF A LOW-ASPECT-RATIO, STRAIGHT-WING AIRPLANE WITH BLOWING BOUNDARY-LAYER CONTROL ON LEADING- AND TRAILING-EDGE FLAPS. Mark W. Kelly, William H. Tolhurst, Jr., and Ralph L. Maki. September 1959. 24 p. diagrs., photos., tab. OTS price, $0.75.

NASA TN D-136

THE EFFECTS OF THRUST REVERSAL AT MACH NUMBERS UP TO 0.86 ON THE LONGITUDINAL AND BUFFETING CHARACTERISTICS OF A TYPICAL JET-TRANSPORT AIRPLANE CONFIGURATION. Fred B. Sutton and Jack J. Brownson. March 1960. 93 p. diagrs., photo., tabs. OTS price, $2.25.

NASA TN D-153

A FLIGHT STUDY OF THE CONVERSION MANEUVER OF A TILT-WING VTOL AIRCRAFT. Lovic P. Thomas III. December 1959. 11 p. diagrs., photo., tab. OTS price, $0.50.

NASA TN D-178

FLUTTER INVESTIGATION OF A TRUE-SPEED DYNAMIC MODEL WITH VARIOUS TIP-TANK CONFIGURATIONS. John L. Sewall, Robert W. Herr, and William B. Igoe. March 1960. 80 p. diagrs., photos., tabs. OTS price, $2.00.

NASA TN D-183

EFFECTS OF A LOWER SURFACE JET ON THE LIFT-DRAG RATIO OF A 45° SWEPTBACK WING AT A MACH NUMBER OF 2.01. Emma Jean Landrum. March 1960. 40 p. diagrs., tab.

NASA TN D-186

A FLYING-QUALITIES STUDY OF A SMALL RAM-JET HELICOPTER. Andrew B. Connor and Robert J. Tapscott. April 1960. 22 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-205

FREE-FLIGHT INVESTIGATION AT MACH NUMBERS BETWEEN 0.5 AND 1.7 OF THE ZERO-LIFT ROLLING EFFECTIVENESS AND DRAG OF VARIOUS SURFACE, SPOILER, AND JET CONTROLS ON AN 80° DELTA-WING MISSILE. Eugene D. Schult. February 1960. 47 p. diagrs., photos., tab. OTS price, $1.25.

NASA TN D-215

VERTICAL-TAIL LOADS MEASURED IN FLIGHT ON FOUR AIRPLANE CONFIGURATIONS AT TRANSONIC AND SUPERSONIC SPEEDS. Robert D. Reed. February 1960. 31 p. diagrs., photos., tab. OTS price, $1.00.

NASA TN D-218

LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A HIGH-SUBSONIC-SPEED TRANSPORT AIRPLANE MODEL WITH A CAMBERED 40° SWEPTBACK WING OF ASPECT RATIO 8 AT MACH NUMBERS TO 0.96. Atwood R. Heath, Jr. February 1960. 88 p. diagrs., photos. OTS price, $2.25.

NASA TN D-225

SUBSONIC WIND-TUNNEL INVESTIGATION OF THE AERODYNAMIC EFFECTS OF PIVOTING A LOW-ASPECT-RATIO WING TO LARGE YAW ANGLES WITH RESPECT TO THE FUSELAGE TO INCREASE LIFT-DRAG RATIO. Thomas G. Gainer. March 1960. 20 p. diagrs. OTS price, $0.50.

NASA TN D-246

AN EXPERIMENTAL INVESTIGATION TO DETERMINE THE EFFECT OF SPEED-BRAKE POSITION ON THE LONGITUDINAL STABILITY AND TRIM OF A SWEPT-WING FIGHTER AIRPLANE. Robert T. Taylor. February 1960. 46 p. diagrs., photos., OTS price, $1.25.

NASA TN D-248

LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A FOUR-PROPELLER DEFLECTED SLIPSTREAM VTOL MODEL INCLUDING THE EFFECTS OF GROUND PROXIMITY. Richard E. Kuhn and Kalman J. Grunwald. November 1960. 136 p. OTS price, $2.75.

NASA TN D-249

ANALYSIS OF LOW-ACCELERATION LIFTING ENTRY FROM ESCAPE SPEED. Frederick C. Grant. June 1960. 21 p. OTS price, $0.75.

NASA TN D-279

OPERATIONAL METHOD OF DETERMINING INITIAL CONTOUR OF AND PRESSURE FIELD ABOUT A SUPERSONIC JET. Gerald W. Englert. April 1960. 37 p. diagrs. OTS price, $1.00.

NASA TN D-308

THE EFFECT ON THE DRAG OF A WING-BODY COMBINATION OF MOMENT-OF-AREA-RULE MODIFICATIONS WITH PODS DUCTED TO SIMULATE ENGINE NACELLES. Robert R. Dickey and Lionel L. Levy, Jr. February 1960. 15 p. diagrs., photo., tabs. OTS price, $0.50.

NASA TN D-311

FULL-SCALE WIND-TUNNEL TESTS OF A SWEPT-WING AIRPLANE WITH A CASCADE-TYPE THRUST REVERSER. Mark W. Kelly, Richard K. Greif, and William H. Tolhurst, Jr. April 1960. 31 p. OTS price, $1.00.

NASA TN D-312

EFFECTS OF FIXING BOUNDARY-LAYER TRANSITION FOR A SWEPT-AND A TRIANGULAR-WING AND BODY COMBINATION AT MACH NUMBERS FROM 0.60 TO 1.40. Louis S. Stivers, Jr. June 1960. 28 p. OTS price, $0.75.

NASA TN D-317

WIND-TUNNEL TESTS OF A CIRCULAR WING WITH AN ANNULAR NOZZLE IN PROXIMITY TO THE GROUND. Richard K. Greif, Mark W. Kelly, and William H. Tolhurst, Jr. May 1960. 37 p. OTS price, $1.00.

NASA TN D-321

FLIGHT INVESTIGATION OF THE LOW-SPEED CHARACTERISTICS OF A 45° SWEPT-WING FIGHTER-TYPE AIRPLANE WITH BLOWING BOUNDARY- LAYER CONTROL APPLIED TO THE LEADING- AND TRAILING-EDGE FLAPS. Hervey C. Quigley, Seth B. Anderson, and Robert C. Innis. September 1960. 44 p. OTS price, $1.25.

NASA TN D-325

AN ANALYTICAL METHOD FOR STUDYING THE LATERAL MOTION OF ATMOSPHERE ENTRY VEHICLES. Robert E. Slye. September 1960. 18 p. OTS price, $0.50.

NASA TN D-326

LARGE-SCALE WIND-TUNNEL TESTS OF A WINGLESS VERTICAL TAKE-OFF AND LANDING AIRCRAFT - PRELIMINARY RESULTS. David G. Koenig and James A. Brady. October 1960. 39 p. OTS price, $1.00.

NASA TN D-330

AERODYNAMIC PERFORMANCE AND STATIC STABILITY AT MACH NUMBER 3.3 OF AN AIRCRAFT CONFIGURATION EMPLOYING THREE TRIANGULAR WING PANELS AND A BODY OF EQUAL LENGTH. Carlton S. James. August 1960. 34 p. OTS price, $1.00.

NASA TN D-332

AXIAL-FORCE REDUCTION BY INTERFERENCE BETWEEN JET AND NEIGHBORING AFTERBODY. William C. Pitts and Lyle E. Wiggins. September 1960. 95 p. OTS price, $2.25.

NASA TN D-333

LARGE-SCALE WIND-TUNNEL TESTS AND EVALUATION OF THE LOW-SPEED PERFORMANCE OF A 35° SWEPTBACK WING JET TRANSPORT MODEL EQUIPPED WITH A BLOWING BOUNDARY-LAYER-CONTROL FLAP AND LEADING-EDGE SLAT. David H. Hickey and Kiyoshi Aoyagi. October 1960. 52 p. OTS price, $1.50.

NASA TN D-341

EXPERIMENTAL INVESTIGATION OF A HYPERSONIC GLIDER CONFIGURATION AT A MACH NUMBER OF 6 AND AT FULL-SCALE REYNOLDS NUMBERS. Alvin Seiff and Max E. Wilkins. January 1961. 69 p. OTS price, $1.75.

NASA TN D-346

THE SHOCK-WAVE PATTERNS ON A CRANKED-WING CONFIGURATION. Robert I. Sammonds. November 1960. 12 p. OTS price, $0.50.

NASA TN D-369

INVESTIGATION OF THE LOW-SUBSONIC FLIGHT CHARACTERISTICS OF A MODEL OF AN ALL-WING HYPERSONIC BOOST-GLIDE CONFIGURATION HAVING VERY HIGH SWEEP. Robert E. Shanks. June 1960. 21 p. film suppl. available on loan. OTS price, $0.75.

NASA TN D-377

WIND-TUNNEL INVESTIGATION OF A SMALL-SCALE MODEL OF AN AERIAL VEHICLE SUPPORTED BY DUCTED FANS. Lysle P. Parlett. May 1960. 24 p. OTS price, $0.75.

NASA TN D-381

FREE-SPINNING-TUNNEL INVESTIGATION OF A 1/20-SCALE MODEL OF AN UNSWEPT-WING JET-PROPELLED TRAINER AIRPLANE. James S. Bowman, Jr., and Frederick M. Healy. June 1960. 18 p. OTS price, $0.50.

NASA TN D-387

EFFECT OF STREAMLINE CONTOURING IN THE WING-FUSELAGE JUNCTURE IN COMBINATION WITH THE SUPERSONIC AREA RULE ON A SWEPTBACK-WING — FUSELAGE CONFIGURATION OF HIGH FINENESS RATIO. Charles D. Trescot, Jr. May 1960. 19 p. OTS price, $0.50.

NASA TN D-389

THE LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A SWEPTBACK WING-BODY COMBINATION WITH AND WITHOUT END PLATES AT MACH NUMBERS FROM 0.40 TO 0.93. William P. Henderson. May 1960. 22 p. OTS price, $0.75.

NASA TN D-390

AERODYNAMIC CHARACTERISTICS OF A 1/4-SCALE MODEL OF A TILT-WING VTOL AIRCRAFT AT HIGH ANGLES OF WING INCIDENCE. Louis P. Tosti. September 1960. 42 p. OTS price, $1.25.

NASA TN D-397

DATA FROM A STATIC-THRUST INVESTIGATION OF A LARGE-SCALE GENERAL RESEARCH VTOL-STOL MODEL IN GROUND EFFECT. Robert J. Huston and Matthew M. Winston. August 1960. 66 p. film suppl. available on request. OTS price, $1.75.

NASA TN D-398

EFFECT OF REYNOLDS NUMBER ON THE LATERAL-STABILITY DERIVATIVES AT LOW SPEED OF SWEPTBACK- AND DELTA-WING-- FUSELAGE COMBINATIONS OSCILLATING IN YAW. Charles P. Llewellyn and Walter D. Wolhart. August 1960. 45 p. OTS price, $1.25.

NASA TN D-403

LOW-SPEED AERODYNAMIC CHARACTERISTICS OF A MODEL OF A HYPERSONIC RESEARCH AIRPLANE AT ANGLES OF ATTACK UP TO 90° FOR A RANGE OF REYNOLDS NUMBERS. James S. Bowman, Jr., and William D. Grantham. September 1960. 61 p. OTS price, $1.75.

NASA TN D-407

AERODYNAMIC CHARACTERISTICS OF A LARGE-SCALE UNSWEPT WING-BODY-TAIL CONFIGURATION WITH BLOWING APPLIED OVER THE FLAP AND WING LEADING EDGE. H. Clyde McLemore and John B. Peterson, Jr. September 1960. 213 p. OTS price, $3.50.

NASA TN D-409

WIND-TUNNEL INVESTIGATION OF A SMALL-SCALE MODEL OF AN AERIAL VEHICLE SUPPORTED BY TILTING DUCTED FANS. Charles C. Smith, Jr. August 1960. 17 p. OTS price, $0.50.

NASA TN D-419

EFFECT OF GROUND PROXIMITY ON AERODYNAMIC CHARACTERISTICS OF TWO HORIZONTAL-ATTITUDE JET VERTICAL-TAKE-OFF-AND-LANDING AIRPLANE MODELS. William A. Newsom, Jr. August 1960. 20 p. OTS price, $0.50.

NASA TN D-421

INVESTIGATION AT TRANSONIC SPEEDS OF LOADING OVER A 30° SWEPTBACK WING OF ASPECT RATIO 3, TAPER RATIO 0.2, AND NACA 65A004 AIRFOIL SECTION MOUNTED ON A BODY. Donald D. Arabian. June 1960. 79 p. OTS price, $2.00.

NASA TN D-433

LOW-SPEED MEASUREMENTS OF STATIC AND OSCILLATORY LATERAL STABILITY DERIVATIVES OF A 1/5-SCALE MODEL OF A JET-POWERED VERTICAL-ATTITUDE VTOL RESEARCH AIRPLANE. Robert E. Shanks and Charles C. Smith, Jr. September 1960. 19 p. OTS price, $0.50.

NASA TN D-435

TRANSONIC AND SUPERSONIC WIND-TUNNEL TESTS OF WING-BODY COMBINATIONS DESIGNED FOR HIGH EFFICIENCY AT A MACH NUMBER OF 1.41. Frederick C. Grant and John R. Sevier, Jr. October 1960. 82 p. OTS price, $2.25.

NASA TN D-443

PRELIMINARY INVESTIGATION OF A PARAGLIDER. Francis M. Rogallo, John G. Lowry, Delwin R. Croom, and Robert T. Taylor. August 1960. 25 p. film suppl. available on request. OTS price, $0.75.

NASA TN D-444

LATERAL STABILITY AND CONTROL CHARACTERISTICS OF A FOUR-PROPELLER DEFLECTED-SLIPSTREAM VTOL MODEL INCLUDING THE EFFECTS OF GROUND PROXIMITY. Richard E. Kuhn and Kalman J. Grunwald. January 1961. 70 p. OTS price, $1.75.

NASA TN D-445

INVESTIGATION OF LONGITUDINAL AND LATERAL STABILITY CHARACTERISTICS OF A SIX-PROPELLER DEFLECTED-SLIPSTREAM VTOL MODEL WITH BOUNDARY-LAYER CONTROL INCLUDING EFFECTS OF GROUND PROXIMITY. Kalman J. Grunwald. November 1960. 98 p. OTS price, $2.25.

NASA TN D-446

SOME EXAMPLES OF THE APPLICATIONS OF THE TRANSONIC AND SUPERSONIC AREA RULES TO THE PREDICTION OF WAVE DRAG. Robert L. Nelson and Clement J. Welsh. September 1960. 46 p. OTS price, $1.25.

NASA TN D-448

SOME LANDING STUDIES PERTINENT TO GLIDER-REENTRY VEHICLES. John C. Houbolt and Sidney A. Batterson. August 1960. 22 p. OTS price, $0.75.

NASA TN D-464

EFFECTS OF CONTROL-RESPONSE CHARACTERISTICS ON THE CAPABILITY OF A HELICOPTER FOR USE AS A GUN PLATFORM. Robert J. Pegg and Andrew B. Connor. September 1960. 17 p. OTS price, $0.50.

NASA TN D-509

SUPERSONIC AERODYNAMIC CHARACTERISTICS OF A LOW-DRAG AIRCRAFT CONFIGURATION HAVING AN ARROW WING OF ASPECT RATIO 1.86 AND A BODY OF FINENESS RATIO 20. Warren Gillespie, Jr. October 1960. 59 p. OTS price, $1.50.

NASA TN D-513

THRUST CHARACTERISTICS OF MULTIPLE LIFTING JETS IN GROUND PROXIMITY. Edwin E. Davenport and Kenneth P. Spreemann. September 1960. 18 p. OTS price, $0.50.

NASA TN D-534

HOVERING MEASUREMENTS FOR TWIN-ROTOR CONFIGURATIONS WITH AND WITHOUT OVERLAP. George E. Sweet. November 1960. 23 p. OTS price, $0.75.

NASA TN D-538

A STUDY OF THE FEASIBILITY OF INFLATABLE REENTRY GLIDERS. Walter B. Olstad. October 1960. 41 p. OTS price, $1.25.

NASA TN D-539

EFFECT OF BASE BLEED AND TERMINAL FAIRINGS ON THE PERFORMANCE OF EXHAUST-NOZZLE—AFTERBODY COMBINATIONS AT MACH NUMBERS OF 1.93, 2.55, AND 3.05. Harry T. Norton, Jr., and Arvid L. Keith, Jr. November 1960. 31 p. OTS price, $1.00.

NASA TN D-580

SURFACE PRESSURE DISTRIBUTIONS WITH A SONIC JET NORMAL TO ADJACENT FLAT SURFACES AT MACH 2.92 TO 6.4. Robert W. Cubbison, Bernhard H. Anderson, and James J. Ward. February 1961. 29 p. OTS price, $0.75.

NASA TN D-616

EXPERIMENTAL INVESTIGATION OF SOME OF THE PARAMETERS RELATED TO THE STABILITY AND CONTROL OF AERIAL VEHICLES SUPPORTED BY DUCTED FANS. Lysle P. Parlett. November 1960. 34 p. OTS price, $1.00.

NASA TN D-620

AN INVESTIGATION OF WING AND AILERON LOADS DUE TO DEFLECTED INBOARD AND OUTBOARD AILERONS ON A 4-PERCENT-THICK 30° SWEPT-BACK WING AT TRANSONIC SPEEDS. Charles F. Whitcomb, Chris C. Critzos, and Philippa F. Brown. January 1961. 282 p. OTS price, $4.00.

NASA TN D-621

EXPERIMENTAL AND CALCULATED FLOW FIELDS PRODUCED BY AIRPLANES FLYING AT SUPERSONIC SPEEDS. Harriet J. Smith. November 1960. 24 p. OTS price, $0.75.

NASA TN D-622

AERODYNAMIC CHARACTERISTICS AT LOW SPEED OF A REENTRY CONFIGURATION HAVING RIGID RETRACTABLE CONICAL LIFTING SURFACES. Paul G. Fournier. November 1960. 26 p. OTS price, $0.75.

NASA TN D-636

A WIND-TUNNEL INVESTIGATION OF A TRANSONIC-TRANSPORT CONFIGURATION UTILIZING DRAG-REDUCING DEVICES AT MACH NUMBERS FROM 0.20 TO 1.03. Donald L. Loving. March 1961. 117 p. OTS price, $2.50.

NASA TN D-637

WIND-TUNNEL INVESTIGATION OF THE EFFECTS OF WING BODIES, FENCES, FLAPS, AND A FUSELAGE ADDITION ON THE WING BUFFET RESPONSE OF A TRANSONIC-TRANSPORT MODEL. Elden S. Cornette. April 1961. 65 p. OTS price, $1.75.

NASA TN D-640

AERODYNAMIC CHARACTERISTICS OF A MODEL OF AN INFLATABLE-SPHERE LAUNCHING VEHICLE UNDER SIMULATED CONDITIONS OF MACH NUMBER AND ALTITUDE. Ross B. Robinson and Odell A. Morris. December 1960. 12 p. OTS price, $0.50.

NASA TN D-643

FLIGHT INVESTIGATION OF SOME EFFECTS OF A VANE-CONTROLLED GUST-ALLEVIATION SYSTEM ON THE WING AND TAIL LOADS OF A TRANSPORT AIRPLANE. Russell L. Schott and Harold A. Hamer. January 1961. 32 p. OTS price, $1.00.

NASA TN D-656

LOW-SPEED INVESTIGATION OF THE EFFECTS OF LARGE WING-SIDESLIP ANGLES ON THE AERODYNAMIC CHARACTERISTICS OF TWO ARROW-WING—FUSELAGE ARRANGEMENTS. Thomas G. Gainer. February 1961. 41 p. OTS price, $1.25.

NASA TN D-658

GROUND INFLUENCE ON A MODEL AIRFOIL WITH A JET-AUGMENTED FLAP AS DETERMINED BY TWO TECHNIQUES. Thomas R. Turner. February 1961. 18 p. OTS price, $0.50.

NASA TN D-690

AERODYNAMIC LOADS AT MACH NUMBERS FROM 0.70 TO 2.22 ON AN AIRPLANE MODEL HAVING A WING AND CANARD OF TRIANGULAR PLAN FORM AND EITHER SINGLE OR TWIN VERTICAL TAILS. Victor L. Peterson and Gene P. Menees. June 1961. 57 p. OTS price, $1.50.

NASA TN D-690-I

AERODYNAMIC LOADS AT MACH NUMBERS FROM 0.70 TO 2.22 ON AN AIRPLANE MODEL HAVING A WING AND CANARD OF TRIANGULAR PLAN FORM AND EITHER SINGLE OR TWIN VERTICAL TAILS. SUPPLEMENT I - TABULATED DATA FOR THE MODEL WITH SINGLE VERTICAL TAIL. Victor L. Peterson and Gene P. Menees. June 1961. 321 p. OTS price, $5.00.

NASA TN D-690-II

AERODYNAMIC LOADS AT MACH NUMBERS FROM 0.70 TO 2.22 ON AN AIRPLANE MODEL HAVING A WING AND CANARD OF TRIANGULAR PLAN FORM AND EITHER SINGLE OR TWIN VERTICAL TAILS. SUPPLEMENT II - TABULATED DATA FOR THE MODEL WITH TWIN VERTICAL TAILS. Victor L. Peterson and Gene P. Menees. June 1961. 161 p. OTS price, $3.00.

NASA TN D-711

INVESTIGATION OF THE STATIC LONGITUDINAL AND LATERAL STABILITY CHARACTERISTICS OF A 0.10-SCALE MODEL OF A THREE-STAGE CONFIGURATION OF THE SCOUT RESEARCH VEHICLE AT MACH NUMBERS OF 2.29, 2.96, 3.96, AND 4.65. Lloyd S. Jernell. March 1961. 27 p. OTS price, $0.75.

NASA TN D-720

EFFECT OF RATIO OF JET AREA TO TOTAL AREA AND OF PRESSURE RATIO ON LIFT AUGMENTATION OF ANNULAR JETS IN GROUND EFFECT UNDER STATIC CONDITIONS. Kenneth W. Goodson and James H. Otis, Jr. March 1961. 46 p. OTS price, $1.25.

NASA TN D-727

GROUND INTERFERENCE EFFECTS. Robert O. Schade. April 1961. 14 p. OTS price, $0.50.

NASA TN D-730

AERODYNAMIC CHARACTERISTICS OF PROPELLER-DRIVEN VTOL AIRCRAFT. Robert H. Kirby. March 1961. 16 p. OTS price, $0.50.

NASA TN D-731

INDUCED INTERFERENCE EFFECTS ON JET AND BURIED-FAN VTOL CONFIGURATIONS IN TRANSITION. Kenneth P. Spreemann. March 1961. 8 p. OTS price, $0.50.

NASA TN D-733

REVIEW OF BASIC PRINCIPLES OF V/STOL AERODYNAMICS. Richard E. Kuhn. March 1961. 17 p. OTS price, $0.50.

NASA TN D-756

EFFECTS OF GEOMETRIC VARIATIONS ON LIFT AUGMENTATION OF SIMPLE-PLENUM-CHAMBER GROUND-EFFECT MODELS. Edwin E. Davenport. April 1961. 20 p. OTS price, $0.50.

NASA TN D-757

MEASURED RESPONSE TO WIND-INDUCED DYNAMIC LOADS OF A FULL-SCALE SCOUT VEHICLE MOUNTED VERTICALLY ON A LAUNCHING TOWER. George W. Jones, Jr., and Jean Gilman, Jr. April 1961. 28 p. OTS price, $0.75.

NASA TN D-760

SKID LANDINGS OF AIRPLANES ON ROCKER-TYPE FUSELAGES. Wilbur L. Mayo. May 1961. 61 p. OTS price, $1.75.

NASA TN D-777

BALLISTIC RANGE MEASUREMENTS OF STAGNATION-POINT HEAT TRANSFER IN AIR AND IN CARBON DIOXIDE AT VELOCITIES UP TO 18,000 FEET PER SECOND. Layton Yee, Harry E. Bailey, and Henry T. Woodward. March 1961. 36 p. OTS price, $1.00.

NASA TN D-789

AERODYNAMICS OF A FAN-IN-FUSELAGE MODEL. Ralph L. Maki and David H. Hickey. May 1961. 14 p. OTS price, $0.50.

NASA TN D-793

AERODYNAMIC CHARACTERISTICS IN PITCH AND SIDESLIP OF A 1/15-SCALE MODEL OF THE SCOUT VEHICLE AT A MACH NUMBER OF 2.01. Ross B. Robinson. May 1961. 37 p. OTS price, $1.00.

NASA TN D-794

TRANSONIC WIND-TUNNEL INVESTIGATION OF THE STATIC LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF SEVERAL CONFIGURATIONS OF THE SCOUT VEHICLE AND OF A NUMBER OF RELATED MODELS. Thomas C. Kelly. May 1961. 69p. OTS price, $1.75.

NASA TN D-804

INVESTIGATION AT HIGH SUBSONIC SPEEDS OF THE USE OF LOW AUXILIARY TAIL SURFACES HAVING DIHEDRAL TO IMPROVE THE LONGITUDINAL AND DIRECTIONAL STABILITY OF A T-TAIL MODEL AT HIGH LIFT. William C. Sleeman, Jr. April 1961. 23 p. OTS price, $0.75.

NASA TN D-815

LOW-SPEED WIND-TUNNEL INVESTIGATION OF A REFLECTION PLANE WING MODEL EQUIPPED WITH PARTIAL-SPAN JET-AUGMENTED FLAPS. James H. Otis, Jr. May 1961. 53 p. OTS price, $1.50.

NASA TN D-817

TRANSONIC AERODYNAMIC CHARACTERISTICS OF A WING-BODY COMBINATION HAVING A 52.5° SWEPTBACK WING OF ASPECT RATIO 3 WITH CONICAL CAMBER AND DESIGNED FOR A MACH NUMBER OF $\sqrt{2}$. William B. Igoe, Richard J. Re, and Marlowe D. Cassetti. May 1961. 51 p. OTS price, $1.50.

NASA TN D-821

INVESTIGATION OF THE AERODYNAMIC CHARACTERISTICS OF TWO PRELIMINARY DESIGNS OF SCOUT RESEARCH VEHICLE AT MACH NUMBERS FROM 1.77 TO 4.65. Robert J. Keynton and Ann B. Fichter. April 1961. 60 p. OTS price, $1.50.

NASA TN D-829

CALCULATED NORMAL LOAD FACTORS ON LIGHT AIRPLANES TRAVERSING THE TRAILING VORTICES OF HEAVY TRANSPORT AIRPLANES. William A. McGowan. May 1961. 58 p. OTS price, $1.50.

NASA TN D-830

TRANSONIC LOADS CHARACTERISTICS OF A 3-PERCENT-THICK 60° DELTA-WING—BODY COMBINATION. John M. Swihart and Willard E. Foss, Jr. May 1961. 127 p. OTS price, $2.75.

NASA TN D-834

TRANSONIC INVESTIGATION OF AERODYNAMIC CHARACTERISTICS OF A SWEPT-WING FIGHTER-AIRPLANE MODEL WITH LEADING-EDGE DROOP IN COMBINATION WITH OUTBOARD CHORD-EXTENSIONS AND NORCHES. Charles F. Whitcomb and Harry T. Norton, Jr. May 1961. 30 p. OTS price, $0.75.

NASA TN D-836

AERODYNAMIC CHARACTERISTICS OVER A MACH NUMBER RANGE OF 1.40 TO 2.78 OF A ROCKET-PROPELLED AIRPLANE CONFIGURATION HAVING A LOW 52.5° DELTA WING AND AN UNSWEPT HORIZONTAL TAIL. Alan B. Kehlet. May 1961. 26 p. OTS price, $0.75.

NASA TN D-839

AERODYNAMIC CHARACTERISTICS IN PITCH OF A SERIES OF CRUCIFORM-WING MISSILES WITH CANARD CONTROLS AT A MACH NUMBER OF 2.01. M. Leroy Spearman. May 1961. 40 p. OTS price, $1.00.

NASA TN D-842

NORMAL-FORCE AND HINGE-MOMENT CHARACTERISTICS AT TRANSONIC SPEEDS OF FLAP-TYPE AILERONS AT THREE SPANWISE LOCATIONS ON A 4-PERCENT-THICK SWEPTBACK-WING — BODY MODEL AND PRESSURE-DISTRIBUTION MEASUREMENTS ON AN INBOARD AILERON. Jack F. Runckel and Gerald Hieser. May 1961. 55 p. OTS price, $1.50.

NASA TN D-860

PREDICTED SHOCK ENVELOPES ABOUT TWO TYPES OF VEHICLES AT LARGE ANGLES OF ATTACK. George E. Kaattari. April 1961. 34 p. OTS price, $1.00.

NASA TN D-881

AN INVESTIGATION OF THE INFLUENCE OF LIFT ON SONIC-BOOM INTENSITY BY MEANS OF WIND-TUNNEL MEASUREMENTS OF THE PRESSURE FIELDS OF SEVERAL WING-BODY COMBINATIONS AT A MACH NUMBER OF 2.01. Harry W. Carlson. July 1961. 37 p. OTS price, $1.00.

NASA TN D-893

PRESSURE LOADS PRODUCED ON A FLAT-PLATE WING BY ROCKET JETS EXHAUSTING IN A SPANWISE DIRECTION BELOW THE WING AND PERPENDICULAR TO A FREE-STREAM FLOW OF MACH NUMBER 2.0. Ralph A. Falanga and Joseph J. Janos. May 1961. 47 p. OTS price, $1.25.

NASA TN D-901

AERODYNAMIC CHARACTERISTICS OF A FOUR-PROPELLER TILT-WING VTOL MODEL WITH TWIN VERTICAL TAILS, INCLUDING EFFECTS OF GROUND PROXIMITY. Kalman J. Grunwald. June 1961. 137 p. OTS price, $2.75.

NASA TN D-902

APPLICATIONS OF POWER SPECTRAL ANALYSIS METHODS TO MANEUVER LOADS OBTAINED ON JET FIGHTER AIRPLANES DURING SERVICE OPERATIONS. John P. Mayer and Harold A. Hamer. May 1961. 50 p. OTS price, $1.25.

NASA TN D-903

EFFECT OF HIGH SUBSONIC SPEEDS OF FUSELAGE FOREBODY STRAKES ON THE STATIC STABILITY AND VERTICAL-TAIL-LOAD CHARACTERISTICS OF A COMPLETE MODEL HAVING A DELTA WING. Edward C. Polhamus and Kenneth P. Spreemann. May 1961. 32 p. OTS price, $1.00.

NASA TN D-915

INVESTIGATION OF INTERFERENCE OF A DEFLECTED JET WITH FREE STREAM AND GROUND ON AERODYNAMIC CHARACTERISTICS OF A SEMI-SPAN DELTA-WING VTOL MODEL. Kenneth P. Spreemann. August 1961. 93 p. OTS price, $2.25.

NASA TN D-916

AERODYNAMIC CHARACTERISTICS AT A MACH NUMBER OF 3.10 OF SEVERAL FOURTH-STAGE SHAPES OF THE SCOUT RESEARCH VEHICLE. Byron M. Jaquet. June 1961. 17 p. OTS price, $0.50.

NASA TN D-918

TRANSONIC WIND-TUNNEL INVESTIGATION OF THE FIN LOADS ON A 1/8-SCALE MODEL SIMULATING THE FIRST STAGE OF THE SCOUT RESEARCH VEHICLE. Thomas C. Kelly. June 1961. 28 p. OTS price, $0.75.

NASA TN D-927

FREE-FLIGHT INVESTIGATION OF RADIO-CONTROLLED MODELS WITH PARAWINGS. Donald E. Hewes. September 1961. 32 p., film suppl. available on request. OTS price, $1.00.

NASA TN D-945

AERODYNAMIC LOADING CHARACTERISTICS AT MACH NUMBERS FROM 0.80 TO 1.20 OF A 1/10-SCALE THREE-STAGE SCOUT MODEL. Thomas C. Kelly. September 1961. 64 p. OTS price, $1.75.

NASA TN D-949

STATIC LONGITUDINAL CHARACTERISTICS AT HIGH SUBSONIC SPEEDS OF A COMPLETE AIRPLANE MODEL WITH A HIGHLY TAPERED WING HAVING THE 0.80 CHORD LINE UNSWEPT AND WITH SEVERAL TAIL CONFIGURATIONS. Kenneth W. Goodson. August 1961. 57 p. OTS price, $1.50.

NASA TN D-950

STATIC LATERAL CHARACTERISTICS AT HIGH SUBSONIC SPEEDS OF A COMPLETE AIRPLANE MODEL WITH A HIGHLY TAPERED WING HAVING THE 0.80 CHORD LINE UNSWEPT AND WITH SEVERAL TAIL CONFIGURATIONS. Kenneth W. Goodson. August 1961. 98 p. OTS price, $2.25.

NASA TN D-958

EFFECTS OF CANARD PLANFORM AND WING-LEADING-EDGE MODIFICATION ON LOW-SPEED LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A CANARD AIRPLANE CONFIGURATION. Bernard Spencer, Jr. August 1961. 49 p. OTS price, $1.25.

NASA TN D-1032

STOL CHARACTERISTICS OF A PROPELLER-DRIVEN, ASPECT-RATIO-10, STRAIGHT-WING AIRPLANE WITH BOUNDARY-LAYER CONTROL FLAPS, AS ESTIMATED FROM LARGE-SCALE WIND-TUNNEL TESTS. James A. Weiberg and Curt A. Holzhauser. June 1961. 57 p. OTS price, $1.50.

NASA TN D-1034

LARGE-SCALE WIND-TUNNEL TESTS OF AN AIRPLANE MODEL WITH AN UNSWEPT, TILT WING OF ASPECT RATIO 5.5, AND WITH FOUR PROPELLERS AND BLOWING FLAPS. James A. Weiberg and Curt A. Holzhauser. June 1961. 33 p. OTS price, $1.00.

NASA TN D-1056

PRELIMINARY BASE PRESSURES OBTAINED FROM THE X-15 AIRPLANE AT MACH NUMBERS FROM 1.1 TO 3.2. Edwin J. Saltzman. August 1961. 28 p. OTS price, $0.75.

NASA TN D-1057

ANALYSIS OF X-15 LANDING APPROACH AND FLARE CHARACTERISTICS DETERMINED FROM THE FIRST 30 FLIGHTS. Gene J. Matranga. July 1961. 52 p. OTS price, $1.50.

NASA MEMO 10-5-58L

SOME EFFECTS OF HORIZONTAL-TAIL POSITION ON THE VERTICAL-TAIL PRESSURE DISTRIBUTIONS OF A COMPLETE MODEL IN SIDESLIP AT HIGH SUBSONIC SPEEDS. William J. Alford, Jr. October 1958. 157 p.

NASA MEMO 10-8-58A

AN INVESTIGATION OF THE DRAG CHARACTERISTICS OF A TAILLESS DELTA-WING AIRPLANE IN FLIGHT, INCLUDING COMPARISON WITH WIND-TUNNEL DATA. L. Stewart Rolls and Rodney C. Wingrove. November 1958. 34 p.

NASA MEMO 10-10-58L

EFFECT OF NOSE LENGTH, FUSELAGE LENGTH, AND NOSE FINENESS RATIO ON THE LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF TWO COMPLETE MODELS AT HIGH SUBSONIC SPEEDS. Kenneth W. Goodson. October 1958. 40 p. diagrs., tab.

NASA MEMO 10-11-58L

AERODYNAMIC CHARACTERISTICS IN SIDESLIP OF A LARGE-SCALE 49° SWEPTBACK WING-BODY-TAIL CONFIGURATION WITH BLOWING APPLIED OVER THE FLAPS AND WING LEADING EDGE. H. Clyde McLemore. October 1958. 46 p.

NASA MEMO 10-23-58L

EFFECTS OF BODY SHAPE ON THE DRAG OF A 45° SWEPTBACK-WING – BODY CONFIGURATION AT MACH NUMBERS FROM 0.90 TO 1.43. Walter B. Olstad and Thomas L. Fischetti. November 1958. 66 p.

NASA MEMO 10-27-58L

HOVERING AND TRANSITION FLIGHT TESTS OF A 1/5-SCALE MODEL OF A JET-POWERED VERTICAL-ATTITUDE VTOL RESEARCH AIRPLANE. Charles C. Smith, Jr. December 1958. 30 p. diagrs., photos., tabs., film suppl. available on request.

NASA MEMO 11-3-58L

FORCE-TEST INVESTIGATION OF THE STABILITY AND CONTROL CHARACTERISTICS OF A 1/4-SCALE MODEL OF A TILT-WING VERTICAL-TAKE-OFF-AND-LANDING AIRCRAFT. William A. Newsom, Jr., and Louis P. Tosti. January 1959. 53 p. diagrs., tabs.

NASA MEMO 11-4-58L

FLIGHT INVESTIGATION OF THE STABILITY AND CONTROL CHARACTERISTICS OF A 1/4-SCALE MODEL OF A TILT-WING VERTICAL-TAKE-OFF-AND-LANDING AIRCRAFT. Louis P. Tosti. January 1959. 17 p. diagr., photo., tabs., film suppl. available on request.

NASA MEMO 11-5-58L

ANALYTICAL AND EXPERIMENTAL DETERMINATION OF THE COUPLED NATURAL FREQUENCIES AND MODE SHAPES OF A DYNAMIC MODEL OF A SINGLE-ROTOR HELICOPTER. Milton A. Silveira and George W. Brooks. December 1958. 42 p. diagrs., photos., tabs.

NASA MEMO 11-30-58A

EXPERIMENTAL WIND-TUNNEL INVESTIGATION OF THE TRANSONIC DAMPING-IN-PITCH CHARACTERISTICS OF TWO WING-BODY COMBINATIONS. Horace F. Emerson and Robert C. Robinson. December 1958. 26 p. diagrs., photos.

NASA MEMO 12-1-58L

EFFECT OF TAIL DIHEDRAL ON LATERAL CONTROL EFFECTIVENESS AT HIGH SUBSONIC SPEEDS OF DIFFERENTIALLY DEFLECTED HORIZONTAL-TAIL SURFACES ON A CONFIGURATION HAVING A THIN HIGHLY TAPERED WING. Paul G. Fournier. January 1959. 50 p.

NASA MEMO 12-3-58A

LARGE-SCALE WIND-TUNNEL TESTS OF AN AIRPLANE MODEL WITH AN UNSWEPT, ASPECT-RATIO-10 WING, TWO PROPELLERS, AND BLOWING FLAPS. Roy N. Griffin, Jr., Curt A. Holzhauser, and James A. Weiberg. December 1958. 47 p. diagrs., photo., tab.

NASA MEMO 12-13-58L

A TRANSONIC WIND-TUNNEL INVESTIGATION OF THE PERFORMANCE AND OF THE STATIC STABILITY AND CONTROL CHARACTERISTICS OF A MODEL OF A FIGHTER-TYPE AIRPLANE WHICH EMBODIES PARTIAL BODY INDENTATION. Ralph P. Bielat. March 1959. 137 p. diagrs., photo., tabs.

NASA MEMO 12-27-58A

THE EFFECT OF LOWER SURFACE SPOILERS ON THE TRANSONIC TRIM CHANGE OF A WIND-TUNNEL MODEL OF A FIGHTER AIRPLANE HAVING A MODIFIED DELTA WING. Robert C. Robinson. February 1959. 50 p. diagrs., photos.

NASA MEMO 12-29-58A

EFFECTS OF LARGE WING-TIP MASSES ON OSCILLATORY STABILITY OF WING BENDING COUPLED WITH AIRPLANE PITCH. Donald T. Higdon. January 1959. 32 p. diagrs.

NASA MEMO 1-8-59L

WIND-TUNNEL INVESTIGATION OF SUBSONIC LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A TILTABLE-WING VERTICAL-TAKE-OFF-AND-LANDING SUPERSONIC BOMBER CONFIGURATION INCLUDING TURBOJET POWER EFFECTS. Robert F. Thompson, Raymond D. Vogler, and William C. Moseley, Jr. January 1959. 89 p.

NASA MEMO 1-15-59L

EFFECTS OF FUSELAGE NOSE LENGTH AND A CANOPY ON THE LOW-SPEED OSCILLATORY YAWING DERIVATIVES OF A SWEPT-WING AIRPLANE MODEL WITH A FUSELAGE OF CIRCULAR CROSS SECTION. James L. Williams and Joseph R. DiCamillo. January 1959. 28 p. diagrs., photo., tabs.

NASA MEMO 1-16-59L

SEMIEMPIRICAL PROCEDURE FOR ESTIMATING LIFT AND DRAG CHARACTERISTICS OF PROPELLER-WING-FLAP CONFIGURATIONS FOR VERTICAL AND SHORT-TAKE-OFF-AND-LANDING AIRPLANES. Richard E. Kuhn. February 1959. 38 p. diagrs.

NASA MEMO 1-18-59A

SUBSONIC WING LOADINGS ON A 45° SWEPTBACK-WING AND BODY COMBINATION AT HIGH ANGLES OF ATTACK. John A. Axelson and Jack F. Haacker. February 1959. 57 p. diagrs., photos., tab.

NASA MEMO 1-22-59L

LOW-SUBSONIC STATIC STABILITY AND DAMPING DERIVATIVES AT ANGLES OF ATTACK FROM 0° TO 90° FOR A MODEL WITH A LOW-ASPECT-RATIO UNSWEPT WING AND TWO DIFFERENT FUSELAGE FOREBODIES. Peter C. Boisseau. March 1959. 25 p. diagrs., tab.

NASA MEMO 1-23-59A

LOW-SPEED WIND-TUNNEL INVESTIGATION OF BLOWING BOUNDARY-LAYER CONTROL ON LEADING- AND TRAILING-EDGE FLAPS OF A LARGE-SCALE, LOW-ASPECT-RATIO, 45° SWEPT-WING AIRPLANE CONFIGURATION. Ralph L. Maki. January 1959. 25 p. diagrs., photo., tabs.

NASA MEMO 1-24-59L

STATIC LIFT, DRAG, AND PITCHING-MOMENT CHARACTERISTICS OF WINGS WITH ARROW AND MODIFIED-DIAMOND PLAN FORMS COMBINED WITH SEVERAL DIFFERENT BODIES AT MACH NUMBERS OF 2.97, 3.35, AND 3.71. Dennis F. Hasson and John G. Presnell, Jr. January 1959. 50 p. diagrs., photos., tab.

NASA MEMO 2-17-59L

SOME EFFECTS OF YAW DAMPING ON AIRPLANE MOTIONS AND VERTICAL-TAIL LOADS IN TURBULENT AIR. Jack Funk and T. V. Cooney. March 1959. 8 p. diagrs.

NASA MEMO 2-18-59L

EVALUATION OF SEVERAL APPROXIMATE METHODS FOR CALCULATING THE SYMMETRICAL BENDING-MOMENT RESPONSE OF FLEXIBLE AIRPLANES TO ISOTROPIC ATMOSPHERIC TURBULENCE. Floyd V. Bennett and Robert T. Yntema. March 1959. 57 p. diagrs.

NASA MEMO 2-20-59A

FULL-SCALE WIND-TUNNEL INVESTIGATION OF A JET FLAP IN CONJUNCTION WITH A PLAIN FLAP WITH BLOWING BOUNDARY-LAYER CONTROL ON A 35° SWEPTBACK-WING AIRPLANE. Kiyoshi Aoyagi and David H. Hickey. March 1959. 25 p. diagrs., photo., tab.

NASA MEMO 2-24-59A

THE EFFECT OF MOMENT-OF-AREA-RULE MODIFICATIONS ON THE DRAG, LIFT, AND PITCHING-MOMENT CHARACTERISTICS OF AN UNSWEPT ASPECT-RATIO-6 WING AND BODY COMBINATION. Robert R. Dickey. March 1959. 29 p. diagrs., tabs.

NASA MEMO 2-25-59L

SEVERAL METHODS FOR REDUCING THE DRAG OF TRANSPORT CONFIGURATIONS AT HIGH SUBSONIC SPEEDS. Richard T. Whitcomb and Atwood R. Heath, Jr. March 1959. 12 p. diagrs., photos.

NASA MEMO 3-3-59H

A SUMMARY OF FLIGHT-DETERMINED TRANSONIC LIFT AND DRAG CHARACTERISTICS OF SEVERAL RESEARCH AIRPLANE CONFIGURATIONS. Donald R. Bellman. April 1959. 56 p.

NASA MEMO 3-4-59A

THE STATIC LONGITUDINAL STABILITY AND CONTROL CHARACTERISTICS IN THE PRESENCE OF THE GROUND OF A MODEL HAVING A TRIANGULAR WING AND CANARD. Donald A. Buell and Bruce E. Tinling. March 1959. 32 p.

NASA MEMO 3-7-59A

PITCH-UP PROBLEM - A CRITERION AND METHOD OF EVALUATION. Melvin Sadoff. February 1959. 14 p. diagrs., tab.

NASA MEMO 3-8-59L

WIND-TUNNEL INVESTIGATION OF A SMALL-SCALE SWEPTBACK-WING JET-TRANSPORT MODEL EQUIPPED WITH AN EXTERNAL-FLOW JET-AUGMENTED DOUBLE SLOTTED FLAP. Joseph L. Johnson, Jr. April 1959. 41 p. diagrs., tab.

NASA MEMO 3-23-59A

A BUFFET INVESTIGATION AT HIGH SUBSONIC SPEEDS OF WING-FUSELAGE-TAIL COMBINATIONS HAVING SWEPTBACK WINGS WITH NACA FOUR-DIGIT THICKNESS DISTRIBUTIONS, FENCES, AND BODY CONTOURING. Fred B. Sutton. March 1959.

NASA MEMO 4-1-59L

EFFECT OF HORIZONTAL-TAIL CHORD ON THE CALCULATED SUBSONIC SPAN LOADS AND STABILITY DERIVATIVES OF ISOLATED UNSWEPT TAIL ASSEMBLIES IN SIDESLIP AND STEADY ROLL. Katherine W. Booth. March 1959. 32 p. diagrs., tab.

NASA MEMO 4-4-59L

EFFECTS OF FOREBODY DEFLECTION ON THE STABILITY AND CONTROL CHARACTERISTICS OF A CANARD AIRPLANE CONFIGURATION WITH A HIGH TRAPEZOIDAL WING AT A MACH NUMBER OF 2.01. M. Leroy Spearman and Cornelius Driver. March 1959. 28 p.

NASA MEMO 4-15-59A

A FLIGHT INVESTIGATION OF THE LOW-SPEED HANDLING QUALITIES OF A TAILLESS DELTA-WING FIGHTER AIRPLANE. Maurice D. White and Robert C. Innis. May 1959. 33 p. diagrs., photo., tabs.

NASA MEMO 4-20-59A

STATIC STABILITY AND CONTROL OF CANARD CONFIGURATIONS AT MACH NUMBERS FROM 0.70 TO 2.22 - LATERAL-DIRECTIONAL CHARACTERISTICS OF AN UNSWEPT WING AND CANARD. Victor L. Peterson. April 1959. 32 p.

NASA MEMO 4-20-59L

TRANSONIC AERODYNAMIC CHARACTERISTICS OF A 45° SWEPT-WING–FUSELAGE MODEL WITH A FINNED AND UNFINNED BODY PYLON-MOUNTED BENEATH THE FUSELAGE OR WING, INCLUDING MEASUREMENTS OF BODY LOADS. Dewey E. Wornom. May 1959. 57 p.

NASA MEMO 4-21-59A

LONGITUDINAL STABILITY AND CONTROL CHARACTERISTICS AT MACH NUMBERS FROM 0.70 TO 2.22 OF A TRIANGULAR WING CONFIGURATION EQUIPPED WITH A CANARD CONTROL, A TRAILING-EDGE-FLAP CONTROL, OR A CAMBERED FOREBODY. John W. Boyd and Gene P. Menees. April 1959. 39 p.

NASA MEMO 4-22-59L

LOW-SPEED LONGITUDINAL CHARACTERISTICS OF AN AIRPLANE CONFIGURATION INCLUDING EFFECTS OF CANARD AND WING TRAILING-EDGE FLAP CONTROLS IN COMBINATION. Bernard Spencer, Jr., and William C. Sleeman, Jr. April 1959. 50 p.

NASA MEMO 4-26-59A

FLIGHT MEASUREMENTS OF THE EFFECT OF A CONTROLLABLE THRUST REVERSER ON THE FLIGHT CHARACTERISTICS OF A SINGLE-ENGINE JET AIRPLANE. Seth B. Anderson, George E. Cooper, and Alan E. Faye, Jr. May 1959. 45 p. diagrs., photos., tab., film suppl. available on request.

NASA MEMO 4-27-59A

LIFT-DRAG RATIOS FOR AN ARROW WING WITH BODIES AT MACH NUMBER 3. Leland H. Jorgensen. May 1959. 32 p.

NASA MEMO 5-1-59L

LOW-SPEED INVESTIGATION OF BLOWING FROM NACELLES MOUNTED INBOARD AND ON THE UPPER SURFACE OF AN ASPECT-RATIO-7.0 35° SWEPT WING WITH FUSELAGE AND VARIOUS TAIL ARRANGEMENTS. Thomas R. Turner, Edwin E. Davenport, and John M. Riebe. June 1959. 42 p. diagrs., photo.

NASA MEMO 5-5-59L

EFFECT OF ARTIFICIAL PITCH DAMPING ON THE LONGITUDINAL AND ROLLING STABILITY OF AIRCRAFT WITH NEGATIVE STATIC MARGINS. Martin T. Moul and Lawrence W. Brown. June 1959. 25 p. diagrs., tabs.

NASA MEMO 5-16-59A

THE STATIC AND DYNAMIC ROTARY STABILITY DERIVATIVES AT SUBSONIC SPEEDS OF AN AIRPLANE MODEL HAVING WING AND TAIL SURFACES SWEPT BACK 45°. Armando E. Lopez, Donald A. Buell, and Bruce E. Tinling. May 1959. 75 p.

NASA MEMO 5-18-59A

THE EFFECTS OF STREAMWISE-DEFLECTED WING TIPS ON THE AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-2 TRIANGULAR WING, BODY, AND TAIL COMBINATIONS. Victor L. Peterson. May 1959. 36 p.

NASA MEMO 5-20-59L

LOW-SUBSONIC MEASUREMENTS OF THE STATIC AND OSCILLATORY LATERAL STABILITY DERIVATIVES OF A SWEPTBACK-WING AIRPLANE CONFIGURATION AT ANGLES OF ATTACK FROM -10° TO 90°. Donald E. Hewes. June 1959. 36 p. diagrs., photos., tab.

NASA MEMO 5-25-59L

INVESTIGATION OF THE STABILITY OF VERY FLAT SPINS AND ANALYSIS OF EFFECTS OF APPLYING VARIOUS MOMENTS UTILIZING THE THREE MOMENT EQUATIONS OF MOTION. Walter J. Klinar and William D. Grantham. June 1959. 50 p. diagrs., tabs.

NASA MEMO 6-9-59A

TRANSONIC AERODYNAMIC CHARACTERISTICS OF A LATERAL CONTROL EMPLOYING ROTATABLE AIRFOILS MOUNTED VERTICALLY AT THE WING TIPS OF A 45° SWEPTBACK WING, FUSELAGE, AND TAIL COMBINATION. John A. Axelson. June 1959. 49 p.

NASA MEMO 6-11-59a

STATIC LONGITUDINAL STABILITY AND CONTROL CHARACTERISTICS OF AN UNSWEPT WING AND UNSWEPT HORIZONTAL-TAIL CONFIGURATION AT MACH NUMBERS FROM 0.70 TO 2.22. Victor L. Peterson and Gene P. Menees. May 1959. 19 p.

NASA TM X-5

WIND-TUNNEL INVESTIGATION OF THE STATIC STABILITY OF A 1/56-SCALE MODEL OF THE X-1E AIRPLANE AT MACH NUMBERS OF 2.37, 2.98, AND 4.01. Fred M. Smith. August 1959. 120 p.

NASA TM X-24

AERODYNAMIC CHARACTERISTICS OF A 0.0667-SCALE MODEL OF THE NORTH AMERICAN X-15 RESEARCH AIRPLANE AT TRANSONIC SPEEDS. Robert S. Osborne. September 1959. 108 p.

NASA TM X-26

DESIGN GUIDE FOR PITCH-UP EVALUATION AND INVESTIGATION AT HIGH SUBSONIC SPEEDS OF POSSIBLE LIMITATIONS DUE TO WING-ASPECT-RATIO VARIATIONS. Kenneth P. Spreemann. August 1959. 37 p.

NASA TM X-27

EFFECTS OF OUTBOARD THICKENED AND BLUNTED LEADING EDGES ON THE WAVE DRAG OF A 45° SWEPT-WING AND BODY COMBINATION. George H. Holdaway, Frank A. Lazzeroni, and Elaine W. Hatfield. August 1959. 31 p.

NASA TM X-31

APPROACH AND LANDING INVESTIGATION AT LIFT-DRAG RATIOS OF 2 TO 4 UTILIZING A STRAIGHT-WING FIGHTER AIRPLANE. Gene J. Matranga and Neil A. Armstrong. August 1959. 21 p.

NASA TM X-39

DYNAMIC LONGITUDINAL AND DIRECTIONAL STABILITY DERIVATIVES FOR A 45° SWEPTBACK-WING AIRPLANE MODEL AT TRANSONIC SPEEDS. Ralph P. Bielat and Harleth G. Wiley. August 1959. 52 p.

NASA TM X-43

AN INVESTIGATION OF THE PITCHING-MOMENT CONTRIBUTION OF A HIGH HORIZONTAL TAIL ON AN UNSWEPT-WING AND BODY COMBINATION AT MACH NUMBERS FROM 0.80 TO 1.40. Garth W. Lippmann. August 1959. 30 p.

NASA TM X-72

LOW-SPEED STATIC LONGITUDINAL AND LATERAL STABILITY CHARACTERISTICS OF A VARIABLE-INCIDENCE DELTA-WING CANARD MODEL WITH HIGH-LIFT CANARD SURFACES. Clarence D. Cone, Jr. September 1959. 71 p.

NASA TM X-92

EFFECTS OF WING-CRANK, LEADING-EDGE CHORD EXTENSIONS AND HORIZONTAL-TAIL HEIGHT ON THE LONGITUDINAL STABILITY OF SWEPT-WING MODELS AT MACH NUMBERS FROM 0.6 TO 1.4. Roy M. Wakefield. October 1959. 116 p.

NASA TM X-105

INVESTIGATION AT MACH NUMBERS OF 0.20 TO 3.50 OF A BLENDED DIAMOND WING AND BODY COMBINATION OF SONIC DESIGN BUT WITH LOW WAVE-DRAG INCREASE WITH INCREASING MACH NUMBER. George H. Holdaway, Jack A. Mellenthin, and Elaine W. Hatfield. October 1959. 54 p.

NASA TM X-115

AERODYNAMIC CHARACTERISTICS AT MACH NUMBER 2.01 OF AN AIRPLANE CONFIGURATION HAVING A CAMBERED AND TWISTED ARROW WING DESIGNED FOR A MACH NUMBER OF 3.0. Odell A. Morris and A. Warner Robins. September 1959. 33 p.

NASA TM X-119

AERODYNAMIC LOADING CHARACTERISTICS INCLUDING EFFECTS OF AEROELASTICITY OF A THIN-TRAPEZOIDAL-WING – BODY COMBINATION AT A MACH NUMBER OF 1.43. Thomas C. Kelly. September 1959. 39 p.

NASA TM X-141

STATIC STABILITY CHARACTERISTICS OF THREE THICK WING MODELS WITH PARABOLIC PLAN FORMS AT A MACH NUMBER OF 3.11. M. J. Queijo. October 1959. 18 p.

NASA TM X-283

SUBSONIC FLIGHT TESTS OF A 1/7-SCALE RADIO-CONTROLLED MODEL OF THE NORTH AMERICAN X-15 AIRPLANE WITH PARTICULAR REFERENCE TO HIGH ANGLE-OF-ATTACK CONDITIONS. Donald E. Hewes and James L. Hassell, Jr. June 1960. 44 p., film suppl. available on loan.

NASA TM X-372

INVESTIGATION AT MACH NUMBERS OF 0.20 TO 3.50 OF BLENDED WING-BODY COMBINATIONS OF SONIC DESIGN WITH DIAMOND, DELTA, AND ARROW PLAN FORMS. George H. Holdaway and Jack A. Mellenthin. August 1960. 77 p.

NASA TM X-379

EVALUATION OF BLENDED WING-BODY COMBINATIONS WITH CURVED PLAN FORMS AT MACH NUMBERS UP TO 3.50. George H. Holdaway and Jack A. Mellenthin. October 1960. 66 p.

NASA TM X-390

INVESTIGATION AT MACH NUMBERS OF 0.60 TO 3.50 OF BLENDED WING-BODY COMBINATIONS WITH CAMBERED AND TWISTED WINGS WITH DIAMOND, DELTA, AND ARROW PLAN FORMS. George H. Holdaway and Jack A. Mellenthin. October 1960. 76 p.

NASA RE 5-1-59W

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STABILITY AND CONTROL OF AIRCRAFT AND SPACECRAFT

NASA TR R-19

THEORETICAL ANALYSIS OF THE LONGITUDINAL BEHAVIOR OF AN AUTOMATICALLY CONTROLLED SUPERSONIC INTERCEPTOR DURING THE ATTACK PHASE. Ordway B. Gates, Jr., and C. H. Woodling. 1959. i, 22 p. GPO price, $0.35.

NASA TR R-65

DETERMINATION OF LATERAL STABILITY CHARACTERISTICS FROM FREE-FLIGHT MODEL TESTS, WITH EXPERIMENTAL RESULTS ON THE EFFECTS OF WING VERTICAL POSITION AND DIHEDRAL AT TRANSONIC SPEEDS. Clarence L. Gillis, Jesse L. Mitchell, and Charles T. D'Aiutolo. 1960. 35 p. diagrs., photos., tabs. GPO price, $0.30.

NASA TN D-7

WING-ON AND WING-OFF LONGITUDINAL CHARACTERISTICS OF AN AIRPLANE CONFIGURATION HAVING A THIN UNSWEPT WING OF ASPECT RATIO 3, AS OBTAINED FROM ROCKET-PROPELLED MODELS AT MACH NUMBERS FROM 0.8 TO 1.4. Clarence L. Gillis and A. James Vitale. March 1960. 42 p. diagrs., photos., tabs. OTS price, $1.25.

NASA TN D-20

THE ANALYSIS AND DESIGN OF CONTINUOUS AND SAMPLED-DATA FEEDBACK CONTROL SYSTEMS WITH A SATURATION TYPE NONLINEARITY. Stanley Francis Schmidt. August 1959. viii, 106 p. diagrs., tabs. OTS price, $2.50.

NASA TN D-26

MOVING-COCKPIT SIMULATOR INVESTIGATION OF THE MINIMUM TOLERABLE LONGITUDINAL MANEUVERING STABILITY. B. Porter Brown and Harold I. Johnson. September 1959. 46 p. diagrs., photos. OTS price, $1.25.

NASA TN D-40

SOME NOTES ON ATTITUDE CONTROL OF EARTH SATELLITE VEHICLES. Warren Gillespie, Jr., Donald G. Eide, and Allan B. Churgin. December 1959. 80 p. diagrs., tabs. OTS price, $2.00.

NASA TN D-45

FLIGHT INVESTIGATION OF STABILITY AND CONTROL CHARACTERISTICS OF A 1/8-SCALE MODEL OF A TILT-WING VERTICAL-TAKE-OFF-AND-LANDING AIRPLANE. Louis P. Tosti. March 1960. 25 p. diagrs., photo., tabs., film suppl. available on request. OTS price, $0.75.

NASA TN D-58

THE EFFECTS OF VARIOUS COMBINATIONS OF DAMPING AND CONTROL POWER ON HELICOPTER HANDLING QUALITIES DURING BOTH INSTRUMENT AND VISUAL FLIGHT. Seymour Salmirs and Robert J. Tapscott. October 1959. 38 p. diagrs., photo., tabs. OTS price, $1.00.

NASA TN D-113

ANALYSIS OF THE DYNAMIC LATERAL STABILITY OF A DELTA-WING AIRPLANE WITH FREQUENCY-DEPENDENT STABILITY DERIVATIVES. Albert E. Brown and Albert A. Schy. November 1959. 44 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-114

FLIGHT INVESTIGATION OF AN AUTOMATIC PITCHUP CONTROL. George J. Hurt, Jr., and James B. Whitten. August 1960. 27 p. OTS price, $0.75.

NASA TN D-139

AN EXPLORATORY INVESTIGATION IN A BALLISTIC RANGE OF THE STABILITY DERIVATIVES OF A SIMPLE AIRPLANE CONFIGURATION AT LOW SUPERSONIC SPEEDS. Charles E. DeRose and Alfred G. Boissevain. December 1959. 25 p. diagrs., photos., tab. OTS price, $0.75.

NASA TN D-144

DETERMINATION OF NONLINEAR PITCHING-MOMENT CHARACTERISTICS OF AXIALLY SYMMETRIC MODELS FROM FREE-FLIGHT DATA. Maurice L. Rasmussen. February 1960. 51 p. diagrs. OTS price, $1.50.

NASA TN D-155

MINIMAL MANEUVERS OF HIGH-PERFORMANCE AIRCRAFT IN A VERTICAL PLANE. Angelo Miele, Purdue University. September 1959. 37 p. OTS price, $1.00.

NASA TN D-156

ANALYTICAL INVESTIGATION OF EFFECT OF SPIN ENTRY TECHNIQUE ON SPIN AND RECOVERY CHARACTERISTICS FOR A 60° DELTA-WING AIRPLANE. Stanley H. Scher, Ernie L. Anglin, and George F. Lawrence. December 1959. 52 p. diagrs., tabs. OTS price, $1.50.

NASA TN D-173

FLIGHT INVESTIGATIONS OF AUTOMATIC STABILIZATION OF AN AIRPLANE HAVING STATIC LONGITUDINAL INSTABILITY. Walter R. Russell, S. A. Sjoberg, and William L. Alford. December 1959. 32 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-177

JET EFFECTS ON LONGITUDINAL TRIM OF AN AIRPLANE CONFIGURATION MEASURED AT MACH NUMBERS BETWEEN 1.2 AND 1.8. Robert F. Peck. December 1959. 17 p. diagrs., photos. OTS price, $0.50.

NASA TN D-189

STATIC-STABILITY MEASUREMENTS OF A STAND-ON TYPE HELICOPTER WITH RIGID BLADES, INCLUDING A COMPARISON WITH THEORY. George E. Sweet. February 1960. 50 p. diagrs., photos. OTS price, $1.25.

NASA TN D-193

THE INTERPRETATION OF NONLINEAR PITCHING MOMENTS IN RELATION TO THE PITCH-UP PROBLEM. George S. Campbell and Joseph Weil. December 1959. 32 p. diagrs., tabs. OTS price, $1.00.

NASA TN D-211

FLIGHT INVESTIGATION OF PILOT'S ABILITY TO CONTROL AN AIRPLANE HAVING POSITIVE AND NEGATIVE STATIC LONGITUDINAL STABILITY COUPLED WITH VARIOUS EFFECTIVE LIFT-CURVE SLOPES. Roy F. Brissenden, William L. Alford, and Donald L. Mallick. February 1960. 20 p. diagrs., photo., tab. OTS price, $0.50.

NASA TN D-213

DYNAMIC MODEL INVESTIGATION OF A LANDING GEAR CONFIGURATION CONSISTING OF A SINGLE MAIN SKID AND A NOSE WHEEL. Stanley Faber. February 1960. 14 p. diagrs., photo., tabs., film suppl. available on request. OTS price, $0.50.

NASA TN D-217

LOW-SPEED INVESTIGATION OF STATIC LONGITUDINAL AND LATERAL STABILITY CHARACTERISTICS OF AN AIRPLANE CONFIGURATION WITH A HIGHLY TAPERED WING AND WITH SEVERAL BODY AND TAIL ARRANGEMENTS. Paul G. Fournier. January 1960. 46 p. diagrs., photo., tabs. OTS price, $1.25.

NASA TN D-223

EFFECTS OF NOSE CORNER RADII, AFTERBODY SECTION DEFLECTIONS, AND A DROGUE CHUTE ON SUBSONIC MOTIONS OF MANNED-SATELLITE MODELS IN REENTRY CONFIGURATION. Willard S. Blanchard, Jr., and Sherwood Hoffman. March 1960. 16 p. diagrs., photos. OTS price, $0.50.

NASA TN D-230

THE VARIATION AND CONTROL OF RANGE TRAVELED IN THE ATMOSPHERE BY A HIGH-DRAG VARIABLE-LIFT ENTRY VEHICLE. Donald C. Cheatham, John W. Young, and John M. Eggleston. March 1960. 41 p. diagrs. OTS price, $1.25.

NASA TN D-232

EXPERIMENTAL DETERMINATION OF THE EFFECTS OF FREQUENCY AND AMPLITUDE OF OSCILLATION ON THE ROLL-STABILITY DERIVATIVES FOR A 60° DELTA-WING AIRPLANE MODEL. Lewis R. Fisher. March 1960. 49 p. diagrs., photos., tabs. OTS price, $1.25.

NASA TN D-331

AN EXAMINATION OF HANDLING QUALITIES CRITERIA FOR V/STOL AIRCRAFT. Seth B. Anderson. July 1960. 51 p. OTS price, $1.50.

NASA TN D-454

THEORETICAL ANALYSIS OF THE LONGITUDINAL BEHAVIOR OF AN AUTOMATICALLY CONTROLLED SUPERSONIC INTERCEPTOR DURING THE ATTACK PHASE AGAINST MANEUVERING AND NONMANEUVERING TARGETS. C. H. Woodling and Ordway B. Gates, Jr. June 1960. 45 p. OTS price, $1.25.

NASA TN D-496

VANGUARD SATELLITE SPIN-REDUCTION MECHANISM. Robert C. Baumann. April 1961. 20 p. OTS price, $0.50.

NASA TN D-514

STATIC LONGITUDINAL STABILITY AND CONTROL CHARACTERISTICS AT A MACH NUMBER OF 1.99 OF A LENTICULAR-SHAPED REENTRY VEHICLE. Charlie M. Jackson, Jr., and Roy V. Harris, Jr. October 1960. 16 p. OTS price, $0.50.

NASA TN D-525

A THREE-AXIS FIXED-SIMULATOR INVESTIGATION OF THE EFFECTS ON CONTROL PRECISION OF VARIOUS WAYS OF UTILIZING RATE SIGNALS. John W. McKee. January 1961. 54 p.

NASA TN D-554

INVESTIGATION OF THE STATIC LONGITUDINAL STABILITY CHARACTERISTICS OF A 0.067-SCALE MODEL OF A FOUR-STAGE CONFIGURATION OF THE SCOUT RESEARCH VEHICLE AT MACH NUMBERS OF 2.29, 2.96, 3.96, AND 4.65. Lloyd S. Jernell and Norman Wong. September 1960. 25 p. OTS price, $0.75.

NASA TN D-555

THEORY OF ARTIFICIAL STABILIZATION OF MISSILES AND SPACE VEHICLES WITH EXPOSITION OF FOUR CONTROL PRINCIPLES. R. F. Hoelker. June 1961. 22 p. OTS price, $0.75.

NASA TN D-566

ROTATIONAL MAGNETODYNAMICS AND STEERING OF SPACE VEHICLES. R. H. Wilson, Jr. September 1961. 20 p. OTS price, $0.50.

NASA TN D-571

ANGULAR MOTION OF THE SPIN AXIS OF THE TIROS I METEOROLOGICAL SATELLITE DUE TO MAGNETIC AND GRAVITATIONAL TORQUES. W. R. Bandeen and W. P. Manger. April 1961. 6 p. OTS price, $0.50.

NASA TN D-626

SATELLITE ATTITUDE CONTROL USING A COMBINATION OF INERTIA WHEELS AND A BAR MAGNET. James J. Adams and Roy F. Brissenden. November 1960. 42 p. OTS price, $1.25.

NASA TN D-651

INVESTIGATION OF THE STATIC STABILITY CHARACTERISTICS OF TWO STAGES OF A THREE-STAGE MISSILE AT A MACH NUMBER OF 4.00. Ausley B. Carraway, Frederick G. Edwards, and Jean C. Keating. March 1961. 18 p. OTS price, $0.50.

NASA TN D-691

STUDY OF SYSTEMS USING INERTIA WHEELS FOR PRECISE ATTITUDE CONTROL OF A SATELLITE. John S. White and Q. Marion Hansen. April 1961. 71 p. OTS price, $2.00.

NASA TN D-708

THEORY AND DESIGN CURVES FOR A YO-YO DE-SPIN MECHANISM FOR SATELLITES. J. V. Fedor. August 1961. 11 p. OTS price, $0.50.

NASA TN D-749

EXPERIMENTAL EVALUATION OF THE DECELERATION OF ALUMINUM CYLINDERS ROTATING IN A MAGNETIC FIELD AND COMMENTS ON MAGNETIC DAMPING OF A FLYWHEEL CONTROL. Donald G. Eide. April 1961. 35 p. OTS price, $1.00.

NASA TN D-778

A FLIGHT STUDY OF THE DYNAMIC STABILITY OF A TILTING-ROTOR CONVERTIPLANE. Hervey C. Quigley and David G. Koenig. April 1961. 10 p. OTS price, $0.50.

NASA TN D-779

FLIGHT INVESTIGATION USING VARIABLE-STABILITY AIRPLANES OF MINIMUM STABILITY REQUIREMENTS FOR HIGH-SPEED, HIGH-ALTITUDE VEHICLES. Norman M. McFadden, Richard F. Vomaske, and Donovan R. Heinle. April 1961. 50 p. OTS price, $1.25.

NASA TN D-792

ATTITUDE CONTROL REQUIREMENTS FOR HOVERING DETERMINED THROUGH THE USE OF A PILOTED FLIGHT SIMULATOR. Alan E. Faye, Jr. April 1961. 20 p. OTS price, $0.50.

NASA TN D-803

EFFECTS OF MASS-LOADING VARIATIONS AND APPLIED MOMENTS ON MOTION AND CONTROL OF A MANNED ROTATING SPACE VEHICLE. William D. Grantham. May 1961. 40 p. OTS price, $1.00.

NASA TN D-812

EFFECTS OF GYROSCOPIC CROSS COUPLING BETWEEN PITCH AND ROLL ON THE HANDLING QUALITIES OF VTOL AIRCRAFT. John F. Garren, Jr. April 1961. 20 p. OTS price, $0.50.

NASA TN D-841

HOVERING FLIGHT INVESTIGATION OF TWO METHODS OF CONTROLLING A MAN-CARRYING DUCTED FAN VEHICLE OF THE FLYING-PLATFORM TYPE. Lysle P. Parlett. June 1961. 10 p., film suppl. available on request. OTS price, $0.50.

NASA TN D-884

ANALOG-COMPUTER INVESTIGATION OF EFFECTS OF FRICTION AND PRELOAD ON THE DYNAMIC LONGITUDINAL CHARACTERISTICS OF A PILOT-AIRPLANE COMBINATION. Harold L. Crane. May 1961. 47 p. OTS price, $1.25.

NASA TN D-892

LOW-SUBSONIC MEASUREMENTS OF THE STATIC STABILITY AND CONTROL AND OSCILLATORY STABILITY DERIVATIVES OF A PROPOSED REENTRY VEHICLE HAVING AN EXTENSIBLE HEAT SHIELD FOR HIGH-DRAG REENTRY. Joseph L. Johnson, Jr., and Peter C. Boisseau. August 1961. 35 p. OTS price, $1.00.

NASA TN D-905

STUDY OF AN ACTIVE CONTROL SYSTEM FOR A SPINNING BODY. J. J. Adams. June 1961. 30 p. OTS price, $0.75.

NASA TN D-920

STABILITY AND CONTROL CHARACTERISTICS OF A SMALL-SCALE MODEL OF AN AERIAL VEHICLE SUPPORTED BY TWO DUCTED FANS. Lysle P. Parlett. July 1961. 22 p. OTS price, $0.75.

NASA TN D-937

STABILITY AND CONTROL CHARACTERISTICS OF A MODEL OF AN AERIAL VEHICLE SUPPORTED BY FOUR DUCTED FANS. Lysle P. Parlett. August 1961. 18 p., film suppl. available on request. OTS price, $0.50.

NASA TN D-952

ANALYSIS OF EFFECTS OF INTERCEPTOR ROLL PERFORMANCE AND MANEUVERABILITY ON SUCCESS OF COLLISION-COURSE ATTACKS. William H. Phillips. August 1961. 37 p. OTS price, $1.00.

NASA TN D-1068

SATELLITE ATTITUDE CONTROL UTILIZING THE EARTH'S MAGNETIC FIELD. John S. White, Fred H. Shigemoto, and Kent Bourquin. August 1961. 38 p. OTS price, $1.00.

NASA MEMO 10-158L

LONGITUDINAL AND LATERAL STABILITY AND CONTROL CHARACTERISTICS OF VARIOUS COMBINATIONS OF THE COMPONENT PARTS OF TWO CANARD AIRPLANE CONFIGURATIONS AT MACH NUMBERS OF 1.41 AND 2.01. Cornelius Driver. October 1958. 104 p.

NASA MEMO 10-3-58L

WIND-TUNNEL INVESTIGATION OF SOME EFFECTS OF WING SWEEP AND HORIZONTAL-TAIL HEIGHT ON THE STATIC STABILITY OF AN AIRPLANE MODEL AT TRANSONIC SPEEDS. Lewis R. Fisher and James L. Williams. October 1958. 43 p.

NASA MEMO 10-14-58L

EFFECTS OF FOREBODY LENGTH ON THE STABILITY AND CONTROL CHARACTERISTICS AT A MACH NUMBER OF 2.01 OF A CANARD AIRPLANE CONFIGURATION WITH A TRAPEZOIDAL ASPECT-RATIO-3 WING. M. Leroy Spearman and Cornelius Driver. November 1958. 30 p.

NASA MEMO 10-22-58L

LOW-SPEED STATIC STABILITY CHARACTERISTICS OF TWO CONFIGURATIONS SUITABLE FOR LIFTING REENTRY FROM SATELLITE ORBIT. John W. Paulson. November 1958. 17 p.

NASA MEMO 12-10-58A

A FLIGHT INVESTIGATION TO DETERMINE THE LATERAL OSCILLATORY DAMPING ACCEPTABLE FOR AN AIRPLANE IN THE LANDING APPROACH. Walter E. McNeill and Richard F. Vomaske. February 1959. 33 p. diagrs., photos., tabs.

NASA MEMO 1-29-59A

A PILOT OPINION STUDY OF LATERAL CONTROL REQUIREMENTS FOR FIGHTER-TYPE AIRCRAFT. Brent Y. Creer, John D. Stewart, Robert B. Merrick, and Fred J. Drinkwater, III. March 1959. 44 p. diagrs., photos., tabs.

NASA MEMO 2-11-59L

AN INVESTIGATION OF THE PERFORMANCE OF VARIOUS REACTION CONTROL DEVICES. Paul A. Hunter. March 1959. 37 p. diagrs., photos.

NASA TM X-144

LOW-SPEED MEASUREMENTS OF OSCILLATORY LATERAL STABILITY DERIVATIVES OF A 1/7-SCALE MODEL OF THE NORTH AMERICAN X-15 AIRPLANE. John W. Paulson and James L. Hassell, Jr. November 1959. 27 p.

NASA TM X-210

INVESTIGATION OF THE SUBSONIC STABILITY AND CONTROL CHARACTERISTICS OF A 1/7-SCALE MODEL OF THE NORTH AMERICAN X-15 AIRPLANE WITH AND WITHOUT FUSELAGE FORE-BODY STRAKES. James L. Hassell, Jr., and Donald E. Hewes. February 1960. 45 p., film suppl. available on request.

NASA TM X-297

INVESTIGATION OF THE LOW-SUBSONIC STABILITY AND CONTROL CHARACTERISTICS OF A 1/3-SCALE FREE-FLYING MODEL OF A LIFTING-BODY REENTRY CONFIGURATION. James L. Hassell, Jr. July 1960. 40 p. film suppl. available on request.

NASA TT F-5

THE AIRPLANE AS AN OBJECT OF CONTROL. (BLOCK DIAGRAMS OF THE EQUATIONS OF PERTURBED AIRPLANE MOTION.) V. S. Vedrov, G. L. Romanov, and V. N. Surina. October 1959. 52 p. diagrs., tabs. OTS price, $1.50.

NASA TT F-43

A VIBRATION ABSORBER FOR TWO-BLADED HELICOPTERS. (Un étouffeur de vibrations pour hélicoptère bipale.) Th. Laufer. November 1960. 14 p. OTS price, $0.50.

NASA TT F-45

FIRST-ORDER PERTURBATIONS IN THE MOTION OF EARTH SATELLITES DUE TO OBLATENESS OF THE EARTH. V. F. Proskurin and Yu. V. Batrakov. November 1960. 12 p. OTS price, $0.50.

NASA TT F-46

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NASA TT F-55

RESPONSE OF A HELICOPTER ROTOR TO AN INCREASE IN COLLECTIVE PITCH FOR THE CASE OF VERTICAL FLIGHT. (Réponse d'un rotor d'hélicoptère a une augmentation du pas général dans le cas du vol vertical.) Jean Rebont, Jacques Valensi, and Jean Soulez-Lariviere. January 1961. 20 p. OTS price, $0.50.

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STRUCTURAL ENGINEERING

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NASA TR R-21

ON SOLUTIONS FOR THE TRANSIENT RESPONSE OF BEAMS. Robert W. Leonard. 1959. i, 33 p. diagrs., tabs. GPO price, $0.40.

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AN IMPROVED FIRST-APPROXIMATION THEORY FOR THIN SHELLS. J. Lyell Sanders, Jr. 1959. i, 11 p. diagr. GPO price, $0.30.

NASA TR R-28

PRACTICAL SOLUTION OF PLASTIC DEFORMATION PROBLEMS IN ELASTIC-PLASTIC RANGE. A. Mendelson and S. S. Manson. 1959. i, 24 p. diagrs., tab. GPO price, $0.40.

NASA TR R-30

LOCAL INSTABILITY OF THE ELEMENTS OF A TRUSS-CORE SANDWICH PLATE. Melvin S. Anderson. 1959. i, 13 p. diagrs., photo. GPO price, $0.20.

NASA TR R-39

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NASA TR R-70

AN EVALUATION OF EFFECTS OF FLEXIBILITY ON WING STRAINS IN ROUGH AIR FOR A LARGE SWEPT-WING AIRPLANE BY MEANS OF EXPERIMENTALLY DETERMINED FREQUENCY-RESPONSE FUNCTIONS WITH AN ASSESSMENT OF RANDOM-PROCESS TECHNIQUES EMPLOYED. Thomas L. Coleman, Harry Press, and May T. Meadows. 1960. ii, 33 p. GPO price, $0.40.

NASA TN D-1

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NASA TN D-3

AN EXAMINATION OF METHODS OF BUFFETING ANALYSIS BASED ON EXPERIMENTS WITH WINGS OF VARYING STIFFNESS. A. Gerald Rainey and Thomas A. Byrdsong. APPENDIX A: DERIVATION OF EQUATIONS GOVERNING BUFFET RESPONSE OF A WING. Don D. Davis, Jr. August 1959. 28 p. diagrs.

NASA TN D-5

INVESTIGATION OF METHODS FOR COMPUTING FLUTTER CHARACTERISTICS OF SUPERSONIC DELTA WINGS AND COMPARISON WITH EXPERIMENTAL DATA. C. H. Wilts, California Institute of Technology. August 1959. 65 p. diagrs., tabs. OTS price, $1.75.

NASA TN D-22

MEASUREMENTS OF GROUND-REACTION FORCES AND VERTICAL ACCELERATIONS AT THE CENTER OF GRAVITY OF A TRANSPORT AIRPLANE TAXIING OVER OBSTACLES. James M. McKay. September 1959. 27 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-29

SUMMARY OF VGH AND V-G DATA OBTAINED FROM PISTON-ENGINE TRANSPORT AIRPLANES FROM 1947 TO 1958. Walter G. Walker and Martin R. Copp. September 1959. 41 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-36

ANALYSIS OF ACCELERATION, AIRSPEED, AND GUST-VELOCITY DATA FROM A FOUR-ENGINE TURBOPROP TRANSPORT OPERATING OVER THE EASTERN UNITED STATES. Martin R. Copp and Mary W. Fetner. September 1959. 21 p. diagrs., tabs. OTS price, $0.75.

NASA TN D-38

EFFECT OF CHORDWISE HEAT CONDUCTION ON THE TORSIONAL STIFFNESS OF A DIAMOND-SHAPED WING SUBJECTED TO A CONSTANT HEAT INPUT. Robert G. Thomson and J. Lyell Sanders, Jr. September 1959. 34 p. diagrs. OTS price, $1.00.

NASA TN D-52

THE RATE OF FATIGUE-CRACK PROPAGATION FOR TWO ALUMINUM ALLOYS UNDER COMPLETELY REVERSED LOADING. Walter Illg and Arthur J. McEvily, Jr. October 1959. 19 p. diagrs., photos., tabs. OTS price, $0.50.

NASA TN D-59

INVESTIGATION OF VIBRATION CHARACTERISTICS OF CIRCULAR-ARC MONOCOQUE BEAMS. Wilbur B. Fichter and Eldon E. Kordes. September 1959. 27 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-94

INVESTIGATION OF HIGH-SPEED IMPACT: REGIONS OF IMPACT AND IMPACT AT OBLIQUE ANGLES. James L. Summers. October 1959. 18 p. diagrs., photos. OTS price, $0.50.

NASA TN D-95

THEORETICAL ANALYSIS OF THE CREEP COLLAPSE OF COLUMNS. Floyd R. Schlechte. September 1959. 46 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-98

OPTIMUM PROPORTIONS OF TRUSS-CORE AND WEB-CORE SANDWICH PLATES LOADED IN COMPRESSION. Melvin S. Anderson. September 1959. 26 p. diagrs., photo. OTS price, $0.75.

NASA TN D-104

MINIMUM-WEIGHT ANALYSIS OF SYMMETRICAL-MULTIWEB-BEAM STRUCTURES SUBJECTED TO THERMAL STRESS. Robert R. McWithey. October 1959. 30 p. diagrs. OTS price, $0.75.

NASA TN D-125

THERMAL-STRESS FATIGUE CRACKING OF TURBINE BUCKETS OPERATED AT 1700° F IN A TURBOJET ENGINE WITH FREQUENT STARTS AND STOPS. R. A. Signorelli, J. R. Johnston, and J. W. Weeton. October 1959. 16 p. diagrs., photos., tabs. OTS price, $0.50.

NASA TN D-137

A PRELIMINARY INVESTIGATION OF THE PENETRATION OF SLENDER METAL RODS IN THICK METAL TARGETS. James L. Summers and William R. Niehaus. December 1959. 9 p. diagrs., photos. OTS price, $0.50.

NASA TN D-158

LIMITED INVESTIGATION OF CRUSHABLE STRUCTURES FOR ACCELERATION PROTECTION OF OCCUPANTS OF VEHICLES AT LOW IMPACT SPEEDS. Thomas C. O'Bryan and Howard G. Hatch, Jr. October 1959. 24 p. diagrs., photos. OTS price, $0.75.

NASA TN D-162

HANDBOOK OF STRUCTURAL STABILITY. PART VII - STRENGTH OF THIN-WING CONSTRUCTION. George Gerard and Herbert Becker, New York University. September 1959. 83 p. diagrs. OTS price, $2.25.

NASA TN D-163

HANDBOOK OF STRUCTURAL STABILITY. SUPPLEMENT TO PART III - BUCKLING OF CURVED PLATES AND SHELLS. George Gerard, New York University. September 1959. 23 p. diagrs. OTS price, $0.75.

NASA TN D-181

INVESTIGATION OF CREEP BEHAVIOR OF STRUCTURAL JOINTS UNDER CYCLIC LOADS AND TEMPERATURES. Leonard Mordfin, Nixon Halsey, and Gary E. Greene. October 1959. 37 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-210

ROTATING-BEAM FATIGUE TESTS OF NOTCHED AND UNNOTCHED 7075-T6 ALUMINUM-ALLOY SPECIMENS UNDER STRESSES OF CONSTANT AND VARYING AMPLITUDES. Herbert F. Hardrath, Elmer C. Utley, and David E. Guthrie. December 1959. 34 p. diagrs., tabs. OTS price, $1.00.

NASA TN D-212

AXIAL-LOAD FATIGUE TESTS OF 2024-T3 AND 7075-T6 ALUMINUM-ALLOY SHEET SPECIMENS UNDER CONSTANT-AND VARIABLE-AMPLITUDE LOADS. Eugene C. Naumann, Herbert F. Hardrath, and David E. Guthrie. December 1959. 37 p. diagrs., tabs. OTS price, $1.00.

NASA TN D-256

FATIGUE DAMAGE DURING COMPLEX STRESS HISTORIES. H. W. Liu and H. T. Corten, University of Illinois. November 1959. 56 p. diagrs., photos., tabs. OTS price, $1.50.

NASA TN D-271

ANALYSIS OF ELASTIC-PLASTIC STRESS DISTRIBUTION IN THIN-WALL CYLINDERS AND SPHERES SUBJECTED TO INTERNAL PRESSURE AND NUCLEAR RADIATION HEATING. Donald F. Johnson. April 1960. 34 p. diagrs., tabs. OTS price, $1.00.

NASA TN D-272

THERMAL-STRESS FATIGUE CRACKING OF TURBINE BUCKETS OPERATED AT 1700° F IN A TURBOJET ENGINE WITH LONG PERIODS OF OPERATION BETWEEN STARTS. Robert A. Signorelli, James R. Johnston, and William J. Waters. February 1960. 22 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-360

BENDING AND COMPRESSION TESTS OF PRESSURIZED RING-STIFFENED CYLINDERS. Marvin B. Dow and James P. Peterson. April 1960. 27 p. diagrs., photos., tabs. OTS price, $0.75.

NASA TN D-362

EFFECTS OF TRANSIENT HEATING ON THE VIBRATION FREQUENCIES OF A PROTOTYPE OF THE X-15 WING. Robert R. McWithey and Louis F. Vosteen. May 1960. 21 p. OTS price, $0.75.

NASA TN D-364

FLIGHT MEASUREMENTS OF THE EFFECTS OF BLADE OUT OF TRACK ON THE VIBRATION LEVELS ON A TANDEM ROTOR HELICOPTER. LeRoy H. Ludi and John E. Yeates, Jr. May 1960. 26 p. OTS price, $0.75.

NASA TN D-371

NATURAL FREQUENCIES IN BENDING OF TWISTED ROTATING AND NONROTATING BLADES. G. Isakson and J. G. Eisley, University of Michigan. March 1960. 67 p. diagrs., $1.75.

NASA TN D-384

COMBINATIONS OF SHEAR, COMPRESSIVE THERMAL, AND COMPRESSIVE LOAD STRESSES FOR THE ONSET OF PERMANENT BUCKLES IN PLATES. George W. Zender and John B. Hall, Jr. May 1960. 26 p. OTS price, $0.75.

NASA TN D-396

SOME EXPERIMENTS CONCERNING SUBSEQUENT YIELD SURFACES IN PLASTICITY. Harvey G. McComb, Jr. June 1960. 33 p. OTS price, $1.00.

NASA TN D-400

ANALYSIS OF FRAME-REINFORCED CYLINDRICAL SHELLS. PART I - BASIC THEORY. Richard H. MacNeal and John A. Bailie. (Originally prepared by Lockheed Aircraft Corporation.) May 1960. 57 p. OTS price, $1.50.

NASA TN D-401

ANALYSIS OF FRAME-REINFORCED CYLINDRICAL SHELLS. PART II - DISCONTINUITIES OF CIRCUMFERENTIAL - BENDING STIFFNESS IN THE AXIAL DIRECTION. Richard H. MacNeal and John A. Bailie. (Originally prepared by Lockheed Aircraft Corporation.) May 1960. 48 p. OTS price, $1.25.

NASA TN D-402

ANALYSIS OF FRAME-REINFORCED CYLINDRICAL SHELLS. PART III - APPLICATIONS. Richard H. MacNeal and John A. Bailie. (Originally prepared by Lockheed Aircraft Corporation.) May 1960. 136 p. OTS price, $2.75.

NASA TN D-424

INVESTIGATION OF THE BUCKLING STRENGTH OF CORRUGATED WEBS IN SHEAR. James P. Peterson and Michael F. Card. June 1960. 29 p. OTS price, $0.75.

NASA TN D-429

CREEP BENDING AND BUCKLING OF THIN CIRCULAR CYLINDRICAL SHELLS. Burton Erickson. Francis W. French, Sharad A. Patel, N. J. Hoff, and Joseph Kempner, Polytechnic Institute of Brooklyn. June 1960. 49 p. OTS price, $1.25.

NASA TN D-451

FLUTTER RESEARCH AND SKIN PANELS. Eldon E. Kordes, Weimer J. Tuovila, and Lawrence D. Guy. September 1960. 18 p. OTS price, $0.50.

NASA TN D-457

STRUCTURAL CONSIDERATIONS OF INFLATABLE REENTRY VEHICLES. Robert W. Leonard, George W. Brooks, and Harvey G. McComb, Jr. September 1960. 23 p. OTS price, $0.75.

NASA TN D-479

THERMAL-FATIGUE CRACK-GROWTH CHARACTERISTICS AND MECHANICAL STRAIN CYCLING BEHAVIOR OF A-286, DISCALOY, AND 16-25-6 AUSTENITIC STEELS. Robert W. Smith and Gordon T. Smith. October 1960. 67 p. OTS price, $1.75.

NASA TN D-506

STRUCTURAL BEHAVIOR OF PRESSURIZED, RING-STIFFENED, THIN-WALL CYLINDERS SUBJECTED TO AXIAL COMPRESSION. James P. Peterson and Marvin B. Dow. October 1960. 24 p. OTS price, $0.75.

NASA TN D-518

IMPORTANT RESEARCH PROBLEMS IN ADVANCED FLIGHT STRUCTURES DESIGN - 1960. Edited by Norris F. Dow. June 1960. ii, 49 p. OTS price, $1.50.

NASA TN D-520

OPTIMUM DESIGN OF INSULATED COMPRESSION PLATES SUBJECTED TO AERODYNAMIC HEATING. John R. Davidson and James F. Dalby. January 1961. 53 p. OTS price, $1.50.

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THE IN-PLANE VIBRATIONS OF A FLAT SPINNING DISK. James G. Simmonds. October 1960. 44 p. OTS price, $1.25.

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CORRELATION OF THE BUCKLING STRENGTH OF PRESSURIZED CYLINDERS IN COMPRESSION OR BENDING WITH STRUCTURAL PARAMETERS. James P. Peterson. October 1960. 21 p. OTS price, $0.75.

NASA TN D-536

APPLICATIONS OF A GENERAL FINITE-DIFFERENCE METHOD FOR CALCULATING BENDING DEFORMATIONS OF SOLID PLATES. William C. Walton, Jr. November 1960. 47 p. OTS price, $1.25.

NASA TN D-541

LANDING-IMPACT CHARACTERISTICS OF LOAD-ALLEVIATING STRUTS ON A MODEL OF A WINGED SPACE VEHICLE. Ulysse J. Blanchard. October 1960. 19 p., film suppl. available on request. OTS price, $0.50.

NASA TN D-543

FATIGUE-CRACK PROPAGATION IN ALUMINUM-ALLOY TENSION PANELS. Richard E. Whaley and Peter R. Kurzhals. November 1960. 25 p. OTS price, $0.75.

NASA TN D-547

FATIGUE INVESTIGATION OF FULL-SCALE TRANSPORT-AIRPLANE WINGS. TESTS WITH CONSTANT-AMPLITUDE AND VARIABLE-AMPLITUDE LOADING SCHEDULES. Lee R. Foster, Jr., and Richard E. Whaley. October 1960. 37 p. OTS price, $1.00.

NASA TN D-592

SMOOTH AND SHARP-NOTCH TENSILE PROPERTIES OF COLD-REDUCED AISI 301 AND 304L STAINLESS-STEEL SHEET AT 75°, -320°, AND -423°F. Morgan P. Hanson. February 1961. 31 p. OTS price, $1.00.

NASA TN D-635

FATIGUE INVESTIGATION OF FULL-SCALE WING PANELS OF 7075 ALUMINUM ALLOY. Claude B. Castle and John F. Ward. April 1961. 31 p. OTS price, $1.00.

NASA TN D-647

FATIGUE DAMAGE UNDER VARYING STRESS AMPLITUDES. H. W. Liu and H. T. Corten, University of Illinois. November 1960. 68 p. OTS price, $1.75.

NASA TN D-661

ANALYTICAL STUDY OF CREEP DEFLECTION OF STRUCTURAL BEAMS. Leonard Mordfin, National Bureau of Standards. December 1960. 31 p. OTS price, $0.75.

NASA TN D-662

EXPERIMENTAL INVESTIGATION OF CREEP DEFLECTION OF EXTRUDED AND RIVETED I-BEAMS. Leonard Mordfin and Nixon Halsey, National Bureau of Standards. December 1960. 26 p. OTS price, $0.75.

NASA TN D-663

EXPERIMENTAL INVESTIGATION OF EFFECTS OF RANDOM LOADING ON THE FATIGUE LIFE OF NOTCHED CANTILEVER-BEAM SPECIMENS OF SAE 4130 NORMALIZED STEEL. Robert W. Fralich. February 1961. 19 p. OTS price, $0.50.

NASA TN D-725

FACTORS IN EVALUATING FATIGUE LIFE OF STRUCTURAL PARTS. Walter Illg. April 1961. 10 p. OTS price, $0.50.

NASA TN D-729

STRUCTURAL-LOADS SURVEYS ON TWO TILT-WING VTOL CONFIGURATIONS. John F. Ward. March 1961. 13 p. OTS price, $0.50.

NASA TN D-737

SOME RECENT STUDIES IN STRUCTURAL DYNAMICS OF ROTOR AIRCRAFT. George W. Brooks and Milton A. Silveira. March 1961. 15 p. OTS price, $0.50.

NASA TN D-750

LOCAL BUCKLING OF LONGITUDINALLY STIFFENED CURVED PLATES. James P. Peterson and Ralph O. Whitley. April 1961. 20 p. OTS price, $0.50.

NASA TN D-755

THE STIFFNESS PROPERTIES OF STRESSED FABRICS AS OBTAINED FROM MODEL TESTS. George W. Zender and Jerry W. Deaton. August 1961. 17 p. OTS price, $0.50.

NASA TN D-796

RESIDUAL STATIC STRENGTH OF ALUMINUM-ALLOY BOX BEAMS CONTAINING FATIGUE CRACKS IN THE TENSION COVERS. Herbert A. Leybold. April 1961. 25 p. OTS price, $0.75.

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A PRELIMINARY INVESTIGATION OF THE EFFECT OF BUMPERS AS A MEANS OF REDUCING PROJECTILE PENETRATION. John O. Funkhouser. April 1961. 17 p. OTS price, $0.50.

NASA TN D-811

EFFECT OF A LOAD-ALLEVIATING STRUCTURE ON THE LANDING BEHAVIOR OF A REENTRY-CAPSULE MODEL. Edward L. Hoffman, Sandy M. Stubbs, and John R. McGehee. May 1961. 29 p. film suppl. available on request. OTS price, $0.75.

NASA TN D-813

ANALYSIS OF PARTLY WRINKLED MEMBRANES. Manuel Stein and John M. Hedgepeth. July 1961. 32 p. OTS price, $1.00.

NASA TN D-816

THE GENERAL EQUATIONS OF EQUILIBRIUM OF ROTATIONALLY SYMMETRIC MEMBRANES AND SOME STATIC SOLUTIONS FOR UNIFORM CENTRIFUGAL LOADING. James G. Simmonds. May 1961. 54 p. OTS price, $1.50.

NASA TN D-827

SUPERSONIC PANEL FLUTTER TEST RESULTS FOR FLAT FIBER-GLASS SANDWICH PANELS WITH FOAMED CORES. W. J. Tuovila and John G. Presnell, Jr. June 1961. 15 p. OTS price, $0.50.

NASA TN D-848

TRANSIENT TEMPERATURE PROFILES AND CALCULATED THERMAL STRAINS OF TURBOJET-ENGINE BUCKETS. J. R. Johnston, J. C. Freche, and R. A. Signorelli. June 1961. 23 p. OTS price, $0.75.

NASA TN D-882

STRESS CONCENTRATIONS IN FILAMENTARY STRUCTURES. John M. Hedgepeth. May 1961. 30 p. OTS price, $0.75.

NASA TN D-940

LANDING CHARACTERISTICS OF A LENTICULAR-SHAPED REENTRY VEHICLE. Ulysse J. Blanchard. September 1961. 35 p., film suppl. available on request. OTS price, $1.00.

NASA TN D-942

FLUTTER AT VERY HIGH SPEEDS. Harry L. Runyan and Homer G. Morgan. August 1961. 12 p. OTS price, $0.50.

NASA TN D-960

EFFECTS OF CHANGING STRESS AMPLITUDE ON THE RATE OF FATIGUE-CRACK PROPAGATION IN TWO ALUMINUM ALLOYS. C. Michael Hudson and Herbert F. Hardrath. September 1961. 24 p. OTS price, $0.75.

NASA TN D-1039

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NASA TN D-65

PROPELLANT VAPORIZATION AS A CRITERION FOR ROCKET-ENGINE DESIGN; EXPERIMENTAL EFFECT OF CHAMBER DIAMETER ON LIQUID OXYGEN - HEPTANE PERFORMANCE. Marcus F. Heidmann. September 1959. 22 p. diagrs., tabs. OTS price, $0.75.

NASA TN D-66

ANALYSIS OF EFFECTS OF ROCKET-ENGINE DESIGN PARAMETERS ON REGENERATIVE-COOLING CAPABILITIES OF SEVERAL PROPELLANTS. Arthur N. Curren, Harold G. Price, Jr., and Howard W. Douglass. September 1959. 47 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-67

BLOWOFF OF PROPANE AND HYDROGEN DIFFUSION FLAMES AT HIGH MACH NUMBER, RAMJET CONDITIONS. R. J. Bacigalupi and E. A. Lezberg. December 1959. 24 p. diagrs., photos. OTS price, $0.75.

NASA TN D-78

ANALYTICAL COMPARISON OF HYDRAZINE WITH PRIMARY PROPELLANTS AS THE TURBINE DRIVE FLUID FOR HYDROGEN-FLUORINE AND HYDROGEN-OXYGEN ALTITUDE STAGE ROCKETS. William T. Wintucky. October 1959. 26 p. diagrs. OTS price, $0.75.

NASA TN D-84

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NASA TN D-99

PRINCIPLES OF DESIGN OF DYNAMICALLY SIMILAR MODELS FOR LARGE PROPELLANT TANKS. Paul E. Sandorff, Massachusetts Institute of Technology. January 1960. 30 p. diagrs., tabs. OTS price, $0.75.

NASA TN D-131

COMPARISON OF HYDRAZINE - NITROGEN TETROXIDE AND HYDRAZINE - CHLORINE TRIFLUORIDE IN SMALL-SCALE ROCKET CHAMBERS. R. James Rollbuhler and William A. Tomazic. October 1959. 16 p. diagrs., tabs. OTS price, $0.50.

NASA TN D-132

A GENERAL METHOD FOR AUTOMATIC COMPUTATION OF EQUILIBRIUM COMPOSITIONS AND THEORETICAL ROCKET PERFORMANCE OF PROPELLANTS. Sanford Gordon, Frank J. Zeleznik, and Vearl N. Huff. October 1959. 161 p. diagrs., tabs. OTS price, $3.00.

NASA TN D-198

CHEMICAL SAMPLING DOWNSTREAM OF LEAN, FLAT HYDROGEN AND PROPANE FLAMES. Burton D. Fine. December 1959. 25 p. diagrs., tab. OTS price, $0.75.

NASA TN D-199

FREE FALL AND EVAPORATION OF JP-1 JET FUEL DROPLETS IN A QUIET ATMOSPHERE. Herman H. Lowell. March 1960. 47 p. diagrs., tabs. OTS price, $1.25.

NASA TN D-200

EXPERIMENTAL INVESTIGATION IN AN ALTITUDE TEST FACILITY OF BURNING OF EXCESS COMBUSTIBLES IN A ROCKET ENGINE EXHAUST. Harry E. Bloomer, Paul E. Renas, and Robert J. Antl. January 1960. 25 p. diagrs., photos. OTS price, $0.75.

NASA TN D-206

HETEROGENEOUS COMBUSTION OF MULTICOMPONENT FUELS. Bernard J. Wood, Henry Wise, and S. Henry Inami, Stanford Research Institute. November 1959. 32 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-273

NUMERICAL COMPUTATION OF AERODYNAMIC HEATING OF LIQUID PROPELLANTS. John L. Kramer, Herman H. Lowell, and William H. Roudebush. April 1960. 28 p. diagrs. OTS price, $0.75.

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EFFECT OF TRANSVERSE ACOUSTIC OSCILLATIONS ON THE VAPORIZATION OF A LIQUID-FUEL DROPLET. Paul R. Wieber and William R. Mickelsen. May 1960. 25 p. OTS price, $0.75.

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A STUDY OF THE COMBUSTION OF ALUMINUM BOROHYDRIDE IN A SMALL SUPERSONIC WIND TUNNEL. Harrison Allen, Jr., and Edward A. Fletcher. July 1960. 15 p. OTS price, $0.50.

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LIQUID-PHASE HEAT-RELEASE RATES OF THE SYSTEMS HYDRAZINE - NITRIC ACID AND UNSYMMETRICAL DIMETHYLHYDRAZINE - NITRIC ACID. Dezso Somogyi and Charles E. Feiler, LeRC. September 1960. 16 p. OTS price, $0.50.

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BONDED AND SEALED EXTERNAL INSULATIONS FOR LIQUID-HYDROGEN-FUELED ROCKET TANKS DURING ATMOSPHERIC FLIGHT. V. H. Gray, T. F. Gelder, R. P. Cochran, and J. H. Goodykoontz. APPENDIX B: STRENGTH OF INSULATIONS AND BOND TO ALUMINUM AT CRYOGENIC TEMPERATURES. Morgan P. Hanson. APPENDIX C: STEP METHOD OF APPROXIMATE NUMERICAL CALCULATION OF ONE-DIMENSIONAL TRANSIENT HEAT CONDUCTION WITH VARIABLE THERMAL PROPERTIES. William Lewis. October 1960. 51 p. OTS price, $1.50.

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INVESTIGATION OF THE PERFORMANCE OF AN AXIAL-FLOW-PUMP STAGE DESIGNED BY THE BLADE-ELEMENT THEORY - DESIGN AND OVERALL PERFORMANCE. James E. Crouse, John C. Montgomery, and Richard F. Soltis. February 1961. 33 p. OTS price, $1.00.

NASA TN D-677

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NASA TN D-808

AN EXPERIMENTAL INVESTIGATION OF THE DAMPING OF LIQUID OSCILLATIONS IN AN OBLATE SPHEROIDAL TANK WITH AND WITHOUT BAFFLES. David G. Stephens, H. Wayne Leonard, and Milton A. Silveira. June 1961. 23 p. OTS price, $0.75.

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TRANSFER OF CRYOGENIC FLUIDS BY AN EXPULSION-BAG TECHNIQUE. Paul J. Sirocky. April 1961. 11 p. OTS price, $0.50.

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NASA TN D-21

NEAR-FIELD AND FAR-FIELD NOISE SURVEYS OF SOLID-FUEL ROCKET ENGINES FOR A RANGE OF NOZZLE EXIT PRESSURES. William H. Mayes, Wade E. Lanford, and Harvey H. Hubbard. August 1959. 32 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-28

A COMBINED WATER-BROMOTRIFLUOROMETHANE CRASH-FIRE PROTECTION SYSTEM FOR A T-56 TURBOPROPELLER ENGINE. John A. Campbell and Arthur M. Busch. August 1959. 34 p. diagrs., photos. OTS price, $1.00.

NASA TN D-34

AIRPLANE AND ENGINE RESPONSES TO ABRUPT THROTTLE STEPS AS DETERMINED FROM FLIGHT TESTS OF EIGHT JET-PROPELLED AIRPLANES. Maurice D. White and Bernard A. Schlaff. September 1959. 39 p. diagrs., tab. OTS price, $1.00.

NASA TN D-48

GROUND MEASUREMENTS OF THE SHOCK-WAVE NOISE FROM AIRPLANES IN LEVEL FLIGHT AT MACH NUMBERS TO 1.4 AND AT ALTITUDES TO 45,000 FEET. Domenic J. Maglieri, Harvey H. Hubbard, and Donald L. Lansing. September 1959. 38 p. diagrs., photos., tabs. OTS price, $1.00.

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AN INVESTIGATION TO DETERMINE CONDITIONS UNDER WHICH DOWNWASH FROM VTOL AIRCRAFT WILL START SURFACE EROSION FROM VARIOUS TYPES OF TERRAIN. Richard E. Kuhn. September 1959. 43 p. diagrs., photos., film suppl. available on request. OTS price, $1.25.

NASA TN D-60

JET-ENGINE EXHAUST NOISE FROM SLOT NOZZLES. Willard D. Coles. September 1959. 30 p. diagrs., photos. OTS price, $0.75.

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EFFECT OF FORWARD VELOCITY ON SOUND-PRESSURE LEVEL IN THE NEAR NOISE FIELD OF A MOVING JET. John C. Fakan and Harold R. Mull. October 1959. 16 p. diagrs., photos. OTS price, $0.50.

NASA TN D-63

FIELD EXPERIMENTS ON TREATMENT OF FLUORINE SPILLS WITH WATER OR SODA ASH. R. James Rollbuhler, George R. Kinney, and Lorenz C. Leopold. September 1959. 14 p. diagrs., photo., tab. OTS price, $0.50.

NASA TN D-101

ROUGH-WATER DITCHING INVESTIGATION OF A MODEL OF A JET TRANSPORT WITH THE LANDING GEAR EXTENDED AND WITH VARIOUS DITCHING AIDS. William C. Thompson. October 1959. 33 p. diagrs., photos., tabs. OTS price, $1.00.

NASA TN D-147

STATISTICAL MEASUREMENTS OF CONTACT CONDITIONS OF COMMERCIAL TRANSPORTS LANDING ON AIRPORTS AT AN ALTITUDE OF 5,300 FEET AND AT SEA LEVEL. Norman S. Silsby and Sadie P. Livingston. November 1959. 21 p. diagrs., tab. OTS price, $0.75.

NASA TN D-151

COMBINED OPERATIONS WITH AND WITHOUT AFTERBURNING FOR MINIMUM FUEL CONSUMPTION IN LEVEL FLIGHT. Angelo Miele and Carlos R. Cavoti, Purdue University. September 1959. 22 p. diagrs. OTS price, $0.75.

NASA TN D-161

AN INVESTIGATION OF SOME ASPECTS OF THE SONIC BOOM BY MEANS OF WIND-TUNNEL MEASUREMENTS OF PRESSURES ABOUT SEVERAL BODIES AT A MACH NUMBER OF 2.01. Harry W. Carlson. December 1959. 44 p. diagrs., OTS price, $1.25.

NASA TN D-235

GROUND MEASUREMENTS OF AIRPLANE SHOCK-WAVE NOISE AT MACH NUMBERS TO 2.0 AND AT ALTITUDES TO 60,000 FEET. Lindsay J. Lina and Domenic J. Maglieri. March 1960. 25 p. diagrs., photos., tab. OTS price, $0.75.

NASA TN D-274

CRASH-FIRE PROTECTION SYSTEM FOR A J57 TURBOJET ENGINE USING WATER AS A COOLING AND INERTING AGENT. Dugald O. Black. February 1960. 35 p. diagrs., photos. OTS price, $1.00.

NASA TN D-289

IGNITION OF A COMBUSTIBLE ATMOSPHERE BY INCANDESCENT CARBON WEAR PARTICLES. Donald H. Buckley, Max A. Swikert, and Robert L. Johnson. September 1960. 16 p. film suppl available on loan. OTS price, $0.50.

NASA TN D-323

A FLIGHT STUDY OF A POWER-OFF LANDING TECHNIQUE APPLICABLE TO RE-ENTRY VEHICLES. Richard S. Bray, Fred J. Drinkwater III, and Maurice D. White. July 1960. 27 p. OTS price, $0.75.

NASA TN D-370

HELICOPTER-ENGINE ACCELERATION-TIME REQUIREMENTS BASED ON PILOT DEMAND DURING RECOVERY FROM LANDING FLAREOUTS. Andrew B. Connor. May 1960. 11 p. OTS price, $0.50.

NASA TN D-438

PROBLEMS INVOLVED IN AN EMERGENCY METHOD OF GUIDING A GLIDING VEHICLE FROM HIGH ALTITUDES TO A HIGH KEY POSITION. Joseph W. Jewel, Jr., and James B. Whitten. August 1960. 22 p. OTS price, $0.75.

NASA TN D-440

INVESTIGATION OF MINIMUM CORONA TYPE CURRENTS FOR IGNITION OF AIRCRAFT FUEL VAPORS. M. M. Newman and J. D. Robb, Lightning and Transients Research Institute. June 1960. 12 p. OTS price, $0.50.

NASA TN D-450

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NASA TN D-456

DIFFUSION OF SOUND WAVES IN A TURBULENT ATMOSPHERE. Richard H. Lyon, Massachusetts Institute of Technology. September 1960. 24 p. OTS price, $0.75.

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SOME MEASUREMENTS OF NOISE TRANSMISSION AND STRESS RESPONSE OF A 0.020-INCH DURALUMIN PANEL IN THE PRESENCE OF AIR FLOW. George T. Kantarges. September 1960. 25 p. OTS price, $0.75.

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NEAR-FIELD AND FAR-FIELD NOISE MEASUREMENTS FOR A BLOWDOWN-WIND-TUNNEL SUPERSONIC EXHAUST JET HAVING ABOUT 475,000 POUNDS OF THRUST. William H. Mayes, Philip M. Edge, Jr., and James S. O'Brien, Jr. April 1961. 22 p. OTS price, $0.75.

NASA TN D-527

AN INVESTIGATION OF LANDING-CONTACT CONDITIONS FOR A LARGE TURBOJET TRANSPORT DURING ROUTINE DAYLIGHT OPERATIONS. Joseph W. Stickle and Norman S. Silsby. October 1960. 20 p. OTS price, $0.50.

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DAMAGE INCURRED ON A TILT-WING MULTI-PROPELLER VTOL/STOL AIRCRAFT OPERATING OVER A LEVEL, GRAVEL-COVERED SURFACE. Robert J. Pegg. December 1960. 14 p. OTS price, $0.50.

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NASA TN D-686

LARGE-SCALE WIND-TUNNEL TESTS OF EXHAUST INGESTION DUE TO THRUST REVERSAL ON A FOUR-ENGINE JET TRANSPORT DURING GROUND ROLL. William H. Tolhurst, Jr., David H. Hickey, and Kiyoshi Aoyagi. January 1961. 26 p. film suppl. available on request. OTS price, $0.75.

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NASA TN D-899

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NASA TN D-102

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EFFECTS OF FLIGHT SIMULATOR MOTION ON PILOTS' PERFORMANCE OF TRACKING TASKS. Joseph G. Douvillier, Jr., Howard L. Turner, John D. McLean, and Donovan R. Heinle. February 1960. 34 p. diagrs., photos. OTS price, $1.00.

NASA TN D-148

SINGLE-DEGREE-OF-FREEDOM SIMULATOR INVESTIGATION OF EFFECTS OF SUMMING DISPLAY-INSTRUMENT SIGNALS ON MAN-MACHINE CONTROL. John W. McKee. December 1959. 30 p. diagrs., photos., tab. OTS price, $0.75.

NASA TN D-221

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NASA TN D-337

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SECTION II

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The items in Section II have been selected from NASA releases and special publications as being relevant to current programs.

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Press Conference - Explorer VIII

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STL Payload Assembly and Communications Responsibilities for Pioneer V

Release 60-183 April 29, 1960
Pioneer V Statistics

Release 60-184 April 29, 1960
Progress Report on Investigations with State University of Iowa Apparatus on Explorer VII (1959 Iota)

Release 60-185 April 29, 1960
Solar Cosmic Rays and Soft Radiation Observed at 5,000,000 KM from Earth

Release 60-194 May 8, 1960
Pioneer V 150-watt Transmitter Turned on at 8 Million Miles

Release 60-206 March 11, 1960
Press Conference - Pioneer V

Release 60-207 March 18, 1960
Press Conference - Pioneer V Progress Report

Release 60-210 April 29, 1960
Press Conference - Pioneer V

Release 60-227 July 7, 1960
Pioneer V Communications Terminated

PROBES AND SOUNDING ROCKETS

Release 60-259 September 19, 1960
Fact Sheet on NERV Experiment

Release 60-314 December 5, 1960
NASA Plans Sodium Cloud Experiments

Release 60-316 December 9, 1960
NASA Sodium Cloud Experiment

Release 61-48 March 14, 1961
Aerobee Rocket to be Used in Test of Attitude Control System

RANGER

Release 61-159 August 23, 1961
Ranger I Launch Information

Release 61-194 August 29, 1961
Additional Rangers Announced

Release 61-196 August 30, 1961
Ranger I Spacecraft Reenters Atmosphere

SATURN

Release 60-103 January 13, 1960
Upper Stages for Saturn

Release 60-176 April 26, 1960
Negotiations on Saturn Second Stage Begin

Release 61-40 March 7, 1961
NASA Contracts for Saturn Tanks

Release 61-71 April 7, 1961
Thrust of Saturn Second Stage Increased

Release 61-73 April 11, 1961
F-1 Fired at Record Thrust

Release 61-116 June 1, 1961
Saturn Configuration to be Changed

Release 61-119 June 5, 1961
Saturn Launch Complex 34

Release 61-141 June 23, 1961
NASA Awards Saturn Tankage Contract

Release 61-151 July 11, 1961
F-1 Rocket Engine Tested

Release 61-189 August 24, 1961
Manned Lunar Launch Site Selected

Release 61-201 September 7, 1961
NASA Selects New Orleans Plant for Space Vehicle Assembly

Release 61-203 September 11, 1961
NASA Awards Contract for Saturn Upper Stage

SCOUT

Release 60-264
Scout and Scout Instrumentation Systems

Release 60-283 October 20, 1960
Announce Scout Contract

Release 60-310 December 4, 1960
Scout Vehicle Development Flight (Supplements 1, 2, 3, 4, 5, & 6) (Failed)

Release 61-47 March 10, 1961
Scout to Get Increase in Payload Capacity

Release 61-139 June 26, 1961
Scout Development Flight to Launch Micrometeoroid Satellite (S-55)

Release 61-179 August 21, 1961
Scout Development Flight to Launch Micrometeoroid Satellite (S-55)

SURVEYOR

Release 61-11 January 19, 1961
Surveyor Contract Negotiations Begin

TIROS

Release 60-152 April 1, 1960
Tiros I Satellite

Release 60-167 April 8, 1960
Statement by T. Keith Glennan, Administrator

Release 60-195 May 11, 1960
Tiros Timer Resumes Operation

Release 60-209 April 22, 1960
Press Conference - Tiros I - Friday, 22 April 1960

Release 60-223 July 1, 1960
Tiros, Satellite Sends 22,952 Photo Frames; Ends Picture Assignment

Release 60-268 September 26, 1960
U. S. Invites Overseas Participation in Next Tiros Experiment

Release 60-309 November 28, 1960
NASA Statement - Tiros II

Release 61-10 January 19, 1961
NASA Suspends Programming of Tiros II Wide Angle Camera

Release 61-111 May 25, 1961
Tiros II Exceeds Estimated Operational Lifetime

Release 61-147 July 9, 1961
Tiros Meteorological Satellite

Release 61-154 July 12, 1961
Press Conference - Tiros Meteorological Satellite

Release 61-162 July 25, 1961
Tiros Camera Out of Action

X-15

Release 61-78 April 18, 1961
First Test of X-15 at Full Thrust

Release 61-98 May 9, 1961
X-15 to Probe Speeds to Mach 5.1

Release 61-127 June 12, 1961
X-15 Flight Plan

SUPERSONIC TRANSPORT

Release 61-160 July 24, 1961
Commercial Supersonic Transport Aircraft Report

EXPLORING SPACE: PROJECT MERCURY. National Aeronautics and Space Administration. Washington, U. S. Govt. Printing Office, 1961. 13p., illus.

ECHO I. National Aeronautics and Space Administration. 1960. 2 ., figs.

NASA EP-1
AERONAUTICS AND SPACE BIBLIOGRAPHY FOR ELEMENTARY GRADES. Compiled for the Educational Services Branch of the National Aeronautics and Space Administration by the National Aviation Education Council. Washington, U. S. Govt. Printing Office, 1961. 26p.

NASA EP-2
AERONAUTICS AND SPACE BIBLIOGRAPHY FOR SECONDARY GRADES. Compiled for the Educational Services Branch of the National Aeronautics and Space Administration by the National Aviation Education Council. Washington, U. S. Govt. Printing Office.

NASA EP-3
AERONAUTICS AND SPACE BIBLIOGRAPHY FOR ADULTS. Compiled for the Educational Services Branch of the National Aeronautics and Space Administration by the National Aviation Education Council. Washington, U. S. Govt. Printing Office.

SELLING TO NASA. National Aeronautics and Space Administration. Washington, U. S. Govt. Printing Office, 1961. 26p.

THE CHALLENGE OF SPACE EXPLORATION: A TECHNICAL INTRODUCTION TO SPACE. National Aeronautics and Space Administration. Washington, U. S. Govt. Printing Office, 1959. 47p., diagrams and tables.

THE MOON PROBE: PIONEER IV. National Aeronautics and Space Administration and the Jet Propulsion Laboratory. 20p. illus.

THE SPACE FLIGHT OF ASTRONAUT SHEPARD AND THE FREEDOM SEVEN. 1961. 6p. illus.

THIS IS NASA. National Aeronautics and Space Administration. 1961. 3p. illus.

TIROS: TELEVISION INFRA-RED OBSERVATION SATELLITE. National Aeronautics and Space Administration. Washington, U. S. Govt. Printing Office, 1961. 3p., figs.

SECTION III

CONGRESSIONAL DOCUMENTS

The items in Section III are selected Congressional documents related to NASA programs. They comprise committee reports, hearings, conference reports, and staff reports.

*AMENDMENT TO THE NATIONAL AERONAUTICS AND SPACE ACT OF 1958. Hearing before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session, on H. R. 4913, authorizing the National Aeronautics and Space Administration, through the Administrator of the General Services, to lease buildings for the use of the Administration in the District of Columbia. April 7, 1959. Washington, U. S. Govt. Printing Office, 1959. 14p.

*AMENDING THE NATIONAL AERONAUTICS AND SPACE ACT OF 1958. Hearings before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, on H. R. 6169, to amend section 201 of the National Aeronautics and Space Act of 1958 (Public Law 85-568). April 19, 1961. Washington, U. S. Govt. Printing Office, 1961. 27p.

AMENDING THE NATIONAL AERONAUTICS AND SPACE ACT OF 1958. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session, to accompany H. R. 12049. Report no. 1633. Washington, U. S. Govt. Printing Office, 1960. 61p.

*AMENDING VARIOUS SECTIONS OF THE NASA ACT OF 1958. Hearings before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, on S. 1857, to amend the National Aeronautics and Space Act of 1958 (Public Law 85-568). May 16 and June 2, 1961. Washington, U. S. Govt. Printing Office, 1961. 96p.

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session, to accompany S. 1096. Report no. 226. Washington, U. S. Govt. Printing Office, 1959. 9p.

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session, to accompany H. R. 7007. Report no. 361. Washington, U. S. Govt. Printing Office, 1959. 42p.

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session, to accompany H. R. 10809. Report no. 1333. Washington, U. S. Govt. Printing Office, 1960. 54p.

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, to accompany H. R. 6874. Report no. 391. Washington, U. S. Govt. Printing Office, 1961. 90p.

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report on the Committee on Aeronautical and Space Science, U. S. Senate, 86th Congress, 1st session, to accompany H. R. 7007. Report no. 332. Washington, U. S. Govt. Printing Office, 1959. 48p.

*COMMUNICATIONS SATELLITES. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. May 8, 9, 10, and July 13, 1961. No. 19 -pt. 1. Washington, U. S. Govt. Printing Office, 1961. 581p.

*COMMUNICATIONS SATELLITES. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. July 14, 17, August 1, 9, and 10, 1961. No. 19 pt. 2. Washington, U. S. Govt. Printing Office, 1961. 583-908 p.

CONTEMPORARY AND FUTURE AERONAUTICAL RESEARCH. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. August 1, 2, 3, and 8, 1961. No. 18. Washington, U. S. Govt. Printing Office, 1961.

*DISCUSSION OF SOVIET MAN-IN-SPACE SHOT. Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. April 13, 1961. Washington, U. S. Government Printing Office, 1961. 33p.

DISCUSSION OF U. S. SATELLITE TRACKING SYSTEM. Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. February 15, 1961. 43p.

EFFECTING IMMEDIATE TRANSFER OF THE DEVELOPMENT OPERATIONS DIVISION OF THE ARMY BALLISTIC MISSILE AGENCY TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session, to accompany H. J. Res. 567. Report no. 1240. Washington, U. S. Govt. Printing Office, 1960. 6p.

*EQUATORIAL LAUNCH SITES, MOBILE SEA LAUNCH CAPABILITY. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. May 15 and 16, 1961. Washington, U. S. Govt. Printing Office, 1961. 69p.

EXPANDABLE SPACE STRUCTURES. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. Report no. 910. Washington, U. S. Govt. Printing Office, 1961. 11p.

FINAL REPORT. Special Committee on Space and Astronautics of the U. S. Senate, 86th Congress, 1st session, pursuant to S. Res. 256 of the 85th Congress. Report no. 100. Washington, U. S. Govt. Printing Office, 1959. 76p.

THE FIRST SOVIET MOON ROCKET. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. Report no. 1086, Washington, U. S. Govt. Printing Office, 1959. 32p.

*FULL COMMITTEE CONSIDERATION OF H. R. 4990 AND S. 1096 WITH RESPECT TO AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. Washington, U. S. Govt. Printing Office, 1959. 13-97 p.

GOVERNMENTAL ORGANIZATION FOR SPACE ACTIVITIES. Report of the Subcommittee on Governmental Organization for Space Activities, Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session. Report no. 806. Washington, U. S. Govt. Printing Office, 1959. 58p.

H. R. 6169 - A BILL TO AMEND THE NATIONAL AERONAUTICS AND SPACE ACT OF 1958. Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st sesstion. April 12, 1961. No. 5. Washington, U. S. Govt. Printing Office, 1961. 24p.

INDEPENDENT OFFICES APPROPRIATIONS FOR 1961. Hearings before the Committee on Appropriations, U. S. House of Representatives, 86th Congress, 2nd session. Part 3 - National Aeronautics and Space Administration, National Science Foundation. Washington, U.S. Govt. Printing Office, 1960. 504 p.

*INFLATABLE STRUCTURES IN SPACE. Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. May 19, 1961. No. 12. Washington, U. S. Govt. Printing Office, 1961. 56p.

INTERNATIONAL CONTROL OF OUTER SPACE. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. March 5, 6, and 11, 1959. Washington, U. S. Govt. Printing Office, 1959.108p.

INTERNATIONAL COOPERATION IN THE EXPLORATION OF SPACE. Report of the Select Committee on Astronautics and Space Exploration, U. S. House of Representatives, 85th Congress, 2nd session. Report no. 2709. Washington, U. S. Govt. Printing Office, 1959. 16p.

*INVESTIGATION OF GOVERNMENTAL ORGANIZATION FOR SPACE ACTIVITIES. Hearings before the Subcommittee on Governmental Organization for Space Activities, Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session. March 24, 26 and April 14, 15, 22-24, 29, and May 7, 1959. Washington, U. S. Govt. Printing Office, 1959. 762 p.

LEGAL PROBLEMS OF SPACE EXPLORATION. A symposium prepared for the use of the Committee on Aeronautics and Space Sciences, U. S. Senate, 87th Congress, 1st session, by Legislative Reference Service, Library of Congress. March 22, 1961. Document no. 26. Washington, U. S. Govt. Printing Office, 1961.

*MEETING WITH THE ASTRONAUTS (PROJECT MERCURY - MAN-IN-SPACE PROGRAM). Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session, Executive session, May 28, 1959. Washington, U. S. Govt. Printing Office, 1959. 36p.

MISSILE DEVELOPMENT AND SPACE SCIENCES. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. February 2-5, 9, 10, 17, 18, 24, March 2 and 12, 1959. Washington, U. S. Govt. Printing Office, 1959. 492p. GPO price, $1.25.

*1960 NASA AUTHORIZATION. Hearings before the Committee on Science and Astronautics and Subcommittees nos. 1, 2, 3, and 4, U. S. House of Representatives, 86th Congress, 1st session, on H. R. 6512. April 20-22, 24, 27, 29 and May 4, 1959. Washington, U. S. Govt. Printing Office, 1959. 417p.

*NASA AUTHORIZATION FOR FISCAL YEAR 1960. Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session, on S. 1582, a bill to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. April 7-10, 1959. Part 1: scientific and technical presentation. Washington, U. S. Govt. Printing Office, 1959. 678p. GPO price, $2.00.

*NASA AUTHORIZATION FOR FISCAL YEAR 1960. Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session, on S. 1582 and H. R. 7007, bills to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. May 21, 1959. Part 2: program detail for fiscal year 1960. Washington, U. S. Govt. Printing Office, 1959. 679-828 p. GPO price, $0.40.

*NASA AUTHORIZATION FOR THE FISCAL YEAR 1961. Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 2nd session, on H. R. 10809, act to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. March 28, 29, 30, 1960. Part 1: program detail for fiscal year 1961. Washington, U. S. Govt. Printing Office, 1960. 574p. GPO price, $1.75.

NASA AUTHORIZATION FOR FISCAL YEAR 1961. Report of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 2nd Session, on H. R. 10809, act to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. Report no. 1300 - calendar no. 1333. Washington, U. S. Govt. Printing Office, 1960. 90p.

*1961 NASA AUTHORIZATION. Hearings before the Committee on Science and Astronautics and Subcommittees nos. 1, 2, 3 and 4, U. S. House of Representatives, 86th Congress, 2nd session, on H. R. 10246. February 17-19, 22-24, and 26, 1960. Washington, U. S. Govt. Printing Office, 1960. 492p.

*NASA AUTHORIZATION FOR FISCAL YEAR 1962. Hearings before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, on H. R. 6874, an act to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction of facilities, and for other purposes. June 7, 8, and 12, 1961. Washington, U. S. Govt. Printing Office, 1961. 282p.

NASA AUTHORIZATION FOR FISCAL YEAR 1962. Report of the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, on H. R. 6874, act to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. Report no. 475. Washington, U. S. Govt. Printing Office, 1961. 111p.

*1962 NASA AUTHORIZATION. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, on H. R. 3238 and H. R. 6029 (superseded by H. R. 6874). March 13, 14, 22, 23, April 10, 11, 14, and 17, 1961. No. 7 - pt. 1. Washington, U. S. Govt. Printing Office, 1961. 588p.

1962 NASA AUTHORIZATION. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, on H. R. 3238 and H. R. 6029 (superseded by H. R. 6874). April 18, 19, 20, 21, and 24, 1961. No. 7 - Pt. 2. Washington, U. S. Govt. Printing Office, 1961. 589-1034 p.

1962 NASA AUTHORIZATION. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, on H. R. 6874. July 11, 12, and 13, 1961. No. 7 - pt. 3. Washington, U. S. Govt. Printing Office, 1961. 1035-1165 p.

NASA SCIENTIFIC AND TECHNICAL PROGRAMS. Hearings before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, of the scientific and technical programs of the National Aeronautics and Space Administration. February 28 and March 1, 1961. Washington, U. S. Govt. Printing Office, 1961. 521p.

NASA SUPPLEMENTAL AUTHORIZATION FOR FISCAL YEAR 1959. Hearings before the NASA Authorization Subcommittee, Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session, on S. 1096, a bill to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. February 19 and 20, 1959. Washington, U. S. Govt. Printing Office, 1959. 180p.

NASA SUPPLEMENTAL AUTHORIZATION FOR FISCAL YEAR 1959. Report of the Committee on Aeronautical and Space Sciences, U. S. Senate, 86th Congress, 1st session, on S. 1096, a bill to authorize appropriations to the National Aeronautics and Space Administration for salaries and expenses, research and development, construction and equipment, and for other purposes. Washington, U. S. Govt. Printing Office, 1959. 39p.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION APPROPRIATIONS. Hearings before the Subcommittee of the Committee on Appropriations, U. S. House of Representatives, 86th Congress, 1st session. Washington, U. S. Govt. Printing Office, 1959. 247p.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT FOR THE FISCAL YEAR 1961. Conference report of the Conference Committee, U. S. House of Representatives, 86th Congress, 2nd session, to accompany H. R. 10809. Report no. 1629. Washington, U. S. Govt. Printing Office, 1960. 4p.

NATIONAL METEOROLOGICAL SATELLITE PROGRAM. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. July 25, 26, and 27, 1961. No. 17. Washington, U. S. Govt. Printing Office, 1961. 465p.

THE NEXT TEN YEARS IN SPACE, 1959-1969. Staff report of the Select Committee on Astronautics and Space Exploration, U. S. House of Representatives, 86th Congress, 1st session. Document no. 115. Washington, U. S. Govt. Printing Office, 1959. 221p.

*NOMINATION. Hearing before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session, on the nomination of Edward Christy Welsh to be Executive Secretary of the National Aeronautics and Space Council. March 23, 1961. Washington, U. S. Govt. Printing Office, 1961. 5p.

* NOMINATION. Hearing before the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 2nd session, on the nomination of James Edwin Webb to be administrator of the National Aeronautics and Space Administration. February 2, 1961. Washington, U. S. Govt. Printing Office, 1961. 10p.

*NOMINATIONS. Hearing before the Committee on Aeronautical and Space Science, U. S. Senate, 86th Congress, 1st session on the nominations of William A. M. Burden and Dr. John T. Rattaliata to be members of the National Aeronautics and Space Council. May 19, 1959. Washington, U. S. Govt. Printing Office, 1959. 26p.

*ORBITAL RENDEZVOUS IN SPACE. Hearing before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. May 23, 1961. Washington, U. S. Govt. Printing Office, 1961. 33p.

PROPOSED STUDIES ON THE IMPLICATIONS OF PEACEFUL SPACE ACTIVITIES FOR HUMAN AFFAIRS. Donald N. Michael and others. (Prepared for the Committee on Long-Range Studies of the NASA by the Brookings Institution). December 1960. 168p.

PROPOSED STUDIES ON THE IMPLICATIONS OF PEACEFUL SPACE ACTIVITIES FOR HUMAN AFFAIRS. Prepared for NASA by Brookings Institution. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, Serial c. April 18, 1961. Report no. 242. Union Calendar 79. Washington, U. S. Govt. Printing Office, 1961.

*REVIEW OF THE SPACE PROGRAM. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. January 20, 22, 25, 26, 27, 28, 29, February 1-5, 1960. Part 1. Washington, U. S. Govt. Printing Office, 1960. 540p.

*REVIEW OF THE SPACE PROGRAM. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. February 8, 9, 15, 16, 17 and 18, 1960. No. 3 - pt. 2. Washington, U. S. Govt. Printing Office, 1960. 541-835 p.

*REVIEW OF THE SPACE PROGRAM. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. February 23, 24 and March 7, 1960. No. 3, part 3. Washington, U. S. Govt. Printing Office, 1960. 837-964 p.

SATELLITES FOR WORLD COMMUNICATIONS. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. March 3 and 4, 1959. Washington, U. S. Govt. Printing Office, 1959. 122p.

SATELLITES FOR WORLD COMMUNICATION. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st session. Report no. 343. Washington, U. S. Govt. Printing Office, 1959. 9p.

SPACE LAW; A SYMPOSIUM. Prepared at the request of the Honorable Lyndon B. Johnson, Chairman, Special Committee on Space and Astronautics, U. S. Senate, 85th Congress, 2nd session. December 31, 1958. Washington, U. S. Govt. Printing Office, 1959. 573p.

*SPACE MEDICINE RESEARCH. Hearings before the Special Investigating Subcommittee of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. June 15 and 16, 1960. Washington, U. S. Govt. Printing Office, 1960. 70p.

SPACE ORBITAL RENDEZVOUS. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. Report no. 909. Washington, U. S. Govt. Printing Office, 1961. 10p.

*SPACE PROPULSION. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 1st sesssion. March 16-20 and 23, 1959. Washington, U. S. Govt. Printing Office, 1959. 307p.

*SPACE PROPULSION TECHNOLOGY. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. March 6-8, 10, 1961. No. 4. Washington, U. S. Govt. Printing Office, 1961.

THE ORGANIZATION OF THE U. S. NATIONAL SPACE EFFORT. Staff study of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. December 30, 1960. Washington, U. S. Govt. Printing Office, 1960.

OUTER SPACE, ROAD TO PEACE; OBSERVATIONS ON SCIENTIFIC MEETINGS AND INTERNATIONAL COOPERATION. Compilation of data. Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. Washington, U. S.Govt. Printing Office, 1960. 53p.

POLICY PLANNING FOR SPACE TELECOMMUNICATIONS. Staff report prepared for the Committee on Aeronautical and Space Sciences, U. S. Senate, 87th Congress, 1st session. December 4, 1960. Washington, U. S. Govt. Printing Office, 1960. 207p. GPO price, $0.55.

THE PRACTICAL VALUES OF SPACE EXPLORATION. Report on the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session, pursuant to H. Res. 133. Report no. 2091. Washington, U. S. Govt. Printing Office, 1960. 54p.

*THE PRODUCTION OF DOCUMENTS BY THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR THE COMMITTEE ON SCIENCE AND ASTRONAUTICS. Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. January 27 and 29, 1960. Washington, U. S. Govt. Printing Office, 1960. 136p.

PROJECT MERCURY; FIRST INTERIM REPORT. Staff report of the Committee on Science and Astronautics, U. S. House of Representatives, 86th Congress, 2nd session. Report no. 1228. Washington, U. S. Govt. Printing Office, 1960. 78p.

PROJECT MERCURY: MAN-IN-SPACE PROGRAM OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. Report of the Committee on Aeronautics and Space Sciences, U. S. Senate, 86th Congress, 1st session. December 1, 1959. Washington, U. S. Govt. Printing Office, 1959. 97p.

PROJECT MERCURY: SECOND INTERIM REPORT. Report of the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session, Serial h. Report no. 671. Washington, U. S. Govt. Printing Office, 1961. 89p.

PROJECT ROVER (U. S. NUCLEAR ROCKET DEVELOPMENT PROGRAM). Hearings before the Committee on Science and Astronautics, U. S. House of Representatives, 87th Congress, 1st session. February 27 - March 7, 1961. Washington, U. S. Govt. Printing Office, 1961. 177p.

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