Martin-CR-64-40 (Part IV) Copy No. 8

CONTRACT NAS8-5322

INVESTIGATIONS RELATIVE TO WIND-INDUCED OSCILLATIONS OF THE SATURN BOOSTERS IN THE VERTICAL LAUNCH POSITION (1 JUNE 1963 THRU 30 JUNE 1964)

PART IV - BIBLIOGRAPHY

OTS PRICE

XEROX $ 1.00

MICROFILM $ .50

SEPTEMBER 1964

FACILITY FORM 602

N64-33769 (ACCESSION NUMBER)	(THRU)
13 (PAGES)	1 (CODE)
NASA CR 59329 (NASA CR OR TMX OR AD NUMBER)	33 (CATEGORY)

prepared by

MARTIN COMPANY

DENVER DIVISION
DENVER, COLORADO

prepared for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA

Martin-CR-64-40 (Part IV) Copy No. 8

Contract NAS8-5322

INVESTIGATIONS RELATIVE TO WIND-INDUCED OSCILLATIONS OF THE SATURN BOOSTER IN THE VERTICAL LAUNCH POSITION (1 JUNE 1963 THRU 30 JUNE 1964)

September 1964

Part IV - Bibliography

MARTIN COMPANY
Denver, Colorado
Aerospace Division of Martin-Marietta Corporation

FOREWORD

This document is prepared in accordance with Contract NAS8-5322 and is presented in the following parts:

Part I	Development of Methods for Predicting the Wind-Induced Oscillations of Vehicles in the Vertical Launch Position
Part II	Computer Programs for Predicting the Wind-Induced Oscillations of Launch Vehicles
Part III	Predictions Relative to Wind-Induced Oscillations of the Saturn Vehicles
Part IV	Bibliography

CONTENTS

	Page
Foreword	ii
Contents	iii
Bibliography	1
Part I	2
Part II	4
Part III	5
Part IV	7
Confidential Bibliography	9
Distribution	

BIBLIOGRAPHY

A collection of articles pertaining to the wind-induced oscillation problem has been assembled. At present, these articles are contained in four unclassified volumes and in a classified file. Some of these articles duplicate references given in Parts I, II, or III. An index for each of the four volumes and a list of the classified articles are given here in Part IV.

PART I

Blyumina, L. Kh. and Zakharov, Yu. G.: "Vibration of Cylindrical Bodies in an Air Flow." (Translated from Russian), Applied Mechanics Reviews, Vol 13, No. 4, Rev 2027, April 1960.

Boorne, R. A.: "The Aeroelasticity of Tall Stacks." IAS Preprint No. 851, October 1958.

Eagleston, P. S., Noutsopoulos, G. K., and Daily, J. W.: "The Nature of Self-Excitation in the Flow-Induced Vibration of Flat Plates." ASME Paper 63-WA-95, November 1963.

Eringen, A. C.: "Response of Beams and Plates to Random Loads." Journal of Applied Mechanics, March 1957, p 46-52.

Fage, A., and Warsap, J. H.: The Effects of Turbulence and Surface Roughness on the Drag of a Circular Cylinder." Air Ministry Report R&M 1283, October 1929.

Fung, Y. C.: "Fluctuating Lift and Drag Acting on a Cylinder in a Flow at Supercritical Reynolds Numbers.: Journal of the Aerospace Sciences, November 1960, p 801-814.

Fung, Y. C.: Fluctuating Lift and Drag Acting on a Cylinder in a Flow at Supercritical Reynolds Numbers. GM-TR-0165-343. Space Technology Laboratories (Shock & Vibration Bulletin, Part II, December 1958, p 147-170).

Fung, Y. C.: "Statistical Aspects of Dynamic Loads." Journal of the Aeronautical Sciences, May 1953, p 317-330.

Fung, Y. C.: The Fluctuating Lift Force Acting on a Cylinder Subjected to Forced Oscillations Perpendicular to a Flow at High Reynolds Numbers. GM-TR-0165-00465. Space Technology Laboratories, September 1958.

Humphreys, J. S.: "On a Circular Cylinder in a Steady Wind at Transition Reynolds Numbers." Journal of Fluid Mechanics, Vol 9, Part 4, December 1960, p 603-612.

Kravchenko, I. M.: "On the Wind Profile in the Near Ground Layer of the Atmosphere." (Translated from Russian), Izv. Geophys. Ser., 1963, p 498-499. (Int. Aero Abstract No. A-63-22542.)

Macovsky, M. S.: Vortex-Induced Vibration Studies. DTMB Report 1190. July 1958.

McKinney, L. W.: Effects of Fineness Ratio and Reynolds Number on the Low Speed Crosswind Drag Characteristics of Circular and Modified-Square Cylinders. TN D-540. National Aeronautics and Space Administration, October 1960.

Ozker, M. S., and Smith, J. O.: "Factors Influencing the Behavior of Tall Stacks Under the Action of Wind." Transactions of the American Society of Mechanical Engineers, August 1956, p 1381-1391.

Pandolpho, J. P.: "A Formula Relating Various Nondimensional Parameters of Turbulent Fields in the Atmospheric Surface Layer under Adiabatic Conditions." Journal of Geophysical Research, 15 May 1963, p 3249-3256.

Penzien, J.: "Wind-Induced Vibration of Cylindrical Structures." Proc. ASCE, J. of Eng. Mech. Div., January 1957, p 1143-1 to 1143-17.

Price, P., and Thompson, R. W.: Suppression of the Fluid-Induced Vibration of Circular Cylinders. Stanford University Engineering Thesis, Stanford, California, December 1953.

Price, P.: "Suppression of the Fluid-Induced Vibration of Circular Cylinders." Proc. ASCE, Journal of Eng. Mech. Div., July 1956, p 1030-1 to 1030-21.

Scruton, C.: "On the Wind-Excited Oscillations of Stacks, Towers and Masts." Proc. Int. Conf. on the Wind Effects on Bldgs. and Struct., Paper No. 16, HM Stationery Office, June 1963.

Thomson, W. T., and Barton, M. V.: "The Response of Mechanical Systems to Random Excitation." Journal of Applied Mechanics, June 1957, p 248-251.

Thomson, W. T.: "Continuous Structures Excited by Correlated Random Forces." Int. J. Mech. Sci., Vol 4, 1962, p 109-114.

Thorson, K. R. and Bohne, Q. R.: "Application of Power Spectral Density Methods in Airplane and Missile Design." Journal of Aerospace Sciences, February 1960, p 107-116.

Walshe, D. E.: Some Measurements of the Excitation Due to Vortex Shedding of a Smooth Cylinder Cross-section. NPL Aero Report 1016. May 1962, p 5.
"Wind Forces on Structures." Proc ASCE, Structural Div, Paper 1707-1712, ASCE Committee on Wind Forces, July 1958.

PART II

Blackiston, Jr., H. S.: Tip Effects on Fluctuating Air Loads on a Circular Cylinder. Aeronautical Engineering Thesis, California Institute of Technology, Pasadena, California, 1963.

Blackiston, Jr., H. S.: "Tip Effects on Fluctuating Air Loads on a Circular Cylinder." Proc. AIAA Fifth Annual Struct. and Mat. Conf., April 1964, p 146-154.

Caughey, T. K., and Stumpf, H. J.: "Transient Response of a Dynamic System under Random Excitation." Journal of Applied Mechanics, December 1961, p 563-566.

Morkovin, M. V.: "Effects of Compressibility on Turbulent Flow." Paper Presented at a Symposium on Turbulence, Marseille, France, 1961.

Morkovin, M. V.: "On Aerodynamic Loads on Bluff Bodies." Unpublished Paper, (Includes 15-Page List of References), April 1964.

Panofsky, H. A.: "Surface Properties of Turbulence in the Boundary Layer." Written for MSFC, Unpublished.

Parkinson, G. V., and Brooks, N. P. H.: "On the Aeroelastic Instability of Bluff Cylinders." Journal of Applied Mechanics, June 1961, p 252-258.

Schmidt, L. V.: Measurements of Fluctuating Air Loads on a Circular Cylinder. Ph.D. Thesis, California Institute of Technology, Pasadena, California, 1963.

Schmidt, L. V.: "Measurements of Fluctuating Air Loads on a Circular Cylinder." Proc. AIAA Fifth Annual Struct. and Mat. Conf., April 1964, p 155-162.

Scruton, C: The Use of Wind Tunnels in Industrial Aerodynamic Research. Agard Report 309. Presented at Agard Fluid Dynamics Panel, Istanbul, Turkey, October 1960.

PART III

Bohne, Q. R.: "Ground Wind Induced Loads on Axisymmetric Launch Vehicles." Proc. AIAA Fifth Annual Struct. and Mat. Conf., April 1964, p 282-293.

Bohne, Q. R.: "Power Spectral Considerations on the Launch Pad." Proc. Nat. Sym. on Winds for Aerospace Vehicles, Vol. I, March 1962, p 81-108.

Buell, D. A.: "Some Sources of Ground-Wind Loads in Launch Vehicles." Proc., AIAA Fifth Annual Struct. and Mat. Conf., April 1964, p 178-182.

Ezra, A. A. and Birnbaum, S.: "Design Criteria for Space Vehicles to Resist Wind-Induced Oscillations." ARS Journal, December 1961, p 1764-1766 (ARS Preprint 1081-60).

Ezra, A. A.: "Self-Induced Oscillations of a Cylinder Cantilever in a Wind for Reynolds Numbers Greater than Critical." Shock and Vibration Bulletin, Part II, December 1958, p 180-184.

Fontenot, L. L.: "The Response of a Flexible Missile to Ground Winds." Proc. Nat. Symp. on Winds for Aerospace Vehicles, Vol. I, March 1962, p 139.

Goldman, R. L.: "Karmen Vortex Forces on the Vanguard Rocket." Shock and Vibration Bulletin, Part II, December 1958, p 171-179.

Graziano, E. E.: Wind-Induced Oscillations and Other Loads on Space Vehicles Fastened Vertically to Launch Pads: An Annotated Bibliography. SB61-61. ASTIA 275767, February 1962.

"Ground Wind Loads." Unpublished Memo, Includes bibliography, Undated, NASA-Langley.

Hahn, P. G.: Ground Wind Effects on Mobile Missile System Design. Unpublished Martin-Orlando Report, Undated.

Johnson, R. W.: "Results of 624A Wind-Induced Oscillations Test." DM 22A. Martin Company, Denver, Colorado, June 1963.

Jones, Jr., G. W., and Gilman, Jr., J.: Measured Response to Wind-Induced Loads of a Full Scale Scout Vehicle Mounted Vertically on a Launching Tower. TN D-757. National Aeronautics and Space Administration, April 1961.

"Technical Items for Presentation to AIA Dynamics and Aeroelasticity Panel." General Dynamics/Astronautics, Unpublished Memo Concerning Atlas, Atlas/Agena, and Atlas/Centaur Wind-Induced Loads, June 1963.

Wood, J. D., and Berry, J. G.: "Random Excitation of Missiles Due to Winds." Proc. Nat. Symp. on Winds for Aerospace Vehicles, Vol. I, March 1962, p 125-138.

PART IV

Ahlborn, Fr.: Turbulence and Mechanism of Resistance on Spheres and Cylinders. TM 653. National Advisory Committee for Aeronautics.

Dryden, H. L.: "Review of Published Data on the Effect of Roughness on Transition from Laminar to Turbulent Flow." Journal of Aeronautical Sciences, July 1953, p 477-482.

Dryden, H. L., Schubauer, G. B., Mock, W. C., and Skramstad, H. K.: Measurements of Intensity and Scale of Wind-Tunnel Turbulence and Their Relation to the Critical Reynolds Number of Spheres, Report 581. National Advisory Committee for Aeronautics.

Dryden, H. L.: Turbulence Investigations at the National Bureau of Standards.

Evan, A. J.: The Zero-Lift Drag of a Slender Body of Revolution (NACA RM-10 Research Model) as Determined from Tests in Several Wind Tunnels and in Flight at Supersonic Speeds. Report 1160. National Advisory Committee for Aeronautics.

Fay, J. A., and Goldburg, A: The Unsteady Hypersonic Wake Behind Spheres, ARS Preprint 2676-62, 1962.

Fuchs, S.: Einfache Untersuchungsmethode des Grenzschicht über ganges an Tragflügel profileu.

Howard, P. W., and Czarnecki, K. R.: Effect of Fabrication-Type Surface Roughness on Transition on Ogive-Cylinder Models at Mach Numbers of 1.61 and 2.01. TN D-1933. National Aeronautics and Space Administration.

Johnson, Jr., V. E., and Rasnick, T. A.: The Drag Coefficient of Parabolic Bodies of Revolution Operating at Zero Cavitation Number and Zero Angle of Yaw. TR R-86. National Aeronautics and Space Administration, 1961.

Magarvey, R. H., and Bishop, R. L.: "Transition Ranges for Three-Dimensional Wakes. Canadian Journal of Physics, Vol 39, p 1418-1422, 1961.

Marris, A. W.: A Review on Vortex Streets, Periodic Wakes, and Induced Vibration Phenomena. Paper 62-WA-106. ASME.

Matting, F. W., Chapman, D. R., Nyholm, J. R., and Thomas, A. G.: Turbulent Skin Friction at High Mach Numbers and Reynolds Numbers in Air and Helium. TR R-82. National Aeronautics and Space Adminstration, 1960.

Peterson, Jr., J. B.: A Comparison of Experimental and Theoretical Results for the Compressible Turbulent-Boundary-Layer Skin Friction with Zero Pressure Gradient. TN D-1795. National Aeronautics and Space Administration, 1963.

Polhamus, E. C., Geller, E. W., and Grunwald, K. J.: Pressure and Force Characteristics of Noncircular Cylinders as Affected by Reynolds Number, with a Method Included for Determining the Potential Flow About Arbitrary Shapes. TR R-46. National Aeronautics and Space Administration, 1959.

Relf, E. F.: Experiments on the Effects of Surface Roughness.

Roshko, A.: On the Drag and Shedding Frequency of Two-Dimensional Bluff Bodies, Tech Note 3169. National Advisory Committee for Aeronautics.

Schlichting, H.: Experimental Investigation of the Problem of Surface Roughness. TM 823. National Advisory Committee for Aeronautics.

Shubauer, G. B., and Dryden, H. L.: The Effect of Turbulence on the Drag of Flat Plates. Report 546. National Advisory Committee for Aeronautics.

Shubauer, G. B.: The Effect of Turbulence on Transition in the Boundary Layer of an Elliptic Cylinder.

Wieghardt, K.: Correlation of Data on the Statistical Theory of Turbulence. TM 1008. National Advisory Committee for Aeronatics.

CONFIDENTIAL BIBLIOGRAPHY

Borsamian, V.: Dyna Soar-Titan II 1/15 Scale Wind Induced Oscillation Tests. ER-11378. Martin Company, Baltimore, Maryland, September 1961.

Buell, D. A., and Kenyon, G. C.: The Wind-Induced Loads on a Large Missile in Launching Position. TM X-109. National Aeronautics and Space Administration, December 1959.

Cincotta, J. J., and Jones, G.: Ground Wind and Wind-Induced Oscillations Loads Analysis of the 624A Standard Space Launch Vehicle. ER 13296. Martin Company, Baltimore, Maryland, January 1964.

Cincotta, J. J., and Lambert, W.: 7.5% 624A Ground Wind and Wind Induced Oscillation Wind Tunnel Test. Preliminary Report. Martin Company, Baltimore, Maryland, March 1963.

Ezra, A. A.: Wind-Induced Oscillations of the Titan Missile. WDD-M-MI-59-7. Martin Company, Denver, Colorado, March 1959.

McCullough, G. B., and Buell, D. A.: The Wind-Induced Loads on a Dynamically Scaled Model of the Dyna-Soar Glider and Titan II Booster in Launch Position. TM X-659. National Aeronautical and Space Administration, December 1962.

Young, J. P.: Wind-Induced Oscillation Tests of 1/6 Scale Pershing Model. ER 11461. Martin Company, Baltimore, Maryland, August 1960.

Young, J. P.: "Wind Tunnel Results of Boeing Airplane Co. 1/15 Scale Dyna-Soar Wind-Induced Oscillation Model." IDC, Martin Company, Baltimore, Maryland, 15 September 1960.

DISTRIBUTION

Copies	To
1 thru 8 (plus one set of reproducibles)	National Aeronautics and Space Administration George C. Marshall Space Flight Center Huntsville, Alabama Attn: Procurement and Contract Office M-P&C-MPA
Remaining Copies	Martin Company Denver Division Denver, Colorado 80201 Attn: Libraries Section