

Download free Re entry aerodynamics (Read Only)

hankey addresses the kinetic theory of gases and the prediction of vehicle trajectories during re entry including a description of the earth s atmosphere he discusses the fundamentals of hypersonic aerodynamics as they are used in estimating the aerodynamic characteristics of re entry configurations re entry heat transfer for both lifting space shuttle and ballistic apollo configurations thermal protection systems and the application of high temperature materials in design based on a long engineering experience this book offers a comprehensive and state of the art analysis of aerodynamic and flight mechanic entry topics this updated edition had new chapters on re entry on mars mission flight quality rarefied aerodynamics and re entry accuracy in addition it provides a large set of application exercises and solutions a computer program is described which calculates the trajectory of a ground launched vehicle intercepting a maneuvering re entry body the motion is planar and proportional navigation is used allowance is made for the finite length of time it takes the data acquisition system to process the tracking data and for the time lag between the demand for a new course and the response to that demand the fortran listing of the program and a sample calculation are given author note no further discount on this print product overstock sale significantly reduced list price the technologies for the reentry and recovery from space might change over time but the challenge remains one of the most important and vexing in the rigorous efforts to bring spacecraft and their crews and cargo home successfully returning to earth after a flight into space is a fundamental challenge and contributions from the nasa aeronautics research mission directorate in aerodynamics thermal protection guidance and control stability propulsion and landing systems have proven critical to the success of the human space flight and other space programs without this base of fundamental and applied research the capability to fly into space would not exist other related products nasa historical data book v 7 nasa launch systems space transportation human spaceflight and space science can be found here bookstore gpo gov products sku 033 000 01309 4 revolutionary atmosphere the story of the altitude wind tunnel and the space power chambers can be found here bookstore gpo gov products sku 033 000 01342 6 spinoff innovative partnerships program 2009 can be found here bookstore gpo gov products sku 033 000 01331 1 spinoff 2010 nasa technologies benefit society can be found here bookstore gpo gov products sku 033 000 01343 4 spinoff 2015 technology transfer program can be found here bookstore gpo gov products sku 033 000 01372 8 aerospace astronomy space exploration resources collection can be found here bookstore gpo gov catalog science technology aerospace astronomy other products produced by the u s national aeronautics and space administration nasa can be found here bookstore gpo gov agency 550 the ability to perform an inclination change maximizes the maneuverability of an orbiting space vehicle most maneuvers utilize a combined plane change and orbital transfer to the new orbit this costs more in terms of energy and fuel than an in plane change of orbits the amount of Δv and fuel required for such an energy intensive inclination change exceeds the benefit of performing the maneuver however this paper demonstrates that a winged re entry vehicle based on the currently proposed x 3 7 has the necessary thrust to change planes and then perform an in plane transfer to achieve a new orbit using simulinktm and labview simulation tools this research found that the use of the aerodynamic lift of a winged re entry vehicle produced more than 120 of inclination change with the minimal Δv achievable through small orbital maneuvers and atmospheric re entry the aerodynamics of the lift vector demonstrated that the spacecraft retained sufficient energy to prevent perigee collapse using an orbital regulation code to control throttle selling the 26th international symposium on shock waves in göttingen germany was jointly organised by the german aerospace centre dlr and the french german research institute of saint louis isl the year 2007 marked the 50th anniversary

of the symposium which first took place in 1957 in boston and has since become an internationally acclaimed series of meetings for the wider shock wave community the issw26 focused on the following areas shock propagation and reflection detonation and combustion hypersonic flow shock boundary layer interaction numerical methods medical biological and industrial applications richtmyer meshkov instability blast waves chemically reacting flows diagnostics facilities flow visualisation ignition impact and compaction multiphase flow nozzles flows plasmas and propulsion the two volumes contain the papers presented at the symposium and serve as a reference for the participants of the issw 26 and individuals interested in these fields propulsion re entry physics deals with the physics of propulsion re entry and covers topics ranging from inductive magnetoplasmadynamic mpd propulsion systems to launch systems and orbiting maneuvering systems problems of re entry aerodynamics are considered along with interaction problems in hypersonic fluid dynamics comprised of 31 chapters this volume begins with a detailed account of the quasi steady adiabatic vaporization and subsequent exothermic decomposition of a pure monopropellant spherical droplet in the absence of free and forced convection the discussion then turns to results of calculations on mpd machines working in the intermittent and in the continuous mode inductive plasma accelerators with electromagnetic standing waves and spherical rocket motors for space and upper stage propulsion subsequent chapters focus on pulsed plasma satellite control systems drag and stability of various mars entry configurations hypersonic laminar boundary layers around slender bodies and effects of an entry probe gas envelope on experiments concerning planetary atmospheres this book will appeal to students practitioners and research workers interested in propulsion re entry and the accompanying physics

Re-entry Aerodynamics

1988-01-01

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Atmospheric Re-Entry Vehicle Mechanics

2007-09-23

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Re-entry Vehicle Dynamics

1984

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Re-Entry Aerodynamics

1988

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U.S. Government Research Reports

1963

the ability to perform an inclination change maximizes the maneuverability of an orbiting space vehicle most maneuvers utilize a combined plane change and orbital transfer to the new orbit this costs more in terms of energy and fuel than an in plane change of orbits the amount of Δv and fuel required for such an energy intensive inclination change exceeds the benefit of performing the maneuver however this paper demonstrates that a winged re entry vehicle based on the currently proposed x 3 7 has the necessary thrust to change planes and then perform an in plane transfer to achieve a new orbit using simulink and labview simulation tools this research found that the use of the aerodynamic lift of a winged re entry vehicle produced more than 120% of inclination change with the minimal Δv achievable through small orbital maneuvers and atmospheric re entry the aerodynamics of the lift vector demonstrated that the spacecraft retained sufficient energy to prevent perigee collapse using an orbital regulation code to control throttle setting

Aerodynamic Characteristics at Low Speed of a Reentry Configuration Having Rigid Retractable Conical Lifting Surfaces

1961

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Technical Abstract Bulletin

1961-10

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accompanying physics

A Computer Program for the Interception of a Re-entry Body by a Ground-launched Interceptor

1969

THE LONGITUDINAL AERODYNAMIC CHARACTERISTICS OF A RE-ENTRY CONFIGURATION BASED ON A BLUNT 13 DEG HALF-CONE AT MACH NUMBERS TO 0.92

1961

Space Rendez[v]ous, Rescue and Recovery

1963

Missile aerodynamics for ascent and re-entry

2012

Motion and Heating During Atmosphere Reentry of Space Vehicles

1960

Plasma Physics and Magnetohydrodynamics

1963

ASTIA Subject Headings

1959

Experimental Investigation of a Disk-shaped Reentry Configuration at Transonic and Low Supersonic Speeds

1962

Coming Home

2012

Bibliography of Scientific and Technical Bibliographies: Subject index

1968

Bibliography of Scientific and Technical Bibliographies

1968

Investigation of the Low-subsonic Aerodynamic Characteristics of a Model of a Modified Lenticular Reentry Configuration

1962

Library of Congress Subject Headings

2013

Library of Congress Subject Headings

1992

Bibliography of Bibliographies (unclassified Title)

1964

The Lateral and Directional Aerodynamic Characteristics of a Re-entry Configuration Based on a Blunt 13 Deg Half Cone at Mach Numbers to 0.90

1961

Library of Congress Subject Headings

2003

Aerodynamics

1965

Research and Technology Program Digest Flash Index

1967

Symposia

1963

Bibliography of Scientific and Industrial Reports

1963

Aerodynamics, the Science of Air in Motion

1982

Analysis of the Aerodynamic Orbital Transfer Capabilities of a Winged Re-Entry Vehicle

2002-09-01

Aerodynamics

1963

A-E

1990

Shock Waves

2009-04-01

Summary of Aerodynamic Characteristics of Low-lift-drag-ratio Reentry Vehicles from Subsonic to Hypersonic Speeds

1961

U.S. Government Research and Development Reports

1963

Subsonic Aerodynamic Characteristics of Disk Re-entry Configurations with Elliptic Cross Sections and Thickness-diameter Ratios of 0.225 and 0.325

1961

From Low-speed Aerodynamics to Astronautics

1963

Tōkyō Daigaku Kōgakubu kiyō

1967

Propulsion Re-Entry Physics

2014-05-09

Journal of the Faculty of Engineering, University of Tokyo

1966

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