Aircraft Technology, Conventional, Determination STOL/VTOL

Aerodynamics

Recursive Relationships for Body Axis
Rotation Rates G83-056
Piloted Simulated of Hover and Transition of
a Vertical Attitude Takeoff and Landing
Aircraft G83-046

Aeroelasticity

Test Demonstration of Digital Control of Wing/Store Flutter G83-030

Avionics Systems

Minimum Impulse Limit Cycle Design to Compensate for Measurement Un-G83-074 HiMAT Onboard Flight Computer System Architecture and Qualification G83-042 A Core Software Concept for Integrated Control G83-037 PMUX--The Interface for Engine Data to AIDS G83-025 Applications of Head-Up Displays in Commercial Transport Aircraft G83-013 Fault Isolation Methodology for the L-1011 Digital Avionic Flight Control System G83-012

Civil Missions and Transportation

Ground Simulation Investigation of Helicopter Decelerating Instrument Approaches G83-058 Fuel-Optimal Aircraft Trajectories with Fixed Arrival Times G83-002

Flight Displays

Experience with Flight Test Trajectory
Guidance G83-067

Analysis of In-Trail Following Dynamics of
CDTI-Equipped Aircraft G83-028

Applications of Head-Up Displays in Commercial Transport Aircraft G83-013

Flight Operations

Analysis of In-Trail Following Dynamics of CDTI-Equipped Aircraft G83-028
Fuel-Optimal Aircraft Trajectories with Fixed Arrival Times G83-002

General Aviation

Some Effects of High-Rate Springs in Elevator Control Systems G83-089

Minimum Impulse Limit Cycle Design to

Guidance and Control

Compensate for Measurement Uncertainties G83-074 Adaptive Kalman Filter for Tracking Maneuvering Targets G83-071 Experience with Flight Test Trajectory Guidance G83-067 An Optimal Control Approach to Pilot/ Vehicle Analysis and the Neal-Smith Criteria G83-059 A New Strapdown Attitude Algorithm G83-050

Design and Analysis of a Digitally Controlled Integrated Flight/Fire Control System G83-045
Sensing Relative Attitudes for Automatic Docking G83-036

Subject Index

Determination of Horizontal Tail Load and Hinge Moment Characteristics from Flight Data G83-029 Development and Test of an Integrated Sensory System for Advanced Aircraft G83-026 ARINC 429 Digital Data Communications for Commercial Aircraft G83-020 Model Reference Adaptive Control of Large Structural Systems G83-018 Unifying Framework for Longitudinal G83-014 Flying Qualities Criteria Applications of Head-Up Displays in Commercial Transport Aircraft G83-013 Generic Faults and Architecture Design Considerations in Flight-Critical Systems G83-011 Semantic Definitions of Spacecraft Com-

Handling Qualities, Stability and Control

archical Graphs

mand and Control Languages Using Hier-

G83-004

G83-014

Some Effects of High-Rate Springs in Elevator Control Systems A Model-Based Investigation of Manipulator Characteristics and Pilot/Vehicle Performance G83-060 An Optimal Control Approach to Pilot/ Vehicle Analysis and the Neal-Smith G83-059 Criteria Ground Simulation Investigation of Heli-Decelerating Instrument conter Approaches G83-058 Stability of Aircraft Motion in Critical Cases G83-048 Piloted Simulated of Hover and Transition of a Vertical Attitude Takeoff and Landing Excessive Roll Damping Can Cause Roll

Excessive Roll Damping Can Cause Roll
Ratchet G83-038

Development and Test of an Integrated
Sensory System for Advanced Aircraft
G83-026

Nonlinear Filter for Pilot's Remnant Attenuation G83-021
Observers as Noise Filters in an Automatic
Aircraft Landing System G83-019
Control Characteristics of a Buoyant QuadRotor Research Aircraft G83-015
A Unifying Framework for Longitudinal

Helicopters

Ground Simulation Investigation of Helicopter Decelerating Instrument Approaches G83-058

Lighter-than-Airships

Flying Qualities Criteria

Control Characteristics of a Buoyant Quad-Rotor Research Aircraft G83-015

Navigation, Communication, and Traffic Control

Satellite Selection for the Global Positioning
System

Adaptive Kalman Filter for Tracking
Maneuvering Targets

A Kalman Filter Algorithm for TerminalArea Navigation with Sensors of Moderate
Accuracy

G83-057

Analysis of In-Trail Following Dynamics of
CDTI-Equipped Aircraft

G83-028

ABBIG 400 BY 14.1 But Communications

Performance

Closed-Loop Control Performance Sensitivity to Parameter Variations G83-068

Propeller and Rotor Systems

Control Characteristics of a Buoyant Quad-Rotor Research Aircraft G83-015

Simulation

Piloted Simulated of Hover and Transition of a Vertical Attitude Takeoff and Landing Aircraft

G83-046

Design and Analysis of a Digitally Controlled Integrated Flight/Fire Control System

G83-045

Excessive Roll Damping Can Cause Roll Ratchet

G83-038

Development and Test of an Integrated Sensory System for Advanced Aircraft

G83-026

Structural Design (including Loads)

Determination of Horizontal Tail Load and Hinge Moment Characteristics from Flight Data G83-029

Subsystem Design

Symbolic Representation of Translatory Motion in Multivarying-Link Mechanisms G83-033

Testing, Flight and Ground

Experience with Flight Test Trajectory
Guidance G83-067

Test Demonstration of Digital Control of
Wing/Store Flutter G83-030

Determination of Horizontal Tail Load and
Hinge Moment Characteristics from Flight
Data G83-029

Interdisciplinary Topics

Aerospace Management

Perturbation Guidance

Core Resource Management for Large Real-Time Computer Program Development G83-069

Gain Indexing Schemes for Low-Thrust

Analytical and Numerical Methods

New Nonsingular Forms of Perturbed Satellite Equations of Motion

G83-066

Effects of Energy Addition and Dissipation on Dual-Spin Spacecraft Attitude Motion

G83-063

Stability of Aircraft Motion in Critical Cases

G83-048

Sensing Relative Attitudes for Automatic Docking

G83-036

Symbolic Representation of Translatory Motion in Multivarying-Link Mechanisms

G83-033

Efficient Square Root Algorithm for

Measurement Update in Kalman Filtering

G83-023

Gravitational Three-Body Problem in 120 deg Axial Coordinates G83-022 Robust Control of Flexible Spacecraft

G83-017

Robustness of the Independent Modal-Space Control Method G83-003

Astrodynamics

Cain I-daving Schames for Law Thrust

New Nonsingular Forms of Perturbed Satellite Equations of Motion G83-066 Relativistic Rocket Motion via Minkowski's Formalism C83_053 Gravitational Three-Body Problem in 120 deg Axial Coordinates G83-022

Celestial Mechanics

New Nonsingular Forms of Perturbed Satellite Equations of Motion G83-066 Gravitational Three-Body Problem in 120 deg Axial Coordinates G83-022

Computer Communications, Information Processing and Software

Core Resource Management for Large Real-Time Computer Program Development

Computer Performance Monitoring during the Centaur Launch Countdown G83-041 Efficient Square Root Algorithm for Measurement Update in Kalman Filtering G83-023

ARINC 429 Digital Data Communications for Commercial Aircraft G83-020

Computer Science

Organizing Space Shuttle Parametric Data for Maintainability Recursive Relationships for Body Axis Rotation Rates G83-056 Spacecraft Computer Resource Margin G83-005 Management Semantic Definitions of Spacecraft Command and Control Languages Using Hierarchical Graphs G83-004

Computer Software

Core Resource Management for Large Real-Time Computer Program Development A Core Software Concept for Integrated Control G83-037 Space Shuttle Primary Onboard Software: STS-1 to Operational Use G83-024 Spacecraft Computer Resource Margin Management G83-005

Computer Technology

HiMAT Onboard Flight Computer System Architecture and Qualification G83-042 Space Shuttle Primary Onboard Software: STS-1 to Operational Use G83-024 Fault Isolation Methodology for the L-1011 Digital Avionic Flight Control System G83-012

Generic Faults and Architecture Design Considerations in Flight-Critical Systems G83-011

Spacecraft Computer Resource Margin Management G83-005

Human Factors

An Optimal Control Approach to Pilot/ Vehicle Analysis and the Neal-Smith Criteria G83-059 Nonlinear Filter for Pilot's Remnant Attenu-G83-021

A Unifying Framework for Longitudinal Flying Qualities Criteria G83-014

Numerical Analysis

A Comparison of Control Techniques for Large Flexible Systems G83-052 Sensing Relative Attitudes for Automatic G83-036 Docking

Reliability, Maintainability, and **Logistics Support**

Organizing Space Shuttle Parametric Data for Maintainability G83-070 Minuteman Inertial Guidance Assessment: The Next Best Thing to Flight Tests G83-027

Fault Isolation Methodology for the L-1011 Digital Avionic Flight Control System G83-012

Sensor Systems

System G83-073 Efficient Square Root Algorithm for Measurement Update in Kalman Filtering G83-023 A Practical Correlation Test for Cooperative Passive Optical Sensors G83-010 Effective Electromagnetic Shielding in Multi-

layer Printed Circuit Boards

Shuttle Orbiter Stellar-Inertial Reference

State Estimation

Magnetic Desaturation of a Momentum Bias System An Error Criterion for the Pointing of Axially Symmetric Spacecraft Payloads G83-081 Adaptive Kalman Filter for Tracking

Maneuvering Targets A Kalman Filter Algorithm for Terminal-Area Navigation with Sensors of Moderate Accuracy G83-057 Onboard Orbit Estimation with Tracking and

Data Relay Satellite System Data

G83-051 Observers as Noise Filters in an Automatic Aircraft Landing System G83-019 A Practical Correlation Test for Cooperative Passive Optical Sensors G83-010 Estimation of Distributed Parameter Systems

Launch Vehicle and Missile (LV/M) Technology

Aerodynamics

Angular Motion of a Spinning Projectile with a Viscous Liquid Payload G83-049

Command and Information Systems

Computer Performance Monitoring during the Centaur Launch Countdown G83-041

Dynamics and Control

Postflight Evaluation of the Shuttle Guidance, Navigation, and Control During Powered-Ascent Flight Phase

G83-072 Angular Motion of a Spinning Projectile with a Viscous Liquid Payload G83-049 Roll Resonance Probability for Ballistic Missiles with Random Configurational Asymmetry G83-040

Missile Guidance Design Tradeoffs for G83-035 High-Altitude Air Defense Control Techniques to Improve Space Shuttle Solid Rocket Booster Separation G83-031

Guidance

Space Shuttle as a Dynamic Test Tool for Missile Guidance Systems G83-088 A Guidance Law for General Surface Targets G83-086 Postflight Evaluation of the Shuttle Guidance, Navigation, and Control During Powered-Ascent Flight Phase G83-072

A New Strapdown Attitude Algorithm

G83-050 A Position-Modulated Alignment Test Technique in the Presence of Ship's Flexure C83-044

Covariance Analysis of a Charge Carrier Device Processing Algorithm for Stellar Sensors G83-043

Missile Guidance Design Tradeoffs for High-Altitude Air Defense G83-035 Minuteman Inertial Guidance Assessment: The Next Best Thing to Flight Tests

Launch Vehicle Systems

Postflight Evaluation of the Shuttle Guidance, Navigation, and Control During Powered-Ascent Flight Phase G83-072

Computer Performance Monitoring during the Centaur Launch Countdown G83-041

Missile Systems

G83-009

Roll Resonance Probability for Ballistic Missiles with Random Configurational Asymmetry G83-040 Missile Guidance Design Tradeoffs for High-Altitude Air Defense G83-035

Simulation

Nonstationary Shaping Filters for Simulation of Gravity Uncertainty Effects on Missile Trajectories G83-054

Testing, Flight and Ground

Space Shuttle as a Dynamic Test Tool for Missile Guidance Systems G83-088 Nonstationary Shaping Filters for Simulation of Gravity Uncertainty Effects on Missile Trajectories Angular Motion of a Spinning Projectile with a Viscous Liquid Payload G83-049 A Position-Modulated Alignment Test Technique in the Presence of Ship's Flexure G83-044 Minuteman Inertial Guidance Assessment:

The Next Best Thing to Flight Tests G83-027

Trajectories and Tracking Systems

Nonstationary Shaping Filters for Simulation of Gravity Uncertainty Effects on Missile Trajectories G83-054 Relativistic Rocket Motion via Minkowski's **Formalism** G83-053

Propulsion

Engine Performance

PMUX--The Interface for Engine Data to AIDS G83-025

Spacecraft Technology

Attitude Determination

Magnetic Desaturation of a Momentum Bias System G83-082 An Error Criterion for the Pointing of Axially Symmetric Spacecraft Payloads G83-081

Inertial Attitude Determination for a Dual- Spin Planetary Spacecraft G83-080
Spin Planetary Spacecraft G83-080 Minimum Impulse Limit Cycle Design to Compensate for Measurement Uncertain-
ties G83-074
Shuttle Orbiter Stellar-Inertial Reference System G83-073
Covariance Analysis of a Charge Carrier
Device Processing Algorithm for Stellar Sensors G83-043
Optimum Yaw Motion for Satellites with a
Nadir-Pointing Payload (The Netherlands) G83-007
A Radiation-Hardened Star Scanner for
Spacecraft Guidance and Control G83-006
Dynamics and Control
Torque from Solar Radiation Pressure
Gradient During Eclipse G83-085 Dynamics and Control of a Deformable
Gyrostat, Utilizing Continuum Vehicle
Modes G83-083 Magnetic Desaturation of a Momentum Bias
System G83-082
An Error Criterion for the Pointing of Axially Symmetric Spacecraft Payloads
G83-081
Satellite Attitude Dynamics and Control in the Presence of Environmental TorquesA
Brief Survey G83-079
The Digital Autopilot for Thrust Vector Control of the Shuttle Orbital Maneuver-
ing System G83-075
Closed-Loop Control Performance Sensitivity to Parameter Variations G83-068
Identification of Structural Dynamics Systems Using Least-Square Lattice Filters
G83-064
Effects of Energy Addition and Dissipation on Dual-Spin Spacecraft Attitude Motion
G83-063
Dislocated Actuator/Sensor Positioning and Feedback Design for Flexible Structures
G83-062
Recursive Relationships for Body Axis Rotation Rates G83-056
Active Attitude Control of a Spinning Sym-
metrical Satellite in an Elliptic Orbit G83-055
A Comparison of Control Techniques for Large Flexible Systems G83-052
Symbolic Representation of Translatory
Motion in Multivarying-Link Mechanisms G83-033
Experimental Demonstration of Static Shape
Control G83-032 Model Reference Adaptive Control of Large
Structural Systems G83-018
Robust Control of Flexible Spacecraft G83-017
Dynamics of a Spacecraft during Extension of Flexible Appendages G83-016
Design of Space Control Systems Using
On-Off Thrusters G83-008 Optimum Yaw Motion for Satellites with a
Nadir-Pointing Payload (The Netherlands)
G83-007 Semantic Definitions of Spacecraft Com-

mand and Control Languages Using Hier-

G83-004

archical Graphs

Robustness of the Independent Modal-Space Control Method G83-003 Estimation of Distributed Parameter Systems G82-003

Earth-Orbital Trajectories

Tracking Geosynchronous Satellites by Very-Long-Baseline Interferometry G83-065

Onboard Orbit Estimation with Tracking and Data Relay Satellite System Data

> G83-051 Extremely

An Onboard Navigator for the Extremely Low-Altitude Satellite Utilizing Accelerometers G83-034

Entry Vehicle Aerodynamics

Space Shuttle Response to Ascent Wind Profiles G83-061

Entry Vehicle Dynamics and Control

Dynamic Stability Testing of the Orbiter
Flight Control System/Flexible Body
Interaction G83-078
Analyses of Shuttle Orbiter Approach and
Landing G83-077

Space Shuttle Stability and Control Derivatives Estimated from the First Entry

G83-047

Entry Vehicle Guidance

Space Shuttle Entry Guidance Performance Results G83-076

Entry Vehicle Subsystems

Space Shuttle Response to Ascent Wind Profiles G83-061

Entry Vehicle Testing, Flight and Ground

Dynamic Stability Testing of the Orbiter
Flight Control System/Flexible Body
Interaction G83-078
Analyses of Shuttle Orbiter Approach and
Landing G83-077
Space Shuttle Stability and Control Derivatives Estimated from the First Entry

G83-047

Meteoroid and Radiation Protection

A Radiation-Hardened Star Scanner for Spacecraft Guidance and Control

G83-006

Mission Analysis

Space Shuttle Entry Guidance Performance
Results G83-076
Roll Resonance Probability for Ballistic
Missiles with Random Configurational
Asymmetry G83-040

Missions and Economics

Organizing Space Shuttle Parametric Data for Maintainability G83-070

Navigation, Guidance, and Flight-Path Control

Gain Indexing Schemes for Low-Thrust
Perturbation Guidance G83-087
Space Shuttle Entry Guidance Performance
Results G83-076
The Digital Autopilot for Thrust Vector
Control of the Shuttle Orbital Maneuver-

ing System G83-075
Shuttle Orbiter Stellar-Inertial Reference
System G83-073

Tracking Geosynchronous Satellites by Very-Long-Baseline Interferometry

Relativistic Rocket Motion via Minkowski's
Formalism G83-053

A New Strapdown Attitude Algorithm

G83-050

Covariance Analysis of a Charge Carrier
Device Processing Algorithm for Stellar
Sensors G83-043

Time-Optimized North-South Stationkeeping G83-039

An Onboard Navigator for the Extremely Low-Altitude Satellite Utilizing Accelerometers G83-034

A Radiation-Hardened Star Scanner for Spacecraft Guidance and Control

G83-006

The History of Apollo Onboard Guidance, Navigation, and Control (History of Key Technologies) G83-001

Propulsion Systems Integration

The Digital Autopilot for Thrust Vector Control of the Shuttle Orbital Maneuvering System G83-075

Simulation

Closed-Loop Control Performance Sensitivity to Parameter Variations G83-068

Systems

Space Shuttle Primary Onboard Software: STS-1 to Operational Use G83-024

Testing, Flight and Ground

A Position-Modulated Alignment Test Technique in the Presence of Ship's Flexure

G83-044

Structural Mechanics and Materials

Structural Dynamics

Dynamics and Control of a Deformable
Gyrostat, Utilizing Continuum Vehicle
Modes
G83-083

Dynamic Stability Testing of the Orbiter
Flight Control System/Flexible Body
Interaction
G83-078

A Comparison of Control Techniques for
Large Flexible Systems
G83-052

Model Reference Adaptive Control of Large
Structural Systems
G83-018

Robustness of the Independent Modal-Space

Robustness of the Independent Modal-Space Control Method G83-003 Estimation of Distributed Parameter Systems

G82-003