

X.9



Title

MSFC Project Descriptions - 1967

X.9

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
ELECTRIC PROPULSION				
<u>Component Technology</u>				
Analysis of Electrical Propulsion Power Conditioning Component Technology	J. C. King			
Distribution of Cesium in Porous Tungsten	I. Dalins	R-RP-N	4481	876-1891
Detailed Study of Ionizer Materials with LEED Method	I. Dalins	R-RP-N	4481	876-1891
<u>Mission Analysis</u>				
Low Acceleration Space Transportation Systems	J. W. Russell	R-AS-VP	4202	876-0070
NUCLEAR POWER SYSTEMS				
<u>Direct Conversion</u>				
Radioisotope Thermoelectric System	J. L. Miller			
<u>Experimental Evaluation and Systems Analysis</u>				
Design Requirements for Reactor Power Systems for Lunar Exploration	G. R. Woodcock			
Establishing Criteria for a Saturn Type Radioisotope Power Supply	J. L. Miller			
SOLAR POWER GENERATION				
<u>Photovoltaic</u>				
Parametric Analysis of Techniques for Megawatt Solar Cell Arrays	J. W. Russell	R-AS-VP	4202	876-0070
Solar Cell Array	J. L. Miller			

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
CHEMICAL POWER GENERATION				
<u>Batteries</u>				
Zinc-Oxygen Primary Cells	W. J. Britz	R-ASTR-EAP	4487	876-1493
Barium Electrode Batteries	W. J. Britz	R-ASTR-EAP	4487	876-1493
<u>Fuel Cells</u>				
Fuel Cell Systems	R. J. Boehme	R-ASTR-E	4487	876-6531
Fuel Cell Technology	R. J. Boehme	R-ASTR-E	4487	876-6531
<u>Electric Power Distribution and Control</u>				
Design Analysis & Performance Evaluation of Electrical Contacts	W. J. Shockley	R-ASTR-EAC	4487	876-6601
Inverters for Motors	D. Baker	R-ASTR-EAP	4487	876-1518
NUCLEAR ROCKET SYSTEMS, SRT				
<u>Radiation Effects</u>				
Development of Radiation Resistant Semiconductor Devices	A. M. Holladay	R-ASTR-R	4487	876-3283
Synthesis and Evaluation of Calculation Methods for Design and Optimization of Nuclear Rocket Shield Systems	H. E. Stern	R-RP-N	4481	876-3542
Design and Analysis of Radiation for Nuclear Rocket Systems	H. E. Stern	R-RP-N	4481	876-3542
Testing of Telemetry, Sensors and Signal Conditioning-Nuclear Environment (CTM)	W. White	R-ASTR-BP	4487	876-8311

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
<u>Design Concepts</u>				
Study of Modular Nuclear Vehicles, Technology Problems, and Safety Systems	D. R. Saxton	R-AS-VP	4202	876-0070
Nuclear Ground Test Module Investigation and Design	H. Connell	R-P&VE-DIR	4610	876-7759
Evaluation of Cryogenic Insulation Materials and Composites for Use in a Nuclear Radiation Environment	R. L. Gause	R-P&VE-MER	4612	876-0011
Emergency Propulsive Propellant Venting System Concepts	R. L. Middleton	R-P&VE-PTP	4610	876-7848
NUCLEAR ROCKET PROPULSION, SRT				
SAFETY RESEARCH AND DEVELOPMENT				
(NO TASK AREA TITLE)				
Study of Modular Nuclear Vehicles, Technology Problems, and Safety Systems	D. R. Saxton	R-AS-VP	4202	876-0070
SPACE VEHICLE SYSTEMS SRT				
SPACECRAFT STRUCTURES				
<u>Cryogenic Storage</u>				
Rocket Skd Testing of Improved Insulation Systems	C. D. Nevins	R-P&VE-SAA	4610	876-0269
Thermal Protection Systems for Cryogenic Propellants on Interplanetary Space Vehicle	G. E. Comer	I-S/AA	4202	876-5338
Manufacturing Technology Development for lightweight Insulation Systems	R. G. Jones			

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Insulation Development for Liquid Hydrogen Tankage	C. D. Nevins	R-P&VE-SAA	4610	876-0269
Cryogenic Insulation Research	C. D. Nevins	R-P&VE-SAA	4610	876-0269
Development of High Performance Insulation Systems	C. C. Wood	R-P&VE-PT	4610	876-7758
Thermal Design Criteria for Inflatable Solar Shields	G. D. Hopson	R-P&VE-PTD	4610	876-7815
Development of High Performance Insulation Systems for Long Term Storage	C. C. Wood	R-P&VE-PT	4610	876-7815
<u>High-Energy Radiation Effects and Shielding</u>				
Electron Shielding Studies	N. Edmondsun	R-RP-N	4481	876-4126
Evaluation of Simulated Radiation Shields	R. A. Potter	R-RP-N	4331	876-8036
Research on Application of Superconductivity to Active Radiation Shielding Problems	E. W. Urban	R-RP-N	4481	876-4126
Charged Particle Motion in Magnetic Fields	E. W. Urban	R-RP-N	4481	876-4126
Plasma Shielding Studies	L. H. Wood	R-RP-N	4481	876-1891
Cross Section Calculations and the Study of Space Vehicle Radiation Shielding	N. Edmondsun	R-RP-N	4481	876-4126
Investigation of Factors Limiting Construction of Superconducting Magnets for Space Shielding	E. W. Urban	R-RP-N	4481	876-4126

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Analysis of Radiation Effects of Composite Structures	H. E. Stern	R-RP-N	4481	876-3542
Investigation of the Combined Effects of Space Environmental Parameters on Space Vehicle Materials	R. L. Gause	R-P&VE-PTP	4612	876-0011
Investigation of Electron Interaction in Matter	N. Edmondsun	R-RP-N	4481	876-4126
Study of Magnetic Flux Flow and Superconductor Stabilization	E. W. Urban	R-RP-N	4481	876-4126
Study of Charged Particle Motions in Magnetic Radiation Shielding Fields	E. W. Urban	R-RP-N	4481	876-4126
<u>Meteoroid Environment and Impact Hazard</u>				
Canadian Meteor Data Analysis	M. J. Smith	R-EO-F	4200	876-6586
Experimental Hypervelocity Impact Research (Transient Phenomena from strong Shocks in Solids)	R. J. Naumann	R-RP-P	4481	876-2595
Meteoroid Detector Development and Calibration	J. B. Dozier	R-RP-P	4481	876-5169
Theoretical Impact Calculations	R. J. Naumann	R-RP-P	4481	876-2595
Development of a Hypervelocity Facility	P. N. Espy	R-RP-P	4481	876-1865
Meteoroid Field Patterns	D. P. Hale	R-RP-N	4481	876-4513
Meteoroid Technology for Design Criteria	C. C. Dalton	R-AERO-Y	4200	876-0865
Experimental Hypervelocity Impact Research (Advanced Accelerator Concepts)	R. J. Naumann	R-RP-P	4481	876-2595

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Application of Wavefront Reconstruction Imaging (Holography) To Hypervelocity Impact Physics	R. V. Hembree	R-RP-P	4481	876-1936
<u>High-Vacuum Technology</u>				
Monte Carlo Simulation of Rarefied Gas Flow	J. O. Ballance	R-AERO-AM	4200	876-3689
<u>Thermal Radiation Effects and Temperature Control</u>				
Study of the Radiative Emissivity of Metals-a. Theoretical-	K. Shocken			
Thermal Similtude Studies Applicable to Spacecraft	B. P. Jones	R-RP-T	4481	876-3391
Spectral Reflectance and Infrared Detection Under Cryogenic Conditions	K. Shocken			
Theory of Thermal and Electrical Conductivity in Bulk Material and at the Interface of Solid Conducting Specimens	K. Shocken			
Development of Space-Stable Thermal-Control Coatings (Paints with Low Solar Absorptance/Emittance Ratios)	D. W. Gates	R-RP-T	4481	876-4040
Solar-Radiation-Induced Damage to Optical Properties of ZnO-Type Pigments	G. M. Arnett	R-RP-T	4331	876-3314
Study of the Radiative Emissivity of Metals-b. Experimental	K. Shocken			
Effects of Solar Wind on Thermal Control Surfaces	E. R. Miller	R-RP-T	4331	876-4861

SPACE VEHICLE SYSTEMS, SRT

LAUNCH VEHICLE AEROTHERMODYNAMICS

Aerodynamic Forces, Steady Loads,
Stability and Control

Experimental Evaluation of Reynolds' Number Effects on Body of Revolution Viscous Cross-Flow Phenomena

C. D. Andrews

R-AERO-ADE

4200

877-8526

Aerodynamic Properties of Exhaust Plumes

E. E. Cooper

R-AERO-ATA

4200

876-3006

Stability Derivatives of Slowly Oscillating Bodies of Revolution in Supersonic Flow

M. F. Platzer

Panel Flutter Aerodynamics

M. F. Platzer

Theoretical Foundations for a Quantitative Investigation of the Aerodynamic Heat Transfer to Yawing Cones in Supersonic Flight

H. G. Krause

R-AERO-T

4200

876-1333

Conical Flow Tables with Diagrams for Mach Numbers Between 1 and 25 Semi-Apex Angles Between 5 and 45 Degrees, and Specific Heat Ratios 5/3, 7/5, 4/3, 5/4

H. G. Krause

R-AERO-T

4200

876-1333

Experimental Modeling of Apollo-Saturn Hypersonic Aerodynamic Flow Fields

C. D. Andrews

R-AERO-ADE

4200

877-8526

Study of Theoretical Methods as Applied to Steady Aerodynamic Analysis of Saturn Vehicle Shapes

J. D. Johnson

A Parametric^{fin} Study to Determine Thickness effects of Delta and Trapezoidal Fin Shapes

R. E. Pitcock

R-AERO-AUE

4200

876-6035

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Determination of Scale Effects (Local Reynolds Number) on Negative Spikes in Normal Force Distributions and Local Pressure at Compression Corners and Expansion Corners	B. W. Nunley	R-AERO-ADV	4200	876-4909
Effects of a Nonuniform Spanwise Velocity Profile on Fin Efficiency	K. L. Blackwell	R-AERO-ADE	4200	876-6725
Study and Refinement of High Angle of Attack Wind Tunnel Model Testing Techniques	C. E. Walker	R-AERO-ADE	4200	876-6725
Parametric Study of the Aerodynamic Characteristics of Solid Propellant "Strap-On" Thrust Assist cs Applied to Saturn-Class Vehicles	C. E. Walker	R-AERO-ADE	4200	876-6725
Normal Force Characteristics of Right Circular Cylinders of Various Fineness Ratios at 90 Degrees Angle of Attack	C. E. Walker	R-AERO-ADE	4200	
Experimental Investigation of Nonlinear Lift of Bodies with Changing Cross Section	H. G. Struck			
Numerical Solution of Special Flow Problems for Saturn Vehicles	L. M. Saunders			
Study to Evaluate Flow Coefficients for Flat Plate Outlets Discharging Transverse to an External Stream	P. E. Ramsey	R-AERO-ADE	4200	876-6725
Experimental Measurements Using the Laser Doppler Velocity Instrument	R. M. Huffaker			
Aerodynamic Characteristics of Hammerhead Shrouds	B. G. Dunn	R-AERO-ADV	4200	876-4909

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
<u>Vehicle and Base Heating</u>				
Base Flow and Separation Studies	W. K. Dahm	R-AERO-A	4200	876-4566
Analytical Investigation of Plume Afterburning	R. C. Farmer	R-AERO-AT	4200	876-2060
Research Related to Application of Shock Tube Techniques to the Study of Base Thermal Environment of Rocket-Propelled Vehicles (Base Heating Research)	H. B. Wilson	R-AERO-AT	4200	876-1833
Calculation of Three-Dimensional Interaction Regions in Multi-Rocket Vehicles	E. E. Cooper	R-AERO-ATA	4200	876-3006
<u>Acoustic Noise Propagation</u>				
Aerodynamic Noise Research	L. Schutzenhefer	R-AERO-AUA	4200	876-8063
Study of Absorption of Low Audio Frequency Acoustic Energy in the Atmospheric Media	J. H. Farrow	R-P&VE-SV	4487	876-0462
Sound Propagation Predictions	O. E. Smith	R-AERO-YT	4200	876-7580
Sound Propagation and Acoustical Danger Points	W. H. Heybey	R-AERO-T	4200	876-5480
Acoustic Model Studies of Rocket Exhaust Flow	J. H. Jones	R-AERO-AUA	4200	876-8063
Evaluation of the Acoustic Sources of Background Noise in Wind Tunnel Facilities	P. W. Howard	R-AERO-AUE	4200	876-1522
Development of a Suitable Technique for Acoustically Calibrating Wind Tunnels and Application of this Technique to Wind Tunnel Acoustic Survey	P. W. Howard	R-AERO-AUE	4200	876-1522

LAUNCH VEHICLE STRUCTURES

Advanced Structure/Material Concepts

Development of Advanced Tank Configuration (Intersecting Pressure Vessel & Others)

L. H. Borge

Development of Solid State Bonding Techniques

C. M. Wood

R-ME-MMP

4712

876-5445

Fusion Spot Welding System (Hybrid MIG-TIG)

W. M. McCampbell

R-ME-MW

4711

876-6409

Development of Technology using Composite Sandwich Structures

B. K. Davis

R-ME-MMS

4712

876-8673

Methods and Techniques for Fabrication Assembly and Modification in Space

V. H. Yost

R-ME-MMP

4712

876-8440

Analysis and Classification of Surface Contaminates Relative to Weld Defects

R. V. Hoppes

R-ME-MW

4711

876-6409

Development of Technology for High Energy Rate Forming

C. N. Irvine

R-ME-MMP

4712

876-5445

Development of Technology for Metal Joining

C. N. Irvine

R-ME-MMP

4712

876-5445

Development of Technology to Control Porosity by a Gas Scavenger

E. A. Hasemeyer

R-ME-MW

4711

876-6976

Technology for Shaping and Thermal Treating Advanced High Strength Alloys

C. N. Irvine

R-ME-MMP

4712

876-5445

Thermal Efficiency of TIG and MIG Welding Processes

R. M. Poorman

R-ME-MW

4711

876-6073

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Development of Technology for Birefringent Coatings	H. M. Walker	R-ME-MMS	4712	876-8673
<u>Structural Loads</u>				
High Resolution Wind Measuring Systems Evaluation	J. R. Scoggins	R-AERO-Y	4200	876-5645
Analysis of Detailed Wind Profiles	J. R. Scoggins	R-AERO-Y	4200	876-5645
Effect of Shock Induced Separation on Vehicle Dynamics	J. C. Young	R-AERO-AUE	4200	876-1611
Analysis of Meteorological Tower Data	G. Fichtl	R-AERO-YE	4200	876-6392
Analysis of Relationships Between Micro, Meso, and Synoptic Scale Meteorological Parameters	J. R. Scoggins	R-AERO-Y	4200	876-5645
Numerical Analysis of the Two Dimensional Flow Field Around an Oscillating Infinite Cylinder	G. A. Wilhold	R-AERO-AU	4200	876-0962
Development of Low Level Turbulence Models	G. Fichtl	R-AERO-YE	4200	876-6392
<u>Structural Dynamics</u>				
Establishment of Guidelines for Random and Sinusoidal Vibration Correlation	J. H. Farrow	R-P&VE-SV	4610	876-0462
Theoretical Research on the Pressure Distribution on Non-Spinning Multi-Stage Spacecraft Performing Bending Oscillations	M. F. Platzer			
Three-Dimensional Analysis of Launch Vehicles Including Shell Degrees of Freedom	L. Kiefling	R-AERO-DDS	4200	876-8222

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Nonlinear Dynamic Analysis of Structures	G. F. McDonough	R-AERO-D	4200	876-6895
Response of an Elastic Space Vehicle to Random Disturbances	G. F. McDonough	R-AERO-D	4200	876-6895
Study of the Solution of Non-linear Algebraic Equations	R. S. Ryan	R-AERO-DD	4200	876-2382
Fuel Sloshing Studies (Optimal Design of Slosh Baffles)	H. Buchanan	R-AERO-DDS	4200	877-2278
Mobile Acoustic Research Laboratory (MARL) Utilization	J. H. Farrow	R-P&VE-SV	4610	876-0462
Vibration Qualification Test-Damage Criteria Study	R. Shock			
Microphone Vibration Sensitivity	R. Jewell	R-P&VE-SVR	4610	876-9067
Bracket Damping Study	R. White			
Huck Bolt Blind Fastener Evaluation	L. Saint	R-P&VE-SVR	4610	876-0380
Flexible Baffle Studies	G. F. McDonough	R-AERO-D	4200	876-6895
Dynamic Response of Vehicle to Detail Wind Profiles and the Construction of a Synthetic Profile Based on These Detail Profiles	R. S. Ryan	R-AERO-DD	4200	876-2382
Use of Dynamic Scale Models to Determine Launch Vehicle Characteristics	G. F. McDonough	R-AERO-D	4200	876-6895
Liquid Free-Surface Instability Under Random Excitation	G. F. McDonough	R-AERO-D	4200	876-6895
Local Angle-of-Attack Effects on Vehicle Dynamic Response	J. Papadopoulos	R-AERO-DD	4200	876-9305

TITLES

TECHNICAL CONTACT

OFFICE SYMBOL

BUILDING

PHONE

Space Vehicle Design Criteria

Collection of Material Property Data and Presentation of Said Data in the Form of Material Data Handbooks

M. G. Olsen

Stiffness and Flexibility Matrices

H. Pfaff

R-ASTR-M

4487

876-3250

Environment Criteria

Environmental Design Criteria Studies (Terrestrial)

O. E. Smith

R-AERO-YT

4200

876-7580

Lunar Surface and Environment for Design Criteria

O. H. Vaughan

R-AERO-Y

4200

876-0870

Planetary Atmospheres

R. B. Owen

R-AERO-YS

4200

876-7763

Atmospheric Measuring Technique and Research Studies

R. E. Turner

R-AERO-Y

4200

876-2767

Wind and Thermodynamic Quantities (Surface to 30 km)

G. E. Daniels

R-AERO-YT

4200

876-0917

Reference Atmospheres

O. E. Smith

R-AERO-YT

4200

876-7580

Terrestrial Environment Criteria

G. E. Daniels

R-AERO-YT

4200

876-0917

Astrodynamic Constants

H. C. Euler

R-AERO-YS

4200

876-0870

Solar Flare Environment

W. T. Roberts

R-AERO-YS

4200

876-2047

Wind and Thermodynamic Quantities (30 to 90 km)

O. E. Smith

R-AERO-YT

4200

876-7580

Space Vehicle Environmental Design Criteria

R. E. Smith

R-AERO-YS

4200

876-4503

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Advance Statistical Techniques to Establish Aerospace Vehicle Design Criteria	O. E. Smith	R-AERO-YT	4200	876-7580
Environmental Design Criteria Studies (Space)	R. E. Smith	R-AERO-YS	4200	876-4503
Investigation of Detailed Wind Profiles (Meso-small Scale)	J. Scoggins	R-AERO-Y	4200	876-5645
Comparison of Wind Measuring Instruments (Aneometers)	D. Camp	R-AERO-YE	4200	876-0034
Planetary Surface Models for Mobility Design Criteria	O. H. Vaughan	R-AERO-Y	4200	876-1238
Tetroon Wind Track Study	C. Hill	R-AERO-YE	4200	876-0034
<u>Stability Guidance and Control Design Criteria</u>				
Design Criteria for Control of Space Vehicles During Launch Phase of Flight	R. C. Lewis	R-AERO-DCA	4200	876-6917
E L E C T R O N I C S S Y S T E M S , S R T				
GUIDANCE SYSTEMS				
<u>Inertial Sensors and Systems</u>				
Study for the Development of Gyro Test Methods	H. E. Thomason	R-ASTR-G	4487	876-1470
Cryogenic Gyro(Project SPIN)	W. Haeussermann	R-ASTR-	4487	876-1642
Integrated Gas Bearing Research for Government Agencies	P. H. Broussard	R-ASTR-GDA	4487	876-2215
Body-Fixed Three Axis Reference Systems	R. M. Coulter	R-AERO-FT	4200	876-6693

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Rate Sensing Using Optical Maser Techniques	C. L. Wyman	R-ASTR-RP	4487	877-2168
Analysis, Design, and Prototype Development of Squeeze-Film Bearings for AB5 Gyros	P. H. Broussard	R-ASTR-GDA	4487	876-2215
Evaluation of an Angular Rate Sensor	R. L. Kurtz			
Grease (Self-Sealing) Bearing	W. B. Panzer	R-ASTR-GC	4487	876-4437
Hydrodynamic Gyro Squeeze Film Bearing	W. B. Panzer	R-ASTR-GC	4487	876-4437
Short Term Frequency Stability in Gas Laser	E. Rheinbolt	R-ASTR-R	4487	877-2168
<u>Active Electromagnetic Devices and Systems</u>				
Advanced Optical Guidance Techniques for Rendezvous	C. L. Wyman	R-ASTR-RP	4487	877-2168
Nucleonic Techniques for Spacecraft Ranging and Tracking in Lunar Landing	H. D. Burke	R-ASTR-IMT	4487	876-8434
Electro Optical Sensors	J. L. Matheney	R-ASTR-RE	4487	876-1655
<u>Computers and Displays</u>				
Interplanetary Navigation Computer Specifications	C. D. Carlile	R-ASTR-A	4202	876-9592
<u>System and Trajectory Analysis</u>				
On-board Determination of Orbital Parameters	G. H. Saunders	R-ASTR-I	4487	876-1296
Application of Statistical Filter Theory to Space Navigation	J. W. Harden, Jr.	R-ASTR-A	4202	876-2787

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Stability of Guidance Systems	C. C. Dearman	R-AERO-GS	4200	876-3997
Optimum Rendezvous Guidance Systems	J. J. Hart	R-AERO-GG	4200	876-0329
Application of Restricted Three-Body Model to Interplanetary Transit Studies	W. E. Galloway	R-AERO-GA	4200	876-7285
High Precision Interplanetary Trajectory Program	T. C. French	R-COMP-R	4663	876-9612
Lunar Swing-by Transits for Interplanetary Flight Missions	W. E. Causey	R-AERO-GA	4200	876-7264
The Determination of Earth-Moon Trajectories for Maximum Mass in Lunar Orbit	C. Hurst			
Low Thrust Guidance Equations	J. J. Hart	R-AERO-GG	4200	876-0329
Earth Orbit to Mars Orbit Low Thrust Trajectory Formulation and Integration	J. R. Duncan	R-AERO-GG	4200	876-6383
Quasi-Optimum Space Vehicle Guidance Technique	J. L. Herring			
Solutions for the Adjoint Variables in Optimal Trajectory Problems	R. E. Burns			
Development of an Indirect Method for Solving Two-Point Boundary Value Problems Arising in Multistage Optimization, Interplanetary Low Thrust, Optimization Problems	H. L. Ingram	R-AERO-GG	4200	876-6443
Guidance Error Analysis	C. R. Fulmer	R-AERO-F	4200	876-4428
Investigation of Problems of Optimum Orbit Transfer	J. A. Lovingood	R-AERO-G	4200	876-7215

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Differential Games and Problems of Rendezvous, Capture, and Collision Avoidance	T. E. Carter			
CONTROL SYSTEMS				
<u>Manned Flight Control Systems</u>				
Computational and Display Requirements for Human Control of Space Vehicle Boosters	J. F. Pavlick	R-ASTR-A	4202	876-9623
Research on Analytical Design Techniques for Manual Booster Control	J. F. Pavlick	R-ASTR-A	4202	876-9623
Orbital and Interplanetary Navigation Simulation	C. D. Carlile	R-ASTR-A	4202	876-9592
<u>Automatic Flight Control Systems</u>				
Electrical to Fluid Interface	J. A. Peoples	R-P&VE-AB	4202	876-4615
<u>Advanced Control Theory</u>				
Transmission Concepts in Flexible Launch Vehicle Control	J. L. Milner	R-AERO-DD	4200	876-9305
Systems Configuration Synthesis	M. H. Rheinfurth	R-AERO-D	4200	876-6979
Research on the Minimax Control Problem	J. C. Blair	R-AERO-GO	4200	876-4033
Application of Optimal Control to Launch Vehicles	J. C. Blair	R-AERO-GO	4200	876-4033
Determination of Asymptotic and Periodic Behavior of Dynamical Systems Arising in Control Analysis	J. H. George	R-AERO-G	4200	876-3718
A Worst Disturbance Design Criterion in the Theory of Analytical Control Systems Synthesis	T. E. Carter			

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Reaction Jet Control of the S-IC Booster During Re-entry	L. H. Scherer	R-AERO-DCA	4200	877-2101
Use of Optimal Control Theory to Study Load Relief Control Systems	W. W. Hauser			
Minimax Drift Rate-Constrained Bending Moment	W. L. Brady			
Integrated Optimization of Flight Control and Guidance	J. C. Blair	R-AERO-GO	4200	876-4033
<u>Simulation Technology</u>				
Study of Wide-Angle Optical Systems for Visual Simulation	W. K. Polstorff	R-COMP-RS	4663	876-3236
Lunar Navigation Simulation	C. D. Carlile	R-ASTR-A	4202	876-9592
COMMUNICATIONS				
<u>Information Theory</u>				
Ground Station Requirements for Optical Communications Satellite	E. J. Rheinbolt	R-ASTR-R	4487	877-2168
<u>Communication Techniques and Components</u>				
Development of an Optical Superheterodyne Receiver	C. Q. Lee	R-ASTR-RP	4487	876-5290
Phase Variation Characteristics of Low Frequency Transmission	G. H. Saunders	R-ASTR-I	4487	876-1296
Investigation and Analysis of Advanced Telemetry Systems	W. O. Frost	R-ASTR-IT	4487	876-8774
Prototype Development of Optical Fine Tracking and Laser Transmitter System	J. L. Randall	R-ASTR-RP	4487	877-2168

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Laser Component and Technique Development	J. L. Randall	R-ASTR-RP	4487	877-2168
Frequency Stabilization and Control of a Laser	J. L. Randall	R-ASTR-RP	4487	877-2168
Laser Propagation Studies	J. B. Dozier			
Broadband Narrow Beam Optical Communications	C. L. Wyman	R-ASTR-RP	4487	877-2168
Optical Networks Synthesis Using Birefringent Materials	J. L. Randall	R-ASTR-RP	4487	877-2168
Experimental Measurement of Angular Deviations of a Laser Beam Transmitted Through a Turbulent Atmosphere	J. L. Hayes			
10.6 Micron Laser Communication Development	J. L. Randall	R-ASTR-RP	4487	877-2168
Frequency Controlled and Frequency Stable Lasers	J. L. Randall	R-ASTR-RP	4487	877-2168
Optical Communication and Tracking Techniques	C. Q. Lee	R-ASTR-RP	4487	876-5290
Suitability of Various Materials for Optical Maser Action	P. J. Marrero	R-ASTR-RP	4487	876-5290
Laser Technology as Applied to Space Science and Missions	D. P. Hale	R-RP-N	4481	876-4513
Development of Coherent GaAs Arrays	C. L. Wyman	R-ASTR-RP	4487	877-2168
Suitability of Laser Crystal Material	P. J. Marrero	R-ASTR-RP	4487	876-5290
Radar Directional Antenna for Spacecrafts	E. C. Hamilton	R-ASTR-A	4202	876-9560

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Study of Materials for Optical Maser Action	P. J. Marrero	R-ASTR-RP	4487	876-5290
Optical Communication and Tracking Technique	J. L. Randall	R-ASTR-RP	4487	877-2168
Frequency Doubling Laser Device	P. J. Marrero	R-ASTR-RP	4487	876-5290

TRACKING AND DATA ACQUISITION

Tracking and Data Acquisition Techniques and Components

Phased Array Development	G. H. Saunders	R-ASTR-I	4487	876-1296
Prototype Tracking System Using Coherent Light Techniques	C. L. Wyman	R-ASTR-I	4487	877-2168
Random Noise Ranging	G. H. Saunders	R-ASTR-I	4487	876-1296
Two Body Prediction Deck	P. Dreher	R-AERO-FT	4200	876-6693
Tracking Accuracy Requirements	C. R. Fulmer	R-AERO-F	4200	876-4428
Space Tracking Study Program (SPATS)	D. Percy			
Optical Design and Measurements	P. D. Evans	R-ASTR-RP	4487	876-5290
Mechanical Design of Optical Systems	D. D. Lamb	R-ASTR-M	4487	876-2742
Servoloop, Hybrid, Design	J. Gould	R-ASTR-RD	4487	877-2168
Precision Tracking Technique Development	C. L. Wyman	R-ASTR-I	4487	877-2168
Optical Component Fabrication	A. R. Crutcher	R-ASTR-PS	4487	876-5647
Tracking Mount, High Precision	J. Gould	R-ASTR-RD	4487	877-2168

TITLES

TECHNICAL CONTACT

OFFICE SYMBOL

BUILDING

PHONE

Optical Doppler Velocity Recording System

P. J. Marrero

R-ASTR-RP

4487

876-5290

Servoloop, Digital, Design

J. Gould

R-ASTR-RD

4487

877-2168

Interface Electronics, Optical to Digital

J. Gould

R-ASTR-RD

4487

877-2168

Optical Modulator Development

J. L. Randall

R-ASTR-RP

4487

877-2168

Advanced Electronic Devices

Coherent Infrared Detector Development

C. L. Wyman

R-ASTR-I

4487

877-2168

Development of a Stable Monolithic, Oscillator

D. L. Anderson

R-ASTR-RS

4487

877-2168

DATA HANDLING AND PROCESSING

Flight Readiness and Launch Systems

Investigation of Adaptive Computer Techniques and Components

L. A. Griner

Data Processing Systems

Studies of Random Process Theory and Physics Applications

J. A. Jones

R-COMP-RRV

4663

877-8341

Integration Subroutine for Second Order Differential Equations

A. E. Anderson

R-COMP-R

4663

877-2488

To Search for Good Algorithms for Discrete Optimization Problems

A. E. Anderson

R-COMP-R

4663

877-2488

Development of the AMTRAN On-Line Computer System

R. N. Seitz

Study of Numerical Differentiation and Numerical Aspects of Finite Difference Methods

R. J. Graham

R-COMP-RRF

4663

876-1795

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Digital Analysis of Random Processes by Curve Fitting Piecewise Estimated Correlation Functions	F. R. Krause	R-AERO-AM	4200	876-3108
Development of the AMTRAN On-Line Computer System	R. N. Seitz			
Development of an AMTRAN Interpreter-Compiler	R. N. Seitz			
Development of Ultra-Stable Magnetic Domain Wall Shift Register	G. A. Bailey	R-ASTR-RS	4487	877-2508
<u>Advanced Computing Devices</u>				
New Methods and Applications of Analog Computation	W. R. Polstorff	R-COMP-RS	4663	876-3236
Magneto-Optic Memory System	G. A. Bailey	R-ASTR-RS	4487	877-2508
Development of Non-Linear Digital Filters and Filtering Techniques	R. J. Graham	R-COMP-RRF	4663	876-1795
Development of Improved Integration Scheme for Digital Differential Analyzers	H. W. Zeanah	R-COMP-RSD	4663	876-1956
Computerized Manipulation, Storage and Retrieval of Geometrical Patterns	H. Krenn	R-COMP-RD	4663	877-3945
High Bit Density Memory Matrix	G. A. Bailey	R-ASTR-RS	4487	877-2508
INSTRUMENTATION				
<u>Astrophysical Instrumentation</u>				
Development of Electric Field Meter for Space Application	E. L. Shriver	R-RP-S	4481	876-7571
Investigation of Laser Properties Relevant to the Measurement of Different Parameters	R. M. Huffaker	R-AERO-ATP	4200	876-0431

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Radiative Heat Flux Measurement Using Semiconducting Thermoelectric Devices	C. F. Schafer	R-RP-T	4331	876-4861
Ultraviolet Flight Instrumentation Study	G. M. Arnett	R-RP-T	4331	876-3314
<u>Engineering Instrumentation</u>				
Development of Advanced Strain Measuring Technology	W. B. Cruise			
Development of a Direct Digital Output Pressure Transducer	A. E. Schuler	R-TEST-ID	4650	876-4938
Study and Investigate Adaptation of Mossbauer Effect to Transducers	A. E. Schuler	R-TEST-ID	4650	876-4938
Development of Solid State Image Converter of Radical Design	C. T. Huggins	R-ASTR-IR	4487	876-2944
Study of Gas Velocity and Density Measurement Using Scattering Techniques or Development of a Doppler Heterodyne Technique for Measurement of Local Gas Velocity	R. M. Huffaker	R-AERO-ATP	4200	876-0431
Advancing the State-of-the-Art of Pressure Transducers	R. C. Holder	R-ASTR-IMP	4487	876-4581
Research and Investigation of a Digital Temperature Transducer	A. E. Schuler	R-TEST-ID	4650	876-4938
Development of a Compact Mass Spectrometer Type of Gas Analyzer	I. Dalins	R-RP-N	4481	876-1891
Study and Investigate Adaptation of Mossbauer Effect to Different Instrumentation	A. E. Schuler	R-TEST-ID	4650	876-4938

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Development of a Miniature Vacuum Transducer with Digital Output	A. E. Schuler	R-TEST-ID	4650	876-4938
High Temperature Standards up to 3000 Degrees C	A. E. Schuler	R-TEST-ID	4650	876-4938
Development of High Response Balloon-Borne Temperature Sensor	D. W. Camp	R-AERO-YE	4200	876-0034
ELECTRONICS TECHNIQUES AND COMPONENTS				
<u>Electronic Component Research</u>				
Study Utilizing Energy Beam Fabrication to Improve Junction Topography	D. L. Anderson	R-ASTR-RS	4487	877-2168
Development of Multilayer Epitaxy for High Reliability Transistors	A. M. Holladay	R-ASTR-R	4487	877-2168
Generation Detection, and Propagation of Very High Frequency Stress Waves in Solids	W. J. Robinson	R-RP-S	4481	876-7571
Flexible Interconnect Pattern for Complex Silicon Monolithic Circuits	A. M. Holladay	R-ASTR-R	4487	877-2168
<u>Methods and Techniques</u>				
Establish Reliability and Quality Assurance Standards for Metal-Oxide-Semiconductor (MOS) Microelectronic Devices	L. C. Hamiter	R-QUAL-RP	4708	876-6191
Line Qualification Techniques for Integrated Circuits	L. C. Hamiter	R-QUAL-RP	4708	876-6191

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
HUMAN FACTORS SYSTEMS, SRT				
ADVANCED CONCEPTS				
<u>Systems Analysis</u>				
Manned Orbital Animal Research Facility Using S-IVB Stage	J. D. Hilchey	R-AS-VO	4202	876-0159
Manned Orbital Animal Research Facility Using S-IVB Stage	J. D. Hilchey	R-AS-VO	4202	876-0159
MAN-SYSTEM INTEGRATION				
<u>Systems Research</u>				
Lunar Surface Scientific Mission Simulation (Phase II)	C. A. Larson	R&P&VE-VAH	4610	876-8166
Man-System Locomotion Control and Display Criteria for Extra-Terrestrial Vehicle (Phase II)	C. A. Larson	R-P&VE-VAH	4610	876-8166
<u>Maintainability</u>				
Human Engineering Design Data for Maintenance and Repair of Advanced Space Systems	J. D. Hilchey <i>S. Johns Dr. J. Rodgers</i>	R-AS-VO	4202	876-0159
Multi-Functional Tooling Concept	V. H. Yost	R-ME-MMP	4712	876-8440
<u>Human Factors Engineering</u>				
Supporting Research on Role of Man in Operating Reusable Launch Vehicles	J. D. Hilchey	R-AS-VO	4202	876-0159
Orbital Training Facilities for Space Scientists	J. D. Hilchey	R-AS-VO	4202	876-0159

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
<u>Environmental Effects</u>				
Hydrogen Slush and/or Hydrogen Gel Utilization	G. K. Platt	R-P&VE-PT	4610	876-7729
<u>Propellant Evaluation</u>				
Slush Hydrogen Characteristics and Instrumentation Analysis	R. L. Middleton	R-P&VE-PTP	4610	876-7848
Study of Cryogenic Propellant Stratification Reduction	T. W. Winstead	R-P&VE-PTP	4610	876-7832
Orbital Cryogenic Propellant Transfer Thermal Design	W. O. Randolph	R-P&VE-PTE	4610	876-7719
Reliquefaction of Cryogenic Propellants	J. L. Vaniman	R-P&VE-PTP	4610	876-7813
<u>Aerothermochemistry & Engineering Data</u>				
The Stability Characteristics of Advanced Injectors	R. Richmond	R-P&VE-PAB	4610	877-2952
Thermodynamic Improvements in Liquid Hydrogen Turbopumps	T. W. Winstead	R-P&VE-PTP	4610	876-7832
Cryogenic Single and Two Phase Flow Instability	C. C. Wood	R P&VE PT	4610	876-7758
Acoustic Absorber Evaluation at High Thrust	L. Hein	R-P&VE-PMF	4610	877-3186
The Stability Characteristics of Advanced Injectors	R. Richmond	R-P&VE-PAB	4610	877-2952
Aerothermodynamics of Rocket Engine Performance Analysis	R. C. Farmer	R-AERO-AT	4200	876-2060

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TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
C H E M I C A L P R O P U L S I O N , S R T				
LIQUID PROPULSION TECHNOLOGY				
<u>Systems</u>				
Study for the Evaluation of the Plug Multi-Chamber	L. W. Jones	R-P&VE-PAA	4610	877-2084
Systems Analysis and Evaluation of the Plug Multi-Chamber Figuration	L. Jones	R-P&VE-PAA	4610	877-2084
<u>Subsystems & Components</u>				
Toroidal Engine Systems Analysis	L. Jones	R-P&VE-PAA	4610	877-2084
Design Criteria for Zero Leakage Connectors for Launch Vehicles	C. C. Wood	R-P&VE-PT	4610	876-7758
Investigation of Positive Type Shaft Seals	F. Pitzemberger	R-P&VE-PAB	4610	877-2902
Minimum Pressure Loss in High Flow Duct Systems	P. L. Muller	R-P&VE-PMD	4610	877-3171
Optimization of Duct Assemblies for Vibration	P. L. Muller	R-P&VE-PMD	4610	877-3171
Advanced Pump Inducer Investigations	L. Gross	R-P&VE-PAA	4610	877-2051
Pump Operation at Zero Net Positive Suction Head	L. Gross	R-P&VE-PAA	4610	877-2051
Fabrication Techniques for Transpiration Cooled Oxygen-Hydrogen Thrusters	R. Bailey	R-P&VE-PAP	4610	877-8586

TITLES

TECHNICAL CONTACT

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Advanced Concepts & Performance Analysis

The Performance of a Hydrogen-Fluorine Rocket Motor

R. C. Farmer

R-AERO-AT

4200

876-2060

Analysis of Plume Contribution to the Performance of Advanced Rocket Engines

R. C. Farmer

R-AERO-AT

4200

876-2060

RESEARCH PROGRAM, SRT

FLUID PHYSICS RESEARCH

Atomic & Molecular Properties

High Vacuum Spectroscopic Studies of Low Atomic Weight Atoms or Molecules

W. W. Moore

R-RP-P

4481

876-1936

Study of Instrumentation Testing in a Simulated Lunar Atmosphere

R. V. Hembree

R-RP-P

4481

876-1936

Studies of Sticking Coefficient with a Molecular Beam in Field Emission Microscope

I. Dalins

R-RP-N

4481

876-1891

Thermodynamic & Transport Properties

Determination of Thermodynamic Properties of Gases at High Pressures

A. E. Schuler

R-TEST-ID

4650

876-4938

Plasma Diagnostics

Detailed Investigation of Piezo-Electric Crystals as a Detector of Absorbed Atoms

I. Dalins

R-RP-N

4481

876-1891

Heat, Mass & Momentum Transfer

Liquid Vapor Quality in a Self Pressurized Container Discharge Line

H. M. Campbell

R-P&VE-PEC

4619

876-7544

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Surface Profile, Experimental and Analytical Studies	H. M. Campbell	R-P&VE-PEC	4619	876-7544
Heat Exchange Design Criteria	N. E. Welch	R-P&VE-PEA	4619	876-0704
<u>Internal Fluid Mechanics</u>				
Bubble Dynamics	C. G. Fritz	R-P&VE-PEC	4619	876-6032
Flow and Thermal Studies of Cryogenic Fluid, Vertical Two Phase Flow	N. E. Welch	R-P&VE-PEA	4619	876-0704
Three-Dimensional Effects of Air-Breathing Propulsion System's Inlets and Nozzles	R. C. Farmer	R-AERO-AT	4200	876-2060
MATERIALS RESEARCH				
<u>Polymers</u>				
Characterization and Evaluation of Polymeric Materials	W. A. Riehl	R-P&VE-M	4612	876-0568
An Investigation of the Degradation of Materials in an Ultra High Vacuum Environment	C. F. Smith	R-P&VE-MEV	4612	876-2085
<u>Bearings & Lubrication</u>				
Study of Cold Welding in Ultra-High Vacuum as a Function of Surface Contamination	I. Dalins	R-RP-N	4481	876-1891
<u>Fabrication & Processing</u>				
Magnetomotive Shock Wave Studies	R. M. Avery	R-ME-MES	4728	876-8529
General Purpose Laser	J. R. Rasquin	R-ME-MEE	4728	876-5918
Vacuum Sealing by Magnetic Pressure	J. D. Bennight	R-ME-ME	4728	876-5360

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Evaluation of Magnetomotive vs. Conventional Metal Working and Forming	M. W. Brennecke	R-ME-M	4712	876-2956
Investigation and Check-out of MIG and TIG Welding in Vacuum Chamber	F. J. Jackson	I-S/AA	4202	877-3034
Non-Destructive Evaluation of Residual Stress	W. N. Clotfelter	R-PQVE-ME	4605	876-3906
<u>Solid State Chemistry & Physics of Materials</u>				
Study of the Basic Modes of Heat Transfer in Particulate Materials	C. D. Cochran	R-RP-T	4481	876-3391
Study of Voltage Breakdown in Space Research	I. Dalins	R-RP-N	4481	876-1891
Development of Improved Thermoelectric Materials for Spacecraft	R. C. Ruff	R-PQVE-MEV	4612	876-7482
A Study of Epitaxial Growth Under Large Stress	I. Dalins	R-RP-N	4481	876-1891
Electromagnetic Radiation Effects on Inorganic Semiconductors	G. M. Arnett	R-RP-T	4331	876-3314
<u>Extraterrestrial Materials</u>				
Study of Impact Characteristics of Selected Non-metallic Materials in Vacuum Environment	S. A. Fields	R-RP-T	4331	876-0582
Development of Lunar Radiometric Models	W. C. Snoddy	R-RP-T	4331	876-8701
Experimental Study of the Effects of Vacuum Conditioning on the Physical Properties of Selected Materials	S. A. Fields	R-RP-T	4331	876-0582

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Investigation of Simulated Lunar Materials in the Far IR	K. Schocken	R-RP-T	4481	876-3391
Measurement of the Radiation from the moon	K. Schocken	R-RP-T	4481	876-3391
Measurement of the Angular Infrared Radiation from Simulated Extraterrestrial Materials	J. A. Fountain	R-RP-T	4481	876-5557
Elemental and Gas Analysis of Simulated Lunar Materials	S. A. Fields	R-RP-T	4331	876-0582
APPLIED MATHEMATICS				
<u>Gravitational & Orbital Mathematics</u>				
Research on Numerical Integration of Second Order Differential Equations	A. E. Anderson	R-COMP-R	4663	877-2488
Study of Orbital Perturbing Forces	R. L. Holland	R-RP-P	4481	876-4752
Research in the Analysis of Dynamical Systems	H. E. Stern	R-RP-N	4481	876-3542
A Study of New Mathematical Methods for the N-Body Problem and Related Orbital Mechanics	R. F. Arenstorf	R-COMP-T	4663	876-5422
Implementation of Tables for Use in Celestial Navigation on the Lunar Surface	J. W. Harden	R-ASTR-A	4202	876-2787
Development of Numerical Solutions for Partial Differential Equations Describing Two-Dimensional Moving Boundary Problems	A. E. Anderson	R-COMP-R	4663	877-2488
Studies in Qualitative Aspects of Hamiltonian Systems	M. C. Davidson	R-COMP-T	4663	877-8548

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Orbital Lifetime	R. J. Hill	R-AERO-FT	4200	876-3568
Orbital Correction Methods	R. H. Benson	R-AERO-FT	4200	876-3175
Advanced Mathematical and Statistical Techniques	R. E. Cummings	R-AERO-T	4200	876-7269
Theory for a Refined Earth Figure Model	H. G. Krause	R-AERO-T	4200	876-1333
Postflight Trajectory Determination Methods	J. B. Haussler	R-AERO-FFT	4200	876-1023
Improved Satellite Orbit Prediction and Tracking Method	R. J. Hill	R-AERO-FT	4200	876-3568
Graphic Method of Lifetime Prediction for Extraterrestrial Orbits	E. F. Fleischman	R-AERO-FT	4200	876-6693
Research on the Motions of Artificial Satellites	R. L. Holland	R-RP-P	4481	876-4752

Electromagnetic & Radiation Mathematics

Mathematical Aspects of Dimensional Analysis and Similitude (Mathematics of Thermal Similitude)	J. R. Watkins	R-RP-T	4481	876-7265
Solution of the Boltzmann-Vlasov Equations	L. H. Wood	R-RP-N	4481	876-1891
A Mathematical Expression for the Radiation Intensity and Reflectivity of the Lunar Surface	J. K. Harrison	R-RP-T	4481	876-3391
Application of Dimensional Analysis and Group Theory Solution of Ordinary and Partial Differential Equations	J. R. Watkins	R-RP-T	4481	876-7265
Development of Automatic Mathematical Techniques	R. N. Seitz			
Radiation Pressure	W. H. Heybey	R-AERO-T	4200	876-5480

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Application of Holography to Strain Analysis	C. E. Winkler	R-ASTR-R	4487	877-2168
<u>Geophysical & Planetary Mathematics</u>				
Research in Concepts of the Stability of Motion of Dynamical Systems	C. C. Dearman	R-AERO-GS	4200	876-3997
Optimization by Liapunov's Second Method	C. C. Dearman	R-AERO-GS	4200	876-3997
Computation of Space Flight Trajectories	H. J. Sperling	R-AERO-T	4200	876-7124
Classification of Periodic Orbits on the Restricted Three Body Problem	A. J. Schwaniger	R-AERO-GA	4200	876-7323
On a consistent System of Astrodynamic Constants and a Critical Evaluation of Solar System Constants	H. G. Krause	R-AERO-T	4200	876-1333
TRACKING AND DATA ACQUISITION, SRT				
TRACKING AND DATA ACQUISITION				
<u>New Tracking & Data Acquisition Systems</u>				
Arod System (Advanced Range and Orbit Determination)	G. H. Saunders	R-ASTR-I	4487	876-1296
<u>Integrated Systems Analysis, Development</u>				
Data Characteristics and Telemetry System Accuracy Analyses	W. O. Frost	R-ASTR-IT	4487	876-8774
<u>Receivers & Transmitters Subsystems</u>				
SS/FM Ground Station	F. H. Emens	R-ASTR-ITD	4487	876-1253

TITLES

TECHNICAL CONTACT

OFFICE SYMBOL

BUILDING

PHONE

Spacecraft Subsystems

UHF Telemetry Development

J. K. Stephens

R-ASTR-ITE

4487

876-2683

Onboard Data Storage for Telemetry Systems

F. H. Emens

R-ASTR-ITD

4487

876-1253

Adaptive PCM System for Data Acquisition

W. O. Frost

R-ASTR-IT

4487

876-8774

Addressable Time Division Multiplexer System

F. H. Emens

R-ASTR-ITD

4487

876-1253

SS/FM Data Transmission Equipment

F. H. Emens

R-ASTR-ITD

4487

876-1253

METEOROLOGICAL SYSTEMS, SRT

METEOROLOGY

Meteorological Atmospheric Research

High Altitude Wind Measurements

R. E. Turner

R-AERO-Y

4200

876-2767

High Altitude Environment Measurement Study

O. E. Smith

R-AERO-YT

4200

876-7580

High Altitude Atmospheric Instrumentation Systems

R. E. Turner

R-AERO-Y

4200

876-2767

COMMUNICATIONS AND NAVIGATION SYSTEMS, SRT

NAVIGATION

Navigation Techniques & Components

Navigation/Traffic Control Experiment Interferometer Experiment

John Harden

R-ASTR-A

4202

876-2787

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
COMMUNICATIONS				
<u>Components & Subsystems Development</u>				
Multikilowatt UHF Space Transmitter	E. C. Hamilton	R-ASTR-A	4202	876-9560
<u>Technological Studies & Investigation</u>				
Radar Surface Sensing	G. H. Saunders	R-ASTR-I	4487	876-1296
NAVIGATION SYSTEMS, SRT				
NAVIGATION				
<u>Navigation Techniques & Components</u>				
Navigation/Traffic Control Experiment Range Experiment for a Manned Spacecraft	John Harden	R-ASTR-A	4202	876-2787
Navigation/Traffic Control Experiment AROD Experiment	John Harden	R-ASTR-A	4202	876-2787
Navigation/Traffic Control Experiment Range and Angle Experiment for a Manned Spacecraft	John Harden	R-ASTR-A	4202	876-2787
LUNAR AND PLANETARY EXPLORATION, SRT-SCIENCE				
SPACE CHEMISTRY				
<u>Undesignated</u>				
Investigation of Chemical Kinetics in the Upper Atmosphere	S. G. Frary	R-RP-N	4331	876-8036

TITLES

TECHNICAL CONTACT

OFFICE SYMBOL

BUILDING

PHONE

PLANETARY QUARANTINE

Equipment Facilities, & Procedures for Assembly, Check-Out, Sterilization & Handling

Particulate and Biological Matter Challenge System for Validation of Sterility Within a Sterile Assembly System

F. J. Beyerle R-ME-MMC 4712 876-3431

Process Control Element for Sterilization by Heating During and After Manufacturing of Hardware

F. J. Beyerle R-ME-MMC 4712 876-3431

Sterilizable Parts & Subsystems Elements

Development of Improved Potting and Encapsulating Components for Space Applications

W. J. Patterson R-P&VE-MHP 4612 876-3834

SPACECRAFT AND CAPSULE EQUIPMENT DEVELOPMENT

Thermal Control System

Thermoelectric Cooling

W. E. Vaspareck

G E O P H Y S I C S & A S T R O N O M Y, S R T

IONOSPHERIC AND RADIO PHYSICS

Undesignated

Ionospheric Electron Content

C. R. Baugher R-RP-S 4481 876-0253

A Study of Ionospheric Disturbances Following Static Test Firings

W. T. Roberts R AERO YS 4200 876-2047

Investigation of the Ionospheric Perturbations Made by a Satellite

L. L. Lacy R-RP-N 4481 876-4126

TITLES	TECHNICAL CONTACT	OFFICE SUPPLY	BUILDING	PHONE
B I O S C I E N C E, S R T				
PLANETARY QUARANTINE				
<u>Sterilization Techniques</u>				
Handbook on Biological Aspects for the Development of Manufacturing Procedures for Planetary Spacecraft to be Sterilized by Heating	F. J. Beyerle	R-ME-MMC	4712	876-3431
Biological Aspects of Reconstruction During Capsule Deployment	F. J. Beyerle	R-ME-MMC	4712	876-3431
C H E M I C A L P R O P U L S I O N E X P E R I M E N T A L E N G I N E E R I N G				
LIQUID LAUNCH VEHICLE ENGINES				
<u>High Pressure Engines</u>				
Advanced Engine Design Study (Bell)	J. P. McCarty	R-P&VE-PAX	4610	877-2076
Power System Dynamics Investigation (Bell)	L. A. Gross	R-P&VE-PAA	4610	877-2051
High Pressure LOX Pump, Evaluation	F. D. Pitzenberger	R-P&VE-PAB	4610	877-2902
<u>Toroidal Aerospike Engines</u>				
System and Dynamics Investigation (Aerospike)	F. W. Braam	R-P&VE-PAA	4610	877-2085
Advanced Engine Design Study (Aerospike)	F. W. Braam	R-P&VE-PAA	4610	877-2085
Toroidal Combustion Chamber Evaluation	R. Bailey	F&D-RP	4200	876-5107

TITLES

TECHNICAL CONTACT

OFFICE SYMBOL

BUILDING

PHONE

LIQUID PROPULSION SYSTEM SUPPORT

Propellants

Atmospheric Diffusion of Toxic Gases

SOLID HIGH THRUST SYSTEMS

Systems

Large Solid Propellant Rocket Motor Recovery and Re-Use

G. Detko

R-AS-VG

4202

876-8851

Subsystems & Components

Development of Combustion Termination Design Criteria and Integration of Malfunction Sensors with Combustion Termination

R. N. Eilerman

R-P&VE-PP

4610

876-4662

SOLID AUXILIARY ROCKET PROPULSION

Aerothermochemistry & Engineering Data

Development of Combustion Termination Design Criteria and Integration of Malfunction Sensors with Combustion Termination

R. N. Eilerman

R-P&VE-PP

4610

876-4662

A P O L L O S U P P O R T I N G D E V E L O P M E N T

SATURN IB LAUNCH VEHICLE

Manufacturing and Inspection System

Vehicle Systems Failure Analysis

E. R. Ritch

R-QUAL-OC

4708

876-2184

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
Saturn V Electronic Connection Improvement Research	T. N. Vann	R-ME-MEA	4705	876-6435
INSTRUMENT UNIT (SATURN V)				
<u>Stabilization and Control System</u>				
Microminiaturized Flight Control Computer	H. E. Yearwood	R-ASTR-NFE	4487	876-1411
<u>Guidance and Navigation System</u>				
Gyro Wheel Power Consumption Monitor for ST 124-M Stabilized Platform	I. T. Morgan	R-ASTR-GC	4487	876-4437
A P O L L O E X T E N S I O N S Y S T E M S S U P P O R T I N G D E V E L O P M E N T				
INSTRUMENT UNIT (SATURN IB)				
<u>Attitude Control Propulsion System</u>				
Attitude Control of Large Orbiting Manned Space Vehicles Using Passive Stabilization Techniques	C. O. Jones	R-ASTR-NGD	4487	876-1680
<u>Stabilization and Control System</u>				
Advanced Conventional Control	J. George			
Filter Development	D. P. Vallyely	R-ASTR-FO	4487	877-2154
SATURN V LAUNCH VEHICLE				
<u>Instrumentation</u>				
Development of Flowmeters for Refueling in Space Experiments (In-House)	A. E. Schuler	T-TEST-ID	4650	876-4938
<u>Checkout</u>				
Improvement in Control of Automated Stage Checkout-Test Conductor	J. H. Newton	R-QUAL-PSC	4708	876-4078

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
SATURN V LAUNCH VEHICLE				
<u>Thermal Control System=</u>				
Range of Structure of Ambient Density from 0 to 120 km Altitude	O. E. Smith	R-AERO-YT	4200	876-7580
<u>Propulsion System</u>				
Shock Wave Shear Layer Interaction in Clustered Rocket Exhausts	K. D. Johnston	R-AERO-AM	4200	876-1644
<u>Stabilization and Control System</u>				
Bending Feedback Suppression and/or Active Control	R. C. Lewis	R-AERO-DCA	4200	876-6917
<u>Instrumentation System</u>				
Development of Advanced Flight Strain Measuring Techniques	W. C. Cruise			
A P O L L O S U P P O R T I N G D E V E L O P M E N T				
<u>Pyrotechnic System</u>				
Exploding Bridgewire (EBW) Systems	J. B. Stulting	R-ASTR-EAS	4487	876-5594
<u>Launch System</u>				
Prediction of Fluctuating Pressure Around Vehicle Protuberances	J. C. Young	R-AERO-AUE	4200	876-1611
<u>Manufacturing and Inspection System</u>				
Digital Control of Saturn V Welding Machines	J. D. Bennight	R-ME-ME	4728	876-5360
S-IC STAGE				
<u>Manufacturing and Inspection System</u>				
Development of Technology for Installation of Mechanical Fasteners	H. T. Blaise	R-ME-MMP	4712	876-8440

TITLES	TECHNICAL CONTACT	OFFICE SYMBOL	BUILDING	PHONE
<u>Transportation</u>				
Simulated Lunar Flight of a One-Man Flying Vehicle	L. Bradford	R-AS-P	4202	876-5534
S-11 STAGE				
<u>Propulsion System</u>				
Improved J-2 Engine Experimental Program	J. R. Thompson	R-TEST-IEE	4553	876-6512
Impact on the S-11 Stage of an Improved J-2 Engine	J. R. Thompson	R-TEST-IEE	4553	876-6512
S-IVB STAGE (SATURN V)				
<u>Propulsion System</u>				
Modified Restartable O ₂ /H ₂ Burner for Multiple Restart Capability	F. Van Rennselaer			
Impact on the S-IVB Stage of an Improved J-2 Engine	J. R. Thompson	R-TEST-IEE	4553	876-6512
<u>Electrical Power System</u>				
Flat Cable System Engineering	W. Angele	R-ASTR-P	4487	876-4525
PAYLOAD MODULES				
<u>Structural System</u>				
Shrouds and Separation Systems	R. E. Garrett	R-PQVE-SVT	4619	876-7155
<u>Manufacturing and Inspection System</u>				
Tooling Concept for Manufacturing Operations in Space (Serpentuator)	W. F. Wuenschel	R-ME-DIR	4712	876-6365

TITLES

TECHNICAL
CONTACTOFFICE
SYMBOL

BUILDING

PHONE

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Space Operations Techniques/SubsystemDevelopment of Adhesive Bonding Techniques
for In-Flight Repair of Space Vehicles

H. M. Walker

EXTENDED LUNAR EXCURSION MODULE

Electrical Power System

Fuel Cell Reliability

C. B. Graff

R-ASTR-EAP

4487

876-1518

ORBITING LABORATORY MODULE

Astronaut Equipment and SystemStabilization and Control Aids for
Orbital Mobility Devices

W. E. Whitacre

R-AS-VO

4202

876-9680

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