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SEARCH CONTROL NO. 015423

SPACE FLIGHT (U)

~~History Document
University of Alabama Huntsville
History of Science & Technology Group
Date: 6-9-69 Doc. No. 015423~~

A R E P O R T B I B L I O G R A P H Y

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REQUESTED BY: D L CHRISTENSEN DLC-5/2/69-MEMO

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-849 369 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOVIET SPACE RESEARCH. (U)
OCT 68 15P
REPT. NO. FTD-HT-23-439-68

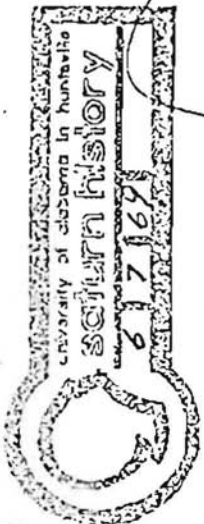
UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDER, FOREIGN TECHNOLOGY DIV., ATTN:
TRANSLATION DIV., WRIGHT-PATTERSON AFB, OHIO
45433.

X SUPPLEMENTARY NOTE: EDITED TRANS. OF MUSZAKI ELET
(HUNGARY) V22 N17 P29-30 1967, BY D. GRANDJEAN.

DESCRIPTORS: (SPACE FLIGHT, USSR), SPACE CREWS,
SATELLITES(ARTIFICIAL), CRYOGENIC PROPELLANTS,
PROPAGANDA, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE REPORT DISCUSSES THE DEVELOPMENT AND USE OF THE
VOSTOK LAUNCH VEHICLE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-847 481 22/2 15/5
LTV AEROSPACE CORP DALLAS TEX MISSILES AND SPACE DIV
EXTRAVEHICULAR ACTIVITIES SYSTEM
EFFECTIVENESS. VOLUME I PHASE II SUMMARY
REPORT. (U)
DESCRIPTIVE NOTE: FINAL REPT. 17 APR 68-27 JAN 69,
JAN 69 92P NICKS, ROBERT F. ;
REPT. NO. MSD/ES-2601-VOL-1, MSD-00.1115-VOL-1
CONTRACT: F33615-67-C-1499
PROJ: AF-8170
TASK: 817012
MONITOR: AFAPL TR-68-135-VOL-1

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
DIRECTOR, AIR FORCE AERO PROPULSION LAB.,
ATTN: APFH, WRIGHT-PATTERSON AFB, OHIO
45433.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-395
368L.

DESCRIPTORS: (•SPACE FLIGHT, LOGISTICS), (•SPACE
STATIONS, EXTRAVEHICULAR ACTIVITY), SYSTEMS
ENGINEERING, TELESCOPES, SATELLITE ANTENNAS,
ANTENNA CONFIGURATIONS, MANNED SPACECRAFT, LIFTING
REENTRY VEHICLES, DESIGN, PERFORMANCE(HUMAN),
VALUE ENGINEERING, OPTICAL EQUIPMENT COMPONENTS,
COST EFFECTIVENESS, ADVANCED PLANNING (U)
IDENTIFIERS: •MANNED ORBITAL LABORATORIES,
AOL(ADVANCED ORBITAL LABORATORIES), •ADVANCED
ORBITAL LABORATORIES, •LIFTING BODY REENTRY
VEHICLES, TITAN 2, •MANAGEMENT INFORMATION
SYSTEMS (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-846 241 9/2 17/7
IBM FEDERAL SYSTEMS DIV-WEST LOS ANGELES CALIF
FLEXIBLE GUIDANCE SOFTWARE SYSTEM. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. MAR-DEC 68 ON
PHASE 1A,
DEC 68 229P ROBBINS, HOWARD M. ;
REPT. NO. IBM-69-W65-008
CONTRACT: FD4701-68-C-0217
MONITOR: SAMSO TR-68-474

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDER, SAMSO (SMSDI-STINFO) LOS ANGELES AIR
FORCE STATION, CALIF. 90045.

DESCRIPTORS: (.SPACE FLIGHT,
PROGRAMMING (COMPUTERS)), (.NAVIGATION COMPUTERS,
INPUT-OUTPUT DEVICES), SPACECRAFT, DATA
PROCESSING SYSTEMS, SPECIAL PURPOSE COMPUTERS,
MISSION PROFILES, ORBITAL TRAJECTORIES, SPACE
NAVIGATION, AUTOMATIC PILOTS, PROGRAMMING LANGUAGES,
OPTIMIZATION, ALGORITHMS, TABLES (U)
IDENTIFIERS: FGSS (FLEXIBLE GUIDANCE SOFTWARE
SYSTEM), .FLEXIBLE GUIDANCE SOFTWARE
SYSTEMS, QRG (QUICK REACTION GUIDANCE
TARGETING), QUICK REACTION GUIDANCE TARGETING (U)

THE DESIGN OF KEY ELEMENTS OF THE FLEXIBLE
GUIDANCE SOFTWARE SYSTEM WAS CONTINUED TO
ESTABLISH FEASIBILITY OF THE CONCEPTS AND TO FINALIZE
DESIGN REQUIREMENTS. THE SYSTEM CONCEPTS WERE
ORIGINALLY ESTABLISHED IN AN EARLIER STUDY OF QUICK-
REACTION GUIDANCE. THE FLEXIBLE GUIDANCE
SOFTWARE SYSTEM IS A GROUND-BASED DATA PROCESSING
SYSTEM EMPLOYED IN THE PREPARATION OF SOFTWARE FOR
SPACECRAFT COMPUTERS. THE SYSTEM IS HIGHLY
AUTOMATIC AND IS DESIGNED TO REDUCE THE MANUAL LABOR
INVOLVED IN THE ANALYSIS, TEST AND DEVELOPMENT, AND
VALIDATION PHASES OF THE SOFTWARE PREPARATION
PROCESS. EMPHASIS WAS PLACED ON THE DEVELOPMENT OF
A MISSION PLANNER PROGRAM TO GENERATE REFERENCE
TRAJECTORIES AND OPERATIONAL DATA FOR A BROAD CLASS
OF MISSIONS AND VEHICLES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-839 685 22/2 12/2 14/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF
STATE SPACE APPLICATION TO SYSTEM DESIGN. (U)
DESCRIPTIVE NOTE: MASTER'S THESIS,
JUN 68 113P MOCK, SANFORD NORMAN ;

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
NAVAL POSTGRADUATE SCHOOL, ATTN: CODE 023.
MONTEREY, CALIF. 93940.

DESCRIPTORS: (•FLIGHT CONTROL SYSTEMS, DESIGN),
(•SPACE FLIGHT, FLIGHT CONTROL SYSTEMS), SYSTEMS
ENGINEERING, NONLINEAR SYSTEMS, FLOW CHARTING,
TRANSFER FUNCTIONS, SERVOMECHANISMS, OPTIMIZATION,
COSTS, STABILITY, FEEDBACK, DIFFERENTIAL
EQUATIONS, THEOREMS, THESES (U)
IDENTIFIERS: OPTIMAL CONTROL THEORY, RICATTI
EQUATION, LYAPUNOV FUNCTIONS, LYAPUNOV STABILITY,
ASYMPTOTIC STABILITY (U)

THE AVAILABILITY OF DIGITAL AND HYBRID COMPUTERS
HAS LED TO THE DEVELOPMENT OF THE STATE SPACE
APPROACH AND OPTIMIZATION THEORY FOR THE ANALYSIS AND
DESIGN OF CONTROL SYSTEMS, PARTICULARLY IN SPACE
ORIENTED PROBLEMS WHERE MEANINGFUL COST CRITERIA CAN
BE DEFINED. IN THIS THESIS OPTIMIZATION THEORY IS
INVESTIGATED AS APPLIED TO CLASSICAL CONTROL SYSTEMS,
SUCH AS REGULATORS, TO DETERMINE IF THESE TECHNIQUES
MAY BE USED IN THE DESIGN OF SYSTEMS TO MEET
CONVENTIONAL PERFORMANCE STANDARDS. AS PART OF
THIS INVESTIGATION A METHOD HAS BEEN DEVELOPED WHICH
YIELDS THE OVERALL STATE EQUATIONS FOR A SYSTEM FROM
THE STATE EQUATIONS OF THE INDIVIDUAL COMPONENTS.
ALSO, SINCE OPTIMAL DESIGNS ARE USUALLY NON-LINEAR
AND TIME VARYING, A DISCUSSION OF STABILITY CRITERIA
FOR THESE SYSTEMS IS INCLUDED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-828 775 22/1 16/4
AEROSPACE CORP LOS ANGELES CALIF
TRANSACTIONS OF THE SYMPOSIUM ON BALLISTIC MISSILE
AND SPACE TECHNOLOGY (9TH), HELD AT THE UNITED STATES
NAVAL TRAINING CENTER, SAN DIEGO, CALIFORNIA, 12-14
AUGUST 1964. VOLUME I. (U)
64 545P

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDER, SANSO (SMSDI-STINFO) LOS ANGELES AIR
FORCE STATION, CALIF. 90045.

DESCRIPTORS: (•GUIDED MISSILES, SYMPOSIA),
(•SPACE FLIGHT, SYMPOSIA), COMMAND + CONTROL
SYSTEMS, SPACE COMMUNICATION SYSTEMS, COMMUNICATION
SATELLITES(ACTIVE), SPACE NAVIGATION, HORIZON
SCANNERS, RANGE FINDING, LIFTING REENTRY VEHICLES,
SPACE STATIONS, MANNED SPACECRAFT, SPACE MEDICINE,
LIFE SUPPORT, NUTRITION, LUNAR BASES (U)

CONTENTS: COMMAND AND CONTROL FROM THE NATIONAL
POINT OF VIEW; PARAMETRIC ANALYSIS OF AN INTEGRATED
TRACKING, TELEMETRY, AND COMMAND SYSTEM; MILITARY
VS COMMERCIAL COMMUNICATION SATELLITES;
ESTABLISHMENT AND REPLENISHMENT CALCULATIONS FOR
SATELLITE SYSTEMS; RETRODIRECTIVE ARRAYS FOR
MILITARY COMMUNICATION SATELLITES; THE USE OF
FREQUENCY SELECTIVE LIMITERS IN COMMUNICATION
SATELLITES; GRAVITY-GRADIENT ATTITUDE STABILIZATION
FOR COMMUNICATION SATELLITES; COMPOSITE CODED
COMMUNICATIONS; A COMPARISON OF KEY PARAMETERS OF
THREE CW RANGING SYSTEMS; HORIZON SENSOR
NAVIGATION ERRORS RESULTING FROM STATISTICAL
VARIATIONS IN THE CO2 14-16 MICRON RADIATION BAND;
A NUMERICAL COMPARISON OF TWO ORBIT DETERMINATION
METHODS; OPTIMAL GUIDANCE AND CONTROL SYNTHESIS FOR
MANEUVERABLE LIFTING SPACE VEHICLES; STABILITY AND
CONTROL CONSIDERATIONS IN THE DEPLOYMENT OF A GABLE-
CONNECTED SPINNING SPACE STATION; REDUNDANCY/
MAINTENANCE COST OPTIMIZATION FOR MANNED ORBITAL
SPACE STATIONS; PHYSIOLOGICAL CONSIDERATIONS ON
MAINTENANCE OF MUSCLE TONE UNDER SUBGRAVITY
CONDITIONS; ATMOSPHERE SELECTION AND ENVIRONMENTAL
CONTROL FOR MANNED SPACE STATION; THE MEASUREMENT
OF GENERAL HUMAN PERFORMANCE IN MILITARY SPACE
SYSTEMS; LUNAR BASE MISSION CREW NUTRITION
SUBSYSTEMS OPTIMIZATION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-826 285L 22/1 22/2 5/4
BROWNE AND SHAW RESEARCH CORP WALTHAM MASS
STRATEGIC FACTORS AFFECTING THE STRUCTURE AND CONDUCT
OF U.S. AIR FORCE SPACE OPERATIONS, 1967-1985. (U)
JUN 67 345P
CONTRACT: AF 49(638)-1775

UNCLASSIFIED REPORT

DISTRIBUTION: CONTROLLED: ALL REQUESTS TO
HEADQUARTERS, U. S. AIR FORCE, ATTN: AFXDOC.
WASHINGTON, D. C. 20330.

+
DESCRIPTORS: (•AIR FORCE OPERATIONS, ADVANCED
PLANNING), (•SPACE FLIGHT, AIR FORCE
OPERATIONS), TREATIES, NATIONAL DEFENSE,
MILITARY STRATEGY, ARMS CONTROL, FOREIGN POLICY,
LOW-ORBIT TRAJECTORIES, EARTH(PLANET),
MILITARY SATELLITES, SATELLITE TRACKING SYSTEMS,
SPACE SURVEILLANCE SYSTEMS, POLITICAL SCIENCE,
ECONOMICS, USSR, JAPAN, INDIA, CHINA,
FRANCE, GREAT BRITAIN, WEST GERMANY,
ASTRONAUTICS

(U)

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AD-824 486 22/2 16/1 17/9 22/3
22/4 9/2

JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS
LAB

SPACE PROGRAMS. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. 1 JUL -30 SEP 67.

SEP 67 46P

REPT. NO. APL-U-SQR-67-3

CONTRACT: NOW-62-0604

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF NAVAL
AIR SYSTEMS COMMAND, ATTN: CODE AIR-330.
WASHINGTON, D. C. 20360.

DESCRIPTORS: (*SPACE FLIGHT, SCIENTIFIC RESEARCH),
(*GUIDED MISSILES(UNDERWATER-TO-SURFACE),
REVIEWS), (*SATELLITES(ARTIFICIAL),
REVIEWS), (*SATELLITE TRACKING SYSTEMS,
REVIEWS), SPACECRAFT, MANNED, ELECTRIC MOTORS,
SCIENTIFIC SATELLITES, COMPUTER PROGRAMS, DATA
PROCESSING SYSTEMS, ANALOG-TO-DIGITAL CONVERTERS,
DRAG, TELEMETER SYSTEMS, NAVIGATION SATELLITES,
ENERGY CONVERSION, STABILIZATION SYSTEMS, DOPPLER
SYSTEMS, ORBITAL TRAJECTORIES, GROUND SUPPORT
EQUIPMENT (U)

IDENTIFIERS: AN/BRN-3, APOLLO, DODGE
SATELLITE, GEOCEIVER, GEOS SATELLITE (U)

CONTENTS: POLARIS SUPPORT: ENGINEERING
DESIGN (AN/BRN-3 RELIABILITY IMPROVEMENT).
SPECIAL ASSIGNMENTS: APOLLO M-053 EXPERIMENT
(INVESTIGATION OF BRUSHLESS DC MOTOR). NASA
SPACE PROJECTS: GEOS-B (GEOS-B COMPUTER
SYSTEM); GEOCEIVER DATA PROCESSOR; NEW NAVY
NAVIGATIONAL SATELLITE, X-RAY EXPLORER (AN ANALOG-
TO-DIGITAL CONVERTER FOR SMALL EARTH SATELLITES).
DOD SPACE PROGRAMS: OPERATIONAL COMPUTING
PROGRAM DEVELOPMENT AND TECHNICAL ASSISTANCE
(MODIFICATION AND EXPERIMENTS WITH THE JACCHIA
DRAG MODEL); NAVIGATION SATELLITE (PASSIVE
DELAY ACTUATOR TELEMETRY SYSTEM (PDA TLM); NEW
NAVY NAVIGATIONAL SATELLITE (SECOND GENERATION
SATELLITE); FORTRAN GEOCEIVER COMPUTER PROGRAM
(DEVELOPMENT OF THE FORTRAN COMPUTER PROGRAM FOR
THE GEOCEIVER NAVIGATION SET); GEOCEIVER
(GEOCEIVER STATUS REPORT); (EXPANDED NAVIGATION
SATELLITE CONSTELLATION); DODGE SATELLITE
(POWER SYSTEM, GRAVITY STABILIZATION AND DAMPING
OF DODGE USING THE MAGNETIC SAMPLE AND HOLD SYSTEM,
ATTITUDE DETERMINATION, EXTENDIBLE BOOM
OPERATIONS, FIELD OPERATIONS); DODGE POST (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-817 725L 22/1
NORTH AMERICAN AVIATION INC ANAHEIM CALIF AUTONETICS
DIV
SPACE TOURISM. (U)
DESCRIPTIVE NOTE: GENERAL TECHNICAL DATA REPT.,
APR 67 36P EHRICKE, K. A. ;
REPT. NO. X7-1095/060
MONITOR: IOEP 347.00.00.00-C1-03

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO HEADQUARTERS,
SPACE SYSTEMS DIV., ATTN: IDEP OFFICE, SSSD.
AIR FORCE UNIT POST OFFICE, LOS ANGELES,
CALIF. 90045.
SUPPLEMENTARY NOTE: PRESENTED AT THE 13TH ANNUAL
MEETING OF THE AMERICAN ASTRONAUTICAL SOCIETY,
DALLAS, TEX., MAY 1-3, 1967.

DESCRIPTORS: (•SPACE FLIGHT, •ADVANCED PLANNING),
RECREATION, SPACE ENVIRONMENTAL CONDITIONS,
EXPLORATION, CELESTIAL MECHANICS, LUNAR CRAFT,
LUNAR BASES, WEIGHTLESSNESS, HOSPITALS, SPACE
STATIONS, SPACECRAFT, HOUSING, PREDICTIONS,
CLOSED ECOLOGICAL SYSTEMS, COSTS (U)
IDENTIFIERS: SAAP(SATURN-APOLLO APPLICATION
PROGRAM) (U)

AT THE 1966 MEETING OF THE AMERICAN
ASTRONAUTICAL SOCIETY ON THE UTILIZATION OF
SPACE TECHNOLOGY, THE PROSPECTS WERE DISCUSSED OF
UTILIZING SPACE ENVIRONMENT FOR THERAPEUTIC PURPOSES,
CULMINATING IN THE CONCEPT OF AN ORBITAL
HOSPITAL, AVAILABLE AND USEFUL TO BOTH EARTHLINGS
AND SPACELINGS ALIKE. THE PROPOSITION WAS THEN
PUT FORTH THAT SPACE CAN BE FRIEND AS WELL AS FOE,
AND THAT IT CAN, INDEED, BE MORE FRIEND THAN FOE,
LIKE EVERY NEW ENVIRONMENT, ONCE WE UNDERSTAND ITS
CHARACTERISTIC FEATURES AND LEARN TO RESPOND TO IT
INTELLIGENTLY AND KNOWLEDGEABLY. IT IS MY DEEP AND
LONG-HELD CONVICTION THAT A CLOSE CORRELATION EXISTS
BETWEEN UTILITY AND EVOLUTION OF SPACE FLIGHT. (U)

*Order for Technology J. S. ...
(D. W. ...)*

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AD-807 544 2273
BOEING CO HUNTSVILLE ALA LAUNCH SYSTEMS BRANCH
FLIGHT MECHANICS AND CONTROLS SUMMER STUDENT PROJECT,
1966, (U)
FEB 67 94P HILL, JOSEPH B. ; BRASSE,
ARMAND W. ; CLINE, JERRY K. ; VOGT, ERNEST D.
; GOLSON, JAMES P. ;
REPT. NO. D5-13334

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (SPACE FLIGHT, MATHEMATICAL ANALYSIS), LUNAR TRAJECTORIES, ASCENT TRAJECTORIES, INTERCEPT TRAJECTORIES, RENDEZVOUS TRAJECTORIES, CIRCULAR ORBIT TRAJECTORIES, ELLIPTICAL ORBIT TRAJECTORIES, INCLINED ORBIT TRAJECTORIES, GUIDANCE, NAVIGATION COMPUTERS, BOUNDARY VALUE PROBLEMS, NONLINEAR SYSTEMS, NUMERICAL METHODS AND PROCEDURES, OPTIMIZATION, INTERPLANETARY TRAJECTORIES, PITCH (MOTION), YAW, COMPUTER PROGRAMS, ATMOSPHERE ENTRY, FLOW CHARTING, ALGEBRAIC TOPOLOGY, NUMERICAL ANALYSIS, TRANSFER TRAJECTORIES (U)

THIS DOCUMENT IS A COLLECTION OF THE RESULTS OBTAINED BY THE SUMMER STUDENTS ASSIGNED TO THE FLIGHT MECHANICS AND CONTROLS RESEARCH GROUP IN THE SUMMER OF 1966. AN OUTLINE OF THE PERSONNEL BACKGROUNDS AND THE PROBLEM AREAS TO WHICH THEY WERE ASSIGNED IS PRESENTED IN SECTION I. THE PROBLEM AREAS FOR WHICH SPECIFIC RESULTS WERE OBTAINED ARE PRESENT IN SECTIONS II THROUGH VIII, AND INCLUDE OPTIMAL CONTROL PROBLEMS, SECTIONS II AND V, EARTH ORBIT RENDEZVOUS GUIDANCE, SECTIONS III AND VIII, CONTROLLED ATMOSPHERIC REENTRY, SECTION IV, AND APPLICATION OF A MODIFIED FIXED END POINT STEEPEST ASCENT PROGRAM TO OBTAIN OPTIMUM THREE-DIMENSIONAL ORBIT TRANSFER RENDEZVOUS AND LUNAR LANDING TRAJECTORIES, SECTIONS VI AND VII. (AUTHOR) (U)

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AD-802 649L 22/1

JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS
LAB

SPACE PROGRAMS.

(U)

DESCRIPTIVE NOTE: QUARTERLY REPT. 1 JUL-30 SEP 66.

SEP 66 50P

REPT. NO. U-SQR/66-3

CONTRACT: NOW-62-0604

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DISTRIBUTION: CONTROLLED: ALL REQUESTS TO
COMMANDER, NAVAL AIR SYSTEMS COMMAND,
WASHINGTON, D. C. 20360. ATTN: AIR-604 AND
SPECIAL PROJECTS OFFICE (NAVY), WASHINGTON, D.
C. 20360. ATTN: PROJECT MANAGER.

DESCRIPTORS: (•SPACE FLIGHT, REPORTS), ORBITAL
TRAJECTORIES, ENVIRONMENTAL TESTS,
SATELLITES(ARTIFICIAL), LOGISTICS, COATINGS,
RADIO NAVIGATION, TELEVISION EQUIPMENT,
PERFORMANCE(ENGINEERING), STABILIZATION,
MAGNETIC PROPERTIES, NAVIGATION SATELLITES, NAVAL
RESEARCH, TELEMETER SYSTEMS, AIR FORCE RESEARCH

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-683 957 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOVIET SPACE RESEARCH IN 1966, (U)
NOV 68 25P SCHMIDT, H. ;
REPT. NO. FTD-HT-23-831-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. FLIEGER-
JAHRBUCH 1968 (THE FLYER - ANNUAL PUBLICATION
1968), EAST BERLIN, 1968 P9-17, BY E. NOVAK.

DESCRIPTORS: (•SCIENTIFIC SATELLITES, USSR),
(•SPACE FLIGHT, USSR), METEOROLOGICAL SATELLITES,
DESIGN, CLASSIFICATION, CONFIGURATION,
INSTRUMENTATION, COMMAND + CONTROL SYSTEMS,
STABILIZATION SYSTEMS, SOLAR RADIATION,
IONOSPHERE, PARTICLES, HEAT TRANSFER, WEATHER,
LABORATORY ANIMALS, ELECTRON DENSITY, GAMMA RAYS (U)
IDENTIFIERS: TRANSLATIONS, MICROMETEORITES (U)

THE SOVIET SPACE EFFORTS DURING THE YEAR 1966 ARE
REVIEWED AND DISCUSSED. THE CONSTRUCTION, DESIGN
DETAILS, AND EQUIPMENT ABOARD THE COSMOS
SATELLITES, THE PROTON SERIES, THE MOLNIYA
SATELLITES, AND THE VARIOUS LUNA MOON SATELLITES
ARE GIVEN AND DESCRIBED, AND SOME PHOTOGRAPHS ARE
INCLUDED. THE VARIOUS DESIGN TASKS OF THESE
SATELLITES ARE OUTLINED AND SOME OF THE RESULTS THAT
WERE OBTAINED ARE GIVEN. (U)

Ordered

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AD-683 102 6/19 6/16
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SLEEP AND THE TRANSITION STATES OF MAN UNDER
CONDITIONS OF SPACE FLIGHT. (U)
AUG 68 9P KRUPINA, T. N. ; MYASNIKOV,
V. I. ;
REPT. NO. FTD-HT-23-579-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF AKADEMIYA NAUK
SSSR. VESTNIK, V38 N4 P104-106 1968, BY E.
HARTER.

DESCRIPTORS: (.SPACE FLIGHT, SLEEP),
PERFORMANCE (HUMAN), SYMPOSIA, PHYSIOLOGY,
SPACE ENVIRONMENTAL CONDITIONS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PROBLEM OF SLEEP IS DISCUSSED WITH REGARD TO
THE MAINTAINING OF GOOD WORKING CAPACITY IN SPACE
FLIGHT. AN ALL-UNION SYMPOSIUM ON THIS
SUBJECT WAS HELD AT THE ACADEMY OF SCIENCES WHICH
DEALT WITH THE MECHANISM OF SLEEP AND WAYS OF
CONTROLLING IT. (AUTHOR) (U)

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AD-682 130 22/3 22/1 9/2
GENERAL DYNAMICS/ASTRONAUTICS SAN DIEGO CALIF
MARK II GENERAL TWO-BODY PROGRAM, (U)
NOV 60 29P PLUTCHAK, D. A. ; HERRICK, C.
E. ;
REPT. NO. GDA-ERR-AN-024

UNCLASSIFIED REPORT
PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI
ORDERING INSTRUCTIONS.

DESCRIPTORS: (*SPACE FLIGHT, ORBITAL
TRAJECTORIES), (*ORBITAL TRAJECTORIES,
PROGRAMMING(COMPUTERS)), ELLIPTICAL ORBIT
TRAJECTORIES, CIRCULAR ORBIT TRAJECTORIES, EQUATIONS
OF MOTION, APPROXIMATION(MATHEMATICS) (U)
IDENTIFIERS: TWO BODY PROBLEM, PARABOLIC ORBIT
TRAJECTORIES, HYPERBOLIC ORBIT TRAJECTORIES (U)

THE MARK II GENERAL TWO-BODY PROGRAM WAS
DEVELOPED TO COMPUTE ACCURATELY ANY TYPE OF TWO-BODY
ORBIT ENCOUNTERED IN SPACE FLIGHT MISSIONS. IT IS
APPLICABLE TO PROBLEMS IN WHICH THE TWO-BODY
APPROXIMATION IS ADEQUATE AND AS A BASIC SUBROUTINE
IN HIGH PRECISION TRAJECTORY COMPUTATIONS WHICH
EMPLOY ENCKE'S METHOD OR SPECIAL FORMS OF THE
VARIATION OF PARAMETERS METHOD. SPECIALLY-TAILORED
ANALYTICAL SOLUTIONS, DEVELOPED BY CONVAIR-
ASTRONAUTICS, TO THE TWO-BODY EQUATIONS OF MOTION
ARE GIVEN AND THE COMPUTATIONAL PROCEDURES ARE
OUTLINED. (AUTHOR) (U)

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AD-678 922 6/3 22/1
ARMY BIOLOGICAL LABS FREDERICK MD
BIOLOGY AND FLIGHTS TO OUTER SPACE, (U)
JUL 68 12P ZHUKOV-VEREZHNIKOV, N. N. ;
KOPEV, V. YA. ;
REPT. NO. TRANS-1103

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF NAUKA I ZHIZN (USSR)
V29 N9 P15-20 1962.

DESCRIPTORS: (*SPACE FLIGHT, *SPACE BIOLOGY),
SPACE CREWS, SPACE ENVIRONMENTAL CONDITIONS,
MICROORGANISMS, MUTATIONS, GENETICS (U)

THE ARTICLE DEALS WITH THE FOLLOWING TOPICS:
BIOLOGICAL CONDITIONS OF FLIGHTS TO THE NEAREST
PLANETS; PLANET MICROORGANISMS AND THE PREVENTION
OF THEIR PENETRATION TO THE EARTH; BIOLOGICAL
CONDITIONS FOR DISTANT SPACE FLIGHTS AT SPEEDS
APPROACHING THAT OF LIGHT; AND THE POSSIBILITY OF
BIOLOGICAL VERIFICATION OF THE RELATIVITY THEORY. (U)

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AD-678 306 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPACECRAFT OF THE FUTURE, (U)
DEC 67 7P FEOKTISTOV, K. P. ;
REPT. NO. FTD-HT-23-1538-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS FROM PRAVDA, MOSCOW
(USSR) P3, 3 OCT 67, BY R. ZECCOLA.

DESCRIPTORS: (.SPACE FLIGHT, .MANNED SPACECRAFT),
CLOSED ECOLOGICAL SYSTEMS, SPACECRAFT NUCLEAR
PROPULSION, GUIDANCE, MAN-MACHINE SYSTEMS,
TELEMETER SYSTEMS, DATA TRANSMISSION SYSTEMS,
USSR (U)
IDENTIFIERS: VOSTOK SPACECRAFT (USSR), VOSKHOD
SPACE (USSR), GEMINI, MERCURY PROJECT,
TRANSLATIONS (U)

BEFORE OUR VERY EYES THERE IS COMING INTO BEING A
NEW ENGINEERING DISCIPLINE - THE SCIENCE OF
SPACECRAFT ENGINEERING. THE ORIGINS OF THIS
SCIENCE GO BACK TO THE END OF THE FIFTIES, TO THE
CREATION OF THE FIRST SPACECRAFT, THE 'VOSTOK', AND
LATER THE SHIPS OF THE 'MERCURY', 'VOSKHOD', AND
'GEMINI' SERIES. THESE CRAFTS ALREADY
INCORPORATE THE PRINCIPAL FEATURES WHICH WILL
CHARACTERIZE FUTURE DEVELOPMENTS AS WELL. THE
FIRST SPACECRAFT ('VOSTOK' AND 'MERCURY')
PURSUED A VERY LIMITED AND SPECIFIC GOAL - THAT OF
MAKING POSSIBLE MANNED SPACE FLIGHTS WITHIN THE ORBIT
OF AN EARTH SATELLITE AND OF PROVIDING A BASE FOR
STUDIES INTO THE EFFECT OF FLIGHT-RELATED CONDITIONS
ON THE HUMAN ORGANISM. FORMULATION OF THE PROBLEM
IN THESE TERMS RESULTED IN A SUBSTANTIAL
SIMPLIFICATION OF THE OVERALL SPACECRAFT DESIGN
EFFORT AND HAD THE EFFECT OF CLEARLY LIMITING THE
RANGE OF THE CRAFT'S OPERATIONAL MODALITIES. THE
ACQUISITION OF UPDATED INFORMATION, ITS PROCESSING,
AND ON THE BASIS OF THIS PROCESSING, THE RE-
ACQUISITION OF FRESH DATA - THIS WILL BE THE PRIMARY
TASK OF SPACECRAFT CREWS OF THE FUTURE, IF FOR NO
OTHER REASON THAN BECAUSE TO OBTAIN INFORMATION ON
THE UNIVERSE IN WHICH WE LIVE IS THE PRINCIPAL GOAL
WHICH MANKIND WILL PURSUE AS IT SENDS ITS SHIPS INTO
SPACE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-671 652 5/4 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIRST RECORDS IN SPACE, (U)
AUG 67 95P BORISENKO, I. G. ;
REPT. NO. FTD-MT-66-139

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
PERVYE REKORDY V KOSMOSE, MOSCOW, 1965 88P.

DESCRIPTORS: (SPACE FLIGHT, USSR), PROPAGANDA,
ASTRONAUTS, MANNED SPACECRAFT, POLITICAL SCIENCE (U)
IDENTIFIERS: TRANSLATIONS (U)

A POPULAR PROPAGANDA NARRATIVE ACCOUNT OF WORLD RECORDS ESTABLISHED BY SOVIET ASTRONAUTS. THE AUTHOR, SPORTS COMMISSAR OF THE CENTRAL AERO CLUB, WAS CLOSELY CONNECTED WITH ALL FLIGHTS IN ORDER TO PRESENT OFFICIAL DATA TO THE INTERNATIONAL AVIATION FEDERATION TO INSURE THAT THESE ACHIEVEMENTS WOULD BE RECOGNIZED AS WORLD RECORDS. IN NARRATIVE AND TABULATED FORM HE REPORTS DATES, TIMES, PLACE OF LAUNCH, WEIGHT OF SPACE CRAFT, DURATION OF FLIGHT, DISTANCE, ALTITUDE, NUMBER OF ORBITS, AND PRECISE LOCATION OF THE LANDING OF THE CRAFT AND OF THE ASTRONAUTS. IN CONTRAST TO THE FIRST SIX FLIGHTS, THAT OF VOSTOK-2 IS LACKING IN DETAIL. THE ONLY RECORD CLAIMED IS FOR ALTITUDE. WEIGHT OF THE CRAFT IS LISTED AS 'ABOUT 6000 KG'. DISTANCE TRAVELLED IS REPORTED AS 'MORE THAN 720,000 KMS.' TIME AND PLACE OF LANDING IS OMITTED. AUTHOR MERELY STATES THAT HE TALKED TO THE TWO ASTRONAUTS 'A LITTLE MORE THAN 24 HOURS AFTER LAUNCH WHEN THEY HAD ALREADY LANDED ON PERMIAN EARTH.' CONTRARY TO HIS EARLIER NARRATIVE HE MAKES NO MENTION THAT HE RECORDED THE MARKINGS ON THE SIDE OF THE CRAFT AFTER LANDING. THE FINAL PORTION OF THE BOOK IS DEVOTED TO THE U.S. SPACE FLIGHTS ALL OF WHICH ARE COMPARED UNFAVORABLY TO THOSE OF USSR. ATTENTION IS FOCUSED ON EACH AMERICAN MISHAP IN CONTRAST TO NO MENTION WHATSOEVER OF ANY SOVIET DEVIATION FROM PLAN OR OF ANY DIFFICULTY ENCOUNTERED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-666 590 22/1
RAND CORP SANTA MONICA CALIF
SOVIET ASTRONAUTICS, (U)
FEB 58 30P KRIEGER, F. J. ;
REPT. NO. P-1437

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACE FLIGHT, USSR), GUIDED
MISSILES, SOUNDING ROCKETS,
SATELLITES (ARTIFICIAL), DOCUMENTATION,
HISTORY, REVIEWS (U)

THE PAPER DESCRIBES THE HISTORY OF SOVIET
INTEREST IN SPACE FLIGHT LEADING UP TO THE LAUNCHING
OF SPUTNIKS I AND II. A DISCUSSION OF
SOVIET TECHNICAL AND POPULAR LITERATURE ON SPACE
FLIGHT IS INCLUDED. (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-661 274 12/2 22/1
MITRE CORP BEDFORD MASS
A PRIORITY MODEL FOR FLIGHT OPERATIONS PLANNING, (U)
SEP 67 55P SUYEMOTO,LEE ;
REPT. NO. MTR-256
CONTRACT: AF 19(628)-5165
PROJ: AF-7070
MONITOR: ESD TR-67-391

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACE FLIGHT, •OPERATIONS
RESEARCH), MANNED SPACECRAFT, SCHEDULING,
MATHEMATICAL MODELS, FUNCTIONS, SELECTION,
FLIGHT CREWS (U)

THE CONCEPT OF PRIORITY IS USED IN MANY CONTEXTS
AND IN MANY FIELDS. A PRIORITY MODEL FOR PRIORITY
PROBLEMS ARISING IN DIVERSE CONTEXTS AND FIELDS IS
ESTABLISHED. THE APPLICATION OF THE CONCEPT OF
PRIORITY IS MADE PRINCIPALLY WITH RESPECT TO FLIGHT
OPERATIONS PLANNING (FOP) OF A MANNED
SPACECRAFT. (AUTHOR) (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-651 356 2273
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF
MATHEMATICS
A MODIFIED ENCKE SPECIAL PERTURBATION METHOD
(SUMMARY), (U)
67 8P KYNER, W. T. ; BENNETT,
MORRIS ;
CONTRACT: DA-31-124-AROD-265
PROJ: DA-20014501814C
MONITOR: AROD 5075:2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN SPACE FLIGHT
MECHANICS SPECIALIST CONFERENCE VII P23-6 1967.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
AEROSPACE CORP., EL SEGUNDO, CALIF.

DESCRIPTORS: (•PERTURBATION THEORY, •SPACE
FLIGHT), (•SATELLITES(ARTIFICIAL), •ORBITAL
TRAJECTORIES), DRAG, INTEGRATION, COMPUTERS,
EARTH(PLANET), ROTATION, MOTION (U)

THE PAPER DISCUSSES A MODIFICATION OF THE CLASSICAL
ENCKE METHOD FOR COMPUTING SATELLITE ORBITS.
NUMERICAL TESTS OF THE NEW METHOD INDICATED THAT
DRAG-FREE ORBITS CAN BE INTEGRATED FOR AT LEAST ONE
HUNDRED REVOLUTIONS BEFORE THE LENGTH OF THE
DIFFERENCE VECTOR EXCEEDS 65KM. FURTHERMORE, THE
ACCURACY OF THE MODIFIED ENCKE FORMULATION EXCEEDED
THAT OBTAINED WITH THE CLASSICAL ENCKE FORMULATION
AND THE COWELL FORMULATION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-649 881 6/19 5/10
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO
ASSESSMENT OF THE PERFORMANCE EFFECTS OF THE STRESSES
OF SPACE FLIGHT, (U)
DEC 66 37P CHILES, DEAN W. ;
REPT. NO. AMRL-TR-66-192
PROJ: AF-1710
TASK: 171003

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPACE FLIGHT,
OPERATORS(PERSONNEL)), (*PERFORMANCE(HUMAN),
SPACE FLIGHT), SENSITIVITY,
REACTION(PSYCHOLOGY), PREDICTIONS,
ENVIRONMENT, BEHAVIOR,
CONFINEMENT(PSYCHOLOGY), STRESS(PSYCHOLOGY) (U)

THE PERFORMANCE CAPABILITIES OF THE AEROSPACE
VEHICLE OPERATOR MUST BE MEASURED SO THAT THE
POSSIBLE DELETERIOUS EFFECTS OF THE SPACE ENVIRONMENT
CAN BE DETECTED AT THE EARLIEST POSSIBLE POINT IN A
SPACE MISSION. THE INFORMATION OBTAINED FROM SUCH
MEASURES CAN ALSO BE USED TO DELINEATE THE QUALITY OF
MAN'S CONTRIBUTION TO SYSTEM EFFECTIVENESS AND THE
DATA MAY ALSO BE GENERALIZABLE TO OTHER POTENTIAL
SPACE VEHICLE MISSIONS. IT IS ARGUED THAT OPTIMAL
GENERALITY AND SENSITIVITY OF SUCH PERFORMANCE
MEASURES WILL RESULT FROM THE USE OF A SYNTHETIC TASK
COMPLEX. THIS COMPLEX SHOULD REQUIRE THE OPERATOR
TO TIME-SHARE AMONG TASKS REPRESENTATIVE OF THE
PSYCHOLOGICAL FUNCTIONS TO BE EXERCISED BY THE MAN IN
THE KINDS OF SYSTEMS TO WHICH GENERALIZATIONS ARE TO
BE MADE. THE CRITERIA TO BE MET BY SUCH TASKS ARE
LISTED, AND A PARTICULAR SYNTHETIC TASK COMPLEX IS
DESCRIBED. SOME EVIDENCE REGARDING THE SENSITIVITY
OF THESE TASKS TO CHANGES IN OPERATOR FUNCTIONING IS
OFFERED. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-647 911 22/1 12/1 3/3
AMERICAN MATHEMATICAL SOCIETY PROVIDENCE R I
SPACE MATHEMATICS, PART 1: LECTURES IN APPLIED
MATHEMATICS, VOLUME 5, (U)
66 311P ROSSER, J. BARKLEY ;
CONTRACT: DA-31-124-ARO(D)-92, AF-AFOSR-258-63
PROJ: AF-9749
TASK: 974901
MONITOR: AFOSR 67-0630

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM AMERICAN
MATHEMATICAL SOCIETY, PROVIDENCE, R. I.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
WISCONSIN UNIV., MADISON, MATHEMATICS RESEARCH
CENTER. SEE ALSO AD-612 385. RESEARCH SUPPORTED IN
PART BY ONR, AEC AND NSF.

DESCRIPTORS: (•MATHEMATICS, •SPACE FLIGHT),
(•ORBITAL TRAJECTORIES, CELESTIAL MECHANICS),
MATRIX ALGEBRA, EQUATIONS OF MOTION, N-BODY
PROBLEM, DYNAMICS (U)
IDENTIFIERS: SPACE MATHEMATICS, APPLIED
MATHEMATICS (U)

THE PRESENT PROCEEDINGS SHOULD ACQUAINT THE
READER WITH THE CURRENT STATE OF RESEARCH ON THE
BEHAVIOR OF NONPROPULSIVE SPACE VEHICLES, INDICATE
THE MORE PRESSING UNSOLVED PROBLEMS, AND FURNISH
EXAMPLES OF MATHEMATICAL TECHNIQUES WHICH ARE
CURRENTLY USEFUL. BESIDES PRESENTING MUCH NEW AND
ADVANCED MATERIAL, AN EFFORT IS MADE IN THESE
PROCEEDINGS TO GIVE READERS BASIC INFORMATION, IN
FIELDS OTHER THAN THEIR OWN, WHICH THEY NEED TO HAVE
A FULL UNDERSTANDING OF SPACE PROBLEMS IN THEIR OWN
FIELDS. ACCORDINGLY AN EFFORT IS MADE TO ACQUAINT
THE MATHEMATICAL SPECIALISTS WITH THE KEY SPACE
PROBLEMS IN AERODYNAMICS, GEOPHYSICS, ORBIT THEORY,
ETC.; TO ACQUAINT ORBIT SPECIALISTS WITH USEFUL
MATHEMATICAL TECHNIQUES, AND TO GIVE THEM ENOUGH
BACKGROUND IN GEOPHYSICS, AERODYNAMICS, ETC. FOR THEM
TO SEE THE RELEVANCE OF THESE AREAS FOR THE NEW
ORBITS REQUIRED FOR SPACE EXPLORATION; AND SO ON, FOR
OTHER AREAS REPRESENTED IN SPACE ACTIVITY.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-647 204 22/1 12/1
YALE UNIV NEW HAVEN CONN DEPT OF ASTRONOMY
ADVANTAGES OF REGULARIZATION IN SPACE DYNAMICS. (U)
DESCRIPTIVE NOTE: INTERIM REPT.,
67 7P SZEBEHELY,VICTOR ;PIERCE,
DAVID A. ;
CONTRACT: AF-AFOSR-397-67
PROJ: AF-9749
TASK: 9749D1
MONITOR: AFOSR 67-0295

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE FROM AIAA, NEW YORK,
N. Y.
SUPPLEMENTARY NOTE: PRESENTED AT AIAA AEROSPACE
SCIENCES MEETING (5TH) NEW YORK, N. Y. JAN
23-26 1967.

DESCRIPTORS: (•SPACE FLIGHT, •EQUATIONS OF
MOTION), (•ORBITAL TRAJECTORIES, TIME SERIES
ANALYSIS), TRANSFORMATIONS(MATHEMATICS),
EARTH(PLANET), MOON, VELOCITY, ALGEBRAIC
GEOMETRY (U)

TRAJECTORIES ARE COMPUTED USING SPECIAL
TRANSFORMATIONS WHICH ELIMINATE THE SINGULARITIES
OCCURRING AT COLLISIONS OR AT CLOSE APPROACHES. IT
IS SHOWN THAT COMPUTATION TIME FOR APOLLO-TYPE
TRAJECTORIES BETWEEN THE EARTH AND THE MOON MAY
BE REDUCED BY AT LEAST 50 PERCENT USING THE METHOD
PROPOSED IN THIS PAPER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-642 811 22/1
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB
OHIO
SPACE EXTRAVEHICULAR OPERATIONS: A REVIEW OF THE
REQUIREMENTS AND ALTERNATE SYSTEM APPROACHES, (U)
OCT 66 23P VAN SCHAIK, PETER N. ; SEALE,
LEONARD M. ;
REPT. NO. AFAPL-CONF-67-6
PROJ: AF-8170
TASK: 817012

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH BELL
AERO-SYSTEMS CO., BUFFALO, N. Y. PRESENTED AT THE
INTERNATIONAL ASTRONAUTICAL FEDERATION CONGRESS
(17TH), MADRID (SPAIN), 9-15 OCT 1966.

DESCRIPTORS: (*SPACE FLIGHT, MANNED),
(*MANEUVERING SATELLITES, SYSTEMS ENGINEERING),
SPACE MAINTENANCE, PRESSURE SUITS, MANEUVERABILITY,
CONTROL SYSTEMS, SPACE PROPULSION, REMOTE CONTROL
SYSTEMS, SIMULATION, ASTRONAUTICS, MISSION
PROFILES, REVIEWS (U)
IDENTIFIERS: EXTRAVEHICULAR ACTIVITIES, ASTRONAUT
MANEUVERING SYSTEMS (U)

EVO (EXTRAVEHICULAR OPERATIONS) IS DEFINED AS A
GROUP OF ACTIVITIES WHICH TAKE PLACE OUTSIDE OF A
PARENT SPACECRAFT AND WHICH INVOLVE THE EMPLOYMENT OF
AN ASTRONAUT EITHER DIRECTLY OR THROUGH THE USE OF
REMOTE CONTROL IN THE SUPPORT OF OPERATIONAL MISSIONS
OR IN THE CONDUCT OF SCIENTIFIC/ENGINEERING
INVESTIGATIONS. THIS DISCUSSION OF EARTH ORBITAL
EVO SPECIFICALLY CONCERNS: DEFINING AN APPROACH
TO DETERMINE OPERATIONAL EVO MISSION REQUIREMENTS
WHICH WILL RESULT IN THE DESIGN OF A MINIMUM NUMBER
OF SYSTEMS POSSESSING THE CAPABILITY OF ACCOMPLISHING
A WIDE RANGE OF MISSION REQUIREMENTS; PROVIDING A
DELINEATION OF SOME OF THE OPERATIONAL/SCIENTIFIC
MISSIONS WHICH REQUIRE OR COULD UTILIZE EFFICIENTLY
BOTH MANNED AND UNMANNED EVO SUPPORT; PRESENTING A
DESCRIPTION OF THREE EVO MANEUVERING SYSTEMS,
NAMELY A MANNED MANEUVERING MODULE, AN UNMANNED SMALL
MANEUVERING SATELLITE, AND A DUAL-PURPOSE MANEUVERING
UNIT CAPABLE OF OPERATING EITHER IN A MANNED OR
UNMANNED MODE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-640 958 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN WENT INTO OUTER SPACE. (U)
APR 66 6P
REPT. NO. FTD-TT-66-27,
MONITOR: TT 66-62512

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
GRAZHDANSKAYA AVIATSIYA (USSR) NII PIS 1965.

DESCRIPTORS: (SPACE FLIGHT, MOTION PICTURES), USSR,
ASTRONAUTICS (U)

TRANSLATION OF RUSSIAN RESEARCH: MAN WENT INTO OUTER
SPACE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-640 326 22/1 4/1 8/5 22/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIC RESEARCH. (U)
AUG 66 283P
REPT. NO. FTD-HT-66-244,
MONITOR: TT 66-62450

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMICHESKIE ISSLEDOVANIYA (USSR) V4 N2 P179-335 1966.

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•SPACE
ENVIRONMENTAL CONDITIONS, USSR), (•SPACE BIOLOGY,
USSR), ORBITAL TRAJECTORIES,
SATELLITES(ARTIFICIAL), THRUST VECTOR CONTROL
SYSTEMS, VAN ALLEN RADIATION BELT, RADIO SIGNALS,
NIGHT SKY, ELECTRON DENSITY, COSMIC RAYS,
METEORITES, MAGNETOMETERS, SPACE MEDICINE,
TRAJECTORIES, SPACECRAFT, GUIDANCE, SYMPOSIA (U)

PARTIAL CONTENTS: DETERMINATION OF A SATELLITE
ORBIT FROM DATA TAKEN OVER LONG TIME INTERVALS;
FLYWHEEL STABILIZATION OF SATELLITE; CONTROL OF A
SPACE VEHICLE WITH LOW-THRUST ENGINES ON THE
ACCELERATING SEGMENT; MOTION OF CHARGED PARTICLES
IN THE FIELD OF A MAGNETIC DIPOLE BY THE STORMER
METHOD; PROPAGATION MECHANISM OF RADIO WAVES
RADIATED BY AN ARTIFICIAL SATELLITE; INTENSITY OF
THE FIELD OF SHORT RADIO WAVES EMITTED BY AN
ARTIFICIAL SATELLITE; NIGHT GLOW IN THE 6300A
REGION; DISTRIBUTION OF THE ELECTRON CONCENTRATION
IN THE IONOSPHERE BY THE METHOD OF GROUND RECEPTION
OF RADIO SIGNALS FROM A ARTIFICIAL SATELLITE;
EMISSION INTENSITY IN THE RADIATION BELTS OF THE
EARTH; COSMIC RAY MEASUREMENT ABOARD THE 'KOSMOS-
17' ARTIFICIAL SATELLITE; PENETRATION OF BARRIERS
BY METEORITES; PENETRATION OF A THIN SHIELD BY A
METEORITE; INTERPRETATION OF MAGNETIC MEASUREMENTS
ABOARD THE 'PIONEER-1' AND ITS GEOPHYSICAL
CONSEQUENCES; MAGNETOMETRIC EQUIPMENT ABOARD THE
'ELEKTRON-2' SPACE STATION; MEDICAL MONITORING OF
COSMONAUTS BELYAYEV AND LEONOV DURING TRAINING
AND ORBITAL FLIGHT; EFFECT OF SPACE FLIGHT ON WHEAT
SEEDS AND THE PLANTS PRODUCED FROM THEM; MOTION OF
A ROCKET WITH A CONSTANT REACTION ACCELERATION
VECTOR; DETERMINATION OF POSITION FOR A SPACE
VEHICLE; ORIENTATION OF INTERPLANETARY FLIGHT
BY THE UTILIZATION OF RIGIDLY MOUNTED AND OPPOSITELY
DIRECTED TELESCOPES; THE XVITH CONGRESS OF THE
INTERNATIONAL ASTRONAUTICAL FEDERATION; THE (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-638 920 8/4 8/6 14/2 22/2
NORTHROP SPACE LABS HAWTHORNE CALIF
A SPACEFLIGHT EXPERIMENT TO ASSESS RADIATION
SHIELDING CALCULATIONS. (U)
DESCRIPTIVE NOTE: FINAL REPT., 1963-OCT 65.
APR 66 88P COOP, WILLIAM H. ; CHAPMAN, MAC
C. i
REPT. NO. NSL-65-158,
CONTRACT: AF 33(657)-11010,
PROJ: AF-63D1,
TASK: 630101,
MONITOR: AMRL TR-66-34

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPACECRAFT, SHIELDING), (*SHIELDING,
MATHEMATICAL MODELS), (*DOSIMETERS, EXPERIMENTAL
DESIGN), (*RADIATION HAZARDS, *SPACE FLIGHT),
SPACE ENVIRONMENTAL CONDITIONS,
PROGRAMMING (COMPUTERS), PROTONS, ELECTRONS,
DOSE RATE, BREMSSTRAHLUNG, INSTRUMENTATION,
EXPERIMENTAL DATA, ALUMINUM, X RAYS (U)

THE DESIGN, DEVELOPMENT, AND TESTING OF A
SPACEFLIGHT EXPERIMENT TO PROVIDE DATA FOR THE
ASSESSMENT OF MATHEMATICAL SHIELDING STUDY MODELS WAS
INVESTIGATED. THE EXPERIMENT WAS TO PROVIDE DATA
FOR ASSESSMENT OF MATHEMATICAL SHIELDING STUDY MODELS
FOR COMPARISON WITH THE RESULTS OBTAINED BY A
COMPUTER PROGRAM. THIS EXPERIMENT MEASURED PROTON
DEPTH-DOSE DISTRIBUTION, BREMSSTRAHLUNG PRODUCTION,
AND THE EFFECTS OF RADIATION ANISOTROPY, ENERGY
SPECTRUM, AND VEHICLE HETEROGENEITY UNDER KNOWN
(MEASURED) CONDITIONS OF RADIATION ENVIRONMENT
AND VEHICLE GEOMETRY. THE EXPERIMENT
INSTRUMENTATION INCLUDED SENSORS FOR MEASUREMENT OF
PROTON AND ELECTRON FLUXES AND SPECTRA, AND SENSORS
TO MEASURE DOSAGE UNDER VARIOUS SHIELDING THICKNESSES
OF ALUMINUM. AN INSTRUMENT TO MEASURE X-RAY
BREMSSTRAHLUNG FROM INCIDENT ELECTRON FLUX WAS ALSO
PROVIDED. THE INSTRUMENT DESIGN FEATURES ARE
DISCUSSED AND METHODS OF OPERATION DESCRIBED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-637 D05 6/11
AMERICAN INST OF BIOLOGICAL SCIENCES WASHINGTON D C
HUMAN ECOLOGY IN SPACE FLIGHT, VOLUME I. (U)
66 285P CALLOWAY, DORIS HOWES ;

UNCLASSIFIED REPORT

AVAILABILITY: NEW YORK ACADEMY OF SCIENCES, 2
EAST 63 ST., NEW YORK, NEW YORK 10021.
\$7.00.

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE INTERNATIONAL
INTERDISCIPLINARY CONFERENCE (IST), HELD AT
PRINCETON NEW JERSEY, OCTOBER 13-16, 1963.

DESCRIPTORS: (.ECOLOGY, .SPACE FLIGHT), (.CLOSED
ECOLOGICAL SYSTEMS, ATMOSPHERE), HUMANS,
SPACECRAFT CABINS, GAS GENERATING SYSTEMS,
GRAVITY, ACCELERATION (U)

CONTENTS: CABIN ATMOSPHERE; REGENERATIVE
SYSTEMS; GRAVITY AND ACCELERATION; RADIATION IN
SPACE. (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-635 204 6/18 22/1 3/2
NAVAL AEROSPACE MEDICAL INST PENSACOLA FLA
FLARE HAZARDS AT SOLAR MINIMUM: DOSIMETRIC
EVALUATION OF THE CLASS 2 FLARE OF FEBRUARY 5, 1965. (U)
JUN 66 17P SCHAEFER, HERMANN J. ;
REPT. NO. NAMI-970,
MONITOR: NAVMED MFD22.03-5001.35

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SOLAR FLARES, •RADIATION HAZARDS),
(•SPACE FLIGHT, RADIATION HAZARDS), COSMIC RAYS,
PROTONS, DOSE RATE, SHIELDING, SPACECRAFT
COMPONENTS, SCIENTIFIC SATELLITES, POLAR ORBIT
TRAJECTORIES, RADIATION MEASUREMENT SYSTEMS, SPACE
MEDICINE (U)

THE PROTON ENERGY SPECTRA FOR THE CLASS 2 SOLAR
FLARE OF FEBRUARY 5, 1965, AS REPORTED BY A POLAR
ORBIT SATELLITE AT FIVE DIFFERENT TIMES DURING THE
TWO-DAY PERIOD OF ENHANCED INTENSITY, ARE EVALUATED
IN TERMS OF TISSUE DEPTH DOSES FOR A SEMI-INFINITE
SLAB WITH 0.1 G/SQ CM SHIELDING AND FOR THE GEMINI
AND APOLLO SHIELD DISTRIBUTION. MAXIMUM DOSE
RATES FOR THE TISSUE SURFACE ARE 714 MILLIRADS/HOUR,
81 AND 11 MILLIRADS/HOUR, RESPECTIVELY. FOR THE
UNIDIRECTIONAL BEAMS, HALF VALUE LAYERS RANGE FROM
2.6 TO 5.6 MILLIMETERS OF TISSUE. THE INTEGRAL
FLARE DOSE OVER FORTY-FOUR HOURS IS 8.3 RADS FOR THE
TISSUE SURFACE BEHIND 0.1 G/SQ CM SHIELDING.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-633 684 22/3 17/7
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE ELECTRONICS AND GUIDANCE OF INTERPLANETARY
FLIGHT, (U)
MAR 66 10P YI, TAN WEI ;
REPT. NO. FTD-TT-65-1430,
MONITOR: TT , 66-61409

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF WU HSIEN TIEN
(CHINESE PEOPLE'S REPUBLIC) NII P1-3 1963.

DESCRIPTORS: (•INTERPLANETARY TRAJECTORIES, •SPACE
FLIGHT), (•GUIDANCE, SPACE NAVIGATION),
ELECTRONIC EQUIPMENT, CHINA (U)

THE TOPICS COVERED INCLUDE ROCKET GUIDANCE SYSTEMS,
PRESET SELF-GUIDED MISSILE SYSTEMS, COMMAND CONTROL
GUIDANCE SYSTEMS, BEAM-RIDER GUIDANCE SYSTEMS,
SPACECRAFT FREE FLIGHT, GUIDANCE SYSTEMS IN
INTERPLANETARY FLIGHT, LAUNCH GUIDANCE, MIDWAY
GUIDANCE, AND END GUIDANCE AND LANDING CONTROL. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-632 761 22/2 22/1 22/3 3/2

TRW SYSTEMS REDONDO BEACH CALIF

THE SOVIET SPACE PROGRAM: A SELECTIVE
BIBLIOGRAPHY. (U)

X
DESCRIPTIVE NOTE: SPECIAL LITERATURE SURVEY NO. 16,
MAR 66 13P MAGNOLIA, L. R. ;
REPT. NO. 9990-7235-TO-000,
MONITOR: TT , 66-61250

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•BIBLIOGRAPHIES,
SPACE FLIGHT), MOON, WEIGHTLESSNESS,
SATELLITES(ARTIFICIAL), SPACECRAFT, SPACE
BIOLOGY, GEOPHYSICS (U)

THE BIBLIOGRAPHY CONSISTS OF 121 ITEMS, ARRANGED
ALPHABETICALLY BY AUTHOR OR BY THE ISSUING AGENCY. (U)

USSR

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-631 989 6/18 22/1
NAVAL AEROSPACE MEDICAL INST PENSACOLA FLA
RADIATION MONITORING WITH NUCLEAR EMULSIONS ON
PROJECT GEMINI. 1. EXPERIMENTAL DESIGN AND
EVALUATION PROCEDURES: PARTIAL RESULTS ON MISSIONS 4
AND 5. (U)
DESCRIPTIVE NOTE: JOINT REPT.,
FEB 66 16P SCHAEFER, HERMANN J. ;
SULLIVAN, JEREMIAH J. ;
REPT. NO. NAMI-955,
MONITOR: NAVMED , MFO-22.07.02-5001.33

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
HOUSTON, TEXAS.

DESCRIPTORS: (•SPACE FLIGHT, •RADIATION HAZARDS),
(•RADIATION MONITORS, SPACE FLIGHT), (•PROTONS,
RADIATION HAZARDS), COSMIC RAYS, SPACE
ENVIRONMENTAL CONDITIONS, ASTRONAUTS, RADIOLOGICAL
DOSAGE, DOSIMETERS, RADIOBIOLOGY, SPACE MEDICINE (U)
IDENTIFIERS: GEMINI (U)

ON GEMINI 4 AND 5, SMALL PACKS OF NUCLEAR
EMULSIONS COMBINED WITH OTHER RADIATION SENSORS TO
FLAT PLIABLE UNITS WERE WORN BY THE ASTRONAUTS INSIDE
THEIR SPACE SUITS. TRACK AND GRAIN COUNTING OF 200
MICRA LLFORD G.5 AND K.2 EMULSION PAIRS IN THE
PACKS FURNISHED THE PARTICLE AND ENERGY SPECTRUM OF
THE RADIATION INCIDENT UPON THE ASTRONAUT'S BODY.
EVALUATION OF FLUX AND ENERGY SPECTRUM IN TERMS OF
MILLIRAD DOSE SHOWED THAT THE BULK OF THE EXPOSURE
WAS DUE TO TRAPPED PROTONS PICKED UP IN THE SOUTH
ATLANTIC ANOMALY. THE ENERGY SPECTRUM OF THE
PROTON FLUX WITHIN THE SHIP ON THE BODY OF THE
ASTRONAUT IS A CONTINUUM EXTENDING FROM ZERO TO ABOUT
300 MEV, WITH A BROAD, WELL -DEVELOPED MAXIMUM IN
THE 30 TO 40 MEV REGION. BECAUSE OF THE LARGE
FRACTIONAL FLUX OF LOW ENERGY PARTICLES, THE
RADIATION LEVEL SENSITIVELY DEPENDS ON LOCAL SHIELD
GEOMETRY PRODUCING VARIATIONS OF DOSE RATE AT
DIFFERENT LOCATIONS IN THE CAPSULE OF AT LEAST 60 PER
CENT. REPRESENTATIVE TOTAL DOSES WERE 48 MILLIRADS
ON GEMINI 4 AND 105 MILLIRADS ON GEMINI 5.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-631 182 5/8 5/5 22/2 9/2
COMPUTER CONCEPTS INC LOS ANGELES CALIF
THE ROLE OF COMPUTERS IN HANDLING AEROSPACE SYSTEMS
HUMAN FACTORS TASK DATA. (U)
DESCRIPTIVE NOTE: FINAL REPT. 3 JUN 64-3 JUN 65,
DEC 65 183P WHITEMAN, IRVIN R. ;
CONTRACT: AF 33(615)-1557,
PROJ: AF-1710,
TASK: 171006,
MONITOR: AMRL , TR-65-206

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-621 379.

DESCRIPTORS: (•DATA PROCESSING SYSTEMS, HUMAN
ENGINEERING), (•HUMAN ENGINEERING, WEAPON SYSTEMS),
(•SPACE FLIGHT, SYSTEMS ENGINEERING), (•AIR
FORCE, SYSTEMS ENGINEERING), MANAGEMENT
ENGINEERING, PERSONNEL MANAGEMENT, DECISION MAKING,
AUTOMATION, INFORMATION RETRIEVAL, SUPERVISORY
PERSONNEL, COMPUTERS, DATA STORAGE SYSTEMS,
PERFORMANCE(HUMAN), GROUND SUPPORT
EQUIPMENT (U)

THE CHARACTERISTICS OF A COMPUTER BASED DATA SYSTEM
FOR HANDLING HUMAN FACTORS TASK INFORMATION GENERATED
IN SUPPORT OF ADVANCED SYSTEM DEVELOPMENT ARE
DESCRIBED. ON THE BASIS OF INFORMATION GATHERED
FROM USERS AND GENERATORS OF DATA AT REPRESENTATIVE
GOVERNMENT AND CONTRACTOR INSTALLATIONS, THE
CURRENT AND POTENTIAL USES OF COMPUTERS WERE ASSESSED
TO DETERMINE THE DESIRABLE CHARACTERISTICS FOR A
COMPUTERIZED HUMAN FACTORS TASK DATA HANDLING SYSTEM.
THE PROPOSED DATA HANDLING SYSTEM WILL ASSIST THE
HUMAN FACTORS SPECIALIST AND SYSTEM DESIGN ENGINEERS
IN THE DESIGN AND DEVELOPMENT OF SYSTEMS BY PROVIDING
THEM WITH MEANS FOR: (1) DRAWING THEM CLOSER TO
THE DATA THROUGH A USER-ORIENTED SYSTEM, (2)
COMPARING DATA GENERATED THROUGHOUT THE LIFE-CYCLE OF
AN ADVANCED SYSTEM AND ACROSS SYSTEMS, (3)
ANALYZING DATA AND CONDUCTING MAN-MACHINE
SIMULATIONS, AND (4) INSURING THAT DATA ARE MADE
AVAILABLE ON A SELECTIVE QUERY AND A TIMELY BASIS.
THESE OBJECTIVES ARE MET WITHIN THE FRAMEWORK OF A
DATA SYSTEM CONCEPT REFERRED TO AS CENTRAL. THE
FUNCTIONS OF CENTRAL ARE: (1) DATA STORAGE AND
RETRIEVAL, (2) DATA PROCESSING, (3) COMPUTER
PROGRAM MAINTENANCE, AND (4) SYSTEM OPERATIONAL
MANUAL MAINTENANCE. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-629 976 12/1 22/3 9/2
PACIFIC MISSILE RANGE POINT MUGU CALIF
ERROR-BOUND METHODS FOR MULTIPLE-STATION DATA
REDUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
MAR 66 47P CLAASSEN, R. W. ; THORNE, C. J.
;
REPT. NO. PMR-TM-66-2,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, TRAJECTORIES),
(•PROGRAMMING (COMPUTERS), TRACKING), ERRORS.
LEAST SQUARES METHOD, DATA, ATMOSPHERIC
REFRACTION (U)

A COMPUTER PROGRAM AND THE RELATED MATHEMATICAL
ANALYSIS IS GIVEN FOR THE CALCULATION OF ACCURACY
BOUNDS FOR THE POSITION OF AN OBJECT IN SPACE. THE
METHOD INVOLVES THE REDUCTION OF DATA FROM N-STATIONS
USING THE PRESENT PMR LEAST-SQUARES N-STATION
METHOD. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-627 686 22/1 6/19 6/11
SOUTHWEST RESEARCH INST SAN ANTONIO TEX
BIOASTRONAUTICS AND THE EXPLORATION OF SPACE, (U)
. DEC 65 639P BEDWELL, THEODORE C. , JR.;
STRUGHOLD, HUBERTUS ;
CONTRACT: AF41(609)-2293

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROCEEDINGS OF INTERNATIONAL
SYMPOSIUM (3RD), SAN ANTONIO, TEX. 16-18 NOV 64.

DESCRIPTORS: (•ASTRONAUTICS, SYMPOSIA), (•SPACE
ENVIRONMENTAL CONDITIONS, SYMPOSIA), (•SPACE
FLIGHT, SYMPOSIA), SPACE PROBES, SPACE MEDICINE,
SPACE BIOLOGY, ASTROPHYSICS, METEORS, PLANETARY
ATMOSPHERES, MARS(PLANET), VENUS(PLANET),
LUNAR PROBES, EXTRATERRESTRIAL BASES,
INTERPLANETARY TRAJECTORIES, AERIAL PHOTOGRAPHY,
VISION, SPACECRAFT CABINS, CLOSED ECOLOGICAL
SYSTEMS, LIFE SUPPORT, PROGRAMMING(COMPUTERS),
HELIUM GROUP GASES, EAR, WEIGHTLESSNESS,
ADAPTATION(PHYSIOLOGY), MAN-MACHINE SYSTEMS,
RADIOBIOLOGY, COSMIC RAYS, RADIATION EFFECTS,
SKIN, USSR, PROTONS, RHYTHM(BIOLOGY),
ANIMALS, SPACE STATIONS, ORBITAL TRAJECTORIES,
ASTRONAUTS, PERFORMANCE(HUMAN) (U)
IDENTIFIERS: RANGER SPACECRAFT, STEPP, X-15
AIRCRAFT, VOSTOK, VOSKHOD, GEMINI, MANNED
ORBITING LABORATORIES (U)

THE SYMPOSIUM IS FOCUSED ON MANNED SPACE FLIGHT,
AND IS PRIMARILY CONCERNED WITH THE LIFE AND THE
PERFORMANCE CAPABILITY OF THE ASTRONAUTS. THE
PROGRAM OF THE CONFERENCE IS NOT CONFINED TO THE LIFE
SCIENCES ALONE BUT EXAMINES THE 'SPACE ENVIRONMENT-
MAN-MACHINE' COMPLEX, AND INCLUDES A DISCUSSION OF
TECHNOLOGY, ASTROPHYSICS, AND ASTRONOMY, EARTH-BASED
AND SPACE -BOUND. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-626 607 22/1
RAND CORP SANTA MONICA CALIF
THE AMERICAN AND SOVIET SPACE PROGRAMS, (U)
JAN 66 8P BLEY, KENNETH B. ;
REPT. NO. P-3294

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, UNITED STATES),
(•UNITED STATES, SPACE FLIGHT), (•USSR, SPACE
FLIGHT), SATELLITES(ARTIFICIAL), MANNED
SPACECRAFT, SPACE PROBES, SPACECRAFT,
METEOROLOGICAL SATELLITES, COMMUNICATION
SATELLITES(ACTIVE) (U)

THE U. S. IS SAID TO BE AHEAD OF THE USSR IN
SPACE. THE INITIAL U. S. LACK OF LARGE BOOSTERS
CAUSED IT TO 'THINK SMALL' AND RESULTED IN HIGHLY
SOPHISTICATED TECHNIQUES; AS THE INBALANCE WAS
REDRESSED, THE SAME TECHNIQUES PERMITTED THE U. S.
TO DO MORE WITH A GIVEN WEIGHT THAN THE SOVIETS.
MORE IMPORTANT, HOWEVER, IS WHAT THE U. S. HAS
DONE WITH THE CAPABILITY NOW IN EXISTENCE: WEATHER
INFORMATION GENERATED BY THE SATELLITES; TRANS-
ATLANTIC TELEPHONE CALLS VIA SATELLITE; PHOTOGRAPHS
OF MARS; EFFECTS OF WEIGHTLESSNESS LEARNED DURING
THE FLIGHT OF GEMINI 7. (TEXT OF 15-MINUTE TALK
GIVEN TO THE SCIENCE CLUB OF BEVERLY HILLS
HIGH SCHOOL ON JAN. 17, 1966). (U)

Ordered

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-624 982 22/3 22/1 17/7
LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF RESEARCH
LABS
AN OPTIMAL DISCRETE CONTROL STRATEGY FOR INTER-
PLANETARY GUIDANCE. (U)
DESCRIPTIVE NOTE: REVISED ED.,
MAR 65 BP TUNG, FRANK ;
CONTRACT: NAS1-3777

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN IEEE TRANSACTIONS ON
AUTOMATIC CONTROL VOLUME 10 NO P328-35 JUL 1965.
COPIES TO DDC USERS ONLY.

SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT SUBMITTED 18
SEP 64.

DESCRIPTORS: (•INTERPLANETARY TRAJECTORIES,
GUIDANCE), (•GUIDANCE, INTERPLANETARY
TRAJECTORIES), (•SPACE FLIGHT, INTERPLANETARY
TRAJECTORIES), SPACE PROBES, OPTIMIZATION,
DYNAMIC PROGRAMMING, LINEAR SYSTEMS,
ASTRONAUTICS (U)

THE PROBLEM OF GUIDING ONE STATE OF A LINEAR
DYNAMICAL SYSTEM TO A PRESCRIBED RMS TERMINAL
ACCURACY IN THE PRESENCE OF INJECTION, MEASUREMENT,
AS WELL AS ENGINE MECHANIZATION ERRORS WITH A MINIMUM
AVERAGE EFFORT, IS CONSIDERED. ORBIT CORRECTIONS
ARE ASSUMED TO BE MECHANIZED IN THE FORM OF DISCRETE
VELOCITY INCREMENTS WHOSE AREAS ARE PROPORTIONAL TO
THE PREDICTED MISS DISTANCE. EQUATIONS ARE DERIVED
FOR COMPUTING THE FEEDBACK GAINS AS A FUNCTION OF THE
CORRECTION TIMES. IT IS THEN SHOWN HOW THE SPACINGS
BETWEEN SUCCESSIVE CORRECTIONS CAN BE OPTIMIZED.
THIS IS DONE BY OUTLINING A COMPUTATION PROCEDURE
BASED ON THE THEORY OF DYNAMIC PROGRAMMING. THE
OPTIMUM SOLUTION INCLUDES THE EFFECT OF THE LOSS OF
INFORMATION CAUSED BY THE MECHANIZATION ERROR. THE
RESULTS ARE APPLIED TO A SIMPLE BUT ILLUSTRATIVE
EXAMPLE THAT APPROXIMATES THE TERMINAL PHASE OF AN
INTERPLANETARY TRIP. A NUMERICAL STUDY IS MADE
RELATING THE NUMBER OF CORRECTIONS AND THE REQUIRED
AMOUNT OF PROPELLANT FOR VARIOUS TERMINAL ACCURACIES
AND MECHANIZATION ERRORS WITH TYPICAL INITIAL ERRORS.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-621 807

AEROSPACE INFORMATION DIV LIBRARY OF CONGRESS WASHINGTON D
C

BIOLOGICAL DATA ON THE SPACE FLIGHTS OF A.
NIKOLAEVICH AND P. POPOVICH. (SUPPLEMENT: TRAINING
OF COSMONAUTS).

(U)

SEP 62 4P RYARCHIKOV, R. ; LOGINOV,
VLADISLAV ; SALMANOV, LEONID ;
REPT. NO. AID-62-157
MONITOR: TT , 65-64058

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM PRAVDA, MOSCOW
(USSR) 7 AUG P4 1962; AND FROM KOMMUNIST, EREVAN
(USSR) 8 SEP P3 1962.

DESCRIPTORS: (•ASTRONAUTS, TRAINING), (•TRAINING,
ASTRONAUTS), (•SPACE FLIGHT, TRAINING), SPACE
ENVIRONMENTAL CONDITIONS, SIMULATION,
WEIGHTLESSNESS, MOTION, SPACE BIOLOGY, SPACE
MEDICINE, HIGH-ALTITUDE, TRAINING DEVICES,
USSR

(U)

TRANSLATION OF RUSSIAN ARTICLE: BIOLOGICAL DATA ON
THE SPACE FLIGHTS OF A NIKOLAEVICH AND P. POPOVICH.
(SUPPLEMENT: TRAINING OF COSMONAUTS).

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-621 325

RAND CORP SANTA MONICA CALIF
RESEARCH ON SOCIAL CONSEQUENCES OF SPACE ACTIVITIES,

(U)

AUG 65 IDP GOLDSSEN, JOSEPH M. ;
REPT. NO. P-3220

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
AMERICAN ASTRONAUTICAL SOCIETY NATIONAL MEETING ON
THE IMPACT OF SPACE EXPLORATION ON SOCIETY, SAN
FRANCISCO, CALIF., 18 AUG 65.

DESCRIPTORS: (•SPACE FLIGHT, SOCIAL SCIENCES),
(•COMMUNICATION SATELLITES(ACTIVE), COMMERCE),
COMMUNICATION SATELLITES(PASSIVE), ECONOMICS,
SCIENTIFIC RESEARCH, RADIO COMMUNICATION SYSTEMS (U)

THE ARGUMENT IS MADE THAT THERE NEEDS TO BE
COMPREHENSIVE STUDY OF THE SOCIAL AND ECONOMIC
IMPLICATIONS OF EXPLORATIONS INTO SPACE. THESE
INCLUDE INTERNATIONAL POLITICAL AND LEGAL
COMPLICATIONS AND THOSE ARISING FROM POSSIBILITIES OF
UTILIZING COMMUNICATION SATELLITES. THE BELIEF IS
EXPRESSED THAT THE NATIONAL SPACE AGENCIES AND MAJOR
CONTRACTORS SHOULD STUDY THEIR OWN OPERATIONS AND THE
ECONOMIC AND SOCIAL IMPLICATIONS OF THEIR PRODUCTS;
THEY SHOULD LEARN TO MOBILIZE TECHNIQUES OF
ORGANIZATION AND ACHIEVEMENT TO THE NONSPACE NEEDS OF
HUMAN ENVIRONMENT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-620 810

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN AND OUTER SPACE, (U)

AUG 65 10P TOMAKOV, V. ;

REPT. NO. FTD-TT-65-602

MONITOR: TT , 65-63853

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
SOVETSKII KRASNII KREST (USSR) VIO NI P12-3 1960.

DESCRIPTORS: (•SPACE FLIGHT, MANNED),
(•ASTRONAUTICS, USSR), SATELLITES(ARTIFICIAL),
ASTRONAUTS, ACCELERATION TOLERANCE, HYPOXIA,
WEIGHTLESSNESS, LIFE SUPPORT, PRESSURE SUITS,
RADIATION HAZARDS, SPACE BIOLOGY (U)

TRANSLATION OF RUSSIAN ARTICLE: MAN AND OUTER SPACE.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-619 547

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
IN SPACE NIKOLAEV AND POPOVICH (SELECTED
ARTICLES).

(U)

NOV 63 93P

REPT. NO. FTD-MT-63-196

MONITOR: TT , 65-63121

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO V
KOSMOSE NILCOLAEV I POPOVICH, MOSCOW, 1963 495P.

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•MANNED
SPACECRAFT, USSR), FOOD, LIFE SUPPORT, SPACE
ENVIRONMENTAL CONDITIONS, SPACE BIOLOGY, TELEMETER
SYSTEMS, ASTRONAUTS, COMMUNICATIONS SYSTEMS

(U)

TRANSLATIONS OF RUSSIAN ARTICLES: MANNED SPACE
FLIGHTS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-618 644

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE PROBLEMS OF BIOLOGY OF SPACE FLIGHT. THE IDEAS OF
TSIOLKOVSKI BECAME REALIZED. (U)

MAY 65 24P MALKIN, V. B. ;

REPT. NO. FTD-TT-65-73

MONITOR: TT , 65-62708

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SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
PRIRODA (USSR) V48 N10 P35-44 1959. AVAILABLE COPY
WILL NOT PERMIT FULLY LEGIBLE REPRODUCTION. REPRODUCTION
WILL BE MADE IF REQUESTED BY USERS OF DDC. COPY IS NOT
AVAILABLE FOR PUBLIC SALE.

DESCRIPTORS: (*SPACE BIOLOGY, SPACE FLIGHT),
(*SPACE FLIGHT, SPACE BIOLOGY), ASTRONAUTS,
ANIMALS, ACCELERATION TOLERANCE, GRAVITY,
WEIGHTLESSNESS, PRESSURIZED CABINS, LIFE SUPPORT,
CLOSED ECOLOGICAL SYSTEMS, ASTRONAUTICS, USSR (U)

TRANSLATION OF RUSSIAN ARTICLE: PROBLEMS OF BIOLOGY
OF SPACE FLIGHT. THE IDEAS OF TSIOLKOVSKI BECAME
REALIZED.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-616 646

RAND CORP SANTA MONICA CALIF
ANALYSIS OF POSSIBLE LUNIK III PICTURE HOAX, (U)
APR 60 8P DAVIES, MERTON E. ;
REPT. NO. P-1969

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE.

DESCRIPTORS: (•MOON, PHOTOGRAPHS), (•SPACE FLIGHT,
PHOTOGRAPHY), SPACE COMMUNICATION SYSTEMS,
SIGNAL-TO-NOISE RATIO (U)
IDENTIFIERS: LUNIK (U)

SPECULATIONS ARE MADE REGARDING THE CREDIBILITY OF
THE CHARGES OF THE 1960 MAGAZINE ARTICLES THAT THE
PICTURES OF THE BACK SIDE OF THE MOON TAKEN BY THE
LUNIK III PAYLOAD MAY HAVE BEEN FAKED. THE
SUGGESTION IS MADE THAT AT THE TIME THAT LUNIK
III BROADCAST ITS MANY PICTURES, IT IS LIKELY THAT,
BECAUSE OF THE GREAT DISTANCE AND LOW TRANSMITTER
POWER, THE SIGNAL-TO-NOISE RATIO WAS TOO LOW THAT NO
TWO OF THE RESULTING PICTURES LOOKED ALIKE.
BECAUSE OF INTERFERENCE AND NOISE THE PICTURES
WOULD BE DISTORTED AND BLOTCHY. THE BEST PROCEDURE
IN THE PRESENCE OF NOISE IS TO USE A STATISTICAL
APPROACH AND TO DETERMINE, FROM MANY SAMPLES, THE
MOST LIKELY SHAPE AND LOCATION OF EACH FORMATION.
A COMPOSITE PICTURE WAS MOST LIKELY MADE THAT WOULD
REPRESENT THE BEST, OR MOST PROBABLE, VIEW OF THE
BACK OF THE MOON. THE COMPOSITE WAS THEN ANNOTATED
WITH THE NAMES AND DESCRIPTIONS OF THE PHYSICAL
FEATURES. THE TWO OTHER RELEASED PICTURES WERE
RETOUCHED IN SUCH A WAY AS TO RESEMBLE THIS PICTURE
AND AT THE SAME TIME ILLUSTRATE TYPICAL RESULTS FROM
EACH OF THE TWO LENSES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-616 282

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
OPTIMUM TWO-PULSE PASSAGE BETWEEN ORBITS WITH SMALL
INCLINATIONS AND ECCENTRICITIES, (U)

MAY 65 26P NOVOSELOV, V. S. ;

REPT. NO. FTD-TT-65-64

MONITOR: TT , 65-62438

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
AKADEMIYA NAUK SSSR. INSTITUT TEORETICHESKOI
ASTRONOMII. BYULLETEN V9 N5 P295-309 1963.

DESCRIPTORS: (•SPACE FLIGHT, OPTIMIZATION),
(•INTERPLANETARY TRAJECTORIES, OPTIMIZATION),
CALCULUS OF VARIATIONS, CELESTIAL MECHANICS,
TRANSFER TRAJECTORIES, USSR (U)

AN ANALYTICAL FORMULATION IS GIVEN OF THE
TRAJECTORY OF AN OPTIMUM TWO-PULSE FLIGHT BETWEEN
ORBITS WITH SMALL INCLINATIONS AND ECCENTRICITIES.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-615 525

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PHYSIOLOGIC REACTIONS OF ANIMALS DURING FLIGHTS ON
THE THIRD, FOURTH, AND FIFTH SATELLITE SPACESHIPS, (U)

JAN 65 24P GAZENKO, O. G. ; KASYAN, I. I.
; KOTOVSKAYA, A. R. ; YUGANOV, E. M. ; YAZDOVSKII, V.
I. ;

REPT. NO. FTD-MT-64-360

MONITOR: TT , 65-62294

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF AKADEMIYA
NAUK SSSR. IZVESTIYA. SERIYA BIOLOGICHESKAYA V29 N4
P497-511 1964.

DESCRIPTORS: (•SPACE FLIGHT, DOGS), (•SPACE MEDICINE,
DOGS), PHYSIOLOGY, WEIGHTLESSNESS, MEDICAL EXAMINATION,
RESPIRATION, ELECTROCARDIOGRAPHY, CARDIOVASCULAR SYSTEM,
BLOOD CIRCULATION, MOTOR REACTIONS, BODY TEMPERATURE,
HEMATOLOGY, X-RAY PHOTOGRAPHY, BEHAVIOR, USSR (U)

CONCLUSIONS: FLIGHTS OF EXPERIMENTAL ANIMALS IN
NEAREARTH SPACE ON SATELLITE SPACESHIPS SHOWED AN
ABSENCE, DURING AND AFTER FLIGHT, OF PATHOLOGICAL
CHANGES IN SYSTEM OF BLOOD CIRCULATION AND BREATHING.
FUNCTIONAL SHIFTS OF BASIC PHYSIOLOGIC FUNCTIONS OF
ANIMALS TURNED OUT TO BE THE MOST EXPRESSED DURING
ENTRY OF SHIP INTO ORBIT AND DESCENT OF IT TO EARTH.
IN PERIOD OF WEIGHTLESSNESS, THE INDICES OF
CARDIOVASCULAR SYSTEM FOR MAJORITY OF DOGS ALREADY IN
THE 2-3RD TURNS WERE LOWERED TO INITIAL MAGNITUDES.
IN STATE OF WEIGHTLESSNESS, BOTH CURTAILING AND
QUICKENING OF BREATHING WAS NOTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-615 454

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPACE AND INTERNATIONAL COOPERATION, (U)

MAY 64 266P

REPT. NO. FTD-MT-64-176

MONITOR: TT , 65-62291

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
KOSMOS I MEZHDUNARODNOE SOTRUDNICHESTVO, MOSCOW,
1963, P1-256.

DESCRIPTORS: (*SPACE FLIGHT, LAW), (*LAW, SPACE FLIGHT),
FOREIGN POLICY, SPACE COMMUNICATION SYSTEMS,
RADIOFREQUENCY, EAST GERMANY, UNITED STATES GOVERNMENT,
USSR, UNITED NATIONS (U)

IDENTIFIERS: SPACE LAW, INTERNATIONAL COOPERATION,
INTERNATIONAL LAW, INTERPLANETARY LAW, INTER-
PARLIAMENTARY UNION, UN COMMITTEE ON THE PEACEFUL USES
OF OUTER SPACE (U)

CONTENTS: ON THE 70TH BIRTHDAY OF YEVGENIY
ALEKSANDROVICH KOROVIN LEGAL REGIME OF OUTER
SPACE AT THE CONTEMPORARY LEVEL, BY G. P. ZHUKOV
LEGAL REGULATION OF ACTIVITY IN OUTER SPACE, BY I.
I. CHEPROV UN COMMITTEE ON THE PEACEFUL USES
OF OUTER SPACE, BY F. N. KOVALEV ROLE OF
SPECIALIZED UN INSTITUTIONS IN THE DEVELOPMENT
OF INTERNATIONAL COOPERATION IN MASTERING OF OUTER
SPACE FOR PEACEFUL PURPOSES, BY G. S. STASHEVSKIY
THE QUESTION OF ASSIGNMENT AND INTERNATIONAL
REGULATION OF RADIO FREQUENCIES FOR SPACE SERVICES,
BY D. D. YERIGIN SPACE LAW AS THE RESULT OF
TECHNOLOGICAL PROGRESS, BY M. I. LAZAREV
QUESTIONS OF SPACE LAW IN THE INTER-
PARLIAMENTARY UNION, BY V. L. SHVETSOV
QUESTIONS OF THE REGIME OF OUTER SPACE IN THE
JURIDICAL LITERATURE OF THE GERMAN DEMOCRATIC
REPUBLIC, BY A. I. MUNDER QUESTIONS OF COSMIC
LAW IN THE LATEST AMERICAN LITERATURE, BY E. G.
VASILEVSKAYA SOVIET LITERATURE ON SPACE LAW. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-615 157

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

TRAJECTORY VERSUS LINE-OF-SIGHT SPACE RENDEZVOUS
USING OUT-OF-WINDOW VISUAL CUES. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR JUN-SEP 64,
FEB 65 58P CLARK, HERBERT J. ;

REPT. NO. TR-65-10

PROJ: 7184

TASK: 718401

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SIMULATION), (•RENDEZVOUS
TRAJECTORIES, SPACE FLIGHT), (•PERFORMANCE (HUMAN),
SPACE NAVIGATION), ORBITAL TRAJECTORIES, RENDEZVOUS
GUIDANCE, SPACECRAFT DOCKING, FUEL CONSUMPTION, PITCH
(MOTION), THRUST, ANALYSIS OF VARIANCE, FACTOR ANALYSIS,
ANALOG COMPUTERS (U)

SEVEN TRAINED SUBJECTS FLEW SIMULATED SHORT RANGE
COPLANAR ORBITAL RENDEZVOUS MANEUVERS, USING DIRECT
VISUAL CUES ONLY. TWO RENDEZVOUS TECHNIQUES WERE
COMPARED: LINE-OF-SIGHT AND TRAJECTORY. IN THE
FORMER, THE SUBJECT COULD CONTROL UP-DOWN AND FORE-
AFT THRUST ONLY; IN THE LATTER, HE COULD, IN
ADDITION, CONTROL PITCH. USING EITHER TECHNIQUE,
ALL SUBJECTS WERE ABLE TO MANEUVER SUCCESSFULLY TO A
POSITION 100 FT DIRECTLY IN FRONT OF THE TARGET AT A
TERMINAL VELOCITY OF LESS THAN 5 FT/SEC.
SIGNIFICANTLY, LESS FUEL WAS EXPENDED IN PERFORMING
THE TRAJECTORY MANEUVER. THE PRINCIPAL MAN-MACHINE
PERFORMANCE FACTORS IN THE LINE-OF-SIGHT MANEUVER
WERE TENTATIVELY DESCRIBED AS (1) THE ABILITY TO
CONSERVE FUEL USED FOR LONGITUDINAL AND VERTICAL
TRANSLATION, (2) THE ABILITY TO CONSERVE MISSION
TIME, AND (3) THE ABILITY TO PROFICIENTLY CLOSE
WITH THE TARGET. THE PRINCIPAL FACTORS FOR THE
TRAJECTORY MANEUVER WERE TENTATIVELY DESCRIBED AS
(1) THE ABILITY TO CONSERVE FUEL FOR LONGITUDINAL
TRANSLATION, (2) THE ABILITY TO CONSERVE MISSION
TIME, (3) THE ABILITY TO EFFECTIVELY APPLY
LONGITUDINAL THRUSTS AND CONSERVE FUEL USED FOR
VERTICAL TRANSLATION, AND (4) THE ABILITY TO
MATCH THE TRAJECTORY PATH OF A MINIMUM FUEL TWO
IMPULSE MANEUVER. COMPUTER DIAGRAMS FULLY
DESCRIBING THE ANALOG SIMULATION ARE INCLUDED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-613 357

MASSACHUSETTS INST OF TECH CAMBRIDGE
A VARIATIONAL CALCULUS SOLUTION TO THE OPTIMUM
ORBITAL ESCAPE PROBLEM, AND COMPARISON WITH SEVERAL
STEERING PROGRAMS OF SIMPLE ANALYTICAL FORM. (U)

DESCRIPTIVE NOTE: MASTER'S THESIS,
JUN 61 55P BARON, LARRY A. ;
CONTRACT: AF49 638 363
MONITOR: AFOSR . 1008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF REPT. DATED 16 JAN 61.

DESCRIPTORS: (•ORBITAL TRAJECTORIES, OPTIMIZATION),
(•CALCULUS OF VARIATIONS, SPACE NAVIGATION),
(•SATELLITES VEHICLES, MANEUVERABILITY), (•SPACE FLIGHT,
OPTIMIZATION), THRUST, BOUNDARY VALUE PROBLEMS (U)
IDENTIFIERS: THESES, ORBITAL ESCAPE (U)

THE CALCULUS OF VARIATIONS IS USED TO DETERMINE THE
POWER LEVEL, THRUST MAGNITUDE, AND STEERING PROGRAM
WHICH WILL MINIMIZE THE PROPELLANT NECESSARY FOR A
VEHICLE TO EFFECT AN ESCAPE FROM AN ORBIT AROUND THE
EARTH. THE TRAJECTORY IS SHOWN TO CONSIST OF A
NUMBER OF THRUSTING SUB-ARCS PROPORTIONAL TO THE
VALUE OF THE TIME CONSTRAINT. IF THE TIME
CONSTRAINT IS LESS THAN ONE REVOLUTION OF THE INITIAL
ORBIT, THE TRAJECTORY CONSISTS OF ONE THRUSTING-ARC.
FOR A THRUST-LIMITED VEHICLE IT IS SHOWN ON
PHYSICAL GROUNDS THAT THE THRUSTING-ARC CONSISTS OF
MAXIMUM THRUST. FOR A POWER-LIMITED VEHICLE, THE
VARIATIONAL APPARATUS YIELDS A MAXIMUM POWER, MAXIMUM
SPECIFIC IMPULSE THRUSTING-ARC. THE OPTIMUM
STEERING PROGRAM DETERMINED NUMERICALLY THROUGH THE
USE OF A DIGITAL COMPUTER, IS FOUND TO BEGIN SLIGHTLY
BELOW THE HORIZONTAL, AND INCREASES UNTIL THE THRUST
DIRECTION IS EXACTLY ALIGNED WITH THE VELOCITY VECTOR
AT THE TERMINAL POINT. SEVERAL STEERING PROGRAMS
OF A SIMPLE ANALYTICAL FORM ARE ALSO COMPUTED
NUMERICALLY FOR A COMPARISON WITH THE OPTIMUM
PROGRAM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-612 385

AMERICAN MATHEMATICAL SOCIETY PROVIDENCE R I
SUMMER SEMINAR IN SPACE MATHEMATICS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR 1 JUL-9 AUG 63,
63 33P ROSSER, J. BARKLEY ;

CONTRACT: AF AFOSR258 63

MONITOR: AFOSR ,AROD 64-0723; ,4065:1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SYMPOSIA, MATHEMATICS), (*MATHEMATICS,
SYMPOSIA), (*SPACE FLIGHT, MATHEMATICS), ASTRONOMY,
FLUID FLOW, ORBITAL TRAJECTORIES, N-BODY PROBLEM (U)
IDENTIFIERS: SPACE MATHEMATICS, APPLIED
MATHEMATICS (U)

THE SUMMER SEMINAR IN SPACE MATHEMATICS WAS
A JOINT UNDERTAKING OF THE AMERICAN MATHEMATICAL
SOCIETY AND THE YALE DYNAMICAL ASTRONOMY
INSTITUTE. THUS, IT COMBINED THE THIRD SUMMER
SEMINAR IN APPLIED MATHEMATICS WITH THE FIFTH
CONSECUTIVE DYNAMICAL ASTRONOMY INSTITUTE.
THE PURPOSE OF THE SEMINAR WAS TO PROVIDE
INSTRUCTION, STIMULATION AND CROSS-FERTILIZATION IN
THE SUBJECTS OF DYNAMICAL ASTRONOMY, MATHEMATICS AND
THE PHYSICS OF HIGH SPEED FLIGHT. MATHEMATICIANS
AND ASTRONOMERS HEARD FROM LEADING ADVANCED
MATHEMATICIANS, ASTRONOMERS AND APPLIED PHYSICISTS ON
TOPICS WHICH CUT ACROSS THE DISCIPLINES CONTRIBUTING
TO SPACE SCIENCE. THE FIRST TWO WEEKS WERE MAINLY
DEVOTED TO BASIC COURSES WHICH PROVIDED BACKGROUND
MATERIAL IN PRACTICAL ASTRONOMY, ELLIPTIC ORBITS,
BASIC FLUID DYNAMICS, VARIATIONAL CALCULUS AND THE
METHOD OF STEEPEST DESCENT, DYNAMIC PROGRAMMING, AND
THE COMPUTER WORKSHOP. IN THE SECOND TWO WEEKS, IN
ADDITION TO BASIC COURSES IN LAGRANGEHAMILTONIAN-
JACOBI MECHANICS AND COMPUTATION PROCEDURES FOR
DIFFERENTIAL EQUATIONS, SPECIAL TOPICS OF INTEREST IN
SPACE ACTIVITY WERE STRESSED; INCLUDED WERE
ARTIFICIAL SATELLITE THEORY, ORBIT DECAY, THE
EARTH-MOON SYSTEM, GAS FLOW MODELS, SHOCK WAVES
IN VERY RARE GASES, AND HEAT FLOW WITH RECEDING
BOUNDARIES. THE FINAL TWO WEEKS INCLUDED A GREAT
VARIETY OF ADVANCED AND SPECIALIZED TOPICS OF CURRENT
INTEREST IN THE SPACE SCIENCES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 855

DOUGLAS AIRCRAFT CO INC SANTA MONICA CALIF
SECONDARY NUCLEONS PRODUCED IN HIGH ENERGY NUCLEAR
REACTIONS,

(U)

DEC 64 123P YUCKER, W. R. ;

REPT. NO. SM-46334

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SHIELDING), (•SHIELDING,
SECONDARY EMISSION), (•SECONDARY EMISSION, SHIELDING),
(•NUCLEONS, SECONDARY EMISSION), MONTE CARLO METHOD,
NUCLEAR SCATTERING, NUCLEAR CROSS SECTIONS, NUCLEI,
EVAPORATION, NEUTRON REACTIONS, PROTON REACTIONS,
INELASTIC SCATTERING

(U)

THE REPORT IS THE RESULT OF A STUDY TO PROVIDE SOME
OF THE BASIC NUCLEAR DATA NECESSARY FOR SPACE
RADIATION SHIELDING CALCULATIONS. BOTH
EXPERIMENTAL DATA AND INFORMATION GENERATED BY
MONTE CARLO CALCULATIONS ARE USED IN THE
ANALYSIS. EMPIRICAL RELATIONS DERIVED FROM THESE
DATA ARE PRESENTED FOR NON-ELASTIC CROSS SECTIONS,
CASCADE YIELDS, RESIDUAL NUCLEAR EXCITATION,
EVAPORATION YIELDS AND SECONDARY ENERGY AND ANGULAR
DISTRIBUTIONS. THESE RESULTS PROVIDE A MODEL FOR
CALCULATING THE CROSS SECTIONS FOR PRODUCTION OF
SECONDARY NUCLEONS BY HIGH ENERGY NUCLEONS STRIKING
COMPLEX NUCLEI. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 110

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
WHAT SCIENCE LEARNED ABOUT THE UNIVERSE FROM THE
FIRST FLIGHT, (U)

62 10P DOBRONRAVOV, V. I

REPT. NO. FTD-ST-62-4

MONITOR: TT , 65-61740

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF AVIATSIYA I KOSMONAVTIKA
(USSR) 1962, V. 44, NO. 4, P. 20-27.

DESCRIPTORS: (SPACE FLIGHT, USSR), MANNED SPACECRAFT,
ASTRONAUTS, ORBITAL TRAJECTORIES, FLIGHT CONTROL
SYSTEMS, ATMOSPHERE ENTRY, SPACE ENVIRONMENTAL
CONDITIONS, WEIGHTLESSNESS, METEOROLOGICAL SATELLITES,
PUBLIC OPINION (U)

THE FIRST SOVIET MANNED SPACE FLIGHT IS DISCUSSED
IN TERMS OF ITS CONTRIBUTION TOWARD PROGRESS IN
SCIENCE AND TECHNOLOGY. PROBLEMS INVOLVING SPACE
FLIGHT, WEIGHTLESSNESS, AND RE-ENTRY ARE ALSO
DESCRIBED. A BRIEF NOTE CONCERNING THE SOVIET
METEOROLOGICAL SATELLITE PROGRAM IS INCLUDED. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 016

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE COSMOS AND THE FEELING OF SPACE, (U)

FEB 65 10P EMEL'YANOV, M. D. ;

REPT. NO. FTD-TT-64-897

MONITOR: TT , 65-61675

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
ZDOROV'E (USSR) 1963, V. 9, NO. 7, P. 2-3.

DESCRIPTORS: (•SPACE FLIGHT, SPACE MEDICINE), (•SPACE
MEDICINE, SENSORY MECHANISMS), (•VESTIBULAR APPARATUS,
WEIGHTLESSNESS), SPACE ENVIRONMENTAL CONDITIONS,
ASTRONAUTS, MOTION, TRAINING, USSR (U)

TRANSLATION OF RUSSIAN RESEARCH: THE COSMOS AND THE
FEELING OF SPACE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-610 356

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ELECTRIC POWER STATION IN THE COSMOS, (U)
JAN 65 6P MARININ, YURII ;
REPT. NO. FTD-TT-64-633
MONITOR: TT , 65 61029

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM
SOVETSKAYA BELORUSSIYA (USSR) 1963, 9 JUL, P. 3.

DESCRIPTORS: (•ELECTRIC POWER PRODUCTION, SPACE FLIGHT),
(•SOLAR CELLS, SPACE FLIGHT), (•SOLAR PANELS, SPACE
FLIGHT), (•SPACE FLIGHT, ELECTRIC POWER PRODUCTION),
USSR, RADIOACTIVE ISOTOPES, NUCLEAR REACTORS,
RADIOLOGICAL CONTAMINATION, MOON, POWER SUPPLIES (U)
IDENTIFIERS: TRANSIT, MARINER (U)

AN ACCOUNT IS GIVEN OF GENERATION OF ELECTRIC POWER
FOR TRAVEL BY ROCKETS, SATELLITES, AND SPACE SHIPS.
THE POWER IS GENERATED BY SOLAR MEANS, RADIOACTIVE
ISOTOPES, OR NUCLEAR REACTORS. BRIEF MENTION IS
MADE OF THE FLIGHT OF 'MARINER II' TOWARD VENUS
AND OF THE USE OF RADIOISOTOPES FOR THE AMERICAN
NAVIGATIONAL SATELLITES 'TRANSIT IV A' AND
'TRANSIT IV B'. RADIOACTIVE CONTAMINATION OF THE
MOON OR OF ANY OTHER PLANET ON WHICH LANDINGS MIGHT
BE MADE IS ALSO DISCUSSED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-610 053

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIC RESEARCH, 1964, VOL. 2, NO. 6.

(U)

JAN 65 233P

MONITOR: FTD ,TT

TT64 1316; ,65 60768

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMICHESKIE ISSLEDOVANIYA (USSR) 1964, V. 2, NO. 6,
P. 817-956. SEE ALSO AD-608 083.

DESCRIPTORS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•SPACE ENVIRONMENTAL CONDITIONS, SCIENTIFIC RESEARCH),
USSR, MOTION, ORBITAL TRAJECTORIES, PLANETS, MOON,
DESCENT, INTERPLANETARY TRAJECTORIES, IONS, IONOSPHERE,
ATMOSPHERE, EARTH, THERMAL RADIATION, DENSITY, SUN,
ULTRAVIOLET RADIATION, COSMIC RAYS, WEIGHTLESSNESS,
MUSCLES, VIBRATION, X RAYS, BONE MARROW, ROCKETS,
GEOPHYSICS, INTERFEROMETERS, PLASMA PHYSICS, MAGNETIC
FIELDS (U)

CONTENTS: MOTION IN A CENTRAL FIELD UNDER THE
INFLUENCE OF CONSTANT TANGENTIAL ACCELERATION; CLASS
OF TRAJECTORIES OF THE BOUNDED 3-BODY PROBLEM;
SPHERES OF INFLUENCE OF THE MAJOR PLANETS AND THE
MOON; SOLUTION OF THE 3-DIMENSIONAL PROBLEM OF
HELIOCENTRIC INTERPLANETARY FLIGHT WITH A CONSTANT-
POWER ENGINE USING THE METHOD OF QUICKEST DESCENT;
FORMATION OF IONS IN THE IONOSPHERE; THERMAL EMISSION
OF A SPHERICAL ATMOSPHERE; CORRELATION BETWEEN
RESULTS OF OBSERVING THE EARTH'S THERMAL RADIATION AS
A FUNCTION OF THE PROPERTIES OF THE INSTRUMENT USED;
DENSITY OF UPPER ATMOSPHERE DURING YEARS OF MINIMUM
SOLAR ACTIVITY; MEASUREMENT OF ATMOSPHERIC DENSITY AT
50- TO 70-KM ALTITUDE; IMAGE OF THE SUN IN THE
DISTANT UV; DISTRIBUTION OF COSMIC-RAY INTENSITY IN
THE ATMOSPHERE UP TO 500 KM; MEASUREMENT OF EAST-WEST
ASYMMETRY IN THE INTENSITY OF PRIMARY COSMIC
RADIATION; INFLUENCE OF PROLONGED WEIGHTLESSNESS ON
AUTOMATISM OF CARDIAC MUSCLE; EFFECT OF LF
VIBRATION AND X-RAYS ON MAMMALIAN BONE-MARROW
CELLS; N(H)-PROFILES OBTAINED WITH THE VHF
DISPERSION INTERFEROMETER DURING 1962-63 ROCKET
LANDINGS OF THE USSR ACADEMY OF SCIENCES;
INTERACTION OF STREAMS OF RAREFIED PLASMA WITH
MAGNETIC FIELDS OF OBJECTS IN SPACE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-609 255

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
SPACE PHYSICS INSTRUMENTATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

DEC 60 223P

REPT. NO. STL/TR-60-0000-19419

CONTRACT: AFD4 647 619

MONITOR: AFBMD ,AFBMD 61 6; ,60 104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ALSO INCLUDES: SEMIANNUAL REPT. FOR
1 JUL-31 DEC 59; STL/TR-59-0000-09950; AD-235 218.
SEMIANNUAL REPT. FOR 1 JAN-30 JUN 60; STL/TR-60-
0000-09191.

DESCRIPTORS: (*SPACE FLIGHT, INSTRUMENTATION),
(*ASTROPHYSICS, INSTRUMENTATION), (*NUCLEAR PHYSICS,
INSTRUMENTATION), PHYSICS, SPECTRUM ANALYZERS, NUCLEAR
RADIATION SPECTROMETERS, PULSE HEIGHT ANALYZERS, PULSE
AMPLIFIERS, CIRCUITS, GATES (CIRCUITS), RADIATION
MEASUREMENT SYSTEMS, PROTONS, NEUTRONS, GAMMA RAYS,
NUCLEAR EXPLOSIONS

(U)

THE PROPERTIES OF SOME NEW TYPES OF BETA-RAY
SPECTROMETERS AND PROTON SPECTROMETERS FOR USE IN
SPACE WERE STUDIED. A LABORATORY PROTOTYPE AND A
LIGHT-WEIGHT PROTOTYPE OF A HIGH-ENERGY BETA-RAY
SPECTROMETER WERE CONSTRUCTED. TESTS WERE
PERFORMED ON THESE SPECTROMETERS AS WELL AS THE HIGH-
ENERGY BETA-RAY SPECTROMETER REPORTED IN STL/TR-59-
0000-09950. SUPPORT WORK INCLUDED CONSTRUCTION AND
TESTING OF A PULSE-HEIGHT ANALYZER, A LINEAR PULSE
AMPLIFIER, A NANO-SECOND COINCIDENCE CIRCUIT AND
GATING CIRCUITRY FOR USE IN CONJUNCTION WITH THE
SPECTROMETERS. A LABORATORY LUMINESCENT CHAMBER
WAS CONSTRUCTED AND TESTED AT THE CALIFORNIA
INSTITUTE OF TECHNOLOGY'S SYNCHROTRON. THE
ENERGY OF THE PRIMARY RADIATION CAN USUALLY BE
DETERMINED AND A LOWER ENERGY BOUND IS ALWAYS
POSSIBLE. IMMEDIATE APPLICATIONS INCLUDE THE
INVESTIGATION OF THE PRIMARY RADIATION NEAR THE EARTH
WITH PARTICULAR EMPHASIS ON GAMMA RAYS AND NEUTRONS,
THE DETECTION OF ATOMIC OR THERMONUCLEAR SPACE
EXPLOSIONS, THE IDENTIFICATION OF HOSTILE SATELLITES,
AND CERTAIN FUNDAMENTAL HIGH-ENERGY PHYSICS
EXPERIMENTS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-608 184

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SPACE, 1963, NO. 1.

(U)

SEP 64 107P

MONITOR: FTD ,TT

MT64 239; ,65 60008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF KOSMOS
(USSR) 1963, NO. 1, P. 1-96. INCLUDES TRANS. OF P. 3-24,
AVAILABLE FROM OTS \$D.75 AS AD-600 893, FTD-TT-63-
1132, 28 APR 64, 29P.

DESCRIPTORS: (•SPACE FLIGHT, STARS), (•CLOSED ECOLOGICAL
SYSTEMS, SPACE FLIGHT), (•SPACE COMMUNICATION SYSTEMS,
STARS), (•ASTRONAUTICS, SPACE BIOLOGY), (•IONOSPHERE,
CHARGED PARTICLES), SATELLITES (ARTIFICIAL), SPACE
PROPULSION, PLANTS (BOTANY), ALGAE, GAS IONIZATION,
USSR, PHOTONS (U)

IDENTIFIERS: CHLORELLA, PHOTON ROCKETS (U)

CONTENTS: INTERSTELLAR FLIGHTS, BY K. P.
STANYUKOVICH AND V. A. BRONSHTEN; CREATION OF
HABITABLE MEDIUM IN FUTURE SPACE FLIGHTS OF MAN, BY
A. A. NICHIPOROVICH; ASTRONAUTICS AND
EXTRATERRESTRIAL CIVILIZATIONS, BY V. I.
KRASOVSKIY; PROBLEMS OF INTERSTELLAR
COMMUNICATION, BY G. KOKKON! AND F. MORRISON;
STUDY OF INTERPLANETARY GAS AND IONOSPHERES OF
PLANETS WITH THE HELP OF TRAPS OF CHARGED PARTICLES,
BY K. I. GRINGAUZ. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-607 772

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

MATERIALS ON VOSTOK-5, VOSTOK-6, AND POLET-1 FLIGHTS:
COMPREHENSIVE REPORT. (U)

DESCRIPTIVE NOTE: REPT. NO. 1.

OCT 64 70P

MONITOR: ATD ,TT P64 57: ,64 71636

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON SURVEYS OF SOVIET-BLOC
SCIENTIFIC AND TECHNICAL LITERATURE.

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*USSR, SPACE
FLIGHT), MANNED SPACECRAFT, ASTRONAUTS, MALES, FEMALES,
TRAINING, ATMOSPHERE ENTRY, LIFE SUPPORT, LAUNCHING,
CONTROL SYSTEMS (U)

CONTENTS: ANALYST'S DISCUSSION OF THE SOVIET
SPACE PROGRAM; PURPOSE AND RESULTS OF THE VOSTOK-
5 AND VOSTOK6 FLIGHTS, AND THE FUTURE SOVIET
SPACE PROGRAM; PRESENT AND FUTURE EQUIPMENT FOR
SPACE VEHICLES; SPACE-FLIGHT COMMAND AND
COMMUNICATIONS NETWORK, AND GENERAL DATA ON REENTRY;
TRAINING OF MALE AND FEMALE COSMONAUTS;
COSMODROME FACILITIES, PRELAUNCH PROCEDURE, AND
LAUNCH DESCRIPTION; THE POLET-1 UNMANNED
MANEUVERABLE SPACE VEHICLE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-607 627

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
DATA FOR ESTIMATING ROCKET PAYLOADS IN TWODIMENSIONAL
MINIMUM ENERGY ORBITS THROUGH THE SOLAR SYSTEM, (U)
SEP 58 52P SALKELD, ROBERT J. ;
REPT. NO. STL/GM-TN-0165-00173

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•CELESTIAL MECHANICS, SPACE FLIGHT),
(•SPACE FLIGHT, GRAVITY), (•PERTURBATION THEORY, SPACE
FLIGHT), SPACECRAFT, SOLAR SYSTEMS, PLANETS,
INTERPLANETARY TRAJECTORIES, ORBITAL TRAJECTORIES,
VELOCITY, PAYLOADS, ROCKETS, EQUATIONS, GRAPHICS,
ASTRONAUTICS (U)

DATA ARE PRESENTED AS GUIDES TO SHOW SOME OF THE
QUANTITATIVE RELATIONSHIPS WHICH EXIST AMONG BODIES
OF THE SOLAR SYSTEM, AND TO INDICATE THE INFLUENCE OF
THESE BODIES ON VEHICLES TRAVELING WITHIN THE SOLAR
SYSTEM. INFORMATION IS GIVEN WHICH DESCRIBES THE
SUN, THE NINE PLANETS AND THEIR SATELLITES WITH
RESPECT TO GENERAL ORIENTATION, MOTION, SIZE, MASS,
AND THE MANNER IN WHICH THEIR GRAVITATIONAL
ATTRACTIONS AND ESCAPE VELOCITIES DECREASE WITH
INCREASING DISTANCE. CURVES ARE PRESENTED FOR THE
SUN, THE FIRST SIX PLANETS AND THE MOON TO SHOW WHAT
VELOCITY IS REQUIRED TO MOVE FROM AN INITIAL
DISTANCE TO A FINAL DISTANCE FROM EACH BODY ALONG A
MINIMUM ENERGY (HOHMANN) ELLIPSE. DATA ARE
GIVEN WHICH SHOW THE INFLUENCE OF VARIOUS PLANETS AND
THE MOON, ON VEHICLES LEAVING OR APPROACHING THESE
BODIES ALONG TWO-DIMENSIONAL HYPERBOLIC TRAJECTORIES.
THE PERFORMANCE OF A SINGLE STAGE ROCKET IS GIVEN
BY SHOWING IN GRAPHICAL FORM THE IDEAL ROCKET
EQUATION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-607 129

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIRST SPACE FLIGHT AND RADIO ELECTRONICS, (U)
SEP 64 9P SIFOROV, V. I. ;
MONITOR: FTD ,TT TT64 409; ,64 71525

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
VESTNIK SVYAZI (USSR) 1961, V. 21, NO. 7(256) P.
5-6.

DESCRIPTORS: (•SPACE FLIGHT, SPACE COMMUNICATION
SYSTEMS), (•SPACE COMMUNICATION SYSTEMS, SPACE FLIGHT),
RADIO COMMUNICATION SYSTEMS, RADIO TRANSMISSION, RADIO
EQUIPMENT, SPACE PROBES, MANNED SPACECRAFT, ELECTRONICS,
USSR (U)

A BRIEF REVIEW OF THE IMPORTANCE AND DEVELOPMENT OF
RADIO ELECTRONICS APPLIED TO THE FIELD OF SPACE
EXPLORATION AND FLIGHT IS PRESENTED. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-606 619

RAND CORP SANTA MONICA CALIF

BASIC OBJECTIVES OF A CONTINUING PROGRAM OF
SCIENTIFIC RESEARCH IN OUTER SPACE,

(U)

44P KELLOGG, W. W. ;

REPT. NO. P-1259

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR THE NATIONAL ACADEMY
OF SCIENCES FOR THE EARTH SATELLITE PROGRAM
LEGIBILITY OF THIS DOCUMENT IS IN PART UNSATISFACTORY.
REPRODUCTION HAS BEEN MADE FROM BEST AVAILABLE COPY.

DESCRIPTORS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•SPACE ENVIRONMENTAL, CONDITIONS, SCIENTIFIC RESEARCH),
(•ASTRONAUTICS, SCIENTIFIC RESEARCH), SOUNDING ROCKETS,
ATMOSPHERIC SOUNDING, UPPER ATMOSPHERE, LUNAR PROBES,
LUNAR ENVIRONMENT, INTERPLANETARY TRAJECTORIES,
METEOROLOGICAL SATELLITES, SPACE PROBES, SCIENTIFIC
SATELLITES, MARS PROBES, VENUS PROBES, MANNED
SPACECRAFT, SPACE BIOLOGY, SPACECRAFT, ASTROPHYSICS (U)

IDENTIFIERS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•SPACE ENVIRONMENTAL CONDITIONS, SCIENTIFIC
RESEARCH), (•ASTRONAUTICS, SCIENTIFIC RESEARCH),
SOUNDING ROCKETS, ATMOSPHERIC SOUNDING, UPPER
ATMOSPHERE, LUNAR PROBES, LUNAR ENVIRONMENT,
INTERPLANETARY TRAJECTORIES, METEOROLOGICAL
SATELLITES, SPACE PROBES, SCIENTIFIC SATELLITES,
MARS PROBES, VENUS PROBES, MANNED SPACECRAFT,
SPACE BIOLOGY, SPACECRAFT, ASTROPHYSICS (U)

BASIC OBJECTIVES OF A CONTINUING PROGRAM OF SCIENTIFIC
RESEARCH IN OUTER SPACE.



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-606 382

RAND CORP SANTA MONICA CALIF
SPACE LAW BIBLIOGRAPHY,

(U)

MAY 57 9P HOGAN, JOHN C. :

REPT. NO. P-1087

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, LAW), (•LAW, UPPER
ATMOSPHERE), (•UPPER ATMOSPHERE, LAW), (•BIBLIOGRAPHIES,
LAW), SOCIAL SCIENCES, INDEXES (U)
IDENTIFIERS: SPACE LAW, AIRSPACE (U)

ONLY SINCE THE END OF WORLD WAR II HAS THERE
BEEN A SERIOUS INTEREST IN THE PROBLEMS OF LAW AND
ACTIVITIES IN THE UPPER ATMOSPHERE. SCHOLARLY
ARTICLES ON THIS SUBJECT HAVE BEEN PUBLISHED RECENTLY
BY LAWYERS IN CANADA, ENGLAND, FRANCE,
GERMANY, AND THE USSR, AND THERE ARE MATERIALS IN
THE AMERICAN LAW REVIEWS WHICH APPLY--EITHER
DIRECTLY OR BY ANALOGY--TO MAN'S ACTIVITIES ABOVE THE
SURFACE OF THE EARTH. THE IMMEDIATE PROBLEM IS
STATE SOVEREIGNTY IN THE UPPER ATMOSPHERE. SOME
ATTENTION HAS ALSO BEEN GIVEN TO THE LONGRANGE
PROBLEM OF A SYSTEM OF JURISPRUDENCE FOR ACTIVITIES
IN SPACE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-605 792

RAND CORP SANTA MONICA CALIF

THE ATTAINABILITY OF THE STARS, (U)

SEP 56 8P SANGER, EUGEN ;

REPT. NO. T-69

MONITOR: TT ,

64 71372

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: DIE ERREICHBARKEIT DER FIXSTERNE,
TRANS. OF MONO. (PAPER) READ AT THE INTERNATIONAL
ASTRONAUTICAL CONGRESS (NO. 7) ROME, SEP 56.

DESCRIPTORS: (*SPACE PROPULSION, PHOTONS), (*SPACE
FLIGHT, STARS), (*ROCKETS, VELOCITY), QUANTUM MECHANICS,
RELATIVITY THEORY, ELECTRIC PROPULSION, FEASIBILITY
STUDIES, TIME (U)

IDENTIFIERS: PHOTON ROCKETS (U)

THE YET HYPOTHETICAL QUANTUM-ROCKETS HAVE JET-
VELOCITIES EQUAL TO THE VELOCITY OF LIGHT, SO THAT
ALSO THEIR FLIGHT VELOCITIES MAY APPROACH THE OPTIC
VELOCITY. FROM THE LAWS OF CLASSICAL MECHANICS,
THERE WOULD FOLLOW THAT THE LIMITED HUMAN LIFE-TIME
AND THE LIMITED MASS-RATIO OF THE ROCKET WOULD PERMIT
RANGES OF SOME TENTHS OF LIGHT YEARS, I.E., OVER A
VERY LIMITED SPACE OF OUR GALAXY AND TO THE VERY NEXT
FIXED STARS ONLY. FROM THE LAWS OF RELATIVISTIC
MECHANICS HOWEVER FOLLOWS FOR THOSE VERY NEAR OPTIC-
VELOCITIES A CONSIDERABLE DILATION OF PROPER TIME ON
BOARD OF THE VEHICLE RELATIVE TO THE TERRESTRIAL
TIME, SO THAT LIFE OF THE CREW AND ACTION OF THE
ROCKET-MOTOR OCCUR SLOWER, THAN WOULD CORRESPOND TO
TERRESTRIAL TIME-SCALE. FROM THIS FOLLOWS THAT
WITHIN THE LIFE-SPAN OF THE CREW AND WITH LIMITED
MASS-RATIOS OF THE ROCKET, EVERY THINKABLE DISTANCE
IN SPACE, UP TO THE NEBULAE MILLIONS OF LIGHT-YEARS
DISTANT CAN BE COVERED, SO THAT, EXPRESSED IN
TECHNICAL TERMS, AND FROM THE STANDPOINT OF THE CREW,
THE VEHICLE SEEMS TO BE ABLE TO MOVE WITH
CONSIDERABLE SUPER OPTIC-VELOCITY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-604 811

RAND CORP SANTA MONICA CALIF
THE SOVIET BALLISTIC MISSILE AND SPACE FLIGHT
PROGRAM,

(U)

JUN 58 14P

KRIEGER, F. J. ;

REPT. NO. P-1389

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SPACECRAFT), (•GUIDED
MISSILES (SURFACE-TO-SURFACE), USSR), ROCKETS,
SATELLITES (ARTIFICIAL), SCIENTIFIC RESEARCH, HISTORY(U)

POPULARIZED ACCOUNT OF THE SOVIET BALLISTIC MISSILE AND
SPACE FLIGHT PROGRAM.

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-604 515

RAND CORP SANTA MONICA CALIF

PROBLEMS OF INTERPLANETARY FLIGHTS, (U)

NOV 54 10P STANYUKOVICH, K. ;

REPT. NO. T-38

MONITOR: TT , 64 71244

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROBLEMY MEZHPLANETNYKH PERELETOV;
TRANS. FROM KRASNAYA ZVEZDA (USSR) 1954, 10 AUG,
P. 3.

DESCRIPTORS: (SPACE FLIGHTS, USSR), ROCKET MOTORS,
NUCLEAR PROPULSION, ROCKET MOTORS (LIQUID PROPELLANT),
THRUST, INTERPLANETARY TRAJECTORIES, ROCKET MOTOR
NOZZLES, SPACE CRAFT, SPACE ENVIRONMENTAL CONDITIONS,
STAGING, SPACE STATIONS, LIQUID ROCKET PROPELLANTS (U)

GREAT ARE THE ACHIEVEMENTS OF MODERN SCIENCE AND
TECHNOLOGY. SCIENCE, SAID PRESIDENT OF THE
ACADEMY OF SCIENCES IN U.S.S.R., A. N.
NESMEYANOV, AT THE SESSION OF THE WORLD PEACE
COUNCIL ON 27 NOVEMBER 1953, HAS REACHED SUCH A
STATE WHEREIN THE DISPATCH OF A STRATOPLANE TO THE
MOON AND THE CREATION OF AN ARTIFICIAL SATELLITE OF
THE EARTH ARE A REALITY. OUR SOVIET SCIENTISTS
AND DESIGNERS, WHO ARE DEVOTING ALL THEIR STRENGTH
AND KNOWLEDGE TO THE CAUSE OF THE FURTHER PROGRESS
AND PROSPERITY OF OUR MOTHERLAND, HAVE MADE AN
ENORMOUS CONTRIBUTION TO THE SOLUTION OF THE VERY
IMPORTANT PROBLEMS OF INTERPLANETARY FLIGHTS. (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-603 488

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB
EFFECT OF OXYGEN ENRICHED ATMOSPHERE ON THE BURNING
RATE OF FABRICS: PHASE II, (U)

JUN 64 18P CHIANTA, MARIA A. ISTOLL, ALICE
M. ;

MONITOR: NADC ML , 6408

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•OXYGEN, SPACE CAPSULES), (•SPACE FLIGHT,
FIRE-RESISTANT TEXTILES), (•FIRE-RESISTANT TEXTILES,
FLIGHT CLOTHING), (•FLIGHT CLOTHING, FIRE-RESISTANT
TEXTILES), BURNING RATE, POLYAMIDE PLASTICS, NITROGEN,
ARGON, FIRE SAFETY, COTTON TEXTILES, SPACE ENVIRONMENTAL
CONDITIONS, FIBERS (SYNTHETIC), HAZARDS, TEMPERATURE,
PRESSURE, COMBUSTION, IGNITION, TEXTILES (U)
IDENTIFIERS: NOMEX YARNS (U)

THIS STUDY, DESIGNED TO ASCERTAIN THE FEASIBILITY
OF OXYGEN ENRICHMENT OF CAPSULAR ENVIRONMENTS WITHOUT
INCREASING CLOTHING FIRE HAZARD, HAS: 1)
REVEALED THAT UNDER THE CONDITIONS OF THESE
EXPERIMENTS, WITH THE BEST FIRERESISTANT CLOTHING
MATERIAL AVAILABLE, ONLY A 10% INCREASE IN OXYGEN
CONCENTRATION MAY BE REALIZED IN AN OXYGEN-NITROGEN
ATMOSPHERE IRRESPECTIVE OF PRESSURE; SIMILARLY, A
20% INCREASE, OF ARGON IS USED; 2) DEMONSTRATED
THE EXISTENCE AND PROGRESSION OF THE DAMPING EFFECT
OF INERT GASES; AND 3) SUGGESTED A MEANS OF
EXTENDING OBSERVATIONS MADE IN ONE GASEOUS
ENVIRONMENT TO ANY OTHER OF KNOWN PHYSICAL
PROPERTIES. IT IS CONCLUDED THAT SIGNIFICANT
OXYGEN ENRICHMENT MAY BE ACHIEVED SAFELY ONLY BY
INTRODUCTION OF A PHYSIOLOGICALLY SAFE GAS OR GAS
MIXTURES AT LEAST TWICE AS DENSE AS NITROGEN.
(AUTHOR) (U)

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AD-603 326

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
RESERVE OF STRENGTH, (U)

JUL 64 IIP NIKOLAEV, A. ;
MONITOR: FTD ,TT TT64 160, ,64 71157

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KRYL'YA RODINY (USSR) 1963 V. 14 NO. 5, P. 3-5.

DESCRIPTORS: (•ASTRONAUTS, PHYSICAL FITNESS), (•SPACE
FLIGHT, ASTRONAUTS), MANNED SPACECRAFT, SATELLITES
(ARTIFICIAL), SPACE BIOLOGY, SPACE ENVIRONMENTAL
CONDITIONS, TRAINING, RECREATION, USSR (U)
IDENTIFIERS: VOSTOK (U)

A POPULARIZED ACCOUNT OF THE FLIGHT OF VOSTOK-3
BY ITS PILOT IS FOLLOWED BY A DESCRIPTION OF THE
PHYSICAL CONDITIONING PROGRAM PRACTICED BY SOVIET
COSMONAUTS-INTRAINING. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-603 006

ASTRONAUTICS CORP OF AMERICA MILWAUKEE WIS
PROPELLANT ENERGY MANAGEMENT CONSIDERATIONS FOR THE
FLIGHT DATA SYSTEM CONCEPT. (U)

DESCRIPTIVE NOTE: REPT. FOR FEB 62-FEB 63,
MAY 64 273P SEINFELD, R. D. ; PETERSON, D.
E. ; HOFFMAN, M. A. ;

CONTRACT: AF33 657 8430

PROJ: 8222

TASK: 822202

MONITOR: ASD TDR 63 259

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, ENERGY MANAGEMENT),
(•ROCKET PROPELLANTS, ENERGY MANAGEMENT), (•PROGRAMMING
(COMPUTERS), SPACE FLIGHT), SPACECRAFT, PERFORMANCE
(ENGINEERING), RENDEZVOUS TRAJECTORIES, INTERPLANETARY
TRAJECTORIES, THRUST, CONTROL SYSTEMS, INSTRUMENTATION,
PROGRAMMING LANGUAGES (U)
IDENTIFIERS: CAPTAIN PROGRAM (U)

A DIGITAL COMPUTER PROGRAM CALLED THE CAPTAIN
PROGRAM WAS PREPARED FOR THE USE OF SOLVING A
VARIETY OF FLIGHT CONTROL AND INSTRUMENTATION
PROBLEMS CONNECTED WITH SPACE FLIGHT. THE PROGRAM
WAS WRITTEN IN FORTRAN LANGUAGE TO BE COMPATIBLE
WITH THE IBM 7090 COMPUTER. THE BUILDING-BLOCK
PROGRAMMING CONCEPT WAS APPLIED TO TWO SPECIFIC
SAMPLE PROBLEMS: EARTH ORBITAL RENDEZVOUS AND
EARTH-MOON FLIGHT. VERIFICATION WAS OBTAINED
THAT THE CAPTAIN PROGRAM IS CAPABLE OF GENERATING
SEVERAL IMPORTANT TYPES OF SPACE VEHICLE PERFORMANCE
DATA WITH ONLY MINOR CHANGES IN THE INPUT DATA
INCLUDING: TRAJECTORY TIME HISTORY DATA;
PROPELLANT UTILIZATION DATA; CONTROL TECHNIQUES
EVALUATION DATA; AND, CONTROL AND INSTRUMENT ERROR
ANALYSES. THE CAPTAIN PROGRAM WAS CONCEIVED AS
THE NUCLEUS OF A VERSATILE COMPUTER PROGRAM TO WHICH
NEW SUBROUTINES CAN BE ADDED AS NEW REQUIREMENTS
ARISE. (AUTHOR) (U)

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AD-602 326

RAND CORP SANTA MONICA CALIF

THE PROPOSAL FOR A JOINT LUNAR EXPEDITION: BACKGROUND
AND PROSPECTS, (U)

JAN 64 24P

FRYE, ALTON I

REPT. NO. P-2808

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

X DESCRIPTORS: (•SPACE FLIGHT, POLITICAL SCIENCE), (•MOON,
SPACE FLIGHT), (•POLITICAL SCIENCE, SPACE FLIGHT),
MANNED SPACECRAFT, FOREIGN POLICY, UNITED STATES, USSR,
ECONOMICS, HISTORY (U)

THE PROPOSAL FOR A JOINT LUNAR EXPEDITION: BACKGROUND
AND PROSPECTS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-601 078

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIVE MILLION KILOMETERS IN SPACE. (U)

APR 64 22P

MONITOR: FTD ,TT

TT 64 119 ,64 15903

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
PRIRODA (USSR) 1963 V. 52 NO. 7, P. 11-18.

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*MANNED SPACECRAFT,
USSR), ASTRONAUTS, SATELLITES (ARTIFICIAL) (U)
IDENTIFIERS: VOSTOK (U)

A POPULARIZED ACCOUNT OF THE FLIGHTS OF VOSTOK-5
AND VOSTOK-6. (U)

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AD-600 610

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
A BRILLIANT NEW VICTORY OF SOVIET COSMONAUTICS:
VALERI BILOVSKI AND VALENTINA TERESHKOVA IN A NEW
COSMIC TANDEM.

(U)

MAY 64 13P ZAGANESCU, FLORIN ;
MONITOR: FTD ,TT TT64 34; ,64 11700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
STIINTA SI TEHNICA (RUMANIA) 1963 V. 15 NO. 7, P.
13-15.

DESCRIPTORS: (•ASTRONAUTS, SPACE FLIGHT), •SPACE
MEDICINE, •SPACE FLIGHT, MANNED SPACECRAFT, SAFETY,
SPACE BIOLOGY, TELEMETER SYSTEMS, FEMALES, MALES (U)

IN THIS NEW SPACE EXPEDITION, THE MAIN TASK
ASSIGNED TO THE FLIGHT WAS THE PROBLEM OF STUDYING
THE INFLUENCE OF THE VARIOUS FACTORS OF COSMIC FLIGHT
ON THE HUMAN ORGANISM, BOTH AS REGARDS PROLONGED
STAYING IN ORBIT, AND AS TO COMPARING THE EFFECTS OF
THESE FACTORS ON THE ORGANISMS OF MAN AND WOMAN. IN
ADDITION TO THESE TASKS, WHICH REQUIRE NEW, COMPLEX
MEDICAL BIOLOGICAL RESEARCH WORK, THE PROVING AND
IMPROVEMENT OF THE SYSTEMS OF MANNED SPACE VEHICLES,
ESPECIALLY UNDER CONDITIONS OF GROUP FLYING, WAS
CONTINUED. THE NEW FLIGHT, THROUGH ITS
CHARACTERISTICS, ORGANIZATION, DURATION AND
OBJECTIVES, CAN BE CONSIDERED AS A STAGE OF THE
GREATEST IMPORTANCE IN THE PROGRESS OF MAN'S
PENETRATION INTO COSMIC SPACE. (AUTHOR)

(U)

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AD-489 492 14/2 22/2
MARTIN CO DENVER COLO
SIMULATED LABORATORY TO ORBIS LOW EXPERIMENT. (U)
DESCRIPTIVE NOTE: INTERFACE DESIGN REQUIREMENTS DOCUMENT.
AUG 66 38P
REPT. NO. IDR0-MOL-HSQ-63008
CONTRACT: AF 04(695)-150

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF SPACE
SYSTEMS DIV., LOS ANGELES AIR FORCE STATION,
CALIF. 90045.

DESCRIPTORS: (•SPACE STATIONS, LABORATORIES),
(•SPACE FLIGHT, SIMULATION), BOOSTER MOTORS,
SATELLITES(ARTIFICIAL), LOW-ORBIT TRAJECTORIES,
PERFORMANCE(ENGINEERING), ELECTRIC CABLES (U)
IDENTIFIERS: TITAN 3, ORBIS-LOW EXPERIMENT (TEST
EQUIPMENT) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-486 224L 22/1 22/2
SPACE AND INFORMATION SYSTEMS DIV NORTH AMERICAN AVIATION
INC DOWNEY CALIF
A RELIABILITY CONCEPT FOR LONG SPACE MISSIONS, (U)
OCT 65 JIP CARPENTER, ROY B. ;
REPT. NO. SID-65-1255
MONITOR: IDEP 347.95.00.00-F1-31

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO HEADQUARTERS, SPACE
SYSTEMS DIV., AIR FORCE IDEP OFFICE, LOS
ANGELES, CALIF. 90045.

DESCRIPTORS: (SPACE FLIGHT, RELIABILITY),
MAINTENANCE, SYSTEMS ENGINEERING, SPACE CREWS,
SAFETY, LUNAR CRAFT, MANNED SPACECRAFT,
FEASIBILITY STUDIES, LUNAR SATELLITES,
MARS(PLANET), VENUS(PLANET),
PERFORMANCE(ENGINEERING),
PERFORMANCE(HUMAN), SPACE MAINTENANCE (U)

THE RESULTS OF THE ANALYSIS INDICATE THAT A DESIGN
CONCEPT BASED ON THE AVAILABILITY CONCEPT WITH ON-
BOARD REPAIR OF SUBSYSTEMS CAN PROVIDE A WORKABLE
SPACECRAFT FOR LONG-DURATION, MANNED MISSIONS SUCH AS
THE MARS AND VENUS FLYBY. THE APOLLO LEVEL
OF TECHNOLOGY HAS BEEN FOUND TO BE ADEQUATE TO ASSURE
DEVELOPMENT OF A RELIABLE AND SAFE SPACECRAFT. THE
MAGNITUDE OF THE NUMBER OF REPAIR ACTIONS EXPECTED
WAS ESTIMATED TO BE RELATIVELY SMALL AND WELL WITHIN
MAN'S CAPABILITIES. UNDER THESE CIRCUMSTANCES, THE
PROBABILITY OF HAVING ALL SYSTEMS AVAILABLE FOR
MISSION SUCCESS AND CREW SAFETY HAS BEEN ESTIMATED TO
BE IN EXCESS OF 0.99 WITH ADEQUATE SPARES. THE
APPLICATION OF THIS CONCEPT AND STUDY RESULTS TO
OTHER SPACE MISSIONS SUCH AS EARTH-ORBITAL, LUNAR-
ORBITAL, AND LUNAR-LANDING SPACECRAFT SHOULD BE SELF-
EVIDENT. IN SUCH CASES, THE SITUATION WILL BE LESS
CRITICAL THAN DURING INTERPLANETARY FLIGHTS BECAUSE
OF RESUPPLY CAPABILITIES AND SHORTER DURATION OF THE
MISSIONS. THE SIGNIFICANCE OF THESE DIFFERENCES IS
INDICATED IN THE RISK FACTORS ONLY; THE SYSTEM DESIGN
AND SUPPORT REQUIREMENTS REMAIN ESSENTIALLY THE SAME
DEPENDING BASICALLY UPON THE COMPLEXITY OF THE
MISSION, ITS OBJECTIVES, AND ITS DURATION.
(AUTHOR) (U)

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AD-480 884L 22/3 12/1
BOEING CO HUNTSVILLE ALA LAUNCH SYSTEMS BRANCH
ANALYTICAL SOLUTION FOR OPTIMUM COAST TRAJECTORIES, (U)
MAR 66 11P ENG ,CHIU H. ;PALMADESSO,
PETER J. ;
REPT. NO. 05-13221

UNCLASSIFIED REPORT
DISTRIBUTION: USGO: OTHERS TO BOEING CO.,
SEATTLE, WASH.

DESCRIPTORS: (•SPACE FLIGHT, •NONPOWERED FLIGHT),
OPTIMIZATION, TRAJECTORIES, FREE FLIGHT
TRAJECTORIES, PARTIAL DIFFERENTIAL EQUATIONS,
NUMERICAL ANALYSIS, ENERGY MANAGEMENT, FUEL
CONSUMPTION, RENDEZVOUS TRAJECTORIES, ELLIPTICAL
ORBIT TRAJECTORIES, CIRCULAR ORBIT TRAJECTORIES,
PARKING ORBIT TRAJECTORIES,
APPROXIMATION(MATHEMATICS), ROTATION, ORBITAL
TRAJECTORIES (U)

AN ANALYTICAL SOLUTION OF THE EULER-LAGRANGE
EQUATIONS FOR THE LAGRANGE MULTIPLIERS FOR OPTIMUM
COAST TRAJECTORIES (MINIMUM FUEL CONSUMPTION) IS
OBTAINED. PREVIOUS SOLUTIONS HAVE A SINGULARITY AT
ZERO ECCENTRICITY. THE PRESENT SOLUTION DOES NOT
HAVE THIS SINGULARITY, BUT THERE IS A NUMERICAL
DIFFICULTY DUE TO A REMOVABLE SINGULARITY AT UNIT
ECCENTRICITY. AN APPROXIMATE SOLUTION, ACCURATE
NEAR UNIT ECCENTRICITY, IS GIVEN. THIS SOLUTION
REDUCES TO THE EXACT PARABOLIC SOLUTION FOR UNIT
ECCENTRICITY. (AUTHOR) (U)

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AD-476 527L 674
REDSTONE SCIENTIFIC INFORMATION CENTER REDSTONE ARSENAL
ALA
SPACE TRAVEL AND CYBERNETICS, (U)
OCT 65 28P STEINBUCH, K. ;
REPT. NO. RSIC-477

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO REDSTONE SCIENTIFIC
INFORMATION CENTER, REDSTONE ARSENAL, ALA.
35809.

SUPPLEMENTARY NOTE: TRANS. FROM THE ANNUAL MEETING OF
THE WGLR AND THE GRR, BERLIN, 1964.

DESCRIPTORS: (•CYBERNETICS, •SPACE FLIGHT),
INFORMATION THEORY, GUIDANCE, SIGNAL-TO-NOISE
RATIO, CONTROL SYSTEMS, MAN-MACHINE SYSTEMS,
DIGITAL COMPUTERS, CODING, SPACE NAVIGATION (U)

X
COMMON AREAS OF SPACE TRAVEL AND CYBERNETICS ARE
POINTED OUT. FOR EXAMPLE: TO THE FIELD OF
CYBERNETICS BELONG THE INFORMATIONAL PROBLEMS THAT
ARE ENCOUNTERED IN THE GUIDANCE OF SPACE VEHICLES;
DEVELOPMENT OF ELECTRONICS - WHICH IS THE NUTRIENT OF
CYBERNETICS - IS GREATLY STIMULATED BY SPACE TRAVEL;
IT APPEARS THAT THE PROBLEM COMPUTER AND MAN IN
THE UNIVERSE IS ONE OF THE CENTRAL THEMES IN
CYBERNETICS; AND, FINALLY, SPACE TRAVEL AND
CYBERNETICS HAVE ABOUT THE SAME EFFECT UPON OUR
CULTURE AND MAN'S UNDERSTANDING OF HIMSELF.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-475 268 6/19 6/18 6/17 6/11
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
DOCTORS IN INTERPLANETARY FLIGHTS. (U)
DESCRIPTIVE NOTE: UNEDITED ROUGH DRAFT TRANSLATION,
DEC 65 13P VOKROUHLICKY, LUBOR ;
REPT. NO. FTD-TT-65-1177

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
FOREIGN TECHNOLOGY DIV. (AFSC), WRIGHT-
PATTERSON AFB, OHIO.
SUPPLEMENTARY NOTE: TRANS. FROM KRIDLÁ VLASTI, NO.
14, PP. 406-409, 1962.

DESCRIPTORS: (•SPACE FLIGHT, •PHYSIOLOGY); SPACE
BIOLOGY, INTERPLANETARY TRAJECTORIES, USSR, OXYGEN
CONSUMPTION, OXYGEN EQUIPMENT, SPACE ENVIRONMENTAL
CONDITIONS, SOLAR RADIATION, SPACECRAFT, COSMIC
RAYS, GRAVITY, ACCELERATION, WEIGHTLESSNESS,
ACCELERATION TOLERANCE, VESTIBULAR APPARATUS,
STRESS(PHYSIOLOGY), NERVOUS SYSTEM,
METEORITES, PROTECTIVE COVERINGS, PROTECTIVE
CLOTHING, ASTRONAUTS (U)

DISCUSSED ARE THE MOST IMPORTANT PHYSIOLOGICAL
PROBLEMS OF INTERPLANETARY FLIGHTS. (AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-472 314

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE NEXT STEP IN SPACE TRAVEL.

(U)

DESCRIPTIVE NOTE: EDITED TRANSLATION,

SEP 65 9P KU,TSIEN SHING ;

REPT. NO. FTD-TT-65-562

UNCLASSIFIED REPORT

NO PUBLIC OR FOREIGN RELEASE.

SUPPLEMENTARY NOTE: TRANS. FROM HUA HSUEH T'UNG
PAO, NO. 2, PP. 14-16, 1963.

DESCRIPTORS: (*SPACE FLIGHT, FEASIBILITY STUDIES),
COMMUNIST CHINA, REVIEWS, LAUNCHING, BOOSTER
MOTORS, SPACE STATIONS, SPACE CAPSULES, MANNED
SPACECRAFT, ROCKET MOTORS, ELECTRIC ENGINES,
NUCLEAR ENERGY, JET ENGINES, VELOCITY, WATER,
LAUNCHING SITES

(U)

THE NEXT STEP IN SPACE TRAVEL (CHINESE TRANSLATION).

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-471 385L

MCGRAW-HILL INC NEW YORK

SPACE OPTICS A REVIEW OF FOREIGN TECHNOLOGY DURING
1964-1965, (U)

JUN 65 92P ESTEY, ROGER S.;

REPT. NO. MHR-65-11-A

CONTRACT: AF33 657 13378

UNCLASSIFIED REPORT

NOTICE: RELEASE ONLY TO U. S. GOVERNMENT
AGENCIES IS AUTHORIZED. OTHER CERTIFIED REQUESTERS
SHALL OBTAIN RELEASE APPROVAL FROM HEADQUARTERS,
FOREIGN TECHNOLOGY DIV., AIR FORCE SYSTEMS
COMMAND, WRIGHT-PATTERSON AFB, OHIO. 45433.
RELEASE OR ANNOUNCEMENT TO FOREIGN GOVERNMENTS OR THEIR
NATIONALS IS NOT AUTHORIZED.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
NORTHROP SPACE LABS., HAWTHORNE, CALIF.

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*ASTRONAUTICS,
USSR), SPACECRAFT, GUIDANCE, SPACE NAVIGATION,
REENTRY VEHICLES, MANNED SPACECRAFT, SPACE PROBES,
OPTICAL TRACKING, MAPPING, MARS PROBES, SPACE
SURVEILLANCE SYSTEMS, ATTITUDE CONTROL SYSTEMS,
LASERS, RECOVERY, STAR TRACKERS, HORIZON
SCANNERS, ATMOSPHERE ENTRY, WAVE TRANSMISSION (U)

IDENTIFIERS: VOSTOK, VOSKHOD (U)

THIS DOCUMENT HAS FOUR SECTIONS COVERING
COMPILATION OF AVAILABLE LITERATURE
FRAGMENTS; APPLICATION OF SPACE OPTICAL
TECHNIQUES TO ASTRONAUTICS; REENTRY AND
RECOVERY OF SOVIET MANNED SPACE VEHICLES;
AND A REVIEW OF VOSKHOD MATERIAL AND
EVALUATION OF THE VOSKHOD SYSTEM.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-468 596

RAND CORP SANTA MONICA CALIF
PROGRAM BUDGETING FOR SPACE ACTIVITIES, (U)
AUG 65 30P MARGOLIS, M. A. ; BARRO, S. M.

REPT. NO. RM-4690-RC

UNCLASSIFIED REPORT

DDC USERS

SUPPLEMENTARY NOTE:

— DESCRIPTORS: (*SPACECRAFT, RESEARCH PROGRAM
ADMINISTRATION), (*SPACE FLIGHT, FEDERAL BUDGETS),
(*FEDERAL BUDGETS, SPACECRAFT), MANAGEMENT
PLANNING, SCIENTIFIC RESEARCH, MANNED SPACECRAFT,
DEPARTMENT OF DEFENSE, COSTS, ECONOMICS (U)
IDENTIFIERS: SPACECRAFT RESEARCH, NASA (U)

THIS MEMORANDUM REPRESENTS ONE CHAPTER IN A
FORTHCOMING BOOK, PROGRAM BUDGETING: PROGRAM
ANALYSIS AND THE FEDERAL BUDGET. THIS
CHAPTER DISCUSSES THE APPLICATION OF PROGRAM
BUDGETING CONCEPTS TO THE NATIONAL SPACE PROGRAM.
IT REVIEWS CURRENT AND FUTURE ACTIVITIES OF THE
FEDERAL AGENCIES THAT PARTICIPATE IN THE SPACE
PROGRAM, IDENTIFIES CERTAIN PROGRAM CHARACTERISTICS
THAT WILL FACILITATE THE INTRODUCTION OF PROGRAM
BUDGETING, AND DISCUSSES OTHER CHARACTERISTICS--
NOTABLY INTERDEPENDENCE AMONG SPACE PROJECTS--THAT
MAY PRESENT DIFFICULTIES. THE NATURE OF SPACE
PROGRAM OBJECTIVES AND THEIR RELATIONSHIP TO MISSIONS
AND PROGRAM BUDGET CATEGORIES ARE EXAMINED IN DETAIL.
SPECIFIC SUGGESTIONS ARE MADE ABOUT THE STEPS TO BE
TAKEN TO CONVERT FROM THE EXISTING BUDGET TO A
PROGRAM BUDGET FORMAT AND SOME OF THE ANALYTICAL
APPLICATIONS OF A SPACE PROGRAM BUDGET ARE MENTIONED.
(AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-463 707

AEROSPACE CORP EL SEGUNDO CALIF
ELECTROMAGNETIC COMPATIBILITY REQUIREMENTS FOR SPACE
SYSTEMS, GENERAL SPECIFICATION FOR, (U)

APR 65 102P ARROWSMITH, E. B. ;

REPT. NO. TDR-469(5540-20)-2

CONTRACT: AFD4 695 469

MONITOR: SSD TR-65-35

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•ELECTROMAGNETIC COMPATIBILITY, SPACE
FLIGHT), (•RADIOFREQUENCY INTERFERENCE, SPACE
FLIGHT), (•SPACE FLIGHT, ELECTROMAGNETIC
COMPATIBILITY), SPECIFICATIONS, TEST METHODS,
CONTROL, GROUND SUPPORT EQUIPMENT, DESIGN,
EXPLOSIVES INITIATORS, ELECTROMAGNETIC SHIELDING,
SPACECRAFT, INSTRUMENTATION, MEASURING
DEVICES(ELECTRICAL + ELECTRONIC), ELECTRONIC
EQUIPMENT, ELECTRICAL EQUIPMENT (U)

THE DESIGN AND TEST PHILOSOPHY FOR
ELECTROMAGNETIC COMPATIBILITY (EMC) IN SPACE
SYSTEMS IS THAT ALL SIGNIFICANT EQUIPMENT USED IN A
FLIGHT MUST OPERATE PROPERLY TO ENSURE ACHIEVEMENT OF
MISSION OBJECTIVES. A PRIMARY FACTOR IS THE
CONTROL OF EMC AND ASSOCIATED ELECTROMAGNETIC
INTERFERENCE (EMI). EMI GENERATION AND
SUSCEPTIBILITY MUST BE KEPT WITHIN LIMITS TO ENSURE
THAT THE COMPOSITE SYSTEM AND ITS COMPONENT SYSTEMS,
AEROSPACE GROUND EQUIPMENT, AND ALL SUBSYSTEMS AND
EQUIPMENT ARE NOT ONLY COMPATIBLE WITHIN THEMSELVES,
BUT HAVE A HIGH PROBABILITY OF OPERATING WITHIN
ACCEPTABLE TOLERANCES WITH OTHER SYSTEMS AND
SUBSYSTEMS. DESIGN AND TEST REQUIREMENTS ARE
INCLUDED, FROM THE COMPOSITE SYSTEM LEVEL DOWN TO THE
INDIVIDUAL EQUIPMENT LEVEL, INCLUDING
ELECTROEXPLOSIVE DEVICES (EED). EXPERIENCE
POINTED UP THE NEED FOR THOROUGH EMC/EMI TESTING
AND PROMPT CORRECTION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-463 063

MARTIN CO BALTIMORE MD

MATHEMATICAL MODEL FOR COUNTDOWN AVAILABILITY STUDY, (U)

APR 64 1V SELLERS, W. ; WALTER, T. ; BISHOP, W. ;

REPT. NO. ER-13225

CONTRACT: AFO4 695 394

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: REPORT ON GEMINI LAUNCH VEHICLE.

DESCRIPTORS: (•SPACE FLIGHT, MATHEMATICAL MODELS),
(•CHECKOUT PROCEDURES, MATHEMATICAL MODELS), STATISTICAL
PROCESSES, LAUNCH VEHICLES (AEROSPACE), PROBABILITY,
PERFORMANCE (ENGINEERING), MANNED SPACECRAFT (U)
IDENTIFIERS: GEMINI (U)

THE MARKOV CHAIN PROCESS WAS USED AS THE MATHEMATICAL VEHICLE TO PREDICT COUNTDOWN PROBABILITIES FOR THE GEMINI LAUNCH VEHICLE. THE NUMERICAL PROBABILITIES WHICH SERVE TO ESTIMATE GLV COUNTDOWN PROGRESS AND PERFORMANCE ARE PRESENTED IN GRAPHICAL FORM. THE GRAPH NOT ONLY SUMMARIZES THE ENTIRE REPORT, BUT PROVIDES ANSWERS TO MANY OTHER QUESTIONS WHICH MAY ARISE WITH REFERENCE TO COUNTDOWN, LAUNCH WINDOW, DAY OF ATTEMPT, ETC. THE COUNTDOWN RELIABILITY WAS ESTIMATED USING AVAILABLE FAILURE RATE DATA. THE FOLLOWING VALUES ARE OBTAINED: (1) PROBABILITY OF COMPLETING COUNTDOWN IN SCHEDULED 300 MINUTES WITHOUT EXPERIENCING A HOLD IS 0.37; (2) PROBABILITY OF COMPLETING COUNTDOWN SUCCESSFULLY ALLOWING AN ADDITIONAL 30 MINUTES IS 0.70; AND (3) PROBABILITY OF SUCCESSFULLY COMPLETING COUNTDOWN WITHIN THE LIMITS OF FIRST DAY LAUNCH WINDOW IS 0.99. INSTRUCTIONS FOR USE OF THE COUNTDOWN PROBABILITIES CHART ARE GIVEN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-462 679

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
MAN IN SPACE.

(U)

DESCRIPTIVE NOTE: SPECIAL BIBLIOGRAPHY,
SEP 59 16P BELTRAN, A. A. ;
REPT. NO. SB-59-42

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SPACE BIOLOGY), (•SPACE
BIOLOGY, SPACE FLIGHT), BIBLIOGRAPHIES, MANNED
SPACECRAFT, PERFORMANCE (HUMAN), SPACE ENVIRONMENTAL
CONDITIONS, CLOSED ECOLOGICAL SYSTEMS, SPACE BIOLOGY,
TOLERANCES (PHYSIOLOGY), ACCELERATION, POSITIONING
REACTIONS, MEASURING DEVICES (ELECTRICAL + ELECTRONICS),
WEIGHTLESSNESS, CONFINED ENVIRONMENTS, HAZARDS, SPACE
CREWS, STRESS (PSYCHOLOGY), SPACE CABINS, DESIGN,
RADIATION EFFECTS, REENTRY VEHICLES, HEAT TRANSFER,
HUMAN ENGINEERING (U)
IDENTIFIERS: MEDICAL ELECTRONICS (U)

BIBLIOGRAPHY ON MAN IN SPACE.

X
Order read

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-459 646

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

DATA ON THE SOVIET SPACE PROGRAM. (U)

DESCRIPTIVE NOTE: ANALYTICAL SURVEY OF SOVIET-BLOC
SCIENTIFIC AND TECHNICAL LITERATURE.

MAR 65 25P

REPT. NO. ATD-P-65-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*SCIENTIFIC
RESEARCH, SPACE FLIGHT), SPACECRAFT CABINS, COMMAND
GUIDANCE, GUIDED MISSILES, ORBITAL TRAJECTORIES, SPACE
BIOLOGY, OPTICAL TRACKING, MANEUVERING SATELLITES, HUMAN
ENGINEERING, CLOSED ECOLOGICAL SYSTEMS, PRESSURE SUITS,
REPORTS, INTERPLANETARY TRAJECTORIES, AEROSPACE CRAFT(U)

CONTENTS: GUIDANCE SYSTEMS; HUMAN FACTOR IN
INTERPLANETARY FLIGHT; PRESSURE SUITS AND SPACESHIP
CABINS; COMING TRENDS IN AEROSPACE VEHICLE DESIGN;
AND EXTRACTS FROM PAPERS ON BIOASTRONAUTICS,
SIMULATED SPACE FLIGHTS, COMMUNICATIONS, AND SPACE
VEHICLES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-459 249

NORTH AMERICAN AVIATION INC DOWNEY CALIF
SPACE TRAJECTORY PROGRAMS,

(U)

DEC 61 5P DES JARDINS, P. R. ;
MONITOR: IDEP 347.95.00.00-F1-09

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: PAGES 101-105 OF REPORT NO. SID-
61-285.

DESCRIPTORS: (•SPACE FLIGHT, TRAJECTORIES),
(•PROGRAMMING (COMPUTERS), SPACE FLIGHT), THRUST, INPUT-
OUTPUT DEVICES, NUMERICAL ANALYSIS, INTEGRATION, ERROR,
MATHEMATICAL PREDICTION, THEORY, FUNCTIONAL ANALYSIS,
SIMULATION, GUIDANCE, INERTIAL GUIDANCE, ORBITAL
TRAJECTORIES (U)

IDENTIFIERS: FORTRAN, IDEP (U)

A SERIES OF PROGRAMS HAS BEEN DEVELOPED FOR THE
COMPUTATION OF SPACE TRAJECTORIES. THE PRIMARY
GOAL HAS BEEN DEVELOPED FOR PROGRAMS WHICH SATISFY
THE FOLLOWING CRITERIA: FLEXIBILITY-PROGRAMS MUST BE
ADAPTABLE TO SIMULATION OF A VARIETY OF POSSIBLE
SPACE MISSIONS; EASE OF USE-PREPARATION OF DATA MUST
BE STRAIGHTFORWARD SO THAT THE PROGRAMS MAY BE USED
WITHOUT DETAILED KNOWLEDGE OF THEIR INNER WORKINGS;
ACCURACY-PROGRAMS MUST BE CAPABLE OF MAKING
SIMULATIONS AT A VARIETY OF ACCURACY LEVELS, RANGING
FROM 'ROUGH-OUT' OF MISSIONS TO PRECISION COMPUTATION
OF SPECIFIC TRAJECTORIES. IN GENERAL, A TRADE-OFF
EXISTS BETWEEN ACCURACY AND COMPUTATIONAL SPEED; AND
COMPUTATIONAL SPEED-PROGRAMS MUST BE AS EFFICIENT AS
POSSIBLE WITHIN THE FRAMEWORK DEFINED BY THE CRITERIA
SPECIFIED ABOVE. IN GENERAL, COMPUTATIONAL SPEED
IS A SECONDARY CONSIDERATION, SINCE DIRECT
COMPUTATION COSTS ARE ONLY A SMALL PART OF THE COST
OF CONDUCTING A TRAJECTORY STUDY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-457 850

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
TABLE OF ARTIFICIAL EARTH SATELLITES (YEARS OF LAUNCH
1957). (U)

JAN 65 69P

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SATELLITES (ARTIFICIAL), LAUNCHING),
(•SPACE FLIGHT, DATA), TABLES (U)

TABLES GIVING DATA ON ARTIFICIAL SATELLITES BY YEAR OF
LAUNCHING.

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-453 339

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
TWO-WAY DOPPLER AND COMMAND LINK FOR SPACE FLIGHT,

(U)

OCT 58 18P GRAVES, R. E. ; SAMULON, H. A.

REPT. NO. GM TMD165 00312

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•DOPPLER SYSTEMS, SPACE FLIGHT), (•SPACE
FLIGHT, DOPPLER SYSTEMS), DATA TRANSMISSION SYSTEMS,
LUNAR PROBES, SECONDSTAGE MOTORS, THIRD-STAGE MOTORS,
FOURTHSTAGE MOTORS, RETRO ROCKETS, SATELLITE ANTENNAS,
BANDWIDTH, RADIO TRANSMITTERS, RADIO RECEIVERS (U)

AN ACCURATE DETERMINATION OF VEHICLE VELOCITY IS AN
IMPORTANT REQUIREMENT FOR SPACE FLIGHT AND CAN BE
ACHIEVED BY A TWO-WAY DOPPLER LINK. SUCH A LINK
MAY ALSO BE USED FOR THE TRANSMISSION OF A VARIETY OF
COMMANDS FOR THE EXECUTION OF CERTAIN FUNCTIONS
DURING AND AFTER THE POWERED FLIGHT PHASE. THE
RELATIONSHIPS BETWEEN WEIGHT RESTRICTIONS ON THE
PAYLOAD, VEHICLE MOTION, AND FLIGHT GEOMETRY ON ONE
SIDE AND THE CHOICE OF SYSTEM PARAMETERS FOR A
COMMAND AND DOPPLER LINK UNDER DEVELOPMENT ARE
THE SUBJECT OF THIS PAPER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-451 496

TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES
(NO TITLE).

(U)

DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT. FOR 1964.

OCT 64 105P

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•RESEARCH PROGRAM ADMINISTRATION, SPACE
FLIGHT), (•SCIENTIFIC RESEARCH, SPACE FLIGHT),
(•REPORTS, SPACE FLIGHT), (•SPACE FLIGHT, SCIENTIFIC
RESEARCH), PLASMA PHYSICS, AERODYNAMIC CHARACTERISTICS,
SUBSONIC CHARACTERISTICS, COANDA EFFECT,
MAGNETOHYDRODYNAMICS, MOLECULAR BEAMS, HYPERSONIC
CHARACTERISTICS, HYPERSONIC FLIGHT, ELECTRIC POWER
PRODUCTION, MATERIALS, UNDERGROUND STRUCTURES, NOISE,
VENTILATION, UPPER ATMOSPHERE, BOUNDARY LAYER,
AERODYNAMIC CONFIGURATIONS, CYLINDRICAL BODIES, SHOCK
WAVES, BLAST, SPACE PROBES, BUCKLING (MECHANICS),
FATIGUE (MECHANICS), CANADA

(U)

IDENTIFIERS: 1964

(U)

CONTENTS: SUPPORTING AGENCIES AND PROJECTS
SPONSORED, PROGRESS REPORT ON RESEARCH PROJECTS --
MECHANICS OF RAREFIED GASES, PLASMA DYNAMICS,
HYPERSONIC GAS DYNAMICS AND BLAST WAVE PHENOMENA,
AERODYNAMIC NOISE, SUBSONIC AERODYNAMICS,
AEROSPACE FLIGHT DYNAMICS, MATERIALS SCIENCE AND
STRUCTURES, UPPER ATMOSPHERIC RESEARCH, MOLECULAR
BEAMS AND SURFACE INTERACTIONS, MAGNETOGASDYNAMIC
POWER GENERATION, INDUSTRIAL AND ARCHITECTURAL
AERODYNAMICS; AND PUBLICATIONS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-450 731

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX
A ZERO GRAVITY PELLET DISPENSER FOR USE WITH PRIMATES
IN LONG TERM SPACE FLIGHTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 APR-1 SEP 64,

OCT 64 9P GILBERT,GREGG A. ;

REPT. NO. TR64 15

PROJ: 6893

TASK: 689301

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•FOOD, SPACE FLIGHT), (•SPACE FLIGHT,
FOOD), DISTRIBUTION, CHIMPANZEES, GRAVITY, PRIMATES,
DESIGN, STORAGE, SPECIFICATION, OPERATION,
WEIGHTLESSNESS (U)

IDENTIFIERS: PELLET DISPENSER, FEEDER (U)

THIS REPORT DESCRIBES A DEVICE THAT CAN BE USED TO
DISPENSE FOOD PELLETS TO PRIMATES IN A ZERO-GRAVITY
ENVIRONMENT. THE DEVICE IS CONTROLLED
ELECTRONICALLY BUT THE FOOD IS DELIVERED MECHANICALLY
WHEN A LEVER IS ACTUATED. THE FEEDER HAS A CAPACITY
FOR ENOUGH FOOD TO SUSTAIN A 50-POUND CHIMPANZEE FOR
AS LONG AS 30 DAYS. (AUTHOR) (U)

UNCLASSIFIED

015423

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-449 525

BOEING CO SEATTLE WASH

EFFECTS OF MISCELLANEOUS WASTES ON MESOPHILIC
ACTIVATED SLUDGE - SOAPS, DETERGENTS, AND VOMITUS, (U)

AUG 64 9P OKEY, R. W. ; COHEN, R. L. ;

CHAPMAN, D. D. ;

CONTRACT: AF41 657 387

TASK: 793001

MONITOR: SAM B TDR64 41

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (.WASTES (SANITARY ENGINEERING), SPACE
FLIGHT), (.SPACE FLIGHT, WASTES (SANITARY ENGINEERING)),
SOAPS, METABOLISM, EXCRETION, HUMANS, PERFORMANCE
(ENGINEERING), EFFECTIVENESS, PH, CLEANING COMPOUNDS,
CHEMICAL PROPERTIES (U)

IDENTIFIERS: VOMITUS, DETERGENTS, TREATMENT (U)

EFFECTS OF SOAP, SYNTHETIC DETERGENTS, AND VOMITUS
ON THE PERFORMANCE OF HIGH SOLIDS MESOPHILIC
ACTIVATED SLUDGE BIOLOGIC-TYPE WASTE REACTORS
DESIGNED FOR EXTENDED MANNED SPACE FLIGHT ARE
REPORTED. SYSTEM PERFORMANCE WERE DETERMINED BY
OXYGEN UPTAKE MEASURED BY MICRORESPIROMETER AND
DEGREE OF SIDE EFFECTS. CASTILE SOAP AND THE
DETERGENT SODIUM DODECYL SULFATE WERE METABOLIZED
RAPIDLY, AND NO DELETERIOUS SIDE EFFECTS WERE
EXHIBITED. EIGHT OTHER CLEANSING AGENTS HAD SERIOUS
DISADVANTAGES DUE TO SLOW BIODEGRADABILITY OR EXTREME
FOAMING, OR BOTH. THE RELATIONSHIP BETWEEN
BIODEGRADABILITY AND CHEMICAL STRUCTURE OF THE
NONIONIC AND ANIONIC SYNTHETIC DETERGENTS IS
DISCUSSED. HUMAN STOMACH CONTENT OF NONPATHOLOGIC
ORIGIN WAS FOUND TO BE RAPIDLY METABOLIZED, AND PH
DEPRESSION AS WOULD RESULT FROM THE DISCHARGE OF
VOMITUS THROUGH A WASTE TREATMENT SYSTEM HAD ONLY
SLIGHT OBSERVABLE METABOLIC EFFECT THROUGH PH 4.
THE DISPOSAL OF SLECTED CLEANSING AGENTS, VOMITUS,
AND PH DEPRESSANT SUBSTANCES POSED NO APPARENT
PROBLEMS. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-448 475

OFFICE OF AEROSPACE RESEARCH ARLINGTON VA
PROCEEDINGS OF THE AIR FORCE SCIENCE AND ENGINEERING
SYMPOSIUM, 8-10 OCTOBER 1963, USAF ACADEMY, COLORADO,
VOLUME I, (U)

44 IV SEIDEN, JACOB ; HAMLET, JOHN

O. ;

REPT. NO. 64 2 VOL. 1

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SYMPOSIA), (•SYMPOSIA,
SPACE FLIGHT), ENERGY CONVERSION, DRAG, MATERIALS,
ELECTROENCEPHALOGRAPHY, ASTRONAUTICS, INSTRUMENTATION,
ATMOSPHERE, DENSITY, SOLAR FLARES, PLASMA SHEATH,
WEIGHT, LASERS, REENTRY VEHICLES, LAMINAR FLOW,
AERODYNAMIC CHARACTERISTICS, TUNNEL DIODES, ORBITAL
TRAJECTORIES, SPHERES, HIGH ALTITUDE, LIFT, PHASED
ARRAYS, SPACE CAPSULES, TELEMETER SYSTEMS, ANALYSIS,
NONLINEAR SYSTEMS, OSCILLATION, AIR FORCE, ENGINEERING,
PLASMA SHEATH, CONTROL, LIFT, TRANSFER TRAJECTORIES (U)
IDENTIFIERS: LAMINAR FLOW CONTROL (U)

CONTENTS: MATERIALS FOR THE SPACE AGE; THE
BIOCOURIER; ANALYSES OF BIOLOGICAL
SUBSTANCES BY TELEMETRY TO SUPPORT
TERRESTRIAL SPACE AND INTERPLANETARY
MISSIONS; NONLINEAR OSCILLATIONS AND
ELECTROENCEPHALOGRAPHY; NEW SYSTEMS SOLVE
PROBLEMS IN RANGE INSTRUMENTATION; UPPER-
ATMOSPHERE DENSITY OBTAINED FROM MEASUREMENTS
OF DRAG ON FALLING SPHERE; NONLINEAR
INTERACTION OF A HIGH-INTENSITY MICROWAVE
FIELD WITH A LOW-DENSITY PLASMA; NONLINEAR
TRANSMISSION CHARACTERISTICS OF THE PLASMA
SHEATH; A SURVEY OF ADVANCES IN SOLAR-
FLARE RESEARCH; PRELIMINARY WEIGHT
ESTIMATES FOR ADVANCED DYNAMIC
ENERGYCONVERSION SYSTEMS; ATOMISTIC
EXPRESSION OF HARDNESS; PHASE RELATIONS IN
THE SYSTEM SiO₂; RING-LASER TECHNIQUES
FOR ANGULAR-ROTATION SENSING; IMPROVEMENTS TO
THE ALLEN AND EGGERS SOLUTION FOR BALLISTIC
RE-ENTRY; SUMMARY OF LAMINAR-FLOW CONTROL
TECHNIQUES FOR AIRCRAFT; THE APPLICATION OF
TUNNEL DIODES TO A REFLECTING ANTENNA
ARRAY; PPLICATION OF AERODYNAMIC LIFT IN
ACCOMPLISHING ORBITAL-PLANE CHANGE. (U)

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D15423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-446 279

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

CONCEPTUAL DESIGN STUDY FOR INTEGRATED ORBITAL
OPERATIONS SIMULATION FACILITY. (U)

DESCRIPTIVE NOTE: FINAL REPT.

FEB 64 166P

REPT. NO. DN64SD472

CONTRACT: AFO4 611 9093

TASK: 595003

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*FLIGHT SIMULATORS, MANNED SPACECRAFT),
(*SPACE FLIGHT, SIMULATION), MANEUVERABILITY, TEST
FACILITIES, RENDEZVOUS TRAJECTORIES, SPACECRAFT DOCKING,
GROUND EFFECT MACHINES, JETS, TRANSFER TRAJECTORIES,
BUILDINGS, HYDRAULIC SYSTEMS, DESIGN, COSTS, MOTION,
SPACE STATIONS, RENDEZVOUS SPACECRAFT, INTERCEPT
TRAJECTORIES, PARKING ORBIT TRAJECTORIES, CONTROL JETS,
ATMOSPHERE ENTRY, ASCENT TRAJECTORIES (U)
IDENTIFIERS: 1964 (U)

THIS IS A SUMMARY OF THE CONCEPTUAL DESIGN STUDY OF
A FACILITY FOR THE FIXED AND MOVING BASE SIMULATION
OF ORBITAL OPERATIONS SUCH AS RENDEZVOUS, DOCKING,
COUPLING, STATIONKEEPING, ORBITAL ASSEMBLY,
INSPECTION, AND DEORBITING. EMPHASIS DURING THE
STUDY WAS ON THE MOVING BASE SIMULATOR DESIGN WHICH
RESULTED IN A GROUND EFFECT MACHINE BASE, PROPELLED
BY REACTION JETS, WITH A HYDRAULIC SYSTEM FOR
VERTICAL TRANSLATION. THE SIMULATED SPACECRAFT USES
REACTION JET CONTROLS. SECONDARY EMPHASIS WAS ON
THE SIMULATOR BUILDING. A SUSPENSION-
CABLESUPPORTED ROOF WAS FOUND TO BE LOWEST IN COST
FOR LARGE MANEUVER AREAS (UP TO 1000 FEET BY 2000
FEET) WITH NO INTERNAL SUPPORTING COLUMNS.

(AUTHOR)

(U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-445 453

MARTIN CO BALTIMORE MD
ORBITAL FLIGHT MANUAL.

(U)

JUL 61 IV

REPT. NO. ER 11648

CONTRACT: AF33 616 6040

TASK: 50824

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•HANDBOOKS, SPACE FLIGHT), (•SPACE FLIGHT, HANDBOOKS), (•SATELLITES (ARTIFICIAL), CELESTIAL MECHANICS), ORBITAL TRAJECTORIES, ASTRONAUTICS, ASTROPHYSICS, GEOPHYSICS, MOTION, EQUATIONS, PERTURBATION THEORY, LIFE EXPECTANCY, ASCENT TRAJECTORIES, TRANSFER TRAJECTORIES, RENDEZVOUS TRAJECTORIES, RENDEZVOUS SPACECRAFT, MATHEMATICAL ANALYSIS, REENTRY VEHICLES, DESCENT TRAJECTORIES, RECOVERY, ATMOSPHERE ENTRY, FLIGHT PATHS, PHOTOGRAPHIC RECONNAISSANCE, REVIEWS, BIBLIOGRAPHIES, INSTRUCTION MANUALS (U)

IN RECENT YEARS MUCH INFORMATION PERTAINING TO THE GENERAL PROBLEM OF SATELLITE MECHANICS HAS BEEN GENERATED. THIS MANUAL PRESENTS MUCH OF THIS INFORMATION IN A COMPOSITE, READILY USABLE FORM. THE LITERATURE AVAILABLE ON THE SUBJECT HAS BEEN REVIEWED AND INDEPENDENT SOLUTIONS HAVE BEEN OBTAINED. IN ORDER TO PRESENT THE MATERIAL IN THE ORDERLY MANNER NECESSARY FOR MAXIMUM USEFULNESS OF THE MANUAL, THE CONTENTS HAVE BEEN DIVIDED INTO THREE MAJOR SECTIONS: GENERAL DATA, MISSION SEQUENCE PROBLEMS AND REQUIREMENTS. THESE AREAS HAVE IN TURN BEEN BROKEN DOWN INTO CHAPTERS AS SHOWN IN THE FOLLOWING SUMMARY OUTLINE. GENERAL DATA: ORBIT MECHANICS, PHYSICAL DATA AND CONSTANTS, PERTURBATIONS, AND SATELLITE LIFETIMES; MISSION SEQUENCE PROBLEMS: ASCENT TO ORBIT, ORBITAL MANEUVERS, SATELLITE RENDEZVOUS, SATELLITE RECOVERY, AND SATELLITE RE-ENTRY; REQUIREMENTS: COMPUTATION OF EARTH SATELLITE ORBITS, GUIDANCE AND CONTROL REQUIREMENTS, AND MISSION REQUIREMENTS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-441 102

AEROSPACE CORP EL SEGUNDO CALIF
TITAN III INTEGRATED ELECTRONIC AEROSPACE GROUND
EQUIPMENT, (U)

39P CHEVLIN, LEONARD ;

REPT. NO. TDR269 4116 52 1

CONTRACT: AFD4 695 269

MONITOR: SSD TDR64 35

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, GROUND SUPPORT EQUIPMENT),
(•GUIDED MISSILES LAUNCHERS, SURFACE TO SURFACE),
(•GROUND SUPPORT EQUIPMENT, CONTROL SYSTEMS), CHECKOUT
EQUIPMENT, ELECTRONIC EQUIPMENT, OPERATION, DESIGN,
LAUNCHING, GUIDED MISSILE, COSTS, EFFECTIVENESS,
LOGISTICS, INDUSTRIAL PRODUCTION, STORAGE, (U)
TRANSPORTATION, DECISION MAKING (U)
IDENTIFIERS: TITAN 3, AGE (AEROSPACE GROUND
EQUIPMENT) (U)

THE DESIGN PHILOSOPHY THAT GUIDED THE DEVELOPMENT
OF AN INTEGRATED CHECKOUT AND LAUNCH CONTROL SYSTEM
FOR THE TITAN III STANDARD SPACE LAUNCH
VEHICLE (SSLV), IS PRESENTED ALONG WITH THE
REQUIREMENTS AND INTENDED USE OF THE OPERATIONAL
SPACE SYSTEM SUPPORT EQUIPMENT. VARIOUS CONCEPTS
ARE PRESENTED TO ALERT SUPPORT EQUIPMENT DESIGNERS TO
THE VARIOUS FACTORS THAT REQUIRE CONSIDERATION IN
ORDER TO ACHIEVE THE OPTIMUM DESIGN SOLUTION. THE
TITAN III OPERATIONAL GROUND BASED SYSTEM
INCLUDES ALL SUPPORT EQUIPMENT REQUIRED WITHIN THE
OPERATIONAL LOGISTIC FLOW FROM FACTORY THROUGH
LAUNCH. THE SPECIFIC AREAS INVOLVED IN THE
LOGISTIC FLOW INCLUDE FACTORY OPERATIONS, STORAGE
AND TRANSPORTATION, DEPOT SUPPORT CENTER, AND LAUNCH
COMPLEXES. THE PRIMARY PROBLEMS INVOLVED IN
INTEGRATING SSLV CHECKOUT AND LAUNCH CONTROL
EQUIPMENT, AND SOLUTIONS TO THESE PROBLEMS, ARE
DISCUSSED. COST CRITERIA, RISK FACTORS, CHECKOUT
CRITERIA, AND THE PURPOSE AND FUNCTION OF THE MAJOR
AEROSPACE GROUND EQUIPMENT (AGE) ITEMS ARE
PRESENTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-439 330

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIC RESEARCH (KOSMICHESKIYE ISSLEDOVANIYA).

(U)

APR 64 292P

MONITOR: FTD TT64 499

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•ASTROPHYSICS, SCIENTIFIC RESEARCH), USSR,
SATELLITES(ARTIFICIAL), STABILITY, MAGNETIC
FIELDS, CHARGED PARTICLES, RADIATION EFFECTS,
SHOCK WAVES, GASES, INFRARED RADIATION, CLOUDS,
ATMOSPHERE, MEASUREMENTS, RADIOLOGICAL DOSAGE

(U)

IDENTIFIERS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•ASTROPHYSICS, SCIENTIFIC RESEARCH), USSR,
SATELLITES(ARTIFICIAL), STABILITY, MAGNETIC
FIELDS, CHARGED PARTICLES, RADIATION EFFECTS,
SHOCK WAVES, GASES, INFRARED RADIATION,
CLOUDS, ATMOSPHERE, MEASUREMENT, RADIOLOGICAL
DOSAGE

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-438 231

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA
SOME SELECT PHYSIOLOGICAL, ANTHROPOMETRIC, AND HUMAN
ENGINEERING DATA USEFUL IN VEHICLE DESIGN AND
LOGISTIC PROBLEMS OF SPACE FLIGHT OPERATIONS, (U)

FEB 60 34P CARTER, J. W. ;

REPT. NO. ABMA-DSP-TM-2-60

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, OPERATIONS), (•SPACE CRAFT,
LOGISTICS), (•LOGISTICS, SPACE FLIGHT), AVIATION
PERSONNEL, PHYSIOLOGY, ANTHROPOMETRY, HUMAN
ENGINEERING, WORK FUNCTIONS, TOLERANCE, WEIGHTLESSNESS,
RADIATION EFFECTS, ACCELERATION TOLERANCE, LIFE SUPPORT,
METABOLISM, CARBON DIOXIDE, NOISE, VIBRATION, MILITARY
REQUIREMENTS, TABLES, WATER, FOOD (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-434 971

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
BEFORE THE SIGNAL LIFT OFF SOUNDS, (U)

JAN 64 10P PIPKO, DANIL ;

MONITOR: FTD MT63 224

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM OGONEK, NO. 42,
COLS. 1-4, P. 31, 14 OCT 63.

DESCRIPTORS: (•SPACE FLIGHT, ROCKET PROPULSION),
SPACECRAFT, ASTRONAUTS, ORBITAL TRAJECTORIES, TURBOJET
ENGINES, FUEL CONSUMPTION, RAMJET ENGINES, SATELLITES
(ARTIFICIAL), PLASMA PHYSICS, ELECTRIC PROPULSION,
PLASMA ENGINES, DESCENT TRAJECTORIES, DECELERATION (U)
IDENTIFIERS: 1964, USSR (U)

UNCLASSIFIED

015423

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-434 086

DYNAMIC SCIENCE CORP SOUTH PASADENA CALIF
HUMAN BLOOD IN THE SPACE ENVIRONMENT - IN VITRO
STUDIES IN EARTH ORBIT. (U)

DESCRIPTIVE NOTE: FINAL REPT., 15 FEB 62-31 DEC 63,

JAN 64 73P MILLER, CURTIS E. ;

LOUDERBACK, ALLAN L. ; OPFELL, JOHN S. ;

CONTRACT: AFD4 695 93

PROJ: 6770

TASK: 677002

MONITOR: SSD TOR64 1

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•CARDIOVASCULAR SYSTEMS; SPACE FLIGHT),
(•SPACE FLIGHT, CARDIOVASCULAR SYSTEMS), SPACE
ENVIRONMENTAL CONDITIONS, SATELLITES (ARTIFICIAL),
SIMULATION, MEMBRANES (BIOLOGY), BLOOD CELLS,
ERYTHROCYTES, METABOLISM, IMMUNOLOGY, ANTIGENS +
ANTIBODIES, PROTEINS (U)

IDENTIFIERS: 1963 (U)

THE EFFECT OF SPACE ENVIRONMENT ON HUMAN BLOOD WAS
INVESTIGATED IN VITRO USING BLOOD IN ACIDCITRATE-
DEXTROSE SOLUTION. A WIDE VARIETY OF BLOOD
PROPERTIES WAS STUDIED TO DETERMINE THE EFFECT OF
SPACE ENVIRONMENT ON BIOCHEMICAL AND BIOPHYSICAL
PROCESSES. DIFFUSION THROUGH THE RED CELL
MEMBRANE, GLUCOSE METABOLISM, ANTIGEN AND
IMMUNOLOGICAL PROPERTIES AND PLASMA PROTEIN
COMPOSITION WERE AMONG THE BLOOD PROPERTIES STUDIED.
THREE FLIGHTS WERE OBTAINED. THE FIRST WAS OF
ONE DAY'S DURATION WITH A RELATIVELY HIGH RADIATION
EXPOSURE. THE SECOND WAS OF THREE DAYS' DURATION
WITH LOW RADIATION EXPOSURE AND THE THIRD WAS OF FIVE
DAYS' DURATION WITH VERY LOW RADIATION EXPOSURE.
THE RESULTS OF ALL THREE FLIGHTS SHOWED THAT THERE
WAS NO SIGNIFICANT EFFECT OF THE SPACE ENVIRONMENT ON
MOST OF THE BLOOD PROPERTIES STUDIED. THESE
INCLUDED GLUCOSE METABOLISM (INCLUDING TWO
ENZYMES), ANTIGENIC AND IMMUNOLOGICAL PROPERTIES,
AND THE PHYSICAL PROPERTIES OF THE RED BLOOD CELLS
(RED BLOOD CELL INDICES). (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-430 655

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOWAN AFB N MEX
CHIMPANZEE PERFORMANCE DURING EIGHT DAYS OF SIMULATED
ORBITAL FLIGHT, (U)

FEB 64 19P REYNOLDS, HERBERT H. ;
GILBERT, GREGG A. ; BOGO, VICTOR ; BARNHART, GARY
T. ;

PROJ: 6893

TASK: 689301 AND ,689302

MONITOR: ARL TDR64 2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SIMULATION), (•PERFORMANCE
TESTS, SPACE FLIGHT), PRIMATES, SPACE MEDICINE, ANALYSIS
OF VARIANCE, LIFE SUPPORT, JOB ANALYSIS, MONITORS,
VISION, HEARING, SENSORY MECHANISMS, TOUCH,
STIMULATION, REACTION (PSYCHOLOGY), PSYCHOMOTOR TESTS (U)
IDENTIFIERS: CHIMPANZEE, PSYCHOPHYSIOLOGY, TACTILE
COMMUNICATION, 1964 (U)

THIS REPORT DESCRIBES THE PERFORMANCE OF A
CHIMPANZEE IN 4 5 PSI, 91 TO 95% OXYGEN LIVE CELL
ENVIRONMENT OVER AN 8-DAY PERIOD. ALTHOUGH
REACTION TIMES ON THREE DIFFERENT TASKS WERE NOT OF
THE QUALITY OF PRE-EXPERIMENTAL DATA, THEY WERE WELL
BELOW THE ALLOWABLE TIME INTERVAL FOR RESPONDING.
ANOTHER TASK, INVOLVING CONTINUOUS MOTOR
FUNCTIONING, WAS ESSENTIALLY UNAFFECTED. THE FIFTH
TASK PROVIDED FOOD OR WATER REINFORCEMENT FOR A GIVEN
AMOUNT OF WORK, BUT PREVIOUS HUNGER AND THIRST
MOTIVATIONAL LEVELS WERE ALTERED BY APPROXIMATELY
50% OVER THE 8 DAYS OF TESTING. HOWEVER, THE
SUBJECT LOST LESS THAN 1 POUND OF WEIGHT DURING THE
TEST AND HIS POSTEXPERIMENTAL CONDITION WAS GOOD.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-426 816

RCA SERVICE CO CAMDEN N J

TECHNIQUES OF PHYSIOLOGICAL MONITORING. VOLUME II.
COMPONENTS,

(U)

NOV 63 IV ALNUTT, RICHARD ; WEINBERG,

PHILIP T. ; BARBIERE, ED. BY ROBERT E. ;

CONTRACT: AF33 657 9252

PROJ: 7222

TASK: 722203

MONITOR: AMRL

TDR62 98, VOL. 2,

UNCLASSIFIED REPORT

DESCRIPTORS: (•MONITORS, PHYSIOLOGY), (•SPACE
FLIGHT, MONITORS), DATA PROCESSING SYSTEM,
THEORY, ELECTRONIC EQUIPMENT, TRANSDUCERS,
ELECTRODES, AMPLIFIERS, RECORDING SYSTEMS,
OSCILLOSCOPES, AMPLIFIERS, MULTIPLEX, MODULA
TION, DIGITAL COMPUTERS, ANALOG COMPUTERS,
DISPLAY SYSTEMS, MAGNETIC TAPE, ANALYSIS, DATA,
MAGNETIC CORES, PUNCHED CARDS, FREQUENCY MOD
ULATION, FREQUENCY CONVERTERS, TELEMETERING
TRANSMITTERS, PULSE GENERATORS, DIFFERENTIATING
CIRCUITS, GALVANIC SKIN RESPONSE, INTEGRATED
CIRCUITS, TRIGGER CIRCUITS, CATHODE RAY TUBE
SCREENS.

(U)

IDENTIFIERS: MULTIPLEXING, SIGNAL MODIFIERS,
1967.

(U)

THIS VOLUME SURVEYS THE COMPONENTS USED IN
PHYSIOLOGICAL MONITORING SYSTEMS, PRIMARILY THOSE
SUITABLE FOR AEROSPACE APPLICATIONS. DISCUSSION
INCLUDES PERFORMANCE CHARACTERISTICS AND
CAPABILITIES, PLUS SOME BACKGROUND THEORY, ON BASIC
COMPONENTS SUCH AS ELECTRODES AND TRANSDUCERS,
SIGNAL MODIFIERS, AND GRAPHIC RECORDING AND DISPLAY
DEVICES; THE USE OF MAGNETIC TAPE RECORDERS IN
INSTRUMENTATION IS DESCRIBED. WIRE AND RADIO
TRANSMISSION EQUIPMENT IS DISCUSSED, PLUS VARIOUS
SCHEMES OF MODULATION AND MULTIPLEXING. THE
CAPABILITIES OF DIGITAL AND ANALOG COMPUTERS AND
OTHER DATA PROCESSING EQUIPMENT ARE DESCRIBED, AND
THE ANALYSIS OF PHYSIOLOGICAL DATA WITH SUCH
EQUIPMENT IS BRIEFLY DISCUSSED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-426 661

LOCKHEED AIRCRAFT CORP MARIETTA GA
HUMAN GROUP PERFORMANCE DURING CONFINEMENT, (U)

NOV 63 72P ALLUISI, EARL A.; CHILES,

W. DEAN; HALL, THOMAS J.; HAWKES, GLENN R.;

CONTRACT: AF33 616 7607

PROJ: 1710

TASK: 171002

MONITOR: AMRL

TDR63 87

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON TRAINING PERSONNEL AND
PSYCHOLOGICAL STRESS ASPECTS OF BIOASTRONAUTICS.

DESCRIPTORS: (GROUP DYNAMICS, CONFINEMENT),
(SPACE FLIGHT, PERSONNEL), PERFORMANCE TESTS,
MILITARY PERSONNEL, MOTIVATION, EFFECTIVENESS. (U)
IDENTIFIERS: 1963, CREW. (U)

SIX AIR FORCE ACADEMY CADETS WERE CONFINED FOR 15 DAYS IN A SIMULATED ADVANCED-SYSTEM CREW COMPARTMENT WHILE FOLLOWING A SCHEDULE OF 4-HOURS ON DUTY AND 2-HOURS OFF, AND TWO 5-MAN CREWS OF USAF PILOTS WERE CONFINED FOR 30 DAYS WHILE AT TERNATING SHIFTS ON A SCHEDULE OF 4-HOURS ON DUTY AND 4-HOURS OFF. WHILE ON DUTY THE OPERATORS WERE TESTED WITH A BATTERY OF 6 PERFORMANCE TASKS, 2 OF WHICH REQUIRED INTERACTIONS AMONG CREWMEMBERS IN THE FORM OF EXCHANGES OF INFORMATION, COOPERATION, AND TEMPORAL COORDINATION. IN ADDITION, THE DATA OF THE PRESENT STUDIES WERE COMPARED WITH THOSE OF TWO PREVIOUS 15-DAY TESTS OF TWO CREWS WHO WORKED THE 4-2 SCHEDULE WHILE BEING TESTED WITH A BATTERY OF 5 INDIVIDUAL PERFORMANCE TASKS. THE DATA SUGGEST THAT WITH PROPER CONTROL OF SELECTION AND MOTIVATIONAL FACTORS, CREWS CAN WORK EFFECTIVELY FOR PERIODS OF AT LEAST 2 WEEKS AND PROBABLY LONGER USING A SCHEDULE OF 4-HOURS ON DUTY AND 2-HOURS OFF. CREWS CAN WORK EVEN MORE EFFECTIVELY FOR PERIODS OF AT LEAST A MONTH AND QUITE PROBABLY FOR 2 OR 3 MONTHS USING A SCHEDULE OF 4-HOURS ON DUTY AND 4-HOURS OFF, AND WITH THIS SCHEDULE LESS DEMANDING CONTROLS OF SELECTION AND MOTIVATIONAL FACTORS ARE REQUIRED. (AUTHOR) (U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-423 948

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
EFFECTS ON MAN OF PROLONGED EXPOSURE TO OXYGEN AT A
TOTAL PRESSURE OF 190 MM. HG, (U)

SEP 63 6P MORGAN, THOMAS E. , JR. ;

CUTLER, RALPH G. ; WELCH, B. E. ;

TASK: 793002

MONITOR: SAM B

TDR63 52

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•OXYGEN, PRESSURE), (•TOLERANCES,
(PHYSIOLOGY), OXYGEN), (•SPACE FLIGHT, ATMOSPHERE),
RESPIRATORY SYSTEM, PILOTS, DECOMPRESSION, SPACE
CAPSULES, SIMULATION, TOXICITY (U)

IDENTIFIERS: 1963 (U)

FOUR 17-DAY EXPERIMENTS WERE CONDUCTED ON HEALTHY
PILOTS IN THE TWO-MAN SPACE CABIN SIMULATOR. TOTAL
PRESSURE AVERAGED 192 MM. HG; PARTIAL PRESSURE OF
OXYGEN, 174 MM. HG. THIS ATMOSPHERE WAS
REASONABLY WELL TOLERATED BY ALL TEST SUBJECTS.
THE SYMPTOMS CONSISTED OF IRRITATION OF THE UPPER
RESPIRATORY TRACT, AURAL ATELECTASIS, AND EYE
IRRITATION. POSTEXPERIMENTALLY, 2 OF THE 8
SUBJECTS DEMONSTRATED REDUCED ARTERIAL OXYGEN
SATURATION IMMEDIATELY. PICTURES, HOWEVER, GAVE NO
X-RAY EVIDENCE OF PULMONARY ATELECTASIS. THE
INCIDENCE OF BAROPATHIES FOLLOWING DECOMPRESSION FROM
750 MM. HG TO 190 MM. HG EXCEEDED 50% (5 OF 8
SUBJECTS), EVEN FOLLOWING 2 TO 3 HOURS OF
PREOXYGENATION. THE UTILIZATION OF AN ATMOSPHERE
CONSISTING OF OXYGEN, CARBON DIOXIDE, AND WATER VAPOR
AT TOTAL PRESSURE OF 190 MM. HG APPEARS TO BE
PHYSIOLOGICALLY FEASIBLE, AT LEAST FOR 17 DAYS.
CARE MUST BE TAKEN TO OVERCOME THE PROBLEM OF BENDS
DURING THE INITIAL DECOMPRESSION AND TO INSURE THAT
ENGINEERING GAINS ARE SUFFICIENTLY GREAT TO OFFSET
THE SYMPTOMS NOTED IN THESE STUDIES. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-423 442

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

PSYCHOLOGICAL ASPECTS OF EXTENDED MANNED SPACE
FLIGHT, (U)

SEP 63 28P CHRISTENSEN, JULIEN M. ;

PROJ: AF7184

MONITOR: AMRL

TDR63 81

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON HUMAN PERFORMANCE IN
ADVANCED SYSTEMS.

DESCRIPTORS: (•SPACE FLIGHT, PSYCHOLOGY), (•BEHAVIOR,
SPACE FLIGHT), (•PSYCHOLOGY, SPACE FLIGHT),
(•ASTRONAUTS, BEHAVIOR), STRESS (PSYCHOLOGY), CONFINED
ENVIRONMENTS, SENSORY DEPRIVATION, PERCEPTION, MARS (U)
IDENTIFIERS: 1963 (U)

AS IS THE CASE WITH VIRTUALLY ALL THE OTHER
SCIENTIFIC DISCIPLINES, THE ADEQUACY OF AVAILABLE
PSYCHOLOGICAL KNOWLEDGE AND PRINCIPLES WILL RECEIVE
A SEVERE TEST FROM THE DEMAND ATTENDANT TO THE
DEVELOPMENT OF A SUCCESSFUL MISSION TO MARS. A
SAMPLING OF SOME OF THE REVELANT INFORMATION
AVAILABLE IN PSYCHOLOGY IS OFFERED AND AREAS THAT
WILL REQUIRE FURTHER ATTENTION BEFORE PREDICTIONS IN
THE BEHAVIORAL AREA FOR THE MARS TRIP CAN BE MADE
WITH CONFIDENCE ARE IDENTIFIED. A TWOFOLD THESIS IS
DEVELOPED. FIRST, PSYCHOLOGY HAS LEGITIMATE AND
IMPORTANT CONTRIBUTIONS TO MAKE TO THE MARS TRIP.
SECOND, THE ADVANTAGES, HOWEVER, ARE MUTUAL; I.E.,
IT IS CONFIDENTLY PREDICTED THAT PARTICIPATION IN
THIS VENTURE WILL FORCE PSYCHOLOGISTS TO REEXAMINE
THEIR TRADITIONAL PRINCIPLES AND THEORETICAL
POSITIONS AND WILL STIMULATE AN ATTACK ON THE BASIC
ISSUES OF HUMAN BEHAVIOR WITH REFRESHING INSIGHTS
GAINED FROM NEW POINTS OF VANTAGE. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-423 088

BECHTEL CORP SAN FRANCISCO CALIF
PRELIMINARY SPECIFICATIONS OF CONTROL,
INSTRUMENTATION, AND DATA HANDLING SYSTEM FOR
AEROSPACE SYSTEMS ENVIRONMENTAL CHAMBER, MARK II. (U)

NOV 63 1V

CONTRACT: AF40 600 990

PROJ: 7778

TASK: 777801

MONITOR: AEDC

TDR63 237

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NOTICE: ALL RELEASE OF THIS DOCUMENT IS CONTROLLED.
ALL CERTIFIED REQUESTERS SHALL OBTAIN RELEASE APPROVAL
FROM ARNOLD ENGINEERING DEVELOPMENT CENTER, ARNOLD
AIR FORCE STATION, TENN.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•AIR CONTROL CENTERS, SPECIFICATIONS),
(•SPACE FLIGHT, GROUND SUPPORT EQUIPMENT),
INSTRUMENTATION, DATA PROCESSING SYSTEM, HUMAN
ENGINEERING, DISPLAY SYSTEMS, RELIABILITY, SAFETY
DEVICES, PERSONNEL MANAGEMENT, THERMAL RADIATION,
MEDICAL RESEARCH, ELECTROENCEPHALOGRAPHY, COMMUNICATION
SYSTEMS (U)

IDENTIFIERS: ELECTROMYOGRAPHY, 1963, CONTROL CENTER
(AEROSPACE) (U)

THE CONTROL, INSTRUMENTATION, AND DATA HANDLING
SYSTEM REQUIREMENTS FOR THE AEROSPACE SYSTEMS
ENVIRONMENTAL CHAMBER, MARK II, ARE SPECIFIED
HEREIN. AN INTEGRATED, FUNCTIONALLY COORDINATED,
MULTISTORY, CONTROL CENTER IS PRESCRIBED WITH
PARTICULAR ATTENTION GIVEN TO THE INTERIOR
ARRANGEMENT AND HUMAN ENGINEERING OF CONTROLS,
DISPLAYS AND SIMILAR DEVICES. FACILITY, BIOMEDICAL,
AND TEST ARTICLE SYSTEMS ARE DEFINED, AND INDIVIDUAL
SYSTEM INSTRUMENTATION AND CONTROLS ARE PRESCRIBED ON
PIPING AND INSTRUMENTATION DRAWINGS, INFORMATION FLOW
DIAGRAMS, AND SPECIAL DRAWINGS AND MATRICES AS
REQUIRED. RELIABLE AND ECONOMICAL OPERATION OF THE
VACUUM, CRYOGENIC, AND THERMAL RADIATION SYSTEMS ARE
OF PARTICULAR CONCERN BECAUSE OF THEIR IMMENSE SIZE
AND THE COST OF THEIR OPERATION. SPECIAL EMPHASIS
IS GIVEN TO OVERALL SAFETY IN THE FORM OF A MASTER
INTERLOCK SYSTEM TO PREVENT MALFUNCTIONS OR REACTIONS
WHICH MIGHT LEAD TO CATASTROPHIC FAILURES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-421 609

NORTH AMERICAN AVIATION INC DOWNEY CALIF
SPACECREW SELECTION AND TRAINING, A SURVEY.

(U)

JUN 63 27P

REPT. NO. SID63 707

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, AVIATION PERSONNEL),
(•ASTRONAUTS, SELECTION), TRAINING, BIBLIOGRAPHIES,
PERFORMANCE TESTS, TRAINING DEVICES, FLIGHT SIMULATOR (U)
IDENTIFIERS: 1963, SPACECREW (U)

THIS REPORT IS A SURVEY OF THE LITERATURE, FROM
1957 TO THE PRESENT, ON SELECTING AND TRAINING
PERSONNEL FOR ORBITAL AND SPACE FLIGHT. DUE TO THE
RELATIVELY LIMITED AMOUNT OF MATERIAL ON THIS
SUBJECT, ALL TYPES OF PUBLICATIONS--FROM ARTICLES IN
POPULAR JOURNALS TO SPECIALIZED REPORTS--HAVE BEEN
INCLUDED. ALTHOUGH MOST OF THE REFERENCES ARE TO
AMERICAN PUBLICATIONS, A SPECIAL EFFORT HAS BEEN
MADE TO INCLUDE ALL SOVIET MATERIAL SO FAR RELEASED
TO THE WEST. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-420 604

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
STUDYING THE PSYCHOLOGICAL ASPECTS OF MAN'S RELIABLE
FUNCTIONING IN COSMIC FLIGHT, (U)

AUG 63 21P BOBNEVA, M. I. ;

MONITOR: FTD TT63 761

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM VOPROSY PSIKHOLOGII,
NR. 2, PP. 173-180, 1963.

DESCRIPTORS: (*SPACE FLIGHT, PSYCHOLOGY), (*SPACE
MEDICINE, PSYCHOLOGY), (*PSYCHOLOGY, SPACE FLIGHT),
PHYSIOLOGY, MAN, STRESS (PSYCHOLOGY), ASTRONAUTS,
RELIABILITY (U)
IDENTIFIERS: 1963, USSR, COSMONAUT (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-418 262

FUNDAMENTAL METHODS ASSOCIATES INC NEW YORK
ACTIVE SHIELDING AGAINST METEOROIDS. (U)

DESCRIPTIVE NOTE: REPORT FOR APR 62-MAY 63,
AUG 63 387P KLAHR, CARL N.; STEIN, NORMAN

N.;

CONTRACT: AF33 657 8531

PROJ: 6146

TASK: 614602

MONITOR: ASD TDR63 537

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACECRAFT, SHIELDING),
(•SATELLITES (ARTIFICIAL), SHIELDING),
(•SPACE FLIGHT, HAZARDS), (•SPACE
ENVIRONMENTAL CON DITIONS, PARTICLES),
(•METEORS, SHIELDING), MANNED SPACECRAFT,
CRATERING, SPALLATION, FEASIBILITY STUDIES,
RESEARCH PROGRAM ADMINIS TRATION, ELECTROSTATIC
FIELDS, ELECTROMAGNETIC FIELDS, VAPORIZATION,
COUNTERMEASURES. (U)
IDENTIFIERS: 1963, DUST WALL, METEOROIDS. (U)

THE FEASIBILITY OF A NUMBER OF ACTIVE SHIELDING
CONCEPTS AGAINST METEOROIDS IS INVESTIGATED. THE
EFFECTS OF METEOROID FLUX ON SPACE VEHICLES AND THEIR
COMPONENTS ARE FIRST ASSESSED, AND THE RE QUIREMENTS
FOR PASSIVE (MASS) SHIELDING ARE CAL CULATED.
IT IS FOUND THAT SOME ACTIVE SHIELDING CONCEPTS ARE
PRACTICABLE IN THE NEAR TERM WHILE OTHERS WOULD
REQUIRE AT LEAST A TEN YEAR DEVELOP MENT PERIOD.
THE MOST PROMISING ACTIVE SHIELDING CONCEPT IS THE
DUSTWALL, WHICH CAN BE DEVELOPED IN THE NEAR
FUTURE. IT IS CALCULATED THAT A DUSTWALL SYSTEM
WILL WEIGH BETWEEN 5% AND 10% AS MUCH AS PASSIVE
SHIELDING GIVING THE SAME PROTEC TION. IN
ADDITION, IT WILL PROTECT COMPONENTS FOR WHICH MASS
SHIELDING CANNOT BE USED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-414 665

SAN FRANCISCO STATE COLL CALIF
SPACE EXPLORATION AND INTERNATIONAL PROBLEMS IN THE
USE AND CONTROL OF OUTER SPACE, (U)
117P CURTIS, EDWARD HAROLD ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: THESIS SUBMITTED FOR MASTER OF
ARTS DEGREE.

DESCRIPTORS: (•SPACE PROBES, POLITICAL SCIENCE), (•SPACE
FLIGHT, POLITICAL SCIENCE), OPERATIONS RESEARCH, (U)
CONTROL, THEORY, EXPLORATION (U)
IDENTIFIERS: 1963 (U)

THE INTERNATIONAL PROBLEMS INVOLVED IN THE USE AND
CONTROL OF OUTER SPACE ARE STUDIED. AN ANALYSIS IS
MADE OF THE UNITED NATIONS COMMITTEE FINDINGS
ON THE PEACEFUL USES OF OUTER SPACE.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-412 644

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

SOVIET BIOASTRONAUTICS AND BIOTECHNOLOGY FACIL
ITIES, PROGRAMS, PERSONALITIES. (U)

DESCRIPTIVE NOTE: SUMMARY OF DATA.

JUL 63 49P

MONITOR: AID REPT. P63 95

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACE BIOLOGY, REVIEWS),
(•SPACE FLIGHT, LIFE SUPPORT), (•SPACE MEDICINE,
PHYSIOLOGY), (•ASTRONAUTS, SELECTION),
(•CLOSED CYCLE ECOLOGICAL SYSTEMS), TELEMETER
SYSTEMS, CARDIOVASCULAR SYSTEM, BLOOD CIRCULATION,
URINE, PLANTS (BOTANY), ALGAE,
RADIOPROTECTIVE AGENTS, WASTES (SANITARY
ENGINEERING), DISPOSAL. (U)

IDENTIFIERS: USSR, 1963, BIOTELEMETRY,
BIOSENSORS. (U)

SOVIET BIOASTRONAUTICS AND BIOTECHNOLOGY FACILITIES,
PROGRAMS, AND PERSONALITIES, SUMMARY OF DATA.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-412 140

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PREDICTIONS ON ASTRONAUTICS.

(U)

BY BORUN, KRZYSZTOF ;

MONITOR: UNCLASSIFIED REPORT

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (*ASTRONAUTICS), (*SPACE FLIGHT),
LANDINGS, MOON, MARS, VENUS PROBES, PLANETS,
SPACE PROBES

(U)

IDENTIFIERS: STEP, 1963.

(U)

1963, STEP

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-410 692

JOINT PUBLICATIONS RESEARCH SERVICE WASHINGTON D C
FIVE DAYS WHICH SHOOK THE WORLD AND BIOLOGY AND
FLIGHTS TO OUTER SPACE. (U)

DEC 62 25P GAZENKO, O.G.;
ZHUKOVVEREZHN;KOV, N.N.; KOPEV, V.YA.;
REPT. NO. 16776

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: TRANS. OF NAUKA I ZHIZN' (USSR),
29:9, PP. 2-10 AND 15-20, 1962. ALSO FROM OTS FOR
\$2.60 AS REPT. 63 13487.

DESCRIPTORS: (*SPACE FLIGHT), (*MANNED SPACE
CRAFT), (*SPACE BIOLOGY), SPACE MEDICINE,
(*MICROORGANISMS), REMOTE CONTROL SYSTEMS. (U)

IDENTIFIERS: JPRS. (U)

A DISCUSSION OF BIOLOGICAL INVESTIGATIONS MADE IN
CONJUNCTION WITH THE TANDEM SPACE FLIGHTS OF
NIKOLAYEV AND POPOVICH. A GENERAL REVIEW OF
PROBLEMS IN SPACE BIOLOGY CONTAINING DESCRIPTIONS AND
DIAGRAMS OF REMOTE CONTROLLED CULTURE CHAMBERS USED
IN STUDIES OF MICROORGANISMS IN SPACE VEHICLES. (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-409 837

OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)
THIRD EUROPEAN SPACE FLIGHT SYMPOSIUM, STUTTGART,
21-24 MAY 1963, (U)

JUN 63 16P ADLER, R.E.;
MONITOR: ONRL CID 63

UNCLASSIFIED REPORT
NO AUTOMATIC RELEASE TO FOREIGN NATIONALS.

DESCRIPTORS: (SPACE FLIGHT, SYMPOSIA), ROCKET
MOTORS, SOUNDING ROCKETS, SPACE NAVIGATION,
SPACE COMMUNICATION SYSTEMS, GUIDANCE, SPACE
MEDICINE, SPACE BIOLOGY, SPACECRAFT, SATELLITES
(ARTIFICIAL), ELECTRIC PROPULSION, ATTITUDE
CONTROL SYSTEMS, NUCLEAR PROPULSION, POWER
SUPPLIES. (U)

IDENTIFIERS: 1963. (U)

THIS MEETING WAS THE THIRD ANNUAL SYMPOSIUM
SPONSORED JOINTLY BY THE GERMAN, FRENCH AND
ENGLISH ROCKET SOCIETIES TO STIMULATE SPACE RE
SEARCH IN EUROPE BY COOPERATION BETWEEN EUROPEAN
COUNTRIES AND COLLABORATION WITH EUROPEAN IN
DUSTRY. THE CONTRIBUTED PAPERS, THE MAJORITY OF
WHICH WERE GIVEN BY GERMANY, COVERED THE AREAS OF
GENERAL PROBLEMS OF SPACE RESEARCH,
CHEMICAL ROCKET ENGINES, SOUNDING ROCKETS,
NAVIGATION, COMMUNICATION AND GUIDANCE,
SPACE MEDICINE AND ASTROBIOLOGY, SPACE
VEHICLES, SATELLITES, ELECTRICAL PROPULSION
SYSTEMS, ATTITUDE CONTROL OF MISSILES,
NUCLEAR PROPULSION AND ENERGY SUPPLY. THE
MEMBER ROCKET SOCIETIES SPONSORING THE MEETING WERE
DEUTSCHE GESELLSCHAFT FUR RAKETENTECHNIK UND
RAUMFAHRT (DGRR), SOCIETE FRANCAISE D'ASTRO
NAUTIQUE (SFA) AND THE BRITISH INTERPLANETARY
SOCIETY (BIS). HOST SOCIETY WAS THE DGRR.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-408 854

JOINT PUBLICATIONS RESEARCH SERVICE WASHINGTON D C
ORDER CONCERNING COMMISSION FOR USE OF UNIVERSE FOR
PEACEFUL PURPOSES NO. 36.

(U)

APR 63 2P

REPT. NO. 18954.

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: TRANS. FROM SLUZBENI LIST,
BELGRADE (YUGOSLAVIA) 1963 19:12, P. 163. NOTICE:
ALSO FROM OTS FOR \$.50 AS REPT. 63 21705.

DESCRIPTORS: (•SPACE FLIGHT), (•POLITICAL
SCIENCE), SCIENTIFIC ORGANIZATIONS.

(U)

IDENTIFIERS: JPRS.

(U)

ORDER CONCERNING THE COMMISSION FOR THE USE OF THE
UNIVERSE FOR PEACEFUL PURPOSES.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-406 906L

GOODRICH (B F) CO AKRON OHIO
DEVELOPMENT OF PERSONNEL PROTECTIVE SYSTEMS FOR
SPACE FLIGHT AND EXPLORATION MISSIONS. (U)
DESCRIPTIVE NOTE: MONTHLY ENGINEERING REPT. NO. 23, 18
MAR 17 APR 63,
APR 63 5P BOCKBRADER, R.H. ;
CONTRACT: NOW61 0554

UNCLASSIFIED REPORT

NOTICE: ONLY GOVERNMENT AGENCIES MAY REQUEST FROM
DDC.

DESCRIPTORS: •PRESSURE SUITS, SPACE FLIGHT,
PROTECTIVE CLOTHING, MANUFACTURING METHODS. (U)
IDENTIFIERS: XH-29 HEADPIECE, XH-42 UNIVERSAL
HEADPIECE, XGD-38 PRESSURE SUIT, MARK IV PRES
SURE SUIT, XH-44 HEADPIECE, XH-46 HEADPIECE,
XH-49 HEADPIECE, XGD-40 TORSO. (U)

THE MODIFIED XH-29 HEADPIECE, XH-42
UNIVERSAL HEADPIECE, MODIFIED XGD-38 AND
MARK IV (SIZE 6) PRESSURE SUITS, AND THE
XGD-39 FULL PRESSURE SUIT WERE DELIVERED TO
A.C.E.L. APRIL 4, 1963. ALSO DELIVERED WEE ONE
(1) PAIR OF VENTILATED SOCK ENDINGS AND A
LACED-IN ENTRANCE ZIPPER REPAIR KIT. A
MOCK-UP OF THE XH-44 HEADPIECE WAS COMPLETED AND
FABRICATION OF THE ACTUAL PROTOTYPE INITIATED. THE
DESIGN HAS BEEN ESTABLISHED AND ALL PARTS ARE ON
ORDER FOR THE XH-46 AND XH-49 HEADPIECES, TWO
(2) ADDITIONAL PROTOTYPES. THE XH-35
HEADPIECE WAS DROPPED FROM THE PROGRAM.
FABRICATION OF THE XGD-40 TORSO IS
APPROXIMATELY 50% COMPLETE. PRELIMINARY DESIGN
HAS BEEN ESTABLISHED FOR THE XGD-41 SUIT AND
PATTERNING IS 50% COMPLETE ON XGD-42, PROTOTYPE
SUIT. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-402 475

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN PENETRATES INTO THE COSMOS (CHEVLOVEK PRONIKAET V
KOSMOS) (U)

MAR 63 IV KROSHKIN, M.G.;
REPT. NO. TT 62 1854

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE PROBES, ASTRONAUTICS,
MANNED SPACECRAFT, SCIENTIFIC RESEARCH, SPACE
STATIONS (U)

IDENTIFIERS: USSR (U)

MAN PENETRATES INTO THE COSMOS. TRANSLATION OF
RUSSIAN ARTICLE.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-400 890

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

FROM GROUP SPACE FLIGHT TO A MOON-FLIGHT (U)

DEC 62 IV

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, ALGAE,
CONTAINERS, FOOD, LUNAR PROBES, ORBITAL TRAJECTORIES,
OXYGEN, SPACE ENVIRONMENTAL CONDITIONS, SPACE STATIONS,
TELEVISION TRANSMITTERS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-400 411

JOINT PUBLICATIONS RESEARCH SERVICE WASHINGTON D C
MEDICAL AND BIOLOGICAL ASPECTS OF USSR SPACE
FLIGHTS

(U)

NOV 62 IV

REPT. NO. 16227

UNCLASSIFIED REPORT

AVAILABILITY: MICROFILM ONLY AFTER ORIGINAL COPIES
EXHAUSTED.

DESCRIPTORS: •SPACE FLIGHT, ASTRONAUTICS, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, CONTROLLED ATMOSPHERES, CYBERNETICS,
LIFE SUPPORT, RADIO TRANSMISSION, SPACE BIOLOGY, SPACE
MEDICINE, SPACECRAFT, TELEMETER SYSTEMS (U)
IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-304 922

NORTH AMERICAN AVIATION INC LOS ANGELES CALIF
LIFE SUPPORT SYSTEM.

(U)

SEP 58 1V

REPT. NO. NA 58 1100

CONTRACT: AF33 616 6D48

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN.

DESCRIPTORS: •HUMAN ENGINEERING, •PRESSURIZED CABINS,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, ANALYSIS,
DESIGN, PHYSIOLOGY

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 799

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPACE: USSR VS. USA (U)

JAN 63 1V

REPT. NO. TT 63 43

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, MANNED, TRANSLATIONS (U)
IDENTIFIERS: USSR (U)

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X

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015423

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 783

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN AND THE COSMOS

(U)

JAN 63 IV PARIN,V.V.;

REPT. NO. TT 62 1605

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, BIOLOGY, MANNED,
TRANSLATIONS

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 778

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMOS-EARTH

(U)

JAN 63 IV PARIN, V.V.;
REPT. NO. TT 62 1609

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ACCEPTABILITY, BIOLOGY,
EFFECTIVENESS, SCIENTIFIC RESEARCH, SPACE MEDICINE (U)

THE INTERACTION OF TWO STREAMS OF COMPRESSIBLE
FLUID DIRECTED AT AN ANGLE TO ONE ANOTHER IS
EXAMINED. THE MAIN STREAM OF GAS IS COMPRESSED BY
AN ACTIVE STREAM WHICH IS SUPPLIED THROUGH AN ANNULAR
SLIT LOCATED IN THE REGION OF MINIMUM CROSS SECTION
OF THE MAIN STREAM. RATIOS OF AERODYNAMIC
COMPRESSION ARE DERIVED FOR TWO CASES, A CONVERGENT
CHANNEL AND A LAVAL NOZZLE. THE DIFFERENCE
BETWEEN THESE TWO CASES IS THAT IN A DIVERGENT
CHANNEL THE SEPARATION ZONE IS IN COMMUNICATION WITH
THE ATMOSPHERE, AND IN A LAVAL NOZZLE IT IS A
CLOSED REGION. THIS GIVES UNIQUE CONDITIONS FOR
SOLUTION OF THE PROBLEM. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 767

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ON THE WAY TO MARS

(U)

JAN 63 1V

REPT. NO. TT 62 1921

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, MARS,
TRANSLATIONS

(U)

IDENTIFIERS: USSR

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 574

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

METHODS OF FIXING EKG ELECTRODES FOR SPACE
FLIGHTS

(U)

DEC 62 IV AGADZHANYAN, M.A.; AKULINICHEV, I.T.;
REPT. NO. 62 200

UNCLASSIFIED REPORT

DESCRIPTORS: •ELECTROCARDIOGRAPHY, •ELECTRODES, •SPACE
FLIGHT, MEASUREMENT, MEDICAL EQUIPMENT, PHYSIOLOGY,
SPACE MEDICINE, TEST METHODS

(U)

IDENTIFIERS: USSR

(U)

HIS BIBLIOGRAPHY IS INTENDED AS A GUIDE TO
SOVIET LITERATURE ON THE PRINCIPLES, THEORY, AND
DESIGN OF PARTICLE ACCELERATORS. LITERATURE FROM
COMMUNIST CHINA AND OTHER SOVIET-BLOC
COUNTRIES IS INCLUDED. THE BIBLIOGRAPHY HAS BEEN
COMPILED FROM SOVIET MONOGRAPHS, PERIODICAL
ARTICLES, NEWSPAPERS, CONFERENCE PROCEEDINGS, AND
OTHER PUBLIC SOURCES. THE 413 ENTRIES ARE ARRANGED
ALPHABETICALLY BY AUTHOR WITHIN EACH OF THE FIVE
SUBJECT HEADINGS. TITLES OF SOVIET MONOGRAPHS
ARE GIVEN IN TRANSLATED FORM FOLLOWED BY THE EN
GLISH TRANSLATION. ANNOTATIONS PROVIDE WHERE
CLARIFICATION IS CONSIDERED NECESSARY. (U) (H)

D-588-N-BIBLIOGRAPHY ON PRINCIPLES,
THEORY, AND DESIGN OF PARTICLE ACCELERATORS. A
COMPILATION FROM SOVIET-BLOC SOURCES.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 572

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

PHYSIOLOGICAL RESPONSES OF COSMONAUTS DURING SPACE
FLIGHT (U)

DEC 62 IV SISKYAN, N.M. IYAZDOVSKIY, V.I. I
REPT. NO. 62 202

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
ACCELERATION, AVIATION PERSONNEL, CARDIOGRAPHY,
PHYSIOLOGY, RESPIRATION, WEIGHTLESSNESS (U)
IDENTIFIERS: USSR (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 530

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SCIENCE AND LIFE (SELECTED ARTICLES)

(U)

DEC 62 IV

REPT. NO. TT 62 1518

UNCLASSIFIED REPORT

DESCRIPTORS: •COSMIC RAYS, •SPACE FLIGHT, •SPACE
MEDICINE, ANALYSIS, AVIATION PERSONNEL, BIOLOGY,
MICROORGANISMS, TEST METHODS, TRAINING,
WEIGHTLESSNESS

(U)

USSR ARTICLES ON VARIOUS MEDICO-BIOLOGICAL
INVESTIGATIONS IN SPACE FLIGHT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 005

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PROCEEDINGS OF THE SECOND NATIONAL CONFERENCE OF THE
PEACEFUL USES OF SPACE, SEATTLE, WASHINGTON (U)

NOV 62 1V

REPT. NO. SP 8

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •SATELLITES (ARTIFICIAL),
•SPACE FLIGHT, BALLOONS, BOOSTER MOTORS, COMMUNUCATION
SATELLITES (ACTIVE), COMMUNICATION SYSTEMS, DATA,
ECONOMICS, FLIGHT, FOREIGN POLICY, LAUNCH VEHICLES
(AEROSPACE), METEOROLOGY, NUCLEAR ENERGY, PLANETS,
SCIENTIFIC RESEARCH, SOLAR SYSTEMS, SYMPOSIA, TRACKING,
WEATHER FORECASTING (U)
IDENTIFIERS: APOLLO, GEMINI, MERCURY PROJECT, X-15
AIRCRAFT (U)

PROCEEDINGS OF THE SECOND NATIONAL CONFERENCE ON THE
PEACEFUL USES OF SPACE.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-293 992

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
A NOTE ON THE INFLUENCE OF NUCLEAR COLLISION ON THE
RADIATION DOSE FROM FLARE PRODUCED PROTONS IN
SPACE

(U)

SEP 62 IV SCHAEFER, HERMANN J.;
REPT. NO. 23

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PROTONS, •RADIATION EFFECTS, •SPACE
FLIGHT, •SPACE MEDICINE, DRONES, FISSION, OPERATORS
(PERSONNEL), RADIATION HAZARDS, TISSUES (BIOLOGY) (U)

A METHOD I PROPOSED FOR ESTABLISHING UPPER LIMITS
FOR COLLISION TERM IN THE TOTAL DOSE. IT WILL BE
SEEN THAT THIS LIMIT, FOR RAILEY'S FLARE MODEL AND
FOR HARGETSYEM ASSUMED IN AN EARLIER STUDY,
NEVER EXCEEDS THE LEVEL OF A FEW PER CENT OF THE
TOTAL DOSE. BEYOND THIS PARTICULAR FINDING, IT
SUGGESTS APPROACHES GENERALLY USEFUL FOR ASSESSING
THE INFLUENCE OF NUCLEAR COLLISION ON IRRADIATION
DOSE DISTRIBUTION (OUTDOOR) - (((+++THE
INFLUENCE OF NUCLEAR COLLISION ON TOTAL RADIATION DOSE
FROM FLARE-PRODUCED PROTON ASSESSMENT OF THE
CONTRIBUTION OF TISSUE DOSE IN A HUMAN TARGET
FROM NUCLEAR COLLISIONS IN THE SHIELD AND/OR INERT
MATERIAL OF A PACESIP, REQUIRES EXTREMELY COMPLEX
COMPUTATIONAL PROCEDURES. AD-29399 DIV. 16 U
TISTM/RGR) (PRICE \$5.50 NORTH CAROLINA U.
SCHOOL OF MEDICINE, CAMP LEHILL. THE VENTILATORY
RESPONSE TO CARBON DIOXIDE AND TO OXYGEN
AFTER ACCLIMATIZATION TO CARBON DIOXIDE. FINAL
REPT., FEB 60-MAY 62 ON PHYSIOLOGY RESEARCH,
BY THOMAS B. BARNETT AND RICHARD M. PETERS.
NOV 62, 14P. INCL. ILLUS. 6 REFERENCE CONTRACT AF
33 616)6261, PROJ. 7163) (AMRL TDR 62-1

UNCLASSIFIED REPORT DESCRIPTORS:
•RESPIRATION, CARBON DIOXIDE, OXYGEN,
CONTROLLED ATMOSPHERES, BIOLOAD CHEMISTRY A
CHAMBER HAS BEEN DESIGNED SO THAT DOGS CAN BE EXPOSED
FOR PROLONGED PERIODS TO ABNORMAL ATMOSPHERES. THE
CONCENTRATIONS OF CO2 AND O2 ARE CONTINUOUSLY
CONTROLLED AND RECORDED. EXPOSURE OF DOGS TO PRO-
PORTIONATELY HIGH CO2 IN AIR FOR 6 DAYS OR MORE RESULTED
IN A DECREASE IN THE VENTILATORY RESPONSE TO
CO2. IN CONTROL DOGS THE BREATHING OF 50%
O2 FOR 30 MINUTES WAS ASSOCIATED WITH A SLIGHT TO
MODERATE INCREASE IN VENTILATION WITHOUT A SIGNIFICANT
CHANGE IN ARTERIAL PCO2. AFTER ACCLIMATIZATION
TO CO2 OXYGEN BREATHING WAS ASSOCIATED WITH (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-293 056L

GOODRICH (B F) AEROSPACE AND DEFENSE PRODUCTS AKRON
OHIO
DEVELOPMENT OF PERSONNEL PROTECTIVE SYSTEMS FOR SPACE
FLIGHT AND EXPLORATION MISSIONS (U)

JUN 61 1V BERUS, W. J. ;

CONTRACT: NOW61 554

UNCLASSIFIED REPORT

USGO

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
ASTRONAUTICS, ASTRONAUTS, PRESSURE SUITS, SPACE
ENVIRONMENTAL CONDITIONS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-292 615

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ON THE PREPARATION OF MAN FOR FLIGHTS INTO THE
COSMOS (U)

NOV 62 IV LOGINOV,VLADISLAV;SALMANOV,LEONID;
REPT. NO. TT 62 1592

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, FLIGHT SIMULATORS, MILITARY
TRAINING, PILOTS, SIMULATION (U)
IDENTIFIERS: USSR (U)

A STUDY WAS MADE OF TRAINING PILOT-COSMONAUTS FOR
COSMIC FLIGHT PROBLEMS, WHICH CONSIST OF: EXTREMELY
LOW BAROMETRIC PRESSURE, THE ABSENCE OF MOLECULAR
OXYGEN, COSMIC RADIATION, SEVERE TEMPERATURE
CONDITIONS, THE DANGER OF METEORS; NOISE, VIBRATION,
AND ACCELERATIONS EXPERIENCED OVER THE POWERED
PORTIONS OF THE ASCENT AND DESCENT OF THE CRAFT, AND
ALSO THE WEIGHTLESSNESS DURING THE TIME OF ORBITAL
FLIGHT; AND THE EFFECT OF THE ARTIFICIAL ATMOSPHERE
OF THE CABIN, THE WORK AND REST SCHEDULE WITHOUT THE
24-HOUR TIME PERIODS TO WHICH MAN IS ACCUSTOMED, THE
PERCULIARITIES IN EATING, RESTRICTION OF MOVEMENT,
AND PSYCHOLOGICAL STRAIN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-292 344

AMERICAN SOCIETY OF MECHANICAL ENGINEERS NEW YORK
EXPERIMENTAL TECHNIQUES IN SHOCK AND VIBRATION (U)
DEC 62 1V

UNCLASSIFIED REPORT
AVAILABLE FROM AMERICAN SOCIETY OF MECHANICAL
ENGINEERS, NEW YORK.

DESCRIPTORS: •SPACE FLIGHT, •VIBRATION, •WAVEGUIDES,
DYNAMICS, ELECTRICAL IMPEDANCE, RADIATION DAMAGE,
SIMULATION, STRUCTURES (U)

CONTENTS: TRANSIENT LOADING TECHNIQUE FOR
MECHANICAL IMPEDANCE MEASUREMENT THE DETECTION
AND MEASUREMENT OF STRESS WAVES DYNAMIC
PHOTOELASTICITY ROLE OF DYNAMIC MODELS IN LAUNCH
VEHICLE DEVELOPMENT INSTRUMENTATION FOR SHOCK AND
VIBRATION MEASUREMENTS DYNAMIC TESTS OF BUILDINGS
AND SPECIAL STRUCTURES TECHNIQUES FOR SIMULATION
AND ANALYSIS OF SHOCK AND VIBRATION ENVIRONMENTS OF
SPACE FLIGHT SYSTEMS REVIEW OF MISSILE SHOCK AND
VIBRATION PROBLEMS THE MEASUREMENT OF PHYSICAL
EFFECTS FROM NUCLEAR EXPLOSIONS SPECIFICATION
VIBRATION TESTING (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-292 077

RAND CORP SANTA MONICA CALIF
GALACTIC COSMIC RADIATION AND MANNED SPACE
FLIGHT

(U)

IV TAMPLIN, A.R.; FISHER, H.K.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, BEDDING, COSMIC RAYS,
DOSAGE, GALAXIES, MANNED, MATHEMATICAL PREDICTION,
NERVES, NEUROLOGY, PARTICLES, PHYSIOLOGY, RADIATION
EFFECTS, RADIATION INJURIES, RADIOBIOLOGY, SPACE
MEDICINE, THEORY

(U)

A DISCUSSION OF THE FLUX AND COMPOSITION OF PRIMARY COSMIC PARTICLES OF GALACTIC ORIGIN IS PRESENTED, TOGETHER WITH A DISCUSSION OF THE PROCESSES THROUGH WHICH THESE PARTICLES MAY TRANSFER ENERGY TO BIOLOGICAL SPECIMENS. THE BIOLOGICAL EFFECTS OF PRIMARY COSMIC PARTICLES ARE ESTIMATED ON THE BASES OF BOTH DOSAGE AND PSEUDO-TARGET THEORY. THE DOSAGE WAS ESTIMATED ACCORDING TO THE METHOD OF TOBIAS WHEREIN IT IS ASSUMED THAT ALL PARTICLES THAT ENTER THE BODY ARE STOPPED WITHIN THE BODY WITHOUT UNDERGOING NUCLEAR COLLISION AND FRAGMENTATION. AS SUCH, THIS ESTIMATE IS AN UPPER LIMIT FOR THE DOSAGE AND CORRESPONDS TO 0.07 REM/DAY. THE PSEUDOTARGET-THEORY APPROACH WAS BASED UPON THE CONSENSUS OF RADIOBIOLOGISTS THAT THE ONLY SIGNIFICANT BIOLOGICAL EFFECT OF PRIMARY COSMIC PARTICLES WILL BE INJURY TO THE NEURONS OF THE NERVOUS SYSTEM, SINCE THESE NEURONS CANNOT BE REPLACED. USING ASSUMED VALUES OF KILL CROSS SECTIONS AND THE MEASURED FLUX OF PRIMARY COSMIC PARTICLES, IT WAS POSSIBLE TO ESTIMATE THAT THE FRACTION OF NEURONS THAT MIGHT BE KILLED AS A FUNCTION OF EXPOSURE TIME IS ON THE ORDER OF 1% IN 100 DAYS. (AUTHOR)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-291 910

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

PRINCIPLES OF LIFE SUPPORT IN SPACE. BASED ON SOVIET
OPEN LITERATURE PUBLISHED IN CONNECTION WITH THE
VOSTOK-3 AND VOSTOK-4 LAUNCHINGS (U)

DEC 62 IV

REPT. NO. 62 194

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, ADJUSTMENT
(PSYCHOLOGY), ANALYSIS, ASTRONAUTICS, AUTOMATIC
NAVIGATORS, CIRCUITS, COMMUNICATION SYSTEMS, EAR, FOOD,
NEWSPAPERS, PHYSIOLOGY, PILOTS, SAFETY, SAFETY DEVICES,
SCIENTIFIC PERSONNEL, SLEEP, SPACE CAPSULES, SPACE
ENVIRONMENTAL CONDITIONS, SPACECRAFT, SPACECRAFT CABINS,
TELEMETER SYSTEMS, TRAINING, WEIGHTLESSNESS (U)

DESCRIPTIONS OF THE PRINCIPLES OF LIFE SUPPORT IN
SPACE USED BY SOVIET SPECIALISTS AT THE PRESENT
TIME FOR ORBITAL FLIGHTS, AND THOSE WHICH ARE BEING
DISCUSSED AND DEVELOPED FOR FUTURE LONG-RANGE
MISSIONS HAVE BEEN EXTRACTED FROM MORE THAN TWO
HUNDRED ARTICLES AND TASS REPORTS PUBLISHED
PREDOMINANTLY IN SOVIET NEWSPAPERS IN CONNECTION
WITH THE LAUNCHING OF THE VOSTOK-3 AND VOSTOK-4
SPACESHIPS. THE ARTICLES WERE WRITTEN BY VARIOUS
SPECIALISTS IN THE FIELD OF SPACE TECHNOLOGY,
INCLUDING ACADEMICIANS, CORRESPONDING MEMBERS OF THE
ACADEMY OF SCIENCES, PROFESSORS, DOCTORS OF
BIOLOGICAL SCIENCES, DOCTORS OF MEDICAL SCIENCES,
CANDIDATES OF MEDICAL AND TECHNICAL SCIENCE AND
PHYSICS AND MATHEMATICS, ENGINEERS, SCIENCE
REPORTERS, AND COSMONAUTS. PRIMARY EMPHASIS WAS
PLACED ON DISCUSSIONS OF DATA WHICH DESCRIBE THE
DESIGN ELEMENTS OF EQUIPMENT USED IN SPACE
APPLICATIONS, INCLUDING THE SPACESHIP CABIN,
AUTOMATIC DEVICES, EQUIPMENT USED IN THE COSMONAUT
TRAINING PROGRAM. PSYCHOLOGICAL AND PHYSIOLOGICAL
CONDITIONING AND RESPONSES AND SAFETY FACTORS ARE
INCLUDED. (AUT OR)A - 91 9109N1 + + + THE
PRINCIPLES OF LIFE SUPPORT IN SPACE USED BY SOVIET
SPECIALISTS AT THE PRESENT TIME FOR ORBITAL FLIGHTS
AND THOSE BEING DISCUSSED AND DEVELOPED FOR FUTURE
LONG-RANGE MISSIONS HAVE BEEN EXTRACTED FROM SOVIET
NEWSPAPER ARTICLES AND TASS REPORTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-290 816

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

REVIVED INTEREST IN F.A. TSANDER'S WORK ON SPACE
FLIGHT (U)

NOV 62 1V

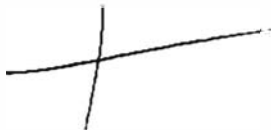
REPT. NO. 62179

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ELECTROSTATICS, GRAVITY,
MAGNETIC FIELDS, METEORS, SOLAR RADIATION, TRANSLATIO(U)

IDENTIFIERS: USSR (U)

AN ARTICLE BY F. A. TSANDER ENTITLED 'FLIGHT
WITH THE AID OF REACTION VEHICLES' IS NOTED.
THE FOLLOWING TOPICS WERE MENTIONED: USE OF
ELECTROSTATIC FORCE; USE OF MAGNETIC FORCE; USE OF
SOLAR ENERGY; GENERATION OF SOLAR ATTRACTION; AND
PROTECTION FROM METEORS AND DUST. (U)



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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-290 065

ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

VISUAL PROBLEMS IN AVIATION MEDICINE (U)

DEC 62 1V MERCIER, ARMAND;

REPT. NO. AGARDOGRAPH 61

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN.

SUPPLEMENTARY NOTE: COPIES AVAILABLE FROM PERGAMON
PRESS, N. Y.

DESCRIPTORS: •AVIATION MEDICINE, •SPACE FLIGHT,
ACCELERATION, ADAPTATION (PHYSIOLOGY), AVIATION
ACCIDENTS, AVIATION PERSONNEL, BLACKOUT (PHYSIOLOGY),
COCKPITS, DECELERATION, EYEGLASSES, FLIGHT, HELICOPTERS,
HIGH ALTITUDE, HUMAN ENGINEERING, INSTRUMENT PANELS,
LANDINGS, NUCLEAR EXPLOSION DAMAGE, OPHTHALMOLOGY,
OPTICAL FILTERS, SELECTION, SPACE PERCEPTION, VISION,
VISUAL ACUITY (U)

FOURTEEN PAPERS PRESENTED AT MEETINGS OF THE VISION
COMMITTEE OF THE AEROSPACE MEDICAL PANEL OF THE
ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
(AGARD), NORTH ATLANTIC TREATY ORGANIZATION CONCERNING
OPHTHALMOLOGICAL PROBLEMS RAISED BY AVIATION AND THE
CONQUEST OF SPACE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-289 091

HONEYWELL INC MINNEAPOLIS MINN
LIFE SUPPORT SYSTEMS EVALUATOR INSTRUMENTATION (U)
AUG 62 1V BESON,E.E.;DICKY,M.P.;
REPT. NO. TDR62 90AR 2662 TR 2
CONTRACT: AF33 616 8349
MONITOR: 6570 AMRL TDR62 90

UNCLASSIFIED REPORT

DESCRIPTORS: •CONTROL SYSTEMS, •MONITORS, •SPACE FLIGHT,
HUMIDITY, LIFE SUPPORT, MATHEMATICAL ANALYSIS,
SIMULATION (U)

THE LIFE SUPPORT SYSTEMS EVALUATOR
CONSOLE WAS BUILT TO MONITOR AND RECORD THE CHANGES
IN ENVIRONMENTAL PARAMETERS OCCURRING DURING THE TEST
OF MEN AND LIFE SYSTEMS IN AN EVALUATOR OR SPACE
FLIGHT TEST CHAMBER. THE PROBLEMS INVOLVED IN
FURNISHING THE NECESSARY INSTRUMENTATION AND DISPLAYS
WERE CONSIDERED IN A PRELIMINARY DESIGN
INVESTIGATION. THE SYSTEM DESIGN WHICH EVOLVED
FROM THE PRELIMINARY STUDY EMBODIES A FOURMODULE
STEEL ENCLOSURE OR CONSOLE, WITH TURRET TOP SECTION,
WORK TABLE SURFACE, AND ROLLAWAY TABLE SECTION, WHICH
CONTAINS THE COMPLETE MONITOR SYSTEM. THE
EVALUATOR INSTRUMENTATION INCLUDES SENSORS,
INDICATORS, AND RECORDERS WHICH ENABLE THE
INVESTIGATORS TO MONITOR THE FOLLOWING: ABSOLUTE AND
DIFFERENTIAL PRESSURES AT SIX DIFFERENT STATIONS IN
THE TEST CHAMBER, TEMPERATURES AT 24 STATIONS WITHIN
THE FORWARD AND AFT SECTIONS OF THE CHAMBER, RELATIVE
HUMIDITY IN FORWARD AND AFT SECTIONS OF THE TEST
CHAMBER, ANALYSES OF CHAMBER ATMOSPHERIC COMPOSITION,
AND CONTINUOUS RECORDING OF THE VARIABLES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-289 023

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

ENZYMATIC DIGESTION OF ALGAL CELLS (U)

AUG 62 IV KING, MAURICE E.; SHEFNER, ALAN M.;

REPT. NO. TDR62 91

CONTRACT: AF33 616 7964

MONITOR: 6570 AMRL TDR62 91

UNCLASSIFIED REPORT

DESCRIPTORS: •ALGAE, •SPACE FLIGHT, ENZYMES,
GASTROINTESTINAL SYSTEM, MAN, METABOLISM, MURAMIDASE,
PEPTIDE HYDROLASES, TRYPSIN (U)

UNTREATED ALGAL CELLS ARE INCOMPLETELY DIGESTED IN
MAN'S ALIMENTARY CANAL. THEREFORE, VARIOUS ENZYMES
WERE INVESTIGATED IN AN EFFORT TO DEVELOP AN ENZYME
SUPPLEMENT THAT WOULD INCREASE THE NUTRITIVE VALUE OF
AN ALGAL RATION. SUCH AN ENZYME ADDITIVE WOULD
FUNCTION BY DIRECTLY DEGRADING THE ALGAL CELLS OR BY
MAKING THE CELLS MORE SUSCEPTIBLE TO THE ACTION OF
THE NORMAL DIGESTIVE ENZYMES. ENZYMES WERE
EVALUATED BY IN VITRO DIGESTION FOR 2 HOURS IN
ARTIFICIAL GASTRIC JUICE FOLLOWED BY DIGESTION FOR 4
HOURS IN ARTIFICIAL INTESTINAL JUICE. THE
COMMERCIAL CELLULASES WERE NOT EFFECTIVE.
FAVORABLE RESULTS WERE OBTAINED WITH ENZYME SYSTEMS
DERIVED FROM THE SNAIL HELIX POMATIA AND THE MOLD
MYROTHECIUM VERRUCARIA. PECTINASE WAS ALSO
EFFECTIVE, BOTH ALONE AND IN COMBINATION WITH THE
SNAIL AND THE MOLD ENZYMES. THESE RESULTS ARE
CONSISTENT WITH THE STUDIES OF NORTHCOTE AND OTHERS
ON THE COMPOSITION OF THE ALGAL CELL WALL.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 905

RCA SERVICE CO CAMDEN N J

TECHNIQUES OF PHYSIOLOGICAL MONITORING. VOLUME I.

FUNDAMENTALS

(U)

IV

BARBIERE, ROBERT E.; BALDWIN, RAYMOND

C.;

REPT. NO. TDR62 98 VI

CONTRACT: AF33 616 7750

MONITOR: 6570 AMRL TDR62 98 VI

UNCLASSIFIED REPORT

DESCRIPTORS: •ELECTRONICS, •HANDBOOKS, •MONITORS,
•PHYSIOLOGY, •SPACE FLIGHT, ELECTRONIC EQUIPMENT,
MEASUREMENT

(U)

THIS VOLUME IS THE FIRST OF A THREE-VOLUME HANDBOOK COVERING THE APPLICATIONS OF ELECTRONICS IN MONITORING BIOELECTRIC PHYSIOLOGICAL RESPONSES. THE FUNDAMENTAL CONCEPTS AND METHODS PRESENTED IN THIS VOLUME FORM A FOUNDATION FOR THE DETAILED TECHNICAL DISCUSSIONS IN THE SUCCEEDING VOLUMES AND, IT IS HOPED, PROVIDE A COMMON LANGUAGE AND BASIS OF UNDERSTANDING BETWEEN THE PHYSIOLOGIST AND ELECTRONIC ENGINEER ENGAGED IN THIS FIELD. THE DATA OBTAINED BY MONITORING PHYSIOLOGICAL RESPONSES IN VARIED ENVIRONMENTS CAN BE USED TO IMPROVE THE EFFICIENCY AND INCREASE THE SAFETY OF A HUMAN SUBJECT IN AIRCRAFT AND SPACECRAFT. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 403

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SCIENCE AND LIFE (SELECTED ARTICLES)

(U)

APR 62 1V

REPT. NO. TT 62 200

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, SATELLITES (ARTIFICIAL),

SOLAR RADIATION, SOLAR SYSTEMS

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 074

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

GENERALIZED INTERPLANETARY TRAJECTORY STUDY, PART
II

(U)

IV

REPT. NO. TR60 502 P2

CONTRACT: AF33 616 6296

MONITOR: ASD TR60 502 P2

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SOUND SIGNALS, *SPACE FLIGHT, DIGITAL
COMPUTERS, EARTH, INTERPLANETARY TRAJECTORIES, MOON,
PERTURBATION THEORY, PLANETS, SOLAR SYSTEMS, SPACECRAFT,
VENUS

(U)

AN IBM 7 90 COMPUTER PROGRAM IS DESCRIBED TO
DETERMINE BURNOUT VELOCITY COMPONENTS FOR
INTERPLANETARY VEHICLES. THE FIRST REPORT, OF
WHICH THIS REPORT IS THE SEQUEL, DEALT WITH AN N-BODY
TRAJECTORY-INTEGRATION PROGRAM. ONE DEMONSTRATION
PROBLEM, EARTH-VENUS HIT TRAJECTORIES, SHOWED HOW
INITIAL CONDITIONS COULD BE DETERMINED BY
DIFFERENTIAL CORRECTION OF A FIRST ESTIMATE, OBTAINED
IN A 2-BODY APPROXIMATION OF THE EARTHVENUS
TRANSFER PROBLEM. THE GENERALIZATION OF THAT
DEMONSTRATION OF INTERPLANETARY HIT TRAJECTORIES FROM
EARTH TO ANY OTHER PLANET (EXCEPT PLUTO) AND
VICE VERSA IS DISCUSSED AS WELL AS THE COMPUTER
PROGRAM RESULTING FROM TYING TOGETHER THE BASIC N-
BODY TRAJECTORY PROGRAM WITH 3 COMPUTER PROGRAMS
CORRESPONDING TO THE ANALYSES PERFORMED ON A DESK
CALCULATOR IN THE EARTH-VENUS DEMONSTRATION.
THESE 3 PROGRAMS ARE: HELIOCENTRIC TRANSFER
ANALYSIS, IN WHICH A 2-BODY APPROXIMATION FOR THE
TRANSFER TRAJECTORY IS COMPUTED BY NEGLECTING
PLANETARY MASSES; THIS ANALYSIS WAS GENERALIZED TO
RETAIN PLANETARY ORBIT ECCENTRICITY AND INCLINATION,
THE DEPARTURE ANALYSIS, IN WHICH THE TIME OF
DAY OF DEPARTURE DATE IS DETERMINED TO MAXIMIZE THE
CONTRIBUTION TO THE BURNOUT VELOCITY OF THE
PLANETARY ROTATION, THE DIFFERENTIAL CORRECTION
ANALYSIS, IN WHICH COMPONENTS OF THE ESTIMATED
INITIAL VELOCITY ARE CHANGED TO ASSURE IMPACT WITH
THE TARGET PLANET. AD-288 07429 +++ INTERPLANETARY
TRAJECTORY STUDY.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-287 715

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
GAGARIN'S FLIGHT

(U)

SEP 62 1V DENISOV, N.; BORZENKO, S.;

REPT. NO. TT 62 844

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE CAPSULES, •SPACE FLIGHT,
•SPACECRAFT, ASTRONAUTS, COMMUNISTS, LABORATORY ANIMALS,
SPACE MEDICINE, TRAINING (U)
IDENTIFIERS: USSR (U)

DESCRIPTORS: •POLYMERS, •FLUOROCARBONS, •AZO
RADICALS, •METHANES, •HETEROCYCLIC COMPOUNDS,
CHEMICAL REACTIONS, DECOMPOSITION, ACIDS,
HYDROXIDES, SUBSTITUTION REACTIONS, USSR,
SYNTHESIS. A NUMBER OF HETEROLYTIC CONVERSIONS OF
POLYFLUORINATED AZOALKANES ARE SHOWN FOR THE FIRST
TIME. POLYFLUORINATED AZOALKANES ARE EXTREMELY
UNSTABLE TOWARD OXIDIZING AGENTS (HALOGENS,
H₂O₂, PERACIDS, HYPOCHLORITES). REOUIING AGENTS
UCH AS HI, H₂S, HP IN POLAR MEDIA (ETHER,
METHANOL) IN THE COLD EASILY REACT WITH THE AZO
COMPOUNDS STUDIED, CONVERTING THE AZO GROUP INTO AN
HYDRAZO GROUP. HEXAFLUOROHYDRAZOMETHANE POSSESSES
PRONOUNCED ACIDIC PROPERTIES AND IS COMPARATIVELY
STABLE IN SOLVATED FORM (ETHERATE AND ACETONATE).
AT THE SAME TIME, THE CF₃NH GROUPS IN
HEXAFLUOROHYDRAZOMETHANE CAN EASILY EMITATE HF IN
BASES. HEXAFLUOROAZOMETHANE WAS THE MOST
ELECTROPHILIC OF THE POLYFLUORINATED AZOALKANES
STUDIED. IN REACTIONS WITH AMINES CONTAINING AN
NH GROUP, MEAPTANS AND SULFINIC ACIDS, AZO
COMPOUNDS BEHAVE SIMILARLY TO AZODICARBOXYLIC ETHERS,
BUT ARE LESS ACTIVE. THE PRIMARY PRODUCTS UNDERGO
FURTHER CONVERSION DUE TO THE CF₃NH GROUP.
AUTHOR)

(U)

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AD-287 081

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
RADIOBIOLOGIC EXPERIMENTS IN DISCOVERER SATELLITE
XVII

(U)

IV CRAWFORD, GEORGE W.;

UNCLASSIFIED REPORT

DESCRIPTORS: •RADIOBIOLOGY, •SPACE FLIGHT, CELLS
(BIOLOGY), COSMIC RAYS, DOSIMETERS, MICROORGANISMS,
PARTICLES, PHOTOGRAPHIC ANALYSIS, SATELLITES, SCIENTIFIC
RESEARCH (U)

IDENTIFIERS: DISCOVERER (U)

CONTENTS: PHYSICAL DESCRIPTION OF THE FLIGHT
IDENTIFICATION OF PARTICLES AND DOSE MEASUREMENTS
PHYSICAL DOSIMETRY MICROBIOLOGIC EFFECTS OF SPACE
RADIATIONS THE EFFECT OF SPACE FLIGHTS ON LIVING
HUMAN CELLS ABOARD THE DISCOVERER XVII VEHICLE
EFFECTS OF SPACE FLIGHT ON THE IN VITRO COMBINING
CAPACITY OF ANTIGEN AND ANTIBODY EXPERIMENTS WITH
PHOTOSYNTHETIC MICROORGANISMS (U)

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AD-286 930

TRW SPACE TECHNOLOGY LABS REDONDO BEACH CALIF
PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS OF SPACE
FLIGHT: A BIBLIOGRAPHY. VOLUME I. ACCELERATION,
DECELERATION, AND IMPACT (U)
IV PRICE, J.F.:

UNCLASSIFIED REPORT

DESCRIPTORS: •ACCELERATION, •ACCELERATION TOLERANCE,
•BIBLIOGRAPHIES, •DECELERATION, •SPACE FLIGHT, IMPACT
SHOCK, MAN, SPACE MEDICINE, STRESS (PHYSIOLOGY), STRESS
(PSYCHOLOGY), WEIGHTLESSNESS (U)

A BIBLIOGRAPHY OF 1020 ANNOTATED REFERENCES ON
ACCELERATION, DECELERATION, AND IMPACT STUDIES.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 573

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
TOWARD NEW SUCCESSES IN STUDY OF OUTER SPACE (U)
SEP 62 IV TITOV,G.S.;
REPT. NO. TT 62 1189

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, MANNED, SATELLITES.
(ARTIFICIAL), SPACE CAPSULES (U)
IDENTIFIERS: VOSTOK (U)

TITOV'S SPEECH BEFORE THE INTERNATIONAL
COMMITTEE FOR SPACE RESEARCH WHICH DESCRIBES
HIS FLIGHT IN VOSTOK-2, IS PRESENTED. (U)



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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 199

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CURRENT PROSPECTS OF TRAVEL INTO OUTER SPACE (U)

MAY 62 1V

REPT. NO. TT 62 546

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, TRANSLATIONS (U)

THE EXISTING METHOD OF BALANCING ROTORS BY USING TWO OUTER CORRECTION PLANES CAN LOWER THE LEVEL OF VIBRATIONS BUT CANNOT ELIMINATE THEIR CAUSES AND GUARANTEE VIBRATIONLESS ENGINE OPERATION. A METHOD IS PROPOSED FOR BALANCING ROTORS WITH ADDITIONAL (MEDIAN) CORRECTION PLANES AT OPERATING SPEEDS BY ALLOWING ROTOR DEFLECTION TO BE DECREASED, THUS REDUCING ROTOR STRESS AND VIBRATION LEVELS.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 141

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AN OUTSTANDING SCIENTIFIC EXPERIMENT (U)

JUN 62 IV AKSENOV, YE. P.; GREBENIKOV, YE. A.;

DEMIN, V. G.;

REPT. NO. TT 62 653

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, BOOSTER MOTORS, CELESTIAL
MECHANICS, MANNED, MOTION, ORBITAL TRAJECTORIES,
SATELLITES (ARTIFICIAL), SPACE CAPSULES, SPACECRAFT,
TRANSLATIONS (U)

IDENTIFIERS: VOSTOK (U)

THE LAUNCHING, MOTION IN ORBIT, AND RE-ENTRY OF
GAGARIN'S VOSTOK ARE REPORTED. (U)

F *F* *USSR*

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 103

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE SPACE AGE

(U)

JUN 62

IV

BAKULEV, A.;

REPT. NO. TT 62 599

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, TRANSLATIONS(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-285 831

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

WHY WE ARE FIRST IN SPACE

(U)

AUG 62 1V PETROV, N.;

REPT. NO. TT 62 917

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *GUIDED MISSILES, *SPACE FLIGHT, ROCKET
PROPULSION, TRANSLATIONS

(U)

USSR ADVANCEMENTS IN SPACE TECHNOLOGY.



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-285 439

BALLISTIC SYSTEMS DIV NORTON AFB CALIF
AEROSPACE SYSTEM PERSONNEL-EQUIPMENT DATA FOR
PERSONNEL SUBSYSTEM DEVELOPMENT

(U)

NOV 61 IV

REPT. NO. AFBM E 60 65A

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AVIATION PERSONNEL, •HUMAN ENGINEERING,
•MILITARY EQUIPMENT, •SPACE FLIGHT (U)

AEROSPACE SYSTEM PERSONNEL-EQUIPMENT DATA FOR PERSONNEL
SUBSYSTEM DEVELOPMENT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AO-285 329

LIBRARY OF CONGRESS WASHINGTON O C AEROSPACE TECHNOLOGY
DIV

SOVIET MANNED SPACE FLIGHT INDIVIDUALS AND COMPONENTS
OF THE USSR SPACE COMMAND SYSTEM (BASED ON SOVIET OPEN
LITERATURE 1961-1962) (U)

SEP 62 IV

REPT. NO. 62 129

UNCLASSIFIED REPORT

DESCRIPTORS: *ASTRONAUTICS, *SPACE FLIGHT, LITERATURE,
RESEARCH PROGRAM ADMINISTRATION, TRAINING (U)

THIS REPORT CONTAINS INFORMATION ON THE
PERSONALITIES WHO HAVE BEEN DESCRIBED OR MENTIONED
IN CONNECTION WITH THE SOVIET MANNED SPACE-FLIGHT
PROGRAM IN NEWSPAPER ARTICLES AND PERIODICALS
PUBLISHED BETWEEN 8 FEBRUARY AND 11 APRIL 1962.
ALSO PRESENTED IS INFORMATION ON THE COSMONAUT
TRAINING SYSTEM AND THE ANALYST'S COMMENTS AND
DEDUCTIONS DRAWN FROM THE INFORMATION USED AS THE
BASIS OF THIS REPORT. THE MAJOR PORTION OF THE DATA
USED IN THE SUPPLEMENT WAS FOUND IN A SERIALIZED
ARTICLE ENTITLED "COSMONAUTS," WRITTEN BY
COLONEL YE. A. PEROV AND PUBLISHED IN 14
INSTALLMENTS IN KRASNAYA ZVEZDA BETWEEN 6
FEBRUARY AND 22 MARCH 1962. ACCORDING TO AN
EDITORIAL NOTE WHICH APPEARED WITH ONE OF THE
INSTALLMENTS, THIS SERIALIZED WORK IS ONLY A PART OF
A LARGER ARTICLE NOW BEING PREPARED BY COLONEL
PETROV. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-283 343

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

SIMULATION TECHNIQUES FOR SPACECREW TRAINING STATE-
OF-THE-ART REVIEW (U)

APR 62 IV MCNULTY, CARL F.;

REPT. NO. TDR 62 32

UNCLASSIFIED REPORT

DESCRIPTORS: •FLIGHT SIMULATORS, •MILITARY TRAINING,
•SIMULATION, •SPACE FLIGHT, ANALOG COMPUTERS,
ASTRONAUTICS, AVIATION PERSONNEL, DIGITAL COMPUTERS,
HUMAN ENGINEERING, MANNED, PROGRAMMING (COMPUTERS),
TELEVISION COMMUNICATION SYSTEMS, VISION (U)

IDENTIFIERS: HYBRID COMPUTERS. CAPABILITIES
OF EXISTING SIMULATION TECHNOLOGY ARE DISCUSSED AND
PROGRAMS FOR NEW TECHNIQUES REQUIRED FOR SPACECREW
TRAINING ARE DESCRIBED. PROGRAMS ARE DISCUSSED
FOR THE DEVELOPMENT OF NEW COORDINATE SCHEMES AND
GENERALIZED AERODYNAMIC AND MOTION EQUATIONS. THE
APPLICATION OF SPECIAL AND GENERALEMS ARE DISCUSSED,
AND THE DEVELOPMENT OF A REAL-TIME DIGITAL COMPUTER
AND HYBRID ANALOG-DIGITAL COMPUTERS, WHICH APPEAR
MOST PROMISING FOR FUTURE SIMULATION, IS REVIEWED.
THE REQUIREMENTS FOR VISUAL CAPABILITIES IN FUTURE
TRAINING SIMULATORS ARE PRESENTED. THESE VEHICLES
ARE EXPECTED TO INCLUDE A MEANS FOR THE OPERATOR TO
VIEW THE SCENE ON THE OUTSIDE AND MUST INCLUDE
COMPLETE SIMULATION FOR GENERATING THIS SCENE.
SEVERAL PROGRAMS FOR ANALOG AND DIGITAL COMPUTERS
TO SIMULATE PROBLEMS ARE DISCUSSED, AND THE
DEVELOPMENT OF A REAL-TIME DIGITAL COMPUTER AND HYBRID
ANALOG-DIGITAL COMPUTERS, WHICH APPEAR MOST PROMISING
FOR FUTURE SIMULATION, IS REVIEWED. THE
REQUIREMENTS FOR VISUAL CAPABILITIES IN FUTURE
TRAINING SIMULATORS ARE PRESENTED. THESE VEHICLES
ARE EXPECTED TO INCLUDE A MEANS FOR THE OPERATOR TO
VIEW THE SCENE ON THE OUTSIDE AND MUST INCLUDE
COMPLETE SIMULATION FOR GENERATING THIS SCENE.
SEVERAL PROGRAMS ARE DISCUSSED WHICH ARE INTENDED
TO PROVIDE SEGMENTS OF THE VISUAL SIMULATION
CAPABILITY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-283 284

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

OUTER-SPACE ENVIRONMENT MODELS FOR USE WITH SPACE
VEHICLE SIMULATORS (U)

MAY 62 IV LIVINGSTON, W.A. JR.; STEVENS, ROBERT

M. I.

REPT. NO. TDR62 40VG 1403 G 5

CONTRACT: AF33 616 6858

MONITOR: 6570 AMRL TDR62 4D

UNCLASSIFIED REPORT

DESCRIPTORS: •FLIGHT SIMULATORS, •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, •SPACECRAFT, COSMIC RAYS,
ELECTROMAGNETIC FIELDS, ELECTROMAGNETIC PROPERTIES,
ELECTRONS, GAMMA RAYS, INTERSTELLAR MATTER, IONS,
METEORITES, MOON, PARTICLES, PHOTONS, PROTON BEAMS,
RADIATION EFFECTS, SOLAR FLARES, SOLAR RADIATION, SUN,
UPPER ATMOSPHERE, VAN ALLEN RADIATION BELT (U)

A SUMMARY OF THE IMPORTANT ASPECTS OF THE
ENVIRONMENT IN CISELUNAR SPACE IMPORTANT TO THE
SIMULATION OF SPACE VEHICLES IS PRESENTED. MODELS
OF THIS ENVIRONMENT ARE DEVELOPED, AND ESTIMATES OF
THE REQUIRED PARAMETERS ARE MADE ON THE BASIS OF
CURRENTLY AVAILABLE DATA. THESE MODELS HAVE BEEN
CONSTRUCTED WITH AN EMPHASIS TOWARD MAXIMUM
SIMPLICITY OF REPRESENTATION, IN ORDER THAT THE
COMPUTATIONS BE COMPATIBLE WITH REAL TIME SIMULATION
OF SPACE VEHICLES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-282 800

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
STERILIZATION OF ELECTRONIC COMPONENTS OF
SPACECRAFT

(U)

IV CORDARO, JOSEPH T.; WYNNE, E. STATEN;

UNCLASSIFIED REPORT

DESCRIPTORS: •DECONTAMINATION, •ELECTRONIC EQUIPMENT,
•MICROORGANISMS, •SPACE FLIGHT, •SPACECRAFT, •SPORES,
CONTAMINATION, DIODES, RESISTORS (U)

CONTAMINATION OF CELESTIAL BODIES WITH EARTH
MICROORGANISMS MIGHT MAKE STUDIES OF ANY
EXTRATERRESTRIAL LIFE IMPOSSIBLE. STERILIZATION OF
HEAT AND/OR RADIATION SENSITIVE ELECTRONIC COMPONENTS
PRESENTS A SPECIAL PROBLEM. USING A FLEXIBLE FILM
GERM-FREE ISOLATOR, INTERNAL CONTAMINATION WAS
DEMONSTRATED IN ONLY 11 OF 166 COMPONENTS, INCLUDING
9 OF 101 CAPACITORS. MOREOVER, THE LEVEL OF NAT
RAL CONTAMINATION IS LOW AND DESTRUCTION OF
MICROORGANISMS IS ASSESSED IN TERMS OF PROBABILITY.
THEREFORE, DEVELOPMENT OF ADEQUATE STERILIZATION
PROCEDURES IS BEING APPROACHED BY DELIBERATE
CONTAMINATION, DURING MANUFACTURE, WITH BACTERIAL
SPORES OF HIGH RESISTANCE TO HEAT AND IRRADIATION.
THE RESULTS OBTAINED WITH SOME TYPES OF RESISTORS
AND DIODES ARE PRESENTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-282 687

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX
A DETAILED ACCOUNT OF CHIMPANZEE PERFORMANCE DURING
THE BALLISTIC AND ORBITAL PROJECT MERCURY FLIGHTS (U)
JUL 62 IV ROHLES, FREDERICK H.; GRUNZKE, MARVIN
E.; REYNOLDS, HERBERT H.;
REPT. NO. TDR62 15

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CONDITIONED REFLEX, •MOTOR REACTIONS,
•PRIMATES, •SPACE FLIGHT, ACCELERATION, DECELERATION,
LABORATORY ANIMALS, WEIGHTLESSNESS (U)
IDENTIFIERS: MERCURY PROJECT (U)

THE INSULTS OF PROLONGED PERIODS WITHOUT SLEEP, THE SUTURING OF THE PHYSIOLOGICAL SENSORS, AND THE LONG PERIOD OF RESTRAINT BEFORE LAUNCH, DID NOT AFFECT PERFORMANCE DURING FLIGHT; THIS ALSO APPEARED TRUE OF THE PROLONGED BREATHING OF 100 PER CENT OXYGEN UNDER REDUCED ATMOSPHERIC PRESSURES FOR THE TIME PERIODS OF THESE FLIGHTS. THE NOISE AND VIBRATION ACCOMPANYING LAUNCH DID NOT AFFECT PERFORMANCE DURING FLIGHT. ACCELERATIONS ACCOMPANYING LAUNCH AND RE-ENTRY IN EXCESS OF 7 G'S HAD AN IMMEDIATE EFFECT UPON PERFORMANCE; HOWEVER, RECOVERY TO A PRELAUNCH LEVEL APPEARED TO BE RAPID. ADAPTATION TO WEIGHTLESSNESS TOOK PLACE DURING THE LONG EXPOSURES TO THE WEIGHTLESS STATE, AND RE-ENTRY ACCELERATIONS DID NOT HAVE AS SEVERE EFFECT UPON PERFORMANCE. URINE AND WATER DRINKING AND DRINKING WERE ACCOMPLISHED DURING WEIGHTLESSNESS WITHOUT DIFFICULTY. THE VISUAL PROCESSES, AS MEASURED, WERE UNAFFECTED BY THE RIGORS OF SPACE FLIGHT; THIS WAS ALSO TRUE OF TEMPORAL RESPONSE PROCESSES AS WELL AS CONTINUOUS AND DISCRETE MOTOR BEHAVIOR. THE PULL AND WATER DISPENSERS FUNCTIONED PROPERLY DURING WEIGHTLESSNESS. THE CHIMPANZEE APPEARS TO BE A HIGHLY RELIABLE SUBJECT FOR FUTURE SPACE FLIGHTS.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-277 356

CALIFORNIA UNIV LOS ANGELES

A COMPARISON OF ASTRONOMICAL AND BALLISTIC TRADITIONS
IN ORBIT CORRECTION (U)

MAY 62 IV HERRICK, SAMUEL;

REPT. NO. AR14

CONTRACT: AF49 638 498

UNCLASSIFIED REPORT

DESCRIPTORS: *SPACE FLIGHT, CELESTIAL MECHANICS, ERRORS,
EXTERIOR BALLISTICS, FLIGHT PATHS, MATHEMATICAL
ANALYSIS, MATHEMATICAL PREDICTION, ORBITAL TRAJECTORIES,
PARTIAL DIFFERENTIAL EQUATIONS, PERTURBATION THEORY,
RENDEZVOUS SPACECRAFT, SPACE NAVIGATION, SPACECRAFT,
VECTOR ANALYSIS (U)

A MATHEMATICAL STUDY IS PRESENTED OF DIFFERENTIAL
FORMULAE, WHICH ARE USEFUL IN THE MATHEMATICAL
DIFFERENTIAL CORRECTION OF AN APPROXIMATE ORBIT INTO
BETTER AGREEMENT WITH OBSERVATION, IN THE PHYSICAL OR
THRUST DIFFERENTIAL CORRECTION OF A NON-RENDEZVOUS
TRAJECTORY INTO ONE THAT INTERCEPTS ITS TARGET, IN
GUIDANCE, IN ERROR ANALYSIS, AND IN OPTIMIZATION.
THE DISCUSSION IS LIMITED TO A COMPARISON OF
ASTRONOMICAL DIFFERENTIAL CORRECTION METHODS WITH THE
ADJOINT METHOD THAT HAS COME INTO SPACE NAVIGATION
FROM BALLISTICS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-276 171

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. A.
BIOSCIENCES (U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: •LITERATURE, •RADIOBIOLOGY, •SPACE FLIGHT,
•SPACE MEDICINE, BIOLOGY, BLOOD, EFFECTIVENESS, FEVERS,
SURVIVAL (U)
IDENTIFIERS: USSR (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-276 049

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
TIME PROFILE OF TISSUE IONIZATION DOSAGES FOR
BAILEY'S SYNTHETIC SPECTRUM OF A TYPICAL SOLAR FLARE
EVENT (U)

APR 62 1V SCHAEFER, HERMANN J.;
REPT. NO. 22

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PROTONS, •SOLAR FLARES, •SPACE FLIGHT,
DOSE RATE, IONIZATION, RADIATION EFFECTS, RADIATION
HAZARDS, RADIOBIOLOGY, SIMULATION, SOLAR RADIATION,
SOLAR SPECTRUM, TISSUES (BIOLOGY) (U)

THE PROFOUND CHANGES IN THE ENERGY SPECTRUM DURING
BUILD-UP AND DECAY OF A SOLAR PROTON BEAM ARE
REFLECTED IN SIMILAR CHANGES OF THE TISSUE
IONIZATION DOSE WITHIN A HUMAN TARGET. ABSOLUTE
DOSE RATES AS WELL AS PENETRATING POWER CHANGE OVER
A VERY WIDE RANGE DURING A FLARE EVENT. THE GRAND
TOTAL OF SURFACE DOSE (SKIN) BEHIND 2 G/SQ CM
SHIELDING OVER 64 HOURS EQUALS 200 ROENTGENS. THE
COMPLEX TRANSITIONS OF THE INSTANTANEOUS DOSE RATE
AND INTEGRAL DOSE WITHIN THE TARGET WHILE THE FLARE
EVENT IS IN PROGRESS ARE PRESENTED IN A NUMBER OF
GRAPHS AND TABLES. THE PROTRACTION OF EXPOSURE
OVER A PERIOD OF MORE THAN 2 DAYS INDICATES THAT TIME
FACTOR AND RECOVERY PHENOMENA WILL PRODUCE A SIZEABLE
ALLEVIATION OF THE NET RADIATION INJURY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-275 047

JET PROPULSION LAB PASADENA CALIF
DESIGN OF LUNAR AND INTERPLANETARY ASCENT
TRAJECTORIES

(U)

MAR 62 1V CLARKE, VICTOR C. JR.;
REPT. NO. TR32 30 REV1
CONTRACT: NAS7 100

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ORBITAL TRAJECTORIES, •SPACE FLIGHT,
ASCENT TRAJECTORIES, AZIMUTH, DESIGN, GEOMETRY,
INJECTION, INTERPLANETARY TRAJECTORIES, LAUNCHING,
LAUNCHING SITES, MARS, MATHEMATICAL ANALYSIS, MOON,
PARKING ORBIT TRAJECTORIES, TIME, VENUS

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 826

MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
SOME ASPECTS OF SPACE COMMUNICATION

(U)

MAR 62 1V BRENNAN, D.G.;

CONTRACT: NASW161

UNCLASSIFIED REPORT

DESCRIPTORS: •COMMUNICATION SYSTEMS, •COMMUNICATION THEORY, •NOISE (RADIO), •PHASE MEASUREMENT, •RADIO INTERFERENCE, •RADIO SIGNALS, •RADIO WAVES, •SPACE FLIGHT, •WAVE TRANSMISSION, ATTENUATION, ERRORS, EXTRATERRESTRIAL RADIO WAVES, IONIZATION, IONOSPHERIC PROPAGATION, LUNAR PROBES, MATHEMATICAL ANALYSIS, MEASUREMENT, MULTIPATH TRANSMISSION, PHASE DETECTORS, PROPAGATION, REDUCTION, SIGNAL-TO-NOISE RATIO, SOLAR FLARES, SPACE COMMUNICATION SYSTEMS, SPACE PROBES, TELEMETERING TRANSMITTERS, TESTS, ULTRAHIGH FREQUENCY

(U)

IDENTIFIER : SPACE COMMUNICATIONS. CONTENTS:
PHYSICS OF THE PROPAGATION MEDIUM, BY J. C. JAMES
PROPAGATION EFFECTS, BY D. G. BRENNAN CHANNEL
MEASUREMENTS ON TELEMETRY TRANSMISSIONS, BY JOEL
MAX SIGNAL SETS WITH UNIFORM CORRELATION
PROPERTIES, BY JOEL MAX PHASE AND FREQUENCY
ESTIMATES, BY JOEL MAX INTERFERENCE REDUCTION
BY T. F. ROGERS

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 457L

ACF INDUSTRIES INC RIVERDALE MD ACF ELECTRONICS DIV
AN ADVANCED SIMULATION FACILITY FOR LIFE SCIENCES
RESEARCH (U)

OCT 61 IV HILBORN, EDWIN H.; ROWE, JOHN J.;

REPT. NO. 46 4739

CONTRACT: N156 40074

UNCLASSIFIED REPORT

USGO

DESCRIPTORS: •CLOSED-CYCLE ECOLOGICAL SYSTEMS, •MANNED,
•SPACE FLIGHT, •SPACE MEDICINE, •STRESS (PSYCHOLOGY),
•TEST FACILITIES, AIR, COMPUTERS, MATHEMATICAL COMPUTER
DATA, MILITARY REQUIREMENTS, OXYGEN, PURIFICATION,
RECOVERY, SIMULATION, TEST EQUIPMENT, WATER (U)

(OXYGEN, WATER, RECOVERY.) (AIR,
PURIFICATION.) IDENTIFIERS:

BIOASTRONAUTICS. A STUDY WAS CONDUCTED DEALING
WITH THE DESIGN OF AN ADVANCED LIFE SCIENCES FACILITY
APPROPRIATE FOR DEVELOPING RESEARCH DATA REGARDING
POTENTIAL MAN-MACHINE PROBLEMS IN FUTURE MANNED SPACE
FLIGHT PROGRAMS AND FOR OBTAINING INFORMATION AS TO
THE OPTIMAL SOLUTION TO SUCH PROBLEMS.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-274 312

JET PROPULSION LAB PASADENA CALIF

FEASIBILITY OF INTERSTELLAR TRAVEL

(U)

MAR 62

1V

SPENCER, DWAIN F.; JAFFE, LEONARD D.;

REPT. NO. TR32 233

CONTRACT: NAS7 100

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, EQUATIONS, FEASIBILITY STUDIES, GUIDED MISSILE TRAJECTORIES, MATHEMATICAL ANALYSIS, NUCLEAR PROPULSION, ROCKET PROPULSION, SPACECRAFT, STARS, THEORY, TIME, VELOCITY

(U)

THE FEASIBILITY OF INTERSTELLAR FLIGHT IS DISCUSSED. MATHEMATICAL EQUATIONS FOR SINGLE-STAGE AND MULTISTAGE ROCKET PROPULSION ARE DEVELOPED; VELOCITY DATA AND TRANSIT TIMES ARE PRESENTED. THE CONCLUSIONS INDICATE THAT INTERSTELLAR TRAVEL IS THEORETICALLY FEASIBLE BY UTILIZING KNOWN STAGED NUCLEAR-ENERGY SYSTEMS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 053

CORNELL AERONAUTICAL LAB INC BUFFALO N Y
A SURVEY OF BIOASTRONAUTICS 1961-1962 RESOURCES FOR
RESEARCH AND DEVELOPMENT (U)
IV WHITE, WILLIAM J.;

REPT. NO. TDR62 2
CONTRACT: AF18.600 1916
MONITOR: AFSC TDR62 2

UNCLASSIFIED REPORT

DESCRIPTORS: •COMPUTERS, •HUMAN ENGINEERING, •MANNED,
•PERSONNEL, •SCIENTIFIC RESEARCH, •SPACE FLIGHT,
BEHAVIOR, COSTS, ENGINEERING PERSONNEL, LOGISTICS,
SCIENTIFIC PERSONNEL, SIMULATION, SPACE ENVIRONMENTAL
CONDITIONS, SPACE MEDICINE, STRESS (PHYSIOLOGY), STRESS
(PSYCHOLOGY), TRAINING (U)
IDENTIFIERS: APOLLO, MERCURY PROJECT, X-20
SPACECRAFT (U)

FOREMOST AMONG THE QUESTIONS TO BE ANSWERED BY
FUTURE EXPLORATION OF SPACE ARE THOSE CONCERNED WITH
BIOASTRONAUTICS. A RESEARCH AND DEVELOPMENT
PROGRAM FOR MANNED SPACE FLIGHT DURING THE NEXT TWO
DECADES WILL SERVE BOTH TO ESTABLISH HUMAN
PRODUCTIVITY IN SPACE-BASED SYSTEMS AND TO STIMULATE
THE ADVANCEMENT OF CONCEPTS OF MILITARY ACTION FOR
EXPLOITING HUMAN CAPABILITIES. INFORMATION AND
IDEAS WHICH MUST BE CONSIDERED IN THE FORMULATION OF
A LONG RANGE PROGRAM AIMED AT MANNED EXPLORATION AND
USE OF OUTER SPACE ARE DISCUSSED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 822

JET PROPULSION LAB PASADENA CALIF
INTERPLANETARY TRAJECTORY OPTIMIZATION WITH POWER-
LIMITED PROPULSION SYSTEMS (U)
IV MELBOURNE, W.G. | RICHARDSON, D.E. |

SAUER, C.G. |

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •MARS, •SPACE FLIGHT, •SPACECRAFT, CALCULUS
OF VARIATIONS, CONFIGURATION, INTERIOR BALLISTICS,
INTERPLANETARY TRAJECTORIES, MATHEMATICAL PREDICTION,
ORBITAL TRAJECTORIES, RENDEZVOUS SPACECRAFT, ROCKET
PROPULSION, THRUST (U)

A TRAJECTORY-OPTIMIZATION PROCESS IS DESCRIBED IN
WHICH THE OPTIMUM-THRUST EQUATIONS ARE DERIVED USING
THE CALCULUS OF VARIATIONS. THE MAGNITUDE OF THE
THRUST IS CONSTRAINED WITHIN AN UPPER AND A LOWER
BOUND, BUT THE THRUST DIRECTION IS ARBITRARY. THIS
FORMULATION ALLOWS BOTH THE CONSTANT-THRUST PROGRAM
AND THE VARIABLE-THRUST PROGRAM TO BE CONSIDERED.
FOR THE CONSTANT THRUST PROGRAM, CERTAIN PROPULSION-
SYSTEM PARAMETERS ARE OPTIMIZED FOR MAXIMUM FINAL
VEHICLE MASS. THIS THEORY WAS USED TO STUDY
INTERPLANETARY MISSIONS TO VENUS AND MARS USING A
POWER-LIMITED PROPULSION SYSTEM. BOTH ONE-WAY AND
ROUND-TRIP RENDEZVOUS TRAJECTORIES ARE CONSIDERED.
THE ANALYSIS EMPLOYS A TWO-BODY INVERSE-SQUARE
FORCE-FIELD MODEL OF THREE DIMENSIONS. AN
ITERATIVE ROUTINE USED TO SOLVE THE TWO-POINT
BOUNDARY-VALUE PROBLEM IS DESCRIBED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 479

AEROSPACE CORP EL SEGUNDO CALIF
TAKE-OFF FROM A CIRCULAR ORBIT BY LOW-CIRCUMFERENTIAL
THRUST (U)

IV BILLIK,B.;

UNCLASSIFIED REPORT

DESCRIPTORS: •CELESTIAL MECHANICS, •ORBITAL
TRAJECTORIES, •SPACE FLIGHT, BESSEL FUNCTIONS,
DIFFERENTIAL EQUATIONS, DYNAMICS, EQUATIONS, INTEGRAL
EQUATIONS, MATHEMATICAL ANALYSIS, MOTION, PERTURBATION
THEORY, SATELLITES (ARTIFICIAL), SEPARATION, SPACECRAFT,
TAKE-OFF (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 301

GENERAL DYNAMICS/POMONA CALIF

LUNAR VEHICLE GUIDANCE STUDY

(U)

MAR 62 IV FRIMTZIS,R.;

REPT. NO. AE 61 1241

CONTRACT: AF33 616 7966

MONITOR: ASD TDR62 207

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •GUIDANCE, •MOON, •SPACE FLIGHT, ANALYSIS,
CIRCUMLUNAR TRAJECTORIES, DATA, DETERMINATION, DIGITAL
COMPUTERS, FLIGHT PATHS, LANDINGS, LAUNCHING, LAUNCHING
SITES, LUNAR SURFACE VEHICLES, MANNED, SIMULATION, SPACE
NAVIGATION, SPACECRAFT (U)

THE RESULTS OF A STUDY OF LUNAR VEHICLE GUIDANCE
ARE PRESENTED. OBJECTIVES OF THIS STUDY WERE TO
SELECT AND INVESTIGATE TRAJECTORIES FOR MANNED
CIRCUMLUNAR FLIGHTS, AND TO SELECT AND INVESTIGATE
TRAJECTORIES AND COMPATIBLE GUIDANCE CONCEPTS FOR
MANNED MOON-TO-EARTH FLIGHTS. BOTH COPLANAR AND
NON-COPLANAR BALLISTIC CIRCUMLUNAR TRAJECTORIES WERE
STUDIED. LAUNCH AND INJECTION CHARACTERISTICS FOR
BOTH TRANS-LUNAR AND TRANSEARTH FLIGHTS WERE
ANALYZED. ALSO, A GUIDANCE CONCEPT FOR BOTH LUNAR
TAKE-OFF AND MIDCOURSE CORRECTIONS WAS ASCERTAINED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 022

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION ABSTRACTS, VOLUME V, NO. 2
(ABSTRACTS 5,101-5,200) (U)

FEB 62 1V HARDGROVE, B.J.; WARREN, F.L.;

CONTRACT: NAS7 100

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, •SPACE MEDICINE, ANTENNAS, GUIDANCE,
MAGNETOHYDRODYNAMICS, MOON, NAVIGATION, PLANETS, ROCKET
RESEARCH, SATELLITES (ARTIFICIAL), SPACE NAVIGATION,
SPACECRAFT (U)

IDENTIFIERS: APOLLO, ECHO, RANGER SPACECRAFT, TIROS,
VANGUARD (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-272 847

RAND CORP SANTA MONICA CALIF
RECENT SOVIET ADVANCES IN AEROSPACE TECHNOLOGY (U)
IV KRIEGER, F. J. ;

UNCLASSIFIED REPORT

DESCRIPTORS: •RESEARCH PROGRAM ADMINISTRATION, •ROCKET
MOTORS, •SPACE FLIGHT, GUIDED MISSILES, LAUNCHING, LUNAR
PROBES, MANNED, ROCKET PROPULSION, SATELLITES
(ARTIFICIAL), SPACE PROBES, SPACECRAFT, STABILIZATION,
STAGING, THRUST (U)
IDENTIFIERS: LUNIK, SPUTNIK, USSR (U)

IDENTIFIERS: LUNIK, SPUTNIK. THE SOVIET AEROSPACE PROGRAM HAS BEEN DEVELOPING IN THREE WELL-DEFINED, ALTHOUGH INTERRELATED, PHASES--THE EARTH-ORBITAL, THE LUNAR, AND THE INTERPLANETARY--WITH CORRESPONDING INCREASE IN TECHNOLOGICAL COMPLEXITY. ALL PHASES RE AID A EVENTUAL MANNED INTERPLANETARY TRAVEL. THE CURRENT EARTH-ORBITAL, OR MAN-IN-SPACE, PROGRAM, HAVING RECEIVED THE GREATEST EMPHASIS, HAS PERFORMED BEEN THE MOST SUCCESSFUL. IN THE INTEREST OF ECONOMY AND EFFICIENCY, THERE IS A TREND IN THE SOVIET UNION TOWARD THE DEVELOPMENT OF MORE POWERFUL PROPULSION SYSTEMS FOR LAUNCHING SPACE VEHICLES THAN HERETOFORE USED BY COMBINING ROCKET MOTORS WITH SPECIAL PURPOSE TURBOJET AND RAMJET ENGINES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-271 817

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIC TRIPS (U)

FEB 62 1V BEREZIN, V. I.
REPT. NO. TT 62 41

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
MANNED, ORBITAL TRAJECTORIES, SPACE PROBES, (U)
TRANSLATIONS, VENUS (U)
IDENTIFIERS: USSR (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-271 602

BELL AEROSYSTEMS CO BUFFALO N Y
STUDY AND EXPERIMENTAL RESEARCH INTO FLIGHT
INSTRUMENTATION FOR VEHICLE OPERATION IN THE FRINGE
OR OUTSIDE OF THE ATMOSPHERE. VOLUME I. SUMMARIES OF
THE ANALYSES OF SENSING TECHNIQUES (U)
NOV 61 IV STEPHAN, SAMUEL C. JR.;
REPT. NO. 60003 D77 V1
CONTRACT: AF33 616 7289
MONITOR: ASD TR61 142 V1

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CELESTIAL MECHANICS, •DETECTORS, •FLIGHT
INSTRUMENTS, •HYPERSONIC CHARACTERISTICS,
•INSTRUMENTATION, •SPACE FLIGHT, •SUPERAERODYNAMICS,
ACCELEROMETERS, ALTIMETERS, ATTENUATION, ATTITUDE
INDICATORS, BOUNDARY LAYER, CONTROL SYSTEMS, DOPPLER
RADAR, ELECTROMAGNETIC PROPERTIES, FEASIBILITY STUDIES,
GAS IONIZATION, HEAT TRANSFER, HEIGHT FINDING, HORIZON
SCANNERS, HORIZONTAL INDICATORS, HYPERVELOCITY VEHICLES,
INERTIAL GUIDANCE, IONOSPHERE, METERS, ORBITAL
TRAJECTORIES, POSITION FINDING, RADAR EQUIPMENT, RADIO
EQUIPMENT, RADIO WAVES, REENTRY VEHICLES, SATELLITE
ATTITUDE, SATELLITES (ARTIFICIAL), SPACE ENVIRONMENTAL
CONDITIONS, SPACECRAFT, TABLES, TRACKING, UPPER
ATMOSPHERE, VERTICAL INDICATORS (U)

ANCE, RADAR EQUIPMENT, RADIO EQUIPMENT, DOPPLER
RADAR.) (BOUNDARY LAYER, •DETECTORS, GAGES,
•HYPERSONICS, •SUPERAERODYNAMICS, HEAT TRANS
FER, ELECTROMAGNETIC EFFECTS, GAS IONIZATION,
RADIO WAVES, ATTENUATION, TABLES.)

IDENTIFIERS: HORIZON SCANNERS. THE RESULTS ARE
SUMMARIZED OF A DETAILED INVESTIGATION OF
INSTRUMENTATION TECHNIQUES THAT CAN PROVIDE DATA FOR
THE CONTROL OF VEHICLES OPERATING IN THE FRINGE OR
OUTSIDE OF THE EARTH'S ATMOSPHERE. THE TYPE OF
TECHNIQUES INVESTIGATED INCLUDE: ENVIRONMENTAL
SENSING, OPTICAL AND INFRARED RADIATION, RADIO AND
RADAR TRANSMITTING AND RECEIVING, AND INERTIAL
SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-271 395

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS, VOLUME V, NO. 1

(ABSTRACTS 5,001-5,100)

(U)

JAN 62 IV HARDGROVE, B.J.; WARREN, F.L.;

CONTRACT: NAS7 100

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, ROCKET RESEARCH, SATELLITES (ARTIFICIAL), SPACE
MEDICINE, SPACE NAVIGATION, SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 925

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

A STUDY OF GUIDANCE SENSITIVITY FOR VARIOUS LOW-
THRUST TRANSFERS FROM EARTH TO MARS (U)

FEB 62 1V FRIEDLANDER, ALAN L.;
REPT. NO. TN D 1183

UNCLASSIFIED REPORT

DESCRIPTORS: *GUIDANCE, *SPACE FLIGHT, *SPACE
NAVIGATION, MARS, MATHEMATICAL LOGIC, ORBITAL
TRAJECTORIES, PERTURBATION THEORY, SENSITIVITY, VECTOR
ANALYSIS (U)

AN ANALYSIS OF GUIDANCE SENSITIVITY BASED ON
METHODS OF LINEAR PERTURBATION THEORY AND ADJOINT
FUNCTIONS IS PRESENTED. THE FUNDAMENTAL GUIDANCE
EQUATION IS DERIVED AND ITS INTERPRETATIONS ARE
DISCUSSED. THE CHARACTERISTICS OF THE SENSITIVITY
COEFFICIENTS AND FUNCTIONS FOR A TYPICAL LOW-THRUST
TRAJECTORY ARE DESCRIBED. THE EFFECTS OF INITIAL
VELOCITY ERRORS ON THE FINAL POSITION AND VELOCITY
ARE PRESENTED FOR EXTENSIVE RANGE OF INITIAL THRUST-
WEIGHT RATIO, SPECIFIC IMPULSE, AND TRANSFER TIME. (U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 539

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C
RESULTS OF THE SECOND U.S. MANNED SUBORBITAL SPACE
FLIGHT, JULY 21, 1961 (U)
JUL 61 IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, ASTRONAUTS,
MANNED, PHYSIOLOGY, SPACECRAFT, WEIGHTLESSNESS (U)
IDENTIFIERS: MERCURY PROJECT (U)

CONTENTS: SPACECRAFT AND FLIGHT PLAN FOR THE
MERCURY-REDSTONE 4 FLIGHT; RESULTS OF THE MR-
4 PREFLIGHT AND POSTFLIGHT MEDICAL EXAMINATION
CONDUCTED ON ASTRONAUT VIRGIL I. GRISSOM
PHYSIOLOGICAL RESPONSES OF THE ASTRONAUT IN THE
MR-4 SPACE FLIGHT; FLIGHT SURGEON'S REPORT
FOR MERCURY-REDSTONE MISSIONS 3 AND 4;
RESULTS OF INFLIGHT PILOT PERFORMANCE STUDIES FOR
THE MR-4 FLIGHT; AND PILOT'S FLIGHT
REPORT. (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 179

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY,

VOLUME 4, NO. 6 (ENTRIES 41,269-41,476)

(U)

DEC 61

IV

CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,

B.H.;

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SCIENTIFIC
RESEARCH, •SPACE FLIGHT, COMMUNICATION SYSTEMS,
MAGNETRONS, MASERS, NUCLEAR PROPULSION, SATELLITES
(ARTIFICIAL), SOLAR CELLS, SOLAR CORONA, SPACE
NAVIGATION, UPPER ATMOSPHERE (U)

IDENTIFIERS: COURIER, EXPLORER, MERCURY PROJECT,
VOSTOK, WEST FORD PROJECT, X-15 AIRCRAFT (U)

AD-27AD-270 180 DIV. 30 U (TISTE/MS) IBM
COMMAND CONTROL CENTER, FEDERAL SYSTEMS
DIV., KINGSTON, N. Y. EFFECTS OF CLUTTER AND
TRACK DENSITY ON TRACK MONITOR PERFORMANCE. APPENDIX
III. BY CHARLES R. PETTIE, RITA M. HALSEY,
AND WELLINGTON E. SMITH. DEC 61, 58P. TABLES.

(CONTRACTS AF 30(635)3130 AND AF

30(635)1404) (AFCCDD TN 61-34, VOL. 1)

UNCLASSIFIED REPORT DESCRIPTORS: (•DATA

PROCESSING SYSTEMS, •DATA, TABLES,

SIMULATION.) (•TRACKING, MONITORS,

•RADAR INTERFERENCE, EFFECTIVENESS.)

BUSINESS MACHINE OPERATORS, AVIATION PERSONNEL.

IDENTIFIERS: SAGE, AN/FSQ-7, CLUTTER.

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 879

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION, ABSTRACTS, VOLUME IV, NO. 6

(ABSTRACTS 4,522-4,616) (U)

DEC 61 IV HARDGROVE, B.J.; WARREN, F.L.;

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT, ABLATION, ACCELERATION, ASTROPHYSICS, ATMOSPHERE, BIBLIOGRAPHIES, BIOLOGY, BLOOD VOLUME, CAMERAS, CLOSED-CYCLE ECOLOGICAL SYSTEMS, COMMUNICATION SYSTEMS, GASES, GRAVITY, GUIDANCE, HEAT TRANSFER, HIGH-TEMPERATURE RESEARCH, HYPERVELOCITY GUNS, IONIZATION GAGES, IONOSPHERE, LASERS, LUNAR PROBES, LUNAR SURFACE VEHICLES, MAGNETOHYDRODYNAMICS, MATERIALS, METEORITES, MOON, NUCLEAR ENERGY, ORBITAL TRAJECTORIES, PHYSIOLOGY, POWER SUPPLIES, PSYCHOLOGY, REENTRY VEHICLES, RETRO ROCKETS, SPACE MEDICINE, SPACECRAFT (U)

IDENTIFIERS: AEROBEE, AEROBEE HI, EXPLORER, LUNIK, MANHIGH PROJECT, PIONEER, RANGER SPACECRAFT, SCOUT, SNAP, TRANSIT (U)

IDENTIFIERS: AEROBEE, AEROBEE-HI, LUNIK II, BLUE SCOUT JR., EXPLORER, HUGO, LASERS, MAN HIGH, RETRO-ROCKETS, LUNAR VEHICLES, PIONEER, RANGER, TRANSIT, SNAP. (U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 794

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY

DIV

SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS (U)

1V

UNCLASSIFIED REPORT

DESCRIPTORS: •REPORTS, •SPACE FLIGHT, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, LABORATORY ANIMALS, MANNED,
RADIATION DAMAGE, RADIATION EFFECTS, STRESS
(PHYSIOLOGY), STRESS (PSYCHOLOGY), TELEMETERING DATA,
WEIGHTLESSNESS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 645

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
INTERPLANETARY ROUTES (U)

MAY 61 1V SHTERNFEL'D, A.;

REPT. NO. MCL 1264

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ANALYSIS, BOOSTER MOTORS,
FLIGHT PATHS, LAUNCHING, NAVIGATION, SPACE NAVIGATION,
SPACE PROBES, SPACECRAFT, THEORY, VELOCITY (U)
IDENTIFIERS: USSR (U)

SPACEFLIGHT IS DISCUSSED IN TERMS OF ROCKET
BOOSTERS, LAUNCHING VELOCITY, FLIGHT DURATION, FLIGHT
TRAJECTORIES, OPTIMUM LAUNCHING TIME, AND LAUNCHING
DELAYS AND ERRORS. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 640

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE DAWN OF THE SPACE AGE. GENERAL MEETING OF THE
ACADEMY OF SCIENCES, USSR, DEVOTED TO THE FIRST
MANNED SPACE FLIGHT (U)

AUG 61 1V KELDYSH, M.; BLAGONRAVOV, A. A.;
REPT. NO. MCL 1252

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT, ASTROPHYSICS,
ATMOSPHERE, ATMOSPHERE MODELS, GEOPHYSICS, GUIDED
MISSILES, IONOSPHERE, LUNAR PROBES, MANNED, SATELLITES
(ARTIFICIAL), SPACE PROBES, UPPER ATMOSPHERE, VENUS (U)
IDENTIFIERS: USSR, VOSTOK (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 179

AEROSPACE CORP EL SEGUNDO CALIF

APPLIED RESEARCH MANAGEMENT ABSTRACT BULLETIN. PART

1. ABSTRACTS 1-229 THROUGH 1-448

(U)

AUG 61 IV

CONTRACT: AFD4 647 930

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •POWER SUPPLIES, •SPACE
FLIGHT, AUXILIARY POWER PLANTS, ELECTRIC POWER
PRODUCTION, MATERIALS, PROPULSION

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 871

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
HERALD OF THE ACADEMY OF SCIENCES OF THE USSR
(SELECTED ARTICLES)

(U)

DEC 61 IV

REPT. NO. MCL 1168

UNCLASSIFIED REPORT

DESCRIPTORS: •MOON, •SPACE FLIGHT, ATMOSPHERE, BIOLOGY,
GEOLOGY, GEOPHYSICS, PHYSIOLOGY, SPACE MEDICINE (U)
IDENTIFIERS: USSR (U)

A NEW STAGE OF LUNAR STUDY: A REVIEW IS PRESENTED OF THE STRUCTURAL AND PHYSICAL CHARACTERISTICS OF THE MOON. THE COMPOSITION AND FORMATION OF THE SURFACE, POSSIBLE EXISTENCE OF ATMOSPHERE, AND TEMPERATURE OF THE MOON ARE DISCUSSED IN RELATION TO STUDIES CONDUCTED IN THE USA, FRANCE, RUSSIA AND IRELAND. FLIGHT OF THE SECOND COSMIC SHIP: A REPORT IS GIVEN OF THE PRESS CONFERENCE HELD ON AUGUST 24, 1960, BY THE PRESIDUM OF THE USSR ACADEMY OF SCIENCES. THE PURPOSE AND THE PRELIMINARY RESULTS OF THE SOVIET FLIGHT OF AUGUST 19, 1960 WHICH CARRIED EXPERIMENTAL ANIMALS AND OTHER LIVING ORGANISMS AROUND THE EARTH ARE DISCUSSED.

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 840

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C
ELEMENTS AND PARAMETERS OF THE OSCULATING ORBIT AND
THEIR DERIVATIVES, (U)
JAN 62 49P DOBSON, WILBUR F. ; HUFF,
VEARL N. ; ZIMMERMAN, ARTHUR V. ;
REPT. NO. NASA-TN-D-1106

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ALSO AVAILABLE FROM NASA.

DESCRIPTORS: •CELESTIAL MECHANICS , •SPACE FLIGHT ,
DYNAMICS , EQUATIONS , MATHEMATICAL ANALYSIS , ORBITAL
TRAJECTORIES , PERTURBATION THEORY ,
SATELLITES (ARTIFICIAL) (M)

THE ANALYSIS DETERMINES THE TIME DERIVATIVES OF THE
CONIC-SECTION ORBITAL ELEMENTS IN A DISTURBED ORBIT
BY PERTURBATION METHODS. INTEGRATION OF ANY OF THE
SEVERAL RESULTING SYSTEMS OF SIX FIRST-ORDER LINEAR
DIFFERENTIAL EQUATIONS BY NUMERICAL METHODS CAN BE A
USEFUL TOOL FOR THE SOLUTION OF PROBLEMS IN ORBITAL
MECHANICS. EQUATIONS FOR THE TWO-BODY ORBIT ARE
ALSO SUMMARIZED IN A CONVENIENT MANNER.
(AUTHOR) (U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AO-268 737

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

SPACE DEBRIS HAZARD EVALUATION (U)

DEC 61 IV DAVISON, ELMER H.; WINSLOW, PAUL C.

JR.;

REPT. NO. TN D 1105

UNCLASSIFIED REPORT

DESCRIPTORS: •INTERSTELLAR MATTER, •SPACE FLIGHT,
COMETS, HAZARDS, METEORITES, METEORS, PLANETS,
SPACECRAFT DEBRIS (U)

THE HAZARD TO SPACE VEHICLES FROM NATURAL SPACE
DEBRIS WAS EXPLORED. A SURVEY OF THE AVAILABLE
INFORMATION PERTINENT TO THIS PROBLEM IS PRESENTED.
THE CONCLUSION REACHED IS THAT A DEFINITE HAZARD
EXISTS BUT THAT IT CAN ONLY BE POORLY ASSESSED ON THE
BASIS OF PRESENT INFORMATION. THE NEED FOR DIRECT
MEASUREMENT OF THIS HAZARD IS OBVIOUS, AND SOME OF
THE PROBLEMS INVOLVED IN MAKING THESE DIRECT
MEASUREMENTS HAVE BEEN EXPLORED. (AUTHOR) (U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 632

AEROJET-GENERAL CORP AZUSA CALIF
RESEARCH STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FORSPACE MISSIONS. VOLUME IIB. RESEARCH
STUDIES (FIGURES AND TABLES). (U)

DEC 61 IV

REPT. NO. 2150 V28

CONTRACT: NASS 915

UNCLASSIFIED REPORT

DESCRIPTORS: *ROCKET PROPULSION, *SPACE FLIGHT, DATA,
ELECTRIC PROPULSION, FLIGHT PATHS, GUIDANCE, GUIDED
MISSILE TRAJECTORIES, HYBRID ROCKET PROPELLANTS,
LANDINGS, LAUNCHING, LIQUID ROCKET PROPELLANTS, LUNAR
PROBES, MANNED, MILITARY REQUIREMENTS, NUCLEAR
PROPULSION, ORBITAL TRAJECTORIES, PROPULSION, RENDEZVOUS
SPACECRAFT, ROCKET PROPELLANTS, SOLID ROCKET
PROPELLANTS, SPACE PROBES, TABLES, THRUST (U)

PRESENTATION IS MADE OF FIGURES AND TABLES REFERRED
TO IN VOLUME IIA (AD-268 631) OF THE FINAL
REPORT WHICH DOCUMENTS PHASE I OF THE RESEARCH
STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FOR SPACE MISSIONS.
(AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 630

AEROJET-GENERAL CORP AZUSA CALIF
RESEARCH STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FOR SPACE MISSIONS. VOLUME I SUMMARY (U)

DEC 61 1V

REPT. NO. 2150 VI

CONTRACT: NASS 915

UNCLASSIFIED REPORT

DESCRIPTORS: *NUCLEAR PROPULSION, *SPACE FLIGHT,
ELECTRIC PROPULSION, GUIDANCE, HYBRID ROCKET
PROPELLANTS, LANDINGS, LAUNCHING, LIQUID ROCKET
PROPELLANTS, LUNAR PROBES, MANNED, MILITARY
REQUIREMENTS, ORBITAL TRAJECTORIES, PROPULSION,
RENDEZVOUS SPACECRAFT, ROCKET PROPELLANTS, ROCKET
PROPULSION, SATELLITES (ARTIFICIAL), SOLID ROCKET
PROPELLANTS, SPACE PROBES, SPACECRAFT, THRUST (U)
IDENTIFIERS: CENTAUR, NOVA, SATURN (U)

MISSION ANALYSIS: ORBITAL CORRECTIONS; ORBITAL
RENDEZVOUS; LUNAR AND INTERPLANETARY TRAJECTORY
CORRECTIONS; LUNAR AND PLANETARY ORBITING
MANEUVERS; LUNAR AND PLANETARY LANDINGS; AND
LUNAR AND PLANETARY TAKEOFFS. SYSTEM CONCEPTS:
CHEMICAL SYSTEMS; NUCLEAR HEAT-TRANSFER SYSTEMS;
ELECTRIC ENGINE SYSTEMS; CONTROL CHARACTERISTICS;
AND OPERATIONAL CONSIDERATIONS. MISSION/SYSTEM
CLASSIFICATION: PROPULSION REQUIREMENTS;
SYSTEM CONCEPTS; AND CATEGORIZATION OF
PROPULSION REQUIREMENTS. OBJECTIVES AND APPROACH:
LUNAR MISSION; AND 24-HR SATELLITE MISSION.
LUNAR MISSIONS: MANNED CIRCUMLUNAR MISSIONS;
MANNED LUNAR ORBITING AND RETURN MISSIONS; AND
MANNED LUNAR LANDING AND RETURN MISSION.
UNMANNED 24-HR SATELLITE MISSION; MISSION
REQUIREMENTS; AND SYSTEM SELECTION AND
SPECIFICATION. (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-267 019

JET PROPULSION LAB PASADENA CALIF
ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY.
VOLUME IV, NO. 2. ENTRIES 40, 203-40, 453 (U)
IV CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,
B.H.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •ASTRONOMY, •BIBLIOGRAPHIES,
•RADIO ASTRONOMY, •SPACE FLIGHT, •SPACECRAFT,
COMMUNICATION SYSTEMS, COSMIC RAYS, ENERGY CONVERSION,
METEORITES, METEORS, NUCLEAR PROPULSION, SATELLITES
(ARTIFICIAL), SOLAR CORONA, SOLAR FLARES, SOLAR
RADIATION, SPACE CAPSULES (U)

IN GENERAL, COVERAGE OF ASTRONAUTICS
INFORMATION SURVEY IS RESTRICTED TO SPACEFLIGHT
AND TO APPLICABLE DATA AND TECHNIQUES. DATA AND
TECHNIQUES ARISING FROM OTHER TECHNOLOGIES ARE
REPORTED IF THE RELATIONSHIP TO ASTRONAUTICS IS
CLEAR. FOR EXAMPLE, COVERAGE IS GIVEN TO
PROPULSION WHEN RELATED TO SPECIFIC SPACE-TRAVEL
MISSIONS AND TO METEOROLOGY WHEN RELATED TO THE
ENVELOPE BEYOND THE STRATOSPHERE. AERONAUTICS,
COMMUNICATIONS, GUIDANCE, INSTRUMENTATION,
MATERIALS, VEHICLE ENGINEERING, ETC., ARE TREATED
SIMILARLY, THE INTENT BEING TO GIVE FULL COVERAGE TO
ASTRONAUTICS BUT TO EXCLUDE PERIPHERAL MATERIAL.
(AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-266 985

OFFICE OF NAVAL RESEARCH LONDON (ENGLAND);
ANNUAL MEETING OF THE WISSENSCHAFTLICHE GESELLSCHAFT
FUR LUFTFAHRT (GERMAN AERONAUTICAL SOCIETY),
FREIBURG, 10-13 OCTOBER 1961 (U)
NOV 61 1V ESTERMANN, I.;
REPT. NO. C 19 61

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AERONAUTICS, •ASTRONAUTICS, •SPACE FLIGHT,
•SYMPOSIA, AERODYNAMIC CHARACTERISTICS, CONTROL SYSTEMS,
FLUID MECHANICS, GUIDANCE, GUIDED MISSILES, MATERIALS,
PROPULSION, ROCKET PROPELLANTS, ROCKETS, SATELLITES (U)
(ARTIFICIAL), SCIENTIFIC ORGANIZATIONS, SPACECRAFT (U)
IDENTIFIERS: GERMANY (U)

A LARGE PART OF THE PROGRAM OF THIS MEETING WAS
ASSIGNED TO A SYMPOSIUM ON SPACE RESEARCH AND
TECHNOLOGY, TO ACQUAINT GERMAN AERONAUTICAL
SCIENTISTS WITH THE STATE-OF-THE-ART DEVELOPED IN
OTHER COUNTRIES, PARTICULARLY THE U. S.,
ENGLAND, AND FRANCE. THE CONTRIBUTED PAPERS,
OF WHICH A FAIR NUMBER WERE GIVEN BY SPEAKERS FROM
ABROAD, COVERED AREAS OF FLUID DYNAMICS, FLIGHT
MECHANICS, GUIDANCE AND CONTROL, PROPULSION AND
PROPELLANTS, AND MATERIALS. THE PAPERS WILL BE
PUBLISHED AS THE YEARBOOK OF THE SOCIETY,
TOWARDS THE END OF 1962. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-266 837

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
RADIATION TOLERANCE CRITERIA IN SPACE OPERATIONS (U)

SEP 61 IV SCHAEFER, HERMAN J.;

REPT. NO. RR20

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GAMMA RAYS, •PROBABILITY, •RADIATION
INJURIES, •RADIATION TOLERANCE, •RADIOBIOLOGY, •SPACE
ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, •X RAYS, DOSE
RATE, EXPERIMENTAL DATA, LABORATORY ANIMALS, MAN,
MEASUREMENT, RADIATION EFFECTS, SAFETY, SOLAR
ATMOSPHERE, SURVIVAL (U)

ANIMAL DATA OF LITERATURE ARE REVIEWED. THEY
SHOW THAT EQUAL DOSES ADMINISTERED AT LOWER DOSE
RATES OR IN A FRACTIONATED FASHION PRODUCE A SMALLER
ACUTE INJURY. A REALISTIC DESCRIPTION OF THE
EXPOSURE STATUS OF A PERSON, THEREFORE, REQUIRES
DISTINCTION BETWEEN ACCUMULATED GROSS EXPOSURE AND
ACTUAL NET INJURY AT ANY ONE TIME. IF A MAXIMUM
PERMISSIBLE NET INJURY IS AGREED ON, A TIME SCALE OF
INCREASING GROSS EXPOSURE COULD BE ESTABLISHED IF
RELIABLE DATA ON THE RECOVERY MECHANISM FOR MAN ARE
AVAILABLE. IT IS SHOWN THAT THE LATTER
PREREQUISITE IS NOT VERY SATISFACTORILY FULFILLED.
A VERY COMPREHENSIVE STUDY WITH THE SPECIAL
OBJECTIVE OF ARRIVING AT THE BEST BALANCED
EXTRAPOLATION TO MAN WAS CONDUCTED BY BLAIR. HE
SUGGESTS A FACTOR OF 10 PER CENT FOR THE
NONRECOVERABLE INJURY AND A RECOVERY HALF TIME OF 25
DAYS FOR MAN. THE IMPLICATIONS OF BLAIR'S MODEL
FOR THE TOTAL PERMISSIBLE GROSS EXPOSURE AS A
FUNCTION OF TIME ARE ANALYZED FOR A MAXIMUM NET
INJURY OF 80 REM. FOR TIME INTERVALS OF MONTHS OR
YEARS THE ADDITIONAL EXPOSURE ALLOWANCE IS
SUBSTANTIAL AND APPROACHES 720 REM ASYMPTOTICALLY.
THE SHORTCOMINGS OF THIS MODEL AND THE AREAS IN
WHICH ADDITIONAL DATA ARE NEEDED ARE DISCUSSED.
(AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-266 730

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
1961 COMPENDIUM OF SYMPOSIUM PAPERS (U)

SEP 61 IV

REPT. NO. TR61 394

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •MANNED, •SPACE FLIGHT, •SYMPOSIA,
AERODYNAMIC CHARACTERISTICS, COATINGS, DESIGN,
DETERMINATION, DIELECTRIC PROPERTIES, DIGITAL COMPUTERS,
DYNAMICS, ELECTRIC PROPULSION, EQUATIONS, GAS FLOW,
GASES, HIGH-TEMPERATURE RESEARCH, HYPERSONIC
CHARACTERISTICS, MATHEMATICAL ANALYSIS, NITRIDES, NOISE,
PROGRAMMING (COMPUTERS), ROCKET MOTORS, ROCKETS,
SANDWICH PANELS, SATELLITES (ARTIFICIAL), SILICON
COMPOUNDS, SPACE ENVIRONMENTAL CONDITIONS, TEMPERATURE,
VISION (U)

CONTENTS: MAN'S VISUAL CAPABILITIES IN SPACE;
PERCEPTION OF MOVEMENT IN DEPTH; SILICON NITRIDE
DIELECTRIC AND HEAT PROTECTIVE COATING;
EXPERIMENTAL INVESTIGATION OF THERMAL ARC ROCKETS;
THE SCIENCE OF THERMAL SIMULATION-STRENGTH TESTING;
ROCKET AND JET NOISE SIMULATION BY THE NEW WIDE-
BAND NOISE SIREN; RADIATION ENVIRONMENT AND DOSES
IN SPACE; DERIVATION OF THERMOELASTIC SANDWICH
PANEL EQUATIONS AND THEIR ANALYTIC SOLUTION UNDER
ARBITRARY TEMPERATURE DISTRIBUTION, TRANSVERSE LOAD,
AND EDGE COMPRESSION; AN ANALYTICAL STUDY OF
SATELLITE TEMPERATURE VARIATIONS; EXPERIMENTAL
INVESTIGATION OF ELECTRICAL PROPULSION DEVICES;
ELECTRIC PROPULSION FOR LUNAR LOGISTIC SUPPORT;
AERODYNAMIC ANALYSIS OF HYPERSONIC WINGS; THE
HIGH-TEMPERATURE HYPERSONIC GAS DYNAMICS FACILITY;
THE EFFECTS OF STRUCTURAL DAMPING AND THE WING-TO-
AIR D I Y R I O N H Y P R O N I C F L U T R ; C O R O L
SURFACE DESIGN FOR A HYPERSONIC VEHICLE. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-265 811

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CONQUEST OF COSMIC SPACE

(U)

OCT 61 1V IDLIS.G.M.;

REPT. NO. TT 61 103

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •TRANSLATIONS, SCIENTIFIC
RESEARCH

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-265 733

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FLIGHT TO MARS

(U)

IV SHTERNFEL'D, A. I

UNCLASSIFIED REPORT

DESCRIPTORS: •MARS, •SPACE FLIGHT, •TRANSLATIONS,
LANDINGS, TAKE-OFF
IDENTIFIERS: USSR

(U)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-265 163L

GOODRICH (B F) AEROSPACE AND DEFENSE PRODUCTS AKRON
OHIO

AUG 61 IV BERUS, W. J. ;
CONTRACT: NOW61 554

UNCLASSIFIED REPORT
USGO

DESCRIPTORS: •PRESSURE SUITS, •PROTECTIVE CLOTHING,
•SPACE ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, AVIATION
PERSONNEL, DESIGN, INSTRUMENTATION, SPACE MEDICINE (U)

THE LIST OF GENERAL MOVEMENTS OR MOTIONS THAT MAY
BE REQUIRED OF THE SPACE CRAFT CREWMAN HAS NOT BEEN
SUBSTANTIALLY ENLARGED. HOWEVER, WORK IS
CONTINUING TO MAKE THIS LIST AS COMPLETE AS POSSIBLE.
POTENTIAL ENVIRONMENTAL HAZARDS INSIDE THE VEHICLE
WERE INVESTIGATED. THE MAGNITUDE OF THESE
CONDITIONS IS DIFFICULT TO DETERMINE. THE
MATERIALS INVESTIGATION PHASE OF THIS PROGRAM HAS
BEEN OUTLINED. THREE AREAS OF ENDEAVOR CONSTITUTE
THIS PHASE: (A) INNER LAYER, (B) SHIELDING
LAYER AND (C) OUTER LAYER. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-264 743

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

ANALYTICAL AND PRELIMINARY SIMULATION STUDY OF A
PILOT'S ABILITY TO CONTROL THE TERMINAL PHASE OF A
RENDEZVOUS WITH SIMPLE OPTICAL DEVICES AND A TIMER,

(U)

OCT 61 23P LINEBERRY, EDGAR C. , JR. ;
BRISSENDEN , ROY F. ; KURBJUN, MAX C. ;
REPT. NO. NASA-TN-D-965

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ALSO AVAILABLE FROM NASA.

DESCRIPTORS: •ASTRONAUTICS , •PILOTS , •SPACE FLIGHT ,
•SURGERY , •THORAX , MATHEMATICAL ANALYSIS , MEASUREMENT ,
ORBITAL TRAJECTORIES , RENDEZVOUS SPACECRAFT , SIMULATION
, TESTS (M)

A COMBINED ANALYTICAL AND PRELIMINARY SIMULATION
STUDY WAS CONDUCTED TO DETERMINE THE ABILITY OF A
HUMAN PILOT TO CONTROL THE RENDEZVOUS BY USING VISUAL
SIGHTINGS MADE DURING THE INITIAL COLLISION-COURSE
CONTROL TO OBTAIN THE RANGE AND CLOSURE RATE. THE
ANALYTICAL PHASE OF THE STUDY REVIEWED THE GEOMETRIC
RELATIONS BETWEEN THE VEHICLES AND FORMED THE BASIS
FOR TECHNIQUES TO TRANSFORM THE ANGULAR SIGHTINGS
INTO RANGE AND CLOSURE RATE. A PRELIMINARY
SIMULATION WAS THEN MADE TO INVESTIGATE THE ACCURACY
OF THESE TECHNIQUES. THE SIMULATION CONSISTED OF
AN ANALOG COMPUTER, AN OSCILLOSCOPE TO REPRESENT THE
VIEW A PILOT WOULD HAVE WITH A STABILIZED SIGHT, AND
A TIMER. RESULTS INDICATE THAT PILOTS, USING AN
OPTICAL SIGHT AND A TIMER, CAN SUCCESSFULLY ARREST
THE ANGULAR MOTION OF THE LINE OF SIGHT BETWEEN TWO
RENDEZVOUS VEHICLES AND OBTAIN RELATIVE RANGE AND
CLOSURE RATE WITH SUFFICIENT ACCURACY TO PERFORM THE
FINAL BRAKING MANEUVER SUCCESSFULLY. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 555

JET PROPULSION LAB PASADENA CALIF

RESEARCH SUMMARY NO. 36-10, VOLUME 1, JUNE 1- AUGUST
1, 1961 (U)

SEP 61 IV

REPT. NO. RS36 10 VI

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CHEMISTRY, •COMMUNICATION SYSTEMS, •LIQUID
ROCKET PROPELLANTS, •PHYSICS, •SOLID ROCKET PROPELLANTS,
•SPACE FLIGHT, •SPACE NAVIGATION, •SPACECRAFT,
AMPLIFIERS, ANTENNAS, ASTROPHYSICS, COMMUNICATION
EQUIPMENT, COMMUNICATION THEORY, CONTROL SYSTEMS,
ELECTRIC FIELDS, FLIGHT PATHS, GAS FLOW, GAS IONIZATION,
GUIDANCE, INSTRUMENTATION, MAGNETIC FIELDS, MATERIALS,
ORBITAL TRAJECTORIES, PROPELLANTS, PROPULSION,
SHIELDING, SOLID STATE PHYSICS, SPACE PROBES, THIN FILMS
(STORAGE DEVICES) (U)
IDENTIFIERS: THIN FILMS (M)

CONTENTS: SPACE SCIENCES DIVISION:
EXPERIMENTAL SPACE SCIENCE SYSTEMS DIVISION:
SYSTEMS ANALYSIS GUIDANCE AND CONTROL DIVISION:
GUIDANCE AND CONTROL RESEARCH
TELECOMMUNICATIONS DIVISION: COMMUNICATIONS
SYSTEMS RESEARCH; COMMUNICATIONS ELEMENTS RE
SEARCH; COMMUNICATION SYSTEM DEVELOPMENT PHYSICAL
SCIENCES DIVISION: CHEMISTRY RESEARCH; PHYSICS
RESEARCH; GAS DYNAMICS RESEARCH ENGINEERING
MECHANICS DIVISION: MATERIALS RESEARCH;
ENGINEERING RESEARCH PROPULSION DIVISION:
LIQUID PROPELLANT PRO PULSION; SOLID PROPELLANT
PROPULSION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 319

GOODRICH (B F) AEROSPACE AND DEFENSE PRODUCTS AKRON
OHIO

DESIGN, DEVELOPMENT, AND FABRICATION OF EIGHT (8)
PROTOTYPE MODEL FULL PRESSURE SPACE SUIT ASSEMBLIES (U)

AUG 61 IV CARDARELLI, N.F.; BERUS, W.J.;

CONTRACT: NOAS60 6084

UNCLASSIFIED REPORT

DISTRIBUTION: NOFORN.

DESCRIPTORS: •PRESSURE SUITS, •SPACE FLIGHT, DESIGN,
GLASS, GLASS TEXTILES, MATERIALS, PRODUCTION, TEST
METHODS (U)

THE THREAD COATING EQUIPMENT HAS BEEN IMPROVED AND
HAS BEEN USED SUCCESSFULLY IN COATING SEVERAL
THOUSAND FEET OF GLASS YARN. LITHARGE LOADED
NEOPRENE W HAS PROVEN TO BE THE MOST PROMISING
X-RADIATION PROTECTIVE MATERIAL TESTED TO DATE.
CURRENT EFFORTS DEAL WITH REPLACING THE GUM COATING
ON NS-89, OUR STANDARD INNERLINER MATERIAL, WITH
THE LITHARGE LOADED NEOPRENE. THIS WILL RESULT
IN A COMBINATION GAS RETENTION - X-RADIATION
PROTECTIVE LAYER. TEST RESULTS INDICATE THE LOW
TORQUE NECK BEARING, USED IN XGD-32 FULL PRESSURE
SUIT, EXHIBITS SUPERIOR TORQUE CHARACTERISTICS WHEN
COMPARED TO THE STANDARD NECK BEARING. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 192

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
BY ROCKET TO THE MOON

(U)

1V LEVANTOVSKIY, V.I.;

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •LIBRARIES, •MOON,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, •SPACE
NAVIGATION, •SPACECRAFT, ARTIFICIAL PLANETIDS,
EXPLORATION, EXTRATERRESTRIAL BASES, EXTRATERRESTRIAL
TOPOGRAPHY, INTERSTELLAR MATTER, ORBITAL TRAJECTORIES,
PLANETARY ATMOSPHERES, RENDEZVOUS SPACECRAFT, ROCKET
PROPULSION, SOLAR SYSTEMS, SPACE CAPSULES, SPACE
ENVIRONMENTAL CONDITIONS, SPACE PROBES, TECHNOLOGICAL
INTELLIGENCE, TRANSLATIONS

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 133

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
A PHOTON ROCKET

(U)

IV ZEL'KIN, G.G.;

UNCLASSIFIED REPORT

DESCRIPTORS: •MASS-ENERGY RELATION, •PHOTONS, •SPACE
FLIGHT, ASTRONAUTICS, EJECTION, EXHAUST GASES, ROCKET
MOTORS, ROCKET PROPULSION, SPACECRAFT, TECHNOLOGICAL
INTELLIGENCE, TRANSLATIONS, VELOCITY (U)
IDENTIFIERS: USSR (U)

THE UTILIZATION OF LIGHT QUANTA (PHOTONS) TO
ATTAIN VELOCITIES APPROACHING THE SPEED OF SOUND IN
SPACE FLIGHT IS DISCUSSED. THE FOLLOWING PHASES OF
THE PROBLEM ARE CONSIDERED: COMPARATIVE PERFORMANCE
OF CHEMICAL, PLASMA, IONIC, AND NUCLEAR FUELS; THE
AMOUNT OF FUEL REQUIRED; THE ENERGY OF PHOTON
ROCKETS; AND EQUIPMENT FOR THE PRODUCTION OF DIRECTED
RADIATION. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-263 763

ARMED FORCES-NRC COMMITTEE ON BIO-ASTRONAUTICS WASHINGTON
D C

THE TRAINING OF ASTRONAUTS. REPORT OF A WORKING GROUP
CONFERENCE (U)

DEC 61 1V

REPT. NO. P873

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AVIATION PERSONNEL, •SPACE FLIGHT,
•TRAINING, ASTRONAUTS, PHYSICAL FITNESS, SIMULATION,
STRESS (PHYSIOLOGY), STRESS (PSYCHOLOGY), SYMPOSIA,
TRAINING DEVICES (U)

IDENTIFIERS: MERCURY PROJECT, X-15 AIRCRAFT, X-20
SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-263 410

AEROSPACE CORP EL SEGUNDO CALIF

APPLIED RESEARCH MANAGEMENT ABSTRACT BULLETIN, PART

I. ABSTRACTS 1-1 THROUGH 1-228

(U)

JUL 61 IV

CONTRACT: AFD4 647 930

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •POWER SUPPLIES, •SPACE
FLIGHT, AUXILIARY POWER PLANTS, ELECTRIC POWER
PRODUCTION, MATERIALS, PROPULSION

(U)

A BIBLIOGRAPHY OF 228 REFERENCES FROM UNCLASSIFIED
LITERATURE, WITH ABSTRACTS, IS PRESENTED ON THE
SUBJECT OF FLIGHT VEHICLE POWER. THE PERIOD
COVERED IS FROM 1958 TO DATE. (AUTHOR)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 619

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

MAN IN UNIVERSE

(U)

IV

MICHAJLOV, GALAKTION;

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: *SPACE FLIGHT, MANNED, SPACE ENVIRONMENTAL

CONDITIONS, SPACE PROBES

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 581

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
CREW INTERACTION DURING A THIRTY-DAY SIMULATED SPACE
FLIGHT. PRELIMINARY STUDY (U)
IV HAGEN, DOUGLAS H.;

UNCLASSIFIED REPORT

DESCRIPTORS: •AVIATION PERSONNEL, •SPACE FLIGHT,
ADJUSTMENT (PSYCHOLOGY), ANALYSIS, BEHAVIOR, HUMAN
ENGINEERING, PERSONALITY, PSYCHOMOTOR TESTS, SIMULATION,
SPACE CAPSULES (U)

AN ANALYSIS WAS MADE OF CREW INTERACTION DURING A
TWO-MAN SIMULATED SPACE CHAMBER FLIGHT. BY USE OF
THE WELL-KNOWN BALES INTERACTION PROCESS
ANALYSIS, THE BEHAVIOR OF THE TWO SUBJECTS WAS
RATED DURING 2 HOURS OF OBSERVATION EACH DAY
THROUGHOUT THE 30-DAY FLIGHT. FOUR KINDS OF
SUMMARY INTERACTION PROFILES WERE COMPILED. THE
OVER-ALL SUMMARY PROFILE RESEMBLED NO OTHER IN THE
LITERATURE. THE MIDDLE CATEGORIES--ASKING FOR
OPINION, GIVING OPINION, ASKING FOR INFORMATION, AND
GIVING INFORMATION--ACCOUNTED FOR OVER 80 PERCENT OF
THE INTERACTION. THERE WAS VERY LITTLE INTERACTION
IN THE MORE AFFECTIVELY TINGED EXTREME CATEGORIES.
THE ADJUSTIVE MECHANISMS USED BY THE SUBJECTS TO
HANDLE THE INTERPERSONAL TENSIONS THAT AROSE FROM
SOMEWHAT DIFFERENT PERSONALITY FACTORS WERE
DISCUSSED. (AUTHOR) (U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 399

AIR WEATHER SERVICE SCOTT AFB ILL

RADIATION EFFECTS ON MANNED SPACE FLIGHTS (U)

AUG 61

1V

APPLEMAN, HERBERT S.;

REPT. NO. TR156

UNCLASSIFIED REPORT

DESCRIPTORS: •MANNED, •RADIATION EFFECTS, •SPACE FLIGHT,
•SPACECRAFT, COSMIC RAYS, DOSE RATE, SOLAR FLARES,
SUNSPOTS, VAN ALLEN RADIATION BELT (U)

THE TYPES OF RADIATION HAZARDS THAT ARE OF
IMPORTANCE IN SPACE FLIGHT ARE SURVEYED, AND THE
ORIGIN, PROBABILITY OF OCCURRENCE, FEASIBILITY OF
SHIELDING, AND PROSPECTS FOR FORECASTING ARE
DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 055

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PROCEEDINGS OF FIRST NATIONAL CONFERENCE ON THE
PEACEFUL USES OF SPACE, TULSA, OKLAHOMA, MAY 26-27,
1961 (U)

DEC 61 IV

UNCLASSIFIED REPORT

AVAILABILITY: FROM GPO, WASHINGTON, D. C.
\$1.25.

DESCRIPTORS: •ASTROPHYSICS, •SPACE FLIGHT, COMMUNICATION
SYSTEMS, FACSIMILE TRANSMISSION, MANNED, METEOROLOGY,
MOON, PLASMA PHYSICS, SATELLITES (ARTIFICIAL), SOLAR
SYSTEMS, SPACE PROBES, SYMPOSIA (U)

IDENTIFIERS: TIROS, X-15 AIRCRAFT, X-20
SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 826

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIRST FLIGHT OF MAN INTO SPACE

(U)

1V

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, INSTRUMENTATION, MANNED,
PREPARATION, SPACE MEDICINE, SPACECRAFT CABINS

(U)

IDENTIFIERS: USSR

(U)

NTRIFUGAL PUMPS (O MEKHANIZME KAVITATSII V
TSENTROBEZHNYKH NASOSAKH), BY N. S.
YERSHOV. 27 JUNE 61. 10P. INCL. ILLUS. (TRANS.
NO. MCL-1156 OF IZVESTIYA VYSSHIKH UCHEBNYKH
ZAVEDENII, MINISTERSTVO VYSSHEGO
OBRAZOVANIYA SSSR, S AD-261 827DIV. 9U
(22 AUG 61) OTS PRICE \$1.60AEROSPACE
TECHNICAL INTELLIGENCE CENTER,
WRIGHTPATTERSON AIR FORCE BASE, OHIO. ON
THE MECHANISM OF CAVITATION IN CENTRIFUGAL PUMPS (O
MEKHANIZME KAVITATSII V TSENTROBEZHNYKH
NASOSAKH), BY N. S. YERSHOV. 27 JUNE 61,
10P. INCL. ILLUS. (TRANS. NO. MCL-1156 OF
IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENII,
MINISTERSTVO VYSSHEGO OBRAZOVANIYA SSSR,
SERIYA AVIATSIONNAYA TEKHNIKA 2:57-63, L959)

UNCLASSIFIED REPORT DESCRIPTORS:

•CENTRIFUGAL PUMPS, •CAVITATION,
AERODYNAMICS, HYDRODYNAMICS, TESTS, USSR,
TECHNOLOGICAL INTELLIGENCE, PUMPS.
EFFORTS INDICATE THAT LATENT CAVITATION IN WHEELS
WITH AN INCREASE IN THE WIDTH OF VANE INPUT
ORIGINATES AND DEVELOPS IN THE RING EDDY FORMED BY
REVERSE FLOWS AT THE INPUT INTO THE WHEEL.
EXPERIMENTS WITH CONES SHOWED THAT AN ARTIFICIAL
CHANGE IN FORM OF RING EDDY CAN IMPROVE THE
ANTICAVITATIONAL QUALITIES OF THE WHEEL. ALSO,
CONTROL OF THE CAVITATIONAL PROCESSES, TAKING PLACE
IN THE ZONE OF REVERSE FLOWS, APPEARS TO BE ONE OF
THE POSSIBLE METHODS OF IMPROVING THE DISRUPTION
CHARACTERISTICS OF CENTRIFUGAL WHEELS. (AUTHOR)

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 824

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MIRACLE OF THE TWENTIETH CENTURY

(U)

IV POKROVSKIY, I. I.

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, SPACE PROBES
IDENTIFIERS: USSR

(U)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 822

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE FIRST MANNED SPACE FLIGHT.

(U)

JUL 61 25P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM PRAVADA 115 (15605),
PP. 1,3 AND 4, 25 APR 61).

DESCRIPTORS: •SPACE FLIGHT ,•SPACE MEDICINE ,•SPACECRAFT
,MANNED ,USSR (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 786

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN IN INTERPLANETARY SPACE - A SMALL MODERN
ENCYCLOPEDIA (U)

IV DVORAK, JOSEF; ISAKOV, PETER KUZMIC;
HOSPODAR, JAN;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, MAN,
PHYSIOLOGY, PSYCHOLOGY, RADIATION EFFECTS (U)
IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 652

AIR FORCE MISSILE DEVELOPMENT CENTER HOLLOWAN AFB N
MEX

COUNTDOWN AND PROCEDURES FOR PROJECT MERCURY FLIGHT
MR-2 (CHIMPANZEE SUBJECT) (U)

JUN 61 89P STINGELY, NORMAN E.;

REPT. NO. TR61 20

UNCLASSIFIED REPORT

DESCRIPTORS: •MAMMALS, •MEDICAL EXAMINATION, •SPACE
FLIGHT, •SPACE MEDICINE, BIOCHEMISTRY, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, CLOTHING, DIET, INSTRUMENTATION,
LABORATORY ANIMALS, PHYSIOLOGY, PREPARATION, PSYCHOMOTOR
TESTS, SPACE CAPSULES, TRAINING (U)

IDENTIFIERS: MERCURY PROJECT (U)

THIS REPORT PRESENTS A COUNTDOWN IN ABBREVIATED
FORM WITH DETAILED PROCEDURE SHEETS NECESSARY TO
DEFINE SPECIFIC ACTIONS. THESE ACTIONS ARE
NECESSARY TO READY A CHIMPANZEE SUBJECT AND COUCH FOR
FLIGHT IN THE PROJECT MERCURY CAPSULE AND THE
POST-FLIGHT RELEASE AND CARE OF THE SUBJECT. THE
COUNTDOWN AND PROCEDURE NOT ONLY DESCRIBE THE
MECHANICS OF PREPARING THE SUBJECT AND COUCH FOR
FLIGHT, BUT ALSO INCLUDE A PLAN FOR OBTAINING A
MAXIMUM OF USEFUL RESEARCH DATA. THUS THE
BIOMEDICAL ADEQUACY OF THE PROJECT MERCURY
CAPSULE AND A VERIFICATION OF GROUND, FLIGHT AND
RECOVERY PROCEDURES COULD BE DETERMINED, AND THE
CHIMPANZEES' PHYSIOLOGY, BIOCHEMISTRY AND PSYCHOMOTOR
PERFORMANCE COULD BE STUDIED. DURING THE
PRELIMINARY PHASES OF THE PROJECT MERCURY
ANIMAL SUPPORT PROGRAM, CHIMPANZEES WERE
SUBJECTED TO TEMPERATURE-HUMIDITY TESTS, PSYCHOMOTOR
TRAINING, AND ACCELERATION-DECELERATION STUDIES ON A
CENTRIFUGE AND DECELERATION TRACKS. CONSIDERABLE
KNOWLEDGE OF THE CHIMPANZEES' PHYSIOLOGY AND BEHAVIOR
AND INVALUABLE EXPERIENCE IN THE USE OF PROJECT
MERCURY HARDWARE WAS GAINED DURING THESE EXERCISES.
THE FIRST DRAFTS OF THIS REPORT WERE BASED ON THE
ABOVE EXPERIENCES. THE FINAL COPY WAS UPDATED FROM
THE EXPERIENCES GAINED DURING DRY RUNS AND THE ACTUAL
MR-2 FLIGHT. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 176

JET PROPULSION LAB PASADENA CALIF
OPTIMUM THRUST PROGRAMS FOR POWER-LIMITED PROPULSION
SYSTEMS (U)

JUN 61 1V MELBOURNE, WILLIAM G.; SAUER, CARL G.

JR.;

REPT. NO. TR32 118

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ROCKET PROPULSION, •SPACE FLIGHT, •THRUST,
ASTRONAUTICS, FEASIBILITY STUDIES, GUIDED MISSILE
TRAJECTORIES, INTEGRAL EQUATIONS, MARS, MATHEMATICAL
ANALYSIS, POWER, PROPULSION, SPACECRAFT (U)

THE OPTIMUM THRUST EQUATIONS FOR TWO THRUST
PROGRAMS ARE PRESENTED. IN THE FIRST PROGRAM, THE
THRUST VECTOR IS UNCONSTRAINED; IN THE SECOND
PROGRAM, THE THRUST MAGNITUDE IS CONSTRAINED TO BE A
CONSTANT OR ZERO ALONG THE TRAJECTORY. THESE TWO
SETS OF EQUATIONS HAVE BEEN APPLIED TO AN INVERSE
SQUARE CENTRAL FORCE FIELD ODE. THE PROBLEM OF
TERMINAL CONDITIONS IS DISCUSSED AND THE
TRANSVERSALITY RELATIONS FOR BOTH FLYBY AND
RENDEZVOUS PLANETARY MISSIONS ARE DEVELOPED IN THREE
DIMENSIONS. AN ITERATIVE ROUTINE TO SOLVE THE TWO-
POINT BOUNDARY VALUE PROBLEM HAS BEEN COUPLED WITH
THESE EQUATIONS TO OBTAIN NUMERICAL SOLUTIONS FOR
SPECIFIED END CONDITIONS AND TRANSVERSALITY
EXPRESSIONS. A SET OF TWO-DIMENSIONAL TRAJECTORIES
FROM EARTH TO MARS IS PRESENTED USING THESE TWO
THRUST PROGRAMS AND VARIOUS OPTIMIZATION CRITERIA.
A SUMMARY OF THE EFFECTS OF THESE TWO PROGRAMS ON
VEHICLE PERFORMANCE IS PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 820

DEPARTMENT OF THE ARMY WASHINGTON D C
MISSILES AND VENTURES INTO SPACE 1960-1961
REPORT

(U)

JUN 61 IV

REPT. NO. DA-PAM-70-5-9

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •GUIDED
MISSILES, •SPACE FLIGHT, •SPACECRAFT, ARMED FORCES
(UNITED STATES), DICTIONARIES, DIRECTORIES, LUNAR
PROBES, POWER SUPPLIES, ROCKETS, SPACE PROBES,
SYMPOSIA .

(U)

IDENTIFIERS: USSR

(U)

Ordered
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We have
61-62
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put into *his*
space flight
research

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 501

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

COMPREHENSIVE ANALYSIS OF SOVIET SPACE PROGRAM (BASED
ON SOVIET OPEN LITERATURE 1958-61) (U)

IV

REPT. NO. 61 72

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •EXPERIMENTAL DATA,
•LITERATURE, •MANNED, •SPACE FLIGHT, •SPACECRAFT,
ACCELERATION, AERODYNAMIC CHARACTERISTICS, COMMUNICATION
SYSTEMS, LABORATORY ANIMALS, LAUNCHING, MAN, RECOVERY,
ROCKETS, SPACE MEDICINE, THEORY (U)
IDENTIFIERS: SPUTNIK, USSR (U)

CONTENTS: SOVIET CAPABILITY OF DEVELOPING A
MULTIPURPOSE CARRIER-ROCKET; AERODYNAMICS
AND SPACE FLIGHT; RECOVERY PROBLEMS; POSSIBLE
DESIGN TYPES OF THE SOVIET MULTIPURPOSE CARRIER-
ROCKET; POSSIBLE STRUCTURE OF THE SOVIET
MULTIPURPOSE CARRIER-ROCKET THE SPACESHIP-
SATELLITES AND THE SOVIET SPACE PROGRAM;
FIRST SOVIET SPACESHIP-SATELLITE; MAN IN
SPACE; SECOND SOVIET SPACESHIP-SATELLITE
(SPUTNIK V); SATELLITES; THE SOVIET SPACE
PROGRAM (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 359

GENERAL ELECTRIC CO SCHENECTADY N Y
TESTS OF A CESIUM THERMIONIC CONVERTER DESIGNED TO
UTILIZE SOLAR ENERGY IN OUTER SPACE (U)

AUG 60 1V WILSON, V.C.; LAWRENCE, JACKSON;

REPT. NO. SR3

CONTRACT: AF19 604 5472

MONITOR: AFCRL 281

UNCLASSIFIED REPORT

DESCRIPTORS: •GENERATORS, •HEAT TRANSFER, •HETEROGENEOUS
REACTORS, •POWER SUPPLIES, •SPACE FLIGHT, •THERMIONIC
EMISSION, CESIUM, DESIGN, EFFECTIVENESS, ENERGY
CONVERSION, SOLAR CELLS, SOLAR RADIATION, SPACE
ENVIRONMENTAL CONDITIONS, TESTS (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 168

JET PROPULSION LAB PASADENA CALIF

JUN 61 1V

REPT. NO. TR32 117

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ELECTRIC PROPULSION, •ION ENGINES,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, •SPACE PROBES,
•SPACECRAFT, CONTROL, GUIDANCE, MAGNETOHYDRODYNAMICS,
PLANETS, PLASMA PHYSICS, PROPULSION, THRUST (U)

THIS REPORT PRESENTS A PRELIMINARY STUDY OF THE REQUIREMENTS THAT MUST BE MET BY ELECTRIC THRUST DEVICES IN ORDER TO BE USED WITH INTERPLANETARY SPACECRAFT. TWO MISSIONS, A MARS ORBITER AND A JUPITER CAPTURE, CHOSEN AS REPRESENTATIVE OF THE TIME PERIODS FOLLOWING 1965 AND 1970, RESPECTIVELY, ARE ANALYZED TO DETERMINE THE THRUST AND SPECIFIC-IMPULSE REQUIREMENTS OF AN ELECTRIC PROPULSION SYSTEM. THE STATE-OF-THE-ART OF ELECTRIC THRUST DEVICES IS DISCUSSED, AND IT IS CONCLUDED THAT WITH EXPECTED ADVANCES ION MOTORS CAN MEET ALL OF THE REQUIREMENTS OF INTERPLANETARY MISSIONS, WITH MAGNETOHYDRODYNAMIC MOTORS A PROMISING BACKUP.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-259 852

DEPARTMENT OF THE ARMY WASHINGTON D C

MISSILES, ROCKETS, AND SPACE VEHICLES 1959-1960 (U)

AUG 60 1V

REPT. NO. DA-PAM-70-5-7

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •GUIDED MISSILES, •ROCKET
RESEARCH, •ROCKETS, •SPACE FLIGHT, •SPACE PROBES,
SPACECRAFT (U)

*Standard
f*

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-259 500

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

RADIATION SHIELDING FOR MANNED SPACE FLIGHT (U)

JUL 61 IV WALLNER, LEWIS E.; KAUFMAN, HAROLD R.;

REPT. NO. TN D 681

UNCLASSIFIED REPORT

DESCRIPTORS: •RADIATION HAZARDS, •SHIELDING, •SPACE
FLIGHT, ASTROPHYSICS, COSMIC RAYS, MANNED, REACTOR
HAZARDS, REACTOR SHIELDING CALCULATIONS, REACTOR
SHIELDING MATERIALS, SOLAR FLARES, SPACE MEDICINE, VAN
ALLEN RADIATION BELT (U)

COSMIC RADIATION, SOLAR FLARES, THE EARTH'S VAN
ALLEN BELTS, AND NUCLEAR RADIATION ARE ASSESSED.
FOR THE MARS MISSION, COSMIC AND SOLAR-FLARE
RADIATIONS MAY REQUIRE BIOLOGICAL-SHIELD WEIGHTS OF
100,000 LB. SHIELD NEEDS FOR THE NUCLEAR REACTOR
AND THE VAN ALLEN BELTS ARE AN ORDER OF MAGNITUDE
LESS THAN THIS EXCEPT FOR SLOW TRAVERSAL OF THE
EARTH'S RADIATION BELTS. MUCH WEIGHT CAN BE SAVED
IF A COMMON MASS CAN BE UTILIZED AGAINST ALL
RADIATION HAZARDS. FOR EARLY SPACE EXPERIMENTS,
MAJOR SOLAR FLARES PROBABLY CONSTITUTE THE PRIME
RADIATION HAZARD. A PARTIAL BODY SHIELD MAY
POSSIBLY BE DESIGNED WITH ADEQUATE RADIATION
PROTECTION FOR 100 LB PER MAN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-259 061

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PROCEEDINGS OF A CONFERENCE ON RESULTS OF THE FIRST
U. S. MANNED SUBORBITAL SPACE FLIGHT, JUNE 6, 1961,
WASHINGTON, D.C. (U)

DEC 61 1V

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SPACE FLIGHT, *SPACE MEDICINE, *SYMPOSIA,
DETERMINATION, INSTRUMENTATION, MANNED, MEDICAL
EQUIPMENT, MEDICAL EXAMINATION, PILOTS, PRESSURE SUITS,
RECORDING SYSTEMS, SENSORY MECHANISMS, SPACE CAPSULES,
SPACE ENVIRONMENTAL CONDITIONS, STRESS (PHYSIOLOGY),
TRAINING, TRAINING DEVICES, WEIGHTLESSNESS (U)
IDENTIFIERS: MERCURY PROJECT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 933

OFFICE OF NAVAL RESEARCH WASHINGTON D C
LECTURE SERIES. PROBLEMS OF SATELLITES AND SPACE
OPERATIONS SPONSORED BY OFFICE OF NAVAL RESEARCH,
APRIL-JULY 1958

(U)

60 105P

REPT. NO. ONR-4

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
ASTRONAUTICS, ASTRONOMICAL CAMERAS, ASTRONOMY, CELESTIAL
MECHANICS, SPACE COMMUNICATION SYSTEMS, SPACE
NAVIGATION, TRACKING

(U)

OPEN-ENDED TERMS: NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION, SPACE COMMUNICATIONS.
CONTENTS: PROBLEMS OF THE SPACE AGE, BY DONALD
H. MENZEL. SOME OBJECTIVES OF SPACE RESEARCH, BY
HOMER E. NEWELL, JR. SPACE NAVIGATION AND
CELESTIAL MECHANICS, BY GERALD M. CLEMENCE
SATELLITE TRACKING, BY JOHN P. HAGEN
SATELLITE PAYLOAD OPTIMIZATION, BY N. WHITNEY
MATTHEWS. ASTRONOMY AND SPACE OPERATIONS, BY
FRED L. WHIPPLE. SPACE COMMUNICATIONS, BY
JEROME B. WIESNER. THE NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION, BY HUGH L.
DRYDEN

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 838

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SPECTACLES FOR COSMONAUTS

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT, COSMIC RAYS,
MAN, RADIATION EFFECTS, RADIATION TOLERANCE, SOLAR
ATMOSPHERE

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 833

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
HABITABLE ISLAND IN THE ETHER

(U)

IV VARVAROV, N.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, COSMIC RAYS,
EXTRATERRESTRIAL BASES, MOON, SPACECRAFT, VELOCITY

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 746

JET PROPULSION LAB PASADENA CALIF

MAY 61 IV

REPT. NO. RS36 8

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CHEMISTRY, •COMMUNICATION SYSTEMS, •GAS FLOW, •MATERIALS, •PHYSICS, •SPACE FLIGHT, •SPACE NAVIGATION, •SPACECRAFT, AERODYNAMIC CHARACTERISTICS, ANALYSIS, ANTENNAS, COMMUNICATION EQUIPMENT, CONTROL SYSTEMS, FLIGHT PATHS, GUIDANCE, HEAT TRANSFER, HYDRODYNAMICS, INSTRUMENTATION, LIQUID ROCKET PROPELLANTS, MASERS, ORBITAL TRAJECTORIES, PROPULSION, SPACE PROBES, SUPERSONIC WIND TUNNELS, TEST FACILITIES(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 668

MASSACHUSETTS INST OF TECH CAMBRIDGE
OPTIMUM SOFT LANDING TRAJECTORIES. PART I.
ANALYSIS

(U)

MAR 61 IV BERMAN, LAWRENCE J.;

CONTRACT: AF49 638 363

MONITOR: AFOSR 519

UNCLASSIFIED REPORT

DESCRIPTORS: •LANDING IMPACT, •SPACE FLIGHT, CALCULUS OF
VARIATIONS, LANDINGS, LUNAR PROBES, ORBITAL
TRAJECTORIES, PARTIAL DIFFERENTIAL EQUATIONS

(U)

A VARIATIONAL CALCULUS SOLUTION IS OBTAINED FOR THE
THRUST PROGRAM FOR MINIMUM PROPELLANT CONSUMPTION TO
ACHIEVE LANDING OF A ROCKET VEHICLE FROM A SPACE
ORBIT WITH ZERO RELATIVE VELOCITY AT TOUCHDOWN, UNDER
THE SIMPLIFYING ASSUMPTIONS OF NO ATMOSPHERIC FORCES
AND A UNIFORM (I.E., FLAT-EARTH) GRAVITATIONAL
FIELD. THESE ASSUMPTIONS ARE APPROPRIATE FOR LUNAR
LANDING OF A MODERATELY HIGH THRUST ROCKET. THE
RESULTS OF THE VARIATIONAL SOLUTION ARE INTERPRETED
TO PROVIDE AN APPRECIATION OF THE PHYSICAL NATURE OF
THE REQUIREMENTS ESTABLISHED BY DIFFERENT INITIAL
CONDITIONS, AS SPECIFIED BY INITIAL ALTITUDE AND
VELOCITY VECTOR. REPRESENTING THE INITIAL
CONDITIONS PARAMETRICALLY BY AN EQUIVALENT ENERGY
ALTITUDE AND THE ACTUAL ALTITUDE, FIVE DIFFERENT
REGIMES ARE IDENTIFIED AND THE CORRESPONDING THRUST
PROGRAMS DESCRIBED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 143

GENERAL DYNAMICS/CONVAIR SAN DIEGO CALIF
A STUDY OF SHIELDING REQUIREMENTS FOR MANNED SPACE
MISSIONS (U)

OCT 61 1V KELLER, J.W.;

REPT. NO. FZK 124

CONTRACT: NASW50

UNCLASSIFIED REPORT

DESCRIPTORS: •SHIELDING, •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, •SPACECRAFT, •VAN ALLEN
RADIATION BELT, BREMSSTRAHLUNG, COSMIC RAYS, ELECTRONS,
PROTONS, RADIATION HAZARDS, SOLAR FLARES (U)

THE RAMIFICATIONS ON SHIELDING OF MANNED SPACE
VEHICLES OF THE INTENSE RADIATION ENVIRONMENT IN
SPACE WAS INVESTIGATED. THE RADIATION ENVIRONMENT
IS REVIEWED AND THE PROBLEM OF SELECTING SHIELD
MATERIALS IN VIEW OF THIS ENVIRONMENT IS TREATED.
THE RESULTS OF PRELIMINARY CALCULATIONS TO
DETERMINE REQUIREMENTS FOR SHIELDING AGAINST VAN
ALLEN RADIATION AND SOLAR PROTONS ARE GIVEN.
THESE RESULTS INDICATE THAT FOR MOST MISSIONS
(OUTSIDE THE HEART OF THE INNER VAN ALLEN
BELT) EXPOSURE TO SOLAR PROTONS WILL BE THE
CONTROLLING FACTOR IN DETERMINATION OF SHIELD WEIGHT,
SUGGESTING THE POSSIBLE USE OF TWO CREW COMPARTMENTS
- ONE FOR NORMAL OPERATIONS AND A SMALLER, HEAVILY
SHIELDED ONE FOR SHORT-TERM OCCUPANCY FOLLOWING SOLAR
FLARES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 911

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

THERMODYNAMICS AND SURFACE EFFECTS OF SPACECRAFT AND
SATELLITES. SELECTED BIBLIOGRAPHY (U)

IV

REPT. NO. 61 67

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •SPACE FLIGHT,
•SPACECRAFT, •THERMODYNAMICS, CELESTIAL MECHANICS,
COOLING, HAZARDS, MANNED, METEORS, SATELLITES
(ARTIFICIAL), SPACE MEDICINE (U)
IDENTIFIERS: USSR (U)

A BIBLIOGRAPHY IS PRESENTED OF REFERENCES ON
THERMODYNAMICS AND SURFACE EFFECTS OF SPACECRAFT AND
SATELLITES. THE ENTRIES GIVEN IN ALPHABETICAL ORDER
BY AUTHOR ARE NOT OTHERWISE CLASSIFIED. THE
BIBLIOGRAPHY COVERS THE PERIOD FROM 1957 TO 1961.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 712

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
BIOLOGY OF COSMIC FLIGHTS (U)
IV GAZENKO, O.G.; MALKIN, V.B.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, PHYSIOLOGY,
PSYCHOLOGY, STRESS (PHYSIOLOGY), STRESS (PSYCHOLOGY),
SURVIVAL (U)

UNCLASSIFIED

015423

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 429

INDUSTRIAL COLL OF THE ARMED FORCES WASHINGTON D C
THE SPACE PROBLEM (U)

APR 61 IV KUCHEMAN, H. B. JR;

REPT. NO. M60 96

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE ENVIRONMENTAL CONDITIONS, •SPACE
FLIGHT, ANALYSIS, FOREIGN POLICY, PLANETS, SOLAR
SYSTEMS, SPACE WEAPONS (U)

CONTENTS: WHY GO TO SPACE THE ENVIRONMENT OF
SPACE MAJOR ELEMENTS OF SPACE TECHNOLOGY NATIONAL
SPACE POLICY AND OBJECTIVES IMPACT OF SPACE WEAPONS
ON U.S. STRATEGY AND FOREIGN POLICY (U)

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Ordered*

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 357

ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
ENERGY CONVERSION SYSTEMS REFERENCE HANDBOOK. VOLUME
I - GENERAL SYSTEM CONSIDERATIONS (U)

SEP 60 IV MENETREY, W.R.; FISHER, J.H.;

REPT. NO. 390 F V1
CONTRACT: AF33 616 6791

UNCLASSIFIED REPORT

DESCRIPTORS: •HANDBOOKS, •POWER SUPPLIES, •SPACE
ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, ANALYSIS,
COSTS, CRATERING, DESIGN, EFFECTIVENESS, ELECTROMAGNETIC
WAVES, ENERGY CONVERSION; FUEL CELLS, GUIDED MISSILES,
HYPERVELOCITY VEHICLES, LUNAR PROBES, MATERIALS,
METEORITES, NUCLEAR ENERGY, PARTICLES, RELIABILITY,
SATELLITES (ARTIFICIAL), SOLAR RADIATION, SPACECRAFT,
STORAGE BATTERIES, THERMOELECTRICITY, VAN ALLEN
RADIATION BELT (U)

AN INTRODUCTION IS PRESENTED TO SUBSEQUENT VOLUMES
DEALING WITH SPECIFIC AREAS OF POWER SYSTEM
TECHNOLOGY. GENERAL TOPICS USEFUL IN EVALUATING AND
RATING POWER SYSTEMS ARE DISCUSSED INCLUDING THE
SPACE ENVIRONMENT AND ITS EFFECTS; RELIABILITY
CONSIDERATIONS IN SYSTEMS DESIGN; FIGURES OF MERIT
AND THEIR USE IN SYSTEM EVALUATION; POWER NEEDS OF
THE FUTURE AND THE IMPORTANCE OF DEVELOPING POWER
SYSTEMS; AND AN ESTIMATE OF EXPECTED SYSTEM WEIGHTS.
ENVIRONMENTAL EFFECTS INCLUDE METEOROID
BOMBARDMENT, INTERPLANETARY AND VAN ALLEN
CORPUSCULAR RADIATION, ELECTROMAGNETIC SOLAR
RADIATION, AND VACUUM. IT IS SHOWN THAT THE EFFORT
NEEDED TO GUARANTEE HIGH POWER SYSTEM RELIABILITY MAY
BE TOO COSTLY. THE RELATIVE POSITION OF NUCLEAR,
CHEMICAL, AND SOLAR POWER SYSTEMS IN A POWER LEVEL-
MISSION DURATION CONTINUUM IS PRESENTED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 221

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
DETAILS OF THE FLIGHT OF THE VOSTOK (U)
IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, MAN, MANNED, SPACE MEDICINE,
SPACECRAFT, TRAINING (U)
IDENTIFIERS: USSR, VOSTOK (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-256 945

JET PROPULSION LAB PASADENA CALIF
THE MARINER PLANETARY COMMUNICATION SYSTEM
DESIGN

(U)

MAY 61 IV MARTIN, BENN D.;
REPT. NO. TR32 85 R1
CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DATA TRANSMISSION SYSTEMS, •SPACE FLIGHT,
•SPACE PROBES, •SPACECRAFT, •TELEMETER SYSTEMS, COMMAND
+ CONTROL SYSTEMS, COMMUNICATION SYSTEMS, COMMUNICATION
THEORY, DATA PROCESSING SYSTEMS, DATA STORAGE SYSTEMS,
DESIGN, DOPPLER SYSTEMS, INSTRUMENTATION, L BAND, MARS,
RELIABILITY, S BAND, SPACE NAVIGATION, TRACKING,
VENUS

(U)

IDENTIFIERS: MARINER

(U)

AN 1100-LB SPACECRAFT, THE MARINER, IS BEING
DEVELOPED TO BE LAUNCHED TO THE NEAR VICINITY OF THE
PLANET VENUS. THE MISSION OBJECTIVES ARE BRIEFLY
DESCRIBED, FOLLOWED BY A DISCUSSION OF THE DESIGN
CONSTRAINTS IMPOSED UPON THE COMMUNICATION SYSTEM BY
THE MISSION AND LAUNCH DATES. INTERPLANETARY SPACE
COMMUNICATIONS STATE-OF-THE-ART IS THEN DISCUSSED,
LEADING TO A PREDICTION OF THE AVAILABLE SYSTEM BIT-
RATE CAPACITY FOR THIS AND FUTURE MISSIONS. THE
GENERAL OVER-ALL DESIGN OF THE COM UNICAT DATA
TRANSMISSION TECHNIQUES. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-256 829

DEFENCE RESEARCH BOARD OTTAWA (ONTARIO)

THE SCIENTIFIC EXPLORATION OF SPACE

(U)

DEC 60 1V WATSON, G.D.;

UNCLASSIFIED REPORT

DDC USERS

DESCRIPTORS: •CELESTIAL MECHANICS, •LUNAR PROBES,
•SATELLITES (ARTIFICIAL), •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, •SPACE PROBES, INTERSTELLAR
MATTER, ORBITAL TRAJECTORIES, PLANETARY ATMOSPHERES,
SCIENTIFIC RESEARCH

(U)

IDENTIFIERS: CANADA

(U)

A GENERAL INTERPRETATION OF THE USE OF SPACE PROBES
TO OBTAIN INFORMATION ABOUT THE SOLAR SYSTEM AND
INTERPLANETARY SPACE IS PRESENTED. THE MECHANICS OF
THE MOST COMMON ORBITS ARE DESCRIBED AND TYPICAL
SPACE PROBES ILLUSTRATED. SOME OF THE SCIENTIFIC
DATA OBTAINED AND SOME CANADIAN EXPERIMENTS ARE
MENTIONED; AND THE QUESTION OF THE MOTIVATION FOR
SPACE EXPLORATION IS DISCUSSED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-256 546

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

ON THE EROSION OF SATELLITE SURFACES DUE TO
SPUTTERING IN THE FREE MOLECULAR FLOW REGION (U)

1V VACHON, D.N.;

CONTRACT: DA36 039SC85236

MONITOR: ARPA 55 59

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ATOMS, •SATELLITES (ARTIFICIAL), •SPACE
FLIGHT, •SUPERAERODYNAMICS, •SURFACES, ATMOSPHERE,
BOMBARDMENT, EROSION, PARTICLES, SOLAR ATMOSPHERE, SOLAR
FLARES, SOLID STATE PHYSICS, UPPER ATMOSPHERE (U)

THE EROSION OF A SATELLITE SURFACE DUE TO
SPUTTERING IS EVALUATED AND FOUND TO BE RATHER SMALL.
THE DEPTH OF EROSION IS ON THE ORDER OF ONE TO ONE
HUNDRED ANGSTROMS FOR A TIME PERIOD OF ONE YEAR.
THE PRESENT UNCERTAINTIES ARE INDICATED FOR THE
VARIOUS PARAMETERS USED IN THE EVALUATION.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 601

OBERBAYERISCHE FORSCHUNGSANSTALT OBERAMMERGAU
(GERMANY)

THE RELIABILITY OF AIRCRAFT, MISSILES AND SPACE
VEHICLES

DEC 59 21P LUSSER,ROBERT;

(U)

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: PAPER DELIVERED TO THE ANNUAL
CONVENTION OF THE SOCIETY OF AERONAUTICAL SCIENCES,
13-17 OCT 1959, IN HAMBURG.

DESCRIPTORS: •AIRCRAFT, •GUIDED MISSILES, •SPACE
ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, •SPACECRAFT,
FAILURE (MECHANICS), MAINTENANCE, PROBABILITY,
RELIABILITY, SYMPOSIA

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 533

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

AN ANALYSIS OF ERRORS AND REQUIREMENTS OF AN OPTICAL
GUIDANCE TECHNIQUE FOR APPROACHES TO ATMOSPHERIC
ENTRY WITH INTERPLANETARY VEHICLES (U)

DEC 61 IV HARRY, DAVID P. III; FRIEDLANDER, ALAN

L.;

REPT. NO. TR R 102

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ATMOSPHERE ENTRY, •NUMERICAL METHODS AND
PROCEDURES, •OPTICAL EQUIPMENT, •PLANETARY ATMOSPHERES,
•SPACE FLIGHT, ASTROPHYSICS, DIGITAL COMPUTERS, ERRORS,
GUIDANCE, PLANETS, SPACECRAFT (U)

AN ANALYSIS AND MONTE CARLO STATISTICAL
EVALUATION OF A POTENTIALLY SELF-CONTAINED GUIDANCE
SCHEME BASED ON A CLOCK AND OPTICAL INSTRUMENTATION
ARE PRESENTED. FINITE ERRORS IN ALL MEASUREMENTS
AND CONTROL ACTION ARE CONSIDERED, AS WELL AS PLANET
SURFACE KNOWLEDGE. REQUIREMENTS ON SYSTEM
COMPONENTS ARE INFERRED FROM PARAMETRIC STUDIES. A
RANGE OF ENTRY VELOCITIES FROM 40,000 TO 63,000 FPS,
ENTRY CORRIDORS AS SMALL AS A 8 MI., AND INSTRUMENT
ACCURACIES FROM 20- TO 120-SEC ARC ARE CONSIDERED.
A MULTIPLE-CORRECTION SCHEME IS FOUND CAPABLE OF
CONTROLLING THE APPROACH TO AN ENTRY CORRIDOR USING
INSTRUMENTS OF MODEST CAPABILITY AND REQUIRING A
RELATIVELY SMALL CORRECTIVE VELOCITY INCREMENT.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 322

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
BALLISTIC MISSILE AND SPACE TECHNOLOGY, VOLUME III.
GUIDANCE, NAVIGATION, TRACKING, AND SPACE PHYSICS (U)

IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDANCE, •NAVIGATION, •SPACE FLIGHT,
•SYMPOSIA, •TRACKING, ASTROPHYSICS, GUIDED MISSILE
TRAJECTORIES, GUIDED MISSILES, ORBITAL TRAJECTORIES,
SPACE NAVIGATION (U)

NEW YORK U., N. Y. EXCHANGE BETWEEN SINGLE-
CRYSTAL CADMIUM AND IS IONS, BY CECIL V. KING,
DAVID S. NEWMAN, AND ERNEST SURIANI. 17
JUNE 60, REV. 17 OCT 60, 3P. INCL. TABLES.
(SPONSORED BY OFFICE OF ORDNANCE RESEARCH)
(OOR REPT. NO. 1541.8) UNCLASSIFIED REPORT
REPRINT FROM JNL. OF THE ELECTROCHEMICAL
SOCIETY 108:91-293, MAR 61. (COPIES NOT
SUPPLIED BY ASTIA) DESRIPTORS: •CADMIUM,
IONS, •ION EXCHANGE, SINGLE CRYTALS,
RADIOACTIVE ISOTOPES, CAD MIUM COMPOUNDS,
PERCHLORATES, SOLUTIONS, •DIFFUSION,
SURFACES, ELETROCHEMISTRY, METALS,
CHEMICAL REACTIONS. THE RATE OF CADMIUM-
CADMIUM ION EXCHANGE HAS BEEN STUDIED, SING
ELECTROPOLISHED SPECIMENS OF SINGLE-CRYSTAL CADMIUM
IMMERSED IN DEAERATED SOLUTIONS OF $CD(ClO_4)_2$
CONTAINING $CD-115$ AS TRACER. THE EXCHANGE RATE IS
SHOWN TO BE CONTROLLED BY SELF-DIFFUSION WITHIN THE
METAL. IN SOLUTIONS 0.1M OR HIGHER IN
CONCENTRATION, EXCHANGE AT THE INTERFCE IS COMPLETE
AND RAPID COMPARED TO INTERNAL DIFFUION, AND
CORROSION, FILM FORMATION, OR LOCAL CELL ACTION DO
NOT INTERFERE. CONSEQUENTLY THE SURFACE
CONCENTRATION TO BE USED IN CALCULATIONS IS
APPROXIMATELY EQUAL TO THE METAL CONCENTRATION IN THE
SOLD PHASE. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-255 261

OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS INST OF
GEODESY PHOTOGRAMMETRY AND CARTOGRAPHY
NAVIGATION TECHNIQUES AND DISPLAYS FOR INTERPLANETARY
SPACE FLIGHT (U)

MAY 59 IV WAGGONER, JACK H.;

REPT. NO. 813 5 297

CONTRACT: AF33 616 5524

UNCLASSIFIED REPORT

DESCRIPTORS: •DISPLAY SYSTEMS, •SPACE FLIGHT, •SPACE
NAVIGATION, ASTRONAUTICS, INSTRUMENT PANELS,
PROPAGATION, RADAR SIGNALS, RADIO SIGNALS (U)

UNCLASSIFIED

D15423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 024

JET PROPULSION LAB PASADENA CALIF
SOLID ROCKETS FOR LUNAR AND PLANETARY SPACECRAFT (U)
60 1V GIN, WINSTON; PIASECKI, LEONARD R.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •LUNAR PROBES, •ROCKET MOTORS, ♦ROCKET
PROPULSION, •SPACE FLIGHT, PLANETS, ROCKET PROPELLANTS,
SOLID ROCKET PROPELLANTS, SPACE ENVIRONMENTAL
CONDITIONS, SPACECRAFT (U)

PRESENTLY SCHEDULED MISSIONS FOR AUTOMATIC,
INSTRUMENTED SPACECRAFT TO EXPLORE THE MOON AND THE
NEARBY PLANETS SHOWS A VARIETY OF PROPULSION
MANEUVERS WHICH CAN BE PROVIDED BY SOLID-PROPELLANT
ROCKET MOTORS. THE RELIANCE ON SOLID ROCKETS IS
DEMONSTRATED BY THEIR SCHEDULED USE FOR SEVERAL
FORTHCOMING MISSIONS. THE INCREASE OF PROPELLANT
SPECIFIC IMPULSE AND PROPELLANT LOADING FRACTION
THROUGH DEVELOPMENT WILL PERMIT INCREASING AMOUNTS OF
USEFUL PAYLOAD TO BE CARRIED. STAGING THE MOTORS
FOR CERTAIN APPLICATIONS HAS CONSIDERABLE MERIT.
PROBLEMS UNIQUE TO THE EMPLOYMENT OF SOLID ROCKETS
IN SPACECRAFT INCLUDE THE REQUIREMENT FOR LONG-TERM
STORAGE IN THE SPACE ENVIRONMENT, WITH CONSIDERATION
FOR TEMPERATURE EXTREMES, HARD VACUUM, AND METEOROID
HAZARD; IGNITION AND MAINTENANCE OF STABLE AND
EFFICIENT COMBUSTION AT LOW CHAMBER PRESSURE; AND
SPECIAL OPERATIONAL PROBLEMS CAUSED BY THE SPREADING
OF THE EXHAUST PLUME, THE ATTENUATION AND DISTORTION
OF COMMUNICATION SIGNALS BY EXHAUST PRODUCTS, AND THE
NEED FOR STERILE SPACECRAFT ON IMPACT TRAJECTORIES.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-254 711

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY,

VOLUME III, NUMBER 3 (ENTRIES 30, 405-30, 624) (U)

MAR 61 IV

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, CELESTIAL MECHANICS, COMMUNICATION SYSTEMS,
INDEXES, MANNED, MARS, RADIATION EFFECTS, ROCKET
PROPULSION, SPACE ENVIRONMENTAL CONDITIONS, UPPER
ATMOSPHERE, VAN ALLEN RADIATION BELT (U)

IDENTIFIERS: APOLLO, ATLAS, DISCOVERER, ECHO, MERCURY
PROJECT, PIONEER, RANGER SPACECRAFT, TIROS (U)

UNCLASSIFIED

015423

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-254 409

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

NEW INDICATIONS IN SOVIET SPACE TECHNOLOGY (U)

IV

REPT. NO. 61 40

UNCLASSIFIED REPORT

f
DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
•WEIGHTLESSNESS, PHYSIOLOGY, SCIENTIFIC RESEARCH,
SPACECRAFT (U)
IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-253 625

JET PROPULSION LAB PASADENA CALIF
THE NATIONAL PROGRAM FOR LUNAR AND PLANETARY
EXPLORATION

(U)

FEB 61 IV HIBBS, ALBERT R.;
REPT. NO. TR34 241
CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE NAVIGATION, •SPACE
PROBES, •SPACECRAFT, EXPLORATION, INSTRUMENTATION, LUNAR
PROBES, MOON, PLANETARY ATMOSPHERES, PLANETS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-253 412

CALIFORNIA UNIV BERKELEY

DISCUSSIONS OF SOLAR PROTON EVENTS AND MANNED SPACE
FLIGHT (U)

IV ANDERSON, KINSEY A.; FICHTEL, CARL E.;
REPT. NO. TN D 671

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PROTONS, •RADIATION HAZARDS, •SOLAR
FLARES, •SPACE FLIGHT, ASTROPHYSICS, ATMOSPHERE,
EXTRATERRESTRIAL RADIO WAVES, HAZARDS, NOISE (RADIO),
PARTICLE BEAMS, PARTICLES, SOLAR DISTURBANCES,
SPACECRAFT (U)

THIS REPORT INCLUDES: CALIFORNIA U., BERKELEY.
PREDICTION ASPECTS OF SOLAR PROTON EVENTS, BY
KINSEY A. ANDERSON. MAR 61, 5P. NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION,
WASHINGTON, D. C. DISCUSSION OF SOLAR PROTON
BEAMS, BY CARL E. FICHTEL. MAR 61, 6P. INCL.
TABLES. THE PREDICTION OF SOLAR BEAM EVENTS AND THE
RADIATION HAZARD IN SPACE THAT RESULTS THEREFROM ARE
DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 985

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

SURVEY OF CHARACTERISTIC VELOCITY REQUIREMENTS FOR
TWO-IMPULSE TRANSFERS BETWEEN CIRCULAR AND COPLANAR
EXTERIOR ELLIPTICAL ORBIT WITH EXPOSITION OF LOCAL
AND OVER-ALL OPTIMUM SOLUTIONS (U)

IV SILBER, ROBERT;

REPT. NO. TN D 600

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, ASTROPHYSICS, FLIGHT PATHS,
MATHEMATICAL ANALYSIS, ORBITAL TRAJECTORIES, SATELLITES
(ARTIFICIAL), SPACE NAVIGATION, TABLES (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 762

AMERICAN POWER JET CO RIDGEFIELD N J
AN ANALYSIS OF FIRE AND EXPLOSION HAZARDS IN SPACE
FLIGHT (U)

OCT 60 1V CICCOTTI, JAMES M.;

CONTRACT: AF33 616 5959

MONITOR: ASD TR60 87 00000000

UNCLASSIFIED REPORT
NOFORM

DESCRIPTORS: •EXPLOSIONS, •FIRES, •HAZARDS, •SPACE
FLIGHT, •SPACECRAFT, ANALYSIS, MAINTENANCE, MANNED,
PLANETS, SATELLITES (ARTIFICIAL), SPACE ENVIRONMENTAL
CONDITIONS, SPACECRAFT CABINS, WEIGHTLESSNESS (U)

POSSIBLE SPACE MISSIONS ARE DISCUSSED, AND THE
CHARACTERISTICS OF THE SPACE ENVIRONMENT, BOTH WITHIN
AND EXTERNAL TO THE VEHICLE, ARE DESCRIBED AND
COMPARED WITH TERRESTRIAL CONDITIONS FROM THE
STANDPOINT OF THEIR EFFECTS ON THE NATURE AND
MAGNITUDE OF FIRES AND EXPLOSIONS. SOURCES OF
POTENTIAL FIRE AND EXPLOSION IN THE BOOSTER AND IN
THE SPACE CAPSULE ARE EXAMINED, AND PRESENT KNOWLEDGE
OF FIRE-EXTINGUISHING AND EXPLOSION SUPPRESSION AGENTS
IS PRESENTED, TOGETHER WITH AN ANALYSIS OF THEIR
LIMITATIONS IN SPACE VEHICLE USE. THE REPORT
CONSIDERS HOW FIRES AND EXPLOSIONS IN DIFFERENT PARTS
OF THE SPACE VEHICLE MAY AFFECT THE SAFETY OF THE
CREW AND THE SUCCESS OF VARIOUS TYPES OF MISSIONS.
SUGGESTIONS ARE MADE AS TO THE FACTORS THAT SPACE
VEHICLE DESIGNERS SHOULD CONSIDER IN ORDER TO REDUCE
THE PROBABILITY OF FIRE AND EXPLOSION AS WELL AS TO
MINIMIZE THEIR EFFECTS ON SPACE MISSION
ACCOMPLISHMENT. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 575

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

CONSIDERATIONS AFFECTING SATELLITE AND SPACE PROBE
RESEARCH WITH EMPHASIS ON THE SCOUT AS A LAUNCH
VEHICLE (U)

SEP 61 1V POSNER, JACK;

REPT. NO. TR R 97

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDED MISSILE LAUNCHERS, •SPACE FLIGHT,
BOOSTER MOTORS, LOAD DISTRIBUTION, SATELLITES
(ARTIFICIAL), SPACE PROBES, TELEMETER SYSTEMS, TRACKI(U)
IDENTIFIERS: SCOUT (U)

A NUMBER OF THE FACTORS WHICH INFLUENCE SPACE
FLIGHT EXPERIMENTS ARE REVIEWED. INCLUDED ARE
DISCUSSIONS OF PAYLOAD CONSIDERATIONS, PAYLOAD DESIGN
AND PACKAGING, ENVIRONMENTAL TESTS, LAUNCH
FACILITIES, TRACKING AND TELEMETRY REQUIREMENTS, DATA
ACQUISITION, PROCESSING AND ANALYSIS PROCEDURES,
COMMUNICATION OF INFORMATION, AND PROJECT MANAGEMENT.
PARTICULAR EMPHASIS IS PLACED ON THE SCOUT AS A
LAUNCHING VEHICLE. THE DOCUMENT INCLUDES A
DESCRIPTION OF THE GEOMETRY OF THE SCOUT AS WELL AS
ITS FLIGHT CAPABILITIES AND LIMITATIONS. ALTHOUGH
ORIENTED TOWARD THE SCOUT VEHICLE AND ITS PAYLOAD
CAPABILITIES, THE INFORMATION PRESENTED IS
SUFFICIENTLY GENERAL TO BE EQUALLY APPLICABLE TO MOST
SPACE VEHICLE SYSTEMS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 376

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

FOURTH SEMI-ANNUAL REPORT TO CONGRESS, APRIL 1, 1960
THROUGH SEPTEMBER 30, 1960 (U)

SEP 60 IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •REPORTS, •SATELLITES (ARTIFICIAL), •SPACE
FLIGHT, SCIENTIFIC RESEARCH, SOUNDING ROCKETS, SPACE
PROBES (U)

CONTENTS: SATELLITE APPLICATIONS MANNED SPACE
FLIGHT SCIENTIFIC SATELLITES AND SOUNDING ROCKETS
LUNAR, PLANETARY, AND INTERPLANETARY PROGRAMS
TRACKING AND DATA ACQUISITION LAUNCH VEHICLE
PROGRAM AND LAUNCH OPERATIONS PROPULSION AND
NUCLEAR ENERGY APPLICATIONS FOR SPACE
INTERNATIONAL PROGRAMS RESEARCH PRIMARILY
SUPPORTING AERONAUTICS ACTIVITIES RESEARCH
PRIMARILY SUPPORTING SPACE ACTIVITIES SPECIAL
RESEARCH PROJECTS RESEARCH CENTER DIRECT SUPPORT
CONSTRUCTION AND EQUIPMENT LIFE SCIENCES PROGRAMS
ORGANIZATIONAL DEVELOPMENTS PROCUREMENT,
CONTRACTS, AND GRANTS PERSONNEL FINANCIAL
MANAGEMENT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 189

GEOPHYSICS CORP OF AMERICA BOSTON MASS
THE EFFECT OF ABERRATION OF LIGHT ON DETERMINING
POSITION DURING SPACE FLIGHT (U)

FEB 61 IV BROWN,H.K.;STUBBS,H.E.;

REPT. NO. TR61 16 ATR 61 16 A D

CONTRACT: AF33 616 7413

MONITOR: ASD TN61 121 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CELESTIAL NAVIGATION, •SPACE FLIGHT,
•SPACE NAVIGATION, ERRORS, LIGHT, STARS (U)

THE PROBLEMS OF INTERPLANETARY NAVIGATION WERE
INVESTIGATED BY STUDYING THE HYPERSURFACE $F(X,Y,Z,U,V,W,\theta,T)$ EQUALS 0 WHICH RELATES THE
COORDINATES OF POSITION $P:(X,Y,Z)$ AND THE
COMPONENTS OF VELOCITY $V:(U,V,W)$ OF A SPACE
VEHICLE, P , TRAVELLING WITHIN THE SOLAR SYSTEM,
WITH A SINGLE ANGLE MEASUREMENT, θ , MADE AT
THE TIME, T , BETWEEN TWO KNOWN CELESTIAL BODIES, P_1
AND P_2 . (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-250 714

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

AN OPTIMIZATION OF POWERPLANT PARAMETERS FOR ORBITAL-
LAUNCH NUCLEAR ROCKETS (U)

FEB 61 1V JOHNSON, PAUL G.; SMITH, ROGER L.;
REPT. NO. TN D 675

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •NUCLEAR POWER PLANTS, •SPACE FLIGHT,
•SPACECRAFT, ANALYSIS, DESIGN, LAUNCHING, ORBITAL
TRAJECTORIES, ROCKETS, SPACE PROBES (U)

PERFORMANCE OF ORBITAL-LAUNCH NUCLEAR ROCKETS WAS
COMPUTED FOR RANGES OF INITIAL GROSS WEIGHT, MISSION
ENERGY, AND REACTOR-EXIT HYDROGEN TEMPERATURE IN
ORDER TO SHOW (1) OPTIMUM VALUES OF REACTOR-EXIT
HYDROGEN PRESSURE, REACTOR POWER, AND REACTOR FLOW
AREA AND (2) THE EFFECTS OF DEVIATIONS FROM
OPTIMUM DESIGN CONDITIONS. A COMPARISON IS MADE
BETWEEN PRESSURIZED AND PUMP-FED SYSTEMS. VEHICLE
WEIGHTS OF 30,000 TO 150,000 LBS (WITH SOME DATA
FOR 500,000 LBS) AND TEMPERATURES OF 2500 TO 4500
°F ARE CONSIDERED; AND ONE-WAY, ORBIT-TO-ORBIT,
EARTH-MARS TRIPS OF 120 TO 259 DAYS ARE USED TO
REPRESENT A VARIATION IN MISSION ENERGY. SPACECRAFT
PERFORMANCE IS SHOWN TO BE RELATIVELY INSENSITIVE TO
VARIATIONS IN DESIGN-POINT PRESSURE OR POWER.
OPTIMUM VALUES MAY BE DETERMINED AS THE RESULT OF
INTERACTING COMPONENT OR PERFORMANCE CHARACTERISTICS,
BUT LARGE REDUCTIONS IN THESE PARAMETERS CORRESPOND
TO ONLY SMALL REDUCTIONS IN RESIDUAL LOAD.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-250 068

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

FIRST PLANNING CONFERENCE ON BIOMEDICAL EXPERIMENTS
IN EXTRATERRESTRIAL ENVIRONMENTS, HELD UNDER THE
AUSPICES OF THE NASA, WASHINGTON, D.C. JUNE 20,
1960

(U)

IV

REPT. NO. TN D 781

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BALLOONS, •BIOLOGY,
•CLOSED-CYCLE ECOLOGICAL SYSTEMS, •PHOTOSYNTHESIS,
•PLANETARY ATMOSPHERES, •PLANETS, •SATELLITES
(ARTIFICIAL), •SPACE CAPSULES, •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, •SPACE PROBES, •SPACECRAFT
CABINS, •SYMPOSIA, ACCELERATION, AVIATION PERSONNEL,
DECONTAMINATION, HAZARDS, INHIBITION, NOISE, RADIATION
EFFECTS, RHYTHM (BIOLOGY), SENSORY MECHANISMS,
SIMULATION, STRESS (PHYSIOLOGY)

(U)

IDENTIFIERS: MERCURY PROJECT

(U)

116 5060000RADIATION EFFECTS, OPEN-ENDED
TERMS: MERCURY PROJECT. THIRTY OF THE
NATION'S LEADING EXPERIMENTAL BIOLOGISTS CONFERRED
WITH THE STAFF OF THE NASA OFFICE OF LIFE
SCIENCE PROGRAMS. THE GROUP RECOMMENDED
EMPHASIS ON THE FOLLOWING: DETECTION AND STUDY OF
EXTRATERRESTRIAL LIFE, STUDIES OF THE EFFECTS OF
SIMULATED EXTREME ENVIRONMENTS, CELLULAR AND
BIOLOGICAL SYSTEM STUDIES IN SPACE CONDITIONS, WAYS
AND MEANS OF DECONTAMINATING SPACE PROBES AND
VEHICLES, EFFECTS OF SPACE ON BIOLOGICAL RHYTHMS AND
ANIMAL ORIENTATION, AND PHOTOSYNTHESIS IN ECOSYSTEMS.
IT WAS URGED THAT SPACE RELATED WORK BE CARRIED OUT
IN EARTH-BOUND LABORATORIES AS WELL AS IN SIMULATED
ENVIRONMENTS AND IN UPPER ATMOSPHERIC BALLOONS.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-249 831

JET PROPULSION LAB PASADENA CALIF

NUCLEAR ELECTRIC POWER FOR SPACE MISSIONS (U)

JAN 61 1V KOERNER, TERRY W.; PAULSON, JOHN J.;

REPT. NO. TR34 230

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ELECTRIC PROPULSION, •NUCLEAR POWER
PLANTS, •SPACE FLIGHT, •SPACE PROBES, ANALYSIS, LIQUID
ROCKET PROPELLANTS, NUCLEAR ENERGY, PROPELLANT
PROPERTIES, PROPULSION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-249 503

RAND CORP SANTA MONICA CALIF

DESIGN CRITERIA FOR ROTATING SPACE VEHICLES (U)

IV DOLE, S.H.;

REPT. NO. RM-2668

CONTRACT: AF 49(638)-700

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION, •GRAVITY, •HUMAN
ENGINEERING, •PHYSIOLOGY, •SPACE FLIGHT, DESIGN,
ROTATING STRUCTURES, ROTATION, SIMULATION,
SPACECRAFT (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-249 054

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV
DOPPLER VELOCITY FOR SPACE NAVIGATION (U)

IV BENJAMIN, S. I

REPT. NO. A18 13

CONTRACT: AF33 616 5487

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT, •SPACE
NAVIGATION, •SPACECRAFT, RADIOFREQUENCY SPECTROSCOPY,
RECORDING SYSTEMS, SPECTRUM ANALYZERS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 775

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

LONG RANGE PLANNING FOR SPACE TRANSPORTATION
SYSTEMS

(U)

REPT. NO. TN D 597 IV KOELLE, H.H.;

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •RESEARCH PROGRAM ADMINISTRATION, •SPACE
FLIGHT, •SPACECRAFT, COSTS, GUIDED MISSILES, LAUNCHING,
LUNAR PROBES, SATELLITES (ARTIFICIAL), SPACE CAPSULES,
SPACE PROBES (U)
IDENTIFIERS: SATURN (U)

INTEGRATED SPACE OPERATIONS PLANNING IS BASED UPON
BALANCING THE AVAILABLE RESOURCES WITH EXPECTED
EXPENDITURES IN THE AREAS OF RESEARCH (OVER) AND
DEVELOPMENT, FACILITIES, PAYLOADS, AND BASIC SPACE
TRANSPORTATION. SOME SYSTEM PARAMETERS EFFECTING
LONG-RANGE PLANNING FOR LAUNCH VEHICLES ARE DISCUSSED
IN DETAIL. TRENDS IN SPACE TRANSPORTATION COST FOR
EARTH-ORBITAL, EARTH-LUNAR, AND EARTH-PLANETARY
MISSIONS FOR THE NEXT DECADE ARE GIVEN, BASED ON
TYPICAL PROGRAMS. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 751

GARDNER (GRANDISON) PHOENIX ARIZ
AERODYNAMICS OF VERY RARE ATMOSPHERE (U)
SEP 60 IV GARDNER, GRANDISON;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SUPERAERODYNAMICS,
AERODYNAMIC CHARACTERISTICS, ATMOSPHERE, GAS FLOW (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 003

DEPARTMENT OF THE ARMY WASHINGTON D C
USSR: MISSILES, ROCKETS AND SPACE EFFORT. A
BIBLIOGRAPHIC RECORD 1956-1960

(U)

SEP 60 1V

REPT. NO. DA-PAM-7D-5-8

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDED MISSILES, •ROCKETS, •SPACE FLIGHT,
BIBLIOGRAPHIES, ROCKET RESEARCH, SPACE PROBES (U)

USSR

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-247 322

RAND CORP SANTA MONICA CALIF

A DISCUSSION OF A MIDCOURSE GUIDANCE TECHNIQUE FOR
SPACE VEHICLES

(U)

1V

SMITH, F. T. ;

REPT. NO. RM-2581

CONTRACT: AF-49(638)-700

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •GUIDANCE, •SPACE FLIGHT, •SPACECRAFT,
ANALYSIS, DETERMINATION, EFFECTIVENESS, MATRIX ALGEBRA,
ORBITAL TRAJECTORIES, SPACE NAVIGATION (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423 .

AD-247 127

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
DEVELOPMENT OF A COMPUTER SUBROUTINE FOR PLANETARY
AND LUNAR POSITIONS (U)

AUG 60 IV MICHIELSEN, HERMAN F.; KROP, MARTIN A.;

CONTRACT: AF-33(616)-6628, AF-33(616)-6628

MONITOR: ASD TR-60-118

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTROPHYSICS, •DIGITAL COMPUTERS,
•PROGRAMMING (COMPUTERS), •SPACE FLIGHT, ASTRONOMICAL
DATA, MOON, PLANETS, PREPARATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-246 978

JET PROPULSION LAB PASADENA CALIF

SOLID ROCKETS FOR LUNAR AND PLANETARY SPACECRAFT (U)

OCT 60 IV GIN, WINSTON; PIASECKI, LEONARD R.;

REPT. NO. TR34 158

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ROCKET MOTORS, •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, •SPACECRAFT, LUNAR PROBES,
SOLID ROCKET PROPELLANTS, SPACE PROBES (U)

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-246 745

JET PROPULSION LAB PASADENA CALIF

JPL-INDUSTRY CONFERENCE PROCEEDINGS, CONDUCTED BY JET
PROPULSION LABORATORY, NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION, OCTOBER 26, 1960 (U)

NOV 60 IV

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •COMMUNICATION SYSTEMS, •LUNAR PROBES,
•SPACE FLIGHT, •SPACE PROBES, •SPACECRAFT, •SYMPOSIA,
AUXILIARY POWER PLANTS, DATA TRANSMISSION SYSTEMS,
GUIDANCE, INSTRUMENTATION, PLANETS, PROPULSION (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-246 381

AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

THERMAL ANALYSIS OF SPACE SUITS IN ORBIT (U)

MAY 60 IV IRVINE, THOMAS F. JR.; CRAMER, KENNETH

R.;

MONITOR: ASD TN-60-145

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •FLIGHT CLOTHING, •PROTECTIVE CLOTHING,
•SPACE FLIGHT, ASTRONAUTICS, CYLINDRICAL BODIES, DESIGN,
HEAT PRODUCTION (BIOLOGY), HEAT TRANSFER, ORBITAL
TRAJECTORIES, SATELLITES (ARTIFICIAL), SPACE
ENVIRONMENTAL CONDITIONS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-245 416

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
PSYCHIATRY AND SPACE FLIGHT

1V FLAHERTY, BERNARD E.; FLINN, DON E.; (U)

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ANXIETY, •AVIATION PERSONNEL, •EMOTIONS,
•FEAR, •PERCEPTION, •PSYCHIATRY, •REACTION (PSYCHOLOGY),
•SENSORY MECHANISMS, •SPACE FLIGHT, •STRESS
(PHYSIOLOGY), •STRESS (PSYCHOLOGY), ASTRONAUTICS, COSMIC
RAYS, HAZARDS, HEAT, INHIBITION, RADIATION HAZARDS,
REENTRY VEHICLES, SPACECRAFT CABINS, TEMPERATURE, TEST
METHODS, WEIGHTLESSNESS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-243 385

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
FURTHER EVALUATION OF TISSUE DEPTH DOSES IN PROTON
RADIATION FIELDS IN SPACE (U)

MAY 60 1V SCHAEFER, HERMANN J.;

PROJ: MRO05 13 10D2

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •RADIATION HAZARDS, •SPACE FLIGHT, •SPACE
PROBES, •TISSUES (BIOLOGY), COSMIC RAYS, DOSE RATE,
DOSIMETERS, IONIZATION, PROTON BEAMS, PROTONS,
RADIOBIOLOGY, VAN ALLEN RADIATION BELT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-243 015

ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

PILOT'S ROLE IN SPACE FLIGHT

(U)

SEP 59 IV WESTBROOK, C.B.;

REPT. NO. 252

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PILOTS, •SPACE FLIGHT, CONTROL SYSTEMS,
HUMAN ENGINEERING, REENTRY VEHICLES, SPACECRAFT (U)
IDENTIFIERS: NATO (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 584

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME II. NO. 8.

(ABSTRACTS 2,624-2,715)

(U)

AUG 60 IV

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, SATELLITES (ARTIFICIAL), SPACE MEDICINE, SPACE
PROBES, SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 422

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
SPACE PHYSICS INSTRUMENTATION

(U)

IV

MONITOR: AFBMD TR-60-104

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTROPHYSICS, •INSTRUMENTATION, •NUCLEAR
PHYSICS, •SPACE FLIGHT, CERENKOV RADIATION, DESIGN,
INTERSTELLAR MATTER, IONIZATION CHAMBERS, MAGNETOMETERS,
NUCLEAR RADIATION SPECTROMETERS, TELEVISION DISPLAY
SYSTEMS, ULTRAVIOLET DETECTORS

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 348

VIRGINIA UNIV CHARLOTTESVILLE MEDICAL SCHOOL
HUMAN FACTORS AT EXTREME ALTITUDES: SYNOPSIS AND
BIBLIOGRAPHY (U)

MAR 60 1V BANGHART,FRANK W.;PATTISHALL,EVAN

G.;

CONTRACT: AF18 600 1792

MONITOR: AFSC TR-60-7

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •SPACE FLIGHT, •SPACE
MEDICINE, •WEIGHTLESSNESS, ACCELERATION, ASTRONAUTICS,
ATMOSPHERE, BEHAVIOR, BIOPHYSICS, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, DECELERATION, ECOLOGY, FUELS, HIGH
ALTITUDE, HYPOXIA, INSTRUMENTATION, NUTRITION,
PERCEPTION, RADIATION EFFECTS, RESPIRATION, ROCKETS,
STRESS (PHYSIOLOGY) (U)

IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 966

AIR FORCE MISSILE DEVELOPMENT CENTER HOLLOWAN AFB N
MEX

THE MEASUREMENT OF CONCEPT FORMATION IN THE
CHIMPANZEE AND ITS RELEVANCE TO THE STUDY OF BEHAVIOR
IN SPACE ENVIRONMENTS (U)

JUL 60 11P ROHLES, FREDERICK H. JR.; BELLEVILLE,
RICHARD E.; GRUNZKE, MARVIN E.;
REPT. NO. MDC-TR-60-20

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: • BEHAVIOR, • PERCEPTION, • SPACE FLIGHT,
AUTOMATIC, MEASUREMENT, PRIMATES, TEST EQUIPMENT, TEST
METHODS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 853

AIR FORCE BALLISTIC MISSILE DIV INGLEWOOD CALIF
DISCOVERER III

(U)

IV

REPT. NO. WDCPB R 2WDZPB 2

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION TOLERANCE, •CLOSED-CYCLE
ECOLOGICAL SYSTEMS, •SPACE FLIGHT, DESIGN, MICE,
SATELLITES (ARTIFICIAL), SPACE CAPSULES, SPACE MEDICINE,
SPACECRAFT, STRESS (PHYSIOLOGY), WEIGHTLESSNESS (U)
IDENTIFIERS: DISCOVERER (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 648

SYLVANIA ELECTRIC PRODUCTS INC WALTHAM MASS
A SURVEY OF THE PHYSICAL ENVIRONMENTS OF BOOST-GLIDE
AND SATELLITE VEHICLE ELECTRONIC EQUIPMENT (U)
APR 60 1V SULLIVAN, ROGER L.; CURLEY, WALTER;
REPT. NO. TR440 1
CONTRACT: AF33 616 6309

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ELECTRONIC EQUIPMENT, •SPACE ENVIRONMENTAL
CONDITIONS, •SPACE FLIGHT, ANALYSIS, MOTION, RENDEZVOUS
SPACECRAFT, SATELLITES (ARTIFICIAL), TABLES, TEMPERAT(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 409

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
GENERAL RESEARCH IN MATERIALS AND PROPULSION. VOLUME
I. PROPULSION CHEMISTRY AND PROPULSION PHYSICS (U)

JAN 60 IV

REPT. NO. LMSD 288140 VI

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ION ENGINES, •NUCLEAR POWER PLANTS,
•PROPULSION, •ROCKET OXIDIZERS, •SOLID ROCKET
PROPELLANTS, •SPACE FLIGHT, •THERMIONIC EMISSION,
CARBIDES, CATHODES, COMBUSTION, ETHANES (2 C), FAST
REACTORS, FLUORIDES, LITHIUM COMPOUNDS, METALLIC
COMPOUNDS, NITRAMINES, NITRO RADICALS, PHOSPHORUS
COMPOUNDS, THERMOCHEMISTRY (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 055

AEROJET-GENERAL CORP AZUSA CALIF

THE COLLOID ROCKET: PROGRESS TOWARD A CHARGED-LIQUID-
COLLOID PROPULSION SYSTEM (U)

SEP 59 IV SCHULTZ, ROBERT D.; BRANSON, LANE K.;

CONTRACT: AF49 638 656

MONITOR: AFOSR TN59 1334 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ELECTRIC PROPULSION, •PROPULSION, •SPACE
FLIGHT, ACCELERATION, AEROSOLS, COLLOIDS, DROPS, OILS,
PARTICLES, ROCKET PROPULSION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-240 387

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE NAVIGATION (U)

FEB 60 IV BENJAMIN,S.;FELDON,S.;

REPT. NO. A18 10

CONTRACT: AF33 616 5487

MONITOR: ASD TN60 431 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT, •SPACE
NAVIGATION, •SPACECRAFT, DESIGN, GUIDANCE,
RADIOFREQUENCY SPECTROSCOPY, RECORDING SYSTEMS, SPECTRUM
ANALYZERS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-239 600

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME II, NO. 6

(ABSTRACTS 2,432-2,529)

(U)

JUN 60 IV

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT,
BIBLIOGRAPHIES

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-238 972

AEROCHEM RESEARCH LABS INC PRINCETON N J
SOME NOTES ON HIGH SPEED MEDIUM PROPULSION

(U)

MAR 60 1V FENN, JOHN B.;

REPT. NO. TM21

CONTRACT: NONR277300

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •HYPERVELOCITY VEHICLES, •PROPULSION,
•SPACE FLIGHT, •THERMODYNAMICS, ENERGY, FLUID FLOW, JET
PROPULSION, MATHEMATICAL ANALYSIS, MOTION, THRUST (U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-238 480

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
MAN FUNCTIONS IN SPACE FLIGHT (U)

SEP 59 1V ASKREN, W.B.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •JOB ANALYSIS, •SELECTION, •SPACE FLIGHT,
ACCELERATION TOLERANCE, ADJUSTMENT (PSYCHOLOGY),
AVIATION PERSONNEL, GROUP DYNAMICS, HEARING,
MAINTENANCE, MOTOR REACTIONS, PHYSICAL FITNESS, PILOTS,
REACTION (PSYCHOLOGY), SENSORY MECHANISMS, SPACE
ENVIRONMENTAL CONDITIONS, SPACECRAFT, STRESS
(PHYSIOLOGY), STRESS (PSYCHOLOGY), THEORY, VISION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-237 405

NAVAL AIR ENGINEERING CENTER PHILADELPHIA PA AEROSPACE CREW
EQUIPMENT LAB

ENVIRONMENTAL REQUIREMENTS OF SEALED CABINS FOR SPACE
AND ORBITAL FLIGHTS. A SECOND STUDY PART 6:

EVALUATION OF POTASSIUM SUPEROXIDE CLOSED CIRCUIT
REBREATHING SYSTEM DURING PROLONGED CONFINEMENT (U)

MAY 60 IV MANCINELLI, D.A.; MICHEL, E.L.;

REPT. NO. 418

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •OXYGEN EQUIPMENT, •POTASSIUM COMPOUNDS,
•PRESSURIZED CABINS, •RESPIRATION, •SPACE FLIGHT,
ALTITUDE CHAMBERS, CARBON DIOXIDE, EXCISION, MOISTURE,
OXIDES, OXYGEN, SEALS (STOPPERS), SIMULATION, SPLEEN (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-237 306L

HUGHES AIRCRAFT CO CULVER CITY CALIF
SPACE FERRY VEHICLE DESIGN STUDY. TECHNICAL
APPENDICES. VOLUME II

(U)

OCT 59 IV

REPT. NO. SDL 928 RA

MONITOR: AFSC TR59 44 V2 00000000

UNCLASSIFIED REPORT
CONTROLLED

DESCRIPTORS: •ASTRONAUTICS, •COMMUNICATION SYSTEMS,
•GUIDANCE, •RENDEZVOUS SPACECRAFT, •SPACE FLIGHT, •SPACE
NAVIGATION, •SPACECRAFT, ATMOSPHERE ENTRY, AUTOMATIC,
CONTROL SYSTEMS, DESIGN, NAVIGATION, STABILITY (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-236 989

CALIFORNIA INST OF TECH PASADENA GRADUATE AERONAUTICAL
LABS

ON THE POSSIBLE USES OF MANNED SPACE FLIGHT
CAPABILITY FOR ENGINEERING RESEARCH

(U)

SEP 59 1V STEWART, H. J.;

REPT. NO. P457

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ENGINEERING, •SATELLITES (ARTIFICIAL),
•SCIENTIFIC RESEARCH, •SPACE FLIGHT, •SPACE PROBES,
GUIDANCE, LOGISTICS

(U)



UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-236 646

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
PROCEEDINGS OF WADC SPACE TECHNOLOGY LECTURE SERIES 7
OCTOBER-11 DECEMBER 1958. VOLUME II. SUBSYSTEMS, PART
I (U)

IV

UNCLASSIFIED REPORT
NOFORN.

DESCRIPTORS: •ATMOSPHERE ENTRY, •DIGITAL COMPUTERS,
•GUIDANCE, •HYPERSONIC FLOW, •LUNAR PROBES, •RADIO
COMMUNICATION SYSTEMS, •ROCKET PROPULSION, •SATELLITES
(ARTIFICIAL), •SPACE FLIGHT, •SPACECRAFT, AERIAL
RECONNAISSANCE, CONTROL SYSTEMS, DESIGN, MAINTENANCE
EQUIPMENT, SPACE WEAPONS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-235 687

JET PROPULSION LAB PASADENA CALIF

THE FUTURE OF GROUND SUPPORT EQUIPMENT IN THE SPACE
AGE (U)

MAY 60 IV SCHIMANDLE, WILLIAM;

REPT. NO. TR34 21

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •MILITARY EQUIPMENT, •SPACE FLIGHT,
•SPACECRAFT, ANALYSIS, EXPLORATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-235 254

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE NAVIGATION (U)
NOV 59 IV FELDON,S.;

REPT. NO. A18 9

CONTRACT: AF33 616 5487

MONITOR: ASD TN60 181 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT,
•SPACECRAFT, DESIGN, GUIDANCE, HYDROGEN, RADIOFREQUENCY
SPECTROSCOPY, RECORDING SYSTEMS, SIGNALS, SPACE
NAVIGATION, SPECTRUM ANALYZERS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-235 218

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
SPACE PHYSICS INSTRUMENTATION

(U)

IV

MONITOR: AFBMD TR60 33 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTROPHYSICS, •INSTRUMENTATION, •NUCLEAR
PHYSICS, •SPACE FLIGHT, CERENKOV RADIATION, DESIGN,
INTERSTELLAR MATTER, IONIZATION CHAMBERS, MAGNETOMETERS,
NUCLEAR RADIATION SPECTROMETERS, RADIATION MEASUREMENT
SYSTEMS, TELEVISION DISPLAY SYSTEMS, ULTRAVIOLET
DETECTORS

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-234 D68

OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS
NAVIGATION TECHNIQUES AND DISPLAYS FOR INTERPLANETARY
SPACE FLIGHT (U)

DEC 59 IV JOYCE, WILLIAM; MALLET, FRANK;

REPT. NO. 813

CONTRACT: AF33 616 5524

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •OPTICAL EQUIPMENT, •SPACE FLIGHT,
BIBLIOGRAPHIES, SPACE NAVIGATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-233 236

ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
INVESTIGATION OF NEW SOLAR REGENERATIVE FUEL CELL
SYSTEMS

(U)

IV LUDWIG,FRANK;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ELECTRIC POWER PRODUCTION, •FUEL CELLS,
•SPACE FLIGHT, DESIGN, MATERIALS, PHOTOELECTRIC CELLS
(SEMICONDUCTOR), PHOTOTUBES, SOLAR CELLS, SOLAR
RADIATION, TESTS

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-232 699

ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

PROCEEDINGS OF THE EIGHTH AGARD GENERAL ASSEMBLY 28

AND 29 OCTOBER 1958

(U)

SEP 59 IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (•SPACE FLIGHT, SYMPOSIA),
(•NUCLEAR ENGINEERING, DENMARK), SCIENTIFIC
ORGANIZATIONS, AERONAUTICS

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-231 586

JET PROPULSION LAB PASADENA CALIF
ASTRONAUTICS INFORMATION. MICROMETEORITES, HIGH
VELOCITY IMPACT STUDIES, AND PROBLEMS OF SPACE TRAVEL
RELATING TO PARTICLE IMPACT (U)

OCT 59 1V BARBER,EDDA;SWEITZER,DOROTHY I.;
REPT. NO. LS143
CONTRACT: NASW 6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •METEORITES, •METEOROLOGY, •SPACE FLIGHT,
BIBLIOGRAPHIES, COSMIC RAYS. PARTICLES (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-230 379

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION

MEDICAL ACCELERATION LAB

ACCELERATION PROBLEMS IN SPACE FLIGHT

(U)

OCT. 59

IV

HARDY, JAMES D.; CLARK, CARL C.; GRAY, R.

FLANAGAN;

REPT. NO. 5905

PROJ: ADC AE 1412

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION, •ACCELERATION TOLERANCE,
•SPACE FLIGHT, •WEIGHTLESSNESS, CENTRIFUGES,
COUNTERMEASURES, DISTORTION, PRESSURE, SIMULATION,
WATER

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-230 094

GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y
MINIMIZATION OF CHARACTERISTIC VELOCITY FOR TRANSFER
BETWEEN ARBITRARY TERMINALS IN AN INVERSE SQUARE
FIELD USING TWO IMPULSES (U)

OCT 59 IV MUNICK, HERMAN; MCGILL, ROBERT; TAYLOR,
GERALD E.;
REPT. NO. RE 126

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: • ORBITAL TRAJECTORIES, • SPACE FLIGHT,
MATHEMATICAL ANALYSIS, SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 925

HUMAN SCIENCES RESEARCH INC MCLEAN VA
METHODOLOGY FOR ANALYSIS OF MAN'S ROLE IN AN ADVANCED
SPACE FLIGHT SYSTEM. A CASE STUDY IN SYSTEM RESEARCH
METHODOLOGY (U)

NOV 59 1V NORDLIE,PETER G.;
REPT. NO. RM59 25 SM
CONTRACT: NONR252500

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •HUMAN ENGINEERING, •OPERATIONS RESEARCH,
•RESEARCH PROGRAM ADMINISTRATION, •SPACE FLIGHT, ARMED
FORCES RESEARCH, DESIGN, MILITARY RESEARCH,
SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 834

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D

C

SPACE RESEARCH

(U)

JUN 59 IV

FELLOWS, R.; JACKSON, J. E.; NEWELL, H. E.

JR.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •GEOPHYSICS, •SPACE FLIGHT,
SCIENTIFIC RESEARCH, SYMPOSIA (U)



UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 457

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

SUSTAINED OPERANT BEHAVIOR IN MICE. A MODEL FOR
BEHAVIORAL RESEARCH IN BIOSATELLITES (U)

AUG 59 1V ROHLES, FREDERICK H. JR.; GRUNZKE,
MARVIN E.;

REPT. NO. TN59 299

MONITOR: ASD TN59 299 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BEHAVIOR, •SPACE FLIGHT, LEARNING, MICE,
MOTOR REACTIONS, REACTION (PSYCHOLOGY), SATELLITES
(ARTIFICIAL), SPACE MEDICINE (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-228 967

PICATINNY ARSENAL DOVER N J FELTMAN RESEARCH LABS
ROCKET TECHNOLOGY AND SPACE RESEARCH

(U)

NOV 59 IV

REPT. NO. T61

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDED MISSILES, •INFRARED DETECTORS,
•PHYSIOLOGY, •ROCKET RESEARCH, •SPACE FLIGHT, •SPACE
PROBES, ARTIFICIAL PLANETIDS, BIBLIOGRAPHIES, DESIGN,
SATELLITES (ARTIFICIAL), SPACE NAVIGATION, SURFACE-TO-
SURFACE

(U)

IDENTIFIERS: ATLAS, MECHTA, SPUTNIK, USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-228 724

PHILCO NEWPORT BEACH CALIF AERONUTRONIC DIV
A DYNAMIC ANALYSIS AND PRELIMINARY DESIGN OF GUIDANCE
FOR LUNAR VEHICLES. APPENDICES (U)

SEP 59 1V

REPT. NO. C 590 V3

CONTRACT: AF33 616 6005

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONOMY, •GUIDANCE, •MATHEMATICAL
ANALYSIS, •MECHANICS, •SATELLITES (ARTIFICIAL), •SPACE
FLIGHT, FLIGHT PATHS, SPACECRAFT, TERMINAL
BALLISTICS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY .SEARCH CONTROL NO. 015423

AD-227 503

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
ANIMAL AND HUMAN STUDIES OF THE EFFECTS OF LOW-
FREQUENCY OSCILLATION COMBINED WITH TRANSVERSE
ACCELERATION

(U)

IV RILEY, MITCHELL B.; BERNARDINI, ALBERT

T.;

MONITOR: ASD TN59 92 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, ACCELERATION TOLERANCE,
CENTRIFUGES, OSCILLATION, PILOT SEATS, SHOCK
(PATHOLOGY), SPACE MEDICINE

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-227 226

N. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND DEPT OF THE
ARMY WASHINGTON D C

EQUIPMENT FOR MANNED SPACE CAPSULES AND LUNAR
BASES (U)

FEB 59 IV GERATHEWOHL, SIEGFRIED J. ;
REPT. NO. 7

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, HUMAN ENGINEERING, MOON,
SPACE CAPSULES, SPACE MEDICINE (U)

Handwritten signature

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-226 086

NORTHROP AIRCRAFT INC HAWTHORNE CALIF

A NOVEL SYSTEM FOR SPACE FLIGHT USING A PROPULSIVE
FLUID ACCUMULATOR (U)

DEC 58 1V DEMETRIADES, STERGE T.;

REPT. NO. NB 59 161

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PROPULSION, •SPACE FLIGHT, •SPACECRAFT,
ANALYSIS, POWER, THRUST (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-225 000

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB
THE REQUIREMENTS FOR MODIFICATION OF THE HUMAN
CENTRIFUGE FOR HIGH PERFORMANCE AIRCRAFT AND SPACE
VEHICLE SIMULATION RESEARCH (U)

JUL 59 1V CROSBIE, RICHARD J.;

REPT. NO. 5907

PROJ: ADC AE 1410NM 11 02 12 6ADC AE 1410

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION TOLERANCE, •ATMOSPHERE ENTRY,
•CENTRIFUGES, •DECELERATION, •PILOTS, •SIMULATION,
•SPACE FLIGHT, •SPACECRAFT, DESIGN, TEST EQUIPMENT, TEST
FACILITIES (U)
IDENTIFIERS: X-15 AIRCRAFT, X-20 SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 363

RAND CORP SANTA MONICA CALIF

IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (*SPACE FLIGHT), (*LAW),
PERIODICALS, JAPAN, USSR, CHINA, MILITARY
PUBLICATIONS, INTERNATIONAL LAW
IDENTIFIERS: SPACE LAW, SPUTNIK

(U)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 148
RANU CORP SANTA MONICA CALIF
IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTS ,•SPACE FLIGHT ,AERIAL
PHOTOGRAPHY ,COMMERCE ,COMMUNICATION SATELLITES(PASSIVE)
,DISARMAMENT ,FOREIGN POLICY ,LUNAR PROBES ,MANNED
SPACECRAFT ,POLITICAL SCIENCE ,SCIENTIFIC RESEARCH ,
VENUS PROBES (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 058
RAND CORP SANTA MONICA CALIF
1V

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (•INTERNATIONAL LAW, •SPACE FLIGHT),
POLITICAL SCIENCE, FOREIGN POLICY (U)
IDENTIFIERS: SPACE LAW (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-220 233

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE GUIDANCE (U)

MAY 59 1V FELDON,S.I

REPT. NO. A 18 7

CONTRACT: AF33 616 5487

MONITOR: ASD TN59 221 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT,
•SPACECRAFT, ANALYSIS, DESIGN, GUIDANCE (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-218 402

PICATINNY ARSENAL DOVER N J FELTMAN RESEARCH LABS

AN APPROXIMATION METHOD TO COMPUTE ORBIT ROCKETS (U)

JUN 59 IV KOELLE, H.H.;

REPT. NO. T41

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
ANALYSIS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-212 909

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE GUIDANCE (U)

JAN 59 IV CAMPBELL, J.P.;

CONTRACT: AF33 616 5487

MONITOR: ASD TN59 96 000000000TN58 96 000000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •DOPPLER SYSTEMS,
•SPACE FLIGHT, •SPACECRAFT, ANALYSIS, GUIDANCE (U)

UNCLASSIFIED

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-205 880

SYRACUSE UNIV N Y

PROCEEDINGS OF THE FIFTH SAGAMORE ORDNANCE MATERIALS
RESEARCH CONFERENCE. MATERIALS IN SPACE ENVIRONMENT.

CONDUCTED AT SAGAMORE CONFERENCE CENTER, RACQUETTE
LAKE, NEW YORK, SEPTEMBER 16, 17, 18, AND 19, 1958 (U)

SEP 58 1V

REPT. NO. MET 597 596

CONTRACT: DA30 1150RD947

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, MATERIALS,
RADIATION EFFECTS, SATELLITES (ARTIFICIAL) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-159 495

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
APPLICATION OF ATOMIC ENGINES IN AVIATION (U)
SEP 57 1V NESTERENKO,G.N.;SOBOLEV,A.I.;
SUSHKOV,YU. N.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •NAVAL GUNS, •SPACE FLIGHT (M)
IDENTIFIERS: USSR (M)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-156 043
RAND CORP SANTA MONICA CALIF
IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •EXTRATERRESTRIAL BASES, •SPACE FLIGHT,
ANALYSIS, EXPLORATION, MOON (M)

UNCLASSIFIED

015423

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-153 985

REDSTONE ARSENAL HUNTSVILLE ALA

IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •RELATIVITY THEORY, •SPACE FLIGHT, AGING
(PHYSIOLOGY), THEORY, TIME (M)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-151 155

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE GUIDANCE (U)
IV CAMPBELL, J.P.;

REPT. NO. GPL-A18-1

CONTRACT: AF33 616 5487

MONITOR: ASD TN58 83 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT,
•SPACECRAFT, ANALYSIS, GUIDANCE (M)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-144 581

SCHOOL OF AVIATION MEDICINE RANDOLPH AFB TEX

MEDICAL PROBLEMS OF SPACE FLIGHT

(U)

IV

KENDRICKS, EDWARD J.; STRUGHOLD,

HERBERTUS;

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: *SPACE FLIGHT, *SPACE MEDICINE, GRAVITY,
HIGH ALTITUDE, UPPER ATMOSPHERE, WEIGHTLESSNESS (M)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-175 012

AIR FORCE MISSILE DEVELOPMENT CENTER HOLLOMAN AFB N
MEX

SENSORY REACTIONS RELATED TO WEIGHTLESSNESS AND THEIR
IMPLICATIONS TO SPACE FLIGHT (U)

APR 58 10P SCHOCK, GROVER J.O.;

REPT. NO. MDC-TR-58-6

MONITOR: AFMDC TR58 6 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •WEIGHTLESSNESS, MILITARY
TRAINING, REACTION (PSYCHOLOGY), SENSORY MECHANISMS (M)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD- 91 493

DOCUMENTATION INC BETHESDA MD

MANNED FLIGHT AT HIGH ALTITUDE: A LIST OF REFERENCES
WITH A UNITERM INDEX (U)

OCT 54 1V

CONTRACT: ~~NONR139100~~

UNCLASSIFIED REPORT

DESCRIPTORS: •HIGH ALTITUDE, •SPACE FLIGHT,
BIBLIOGRAPHIES, INDEXES (M)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-847 482 22/2 9/2 15/5
LTV AEROSPACE CORP DALLAS TEX MISSILES AND SPACE DIV
EXTRAVEHICULAR ACTIVITIES SYSTEM
EFFECTIVENESS. VOLUME III PHASE I
EFFECTIVENESS COMPUTER MODEL. (U)
DESCRIPTIVE NOTE: FINAL REPT. 17 APR 68-27 JAN 69,
JAN 69 141P NICKS, ROBERT F. ; GREGORY,
LOWELL D. ; DYER, RAY E. ;
REPT. NO. MSD/ES-2601-VOL-3, MSD-00.1115-VOL-3
CONTRACT: F33615-67-C-1499
PROJ: AF-8170
TASK: 817012
MONITOR: AFAPL TR-68-135-VOL-3

UNCLASSIFIED REPORT.

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
DIRECTOR, AIR FORCE AERO PROPULSION LAB.,
ATTN: APFH. WRIGHT-PATTERSON AFB, OHIO
45433.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-847 481.

DESCRIPTORS: (*SPACE FLIGHT, LOGISTICS), (*SPACE
STATIONS, EXTRAVEHICULAR ACTIVITY), VALUE
ENGINEERING, ADVANCED PLANNING, MANNED SPACECRAFT,
SATELLITE ANTENNAS, ANTENNA CONFIGURATIONS,
SYSTEMS ENGINEERING, STATISTICAL ANALYSIS, LIFE
SUPPORT, MATHEMATICAL MODELS, COMPUTER PROGRAMS,
FLOW CHARTING, SUBROUTINES, COST EFFECTIVENESS (U)
IDENTIFIERS: *MANNED ORBITAL LABORATORIES,
AOL (ADVANCED ORBITAL LABORATORIES),
*ADVANCED ORBITAL LABORATORIES, TITAN 3,
EFFECTIVENESS MODELS, COMPUTERIZED SIMULATION,
*MANAGEMENT INFORMATION SYSTEMS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-847 120 3/1 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ASTRONOMY AND SPACE FLIGHT, NUMBER 4/5
1967.

(U)

AUG 68 144P
REPT. NO. FTD-HT-23-179-68

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDER, FOREIGN TECHNOLOGY DIV., ATTN:
TRANSLATION DIV. WRIGHT-PATTERSON AFB, OHIO
45433.

SUPPLEMENTARY NOTE: EDITED TRANS. OF ASTRONOMIE UND
RAUMFAHRT (EAST GERMANY) V4/5 P9-172 1967, BY E.
HARTER.

DESCRIPTORS: (*ASTRONOMY, REPORTS), (*SPACE
FLIGHT, USSF), ASTRONOMICAL DATA, RADIO ASTRONOMY,
METEORITES, ASTRONOMICAL OBSERVATORIES, MOON,
SCIENTIFIC SATELLITES, VENUS (PLANET), VENUS
PROBES, EAST GERMANY

(U)

IDENTIFIERS: TRANSLATIONS

(U)

CONTENTS: ASTRONOMICAL RESEARCHES IN THE
SOVIET UNION; ON THE EVOLUTION OF THE GALAXIES;
ON THE DEVELOPMENT OF EXTRAGALACTIC RADIO SOURCES;
METEORITE RESEARCH IN THE SOVIET UNION; M.
V. LOMONOSOV AS AN ASTRONOMER; THE MOON;
SUMMER JOURNEY IN 1967 TO THE CRIMEAN OBSERVATORY
AND THE CITY OF THE SCIENCES 'NAUCHNY;' THE YEARS
OF OPTICAL SATELLITE OBSERVATION IN THE GERMAN
DEMOCRATIC REPUBLIC; THE ARTIFICIAL NATURE OF
THE TUNGUSKA METEORITE; THE UNSOLVED VENUS
RIDDLE; THE STRUCTURE OF THE MOON'S SURFACE;
FIFTY YEARS OF THE GREAT OCTOBER SOCIALIST
REVOLUTION TEN YEARS OF ACTIVE SPACE TRAVEL; THE
DEVELOPMENT OF SOVIET SPACE FLIGHT IN THE YEAR
1966; THE DEVELOPMENT OF THE SOVIET SPACE FLIGHT
IN THE FIRST SEMESTER OF 1967; AND LETTER FROM
READER IN LEIPZIG TO THE CHIEF EDITOR.

(U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-845 454 6/18 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
VARIOUS PROBLEMS DEALING WITH RADIATION
PROTECTION IN SPACEFLIGHT, (U)
JAN 68 10P SWART, H. ;
REPT. NO. FTD-HT-23-1272-67

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDER, FOREIGN TECHNOLOGY DIV., ATTN:
TRANSLATION DIV. WRIGHT-PATTERSON AFB, OHIO
45433.

SUPPLEMENTARY NOTE: EDITED TRANS. OF ASTRONOMIE UND
RAUMFAHRT (EAST GERMANY) N4 P119-123 1966, BY E.
NOVAK.

DESCRIPTORS: (•SPACE FLIGHT, •SPACE ENVIRONMENTAL
CONDITIONS), (•RADIATION HAZARDS, PROTECTION),
RADIATION SICKNESS, RADIATION EFFECTS, RADIATION
TOLERANCE, RADIOLOGICAL DOSAGE, PARTICLE SIZE,
SHIELDING, COSMIC RAYS, EAST GERMANY (U)
IDENTIFIERS: TRANSLATIONS, PRIMARY GALACTIC COSMIC
RAYS (U)

VARIOUS PROBLEMS DEALING WITH THE RADIATION
PROTECTION OF ASTRONAUTS IN SPACE ARE DISCUSSED.
AN EVALUATION IS MADE OF THE DANGER INVOLVED IN
SPACE TRAVEL AND LIMITATIONS ARE SET AS TO THE
MAXIMUM PERMISSIBLE RADIATION DOSAGE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-838 165 13/11 10/2 22/1
KAYE (JOSEPH) AND CO CAMBRIDGE MASS
CONDENSING EJECTOR FOR SPACE POWER APPLICATIONS. (U)
DESCRIPTIVE NOTE: FINAL REPT. JUL 67-JAN 68,
JUL 68 188P HARPER, GEORGE F. ; LEIGH,
JOHN H. ; GRAVES, FRANK A. ; EAST, DOUGLAS A. ;

CONTRACT: F33615-67-C-1876
PROJ: AF-3145
TASK: 3145D7
MONITOR: AFAPL TR-68-99

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF AIR
FORCE AERO PROPULSION LAB., ATTN: AP1P-1.
WRIGHT-PATTERSON AFB, OHIO 45433.

DESCRIPTORS: (•SPACE FLIGHT, POWER SUPPLIES),
(•JET PUMPS, DESIGN), SPACEBORNE, DESIGN,
MATHEMATICAL MODELS, HEAT TRANSFER, MASS TRANSFER,
CORRELATION TECHNIQUES, DIGITAL COMPUTERS,
PROGRAMMING (COMPUTERS), MANUFACTURING METHODS,
POTASSIUM, INSTRUMENTATION, SPECIFICATIONS, TEST
METHODS, INJECTORS, LIQUID METALS, RADIATORS,
RANKINE CYCLE, THERMAL STRESSES,
MAGNETOHYDRODYNAMICS, STAINLESS STEEL (U)
IDENTIFIERS: •CONDENSING EJECTORS, •SPACE POWER
SYSTEMS, COMPUTER ANALYSIS (U)

THE WORK PERFORMED WAS IN THE INTEREST OF
DEVELOPING CONDENSING EJECTORS FOR APPLICATION IN
SPACE POWER SYSTEMS. AN ANALYTICAL MODEL FOR THE
FLOW PROCESSES WITHIN THE CONDENSING EJECTOR WAS
DEVELOPED WITH INITIAL USE OF A PIPE FLOW CORRELATION
TO PREDICT HEAT AND MASS TRANSFER. THIS ANALYSIS
WAS PROGRAMMED FOR A DIGITAL COMPUTER, AND THE
PERFORMANCE CHARACTERISTICS OF TWO EJECTORS
DETERMINED. THE MECHANICAL DESIGN OF THESE TWO
EJECTORS WAS COMPLETED, AND THE FIRST ONE COMPLETELY
FABRICATED FOR INSTALLATION IN THE AIR FORCE 50
KW POTASSIUM CONDENSING LOOP LOCATED AT THE AF
AERO PROPULSION LABORATORY. INSTRUMENTATION
WAS SPECIFIED FOR EJECTOR TESTS, AND TEST PROCEDURES
ESTABLISHED. THE ANALYSIS WAS REVISED IN
PREPARATION FOR DEVELOPMENT OF A DIGITAL COMPUTER
PROGRAM FOR TEST DATA REDUCTION. ALTHOUGH THE
PROPOSED WORK PROGRAM INVOLVED BOTH ANALYTICAL AND
EXPERIMENTAL STUDIES TO DEVELOP CONDENSING EJECTORS
FOR APPLICATION IN SPACE POWER SYSTEMS, UNANTICIPATED
TERMINATION OF THE PROGRAM PRECLUDED EXPERIMENTS AND
THE APPLICATION OF ACTUAL HEAT-AND-MASS-TRANSFER
CORRELATIONS IN THE EJECTOR DESIGN COMPUTER PROGRAM. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-826 720 10/2
ALLIS-CHALMERS MFG CO MILWAUKEE WIS ADVANCED
ELECTROCHEMICAL PRODUCTS DIV
HIGH PERFORMANCE FUEL CELL. (U)
DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 5, 1 OCT-31 DEC
67.
JAN 68 53P VANNATTA, D. W. ;
REPT. NO. ACR-0168117
CONTRACT: AF 33(615)-3790
PROJ: AF-3145
TASK: 314521

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF AIR
FORCE AERO PROPULSION LAB., ATTN: APIP-3.
WRIGHT-PATTERSON AFB, OHIO 45433.

DESCRIPTORS: (•SPACE FLIGHT, POWER SUPPLIES),
(•FUEL CELLS, DESIGN), MATERIALS, HYDROGEN,
OXYGEN, PERFORMANCE(ENGINEERING), ELECTRICAL
PROPERTIES, SHOCK(MECHANICS), VIBRATION,
ACCELERATION (U)

THE OBJECTIVE OF THIS CONTRACT IS TO DEVELOP THE
TECHNOLOGY REQUIRED FOR A HIGH PERFORMANCE FUEL CELL
POWER SYSTEM FOR FUTURE AIR FORCE SPACE VEHICLES.
THE TESTING OF TWO EXPERIMENTAL 28-VOLT FUEL CELL
STACKS WAS INITIATED. ONE STACK HAS ACCUMULATED
740 HOURS OF OPERATION, AND THE OTHER HAS BEEN
OPERATED FOR 145 HOURS AND HAS PASSED SHOCK,
VIBRATION AND ACCELERATION TESTS. PROGRESS WAS
ALSO MADE ON DEVELOPMENT OF A LIGHTWEIGHT, COMPACT
FUEL CELL STACK DESIGN, AND IN THE AREA OF SYSTEM
ENGINEERING AND DESIGN. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-825 183 22/2 16/4.2 9/2
AEROSPACE CORP EL SEGUNDO CALIF EL SEGUNDO TECHNICAL
OPERATIONS
ABSTRACTS OF AEROSPACE CORPORATION COMPUTER
PROGRAMS. (U)

DESCRIPTIVE NOTE: REPT. FOR 1 JUL-1 SEP 67,
NOV 67 314P PARKIN, T. R. ;
REPT. NO. TR-0158(9990)-4
CONTRACT: F04695-67-C-0158
MONITOR: SAMSO TR-67-127

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF SPACE
AND MISSILE SYSTEMS ORGANIZATION, ATTN: SMTAG.
LOS ANGELES, CALIF. 90045.

DESCRIPTORS: (•SPACECRAFT, COMPUTER PROGRAMS),
(•SPACE FLIGHT, •COMPUTER PROGRAMS),
SATELLITES(ARTIFICIAL), TRAJECTORIES, DIGITAL
COMPUTERS, SPACECRAFT, VIBRATION, STRUCTURAL
PROPERTIES, PROGRAMMING LANGUAGES, EPHEMERIDES,
LUNAR PROBES, PROGRAMMERS, DATA STORAGE SYSTEMS,
SPACE NAVIGATION, GUIDANCE, SIMULATION, GUIDED
MISSILES(SURFACE-TO-SURFACE), GUIDED MISSILE
TRAJECTORIES, SPACE PROPULSION, INTERIOR BALLISTICS,
REENTRY VEHICLES (U)
IDENTIFIERS: TITAN 3, FORTRAN (U)

ABSTRACTS ARE PRESENTED FOR COMPUTER PROGRAMS IN
USE AT THE EL SEGUNDO TECHNICAL OPERATIONS
MATHEMATICS AND COMPUTATION CENTER. EACH
ABSTRACT CONTAINS A BRIEF DESCRIPTION OF THE FUNCTION
OF THE PROGRAM, STATES THE PROGRAMMING LANGUAGE IN
WHICH IT WAS WRITTEN AND INDICATES ITS SIZE IN WORDS
OF STORAGE. WHERE APPLICABLE, REFERENCE DOCUMENTS
ARE CITED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-823 996 6/5 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE BIOLOGICAL PROBLEMS OF SPACE TRAVEL (AZ URHAJOZAS
ELETTANI PROBLEMAI). (U)
DESCRIPTIVE NOTE: EDITED TRANSLATION,
AUG 67 48P LUKACS, SANDOR ;
REPT. NO. FTD-HT-66-408

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
FOREIGN TECHNOLOGY DIV., ATTN: TDBDP.
WRIGHT-PATTERSON AFB, OHIO, 45433.
SUPPLEMENTARY NOTE: TRANS. OF AZ UKREPULES ES A
TUDOMANY (HUNGARY) P103-150 1962.

DESCRIPTORS: (*SPACE MEDICINE, *SPACE FLIGHT),
HUNGARY, WEIGHTLESSNESS, PHYSIOLOGY, SPACECRAFT
CABINS, CONFINED ENVIRONMENTS, CLOSED ECOLOGICAL
SYSTEMS, VISION, STRESS(PHYSIOLOGY),
TOLERANCES(PHYSIOLOGY), SPACE STATIONS,
SPACECRAFT, RADIATION EFFECTS, COSMIC RAYS,
SOLAR RADIATION, LIFE SUPPORT (U)
IDENTIFIERS: TRANSLATIONS (U)

A GENERAL REVIEW IS GIVEN OF SOME BIOLOGICAL
ASPECTS INVOLVED IN SPACE TRAVEL. THE FOLLOWING
SUBJECTS ARE COVERED: ARTIFICIAL ATMOSPHERE IN THE
SPACE-CRAFT; TEMPERATURE TOLERANCE OF THE HUMAN BODY;
EFFECTS OF EXTRA-TERRESTRIAL CONDITIONS ON HUMAN
VISION; RADIATIONS IN SPACE AND THEIR EFFECTS ON THE
HUMAN BODY; EFFECTS OF SOLAR FLARES ON THE HUMAN
BODY; CAUSES, PROBABILITIES, AND CONSEQUENCES OF
IMPACT BY SMALL AND LARGE METEORITES; EFFECTS OF
EXTENDED PERIODS OF ALERTNESS; EFFECTS OF VIBRATION
ON THE HUMAN BODY; EFFECTS OF ACCELERATION AND
DECCELERATION ON THE HUMAN BODY; SIMULATION OF SPACE-
FLIGHT CONDITIONS IN TERRESTRIAL FACILITIES; SHORT-
TERM AND LONG-RANGE EFFECTS OF WEIGHTLESSNESS ON THE
HUMAN BODY; URINATION AND DEFECATION UNDER
WEIGHTLESS CONDITIONS; EFFECTS OF CORIOLIS FORCES
ON THE HUMAN BODY; REGENERATION OF AIR IN THE
SPACECRAFT; PREPARATION AND CONSUMPTION OF FOOD BY
THE ASTRONAUTS; SPACESUITS; TELEMETRY OF BIOLOGICAL
FUNCTIONS AND PARAMETERS DURING SPACEFLIGHT; TRAINING
OF ASTRONAUTS; AND CLOSED BIOLOGICAL-ECOLOGICAL
SYSTEMS FOR EXTENDED SPACE VOYAGES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-817 411 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
HOW SOON WILL A MAN BE ON THE MOON (PE CIND OMUL IN
LUNA). (U)
DESCRIPTIVE NOTE: EDITED TRANSLATION,
MAR 67 BP ANDREESCU, DUMITRU I
REPT. NO. FTD-HT-66-3D5

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
FOREIGN TECHNOLOGY DIV., ATTN: TCBDP.
WRIGHT-PATTERSON AFB, OHIO 45433.

SUPPLEMENTARY NOTE: TRANS. OF STIINTA SI TEHNICA
(RUMANIA) N5 P41-43 1965. GRAPHIC NOT REPRODUCIBLE.

DESCRIPTORS: (•SPACE FLIGHT, •MOON),
(•ASTRONAUTICS, USSR), LUNAR PROBES, MANNED
SPACECRAFT, SPACECRAFT DOCKING, ATMOSPHERE ENTRY,
HAZARDS, LUNAR TRAJECTORIES, HISTORY, SPACE
MEDICINE, SPACE NAVIGATION (U)
IDENTIFIERS: TRANSLATIONS, LUNAR LANDINGS (U)

THE AUTHOR DISCUSSES THE EQUIPMENT NEEDED AND SOME
OF THE PROBLEMS TO BE OVERCOME FOR A MANNED TRIP TO
THE MOON. SINCE A MOON SPACESHIP WOULD HAVE TO
ACCELERATE, MANEUVER, AND DECELERATE SEVERAL TIMES
DURING THE ROUND TRIP, THE WEIGHT OF THE FUEL IT
WOULD HAVE TO CARRY INITIALLY WOULD MAKE THE SHIP TOO
HEAVY -- OVER 15,000 TONS -- TO LAUNCH FROM EARTH.
THE SOLUTION IS TO ASSEMBLE THE SPACESHIP FROM
COMPONENTS LAUNCHED SEPARATELY INTO AN EARTH ORBIT
AND JOINED IN SPACE. THE ROUND TRIP SHOULD TAKE
ABOUT TEN DAYS, AND THREE ASTRONAUTS WOULD BE NEEDED
TO MAN THE SHIP. A SPACESHIP OF THIS TYPE, WITH A
3-MAN CREW, WOULD NEED 40.8 KILOGRAMS OF FOOD, 95
KILOGRAMS OF WATER, 47.5 KILOGRAMS OF OXYGEN, AND
ABOUT 470 KILOGRAMS OF AIR CONDITIONING AND POWER
GENERATING EQUIPMENT. IN ADDITION, THERE WOULD BE
227 KILOGRAMS OF OTHER EQUIPMENT, 454 KILOGRAMS OF
INSTRUMENTS AND GAUGES, RADIATION AND METEOR
PROTECTION DEVICES, ETC. ACCORDING TO THIS
PROJECT, TOTAL WEIGHT OF THE SPACESHIP, NOT INCLUDING
MOTORS AND FUEL RESERVES, WOULD BE 13.4 TONS.
OTHER PROJECTS, WHICH CALL FOR A LANDING ON THE
MOON, ESTIMATE THE TOTAL WEIGHT AT BETWEEN 50 AND 70
TONS. (U)

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USSR

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-806 932L 22/2 22/3
BOEING CO HUNTSVILLE ALA LAUNCH SYSTEMS BRANCH
MISSION ANALYSIS TECHNIQUE FOR EXPERIMENTS (MATE -
BHA 0133). VOLUME II. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
JAN 67 110P DARNELL, GREGORY L. ;
REPT. NO. D5-13292-VOL-2

UNCLASSIFIED REPORT
DISTRIBUTION: CONTROLLED: ALL REQUESTS TO
BOEING CO., RESEARCH PARK CENTER, HUNTSVILLE,
ALA.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-805
323L.

DESCRIPTORS: (•MANNED SPACECRAFT, MISSION
PROFILES), (•SPACE FLIGHT,
PROGRAMMING(COMPUTERS)), SCHEDULING, COMPUTER
PROGRAMS, PROGRAMMING LANGUAGES, DIGITAL COMPUTERS,
SPACE CREWS, IMPACT PREDICTION, SPACE
COMMUNICATION SYSTEMS, SATELLITE ATTITUDE,
SPACEBORNE, POWER SUPPLIES, COMPUTER LOGIC,
SATELLITES(ARTIFICIAL), RESEARCH PROGRAM
ADMINISTRATION (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-800 715L 22/1 12/1
REDSTONE SCIENTIFIC INFORMATION CENTER REDSTONE ARSENAL
ALA
MINIMAL PROBLEMS OF AEROSPACE FLIGHT, (U)
AUG 66 2P BUSEMANN, ADOLF ;
REPT. NO. RSIC-539

UNCLASSIFIED REPORT
DISTRIBUTION: USGO; OTHERS TO ARMY MISSILE
COMMAND, REDSTONE ARSENAL, ALA. 35809. ATTN:
AMSMI-RBT.

DESCRIPTORS: (•SPACE FLIGHT, MATHEMATICAL ANALYSIS),
(•ELLIPTICAL ORBIT TRAJECTORIES, MATHEMATICAL
ANALYSIS), LIFT, TENSOR ANALYSIS, VECTOR ANALYSIS,
FLIGHT PATHS, TRANSFER TRAJECTORIES (U)
IDENTIFIERS: KEPLER ELLIPSE (U)

A CLASSIC MINIMAL PROBLEM OF AIR FLIGHT, THE
ELLIPTICAL DISTRIBUTION OF LIFT, IS EVALUATED IN THE
INTRODUCTION. A CLASSIC MINIMAL PROBLEM OF SPACE
FLIGHT, BEGUN BUT NOT YET FINISHED, IS THE OPTIMUM
TRANSFER FROM ONE KEPLER ELLIPSE TO ANOTHER. TO
SIMPLIFY THIS PROBLEM AND PERHAPS TO SOLVE IT
COMPLETELY, THE INTRODUCTION OF A PHASE SPACE IN
WHICH EACH ELLIPSE IS REPRESENTED BY A SINGLE POINT
IS PROPOSED. THE ROCKET IMPULSE DIVIDED BY THE
MASS OF THE SPACE SHIP THEN SERVES AS THE DISTANCE
FROM ADJOINING POINTS IN THE PHASE SPACE. THE
PROBLEM IS TO JOIN ALL POINTS WITH THE SHORTEST
LINES. AS THE RESULT OF UNIT IMPULSES IN ALL
DIRECTIONS AND FROM ALL ORBIT POINTS, THE PROGRESS
VECTORS COMBINE INTO THE PROGRESS TENSOR, AS IT IS
CALLED, WHICH IS ALSO THE SCALE TENSOR IF IT DOES NOT
TURN OUT TO BE CONCAVE. WHEN AN ATTEMPT IS MADE TO
SET UP THE PRESSURE VECTORS AND TO CONVERT TO THE
SCALE TENSOR, IT IS SOON FOUND THAT THE MAJORITY OF
ALL ROCKET MANEUVERS ARE OF LESSER VALUE OR ARE
FORBIDDEN. THE KNOWN CASES OF THE HOHMANN
ELLIPSES AND THEIR DEGENERATION FOR HIGH RADII RATIOS
READILY COME TO MIND HERE. THE METHOD IS SUITED
FOR THE CONSTRUCTION OF THE SHORTEST CONNECTIONS,
BECAUSE THEY CAN GROW FROM SMALL TO LARGE SCALE, AND
IN THE LARGE-SCALE ONLY THE POSSIBLE INTERSECTION OF
VARIOUS SHORTEST LINES NEED BE CONSIDERED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-683 718 6/5 22/2
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
COMPUTER PROGRAMMING OF AEROSPACE RATIONS. (U)
DESCRIPTIVE NOTE: PROGRESS REPT. JAN 67-MAY 68,
NOV 68 18P CHAPIN,ROY E. ;ANWAY,MARK
D. ;LOZANO,PAUL A. ;VANDERVEEN,JOHN E. ;
REPT. NO. SAM-TR-68-115
PROJ: AF-7758
TASK: 775803

UNCLASSIFIED REPORT

DESCRIPTORS: (*SPACE FLIGHT, DIET), (*FOOD,
PROGRAMMING(COMPUTERS)), CLASSIFICATION,
NUTRITION, DECISION MAKING, CORRELATION
TECHNIQUES, ALTITUDE, DATA PROCESSING SYSTEMS (U)
IDENTIFIERS: *AEROSPACE RATIONS (U)

BECAUSE ASTRONAUTS ONBOARD SPACE VEHICLES HAVE NOT ALWAYS CONSUMED THEIR FOOD BECAUSE OF ITS LOW ACCEPTABILITY AND THE LESSER SATISFACTION DERIVED FROM THESE RATIONS THAN FROM A CONVENTIONAL MEAL, IT HAS BECOME INCREASINGLY IMPORTANT TO SUPPLY AEROSPACE CREWS WITH RATIONS THAT ARE VERY PALATABLE AS WELL AS NUTRITIONALLY BALANCED. A COMPUTER PROGRAM HAS THEREFORE BEEN DEVELOPED FOR THIS PURPOSE. FOODS (44 VARIETIES) ARE DIVIDED INTO NINE GROUPS CORRESPONDING TO THE VARIOUS COURSES IN A MEAL. FROM EACH GROUP THE COMPUTER THEN SELECTS ONE OR TWO ITEMS WHICH, WHEN COMBINED, SATISFY THE DAILY NUTRIENT REQUIREMENTS. THE COMPUTER GENERATES AS MANY AS DESIRED OF ACCEPTABLE RATIONS THAT FALL WITHIN THE NUTRIENT RANGES ALLOWED. THE CREWMEMBER WILL THEN SELECT THE FINAL RATIONS TO BE USED IN HIS FLIGHT, AND THE COMPUTER WILL RECHECK HIS CHOICES FOR NUTRITIONAL ADEQUACY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-682 308 22/1 22/3
AEROSPACE CORP EL SEGUNDO CALIF SYSTEMS ENGINEERING
OPERATIONS
INCLUSION OF TIME CONSTRAINTS AND REDUNDANT ACCESS
ON SPACECRAFT RETURN PROBABILITIES BY THE CONCEPT OF
BOREL SET. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NOV 67-JUL 68,
DEC 68 38P CHU, S. T. INAGY, A. R. ,
JR;
REPT. NO. TR-0200(4525-04)-1
CONTRACT: FD4701-68-C-0200
MONITOR: SAMSO TR-69-73

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACE FLIGHT, ABORT), (•ORBITAL
TRAJECTORIES, •DESCENT TRAJECTORIES), RECOVERY,
SET THEORY, VISIBILITY, PROBABILITY, TIME,
MANNED SPACECRAFT, RESCUES, SITE SELECTION (U)
IDENTIFIERS: •MANNED SPACE FLIGHT, BOREL SET (U)

BECAUSE OF LIMITATIONS OF WEATHER, SEA STATE, AND
VISIBILITY, PLANNING EFFORTS FOR THE EMERGENCY RETURN
BY ABORT OR ESCAPE FROM ORBIT TO CONTINGENCY RECOVERY
SITES MUST CONSIDER FACTORS OF LOCAL TIME CONSTRAINTS
AND REDUNDANT ACCESS. THE FIRST FACTOR PROVIDES A
MEANS OF EVALUATING THE IMPACT OF A DAYLIGHT RETURN
REQUIREMENT; THE SECOND PERMITS APPRAISING SAFER
EMERGENCY RECOVERY PLANS WHEN UNACCEPTABLE WEATHER OR
SEA STATE CONDITIONS EXIST AT THE INITIALLY SELECTED
RECOVERY SITE. THE RETURN PROBABILITY OF
SPACECRAFT INCLUDING THESE FACTORS INVOLVES THE
DETERMINATION OF COVERAGE BELTS ALONG THE EQUATOR
THAT ARE GENERATED BY THE LOC OF ASCENDING NODES OF
ORBITS FROM WHICH THE RECOVERY CIRCLE CAN BE REACHED
WITHIN THE LOCAL TIME CONSTRAINTS AND WITH THE
SPECIFIED DEGREE OF REDUNDANCY IN ACCESS. IN
GENERAL, THE COVERAGE BELTS COLLECTIVELY FORM A
COMPLICATED AND JUXTAPOSED SET. BY USING THE
LINEAR BOREL SET CONCEPT, A LOGIC IS DEVELOPED FOR
PROPERLY COUNTING AND SUMMING THESE BELTS TO ARRIVE
AT A GENERAL FORMULATION FOR DETERMINING THE RETURN
PROBABILITY. SAMPLE RESULTS SHOW THAT THE LOCAL
TIME CONSTRAINTS HAVE A SIGNIFICANT EFFECT UPON THE
RETURN PROBABILITY. THE SEASONAL VARIATION OF
AVAILABLE DAYLIGHT HOURS CAN ALSO HAVE PRONOUNCED
INFLUENCE ON THE RETURN PROBABILITY AND THE REQUIRED
WAITING TIME FOR AN ASSURED EMERGENCY RETURN IF THE
RECOVERY SITES ARE IN THE SAME HEMISPHERE. ON THE
OTHER HAND, REDUNDANT ACCESS OF THE SECOND DEGREE,
WHILE HAVING A LOWER RETURN PROBABILITY THAN SINGLE (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-680 570 22/1 22/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO (U)
ON THE SPACE PIER,
MAY 68 19P BARASHEV, P. ;
REPT. NO. FTD-HT-23-1535-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM PRAVDA, MOSCOW
(USSR) P3, 19 OCT 67, BY R. ZECCOLA.

DESCRIPTORS: (•VENUS PROBES, INTERPLANETARY
TRAJECTORIES), (•SPACE FLIGHT, VENUS PROBES),
TELEMETER SYSTEMS, COMMAND GUIDANCE, SPACE PROBES,
DESIGN, SCIENTIFIC RESEARCH, GROUND SUPPORT
EQUIPMENT, USSR (U)
IDENTIFIERS: VENUS 4 SPACE PROBE, (U)
TRANSLATIONS

DESIGNER MIKHAIL KIRILLOVICH TAKES THE AUTHOR
ON A TOUR OF THE PLANT WHERE VENUS 4 WAS BUILT.
HE DISCUSSES THE RESEARCH, CAPABILITIES, AND EVENTS
WHICH PRECEDED THE VENUS 4 INTERPLANETARY STATION
REPORT WHEN THE VENUS 4 REACHED THE VENUTIAN
ATMOSPHERE ON 18 OCTOBER 1967. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-678 398 20/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
STEADY-STATE RADIATIVE HEAT TRANSFER THROUGH A
FINNED SURFACE WITH VARIABLE THERMAL CONDUCTIVITY OF
THE MATERIAL, (U)
DEC 67 8P BELIK,N. P. ;KOSAREV,D.
A. ;
REPT. NO. FTD-HT-23-1334-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF IZVESTIYA
VYSSHIKH UCHEBNYKH ZAVEDENII. AVIATSIONNAYA
TEKNIKA (USSR) VIO NI P61-64 1967, BY J. MILLER.

DESCRIPTORS: (•SPACE FLIGHT, RADIATORS), (•FINS,
HEAT TRANSFER), THERMAL CONDUCTIVITY, EQUATIONS
OF STATE, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE THERMAL CONDUCTIVITY OF A MATERIAL IS OF
PARAMOUNT IMPORTANCE IN SPACE RADIATORS WHEN HEAT
TRANSFER IS REALIZED EXCLUSIVELY BY RADIATION. THE
STUDY DEALS WITH A METHOD OF SOLVING STEADY-STATE
RADIATIVE HEAT TRANSFER WHEN THE THERMAL CONDUCTIVITY
OF A MATERIAL DEPENDS ON THE TEMPERATURE. A ONE-
DIMENSIONAL APPROXIMATION WAS USED IN THE ANALYSIS.
MOREOVER, IT WAS ASSUMED THAT THE FIN HAD A
CONSTANT THICKNESS AND THAT THE HEAT TRANSFER INTO
THE SPACE WAS REALIZED BY RADIATION ONLY; THE EFFECT
OF THE FIN AND BASE SURFACE WAS NOT CONSIDERED.
UNDER STEADY-STATE CONDITIONS, THE HEAT EMITTED
INTO SPACE WILL BE EQUAL TO THE AMOUNT OF HEAT
FLOWING FROM THE BASE SURFACE TO THE FIN BASE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-674 151 22/2 21/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PROBLEMS OF OPTIMIZATION IN THE MECHANICS OF
SPACEFLIGHT WITH SMALL THRUSTS (PROBLEMY OPTIMIZATSII
V MEKHANIKE KOSMICHESKOGO POLETA S MALOI TYAGOI), (U)
NOV 67 27P GRODZOVSKII, G. L. ; IVANOV,
YU. N. ; TOKAREV, V. V. ;
REPT. NO. FTD-HT-23-1241-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
VSESOYUZNYI SEZD PO TEORETICHESKOI I PRIKLADNOI
MEKHANIKE (2ND) MOSCOW. ANALITICHESKAYA
MEKHANIKA. USTOICHIVOST DVIZHENIYA. NEBESNAYA
BALLISTIKA NO. 1, MOSCOW, 1964 P181-197.

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*THRUST,
OPTIMIZATION), WEIGHT, CONTROL, ORBITAL
TRAJECTORIES, FLIGHT CONTROL SYSTEMS, SOLAR SAILS,
ELECTRIC PROPULSION, PROBLEM SOLVING (U)
IDENTIFIERS: TRANSLATIONS (U)

THE AUTHORS CONSIDER THE PROBLEM OF OPTIMIZATION IN
THE MECHANICS OF SPACE FLIGHT WITH LOW THRUST.
INCLUDED IN THIS PROBLEM ARE SELECTION OF THE
OPTIMUM RATIOS BETWEEN THE WEIGHT COMPONENTS OF THE
SPACECRAFT AND OPTIMUM CONTROL OF THE THRUST SYSTEM
AS WELL AS DETERMINATION OF THE OPTIMUM TRAJECTORIES
OF THE FLIGHT IN THE AGGREGATE. A RELATIONSHIP IS
ESTABLISHED BETWEEN THE WEIGHT CHARACTERISTICS AND
PARAMETERS OF THE ENGINE SYSTEM AND THE POSSIBILITIES
FOR THRUST CONTROL ARE DISCUSSED. OPTIMIZATION OF
FLIGHT MECHANICS IS CONSIDERED IN DETAIL FOR SYSTEMS
USING SOLAR SAILS AND POWER-LIMITED PROPULSION
SYSTEMS, E.G. ELECTRIC REACTION ENGINES. IT IS
SHOWN THAT THE PROBLEM OF OPTIMIZATION FOR AN IDEAL
SYSTEM RESOLVES INTO TWO INDEPENDENT PROBLEMS:
(1) FINDING THE OPTIMUM RATIO BETWEEN THE WEIGHT
OF THE POWER SOURCE AND THE WEIGHT OF THE WORKING
MATERIAL AND (2) FINDING THE OPTIMUM TRAJECTORIES
AND PROGRAMS FOR THE ROCKET ACCELERATION VECTOR.
THE LITERATURE COVERING THE NUMERICAL SOLUTION OF
THESE PROBLEMS IS BRIEFLY REVIEWED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-671 510 6/19 6/5
SYSTEMS RESEARCH LABS INC SAN ANTONIO TEX
CARDIOVASCULAR IMPLICATIONS OF SPACE TUMBLING:
CONDITIONING, TRAINING, AND PROTECTION, (U)
DESCRIPTIVE NOTE: REPT. FOR JUN-OCT 67,
APR 68 20P LIM,S. T. ;
CONTRACT: AF 41(609)-2897
PROJ: AF-7930
TASK: 793003
MONITOR: SAM TR-68-32

UNCLASSIFIED REPORT

DESCRIPTORS: (•CARDIOVASCULAR SYSTEM, SPACE
FLIGHT), (•SPACE FLIGHT, •TUMBLING), GRAVITY,
WEIGHTLESSNESS, SPACE CREWS, RESPONSES,
TRAINING, ADAPTATION(PHYSIOLOGY),
ADJUSTMENT(PSYCHOLOGY), STRESS(PHYSIOLOGY),
MODEL TESTS, MODELS(SIMULATIONS), ATMOSPHERE
ENTRY, EXTRAVEHICULAR ACTIVITY, HEART, BLOOD
VESSELS, PRESSURE, ENVIRONMENTAL TESTS (U)

CARDIOVASCULAR DECONDITIONING OCCURS AS A RESULT OF
EXPOSURE TO ZERO-GRAVITY. WHEREAS CARDIOVASCULAR
DECONDITIONING PRODUCED BY WATER IMMERSION CAN BE
PREVENTED BY PRESSURE CUFFS, AND THAT PRODUCED BY BED
REST CAN BE PREVENTED BY PASSIVE EXERCISE, SUCH
MEASURES ARE NOT EFFECTIVE AGAINST DECONDITIONING DUE
TO SPACE FLIGHT. THE AUTHOR SUGGESTS CERTAIN
EXPERIMENTS TO STUDY RESPONSE TO TUMBLING BY THE
CONDITIONED CARDIOVASCULAR SYSTEM AND BY THE
DECONDITIONED SYSTEM. THE THEORETIC PRESSURE INPUT
RESULTING FROM HUMAN CENTRIFUGATION IS GRAPHICALLY
REPRESENTED. TUMBLING IS CONSIDERED THE 'SHORT-
RADIUS' SPECTRUM OF CENTRIFUGATION. THE CONCEPT OF
THE HYDROSTATIC INDIFFERENCE POINT IS DISCUSSED IN
THE LIGHT OF THE MARKED CURVATURE OF THE PRESSURE
PROFILE WHEN THE CENTER OF ROTATION IS VERY NEAR ONE
END OF THE BODY AND THE PARABOLIC FORM OF THE
PRESSURE CURVE WHEN THE CENTER OF ROTATION IS WITHIN
THE BODY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-663 578 22/2 22/3

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
OPTIMUM FUNCTIONS FOR MASS AND ENERGY FLOW IN SPACE
MANOEUVRES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

OCT 67 55P BURT, E. G. C. ;

REPT. NO. RAD-TR-67267

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACECRAFT, MANEUVERABILITY),
(•SPACE FLIGHT, TRANSPORT PROPERTIES), MASS
TRANSFER, ENERGY, SPACE PROPULSION, OPTIMIZATION,
FUNCTIONS, TRANSFER TRAJECTORIES, GREAT
BRITAIN

(U)

THE MASS AND ENERGY EXPENDED DURING THE TRANSFER OF
A SPACE VEHICLE FROM ONE ORBIT TO ANOTHER DEPEND BOTH
ON THE MAGNITUDE OF THE ORBITAL CHANGE AND ON THE
SPACECRAFT PROPULSION VARIABLES. IN THE PAPER THE
OPTIMUM TIME BEHAVIOUR OF THESE VARIABLES IS
INVESTIGATED: THAT IS, THOSE FUNCTIONS WHICH
MAXIMIZE THE RESIDUAL MASS OF THE SPACECRAFT, OR
WHICH MINIMIZE THE TOTAL ENERGY REQUIRED FOR A GIVEN
TOTAL EQUIVALENT VELOCITY CHANGE. IT IS FOUND THAT
AN OPTIMUM RELATION EXISTS BETWEEN THE FLOW OF MASS
AND OF ENERGY (WHICH MAY ALSO BE EXPRESSED IN TERMS
OF EXHAUST VELOCITY, THRUST, ETC.): AND THAT,
PROVIDED THIS CONDITION IS SATISFIED, THE RESULTS
DEPEND ONLY ON THE TOTAL ENERGY SUPPLIED, AND NOT ON
THE WAY IT IS RELEASED. THE OPTIMUM FUNCTIONS AND
MAXIMUM MASS RATIOS DERIVED IN THE PAPER APPLY IN THE
GENERAL CASE WHERE THE EFFICIENCY OF THE PROPULSION
SYSTEM VARIES WITH EXHAUST VELOCITY, AND WHEN THE
EJECTED MASS POSSESSES INTRINSIC ENERGY IN ADDITION
TO THAT SUPPLIED FROM A SEPARATE SOURCE. FORMULAE
ARE ALSO DEVELOPED FOR THE MAXIMIZATION OF THE USEFUL
OR DISPOSABLE MASS, AND VARIOUS EXAMPLES ARE GIVEN.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-656 546 22/2
RAND CORP SANTA MONICA CALIF
THE SPACE PROGRAMS OF THE SOVIET UNION,
JUL 67 17P KRIEGER, F. J. ;
REPT. NO. P-3632

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AEROSPACE SCIENCE
WORKSHOP, BEVERLY HILLS, CALIF., 25 JUL 67.

DESCRIPTORS: (•SPACECRAFT, •SCHEDULING),
(•MANNED SPACECRAFT, •SPACE FLIGHT),
(•SCIENTIFIC RESEARCH, •SATELLITES(ARTIFICIAL)),
LUNAR PROBES, SPACE COMMUNICATION SYSTEMS,
METEOROLOGICAL RADAR, SPACE PROBES, METEOROLOGICAL
CHARTS, MAPPING, USSR

(U)

THE FOLLOWING PROGRAMS CAN BE IDENTIFIED FROM
PUBLISHED INFORMATION ON THE MISSIONS PERTAINING TO
THE DIFFERENT SPACECRAFT: MANNED FLIGHT BY MEANS
OF VOSTOK, VOSKHOD, AND SOYUZ SPACECRAFT;
LUNAR FLIGHT BY MEANS OF LUNA PROBES;
INTERPLANETARY FLIGHT BY MEANS OF VENUS, MARS,
AND ZOND PROBES; SCIENTIFIC RESEARCH BY MEANS OF
COSMOS, ELECTRON, AND PROTON SPACECRAFT;
COMMUNICATIONS DEVELOPMENT BY MEANS OF MOLNIYA
SATELLITES; WEATHER MAPPING BY MEANS OF MOLNIYA
AND COSMOS SATELLITES; TECHNOLOGICAL DEVELOPMENT
BY MEANS OF COSMOS, PDLYOT, PROTON, AND SOYUZ
SPACECRAFT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-650 473 22/1 5/11 5/3
RAND CORP SANTA MONICA CALIF
COMMERCIAL UTILIZATION OF SPACE: SOME ASPECTS OF A
POSSIBLE FUTURE, (U)
APR 67 14P BLEY, KENNETH B. ; SHAVER,
RUSSELL D. ;
REPT. NO. P-3565

UNCLASSIFIED REPORT

DESCRIPTORS: (•SPACEFLIGHT, •SOCIOLOGY),
(•LAUNCH VEHICLES(AEROSPACE), COSTS),
TRANSPORTATION, ECONOMICS, COMMERCE, LABOR,
POPULATION, EDUCATION, CLOTHING, WOMEN,
CULTURE, RELIGION, PREDICTION (U)

A DISCUSSION OF THE RELEVANCE OF REUSABLE LAUNCH
VEHICLES TO THE FUTURE OF SPACE TRAVEL IS FOLLOWED BY
A DISCOURSE ON THE POSSIBLE IMPACT OF FUTURE SPACE
PROJECTS ON LABOR, EDUCATION, POPULATION
DISTRIBUTION, CLOTHING, WOMEN, MINORITY GROUPS, ARTS,
AND RELIGION. (U)

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AD-649 446 6/19
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN AND THE COSMOS, (U)
SEP 60 8P ALEKSANDROV, A. I
REPT. NO. MCL-175/111
MONITOR: TT 61-27432

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MEDITSINSKII RABOTNIK
(USSR) 1957 V20 N105 P3.

DESCRIPTORS: (•SPACE FLIGHT, SPACE MEDICINE),
WEIGHTLESSNESS, ASTRONAUTS, LIFE SUPPORT,
SATELLITES(ARTIFICIAL), USSR (U)

WITH THE LAUNCHING OF TWO MAN-MADE EARTH
SATELLITES, SOVIET SCIENTISTS, ENGINEERS AND
TECHNICIANS HAVE SOLVED A MAGNIFICENT TECHNICAL
PROBLEM. THE MISSILE PRODUCED BY HUMAN HANDS
EMERGED BEYOND THE BOUNDARIES OF THE ATMOSPHERE.
NOW THERE ARISES THE SECOND PROBLEM; THAT OF
PROVIDING MEN WITH THE POSSIBILITY OF CARRYING OUT
COSMIC FLIGHT. THIS PROBLEM IS NOT ONLY A
TECHNICAL ONE, BUT ALSO OF A MEDICAL AND BIOLOGICAL
NATURE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-647 909 22/1 12/1 20/4
AMERICAN MATHEMATICAL SOCIETY PROVIDENCE R I
SPACE MATHEMATICS, PART 3; LECTURES IN APPLIED
MATHEMATICS, VOLUME 7, (U)
66 321P ROSSER, J. BARKLEY ;
CONTRACT: DA-31-124-ARO(D)-82, AF-AFOSR-258-63
PROJ: AF-9749
TASK: 974901
MONITOR: AFOSR 67-0631

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM AMERICAN
MATHEMATICAL SOCIETY, PROVIDENCE, R. I.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
WISCONSIN UNIV., MADISON, MATHEMATICS RESEARCH
CENTER. RESEARCH SUPPORTED IN PART BY ONR, AEC AND
NSF.

DESCRIPTORS: (•MATHEMATICS, •SPACE FLIGHT),
(•FLUID MECHANICS, SPACE FLIGHT), DYNAMICS,
SHOCK WAVES, SUPERAERODYNAMICS, MATHEMATICAL
MODELS, SATELLITES(ARTIFICIAL), EQUATIONS OF
MOTION, RENDEZVOUS TRAJECTORIES (U)
IDENTIFIERS: SPACE MATHEMATICS, APPLIED
MATHEMATICS, LECTURES (U)

AFTER THE FORMULATION OF THE GENERAL EQUATIONS OF
MOTION, THE EMPHASIS IS MOSTLY ON THE MOTIVATION AND
DERIVATION OF THE DIFFERENT APPROXIMATIONS WHICH FIND
APPLICATIONS IN VARIOUS PRACTICAL PROBLEMS,
PARTICULARLY TO BODIES IN FLIGHT AT THE HIGHER SPEED
RANGES TYPICAL OF SPACE ACTIVITIES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-644 115 6/19
LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
PHYSIOLOGICAL EXPERIMENTS WITH ANIMALS AND BIOLOGICAL
STUDIES DURING GEOPHYSICAL AND ORBITAL FLIGHTS. (U)
SEP 66 20P
REPT. NO. ATD-66-117.
MONITOR: TT 67-60314

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON SURVEYS OF FOREIGN
SCIENTIFIC AND TECHNICAL LITERATURE.

DESCRIPTORS: (*SPACE FLIGHT, *ANIMALS), SPACE
SIMULATION CHAMBERS, PRESSURE SUITS, ACCELERATION
TOLERANCE, ROCKETS, DOGS, WEIGHTLESSNESS,
TOLERANCES (PHYSIOLOGY), RODENTS, MONKEYS,
SPACE MEDICINE, ELECTROCARDIOGRAPHY, USSR (U)

CONTAINS ARTICLES DEVOTED TO HIGH ALTITUDE AND
SPACEFLIGHT EXPERIMENTS WITH ANIMALS. INCLUDES A
NUMBER OF PHOTOGRAPHS SHOWING HARNESES AND OTHER
HARDWARE ITEMS RELATED TO ANIMAL SPACE FLIGHTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-642 742 22/1 20/4
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)
THE FLUID DYNAMIC ASPECTS OF SPACE FLIGHT. VOLUME
I.

(U)

APR 64 399P
REPT. NO. AGARD-OGRAH-87-VOL-1

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM GORDON AND
BREACH, SCIENCE PUBLISHERS, INC., 150 FIFTH
AVENUE, NEW YORK, N. Y. 10011.

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE AGARD-NATO
SPECIALISTS' MEETING SPONSORED BY THE FLUID
DYNAMICS PANEL OF AGARD, MARSEILLE, FRANCE, APRIL
20-24, 1964.

DESCRIPTORS: (•SPACE FLIGHT, •FLUID MECHANICS),
WEIGHTLESSNESS, SUPERAERODYNAMICS, SPACE
ENVIRONMENTAL CONDITIONS, SLOSHING, IONOSPHERE,
AERODYNAMIC CONFIGURATIONS, SPACECRAFT, ELECTRIC
PROPULSION, IMPACT SHOCK, FRANCE, SYMPOSIA, WEST
GERMANY, GREAT BRITAIN

(U)

BEHAVIOR OF THE LIQUID-VAPOR INTERFACE DURING
WEIGHTLESSNESS; LIQUID EQUILIBRIUM CONFIGURATIONS
AND DISTURBANCES OF A VEHICLE MOTION DUE TO LIQUID
SLOSHING IN SPACE; INTERACTION OF ROCKETS AND
SATELLITES WITH THE IONOSPHERE; FACILITIES TO
SIMULATE THE AERODYNAMICS OF CHARGED PARTICLES IN THE
IONOSPHERE; AERODYNAMIC COEFFICIENTS OF WINGS AND
FUSELAGES IN RAREFIED GAS FLOW; INSTALLATIONS A
BASSE DENSITE ET LEUR ACTIVITE; THE V.K.I.F.D.
LOW DENSITY WIND TUNNEL; INFLUENCE OF SPACE
ENVIRONMENT UPON VEHICLE COMPONENTS; THE INFLUENCE
OF ENVIRONMENT ON THE MECHANICAL BEHAVIOR OF METALS;
BREAKDOWN IN AN ELECTRIC PROPULSION FLIGHT TEST
SYSTEM; ELECTRIC DRAG ON SATELLITES; MODIFICATION
OF SUPERSONIC FLOW FIELDS UNDER NEAR SPACE CONDITIONS
BY CRYOPUMPING; IMPACT PHYSICS, METEROIDS AND
SPACECRAFT STRUCTURES; IMPACT PERFORMANCE OF
REALISTIC SPACE STRUCTURES; ETUDE D'IMPACTS A
GRANDE VITESSE A L'AIDE D'UN CANON A GAZ LEGER;
STUDIES OF HYPERVELOCITY IMPACT WITH THE
R.A.R.D.E. 1/4 INCH CALIBRE LAUNCHER; THEORY OF
HYPERVELOCITY IMPACT; MOMENTUM TRANSFER AND
CRATERING PHENOMENA ASSOCIATED WITH THE IMPACT OF
ALUMINIUM SPHERES INTO THICK ALUMINIUM TARGETS AT
VELOCITIES TO 24,000 FEET PER SECOND.

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AD-640 327 22/1 3/1 6/3
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D
C
SOVIET LONG-RANGE SPACE-EXPLORATION PROGRAM:
ANALYTICAL SURVEY, (U)
MAY 66 33P MUTSCHALL, VLADIMIR E. ;
REPT. NO. ATD-66-57,
MONITOR: TT 66-62451

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 962. 

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•SPACE BIOLOGY,
USSR), (•ASTRONOMY, USSR), BIOLOGY, PLANETARY
ATMOSPHERES, BIOSYNTHESIS, CULTURE, SPACE
COMMUNICATION SYSTEMS, LUNAR PROBES, MARS PROBES,
VENUS PROBES, SATELLITES (ARTIFICIAL),
EXTRATERRESTRIAL RADIO WAVES, REVIEWS (U)
IDENTIFIERS: PLANETARY SATELLITES, ORGANIC
EVOLUTION, EXTRATERRESTRIAL LIFE (U)

THIS IS ONE OF A SERIES OF REPORTS CONTAINING A
SELECTION OF SOVIET TECHNICAL PAPERS AND
ATTEMPTING TO GIVE THE SOVIET VIEW OF SOME SPACE-
EXPLORATION PROGRAMS AS THEY EXISTED AT THE END OF
1965. THE PROBLEMS TREATED HERE ARE DIVIDED INTO
SIX SECTIONS AS FOLLOWS: (I) LIFE IN THE
UNIVERSE; (II) THE ORIGIN OF LIFE; (III)
ESTABLISHING CONTACT WITH EXTRATERRESTRIAL
CIVILIZATIONS; (IV) MARS' SATELLITES; (V)
DISCOVERY OF A VARIABLE RADIATION SOURCE; AND (VI)
THE SOVIET SPACE-COMMUNICATIONS CENTER. (U)

USSR

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-639 378 22/1 4/1 3/2 22/2
22/3

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIS RESEARCH, VOLUME 4, NO. 1, 1966.

(U)

JUN. 66 295P

REPT. NO. FTD-TT-66-76,
MONITOR: TT 66-62322

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMICHESKIE ISSLEDOVANIYA (USSR) V4 N1 175P 1966.

DESCRIPTORS: (•ASTROPHYSICS, USSR), (•ATMOSPHERE,
USSR), (•SPACE FLIGHT, USSR), INTERPLANETARY
TRAJECTORIES, TRANSFER TRAJECTORIES, UPPER
ATMOSPHERE, METEORS, GAS IONIZATION,
PHOTOCHEMISTRY, SCIENTIFIC SATELLITES, NUCLEAR
EXPLOSIONS, HIGH ALTITUDE,
SATELLITES (ARTIFICIAL), PHOTOELECTRIC
CELLS (SEMICONDUCTOR), ASTRONAUTS, CLOSED
ECOLOGICAL SYSTEMS, MANNED SPACECRAFT, SPORES, VAN
ALLEN RADIATION BELT, COSMIC RAYS, SPACE BIOLOGY

(U)

IDENTIFIERS: ANTIMATTER

(U)

PARTIAL CONTENTS: OPTIMUM DISTRIBUTION OF
CORRECTING IMPULSES IN SINGLE-PARAMETER CORRECTION;
ENERGETICALLY OPTIMAL TRANSFERS FROM A HYPERBOLIC
ORBIT; OPTIMUM TRANSFERS BETWEEN COPLANAR
ELLIPTICAL ORBITS; TWO MATRIX FORMS OF ESTIMATES OF
SPACECRAFT MOTION PARAMETERS; NEUTRAL COMPOSITION
OF THE ATMOSPHERE IN THE 100-200 KM ALTITUDE REGION;
POSSIBLE ANTIMATTER NATURE OF MICROMETEORS;
EMISSION SPECTRA OF RAREFIELD MOLECULAR GASES
EXCITED BY FAST ELECTRONS; PHOTOCHEMICAL
EQUILIBRIUM AND IONIC COMPOSITION OF THE UPPER LAYERS
OF THE ATMOSPHERE; INVESTIGATION OF THE SOFTEST
CORPUSCLES WITH SATELLITES; REGISTRATION OF
FRAGMENT GAMMA-RADIATION IN THE HIGH-ALTITUDE
EXPLOSION OF 9 JULY 1962 OVER JOHNSTON ISLAND;
TOTAL QUANTITY OF NEUTRAL HYDROGEN IN THE UPPER
ATMOSPHERE; TEMPERATURE FIELD OF THIN-WALLED
SATELLITE SURFACES IN RADIANT HEAT TRANSFER;
SPECTRAL AND TEMPERATURE CHARACTERISTICS OF
PHOTOELECTRIC TRANSDUCERS AND RANGES FOR THEIR
APPLICATION; CERTAIN DYNAMIC CHARACTERISTICS OF THE
OPERATOR IN TRACKING UNDER THE CONDITIONS OF
SPACEFLIGHT ON THE VOSKHOD 2 CRAFT; ENDOGENIC
FORMATION OF CARBON MONOXIDE IN A CLOSED ECOLOGICAL
SYSTEM; PREFLIGHT AND POSTFLIGHT MEDICAL
EXAMINATION OF CREW MEMBERS OF THE VOSKHOD
SPACECRAFT; FACTORS IN SPACEFLIGHT ON TRADESCANTIA (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-637 250 22/3 16/2
CRUFT LAB HARVARD UNIV CAMBRIDGE MASS
EXPLICIT GUIDANCE LAW FOR MINIMUM FUEL HORIZONTAL
TRANSLATION WITH BOUNDED CONTROL. (U)
DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.
MAY 66 23P SPEYER, JASON L. ; BRYSON JR,
ARTHUR E. ;
REPT. NO. TR-500,
CONTRACT: NONR-1866(16),
PROJ: NR-372-012,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACECRAFT, •GUIDANCE), (•SPACE
FLIGHT, GUIDANCE), (•ROCKET TRAJECTORIES,
GUIDANCE), FUEL CONSUMPTION, OPTIMIZATION,
CONTROL, GUIDED MISSILES, THRUST (U)

AN EXPLICIT GUIDANCE LAW WAS DEVELOPED BY CONRAD
(AIAA J, V3 1965) FOR MINIMUM FUEL HORIZONTAL
TRANSLATION OF A ROCKET VEHICLE. THIS NOTE
DEMONSTRATES THAT CONRAD'S GUIDANCE LAW CAN BE
EXPRESSED MORE COMPACTLY BY USE OF DIMENSIONLESS
VARIABLES. IT IS SHOWN THAT THE CONTROL VARIABLE
DEPENDS ON ONLY ONE DIMENSIONLESS STATE VARIABLE
INSTEAD OF THE ORIGINAL TWO STATE VARIABLES.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-636 270 22/1 5/9
GENERAL PRECISION INC RIVERDALE MD LINK GROUP
VIRTUAL IMAGE DISPLAY FOR SPACE FLIGHT
SIMULATOR. (U)
DESCRIPTIVE NOTE: FINAL REPT., MAY 64-JAN 66.
APR 66 45P NEUBERGER, T. P. ; MYLES, W. E. ;
LUDWIG, U. W. ;
CONTRACT: AF 33(615)-1826,
PROJ: AF-7184,
TASK: 718401,
MONITOR: AMRL TR-66-58

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, FLIGHT SIMULATORS),
(•TELEVISION DISPLAY SYSTEMS, •FLIGHT SIMULATORS),
IMAGES, DISPLAY SYSTEMS, SERVOMECHANISMS,
ASTRONAUTICS, TRAINING DEVICES, MAN-MACHINE
SYSTEMS, HUMAN ENGINEERING (U)

THIS REPORT DESCRIBES THE ADDITION OF VIRTUAL
DISPLAY IMAGERY TO A SPACECRAFT RENDEZVOUS AND
DOCKING SIMULATOR. THE VIRTUAL IMAGE DISPLAY IS AN
OPTICAL SYSTEM WHICH ACCEPTS INPUTS FROM TWO IMAGE
GENERATORS AND PRODUCES A SUPERIMPOSED, VIRTUAL
IMAGE. THE MAJOR COMPONENTS OF THE SYSTEM ARE A
WINDOW DISPLAY, TWO WIDE ANGLE REAR PROJECTION
SCREENS, A BEAMSPLITTER, A SCREEN DRIVE SERVO
MECHANISM, AND A TELEVISION PROJECTION SYSTEM.
INSTALLATION AND ALIGNMENT WERE ACCOMPLISHED BY
POSITIONING AND LEVELING THE BASIC STRUCTURE,
ATTACHING THE PROJECTION ENCLOSURES, AND INSTALLING
THE WINDOW DISPLAY AND PROJECTION EQUIPMENT. BASIC
OPERATION AND PERFORMANCE CHARACTERISTICS, INCLUDING
THE RELATIONSHIPS OF THE FIELD OF VIEW TO THE SCREEN
SIZE, AND THE SIGNAL VOLTAGE TO THE RANGE, ARE
PROVIDED IN THE REPORT. RECOMMENDATIONS FOR FUTURE
IMPROVEMENTS IN THE SYSTEM, INCLUDING EXPANSION OF
THE ANGULAR FIELD OF VIEW AND IMPROVEMENT OF
RESOLUTION AND BRIGHTNESS, ARE ALSO GIVEN.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-634 085 22/1 22/2
RAND CORP SANTA MONICA CALIF
PROCEDURES FOR ESTIMATING THE RESOURCE REQUIREMENTS
OF MANNED SPACE FLIGHTS, (U)
JUN 66 30P STRING, JOSEPH ;
REPT. NO. P-3382,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT SPRING
MEETING OF JSCOMRAM, BOSTON, 27 APR 66.

DESCRIPTORS: (SPACE FLIGHT, MANAGEMENT PLANNING),
COSTS, PROGRAMMING (COMPUTERS), LAUNCHING,
LUNAR TRAJECTORIES, ORBITAL TRAJECTORIES, MANNED
SPACECRAFT, LOGISTICS (U)

THE PAPER IS ADDRESSED TO THREE PRINCIPAL TOPICS:
(1) WHAT A TYPICAL MANNED SPACE FLIGHT PLAN LOOKS
LIKE; (2) PROCEDURES EMPLOYED IN EVALUATING THE
RESOURCE IMPACT OF ALTERNATIVE SPACE FLIGHT
PROPOSALS, EITHER PROJECTS OR PLANS; (3) THE
RESOURCE IMPLICATIONS OF SOME OF THE MAJOR TYPES OF
ACTIVITIES CURRENTLY BEING CONSIDERED IN NASA'S
LONGRANGE PLANNING. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-633 484 7/4 20/4 22/1
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH WASHINGTON D C
PHYSICAL CHEMISTRY IN AERODYNAMICS AND SPACE FLIGHT,
(U)
61 312P MYERSON, A. L. ; HARRISON, A. C. ;
REPT. NO. AFOSR-TR-60-106,

UNCLASSIFIED REPORT
AVAILABILITY: PERGAMON PRESS, INC., 122 EAST
55TH STREET, NEW YORK 22, N. Y., \$24.00.
SUPPLEMENTARY NOTE: PROCEEDINGS OF THE CONFERENCE ON
PHYSICAL CHEMISTRY IN AERODYNAMICS AND SPACE
FLIGHT, PENNSYLVANIA UNIV., PHILADELPHIA, 1-3
SEPTEMBER 1959.

DESCRIPTORS: (*PHYSICAL CHEMISTRY, SYMPOSIA),
(*AERODYNAMICS, PHYSICAL CHEMISTRY), (*SPACE
FLIGHT, PHYSICAL CHEMISTRY), CHEMICAL REACTIONS,
THERMODYNAMICS, REACTION KINETICS, PLASTICS,
ABLATION, SHOCK WAVES, SIMULATION, SPECTROSCOPY (U)

CONTENTS: SURFACE AND SOLID PHASE REACTIONS;
GAS PHASE REACTIONS AND KINETICS; EXPERIMENTAL
METHODS AND SIMULATION; THERMODYNAMIC AND
TRANSPORT PROPERTIES OF GASES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-632 313 22/1

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE ASSAULT ON OUTER SPACE GOES ON.

(U)

APR 66 7P

REPT. NO. FTD-TT-65-1903,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
TEKHNIKA I VOORUZHENIE (USSR) N10 P2-3 1964.

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•SPACECRAFT,
USSR), ASTRONAUTS

(U)

IDENTIFIERS: VOSKHOD

(U)

OUR SOCIALISTIC FATHERLAND HAS GONE OUT TO NEW BOUNDARIES IN THE DEVELOPMENT OF ASTRONAUTICS. A POWERFUL ROCKET CARRIER FIRST TOOK OUT INTO THE ENDLESS DISTANCES OF OUTER SPACE THE MULTIPLE-PLACE SPACESHIP, THE VOSKHOD, ABOARD WHICH THERE WAS LABORING TO ACCOMPLISH THEIR GOAL, CARRYING OUT A COMPLICATED AND MULTILATERAL PROGRAM OF SCIENTIFIC INVESTIGATIONS, A FRIENDLY GROUP OF ASTRONAUTS, AN ENGINEER, A SCIENTIST, AND A PHYSICIAN. THESE RESEARCHES HAVE UNIQUELY IMPORTANT SIGNIFICANCE FOR FURTHER LONG FLIGHTS OF THE CREWS OF SPACESHIPS. THREE IN OUTER SPACE ON ONE SHIP - SUCH A THING HAS NEVER HAPPENED BEFORE. AND FROM THE MOMENT WHEN THE VOSKHOD SOARED UPWARD INTO THE SKIES AND WENT INTO ITS ASSIGNED ORBIT FROM ALL CORNERS OF OUR PLANET THERE FLOWED IN GREETINGS ADDRESSED TO THE SOVIET PEOPLE AND ITS GLORIOUS SONS, V. M. KOMAROV, K. P. FEOKTISTOV, AND B. B. YEGOROV. THE SOVIET UNION IN OPENING UP A NEW ERA IN THE HISTORY OF MANKIND MAINTAINS THE PRIMACY, TRUE TO NATURAL LAW, IN THE EXPLORATION AND CONQUEST OF OUTER SPACE. FOR THIS SERIOUS AFFAIR PROVES TO BE A COMPONENT PART OF THAT GIGANTIC CREATIVE WORK WHICH THE SOVIET PEOPLE IS CARRYING ON IN ACCORDANCE WITH THE GENERAL LINE OF THE COMMUNIST PARTY IN ALL BRANCHES OF ECONOMY, SCIENCE, AND CULTURE IN THE NAME OF MANKIND FOR THE BENEFIT OF MANKIND.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-631 429 5/1 9/2 7/2 6/19
 22/1 20/4 6/4
AEROSPACE TECHNOLOGY DIV LIBRARY OF CONGRESS WASHINGTON D
C
FOREIGN SCIENCE BULLETIN, VOL. 2, NO. 4. (U)
APR 66 82P
MONITOR: TT , 66-61085

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: A MONTHLY REVIEW OF SELECTED FOREIGN
SCIENTIFIC AND TECHNICAL LITERATURE SPONSORED BY THE
DEPARTMENT OF DEFENSE. SEE ALSO AD-630 191.

DESCRIPTORS: (•SCIENTIFIC RESEARCH, REVIEWS),
(•NERVOUS SYSTEM, EXCITATION), (•FERRITES,
COMPUTER STORAGE DEVICES), (•SPACE FLIGHT,
BIOLOGY), (•RARE EARTH COMPOUNDS, CHALCOGENS),
(•CAVITATION, SCIENTIFIC RESEARCH), MATHEMATICAL
MODELS, ANALOG COMPUTERS, BIONICS,
SEMICONDUCTORS, PROPELLERS(MARINE), HYDROFOILS,
MAGNETIC FIELDS, LIGHTNING, RADIO WAVES,
PROPAGATION, HALL EFFECT, MAGNETOMETERS,
CYBERNETICS, SEISMOLOGY, OCEANOLOGY, USSR (U)
IDENTIFIERS: COSMOS(SATELLITE) (U)

CONTENTS: MATHEMATICAL MODEL OF EXCITATION OF A
NEURAL NETWORK AND ANALYSIS OF ITS PROPERTIES BY
MEANS OF AN ANALOG COMPUTER; DEVELOPMENTS IN FERRITE
MEMORIES; BIOLOGICAL EXPERIMENTS ON COSMOS-110; NEW
RESEARCH DATA ON THE CHALCOGENIDES OF RARE EARTH
ELEMENTS; CAVITATION EFFECT AND PROPERTIES; SCIENCE
AND TECHNOLOGY NOTES; CONFERENCES; SCIENCE
PERSONALITIES; ALEKSANDR NAUMOVICH FRUMKIN. (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-630 274 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
WE ARE EXPECTING NEW FLIGHTS. (U)
MAR 66 8P
REPT. NO. FTD-TT-66-26,
MONITOR: TT , 66-60811

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM
LENINSKAYA SMENA (USSR) 24 MAR P1 1965.

DESCRIPTORS: (*SPACE FLIGHT, USSR), ASTRONAUTICS (U)
TRANSLATION OF AN INTERVIEW WITH YURI GAGARIN.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-627 854 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SCIENTISTS' LABORATORY IN SPACE, (U)
NOV 65 7P SHEBALIN, O. ;
REPT. NO. FTD-TT-65-709
MONITOR: TT , 66-60483

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
TEKHNKA MOLODEZHI (USSR) V32 N11 P21 1964.

DESCRIPTORS: (*SPACE FLIGHT, USSR), REVIEWS,
ASTRONAUTICS, ASTRONAUTS, SPACECRAFT (U)

A GENERALIZED DISCUSSION IS PRESENTED OF SOME
RUSSIAN ACCOMPLISHMENTS IN SPACE FLIGHT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-627 207 22/1 5/4
RAND CORP SANTA MONICA CALIF
ON PROBLEMS CONCERNING THE LEGAL STATUS OF OUTER
SPACE, (U)
JUN 61 25P TSE-YUNG, LIU ;
REPT. NO. T-141
CONTRACT: AF49(638)-700
MONITOR: TT , 66-60387

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM KUO CHI WEN TI
YEN CHIU (SIC) (CHINESE PEOPLE'S REPUBLIC) N8
DEC 1959.

DESCRIPTORS: (•SPACE FLIGHT, INTERNATIONAL LAW),
(•INTERNATIONAL LAW, SPACE FLIGHT),
EXTRATERRESTRIAL TOPOGRAPHY, CHINA (U)

THE SCIENTIFIC DEVELOPMENT WITH REGARD TO SPACE
MISSILES (INTERCONTINENTAL BALLISTIC MISSILE) AND
MAN-MADE SATELLITES HAS TODAY INTRODUCED A NEW ERA IN
THE ADVANCEMENT OF MAN. THE PATTERN OF THE USE OF
OUTER SPACE BY SCIENTIFIC MEANS WILL UNDOUBTEDLY
UNFOLD IN A CONTEXT OF CONDITIONS WHICH WILL BE
CERTAIN TO EFFECT THE LAW OF SPACE AS IT DEVELOPS
OVER THE YEARS. THIS HAS BROUGHT ABOUT THE PRESENT
SITUATION WITH RESPECT TO INTERNATIONAL LAW OF OUTER
SPACE. THE CONCEPT OF OUTER SPACE LAW AND ITS
VARIOUS LEGAL INTERPRETATIONS HAVE ALSO BECOME
MATTERS OF INTERNATIONAL SIGNIFICANCE. HOWEVER, THE
AGGRESSIVE ATTEMPT OF THE UNITED STATES
IMPERIALISTS IN REGARD TO THE POSSIBLE USE OF OUTER
SPACE HAS FURTHER CREATED AGGRAVATED CONFLICTS
BETWEEN TWO CAMPS, NAMELY, WHETHER THE EXPLORATION OF
OUTER SPACE IS FOR 'PEACEFUL PURPOSES' OR FOR
'MILITARY PURPOSES.' (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-625 300 22/2 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIVE YEARS OF SOVIET SPACE INVESTIGATION. (U)
OCT 65 23P KROSHKIN, M. G. ; SAMARIN, V. G. ;
REPT. NO. FTD-MT-65-64
MONITOR: TT , 66-60077

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF
GEOFIZICHESKII BYULLETEN (USSR) N13 P80-93 1963.

DESCRIPTORS: (*SPACE FLIGHT, USSR), (*SCIENTIFIC
SATELLITES, USSR), ASTRONAUTICS,
SATELLITES (ARTIFICIAL), UPPER ATMOSPHERE,
IONOSPHERE, SPACE ENVIRONMENTAL CONDITIONS,
SPACE FLIGHT, ASTRONAUTS, TERRESTRIAL MAGNETISM,
COSMIC RAYS, SOLAR RADIATION, METEORS,
RADIATION HAZARDS, WAVE PROPAGATION,
BIBLIOGRAPHIES

IDENTIFIERS: VOSTOK, COSMOS (SATELLITE)

(U)
(U)

THIS SURVEY IS A SHORT REFERENCE OF THE BASIC
STAGES OF SPACE INVESTIGATIONS CARRIED OUT IN THE
SOVIET UNION DURING THE FIVE YEARS (1958-
1962) OF THE SPACE ERA. DATA ARE GIVEN ON ALL
SOVIET SPACECRAFT LAUNCHED IN 1957-1962.
(AUTHOR)

(U)

V.S.S.R.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-621 808

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

PRELIMINARY RESULTS OF SPACE FLIGHTS OF A. NIKOLAEV
AND P. POPOVICH, (U)

AUG 62 3P GAZENKO, O. ; GENIN, A. ;
REPT. NO. AID-62-131
MONITOR: TT , 65-64057

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INCOMPLETE TRANS. OF PRAVDA,
MOSCOW (USSR) 18 AUG 1962 P4.

DESCRIPTORS: (*SPACE MEDICINE, USSR), (*SPACE FLIGHT,
USSR) (U)

THE FLIGHTS OF A. NIKOLAEV AND P. POPOVICH WERE
CONDUCTED IN ORDER TO DETERMINE THE EFFECTS OF
UNUSUAL PHYSICAL CONDITIONS (WEIGHTLESSNESS, COSMIC
RADIATION, ETC.) ENCOUNTERED IN SPACE ON MAN'S
PHYSIOLOGICAL FUNCTIONS, WORK CAPACITY AND MENTAL
STATUS IN PROLONGED SPACE FLIGHTS. IT WAS ALSO
NECESSARY TO DETERMINE THE EFFECTIVENESS OF PREFLIGHT
TRAINING, AND TO EVALUATE THE ACCURACY OF
CALCULATIONS MADE OF MAN'S REQUIREMENTS OF FOOD,
WATER, AND OXYGEN, AND THE SUITABILITY OF THE
HYGIENIC CONDITIONS IN THE SPACESHIPS CABIN. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-621 379

COMPUTER CONCEPTS INC SILVER SPRING MD
THE ROLE OF HUMAN FACTORS TASK DATA IN AEROSPACE
SYSTEM DESIGN AND DEVELOPMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR 15 JUN 64-15 FEB 65.

AUG 65 98P HANNAH, L. DUNCAN ;BOLDOVICI,
JOHN A. ;ALTMAN, JAMES W. ;MANION, RAYMOND C.

CONTRACT: AF33 615 1557

PROJ: 1710

TASK: 171006

MONITOR: AMRL , TR-65-131

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUBCONTRACTED TO AMERICAN INST.
FOR RESEARCH, PITTSBURGH, PA.

DESCRIPTORS: (•DATA PROCESSING SYSTEMS, HUMAN
ENGINEERING), (•HUMAN ENGINEERING, WEAPON SYSTEMS),
(•SPACE FLIGHT, SYSTEMS ENGINEERING), (•AIR
FORCE, SYSTEMS ENGINEERING), MANAGEMENT
ENGINEERING, PERSONNEL MANAGEMENT, DECISION MAKING,
AUTOMATION, INFORMATION RETRIEVAL, SUPERVISORY
PERSONNEL, COMPUTERS, DATA STORAGE SYSTEMS,
PERFORMANCE (HUMAN), GROUND SUPPORT EQUIPMENT (U)
IDENTIFIERS: MAN-MACHINE SYSTEMS (U)

ON THE BASIS OF INFORMATION GATHERED FROM
GENERATORS AND USERS OF HUMAN FACTORS TASK DATA BY
90TH INTERVIEWS AND QUESTIONNAIRES AND BY A REVIEW OF
RELEVANT LITERATURE, HUMAN FACTORS PERSONNEL AND DATA
WERE IDENTIFIED, THE RELATIONS BETWEEN THEM
DESCRIBED, AND RECOMMENDATIONS FOR AN AUTOMATED HUMAN
FACTORS TASK DATA HANDLING SYSTEM PROPOSED. HUMAN
FACTORS PERSONNEL WERE CLOSELY DIVISIBLE INTO FOUR
HIERARCHICALLY ARRANGED GROUPS: PROGRAM LEVEL
MANAGERS, PERSONNEL SUBSYSTEM MANAGERS,
DEPARTMENT HEADS, AND NONMANAGERIAL
PERSONNEL. IN GENERAL, AND FOR THE POPULATIONS
DESCRIBED, MANAGERS OR SUPERVISORS WERE THE PRINCIPAL
USERS AND NONMANAGERIAL PERSONNEL THE PRINCIPAL
GENERATORS OF HUMAN FACTORS DATA. A FRAMEWORK THAT
PERMITS CLASSIFICATION OF BOTH FORMATTED AND
UNFORMATTED DATA WAS PROPOSED AS RESPONSIVE TO THE
GENERALLY FELT NEED BY DATA GENERATORS AND USERS FOR
MORE ORDERLY 'BOOKKEEPING' IN THE HUMAN FACTORS
REALM. DESIRABLE CHARACTERISTICS OF AN AUTOMATED
HUMAN FACTORS TASK DATA HANDLING SYSTEM WERE DERIVED
FROM THE QUESTIONNAIRE RESPONSES. THE RESPONSES
ALSO INDICATED THAT: (1) ABOUT 80% THOUGHT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-620 883

RAND CORP SANTA MONICA CALIF

THE SPACE PROGRAMS OF THE SOVIET UNION, (U)

AUG 65 12P KRIEGER, F. J. ;

REPT. NO. P-3204

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
AMERICAN ASTRONAUTICAL SOCIETY'S NATIONAL MEETING AT
SAN FRANCISCO, CALIF., 18-20 AUG 65.

DESCRIPTORS: (•SPACE FLIGHT, USSR), REVIEWS,
SPACECRAFT, TRAJECTORIES (U)

SPACE PROGRAMS OF THE SOVIET UNION.

f

G.S.S.R.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-619 801

LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF
A SIX-FOOT LABORATORY SUPERCONDUCTING MAGNET SYSTEM
FOR MAGNETIC ORBITAL SATELLITE SHIELDING, (U)
64 13P HAWKINS, S. R. ;

CONTRACT: AF04 695 252

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN MONO. INTERNATIONAL
ADVANCES IN CRYOGENIC ENGINEERING, PLENUM PRESS,
1965 P124-36 (COPIES NOT AVAILABLE TO DDC OR
CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (•SPACE FLIGHT, RADIATION HAZARDS),
(•SHIELDING, SATELLITES (ARTIFICIAL)), (•RADIATION
HAZARDS, SHIELDING), MAGNETS, SUPERCONDUCTORS,
HEALTH PHYSICS INSTRUMENTATION, SPACE ENVIRONMENTAL
CONDITIONS, RADIOACTIVE FALLOUT, NUCLEAR EXPLOSIONS,
SIMULATION, TESTS, HEALTH PHYSICS (U)
IDENTIFIERS: AGENA (U)

AS A PART OF A FEASIBILITY STUDY, A PROGRAM WAS
UNDERTAKEN TO DESIGN, CONSTRUCT, AND TEST A
LABORATORY SUPERCONDUCTING MAGNET SYSTEM WHICH, AS
FAR AS POSSIBLE, IS COMPATIBLE WITH THE SHIELDING
REQUIREMENTS OF THE AGENA VEHICLE IN THE ARTIFICIAL
RADIATION BELT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-619 315

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN TRAINING FOR THE COSMOS.

(U)

JUL 65 12P

REPT. NO. FTD-TT-65-455

MONITOR: TT , 65-62920

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
SOVETSKII VOIN (USSR) V47 N6 P10-2, 37-40 1965.

DESCRIPTORS: (•ASTRONAUTS, TRAINING), (•SPACE
FLIGHT, TRAINING), USSR, SPACE MEDICINE, ROTATION,
SPACE ENVIRONMENTAL CONDITIONS, SIMULATION,
ADAPTATION(PHYSIOLOGY), CENTRIFUGES

(U)

TRANSLATION OF RUSSIAN RESEARCH: TRAINING OF THE
COSMONAUTS FOR SPACE FLIGHT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-618 388

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

VOSKHOD-1 AND VOSKHOD-2 FLIGHTS. (U)

DESCRIPTIVE NOTE: SURVEYS OF SOVIET-BLOC SCIENTIFIC
AND TECHNICAL LITERATURE.

JUL 65 1V

REPT. NO. ATD-P-65-46

MONITOR: TT , 65-62671

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, USSR), ASTRONAUTS,
ATMOSPHERE ENTRY, TRAINING, REVIEWS, MANNED
SPACECRAFT (U)

THIS REVIEW ARTICLE IS BASED ON SOVIET AND
SOVIET-BLOC OPEN LITERATURE PUBLISHED IN CONNECTION
WIT THE MANNED FLIGHTS OF THE SOVIET VOSKHOD-1
AND VOSKHOD-2 SPACECRAFT. IT DESCRIBES THE
FLIGHTS IN DETAIL, GIVES BIOGRAPHICAL SKETCHES OF THE
ASTRONAUTS, AND A FEW COMMENTS ON THE FLIGHTS. THE
INTRODUCTION GIVES A BRIEF SUMMARY OF THE TWO FLIGHTS
AND HIGHLIGHTS THEIR ACCOMPLISHMENTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-616 503

RAND CORP SANTA MONICA CALIF.

MAIN STREET, THE MOON, AND WHAT NEXT, (U)

DEC 59 25P LYNN, H. P., JR.:

REPT. NO. P-1878

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE.

DESCRIPTORS: (•SPACE FLIGHT, ASTRONAUTICS), SPACE
PROPULSION, SPACECRAFT, SPACE PROBES, GUIDANCE,
SPACE NAVIGATION, SCIENTIFIC RESEARCH (U)

A DISCUSSION IS PRESENTED OF THE FOLLOWING
QUESTIONS: HOW DO WE STAND TECHNICALLY IN OUR SPACE
PROGRAMS. WHY ARE WE INVOLVED IN SPACE PROGRAMS,
ANYWAY. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-615 988

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AN EXPLOIT WHICH HUMANITY WILL NOT FORGET. FROM THE
LOGBOOKS OF FLIERS-COSMONAUTS V. BYKOVSKI AND V.
TERESHKOVA, (U)

MAY 65 15P LUSHNIKOV, F. ;
REPT. NO. FTD-TT-64-1379
MONITOR: TT , 65-62414

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM
KRASNAYA ZVEZDA (USSR) 14 DEC P3-4 1963.

DESCRIPTORS: (*SPACE FLIGHT, REPORTS),
(*ASTRONAUTS, USSR), SPACE ENVIRONMENTAL CONDITIONS (U)

TRANSLATIONS OF EXCERPTS FROM THE LOGBOOKS KEPT BY
THE RUSSIAN ASTRONAUTS LT. COL. V. BYKOVSKIY
AND THE WOMAN, VALYA TERESHKOVA, DURING THEIR
1963 FLIGHTS IN VOSTOK 5 AND VOSTOK 6. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-615 517

RAND CORP SANTA MONICA CALIF
A MODEL FOR PROJECTING COSTS OF SPACE EXPLORATION,

(U)

APR 65 24P STRING, J. ;
REPT. NO. P-3119

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. PREPARED FOR PRESENTATION AT A
MEETING OF THE AMERICAN STATISTICAL ASSOCIATION,
SOUTHERN CALIF. CHAPTER, 28 JAN 65.

DESCRIPTORS: (SPACE FLIGHT, COSTS), MANNED SPACECRAFT,
MANAGEMENT PLANNING, DECISION MAKING, BUDGETS,
PRODUCTION, STATISTICAL ANALYSIS, MATHEMATICAL MODELS (U)
IDENTIFIERS: COST-EFFECTIVENESS ANALYSIS,
SUBSYSTEMS (U)

A MODEL WAS DEVELOPED FOR DETERMINING THE COSTS OF
ADVANCED SPACE HARDWARE AND FOR ASSESSING THE
BUDGETARY IMPLICATIONS OF INTEGRATED SPACE
EXPLORATION PLANS. THE MODEL HAS THREE BASIC
CHARACTERISTICS: (1) IT IS A LONGRANGE PLANNING
MODEL; (2) IT ESTIMATES THE RESOURCE
IMPLICATIONS OF ALTERNATIVE NASA OVER-ALL SPACE
PLANS IN SUCH A WAY AS TO ALLOW RELATING OF RESOURCE
REQUIREMENTS TO THE OBJECTIVE OF THESE PLANS; AND
(3) ITS PURPOSE IS TO PROVIDE, IN PART, A BASIS
FOR MAKING DECISIONS ON MAJOR ACTIVITIES TO BE
PURSUED BY NASA IN THE FUTURE. IT IS DESIGNED TO
YIELD PROJECTIONS OF THE BUDGETARY IMPLICATIONS OF
SPACE ACTIVITY PLANS UNDER THESE RATHER SERIOUS DATA
BASE LIMITATIONS AND TECHNOLOGICAL AND OPERATIONAL
UNCERTAINTIES. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-615 264

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
LMSC PUBLISHED CONTRIBUTIONS 1964 IMPRINTS. (U)
DESCRIPTIVE NOTE: CITATION BIBLIOGRAPHY,
APR 65 22P REINBURG, J. T. ; KOZUMPLIK, W.

A. i
REPT. NO. CB-65-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•BIBLIOGRAPHIES, SPACE FLIGHT), (•SPACE
FLIGHT, GUIDED MISSILES), PHYSICS, MATERIALS,
ELECTRONICS, ENGINEERING, NUCLEAR PHYSICS, GEOPHYSICS,
MECHANICS, ASTROPHYSICS, METALLURGY, CRYOGENICS, SOLID
STATE PHYSICS, THERMODYNAMICS, FLUID MECHANICS, CERAMIC
MATERIALS, ATMOSPHERE (U)

PAPERS PUBLISHED BY AUTHORS IN LOCKHEED
MISSILES AND SPACE COMPANY DURING 1964 ARE
LISTED. (U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-613 958

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
A PILOT DISPLAY CONCEPT FOR NEAR-TARGET MANEUVERS
DURING RENDEZVOUS, (U)

MAR 65 32P ELIASON, D. W. ; UTTER, D. H. ;
REPT. NO. 6-65-65-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•RENDEZVOUS GUIDANCE, DISPLAY SYSTEMS),
(•DISPLAY SYSTEMS, RENDEZVOUS SPACECRAFT), (•SPACE
FLIGHT, RENDEZVOUS GUIDANCE), SPACECRAFT DOCKING, SPACE
MAINTENANCE, FLIGHT CONTROL SYSTEMS, INSTRUMENT PANELS,
CATHODE RAY TUBE SCREENS, ASTRONAUTICS, THRUST VECTOR
CONTROL SYSTEMS (U)

A PRELIMINARY INVESTIGATION WAS CARRIED OUT FOR A
TRANSLATIONAL CONTROL SYSTEM CONCEPT FOR NEAR-TARGET
MANEUVERS DURING RENDEZVOUS. THE MANEUVERS ARE
APPLICABLE TO SUCH MISSIONS AS DOCKING, INSPECTION,
AND THE AIR FORCE REMOTE MANEUVERING UNIT.
THE CONCEPT CONSISTS OF: (1) A SMALL CONSTANT
THRUST ACCELERATION DIRECTED AT THE TARGET BY THE
MANEUVERING VEHICLE, (2) A PHASE-PLANE CRT
REPRESENTATION OF RADAR RANGE AND RANGE RATE WITH
SUPERIMPOSED OVERLAY CONTOURS, AND (3) A MEANS
FOR DETERMINING THE APPROPRIATE SCALE FACTORS FOR THE
PHASEPLANE DISPLAY IN THE GENERAL CASE.
TRANSLATION IS EFFECTED BY SUITABLE COMBINATIONS OF
THRUSTING AND NON-THRUSTING PERIODS. A PILOT TASK
DESCRIPTION IS GIVEN FOR A TYPICAL RANGE CHANGE
MANEUVER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-612 636

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
LECTURES IN AEROSPACE MEDICINE. EXPERIMENTAL APPROACH
TO THE PSYCHOPHYSIOLOGICAL PROBLEM OF MANNED SPACE
FLIGHT, (U)
60 44P HARTMAN, BRYCE O. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPACE FLIGHT, MANNED), (*SPACE MEDICINE,
PSYCHOPHYSIOLOGY), (*ASTRONAUTS, PSYCHOPHYSIOLOGY),
SPACE ENVIRONMENTAL CONDITIONS, CLOSED ECOLOGICAL
SYSTEMS, LIFE SUPPORT, CONFINED ENVIRONMENTS, SENSORY
DEPRIVATION, PERFORMANCE (HUMAN), PSYCHOMOTOR TESTS,
TOLERANCES (PHYSIOLOGY), FATIGUE (PHYSIOLOGY),
WEIGHTLESSNESS, SPACECRAFT CABINS, SIMULATION, DIURNAL
VARIATIONS, DISPLAY SYSTEMS (U)

THE PSYCHOPHYSIOLOGICAL PROBLEMS OF MANNED SPACE
FLIGHT ARE DISCUSSED. THE THREE MAJOR AREAS OF
RESEARCH INCLUDED IN THE DISCUSSION INVOLVE THE
WEIGHTLESSNESS PROBLEM, THE SPACE CABIN
SIMULATOR PROGRAM, AND THE ANALYSIS OF DYNAMIC
BEHAVIOR IN THE SPACE CABIN ENVIRONMENT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 872

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THERE WILL BE NO PHOTON ROCKET, (U)

FEB 65 13P SMILGA, V. I

REPT. NO. FTD-TT-64-690

MONITOR: TT , 65-61791

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
ZMANIE SILA (USSR) 1960, V. 35, NO. 7, P. 31-33.

DESCRIPTORS: (*SPACE FLIGHT, FEASIBILITY STUDIES),
(*PHOTONS, SPACE PROPULSION), (*SPACE PROPULSION,
PHOTONS), ROCKET PROPULSION, SPACECRAFT, MANNED
SPACECRAFT, USSR, SPACECRAFT NUCLEAR PROPULSION (U)
IDENTIFIERS: PHOTON ROCKETS, INTERSTELLAR FLIGHT (U)

THE PROBLEMS FACING INTERSTELLAR FLIGHT POWERED BY
ANY KNOWN MEANS ARE EVALUATED. IT IS CONCLUDED
THAT NUCLEAR POWERED FLIGHT AT EITHER RELATIVISTIC OR
SUBRELATIVISTIC VELOCITIES IS IMPRACTICAL, AND THAT
INTERSTELLAR FLIGHT AWAITS THE DISCOVERY OF SOME AS
YET UNKNOWN FORCE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 323

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
DOSIMETRIC EVALUATION OF THE ALPHA FLUX IN SOLAR
PARTICLE BEAMS.

(U)

DESCRIPTIVE NOTE: REPT. NO. 30,
NOV 64 27P SCHAEFER, HERMANN J. ;
REPT. NO. NSAM-912
PROJ: MRO05 13 1002

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: JOINT REPT. WITH THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON,
D. C.

DESCRIPTORS: (•SPACE FLIGHT, RADIATION HAZARDS), (•ALPHA
PARTICLES, DOSAGE), (•SOLAR FLARES, ALPHA PARTICLES),
PROTON BEAMS, DOSE RATE, DOSIMETERS, SHIELDING,
SPACECRAFT, SPACE BIOLOGY

(U)

DEPTH DISTRIBUTIONS OF ABSORBED DOSES AND DOSE
EQUIVALENTS IN TISSUE ARE COMPUTED FOR THE ALPHA AND
PROTON COMPONENTS OF A TYPICAL RIGIDITY SPECTRUM OF A
LARGE FLARE ASSUMING A FLUX RATIO OF ONE TO ONE.
EVEN FOR THE LOWEST INVESTIGATED SHIELD THICKNESS
OF 1.75 G/SQ CM THE TOTAL ALPHA DOSE IS SMALLER THAN
THE PROTON DOSE AND BECOMES EVEN SMALLER WITH DEPTH.
THE FRACTIONAL HIGH LINEAR ENERGY TRANSFER ALPHA
DOSE, HOWEVER, IS SUBSTANTIALLY LARGER THAN THE
CORRESPONDING PROTON DOSE AND INTERSECTS THE LATTER
AT 12 G/SQ CM DEPTH IN TISSUE. IN SPITE OF THIS,
THE COMBINED MEAN LOCAL RELATIVE BIOLOGICAL
EFFECTIVENESS OF THE TOTAL DOSE IS PREDOMINANTLY
DETERMINED BY THE PROTONS. THE FINDINGS INDICATE
THAT THE ALPHA COMPONENT OF FLARE BEAMS CREATES A
SIGNIFICANT ADDITIONAL EXPOSURE ONLY FOR CASES OF
VERY LOW SHIELDING, SUCH AS AN ASTRONAUT OUTSIDE THE
VEHICLE PROTECTED MERELY BY THE SPACE SUIT.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-611 109

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

PARADOXES OF COSMONAUTICS, (U)

64 7P POBEDONOSTSEV, YU. ;

REPT. NO. FTD-ST-63-5

MONITOR: TT , 65-61739

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF AVIATSIYA I KOSMONAVTIKA
(USSR) 1963, V. 45, NO. 4, P. 26-32.

DESCRIPTORS: (•SPACE FLIGHT, ORBITAL TRAJECTORIES),
(•ORBITAL TRAJECTORIES, SPACE FLIGHT), ROCKETS,
SATELLITES (ARTIFICIAL), SPACECRAFT, ROCKET PROPELLANTS,
VELOCITY, ELLIPTICAL ORBIT TRAJECTORIES, CIRCULAR ORBIT
TRAJECTORIES, CELESTIAL MECHANICS, USSR (U)

THE PROBLEM INVOLVED IN SELECTING THE ROUTE FOR AN
INTERPLANETARY FLIGHT IS EXAMINED. MATHEMATICAL
VERIFICATION IS OFFERED TO SUPPORT THE PARADOXICAL
CONCLUSION THAT THE SHORTEST ROUTE TOWARD A SELECTED
TARGET IS NOT ALWAYS THE MOST ADVANTAGEOUS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-610 378

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOME RESULTS AND PROBLEMS OF OBSERVATION UNDER
SPACEFLIGHT CONDITIONS, (U)
JAN 65 9P KOSENKOV, M. M. ; KUZ'MINOV, A. P.

REPT. NO. FTD-TT-65-1
MONITOR: TT , 65 61075

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF MONO.
INTERNATIONAL SYMPOZIUM ON BIOASTRONAUTICS (NO. 3)
SAN ANTONIO, TEXAS, 16-18 NOV 64, PUB. MOSCOW,
1964, P. 3-7.

DESCRIPTORS: (•VISUAL PERCEPTION, SPACE ENVIRONMENTAL
CONDITIONS), (•SPACE FLIGHT, VISUAL ACUITY), (•VISUAL
ACUITY, SPACE FLIGHT), ASTRONAUTS, VISION, USSR, TESTS,
EXPERIMENTAL DATA (U)
IDENTIFIERS: VOSTOK, VOSKHOD (U)

THE GREAT ROLE OF THE VISUAL APPARATUS IN CARRYING
OUT HUMAN FUNCTIONS DURING SPACE FLIGHT DETERMINES
THE SIGNIFICANCE GIVEN BY PHYSIOLOGISTS AND
ENGINEERS TO THE QUESTIONS OF THE STATE OF THE VISUAL
ANALYZER DURING SPACE FLIGHT UNDER THE INFLUENCE OF
VARIOUS TYPES OF ADVERSE FACTORS. SOVIET
SCIENTISTS AND ENGINEERS, SPECIALISTS IN ENGINEERING
PSYCHOLOGY AND OPHTHALMOLOGISTS HAVE CARRIED OUT
EXPERIMENTAL STUDIES, USING FOR THIS PURPOSE THE
VOSTOK AND VOSKHOD LAUNCHES. THE DESIGN OF
THESE SHIPS PERMITS OBSERVING THE EARTH'S SURFACE
WITH THE UNAIDED EYE. OBJECTIVES OF THE
EXPERIMENTS WERE: - A CHECK OF THE SPECTRAL
SENSITIVITY OF THE EYES UNDER CONDITIONS OF
WEIGHTLESSNESS; - A CHECK OF THE VISUAL ACUITY OF
COSMONAUTS BOTH AS THE VEHICLE APPROACHES ORBIT AND
UNDER CONDITIONS OF ORBITAL FLIGHT; - A DETERMINATION
OF THE POSSIBILITY OF IDENTIFYING VARIOUS NATURAL
FORMATIONS ON THE EARTH; - A DETERMINATION OF OPTIMUM
ILLUMINATING CONDITIONS INSIDE THE SHIP'S CABIN. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-610 281

RAND CORP SANTA MONICA CALIF

REVIEW OF THE THIRD MANNED SPACE FLIGHT MEETING, (U)

JAN 65 20P MORRIS, DEANE N. ;

REPT. NO. P-3051

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PUBLICATION IN
ASTRONAUTICS AND AERONAUTICS.

DESCRIPTORS: (*SPACE FLIGHT, MANNED), (*SYMPOSIA, SPACE
FLIGHT), (*ASTRONAUTICS, OPERATIONS RESEARCH), LUNAR
PROBES, LUNAR CRAFT, LUNAR BASES, SPACECRAFT, RENDEZVOUS
SATELLITES, SPACECRAFT DOCKING, SAFETY, MARS PROBES,
REENTRY VEHICLES, MANNED SPACECRAFT (U)

IDENTIFIERS: GEMINI, MERCURY PROJECT, APOLLO (U)

THE THIRD MANNED SPACE FLIGHT MEETING,
SPONSORED JOINTLY BY THE AIAA AND NASA, WAS HELD
IN HOUSTON IN NOVEMBER 1964. THE MERCURY,
GEMINI, AND APOLLO PROGRAMS WERE DISCUSSED.
SPECIAL EMPHASIS WAS GIVEN TO ADVANCED PLAN NING
FOR THE MANNED SPACE PROGRAM IN THE POST-APOLLO
PERIOD. THE THREE AREAS OF MAJOR MANNED EFFORT
AFTER THE INITIAL LANDINGS ON THE MOON ARE (1)
EXTENSIONS OF THE LUNAR PROGRAM TO INCLUDE
EXPLORATION AND EXPLOITATION OF THE LUNAR SURFACE,
(2) DEVELOPMENT OF EARTH ORBITAL OPERATIONS, AND
(3) A MANNED INTERPLANETARY PROGRAM, PROBABLY
DIRECTED INITIALLY AT MARS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-609 502

MITRE CORP BEDFORD MASS

ORBITAL FLIGHT AND COVERAGE SIMULATION, (U)

DEC 64 112P WILKIE, L. E. ; STEVENS, J. W. ;

REPT. NO. W-07106/0000/00/0/00

CONTRACT: AF19 628 2390

PROJ: 611 1

MONITOR: ESD ; TDR64 156

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, TRACKING), (•ORBITAL
TRAJECTORIES, SIMULATION), (•SPACE COMMUNICATION
SYSTEMS, SIMULATION), SPACE SURVEILLANCE SYSTEMS,
ANTENNAS, EARTH MODELS, PROGRAMMING (COMPUTERS),
CELESTIAL MECHANICS (U)

THE REPORT IS THE SECOND OF A SERIES DESCRIBING THE
CURRENT EFFORT TOWARDS ESTABLISHING A WORKABLE
ENGINEERING SIMULATION OF THE SPACE-GROUND
ENVIRONMENT (SEE ALSO AD-604 865). THE REPORT
DESCRIBES THE SIMULATION OF GROUND STATION COVERAGE
OF A VEHICLE FROM THE END OF POWERED FLIGHT TO AN
ARBITRARY TIME IN ORBIT. SIGNAL STRENGTHS OF
SEVERAL VEHICLE-GROUND STATION ANTENNA COMBINATIONS,
AS WELL AS GEOMETRICAL COVERAGE, ARE SIMULATED. A
SPHERICAL EARTH MODEL WAS USED IN THE SIMULATION, AND
THE EFFECTS OF ATMOSPHERIC DRAG AND ORBITAL
PERTURBATIONS WERE NEGLECTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-608 949

ILLINOIS UNIV URBANA ENGINEERING EXPERIMENT STATION
A STUDY OF SPECIAL INTERPLANETARY FLIGHT
PROBLEMS. (U)

DESCRIPTIVE NOTE: REPT. NO. 1,
MAR 59 56P KRZYWOBLOCKI, M. Z. V. ;
SHAO, TZU-SIEN ; FARQUHAR, ROBERT ;
CONTRACT: DA11 0220RD2835

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*INTERPLANETARY TRAJECTORIES, SPACE
FLIGHT), (*SPACE FLIGHT, INTERPLANETARY TRAJECTORIES),
ORBITAL TRAJECTORIES, CIRCULAR ORBIT TRAJECTORIES,
ELLIPTICAL ORBIT TRAJECTORIES, SPACE NAVIGATION,
ASTRONAUTICS, SATELLITES (ARTIFICIAL), ROCKETS, EARTH,
MARS, SPACECRAFT, ABSTRACTING (U)

THE REPORT CONTAINS A REVIEW OF SOME MORE
INTERESTING PAPERS AND ARTICLES PUBLISHED IN THE PAST
ON THE SUBJECT OF THE ORBIT MECHANICS AND
INTERPLANETARY TRAJECTORIES IN THE SOLAR SYSTEM.
THE REVIEW IS PERFORMED WITH A SPECIAL GOAL IN
MIND, NAMELY TO SELECT THE PAPERS WHICH ARE BEST
SUITED TO PRESENT INTERPLANETARY TRAJECTORIES BETWEEN
THE EARTH AND MARS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-608 083

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

COSMIC RESEARCH, 1964, VOL. 2, NO. 5. (U)

NOV 64 269P

MONITOR: FTD ,TT TT64 1077, ,64 71679

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMICHESKIE ISSLEDOVANIYA (USSR) 1964, V. 2, NO. 5,
P. 657-813. SEE ALSO AD-605 513.

DESCRIPTORS: (•SATELLITES (ARTIFICIAL), TRAJECTORIES),
(•SPACE BIOLOGY, SCIENTIFIC RESEARCH), (•SPACE FLIGHT,
SCIENTIFIC RESEARCH), (•SPACE ENVIRONMENTAL CONDITIONS,
SCIENTIFIC RESEARCH), COSMIC RAYS, NUCLEAR EXPLOSIONS,
LEAST SQUARES METHOD, CELESTIAL MECHANICS, ORBITAL
TRAJECTORIES, SPACECRAFT, ALBEDO (ASTRONOMY), ANIMALS,
STABILITY, PERTURBATION THEORY, ELECTRONS, GRAVITY,
USSR, ASTROPHYSICS (U)
IDENTIFIERS: KOSMOS (U)

COLLECTION OF RUSSIAN REPORTS DEALING WITH FLIGHT
OF ARTIFICIAL SATELLITES, PROBLEMS OF CELESTIAL
MECHANICS, DECAY OF ALBEDO NEUTRONS, EFFECT OF SPACE
FLIGHT ON ANIMALS, AND ERROR ESTIMATES IN DETERMINING
PARAMETERS BY THE METHOD OF LEAST SQUARES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-607 628

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
SOFT LUNAR LANDING.

(U)

DESCRIPTIVE NOTE: STL BIBLIOGRAPHY,

MAY 59 21P ANDREWS, K. B. ; SLOANE, M. N. ;

REPT. NO. STL-B-8 , STL/GM-59-5111-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON A LITERATURE SURVEY OF
UNCLASSIFIED REPORTS.

DESCRIPTORS: (•SOFT LANDINGS, BIBLIOGRAPHIES),
(•ASTRONAUTICS, BIBLIOGRAPHIES, (•SPACE FLIGHT,
BIBLIOGRAPHIES), SPACE ENVIRONMENTAL CONDITIONS, SPACE
NAVIGATION, EXTRATERRESTRIAL BASES, INTERPLANETARY
TRAJECTORIES, SPACECRAFT, PHOTOGRAPHY, SPACE PROBES,
DOPPLER SYSTEMS, MANNED SPACECRAFT, SPACE PROPULSION,
FLIGHT CONTROL SYSTEMS, MAGNETIC FIELDS, RADAR, TERMINAL
GUIDANCE, INSTRUMENTATION, DESIGN, MOON

X
order
(U)

SOFT LUNAR LANDING.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-607 366

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
OPTIMUM INTERPLANETARY ROCKET FLIGHTS. (U)
SEP 59 8P TURNER, LINCOLN ;
REPT. NO. STL/TR-59-0000-00833

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•INTERPLANETARY TRAJECTORIES,
OPTIMIZATION), (•SPACE FLIGHT, OPTIMIZATION), ORBITAL
TRAJECTORIES, MARS, ION ENGINES, VECTOR ANALYSIS, MATRIX
ALGEBRA, ITERATIVE METHODS (U)

CONSIDERATION IS GIVEN TO THE PROBLEM OF OPTIMIZING
THE FLIGHT OF A VEHICLE SENT FROM A CIRCULAR ORBIT
AROUND EARTH TO A CIRCULAR ORBIT AROUND MARS.
THE VEHICLE IS ASSUMED TO BE POWERED BY AN ION
ENGINE. SINCE THE THRUST OF THE VEHICLE WOULD BE
VERY SMALL DURING THE MIDDLE PORTION OF THE FLIGHT,
AN ATTEMPT IS MADE TO DETERMINE WHETHER OR NOT THE
SAME TRAJECTORY COULD BE ACCOMPLISHED BY TURNING OFF
THE MOTORS DURING THAT PORTION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-606 943

RAND CORP SANTA MONICA CALIF

TYPES OF SPACE FLIGHTS, (U)

FEB 58 8P BUCHHEIM, R. W. ;

REPT. NO. P-1428

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DESCRIPTORS: (•SPACE FLIGHT, TRAJECTORIES), (•ORBITAL TRAJECTORIES, REVIEWS), (•LUNAR TRAJECTORIES, REVIEWS), (•INTERPLANETARY TRAJECTORIES, REVIEWS), SATELLITES (ARTIFICIAL), SPACECRAFT, LANDING IMPACT, LAUNCHING, SPACE BUOYS (U)

TRAJECTORY CHARACTERISTICS OF THREE GENERAL CATEGORIES OF SPACE FLIGHT ARE DISCUSSED: EARTH SATELLITE MISSIONS, LUNAR MISSIONS, AND INTERPLANETARY MISSIONS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-606 383

RAND CORP SANTA MONICA CALIF

LEGAL TERMINOLOGY FOR THE UPPER REGIONS OF THE
ATMOSPHERE AND FOR THE SPACE BEYOND THE ATMOSPHERE,

(U)

MAY 57 11P HOGAN, JOHN C. ;
REPT. NO. P-1088

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DESCRIPTORS: (•SPACE FLIGHT, LAW), (•LAW, UPPER
ATMOSPHERE), (•UPPER ATMOSPHERE, LAW), ATMOSPHERE,
STRATOSPHERE, EXOSPHERE, TROPOSPHERE, IONOSPHERE,
VOCABULARY

(U)

IDENTIFIERS: AIRSPACE, SPACE LAW

(U)

THERE ARE NO ESTABLISHED DEFINITIONS IN LAW FOR
DESCRIBING THE UPPER REGIONS OF THE ATMOSPHERE.
THE URGENCY OF THE NEED FOR A STANDARD TERMINOLOGY
IN LAW FOR DESCRIBING THESE REGIONS AND THE AREAS
BEYOND ARISES FROM THE FACT THAT THERE IS A VARIETY
OF MAN-MADE OBJECTS WHICH WILL SOON BE OPERATING AT
HIGH ALTITUDES--SOME OUTSIDE THE ATMOSPHERE--AND THESE
CAN BE EXPECTED TO PRESENT SOMEWHAT DIFFERENT LEGAL
PROBLEMS DEPENDING UPON THE HEIGHTS AND SPEEDS AT
WHICH THEY FLY. ASTRONAUTICAL JURISPRUDENCE IS A
NEW FIELD OF LAW, AND IT RAISES SOME BASIC QUESTIONS
WHICH MUST SOON BE ANSWERED, NAMELY: WHAT, IN
LAW, IS MEANT BY THE TERM 'AIRSPACE'. WHAT ARE THE
SCIENTIFIC DIVISIONS OF THE UPPER REGIONS OF THE
EARTH'S ATMOSPHERE. HOW DOES 'SPACE' DIFFER FROM
'OUTER SPACE', 'WORLD SPACE', 'TERRITORIAL SPACE',
'CONTIGUOUS SPACE', 'TERRESTRIAL SPACE', ETC.

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AD-605 794

RAND CORP SANTA MONICA CALIF
ON THE QUESTION OF INTERPLANETARY LAW AND FOR EQUAL
COLLABORATION IN THE PEACEFUL USE OF COSMIC SPACE,

(U)

SEP 58 8P GALINA, A. ;
MONITOR: TT , 64 71374

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SUPPLEMENTARY NOTE: TRANS. OF SOVETSKOE GOSUDARSTVO I
PRAVO (USSR) 1958, NO. 7, P. 52-58 AND IZVESTIYA
(USSR) 1958, 17 SEP, P. 5.

DESCRIPTORS: (*SPACE FLIGHT, LAW), (*LAW, SPACE FLIGHT),
(*FOREIGN POLICY, UNITED STATES), GOVERNMENT (FOREIGN),
STRATOSPHERE, EXOSPHERE, MILITARY STRATEGY, DISARMAMENT,
SATELLITES (ARTIFICIAL), SPACE STATIONS, USSR,
SPACECRAFT (U)

IDENTIFIERS: AIR SPACE, INTERNATIONAL LAW,
INTERPLANETARY LAW (U)

TRANSLATION OF RUSSIAN ARTICLES: ON THE QUESTION OF
INTERPLANETARY LAW (AND) FOR EQUAL COLLABORATION IN THE
PEACEFUL USE OF COSMIC SPACE.

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AD-605 244

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FLIGHTS INTO SPACE, (U)
JUN 64 140P SUSHKOV, YU. N. ;
MONITOR: FTD ,TT MT64 227; ,64 71296

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
POLETY V KOSMOS, MOSCOW, 1963, 138P.

DESCRIPTORS: (SPACE FLIGHT, USSR), GRAVITY, SPACECRAFT,
ROCKET MOTORS, SOLID ROCKET FUELS, LIQUID ROCKET FUELS,
WEIGHTLESSNESS, RADIATION HAZARDS, METEORS, SPACE
MEDICINE, ASTRONAUTS, TRAINING, FOOD, TRAJECTORIES,
CONTROL SYSTEMS, SAFETY, SPACE COMMUNICATION SYSTEMS,
SPACE ENVIRONMENTAL CONDITIONS, PRESSURE SUITS, LIFE
SUPPORT, MOON, SATELLITES (ARTIFICIAL) (U)

THE PROPERTIES OF GRAVITY AND THE POSSIBLE WAYS OF
OVERCOMING IT, THE PRINCIPLES OF WORK AND
INSTALLATION OF SPACESHIPS AND ROCKET ENGINES
OPERATING ON SOLID AND LIQUID FUEL, AND THE
ENERGETICS OF ROCKET FLIGHT ARE DISCUSSED. STATE
MENTS ARE MADE CONCERNING G-FORCES, WEIGHTLESSNESS,
HYPODYNAMICS, METEOR AND RADIATION DANGER AND MEANS
OF PROTECTION FROM THEM. THE READER WILL RECOGNIZE
HOW SPACE FLIGHTS ARE ENSURED IN THE MEDICO-
BIOLOGICAL RESPECT, HOW ARE ASTRONAUTS TRAINED, WHAT
IS SPACE FOOD, AND HOW TO OBSERVE THE RULES OF
HYGIENE IN FLIGHT. ALSO EXPOUNDED IS A SERIES OF
QUESTIONS INSUFFICIENTLY ILLUMINATED IN THE POPULAR
PRESS, HOW TO CALCULATE TRAJECTORY AND CONTROL OF
A SPACESHIP. HOW DOES A SHIP RETURN FROM SPACE TO
EARTH OR HOW WILL IT LAND ON ANOTHER PLANET.
WHAT IS THE RELIABILITY OF THE SPACESHIP, CARRIER
ROCKET AND SYSTEM OF CONTROL. HOW IS SPACE RADIO-
AND TELECOMMUNICATION CARRIED OUT. HOW IS SAFETY
OF FLIGHT ENSURED. WHAT IS THE ROLE OF AUTOMATIC
MACHINES IN SCIENTIFIC RESEARCH AND IN SUPPORTING OF
NORMAL CONDITIONS OF VITAL ACTIVITY OF ASTRONAUTS.
WHAT IS THE COMPOSITION AND AIR PRESSURE AND
TEMPERATURE RATE IN THE CABIN OF THE SHIP. HOW IS
THE SPACE PRESSURE SUIT CONSTRUCTED. WHAT IS THE
CONTEMPORARY STATE OF THE DEVELOPMENT OF ASTRONAUTICS
IN THE SOVIET UNION AND THE UNITED STATES.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-604 803

RAND CORP SANTA MONICA CALIF

MAN'S ROLE IN SPACE, (U)

NOV 62 12P DALKEY, N. C. ;

REPT. NO. P-2669

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: 

DESCRIPTORS: (•SPACE FLIGHT, MANNED SPACECRAFT), SPACE
PROBES, COSTS, SPACE COMMUNICATION SYSTEMS, LUNAR
PROBES, LANGUAGE, EXPLORATION, SENSORY PERCEPTION (U)

THE REASONS FOR SENDING HUMAN BEINGS INTO SPACE ARE
DISCUSSED. MAN'S SKILLS AND INNATE CAPABILITIES
ARE VIEWED AS BEING SUPERIOR TO THOSE OF MACHINES IN
EXPLORATION. (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-603 994

RAND CORP SANTA MONICA CALIF

THE CURRENT AND PREDICTED STATUS OF ENGINEERING
TECHNIQUES IN RELATION TO HUMAN TRAVEL AT UPPER
ALTITUDES.

(U)

NOV 51 11P
REPT. NO. P-249

SALTER, R. M. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPACEFLIGHT, MANNED), MANNED SPACECRAFT,
ORBITAL TRAJECTORIES, UPPER ATMOSPHERE, INTERPLANETARY
TRAJECTORIES, SPACE PROPULSION, THRUST, TELEMETER
SYSTEMS, REVIEWS

(U)

CONSIDERATION IS GIVEN TO THE 'HOW' AND 'WHEN' OF
MANNED SPACEFLIGHT. TOPICS INCLUDE: REGIMES OF
FLIGHT IN THE AEROPAUSE; MOTIVATING TECHNIQUES
REQUIRED ENGINEERING LIMITATIONS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-603 357

ISOMET CORP PALISADES PARK N J

CARBON DIOXIDE REDUCTION SYSTEM.

DESCRIPTIVE NOTE: SUMMARY REPT. FOR JAN 62-JAN 64. (U)

MAY 64 68P CHANDLER, H. ;

CONTRACT: AF33 657 8066

PROJ: 6373

TASK: 637302

MONITOR: AMRL , TDR64 42

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•CLOSED ECOLOGICAL SYSTEMS, RESPIRATION),
(•CARBON DIOXIDE, REDUCTION (CHEMISTRY)), (•SPACE
FLIGHT, RESPIRATION), SPACE MEDICINE, ELECTROLYSIS,
INSTRUMENTATION, DESIGN, TESTS, ELECTROLYTES, VOLTAGE,
MANNED, YTTRIUM COMPOUNDS, ZIRCONIUM COMPOUNDS,
NICKEL (U)

AN AUTOMATICALLY OPERATED CARBON DIOXIDE REDUCTION
SYSTEM WAS DEVELOPED, FABRICATED AND TESTED. THE
SYSTEM WAS DESIGNED TO REDUCE THE CARBON DIOXIDE
EQUIVALENT TO THAT PRODUCED BY ONE MAN, AND TO
PRODUCE CARBON AND OXYGEN. A SYSTEM SUCH AS THIS
IS REQUIRED FOR PROVIDING RESPIRATORY SUPPORT FOR MAN
ON EXTENDED SPACE MISSIONS. THE PROGRAM WAS
CONDUCTED IN THREE PHASES: (1) DEVELOPMENT OF
SYSTEM COMPONENTS, (2) EXPERIMENTAL
DETERMINATION OF SYSTEM DESIGN PARAMETERS, AND
(3) FABRICATION AND TESTING OF AN ENGINEERING
MODEL. SUCCESSFUL OPERATION OF THE ENGINEERING
MODEL DEMONSTRATED THE FEASIBILITY AND EASE OF
OPERATION OF THE SYSTEM. RECOMMENDATIONS ARE MADE
FOR IMPROVING THE SYSTEM AND FOR FUTURE WORK.
(AUTHOR) (U)

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AD-603 012

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COSMIC RESEARCH, 1964, VOL. 2, NO. 3.

(U)

JUL 64 253P

MONITOR: FTD ;TT TT64 770; ,64 71143

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SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMICHESKIE ISSLEDOVANIYA (USSR) 1964, V. 2, NO. 3,
P. 355-504.

DESCRIPTORS: (*SPACE FLIGHT, SCIENTIFIC RESEARCH),
(*ASTROPHYSICS, SCIENTIFIC RESEARCH), SATELLITES
(ARTIFICIAL), SPACE MEDICINE, SPACE PROPULSION, SPACE
STATIONS, SPACECRAFT, INTEGRATION, DIFFERENTIAL
EQUATIONS, MATHEMATICAL ANALYSIS, OPTICAL PROPERTIES,
CLOUDS, METEOROLOGICAL SATELLITES, PERTURBATION THEORY,
MAGNETIC FIELDS, INTERPLANETARY TRAJECTORIES, ORBITAL
TRAJECTORIES, RADIOACTIVITY, HYPERSONIC FLOW, PRESSURE
SUITS, USSR (U)

CONTENTS: INTERPLANETARY FLIGHTS WITH CONSTANT
OUTPUT ENGINES, THE ACCELERATION OF A SPACECRAFT
WITHIN THE RANGE OF PLANETARY INFLUENCE, ON SPACE-
FLIGHT TRAJECTORIES WITH A CONSTANT REACTION
ACCELERATION VECTOR, OPTIMUM TRAJECTORIES AND OPTIMUM
PARAMETERS FOR SPACE VEHICLES, METHOD OF QUICKEST
DESCENT AS APPLIED TO COMPUTATION OF INTERORBITAL
TRAJECTORIES WITH ENGINES OF LIMITED POWER, RADIATIVE
HEATING IN HYPERSONIC FLOW, OPTICAL PROPERTIES OF
CLOUDS, EQUATION FOR RELEVANCE OF INFORMATION FROM
WEATHER SATELLITES AND FORMULATION OF INVERSE
PROBLEMS, ANALYTICAL REPRESENTATION OF THE EARTH'S
MAGNETIC FIELD IN THE ORBITAL COORDINATE SYSTEM,
GEOGRAPHICAL DISTRIBUTION OF RADIATION INTENSITY IN
THE REGION OF THE BRAZILIAN MAGNETIC ANOMALY AT AN
ALTITUDE OF ABOUT 300 KM, INVESTIGATION OF
TERRESTRIAL RADIATION BELTS IN THE VICINITY OF THE
BRAZILIAN MAGNETIC ANOMALY AT ALTITUDES OF 235-345
KM, THE POSSIBILITIES OF REPLACING THE NITROGEN IN
THE AIR WITH HELIUM IN SPACEVEHICLE CABINS AND THE
EFFECTIVENESS OF USING A HELIUM-OXYGEN MIXTURE FOR
VENTILATION OF A SPACE-PRESSURE SUIT. (U)

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AD-602 335

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPEED, ACCELERATION, WEIGHTLESSNESS: SOME PROBLEMS
IN PHYSICS AND PHYSIOLOGY IN CONNECTION WITH
ATMOSPHERIC AND SPACE FLIGHTS , (U)

JUN 64 154P ISAKOV, P. K. ; STASEVICH, R. S. ;
MONITOR: FTD , TT MT62 103, ,64 1186!

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SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
SKOROSTI, USKORENIYA, NEVESOMOST' ; NEKOTORYE
VOPROSY FIZIKI I FIZIOLOGII PRIMENITEL'NO K
POLETAM V ATMOSFERE I KOSMICHESKOM PROSTRANSTVE,
MOSCOW, 1962, 150P.

DESCRIPTORS: (•SPACE FLIGHT, PHYSIOLOGY), VELOCITY,
ACCELERATION, WEIGHTLESSNESS, VESTIBULAR APPARATUS,
PHYSICAL FITNESS, ROCKETS, FUELS, SPACECRAFT,
ASTRONAUTS, STIMULATION, REFLEXES, SPACE MEDICINE, BLOOD
CIRCULATION, SHOCK (PATHOLOGY), USSR (U)

SPEED, ACCELERATION AND WEIGHTLESSNESS ARE
CONSIDERED IN THE LIGHT OF NEW DATA. A SPECIAL
CHAPTER IS DEVOTED TO THE QUESTION OF WEIGHTLESSNESS,
IN WHICH THE PHYSICAL CONDITIONS ARISING FROM THIS
PHENOMENON AND ITS INFLUENCE ON THE HUMAN ORGANISM
AND ANIMALS UNDER SPACE-FLIGHT CONDITIONS ARE
REPORTED. (AUTHOR) (U)

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AD-601 899

RAND CORP SANTA MONICA CALIF

ADVANCED SYSTEMS TESTING ON A MANNED ORBITAL SPACE
STATION. (U)

JUN 64 18P TRAPP, D. L. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•MANNED SPACECRAFT, FLIGHT TESTING),
(•ELECTRIC PROPULSION, FLIGHT TESTING), (•SPACE FLIGHT,
COSTS), SPACE STATIONS, SATELLITES (ARTIFICIAL), MANNED,
TESTS, MALFUNCTIONS, LOGISTICS, TEST EQUIPMENT (U)

CONSIDERATION IS GIVEN TO THE COST OF SPACE-STATION
TESTING AND PROCEDURES FOR ESTIMATING THESE COSTS
WITH DIRECT REFERENCE TO TESTING AN ELECTRICAL
PROPULSION SYSTEM. THE ADVANTAGES OF MANNED-SPACE-
STATION TESTS, AS COMPARED WITH CONVENTIONAL FLIGHT
TESTS, ARE POINTED OUT. (U)

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AD-600 893

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
INTERSTELLAR FLIGHTS. (U)

APR 64 29P STANYUKOVICH, K. P. ; BRONSHTEN,

V. A. ;

MONITOR: FTD ; TT TT63 LL32, 64 11677

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SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
KOSMOS (USSR) L963, NO. L, P. 3-24.

DESCRIPTORS: (*ROCKETS, ROCKET PROPULSION), (*SPACE
FLIGHT, STARS), (*SPACE PROPULSION, ELECTRIC
PROPULSION), ACCELERATION, USSR, RELATIVITY THEORY,
PHOTONS, NEBULAE (U)

IDENTIFIERS: PHOTON ROCKETS (U)

TOPICS INCLUDE: DIMENSIONS OF SPACE; THE PHOTON
ROCKET; VOYAGE IN TIME; TIME PARADOX; IS INTERSTELLAR
FLIGHT SAFE; TO THE ANDROMEDA NEBULA. (AUTHOR)

(U)

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AD-491 609L

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AVIATION AND COSMONAUTICS (AVIATSIYA I
KOSMONAVTIKA).

(U)

NOV 64 128P

REPT. NO. FTD-ST-64-11

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TECHNOLOGY DIV., AIR FORCE SYSTEMS COMMAND,
WRIGHT-PATTERSON AFB, OHIO. ATTN: TD-B (O).

SUPPLEMENTARY NOTE: TRANS. FROM MONTHLY JOURNAL OF THE
SOVIET ARMY AIR FORCE, 11, 1964.

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•ASTRONAUTICS,
USSR), SPACE CREWS, ASTRONAUTS, SPACE
ENVIRONMENTAL CONDITIONS, WEIGHTLESSNESS

(U)

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AD-489 399 17/7 22/2
MASSACHUSETTS INST OF TECH CAMBRIDGE INSTRUMENTATION
LAB
THE AIR FORCE/MIT HORIZON DEFINITION PROGRAM, (U)
MAY 65 14P OGLETREE, GLENN ;
REPT. NO. R-492
CONTRACT: AF 04(695)-698
PROJ: DSR-52-237

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF SPACE
SYSTEMS DIV., LOS ANGELES AIR FORCE STATION,
CALIF. 90045, ATTN: CODE SSSD.

DESCRIPTORS: (*HORIZON SCANNERS, EARTH(PLANET)),
(*SPACE FLIGHT, *NAVIGATIONAL AIDS), NAVIGATION,
SUN, SKY BRIGHTNESS, INFRARED RADIATION,
GYROSCOPES, INERTIAL GUIDANCE, STAR TRACKERS,
EPHEMERIDES, MANNED SPACECRAFT,
SATELLITES(ARTIFICIAL), ORBITAL TRAJECTORIES,
POSITION FINDING, FLIGHT INSTRUMENTS (U)
IDENTIFIERS: EARTH'S LIMB, X-15 AIRCRAFT, (U)
MERCURY PROJECT, APOLLO, AGENA (U)

MORE PRECISE DEFINITION OF THE EARTH'S LIMB
(HORIZON VIEWED FROM SPACE) IN TERMS OF ITS
STATISTICAL AND OPTICALLY-DETECTABLE PROPERTIES IS
NEEDED FOR MORE EFFECTIVE DEPLOYMENT AND UTILIZATION
OF SPACE VEHICLES IN NEAR-EARTH ORBITAL OPERATIONS.
SPECIFICALLY, IMPROVED DEFINITION OF THE LIMB IS
CONSIDERED NECESSARY TO THE DEVELOPMENT OF AUTOMATIC
MEANS FOR ACCURATE, LONG-TERM ON-BOARD DETERMINATION
OF POSITION, VELOCITY AND ORIENTATION IN SATELLITE
VEHICLES WITHOUT DEPENDENCE ON OTHER THAN NATURAL
RADIATION. THE KEY TO QUANTITATIVE LIMB DEFINITION
IS THE EXECUTION OF ONE OR MORE EXPERIMENTAL ORBITAL
FLIGHT TESTS IN WHICH AN ACCURATE DIRECTIONAL
REFERENCE IS PROVIDED BY A STELLAR-MONITORED
GYROSCOPIC INERTIAL REFERENCE UNIT. EPHEMERIS
DETERMINATION IN THE EXPERIMENTAL FLIGHTS MAY BE
ACCOMPLISHED WITH ADEQUATE PRECISION BY PRESENT
TRANSPONDER-AIDED RADAR TRACKING TECHNIQUES,
PARTICULARLY THOSE INVOLVING POST-FLIGHT ORBIT
RECONSTRUCTION. THE ACHIEVEMENT OF ALL NECESSARY
INSTRUMENTATION WITH WHICH TO CONDUCT THE
EXPERIMENTAL FLIGHT TESTS IS WITHIN THE SCOPE OF
AVAILABLE TECHNOLOGY. THE PROPOSED LIMB DEFINITION
EXPERIMENT IS AIMED AT ACHIEVEMENT OF IMPROVED
ACCURACY AS REQUIRED FOR PRECISE NAVIGATION.
HOWEVER, THE RESULTS OBTAINED WILL ALSO BE DIRECTLY
APPLICABLE TO THE DESIGN OF LOCAL ATTITUDE REFERENCE
SUBSYSTEMS EMPLOYING LIMB SENSING. (AUTHOR) (U)

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AD-482 301 22/3 9/2
BOEING CO HUNTSVILLE ALA LAUNCH SYSTEMS BRANCH
AN INDIRECT METHOD FOR COMPUTING EXTREMAL ROCKET
BOOSTER TRAJECTORIES IN AN INVERSE-SQUARE FORCE
FIELD, (U)
APR 66 17DP WILLIAMS ,DAVID F. ;PROCTOR,
KENNETH M. ;
REPT. NO. 05-13223

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DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (•LAUNCH VEHICLES(AEROSPACE),
•SPACE FLIGHT), TRAJECTORIES, OPTIMIZATION,
CALCULUS OF VARIATIONS, FLIGHT PATHS, NONPOWERED
FLIGHT, FUEL CONSUMPTION, REDUCTION, THRUST,
GRAVITY, NUMERICAL METHODS AND PROCEDURES,
DIFFERENTIAL EQUATIONS, NUMERICAL ANALYSIS,
PARTIAL DIFFERENTIAL EQUATIONS, INTEGRATION,
ENERGY MANAGEMENT, COMPLEX VARIABLES, BOUNDARY
VALUE PROBLEMS, THRUST VECTOR CONTROL SYSTEMS,
THRUST TERMINATION SYSTEMS, ORBITAL TRAJECTORIES,
RENDEZVOUS TRAJECTORIES, PROGRAMMING(COMPUTERS),
MATHEMATICAL MODELS, PERTURBATION THEORY, TRANSFER
TRAJECTORIES, LUNAR TRAJECTORIES, DESCENT
TRAJECTORIES, ASCENT TRAJECTORIES (U)

AN IMPLEMENTATION OF THE INDIRECT CALCULUS OF
VARIATIONS TECHNIQUES FOR THE NUMERICAL SOLUTION OF
EXTREMAL MULTISTAGE ROCKET BOOSTER TRAJECTORIES IN AN
INVERSE-SQUARE FORCE FIELD IS DESCRIBED. THE
BOOSTER IS CONSTRAINED TO TWO-DIMENSIONAL VACUUM
FLIGHT, AND BOTH THE FLIGHT PATH AND COASTING ARCS
ARE OPTIMIZED SO THAT PROPELLANT CONSUMPTION IS A
MINIMUM. SEVERAL NUMERICAL SOLUTIONS ARE
PRESENTED, AND A COMPLETE DESCRIPTION OF THE
COMPUTING TOOL IS PROVIDED. (AUTHOR) (U)

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AD-480 904L 22/1 22/4
LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF
SPACEFLIGHT STUDIES PERFORMED BY SELECTED COMPANIES:
AN ANNOTATED BIBLIOGRAPHY. (U)
DESCRIPTIVE NOTE: LITERATURE SEARCH,
JUL 64 77P STROMER, PETER R. ;
REPT. NO. LMSC-LS-49

UNCLASSIFIED REPORT
DISTRIBUTION: USGO; OTHERS TO LOCKHEED MISSILES
AND SPACE CO., SUNNYVALE, CALIF. ATTN:
LITERATURE SEARCH.

DESCRIPTORS: (*SPACE FLIGHT, *BIBLIOGRAPHIES),
(*ASTRONAUTICS, BIBLIOGRAPHIES), ABSTRACTS,
LAUNCH VEHICLES(AEROSPACE), FEASIBILITY STUDIES,
SCIENTIFIC RESEARCH, MANNED SPACECRAFT, SPACE
STATIONS, SPACE CAPSULES, SHIELDING, DESIGN,
PERFORMANCE(ENGINEERING), PERFORMANCE(HUMAN),
SPACECRAFT, SPACE NAVIGATION,
MODELS(SIMULATIONS), AEROSPACE CRAFT, SPACE
PROPULSION, INTERPLANETARY TRAJECTORIES

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ordered*

(U)

SPACEFLIGHT STUDIES PERFORMED BY SELECTED COMPANIES: AN
ANNOTATED BIBLIOGRAPHY.

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AD-478 017 5/1 15/5 22/2 1/3
 5/3 5/11 5/9

ANALYTIC SERVICES INC FALLS CHURCH VA
ANALYSIS OF AEROSPACE FUNDING AND EMPLOYMENT - FISCAL
YEARS 1956 TO 1966, (U)

SEP 65 42P GEORGE ,R. DEAN ;PHELAN,
EDMUND M. ;
REPT. NO. AR-65-5
CONTRACT: AF49(638)-1259

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF HQ.,
USAF, DEPUTY CHIEF OF STAFF, RESEARCH AND
DEVELOPMENT DIRECTORATE OF OPERATIONAL REQUIREMENT
AND DEVELOPMENT PLANS, WASHINGTON, D. C.

DESCRIPTORS: (•FEDERAL BUDGETS, AEROSPACE CRAFT),
(•SPACE FLIGHT, RESEARCH PROGRAM ADMINISTRATION),
ARMED FORCES BUDGETS, AIRCRAFT INDUSTRY, GOVERNMENT
PROCUREMENT, EMPLOYMENT, COSTS, STATISTICAL
ANALYSIS, AERONAUTICAL LABORATORIES, ENGINEERING
PERSONNEL, SCIENTIFIC PERSONNEL, TECHNICIANS,
GUIDED MISSILES, DEPARTMENT OF DEFENSE (U)

IDENTIFIERS: SPACECRAFT RESEARCH, GUIDED MISSILE
RESEARCH, AEROSPACE RESEARCH, AEROSPACE INDUSTRY,
NASA (U)

U. S. GOVERNMENT AEROSPACE FUNDING FOR FISCAL YEARS
1956 TO 1966 WAS ANALYZED TO DETERMINE SIGNIFICANT
TRENDS AND THEIR EFFECTS ON EMPLOYMENT IN THE
AEROSPACE INDUSTRY. ANALYSIS SHOWED THAT AEROSPACE
EXPENDITURES FOLLOWED AN UNINTERRUPTED UPWARD TREND
FOR ALMOST A DECADE AND THEN TURNED DOWNWARD IN
FISCAL 1964. AEROSPACE EXPENDITURES ARE NOW
BEGINNING TO INCREASE BECAUSE OF WORLD CONDITIONS.
THIS INCREASE AND THE EMPHASIS ON R AND D
FUNDING INDICATE THE IMPORTANCE OF MAINTAINING TEAMS
OF QUALIFIED SCIENTISTS AND ENGINEERS DURING PERIODS
OF REDUCED FUNDING. ASSIGNING AEROSPACE SCIENTISTS
AND ENGINEERS TO AREA OF OPPORTUNITY PROGRAMS MAY BE
A WAY OF KEEPING INDUSTRY TEAMS INTACT.
(AUTHOR) (U)

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AD-475 850 22/4
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
INSTRUMENTATION SATELLITE FEASIBILITY STUDY. VOLUME
I. PRINCIPAL ELEMENTS. (U)
DESCRIPTIVE NOTE: FINAL REPT. JUN 64-JUN 65,
AUG 65 316P KREJCI, D. W. ;
REPT. NO. LMSC-B111961-VOL-1
CONTRACT: AF 19(628)-4181
MONITOR: ESD TR-65-417-VOL-1

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
HEADQUARTERS, ELECTRONIC SYSTEMS DIV., L. G.
HANSCOM FIELD, BEDFORD, MASS. ATTN: ESTI.

DESCRIPTORS: (•SPACE FLIGHT, MILITARY
REQUIREMENTS), (•SATELLITES(ARTIFICIAL),
INSTRUMENTATION), UNFURLABLE ANTENNAS, ANTENNA
ARRAYS, GROUND SUPPORT EQUIPMENT, COMMUNICATION
SYSTEMS, ATTITUDE CONTROL SYSTEMS, CONFIGURATION,
COSTS, PERFORMANCE(ENGINEERING),
FAILURE(ELECTRONICS), RELIABILITY, FEASIBILITY
STUDIES, MATHEMATICAL MODELS, SATELLITE ANTENNAS,
SOLAR CELLS, THERMOELECTRICITY, GENERATORS,
LAUNCH VEHICLES(AEROSPACE), SPACE PROBES,
RECONNAISSANCE SATELLITES, REAL TIME (U)
IDENTIFIERS: ATLAS, TITAN III (U)

THE ANTICIPATED SUPPORT REQUIREMENTS OF FUTURE
SPACE MISSIONS WILL UNQUESTIONABLY ACCENTUATE THE
INHERENT PROBLEMS OF CONVENTIONAL GROUND SUPPORT
METHODS. THE IMPACT OF THESE PROBLEMS ON MISSION
SUPPORT CAPABILITIES COULD BE LESSENERED, OR POSSIBLY
EVEN ELIMINATED, BY THE USE OF A PROPERLY
INSTRUMENTED SPACE SYSTEM. THE RESULTS OF THIS
STUDY CLEARLY SHOW THAT AN INSTRUMENTATION
SATELLITE CONCEPT IS BOTH FEASIBLE AND PRACTICABLE.
THE SATELLITE DESIGN TECHNIQUES SELECTED PERMIT THE
IMPLEMENTATION OF A COMPLETE OPERATIONAL SPACE
SUPPORT SYSTEM BY 1969. DETAILED RECOMMENDATIONS
ARE PRESENTED FOR ADDITIONAL STUDY EFFORT NECESSARY
TO ENHANCE THE OPERATIONAL CAPABILITY OF THIS SUPPORT
METHOD. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-474 589L 22/4 15/5
BOEING CO SEATTLE WASH AEROSPACE GROUP
SPACE LOGISTICS.
JUN 65 75P
REPT. NO. D2-23891-1

(U)

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY: OTHERS TO BOEING CO.,
SEATTLE, WASH.

DESCRIPTORS: (*SPACE FLIGHT, *LOGISTICS), SPACE
MAINTENANCE, SPACECRAFT, LUNAR PROBES,
INTERPLANETARY TRAJECTORIES, SPACE PROBES, LAUNCH
VEHICLES(AEROSPACE), LAUNCHING SITES, RECOVERY,
GROUND SUPPORT EQUIPMENT, RELIABILITY,
MAINTENANCE, COSTS, MATHEMATICAL PREDICTION,
OPTIMIZATION, MANPOWER STUDIES, SPACE TOOLS,
TORQUE, SPACE ENVIRONMENTAL CONDITIONS

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-471 405

UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF
ELECTRICAL ENGINEERING
CONTINUOUS IDENTIFICATION OF THE PARAMETERS OF SPACE
VEHICLE DYNAMICS. (U)

DESCRIPTIVE NOTE: TECHNICAL PROGRESS REPT.,

AUG 65 40P BEKEY, GEORGE A.;

REPT. NO. USCCE-138

CONTRACT: AFO4 695 746

PROJ: AF5218

TASK: 10

MONITOR: SSD TR-65-116

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (•SPACE FLIGHT, MATHEMATICAL MODELS),
(•SPACE SURVEILLANCE SYSTEMS, IDENTIFICATION
SYSTEMS), DYNAMICS, TRAJECTORIES, ANALOG
COMPUTERS, STABILITY, DIFFERENTIAL EQUATIONS,
ERRORS, OPTIMIZATION, SPACECRAFT (U)
IDENTIFIERS: SPACECRAFT DYNAMICS (U)

AN IMPORTANT PROBLEM IN THE DETECTION AND TRACKING OF SPACE VEHICLES IS THE IDENTIFICATION OF TRAJECTORY EQUATIONS FROM FLIGHT MEASUREMENTS. IDENTIFICATION METHODS ALSO FIND AN IMPORTANT APPLICATION IN THE DETERMINATION OF MATHEMATICAL MODELS OF SYSTEM DYNAMICS FOR GUIDANCE AND CONTROL PURPOSES. IN MOST CASES, SOME KNOWLEDGE OF THE TRAJECTORY (OR PROCESS) CHARACTERISTICS IS AVAILABLE IN ADVANCE. IF THIS A PRIORI KNOWLEDGE IS USED TO FORMULATE AN ASSUMED FORM (A MODEL) OF THE PROCESS EQUATIONS, THE IDENTIFICATION PROBLEM IS REDUCED TO FINDING COEFFICIENTS OF THE MODEL SUCH THAT AN APPROPRIATE PERFORMANCE FUNCTION IS MINIMIZED. THIS REPORT IS CONCERNED WITH THE CONTINUOUS IDENTIFICATION OF DYNAMIC SYSTEM PARAMETERS USING ANALOG COMPUTER TECHNIQUES. THE USE OF ANALOG METHODS IS APPEALING BECAUSE IT SUGGESTS THE POSSIBILITY OF CONTINUOUS, ON-LINE PARAMETER OPTIMIZATION. WHILE SUCH ANALOG METHODS HAVE BEEN KNOWN FOR SOME TIME, THEIR ANALYTICAL FOUNDATION, CONVERGENCE AND STABILITY PROPERTIES ARE NOT WELL UNDERSTOOD. THIS REPORT PRESENTS A REVIEW OF CONTINUOUS IDENTIFICATION TECHNIQUES, THEIR MATHEMATICAL DIFFICULTIES, THEIR COMPUTER IMPLEMENTATION, AND THEIR CONVERGENCE AND STABILITY PROPERTIES. THE PROBLEM OF CROSSCOUPLING BETWEEN THE DESIRED COEFFICIENT VALUES IS EXAMINED BY MEANS OF A SENSITIVITY MATRIX. THE STABILITY OF THE IDENTIFICATION TECHNIQUE IS STUDIED BY MEANS OF THE SECOND METHOD OF LYAPUNOV. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-469 628

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
FACTORS INFLUENCING THE RENAL REGULATION OF CALCIUM -
IMPLICATIONS OF PROLONGED WEIGHTLESSNESS. (U)

DESCRIPTIVE NOTE: AEROMEDICAL REVIEWS,
MAY 65 27P NUNGESESSER, WILLIAM C. ;
REPT. NO. SAM-TR-65-38
TASK: 775801

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•CALCIUM, METABOLISM), (•SPACE
FLIGHT, KIDNEY FUNCTION TESTS), SPACE MEDICINE,
WEIGHTLESSNESS, BIOCHEMISTRY, SALTS, MAGNESIUM,
BLOOD PROTEINS, BONE, ABSORPTION(BIOLOGICAL),
ACID-BASE EQUILIBRIUM, DIET, BODY FLUIDS,
SOLUBILITY, SPACE FLIGHT (U)

IDENTIFIERS: KIDNEY STONES, CALCITONIN (U)

THE METABOLISM OF CALCIUM IS REVIEWED WITH SPECIAL
EMPHASIS ON METHODS OF LABORATORY DETERMINATION,
GENERAL METABOLISM, AND CALCIUM REGULATION. THE
RENAL HANDLING OF CALCIUM IS EMPHASIZED. THERE IS
A DISCUSSION OF THE FACTORS LEADING TO THE
PRECIPITATION OF KIDNEY STONES. THE AUTHOR TAKES
THE VIEW THAT IT IS UNLIKELY THAT KIDNEY STONES WILL
BE A PROBLEM IN PROLONGED SPACE FLIGHT. HOWEVER,
HE MAKES SEVERAL RECOMMENDATIONS FOR THE KEEPING OF
THESE PROBLEMS TO THE IRREDUCIBLE MINIMUM. THE
REVIEW IS ACCOMPANIED BY A TABLE SHOWING THE
PHYSICAL-CHEMICAL FACTORS OF INPUT-OUTPUT AS THEY
RELATE TO THE PHYSICAL SOLUBILITY OF CALCIUM SALTS IN
KIDNEY STONES. THE AUTHOR CONCLUDES THAT THE WHOLE
AREA OF CALCIUM AND MAGNESIUM BALANCE UNDER LOADING
CONDITIONS, THE RELATIONSHIP OF PARATHYROID AND
CALCITONIN, AND THE FACTORS AFFECTING
GASTROINTESTINAL ABSORPTION. THE REVIEW IS
INTENDED TO STUDY IN DEPTH THE FACTORS INFLUENCING
THE HANDLING OF CALCIUM BY THE KIDNEYS, INCLUDING ANY
IMPLICATIONS OF PROLONGED WEIGHTLESSNESS.
(AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-465 928

WEATHER GROUP (4TH) ANDREWS AFB WASHINGTON D C
THE RADIATION ENVIRONMENT.

(U)

JUN 65 97P

REPT. NO. 4WGP-80-6-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, RADIATION HAZARDS),
(•RADIATION HAZARDS, SPACE FLIGHT), (•SOLAR
RADIATION, ANALYSIS), SPACECRAFT, COSMIC RAYS,
SOLAR WIND, BIBLIOGRAPHIES, TERRESTRIAL MAGNETISM,
UPPER ATMOSPHERE, ELECTROMAGNETIC PROPERTIES,
SPACE BIOLOGY, ELECTRONS, GAMMA RAYS,
ELECTROMAGNETIC SHIELDING, SOLAR DISTURBANCES,
IONOSPHERE, DOSE RATE, HANDBOOKS, DOSAGE,
ELECTROMAGNETIC WAVES, SPACE ENVIRONMENTAL
CONDITIONS

(U)

IDENTIFIERS: CORPUSCULAR RADIATION

(U)

THIS PAMPHLET SUMMARIZES CURRENT KNOWLEDGE OF THE
RADIATION ENVIRONMENT. THE INTERACTIONS BETWEEN
THE SOLAR WIND AND THE EARTH'S MAGNETOSPHERE ARE
DESCRIBED IN SOME DETAIL SINCE THESE INTERACTIONS
HAVE SUCH A PROFOUND EFFECT ON THE RADIATION
ENVIRONMENT. BOTH QUALITATIVE AND QUANTITATIVE
ESTIMATES OF THE ENERGY LEVELS AND INTENSITY OF
ELECTROMAGNETIC, COSMIC, AND CORPUSCULAR RADIATION
ARE PRESENTED IN TERMS OF THEIR POTENTIAL HAZARD TO
MATERIALS AND BIOLOGICAL SPECIMENS IN AEROSPACE.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-463 146

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
SCANBACK OF THE SOVIET MANNED SPACEFLIGHT PROGRAM,
(THE VOSKHOD FLIGHTS, FUTURE PLANS, LUNAR AND MARS
PROGRAMS). (U)

DESCRIPTIVE NOTE: REPT. FOR MAY 64-APR 65 ON SURVEYS
OF SOVIETBLOC SCIENTIFIC AND TECHNICAL LITERATURE.

APR 65 146P

REPT. NO. ATD-P-65-19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•MANNED SPACECRAFT, USSR), (•SPACE FLIGHT,
USSR), REPORTS, ABSTRACTS, SATELLITES (ARTIFICIAL),
SPACECRAFT, LUNAR CRAFT, MARS PROBES, LUNAR PROBES,
RESEARCH PROGRAM ADMINISTRATION, SPACE CAPSULES,
ASTRONAUTS (U)

IDENTIFIERS: VOSKHOD, STEP (U)

THIS SCANBACK REPORT IS BASED ON A SELECTIVE
COMPILATION OF PREVIOUSLY PUBLISHED SCAN ITEMS
PREPARED BY ANALYSTS OF THE S AND T SECTION OF
THE AEROSPACE TECHNOLOGY DIVISION BETWEEN MAY
1964 AND APRIL 1965. SCAN ITEMS ARE DERIVED
PRIMARILY FROM NON-STEP SOURCES (SOVIET AND
COMMUNIST BLOC NEWSPAPERS RATHER THAN SCIENTIFIC
AND TECHNICAL PERIODICALS). CONSEQUENTLY, MATERIAL
FROM THESE SOURCES DOES NOT FIND ITS WAY INTO THE
STEP INFORMATION SYSTEM (SIS) FOR STORAGE AND
RETRIEVAL. HOWEVER, THESE SOURCES OFTEN CONTAIN
VALUABLE INFORMATION PERTAINING TO THE SOVIET
MANNED SPACEFLIGHT PROGRAM WHICH ARE DIFFICULT
FOR INTERESTED INDIVIDUALS TO LOCATE, IDENTIFY, AND
RETRIEVE AT SOME LATER DATE. THEREFORE, THE
SELECTED ABSTRACTS HAVE BEEN ASSEMBLED IN HANDY FORM
FOR PURPOSES OF REFERENCE AND REVIEW. FOR THE
READER'S CONVENIENCE, THE MATERIAL HAS BEEN GROUPED
INTO TOPICS OR SUBJECT AREAS (E.G., THE TWO
VOSKHOD FLIGHTS, THE SOVIET LUNAR PROGRAM,
AND OTHER PLANS AND PROJECTS OF THE SOVIET MANNED
SPACEFLIGHT PROGRAM) AND ARRANGED IN A FAIRLY
CHRONOLOGICAL MANNER WITHIN EACH SUBJECT AREA.
(AUTHOR) (U)

USSR

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AD-462 811

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
THE INTERNATIONAL ASPECTS OF SPACE. (U)
DESCRIPTIVE NOTE: SPECIAL BIBLIOGRAPHY,
AUG 60 36P CARROLL, K. O. ; EVANS, G. R. ;
REPT. NO. SB-60-32

UNCLASSIFIED REPORT
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SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, POLITICAL SCIENCE),
(•POLITICAL SCIENCE, SPACE FLIGHT), LAW, BIBLIOGRAPHIES,
GUIDED MISSILES, ROCKETS, FOREIGN POLICY (U)
IDENTIFIERS: ABSTRACTS (U)

BIBLIOGRAPHY ON INTERNATIONAL ASPECTS OF SPACE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-460 99D

ELECTRO-VOICE INC BUCHANAN MICH

(NO TITLE).

(U)

DESCRIPTIVE NOTE: STATUS REPT. NO. 6, 15 AUG-15 SEP
64,

SEP 64 6P RAMSEY, ROBERT C. ;

CONTRACT: AF33 615 1295

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*HELMETS, SPACE FLIGHT); (*SPACE FLIGHT,
EARPHONES), NOISE, MICROPHONES, AUDIOFREQUENCY,
SENSITIVITY, SPACECRAFT, DISTORTION, ENVIRONMENTAL
TESTS, ISOCYANATE PLASTICS, EXPANDED PLASTICS (U)

COMFORT PROBLEMS RELATED TO CAPSULE AND HELMET
ENVIRONMENTS.

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-459 621

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

DATA ON THE SOVIET SPACE PROGRAM. SUMMARY OF
DATA.

(U)

DESCRIPTIVE NOTE: SURVEYS OF SOVIET-BLOC SCIENTIFIC
AND TECHNICAL LITERATURE,

JUL 64 10P DOLGICH, A. ;

REPT. NO. ATD-U-64-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•MANNED SPACECRAFT, USSR), (•LUNAR CRAFT,
USSR), (•SPACE FLIGHT, USSR), SPACECRAFT, ANALYSIS,
SPACECRAFT CABINS, SPHERES, SHIELDING, MANEUVERING
SATELLITES, LAUNCHING

(U)

THIS REPORT DEALS IN A CONCISE AND GENERAL MANNER
WITH THE SOVIET SPACE PROGRAM; SPECIFICALLY, IT
CONTAINS A COMPREHENSIVE ANALYSIS OF DATA RELATING TO
A SOVIET LUNAR FLIGHT VEHICLE AS MENTIONED IN A
POEM ENTITLED 'THE FOREFRONT.' IN ADDITION, IT
INCLUDES SEVERAL INDICATIONS PERTAINING TO THE
MANAGEMENT OF THE SOVIET SPACE PROGRAM. THE NEXT
POSSIBLE MAJOR LAUNCH IN THE SOVIET SPACE PROGRAM
IS DISCUSSED. (AUTHOR)

(U)

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Handwritten: USSR

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-458 066L

BOEING CO SEATTLE WASH

FLIGHT MECHANICS OF SPACE VEHICLES - A SUMMARY OF
TECHNICAL RESEARCH DOCUMENTS.

(U)

MAR 65 64P

REPT. NO. D2-23848-1

UNCLASSIFIED REPORT

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DEFENSE AGENCIES IS AUTHORIZED. OTHER CERTIFIED RE-
QUESTERS SHALL OBTAIN RELEASE APPROVAL FROM BOEING CO.,
SEATTLE, WASH.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ORBITAL TRAJECTORIES, STABILITY), (*SPACE
NAVIGATION, REVIEWS), (*SPACE FLIGHT, REVIEWS),
BIBLIOGRAPHIES, ATTITUDE CONTROL SYSTEMS, MATHEMATICAL
ANALYSIS, INTERPLANETARY TRAJECTORIES, MATHEMATICAL
PREDICTION, OPTIMIZATION, LUNAR TRAJECTORIES, SATELLITES
(ARTIFICIAL), EQUATIONS, MOTION, PROGRAMMING
(COMPUTERS), DIGITAL COMPUTERS, PERTURBATION THEORY,
GUIDANCE

(U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-456 343

AEROSPACE MEDICAL DIV BROOKS AFB TEX
RESULTS OF INVESTIGATIONS CONCERNING THE BIOLOGICAL
EFFECT OF A SERIES OF COSMIC FLIGHT FACTORS, (U)
JAN 65 22P PARIN, V. V. ; ANTIPOV, V. V. ;
DAVIDOV, B. I. ; TSCHERNOV, G. A. ; PANCHENKOVA, E.
F. ;

REPT. NO. TT65 1

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SUPPLEMENTARY NOTE: TRANS. OF AN ORIGINAL PAPER PRESENTED
AT THE 15TH INTERNATIONAL AERONAUTICS FEDERATION
CONGRESS, WARSAW, POLAND, 7-12 SEP 64.

DESCRIPTORS: (•SPACE FLIGHT, STRESS (PHYSIOLOGY)),
(•SPACE MEDICINE, USSR), CARDIOVASCULAR SYSTEM,
VESTIBULAR APPARATUS, SEROTONIN, METABOLISM, LABORATORY
ORGANISMS, MICE, GUINEA PIGS, RATS, DOGS, MONKEYS, SPACE
ENVIRONMENTAL CONDITIONS, VIBRATION, ACCELERATION, GAMMA
RAYS, BIOCHEMISTRY, BLOOD CHEMISTRY, RADIATION SICKNESS,
EXPERIMENTAL DATA (U)

THE STUDY OF THE REGULATORY AND COMPENSATORY
MECHANISMS IN A FUNCTIONING ORGANISM UNDERGOING THE
VARIOUS STRESSES OF SPACE FLIGHT AND THE SEARCH FOR
MEANS OF INCREASING ITS RESISTANCE TO EXTREME
STRESSES REPRESENT ONE OF THE MOST IMPORTANT TASKS
FOR COSMIC BIOLOGY AND MEDICINE. IT HAS BEEN SHOWN
BY A NUMBER OF INVESTIGATORS THAT THE CONDITIONS
ENCOUNTERED IN COSMIC FLIGHT EVOKE CHANGES IN THE
FUNCTIONAL CONDITION OF THE CARDIOVASCULAR SYSTEM
VESTIBULAR APPARATUS AND LEAD TO SOME DEVIATIONS IN
METABOLIC PROCESSES OF THE ORGANISM. SPECIFICALLY,
WE DISCOVERED A REDUCTION IN THE CONCENTRATION OF ONE
OF THE BIOGENETIC AMINES, SEROTONIN, IN ANIMAL BLOOD,
AFTER COSMIC FLIGHT. THIS PAPER CITES RESULTS OF
EXPERIMENTS IN WHICH ANIMAL ORGANISMS WERE EXPOSED TO
VIBRATION, ACCELERATION, AND IONIZING RADIATION.
THE STUDY OF ORGANISM REACTIVITY DURING THE ACTION
OF THESE FACTORS WAS EVALUATED ACCORDING TO THE
DYNAMICS OF SEROTONIN CONTENT AND CERULOPLASMIN
ACTIVITY IN BLOOD. TESTS WERE CONDUCTED ON
SEXUALLY-MATURE ANIMALS OF BOTH SEXES: MICE, GUINEA
PIGS, RATS, DOGS, AND MONKEYS. FOUR SERIES OF
EXPERIMENTS WERE CONDUCTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-452 106

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT ACTIVITY WHITE
SANDS MISSILE RANGE N MEX
SIX DEGREE OF FREEDOM DIGITAL SIMULATION MODEL FOR
UNGUIDED FIN-STABILIZED ROCKETS, (U)

NOV 64 22P DUNCAN, LOUIS D. JENSEY,

RONALD J. J

REPT. NO. 196

TASK: 1V014501853A10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•ROCKET MODELS, ORBITAL TRAJECTORIES),
(•SPACE FLIGHT, SIMULATION), MATHEMATICAL MODELS, FIN
STABILIZED AMMUNITION, WIND, MOMENTS, AERODYNAMIC
CHARACTERISTICS, STABILITY, AERODYNAMIC LOADING, REENTRY
VEHICLES, THRUST, DIFFERENTIAL EQUATIONS, PROGRAMMING
(COMPUTERS), MATRIX ALGEBRA, TRANSFORMATIONS
(MATHEMATICS) (U)

IDENTIFIERS: EQUATIONS OF MOTION (U)

A SIX DEGREE OF FREEDOM MODEL FOR DIGITAL
SIMULATION OF THE TRAJECTORY OF AN UNGUIDED, FIN-
STABILIZED ROCKET IS DEVELOPED. A DERIVATION OF THE
EQUATIONS AND AN EXPLANATION OF THE EQUATIONS AND AN
EXPLANATION OF THE COORDINATE SYSTEMS ARE PRESENTED.
THE DEVELOPMENT ASSUMES THAT THE TRAJECTORY WILL BE
OVER A ROTATING PLANET WITH A VARIABLE ATMOSPHERE.
A SPACEVARIABLE, THREE-DIMENSIONAL WIND VECTOR IS
ASSUMED. THE EQUATIONS OF MOTION ARE DERIVED FROM
NEWTON'S LAWS OF MOTION. THE AERODYNAMIC
FORCES AND MOMENTS ARE BASED ON THE THEORY OF
STABILITY DERIVATIVES AND THE ASSUMPTION OF LINEAR
AERODYNAMICS. THE BODY AXES ARE ASSUMED TO BE
PRINCIPAL AXES OF INERTIA. (AUTHOR) (U)

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AD-450 974L

MICHIGAN UNIV ANN ARBOR INST OF SCIENCE AND
TECHNOLOGY
RESEARCH ON GUIDANCE DESIGN ANALYSIS FOR MILITARY
SPACE OPERATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JULY 63-1 AUG 64,
NOV 64 138P KAZDA, LOUIS F. ; PORTER,
WILLIAM A. ; BRADELY, HUGH E. ; KUIPERS, JACK ;
SARGENT, ROBERT G. ;

REPT. NO. 5892 2DF
CONTRACT: AF33 657 11501

PROJ: 3181

TASK: 318107

MONITOR: AL TDR64 218

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(AVNS), NAVIGATION AND GUIDANCE DIV., AVIONICS
LABORATORY, RESEARCH AND TECHNOLOGY DIV., WRIGHT-
PATTERSON AFB, OHIO.

SUPPLEMENTARY NOTE: REPORT ON GUIDANCE FOR SPACE
SYSTEMS.

DESCRIPTORS: (*SPACE FLIGHT, GUIDANCE), (*SPACE
NAVIGATION, THEORY), MATHEMATICAL MODELS, ERRORS,
DECISION MAKING, ASCENT TRAJECTORIES, DESCENT
TRAJECTORIES, TRAJECTORIES, AERODYNAMIC CHARACTERISTICS,
SATELLITES (ARTIFICIAL), INERTIAL GUIDANCE,
SPACECRAFT

(U)

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AD-449 970

MARTIN CO BALTIMORE MD RESEARCH INST FOR ADVANCED STUDIES

LIFE SUPPORT SYSTEMS FOR SPACE MISSIONS, (U)

44 13P BONGERS, LEONARD ; KOK, BESSEL

CONTRACT: AF49 638 947

MONITOR: AFOSR 64 1840

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: REPRINT FROM DEVELOPMENTS IN INDUSTRIAL MICROBIOLOGY, 5, PP. 183-195, 1964.

(COPIES SUPPLIED BY DDC)

DESCRIPTORS: (•SPACE FLIGHT, SPACE CREWS), (•SPACE CREWS, LIFE SUPPORT), WASTES (SANITARY ENGINEERING), MANNED SPACECRAFT, FOOD, WATER, OXYGEN, METABOLISM, BIOSYNTHESIS, PHOTOSYNTHESIS (U)

IDENTIFIERS: 1964 (U)

A COMPARATIVE SURVEY IS PRESENTED OF REGENERATIVE, PARTIALLY REGENERATIVE, AND NONREGENERATIVE LIFE SUPPORT SYSTEMS. ATTENTION IS FOCUSED ON METHODS FOR CONTROLLING ATMOSPHERIC GASES AND PROVIDING FOOD IN SEALED ENVIRONMENTS OCCUPIED BY A CREW. MISSION REQUIREMENTS STRONGLY INFLUENCE THE CONTROL METHODS WHICH WILL BE EMPLOYED IN THE PRECEDING ENVIRONMENTS. ALSO, MISSION TIME ESPECIALLY INFLUENCES THIS SELECTION AS AN EXAMPLE, FOR A MISSION OF SHORT DURATION, THE STORAGE OF OXYGEN, FOOD AND WATER AND THE DISPOSAL OF METABOLIC WASTE PRODUCTS IS THE OBVIOUS METHOD. HOWEVER, WITH AN EXTENSION OF MISSION TIME, CHEMICAL REGENERATION WILL PARTIALLY DISPLACE THE SIMPLE STORAGE TECHNIQUES. SPECIFICALLY, RECLAMATION IS INDICATED OF BOTH THE WASTE WATER AND SOME OF THE OXYGEN BOUND IN CARBON DIOXIDE. A FURTHER INCREASE IN MISSION TIME AND CREW SIZE MAY MAKE FOOD STORAGE UNECONOMICAL AND WOULD REQUIRE THE RECYCLING OF ALMOST ALL METABOLIC PRODUCTS. PRESENTLY, IT SEEMS UNLIKELY THAT COMPLETE REGENERATION OF CARBON DIOXIDE AND WASTE PRODUCTS CAN BE ACCOMPLISHED BY OTHER THAN BIOLOGICAL MEANS. THEREFORE, BIOSYNTHESIS PROVIDES THE ONLY METHOD OF REGENERATION FOR MISSIONS LASTING LONGER THAN SEVERAL MONTHS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-449 217

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE STORMING OF SPACE CONTINUES THE SECOND
ANNIVERSARY OF THE FLIGHT OF COSMONAUT-2.

(U)

MAR 64 9P PETROV.YE. ;

REPT. NO. 64 147

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM PRAVDA UKRAINY, P. 4,
6 AUG 63.

DESCRIPTORS: (•SPACE FLIGHT, USSR), (•ASTRONAUTS, SPACE
MEDICINE), RELIABILITY, LIFE SUPPORT, WEIGHTLESSNESS,
PHYSIOLOGY, PERFORMANCE (HUMAN), VISUAL ACUITY, PILOTS,
PROPAGANDA, TRAINING, PREPARATION, REVIEWS, SPACE
CAPSULES, ORBITAL TRAJECTORIES

(U)

IDENTIFIERS: VNSTOK

(U)

TRANSLATION OF SOVIET REPORT ON SECOND ANNIVERSARY OF
FLIGHT OF VOSTOK 2

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-447 183

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SNOSIN NON-STANDARD INPUTS FOR SCHOPS MILESTONE II,

(U)

64P

FLEISCHMAN, A. M. ; ROBINSON, A.

B. ; ZEMEL, J. ;

REPT. NO. TM795 011 00

CONTRACT: AF19 628 3418

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SATELLITE NETWORKS, PROGRAMMING
(COMPUTERS)), (•SPACE FLIGHT, PROGRAMMING (COMPUTERS)),
SPACE NAVIGATION, ORBITAL TRAJECTORIES, SATELLITES
(ARTIFICIAL), SIMULATION, FLIGHT PATHS (U)

IDENTIFIERS: 1964 (U)

THIS DOCUMENT REPORTS THAT SNOSIN MODULE USES
VARIOUS COMBINATIONS OF ORRBITAL PARAMETERS AS INPUT
TO GENERATE A TABLE (ORBTAE) OF ORBITAL PARAMETERS
FOR UP TO 32 SATELLITES USED FOR SCHOPS ORBITAL
SATELLITE SIMULATION. IT ALSO REPORTS THAT
SNOSIN WAS DEVELOPED TO OBTAIN A SET OF ORBITAL
PARAMETERS FOR SATELLITES WHOSE ORBITS ARE IN SOME
SORT OF CONFLICT. THIS PROGRAM IS DESCRIBED.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-445 500

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
BIOACOUSTIC MEASUREMENT SYSTEM FOR SPACE VEHICLE
APPLICATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

OCT 62 1V

REPT. NO. AD4928D

CONTRACT: AF04 647 791

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SPACE FLIGHT, SPACE BIOLOGY), SPACE
ENVIRONMENTAL CONDITIONS, TESTS, INSTRUMENTATION, SOUND,
ACOUSTICS, PRESSURE, ENVIRONMENTAL TESTS (U)

IDENTIFIERS: BIOACOUSTIC MEASUREMENT SYSTEM (U)

A WIDE-RANGE BIOACOUSTIC MEASUREMENT SYSTEM HAS
BEEN DESIGNED AND SUCCESSFULLY QUALIFIED FOR SPACE
FLIGHT USE. THE SYSTEM CONSISTS OF A MICROPHONE
SENSOR, DC/DC CONVERTER, AND AMPLIFIER, AND WEIGHS 26
OUNCES. THE UNIT SENSES THE ACOUSTIC ENVIRONMENT
IN THE RANGE FOR BIO-SUBJECTS, 110 TO 135 DB AND 5.0
TO 8,700 CPS, AND PROVIDES AN APPROPRIATE SIGNAL FOR
TRANSMISSION ON A SINGLE CHANNEL OF TELEMETRY. THE
SYSTEM AND QUALIFICATION TESTS ARE DESCRIBED.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-441 410

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

PLASMA VOLUME RESPONSE TO WATER IMMERSION:
IMPLICATIONS FOR SPACE FLIGHT,

(U)

43 3P MCCALLY, MICHAEL ;

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: REPRINT FROM AEROSPACE MEDICINE,
35:2, PP. 130-132, FEB 64. (COPIES SUPPLIED BY DDC)

DESCRIPTORS: (*SPACE FLIGHT, SIMULATION), (*BLOOD
VOLUME, SPACE FLIGHT), BLOOD PLASMA, DIURETICS, BODY
FLUIDS, HEMATOCRIT, HEMOGLOBIN, WEIGHTLESSNESS

(U)

IDENTIFIERS: WATER IMMERSION

(U)

CHANGE IN PLASMA VOLUME OF FIVE SUBJECTS WAS
MEASURED DURING SIX HOURS OF COMPLETE WATER IMMERSION
AND DURING SIX HOURS OF OFFICE ACTIVITY CONTROL BY
HEMOGLOBIN AND HEMATOCRIT DILUTION AND WITH RADIO-
IODINATED SERUM ALBUMIN (RISA) TECHNIQUES. THE
MEAN PLASMA VOLUME INCREASED 9 PER CENT DURING THE
FIRST 25 MINUTES OF IMMERSION AND THEN DECREASED OVER
THE NEXT 4 TO 6 HOURS TO APPROXIMATELY 11 PER CENT
LESS THAN THE ZERO TIME VALUE. THE REPEATED
INJECTION AND SAMPLING OF RISA IS NOT A SUITABLE
TECHNIQUE FOR THE MEASUREMENT OF ACUTE CHANGES IN
PLASMA VOLUME. THE MECHANISMS OF THE WATER
IMMERSION DIURESIS AND POST-IMMERSION ORTHOSTATIC
INTOLERANCE ARE DISCUSSED AND INFERENCES MADE TO
HUMAN EXPOSURE TO WEIGHTLESSNESS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-440 473

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO
PERSONAL ENVIRONMENTAL PROTECTION FOR LUNAR AND OTHER
SPACE MISSIONS, (U)

MAR 64 17P SCHUELLER, OTTO ;

PROJ: 6301

TASK: 630104

MONITOR: AMRL, TDR64 18

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RELEASE OR ANNOUNCEMENT TO FOREIGN GOVERNMENTS OR THEIR
NATIONALS IS NOT AUTHORIZED.

SUPPLEMENTARY NOTE: PRESENTED AT A CONFERENCE

'OPERATION MOONFLIGHT,' FEB 1963, HELD AT THE USAF
SCHOOL OF AEROSPACE MEDICINE, BROOKS AFB, TEXAS.

DESCRIPTORS: (•PRESSURE SUITS, SPACE FLIGHT), (•SPACE
FLIGHT, PRESSURE SUITS), PROTECTIVE CLOTHING, SPACE
STATIONS, EXTRATERRESTRIAL BASES, LUNAR BASES, HEAT,
HUMIDITY, DESIGN, CONTROL, SCIENTIFIC RESEARCH (U)

IDENTIFIERS: BIOASTRONAUTICS, OPERATION MOONFLIGHT,
PROTECTIVE ASSEMBLIES (U)

THIS REPORT CONCERNS THE AREA OF PERSONAL
ENVIRONMENT PROTECTION. SOME REQUIREMENTS FOR
INTRAVEHICULAR AND EXTRAVEHICULAR PERSONAL PROTECTIVE
ASSEMBLIES FOR VARIOUS LUNAR AND OTHER SPACE MISSIONS
ARE DEFINED AND THE PROBLEMS AND CRITERIA OF
MOBILITY, PRESSURIZATION, HEAT AND HUMIDITY CONTROL
ARE DISCUSSED. SOME DEVELOPMENTAL POSSIBILITIES
AND SOME AREAS REQUIRING BIOMEDICAL RESEARCH ARE
INDICATED. THE NECESSITY FOR AN AEROSPACE
ENVIRONMENT TEST AND RESEARCH FACILITY IS
SHOWN AND A DESIGN PROPOSAL, PARTICULARLY ADAPTED TO
THE SPECIFIC REQUIREMENTS OF BIOASTRONAUTICS, IS
DISCUSSED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-438 436

RAND CORP SANTA MONICA CALIF

SPACE ARMS CONTROL: TRENDS, CONC PTS, PROSPECTS, (U)

FEB 64 23P FRYE, ALTON ;

REPT. NO. P 2873

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•NATIONAL DEFENSE, UNITED STATES), (•SPACE

FLIGHT, DISARMAMENT), (•DISARMAMENT, SPACE FLIGHT),

USSR, ARMS CONTROL, COSTS, FOREIGN POLICY, THEORY,

MILITARY ORGANIZATIONS, MILITARY STRATEGY (U)

IDENTIFIERS: KENNEDY, JOHN F (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-435 734

NORTHROP SPACE LABS HAWTHORNE CALIF
MODEL ASTRONAUT RADIATION DOSE DISTRIBUTION
ANALYSIS.

(U)

DESCRIPTIVE NOTE: REPT. FOR JUL-SEP 63,
FEB 64 21P FORTNEY, R. E. ; DUCKWORTH, G.
E. ;

REPT. NO. 63 172
CONTRACT: AF33 657 11010
PROJ: 6301
TASK: 630101
MONITOR: AMRL TDR64 9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON AEROSPACE SYSTEMS
PERSONNEL PROTECTION.

DESCRIPTORS: (•RADIATION TOLERANCE, ASTRONAUTS),
(•RADIOLOGICAL DOSAGE, SPACE FLIGHT), (•SPACE FLIGHT,
RADIATION TOLERANCE), MODELS (SIMULATIONS), SPACE
ENVIRONMENTAL CONDITIONS, VAN ALLEN RADIATION BELT,
SOLAR FLARES, PROTONS, MANNED SPACECRAFT, DOSE RATE,
RADIOBIOLOGY, MATHEMATICAL MODELS, SHIELDING (U)
IDENTIFIERS: 1964 (U)

RADIATION TOLERANCE LEVELS VARY FOR THE DIFFERENT
VITAL BODY ORGANS AND, THEREFORE, THE RADIATION DOSE
DISTRIBUTION IN AN ASTRONAUT MAY BE CRITICAL IN
FUTURE SPACE ENDEAVORS. THIS STUDY WAS INITIATED
TO DETERMINE ANALYTICALLY THE DOSE DISTRIBUTION
INSIDE A MODEL ASTRONAUT. THE BASIS OF THE
MATHEMATICAL FORMULATION FOR DETERMINING THIS
DISTRIBUTION IS PRESENTED IN THIS REPORT.
PARTICLES OF THE AMBIENT ENVIRONMENT WERE ASSUMED
TO IMPINGE ISOTROPICALLY ON THE APOLLO COMMAND
MODULE (CM). THE RADIATION WAS ATTENUATED
THROUGH A TYPICAL VEHICLE WALL THICKNESS AND MEAN
DOSE RATES AT VARIOUS DEPTHS IN A MODEL ASTRONAUT
WERE CALCULATED. FOUR DEPTHS WERE INVESTIGATED,
EACH HAVING APPROXIMATELY 175 POINTS AT WHICH THE
DOSE WAS CALCULATED. TWO SPECTRA WERE CONSIDERED
ONE FOR VAN ALLEN PROTONS AND THE OTHER
REPRESENTING SOLAR FLARE PROTONS. THE RESULTS ARE
PRESENTED IN GRAPHICAL FORM, GIVING DOSE VERSUS DEPTH
IN THE MODEL ASTRONAUT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-434 656

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
USE OF COMIC EFFECT FOR CONTROL OF DYSFUNCTIONAL
HUMAN BEHAVIOR IN OUTER SPACE,

(U)

63 8P FRIEDMAN, LEE A. ;

REPT. NO. SP1123

UNCLASSIFIED REPORT

REPRINT FROM HUMAN FACTORS THE JNL. OF THE HUMAN
FACTORS SOCIETY, PP. 355-362, AUG 63. (COPIES NOT
SUPPLIED BY DDC)

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, STRESS (PHYSIOLOGY)),
(•STRESS (PHYSIOLOGY), SPACE FLIGHT), MANNED, CONTROLLED
ATMOSPHERES, CONFINED ENVIRONMENTS, CONTROL SYSTEMS,
STRESS (PSYCHOLOGY), FATIGUE (PHYSIOLOGY), SENSORY
DEPRIVATION, BEHAVIOR, ADAPTATION (PHYSIOLOGY), CLOSED
ECOLOGICAL SYSTEM, PSYCHOMETRICS, SOCIAL COMMUNICATION,
SOCIOMETRICS, ATTITUDES, REACTION PSYCHOLOGY (U)

IDENTIFIERS: (•SPACE FLIGHT, STRESS
(PHYSIOLOGY)), (•STRESS (PHYSIOLOGY),
SPACE FLIGHT), MANNED, CONTROLLED ATMOSPHERES,
CONFINED ENVIRONMENTS, CONTROL SYSTEMS, STRESS
(PSYCHOLOGY), FATIGUE (PHYSIOLOGY),
SENSORY DEPRIVATION, BEHAVIOR, ADAPTATION
(PHYSIOLOGY), CLOSED ECOLOGICAL SYSTEM,
PSYCHOMETRICS, SOCIAL COMMUNICATION,
SOCIOMETRICS, ATTITUDES, REACTION PSYCHOLOGY (U)

THE LITERATURE IN THE FIELD OF HUMAN FACTORS
SUGGESTS THAT THERE IS A SUBSTANTIAL NEED FOR
DEVELOPING CERTAIN CONTROLS OVER EXPECTED HUMAN
REACTIONS TO THE ISOLATION AND HOSTILE ENVIRONMENT IN
OUTER SPACE. THESE STUDIES CITE NUMEROUS
EXPERIMENTAL AND EXPERIENTIAL SITUATIONS IN WHICH
HUMAN PARTICIPANTS HAD MANIFESTED DYSFUNCTIONAL
REACTIONS TO STRESS, UNKNOWN DANGERS AND ISOLATION.
A HYPOTHESIS IS PUT FORTH THAT THE COMIC EFFECT AS
A MAJOR PART OF STRUCTURED LEISURE TIME ACTIVITIES
CAN DO MUCH TO PREVENT AND/OR AMELIORATE THESE HUMAN
REACTIONS SO THAT ASTRONAUTS CAN EFFECTIVELY
ACCOMPLISH SYSTEM MISSIONS EVEN UNDER STRAIN
SITUATIONS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-431 163

GENERAL AMERICAN TRANSPORTATION CORP NILES ILL
METHOD OF HEATING FOODS DURING AEROSPACE FLIGHT,

(U)

DEC 63 35P NUCCIO, P. P. ; LIS, S. J. ;
REPT. NO. MR1187 60
CONTRACT: AF33 657 7922
PROJ: 6373
TASK: 637305
MONITOR: AMRL TDR63 135

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•FOOD, HEATING), (•SPACE FLIGHT, FOOD),
CONTAINERS, SPACE FLIGHT, TEST METHODS, MODELS
(SIMULATION), WEIGHT, FEASIBILITY STUDIES (U)
IDENTIFIERS: EXTERNAL HEATING, FOOD WARMER, INTERNAL
HEATING PROBE, 1963 (U)

A FEASIBILITY STUDY OF METHODS FOR HEATING FOODS DURING AEROSPACE FLIGHT HAS SHOWN THAT ELECTRICAL RESISTANCE HEATING IS THE MOST EFFECTIVE TECHNIQUE. AN INTERNAL HEATING PROBE IS MORE EFFICIENT THAN EXTERNAL HEATING, BUT SPECIAL FOOD CONTAINERS ARE REQUIRED. A FULL-SCALE ENGINEERING MODEL OF AN EXTERNAL HEATING FOOD WARMER, CAPABLE OF HEATING AVAILABLE FOOD CONTAINERS, WAS DESIGNED, FABRICATED, AND EVALUATED. THIS MODEL HAS THREE SEPARATELY CONTROLLED STATIONS FOR MOUNTING FLEXIBLE HEATERS THAT ARE WRAPPED AROUND THE CONTAINER TO BE HEATED. THE SYSTEM OCCUPIES A VOLUME LESS THAN 288 CUBIC INCHES AND WEIGHS LESS THAN 4 POUNDS, WHEN PROVIDED WITH SIX HEATER ASSEMBLIES. LABORATORY TESTS VERIFIED THAT THE SYSTEM MEETS THE REQUIREMENTS SPECIFIED, AND IT CAN HEAT A 6-OUNCE CAN OF HAM AND EGGS FROM 75 F TO 160 F WITH LESS THAN 14 WATT-HOURS OF ENERGY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-427 813

DIRECTORATE OF SCIENTIFIC INFORMATION SERVICES OTTAWA
(ONTARIO)

BIBLIOGRAPHY OF DRB SPACE RESEARCH PUBLICATIONS (TO
JUNE 1963), (U)

NOV 63 22P PENNER, R. J. ;

MONITOR: DSIS

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, SCIENTIFIC RESEARCH),
(•SCIENTIFIC RESEARCH, SPACE FLIGHT), (•BIBLIOGRAPHIES,
SPACE FLIGHT), ABSTRACTS, ASTRONAUTICS (U)

IDENTIFIERS: (•SPACE FLIGHT, SCIENTIFIC
RESEARCH), (•SCIENTIFIC RESEARCH, SPACE
FLIGHT), (•BIBLIOGRAPHIES, SPACE FLIGHT),
ABSTRACTS, ASTRONAUTICS (U)

BIBLIOGRAPHY OF DRB SPACE RESEARCH PUBLICATION.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-426 671

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
LABOR (SELECTED ARTICLES).

(U)

DEC 63 15P

MONITOR: FTD TT63 1045

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM TRUD, PP. 1 AND 2, 12
APR 62.

DESCRIPTORS: (•SPACE FLIGHT)STRONAUTICS),
ASTRONAUTS, SPACE NAVIGATION, SPACE MEDICAL,
SPACECRAFT, ASTRONOMY, SOLAR RADIATION,
TRAINING.

(U)

IDENTIFIERS: SELECTED ARTICLES, USSR, 1962.
AEROSPACE.

(U)

RUSSIAN TRANSLATIONS; A YEAR AFTER THE FIRST FLIGHT; THE
FIRST PASSEP ALONG INTERPLANETARY PATHS; BEYOND THE
LIMITS OF THE ATMOSPHERE.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-426 074

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
THE DECEMBER 1962 REPORT OF THE RBE COMMITTEE TO THE
ICRP AND ICRU IN ITS IMPLICATIONS FOR THE ASSESSMENT
OF PROTON RADIATION EXPOSURE IN SPACE. (U)

OCT 63 13P SCHAEFER, HERMANN J. ;

PROJ: MR005 13 1002

MONITOR: NAVMEO

MR005 13 1002 26

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, RADIATION HAZARDS),
(•PROTON BEAMS, MEASUREMENT), PROTONS, DOSE RATE,
DOSIMETERS, VAN ALLEN RADIATION BELT, SOLAR FLARES, X
RAYS, NEUTRONS, RADIOLOGICAL DOSAGE (U)
IDENTIFIERS: LINEAR ENERGY TRANSFER, 1963 (U)

SOME OF THE IMPLICATIONS OF NEW RULES SET FORTH IN
THE REPORT NAMED IN THE TITLE CONCERNING EXPOSURE TO
PROTON RADIATIONS IN SPACE ARE DISCUSSED. THE
PROPOSED FORMULAE ASSIGNING PRECISE VALUES OF
RELATIVE BIOLOGICAL EFFECTIVENESS (RBE- AND
QUALITY FACTOR (QF) TO ANY GIVEN LINEAR
ENERGY TRANSFER (LET) ARE EVALUATED FOR TYPICAL
SPECTRA OF X-RAYS, FLARE PRODUCED PROTONS, AND
NEUTRON RECOIL PROTONS. THE RESULTS ESSENTIALLY
RECONFIRM EARLIER ASSESSMENTS ESTABLISHED ON THE
BASIS OF THE RECOMMENDATIONS IN NBS HANDBOOK 59.
SINCE THE REPORT RE-EMPHASIZES THE BASIC DIFFERENCE
BETWEEN LOW LET AND HIGH LET RADIATION WITH
REGARD TO RESIDUAL DAMAGE FROM LOW DOSE RATE
EXPOSURES, OPERATIONS PROVIDE WAYS AND MEANS FOR
SEPARATE MEASUREMENT OF THE TWO FRACTIONS OF
EXPOSURES TO PROTON BEAMS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-423 799

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

EMERGENCY LIFE SUSTAINING SYSTEM FOR SPACECRAFT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 63 9P SEELER, HENRY W. ;

REPT. NO. AMRL-TDR-63-82

PROJ: AF-6373

TASK: 637305

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON EQUIPMENT FOR LIFE
SUPPORT IN AEROSPACE.

DESCRIPTORS: (•LIFE SUPPORT, SPACE FLIGHT), (•SPACE
FLIGHT, LIFE SUPPORT), PROTECTIVE CLOTHING, PRESSURE
BREATHING, OXYGEN EQUIPMENT, DESIGN, PROTECTIVE MASK,
HELMETS, GENERATORS, PRESSURE SUITS (U)

IDENTIFIERS: 1963, UNIFORM, PRESSURIZATION SYSTEM,
OXYGEN CANDLE, COMPRESSION TUBE, EMERGENCY (U)

A CONCEPT FOR A COMPLETE EMERGENCY LIFE SUSTAINING
SYSTEM FOR USE DURING FAILURE OF THE NORMAL
PRESSURIZATION SYSTEM IN A SPACECRAFT IS ADVANCED.
THE SYSTEM INCLUDES FOUR COMPONENTS: (1) AN
ASTRONAUTS UNIFORM WITH A BUILTIN MECHANICAL
PRESSURIZATION SYSTEM, (2) A PRESSURE-BREATHING
DEMAND-REGULATOR, (3) AN AUTOMATICALLY ACTUATED
SYSTEM OF SOLID CHEMICAL OXYGEN CANDLES, AND (4)
A ONE-MAN COMPRESSION TUBE. THIS SYSTEM HAS BEEN
PARTIALLY FABRICATED AND APPEARS WORTHY OF FURTHER
DEVELOPMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-423 218

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV
CLOSED ECOLOGIES FOR MANNED INTERPLANETARY FLIGHT,

(U)

OCT 63 35P KONIKOFF, J. J. ;
REPT. NO. R635083

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: PRESENTED AT AIAA MEETING ON
ENGINEERING PROBLEMS OF MANNED INTERPLANETARY
EXPLORATION, 1 OCT 63, PALO ALTO, CALIFORNIA.

DESCRIPTORS: (•CLOSED-CYCLE ECOLOGICAL SYSTEM, SPACE
FLIGHT), (•SPACE FLIGHT, LIFE SUPPORT), SURVIVAL, WATER,
NUTRITION, ECOLOGY, OXYGEN, FOOD, ODORS, URINE,
PERSPIRATION, EXCRETION, PHYSIOLOGY, MANNED (U)

IDENTIFIERS: 1963 (U)

TWO SYSTEMS HAVE BEEN DESCRIBED IN THIS PAPER FOR
THE SUPPORT OF HUMAN LIFE IN SEALED SPACE VEHICLES.
THE FIRST SYSTEM, A PHYSIO-CHEMICAL ECOLOGY, HAS A
NUMBER OF IMMEDIATE ADVANTAGES: IT IS COMPOSED OF
SUBSYSTEMS WHICH HAVE BEEN FOUND TO BE FEASIBLE BY
EXPERIMENTAL METHODS; AS A RESULT OF THIS FEASIBILITY
AND THE REGENERATION AND RECOVERY OF MAN'S METABOLIC
WASTE MATERIALS, LARGE WEIGHT SAVINGS CAN BE EFFECTED
OVER A FINITE FLIGHT TIME; SINCE THE SUBSYSTEMS
COMPRISE KNOWN REACTIONS AND TO A GREAT EXTENT KNOWN
YIELDS FROM THESE REACTIONS, THE SO-CALLED LEAD TIME
IN ASSEMBLING SUCH A COMPLETE LIFE SUPPORT SYSTEM
SHOULD BE RELATIVELY SHORT. IN FACT, IT IS
ESTIMATED THAT WITHIN PERHAPS ONE TO TWO YEARS A
SYSTEM OF THE TYPE DESCRIBED COULD BE ASSEMBLED AND
TESTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-421 729

CALIFORNIA UNIV LOS ANGELES

EEG IN SIMULATED STRESSES OF SPACE FLIGHT WITH
SPECIAL REFERENCE TO PROBELMS OF VIBRATION, (U)

JUL 62 16P ADEY,W. R. ;WINTERS,W. D. ;

KADO,R. T. ;DELUCCHI,M. R. ;

CONTRACT: AF-AFOSR-61-81, AF-AFOSR-246-63

MONITOR: AFOSR 5346

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: REPRINT FROM ELECTROENCEPHALOGRAPHY
AND CLINICAL NEUROPHYSIOLOGY 15, PP. 305-320, 1963.

(COPIES SUPPLIED BY DDC)

DESCRIPTORS: (•SPACE FLIGHT, STRESS (PHYSIOLOGY)),
(•STRESS (PHYSIOLOGY), SPACE FLIGHT), (•VIBRATION, SPACE
MEDICINE), SIMULATION, ELECTROENCEPHALOGRAPHY,
INSTRUMENTATION, NERVOUS SYSTEM, PHYSIOLOGY (U)

IDENTIFIERS: 1963 (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-421 580

NORTH AMERICAN AVIATION INC DOWNEY CALIF
SPACE LOGISTICS TECHNICAL DOCUMENTATION.

(U)

OCT 62 59P

REPT. NO. SID62 1215

UNCLASSIFIED REPORT

DISTRIBUTION; MICROFICHE ONLY AFTER ORIGINAL COPIES
EXHAUSTED.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SPACE FLIGHT, LOGISTICS), (•MANNED
SPACECRAFT, LOGISTICS), RENDEZVOUS TRAJECTORIES,
RENDEZVOUS GUIDANCE, MANNED SPACECRAFT, SPACE STATIONS,
SPACECRAFT, BIBLIOGRAPHIES, SATELLITES (ARTIFICIAL) (U)
IDENTIFIERS: 1962 (U)

LOGISTICS IS A VITAL PART OF SPACE PROJECTS.
SPACE EXPLORATION WILL BE ACCOMPLISHED BY THE
TRINITY: DESIGN, OPERATIONS, AND LOGISTICS
ENGINEERING. WHETHER IN SPACE OR ON THE GROUND,
LOGISTICS MUST ADVANCE IN UNISON WITH STATE-OF-THE ART
IN DESIGN. THE ULTIMATE RACE FOR SPACE WILL BE WON
BY THE NATION THAT DEVELOPS THE GREATEST CAPABILITY
IN SPACE LOGISTICS. IT IS NECESSARY TO SYNCHRONIZE
DESIGN, OPERATIONS, AND LOGISTICS FROM CONCEPTION TO
EXPLORATION, AND TO RECOGNIZE THE IMPORTANCE OF
ADVANCE PLANNING AND COORDINATION. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-420 298

CALIFORNIA UNIV LOS ANGELES

NEUROPHYSIOLOGICAL ASPECTS OF SPACE FLIGHT. PART II.

PHYSIOLOGICAL ASPECTS OF MANNED LUNAR FLIGHT, (U)

41 1V WINTERS, W. D. ; KADO, R. T. ;

ADEY, W. R. ;

CONTRACT: AF49 638 686

MONITOR: AFOSR J1066

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: REPRINT FROM SYMPOSIUM MANNED
LUNAR FLIGHT, VOL. 10, ADVANCES IN THE ASTRONAUTICAL
SCIENCES, PP. 181-209, DEC 61. (COPIES SUPPLIED BY
DDC)

DESCRIPTORS: (•LUNAR PROBES, MANNED), (•SPACE FLIGHT,
PHYSIOLOGY), (•PHYSIOLOGY, SPACE FLIGHT), NEUROLOGY,
SIMULATIONS, BEHAVIOR, ELECTROENCEPHALOGRAPHY, SPACE
MEDICINE, CATS, PRIMATES, ACCELERATION, HISTOLOGY,
VIBRATION, PERFORMANCE TESTS, REACTION (PSYCHOLOGY),
SYMPOSIA (U)

IDENTIFIERS: 1961 (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-415 957

GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y
RESEARCH ON "OPTIMIZATION THEORY" AND AEROSPACE
APPLICATIONS.

(U)

AUG 63 33P

MONITOR: AFOSR 5233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•CONTROLLABLE THRUST ROCKET MOTORS,
TRAJECTORIES), (•SPACE FLIGHT, OPTIMIZATION), FLIGHT
PATHS, ROCKET TRAJECTORIES, MATHEMATICAL ANALYSIS,
CALCULUS OF VARIATIONS, DIFFERENTIAL EQUATIONS,
FUNCTIONAL ANALYSIS

(U)

IDENTIFIERS: 1963, TREFFTZ-FRIEDRICHS DUALITY
PRINCIPLE

(U)

THE MATHEMATICAL STUDIES PRESENTED INCLUDE
RESEARCH IN SUCCESSIVE APPROXIMATION
TECHNIQUES, THE RELATION OF TRANSVERSAL
SURFACE THEORY TO NECESSARY CONDITIONS,
STUDY OF SINGULAR EXTREMALS, TREFFTZ-
FRIEDRICHS DUALITY PRINCIPLE, AS WELL AS
OPTIMAL MULTISTAGE ROCKET FLIGHT AND OTHER
DISCONTINUOUS VARIATIONAL PROBLEMS.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-413 389.

RUTGERS - THE STATE UNIV NEW BRUNSWICK N J
LIBRARY SERVICE FOR THE MARTIAN EXPLORATION
EXPEDITION,
MAY 63 IV POTTS, RINEHART S.;

(U)

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (•SPACE FLIGHT, MARS), (•MARS,
BIBLIOGRAPHIES), (•MARS PROBES), EXTRA
TERRESTRIAL TOPOGRAPHY, INTERPLANETARY
TRAJECTORIES, GEOPHYSICAL PROSPECTING, SCIENTIFIC
RESEARCH, ASTRONAUTICS.

(U)

IDENTIFIERS: 1963.

(U)

A BIBLIOGRAPHY WAS PREPARED TO SUPPORT A
MARTIAN EXPEDITION. IT INCLUDES REFERENCE TO
THE PHYSICAL NATURE OF MARS AND ITS SATELLITES, THE
MECHANICS OF A ROUND TRIP TO MARS, ADVICE SENT BY A
NUMBER OF EXPERTS IN ASTRONAUTICS AND POLAR
EXPLORATION, AND DESCRIPTIONS OF WHO WERE ASKED FOR
SUGGESTIONS, GIVING THE PROBABLE PLANETARY
OPERATIONS, SUCH AS GEOPHYSICAL EXPLORATION,
BIOLOGICAL TESTING. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-412 641

BELL AEROSYSTEMS CO BUFFALO N Y
DEVELOPMENT OF VISUAL SIMULATION TECHNIQUES FOR
ASTRONAUTICAL FLIGHT TRAINING, VOLUME I: HIGH
RESOLUTION TELEVISION; ELECTRONIC PLANETARIUM. (U)
DESCRIPTIVE NOTE: FINAL REPT., JAN 61-MAY 62,
1V BUDDENHAGEN, T.F.; JOHNSON,
A.B.; STEPHAN, S.C.; WOLPIN, AND M.P.;
CONTRACT: AF33 616 7802
PROJ: 6114
TASK: 611405
MONITOR: AMRL TDR63 54, VOL. 1,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON TRAINING EQUIPMENT,
SIMULATORS, AND TECHNIQUES FOR AIR FORCE SYSTEMS.

DESCRIPTORS: (+SPACE FLIGHT, TRAINING DEVICES),
(+SPACE ENVIRONMENTAL CONDITIONS, SIMULATION),
TELEVISION DISPLAY SYSTEMS, ASTRONAUTICS. (U)
IDENTIFIERS: 1963. (U)

A PROGRAM WAS CONDUCTED TO STUDY EXTRA WIDEBAND
CLOSED CIRCUIT TELEVISION, TO EXPERIMENTALLY EVALUATE
AVAILABLE HIGH RESOLUTION CLOSED CIRCUIT TELEVISION
AND HIGH GAIN PROJECTION SCREENS, AND TO DEVELOP A
TECHNIQUE FOR THE ELECTRONIC GENERATION OF THE
CELESTIAL STAR FIELD. THESE SUBJECTS WERE SELECTED
FROM THE PROBLEM AREAS RECOMMENDED FOR FURTHER STUDY
AND DEVELOPMENT IN THE PRELIMINARY PHASE OF THIS
STUDY, REPORTED IN WRIGHT AIR DEVELOPMENT
DIVISION TECHNICAL REPORT 60-756, 'A STUDY
OF VISUAL SIMULATION TECHNIQUES FOR ASTRO
NAUTICAL FLIGHT TRAINING.' THE STATE-OF-THE-ART
OF WIDEBAND TELEVISION WAS STUDIED AND PERFORMANCE
GROWTH FOR THE NEXT TEN YEARS IS PREDICTED. THE
EXPERIMENTAL EVALUATION OF A 20-MC TELEVISION SYSTEM
LED TO A GREATER UNDERSTANDING OF THE CAPABILITIES
AND LIMITATIONS OF WIDEBAND TELEVISION SYSTEMS.
THE INVESTIGATION OF HIGH GAIN PROJECTION SCREENS
EXAMINED THE AREAS OF SIMULATION IN WHICH THE VARIOUS
TYPES OF SCREEN MATERIAL ARE MOST USEFUL AND THOSE IN
WHICH FURTHER DEVELOPMENT IS NEEDED TO REALIZE THE
FULL POTENTIALS OF MATERIAL DESIGNS. THE
DEVELOPMENT OF THE ELECTRONIC GENERATION OF THE
CELESTIAL STAR FIELD DEMONSTRATES THE FEASIBILITY OF
THE ELECTRONIC STORAGE OF DIGITAL DATA FOR THE
DESCRIPTION OF VISUAL SCENES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-412 011

JOINT PUBLICATIONS RESEARCH SERVICE WASHINGTON D C
TRANSLATIONS ON SPACE SCIENCE.

(U)

OCT 62 37P

REPT. NO. 15936

UNCLASSIFIED REPORT

TRANS. OF MLODY TECHNIK (POLAND) 1962, NO. 7
(168) PP. 25-29, 52-56; NO. 8 (169) PP. 34-43; AND
FROM PRAVDA (CZECHOSLOVAKIA) 1962, NO. 274A, 4
OCT, P. 2. ALSO FROM OTS FOR \$3.60 AS REPT. 3669.

DESCRIPTORS: (•SPACE FLIGHT), (•SATELLITES
(ARTIFICIAL)), (•EXTRATERRESTRIAL RADIO WAVES),
(•ROCKET PROPULSION), (•NEBULAE),
COMMUNICATION SYSTEMS, TRACKING, ASTRONAUTICS,
ION SOURCES, ANNIHILATION REACTIONS, MOON,
ASTROPHYSICS.

(U)

IDENTIFIERS: JPRS, 1962.

(U)

TRANSLATION OF FOREIGN RESEARCH ON SPACE SCIENCE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-410 499

ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

A REVIEW OF IN-FLIGHT SIMULATION PERTINENT TO
PILOTED SPACE VEHICLES, (U)

JUL 63 19P ARMSTRONG, NEIL A.; HOLLEMAN,

EUCLID C.;

MONITOR: AGARD 403

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: PRESENTED AT THE TWENTY-FIRST
MEETING OF THE FLIGHT MECHANICS PANEL OF AGARD, 6-
10 JULY 62, HELD IN PARIS.

DESCRIPTORS: (•SPACE FLIGHT, SIMULATION),
AIRCRAFT, SPACECRAFT, LAUNCHING, ORBITAL TRA
JECTORIES, ATMOSPHERE ENTRY, LANDINGS, CONTROL,
ABANDONMENT, CONTROL SYSTEMS, STABILITY, BOOST
GLIDE VEHICLES, LUNAR CRAFT, ABORT, JET FIGHTERS,
AEROSPACE PLANES, MANNED SPACECRAFT, RECOVERY,
PARAWINGS. (U)

IDENTIFIERS: 1962, NATO, F-104 AIRCRAFT, X-15
AIRCRAFT. (U)

THIS REPORT SHOWS HOW THE ENVIRONMENT OF ACTUAL
FLIGHT MAY BE USED TO SIMULATE MANY PHASES OF MANNED
SPACE EXPLORATION. A NUMBER OF SIMULATIONS USING
CONVENTIONAL, MODIFIED, AND SPECIALLY BUILT AIRCRAFT
ARE DISCUSSED IN RELATION TO THE PORTION OF SPACE
FLIGHT TO WHICH THEY ARE GENERALLY APPLICABLE, THAT
IS THE LAUNCH, ORBITAL, ENTRY, OR THE LANDING-
APPROACH PHASE. INASMUCH AS THIS REPORT IS A
SURVEY, ONLY THE SCOPE OF THE INVESTIGATIONS IS
INDICATED; NO DETAILED DESCRIPTIONS OF, OR
CONCLUSIONS FROM, THE RESEARCH PROGRAMS ARE GIVEN.
QUANTITATIVE RESULTS MAY BE EXTRACTED FROM THE
PAPERS MENTIONED IN THE REFERENCES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-409 050

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AVIATION AND COSMONAUTICS (AVIATSIYA I KOS
MONAVTIKA).

(U)

SEP 62 178P

REPT. NO. FTD-ST-62-9.

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (*SPACE FLIGHT, SPACE MEDICINE),
(*SPACECRAFT, SPACE COMMUNICATION SYSTEMS),
(*ASTRONAUTS, TRAINING), (*ASTRONAUTICS,
PERIODICALS) (SPACECRAFT CABINS, GEOLOGY,
SPACE BIOLOGY, LAUNCHING, SPACE CAPSULES).

(U)

IDENTIFIERS: 1962, USSR, VOSTOK.

(U)

TRANSLATION OF SOVIET ARTICLES FROM AVIATION AND
COSMONAUTICS ON THE FLIGHT OF VOSTOKS 3 AND 4.
BIOGRAPHIES OF COSMONAUTS. STATEMENTS OF POLITICIANS
CONCERNING THE FLIGHT.

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-407 379

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
TRENDS IN MISSILE AND SPACE RADIO TELEMETRY,
62 45P MUEHLNER, JOACHIM W. ;

(U)

REPT. NO. LMSC5 10 62 28

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TELEMETER SYSTEMS, COMMUNICATION
THEORY), (•SPACE FLIGHT, TELEMETER SYSTEMS),
(•MODULATION, TELEMETER SYSTEMS), RADIO
COMMUNICATIONS SYSTEMS, MULTIPLEX, BANDWIDTH,
STANDARDIZATION, DIGITAL SYSTEMS, CODING, GUIDED
MISSILES, MODULATING, FREQUENCY MODULATION, PULSE
MODULATION, TIME, PHASE MODULATION

(U)

IDENTIFIERS: DIGILOCK

(U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-404 259

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
METEORIDS AS A POSSIBLE HAZARD TO SPACE VEHICLE
OPERATIONS; AN ANNOTATED BIBLIOGRAPHY,

(U)

MAY 63 41P ROS,COMP.BY CHARLES G.I

REPT. NO. 3 35 63 1;

CONTRACT: AFO4 647 787

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, BIBLIOGRAPHIES,
SPACE ENVIRONMENTAL CONDITIONS, AVIATION SAFETY,
ASTRONAUTICS, HAZARDS, METEORITES.

(U)

A BIBLIOGRAPHY IS PRESENTED OF METEORIDS AS A
POSSIBLE HAZARD TO SPACE VEHICLE OPERATIONS.
CITATIONS TO METEORS AND OTHER INTERPLANETARY
DEBRIS HAVE BEEN INCLUDED WHEN THE MATERIAL WAS OF
RELEVANCE TO METEORIDS AS WELL. CITATIONS TO
COMBINED ENVIRONMENTAL PARAMETERS AFFECTING THE
RELIABILITY OF SPACE VEHICLES IN FLIGHT HAVE ALSO
BEEN INCLUDED WHEN METEORIDS CONSTITUTED ONE OF THE
PARAMETERS. THE PERIOD COVERED IS FROM 1956
THROUGH 1962, WITH A FEW EARLIER CITATIONS.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-401 727

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

MAIN GOALS OF THE HISTORICAL FLIGHT (U)

MAR 63 1V SEMENOV,B.i

REPT. NO. TT 63 24

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE CAPSULES, •SPACE FLIGHT, ATTITUDE
CONTROL SYSTEMS, CONTROL SYSTEMS, ORBITAL TRAJECTORIE(U)

IDENTIFIERS: USSR (U)

SPACE CAPSULE CONTROL SYSTEMS USED BY COSMONAUTS DURING
ORBITAL FLIGHT.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-400 517

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE FIRST MAN IN SPACE

MAR 63 1V

(U)

REPT. NO. TT 62 1849

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, MANNED SPACECRAFT, SPACE
CAPSULES

(U)

IDENTIFIERS: HUNGARY

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-337 DD1

MAUCH LABS INC DAYTON OHIO
INVESTIGATION OF INTEGRATED P TECHNIQUES OF
PRESSURIZATION AND THERMAL CONTROL IN A SPACE
WORKER'S GARMENT

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT., 1 FEB 62-31
JAN 63,

MAR 63 31P MARCUM, A.L.; MAUCH, H.A.;

CONTRACT: AF33 657 8095

PROJ: 6301

TASK: 630104

MONITOR: AMRL

TDR63 21

UNCLASSIFIED REPORT

DISTRIBUTION: NOFORN.

DESCRIPTORS: •PRESSURE SUITS, •FLIGHT CLOTHING,
•SPACE FLIGHT, MATERIALS, MANUFACTURING METHODS,
TESTS, DESIGN, FOAM RUBBER, EXPANDED PLASTICS,
TEMPERATURE CONTROL.

(U)

THIS REPORT DESCRIBES AN INVESTIGATION OF INTEGRATED PASSIVE TECHNIQUES FOR PRESSURIZATION AND THERMAL CONTROL IN A SPACE WORKER'S GARMENT. THE SPECIFIC GOAL WAS THE DEVELOPMENT AND FABRICATION OF A COMPLETE LABORATORY MODEL SPACE WORKER'S GARMENT, BASED UPON PASSIVE TECHNIQUES, WITH WHICH THE PROBLEMS OF PASSIVE PHYSIOLOGICAL PROTECTION COULD BE FURTHER EXPLORED. THE SUIT DESIGN WHICH DEVELOPED IS BASED UPON MECHANICAL PRESSURIZATION USING AN EXPANDABLE CLOSED-CELL FOAM MATERIAL AS THE PRESSURIZING MEDIUM, AND UPON THERMAL CONTROL BY THE CONTROLLED EVAPORATION OF SWEAT AT REDUCED PRESSURES. TWO EXPERIMENTAL COMPONENTS, AN ARM SECTION, AND A SINGLE LEG SECTION, WERE ASSEMBLED AND TESTED TO PROVIDE DATA FOR THE DESIGN OF THE SUIT. THE RESULTS OF THE INVESTIGATION INDICATE THAT THE PAPRETEC (PASSIVE PRESSURIZATION AND TEMPERATURE CONTROL) CONCEPT IS FEASIBLE AND THAT FURTHER DEVELOPMENT OF THE SUIT SHOULD BE UNDERTAKEN. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 806

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN IN COSMOS

(U)

JAN 63 IV PARIN, V.V.;

REPT. NO. TT 62 1606

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, COSMIC
RAYS, GRAVITY, HYPOTHERMIA, RADIATION HAZARDS, SLEEP,
SPACE ENVIRONMENTAL CONDITIONS, VAN ALLEN RADIATION
BELT, WEIGHTLESSNESS

(U)

IDENTIFIERS: USSR

(U)

DESCRIP OR : •RADIOBIOLOGY, •R I O C I S R Y
•RADIATIO FF C •R DI TION INJURIES, O
YGEN, P LAN S, NI LS T R A P Y, R A IOLOGIC
L DOSAGE, METABOLISM, R DIOACTIVITY, MAN,
BRYOS, CANCER, LEUKEMIA, USSR, ATER,
CELLS (BIOLOGY), PREVENTIV MEDICINE.

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 798

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE COSMONAUTS FEELING FINE, SAID A SOVIET
SCIENTIST,

(U)

JAN 63 4P PARIN, V. V. ;

REPT. NO. FTD-TT-62-1602

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FRM LITERATURNAYA GAZETA,
1P., 15 AUG 61.

DESCRIPTORS: *SPACE FLIGHT , DECELERATION , HUMANS ,
PHYSIOLOGY , SPACE MEDICINE , STRESS (PHYSIOLOGY) , USSR ,
WEIGHTLESSNESS (M)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 780

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

HOW THE FLIGHT WAS READIED

(U)

JAN 63 1V PARIN.V.V.;

REPT. NO. TT 62 1608

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, •STRESS
(PHYSIOLOGY), MANNED, TRANSLATIONS

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 769

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
NEW GERMANY (SELECTED ARTICLES)

(U)

JAN 63 1V

REPT. NO. TT 62 1584

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (•SPACE FLIGHT, PROPAGANDA),
REPORTS, USSR, EAST GERMANY

(U)

SELECTED ARTICLES FROM EAST GERMANY ON THE SOVIET SPACE
FLIGHTS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-295 127

RAND CORP SANTA MONICA CALIF

RADIATION ENVIRONMENT FOR MANNED SPACECRAFT

(U)

IV DOLE, S.H. 1

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, COSMIC RAYS,
ELECTROMAGNETIC WAVES, GALAXIES, INFRARED RADIATION,
LIGHT, ORBITAL TRAJECTORIES, PROTONS, RADIATION HAZARDS,
SHIELDING, SOLAR FLARES, SPACE ENVIRONMENTAL CONDITIONS,
SUN, ULTRAVIOLET RADIATION, VAN ALLEN RADIATION BELT (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 573

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

METHODS AND TECHNIQUES OF BIOMEDICAL CONTROL IN SPACE
FLIGHT (U)

DEC 62 IV SISKYAN,N.M.;YAZDOVSKIY,V.I.;
REPT. NO. 62 201

UNCLASSIFIED REPORT

DESCRIPTORS: •CONTROL SYSTEMS, •ELECTROCARDIOGRAPHY,
•ELECTRODES, •PHYSIOLOGY, •SPACE FLIGHT, •SPACE
MEDICINE, COLLECTING METHODS, DATA TRANSMISSION SYSTEMS,
MEASUREMENT, MEDICAL EQUIPMENT, TEST METHODS (U)

IDENTIFIERS: USSR (U)

METHODS AND TECHNIQUES OF BIOMEDICAL CONTROL IN SPACE
FLIGHT.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 537

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE FIRST MANNED SPACE FLIGHTS (U)
DEC 62 IV VOLYNKIN, YU. M.; YAZDOVSKIY, V. I.;
REPT. NO. TT 62 1619

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
ASTRONAUTICS, MEDICAL EXAMINATION, MONITORS, PHYSIOLOGY,
PSYCHOLOGY, RADIATION EFFECTS, RECOVERY, SHIELDING,
TRAINING, WEIGHTLESSNESS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-294 519

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ROCKETS AND STRATEGY (U)

NOV 62 IV LARIONOV, V.I
REPT. NO. TT 62 1580

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
•STRATEGIC WEAPONS, COMMUNICATION SYSTEMS, PHOTOGRAPHIC
INTELLIGENCE (U)

IDENTIFIERS: SAMOS, USSR (U)

A TRANSLATION OF A NON-TECHNICAL ARTICLE WHICH WAS
PUBLISHED IN THE SOVIET PERIODICAL KRASNAYA
ZVEZDA IS PRESENTED. IT DESCRIBES IN GENERAL
TERMS THE SOVIET GLOBAL ROCKET, WHICH IS INDICATED
TO HAVE SUFFICIENT RANGE TO REACH US TARGETS WHEN
FIRED IN ANY DIRECTION. A BRIEF DISCUSSION OF
SPACE SATELLITES, INCLUDING SAMOS, IS ALSO
PRESENTED. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-293 994

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOWAN AFB N MEX
CHIMPANZEE PERFORMANCE DURING A SIMULATED THREE-DAY
SPACE FLIGHT (U)

DEC 62 IV FARRER, DONALD N.; BOGO, VICTOR;
REPT. NO. TDR62 25

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BEHAVIOR, •SPACE FLIGHT, ANALYSIS OF
VARIANCE, PRIMATES, REACTION (PSYCHOLOGY),
SIMULATION (U)

D-293 949 +++C IMP NZEE PERFORMANCE DURING A
SIMULATED THREE DAY SPACE FLIGHT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-293 881

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOWAN AFB N MEX
A PROPOSED APPROACH TOWARD DETERMINING THE
PSYCHYSIOLOGICAL EFFECTS OF PROLONGED MANNED SPACE
FLIGHT. (U)

DEC 62 IV ROHLES, FREDERICK H., JR; REYNOLDS,
HERBERT H.;
REPT. NO. TDR62 28

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •STRESS (PHYSIOLOGY),
•STRESS (PSYCHOLOGY), •WEIGHTLESSNESS, COSMIC RAYS,
MANNED, PRIMATES, RADIATION EFFECTS (U)

ORBITAL SPACE FLIGHTS ARE PROPOSED TO STUDY THE
PSYCHOPHYSIOLOGICAL EFFECTS OF PROLONGED
WEIGHTLESSNESS AND COSMIC RADIATION. THE PROGRAM
PRESENTED WILL USE ANIMAL SUBJECTS AND ATTEMPTS TO
ELIMINATE WEIGHTLESSNESS AND COSMIC RADIATION AS
DETERRENTS TO MANNED SPACE FLIGHTS OF HIGHER
ALTITUDES AND LONGER DURATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-292 713

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

BIOLOGISTICS FOR SPACE SYSTEMS SYMPOSIUM (U)

MAY 62 1V

REPT. NO. TDR62 116

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SYMPOSIA, ALGAE, FUNGI,
METABOLISM, NUTRITION, PHOTOSYNTHESIS, PLANTS (BOTANY),
WASTE GASES (U)

THIS REPORT IS A COMPILATION OF PAPER PRESENTED AT THE SYMPOSIUM-WORKSHOP ON BIOLOGISTICS FOR SPACE SYSTEMS SPONSORED BY THE 6570TH AEROSPACE MEDICAL RESEARCH LABORATORIES IN MAY 1962. THE FOUNDATIONS CONCERNING BIOLOGISTICS FOR LONGTERM MANNED SPACE MISSIONS ARE ESTABLISHED AND BASIC AND APPLIED RESEARCH PHASES IN DEVELOPING A COMPLETE BIOREGRATING SYSTEM ARE DISCUSSED. THE STATE OF THE ART OF ALGAL GAS EXCHANGE SYSTEMS WAS FULLY COVERED, FOLLOWED BY THE MOST RECENT CONCEPTS ON PHOTOSYNTHETIC MECHANISMS THAT MAY BE APPLIED TO CLOSED ECOLOGICAL SYSTEMS. THE POTENTIAL USE OF HIGHER PLANTS IN BIOREGENERATING SYSTEMS, ESPECIALLY AS GAS EXCHANGE MECHANISMS, THEIR BROADER USE AS FOOD SUPPLEMENT, AND OTHER POSSIBLE USES WERE PRESENTED. THE REGENERATION, BY AEROBIC AND ANAEROBIC MEANS, OF SOLID AND LIQUID WASTES WITH MANY POTENTIAL APPROACHES, SUCH AS INCINERATION OR STORAGE AS APPLIED SPECIFICALLY TO CLOSED BIOREGENERATING SYSTEMS, WAS PRESENTED. THE FINAL ECOLOGICAL SESSION INCLUDED SIX PAPERS ON NUTRITIONAL SUPPORT FROM BIOREGENERATING SYSTEM. POTENTIAL USE OF SELECTED ALGAE AND FUNGI AS NUTRIENT SOURCES WAS CONSIDERED, THE BIOECOLOGY OF THE INTEGRATIVE PROCESS WAS PRESENTED, AND THE SPECIFIC NUTRITIONAL VALUE OF ALGAE AND SELECTED FUNGI WAS GIVEN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-292 600

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
IN THE CITY OF 'THE CELESTIAL BROTHERS'

(U)

NOV 62 1V RYABCHIKOV, YE.;

REPT. NO. TT 62 1583

UNCLASSIFIED REPORT

DESCRIPTORS: •FLIGHT SIMULATORS, •SPACE FLIGHT,
CENTRIFUGES, MILITARY TRAINING, PILOTS, SPACE MEDICINE,
WEIGHTLESSNESS

(U)

IDENTIFIERS: USSR

(U)

FLIGHT TRAINING OF ASTRONAUTS. A TRANSLATION FROM
PROVDA.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-292 224

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
EARTH-SPACE-EARTH (SELECTED ARTICLES)

(U)

OCT 62 1V

REPT. NO. TT 62 1416

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, MANNED

(U)

CONTENTS: VOSTOK-3 IN OUTER SPACE NEWS FROM
OUTER SPACE VOSTOK-4 IN ORBIT NEWS FROM OUTER
SPACE RESEARCH PROGRAM IS BEING EXECUTED
SUCCESSFULLY CONVERSATION IN OUTER SPACE FOOD OF
GODS PRECISELY ACCORDING TO PROGRAM BEFORE THE
COMPLETION OF A HISTORICAL FLIGHT GOOD WISHES TO
NATIONS OF THE WORLD

(U)

UNCLASSIFIED

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-291 911

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

SOVIET MANNED SPACE FLIGHT LIFE SUPPORT SYSTEMS;
MEDICAL AND BIOLOGICAL ASPECTS OF THE VOSTOK-3 AND
VOSTOK-4 FLIGHTS (U)

NOV 62 IV

REPT. NO. 62 191

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT,
BIBLIOGRAPHIES, CLOSED-CYCLE ECOLOGICAL SYSTEMS,
COMMUNICATION SYSTEMS, DOSIMETERS, FOOD, HYPOTHERMIA,
MAN, ORBITAL TRAJECTORIES, PHYSICAL FITNESS, PHYSIOLOGY,
PILOTS, PREPARATION, PSYCHOLOGY, RADIATION EFFECTS,
RADIO COMMUNICATION SYSTEMS, SPACE MEDICINE, SPACECRAFT
CABINS, STRESS (PHYSIOLOGY), STRESS (PSYCHOLOGY),
TELEMETER SYSTEMS, TELEVISION COMMUNICATION SYSTEMS,
TRAINING, WEIGHTLESSNESS (U)

IDENTIFIERS: VOSTOK (U)

A REVIEW BASED ON SOVIET OPEN-LITERATURE
SOURCES (CHIEFLY NEWSPAPERS) PUBLISHED IN THE PERIOD
AUGUST-OCTOBER 1962, CONCERNING THE MEDICAL AND
BIOLOGICAL ASPECTS OF THE VOSTOK-3 AND VOSTOK-4 FLIGHTS,
INCLUDING SELECTION OF ORBITS, PHYSICAL AND PSYCHOLOGICAL
PREPARATION, MEDICAL MONITORING, RADIATION PROTECTION,
DIET, CABIN ECOLOGY, AND PROJECTED PROBLEMS FOR
INTERPLANETARY FLIGHT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-291 429

TRW SPACE TECHNOLOGY LABS REDONDO BEACH CALIF
THE WORLD'S FIRST TANDEM FLIGHT IN SPACE (BASIC
RESULTS)

(U)

1V JAKUBSKI, Z.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE CAPSULES, •SPACE FLIGHT,
COMMUNICATION SYSTEMS, CONTROL SYSTEMS, DESIGN,
GUIDANCE, LANDINGS, ORBITAL TRAJECTORIES, PHYSIOLOGY,
PILOTS, RADIATION HAZARDS, SATELLITES (ARTIFICIAL),
SELECTION, SHIELDING, SPACE MEDICINE, SPACECRAFT,
SPACECRAFT CABINS, TRANSLATIONS

(U)

BASIC RESULTS FROM THE FLIGHT OF VOSTOKS 3 AND 4.

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-290 223

NAVAL MISSILE CENTER POINT MUGU CALIF

U.S. NAVY SUPPORT OF PROJECT MERCURY

(U)

AUG 62 1V

REPT. NO. TM62 21

UNCLASSIFIED REPORT

DESCRIPTORS: •NAVAL PERSONNEL, •SPACE FLIGHT, SPACE
CAPSULES, TRAINING

(U)

IDENTIFIERS: MERCURY PROJECT

(U)

CONTENTS: THE MERCURY PROGRAM THE NAVY'S
ROLE DEVELOPMENT THE PRESSURE SUIT THE
LANDING SYSTEM TRAINING CENTRIFUGE TEST
CHAMBER MONITORING RECOVERY

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-289 257

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

WEIGHTLESS MAN: SINGLE-IMPULSE TRAJECTORIES FOR
ORBITAL WORKERS (U)

SEP 62 1V MUELLER, DONALD D.; SIMONS, JOHN C.;

REPT. NO. TDR62 103

MONITOR: 657D AMRL TDR62 103

UNCLASSIFIED REPORT

DESCRIPTORS: •MAINTENANCE PERSONNEL, •SPACE FLIGHT,
•WEIGHTLESSNESS, JOB ANALYSIS, MAINTENANCE, MATHEMATICAL
ANALYSIS (U)

WHILE PERFORMING MAINTENANCE AND ASSEMBLY TASKS
OUTSIDE OF SPACE VEHICLES UNDER WEIGHTLESS
CONDITIONS, A WORKER MAY ACCIDENTALLY PROPEL HIMSELF
AWAY FROM HIS VEHICLE. TO DETERMINE THE SPEED OF
SUCH A SINGLE-IMPULSE LAUNCH, SUBJECTS UNDER
WEIGHTLESS CONDITIONS IN A ZERO-G KC-135 AIRCRAFT
PROPELLED THEMSELVES AWAY FROM A SURFACE WITH THEIR
LEGS. THEY ATTAINED MAXIMUM VELOCITIES OF
APPROXIMATELY 10 MPH. USING VARIOUS LAUNCH SPEEDS
AND DIRECTIONS, THEORETICAL TRAJECTORIES HAVE BEEN
PROJECTED FOR BOTH COPLANAR AND NONCOPLANAR LAUNCHES.
THESE TRAJECTORIES INDICATE THAT ANY LAUNCH HAVING
A VELOCITY COMPONENT PARALLEL TO THE DIRECTION OF
ORBITAL MOTION WILL RESULT IN A TRAJECTORY SUCH THAT
THE WORKER WILL NEVER RETURN TO HIS VEHICLE.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-289 028

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

INFORMATION OF THE VOSTOK-3 AND VOSTOK-4 FLIGHTS (U)

NOV 62 1V

REPT. NO. 62 185

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, DESIGN, LAUNCHING, RECOVERY,
SATELLITES (ARTIFICIAL), SPACE CAPSULES, SPACECRAFT
CABINS, TRANSLATIONS, VAN ALLEN RADIATION BELT (U)
IDENTIFIERS: VOSTOK (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 921

AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX
COUNTDOWN AND PROCEDURES FOR PROJECT MERCURY ATLAS-5
FLIGHT (CHIMPANZEE SUBJECT) (U)

OCT 62 IV STINGELY, NORMAN E.;

REPT. NO. TDR62 17

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE CAPSULES, •SPACE FLIGHT, •SPACE
MEDICINE, BIOCHEMISTRY, PHYSIOLOGY, PSYCHOLOGY,
PSYCHOMOTOR TESTS (U)

IDENTIFIERS: MERCURY PROJECT (U)

THE OBJECTIVES OF THE MERCURY PROJECT PROPOSED TO
DETERMINE THE BIOMEDICAL ADEQUACY OF THE MANNED CAPSULE,
TO STUDY PHYSIOLOGICAL, BIOCHEMICAL AND
PSYCHOLOGICAL PROCESSES OF CHIMPANZEE DURING AND AFTER
FLIGHT, AND TO OBTAIN DYNAMIC VALIDATION OF GROUND, FLIGHT,
AND RECOVERY PROCEDURES.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 751

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV.

DETAILS ON SOVIET SPACE FLIGHTS (U)

JUN 62 IV

REPT. NO. 62 88

UNCLASSIFIED REPORT

DESCRIPTORS: •LUMINESCENCE, •PARTICLES, •SPACE FLIGHT,
GASES, LIQUIDS, ROCKET MOTORS (U)

DETAILS ON SOVIET SPACE FLIGHTS.

X-USSR

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-288 400

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

COSMIC EXPLORERS

(U)

NOV 61 IV EMME, A.;

REPT. NO. 751401021C102

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, ALGAE,
GENETICS

(U)

IDENTIFIERS: USSR

(U)

COSMIC EXPLORERS.

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-287 863

AMERICAN MACHINE AND FOUNDRY CO ALEXANDRIA VA ALEXANDRIA
DIV

SPACE RADIATION GUIDE

(U)

AUG 62 IV SAYLOR, W.P.; WINER, D.E.;

REPT. NO. TDR62 86

CONTRACT: AF33 616 7631

MONITOR: 6570 AMRL TDR62 86

UNCLASSIFIED REPORT

DESCRIPTORS: •COSMIC RAYS, •HANDBOOKS, •RADIATION
HAZARDS, •SOLAR RADIATION, •SPACE FLIGHT, •THERMAL
RADIATION, •VAN ALLEN RADIATION BELT, ELECTROMAGNETIC
SHIELDING, GEOPHYSICS, INSTRUMENTATION, MANNED, NATURAL
RADIOACTIVITY, PHYSIOLOGY, RADIOPROTECTIVE AGENTS,
SHIELDING, SOLAR CORONA, SOLAR FLARES, SPACE MEDICINE,
SUNSPOTS (U)

THE SPACE RADIATION GUIDE IS INTENDED TO BE A
RELIABLE, EASILY UNDERSTOOD HANDBOOK THAT WILL
PROVIDE THE READER WITH SUFFICIENT KNOWLEDGE OF THE
NATURE OF SPACE RADIATIONS TO PERMIT HIM TO
COMPREHEND THE TOTAL SPACE RADIATION PROBLEM AS IT
PERTAINS TO THE HAZARDS OF MANNED SPACE FLIGHT.
THE REPORT IS NOT INTENDED TO PROVIDE ANSWERS TO
ALL THE PROBLEMS, BUT, INSTEAD, TO PRESENT MUCH OF
THE FACTUAL DATA CURRENTLY KNOWN AND TO POINT OUT
AREAS WHERE INFORMATION IS SKETCHY AND INCONCLUSIVE.
THE RADIATIONS CONSIDERED ARE COSMIC RAYS, SOLAR
RADIATION, AND THE GEOMAGNETICALLY TRAPPED (VAN
ALLEN) RADIATIONS. INCLUDED ARE CHAPTERS ON
INSTRUMENTS USED FOR MEASURING THESE RADIATIONS, ON
SHIELDING TECHNIQUES, AND ON BIOLOGICAL EFFECTS.
(AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-287 29D

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

DETAILS ON THE SOVIET SPACE PROGRAM (U)

OCT 62 IV

REPT. NO. 62 169

UNCLASSIFIED REPORT

DESCRIPTORS: •PILOTS, •SPACE FLIGHT, ASTRONAUTS,
AVIATION PERSONNEL, MANNED, SELECTION, TRAINING (U)

IDENTIFIERS: VOSTOK (U)

OME INTERESTING DETAILS ON THE SOVIET SPACE PROGRAM WHICH WERE NOT FOUND IN PREVIOUS SOVIET LITERATURE ARE DISCUSSED. THESE DISCUSSIONS CONCLUDE THAT THE CABIN OF THE SOVIET SPACESHIPSATELLTES SED IN THE EXPERIMENTS WITH DOGS IS SIMILAR TO THE VOSTOK-TYPE SPACESHIP CABIN BECAUSE HE CABIN OF THE FIFTH SPACESHIP-SATELLITE WAS USED FOR THE FLIGHT SIMULATION TRAINING OF COSMONAUTS GAGARIN, TITOV, NIKOAYEV, AND POPOVICH. FOR THE NEXT SOVIET MANNED SPACE FLIGHT, PROBABLY MORE THAN ONE COSMONAUT WILL BE USED. THIS STATEMENT IS BASED ON THE DISCUSSION OF THE PARTICIPATION OF ONE OF THE EXPERIENCED COSMONAUTS (GAGARIN, TITOV, ETC.) IN THE READY SUBGROUP. IT IS NOT POSSIBLE TO MAKE A PREDICTION OF THE APPROXIMATE LAUNCHING DATE ON THE BASIS OF THE REMARKS RELATIVE TO THE IMMINENCE OF THE NEXT SOVIET MANNED FLIGHT. ON THE ONE HAND YEVGENIY ANATOL'YEVICH SAYS THAT THE NEXT MANNED FLIGHT WILL NOT PRECEDE THE COMPLETION OF THE PROCESSING OF THE DATA OBTAINED FROM THE NIKOLAYEV AND POPOVICH FLIGHTS, AND ON THE OTHER HE STATES THAT THE DAY IS NOT TOO FAR OFF. (AUTHO) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-287 080

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX
BIOLOGIC SYSTEMS OF DISCOVERER SATELLITES XXIX AND
XXX

(U)

IV PRINCE, JOHN E.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, ALGAE,
BACTERIA, BLOOD PROTEINS, GROWTH, RADIATION TOLERANCE,
SATELLITES, SPORES, TISSUE CULTURE, VIRUSES (U)
IDENTIFIERS: DISCOVERER (U)

CONTENTS: RADIATION LEVELS IN THE BIOPACK
DOSIMETRY: TECHNICS AND RANGES HEAVY PRIMARY
PARTICLES ORGAN AND TISSUE CULTURES EMBRYONIC
CHICK HEART AND HUMAN CELL CULTURES CILIARY
ACTIVITY OF EMBRYONIC CHICK CHOROID PLEXUS
BACTERIAL SPORES PHYSIOLOGIC CHANGES OBSERVED
IN CLOSTRIDIUM SPOROGENES ALGAE GROWTH OF
PHOTOSYNTHETIC MICROORGANISMS FOLLOWING ORBITAL
SPACE FLIGHT VIRUSES SUCCESSFUL ORBITAL SPACE
FLIGHT AND RECOVERY OF SELECTED VIRUSES SERUM
PROTEIN IN VITRO ANTIGENICITY OF HUMAN SERUM
ALBUMIN FOLLOWING ORBITAL SPACE FLIGHT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 884

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
GENERALIZED INTERPLANETARY TRAJECTORY STUDY.
SUPPLEMENT 1. OPERATIONAL PROCEDURE FOR THE
INTERPLANETARY TRAJECTORY PROGRAM (U)

1V

REPT. NO. TR60 502 P2TR60 502 P2 V2TR60 502 P2 S1

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ORBITAL TRAJECTORIES, •SPACE FLIGHT,
•SPACECRAFT, DIGITAL COMPUTERS, N-BODY PROBLEM,
VENUS (U)

AN IBM 709D COMPUTER PROGRAM IS DESCRIBED AND AN
OP RATIONAL PROCEDURE FOR THE INTERPLANETARY
TRAJECTORY PROGRAM IS GIVEN DISCUS ED ARE THE
INPUT AND THE OUTPUT OF THE I TERPLANETARY TRAJECTORY
PROGRAM, A COMPUTER FLOW CHART, TWO SAMPLE RUNS WITH
INPUT AND OUTPUT AND A TABULATION OF JULIAN DAYS,
CALENDAR DAYS AND TABLE DAYS FOR THE YEARS' 1960
TO HE END OF 1964. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 201

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
IN THE SPACEFLIGHT LABORATORY

(U)

JUN 62 IV GUROVSKIY, N.N.; GERD, M.A.;
REPT. NO. FTD-TT-62-652

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM NAUKA I ZHIZNI, NO.
10, P.21-28, 1961.

DESCRIPTORS: •SPACE FLIGHT, DOGS, EXPERIMENTAL DATA,
FEEDING, PHYSIOLOGY, PRIVATION, REACTION (PSYCHOLOGY),
STIMULATION (U)

REACTIONS AND PHYSIOLOGICAL PROCESSES OF DOGS BEING
TRAINED IN CLOSED CHAMBER.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 198

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

HOW TO GUIDE SPACE SHIPS TO THE PLANETS (U)

JUN 62 1V ENDRE, FLORIAN;

REPT. NO. TT 62 547

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CAVITY RESONATORS, •SPACE FLIGHT, NOISE,
PLANETS, TRANSLATIONS (U)

IDENTIFIERS: USSR (U)

CAVITY RESONATORS ARE DEVICES IN WHICH MICROWAVES
ARE GENERATED AND AMPLIFIED WITH THE AID OF AIR
FORCE SYSTEMS COMMAND, WRIGHT-PATTERSON
AIR FORCE BASE, OHIO. HOW TO GUIDE SPACE
SHIPS TO THE PLANETS, BY FLORIAN ENDRE. 18
JUNE 62, 2P. (TRANS. NO. FTD-TT-62-547 FROM
NEPSZAVA, BUDAPEST HUNGARY, PP. 1, 19 JAN

62) UNCLASSIFIED REPORT DESCRIPTORS:

•SPACE FLIGHT, •CAVITY RESONATORS, USSR,
TRANSLATIONS, PLANETS, NOISE, HOMING
DEVICES. CAVITY RESONATORS ARE DEVICES IN WHICH
MICROWAVES ARE GENERATED AND AMPLIFIED WITH THE AID
OF THE CAVITY EXISTING BETWEEN TWO SHEET-METAL
CONDUCTORS TELESCOPED INTO ONE ANOTHER. IT IS
PROBABLE THAT ALL PLANETS WHICH HAVE AN ATMOSPHERE
AND AN IONOSPHERE OF COMPARABLE DENSITY RADIATE NOISE
PROGRAMS. ALL THAT WILL BE NECESSARY WILL BE TO
HOME THE DIRECTIONAL ANTENNA AT THE DESIRED PLANET,
AND THE SPACESHIP WILL BE GUIDED AS IF ATTACHED TO A
ROPE. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-286 137

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
RADIO (SELECTED ARTICLES).

(U)

JUN 62 1V

REPT. NO. TT 62 532

UNCLASSIFIED REPORT

DESCRIPTORS: •RADIO COMMUNICATION SYSTEMS, •SPACE
FLIGHT, •SPACECRAFT, •VOICE COMMUNICATION SYSTEMS,
COMMUNICATION EQUIPMENT, COMMUNICATION SYSTEMS, MANNED,
RADIO TRANSMISSION, RELIABILITY, SATELLITES
(ARTIFICIAL), TELEGRAPH SYSTEMS, TRANSLATIONS

(U)

IDENTIFIERS: USSR

(U)

CONTENTS: ABOUT MAN'S SECOND FLIGHT INTO THE
COSMOS RADIO COMMUNICATION EARTH-VOSTOK-2
UNFORGETTABLE SIGNALS

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-285 833

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPACE SHIPS-ROCKETS

(U)

AUG 62 1V BUBANJ,VIKTOR;
REPT. NO. TT 62 1112

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SPACE FLIGHT, *SPACECRAFT, CONTROL
SYSTEMS, TRANSLATIONS

(U)

SPACESHIPS PROPULSION OF THE FUTURE.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-285 575

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB
AEROSPACE MEDICAL ASPECTS OF U. S. NAVY MANNED
BALLOON FLIGHT OF 4 MAY 1961 'STRATO-LAB HIGH NO.
5'

(U)

AUG 62 1V BENSON, VICTOR G.;
REPT. NO. 11

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, BALLOONS,
GONDOLAS, INSTRUMENTATION, PHYSIOLOGY, PRESSURE SUITS,
TEMPERATURE (U)

MEDICAL CONSIDERATIONS AND RESULTS PERTINENT TO THE
STRATO-LAB HIGH NO. 5 BALLOON FLIGHT DURING
WHICH TWO NAVAL OFFICERS REACHED A RECORD ALTITUDE OF
113,733 FEET IN AN OPEN GONDOLA WHILE WEARING THE
NAVY-MERCURY FULL PRESSURE SUITS ARE PRESENTED.
THE FLIGHT PROVIDED MEANS FOR TESTING (1) THE
COMPLETE CAPABILITIES OF THE FULL PRESSURE SUIT FOR A
PROLONGED PERIOD OF TIME IN AN ACTUAL SPACE
EQUIVALENT ENVIRONMENT AND (2) BIOTELEMETRY
METHODS FOR MEASURING THE PHYSIOLOGICAL REACTIONS OF
THE SUBJECTS. THE OPERATION AND FUNCTIONING OF
THE FULL PRESSURE SUIT AND THE PERFORMANCE OF THE
PILOTS DURING THE FLIGHT IS DISCUSSED. THE
TEMPERATURE CONTROL CAPABILITY PROVIDED BY THE
VENETIAN BLINDS SYSTEM IN THE GONDOLA IS EXAMINED
AND THE PHYSICAL STATUS OF THE PILOTS, AS INDICATED
BY BIOINSTRUMENTATION DATA, IS SUMMARIZED.
(AUTHOR)

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-285 437

BALLISTIC SYSTEMS DIV NORTON AFB CALIF
RESEARCH PROPOSALS FOR PERSONNEL SUBSYSTEMS STATE-OF-
THE-ART ADVANCEMENT IN BALLISTIC AND SPACE SYSTEM
DEVELOPMENT (U)
MAR 62 IV MAJESTY, MELVIN S.;

UNCLASSIFIED REPORT

DESCRIPTORS: •AVIATION PERSONNEL, •HUMAN ENGINEERING,
•PSYCHOLOGY, •SPACE FLIGHT, COSTS, FATIGUE (PHYSIOLOGY),
JOB ANALYSIS, LITERATURE, MILITARY REQUIREMENTS,
OPERATION, REACTION (PSYCHOLOGY), STRESS (PHYSIOLOGY),
SURVIVAL, TRAINING, TRAINING DEVICES (U)

RESEARCH PROPOSALS FOR PERSONNEL SUBSYSTEM STATE-OF-
THE-ART ADVANCEMENT IN BALLISTIC AND SPACE SYSTEMS.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-283 866

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE BEGINNING OF MASTERING COSMIC SPACE (U)

MAY 62 IV FESENKOV, V.G.;

REPT. NO. TT 62 819

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, LANDINGS, MANNED, MARS,
MOON, SPACECRAFT, TRANSLATIONS (U)

IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-283 295

GENERAL DYNAMICS/FORT WORTH TEX

A SPACE TRAJECTORY RADIATION EXPOSURE PROCEDURE FOR
CISLUNAR MISSIONS (U)

JUL 62 1V CRANFORD, W.; FALKENBURY, R.F.; MILLER,

R.A.;

REPT. NO. NARF 62 11TFZK 9 178

CONTRACT: AF33 657 7201

UNCLASSIFIED REPORT

DESCRIPTORS: •LUNAR PROBES, •SPACE FLIGHT, •SPACE
PROBES, ALBEDO, AURORAE, COSMIC RAYS, ELECTRON
BOMBARDMENT, ELECTRONS, GAMMA RAYS, GUIDED MISSILE
TRAJECTORIES, MATHEMATICAL ANALYSIS, MATHEMATICAL
PREDICTION, NEUTRON REACTIONS, NEUTRONS, NUMERICAL
METHODS AND PROCEDURES, ORBITAL TRAJECTORIES, PARTICLES,
PROTON BOMBARDMENT, PROTONS, SHIELDING, SOLAR FLARES,
SPACE ENVIRONMENTAL CONDITIONS, THEORY, VAN ALLEN
RADIATION BELT (U)

THE SPACE TRAJECTORY RADIATION EXPOSURE
PROCEDURE (STREP) IS DESIGNED TO COMPUTE THE
TIME-INTEGRATED SPECTRA FOR ANY SPECIFIED TRAJECTORY
IN CISLUNAR SPACE FOR ANY COMBINATION OF THE SEVERAL
COMPONENTS OF SPACE RADIATIONS. THESE COMPONENTS
INCLUDE VAN ALLEN PROTONS AND ELECTRONS;
SOLARFLARE PROTONS, ELECTRONS, HEAVY PARTICLES, AND
GAMMA RADIATION; COSMIC PROTONS AND HEAVY PARTICLES;
ALBEDO NEUTRONS, AND AURORA BOREALIS GAMMA RADIATION.
THE PROGRAM WILL ALSO CALCULATE THE ACCUMULATED
DOSE BEHIND A THIN VEHICLE SKIN AT ANY TIME AFTER THE
START OF THE MISSION. THE TECHNIQUE OF
INTERPOLATION FOR INTERMEDIATE POINTS ALONG THE
PRESCRIBED SPACE TRAJECTORY IS DESCRIBED IN DETAIL.
THE METHOD OF REPRESENTATION OF THE SPACE RADIATION
DATA AS INPUT FOR THE CALCULATION OF THE DOSE AND
TIME-INTEGRATED SPECTRA IS DISCUSSED.

(AUTHOR)

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-282 995

MICHIGAN UNIV ANN ARBOR

FLIGHT SIMULATION OF ORBITAL AND REENTRY VEHICLES.
PART III. AERODYNAMICS INFORMATION REQUIRED FOR SIX
DEGREES OF FREEDOM SIMULATION

(U)

1V BUNING,H.;

REPT. NO. TR61 171 V3

CONTRACT: AF33 616 5664

MONITOR: ASD TR61 171 V3

UNCLASSIFIED REPORT

DESCRIPTORS: •FLIGHT SIMULATORS, •REENTRY VEHICLES,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, ANALOG SYSTEMS,
DATA, MACH NUMBER, MATHEMATICAL ANALYSIS, PRESSURE,
REYNOLDS NUMBER

(U)

AERODYNAMIC DATA REQUIRED FOR SIX DEGREES OF FREEDOM
SIMULATION OF A GLIDE RE-ENTRY VEHICLE.

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-282 780

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF

HUMAN CAPABILITIES IN THE PRONE AND SUPINE POSITIONS:

AN ANNOTATED BIBLIOGRAPHY

(U)

MAY 62 1V GOLDMANN, JACK B.;

REPT. NO. SR62 143 8D 62 8

CONTRACT: NORD17017

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •HUMAN ENGINEERING, •SPACE
FLIGHT, ANTHROPOMETRY, EFFECTIVENESS, POSITIONING
REACTIONS, REACTION (PSYCHOLOGY) (U)

THE ABILITY OF MAN TO PERFORM BASIC OPERATIONS IN
AIRCRAFT WHILE RELEGATED TO A PRONE OR SUPINE POSITION.
APPLICATION OF MAN'S PERFORMANCE IN SPACECRAFT UNDER
SIMILAR CONDITIONS. THIS LITERATURE SEARCH COVERS 1951
THROUGH 1961.

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-282 D15

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
MISSION ANALYSIS FOR SPACE VEHICLES. MANUAL OF
OPERATIONS FOR THE LOW-THRUST PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT., APR60-AUG 61.

JUN 62 1V

CONTRACT: AF33 616 7313

MONITOR: ASD TR61-640

UNCLASSIFIED REPORT

DISTRIBUTION: NO FORN.

DESCRIPTORS: (*SPACE FLIGHT, *CODING), DRAG,
AERODYNAMIC CONFIGURATIONS, ENERGY, MATHEMATICAL
ANALYSIS, EQUATIONS, ANALYSIS, EFFECTIVENESS,
SPECIFIC IMPULSE, THRUST, CALCULUS OF VARIATIONS,
INSTRUCTION MANUALS, MOTION, FLIGHT PATHS,
SPACESHIPS, ELECTRIC PROPULSION, OPERATIONS
RESEARCH, AIR FORCE OPERATIONS, PROGRAMMING

(U)

IDENTIFIERS: ORBIT TRANSFER, ENERGY
MANAGEMENT

(M)

THE ANALYSIS AND CODING ASSOCIATED WITH A COMPUTER PROGRAM INTENDED TO PROVIDE A PRACTICAL MEANS FOR PLANNING SPACE MISSIONS FOR VEHICLES POWERED BY LOW-ACCELERATION; POWER-LIMITED PROPULSION DEVICES ARE DESCRIBED. FOR PRESCRIBED INITIAL AND FINAL ORBITS, THE METHOD SEEKS THAT TRAJECTORY WHICH WILL CONNECT ONE ORBIT WITH THE OTHER IN SUCH A WAY THAT THE OPTIMIZATION CRITERION IS SATISFIED. THE TERMINAL ORBITS ARE ASSUMED TO BE ELLIPTICAL AND MUTUALLY INCLINED. PROVISIONS ARE INCLUDED FOR INCORPORATING THE EFFECTS OF AERODYNAMIC DRAG AND CENTRAL BODY OBLATENESS INTO THE ANALYSIS, IF DESIRED. ALSO INCORPORATED ARE RELATIONS DESCRIBING ENGINE EFFICIENCY VS. SPECIFIC IMPULSE, AS WELL AS SPECIFIC POWER V. POWER OUTPUT. THESE LATTER CONSIDERATIONS ARE INCLUDED TO AID IN CHOOSING ENGINE OPERATING LEVELS FOR THE MOST EFFICIENT USE OF PROPULSION HARDWARE. THE VARIATIONAL CALCULUS IS EMPLOYED FOR THE MATHEMATICAL OPTIMIZATION; FROM THE EULER-LAGRANGE EQUATIONS, THE EXPRESSIONS DESCRIBING OPTIMAL MOTION ARE OBTAINED. THE GENERAL TRANSVERSALITY CONDITION INDICATES THOSE CONDITIONS WHICH MUST BE SATISFIED AT EITHER END TO ENSURE THAT THE TRAJECTORY SOUGHT DOES INDEED PROVIDE AN OPTIMUM FOR THE TERMINAL ORBITS CHOSEN.

(AUTHOR)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-277 221

SYSTEMS TECHNOLOGY INC INGLEWOOD CALIF
SINGLE-AXIS ATTITUDE REGULATION OF EXTRA-ATMOSPHERIC
VEHICLES (U)

1V PETERS, R.A.; KOVACEVICH, V.J.;

REPT. NO. TR61 129

CONTRACT: AF33 616 5961

MONITOR: ASD TR61 129

UNCLASSIFIED REPORT

DESCRIPTORS: •CONTROL SYSTEMS, •SATELLITE ATTITUDE,
•SPACE FLIGHT, ATTITUDE CONTROL SYSTEMS, DESIGN,
EQUATIONS, GYRO STABILIZERS, JETS, MATHEMATICAL
ANALYSIS, MILITARY REQUIREMENTS, PITCH (MOTION), ROLL,
SATELLITES (ARTIFICIAL), SERVOMECHANISMS, SPACECRAFT,
STABILIZATION SYSTEMS, TABLES, TORQUE (U)

A MATHEMATICAL ANALYSIS OF SPACECRAFT FLIGHT CONTROL
SYSTEM DYNAMIC REQUIREMENTS IS DEVELOPED IN TERMS
SYMBOLIC OF WEAPON SYSTEM CHARACTERISTICS.

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-276 082

RAND CORP SANTA MONICA CALIF
DETERMINATION OF INTERPLANETARY TRANSFER ORBITS FOR
SPECIFIED DATE OF DEPARTURE (U)
1V SCHECHTER, H.B.;

UNCLASSIFIED REPORT

DESCRIPTORS: •EARTH, •MARS, •ORBITAL TRAJECTORIES,
•SPACE FLIGHT, COMPUTERS, NUMERICAL ANALYSIS, SERIES,
SPACECRAFT, SURFACE-TO-SURFACE, THEORY (U)

A METHOD OF SOLUTION IS PRESENTED WHICH ENABLES ONE TO DETERMINE ARBITRARY TRANSFER ORBITS QUICKLY AND ACCURATELY USING ONLY A DESK COMPUTER. COPLANAR, AS WELL AS THREE-DIMENSIONAL, SURFACE-TO-SURFACE TRIPS WERE INVESTIGATED, AND ACCOUNT WAS TAKEN OF THE ECCENTRIC SHAPE OF THE PLANETARY ORBITS. A NUMBER OF TRANSFER ORBITS FROM EARTH TO MARS WERE COMPUTED FOR TWO ARBITRARILY SELECTED DATES OF DEPARTURE. THE NUMERICAL RESULTS ARE SUMMARIZED IN A SERIES OF CURVES WHICH DISPLAY THE CHARACTERISTIC VELOCITY EXPENDITURES FOR TRIPS OF VARIOUS DURATIONS, AS WELL AS THE ORIENTATION OF THE DEPARTURE VELOCITY VECTOR. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-275 830

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB

PROBLEMS AND RESEARCH IN SPACE PSYCHOLOGY

(U)

APR 62 1V CHAMBERS, RANDALL M.;

REPT. NO. 6145

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION TOLERANCE, •PSYCHOLOGY,
•SENSORY DEPRIVATION, •SPACE FLIGHT, •SPACE MEDICINE,
•WEIGHTLESSNESS, ADJUSTMENT (PSYCHOLOGY), ASTRONAUTS,
CENTRIFUGES, EAR, EMOTIONS, PERCEPTION, PERSONALITY,
PHYSIOLOGY, PROPRIOCEPTION, REACTION (PSYCHOLOGY),
REASONING, ROTATION, SELECTION, SENSORY MECHANISMS,
SIMULATION, STRESS (PSYCHOLOGY), TIME, TRAINING,
VISION

(U)

IDENTIFIERS: MERCURY PROJECT

(U)

THE SCIENTIFIC LITERATURE ON THE PSYCHOLOGICAL
ASPECTS OF SPACE FLIGHT IS REVIEWED IN THE FOLLOWING
AREAS: (A) PSYCHOLOGICAL REQUIREMENTS FOR MAN IN
SPACE, (B) SENSING AND PERCEIVING, (C)
PERCEPTUAL AND MOTOR SKILL PERFORMANCE, (D)
COGNITIVE PROCESSES AND OTHER HIGHER MENTAL
ABILITIES, (E) PERSONALITY AND EMOTIONAL
BEHAVIOR, (F) PSYCHOLOGICAL ASPECTS OF ASTRONAUT
SELECTION, AND (G) PSYCHOLOGICAL CONDITIONING AND
TRAINING. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-275 020

JET PROPULSION LAB PASADENA CALIF
ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME V, NO. 4
ABSTRACTS 5,331-5,455 (U)

APR 62 1V HARDGROVE, B. J.; WARREN, F. L. ;
CONTRACT: NAS7 100

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •SPACE FLIGHT,
ASTRONAUTICS, ATMOSPHERE ENTRY, COMMUNICATION SYSTEMS,
COMPUTERS, CONTROL SYSTEMS, GUIDANCE,
MAGNETOHYDRODYNAMICS, MANNED, MATERIALS, MOON,
PROPULSION, RADIATION INJURIES, REENTRY VEHICLES,
SATELLITES (ARTIFICIAL), SPACE MEDICINE, SPACECRAFT, VAN
ALLEN RADIATION BELT, WEIGHTLESSNESS (U)
IDENTIFIERS: ECHO, RANGER SPACECRAFT, SATURN, X-15
AIRCRAFT, X-20 SPACECRAFT (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 6A7

TRW SPACE TECHNOLOGY LABS REDONDO BEACH CALIF
FLIGHT PERFORMANCE HANDBOOK FOR POWERED FLIGHT
OPERATIONS. FLIGHT MECHANICS AND SPACE VEHICLE
DESIGN, EMPIRICAL FORMULAE, ANALYTIC APPROXIMATIONS
AND GRAPHICAL AIDS

(U)

IV WHITE, J. FREDERICK;

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN.

SUPPLEMENTARY NOTE: COPIES AVAILABLE FROM SPACE
TECHNOLOGY LAB., INC., REDONDO BEACH, CALIF.

DESCRIPTORS: •ATMOSPHERE ENTRY, •BOOSTER MOTORS,
•HANDBOOKS, •LAUNCHING SITES, •SPACE FLIGHT,
•SPACECRAFT, AERODYNAMIC HEATING, DRAG, DYNAMICS, EARTH,
EQUATIONS, FLIGHT PATHS, GRAVITY, GUIDANCE, HEATING,
LANDINGS, LOAD DISTRIBUTION, LUNAR PROBES, MARS,
MATHEMATICAL ANALYSIS, MOTION, ORBITAL TRAJECTORIES,
PLANETARY ATMOSPHERES, SAFETY, STAGING, TENSIMETERS,
TERMINAL BALLISTICS, THERMAL INSULATION, THERMAL
RADIATION, TRACKING, VELOCITY, VENUS

(U)

THRUST, ORBITAL FLIGHT PATHS, TERMINAL BALLIS
TICS, SATELLITE VEHICLE TRAJECTORIES, SAFETY,
FLIGHT PATHS, MATHEMATICAL ANALYSIS, THERMAL
RADIATION, GRAVITY, DRAG. IDENTIFIERS:
TERMINAL GUIDANCE, WEIGHT. CONTENTS: VEHICLE
PERFORMANCE ESTIMATION TECHNIQUES (MISSION
REQUIREMENTS, ORBITAL MISSIONS 2-3, LUNAR AND
INTERPLANETARY MISSION REQUIREMENTS, VEHICLE
PERFORMANCE); SYSTEM CONSIDERATIONS (LAUNCH
SITE LIMITATION RANGE SAFETY, LOADS AND
AERODYNAMIC HEATING, GUIDANCE AND TRACKING, AND
PERFORMANCE MARGIN CONCEPT); GENERALIZED EXCHANGE
RATIO ANALYSIS (ANALYTICAL RELATIONSHIPS);
VEHICLE SIZING (PAYLOAD RATIO; STAGE MASS
RATIO, OPTIMUM SIZING FOR MINIMUM GROSS WEIGHT-
PAYLOAD WEIGHT RATIO, AND GENERAL OPTIMUM
SIZING); LUNAR/PLANETARY DEBOOST, EQUATIONS
FOR IMPULSIVE VACUUM DEBOOST, AND VELOCITY
REQUIREMENTS FOR A VERTICAL DESCENT LUNAR LANDING);
PLANETARY ENTRY (VEHICLE DESIGN CONSIDERATIONS
FOR ATMOSPHERIC ENTRY, ATMOSPHERES OF THE
PLANETS).

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 399

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY

VOLUME V, NO. 0 (ENTRIES 50,418-50,669) (U)

MAR 62 1V CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,

E.M.;

CONTRACT: NAS7 100

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •COSMIC
RAYS, •SPACE FLIGHT, ANTENNAS, ATMOSPHERE ENTRY,
AURORAE, BOOSTER MOTORS, CLOSED-CYCLE ECOLOGICAL
SYSTEMS, COMETS, COMMUNICATION SYSTEMS, GRAVITY,
GUIDANCE, HYDROGEN, INSTRUMENTATION, IONOSPHERE,
MAGNETOHYDRODYNAMICS, MANNED, MARS, MATERIALS,
METEORITES, MOON, ORBITAL TRAJECTORIES, PHYSIOLOGY,
PLANETS, POWER SUPPLIES, PROPELLANTS, RELATIVITY THEORY,
ROCKET MOTORS, SOLAR FLARES, SPACECRAFT, SUN, UPPER
ATMOSPHERE, VAN ALLEN RADIATION BELT, VENUS.
WEIGHTLESSNESS (U)

IDENTIFIERS: APOLLO, MERCURY PROJECT, RANGER
SPACECRAFT (U)

IDENTIFIERS: F-REGION, RANGER PROJECT,
BIOASTRONAUTICS, APOLLO, MERCURY PROJECT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 174

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

RESULTS OF THE FIRST UNITED STATES MANNED ORBITAL
SPACE FLIGHT, FEBRUARY 20, 1962

(U)

FEB 62 IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
BOOSTER MOTORS, CONTROL SYSTEMS, DESIGN, DISPLAY
SYSTEMS, FLIGHT CLOTHING, FLIGHT INSTRUMENTS, FLIGHT
TESTING, GROUND SUPPORT EQUIPMENT, MANNED, OPERATION,
ORBITAL TRAJECTORIES, PHYSIOLOGY, RECOVERY, RETRO
ROCKETS, SPACE MEDICINE, SPACECRAFT, SURVIVAL KITS,
TRACKING

(U)

IDENTIFIERS: MERCURY PROJECT

(U)

CONTENTS: OPERATION REQUIREMENTS AND PLANS;
SPACECRAFT AND SPACECRAFT SYSTEMS; LIFE SUPPORT
SYSTEMS AND BIOMEDICAL INSTRUMENTATION;
LAUNCHCOMPLEX CHECKOUT AND LAUNCH-VEHICLE SYSTEMS;
SPACECRAFT PREPARATION AND CHECKOUT; FLIGHT
CONTROL AND FLIGHT PLAN; RECOVERY OPERATIONS;
AEROMEDICAL PREPARATION AND RESULTS OF POSTFLIGHT
MEDICAL EXAMINATIONS; PHYSIOLOGICAL RESPONSES OF
THE ASTRONAUT; ASTRONAUT PREPARATION; PILOT
PERFORMANCE; PILOTS FLIGHT REPORT; AND SUMMARY OF
RESULTS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-274 010

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME V, NO. 3

(ABSTRACTS 5,201-5,330)

(U)

MAR 62 1V

HARDGROVE, B.J.; WARREN, F.L.;

CONTRACT: NAS7 100

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •MOON,
•SPACE FLIGHT, ABLATION, ANTENNAS, ATMOSPHERE, CONTROL,
GUIDANCE, GUIDED MISSILE TRAJECTORIES, HEAT TRANSFER,
IONOSPHERE, MAGNETOHYDRODYNAMICS, MANNED, MATERIALS,
ORBITAL TRAJECTORIES, RADIATION EFFECTS, REENTRY
VEHICLES, SOLAR CELLS, SPACE MEDICINE, SPACE PROBES,
SPACECRAFT, SUN

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 768

HUGHES AIRCRAFT CO CULVER CITY CALIF
INVESTIGATION OF ADVANCED ANTENNA TECHNIQUES FOR
SPACE VEHICLE DOPPLER VELOCITY SENSORS (U)
IV FONG, T.S.; FOX, R.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •HYPERVELOCITY
VEHICLES, •LUNAR PROBES, •PARABOLIC ANTENNAS, •RADAR
ANTENNAS, •RADAR NAVIGATION, •SLOT ANTENNAS, •SPACE
FLIGHT, •SPACE NAVIGATION, •SPACECRAFT, ANTENNA
COMPONENTS, ANTENNA RADIATION PATTERNS, ANTENNAS,
COUPLINGS, DESIGN, DOPPLER SYSTEMS, GUIDANCE,
NAVIGATION, TESTS, WAVEGUIDE SLOTS (U)

INVESTIGATIONS CONTINUED ON NEW ANTENNA TECHNIQUES
FOR DOPPLER VELOCITY SENSING SYSTEMS TO BE USED IN
SPACECRAFT GUIDANCE APPLICATIONS. THE MODE PURITY
PROBLEM WAS SATISFACTORILY RESOLVED AND THE SLOT
MEASUREMENT PROGRAM CONTINUED FOR THE BRANCH LINE
ARRAY. A THEORETICAL STUDY OF AN APPROPRIATE
APERTURE DESIGN WAS COMPLETED WHICH SATISFIES THE
REQUIREMENT THAT SYMMETRICAL BEAMS BE GENERATED BY
THESE ARRAYS WHEN FED FROM EITHER END. RADIATION
PATTERNS WERE COMPUTED AND THE MAXIMUM AND MINIMUM
APERTURE COUPLING VALUES DETERMINED FROM THE PATTERN
REQUIREMENTS. SOME COUPLING MEASUREMENTS WERE
PERFORMED TO OBTAIN THOSE VALUES. THE INFLATABLE
8-FT PARABOLOID, FOR MID-COURSE GUIDANCE STUDY WAS
SUCCESSFULLY INFLATED TO THE DESIGN PRESSURE. THE
SPECIAL EQUIPMENT NECESSARY TO TEST THE ANTENNA, BOTH
ELECTRICALLY AND MECHANICALLY, WAS DESIGNED. THIS
EQUIPMENT CONSISTS OF A POLYSTYRENE FOAM RADOME, A
FEED MOUNT WHICH IS ADAPTABLE TO BOTH THE INFLATABLE
AND THE REFERENCE ANTENNAS, AN ANTENNA MOUNT ADAPTOR,
AND A RECEIVER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 329

RAND CORP SANTA MONICA CALIF
SOME METHODS FOR ESTABLISHING INTERPLANETARY TRANSFER
ORBITS (U)

IV ROWELL, L.N.;

UNCLASSIFIED REPORT

DESCRIPTORS: •ORBITAL TRAJECTORIES, •SPACE FLIGHT,
DIFFERENTIAL EQUATIONS, DIGITAL COMPUTERS, DYNAMICS,
EQUATIONS, INTEGRAL EQUATIONS, INTERPLANETARY
TRAJECTORIES, MATHEMATICAL ANALYSIS, MOTION, OPERATIONS
RESEARCH, PARTIAL DIFFERENTIAL EQUATIONS (U)

SOME METHODS FOR ESTABLISHING HELIOCENTRIC
INTERPLANETARY TRANSFER ORBITS ARE DISCUSSED. THE
FOUR BASIC METHODS AND THEIR VARIATIONS CAN BE USED
TO ESTABLISH ORBITS HAVING SPECIFIED TRANSFER ANGLES,
TRANSFER TIMES, HYPERBOLIC EXCESS VELOCITIES, OR
HELIOCENTRIC DEPARTURE VELOCITIES. EACH METHOD
CONSISTS OF A STEP-BY-STEP COMPUTATION PROCEDURE
WHICH UTILIZES THE EQUATIONS OF TWO-BODY MOTION AND
APPROPRIATE TRIGONOMETRIC RELATIONS TO ESTABLISH THE
DESIRED TRANSFER ORBIT. EACH METHOD FOR
ESTABLISHING A DESIRED TRANSFER ORBIT REQUIRES AN
ITERATIVE PROCESS. THUS, THE METHODS ARE BEST
APPLIED BY USING A LARGE-SCALE DIGITAL COMPUTER.
IN THIS WAY NUMEROUS ORBITS CAN BE ESTABLISHED AND
THE ORBIT WHICH IS OPTIMUM FOR SOME REQUIREMENT CAN
BE SELECTED. NONE OF THE METHODS PERMITS A DIRECT
ANALYTICAL DETERMINATION OF AN OPTIMUM ORBIT.
(AUTHOR) (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 132

JET PROPULSION LAB PASADENA CALIF
A SUMMARY OF THE CHARACTERISTICS OF BALLISTIC
INTERPLANETARY TRAJECTORIES, 1962-1977 (U)

JAN 62 IV CLARKE, VICTOR C. JR.;
REPT. NO. TR32 209
CONTRACT: NAS7 100

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •FLIGHT PATHS, •ORBITAL TRAJECTORIES,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, EARTH, JUPITER,
LAUNCHING, MARS, PLANETS, SCHEDULING, SPACE PROBES,
VENUS (U)

WITHIN THE NEXT DEC DE, CON I ERABL NATIONAL
EFFORT WILL BE P E I PLORING IG BORING PL
NETS FOR THE OST PAR , THIS PLORATION WILL BE
ACCOMPLISHED WITH UNMANNED PROBES UTILIZING BALLISTIC
TRAJECTORIES. ULTIMATELY, EL C RIC PROPULSION
T ILL BE USED IN T E IN ERIM, KNOWLEDGE OF
THE CHARACT RISTICS OF BALLISTIC TRAJECTORIES WILL
BE OF CONSIDERABLE VALUE IN PLANNING AND DESIGNING
INTERPLANETARY MISSIONS. KEY CHARACTERISTICS, SUCH
AS FLIGHT TIMES LAUNCH ATES, AND INJECTION ENERGY
RE UIREMENTS FOR MERCURY VENUS, ARS, AND
JUPITER TRAJECTORIES AS FAR AHEAD AS 1977 ARE
PRESENTED. ONLY SELEC ED TRAJECTORIES TO MERCURY
A D JUPITER AR GIVEN THE PRIMARY P A IS BEING
PLACED ON VENUS AND MARS TR JECTORIES.
(AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-273 005L

MARTIN CO ORLANDO FLA

MTSS. GENERAL HUMAN FACTORS CONSIDERATIONS. VOLUME
III

(U)

JAN 62 IV

CONTRACT: DA19 0200RD5253

MONITOR: WAL TR320 4 4 1

UNCLASSIFIED REPORT
CONTROLLED

DESCRIPTORS: •CONTROLLED ATMOSPHERES, •SPACE FLIGHT,
•WEIGHTLESSNESS, ACCELERATION TOLERANCE, ASTRONAUTICS,
ATTENTION, DISPLAY SYSTEMS, MANNED, NOISE, NUTRITION,
OXYGEN, PRESSURE, RADIATION EFFECTS, SENSORY
DEPRIVATION, SPACE CAPSULES, TEMPERATURE, VIBRATION,
VISION, VISUAL ACUITY

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-272 581

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
ANIMALS AND MAN IN SPACE. A CHRONOLOGY AND ANNOTATED
BIBLIOGRAPHY THROUGH THE YEAR 1960. (U)

62 97P BEISCHER, DIETRICH E. ;

FREGLY, ALFRED R. ;

REPT. NO. MONOGRAPH-5

MONITOR: ONR ACR-64

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS , •BALLOONS , •BIBLIOGRAPHIES ,
•COSMIC RAYS , •SPACE FLIGHT , •SPACE MEDICINE , HUMANS ,
LABORATORY ANIMALS , MANNED , SCIENTIFIC RESEARCH , SPACE
CAPSULES , WEIGHTLESSNESS (M)

THIS WORK BRINGS TOGETHER FOR THE FIRST TIME A
LISTING OF ALL AVAILABLE REPORTS RELATING TO
BIOLOGICAL EXPERIMENTS CONDUCTED DURING BALLOON AND
ROCKET FLIGHTS, WITH PLANTS, ANIMALS, AND HUMANS AS
SUBJECTS. THIS COMPILATION INCLUDES A LISTING OF
PERTINENT BIBLIOGRAPHIES, MONOGRAPHS, TECHNICAL
PUBLICATIONS, AND PERIODICAL ARTICLES. DETAILED
TABULATIONS ARE GIVEN OF ALL KNOWN BALLOON AND ROCKET
FLIGHTS, INCLUDING SUCH INFORMATION AS FLIGHT
DESIGNATION, LOCATION, TYPE OF EXPERIMENT,
EXPERIMENTAL SUBJECTS, HEIGHT, DURATION, SUCCESS OR
FAILURE, INVESTIGATORS, AND CROSS-REFERENCES TO
LITERATURE. A SELECTIVE SUBJECT INDEX IS INCLUDED,
LISTING EXPERIMENTAL MATERIAL AND GIVING CROSS-
REFERENCES TO LITERATURE. MOST OF THE CITATIONS
ARE ANNOTATED. (AUTHOR)

X
D. A. G. W. L.
(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423.

AD-271 621

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
WITH A CAMERA IN SPACE

(U)

1V TITOV, GERMAN; PALMER, J.W.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AERIAL RECONNAISSANCE, •SPACE FLIGHT,
AERIAL PHOTOGRAPHS, CLOUDS, EARTH, INLAND WATERWAYS,
SATELLITES (ARTIFICIAL), TERRAIN, TRANSLATIONS

(U)

IDENTIFIERS: USSR, VOSTOK

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-271 514

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS (U)

DEC 61 IV

REPT. NO. 61 168

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE, BIOLOGY,
BLOOD, FEVERS, RADIOBIOLOGY, SURVIVAL (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 974

MARTIN-BAKER AIRCRAFT CO LTD DENHAM (ENGLAND)
LIQUID PROPELLANT LOSSES DURING SPACE FLIGHT

(U)

NOV 61 1V

REPT. NO. 63270 00 03

CONTRACT: NASS 664

UNCLASSIFIED REPORT

DESCRIPTORS: •LIQUID ROCKET PROPELLANTS, •SATELLITES
(ARTIFICIAL), •SPACE ENVIRONMENTAL CONDITIONS, •SPACE
FLIGHT, HAZARDS, HEAT TRANSFER, HYPERVELOCITY VEHICLES,
IMPACT SHOCK, IONIZATION, METEORS, PROPELLANT TANKS,
RADIATION DAMAGE, SPALLATION, STORAGE, THERMAL
CONDUCTIVITY, THERMAL RADIATION, VISUAL SIGNALS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 695

ROCKET PROPULSION ESTABLISHMENT WESTCOTT (ENGLAND)
THE APPLICATION OF ADVANCED PROPULSION SYSTEMS TO
DEEP-SPACE VEHICLES

(U)

IV CRUDDACE, R.G.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SPACE FLIGHT, ATTITUDE CONTROL SYSTEMS,
ELECTRIC PROPULSION, EXHAUST GASES, LIQUID ROCKET
PROPELLANTS, LUNAR PROBES, MATHEMATICAL ANALYSIS,
NUCLEAR PROPULSION, PROPULSION, SATELLITE ATTITUDE,
SATELLITES (ARTIFICIAL), SPACE PROBES, SPACECRAFT,
THEORY, THRUST, VELOCITY

(U)

AN ANALYSIS IS DEVELOPED FOR OPTIMISING THE EXHAUST
VELOCITY VARIATION OF AN ELECTRIC PROPULSION SYSTEM
TO OBTAIN THE MAXIMUM PAYLOAD FRACTION. USING THE
RESULTS OF THIS ANALYSIS, ELECTRIC PROPULSION SYSTEMS
ARE COMPARED TO THERMAL SYSTEMS FOR THREE IMPORTANT
CLASSES OF DEEPSPACE MISSION; THE ADJUSTMENT OF
EARTH SATELLITE ORBITS, LUNAR MISSIONS, AND
INTERPLANETARY MISSIONS. SUGGESTIONS ARE MADE AS
TO THE PROPULSION REQUIREMENTS FOR THESE MISSIONS,
AND THE CONCLUSION IS REACHED THAT KNOWLEDGE OF HOW
EACH PROPULSION SYSTEM FITS INTO AN INTEGRATED,
LONGTERM PROGRAM FOR SPACE EXPLORATION IS ESSENTIAL
TO THE PLANNING OF A RESEARCH AND DEVELOPMENT PROGRAM
FOR ADVANCED PROPULSION SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 533

HUGHES AIRCRAFT CO CULVER CITY CALIF
INVESTIGATION OF ADVANCED ANTENNA TECHNIQUES FOR
SPACE VEHICLE DOPPLER VELOCITY SENSORS (U)

DEC 61 IV
REPT. NO. P61 29
CONTRACT: AF33 616 8282

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •HYPERVELOCITY
VEHICLES, •LUNAR PROBES, •PARABOLIC ANTENNAS, •RADAR
ANTENNAS, •RADAR NAVIGATION, •SLOT ANTENNAS, •SPACE
FLIGHT, •SPACE NAVIGATION, •SPACECRAFT, ANTENNA
COMPONENTS, ANTENNA RADIATION PATTERNS, ANTENNAS,
COUPLINGS, GUIDANCE, MICROWAVES, NAVIGATION,
PROPAGATION, WAVEGUIDE SLOTS (U)

EFFORTS WERE CONTINUED ON A FLUSH-MOUNTED ANTENNA
FOR AN ACTIVE DOPPLER VELOCITY SENSOR FOR BOOST-GLIDE
NAVIGATION ON SPACE VEHICLES. A SINGLE SQUARE
WAVEGUIDE 2-DIMENSIONAL ARRAY WHICH CONTAINS 4
ISOLATED FEED PORTS WAS DEvised TO MEET THIS
REQUIREMENT. PORT ISOLATION IS OBTAINED BY
UTILIZING THE POLARIZATION-ISOLATION THAT EXISTS
BETWEEN THE TE₁₀ AND TE₀₁ MODES IN THE SQUARE
WAVEGUIDE. EFFORTS WERE ALSO CONTINUED ON AN
ACTIVE DOPPLER ANTENNA TO BE USED IN THE TERMINAL
GUIDANCE OF A VEHICLE DURING A SOFT LUNAR LANDING.
THE DESIGN OF SPACE DUPLEXING ANTENNAS WAS
COMPLETED. THE TRANSMITTING ANTENNA CONSISTS OF A
SINGLE PORT STANDING-WAVE ARRAY WHICH GENERATES 4
SYMMETRIC BEAMS ABOUT THE NORMAL TO THE APERTURE
SURFACE. THE UNIFORMLY ILLUMINATED APERTURE WILL
CONTAIN 40 X 40 ELEMENTS IN ORDER TO PROVIDE 35 DB
GAIN PER BEAM. SEVERAL RECEIVING ARRAY
CONFIGURATIONS WERE ANALYZED. CONSIDERATION WAS
GIVEN TO GAIN, TOTAL APERTURE SIZE, ISOLATION BETWEEN
THE RECEIVED BEAMS, AND GEOMETRIC COMPATIBILITY OF
THE RECEIVING ARRAY CONFIGURATIONS WITH REGARD TO THE
TRANSMITTING ARRAY. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-270 064

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
SPACE NAVIGATION SYSTEMS AND DEVICES: AN ANNOTATED
BIBLIOGRAPHY (U)

AUG 61 1V GOLDMANN, JACK B.;
REPT. NO. 3 80 61 15

UNCLASSIFIED REPORT

DESCRIPTORS: •AERONAUTICS, •BIBLIOGRAPHIES, •GUIDANCE,
•LUNAR PROBES, •SPACE FLIGHT, •SPACE NAVIGATION, •SPACE
PROBES, LANDINGS, MANNED, REENTRY VEHICLES (U)



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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 818

AEROJET-GENERAL CORP AZUSA CALIF
RESEARCH STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FOR SPACE MISSIONS. VOLUME III. MISSION
STUDIES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-31 OCT 61.

DEC 61 IV

REPT. NO. 2150-VOL-3

CONTRACT: NAS 5-915

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT ,•SPACE PROBES ,BOOSTER
MOTORS ,CONTROL SYSTEMS ,FLIGHT PATHS ,LUNAR PROBES ,
MANNED ,MATHEMATICAL ANALYSIS ,MATHEMATICAL PREDICTION ,
MILITARY REQUIREMENTS ,ROCKET MOTORS ,ROCKET PROPELLANTS
,ROCKET PROPULSION ,SATELLITES(ARTIFICIAL) ,SPACECRAFT ,
SPECIFIC IMPULSE ,STORAGE ,THEORY ,THRUST (M)

PROPULSION REQUIREMENTS AND CRITERIA, SELECTION AND
EVALUATION OF ALTERNATE PROPULSION SYSTEMS, AND
SPECIFICATIONS OF INTEGRATED CONCEPTUAL SYSTEM
DESIGNS ARE REPORTED FOR EACH OF THE SEVERAL SPACE
MISSIONS SPECIFIED FOR FURTHER STUDY BY NASA AT THE
COMPLETION OF PHASE I (AD-268 631 AND AD-268
362) OF THE STUDY. PARTICULAR ATTENTION IS GIVEN
TO LUNAR MISSIONS AND 24-HR SATELLITE MISSIONS.
(AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 791

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
USSR MISSILE AND ROCKET PROGRAM BIBLIOGRAPHY (U)

1V

REPT. NO. 61 12

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •SPACE FLIGHT,
EXTRATERRESTRIAL BASES, GUIDED MISSILES, PROPELLANTS,
PROPULSION, ROCKETS (U)

Ordered

USSR

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 642

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

NATURE (SELECTED ARTICLES)

(U)

AUG 61 1V

REPT. NO. MCL 1255

UNCLASSIFIED REPORT

DESCRIPTORS: •SCIENTIFIC RESEARCH, •SPACE FLIGHT, •SPACE
PROBES (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 197

AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO
PROBLEMS OF THE MECHANICS OF INTERPLANETARY SPACE
TRAVEL (U)

NOV 61 1V TRAENKLE, C.A.;
REPT. NO. 141

UNCLASSIFIED REPORT

DESCRIPTORS: •CELESTIAL MECHANICS, •SPACE FLIGHT, FLIGHT
PATHS, GRAVITY, LAUNCHING, MATHEMATICAL ANALYSIS, SPACE
NAVIGATION, SPACE PROBES, SPACECRAFT, THEORY, THRUST,
VELOCITY (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-269 113

RAND CORP SANTA MONICA CALIF

SOLAR-FLARE RADIATION AND MANNED SPACE FLIGHT (U)

1V DUGAS, D. J.;

UNCLASSIFIED REPORT

DESCRIPTORS: •RADIATION HAZARDS, •RADIATION INJURIES,
•SOLAR FLARES, •SPACE FLIGHT, •SUNSPOTS, COSMIC RAYS,
DOSE RATE, MANNED, MATHEMATICAL ANALYSIS, SOLAR
RADIATION, VAN ALLEN RADIATION BELT (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 867

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

LET US TAKE A LOOK INTO THE FUTURE

(U)

DEC 61 1V VASILYEV, V.;

REPT. NO. TT 61 254

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ELECTRIC PROPULSION, GUIDED
MISSILES, LAUNCHING, LIQUID ROCKET PROPELLANTS, ROCKET
PROPULSION, SPACECRAFT

(U)

IDENTIFIERS: USSR

(U)

CONSIDERATION WAS GIVEN TO HOW ROCKETS OF THE
FUTURE WILL FLY INTO THE UNKNOWN UNIVERSE INCLUDING
LAUNCHING OF THE ROCKET AND ELECTRIC PROPULSION
SYSTEMS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 768

TRW INC CLEVELAND OHIO

PROPELLANT-ATMOSPHERE SYSTEM STUDY (U)

DESCRIPTIVE NOTE: REPT. FOR MAY 59-MAY 60 ON
EQUIPMENT FOR LIFE SUPPORT IN AEROSPACE,

MAR 61 222P

REPT. NO. ER-4257

PROJ: 6373

MONITOR: WADD TR-60-622

UNCLASSIFIED REPORT

DESCRIPTORS: SPACE FLIGHT, AIR CONDITIONING EQUIPMENT,
CARBON DIOXIDE, CHEMICAL REACTIONS, CLOSED-CYCLE
ECOLOGICAL SYSTEMS, CRYOGENICS, DESIGN, ELECTRIC POWER
PRODUCTION, FUEL CELLS, HEAT TOLERANCE, HUMIDITY, LIQUID
ROCKET PROPELLANTS, LOGISTICS, MANNED, MATHEMATICAL
ANALYSIS, OXYGEN, PHYSIOLOGY, POWER SUPPLIES, ROCKET
FUELS, ROCKET OXIDIZERS, ROCKET PROPELLANTS, SPACE
ENVIRONMENTAL CONDITIONS, SPACECRAFT, TEMPERATURE
CONTROL, THEORY (U)

TWO BROAD ASPECTS OF USING CHEMICAL ENERGY TO
PROVIDE METABOLIC OXYGEN IN A MANNED SPACE CAPSULE
WERE STUDIED: MAN'S ECOLOGICAL REQUIREMENTS AND
SUPPLY OF AUXILIARY POWER. THE STUDIES WERE
RESTRICTED TO CHEMICALS USED IN PROPULSION SYSTEMS
WITH EMPHASIS ON BY-PRODUCTS USEFUL TO MAN. A
SURVEY OF METHODS FOR MEETING ENVIRONMENTAL
REQUIREMENTS INCLUDED (A) EVALUATION OF PASSIVE
TEMPERATURE CONTROL IN TERMS OF CAPSULE SIZE, SHAPE,
SURFACE EMISSIVITY, ORBITAL ALTITUDE, ORIENTATION,
AND INTERNALLY GENERATED POWER, AND (B)
EVALUATION OF WEIGHT AND ENERGY REQUIREMENTS FOR
SUPPLYING OXYGEN, DEHUMIDIFYING, AND REMOVING CO₂
IN THE CABIN. THE BEST OF 40 FUELS AND 35
OXIDIZERS WERE SCREENED FOR OTHER FACTORS: WEIGHT
OF THE CONTAINERS, GENERAL METHODS FOR CONVERTING THE
ENERGY TO ELECTRIC POWER, MECHANICAL PRIME MOVERS
(THEIR EFFICIENCIES, CYCLE CONFIGURATIONS, WEIGHT,
SPECIFIC FUEL CONSUMPTION), THERMIONIC,
THERMOELECTRIC, AND ELECTROCHEMICAL CONVERSIONS.
THE UNIQUE ADAPTABILITY OF THE CRYOGENIC HYDROGEN-
OXYGEN FUEL SYSTEM WAS DEMONSTRATED. (AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 633

AEROJET-GENERAL CORP AZUSA CALIF
RESEARCH STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FORSPACE MISSIONS. VOLUME IVA.
APPENDIXES.

(U)

DEC 61 1V
REPT. NO. 2150 V4A
CONTRACT: NAS5 915

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, COOLING, DESIGN, ERRORS,
FLIGHT PATHS, GUIDANCE, GUIDED MISSILE TRAJECTORIES,
LANDINGS, LAUNCHING, LUNAR PROBES, MANNED, MATHEMATICAL
ANALYSIS, MILITARY REQUIREMENTS, MOON, ORBITAL
TRAJECTORIES, PROPULSION, RELIABILITY, ROCKET
PROPELLANTS, ROCKET PROPULSION, SPACE PROBES,
SPACECRAFT, STORAGE, THEORY, THRUST, VELOCITY

(U)

CONTENTS: NON-IMPULSIVE ORBITAL MANEUVERS;
CONTINUOUS THRUST EPOCH-CHANGE; TWO-DIMENSIONAL
EARTH ORBIT RENDEZVOUS; THREE-DIMENSIONAL
CONSIDERATIONS FOR MIDCOURSE CORRECTIONS
REQUIREMENTS; ANALYSIS OF INITIAL INTERPLANETARY
TRAJECTORY ERRORS; VELOCITY REQUIREMENTS AND ERROR
EFFECTS FOR TERMINAL CORRECTIONS; VELOCITY
REQUIREMENTS AND ERROR EFFECTS FOR ORBITING MANEUVER;
APPROXIMATE ANALYSIS OF ATMOSPHERICGRAZING
MANEUVERS; VERTICAL LANDING ON MARS; PROPULSION
REQUIREMENTS FOR DIRECT MARS LANDING DECELERATION
OF 8 EARTH G; THRUST VARIABILITY; LUNAR
ORBITING MISSION WITH ABORT CAPABILITY; CIRCUMLUNAR
TRAJECTORY ANALYSIS; LUNAR TRAJECTORY COMPUTATION
AND TRAJECTORY CORRECTIONS; SIMULATION OF LUNAR
ORBITAL AND LANDING MANEUVERS; LUNAR HOVERING AND
HORIZONTAL TRANSLATION; DERIVATION OF OPTIMUM
INSULATION THICKNESS; RADIATION-COOLED THRUST
CHAMBER WEIGHT ANALYSIS; STRUCTURAL WEIGHT
EVALUATIONS; THRUST LEVEL AND CHAMBER PRESSURE
OPTIMIZATION; APPLICABLE CONCEPT DISPLAY;
RELIABILITY ANALYSIS; AND LUNAR STORAGE OF
PROPELLANTS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-268 631

AERUJET-GENERAL CORP AZUSA CALIF
RESEARCH STUDY TO DETERMINE PROPULSION REQUIREMENTS
AND SYSTEMS FORSPACE MISSIONS. VOLUME IIA RESEARCH
STUDIES (TEXT)

(U)

DEC 61 IV
REPT. NO. 2150 V2A
CONTRACT: NAS5 915

UNCLASSIFIED REPORT

DESCRIPTORS: •ROCKET PROPULSION, •SPACE FLIGHT, ELECTRIC
PROPULSION, FLIGHT PATHS, GUIDANCE, GUIDED MISSILE
TRAJECTORIES, HYBRID ROCKET PROPELLANTS, LANDINGS,
LAUNCHING, LIQUID ROCKET PROPELLANTS, LUNAR PROBES,
MANNED, MATHEMATICAL ANALYSIS, MATHEMATICAL PREDICTION,
MILITARY REQUIREMENTS, NUCLEAR PROPULSION, ORBITAL
TRAJECTORIES, PROPULSION, RENDEZVOUS SPACECRAFT, ROCKET
PROPELLANTS, SOLID ROCKET PROPELLANTS, SPACE PROBES,
THRUST

(U)

THE MISSION-ANALYSIS SECTION INCLUDES A STUDY OF
SPACE-PROPULSION REQUIREMENTS THAT ARE ANTICIPATED
WITHIN THE FOLLOWING GENERAL AREAS: ORBITAL
CORRECTIONS; ORBITAL RENDEZVOUS; LUNAR AND
INTERPLANETARY TRAJECTORY CORRECTIONS; LUNAR AND
PLANETARY ORBITING MANEUVERS; AND LUNAR AND
PLANETARY LANDINGS AND TAKEOFFS. THE
SYSTEMCONCEPTS SECTION PRESENTS A COMPREHENSIVE
REVIEW OF THE GENERAL CHARACTERISTICS OF PROPULSION
SYSTEMS CONSIDERED APPLICABLE TO VARIOUS SPACE-
PROPULSION REQUIREMENTS. THE FOLLOWING GENERAL
TYPES OF PROPULSION SYSTEMS WERE CONSIDERED:
LIQUID-PROPELLANT CHEMICAL; SOLIDPROPELLANT
CHEMICAL; HYBRID CHEMICAL; NUCLEAR HEAT-TRANSFER;
AND ELECTRIC PROPULSION SYSTEMS. THE TYPES ARE
FURTHER CLASSIFIED ACCORDING TO CHARACTERISTICS SUCH
AS PROPELLANT TYPES, CHAMBER-PRESSURE RANGE, AND
NOZZLE-COOLING METHOD. PRIMARY EMPHASIS WAS PLACED
ON LIQUIDPROPELLANT CHEMICAL SYSTEMS. AN ANALYSIS
TERMED MISSION/SYSTEM CLASSIFICATION SUMMARIZES THE
OVER-ALL SPACE-PROPULSION REQUIREMENTS DEVELOPED BY
THE MISSION ANALYSIS WORK. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-268 509

GENERAL ELECTRIC CO SCHENECTADY N Y

SPACE FLIGHT ECOLOGIES

(U)

DEC 61 IV

KONIKOFF, J.J.;

REPT. NO. R61SD200

UNCLASSIFIED REPORT

DESCRIPTORS: •CLOSED-CYCLE ECOLOGICAL SYSTEMS, •ECOLOGY,
•SPACE FLIGHT, AIR, ALGAE, BIOCHEMISTRY, FOOD, MAN,
OXYGEN, PRESSURE, PURIFICATION, RECOVERY, SPACE
ENVIRONMENTAL CONDITIONS, TEMPERATURE, WATER (U)

TWO SYSTEMS FOR THE SUPPORT OF HUMAN LIFE IN SEALED
SPACE VEHICLES ARE DISCUSSED WITH RESPECT TO AIR
PURIFICATION, OXYGEN RECOVERY, WATER RECOVERY, AND
FOOD SUPPLY. THE PARTIALLY CLOSED ECOLOGY IS
COMPOSED OF SUBSYSTEMS SHOWN BY EXPERIMENT TO BE
FEASIBLE. KNOWN CHEMICAL REACTIONS ARE UTILIZED.
A COMPLETELY CLOSED ECOLOGICAL SYSTEM THAT MANTAINS
A BALANCE BETWEEN MAN AND ALGAL CULTURE REQUIRES
CONSIDERABLE RESEARCH AND DEVELOPMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-267 D16

AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

LARGE SPHERICAL ANTENNAS FOR AEROSPACE RESEARCH (U)

AUG 61 IV ALTSHULER, EDWARD E.;

REPT. NO. 745

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTENNAS, *RADAR ANTENNAS, *RESEARCH TEST
VEHICLES, *SPACE FLIGHT, COMMAND * CONTROL SYSTEMS,
CONTROL SYSTEMS, DESIGN, ILLUMINATION, REFLECTORS,
SATELLITES (ARTIFICIAL), SPACE PROBES, SPACECRAFT, X
BAND (U)

COMMAND AND CONTROL OF DEEP-SPACE VEHICLES ARE
CONTINGENT ON HIGH-GAIN HIGH-RESOLUTION STEERABLE
ANTENNAS. THE BEAM OF A LARGE SPHERICAL ANTENNA
CAN BE STEERED SIMPLY BY MOVING THE FEED.
ILLUMINATING THE REFLECTOR WITH A LINE SOURCE FEED
CORRECTS FOR SPHERICAL ABERRATION. THE PRIMARY AND
SECONDARY PATTERNS OF A 10-FT SPHERICAL REFLECTOR
ILLUMINATED BY AN X-BAND LINE SOURCE SHOWED
REASONABLY GOOD CORRELATION IN THE H PLANE. IN
THE E PLANE, THE PRIMARY PATTERN WAS DEGRADED BY A
PHASE ERROR RESULTING FROM ASTIGMATISM. CONDITIONS
OF THE EXPERIMENT PRECLUDED PREDICTION OF THE
DISTANCE THE LINE SOURCE WOULD HAVE TO BE MOVED TO
BRING THE E-PLANE PATTERNS INTO FOCUS.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-266 892

JET PROPULSION LAB PASADENA CALIF
ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY.
VOLUME IV, NO. 4 (ENTRIES 40, 729-41, 018) (U)
OCT 61 IV CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,
B.H.;

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, BIOLOGY, COMMUNICATION SYSTEMS, EXOSPHERE,
EXTRATERRESTRIAL BASES, GROUND SUPPORT EQUIPMENT,
IONOSPHERE, LUNAR PROBES, MAGNETIC FIELDS, MASERS,
MATERIALS, NUCLEAR PROPULSION, POWER SUPPLIES, SATELLITE
ATTITUDE, SATELLITES (ARTIFICIAL), SOLAR CELLS, SOLAR
SAILS, SPACE NAVIGATION, SPACE PROBES, UPPER ATMOSPHERE,
VAN ALLEN RADIATION BELT (U)
IDENTIFIERS: AGENA, APOLLO, CENTAUR, COURIER,
DISCOVERER, EXPLORER, JUPITER, LUNIK, MERCURY PROJECT,
RANGER SPACECRAFT, SATURN, SCOUT, THOR, TIROS,
VOSTOK (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-266 753

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO (U)
SEVENTEEN TIMES AROUND THE EARTH,
NOV 61 9P NAGY, ERNO ;
REPT. NO. FTD-TT-61-61

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SATELLITES(ARTIFICIAL) ,•SPACE FLIGHT ,
COMMUNICATION SYSTEMS ,HUNGARY ,LANDINGS ,ORBITAL
TRAJECTORIES ,REENTRY VEHICLES ,SPACE CAPSULES ,SPACE
NAVIGATION ,USSR (M)

A REPORT OF TITOV'S SPACE FLIGHT ON AUG. 21,
1961, COVERS THE ASPECTS OF GUIDANCE-NAVIGATION,
LANDING, AND COMMUNICATION SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-266 030

GOODRICH (B F) AEROSPACE AND DEFENSE PRODUCTS AKRON
OHIO

DESIGN, DEVELOPMENT, AND FABRICATION OF EIGHT (8)
PROTOTYPE MODEL FULL PRESSURE SPACE SUIT ASSEMBLIES (U)

OCT 61 1V BERUS, W.J.;

CONTRACT: NOAS60 6084

UNCLASSIFIED REPORT

DISTRIBUTION: NOFORN.

DESCRIPTORS: •PRESSURE SUITS, •SPACE FLIGHT, AGING
(PHYSIOLOGY), DESIGN, MANUFACTURING METHODS, MATERIALS,
TESTS, TEXTILES (U)

XGD-33 FULL PRESSURE SUIT, UTILIZING HT-1 FABRIC
AS THE OUTER RESTRAINT MEMBER, HAS BEEN COMPLETED AND
DELIVERED TO A.C.E.L. AN ESTANE VC TEST BAG
HAS BEEN SUCCESSFULLY SUBJECTED TO HEAT AGING TESTS
IN THE RANGE OF 170 F TO 195 F. THE
RADIATION PROTECTIVE LAYER IS CURRENTLY UNDERGOING
A TRIAL FACTORY PRODUCTION RUN. THERMAL RADIATION
AND G DLINE FLAME TESTING OF T-1 FABRIC AND
SEVERAL OTHER MATERIALS HAS BEEN COMPLETED. BONE
CONDUCTION MICROPHONES AND RECEIVERS HAVE BEEN
RECEIVED FOR EVALUATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-265 809

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE EARTH AND ITS NEIGHBORS

(U)

OCT 61 IV BARABASHOV, N.;

REPT. NO. TT 61 76

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •EARTH, •SPACE FLIGHT,
•TRANSLATIONS, MANNED, SPACE NAVIGATION, SPACECRAFT

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-265 478

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PARAMETER STUDY OF INSERTION CONDITIONS FOR LUNAR
MISSIONS INCLUDING VARIOUS TRAJECTORY CONSIDERATIONS(U)

DEC 61 IV HUSS,CARL R.;HAMER,HAROLD A.;MAYER,
JOHN P.;

REPT. NO. TR R 122

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •LUNAR PROBES, •ORBITAL TRAJECTORIES,
•SPACE FLIGHT; AERODYNAMIC CHARACTERISTICS, CELESTIAL
MECHANICS, DIFFERENTIAL EQUATIONS, EARTH, EQUATIONS,
GRAVITY, MATHEMATICAL ANALYSIS, MOON, TABLES (U)

A PARAMETER STUDY OF LUNAR BALLISTIC TRAJECTORIES
WAS MADE BY USING THE RESTRICTED TWO-BODY ORBIT
EQUATIONS AND ASSUMING THAT A SPHERE OF INFLUENCE
EXISTS ABOUT THE EARTH AND ABOUT THE MOON SUCH THAT
THE ATTRACTION OF EACH BODY ON THE VEHICLE CAN BE
TREATED SEPARATELY. THE RESULTS OF THE STUDY ARE
SUMMARIZED IN THE FORM OF CHARTS FROM WHICH
APPROXIMATE INSERTION CONDITIONS (VELOCITY, RADIUS
VECTOR OR ALTITUDE, FLIGHT-PATH ANGLE, AND LEAD ANGLE
OR FIRING TIME) CAN BE SELECTED FOR SPECIFIC LUNAR
FOR RETURN TO EARTH, AND TRIP TIMES. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 956

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY,

VOLUME IV, NO. 3 (ENTRIES 40, 454-40, 728)

(U)

SEP 61

IV

CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,

B.H.;

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, BIOLOGY, BOOSTER MOTORS, CLOSED-CYCLE ECOLOGICAL
SYSTEMS, COMETS, COMMUNICATION SYSTEMS, COSMIC RAYS,
MAGNETIC FIELDS, MANNED, METEORITES, METEOROLOGY,
ORBITAL TRAJECTORIES, RADAR TRACKING, SATELLITES
(ARTIFICIAL), UPPER ATMOSPHERE, VAN ALLEN RADIATION
BELT (U)

IDENTIFIERS: AGENA, APOLLO, DISCOVERER, ECHO, JUPITER,
MERCURY PROJECT, PIONEER, SATURN, SCOUT, SNAP,
SPUTNIK, THOR, TIROS, TRANSIT, VOSTOK (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 626

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FROM MAN-MADE SATELLITES TO INTERPLANETARY
FLIGHTS

(U)

IV SHTERNFEL'D, A.;

UNCLASSIFIED REPORT

DESCRIPTORS: *ORBITAL TRAJECTORIES, *SPACE FLIGHT,
*TECHNOLOGICAL INTELLIGENCE, *TRANSLATIONS,
ACCELERATION, ASTRONOMICAL OBSERVATORIES, CELESTIAL
NAVIGATION, DECELERATION, DESIGN, FLIGHT, MANNED, MARS,
MOON, MOTION, TAKE-OFF, TRAINING, VENUS, WELDING RODS (U)
IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 517

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE VELOCITIES THAT ARE POSSIBLE IN THE UNIVERSE (U)
IV ZONSHAYN, S.;

UNCLASSIFIED REPORT

DESCRIPTORS: •ION ENGINES, •SPACE FLIGHT, •VELOCITY,
MASS-ENERGY RELATION, NUCLEAR POWER PLANTS, PHOTONS,
RELATIVITY THEORY, ROCKET MOTORS, SPACECRAFT,
TECHNOLOGICAL INTELLIGENCE, TRANSLATIONS (U)
IDENTIFIERS: USSR, VOSTOK (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 297

JET PROPULSION LAB PASADENA CALIF
INTERPLANETARY POST-INJECTION GUIDANCE
JUN 59 IV NOTON, MAXWELL;

(U)

REPT. NO. EP653

CONTRACT: NASW6

UNCLASSIFIED REPORT

DESCRIPTORS: •CELESTIAL NAVIGATION, •DIGITAL COMPUTERS,
•EARTH, •GUIDED MISSILES, •PERTURBATION THEORY,
•PLANETS, •SPACE FLIGHT, ASTRONOMY, ATMOSPHERE ENTRY,
CELESTIAL MECHANICS, DATA STORAGE SYSTEMS, DIFFERENTIAL
EQUATIONS, GEOMETRY, GUIDANCE, INSTRUMENTATION, MARS,
MOON, ORBITAL TRAJECTORIES, PROGRAMMING (COMPUTERS),
RADIO RECEIVERS, ROCKET MOTORS, ROCKET TRAJECTORIES,
ROCKETS, TABLES, VENUS (U)

SYSTEMS OF MID-COURSE AND TERMINAL GUIDANCE THAT
MIGHT BE APPLIED TO INTERPLANETARY MISSIONS IN THE
NEXT FIVE YEARS ARE CONSIDERED. THE NECESSARY
THEORETICAL BACKGROUND IS DEVELOPED FOR THE FORMATION
OF GUIDANCE EQUATIONS AND FOR CARRYING OUT ERROR
ANALYSES. MID-COURSE GUIDANCE BOTH BY RADIO
COMMAND AND WITH A CELESTIAL NAVIGATOR IS DISCUSSED.
BACKED UP BY ERROR-ANALYSES FOR SPECIAL CASES. THE
OVER-ALL ACCURACY OF A RADIOCOMMAND SYSTEM IS
ESTIMATED, AND REPRESENTATIVE FIGURES ARE DERIVED TO
ILLUSTRATE THE GOAL OF HARDWARE DEVELOPMENT FOR
CELESTIAL NAVIGATORS. TERMINAL GUIDANCE PRIOR TO
ENTRY INTO PLANETARY ATMOSPHERES IS DISCUSSED.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 168

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
FIRST FLIGHT TO VENUS

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, ASTRONOMICAL
DATA, AUTOMATIC, DETERMINATION, EARTH, LAUNCHING,
ORBITAL TRAJECTORIES, POSITION FINDING, SPACE PROBES,
VENUS

(U)

IDENTIFIERS: USSR

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-264 012

JET PROPULSION LAB PASADENA CALIF

THE U.S. PLANETARY EXPLORATION PROGRAM

(U)

MAY 61 IV PARKS, ROBERT J.;

REPT. NO. TR32 84

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PLANETARY ATMOSPHERES, •PLANETS, •SPACE
FLIGHT, •SPACECRAFT, ASTRONAUTICS, DESIGN, EXPLORATION,
JUPITER, LUNAR PROBES, MARS, MERCURY, SATELLITES
(ARTIFICIAL), SCIENTIFIC RESEARCH, SPACE PROBES,
VENUS

(U)

IDENTIFIERS: CENTAUR, SATURN

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-263 709

ADVISORY GROUP FOR AERONAUTICAL RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

REMARKS ON THE STATUS OF PROJECT MERCURY (U)

OCT 60 IV BOND, ALECK C.; KEHLET, ALAN B.;

REPT. NO. 90

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ATMOSPHERE ENTRY, •ORBITAL TRAJECTORIES,
•SPACE CAPSULES, •SPACE FLIGHT, ACCELERATION, ADJUSTMENT
(PSYCHOLOGY), ASTRONAUTS, CONTROL SYSTEMS, FLIGHT
TESTING, HATCHES, INSTRUMENT PANELS, LANDING IMPACT,
MANNED, NAVIGATORS, PILOTS, PSYCHOLOGY, RECOVERY,
SATELLITE ATTITUDE, SATELLITES (ARTIFICIAL), SPACE
ENVIRONMENTAL CONDITIONS, TEST METHODS, TRACKING, WIND
TUNNEL MODELS (U)

IDENTIFIERS: MERCURY PROJECT (U)

A BROAD OVER-ALL REVIEW OF THE INITIAL PROGRAM OF
THE UNITED STATES FOR MANNED ORBITAL FLIGHT,
PROJECT MERCURY, IS PRESENTED IN THE LIGHT OF
EXPERIENCE GAINED IN THE TWO YEARS SINCE ITS
INITIATION. THE BASIC MERCURY GUIDELINES AND
DESIGN CONCEPTS ARE DISCUSSED, ALONG WITH THE
IMPLEMENTATION UNDERTAKEN FOR MAN'S INTRODUCTION TO
SPACE FLIGHT. THE SPACE CAPSULE AND SOME OF ITS
PRIMARY SYSTEMS ARE DESCRIBED IN CONJUNCTION WITH THE
MISSION AND ITS REQUIREMENTS. STATUS OF THE
FLIGHT-TEST PROGRAM AND SOME ASPECTS OF CURRENT
OPERATIONAL PLANS ARE ALSO COVERED. THE ROLE OF
THE ASTRONAUT AND HIS CONTRIBUTION TO THE
ACHIEVEMENT OF THE SCIENTIFIC OBJECTIVES OF PROJECT
MERCURY ARE ALSO DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 704

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME IV, NO. 2

(ABSTRACTS 4,101-4,201)

(U)

AUG 61

IV

HARDGROVE, B.J.; SANDS, E.H.; WARREN,

F.L.;

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, COMMUNICATION SYSTEMS, CONTROL, GUIDANCE,
MANNED, NAVIGATION, NUCLEAR PROPULSION, PROPULSION,
SATELLITES (ARTIFICIAL), SPACE MEDICINE, SPACE
NAVIGATION, SPACE PROBES, SPACECRAFT

(U)

IDENTIFIERS: ECHO, EXPLORER, MERCURY PROJECT, SCOUT,
SNAP, VANGUARD

(U)

CONTENTS: FLIGHT DYNAMICS VEHICLE TECHNOLOGY
COMMUNICATIONS, GUIDANCE, AND CONTROL MANNED
FLIGHT AND SPACE MEDICINE SPACE SCIENCE AUTHOR
INDEX SUBJECT INDEX SOURCE INDEX

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 618

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
AN ANNOUNCEMENT ON THE FLIGHT OF YURI GAGARIN (U)
1V

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ASTRONAUTICS, MANNED,
SPACECRAFT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 480

AMERICAN MACHINE AND FOUNDRY CO ALEXANDRIA VA ALEXANDRIA
DIV

ION AND ATOMIC BEAMS IN SPACE

(U)

AUG 61 1V CARROLL, ROBERT L.;

CONTRACT: DA36 039SC78961

MONITOR: ARPA 78 59

UNCLASSIFIED REPORT

DESCRIPTORS: •ATMOSPHERE, •ATOMS, •COMMUNICATION
SYSTEMS, •ION BEAMS, •PARTICLE BEAMS, •SPACE FLIGHT,
•SPACE WEAPONS, COMMUNICATION EQUIPMENT, ION ENGINES,
IONIZATION, MAGNETIC PINCH, PROPULSION, SPACECRAFT (U)

ANALYSIS OF THE DISPERSION OF A CHARGED ION BEAM INDICATES THAT THE LIMITATIONS IMPOSED BY THE SPACE CHARGE ARE QUITE SEVERE. BEAM DISPERSION DUE TO RANDOM THERMAL VELOCITY DISTRIBUTION IS NOT AS SEVERE AS THAT OF SPACE CHARGE DISPERSION. USE OF THE BEAM FOR COMMUNICATIONS WILL BE OF THE ORDER OF A FEW THOUSAND MILES AT MOST. THE EFFECTS OF RAYLEIGH, THOMPSON, AND COMPTON SCATTERING OF LIGHT BY BEAM PARTICLES IN THE PRESENCE OF THE RADIATION FIELD OF THE SUN ARE NEGLIGIBLE. THE ANALYSIS OF SOLAR WINDS AND PARTICLE CLOUDS IN SPACE INDICATES THAT THE BEAM PARTICLE MEAN FREE PATH IS QUITE LARGE SO THAT THERE IS NO SIGNIFICANT LIMITATION IMPOSED BY THEIR PRESENCE. THE PROBLEM OF NEUTRAL BEAM GENERATION IS DISCUSSED. THE POSSIBILITY OF EMPLOYING THE PINCH EFFECT UPON A BEAM IN THE PRESENCE OF THE ATMOSPHERE IS NOT FEASIBLE. USE OF THE RADIATION PRODUCED BY IMPACT IONIZATION OF THE ATMOSPHERE BY MEANS OF A BEAM IS IMPRACTICAL ON THE BASIS OF BEAM POWER REQUIREMENTS. PROPULSION OFFERS THE BEST POSSIBILITY FOR THE APPLICATION OF THE BEAM. DEVIATION AND DISPERSION OF THE BEAM IN ELECTROSTATIC AND MAGNETIC FIELDS IN SPACE ARE ANALYZED. THE LIMITATIONS IMPOSED BY THESE EFFECTS ARE NOT AS GREAT AS THOSE ALREADY FOUND. THE GEOMETRICAL PROBLEMS OF AIMING A BEAM TO STRIKE A TARGET IN THE FIELDS IN SPACE ARE CONSIDERED.
(AUTHOR)

(U)

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015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 329

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB
EFFECTS OF WEIGHTLESSNESS AS SIMULATED BY TOTAL BODY
IMMERSION UPON HUMAN RESPONSE TO POSITIVE
ACCELERATION (U)

JUN 61 IV BENSON, VICTOR G.; BECKMAN, EDW. L.;
REPT. NO. 6132

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION, •ACCELERATION TOLERANCE,
•SPACE FLIGHT, •STRESS (PHYSIOLOGY), •WEIGHTLESSNESS,
AVIATION MEDICINE, CERAMIC CAPACITORS, MAN, SIMULATION,
SPACE MEDICINE (U)

TWELVE MEMBERS OF UNDERWATER DEMOLITION TEAM
NO. 21 USED UNDERWATER BREATHING EQUIPMENT WHILE
COMPLETELY IMMersed IN WATER FOR 18 HOURS. THEIR
RESPONSE TO POSITIVE ACCELERATION WAS DETERMINED BY
OBSERVING THE G LEVEL AT WHICH THE LIMITATION OF
OCULAR MOTILITY UNDER ACCELERATION (LOMA) OCCURRED.
THIS G LEVEL IS APPROXIMATELY THE SAME AS WHEN
LOSS OF PERIPHERAL VISION OR GREYOUT OCCURS WHEN
SUBJECTS ARE EXPOSED TO POSITIVE ACCELERATION. THE
PERIOD OF IMMERSION WAS WELL-TOLERATED. A SMALL
BUT STATISTICALLY SIGNIFICANT DECREASE IN THE G
LEVEL AT WHICH LOMA OCCURRED WAS FOUND FOLLOWING
THE PERIOD OF IMMERSION. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-262 041

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

A STUDY OF STATISTICAL DATA-ADJUSTMENT AND LOGIC
TECHNIQUES AS APPLIED TO THE INTERPLANETARY MID-
COURSE GUIDANCE PROBLEM

(U)

DEC 61 IV FRIEDLANDER, ALA L.; HARRY, DAVID P.

III;

REPT. NO. TR R 113

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *CELESTIAL GUIDANCE, *ORBITAL TRAJECTORIES,
*SPACE FLIGHT, *SPACE NAVIGATION, DIGITAL COMPUTERS,
ERRORS, GUIDANCE, MATHEMATICAL LOGIC, PERTURBATION
THEORY, SPACECRAFT, STATISTICAL ANALYSIS (U)

A STATISTICAL ANALYSIS AND EVALUATION OF THE EFFECT
OF DATA-ADJUSTMENT AND DECISION TECHNIQUES ON THE
EFFICIENCY OF MIDCOURSE GUIDANCE MANEUVERS ARE
PRESENTED. A POTENTIALLY SELF-CONTAINED OPTICAL
NAVIGATION SCHEME IS HYPOTHESIZED, AND ALL RANDOM
MEASUREMENT ERRORS ARE CONSIDERED SPECIFIED BY
GAUSSIAN DISTRIBUTIONS. THE BASIC GUIDANCE
EQUATIONS ARE DEVELOPED USING LINEAR PERTURBATION
METHODS. THE NATURE OF THE DATAADJUSTMENT
PROCEDURE IS THAT THE ACCURACY OF TERMINAL PREDICTION
IMPROVES SUCCESSIVELY FROM ONE GUIDANCE POINT TO THE
NEXT. GUIDANCE LOGIC, BASED ON DEAD-BAND AND
DAMPING DECISION EXPRESSIONS, FURTHER REDUCES THE
VELOCITY-INCREMENT COST AND NUMBER OF CORRECTIONS
REQUIRED. (AUTHOR) (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 825

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FIVE HOURS WITH YURIY GAGARIN

(U)

1V BARSHEV, P.; PESKOV, V.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ASTRONAUTICS, ASTRONAUTS,
MANNED

(U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 823

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN AND SPACE

(U)

IV SISAKYAN, N. I.

UNCLASSIFIED REPORT

DESCRIPTORS: •CLOSED-CYCLE ECOLOGICAL SYSTEMS, •SPACE
FLIGHT, •SPACE MEDICINE, COSMIC RAYS, EXPERIMENTAL DATA,
LABORATORY ANIMALS, MANNED, WEIGHTLESSNESS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 805

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
DETAILS OF THE LEGENDARY FLIGHT

(U)

1V

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,

•SPACE MEDICINE, ASTRONAUTICS

(U)

IDENTIFIERS: MANITOBA, USSR

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 696

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
DOSIMETRY OF PROTON RADIATION IN SPACE

(U)

JUN 61 23P SCHAEFER, HERMANN J.:

REPT. NO. 19

PROJ: MBO05.13-1002

UNCLASSIFIED REPORT

DESCRIPTORS: •PROTONS, •RADIATION HAZARDS, •SOLAR
FLARES, •SPACE FLIGHT, DOSIMETERS, ENERGY, EXPOSURE,
MEASUREMENT, NEUTRONS, PARTICLES, SPACE ENVIRONMENTAL
CONDITIONS, TISSUES (BIOLOGY), VAN ALLEN RADIATION
BELT

(U)

THE ENERGY SPECTRA OF THE PROTON RADIATION IN THE
INNER VAN ALLEN BELT AND OF THE PROTON FLUX
AFTER LARGE SOLAR FLARES ARE SELECTED AS
REPRESENTATIVE EXAMPLES FOR AN ANALYSIS OF THE
INTRATARGET DISTRIBUTION OF THE RBE DOSE IN R M.
IT IS SHOWN THAT GREATLY DIFFERENT DEPTH DOSES
RANGING FROM 0.6 PER CENT TO 64 PER CENT OF THE
SURFACE DOSE ARE OBTAINED DEPENDING ON TYPES OF
SPECTRUM AND SHIELDING THICKNESSES. BECAUSE OF
THIS EXTREME VARIATION IN THE DEPTH DOSE PATTERN, A
CONCISE AND GENERAL DETERMINATION OF THE TOTAL BODY
RADIATION BURDEN SEEMS IMPOSSIBLE. MITIGATING IS
THE FACT THAT, DUE TO THE COMPARATIVELY SMALL SHARE
OF LOW ENERGY PARTICLES IN THE LOCAL SPECTRUM, THE
MEAN RBE NEVER EXCEEDS THE VALUE 1.5. THIS
DISTINGUISHES PROTON BEAMS IN SPACE FROM NEUTRON-
PRODUCED RECOIL PROTONS OF REACTORS WHICH ARE
EXCLUSIVELY OF LOW ENERGY AND HAVE A MEAN RBE OF
10.0. (AUTHOR)

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-261 454

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
FURTHER DETAILS ON GAGARIN FLIGHT (U)

1V

REPT. NO. 61 113

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
ATMOSPHERE ENTRY, BOOSTER MOTORS, FUEL CONSUMPTION,
MANNED, ORBITAL TRAJECTORIES, REENTRY VEHICLES, ROCKET
MOTORS, SPACECRAFT, SPACECRAFT CABINS, TECHNOLOGICAL
INTELLIGENCE, THERMAL INSULATION, THRUST (U)
IDENTIFIERS: USSR, VOSTOK (U)

THREE ARTICLES HAVE APPEARED RECENTLY WHICH CONTAIN
INFORMATION NOT FOUND IN ANY OF THE MORE THAN 60
SOVIE SOURCES PUBLISH IN CONNECTION WITH
GAGARIN'S FLIGHT. THE FIRST ARTICLE WAS WRITTEN
BY PROFESSOR G. V. PETROVICH AND PUBLISHED IN THE
VESTNIK OF THE ACADEMY OF SCIENCES USSR.
THE SECOND IS A TASS INTERVIEW WITH PROFESSOR
V. V. DOBRONRAVOV DOCTOR OF PHYSICAL AND
MATHEMATICAL SCIENCES. THE THIRD WAS WRITTEN
BY I NA YAVORSKAYA, WHOSE TITLE IS GIVEN AS
SCIENTIFIC SECRETARY OF THE INTERPLANETARY
TRAVEL COMMISSION OF THE ACADEMY OF SCIENCES
USSR. THIS REPORT RECOUNTS CERTAIN DETAILS
FOUND IN THESE THREE ARTICLES AND DISCUSSES THEIR
IMPLICATIONS. SOME OF THE INFORMATION PRESENTED
APPEARS TO SUPPORT CERTAIN INFERENCES DRAWN IN PR
VIOUS ID REPORTS. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423 .

AD-261 086L

GOODRICH (R F) AEROSPACE AND DEFENSE PRODUCTS AKRON

OHIO

DEVELOPMENT OF PERSONNEL PROTECTIVE SYSTEMS FOR SPACE

FLIGHT AND EXPLORATION MISSIONS (U)

JUL 61 1V BERUS, W.J.;

CONTRACT: NOW61 554

UNCLASSIFIED REPORT

USGO

DESCRIPTORS: •PRESSURE SUITS, •PROTECTIVE CLOTHING,
•SPACE ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, AVIATION
PERSONNEL, DESIGN, INSTRUMENTATION, SPACE MEDICINE (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 545

LITTLE (ARTHUR D) INC CAMBRIDGE MASS

MAY 61 1V

REPT. NO. 63270 00 D2

CONTRACT: NAS5 664

UNCLASSIFIED REPORT

DESCRIPTORS: •LIQUID ROCKET PROPELLANTS, •SPACE ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, CRATERING, HAZARDS, HEAT TRANSFER, HYPERVELOCITY VEHICLES, IMPACT SHOCK, IONIZATION, METEORS, PROPELLANT TANKS, RADIATION DAMAGE, SATELLITES (ARTIFICIAL), SPALLATION, STORAGE, THERMAL CONDUCTIVITY, THERMAL INSULATION, THERMAL RADIATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 442

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY,

VOLUME IV, NO. 1 (ENTRIES 40,001-40,202) (U)

JUL 61 IV CARRINGER, E.M.; HOPPE, M.G.; NICHOLS,

B.H.;

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE
FLIGHT, COMMUNICATION SYSTEMS, COSMIC RAYS, MAGNETIC
FIELDS, MANNED, METEOROLOGY, METEORS, MOON, ORBITAL
TRAJECTORIES, PLANETS, SPACE PROBES, TISSUE EXTRACTS,
VAN ALLEN RADIATION BELT (U)
IDENTIFIERS: ECHO, MERCURY PROJECT, OAO, SATURN (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 324

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
DEVELOPMENT OF A COMPUTER SUBROUTINE FOR PLANETARY
AND LUNAR POSITIONS

(U)

MAY 61 1V MICHELSEN, HERMAN F.; KROP, MARTIN A.;
CONTRACT: AF33 616 6638

UNCLASSIFIED REPORT

DESCRIPTORS: •CELESTIAL MECHANICS, •DIGITAL COMPUTERS,
•PROGRAMMING (COMPUTERS), •SPACE FLIGHT, ASTRONOMICAL
DATA, ASTROPHYSICS, MOON, PLANETS, PREPARATION (U)

AN ATTEMPT IS MADE TO REDUCE THE TIME REQUIRED IN
COMPUTING PLANETARY AND LUNAR POSITIONS IELSEN AND
MARTIN A. KROP. MAY 61, 26P. INCL. TABLES.

(CONTRACT AF 33(616)6638, PROJ. 7041)

(ARL-46, SUPPL. TO WADD TR 60-118, AD-247

127) UNCLASSIFIED REPORT DESCRIPTORS:

•PROGRAMMING, MOON, PLANETS, •DIGITAL
COMPUTERS, •SPACE FLIGHT, ASTROPHYSICS,
PREPARATION, ASTRONOMICAL DATA, •CELESTIAL

MECHANICS. AN ATTEMPT IS MADE TO REDUCE THE
TIME REQUIRED IN COMPUTING PLANETARY AND LUNAR
POSITIONS DATA, AND TO IMPROVE THE PROGRAM WHERE
POSSIBLE. AN OPTION WAS EVOLVED WHICH ALLOWS THE
OMISSION OF THE DETERMINATION OF THE MOON'S
VELOCITY (IF NOT REQUIRED) AT A CONSIDERABLE
SAVINGS IN COMPUTER TIME. (AUTHOR)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-260 093

BELL AEROSYSTEMS CO BUFFALO N Y

A STUDY OF VISUAL SIMULATION TECHNIQUES FOR
ASTRONAUTICAL FLIGHT TRAINING

(U)

MAR 61 1V BUDDENHAGEN, T.F.; WOLPIN, M.P.;
CONTRACT: AF33 616 7028

UNCLASSIFIED REPORT

DESCRIPTORS: •DISPLAY SYSTEMS, •FLIGHT SIMULATORS,
•SPACE FLIGHT, •TELEVISION DISPLAY SYSTEMS, CAMERAS,
DESIGN, MANNED, SIMULATION, TELEVISION COMMUNICATION
SYSTEMS, TRAINING, TRAINING DEVICES

(U)

A STUDY WAS MADE OF THE ENGINEERING REQUIREMENTS
FOR VISUAL SIMULATION IN ASTRONAUTICAL FLIGHT
TRAINING AND OF THE BASIC TECHNIQUES AVAILABLE TO
ACCOMPLISH SUCH SIMULATION. AN EVALUATION OF THE
POTENTIALITIES OF THE VARIOUS TECHNIQUES LED TO THE
CHOICE OF CLOSED CIRCUIT TELEVISION AS AN IMAGE
TRANSFER TECHNIQUE. A PRELIMINARY DESIGN CONCEPT
USING THIS TECHNIQUE WAS FORMULATED TO DETERMINE THE
AREAS IN WHICH DEVELOPMENT WORK WILL BE REQUIRED
PRIOR TO THE DESIGN OF A COMPLETE SIMULATOR. THIS
REPORT INCLUDES A COMPILATION OF APPLICABLE
TECHNIQUES, A DETERMINATION OF THE PROBABLE VISUAL
ENVIRONMENT OF SPACE, AND AN INVESTIGATION OF A
METHOD TO PREDICT THE PERCEPTUAL FIDELITY ACHIEVED BY
VARIOUS SIMULATION TECHNIQUES AS AN AID IN
OPTIMIZING THE TRAINING VALUE OF A SIMULATOR.

(AUTHOR)

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-259 766

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE NAVIGATION (U)

JUN 61 1V BENJAMIN, S. J

REPT. NO. GPL-A18-14

CONTRACT: AF33 616 5487

MONITOR: ASD TR61 155

UNCLASSIFIED REPORT

DESCRIPTORS: •DOPPLER NAVIGATION, •MAGNETIC RECORDING
SYSTEMS, •RADIOFREQUENCY SPECTROSCOPY, •SPACE FLIGHT,
•SPACE NAVIGATION, •SPACECRAFT, •SPECTRUM ANALYZERS,
DESIGN, HYDROGEN, INTERSTELLAR MATTER, MAGNETIC TAPE,
RADIO ASTRONOMY, RECORDING SYSTEMS, TRACKING, VELOCIT(U)

A STUDY WAS MADE OF DOPPLER VELOCITY MEASURING
TECHNIQUES FOR SPACE NAVIGATION. THE PURPOSE WAS
TO INVESTIGATE EXPERIMENTALLY THE FEASIBILITY OF
SPACE VELOCITY DETERMINATION BY MEASURING THE DOPPLER
SHIFTS IN THE 21-CM (HYDROGEN) ABSORPTION LINE.
THE WORK ACCOMPLISHED INCLUDES THE DESIGN AND
CONSTRUCTION OF BOTH A RECORDER-ANALYZER AND A
FREQUENCY TRACKER. THE RECORDER-ANALYZER
PROCESSES THE HYDROGEN LINE SIGNAL AND PROVIDES A
DOWN-CONVERTED VERSION OF THIS SIGNAL FOR RECORDING
ON MAGNETIC TAPE; THE ANALYZER PORTION PERFORMS A
SPECTRUM ANALYSIS ON EITHER THE DIRECT OR THE
RECORDED SIGNAL. THE FREQUENCY TRACKER MEASURES
AND FOLLOWS THE CENTER FREQUENCY OF THE ABSORPTION
LINE. THE RESULTS DESCRIBED DEMONSTRATE IN A
QUALITATIVE MANNER THE FEASIBILITY OF UTILIZING THE
DOPPLER SHIFT IN THE 21-CM RADIATION FOR SPACE
VELOCITY MEASUREMENTS. SOME OF THE TECHNIQUES
DEVELOPED ARE APPLICABLE TO THE ENTIRE FIELD OF RADIO
ASTRONOMY. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-259 246

OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)
SECOND INTERNATIONAL SPACE SCIENCE SYMPOSIUM,
FLORENCE, ITALY, APRIL 1961

(U)

MAY 61 IV HEFFNER, H.; FELSEN, L. B.;

REPT. NO. C 6 61

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTROPHYSICS, •SPACE FLIGHT, •SYMPOSIA,
COSMIC RAYS, INTERSTELLAR MATTER, OPTICAL TRACKING,
PLASMA PHYSICS, SATELLITES (ARTIFICIAL), SOLAR FLARES,
VAN ALLEN RADIATION BELT

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 979

AEROSPACE CORP EL SEGUNDO CALIF
THE PLASMA CORE REACTOR

MAY 61 1V NELSON, SEYMOUR T.;

CONTRACT: AFO4 647 594

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: •AIRCRAFT NUCLEAR PROPULSION, •NUCLEAR
PROPULSION, •REACTOR CORES, •SPACE FLIGHT, MAGNETIC
FIELDS, MAGNETIC PINCH, NUCLEAR REACTIONS, PLASMA
PHYSICS, PROPULSION, SPACECRAFT

(U)

TWO TYPES OF PLASMA CORE REACTOR, CONSIDERED AS A
SPACE PROPULSION SYSTEM OF THRUST-TO-WEIGHT RATIO
EXCEEDING UNITY, ARE INVESTIGATED; VI, THE SIMPLE
MAGNETIC BOTTLE AND THE HOMOPOLAR CONFIGURATIONS.
THE PRINCIPAL SYSTEM VARIABLES ARE INDICATED, AND
SOME UPPER- AND LOWER-BOUNDS FOR THESE ARE DERIVED.
THE MAJOR PROBLEM AREAS AND DIFFICULTIES AFFECTING
FEASIBILITY ARE DISCUSSED. (AUTHOR)

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 843

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
BY ROCKET TO THE MOON

(U)

IV LEVANTOVSKIY, V.I.;

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •LUNAR PROBES, •MANNED,
•MOON, •RENDEZVOUS SPACECRAFT, •SATELLITES (ARTIFICIAL),
•SPACE FLIGHT, •SPACE NAVIGATION, ARTIFICIAL PLANETIDS,
BIBLIOGRAPHIES, EXPLORATION, EXTRATERRESTRIAL BASES,
EXTRATERRESTRIAL TOPOGRAPHY, INTERSTELLAR MATTER,
ORBITAL TRAJECTORIES, PLANETARY ATMOSPHERES, ROCKET
PROPULSION, SOLAR SYSTEMS, SOUNDING ROCKETS, SPACE
CAPSULES, SPACE ENVIRONMENTAL CONDITIONS, SPACE PROBES,
SPACECRAFT, SURFACES, TECHNOLOGICAL INTELLIGENCE (U)
IDENTIFIERS: USSR (U)

RESEARCH IS PRESENTED ON PROJECTED TRAVEL TO THE
MOON AND OTHER PLANETS. THE FOLLOWING AREAS ARE
COVERED: (1) FLIGHT TO THE MOON--PLANS AND
REALITY; TECHNICAL FEASIBILITY OF SUCH AN EXPEDITION,
INTERPLANETARY STATIONS, CERTAIN PLANS FOR
EXPEDITIONS, AND FLIGHT OF UNMANNED AUTOMATIC
ROCKETS. (2) INVESTIGATION OF THE MOON AND
OUTER SPACE; MATTER IN THE UNIVERSE; THE RELIEF, THE
PHYSICAL CONDITIONS, AND THE METHODS OF SCIENTIFIC
INVESTIGATIONS OF THE MOON; AND THE MOON AS AN
INTERMEDIATE STATION. (3) INTERPLANETARY
FLIGHTS: INTERPLANETARY TRAJECTORIES OF PULSED
ROCKETS, THE FIRST ARTIFICIAL PLANETS, TRAJECTORIES
OF CONTINUOUS-THRUST ROCKETS, ROLE OF MAN IN SPACE
FLIGHT, USE OF SOUNDING ROCKETS, INTERPLANETARY
EXPEDITIONS, AND CONQUERING SPACE. THE SECOND AND
THIRD SOVIET COSMIC ROCKETS ARE ALSO DISCUSSED, AND
A BIBLIOGRAPHY IS PRESENTED. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 837

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
MAN, TECHNOLOGY AND SPACE

(U)

IV POKROVSKIY,G.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, ASTRONAUTICS, AVIATION
MEDICINE, EXTRATERRESTRIAL BASES, MAN, ROCKET
PROPULSION, ROCKETS, SPACE MEDICINE, SPACE NAVIGATION,
SPACECRAFT

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 832

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

GIANTS

(U)

1V

SHTERNFEL'D, A.;

UNCLASSIFIED REPORT

DESCRIPTORS: •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,

•SPACECRAFT, ROCKETS, SPACE MEDICINE, SPACE PROBES (U)

IDENTIFIERS: USSR

(U)

UNCLASSIFIED

015423

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 704

JET PROPULSION LAB PASADENA CALIF
INTERPLANETARY TRAJECTORIES AND PAYLOAD CAPABILITIES
OF ADVANCED PROPULSION VEHICLES (U)

MAR 61 1V MELBOURNE, W.G.;

REPT. NO. TR32 68

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ROCKET TRAJECTORIES, •SPACE FLIGHT,
•THRUST, BALLISTICS, CELESTIAL MECHANICS, EXTERIOR
BALLISTICS, EXTRATERRESTRIAL BASES, PLANETS, RENDEZVOUS
SPACECRAFT, ROCKET PROPULSION, SPACECRAFT (U)

CURRENT STUDIES ARE SUMMARIZED OF THE SYSTEMATICS
OF LOW-THRUST INTERPLANETARY TRAJECTORIES EMPLOYING,
GENERALLY, AN OPTIMIZED THRUST PROGRAM FOR POWER-
LIMITED FLIGHT. PRIMARILY, THE ANALYSIS IS TWO-
DIMENSIONAL, ALTHOUGH SEVERAL THREEDIMENSIONAL
EXAMPLES ARE PRESENTED SHOWING THE EFFECTS OF NON-
COPLANAR ORBIT TRANSFER. TRAJECTORIES ARE PRESENTED
FOR THE FOLLOWING MISSION TYPES: (1) THE ORBITER
OR RENDEZVOUS MISSION, AND (2) THE FLYBY MISSION.
BOTH TYPES OF TRAJECTORIES ARE COMPUTED FOR PLANETS
AND RANGES OF HELIOCENTRIC FLIGHT TIME INCLUDING:
MERCURY 30 - 360, VENUS 30 - 360, MARS 30 -
420, JUPITER 180 - 900, AND SATURN 180 - 900
DAYS. A REVIEW OF THE BASIC CONCEPTS APPROPRIATE
FOR POWERLIMITED VEHICLES IS PRESENTED. APPROXIMATE
METHODS FOR DESCRIBING THE GEOCENTRIC AND
PLANETOCENTRIC SPIRAL PORTIONS OF THE TRANSFER
TRAJECTORIES ARE PRESENTED AS WELL AS METHODS FOR
OBTAINING VEHICLE PERFORMANCES IN THESE REGIONS. A
SAMPLE COMPARISON WITH DIGITAL RESULTS IS PRESENTED.
(AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-258 497

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOVIET AVIATION (SELECTED ARTICLES)

(U)

1V

UNCLASSIFIED REPORT

DESCRIPTORS: •AIR TRANSPORTATION, •LUNAR PROBES,
•REENTRY VEHICLES, •ROCKETS, •SPACE FLIGHT, •SPACE
PROBES, GRAVITY, MANNED, OPTICAL TRACKING, SPACECRAFT,
TECHNOLOGICAL INTELLIGENCE, UPPER ATMOSPHERE (U)
IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 964

AIR FORCE MISSILE DEVELOPMENT CENTER HOLLOMAN AFB N
MEX

A ZOOMETRIC STUDY TO DETERMINE THE OPTIMUM MANUAL
PERFORMANCE AREAS FOR THE CHIMPANZEE (U)

MAY 61 25P ZINSER, LESTER M. ; FARLEY,

WILLIAM J. ; ROHLES, FREDERICK H., JR;

REPT. NO. MDC-TR-61-15

PROJ: AF-6893

UNCLASSIFIED REPORT

DESCRIPTORS: •ANTHROPOMETRY, •SPACE FLIGHT, DESIGN,
HUMAN ENGINEERING, MEASUREMENT, PRIMATES, SPACE
CAPSULES, TESTS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 804

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

A FIXED-BASE-SIMULATOR STUDY OF THE ABILITY OF A
PILOT TO ESTABLISH CLOSE ORBITS AROUND THE MOON (U)

JUN 61 IV QUEIJO, M. J.; RILEY, DONALD R.;

REPT. NO. TN D 917

UNCLASSIFIED REPORT

DESCRIPTORS: •FLIGHT INSTRUMENTS, •LUNAR PROBES, •SPACE
FLIGHT, CONTROL SYSTEMS, GUIDANCE, GUIDED MISSILE
TRAJECTORIES, MANNED, MOON, ORBITAL TRAJECTORIES,
PILOTS, SIMULATION, SPACE PROBES, TESTS (U)

A STUDY WAS MADE ON A SIX-DEGREE-OF-FREEDOM FIXED-
BASE SIMULATOR OF THE ABILITY OF A HUMAN PILOT TO
MODIFY HYPERBOLIC BALLISTIC TRAJECTORIES OF A SPACE
VEHICLE APPROACHING THE MOON SO AS TO ESTABLISH A
CIRCULAR ORBIT 50 MILES ABOVE THE LUNAR SURFACE.
THE PILOT WAS GIVEN CONTROL OF THRUST ALONG THE
VEHICLE'S LONGITUDINAL AXIS AND TORQUES ABOUT ALL
THREE BODY AXES. THE RESULTS SHOWED THAT BY USING A
HODOGRAPH PRESENTATION OF RATE OF DESCENT AND
CIRCUMFERENTIAL VELOCITY, AN ALTIMETER, AND VEHICLE
ATTITUDE AND RATE METERS, THE PILOTS COULD
CONSISTENTLY ESTABLISH FINAL ALTITUDE AND VELOCITY
COMBINATIONS THAT RESULT IN ORBITS LYING WITHIN AN
ALTITUDE RANGE OF 10 TO 90 MILES ABOVE THE LUNAR
SURFACE WITH A FUEL CONSUMPTION FROM 1 TO 3 PERCENT
OF THE INITIAL VEHICLE MASS MORE THAN THAT REQUIRED
BY THE TWO-IMPULSE HOHMANN MANEUVER.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 689

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SELECTED ARTICLES FROM SCIENCE AND LIFE

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: •FLYING PLATFORMS, •RELATIVITY THEORY,
•SPACE FLIGHT, •SPACECRAFT, ASCARIS, DESIGN, STARS,
THEORY

(U)

IDENTIFIERS: USSR

(U)

CONTENTS: FLIGHT TO THE STARS FLYING
PLATFORM

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-257 358

ELECTRO-OPTICAL SYSTEMS INC PASADENA CALIF
ENERGY CONVERSION SYSTEMS REFERENCE HANDBOOK, VOLUME
VI - CHEMICAL SYSTEMS (U)

SEP 60 1V MENETREY, W.R.; CHRISNEY, J.;
REPT. NO. 390 F V6
CONTRACT: AF33 616 6791

UNCLASSIFIED REPORT

DESCRIPTORS: •COMBUSTION, •FUEL CELLS, •HEAT ENGINES,
•POWER SUPPLIES, •PRIMARY CELLS, •SPACE FLIGHT, •STORAGE
BATTERIES, CADMIUM, DRY CELLS, ELECTROCHEMISTRY,
ELECTRODES, ENERGY CONVERSION, GAS TURBINES, GENERATORS,
HYDRAZINES, HYDROGEN, LIQUEFIED GASES, LIQUID ROCKET
PROPELLANTS, MERCURY, NICKEL, OXYGEN, PROPELLANTS,
SILVER, STORAGE, THEORY, THERMODYNAMICS, ZINC (U)

POWER SYSTEMS WHICH USE CHEMICAL FUEL AS THE ENERGY
SOURCE APPEAR USEFUL IN A VARIETY OF
SPACE APPLICATIONS, AND OFFER WEIGHT ADVANTAGES FOR
DURATIONS BELOW ABOUT 100 HOURS. A DISCUSSION IS
PRESENTED ON PRIMARY AND SECONDARY BATTERIES, PRIMARY
AND REGENERATIVE FUEL CELLS, RECIPROCATING ENGINES
USING HYDROGEN AND OXYGEN BIPROPELLANT,
MONOPROPELLANT AND BIPROPELLANT TURBINES AND
CRYOGENIC STORAGE OF H AND O. THE THEORETICAL
AND PRACTICAL PERFORMANCE OF THE CONVERTERS IS
REVIEWED, AND THE WEIGHT OF VARIOUS SYSTEMS IS
PREDICTED. OTHER FACTORS BESIDES POWER SYSTEM
WEIGHT MAY LEAD TO THE SELECTION OF A CHEMICAL SYSTEM
IN PREFERENCE TO OTHERS. FOR EXAMPLE, LIQUID H
PROVIDES AN EXCELLENT HEAT SINK FOR ENVIRONMENTAL
CONTROL. WHILE BATTERIES MAY BE APPROACHING THE
LIMITS OF THEIR CAPABILITY, MAJOR ADVANCES STILL WILL
BE ACCOMPLISHED IN THE FUEL CELL AND DYNAMIC ENGINE
AREA. FOR DURATIONS OF MORE THAN SEVERAL HOURS
PRIMARY SYSTEM WEIGHTS OF 1 TO 1.5 LB/HP-HR AND
SECONDARY SPECIFIC WEIGHTS OF UP TO 100 WHR/LB APPEAR
POSSIBLE BY 1970. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 272

NAVAL SCHOOL OF AVIATION MEDICINE PENSACOLA FLA
A NOTE ON THE RBE OF PROTON RADIATION IN SPACE (U)
JAN 61 IV SCHAEFER, HERMANN J.;

UNCLASSIFIED REPORT

DESCRIPTORS: •PROTON BEAMS, •RADIATION HAZARDS, •SPACE
FLIGHT, •TISSUES (BIOLOGY), ENERGY, FISSION NEUTRONS,
NEUTRONS, NUCLEAR ENERGY, PROTONS, RADIOBIOLOGY, SOLAR
FLARES, VAN ALLEN RADIATION BELT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-257 215

NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL
WASHINGTON D C
SENSORY AND PERCEPTUAL PROBLEMS RELATED TO SPACE
FLIGHT. REPORT OF A WORKING GROUP OF THE PANEL ON
PSYCHOLOGY ARMED FORCES-NRC COMMITTEE ON BIO-
ASTRONAUTICS. (U)

61 51P BROWN, JOHN L. ;
REPT. NO. 872

UNCLASSIFIED REPORT
DDC USERS

DESCRIPTORS: •PSYCHOLOGY ,•SENSORY DEPRIVATION ,•SENSORY
MECHANISMS ,•SPACE FLIGHT ,•SPACECRAFT ,•VISION ,
ATTENTION ,DISPLAY SYSTEMS ,ILLUMINATION ,OPTICS ,
PERSONNEL ,SPACE PERCEPTION ,THEORY ,VISIBILITY ,
WEIGHTLESSNESS (M)

CONTENTS: INTRODUCTION, SPACE FLIGHT MISSIONS,
LAUNCHING, ORBITAL FLIGHT; LUNAR FLIGHT;
INTERPLANETARY FLIGHT; LANDING, UNIQUE ASPECTS OF
SPACE FLIGHT, VISION OUTSIDE THE SPACE VEHICLE,
CLASSIFICATION OF TASKS; RELATION OF TASKS TO
PHASES OF SPACE FLIGHT: (1) LAUNCH; (2)
ORBIT; (3) LUNAR AND INTERPLANETARY FLIGHTS; AND
(4) LANDING, ADDITIONAL PROBLEMS RELATING TO
VISION OUTSIDE OF THE SPACE VEHICLE: (1) HIGH
ILLUMINATION LEVELS; (2) HIGH CONTRAST; (3)
EMPTY FIELD MYOPIA; AND (4) THE LIMITS OF VISUAL
ACUITY, SUGGESTED AREAS OF RESEARCH: (1)
ATTITUDE CONTROL; (2) RECONNAISSANCE; (3)
DETECTION; (4) RENDEZVOUS; (5) NAVIGATION; AND
(6) LANDING, VISUAL PROBLEMS WITHIN THE SPACE
VEHICLE, ASPECTS OF THE PROBLEM WHICH ARE UNIQUE TO
SPACE FLIGHT; VISUAL DISPLAY PROBLEMS; DISPLAY
DESIGN; ORIENTATION WITHIN THE SPACE VEHICLE SYSTEM;
SUGGESTED AREAS OF RESEARCH: (1) DISPLAY
DESIGN; (2) ASTRONOMICAL NAVIGATION; (3)
VEHICLE ILLUMINATION; AND (4) VISUAL ORIENTATION
IN ENVIRONMENTS HAVING UNIQUE GEOMETRY, NON-VISUAL
SENSORY AND PERCEPTUAL PROBLEMS, THE RELEVANCE OF
THEORIES OF SENSATION AND PERCEPTION TO PROBLEMS IN
SPACE FLIGHT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-256 894

LITTLE (ARTHUR D) INC CAMBRIDGE MASS

GAS CONDUCTION PROBLEM WITH MULTILAYERED RADIATION SHIELDS (U)

APR 61 IV EMSLIE, A.G.:

REPT. NO. 6327D 04 01

CONTRACT: NAS5 664

UNCLASSIFIED REPORT

DESCRIPTORS: •CRYOGENICS, •FUEL TANKS, •LIQUEFIED GASES, •SPACE ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, •SPACECRAFT, •THERMAL INSULATION, HEAT TRANSFER, INSULATING MATERIALS, LIQUID ROCKET PROPELLANTS, SHIELDING, THERMAL RADIATION, THERMODYNAMICS (U)

ON A LONG MISSION IN SPACE, A CRYOGENIC FUEL TANK MAY REQUIRE 100 SHEETS OF LOW-EMISSIVITY METAL FOIL IF HEAT IS TRANSFERRED THROUGH THE SHIELDING ONLY BY RADIATION. IF GAS CONDUCTION ALSO OCCURS, MORE FOILS WILL BE NEEDED FOR THE SAME RATE OF FUEL BOIL-OFF. FOR A GAS PRESSURE OF .00014 MM HG, 200 FOILS ARE REQUIRED. CONSEQUENTLY, AN ADEQUATE SEALED-OFF, EVACUATED SHIELD IS DIFFICULT TO CONSTRUCT. IF OUTGASSING OF THE FOILS AND GAS DIFFUSION FROM THE FUEL TANK ARE APPRECIABLE, IT IS ALSO DIFFICULT TO ARRANGE THE GEOMETRY OF THE SHIELDS TO USE THE EXTERNAL SPACE VACUUM FOR PUMPING. IN THE CASE OF PUMPING THROUGH THE EDGES OF A 100-CM WIDE SHIELD PANEL, THE OUTGASSING RATE SHOULD NOT EXCEED ABOUT 10 TO THE 9TH POWER MOLECULES/SEC FROM EACH SQ CM OF FOIL SURFACE, IF THE NUMBER OF FOILS IS TO REMAIN ABOUT 100. THE ALLOWABLE OUTGASSING RATE FOR BROADSIDE PUMPING OF OPTIMALLY PERFORATED FOILS IS AROUND 10 TO THE 10TH POWER MOLECULES PER SEC PER SQ CM. THE ALLOWABLE DIFFUSION RATE FROM THE FUEL TANK IS 10 TO THE 12TH POWER MOLECULES PER SEC PER SQ CM OF TANK SURFACE. A BASIC CONSIDERATION IS THAT ANY GEOMETRICAL ARRANGEMENT OF THE FOILS THAT ENHANCES PUMPING OF THE GAS ALSO REDUCES THE EFFECTIVENESS OF THE FOILS AS A RADIATION SHIELD, SINCE RADIATION CAN ENTER BY THE SAME PATH BY WHICH MOLECULES LEAVE. AS A RESULT, ONLY A LIMITED NUMBER OF LAYERS OF FOIL IS USEFUL. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-256 647

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. OPEN LITERATURE SURVEY,

VOLUME III, NUMBER 4 (ENTRIES 30,625-30,844) (U)

APR 61 IV CARRINGER, E.M.; HOPPE, M.C.; NICHOLS,

B.H.;

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •ROCKET
PROPULSION, •SPACE FLIGHT, CELESTIAL MECHANICS, CLOSED-
CYCLE ECOLOGICAL SYSTEMS, COMMUNICATION SYSTEMS,
INDEXES, INSTRUMENTATION, LASERS, MAGNETIC FIELDS,
MANNED, MARS, PHYSIOLOGY, RADIATION EFFECTS, SPACE
ENVIRONMENTAL CONDITIONS, UPPER ATMOSPHERE, VAN ALLEN
RADIATION BELT (U)

IDENTIFIERS: APOLLO, ATLAS, DISCOVERER, ECHO,
EXPLORER, MARS PROJECT, MERCURY PROJECT, OAO, PIONEER,
SATURN, SPUTNIK, TIROS (U)

OGO PROJECT, SATURN PROJECT, SPUTNICK,
WHISTLER, TOROS I, II. (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 790

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

THE NEXT SOVIET SPACE VEHICLE (U)

IV

REPT. NO. 61 48

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, MANNED (U)

IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 592

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB

GRAVITY PROBLEMS IN MANNED SPACE STATIONS (U)

MAR 61 IV CLARK, CARL C.; HARDY, JAMES D.;

REPT. NO. 6033

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •EXTRATERRESTRIAL BASES, •SPACE
ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT,
•WEIGHTLESSNESS, GRAVITY, MAN, MANNED, MOTION, ROTATION,
SATELLITES (ARTIFICIAL), SPACE MEDICINE, VELOCITY (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. D15423

AD-255 419

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

A VISCO-PLASTIC MODEL FOR HYPERVELOCITY IMPACT (U)
1V RINEY, T.D.;

CONTRACT: AFOSR 635 1713

MONITOR: AFPGC TN61 16

UNCLASSIFIED REPORT

DESCRIPTORS: •GUIDED MISSILES, •HYPERVELOCITY
PROJECTILES, •SATELLITES (ARTIFICIAL), •SPACE FLIGHT,
•SPACECRAFT, AERIAL TARGETS, ALUMINUM, ALUMINUM ALLOYS,
AXIALLY SYMMETRIC FLOW, CARBIDES, COPPER, CRATERING,
CREEP, DEFORMATION, HAZARDS, LEAD, MATERIALS,
MATHEMATICAL ANALYSIS, METEORITES, PENETRATION, SPACE
ENVIRONMENTAL CONDITIONS, STEEL, SURFACE-TO-SURFACE,
TESTS, TUNGSTEN COMPOUNDS, VISCOSITY (U)

DESCRIPTORS: (•THERMOCOUPLES, SEMICONDUCTORS,
LEAD COMPOUNDS, TELLURIDES, MATERIALS,
CASTING, CERAMIC MATERIALS, DESIGN,
MEASUREMENT, MANUFACTURING METHODS.)

RESEARCH CONCERNS THE DEVELOPMENT TECHNIQUES FOR
FABRICATING, IN QUANTITY, GOOD QUALITY N- AND P-TYPE
THERMOELECTRIC LEAD TELLURIDE CELLS, AND THE
ASSEMBLING OF THESE CELLS TO FORM TWO THERMOELECTRIC
DEVICES WHICH WILL MEET MILITARY REQUIREMENTS.
ATTENTION HAS BEEN FOCUSED ENTIRELY ON THE
FABRICATION AND SOME MEASUREMENTS ASPECTS OF
THERMOELECTRIC LEAD TELLURIDE CELLS, IN
CONJUNCTION WITH A BRAZED SEAL TO BE FABRICATED
LATER, A NEW SIMPLE CASTING TECHNIQUE FOR THE FILLING
OF ELEMENTS HAS BEEN SUCCESSFULLY DEVELOPED.
SUBJECT TO EXPERIMENTAL VERIFICATION OF ELECTRICAL
OUTPUT VALUES UNDER PRESCRIBED OPERATING CONDITIONS,
THIS NEW FILLING TECHNIQUE PROMISES TO YIELD
EXCELLENT N-TYPE ELEMENTS. ON THE OTHER HAND THE
REDUCTION OF POSSIBLE CONTACT RESISTANCES OF P-TYPE
ELEMENTS MAY REQUIRE ADDITIONAL ATTENTION.
(AUTHOR) (U)

UNCLASSIFIED

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AD-255 320

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF
BALLISTIC MISSILE AND SPACE TECHNOLOGY. VOLUME I.
BIOASTRONAUTICS AND ELECTRONICS, AND INVITED
ADDRESSES

(U)

AUG 60 494P LEGALLEY, DONALD P. ;

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE 5TH SYMPOSIUM ON
BALLISTIC MISSILE AND SPACE TECHNOLOGY, LOS
ANGELES, CALIF., AUG 1960, SPONSORED BY AF
BALLISTIC MISSILE DIV.

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT, •SYMPOSIA,
COMMUNICATION SYSTEMS, COMPUTERS, DATA PROCESSING
SYSTEMS, GUIDED MISSILES, INERTIAL GUIDANCE, TELEMETER
SYSTEMS

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-255 204

FRANKFORD ARSENAL PHILADELPHIA PA PITMAN-DUNN RESEARCH
LABS

BASIC INVESTIGATION OF THE OPERATION OF PROPELLANT
ACTUATED DEVICES IN SPACE ENVIRONMENT. PHASE I, A
LITERATURE SURVEY

(U)

1V

SKOPP, GILBERT H.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •EXPLOSIVE ACTUATORS,
•SPACE ENVIRONMENTAL CONDITIONS, •SPACE FLIGHT, ARMY,
ASTRONAUTICS, ATMOSPHERE, CATAPULTS, EJECTION, GUIDED
MISSILES, HYPERVELOCITY VEHICLES, IONOSPHERE, JET
ACOUSTIC OSCILLATIONS, NUCLEAR PROPULSION,
RADIOACTIVITY, ROCKETS, SATELLITES (ARTIFICIAL), SPACE
CAPSULES, SPACECRAFT, SPACECRAFT CABINS, TEMPERATURE,
UPPER ATMOSPHERE

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-254 883

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

APR 61 IV KINSEY A.;
REPT. NO. TN D 700

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTROPHYSICS, •COSMIC RAYS, •PROBABILITY,
•SOLAR DISTURBANCES, •SPACE FLIGHT, NUCLEIC ACIDS,
SATELLITES (ARTIFICIAL), SHIELDING, SOLAR FLARES,
SPACECRAFT, SUNSPOTS (U)

SEVERAL MEANS OF ANTICIPATING THE FREQUENCY OF
SOLAR COSMIC RAY EMISSIONS HAVE BEEN EXAMINED,
PARTICULARLY IN CONNECTION WITH SPACE EXPLORATION BY
MAN. ONE RESULT IS THAT A FAIRLY RELIABLE ESTIMATE
OF THE MAXIMUM SUNSPOT NUMBER AT THE PEAK OF THE NEXT
CYCLE (IN 1969) WILL BE AVAILABLE IN THE YEAR
1965 OR 1966. ALSO, LARGE COSMIC RAY PRODUCING
FLARES NEARLY ALWAYS APPEAR IN A SUNSPOT GROUP THAT
HAS HAD, VERY EARLY IN ITS DEVELOPMENT, A LARGE
UNBROKEN PENUMBRAL AREA. IN THE EVENTS STUDIED, THE
FLARES OCCURRED NO EARLIER THAN TWO DAYS AFTER THE
APPEARANCE OF A PENUMBRA ABOVE A CERTAIN CRITERION
SIZE. ON THE BASIS OF THE PREDICTION MEANS
CONSIDERED HERE, IT APPEARS IMPOSSIBLE TO GUARANTEE
NONENCOUNTER WITH SOLAR COSMIC RAYS IN SPACE
EXCURSIONS LASTING MUCH LONGER THAN FOUR DAYS. FOR
LONGER DURATIONS, RADIATION SHIELDING NOW APPEARS TO
BE THE ONLY FEASIBLE APPROACH TO SAFETY AT TIMES OF
HIGH SUNSPOT NUMBER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-254 410

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV
SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS (U)

IV

REPT. NO. 61 41

UNCLASSIFIED REPORT

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
INSTRUMENTATION, PHYSIOLOGY, SCIENTIFIC RESEARCH, SPACE
ENVIRONMENTAL CONDITIONS, SURVIVAL (U)

IDENTIFIERS: USSR (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-254 255

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS. VOLUMEN III. NO.

3 (ABSTRACTS 3,295-3,395)

(U)

MAR 61

IV

HARDGROVE, B.J.; SANDS, E.H.; WARREN,

F.L.;

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •BIBLIOGRAPHIES, •SPACE

FLIGHT, AERODYNAMIC CHARACTERISTICS, COMMUNICATION

SYSTEMS, CONTROL, GUIDANCE, SPACECRAFT

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-253 467

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C
IONIZATION AND DEIONIZATION PROCESSES IN LOW-DENSITY
PLASMA FLOWS (U)

IV BARGER, RAYMOND L.;
REPT. NO. TN D 740

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: • PLASMA PHYSICS, • RELAXATION TIME, • SPACE
FLIGHT, DENSITY, DISTRIBUTION, HEAT, IONIZATION, IONS,
MAGNETOHYDRODYNAMICS, MATHEMATICAL ANALYSIS,
RECOMBINATION REACTIONS (U)

VARIOUS PLASMA RELAXATION PROCESSES THAT ARE
SIGNIFICANT IN LABORATORY PLASMA FLOWS FOR AEROSPACE
PHYSICS STUDIES ARE DISCUSSED ON THE BASIS OF A
SURVEY OF TIME DECAY STUDIES OF IMMOBILE PLASMAS.
SOME OF THE PROBLEMS ANALYZED AND DISCUSSED ARE:
THE RELATIVE IMPORTANCE OF THE VARIOUS RECOMBINATION
MECHANISMS, CATALYTIC DEIONIZATION BY ELECTRONEGATIVE
PARTICLES, DELAYED IONIZATION PRODUCED BY METASTABLE
ACTION, AND HEATING OF THE FLOW BY DEIONIZATION
REACTIONS. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-253 418

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PILOTED SIMULATOR TESTS OF A GUIDANCE SYSTEM WHICH
CAN CONTINUOUSLY PREDICT LANDING POINT OF A LOW L/D
VEHICLE DURING ATMOSPHERE RE-ENTRY (U)

MAR 61 36P WINGROVE, RODNEY C. ; COATE,

ROBERT E. ;

REPT. NO. TN D 787

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •FLIGHT PATHS, •INERTIAL GUIDANCE, •LUNAR
PROBES, •MATHEMATICAL PREDICTION, •REENTRY VEHICLES,
•SPACE FLIGHT, •SPACE NAVIGATION, •SPACECRAFT, ANALOG
COMPUTERS, ATMOSPHERE ENTRY, CONTROL SYSTEMS, DISPLAY
SYSTEMS, DRAG, EQUATIONS, ERRORS, GUIDANCE, LANDINGS,
LIFT, MANNED, RANGES (DISTANCE), SIMULATION, TESTS (U)

THE GUIDANCE SYSTEM FOR MANEUVERING VEHICLES WITHIN
A PLANETARY ATMOSPHERE WHICH WAS STUDIED USES THE
CONCEPT OF FAST CONTINUOUS PREDICTION OF THE MAXIMUM
MANEUVER CAPABILITY FROM EXISTING CONDITIONS RATHER
THAN A STORED-TRAJECTORY TECHNIQUE. IN THE METHOD
OF DISPLAY AND CONTROL USED, DESIRED TOUCHDOWN POINTS
ARE COMPARED WITH THE MAXIMUM RANGE CAPABILITY AND
HEATING OR ACCELERATION LIMITS, SO THAT A PROPER
DECISION AND CHOICE OF CONTROL INPUTS CAN BE MADE BY
THE PILOT. A PILOTED FIXED SIMULATOR WAS USED TO
DEMONSTRATE THE FEASIBILITY OF THE CONCEPTS AND TO
STUDY ITS APPLICATION TO CONTROL OF LUNAR MISSION RE-
ENTRIES AND RECOVERIES FROM ABORTS. THE REGIONS OF
ENTRY CONDITIONS LEADING TO CONTROL-SENSITIVITY
PROBLEMS CORRESPONDED TO TRAJECTORIES WHICH SKIPPED
UP TO THE EDGE OF THE ATMOSPHERE. THE SIMULATION
WAS ALSO USED TO DEFINE THE GROUND AREAS THAT WOULD
BE ATTAINABLE DURING TYPICAL ENTRIES USING THIS
METHOD OF GUIDANCE CONTROL FOR A VEHICLE WITH
MODERATE LIFTING CAPABILITY (LIFT-DRAG RATIO OF
0.5). (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-253 128

DUKE UNIV DURHAM N C

SELECTION TECHNIQUES FOR SPACE CREWS

(U)

SEP 59 1V SILVERMAN, A.J.; COHEN, S.I.;

SHMAVONIAN, B.;

CONTRACT: AF49 638 354

MONITOR: AFOSR TN59 145TN59 145 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AVIATION PERSONNEL, •SELECTION, •SPACE
FLIGHT, •STRESS (PSYCHOLOGY), ADJUSTMENT (PSYCHOLOGY),
PSYCHOMETRICS, STRESS (PHYSIOLOGY), TEST METHODS, TES(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 908

RAND CORP SANTA MONICA CALIF
A METHOD FOR DETERMINING APPROXIMATE PROPULSION
CUTOFF CONDITIONS FOR BALLISTIC INTERPLANETARY
TRAJECTORIES

(U)

1V ROWELL, L.N.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ORBITAL TRAJECTORIES, •SPACE FLIGHT,
BALLISTICS, DETERMINATION, DIGITAL COMPUTERS, FLIGHT
PATHS, MARS, ROCKET PROPULSION, SPACECRAFT

(U)

A TECHNIQUE IS PRESENTED FOR DETERMINING APPROXIMATE PROPULSION CUTOFF CONDITIONS FOR BALLISTIC TYPE INTERPLANETARY TRAJECTORIES. THE TOTAL TRAJECTORY, EXTENDING FROM THE CUTOFF POINT TO THE DESTINATION PLANET, IS ASSUMED TO CONSIST OF TWO ELLIPTICAL ORBITS (ONE GEOCENTRIC, THE OTHER HELIOCENTRIC). A HELIOCENTRIC ELLIPTICAL ORBIT, ASSUMED TO EXTEND FROM THE CENTER OF THE DEPARTURE PLANET TO THE CENTER OF THE DESTINATION PLANET, IS DETERMINED FOR A GIVEN TRANSFER ANGLE. THIS DETERMINATION IS SUBJECT TO THE ASSUMPTION THAT THE PLANETS ARE MASSLESS AND THAT THE PERIHELION POINT OF THE HELIOCENTRIC ORBIT COINCIDES WITH THE CENTER OF THE DEPARTURE PLANET. SINCE TRANSITION FROM THE GEOCENTRIC TO THE HELIOCENTRIC ORBIT SUPPOSEDLY WILL OCCUR AT A POINT REMOTE FROM THE DEPARTURE PLANET, THE GEOCENTRIC HYPERBOLIC ORBIT IS COMPUTED BY USING THE HELIOCENTRIC ORBITAL ELEMENTS. FINALLY, THE APPROXIMATE CUTOFF CONDITIONS ARE OBTAINED ANALYTICALLY BY USING A SIMPLE ORBIT-PATCHING TECHNIQUE. THIS ASSUMES THAT THE VELOCITY VECTOR OF THE VEHICLE ON THE GEOCENTRIC ORBIT IS EQUAL TO THE VELOCITY VECTOR OF A REFERENCE VEHICLE ON THE HELIOCENTRIC ORBIT AT A POINT REMOTE FROM THE EARTH.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 710

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D

C

MAJOR ACTIVITIES IN THE PROGRAMS OF THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

(U)

MAR 61 1V

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •RESEARCH PROGRAM ADMINISTRATION, •SPACE
FLIGHT, AERODYNAMIC CHARACTERISTICS, ASTROPHYSICS,
BIOPHYSICS, COSMIC RAYS, GUIDED MISSILES, IONOSPHERE,
LUNAR PROBES, MECHANICS, ROCKET PROPULSION, SATELLITES
(ARTIFICIAL), SCIENTIFIC RESEARCH, TRACKING (U)

THE STATUS OF CURRENT NASA PROGRAMS IS SUMMARIZED
AND LONG-RANGE PLANS ARE OUTLINED. PROGRESS IN
NASA AERONAUTICS AND SPACE RESEARCH AND DEVELOPMENT
IS DISCUSSED. APPENDICES ARE ATTACHED INCLUDING:
THE MEMBERSHIPS OF PRINCIPAL CONGRESSIONAL AND
NASA COMMITTEES; AN ANALYSIS BY THE NASA
BIOSCIENCE ADVISORY COMMITTEE OF THE ROLE OF
THE LIFE SCIENCES IN SPACE EXPLORATION; LISTS OF
RESEARCH GRANTS AND CONTRACTS; RESEARCH AND
DEVELOPMENT CONTRACTS; AND THE NASA FINANCIAL
STATEMENT FOR THE PERIOD. (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 434

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE PSYCHOLOGICAL AND SOCIAL PROBLEMS OF MAN IN
SPACE: A LITERATURE SURVEY

(U)

MAR 61 IV GOOMAN, B.D.;

REPT. NO. FN 5220

UNCLASSIFIED REPORT
NDFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •EMOTIONS, •FATIGUE
(PHYSIOLOGY), •MAN, •PSYCHOLOGY, •SPACE FLIGHT, •STRESS
(PHYSIOLOGY), •STRESS (PSYCHOLOGY), ADJUSTMENT
(PSYCHOLOGY), ANXIETY, ASTRONAUTICS, BEHAVIOR, GROUP
DYNAMICS, HAZARDS

(U)

THE PURPOSE OF THIS BIBLIOGRAPHY IS TO BRING
TOGETHER THE REPORTS, BOOKS, AND PERIODICAL ARTICLES
PUBLISHED THROUGH JANUARY 1961 IN THE SPECIFIC AREA
OF BEHAVIORAL SCIENCE RELATED TO SPACE FLIGHT, OR AS
IT IS SOMETIMES CALLED SPACE PSYCHOLOGY. THIS AREA
INCLUDES SOCIAL AND SENSORY ISOLATION, PSYCHOLOGICAL
ASSESSMENT AND TRAINING, FATIGUE, CONFINEMENT,
PERFORMANCE UNDER STRESS, WORK SCHEDULES, MOTIVATION,
WEIGHTLESSNESS, DISORIENTATION, EMOTIONAL STABILITY
AND THE DAYNIGHT CYCLE. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 375

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

U.S. AERONAUTICS AND SPACE ACTIVITIES (U)
DEC 60 IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •REPORTS, •SATELLITES (ARTIFICIAL), •SPACE
FLIGHT, SCIENTIFIC RESEARCH, SOUNDING ROCKETS, SPACE
PROBES (U)

CONTENTS: US AERONAUTICS AND SPACE ACTIVITIES
THIRD ANNUAL REPORT -- 1960 NASA DEPARTMENT OF
DEFENSE US ATOMIC ENERGY COMMISSION
DEPARTMENT OF STATE THE NATIONAL SCIENCE
FOUNDATION DEPARTMENT OF COMMERCE NATIONAL
BUREAU OF STANDARDS WEATHER BUREAU
COAST AND GEODETIC SURVEY SPACE SCIENCE
BOARD SMITHSONIAN ASTROPHYSICAL OBSERVATORY
FEDERAL COMMUNICATIONS COMMISSION UNITED
STATES INFORMATION AGENCY REPORT TO NASA ON
THE LAW OF OUTER SPACE NATIONAL SCIENCE
FOUNDATION OF BASIC SCIENCE RELATED TO SPACE
SPACE SCIENCE BOARD

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-252 041

JET PROPULSION LAB PASADENA CALIF

SCIENTIFIC EXPERIMENTS FOR RANGER 1 AND 2

(U)

JAN 61 1V

REPT. NO. TR32 55

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, DESIGN,
EXPLORATION, EXTRATERRESTRIAL TOPOGRAPHY,
INSTRUMENTATION, LUNAR PROBES, MAGNETOMETERS, MONITORS,
MOON, RADIATION MEASUREMENT SYSTEMS, RADIATION
MEASUREMENT SYSTEMS COMPONENTS, SPACE ENVIRONMENTAL
CONDITIONS

(U)

IDENTIFIERS: RANGER SPACECRAFT

(U)

DESCRIPTIONS ARE PRESENTED OF THE SCIENTIFIC
EXPERIMENTS TO BE CARRIED ON THE RANGER 1 AND 2
SPACECRAFT. THIS SPACECRAFT IS THE FIRST IN A
SERIES DESIGNED FOR THE SCIENTIFIC INVESTIGATION OF
THE MOON, THE PLANETS, AND INTERPLANETARY SPACE.
RANGER 1 AND 2 WILL CARRY A FAMILY OF RADIATION
DETECTORS DESIGNED TO MONITOR THE INTENSITY OF
CHARGED-PARTICLE RADIATION. A MAGNETOMETER WILL
ALSO BE CARRIED TO DETERMINE THE INTERPLANETARY
MAGNETIC FIELD AND ITS RELATION TO PARTICLE FLUX.
OTHER EXPERIMENTS INCLUDE A TELESCOPE SENSITIVE TO
LYMAN-ALPHA RADIATION, A COSMIC-DUST DETECTOR, AND
SCINTILLATION COUNTERS TO INVESTIGATE THE STATISTICS
OF SOLAR X-RAYS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-250 133

LIBRARY OF CONGRESS WASHINGTON D C SCIENCE AND TECHNOLOGY
DIV
AEROSPACE MEDICINE. ABSTRACTS OF CURRENT
LITERATURE (U)

IV JACOBUS, ARNOLD J.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AVIATION MEDICINE, •BIBLIOGRAPHIES,
•MEDICAL RESEARCH, •SPACE FLIGHT, •SPACE MEDICINE,
AVIATION PERSONNEL, HUMAN ENGINEERING, NERVES,
NUTRITION, PATHOLOGY, PHARMACOLOGY, PHYSIOLOGY, SENSORY
MECHANISMS, SPACECRAFT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-250 013

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

INVESTIGATION OF THE PERFORMANCE OF AN AXIAL-FLOW-
PUMP STAGE DESIGNED BY THE BLADE-ELEMENT THEORY -
DESIGN AND OVER-ALL PERFORMANCE (U)

IV CROUSE, JAMES E.; MONTGOMERY, JOHN C.;

SOLTIS, RICHARD F.;

REPT. NO. TN D 591

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AXIAL-FLOW COMPRESSORS, •FLUID MECHANICS,
•LIQUID ROCKET PROPELLANTS, •SPACE FLIGHT, DESIGN,
PUMPS, ROCKET MOTORS, TESTS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-249 652

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

APPROXIMATE ANALYSIS OF ATMOSPHERIC ENTRY CORRIDORS
AND ANGLES (U)

JAN 61 IV LUIDENS, ROGER W.;

REPT. NO. TN D 590

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •REENTRY VEHICLES, •SPACE FLIGHT,
AERODYNAMIC HEATING, ATMOSPHERE ENTRY, DECELERATION,
FLIGHT PATHS, LAMINAR BOUNDARY LAYER, MATHEMATICAL
ANALYSIS, PLANETARY ATMOSPHERES, SPACECRAFT (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-249 424

SMITHSONIAN ASTROPHYSICAL OBSERVATORY CAMBRIDGE MASS
RESEARCH IN SPACE SCIENCE. A THEORY OF SATELLITE
MOTION ABOUT AN OBLATE PLANET. I. A SECOND-ORDER
SOLUTION OF VINTI'S DYNAMICAL PROBLEM (U)

NOV 60 1V IZSAK, IMRE G.;

REPT. NO. SR52

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SPACE FLIGHT, MOTION, PLANETS, SATELLITE
ATTITUDE, SPACE ENVIRONMENTAL CONDITIONS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 792

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

EFFECT OF SHIELD POSITION AND ABSORPTIVITY ON
TEMPERATURE DISTRIBUTION OF A BODY SHIELDED FROM
SOLAR RADIATION IN SPACE (U)

IV NICHOLS, LESTER D.;

REPT. NO. TN D 578

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •TEMPERATURE CONTROL,
ABSORPTION, ANALYSIS, HEAT TRANSFER, SHIELDING, SOLAR
RADIATION, SPACECRAFT (U)

AN ANALYTICAL STUDY OF TEMPERATURE DISTRIBUTIONS ON
TWO DISKS SUBJECTED TO SOLAR RADIATION WAS MADE.
THE DISKS ARE ORIENTED SUCH THAT THE FIRST DISK
COMPLETELY SHIELDS THE SECOND DISK FROM (OVER)
SOLAR RADIATION, AND BOTH DISKS ARE NORMAL TO THE
RADIATION. THE EFFECT ON THE TEMPERATURE
DISTRIBUTION OF ABSORPTIVITY, THERMAL CONDUCTIVITY
(FOR TWO SPECIAL CASES), AND THE SPACING BETWEEN
DISKS WAS STUDIED. THE CALCULATIONS SHOW THE
POSSIBILITY OF USING A MOVABLE SHIELD AS A
TEMPERATURE CONTROL DEVICE FOR A SPACE VEHICLE.
ADJUSTMENT OF THE SHIELD SEPARATION DISTANCE
PROVIDES A COMPENSATION FOR POSSIBLE CHANGES IN
SURFACE RADIATION CHARACTERISTICS AND THE CONSEQUENT
ALTERATION IN THE EQUILIBRIUM TEMPERATURES. EVEN
FOR VERY SMALL CONDUCTIVITIES IT WAS FOUND THAT
SPACING DISTANCES OF ONE-HALF THE DISK RADIUS OR
GREATER (DEPENDING UPON THE ABSORPTIVITY) DO NOT
INTRODUCE EXCESSIVE TEMPERATURE VARIATIONS EITHER ON
THE SHIELD OR THE SHIELDED OBJECT. IN THIS CASE,
THE RANGE OF TEMPERATURE CONTROL IS GREATLY REDUCED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 765

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C
PROCEEDINGS OF MEETING ON PROBLEMS AND TECHNIQUES
ASSOCIATED WITH THE DECONTAMINATION AND STERILIZATION
OF SPACECRAFT JUNE 29, 1960, WASHINGTON, D. C. (U)

1V

REPT. NO. TN D 771

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DECONTAMINATION, •LUNAR PROBES,
•SATELLITES (ARTIFICIAL), •SPACE CAPSULES, •SPACE
FLIGHT, •SPACE MEDICINE, •SPACE PROBES, •SPACECRAFT,
•SYMPOSIA, ASTRONAUTICS, BACTERIA, CONTAMINATION, COSTS,
COUNTERMEASURES, ETHYLENE OXIDE, FUNGI, GERMICIDES,
HAZARDS, HEAT TREATMENT, LAUNCHING, MICROORGANISMS (U)
IDENTIFIERS: MARINER, PIONEER, RANGER SPACECRAFT,
SURVEYOR, VOYAGER (U)

(OVER) OPEN-ENDED TERMS: PIONEER,
RANGER, SURVEYOR, MARINER, VOYAGER. A
MEETING WAS HELD OF REPRESENTATIVES OF AGENCIES
CONCERNED WITH THE DEVELOPMENT OF SPACE VEHICLES AND
THOSE INVESTIGATING DECONTAMINATION AND STERILIZATION
PROCEDURES. RECOMMENDATIONS RESULTING FROM THE
DELIBERATIONS INCLUDE: (1) A BODY OF RELATED
INFORMATION BE ACCUMULATED, (2) STANDARD
OPERATING PROCEDURES BE ESTABLISHED, (3)
ACCEPTABLE LIMITS OF CONTAMINATION BE DETERMINED,
(4) NASA POLICY BE CLARIFIED, (5) NEW
STERILIZING AGENTS BE DEVELOPED, (6)
COMPATIBILITY STUDIES BE PURSUED, (7) STERILE
MANUFACTURE OF PARTS BE INVESTIGATED, AND (8) A
WORKING LEVEL GROUP SHOULD BE FORMED TO IMPLEMENT
RECOMMENDATIONS AND PROCEDURES. (AUTHOR) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-248 285

MASSACHUSETTS INST OF TECH CAMBRIDGE INSTRUMENTATION
LAB

A NAVIGATION THEORY FOR ROUND-TRIP RECONNAISSANCE
MISSIONS TO VENUS AND MARS (U)

AUG 59 IV BATTIN ,RICHARD H. ;LANING,
J. HALCOMBE , JR;

REPT. NO. R 240

CONTRACT: AFD4 647 303

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •NAVIGATION, •SPACE FLIGHT, ERRORS, MARS,
PLANETS, SOLAR SYSTEMS, STATISTICAL ANALYSIS,
STATISTICAL DATA (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-247 541

AIR FORCE MISSILE DEVELOPMENT CENTER HOLLOMAN AFB N
MEX

CIRCULAR TRACK-CHAMBER. A PROPOSED FACILITY FOR
TESTING MAN-MACHINE-SYSTEMS UNDER CONDITIONS OF SPACE
FLIGHT AND LUNAR HABITATIONS (U)

OCT 60 25P FEDER, HUBERT C.;
REPT. NO. MDC-TN-60-14

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ALTITUDE CHAMBERS, •SPACE FLIGHT, •TEST
FACILITIES, •TRACKS (AERODYNAMICS), ASTRONAUTICS,
ATMOSPHERE ENTRY, CENTRIFUGES, DESIGN, HUMAN
ENGINEERING, LAUNCHING, MOON, RECOVERY, SIMULATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-247 296

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PROCEEDINGS OF CONFERENCE ON RADIATION PROBLEMS IN
MANNED SPACE FLIGHT, JUNE 21, 1960, WASHINGTON D.C. (U)

DEC 60 IV

REPT. NO. TN D 588

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •RADIATION EFFECTS, •SPACE FLIGHT, •SPACE
MEDICINE, ASTRONAUTICS, DOSE RATE, DOSIMETERS, HAZARDS,
IONIZATION, RADIATION DAMAGE, RADIATION HAZARDS,
RADIATION INJURIES, RADIOBIOLOGY (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-247 126

JET PROPULSION LAB PASADENA CALIF
DESIGN TECHNIQUES FOR SPACE TELEVISION

(U)

APR 59 1V VITERBI, A.J.;

REPT. NO. EP623

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •TELEVISION COMMUNICATION
SYSTEMS, •TELEVISION TRANSMITTERS, COMMUNICATION
SYSTEMS, DESIGN, DISCRIMINATORS, FREQUENCY MODULATION,
PULSE MODULATION

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-246 804

OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)

SYMPOSIUM ON "THE BIOLOGY OF SPACE TRAVEL," LONDON,
29-30 SEPTEMBER 1960 (U)

OCT 60 IV MILLER, A.T. JR.;

REPT. NO. C 22 60

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
ACCELERATION TOLERANCE, ASTRONAUTICS, BRAIN, CLOSED-
CYCLE ECOLOGICAL SYSTEMS, CONTAMINATION, RADIATION
EFFECTS, REENTRY VEHICLES (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-246 414

NAVAL AIR ENGINEERING CENTER PHILADELPHIA PA AEROSPACE CREW
EQUIPMENT LAB
ENVIRONMENTAL REQUIREMENTS OF SEALED CABINS FOR SPACE
AND ORBITAL FLIGHTS. A BIBLIOGRAPHY OF
PSYCHOPHYSIOLOGICAL STUDIES RELEVANT TO SPACE AND
ORBITAL FLIGHT (U)

OCT 60 1V BURNS, NEAL M.; ZIEGLER, RALPH B.;
REPT. NO. 441

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BIBLIOGRAPHIES, •SPACE FLIGHT, •SPACE
MEDICINE, •SPACECRAFT CABINS, AVIATION PERSONNEL,
BEHAVIOR, DIET, MOTOR REACTIONS, ORBITAL TRAJECTORIES,
PERCEPTION, PHYSIOLOGY, PSYCHOLOGY, SATELLITES
(ARTIFICIAL), SPACE CAPSULES, STRESS (PHYSIOLOGY),
STRESS (PSYCHOLOGY) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-245 800

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME II, NO.

10. (ABSTRACTS 2,808-2,899)

(U)

OCT 60 1V

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •SATELLITES (ARTIFICIAL),

•SPACE FLIGHT, •SPACECRAFT, BIBLIOGRAPHIES, REENTRY

VEHICLES, SPACE MEDICINE, SPACE PROBES

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-245 322

JET PROPULSION LAB PASADENA CALIF

SEP 60 1V

REPT. NO. RS36 4 V2

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •CHEMISTRY, •LIQUID ROCKET
PROPELLANTS, •MATERIALS, •MECHANICS, •PHYSICS, •SOLID
ROCKET PROPELLANTS, •SPACE FLIGHT, •WIND TUNNELS,
MATHEMATICAL ANALYSIS, SCIENTIFIC RESEARCH (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-243 163

JET PROPULSION LAB PASADENA CALIF

SPACE-VEHICLE ATTITUDE CONTROL

(U)

OCT 60 1V SIRRI, NORRI;

REPT. NO. TR34 121

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •DETECTORS, •LUNAR PROBES, •SPACE FLIGHT,

•SPACECRAFT, CIRCUITS, CONTROL, FLIGHT, GYRO

STABILIZERS, GYROSCOPES

(U)

IDENTIFIERS: RANGER SPACECRAFT

(U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 862

MASSACHUSETTS INST OF TECH CAMBRIDGE INSTRUMENTATION
LAB

A COMPARISON OF FIXED AND VARIABLE TIME OF ARRIVAL
NAVIGATION FOR INTERPLANETARY FLIGHT (U)

MAY 60 IV BATTIN,RICHARD H.;

REPT. NO. R 283

CONTRACT: AF04 647 303

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ORBITAL TRAJECTORIES, •SPACE FLIGHT,
•SPACE NAVIGATION, MARS, ROCKET TRAJECTORIES, VENUS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 572

HUGHES AIRCRAFT CO CULVER CITY CALIF
DISPLAY AND CONTROL REQUIREMENTS FOR MANNED SPACE
FLIGHT (U)

APR 60 1V HOPKINS, CHARLES O.; BAUERSCHMIDT,
DONALD K.; ANDERSON, M. J.;
CONTRACT: AF33 616 6033
MONITOR: ASD TR-60-197

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CONTROL SYSTEMS, •DISPLAY SYSTEMS,
•SATELLITES (ARTIFICIAL), •SPACE FLIGHT, COCKPITS,
DESIGN, RENDEZVOUS SPACECRAFT, SPACECRAFT (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 394

RADIATION INC MELBOURNE FLA
THE THEORY OF CORRECTIONAL MANEUVERS IN
INTERPLANETARY SPACE

(U)

1V LAWREN, D.F.; LONG, R.S.;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *NAVIGATION, *SPACE FLIGHT, CORRECTIONS,
FLIGHT PATHS, ROCKET TRAJECTORIES, THEORY (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-242 157L

NAVAL AIR ENGINEERING CENTER PHILADELPHIA PA AEROSPACE CREW
EQUIPMENT LAB

ENVIRONMENTAL REQUIREMENTS OF SEALED CABINS FOR SPACE
AND ORBITAL FLIGHTS. RESPONSE OF SUBJECTS TO SOME
CONDITIONS OF A SIMULATED ORBITAL FLIGHT PATTERN (U)

AUG 60 1V HENDLER,E.;SANTAMARIA,L.J.;

PROJ: NAM AE 1403

UNCLASSIFIED REPORT
USGO

DESCRIPTORS: •PRESSURE SUITS, •SPACE FLIGHT, •SPACE
MEDICINE, •SPACECRAFT CABINS, •STRESS (PHYSIOLOGY),
ASTRONAUTICS, AVIATION PERSONNEL, BODY TEMPERATURE, HEAT
TOLERANCE, ORBITAL TRAJECTORIES, TEST METHODS, THERMAL
INSULATION, THERMAL STRESSES, VENTILATION (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 869

AIR FORCE SYSTEMS COMMAND WASHINGTON D C
FOOD FOR SPACE TRAVEL. AN EXAMINATION OF CURRENT
CAPABILITIES AND FUTURE NEEDS (U)

1V TAYLOR, ALBERT A.; FINKELSTEIN,

BEATRICE; HAYES, ROBERT E.;

MONITOR: AFSC TR60 8 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •CLOSED-CYCLE ECOLOGICAL SYSTEMS,
•CONTAINERS, •FOOD, •MILITARY RATIONS, •NUTRITION,
•SPACE FLIGHT, ACCEPTABILITY, COOLING, DEHYDRATED FOODS,
ELECTRICAL EQUIPMENT, FEEDING, FURNACES, HEATING,
OXYGEN, PURIFICATION, RECOVERY, STORAGE, WATER,
WEIGHTLESSNESS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 692

FLORIDA UNIV GAINESVILLE

EXTRATERRESTRIAL NOISE AS A FACTOR IN SPACE
COMMUNICATIONS

(U)

DEC 59 1V SMITH, ALEX G.;

CONTRACT: NONR58006

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •COMMUNICATION SYSTEMS, •RADIO
INTERFERENCE, •SPACE FLIGHT, COSMIC RAYS,
EXTRATERRESTRIAL RADIO WAVES, INTENSITY, NOISE (RADIO),
RADIO ASTRONOMY

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 457

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE NAVIGATION (U)

MAY 60 IV BENJAMIN, S.; GOLDFISCHER, L.;

REPT. NO. A18 11

CONTRACT: AF33 616 5487

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT, •SPACE
NAVIGATION, •SPACECRAFT, DESIGN, GUIDANCE,
RADIOFREQUENCY SPECTROSCOPY, RECORDING SYSTEMS, SPECTRUM
ANALYZERS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-241 227

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
INTERPLANETARY MANEUVERS USING RADIAL THRUST

(U)

AUG 60 1V PETTY,C.M.;

REPT. NO. LMSD 703036

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •HYPERBOLIC NAVIGATION, •SATELLITE
ATTITUDE, •SPACE FLIGHT, ACCELERATION, MANEUVERABILITY,
MATHEMATICAL ANALYSIS, SPACE ENVIRONMENTAL CONDITIONS,
THRUST

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-240 906

JET PROPULSION LAB PASADENA CALIF

ASTRONAUTICS INFORMATION. ABSTRACTS VOLUME II, NO. 7

(ABSTRACTS 2,530-2,623)

(U)

JUL 6D 1V

CONTRACT: NASW6

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT,
BIBLIOGRAPHIES

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-240 107
JET PROPULSION LAB PASADENA CALIF
JUN 60 1V
REPT. NO. RS36 3 V1
CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •COMMUNICATION SYSTEMS,
•SPACE FLIGHT, COMMUNICATION EQUIPMENT, CONTROL SYSTEMS,
GUIDANCE, INSTRUMENTATION, ORBITAL TRAJECTORIES (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-239 363

AIR FORCE MISSILE TEST CENTER PATRICK AFB FLA
OPERATIONAL DETERMINATIONS FOR STRATEGIC
INTERPLANETARY FLEETS

(U)

SEP 60 IV HILL, FOSDICK EMERSON;

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: • COSTS, • OPERATIONS RESEARCH, • SPACE
FLIGHT, • SPACECRAFT, ANALYSIS, CLASSIFICATION, MILITARY
REQUIREMENTS (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-238 486

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
GENERAL RESEARCH IN FLIGHT SCIENCES. VOLUME III.
FLIGHT DYNAMICS AND SPACE MECHANICS

(U)

JAN 60 1V

REPT. NO. LMSD 288139

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •ASTROPHYSICS, •SPACE
FLIGHT, ATMOSPHERE ENTRY, DESIGN, DOPPLER SYSTEMS,
MECHANICS, ORBITAL TRAJECTORIES, SOLAR SAILS, SPACE
NAVIGATION, TRACKING

(U)

UNCLASSIFIED

015423

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-238 242

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D

C

ANALYSIS OF TRAJECTORY PARAMETERS FOR PROBE AND
ROUND-TRIP MISSIONS TO MARS

(U)

IV

DUGAN, JAMES F. JR.;

REPT. NO. TN D 281

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE NAVIGATION, •SPACE
PROBES, ANALYSIS, MARS, TIME, VELOCITY (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-237 324

NORTHROP AIRCRAFT INC HAWTHORNE CALIF
DESIGN AND APPLICATIONS OF PROPULSIVE FLUID
ACCUMULATOR SYSTEMS

(U)

APR 60 1V DEMETRIADES, STERGE T. I
REPT. NO. NB 60 16

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AIR, •PROPULSION, •SATELLITES
(ARTIFICIAL), •SPACE FLIGHT, •SPACECRAFT, COLLECTING
METHODS, ELECTRIC PROPULSION, INDUCTION SYSTEMS,
MAGNETOHYDRODYNAMICS, RAMJET ENGINES, UPPER
ATMOSPHERE

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-237 305L

HUGHES AIRCRAFT CO CULVER CITY CALIF

OCT 59 1V

REPT. NO. SDL 927 RA

MONITOR: AFSC TR59 44 V1 00000000

UNCLASSIFIED REPORT
CONTROLLED

DESCRIPTORS: •ASTRONAUTICS, •EXTRATERRESTRIAL BASES,
•GUIDANCE, •RENDEZVOUS SPACECRAFT, •SPACE FLIGHT, •SPACE
NAVIGATION, ANALOG COMPUTERS, ATMOSPHERE ENTRY,
AUTOMATIC, COMMUNICATION SYSTEMS, CONTROL SYSTEMS,
DESIGN, FLIGHT PATHS, NAVIGATION, SIMULATION (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-236 882

JET PROPULSION LAB PASADENA CALIF
RUDIMENTARY LAUNCH GUIDANCE METHODS FOR DEEP-SPACE
MISSIONS

(U)

APR 60 1V PFEIFFER,C.G.:

REPT. NO. TP34 43

CONTRACT: NASW6

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDANCE, •SPACE FLIGHT, COMPUTERS,
DESIGN, ERRORS, ROCKET FLIGHT, ROCKET TRAJECTORIES (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-236 026

MCKIERNAN-TERRY CORP DOVER N J
FEASIBILITY AND DESIGN STUDY FOR AN ADVANCED HUMAN
ENVIRONMENTAL RESEARCH ACCELERATOR (U)
MAR 60 IV

CONTRACT: AF33 616 6538

MONITOR: ASD TR&D 225 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION, •CENTRIFUGES, •PARTICLE
ACCELERATORS, •SPACE FLIGHT, ACCELERATION TOLERANCE,
AERODYNAMIC CHARACTERISTICS, BIOPHYSICS, CAMPHORS,
COMPUTERS, DESIGN, DRIVES, MECHANICS, ROTATION,
SIMULATION, SPACE CAPSULES, TEST FACILITIES (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-235 563

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA
BASIC REQUIREMENTS FOR THE EXPLORATION OF JUPITER AND
ITS MOONS (U)

MAR 60 57P STRALY, WARREN H.; VOSS, ROBERT G.;
REPT. NO. APMA-DSP-TR-1-60

UNCLASSIFIED REPORT

DESCRIPTORS: •JUPITER, •SPACE FLIGHT, EXPLORATION,
ORBITAL TRAJECTORIES, SPACE ENVIRONMENTAL CONDITIONS,
THEORY (U)

X

UNCLASSIFIED

015423

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AD-235 228

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

SOLAR IRRADIANCE FROM MERCURY TO PLUTO (U)

IV STRUGHOLD, HUBERTUS; RITTER, OSKAR L.;

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •PLANETARY ATMOSPHERES, •PLANETS, •SPACE

FLIGHT, ILLUMINATION, RADIATION EFFECTS, SOLAR

RADIATION, SPACE ENVIRONMENTAL CONDITIONS, TABLES (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-234 597

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB

A DISCUSSION OF RESTRAINT AND PROTECTION OF THE HUMAN
EXPERIENCING THE SMOOTH AND OSCILLATING ACCELERATIONS
OF PROPOSED SPACE VEHICLES (U)

IV CLARK,CARL C.;GRAY,R. FLANAGAN;

REPT. NO. 5914

PROJ: MR 005 12 0005 6ADC AE 1412

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION, •ACCELERATION TOLERANCE,
•BODY, •DECELERATION, •HUMAN ENGINEERING, •SPACE FLIGHT,
•SPACECRAFT, •SPACECRAFT SEATS, •TISSUES (BIOLOGY),
CENTRIFUGES, DISTORTION, EFFECTIVENESS, PHYSIOLOGY (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-233 916

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D

C

ONE-DIMENSIONAL ANALYSIS OF ION ROCKETS (U)

MAR 60 IV KAUFMAN, HAROLD R.;

REPT. NO. TN D 261

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ION ACCELERATORS, •ION ENGINES, •ROCKET
PROPULSION, •SPACE CHARGES, •SPACE FLIGHT, ELECTRON
ACCELERATORS, ION BEAMS, MATHEMATICAL ANALYSIS, ROCKET
MOTORS, VELOCITY (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-233 134

OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)

EUROPEAN SCIENTIFIC NOTES NO. 14-3

(U)

MAR 60 1V

REPT. NO. ESN14 3

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACOUSTICS, •MATHEMATICS, •PHYSIOLOGY,
•SCIENTIFIC RESEARCH, •SPACE FLIGHT, ARTIFICIAL
RESPIRATION, DIGITAL COMPUTERS, EDUCATION, ELECTRONS,
MARINE BIOLOGY, MEDICAL PERSONNEL, PROBABILITY, SPEECH,
SYMPOSIA, THEORY, VIBRATION (U)
IDENTIFIERS: EUROPE (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-232 121

ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND DEPT OF THE
ARMY WASHINGTON D C
PSYCHOLOGICAL PROBLEMS OF SELECTION, HOLDING, AND
CARE OF SPACE FLIERS (U)

NOV 59 IV GERATHEWAHL, SIEGFRIED J.;
REPT. NO. 7CSCRD 16 4

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AVIATION PERSONNEL, •BEHAVIOR, •JOB
ANALYSIS, •MILITARY TRAINING, •MOTIVATION, •PERSONALITY,
•PERSONALITY TESTS, •PHYSICAL FITNESS, •PSYCHOMETRICS,
•SPACE FLIGHT, •SPACE MEDICINE, •SPACECRAFT, •STRESS
(PHYSIOLOGY), •STRESS (PSYCHOLOGY), FLIGHT SIMULATORS,
SELECTION, TEST METHODS (U)

IDENTIFIERS: MERCURY PROJECT (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-231 349

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
MECHANICS PROBLEMS OF SPACE FLIGHT (U)

NOV 59 1V JAHSMAN,W.E.;CLINE,G.B. JR.;

REPT. NO. LMSD 288073

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •AERODYNAMIC CONFIGURATIONS, •COMMUNICATION
EQUIPMENT, •SOLAR SAILS, •SPACE FLIGHT, •SPACECRAFT,
ANTENNAS, DESIGN, SATELLITES (ARTIFICIAL), SOLAR CELLS,
SOLAR RADIATION, STRUCTURES (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-230 100

MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
RADARS FOR INTERPLANETARY EXPLORATION AND LONG-RANGE
SATELLITE TRACKING (U)

MAR 59 1V ALLEN, JOHN L.; CAMP, WILLIAM W.;
REPT. NO. GR31 145
CONTRACT: AF19 604 5200

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •COMMUNICATION SYSTEMS, •RADAR, •RADAR
TRACKING, •RANGE FINDING, •SATELLITES (ARTIFICIAL),
•SPACE FLIGHT, SPACE NAVIGATION (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-230 005

NAVAL AIR DEVELOPMENT CENTER JOHNSVILLE PA AVIATION
MEDICAL ACCELERATION LAB

BEHAVIORAL AND PHYSIOLOGICAL EFFECTS OF EXPOSURE TO A
SIMULATED JUNO II ACCELERATION PATTERN (U)

SEP 59 IV HERRICK, ROBERT M.; KYDD, GEORGE H.;

REPT. NO. 5913

PROJ: ADC AD 1412 2

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ACCELERATION TOLERANCE, •SPACE FLIGHT,
ACCELERATION, BEHAVIOR, LUNAR PROBES, PHYSIOLOGY,
SATELLITES (ARTIFICIAL), SIMULATION (U)
IDENTIFIERS: JUNO (U)

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AD-230 Juno II Program

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 883

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

DOPPLER VELOCITY FOR SPACE NAVIGATION (U)

AUG 59 1V BELCHIS,S.;GOLDFISCHER,L.;MARKHAM,

G.;

REPT. NO. A 18 8

CONTRACT: AF33 616 5487

MONITOR: ASD TN59 734 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •DOPPLER NAVIGATION, •SPACE FLIGHT,
•SPACECRAFT, DESIGN, GUIDANCE, RADIOFREQUENCY
SPECTROSCOPY, RECORDING SYSTEMS, SPACE NAVIGATION,
SPECTRUM ANALYZERS (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 593

NAVAL AIR ENGINEERING CENTER PHILADELPHIA PA AEROSPACE CREW
EQUIPMENT LAB

ENVIRONMENTAL REQUIREMENTS OF SEALED CABINS FOR SPACE
AND ORBITAL FLIGHT - A SECOND STUDY. PART IV.

CONCENTRATIONS OF EPINEPHRINE AND NORÉPINEPHRINE IN
URINE DURING CONFINEMENT IN A SIMULATED SPACE
CHAMBER (U)

NOV 59 IV TILLER, P.R.; FIGUR, A.N.;
PROJ: NAM AE 1403

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, ALTITUDE CHAMBERS,
EPINEPHRINE, EXCRETION, PHYSIOLOGY, PRESSURIZED CABINS,
SIMULATION, STRESS (PSYCHOLOGY), URINE (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-229 282

GENERAL DYNAMICS SAN DIEGO CALIF GENERAL ATOMIC DIV
THE USE OF MODULATED ATOMIC-BEAM TECHNIQUES FOR THE
STUDY OF SPACE-FLIGHT PROBLEMS (U)

OCT 59 IV HOLISTER, GEOFFREY S.; BRACKMANN, R.T.;

FITE, WADE L.;

REPT. NO. GA 1024

CONTRACT: AF49 638 356

MONITOR: AFOSR TN59 1033 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •MOLECULAR BEAMS, •SPACE FLIGHT,
•SPACECRAFT, DRAG, GASES, MASS SPECTROSCOPY, PRESSURE,
SATELLITES (ARTIFICIAL), SURFACES (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-228 785

VIRGINIA UNIV CHARLOTTESVILLE MEDICAL SCHOOL
BIOLOGICAL PAYLOADS IN SPACE FLIGHT, 2-5 SEPTEMBER
1958 (U)

SEP 58 1V
CONTRACT: AF18 600 1792
MONITOR: AFSC TR58 58 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •BEHAVIOR, •CLOSED-CYCLE ECOLOGICAL
SYSTEMS, •SPACE FLIGHT, •SPACECRAFT, INSTRUMENTATION,
PHYSIOLOGY, PSYCHOLOGY, RADIOACTIVITY, TELEMETER
SYSTEMS (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-228 459L

ARMY RESEARCH OFFICE WASHINGTON D C

MISSILES, ROCKETS, AND SPACE IN WAR AND PEACE (U)

AUG 59 1V

REPT. NO. P70 5 6

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: •ARMED FORCES RESEARCH, •GUIDED MISSILES,
•MILITARY RESEARCH, •ROCKETS, •SATELLITES (ARTIFICIAL),
•SPACE FLIGHT, AIR FORCE RESEARCH, BIBLIOGRAPHIES,
EXPLORATION, LUNAR PROBES, NAVAL RESEARCH, SPACE PROBES,
SPACE WEAPONS, SPACECRAFT (U)

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Federal*

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-227 227

ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND DEPT OF THE
ARMY WASHINGTON D C

BIO-FLIGHT PROJECT 2B REVISION I

(U)

JUL 59

IV

CHAMPLIN, GERALD A.; WILBARGER, EDWARD

S. i

REPT. NO. CSCRD 16

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACE MEDICINE,
ACCELERATION TOLERANCE, PHYSIOLOGY

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-226 832

GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

SUMMARY OF TECHNICAL REPTS. JANUARY-JUNE 1959. VOLUME
II. SPACE MEC (U)

IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ASTRONAUTICS, •PLASMA PHYSICS, •SPACE
FLIGHT, HUMAN ENGINEERING, HYPERVELOCITY VEHICLES,
MEASUREMENT, METEOROLOGY, SATELLITES (ARTIFICIAL), SPACE
WEAPONS, SPACECRAFT, TEST FACILITIES (U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-225 924

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
MINIMUM TRANSFER TIME FOR A POWER-LIMITED ROCKET (U)

AUG 59 1V LEITMANN, GEORGE;

REPT. NO. LMSD 49769

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, •SPACECRAFT, ASTRONAUTICS,
FLIGHT PATHS, ROCKET MOTORS, THRUST (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 366

RAND CORP SANTA MONICA CALIF

IV

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: (*SPACE FLIGHT), (*SPACE
NAVIGATION), (*LUNAR TRAJECTORIES), LUNAR
PROBES, LANDINGS, LUNAR SATELLITES, SPACE
ENVIRONMENTAL CONDITIONS, MANEUVERABILITY,
MATHEMATICAL ANALYSIS

(U)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 321

RAND CORP SANTA MONICA CALIF

ECONOMIC ASPECTS OF DEVELOPING AND ORBITING A SPACE
STATION. (U)

APR 60 9P MARGOLIS, M. ;

REPT. NO. P-1975

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •ECONOMICS ,•SPACE FLIGHT ,•SPACECRAFT ,
BOOSTERS ,COSTS ,DESIGN ,FEDERAL BUDGETS ,MILITARY
ORGANIZATIONS ,ORBITAL TRAJECTORIES ,WAGES (M)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-224 138

RAND CORP SANTA MONICA CALIF
ECONOMIC CONSIDERATIONS OF SPACE FLIGHT GROUND
SUPPORT REQUIREMENTS.

(U)

JAN 59 17P MARGOLIS ,M. A. ;PARDEE,F.

S. ;

REPT. NO. P-1589

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: GROUND SUPPORT EQUIPMENT , SPACE FLIGHT ,
COSTS , ECONOMICS , INSTALLATION , MILITARY ENGINEERING ,
MILITARY FACILITIES , MILITARY REQUIREMENTS , OPERATION ,
OPERATIONS RESEARCH , RANGES (ESTABLISHMENTS) , RESEARCH
PROGRAM ADMINISTRATION , SPACECRAFT (M)

UNCLASSIFIED

015423

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DDC REPORT BIBLIOGRAPHY. SEARCH CONTROL NO. 015423

AD-220 815

ADJUTANT GENERAL'S OFFICE (ARMY) WASHINGTON D C
MILITARY ASPECTS OF SPACE EXPLORATION SELECTED LIST
OF TITLES (U)

JUN 58 1V
REPT. NO. SB16

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •RETARDING-FIELD OSCILLATORS, •SPACE
FLIGHT, ARMED FORCES OPERATIONS, BIBLIOGRAPHIES (U)

X ordered

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-219 064

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA

OBSERVATIONS OF A RELATIVISTIC SPACE TRAVELER (U)

JUN 59 9P HASKINS, J. RICHARD;

MONITOR: ARGMA TR-1C21R

UNCLASSIFIED REPORT

DESCRIPTORS: •ASTRONAUTICS, •SPACE FLIGHT, ABSORPTION,
MEASUREMENT, PHOTONS, RELATIVITY THEORY, TIME (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-216 106

RAND CORP SANTA MONICA CALIF

AN ANNOTATED BIBLIOGRAPHY OF RAND SPACE FLIGHT
PUBLICATIONS

(U)

1V

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, BIBLIOGRAPHIES

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UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-210 900

NAVAL AIR ENGINEERING CENTER PHILADELPHIA PA AEROSPACE CREW
EQUIPMENT LAB

ENVIRONMENTAL REQUIREMENTS OF SEALED CABINS FOR SPACE
AND ORBITAL FLIGHTS. PART 4. PHYSIOLOGICAL CHANGES
PRODUCED IN HUMANS BY PROLONGED CONFINEMENT IN AN
OXYGEN-RICH ENVIRONMENT (U)

OCT 58 IV LIBBER, L.M.; SANTAMARIA, L.J.; TILLER,

P.R., JR.;

PROJ: NAME 1403

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •SPACE FLIGHT, DIET, OXYGEN, PHYSIOLOGY,
SPACECRAFT, STRESS (PHYSIOLOGY) (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-205 544

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB

OHIO

EXTENDING HUMAN TOLERANCE TO HEAT BY PRIOR BODY

COOLING

(U)

SEP 58

IV

VEGHE, JAMES H.; WEBB, PAUL;

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •COOLING, •HEAT TOLERANCE, •SPACE FLIGHT,
BODY, INHIBITION, PERSPIRATION, PHYSIOLOGY (U)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-158 730

MASSACHUSETTS INST OF TECH CAMBRIDGE INSTRUMENTATION
LAB

PRELIMINARY CONSIDERATIONS ON THE INSTRUMENTATION OF
A PHOTOGRAPHIC RECONNAISSANCE OF MARS (U)

APR 58 IV LANING, J. HALCOMBE, JR.; FREY, ELMER
J.; TRAGESER, MILTON B.;

REPT. NO. R 174

CONTRACT: AFD4 645 9

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •PHOTOGRAPHIC EQUIPMENT, •SPACE FLIGHT,
AERIAL RECONNAISSANCE, ANALYSIS, DESIGN,
INSTRUMENTATION, MARS, SPACECRAFT (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-155 817

GENERAL PRECISION INC PLEASANTVILLE N Y GENERAL PRECISION
LAB DIV

JUL 58 .IV

CONTRACT: AF33 616 5487

MONITOR: ASD TN58 225 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •GUIDANCE, •NAVIGATION, •SPACE FLIGHT,
•SPACECRAFT, ANALYSIS, DOPPLER SYSTEMS (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-152 814

SCHOOL OF AVIATION MEDICINE RANDOLPH AFB TEX
1V

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •LACTOBACILLUS, •METABOLISM, •SPACE FLIGHT,
CARBON DIOXIDE, EXPOSURE, HIGH ALTITUDE, NITROGEN,
OXYGEN, PHYSIOLOGY, PRESSURE, SIMULATION (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-148 105

LITTON SYSTEMS INC BEVERLY HILLS CALIF
THE INHABITED VACUUM LABORATORY

(U)

JAN 58 1V

CONTRACT: AF18 600 1498

MONITOR: AFOSR TR58 14 00000000

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: •ALTIMUDE CHAMBERS, •SPACE FLIGHT, DESIGN,
MAN, MONITORS, PHYSIOLOGY, SIMULATION, VACUUM
APPARATUS

(M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-136 410

AIR FORCE SYSTEMS COMMAND WASHINGTON D C
HUMAN FACTORS RESEARCH AND DEVELOPMENT PROGRAM FOR A
MANNED SATELLITE (U)

MONITOR: AFSC IV HENRY, JAMES P.; ECKSTRAND, GORDON A.;
TR57 160 00000000

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: •HUMAN ENGINEERING, •SATELLITES
(ARTIFICIAL), •SPACE FLIGHT, ACCELERATION, NUTRITION,
RADIATION EFFECTS, WATER, WEIGHTLESSNESS (M)

UNCLASSIFIED

015423

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 015423

AD-123 557

RAND CORP SANTA MONICA CALIF

MOTION OF A SMALL BODY IN EARTH-MOON SPACE (U)

IV

BUCHHEIM, R.W.;

REPT. NO. RM-1726

CONTRACT: AF 33(038)-6413

UNCLASSIFIED REPORT
NOFORN

DESCRIPTORS: *SPACE FLIGHT, EARTH, FLIGHT PATHS,
GRAVITY, MATHEMATICAL ANALYSIS, MOON, MOTION, ORBITAL
TRAJECTORIES, SATELLITES (ARTIFICIAL), SPACECRAFT (M)

UNCLASSIFIED

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