

NASA SP-5021 (16)

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INDEX TO NASA TECH BRIEFS 1975

- **Abstracts**
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Introduction

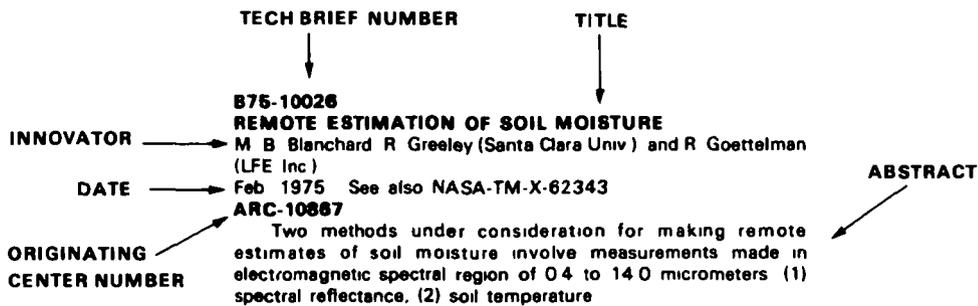
Tech Briefs are short announcements of new technology derived from the research and development activities of the National Aeronautics and Space Administration. These briefs emphasize information considered likely to be transferrable across industrial, regional, or disciplinary lines and are issued to encourage commercial application.

This *Index to NASA Tech Briefs* contains abstracts and four indexes—subject, personal author, originating Center, and Tech Brief number—for 1975 Tech Briefs.

Abstract Section

The abstract section is divided into nine categories: Electronics/Electrical, Electronic/Electrical Systems, Physical Sciences, Materials/Chemistry, Life Sciences, Mechanics, Machinery, Equipment, and Tools, Fabrication Technology, and Computer Programs. Within each category, abstracts are arranged sequentially by Tech Brief number.

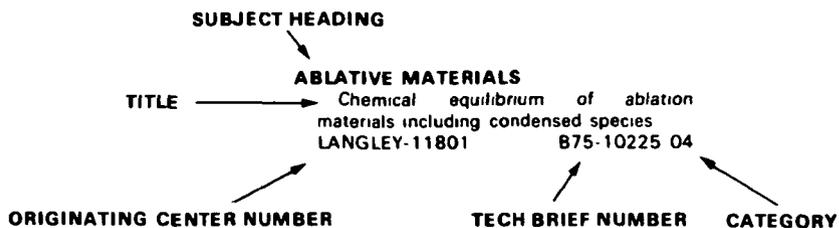
A typical abstract entry has these elements:



The originating Center number in each entry includes an alphabetical prefix that identifies the NASA Center where the Tech Brief originated. A list of prefixes and the corresponding Center names are given on page iii.

Indexes

Four indexes are provided. The first is a subject index, arranged alphabetically by subject heading. Each entry in the subject index includes a Tech Brief number and a category number to aid the user in locating pertinent entries in the abstract section.



The January 1976 edition of the *NASA Thesaurus* (NASA SP-7050) is used as the authority for the indexing vocabulary that appears in the subject index. The *NASA Thesaurus* should be consulted in examining the current indexing vocabulary, including associated cross-reference structure. Only the subject terms that have been selected to describe the documents abstracted in this issue appear in the subject index. Copies of the *NASA Thesaurus* may be obtained from the National Technical Information Service or the U S Government Printing Office at \$23.50 for the two-volume set.

The second index is a personal author index. Entries in this index are arranged alphabetically by author's name. Tech Brief and category numbers are supplied to help the user find the appropriate entries in the abstract section.



The third index relates each originating Center number to the corresponding Tech Brief number and category. Entries in this index are arranged in alphanumeric order by Center number.



The fourth index relates each Tech Brief number to its originating Center number. Entries are arranged in ascending Tech Brief number order.



Originating Center Prefixes

ARC	Ames Research Center
GSFC	Goddard Space Flight Center
HQ	NASA Headquarters
KSC	Kennedy Space Center
LANGLEY	Langley Research Center
LEWIS	Lewis Research Center
M-FS	Marshall Space Flight Center
MSC	Johnson Space Center (formerly Manned Spacecraft Center)
NPO	Jet Propulsion Laboratory/NASA Pasadena Office

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Index to NASA Tech Briefs

February 1976

Abstract Section

01 ELECTRONICS/ELECTRICAL

B75-10014
ISOMETRIC SCAN METHOD FOR ULTRASONIC EVALUATION OF COMPOSITE PANELS

A Vary and R L Sorg
Apr 1975
LEWIS-12437

I-scan form of data presentation provides more direct information on nature and severity of flaws present in test specimen and is more easily interpreted by inspector than conventional C-scans currently used. It also offers potential savings in inspection time and cost.

B75-10025
TRIELECTRODE CAPACITIVE PRESSURE TRANSDUCER

G W Coon
Feb 1975
ARC-10711

Capacitive transducer eliminates adverse effects of temperature and humidity. It is especially suited for measuring pressure changes in high-temperature environment. Transducer basically is three-electrode device.

B75-10031
VARIABLE DIODE ASSEMBLY WITH LOW PARASITIC REACTANCES

L E Dickens (Westinghouse Elec Corp)
Apr 1975
GSFC-11617

Development of varactor diode assembly overcomes parasitic reactances of conventional varactor packages. In specially constructed assembly very high idler-frequency to signal-frequency ratios are used to obtain low-noise operation over maximum bandwidth.

B75-10036
INTERFACE CONTROL SCHEME FOR COMPUTER HIGH-SPEED INTERFACE UNIT

B K Ballard (RCA)
Apr 1975
M-FS-23083

Control scheme is general and performs for multiplexed and dedicated channels as well as for data-bus interfaces. Control comprises two 64-pin dual in-line packages, each of which holds custom large-scale integrated array built with silicon-on-sapphire complementary metal-oxide semiconductor technology.

B75-10039
IMPROVED PRINTED-WIRING BOARDS FOR HIGH-RELIABILITY CIRCUITS

W J Patterson
Apr 1975

M-FS-23147

Experimental board includes three layers of special tridirectionally woven fabric. Alumina particles play major role in reducing coefficient of expansion. They also serve as heat sink for heat-generating components.

B75-10049
SHOCK AND VIBRATION ISOLATION MOUNT FOR SMALL ELECTRONIC COMPONENTS

F R Dillon (Martin Marietta Corp) and C R Mayne
Apr 1975
NPO-13253

Mount includes metallic cup and support ring placed in mold fixture. Viscoelastic material is injected between these parts by means of large hypodermic needle. Circular projections on cup and ring extend into material and are kept in place without dependence on quality of adhesion between material and metal.

B75-10069
HIGH-TEMPERATURE CAPACITIVE STRAIN MEASUREMENT SYSTEM

J E Wilson and L R Egger (Boeing Co)
May 1975
FRC-10053

Capacitive strain gage and signal conditioning system measures stress-induced strain and cancels thermal expansion strain at temperatures to 1500 F (815 C). Gage does not significantly restrain or reinforce specimen.

B75-10070
FOURIER WAVEFORM ANALYZER

F J Sutton
May 1975
GSFC-11747

Real-time Fourier analysis is provided by bucket brigade charge-transfer shift register. Device is small, inexpensive integrated circuit which does analog-to-digital-to-analog conversion, data processing and time delay.

B75-10071
HEATER IMPROVES COLD-TEMPERATURE CAPACITY OF SILVER-CADMIUM BATTERIES

W H Webster Jr and P T Jackson
May 1975
GSFC-11913

Eight heaters are included in 14-cell package to provide 14-Vdc. Each heater is 11-ohm self-adhesive strip placed across broad face of each pair of cells. They are installed before cells are wired. Heaters are in series and are connected through pair of redundant thermostats.

B75-10088
ONE-DIMENSIONAL MULTIMODE AND MULTISTATE OSCILLATOR: A CONCEPT

M H Aumann (Wisconsin Univ)
Jun 1975

01 ELECTRONICS/ELECTRICAL

HQ-10851

Device's voltage amplitude distribution is similar to that of standing waves on transmission line. It can be used for fast efficient information encoding/decoding and memory. Device operates in response to brief tone burst setting up standing-wave mode of oscillation which is unique for each possible burst frequency.

B75-10091 DUAL-BAND RIDGED WAVEGUIDE

M J Franke
Jun 1975
LANGLEY-11781

Waveguide-in-waveguide technique involves routing two waveguides through same passageway. Smaller waveguide can be soft or silver soldered inside X-band waveguide to form single ridge guide and to propagate frequencies at C-band.

B75-10096 INTERACTIVE GRAPHICAL COMPUTER-AIDED DESIGN SYSTEM

M T Edge
Jun 1975
M-FS-23157

System is used for design layout and modification of large-scale-integrated (LSI) metal-oxide semiconductor (MOS) arrays. System is structured around small computer which provides real-time support for graphics storage display unit with keyboard, slave display unit, hard copy unit, and graphics tablet for designer/computer interface.

B75-10101 HIGH-PERFORMANCE SCHOTTKY DIODES ENDURE HIGH TEMPERATURES

E L Dickens (Westinghouse Elec Corp), G F Trageser (Westinghouse Elec Corp), and B H Kim (Westinghouse Elec Corp)
Jun 1975
M-FS-23184

Fabrication process and aluminum/GaAs (gallium arsenide) coupling are used to produce Schottky diodes that have high cutoff frequencies and can withstand operating temperatures in excess of 500 C.

B75-10102 INTEGRATED-CIRCUIT BALANCED PARAMETRIC AMPLIFIER

E L Dickens (Westinghouse Elec Corp)
Jun 1975
M-FS-23193

Amplifier fabricated on single dielectric substrate has pair of Schottky barrier varactor diodes mounted on single semiconductor chip. Circuit includes microstrip transmission line and slot line section to conduct signals. Main features of amplifier are reduced noise output and low production cost.

B75-10109 FLUORESCENT COLOR CODING OF POWER RECEPTACLES

C C Oleson (Rockwell Intern Corp) and D A Vidana (Rockwell Intern Corp)
Jun 1975
MSC-19504

Receptacles color coded according to power ratings can be easily located. Low-light visibility of fluorescent paint saves considerable time during repair or replacement. Technicians using flashlights have located and identified painted receptacles from as far away as 50 feet (15 meters).

B75-10120 MICROELECTRONIC FABRICATION OF SUPERCONDUCTING DEVICES AND CIRCUITS

K R Kirschman, E J Mercereau, and A H Notarys
Jun 1975
NPO-13419

It is expected that thin-film superconductors can be used as detectors or sources of infrared and microwave radiation, as magnetometers, as voltage standards, and for voltage and

current measurements, for electronic signal processing, and in digital circuitry.

B75-10171 SYSTEM FOR SIMULTANEOUS, BIDIRECTIONAL DATA TRANSMISSION

C C Schmidt (Lockheed Electronics Co)
Aug 1975
MSC-14810

Single inexpensive system uses two identical circuits for simultaneous bidirectional data transmission. Frequency response with currently available amplifiers is from dc to over 70 kHz.

B75-10195 STRIPE-LINE COIL FOR MAGNETIC-FIELD GENERATION IN BUBBLE MEMORY DEVICES

T T Chen (Rockwell Intern Corp) and E J Ypma (Rockwell Intern Corp)
Sep 1975
LANGLEY-11705

Coil etched from conductive film has better field uniformity than wire-wound coils and less coil loss at high-frequency operation.

B75-10196 LOW-LOSS STRIPE-LINE COIL FOR MAGNETIC BUBBLE MEMORY

T T Chen (Rockwell Intern Corp) and L C Zachry (Rockwell Intern Corp)
Sep 1975. See also B75-10195
LANGLEY-11707

Stripe-line pattern is etched on both sides of double-sided film. Since conductor thickness is only half that of single-sided film, problems in wrapping and etching are greatly reduced.

B75-10197 BUBBLE-DOMAIN CIRCUIT WAFER EVALUATION COIL SET

T T Chen (Rockwell Intern Corp) and L J Williams (Rockwell Intern Corp)
Sep 1975
LANGLEY-11728

Coil structures have been designed to permit nondestructive testing of bubble wafers. Wafers can be electrically or optically inspected and operated from quasi-static frequency to maximum device operating frequency.

B75-10213 MICROWAVE DIODE AMPLIFIERS WITH LOW INTERMODULATION DISTORTION

W H Cooper (Westinghouse Elec Corp), M Cohn (Westinghouse Elec Corp), and C D Buck (Westinghouse Elec Corp)
Oct 1975
GSFC-11668

Distortions can be greatly reduced in narrow-band applications by using the second harmonic. The ac behavior of simplified diode amplifier has negative resistance depending on slope of equivalent I-V curve.

B75-10219 OPEN COIL STRUCTURE FOR BUBBLE-MEMORY-DEVICE PACKAGING

T T Chen (Rockwell Intern Corp) and E J Ypma (Rockwell Intern Corp)
Oct 1975
LANGLEY-11704

Concept has several important advantages over close-wound system: memory and coil chips are separate and interchangeable; interconnections in coil level are eliminated by packing memory chip and electronics in single structure; and coil size can be adjusted to optimum value in terms of power dissipation and field uniformity.

B75-10220 IMPROVED PHOTOVOLTAIC DEVICES, USING TRANSPARENT CONTACTS

H J Hovel (IBM) and J M Woodall (IBM)

Oct 1975

LANGLEY-11761

Transparent conducting coating is applied to narrow pn junction surface to provide ohmic contact for majority carrier flow. Coating can be made thick to prevent series resistance problem.

B75-10221

VARIABLE-GAP BIAS STRUCTURE FOR MAGNETIC BUBBLE MEMORY PACKAGE

T T Chen (Rockwell Intern Corp)

Oct 1975

LANGLEY-11765

Size and thickness of field adjusting plate can be varied. Memory chip specification is relaxed since chips in structure need not be matched in bias margin.

B75-10222

A 1-1/2-LEVEL ON-CHIP-DECODING BUBBLE MEMORY CHIP DESIGN

T T Chen (Rockwell Intern Corp)

Oct 1975

LANGLEY-11766

Design includes multi-channel replicator which can reduce chip-writing requirement. Selective annihilating switch which can effectively annihilate bubbles with minimum delay and modified transfer switch which can be used as selective steering-type decoder.

B75-10230

ELLIPSOMETER MEASUREMENTS OF EPITAXIAL GAAS LAYERS - A CONCEPT

J D DeSmet (Alabama Univ)

Oct 1975

M-FS-23238

Report discusses analysis involving Maxwell's equations formed in a 6-by-6 matrix. By applying boundary conditions at proper points in sample equation for propagation of light through anisotropic medium is reduced to eigenvalue problem resulting in 4-by-4 matrix.

B75-10233

100-AMPERE-HOUR NICD BATTERY SYSTEM

Innovator not given (Grumman Aerospace Co) Oct 1975 See also NASA-CR-140380 NASA-CR-140381 NASA-CR-141600

MSC-14774

Cells use potassium hydroxide electrolyte and are hermetically sealed in stainless steel casings. Each cell provides 1.56 volts and has a minimum operating life of 17,000 hours and a maximum of approximately 48,000 hours.

B75-10255

START/STOP SWITCHES FOR TESTING DETONATION VELOCITY OF EXPLOSIVES

P J Wise and E W Grimes

Oct 1975

KSC-10793

Printed-circuit process produces ordnance-initiated start/stop switches. Method is faster and less costly than fabrication by hand and produces switches of uniform quality.

B75-10260

SIMPLE TEMPERATURE SENSOR WITH DIRECT READOUT

W A Love (Rockwell Intern Corp)

Oct 1975

LANGLEY-11818

Sensor is easy to construct, requires only one operational amplifier and has very fast response. It provides direct readout of temperature on digital voltmeter.

B75-10274

RESPONSE OF TANTALUM CAPACITORS TO FAST TRANSIENT OVERVOLTAGES

A J Zill and D K Castle

Oct 1975 See also NASA-TM-X-58152

MSC-14822

Report describes tests used to determine minimum time for capacitors to fail due to overvoltage and maximum amount of overvoltage that capacitors could sustain without permanent damage.

B75-10277

HIGHLY STABLE ANALOG-TO-DIGITAL CONVERTER

H C Lucas

Oct 1975

NPO-13385

Device has been developed for use in pulse-height analyzer of gamma-ray telescope. Unit shows integral linearity of 0.05 percent and differential linearity of less than 2 percent.

B75-10283

INEXPENSIVE POCKET-SIZE SOLAR ENERGY METER (INSOLOMETER)

F A Forestieri, M T Klucher, J C Adlard and K R Shaltens

Nov 1975

LEWIS-12598

Device directly measures amount of energy available in sunlight falling on the earth over range from 1 to 1250 watts per square meter. Insolometer is ideally suited to making on-site measurements of available solar energy.

B75-10289

SOLAR POWER ROOF SHINGLE

F A Forestieri, F A Ratajczak, and G L Sidorak

Dec 1975

LEWIS-12587

Silicon solar cell module provides both all-weather protection and electrical power. Module consists of array of circular silicon solar cells bonded to fiberglass substrate roof shingle with fluorinated ethylene propylene encapsulant.

B75-10304

MICROCIRCUIT TESTING AND FABRICATION, USING SCANNING ELECTRON MICROSCOPES

P D Nicolas

Dec 1975

M-FS-23159

Scanning electron microscopes are used to determine both user-induced damages and manufacturing defects subtle enough to be missed by conventional light microscopy. Method offers greater depth of field and increased working distances.

B75-10306

TEMPERATURE-STABLE GUNN-DIODE OSCILLATOR

E J Degenford (Westinghouse Elec Corp), E L Dickens (Westinghouse Elec Corp), W D Maki, and A B Newman (Westinghouse Elec Corp)

Dec 1975

M-FS-23242

Oscillator consisting of Gunn diode embedded in coaxial circuit has excellent temperature stability and low fabrication costs as compared with automatic-frequency-control crystal oscillators.

B75-10312

QUALITY CONTROL OF MICROELECTRONIC WIRE BONDS

A R Thiel (Gen Dyn Corp) and D C Schmidt (Gen Dyn Corp)

Dec 1975

M-FS-23327

Report evaluates ultrasonic bonding of small-diameter aluminum wire joined to ceramic substrates metallized with thin-film and thick-film gold. Quick testing technique for nondestructive location of poor wire bonds is also presented.

B75-10324

ACID/ALKALI BROMIDE SECONDARY BATTERY

C England

Dec 1975

NPO-13237

Secondary electrochemical battery has been developed which has high energy/weight density. Battery is rechargeable and works on reaction between hydrogen and bromine.

01 ELECTRONICS/ELECTRICAL

B75-10330 HIGHLY-EFFICIENT HORN/REFLECTOR ANTENNA

A K Green (Microwave Res Corp)

Dec 1975

NPO-13568

Antenna has beam efficiency of 96 percent Configuration is compact and relatively inexpensive

B75-10337 TRIGGER CIRCUIT FORCES IMMEDIATE SYNCHRONIZATION OF FREE-RUNNING OSCILLATOR

S Nagano

Dec 1975

NPO-13646

Device provides positive triggering for inverter synchronization in uninterruptible power supplies Integrated-circuit oscillator frequency may be higher lower, or the same as that of the synch pulse and is always synchronized by first clock pulse

02 ELECTRONIC/ ELECTRICAL SYSTEMS

B75-10012 IN-SERVICE TURBINE WHEEL CRACK MONITOR

P J Barranger

Apr 1975 See also NASA-TN-D-7483

LEWIS-12422

System can be utilized in flight or at flight line It monitors disk rim for surface cracks emanating from blade root interface System consists of eddy-current sensor mounted approximately 1 1/2 mm (1/16 in) away from face of disk and remotely located electrical capacitance-conductance bridge and signal analyzer

B75-10037 FILL-IN BINARY LOOP PULSE-TORQUE QUANTIZER

C B Lory (Charles Stark Draper Lab Inc)

Apr 1975

M-FS-23100

Fill-in binary (FIB) loop provides constant heating of torque generator an advantage of binary current switching At the same time it avoids mode-related dead zone and data delay of binary an advantage of ternary quantization

B75-10046 MULTIBEAM-ANTENNA FEED SYSTEM TO ISOLATE ORTHOGONALLY POLARIZED BEAMS

J E Ohlson and W F Williams

Apr 1975

NPO-13140

System is polarization tracker and comprises variable polarizer polarization control and receiver servo loop System simultaneously receives desired signal and undesired signal which are approximately orthogonal They can be either paired as left and right circular polarizations or as cross-linear polarizations

B75-10059 BUFFER CONTROL UNIT FOR COMPUTER COMMUNICATIONS

A K Okinaka (Hawaii Univ)

Apr 1975

ARC-10870

Unit provides character echoing for keyboard display parity and syndrome generation (error detection) half or full data-packet generation automatic retransmission of packets and keyboard lock-up

B75-10068 A TEST AND MEASUREMENT TECHNIQUE FOR DETER-

MINING POSSIBLE LIGHTNING-INDUCED VOLTAGES IN AIRCRAFT ELECTRICAL CIRCUITS

J A Plumer (GE) and L C Walko (GE)

Jul 1975 See also NASA-CR-2348

LEWIS-12109

Transient analyzer consists of four 0.5 microfarads capacitors chargeable by self-contained solid state 50 KV dc power supply operating from standard 110 Vac line voltage Unit can circulate unidirectional current impulses of up to 500 amperes through aircraft at waveshapes similar to those of natural lightning strokes

B75-10073 AUTOMATED DATA ACQUISITION AND REDUCTION SYSTEM FOR TORSIONAL BRAID ANALYZER

G L Carl A T Inge N J Johnston and S K Dalal (Wyle Labs Inc)

May 1975

LANGLEY-11578

Automated Data Acquisition and Reduction System (ADAR) evaluates damping coefficient and relative rigidity by storing four successive peaks of waveform and time period between two successive peaks Damping coefficient and relative rigidity are then calculated and plotted against temperature or time in real time

B75-10086 TECHNIQUES FOR DECODING SPEECH PHONEMES AND SOUNDS A CONCEPT

D C Lokerson and H G Holby

Jun 1975

GSFC-11898

Techniques studied involve conversion of speech sounds into machine-compatible pulse trains (1) Voltage-level quantizer produces number of output pulses proportional to amplitude characteristics of vowel-type phoneme waveforms (2) Pulses produced by quantizer of first speech formants are compared with pulses produced by second formants

B75-10092 MINIATURE SONAR FISH TAG

R W Lovelady and R L Ferguson

Jun 1975

LANGLEY-11814

Self-powered sonar device may be implanted in body of fish It transmits signal that can be detected with portable tracking gear or by automatic detection-and-tracking system Operating life of over 4000 hours may be expected Device itself may be used almost indefinitely

B75-10103 CENTRAL CONTROL ELEMENT EXPANDS COMPUTER CAPABILITY

R A Easton (Hughes Aircraft Co)

Jun 1975

M-FS-23216

Redundant processing and multiprocessing modes can be obtained from one computer by using logic configuration Configuration serves as central control element which can automatically alternate between high-capacity multiprocessing mode and high-reliability redundant_mode using dynamic mode switching in real time

B75-10107 HIGH-EFFICIENCY K-BAND TRACKING ANTENNA FEED

R L Beavin (McDonnell Aircraft Co) and A I Simanyi (McDonnell Aircraft Co)

Jun 1975 See also NASA-CR-134193

MSC-14717

Antenna feed features high aperture efficiency of multimode near-field horn and develops tracking signals without conventional monopulse bridge Feed assembly is relatively simple and very compact However feed is sensitive to cross-polarized energy which couples into orthogonal error channel

B75-10108 HIGH-POWER AC/DC VARIABLE LOAD SIMULATOR

K P Joncas (Avco Corp) S Birnbach (Avco Corp) L D Bruce (Avco Corp), and L Smith (Avco Corp)
Jun 1975 See also B73-10305 NASA-CR-140331

MSC-14788

Design of medium-power dynamic electrical load simulator has been extended to permit simulation of ac as well as dc loads and to provide for operation at higher power levels Simulator is internally protected against reverse voltage overvoltage overcurrent and overload conditions

B75-10114

QUASARS AS VERY-ACCURATE CLOCK SYNCHRONIZERS
W J Hurd and R M Goldstein

Jun 1975

NPO-13276

Quasars can be employed to synchronize global data communications, geophysical measurements, and atomic clocks It is potentially two to three orders of magnitude better than presently-used Moon-bounce system Comparisons between quasar and clock pulses are used to develop correction or synchronization factors for station clocks

B75-10122

TRANSMITTER SWITCH FOR HIGH-POWER MICROWAVE OUTPUT

C P Wiggins and R K Leu

Jun 1975

NPO-13439

Combiner system can be used for combining output powers of two transmitters or for switching from one to the other This can be done when pair of transmitters operate on same frequency and carriers are phase coherent as by excitation from single exciter

B75-10129

HIGH-SPEED DATA WORD MONITOR

M N Wirth

Jun 1975

ARC-10899

Small portable self-contained device provides high-speed display of bit pattern or any selected portion of transmission can suppress filler patterns so that display is not updated and can freeze display so that specific event may be observed in detail

B75-10136

WIND ENERGY UTILIZATION A BIBLIOGRAPHY

Innovator not given (New Mexico Univ) Jul 1975

LEWIS-12518

Bibliography cites documents published to and including 1974 with abstracts and references and is indexed by topic author organization, title and keywords Topics include Wind Energy Potential and Economic Feasibility, Utilization Wind Power Plants and Generators Wind Machines Wind Data and Properties, Energy Storage and related topics

B75-10150

SOLID STATE REMOTE POWER CONTROLLERS FOR 120 VDC POWER SYSTEMS

G R Sundberg and D E Baker (Westinghouse Elec Corp)

Oct 1975 See also NASA-CR-134772

LEWIS-12523

Solid state remote power controllers can be applied to any dc power system up to 120 Vdc and distribute power up to 3.6 kW per hour Devices have demonstrated total electrical efficiencies of 98.5 percent to 99.0 percent at rated load currents

B75-10152

LOW-COST, COMPACT, COOLED PHOTOMULTIPLIER ASSEMBLY FOR USE IN MAGNETIC FIELDS UP TO 1400 GAUSS

R W Patch, R A Tashjian and T A Jentner

Sep 1975 See also NASA-TM-X-71635

LEWIS-12445

Use of vortex tube for cooling and concentric shielding have produced smaller and more compact unit than was previously

available Future uses of device could include installation in gas chromatographs and mass spectrometers Additional uses would include measurements and controls in magnetohydrodynamic power generators and fusion reactors

B75-10153

DIGITAL TAPE DRIVE MONITOR

R T McKenna

Aug 1975

GSFC-11925

Network checks skew and character spacing of digital tape drive systems automatically Tape drive is set up and calibrated to check any written tape when tape is read back It will indicate track errors or character spacing errors should they exceed specifications

B75-10154

VOLTAGE MONITORING SYSTEM

C L Canicatti

Aug 1975

KSC-10736

System serves as central station which can monitor voltage variations through transmission lines connected to equipment scattered in different locations Voltage-controlled oscillator is optional It is used in some systems to condition signal to make it compatible with certain types of oscillographs

B75-10156

NONDESTRUCTIVE MEASUREMENT OF CAPILLARY TUBE INTERNAL DIAMETER

W W Ho (Rockwell Intern Corp), A W Love (Rockwell Intern Corp), and M J VanMelle (Rockwell Intern Corp)

Aug 1975

LANGLEY-11647

Technique provides nondestructive method of making quick accurate determination by measuring electrical resistance of capillary tube when it is filled with electrolyte of known conductivity Apparatus consists of conductivity cell and equipment for measuring resistance and for monitoring and controlling temperature

B75-10161

PAGE COMPOSER TO TRANSLATE BINARY ELECTRICAL DATA TO OPTICAL FORM

G A Bailey and L S Cosentino (RCA)

Aug 1975

M-FS-22589, M-FS-23173

Composer converts binary data to optical form for storage as hologram Device consists of an array of deformable metal membranes controlled by MOSFETs Device is fast produces high contrast ratios does not degrade with extended use and can be addressed from diverse angles

B75-10162

ZENER-REGULATED SOLAR ARRAY/BATTERY POWER SYSTEM

J T Eliason (Sperry Rand Corp)

Aug 1975

M-FS-23195

Zener diode limits solar cell voltage used to charge battery System improves life and reliability of solar cells

B75-10169

A HYBRID GENERAL-PURPOSE BIT SYNCHRONIZER

J J Stiffler (Raytheon Co) and A H VanDoren (Raytheon Co)

Aug 1975 See also NASA-CR-115751

MSC-14330

Synchronizer is not affected by severe noise environments Device uses both analog and digital techniques in its tracking loop It accommodates any one of three signal formats Rapid acquisition sequences are used to minimize acquisition time

B75-10175

FAST FOURIER TRANSFORMATION COMPUTER USING FAST COUNTERS

S Zohar

02 ELECTRONIC/ELECTRICAL SYSTEMS

Aug 1975

NPO-13110

Two designs have been developed for cost-effective fast transformation of data points in small batches (where N is equal to or less than 32). One design is applicable to N prime and one to all N.

B75-10180

NEW BROADBAND SQUARE-LAW DETECTOR

M S Reid R A Gardner, and C T Stelzried

Aug 1975

NPO-13410

Compact device has wide dynamic range accurate square-law response good thermal stability high-level dc output with immunity to ground-loop problems ability to insert known time constants for radiometric applications and fast response times compatible with computer systems

B75-10184

PROGRAMED ASYNCHRONOUS SERIAL DATA INTER-ROGATION IN A TWO-COMPUTER SYSTEM

N A Schneberger (Honeywell Inc)

Sep 1975

GSFC-11778

Technique permits redundant computers with one unit in control mode and one in MONITOR mode to interrogate the same serial data source. Its use for program-controlled serial data transfer results in extremely simple hardware and software mechanization.

B75-10191

HIGH-VOLTAGE STEPPING SUPPLY WITH FAST SETTLING TIME

H Doong and M H Acuna

Sep 1975

GSFC-11844

Waveform generator is used to derive low-voltage staircase waveform that feeds relatively long response time power supply. Power supply has high output voltage that is predetermined multiple of the input voltage.

B75-10192

VIDEO SWITCHER FOR COUPLING VIDEO CAMERAS TO SINGLE TV MONITOR

I A Richter

Sep 1975

KSC-10782

Device couples up to 60 TV cameras to single monitor. Video switching is provided by diode matrix arranged in a 60-by-1 configuration. Switcher can be operated manually or automatically.

B75-10204

MEASUREMENT OF TRAP DENSITY IN DIELECTRIC FILM

J E Guisinger and J Maserjian

Sep 1975

NPO-13443

Method uses basic circuit to examine quality and trap density of film used in insulated gate field effect transistors. Data are measured as function of performance and life expectancy.

B75-10205

REAL-TIME SPEECH ANALYZER

J P Hong

Sep 1975

NPO-13465

System uses phase-locked loops to give real-time information on speech spectrum by tracking the fundamental and its first 19 harmonics.

B75-10215

VARIABLE-BEAMWIDTH ANTENNA WITHOUT MOVING PARTS

L F Deerkoski and R F Schmidt

Oct 1975 See also B74-10041 B74-10257

GSFC-11924

Basic configuration consists of large parabolic dish reflector

smaller hyperboloidal subreflector, and two sets of monopulse feeds located in conjugate focal region on boresight axis of dish.

B75-10217

AUTOMATED STATISTICAL ANALYSIS PROGRAM (ASAP)

S J Bavuso

Oct 1975

LANGLEY-11125

Pattern recognition subprogram is used to produce table which indicates sections of input data. Program then uses data to write set of Kirchhoff equations algebraically solved by Gauss reduction method.

B75-10218

CONTINUOUS-PHASE FREQUENCY-SHIFT-KEYED GENERATOR

M S Feryszka

Oct 1975

LANGLEY-11638

Device combines features of crystal oscillator frequency stability and voltage-controlled oscillator phase continuity.

B75-10240

HIGH-ACCURACY PROGRAMABLE SQUARE-LAW DETECTOR SYSTEM

M S Reid R A Gardner and C T Stelzried

Oct 1975 See also B75-10180

NPO-13525

Programmable system introduces correction factor to compensate for detector deviation from square-law response. If detector output voltage is V the corrected output voltage is determined as $V_{corrected} = aV^2$ where a is correction factor. Factor is determined and used automatically with digital computer techniques.

B75-10247

THREE-PHASE DC MOTOR DECODER

P A Studer

Oct 1975

GSFC-11824

Circuit minimizes components required to provide six properly timed drive signals from three equal-interval sensor inputs.

B75-10254

PORTABLE HEADSET MICROPHONE CHECKER

J Davenport J A Foster and W R Langley

Oct 1975

KSC-10699

Simple and reliable test system gives go/no-go indication of output level of headset microphones. Portable system has its own internal battery power supply and can be used in field or in laboratory with wide variety of headset types.

B75-10265

REAL-TIME VIDEO CORRELATOR

P E Geise (Sperry Rand Corp) M Petcher (Sperry Rand Corp)

and D F Cornwell (Sperry Rand Corp)

Oct 1975

M-FS-23200

Device provides two-dimensional correlation of video data. Operation is reliable accurate and predictable.

B75-10275

LASER-EXCITED FLUORESCENCE FOR MEASURING ATMOSPHERIC POLLUTION

R T Menzies

Oct 1975

NPO-13231

System measures amount of given pollutant at specific location. Infrared laser aimed at location has wavelength that will cause molecules of pollutant to fluoresce. Detector separates fluorescence from other radiation and measures its intensity to indicate concentration of pollutant.

B75-10281

LOW-NOISE K(U)-BAND RECEIVER INPUT SYSTEM

03 PHYSICAL SCIENCES

R W Berwin P R Dachel and E R Weibe

Oct 1975

NPO-13645

Improved maser and superconducting magnet which operates in vacuum of closed-cycle helium refrigerator comprise a low-noise reliable field-operational receiver input system

B75-10291

DELAY-LOCK-LOOP CODE-CORRELATION SYNCHRONIZER

C T Pardoe (Johns Hopkins Univ)

Dec 1975

GSFC-11868

Temperature dependence and sensitivity to noise are greatly reduced in system designed to process biphase-level pulse-code-modulated signals

B75-10296

MONITOR FOR CHECKING ELECTRIC-FIELD METERS

L D Holley

Dec 1975

KSC-10851

Portable monitor can be used to check electric-field meters on location. Faulty communication line or faulty unit can be determined on the spot

B75-10297

TIME-OF-ARRIVAL LIGHTNING ACTIVITY LOCATION SYSTEM

C L Lennon

Dec 1975

KSC-11006

System fixes location of charge buildup in clouds. It provides range azimuth and elevation in real-time so that warning of charge buildup can be implemented

B75-10316

SOLID-STATE MOTOR CONTROL AND MONITOR SYSTEM

L G Monford, Jr

Dec 1975

MSC-12721

Compact solid-state system may be used for multifunction motor control. System can provide 12 control functions for under \$100

B75-10323

MULTICHANNEL HIGH-SPEED CORRELATOR

T O Anderson

Dec 1975

NPO-13097

Device is used in real-time signal processing system for detection of radar signals in noise

B75-10325

SYNCHRONIZER FOR RANDOM BINARY DATA

T O Anderson J K Holmes and W J Hurd

Dec 1975

NPO-13286

Simplified binary-data transition detector for synchronization of relatively noise-free signals can be used with radio or cable data-control links. It permits reception of binary data in absence of clock signal or self-clocking coder

B75-10326

COMPUTER/COMPUTER INTERFACE

T O Anderson

Dec 1975

NPO-13428

System synchronizes data transfer between two computers by generating data strobe pulses when computers are ready for data transfer. In addition interface filters noise by sampling

B75-10001

A SUPERIOR PROCESS FOR FORMING TITANIUM HYDROGEN ISOTOPIC FILMS

R Steinberg D L Alger and D W Cooper

Mar 1975

LEWIS-12083

Process forms stoichiometric continuous strongly bonded titanium hydrogen isotopic films. Films have thermal and electrical conductivities approximately the same as bulk pure titanium ten times greater than those of usual thin films

B75-10004

PROPERTIES OF AIR AND COMBUSTION PRODUCTS OF FUEL WITH AIR

D J Pofert and R Svehla

Mar 1975 See also NASA-TN-D-5452, NASA-TN-D-7488

LEWIS-12402

Thermodynamic and transport properties have been calculated for air the combustion products of natural gas and air and combustion products of ASTM-A-1 jet fuel and air. Properties calculated include ratio of specific heats molecular weight viscosity specific heat, thermal conductivity Prandtl number and enthalpy

B75-10008

UNIFORM HIGH IRRADIANCE SOURCE

A R Lunde (Boeing Co) A Fortini and D R Buchele

Apr 1975 See also NASA-CR-134523, NASA-SP-298

LEWIS-12360

New 50 Kw xenon short arc lamp mounted within elliptical collector provides irradiance levels up to 4.4×10^6 to the 7th power watts/sq m with non-uniformity ratio of 3:30. Energy mixer or light pipe between lamp source and target improves non-uniformity to required ratio

B75-10017

A METHOD FOR MEASURING COOLING AIR FLOW IN BASE COOLANT PASSAGES OF ROTATING TURBINE BLADES

C H Liebert and F G Pollack

Apr 1975 See also NASA-TN-D-7697

LEWIS-12433

Method accurately determines actual coolant mass flow rate in cooling passages of rotating turbine blades. Total and static pressures are measured in blade base coolant passages. Mass flow rates are calculated from these measurements of pressure measured temperature and known area

B75-10024

ELECTRICAL GAS HEATER WITH LARGE FLOW RANGE CAPABILITY

B A Benson (Boeing Co) and A Fortini

May 1975 See also NASA-CR-134523

LEWIS-12361

Auxiliary heat transfer device in form of tightly-wound helical tube was incorporated into conventional heater design to provide hydrogen heater with turn-down ratio greater than 100. Device greatly increases low flow rate capacity of heater by providing maximum heat-transfer area for low mass flows

B75-10026

REMOTE ESTIMATION OF SOIL MOISTURE

M B Blanchard R Greeley (Santa Clara Univ) and R Goettelman (LFE Inc)

Feb 1975 See also NASA-TM-X-62343

ARC-10867

Two methods under consideration for making remote estimates of soil moisture involve measurements made in electromagnetic spectral region of 0.4 to 14.0 micrometers (1) spectral reflectance (2) soil temperature

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B75-10028

STUDY OF FLUID FLOW BY CHARGED PARTICLES

M Deluca (Ohio State Univ) and H R Velkoff (USAA MRDL)
Feb 1975

ARC-10925

Analytical and experimental effort explores possibility of using charged particles as diagnostic tool in study of fluid flows Test program involved right circular cylinder and airfoil located in large wind tunnel ions were injected into flow and resulting currents at surfaces were monitored

B75-10034

COAXIAL, SELF-ALIGNING OPTICAL SCANNING SYSTEM

D B Rhodes
May 1975

LANGLEY-11711

System provides fast way to sequentially focus optical energy (light) at preselected points in space It transmits optical energy to point in space while at same time receiving any optical energy generated at that point and then moves on to next selected point and repeats this transmit-and-receive operation

B75-10035

TRANSMISSION OSCILLATOR ULTRASONIC SPECTROMETER (TOUS) A NEW RESEARCH INSTRUMENT

J S Heyman F D Stone, M S Conradi (Washington Univ) and J G Miller (Washington Univ)
Apr 1975

LANGLEY-11735

TOUS is capable for measuring very small changes in acoustic attenuation and phase velocity Its high sensitivity to small changes in ultrasonic absorption results in part from operation under marginal conditions In spite of high sensitivity TOUS system is relatively simple inexpensive and compact

B75-10040

VIEWFINDER/TRACKING SYSTEM FOR SKYLAB

W L Casey (Martin Marietta Corp)
Apr 1975 See also NASA-CR-133967 NASA-TM-X-69040

MSC-14407

Basic component of system is infrared spectrometer designed for manual target acquisition pointing and tracking and data-take initiation System incorporates three main subsystems which include (1) viewfinder telescope (2) control panel and electronics assembly and (3) IR-spectrometer case assembly

B75-10043

REFRACTING LENS SYSTEM FOR LOW-SCATTER STAR-TRACKER A CONCEPT

Innovator not given (Optics Res Laboratories) Apr 1975 See also NASA-CR-134224

MSC-14724

Low Scatter Lens Design/Development discusses studies of low-scatter lens system Two sections cover optical design and scattering analysis for model of lens system which rejects radiation Result of computations are shown on computer printouts attached to report

B75-10047

ACOUSTICALLY CONTROLLED INTEGRATED LASER FOR COMMUNICATIONS SYSTEMS

C Elachi
Apr 1975

NPO-13175

Acoustic wave creates fringes by producing periodic stresses in substrate and in film Laser carrier frequency is then changed by simply changing acoustical frequency When two acoustical sources are applied off beam axis, beam can be scanned at very rapid rates

B75-10048

AUTOMATICALLY-FOCUSING MICROSCOPE SYSTEM FOR LIVE TISSUE OBSERVATION

M N Mansour C P Chapman and H J Wayland
Apr 1975

NPO-13215

System includes focus-sensing arrangement which controls servo to keep microscope constantly focused on target Microscope objective is moved along optical axis System includes two video cameras that are used as transducers for sensing focus Incoming visual image is split by beam splitter so that one-half of information is fed to each camera

B75-10050

RESONANT CHAMBERS FOR SUSPENDING MATERIALS IN AIR

T G Wang, M W Saffren and D D Elleman
Apr 1975

NPO-13263

Acoustical pressure of standing wave is used to suspend materials inside resonant chambers Material is driven to standing-wave antinodes where pressure is lowest Pressure at nodes is greatest which prevents suspended material from collecting there Material can be moved inside chambers by changing wave patterns

B75-10075

HANDBOOK OF NOISE RATINGS

K S Pearsons (Bolt Beranek and Newman, Inc) and R L Bennet (Bolt Beranek and Newman, Inc)
May 1975 See also NASA-CR-2376

LANGLEY-11799

Handbook announced in Tech Brief is compendium of information describing multifarious noise methods now in use Reference material gives user better access to definitions application, and calculation procedures of current noise rating methods

B75-10080

DATA PROCESSING LARGE QUANTITIES OF MULTISPECTRAL INFORMATION

R E Haskell (Oakland Univ)
May 1975

MSC-14472

Method is combination of digital and optical techniques Multispectral data is coded into binary matrix format and then encoded onto photographic film Film is holographically correlated with spectral signature to generate single-class classification map Number of maps are optically superimposed to produce full-color multiclass classification map

B75-10081

INFRARED TUNABLE LASER A CONCEPT

K W Billman
May 1975

ARC-10463

Apparatus in which laser wavelengths of two dyes are mixed in intracavity nonlinear crystal provides intense source of coherent laser radiation which is tunable from visible through infrared wavelengths of electromagnetic spectrum

B75-10082

A NONDISPERSIVE INFRARED ANALYZER

J Dimeff
May 1975 See also B72-10198 B74-10243

ARC-10631

Apparatus retains all advantages of prior nondispersive infrared analysis systems and provides significantly more immunity to type of errors that may be introduced by geometric changes in analysis system Technique also permits construction of instruments of lower weight smaller volume and smaller power consumption

B75-10087

ANTIRESONANT RING INTERFEROMETER FOR LASER CAVITY DUMPING, MODE LOCKING, AND OTHER APPLICATIONS

A E Siegman (Stamford Univ)
Jun 1975

HQ-10844

Applications in lasers for antiresonant ring interferometer include coupled laser cavities variable laser-output coupling

intercavity harmonic-output coupling mode locking cavity dumping, and pulse code modulation

B75-10090

HOLOGRAPHIC DIRECT-VISION SPECTROSCOPE

J M Franke
Jun 1975

LANGLEY-11750

Spectroscopy incorporates two prisms combined with holographic grating as dispersing element This provides high dispersion with selective undeviated wavelength Prisms with different indices of refraction and/or angles for construction and reconstruction may be used Also different prisms for input and output may be used

B75-10097

SUPERCONDUCTING QUANTUM-INTERFERENCE DEVICES

P N Peters and L B Holdeman
Jun 1975

M-FS-23163

Published document discusses devices which are based on weak-link Josephson elements that join superconductors Links can take numerous forms and circuitry utilizing links can perform many varied functions with unprecedented sensitivity Theoretical review of Josephson's junctions include tunneling junctions point contact devices microbridges and proximity-effect devices

B75-10098

LARGE-SCALE SOLAR THERMAL COLLECTOR CONCEPTS

L W Brantley
Jun 1975

M-FS-23167

Thermal collector could be used ultimately to power steamplant to produce electricity Collector would consist of two major subsystems (1) series of segmented tracking mirrors with two axes of rotation and (2) absorber mounted on centrally located tower

B75-10099

DICHROMATED-GELATIN HOLOGRAM PROCESS FOR IMPROVED OPTICAL QUALITY

W C Stewart (RCA)
Jun 1975

M-FS-23170

Optical distortions are eliminated by use of wetting agency followed by sequential immersion in several alcohol-water baths of increasing alcohol concentration Dehydration proceeds uniformly over surface of gelatin Dried plate is free of optically-distorting thickness variations

B75-10105

WIDE-FIELD BIREFRINGENT ELEMENTS

A Miller (RCA)
Jun 1975

MSC-12677

Birefringent array consists of two plates with retardation properties nearly independent of direction of incident light over unlimited range of wavelengths Array can be used as birefringent color filter Optical properties of plates may also be changed electro-optically rather than thermally

B75-10112

LASER SCANNED IMAGE SENSORS USING PHOTOCONDUCTORS WITH DEEP TRAPS

J Maserjian
Jun 1975

NPO-13131

Photoconductor records image when holes and electrons are trapped inside it due to incident photons Image can be read out by exposing photoconductor to scanning laser beam Photons from scanning laser empty traps generating photocurrent Image information is obtained by detecting this photocurrent synchronously with laser scan

B75-10115

CHEMICAL-IONIZATION VISIBLE AND ULTRAVIOLET GAS LASERS A CONCEPT

J B Laundenslager
Jun 1975

NPO-13289

Charge-transfer reactions or Penning ionization reactions are used to produce population inversions between electronic states of molecular ions which should result in stimulated emission in ultraviolet and visible regions Such lasers could be used in study of short-lived reaction intermediates crystal structure and scattering and photolysis

B75-10116

HEAT-OPERATED CRYOGENIC ELECTRICAL GENERATOR

T G Wang M M Saffern and D D Elleman
Jun 1975

NPO-13303

Generator operation is based upon unusual hydrodynamic properties exhibited by liquid helium below superfluid critical point Below that temperature liquid behaves as though it is mixture of two interpenetrating fluids When transition takes place between superfluid and normal states conservation of momentum is always balanced by normal fluid

B75-10118

HIGH-ENERGY LASERS BY USING DISTRIBUTED REFLECTION A CONCEPT

M M Saffren
Jun 1975

NPO-13346

Lasers may be made with higher energy photons than heretofore possible It has been proposed that vacuum ultraviolet lasing can be obtained by bombarding superfluid helium with electron beam while coupling acoustic energy into helium to set up standing waves in fluid

B75-10119

LASER-TO-ELECTRICITY ENERGY CONVERTER FOR SHORT WAVELENGTHS

J R Stirn and Y C M Yeh
Jun 1975

NPO-13390

Short-wavelength energy converter can be made using Schottky barrier structure It has wider band gap than p-n junction silicon semiconductors, and thus it has improved response at wavelengths down to and including ultraviolet region

B75-10123

DOUBLE-DISCHARGE COPPER-VAPOR LASER

J C Chen N M Merheim and G R Russell
Jun 1975

NPO-13348

Power supply for discharge pulses consists of two capacitors that are made to discharge synchronously with adjustable time intervals First pulse is switched with hydrogen thyatron and second by spark gap Lasing action peaks for appropriate combination of these two parameters

B75-10124

QUARTZ CRYSTAL MICROBALANCES TO MEASURE WIND VELOCITY AND AIR HUMIDITY

J B Stephens and E G Lave
Jun 1975

NPO-13462

Instrument includes four temperature-sensing Y-cut quartz crystals to determine wind direction velocity and temperature Two additional AT-cut crystals are used to determine air humidity Entire signal processing is provided by built-in electronics circuits

B75-10125

SCHOTTKY BARRIER SOLAR CELL PROMISES IMPROVED EFFICIENCY

R J Stirn
Jun 1975 See also B75-10119

NPO-13482

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Higher current and higher voltage can be obtained by using Schottky barrier device with wide band-gap semiconductor as top layer and lower band-gap semiconductor underneath. Significant amount of solar radiation that is not absorbed by side band-gap material will be absorbed by narrow band-gap material.

B75-10126

TRANSMISSION LINE FOR S-BAND MASERS

R C Clauss and E R Wiebe

Jun 1975

NPO-13504

Transmission-line is coaxial. Its outer conductor is made of thin-wall stainless-steel tube, inside is plated with 0.0025 mm copper and 0.0003 mm gold. This combination gives little microwave loss and adequate thermal isolation.

B75-10127

LASER ACTION GENERATED WITHIN A LIGHT PIPE A CONCEPT

C Elachi, G A Evans, and C Yeh

Jun 1975

NPO-13531

Laser light could be generated within light pipe itself thereby eliminating coupling losses. Theoretical calculations have shown feasibility of light-pipe laser propagating in circularly-polarized TE mode. It is predicted that fiber-optic distributed-feedback laser would have gain on order of 25 dB.

B75-10128

LASER USING LEAD CHLORIDE VAPOR

C J Chen

Jun 1975

NPO-13615

By applying electric discharge lead chloride vapor in tube is dissociated into lead and chlorine atoms. Population inversion of lead atoms is attained subsequently by second discharge, before chemical recombination of lead and chlorine has occurred. Optimum time interval between two discharges is required for maximum laser output.

B75-10138

LIFE PREDICTION OF MATERIALS EXPOSED TO MONOTONIC AND CYCLIC LOADING A TECHNOLOGY SURVEY AND BIBLIOGRAPHY

W F Stuhrke (Martin Marietta Corp), J L Carpenter Jr (Martin Marietta Corp), N Moya (Martin Marietta Corp) and G Mandel. Aug 1975. See also B75-10139, NASA-CR-134750, NASA-CR-134751, NASA-CR-134752, NASA-CR-134-753, NASA-CR-134754.

LEWIS-12502

Announced survey directs attention toward low cycle fatigue and thermal fatigue experienced at elevated temperatures equivalent to those found in hot end of gas turbine engine. Majority of bibliographic references are on life prediction for materials exposed to monotonic and cyclic loading in high temperature environments.

B75-10139

FRACTURE TOUGHNESS TESTING DATA A TECHNOLOGY SURVEY AND BIBLIOGRAPHY

W F Stuhrke (Martin Marietta Corp), J L Carpenter Jr (Martin Marietta Corp), N Moya (Martin Marietta Corp) and G Mandel. Aug 1975. See also B75-10138, NASA-CR-134750, NASA-CR-134751, NASA-CR-134752, NASA-CR-134753, NASA-CR-134754.

LEWIS-12503

Announced survey includes reports covering fracture toughness testing for various structural materials including information on plane strain and developing areas of mixed mode and plane strain test conditions. Bibliography references cite work and conclusions in fracture toughness testing and application of fracture toughness test data, and in fracture mechanics analysis.

B75-10141

LASER VELOCIMETER MEASUREMENTS OF HIGH-SPEED

COMPRESSIBLE FLOWS

D A Johnson

Jul 1975

ARC-10781

Laser velocimeter results were compared and found to be consistent with those obtained with conventional measurement techniques and existing compressible boundary layer theory. Turbulence information at supersonic speed has been successfully obtained in compressible boundary layer with laser system.

B75-10142

QUICK-CHANGE ABSORPTION COLUMN

G N McEwen Jr (Natl Res Council) and B A Williams

Jul 1975

ARC-10952

Column has end caps held in place by springs. Prefilled packs of absorbent can be exchanged quickly. Both ends of metal or plastic body tube of size which can hold adequate amount of absorbent are machined to provide seat for perforated plate and groove for its spring retainer ring.

B75-10147

AN EXPERIMENTAL 100 KILOWATT WIND TURBINE GENERATOR

R L Thomas, R L Puthoff, J M Savino and W R Johnson

Aug 1975. See also NASA-TM-X-71701.

LEWIS-12509

Experimental generator consists of two blades mounted on 100 foot tower, driving transmission train and electric generator mounted on top of tower. Machine generates 100 kW of electricity at wind speeds from 18 to 60 miles per hour. Yaw control mechanism automatically orients machine into wind.

B75-10149

INVESTIGATIONS OF MULTIPLE JETS IN A CROSSFLOW

R E Walker (Aerojet-Gen Corp) and D L Kors (Aerojet-Gen Corp)

Oct 1975. See also NASA-CR-121217.

LEWIS-12102

Study was conducted to determine penetration and mixing characteristics of multiple jets of ambient temperature air injected perpendicularly into ducted mainstream of hot combustion gases.

B75-10158

ANGULAR DEVICE FOR OPTICAL FILTERS

L W Overbay

Aug 1975

LANGLEY-11796

Device provides a means for precise angular adjustment of optical filters in Raman calibration detector units. Device prevents stray light from entering system and has the capability of repeated alignments to predetermined angles.

B75-10160

AUTOMATED ELECTRONIC SYSTEM FOR MEASURING THERMOPHYSICAL PROPERTIES

T R Creel, Jr, R A Jones, R R Corwin (Beta Industries Inc) and J S Kramer (Beta Industries Inc)

Aug 1975. See also B73-10447, NASA-CR-2511.

LANGLEY-11883

Phase-change coatings are used to measure surface temperature accurately under transient heating conditions. Coating melts when surface reaches calibrated phase-change temperature. Temperature is monitored by infrared thermometer and corresponding elapsed time is recorded by electronic data-handling system.

B75-10176

COMPACT LASER THROUGH IMPROVED HEAT CONDUCTANCE

L C Yang

Aug 1975

NPO-13147

A 16-joule-pulse laser has been developed in which a boron nitride heat-conductor enclosure is used to remove heat from

the elements Enclosure is smaller and lighter than systems in which cooling fluids are used

B75-10181
A TWO-DEGREE KELVIN REFRIGERATOR

J B Stephens and C G Miller

Aug 1975

NPO-13459

Open-cycle cryogenic refrigerator maintains temperature as low as 2K for periods up to six months Designed to cool an infrared detector refrigerator can be used in cooling Josephson-junction devices magnetic bubble domains and superconducting devices

B75-10182
ECONOMICAL SOLAR-HEATING OR COOLING SYSTEM WITH NEW SOLAR-ENERGY CONCENTRATORS

K Shimada

Aug 1975

NPO-13497

Economical solar energy collector, made from array of cylindrical Fresnel lenses does not require tracking mechanism As the sun changes position lenses focus solar energy on different collector elements

B75-10183
HIGH-POWER CW LASER USING HYDROGEN-FLUORINE REACTION

P I Moynihan

Aug 1975

NPO-13623

Continuous-wave laser has been proposed based on reaction of hydrogen and fluorine Hydrogen is produced by dissociation of hydrazine which can be stored as liquid in light containers at room temperature

B75-10185
CHARACTERISTICS AND PERFORMANCE STUDY OF MASS SPECTROMETER RESIDUAL GAS ANALYZERS

W H Hultzman

Sep 1975 See also NASA-TN-D-7554

LEWIS-12393

Types of instruments studied were magnetic sector, omega-tron quadrupole, and monopole Experimental results obtained included absolute sensitivity to argon relative sensitivity to ten gases (hydrogen helium neon nitrogen carbon monoxide oxygen argon, carbon dioxide krypton and xenon) and cracking patterns for these gases

B75-10189
COMPARATIVE PERFORMANCE OF TWENTY-THREE TYPES OF FLAT PLATE SOLAR ENERGY COLLECTORS

F F Simon

Sep 1975 See also B74-10086 NASA-TM-X-3059, NASA-TM-X-71793

LEWIS-12511

Report compares efficiencies of 23 solar collectors for four different purposes operating a Rankine-cycle engine heating or absorption air conditioning heating hot water and heating a swimming pool

B75-10202
WIDE-ANGLE SUN SENSORS

L L Schumacher

Sep 1975

NPO-13327

Two sensors have been developed one single-axis device is cylindrical the other, two-axis device is spherical Multiple surface deposits of photosensitive material such as cadmium sulfide serve as redundancy ensuring high reliability

B75-10206
DIFFUSED GUIDES FOR DISTRIBUTED-FEEDBACK LASERS

C Elachi

Sep 1975 See also B75-10127

NPO 13544

Proposed waveguide is hollow cylindrical pipe Inside channel surface is infused with gas or metal molecules, forming periodic cross sections along entire length Light is scattered at periodic infusions resulting in distributed feedback Configuration is suited for capillary gas lasers

B75-10210
SECONDARY REFLECTORS FOR ECONOMICAL SUN-TRACKING ENERGY COLLECTION SYSTEM A CONCEPT

C G Miller and J B Stephens

Sep 1975 See also B75-10209

NPO 13580

Mechanism is simpler and lower in cost because it moves heat-collector pipe to stay in focus with sun instead of moving heavy reflectors

B75-10223
OPTICAL FEEDBACK TECHNIQUE EXTENDS FREQUENCY RESPONSE OF PHOTOCONDUCTORS

S J Katzberg

Oct 1975 See also NASA-TN-D-7727

LANGLEY-11768

Feedback circuit consists of high-gain light-to-voltage converter with frequency-limited nonlinear photoconductor inside feedback loop Feedback element is visible light-emitting diode with light-out versus current-in characteristic that is linear over several decades

B75-10224
GUST ALLEVIATION SYSTEM TO IMPROVE RIDE COMFORT OF LIGHT AIRPLANES

E C Stewart W H Phillips and D E Hewes

Oct 1975

LANGLEY-11771

System consists of movable auxiliary aerodynamic sensors mounted on fuselage and connected to trailing-edge flaps by rigid mechanical linkages System achieves alleviation by reducing lift-curve slope of airplane to such a small value that gust-induced angles of attack will result in small changes in lift

B75-10226
APPLICATION OF MONOCHROMATIC OCEAN WAVE FORECASTS TO PREDICTION OF WAVE-INDUCED CURRENTS

L R Poole

Oct 1975 See also NASA-TN-D-7861

LANGLEY-11809

Stokes wave-induced currents are compared, for variety of wind conditions resulting in partially developed seas and for two water depths with currents induced by average and significant monochromatic waves related to Bretschneider spectrum

B75-10227
NEW AIRCRAFT INSTRUMENT INDICATES TURBULENCE INTENSITY

R A Champine and C W Meissner Jr

Oct 1975

LANGLEY-11833

System consists of accelerometer, indicator and necessary electronic circuits for summing and averaging accelerations Averaging-time feature enables pilot to see large values of accelerations over a short time or smaller accelerations over longer period of time

B75-10228
VISUAL ALIGNMENT AID

J M Franke

Oct 1975

LANGLEY-11842

Device consists of beam-splitter cube and two 90 deg prisms cemented together Various components can be made as two pieces eliminating seams except beam-splitter diagonal

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B75-10229

STEAM AUTOMOBILE ANALYSIS

J A Peoples

Oct 1975

M-FS-23188

Report includes many charts that present graphically the effects of design parameters on performance. Equations and data are given which can assist designer in selecting among such factors as working medium, horsepower, and engine components.

B75-10232

LEVITATION OF OBJECTS USING ACOUSTIC ENERGY

R R Whymark (Intersonics Inc)

Oct 1975

M-FS-23261

Activated sound source establishes standing-wave pattern in gap between source and acoustic reflector. Solid or liquid material introduced in region will move to one of the low pressure areas produced at antinodes and remain suspended as long as acoustic signal is present.

B75-10235

MULTISPECTRAL DATA ANALYSIS LARSYS III

D A Landgrebe (Purdue Univ)

Oct 1975

MSC-14823

System uses pattern recognition and interactive data handling techniques applied to remotely sensed data. Basic analysis concept consists of locating data points which are believed to be representative of classes of interest.

B75-10236

TABLE-LOOKUP ALGORITHM FOR PATTERN RECOGNITION ELLTAB (ELLIPTICAL TABLE)

W C Jones, III and W G Eppler

Oct 1975 See also B75-10235

MSC-14866

Remotely sensed unit is assigned to category by merely looking up its channel readings in four-dimensional table. Approach makes it possible to process multispectral scanner data using a minicomputer.

B75-10237

AUTOMATIC SOLAR TRACKER

B L Conroy

Oct 1975

NPO-13630

Mechanism uses differential pressure of condensable fluid against fixed piston to equalize radiant energy on pair of blackbody elements.

B75-10239

SOFT X-RAY LASERS USING DISTRIBUTED-FEEDBACK REFLECTION A CONCEPT

F J Grunthaler

Oct 1975

NPO-13532

Proposed arrangement consists of large evacuated chamber containing smaller Dewar chamber into which liquid neon is introduced. Zeolite crystal is mounted in wall of chamber with one side in contact with neon and other exposed to evacuated chamber. Electron gun is used to bombard crystal.

B75-10244

CALCULATION PROCEDURE FOR TRANSIENT HEAT TRANSFER TO A COOLED PLATE IN A HEATED STREAM WHOSE TEMPERATURE VARIES ARBITRARILY WITH TIME

J Sucec

Nov 1975 See also NASA-TM-X-3238

LEWIS-12558

Heat transfer equations have been developed to calculate surface temperature and surface heat flux for cooled flat plate when temperature of fluid passing over leading edge varies arbitrarily.

B75-10245

A NEW HIGH TEMPERATURE NOBLE METAL THERMOCOUPLE PAIRING

G E Glawe

Nov 1975

LEWIS-12545

Investigation has revealed reasonably oxidation resistant thermocouple pairing suitable for use in combustor gas streams at temperatures above 1873 K and at pressures above 20 atmospheres.

B75-10248

VARIABLE-VOLUME ATOMIC STORAGE VESSEL FOR HYDROGEN MASERS

H F Peters

Oct 1975

GSFC-11895

Vessel located in maser cavity is made from cylindrical, convoluted flexible bellows which can be expanded or contracted along the cylinder axis vertically. Inner surface area remains constant with changing volume, permitting measurement of frequency deviations of excited atoms.

B75-10250

OPTICAL DESIGN COMPUTER PROGRAM LENS II

Oct 1975

GSFC-11951

Differential-correction program evaluates optical lens design.

B75-10256

DESIGN PROCEDURE FOR LOW-DRAG SUBSONIC AIRFOILS

J B Peterson and A B Chen (National Res Council)

Oct 1975

LANGLEY-11351

Airfoil has least amount of drag under given restrictions of boundary layer transition position, lift coefficient, thickness ratio, and Reynolds number based on airfoil chord. It is suitable for use as wing and propeller aircraft sections operating at subsonic speeds and for hydrofoil sections and blades for fans, compressors, turbines, and windmills.

B75-10262

TUNEABLE DIODE LASER SPECTROMETER WITH INTEGRAL GRATING

P C vonThuna (Arthur D Little Inc)

Oct 1975

LANGLEY-11830

Grating is used in place of required folding mirror. Arrangement eliminates separate monochromator unit and uses retroreflector for alignment.

B75-10266

INCREASING TERMINAL STRIP EFFICIENCY AT CRYOGENIC TEMPERATURES

L B Holdeman

Oct 1975

M-FS-23234

Single-crystal sapphire and quartz have been used to fabricate thermally shorting, electrically insulating terminal boards for incorporation in metal heat-sink blocks.

B75-10268

SINGLE CRYSTALS OF METAL SOLID SOLUTIONS A STUDY

J F Miller (Battelle Memorial Institute) and S H Gelles (Battelle Memorial Institute)

Oct 1975

M-FS-23268

Report describes growth of silver-alloy crystals under widely varying conditions of growth rate, temperature gradient, and magnetic field. Role of gravitation and convection on crystal substructure is analyzed as well as influence of magnetic fields applied during crystallization.

B75-10272**ULTRAVIOLET HYDROGEN-DISCHARGE LAMP**

D E Kerr (Johns Hopkins Univ)

Oct 1975 See also NASA-CR-140316

MSC-14793

Device provides stable flux output for calibration of ultraviolet spectrum

B75-10279**REFLECTED-WAVE MASER**

R C Clauss

Oct 1975

NPO-13490

Reflected wave maser amplifier has significantly greater bandwidth than conventional maser amplifiers Unit needs no retuning to receive wide range of frequencies

B75-10285**APPARATUS FOR STUDY OF PLASMAS AT ELEVATED TEMPERATURES**

J D Christian and W P Gilbreath

Nov 1975

ARC-10958

Microwave discharge plasmas take place within heated zone Changes in weight of specimens in plasma as well as temperature of sample and plasma can be obtained facilitating determinations of reaction rates and recombination coefficients

B75-10286**SOUND SEPARATION PROBE**

M T Moore (GE) and E B Smith (GE)

Nov 1975

LEWIS-12507

Probe separates sound waves from turbulent flow pressure fluctuations in ducted airstreams by using principle that sound waves and turbulent flow pressure perturbations travel at different velocities

B75-10288**INDUCTION HEATING SIMPLIFIES METAL EVAPORATION FOR ION PLATING**

T Spalvins and W A Bainard

Dec 1975

LEWIS-12595

Evaporation by induction heating produces significant degree of metal ionization enhancing degree of penetration of evaporant on substrate

B75-10305**READ-ONLY OPTICAL STORAGE MEDIUM**

R A Gange (RCA)

Dec 1975

M-FS-23169

Photosensitive recording medium consists of thin-film silicone resin deposited on photoconductive substrate Medium is useful for holographic interferometry studies

B75-10307**SIGNAL MIXER FOR OPTICAL HETERODYNE RECEIVER**

S Lewinson (United Aircraft Corp)

Dec 1975

M-FS-23251

Incoming signal is mixed with local oscillator signal by a beam splitter inside laser cavity Laser power can be reduced by 50 to 100 times

B75-10311**THE IMPACT OF WATER ON FREE-FALLING BODIES**

H A Wright (Bolt Beranek and Newman Inc), P J Remington (Bolt Beranek and Newman Inc) and R Madden (Bolt Beranek and Newman Inc)

Dec 1975

M-FS-23310

Report discussed measures to cushion impact on body falling into water Heavy loads are generated by impact and by pressures of water cavity collapsing onto the body

B75-10315**OPTICAL-NOISE SUPPRESSION UNIT A CONCEPT**

J L Horner (Dept of Transportation)

Dec 1975

MSC-12640

Device is used with coherent optical-processing spatial-filtering computer It is inexpensive to manufacture and is made from readily available standard components Its alignment is not critical

B75-10328**ELECTRO-OPTICAL DETECTOR TO IMPROVE SENSITIVITY OF A FOCAL-PLANE MASS SPECTROMETER**

C E Giffin

Dec 1975

NPO-13524

Wedge-shaped microchannel electron multiplier array has been proposed to improve sensitivity of focal-plane mass spectrometer by two to four orders of magnitude

B75-10329**COLLIMATION OF ELECTRON AND X-RAY BEAMS USING ZEOLITE CRYSTALS**

F J Grunthaner

Dec 1975

NPO-13557

Zeolite crystals can be used to collimate electron and X-ray beams Faujasite naturally occurring crystal in this group provides structure necessary for collimation

B75-10332**DEVELOPMENTS IN SPECTROPHOTOMETRY I AN INSTRUMENT FOR HIGH-RESOLUTION MEASUREMENTS OF OPTICAL INTENSITY AND POLARIZATION**

A L Fymat

Dec 1975 See also B75-10333 B75-10335 B75-10338

NPO-13604

Device has resolution required to analyze polarization of the spectra of unknown gases, liquids or solids (or a mixture of these phases) Such resolution has not been available on conventional instruments

B75-10333**DEVELOPMENTS IN SPECTROPHOTOMETRY II A MULTIPLE-FREQUENCY PARTICLE-SIZE SPECTROMETER**

A L Fymat

Dec 1975 See also B75-10332 B75-10334 B75-10338

NPO-13606

Instrument can be used to remotely determine complete spectrum of sizes of particles of unknown composition suspended in gas or liquid Device does not require direct physical sample of particles

B75-10335**DEVELOPMENTS IN SPECTROPHOTOMETRY III MULTIPLE-FIELD-OF-VIEW SPECTROMETER TO DETERMINE PARTICLE-SIZE DISTRIBUTION AND REFRACTIVE INDEX**

A L Fymat

Dec 1975 See also B75-10332 B75-10333, B75-10338

NPO-13614

Instrument is based on inverse solution to equations for light scattered by a transparent medium Measurements are taken over several angles of incidence rather than over several frequencies Measurements can be used to simultaneously determine chemical and physical properties of particles in mixed gas or liquid

04 MATERIALS/CHEMISTRY

B75-10007

LIGHTWEIGHT PROTECTIVE CLOTHING FOR THE SAFE HANDLING OF HIGH-INTENSITY PRESSURIZED LAMPS
J G Ewashinka

Mar 1975 See also NASA-TM-X-3147

LEWIS-12073

Five commercially available clothing materials, selected for their high cutting resistance high strength light weight and pliability were tested by exposing them to exploding lamps located less than 60 cm (2 ft) away Face shield material tested initially was commercial high-strength polycarbonate plastic

B75-10016

THIN KAPTON POLYIMIDE FILMS VACUUM FORMED AT HIGH TEMPERATURE RETAIN THEIR SHAPE AT TEMPERATURES TO 450 K (350 F)

K F Burr (Union Carbide Corp) and G E Nies (Union Carbide Corp)

Apr 1975 See also NASA-CR-121166

LEWIS-12412

Purpose of investigation was to identify candidate materials for self-evacuating multilayer insulation systems to be used on liquid hydrogen tanks on space shuttle which would survive re-entry temperatures and mechanical and thermal cycling of one hundred flights

B75-10023

HIGH STRENGTH FORGEABLE TANTALUM BASE ALLOY
R W Buckman Jr (Westinghouse Elec Corp)

May 1975 See also B66-10558, B71-10010 NASA-CR-120818, NASA-CR-120931, NASA-CR-121096 NASA-CR-134606

LEWIS-11386

Increasing tungsten content of tantalum base alloy to 12-15% level will improve high temperature creep properties of existing tantalum base alloys while retaining their excellent fabrication and welding characteristics

B75-10027

METHOD FOR EVALUATING EFFECTIVENESS OF DRY FIRE-EXTINGUISHING CHEMICALS

R L Altman

Feb 1975

ARC-10869

Apparatus used in method is commercially available powder-deposition type oxy-acetylene torch that has been modified to provide electronically timed operations and more uniform powder flow, usual torch tips are replaced by burner head with pilot flame

B75-10038

CURABLE POLYPHOSPHAZENES

K A Reynard (Horizons Res Inc) and A H Gerber (Horizons Res, Inc)

Apr 1975

M-FS-23134

Class of polyphosphazene polymers can be cured at moderate temperatures by action of moisture In addition polymers maintain flexibility when exposed to low temperatures

B75-10042

HIGH-TEMPERATURE, REUSABLE SURFACE INSULATION SYSTEM

Innovator not given (Lockheed Missiles and Space Co) Apr 1975 See also NASA-CR-115582 NASA-CR-115583 NASA-CR-115712, NASA-CR-134326 NASA-CR-134327

MSC-14688

System is capable of withstanding extreme temperature environments ranging from -250 to 2300 F (116 K to 1543 K) System includes impervious, high-density high-thermal-emittance outer coating which has low coefficient of thermal expansion matching that of insulation

B75-10056

LOW-DENSITY POLYBENZIMIDAZOLE FOAMS FOR

HERMAL INSULATION AND FIRE PROTECTION

D A Kourtides J A Parker C Deland (Whittaker Corp) and R Milligan (Whittaker Corp)

Apr 1975

ARC-10823

Fire-resistant and nonsmoking foam can be prepared in desirable density range of 24 to 50 kg/cu m by controlled thermal crosslinking of polybenzimidazole prepolymer Reproducible foams of specific density can be produced by controlling volatile content and melting temperature of prepolymer

B75-10062

FIBER-MODIFIED POLYURETHANE FOAM FOR BALLISTIC PROTECTION

R H Fish, J A Parker and R W Rosser

Apr 1975

ARC-10714

Closed-cell semirigid fiber-loaded self-extinguishing polyurethane foam material fills voids around fuel cells in aircraft Material prevents leakage of fuel and spreading of fire in case of ballistic incendiary impact It also protects fuel cell in case of exterior fire

B75-10066

FABRICATION OF COMPOSITE FAN BLADES USING PMR A-TYPE POLYIMIDE RESIN AND GRAPHITE FIBER REINFORCEMENT

W E Winters (TRW Equipment) and P J Cavano (TRW Equipment)

Jul 1975 See also B71-10442, NASA-CR-134727

LEWIS-12366

PMR polyimides are safe easy to handle can be processed with relatively wide process controls and offer excellent mechanical properties with thermo-oxidative stability Procedures staging and cure schedules fully dense crackfree, dimensionally controlled complex structure high tip speed fan blades 1.27 cm (0.5 in) thick

B75-10067

SURVEY OF COATINGS FOR SOLAR COLLECTORS

G E McDonald

Jul 1975 See also NASA-TM-X-3136 NASA-TM-X-71730

LEWIS-12510

Optimum solar selective properties of black chrome require some tailoring of current and time for plating solution being used Black zinc is produced from high zinc electroplate by subsequent conversion with chromate dip Measurements have also been made of reflectance of previously known solar selective coatings of black copper and electroplated black nickel

B75-10072

FILM MOUNTING METHOD FOR THERMOMECHANICAL ANALYSIS

H D Burks

May 1975

LANGLEY-11330

Mounting clamps attach polymeric film sample to thermomechanical analyzer Using this technique temperature at which polymer passes from relatively nonflexible or glasslike state to rubbery condition where it exhibits marked increase in flow properties is readily determined

B75-10076

THERMOELECTRICALLY-COOLED QUARTZ MICROBALANCE

D McKeown (Faraday Labs Inc)

May 1975

M-FS-23101

Temperature of microbalance can be maintained at ambient temperature or held at some other desired temperature Microbalance has tow-stage thermoelectric device that controls temperature of quartz crystal Heat can be pumped to or from balance by Peltier effect

B75-10084

DIELECTRIC FILMS IMPROVE LIFE OF POLYMERIC INSULATORS

M Hudis and T Wydeven

May 1975

ARC-10892

Degradation of polymeric insulators may be significantly reduced when polymer surfaces are coated with film having gradation of dielectric constants larger where it is in contact with polymer and smaller at its exposed surface

B75-10104

METHOD OF ATTACHING INSULATION TILES

L J Leger

Jun 1975

MSC-12619

Felt pads attached underneath tiles add very little weight and retain flexibility at low temperatures. Very thin layer of room-temperature vulcanizing silicone adhesive is applied to tile. Then felt pad is attached to adhesive. Finally, tile-felt combination is attached to metal surface by means of similar adhesive layer.

B75-10113

PROCESSING FOR OBTAINING GOOD QUALITY WATER FROM SEWAGE

M F Humphrey

Jun 1975

NPO-13224

Sewage treatment method incorporates aqueous slurry of activated carbon and ash. Process eliminates smell and greatly reduces amounts of solids requiring disposal. Solids consist only of sterile ash.

B75-10117

IMPROVED ION EXCHANGE MEMBRANE

A Rembaum, S P S Yen and E Klein

Jun 1975

NPO-13309

Membrane, made from commercially-available hollow fibers is used in reverse osmosis or dialysis. Fiber has skin layers which pass only small molecules. Macromolecules cannot penetrate skin. Fibers can also be used to remove other undesirable anions, such as phosphate sulfate, carbonate and uranium in form of uranium-sulfate complex.

B75-10121

IONENE TREATMENT OF SURFACES STIMULATES CELL GROWTH

A Rembaum, M Ingram, A S Schmink and D E Rounds (Pasadena Found for Med Res)

Jun 1975

NPO-13421

Number of cells adhering to walls of container can be increased by chemically pretreating walls. Polyelectrolyte ionene, gives more effective pretreatment than any currently used chemicals.

B75-10137

TAILOR MAKING HIGH PERFORMANCE GRAPHITE FIBER REINFORCED PMR POLYIMIDES

T T Serafini and R D Vannucci

Jul 1975 See also B71-10442 NASA-TM-X-71616 NASA-TN-D-6877

LEWIS-12416

Studies have demonstrated versatility of PMR approach for tailor making polyimide matrix resins with wide range of flow characteristics. By simply adjusting molar ratio of reactants in monomer mixture, resins having flow values of as much as 20% can be achieved.

B75-10144

REFLECTING HEAT SHIELDS MADE OF MICROSTRUCTURED FUSED SILICA

W M Congdon (Martin Marietta Corp)

Jul 1975 See also NASA-CR-137574

ARC-10949

Heat shields constructed from selected monodisperse distributions of high-purity fused-silica particles are efficient

reflectors of visible and near-UV radiation generated in shock-layer of space probe during atmospheric entry

B75-10157

DETERMINATION OF WATER CONTENT USING MASS SPECTROMETRY

G M Wood, B T Upchurch (Old Dominion Coll) and D B Hughes (E I du Pont de Nemours and Co)

Aug 1975

LANGLEY-11774

Mass spectrometer is used to measure small quantities of water present in different materials. System has been applied in measuring water and gases desorbed from microcircuitry insulation. can also be used with foods, polymeric materials and organic solvents.

B75-10159

DYNAMIC DELTA METHOD FOR TRACE GAS ANALYSIS

G M Wood, B T Upchurch (Old Dominion Coll) and D B Hughes (E I du Pont de Nemours and Co)

Aug 1975

LANGLEY-11800

Method has been developed in which measurements are made only over viscous flow range eliminating fractionation before the molecular leak and problems due to surface elution.

B75-10163

FABRICATION OF POROUS PLUGS FOR CONTROL OF LIQUID HELIUM

L B Holdeman (Nat'l Res Council)

Aug 1975

M-FS-23218

Method of producing porous copper plugs combines hydrogen annealing and oxygen annealing. Plugs have high thermal conductivity and small pore size.

B75-10174

NONGASSING NICKEL BATTERY CELL

G L Juvinal, E M Cohn, A A Uchiyama and H A Frank

Aug 1975

NPO-11853

Method of constructing nickel cadmium batteries prevents excessive gas buildup and allows hermetic sealing of battery for increased service life and reduced maintenance cost.

B75-10178

IMPROVED MULTIPLE-TARGET SPUTTERING EQUIPMENT

R Shima

Aug 1975

NPO-13345

Sputtering chamber has been developed with multiple target. Several film layers can be deposited without repeated evacuation and refilling. Contamination through exposure to air is eliminated.

B75-10193

RISK MANAGEMENT TECHNIQUE FOR LIQUEFIED NATURAL GAS FACILITIES

O H Fedor and W N Parsons (Boeing Co)

Sep 1975 See also NASA-CR-139183

KSC-11005

Checklists have been compiled for planning, design, construction, startup and debugging and operation of liquefied natural gas facilities. Lists include references to pertinent safety regulations. Methods described are applicable to handling of other hazardous materials.

B75-10198

HANDBOOK FOR ESTIMATING TOXIC FUEL HAZARDS

R K Dumbauld (GCA Corp), J R Jorkland (GCA Corp), H E Cramer (GCA Corp) and F A Record (GCA Corp)

Sep 1975

M-FS-21114

Computer program predicts, from readily available meteorological data, concentration and dosage fields downwind from ground-level and elevated sources of toxic fuel emissions.

04 MATERIALS/CHEMISTRY

Mathematical model is applicable to hot plume rise from industrial stacks and should also be of interest to air pollution meteorologists

B75-10200

ALUMINUM ALLOYS WITH IMPROVED STRENGTH

R Deiasi (Grumman Aerospace Co) and P Adler (Grumman Aerospace Co)

Sep 1975

M-FS-23239

Mechanical strength and stress corrosion of new BAR and 7050 alloys that include Zn instead of Cr have been studied and compared with those of 7075 aluminum alloy. Added mechanical strength of new alloys is attributed to finer grain size of 5 to 8 micrometers, however susceptibility to stress corrosion attack is increased.

B75-10207

LIQUID ETHYLENE-PROPYLENE COPOLYMERS

R A Rhein, J D Ingham and M F Humphrey

Sep 1975

NPO-13555

Oligomers are prepared by heating solid ethylene-propylene rubber in container that retains solid and permits liquid product to flow out as it is formed. Molecular weight and viscosity of liquids can be predetermined by process temperature. Copolymers have low viscosity for given molecular weight.

B75-10225

CHEMICAL EQUILIBRIUM OF ABLATION MATERIALS INCLUDING CONDENSED SPECIES

C W Stroud and K L Brinkley

Oct 1975

LANGLEY-11801

Equilibrium is determined by finding chemical composition with minimum free energy. Method of steepest descent is applied to quadratic representation of free-energy surface. Solution is initiated by selecting arbitrary set of mole fractions from which point on free-energy surface is computed.

B75-10231

SOLAR-CELL INTERCONNECTS

Innovator not given (EMR Aerospace Sciences) Oct 1975

M-FS-23257

Study findings concluded that useful bonds can be formed with silver ribbon, silver-plated copper ribbon and aluminum ribbon. Bonds were formed at from 300 C to 400 C and with enough contact pressure to produce some deformation of ribbon.

B75-10246

SUPERIOR HIGH TEMPERATURE PROPERTIES AVAILABLE IN DIRECTIONALLY SOLIDIFIED NICKEL-BASE EUTECTIC ALLOYS

F D Lemkey (United Technologies Corp)

Nov 1975 See also NASA-CR-2278

LEWIS-12562

Alloy has high temperature properties exceeding strength of all known superalloys. It exhibits inherent resistance to oxidation and high temperature hot corrosion.

B75-10271

INFLUENCE OF HEAT TREATMENT ON MECHANICAL PROPERTIES OF 300M STEEL

L J Youngblood and M Raghavan (National Res Council)

Oct 1975

MSC-14792

Tests show that 300M steel should be austenitized at temperatures above 1800 deg F to yield best combination of strength and thickness. Tempering should be performed at temperatures between 400 and 600 deg F.

B75-10280

IMPROVED POLYELECTROLYTE FOR ION EXCHANGE FIBERS

A Rembaum

Oct 1975

NPO-13530

Technique increases ion exchange capacity of hollow-fiber-substrate ion exchange resins. Procedure increases number of quaternary sites on polyquaternary copolymer by 15 to 35 percent.

B75-10290

CERAMIC THERMAL PROTECTIVE COATING WITHSTANDS HOSTILE ENVIRONMENT OF ROTATING TURBINE BLADES

C H Liebert and S Stecura

Dec 1975

LEWIS-12554

Ceramic coatings have low thermal conductivity. They provide potential for increased engine performance, reduced fuel consumption, use of less costly materials or construction procedures, and increased life and durability.

B75-10293

LOW-COST THIN-LAYER SILICON SOLAR CELLS

L T Chu (Southern Methodist Univ)

Dec 1975

GSFC-12023

Two methods have been found to lower cost of polycrystalline silicon solar cells. Successive layers of polycrystalline silicon are deposited over supporting substrates of relatively inexpensive metallurgical-grade polycrystalline silicon, graphite or steel.

B75-10308

CONTACT-EUTECTIC-LENS FABRICATION TECHNIQUE

G F Allen (California Univ), S A Yue (California Univ) and G J Yu (California Univ)

Dec 1975

M-FS-23275

Method enables use of crystal or semiconductor materials with selective spectral-response characteristics (ultraviolet, visible or infrared wavelengths) in fabrication of contact lenses, reading glasses and photographic processing equipment.

B75-10310

FLAMMABILITY STUDY OF MATERIALS IN OXYGEN ENVIRONMENTS

G J Austin, W J Bransford, and F C Key

Dec 1975

M-FS-23306

Report presents flame-propagation rates and flammability ratings of 780 specimens of commercially available plastics, elastomers, coatings, fabrics, and other sheet materials. Test results are also given for over 1970 samples of most commonly used electrical harnesses, connectors, and potting compounds.

B75-10314

USING PERMEABLE MEMBRANES TO PRODUCE HYDROGEN AND OXYGEN FROM WATER

P A Sanders, J R Williams, R W Downs, and H McBryar

Dec 1975

MSC-12600

Concept may make it profitable to obtain hydrogen fuel from water. Laboratory tests have demonstrated that method enables decomposition of water several orders of magnitude beyond equilibrium state where only small amounts of free hydrogen are present.

B75-10320

A FLAME-RESISTANT MODIFIED POLYSTYRENE

W D Karle (Ultrasystems Inc), H R Kratze (Ultrasystems Inc)

and L K Pacioren (Ultrasystems, Inc)

Dec 1975 See also NASA-CR-141932

MSC-14903

Several modified polystyrenes have been developed that are self-extinguishing in air. Information is included in report that also describes molding and fabrication properties, toxicology, and thermal behavior of the polymers.

B75-10321

REPAIR OF DAMAGED INSULATION TILES

D Mui (Rockwell Intern Corp)

Dec 1975 See also B75-10042, B75-10104

MSC-19549

High-temperature reusable surface insulation tiles are repaired quickly and economically using prefabricated tile plugs

B75-10327**COVALENT BONDING OF POLYCATIONS TO SMALL POLYMERIC PARTICLES**

A Rembaum

Dec 1975 See also B75-10336

NPO-13487

Process produces small spherical polymeric particles which have polycations bound to them. In emulsion form particles present large positively charged surface which is available to absorb polyanions. This properly can be used in removing heparin from blood or bile acids from the digestive tract. Other anions such as DNA and RNA can also be removed from aqueous solutions.

B75-10336**NEW UREA-ABSORBING POLYMERS FOR ARTIFICIAL KIDNEY MACHINES**

W A Mueller, G C Hsu, and H E Marsh

Dec 1975 See also B75-10327

NPO-13620

Etherified polymer is made from modified cellulose derivative which is reacted with periodate. It will absorb 2 grams of urea per 100 grams of polymer. Indications are that polymers could be used to help remove uremic wastes in artificial kidneys, or they could be administered orally as therapy for uremia.

B75-10339**RECONSTITUTED ASBESTOS MATRIX FOR FUEL CELLS**

H McBryar

Dec 1975

MSC-12568

Method is described for reprocessing commercially available asbestos matrix stock to yield greater porosity and bubble pressure (due to increased surface tension) improved homogeneity and greater uniformity.

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B75-10030**ACCELERATION OF THE AGING PROCESS BY OXYGEN**

J Miquel, R P Lunderen, and G K Bensch (Stanford Univ)

Feb 1975

ARC-10928

Tissue changes induced by hyperoxia have been compared with those of normal aging. Results of investigations using male flies prompt conclusion that normal aging, radiation syndrome and hyperoxic injury share at least one common feature--lipid peroxidation damage to all membranes resulting in accumulation of age pigment.

B75-10041**PORTABLE AUTOMATIC BLOOD ANALYZER**

L P Coleman (Orion Res Inc)

Apr 1975 See also NASA-CR-134373

MSC-14627

Analyzer employs chemical-sensing electrodes for determination of blood gas, and ion concentrations. It is rugged, easily serviced, and comparatively simple to operate. System can analyze up to eight parameters and can be modified to measure other blood constituents including nonionic species such as urea, glucose, and oxygen.

B75-10045**IMPROVED EXTRACTION TECHNIQUE FOR BIOLOGICAL FLUIDS**

V J Jahnsen

Apr 1975 See also B74-10213

NPO-13084

Liquid-liquid extraction technique speeds up separation of biological fluids into number of compounds. This eliminates agitation, emulsion formation, centrifugation, mechanical separation of phases, filtration, and other steps that have been used previously. Extraction efficiencies are equal or better than current manual liquid-liquid extraction techniques.

B75-10051**SUBMINIATURE TRANSDUCERS FOR MEASURING FORCES AND DEFORMATION OF HEART MUSCLE**

C Feldstein, V J Osher, W G Lewis, H R Silver, and N E Duran

Apr 1975

NPO-13423, NPO-13519

Two subminiature transducers, one measuring muscle forces and one measuring muscle displacement, can be inserted into heart muscle without interfering with it. Probe approximately 1 mm (0.04 in), causes no damage to heart muscle. Probe can be rotated to different positions to measure muscle forces from various directions.

B75-10057**HAND TREMOR AND ACTIVITY SENSOR**

E Kongsberg (Kongsberg Instruments Inc)

Apr 1975

ARC-10849

System detects hand tremor and activity and transmitting signals over distance of at least 3 meters to receiver system. Designed for use in studies of effect of fatigue on individual's judgement or reaction time, sensor is installed within mounting of finger-ring. No external wiring or power source is needed.

B75-10061**ULTRASTRUCTURAL ALTERATION OF MOUSE LUNG BY PROLONGED EXPOSURE TO MIXTURES OF HELIUM AND OXYGEN**

A G Harrison and D J Solomon (Union Carbide Corp)

Apr 1975

ARC-10929

Observed changes consist mainly of blebbing of capillary endothelium and alveolar epithelium, which is quite possibly indicative of cellular edema. Also there can be observed highly-convoluted basement membrane, alveolar debris, and increased numbers of platelets.

B75-10077**MOBILE AUTOMATIC METABOLIC ANALYZER**

G B Bynum and R J Currie

May 1975

M-FS-23143

Two flexible pipes attached to face mask are connected to spirometers in mobile cart. Inhaled air volume is measured as it is drawn from one spirometer, and exhaled air volume is measured as it is breathed into second spirometer. Sensor is used to monitor heartbeat rate.

B75-10079**OXYGEN COCOON FOR PATIENTS UNDER INTENSIVE CARE**

W J Maas

May 1975

MSC-12663

Cocoon is made from Teflon film. It includes full-length pressure zipper on top side and bottom part is rigid pad constructed of burn-resistant material. Cocoon includes oxygen supply port with exhaust port at opposite end.

B75-10083**REGULATOR FOR INTRAVENOUS FEEDING**

J Dimeff

May 1975

ARC-10758

Float valve maintains constant level of solution, providing constant drop rate as long as solution can flow into patient's

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vein Second float valve allows solution to enter vein but prevents entry of air

B75-10148 HIP-JOINT SIMULATOR ACCURATELY DUPLICATES HUMAN WALKING PATTERN

L B Johnson and A M Swikert
Oct 1975

LEWIS-12515

Device simulates all three motions of walking and provides realistic variable loading during each step Simulator will enable laboratory evaluation of all known types of total hip prostheses

B75-10166 HIGHLY-VISIBLE AIR-SEA RESCUE MARKER

I M Radnofsky and J Naimer

Aug 1975

MSC-12564

Sea marker is made from sheets of polyolefin material Material, attached to inflatable polyethylene tube, is coated with bright dye and is effective even in choppy water

B75-10167 MICROBIAL LOAD MONITOR

W P Jones (McDonnell Aircraft Co) C Aldridge Jr (McDonnell Aircraft Co) T J Hølen (McDonnell Aircraft Co) D R Vannest (McDonnell Aircraft Co) and F S Gibson

Aug 1975 See also NASA-CR-114922

MSC-14062

Device can detect and identify a number of medically important microorganisms in an average of approximately 8 hours Monitor consists of cartridges containing special selective media and solid state electro-optical detectors

B75-10168 DETERMINATION OF BONE MINERAL MASS IN VIVO

R J Cameron (Wisconsin Univ) and F P Judy (Wisconsin Univ)

Aug 1975

MSC-14276

Radiographic equipment incorporates two radiation sources generating high-energy and low-energy beams Recording equipment measures amount of radiation that has penetrated limb Data are fed into computer that determines mass of the examined bone

B75-10170 CONTINUOUS DETECTION OF VIABLE MICRO- ORGANISMS BY CHEMILUMINESCENCE

S Witz (AMB Co) C Linnecke (AMB Co) and W Hartung (AMB Co)

Aug 1975

MSC-10170

System monitors quality of reclaimed water continuously and automatically Incubated samples are compared with unincubated ones by measuring their respective chemiluminescence

B75-10177 IMPLANTABLE PROSTHETIC PUMP BOOSTS BLOOD PRESSURE A CONCEPT

W J Fish

Aug 1975

NPO-13626

Prosthetic pump is proposed which can improve liver blood supply by boosting blood pressure locally to the organ Device has potential use in treatment of cirrhosis of the liver

B75-10211 CATHETER-TIP FORCE TRANSDUCER FOR CAR- DIOVASCULAR RESEARCH

C Feldstein W G Lewis H R Silver and H V Culler

Sep 1975

NPO-13643

Sensor can be installed in left ventricle by means of procedures available for inserting catheter into an artery at body's extremities and manipulating it through vessel and past aortic valve Metallic

tines of device can be used as internal electrode for electrocardiogram

B75-10253 RAPID METHOD FOR DETERMINATION OF ANTIMICROB- IAL SUSCEPTIBILITIES PATTERN OF URINARY BACTERIA

L G Picciolo W L Chapelle, J M Barza (New England Medical Center) L Weinstein (New England Medical Center) A S Tuttle (New England Medical Center) and H Vellend (New England Medical Center)

Oct 1975

GSFC-12039

Method determines bacterial sensitivity to antimicrobial agents by measuring level of adenosine triphosphate remaining in the bacteria Light emitted during reaction of sample with a mixture of luciferase and luciferin is measured

B75-10269 ELECTROCARDIOGRAM SIGNAL ANALYZER

M W Portnoy (Texas Technological Univ) H Drilten (Texas Technological Univ) and E C Burton (Southwest Res Institute)

Oct 1975

MSC-12710

Algorithm based on Taylor series expansion of Fourier transform has been developed and used for detection of cardiac arrhythmias in real-time electrocardiogram signal

B75-10303 LIGHTWEIGHT ORTHOTIC BRACES

M R Baucom E H Johns, and C R Evans

Dec 1975

LANGLEY-11894

Leg brace is constructed of fiber-reinforced polymer material Composite material is stiffer stronger and lighter than most metals

B75-10317 CONTROL OF NONENZYMATIC BROWNING IN INTERME- DIATE-MOISTURE FOODS

A K Buckle (Minnesota Univ) P T Jabuza (Minnesota Univ) and C H Warmbier (Minnesota Univ)

Dec 1975

MSC-14835

Series of compounds called humectants were found to decrease rate of browning when added to intermediate-moisture foods Twenty percent level of humectant can increase shelf life of foods by factor of 5 or 6

B75-10331 AUTOMATED MASS SPECTROMETER/ANALYSIS SYSTEM A CONCEPT

G H Boettger E C Giffin J W Dreyer and A Kuppermann

Dec 1975

NPO-13572

System performs rapid multiple analyses of entire compound classes or individual compounds on small amounts of sample and reagent Method will allow screening of large populations for metabolic disorders and establishment of effective-but-safe levels of therapeutic drugs in body fluids and tissues

06 MECHANICS

B75-10003 LOW-COST, PORTABLE FIRE HOSE TESTER

F P Jocke and E R Miller

Mar 1975

LEWIS-12365

Availability of pumping unit permits scheduling and performing required periodic hose tests in proper manner while retaining

full fire equipment readiness Use of pumping unit preserves operating life and capability of pumper truck

B75-10009
DESIGN CRITERIA MONOGRAPH ON AXIAL FLOW TURBINES

Apr 1975 See also NASA-SP-8110

LEWIS-12376

Monograph provides guidelines for predicting turbine performance sizing gas-path elements, and avoiding problems associated with mechanical design and development Material in monograph is organized along lines of design and development effort necessary to produce turbine that satisfies requirements imposed on it

B75-10010
DESIGN CRITERIA MONOGRAPH ON TURBOPUMP GEARS

Apr 1975 See also NASA-SP-8100

LEWIS-12377

Turbopump power gears were brought to acceptable levels of usefulness and reliability through refinements in interdependent areas of design, materials processing, and quality control combined with extensive development testing that explored problem areas and evaluated potential solutions

B75-10013
DESIGN CRITERIA MONOGRAPH FOR METAL TANKS AND TANK COMPONENTS

Apr 1975 See also NASA-SP-8088

LEWIS-12434

Significant elements in detail tank design are wall and end structures, weld joints at bulkhead and attachment junctures and ports and access openings Additional design considerations are influence and effect of fabrication processes on tank component design, and finally testing and inspection that are required to establish confidence in tank design

B75-10022
LONG LIFE, HIGH SPEED, THRUST-LOAD BALL BEARINGS

H Signer (Ind Tectonics, Inc), N E Bamberger (GE), and V E Zaretsky

May 1975 See also NASA-TM-X-68264 NASA-TN-D-7837

LEWIS-12269

Long-term bearing operation at three million DN can be achieved with high degree of reliability using full combination of sophisticated but currently available state-of-the-art bearing materials and designs lubricants and lubricating techniques

B75-10044
HIGH-STRENGTH RIVET DOES NOT REQUIRE AGING

F J Charles (Rockwell Intern Corp)

Apr 1975

MSC-19301

Aluminum rivet is simpler to handle It does not need aging and provides better high-temperature and shear properties than conventional rivets Tests at upset height of up to 1.7 diameters have shown rivets to have exceptionally good crack resistance

B75-10052
GAS BEARING OPERATES IN VACUUM

S G Perkins

Apr 1975

NPO-13425

Bearing has restrictions to reduce air leaks and is connected to external pumpout facility which removes exhausted air Token amount of air which is lost to vacuum is easily removed by conventional vacuum pump

B75-10055
LOW-PROFILE LANDING-GEAR ASSEMBLY

M P Harper (Boeing Co) and D F Neumann (Boeing Co)

Apr 1975

ARC-10786

Assembly of cylinders links actuators, and gears permits landing-gear unit to be retracted into shadow of main engine intake ducts of supersonic transport aircraft This is accomplished

without adding to frontal area of aircraft or appreciably increasing total aircraft drag

B75-10058
MOTOR-DRIVEN RACK-POSITIONING DEVICE

E M Crissey (Martin Marietta Corp)

Apr 1975

ARC-10864

Ramped clutch plate prevents damage to gear train and provides ample linear motion for actuation of microswitch Operation of device is not affected by number of revolutions which pinion shaft must make to produce required translations Since ramps in spur gear are conical device will actuate identically at each mechanical stop

B75-10063
DESIGN CURVES FOR OPTIMIZING STABILITY OF HERRINGBONE-GROOVED JOURNAL BEARINGS

P D Fleming and J B Hamrock

May 1973 See also NASA-TN-D-7803

LEWIS-12442

Curves span wide range of operating conditions including lubricant compressibility numbers from 0 to 80 bearing length-to-diameter ratios from 1/4 to 2 and either rotating or stationary grooved members

B75-10064
SCANNING-ELECTRON-MICROSCOPE USED IN REAL-TIME STUDY OF FRICTION AND WEAR

A W Brainard and D H Buckley

Jun 1975 See also NASA-TN-D-7700

LEWIS-12448

Small friction and wear apparatus built directly into scanning-electron-microscope provides both dynamic observation and microscopic view of wear process Friction and wear tests conducted using this system have indicated that considerable information can readily be gained

B75-10065
DIFFUSION PUMP MODIFICATION PROMOTES SELF-CLEANING AND HIGH EFFICIENCY

A E Buggele

Jul 1975 See also NASA-TM-X-2932

LEWIS-12323

Modifications eliminate contaminant substances from pump fluid during operation which are principal causes of torpidity on evaporative surface Diffusion pump is also acting as still Resulting 100 percent vigorous working surface provides much greater molecular throughput and greatly improved efficiency

B75-10074
AIRFOIL DISPERSES SMOKESTACK EFFLUENTS UPWARD

R C Costen

May 1975

LANGLEY-11669

System consists of negative-lift airfoil mounted at or near top of smokestack without obstructing flow of effluents from stack Controls adjust negative lift and drag of airfoil for changing orientation of airfoil to maintain proper airflow over foil and for adjusting its vertical location with respect to top of smokestack

B75-10085
TORQUE CONTROL SYSTEM

D K Studenick A L Tyler and W Squillari

Jun 1975

GSFC-11077

System stabilizes azimuth of gondolas which are carried by high-altitude balloons as platforms for tracking telescopes When telescopes must be constantly aimed at specific targets control system stabilizes gondola to within 5 arc-seconds

B75-10095
SIMPLE AND EFFECTIVE METHOD TO LOCK BUOY POSITION TO OCEAN CURRENTS

W A Vachon (Charles Stark Draper Lab Inc) and J M Dahlen

06 MECHANICS

(Charles Stark Draper Lab., Inc.)
Jun 1975

M-FS-23140

Window-shade drogue used with drifting buoys to keep them moving with current at speed as close to that of current as possible, has drag coefficient of 1.93 compared to maximum of 1.52 for previous drogues. It is remarkably simple to construct and use and store.

B75-10110

CRYOGENIC LINE INSULATION MADE FROM PREFABRICATED POLYURETHANE SHELLS

G Lerma (Rockwell Intern Corp.)

Jun 1975

MSC-19523

Prefabricated polyurethane foam insulation is inexpensive and easily installed on cryogenic lines. Insulation sections are semicircular half shells. Pair of half shells is placed to surround cryogenic line. Cylindrically-shaped knit sock is pulled over insulation then covered with polyurethane resin to seal system.

B75-10111

POWERED FIRE NOZZLE FOR FAST PENETRATION OF STRUCTURES - A CONCEPT

J F Parker (Rockwell Intern Corp.) and R L Robbins (Rockwell Intern Corp.)

Jun 1975

MSC-19528

Nozzle has been proposed with tip that will punch through wall very quickly. It would allow extinguishing agent to be delivered inside closed structure in minimum amount of time. Two versions of nozzle have been conceived: one operated from hydraulic pressure source and one activated by explosive charge.

B75-10131

MINIMIZATION OF JET AND CORE NOISE BY ROTATION OF FLOW

I R Schwartz

Jun 1975

ARC-10712

Jet and core noise can be reduced and flame lengths may be significantly decreased when exhaust gases are caused to rotate or swirl about longitudinal axis of exhaust. Combustion in rotating flows is steady and quiet and is not accompanied by pulsations or violent fluctuations.

B75-10132

NEW DESIGN OF HINGELESS HELICOPTER ROTOR IMPROVES STABILITY

R A Ormiston (USAAMRDL), W G Bousman (USAAMRDL), D H Hodges (USAAMRDL) and D A Peters (USAAMRDL)

Jun 1975

ARC-10807

Cantilever blades are attached directly to rotor hub thereby substantially reducing cost and complexity and increasing reliability of helicopter rotor. Combination of structural flap-lag coupling and pitch-lag coupling provides damping of 6 to 10% depending on magnitude of coupling parameters.

B75-10134

SILICON NITRIDE USED AS A ROLLING-ELEMENT BEARING MATERIAL

R J Parker and E V Zaretsky

Jul 1975 See also NASA-TN-D-7794

LEWIS-12447

Rolling-element fatigue tests were conducted with hot-pressed silicon nitride to determine its ability to withstand concentrated contacts in rolling-element bearings. If hot-pressed silicon nitride is used for both balls and races attention must be paid to fitting both shaft and bearing housing.

B75-10135

DESIGN CRITERIA MONOGRAPH ON TURBOPUMP SYSTEMS

Jul 1975 See also NASA-SP-8107

LEWIS-12499

Turbopump assembly for modern liquid propellant rocket engine is complete system in itself. It consists of many components, some of which are themselves subsystems. Monograph deals with turbopump as system covering selection of proper system type for each application and integration of components into working system.

B75-10151

GRAPHITE FIBER-POLYIMIDE COMPOSITE ROD END BEARINGS FOR HIGH-TEMPERATURE HIGH-LOAD APPLICATIONS

H E Sliney and T P Jacobson

Oct 1975 See also NASA-TN-D-7880

LEWIS-12514

Self-aligning plain spherical and plain cylindrical oscillating bearings with self-lubricating elements are composed of 50 weight-percent chopped graphite fibers and 50 weight-percent polyimide.

B75-10165

SOLAR RESIDENTIAL HEATING AND COOLING SYSTEM

D E Melton and W R Humphries

Aug 1975

M-FS-23260

System has been placed in operation to verify technical feasibility of using solar energy to provide residential heating and cooling. Complete system analysis was performed, to provide design information.

B75-10173

LIGHTWEIGHT DUCTS FABRICATED FROM REINFORCED PLASTICS AND ELASTOMERS

F S Dawn, T J Ballentine, R E Bishop (Rockwell Intern Corp.), and C R Rousseau (Rockwell Intern Corp.)

Aug 1975

MSC-19482

Method has been developed for fabrication of lightweight ducts that are three times stronger than aluminum ducts. Method can be used to produce either flexible or rigid ducts.

B75-10190

IMPROVED AIR ATOMIZING SPLASH-GROOVE FUEL INJECTOR REDUCES POLLUTANT EMISSIONS FROM TURBOJET ENGINES

R D Ingebo and C T Norgren

Oct 1975 See also NASA-TM-X-3255

LEWIS-12417

Device produces finely atomized sprays which improve performance characteristics and reduce pollutant emissions of advanced high-pressure and high-temperature turbojet engines.

B75-10199

MARSHALL VEHICLE-ENGINEERING SIMULATION SYSTEM (MARVES)

W E Keenum (Computer Sci. Corp.)

Sep 1975

M-FS-21701

Computer language was developed to furnish programmers with standardized system for handling digital computer simulation of trajectories. System contains collection of models which represent problem to be solved and description of one or more events peculiar to the problem.

B75-10201

ULTRASONIC DETECTION OF FLAWS IN LARGE STRUCTURAL AREAS

F E Sugs (Rockwell Intern Corp.) and C C Kammerer (Rockwell Intern Corp.)

Sep 1975

MSC-19499

System's transducer consists of three piezoelectric elements that produce relatively-wide ultrasonic beam which covers significantly larger area and can monitor from a fixed point.

B75-10203

GAS GENERATORS PRODUCE HYDROGEN-RICH FUEL

J Houseman R Kushida and J H Rupe

Sep 1975 See also B75-10208

NPO-13342, NPO-13464

Resulting fuel which is produced from gasoline and water can be burned by gasoline engines with significantly reduced pollution and improved fuel economy

B75-10208

HYDROGEN-RICH GAS GENERATORS TO REDUCE AIR POLLUTION AND IMPROVE GASOLINE ECONOMY

J Houseman and D Cerini

Sep 1975 See also B75-10203

NPO-13560, NPO-13561

Thermal generator consisting of burner reaction chamber and heat exchanger produces gas from gasoline/air mixture Units can be utilized with spark ignition engine

B75-10209

LOW-COST SOLAR TRACKING SYSTEM

C G Miller and J B Stephens

Sep 1975 See also B75-10210

NPO-13579

Smaller heat-collector is moved to stay in focus with the sun, instead of moving reflector Tracking can be controlled by storing data of predicted solar positions or by applying conventional sun-sensing devices to follow solar movement

B75-10214

APPARATUS FOR MEASURING STATIC COEFFICIENT OF FRICTION UNDER COMPRESSIVE LOADS

C L Haehner and J L Tarpley

Oct 1975

GSFC-11893

Device includes load cell attached to rigid structure Crosshead directly beneath cell is connected to constant-speed electrical motor Crossarm supported by crosshead serves as platform on which bodies are tested Test data are recorded on X-Y recorder which is connected to load cell and motor

B75-10234

MULTIPLE-COMPARTMENT VENTING PROGRAM

L P LeBlanc (Rockwell Intern Corp)

Oct 1975

MSC-19428

Computer program solves time-dependent energy and state equations for gas reservoirs using the solutions of conductor conservation equations as mass and energy rate changes to reservoirs

B75-10251

SINGLE RADIAL MAGNETIC BEARING A CONCEPT

P A Studer

Oct 1975

GSFC-11978

Proposed bearing has increased stability Magnetic structure keeps inner and outer bearing halves aligned Electronic feedback circuit keeps bearing radially centered

B75-10258

REDUCING FLOW REQUIREMENTS OF FLUID ACTUATORS

M J Long and S C Irick

Oct 1975

LANGLEY-11540

Method reduces volumetric rate of hydraulic fluid or air to drive actuator at high speed Method can be used with any positive displacement actuator with multiple chambers

B75-10259

TWO-DIRECTIONAL ACTIVE DAMPER

C S Chang (New Technology, Inc)

Oct 1975 See also NASA-CR-132550

LANGLEY-11815

Damper system to be used in studies of payload isolation technology is suitable as a laboratory apparatus It provides easily adjustable damping and acts as multichannel shaker system

B75-10264

BRAKING ACTION OF WHEELED VEHICLES IS CONTROLLED AUTOMATICALLY DURING MINIMUM-DISTANCE STOPS

D E Barthlome

Oct 1975 See also NASA-TM-X-72665

LANGLEY-11897

System prevents tire skid during panic stops Two mutually dependent accelerometers directly control solenoid valve which regulates braking pressure

B75-10270

SUSPENSION SYSTEM FOR LIGHTWEIGHT CRYOGENIC TANK

J Lester (Beech Aircraft Corp) and D A Wendling (Beech Aircraft Corp)

Oct 1975

MSC-14080

System is composed of three interwoven fiberglass bands that encircle tank surface in basketweave configuration Fiberglass support is lightweight with low thermal conductivity

B75-10282

REMOVAL OF ICE AND MARINE GROWTH FROM SHIP SURFACES A CONCEPT

A J Bauman

Oct 1975

NPO-13658

Proposed surface is structured from sections of low-melting-point alloy Sections are separated by network of passages for compressed air Ice or barnacles are removed by passing electrical current through alloy and bursts of compressed air through passages

B75-10284

IMPROVED AIRCRAFT REACTION NOZZLES

J R Rogers

Nov 1975

ARC-10906

Reaction control nozzle requires low operating forces and has linear and predictable jet thrust vs nozzle exit area and position Nozzle thrust vector is controllable by single rotary motion

B75-10287

TURBINE DESIGN REVIEW TEXT

Innovator not given Dec 1975 See also NASA SP-290 Vols I II III

LEWIS-12560

Three-volume publication covers theoretical, design and performance aspects of turbines Volumes cover thermodynamic and fluid-dynamic concepts velocity diagram design turbine blade aerodynamic design turbine energy losses supersonic turbines radial-inflow turbines, turbine cooling and aerodynamic performance testing

B75-10298

STATIC AEROELASTIC PROGRAM

J Roskam (Kansas Univ)

Dec 1975

LANGLEY-11602

Set of programs computes geometric mass aerodynamic and structural effects on fighter and transport type aircraft at subsonic and supersonic speeds

B75-10300

AMPLIFYING RIBBON EXTENSOMETER

V L Alley Jr and A D McHatton

Dec 1975

LANGLEY-11825

Device provides accurate measurement of strain on flexible membranes and fabrics It is compact and lightweight, has strain-amplification capability up to five, and has an accuracy better than one percent

07 MACHINERY, EQUIPMENT AND TOOLS

B75-10313 **COMPOUND HEAT PIPE OPERATES OVER BROAD TEMPERATURE RANGE**

H B McKee (McDouglas Douglas Corp)

Dec 1975

M-FS-23329

Device is combination of two or more heat pipes running adjacent to each other. Each pipe carries different working fluid in high-temperature pipe melts and begins to conduct heat.

07 MACHINERY, EQUIPMENT AND TOOLS

B75-10011 **DESIGN CRITERIA MONOGRAPH ON TRANSMISSION SEALS**

S T Hayden (Sikorsky Aircraft) and C H Keller Jr (Sikorsky Aircraft)

Apr 1975 See also NASA-CR-120997

LEWIS-12403

Guide is based on experience obtained in wide variety of applications using lip circumferential and face seals. Particular attention is given to capabilities and lubrication of various seal types. Special limitations as a result of storage requirements, quality control, installation, operation, and removal are discussed.

B75-10054 **LOW-COST TOOL SET FOR REMOVING BRAZED FITTINGS**

A Giandomenico

Apr 1975

NPO-13495

Set includes crimping tool and pull tube. Crimping tool is modified vise-grip pliers which has special jaws designed to crimp fittings. Pull tube has single thread on each end. Tube can be used once on each end before discarding.

B75-10078 **FERROLUBRICANTS**

A F Whitaker

May 1975

M-FS-23151

Ferrolubricants have magnetized angstrom-size iron particles which stick oil to moving surfaces at all times, significantly reducing frictional wear. Magnetic fluids can be produced in families of various fluids having widely-varying chemical and physical properties.

B75-10241 **SAFETY MANAGEMENT OF A COMPLEX R&D GROUND OPERATING SYSTEM**

J Connors and R A Mauer

Oct 1975 See also NASA-TM-X-71697

LEWIS-12559

Report discusses safety program implementation for large R&D operating system. Analytical techniques are defined and suggested as tools for identifying potential hazards and determining means to effectively control or eliminate hazards.

B75-10249 **POSITION SENSING MATERIALS WOUND ON A REEL**

R M Muller

Oct 1975

GSFC-11902

Electro-optical counter measures number of layers of web wound on reel and indicates layer number and web position digitally without physically contacting reel or requiring numerical interpolation from mechanical readout device.

B75-10276 **RELIABILITY COMPUTATION FROM RELIABILITY BLOCK DIAGRAMS**

P O Chelson and E Y Eckstein (VIP Engineering)

Oct 1975

NPO-13304

Computer program computes system reliability for very general class of reliability block diagrams. Four factors are considered in calculating probability of system success: active block redundancy, standby block redundancy, partial redundancy, and presence of equivalent blocks in the diagram.

B75-10322 **FAST SEMIAUTOMATIC DIMENSIONAL TEST SET AND DATA LOGGER**

G E Meunier (Rockwell Intern Corp)

Dec 1975

MSC-19554

System measures and records tolerance deviations of thermal-protection ceramic tiles in less than 30 seconds. Accuracy of the machine is within 0.001 inch.

B75-10334 **SIMPLIFIED HEAT ENGINE**

W H Higa

Dec 1975

NPO-13613

In Sterling-cycle heat engine pneumatic system is used to drive displacer/regenerator, eliminating mechanical linkages and valves.

08 FABRICATION TECHNOLOGY

B75-10006 **INHIBITING KIRKENDALL VOID GROWTH IN WELDED BIMETALLIC STRUCTURES**

F G Arcella (Westinghouse Astronuc Lab) G A Lessman (Westinghouse Astronuc Lab) and R A Lindberg

Mar 1975 See also NASA-CR-134490, NASA-CR-134526

LEWIS-11573

Technique employs pre-aged void-free junction composed of parent materials. Basic process for Kirkendall void inhibition can be applied to thermionic power systems, high temperature seals, high temperature junctions between any two metals of differing melting points where Kirkendall void formation would be detrimental.

B75-10089 **SPUTTERED GOLD MASK FOR DEEP CHEMICAL ETCHING OF SILICON**

B P Pisciotta, C Gross and R S Olive

Jun 1975

LANGLEY-11661

Sputtered mask resists chemical attack from acid and has adherence to withstand prolonged submergence in etch solution without lifting from silicon surface. Even under prolonged etch conditions with significant undercutting, gold mask maintained excellent adhesion to silicon surface and imperviousness to acid.

B75-10145 **MOUNTING TECHNIQUE FOR PRESSURE TRANSDUCERS MINIMIZES MEASUREMENT INTERFERENCES**

R N Lanham (Northrop Corp), C E Taylor (Northrop Corp), C E Balmer (Northrop Corp), and C Hwang (Northrop Corp)

Jul 1975

ARC-10933

Miniaturized transducers are fabricated from commercially available four-arm semiconductor gages. Transducers are connected as bridge circuit and mounted on internal face of small diaphragm. Jacket made of conductive plastic may be needed to avoid buildup or static charges.

B75-10164**FABRICATION AND REPAIR OF GRAPHITE/EPOXY LAMINATES**

J R Lager (Martin Marietta Corp) and B Burke (Martin Marietta Corp)

Aug 1975

M-FS-23228, M-FS-23229

New forming and patching methods have been developed for high-quality graphite/epoxy laminates. Laminates range in thickness from 0.012 to 0.018 in (0.31 to 0.46 mm)

B75-10179**THREE-DIMENSIONAL MODELS AID VISUALIZATION OF ENGINEERING DRAWINGS**

A R McDougal and C E Aardahl

Aug 1975

NPO-13394

Inexpensive cut-and-paste method allows construction of complex three-dimensional models in less than an hour. Models are constructed from film or paper copies made on office copier

B75-10212**IMPROVED CHEMICAL VAPOR-DEPOSITION REACTOR**

S S Chern and J Maserjian

Sep 1975

NPO-13650

Formation of large particles on substrate is eliminated by actively exhausting reacted gases. Effluent gas backflow is prevented by pumping in curtain of nitrogen above fresh reactive gases from several directions

B75-10216**MACHINE FOR FABRICATION OF BATTERY-ELECTRODE PLAQUES**

W C Harsch (Eagle-Picher Industries Inc)

Oct 1975

GSFC-12004

Functional parts of device are built to close tolerances of 0.001 inch (0.025 mm) and can be adjusted within range of plus or minus 0.005 inch (plus or minus 0.127 mm)

B75-10238**DIP MOLDING TO FORM INTRICATELY-SHAPED MEDICAL ELASTOMER DEVICES**

H F Broyles

Oct 1975

NPO-13535

Preshaped mandrel mounted on rotating mechanism is partially immersed in tank filled with liquid elastomer. While mandrel rotates elastomer film forms on mandrel surface due to surface tension and capillary behavior of liquid. Devices with well-defined flanges can be made using process

B75-10257**PROCESS FOR PREPARING POLYIMIDE ADHESIVES**

D J Progar, V L Bell, and T L St Clair (Virginia Polytechnic Institute and State Univ)

Oct 1975

LANGLEY-11397

High bonding strengths are obtained for metals and fiber-reinforced organic resin composites with no significant loss in thermo-oxidative stability of the adhesive resin

B75-10261**DIAMINE CURING AGENTS FOR POLYURETHANES**

V L Bell and T L St Clair (Virginia Polytechnic Institute and State Univ)

Oct 1975

LANGLEY-11829

Three aromatic diamines have properties that make them promising candidates as curing agents for converting isocyanates to polyurethanes with higher adhesive strengths, higher softening temperatures, better toughness, and improved abrasion resistance

B75-10267**INDUSTRIAL LASER WELDING AN EVALUATION**

R Hella (Avco Everett Res Lab), E Locke (Avco Everett Res Lab) and S Ream (Avco Everett Res Lab)

Oct 1975

M-FS-23237

Report describes 10-kW laser welding system designed to weld large structures made from 1/4-inch and 1/2-inch aluminum (2219) and D6AC steel

B75-10299**FORMATION OF INTERNALLY-CONFINED SEMICONDUCTOR LASERS**

V M Cannuli (RCA)

Dec 1975

LANGLEY-11770

In technique for fabrication of strip lasers, current constrictions are accomplished by diffusing blocking regions into n-type substrate prior to growth. Current flow is controlled by blocking layers which results in reduction of threshold current and better heat dissipation

B75-10301**LOW-COST HOT-AIR SOLAR COLLECTOR**

E P Herndon and K G Anthony

Dec 1975

M-FS-23272

System has only three components per cell. Cell parts are fabricated from readily available materials and following a construction procedure which requires use of only simple handtools, can be mounted in place by one person

B75-10309**FOAM-MACHINING TOOL WITH EDDY-CURRENT TRANSDUCER**

W P Copper (Martin Marietta Corp)

Dec 1975

M-FS-23298

Three-cutter machining system for foam-covered tanks incorporates eddy-current sensor. Sensor feeds signal to numerical controller which programs rotational and vertical axes of sensor travel, enabling cutterhead to profile around tank protrusions

B75-10319**BIAXIAL COMPRESSION TEST TECHNIQUE**

E T Hansard (Gen Dyn Corp)

Dec 1975

MSC-14883

Fixture and technique have been developed for predicting behavior of stiffened skin panels under biaxial compressive loading. Tester can load test panel independently in longitudinal and transverse directions. Data can also be obtained in combined mode

09 COMPUTER PROGRAMS**B75-10002****COMPUTER PROGRAM FOR THERMODYNAMIC ANALYSIS OF OPEN-CYCLE MULTISHAFT POWER SYSTEM**

A J Glassman

Mar 1975

LEWIS-12324

Program computes specific power output, specific fuel consumption, and cycle efficiency for power systems having any number of shafts up to maximum of five. Maximum temperatures should be no higher than about 2000 K (3140 F) because molecular dissociation is not included in stoichiometry

B75-10005**COMPUTER PROGRAM TO GENERATE ENGINE INLET**

09 COMPUTER PROGRAMS

FLOW CONTOUR MAPS AND DISTORTION PARAMETERS

J H Dicus

Mar 1975

LEWIS-12247

Program generates inlet contour maps with choice of mapping parameters. Contour maps are represented by symbols on picture produced by line printer. Program also generates variety of simple circumferential and radial distortion parameters that enable calculation of almost any specific distortion parameter.

B75-10015

REGENERATIVE COOLING DESIGN AND ANALYSIS COMPUTER PROGRAM

J G Gerstley (Rockwell Intern Corp) and R D Tobin (Rockwell Intern Corp)

Apr 1975

LEWIS-12110

Program evaluates influences of heat transfer, stress and cycle life. Coolant passages may be tubes or channels with or without gas-side wall coating. Program options include two-dimensional thermal analysis model of tube or channel cross-section using relaxation technique with variable number of nodes.

B75-10018

COMPUTER PROGRAMS FOR CALCULATING POTENTIAL FLOW IN PROPULSION SYSTEM INLETS

N O Stockman and S L Button

Apr 1975

LEWIS-12152

Calculational procedure evolved in process of designing inlets. Douglas axisymmetric potential flow program called EOD calculates incompressible potential flow about arbitrary bodies. Program SCIRCL generates input for EOD from inlet components. Program COMBYN takes basic solutions output by EOD and combines them into solutions of interest and applied compressibility correction.

B75-10019

COMPUTER PROGRAMS FOR HANDLING PROPULSION SYSTEM NOISE DATA

F J Montegani

Apr 1975

LEWIS-12285

Computer programs have been developed for efficient handling of one-third-octave band noise data originating from outdoor full-scale fan noise facility and engine acoustic facility at Lewis Research Center.

B75-10020

COMPRESSIBLE FLOW COMPUTER PROGRAM FOR GAS FILM SEALS

J Zuk and P J Smith

Apr 1975

LEWIS-12286

Computer program, AREAX calculates properties of compressible fluid flow with friction and area change. Program carries out quasi-one-dimensional flow analysis which is valid for laminar and turbulent flows under both subsonic and choked flow conditions. Program was written to be applied to gas film seals.

B75-10021

COMPUTER PROGRAM FOR DEFINITION OF TRANSONIC AXIAL-FLOW COMPRESSOR BLADE ROWS

J E Crouse

Apr 1975

LEWIS-12325

Particular type of blade element used has two segments which have centerlines and surfaces described by constant change of angle with path distance on cone. Program is result of rework of earlier program to give major gains in accuracy, reliability and speed. It also covers more steps of overall compressor design procedure.

B75-10029

ANALYTIC MODEL FOR ASSESSING THERMAL PERFORMANCE OF SCUBA DIVERS

L D Montgomery

Feb 1975

ARC-10927

To assist design of adequate protective clothing, mathematical model of man's thermoregulatory system has been developed so that body thermal responses under immersed conditions can be predicted accurately. Experimental data encompassed wide range of water temperatures, protective clothing, breathing-gas mixtures, and durations of immersion.

B75-10032

VIEW FACTOR COMPUTER PROGRAM (VIEW)

C E Jackson, Jr and E F Puccinelli

Apr 1975

GSFC-11910

Existing view factor program RAVFAC was modified to accept NASTRAN and/or RAVFAC surface descriptions. Output formatting was altered to produce view factor matrices which could be directly input to NASTRAN.

B75-10033

EXTENSIVE SET OF MACROS FOR STRUCTURED PROGRAMMING IN OS/360 ASSEMBLY LANGUAGE (STRCMACS)

C W Barth

Apr 1975

GSFC-11938

Development of consistent assembly language structured programming techniques has been enhanced by use of assembly macros developed for structured programming. Set of macros was written for IBM OS/360 Assembly language.

B75-10053

JPL TRANSIENT RADIATION ANALYSIS BY COMPUTER PROGRAM (JTRAC)

S Weinstein

Apr 1975

NPO-13470

Digital computer program JTRAC simulates time response of electronic circuit to arbitrary forcing functions which may include electrical and/or radiation stimuli. Program is designed to solve linear and nonlinear simultaneous equations which characterize mathematical models used to predict circuit response for electrical and/or radiation input.

B75-10060

PREDICTION OF AIRCRAFT NOISE SOURCE AND ESTIMATION OF NOISE-LEVEL CONTOURS

N A Peart (Boeing Co)

Apr 1975

ARC-10880

Two computer programs aid aircraft designers who need to identify noise characteristics of various aircraft and engine configurations. Calculated noise levels can then be compared with community goals for noise limitation.

B75-10093

FOUR-DIMENSIONAL WORLDWIDE ATMOSPHERIC MODELS ANYPT AND ANYRG

D Johnson, C Brown, D Spiegler (Environ Res and Technol) and M Fowler (Environ Res and Technol)

Jun 1975

M-FS-22838

Computer programs read magnetic-tape data bases and computer meteorological profiles for any position, time and height (from zero to 25 km). System assists in analyses of distortion of information obtained from aircraft-mounted or spacecraft-mounted electromagnetic sensors.

B75-10094

COMPUTER PROGRAM FOR NUMERICAL ANALYSIS OF STIFFENED SHELLS OF REVOLUTION

J Key and V Valbonas (Grumman Aerospace Co)

Jun 1975

M-FS-23027

Programs using Love-Reissner first-order shell theory can analyze orthotropic thin shells of revolution subjected to

unsymmetric distributed loading or concentrated line loads and thermal strains They can perform stability or vibration analysis of thin shells of revolution subjected to axisymmetric distributed loading or concentrated line loads and thermal strains

B75-10100
PROGRAM FOR ANALYSIS OF NONLINEAR EQUILIBRIUM AND STABILITY (PANES)

R G Vos (Boeing Co)

Jun 1975

M-FS-23172

PANES utilizes improved techniques for analysis of structures with material and geometric nonlinearities including limit point and bifurcations behavior which occurs in buckling and collapse problems Incremental loading Newton-Raphson iteration, and higher order methods are used in program

B75-10106
COMPUTER PROGRAM FOR ANALYSIS OF VECTORCARDIOGRAMS (VECTAN II)

G W Hoffer D P Golden (Technol Inc) and R A Wolthuis (Technol Inc)

Jun 1975

MSC-14386

VECTAN II accepts as input digitized three-lead VCG data sampled at 320 samples/second/lead, analyzing one VCG complex in each 5-second interval for experiments of up to 25 minutes duration Program calibrates these data locates major waveforms performs waveform analyses and produces statistical summary of analyzed data

B75-10130
COMPUTER MODELING OF ARC DRIVERS

R E Dannenberg and P I Slapnicar (Stanford Univ)

Jun 1975

ARC-10955

Model is generated from description of element connections involved in complete arc network list of corresponding circuit element values description of circuit current excitation and list of out-puts desired Waveform of current is determined by structure of capacitor storage system, driver geometry and preset driver conditions

B75-10133
MULTIPLEXING TECHNIQUE FOR COMPUTER COMMUNICATIONS VIA SATELLITE CHANNELS

R Binder (Hawaii Univ)

Jun 1975

ARC-10879

Multiplexing scheme combines technique of dynamic allocation with conventional time-division multiplexing Scheme is designed to expedite short-duration interactive or priority traffic and to delay large data transfers as result, each node has effective capacity of almost total channel capacity when other nodes have light traffic loads

B75-10140
METHOD OF IDENTIFYING CLUSTERS REPRESENTING STATISTICAL DEPENDENCIES IN MULTIVARIATE DATA

W J Borucki, D H Card and G C Lyle

Jul 1975

ARC-10744

Approach is first to cluster and then to compute spatial boundaries for resulting clusters Next step is to compute from set of Monte Carlo samples obtained from scrambled data estimates of probabilities of obtaining at least as many points within boundaries as were actually observed in original data

B75-10143
ALGORITHM FOR NONLINEAR STATIONARY NAVIER-STOKES PROBLEM

R E Gabrielsen and S Karel

Jul 1975

ARC-10960

Results of applications of algorithm suggest that it has potential application to variety of related fluid flow problems,

such as presently intractable separation problem of aerodynamics Details of mathematical development as well as computation of explicit error estimates are available

B75-10146
SIMPLE COMPUTER METHOD PROVIDES CONTOURS FOR RADIOLOGICAL IMAGES

J D Newell (California Univ San Diego) R A Keller (California Univ, San Diego), and N A Baily (California Univ San Diego)

Jul 1975

ARC-10940

Computer is provided with information concerning boundaries in total image Gradient of each point in digitized image is calculated with aid of threshold technique then there is invoked set of algorithms designed to reduce number of gradient elements and to retain only major ones for definition of contour

B75-10155
REMOTE FILE INQUIRY (RFI) SYSTEM

Innovator not given (IBM) Aug 1975

KSC-10837

System interrogates and maintains user-definable data files from remote terminals using English-like free-form query language easily learned by persons not proficient in computer programming System operates in asynchronous mode, allowing any number of inquiries within limitation of available core to be active concurrently

B75-10172
TRIMETRIC SCALE FOR DRAFTING MACHINES

J C Ryan (Rockwell Intern Corp) and R Chu (Rockwell Intern Corp)

Aug 1975

MSC-15829, JSC-19391

Device allows three basic projections to be drawn from a single scale zero setting Ellipse proportions are included for convenience Axonometric projections can also be determined

B75-10186
RETSCP-A COMPUTER PROGRAM FOR ANALYSIS OF ROCKET ENGINE THERMAL STRAINS WITH CYCLIC PLASTICITY

R W Miller (Atkins and Merrill Inc)

Oct 1975

LEWIS-12388

Finite element program employs three-dimensional isoparametric element for analysis of rocket engine thermal strains with cyclic plasticity

B75-10187
COMPUTER PROGRAM FOR CALCULATING WATER AND STEAM PROPERTIES

R C Hendricks I C Peller and A K Baron

Nov 1975

LEWIS-12519

Computer subprogram calculates thermodynamic and transport properties of water and steam Program accepts any two of pressure temperature and density as input conditions Pressure and either entropy or enthalpy are also allowable input variables Output includes any combination of temperature density pressure entropy enthalpy specific heats sonic velocity viscosity thermal conductivity surface tension and the Laplace constant

B75-10188
COMPUTER PROGRAM FOR CALCULATING THERMODYNAMIC AND TRANSPORT PROPERTIES OF FLUIDS

R C Hendricks A K Braon and I C Peller

Oct 1975

LEWIS-12520

Computer code has been developed to provide thermodynamic and transport properties of liquid argon carbon dioxide carbon monoxide fluorine helium methane, neon nitrogen, oxygen and parahydrogen Equation of state and transport coefficients are updated and other fluids added as new material becomes available

09 COMPUTER PROGRAMS

B75-10194

EXECUTIVE COMPUTER PROGRAM FOR LINKING INDEPENDENT COMPUTER PROGRAMS ODINEX

C R Latt (Aerophysics Res Corp), D S Hague (Aerophysics Res Corp) and D A Watson (Aerophysics Res Corp)
Sep 1975

LANGLEY-11324

Program controls sequence of execution of network of program elements and maintains data base of common information which forms communication link among them Approach is applicable to any multiple-program task

B75-10242

COMPUTER PROGRAM FOR THE ATTENUATION OF HIGH BYPASS TURBOFAN ENGINE NOISE

H F Veldman (Boeing Co)

Oct 1975

LEWIS-12179

Two computer programs determine effect of boundary layer on attenuation of sound in a circular duct lined with material used in noise suppression in fan inlet and exhaust ducts of turbofan engines

B75-10243

IMPROVED AXISYMMETRIC POTENTIAL FLOW COMPUTER PROGRAM

J L Hess (McDonnell Douglas Corp)

Oct 1975

LEWIS-12387

Basic method of calculating potential flow has been refined to increase accuracy of results and to reduce computational time Program calculates low speed flows about or within bodies of axially symmetric shape Solid body, inlet, and purely internal flow problems can be solved

B75-10252

COMPUTER INTEGRATION OF HYDRODYNAMICS EQUATIONS FOR HEAT PIPES

D K Edwards (TRW Systems Group), J E Eninger (TRW Systems Group) and B D Marcus (TRW Systems Group)

Oct 1975

GSFC-12009

Program has five operational modes that provide user flexibility in answering crucial heat-pipe design questions User specifies heat input and rejection distribution

B75-10263

IMPROVED GENERAL-PURPOSE NAMELIST PROCESSOR

E W Wojtaszek (Martin Marietta Corp)

Oct 1975

LANGLEY-11834

Processor is written in FORTRAN with minimal machine-dependent coding allowing easy conversion to various digital computers It eliminates 19 continuation-card limit of current namelist processors and permits unlimited number of variables to be read in a single namelist declaration

B75-10273

A STUDY OF ACCURACY IN SELECTED NUMERICAL-ANALYSIS INTEGRATION TECHNIQUES

W M Lear (TRW, Inc)

Oct 1975 See also NASA-CR-141784

MSC-14802

Report discusses several methods of performing numerical integration with computer When data can be expressed as state vector that is dependent variable in a differential equation self-starting integrators can be used to predict future data

B75-10278

GENERATION OF KEY IN CRYPTOGRAPHIC SYSTEM FOR SECURE COMMUNICATIONS

M Perlman

Oct 1975

NPO-13451

Report discusses key generation for transmission of confiden-

tial data A number of feedback functions are discussed for generation of long key sequences

B75-10292

COMPUTER SYSTEM FOR LIBRARY ACCESS

A DelFrate

Dec 1975

GSFC-11952

Program performs traditional file creation maintenance, and output MARC II compatible data records can be added changed or deleted in bibliographic file

B75-10294

GENERAL OPTICS EVALUATION PROGRAM (GENOPTICS)

B J Howell

Dec 1975

GSFC-12038

Program prints and plots results of computations such as ray traces radial energy distributions, and designs of two-mirror telescopes

B75-10295

SMALL INTERACTIVE IMAGE PROCESSING SYSTEM (SMIPS)

J G Moik (Computer Sci Corp)

Dec 1975

GSFC-12079

System facilitates acquisition digital processing and recording of image data as well as pattern recognition in an iterative mode

B75-10302

THE LANGLEY RESEARCH CENTER NASA/PERT TIME III

Innovator not given (Project Schedules and Analysis Group) Dec

1975

LANGLEY-11887

Program provides practical system for total project management in areas of planning scheduling resource control, and reporting It allows use of existing management and administrative tools and processes and is applicable to many types of projects

B75-10318

POWER SPECTRUM ANALYSIS OF STAGGERED QUADRIPHASE-SHIFT-KEYED SIGNALS

F L McWhorter (Magnavox Co) and D E Cartier (Magnavox Co)

Dec 1975

MSC-14865

Mathematical analysis of power spectrum of outputs from high-reliability communication system is used to determine system bandwidth Analysis provides mathematical relationships of signal power spectrum at output of hard limiter for any type of baseband pulse input subjected only to output parameter constraints

B75-10338

MINIMIZATION SEARCH METHOD FOR DATA INVERSION

A L Fymat

Dec 1975 See also B75-10335

NPO-99999

Technique has been developed for determining values of selected subsets of independent variables in mathematical formulations Required computation time increases with first power of the number of variables This is in contrast with classical minimization methods for which computational time increases with third power of the number of variables

SUBJECT INDEX

Subject Index

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Variable-gap bias structure for magnetic bubble memory package
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BIBLIOGRAPHIES

Wind energy utilization A bibliography
LEWIS-12518 B75-10136 02
Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
LEWIS-12502 B75-10138 03

Fracture toughness testing data A technology survey and bibliography
LEWIS-12503 B75-10139 03

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Data processing large quantities of multispectral information
MSC-14472 B75-10080 03

BIOTECHNOLOGY

New urea-absorbing polymers for artificial kidney machines
NPO-13620 B75-10336 04

BIREFRINGENCE

Wide-field birefringent elements
MSC-12677 B75-10105 03

BISMUTH TELLURIDES

Thermoelectrically-cooled quartz microbalance
M-FS-23101 B75-10076 04

BIT SYNCHRONIZATION

A hybrid general-purpose bit synchronizer
MSC-14330 B75-10169 02

BLOOD

Portable automatic blood analyzer
MSC-14627 B75-10041 05
Covalent bonding of polycations to small polymeric particles
NPO-13487 B75-10327 04

BLOOD PRESSURE

Implantable prosthetic pump boosts blood pressure A concept
NPO-13626 B75-10177 05

BOATS

Simple and effective method to lock buoy position to ocean currents
M-FS-23140 B75-10095 06
Highly-visible air-sea rescue marker
MSC-12564 B75-10166 05
Removal of ice and marine growth from ship surfaces A concept
NPO-13658 B75-10282 06

BODIES OF REVOLUTION

Computer program for numerical analysis of stiffened shells of revolution
M-FS-23027 B75-10094 09

BODY FLUIDS

Improved extraction technique for biological fluids
NPO-13084 B75-10045 05

- Automated mass spectrometer/analysis system A concept
NPO-13572 B75-10331 05
- BONDING**
Process for preparing polyimide adhesives
LANGLEY-11397 B75-10257 08
Low-Cost thin-layer silicon solar cells
GSFC-12023 B75-10293 04
Quality control of microelectronic wire bonds
M-FS-23327 B75-10312 01
- BONES**
Determination of bone mineral mass in vivo
MSC-14276 B75-10168 05
- BORON NITRIDES**
Compact laser through improved heat conductance
NPO-13147 B75-10176 03
- BOUNDARY LAYER FLOW**
Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03
- BOUNDARY LAYERS**
Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09
- BRAGG ANGLE**
High-energy lasers by using distributed reflection A concept
NPO-13346 B75-10118 03
- BRAKES (FOR ARRESTING MOTION)**
Braking action of wheeled vehicles is controlled automatically during minimum-distance stops
LANGLEY-11897 B75-10264 06
- BRAZING**
Low-cost tool set for removing brazed fittings
NPO-13495 B75-10054 07
- BREATHING APPARATUS**
Mobile automatic metabolic analyzer
M-FS-23143 B75-10077 05
Oxygen cocoon for patients under intensive care
MSC-12663 B75-10079 05
- BROADBAND**
Dual-band ridged waveguide
LANGLEY-11781 B75-10091 01
New broadband square-law detector
NPO-13410 B75-10180 02
- BROADBAND AMPLIFIERS**
Reflected-wave maser
NPO-13490 B75-10279 03
- BROMINE**
Acid/alkali bromide secondary battery
NPO-13237 B75-10324 01
- BUBBLES**
Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01
Low-loss stripe-line coil for magnetic bubble memory
LANGLEY-11707 B75-10196 01
Bubble-domain circuit wafer evaluation coil set
LANGLEY-11728 B75-10197 01
- BUCKLING**
Program for analysis of nonlinear equilibrium and stability (PANES)
M-FS-23172 B75-10100 09
- BUFFER STORAGE**
Buffer control unit for computer communications
ARC-10870 B75-10059 02
- BUILDINGS**
Solar power roof shingle
LEWIS-12587 B75-10289 01
Low-cost hot-air solar collector
M-FS-23272 B75-10301 08
- BUOYS**
Simple and effective method to lock buoy position to ocean currents
M-FS-23140 B75-10095 06
- C**
- C BAND**
Dual-band ridged waveguide
LANGLEY-11781 B75-10091 01
- CABIN ATMOSPHERES**
Flammability study of materials in oxygen environments
M-FS-23306 B75-10310 04
- CALIBRATING**
Ultraviolet hydrogen-discharge lamp
MSC-14793 B75-10272 03
- CAPACITANCE**
Trielectrode capacitive pressure transducer
ARC-10711 B75-10025 01
- CAPACITORS**
Response of tantalum capacitors to fast transient overvoltages
MSC-14822 B75-10274 01
- CAPILLARY TUBES**
Nondestructive measurement of capillary tube internal diameter
LANGLEY-11647 B75-10156 02
- CARBONATES**
Method for evaluating effectiveness of dry fire-extinguishing chemicals
ARC-10869 B75-10027 04
- CARDIOLOGY**
Subminiature transducers for measuring forces and deformation of heart muscle
NPO-13423 B75-10051 05
Electrocardiogram signal analyzer
MSC-12710 B75-10269 05
- CARDIOVASCULAR SYSTEM**
Catheter-tip force transducer for cardiovascular research
NPO-13643 B75-10211 05
- CARGO**
Two-directional active damper
LANGLEY-11815 B75-10259 06
- CATALOGS (PUBLICATIONS)**
Computer system for library access
GSFC-11952 B75-10292 09
- CATHETERIZATION**
Catheter-tip force transducer for cardiovascular research
NPO-13643 B75-10211 05
- CATIONS**
Covalent bonding of polycations to small polymeric particles
NPO-13487 B75-10327 04
- CAVITY RESONATORS**
Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
HQ-10844 B75-10087 03
Signal mixer for optical heterodyne receiver
M-FS-23251 B75-10307 03
- CDC COMPUTERS**
Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09
- Automated statistical analysis program (ASAP)
LANGLEY-11125 B75-10217 02
- CDC 3200 COMPUTER**
General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09
- CDC 6000 SERIES COMPUTERS**
Executive computer program for linking independent computer programs
ODINEX
LANGLEY-11324 B75-10194 09
Chemical equilibrium of ablation materials including condensed species
LANGLEY-11801 B75-10225 04
Computer integration of hydrodynamics equations for heat pipes
GSFC-12009 B75-10252 09
Static aeroelastic program
LANGLEY-11602 B75-10298 06
The Langley Research Center
NASA/PERT TIME III
LANGLEY-11887 B75-10302 09
- CELLS (BIOLOGY)**
lonene treatment of surfaces stimulates cell growth
NPO-13421 B75-10121 04
- CERAMIC COATINGS**
Survey of coatings for solar collectors
LEWIS-12510 B75-10067 04
- CERAMICS**
Silicon nitride used as a rolling-element bearing material
LEWIS-12447 B75-10134 06
Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04
Repair of damaged insulation tiles
MSC-19549 B75-10321 04
Fast semiautomatic dimensional test set and data logger
MSC-19554 B75-10322 07
- CHANNEL CAPACITY**
Low-noise K(u)-band receiver input system
NPO-13645 B75-10281 02
Power spectrum analysis of staggered quadruphase-shift-keyed signals
MSC-14865 B75-10318 09
- CHANNELS (DATA TRANSMISSION)**
Multiplexing technique for computer communications via satellite channels
ARC-10879 B75-10133 09
- CHARGED PARTICLES**
Study of fluid flow by charged particles
ARC-10925 B75-10028 03
Covalent bonding of polycations to small polymeric particles
NPO-13487 B75-10327 04
- CHEMICAL ANALYSIS**
Automated data acquisition and reduction system for torsional braid analyzer
LANGLEY-11578 B75-10073 02
Infrared tunable laser A concept
ARC-10463 B75-10081 03
- CHEMICAL EQUILIBRIUM**
Chemical equilibrium of ablation materials including condensed species
LANGLEY-11801 B75-10225 04
- CHEMICAL LASERS**
Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 B75-10115 03

CHEMICAL REACTORS

Improved chemical vapor-deposition reactor
NPO-13650 875-10212 08

CHEMILUMINESCENCE

Continuous detection of viable micro-organisms by chemiluminescence
MSC-10170 875-10170 05

CHEMOTHERAPY

Covalent bonding of polycations to small polymeric particles
NPO-13487 875-10327 04

New urea-absorbing polymers for artificial kidney machines
NPO-13620 875-10336 04

CHIMNEYS

Airfoil disperses smokestack effluents upward
LANGLEY-11669 875-10074 06

Handbook for estimating toxic fuel hazards
M-FS-21114 875-10198 04

Laser-excited fluorescence for measuring atmospheric pollution
NPO-13231 875-10275 02

CHROMATES

Dichromated-gelatin hologram process for improved optical quality
M-FS-23170 875-10099 03

CHROMIUM

Survey of coatings for solar collectors
LEWIS-12510 875-10067 04

CHRONOMETERS

Quasars as very-accurate clock synchronizers
NPO-13276 875-10114 02

CIRCUIT BOARDS

Improved printed-wiring boards for high-reliability circuits
M-FS-23147 875-10039 01

CIRCUIT PROTECTION

A test and measurement technique for determining possible lightning-induced voltages in aircraft electrical circuits
LEWIS-12109 875-10068 02

CIRCUIT RELIABILITY

Improved printed-wiring boards for high-reliability circuits
M-FS-23147 875-10039 01

JPL transient radiation analysis by computer program (JTRAC)
NPO-13470 875-10053 09

CIRCUITS

Integrated-circuit balanced parametric amplifier
M-FS-23193 875-10102 01

Microelectronic fabrication of superconducting devices and circuits
NPO-13419 875-10120 01

System for simultaneous bidirectional data transmission
MSC-14810 875-10171 01

New broadband square-law detector
NPO-13410 875-10180 02

Automated statistical analysis program (ASAP)
LANGLEY-11125 875-10217 02

Simple temperature sensor with direct readout
LANGLEY-11818 875-10260 01

Highly stable analog-to-digital converter
NPO-13385 875-10277 01

Microcircuit testing and fabrication using scanning electron microscopes
M-FS-23159 875-10304 01

CIRCULAR POLARIZATION

Multibeam-antenna feed system to isolate orthogonally polarized beams
NPO-13140 875-10046 02

CLEANING

Removal of ice and marine growth from ship surfaces A concept
NPO-13658 875-10282 06

CLINICAL MEDICINE

Implantable prosthetic pump boosts blood pressure A concept
NPO-13626 875-10177 05

CLOCKS

Quasars as very-accurate clock synchronizers
NPO-13276 875-10114 02

CLOSED CIRCUIT TELEVISION

Video switcher for coupling video cameras to single TV monitor
KSC-10782 875-10192 02

CLOSED CYCLES

Low-noise K(u)-band receiver input system
NPO-13645 875-10281 02

CLUMPS

Method of identifying clusters representing statistical dependencies in multivariate data
ARC-10744 875-10140 09

COATINGS

Dielectric films improve life of polymeric insulators
ARC-10892 875-10084 04

Automated electronic system for measuring thermophysical properties
LANGLEY-11883 875-10160 03

Comparative performance of twenty-three types of flat plate solar energy collectors
LEWIS-12511 875-10189 03

Low-Cost thin-layer silicon solar cells
GSFC-12023 875-10293 04

Flammability study of materials in oxygen environments
M-FS-23306 875-10310 04

COAXIAL CABLES

Dual-band ridged waveguide
LANGLEY-11781 875-10091 01

Temperature-stable Gunn-diode oscillator
M-FS-23242 875-10306 01

COBOL

Computer system for library access
GSFC-11952 875-10292 09

CODERS

One-dimensional multimode and multistate oscillator A concept
HQ-10851 875-10088 01

CODING

Fluorescent color coding of power receptacles
MSC-19504 875-10109 01

Generation of key in cryptographic system for secure communications
NPO-13451 875-10278 09

COEFFICIENT OF FRICTION

Apparatus for measuring static coefficient of friction under compressive loads
GSFC-11893 875-10214 06

COINCIDENCE CIRCUITS

Delay-lock-loop code-correlation synchronizer
GSFC-11868 875-10291 02

COLLAPSE

Program for analysis of nonlinear equilibrium and stability (PANES)
M-FS-23172 875-10100 09

COLLIMATION

Holographic direct-vision spectroscope
LANGLEY-11750 875-10090 03

COLLIMATORS

Collimation of electron and X-ray beams using zeolite crystals
NPO-13557 875-10329 03

COLLOIDS

Developments in spectrophotometry II A multiple-frequency particle-size spectrometer
NPO-13606 875-10333 03

Developments in spectrophotometry III Multiple-field-of-view spectrometer to determine particle-size distribution and refractive index
NPO-13614 875-10335 03

COLUMNS (PROCESS ENGINEERING)

Quick-change absorption column
ARC-10952 875-10142 03

COMBUSTION CHAMBERS

Investigations of multiple jets in a crossflow
LEWIS-12102 875-10149 03

A new high temperature noble metal thermocouple pairing
LEWIS-12545 875-10245 03

COMBUSTION EFFICIENCY

Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 875-10190 06

COMBUSTION PRODUCTS

Properties of air and combustion products of fuel with air
LEWIS-12402 875-10004 03

Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 875-10190 06

COMMUNICATION SATELLITES

Multiplexing technique for computer communications via satellite channels
ARC-10879 875-10133 09

COMPARISON

Comparative performance of twenty-three types of flat plate solar energy collectors
LEWIS-12511 875-10189 03

COMPARTMENTS

Multiple-compartment venting program
MSC-19428 875-10234 06

COMPASS**(PROGRAMMING LANGUAGE)**

Executive computer program for linking independent computer programs
ODINEX

LANGLEY-11324 875-10194 09

COMPENSATORS

Torque control system
GSFC-11077 875-10085 06

COMPILERS

Improved general-purpose namelist processor
LANGLEY-11834 875-10263 09

COMPOSITE MATERIALS

Fabrication of composite fan blades using PMR A-type polyimide resin and graphite fiber reinforcement
LEWIS-12366 875-10066 04

Tailor making high performance graphite fiber reinforced PMR polyimides
LEWIS-12416 875-10137 04

- Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications
LEWIS-12514 B75-10151 06
Process for preparing polyimide adhesives
LANGLEY-11397 B75-10257 08
Lightweight orthotic braces
LANGLEY-11894 B75-10303 05
- COMPRESSED AIR**
Removal of ice and marine growth from ship surfaces A concept
NPO-13658 B75-10282 06
- COMPRESSIBLE FLOW**
Compressible flow computer program for gas film seals
LEWIS-12286 B75-10020 09
Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03
- COMPRESSION LOADS**
Apparatus for measuring static coefficient of friction under compressive loads
GSFC-11893 B75-10214 06
- COMPRESSION TESTS**
Biaxial compression test technique
MSC-14883 B75-10319 08
- COMPRESSOR BLADES**
Computer program for definition of transonic axial-flow compressor blade rows
LEWIS-12325 B75-10021 09
Tailor making high performance graphite fiber reinforced PMR polyimides
LEWIS-12416 B75-10137 04
Design procedure for low-drag subsonic airfoils
LANGLEY-11351 B75-10256 03
- COMPUTER COMPONENTS**
Interface control scheme for computer high-speed interface unit
M-FS-23083 B75-10036 01
Optical-noise suppression unit A concept
MSC-12640 B75-10315 03
- COMPUTER DESIGN**
Central control element expands computer capability
M-FS-23216 B75-10103 02
Fast Fourier transformation computer using fast counters
NPO-13110 B75-10175 02
Programed asynchronous serial data interrogation in a two-computer system
GSFC-11778 B75-10184 02
Real-time video correlator
M-FS-23200 B75-10265 02
Reliability computation from reliability block diagrams
NPO-13304 B75-10276 07
Computer/computer interface
NPO-13428 B75-10326 02
- COMPUTER GRAPHICS**
Interactive graphical computer-aided design system
M-FS-23157 B75-10096 01
Simple computer method provides contours for radiological images
ARC-10940 B75-10146 09
Trimetric scale for drafting machines
MSC-15829 B75-10172 09
Small interactive image processing system (SMIPS)
GSFC-12079 B75-10295 09
- COMPUTER PROGRAMMING**
Extensive set of macros for structured programming in OS/360 assembly language (STRCMACS)
GSFC-11938 B75-10033 09
- COMPUTER PROGRAMS**
View factor computer program (VIEW)
GSFC-11910 B75-10032 09
Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 B75-10093 09
Computer program for numerical analysis of stiffened shells of revolution
M-FS-23027 B75-10094 09
Program for analysis of nonlinear equilibrium and stability (PANES)
M-FS-23172 B75-10100 09
Computer program for analysis of vectorcardiograms (VECTAN II)
MSC-14386 B75-10106 09
Computer modeling of arc drivers
ARC-10955 B75-10130 09
RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity
LEWIS-12388 B75-10186 09
Computer program for calculating water and steam properties
LEWIS-12519 B75-10187 09
Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09
Executive computer program for linking independent computer programs ODINEX
LANGLEY-11324 B75-10194 09
Handbook for estimating toxic fuel hazards
M-FS-21114 B75-10198 04
Marshall vehicle-engineering simulation system (MARVES)
M-FS-21701 B75-10199 06
Automated statistical analysis program (ASAP)
LANGLEY-11125 B75-10217 02
Chemical equilibrium of ablation materials including condensed species
LANGLEY-11801 B75-10225 04
Multiple-compartment venting program
MSC-19428 B75-10234 06
Table-lookup algorithm for pattern recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03
Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09
Improved axisymmetric potential flow computer program
LEWIS-12387 B75-10243 09
Optical design computer program LENS II
GSFC-11951 B75-10250 03
Computer integration of hydrodynamics equations for heat pipes
GSFC-12009 B75-10252 09
Reliability computation from reliability block diagrams
NPO-13304 B75-10276 07
Computer system for library access
GSFC-11952 B75-10292 09
General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09
Static aeroelastic program
LANGLEY-11602 B75-10298 06
- The Langley Research Center
NASA/PERT TIME III
LANGLEY-11887 B75-10302 09
- COMPUTER STORAGE DEVICES**
One-dimensional multimode and multistate oscillator A concept
HQ-10851 B75-10088 01
Page composer to translate binary electrical data to optical form
M-FS-22589 B75-10161 02
Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01
Low-loss stripe-line coil for magnetic bubble memory
LANGLEY-11707 B75-10196 01
Bubble-domain circuit wafer evaluation coil set
LANGLEY-11728 B75-10197 01
- COMPUTER SYSTEMS PROGRAMS**
Interactive graphical computer-aided design system
M-FS-23157 B75-10096 01
Remote file inquiry (RFI) system
KSC-10837 B75-10155 09
Programed asynchronous serial data interrogation in a two-computer system
GSFC-11778 B75-10184 02
Improved general-purpose namelist processor
LANGLEY-11834 B75-10263 09
Small interactive image processing system (SMIPS)
GSFC-12079 B75-10295 09
- COMPUTERIZED DESIGN**
Interactive graphical computer-aided design system
M-FS-23157 B75-10096 01
Trimetric scale for drafting machines
MSC-15829 B75-10172 09
Improved axisymmetric potential flow computer program
LEWIS-12387 B75-10243 09
Computer integration of hydrodynamics equations for heat pipes
GSFC-12009 B75-10252 09
General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09
- COMPUTERIZED SIMULATION**
Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09
- COMPUTERS**
Multiplexing technique for computer communications via satellite channels
ARC-10879 B75-10133 09
- CONCENTRATION (COMPOSITION)**
Laser-excited fluorescence for measuring atmospheric pollution
NPO-13231 B75-10275 02
- CONCENTRATORS**
Economical solar-heating or cooling system with new solar-energy concentrators
NPO-13497 B75-10182 03
- CONDUCTIVE HEAT TRANSFER**
Compact laser through improved heat conductance
NPO-13147 B75-10176 03
- CONDUCTIVITY METERS**
Nondestructive measurement of capillary tube internal diameter
LANGLEY-11647 B75-10156 02

CONDUCTORS

Stripe-line coil for magnetic-field generation in bubble memory devices
 LANGLEY-11705 B75-10195 01

CONFIDENCE LIMITS

Amplifying ribbon extensometer
 LANGLEY-11825 B75-10300 06

CONNECTORS

Fluorescent color coding of power receptacles
 MSC-19504 B75-10109 01
 Increasing terminal strip efficiency at cryogenic temperatures
 M-FS-23234 B75-10266 03

CONSTRUCTION

Solar power roof shingle
 LEWIS-12587 B75-10289 01
 Low-cost hot-air solar collector
 M-FS-23272 B75-10301 08

CONTACT LENSES

Contact-eutectic-lens fabrication technique
 M-FS-23275 B75-10308 04

CONTACT RESISTANCE

Improved photovoltaic devices using transparent contacts
 LANGLEY-11761 B75-10220 01

CONTAMINATION

Continuous detection of viable micro-organisms by chemiluminescence
 MSC-10170 B75-10170 05

CONTINUOUS WAVE LASERS

High-power CW laser using hydrogen-fluorine reaction
 NPO-13623 B75-10183 03
 Formation of internally-confined semiconductor lasers
 LANGLEY-11770 B75-10299 08

CONTOURS

Simple computer method provides contours for radiological images
 ARC-10940 B75-10146 09

CONTROL UNITS (COMPUTERS)

Interface control scheme for computer high-speed interface unit
 M-FS-23083 B75-10036 01
 Buffer control unit for computer communications
 ARC-10870 B75-10059 02

CONTROL VALVES

Reducing flow requirements of fluid actuators
 LANGLEY-11540 B75-10258 06

CONTROLLED ATMOSPHERES

Ultrastructural alteration of mouse lung by prolonged exposure to mixtures of helium and oxygen
 ARC-10929 B75-10061 05
 Oxygen cocoon for patients under intensive care
 MSC-12663 B75-10079 05

CONVECTION

Single crystals of metal solid solutions A study
 M-FS-23268 B75-10268 03

CONVECTIVE HEAT TRANSFER

Regenerative cooling design and analysis computer program
 LEWIS-12110 B75-10015 09
 Electrical gas heater with large flow range capability
 LEWIS-12361 B75-10024 03

CONVERTERS

Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
 HQ-10844 B75-10087 03

COOLING

Investigations of multiple jets in a crossflow
 LEWIS-12102 B75-10149 03
 Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
 LEWIS-12445 B75-10152 02
 Compact laser through improved heat conductance
 NPO-13147 B75-10176 03

COOLING SYSTEMS

A method for measuring cooling air flow in base coolant passages of rotating turbine blades
 LEWIS-12433 B75-10017 03
 Low-noise K(u)-band receiver input system
 NPO-13645 B75-10281 02

COORDINATION

Executive computer program for linking independent computer programs
 ODINEX
 LANGLEY-11324 B75-10194 09

COPOLYMERS

Liquid ethylene-propylene copolymers
 NPO-13555 B75-10207 04

COPPER

Survey of coatings for solar collectors
 LEWIS-12510 B75-10067 04
 Fabrication of porous plugs for control of liquid helium
 M-FS-23218 B75-10163 04

COPPER CHLORIDES

Double-discharge copper-vapor laser
 NPO-13348 B75-10123 03

CORE STORAGE

Open coil structure for bubble-memory-device packaging
 LANGLEY-11704 B75-10219 01
 Variable-gap bias structure for magnetic bubble memory package
 LANGLEY-11765 B75-10221 01
 A 1-1/2-level on-chip-decoding bubble memory chip design
 LANGLEY-11766 B75-10222 01

CORRELATION DETECTION

Multichannel high-speed correlator
 NPO-13097 B75-10323 02

CORROSION RESISTANCE

A superior process for forming titanium hydrogen isotopic films
 LEWIS-12083 B75-10001 03
 Silicon nitride used as a rolling-element bearing material
 LEWIS-12447 B75-10134 06

COST ANALYSIS

The Langley Research Center NASA/PERT TIME III
 LANGLEY-11887 B75-10302 09

COUNTERS

Fill-in binary loop pulse-torque quantizer
 M-FS-23100 B75-10037 02
 Techniques for decoding speech phonemes and sounds A concept
 GSFC-11898 B75-10086 02
 Fast Fourier transformation computer using fast counters
 NPO-13110 B75-10175 02
 Position sensing materials wound on a reel
 GSFC-11902 B75-10249 07
 Start/stop switches for testing detonation velocity of explosives
 KSC-10793 B75-10255 01

COUPLERS

Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
 HQ-10844 B75-10087 03

COVALENT BONDS

Covalent bonding of polycations to small polymeric particles
 NPO-13487 B75-10327 04

COVERINGS

Comparative performance of twenty-three types of flat plate solar energy collectors
 LEWIS-12511 B75-10189 03

COWLINGS

Tailor making high performance graphite fiber reinforced PMR polyimides
 LEWIS-12416 B75-10137 04

CRACKING (FRACTURING)

Fracture toughness testing data A technology survey and bibliography
 LEWIS-12503 B75-10139 03

CREEP RUPTURE STRENGTH

Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
 LEWIS-12562 B75-10246 04

CREEP STRENGTH

High strength forgeable tantalum base alloy
 LEWIS-11386 B75-10023 04

CRITERIA

Design criteria monograph on turbopump systems
 LEWIS-12499 B75-10135 06

CROSS FLOW

Investigations of multiple jets in a crossflow
 LEWIS-12102 B75-10149 03

CRYOGENIC EQUIPMENT

Cryogenic line insulation made from prefabricated polyurethane shells
 MSC-19523 B75-10110 06
 Fabrication of porous plugs for control of liquid helium
 M-FS-23218 B75-10163 04
 A two-degree Kelvin refrigerator
 NPO-13459 B75-10181 03

CRYOGENIC FLUID STORAGE

Increasing terminal strip efficiency at cryogenic temperatures
 M-FS-23234 B75-10266 03
 Suspension system for lightweight cryogenic tank
 MSC-14080 B75-10270 06

CRYOGENIC FLUIDS

Heat-operated cryogenic electrical generator
 NPO-13303 B75-10116 03
 Computer program for calculating thermodynamic and transport properties of fluids
 LEWIS-12520 B75-10188 09

CRYSTAL GROWTH

Single crystals of metal solid solutions A study
 M-FS-23268 B75-10268 03

CRYSTAL OSCILLATORS

Continuous-phase frequency-shift-keyed generator
 LANGLEY-11638 B75-10218 02
 Temperature-stable Gunn-diode oscillator
 M-FS-23242 B75-10306 01

CRYSTALLOGRAPHY

- Chemical-ionization visible and ultraviolet gas lasers A concept
 NPO-13289 B75-10115 03
Single crystals of metal solid solutions
 A study
 M-FS-23268 B75-10268 03

CRYSTALS

- Collimation of electron and X-ray beams using zeolite crystals
 NPO-13557 B75-10329 03

CULTURE TECHNIQUES

- lonene treatment of surfaces stimulates cell growth
 NPO-13421 B75-10121 04
Microbial load monitor
 MSC-14062 B75-10167 05
 Continuous detection of viable micro-organisms by chemiluminescence
 MSC-10170 B75-10170 05
Rapid method for determination of antimicrobial susceptibilities pattern of urinary bacteria
 GSFC-12039 B75-10253 05

CURING

- Curable polyphosphazenes
 M-FS-23134 B75-10038 04
 Diamine curing agents for polyurethanes
 LANGLEY-11829 B75-10261 08

CURRENT AMPLIFIERS

- New broadband square-law detector
 NPO-13410 B75-10180 02

CUSHIONS

- The impact of water on free-falling bodies
 M-FS-23310 B75-10311 03

CUTTERS

- Foam-machining tool with eddy-current transducer
 M-FS-23298 B75-10309 08

CYCLIC LOADS

- RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity
 LEWIS-12388 B75-10186 09

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DAMAGE

- Repair of damaged insulation tiles
 MSC-19549 B75-10321 04

DAMPING

- New design of hingeless helicopter rotor improves stability
 ARC-10807 B75-10132 06
 Two-directional active damper
 LANGLEY-11815 B75-10259 06

DATA ACQUISITION

- Automated data acquisition and reduction system for torsional braid analyzer
 LANGLEY-11578 B75-10073 02

DATA CONVERTERS

- Page composer to translate binary electrical data to optical form
 M-FS-22589 B75-10161 02

DATA CORRELATION

- Method of identifying clusters representing statistical dependencies in multivariate data
 ARC-10744 B75-10140 09

- Executive computer program for linking independent computer programs
 ODINEX
 LANGLEY-11324 B75-10194 09

- Real-time video correlator*
 M-FS-23200 B75-10265 02
 Sound separation probe
 LEWIS-12507 B75-10286 03
 Minimization search method for data inversion
 NPO-99999 B75-10338 09

DATA PROCESSING

- Determination of bone mineral mass in vivo
 MSC-14276 B75-10168 05
 Fast Fourier transformation computer using fast counters
 NPO-13110 B75-10175 02
 Automated mass spectrometer/analysis system A concept
 NPO-13572 B75-10331 05

DATA PROCESSING EQUIPMENT

- A hybrid general-purpose bit synchronizer
 MSC-14330 B75-10169 02
 Computer/computer interface
 NPO-13428 B75-10326 02

DATA RECORDERS

- Continuous detection of viable micro-organisms by chemiluminescence
 MSC-10170 B75-10170 05

DATA RECORDING

- Digital tape drive monitor
 GSFC-11925 B75-10153 02
 Read-only optical storage medium
 M-FS-23169 B75-10305 03
 Fast semiautomatic dimensional test set and data logger
 MSC-19554 B75-10322 07

DATA REDUCTION

- Automated data acquisition and reduction system for torsional braid analyzer
 LANGLEY-11578 B75-10073 02
 Automated electronic system for measuring thermophysical properties
 LANGLEY-11883 B75-10160 03

DATA RETRIEVAL

- Remote file inquiry (RFI) system
 KSC-10837 B75-10155 09

DATA SAMPLING

- Computer/computer interface
 NPO-13428 B75-10326 02

DATA STORAGE

- Open coil structure for bubble-memory-device packaging
 LANGLEY-11704 B75-10219 01
 Variable-gap bias structure for magnetic bubble memory package
 LANGLEY-11765 B75-10221 01
 A 1-1/2-level on-chip-decoding bubble memory chip design
 LANGLEY-11766 B75-10222 01
 Read-only optical storage medium
 M-FS-23169 B75-10305 03

DATA SYSTEMS

- Interface control scheme for computer high-speed interface unit
 M-FS-23083 B75-10036 01
 Automated electronic system for measuring thermophysical properties
 LANGLEY-11883 B75-10160 03
 Microbial load monitor
 MSC-14062 B75-10167 05
 A 1-1/2-level on-chip-decoding bubble memory chip design
 LANGLEY-11766 B75-10222 01

- Multispectral data analysis LARSYS III
 MSC-14823 B75-10235 03

DATA TRANSMISSION

- Buffer control unit for computer communications
 ARC-10870 B75-10059 02
 High-speed data word monitor
 ARC-10899 B75-10129 02
 System for simultaneous bidirectional data transmission
 MSC-14810 B75-10171 01
 Generation of key in cryptographic system for secure communications
 NPO-13451 B75-10278 09
 Synchronizer for random binary data
 NPO-13286 B75-10325 02
 Computer/computer interface
 NPO-13428 B75-10326 02

DECISION MAKING

- Safety management of a complex R&D ground operating system
 LEWIS-12559 B75-10241 07

DECODERS

- One-dimensional multimode and multistate oscillator A concept
 HQ-10851 B75-10088 01
 A 1-1/2-level on-chip-decoding bubble memory chip design
 LANGLEY-11766 B75-10222 01

DECODING

- Techniques for decoding speech phonemes and sounds A concept
 GSFC-11898 B75-10086 02
 A hybrid general-purpose bit synchronizer
 MSC-14330 B75-10169 02

DECOMMUTATORS

- Three-phase dc motor decoder
 GSFC-11824 B75-10247 02

DECONTAMINATION

- Diffusion pump modification promotes self-cleansing and high efficiency
 LEWIS-12323 B75-10065 06

DEHYDRATED FOOD

- Determination of water content using mass spectrometry
 LANGLEY-11774 B75-10157 04
 Control of nonenzymatic browning in intermediate-moisture foods
 MSC-14835 B75-10317 05

DEICERS

- Removal of ice and marine growth from ship surfaces A concept
 NPO-13658 B75-10282 06

DELTA FUNCTION

- Dynamic delta method for trace gas analysis
 LANGLEY-11800 B75-10159 04

DELTA MODULATION

- Fill-in binary loop pulse-torque quantizer
 M-FS-23100 B75-10037 02

DEMODULATION

- A hybrid general-purpose bit synchronizer
 MSC-14330 B75-10169 02

DEPOLYMERIZATION

- Dielectric films improve life of polymeric insulators
 ARC-10892 B75-10084 04

DEPOSITION

- Improved multiple-target sputtering equipment
 NPO-13345 B75-10178 04

- DESCALING**
Removal of ice and marine growth from ship surfaces A concept
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- DESTRUCTIVE TESTS**
Biaxial compression test technique
MSC-14883 B75-10319 08
- DETECTION**
Infrared tunable laser A concept
ARC-10463 B75-10081 03
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MSC-14062 B75-10167 05
Continuous detection of viable micro-organisms by chemiluminescence
MSC-10170 B75-10170 05
- DETONATION**
Start/stop switches for testing detonation velocity of explosives
KSC-10793 B75-10255 01
- DIAGRAMS**
Reliability computation from reliability block diagrams
NPO-13304 B75-10276 07
- DIALYSIS**
Improved ion exchange membrane
NPO-13309 B75-10117 04
New urea-absorbing polymers for artificial kidney machines
NPO-13620 B75-10336 04
- DIAMETERS**
Nondestructive measurement of capillary tube internal diameter
LANGLEY-11647 B75-10156 02
- DIAMINES**
Diamine curing agents for polyurethanes
LANGLEY-11829 B75-10261 08
- Dielectric Properties**
Dielectric films improve life of polymeric insulators
ARC-10892 B75-10084 04
- DIELECTRICS**
Measurement of trap density in dielectric film
NPO-13443 B75-10204 02
- DIFFERENTIAL EQUATIONS**
Marshall vehicle-engineering simulation system (MARVES)
M-FS-21701 B75-10199 06
A study of accuracy in selected numerical-analysis integration techniques
MSC-14802 B75-10273 09
- DIFFUSION PUMPS**
Diffusion pump modification promotes self-cleansing and high efficiency
LEWIS-12323 B75-10065 06
- DIGITAL COMPUTERS**
Digital tape drive monitor
GSFC-11925 B75-10153 02
Improved general-purpose namelist processor
LANGLEY-11834 B75-10263 09
Generation of key in cryptographic system for secure communications
NPO-13451 B75-10278 09
- DIGITAL DATA**
High-speed data word monitor
ARC-10899 B75-10129 02
Position sensing materials wound on a reel
GSFC-11902 B75-10249 07
Simple temperature sensor with direct readout
LANGLEY-11818 B75-10260 01
- DIGITAL SIMULATION**
Computer modeling of arc drivers
ARC-10955 B75-10130 09
- Marshall vehicle-engineering simulation system (MARVES)
M-FS-21701 B75-10199 06
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Page composer to translate binary electrical data to optical form
M-FS-22589 B75-10161 02
- DIGITAL TECHNIQUES**
Simple computer method provides contours for radiological images
ARC-10940 B75-10146 09
Small interactive image processing system (SMIPS)
GSFC-12079 B75-10295 09
- DIMENSIONAL MEASUREMENT**
Nondestructive measurement of capillary tube internal diameter
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- DIODES**
High-performance Schottky diodes endure high temperatures
M-FS-23184 B75-10101 01
Microwave diode amplifiers with low intermodulation distortion
GSFC-11668 B75-10213 01
Simple temperature sensor with direct readout
LANGLEY-11818 B75-10260 01
Temperature-stable Gunn-diode oscillator
M-FS-23242 B75-10306 01
- DIRECT CURRENT**
High-power ac/dc variable load simulator
MSC-14788 B75-10108 02
Solid state remote power controllers for 120 Vdc power systems
LEWIS-12523 B75-10150 02
High-voltage stepping supply with fast settling time
GSFC-11844 B75-10191 02
Three-phase dc motor decoder
GSFC-11824 B75-10247 02
- DIRECTIONAL ANTENNAS**
High-efficiency K-band tracking antenna feed
MSC-14717 B75-10107 02
Highly-efficient horn/reflector antenna
NPO-13568 B75-10330 01
- DISPERSING**
Miniature sonar fish tag
LANGLEY-11814 B75-10092 02
- DISPERSIONS**
Airfoil disperses smokestack effluents upward
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- DISPLAY DEVICES**
High-speed data word monitor
ARC-10899 B75-10129 02
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M-FS-23200 B75-10265 02
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GSFC-12079 B75-10295 09
- DISTORTION**
Dichromated-gelatin hologram process for improved optical quality
M-FS-23170 B75-10099 03
- DIVING (UNDERWATER)**
Analytic model for assessing thermal performance of SCUBA divers
ARC-10927 B75-10029 09
- DRAFTING (DRAWING)**
Three-dimensional models aid visualization of engineering drawings
NPO-13394 B75-10179 08
- DRAFTING MACHINES**
Trimetric scale for drafting machines
MSC-15829 B75-10172 09
- DRAG**
Static aeroelastic program
LANGLEY-11602 B75-10298 06
- DRAG REDUCTION**
Design procedure for low-drag subsonic airfoils
LANGLEY-11351 B75-10256 03
- DROSOPHILA**
Acceleration of the aging process by oxygen
ARC-10928 B75-10030 05
- DRUGS**
Improved extraction technique for biological fluids
NPO-13084 B75-10045 05
- DUCTED FANS**
Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09
- DUCTS**
Lightweight ducts fabricated from reinforced plastics and elastomers
MSC-19482 B75-10173 06
- DYE LASERS**
Infrared tunable laser A concept
ARC-10463 B75-10081 03
- DYNAMIC LOADS**
High-power ac/dc variable load simulator
MSC-14788 B75-10108 02
- DYNAMIC PROGRAMMING**
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M-FS-21701 B75-10199 06
- DYNAMIC STABILITY**
Two-directional active damper
LANGLEY-11815 B75-10259 06
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LANGLEY-11602 B75-10298 06
- DYNAMIC STRUCTURAL ANALYSIS**
Calculation procedure for transient heat transfer to a cooled plate in a heated stream whose temperature varies arbitrarily with time
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- EARPHONES**
Portable headset microphone checker
KSC-10699 B75-10254 02
- EARTH ATMOSPHERE**
Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 B75-10093 09
- EARTH RESOURCES**
Data processing large quantities of multispectral information
MSC-14472 B75-10080 03
- EDDY CURRENTS**
In-service turbine wheel crack monitor
LEWIS-12422 B75-10012 02
Foam-machining tool with eddy-current transducer
M-FS-23298 B75-10309 08
- EFFLUENTS**
Airfoil disperses smokestack effluents upward
LANGLEY-11669 B75-10074 06
Processing for obtaining good quality water from sewage
NPO-13224 B75-10113 04

ELASTOMERS

Lightweight ducts fabricated from reinforced plastics and elastomers
 MSC-19482 B75-10173 06
 Dip molding to form intricately-shaped medical elastomer devices
 NPO-13535 B75-10238 08

ELECTRIC BATTERIES

Machine for fabrication of battery-electrode plaques
 GSFC-12004 B75-10216 08
 100-ampere-hour NiCd battery system
 MSC-14774 B75-10233 01
 Acid/alkali bromide secondary battery
 NPO-13237 B75-10324 01

ELECTRIC CONNECTORS

Flammability study of materials in oxygen environments
 M-FS-23306 B75-10310 04

ELECTRIC CONTACTS

Improved photovoltaic devices using transparent contacts
 LANGLEY-11761 B75-10220 01

ELECTRIC CORONA

Dielectric films improve life of polymeric insulators
 ARC-10892 B75-10084 04

ELECTRIC DISCHARGES

Computer modeling of arc drivers
 ARC-10955 B75-10130 09

ELECTRIC ENERGY STORAGE

Wind energy utilization A bibliography
 LEWIS-12518 B75-10136 02
 An experimental 100 kilowatt wind turbine generator
 LEWIS-12509 B75-10147 03

ELECTRIC EQUIPMENT TESTS

A test and measurement technique for determining possible lightning-induced voltages in aircraft electrical circuits
 LEWIS-12109 B75-10068 02

ELECTRIC FIELD STRENGTH

Monitor for checking electric-field meters
 KSC-10851 B75-10296 02

ELECTRIC GENERATORS

Large-scale solar thermal collector concepts
 M-FS-23167 B75-10098 03
 Heat-operated cryogenic electrical generator
 NPO-13303 B75-10116 03
 Zener-regulated solar array/battery power system
 M-FS-23195 B75-10162 02
 Solar power roof shingle
 LEWIS-12587 B75-10289 01
 Low-Cost thin-layer silicon solar cells
 GSFC-12023 B75-10293 04
 Using permeable membranes to produce hydrogen and oxygen from water
 MSC-12600 B75-10314 04

ELECTRIC MOTORS

Motor-driven rack-positioning device
 ARC-10864 B75-10058 06
 Three-phase dc motor decoder
 GSFC-11824 B75-10247 02
 Solid-state motor control and monitor system
 MSC-12721 B75-10316 02

ELECTRIC POWER TRANSMISSION

High-power ac/dc variable load simulator
 MSC-14788 B75-10108 02
 Laser-to-electricity energy converter for short wavelengths
 NPO-13390 B75-10119 03

Solid state remote power controllers for 120 Vdc power systems
 LEWIS-12523 B75-10150 02

Voltage monitoring system
 KSC-10736 B75-10154 02

High-voltage stepping supply with fast settling time
 GSFC-11844 B75-10191 02

Trigger circuit forces immediate synchronization of free-running oscillator
 NPO-13646 B75-10337 01

ELECTRIC RELAYS

Solid-state motor control and monitor system
 MSC-12721 B75-10316 02

ELECTRIC TERMINALS

Increasing terminal strip efficiency at cryogenic temperatures
 M-FS-23234 B75-10266 03

ELECTRIC WIRE

Fluorescent color coding of power receptacles
 MSC-19504 B75-10109 01

ELECTRICAL INSULATION

Increasing terminal strip efficiency at cryogenic temperatures
 M-FS-23234 B75-10266 03

ELECTRICAL MEASUREMENT

Microelectronic fabrication of superconducting devices and circuits
 NPO-13419 B75-10120 01
 Nondestructive measurement of capillary tube internal diameter
 LANGLEY-11647 B75-10156 02

ELECTRO-OPTICS

Wide-field birefringent elements
 MSC-12677 B75-10105 03
 Optical feedback technique extends frequency response of photoconductors
 LANGLEY-11768 B75-10223 03

Electro-optical detector to improve sensitivity of a focal-plane mass spectrometer
 NPO-13524 B75-10328 03

Automated mass spectrometer/analysis system A concept
 NPO-13572 B75-10331 05

ELECTROCARDIOGRAPHY

Computer program for analysis of vectorcardiograms (VECTAN II)
 MSC-14386 B75-10106 09
 Electrocardiogram signal analyzer
 MSC-12710 B75-10269 05

ELECTROCHEMISTRY

Acid/alkali bromide secondary battery
 NPO-13237 B75-10324 01

ELECTRODES

Trielectrode capacitive pressure transducer
 ARC-10711 B75-10025 01

Machine for fabrication of battery-electrode plaques
 GSFC-12004 B75-10216 08

ELECTROLYTIC CELLS

100-ampere-hour NiCd battery system
 MSC-14774 B75-10233 01

ELECTROMAGNETIC MEASUREMENT

Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
 LEWIS-12445 B75-10152 02

ELECTROMAGNETIC PUMPS

Implantable prosthetic pump boosts blood pressure A concept
 NPO-13626 B75-10177 05

ELECTROMAGNETIC SCATTERING

Reflecting heat shields made of microstructured fused silica
 ARC-10949 B75-10144 04

ELECTROMAGNETIC SHIELDING

Low-noise K(u)-band receiver input system
 NPO-13645 B75-10281 02

ELECTROMAGNETS

Single radial magnetic bearing A concept
 GSFC-11978 B75-10251 06
 Two-directional active damper
 LANGLEY-11815 B75-10259 06

ELECTRON BEAMS

Collimation of electron and X-ray beams using zeolite crystals
 NPO-13557 B75-10329 03

ELECTRON MICROSCOPES

Scanning-electron-microscope used in real-time study of friction and wear
 LEWIS-12448 B75-10064 06
 Microcircuit testing and fabrication using scanning electron microscopes
 M-FS-23159 B75-10304 01

ELECTRON OPTICS

Soft X-ray lasers using distributed-feedback reflection A concept
 NPO-13532 B75-10239 03

ELECTRONIC EQUIPMENT

Shock and vibration isolation mount for small electronic components
 NPO-13253 B75-10049 01

ELECTRONIC EQUIPMENT TESTS

JPL transient radiation analysis by computer program (JTRAC)
 NPO-13470 B75-10053 09
 Portable headset microphone checker
 KSC-10699 B75-10254 02
 Monitor for checking electric-field meters
 KSC-10851 B75-10296 02

ELECTRONIC PACKAGING

Open coil structure for bubble-memory-device packaging
 LANGLEY-11704 B75-10219 01
 Variable-gap bias structure for magnetic bubble memory package
 LANGLEY-11765 B75-10221 01

ELECTROPLATING

Survey of coatings for solar collectors
 LEWIS-12510 B75-10067 04
 Induction heating simplifies metal evaporation for ion plating
 LEWIS-12595 B75-10288 03

ELLIPSOMETERS

Ellipsometer measurements of epitaxial GaAs layers A concept
 M-FS-23238 B75-10230 01

ENAMELS

Survey of coatings for solar collectors
 LEWIS-12510 B75-10067 04

ENERGY CONVERSION

Zener-regulated solar array/battery power system
 M-FS-23195 B75-10162 02

ENERGY CONVERSION EFFICIENCY

Comparative performance of twenty-three types of flat plate solar energy collectors
 LEWIS-12511 B75-10189 03

ENERGY SOURCES

Heat-operated cryogenic electrical generator
 NPO-13303 B75-10116 03

ENERGY STORAGE

Solar residential heating and cooling system
M-FS-23260 B75-10165 06

ENERGY TECHNOLOGY

Wind energy utilization A bibliography
LEWIS-12518 B75-10136 02
An experimental 100 kilowatt wind turbine generator
LEWIS-12509 B75-10147 03

ENGINE CONTROL

Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications
LEWIS-12514 B75-10151 06
Solid-state motor control and monitor system
MSC-12721 B75-10316 02

ENGINE DESIGN

Design criteria monograph on axial flow turbines
LEWIS-12376 B75-10009 06
Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 B75-10190 06
A new high temperature noble metal thermocouple pairing
LEWIS-12545 B75-10245 03
Reducing flow requirements of fluid actuators
LANGLEY-11540 B75-10258 06
Improved aircraft reaction nozzles
ARC-10906 B75-10284 06

ENGINE NOISE

Prediction of aircraft noise source and estimation of noise-level contours
ARC-10880 B75-10060 09

ENGINES

Simplified heat engine
NPO-13613 B75-10334 07

EPITAXY

Ellipsometer measurements of epitaxial GaAs layers A concept
M-FS-23238 B75-10230 01

EPOXY RESINS

Fabrication and repair of graphite/epoxy laminates
M-FS-23228 B75-10164 08
Lightweight ducts fabricated from reinforced plastics and elastomers
MSC-19482 B75-10173 06

EQUATIONS

Calculation procedure for transient heat transfer to a cooled plate in a heated stream whose temperature varies arbitrarily with time
LEWIS-12558 B75-10244 03

EREP

Viewfinder/tracking system for Skylab
MSC-14407 B75-10040 03

ERROR DETECTION CODES

Improved general-purpose namelist processor
LANGLEY-11834 B75-10263 09

ETCHING

Sputtered gold mask for deep chemical etching of silicon
LANGLEY-11661 B75-10089 08
Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01
Low-loss stripe-line coil for magnetic bubble memory
LANGLEY-11707 B75-10196 01

ETHYLENE

Liquid ethylene-propylene copolymers
NPO-13555 B75-10207 04

EUTECTIC ALLOYS

Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04

EUTECTICS

Contact-eutectic-lens fabrication technique
M-FS-23275 B75-10308 04

EVALUATION

Design criteria monograph on turbopump systems
LEWIS-12499 B75-10135 06
Comparative performance of twenty-three types of flat plate solar energy collectors
LEWIS-12511 B75-10189 03
Bubble-domain circuit wafer evaluation coil set
LANGLEY-11728 B75-10197 01
A new high temperature noble metal thermocouple pairing
LEWIS-12545 B75-10245 03

Optical design computer program LENS II

GSFC-11951 B75-10250 03
Industrial laser welding An evaluation
M-FS-23237 B75-10267 08
Single crystals of metal solid solutions

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M-FS-23268 B75-10268 03

Influence of heat treatment on mechanical properties of 300M steel
MSC-14792 B75-10271 04

Amplifying ribbon extensometer
LANGLEY-11825 B75-10300 06

Quality control of microelectronic wire bonds
M-FS-23327 B75-10312 01

EVAPORATION

Induction heating simplifies metal evaporation for ion plating
LEWIS-12595 B75-10288 03

EVAPORATION RATE

Diffusion pump modification promotes self-cleansing and high efficiency
LEWIS-12323 B75-10065 06

EVAPORATIVE COOLING

A two-degree Kelvin refrigerator
NPO-13459 B75-10181 03

EXHAUST GASES

Minimization of jet and core noise by rotation of flow
ARC-10712 B75-10131 06

Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 B75-10190 06

Handbook for estimating toxic fuel hazards
M-FS-21114 B75-10198 04

Laser-excited fluorescence for measuring atmospheric pollution
NPO-13231 B75-10275 02

EXHAUST SYSTEMS

Airfoil disperses smokestack effluents upward
LANGLEY-11669 B75-10074 06

Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09

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Powered fire nozzle for fast penetration of structures A concept
MSC-19528 B75-10111 06

EXPLOSIVES

Risk management technique for liquefied natural gas facilities
KSC-11005 B75-10193 04
Start/stop switches for testing detonation velocity of explosives
KSC-10793 B75-10255 01

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Amplifying ribbon extensometer
LANGLEY-11825 B75-10300 06

EXTINGUISHING

Method for evaluating effectiveness of dry fire-extinguishing chemicals
ARC-10869 B75-10027 04

EXTRACTION

Improved extraction technique for biological fluids
NPO-13084 B75-10045 05

EXTREMELY HIGH FREQUENCIES

High-efficiency K-band tracking antenna feed
MSC-14717 B75-10107 02

F**FABRICATION**

Sputtered gold mask for deep chemical etching of silicon
LANGLEY-11661 B75-10089 08

High-performance Schottky diodes endure high temperatures
M-FS-23184 B75-10101 01

Integrated-circuit balanced parametric amplifier
M-FS-23193 B75-10102 01

Tailor making high performance graphite fiber reinforced PMR polyimides
LEWIS-12416 B75-10137 04

Fabrication of porous plugs for control of liquid helium
M-FS-23218 B75-10163 04

Fabrication and repair of graphite/epoxy laminates
M-FS-23228 B75-10164 08

Lightweight ducts fabricated from reinforced plastics and elastomers
MSC-19482 B75-10173 06

Improved multiple-target sputtering equipment
NPO-13345 B75-10178 04

Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01

Low-loss stripe-line coil for magnetic bubble memory
LANGLEY-11707 B75-10196 01

Start/stop switches for testing detonation velocity of explosives
KSC-10793 B75-10255 01

Diamine curing agents for polyurethanes
LANGLEY-11829 B75-10261 08

Increasing terminal strip efficiency at cryogenic temperatures
M-FS-23234 B75-10266 03

Low-Cost thin-layer silicon solar cells
GSFC-12023 B75-10293 04

Formation of internally-confined semiconductor lasers
LANGLEY-11770 B75-10299 08

- Low-cost hot-air solar collector
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M-FS-23275 B75-10308 04
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M-FS-23306 B75-10310 04
- FAR INFRARED RADIATION**
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High-energy lasers by using distributed reflection A concept
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- FATIGUE (BIOLOGY)**
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ARC-10849 B75-10057 05
- FATIGUE LIFE**
Silicon nitride used as a rolling-element bearing material
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Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
LEWIS-12502 B75-10138 03
- FEEDBACK CIRCUITS**
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LANGLEY-11768 B75-10223 03
Single radial magnetic bearing A concept
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Design criteria monograph on transmission seals
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Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications
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A new high temperature noble metal thermocouple pairing
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Compound heat pipe operates over broad temperature range
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HIGH VOLTAGES

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Schottky barrier solar cell promises improved efficiency
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High-voltage stepping supply with fast settling time
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Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
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Optical-noise suppression unit A concept
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Low-cost portable fire hose tester
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Hand tremor and activity sensor
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Braking action of wheeled vehicles is controlled automatically during minimum-distance stops
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Using permeable membranes to produce hydrogen and oxygen from water
MSC-12600 B75-10314 04
Acid/alkali bromide secondary battery
NPO-13237 B75-10324 01

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Gas generators produce hydrogen-rich fuel
NPO-13342 B75-10203 06
Hydrogen-rich gas generators to reduce air pollution and improve gasoline economy
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A superior process for forming titanium hydrogen isotopic films
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Computer program for definition of transonic axial-flow compressor blade rows
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Compressible flow computer program for gas film seals
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IBM 7090 COMPUTER

Computer program for thermodynamic analysis of open-cycle multishaft power system
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Computer program for definition of transonic axial-flow compressor blade rows
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Computer program for thermodynamic analysis of open-cycle multishaft power system

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LEWIS-12152 B75-10018 09
Computer programs for handling propulsion system noise data

LEWIS-12285 B75-10019 09
Compressible flow computer program for gas film seals

LEWIS-12286 B75-10020 09
Computer program for definition of transonic axial-flow compressor blade rows

LEWIS-12325 B75-10021 09
RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity

LEWIS-12388 B75-10186 09
Computer program for calculating water and steam properties

LEWIS-12519 B75-10187 09
Computer program for calculating thermodynamic and transport properties of fluids

LEWIS-12520 B75-10188 09
Automated statistical analysis program (ASAP)

LANGLEY-11125 B75-10217 02
Computer program for the attenuation of high bypass turbofan engine noise

LEWIS-12179 B75-10242 09

ICE

Removal of ice and marine growth from ship surfaces A concept
NPO-13658 B75-10282 06

IDENTIFYING

Fluorescent color coding of power receptacles
MSC-19504 B75-10109 01

Microbial load monitor
MSC-14062 B75-10167 05

IMAGE CONVERTERS

Laser scanned image sensors using photoconductors with deep traps
NPO-13131 B75-10112 03

IMAGE ENHANCEMENT

Simple computer method provides contours for radiological images
ARC-10940 B75-10146 09

IMAGE FILTERS

Wide-field birefringent elements
MSC-12677 B75-10105 03

IMAGING TECHNIQUES

Coaxial, self-aligning optical scanning system
LANGLEY-11711 B75-10034 03

Data processing large quantities of multispectral information
MSC-14472 B75-10080 03

IMPACT DAMAGE

The impact of water on free-falling bodies
M-FS-23310 B75-10311 03

IMPACT LOADS

The impact of water on free-falling bodies
M-FS-23310 B75-10311 03

IMPLANTATION

Dip molding to form intricately-shaped medical elastomer devices
NPO-13535 B75-10238 08

INDUCTION HEATING

Induction heating simplifies metal evaporation for ion plating
LEWIS-12595 B75-10288 03

INDUSTRIAL SAFETY

Solid state remote power controllers for 120 Vdc power systems
LEWIS-12523 B75-10150 02

Risk management technique for liquefied natural gas facilities
KSC-11005 B75-10193 04

Handbook for estimating toxic fuel hazards
M-FS-21114 B75-10198 04

Safety management of a complex R&D ground operating system
LEWIS-12559 B75-10241 07

INFLATABLE STRUCTURES

Highly-visible air-sea rescue marker
MSC-12564 B75-10166 05

Amplifying ribbon extensometer

LANGLEY-11825 B75-10300 06

INFORMATION RETRIEVAL

Remote file inquiry (RFI) system
KSC-10837 B75-10155 09

Generation of key in cryptographic system for secure communications
NPO-13451 B75-10278 09

Computer system for library access
GSFC-11952 B75-10292 09

INFRARED DETECTORS

Automated electronic system for measuring thermophysical properties
LANGLEY-11883 B75-10160 03

INFRARED LASERS

Infrared tunable laser A concept
ARC-10463 B75-10081 03
Laser-excited fluorescence for measuring atmospheric pollution

NPO-13231 B75-10275 02

INFRARED SPECTROMETERS

Viewfinder/tracking system for Skylab
MSC-14407 B75-10040 03

Tuneable diode laser spectrometer with integral grating
LANGLEY-11830 B75-10262 03

INFRARED SPECTROSCOPY

A nondispersive infrared analyzer
ARC-10631 B75-10082 03

INJECTION LASERS

High-energy lasers by using distributed reflection A concept
NPO-13346 B75-10118 03

INLET FLOW

Computer programs for calculating potential flow in propulsion system inlets
LEWIS-12152 B75-10018 09

INSPECTION

Fast semiautomatic dimensional test set and data logger
MSC-19554 B75-10322 07

INSTALLING

Method of attaching insulation tiles
MSC-12619 B75-10104 04

INSTRUMENT COMPENSATION

A nondispersive infrared analyzer
ARC-10631 B75-10082 03

INSULATION

Thin KAPTON polyimide films vacuum formed at high temperature retain their shape at temperatures to 450 K (350 F)
LEWIS-12412 B75-10016 04

High-temperature, reusable surface insulation system
MSC-14688 B75-10042 04

INSULATORS

Dielectric films improve life of polymeric insulators
ARC-10892 B75-10084 04

INTEGRATED CIRCUITS

One-dimensional multimode and multistate oscillator A concept
HQ-10851 B75-10088 01

Solar-cell interconnects
M-FS-23257 B75-10231 04

Trigger circuit forces immediate synchronization of free-running oscillator
NPO-13646 B75-10337 01

INTERFACES

Computer/computer interface
NPO-13428 B75-10326 02

INTERFERENCE GRATING

Tuneable diode laser spectrometer with integral grating
LANGLEY-11830 B75-10262 03

INTERFEROMETERS

Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
HQ-10844 B75-10087 03

Developments in spectrophotometry I
An instrument for high-resolution measurements of optical intensity and polarization
NPO-13604 B75-10332 03

INTERFEROMETRY

Read-only optical storage medium
M-FS-23169 B75-10305 03

INTERMEDIATE FREQUENCY AMPLIFIERS

New broadband square-law detector
NPO-13410 B75-10180 02

INTERMODULATION

Microwave diode amplifiers with low intermodulation distortion
GSFC-11668 B75-10213 01

INTERNAL COMBUSTION ENGINES

Solid-state motor control and monitor system
MSC-12721 B75-10316 02

INTRAVENOUS PROCEDURES

Regulator for intravenous feeding
ARC-10758 B75-10083 05

INVERTERS

Trigger circuit forces immediate synchronization of free-running oscillator
NPO-13646 B75-10337 01

INVESTIGATION

Flammability study of materials in oxygen environments
M-FS-23306 B75-10310 04

Quality control of microelectronic wire bonds
M-FS-23327 B75-10312 01

ION CURRENTS

Study of fluid flow by charged particles
ARC-10925 B75-10028 03

ION EXCHANGE RESINS

Improved ion exchange membrane
NPO-13309 B75-10117 04

Improved polyelectrolyte for ion exchange fibers
NPO-13530 B75-10280 04

ION EXCHANGING

Improved polyelectrolyte for ion exchange fibers
NPO-13530 B75-10280 04

ION EXTRACTION

Characteristics and performance study of mass spectrometer residual gas analyzers
LEWIS-12393 B75-10185 03

ION RECOMBINATION

Induction heating simplifies metal evaporation for ion plating
LEWIS-12595 B75-10288 03

IONIC REACTIONS

Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 B75-10115 03

IRRADIANCE

Uniform high irradiance source
LEWIS-12360 B75-10008 03

ISOCYANATES

Diamine curing agents for polyurethanes
LANGLEY-11829 B75-10261 08

J**JET AIRCRAFT NOISE**

Computer programs for handling propulsion system noise data
LEWIS-12285 B75-10019 09

Sound separation probe
LEWIS-12507 B75-10286 03

JET ENGINE FUELS

Properties of air and combustion products of fuel with air
LEWIS-12402 B75-10004 03

JET ENGINES

Minimization of jet and core noise by rotation of flow
ARC-10712 B75-10131 06

Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04

Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04

JET FLOW

Improved aircraft reaction nozzles
ARC-10906 B75-10284 06

JET MIXING FLOW

Investigations of multiple jets in a crossflow
LEWIS-12102 B75-10149 03

JET PROPULSION

Turbine design review text
LEWIS-12560 B75-10287 06

JET THRUST

Improved aircraft reaction nozzles
ARC-10906 B75-10284 06

JET VANES

Tailor making high performance graphite fiber reinforced PMR polyimides
LEWIS-12416 B75-10137 04

JOINING

Solar-cell interconnects
M-FS-23257 B75-10231 04

JOINTS (ANATOMY)

Hip-joint simulator accurately duplicates human walking pattern
LEWIS-12515 B75-10148 05

JOSEPHSON JUNCTIONS

Superconducting quantum-interference devices
M-FS-23163 B75-10097 03

JOURNAL BEARINGS

Design curves for optimizing stability of herringbone-grooved journal bearings
LEWIS-12442 B75-10063 06

K**KALMAN-SCHMIDT FILTERING**

A study of accuracy in selected numerical-analysis integration techniques
MSC-14802 B75-10273 09

KAPTON (TRADEMARK)

Thin KAPTON polyimide films vacuum formed at high temperature retain their shape at temperatures to 450 K (350 F)
LEWIS-12412 B75-10016 04

KIDNEYS

New urea-absorbing polymers for artificial kidney machines
NPO-13620 B75-10336 04

KIRKENDALL EFFECT

Inhibiting Kirkendall void growth in welded bimetallic structures
LEWIS-11573 B75-10006 08

KLYSTRONS

Transmitter switch for high-power microwave output
NPO-13439 B75-10122 02

L**LABORATORY EQUIPMENT**

Developments in spectrophotometry I
An instrument for high-resolution measurements of optical intensity and polarization
NPO-13604 B75-10332 03

LAMINATES

Isometric scan method for ultrasonic evaluation of composite panels
LEWIS-12437 B75-10014 01

Fabrication and repair of graphite/epoxy laminates
M-FS-23228 B75-10164 08

Lightweight ducts fabricated from reinforced plastics and elastomers
MSC-19482 B75-10173 06

LANDING GEAR

Low-profile landing-gear assembly
ARC-10786 B75-10055 06

LARGE SCALE INTEGRATION

Interactive graphical computer-aided design system
M-FS-23157 B75-10096 01

LASER OUTPUTS

Acoustically controlled integrated laser for communications systems
NPO-13175 B75-10047 03

Laser using lead chloride vapor
NPO-13615 B75-10128 03

Optical-noise suppression unit A concept
MSC-12640 B75-10315 03

LASERS

Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
HQ-10844 B75-10087 03

Laser scanned image sensors using photoconductors with deep traps
NPO-13131 B75-10112 03

High-energy lasers by using distributed reflection A concept
NPO-13346 B75-10118 03

Laser-to-electricity energy converter for short wavelengths
NPO-13390 B75-10119 03

Double-discharge copper-vapor laser
NPO-13348 B75-10123 03

Laser action generated within a light pipe A concept
NPO-13531 B75-10127 03

Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03

Diffused guides for distributed-feedback lasers
NPO-13544 B75-10206 03

Signal mixer for optical heterodyne receiver
M-FS-23251 B75-10307 03

LAYERS

Position sensing materials wound on a reel
GSFC-11902 B75-10249 07

LC CIRCUITS

Temperature-stable Gunn-diode oscillator
M-FS-23242 B75-10306 01

LEAD CHLORIDES

Laser using lead chloride vapor
NPO-13615 B75-10128 03

LEADING EDGES

New design of hingeless helicopter rotor improves stability
ARC-10807 B75-10132 06

LEAKAGE

Design criteria monograph on transmission seals
LEWIS-12403 B75-10011 07

LEG (ANATOMY)

Lightweight orthotic braces
LANGLEY-11894 B75-10303 05

LENS DESIGN

Refracting lens system for low-scatter star-tracker A Concept
MSC-14724 B75-10043 03

Optical design computer program LENS II
GSFC-11951 B75-10250 03

Contact-eutectic-lens fabrication technique
M-FS-23275 B75-10308 04

LENSES

Refracting lens system for low-scatter star-tracker A Concept
MSC-14724 B75-10043 03

General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09

LEVITATION

Levitation of objects using acoustic energy
M-FS-23261 B75-10232 03

LIBRARIES

Computer system for library access
GSFC-11952 B75-10292 09

LIFE (DURABILITY)

Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04

LIGHT AIRCRAFT

Gust alleviation system to improve ride comfort of light airplanes
LANGLEY-11771 B75-10224 03

LIGHT AMPLIFIERS

Infrared tunable laser A concept
ARC-10463 B75-10081 03

LIGHT EMISSION

Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 B75-10115 03

LIGHT MODULATION

Wide-field birefringent elements
MSC-12677 B75-10105 03

LIGHT SCATTERING

Refracting lens system for low-scatter star-tracker A Concept
MSC-14724 B75-10043 03

Laser action generated within a light pipe A concept
NPO-13531 B75-10127 03

Developments in spectrophotometry II A multiple-frequency particle-size spectrometer
NPO-13606 B75-10333 03

Developments in spectrophotometry III Multiple-field-of-view spectrometer to determine particle-size distribution and refractive index
NPO-13614 B75-10335 03

Uniform high irradiance source
LEWIS-12360 B75-10008 03

LIGHT SOURCES

Lightning A test and measurement technique for determining possible lightning-induced voltages in aircraft electrical circuits
LEWIS-12109 B75-10068 02

Time-of-arrival lightning activity location system
KSC-11006 B75-10297 02

LINEAR PREDICTION

A study of accuracy in selected numerical-analysis integration techniques
MSC-14802 B75-10273 09

LINKAGES

Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications
LEWIS-12514 B75-10151 06

LIQUEFIED NATURAL GAS

Risk management technique for liquefied natural gas facilities
KSC-11005 B75-10193 04

LIQUID HELIUM

Heat-operated cryogenic electrical generator
NPO-13303 B75-10116 03

High-energy lasers by using distributed reflection A concept
NPO-13346 B75-10118 03

Fabrication of porous plugs for control of liquid helium
M-FS-23218 B75-10163 04

A two-degree Kelvin refrigerator
NPO-13459 B75-10181 03

Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09

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Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09

LIQUID PROPELLANT ROCKET ENGINES

Design criteria monograph on axial flow turbines
LEWIS-12376 B75-10009 06

RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity
LEWIS-12388 B75-10186 09

LITHOGRAPHY

Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01

LIVER

Implantable prosthetic pump boosts blood pressure A concept
NPO-13626 B75-10177 05

LOAD TESTING MACHINES

Biaxial compression test technique
MSC-14883 B75-10319 08

LOADS (FORCES)

Computer program for numerical analysis of stiffened shells of revolution
M-FS-23027 B75-10094 09

Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
LEWIS-12502 B75-10138 03

LOGIC DESIGN

Central control element expands computer capability
M-FS-23216 B75-10103 02

Real-time video correlator
M-FS-23200 B75-10265 02

LOOPS

Fill-in binary loop pulse-torque quantizer
M-FS-23100 B75-10037 02

LOW DENSITY MATERIALS

Low-density polybenzimidazole foams for thermal insulation and fire protection
ARC-10823 B75-10056 04

Foam-machining tool with eddy-current transducer
M-FS-23298 B75-10309 08

LOW TEMPERATURE ENVIRONMENTS

Lightweight ducts fabricated from reinforced plastics and elastomers
MSC-19482 B75-10173 06

Compound heat pipe operates over broad temperature range
M-FS-23329 B75-10313 06

LOW WEIGHT

Improved aircraft reaction nozzles
ARC-10906 B75-10284 06

LUBRICANTS

Ferrolubricants
M-FS-23151 B75-10078 07

LUMINAIRES

Lightweight protective clothing for the safe handling of high-intensity pressurized lamps
LEWIS-12073 B75-10007 04

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Ultrastructural alteration of mouse lung by prolonged exposure to mixtures of helium and oxygen
ARC-10929 875-10061 05

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MACHINE TOOLS

Foam-machining tool with eddy-current transducer
M-FS-23298 875-10309 08

MAGNETIC COILS

Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 875-10195 01
Low-loss stripe-line coil for magnetic bubble memory
LANGLEY-11707 875-10196 01
Bubble-domain circuit wafer evaluation coil set
LANGLEY-11728 875-10197 01
Open coil structure for bubble-memory-device packaging
LANGLEY-11704 875-10219 01

MAGNETIC EFFECTS

Single crystals of metal solid solutions
A study
M-FS-23268 875-10268 03

MAGNETIC MEASUREMENT

Superconducting quantum-interference devices
M-FS-23163 875-10097 03

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MAGNETIC STORAGE

Variable-gap bias structure for magnetic bubble memory package
LANGLEY-11765 875-10221 01
Ellipsometer measurements of epitaxial GaAs layers A concept
M-FS-23238 875-10230 01

MAGNETIC TAPES

Digital tape drive monitor
GSFC-11925 875-10153 02
Position sensing materials wound on a reel
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MAGNETOHYDRODYNAMIC GENERATORS

Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
LEWIS-12445 875-10152 02

MAGNETOMETERS

Microelectronic fabrication of superconducting devices and circuits
NPO-13419 875-10120 01

MAINTENANCE

Fabrication and repair of graphite/epoxy laminates
M-FS-23228 875-10164 08
Repair of damaged insulation tiles
MSC-19549 875-10321 04

MANAGEMENT

Safety management of a complex R&D ground operating system
LEWIS-12559 875-10241 07

MANAGEMENT INFORMATION SYSTEMS

The Langley Research Center
NASA/PERT TIME III
LANGLEY-11887 875-10302 09

MANDRELS

Dip molding to form intricately-shaped medical elastomer devices
NPO-13535 875-10238 08

MAPPING

Computer program to generate engine inlet flow contour maps and distortion parameters
LEWIS-12247 875-10005 09
Data processing large quantities of multispectral information
MSC-14472 875-10080 03

MARINE BIOLOGY

Miniature sonar fish tag
LANGLEY-11814 875-10092 02

MARINE TECHNOLOGY

Removal of ice and marine growth from ship surfaces A concept
NPO-13658 875-10282 06

MASERS

Transmission line for S-band masers
NPO-13504 875-10126 03
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NPO-13490 875-10279 03

MASKING

Sputtered gold mask for deep chemical etching of silicon
LANGLEY-11661 875-10089 08

MASS DISTRIBUTION

Determination of bone mineral mass in vivo
MSC-14276 875-10168 05

MASS FLOW RATE

Electrical gas heater with large flow range capability
LEWIS-12361 875-10024 03

MASS SPECTROMETERS

Characteristics and performance study of mass spectrometer residual gas analyzers
LEWIS-12393 875-10185 03
Electro-optical detector to improve sensitivity of a focal-plane mass spectrometer
NPO-13524 875-10328 03

MASS SPECTROSCOPY

Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
LEWIS-12445 875-10152 02
Determination of water content using mass spectrometry
LANGLEY-11774 875-10157 04
Dynamic delta method for trace gas analysis
LANGLEY-11800 875-10159 04
Automated mass spectrometer/analysis system A concept
NPO-13572 875-10331 05

MATERIALS HANDLING

Lightweight protective clothing for the safe handling of high-intensity pressurized lamps
LEWIS-12073 875-10007 04

MATERIALS TESTS

Isometric scan method for ultrasonic evaluation of composite panels
LEWIS-12437 875-10014 01

MATHEMATICAL MODELS

Handbook for estimating toxic fuel hazards
M-FS-21114 875-10198 04
Marshall vehicle-engineering simulation system (MARVES)
M-FS-21701 875-10199 06
Automated statistical analysis program (ASAP)
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High-accuracy programmable square-law detector system
NPO-13525 875-10240 02

MEAN

Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 875-10093 09

MEASURING INSTRUMENTS

Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
LEWIS-12445 875-10152 02
Determination of water content using mass spectrometry
LANGLEY-11774 875-10157 04
Laser-excited fluorescence for measuring atmospheric pollution
NPO-13231 875-10275 02
Inexpensive pocket-size solar energy meter (insolometer)
LEWIS-12598 875-10283 01
Sound separation probe
LEWIS-12507 875-10286 03

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Digital tape drive monitor
GSFC-11925 875-10153 02

MECHANICAL PROPERTIES

Program for analysis of nonlinear equilibrium and stability (PANES)
M-FS-23172 875-10100 09
Fracture toughness testing data A technology survey and bibliography
LEWIS-12503 875-10139 03
Influence of heat treatment on mechanical properties of 300M steel
MSC-14792 875-10271 04
A flame-resistant modified polystyrene
MSC-14903 875-10320 04

MEDICAL EQUIPMENT

Portable automatic blood analyzer
MSC-14627 875-10041 05
Subminiature transducers for measuring forces and deformation of heart muscle
NPO-13423 875-10051 05
Mobile automatic metabolic analyzer
M-FS-23143 875-10077 05
Oxygen cocoon for patients under intensive care
MSC-12663 875-10079 05
Regulator for intravenous feeding
ARC-10758 875-10083 05
Implantable prosthetic pump boosts blood pressure A concept
NPO-13626 875-10177 05
Catheter-tip force transducer for cardiovascular research
NPO-13643 875-10211 05
Dip molding to form intricately-shaped medical elastomer devices
NPO-13535 875-10238 08

MEDICINE

Determination of bone mineral mass in vivo
MSC-14276 875-10168 05

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Improved ion exchange membrane
NPO-13309 875-10117 04
Amplifying ribbon extensometer
LANGLEY-11825 875-10300 06
Using permeable membranes to produce hydrogen and oxygen from water
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Mobile automatic metabolic analyzer
M-FS-23143 875-10077 05

- Automated mass spectrometer/analysis system A concept
NPO-13572 B75-10331 05
- METAL BONDING**
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LANGLEY-11397 B75-10257 08
- METAL COATINGS**
Survey of coatings for solar collectors
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- METAL HYDRIDES**
A superior process for forming titanium hydrogen isotopic films
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- METAL JOINTS**
Inhibiting Kirkendall void growth in welded bimetallic structures
LEWIS-11573 B75-10006 08
- METAL OXIDE SEMICONDUCTORS**
Interactive graphical computer-aided design system
M-FS-23157 B75-10096 01
Page composer to translate binary electrical data to optical form
M-FS-22589 B75-10161 02
- METAL SHEETS**
Biaxial compression test technique
MSC-14883 B75-10319 08
- METAL WORKING**
Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04
Influence of heat treatment on mechanical properties of 300M steel
MSC-14792 B75-10271 04
- METAL-METAL BONDING**
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- METEOROLOGICAL PARAMETERS**
Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 B75-10093 09
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- METEOROLOGY**
Quartz crystal microbalances to measure wind velocity and air humidity
NPO-13462 B75-10124 03
- MICE**
Ultrastructural alteration of mouse lung by prolonged exposure to mixtures of helium and oxygen
ARC-10929 B75-10061 05
- MICROBALANCES**
Thermoelectrically-cooled quartz microbalance
M-FS-23101 B75-10076 04
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NPO-13462 B75-10124 03
- MICROBIOLOGY**
Ionen treatment of surfaces stimulates cell growth
NPO-13421 B75-10121 04
Microbial load monitor
MSC-14062 B75-10167 05
Continuous detection of viable micro-organisms by chemiluminescence
MSC-10170 B75-10170 05
- Rapid method for determination of antimicrobial susceptibilities pattern of urinary bacteria
GSFC-12039 B75-10253 05
- MICROELECTRONICS**
High-performance Schottky diodes endure high temperatures
M-FS-23184 B75-10101 01
Integrated-circuit balanced parametric amplifier
M-FS-23193 B75-10102 01
Microelectronic fabrication of superconducting devices and circuits
NPO-13419 B75-10120 01
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M-FS-23159 B75-10304 01
- MICROMINIATURIZED ELECTRONIC DEVICES**
Improved multiple-target sputtering equipment
NPO-13345 B75-10178 04
Quality control of microelectronic wire bonds
M-FS-23327 B75-10312 01
- MICROORGANISMS**
Microbial load monitor
MSC-14062 B75-10167 05
Continuous detection of viable micro-organisms by chemiluminescence
MSC-10170 B75-10170 05
- MICROPHONES**
Portable headset microphone checker
KSC-10699 B75-10254 02
- MICROWAVE AMPLIFIERS**
Varactor diode assembly with low parasitic reactances
GSFC-11617 B75-10031 01
Microwave diode amplifiers with low intermodulation distortion
GSFC-11668 B75-10213 01
- MICROWAVE ANTENNAS**
High-accuracy programable square-law detector system
NPO-13525 B75-10240 02
- MICROWAVE SWITCHING**
Transmitter switch for high-power microwave output
NPO-13439 B75-10122 02
- MICROWAVE TRANSMISSION**
Transmission line for S-band masers
NPO-13504 B75-10126 03
- MILLIMETER WAVES**
Superconducting quantum-interference devices
M-FS-23163 B75-10097 03
- MINERALS**
Determination of bone mineral mass in vivo
MSC-14276 B75-10168 05
- MINIATURE ELECTRONIC EQUIPMENT**
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LANGLEY-11814 B75-10092 02
Mounting technique for pressure transducers minimizes measurement interferences
ARC-10933 B75-10145 08
Stripe-line coil for magnetic-field generation in bubble memory devices
LANGLEY-11705 B75-10195 01
Low-loss stripe-line coil for magnetic bubble memory
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- MINICOMPUTERS**
Programed asynchronous serial data interrogation in a two-computer system
GSFC-11778 B75-10184 02
- Table-lookup algorithm for pattern recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03
- MINIMA**
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NPO-99999 B75-10338 09
- MIRRORS**
General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09
- MODELS**
Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 B75-10093 09
Three-dimensional models aid visualization of engineering drawings
NPO-13394 B75-10179 08
- MOISTURE CONTENT**
Determination of water content using mass spectrometry
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Lightweight protective clothing for the safe handling of high-intensity pressurized lamps
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Analytic model for assessing thermal performance of SCUBA divers
ARC-10927 B75-10029 09
- PROTECTIVE COATINGS**
Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04
- PULSE CODE MODULATION**
Antiresonant ring interferometer for laser cavity dumping mode locking and other applications
HQ-10844 B75-10087 03
- PULSE COMMUNICATION**
Fill-in binary loop pulse-torque quantizer
M-FS-23100 B75-10037 02
- PULSE FREQUENCY MODULATION TELEMETRY**
Highly stable analog-to-digital converter
NPO-13385 B75-10277 01

PULSE WIDTH AMPLITUDE CONVERTERS

Laser-to-electricity energy converter for short wavelengths
 NPO-13390 875-10119 03

PULSED LASERS

Compact laser through improved heat conductance
 NPO-13147 875-10176 03

PULSED RADIATION

Computer modeling of arc drivers
 ARC-10955 875-10130 09

PULSES

Techniques for decoding speech phonemes and sounds A concept
 GSFC-11898 875-10086 02

PUMPS

Low-cost portable fire hose tester
 LEWIS-12365 875-10003 06

PURIFICATION

Covalent bonding of polycations to small polymeric particles
 NPO-13487 875-10327 04

PYROLYSIS

Processing for obtaining good quality water from sewage
 NPO-13224 875-10113 04

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Q SWITCHED LASERS

Compact laser through improved heat conductance
 NPO-13147 875-10176 03

QUALITY CONTROL

Digital tape drive monitor
 GSFC-11925 875-10153 02

Determination of water content using mass spectrometry
 LANGLEY-11774 875-10157 04

Bubble-domain circuit wafer evaluation coil set
 LANGLEY-11728 875-10197 01

Microcircuit testing and fabrication using scanning electron microscopes
 M-FS-23159 875-10304 01

Quality control of microelectronic wire bonds
 M-FS-23327 875-10312 01

Control of nonenzymatic browning in intermediate-moisture foods
 MSC-14835 875-10317 05

Fast semiautomatic dimensional test set and data logger
 MSC-19554 875-10322 07

QUANTUM ELECTRODYNAMICS

Superconducting quantum-interference devices
 M-FS-23163 875-10097 03

QUARTZ CRYSTALS

Thermoelectrically-cooled quartz microbalance
 M-FS-23101 875-10076 04

Quartz crystal microbalances to measure wind velocity and air humidity
 NPO-13462 875-10124 03

Increasing terminal strip efficiency at cryogenic temperatures
 M-FS-23234 875-10266 03

QUASARS

Quasars as very-accurate clock synchronizers
 NPO-13276 875-10114 02

R

RACKS (GEARS)

Motor-driven rack-positioning device
 ARC-10864 875-10058 06

RADAR BEAMS

Highly-efficient horn/reflector antenna
 NPO-13568 875-10330 01

RADIANT HEATING

Electrical gas heater with large flow range capability
 LEWIS-12361 875-10024 03

RADIATION COUNTERS

High-accuracy programable square-law detector system
 NPO-13525 875-10240 02

RADIATION DETECTORS

Microelectronic fabrication of superconducting devices and circuits
 NPO-13419 875-10120 01

RADIO INTERFEROMETERS

Quasars as very-accurate clock synchronizers
 NPO-13276 875-10114 02

RADIO METEOROLOGY

Superconducting quantum-interference devices
 M-FS-23163 875-10097 03

RADIO SIGNALS

Time-of-arrival lightning activity location system
 KSC-11006 875-10297 02

RADIOACTIVE MATERIALS

Risk management technique for liquefied natural gas facilities
 KSC-11005 875-10193 04

RADIOGRAPHY

Determination of bone mineral mass in vivo
 MSC-14276 875-10168 05

RADIOLOGY

Simple computer method provides contours for radiological images
 ARC-10940 875-10146 09

RAMAN SPECTROSCOPY

Angular device for optical filters
 LANGLEY-11796 875-10158 03

RAREFIED GAS DYNAMICS

Heat-operated cryogenic electrical generator
 NPO-13303 875-10116 03

RAY TRACING

General optics evaluation program (GENOPTICS)
 GSFC-12038 875-10294 09

REACTANCE

Varactor diode assembly with low parasitic reactances
 GSFC-11617 875-10031 01

REACTION TIME

Hand tremor and activity sensor
 ARC-10849 875-10057 05

REACTOR DESIGN

Low-cost compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
 LEWIS-12445 875-10152 02

Simplified heat engine
 NPO-13613 875-10334 07

READOUT

Position sensing materials wound on a reel
 GSFC-11902 875-10249 07

Simple temperature sensor with direct readout
 LANGLEY-11818 875-10260 01

REAL TIME OPERATION

Interactive graphical computer-aided design system
 M-FS-23157 875-10096 01

Central control element expands computer capability
 M-FS-23216 875-10103 02

Real-time video correlator
 M-FS-23200 875-10265 02

Electrocardiogram signal analyzer
 MSC-12710 875-10269 05

Multichannel high-speed correlator
 NPO-13097 875-10323 02

RECEIVERS

Low-noise K(u)-band receiver input system
 NPO-13645 875-10281 02

Signal mixer for optical heterodyne receiver
 M-FS-23251 875-10307 03

Synchronizer for random binary data
 NPO-13286 875-10325 02

REDUNDANCY

Prorgamed asynchronous serial data interrogation in a two-computer system
 GSFC-11778 875-10184 02

REDUNDANCY ENCODING

Central control element expands computer capability
 M-FS-23216 875-10103 02

REELS

Position sensing materials wound on a reel
 GSFC-11902 875-10249 07

REFERENCE SYSTEMS

Computer system for library access
 GSFC-11952 875-10292 09

REFINING

Reconstituted asbestos matrix for fuel cells
 MSC-12568 875-10339 04

REFLECTANCE

A nondispersive infrared analyzer
 ARC-10631 875-10082 03

REFLECTED WAVES

Soft X-ray lasers using distributed-feedback reflection A concept
 NPO-13532 875-10239 03

REFLECTORS

Highly-efficient horn/reflector antenna
 NPO-13568 875-10330 01

REFRACTOMETERS

Developments in spectrophotometry III Multiple-field-of-view spectrometer to determine particle-size distribution and refractive index
 NPO-13614 875-10335 03

REFRACTORY MATERIALS

Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
 LEWIS-12502 875-10138 03

A new high temperature noble metal thermocouple pairing
 LEWIS-12545 875-10245 03

Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
 LEWIS-12562 875-10246 04

Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
 LEWIS-12554 875-10290 04

Repair of damaged insulation tiles
 MSC-19549 875-10321 04

REFRIGERATING

- REFRIGERATING**
A two-degree Kelvin refrigerator
NPO-13459 B75-10181 03
- REFRIGERATORS**
Simplified heat engine
NPO-13613 B75-10334 07
- REGENERATIVE COOLING**
Regenerative cooling design and analysis
computer program
LEWIS-12110 B75-10015 09
- REGULATIONS**
Risk management technique for liquefied
natural gas facilities
KSC-11005 B75-10193 04
- REINFORCED PLASTICS**
Tailor making high performance graphite
fiber reinforced PMR polyimides
LEWIS-12416 B75-10137 04
Lightweight orthotic braces
LANGLEY-11894 B75-10303 05
- REINFORCING FIBERS**
Fabrication of composite fan blades using
PMR A-type polyimide resin and graphite
fiber reinforcement
LEWIS-12366 B75-10066 04
- RELIABILITY**
Response of tantalum capacitors to fast
transient overvoltages
MSC-14822 B75-10274 01
Reliability computation from reliability
block diagrams
NPO-13304 B75-10276 07
- REMOTE CONSOLES**
Remote file inquiry (RFI) system
KSC-10837 B75-10155 09
- REMOTE CONTROL**
Solid state remote power controllers for
120 Vdc power systems
LEWIS-12523 B75-10150 02
- REMOTE SENSORS**
Remote estimation of soil moisture
ARC-10867 B75-10026 03
Data processing large quantities of
multispectral information
MSC-14472 B75-10080 03
Voltage monitoring system
KSC-10736 B75-10154 02
Multispectral data analysis LARSYS
III
MSC-14823 B75-10235 03
Table-lookup algorithm for pattern
recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03
Monitor for checking electric-field
meters
KSC-10851 B75-10296 02
Developments in spectrophotometry II
A multiple-frequency particle-size
spectrometer
NPO-13606 B75-10333 03
Developments in spectrophotometry III
Multiple-field-of-view spectrometer to
determine particle-size distribution and
refractive index
NPO-13614 B75-10335 03
- REPORTS**
Characteristics and performance study of
mass spectrometer residual gas analyzers
LEWIS-12393 B75-10185 03
Comparative performance of
twenty-three types of flat plate solar energy
collectors
LEWIS-12511 B75-10189 03
Safety management of a complex R&D
ground operating system
LEWIS-12559 B75-10241 07

- Industrial laser welding An evaluation
M-FS-23237 B75-10267 08
Single crystals of metal solid solutions
A study
M-FS-23268 B75-10268 03
A study of accuracy in selected
numerical-analysis integration techniques
MSC-14802 B75-10273 09
Response of tantalum capacitors to fast
transient overvoltages
MSC-14822 B75-10274 01
Generation of key in cryptographic
system for secure communications
NPO-13451 B75-10278 09
Turbine design review text
LEWIS-12560 B75-10287 06
The impact of water on free-falling
bodies
M-FS-23310 B75-10311 03
A flame-resistant modified polystyrene
MSC-14903 B75-10320 04
- RESCUE OPERATIONS**
Highly-visible air-sea rescue marker
MSC-12564 B75-10166 05
- RESIDUAL GAS**
Characteristics and performance study of
mass spectrometer residual gas analyzers
LEWIS-12393 B75-10185 03
- RESISTANCE**
A flame-resistant modified polystyrene
MSC-14903 B75-10320 04
- RESONANT FREQUENCIES**
Variable-volume atomic storage vessel
for hydrogen masers
GSFC-11895 B75-10248 03
- RESONATORS**
Resonant chambers for suspending
materials in air
NPO-13263 B75-10050 03
- RESPIRATORY PHYSIOLOGY**
Ultrastructural alteration of mouse lung
by prolonged exposure to mixtures of
helium and oxygen
ARC-10929 B75-10061 05
- RESPIRATORY RATE**
Mobile automatic metabolic analyzer
M-FS-23143 B75-10077 05
- RETARDANTS**
Wide-field birefringent elements
MSC-12677 B75-10105 03
- RETICLES**
Visual alignment aid
LANGLEY-11842 B75-10228 03
- RETRACTABLE EQUIPMENT**
Low-profile landing-gear assembly
ARC-10786 B75-10055 06
- REUSABLE HEAT SHIELDING**
High-temperature reusable surface
insulation system
MSC-14688 B75-10042 04
- RIBS (SUPPORTS)**
Biaxial compression test technique
MSC-14883 B75-10319 08
- RISK**
Risk management technique for liquefied
natural gas facilities
KSC-11005 B75-10193 04
Safety management of a complex R&D
ground operating system
LEWIS-12559 B75-10241 07
- RIVETS**
High-strength rivet does not require
aging
MSC-19301 B75-10044 06

ROCKET ENGINE DESIGN

- Regenerative cooling design and analysis
computer program
LEWIS-12110 B75-10015 09
Design criteria monograph on turbopump
systems
LEWIS-12499 B75-10135 06
- ROCKET ENGINES**
Calculation procedure for transient heat
transfer to a cooled plate in a heated stream
whose temperature varies arbitrarily with
time
LEWIS-12558 B75-10244 03
- ROLLER BEARINGS**
Silicon nitride used as a rolling-element
bearing material
LEWIS-12447 B75-10134 06
- ROOFS**
Solar power roof shingle
LEWIS-12587 B75-10289 01
- ROTARY STABILITY**
Design curves for optimizing stability of
herringbone-grooved journal bearings
LEWIS-12442 B75-10063 06
- ROTARY WINGS**
New design of hingeless helicopter rotor
improves stability
ARC-10807 B75-10132 06
- ROTOR AERODYNAMICS**
New design of hingeless helicopter rotor
improves stability
ARC-10807 B75-10132 06

S**SAFETY**

- Powered fire nozzle for fast penetration
of structures A concept
MSC-19528 B75-10111 06
- SAFETY DEVICES**
Lightweight protective clothing for the
safe handling of high-intensity pressurized
lamps
LEWIS-12073 B75-10007 04
Simple and effective method to lock buoy
position to ocean currents
M-FS-23140 B75-10095 06
Highly-visible air-sea rescue marker
MSC-12564 B75-10166 05
Braking action of wheeled vehicles is
controlled automatically during
minimum-distance stops
LANGLEY-11897 B75-10264 06
- SAFETY MANAGEMENT**
Risk management technique for liquefied
natural gas facilities
KSC-11005 B75-10193 04
Safety management of a complex R&D
ground operating system
LEWIS-12559 B75-10241 07
- SAILS**
Amplifying ribbon extensometer
LANGLEY-11825 B75-10300 06
- SAMPLERS**
Automated mass spectrometer/analysis
system A concept
NPO-13572 B75-10331 05
- SAPPHIRE**
Increasing terminal strip efficiency at
cryogenic temperatures
M-FS-23234 B75-10266 03
- SCALE (RATIO)**
Trimetric scale for drafting machines
MSC-15829 B75-10172 09

SCALE MODELS

Three-dimensional models aid visualization of engineering drawings
NPO-13394 875-10179 08

SCANNING

Laser scanned image sensors using photoconductors with deep traps
NPO-13131 875-10112 03

Microcircuit testing and fabrication using scanning electron microscopes
M-FS-23159 875-10304 01

SCATTERING

Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 875-10115 03

SEA STATES

Application of monochromatic ocean wave forecasts to prediction of wave-induced currents
LANGLEY-11809 875-10226 03

SEA URCHINS

Removal of ice and marine growth from ship surfaces A concept
NPO-13658 875-10282 06

SEALS (STOPPERS)

Design criteria monograph on transmission seals
LEWIS-12403 875-10011 07

Compressible flow computer program for gas film seals
LEWIS-12286 875-10020 09

Regulator for intravenous feeding
ARC-10758 875-10083 05

SECURITY

Video switcher for coupling video cameras to single TV monitor
KSC-10782 875-10192 02

Generation of key in cryptographic system for secure communications
NPO-13451 875-10278 09

SEDIMENTS

Miniature sonar fish tag
LANGLEY-11814 875-10092 02

SELF ADAPTIVE CONTROL SYSTEMS

Braking action of wheeled vehicles is controlled automatically during minimum-distance stops
LANGLEY-11897 875-10264 06

SELF FOCUSING

Automatically-focusing microscope system for live tissue observation
NPO-13215 875-10048 03

SELF LUBRICATION

Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications
LEWIS-12514 875-10151 06

SELF OSCILLATION

High-energy lasers by using distributed reflection A concept
NPO-13346 875-10118 03

Laser action generated within a light pipe A concept
NPO-13531 875-10127 03

SEMICONDUCTOR DEVICES

JPL transient radiation analysis by computer program (JTRAC)
NPO-13470 875-10053 09

Sputtered gold mask for deep chemical etching of silicon
LANGLEY-11661 875-10089 08

High-performance Schottky diodes endure high temperatures
M-FS-23184 875-10101 01

Integrated-circuit balanced parametric amplifier
M-FS-23193 875-10102 01

Laser-to-electricity energy converter for short wavelengths

NPO-13390 875-10119 03
Schottky barrier solar cell promises improved efficiency

NPO-13482 875-10125 03
Mounting technique for pressure transducers minimizes measurement interferences

ARC-10933 875-10145 08

SEMICONDUCTOR LASERS

Formation of internally-confined semiconductor lasers
LANGLEY-11770 875-10299 08

SENSITIVITY

Rapid method for determination of antimicrobial susceptibilities pattern of urinary bacteria

GSFC-12039 875-10253 05

SEQUENTIAL COMPUTERS

A study of accuracy in selected numerical-analysis integration techniques
MSC-14802 875-10273 09

SERVO MECHANISMS

Torque control system
GSFC-11077 875-10085 06

SEWAGE

Processing for obtaining good quality water from sewage
NPO-13224 875-10113 04

SHEAR STRENGTH

High-strength rivet does not require aging
MSC-19301 875-10044 06

SHIFT REGISTERS

Fourier waveform analyzer
GSFC-11747 875-10070 01

SHIPS

Highly-visible air-sea rescue marker
MSC-12564 875-10166 05

Removal of ice and marine growth from ship surfaces A concept
NPO-13658 875-10282 06

SHOCK ABSORBERS

The impact of water on free-falling bodies
M-FS-23310 875-10311 03

SHOCK RESISTANCE

Shock and vibration isolation mount for small electronic components
NPO-13253 875-10049 01

SHOCK WAVE GENERATORS

Computer modeling of arc drivers
ARC-10955 875-10130 09

SHORT WAVE RADIATION

Laser-to-electricity energy converter for short wavelengths
NPO-13390 875-10119 03

SIGNAL ANALYSIS

Fourier waveform analyzer
GSFC-11747 875-10070 01
Quasars as very-accurate clock synchronizers

NPO-13276 875-10114 02

Sound separation probe
LEWIS-12507 875-10286 03

SIGNAL DETECTORS

New broadband square-law detector
NPO-13410 875-10180 02

Synchronizer for random binary data
NPO-13286 875-10325 02

SIGNAL ENCODING

Generation of key in cryptographic system for secure communications
NPO-13451 875-10278 09

SIGNAL MIXING

Signal mixer for optical heterodyne receiver
M-FS-23251 875-10307 03

SIGNAL PROCESSING

Microelectronic fabrication of superconducting devices and circuits
NPO-13419 875-10120 01

A hybrid general-purpose bit synchronizer
MSC-14330 875-10169 02

New broadband square-law detector
NPO-13410 875-10180 02

Electrocardiogram signal analyzer
MSC-12710 875-10269 05

Highly stable analog-to-digital converter
NPO-13385 875-10277 01

Delay-lock-loop code-correlation synchronizer
GSFC-11868 875-10291 02

Time-of-arrival lightning activity location system
KSC-11006 875-10297 02

Power spectrum analysis of staggered quadruphase-shift-keyed signals
MSC-14865 875-10318 09

Multichannel high-speed correlator
NPO-13097 875-10323 02

Synchronizer for random binary data
NPO-13286 875-10325 02

SIGNAL RECEPTION

Multibeam-antenna feed system to isolate orthogonally polarized beams
NPO-13140 875-10046 02

SIGNAL TO NOISE RATIOS

Multichannel high-speed correlator
NPO-13097 875-10323 02

SILICON

Low-Cost thin-layer silicon solar cells
GSFC-12023 875-10293 04

SILICON DIOXIDE

Reflecting heat shields made of microstructured fused silica
ARC-10949 875-10144 04

SILICON NITRIDES

Silicon nitride used as a rolling-element bearing material

LEWIS-12447 875-10134 06

SILICON RADIATION DETECTORS

Inexpensive pocket-size solar energy meter (insolometer)
LEWIS-12598 875-10283 01

SILICON TRANSISTORS

Sputtered gold mask for deep chemical etching of silicon

LANGLEY-11661 875-10089 08

SILICONE RESINS

Read-only optical storage medium
M-FS-23169 875-10305 03

SILVER ALLOYS

Single crystals of metal solid solutions
A study

M-FS-23268 875-10268 03

SILVER CADMIUM BATTERIES

Heater improves cold-temperature capacity of silver-cadmium batteries

GSFC-11913 875-10071 01

SIMULATORS

High-power ac/dc variable load simulator
MSC-14788 875-10108 02

Hip-joint simulator accurately duplicates human walking pattern
LEWIS-12515 875-10148 05

SINGLE CRYSTALS

Increasing terminal strip efficiency at cryogenic temperatures

M-FS-23234 B75-10266 03

Single crystals of metal solid solutions A study

M-FS-23268 B75-10268 03

SIPHONS

Removal of ice and marine growth from ship surfaces A concept

NPO-13658 B75-10282 06

SIZE DETERMINATION

Developments in spectrophotometry II A multiple-frequency particle-size spectrometer

NPO-13606 B75-10333 03

Developments in spectrophotometry III Multiple-field-of-view spectrometer to determine particle-size distribution and refractive index

NPO-13614 B75-10335 03

SKEWNESS

Digital tape drive monitor

GSFC-11925 B75-10153 02

SKIN (STRUCTURAL MEMBER)

Biaxial compression test technique

MSC-14883 B75-10319 08

SKYLAB PROGRAM

Viewfinder/tracking system for Skylab

MSC-14407 B75-10040 03

SLIDING FRICTION

Scanning-electron-microscope used in real-time study of friction and wear

LEWIS-12448 B75-10064 06

SLIP CASTING

Reflecting heat shields made of microstructured fused silica

ARC-10949 B75-10144 04

SMOKE ABATEMENT

Airfoil disperses smokestack effluents upward

LANGLEY-11669 B75-10074 06

SOIL MOISTURE

Remote estimation of soil moisture

ARC-10867 B75-10026 03

SOLAR CELLS

Schottky barrier solar cell promises improved efficiency

NPO-13482 B75-10125 03

Zener-regulated solar array/battery power system

M-FS-23195 B75-10162 02

Improved photovoltaic devices using transparent contacts

LANGLEY-11761 B75-10220 01

Solar-cell interconnects

M-FS-23257 B75-10231 04

Inexpensive pocket-size solar energy meter (insolometer)

LEWIS-12598 B75-10283 01

Solar power roof shingle

LEWIS-12587 B75-10289 01

Low-Cost thin-layer silicon solar cells

GSFC-12023 B75-10293 04

SOLAR COLLECTORS

Survey of coatings for solar collectors

LEWIS-12510 B75-10067 04

Large-scale solar thermal collector concepts

M-FS-23167 B75-10098 03

Solar residential heating and cooling system

M-FS-23260 B75-10165 06

Economical solar-heating or cooling system with new solar-energy concentrators

NPO-13497 B75-10182 03

Comparative performance of twenty-three types of flat plate solar energy collectors

LEWIS-12511 B75-10189 03

Secondary reflectors for economical sun-tracking energy collection system A concept

NPO-13580 B75-10210 03

Automatic solar tracker

NPO-13630 B75-10237 03

Low-cost hot-air solar collector

M-FS-23272 B75-10301 08

SOLAR CONSTANT

Quartz crystal microbalances to measure wind velocity and air humidity

NPO-13462 B75-10124 03

SOLAR ENERGY

Solar residential heating and cooling system

M-FS-23260 B75-10165 06

Economical solar-heating or cooling system with new solar-energy concentrators

NPO-13497 B75-10182 03

Inexpensive pocket-size solar energy meter (insolometer)

LEWIS-12598 B75-10283 01

SOLAR GENERATORS

Comparative performance of twenty-three types of flat plate solar energy collectors

LEWIS-12511 B75-10189 03

Solar power roof shingle

LEWIS-12587 B75-10289 01

SOLAR POSITION

Low-cost solar tracking system

NPO-13579 B75-10209 06

SOLAR RADIATION

Automatic solar tracker

NPO-13630 B75-10237 03

SOLAR REFLECTORS

Low-cost solar tracking system

NPO-13579 B75-10209 06

Secondary reflectors for economical sun-tracking energy collection system A concept

NPO-13580 B75-10210 03

SOLAR SENSORS

Large-scale solar thermal collector concepts

M-FS-23167 B75-10098 03

Wide-angle sun sensors

NPO-13327 B75-10202 03

Low-cost solar tracking system

NPO-13579 B75-10209 06

Secondary reflectors for economical sun-tracking energy collection system A concept

NPO-13580 B75-10210 03

Automatic solar tracker

NPO-13630 B75-10237 03

SOLENOID VALVES

Braking action of wheeled vehicles is controlled automatically during minimum-distance stops

LANGLEY-11897 B75-10264 06

SOLID STATE DEVICES

Sputtered gold mask for deep chemical etching of silicon

LANGLEY-11661 B75-10089 08

Solid state remote power controllers for 120 Vdc power systems

LEWIS-12523 B75-10150 02

Page composer to translate binary electrical data to optical form

M-FS-22589 B75-10161 02

System for simultaneous bidirectional data transmission

MSC-14810 B75-10171 01

Improved multiple-target sputtering equipment

NPO-13345 B75-10178 04

A two-degree Kelvin refrigerator

NPO-13459 B75-10181 03

Response of tantalum capacitors to fast transient overvoltages

MSC-14822 B75-10274 01

Formation of internally-confined semiconductor lasers

LANGLEY-11770 B75-10299 08

Microcircuit testing and fabrication using scanning electron microscopes

M-FS-23159 B75-10304 01

Temperature-stable Gunn-diode oscillator

M-FS-23242 B75-10306 01

Solid-state motor control and monitor system

MSC-12721 B75-10316 02

SOLID STATE LASERS

High-energy lasers by using distributed reflection A concept

NPO-13346 B75-10118 03

Tuneable diode laser spectrometer with integral grating

LANGLEY-11830 B75-10262 03

SONAR

Miniature sonar fish tag

LANGLEY-11814 B75-10092 02

SOUND INTENSITY

Handbook of noise ratings

LANGLEY-11799 B75-10075 03

Portable headset microphone checker

KSC-10699 B75-10254 02

SOUND TRANSMISSION

Portable headset microphone checker

KSC-10699 B75-10254 02

SOUND WAVES

Levitation of objects using acoustic energy

M-FS-23261 B75-10232 03

Sound separation probe

LEWIS-12507 B75-10286 03

SPACEBORNE TELESCOPES

Viewfinder/tracking system for Skylab

MSC-14407 B75-10040 03

SPATIAL FILTERING

Optical-noise suppression unit A concept

MSC-12640 B75-10315 03

SPECTRAL RESOLUTION

Developments in spectrophotometry I An instrument for high-resolution measurements of optical intensity and polarization

NPO-13604 B75-10332 03

SPECTROMETERS

Transmission oscillator ultrasonic spectrometer (TOUS) A new research instrument

LANGLEY-11735 B75-10035 03

Holographic direct-vision spectroscopy

LANGLEY-11750 B75-10090 03

Microcircuit testing and fabrication, using scanning electron microscopes

M-FS-23159 B75-10304 01

SPECTROPHOTOMETRY

Developments in spectrophotometry I An instrument for high-resolution measurements of optical intensity and polarization

NPO-13604 B75-10332 03

- Developments in spectrophotometry II
 - A multiple-frequency particle-size spectrometer NPO-13606 875-10333 03
 - Developments in spectrophotometry III
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- SPECTROSCOPY**
 - Infrared tunable laser A concept ARC-10463 875-10081 03
- SPECTRUM ANALYSIS**
 - A nondispersive infrared analyzer ARC-10631 875-10082 03
 - Multispectral data analysis LARSYS III MSC-14823 875-10235 03
- SPEECH**
 - Techniques for decoding speech phonemes and sounds A concept GSFC-11898 875-10086 02
 - Real-time speech analyzer NPO-13465 875-10205 02
- SPEECH RECOGNITION**
 - Techniques for decoding speech phonemes and sounds A concept GSFC-11898 875-10086 02
 - Real-time speech analyzer NPO-13465 875-10205 02
- SPHERICAL TANKS**
 - Suspension system for lightweight cryogenic tank MSC-14080 875-10270 06
- SPOOLS**
 - Position sensing materials wound on a reel GSFC-11902 875-10249 07
- SPUTTERING**
 - Sputtered gold mask for deep chemical etching of silicon LANGLEY-11661 875-10089 08
 - Improved multiple-target sputtering equipment NPO-13345 875-10178 04
- SQUARE WAVES**
 - New broadband square-law detector NPO-13410 875-10180 02
 - High-accuracy programmable square-law detector system NPO-13525 875-10240 02
- STABILITY**
 - Single radial magnetic bearing A concept GSFC-11978 875-10251 06
 - Ultraviolet hydrogen-discharge lamp MSC-14793 875-10272 03
- STABILIZATION**
 - Torque control system GSFC-11077 875-10085 06
- STACKS**
 - Airfoil disperses smokestack effluents upward LANGLEY-11669 875-10074 06
 - Laser-excited fluorescence for measuring atmospheric pollution NPO-13231 875-10275 02
- STAINLESS STEELS**
 - Industrial laser welding An evaluation M-FS-23237 875-10267 08
 - Influence of heat treatment on mechanical properties of 300M steel MSC-14792 875-10271 04
- STANDARDIZATION**
 - Marshall vehicle-engineering simulation system (MARVES) M-FS-21701 875-10199 06
- STANDING WAVES**
 - Transmission oscillator ultrasonic spectrometer (TOUS) A new research instrument LANGLEY-11735 875-10035 03
 - Resonant chambers for suspending materials in air NPO-13263 875-10050 03
 - One-dimensional multimode and multistate oscillator A concept HQ-10851 875-10088 01
 - Levitation of objects using acoustic energy M-FS-23261 875-10232 03
- STAR TRACKERS**
 - Refracting lens system for low-scatter star-tracker A Concept MSC-14724 875-10043 03
- STATIC FRICTION**
 - Apparatus for measuring static coefficient of friction under compressive loads GSFC-11893 875-10214 06
- STATISTICAL ANALYSIS**
 - Automated statistical analysis program (ASAP) LANGLEY-11125 875-10217 02
 - Minimization search method for data inversion NPO-99999 875-10338 09
- STEAM**
 - Computer program for calculating water and steam properties LEWIS-12519 875-10187 09
 - Steam automobile analysis M-FS-23188 875-10229 03
- STEAM TURBINES**
 - Turbine design review text LEWIS-12560 875-10287 06
- STEELS**
 - Low-Cost thin-layer silicon solar cells GSFC-12023 875-10293 04
- STIFFENING**
 - Biaxial compression test technique MSC-14883 875-10319 08
- STORAGE STABILITY**
 - High-power CW laser using hydrogen-fluorine reaction NPO-13623 875-10183 03
- STORAGE TANKS**
 - Suspension system for lightweight cryogenic tank MSC-14080 875-10270 06
- STRAIN GAGES**
 - High-temperature capacitive strain measurement system FRC-10053 875-10069 01
 - Amplifying ribbon extensometer LANGLEY-11825 875-10300 06
- STRESS ANALYSIS**
 - Program for analysis of nonlinear equilibrium and stability (PANES) M-FS-23172 875-10100 09
 - Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography LEWIS-12502 875-10138 03
 - RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity LEWIS-12388 875-10186 09
 - Read-only optical storage medium M-FS-23169 875-10305 03
- STRESS CORROSION**
 - Aluminum alloys with improved strength M-FS-23239 875-10200 04
- STRESS MEASUREMENT**
 - High-temperature capacitive strain measurement system FRC-10053 875-10069 01
- STRIATION**
 - Stripe-line coil for magnetic-field generation in bubble memory devices LANGLEY-11705 875-10195 01
 - Low-loss stripe-line coil for magnetic bubble memory LANGLEY-11707 875-10196 01
- STROUHAL NUMBER**
 - Study of fluid flow by charged particles ARC-10925 875-10028 03
- STRUCTURAL ANALYSIS**
 - Computer program for numerical analysis of stiffened shells of revolution M-FS-23027 875-10094 09
 - Program for analysis of nonlinear equilibrium and stability (PANES) M-FS-23172 875-10100 09
 - RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity LEWIS-12388 875-10186 09
 - Static aeroelastic program LANGLEY-11602 875-10298 06
- STRUCTURAL DESIGN**
 - Fracture toughness testing data A technology survey and bibliography LEWIS-12503 875-10139 03
 - Design procedure for low-drag subsonic airfoils LANGLEY-11351 875-10256 03
 - Turbine design review text LEWIS-12560 875-10287 06
- STRUCTURAL ENGINEERING**
 - Ultrasonic detection of flaws in large structural areas MSC-19499 875-10201 06
 - Process for preparing polyimide adhesives LANGLEY-11397 875-10257 08
- STRUCTURAL MEMBERS**
 - Graphite fiber-polyimide composite rod end bearings for high-temperature high-load applications LEWIS-12514 875-10151 06
- SUBMINIATURIZATION**
 - Subminiature transducers for measuring forces and deformation of heart muscle NPO-13423 875-10051 05
- SUBSONIC SPEED**
 - Design procedure for low-drag subsonic airfoils LANGLEY-11351 875-10256 03
- SUBSTRATES**
 - Bubble-domain circuit wafer evaluation coil set LANGLEY-11728 875-10197 01
 - Low-Cost thin-layer silicon solar cells GSFC-12023 875-10293 04
- SUMMARIES**
 - Superconducting quantum-interference devices M-FS-23163 875-10097 03
 - Design criteria monograph on turbopump systems LEWIS-12499 875-10135 06
 - Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography LEWIS-12502 875-10138 03
 - Fracture toughness testing data A technology survey and bibliography LEWIS-12503 875-10139 03

SUPERCONDUCTING MAGNETS

Low-noise K(u)-band receiver input system
NPO-13645 B75-10281 02

SUPERCONDUCTORS

Superconducting quantum-interference devices
M-FS-23163 B75-10097 03
Microelectronic fabrication of superconducting devices and circuits
NPO-13419 B75-10120 01
A two-degree Kelvin refrigerator
NPO-13459 B75-10181 03

SUPERFLUIDITY

High-energy lasers by using distributed reflection A concept
NPO-13346 B75-10118 03

SUPERHEATING

Using permeable membranes to produce hydrogen and oxygen from water
MSC-12600 B75-10314 04

SUPERHIGH FREQUENCIES

Dual-band ridged waveguide
LANGLEY-11781 B75-10091 01

SUPERSONIC FLOW

Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03

SUPERSONIC TRANSPORTS

Low-profile landing-gear assembly
ARC-10786 B75-10055 06

SUPERSONIC TURBINES

Turbine design review text
LEWIS-12560 B75-10287 06

SURFACE CRACKS

In-service turbine wheel crack monitor
LEWIS-12422 B75-10012 02

SURGES

A test and measurement technique for determining possible lightning-induced voltages in aircraft electrical circuits
LEWIS-12109 B75-10068 02

SUSPENDING (HANGING)

Resonant chambers for suspending materials in air
NPO-13263 B75-10050 03
Suspension system for lightweight cryogenic tank
MSC-14080 B75-10270 06

SWITCHES

Start/stop switches for testing detonation velocity of explosives
KSC-10793 B75-10255 01

SWITCHING

Video switcher for coupling video cameras to single TV monitor
KSC-10782 B75-10192 02

SWITCHING CIRCUITS

Transmitter switch for high-power microwave output
NPO-13439 B75-10122 02
Solid state remote power controllers for 120 Vdc power systems
LEWIS-12523 B75-10150 02
A 1-1/2-level on-chip-decoding bubble memory chip design
LANGLEY-11766 B75-10222 01
Three-phase dc motor decoder
GSFC-11824 B75-10247 02
Solid-state motor control and monitor system
MSC-12721 B75-10316 02

SWITCHING THEORY

Central control element expands computer capability
M-FS-23216 B75-10103 02

SYNCHRONISM

Quasars as very-accurate clock synchronizers
NPO-13276 B75-10114 02
Synchronizer for random binary data
NPO-13286 B75-10325 02
Computer/computer interface
NPO-13428 B75-10326 02

SYNCHRONIZERS

Delay-lock-loop code-correlation synchronizer
GSFC-11868 B75-10291 02
Trigger circuit forces immediate synchronization of free-running oscillator
NPO-13646 B75-10337 01

T**TABLES (DATA)**

Table-lookup algorithm for pattern recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03

TANKS (CONTAINERS)

Foam-machining tool with eddy-current transducer
M-FS-23298 B75-10309 08

TANTALUM

Response of tantalum capacitors to fast transient overvoltages
MSC-14822 B75-10274 01

TANTALUM ALLOYS

High strength forgeable tantalum base alloy
LEWIS-11386 B75-10023 04

TAYLOR SERIES

Electrocardiogram signal analyzer
MSC-12710 B75-10269 05

TELECOMMUNICATION

Transmission line for S-band masers
NPO-13504 B75-10126 03
Multiplexing technique for computer communications via satellite channels
ARC-10879 B75-10133 09
New broadband square-law detector
NPO-13410 B75-10180 02

TELESCOPES

Torque control system
GSFC-11077 B75-10085 06
Visual alignment aid
LANGLEY-11842 B75-10228 03
Highly stable analog-to-digital converter
NPO-13385 B75-10277 01
General optics evaluation program (GENOPTICS)
GSFC-12038 B75-10294 09

TELEVISION SYSTEMS

Video switcher for coupling video cameras to single TV monitor
KSC-10782 B75-10192 02

TEMPERATURE EFFECTS

Method of attaching insulation tiles
MSC-12619 B75-10104 04
Double-discharge copper-vapor laser
NPO-13348 B75-10123 03
Delay-lock-loop code-correlation synchronizer
GSFC-11868 B75-10291 02
Temperature-stable Gunn-diode oscillator
M-FS-23242 B75-10306 01
Compound heat pipe operates over broad temperature range
M-FS-23329 B75-10313 06

TEMPERATURE MEASUREMENT

Automated electronic system for measuring thermophysical properties
LANGLEY-11883 B75-10160 03
Simple temperature sensor with direct readout
LANGLEY-11818 B75-10260 01

TEMPERATURE MEASURING INSTRUMENTS

Quartz crystal microbalances to measure wind velocity and air humidity
NPO-13462 B75-10124 03

TEMPERING

Influence of heat treatment on mechanical properties of 300M steel
MSC-14792 B75-10271 04

TENSILE PROPERTIES

Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04

TENSILE STRENGTH

Influence of heat treatment on mechanical properties of 300M steel
MSC-14792 B75-10271 04

TEST CHAMBERS

Apparatus for study of plasmas at elevated temperatures
ARC-10958 B75-10285 03

TEST EQUIPMENT

Low-cost portable fire hose tester
LEWIS-12365 B75-10003 06

TEST FACILITIES

Two-directional active damper
LANGLEY-11815 B75-10259 06

THERMAL ABSORPTION

Solar residential heating and cooling system
M-FS-23260 B75-10165 06

THERMAL CONDUCTIVITY

Fabrication of porous plugs for control of liquid helium
M-FS-23218 B75-10163 04

THERMAL CONTROL COATINGS

High-temperature reusable surface insulation system
MSC-14688 B75-10042 04

THERMAL DISSOCIATION

High-power CW laser using hydrogen-fluorine reaction
NPO-13623 B75-10183 03
Using permeable membranes to produce hydrogen and oxygen from water
MSC-12600 B75-10314 04

THERMAL ENERGY

Large-scale solar thermal collector concepts
M-FS-23167 B75-10098 03

THERMAL EXPANSION

High-temperature capacitive strain measurement system
FRC-10053 B75-10069 01

THERMAL FATIGUE

Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
LEWIS-12502 B75-10138 03

THERMAL INSULATION

Low-density polybenzimidazole foams for thermal insulation and fire protection
ARC-10823 B75-10056 04
Method of attaching insulation tiles
MSC-12619 B75-10104 04
Cryogenic line insulation made from prefabricated polyurethane shells
MSC-19523 B75-10110 06

- Transmission line for S-band masers
NPO-13504 B75-10126 03
- Ceramic thermal protective coating
withstands hostile environment of rotating
turbine blades
LEWIS-12554 B75-10290 04
- Repair of damaged insulation tiles
MSC-19549 B75-10321 04
- Fast semiautomatic dimensional test set
and data logger
MSC-19554 B75-10322 07
- THERMAL PROTECTION**
Analytic model for assessing thermal
performance of SCUBA divers
ARC-10927 B75-10029 09
- THERMAL STABILITY**
Temperature-stable Gunn-diode
oscillator
M-FS-23242 B75-10306 01
- Compound heat pipe operates over broad
temperature range
M-FS-23329 B75-10313 06
- THERMAL STRESSES**
Computer program for numerical analysis
of stiffened shells of revolution
M-FS-23027 B75-10094 09
- RETSCP-A computer program for
analysis of rocket engine thermal strains
with cyclic plasticity
LEWIS-12388 B75-10186 09
- THERMOCHEMICAL PROPERTIES**
Double-discharge copper-vapor laser
NPO-13348 B75-10123 03
- Laser using lead chloride vapor
NPO-13615 B75-10128 03
- THERMOCOUPLES**
A new high temperature noble metal
thermocouple pairing
LEWIS-12545 B75-10245 03
- THERMODYNAMIC EFFICIENCY**
Computer program for thermodynamic
analysis of open-cycle multishaft power
system
LEWIS-12324 B75-10002 09
- THERMODYNAMIC PROPERTIES**
Properties of air and combustion products
of fuel with air
LEWIS-12402 B75-10004 03
- Film mounting method for
thermomechanical analysis
LANGLEY-11330 B75-10072 04
- Computer program for calculating water
and steam properties
LEWIS-12519 B75-10187 09
- Computer program for calculating
thermodynamic and transport properties of
fluids
LEWIS-12520 B75-10188 09
- THERMODYNAMICS**
Using permeable membranes to produce
hydrogen and oxygen from water
MSC-12600 B75-10314 04
- THERMOELECTRIC COOLING**
Thermoelectrically-cooled quartz
microbalance
M-FS-23101 B75-10076 04
- THERMOPHYSICAL PROPERTIES**
Automated electronic system for
measuring thermophysical properties
LANGLEY-11883 B75-10160 03
- THERMOREGULATION**
Analytic model for assessing thermal
performance of SCUBA divers
ARC-10927 B75-10029 09
- THICK FILMS**
Low-loss stripe-line coil for magnetic
bubble memory
LANGLEY-11707 B75-10196 01
- THIN FILMS**
A superior process for forming titanium
hydrogen isotopic films
LEWIS-12083 B75-10001 03
- Thin KAPTON polyimide films vacuum
formed at high temperature retain their
shape at temperatures to 450 K (350 F)
LEWIS-12412 B75-10016 04
- High-performance Schottky diodes
endure high temperatures
M-FS-23184 B75-10101 01
- Laser-to-electricity energy converter for
short wavelengths
NPO-13390 B75-10119 03
- Microelectronic fabrication of
superconducting devices and circuits
NPO-13419 B75-10120 01
- Improved multiple-target sputtering
equipment
NPO-13345 B75-10178 04
- Measurement of trap density in dielectric
film
NPO-13443 B75-10204 02
- Improved chemical vapor-deposition
reactor
NPO-13650 B75-10212 08
- Ellipsometer measurements of epitaxial
GaAs layers A concept
M-FS-23238 B75-10230 01
- Read-only optical storage medium
M-FS-23169 B75-10305 03
- THIN WALLED SHELLS**
Computer program for numerical analysis
of stiffened shells of revolution
M-FS-23027 B75-10094 09
- THRUST BEARINGS**
Long life high speed thrust-load ball
bearings
LEWIS-12269 B75-10022 06
- THRUST CHAMBERS**
Regenerative cooling design and analysis
computer program
LEWIS-12110 B75-10015 09
- THRUST CONTROL**
Improved aircraft reaction nozzles
ARC-10906 B75-10284 06
- TILES**
Method of attaching insulation tiles
MSC-12619 B75-10104 04
- Repair of damaged insulation tiles
MSC-19549 B75-10321 04
- Fast semiautomatic dimensional test set
and data logger
MSC-19554 B75-10322 07
- TIME DIVISION MULTIPLEXING**
Multiplexing technique for computer
communications via satellite channels
ARC-10879 B75-10133 09
- TIME LAG**
Double-discharge copper-vapor laser
NPO-13348 B75-10123 03
- New design of hingeless helicopter rotor
improves stability
ARC-10807 B75-10132 06
- TIME MEASUREMENT**
Quasars as very-accurate clock
synchronizers
NPO-13276 B75-10114 02
- TIME RESPONSE**
JPL transient radiation analysis by
computer program (JTRAC)
NPO-13470 B75-10053 09
- TIMING DEVICES**
Delay-lock-loop code-correlation
synchronizer
GSFC-11868 B75-10291 02
- TISSUES (BIOLOGY)**
Automatically-focusing microscope
system for live tissue observation
NPO-13215 B75-10048 03
- TITANIUM COMPOUNDS**
A superior process for forming titanium
hydrogen isotopic films
LEWIS-12083 B75-10001 03
- TOLERANCES (MECHANICS)**
Fast semiautomatic dimensional test set
and data logger
MSC-19554 B75-10322 07
- TORQUE**
Torque control system
GSFC-11077 B75-10085 06
- TORQUERS**
Fill-in binary loop pulse-torque
quantizer
M-FS-23100 B75-10037 02
- TORSION**
Automated data acquisition and
reduction system for torsional braid
analyzer
LANGLEY-11578 B75-10073 02
- TOUGHNESS**
Diamine curing agents for
polyurethanes
LANGLEY-11829 B75-10261 08
- Influence of heat treatment on
mechanical properties of 300M steel
MSC-14792 B75-10271 04
- TOWED BODIES**
Simple and effective method to lock buoy
position to ocean currents
M-FS-23140 B75-10095 06
- TOXICITY AND SAFETY HAZARD**
Handbook for estimating toxic fuel
hazards
M-FS-21114 B75-10198 04
- TRACE ELEMENTS**
Dynamic delta method for trace gas
analysis
LANGLEY-11800 B75-10159 04
- TRACKING (POSITION)**
Miniature sonar fish tag
LANGLEY-11814 B75-10092 02
- Automatic solar tracker
NPO-13630 B75-10237 03
- TRACKING RADAR**
High-efficiency K-band tracking antenna
feed
MSC-14717 B75-10107 02
- TRAJECTORY ANALYSIS**
Marshall vehicle-engineering simulation
system (MARVES)
M-FS-21701 B75-10199 06
- TRANSDUCERS**
Subminiature transducers for measuring
forces and deformation of heart muscle
NPO-13423 B75-10051 05
- Foam-machining tool with eddy-current
transducer
M-FS-23298 B75-10309 08
- TRANSFORMERS**
System for simultaneous bidirectional
data transmission
MSC-14810 B75-10171 01
- High-voltage stepping supply with fast
settling time
GSFC-11844 B75-10191 02

TRANSIENT HEATING

- Automated electronic system for measuring thermophysical properties
LANGLEY-11883 B75-10160 03
- TRANSIENT LOADS**
High-power ac/dc variable load simulator
MSC-14788 B75-10108 02
- TRANSISTORS**
Solid state remote power controllers for 120 Vdc power systems
LEWIS-12523 B75-10150 02
Three-phase dc motor decoder
GSFC-11824 B75-10247 02
- TRANSMISSION LINES**
Dual-band ridged waveguide
LANGLEY-11781 B75-10091 01
Transmission line for S-band masers
NPO-13504 B75-10126 03
Flammability study of materials in oxygen environments
M-FS-23306 B75-10310 04
- TRANSMITTERS**
Transmitter switch for high-power microwave output
NPO-13439 B75-10122 02
- TRANSPORT PROPERTIES**
Properties of air and combustion products of fuel with air
LEWIS-12402 B75-10004 03
Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03
Computer program for calculating water and steam properties
LEWIS-12519 B75-10187 09
Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09
- TRAPPORTATION**
Two-directional active damper
LANGLEY-11815 B75-10259 06
- TRAPPED PARTICLES**
Laser scanned image sensors using photoconductors with deep traps
NPO-13131 B75-10112 03
- TRAVELING WAVE MASERS**
Low-noise K(u)-band receiver input system
NPO-13645 B75-10281 02
- TUNERS**
Infrared tunable laser A concept
ARC-10463 B75-10081 03
- TUNING**
Tunable diode laser spectrometer with integral grating
LANGLEY-11830 B75-10262 03
Reflected-wave maser
NPO-13490 B75-10279 03
- TURBINE BLADES**
A method for measuring cooling air flow in base coolant passages of rotating turbine blades
LEWIS-12433 B75-10017 03
Investigations of multiple jets in a crossflow
LEWIS-12102 B75-10149 03
Calculation procedure for transient heat transfer to a cooled plate in a heated stream whose temperature varies arbitrarily with time
LEWIS-12558 B75-10244 03
Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04

- Design procedure for low-drag subsonic airfoils
LANGLEY-11351 B75-10256 03
- Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04
- TURBINE ENGINES**
Design criteria monograph on axial flow turbines
LEWIS-12376 B75-10009 06
- TURBINE PUMPS**
Design criteria monograph on turbopump gears
LEWIS-12377 B75-10010 06
Design criteria monograph on turbopump systems
LEWIS-12499 B75-10135 06
- TURBINE WHEELS**
In-service turbine wheel crack monitor
LEWIS-12422 B75-10012 02
- TURBINES**
Computer program for thermodynamic analysis of open-cycle multishaft power system
LEWIS-12324 B75-10002 09
Turbine design review text
LEWIS-12560 B75-10287 06
- TURBOCOMPRESSORS**
Computer program for definition of transonic axial-flow compressor blade rows
LEWIS-12325 B75-10021 09
- TURBOFAN ENGINES**
Computer program for the attenuation of high bypass turbofan engine noise
LEWIS-12179 B75-10242 09
- TURBOFANS**
Fabrication of composite fan blades using PMR A-type polyimide resin and graphite fiber reinforcement
LEWIS-12366 B75-10066 04
- TURBOJET ENGINES**
Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 B75-10190 06
- TURBOMACHINERY**
Design criteria monograph on turbopump gears
LEWIS-12377 B75-10010 06
Design criteria monograph on turbopump systems
LEWIS-12499 B75-10135 06
- TURBOSHAFTS**
Computer program for thermodynamic analysis of open-cycle multishaft power system
LEWIS-12324 B75-10002 09
- TURBULENCE**
Laser velocimeter measurements of high-speed compressible flows
ARC-10781 B75-10141 03
New aircraft instrument indicates turbulence intensity
LANGLEY-11833 B75-10227 03
- TURBULENT FLOW**
Sound separation probe
LEWIS-12507 B75-10286 03

U

ULTRASONIC TESTS

- Isometric scan method for ultrasonic evaluation of composite panels
LEWIS-12437 B75-10014 01
- ULTRASONIC WAVE TRANSDUCERS**
Transmission oscillator ultrasonic spectrometer (TOUS) A new research instrument
LANGLEY-11735 B75-10035 03
Ultrasonic detection of flaws in large structural areas
MSC-19499 B75-10201 06
- ULTRAVIOLET RADIATION**
Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 B75-10115 03
- ULTRAVIOLET SPECTROMETERS**
Ultraviolet hydrogen-discharge lamp
MSC-14793 B75-10272 03
- UNDERWATER TESTS**
Analytic model for assessing thermal performance of SCUBA divers
ARC-10927 B75-10029 09
- UNIVAC COMPUTERS**
Computer program for numerical analysis of stiffened shells of revolution
M-FS-23027 B75-10094 09
Handbook for estimating toxic fuel hazards
M-FS-21114 B75-10198 04
- UNIVAC 1106 COMPUTER**
Computer program for calculating water and steam properties
LEWIS-12519 B75-10187 09
Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09
Improved axisymmetric potential flow computer program
LEWIS-12387 B75-10243 09
- UNIVAC 1108 COMPUTER**
JPL transient radiation analysis by computer program (JTRAC)
NPO-13470 B75-10053 09
Four-dimensional worldwide atmospheric models ANYPT and ANYRG
M-FS-22838 B75-10093 09
Computer program for analysis of vectorcardiograms (VECTAN II)
MSC-14386 B75-10106 09
Table-lookup algorithm for pattern recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03
Reliability computation from reliability block diagrams
NPO-13304 B75-10276 07
- UREAS**
New urea-absorbing polymers for artificial kidney machines
NPO-13620 B75-10336 04
- URINALYSIS**
Automated mass spectrometer/analysis system A concept
NPO-13572 B75-10331 05
- UROLOGY**
New urea-absorbing polymers for artificial kidney machines
NPO-13620 B75-10336 04

V

VACUUM CHAMBERS

- Gas bearing operates in vacuum
NPO-13425 B75-10052 06
- Characteristics and performance study of mass spectrometer residual gas analyzers
LEWIS-12393 B75-10185 03

VACUUM PUMPS

- Diffusion pump modification promotes self-cleansing and high efficiency
LEWIS-12323 B75-10065 06

VALVES

- Regulator for intravenous feeding
ARC-10758 B75-10083 05

VAPOR DEPOSITION

- Improved chemical vapor-deposition reactor
NPO-13650 B75-10212 08

VARACTOR DIODES

- Varactor diode assembly with low parasitic reactances
GSFC-11617 B75-10031 01

VARIABILITY

- Method of identifying clusters representing statistical dependencies in multivariate data
ARC-10744 B75-10140 09

VARIABLE GEOMETRY STRUCTURES

- Variable-volume atomic storage vessel for hydrogen masers
GSFC-11895 B75-10248 03

VARIANCE (STATISTICS)

- Four-dimensional worldwide atmospheric models ANYPT and ANYRG
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NPO-13524 B75-10328 03

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GOLDEN, D P
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NPO-13568 B75-10330 01

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LANGLEY-11661 B75-10089 08

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HAMROCK, B J
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- HARRISON, G A**
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ARC-10929 875-10061 05
- HARSCH, W C**
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GSFC-12004 875-10216 08
- HARTUNG, W**
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MSC-10170 875-10170 05
- HASKELL, R E**
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MSC-14472 875-10080 03
- HAYDEN, T S**
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LEWIS-12403 875-10011 07
- HELLA, R**
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M-FS-23237 875-10267 08
- HENDRICKS, R C**
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LEWIS-12519 875-10187 09
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M-FS-23272 875-10301 08
- HESS, J L**
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LEWIS-12387 875-10243 09
- HEWES, D E**
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LANGLEY-11771 875-10224 03
- HEYMAN, J S**
Transmission oscillator ultrasonic spectrometer (TOUS) A new research instrument
LANGLEY-11735 875-10035 03
- HIGA, W H**
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NPO-13613 875-10334 07
- HO, W W**
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LANGLEY-11647 875-10156 02
- HODGES, D H.**
New design of hingeless helicopter rotor improves stability
ARC-10807 875-10132 06
- HOFFLER, G W**
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MSC-14386 875-10106 09
- HOLBY, H G**
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GSFC-11898 875-10086 02
- HOLDEMAN, L B**
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- HOLEN, J T**
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MSC-14062 875-10167 05
- HOLLEY, L D**
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- HOLMES, J K**
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- HONG, J P**
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NPO-13465 875-10205 02
- HORNER, J L**
Optical-noise suppression unit A concept
MSC-12640 875-10315 03
- HOUSEMAN, J**
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- HOWELL, B J**
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New urea-absorbing polymers for artificial kidney machines
NPO-13620 875-10336 04
- HUDIS, M**
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ARC-10892 875-10084 04
- HUGHES, D B**
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LANGLEY-11774 875-10157 04
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- HULTZMAN, W W**
Characteristics and performance study of mass spectrometer residual gas analyzers
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NPO-13224 875-10113 04
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NPO-13555 875-10207 04
- HUMPHRIES, W R**
Solar residential heating and cooling system
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- HURD, W J**
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NPO-13276 875-10114 02
Synchronizer for random binary data
NPO-13286 875-10325 02
- HWANG, C**
Mounting technique for pressure transducers minimizes measurement interferences
ARC-10933 875-10145 08
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- INGE, A T**
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LANGLEY-11578 875-10073 02
- INGEBO, R D**
Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 875-10190 06
- INGHAM, J D**
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NPO-13555 875-10207 04
- INGRAM, M**
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NPO-13421 875-10121 04
- IRICK, S C**
Reducing flow requirements of fluid actuators
LANGLEY-11540 875-10258 06
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GSFC-11910 875-10032 09
- JACKSON, T P**
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GSFC-11913 875-10071 01
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- JAHNSEN, V J**
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- JENTNER, T A**
Low-cost compact, cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
LEWIS-12445 875-10152 02
- JOCKE, R F**
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LEWIS-12365 875-10003 06
- JOHNS, H E**
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LANGLEY-11894 875-10303 05
- JOHNSON, B L**
Hip-joint simulator accurately duplicates human walking pattern
LEWIS-12515 875-10148 05
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M-FS-22838 875-10093 09
- JOHNSON, D A**
Laser velocimeter measurements of high-speed compressible flows
ARC-10781 875-10141 03
- JOHNSON, W R**
An experimental 100 kilowatt wind turbine generator
LEWIS-12509 875-10147 03
- JOHNSTON, N J**
Automated data acquisition and reduction system for torsional braid analyzer
LANGLEY-11578 875-10073 02

- JONCAS, K P**
High-power ac/dc variable load simulator
MSC-14788 B75-10108 02
- JONES, P W**
Microbial load monitor
MSC-14062 B75-10167 05
- JONES, R A**
Automated electronic system for measuring thermophysical properties
LANGLEY-11883 B75-10160 03
- JONES, W C, III**
Table-lookup algorithm for pattern recognition ELLTAB (Elliptical Table)
MSC-14866 B75-10236 03
- JUDY, P F**
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MSC-14276 B75-10168 05
- JUVINALL, G L**
Nongassing NiCd battery cell
NPO-11853 B75-10174 04
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Ultrasonic detection of flaws in large structural areas
MSC-19499 B75-10201 06
- KAREL, S**
Algorithm for nonlinear stationary Navier-Stokes problem
ARC-10960 B75-10143 09
- KARLE, D W**
A flame-resistant modified polystyrene
MSC-14903 B75-10320 04
- KATZBERG, S J**
Optical feedback technique extends frequency response of photoconductors
LANGLEY-11768 B75-10223 03
- KEENUM, W E**
Marshall vehicle-engineering simulation system (MARVES)
M-FS-21701 B75-10199 06
- KELLER, C H, JR**
Design criteria monograph on transmission seals
LEWIS-12403 B75-10011 07
- KELLER, R A**
Simple computer method provides contours for radiological images
ARC-10940 B75-10146 09
- KERR, D E**
Ultraviolet hydrogen-discharge lamp
MSC-14793 B75-10272 03
- KEY, C F**
Flammability study of materials in oxygen environments
M-FS-23306 B75-10310 04
- KEY, J**
Computer program for numerical analysis of stiffened shells of revolution
M-FS-23027 B75-10094 09
- KIM, H B**
High-performance Schottky diodes endure high temperatures
M-FS-23184 B75-10101 01
- KIRSCHMAN, R K**
Microelectronic fabrication of superconducting devices and circuits
NPO-13419 B75-10120 01
- KLEIN, E**
Improved ion exchange membrane
NPO-13309 B75-10117 04
- KLUCHER, T M**
Inexpensive pocket-size solar energy meter (insolometer)
LEWIS-12598 B75-10283 01
- KONIGSBERG, E**
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ARC-10849 B75-10057 05
- KORS, D L**
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LEWIS-12102 B75-10149 03
- KOURTIDES, D A**
Low-density polybenzimidazole foams for thermal insulation and fire protection
ARC-10823 B75-10056 04
- KRAMER, J S**
Automated electronic system for measuring thermophysical properties
LANGLEY-11883 B75-10160 03
- KRATZE, R H**
A flame-resistant modified polystyrene
MSC-14903 B75-10320 04
- KUPPERMANN, A**
Automated mass spectrometer/analysis system A concept
NPO-13572 B75-10331 05
- KUSHIDA, R**
Gas generators produce hydrogen-rich fuel
NPO-13342 B75-10203 06
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- LABUZA, T P**
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MSC-14835 B75-10317 05
- LAGER, J R**
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M-FS-23228 B75-10164 08
- LANDGREBE, D A**
Multispectral data analysis LARSYS III
MSC-14823 B75-10235 03
- LANGLEY, W R**
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KSC-10699 B75-10254 02
- LANHAM, R N**
Mounting technique for pressure transducers minimizes measurement interferences
ARC-10933 B75-10145 08
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Executive computer program for linking independent computer programs ODINEX
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- LAUDENSLAGER, J B**
Chemical-ionization visible and ultraviolet gas lasers A concept
NPO-13289 B75-10115 03
- LAVE, E G**
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NPO-13462 B75-10124 03
- LEAR, W M**
A study of accuracy in selected numerical-analysis integration techniques
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- LEBLANC, L P**
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MSC-19428 B75-10234 06
- LEGER, L J**
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MSC-12619 B75-10104 04
- LEMKEY, F D**
Superior high temperature properties available in directionally solidified nickel-base eutectic alloys
LEWIS-12562 B75-10246 04
- LENNON, C L**
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KSC-11006 B75-10297 02
- LERMA, G**
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MSC-19523 B75-10110 06
- LESSMANN, G A**
Inhibiting Kirkendall void growth in welded bimetallic structures
LEWIS-11573 B75-10006 08
- LESTER, J**
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MSC-14080 B75-10270 06
- LEU, R K**
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NPO-13439 B75-10122 02
- LEVINSON, S**
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M-FS-23251 B75-10307 03
- LEWIS, G W**
Subminiature transducers for measuring forces and deformation of heart muscle
NPO-13423 B75-10051 05
- Catheter-tip force transducer for cardiovascular research
NPO-13643 B75-10211 05
- LIBERT, C H**
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- Ceramic thermal protective coating withstands hostile environment of rotating turbine blades
LEWIS-12554 B75-10290 04
- LINDBERG, R A**
Inhibiting Kirkendall void growth in welded bimetallic structures
LEWIS-11573 B75-10006 08
- LINNECKE, C**
Continuous detection of viable micro-organisms by chemiluminescence
MSC-10170 B75-10170 05
- LOCKE, E**
Industrial laser welding An evaluation
M-FS-23237 B75-10267 08
- LOKERSON, D C**
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GSFC-11898 B75-10086 02
- LONG, M J**
Reducing flow requirements of fluid actuators
LANGLEY-11540 B75-10258 06
- LORY, C B**
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M-FS-23100 B75-10037 02
- LOVE, A W**
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LANGLEY-11647 B75-10156 02

- Simple temperature sensor with direct readout
 LANGLEY-11818 B75-10260 01
- LOVELADY, R W**
 Miniature sonar fish tag
 LANGLEY-11814 B75-10092 02
- LUCAS, C H**
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 LEWIS-12360 B75-10008 03
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- MANSOUR, M N**
 Automatically-focusing microscope system for live tissue observation
 NPO-13215 B75-10048 03
- MARCUS, B D**
 Computer integration of hydrodynamics equations for heat pipes
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- MARSH, H E**
 New urea-absorbing polymers for artificial kidney machines
 NPO-13620 B75-10336 04
- MASERJIAN, J**
 Laser scanned image sensors using photoconductors with deep traps
 NPO-13131 B75-10112 03
 Measurement of trap density in dielectric film
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 Improved chemical vapor-deposition reactor
 NPO-13650 B75-10212 08
- MAUER, R A**
 Safety management of a complex R&D ground operating system
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- MAYNE, R C**
 Shock and vibration isolation mount for small electronic components
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- MCBRYAR, H**
 Using permeable membranes to produce hydrogen and oxygen from water
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 Reconstituted asbestos matrix for fuel cells
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- MCDONALD, G E**
 Survey of coatings for solar collectors
 LEWIS-12510 B75-10067 04
- MCDUGAL, A R**
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- MCHATTON, A D**
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 LANGLEY-11825 B75-10300 06
- MCKEE, H B**
 Compound heat pipe operates over broad temperature range
 M-FS-23329 B75-10313 06
- MCKENNA, R T**
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 GSFC-11925 B75-10153 02
- MCKEOWN, D**
 Thermoelectrically-cooled quartz microbalance
 M-FS-23101 B75-10076 04
- MCWHORTER, F L**
 Power spectrum analysis of staggered quadruphase-shift-keyed signals
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- MEISSNER, C W, JR**
 New aircraft instrument indicates turbulence intensity
 LANGLEY-11833 B75-10227 03
- MELTON, D E**
 Solar residential heating and cooling system
 M-FS-23260 B75-10165 06
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 Laser-excited fluorescence for measuring atmospheric pollution
 NPO-13231 B75-10275 02
- MERCEREAU, J E**
 Microelectronic fabrication of superconducting devices and circuits
 NPO-13419 B75-10120 01
- MERHEIM, N M**
 Double-discharge copper-vapor laser
 NPO-13348 B75-10123 03
- MEUNIER, G E**
 Fast semiautomatic dimensional test set and data logger
 MSC-19554 B75-10322 07
- MILLER, A**
 Wide-field birefringent elements
 MSC-12677 B75-10105 03
- MILLER, C G**
 A two-degree Kelvin refrigerator
 NPO-13459 B75-10181 03
 Low-cost solar tracking system
 NPO-13579 B75-10209 06
 Secondary reflectors for economical sun-tracking energy collection system A concept
 NPO-13580 B75-10210 03
- MILLER, J F**
 Single crystals of metal solid solutions A study
 M-FS-23268 B75-10268 03
- MILLER, J G**
 Transmission oscillator ultrasonic spectrometer (TOUS) A new research instrument
 LANGLEY-11735 B75-10035 03
- MILLER, R E**
 Low-cost portable fire hose tester
 LEWIS-12365 B75-10003 06
- MILLER, R W**
 RETSCP-A computer program for analysis of rocket engine thermal strains with cyclic plasticity
 LEWIS-12388 B75-10186 09
- MILLIGAN, R**
 Low-density polybenzimidazole foams for thermal insulation and fire protection
 ARC-10823 B75-10056 04
- MIQUEL, J**
 Acceleration of the aging process by oxygen
 ARC-10928 B75-10030 05
- MOIK, J G**
 Small interactive image processing system (SMIPS)
 GSFC-12079 B75-10295 09
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 Solid-state motor control and monitor system
 MSC-12721 B75-10316 02
- MONTEGANI, F J**
 Computer programs for handling propulsion system noise data
 LEWIS-12285 B75-10019 09
- MONTGOMERY, L D**
 Analytic model for assessing thermal performance of SCUBA divers
 ARC-10927 B75-10029 09
- MOORE, M T**
 Sound separation probe
 LEWIS-12507 B75-10286 03
- MOYA, N**
 Life prediction of materials exposed to monotonic and cyclic loading A technology survey and bibliography
 LEWIS-12502 B75-10138 03
 Fracture toughness testing data A technology survey and bibliography
 LEWIS-12503 B75-10139 03
- MOYNIHAN, P I**
 High-power CW laser using hydrogen-fluorine reaction
 NPO-13623 B75-10183 03
- MUELLER, W A**
 New urea-absorbing polymers for artificial kidney machines
 NPO-13620 B75-10336 04
- MUI, D**
 Repair of damaged insulation tiles
 MSC-19549 B75-10321 04
- MULLER, R M**
 Position sensing materials wound on a reel
 GSFC-11902 B75-10249 07

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- NAGANO, S**
 Trigger circuit forces immediate synchronization of free-running oscillator
 NPO-13646 B75-10337 01
- NAIMER, J**
 Highly-visible air-sea rescue marker
 MSC-12564 B75-10166 05

NEUMANN, F D

Low-profile landing-gear assembly
ARC-10786 B75-10055 06

NEWELL, J D

Simple computer method provides contours for radiological images
ARC-10940 B75-10146 09

NEWMAN, B A

Temperature-stable Gunn-diode oscillator
M-FS-23242 B75-10306 01

NICOLAS, D P

Microcircuit testing and fabrication using scanning electron microscopes
M-FS-23159 B75-10304 01

NIES, G E

Thin KAPTON polyimide films vacuum formed at high temperature retain their shape at temperatures to 450 K (350 F)
LEWIS-12412 B75-10016 04

NORGREN, C T

Improved air atomizing splash-groove fuel injector reduces pollutant emissions from turbojet engines
LEWIS-12417 B75-10190 06

NOTARYS, H A

Microelectronic fabrication of superconducting devices and circuits
NPO-13419 B75-10120 01

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OHLSON, J E

Multibeam-antenna feed system to isolate orthogonally polarized beams
NPO-13140 B75-10046 02

OKINAKA, A K

Buffer control unit for computer communications
ARC-10870 B75-10059 02

OLESON, C C

Fluorescent color coding of power receptacles
MSC-19504 B75-10109 01

OLIVE, R S

Sputtered gold mask for deep chemical etching of silicon
LANGLEY-11661 B75-10089 08

ORMISTON, R A

New design of hingeless helicopter rotor improves stability
ARC-10807 B75-10132 06

OSHER, J V

Subminiature transducers for measuring forces and deformation of heart muscle
NPO-13423 B75-10051 05

OVERBAY, L W

Angular device for optical filters
LANGLEY-11796 B75-10158 03

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PACIOREN, K L

A flame-resistant modified polystyrene
MSC-14903 B75-10320 04

PARDOE, C T

Delay-lock-loop code-correlation synchronizer
GSFC-11868 B75-10291 02

PARKER, J A

Low-density polybenzimidazole foams for thermal insulation and fire protection
ARC-10823 B75-10056 04

Fiber-modified polyurethane foam for ballistic protection
ARC-10714 B75-10062 04

PARKER, J F

Powered fire nozzle for fast penetration of structures A concept
MSC-19528 B75-10111 06

PARKER, R J

Silicon nitride used as a rolling-element bearing material
LEWIS-12447 B75-10134 06

PARSONS, W N

Risk management technique for liquefied natural gas facilities
KSC-11005 B75-10193 04

PATCH, R W

Low-cost, compact cooled photomultiplier assembly for use in magnetic fields up to 1400 Gauss
LEWIS-12445 B75-10152 02

PATTERSON, W J

Improved printed-wiring boards for high-reliability circuits
M-FS-23147 B75-10039 01

PEARSONS, K S

Handbook of noise ratings
LANGLEY-11799 B75-10075 03

PEART, N A

Prediction of aircraft noise source and estimation of noise-level contours
ARC-10880 B75-10060 09

PELLER, I C

Computer program for calculating water and steam properties
LEWIS-12519 B75-10187 09

Computer program for calculating thermodynamic and transport properties of fluids
LEWIS-12520 B75-10188 09

PEOPLES, J A

Steam automobile analysis
M-FS-23188 B75-10229 03

PERKINS, G S

Gas bearing operates in vacuum
NPO-13425 B75-10052 06

PERLMAN, M

Generation of key in cryptographic system for secure communications
NPO-13451 B75-10278 09

PETCHER, M

Real-time video correlator
M-FS-23200 B75-10265 02

PETERS, D A

New design of hingeless helicopter rotor improves stability
ARC-10807 B75-10132 06

PETERS, H F

Variable-volume atomic storage vessel for hydrogen masers
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