



NASA SP-7039(14)  
Section 2  
Indexes

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Section 2 • Indexes

JANUARY 1979

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## ACCESSION NUMBER RANGES

<i>Bibliography Number</i>	<i>STAR Accession Numbers</i>
NASA SP-7039(04)	N69-20701–N73-33931
NASA SP-7039(12)	N74-10001–N77-34042
NASA SP-7039(13)	N78-10001–N78-22018
NASA SP-7039(14)	N78-22019–N78-34034

**NASA**

**PATENT  
ABSTRACTS  
BIBLIOGRAPHY**

**A CONTINUING BIBLIOGRAPHY**

**Section 2 • Indexes**

Indexes for the annotated references to NASA-owned inventions covered by U.S. patents and applications for patent that were announced in *Scientific and Technical Aerospace Reports (STAR)* between May 1969 and December 1978. This issue supersedes all previous Index Sections.



*Scientific and Technical Information Branch*  
**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

**JANUARY 1979**  
*Washington, D.C.*

This Supplement is available from the National Technical Information Service (NTIS), Springfield, Virginia 22161, at price code E06 (\$10 50 domestic, \$21 00 foreign)

# INTRODUCTION

Several thousand inventions result each year from the aeronautical and space research supported by the National Aeronautics and Space Administration. The inventions having important use in government programs or significant commercial potential are usually patented by NASA. These inventions cover practically all fields of technology and include many that have useful and valuable commercial application.

NASA inventions best serve the interests of the United States when their benefits are available to the public. In many instances, the granting of nonexclusive or exclusive licenses for the practice of these inventions may assist in the accomplishment of this objective. This bibliography is published as a service to companies, firms, and individuals seeking new, licensable products for the commercial market.

The *NASA Patent Abstracts Bibliography (NASA PAB)* is a semiannual NASA publication containing comprehensive abstracts and indexes of NASA-owned inventions covered by U.S. patents and applications for patent. The citations included in *NASA PAB* were originally published in NASA's *Scientific and Technical Aerospace Reports (STAR)* and cover *STAR* announcements made since May 1969.

For the convenience of the user, each issue of *NASA PAB* has a separately bound Abstract Section (Section 1) and Index Section (Section 2). Although each Abstract Section covers only the indicated six-month period, the Index Section is cumulative covering all NASA-owned inventions announced in *STAR* since May 1969. Thus a complete set of *NASA PAB* would consist of the Abstract Sections of Issue 04 (January 1974) and Issue 12 (January 1978) and the Abstract Section for all subsequent issues and the Index Section for the most recent issue.

The 213 citations published in this issue of the Abstract Section cover the period July 1978 through December 1978. The Index Section contains references to the 3512 citations covering the period May 1969 through December 1978.

## ABSTRACT SECTION (SECTION 1)

This *PAB* issue incorporates the 1975 *STAR* category revisions which include 10 major subdivisions divided into 74 specific categories and one general category/division (See Table of Contents for the scope note of each category under which are grouped appropriate NASA inventions). This new scheme was devised in lieu of the 34 category divisions which were utilized in *PAB* supplements (01) through (06) covering *STAR* abstracts from May 1969 through January 1974. Each entry in the Abstract Section consists of a *STAR* citation accompanied by an abstract and a key illustration taken from the patent or application for patent drawing. Entries are arranged in subject category in order of the ascending NASA Accession Number originally assigned in *STAR* to the invention. The range of NASA Accession Numbers within each issue is printed on the inside front cover.

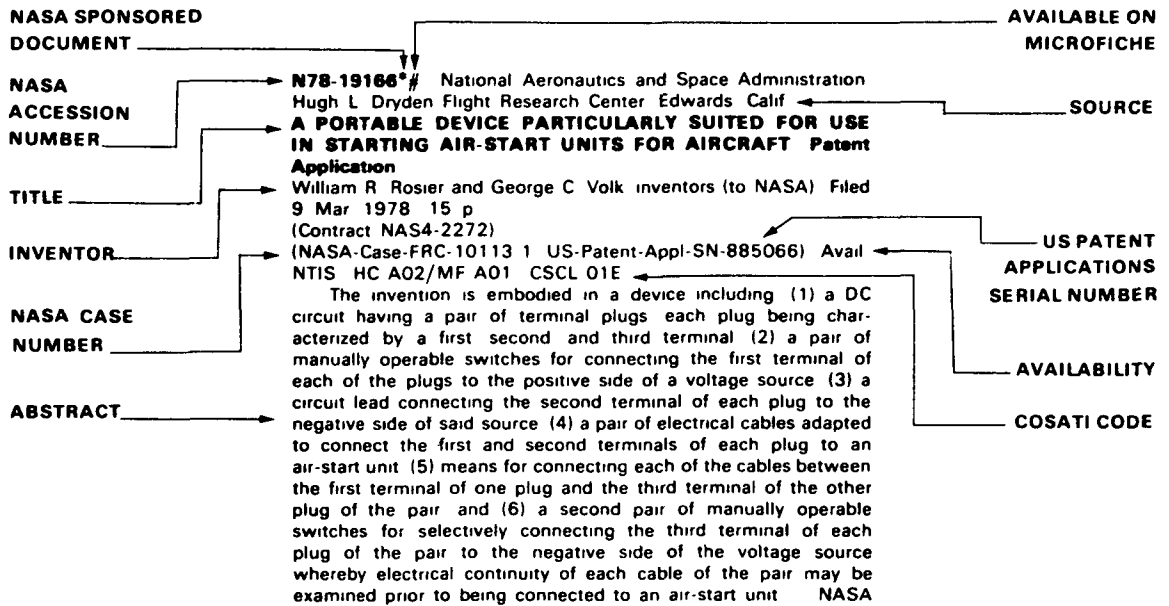
*Abstract Citation Data Elements* Each of the abstract citations has several data elements useful for identification and indexing purposes, as follows:

NASA Accession Number  
NASA Case Number  
Inventor's Name

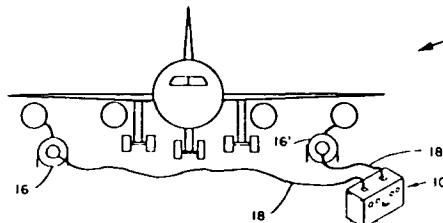
- Title of Invention
- U S Patent Application Serial Number
- U S Patent Number (for issued patents only)
- U S Patent Classification Number(s)  
(for issued patents only)

These data elements in the citation of the abstract as depicted in the Typical Citation and Abstract reproduced below and are also used in the several indexes

## TYPICAL CITATION AND ABSTRACT



**KEY ILLUSTRATION**



## INDEX SECTION (SECTION 2)

The Index Section is divided into five indexes which are cross-indexed and are useful in locating a single invention or groups of inventions

Each of the five indexes utilizes basic data elements (1) Subject Category Number, (2) NASA Accession Number, and (3) NASA Case Number, in addition to other specific index terms

**Subject Index** Lists all inventions according to appropriate alphabetized technical term and indicates the related NASA Case Number, the Subject Category Number, and the NASA Accession Number

**Inventor Index:** Lists all inventions according to alphabetized names of inventors and indicates the related NASA Case Number, the Subject Category Number, and the NASA Accession Number

**Source Index:** Lists all inventions according to alphabetized source of invention (i.e., name of contractor or government installation where invention was made) and indicates the related NASA Case Number, the Subject Category Number, and the NASA Accession Number

**Number Index:** Lists inventions in order of ascending (1) NASA Case Number, (2) U S Patent Application Serial Number, (3) U S Patent Classification Number, and (4) U S Patent Number and indicates the related Subject Category Number and the NASA Accession Number

**Accession Number Index.** Lists all inventions in order of ascending NASA Accession Number and indicates the related Subject Category Number, the NASA Case Number, the U S Patent Application Serial Number, the U S Patent Classification Number, and the U S Patent Number

## HOW TO USE THIS PUBLICATION TO IDENTIFY NASA INVENTIONS

To identify one or more NASA inventions within a specific technical field or subject, several techniques are possible when using the flexibility incorporated into the *NASA PAB*

(1) *Using Subject Category* To identify all NASA inventions in any one of the subject categories in this issue of *NASA PAB*, select the desired Subject Category in the Abstract Section (Section 1) and find the inventions abstracted thereunder

(2) *Using Subject Index* To identify all NASA inventions listed under a desired technical subject index term, (A) turn to the cumulative Subject Index in the Index Section and find the invention(s) listed under the desired technical subject term (B) Note the indicated Accession Number and the Subject Category Number (C) Using the indicated Accession Number, turn to the inside front cover of the Index Section to determine which issue of the Abstract Section includes the Accession Number desired (D) To find the abstract of the particular invention in the issue of the Abstract Section selected, (i) use the Subject Category Number to locate the Subject Category and (ii) use the Accession Number to locate the desired invention within the Subject Category listing

(3) *Using Patent Classification Index* To identify all inventions covered by issued NASA patents (does not include applications for patent) within a desired Patent Classification, (A) turn to the Patent Classification Number in the Number Index of Section 2 and find the associated inventions(s), and (B) follow the instructions outlined in (2)(B), and (D) above

### **PUBLIC AVAILABILITY OF COPIES OF PATENTS AND PATENT APPLICATIONS**

Copies of U S patents may be purchased directly from the U S Patent and Trademark Office, Washington, D C 20231, for fifty cents a copy When ordering patents, the U S Patent Number should be used, and payment must be remitted in advance, preferably by money order or check payable to the Commissioner of Patents and Trademarks Prepaid purchase coupons for ordering are also available from the Patent and Trademark Office

NASA *patent application specifications* are sold in paper copy by the National Technical Information Service at price code A02 (\$4 00 domestic, \$8 00 foreign) Microfiche are sold at price code A01 (\$3 00 domestic, \$4 50 foreign) The US-Patent-Appl-SN-number should be used in ordering either paper copy or microfiche from NTIS

### **LICENSES FOR COMMERCIAL USE: INQUIRIES AND APPLICATIONS FOR LICENSE**

NASA inventions, abstracted in *NASA PAB*, are available for nonexclusive or exclusive licensing in accordance with the NASA Patent Licensing Regulations It is significant that all licenses for NASA inventions shall be by express written instruments and that no license will be granted or implied in a NASA invention except as provided in the NASA Patent Licensing Regulations

Inquiries concerning the NASA Patent Licensing Program or the availability of licenses for the commercial use of NASA-owned inventions covered by U S patents or pending applications for patent should be forwarded to the NASA Patent Counsel of the NASA installation having cognizance of the specific invention, or the Assistant General Counsel for Patent Matters, Code GP-4, National Aeronautics and Space Administration, Washington, D C 20546 Inquiries should refer to the NASA Case Number, the Title of the Invention, and the U S Patent Number or the U S Application Serial Number assigned to the invention as shown in *NASA PAB*

The NASA Patent Counsel having cognizance of the invention is determined by the first three letters or prefix of the NASA Case Number assigned to the invention The addresses of NASA Patent Counsels are listed alongside the NASA Case Number prefix letters in the following table Formal application of license must be submitted on the NASA Form, Application for NASA Patent License, which is available upon request from any NASA Patent Counsel



**NASA Case  
Number  
Prefix Letters**

**Address of Cognizant  
NASA Patent Counsel**

ARC-xxxxx  
XAR-xxxxx

Ames Research Center  
Mail Code 200-11A  
Moffett Field, California 94035  
Telephone (415)965-5104

ERC-xxxxx  
XER-xxxxx  
HQN-xxxxx  
XHQ-xxxxx

NASA Headquarters  
Mail Code GP-4  
Washington, D C 20546  
Telephone (202)755-3954

GSC-xxxxx  
XGS-xxxxx

Goddard Space Flight Center  
Mail Code 204  
Greenbelt, Maryland 20771  
Telephone (301)344-7351

KSC-xxxxx  
XKS-xxxxx

John F Kennedy Space Center  
Mail Code AA-PAT  
Kennedy Space Center, Florida 32899  
Telephone (305)867-2544

LAR-xxxxx  
XLA-xxxxx

Langley Research Center  
Mail Code 456  
Hampton, Virginia 23365  
Telephone (804)827-3725

LEW-xxxxx  
XLE-xxxxx

Lewis Research Center  
Mail Code 500-311  
21000 Brookpark Road  
Cleveland, Ohio 44135  
Telephone (216)433-6346

MSC-xxxxx  
XMS-xxxxx

Lyndon B Johnson Space Center  
Mail Code AM  
Houston, Texas 77058  
Telephone (713)483-4871

MFS-xxxxx  
XMF-xxxxx

George C Marshall Space Flight  
Center  
Mail Code CC01  
Huntsville, Alabama 35812  
Telephone (205)453-0020

NPO-xxxxx  
XNP-xxxxx  
FRC-xxxxx  
XFR-xxxxx  
WOO-xxxxx

NASA Resident Legal Office  
Mail Code 180-601  
4800 Oak Grove Drive  
Pasadena, California 91103  
Telephone (213)354-2700

# PATENT LICENSING REGULATIONS

## Title 14—AERONAUTICS AND SPACE

### Chapter V—National Aeronautics and Space Administration

#### PART 1245—PATENTS

##### Subpart 2—Patent Licensing Regulations

1. Subpart 2 is revised in its entirety as follows:

Sec.

1245.200	Scope of subpart.
1245.201	Definitions.
1245.202	Basic considerations.
1245.203	Licenses for practical application of inventions.
1245.204	Other licenses.
1245.205	Publication of NASA inventions available for license.
1245.206	Application for nonexclusive license.
1245.207	Application for exclusive license.
1245.208	Processing applications for license.
1245.209	Royalties and fees.
1245.210	Reports.
1245.211	Revocation of licenses.
1245.212	Appeals.
1245.213	Litigation.
1245.214	Address of communications.

**AUTHORITY:** The provisions of this Subpart 2 issued under 42 U.S.C. 2457, 2473(b) (3).

##### § 1245.200 Scope of subpart.

This Subpart 2 prescribes the terms, conditions, and procedures for licensing inventions covered by U.S. patents and patent applications for which the Administrator of the National Aeronautics and Space Administration holds title on behalf of the United States.

##### § 1245.201 Definitions.

For the purpose of this subpart, the following definitions apply:

(a) "Invention" means an invention covered by a U.S. patent or patent application for which the Administrator of NASA holds title on behalf of the United States and which is designated by the Administration as appropriate for the grant of license(s) in accordance with this subpart.

(b) "To practice an invention" means to make or have made, use or have used, sell or have sold, or otherwise dispose of according to law any machine, article of manufacture or composition of matter physically embodying the invention, or to use or have used the process or method comprising the invention.

(c) "Practical application" means the manufacture in the case of a composition of matter or product, the use in the case of a process, or the operation in the case of a machine, under such conditions as to establish that the invention is being utilized and that its benefits are reasonably accessible to the public.

(d) "Special invention" means any invention designated by the NASA Assistant General Counsel for Patent Matters to be subject to short-form licensing procedures. An invention may be designated as a special invention when a determination is made that:

(1) Practical application has occurred and is likely to continue for the life of

the patent and for which an exclusive license is not in force, or

(2) The public interest would be served by the expeditious granting of a nonexclusive license for practice of the invention by the public.

(e) The "Administrator" means the Administrator of the National Aeronautics and Space Administration, or his designee.

(f) "Government" means the Government of the United States of America.

(g) The "Inventions and Contributions Board" means the NASA Inventions and Contributions Board established by the Administrator of NASA within the Administration in accordance with section 305 of the National Aeronautics and Space Act of 1958 as amended (42 U.S.C. 2457).

##### § 1245.202 Basic considerations.

(a) Much of the new technology resulting from NASA sponsored research and development in aeronautical and space activities has application in other fields. NASA has special authority and responsibility under the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2451), to provide for the widest practical dissemination and utilization of this new technology. In addition, NASA has been given unique requirements to protect the inventions resulting from NASA activities and to promulgate licensing regulations to encourage commercial use of these inventions.

(b) NASA-owned inventions will best serve the interests of the United States when they are brought to practical application in the shortest time possible. Although NASA encourages the non-exclusive licensing of its inventions to promote competition and achieve their widest possible utilization, the commercial development of certain inventions calls for a substantial capital investment which private manufacturers may be unwilling to risk under a nonexclusive license. It is the policy of NASA to seek exclusive licensees when such licenses will provide the necessary incentive to the licensee to achieve early practical application of the invention.

(c) The Administrator, in determining whether to grant an exclusive license, will evaluate all relevant information submitted by applicants and all other persons and will consider the necessity for further technical and market development of the invention, the capabilities of prospective licensees, their proposed plans to undertake the required investment and development, the impact on competitors, and the benefits of the license to the Government and to the public. Preference for exclusive license shall be given to U.S. citizens or companies who intend to manufacture or use, in the case of a process, the invention in the United States of America, its territories and possessions. Consideration may also be given to assisting small businesses and minority business enterprises, as well as economically depressed, low income and labor surplus areas.

(d) All licenses for inventions shall

be by express written instruments. No license shall be granted either expressly or by implication, for a NASA invention except as provided for in §§ 1245.203 and 1245.204 and in any existing or future treaty or agreement between the United States and any foreign government.

(e) Licenses for inventions covered by NASA-owned foreign patents and patent applications shall be granted in accordance with the NASA Foreign Patent Licensing Regulations (§ 1245.4).

##### § 1245.203 Licenses for practical application of inventions.

(a) *General.* As an incentive to encourage practical application of inventions, licenses will be granted to responsible applicants according to the circumstances and conditions set forth in this section.

(b) *Nonexclusive licenses.* (1) Each invention will be made available to responsible applicants for nonexclusive, revocable licensing in accordance with § 1245.206, consistent with the provisions of any existing exclusive license.

(2) The duration of the license shall be for a period as specified in the license.

(3) The license shall require the licensee to achieve the practical application of the invention and to then practice the invention for the duration of the license.

(4) The license may be granted for all or less than all fields of use of the invention and throughout the United States of America, its territories and possessions, Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(5) The license shall extend to the subsidiaries and affiliates of the licensee and shall be nonassignable without approval of the Administrator, NASA, except to the successor of that part of the licensee's business to which the invention pertains.

(c) *Short-form nonexclusive licenses.* A nonexclusive, revocable license for a special invention, as defined in § 1245.201 (d), shall be granted upon written request, to any applicant by the Patent Counsel of the NASA installation having cognizance of the invention.

(d) *Exclusive licenses.* (1) A limited exclusive license may be granted on an invention available for such licensing provided that:

(i) The Administrator has determined that: (a) The invention has not been brought to practical application by a nonexclusive licensee in the fields of use or in the geographical locations covered by the application for the exclusive license, (b) practical application of the invention in the fields of use or geographical locations covered by the application for the exclusive license is not likely to be achieved expeditiously by the further funding of the invention by the Government or under a nonexclusive license requested by any applicant pursuant to these regulations, and (c) the exclusive license will provide the necessary incentive to the licensee to achieve the practical application of the invention; and

(ii) Either a notice pursuant to

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§ 1245.205 listing the invention as available for licensing has been published in the FEDERAL REGISTER for at least 9 months; or a patent covering the invention has been issued for at least 6 months. However, a limited exclusive license may be granted prior to the periods specified above if the Administrator determines that the public interest will best be served by the earlier grant of an exclusive license.

(2) The license may be granted for all or less than all fields of use of the invention, and throughout the United States of America, its territories and possessions, Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(3) The exclusive period of the license shall be negotiated, but shall be for less than the terminal portion of the patent, and shall be related to the period necessary to provide a reasonable incentive to invest the necessary risk capital.

(4) The license shall require the licensee to practice the invention within a period specified in the license and then to achieve practical application of the invention.

(5) The license shall require the licensee to expend a specified minimum sum of money and/or to take other specified actions, within indicated period(s) after the effective date of the license, in an effort to achieve practical application of the invention.

(6) The license shall be subject to at least an irrevocable royalty-free right of the Government of the United States to practice and have practiced the invention throughout the world by or on behalf of the Government of the United States and on behalf of any foreign government pursuant to any existing or future treaty or agreement with the United States.

(7) The license may reserve to the Administrator, NASA, under the following circumstances, the right to require the granting of a sublicense to responsible applicant(s) on terms that are considered reasonable by the Administrator, taking into consideration the current royalty rates under similar patents and other pertinent facts: (i) To the extent that the invention is required for public use by Government regulation, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other purposes stipulated in the license.

(8) The license shall be nontransferable except to the successor of that part of the licensee's business to which the invention pertains.

(9) Subject to the approval of the Administrator, the licensee may grant sublicenses under the license. Each sublicense granted by an exclusive licensee shall make reference to and shall provide that the sublicense is subject to the terms of the exclusive license including the rights retained by the Government under the exclusive license. A copy of each sublicense shall be furnished to the Administrator.

(10) The license may be subject to such other reservations as may be in the public interest.

### § 1245.204 Other licenses.

(a) *License to contractor.* There is

hereby granted to the contractor reporting an invention made in the performance of work under a contract of NASA in the manner specified in section 305(a)

(1) or (2) of the National Aeronautics and Space Act of 1958 as amended (42 U.S.C. 2457(a) (1) or (2)), a revocable, nonexclusive, royalty-free license for the practice of such invention, together with the right to grant sublicenses of the same scope to the extent the contractor was legally obligated to do so at the time the contract was awarded. Such license and right is nontransferable except to the successor of that part of the contractor's business to which the invention pertains.

(b) *Miscellaneous licenses.* Subject to any outstanding licenses, nothing in this subpart 2 shall preclude the Administrator from granting other licenses for inventions, when he determines that do so would provide for an equitable distribution of rights. The following exemplify circumstances wherein such licenses may be granted:

(1) In consideration of the settlement of an interference;

(2) In consideration of a release of a claim of infringement; or

(3) In exchange for or as part of the consideration for a license under adversely held patent(s).

§ 1245.205 Publication of NASA inventions available for license.

(a) A notice will be periodically published in the FEDERAL REGISTER listing inventions available for licensing. Abstracts of the inventions will also be published in the NASA Scientific and Technical Aerospace Reports (STAR) and other NASA publications.

(b) Copies of pending patent applications for inventions abstracted in STAR may be purchased from the National Technical Information Service, Springfield, Va. 22151.

§ 1245.206 Application for nonexclusive license.

(a) *Submission of application.* An application for nonexclusive license under § 1245.203(b) or a short-form nonexclusive license for special inventions under § 1245.203(c) shall be addressed to the NASA Patent Counsel of the NASA installation having cognizance over the NASA invention for which a license is desired or to the NASA Assistant General Counsel for Patent Matters.

(b) *Contents of an application for nonexclusive license.* An application for nonexclusive license under § 1245.203(b) shall include:

(1) Identification of invention for which license is desired, including the NASA patent case number, patent application serial number of patent number, title and date, if known;

(2) Name and address of the person, company or organization applying for license and whether the applicant is a U.S. citizen or a U.S. corporation;

(3) Name and address of representative of applicant to whom correspondence should be sent;

(4) Nature and type of applicant's business;

(5) Number of employees;

(6) Purpose for which license is desired;

(7) A statement that contains the applicant's best knowledge of the extent to which the invention is being practiced by private industry and the Government;

(8) A description of applicant's capability and plan to undertake the development and marketing required to achieve the practical application of the invention, including the geographical location where the applicant plans to manufacture or use, in the case of a process, the invention; and

(9) A statement indicating the minimum term of years the applicant desires to be licensed.

(c) *Contents of an application for a short-form nonexclusive license.* An application for a short-form nonexclusive license under § 1245.203(c) for a special invention shall include:

(1) Identification of invention for which license is desired, including the NASA patent case number, patent application serial number or patent number, title and date, if known;

(2) Name and address of company or organization applying for license; and

(3) Name and address of representative of applicant to whom correspondence should be sent.

§ 1245.207 Application for exclusive license.

(a) *Submission of application.* An application for exclusive license under § 1245.203(d) may be submitted to NASA at any time. An application for exclusive license shall be addressed to the NASA Assistant General Counsel for Patent Matters.

(b) *Contents of an application for exclusive license.* In addition to the requirements set forth in § 1245.206(b), the application for an exclusive license shall include:

(1) Applicant's status, if any, in any one or more of the following categories:

(i) Small business firm;

(ii) Minority business enterprise;

(iii) Location in a surplus labor area;

(iv) Location in a low-income urban area; and

(v) Location in an area designed by the Government as economically depressed.

(2) A statement indicating the time, expenditure, and other acts which the applicant considers necessary to achieve practical application of the invention, and the applicant's offer to invest that sum and to perform such acts if the license is granted;

(3) A statement whether the applicant would be willing to accept a license for all or less than all fields of use of the invention throughout the United States of America, its territories and possessions, Puerto Rico, and the District of Columbia, or in any lesser geographic portion thereof.

(4) A statement indicating the amount of royalty fees or other consideration, if any, the applicant would be willing to pay the Government for the exclusive license; and

(5) Any other facts which the applicant believes to show it to be in the interests of the United States of America for the Administrator to grant an exclusive license rather than a nonexclusive li-

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cense and that such an exclusive license should be granted to the applicant.

### § 1245.208 Processing applications for license.

(a) *Initial review* Applications for nonexclusive and exclusive licenses under §§ 1245.206 and 1245.207 will be reviewed by the Patent Counsel of the NASA Installation having cognizance for the invention and the NASA Assistant General Counsel for Patent Matters, to determine the conformity and appropriateness of the application for license and the availability of the specific invention for the license requested. The Assistant General Counsel for Patent Matters will forward all applications for license conforming to §§ 1245.206(b) and 1245.207(b) to the NASA Inventions and Contributions Board when the invention is available for consideration of the requested license. Prior to forwarding applications for exclusive licenses to the Inventions and Contributions Board, notice in writing will be given to each nonexclusive licensee for the specific invention advising of the receipt of the application for the exclusive license and providing each nonexclusive licensee with a 30-day period for submitting either evidence that practical application of the invention has occurred or is about to occur or, an application for an exclusive license for the invention.

(b) *Recommendations of Inventions and Contributions Board.* The Inventions and Contributions Board shall, in accordance with the basic considerations set forth in §§ 1245.202 and 1245.203, evaluate all applications for license forwarded by the Assistant General Counsel for Patent Matters. Based upon the facts presented to the Inventions and Contributions Board in the application and any other facts in its possession, the Inventions and Contributions Board shall recommend to the Administrator: (1) Whether a nonexclusive or exclusive license should be granted, (2) the identity of the licensee, and (3) any special terms or conditions of the license.

(c) *Determination of Administrator and grant of nonexclusive licenses.* The Administrator shall review the recommendations of the Inventions and Contributions Board and shall determine whether to grant the nonexclusive license as recommended by the Board. If the Administrator determines to grant the license, the license will be granted upon the negotiation of the appropriate terms and conditions of the Office of General Counsel.

(d) *Determination of Administrator and grant of exclusive licenses—(1) Notice.* If the Administrator determines that the best interest of the United States will be served by the granting of an exclusive license in accordance with the basic considerations set forth in §§ 1245.202 and 1245.203, a notice shall be published in the FEDERAL REGISTER announcing the intent to grant the exclusive license, the identification of the invention, special terms or conditions of the proposed license, and a statement that NASA will grant the exclusive license unless within 30 days of the publication of such notice the Inventions and Contributions Board receives in writing

any of the following together with supporting documentation:

(i) A statement from any person setting forth reasons why it would not be in the best interest of the United States to grant the proposed exclusive license, or

(ii) An application for a nonexclusive license under such invention, in accordance with § 1245.206(b), in which applicant states that he has already brought or is likely to bring the invention to practical application within a reasonable period.

The Inventions and Contributions Board shall, upon receipt of a written request within the 30 days' notice period, grant an extension of 30 days for the submission of the documents designated above.

(2) *Recommendation of Inventions and Contributions Board.* Upon the expiration of the period required by subparagraph (1) of this paragraph, the Board shall review all written responses to the notice and shall then recommend to the Administrator whether to grant the exclusive license as the Board initially recommended or whether a different form of license, if any, should instead be granted.

(3) *Grant of exclusive licenses.* The Administrator shall review the Board's recommendation and shall determine if the interest of the United States would best be served by the grant of an exclusive license as recommended by the Board. If the Administrator determines to grant the exclusive license, the license will be granted upon the negotiation of the appropriate terms and conditions by the Office of General Counsel.

### § 1245.209 Royalties and fees.

(a) Normally, a nonexclusive license for the practical application of an invention granted to a US citizen or company will not require the payment of royalties, however, NASA may require other consideration.

(b) An exclusive license for an invention may require the payment of royalties, fees or other consideration when the licensing circumstances and the basic considerations in § 1245.202, considered together, indicate that it is in the public interest to do so.

### § 1245.210 Reports.

A license shall require the licensee to submit periodic reports of his efforts to work the invention. The reports shall contain information within his knowledge, or which he may acquire under normal business practice, pertaining to the commercial use that is being made of the invention and such other information which the Administrator may determine pertinent to the licensing program and which is specified in the license.

### § 1245.211 Revocation of licenses.

(a) Any license granted pursuant to § 1245.203 may be revoked, either in part or in its entirety, by the Administrator if in his opinion the licensee at any time shall fail to use adequate efforts to bring to or achieve practical application of the invention in accordance with the terms of the license, or if the licensee at any

time shall default in making any report required by the license, or shall make any false report, or shall commit any breach of any covenant or agreement therein contained, and shall fail to remedy any such default, false report, or breach within 30 days after written notice, or if the patent is deemed unenforceable either by the Attorney General or a final decision of a US court.

(b) Any license granted pursuant to § 1245.204(a) may be revoked, either in part or in its entirety, by the Administrator if in his opinion such revocation is necessary to achieve the earliest practical application of the invention pursuant to an application for exclusive license submitted in accordance with § 1245.207, or the licensee at any time shall breach any covenant or agreement contained in the license, and shall fail to remedy any such breach within 30 days after written notice thereof.

(c) Before revoking any license granted pursuant to this Subpart 2 for any cause, there will be furnished to the licensee a written notice of intention to revoke the license, and the licensee will be allowed 30 days after such notice in which to appeal and request a hearing before the Inventions and Contributions Board on the question of revocation. After a hearing, the Inventions and Contributions Board shall transmit to the Administrator the record of proceedings, its findings of fact, and its recommendation whether the license should be revoked either in part or in its entirety. The Administrator shall review the recommendation of the Board and determine whether to revoke the license in part or in its entirety. Revocation of a license shall include revocation of all sublicenses which have been granted.

### § 1245.212 Appeals.

Any person desiring to file an appeal pursuant to § 1245.211(c) shall address the appeal to Chairman, Inventions and Contributions Board. Any person filing an appeal shall be afforded an opportunity to be heard before the Inventions and Contributions Board, and to offer evidence in support of his appeal. The procedures to be followed in any such matter shall be determined by the Administrator. The Board shall make findings of fact and recommendations with respect to disposition of the appeal. The decision on the appeal shall be made by the Administrator, and such decision shall be final and conclusive, except on questions of law, unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence.

### § 1245.213 Litigation.

An exclusive licensee shall be granted the right to sue at his own expense any party who infringes the rights set forth in his license and covered by the licensed patent. The licensee may join the Government, upon consent of the Attorney General, as a party complainant in such suit, but without expense to the Government and the licensee shall pay costs and any final judgment or decree that may be rendered against the Govern-

## PATENT LICENSING REGULATIONS

ment in such suit. The Government shall also have an absolute right to intervene in any such suit at its own expense. The licensee shall be obligated to promptly furnish to the Government, upon request, copies of all pleadings and other papers filed in any such suit and of evidence adduced in proceedings relating to the licensed patent including, but not limited to, negotiations for settlement and agreements settling claims by a licensee based on the licensed patent, and all other books, documents, papers, and

records pertaining to such suit. If, as a result of any such litigation the patent shall be declared invalid, the licensee shall have the right to surrender his license and be relieved from any further obligation thereunder.

### § 1245.214 Address of communications.

(a) Communications to the Assistant General Counsel for Patent Matters in accordance with §§ 1245.206 and 1245.207 and requests for information concerning licenses for NASA inventions should be

addressed to the Assistant General Counsel for Patent Matters, Code GP, National Aeronautics and Space Administration, Washington, D C 20546

(b) Communications to the Inventions and Contributions Board in accordance with §§ 1245.208, 1245.211, and 1245.212 should be addressed to Chairman, Inventions and Contributions Board, National Aeronautics and Space Administration, Washington, D C 20546

*Effective date.* The regulations set forth in this subpart 2 are effective April 1, 1972

JAMES C FLETCHER,  
Administrator.

## FOREIGN PATENT LICENSING REGULATIONS

Selected NASA inventions are also available for licensing in countries other than the United States in accordance with the NASA Foreign Patent Licensing Regulation (14 CFR 1245.4), a copy of which is available from any NASA Patent Counsel. For abstracts of NASA-owned inventions available for licensing in countries other than the United States, see NASA SP-7038, "Significant NASA Inventions Available for Licensing in Countries Other Than the United States." A copy of this NASA publication is available from NASA Headquarters, Code GP-4, Washington, D C, 20546

# Subject Categories

(1969 - 1973)

## 01 Aerodynamics

Includes aerodynamics of bodies, combinations, internal flow in ducts and turbomachinery, wings, rotors, and control surfaces For applications see 02 Aircraft and 32 Space Vehicles For related information see also 12 Fluid Mechanics, and 33 Thermodynamics and Combustion

## 02 Aircraft

Includes fixed-wing airplanes, helicopters, gliders, balloons ornithopters, etc. and specific types of complete aircraft (e.g. ground effect machines, STOL, and VTOL), flight tests, operating problems (e.g. sonic boom), safety and safety devices, economics, and stability and control For basic research see 01 Aerodynamics For related information see also 31 Space Vehicles, and 32 Structural Mechanics

## 03 Auxiliary Systems

Includes fuel cells, energy conversion cells, and solar cells, auxiliary gas turbines, hydraulic, pneumatic and electrical systems, actuators, and inverters For related information see also 09 Electronic Equipment, 22 Nuclear Engineering, and 28 Propulsion Systems

## 04 Biosciences

Includes aerospace medicine, exobiology, radiation effects on biological systems, physiological and psychological factors For related information see also 05 Biotechnology

## 05 Biotechnology

Includes life support systems, human engineering protective clothing and equipment crew training and evaluation, and piloting For related information see also 04 Biosciences

## 06 Chemistry

Includes chemical analysis and identification (e.g. spectroscopy) For applications see 17 Materials Metallic, 18 Materials Nonmetallic, and 27 Propellants

## 07 Communications

Includes communications equipment and techniques noise radio and communications blackout modulation telemetry tracking radar and optical observation and wave propagation For basic research see 23 Physics General and 21 Navigation

## 08 Computers

Includes computer operation and programming and data processing For applications, see specific categories For related information see also 19 Mathematics

## 09 Electronic Equipment

Includes electronic test equipment and maintainability, component parts, e.g. electron tubes, tunnel diodes transistors, integrated circuitry, microminiaturization For basic research see 10 Electronics For related information see also 07 Communications and 21 Navigation

## 10 Electronics

Includes circuit theory, and feedback and control theory For applications see 09 Electronic Equipment For related information see specific Physics categories

## 11 Facilities, Research and Support

Includes airports, lunar and planetary bases including associated vehicles, ground support systems, related logistics, simulators, test facilities (e.g. rocket engine test stands, shock tubes, and wind tunnels), test ranges, and tracking stations

## 12 Fluid Mechanics

Includes boundary-layer flow, compressible flow, gas dynamics, hydrodynamics, and turbulence For related information see also 01 Aerodynamics, and 33 Thermodynamics and Combustion

## 13 Geophysics

Includes aeronomy, upper and lower atmosphere studies, oceanography, cartography, and geodesy For related information see also 20 Meteorology, 29 Space Radiation, and 30 Space Sciences

## 14 Instrumentation and Photography

Includes design, installation, and testing of instrumentation systems, gyroscopes, measuring instruments and gages, recorders, transducers, aerial photography, and telescopes and cameras

## 15 Machine Elements and Processes

Includes bearings, seals, pumps, and other mechanical equipment lubrication, friction, and wear, manufacturing processes and quality control, reliability, drafting, and materials fabrication handling, and inspection

## 16 Masers

Includes applications of masers and lasers For basic research see 26 Physics, Solid-State

## 17 Materials, Metallic

Includes cermets, corrosion, physical and mechanical properties of materials, metallurgy and applications as structural materials For basic research see 06 Chemistry For related information see also 18 Materials Nonmetallic, and 32 Structural Mechanics

## **18 Materials, Nonmetallic**

Includes corrosion physical and mechanical properties of materials (e.g. plastics), and elastomers hydraulic fluids etc For basic research see 06 Chemistry For related information see also 17 Materials, Metallic, 27 Propellants, and 32 Structural Mechanics

## **19 Mathematics**

Includes calculation methods and theory, and numerical analysis For applications see specific categories For related information see also 08 Computers

## **20 Meteorology**

Includes climatology, weather forecasting, and visibility studies For related information see also 13 Geophysics, and 30 Space Sciences

## **21 Navigation**

Includes guidance, autopilots, star and planet tracking, inertial platforms, and air traffic control For related information see also 07 Communications

## **22 Nuclear Engineering**

Includes nuclear reactors and nuclear heat sources used for propulsion and auxiliary power For basic research see 24 Physics, Atomic, Molecular, and Nuclear For related information see also 03 Auxiliary Systems, and 28 Propulsion Systems

## **23 Physics, General**

Includes acoustics, cryogenics, mechanics, and optics For astrophysics see 30 Space Sciences For geophysics and related information see also 13 Geophysics, 20 Meteorology, and 29 Space Radiation

## **24 Physics, Atomic, Molecular, and Nuclear**

Includes atomic, molecular and nuclear physics For applications see 22 Nuclear Engineering For related information see also 29 Space Radiation

## **25 Physics, Plasma**

Includes magnetohydrodynamics For applications see 28 Propulsion Systems

## **26 Physics, Solid-State**

Includes semiconductor theory, and superconductivity For applications see 16 Masers For related information see also 10 Electronics

## **27 Propellants**

Includes fuels, igniters, and oxidizers For basic re-

search see 06 Chemistry and 33 Thermodynamics and Combustion For related information see also 28 Propulsion Systems

## **28 Propulsion Systems**

Includes air breathing, electric, liquid, solid, and magnetohydrodynamic propulsion For nuclear propulsion see 22 Nuclear Engineering For basic research see 23 Physics, General and 33 Thermodynamics and Combustion For applications see 31 Space Vehicles For related information see also 27 Propellants

## **29 Space Radiation**

Includes cosmic radiation, solar flares, solar radiation, and Van Allen radiation belts For related information see also 13 Geophysics, and 24 Physics, Atomic, Molecular, and Nuclear

## **30 Space Sciences**

Includes astronomy and astrophysics, cosmology, lunar and planetary flight and exploration, and theoretical analysis of orbits and trajectories For related information see also 11 Facilities, Research and Support, and 31 Space Vehicles

## **31 Space Vehicles**

Includes launch vehicles, manned space capsules, clustered and multistage rockets, satellites, sounding rockets and probes, and operating problems For basic research see 30 Space Sciences For related information see also 28 Propulsion Systems, and 32 Structural Mechanics

## **32 Structural Mechanics**

Includes structural element design and weight analysis, fatigue, thermal stress, impact phenomena, vibration, flutter, inflatable structures, and structural tests For related information see also 17 Materials, Metallic, and 18 Materials, Nonmetallic

## **33 Thermodynamics and Combustion**

Includes ablation, cooling, heating, heat transfer, thermal balance, and other thermal effects, and combustion theory For related information see also 12 Fluid Mechanics, and 27 Propellants

## **34 General**

Includes information of a broad nature related to industrial applications and technology, and to basic research, defense aspects, information retrieval, management, law and related legal matters, and legislative hearings and documents

# TABLE OF CONTENTS

## Section 1 • Abstracts

Subject Categories (1974 - )

### AERONAUTICS

Includes aeronautics (general), aerodynamics, air transportation and safety, aircraft communications and navigation, aircraft design, testing and performance, aircraft instrumentation, aircraft propulsion and power, aircraft stability and control, and research and support facilities (air)

For related information see also *Astronautics*

#### 01 AERONAUTICS (GENERAL)

#### 02 AERODYNAMICS

Includes aerodynamics of bodies, combinations, wings, rotors, and control surfaces, and internal flow in ducts and turbomachinery

For related information see also *34 Fluid Mechanics and Heat Transfer*

#### 03 AIR TRANSPORTATION AND SAFETY

Includes passenger and cargo air transport operations, and aircraft accidents

For related information see also *16 Space Transportation* and *85 Urban Technology and Transportation*

#### 04 AIRCRAFT COMMUNICATIONS AND NAVIGATION

Includes digital and voice communication with aircraft, air navigation systems (satellite and ground based), and air traffic control

For related information see also *17 Spacecraft Communications, Command and Tracking* and *32 Communications*

#### 05 AIRCRAFT DESIGN, TESTING AND PERFORMANCE

Includes aircraft simulation technology

For related information see also *18 Spacecraft Design, Testing and Performance* and *39 Structural Mechanics*

#### 06 AIRCRAFT INSTRUMENTATION

Includes cockpit and cabin display devices and flight instruments

For related information see also *19 Spacecraft Instrumentation* and *35 Instrumentation and Photography*

#### 07 AIRCRAFT PROPULSION AND POWER

Includes prime propulsion systems and systems components, e.g., gas turbine engines and compressors, and on-board auxiliary power plants for aircraft

For related information see also *20 Spacecraft Propulsion and Power, 28 Propellants and Fuels,* and *44 Energy Production and Conversion*

#### 08 AIRCRAFT STABILITY AND CONTROL

Includes aircraft handling qualities, piloting flight controls, and autopilots

### 09 RESEARCH AND SUPPORT FACILITIES (AIR)

Includes airports, hangars and runways, aircraft repair and overhaul facilities, wind tunnels, shock tube facilities, and engine test blocks

For related information see also *14 Ground Support Systems and Facilities (Space)*

### ASTRONAUTICS

Includes astronautics (general), astrodynamics, ground support systems and facilities (space), launch vehicles and space vehicles, space transportation, spacecraft communications, command and tracking, spacecraft design, testing and performance, spacecraft instrumentation, and spacecraft propulsion and power

For related information see also *Aeronautics*

#### 12 ASTRONAUTICS (GENERAL)

For extraterrestrial exploration see *91 Lunar and Planetary Exploration*

#### 13 ASTRODYNAMICS

Includes powered and free-flight trajectories, and orbit and launching dynamics

#### 14 GROUND SUPPORT SYSTEMS AND FACILITIES (SPACE)

Includes launch complexes, research and production facilities, ground support equipment, e.g., mobile transporters, and simulators

For related information see also *09 Research and Support Facilities (Air)*

#### 15 LAUNCH VEHICLES AND SPACE VEHICLES

Includes boosters, manned orbital laboratories, reusable vehicles, and space stations

#### 16 SPACE TRANSPORTATION

Includes passenger and cargo space transportation, e.g., shuttle operations, and rescue techniques

For related information see also *03 Air Transportation and Safety* and *85 Urban Technology and Transportation*

#### 17 SPACECRAFT COMMUNICATIONS, COMMAND AND TRACKING

Includes telemetry, space communications networks, astronavigation, and radio blackout

For related information see also *04 Aircraft Communications and Navigation* and *32 Communications*

#### 18 SPACECRAFT DESIGN, TESTING AND PERFORMANCE

Includes spacecraft thermal and environmental control, and attitude control

For life support systems see *54 Man/System Technology and Life Support* For related information see also *05 Aircraft Design, Testing and Performance* and *39 Structural Mechanics*



## **19 SPACECRAFT INSTRUMENTATION**

For related information see also *06 Aircraft Instrumentation* and *35 Instrumentation and Photography*

## **20 SPACECRAFT PROPULSION AND POWER**

Includes main propulsion systems and components, e.g., rocket engines, and spacecraft auxiliary power sources

For related information see also *07 Aircraft Propulsion and Power*, *28 Propellants and Fuels*, and *44 Energy Production and Conversion*

## **CHEMISTRY AND MATERIALS**

Includes chemistry and materials (general), composite materials, inorganic and physical chemistry, metallic materials, nonmetallic materials, and propellants and fuels

## **23 CHEMISTRY AND MATERIALS (GENERAL)**

Includes biochemistry and organic chemistry

## **24 COMPOSITE MATERIALS**

Includes laminates

## **25 INORGANIC AND PHYSICAL CHEMISTRY**

Includes chemical analysis, e.g., chromatography, combustion theory, electrochemistry, and photochemistry

For related information see also *77 Thermodynamics and Statistical Physics*

## **26 METALLIC MATERIALS**

Includes physical, chemical, and mechanical properties of metals, e.g., corrosion; and metallurgy

## **27 NONMETALLIC MATERIALS**

Includes physical, chemical, and mechanical properties of plastics, elastomers, lubricants, polymers, textiles, adhesives, and ceramic materials

## **28 PROPELLANTS AND FUELS**

Includes rocket propellants, igniters, and oxidizers, storage and handling, and aircraft fuels

For related information see also *07 Aircraft Propulsion and Power*, *20 Spacecraft Propulsion and Power*, and *44 Energy Production and Conversion*

## **ENGINEERING**

Includes engineering (general), communications, electronics and electrical engineering, fluid mechanics and heat transfer, instrumentation and photography, lasers and masers, mechanical engineering, quality assurance and reliability, and structural mechanics

For related information see also *Physics*

## **31 ENGINEERING (GENERAL)**

Includes vacuum technology, control engineering, display engineering, and cryogenics

## **32 COMMUNICATIONS**

Includes land and global communications, communications theory, and optical communications

For related information see also *04 Aircraft Communications and Navigation* and *17 Spacecraft Communications, Command and Tracking*

## **33 ELECTRONICS AND ELECTRICAL ENGINEERING**

Includes test equipment and maintainability, components, e.g., tunnel diodes and transistors, microminiaturization, and integrated circuitry

For related information see also *60 Computer Operations and Hardware* and *76 Solid-State Physics*

## **34 FLUID MECHANICS AND HEAT TRANSFER**

Includes boundary layers, hydrodynamics, fluidics, mass transfer, and ablation cooling

For related information see also *02 Aerodynamics* and *77 Thermodynamics and Statistical Physics*

## **35 INSTRUMENTATION AND PHOTOGRAPHY**

Includes remote sensors, measuring instruments and gages, detectors, cameras and photographic supplies, and holography

For aerial photography see *43 Earth Resources*  
For related information see also *06 Aircraft Instrumentation* and *19 Spacecraft Instrumentation*

## **36 LASERS AND MASERS**

Includes parametric amplifiers

## **37 MECHANICAL ENGINEERING**

Includes auxiliary systems (non-power), machine elements and processes, and mechanical equipment

## **38 QUALITY ASSURANCE AND RELIABILITY**

Includes product sampling procedures and techniques, and quality control

## **39 STRUCTURAL MECHANICS**

Includes structural element design and weight analysis, fatigue, and thermal stress

For applications see *05 Aircraft Design, Testing and Performance* and *18 Spacecraft Design, Testing and Performance*

## **GEOSCIENCES**

Includes geosciences (general), earth resources, energy production and conversion, environment pollution, geophysics, meteorology and climatology, and oceanography

For related information see also *Space Sciences*

## **42 GEOSCIENCES (GENERAL)**

#### **43 EARTH RESOURCES**

Includes remote sensing of earth resources by aircraft and spacecraft; photogrammetry; and aerial photography

For instrumentation see *35 Instrumentation and Photography*

#### **44 ENERGY PRODUCTION AND CONVERSION**

Includes specific energy conversion systems, e.g. fuel cells and batteries; global sources of energy, fossil fuels; geophysical conversion, hydroelectric power; and wind power.

For related information see also *07 Aircraft Propulsion and Power*, *20 Spacecraft Propulsion and Power*, *28 Propellants and Fuels*, and *85 Urban Technology and Transportation*.

#### **45 ENVIRONMENT POLLUTION**

Includes air, noise, thermal and water pollution; environment monitoring; and contamination control.

#### **46 GEOPHYSICS**

Includes aeronomy, upper and lower atmosphere studies; ionospheric and magnetospheric physics, and geomagnetism

For space radiation see *93 Space Radiation*

#### **47 METEOROLOGY AND CLIMATOLOGY**

Includes weather forecasting and modification

#### **48 OCEANOGRAPHY**

Includes biological, dynamic and physical oceanography, and marine resources

### **LIFE SCIENCES**

Includes life sciences (general), aerospace medicine; behavioral sciences, man/system technology and life support; and planetary biology

#### **51 LIFE SCIENCES (GENERAL)**

Includes genetics

#### **52 AEROSPACE MEDICINE**

Includes physiological factors, biological effects of radiation, and weightlessness

#### **53 BEHAVIORAL SCIENCES**

Includes psychological factors, individual and group behavior, crew training and evaluation, and psychiatric research.

#### **54 MAN/SYSTEM TECHNOLOGY AND LIFE SUPPORT**

Includes human engineering, biotechnology, and space suits and protective clothing

#### **55 PLANETARY BIOLOGY**

Includes exobiology; and extraterrestrial life.

### **MATHEMATICAL AND COMPUTER SCIENCES**

Includes mathematical and computer sciences (general), computer operations and hardware, computer programming and software; computer systems, cybernetics, numerical analysis, statistics and probability, systems analysis, and theoretical mathematics.

#### **59 MATHEMATICAL AND COMPUTER SCIENCES (GENERAL)**

#### **60 COMPUTER OPERATIONS AND HARDWARE**

Includes computer graphics and data processing  
For components see *33 Electronics and Electrical Engineering*

#### **61 COMPUTER PROGRAMMING AND SOFTWARE**

Includes computer programs, routines, and algorithms

#### **62 COMPUTER SYSTEMS**

Includes computer networks

#### **63 CYBERNETICS**

Includes feedback and control theory

For related information see also *54 Man/System Technology and Life Support*

#### **64 NUMERICAL ANALYSIS**

Includes iteration, difference equations, and numerical approximation

#### **65 STATISTICS AND PROBABILITY**

Includes data sampling and smoothing, Monte Carlo method; and stochastic processes

#### **66 SYSTEMS ANALYSIS**

Includes mathematical modeling, network analysis, and operations research.

#### **67 THEORETICAL MATHEMATICS**

Includes topology and number theory.

### **PHYSICS**

Includes physics (general), acoustics, atomic and molecular physics, nuclear and high-energy physics; optics, plasma physics; solid-state physics, and thermodynamics and statistical physics

For related information see also *Engineering*.

#### **70 PHYSICS (GENERAL)**

For geophysics see *46 Geophysics*. For astrophysics see *90 Astrophysics* For solar physics see *92 Solar Physics*

**71 ACOUSTICS**

Includes sound generation, transmission, and attenuation

For noise pollution see *45 Environment Pollution*

**72 ATOMIC AND MOLECULAR PHYSICS**

Includes atomic structure and molecular spectra

**73 NUCLEAR AND HIGH-ENERGY PHYSICS**

Includes elementary and nuclear particles, and reactor theory

For space radiation see *93 Space Radiation*

**74 OPTICS**

Includes light phenomena

**75 PLASMA PHYSICS**

Includes magnetohydrodynamics and plasma fusion.

For ionospheric plasmas see *46 Geophysics* For space plasmas see *90 Astrophysics*.

**76 SOLID-STATE PHYSICS**

Includes superconductivity

For related information see also *33 Electronics and Electrical Engineering* and *36 Lasers and Masers*

**77 THERMODYNAMICS AND STATISTICAL PHYSICS**

Includes quantum mechanics, and Bose and Fermi statistics.

For related information see also *25 Inorganic and Physical Chemistry* and *34 Fluid Mechanics and Heat Transfer*

**SOCIAL SCIENCES**

Includes social sciences (general), administration and management; documentation and information science, economics and cost analysis, law and political science, and urban technology and transportation

**80 SOCIAL SCIENCES (GENERAL)**

Includes educational matters

**81 ADMINISTRATION AND MANAGEMENT**

Includes management planning and research

**82 DOCUMENTATION AND INFORMATION SCIENCE**

Includes information storage and retrieval technology, micrography, and library science

For computer documentation see *61 Computer Programming and Software*

**83 ECONOMICS AND COST ANALYSIS**

Includes cost effectiveness studies

**84 LAW AND POLITICAL SCIENCE**

Includes space law; international law; international cooperation, and patent policy

**85 URBAN TECHNOLOGY AND TRANSPORTATION**

Includes applications of space technology to urban problems; technology transfer, technology assessment; and surface and mass transportation

For related information see *03 Air Transportation and Safety*, *16 Space Transportation*, and *44 Energy Production and Conversion*.

**SPACE SCIENCES**

Includes space sciences (general), astronomy, astrophysics, lunar and planetary exploration; solar physics; and space radiation

For related information see also *Geosciences*

**88 SPACE SCIENCES (GENERAL)****89 ASTRONOMY**

Includes radio and gamma-ray astronomy, celestial mechanics, and astrometry

**90 ASTROPHYSICS**

Includes cosmology, and interstellar and interplanetary gases and dust

**91 LUNAR AND PLANETARY EXPLORATION**

Includes planetology, and manned and unmanned flights

For spacecraft design see *18 Spacecraft Design, Testing and Performance* For space stations see *15 Launch Vehicles and Space Vehicles*.

**92 SOLAR PHYSICS**

Includes solar activity, solar flares, solar radiation and sunspots.

**93 SPACE RADIATION**

Includes cosmic radiation; and inner and outer earth's radiation belts

For biological effects of radiation see *52 Aerospace Medicine* For theory see *73 Nuclear and High-Energy Physics*.

**GENERAL****99 GENERAL**

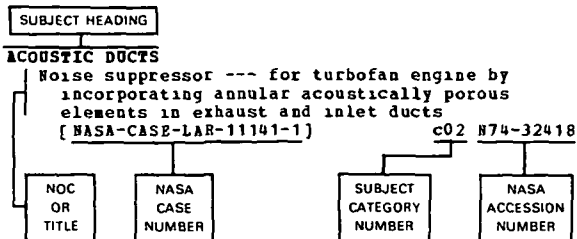
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# Subject Index

Section 2

Typical Subject Index Listing



The subject heading is the key to the subject content of the document. A brief description of the document e.g. title plus a title extension or Notation of Content (NOC) is included for each subject entry to indicate the subject heading context. These descriptions are arranged under each subject heading in ascending accession number order. The NASA Case Number serves as the prime access number to the patent documents. The Subject Category Number indicates the category in Section 1 (Abstracts) in which the patent citation and abstract are located. The NASA accession number denotes the number by which the citation is identified within the subject category.

A

**ABLATION**

- Transpirationally cooled heat ablation system for interplanetary spacecraft reentry shielding [NASA-CASE-XMS-02677] c31 N70-42075
- Hypersonic test facility for studying ablation in models under high pressure and high temperature [NASA-CASE-XLA-00378] c11 N71-15925
- Design of hypersonic test facility for ablation tests and performance tests of vehicles under conditions of high temperature and pressure [NASA-CASE-XLA-05378] c11 N71-21475
- Ablation sensor for measuring char layer recession rate using electric wires [NASA-CASE-XLA-01794] c33 N71-21586
- Ablation sensor for measuring surface ablation rate of material on vehicles entering earths atmosphere on entry into planetary atmospheres [NASA-CASE-XLA-01791] c14 N71-22991
- Ablative system with liquid carrying ablative material bodies and forming self-replacing ablative surface [NASA-CASE-LEW-10359] c33 N72-25911
- Cork-resin ablative insulation for complex surfaces and method for applying the same [NASA-CASE-MFS-23626-1] c24 N78-32190

**ABLATIVE MATERIALS**

- Filling honeycomb matrix with deaerated paste filler [NASA-CASE-XMS-01108] c15 N69-24322
- Sensor device with switches for measuring surface recession of charring and noncharring ablators [NASA-CASE-XLA-01781] c14 N69-39975
- Vacuum method for molding thermosetting compounds used as ablative materials [NASA-CASE-XLA-01091] c15 N71-10672
- Ablative resins used for retarding regression in ablative material [NASA-CASE-XLE-05913] c33 N71-14032
- Design, development, and characteristics of ablation structures [NASA-CASE-XMS-01816] c33 N71-15623
- Method and apparatus for fabrication of heat insulating and ablative reentry structure [NASA-CASE-XMS-02009] c33 N71-20834
- Production and application of sprayable fiber reinforced ablation material [NASA-CASE-XLA-04251] c18 N71-26100
- Ablative heat shield for protection from aerodynamic heating of reentry spacecraft

- [NASA-CASE-MSC-12143-1] c33 N72-17947
- Ablative system with liquid carrying ablative material bodies and forming self-replacing ablative surface [NASA-CASE-LEW-10359] c33 N72-25911
- Carrier liquid system containing bodies of ablative material [NASA-CASE-LEW-10359-2] c33 N73-25952
- Ablation article and surface for analyzing flow transition on ablative surface [NASA-CASE-LAR-10439-1] c33 N73-27796
- Dual measurement ablation sensor [NASA-CASE-LAR-10105-1] c34 N74-15652
- Sprayable low density ablator and application process [NASA-CASE-MFS-23506-1] c24 N78-24290
- Intumescent-ablator coatings using endothermic fillers [NASA-CASE-ARC-11043-1] c24 N78-27180
- ABORT APPARATUS**
- Coupling device for linear shaped charge for space vehicle abort system [NASA-CASE-XLA-00189] c33 N70-36846
- ABRASION RESISTANCE**
- Zinc dust formulation for abrasion resistant steel coatings [NASA-CASE-GSC-10361-1] c18 N72-23581
- Improved nozzle for use with abrasive and/or corrosive materials [NASA-CASE-NPO-13823-1] c37 N77-17466
- Abrasion resistant coatings for plastic surfaces [NASA-CASE-ARC-10915-3] c24 N77-24200
- Process for producing a well-adhered durable optical coating on an optical plastic substrate --- abrasion resistant polymethyl methacrylate lenses [NASA-CASE-ARC-11039-1] c74 N78-32854
- ABSORBENTS**
- Absorbent apparatus for separating gas from liquid-gas stream used in environmental control under zero gravity conditions [NASA-CASE-XMS-01492] c05 N70-41297
- Fluid flow control valve for regulating fluids in molecular quantities [NASA-CASE-XLE-00703] c15 N71-15967
- Noncontaminating swab with absorbent end covered with netted envelope to prevent egress of absorbent material [NASA-CASE-MFS-18100] c15 N72-11390
- Protein sterilization of firefly luciferase without denaturation [NASA-CASE-GSC-10225-1] c06 N73-27086
- Oil and fat absorbing polymers [NASA-CASE-NPO-11609-2] c27 N77-31308
- Sweat collection capsule [NASA-CASE-ARC-11031-1] c54 N78-22720
- ABSORBERS (MATERIALS)**
- Broadband chokes and absorbers to reduce spurious radiation patterns of antenna array caused by support structures [NASA-CASE-XMS-05303] c07 N69-27462
- Analytical photoionization mass spectrometer with argon gas filter between light source and monochromator [NASA-CASE-LAR-10180-1] c06 N71-13461
- Development of filter system for control of outgas contamination in vacuum conditions using absorbent beds of molecular sieve zeolite, silica gel, and charcoal [NASA-CASE-MFS-14711] c15 N71-26185
- Development and characteristics of calorimeter with integral heat sink for maintenance of constant temperature [NASA-CASE-XMP-04208] c33 N71-29051

SUBJECT

**ABSORPTION**

**SUBJECT INDEX**

Aldehyde-containing urea-absorbing polysaccharides  
[NASA-CASE-NPO-13620-1] c27 N77-30236

**ABSORPTION**  
Differential optoacoustic absorption detector  
[NASA-CASE-NPO-13759-1] c74 N78-17867

**ABSORPTION CROSS SECTIONS**  
Radiation source and detection system for  
measuring amount of liquid inside tanks  
independently of liquid configuration  
[NASA-CASE-HSC-12280] c27 N71-16348

**ABSORPTIVITY**  
Detector absorptivity measuring method and  
apparatus  
[NASA-CASE-IAR-10907-1] c35 N76-29551

**AC GENERATORS**  
Alternating current signal generator providing  
plurality of amplitude modulated output signals  
[NASA-CASE-XNP-05612] c09 N69-21468  
Improved alternator with windings of  
superconducting materials acting as permanent  
magnet  
[NASA-CASE-ILE-02824] c03 N69-39890  
Superconducting alternator design with cryogenic  
fluid for cooling windings below critical  
temperature  
[NASA-CASE-ILE-02823] c09 N71-23443  
Solar cell system having alternating current  
output  
[NASA-CASE-LEW-12806-1] c44 N78-25553

**ACCELERATION**  
Single grid accelerator system for electron  
bombardment type ion thruster  
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Spacecraft air lock system to provide ingress and egress of astronaut without subjecting vehicular environment to vacuum of space [NASA-CASE-XLA-02050] c31 N71-22968  
System for removing and repairing spacecraft control thrusters by use of portable air locks [NASA-CASE-MFS-20325] c28 N71-27095  
Airlock for waste transferal from pressurized enclosure aboard space vehicle to waste receiver at negative pressure [NASA-CASE-MFS-20922] c31 N72-20840  
Airlock [NASA-CASE-MFS-20922-1] c18 N74-22136

## AIR POLLUTION

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- Apparatus for inserting and removing specimens from high temperature vacuum furnaces  
[NASA-CASE-LAR-10841-1] c31 N74-27900
- AIR POLLUTION**  
Analytical photoionization mass spectrometer with argon gas filter between light source and monochromator  
[NASA-CASE-LAR-10180-1] c06 N71-13461
- Contamination free separation and eliminating combustion products from ambient surroundings generated by squib firing  
[NASA-CASE-XGS-01971] c15 N71-15922
- Monitoring atmospheric pollutants with a heterodyne radiometer transmitter-receiver  
[NASA-CASE-NPO-11919-1] c35 N74-11284
- Fluorescence detector for monitoring atmospheric pollutants  
[NASA-CASE-NPO-13231-1] c45 N75-27585
- Stack plume visualization system  
[NASA-CASE-LAR-11675-1] c45 N76-17656
- Indicator providing continuous indication of the presence of a specific pollutant in air  
[NASA-CASE-NPO-13474-1] c45 N76-21742
- Method for detecting pollutants --- through chemical reactions and heat treatment  
[NASA-CASE-LAR-11405-1] c45 N76-31714
- Combustion engine --- for air pollution control  
[NASA-CASE-NPO-13671-1] c37 N77-31497
- Coal desulfurization process  
[NASA-CASE-NPO-13937-1] c44 N78-31527
- AIR PURIFICATION**  
Developing high pressure gas purification and filtration system for use in test operations of space vehicles  
[NASA-CASE-NPS-12806] c14 N71-17588
- Portable apparatus producing high velocity annular air column surrounding low velocity, filtered, superclean air central core for industrial clean room environmental control  
[NASA-CASE-IMP-03212] c15 N71-22721
- AIR SAMPLING**  
Pressure probe for sensing ambient static air pressures  
[NASA-CASE-XLA-00481] c14 N70-36824
- Sampler of gas borne particles  
[NASA-CASE-NPO-13396-1] c35 N76-18401
- AIR TRAFFIC CONTROL**  
Traffic control system for supersonic transports using synchronous satellite for data relay between vehicles and ground station  
[NASA-CASE-GSC-10087-1] c02 N71-19287
- Satellite aided aircraft collision avoidance system effective for large number of aircraft  
[NASA-CASE-ERC-10090] c21 N71-24948
- System and method for position locating for air traffic control involving supersonic transports  
[NASA-CASE-GSC-10087-3] c07 N72-12080
- AIRBORNE EQUIPMENT**  
Inflatable radar reflector unit - lightweight, highly reflective to electromagnetic radiation, and adaptable for erection and deployment with minimum effort and time  
[NASA-CASE-XNS-00893] c07 N70-40063
- AIRBORNE/SPACEBORNE COMPUTERS**  
Logic circuit to ripple add and subtract binary counters for spaceborne computers  
[NASA-CASE-XGS-04766] c08 N71-18602
- Shared memory for a fault-tolerant computer  
[NASA-CASE-NPO-13139-1] c60 N76-21914
- AIRCRAFT**  
Pilot warning indicator system of intruder aircraft  
[NASA-CASE-ERC-10226-1] c14 N73-16483
- Thin conformal antenna array for microwave power conversions  
[NASA-CASE-NPO-13886-1] c32 N78-24391
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[NASA-CASE-ERC-10090] c21 N71-24948
- Battery powered aircraft crash locator transmitter  
[NASA-CASE-NPS-16609] c14 N72-21431
- AIRCRAFT APPROACH SPACING**  
Economical satellite aided vehicle avoidance system for preventing midair collisions  
[NASA-CASE-ERC-10419] c21 N72-21631
- AIRCRAFT COMPARTMENTS**  
Aircraft design concept  
[NASA-CASE-LAP-11852-1] c05 N77-15027
- Low density bismaleimide-carbon microballoon composites --- aircraft and submarine compartment safety  
[NASA-CASE-ARC-11040-2] c24 N78-27184
- AIRCRAFT CONFIGURATIONS**  
Variable sweep wing configuration for supersonic aircraft  
[NASA-CASE-XLA-00230] c02 N70-33255
- Television simulation for aircraft and space flight  
[NASA-CASE-XPR-03107] c09 N71-19449
- Design of dual fuselage aircraft with pivoting wing and horizontal stabilizer to permit yawing of wing in flight for high speed operation  
[NASA-CASE-ARC-10470-1] c02 N73-26005
- Development of aircraft configuration for reduction of jet aircraft noise by exhausting engine gases over upper surface of wing  
[NASA-CASE-LAR-11087-1] c02 N73-26008
- Variable dihedral shuttle orbiter  
[NASA-CASE-LAR-10706-2] c05 N77-31132
- AIRCRAFT CONSTRUCTION MATERIALS**  
Ceramic fiber insulating material and method of producing same --- aircraft construction materials  
[NASA-CASE-MSC-14795-2] c24 N78-25138
- AIRCRAFT CONTROL**  
Development and characteristics of control system for flexible wings  
[NASA-CASE-XLA-06958] c02 N71-11038
- Development of attitude control system for vertical takeoff aircraft using reaction nozzles displaced from various axes of aircraft  
[NASA-CASE-XAC-08972] c02 N71-20570
- Device for controlling rotary potentiometer mounted on aircraft steering wheel or aileron control  
[NASA-CASE-XAC-10019] c15 N71-23809
- Direct lift control system having flaps with slots adjacent to their leading edge and particularly adapted for lightweight aircraft  
[NASA-CASE-LAR-10249-1] c02 N71-26110
- Supersonic or hypersonic vehicle control system comprising elevons with hinge line sweep and free of adverse aerodynamic cross coupling  
[NASA-CASE-XLA-08967] c02 N71-27088
- Development of aircraft control system with high performance electrically controlled and mechanically operated hydraulic valves for precise flight operation  
[NASA-CASE-XAC-00048] c02 N71-29128
- Development of thrust control system for application to control of aircraft and spacecraft  
[NASA-CASE-MSC-13397-1] c21 N72-25595
- Aircraft control system for rotary wing aircraft  
[NASA-CASE-ERC-10439] c02 N73-19004
- Situational display system of cathode ray tubes to assist pilot in aircraft control  
[NASA-CASE-ERC-10350] c14 N73-20474
- Development of aerodynamic control system to control flutter over large range of oscillatory frequencies using stability augmentation techniques  
[NASA-CASE-LAR-10682-1] c02 N73-26004
- Integrated lift/drag controller for aircraft  
[NASA-CASE-ARC-10456-1] c05 N75-12930
- High lift aircraft --- with improved stability, control, performance, and noise characteristics  
[NASA-CASE-LAR-11252-1] c05 N75-25914
- Vortex-lift roll-control device  
[NASA-CASE-LAR-11868-2] c08 N77-31176
- Filtering technique based on high-frequency plant modeling for high-gain control  
[NASA-CASE-LAR-12215-1] c08 N78-17070
- AIRCRAFT DESIGN**  
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[NASA-CASE-XLA-08451] c02 N71-12243
- Design of dual fuselage aircraft with pivoting wing and horizontal stabilizer to permit yawing of wing in flight for high speed operation  
[NASA-CASE-ARC-10470-1] c02 N73-26005
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## AIRFOILS

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[NASA-CASE-ARC-10470-3] c05 N76-29217

Aircraft design concept  
[NASA-CASE-LAR-11852-1] c05 N77-15027

Supersonic transport --- using canard surfaces  
[NASA-CASE-LAR-11932-1] c05 N78-32086

**AIRCRAFT DETECTION**

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[NASA-CASE-ERC-10412-1] c09 N73-12211

Apparatus for measuring an aircraft's speed and height  
[NASA-CASE-LAR-12275-1] c09 N78-22115

**AIRCRAFT ENGINES**

Noise suppressor --- for turbofan engine by incorporating annular acoustically porous elements in exhaust and inlet ducts  
[NASA-CASE-LAR-11141-1] c07 N74-32418

Auxiliary power system for activity cooled aircraft  
[NASA-CASE-LAR-11626-1] c34 N77-12332

Dual cycle aircraft turbine engine  
[NASA-CASE-LAR-11310-1] c07 N77-28118

A portable device particularly suited for use in starting air-start units for aircraft  
[NASA-CASE-PRC-10113-1] c09 N78-19166

**AIRCRAFT EQUIPMENT**

Battery powered aircraft crash locator transmitter  
[NASA-CASE-MPS-16609] c14 N72-21431

Development of radiometric sensor to warn aircraft pilots of region of clear air turbulence along flight path  
[NASA-CASE-ERC-10081] c14 N72-28437

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[NASA-CASE-PRC-11009-1] c06 N78-25088

**AIRCRAFT FUEL SYSTEMS**

Oil cooling system for a gas turbine engine  
[NASA-CASE-LEW-12321-1] c37 N78-10467

**AIRCRAFT GUIDANCE**

Terminal guidance system --- for guiding aircraft into preselected altitude and/or heading at terminal point  
[NASA-CASE-PRC-10049-1] c04 N74-13420

**AIRCRAFT HAZARDS**

Deflector for preventing objects from entering nacelle inlets of jet aircraft  
[NASA-CASE-XLE-00388] c28 N70-34788

**AIRCRAFT HYDRAULIC SYSTEMS**

Variable-orifice hydraulic mechanism for aircraft gas turbine engine fuel control  
[NASA-CASE-LEW-11187-1] c28 N73-19793

**AIRCRAFT INSTRUMENTS**

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[NASA-CASE-XLA-00100] c14 N70-36807

Pressure probe for sensing ambient static air pressures  
[NASA-CASE-XLA-00481] c14 N70-36824

Aircraft indicator for pilot control of takeoff roll, climbout path and verticle flight path in poor visibility conditions  
[NASA-CASE-XLA-00487] c14 N70-40157

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[NASA-CASE-XNP-03853] c23 N71-21882

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[NASA-CASE-XLA-01907] c14 N71-23268

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[NASA-CASE-BBC-10392] c21 N73-14692

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[NASA-CASE-LAR-11833-1] c06 N76-31229

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[NASA-CASE-MPS-16609-3] c03 N76-32140

**AIRCRAFT LANDING**

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[NASA-CASE-XLA-00806] c02 N70-34858

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[NASA-CASE-ARC-10179-1] c21 N72-22619

Integrated lift/drag controller for aircraft  
[NASA-CASE-ARC-10456-1] c05 N75-12930

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[NASA-CASE-ARC-10808-1] c09 N76-24280

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[NASA-CASE-ARC-10903-1] c09 N78-18083

**AIRCRAFT LAUNCHING DEVICES**

Rotating launch device for a remotely piloted aircraft  
[NASA-CASE-ARC-10979-1] c09 N77-19076

**AIRCRAFT MANEUVERS**

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[NASA-CASE-ARC-10806-1] c35 N75-29381

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Free flight suspension system for use with aircraft models in wind tunnel tests  
[NASA-CASE-XLA-00939] c11 N71-15926

Variable geometry wind tunnel for testing aircraft models at subsonic speeds  
[NASA-CASE-XLA-07430] c11 N72-22246

Deploy/release system --- model aircraft flight control  
[NASA-CASE-LAR-11575-1] c02 N76-16014

**AIRCRAFT NOISE**

Instrumentation for measuring aircraft noise and sonic boom  
[NASA-CASE-LAR-11476-1] c07 N76-27232

**AIRCRAFT PERFORMANCE**

Development of auxiliary lifting system to provide ferry capability for entry vehicles  
[NASA-CASE-LAR-10574-1] c11 N73-13257

**AIRCRAFT PILOTS**

Apparatus for applying simulator g-forces to an arm of an aircraft simulator pilot  
[NASA-CASE-LAR-10550-1] c09 N74-30597

**AIRCRAFT SAFETY**

Aircraft instrument for indicating malfunctions during takeoff  
[NASA-CASE-XLA-00100] c14 N70-36807

Development and operating principles of collision warning system for aircraft accident prevention  
[NASA-CASE-HQN-10703] c21 N73-13643

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[NASA-CASE-LAR-10753-1] c08 N74-30421

**AIRCRAFT STABILITY**

Mechanical stabilization system for VTOL aircraft  
[NASA-CASE-XLA-06339] c02 N71-13422

Development of aerodynamic control system to control flutter over large range of oscillatory frequencies using stability augmentation techniques  
[NASA-CASE-LAR-10682-1] c02 N73-26004

**AIRCRAFT STRUCTURES**

Fatigue testing device applying random discrete load levels to test specimen and applicable to aircraft structures  
[NASA-CASE-XLA-02131] c32 N70-42003

Heat flux sensor adapted for mounting on aircraft or spacecraft to measure aerodynamic heat flux inflow to aircraft skin  
[NASA-CASE-XPR-03802] c33 N71-23085

Three-axis adjustable loading structure  
[NASA-CASE-PRC-10051-1] c35 N74-13129

Transparent fire resistant polymeric structures  
[NASA-CASE-ARC-10813-1] c27 N76-16230

Wingtip vortex dissipator for aircraft  
[NASA-CASE-LAR-11645-1] c02 N77-10001

**AIRCRAFT TIRES**

Improved tire/wheel concept  
[NASA-CASE-LAR-11695-1] c37 N78-22374

**AIRCRAFT WAKES**

Vortex attenuation method --- for multi-engine aircraft  
[NASA-CASE-LAR-12034-1] c02 N77-22045

**AIRFOIL FENCES**

Smokestack mounted airfoil  
[NASA-CASE-LAR-11669-1] c34 N76-13419

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Electric analog for measuring induced drag on

- nonplanar airfoils  
[NASA-CASE-XLA-00755] c01 N71-13410
- Electric analog for measuring induced drag on nonplanar airfoils  
[NASA-CASE-XLA-05828] c01 N71-13411
- Miniature hydraulic actuator --- for control surfaces on airfoils  
[NASA-CASE-LAR-11522-1] c34 N74-34881
- Surface finishing --- of metal airfoils by adhesive bonding  
[NASA-CASE-MSC-12631-2] c05 N77-31131
- AIRFRAMES**
- Design of dual fuselage aircraft with pivoting wing and horizontal stabilizer to permit yawing of wing in flight for high speed operation  
[NASA-CASE-ARC-10470-1] c02 N73-26005
- AIRSPEED**
- Aerodynamic configuration for aircraft capable of high speed flight and low drag for low speed takeoff or landing upon presently existing airfields  
[NASA-CASE-XLA-00806] c02 N70-34858
- Apparatus for measuring an aircraft's speed and height  
[NASA-CASE-LAR-12275-1] c09 N78-22115
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[NASA-CASE-PRC-11009-1] c06 N78-25088
- ALCOHOLS**
- New trifunctional alcohol derived from trimer acid and novel method of preparation  
[NASA-CASE-NPO-10714] c06 N69-31244
- Cooling and radiation protection of ruby lasers using copper sulfate solution in alcohol  
[NASA-CASE-MPS-20180] c16 N72-12440
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- Direct synthesis of polymeric schiff bases from two amines and two aldehydes  
[NASA-CASE-XMF-08655] c06 N71-11239
- Synthesis of azine polymers for heat shields by azine-aromatic aldehyde reaction  
[NASA-CASE-XMF-08656] c06 N71-11242
- Synthesis of aromatic diamines and dialdehyde polymers using Schiff base  
[NASA-CASE-XMF-03074] c06 N71-24740
- Nuclear alkylated pyridine aldehyde polymers and conductive compositions thereof  
[NASA-CASE-NPO-10557] c27 N78-17214
- ALIGNMENT**
- Centering device with ultrafine adjustment for use with roundness measuring apparatus  
[NASA-CASE-XMF-00480] c14 N70-39898
- Portable device for aligning surfaces of two adjacent wall or sheet sections for joining at point of junction  
[NASA-CASE-XMF-01452] c15 N70-41371
- Electro-optical/computer system for aligning large structural members and maintaining correct position  
[NASA-CASE-XNP-02029] c14 N70-41955
- Electrical and electromechanical trigonometric computation assembly and space vehicle guidance system for aligning perpendicular axes of two sets of three-axes coordinate references  
[NASA-CASE-XMF-00684] c21 N71-21688
- Description of device for aligning stacked sheets of paper for repetitive cutting  
[NASA-CASE-XMS-04178] c15 N71-22798
- Laser beam projector for continuous, precise alignment between target, laser generator, and astronomical telescope during tracking  
[NASA-CASE-NPO-11087] c23 N71-29125
- Measuring roll alignment of test body with respect to reference body  
[NASA-CASE-GSC-10514-1] c14 N72-20379
- Apparatus for aligning shadow shields and cryogenic storage tanks in outer space with the sun  
[NASA-CASE-KSC-10622-1] c31 N72-21893
- Design of precision vertical alignment system using laser with gravitationally sensitive cavity  
[NASA-CASE-ARC-10444-1] c16 N73-33397
- Spacecraft docking and alignment system --- using television camera system  
[NASA-CASE-MSC-12559-1] c18 N76-14186
- Method of constructing dished ion thruster grids to provide hole array spacing compensation  
[NASA-CASE-LEW-11876-1] c20 N76-21276
- Optical alignment device  
[NASA-CASE-ARC-10932-1] c74 N76-22993
- Precision alignment apparatus for cutting a workpiece  
[NASA-CASE-LAR-11658-1] c37 N77-14478
- Guide for a typewriter  
[NASA-CASE-MPS-15218-1] c37 N77-19457
- Rotary target V-block --- for optical alignment of machinery  
[NASA-CASE-LAR-12007-1] c74 N78-15883
- Dual acting slit control mechanism  
[NASA-CASE-LAR-11370-1] c35 N78-32399
- ALKALI METALS**
- Ultraviolet radiation resistant alkali-metal silicate coatings for temperature control of spacecraft  
[NASA-CASE-XGS-04119] c18 N69-39979
- Analytical test apparatus and method for determining oxygen content in alkali liquid metal  
[NASA-CASE-XLE-01997] c06 N71-23527
- Composition and production method of alkali metal silicate paint with ultraviolet reflection properties  
[NASA-CASE-XGS-04799] c18 N71-24183
- Design and characteristics of heat activated electric cell with anode made from one or more alkali metals and cathode made from oxidizing material  
[NASA-CASE-LEW-11358] c03 N71-26084
- Method for producing alkali metal dispersions of high purity  
[NASA-CASE-XNP-08676] c17 N73-28573
- Alkali-metal silicate binders and methods of manufacture  
[NASA-CASE-GSC-12303-1] c27 N78-17217
- Process for preparing higher oxides of the alkali and alkaline earth metals  
[NASA-CASE-ARC-10992-1] c26 N78-32229
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- Method for determining state of charge of alkali batteries by using tritium as tracer  
[NASA-CASE-XNP-01464] c03 N71-10728
- Alkaline-type coulometer cell for primary charge control in secondary battery recharge circuits  
[NASA-CASE-XGS-05434] c03 N71-20491
- Electrocatalyst for oxygen reduction in low temperature alkaline fuel cell  
[NASA-CASE-HQN-10537-1] c06 N72-10138
- Flexible formulated plastic separators for alkaline batteries  
[NASA-CASE-LEW-12363-1] c44 N76-19552
- Inorganic-organic separators for alkaline batteries  
[NASA-CASE-LEW-12649-1] c44 N78-25530
- ALKALINE EARTH OXIDES**
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[NASA-CASE-ARC-10992-1] c26 N78-32229
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[NASA-CASE-XNP-03063] c17 N71-23365
- Metal alloy bearing materials for space applications  
[NASA-CASE-XLE-05033] c15 N71-23810
- High thermal emittance black surface coatings and process for applying to metal, and metal alloy surfaces used in radiative cooling of spacecraft  
[NASA-CASE-XLA-06199] c15 N71-24875
- Adjustable rigid mount for tribedral mirror formed of alloy with small coefficient of thermal expansion supporting screws and spring-biased plates  
[NASA-CASE-XNP-08907] c23 N71-29123
- Two-step diffusion welding process of unrecrystallized alloys  
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oscilloscopes  
[NASA-CASE-GSC-11582-1] c33 N75-19517
- ALTERNATING CURRENT**  
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alternating current power amplifier  
[NASA-CASE-LAR-10218-1] c09 N70-34559  
Frequency control network for current feedback  
oscillators converting dc voltage to ac or  
higher dc voltages  
[NASA-CASE-GSC-10041-1] c10 N71-19418  
Blood pressure measuring system for separately  
recording dc and ac pressure signals of  
Korotkoff sounds  
[NASA-CASE-XMS-06061] c05 N71-23317  
Solid state circuit for switching alternating  
current input signal as function of direct  
current gating transistor  
[NASA-CASE-XNP-06505] c10 N71-24799  
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pulse widths and arrangements to generate ac  
output voltage  
[NASA-CASE-MFS-10068] c10 N71-25139  
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alternating current  
[NASA-CASE-XGS-06226] c10 N71-25950  
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synchronous rectifiers  
[NASA-CASE-GSC-11126-1] c09 N72-25253  
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[NASA-CASE-MS-C-17832-1] c33 N74-14956
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[NASA-CASE-XLA-01907] c14 N71-23268
- ALTITUDE CONTROL**  
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[NASA-CASE-XLA-00128] c15 N70-37925
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stainless steel and brazing aluminum to  
aluminum/titanium coated steel  
[NASA-CASE-MFS-07369] c15 N71-20443  
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aluminum with metal phosphate surface coatings  
to improve chemical bonding and reduce coating  
weight  
[NASA-CASE-XLA-01995] c18 N71-23047  
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bonding  
[NASA-CASE-XMP-02303] c17 N71-23828  
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hyperfine compounds  
[NASA-CASE-XLE-06969] c17 N71-24142  
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[NASA-CASE-XNP-04148] c17 N71-24830  
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[NASA-CASE-XLA-08966-1] c17 N71-25903  
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[NASA-CASE-MFS-21077-1] c24 N75-28135  
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of aluminum containing components  
[NASA-CASE-MS-C-14435-1] c37 N76-18455  
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producing said panel  
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and an alkali metal dichromate for adhesive  
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[NASA-CASE-XMP-02303] c17 N71-23828  
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of high temper, and products thereof  
[NASA-CASE-MS-C-19693-1] c26 N78-24333
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[NASA-CASE-LEW-11267-1] c17 N73-32414  
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[NASA-CASE-NPO-11975-1] c28 N74-33209  
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--- by applying aluminide coating  
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[NASA-CASE-XMS-05562-1] c09 N69-39986  
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[NASA-CASE-XGS-01784] c10 N71-20782  
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[NASA-CASE-XGS-01222] c10 N71-20841  
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at high Q values with reduced sensitivity to  
gain amplification and number of passive  
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[NASA-CASE-ARC-10042-2] c10 N72-11256  
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for accumulator load and high gain voltage  
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[NASA-CASE-XGS-02812] c09 N71-19466

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[NASA-CASE-XAC-05422] c04 N71-23185

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[NASA-CASE-NPO-10548] c16 N71-24831

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[NASA-CASE-XNP-05612] c09 N69-21468

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[NASA-CASE-XLA-00901] c07 N71-10775  
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[NASA-CASE-IMS-09610] c07 N71-24625  
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two processed signals  
[NASA-CASE-MSC-12205-1] c07 N71-27056  
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independently fed omnidirectional antennas for  
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polarized pair of elements  
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with phased array antenna  
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[NASA-CASE-NPO-13886-1] c32 N78-24391  
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antenna shaft  
[NASA-CASE-KSC-10769-1] c33 N74-29556

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multimode monopulse antenna feed system for  
use with microwave communication equipment  
[NASA-CASE-XNP-01735] c07 N71-22750  
Nose cone mounted heat resistant antenna  
comprising plurality of adjacent layers of  
silica not introducing paths of high thermal  
conductivity through ablative shield  
[NASA-CASE-XMS-04312] c07 N71-22984  
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system  
[NASA-CASE-GSC-10064-1] c10 N72-22235  
Collapsible high gain antenna which can be  
automatically expanded to operating state  
[NASA-CASE-KSC-10392] c07 N73-26117  
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with truncated concave ellipsoid subreflector  
[NASA-CASE-GSC-11760-1] c33 N75-19516  
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reflector  
[NASA-CASE-NPO-13568-1] c32 N76-21365  
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[NASA-CASE-NPO-13553-1] c33 N76-32457  
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[NASA-CASE-MSC-16100-1] c32 N77-15233  
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[NASA-CASE-MSC-16683-1] c32 N78-15332  
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[NASA-CASE-LAR-12172-1] c32 N78-29310

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Cassegrain antenna  
[NASA-CASE-NPO-10539] c07 N71-11285  
Characteristics of antenna horn feeds consisting  
of central horn with overlapping peripheral  
horns  
[NASA-CASE-GSC-10452] c07 N71-12396  
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system  
[NASA-CASE-GSC-10064-1] c10 N72-22235  
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broadband communication  
[NASA-CASE-GSC-11046-1] c07 N73-28013  
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[NASA-CASE-NPO-13171-1] c32 N74-11000  
High efficiency multifrequency feed  
[NASA-CASE-GSC-11909] c32 N74-20863  
Single frequency, two feed dish antenna having  
switchable beamwidth  
[NASA-CASE-GSC-11968-1] c32 N76-15329  
Reflex feed system for dual frequency antenna  
with frequency cutoff means

[NASA-CASE-NPO-14022-1] c32 N78-31321

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Broadband chokes and absorbers to reduce  
spurious radiation patterns of antenna array  
caused by support structures  
[NASA-CASE-XNS-05303] c07 N69-27462  
Multiple mode horn antenna with radiation  
pattern of equal beamwidths and suppressed  
sidelobes  
[NASA-CASE-XNP-01057] c07 N71-15907  
Monopulse scanning network for scanning  
volumetric antenna pattern  
[NASA-CASE-GSC-10299-1] c09 N71-24804  
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[NASA-CASE-NPO-10231] c07 N71-26101  
Pattern and impedance matching improvements in  
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[NASA-CASE-XGS-02290] c07 N71-28809  
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directive radiation pattern from waveguide  
[NASA-CASE-LAR-11084-1] c09 N73-12216  
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coordination of directional antenna signals  
[NASA-CASE-KSC-10729-1] c09 N73-32110  
Highly efficient antenna system using a  
corrugated horn and scanning hyperbolic  
reflector  
[NASA-CASE-NPO-13568-1] c32 N76-21365  
Dual frequency circularly polarized microwave  
integrated antenna  
[NASA-CASE-MSC-16100-1] c32 N77-15233

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[NASA-CASE-XGS-09190] c31 N71-16102  
High impact antennas with high radiating  
efficiency  
[NASA-CASE-NPO-10231] c07 N71-26101  
Collapsible antenna boom and coaxial  
transmission line having inflatable inner tube  
[NASA-CASE-MFS-20068] c07 N71-27191  
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approximating line source  
[NASA-CASE-NPO-10303] c07 N72-22127  
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with combination of standard type lubrication  
and magnetic flux field for earth atmosphere  
and space environment operation  
[NASA-CASE-XNP-01641] c15 N71-22997  
Development of rolling element bearing for  
operation in ultrahigh vacuum environment  
[NASA-CASE-XLE-09527-2] c15 N71-26189  
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defective components in rotating machinery  
with emphasis on bearing assemblies  
[NASA-CASE-KSC-10752-1] c15 N73-27407  
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ultrahigh speeds  
[NASA-CASE-LEW-11152-1] c15 N73-32359  
Hollow high strength rolling elements for  
antifriction bearings fabricated from  
preformed components  
[NASA-CASE-LEW-11026-1] c15 N73-33383

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Indomethacin-antihistamine combination for  
gastric ulceration control  
[NASA-CASE-ARC-11118-1] c52 N78-11692

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Determination of antimicrobial susceptibilities  
of infected urines without isolation  
[NASA-CASE-GSC-12046-1] c52 N77-26797

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Silicon nitride coated, plastic covered solar cell  
[NASA-CASE-LEW-11496-1] c44 N77-14580

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and anvil in apparatus for making diamonds  
[NASA-CASE-MFS-20698] c15 N72-20446

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sources with nonuniform plasma density  
[NASA-CASE-XNP-03332] c09 N71-10618



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## ASPECT RATIO

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[NASA-CASE-XFP-05302] c15 N71-23254

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[NASA-CASE-ARC-10448-2] c74 N75-12732

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[NASA-CASE-ARC-10448-3] c35 N77-14408

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[NASA-CASE-NPO-14035-1] c32 N78-18266

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[NASA-CASE-MSC-12609-1] c05 N73-32012

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Low onset rate energy absorber in form of strut assembly for crew couch of Apollo command module  
[NASA-CASE-MSC-12279-1] c15 N70-35679

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**APPLICATIONS OF MATHEMATICS**

Apparatus for computing square roots  
[NASA-CASE-XGS-04768] c08 N71-19437

**APPROACH INDICATORS**

Spectrally balanced chromatic landing approach lighting system  
[NASA-CASE-ARC-10990-1] c04 N77-12031

**AQUEOUS SOLUTIONS**

Anti-fog composition --- for prevention of fogging on surfaces such as space helmet visors and windshields  
[NASA-CASE-MSC-13530-2] c23 N75-14834

Automated system for identifying traces of organic chemical compounds in aqueous solutions  
[NASA-CASE-NPO-13063-1] c25 N76-18245

**ARC DISCHARGES**

Development of device to prevent high voltage arcing in electron beam welding  
[NASA-CASE-XMF-08522] c15 N71-19486

Direct current powered self repeating plasma accelerator with interconnected annular and linear discharge channels  
[NASA-CASE-VIA-03103] c25 N71-21693

Method and apparatus for nondestructive testing --- using high frequency arc discharges  
[NASA-CASE-MFS-21233-1] c38 N74-15395

Sustained arc ignition system  
[NASA-CASE-LFW-12444-1] c33 N77-28385

**ARC HEATING**

Magnetically diffused radial electric arc heater  
[NASA-CASE-VIA-00330] c33 N70-34540

Electric arc device for minimizing electrode ablation and heating gases to supersonic or hypersonic wind tunnel temperatures  
[NASA-CASE-XAC-00319] c25 N70-41628

Annular arc accelerator shock tube  
[NASA-CASE-NPO-13528-1] c09 N77-10071

**ARC JET ENGINES**

Improving performance of magnetoplasma dynamic arc rocket engine  
[NASA-CASE-LFW-11180-1] c25 N73-25760

**ARC LAMPS**

Starting circuit design for initiating and maintaining arcs in vapor lamps  
[NASA-CASE-XMP-01059] c09 N71-12540

Compact, high intensity arc lamp with internal magnetic field producing means  
[NASA-CASE-NPO-11510-1] c33 N77-21315

Depressurization of arc lamps  
[NASA-CASE-NPO-10790-1] c33 N77-21316

Arc control in compact arc lamps  
[NASA-CASE-NPO-10870-1] c33 N77-22386

Purging means and method for Xenon arc lamps  
[NASA-CASE-NPO-11978] c31 N78-17238

**ARC WELDING**

Emission spectroscopy method for contamination monitoring of inert gas metal arc welding  
[NASA-CASE-XMP-02039] c15 N71-15871

Automatic closed circuit television arc guidance control for welding joints  
[NASA-CASE-MFS-13046] c07 N71-19433

Development of device to prevent high voltage arcing in electron beam welding  
[NASA-CASE-XMF-08522] c15 N71-19486

Development of apparatus for automatically changing carriage speed of welding machine to obtain constant speed of torch along work surface  
[NASA-CASE-XMP-07069] c15 N71-23815

Grain refinement control in TIG arc welding  
[NASA-CASE-MSC-19095-1] c37 N75-19683

**ARCHITECTURE**

Development of construction block in form of container folded from flat sheet and filled with solid material for architectural purposes  
[NASA-CASE-MSC-12233-2] c32 N73-13921

**ARM (ANATOMY)**

Apparatus for applying simulator g-forces to an arm of an aircraft simulator pilot  
[NASA-CASE-LAR-10550-1] c09 N74-30597

Orthotic arm joint --- for use in mechanical arms  
[NASA-CASE-MFS-21611-1] c54 N75-12616

An improved controller arm for a remotely related slave arm  
[NASA-CASE-ARC-11052-1] c54 N77-30751

**ARMATURES**

Design and development of electric motor with stationary field and armature windings which operates on direct current  
[NASA-CASE-XGS-05290] c09 N71-25999

Solenoid valve including guide for armature and valve member  
[NASA-CASE-GSC-10607-1] c15 N72-20442

Direct current motor including stationary field windings and stationary armature winding  
[NASA-CASE-XGS-07805] c15 N72-33476

**AROMATIC COMPOUNDS**

Aromatic polyimide preparation --- with low softening temperatures  
[NASA-CASE-LAR-11372-1] c27 N74-19772

Ultraviolet and thermally stable polymer compositions  
[NASA-CASE-ARC-10592-1] c27 N74-21156

Ultraviolet and thermally stable polymer compositions  
[NASA-CASE-ARC-10592-2] c27 N76-32315

Synthesis of multifunction triaryltrifluoroethanes  
[NASA-CASE-ARC-11097-1] c23 N78-22154

Synthesis of multifunction triaryltrifluoroethanes  
[NASA-CASE-ARC-11097-2] c23 N78-22155

Polymeric foams from cross-linkable poly-n-arylenebenzimidazoles  
[NASA-CASE-ARC-11008-1] c27 N78-31232

Process for preparing thermoplastic aromatic polyimides  
[NASA-CASE-LAR-11828-1] c27 N78-32261

**ARTERIES**

Arterial pulse wave pressure transducer  
[NASA-CASE-GSC-11531-1] c52 N74-27566

**ARTIFICIAL CLOUDS**

Chemical system for releasing barium to create ion clouds in upper atmosphere and interplanetary space  
[NASA-CASE-LAR-10670-1] c06 N73-30097

**ARTIFICIAL GRAVITY**

Artificial gravity system for simulating self-locomotion capability of astronauts in rotating environments  
[NASA-CASE-XLA-03127] c11 N71-10776

Development of method for producing artificial gravity in manned spacecraft  
[NASA-CASE-XMP-02595] c31 N71-21881

Spacecraft with artificial gravity and earthlike atmosphere  
[NASA-CASE-LFW-11101-1] c31 N73-32750

**ARTIFICIAL SATELLITES**

Gravity gradient attitude control system with gravity gradiometer and reaction wheels for artificial satellite attitude control  
[NASA-CASE-GSC-10555-1] c21 N71-27324

**ASBESTOS**

Reconstituted asbestos matrix --- for use in fuel or electrolysis cells  
[NASA-CASE-MSC-12568-1] c24 N76-14204

**ASPECT RATIO**

Variable aspect ratio and variable sweep delta wing planforms for supersonic aircraft  
[NASA-CASE-XLA-00221] c02 N70-33266

Supersonic aircraft configuration providing for variable aspect ratio and variable sweep wings  
[NASA-CASE-XLA-00166] c02 N70-34178

Supersonic aircraft variable sweep wing planform for varying aspect ratio  
[NASA-CASE-XLA-00350] c02 N70-38011

**ASPHALT**  
Thermoplastic rubber comprising ethylene-vinyl acetate copolymer, asphalt and fluxing oil  
[NASA-CASE-WPO-8235] c27 N78-33228

**ASSAYING**  
Rapid, quantitative determination of bacteria in water  
[NASA-CASE-GSC-12158-1] c51 N78-22585  
Method and apparatus for continuous measurement of bacterial content of aqueous samples  
[NASA-CASE-MSC-16779-1] c51 N78-22586

**ASSEMBLIES**  
Multiple Belleville spring assembly with even load distribution  
[NASA-CASE-XNP-00840] c15 N70-38225  
Bearing seat usable in a gas turbine engine  
[NASA-CASE-LEN-12477-1] c37 N77-32501

**ASSEMBLING**  
Apparatus for assembling space structure  
[NASA-CASE-MFS-23579-1] c12 N77-31213

**ASTRONAUT LOCOMOTION**  
Artificial gravity system for simulating self-locomotion capability of astronauts in rotating environments  
[NASA-CASE-XLA-03127] c11 N71-10776  
Space suit with pressure-volume compensator system  
[NASA-CASE-XLA-05332] c05 N71-11194  
Equipotential space suits utilizing mechanical aids to minimize astronaut energy at bending joints  
[NASA-CASE-LAR-10007-1] c05 N71-11195  
Space suit using nonflexible material with low leakage and providing protection against thermal extremes, physical punctures, and radiation with high mobility articulation  
[NASA-CASE-XAC-07043] c05 N71-23161  
Development of improved convolute section for pressurized suits to provide high degree of mobility in response to minimum of applied torque  
[NASA-CASE-XMS-09637-1] c05 N71-24730  
Gravity environment simulation by locomotion and restraint aid for studying manual operation performance of astronauts at zero gravity  
[NASA-CASE-ARC-10153] c05 N71-28619  
Walking boot assembly  
[NASA-CASE-AEC-11101-1] c54 N78-17675  
Spacesuit mobility joints  
[NASA-CASE-ARC-11058-2] c54 N78-18763

**ASTRONAUT MANEUVERING EQUIPMENT**  
Hand-held maneuvering unit for propulsion and attitude control of astronauts in zero or reduced gravity environment  
[NASA-CASE-XMS-05304] c05 N71-12336  
Space environmental work simulator with portions of space suit mounted to vacuum chamber wall  
[NASA-CASE-XNP-07488] c11 N71-18773  
Lightweight propulsion unit for movement of personnel and equipment across lunar surface  
[NASA-CASE-MFS-20130] c28 N71-27585

**ASTRONAUT PERFORMANCE**  
Gravity environment simulation by locomotion and restraint aid for studying manual operation performance of astronauts at zero gravity  
[NASA-CASE-ARC-10153] c05 N71-28619  
Spacesuit mobility joints  
[NASA-CASE-ARC-11058-1] c54 N78-31735

**ASTRONAUT TRAINING**  
Attitude control training device for astronauts permitting friction-free movement with five degrees of freedom  
[NASA-CASE-XMS-02977] c11 N71-10746  
Low and zero gravity simulator for astronaut training  
[NASA-CASE-MFS-10555] c11 N71-19494  
Apparatus for training astronaut crews to perform on simulated lunar surface under conditions of lunar gravity  
[NASA-CASE-XMS-04798] c11 N71-21474

**ASTRONAUTS**  
Three transceiver lunar emergency system to relay voice communication of astronaut  
[NASA-CASE-MFS-21042] c07 N72-25171

Manual actuator --- for spacecraft exercising machines  
[NASA-CASE-MFS-21481-1] c37 N74-18127

**ASTRONAVIGATION**  
Guidance analyzer having suspended spacecraft simulating sphere for astronavigation  
[NASA-CASE-XNP-09572] c14 N71-15621

**ASTRONOMICAL PHOTOGRAPHY**  
Cameras for photographing meteors in selected sky area  
[NASA-CASE-LAR-10226-1] c14 N73-19419

**ASTRONOMICAL TELESCOPES**  
Light sensitive control system for automatically opening and closing dome of solar optical telescope  
[NASA-CASE-MSC-10966] c14 N71-19568  
Laser beam projector for continuous, precise alignment between target, laser generator, and astronomical telescope during tracking  
[NASA-CASE-WPO-11087] c23 N71-29125  
Star image motion compensator using telescope for maintaining fixed images  
[NASA-CASE-LAR-10523-1] c14 N72-22444  
System for the measurement of ultra-low stray light levels --- light shields and baffles  
[NASA-CASE-MFS-23513-1] c74 N77-14842  
Partial polarizer filter  
[NASA-CASE-GSC-12225-1] c74 N77-30935

**ATMOSPHERIC COMPOSITION**  
Design and development of two types of atmosphere sampling chambers  
[NASA-CASE-WPO-11373] c13 N72-25323  
Development and operation of apparatus for sampling particulates in gases in upper atmosphere  
[NASA-CASE-HQN-10037-1] c14 N73-27376  
Monitoring atmospheric pollutants with a heterodyne radiometer transmitter-receiver  
[NASA-CASE-WFO-11919-1] c35 N74-11284

**ATMOSPHERIC ENTRY**  
Designing spacecraft for flight into space, atmospheric reentry, and landing at selected sites  
[NASA-CASE-XAC-02058] c02 N71-16087  
Development of method for measuring electron density gradients of plasma sheath around space vehicle during atmospheric entry  
[NASA-CASE-XLA-06232] c25 N71-20563  
Orbital and entry tracking accessory for globes --- to provide range requirements for reentry vehicles to any landing site  
[NASA-CASE-LAR-10626-1] c19 N74-21015

**ATMOSPHERIC ENTRY SIMULATION**  
Crossed-field plasma accelerator for laboratory simulation of atmospheric reentry conditions  
[NASA-CASE-XLA-00675] c25 N70-33267  
Wind tunnel method for simulating flow fields around blunt vehicles entering planetary atmospheres without involving high temperatures  
[NASA-CASE-LAR-11138] c12 N71-20436

**ATMOSPHERIC PHYSICS**  
Development and characteristics of apparatus for measuring intensity of electric field in atmosphere  
[NASA-CASE-KSC-10730-1] c14 N73-32318

**ATMOSPHERIC PRESSURE**  
A method of purifying metallurgical grade silicon employing reduced pressure atmospheric control  
[NASA-CASE-WPO-14474-1] c26 N78-27255

**ATMOSPHERIC RADIATION**  
Radiometric measuring system for solar activity and atmospheric attenuation and emission  
[NASA-CASE-EBC-10276] c14 N73-26432

**ATMOSPHERIC SCATTERING**  
Clear air turbulence detector  
[NASA-CASE-MFS-21244-1] c36 N75-15028

**ATMOSPHERIC TURBULENCE**  
Passive optical wind and turbulence remote detection system  
[NASA-CASE-XNP-14032] c20 N71-16340  
Focused laser Doppler velocimeter  
[NASA-CASE-MFS-23178-1] c35 N77-10493

**ATOM CONCENTRATION**  
Atomic hydrogen storage method and apparatus --- cryotrapping and magnetic field strength  
[NASA-CASE-LEN-12081-2] c72 N78-19907

**ATORIZERS**  
Portable cryogenic cooling system design

## SUBJECT INDEX

## AUDITORY SIGNALS

including turbine pump, cooling chamber, and atomizer  
[NASA-CASE-NPO-10467] c23 N71-26654

**ATS**  
Doppler frequency shift correction device for multiplex communication with Applications Technology Satellites  
[NASA-CASE-IGS-02749] c07 N69-39978

**ATTACHMENT**  
Silicon carbide backward diode with coated lead attachment  
[NASA-CASE-ERC-10224-2] c09 N73-27150

**ATTENUATORS**  
Rotary vane attenuator with two stators and intermediary rotor, using resistive and orthogonally disposed cards  
[NASA-CASE-NPO-11418-1] c14 N73-13420  
A signal attenuator --- pulse rate sensor circuits  
[NASA-CASE-PRC-11012-1] c33 N78-28339

**ATTITUDE (INCLINATION)**  
Analog spatial maneuver computer with three output angles for obtaining desired spatial attitude  
[NASA-CASE-GSC-10880-1] c08 N72-11172  
Spacecraft attitude sensing system design with narrow field of view sensor rotating about spacecraft x-y axis  
[NASA-CASE-GSC-10890-1] c21 N73-30640  
Interferometer mirror tilt correcting system  
[NASA-CASE-NPO-13687-1] c35 N78-18391

**ATTITUDE CONTROL**  
Visual target luminaires for retrofire attitude control  
[NASA-CASE-IMS-12158-1] c31 N69-27499  
Unitary three-axis controller for flight vehicles within or outside atmosphere  
[NASA-CASE-XPR-00181] c21 N70-33279  
Sensing method and device for determining orientation of space vehicle or satellite by using particle traps  
[NASA-CASE-XGS-00466] c21 N70-34297  
Attitude and propellant flow control system for liquid propellant rocket vehicles  
[NASA-CASE-XMP-00185] c21 N70-34539  
Spacecraft attitude control system using solar and earth sensors, gyroscopes, and jet actuators  
[NASA-CASE-XNP-00465] c21 N70-35395  
Attitude control device for space vehicles  
[NASA-CASE-XNP-00294] c21 N70-36938  
Attitude orientation control of spin stabilized final stage space vehicles, using horizon scanners  
[NASA-CASE-XLA-00281] c21 N70-36943  
Automatic ejection valve for attitude control and midcourse guidance of space vehicles  
[NASA-CASE-XNP-00676] c15 N70-38996  
Three-axis controller operated by hand-wrist motion for yaw, pitch, and roll control  
[NASA-CASE-XAC-01404] c05 N70-41581  
Attitude control training device for astronauts permitting friction-free movement with five degrees of freedom  
[NASA-CASE-XMS-02977] c11 N71-10746  
Photomultiplier detector of Canopus for spacecraft attitude control  
[NASA-CASE-XNP-03914] c21 N71-10771  
Automatic balancing device for use on frictionless supported attitude-controlled test platforms  
[NASA-CASE-LAR-10774] c10 N71-13545  
Development of spacecraft experiment pointing and attitude control system  
[NASA-CASE-XLA-05464] c21 N71-14132  
Development of attitude control system for spacecraft orientation  
[NASA-CASE-IGS-04393] c21 N71-14159  
System for aerodynamic control of rocket vehicles by secondary injection of fluid into nozzle exhaust stream  
[NASA-CASE-XIA-01163] c21 N71-15582  
Drive mechanism for operating reactance attitude control system for aerospace bodies  
[NASA-CASE-XMF-01598] c21 N71-15583  
Attitude detection system using stellar references for three-axis control and spin stabilized spacecraft  
[NASA-CASE-XGS-03431] c21 N71-15642  
Remote control device operated by movement of finger tips for manual control of spacecraft attitude  
[NASA-CASE-XAC-02405] c09 N71-16089  
Thrust and attitude control apparatus using jet nozzle in movable canard surface or fin configuration  
[NASA-CASE-XLE-03583] c31 N71-17629  
Attitude sensor with scanning mirrors for detecting orientation of space vehicle with respect to planet  
[NASA-CASE-XLA-00793] c21 N71-22880  
Development of attitude control system for sounding rocket stabilization during ballistic phase of flight  
[NASA-CASE-IGS-01654] c31 N71-24750  
Development of voice operated controller for controlling reaction jets of spacecraft  
[NASA-CASE-XLA-04063] c31 N71-33160  
Attitude sensor  
[NASA-CASE-LAR-10586-1] c19 N74-15089  
Temperature compensated digital inertial sensor --- circuit for maintaining inertial element of gyroscope or accelerometer at constant position  
[NASA-CASE-NPO-13044-1] c35 N74-15094  
Thrust augmented spin recovery device  
[NASA-CASE-LAR-11970-1] c08 N77-22147  
Sun direction detection system  
[NASA-CASE-NPO-13722-1] c74 N77-22951

**ATTITUDE GYROS**  
Spacecraft attitude control system using solar and earth sensors, gyroscopes, and jet actuators  
[NASA-CASE-XNP-00465] c21 N70-35395  
Attitude control system  
[NASA-CASE-MPS-22787-1] c15 N77-10113

**ATTITUDE INDICATORS**  
Photosensitive light source device for detecting unmanned spacecraft deviation from reference attitude  
[NASA-CASE-XNP-00438] c21 N70-35089  
Hand controller operable about three respectively perpendicular axes and capable of actuating signal generators for attitude control devices  
[NASA-CASE-IMS-07487] c15 N71-23255  
Combined optical attitude and altitude indicating instrument for use in aircraft or spacecraft  
[NASA-CASE-XLA-01907] c14 N71-23268  
Aircraft horizon and vertical indicator  
[NASA-CASE-ERC-10392] c21 N73-14692  
Attitude sensor  
[NASA-CASE-LAR-10586-1] c19 N74-15089  
Translatory shock absorber for attitude sensors  
[NASA-CASE-MPS-22905-1] c19 N76-22284  
Air speed and attitude probe  
[NASA-CASE-PRC-11009-1] c06 N78-25088

**ATTITUDE STABILITY**  
Dynamic precession damping of spin-stabilized vehicles by using rate gyroscope and angular accelerometer  
[NASA-CASE-XIA-01989] c21 N70-34295  
Attitude stabilizer for nonguided missile or vehicle with respect to trajectory  
[NASA-CASE-ARC-10134] c30 N72-17873

**AUDIO EQUIPMENT**  
Audio equipment for removing impulse noise from audio signals  
[NASA-CASE-NPO-11631] c10 N73-12244

**AUDIO FREQUENCIES**  
High efficiency transformerless amplitude modulator coupled to RF power amplifier  
[NASA-CASE-GSC-10668-1] c07 N71-28430  
Audio frequency analysis circuit for determining, displaying, and recording frequency of sweeping audio frequency signal  
[NASA-CASE-NPO-11447] c14 N72-27408

**AUDITORY DEFECTS**  
Hearing aid malfunction detection system  
[NASA-CASE-HSC-14916-1] c33 N78-10375

**AUDITORY PERCEPTION**  
Auditory display for the blind  
[NASA-CASE-HQN-10832-1] c71 N74-21014

**AUDITORY SIGNALS**  
Audio signal processing system for noise surge elimination at low amplitude audio input  
[NASA-CASE-HSC-12223-1] c07 N71-26181  
Audio equipment for removing impulse noise from audio signals  
[NASA-CASE-NPO-11631] c10 N73-12244

## AUDITORY STIMULI

## SUBJECT INDEX

## AUDITORY STIMULI

Auditory display for the blind  
[NASA-CASE-HQH-10832-1] c71 N74-21014

**AUSTENITIC STAINLESS STEELS**  
Intermetallic chromium containing nickel  
aluminide for high temperature corrosion  
protection of stainless steels  
[NASA-CASE-LEW-11267-1] c17 N73-32414  
Device for measuring the ferrite content in an  
austenitic stainless-steel weld  
[NASA-CASE-MFS-22907-1] c26 N76-18257

**AUTOCORRELATION**  
Linear three-tap feedback shift register  
[NASA-CASE-NPO-10351] c08 N71-12503  
Circuitry for developing autocorrelation  
function continuously within signal receiving  
period  
[NASA-CASE-INP-00746] c07 N71-21476

**AUTOMATIC CONTROL**  
Automatic control of voltage supply to direct  
current motor  
[NASA-CASE-XMS-04215-1] c09 N69-39987  
Electro-optical/computer system for aligning  
large structural members and maintaining  
correct position  
[NASA-CASE-INP-02029] c14 N70-41955  
Pulsed energy power system for application of  
combustible gases to turbine controlling ac  
voltage generator  
[NASA-CASE-MSC-13112] c03 N71-11057  
Automatic balancing device for use on  
frictionless supported attitude-controlled  
test platforms  
[NASA-CASE-LAR-10774] c10 N71-13545  
Computer controlled apparatus for maintaining  
welding torch angle and velocity during seam  
tracking  
[NASA-CASE-XMF-03287] c15 N71-15607  
Fluid leakage detection system with automatic  
monitoring capability  
[NASA-CASE-LAR-10323-1] c12 N71-17573  
Light sensitive control system for automatically  
opening and closing dome of solar optical  
telescope  
[NASA-CASE-MSC-10966] c14 N71-19568  
Welding torch with automatic speed controller  
using speed sensing wheel and closed servo  
system  
[NASA-CASE-INP-01730] c15 N71-23050  
Microwave waveguide switch with rotor position  
control  
[NASA-CASE-INP-06507] c09 N71-23548  
Automatically reciprocating, high pressure pump  
for use in spacecraft cryogenic propellants  
[NASA-CASE-INP-04731] c15 N71-24042  
Automatic controlled thermal fatigue testing  
apparatus  
[NASA-CASE-XIA-02059] c33 N71-24276  
Automatically charging battery of electric  
storage cells  
[NASA-CASE-INP-04758] c03 N71-24605  
Electric motor control system with pulse width  
modulation for providing automatic null  
seeking servo  
[NASA-CASE-INP-05195] c10 N71-24861  
Indexing mechanism for cathode array  
substitution in electron beam tube  
[NASA-CASE-NPO-10625] c09 N71-26182  
Voltage range selection apparatus for sensing  
and applying voltages to electronic  
instruments without loading signal source  
[NASA-CASE-XMS-06497] c14 N71-26244  
Automated fluid chemical analyzer for  
microchemical analysis of small quantities of  
liquids by use of selected reagents and  
analyzer units  
[NASA-CASE-INP-09451] c06 N71-26754  
Automatic control device for regulating inlet  
water temperature of liquid cooled spacesuit  
[NASA-CASE-MSC-13917-1] c05 N72-15098  
Optimal control system for automatic speed  
regulation of electric driven motor vehicle  
[NASA-CASE-NPO-11210] c11 N72-20244  
Plotter device for automatically drawing  
equipotential lines on sheet of resistance paper  
[NASA-CASE-NPO-11134] c09 N72-21246  
Automatic shunting of ion thruster magnetic  
field when thruster is not operating  
[NASA-CASE-LEW-10835-1] c28 N72-22771

Automatic temperature control for liquid cooled  
space suit  
[NASA-CASE-ARC-10599-1] c05 N73-26071  
Speed control system for dc motor equipped with  
brushless Hall effect device  
[NASA-CASE-MFS-20207-1] c09 N73-32107  
Programmable physiological infusion  
[NASA-CASE-ARC-10447-1] c52 N74-22771  
Automatically operable self-leveling load table  
[NASA-CASE-MFS-22039-1] c09 N75-12968  
Automatic focus control for facsimile cameras  
[NASA-CASE-LAR-11213-1] c35 N75-15014  
Traffic survey system --- using optical scanners  
[NASA-CASE-MFS-22631-1] c66 N76-19888  
Automatic visual inspection system for  
microelectronics  
[NASA-CASE-NPO-13282] c38 N78-17396  
Automatic fluid dispenser  
[NASA-CASE-ARC-10820-1] c35 N78-19466  
Module failure isolation circuit for paralleled  
inverters  
[NASA-CASE-NPO-14000-1] c33 N78-22299  
A method of growing a ribbon crystal  
particularly suited for facilitating automated  
control of ribbon width  
[NASA-CASE-NFO-14295-1] c76 N78-24952  
Method for producing solar energy panels by  
automation  
[NASA-CASE-LEW-12541-1] c44 N78-25529  
A solar array strip and a method for forming the  
same  
[NASA-CASE-NPO-13652-3] c44 N78-25560

**AUTOMATIC CONTROL VALVES**  
Ambient atmospheric pressure sensing device for  
determining altitude of flight vehicles  
[NASA-CASE-XLA-00128] c15 N70-37925  
Describing metal valve pintle with encapsulated  
elastomeric body  
[NASA-CASE-MSC-12116-1] c15 N71-17648  
Semitoroidal diaphragm cavitating flow control  
valve  
[NASA-CASE-INP-09704] c12 N71-18615  
Reliability of automatic refilling valving  
device for cryogenic liquid systems  
[NASA-CASE-NPO-11177] c15 N72-17453  
Combined pressure regulator and shutoff valve  
[NASA-CASE-NPO-13201-1] c37 N75-15050  
Iodine generator for reclaimed water purification  
[NASA-CASE-MSC-14632-1] c54 N78-14784

**AUTOMATIC FREQUENCY CONTROL**  
System for phase locking onto carrier frequency  
signal located within receiver bandpass  
[NASA-CASE-XGS-04994] c09 N69-21543  
Audio signal processing system for noise surge  
elimination at low amplitude audio input  
[NASA-CASE-MSC-12223-1] c07 N71-26181  
Automatic frequency control device for providing  
frequency reference for voltage controlled  
oscillator  
[NASA-CASE-KSC-10393] c09 N72-21247  
Self-tuning electronic filter for maintaining  
constant bandwidth and center frequency gain  
[NASA-CASE-ARC-10264-1] c09 N73-20231

**AUTOMATIC GAIN CONTROL**  
Automatic gain control amplifier system  
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Alkali-metal silicate binders and methods of manufacture
- [NASA-CASE-GSC-12303-1] c27 N78-17217
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- Binocular device for displaying numerical information in field of view
- [NASA-CASE-LAR-11782-1] c74 N77-20882
- BIOASSAY**
- Spectrophotofluorometer with 3-dimensional display to identify fluorescence spectra of carcinogenic and noncarcinogenic hydrocarbons
- [NASA-CASE-IGS-01231] c14 N70-41676  
Bioassay of flavin coenzymes
- [NASA-CASE-GSC-10565-1] c06 N72-25149  
Enzymatic luminescent bioassay method for determining bacterial levels in urine
- [NASA-CASE-GSC-11092-2] c04 N73-27052  
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- [NASA-CASE-NPO-12130-1] c25 N75-14844  
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- [NASA-CASE-NPO-13214-1] c35 N75-25123  
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- [NASA-CASE-GSC-11917-2] c51 N76-29891  
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- [NASA-CASE-NPO-13913-1] c52 N77-19750  
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- [NASA-CASE-GSC-12046-1] c52 N77-26797  
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- [NASA-CASE-MSC-16260-1] c51 N78-18674
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- [NASA-CASE-XNS-02872] c05 N69-21925  
Manufacturing process for making perspiration resistant-stress resistant biopotential electrode
- [NASA-CASE-MSC-90153-2] c05 N72-25120  
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- [NASA-CASE-LAR-10773-3] c51 N77-25769
- BIOELECTRICITY**
- Development and characteristics of electrodes in which poisoning by organic molecules is prevented by ion selective electrolytic deposition of hydrophilic protein colloid
- [NASA-CASE-XNS-04213-1] c09 N71-26002
- BIOENGINEERING**
- Bio-isolated dc operational amplifier --- for bioelectric measurements
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- [NASA-CASE-KSC-10849-1] c52 N77-14738  
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- [NASA-CASE-NPO-13690-3] c27 N78-25219
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- [NASA-CASE-XAC-00435] c09 N70-35440  
Electrode attached to helmets for detecting low level signals from skin of living creatures
- [NASA-CASE-ABC-10043-1] c05 N71-11193  
Characteristics of pressed disc electrode for biological measurements
- [NASA-CASE-XNS-04212-1] c05 N71-12346  
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[NASA-CASE-XMS-04213-1] c09 N71-26002
- Ultrasonic biomedical measuring and recording apparatus --- for recording motion of internal organs such as heart valves  
[NASA-CASE-ARC-10597-1] c52 N74-20726
- Subminiature insertable force transducer --- including a strain gage to measure forces in muscles  
[NASA-CASE-NPO-13423-1] c33 N75-31329
- A logic-controlled occlusive cuff system  
[NASA-CASE-MSC-14836-1] c52 N76-27839
- Catheter tip force transducer for cardiovascular research  
[NASA-CASE-NPO-13643-1] c52 N76-29896
- Biomedical ultrasonoscope  
[NASA-CASE-ARC-10994-1] c52 N76-33835
- Thermistor holder for skin temperature measurements  
[NASA-CASE-ARC-10855-1] c52 N77-10780
- EKG and ultrasonoscope display  
[NASA-CASE-ARC-10994-2] c52 N77-15619
- Induction powered biological radiosonde --- for measuring intracranial pressure  
[NASA-CASE-ARC-11120-1] c52 N77-23743
- Magnetic electrical connectors for biomedical percutaneous implants  
[NASA-CASE-KSC-11030-1] c52 N77-25772
- Corneal seal device  
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[NASA-CASE-MSC-16777-1] c51 N78-22588
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[NASA-CASE-FRC-11012-1] c33 N78-28339
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[NASA-CASE-NPO-13953-1] c51 N78-22587
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[NASA-CASE-IGS-05534] c23 N71-16355
- Describing method for lyophilization of luciferase containing mixtures for use in life detection reactions  
[NASA-CASE-IGS-05532] c06 N71-17705
- Application of luciferase assay for ATP to antimicrobial drug susceptibility  
[NASA-CASE-GSC-12039-1] c51 N77-22794
- Rapid, quantitative determination of bacteria in water  
[NASA-CASE-GSC-12158-1] c51 N78-22585
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[NASA-CASE-IMS-01177] c05 N71-19440
- BIOMETRICS**
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[NASA-CASE-XMS-04212-1] c05 N71-12346
- Compressible electrolyte saturated sponge electrode for biomedical applications  
[NASA-CASE-MSC-13648] c05 N72-27103
- Ultrasonic biomedical measuring and recording apparatus --- for recording motion of internal organs such as heart valves  
[NASA-CASE-ARC-10597-1] c52 N74-20726
- Arterial pulse wave pressure transducer  
[NASA-CASE-GSC-11531-1] c52 N74-27566
- Biomedical ultrasonoscope  
[NASA-CASE-ARC-10994-1] c52 N76-33835
- BIOTELEMETRY**
- Biotelemetry apparatus with dual voltage generators for implanting in animals  
[NASA-CASE-XAC-05706] c05 N71-12342
- Miniature multichannel biotelemetry system  
[NASA-CASE-NPO-13065-1] c52 N74-26625
- Medical subject monitoring systems --- multichannel monitoring systems  
[NASA-CASE-MSC-14180-1] c52 N76-14757
- Accelerometer telemetry system  
[NASA-CASE-ARC-10849-1] c17 N76-29347
- Miniature ingestible telemeter devices to measure deep-body temperature  
[NASA-CASE-ARC-10583-1] c52 N76-29894
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- Automatic polarimeter capable of measuring transient birefringence changes in electro-optic materials  
[NASA-CASE-XNP-08883] c23 N71-16101
- Partial polarizer filter  
[NASA-CASE-GSC-12225-1] c74 N77-30935
- BIREFRINGENT FILTERS**
- Partial polarizer filter  
[NASA-CASE-GSC-12225-1] c74 N77-30935
- BISMUTH COMPOUNDS**
- Hall effect magnetometer  
[NASA-CASE-LEW-11632-2] c35 N75-13213
- BISTABLE CIRCUITS**
- Bistable multivibrator circuits operating at high speed and low power dissipation  
[NASA-CASE-IGS-00823] c10 N71-15910
- BIT SYNCHRONIZATION**
- Telemetry data unit to form multibit words for use between demodulator and computer  
[NASA-CASE-XNP-09225] c09 N69-24333
- Bit synchronization system using digital data transition tracking phased locked loop  
[NASA-CASE-NPO-10844] c07 N72-20140
- Bit synchronization of PCM communications signal, without separate synchronization channel by digital correlation  
[NASA-CASE-NPO-11302-1] c07 N73-13149
- Method and apparatus for a single channel digital communications system --- synchronization of received PCM signal by digital correlation with reference signal  
[NASA-CASE-NPO-11302-2] c32 N74-10132
- BINARY CODE**
- Encoders designed to generate comma free biorthogonal Reed-Muller type code comprising conversion of 64 6-bit words into 64 32-bit data for communication purposes  
[NASA-CASE-NPO-10595] c10 N71-25917
- BITS**
- Logic circuit for generating multibit binary code word in parallel  
[NASA-CASE-XNP-04623] c10 N71-26103
- MOD 2 sequential function generator for multibit sequence, with two-bit shift register for each pair of bits  
[NASA-CASE-NPO-10636] c08 N72-25210
- Bit error rate measurement above and below bit rate tracking threshold  
[NASA-CASE-MSC-12743-1] c32 N77-19290
- BLACK BODY RADIATION**
- Development of black-body source calibration furnace  
[NASA-CASE-XLE-01399] c33 N71-15625
- Black body cavity radiometer with thermal resistance wire bridge circuit  
[NASA-CASE-XNP-08961] c14 N71-24809
- Black body radiometer design with temperature sensing and cavity heat source cone winding  
[NASA-CASE-XNP-09701] c14 N71-26475
- Black body radiometer having isothermally surrounded cavity for ultraviolet, visible, and infrared radiation  
[NASA-CASE-NPO-10810] c14 N71-27323
- BLADE TIPS**
- Modification and improvement of turbine blades for maximum cooling efficiency  
[NASA-CASE-XLE-00092] c15 N70-33264
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- Impact absorbing blade mounts for variable pitch blades  
[NASA-CASE-LEW-12313-1] c37 N78-10468
- BLADES (CUTTERS)**
- Piston in bore cutter for severing parachute control lines and sealing cable hole to prevent water leakage into load  
[NASA-CASE-IMS-08072] c15 N70-42017
- Tissue macerating instrument  
[NASA-CASE-LEW-12668-1] c52 N78-14773

## BLAST LOADS

## SUBJECT INDEX

## BLAST LOADS

Development of apparatus for detonating explosive devices in order to determine forces generated and detonation propagation rate  
[NASA-CASE-LAR-10800-1] c33 N72-27959

## BLOOD

Reduction of blood serum cholesterol  
[NASA-CASE-NPO-12119-1] c52 N75-15270

Bag for storing whole blood  
[NASA-CASE-NPO-13930-1] c52 N78-25760

## BLOOD FLOW

A logic-controlled occlusive cuff system  
[NASA-CASE-MSC-14836-1] c52 N76-27839

## BLOOD PRESSURE

Blood pressure measuring system for separately recording dc and ac pressure signals of Korotkoff sounds  
[NASA-CASE-XMS-06061] c05 N71-23317

Apparatus and method for processing Korotkov sounds --- for blood pressure measurement  
[NASA-CASE-MSC-13999-1] c52 N74-26626

Arterial pulse wave pressure transducer  
[NASA-CASE-GSC-11531-1] c52 N74-27566

Circuit for detecting initial systole and diastolic notch --- for monitoring arterial pressure  
[NASA-CASE-LEW-11581-1] c54 N75-13531

## BLUFF BODIES

Bluff-shaped annular configuration for supersonic decelerator for reentry vehicles  
[NASA-CASE-XLE-00222] c02 N70-37939

## BLUNT BODIES

Wind tunnel method for simulating flow fields around blunt vehicles entering planetary atmospheres without involving high temperatures  
[NASA-CASE-LAR-11138] c12 N71-20436

## BODIES OF REVOLUTION

Conforming polisher for aspheric surfaces of revolution with inflatable tube  
[NASA-CASE-XGS-02884] c15 N71-22705

Test fixture for measuring moment of inertia of irregularly shaped body with multiple axes  
[NASA-CASE-XGS-01023] c14 N71-22992

## BODY FLUIDS

Programmable physiological infusion  
[NASA-CASE-ARC-10447-1] c52 N74-22771

Method of detecting and counting bacteria  
[NASA-CASE-GSC-11917-2] c51 N76-29891

## BODY KINEMATICS

Space suit with improved waist and torso movement  
[NASA-CASE-ARC-10275-1] c05 N72-22092

An improved controller arm for a remotely related slave arm  
[NASA-CASE-ARC-11052-1] c54 N77-30751

## BODY MEASUREMENT (BIOLOGY)

Biomedical ultrasonoscope  
[NASA-CASE-ARC-10994-1] c52 N76-33835

## BODY TEMPERATURE

Thermoregulating with cooling flow pipe network for humans  
[NASA-CASE-XMS-10269] c05 N71-24147

Miniature ingestible telemeter devices to measure deep-body temperature  
[NASA-CASE-ARC-10583-1] c52 N76-29894

## BODY VOLUME (BIOLOGY)

Whole body measurement systems --- for weightlessness simulation  
[NASA-CASE-MSC-13972-1] c52 N74-10975

## BODY-WING CONFIGURATIONS

An improved free wing for an aircraft  
[NASA-CASE-FRC-10092-1] c05 N77-31135

## BOILERS

Vapor generating boiler system for turbine motor  
[NASA-CASE-XLE-00785] c33 N71-16104

Shell-side liquid metal boiler employing tube and shell heat exchanger  
[NASA-CASE-NPO-10831] c33 N72-20915

## BOLOMETERS

High impedance alternating current sensing transformer device between two bolometers for measuring insertion loss of test component  
[NASA-CASE-XMP-01193] c10 N71-16057

Thin film capacitive bolometer and capacitance temperature interchange sensor  
[NASA-CASE-NPO-10607] c09 N71-27232

## BOLTS

Patent data on gas actuated bolt disconnect assembly  
[NASA-CASE-XLA-00326] c03 N70-34667

Bolt-latch mechanism for releasing despin weights from space vehicle

[NASA-CASE-XLA-00679] c15 N70-38601

Gage for quality control of sealing surfaces of threaded boss  
[NASA-CASE-XMP-04966] c14 N71-17658

Split nut and bolt separation device  
[NASA-CASE-XNP-06914] c15 N71-21489

Device for securing together structural members with axially stretched bolt and nut  
[NASA-CASE-GSC-11149-1] c15 N73-30457

## BONDING

Silver chloride use in technique for fusion bonding of graphite to silver, glass, ceramics, and certain other metals  
[NASA-CASE-XGS-00963] c15 N69-39735

Bonded joint and method --- for reducing peak shear stress in adhesive bonds  
[NASA-CASE-LAR-10900-1] c37 N74-23064

Bonding method in the manufacture of continuous regression rate sensor devices  
[NASA-CASE-LAR-10337-1] c24 N75-30260

Strain arrestor plate for fused silica tile --- bonding of thermal insulation to metallic plates or structural parts  
[NASA-CASE-MSC-14182-1] c27 N76-14264

Bonding of sapphire to sapphire by eutectic mixture of aluminum oxide and zirconium oxide  
[NASA-CASE-GSC-11577-3] c24 N76-19234

## BONES

Ultrasonic bone densitometer  
[NASA-CASE-MFS-20994-1] c35 N75-12271

Method and system for in vivo measurement of bone tissue using a two level energy source  
[NASA-CASE-MSC-14276-1] c52 N77-14737

Method of adhering bone to a rigid substrate using a graphite fiber reinforced bone cement  
[NASA-CASE-NPO-13764-1] c27 N78-17215

## BOOMS (EQUIPMENT)

Unfolding boom assembly with knuckle joints for positioning equipment for spacecraft  
[NASA-CASE-XGS-00938] c32 N70-41367

Collapsible antenna boom and coaxial transmission line having inflatable inner tube  
[NASA-CASE-MFS-20068] c07 N71-27191

Extendable, self-deploying boom apparatus  
[NASA-CASE-GSC-10566-1] c15 N72-18477

Design and characteristics of mechanically extended and telescoping boom on crane assembly  
[NASA-CASE-NPO-11118] c03 N72-25021

## BOOSTER RECOVERY

Techniques for recovery of multistage rocket vehicles by providing lifting surfaces on individual sections  
[NASA-CASE-XMP-00389] c31 N70-34176

Recoverable, reusable single stage booster capable of injecting large payloads into circular earth orbit  
[NASA-CASE-XMP-01973] c31 N70-41588

## BOOSTER ROCKET ENGINES

Segmented back-up bar for butt welding large tubular structures such as rocket booster bodies or tanks  
[NASA-CASE-XMP-00640] c15 N70-39924

Recoverable, reusable single stage booster capable of injecting large payloads into circular earth orbit  
[NASA-CASE-XMP-01973] c31 N70-41588

## BOOTS (FOOTWEAR)

Walking boot assembly  
[NASA-CASE-ARC-11101-1] c54 N78-17675

## BORIDES

Cesium thermionic converters having improved electrodes  
[NASA-CASE-LEW-12038-3] c44 N78-25555

## BORING MACHINES

Automatic controlled drive mechanism for portable boring bar  
[NASA-CASE-XLA-03661] c15 N71-33518

## BORON

Radiation hardening of MOS devices by boron --- for stabilizing gate threshold potential of field effect device  
[NASA-CASE-GSC-11425-1] c76 N74-20329

## BORON CARBIDES

Catalyst for increased growth of boron carbide crystal whiskers  
[NASA-CASE-XHQ-03903] c15 N69-21922

**BORON FLUORIDES**  
 Boron trifluoride coatings for thermoplastic materials and method of applying same in glow discharge  
 [NASA-CASE-ABC-11057-1] c27 N78-31233

**BOUNDARY LAYER CONTROL**  
 Double hinged flap for boundary layer control over trailing edges of wings  
 [NASA-CASE-XLA-01290] c02 N70-42016

**BOUNDARY LAYER SEPARATION**  
 Tertiary flow injection system for thrust vectoring of propulsive nozzle flow  
 [NASA-CASE-MFS-20931] c28 N71-29153  
 Controlled separation combustor --- airflow distribution in gas turbine engines  
 [NASA-CASE-LEW-11593-1] c20 N76-14190

**BOUNDARY LAYERS**  
 Flow meter for measuring stagnation pressure in boundary layer around high speed flight vehicle  
 [NASA-CASE-XFR-02007] c12 N71-24692  
 Development of thermocouple instrument for measuring temperature of wall heated by flowing fluid without disturbing boundary layer  
 [NASA-CASE-XLX-05230] c14 N72-27410

**BOXES (CONTAINERS)**  
 Sealed storage container for channel carriers with mounted miniature electronic components  
 [NASA-CASE-MFS-20075] c09 N71-26133

**BRAKES (FOR ARRESTING MOTION)**  
 Energy dissipating shock absorbing system for land payload recovery or vehicle braking  
 [NASA-CASE-XLA-00754] c15 N70-34850  
 Automatic braking device for rapidly transferring humans or materials from elevated location  
 [NASA-CASE-XKS-07814] c15 N71-27067  
 Sprag solenoid brake --- development and operations of electrically controlled brake  
 [NASA-CASE-MFS-21846-1] c37 N74-26976  
 Reel safety brake  
 [NASA-CASE-GSC-11960-1] c37 N77-14479  
 Motion restraining device  
 [NASA-CASE-NPO-13619-1] c37 N78-16369

**BRAKING**  
 Direct current electromotive system for regenerative braking of electric motor  
 [NASA-CASE-XMP-01096] c10 N71-16030  
 Linear magnetic braking system with nonuniformly wrapped primary coil producing constant braking force on secondary coil  
 [NASA-CASE-XLE-05079] c15 N71-17652  
 Anemometer with braking mechanism to prevent rotation of wind driven elements  
 [NASA-CASE-XMP-05224] c14 N71-23726

**BRAZING**  
 Anti-wettable materials brazing processes using titanium and zirconium for surface pretreatment  
 [NASA-CASE-XMS-03537] c15 N69-21471  
 Application techniques for protecting materials during salt bath brazing  
 [NASA-CASE-XLE-00046] c15 N70-33311  
 Joining aluminum to stainless steel by bonding aluminum coatings onto titanium coated stainless steel and brazing aluminum to aluminum/titanium coated steel  
 [NASA-CASE-MFS-07369] c15 N71-20443  
 Brazing alloy adapted for brazing corrosion resistant steel to refractory metals, also for brazing refractory metals to other refractory metals  
 [NASA-CASE-XNP-03063] c17 N71-23365  
 Electric resistance spot welding and brazing for producing metal bonds with superior mechanical and structural characteristics  
 [NASA-CASE-LAR-11072-1] c15 N73-20535  
 Brazing alloy binder  
 [NASA-CASE-XMP-05868] c26 N75-27125  
 Brazing alloy composition  
 [NASA-CASE-XMP-06053] c26 N75-27126  
 Brazing alloy  
 [NASA-CASE-XMP-03878] c26 N75-27127  
 Method of fluxless brazing and diffusion bonding of aluminum containing components  
 [NASA-CASE-MSC-14435-1] c37 N76-18455

**BREATHING APPARATUS**  
 Three-port transfer valve with one port open continuously suitable for manned space flight  
 [NASA-CASE-XAC-01158] c15 N71-23051

Self-contained breathing apparatus  
 [NASA-CASE-MSC-14733-1] c54 N76-24900  
 Portable breathing system  
 [NASA-CASE-MSC-16182-1] c54 N77-21847

**BRICKS**  
 Development of construction block in form of container folded from flat sheet and filled with solid material for architectural purposes  
 [NASA-CASE-MSC-12233-2] c32 N73-13921

**BRIGHTNESS**  
 Modulating and controlling intensity of light beam from high temperature source by servocontrolled rotating cylinders  
 [NASA-CASE-XMS-04300] c09 N71-19479

**BRIGHTNESS DISCRIMINATION**  
 Video signal processing system for sampling video brightness levels  
 [NASA-CASE-NPO-10140] c07 N71-24742  
 Automated visual sensitivity tester for determining visual field sensitivity and blind spot size  
 [NASA-CASE-ARC-10329-1] c05 N73-26072

**BRITTLENESS**  
 Rock sampling --- apparatus for controlling particle size  
 [NASA-CASE-XNP-10007-1] c46 N74-23068  
 Rock sampling --- method for controlling particle size distribution  
 [NASA-CASE-XNP-09755] c46 N74-23069

**BROADBAND**  
 Broadband chokes and absorbers to reduce spurious radiation patterns of antenna array caused by support structures  
 [NASA-CASE-XMS-05303] c07 N69-27462  
 Flexible monopole antenna with broad bandwidth and low voltage standing wave ratio  
 [NASA-CASE-MSC-12101] c09 N71-18720  
 Broadband frequency discriminator with resistive captive inductive networks  
 [NASA-CASE-NPO-10096] c07 N71-24583  
 Broadband microwave waveguide window to compensate dielectric material filling  
 [NASA-CASE-XNP-08880] c09 N71-24808  
 Comb type traveling wave maser amplifier for improved high gain broadband output  
 [NASA-CASE-NPO-10548] c16 N71-24831  
 Wideband voltage controlled oscillator with high phase stability  
 [NASA-CASE-XLA-03893] c10 N71-27271  
 Multimode antenna feed system for microwave and broadband communication  
 [NASA-CASE-GSC-11046-1] c07 N73-28013

**BROADBAND AMPLIFIERS**  
 Solid state broadband stable power amplifier  
 [NASA-CASE-XNP-10854] c10 N71-26331  
 Broadband distribution amplifier with complementary pair transistor output stages  
 [NASA-CASE-NPO-10003] c10 N71-26415

**BROADCASTING**  
 Vehicle locating system utilizing AM broadcasting station carriers  
 [NASA-CASE-NPO-13217-1] c32 N75-26194

**BROMINE**  
 Hydrogen-bromine secondary battery  
 [NASA-CASE-NPO-13237-1] c44 N76-18641

**BRUSHES**  
 Fabrication of sintered impurity semiconductor brushes for electrical energy transfer  
 [NASA-CASE-XMP-01016] c26 N71-17818

**BRUSHES (ELECTRICAL CONTACTS)**  
 Liquid metal slip ring  
 [NASA-CASE-LEW-12277-2] c33 N78-25323

**BUCKLING**  
 Miniature vibration isolator utilizing elastic tubing material  
 [NASA-CASE-XLA-01019] c15 N70-40156  
 Test equipment to prevent buckling of small diameter specimens during compression tests  
 [NASA-CASE-LAR-10440-1] c14 N73-32323

**BUFFER STORAGE**  
 Data handling based on source significance, storage availability, and data received from source  
 [NASA-CASE-XNP-04162-1] c08 N70-34675  
 Data acquisition and processing system with buffer storage and timing device for magnetic tape recording of PCM data and timing information  
 [NASA-CASE-NPO-12107] c08 N71-27255

## BUFFERS (CHEMISTRY)

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- Digital to analog converter with parallel input/output memory device  
[NASA-CASE-KSC-10397] c08 N72-25206
- BUFFERS (CHEMISTRY)**  
Bag for storing whole blood  
[NASA-CASE-NPO-13930-1] c52 N78-25760
- BUILDINGS**  
Apparatus and method of assembling building blocks by folding pre-cut flat sheets of material during on-site construction  
[NASA-CASE-MSC-12233-1] c15 N72-25454
- BULBS**  
External bulb variable volume maser  
[NASA-CASE-GSC-12334-1] c36 N78-15474
- BULKHEADS**  
Liquid propellant tank design with semitoroidal bulkhead  
[NASA-CASE-IMP-01899] c31 N70-41948
- BUOYANCY**  
Inflatable radar reflector unit - lightweight, highly reflective to electromagnetic radiation, and adaptable for erection and deployment with minimum effort and time  
[NASA-CASE-IMS-00893] c07 N70-40063  
High visibility air sea rescue panel  
[NASA-CASE-MSC-12564-2] c03 N78-25070
- BURNING RATE**  
Pressurized gas injection for burning rate control of solid propellants  
[NASA-CASE-XLE-03494] c27 N71-21819  
Development of apparatus for testing burning rate and flammability of materials  
[NASA-CASE-IMS-09690] c33 N72-25913  
Nitramine propellants --- gun propellant burning rate  
[NASA-CASE-NPO-14103-1] c28 N78-31255
- BURNOUT**  
Spherical solid propellant rocket engine having abrupt burnout  
[NASA-CASE-IXQ-01897] c28 N70-35381
- BUTT JOINTS**  
Channel-type shell construction for rocket engines and related configurations  
[NASA-CASE-XLE-00144] c28 N70-34860  
Segmented back-up bar for butt welding large tubular structures such as rocket booster bodies or tanks  
[NASA-CASE-IMP-00640] c15 N70-39924  
Apparatus for welding sheet material --- butt joints  
[NASA-CASE-IMS-01330] c37 N75-27376
- BUTTERFLY VALVES**  
Flexible inflatable seal for butterfly valves  
[NASA-CASE-XLE-00101] c15 N70-33376
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[NASA-CASE-XGS-01473] c09 N71-10673
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[NASA-CASE-GSC-10065-1] c10 N71-27136
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[NASA-CASE-NPO-10539] c07 N71-11285
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[NASA-CASE-XNP-09832] c30 N71-23723
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[NASA-CASE-XNP-07659] c06 N71-22975
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[NASA-CASE-XFR-00811] c15 N70-36901
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[NASA-CASE-XNP-00876] c28 N70-41311
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[NASA-CASE-MFS-11537] c14 N71-20442
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[NASA-CASE-LAR-10551-1] c25 N74-12813
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[NASA-CASE-ARC-10132-1] c09 N71-24597
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[NASA-CASE-ERC-10098] c09 N71-28618
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[NASA-CASE-ERC-10468] c09 N72-20206
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[NASA-CASE-NPO-11342] c09 N72-25248
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[NASA-CASE-XGS-02816] c07 N69-24323  
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[NASA-CASE-MSC-12259-1] c07 N70-12616  
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[NASA-CASE-INP-00449] c14 N70-35220  
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 [NASA-CASE-NPO-11559] c28 N73-24784  
 • Plasma igniter for internal combustion engine  
 [NASA-CASE-NPO-13828-1] c37 N78-13440

**COMBUSTION PRODUCTS**  
 Contamination free separation nut eliminating  
 combustion products from ambient surroundings  
 generated by squib firing  
 [NASA-CASE-IGS-01971] c15 N71-15922  
 Device for generating and controlling combustion  
 products for testing of fire detection system  
 [NASA-CASE-GSC-11095-1] c14 N72-10375  
 System for minimizing internal combustion engine  
 pollution emission  
 [NASA-CASE-NPO-13402-1] c37 N76-18457  
 Coal desulfurization process  
 [NASA-CASE-NPO-13937-1] c44 N78-31527

**COMBUSTION STABILITY**  
 Rocket combustion chamber stability by  
 controlling transverse instability during  
 propellant combustion  
 [NASA-CASE-XLE-04603] c33 N71-21507

**COMMAND AND CONTROL**  
 Multiple rate digital command detection system  
 with range clean-up capability  
 [NASA-CASE-NPO-13753-1] c32 N77-20289

**COMMAND MODULES**  
 Energy absorbing crew couch strut for Apollo  
 command module  
 [NASA-CASE-MSC-12279] c15 N72-17450

**COMMERCIAL AIRCRAFT**  
 Aircraft design concept  
 [NASA-CASE-LAR-11852-1] c05 N77-15027

**COMMUNICATING**  
 Communication between computers using two  
 identical communications links  
 [NASA-CASE-NPO-11161] c08 N72-25207

**COMMUNICATION**  
 Circuitry for developing autocorrelation  
 function continuously within signal receiving  
 period  
 [NASA-CASE-XP-00746] c07 N71-21476  
 Superconductive resonant cavity for improved  
 signal to noise ratio in communication signal  
 [NASA-CASE-MSC-12259-2] c07 N72-33146  
 Automatic communication signal monitoring system  
 [NASA-CASE-NPO-13941-1] c32 N78-22268

**COMMUNICATION CABLES**  
 Method of making molded electric connector for  
 use with flat conductor cables  
 [NASA-CASE-IMP-03498] c15 N71-15986  
 Process for making RF shielded cable connector  
 assemblies and resulting structures  
 [NASA-CASE-GSC-11215-1] c09 N73-28083  
 Fiber distributed feedback laser  
 [NASA-CASE-NPO-13531-1] c36 N76-24553

**COMMUNICATION EQUIPMENT**  
 Multiplexed communication system design  
 including automatic correction of transmission  
 errors introduced by frequency spectrum shifts  
 [NASA-CASE-XP-01306] c07 N71-20814  
 Binary data decoding device for use at receiving  
 end of communication channel  
 [NASA-CASE-NPO-10118] c07 N71-24741  
 Characteristics of data-aided carrier tracking  
 loop used for tracking carrier in angle  
 modulated communications system  
 [NASA-CASE-NPO-11282] c10 N73-16205  
 Doppler compensated communication system for  
 locating supersonic transport position  
 [NASA-CASE-GSC-10087-4] c07 N73-20174  
 Differential phase shift keyed communication  
 system  
 [NASA-CASE-MSC-14065-1] c32 N74-26654

**COMMUNICATION SATELLITES**  
 Erectable, inflatable, radio signal reflecting  
 passive communication satellite  
 [NASA-CASE-XLA-00210] c30 N70-40309  
 Development of antenna system for spin  
 stabilized communication satellite for  
 simultaneous reception and transmission of data  
 [NASA-CASE-KGS-02607] c31 N71-23009  
 Elimination of tracking occultation problems  
 occurring during continuous monitoring of  
 interplanetary missions by using Earth  
 orbiting communications satellite

## COMMUTATION

## SUBJECT INDEX

- [NASA-CASE-YAC-06029-1] c31 N71-24813  
Satellite radio communication system with remote steerable antenna
- [NASA-CASE-YNP-02389] c07 N71-28900  
Satellite aided vehicle avoidance system
- [NASA-CASE-ERC-10419-1] c03 N75-30132  
Ultra stable frequency distribution system
- [NASA-CASE-NPO-13836-1] c32 N78-15323  
Satellite personal communications system
- [NASA-CASE-NPO-14480-1] c32 N78-25275
- COMMUTATION**  
High speed low level voltage commutating switch  
[NASA-CASE-XAC-00060] c09 N70-39915
- COMMUTATORS**  
Rocket-borne aspect sensor consisting of radiation sensor, apertured disk, commutator, and counting circuits  
[NASA-CASE-XGS-08266] c14 N69-27432
- Commutator for steering precisely controlled bidirectional currents through numerous loads by use of magnetic core shift registers  
[NASA-CASE-NPO-10743] c08 N72-21199
- COMPARATOR CIRCUITS**  
Describing frequency discriminator using digital logic circuits and supplying single binary output signal  
[NASA-CASE-MFS-14322] c08 N71-18692
- Development of pulsed differential comparator circuit  
[NASA-CASE-XLE-03804] c10 N71-19471
- Multi-cell battery protection system  
[NASA-CASE-LEW-12039-1] c44 N78-14625
- Window comparator  
[NASA-CASE-FRC-10090-1] c33 N78-18308
- COMPARATORS**  
Photometric flow meter with comparator reference means  
[NASA-CASE-XGS-01331] c14 N71-22996
- Characteristics of comparator circuits for comparison of binary numbers in information processing system  
[NASA-CASE-XNP-04819] c08 N71-23295
- COMPENSATORS**  
Star image motion compensator using telescope for maintaining fixed images  
[NASA-CASE-LAR-10523-1] c14 N72-22444
- COMPONENTS**  
Spherical bearing  
[NASA-CASE-MFS-23447-1] c37 N77-11403
- COMPOSITE MATERIALS**  
High strength reinforced metallic composites for applications over wide temperature range  
[NASA-CASE-XLE-02428] c17 N70-33288
- Method for producing fiber reinforced metallic composites with high strength and elasticity over wide temperature range  
[NASA-CASE-XLF-00231] c17 N70-38198
- Composites reinforced with short metal fibers or whiskers and having high tensile strength  
[NASA-CASE-XLE-00228] c17 N70-38490
- Unfired-ceramic, highly reflective composite insulation for large launch vehicles  
[NASA-CASE-XMP-01030] c18 N70-41583
- Freeze casting of metal ceramic and refractory compound powders into plastic slips  
[NASA-CASE-XLE-00106] c15 N71-16076
- Preparation and characteristics of lightweight refractory insulation  
[NASA-CASE-XMP-05279] c18 N71-16124
- Flexible composite membrane structure impervious to extremely reactive chemicals in rocket propellants  
[NASA-CASE-YNP-08837] c18 N71-16210
- Cryostat for flexure fatigue testing of composite materials  
[NASA-CASE-XMP-02964] c14 N71-17659
- Description of method for producing metallic composites reinforced with ceramic and refractory hard metals that are fibered in place  
[NASA-CASE-XLE-03925] c18 N71-22894
- Electrically coupled individually encapsulated solar cell matrix  
[NASA-CASE-NPO-11190] c03 N71-34004
- Heat treatment and tooling for forming shapes from thermosetting honeycomb core sheets  
[NASA-CASE-NPO-11036] c15 N72-24522
- Method for making fiber composites with high strength at high temperatures  
[NASA-CASE-LEW-10424-2] c18 N72-25539
- Development of thermal compensating structure which maintains uniform length with changes in temperature  
[NASA-CASE-MFS-20433] c15 N72-28496
- Bearing material --- composite material with low friction surface for rolling or sliding contact  
[NASA-CASE-LEW-11930-1] c24 N76-22309
- Fluid seal for rotating shafts  
[NASA-CASE-LEW-11676-1] c37 N76-22541
- Non-flammable elastomeric fiber from a fluorinated elastomer and containing an halogenated flame retardant  
[NASA-CASE-MSC-14331-1] c27 N76-24405
- Bearing material  
[NASA-CASE-LEW-11930-2] c24 N76-26282
- Method of growing composites of the type exhibiting the Soret effect --- improved structure of eutectic alloy crystals  
[NASA-CASE-MFS-22926-1] c24 N77-27187
- Hybrid composite laminate structures  
[NASA-CASE-LEW-12118-1] c24 N77-27188
- Catalytic trimerization of aromatic nitriles and triaryl-s-triazine ring cross-linked high temperature resistant polymers and copolymers made thereby  
[NASA-CASE-LEW-12053-2] c23 N77-32244
- Bearing material  
[NASA-CASE-LEW-11930-3] c24 N77-32249
- Honeycomb-laminate composite structure  
[NASA-CASE-ARC-10913-1] c24 N78-15180
- High temperature resistant cermet and ceramic compositions --- for thermal resistant insulators and refractory coatings  
[NASA-CASE-NPO-13690-1] c27 N78-19302
- Molded composite pyrogen igniter for rocket motors --- solid propellant ignition  
[NASA-CASE-LAR-12018-1] c20 N78-24275
- Atomic hydrogen storage method and apparatus  
[NASA-CASE-LEW-12081-1] c28 N78-24365
- Ceramic fiber insulating material and method of producing same --- aircraft construction materials  
[NASA-CASE-MSC-14795-2] c24 N78-25138
- Fibrous refractory composite insulation  
[NASA-CASE-ARC-11169-1] c24 N78-32189
- Cork-resin ablative insulation for complex surfaces and method for applying the same  
[NASA-CASE-MFS-23626-1] c24 N78-32190
- COMPOSITE PROPELLANTS**  
Ammonium perchlorate composite propellant with organic Cu(II) chelate catalytic additive  
[NASA-CASE-LAR-10173-1] c27 N71-14090
- COMPOSITE STRUCTURES**  
Inflatable honeycomb panel element for lightweight structures usable in space stations and other construction  
[NASA-CASE-XLA-00204] c32 N70-36536
- Shrouded composite propulsion system configuration  
[NASA-CASE-XLA-01043] c28 N71-10780
- Development of composite structures for spacecraft to serve as anti-meteoroid device  
[NASA-CASE-LAR-10788-1] c31 N73-20880
- Bonding method in the manufacture of continuous regression rate sensor devices  
[NASA-CASE-LAR-10337-1] c24 N75-30260
- Varying density composite structure  
[NASA-CASE-LAR-11181-1] c39 N75-31479
- Leading edge protection for composite blades  
[NASA-CASE-LEW-12550-1] c24 N77-19170
- Composite sandwich lattice structure  
[NASA-CASE-LAR-11898-1] c24 N78-10214
- Method of making a composite sandwich lattice structure  
[NASA-CASE-LAR-11898-2] c24 N78-17149
- Stainless steel panel for selective absorption of solar energy and the method of producing said panel  
[NASA-CASE-MFS-23518-3] c44 N78-25557
- Low density bismaleimide-carbon microballoon composites --- aircraft and submarine compartment safety  
[NASA-CASE-ARC-11040-2] c24 N78-27184
- COMPOSITION (PROPERTY)**  
Moving particle composition analyzer  
[NASA-CASE-GSC-11889-1] c35 N76-16393
- COMPRESSED AIR**  
Actuator using compressed gas as driving force to control valve handling large liquid flows  
[NASA-CASE-XHQ-01208] c15 N70-35409



## SUBJECT INDEX

## CONCENTRATORS

## COMPRESSIBLE FLUIDS

Capacitor for measuring density of compressible fluid in liquid, gas, or liquid and gas phases  
[NASA-CASE-XLE-00143] c14 N70-36618

Apparatus for tensile strength testing of specimen by pressurized fluid  
[NASA-CASE-XKS-06250] c14 N71-15600

## COMPRESSING

Method and apparatus for producing very low temperature refrigeration based on gas pressure balance  
[NASA-CASE-XNP-08877] c15 N71-23025

Method for compression molding of thermosetting plastics utilizing a temperature gradient across the plastic to cure the article  
[NASA-CASE-LAR-10489-1] c31 N74-18124

## COMPRESSION LOADS

Pressure transducer for systems for measuring forces of compression  
[NASA-CASE-NPO-10832] c14 N72-21405

Solid medium thermal engine  
[NASA-CASE-ARC-10461-1] c44 N74-33379

## COMPRESSION TESTS

Test equipment to prevent buckling of small diameter specimens during compression tests  
[NASA-CASE-LAR-10440-1] c14 N73-32323

Anti-buckling fatigue test assembly --- for subjecting metal specimen to tensile and compressive loads at constant temperature  
[NASA-CASE-LAR-10426-1] c09 N74-19528

## COMPRESSOR BLADES

Process for welding compressor and turbine blades to rotors and discs of jet engines  
[NASA-CASE-LEW-10533-1] c15 N73-28515

## COMPRESSORS

Thermal pump-compressor for converting solar energy  
[NASA-CASE-XLA-00377] c33 N71-17610

Self-energized plasma compressor  
[NASA-CASE-MPS-22145-2] c75 N76-17951

Gas compression apparatus  
[NASA-CASE-MSC-14757-1] c35 N78-10428

## COMPUTATION

Apparatus for computing square roots  
[NASA-CASE-XGS-04768] c08 N71-19437

Ruler for making navigational computations  
[NASA-CASE-XNP-01458] c04 N78-17031

## COMPUTER COMPONENTS

Computer circuit performing both counting and shifting logic operations also capable of miniaturization and integration in basic circuits  
[NASA-CASE-XNP-01753] c08 N71-22897

Binary to binary coded decimal converter  
[NASA-CASE-GSC-12044-1] c60 N78-17691

## COMPUTER DESIGN

Two-dimensional radiant energy array computers and computing devices  
[NASA-CASE-GSC-11839-1] c60 N77-14751

## COMPUTER GRAPHICS

System for digitizing graphic displays  
[NASA-CASE-NPO-10745] c08 N72-22164

## COMPUTER PROGRAMMING

Encoders designed to generate comma free biorthogonal Reed-Muller type code comprising conversion of 64 6-bit words into 64 32-bit data for communication purposes  
[NASA-CASE-NPO-10595] c10 N71-25917

Priority interrupt system --- comprised of four registers  
[NASA-CASE-NPO-13067-1] c60 N76-18800

## COMPUTER PROGRAMS

Self testing and repairing computer comprising control and diagnostic unit and rollback points for error correction  
[NASA-CASE-NPO-10567] c08 N71-24633

Development of computer program for estimating reliability of self-repair and fault-tolerant systems with respect to selected system and mission parameters  
[NASA-CASE-NPO-13086-1] c15 N73-12495

Development of flight simulator system to show position of joystick displacement  
[NASA-CASE-NPO-11497] c08 N73-25206

## COMPUTER STORAGE DEVICES

Magnetic matrix memory system for nondestructive reading of information contained in matrix  
[NASA-CASE-XNP-05835] c08 N71-12504

Binary sequence detector with few memory elements and minimized logic circuit complexity  
[NASA-CASE-XNP-05415] c08 N71-12505

Pulsed magnetic core memory element with blocking oscillator feedback for interrogation without loss of digital information  
[NASA-CASE-IGS-03303] c08 N71-18595

Reliable magnetic core circuit apparatus with application in selection matrices for digital memories  
[NASA-CASE-XNP-01318] c10 N71-23033

Time division multiplexed telemetry transmitting system controlled by programmed memory  
[NASA-CASE-GSC-10131-1] c07 N71-24624

Serial digital decoder design with square circuit matrix and serial memory storage units  
[NASA-CASE-NPO-10150] c08 N71-24650

Digital memory system with multiple switch cores for driving each word location  
[NASA-CASE-XNP-01466] c10 N71-26434

Redundant memory for enhanced reliability of digital data processing system  
[NASA-CASE-GSC-10564] c10 N71-29135

Memory device employing semiconductor and ferroelectric properties of single crystal barium titanate  
[NASA-CASE-ERC-10307] c08 N72-21198

Shared memory for a fault-tolerant computer  
[NASA-CASE-NPO-13139-1] c60 N76-21914

Lightning current waveform measuring system  
[NASA-CASE-KSC-11018-1] c33 N77-21320

## COMPUTER SYSTEMS DESIGN

Adaptive voting computer system  
[NASA-CASE-MSC-13932-1] c62 N74-14920

Computer interface system  
[NASA-CASE-NPO-13428-1] c60 N77-12721

## COMPUTER TECHNIQUES

Automated system for identifying traces of organic chemical compounds in aqueous solutions  
[NASA-CASE-NPO-13063-1] c25 N76-18245

Computerized system for translating a torch head  
[NASA-CASE-MPS-23620-1] c37 N77-24497

Apparatus for determining thermophysical properties of test specimens  
[NASA-CASE-LAR-11883-1] c09 N77-27131

## COMPUTERIZED DESIGN

Simulator for practicing the mating of an observer-controlled object with a target  
[NASA-CASE-MPS-23052-2] c14 N77-18179

## COMPUTERIZED SIMULATION

Integrated time shared instrumentation display for aerospace vehicle simulators  
[NASA-CASE-XLA-01952] c08 N71-12507

Microcomputerized electric field meter diagnostic and calibration system  
[NASA-CASE-KSC-11035-1] c35 N78-28411

## COMPUTERS

Telemetry data unit to form multibit words for use between demodulator and computer  
[NASA-CASE-XNP-09225] c09 N69-24333

Data compression processor for monitoring analog signals by sampling procedure  
[NASA-CASE-NPO-10068] c08 N71-19288

Communication between computers using two identical communications links  
[NASA-CASE-NPO-11161] c08 N72-25207

## CONCAVITY

Concave grating spectrometer for use in near and vacuum ultraviolet regions  
[NASA-CASE-IGS-01036] c14 N70-40003

Diffraction grating configuration for X-ray and ultraviolet focusing  
[NASA-CASE-GSC-12357-1] c74 N78-32857

## CONCENTRATION (COMPOSITION)

Method and automated apparatus for detecting coliform organisms  
[NASA-CASE-MSC-16777-1] c51 N78-22588

## CONCENTRATORS

Concentrator device for controlling direction of solar energy onto energy converters  
[NASA-CASE-XLE-01716] c09 N70-40234

Thermostatically controlled non-tracking type solar energy concentrator  
[NASA-CASE-NPO-13497-1] c44 N76-14602

A non-tracking solar energy collector system  
[NASA-CASE-NPO-13817-1] c44 N77-28583

Three-dimensional tracking solar energy concentrator and method for making same  
[NASA-CASE-NPO-13736-1] c44 N77-32583

## CONDENSATES

## SUBJECT INDEX

## CONDENSATES

- Apparatus for determining volatile condensable material present in polymeric products  
[NASA-CASE-XNP-09699] c06 N71-24607
- Condensate removal device for heat exchanger  
[NASA-CASE-MSC-14143-1] c77 N75-20139
- CONDENSERS (LIQUIFIERS)**
- Condenser-separator for dehumidifying air utilizing sintered metal surface  
[NASA-CASE-XLA-08645] c15 N69-21465
- Condensate removal device for heat exchanger  
[NASA-CASE-MSC-14143-1] c77 N75-20139
- CONDENSING**
- Preparation of heterocyclic block copolymer from perfluoroalkylene oxide alpha, omega-dianhydrides  
[NASA-CASE-ARC-11060-1] c27 N78-10292
- CONDUCTING FLUIDS**
- Multiducted electromagnetic pump for conductive liquids  
[NASA-CASE-NPO-10755] c15 N71-27084
- Internally supported flexible duct --- device for conducting fluids in high pressure systems  
[NASA-CASE-MFS-19193-1] c37 N75-19686
- CONDUCTIVE HEAT TRANSFER**
- Measuring conductive heat flow and thermal conductivity of laminar gas stream in cylindrical plug to simulate atmospheric reentry  
[NASA-CASE-IE-00266] c14 N70-34156
- Space suit body heat exchanger design composed of thermal conductance yarn and liquid coolant loops  
[NASA-CASE-XMS-09571] c05 N71-19439
- Compact pulsed laser having improved heat conductance  
[NASA-CASE-NPO-13147-1] c36 N77-25502
- CONDUCTORS**
- Support for flexible conductor cable between drawers or racks holding electronic equipment and cabinet assembly housing drawers or racks  
[NASA-CASE-XMF-07587] c15 N71-18701
- Method for making conductors for ferrite memory arrays --- from pre-formed metal conductors  
[NASA-CASE-IAP-10994-1] c24 N75-13032
- CONES**
- Black body radiometer design with temperature sensing and cavity heat source cone winding  
[NASA-CASE-XNP-09701] c14 N71-26475
- CONFINEMENT**
- Observation window for internal gas confining chamber  
[NASA-CASE-NPO-10890] c11 N73-12265
- CONICAL BODIES**
- Conical valve plug for use with reactive cryogenic fluids  
[NASA-CASE-IE-00715] c15 N70-34859
- Conical reflector antenna with feed approximating line source  
[NASA-CASE-NPO-10303] c07 N72-22127
- Characteristics of microwave antenna with conical reflectors to generate plane wave front  
[NASA-CASE-NPO-11661] c07 N73-14130
- CONICAL SHELLS**
- Capacitance measuring device for determining flare accuracy on tapered tubes  
[NASA-CASE-XMS-03495] c14 N69-39785
- Foldable, double cone and parabolic reflector system for solar ray concentration  
[NASA-CASE-XLA-04622] c03 N70-41580
- Rotary spindle lathe attachments for machining geometrical cones  
[NASA-CASE-XMS-04292] c15 N71-22722
- CONNECTORS**
- Expanding and contracting connector strip for solar cell array of Nimbus satellite  
[NASA-CASE-XGS-01395] c03 N69-21539
- Design and development of quick release connector  
[NASA-CASE-XLA-01141] c15 N71-13789
- Development and characteristics of strainer for flared tube fitting  
[NASA-CASE-XLA-05056] c15 N72-11389
- Process for making RF shielded cable connector assemblies and resulting structures  
[NASA-CASE-GSC-11215-1] c09 N73-28083
- CONSCIOUSNESS**
- Development of apparatus and method for quantitatively measuring brain activity as automatic indication of sleep state and level of consciousness  
[NASA-CASE-MSC-13282-1] c05 N71-24729
- CONSTANTS**
- Spring operated accelerator and constant force spring mechanism therefor  
[NASA-CASE-ARC-10898-1] c35 N77-18417
- CONSTRAINTS**
- Three stage motion restraining mechanism for restraining and damping three dimensional vibrational movement of gimballed package during launch of spacecraft  
[NASA-CASE-GSC-10306-1] c15 N71-24694
- Cable guide and restraint device for reefing tubes in uniform manner  
[NASA-CASE-LAR-10129-1] c15 N73-25512
- Development of restraint system for securing personnel to ergometer while exercising under weightless conditions  
[NASA-CASE-MFS-21046-1] c14 N73-27377
- Reefing system  
[NASA-CASE-LAR-10129-2] c37 N74-20063
- Restraining mechanism  
[NASA-CASE-MSC-13054] c54 N78-17677
- CONSTRUCTION**
- Method of construction of a multi-cell solar array  
[NASA-CASE-MFS-23540-1] c44 N78-17468
- CONSTRUCTION MATERIALS**
- Apparatus and method of assembling building blocks by folding pre-cut flat sheets of material during on-site construction  
[NASA-CASE-MSC-12233-1] c15 N72-25454
- Development of construction block in form of container folded from flat sheet and filled with solid material for architectural purposes  
[NASA-CASE-MSC-12233-2] c32 N73-13921
- CONTACT POTENTIALS**
- Lightweight, rugged, inexpensive satellite battery for producing electrical power from ionosphere using electrodes with different contact potentials  
[NASA-CASE-XGS-01593] c03 N70-35408
- CONTACT RESISTANCE**
- Bearing material  
[NASA-CASE-LEW-11930-3] c24 N77-32249
- CONTACTLESS BELTS**
- Method of crystallization --- in gravity-free environments  
[NASA-CASE-MFS-23001-1] c76 N77-32919
- CONTAINERS**
- Manufacture of fluid containers from fused coated polyester sheets having resealable septum  
[NASA-CASE-NPO-10123] c15 N71-24835
- Method for locating leaks in hermetically sealed containers  
[NASA-CASE-ERC-10045] c15 N71-24910
- Quantitative liquid measurements in container by resonant frequencies  
[NASA-CASE-XNP-02500] c18 N71-27397
- CONTAMINANTS**
- Fluid transferring system design for purging toxic, corrosive, or noxious fluids and fumes from materials handling equipment for cleansing and accident prevention  
[NASA-CASE-XMS-01905] c12 N71-21089
- CONTAMINATION**
- Emission spectroscopy method for contamination monitoring of inert gas metal arc welding  
[NASA-CASE-XMF-02039] c15 N71-15871
- Contamination free separation nut eliminating combustion products from ambient surroundings generated by squib firing  
[NASA-CASE-IGS-01971] c15 N71-15922
- Apparatus and process for volumetrically dispensing reagent quantities of volatile chemicals for small batch reactions  
[NASA-CASE-NPO-10070] c15 N71-27372
- Portable tester for monitoring bacterial contamination by adenosine triphosphate light reaction  
[NASA-CASE-GSC-10879-1] c14 N72-25413
- Biocontamination and particulate detection system  
[NASA-CASE-NPO-13953-1] c51 N78-22587
- CONTINUOUS RADIATION**
- CW ultrasonic bolt tensioning monitor  
[NASA-CASE-LAR-12016-1] c39 N78-15512
- Pseudo continuous wave acoustic instrument  
[NASA-CASE-LAR-12260-1] c71 N78-17821
- CONTINUOUS WAVE LASERS**
- High power laser apparatus and system

## SUBJECT INDEX

## CONTROL VALVES

[NASA-CASE-YLE-2529-2] c36 N75-27364  
 Continuous plasma laser --- method and apparatus for producing intense, coherent, monochromatic light from low temperature plasma

[NASA-CASE-XNP-04167-3] c36 N77-19416  
 Stabilization of He2(a-3 Sigmau(+)) molecules in liquid helium by optical pumping for vacuum UV laser

[NASA-CASE-NPO-13993-1] c36 N77-24468  
**CONTINUOUS WAVE RADAR**  
 Phase locked loop with sideband rejecting properties in continuous wave tracking radar

[NASA-CASE-XNP-02723] c07 N70-41680  
 FN/CW radar system

[NASA-CASE-MFS-22234-1] c32 N76-33364  
**CONTOURS**  
 Describing device for surveying contour of surface using X-Y plotter and traveling transducer

[NASA-CASE-XLA-08646] c14 N71-17586  
 Processing system for semiperiodic electrical signals to produce real time contoured display

[NASA-CASE-MSC-13407-1] c10 N72-20225  
 Contour detector and data acquisition system for the left ventricular outline

[NASA-CASE-ABC-10985-1] c52 N77-17701  
 Variable contour securing system

[NASA-CASE-MSC-16270-1] c37 N78-27423  
 Device for measuring the contour of a surface

[NASA-CASE-LAR-11869-1] c74 N78-27904  
 Cork-resin ablative insulation for complex surfaces and method for applying the same

[NASA-CASE-MFS-23626-1] c24 N78-32190  
**CONTROL**  
 Valve assembly for controlling simultaneously more than one fluid flow, and having stable qualities under loads

[NASA-CASE-XMS-05890] c09 N71-23191  
 Control system for pressure balance device used in calibrating pressure gages

[NASA-CASE-XMP-04134] c14 N71-23755  
 Failure detection and control means for improved drift performance of a gimbaled platform system

[NASA-CASE-MFS-23551-1] c04 N76-26175  
**CONTROL BOARDS**  
 Ionization control system design for monitoring separately located ion gage pressures in vacuum chambers

[NASA-CASE-XLE-00787] c14 N71-21090  
**CONTROL DATA (COMPUTERS)**  
 Computer interface system

[NASA-CASE-NPO-13428-1] c60 N77-12721  
**CONTROL EQUIPMENT**  
 Stepping motor control apparatus exciting windings in proper time sequence to cause motor to rotate in either direction

[NASA-CASE-GSC-10366-1] c10 N71-18772  
 Voltage drift compensation circuit for analog-to-digital converter

[NASA-CASE-XNP-04780] c08 N71-19687  
 Development of attitude control system for vertical takeoff aircraft using reaction nozzles displaced from various axes of aircraft

[NASA-CASE-XAC-08972] c02 N71-20570  
 Device for controlling rotary potentiometer mounted on aircraft steering wheel or aileron control

[NASA-CASE-XAC-10019] c15 N71-23809  
 Controlled release device for use in launching rockets or missiles

[NASA-CASE-XRS-03338] c15 N71-24043  
 Circuits for controlling reversible dc motor

[NASA-CASE-XNP-07477] c09 N71-26092  
 Digital memory system with multiple switch cores for driving each word location

[NASA-CASE-XNP-01466] c10 N71-26434  
 Fluid control jet amplifiers

[NASA-CASE-XLP-09341] c12 N71-28741  
 System for control of variable signal generator

[NASA-CASE-NPO-11064] c07 N72-11150  
 Solid state remote circuit selector switching circuit

[NASA-CASE-LEW-10387] c09 N72-22201  
 Development of device for simulating charge and discharge cycle of battery in synchronous orbit

[NASA-CASE-GSC-11211-1] c03 N72-25020  
 Bridge-type gain control circuit

[NASA-CASE-GSC-10786-1] c10 N72-28241  
 Interferometer prism and control system for precisely determining direction to remote light source

[NASA-CASE-ABC-10278-1] c14 N73-25463  
 Digital controller for a Baum folding machine --- providing automatic counting and machine shutoff

[NASA-CASE-LAR-10688-1] c37 N74-21056  
 Flow control valve --- for high temperature fluids

[NASA-CASE-NPO-11951-1] c37 N74-21065  
 Variable ratio mixed-mode bilateral master-slave control system for shuttle remote manipulator system

[NASA-CASE-MSC-14245-1] c18 N75-27041  
 Illumination control apparatus for compensating solar light

[NASA-CASE-KSC-11010-1] c44 N77-15493  
 Anthropomorphic master/slave manipulator system

[NASA-CASE-ABC-10756-1] c54 N77-32721  
 Power factor control system for AC induction motors

[NASA-CASE-MFS-23280-1] c33 N78-10376  
 Variable cycle gas turbine engines

[NASA-CASE-LEW-12916-1] c37 N78-17384  
 End effector device --- for manipulators

[NASA-CASE-MFS-23692-1] c54 N78-19773  
 Control for nuclear thermionic power source

[NASA-CASE-NPO-13114-2] c73 N78-28913  
 Dual acting slit control mechanism

[NASA-CASE-LAR-11370-1] c35 N78-32399  
 Pneumatic inflatable end effector

[NASA-CASE-MFS-23696-1] c54 N78-32724  
**CONTROL ROCKETS**  
 Unit for generating thrust from catalytic decomposition of hydrogen peroxide, for high altitude aircraft or spacecraft reaction control

[NASA-CASE-XMS-00583] c28 N70-38504  
**CONTROL RODS**  
 Nuclear reactor control rod assembly with improved driving mechanism

[NASA-CASE-XLE-00298] c22 N70-34501  
 Manual control mechanism for adjusting control rod to null position

[NASA-CASE-XLA-01808] c15 N71-20740  
**CONTROL STABILITY**  
 Design and development of active control system for air cushion vehicle to reduce or eliminate effects of excessive vertical vibratory acceleration

[NASA-CASE-LAR-10531-1] c02 N73-13023  
**CONTROL SURFACES**  
 Conical valve plug for use with reactive cryogenic fluids

[NASA-CASE-XLE-00715] c15 N70-34859  
 Attitude control system for spacecraft based on conversion of incident solar radiation on movable control surfaces into mechanical torques

[NASA-CASE-XNP-02982] c31 N70-41855  
 Vortex-lift roll-control device

[NASA-CASE-LAR-11868-2] c08 N77-31176  
**CONTROL UNITS (COMPUTERS)**  
 Self testing and repairing computer comprising control and diagnostic unit and rollback points for error correction

[NASA-CASE-NPO-10567] c08 N71-24633  
**CONTROL VALVES**  
 Electromechanical actuator and its use in rocket thrust control valve

[NASA-CASE-XNP-05975] c15 N69-23185  
 Multiple orifice fluid flow control valve to provide different flow patterns

[NASA-CASE-ERC-10208] c15 N70-10867  
 Conical valve plug for use with reactive cryogenic fluids

[NASA-CASE-XLE-00715] c15 N70-34859  
 Control valve and coaxial variable injector for controlling bipropellant mixture ratio and flow

[NASA-CASE-XNP-09702] c15 N71-17654  
 Control valve for switching main stream of fluid from one stable position to another by means of electrohydrodynamic forces

[NASA-CASE-NPO-10416] c12 N71-27332  
 Force balanced throttle valve for fuel control in rocket engines

[NASA-CASE-NPO-10808] c15 N71-27432  
 Dual stage check valve for cryogenic supply systems used in space flight environmental control system

[NASA-CASE-MSC-13587-1] c15 N73-30459

## CONTROLLABILITY

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Airflow control system for supersonic inlets  
[NASA-CASE-LEW-11188-1] c02 N74-20646

Ultrasonically bonded valve assembly  
[NASA-CASE-NPO-13360-1] c37 N75-25185

Pressure modulating valve  
[NASA-CASE-MS-C-14905-1] c37 N77-28487

Fluid valve assembly  
[NASA-CASE-MS-C-12731-1] c37 N78-25426

**CONTROLLABILITY**

Method of controlling defect orientation in silicon crystal ribbon growth  
[NASA-CASE-NPO-13918-1] c76 N78-23969

**CONTROLLED ATMOSPHERES**

Rectangular electric conductors for conductor cables to withstand spacecraft vibration and controlled atmosphere  
[NASA-CASE-MPS-14741] c09 N70-20737

High voltage pulse generator for testing flash and ignition limits of nonmetallic materials in controlled atmospheres  
[NASA-CASE-MS-C-12178-1] c09 N71-13518

System for continuous monitoring of exhalations, weighing, and cage cleaning for animal exposed to controlled atmosphere for toxic study  
[NASA-CASE-XAC-05333] c11 N71-22875

**CONTROLLERS**

Unitary three-axis controller for flight vehicles within or outside atmosphere  
[NASA-CASE-XPR-00181] c21 N70-33279

Two axis flight controller with potentiometer control shafts directly coupled to rotatable ball members  
[NASA-CASE-XPR-04104] c03 N70-42073

Hand controller operable about three respectively perpendicular axes and capable of actuating signal generators for attitude control devices  
[NASA-CASE-XMS-07487] c15 N71-23255

Solid state controller three axes controller  
[NASA-CASE-MS-C-12394-1] c08 N74-10942

Active nutation controller  
[NASA-CASE-GSC-12273-1] c18 N78-23141

Wide power range microwave feedback controller  
[NASA-CASE-GSC-12146-1] c33 N78-32340

**CONVECTIVE FLOW**

Design and development of device to prevent geysering during convective circulation of cryogenic fluids  
[NASA-CASE-KSC-10615] c15 N73-12486

**CONVECTIVE HEAT TRANSFER**

Thin film gauge --- for measuring convective heat transfer rates along test surfaces in wind tunnels  
[NASA-CASE-NPO-10617-1] c35 N74-22095

**CONVERGENCE**

Electrical device for developing converging spherical shock waves  
[NASA-CASE-MPS-20890] c14 N72-22439

**CONVERGENT NOZZLES**

Nozzle extraction process and handlemeter for measuring handle  
[NASA-CASE-LAR-12147-1] c27 N77-10198

**CONVERGENT-DIVERGENT NOZZLES**

Gimbaled partially submerged nozzle for solid propellant rocket engines for providing directional control  
[NASA-CASE-XMF-01544] c28 N70-34162

Regenerative cooling system for rocket combustion chamber using coolant tubes in convergent-divergent nozzle  
[NASA-CASE-XLP-04857] c28 N71-23968

**CONVERTERS**

Scan converting video tape recorder  
[NASA-CASE-NPO-10166-2] c35 N76-16391

Low intensity X-ray and gamma-ray imaging device  
[NASA-CASE-GSC-12263-1] c35 N77-29471

**COOLANTS**

Simulated fuel assembly-type flow measurement apparatus for coolant flow in reactor core  
[NASA-CASE-XLE-00724] c14 N70-34669

**COOLING**

Microwave power receiving antenna solving heat dissipation problems by construction of elements as heat pipe devices  
[NASA-CASE-MPS-20333] c09 N71-13486

Dissipative voltage regulator system for minimizing heat dissipation  
[NASA-CASE-GSC-10891-1] c10 N71-26626

Cooling and radiation protection of ruby lasers using copper sulfate solution in alcohol  
[NASA-CASE-MPS-20180] c16 N72-12440

Compact pulsed laser having improved heat conductance  
[NASA-CASE-NPO-13147-1] c36 N77-25502

Closed loop spray cooling apparatus  
[NASA-CASE-LEW-11981-2] c34 N77-32434

**COOLING SYSTEMS**

Automatic thermal switch for improving efficiency of cooling gases below 40 K  
[NASA-CASE-XNP-03796] c23 N71-15467

Differential thermopile for measuring cooling water temperature rise  
[NASA-CASE-XAC-00812] c14 N71-15598

Electric power system with circulatory liquid coolant cooling system  
[NASA-CASE-MPS-14114-2] c09 N71-24807

Portable cryogenic cooling system design including turbine pump, cooling chamber, and atomizer  
[NASA-CASE-NPO-10467] c23 N71-26654

Development and characteristics of natural circulation radiator for use with nuclear power plants installed in lunar space stations  
[NASA-CASE-IHQ-03673] c33 N71-29046

Development and characteristics of cooling system to maintain temperature of rack mounted electronic modules  
[NASA-CASE-MS-C-12389] c33 N71-29052

Development of method for cooling high temperature wall members with cooling medium having high heat absorption capability  
[NASA-CASE-RQN-00938] c33 N71-29053

Apparatus for liquid spray cooling of turbine blades  
[NASA-CASE-XLE-00027] c33 N71-29152

Radial heat flux transformer for use in heating and cooling processes  
[NASA-CASE-NPO-10828] c33 N72-17948

Light shield and cooling apparatus --- high intensity ultraviolet lamp  
[NASA-CASE-LAR-10089-1] c34 N74-23066

Heat exchanger --- rocket combustion chambers and cooling systems  
[NASA-CASE-LEW-12252-1] c34 N75-19579

Refrigerated coaxial coupling --- for microwave equipment  
[NASA-CASE-NPO-13504-1] c33 N75-30430

Rocket chamber and method of making  
[NASA-CASE-LEW-11118-2] c20 N76-14191

Auxiliary power system for activity cooled aircraft  
[NASA-CASE-LAR-11626-1] c34 N77-12332

Tabular sublimatory evaporator heat sink  
[NASA-CASE-ARC-10912-1] c34 N77-19353

Arc control in compact arc lamps  
[NASA-CASE-NPO-10870-1] c33 N77-22386

Oil cooling system for a gas turbine engine  
[NASA-CASE-LEW-12830-1] c07 N77-23106

Oil cooling system for a gas turbine engine  
[NASA-CASE-LEW-12321-1] c37 N78-10467

Closed loop spray cooling apparatus --- for particle accelerator targets  
[NASA-CASE-LEW-11981-1] c31 N78-17237

Multistation refrigeration system  
[NASA-CASE-NPO-13839-1] c31 N78-25256

Cooling system for removing metabolic heat from an hermetically sealed spacesuit  
[NASA-CASE-ARC-11059-1] c54 N78-32721

**COORDINATES**

Mechanical coordinate converter for use with spacecraft tracking antennas  
[NASA-CASE-XNP-00614] c14 N70-36907

System for locating lightning strokes by coordination of directional antenna signals  
[NASA-CASE-KSC-10729-1] c09 N73-32110

Magnetic heading reference  
[NASA-CASE-LAR-11387-2] c04 N77-19056

**COPOLYMERIZATION**

Preparation of heterocyclic block copolymer from perfluoroalkylene oxide alpha, omega-diamidoximes  
[NASA-CASE-ARC-11060-1] c27 N78-10292

**COPOLYMERS**

Method for producing alternating ether-siloxane copolymers with stable properties when exposed to elevated temperatures and UV radiation  
[NASA-CASE-XMF-02584] c06 N71-20905

- Preparation of dicyanoacetylene and vinylidene copolymers using organic compounds  
[NASA-CASE-XNP-03250] c06 N71-23500
- COPPER**
- Development of method for etching copper  
[NASA-CASE-XGS-06306] c17 N71-16044
- Method of plating copper on aluminum to permit conventional soldering of structural aluminum bodies  
[NASA-CASE-XLA-08966-1] c17 N71-25903
- Brazing alloy composition  
[NASA-CASE-XNP-06053] c26 N75-27126
- Aluminum or copper substrate panel for selective absorption of solar energy and the method of producing said panel  
[NASA-CASE-MFS-23518-1] c44 N77-31610
- COPPER ALLOYS**
- Zirconium modified nickel-copper alloy  
[NASA-CASE-LEW-12245-1] c26 N77-20201
- COPPER COMPOUNDS**
- Gallium arsenide solar cell preparation by surface deposition of cuprous iodide on thin n-type polycrystalline layers and heating in iodine vapor  
[NASA-CASE-XNP-01960] c09 N71-23027
- Cooling and radiation protection of ruby lasers using copper sulfate solution in alcohol  
[NASA-CASE-MFS-20180] c16 N72-12440
- Brazing alloy  
[NASA-CASE-XNP-03878] c26 N75-27127
- COPPER FLUORIDES**
- Method to produce high purity copper fluoride by heating copper hydroxyfluoride powder and subjecting to flowing fluorine gas  
[NASA-CASE-LEW-10794-1] c06 N72-17093
- CORDAGE**
- Fabrication of root cord restrained fabric suit sections from sheets of fabric  
[NASA-CASE-MSC-12398] c05 N72-20098
- CORE STORAGE**
- Memory device employing semiconductor and ferroelectric properties of single crystal barium titanate  
[NASA-CASE-ERC-10307] c08 N72-21198
- CORES**
- Method of making rolling element bearings  
[NASA-CASE-LEW-11087-2] c37 N74-15128
- Electromagnetic transducer recording head having a laminated core section and tapered gap  
[NASA-CASE-NPO-10711-1] c35 N77-21392
- CORK (MATERIALS)**
- Cork-resin ablative insulation for complex surfaces and method for applying the same  
[NASA-CASE-MFS-23626-1] c24 N78-32190
- CORRECTION**
- Doppler frequency shift correction device for multiplex communication with Applications Technology Satellites  
[NASA-CASE-XGS-02749] c07 N69-39978
- CORRELATION DETECTION**
- Correlation type phase detector --- with time correlation integrator for frequency multiplexed signals  
[NASA-CASE-GSC-11744-1] c33 N75-26243
- Clutter free synthetic aperture radar correlator  
[NASA-CASE-NPO-14035-1] c32 N78-18266
- CORRELATORS**
- Synchronous detection system for detecting weak radio astronomical signals  
[NASA-CASE-XNP-09832] c30 N71-23723
- Digital demodulator-correlator --- for ranging  
[NASA-CASE-NPO-13982-1] c32 N77-24341
- CORROSION PREVENTION**
- Vapor deposited laminated nitride-silicon coating for corrosion prevention of carbonaceous surfaces  
[NASA-CASE-XLA-00284] c15 N71-16075
- Method to prevent stress corrosion cracking in titanium alloys  
[NASA-CASE-NPO-10271] c17 N71-16393
- Method and apparatus for inducing compressive stresses in pressure vessel to prevent stress corrosion  
[NASA-CASE-XLA-07390] c15 N71-18616
- Development of fluoride coating to prevent oxidation of beryllium surfaces at elevated temperatures  
[NASA-CASE-LEW-10327] c17 N71-33408
- Prevention of hydrogen embrittlement of high strength steel by hydrazine compositions --- by adding potassium hydroxide to hydrazine  
[NASA-CASE-NPO-12122-1] c24 N76-14203
- CORROSION RESISTANCE**
- High strength, corrosion resistant cobalt-based alloys for aerospace structures  
[NASA-CASE-XLE-00726] c17 N71-15644
- Hydrazine monoperfluoro alkanoate solder flux leaving corrosion resistant coating, for metals such as copper  
[NASA-CASE-XNP-03459-2] c18 N71-15688
- High temperature cobalt-base alloy resistant to corrosion by liquid metals and to sublimation in vacuum environment  
[NASA-CASE-XLE-02991] c17 N71-16025
- Metal soldering with hydrazine monoperfluoro alkanoate for corrosion resistant coatings  
[NASA-CASE-XNP-03459] c15 N71-21078
- Improved nozzle for use with abrasive and/or corrosive materials  
[NASA-CASE-NPO-13823-1] c37 N77-17466
- COSINE SERIES**
- Service life of electromechanical device for generating sine/cosine functions  
[NASA-CASE-LAR-10503-1] c09 N72-21248
- Function generators for producing complex vibration mode patterns used to identify vibration mode data  
[NASA-CASE-LAR-10310-1] c10 N73-20253
- COSMIC DUST**
- Sensor for detecting and measuring energy, velocity and direction of travel of a cosmic dust particle  
[NASA-CASE-GSC-10503-1] c14 N72-20381
- System for detecting impact position of cosmic dust on detector surface  
[NASA-CASE-GSC-11291-1] c25 N72-33696
- Impact position detector for outer space particles  
[NASA-CASE-GSC-11829-1] c35 N75-27331
- Cosmic dust analyzer  
[NASA-CASE-MSC-13802-2] c35 N76-15431
- COST ANALYSIS**
- Low cost solar energy collection system  
[NASA-CASE-NPO-13579-1] c44 N78-17460
- COUCHES**
- Shock absorbing couch for body support under high acceleration or deceleration forces  
[NASA-CASE-XMS-01240] c05 N70-35152
- Low onset rate energy absorber in form of strut assembly for crew couch of Apollo command module  
[NASA-CASE-MSC-12279-1] c15 N70-35679
- Shock absorbing articulated multiple couch assembly  
[NASA-CASE-MSC-11253] c05 N71-12343
- Collapsible couch system for manned space vehicles  
[NASA-CASE-MSC-13140] c05 N72-11085
- COULOMBETERS**
- Alkaline-type coulometer cell for primary charge control in secondary battery recharge circuits  
[NASA-CASE-XGS-05434] c03 N71-20491
- Development and characteristics of battery charging circuits with coulometer for control of available current  
[NASA-CASE-GSC-10487-1] c03 N71-24719
- COUNTERS**
- Circuit for measuring wide range of pulse rates by utilizing high capacity counter  
[NASA-CASE-XNP-06234] c10 N71-27137
- Electronic strain level counter on in-flight aircraft  
[NASA-CASE-LAR-10756-1] c32 N73-26910
- COUNTING CIRCUITS**
- Rocket-borne aspect sensor consisting of radiation sensor, apertured disk, commutator, and counting circuits  
[NASA-CASE-XGS-08266] c14 N69-27432
- Design of transistorized ring counter circuit with special steering and triggering circuits  
[NASA-CASE-XGS-03095] c09 N69-27463
- Counter/divider circuit for accuracy and reliability in binary circuits  
[NASA-CASE-XNP-00421] c09 N70-34502
- Reversible ring counter using cascaded single silicon controlled rectifier stages  
[NASA-CASE-XGS-01473] c09 N71-10673
- Capacitor sandwich structure containing metal sheets of known thickness for counting penetration rates of meteoroids

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- [NASA-CASE-XLP-01246] c14 N71-10797  
Electronic counter circuit utilizing magnetic core and low power consumption
- [NASA-CASE-XNP-08836] c09 N71-12515  
Synchronous counter design incorporating cascaded binary stages driven by previous stages and inputs through NAND gates
- [NASA-CASE-IGS-02440] c08 N71-19432  
Digital cardiotachometer incorporating circuit for measuring heartbeat rate of subject over predetermined portion of one minute also converting rate to beats per minute
- [NASA-CASE-XMS-02399] c05 N71-22896  
Computer circuit performing both counting and shifting logic operations also capable of miniaturization and integration in basic circuits
- [NASA-CASE-XNP-01753] c08 N71-22897  
Noninterruptable digital counter circuit design with display device for pulse frequency modulation
- [NASA-CASE-XNP-09759] c08 N71-24891  
Frequency measurement by coincidence detection with standard frequency
- [NASA-CASE-MS-C-14649-1] c33 N76-16331
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Dual mode solid state power switch  
[NASA-CASE-MPS-22880-1] c33 N76-31410
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Coupling device for linear shaped charge for space vehicle abort system  
[NASA-CASE-XLA-00189] c33 N70-36846  
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[NASA-CASE-NPO-11059] c15 N72-17454  
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[NASA-CASE-KSC-11069-1] c54 N78-22721
- COUPLING CIRCUITS**  
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[NASA-CASE-IGS-03058] c10 N71-19547  
Antenna array at focal plane of reflector with coupling network for beam switching  
[NASA-CASE-GSC-10220-1] c07 N71-27233  
Phase modulator with tuned variable length electrical lines including coupling and varactor diode circuits  
[NASA-CASE-MS-C-13201-1] c07 N71-28429  
High efficiency transformerless amplitude modulator coupled to RF power amplifier  
[NASA-CASE-GSC-10668-1] c07 N71-28430  
Automatic quadrature control and measuring system --- using optical coupling circuitry  
[NASA-CASE-MPS-21660-1] c35 N74-21017  
Diode-quad bridge circuit means  
[NASA-CASE-ARC-10364-3] c33 N75-19520
- COUPLINGS**  
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[NASA-CASE-XMS-07846-1] c09 N69-21927  
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[NASA-CASE-XLA-02854] c15 N69-27490  
Space vehicle stage coupling and quick release separation mechanism  
[NASA-CASE-XLA-01441] c15 N70-41679  
Standard coupling design for mass production  
[NASA-CASE-XMS-02532] c15 N70-41808  
Quick-release coupling for fueling rocket vehicles with cryogenic propellants  
[NASA-CASE-XMS-01985] c15 N71-10782  
Ratchet mechanism for high speed operation at reduced backlash  
[NASA-CASE-MPS-12805] c15 N71-17805  
Split nut and bolt separation device  
[NASA-CASE-XNP-06914] c15 N71-21489  
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[NASA-CASE-MPS-20395] c15 N71-24903  
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[NASA-CASE-XLA-04897] c15 N72-22482  
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[NASA-CASE-NPO-13504-1] c33 N75-30430  
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[NASA-CASE-GSC-12059-1] c35 N77-27366
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[NASA-CASE-GSC-12322-1] c37 N78-25429  
Coupling apparatus for ultrasonic medical diagnostic system  
[NASA-CASE-NPO-13935-1] c52 N78-25761  
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[NASA-CASE-GSC-12276-1] c37 N78-32429
- COVERINGS**  
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[NASA-CASE-XMP-04132] c15 N69-27502
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[NASA-CASE-NPO-10271] c17 N71-16393  
TV fatigue crack monitoring system  
[NASA-CASE-LAR-11490-1] c39 N78-16387
- CRASH LANDING**  
Aircraft-mounted crash-activated transmitter device  
[NASA-CASE-MPS-16609-3] c03 N76-32140
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Battery powered aircraft crash locator transmitter  
[NASA-CASE-MPS-16609] c14 N72-21431
- CREEP RUPTURE STRENGTH**  
Nickel base alloy with resistance to oxidation at high temperatures and superior stress-rupture properties  
[NASA-CASE-XLE-02082] c17 N71-16026
- CRITERIA**  
High performance ammonium nitrate propellant  
[NASA-CASE-NPO-14260] c28 N78-17230
- CRITICAL EXPERIMENTS**  
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[NASA-CASE-NPO-10070] c15 N71-27372
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[NASA-CASE-NPO-13862-1] c32 N77-17325  
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[NASA-CASE-NPO-13283] c38 N78-17395
- CROSSED FIELDS**  
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[NASA-CASE-XLA-00675] c25 N70-33267  
Direct conversion of thermal energy into electrical energy using crossed electric and magnetic fields  
[NASA-CASE-XLE-00212] c03 N70-34134  
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[NASA-CASE-XLA-03374] c25 N71-15562
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[NASA-CASE-NPO-10714] c06 N69-31244  
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[NASA-CASE-LEW-12053-1] c27 N78-15276  
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[NASA-CASE-ARC-11008-1] c27 N78-31232
- CROCIBLES**  
Evaporating crucible of tantalum-tungsten foil, nickel alumina bonding agent, and ceramic coating  
[NASA-CASE-XLA-03105] c15 N69-27483
- CRUDE OIL**  
Decontamination of petroleum products with honey  
[NASA-CASE-XNP-03835] c06 N71-23499
- CRUSTAL FRACTURES**  
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[NASA-CASE-NPO-14124-1] c46 N78-17529
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[NASA-CASE-NPO-10309] c15 N69-23190  
Low thermal loss piping arrangement for moving cryogenic media through double chamber structure  
[NASA-CASE-XNP-08882] c15 N69-39935  
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[NASA-CASE-MPS-10340] c15 N71-17628  
Dual solid cryogenics for spacecraft refrigeration insuring low temperature cooling for extended periods  
[NASA-CASE-GSC-10188-1] c23 N71-24725  
Reliability of automatic refilling valving device for cryogenic liquid systems

- [NASA-CASE-NPO-11177] c15 N72-17453  
Dual stage check valve for cryogenic supply systems used in space flight environmental control system
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**DISTRIBUTORS**

High voltage distributor [NASA-CASE-GSC-11849-1] c33 N76-16332

**DIVERGENT NOZZLES**

Jet exhaust noise suppressor [NASA-CASE-LEW-11286-1] c07 N74-27490

**DIVIDERS**

A synchronous binary array divider [NASA-CASE-ERC-10180-1] c60 N74-20836

**DOCUMENT STORAGE**

Describing device for flagging punched business cards [NASA-CASE-XLA-02705] c08 N71-15908

**DOORS**

Design and specifications of emergency escape system for spacecraft structures [NASA-CASE-MS-C-12086-1] c05 N71-12345

**DOPPLER EFFECT**

Doppler frequency shift correction device for multiplex communication with Applications Technology Satellites [NASA-CASE-XGS-02749] c07 N69-39978

Describing laser Doppler velocimeter for measuring mean velocity and turbulence of fluid flow [NASA-CASE-NFS-20386] c21 N71-19212

Doppler compensated communication system for locating supersonic transport position [NASA-CASE-GSC-10087-4] c07 N73-20174

Doppler shift system --- system for measuring velocities of radiating particles [NASA-CASE-HQN-10740-1] c72 N74-19310

**DOPPLER RADAR**

Cooperative Doppler radar system for avoiding midair collisions [NASA-CASE-LAR-10403] c21 N71-11766

**DOSIMETERS**

Development of dosimeter for measuring absorbed dose of high energy ionizing radiation [NASA-CASE-XLA-03645] c14 N71-20430

**DRAG CHUTES**

Deployment system for flexible wing with rigid superstructure [NASA-CASE-XLA-01220] c02 N70-41863

Lightweight, variable solidity knitted parachute fabric --- for aerodynamic decelerators [NASA-CASE-LAR-10776-1] c02 N74-10034

**DRAG MEASUREMENT**

Device for measuring drag forces in flight tests [NASA-CASE-XLA-00113] c14 N70-33386

Electric analog for measuring induced drag on nonplanar airfoils [NASA-CASE-XLA-00755] c01 N71-13410

Electric analog for measuring induced drag on nonplanar airfoils [NASA-CASE-XLA-05828] c01 N71-13411

Impact energy absorber with decreasing absorption rate [NASA-CASE-XLA-01530] c14 N71-23092

**DRAG REDUCTION**

Directed fluid stream for propeller blade loading control [NASA-CASE-XAC-00139] c02 N70-34856

Aircraft wheel spray drag alleviator for dual tandem landing gear [NASA-CASE-XLA-01583] c02 N70-36825

**DRIFT (INSTRUMENTATION)**

Automatic measuring and recording of gain and zero drift characteristics of electronic amplifier [NASA-CASE-XMS-05562-1] c09 N69-39986

Solar radiation direction detector and device for compensating degradation of photocells [NASA-CASE-XLA-00183] c14 N70-40239

Failure detection and control means for improved drift performance of a gimballed platform system [NASA-CASE-NFS-23551-1] c04 N76-26175

**DRILL BITS**

Impact bit for cutting, collecting, and storing samples such as lunar rock cuttings [NASA-CASE-XNP-01412] c15 N70-42034

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## EJECTION

- Hole cutter --- drill bits and rotating shaft  
[NASA-CASE-MFS-22649-1] c37 N75-25186
- DRILLS**  
Rotary impact-type rock drill for recovering rock cuttings  
[NASA-CASE-XNP-07478] c14 N69-21923  
Auger-type soil penetrometer for burrowing into soil formations  
[NASA-CASE-XNP-05530] c14 N73-32321  
Adjustable chamfering tool  
[NASA-CASE-WFO-10857-1] c37 N77-22478
- DRIVES**  
Inverter drive circuit for semiconductor switch  
[NASA-CASE-LEW-10233] c10 N71-27126
- DROPS (LIQUIDS)**  
Development of droplet monitoring probe for use in analysis of droplet propagation in mixed-phase fluid stream  
[NASA-CASE-WFO-10985] c14 N73-20478
- DRUGS**  
Automated analysis of oxidative metabolites  
[NASA-CASE-ARC-10469-1] c25 N75-12086
- DRY CELLS**  
Energy source with tantalum capacitors in parallel and miniature silver oxide button cells for initiating pyrotechnic devices on spacecraft and rocket vehicles  
[NASA-CASE-LAR-10367-1] c03 N70-26817
- DRYING**  
Drying chamber for photographic sheet material  
[NASA-CASE-GSC-11074-1] c14 N73-28489
- DRYING APPARATUS**  
Gas purged dry box glove reducing permeation of air or moisture into dry box or isolator by diffusion through glove  
[NASA-CASE-XLE-02531] c05 N71-23080
- DUCTS**  
Quick disconnect duct coupling device for single-handed operation  
[NASA-CASE-MFS-20395] c15 N71-24903  
Externally supported internally stabilized flexible duct joint  
[NASA-CASE-MFS-19194-1] c37 N76-14460
- DUST COLLECTORS**  
Device for removing plastic dust cover from digital computer disk packs for inspection and cleaning  
[NASA-CASE-LAR-10590-1] c15 N70-26819
- DYE LASERS**  
Infrared tunable dye laser with nonlinear wavelength mixing crystal in optical cavity  
[NASA-CASE-ARC-10463-1] c09 N73-32111  
Laser head for simultaneous optical pumping of several dye lasers --- with single flash lamp  
[NASA-CASE-LAR-11341-1] c36 N75-19655  
Two wavelength double pulse tunable dye laser  
[NASA-CASE-LAR-12012-1] c36 N77-10517
- DYES**  
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[NASA-CASE-IMP-02221] c18 N71-27170
- DYNAMIC CHARACTERISTICS**  
Dynamic sensor for gas pressure or density measurement  
[NASA-CASE-XAC-02877] c14 N70-41681  
Design of precision vertical alignment system using laser with gravitationally sensitive cavity  
[NASA-CASE-ARC-10444-1] c16 N73-33397
- DYNAMIC CONTROL**  
Motion restraining device  
[NASA-CASE-WFO-13619-1] c37 N78-16369
- DYNAMIC LOADS**  
Multilegged support system for wind tunnel test models subjected to thermal dynamic loading  
[NASA-CASE-XIA-01326] c11 N71-21481  
Apparatus for measuring load on cable under static or dynamic conditions comprising pulleys pivoting structure against restraint of tension strap  
[NASA-CASE-XMS-04545] c15 N71-22878  
Development and characteristics of device for indicating and recording magnitude of force applied in axial direction  
[NASA-CASE-MSC-15626-1] c14 N72-25411
- DYNAMIC MODULUS OF ELASTICITY**  
Apparatus for testing metallic and nonmetallic beams or rods by bending at high temperatures
- in vacuum or inert atmosphere  
[NASA-CASE-XLE-01300] c15 N70-41993
- DYNAMIC RESPONSE**  
Lunar and planetary gravity simulator to test vehicular response to landing  
[NASA-CASE-XLA-00493] c11 N70-34786  
Pressure sensor network for measuring liquid dynamic response in flight including fuel tank acceleration, liquid slosh amplitude, and fuel depth monitoring  
[NASA-CASE-XLA-05541] c12 N71-26387  
Response analyzing apparatus for liquid vapor interface sensor of sloshing rocket propellant  
[NASA-CASE-MFS-11204] c14 N71-29134
- DYNAMIC STRUCTURAL ANALYSIS**  
Development of system for measuring damping characteristics of structure or system subjected to random forces or influences  
[NASA-CASE-ARC-10154-1] c14 N72-22440
- DYNAMIC TESTS**  
Hydraulic support equipment for full scale dynamic testing of large rocket vehicle under free flight conditions  
[NASA-CASE-IMP-01772] c11 N70-41677  
Hydraulic support apparatus for dynamic testing of space vehicles under near-free flight conditions  
[NASA-CASE-IMP-03248] c11 N71-10604
- DYNAMOMETERS**  
Dynamometer measuring microforce thrust produced by ion engine  
[NASA-CASE-XLE-00702] c14 N70-40203  
Development of thrust dynamometer for measuring performance of jet and rocket engines  
[NASA-CASE-XLE-05260] c14 N71-20429

## E

## EAR

- Ear oximeter for monitoring blood oxygenation and pressure, pulse rate, and pressure pulse curve, using dc and ac amplifiers  
[NASA-CASE-XAC-05422] c04 N71-23185

## EARTH (PLANET)

- Camera arrangement --- for satellite scanning of earth or sky  
[NASA-CASE-GSC-12032-2] c35 N76-19408

## EARTH ATMOSPHERE

- Ablation sensor for measuring surface ablation rate of material on vehicles entering earths atmosphere on entry into planetary atmospheres  
[NASA-CASE-XLA-01791] c14 N71-22991

## EARTH ORBITS

- Electric furnace for vacuum and zero gravity melting of high melting point materials during earth orbit  
[NASA-CASE-MFS-20710] c11 N72-23215  
Design and development of space shuttle system for delivering payload to earth orbit or celestial orbit  
[NASA-CASE-MSC-12391] c30 N73-12884

## ECCENTRICS

- Hot gas engine with dual crankshafts  
[NASA-CASE-WFO-14221-1] c37 N78-25431

## ECHOES

- A miniature implantable ultrasonic echosonometer  
[NASA-CASE-ARC-11035-1] c52 N77-15621

## ECONOMIC ANALYSIS

- Economical satellite aided vehicle avoidance system for preventing midair collisions  
[NASA-CASE-ERC-10419] c21 N72-21631

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- Method of forming a sharp edge on an optical device --- beam splitters for Solar Maximum Missions spectrapolarimeter  
[NASA-CASE-GSC-12348-1] c74 N78-29902

## EFFICIENCY

- Recovering efficiency of solar cells damaged by environmental radiation through thermal annealing  
[NASA-CASE-IGS-04047-2] c03 N72-11062  
High efficiency multifrequency feed  
[NASA-CASE-GSC-11909] c32 N74-20863

## EFFLUENTS

- Vortex generator for controlling the dispersion of effluents in a flowing liquid  
[NASA-CASE-LAR-12045-1] c34 N77-24423

## EJECTION

- Apparatus for ejecting covers of instrument

## EJECTION SEATS

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packages using differential pressure principle  
[NASA-CASE-IXF-04132] c15 N69-27502

**EJECTION SEATS**  
Ejector for separating astronaut from ejection seat during prelaunch or initial launch phase of flight  
[NASA-CASE-XMS-04625] c05 N71-20718

**EJECTORS**  
Automatic ejection valve for attitude control and midcourse guidance of space vehicles  
[NASA-CASE-IXP-00676] c15 N70-38996  
Ejector for separating astronaut from ejection seat during prelaunch or initial launch phase of flight  
[NASA-CASE-XMS-04625] c05 N71-20718  
Latching mechanism with pivoting catch and self-contained spring ejector  
[NASA-CASE-XLA-03538] c15 N71-24897

**ELASTIC BODIES**  
Bellefonte spring assembly with elastic guides having low hysteresis  
[NASA-CASE-IXP-09452] c15 N69-27504  
Development of systems for automatically and continually suppressing or attenuating bending motion in elastic bodies  
[NASA-CASE-XAC-05632] c32 N71-23971  
Device for measuring tensile forces  
[NASA-CASE-MPS-21728-1] c35 N74-27865

**ELASTIC DEFORMATION**  
Measuring shear-creep compliance of solid and liquid materials used in spacecraft components  
[NASA-CASE-XLE-01481] c14 N71-10781  
Development of systems for automatically and continually suppressing or attenuating bending motion in elastic bodies  
[NASA-CASE-XAC-05632] c32 N71-23971  
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[NASA-CASE-NPO-14124-1] c46 N78-17529

**ELASTIC MEDIA**  
Miniature vibration isolator utilizing elastic tubing material  
[NASA-CASE-XLA-01019] c15 N70-40156

**ELASTIC PROPERTIES**  
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[NASA-CASE-IXP-00416] c15 N70-36947  
Resilient vehicle wheel for lunar surface travel  
[NASA-CASE-MPS-20400] c31 N71-18611  
Threadless fastener apparatus comprising receiving apertures for plurality of articles, self-locked condition, and capable of using nonmalleable materials in both ends  
[NASA-CASE-XFR-05302] c15 N71-23254  
Chemical and elastic properties of fluorinated polyurethanes  
[NASA-CASE-NPO-10767-1] c06 N73-33076  
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[NASA-CASE-MFS-22189-1] c35 N75-19615

**ELASTIC SHEETS**  
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[NASA-CASE-XMS-05516] c15 N71-17803

**ELASTOMERS**  
Describing metal valve pintle with encapsulated elastomeric body  
[NASA-CASE-MSC-12116-1] c15 N71-17648  
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[NASA-CASE-IXP-04680] c15 N71-19489  
Preparation of elastomeric diamine silazane polymers  
[NASA-CASE-IXP-04133] c06 N71-20717  
Leak resistant bonded elastomeric seal for secondary electrochemical cells  
[NASA-CASE-XGS-02631] c03 N71-23006  
Conductive elastomeric extensometer  
[NASA-CASE-PFS-21049-1] c52 N74-27864  
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[NASA-CASP-LAR-10073-1] c37 N76-24575  
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[NASA-CASE-NFO-13535-1] c37 N76-31524  
Flame retardant formulations and products produced therefrom  
[NASA-CASE-MSC-16307-1] c25 N78-27232  
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[NASA-CASE-MSC-14331-3] c27 N78-32262

**ELECTRETS**  
Charge injection method and apparatus of producing large area electrets  
[NASA-CASE-MPS-23186-1] c33 N76-23483  
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[NASA-CASE-MPS-23186-2] c24 N78-25137

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[NASA-CASE-XIA-00330] c33 N70-34540  
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[NASA-CASE-IXP-00392] c15 N70-34814  
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[NASA-CASE-IXF-00411] c11 N70-36913  
Electric arc device for minimizing electrode ablation and heating gases to supersonic or hypersonic wind tunnel temperatures  
[NASA-CASE-XAC-00319] c25 N70-41628  
Electric arc heater with supersonic nozzle and fixed arc length for use in high temperature wind tunnels  
[NASA-CASE-XAC-01677] c09 N71-20816  
Arc electrode of graphite with tantalum ball tip  
[NASA-CASE-XLE-04788] c09 N71-22987  
High powered arc electrodes --- producing solar simulator radiation  
[NASA-CASE-LEW-11162-1] c33 N74-12913  
Electric arc light source having undercut recessed anode  
[NASA-CASE-ARC-10266-1] c33 N75-29318

**ELECTRIC BATTERIES**  
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[NASA-CASE-XGS-03864] c15 N69-24320  
Sealed electric storage battery with gas manifold interconnecting each cell  
[NASA-CASE-IXP-03378] c03 N71-11051  
Battery charging system with cell to cell voltage balance  
[NASA-CASE-XGS-05432] c03 N71-19438  
Development and characteristics of battery charging circuits with coulometer for control of available current  
[NASA-CASE-GSC-10487-1] c03 N71-24719  
Heat activated emf cells with aluminum anode  
[NASA-CASE-LEW-11359] c03 N71-28579  
Development of device for simulating charge and discharge cycle of battery in synchronous orbit  
[NASA-CASE-GSC-11211-1] c03 N72-25020  
Storage battery comprising negative plates of a wedge shaped configuration --- for preventing shape change induced malfunctions  
[NASA-CASE-NPO-11806-1] c44 N74-19693  
Battery testing device --- for testing cells of multiple-cell battery  
[NASA-CASE-MPS-20761-1] c44 N74-27519  
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[NASA-CASE-MFS-22749-1] c44 N76-14601  
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[NASA-CASE-NPO-11961-1] c44 N76-18643  
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[NASA-CASE-MFS-23059-1] c44 N76-27664

**ELECTRIC BRIDGES**  
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[NASA-CASE-FRC-10036] c09 N72-22200  
Bridge-type gain control circuit  
[NASA-CASE-GSC-10786-1] c10 N72-28241  
Diode-quad bridge circuit means  
[NASA-CASE-ARC-10364-2] c33 N75-25041  
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[NASA-CASE-MFS-23274-1] c33 N78-13320

**ELECTRIC CELLS**  
Expanding and contracting connector strip for solar cell array of Nimbus satellite  
[NASA-CASE-XGS-01395] c03 N69-21539  
Design and characteristics of heat activated electric cell with anode made from one or more alkali metals and cathode made from oxidizing material  
[NASA-CASE-LEW-11358] c03 N71-26084  
Development and characteristics of ion-exchange membrane and electrode assembly for fuel cells or electrolysis cells  
[NASA-CASE-XMS-02063] c03 N71-29044

**ELECTRIC CHARGE**  
Indicator device for monitoring charge of wet cell battery, using semiconductor light

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## ELECTRIC CURRENT

- emitter and photodetector  
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- Automatically charging battery of electric storage cells  
[NASA-CASE-XNP-04758] c03 N71-24605
- ELECTRIC CHOPPERS**
- Monostable multivibrator for conserving power in spacecraft systems  
[NASA-CASE-GSC-10082-1] c10 N72-20221
- Transformer regulated self-stabilizing chopper  
[NASA-CASE-XGS-09186] c33 N72-17295
- ELECTRIC COILS**
- Broadband chokes and absorbers to reduce spurious radiation patterns of antenna array caused by support structures  
[NASA-CASE-XMS-05303] c07 N69-27462
- ELECTRIC CONDUCTORS**
- Hollow spherical electrode for shielding dielectric junction between high voltage conductor and insulator  
[NASA-CASE-XLE-03778] c09 N69-21542
- Conductor for connecting parallel cells into submodules in series to form solar cell matrix  
[NASA-CASE-NPO-10821] c03 N71-19545
- Electrical switching device comprising conductive liquid confined within square loop of deformable nonconductive tubing also used for leveling  
[NASA-CASE-NPO-10037] c09 N71-19610
- Dry electrode design with wire sandwiched between two flexible conductive discs for monitoring physiological responses  
[NASA-CASE-FRC-10029] c09 N71-24618
- Development of process for forming insulating layer between two electrical conductor or semiconductor materials  
[NASA-CASE-LEW-10489-1] c15 N72-25447
- Improved injector with porous plug for bubbles of gas into feed lines of electrically conductive liquid  
[NASA-CASE-NFO-11377] c15 N73-27406
- Solar cell grid patterns  
[NASA-CASE-NPO-13087-2] c44 N76-31666
- Shielded conductor cable system  
[NASA-CASE-MSC-12745-1] c33 N77-13338
- Velocity measurement system  
[NASA-CASE-MFS-23363-1] c35 N78-32396
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- Distribution of currents to circuits using electrical adaptor  
[NASA-CASE-XLA-01288] c09 N69-21470
- Fixture for simultaneously supporting several components for electrical testing  
[NASA-CASE-XNP-06032] c09 N69-21926
- Releasable coupling device designed to receive and retain matching ends of electrical connectors  
[NASA-CASE-XMS-07846-1] c09 N69-21927
- Electrical feedthrough connection for printed circuit boards  
[NASA-CASE-XMP-01483] c14 N69-27431
- Electrical connector pin with wiping action to assure reliable contact  
[NASA-CASE-XMP-04238] c09 N69-39734
- Rectangular electric conductors for conductor cables to withstand spacecraft vibration and controlled atmosphere  
[NASA-CASE-NFS-14741] c09 N70-20737
- Patent data on terminal insert connector for flat electric cables  
[NASA-CASE-XMP-00324] c09 N70-34596
- Electric connector for printed cable to printed cable or to printed board  
[NASA-CASE-XMP-00369] c09 N70-36494
- Electrical connection for printed circuits on common board, using bellows principle in rivet  
[NASA-CASE-XNP-05082] c15 N70-41960
- Method of making acided electric connector for use with flat conductor cables  
[NASA-CASE-XMP-03498] c15 N71-15986
- Design and development of electric connectors for rigid and semirigid coaxial cables  
[NASA-CASE-XNP-04732] c09 N71-20851
- Connector internal force gage for measuring strength of electrical connection  
[NASA-CASE-XNP-03918] c14 N71-23087
- Maintaining current flow through solar cells with open connection using shunting diode  
[NASA-CASE-XLE-04535] c03 N71-23354
- Electrical connections for thin film hybrid microcircuits  
[NASA-CASE-XMS-02182] c10 N71-28783
- Breakaway multiwire electrical cable connector with particular application for umbilical type cables  
[NASA-CASE-NPO-11140] c15 N72-17455
- Reliability of electrical connectors after heat sterilization  
[NASA-CASE-NPO-10694] c09 N72-20200
- Development of electric connector and pin assembly with radio frequency absorbing sleeve to reduce radio frequency interference  
[NASA-CASE-XLA-02609] c09 N72-25256
- Electrical interconnection of unilluminated solar cells in solar battery array  
[NASA-CASE-GSC-10344-1] c03 N72-27053
- Separable flat cable connector with isolated electrical contacts  
[NASA-CASE-MFS-20757] c09 N72-28225
- Device for configuring multiple leads --- method for connecting electric leads to printed circuit board  
[NASA-CASE-MFS-22133-1] c33 N74-26977
- Connector --- for connecting circuits on different layers of multilayer printed circuit boards  
[NASA-CASE-LAR-11709-1] c37 N76-27567
- Percutaneous connector device  
[NASA-CASE-KSC-10849-1] c52 N77-14738
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[NASA-CASE-KSC-11030-1] c52 N77-25772
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[NASA-CASE-NPO-14296-1] c37 N78-25432
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[NASA-CASE-XNP-09228] c09 N69-27500
- Characteristics of hermetically sealed electric switch with flexible operating capability  
[NASA-CASE-XNP-09808] c09 N71-12518
- Electrode connection for n-on-p silicon solar cell  
[NASA-CASE-XLE-04787] c03 N71-20492
- Development of slip ring assembly with inner and outer peripheral surfaces used as electrical contacts for brushes  
[NASA-CASE-XNP-01049] c15 N71-23049
- Separable flat cable connector with isolated electrical contacts  
[NASA-CASE-MFS-20757] c09 N72-28225
- Electrostatic measurement system --- for contact-electrifying a dielectric  
[NASA-CASE-MFS-22129-1] c33 N75-18477
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[NASA-CASE-LEW-11978-1] c33 N77-26385
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[NASA-CASE-XMS-09352] c09 N71-23316
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[NASA-CASE-MFS-23186-1] c33 N76-23483
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[NASA-CASE-XGS-03505] c03 N71-10608
- Development of in-line fuse device for protection of electric circuits from excessive currents and voltages  
[NASA-CASE-MSC-12135-1] c09 N71-12526
- Micromicroampere current measuring circuit, with two subminiature thermionic diodes with filament cathodes  
[NASA-CASE-XNP-00384] c09 N71-13530
- Connector internal force gage for measuring strength of electrical connection  
[NASA-CASE-XNP-03918] c14 N71-23087
- Electric circuit for producing high current pulse having fast rise and fall time  
[NASA-CASE-XMS-04919] c09 N71-23270
- Electric circuit for reversing direction of current flow  
[NASA-CASE-XNP-00952] c10 N71-23271

- Maintaining current flow through solar cells with open connection using shunting diode  
[NASA-CASE-XLE-04535] c03 N71-23354
- Color television system utilizing single gun current sensitive color cathode ray tube  
[NASA-CASE-ERC-10098] c09 N71-28618
- Current dependent variable inductance for input filter chokes of ac or dc power supplies  
[NASA-CASE-ERC-10139] c09 N72-17154
- Amplifying circuit with constant current source for accumulator load and high gain voltage amplification  
[NASA-CASE-NPO-11023] c09 N72-17155
- Commutator for steering precisely controlled bidirectional currents through numerous loads by use of magnetic core shift registers  
[NASA-CASE-NPO-10743] c08 N72-21199
- Current protection equipment for saturable core transformers  
[NASA-CASE-ERC-10075-2] c09 N72-22196
- Development of thermal to electric power conversion system using solid state switches of electrical currents to load for Seebeck effect compensation  
[NASA-CASE-NPO-11388] c03 N72-23048
- Load current sensor for series pulse width modulated power supply  
[NASA-CASE-GSC-10656-1] c09 N72-25249
- Electrode with multiple columnar conductors for limiting field emission current  
[NASA-CASE-ERC-10015-2] c10 N72-27246
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[NASA-CASE-LAR-10541-1] c15 N72-32487
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[NASA-CASE-KSC-10807-1] c33 N75-26246
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[NASA-CASE-NPO-13858-1] c28 N77-17258
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[NASA-CASE-KSC-11031-1] c33 N77-21319
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[NASA-CASE-KSC-11018-1] c33 N77-21320
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[NASA-CASE-NPO-13872-1] c33 N78-10377
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[NASA-CASE-KSC-11057-1] c35 N78-10435
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[NASA-CASE-GSC-10135] c33 N78-17296
- Kine-Pak: A self-contained, electrical power generator system --- using a helical spring to rotate a rotor and generate electric current  
[NASA-CASE-LAR-11551-1] c44 N78-22468
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[NASA-CASE-NPO-14096-1] c44 N78-28625
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[NASA-CASE-INP-00375] c15 N70-34249
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**ENGINE STARTERS**

A portable device particularly suited for use in  
 starting air-start units for aircraft  
 [NASA-CASE-PRC-10113-1] c09 N78-19166

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Electric propulsion engine test chamber  
 [NASA-CASE-XLE-00252] c11 N70-34844

**ENGINEERING DRAWINGS**

High-temperature, high-pressure spherical  
 segment valve  
 [NASA-CASE-XAC-00074] c15 N70-34817

Graphic illustration of lifting body design  
 [NASA-CASE-PRC-10063] c01 N71-12217

Specifications and drawings for semipassive  
 optical communication system  
 [NASA-CASE-XLA-01090] c07 N71-12389

Method of making molded electric connector for  
 use with flat conductor cables  
 [NASA-CASE-XMF-03498] c15 N71-15986

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Measuring conductive heat flow and thermal  
 conductivity of laminar gas stream in  
 cylindrical plug to simulate atmospheric reentry  
 [NASA-CASE-XLE-00266] c14 N70-34156

**ENVIRONMENT SIMULATION**

Method and apparatus for applying compressional  
 forces to skeletal structure of subject to  
 simulate force during ambulatory conditions  
 [NASA-CASE-ARC-10100-1] c05 N71-24738

Gravity environment simulation by locomotion and  
 restraint aid for studying manual operation  
 performance of astronauts at zero gravity  
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Space environment simulator for testing  
 spacecraft components under aerospace conditions  
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 system for astronaut in and out of spacecraft  
 [NASA-CASE-XMS-09632-1] c05 N71-11203

Portable apparatus producing high velocity  
 annular air column surrounding low velocity,  
 filtered, superclean air central core for  
 industrial clean room environmental control  
 [NASA-CASE-XMF-03212] c15 N71-22721

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- Dual solid cryogenics for spacecraft refrigeration insuring low temperature cooling for extended periods  
[NASA-CASE-GSC-10188-1] c23 N71-24725
- Vibration control of flexible bodies in steady accelerating environment  
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[NASA-CASE-MSC-13587-1] c15 N73-30459
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[NASA-CASE-XIA-01243] c33 N71-22792
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[NASA-CASE-NPO-14124-1] c46 N78-17529
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[NASA-CASE-XAC-07043] c05 N71-23161
- Flammability test chamber for testing materials in certain predetermined environments  
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[NASA-CASE-XLE-00252] c11 N70-34844
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- Apparatus for conducting flow electrophoresis in the substantial absence of gravity  
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[NASA-CASE-MFS-21109-1] c05 N73-27941
- Tilting table for testing human body in variety of positions while exercising on ergometer or other biomedical devices  
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[NASA-CASE-MSC-11561-1] c05 N73-32014
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- Bit error rate measurement above and below bit rate tracking threshold  
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[NASA-CASE-XNP-01306] c07 N71-20814
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[NASA-CASE-XNP-03263] c09 N71-18843
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[NASA-CASE-GSC-10554-1] c08 N71-29033
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[NASA-CASE-XKS-02342] c05 N71-11199
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[NASA-CASE-XGS-06306] c17 N71-16044
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[NASA-CASE-XNP-02584] c06 N71-20905
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[NASA-CASE-NFO-10768] c06 N71-27254
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[NASA-CASE-XNP-09763] c14 N71-20461
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[NASA-CASE-NPO-14126-1] c44 N78-11500
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[NASA-CASE-XMS-01108] c15 N69-24322
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[NASA-CASE-XNP-03290] c15 N71-23256
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[NASA-CASE-MPS-23315-1] c76 N78-24950

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--- gas turbine shaft seals  
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[NASA-CASE-LAR-11570-1] c34 N76-18364  
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expandable lightweight flexible reflector  
satellite  
[NASA-CASE-XLA-00138] c31 N70-37981  
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self erecting structural member  
[NASA-CASE-XLE-00620] c32 N70-41579  
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automatically expanded to operating state  
[NASA-CASE-KSC-10392] c07 N73-26117  
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[NASA-CASE-ERC-10365-1] c31 N73-32749  
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manifold interconnecting each cell  
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[NASA-CASE-ABC-10043-1] c05 N71-11193  
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astronaut cardiovascular system in gravity  
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[NASA-CASE-XLA-02898] c05 N71-20268  
Space suit using nonflexible material with low  
leakage and providing protection against  
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radiation with high mobility articulation

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explosive welding techniques by using complete  
enclosure  
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preventing film overexposure in oscilloscope  
camera  
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and cabinet assembly housing drawers or racks  
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[NASA-CASE-MPS-21049-1] c52 N74-27864  
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- Development of resilient fastener for attaching skin of aerospace vehicles to permit movement of skin relative to framework  
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- Pressurized tank for feeding liquid waste into processing equipment  
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 [NASA-CASE-KSC-10644] c09 N77-27227
- Dual frequency feed systems for Cassegrainian antennas  
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## FIREPROOFING

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[NASA-CASE-GSC-10072] c18 N71-14014
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[NASA-CASE-ARC-10196-1] c18 N73-13562
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[NASA-CASE-ARC-10304-1] c18 N73-26572
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[NASA-CASE-ARC-10180-1] c27 N74-12814
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[NASA-CASE-MSC-14331-1] c27 N76-24405
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[NASA-CASE-MSC-14331-2] c27 N78-17213
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[NASA-CASE-MSC-14903-3] c27 N78-25217
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- Structural wood panels with improved fire resistance --- using prepolymers and hexamethylenetetramine  
[NASA-CASE-ARC-11174-1] c24 N78-28178
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[NASA-CASE-XNP-00683] c09 N70-35425
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[NASA-CASE-XMF-00641] c31 N70-36410
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[NASA-CASE-GSC-11998-1] c34 N77-32413
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 [NASA-CASE-IMP-08837] c18 N71-16210  
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 hydroxy terminated perfluoro polyether with  
 diisocyanate  
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 temperature  
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 reactive sites on chain  
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 polyfluoroalkylene diol  
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 [NASA-CASE-MSC-12568-1] c24 N76-14204  
 Dual membrane, hollow fiber fuel cell  
 [NASA-CASE-NFO-13732-1] c44 N77-19581

**FUEL COMBUSTION**  
 Fuel combustor  
 [NASA-CASE-LEW-12137-1] c25 N78-10224

**FUEL CONTROL**  
 Attitude and propellant flow control system for  
 liquid propellant rocket vehicles  
 [NASA-CASE-XMF-00185] c21 N70-34539  
 Flexible ring slosh damping baffle for  
 spacecraft fuel tank  
 [NASA-CASE-LAR-10317-1] c32 N71-16103  
 Submerged fuel tank baffles to prevent sloshing  
 in liquid propellant rocket flight  
 [NASA-CASE-XLA-04605] c32 N71-16106  
 Control valve and coaxial variable injector for  
 controlling bipropellant mixture ratio and flow

[NASA-CASE-XNP-09702] c15 N71-17654  
 Force balanced throttle valve for fuel control  
 in rocket engines  
 [NASA-CASE-NPO-10808] c15 N71-27432  
 Variable-orifice hydraulic mechanism for  
 aircraft gas turbine engine fuel control  
 [NASA-CASE-LEW-11187-1] c28 N73-19793  
 Automotive gas turbine fuel control  
 [NASA-CASE-LEW-12785-1] c37 N78-24545

**FUEL FLOW**  
 Development of system for preheating vaporized  
 fuel for use with internal combustion engines  
 [NASA-CASE-NPO-12072] c28 N72-22772

**FUEL FLOW REGULATORS**  
 Solenoid two-step valve for bipropellant flow  
 rate control to rocket engine  
 [NASA-CASE-XMS-04890-1] c15 N70-22192  
 Water electrolysis rocket engine with self-  
 regulating stoichiometric fuel mixing regulator  
 [NASA-CASE-XGS-08729] c28 N71-14044  
 Oil cooling system for a gas turbine engine  
 [NASA-CASE-LEW-12830-1] c07 N77-23106

**FUEL GAGES**  
 Response analyzing apparatus for liquid vapor  
 interface sensor of sloshing rocket propellant  
 [NASA-CASE-MFS-11204] c14 N71-29134

**FUEL INJECTION**  
 Apparatus for cooling and injecting hypergolic  
 propellants into combustion chamber of small  
 rocket engine  
 [NASA-CASE-XLE-00303] c15 N70-36535  
 Fuel injection system for maximum combustion  
 efficiency of rocket engines  
 [NASA-CASE-XLE-00111] c28 N70-38199  
 Propellant injection assembly having  
 individually removable and replaceable nozzles  
 for liquid fueled rocket engines  
 [NASA-CASE-XMF-00968] c28 N71-15660  
 Fuel and oxidizer injection head for thrust  
 chamber of reaction engine  
 [NASA-CASE-NPO-10046] c28 N72-17843  
 Improved injector with porous plug for bubbles  
 of gas into feed lines of electrically  
 conductive liquid  
 [NASA-CASE-NPO-11377] c15 N73-27406  
 Rocket propellant injector with porous faceplate  
 for rocket engine combustion chamber  
 [NASA-CASE-LEW-11071-1] c27 N73-27695  
 Supercritical fuel injection system  
 [NASA-CASE-LEW-12990-1] c07 N78-27122

**FUEL OLDS**  
 Oil cooling system for a gas turbine engine  
 [NASA-CASE-LEW-12830-1] c07 N77-23106

**FUEL PUMPS**  
 Variable displacement fuel pump for internal  
 combustion engines  
 [NASA-CASE-MSC-12139-1] c28 N71-14058

**FUEL SYSTEMS**  
 Internal labyrinth and shield structure to  
 improve electrical isolation of propellant  
 feed source from ion thruster  
 [NASA-CASE-LEW-10210-1] c28 N71-26781  
 Development of system for preheating vaporized  
 fuel for use with internal combustion engines  
 [NASA-CASE-NPO-12072] c28 N72-22772  
 Supersonic-combustion rocket  
 [NASA-CASE-LEW-11058-1] c20 N74-13502  
 Fuel combustor  
 [NASA-CASE-LEW-12137-1] c25 N78-10224  
 Supercritical fuel injection system  
 [NASA-CASE-LEW-12990-1] c07 N78-27122

**FUEL TANK PRESSURIZATION**  
 Fuel tank pressure-relief device for venting  
 cryogenic liquid vapors through tubes with  
 porous plug  
 [NASA-CASE-XLE-00288] c15 N70-34247  
 Automatically reciprocating, high pressure pump  
 for use in spacecraft cryogenic propellants  
 [NASA-CASE-XNP-04731] c15 N71-24042  
 Method and apparatus for pressurizing propellant  
 tanks used in propulsion motor feed system  
 [NASA-CASE-XNP-00650] c27 N71-28929

**FUEL TANKS**  
 Reduced gravity liquid configuration simulator  
 to study propellant behavior in rocket fuel  
 tanks  
 [NASA-CASE-XLE-02624] c12 N69-39988  
 Flexible ring slosh damping baffle for  
 spacecraft fuel tank



[NASA-CASE-LAR-10317-1] c32 N71-16103  
 Submerged fuel tank baffles to prevent sloshing  
 in liquid propellant rocket flight  
 [NASA-CASE-XLA-04605] c32 N71-16106  
 Pressure sensor network for measuring liquid  
 dynamic response in flight including fuel tank  
 acceleration, liquid slosh amplitude, and fuel  
 depth monitoring  
 [NASA-CASE-XLA-05541] c12 N71-26387  
 Electrical failure detector in solid rocket  
 propellant motor insulation against thermal  
 degradation by fuel grain  
 [NASA-CASE-XMP-03968] c14 N71-27186

**FUEL VALVES**  
 Apparatus for cooling and injecting hypergolic  
 propellants into combustion chamber of small  
 rocket engine  
 [NASA-CASE-XLE-00303] c15 N70-36535  
 Semitoroidal diaphragm cavitating flow control  
 valve  
 [NASA-CASE-XMP-09704] c12 N71-18615  
 Filler valve design for supplying liquid  
 propellants at high pressure to space vehicles  
 [NASA-CASE-XMP-01747] c15 N71-23024  
 Combination automatic-starting electrical plasma  
 torch and gas shutoff valve --- for satellite  
 attitude control  
 [NASA-CASE-XLE-10717] c37 N75-29426

**FUEL-AIR RATIO**  
 Internal combustion engine with electrostatic  
 discharging fuels  
 [NASA-CASE-NPO-13798-1] c37 N77-25535

**FUNCTION GENERATORS**  
 Mechanical function generators with  
 potentiometer as sensing element  
 [NASA-CASE-XAC-00001] c15 N71-28952  
 Digital quasi-exponential function generator  
 [NASA-CASE-NPO-11130] c08 N72-20176  
 Service life of electromechanical device for  
 generating sine/cosine functions  
 [NASA-CASE-LAR-10503-1] c09 N72-21248  
 Function generators for producing complex  
 vibration mode patterns used to identify  
 vibration mode data  
 [NASA-CASE-LAR-10310-1] c10 N73-20253  
 Integrated circuit tangent function generator  
 [NASA-CASE-MSC-13907-1] c10 N73-26230

**FURLEABLE ANTENNAS**  
 Development and characteristics of extensible  
 dipole antenna using deformable tubular  
 metallic strip element  
 [NASA-CASE-HQN-00937] c07 N71-28979  
 Furleable antenna for spacecraft  
 [NASA-CASE-NPO-11361] c07 N72-32169  
 Furleable antenna --- antenna design  
 [NASA-CASE-NPO-13553-1] c33 N76-32457

**FURNACES**  
 High speed infrared furnace  
 [NASA-CASE-XLE-10466] c17 N69-25147  
 Development of black-body source calibration  
 furnace  
 [NASA-CASE-XLE-01399] c33 N71-15625  
 Induction heating of metallurgical specimens to  
 high temperatures in coil furnace  
 [NASA-CASE-XLE-04026] c14 N71-23267  
 Electric furnace for vacuum and zero gravity  
 melting of high melting point materials during  
 earth orbit  
 [NASA-CASE-MPS-20710] c11 N72-23215  
 High temperature strain gage calibration fixture  
 [NASA-CASE-LAR-11500-1] c35 N76-24523  
 General purpose rocket furnace  
 [NASA-CASE-MPS-23460-1] c09 N77-12070

**FUSELAGES**  
 Fuselage structure using advanced technology  
 metal matrix fiber reinforced composites  
 [NASA-CASE-LAR-11688-1] c05 N78-18045

**FUSION (MELTING)**  
 Silver chloride use in technique for fusion  
 bonding of graphite to silver, glass,  
 ceramics, and certain other metals  
 [NASA-CASE-IGS-00963] c15 N69-39735  
 Process for fiberizing ceramic materials with  
 high fusion temperatures and tensile strength  
 [NASA-CASE-XMP-00597] c18 N71-23088

**FUSION WELDING**  
 Fabricating solar cells with dielectric layers  
 to improve glass fusion  
 [NASA-CASE-IGS-04531] c03 N69-24267

Control of fusion welding through use of  
 thermocouple wire  
 [NASA-CASE-MPS-06074] c15 N71-20393  
 Electrical resistance butt welder for welding  
 fine gauge tungsten/rhenium thermocouple wire  
 [NASA-CASE-LAR-10103-1] c15 N73-14468  
 Diffusion welding in air --- solid state welding  
 of butt joint by fusion welding, surface  
 cleaning, and heating  
 [NASA-CASE-LEW-11387-1] c37 N74-18128

## G

**GADOLINIUM**  
 Doping silicon material with gadolinium to  
 increase radiation resistance of solar cells-  
 [NASA-CASE-XLE-02792] c26 N71-10607  
 Gadolinium or samarium doped-silicon  
 semiconductor material with resistance to  
 radiation damage for use in solar cells  
 [NASA-CASE-XLE-10715] c26 N71-23292

**GALLIUM**  
 Device for measuring two orthogonal components  
 of force with gallium flotation of measuring  
 target for use in vacuum environments  
 [NASA-CASE-XAC-04885] c14 N71-23790

**GALLIUM ARSENIDES**  
 Describing method for vapor deposition of  
 gallium arsenide films to manganese substrates  
 to provide semiconductor devices with low  
 resistance substrates  
 [NASA-CASE-XMP-01328] c26 N71-18064  
 Gallium arsenide solar cell preparation by  
 surface deposition of cuprous iodide on thin  
 n-type polycrystalline layers and heating in  
 iodine vapor  
 [NASA-CASE-XMP-01960] c09 N71-23027  
 Water content in vapor deposition atmosphere for  
 forming n-type and p-type junctions of zinc  
 doped gallium arsenide  
 [NASA-CASE-XMP-01961] c26 N71-29156  
 Vapor phase growth of groups 3-5 compounds by  
 hydrogen chloride transport of the elements  
 [NASA-CASE-LAR-11144-1] c25 N75-26043  
 Vapor deposition apparatus --- semiconductors  
 and gallium arsenides  
 [NASA-CASE-HQN-10462] c25 N75-29192

**GALLIUM COMPOUNDS**  
 Growth of gallium nitride crystals  
 [NASA-CASE-LAR-11302-1] c25 N75-13054

**GALVANIC SKIN RESPONSE**  
 Adhesive spray process for attaching biomedical  
 skin electrodes  
 [NASA-CASE-XPR-07658-1] c05 N71-26293

**GAMMA RAYS**  
 Design of gamma ray spectrometer for measurement  
 of intense radiation using Compton scattering  
 effect  
 [NASA-CASE-MPS-21441-1] c14 N73-30392  
 Low intensity X-ray and gamma-ray imaging device  
 [NASA-CASE-GSC-12263-1] c35 N77-29471

**GANTRY CRANES**  
 Design and characteristics of mechanically  
 extended and telescoping boom on crane assembly  
 [NASA-CASE-NPO-11118] c03 N72-25021

**GAPS**  
 Electromagnetic transducer recording head having  
 a laminated core section and tapered gap  
 [NASA-CASE-NPO-10711-1] c35 N77-21392

**GARMENTS**  
 Electromedical garment, applying  
 vectorcardiologic type electrodes to human  
 torsos for data recording during physical  
 activity  
 [NASA-CASE-XPR-10856] c05 N71-11189  
 Flexible joint for pressurizable garment  
 [NASA-CASE-MSC-11072] c54 N74-32546  
 Spacesuit torso closure  
 [NASA-CASE-ARC-11100-1] c54 N78-31736

**GAS ANALYSIS**  
 Gas analyzer for bi-gaseous mixtures suitable  
 for use in test facilities  
 [NASA-CASE-XLA-01131] c14 N71-10774  
 Describing crystal oscillator instrument for  
 detecting condensable gas contaminants in  
 vacuum apparatus  
 [NASA-CASE-NPO-10144] c14 N71-17701  
 Design and characteristics of time of flight  
 mass spectrometer to measure or analyze gases

- at low pressures and time of flight of single gas molecule  
[NASA-CASE-XNP-01056] c14 N71-23041
- Microwave double resonance spectroscopy absorption cell for gas analysis  
[NASA-CASE-IAR-10305] c14 N71-26137
- Ion microprobe mass spectrometer with cooled electrode target for analyzing traces of fluids  
[NASA-CASE-ERC-10014] c14 N71-28863
- Development and characteristics of injection system for use with gas chromatograph  
[NASA-CASE-AEC-10344-1] c14 N72-21433
- Nondispersive gas analysis using radiation detection for quantitative analysis  
[NASA-CASE-AEC-10308-1] c06 N72-31141
- Apparatus for analyzing gas samples in containers including vacuum chamber, mass spectrometer, and gas chromatography  
[NASA-CASE-GSC-10903-1] c14 N73-12444
- Coaxial anode wire for gas radiation counters  
[NASA-CASE-GSC-11492-1] c35 N74-26949
- Fast scan control for deflection type mass spectrometers  
[NASA-CASE-LAR-11428-1] c35 N74-34857
- NDIR gas analyzer based on absorption modulation ratios for known and unknown samples  
[NASA-CASE-ARC-10802-1] c35 N75-30502
- Stack plume visualization system  
[NASA-CASE-LAR-11675-1] c45 N76-17656
- Pulling device for detection of trace gases by NDIR absorption  
[NASA-CASE-ARC-10760-1] c25 N76-22323
- Analysis of volatile organic compounds --- trace amounts of organic volatiles in gas samples  
[NASA-CASE-MSC-14428-1] c23 N77-17161
- Fluid sampling device  
[NASA-CASE-GSC-12143-1] c35 N77-32456
- GAS BAGS**  
Payload soft landing system using stowable gas bag  
[NASA-CASE-XLA-09881] c31 N71-16085
- GAS BEARINGS**  
Externally pressurized air bearing for gyros operating in high temperature, low gravity environments  
[NASA-CASE-XMP-00515] c15 N70-34664
- Slit regulated gas journal bearing  
[NASA-CASE-XNP-00476] c15 N70-38620
- Air bearings for spacecraft gyros  
[NASA-CASE-XMP-00339] c15 N70-39896
- Air bearings for near frictionless transfer of loads from one body to another  
[NASA-CASE-XMP-01887] c15 N71-10617
- Fluid power transmission and gas bearing system  
[NASA-CASE-IMS-01445] c12 N71-16031
- Bismuth and lead surface coatings for gas bearings in aerospace engineering  
[NASA-CASE-XGS-02011] c15 N71-20739
- Swivel support for gas bearing for position adjustment between ball and supporting cup  
[NASA-CASE-XMP-07808] c15 N71-23812
- Low friction gas bearing system for fluid power transmission to bearing-supported payload  
[NASA-CASE-ERC-10097] c15 N71-28465
- Gas bearing for model support with capacity for measuring angular displacement of model in bearing  
[NASA-CASE-YLA-09346] c15 N71-28740
- Journal air bearing with cylindrical cup designed to ride on shaft  
[NASA-CASE-MFS-20423] c15 N72-11388
- Air bearing for use in exterior environment for moving heavy loads  
[NASA-CASE-XIP-10002] c15 N72-17451
- Axially and radially controllable magnetic bearing  
[NASA-CASE-GSC-11551-1] c37 N76-18459
- Thrust bearing  
[NASA-CASE-IEW-11949-1] c37 N76-29588
- GAS CHROMATOGRAPHY**  
Micropacked column for rapid chromatographic analysis using low gas flow rates  
[NASA-CASE-XNP-04816] c06 N69-39936
- Automatic baseline stabilization for ionization detector used in gas chromatograph  
[NASA-CASE-XNP-03128] c10 N70-41991
- Gas chromatographic method for determining water in nitrogen tetroxide rocket propellant  
[NASA-CASE-NPO-10234] c06 N72-17094
- Development and characteristics of injection system for use with gas chromatograph  
[NASA-CASE-ARC-10344-1] c14 N72-21433
- Gas chromatographic method for analyzing hydrogen deuterium mixtures  
[NASA-CASE-NPO-11322] c06 N72-25146
- Ultraviolet chromatographic detector for quantitative and qualitative analysis of compounds  
[NASA-CASE-HQN-10756-1] c14 N72-25428
- Apparatus for analyzing gas samples in containers including vacuum chamber, mass spectrometer, and gas chromatography  
[NASA-CASE-GSC-10903-1] c14 N73-12444
- Gas chromatograph injection system  
[NASA-CASE-ARC-10344-2] c35 N75-26334
- Chelate-modified polymers for atmospheric gas chromatography  
[NASA-CASE-ARC-11154-1] c27 N78-27275
- GAS COOLED REACTORS**  
Gaseous core diffusion nuclear reactor for thermal energy generation  
[NASA-CASE-LEW-10250-1] c22 N71-28759
- GAS COOLING**  
Gas balancing, cryogenic refrigeration apparatus with Joule-Thomson valve assembly  
[NASA-CASE-NPO-10309] c15 N69-23190
- Gas cooled high temperature thermocouple  
[NASA-CASE-XIP-09475-1] c33 N71-15568
- GAS DENSITY**  
Dynamic sensor for gas pressure or density measurement  
[NASA-CASE-XAC-02877] c14 N70-41681
- Device for simultaneously determining density, velocity, and temperature of streaming gas  
[NASA-CASE-XLA-03375] c16 N71-24074
- Coherent light beam device and method for measuring gas density in vacuum chambers  
[NASA-CASE-XER-11203] c14 N71-28994
- Absorbing gas reactivity control system for minimizing power distribution and perturbation in nuclear reactors  
[NASA-CASE-XLE-04599] c22 N72-20597
- Electrodeposition method for producing crystalline material from dense gaseous medium  
[NASA-CASE-NPO-10440] c15 N72-21466
- Wide range dynamic pressure sensor with vibrating diaphragm for measuring density and pressure of gaseous environment  
[NASA-CASE-AEC-10263-1] c14 N72-22438
- Absolute pressure measuring device for measuring gas density level in high vacuum range  
[NASA-CASE-LAR-10000] c14 N73-30394
- Method and apparatus for compensating reflection losses in a path length modulated absorption-absorption trace gas detector --- for determining density of gas  
[NASA-CASE-ARC-10631-1] c74 N76-20958
- GAS DETECTORS**  
Method and transducer device for detecting presence of hydrogen gas  
[NASA-CASE-XMP-03873] c06 N69-39733
- Development of device for detecting hydrogen in ambient environments  
[NASA-CASE-MFS-11537] c14 N71-20442
- Gas leak detection in evacuated systems using ultraviolet radiation probe  
[NASA-CASE-ERC-10034] c15 N71-24896
- Fast response miniature carbon dioxide detector with no moving parts for measuring concentration in any atmosphere  
[NASA-CASE-MSC-13332-1] c14 N72-21408
- Fluorescence detector for monitoring atmospheric pollutants  
[NASA-CASE-NPO-13231-1] c45 N75-27585
- Carbon monoxide monitor --- using real time operation  
[NASA-CASE-MFS-22060-1] c35 N75-29380
- Method and apparatus for compensating reflection losses in a path length modulated absorption-absorption trace gas detector --- for determining density of gas  
[NASA-CASE-ARC-10631-1] c74 N76-20958
- Indicator providing continuous indication of the presence of a specific pollutant in air  
[NASA-CASE-NPO-13474-1] c45 N76-21742
- Particulate and aerosol detector  
[NASA-CASE-LAR-11434-1] c35 N76-22509
- Cryogenic liquid sensor  
[NASA-CASE-NPO-10619-1] c35 N77-21393

- Optically selective, acoustically resonant gas detecting transducer  
[NASA-CASE-ABC-10639-1] c35 N78-13400
- GAS DISCHARGE TUBES**  
Direct current powered self repeating plasma accelerator with interconnected annular and linear discharge channels  
[NASA-CASE-XIA-03103] c25 N71-21693
- GAS DISCHARGES**  
Radio frequency noise generator having microwave slow-wave structure in gas discharge plasma  
[NASA-CASE-XER-11019] c09 N71-23598
- GAS EVOLUTION**  
Development of filter system for control of outgas contamination in vacuum conditions using absorbent beds of molecular sieve zeolite, silica gel, and charcoal  
[NASA-CASE-XPS-14711] c15 N71-26185
- GAS EXPANSION**  
Sealed electric storage battery with gas manifold interconnecting each cell  
[NASA-CASE-XNP-03378] c03 N71-11051  
Method and apparatus for producing very low temperature refrigeration based on gas pressure balance  
[NASA-CASE-XNP-08877] c15 N71-23025  
Gas-operated actuator with cyclic motion of expansion chamber  
[NASA-CASE-NPO-11340] c15 N72-33477
- GAS FLOW**  
Tubular flow restrictor for gas flow control in pipeline  
[NASA-CASE-NPO-10117] c15 N71-15608  
Developing high pressure gas purification and filtration system for use in test operations of space vehicles  
[NASA-CASE-MFS-12806] c14 N71-17588  
Burst diaphragm flow initiator for installation in short duration wind tunnels  
[NASA-CASE-MFS-12915] c11 N71-17600  
Color photointerpretation of interference colors reflected from thin film oil-coated components in moving gases for gas flow visualization  
[NASA-CASE-XMP-01779] c12 N71-20815  
Transducer for monitoring oxygen flow in respirator  
[NASA-CASE-PRC-10012] c14 N72-17329  
Design, development, and operation of shock tube with bypass piston tunnel  
[NASA-CASE-NPO-12109] c11 N72-22245  
Continuous gas flow control by fluidic proportional thruster system  
[NASA-CASE-AEC-10106-1] c28 N72-22769  
Development of filter apparatus for gas separation and characteristics of filter cell support frame for improved operation  
[NASA-CASE-MSC-12297] c14 N72-23457  
Pressurized inert gas feed for lighting system  
[NASA-CASE-RSC-10644] c09 N72-27227  
Development of method for controlling vapor content of gas  
[NASA-CASE-NPO-10633] c03 N72-28025  
Gas flow control device, including housing and input port  
[NASA-CASE-NPO-11479] c15 N73-13462  
Compact hydrogenator  
[NASA-CASE-NPO-11682-1] c35 N74-15127  
Apparatus for establishing flow of a fluid mass having a known velocity  
[NASA-CASE-MFS-21424-1] c34 N74-27730  
Condensate removal device for heat exchanger  
[NASA-CASE-MSC-14143-1] c77 N75-20139  
Flow measuring apparatus  
[NASA-CASE-LEW-12078-1] c35 N75-30503  
Gas compression apparatus  
[NASA-CASE-MSC-14757-1] c35 N78-10428  
Variable cycle gas turbine engines  
[NASA-CASE-LEW-12916-1] c37 N78-17384
- GAS GENERATORS**  
Chlorine generator for purifying water in life support systems of manned spacecraft  
[NASA-CASE-XLA-08913] c14 N71-28933  
Gas operated quick disconnect coupling for umbilical connectors  
[NASA-CASE-NPO-11202] c15 N72-25450  
Actuator operated by electrolytic drive gas generator and evacuator  
[NASA-CASE-NPO-11369] c15 N73-13467
- Development and operating principles of gas generator for deploying recovery parachutes from space capsules during atmospheric entry  
[NASA-CASE-LAR-10549-1] c31 N73-13898  
Hydrogen rich gas generator  
[NASA-CASE-NPO-13342-1] c37 N76-16446  
Hydrogen-rich gas generator  
[NASA-CASE-NPO-13464-1] c44 N76-18642  
Hydrogen rich gas generator  
[NASA-CASE-NPO-13342-2] c44 N76-29700  
Hydrogen rich gas generator  
[NASA-CASE-NPO-13464-2] c44 N76-29704  
Hydrogen-rich gas generator  
[NASA-CASE-NPO-13560-1] c44 N77-10636
- GAS GUNS**  
Electric arc device for minimizing electrode ablation and heating gases to supersonic or hypersonic wind tunnel temperatures  
[NASA-CASE-XAC-00319] c25 N70-41628
- GAS HEATING**  
Bimetallic fluid displacement apparatus --- for stirring and heating stored gases and liquids  
[NASA-CASE-ARC-10441-1] c35 N74-15126
- GAS INJECTION**  
Pressurized gas injection for burning rate control of solid propellants  
[NASA-CASE-XLE-03494] c27 N71-21819  
Compact hydrogenator  
[NASA-CASE-NPO-11682-1] c35 N74-15127  
Gas chromatograph injection system  
[NASA-CASE-ARC-10344-2] c35 N75-26334  
In-situ laser retorting of oil shale  
[NASA-CASE-LEW-12217-1] c43 N78-14452  
Gas turbine engine with recirculating bleed  
[NASA-CASE-LEW-12452-1] c07 N78-25089
- GAS IONIZATION**  
Electrostatic modulator for communicating through plasma sheath formed around spacecraft during reentry  
[NASA-CASE-XLA-01400] c07 N70-41331  
Multichannel photoionization chamber for measuring absorption, photoionization yield, and coefficients of gases  
[NASA-CASE-ERC-10044-1] c14 N71-27090  
Modulated hydrogen ion flame detector  
[NASA-CASE-ARC-10322-1] c35 N76-18403  
Gas ion laser construction for electrically isolating the pressure gauge thereof  
[NASA-CASE-MFS-22597] c36 N78-17366  
Charge transfer reaction laser with preionization means  
[NASA-CASE-NPO-13945-1] c36 N78-27402
- GAS LASERS**  
Gas laser frequency stabilized by position of mirrors in resonant cavity  
[NASA-CASE-XGS-03644] c16 N71-18614  
Inert gas metallic vapor laser  
[NASA-CASE-NPO-13449-1] c36 N75-32441  
Diffused waveguiding capillary tube with distributed feedback for a gas laser  
[NASA-CASE-NPO-13544-1] c36 N76-18428  
Gas ion laser construction for electrically isolating the pressure gauge thereof  
[NASA-CASE-MFS-22597] c36 N78-17366  
Charge transfer reaction laser with preionization means  
[NASA-CASE-NPO-13945-1] c36 N78-27402
- GAS LUBRICANTS**  
High temperature gas lubricant consisting of two fluoro-bromo-methanes  
[NASA-CASE-XLE-00353] c18 N70-39897  
Thrust bearing  
[NASA-CASE-LEW-11949-1] c37 N76-29588  
A cantilever mounted resilient pad gas bearing  
[NASA-CASE-LEW-12569-1] c37 N77-24496
- GAS MASERS**  
Solid state chemical source for ammonia beam masers  
[NASA-CASE-XGS-01504] c16 N70-41578  
Atomic hydrogen maser with bulb temperature control by output frequency difference signal for wall shift elimination  
[NASA-CASE-HQN-10654-1] c16 N73-13489  
Method of producing a storage bulb for an atomic hydrogen maser  
[NASA-CASE-NPO-13050-1] c36 N75-15029  
Atomic standard with variable storage volume  
[NASA-CASE-GSC-11895-1] c35 N76-15436

## GAS MIXTURES

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## GAS MIXTURES

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[NASA-CASE-XMS-02399] c05 N71-22896  
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[NASA-CASE-GSC-10188-1] c23 N71-24725  
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[NASA-CASE-ARC-11045-1] c05 N77-28111
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[NASA-CASE-XMP-06888] c15 N71-24044
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[NASA-CASE-XAC-00405] c05 N70-41819
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[NASA-CASE-XAR-01547] c05 N69-21473
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[NASA-CASE-XLA-04126] c28 N71-26779
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- Aerodynamic configuration for aircraft capable of high speed flight and low drag for low speed takeoff or landing upon presently existing airfields  
[NASA-CASE-XLA-00806] c02 N70-34858
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- Holder for high frequency crystal resonators  
[NASA-CASE-XNP-03637] c15 N71-21311
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[NASA-CASE-XNP-04958-1] c10 N71-26414
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Shock and vibration damping device using temperature sensitive solid amorphous polymers  
[NASA-CASE-XAC-11225] c14 N69-27486
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[NASA-CASE-XAC-00074] c15 N70-34817
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[NASA-CASE-XNP-01152] c15 N70-41811
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[NASA-CASE-XLE-02998] c14 N70-42074
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[NASA-CASE-XNP-00710] c15 N71-10778
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[NASA-CASE-XLA-00378] c11 N71-15925
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[NASA-CASE-MSC-11010] c15 N71-19485
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[NASA-CASE-XKS-02582] c15 N71-21234
- Apparatus and method capable of receiving large quantity of high pressure helium, removing impurities, and discharging at received pressure  
[NASA-CASE-XNP-06888] c15 N71-24044
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[NASA-CASE-LEW-11873-1] c37 N77-27404
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- Purging means and method for Xenon arc lamps  
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[NASA-CASE-NPO-11426] c07 N73-26119
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## IMMOBILIZATION

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 [NASA-CASE-XLE-01609] c14 N71-10500  
 Apparatus for determining quality of bond between high density material and low density material  
 [NASA-CASE-MFS-13686] c15 N71-18132  
 Device for detecting hydrogen fires onboard high altitude rockets  
 [NASA-CASE-MFS-13130] c10 N72-17173  
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 [NASA-CASE-LAR-12027-1] c35 N78-22346

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 [NASA-CASE-MFS-23405-1] c26 N77-29260  
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 [NASA-CASE-ERC-10139] c09 N72-17154  
 Inductance device with vacuum insulation and materials of low gas entrapping capability  
 [NASA-CASE-LEW-10330-1] c09 N72-27226  
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 [NASA-CASE-MFS-21465-1] c10 N73-32145  
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## INDUCTORS

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## INDUSTRIAL PLANTS

Simplified technique and device for producing industrial grade synthetic diamonds  
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Process for purification of waste water produced by a Kraft process pulp and paper mill  
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[NASA-CASE-MSC-14831-1] c25 N78-10225

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Gearing system for eliminating backlash and filtering input torque fluctuations from high inertia load  
[NASA-CASE-XGS-04227] c15 N71-21744

**INERTIAL GUIDANCE**  
Hermetically sealed vibration damper design for use in gimbal assembly of spacecraft inertial guidance system  
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**INERTIAL PLATFORMS**  
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[NASA-CASE-IMS-02184] c15 N71-20813  
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[NASA-CASE-XGS-04393] c21 N71-14159  
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[NASA-CASE-XAC-03107] c23 N71-16098

**INFLATABLE SPACECRAFT**  
Passive thermal control coating on aluminum foil laminate for inflatable spacecraft surfaces  
[NASA-CASE-XLA-01291] c33 N70-36617  
Erectable, inflatable, radio signal reflecting passive communication satellite  
[NASA-CASE-XIA-00210] c30 N70-40309  
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[NASA-CASE-XLA-04143] c15 N71-17687  
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[NASA-CASE-XLA-03497] c15 N71-23052  
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[NASA-CASE-XMS-06162] c31 N71-28851

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[NASA-CASE-XMS-00863] c05 N70-34857  
Lightweight life preserver without fastening devices  
[NASA-CASE-XMS-00864] c05 N70-36493  
Inflatable honeycomb panel element for lightweight structures usable in space stations and other construction  
[NASA-CASE-XLA-00204] c32 N70-36536  
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[NASA-CASE-XMS-00893] c07 N70-40063  
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[NASA-CASE-XIA-01926] c14 N71-15620  
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[NASA-CASE-XGS-03351] c31 N71-16081  
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[NASA-CASE-XMP-02507] c31 N71-17679  
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[NASA-CASE-XLA-00117] c31 N71-17680  
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[NASA-CASE-XGS-02884] c15 N71-22705  
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[NASA-CASE-XLA-03492] c15 N71-22713

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[NASA-CASE-MPS-20068] c07 N71-27191  
Space expandable tether device for use as passageway between two docked spacecraft  
[NASA-CASE-IMS-10993] c15 N71-28936  
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[NASA-CASE-MPS-20619] c28 N72-11708  
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[NASA-CASE-LAR-10728-1] c14 N73-12445  
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**K**

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**L**

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- [NASA-CASE-INP-04969] c11 N69-27466  
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- [NASA-CASE-XMP-00389] c31 N70-34176  
Direct lift control system having flaps with slots adjacent to their leading edge and particularly adapted for lightweight aircraft
- [NASA-CASE-LAR-10249-1] c02 N71-26110  
Development of auxiliary lifting system to provide ferry capability for entry vehicles
- [NASA-CASE-LAR-10574-1] c11 N73-13257  
High lift aircraft --- with improved stability, control, performance, and noise characteristics
- [NASA-CASE-LAR-11252-1] c05 N75-25914  
Device for installing rocket engines
- [NASA-CASE-MFS-19220-1] c20 N76-22296  
Vortex-lift roll-control device
- [NASA-CASE-LAR-11868-2] c08 N77-31176
- LIFT DRAG RATIO**  
Design of ring wing vehicle of high drag-to-weight ratio to withstand reentry stress into low density atmosphere
- [NASA-CASE-XLA-04901] c31 N71-24315
- LIFTING BODIES**  
Techniques for recovery of multistage rocket vehicles by providing lifting surfaces on individual sections
- [NASA-CASE-XMP-00389] c31 N70-34176  
Graphic illustration of lifting body design
- [NASA-CASE-FRC-10063] c01 N71-12217  
Static force balancing system attached to lifting body
- [NASA-CASE-LAR-10348-1] c11 N73-12264
- LIFTING REENTRY VEHICLES**  
Lenticular vehicle with foldable aerodynamic control flaps and reaction jets for operation above and within earth's atmosphere
- [NASA-CASE-XGS-00260] c31 N70-37924  
Variable geometry manned orbital vehicle having high aerodynamic efficiency over wide speed range and incorporating auxiliary pivotal wings
- [NASA-CASE-XLA-03691] c31 N71-15674  
Designing spacecraft for flight into space, atmospheric reentry, and landing at selected sites
- [NASA-CASE-XAC-02058] c02 N71-16087
- LIGHT (VISIBLE RADIATION)**  
Light baffle with oblate hemispheroid surface and shading flange
- [NASA-CASE-NPO-10337] c14 N71-15604  
Maksutov spectrograph for low light level research
- [NASA-CASE-XLA-10402] c14 N71-29041  
Device for detection of combustion light preceding gaseous explosions
- [NASA-CASE-LAR-10739-1] c14 N73-16484
- LIGHT AIRCRAFT**  
Direct lift control system having flaps with slots adjacent to their leading edge and particularly adapted for lightweight aircraft
- [NASA-CASE-LAR-10249-1] c02 N71-26110

LIGHT BEAMS

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LIGHT BEAMS

Cylindrical reflector for resolving wide angle light beam from telescope into narrow beam for spectroscopic analysis  
 [NASA-CASE-XGS-08269] c23 N71-26206

Development and characteristics of optical communications system based on modulation of light beams  
 [NASA-CASE-XLA-01090] c16 N71-28963

Multiple pattern holographic information storage and readout system  
 [NASA-CASE-ERC-10151] c16 N71-29131

**LIGHT GAS GUNS**  
 Implosion driven, light gas, hypervelocity gun  
 [NASA-CASE-XAC-05902] c11 N71-18578

**LIGHT MODULATION**  
 Optical retrodirective modulator with focus spoiling reflector driven by modulation signal  
 [NASA-CASE-GSC-10062] c14 N71-15605

Modulating and controlling intensity of light beam from high temperature source by servocontrolled rotating cylinders  
 [NASA-CASE-XMS-04300] c09 N71-19479

Method and apparatus for optically modulating light or microwave beam  
 [NASA-CASE-GSC-10216-1] c23 N71-26722

Development and characteristics of optical communications system based on modulation of light beams  
 [NASA-CASE-XLA-01090] c16 N71-28963

Lamp modulator for generating visual indication of presence and magnitude of signal  
 [NASA-CASE-KSC-10565] c09 N72-25250

Polarization compensator for optical communications  
 [NASA-CASE-GSC-11782-1] c74 N76-30053

**LIGHT SCATTERING**  
 Forward-scatter polarimeter for determining the gaseous depolarization factor in the presence of polluting polydispersed particles  
 [NASA-CASE-NPO-13756-1] c35 N76-14434

The 2 deg/90 deg laboratory scattering photometer --- particulate refractivity in hydrosols  
 [NASA-CASE-GSC-12088-1] c74 N78-13874

**LIGHT SCATTERING METERS**  
 System for the measurement of ultra-low stray light levels --- light shields and baffles  
 [NASA-CASE-MFS-23513-1] c74 N77-14842

**LIGHT SOURCES**  
 Light radiation direction indicator with baffle of two parallel grids  
 [NASA-CASE-YNP-03930] c14 N69-24331

High intensity heat and light unit containing quartz lamp elements protectively positioned to withstand severe environmental stress  
 [NASA-CASE-XLA-00141] c09 N70-33312

Photosensitive light source device for detecting unmanned spacecraft deviation from reference attitude  
 [NASA-CASE-YNP-00438] c21 N70-35089

Electro-optical detector for determining position of light source  
 [NASA-CASE-YNP-01059] c23 N71-21821

Optical system for selecting particular wavelength light beams from multiple wavelength light source  
 [NASA-CASE-ERC-10248] c14 N72-17323

Electro-optical stabilization of calibrated light source  
 [NASA-CASE-MSC-12293-1] c14 N72-27411

Development of temperature compensated light source with components and circuitry for maintaining luminous intensity independent of temperature variations  
 [NASA-CASE-ARC-10467-1] c09 N73-14214

Interferometer prism and control system for precisely determining direction to remote light source  
 [NASA-CASE-ARC-10278-1] c14 N73-25463

Attitude sensor  
 [NASA-CASE-LAR-10586-1] c19 N74-15089

Very high intensity light source using a cathode ray tube --- electron beams  
 [NASA-CASE-YNP-01296] c33 N75-27250

Electric arc light source having undercut recessed anode  
 [NASA-CASE-ARC-10266-1] c33 N75-29318

Uniform variable light source  
 [NASA-CASE-NPO-11429-1] c74 N77-21941

LIGHT TRANSMISSION

Hybrid holographic system using reference, transmitted, and reflected beams simultaneously  
 [NASA-CASE-MFS-20074] c16 N71-15565

Optical characteristics measuring apparatus  
 [NASA-CASE-XNP-08840] c23 N71-16365

Optical monitor panel consisting of translucent screen with test or meter information projected onto it from rear for application in control rooms of missile launching and tracking stations  
 [NASA-CASE-XKS-03509] c14 N71-23175

Solar cell panel with light transmitting cover plate  
 [NASA-CASE-NPO-10747] c03 N72-22042

Method and system for transmitting and distributing optical frequency radiation  
 [NASA-CASE-HQN-10541-3] c23 N72-23695

Thin absorbing metallic film for increased visible light transmission  
 [NASA-CASE-LAR-10836-1] c26 N72-27784

Transmitting and reflecting diffuser --- for ultraviolet light  
 [NASA-CASE-LAR-10385-2] c70 N74-13436

Optical instrument employing reticle having preselected visual response pattern formed thereon  
 [NASA-CASE-ARC-10976-1] c74 N77-22950

Transmitting and reflecting diffuser --- using ultraviolet grade fused silica coatings  
 [NASA-CASE-LAR-10385-3] c74 N78-15879

**LIGHTNING EQUIPMENT**  
 Sealed fluorescent tube light unit capable of connection with other units to form string of work lights  
 [NASA-CASE-XKS-05932] c09 N71-26787

Pressurized inert gas feed for lighting system  
 [NASA-CASE-KSC-10644] c09 N72-27227

**LIGHTNING**  
 Apparatus for determining distance to lightning strokes from single station by magnetic and electric field sensing antennas  
 [NASA-CASE-KSC-10698] c07 N73-20175

System for locating lightning strokes by coordination of directional antenna signals  
 [NASA-CASE-KSC-10729-1] c09 N73-32110

Monitoring and recording lightning strokes in predetermined area  
 [NASA-CASE-KSC-10728-1] c14 N73-32319

Lightning current measuring systems  
 [NASA-CASE-KSC-10807-1] c33 N75-26246

Remote lightning monitor system  
 [NASA-CASE-KSC-11031-1] c33 N77-21319

Lightning current waveform measuring system  
 [NASA-CASE-KSC-11018-1] c33 N77-21320

Lightning current detector  
 [NASA-CASE-KSC-11057-1] c35 N78-10435

**LIBBS (ANATOMY)**  
 A prosthesis coupling  
 [NASA-CASE-KSC-11069-1] c54 N78-22721

**LIMITED CIRCUITS**  
 Variable duration pulse integrator design for integrating pulse duration modulated pulses with elimination of ripple content  
 [NASA-CASE-XLA-01219] c10 N71-23084

Circuits for amplitude limiting of random noise inputs  
 [NASA-CASE-NPO-10169] c10 N71-24844

Velocity limiting safety system for motor driven research vehicle  
 [NASA-CASE-XLA-07473] c15 N71-24895

Low level signal limiter  
 [NASA-CASE-XLE-04791] c32 N74-22096

Inrush current limiter  
 [NASA-CASE-GSC-11789-1] c33 N77-14333

**LINEAR ACCELERATORS**  
 Linear accelerator frequency control system  
 [NASA-CASE-XGS-05441] c10 N71-22962

**LINEAR RECEIVERS**  
 Antenna array at focal plane of reflector with coupling network for beam switching  
 [NASA-CASE-GSC-10220-1] c07 N71-27233

**LINEAR SYSTEMS**  
 Linear three-tap feedback shift register  
 [NASA-CASE-NPO-10351] c08 N71-12503

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 [NASA-CASE-NPO-11868] c10 N73-20254

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## LIQUID METALS

## LINEARITY

Semilinear bearing comprising two rows of roller bearings separated by spherical bearings and permitting rotational and translational movement  
[NASA-CASE-XIA-02809] c15 N71-22982  
Mechanical actuator wherein linear motion changes to rotational motion  
[NASA-CASE-IGS-04548] c15 N71-24045

## LINKAGES

Development of collapsible nozzle extension for rocket engines  
[NASA-CASE-MFS-11497] c28 N71-16224  
Design and construction of mechanical probe for determining if object is properly secured  
[NASA-CASE-MFS-20760] c14 N72-33377

## LIQUEFACTION

Ophthalmic liquifaction pump  
[NASA-CASE-LEW-12051-1] c52 N75-33640

## LIQUID BEARINGS

Fatigue life of hybrid antifriction bearings at ultrahigh speeds  
[NASA-CASE-LEW-11152-1] c15 N73-32359

## LIQUID COOLING

Water cooled contactors for holding rotating carbon arc anode  
[NASA-CASE-XMS-03700] c15 N69-24266  
External device for liquid spray cooling of gas turbine blades  
[NASA-CASE-XLE-00037] c28 N70-33372  
Water cooled solenoid capable of producing magnetic field intensities up to 100 kilogauss  
[NASA-CASE-XMP-01951] c09 N70-41929  
Laminar flow of liquid coolants in rocket engines  
[NASA-CASE-NPO-10122] c12 N71-17631  
Space suit body heat exchanger design composed of thermal conductance yarn and liquid coolant loops  
[NASA-CASE-XMS-09571] c05 N71-19439  
Electric power system with circulatory liquid coolant cooling system  
[NASA-CASE-MFS-14114-2] c09 N71-24807  
Electric power system with thermionic diodes and circulatory liquid metal coolant lines  
[NASA-CASE-MFS-14114] c33 N71-27862  
Apparatus for liquid spray cooling of turbine blades  
[NASA-CASE-XLE-00027] c33 N71-29152  
Automatic control device for regulating inlet water temperature of liquid cooled spacesuit  
[NASA-CASE-MSC-13917-1] c05 N72-15098  
Automatic temperature control for liquid cooled space suit  
[NASA-CASE-ARC-10599-1] c05 N73-26071  
Heat exchanger system and method  
[NASA-CASE-LAR-10799-2] c34 N76-17317  
Liquid cooled brassiere and method of diagnosing malignant tumors therewith  
[NASA-CASE-ARC-11007-1] c52 N77-14736  
Closed loop spray cooling apparatus --- for particle accelerator targets  
[NASA-CASE-LEW-11981-1] c31 N78-17237

## LIQUID CRYSTALS

Development of combined velocimeter and accelerometer based on color changes in liquid crystalline material subjected to shear stresses  
[NASA-CASE-ERC-10292] c14 N72-25410  
Input signal measurement using liquid crystalline elements  
[NASA-CASE-ERC-10275] c26 N72-25680  
Real time liquid crystal image converter  
[NASA-CASE-LAR-11206-1] c74 N74-30118

## LIQUID FILLED SHELLS

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[NASA-CASE-XNP-00610] c28 N70-36910  
Design and development of fluid sample collector  
[NASA-CASE-XMS-06767-1] c14 N71-20435  
Manufacture of fluid containers from fused coated polyester sheets having resealable septum  
[NASA-CASE-NPO-10123] c15 N71-24835  
Omnidirectional liquid filled accelerometer design with liquid and housing temperature compensation  
[NASA-CASE-BQN-10780] c14 N71-30265

## LIQUID FLOW

Reduced gravity liquid configuration simulator to study propellant behavior in rocket fuel tanks  
[NASA-CASE-XLE-02624] c12 N69-39988

Liquid junction for glass electrode or pH meters  
[NASA-CASE-NPO-10682] c15 N70-34699  
Actuator using compressed gas as driving force to control valve handling large liquid flows  
[NASA-CASE-XHQ-01208] c15 N70-35409  
Two component valve assembly for cryogenic liquid transfer regulation  
[NASA-CASE-XLE-00397] c15 N70-36492  
Positive displacement flowmeter for measuring extremely low flows of fluid with self calibrating features  
[NASA-CASE-XMP-02822] c14 N70-41994  
High pressure liquid flow sight assembly for wide temperature range applications including cryogenic fluids  
[NASA-CASE-XLE-02998] c14 N70-42074  
Carrier liquid system containing bodies of ablative material  
[NASA-CASE-LEW-10359-2] c33 N73-25952  
Zero gravity liquid transfer device, using spiral shaped screen  
[NASA-CASE-KSC-10626] c14 N73-27378  
System for measuring Reynolds in a turbulently flowing fluid --- signal processing  
[NASA-CASE-ARC-10755-2] c34 N76-27517

## LIQUID HELIUM

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[NASA-CASE-NPO-13303-1] c20 N75-24837  
Helium refrigerator  
[NASA-CASE-NPO-13435-1] c31 N76-14284  
Cryostat system for temperatures on the order of 2 deg K or less  
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[NASA-CASE-NPO-13839-1] c31 N78-25256

## LIQUID HYDROGEN

Development of thermal insulation material for insulating liquid hydrogen tanks in spacecraft  
[NASA-CASE-XMP-05046] c33 N71-28892  
Reinforced polyquinoxaline gasket and method of preparing the same --- resistant to ionizing radiation and liquid hydrogen temperatures  
[NASA-CASE-MFS-21364-1] c37 N74-18126

## LIQUID INJECTION

Thrust vector control by secondary injection of fluid into rocket nozzle flow field to separate exhaust flow  
[NASA-CASE-XLE-00208] c28 N70-34294  
System for aerodynamic control of rocket vehicles by secondary injection of fluid into nozzle exhaust stream  
[NASA-CASE-XLA-01163] c21 N71-15582  
Propellant injection assembly having individually removable and replaceable nozzles for liquid fueled rocket engines  
[NASA-CASE-IMP-00968] c28 N71-15660  
A sodium storage and injection system  
[NASA-CASE-NPO-14384-1] c25 N78-22187

## LIQUID LASERS

Method and apparatus using temperature control for wavelength tuning of liquid lasers  
[NASA-CASE-ERC-10187] c16 N69-31343

## LIQUID LEVELS

Inductive liquid level detection system  
[NASA-CASE-XLE-01609] c14 N71-10500

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Magneto hydrodynamic generator for mixing nonconductive gas and liquid metal mist to form slugs  
[NASA-CASE-XLE-02083] c03 N69-39983  
Thermoelectric power conversion by liquid metal flowing through magnetic field  
[NASA-CASE-XNP-00644] c03 N70-36803  
Analytical test apparatus and method for determining oxygen content in alkali liquid metal  
[NASA-CASE-XLE-01997] c06 N71-23527  
Electric power system with thermionic diodes and circulatory liquid metal coolant lines  
[NASA-CASE-MFS-14114] c33 N71-27862  
Flexible barrier membrane comprising porous substrate and incorporating liquid gallium or indium metal used as sealant barriers for spacecraft walls and pumping liquid propellants  
[NASA-CASE-XNP-08881] c17 N71-28747  
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[NASA-CASE-NPO-10831] c33 N72-20915

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- U shaped heated tube for distillation and purification of liquid metals  
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- Electromagnetic flow rate meter --- for liquid metals  
[NASA-CASE-LEW-10981-1] c35 N74-21018
- Process for preparing liquid metal electrical contact device  
[NASA-CASE-LEW-11978-1] c33 N77-26385
- Liquid metal slip ring  
[NASA-CASE-LEW-12277-2] c33 N78-25323
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Soft X-ray laser using crystal channels as distributed feedback cavities  
[NASA-CASE-NPO-13532-2] c36 N78-25409
- LIQUID NITROGEN**  
Transferring liquid nitrogen through vacuum chamber to cryopanel  
[NASA-CASE-LAR-10031] c15 N72-22484
- LIQUID OXYGEN**  
Dye penetrant and technique for nondestructive tests of solid surfaces contacted by liquid oxygen  
[NASA-CASE-XMF-02221] c18 N71-27170
- LIQUID PHASES**  
Method and feed system for separating and orienting liquid and vapor phases of liquid propellants in zero gravity environment  
[NASA-CASE-XLE-01182] c27 N71-15635
- Hydraulic apparatus for casting and molding of liquid polymers  
[NASA-CASE-XNP-07659] c06 N71-22975
- Mixed liquid and vapor phase analyzer design with thermocouples for relative heat transfer measurement  
[NASA-CASE-NPO-10691] c14 N71-26199
- Cryogenic liquid sensor  
[NASA-CASE-NPO-10619-1] c35 N77-21393
- Liquid reactant feeder for arc assisted metal reduction reactor  
[NASA-CASE-NPO-14382-1] c25 N78-22186
- LIQUID PROPELLANT ROCKET ENGINES**  
High thrust annular liquid propellant rocket engine and exhaust nozzle design  
[NASA-CASE-XLE-00078] c28 N70-33284
- Attitude and propellant flow control system for liquid propellant rocket vehicles  
[NASA-CASE-XMP-00185] c21 N70-34539
- Injector manifold assembly for bipropellant rocket engines providing for fuel propellant to serve as coolant  
[NASA-CASE-XMP-00148] c28 N70-38710
- Collapsible auxiliary tank for restarting liquid propellant rocket motors under zero gravity  
[NASA-CASE-XNP-01390] c28 N70-41275
- Rocket propellant injector with porous faceplate for rocket engine combustion chamber  
[NASA-CASE-LEW-11071-1] c27 N73-27695
- Supersonic-combustion rocket  
[NASA-CASE-LEW-11058-1] c20 N74-13502
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[NASA-CASE-MFS-22734-1] c18 N75-19329
- LIQUID ROCKET PROPELLANTS**  
Propellant injectors for rocket combustion chambers  
[NASA-CASE-XLE-00103] c28 N70-33241
- Liquid rocket systems for propulsion and control of spacecraft  
[NASA-CASE-XNP-00610] c28 N70-36910
- Igniter capsule for chemical ignition of liquid rocket propellants  
[NASA-CASE-XLE-00323] c28 N70-38505
- High temperature spark plug for igniting liquid rocket propellants  
[NASA-CASE-XLE-00660] c28 N70-39925
- Compact high pressure filter for rocket fuel lines  
[NASA-CASE-XNP-00732] c28 N70-41447
- Venting device for liquid propellant storage tank using magnetic field to separate liquid and gaseous phases  
[NASA-CASE-XLE-01449] c15 N70-41646
- Liquid propellant tank design with spheroidal bulkhead  
[NASA-CASE-XMP-01899] c31 N70-41948
- Method and feed system for separating and orienting liquid and vapor phases of liquid propellants in zero gravity environment  
[NASA-CASE-XLE-01182] c27 N71-15635
- Control valve and coaxial variable injector for controlling bipropellant mixture ratio and flow  
[NASA-CASE-XNP-09702] c15 N71-17654
- Slosh and swirl alleviator for liquid propellant tanks during transport and flight  
[NASA-CASE-XLA-05749] c15 N71-19569
- Filler valve design for supplying liquid propellants at high pressure to space vehicles  
[NASA-CASE-XNP-01747] c15 N71-23024
- Electronic recording system for spatial mass distribution of liquid rocket propellant droplets or vapors ejected from high velocity nozzles  
[NASA-CASE-NPO-10185] c10 N71-26339
- Flexible barrier membrane comprising porous substrate and incorporating liquid gallium or indium metal used as sealant barriers for spacecraft walls and pumping liquid propellants  
[NASA-CASE-XNP-08881] c17 N71-28747
- Response analyzing apparatus for liquid vapor interface sensor of sloshing rocket propellant  
[NASA-CASE-MFS-11204] c14 N71-29134
- LIQUID SLOSHING**  
Slosh damping method for liquid rocket propellant tanks  
[NASA-CASE-XMP-00658] c12 N70-38997
- Flexible ring slosh damping baffle for spacecraft fuel tank  
[NASA-CASE-LAR-10317-1] c32 N71-16103
- Submerged fuel tank baffles to prevent sloshing in liquid propellant rocket flight  
[NASA-CASE-XLA-04605] c32 N71-16106
- Hot-wire liquid level detector for cryogenic propellants  
[NASA-CASE-XLE-00454] c23 N71-17802
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[NASA-CASE-XLA-05749] c15 N71-19569
- Pressure sensor network for measuring liquid dynamic response in flight including fuel tank acceleration, liquid slosh amplitude, and fuel depth monitoring  
[NASA-CASE-XLA-05541] c12 N71-26387
- LIQUID SODIUM**  
A sodium storage and injection system  
[NASA-CASE-NPO-14384-1] c25 N78-22187
- LIQUID-GAS MIXTURES**  
Liquid-gas separator adapted for use in zero gravity environment - drawings  
[NASA-CASE-XMS-01624] c15 N70-40062
- Absorbent apparatus for separating gas from liquid-gas stream used in environmental control under zero gravity conditions  
[NASA-CASE-XMS-01492] c05 N70-41297
- Venting device for liquid propellant storage tank using magnetic field to separate liquid and gaseous phases  
[NASA-CASE-XLE-01449] c15 N70-41646
- Liquid-gaseous centrifugal separator for weightlessness environment  
[NASA-CASE-XLA-00415] c15 N71-16079
- Vapor-liquid separator design with vapor driven pump for separated liquid pumping for application in propellant transfer  
[NASA-CASE-XMP-04042] c15 N71-23023
- LIQUID-VAPOR INTERFACES**  
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[NASA-CASE-XLE-00586] c15 N71-15968
- Liquid-vapor interface seal design for turbine rotating shafts including helical and molecular pumps and liquid cooling of mercury vapor  
[NASA-CASE-XNP-02862-1] c15 N71-26294
- Response analyzing apparatus for liquid vapor interface sensor of sloshing rocket propellant  
[NASA-CASE-MFS-11204] c14 N71-29134
- LIQUIDS**  
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[NASA-CASE-XMS-01624] c15 N70-40062
- Electrical switching device comprising conductive liquid confined within square loop of deformable nonconductive tubing also used for leveling  
[NASA-CASE-NPO-10037] c09 N71-19610
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## SUBJECT INDEX

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- [NASA-CASE-XNP-08124] c15 N71-27184  
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 [NASA-CASE-XNP-02500] c18 N71-27397  
 Resonant infrasonic gauging device for measuring liquid quantity in closed bladderless reservoir  
 [NASA-CASE-MSC-11947-1] c14 N72-11363  
 Ablative system with liquid carrying ablative material bodies and forming self-replacing ablative surface  
 [NASA-CASE-LEW-10359] c33 N72-25911  
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 [NASA-CASE-LAR-10365-1] c05 N72-27102  
 Apparatus for mixing two or more liquids under zero gravity conditions  
 [NASA-CASE-LAR-10195-1] c15 N73-19458  
 Bimetallic fluid displacement apparatus --- for stirring and heating stored gases and liquids  
 [NASA-CASE-ARC-10441-1] c35 N74-15126  
 Method and device for detection of surface discontinuities or defects  
 [NASA-CASE-MSC-14187-1] c35 N74-32879  
 Automatic liquid inventory collecting and dispensing unit  
 [NASA-CASE-LAR-11071-1] c35 N75-19611  
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 [NASA-CASE-MFS-23167-1] c44 N76-31667  
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 [NASA-CASE-MSC-14773-1] c35 N78-12390  
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- LITHIUM COMPOUNDS**  
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 [NASA-CASE-NPO-10998-1] c06 N73-32029
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 [NASA-CASE-XMP-00456] c14 N70-34705  
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 [NASA-CASE-XNP-00840] c15 N70-38225  
 Device for use in loading tension members --- characterized by elongated elastic body  
 [NASA-CASE-MFS-21488-1] c14 N75-24794  
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 [NASA-CASE-ARC-10907-1] c37 N75-32465
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 [NASA-CASE-XMS-06782] c32 N71-15974  
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 [NASA-CASE-XMS-06329-1] c15 N71-20441  
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 [NASA-CASE-LAR-10208-1] c35 N76-18400
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 [NASA-CASE-XAC-00042] c14 N70-34816
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 [NASA-CASE-XMF-01887] c15 N71-10617
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 [NASA-CASE-XNP-04969] c11 N69-27466  
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 [NASA-CASE-XAC-00073] c14 N70-34813  
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 [NASA-CASE-XLE-02999] c15 N71-16052  
 Development of device for transferring load from load cell to bypass mechanism  
 [NASA-CASE-XMS-06329-1] c15 N71-20441  
 Valve assembly for controlling simultaneously more than one fluid flow, and having stable qualities under loads  
 [NASA-CASE-XMS-05890] c09 N71-23191  
 Solid state force measuring electromechanical transducers made of piezoresistive materials  
 [NASA-CASE-ERC-10088] c26 N71-25490
- Turn on current transient limiter for controlling peak current flow in high capacity load  
 [NASA-CASE-GSC-10413] c10 N71-26531  
 Synchronous dc direct-drive system comprising multiple-loop hybrid control system controlling load directly connected to actuator  
 [NASA-CASE-GSC-10065-1] c10 N71-27136  
 Force balanced throttle valve for fuel control in rocket engines  
 [NASA-CASE-NPO-10808] c15 N71-27432  
 Energy absorption device in high precision gear train for protection against damage to components caused by stop loads  
 [NASA-CASE-XNP-01848] c15 N71-28959  
 Air bearing for use in exterior environment for moving heavy loads  
 [NASA-CASE-WLP-10002] c15 N72-17451  
 Penetrometer for empirically determining load-bearing characteristics of inclined surfaces of remotely located bodies of soil  
 [NASA-CASE-NPO-11103] c14 N72-21406  
 Measuring device for bearing preload using spring washers  
 [NASA-CASE-MFS-20434] c11 N72-25288  
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 [NASA-CASE-MFS-20317] c15 N73-13463  
 Versatile ergometer with work load control  
 [NASA-CASE-MFS-21109-1] c05 N73-27941  
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 [NASA-CASE-FBC-10051-1] c35 N74-13129  
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 [NASA-CASE-MSC-19535-1] c37 N77-32499  
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 [NASA-CASE-LAR-12027-1] c35 N78-22346
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 [NASA-CASE-KSC-10729-1] c09 N73-32110  
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 [NASA-CASE-MSC-12593-1] c17 N76-21250
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 [NASA-CASE-XMS-07846-1] c09 N69-21927
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 [NASA-CASE-XMP-013711] c15 N70-41829  
 Low friction bearing and lock mechanism for two-axis global carrying satellite payload  
 [NASA-CASE-GSC-10556-1] c31 N71-26537  
 Locking device for retaining turbine rotor blades on turbine wheel  
 [NASA-CASE-XNP-00816] c28 N71-28928  
 Longitudinal film gate and lock mechanism for securing film in motion picture cameras under vibration and high acceleration loads  
 [NASA-CASE-LAB-10686] c14 N71-28935  
 Design of quick release locking pin for joining two or more load-carrying structural members  
 [NASA-CASE-MFS-18495] c15 N72-11385  
 Locking mechanism for orthopedic braces  
 [NASA-CASE-GSC-12082-1] c54 N76-22914  
 Locking mechanism for orthopedic braces  
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 [NASA-CASE-XLA-08491] c05 N69-21380  
 Attitude control training device for astronauts permitting friction-free movement with five degrees of freedom  
 [NASA-CASE-XMS-02977] c11 N71-10746  
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## LOGARITHMIC RECEIVERS

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- [NASA-CASE-MSC-12397-1] c05 N72-25119
- LOGARITHMIC RECEIVERS**
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[NASA-CASE-GSC-12145-1] c33 N78-32339
- LOGARITHMS**
- Technique for deriving logarithm of input signal using exponentially varying electric signal inversely  
[NASA-CASE-ERC-10267] c09 N72-23173
- LOGIC CIRCUITS**
- Selective gold diffusion on monolithic silicon chips for switching and nonswitching amplifier devices and circuits and linear and digital logic circuits  
[NASA-CASE-ERC-10072] c09 N70-11148
- Counter-divider circuit for accuracy and reliability in binary circuits  
[NASA-CASE-IMP-00421] c09 N70-34502
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[NASA-CASE-INP-00432] c08 N70-35423
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[NASA-CASE-IAC-00404] c08 N70-40125
- Data processor having multiple sections activated at different times by selective power coupling to sections  
[NASA-CASE-XGS-04767] c08 N71-12494
- Binary sequence detector with few memory elements and minimized logic circuit complexity  
[NASA-CASE-XNP-05415] c08 N71-12505
- Bistable multivibrator circuits operating at high speed and low power dissipation  
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[NASA-CASE-XIA-07391] c12 N71-17579
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- Stepping motor control apparatus exciting windings in proper time sequence to cause motor to rotate in either direction  
[NASA-CASE-GSC-10366-1] c10 N71-18772
- Serial digital decoder design with square circuit matrix and serial memory storage units  
[NASA-CASE-NPO-10150] c08 N71-24650
- Binary to decimal decoder logic circuit design with feedback control and display device  
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- Adaptive signal generating system and logic circuits for satellite television systems  
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[NASA-CASE-GSC-10878-1] c10 N72-22236
- Logical function and circuit generator  
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[NASA-CASE-ERC-10180-1] c60 N74-20836
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[NASA-CASE-MSC-14240-1] c33 N75-14957
- An interleaving device --- for computer logic circuits used in optical data processing  
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[NASA-CASE-GSC-12111-2] c60 N77-31800
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[NASA-CASE-IAC-01404] c05 N70-41581
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[NASA-CASE-IMP-00437] c07 N70-40202
- Automatic carrier acquisition system for phase locked loop receiver  
[NASA-CASE-NPO-11628-1] c07 N73-30113
- Low profile circularly polarized antenna  
[NASA-CASE-MSC-16683-1] c32 N78-15332
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[NASA-CASE-IGS-00769] c14 N70-41647
- Endless loop tape transport mechanism for driving and tensioning recording medium in magnetic tape recorder  
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- Filter for third order phase locked loops in signal receivers  
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[NASA-CASE-ARC-10516-1] c70 N74-21300
- Means for accommodating large overstrain in lead wires --- by storing extra length of wire in stretchable loop  
[NASA-CASE-LAR-10168-1] c33 N74-22865
- Closed loop spray cooling apparatus  
[NASA-CASE-LEW-11981-2] c34 N77-32434
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[NASA-CASE-XLA-00142] c02 N70-33286
- Aerodynamic configuration for aircraft capable of high speed flight and low drag for low speed takeoff or landing upon presently existing airfields  
[NASA-CASE-XLA-00806] c02 N70-34858
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[NASA-CASE-GSC-12022-1] c44 N76-28635
- Low cost solar energy collection system  
[NASA-CASE-NPO-13579-3] c44 N77-20566
- Process for utilizing low-cost graphite substrates for polycrystalline solar cells  
[NASA-CASE-GSC-12022-2] c44 N78-24609
- LOW DENSITY MATERIALS**
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[NASA-CASE-MPS-20044] c14 N71-28993
- Intumescent composition, foamed product prepared therewith and process for making same  
[NASA-CASE-ARC-10304-2] c27 N74-27037
- Mixing insert for foam dispensing apparatus  
[NASA-CASE-MPS-20607-1] c37 N76-19436
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[NASA-CASE-ARC-11040-2] c24 N78-27184
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[NASA-CASE-IMP-00479] c14 N70-34794
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- Method for manufacturing mirrors in zero gravity environment  
[NASA-CASE-MSC-12611-1] c12 N76-15189
- LOW MOLECULAR WEIGHTS**
- Process for preparing high molecular weight polyaryloxysilanes from lower molecular weight forms  
[NASA-CASE-IMP-08674] c06 N71-28807
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- Low phase noise frequency divider for use with deep space network communication system  
[NASA-CASE-NPO-11569] c10 N73-26229
- Reflected-wave maser --- low noise amplifier  
[NASA-CASE-NPO-13490-1] c36 N76-31512
- LOW PRESSURE**
- Flowmeters for sensing low fluid flow rate and pressure for application to respiration rate studies  
[NASA-CASE-PRC-10022] c12 N71-26546
- LOW SPEED**
- Variable geometry manned orbital vehicle having high aerodynamic efficiency over wide speed range and incorporating auxiliary pivotal wings  
[NASA-CASE-XIA-03691] c31 N71-15674
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[NASA-CASE-IMP-02966] c10 N71-24863

## SUBJECT INDEX

## LUNAR SOIL

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 High toughness-high strength iron alloy  
 [NASA-CASE-LEW-12542-2] c26 N78-22205

**LOW TEMPERATURE ENVIRONMENTS**  
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 package for operation in low temperature  
 environment  
 [NASA-CASE-XGS-10010] c03 N72-15986

**LOW TEMPERATURE TESTS**  
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 composite materials  
 [NASA-CASE-XMP-02964] c14 N71-17659  
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 machines at low temperatures  
 [NASA-CASE-XMP-10968] c14 N71-24234

**LOW THRUST**  
 Low thrust monopropellant engine  
 [NASA-CASE-GSC-12194-1] c20 N77-28219

**LOW VACUUM**  
 Vibration damping system operating in low vacuum  
 environment for spacecraft mechanisms  
 [NASA-CASE-XMS-01620] c23 N71-15673

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 [NASA-CASE-XAC-00060] c09 N70-39915  
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 and low voltage standing wave ratio  
 [NASA-CASE-MSC-12101] c09 N71-18720  
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 protecting low voltage electric generator and  
 power transmission networks  
 [NASA-CASE-GSC-10114-1] c10 N71-27366

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 [NASA-CASE-XLE-01765] c18 N71-10772  
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 [NASA-CASE-XLE-10337] c15 N71-24046  
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 [NASA-CASE-MFS-21040-1] c06 N73-30098  
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 [NASA-CASE-LEW-11076-1] c37 N74-21061

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 shaft to retain lubricating oils around shaft  
 [NASA-CASE-XLE-05130-2] c15 N71-19570

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 antifriction bearings fabricated from  
 preformed components  
 [NASA-CASE-LEW-11026-1] c15 N73-33383  
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 leather wiper  
 [NASA-CASE-KSC-10723-1] c37 N75-13265  
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 [NASA-CASE-LEW-11076-4] c37 N76-15461

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 with combination of standard type lubrication  
 and magnetic flux field for earth atmosphere  
 and space environment operation  
 [NASA-CASE-XNP-01641] c15 N71-22997  
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 [NASA-CASE-XNP-03972] c15 N71-23048  
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 [NASA-CASE-LEW-11076-2] c37 N74-32921  
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 [NASA-CASE-LEW-12321-1] c37 N78-10467

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 control  
 [NASA-CASE-XMS-12158-1] c31 N69-27499  
 Development of ultraviolet resonance lamp with  
 improved transmission of radiation  
 [NASA-CASE-ARC-10030] c09 N71-12521  
 Lamp modulator for generating visual indication  
 of presence and magnitude of signal  
 [NASA-CASE-KSC-10565] c09 N72-25250  
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 [NASA-CASE-MFS-21214-1] c09 N73-30181

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 [NASA-CASE-NPO-11429-1] c74 N77-21941

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 differences between luminous events using  
 streak camera  
 [NASA-CASE-XLA-01987] c23 N71-23976

**LUMINOUS INTENSITY**  
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 intensity in motion picture camera used in  
 optical pyrometry  
 [NASA-CASE-XLA-00062] c14 N70-33254  
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 which minimizes effects of outside interference  
 [NASA-CASE-XNP-06510] c14 N71-23797  
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 [NASA-CASE-XNP-04167-3] c36 N77-19416  
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 [NASA-CASE-LEW-11549-1] c44 N77-19571  
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 magnetic field producing means  
 [NASA-CASE-NPO-11510-1] c33 N77-21315

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 power plants installed in lunar space stations  
 [NASA-CASE-XHQ-03673] c33 N71-29046

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 rate of Apollo TV camera on moon to fast scan  
 of commercial TV  
 [NASA-CASE-XMS-07168] c07 N71-11300  
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 relay voice communication of astronaut  
 [NASA-CASE-MFS-21042] c07 N72-25171

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 for measuring physical properties of lunar  
 surface  
 [NASA-CASE-XLA-00934] c14 N71-22765

**LUNAR EXPLORATION**  
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 for lunar exploration and convertible to  
 rescue vehicle  
 [NASA-CASE-LAR-10056] c05 N71-12351  
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 for measuring physical properties of lunar  
 surface  
 [NASA-CASE-XLA-00934] c14 N71-22765  
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 personnel and equipment across lunar surface  
 [NASA-CASE-MFS-20130] c28 N71-27585  
 Three transceiver lunar emergency system to  
 relay voice communication of astronaut  
 [NASA-CASE-MFS-21042] c07 N72-25171

**LUNAR GRAVITATION**  
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 perform on simulated lunar surface under  
 conditions of lunar gravity  
 [NASA-CASE-XMS-04798] c11 N71-21474

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 vehicular response to landing  
 [NASA-CASE-XLA-00493] c11 N70-34786

**LUNAR LANDING**  
 Lunar landing flight research vehicle  
 [NASA-CASE-IPR-00929] c31 N70-34966

**LUNAR LOGISTICS**  
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 personnel and equipment across lunar surface  
 [NASA-CASE-MFS-20130] c28 N71-27585

**LUNAR ROCKS**  
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 samples such as lunar rock cuttings  
 [NASA-CASE-INP-01412] c15 N70-42034

**LUNAR SOIL**  
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 collecting, and viewing soil particles  
 [NASA-CASE-XNP-09770] c15 N71-20440  
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 soil samples for vidicon viewing in vacuum and  
 reduced gravity environments  
 [NASA-CASE-XNP-09770-3] c11 N71-27036  
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 characteristics  
 [NASA-CASE-MFS-20774] c14 N73-19420

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[NASA-CASE-MSC-12408-1] c46 N74-13011

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Resilient vehicle wheel for lunar surface travel  
[NASA-CASE-MFS-20400] c31 N71-18611

Resilient wheel design with woven wire tire and abrasive treads for lunar surface vehicles  
[NASA-CASE-MFS-13929] c15 N71-27091

**LUNGS**

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## M

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Rotary impact-type rock drill for recovering rock cuttings  
[NASA-CASE-XNP-07478] c14 N69-21923

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[NASA-CASE-XLE-01092] c15 N71-22797

Description of device for aligning stacked sheets of paper for repetitive cutting  
[NASA-CASE-XMS-04178] c15 N71-22798

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[NASA-CASE-XLE-06773] c15 N71-23817

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[NASA-CASE-XAC-09489-1] c15 N71-26673

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[NASA-CASE-GSC-10780-1] c14 N72-16283

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[NASA-CASE-NPO-13281-1] c37 N75-13266

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[NASA-CASE-NPO-13059-1] c37 N76-20480

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[NASA-CASE-LAR-11658-1] c37 N77-14478

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[NASA-CASE-NPO-10857-1] c37 N77-22478

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[NASA-CASE-GSC-12274-1] c37 N78-25428

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[NASA-CASE-XAC-06956] c15 N71-21177

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[NASA-CASE-XLA-02619] c10 N71-26334

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[NASA-CASE-NPO-13205-1] c31 N74-32917

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[NASA-CASE-LAR-12007-1] c74 N78-15883

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Laser machining device with dielectric functioning as beam waveguide for mechanical and medical applications  
[NASA-CASE-HQN-10541-2] c15 N71-27135

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[NASA-CASE-XLA-10470] c15 N72-21489

Drilled ball bearing with a one piece anti-tipping cage assembly  
[NASA-CASE-LEW-11925-1] c37 N75-31446

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Chemical spot test for identifying magnesium or magnesium alloys used in aerospace applications  
[NASA-CASE-LAR-10953-1] c17 N73-27446

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Procedure for bonding polytetrafluoroethylene thermal protective sleeves to magnesium alloy conical shell components with different thermal coefficients  
[NASA-CASE-XLA-01262] c15 N71-21404

Chemical spot test for identifying magnesium or magnesium alloys used in aerospace applications  
[NASA-CASE-LAR-10953-1] c17 N73-27446

**MAGNESIUM OXIDES**

Method for determining presence and type of OH in MgO  
[NASA-CASE-NPO-10774] c06 N72-17095

**MAGNET COILS**

Improved alternator with windings of superconducting materials acting as permanent magnet  
[NASA-CASE-XLE-02824] c03 N69-39890

Relay circuit breaker with magnetic latching to provide conductive and nonconductive paths for current devices  
[NASA-CASE-HSC-11277] c09 N71-29008

**MAGNETIC CHARGE DENSITY**

Ion engine with magnetic circuit for optimal discharge  
[NASA-CASE-XLE-01124] c28 N71-14043

**MAGNETIC CIRCUITS**

Ion engine with magnetic circuit for optimal discharge  
[NASA-CASE-XLE-01124] c28 N71-14043

**MAGNETIC COILS**

Time division multiplexer with magnetic latching relays  
[NASA-CASE-XNP-00431] c09 N70-38998

Linear magnetic braking system with nonuniformly wrapped primary coil producing constant braking force on secondary coil  
[NASA-CASE-XLE-05079] c15 N71-17652

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[NASA-CASE-LAR-10372] c09 N71-18599

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[NASA-CASE-GSC-12010-1] c74 N78-18905

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[NASA-CASE-XLA-03660] c15 N71-21060

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[NASA-CASE-XLA-00327] c25 N71-29184

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[NASA-CASE-GSC-11551-1] c37 N76-18459

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[NASA-CASE-GSC-11978-1] c37 N77-17464

**MAGNETIC CORES**

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[NASA-CASE-XGS-00458] c09 N70-38604

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[NASA-CASE-XGS-00131] c09 N70-38995

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[NASA-CASE-XNP-08836] c09 N71-12515

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[NASA-CASE-XGS-03303] c08 N71-18595

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[NASA-CASE-NPO-10201] c08 N71-18694

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[NASA-CASE-XNP-01318] c10 N71-23033

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[NASA-CASE-ERC-10075] c09 N71-24800

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[NASA-CASE-NPO-10242] c09 N71-24803

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[NASA-CASE-ERC-10125] c09 N71-24893

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[NASA-CASE-XAC-03740] c14 N71-26135

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[NASA-CASE-ERC-10089] c23 N72-17747
- Commutator for steering precisely controlled bidirectional currents through numerous loads by use of magnetic core shift registers  
[NASA-CASE-NPO-10743] c08 N72-21199
- Banded transformer cores  
[NASA-CASE-NPO-11966-1] c33 N74-17928
- MAGNETIC DIPOLES**
- Torque meter for determining magnitude of torque generated by interaction of magnetic dipole between test specimen and ambient magnetic field  
[NASA-CASE-IGS-01013] c14 N71-23725
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- Device for removing plastic dust cover from digital computer disk packs for inspection and cleaning  
[NASA-CASE-LAR-10590-1] c15 N70-26819
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[NASA-CASE-NPO-13663-1] c35 N77-14406
- Magnifying image intensifier  
[NASA-CASE-GSC-12010-1] c74 N78-18905
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[NASA-CASE-XLA-00330] c33 N70-34540
- Method and apparatus for communicating through ionized layer of gases surrounding spacecraft during reentry into planetary atmospheres  
[NASA-CASE-XLA-01127] c07 N70-41372
- Venting device for liquid propellant storage tank using magnetic field to separate liquid and gaseous phases  
[NASA-CASE-XLE-01449] c15 N70-41646
- Ion engine with magnetic circuit for optimal discharge  
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 [NASA-CASE-KSC-11035-1] c35 N78-28411

**MICROSCOPES**  
 Absolute focus locking device for microscopes to maintain set focus for extended time period  
 [NASA-CASE-LAR-10184] c14 N72-22445  
 Hand-held, lightweight, portable photomicroscope  
 [NASA-CASE-ABC-10468-1] c14 N73-33361

**MICROSTRIP TRANSMISSION LINES**  
 Thin conformal antenna array for microwave power conversions  
 [NASA-CASE-NPO-13886-1] c32 N78-24391

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 [NASA-CASE-XLE-03940] c18 N71-26153  
 Development of procedure for improved distribution of refractory compounds and microconstituents in refractory metal matrix  
 [NASA-CASE-XLE-03940-2] c17 N72-28536  
 Diffusion welding --- heat treatment of nickel alloys following single step vacuum welding process  
 [NASA-CASE-LEW-11388-2] c37 N74-21055  
 Method of determining bond quality of power transistors attached to substrates --- X ray inspection of junction microstructure  
 [NASA-CASE-MFS-21931-1] c37 N75-26372

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 [NASA-CASE-GSC-10709-1] c28 N71-25213  
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 [NASA-CASE-GSC-10640-1] c28 N72-18766

**MICROWAVE AMPLIFIERS**  
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 [NASA-CASE-INP-00449] c14 N70-35220

**MICROWAVE ANTENNAS**  
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 [NASA-CASE-MFS-20333] c09 N71-13486  
 Development and characteristics of low-noise multimode monopulse antenna feed system for use with microwave communication equipment  
 [NASA-CASE-INP-01735] c07 N71-22750  
 Microwave omnidirectional antenna for use on spacecraft  
 [NASA-CASE-XLA-03114] c09 N71-22888  
 Portable equipment for validating C band launch pad antennas and transmission lines used for spacecraft checkout  
 [NASA-CASE-XKS-10543] c07 N71-26292  
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 [NASA-CASE-NPO-11264] c07 N72-25174  
 Omnidirectional antenna array with circumferential slots for mounting on cylindrical space vehicle  
 [NASA-CASE-LAR-10163-1] c09 N72-25247  
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 [NASA-CASE-ERC-10011] c07 N71-29065  
 Microwave integrated circuit for Josephson voltage standards  
 [NASA-CASE-MFS-23845-1] c33 N78-32347

**MICROWAVE COUPLING**  
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 [NASA-CASE-INP-06507] c09 N71-23548

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 [NASA-CASE-INP-09880] c09 N71-24808  
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 [NASA-CASE-XGS-02171] c09 N69-24324



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[NASA-CASE-XER-07894] c09 N71-18721
- Multimode antenna feed system for microwave and broadband communication  
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- Microwave generator using Gunn effect for magnetic tuning  
[NASA-CASE-NPO-12106] c09 N73-15235
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- Surface defect detection by reflected microwave radiation pattern  
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- Microwave double resonance spectroscopy absorption cell for gas analysis  
[NASA-CASE-LAR-10305] c14 N71-26137
- MICROWAVE SWITCHING**
- Design of gyrator circuit using operational amplifiers to replace ungrounded inductors  
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- Microwave power converter  
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- Electrostatic charged particle collector containing stacked electrodes for microwave tube  
[NASA-CASE-LEW-11192-1] c09 N73-13208
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- Radio frequency noise generator having microwave slow-wave structure in gas discharge plasma  
[NASA-CASE-XER-11019] c09 N71-23598
- Method and apparatus for optically modulating light or microwave beam  
[NASA-CASE-GSC-10216-1] c23 N71-26722
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[NASA-CASE-ERC-10179] c07 N72-20141
- Microwave power transmission system wherein level of transmitted power is controlled by reflections from receiver  
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- Wide power range microwave feedback controller  
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[NASA-CASE-ERC-10419] c21 N72-21631
- Development and characteristics of electronic signalling system and data processing equipment for warning systems to avoid midair collisions between aircraft  
[NASA-CASE-LAR-10717-1] c21 N73-30641
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- Millimeter wave antenna system for spacecraft use  
[NASA-CASE-GSC-10949-1] c07 N71-28965
- Millimeter wave pumped parametric amplifier  
[NASA-CASE-GSC-11617-1] c33 N74-32660
- MILLING (MACHINING)**
- Rotary spindle lathe attachments for machining geometrical cones  
[NASA-CASE-XMS-04292] c15 N71-22722
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- Electro-optical system for maintaining two-axis alignment during milling operations on large tank-sections  
[NASA-CASE-XNP-00908] c14 N70-40238
- Description of portable milling tool for milling tube or pipe ends to desired shape and thickness  
[NASA-CASE-XNP-03511] c15 N71-22799
- Grinding arrangement for ball nose milling cutters  
[NASA-CASE-LAR-10450-1] c37 N74-27905
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- Underground mineral extraction  
[NASA-CASE-NPO-14140-1] c31 N78-24387
- MINERAL METABOLISM**
- Method and system for in vivo measurement of bone tissue using a two level energy source  
[NASA-CASE-MSC-14276-1] c52 N77-14737
- MINIATURE ELECTRONIC EQUIPMENT**
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[NASA-CASE-XNP-02983] c14 N71-21091
- Transducer circuit design with single coaxial cable for input and output connections including incorporation into miniaturized catheter transducer  
[NASA-CASE-ARC-10132-1] c09 N71-24597
- Solid state television camera system consisting of monolithic semiconductor mosaic sensor and molecular digital readout systems  
[NASA-CASE-XNP-06092] c07 N71-24612
- Miniature ingestible telemeter devices to measure deep-body temperature  
[NASA-CASE-ARC-10583-1] c52 N76-29894
- Miniature biaxial strain transducer  
[NASA-CASE-LAR-11648-1] c35 N77-14407
- MINIATURIZATION**
- Miniature vibration isolator utilizing elastic tubing material  
[NASA-CASE-XLA-01019] c15 N70-40156
- Computer circuit performing both counting and shifting logic operations also capable of miniaturization and integration in basic circuits  
[NASA-CASE-XNP-01753] c08 N71-22897
- Past response miniature carbon dioxide detector with no moving parts for measuring concentration in any atmosphere  
[NASA-CASE-MSC-13332-1] c14 N72-21408
- Magnetometer with a miniature transducer and automatic scanning  
[NASA-CASE-LAR-11617-2] c35 N78-32397
- MINING**
- Underground mineral extraction  
[NASA-CASE-NPO-14140-1] c31 N78-24387
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[NASA-CASE-XLA-03271] c11 N69-24321
- Oscillatory electromagnetic mirror drive system for horizon scanners  
[NASA-CASE-XLA-03724] c14 N69-27461
- Servo system for retroreflector of Michelson interferometer  
[NASA-CASE-NPO-10300] c14 N71-17662
- Gas laser frequency stabilized by position of mirrors in resonant cavity  
[NASA-CASE-XGS-03644] c16 N71-18614
- Highly stable optical mirror assembly optimizing image quality of light diffraction patterns  
[NASA-CASE-ERC-10001] c23 N71-24868
- Adjustable rigid mount for trihedral mirror formed of alloy with small coefficient of thermal expansion supporting screws and spring-biased plates  
[NASA-CASE-XNP-08907] c23 N71-29123
- Optical range finder using reflective first surfaces mirror and transmitting beam splitter  
[NASA-CASE-MSC-12105-1] c14 N72-21409
- Optical mirror support system  
[NASA-CASE-XER-07896-2] c23 N72-22673
- Strain gauge ambiguity sensor for segmented mirror active optical system  
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[NASA-CASE-MSC-12611-1] c12 N76-15189
- Three-mirror telescope  
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- Method of and means for testing a glancing-incidence mirror system of an X-ray telescope  
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- Interferometer mirror tilt correcting system  
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[NASA-CASE-GSC-11428-1] c32 N74-20864

MISSILE LAUNCHERS

SUBJECT INDEX

MISSILE LAUNCHERS

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 [NASA-CASE-XMP-03198] c30 N70-40353

Optical monitor panel consisting of translucent screen with test or meter information projected onto it from rear for application in control rooms of missile launching and tracking stations  
 [NASA-CASE-XKS-03509] c14 N71-23175

Controlled release device for use in launching rockets or missiles  
 [NASA-CASE-IKS-03338] c15 N71-24043

MISSILES

Fire protection covering for small diameter missiles  
 [NASA-CASE-ARC-11104-1] c15 N78-13110

Hypersonic airbreathing missile  
 [NASA-CASE-LAR-12264-1] c15 N78-32168

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 [NASA-CASE-LEW-12917-1] c07 N78-18067

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Varactor microwave frequency mixing circuit  
 [NASA-CASE-XGS-02171] c09 N69-24324

Microwave waveguide mixer  
 [NASA-CASE-EFC-10179] c07 N72-20141

MIXTURES

Low gravity phase separator  
 [NASA-CASE-MSC-14773-1] c35 N78-12390

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Traveling wave solid state amplifier utilizing a semiconductor with negative differential mobility  
 [NASA-CASE-HQN-10069] c33 N75-27251

MODE TRANSFORMERS

Silicon controlled rectifier inverter with compensation of transients to avoid false gating  
 [NASA-CASE-XLA-08507] c09 N69-39984

Dual waveguide mode source for controlling amplitudes of two modes  
 [NASA-CASE-XNP-03134] c07 N71-10676

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 [NASA-CASE-NFS-23659-1] c33 N77-20341

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Charge storage diode modulators and demodulators  
 [NASA-CASE-NPO-10189-1] c33 N77-21314

MODULATION

Demodulator for carrier transducers  
 [NASA-CASE-NJC-10107-1] c33 N74-17930

MODULATORS

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 [NASA-CASE-XGS-04480] c16 N69-27491

Optical retrodirective modulator with focus spoiling reflector driven by modulation signal  
 [NASA-CASE-GSC-10062] c14 N71-15605

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 [NASA-CASE-XLA-03410] c16 N71-25914

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 [NASA-CASE-FRC-10072-1] c33 N74-14939

Charge storage diode modulators and demodulators  
 [NASA-CASE-NPO-10189-1] c33 N77-21314

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 [NASA-CASE-NPO-10629] c08 N72-18184

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 [NASA-CASE-NPO-14162-1] c35 N78-22347

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 [NASA-CASE-NPO-14303-1] c44 N78-28626

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 [NASA-CASE-XLE-02531] c05 N71-23080

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 [NASA-CASE-NPO-10051] c18 N71-24934

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compounds used as ablative materials  
 [NASA-CASE-XLA-01091] c15 N71-10672

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 [NASA-CASE-XMP-03498] c15 N71-15986

Hydraulic apparatus for casting and molding of liquid polymers  
 [NASA-CASE-XNP-07659] c06 N71-22975

Cold metal hydroforming techniques using epoxy molds for counteracting creep or stretch  
 [NASA-CASE-XLE-05641-1] c15 N71-26346

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 [NASA-CASE-LAR-10547-1] c31 N74-13177

Evacuated displacement compression molding  
 [NASA-CASE-LAR-10782-1] c31 N74-14133

Molded composite pyrogen igniter for rocket motors --- solid propellant ignition  
 [NASA-CASE-LAR-12018-1] c20 N78-24275

Process for manufacturing cannula  
 [NASA-CASE-NPO-14073-1] c52 N78-25762

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 [NASA-CASE-XLE-08917-2] c15 N71-24836

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 [NASA-CASE-XLA-07829] c15 N72-16329

Evacuated displacement compression molding  
 [NASA-CASE-LAR-10782-1] c31 N74-14133

Molding apparatus --- for thermosetting plastic compositions  
 [NASA-CASE-LAR-10489-2] c31 N74-32920

Evacuated, displacement compression mold --- of tubular bodies from thermosetting plastics  
 [NASA-CASE-LAR-10782-2] c31 N75-13111

Method of making an apertured casting --- using duplicate mold  
 [NASA-CASE-LEW-11169-1] c37 N76-23570

MOLECULAR BEAMS

Selector mechanism for mechanical separation and discrimination of high velocity molecular particles  
 [NASA-CASE-XLE-01533] c11 N71-10777

Sputtering holes with ion beamlets  
 [NASA-CASE-LEW-11646-1] c20 N74-31269

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Compact hydrogenator  
 [NASA-CASE-NPO-11682-1] c35 N74-15127

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Stabilization of He2(a-3 Sigma(+)) molecules in liquid helium by optical pumping for vacuum UV laser  
 [NASA-CASE-NPO-13993-1] c36 N77-24468

MOLECULAR PUMPS

Omnidirectional anisotropic molecular trap, used with vacuum pump to simulate space environments for testing spacecraft components  
 [NASA-CASE-XGS-00783] c30 N71-17788

Liquid-vapor interface seal design for turbine rotating shafts including helical and molecular pumps and liquid cooling of mercury vapor  
 [NASA-CASE-XNP-02862-1] c15 N71-26294

MOLECULAR ROTATION

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 [NASA-CASE-ARC-10370-1] c36 N75-31426

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Microwave double resonance spectroscopy absorption cell for gas analysis  
 [NASA-CASE-LAR-10305] c14 N71-26137

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 [NASA-CASE-XLE-01645] c03 N71-20904

Zinc-halide battery with molten electrolyte  
 [NASA-CASE-NPO-11961-1] c44 N76-18643

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 [NASA-CASE-XLA-00302] c15 N71-16077

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 [NASA-CASE-XMS-00370] c17 N71-20941

- MOMENTS OF INERTIA**  
 Test fixture for measuring moment of inertia of irregularly shaped body with multiple axes  
 [NASA-CASE-XGS-01023] c14 N71-22992
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 Utilization of momentum devices for forming attitude control and damping system for spacecraft  
 [NASA-CASE-XLA-02551] c21 N71-21708  
 Momentum-velocity analyzer for measuring minute space particles  
 [NASA-CASE-XMS-04201] c14 N71-22990
- MONATOMIC GASES**  
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 [NASA-CASE-LEW-12081-2] c72 N78-19907
- MONITORS**  
 Fluid leakage detection system with automatic monitoring capability  
 [NASA-CASE-LAR-10323-1] c12 N71-17573  
 Monitoring circuit design for sampling circuit control and reduction of time-bandwidth in video communication systems  
 [NASA-CASE-XNP-02791] c07 N71-23026  
 Optical monitor panel consisting of translucent screen with test or meter information projected onto it from rear for application in control rooms of missile launching and tracking stations  
 [NASA-CASE-XKS-03509] c14 N71-23175  
 Peak polarity selector for monitoring waveforms  
 [NASA-CASE-PRC-10010] c10 N71-24862  
 Circuit for monitoring power supply by ripple current indication  
 [NASA-CASE-KSC-10162] c09 N72-11225  
 Development of droplet monitoring probe for use in analysis of droplet propagation in mixed-phase fluid stream  
 [NASA-CASE-NPO-10985] c14 N73-20478  
 Monitoring and recording lightning strokes in predetermined area  
 [NASA-CASE-KSC-10728-1] c14 N73-32319  
 Method and apparatus for optically monitoring the angular position of a rotating mirror  
 [NASA-CASE-GSC-11353-1] c74 N74-21304  
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 [NASA-CASE-KSC-11031-1] c33 N77-21319  
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 [NASA-CASE-KSC-10899-1] c33 N77-28394
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 Apparatus for producing monochromatic light from continuous plasma source  
 [NASA-CASE-XNP-04167-2] c25 N72-24753  
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 [NASA-CASE-MFS-19259-1] c36 N78-14380
- MONOCHROMATORS**  
 Analytical photoionization mass spectrometer with argon gas filter between light source and monochromator  
 [NASA-CASE-LAR-10180-1] c06 N71-13461  
 Color television system for allowing monochrome television camera to produce color pictures  
 [NASA-CASE-MSC-12146-1] c07 N72-17109
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 Pressure transducer --- using a monomeric charge transfer complex sensor  
 [NASA-CASE-NPO-11150] c35 N78-17359
- MONOPOLE ANTENNAS**  
 Monopole antenna system for maximum omnidirectional efficiency for use on satellites  
 [NASA-CASE-XLA-00414] c07 N70-38200  
 Flexible monopole antenna with broad bandwidth and low voltage standing wave ratio  
 [NASA-CASE-MSC-12101] c09 N71-18720
- MONOPROPELLANTS**  
 Ignition system for monopropellant combustion devices  
 [NASA-CASE-XNP-00249] c28 N70-38249  
 Catalyst bed ignition system for hydrazine propellants  
 [NASA-CASE-XNP-00876] c28 N70-41311  
 Low thrust monopropellant engine  
 [NASA-CASE-GSC-12194-1] c20 N77-28219
- MONOPULSE ANTENNAS**  
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 [NASA-CASE-XGS-05582] c07 N69-27460  
 Development and characteristics of low-noise multimode monopulse antenna feed system for use with microwave communication equipment  
 [NASA-CASE-XNP-01735] c07 N71-22750  
 Monopulse scanning network for scanning volumetric antenna pattern  
 [NASA-CASE-GSC-10299-1] c09 N71-24804  
 Switchable beamwidth monopulse method and system  
 [NASA-CASE-GSC-11924-1] c33 N76-27472
- MONOPULSE RADAR**  
 Polarization diversity monopulse tracking receiver design without radio frequency switches  
 [NASA-CASE-XGS-03501] c09 N71-20864  
 Monopulse tracking system with antenna array of three radiators for deriving azimuth and elevation indications  
 [NASA-CASE-XGS-01155] c10 N71-21483
- MONOSTABLE MULTIVIBRATORS**  
 Development and characteristics of resettable monostable pulse generator with charge rundown-timing circuit  
 [NASA-CASE-GSC-11139] c09 N71-27016  
 Monostable multivibrator for producing output pulse widths with positive feedback NOR gates  
 [NASA-CASE-MSC-13492-1] c10 N71-28860
- MOSSBAUER EFFECT**  
 Mossbauer spectrometer radiation detector  
 [NASA-CASE-LAR-11155-1] c35 N74-15091  
 Method and apparatus for vibration analysis utilizing the Mossbauer effect  
 [NASA-CASE-XNP-05882] c35 N75-27329
- MOTION**  
 Quick attach mechanism for moving or stationary wires, ropes, or cables  
 [NASA-CASE-XPR-05421] c15 N71-22994
- MOTION PICTURES**  
 Real time moving scene holographic camera system  
 [NASA-CASE-MFS-21087-1] c35 N74-17153  
 Real time, large volume, moving scene holographic camera system  
 [NASA-CASE-MFS-22537-1] c35 N75-27328
- MOTION SIMULATORS**  
 Kinesthetic control simulator --- for pilot training  
 [NASA-CASE-LAR-10276-1] c09 N75-15662
- MOTION STABILITY**  
 Hydraulic drive mechanism for leveling isolation platforms  
 [NASA-CASE-XMS-03252] c15 N71-10658
- MOTORS**  
 Nonmagnetic thermal motor for magnetometer movement  
 [NASA-CASE-XAR-03786] c09 N69-21313  
 System for maintaining motor at predetermined speed using digital pulses  
 [NASA-CASE-XNP-06892] c09 N71-24805  
 Mechanical thermal motor  
 [NASA-CASE-MFS-23062-1] c37 N77-12402  
 Redundant motor drive system  
 [NASA-CASE-MFS-23777-1] c37 N78-28460
- MOUNTING**  
 Mounting fixture for supporting thermobulb in pipeline  
 [NASA-CASE-NPO-10158] c33 N71-16356  
 Mounting apparatus for temperature control system  
 [NASA-CASE-NPO-10138] c33 N71-16357  
 Inertial component clamping assembly design for spacecraft guidance and control system mounting  
 [NASA-CASE-XMS-02184] c15 N71-20813  
 Techniques for packaging and mounting printed circuit boards  
 [NASA-CASE-MFS-21919-1] c10 N73-25243  
 Lubricated journal bearing  
 [NASA-CASE-LEW-11076-3] c37 N75-30562  
 Translatory shock absorber for attitude sensors  
 [NASA-CASE-MFS-22905-1] c19 N76-22284  
 Deformable bearing seat  
 [NASA-CASE-LPW-12527-1] c37 N77-32500  
 Impact absorbing blade mounts for variable pitch blades  
 [NASA-CASE-LEW-12313-1] c37 N78-10468  
 Attaching of strain gages to substrates  
 [NASA-CASE-PRC-10093-1] c35 N78-18393
- MOVING TARGET INDICATORS**  
 Automatic vehicle location system  
 [NASA-CASE-NPO-11850-1] c32 N74-12912
- MULTICHANNEL COMMUNICATION**  
 Tape guidance system for multichannel digital recording system  
 [NASA-CASE-XNP-09453] c08 N71-19420

## MULTIENGINE VEHICLES

## SUBJECT INDEX

Plural channel data transmission system with quadrature modulation and complementary demodulation  
[NASA-CASE-XAC-06302] c08 N71-19763

Improved phase lock loop for receiver in multichannel telemetry system with suppressed carrier  
[NASA-CASE-NPO-11593-1] c07 N73-28012

Miniature multichannel biotelemetry system  
[NASA-CASE-NPO-13065-1] c52 N74-26625

Medical subject monitoring systems --- multichannel monitoring systems  
[NASA-CASE-MSC-14480-1] c52 N76-14757

**MULTIENGINE VEHICLES**  
Vortex attenuation method --- for multi-engine aircraft  
[NASA-CASE-LAP-12034-1] c02 N77-22045

**MULTILAYER INSULATION**  
Electrode sealing and insulation for fuel cells containing caustic liquid electrolytes using powdered plastic and metal  
[NASA-CASE-XMS-01625] c15 N71-23022

Multilayer insulation panels for cryogenic liquid containers  
[NASA-CASE-MFS-14023] c33 N71-25351

Electrical failure detector in solid rocket propellant motor insulation against thermal degradation by fuel grain  
[NASA-CASE-IMP-03968] c14 N71-27186

Method of making an insulation foil  
[NASA-CASE-LEW-11484-1] c24 N75-33181

Insulation for piping  
[NASA-CASE-MSC-19523-1] c31 N76-16245

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Anti-multipath digital signal detector  
[NASA-CASE-LAP-11827-1] c32 N77-10392

**MULTIPLE BEAM INTERVAL SCANNERS**  
Tracking antenna system with array for synchronous satellite or ground based radar  
[NASA-CASE-GSC-10553-1] c07 N71-19854

Variable beamwidth antenna --- with multiple beam, variable feed system  
[NASA-CASE-GSC-11862-1] c32 N76-18295

**MULTIPLE DOCKING ADAPTERS**  
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[NASA-CASE-XMS-03613] c31 N71-16346

**MULTIPLE OUTPUT PROGRAMS**  
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[NASA-CASE-NPO-13422-1] c60 N76-14818

**MULTIPLEXING**  
Doppler frequency shift correction device for multiplex communication with Applications Technology Satellites  
[NASA-CASE-IGS-02749] c07 N69-39978

Multiplexed communication system design including automatic correction of transmission errors introduced by frequency spectrum shifts  
[NASA-CASE-XMP-01306] c07 N71-20814

Satellite network synchronization system with multiple access to multiplex repeater  
[NASA-CASE-GSC-10390-1] c07 N72-11149

Apparatus with summing network for compression of analog data by decreasing slope threshold sampling  
[NASA-CASE-NPO-10769] c08 N72-11171

Development and characteristics of data multiplexer circuit using field effect transistors arranged in tree switching configuration  
[NASA-CASE-NPO-11333] c08 N72-22162

Television multiplexing system, using single crystal controlled clock for signal synchronization  
[NASA-CASE-KSC-10654-1] c07 N73-30115

Asynchronous, multiplexing, single line transmission and recovery data system --- for satellite use  
[NASA-CASE-NPO-13321-1] c32 N75-26195

Correlation type phase detector --- with time correlation integrator for frequency multiplexed signals  
[NASA-CASE-GSC-11744-1] c33 N75-26243

System for producing chroma signals  
[NASA-CASE-MSC-14683-1] c74 N77-18893

Fiber optic multiplex optical transmission system  
[NASA-CASE-KSC-11047-1] c74 N78-14889

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Pulse duration modulation multiplier system  
[NASA-CASE-XER-09213] c07 N71-12390

Design and development of variable pulse width multiplier  
[NASA-CASE-XLA-02850] c09 N71-20447

Capacitance multiplier and filter synthesizing network  
[NASA-CASE-NPO-11948-1] c33 N74-32712

Regulated high efficiency, lightweight capacitor-diode multiplier dc to dc converter  
[NASA-CASE-LEW-12791-1] c33 N78-32341

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[NASA-CASE-MSC-14472-1] c43 N77-10584

An interactive color display for multispectral imagery using correlation clustering  
[NASA-CASE-MSC-16253-1] c43 N77-31583

Multispectral imaging and analysis system  
[NASA-CASE-NPO-13691-1] c74 N78-22890

**MULTISPECTRAL PHOTOGRAPHY**  
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[NASA-CASE-MSC-12404-1] c23 N73-13661

Optical process for producing classification maps from multispectral data  
[NASA-CASE-MSC-14472-1] c43 N77-10584

An interactive color display for multispectral imagery using correlation clustering  
[NASA-CASE-MSC-16253-1] c43 N77-31583

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[NASA-CASE-IMP-00389] c31 N70-34176

Steerable solid propellant rocket motor adapted to effect payload orientation as multistage rocket stage or reduce velocity as retrorocket  
[NASA-CASE-IMP-00234] c28 N70-38645

Multi-mission space vehicle module stage design  
[NASA-CASE-IMP-01543] c31 N71-17730

Separation mechanism for use between stages of multistage rocket vehicles  
[NASA-CASE-XLA-00188] c15 N71-22874

Development of remotely controlled shaped charge for lateral displacement of rocket stages after separation  
[NASA-CASE-XLA-04804] c31 N71-23008

Frangible connecting link suitable for rocket stage separation  
[NASA-CASE-MSC-11849-1] c15 N72-22488

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Extra-long monostable multivibrator employing bistable semiconductor switch to allow charging of timing circuit  
[NASA-CASE-XGS-00381] c09 N70-34819

Variable frequency magnetic coupled multivibrator with temperature compensated frequency control circuit  
[NASA-CASE-IGS-00458] c09 N70-38604

Variable frequency magnetic coupled multivibrator with output signal of constant amplitude and waveform  
[NASA-CASE-XGS-00131] c09 N70-38995

Improved semiconductor multivibrator circuit which approaches 100 percent efficiency  
[NASA-CASE-XAC-00942] c10 N71-16042

Transistorized dc-coupled multivibrator with noninverted output signal  
[NASA-CASE-XMP-09450] c10 N71-18723

One shot multivibrator circuit for producing long duration output pulses  
[NASA-CASE-ARC-10137-1] c09 N71-28468

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[NASA-CASE-NPO-13423-1] c33 N75-31329

**MUSCULAR FUNCTION**  
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[NASA-CASE-NPO-13519-1] c33 N76-19338

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- measuring method  
[NASA-CASE-NFO-13644-1] c52 N76-29895
- N**
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[NASA-CASE-XLE-00388] c28 N70-34788  
Afterburner-equipped jet engine nacelle with slotted configuration afterbody  
[NASA-CASE-XIA-10450] c28 N71-21493  
Integrated gas turbine engine-nacelle  
[NASA-CASE-LEW-12389-2] c07 N78-18066
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[NASA-CASE-LAR-11387-1] c04 N76-20114  
Ruler for making navigational computations  
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- NAVIGATION INSTRUMENTS**  
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- NAVIGATION SATELLITES**  
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[NASA-CASE-NFO-14038-1] c32 N78-24401
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- NEGATIVE FEEDBACK**  
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[NASA-CASE-XGS-02751] c09 N71-23015  
Solid-state current transformer  
[NASA-CASE-MFS-22560-1] c33 N77-14335
- NEODYMIUM LASERS**  
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[NASA-CASE-GSC-11571-1] c36 N77-25499
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[NASA-CASE-GSC-10021-1] c09 N71-24595  
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[NASA-CASE-XNP-01306-2] c09 N71-24596
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[NASA-CASE-LEW-11866-1] c72 N76-15860
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Selective nickel deposition on irradiation sensitive compounds  
[NASA-CASE-LEW-10965-1] c15 N72-25452  
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[NASA-CASE-XNP-06053] c26 N75-27126  
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[NASA-CASE-LEW-12619-1] c24 N77-19171  
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[NASA-CASE-LEW-12905-1] c26 N78-18183
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[NASA-CASE-XLE-00151] c17 N70-33283  
Nickel alloy series for aerospace structures subjected to high temperatures  
[NASA-CASE-XLE-00283] c17 N70-36616  
Nickel base alloy with resistance to oxidation at high temperatures and superior stress-rupture properties  
[NASA-CASE-XLE-02082] c17 N71-16026  
High strength nickel based alloys  
[NASA-CASE-LEW-10874-1] c17 N72-22535  
Diffusion welding --- heat treatment of nickel alloys following single step vacuum welding process  
[NASA-CASE-LEW-11388-2] c37 N74-21055  
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[NASA-CASE-XNP-01311] c26 N75-29236  
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[NASA-CASE-LEW-12245-1] c26 N77-20201  
Directionally solidified eutectic gamma plus beta nickel-base superalloys  
[NASA-CASE-LEW-12906-1] c26 N77-32279  
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[NASA-CASE-LEW-12270-1] c26 N77-32280
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[NASA-CASE-LEW-11267-1] c17 N73-32414  
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[NASA-CASE-XNP-04148] c17 N71-24830
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[NASA-CASE-ARC-10196-1] c18 N73-13562  
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[NASA-CASE-ARC-10099-1] c18 N71-15469  
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[NASA-CASE-ARC-10325] c06 N72-25147
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[NASA-CASE-NFO-12134-1] c33 N76-31409
- NITROGEN OXIDES**  
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[NASA-CASE-NFO-10234] c06 N72-17094
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## NOISE GENERATORS

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## NOISE GENERATORS

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[NASA-CASE-MPS-22671-1] c35 N75-21582

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[NASA-CASE-LAR-11173-1] c35 N75-19614

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[NASA-CASE-LAR-12106-1] c71 N78-14867

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[NASA-CASE-XLA-00087] c02 N70-33332

Cassegrain antenna subreflector flange for suppressing ground noise and increasing antenna transmitting efficiency  
[NASA-CASE-XNP-00683] c09 N70-35425

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[NASA-CASE-XMF-01813] c28 N70-41582

Variable time constant, wide frequency range smoothing network for noise removal from pulse chains  
[NASA-CASE-XGS-01983] c10 N70-41964

Digital telemetry system apparatus to reduce tape recorder wow and flutter noise during playback  
[NASA-CASE-XGS-01812] c07 N71-23001

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[NASA-CASE-MSC-12223-1] c07 N71-26181

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[NASA-CASE-XNP-09830] c14 N71-28266

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[NASA-CASE-LAR-10951-1] c28 N73-19819

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[NASA-CASE-MSC-12165-1] c07 N71-33696

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Notch filter  
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[NASA-CASE-GSC-11358-1] c06 N73-26100

**OUTPUT**  
Nonlinear nonsingular feedback shift registers  
[NASA-CASE-WFO-13451-1] c33 N76-14373

**Ovens**  
Oven for heat treating heat shields  
[NASA-CASE-XMS-04318] c15 N69-27871

**OVERVOLTAGE**  
Spark gap type protective circuit for fast sensing and removal of overvoltage conditions  
[NASA-CASE-XAC-08981] c09 N69-39897  
Sensing circuit for instantaneous reaction to power overloads  
[NASA-CASE-GSC-10667-1] c10 N71-33129  
Overvoltage protection network  
[NASA-CASE-ARC-10197-1] c33 N74-17929  
Overload protection system for power inverter  
[NASA-CASE-WFO-13872-1] c33 N78-10377

**OIAZOLE**  
Preparation of heterocyclic block copolymer from perfluoroalkylene oxide alpha, omega-diaimidoximes  
[NASA-CASE-ARC-11060-1] c27 N78-10292

**OXIDATION**  
Silicide coating process and composition for protection of refractory metals from oxidation  
[NASA-CASE-YLE-10910] c18 N71-29040  
Automated analysis of oxidative metabolites  
[NASA-CASE-ARC-10469-1] c25 N75-12086  
Hydrogen rich gas generator  
[NASA-CASE-WFO-13464-2] c44 N76-29704  
Process of forming catalytic surfaces for wet oxidation reactions  
[NASA-CASE-WSC-14831-1] c25 N78-10225  
In situ self cross-linking of polyvinyl alcohol battery separators  
[NASA-CASE-LEW-12972-1] c23 N78-22157

**OXIDATION RESISTANCE**  
Nickel base alloy with resistance to oxidation at high temperatures and superior stress-rupture properties  
[NASA-CASE-YLE-02082] c17 N71-16026  
Method of protecting the surface of a substrate --- by applying aluminide coating  
[NASA-CASE-LEW-11696-1] c37 N75-13261  
Duplex aluminized coatings  
[NASA-CASE-LEW-11696-2] c26 N75-19408  
High temperature oxidation resistant cermet compositions  
[NASA-CASE-WFO-13666-1] c27 N77-13217

**OXIDATION-REDUCTION REACTIONS**  
Formulated plastic separators for soluble electrode cells  
[NASA-CASE-LEW-12358-2] c25 N78-25149

**OXIDE FILMS**  
Stainless steel panel for selective absorption of solar energy and the method of producing said panel  
[NASA-CASE-WFS-23518-2] c44 N77-31611

**OXIDES**  
Utilization of lithium p-lithiophenoxide to prepare star polymers  
[NASA-CASE-WFO-10998-1] c06 N73-32029

**OXIDIZERS**  
Electrolytically regenerative hydrogen-oxygen fuel cells  
[NASA-CASE-YLE-04526] c03 N71-11052

- Fuel and oxidizer injection head for thrust chamber of reaction engine  
[NASA-CASE-NPO-10046] c28 N72-17843
- OXIMETRY**  
Ear oximeter for monitoring blood oxygenation and pressure, pulse rate, and pressure pulse curve, using dc and ac amplifiers  
[NASA-CASE-XAC-05422] c04 N71-23185
- OXYGEN**  
Analytical test apparatus and method for determining oxygen content in alkali liquid metal  
[NASA-CASE-XLP-01997] c06 N71-23527  
Heated tungsten filter for removing oxygen impurities from cesium  
[NASA-CASE-INP-04262-2] c17 N71-26773  
Method for detecting oxygen in gas by thermoluminescence  
[NASA-CASE-IAR-10668-1] c06 N73-16106  
Method for obtaining oxygen from lunar or similar soil  
[NASA-CASE-MS-12408-1] c46 N74-13011  
Nonflammable coating compositions --- for use in high oxygen environments  
[NASA-CASE-MFS-20486-2] c27 N74-17283
- OXYGEN CONSUMPTION**  
Respiration analyzing method and apparatus for determining subjects oxygen consumption in aerospace environments  
[NASA-CASE-YFR-08403] c05 N71-11202
- OXYGEN FLUORIDES**  
Utilization of oxygen difluoride for syntheses of fluoropolymers  
[NASA-CASE-NPO-12061-1] c27 N76-16228
- OXYGEN METABOLISM**  
Metabolic analyzer --- for measuring metabolic rate and breathing dynamics of human beings  
[NASA-CASE-MFS-21415-1] c52 N74-20728
- OXYGEN PLASMA**  
Oxygen post-treatment of plastic surfaces coated with plasma polymerized silicon-containing monomers  
[NASA-CASE-ABC-10915-2] c27 N77-20256
- OXYGEN REGULATORS**  
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[NASA-CASE-MFS-23059-1] c44 N76-27664
- OXYGEN SUPPLY EQUIPMENT**  
Self-contained breathing apparatus  
[NASA-CASE-MSC-14733-1] c54 N76-24900
- OZONE**  
Thermoluminescent aerosol analysis  
[NASA-CASE-LAR-12046-1] c25 N78-15210
- P**
- P-N JUNCTIONS**  
Lithium drifted silicon radiation detector with gold rectifying contacts  
[NASA-CASE-XLE-10529] c14 N69-23191  
Semiconductor p-n junction on needle apex to provide stress and strain sensor  
[NASA-CASE-XLA-04980] c09 N69-27422  
Improving radiation resistance of silicon semiconductor junctions by doping with lithium  
[NASA-CASE-XGS-07801] c09 N71-12513  
Silicon radiation detecting probe design for in vivo biomedical use  
[NASA-CASE-IMS-01177] c05 N71-19440  
Electrode connection for n-on-p silicon solar cell  
[NASA-CASE-XLE-04787] c03 N71-20492  
Water content in vapor deposition atmosphere for forming n-type and p-type junctions of zinc doped gallium arsenide  
[NASA-CASE-XNP-01961] c26 N71-29156  
Method for making semiconductor p-n junction stress and strain sensor  
[NASA-CASE-XLA-04980-2] c14 N72-28438  
Resin for protecting p-n semiconductor junction surface  
[NASA-CASE-ERC-10339-1] c18 N73-30532  
Improved back wall cell  
[NASA-CASE-LEW-12236-2] c44 N78-25556
- P-TYPE SEMICONDUCTORS**  
Addition of group 3 elements to silicon semiconductor material for increased resistance to radiation damage in solar cells  
[NASA-CASE-XLE-02798] c26 N71-23654
- Integrated P-channel MOS gyrator  
[NASA-CASE-MFS-22343-1] c33 N74-34638
- PACKAGES**  
Impact testing machine for imparting large impact forces on high velocity packages  
[NASA-CASE-XNP-04817] c14 N71-23225  
One hand backpack harness  
[NASA-CASE-LAR-10102-1] c05 N72-23085
- PACKAGING**  
Characteristics of device for folding thin flexible sheets into compact configuration  
[NASA-CASE-XLA-00137] c15 N70-33180  
Method of compactly packaging centrifugally expandable lightweight flexible reflector satellite  
[NASA-CASE-XLA-00138] c31 N70-37981  
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[NASA-CASE-MFS-20855] c15 N73-27405  
Double-sided solar cell package  
[NASA-CASE-NPO-14199-1] c44 N78-22470
- PACKING DENSITY**  
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[NASA-CASE-XNP-04816] c06 N69-39936
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Fluid seal for rotating shafts  
[NASA-CASE-LEW-11676-1] c37 N76-22541
- PAD**  
Lubricated journal bearing  
[NASA-CASE-LEW-11076-3] c37 N75-30562
- PAINTS**  
Nitroaniline sulfate, intumescent paints  
[NASA-CASE-ABC-10099-1] c18 N71-15469  
Composition and production method of alkali metal silicate paint with ultraviolet reflection properties  
[NASA-CASE-XGS-04799] c18 N71-24183  
White paint production by heating impure aluminum silicate clay having low solar absorptance  
[NASA-CASE-XNP-02139] c18 N71-24184
- PALLADIUM COMPOUNDS**  
Preventing pressure buildup in electrochemical cells by reacting palladium oxide with evolved hydrogen  
[NASA-CASE-XGS-01419] c03 N70-41864  
Separation of dissolved hydrogen from water and coating with palladium black  
[NASA-CASE-MSC-13335-1] c06 N72-31140
- PANELS**  
Nut and bolt fastener permitting all-directional movement of skin sections with respect to supporting structure  
[NASA-CASE-XLA-01807] c15 N71-10799  
Multilayer insulation panels for cryogenic liquid containers  
[NASA-CASE-MFS-14023] c33 N71-25351  
Method and apparatus for fabricating solar cell panels  
[NASA-CASE-XNP-03413] c03 N71-26726  
Method for making pressurized meteoroid penetration detector panels  
[NASA-CASE-XLA-08916] c15 N71-29018  
Honeycomb panels of minimal surface, periodic tubule layers  
[NASA-CASE-ERC-10364] c18 N72-25540  
Fabrication of light weight panel structure using pairs of elongate hollow ribs of semicircular configuration  
[NASA-CASE-LAR-11052-1] c32 N73-13929  
Pressurized panel meteoroid detector  
[NASA-CASE-XLA-08916-2] c14 N73-28487  
Ultrasonic scanner for radial and flat panels  
[NASA-CASE-MFS-20335-1] c35 N74-10415  
Folding structure fabricated of rigid panels  
[NASA-CASE-XHQ-02146] c18 N75-27040  
Varying density composite structure  
[NASA-CASE-LAR-11181-1] c39 N75-31479  
Method of making a composite sandwich lattice structure  
[NASA-CASE-LAR-11898-2] c24 N78-17149  
Selective coating for solar panels --- using black chrome and black nickel  
[NASA-CASE-LEW-12159-1] c44 N78-19599  
High visibility air sea rescue panel  
[NASA-CASE-MSC-12564-2] c03 N78-25070

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## PARTICLE MASS

Stainless steel panel for selective absorption of solar energy and the method of producing said panel  
 [NASA-CASE-MFS-23518-3] c44 N78-25557

Hexagon solar power panel  
 [NASA-CASE-NPO-12148-1] c44 N78-27515

Structural wood panels with improved fire resistance --- using prepolymers and hexamethylenetetramine  
 [NASA-CASE-ARC-11174-1] c24 N78-28178

**PAPERS**

Process for purification of waste water produced by a Kraft process pulp and paper mill  
 [NASA-CASE-NPO-13847-2] c85 N77-17949

Guide for a typewriter  
 [NASA-CASE-MFS-15218-1] c37 N77-19457

**PARABOLIC ANTENNAS**

Device for improving efficiency of parabolic horn antenna system for linearly polarized signals  
 [NASA-CASE-XNP-00611] c09 N70-35219

Drive system for parabolic tracking antenna with reversible motion and minimal backlash  
 [NASA-CASE-NPO-10173] c15 N71-24696

Switchable beamwidth monopulse method and system  
 [NASA-CASE-GSC-11924-1] c33 N76-27472

Telescoping columns --- parabolic antenna support  
 [NASA-CASE-LAR-12195-1] c37 N78-33446

**PARABOLIC REFLECTORS**

Device for improving efficiency of parabolic reflector horn for linearly or circularly polarized waves  
 [NASA-CASE-XNP-00540] c09 N70-35382

Foldable, double cone and parabolic reflector system for solar ray concentration  
 [NASA-CASE-XLA-04622] c03 N70-41580

Self erecting parabolic reflector design for use in space  
 [NASA-CASE-XMS-03454] c09 N71-20658

Plural beam antenna with parabolic reflectors  
 [NASA-CASE-GSC-11013-1] c09 N73-19234

Multimode antenna feed system for microwave and broadband communication  
 [NASA-CASE-GSC-11046-1] c07 N73-28013

Single frequency, two feed dish antenna having switchable beamwidth  
 [NASA-CASE-GSC-11968-1] c32 N76-15329

Sun tracking solar energy collector  
 [NASA-CASE-NPO-13921-1] c44 N77-24590

**PARABOLOID MIRRORS**

Optical data processing system using paraboloidal reflecting surfaces  
 [NASA-CASE-GSC-11296-1] c23 N73-30666

Three mirror glancing incidence system for X-ray telescope  
 [NASA-CASE-MFS-21372-1] c74 N74-27866

**PARACHUTE DESCENT**

Multiple parachute system for landing control of Apollo type spacecraft  
 [NASA-CASE-XLA-00898] c02 N70-36804

Parachute system for lowering manned spacecraft from post-reentry to ocean landing  
 [NASA-CASE-XLA-00195] c02 N70-38009

Piston in bore cutter for severing parachute control lines and sealing cable hole to prevent water leakage into load  
 [NASA-CASE-XMS-04072] c15 N70-42017

Development and operating principles of gas generator for deploying recovery parachutes from space capsules during atmospheric entry  
 [NASA-CASE-LAR-10549-1] c31 N73-13998

**PARACHUTE FABRICS**

Lightweight, variable solidity knitted parachute fabric --- for aerodynamic decelerators  
 [NASA-CASE-LAR-10776-1] c02 N74-10034

System and method for refurbishing and processing parachutes  
 [NASA-CASE-KSC-11042-1] c02 N78-22026

**PARACHUTES**

System for controlling torque buildup in suspension of gondola connected to balloon by parachute shroud lines  
 [NASA-CASE-GSC-11077-1] c02 N73-13008

Deploy/release system --- model aircraft flight control  
 [NASA-CASE-LAR-11575-1] c02 N76-16014

**PARAGLIDERS**

Multiple parachute system for landing control of Apollo type spacecraft  
 [NASA-CASE-XLA-00898] c02 N70-36804

**PARALLAX**

Projection system for display of parallax and perspective  
 [NASA-CASE-MFS-23194-1] c35 N78-17357

**PARALLEL PLATES**

Describing instrument capable of measuring true shear viscosity of liquids and viscoelastic materials  
 [NASA-CASE-XNP-09462] c14 N71-17584

**PARALLEL PROCESSING (COMPUTERS)**

Digital data reformatter/deserializer  
 [NASA-CASE-NPO-13676-1] c60 N77-24781

**PARAMETRIC AMPLIFIERS**

Development of idler feedback system to reduce electronic noise problem in two parametric amplifiers  
 [NASA-CASE-LAR-10253-1] c09 N72-25258

Millimeter wave pumped parametric amplifier  
 [NASA-CASE-GSC-11617-1] c33 N74-32660

**PARAWINGS**

Method for deployment of flexible wing glider from space vehicle with minimum impact and loading  
 [NASA-CASE-XMS-00907] c02 N70-41630

**PARKING**

Automated multi-level vehicle parking system  
 [NASA-CASE-NPO-13058-1] c37 N77-22480

**PARTIAL PRESSURE**

Equipment for measuring partial water vapor pressure in gas tank  
 [NASA-CASE-XMS-01618] c14 N71-20741

**PARTICLE ACCELERATION**

Selector mechanism for mechanical separation and discrimination of high velocity molecular particles  
 [NASA-CASE-XLE-01533] c11 N71-10777

Method and apparatus for use in forming highly collimated beam of microparticles with high charge to mass ratio and injecting beam into electrostatic accelerating tube  
 [NASA-CASE-XGS-06628] c24 N71-16213

**PARTICLE ACCELERATOR TARGETS**

Dispensing targets for ion beam particle generators  
 [NASA-CASE-NPO-13112-1] c73 N74-26767

Deuterium pass through target --- neutron emitting target  
 [NASA-CASE-LEW-11866-1] c72 N76-15860

Closed loop spray cooling apparatus  
 [NASA-CASE-LEW-11981-2] c34 N77-32434

Closed loop spray cooling apparatus --- for particle accelerator targets  
 [NASA-CASE-LEW-11981-1] c31 N78-17237

**PARTICLE BEAMS**

Particle beam power density detection and measurement apparatus  
 [NASA-CASE-XLE-00243] c14 N70-38602

Doppler shift system --- system for measuring velocities of radiating particles  
 [NASA-CASE-HQN-10740-1] c72 N74-19310

**PARTICLE COLLISIONS**

Momentum-velocity analyzer for measuring minute space particles  
 [NASA-CASE-XMS-04201] c14 N71-22990

**PARTICLE DENSITY (CONCENTRATION)**

Particle detector for measuring micrometeoroid velocity in space  
 [NASA-CASE-XLA-00495] c14 N70-41332

**PARTICLE EMISSION**

Mosaic semiconductor radiation detector and position indicator systems engineering for low energy particles  
 [NASA-CASE-XGS-03230] c14 N71-23401

Apparatus for detecting particle emission lower than noise level of multiplier tube  
 [NASA-CASE-XLA-07813] c14 N72-17328

**PARTICLE ENERGY**

Particle detector for indicating incidence and energy of minute space particles  
 [NASA-CASE-XLA-00135] c14 N70-33322

Particulate and aerosol detector  
 [NASA-CASE-LAR-11434-1] c35 N76-22509

**PARTICLE MASS**

Cosmic dust analyzer  
 [NASA-CASE-MSC-13802-2] c35 N76-15431

Microbalance --- for measuring particle mass  
 [NASA-CASE-MSC-11242] c35 N78-17358

## PARTICLE MOTION

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## PARTICLE MOTION

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[NASA-CASE-GSC-11889-1] c35 N76-16393

**PARTICLE PRODUCTION**  
Production of I-123  
[NASA-CASE-LEW-11390-3] c25 N76-29379

**PARTICLE SIZE DISTRIBUTION**  
Micropacked column for rapid chromatographic analysis using low gas flow rates  
[NASA-CASE-XNP-04816] c06 N69-39936  
Apparatus for producing hydrocarbon slurry containing small particles of magnesium for use as jet aircraft fuel  
[NASA-CASE-XLE-00010] c15 N70-33382  
Production of high strength refractory compounds and microconstituents into refractory metal matrix  
[NASA-CASE-XLE-03940] c18 N71-26153  
Frequency scanning particle size spectrometer  
[NASA-CASE-NPO-13606-1] c35 N75-19627  
Particle size spectrometer and refractometer  
[NASA-CASE-NPO-13614-1] c35 N75-19628  
Grain refinement control in TIG arc welding  
[NASA-CASE-MSC-19095-1] c37 N75-19683  
Forward-scatter polarimeter for determining the gaseous depolarization factor in the presence of polluting polydispersed particles  
[NASA-CASE-NPO-13756-1] c35 N76-14434  
Fire protection covering for small diameter missiles  
[NASA-CASE-ARC-11104-1] c15 N78-13110  
Apparatus for handling micron size range particulate material  
[NASA-CASE-NPO-10151] c37 N78-17386

**PARTICLE TRAJECTORIES**  
Micrometeoroid velocity and trajectory analyzer  
[NASA-CASE-GSC-11892-1] c35 N76-15433

**PARTICLES**  
Development of device for separating, collecting, and viewing soil particles  
[NASA-CASE-XNP-09770] c15 N71-20440  
Development of apparatus for producing metal powder particles of controlled size  
[NASA-CASE-XLE-06461-2] c17 N72-28535  
Particle parameter analyzing system --- x-y plotter circuits and display  
[NASA-CASE-XLE-06094] c33 N78-17293

**PARTICULATE LABELING**  
Design and development of device to prevent clogging in hoppers containing particulate materials  
[NASA-CASE-LAR-10961-1] c15 N73-12496  
Development and operation of apparatus for sampling particulates in gases in upper atmosphere  
[NASA-CASE-HQN-10037-1] c14 N73-27376  
Fine particulate capture device  
[NASA-CASE-LEW-11583-1] c37 N74-13199  
Electrophoretic sample insertion --- device for uniformly distributing samples in flow path  
[NASA-CASE-MFS-21395-1] c25 N74-26948  
Sampler of gas borne particles  
[NASA-CASE-NPO-13396-1] c35 N76-18401  
Biocontamination and particulate detection system  
[NASA-CASE-NPO-13953-1] c51 N78-22587

**PASSAGEWAYS**  
Space expandable tether device for use as passageway between two docked spacecraft  
[NASA-CASE-XNS-10993] c15 N71-28936

**PASSIVE SATELLITES**  
Erectable, inflatable, radio signal reflecting passive communication satellite  
[NASA-CASE-XLA-00210] c30 N70-40309  
Apparatus for measuring backscatter and transmission characteristics of sample segment of large spherical passive satellites  
[NASA-CASE-XGS-02608] c07 N70-41678  
Forming inflatable panels erectable in space for passive communication satellite  
[NASA-CASE-XLA-03497] c15 N71-23052

**PATIENTS**  
Stretcher with rigid head and neck support with capability of supporting immobilized person in vertical position for removal from vehicle hatch to exterior also useful as splint stretcher  
[NASA-CASE-XMF-06589] c05 N71-23159

**PATTERN RECOGNITION**  
Roughness detector for recording surface pattern of irregularities  
[NASA-CASE-XLA-00203] c14 N70-34161  
Auditory display for the blind  
[NASA-CASE-HQN-10832-1] c71 N74-21014

**PAYLOADS**  
Plastic foam generator for space vehicle instrument payload package flotation in water landing  
[NASA-CASE-XLA-00838] c03 N70-36778  
Stage separation system for spinning vehicles and payloads  
[NASA-CASE-XLA-02132] c31 N71-10582  
Payload/spent rocket engine case separation system  
[NASA-CASE-XLA-05369] c31 N71-15687  
High velocity guidance and spin stabilization gyro controlled jet reaction system for launch vehicle payloads  
[NASA-CASE-XLA-01339] c31 N71-15692  
Payload soft landing system using stowable gas bag  
[NASA-CASE-XLA-09881] c31 N71-16085  
Zero gravity apparatus utilizing pneumatic decelerating means to create payload subjected to zero gravity conditions by dropping its height  
[NASA-CASE-XMF-06515] c14 N71-23227

**PCM TELEMETRY**  
Variable time constant, wide frequency range smoothing network for noise removal from pulse chains  
[NASA-CASE-XGS-01983] c10 N70-41964  
Data acquisition and processing system with buffer storage and timing device for magnetic tape recording of PCM data and timing information  
[NASA-CASE-NPO-12107] c08 N71-27255  
High speed direct binary to binary coded decimal converter for use in PCM telemetry systems  
[NASA-CASE-KSC-10326] c08 N72-21197

**PELLETS**  
Supporting structure for simultaneous exposure of pellets to X rays  
[NASA-CASE-XNP-06031] c15 N71-15606

**PELTIER EFFECTS**  
Use of silicon controlled rectifier shorting circuit to protect thermoelectric generator source from thermal destruction  
[NASA-CASE-XGS-04808] c03 N69-25146

**PENETRANTS**  
Dye penetrant and technique for nondestructive tests of solid surfaces contacted by liquid oxygen  
[NASA-CASE-XMF-02221] c18 N71-27170

**PENETRATION**  
Method and device for detection of surface discontinuities or defects  
[NASA-CASE-MSC-14187-1] c35 N74-32879

**PENETROMETERS**  
Development and characteristics of penetrometer for measuring physical properties of lunar surface  
[NASA-CASE-XLA-00934] c14 N71-22765  
Penetrometer for empirically determining load-bearing characteristics of inclined surfaces of remotely located bodies of soil  
[NASA-CASE-NPO-11103] c14 N72-21406  
Portable penetrometer for analyzing soil characteristics  
[NASA-CASE-MFS-20774] c14 N73-19420  
Auger-type soil penetrometer for burrowing into soil formations  
[NASA-CASE-XNP-05530] c14 N73-32321  
Penetrometer --- for determining load bearing characteristics of inclined surfaces  
[NASA-CASE-NPO-11103-1] c35 N77-27367

**PERCEPTION**  
Measuring method for cutaneous perception using instrument with elongated tubular housing  
[NASA-CASE-MSC-13609-1] c05 N72-25122

**PERFLUORO COMPOUNDS**  
Chemical synthesis of hydroxy terminated perfluoro ethers as intermediates for highly fluorinated polyurethane resins  
[NASA-CASE-NPO-10768] c06 N71-27254  
Perfluoro polyether acyl fluorides  
[NASA-CASE-NPO-10765] c06 N72-20121  
Reaction of polyperfluoropolyenes with fluorine to produce saturated polymer chain or create reactive sites on chain  
[NASA-CASE-NPO-10862] c06 N72-22107

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## PHASE LOCKED SYSTEMS

- Silphenylenesiloxane polymer with in-chain perfluoroalkyl groups  
[NASA-CASE-MFS-20979] c06 N72-25151
- Polymerization of perfluorobutadiene  
[NASA-CASE-NPO-10863-2] c06 N72-25152
- Formation of polyurethane resins from hydroxy terminated perfluoro ethers  
[NASA-CASE-NPO-10768-2] c06 N72-27144
- Process for preparing disilanolols with in-chain perfluoroalkyl groups  
[NASA-CASE-MFS-20979-2] c06 N73-32030
- Perfluoro alkylene dioxy-bis-(4-phthalic anhydrides and oxy-bis-(perfluoroalkyleneoxyphthalic anhydrides  
[NASA-CASE-MFS-22356-1] c23 N75-30256
- PERFLUOROALKANE**  
Preparation of heterocyclic block copolymer from perfluoroalkylene oxide alpha, omega-diamidoximes  
[NASA-CASE-ARC-11060-1] c27 N78-10292
- PERFORATED PLATES**  
Helium outgassing process for fused glass coating on ion accelerator grid  
[NASA-CASE-LEW-10278-1] c15 N71-28582
- PERFORATED SHELLS**  
Method of fabricating an article with cavities --- with thin bottom walls  
[NASA-CASE-LAR-10318-1] c31 N74-18089
- PERFORMANCE PREDICTION**  
Failure detection and control means for improved drift performance of a gimbaled platform system  
[NASA-CASE-MFS-23551-1] c04 N76-26175
- PERFORMANCE TESTS**  
Flexible, frangible electrochemical cell and package for operation in low temperature environment  
[NASA-CASE-XGS-10010] c03 N72-15986
- Test method and equipment for identifying faulty cells or connections in solar cell assemblies  
[NASA-CASE-NPO-10401] c03 N72-20033
- Development of apparatus for detonating explosive devices in order to determine forces generated and detonation propagation rate  
[NASA-CASE-LAR-10800-1] c33 N72-27959
- Safety flywheel  
[NASA-CASE-HQN-10888-1] c37 N77-22484
- PERIODIC VARIATIONS**  
Mount for continuously orienting a collector dish in a system adapted to perform both diurnal and seasonal solar tracking  
[NASA-CASE-MFS-23267-1] c35 N77-20401
- PERMEABILITY**  
Water insoluble, cationic permselective membrane  
[NASA-CASE-NPO-11091] c18 N72-22567
- PERMITTIVITY**  
Preparation of dielectric coatings of variable dielectric constant by plasma polymerization  
[NASA-CASE-ARC-10892-2] c27 N77-17245
- PEROXIDES**  
Low pressure perfluorobutadiene polymerization with peroxide catalysts  
[NASA-CASE-NPO-10447] c06 N70-11252
- PERSPIRATION**  
Manufacturing process for making perspiration resistant-stress resistant biopotential electrode  
[NASA-CASE-MSC-90153-2] c05 N72-25120
- PERTURBATION**  
Absorbing gas reactivity control system for minimizing power distribution and perturbation in nuclear reactors  
[NASA-CASE-XLE-04599] c22 N72-20597
- PERTURBATION THEORY**  
Dual wavelength scanning Doppler velocimeter --- without perturbation of flow fields  
[NASA-CASE-ARC-10637-1] c35 N75-16783
- PHASE COHERENCE**  
Apparatus for estimating amplitude and sign of phase difference or time lag between two signals  
[NASA-CASE-NPO-11203] c10 N72-20224
- Coherent receiver employing nonlinear coherence detection for carrier tracking  
[NASA-CASE-NFO-11921-1] c32 N74-30523
- PHASE CONTROL**  
System designed to reduce time required for obtaining synchronization in data communication with spacecraft utilizing pseudonoise codes  
[NASA-CASE-NPO-10214] c10 N71-26577
- Wideband voltage controlled oscillator with high phase stability  
[NASA-CASE-XLA-03893] c10 N71-27271
- Voltage controlled oscillator circuit for two-phase induction motor control  
[NASA-CASE-MFS-21465-1] c10 N73-32145
- System for generating timing and control signals  
[NASA-CASE-NPO-13125-1] c33 N75-19519
- PHASE DEMODULATORS**  
Development of phase demodulation system with two phase locked loops  
[NASA-CASE-XNP-00777] c10 N71-19469
- Receiving and tracking phase modulated signals  
[NASA-CASE-MSC-16170-1] c32 N77-12248
- Linear phase demodulator including a phase locked loop with auxiliary feedback loop  
[NASA-CASE-GSC-12018-1] c33 N77-14334
- PHASE DETECTORS**  
Detector assembly for discriminating first signal with respect to presence or absence of second signal at time of occurrence of first signal  
[NASA-CASE-XMP-00701] c09 N70-40272
- Bipolar phase detector and corrector for split phase PCM data signals  
[NASA-CASE-XGS-01590] c07 N71-12392
- High speed phase detector design indicating phase relationship between two square wave input signals  
[NASA-CASE-XNP-01306-2] c09 N71-24596
- Phase protection system for ac power lines  
[NASA-CASE-MSC-17832-1] c33 N74-14956
- Low distortion automatic phase control circuit --- voltage controlled phase shifter  
[NASA-CASE-MFS-21671-1] c33 N74-22885
- Correlation type phase detector --- with time correlation integrator for frequency multiplexed signals  
[NASA-CASE-GSC-11744-1] c33 N75-26243
- Impact position detector for outer space particles  
[NASA-CASE-GSC-11829-1] c35 N75-27331
- Frequency discriminator and phase detector circuit  
[NASA-CASE-NPO-11515-1] c33 N77-13315
- Phase substitution of spare converter for a failed one of parallel phase staggered converters  
[NASA-CASE-NPO-13812-1] c33 N77-30365
- Apparatus and method for stabilized phase detection for binary signal tracking loops  
[NASA-CASE-MSC-16461-1] c32 N78-15331
- PHASE DEVIATION**  
System for stabilizing cable phase delay utilizing a coaxial cable under pressure  
[NASA-CASE-NPO-13138-1] c33 N74-17927
- PHASE LOCK DEMODULATORS**  
Phase locked demodulator with bandwidth switching amplifier circuit  
[NASA-CASE-XNP-01107] c10 N71-28859
- PHASE LOCKED SYSTEMS**  
System for phase locking onto carrier frequency signal located within receiver bandpass  
[NASA-CASE-XGS-04994] c09 N69-21543
- Phase locked loop with sideband rejecting properties in continuous wave tracking radar  
[NASA-CASE-XNP-02723] c07 N70-41680
- Development of automatic frequency discriminators and control for phase lock loop providing frequency preset capabilities  
[NASA-CASE-XNP-08665] c10 N71-19467
- Development and characteristics of burst synchronization detection system  
[NASA-CASE-XMS-05605-1] c10 N71-19468
- Development of phase demodulation system with two phase locked loops  
[NASA-CASE-XNP-00777] c10 N71-19469
- Diversity receiving system with diversity phase lock  
[NASA-CASE-XGS-01222] c10 N71-20841
- Phase locked phase modulation system with voltage controlled oscillator for final phase linearity  
[NASA-CASE-XVP-05382] c10 N71-23544
- Video sync processor with phase locked system  
[NASA-CASE-KSC-10002] c10 N71-25865
- Characteristics of data-aided carrier tracking loop used for tracking carrier in angle modulated communications system  
[NASA-CASE-NPO-11282] c10 N73-16205

## PHASE MODULATION

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Filter for third order phase locked loops in signal receivers  
[NASA-CASE-NPO-11941-1] c10 N73-27171

Improved phase lock loop for receiver in multichannel telemetry system with suppressed carrier  
[NASA-CASE-NPO-11593-1] c07 N73-28012

Automatic carrier acquisition system for phase locked loop receiver  
[NASA-CASE-NPO-11628-1] c07 N73-30113

Phase-locked servo system --- for synchronizing the rotation of slip ring assembly  
[NASA-CASE-MPS-22073-1] c33 N75-13139

Low speed phaselock speed control system --- for brushless dc motor  
[NASA-CASE-GSC-11127-1] c09 N75-24758

Digital phase-locked loop  
[NASA-CASE-GSC-11623-1] c33 N75-25040

Telemetry synchronizer  
[NASA-CASE-GSC-11868-1] c17 N76-22245

Receiving and tracking phase modulated signals  
[NASA-CASE-MSC-16170-1] c32 N77-12248

**PHASE MODULATION**

Plural channel data transmission system with quadrature modulation and complementary demodulation  
[NASA-CASE-XAC-06302] c08 N71-19763

Adaptive notch filter, using modulation techniques for reversed phase noise signal  
[NASA-CASE-XMF-01892] c10 N71-22986

Phase locked phase modulation system with voltage controlled oscillator for final phase linearity  
[NASA-CASE-XNP-05382] c10 N71-23544

Scanning signal phase and amplitude electronic control device with hybrid T waveguide junction  
[NASA-CASE-NPO-10302] c10 N71-26142

Phase modulator with tuned variable length electrical lines including coupling and varactor diode circuits  
[NASA-CASE-MSC-13201-1] c07 N71-28429

Multicarrier communications system for transmitting modulated signals from single transmitter  
[NASA-CASE-NPO-11548] c07 N73-26118

Decision feedback loop for tracking a polyphase modulated carrier  
[NASA-CASE-NPO-13103-1] c32 N74-20811

Modulator for tone and binary signals --- phase of modulation of tone and binary signals on carrier waves in communication systems  
[NASA-CASE-GSC-11743-1] c32 N75-24981

Phase modulating with odd and even finite power series of a modulating signal  
[NASA-CASE-LAR-11607-1] c32 N77-14292

Closed loop solar array-ion thruster system with power control circuitry  
[NASA-CASE-LEW-12780-1] c20 N78-22149

Swept group delay measurement  
[NASA-CASE-NPO-13909-1] c33 N78-25319

Quadrature demodulation  
[NASA-CASE-GSC-12137-1] c33 N78-32338

**PHASE SHIFT**

Bipolar phase detector and corrector for split phase PCM data signals  
[NASA-CASE-XGS-01590] c07 N71-12392

Left and right hand circular electromagnetic polarization excitation by phase shifter and hybrid networks  
[NASA-CASE-GSC-10021-1] c09 N71-24595

Pulse code modulated data from frequency multiplex communications by digital phase shift or carrier  
[NASA-CASE-NPO-11338] c08 N72-25208

Time domain phase measuring apparatus  
[NASA-CASE-GSC-12228-1] c33 N78-15401

Power control for hot gas engines  
[NASA-CASE-NPO-14220-1] c37 N78-25430

**PHASE SHIFT CIRCUITS**

Design of gyrator circuit using operational amplifiers to replace ungrounded inductors  
[NASA-CASE-XAC-10608-1] c09 N71-12517

Phase shifting circuit for selecting phase of input signal  
[NASA-CASE-ARC-10269-1] c10 N72-16172

Continuously variable, voltage-controlled phase shifter  
[NASA-CASE-NPO-11129] c09 N72-33204

Voltage controlled oscillator circuit for two-phase induction motor control  
[NASA-CASE-MPS-21465-1] c10 N73-32145

Low distortion automatic phase control circuit --- voltage controlled phase shifter  
[NASA-CASE-MPS-21671-1] c33 N74-22885

Traveling wave tube circuit  
[NASA-CASE-LEW-12013-1] c33 N77-17360

**PHASE SHIFT KEYING**

Decision feedback loop for tracking a polyphase modulated carrier  
[NASA-CASE-NPO-13103-1] c32 N74-20811

Differential phase shift keyed communication system  
[NASA-CASE-MSC-14065-1] c32 N74-26654

Differential phase shift keyed signal resolver  
[NASA-CASE-MSC-14066-1] c33 N74-27705

Unbalanced quadrature demodulator  
[NASA-CASE-MSC-14840-1] c32 N77-24331

**PHASE SWITCHING INTERFEROMETERS**

Interferometric tuning acquisition and tracking radar antenna system  
[NASA-CASE-XMS-09610] c07 N71-24625

**PHASE TRANSFORMATIONS**

Magnetohydrodynamic generator for mixing nonconductive gas and liquid metal mist to form slugs  
[NASA-CASE-XLE-02083] c03 N69-39983

Method and feed system for separating and orienting liquid and vapor phases of liquid propellants in zero gravity environment  
[NASA-CASE-XLE-01182] c27 N71-15635

**PHASE VELOCITY**

Ultrasonic calibration device --- for producing changes in acoustic attenuation and phase velocity  
[NASA-CASE-LAR-11435-1] c35 N76-15432

**PHASED ARRAYS**

Development of phase control coupling for use with phased array antenna  
[NASA-CASE-ERC-10285] c10 N73-16206

Phase array antenna control  
[NASA-CASE-MSC-14939-1] c33 N77-19320

Phase conjugation method and apparatus for an active retrodirective antenna array  
[NASA-CASE-NPO-13641-1] c32 N77-24340

Limited scan dual-band high gain antenna  
[NASA-CASE-NPO-14038-1] c32 N78-24401

**PHASED LOCKED SYSTEMS**

Bit synchronization system using digital data transition tracking phased locked loop  
[NASA-CASE-NPO-10844] c07 N72-20140

Digital second-order phase-locked loop  
[NASA-CASE-NPO-11905-1] c33 N74-12887

Linear phase demodulator including a phase locked loop with auxiliary feedback loop  
[NASA-CASE-GSC-12018-1] c33 N77-14334

**PHENOLIC RESINS**

Bonding method in the manufacture of continuous regression rate sensor devices  
[NASA-CASE-LAR-10337-1] c24 N75-30260

**PHENOLS**

Utilization of lithium p-lithiophenoxide to prepare star polymers  
[NASA-CASE-NPO-10998-1] c06 N73-32029

Device for the detection of phenol and related compounds --- in an electrochemical cell  
[NASA-CASE-LEW-12513-1] c25 N77-18238

**PHONOCARDIOGRAPHY**

Phonocardiogram simulator producing electrical voltage waves to control amplitude and duration between simulated sounds  
[NASA-CASE-XKS-10804] c05 N71-24606

Vibrophonocardiograph comprising low weight and small volume piezoelectric microphone with amplifier having high input impedance for high sensitivity and low frequency response  
[NASA-CASE-XPR-07172] c05 N71-27234

**PHOSPHATES**

Low concentration alkaline solution treatment of aluminum with metal phosphate surface coatings to improve chemical bonding and reduce coating weight  
[NASA-CASE-XLA-01995] c18 N71-23047

**PHOSPHINES**

Heat resistant polymers of oxidized styrylphosphine  
[NASA-CASE-MSC-14903-2] c27 N78-25216



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## PHOTOIONIZATION

- Heat resistant polymers of oxidized styrylphosphine  
[NASA-CASE-MSC-14903-3] c27 W78-25217
- Heat resistant polymers of oxidized styrylphosphine  
[NASA-CASE-MSC-14903-1] c27 W78-32256
- PHOSPHONITRILES**  
Chemical synthesis of thermally stable organometallic polymers with divalent metal ion and tetraphenylphosphonitrilic units  
[NASA-CASE-BQN-10364] c06 W71-27363
- PHOSPHORS**  
Cathode ray tube with coating of phosphor and cobalt oxides  
[NASA-CASE-ERC-10468] c09 W72-20206
- PHOTOCATHODES**  
Spectrometer using photoelectric effect to obtain spectral data  
[NASA-CASE-XNP-04161] c14 W71-15599
- III-V photocathode with nitrogen doping for increased quantum efficiency  
[NASA-CASE-NPO-12134-1] c33 W76-31409
- PHOTOCHEMICAL REACTIONS**  
Process for producing flame resistant polyamides and products produced thereby  
[NASA-CASE-MSC-16074-1] c27 W77-14262
- Apparatus for photon excited catalysis  
[NASA-CASE-NPO-13566-1] c25 W77-32255
- Apparatus for extraction and separation of a preferentially photo-dissociated molecular isotope into positive and negative ions by means of an electric field  
[NASA-CASE-LEW-12465-1] c25 W78-25148
- PHOTOCONDUCTIVE CELLS**  
Two-dimensional radiant energy array computers and computing devices  
[NASA-CASE-GSC-11839-1] c60 W77-14751
- Plural output optometric sample cell and analysis system  
[NASA-CASE-NPO-10233-1] c74 W78-33913
- PHOTOCONDUCTIVITY**  
Photofabrication techniques for selective removal of conductive metals oxide coatings from nonconductive substrates  
[NASA-CASE-ERC-10108] c06 W72-21094
- PHOTOCONDUCTORS**  
Electronic divider and multiplier for analog electric signals  
[NASA-CASE-XPB-05637] c09 W71-19480
- PHOTODIODES**  
Shock isolator for operating a diode laser and closed-cycle refrigerator  
[NASA-CASE-GSC-12297-1] c37 W78-19515
- PHOTODISSOCIATION**  
Apparatus for extraction and separation of a preferentially photo-dissociated molecular isotope into positive and negative ions by means of an electric field  
[NASA-CASE-LEW-12465-1] c25 W78-25148
- PHOTOELECTRIC CELLS**  
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[NASA-CASE-XGS-01159] c21 W71-10678
- Method of and device for determining the characteristics and flux distribution of micrometeorites --- scanning puncture holes in sheet material with photoelectric cell  
[NASA-CASE-NPO-12127-1] c91 W74-13130
- PHOTOELECTRIC EFFECT**  
Spectrometer using photoelectric effect to obtain spectral data  
[NASA-CASE-XNP-04161] c14 W71-15599
- PHOTOELECTRIC EMISSION**  
High resolution threshold photoelectron spectroscopy by electron attachment  
[NASA-CASE-NPO-14078-1] c76 W78-13917
- PHOTOELECTRIC MATERIALS**  
Light radiation direction indicator with baffle of two parallel grids  
[NASA-CASE-XNP-03930] c14 W69-24331
- Use of thin film light detector  
[NASA-CASE-NPO-11432-2] c35 W74-15090
- PHOTOELECTRON SPECTROSCOPY**  
Photoelectron spectrometer with means for stabilizing sample surface potential  
[NASA-CASE-NPO-13772-1] c35 W78-10429
- PHOTOELECTRONS**  
High resolution threshold photoelectron spectroscopy by electron attachment  
[NASA-CASE-NPO-14078-1] c76 W78-13917
- PHOTOGRAPHIC EQUIPMENT**  
Camera protecting device for use in photographing rocket engine nozzles or other engine components  
[NASA-CASE-NPO-10174] c14 W71-18465
- Method of treating the surface of a glass member  
[NASA-CASE-GSC-12110-1] c27 W77-32308
- System for forming a quadrifid image comprising angularly related fields of view of a three dimensional object  
[NASA-CASE-NPO-14219-1] c35 W78-22348
- PHOTOGRAPHIC FILM**  
Longitudinal film gate and lock mechanism for securing film in motion picture cameras under vibration and high acceleration loads  
[NASA-CASE-LAR-10686] c14 W71-28935
- Photographic film restoration system using Fourier transformation lenses and spatial filter  
[NASA-CASE-MSC-12448-1] c14 W72-20394
- Mechanical exposure interlock device for preventing film overexposure in oscilloscope camera  
[NASA-CASE-LAR-10319-1] c14 W73-32322
- Optical noise suppression device and method --- laser light exposing film  
[NASA-CASE-MSC-12640-1] c74 W76-31998
- Selective image area control of X-ray film exposure density  
[NASA-CASE-NPO-13808-1] c35 W78-15461
- PHOTOGRAPHIC MEASUREMENT**  
Photographic method for measuring viscoelastic strain in solid propellants and other materials  
[NASA-CASE-XNP-01153] c32 W71-17645
- Impact measuring technique for determining size of hypervelocity projectiles  
[NASA-CASE-LAR-10913] c14 W72-16282
- TV fatigue crack monitoring system  
[NASA-CASE-LAR-11490-1] c39 W78-16387
- PHOTOGRAPHIC PROCESSING**  
Method of post-process intensification of images on photographic films and plates  
[NASA-CASE-MFS-23461-1] c35 W76-26449
- Method and apparatus for producing an image from a transparent object  
[NASA-CASE-GSC-11989-1] c74 W77-28932
- PHOTOGRAPHIC PROCESSING EQUIPMENT**  
Drying chamber for photographic sheet material  
[NASA-CASE-GSC-11074-1] c14 W73-28489
- PHOTOGRAPHIC RECORDING**  
Photographing surface flow patterns on wind tunnel test models  
[NASA-CASE-XLA-01353] c14 W70-41366
- Development of focused image holography with extended sources  
[NASA-CASE-ERC-10019] c16 W71-15551
- Recording and reconstructing focused image holograms  
[NASA-CASE-ERC-10017] c16 W71-15567
- Method and means for recording and reconstructing holograms without use of reference beam  
[NASA-CASE-ERC-10020] c16 W71-26154
- Multiple image storing system for obtaining holographic record on film of high speed projectile  
[NASA-CASE-MFS-20596] c14 W72-17324
- Phototropic composition of matter with sensitivity to ultraviolet light and usable for producing positive photographic images  
[NASA-CASE-XGS-03736] c14 W72-22443
- Method for determining thermo-physical properties of specimens --- photographic recording of changes in thin film phase-change temperature indicating material in wind tunnel  
[NASA-CASE-LAB-11053-1] c25 W74-18551
- PHOTOGRAPHS**  
A system and method for obtaining wide screen schlieren photographs  
[NASA-CASE-NPO-14174-1] c35 W78-18396
- System for forming a quadrifid image comprising angularly related fields of view of a three dimensional object  
[NASA-CASE-NPO-14219-1] c35 W78-22348
- PHOTOIONIZATION**  
Multichannel photoionization chamber for measuring absorption, photoionization yield, and coefficients of gases  
[NASA-CASE-ERC-10044-1] c14 W71-27090

## PHOTOLYSIS

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- High resolution threshold photoelectron spectroscopy by electron attachment  
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- PHOTOLYSIS**
- Solar photolysis of water  
[NASA-CASE-NPO-13675-1] c44 N77-32580
- Improved solar photolysis of water  
[NASA-CASE-NPO-14126-1] c44 N78-11500
- PHOTOMAPPING**
- Window defect planar mapping technique  
[NASA-CASE-MSC-19442-1] c74 N77-10899
- PHOTOMETERS**
- Michelson interferometer with photodetector for optical direction sensing  
[NASA-CASE-NPO-10320] c14 N71-17655
- Indicator device for monitoring charge of wet cell battery, using semiconductor light emitter and photodetector  
[NASA-CASE-NPO-10194] c03 N71-20407
- Electro-optical detector for determining position of light source  
[NASA-CASE-XNP-01059] c23 N71-21821
- Photometric flow meter with comparator reference means  
[NASA-CASE-XGS-01331] c14 N71-22996
- Development of radiant energy sensor to detect the radiant energy wavelength bands from portions of radiating body  
[NASA-CASE-ERC-10174] c14 N72-25409
- Characteristics of infrared photodetectors manufactured from semiconductor material irradiated by electron beam  
[NASA-CASE-LAR-10728-1] c14 N73-12445
- Chromato-fluorographic drug detector --- device for detecting and recording fluorescent properties of materials  
[NASA-CASE-ARC-10633-1] c25 N74-26947
- The 2 deg/90 deg laboratory scattering photometer --- particulate refractivity in hydrosols  
[NASA-CASE-GSC-12088-1] c74 N78-13874
- Magneto-optic detection system with noise cancellation  
[NASA-CASE-NPO-11954-1] c35 N78-29421
- PHOTOMICROGRAPHY**
- Stereo photomicrography system with stereo microscope for viewing specimen at various magnifications  
[NASA-CASE-LAR-10176-1] c14 N72-20380
- Device for displaying and recording angled views of samples to be viewed by microscope  
[NASA-CASE-GSC-11690-1] c14 N73-28499
- Hand-held, lightweight, portable photomicroscope  
[NASA-CASE-ARC-10468-1] c14 N73-33361
- PHOTOMULTIPLIER TUBES**
- Photomultiplier detector of Canopus for spacecraft attitude control  
[NASA-CASE-XNP-03914] c21 N71-10771
- Electronic divider and multiplier for analog electric signals  
[NASA-CASE-XPR-05637] c09 N71-19480
- Circuit design for determining amount of photomultiplier tube light detection utilizing variable current source and dark current signals of opposite polarity  
[NASA-CASE-XMS-03478] c14 N71-21040
- Apparatus for detecting particle emission lower than noise level of multiplier tube  
[NASA-CASE-XLA-07813] c14 N72-17328
- Scan oscilloscope for mapping surface sensitivity of photomultiplier tube  
[NASA-CASE-LAR-10320-1] c09 N72-23172
- Design and development of light sensing device for controlling orientation of object relative to sun or other light source  
[NASA-CASE-NPO-11201] c14 N72-27409
- Photomultiplier circuit including means for rapidly reducing the sensitivity thereof --- and protection from radiation damage  
[NASA-CASE-ARC-10593-1] c33 N74-27682
- PHOTON BEAMS**
- Apparatus for photon excited catalysis  
[NASA-CASE-NPO-13566-1] c25 N77-32255
- PHOTONS**
- Solar cell collector  
[NASA-CASE-LEW-12552-1] c44 N78-25527
- PHOTOSENSITIVITY**
- Photosensitive light source device for detecting unmanned spacecraft deviation from reference attitude  
[NASA-CASE-XNP-00438] c21 N70-35089
- Light sensitive control system for automatically opening and closing dome of solar optical telescope  
[NASA-CASE-MSC-10966] c14 N71-19568
- Scan oscilloscope for mapping surface sensitivity of photomultiplier tube  
[NASA-CASE-LAR-10320-1] c09 N72-23172
- Holography utilizing surface plasmon resonances  
[NASA-CASE-MFS-22040-1] c35 N74-26946
- Apparatus for calibrating an image dissector tube  
[NASA-CASE-MFS-22208-1] c33 N75-26244
- PHOTOTRANSISTORS**
- Phototransistor imaging system with mosaic of phototransistors on semiconductor substrate  
[NASA-CASE-MFS-20809] c23 N73-13660
- Phototransistor with base collector junction diode for integration into photo sensor arrays  
[NASA-CASE-MFS-20407] c09 N73-19235
- PHOTOTROPISM**
- Phototropic composition of matter with sensitivity to ultraviolet light and usable for producing positive photographic images  
[NASA-CASE-XGS-03736] c14 N72-22443
- PHOTOVISCOELASTICITY**
- Photographic method for measuring viscoelastic strain in solid propellants and other materials  
[NASA-CASE-XNP-01153] c32 N71-17645
- PHOTOVOLTAIC CELLS**
- Sensor consisting of photocells mounted on pyramidal base for improved pointing accuracy of planetary trackers  
[NASA-CASE-XNP-04180] c07 N69-39736
- Light sensitive digital aspect sensor for attitude control of earth satellites or space probes  
[NASA-CASE-XGS-00359] c14 N70-34158
- Method of producing output voltage from photovoltaic cell using poly-N-vinyl carbazole complexed with iodine  
[NASA-CASE-NPO-10373] c03 N71-18698
- Use of thin film light detector  
[NASA-CASE-NPO-11432-2] c35 N74-15090
- Photovoltaic cell array  
[NASA-CASE-MFS-22458-1] c44 N77-10635
- Method for fabricating solar cells having integral collector grids  
[NASA-CASE-LEW-12819-1] c44 N77-24593
- Method of construction of a multi-cell solar array  
[NASA-CASE-MFS-23540-1] c44 N78-17468
- Double-sided solar cell package  
[NASA-CASE-NPO-14199-1] c44 N78-22470
- A transparent photovoltaic module  
[NASA-CASE-NPO-14304-1] c44 N78-27521
- An improved solar cell and method of forming the same  
[NASA-CASE-NPO-14205-1] c44 N78-27541
- Method of fabricating a photovoltaic of a substantially transparent construction  
[NASA-CASE-NPO-14303-1] c44 N78-28626
- PHOTOVOLTAIC EFFECT**
- Semiconductor in resonant cavity for improving signal to noise ratio of communication receiver  
[NASA-CASE-MSC-12259-1] c07 N70-12616
- Use of thin film light detector  
[NASA-CASE-NPO-11432-2] c35 N74-15090
- PHYSICAL EXERCISE**
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[NASA-CASE-MFS-21046-1] c14 N73-27377
- Tilting table for testing human body in variety of positions while exercising on ergometer or other biomedical devices  
[NASA-CASE-MFS-21010-1] c05 N73-30078
- Manual actuator --- for spacecraft exercising machines  
[NASA-CASE-MFS-21481-1] c37 N74-18127
- Therapeutic hand exerciser  
[NASA-CASE-LAR-11667-1] c52 N76-19785
- PHYSICAL PROPERTIES**
- Chemical and physical properties of synthetic polyurethane polymer prepared by reacting hydroxy carbonate with organic diisocyanate  
[NASA-CASE-MFS-10512] c06 N73-30999
- PHYSIOLOGICAL EFFECTS**
- Restraint torso for increased mobility and reduced physiological effects while wearing pressurized suits

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## PIPES (TUBES)

[NASA-CASE-MSC-12397-1] c05 N72-25119

**PHYSIOLOGICAL TESTS**

Vibrophonocardiograph comprising low weight and small volume piezoelectric microphone with amplifier having high input impedance for high sensitivity and low frequency response [NASA-CASE-IPR-07172] c05 N71-27234

Medical subject monitoring systems --- multichannel monitoring systems [NASA-CASE-MSC-14180-1] c52 N76-14757

**PHYSIOLOGY**

Piezoelectric transducer for monitoring sound waves of physiological origin [NASA-CASE-IMS-05365] c14 N71-22993

Method of detecting and counting bacteria [NASA-CASE-GSC-11917-2] c51 N76-29891

**PIERCING**

Pressurized cell micrometeoroid detector [NASA-CASE-XIA-00936] c14 N71-14996

**PIEZOELECTRIC CRYSTALS**

Miniature solid state, direction sensitive, stress transducer design with bonded semiconductive piezoresistive element for sensing residual stresses [NASA-CASE-IMP-02983] c14 N71-21091

Ultra-stable oscillator with complementary transistors [NASA-CASE-GSC-11513-1] c33 N74-20862

A phase insensitive ultrasonic transducer --- annealing cadmium sulfide crystals [NASA-CASE-LAR-12304-1] c71 N78-29871

**PIEZOELECTRIC TRANSDUCERS**

Piezoelectric transducer for detecting and measuring micrometeoroids [NASA-CASE-IAC-01101] c14 N70-41957

Describing crystal oscillator instrument for detecting condensable gas contaminants in vacuum apparatus [NASA-CASE-NPO-10144] c14 N71-17701

Piezoelectric transducer for monitoring sound waves of physiological origin [NASA-CASE-IMS-05365] c14 N71-22993

Miniature piezoelectric junction semiconductor transducer with in situ stress coupling [NASA-CASE-ERC-10087-2] c14 N72-31446

**PIEZOELECTRICITY**

Piezoelectric means for missile stage separation indication and stage initiation [NASA-CASE-XIA-00791] c03 N70-39930

Piezoelectric pump for supplying fluid at high frequencies to gyroscope fluid suspension system [NASA-CASE-IMP-05429] c26 N71-21824

Miniature electromechanical junction transducer operating on piezoelectric effect and utilizing epoxy for stress coupling component [NASA-CASE-ERC-10087] c14 N71-27334

**PIEZORESISTIVE TRANSDUCERS**

Miniature solid state, direction sensitive, stress transducer design with bonded semiconductive piezoresistive element for sensing residual stresses [NASA-CASE-IMP-02983] c14 N71-21091

Solid state force measuring electromechanical transducers made of piezoresistive materials [NASA-CASE-ERC-10088] c26 N71-25890

**PIGMENTS**

Binder stabilized zinc oxide pigmented coating for spacecraft thermal control [NASA-CASE-IMP-07770-2] c18 N71-26772

**PILOT ERROR**

Spectrally balanced chromatic landing approach lighting system [NASA-CASE-ARC-10990-1] c04 N77-12031

**PILOT TRAINING**

Controlled visibility device for simulating poor visibility conditions in training pilots in instrument landing and flight procedures [NASA-CASE-IPR-04147] c11 N71-10748

Kinesthetic control simulator --- for pilot training [NASA-CASE-LAR-10276-1] c09 N75-15662

**PILOTS (PERSONNEL)**

Pilot warning indicator system of intruder aircraft [NASA-CASE-ERC-10226-1] c14 N73-16483

**PINCH EFFECT**

Toggle mechanism for pinching metal tubes [NASA-CASE-GSC-12274-1] c37 N78-25428

**PINS**

Fatigue resistant shear pin with hollow shaft and two plugs [NASA-CASE-XLA-09122] c15 N69-27505

Blade vibration damping pins for turbomachinery [NASA-CASE-XLE-00155] c28 N71-29154

Design of quick release locking pin for joining two or more load-carrying structural members [NASA-CASE-MPS-18495] c15 N72-11385

**PINTLES**

Describing metal valve pintle with encapsulated elastomeric body [NASA-CASE-MSC-12116-1] c15 N71-17648

**PIPE FLOW**

Flat-plate heat pipe [NASA-CASE-GSC-11998-1] c34 N77-32413

**PIPELINES**

Flexible bellows joint shielding sleeve for propellant transfer pipelines [NASA-CASE-IMP-01855] c15 N71-28937

Insulation for piping [NASA-CASE-MSC-19523-1] c31 N76-16245

**PIPES (TUBES)**

Capacitance measuring device for determining flare accuracy on tapered tubes [NASA-CASE-XKS-03495] c14 N69-39785

Low thermal loss piping arrangement for moving cryogenic media through double chamber structure [NASA-CASE-IMP-08882] c15 N69-39935

Foldable conduit capable of springing back as self erecting structural member [NASA-CASE-XLE-00620] c32 N70-41579

Mounting fixture for supporting thermobulb in pipeline [NASA-CASE-NPO-10158] c33 N71-16356

Method and apparatus for shaping and joining large diameter metal tubes using magnetomotive forces [NASA-CASE-IMP-05114] c15 N71-17650

Sealed separable connection for thin wall metal tube [NASA-CASE-NPO-10064] c15 N71-17693

Electrical switching device comprising conductive liquid confined within square loop of deformable nonconductive tubing also used for leveling [NASA-CASE-NPO-10037] c09 N71-19610

Hand tool for forming dimples and nipples on end portion of tubes [NASA-CASE-IMS-06876] c15 N71-21536

Nonconductive tube as feed system for plasma thruster [NASA-CASE-XLE-02902] c25 N71-21694

Apparatus and method for spin forming tubular elbows with high strength, uniform thickness, and close tolerances [NASA-CASE-IMP-01083] c15 N71-22723

Description of portable milling tool for milling tube or pipe ends to desired shape and thickness [NASA-CASE-IMP-03511] c15 N71-22799

Gage for measuring internal angle of flare on end of tube [NASA-CASE-IMP-04415] c14 N71-24693

Method and apparatus for portable high precision magnetomotive bulging, constricting, and joining of large diameter metal tubes [NASA-CASE-IMP-05114-3] c15 N71-24865

Portable cutting machine for piping weld preparation [NASA-CASE-IKS-07953] c15 N71-26134

Method and apparatus for precision sizing and joining of large diameter tubes by bulging or constricting overlapping ends [NASA-CASE-IMP-05114-2] c15 N71-26148

Collapsible antenna boom and coaxial transmission line having inflatable inner tube [NASA-CASE-MPS-20068] c07 N71-27191

Process for developing filament reinforced plastic tubes used in research and development programs [NASA-CASE-LAR-10203-1] c15 N72-16330

Torsional disconnect device for releasably coupling distal ends of fluid conduits [NASA-CASE-NPO-10704] c15 N72-20445

Open type urine receptacle with tubular housing [NASA-CASE-MSC-12324-1] c05 N72-22093

Measuring method for cutaneous perception using instrument with elongated tubular housing [NASA-CASE-MSC-13609-1] c05 N72-25122

- Low mass truss structure with elongated thin-walled tubular segments  
[NASA-CASE-LAR-10546-1] c11 N72-25287
- Honeycomb panels of minimal surface, periodic tubule layers  
[NASA-CASE-ERC-10364] c18 N72-25540
- Honeycomb core structures of minimum surface tubule sections  
[NASA-CASE-ERC-10363] c18 N72-25541
- U shaped heated tube for distillation and purification of liquid metals  
[NASA-CASE-XMP-08124-2] c06 N73-13129
- Cable guide and restraint device for reefing tubes in uniform manner  
[NASA-CASE-LAR-10129-1] c15 N73-25512
- Twisted wire or tube superconductor for filament windings  
[NASA-CASE-LEW-11015] c26 N73-32571
- Open tube quillway for high speed air cushioned vehicles  
[NASA-CASE-LAR-10256-1] c85 N74-34672
- Method for fabricating a mass spectrometer inlet leak  
[NASA-CASE-GSC-12077-1] c35 N77-24455
- PISTON ENGINES**
- Stirling cycle engine and refrigeration systems  
[NASA-CASE-NPO-13613-1] c37 N76-29590
- PISTONS**
- Automatically reciprocating, high pressure pump for use in spacecraft cryogenic propellants  
[NASA-CASE-XMP-04731] c15 N71-24042
- Pumping and metering dual piston system and monitor for reaction chamber constituents  
[NASA-CASE-GSC-10218-1] c15 N72-21465
- Collapsible piston for hypervelocity gun  
[NASA-CASE-MSC-13789-1] c11 N73-32152
- Airflow control system for supersonic inlets  
[NASA-CASE-LEW-11138-1] c02 N74-20646
- PITCH (INCLINATION)**
- Reverse pitch fan with divided splitter  
[NASA-CASE-LEW-12760-1] c07 N77-17059
- PIVOTS**
- Apparatus for measuring load on cable under static or dynamic conditions comprising pulleys pivoting structure against restraint of tension strap  
[NASA-CASE-XMS-04545] c15 N71-22878
- PLANAR STRUCTURES**
- Window defect planar mapping technique  
[NASA-CASE-MSC-19442-1] c74 N77-10899
- PLANE WAVES**
- Characteristics of microwave antenna with conical reflectors to generate plane wave front  
[NASA-CASE-NPO-11661] c07 N73-14130
- PLANETARY ATMOSPHERES**
- Planetary atmospheric investigation using split trajectory dual flyby mode  
[NASA-CASE-IAC-08494] c30 N71-15990
- Wind tunnel method for simulating flow fields around blunt vehicles entering planetary atmospheres without involving high temperatures  
[NASA-CASE-LAR-11138] c12 N71-20436
- Ablation sensor for measuring surface ablation rate of material on vehicles entering earths atmosphere on entry into planetary atmospheres  
[NASA-CASE-XLA-01791] c14 N71-22991
- PLANETARY GRAVITATION**
- Lunar and planetary gravity simulator to test vehicular response to landing  
[NASA-CASE-YLA-00493] c11 N70-34786
- Table structure and rotating magnet system simulating gravitational forces on spacecraft and displaying trajectories between Earth, Venus, and Mercury  
[NASA-CASE-XMP-00708] c14 N70-35394
- PLANETARY LANDING**
- Multiple parachute system for landing control of Apollo type spacecraft  
[NASA-CASE-YLA-00898] c02 N70-36804
- Payload soft landing system using stowable gas bag  
[NASA-CASE-XLA-09881] c31 N71-16085
- PLANETARY ORBITS**
- Self-erectable space structures of flexible foam for application in planetary orbits  
[NASA-CASE-XLA-00686] c31 N70-34135
- Manned space station collapsible for launching and self-erectable in orbit  
[NASA-CASE-XLA-00678] c31 N70-34296
- PLANETARY RADIATION**
- Attitude sensor with scanning mirrors for detecting orientation of space vehicle with respect to planet  
[NASA-CASE-XLA-00793] c21 N71-22880
- PLANETARY SURFACES**
- Spacecraft transponder and ground station radar system for mapping planetary surfaces  
[NASA-CASE-NPO-11001] c07 N72-21118
- PLANTS (BOTANY)**
- Rotary plant growth accelerating apparatus --- weightlessness  
[NASA-CASE-ARC-10722-1] c51 N75-25503
- PLASMA ACCELERATION**
- Increasing available power per unit area in ion rocket engine by increasing beam density  
[NASA-CASE-XLP-00519] c28 N70-41576
- Coaxial, high density, hypervelocity plasma generator and accelerator using electrodes  
[NASA-CASE-MPS-20589] c25 N72-32688
- PLASMA ACCELERATORS**
- Crossed-field plasma accelerator for laboratory simulation of atmospheric reentry conditions  
[NASA-CASE-XLA-00675] c25 N70-33267
- Continuous operation, single phased, induction plasma accelerator producing supersonic speeds  
[NASA-CASE-XLA-01354] c25 N70-36946
- Crossed field MHD plasma generator-accelerator  
[NASA-CASE-XIA-03374] c25 N71-15562
- Direct current powered self repeating plasma accelerator with interconnected annular and linear discharge channels  
[NASA-CASE-XLA-03103] c25 N71-21693
- Magnetically controlled plasma accelerator capable of ignition in low density gaseous environment  
[NASA-CASE-XIA-00327] c25 N71-29184
- Two stage light gas-plasma projectile accelerator  
[NASA-CASE-MPS-22287-1] c75 N76-14931
- PLASMA CONTROL**
- Superconducting magnetic field trapping device for producing magnetic field in air  
[NASA-CASE-XMP-01185] c26 N73-28710
- Self-energized plasma compressor --- for compressing plasma discharged from coaxial plasma generator  
[NASA-CASE-MPS-22145-1] c75 N75-13625
- PLASMA CYLINDERS**
- Plasma-fluidic hybrid display system combining high brightness and memory characteristics  
[NASA-CASE-ERC-10100] c09 N71-33519
- PLASMA DENSITY**
- Apertured electrode focusing system for ion sources with nonuniform plasma density  
[NASA-CASE-XMP-03332] c09 N71-10618
- Measurement of plasma temperature and density using radiation absorption  
[NASA-CASE-ARC-10598-1] c75 N74-30156
- PLASMA DIAGNOSTICS**
- Plasma probes having guard ring and primary sensor at same potential to prevent stray wall current collection in ionized gases  
[NASA-CASE-XLE-00690] c25 N69-39884
- Apparatus for measuring conductivity and velocity of plasma with multiple sensing coils positioned in plasma  
[NASA-CASE-XAC-05695] c25 N71-16073
- Measurement of plasma temperature and density using radiation absorption  
[NASA-CASE-ARC-10598-1] c75 N74-30156
- PLASMA DYNAMICS**
- Apparatus for measuring conductivity and velocity of plasma with multiple sensing coils positioned in plasma  
[NASA-CASE-XAC-05695] c25 N71-16073
- Self-energized plasma compressor --- for compressing plasma discharged from coaxial plasma generator  
[NASA-CASE-MPS-22145-1] c75 N75-13625
- PLASMA ENGINES**
- Nonconductive tube as feed system for plasma thruster  
[NASA-CASE-XLE-02902] c25 N71-21694
- PLASMA GENERATORS**
- Apparatus for producing highly conductive, high temperature electron plasma with homogenous temperature and pressure distribution  
[NASA-CASE-XLA-00147] c25 N70-34661

- Crossed field MHD plasma generator-accelerator  
[NASA-CASE-XLA-03374] c25 N71-15562
- Coaxial, high density, hypervelocity plasma generator and accelerator using electrodes  
[NASA-CASE-MFS-20589] c25 N72-32688
- Self-energized plasma compressor --- for compressing plasma discharged from coaxial plasma generator  
[NASA-CASE-MFS-22145-1] c75 N75-13625
- Self-energized plasma compressor  
[NASA-CASE-MFS-22145-2] c75 N76-17951
- Continuous plasma laser --- method and apparatus for producing intense, coherent, monochromatic light from low temperature plasma  
[NASA-CASE-XWP-04167-3] c36 N77-19416
- PLASMA GUNS**  
Plasma spraying gun for forming diffusion bonded metal or ceramic coatings on substrates  
[NASA-CASE-XLE-01604-2] c15 N71-15610
- PLASMA JETS**  
Method of preparing water purification membranes --- polymerization of allyl amine as thin films in plasma discharge  
[NASA-CASE-ARC-10643-1] c25 N75-12087
- Combination automatic-starting electrical plasma torch and gas shutoff valve --- for satellite attitude control  
[NASA-CASE-XLE-10717] c37 N75-29426
- Plasma cleaning device --- designed for high vacuum environments  
[NASA-CASE-MFS-22906-1] c75 N78-27913
- PLASMA LAYERS**  
Electrostatic modulator for communicating through plasma sheath formed around spacecraft during reentry  
[NASA-CASE-XLA-01400] c07 N70-41331
- Method and apparatus for communicating through ionized layer of gases surrounding spacecraft during reentry into planetary atmospheres  
[NASA-CASE-XLA-01127] c07 N70-41372
- Reentry communication by injection of water droplets into plasma layer surrounding space vehicle  
[NASA-CASE-XLA-01552] c07 N71-11284
- PLASMA POTENTIALS**  
Method and apparatus for measuring potentials in plasmas  
[NASA-CASE-XLE-00821] c25 N71-15650
- Method and apparatus for neutralizing potentials induced on spacecraft surfaces  
[NASA-CASE-GSC-11963-1] c33 N77-10429
- PLASMA PROBES**  
Plasma probes having guard ring and primary sensor at same potential to prevent stray wall current collection in ionized gases  
[NASA-CASE-XLE-00690] c25 N69-39884
- Small plasma probe using tungsten wire collector in tubular shield  
[NASA-CASE-XLE-02578] c25 N71-20747
- PLASMA PROPULSION**  
Method of making dished ion thruster grids  
[NASA-CASE-LEW-11694-1] c20 N75-18310
- PLASMA RADIATION**  
Development of method for measuring electron density gradients of plasma sheath around space vehicle during atmospheric entry  
[NASA-CASE-XLA-06232] c25 N71-20563
- Apparatus for producing monochromatic light from continuous plasma source  
[NASA-CASE-XNP-04167-2] c25 N72-24753
- PLASMA SHEATHS**  
Space environment simulation system for measuring spacecraft electric field strength in plasma sheath  
[NASA-CASE-XLE-02038] c09 N71-16086
- Development of method for measuring electron density gradients of plasma sheath around space vehicle during atmospheric entry  
[NASA-CASE-XLA-06232] c25 N71-20563
- PLASMA SPRAYING**  
Flame or plasma spraying for molybdenum coating of carbon or graphite surfaces to prevent oxidative corrosion  
[NASA-CASE-XLA-00302] c15 N71-16077
- PLASMA TEMPERATURE**  
Measurement of plasma temperature and density using radiation absorption  
[NASA-CASE-ARC-10598-1] c75 N74-30156
- PLASMA-ELECTROMAGNETIC INTERACTION**  
Plasma igniter for internal combustion engine  
[NASA-CASE-NPO-13828-1] c37 N78-13440
- PLASMAS (PHYSICS)**  
Apparatus for measuring conductivity and velocity of plasma with multiple sensing coils positioned in plasma  
[NASA-CASE-YAC-05695] c25 N71-16073
- PLASTIC COATINGS**  
Process permitting application of synthetic resin coating to irregular-shaped objects at ambient temperature  
[NASA-CASE-XNP-06508] c18 N69-39895
- Development and characteristics of system for skin packaging articles using thermoplastic film heating and vacuum operated equipment  
[NASA-CASE-MFS-20855] c15 N73-27405
- Silicon nitride coated, plastic covered solar cell  
[NASA-CASE-LEW-11496-1] c44 N77-14580
- Low density bismaleimide-carbon microballoon composites  
[NASA-CASE-ARC-11040-1] c24 N77-19173
- Surface finishing --- of metal airfoils by adhesive bonding  
[NASA-CASE-MSC-12631-2] c05 N77-31131
- PLASTIC DEFORMATION**  
Process for analysis of strain field of structures subjected to large deformations involving low modulus substrate with thin coating  
[NASA-CASE-LAR-10765-1] c32 N73-20740
- PLASTIC TAPES**  
Development of flexible thermocouple in form of tape for adaptation to special temperature measuring conditions  
[NASA-CASE-LEW-11072-1] c14 N73-24472
- PLASTICIZERS**  
Inorganic-organic separators for alkaline batteries  
[NASA-CASE-LEW-12649-1] c44 N78-25530
- PLASTICS**  
Hot forming of plastic sheets  
[NASA-CASE-XMS-05516] c15 N71-17803
- Technique for making foldable, inflatable, plastic honeycomb core panels for use in building and bridge structures, light and radio wave reflectors, and spacecraft  
[NASA-CASE-XLA-03492] c15 N71-22713
- Electrode sealing and insulation for fuel cells containing caustic liquid electrolytes using powdered plastic and metal  
[NASA-CASE-XMS-01625] c15 N71-23022
- Dielectric apparatus for heating, fusing, and hardening of organic matrix to form plastic material into shaped product  
[NASA-CASE-LAR-10121-1] c15 N71-26721
- Plastic sphere for radar tracking and calibration  
[NASA-CASE-XLA-11154] c07 N72-21117
- Molding apparatus --- for thermosetting plastic compositions  
[NASA-CASE-LAR-10489-2] c31 N74-32920
- Ultraviolet and thermally stable polymer compositions  
[NASA-CASE-ARC-10592-2] c27 N76-32315
- Formulated plastic separators for soluble electrode cells --- rubber-ion transport sheeting  
[NASA-CASE-LEW-12358-1] c44 N77-18560
- Oxygen post-treatment of plastic surfaces coated with plasma polymerized silicon-containing monomers  
[NASA-CASE-ARC-10915-2] c27 N77-20256
- Abrasion resistant coatings for plastic surfaces  
[NASA-CASE-ARC-10915-3] c24 N77-24200
- PLATES (STRUCTURAL MEMBERS)**  
Pill seal between parts moving relative to each other  
[NASA-CASE-XLE-05130] c15 N69-21362
- Fifth wheel  
[NASA-CASE-FRC-10081-1] c37 N77-14477
- Microwave dichroic plate  
[NASA-CASE-GSC-12171-1] c33 N78-18313
- A floating nut retention system  
[NASA-CASE-MSC-16938-1] c37 N78-32431
- PLATING**  
Selective plating of etched circuits without removing previous plating  
[NASA-CASE-XGS-03120] c15 N71-24047
- Metal plating process employing spraying of metallic power/peening particle mixture

- [NASA-CASE-GSC-11163-1] c15 N73-32360  
Scanning nozzle plating system --- for etching  
or plating metals on substrates without masking  
[NASA-CASE-NFO-11758-1] c31 N74-23065
- PLATINUM**  
Electrolytic cell structure  
[NASA-CASE-LAR-11042-1] c33 N75-27252  
Platinum resistance thermometer circuit  
[NASA-CASE-MSC-12327-1] c35 N77-27368
- PLAYBACKS**  
Method of and means for testing a tape  
record/playback system  
[NASA-CASE-MFS-22671-2] c35 N77-17426
- PLRNUM CHAMBERS**  
Platform with several ground effect pads and  
plenum chambers  
[NASA-CASE-MFS-14685] c31 N71-15689  
Development of filter apparatus for gas  
separation and characteristics of filter cell  
support frame for improved operation  
[NASA-CASE-MSC-12297] c14 N72-23457
- PLRTHYSMOGRAPHY**  
Readout electrode assembly for measuring  
biological impedance  
[NASA-CASE-ARC-10816-1] c35 N76-24525
- PLOTTERS**  
Plotter device for automatically drawing  
equipotential lines on sheet of resistance paper  
[NASA-CASE-NPO-11134] c09 N72-21246
- PLOTTING**  
Instrument for measuring potentials on two  
dimensional electric field plot  
[NASA-CASE-XLA-08493] c10 N71-19421
- PLUG NOZZLES**  
Cascade plug nozzle --- for jet noise reduction  
[NASA-CASE-LAR-11674-1] c07 N76-18117
- PLUGS**  
Rocket chamber leak test fixture using tubular  
plug  
[NASA-CASE-IPR-09479] c14 N69-27503  
Fatigue resistant shear pin with hollow shaft  
and two plugs  
[NASA-CASE-XLA-09122] c15 N69-27505  
Control of gas flow from pressurized vessel by  
thermal expansion of metal plug  
[NASA-CASE-NFO-10298] c12 N71-17661  
Heated porous plug microthruster for spacecraft  
reaction jet controlled systems such as fuel  
flow regulation, propellant disassociation,  
and heat transfer augmentation  
[NASA-CASE-GSC-10640-1] c28 N72-18766
- PNEUMATIC CONTROL**  
Pneumatic system for cyclic control of fluid  
flow in pneumatic device  
[NASA-CASE-XMS-04843] c03 N69-21469  
Pneumatic control of telescopic mirror support  
system  
[NASA-CASE-XLA-03271] c11 N69-24321  
Actuator using compressed gas as driving force  
to control valve handling large liquid flows  
[NASA-CASE-XHQ-01208] c15 N70-35409  
Pneumatic mechanism for releasing hook and loop  
fasteners between large rigid structures  
[NASA-CASE-XMS-10660-1] c15 N71-25975  
Pneumatic foot pedal operated fluidic exercising  
device  
[NASA-CASE-MSC-11561-1] c05 N73-32014  
Pneumatic load compensating or controlling system  
[NASA-CASE-ARC-10907-1] c37 N75-32465  
Pneumatic inflatable end effector  
[NASA-CASE-MFS-23696-1] c54 N78-32724
- PNEUMATIC EQUIPMENT**  
Development and characteristics of high pressure  
control valve  
[NASA-CASE-MSC-11010] c15 N71-19485  
Pneumatic cantilever beams and platform for  
space erectable structure  
[NASA-CASE-XLA-01731] c32 N71-21045  
Fluid transferring system design for purging  
toxic, corrosive, or noxious fluids and fumes  
from materials handling equipment for  
cleansing and accident prevention  
[NASA-CASE-XMS-01905] c12 N71-21089  
Zero gravity apparatus utilizing pneumatic  
decelerating means to create payload subjected  
to zero gravity conditions by dropping its  
height  
[NASA-CASE-XMP-06515] c14 N71-23227
- Pneumatic servoamplifier for controlling flow  
regulation  
[NASA-CASE-MSC-12121-1] c15 N71-27147  
Inflatable stabilizing system for use on life  
raft to reduce rocking and preclude capsizing  
[NASA-CASE-MSC-12393-1] c02 N73-26006
- Airlock  
[NASA-CASE-MFS-20922-1] c18 N74-22136  
Servo valve  
[NASA-CASE-LAR-11643-1] c37 N75-13268  
Pneumatic load compensating or controlling system  
[NASA-CASE-ARC-10907-1] c37 N75-32465  
Pneumatic inflatable end effector  
[NASA-CASE-MFS-23696-1] c54 N78-32724
- POINT SOURCES**  
Electronic background suppression field scanning  
sensor for detecting point source targets  
[NASA-CASE-KGS-05211] c07 N69-39980  
X ray collimating structure for focusing  
radiation directly onto detector  
[NASA-CASE-XHQ-04106] c14 N70-40240
- POINTING CONTROL SYSTEMS**  
Development of reflector system for application  
to line-of-sight pointing and tracking  
telescopes  
[NASA-CASE-NPO-10468] c23 N71-33229  
Magnetic suspension and pointing system  
[NASA-CASE-LAR-11889-1] c19 N76-18227  
All sky pointing attitude control system  
[NASA-CASE-ARC-10716-1] c35 N77-20399  
Magnetic suspension and pointing system  
[NASA-CASE-LAR-11889-2] c37 N78-27424
- POLAR ORBITS**  
Spin phase synchronization of cartwheel  
satellite in polar orbit  
[NASA-CASE-XGS-05579] c31 N71-15676
- POLARIMETERS**  
Automatic polarimeter capable of measuring  
transient birefringence changes in  
electro-optic materials  
[NASA-CASE-XNP-08883] c23 N71-16101  
Two beam interferometer-polarimeter  
[NASA-CASE-NPO-11239] c14 N73-12446  
Forward-scatter polarimeter for determining the  
gaseous depolarization factor in the presence  
of polluting polydispersed particles  
[NASA-CASE-NPO-13756-1] c35 N76-14434  
Method of forming a sharp edge on an optical  
device --- beam splitters for Solar Maximum  
Missions spectropolarimeter  
[NASA-CASE-GSC-12348-1] c74 N78-29902
- POLARITY**  
Converting output of positive dc voltage source  
to negative dc voltage across load with common  
reference point  
[NASA-CASE-XMP-08217] c03 N71-23239  
Peak polarity selector for monitoring waveforms  
[NASA-CASE-PRC-10010] c10 N71-24862  
Precision full wave rectifier circuit for  
rectifying incoming electrical signals having  
positive or negative polarity with only  
positive output signals  
[NASA-CASE-ARC-10101-1] c09 N71-33109
- POLARIZATION (CHARGE SEPARATION)**  
Charge injection method and apparatus of  
producing large area electrets  
[NASA-CASE-MFS-23186-2] c24 N78-25137
- POLARIZATION (WAVES)**  
System for interference signal nulling by  
polarization adjustment  
[NASA-CASE-NPO-13140-1] c32 N75-24982
- POLARIZED ELECTROMAGNETIC RADIATION**  
Device for improving efficiency of parabolic  
horn antenna system for linearly polarized  
signals  
[NASA-CASE-XNP-00611] c09 N70-35219  
Device for improving efficiency of parabolic  
reflector horn for linearly or circularly  
polarized waves  
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[NASA-CASE-GSC-12022-1] c44 N76-28635
- Process for utilizing low-cost graphite substrates for polycrystalline solar cells  
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- Apparatus for forming drive belts  
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- Flexible formulated plastic separators for alkaline batteries  
[NASA-CASE-LEW-12363-1] c44 N76-19552

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- Preparation of stable polyurethane polymer by reacting polymer with diisocyanate  
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[NASA-CASE-MPS-10507] c06 N73-30101
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[NASA-CASE-MPS-11492] c06 N73-30102
- Flexible formulated plastic separators for alkaline batteries  
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- Polyimide adhesives  
[NASA-CASE-LAR-11397-1] c27 N75-29263
- Polyimide adhesives  
[NASA-CASE-LAR-12181-1] c27 N78-17205

- Mixed diamines for lower melting addition polyimide preparation and utilization  
[NASA-CASE-LAR-12054-1] c27 N78-17218
- Low density bismaleimide-carbon microballoon composites --- aircraft and submarine compartment safety  
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## PRESSURE GRADIENTS

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**R**

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 [NASA-CASE-XMS-09610] c07 N71-24625  
 Variable beamwidth antenna --- with multiple beam, variable feed system  
 [NASA-CASE-GSC-11862-1] c32 N76-18295  
 Highly efficient antenna system using a corrugated horn and scanning hyperbolic reflector  
 [NASA-CASE-NPO-13568-1] c32 N76-21365

**RADAR ATTENUATION**  
 FM/CW radar system  
 [NASA-CASE-MFS-22234-1] c32 N76-33364

**RADAR DATA**  
 Charge-coupled device data processor for an airborne imaging radar system  
 [NASA-CASE-NPO-13587-1] c32 N77-32342

**RADAR ECHOES**  
 Charge-coupled device data processor for an airborne imaging radar system  
 [NASA-CASE-NPO-13587-1] c32 N77-32342

**RADAR EQUIPMENT**  
 Spacecraft transponder and ground station radar system for mapping planetary surfaces  
 [NASA-CASE-NPO-11001] c07 N72-21118  
 FM/CW radar system  
 [NASA-CASE-MFS-22234-1] c32 N76-33364

**RADAR IMAGERY**  
 Method of locating persons in distress --- by using radar imagery from radar reflectors  
 [NASA-CASE-LAR-11390-1] c32 N77-21267  
 Azimuth correlator for real-time synthetic aperture radar image processing  
 [NASA-CASE-NPO-14019-1] c32 N78-11266  
 Clutter free synthetic aperture radar correlator  
 [NASA-CASE-NPO-14035-1] c32 N78-18266

**RADAR RANGE**  
 Radar signal receiver arrangement for extending range and increasing signal to noise ratio  
 [NASA-CASE-XNP-00748] c07 N70-36911

**RADAR RECEIVERS**  
 Polarization diversity monopulse tracking receiver design without radio frequency switches  
 [NASA-CASE-XGS-03501] c09 N71-20864

**RADAR RECEPTION**  
 Radar signal receiver arrangement for extending range and increasing signal to noise ratio  
 [NASA-CASE-XNP-00748] c07 N70-36911

**RADAR REFLECTORS**  
 Inflatable radar reflector unit - lightweight, highly reflective to electromagnetic radiation, and adaptable for erection and deployment with minimum effort and time  
 [NASA-CASE-XMS-00893] c07 N70-40063  
 Method of locating persons in distress --- by using radar imagery from radar reflectors  
 [NASA-CASE-LAR-11390-1] c32 N77-21267

**RADAR TARGETS**  
 Radar target remotely sensing hydrological phenomena  
 [NASA-CASE-LAR-12344-1] c43 N78-33511

**RADAR TRACKING**  
 Tracking antenna system with array for synchronous satellite or ground based radar  
 [NASA-CASE-GSC-10553-1] c07 N71-19854  
 Polarization diversity monopulse tracking receiver design without radio frequency switches  
 [NASA-CASE-XGS-03501] c09 N71-20864  
 Monopulse tracking system with antenna array of three radiators for deriving azimuth and elevation indications  
 [NASA-CASE-XGS-01155] c10 N71-21483  
 Plastic sphere for radar tracking and calibration  
 [NASA-CASE-XIA-11154] c07 N72-21117

**RADAR TRANSMITTERS**  
 High resolution radar transmitting system for transmitting optical pulses to targets  
 [NASA-CASE-NPO-11426] c07 N73-26119

**RADIAL FLOW**  
 Radial heat flux transformer for use in heating and cooling processes  
 [NASA-CASE-NPO-10828] c33 N72-17948  
 Axially and radially controllable magnetic bearing  
 [NASA-CASE-GSC-11551-1] c37 N76-18459

**RADIANCE**  
 Method and apparatus for measuring shock layer radiation distribution about high velocity objects  
 [NASA-CASE-XAC-02970] c14 N69-39896

**RADIANT COOLING**  
 Direct radiation cooling of linear beam collector tubes  
 [NASA-CASE-XNP-09227] c15 N69-24319  
 High thermal emittance black surface coatings and process for applying to metal and metal alloy surfaces used in radiative cooling of spacecraft  
 [NASA-CASE-XLA-06199] c15 N71-24875  
 Method for attaching a fused-quartz mirror to a conductive metal substrate  
 [NASA-CASE-MFS-23405-1] c26 N77-29260

**RADIANT FLUX DENSITY**  
 High intensity radiant energy pulse source for calibrating heat transfer gages with thermoluminescent shutter activation  
 [NASA-CASE-ARC-10178-1] c09 N72-17152

**RADIANT HEATING**  
 High intensity heat and light unit containing quartz lamp elements protectively positioned to withstand severe environmental stress  
 [NASA-CASE-XLA-00141] c09 N70-33312  
 High temperature source of thermal radiation  
 [NASA-CASE-XLE-00490] c33 N70-34545  
 Refractory filament series circuitry for radiant heater  
 [NASA-CASE-XLE-00387] c33 N70-34812  
 Unfired ceramic insulation for protection from radiant heating environments  
 [NASA-CASE-MFS-14253] c33 N71-24858  
 Portable linear-focused solar thermal energy collecting system  
 [NASA-CASE-NPO-13734-1] c44 N78-10554

**RADIATION**  
 Development of radiant energy sensor to detect the radiant energy wavelength bands from portions of radiating body  
 [NASA-CASE-ERC-10174] c14 N72-25409  
 Development of thermopile with sensor surface to receive radiant energy and to provide measurement of energy quantity  
 [NASA-CASE-NPO-11493] c14 N73-12447  
 Analog to digital converter for two-dimensional radiant energy array computers

- [NASA-CASE-GSC-11839-3] c60 N77-32731  
Memory device for two-dimensional radiant energy array computers
- [NASA-CASE-GSC-11839-2] c60 N78-10709
- RADIATION ABSORPTION**
- NDIR gas analyzer based on absorption modulation ratios for known and unknown samples  
[NASA-CASE-ABC-10802-1] c35 N75-30502
- RADIATION COUNTERS**
- Particle detector for indicating incidence and energy of minute space particles  
[NASA-CASE-XLA-00135] c14 N70-33322
- Sensing method and device for determining orientation of space vehicle or satellite by using particle traps  
[NASA-CASE-XGS-00466] c21 N70-34297
- Solid state device for mapping flux and power in nuclear reactor cores  
[NASA-CASE-XLE-00301] c14 N70-36808
- Particle beam power density detection and measurement apparatus  
[NASA-CASE-XLE-00243] c14 N70-38602
- Automatic baseline stabilization for ionization detector used in gas chromatograph  
[NASA-CASE-XNP-03128] c10 N70-41991
- Method of forming thin window drifted silicon charged particle detector  
[NASA-CASE-XLE-00808] c24 N71-10560
- Development of dosimeter for measuring absorbed dose of high energy ionizing radiation  
[NASA-CASE-XLA-03645] c14 N71-20430
- Apparatus for detecting particle emission lower than noise level of multiplier tube  
[NASA-CASE-XLA-07813] c14 N72-17328
- Radiation or charged particle detector and amplifier  
[NASA-CASE-NPO-12128-1] c14 N73-32317
- Coaxial anode wire for gas radiation counters  
[NASA-CASE-GSC-11492-1] c35 N74-26949
- Particle parameter analyzing system --- x-y plotter circuits and display  
[NASA-CASE-XLE-06094] c33 N78-17293
- RADIATION DAMAGE**
- Addition of group 3 elements to silicon semiconductor material for increased resistance to radiation damage in solar cells  
[NASA-CASE-XLE-02798] c26 N71-23654
- Recovering efficiency of solar cells damaged by environmental radiation through thermal annealing  
[NASA-CASE-XGS-04047-2] c03 N72-11062
- Photomultiplier circuit including means for rapidly reducing the sensitivity thereof --- and protection from radiation damage  
[NASA-CASE-ABC-10593-1] c33 N74-27682
- RADIATION DETECTORS**
- Radiation source and detection system for measuring amount of liquid inside tanks independently of liquid configuration  
[NASA-CASE-MSC-12280] c27 N71-16348
- Detection instrument for light emitted from ATP biochemical reaction  
[NASA-CASE-XGS-05534] c23 N71-16355
- Circuit design for determining amount of photomultiplier tube light detection utilizing variable current source and dark current signals of opposite polarity  
[NASA-CASE-XMS-03478] c14 N71-21040
- Attitude sensor with scanning mirrors for detecting orientation of space vehicle with respect to planet  
[NASA-CASE-XLA-00793] c21 N71-22880
- Mosaic semiconductor radiation detector and position indicator systems engineering for low energy particles  
[NASA-CASE-XGS-03230] c14 N71-23401
- Nondispersive gas analysis using radiation detection for quantitative analysis  
[NASA-CASE-ABC-10308-1] c06 N72-31141
- Radiation source tracker comprised of sectored matrix of detectors with output voltages corresponding to irradiance levels  
[NASA-CASE-NPO-11686] c14 N73-25462
- Radiation or charged particle detector and amplifier  
[NASA-CASE-NPO-12128-1] c14 N73-32317
- Mossbauer spectrometer radiation detector  
[NASA-CASE-LAR-11155-1] c35 N74-15091
- High field CdS detector for infrared radiation  
[NASA-CASE-LAR-11027-1] c35 N74-18088
- Flame detector operable in presence of proton radiation  
[NASA-CASE-MPS-21577-1] c19 N74-29410
- Wide angle sun sensor --- consisting of cylinder, insulation and pair of detectors  
[NASA-CASE-NPO-13327-1] c35 N75-23910
- Detector absorptivity measuring method and apparatus  
[NASA-CASE-LAR-10907-1] c35 N76-29551
- RADIATION DISTRIBUTION**
- Space simulator with uniform test region radiation distribution, adapted to simulate Venus solar radiations  
[NASA-CASE-XNP-00459] c11 N70-38675
- RADIATION DOSAGE**
- Development of dosimeter for measuring absorbed dose of high energy ionizing radiation  
[NASA-CASE-XLA-03645] c14 N71-20430
- Method for analyzing radiation sensitivity of integrated circuits  
[NASA-CASE-NPO-14350-1] c33 N78-27330
- RADIATION EFFECTS**
- Method for temperature compensating semiconductor gages by exposure to high energy radiation  
[NASA-CASE-XLA-04555-1] c14 N71-25892
- RADIATION HARDENING**
- Radiation hardening of MOS devices by boron --- for stabilizing gate threshold potential of field effect device  
[NASA-CASE-GSC-11425-1] c76 N74-20329
- RADIATION MEASUREMENT**
- Development of thermopile with sensor surface to receive radiant energy and to provide measurement of energy quantity  
[NASA-CASE-NPO-11493] c14 N73-12447
- RADIATION MEASURING INSTRUMENTS**
- Rocket-borne aspect sensor consisting of radiation sensor, apertured disk, commutator, and counting circuits  
[NASA-CASE-XGS-08266] c14 N69-27432
- Infrared scanning system for maintaining spacecraft orientation with earth reference  
[NASA-CASE-XLA-00120] c21 N70-33181
- Multiple wavelength radiation measuring instrument for determining hot body or gas temperature  
[NASA-CASE-XLE-00011] c14 N70-41946
- Development of method for improving signal to noise ratio and accuracy of Wheatstone bridge type radiation measuring instrument  
[NASA-CASE-XLA-02810] c14 N71-25901
- Development of thermopile with sensor surface to receive radiant energy and to provide measurement of energy quantity  
[NASA-CASE-NPO-11493] c14 N73-12447
- Phototransistor with base collector junction diode for integration into photo sensor arrays  
[NASA-CASE-MPS-20407] c09 N73-19235
- Method and apparatus for measuring electromagnetic radiation  
[NASA-CASE-LEW-11159-1] c14 N73-28488
- Design of gamma ray spectrometer for measurement of intense radiation using Compton scattering effect  
[NASA-CASE-MPS-21441-1] c14 N73-30392
- Coaxial anode wire for gas radiation counters  
[NASA-CASE-GSC-11492-1] c35 N74-26949
- RADIATION MEDICINE**
- Method of producing I-123 --- by bombardment of cesium causing spallation  
[NASA-CASE-LEW-11390-2] c25 N76-27383
- RADIATION PROTECTION**
- Development of method for protecting large and oddly shaped areas from radiant and convective heat  
[NASA-CASE-XNP-01310] c33 N71-28852
- Cooling and radiation protection of ruby lasers using copper sulfate solution in alcohol  
[NASA-CASE-MPS-20180] c16 N72-12440
- Photomultiplier circuit including means for rapidly reducing the sensitivity thereof --- and protection from radiation damage  
[NASA-CASE-ABC-10593-1] c33 N74-27682
- RADIATION SHIELDING**
- Encapsulated heater forming hollow body for cathode used in ion thruster

- [NASA-CASE-LEW-10814-1] c28 N70-35422  
Describing hot filament type Bayard-Alpert ionization gage with ion collector buried or removed from grid structure  
[NASA-CASE-XLA-07424] c14 N71-18482
- Sealed housing for protecting electronic equipment against electromagnetic interference [NASA-CASE-N5C-12168-1] c09 N71-18600
- Internal labyrinth and shield structure to improve electrical isolation of propellant feed source from ion thruster [NASA-CASE-LEW-10210-1] c28 N71-26781
- Apparatus for aligning shadow shields and cryogenic storage tanks in outer space with the sun [NASA-CASE-R5C-10622-1] c31 N72-21893
- Light shield and cooling apparatus --- high intensity ultraviolet lamp [NASA-CASE-LAR-10089-1] c34 N74-23066
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- Sight switch using infrared source and sensor mounted beside eye [NASA-CASE-XMP-03934] c09 N71-22985
- Apparatus for obtaining isotropic irradiation on film emulsion from parallel radiation source [NASA-CASE-MPS-20095] c24 N72-11595
- Radiation source tracker comprised of sectored matrix of detectors with output voltages corresponding to irradiance levels [NASA-CASE-NPO-11686] c14 N73-25462
- High powered arc electrodes --- producing solar simulator radiation [NASA-CASE-LEW-11162-1] c33 N74-12913
- Electric arc light source having undercut recessed anode [NASA-CASE-ARC-10266-1] c33 N75-29318
- Apparatus and method for determining the position of a radiant energy source [NASA-CASE-GSC-12147-1] c35 N77-20410
- RADIATION SPECTRA**
- Maksutov spectrograph for low light level research [NASA-CASE-XLA-10402] c14 N71-29041
- RADIATION THERAPY**
- A cervix-to-rectum measuring device in a radiation applicator for use in the treatment of cervical cancer [NASA-CASE-GSC-12081-2] c52 N77-26796
- RADIATION TOLERANCE**
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- Doping silicon material with gadolinium to increase radiation resistance of solar cells [NASA-CASE-XLE-02792] c26 N71-10607
- Improving radiation resistance of silicon semiconductor junctions by doping with lithium [NASA-CASE-IGS-07801] c09 N71-12513
- Radiation hardening of MOS devices by boron --- for stabilizing gate threshold potential [NASA-CASE-GSC-11425-2] c76 N75-25730
- RADIATIVE HEAT TRANSFER**
- Heat flux sensor assembly with provision for heat shield to reduce radiative transfer between sensor elements [NASA-CASE-XMS-05909-1] c14 N69-27459
- Capillary radiator for carrying heat transfer liquid in planetary spacecraft structures [NASA-CASE-XLE-03307] c33 N71-14035
- Transient heat transfer gage for measuring total radiant intensity from far ultraviolet and ionized high temperature gases [NASA-CASE-XMP-09802] c33 N71-15641
- Construction and method of arranging plurality of ion engines to form cluster thereby increasing efficiency and control by decreasing heat radiated to space [NASA-CASE-XMP-02923] c28 N71-23081
- RADIATORS**
- Development and characteristics of natural circulation radiator for use with nuclear power plants installed in lunar space stations [NASA-CASE-XHQ-03673] c33 N71-29046
- RADIO ANTENNAS**
- Low loss parasitic probe antenna for prelaunch tests of spacecraft antennas [NASA-CASE-XKS-09348] c09 N71-13521
- VHF/UHF parasitic probe antenna for spacecraft communication [NASA-CASE-XKS-09340] c07 N71-24614
- Development and characteristics of extensible dipole antenna using deformable tubular metallic strip element [NASA-CASE-HQN-00937] c07 N71-28979
- Highly efficient antenna system using a corrugated horn and scanning hyperbolic reflector [NASA-CASE-NPO-13568-1] c32 N76-21365
- RADIO ASTRONOMY**
- Synchronous detection system for detecting weak radio astronomical signals [NASA-CASE-XMP-09832] c30 N71-23723
- RADIO BEACONS**
- RF beam center location method and apparatus for power transmission system [NASA-CASE-NPO-13821-1] c44 N78-28594
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- RADIO CONTROL**
- Radio frequency controlled solid state switch [NASA-CASE-ARC-10136-1] c09 N72-22202
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- A system for synchronizing synthesizers of communication systems [NASA-CASE-GSC-12148-1] c32 N77-22314
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- Automatic gain control amplifier system [NASA-CASE-XMS-05307] c09 N69-24330
- Method and apparatus for bowing of instrument panels to improve radio frequency shielded enclosure [NASA-CASE-XMP-09422] c07 N71-19436
- Development of automatic frequency discriminators and control for phase lock loop providing frequency preset capabilities [NASA-CASE-XMP-08665] c10 N71-19467
- System generating sidereal frequency signals from signals of standard solar frequency without use of mixing operations or feedback loops [NASA-CASE-IGS-02610] c14 N71-23174
- Radio frequency coaxial filter to provide dc isolation and low frequency signal rejection in audio range [NASA-CASE-IGS-01418] c09 N71-23573
- Variable frequency nuclear magnetic resonance spectrometer providing drive signals over wide frequency range and minimizing noise effects [NASA-CASE-XMP-09830] c14 N71-26266
- High efficiency transformerless amplitude modulator coupled to RF power amplifier [NASA-CASE-GSC-10668-1] c07 N71-28430
- Technique and equipment for sputtering using apertured electrode and pulsed substrate bias [NASA-CASE-LEW-10920-1] c17 N73-24569
- Radio frequency source resistance measuring instruments of varied design [NASA-CASE-NPO-11291-1] c14 N73-30388
- Multichannel logarithmic RF level detector [NASA-CASE-LAR-11021-1] c32 N76-14321
- Ion and electron detector for use in an ICR spectrometer [NASA-CASE-NPO-13479-1] c35 N77-10492
- RADIO FREQUENCY INTERFERENCE**
- Radio frequency noise generator having microwave slow-wave structure in gas discharge plasma [NASA-CASE-XER-11019] c09 N71-23598
- System for interference signal nulling by polarization adjustment [NASA-CASE-NPO-13140-1] c32 N75-24982
- Systems and methods for determining radio frequency interference [NASA-CASE-GSC-12150-1] c32 N77-12247
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- RADIO FREQUENCY SHIELDING**
- Gunn effect microwave diodes with RF shielding [NASA-CASE-ERC-10119] c26 N72-21701
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- Radio receiver with array of independently

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## RAREFIED GASES

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- Development of optimum pre-detection diversity  
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with amplitude modulation, phase modulation,  
and frequency modulation systems  
[NASA-CASE-XGS-00740] c07 N71-23098
- Very narrow band width receiver  
[NASA-CASE-GSC-12142-1] c32 N77-20299
- RADIO RELAY SYSTEMS**  
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[NASA-CASE-XNP-02389] c07 N71-28900
- Systems and methods for determining radio  
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- RADIO SIGNALS**  
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[NASA-CASE-XLA-00210] c30 N70-40309
- Synchronous detection system for detecting weak  
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- RADIO SOURCES (ASTRONOMY)**  
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antenna --- for tracking spacecraft or radio  
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[NASA-CASE-NPO-14009-1] c32 N77-28357
- RADIO STARS**  
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from signals of standard solar frequency  
without use of mixing operations or feedback  
loops  
[NASA-CASE-XGS-02610] c14 N71-23174
- RADIO TELEMETRY**  
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[NASA-CASE-XGS-01812] c07 N71-23001
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[NASA-CASE-NPO-13217-1] c32 N75-26194
- Aircraft-mounted crash-activated transmitter  
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[NASA-CASE-MFS-16609-3] c03 N76-32140
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[NASA-CASE-NPO-10753] c03 N72-26031
- Protected isotope heat source --- for  
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[NASA-CASE-LEW-11227-1] c73 N75-30876
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[NASA-CASE-LEW-10518-1] c24 N72-33681
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[NASA-CASE-XNP-02588] c15 N71-18613
- Method and system for in vivo measurement of  
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[NASA-CASE-MSC-14276-1] c52 N77-14737
- RADIOLYSIS**  
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[NASA-CASE-LEW-11860-1] c37 N76-18458
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[NASA-CASE-XIA-04556] c14 N69-27484
- Black body radiometer design with temperature  
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[NASA-CASE-XNP-09701] c14 N71-26475
- Black body radiometer having isothermally  
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and infrared radiation  
[NASA-CASE-NPO-10810] c14 N71-27323
- Thermoelectric radiometer using polymer film  
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[NASA-CASE-ARC-10138-1] c14 N72-24477
- Development of radiant energy sensor to detect  
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[NASA-CASE-ERC-10174] c14 N72-25409
- Development of radiometric sensor to warn  
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[NASA-CASE-ERC-10081] c14 N72-28437
- Radiometric measuring system for solar activity  
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[NASA-CASE-ERC-10276] c14 N73-26432
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[NASA-CASE-MPS-21108-1] c34 N74-27861
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[NASA-CASE-ARC-11120-1] c52 N77-23743
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or ramjet engines  
[NASA-CASE-XLE-00005] c28 N70-39899
- Hypersonic airbreathing missile  
[NASA-CASE-LAR-12264-1] c15 N78-32168
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[NASA-CASE-NPO-13058-1] c37 N77-22480
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load levels to test specimen and applicable to  
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[NASA-CASE-XLA-02131] c32 N70-42003
- RANDOM NOISE**  
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[NASA-CASE-NPO-10169] c10 N71-24844
- Digital servo control of random sound test  
excitation --- in reverberant acoustic chamber  
[NASA-CASE-NPO-11623-1] c71 N74-31148
- Random pulse generator  
[NASA-CASE-MSC-14131-1] c33 N75-19515
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[NASA-CASE-GSC-12017-1] c32 N77-30308
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[NASA-CASE-GSC-12145-1] c33 N78-32339
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vehicle and fixed ground station  
[NASA-CASE-XNP-01501] c21 N70-41930
- Digital demodulator-correlator --- for  
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equipment and spacecraft transponders  
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- Spacecraft ranging system  
[NASA-CASE-NPO-10066] c09 N71-18598
- Binary coded sequential acquisition ranging  
system for distance measurements  
[NASA-CASE-NPO-11194] c08 N72-25209
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mu-type ranging system  
[NASA-CASE-NPO-11707] c07 N73-25161
- Orbital and entry tracking accessory for globes  
--- to provide range requirements for reentry  
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[NASA-CASE-XGS-03505] c03 N71-10608
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Inert gas metallic vapor laser  
[NASA-CASE-NPO-13449-1] c36 N75-32441
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Preparation of dielectric coatings of variable  
dielectric constant by plasma polymerization  
[NASA-CASE-ARC-10892-2] c27 N77-17245
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[NASA-CASE-XLA-00327] c25 N71-29184

RATES (PER TIME)

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RATES (PER TIME)

Apparatus and digital technique for coding rate data  
 [NASA-CASE-LAR-10128-1] c08 N73-20217

**RATS**  
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 [NASA-CASE-ARC-11114-1] c52 N78-33717

**RC CIRCUITS**  
 RC transistor circuit to indicate each pulse of pulse train and occurrence of nth pulse  
 [NASA-CASE-XMP-00906] c09 N70-41655  
 Device utilizing RC rate generators for continuous slow speed measurement  
 [NASA-CASE-XMP-02966] c10 N71-24863  
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 [NASA-CASE-XIA-04063] c31 N71-33160

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 [NASA-CASE-XGS-02629] c14 N71-21082  
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 [NASA-CASE-GSC-10555-1] c21 N71-27324

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**REACTOR PHYSICS**  
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**REACTOR TECHNOLOGY**  
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 [NASA-CASE-XLE-00298] c22 N70-34501

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- Power controlled bimetallic electromechanical actuator for accurate, timely, and reliable response to remote control signal  
[NASA-CASE-XNP-09776] c09 N69-39929
- Two component valve assembly for cryogenic liquid transfer regulation  
[NASA-CASE-XLE-00397] c15 N70-36492
- Remotely actuated quick disconnect mechanism for umbilical cables  
[NASA-CASE-XLA-00711] c03 N71-12258
- Remotely actuated quick disconnect for tubular umbilical conduits used to transfer fluids from ground to rocket vehicle  
[NASA-CASE-XLA-01396] c03 N71-12259
- Remote control device operated by movement of finger tips for manual control of spacecraft attitude  
[NASA-CASE-XAC-02405] c09 N71-16089
- Satellite radio communication system with remote steerable antenna  
[NASA-CASE-XNP-02389] c07 N71-28900
- Laser beam projector for continuous, precise alignment between target, laser generator, and astronomical telescope during tracking  
[NASA-CASE-NPO-11087] c23 N71-29125
- Solid state remote circuit selector switching circuit  
[NASA-CASE-LEW-10387] c09 N72-22201
- Design and development of multichannel laser remote control system using modulated helium-neon laser as transmitter and light collector as receiving antenna  
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- Cooperative multi-axis sensor for teleoperation of article manipulating apparatus  
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- Remotely operable articulated manipulator  
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[NASA-CASE-MFS-22072-1] c37 N76-15460

End effector device --- for manipulators  
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**REMOTE HANDLING**

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[NASA-CASE-GSC-12322-1] c37 N78-25429

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Passive optical wind and turbulence remote detection system  
[NASA-CASE-XMP-14032] c20 N71-16340

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[NASA-CASE-XLP-00787] c14 N71-21090

Flow angle sensor and remote readout system for use with cryogenic fluids  
[NASA-CASE-XLE-04503] c14 N71-24864

Time synchronization system for synchronizing clocks at remote locations with master clock using moon reflected coded signals  
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[NASA-CASE-NPO-10625] c09 N71-26182

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[NASA-CASE-LAR-10056] c05 N71-12351

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[NASA-CASE-MSC-12564-1] c54 N76-15792

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[NASA-CASE-LAR-10203-1] c15 N72-16330

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[NASA-CASE-NFO-14096-1] c44 N78-28625

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Velocity limiting safety system for motor driven research vehicle  
[NASA-CASE-XLA-07473] c15 N71-24895

**RESIDUAL STRESS**

Miniature solid state, direction sensitive, stress transducer design with bonded semiconductive piezoresistive element for sensing residual stresses  
[NASA-CASE-XNP-02983] c14 N71-21091

Manufacturing process for making perspiration resistant-stress resistant biopotential electrode  
[NASA-CASE-HSC-90153-2] c05 N72-25120

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[NASA-CASE-XLA-08254] c14 N71-26161

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Procedure for bonding polytetrafluoroethylene thermal protective sleeves to magnesium alloy conical shell components with different thermal coefficients  
[NASA-CASE-XLA-01262] c15 N71-21408

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[NASA-CASE-ARC-10098-1] c06 N71-24739

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[NASA-CASE-MSC-12357] c15 N73-12499

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[NASA-CASE-ERC-10339-1] c18 N73-30532

Composite lamination method  
[NASA-CASE-LAR-12019-1] c24 N78-17150

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[NASA-CASE-HSC-90153-2] c05 N72-25120

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[NASA-CASE-RSC-10723-1] c37 N75-13265

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[NASA-CASE-XLE-01783] c28 N70-34175

**RESISTORS**

High isolation RF signal selection switches  
[NASA-CASE-NPO-13081-1] c33 N74-22814

Resistive anode image converter  
[NASA-CASE-HQN-10876-1] c33 N76-27473

**RESOLUTION**

Conversion system for increasing resolution of analog to digital converters  
[NASA-CASE-XAC-00404] c08 N70-40125

Cylindrical reflector for resolving wide angle light beam from telescope into narrow beam for spectroscopic analysis

[NASA-CASE-XGS-08269] c23 N71-26206  
**RESOLVERS**  
 Differential phase shift keyed signal resolver  
 [NASA-CASE-HSC-14066-1] c33 N74-27705

**RESONANCE**  
 Optically selective, acoustically resonant gas  
 detecting transducer  
 [NASA-CASE-ABC-10639-1] c35 N78-13400

**RESONANT FREQUENCIES**  
 Vibrating element electrometer producing high  
 conversion gain by input current control of  
 elements resonant frequency displacement  
 amplitude  
 [NASA-CASE-XAC-02807] c09 N71-23021  
 Quantitative liquid measurements in container by  
 resonant frequencies  
 [NASA-CASE-XNP-02500] c18 N71-27397  
 Development of electrical circuit for  
 suppressing oscillations across inductor  
 operating in resonant mode  
 [NASA-CASE-ERC-10403-1] c10 N73-26228  
 CW ultrasonic bolt tensioning monitor  
 [NASA-CASE-LAR-12016-1] c39 N78-15512  
 Microbalance --- for measuring particle mass  
 [NASA-CASE-MSC-11242] c35 N78-17358

**RESONATORS**  
 Selective bandpass resonators using bandstop  
 resonator pairs for microwave frequency  
 operation  
 [NASA-CASE-GSC-10990-1] c09 N73-26195

**RESPIRATION**  
 Respiration analyzing method and apparatus for  
 determining subjects oxygen consumption in  
 aerospace environments  
 [NASA-CASE-IFP-08403] c05 N71-11202

**RESPIRATORS**  
 Transducer for monitoring oxygen flow in  
 respirator  
 [NASA-CASE-FRC-10012] c14 N72-17329  
 Micro-fluid exchange coupling apparatus --- a  
 microrespirator to allow surgery on rats or mice  
 [NASA-CASE-ABC-11114-1] c52 N78-33717

**RESPIRATORY RATE**  
 Flowmeters for sensing low fluid flow rate and  
 pressure for application to respiration rate  
 studies  
 [NASA-CASE-FRC-10022] c12 N71-26546  
 Respiratory analysis system to determine gas  
 flow rate and frequency of respiration and  
 expiration cycles in real time  
 [NASA-CASE-MSC-13036-1] c05 N73-32015  
 Metabolic analyzer --- for measuring metabolic  
 rate and breathing dynamics of human beings  
 [NASA-CASE-MFS-21015-1] c52 N74-20728

**RESPIROMETERS**  
 Metabolic analyzer --- for measuring metabolic  
 rate and breathing dynamics of human beings  
 [NASA-CASE-MFS-21015-1] c52 N74-20728

**RESPONSES**  
 System for monitoring condition responsive  
 devices by using frequency division multiplex  
 technique  
 [NASA-CASE-KSC-10521] c07 N73-20176

**RESTARTABLE ROCKET ENGINES**  
 Collapsible auxiliary tank for restarting liquid  
 propellant rocket motors under zero gravity  
 [NASA-CASE-XNP-01390] c28 N70-41275  
 Regenerative cooling system for small rocket  
 engine having restart capability and using  
 noncryogenic hypergolic propellants  
 [NASA-CASE-XLE-00685] c28 N70-41992

**RESUSCITATION**  
 Pulmonary resuscitation method and apparatus  
 with adjustable pressure regulator  
 [NASA-CASE-XMS-01115] c05 N70-39922

**RETAINING**  
 A floating nut retention system  
 [NASA-CASE-MSC-16938-1] c37 N78-32431

**RETARDING**  
 Ablative resins used for retarding regression in  
 ablative material  
 [NASA-CASE-XLE-05913] c33 N71-14032

**RETICLES**  
 Optical tracker with pair of PM reticles having  
 patterns 90 deg out of phase  
 [NASA-CASE-XGS-05715] c23 N71-16100  
 Method for producing reticles for use in outer  
 space  
 [NASA-CASE-GSC-11188-2] c21 N73-19630

Production method of star tracking reticles for  
 transmitting in visible and near ultraviolet  
 regions  
 [NASA-CASE-GSC-11188-1] c14 N73-32320  
 Formation of star tracking reticles  
 [NASA-CASE-GSC-11188-3] c74 N74-20008  
 Star scanner --- with a reticle with a pair of  
 slits having differing separation  
 [NASA-CASE-GSC-11569-1] c89 N74-30886

**RETRACTABLE EQUIPMENT**  
 Retractable runway lights  
 [NASA-CASE-XLA-00119] c11 N70-53329  
 Support for flexible conductor cable between  
 drawers or racks holding electronic equipment  
 and cabinet assembly housing drawers or racks  
 [NASA-CASE-XMP-07587] c15 N71-18701  
 A retractable environmental seal  
 [NASA-CASE-MFS-23646-1] c20 N78-22150  
 Antenna deployment mechanism --- retractable  
 spacecraft antennas  
 [NASA-CASE-GSC-12331-1] c37 N78-32436

**RETROFIRING**  
 Visual target luminaires for retrofire attitude  
 control  
 [NASA-CASE-XMS-12158-1] c31 N69-27499  
 Device for use in descending spacecraft as  
 altitude sensor for actuating deceleration  
 retrorockets  
 [NASA-CASE-XMS-03792] c14 N70-41812

**RETROREFLECTION**  
 Servo system for retroreflector of Michelson  
 interferometer  
 [NASA-CASE-NPO-10300] c14 N71-17662  
 Over-under double-pass interferometer  
 [NASA-CASE-NPO-13999-1] c35 N78-18395

**RETROCKET ENGINES**  
 Steerable solid propellant rocket motor adapted  
 to effect payload orientation as multistage  
 rocket stage or reduce velocity as retrorocket  
 [NASA-CASE-XNP-00234] c28 N70-38645

**REUSABLE SPACECRAFT**  
 Recoverable, reusable single stage booster  
 capable of injecting large payloads into  
 circular earth orbit  
 [NASA-CASE-XMP-01973] c31 N70-41588  
 Spacecraft configurations and aerodynamic  
 characteristics of space shuttle systems with  
 two reusable stages  
 [NASA-CASE-MSC-12433] c31 N73-14854

**REUSE**  
 Silica reusable surface insulation  
 [NASA-CASE-ABC-10721-1] c27 N76-22376

**REVERSED FLOW**  
 Multistage multiple reentry axial flow reaction  
 turbine with reverse flow reentry ducting  
 [NASA-CASE-XLE-00170] c15 N70-36412  
 Reversible current directing circuitry for  
 reversible motor control  
 [NASA-CASE-XLA-09371] c10 N71-18724  
 Positive locking check valve for stopping  
 reversed flow  
 [NASA-CASE-XMS-09310] c15 N71-22706  
 Reverse pitch fan with divided splitter  
 [NASA-CASE-LEW-12760-1] c07 N77-17059

**REYNOLDS NUMBER**  
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 Reynolds number over transonic speed range  
 [NASA-CASE-MFS-20509] c11 N72-17183

**REYNOLDS STRESS**  
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 flowing fluid --- signal processing  
 [NASA-CASE-ARC-10755-2] c34 N76-27517

**RHENIUM**  
 Thermocouples of tantalum and rhenium alloys for  
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 [NASA-CASE-LEW-12050-1] c35 N77-32454

**RIBBON PARACHUTES**  
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 processing parachutes  
 [NASA-CASE-KSC-11042-1] c02 N78-22026

**RIBBONS**  
 Metal ribbon wrapped outer wall for  
 regeneratively cooled combustion chamber  
 [NASA-CASE-XLE-00164] c15 N70-36411  
 Device for bending metal ribbon or wire  
 [NASA-CASE-XLA-05966] c15 N72-12408  
 Controlled diffusion reaction process for  
 masking substrate of twisted multifilament  
 superconductive ribbon

- [NASA-CASE-LEW-11726-1] c26 N73-26752  
 Apparatus for assembling space structure  
 [NASA-CASE-MFS-23579-1] c12 N77-31213  
 A method of growing a ribbon crystal particularly suited for facilitating automated control of ribbon width  
 [NASA-CASE-NPO-14295-1] c76 N78-24952
- RIBOFLAVIN**  
 Bioassay of flavin coenzymes  
 [NASA-CASE-GSC-10565-1] c06 N72-25149
- RIBS (SUPPORTS)**  
 Aeroflexible wing structure with air scoop for inflating stiffeners with ram air  
 [NASA-CASE-XLA-06095] c01 N69-39981  
 Fabrication of light weight panel structure using pairs of elongate hollow ribs of semicircular configuration  
 [NASA-CASE-LAR-11052-1] c32 N73-13929
- RICE**  
 Rice preparation process consisting of cooking, two freezing-thawing cycles, and then freeze drying  
 [NASA-CASE-MSC-13540-1] c05 N72-33096
- RIGID ROTORS**  
 Hingeless helicopter rotor with improved stability  
 [NASA-CASE-ARC-10807-1] c05 N77-17029
- RIGID STRUCTURES**  
 Pneumatic mechanism for releasing hook and loop fasteners between large rigid structures  
 [NASA-CASE-XMS-10660-1] c15 N71-25975  
 Storage stable, thermally activated foaming compositions for erecting and rigidizing mechanisms of thin sheet solar collectors  
 [NASA-CASE-LAR-10373-1] c18 N71-26155  
 Adjustable rigid mount for trihedral mirror formed of alloy with small coefficient of thermal expansion supporting screws and spring-biased plates  
 [NASA-CASE-INP-08907] c23 N71-29123  
 Folding structure fabricated of rigid panels  
 [NASA-CASE-XHQ-02146] c18 N75-27040  
 Telescoping columns --- parabolic antenna support  
 [NASA-CASE-LAR-12195-1] c37 N78-33446
- RIGID WINGS**  
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 [NASA-CASE-XLA-01220] c02 N70-41863
- RING CURRENTS**  
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 [NASA-CASE-XGS-03095] c09 N69-27463
- RING STRUCTURES**  
 Reversible ring counter using cascaded single silicon controlled rectifier stages  
 [NASA-CASE-XGS-01473] c09 N71-10673  
 Nonreleasable energy absorbing device comprising ring member with plurality of recesses, cutting members, and guide member mounted in each recess  
 [NASA-CASE-INP-10040] c15 N71-22877  
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 [NASA-CASE-MFS-22073-1] c33 N75-13139  
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 [NASA-CASE-HQN-10844-1] c36 N75-19653  
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 [NASA-CASE-XMS-04670] c54 N78-17678  
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 [NASA-CASE-INP-05082] c15 N70-41960
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 [NASA-CASE-XLE-00409] c28 N71-15658
- Regeneratively cooled rocket motor casing with tapered channels to insure minimum thicknesses at each channel cross section for necessary strength requirements  
 [NASA-CASE-XLE-05689] c28 N71-15659  
 Payload/spent rocket engine case separation system  
 [NASA-CASE-XLA-05369] c31 N71-15687  
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 [NASA-CASE-INP-06942] c28 N71-23293  
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 [NASA-CASE-LAR-11995-1] c28 N77-10213  
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 [NASA-CASE-XLA-1349] c20 N77-17143
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 [NASA-CASE-XLA-00105] c28 N70-33331  
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 [NASA-CASE-LEW-10814-1] c28 N70-35422  
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 [NASA-CASE-INP-03692] c28 N71-24321  
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 [NASA-CASE-HQN-00938] c33 N71-29053  
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 [NASA-CASE-MFS-20620] c11 N72-27262  
 Thermocouple apparatus for measuring wall temperatures in regeneratively cooled rocket engines having thin walled cooling passages  
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[NASA-CASE-XLE-00208] c28 N70-34294
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[NASA-CASE-LEW-10374-1] c28 N73-13773
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- Design and characteristics of linkage to alleviate rocket vehicle divergence during launch  
[NASA-CASE-XLA-00256] c31 N71-15663
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[NASA-CASE-XLA-00937] c31 N71-17691
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[NASA-CASE-XLA-00256] c31 N71-15663
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[NASA-CASE-XKS-03338] c15 N71-24043
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[NASA-CASE-XMP-01544] c28 N70-34162
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[NASA-CASE-XLE-00145] c28 N70-36806
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[NASA-CASE-NPO-11975-1] c28 N74-33209
- ROCKET PROPELLANTS**
- Solenoid two-step valve for bipropellant flow rate control to rocket engine  
[NASA-CASE-XMS-04890-1] c15 N70-22192
- Rocket engine injector orifice to accommodate changes in density, velocity, and pressure, thereby maintaining constant mass flow rate of propellant into rocket combustion chamber  
[NASA-CASE-XLE-03157] c28 N71-24736
- Bipropellant injector with pair of concave deflector plates  
[NASA-CASE-XNP-09461] c28 N72-23809
- High performance ammonium nitrate propellant  
[NASA-CASE-NPO-14260] c28 N78-17230
- ROCKET TEST FACILITIES**
- High-vacuum condenser tank for testing ion rocket engines  
[NASA-CASE-XLE-00168] c11 N70-33278
- Micro-pound extended range thrust stand for small rocket engines  
[NASA-CASE-GSC-10710-1] c28 N71-27094
- ROCKET THRUST**
- Solid propellant rocket vehicle thrust control method and apparatus  
[NASA-CASE-XNP-00217] c28 N70-38181
- High voltage insulators for direct current in acceleration system of electrostatic thruster  
[NASA-CASE-XLE-01902] c28 N71-10574
- Characteristics of solid propellant rocket engine with controlled rate of thrust buildup operating in vacuum environment  
[NASA-CASE-NPO-11559] c28 N73-24784
- Thrust measurement  
[NASA-CASE-XMS-05731] c35 N75-29382
- ROCKET VEHICLES**
- Umbilical separator for rockets  
[NASA-CASE-XNP-00425] c11 N70-38202
- Hydraulic support equipment for full scale dynamic testing of large rocket vehicle under free flight conditions  
[NASA-CASE-XMP-01772] c11 N70-41677
- Design and characteristics of linkage to alleviate rocket vehicle divergence during launch  
[NASA-CASE-XLA-00256] c31 N71-15663
- Development of technique for control of free flight rocket vehicles  
[NASA-CASE-XLA-00937] c31 N71-17691
- Coupling device for moving vehicles  
[NASA-CASE-GSC-12322-1] c37 N78-25429
- ROCKET-BORNE INSTRUMENTS**
- Rocket-borne aspect sensor consisting of radiation sensor, apertured disk, commutator, and counting circuits  
[NASA-CASE-XGS-08266] c14 N69-27432
- General purpose rocket furnace  
[NASA-CASE-MFS-23460-1] c09 N77-12070
- ROCKETS**
- Device for detecting hydrogen fires onboard high altitude rockets  
[NASA-CASE-MFS-13130] c10 N72-17173
- ROCKS**
- Rotary impact-type rock drill for recovering rock cuttings  
[NASA-CASE-XNP-07478] c14 N69-21923
- Rock sampling --- apparatus for controlling particle size  
[NASA-CASE-XNP-10007-1] c46 N74-23068
- Rock sampling --- method for controlling particle size distribution  
[NASA-CASE-XNP-09755] c46 N74-23069
- RODS**
- Nuclear thermionic converter --- tungsten-thorium oxide rods  
[NASA-CASE-NPO-13121-1] c73 N77-18891
- ROLL**
- Measuring roll alignment of test body with respect to reference body  
[NASA-CASE-GSC-10514-1] c14 N72-20379
- ROLLER BEARINGS**
- Solid lubricant applied to porous roller bearings prior to use in ultrahigh vacuum  
[NASA-CASE-XLE-09527] c15 N71-17688
- Semilinear bearing comprising two rows of roller bearings separated by spherical bearings and permitting rotational and translational movement  
[NASA-CASE-XLA-02809] c15 N71-22982
- Low mass rolling element bearing assembly  
[NASA-CASE-LEW-11087-1] c15 N73-30458
- Method of making rolling element bearings  
[NASA-CASE-LEW-11087-2] c37 N74-15128
- Bearing material --- composite material with low friction surface for rolling or sliding contact  
[NASA-CASE-LEW-11930-1] c24 N76-22309

ROLLERS

SUBJECT INDEX

ROLLERS

Improving load capacity and fatigue life of rolling element systems in rockets and missiles [NASA-CASE-XLE-02999] c15 N71-16052

Load regulating latch [NASA-CASE-MSC-19535-1] c37 N77-32499

**ROLLING CONTACT LOADS**

Development of rolling element bearing for operation in ultrahigh vacuum environment [NASA-CASE-XLF-09527-2] c15 N71-26189

**ROLLING MOMENTS**

Star sensor system for roll attitude control of spacecraft [NASA-CASE-XNP-01307] c21 N70-41856

**ROOM TEMPERATURE**

Process permitting application of synthetic resin coating to irregular-shaped objects at ambient temperature [NASA-CASE-XNP-06508] c18 N69-39895

**ROTARY STABILITY**

Drive mechanism for operating reactance attitude control system for aerospace bodies [NASA-CASE-XMF-01598] c21 N71-15583

Combination guide and rotary bearing for freely moving shaft [NASA-CASE-XLA-00013] c15 N71-29136

Lubricated journal bearing [NASA-CASE-LEW-11076-3] c37 N75-30562

Cyclical bi-directional rotary actuator [NASA-CASE-GSC-11883-1] c37 N77-19458

**ROTARY WING AIRCRAFT**

Aircraft control system for rotary wing aircraft [NASA-CASE-ERC-10439] c02 N73-19004

**ROTARY WINGS**

Variable geometry rotor system for direct control over wake vortex [NASA-CASE-LAR-10557] c02 N72-11018

Ringless helicopter rotor with improved stability [NASA-CASE-ARC-10807-1] c05 N77-17029

Automatically lockable axially extensible strut --- for helicopters [NASA-CASE-LAR-11900-1] c05 N77-18134

Acoustically swept rotor [NASA-CASE-ARC-11106-1] c05 N77-31130

**ROTATING BODIES**

Optical scanner mounted on rotating support structure with method of compensating for image or satellite rotation [NASA-CASE-XGS-02401] c14 N69-27485

Laser device for removing material from rotating object for dynamic balancing [NASA-CASE-MFS-11279] c16 N71-20400

Phase-locked servo system --- for synchronizing the rotation of slip ring assembly [NASA-CASE-MFS-22073-1] c33 N75-13139

An improved rotatable mass for a flywheel [NASA-CASE-MFS-23051-1] c37 N76-13500

Angular momentum control device used for stabilization of space vehicles and the like [NASA-CASE-LAR-11051-1] c15 N76-14158

Axially and radially controllable magnetic bearing [NASA-CASE-GSC-11551-1] c37 N76-18459

Multiple in-line docking capability for rotating space stations [NASA-CASE-MFS-20855-1] c15 N77-10112

Rotary target V-block --- for optical alignment of machinery [NASA-CASE-LAR-12007-1] c74 N78-15883

Acoustic driving of rotor [NASA-CASE-NPO-14005-1] c71 N78-22859

**ROTATING CYLINDERS**

Tread drum for animals --- having an electrical shock station [NASA-CASE-ARC-10917-1] c51 N78-27733

**ROTATING DISKS**

Foil seal between parts moving relative to each other [NASA-CASE-XLE-05130] c15 N69-21362

Rocket-borne aspect sensor consisting of radiation sensor, apertured disk, commutator, and counting circuits [NASA-CASE-XGS-08266] c14 N69-27432

Redundant disc [NASA-CASE-LEW-12496-1] c07 N78-33101

**ROTATING ELECTRICAL MACHINES**

Modulating and controlling intensity of light beam from high temperature source by servocontrolled rotating cylinders [NASA-CASE-XMS-04300] c09 N71-19479

Design and development of electric motor with stationary field and armature windings which operates on direct current [NASA-CASE-XGS-05290] c09 N71-25999

Double-induction variable speed system for constant-frequency electrical power generation [NASA-CASE-ERC-10065] c09 N71-27364

**ROTATING ENVIRONMENTS**

Radial module manned space station with artificial gravity environment [NASA-CASE-XMS-01906] c31 N70-41373

Artificial gravity system for simulating self-locomotion capability of astronauts in rotating environments [NASA-CASE-XLA-03127] c11 N71-10776

**ROTATING GENERATORS**

Rotating raster generator [NASA-CASE-FRC-10071-1] c32 N74-20813

Kine-Pak: A self-contained, electrical power generator system --- using a helical spring to rotate a rotor and generate electric current [NASA-CASE-LAR-11551-1] c44 N78-22468

Wind wheel electric power generator [NASA-CASE-MFS-23515-1] c44 N78-22469

**ROTATING MIRRORS**

Optical retrodirective modulator with focus spooling reflector driven by modulation signal [NASA-CASE-GSC-10062] c14 N71-15605

Attitude sensor with scanning mirrors for detecting orientation of space vehicle with respect to planet [NASA-CASE-XLA-00793] c21 N71-22880

Optical device containing rotatable prism and reflecting mirror for generating precise angles [NASA-CASE-XGS-04173] c19 N71-26674

Method and apparatus for optically monitoring the angular position of a rotating mirror [NASA-CASE-GSC-11353-1] c74 N74-21304

**ROTATING SHAFTS**

Fluid seal formed by flexible disk on rotating shaft to retain lubricating oils around shaft [NASA-CASE-XLE-05130-2] c15 N71-19570

Anemometer with braking mechanism to prevent rotation of wind driven elements [NASA-CASE-XMP-05224] c14 N71-23726

Electromagnetic braking arrangement for controlling rotor rotation in electric motor [NASA-CASE-XNP-06936] c15 N71-24695

Liquid-vapor interface seal design for turbine rotating shafts including helical and molecular pumps and liquid cooling of mercury vapor [NASA-CASE-XNP-02862-1] c15 N71-26294

Combination guide and rotary bearing for freely moving shaft [NASA-CASE-XLA-00013] c15 N71-29136

Development of Hall effect transducer for converting mechanical shaft rotations into proportional electrical signals [NASA-CASE-LAR-10620-1] c09 N72-25255

Development of optical system for detecting defective components in rotating machinery with emphasis on bearing assemblies [NASA-CASE-KSC-10752-1] c15 N73-27407

Spiral groove seal --- for rotating shaft [NASA-CASE-XLE-10326-4] c37 N74-15125

Digital servo controller --- for rotating antenna shaft [NASA-CASE-KSC-10769-1] c33 N74-29556

Solid medium thermal engine [NASA-CASE-ARC-10461-1] c44 N74-33379

Ergometer calibrator --- for any ergometer utilizing rotating shaft [NASA-CASE-MFS-21045-1] c35 N75-15932

Fluid seal for rotating shafts [NASA-CASE-LEW-11676-1] c37 N76-22541

Cyclical bi-directional rotary actuator [NASA-CASE-GSC-11883-1] c37 N77-19458

A rotary electric device [NASA-CASE-GSC-12138-1] c33 N77-20344

Tachometer [NASA-CASE-MFS-23175-1] c35 N77-30436

Rotary leveling base platform [NASA-CASE-ARC-10991-1] c37 N78-27425

**ROTATION**

Semilinear bearing comprising two rows of roller bearings separated by spherical bearings and permitting rotational and translational movement [NASA-CASE-XLA-02809] c15 N71-22982

## SUBJECT INDEX

## SAMPLING

Mechanical actuator wherein linear motion changes to rotational motion  
 [NASA-CASE-IGS-04548] c15 N71-24045

Positioning mechanism for converting translatory motion into rotary motion  
 [NASA-CASE-NFO-10679] c15 N72-21462

**ROTOR AERODYNAMICS**  
 Acoustically swept rotor  
 [NASA-CASE-ARC-11106-1] c05 N77-31130

**ROTOR BLADES**  
 Non-destructive method for applying and removing instrumentation on helicopter rotor blades  
 [NASA-CASE-LAR-11201-1] c35 N78-24515

**ROTOR BLADES (TURBOMACHINERY)**  
 Locking device for retaining turbine rotor blades on turbine wheel  
 [NASA-CASE-XNP-00816] c28 N71-28928

Blade vibration damping pins for turbomachinery  
 [NASA-CASE-XLE-00155] c28 N71-29154

Apparatus for welding blades to rotors  
 [NASA-CASE-LEW-10533-2] c37 N74-11300

Supersonic fan blading --- noise reduction in turbofan engines  
 [NASA-CASE-LEW-11402-1] c07 N74-28226

Apparatus and method for reducing thermal stress in a turbine rotor  
 [NASA-CASE-LEW-12232-1] c07 N77-18160

Blade retainer assembly  
 [NASA-CASE-LEW-12608-1] c07 N77-27116

Platform for a swing root turbomachinery blade  
 [NASA-CASE-LEW-12312-1] c07 N77-32148

**ROTOR LIFT**  
 Constant lift rotor for a heavier than air craft  
 [NASA-CASE-ARC-11045-1] c05 N77-28111

**ROTOR SPEED**  
 Brushless dc tachometer design with Hall effect crystals and output voltage magnitude proportional to rotor speed  
 [NASA-CASE-MPS-20385] c09 N71-24904

**ROTORs**  
 Multistage, multiple reentry, single rotor, axial flow turbine  
 [NASA-CASE-XLE-00085] c28 N70-39895

Describing angular position and velocity sensing apparatus  
 [NASA-CASE-XGS-05680] c14 N71-17585

Microwave waveguide switch with rotor position control  
 [NASA-CASE-XNP-06507] c09 N71-23548

Electromagnetic braking arrangement for controlling rotor rotation in electric motor  
 [NASA-CASE-XNP-06936] c15 N71-24695

Rotary vane attenuator with two stators and intermediary rotor, using resistive and orthogonally disposed cards  
 [NASA-CASE-NPO-11418-1] c14 N73-13420

Process for welding compressor and turbine blades to rotors and discs of jet engines  
 [NASA-CASE-LEW-10533-1] c15 N73-28515

Liquid metal slip ring  
 [NASA-CASE-LEW-12277-2] c33 N78-25323

**RUBBER**  
 Rubber composition for expulsion bladders and diaphragms for use with hydrazine  
 [NASA-CASE-NFO-11433] c18 N71-31140

Formulated plastic separators for soluble electrode cells --- rubber-ion transport sheeting  
 [NASA-CASE-LEW-12358-1] c44 N77-18560

Thermoplastic rubber comprising ethylene-vinyl acetate copolymer, asphalt and fluxing oil  
 [NASA-CASE-NPO-8835] c27 N78-33228

**RUBBER COATINGS**  
 Intumescent paint containing nitrile rubber for fire protection  
 [NASA-CASE-ARC-10196-1] c18 N73-13562

**ROBY**  
 Bonding of sapphire to sapphire by eutectic mixture of aluminum oxide and zirconium oxide  
 [NASA-CASE-GSC-11577-1] c37 N75-15992

Bonding of sapphire to sapphire by eutectic mixture of aluminum oxide and zirconium oxide  
 [NASA-CASE-GSC-11577-3] c24 N76-19234

**ROBY LASERS**  
 Cooling and radiation protection of ruby lasers using copper sulfate solution in alcohol  
 [NASA-CASE-MPS-20180] c16 N72-12440

**RUNWAY ALIGNMENT**  
 Magnetic method for detection of aircraft position relative to runway

[NASA-CASE-ARC-10179-1] c21 N72-22619

**RUNWAY LIGHTS**  
 Retractable runway lights  
 [NASA-CASE-XLA-00119] c11 N70-33329

Spectrally balanced chromatic landing approach lighting system  
 [NASA-CASE-ARC-10990-1] c04 N77-12031

**RUPTURING**  
 Knife structure for controlling rupture of shock tube diaphragms  
 [NASA-CASE-XAC-00731] c11 N71-15960

## S

**SAFETY**  
 Safety flywheel  
 [NASA-CASE-MQN-10888-1] c37 N77-22484

**SAFETY DEVICES**  
 Helmet and torso tiedown mechanism for shortening pressure suits upon inflation  
 [NASA-CASE-XMS-00784] c05 N71-12335

Positive locking check valve for stopping reversed flow  
 [NASA-CASE-IMS-09310] c15 N71-22706

Description of protective device for providing safe operating conditions around work piece in machine or metal working tool  
 [NASA-CASE-XLE-01092] c15 N71-22797

Velocity limiting safety system for motor driven research vehicle  
 [NASA-CASE-XLA-07473] c15 N71-24895

Device for generating and controlling combustion products for testing of fire detection system  
 [NASA-CASE-GSC-11095-1] c14 N72-10375

Restraint torso for increased mobility and reduced physiological effects while wearing pressurized suits  
 [NASA-CASE-MSC-12397-1] c05 N72-25119

Totally confined explosive welding --- apparatus to reduce noise level and protect personnel during explosive bonding  
 [NASA-CASE-LAR-10941-1] c37 N74-21057

Deployable flexible ventral fins for use as an emergency spin recovery device in aircraft  
 [NASA-CASE-LAR-10753-1] c08 N74-30421

Shoulder harness and lap belt restraint system  
 [NASA-CASE-ARC-10519-2] c05 N75-25915

Fifth wheel  
 [NASA-CASE-PRC-10081-1] c37 N77-14477

An improved vehicular impact absorption system  
 [NASA-CASE-NPO-14014-1] c37 N77-31501

**SAHA EQUATIONS**  
 Cosmic dust analyzer  
 [NASA-CASE-MSC-13802-2] c35 N76-15431

**SALT BATHS**  
 Application techniques for protecting materials during salt bath brazing  
 [NASA-CASE-XLE-00046] c15 N70-33311

**SAMARIUM**  
 Gadolinium or samarium doped-silicon semiconductor material with resistance to radiation damage for use in solar cells  
 [NASA-CASE-XLE-10715] c26 N71-23292

**SAMPLERS**  
 Portable vacuum probe surface sampler for sampling large surface areas with relatively light loading densities of microorganisms  
 [NASA-CASE-LAR-10623-1] c14 N73-30395

**SAMPLES**  
 Plural output optometric sample cell and analysis system  
 [NASA-CASE-NPO-10233-1] c74 N78-33913

**SAMPLING**  
 Impact bit for cutting, collecting, and storing samples such as lunar rock cuttings  
 [NASA-CASE-XNP-01472] c15 N70-42034

Design and development of fluid sample collector  
 [NASA-CASE-XMS-06767-1] c14 N71-20435

Design and development of two types of atmosphere sampling chambers  
 [NASA-CASE-NPO-11373] c13 N72-25323

Digital to analog converter for sampled signal reconstruction  
 [NASA-CASE-MSC-12458-1] c08 N73-32081

Rock sampling --- apparatus for controlling particle size  
 [NASA-CASE-XNP-10007-11] c46 N74-23068

Rock sampling --- method for controlling particle size distribution

## SANDWICH STRUCTURES

## SUBJECT INDEX

[NASA-CASE-XNP-09755] c46 N74-23069  
 Apparatus for microbiological sampling ---  
 including automatic swabbing  
 [NASA-CASE-LAR-11069-1] c35 N75-12272  
 Automatic blowaste sampling  
 [NASA-CASE-MSC-14640-1] c54 N76-14804  
 Fluid sample collection and distribution system  
 [NASA-CASE-MSC-16841-1] c51 N78-22590  
 Remote water monitoring system  
 [NASA-CASE-LAR-11973-1] c35 N78-27384

**SANDWICH STRUCTURES**  
 Sandwich panel structure for removing heat from  
 shield between hot and cold areas  
 [NASA-CASE-XLA-00349] c33 N70-37979  
 Particle detector for measuring micrometeoroid  
 velocity in space  
 [NASA-CASE-XLA-00495] c14 N70-41332  
 Capacitor sandwich structure containing metal  
 sheets of known thickness for counting  
 penetration rates of meteoroids  
 [NASA-CASE-XLE-01246] c14 N71-10797  
 Technique for making foldable, inflatable,  
 plastic honeycomb core panels for use in  
 building and bridge structures, light and  
 radio wave reflectors, and spacecraft  
 [NASA-CASE-XLA-03492] c15 N71-22713  
 Punch and die device for forming convolution  
 series in thin gage metal hemispheres  
 [NASA-CASE-XNP-05297] c15 N71-23811  
 Composite sandwich lattice structure  
 [NASA-CASE-LAR-11898-1] c24 N78-10214

**SAPPHIRE**  
 Bonding of sapphire to sapphire by eutectic  
 mixture of aluminum oxide and zirconium oxide  
 [NASA-CASE-GSC-11577-1] c37 N75-15992  
 Bonding of sapphire to sapphire by eutectic  
 mixture of aluminum oxide and zirconium oxide  
 [NASA-CASE-GSC-11577-3] c24 N76-19234

**SATELLITE ANTENNAS**  
 Monopole antenna system for maximum  
 omnidirectional efficiency for use on satellites  
 [NASA-CASE-XLA-00414] c07 N70-38200  
 Development of antenna system for spin  
 stabilized communication satellite for  
 simultaneous reception and transmission of data  
 [NASA-CASE-IGS-02607] c31 N71-23009

**SATELLITE ATTITUDE CONTROL**  
 Photosensitive light source device for detecting  
 unmanned spacecraft deviation from reference  
 attitude  
 [NASA-CASE-XNP-00438] c21 N70-35089  
 Attitude control system for spacecraft based on  
 conversion of incident solar radiation on  
 movable control surfaces into mechanical torques  
 [NASA-CASE-XNP-02982] c31 N70-41855  
 Design and development of satellite despun device  
 [NASA-CASE-XNP-08523] c31 N71-20396  
 Utilization of momentum devices for forming  
 attitude control and damping system for  
 spacecraft  
 [NASA-CASE-XLA-02551] c21 N71-21708  
 Gravity gradient attitude control system with  
 gravity gradiometer and reaction wheels for  
 artificial satellite attitude control  
 [NASA-CASE-GSC-10555-1] c21 N71-27324  
 Method and apparatus for providing active  
 attitude control for spacecraft by converting  
 any attitude motion of vehicle into simple  
 rotational motion  
 [NASA-CASE-HQN-10439] c21 N72-21624  
 Momentum wheel design for spacecraft attitude  
 control and magnetic drum and head system for  
 data storage  
 [NASA-CASE-NPO-11481] c21 N73-13644  
 Combination automatic-starting electrical plasma  
 torch and gas shutoff valve --- for satellite  
 attitude control  
 [NASA-CASE-XLE-10717] c37 N75-29426  
 Attitude control system  
 [NASA-CASE-MPS-22787-1] c15 N77-10113

**SATELLITE CONTROL**  
 Stabilization system for gravity-oriented  
 satellites using single damper rod  
 [NASA-CASE-XAC-01591] c31 N71-17729

**SATELLITE DESIGN**  
 Inflation system for balloon type satellites  
 [NASA-CASE-IGS-03351] c31 N71-16081

**SATELLITE INSTRUMENTS**  
 Satellite stabilization reaction wheel scanner

[NASA-CASE-XGS-02629] c14 N71-21082  
 Economical satellite aided vehicle avoidance  
 system for preventing midair collisions  
 [NASA-CASE-ERC-10419] c21 N72-21631

**SATELLITE NETWORKS**  
 Satellite network synchronization system with  
 multiple access to multiplex repeater  
 [NASA-CASE-GSC-10390-1] c07 N72-11149

**SATELLITE ORBITS**  
 Development of method and apparatus for spinning  
 satellite about selected axis after reaching  
 predetermined orientation  
 [NASA-CASE-HQN-00936] c31 N71-29050

**SATELLITE ORIENTATION**  
 Sensing method and device for determining  
 orientation of space vehicle or satellite by  
 using particle traps  
 [NASA-CASE-XGS-00466] c21 N70-34297  
 Spin phase synchronization of cartwheel  
 satellite in polar orbit  
 [NASA-CASE-XGS-05579] c31 N71-15676  
 Development of method and apparatus for spinning  
 satellite about selected axis after reaching  
 predetermined orientation  
 [NASA-CASE-HQN-00936] c31 N71-29050  
 Analog spatial maneuver computer with three  
 output angles for obtaining desired spatial  
 attitude  
 [NASA-CASE-GSC-10880-1] c08 N72-11172

**SATELLITE PERTURBATION**  
 Flexible turnstile antenna system for reducing  
 nutation in spin-oriented satellites  
 [NASA-CASE-XMP-00442] c31 N71-10747

**SATELLITE ROTATION**  
 Optical scanner mounted on rotating support  
 structure with method of compensating for  
 image or satellite rotation  
 [NASA-CASE-XGS-02401] c14 N69-27485  
 Stretch Yo-Yo mechanism for reducing initial  
 spin rate of space vehicle  
 [NASA-CASE-XGS-00619] c30 N70-40016  
 Development of method and apparatus for spinning  
 satellite about selected axis after reaching  
 predetermined orientation  
 [NASA-CASE-HQN-00936] c31 N71-29050

**SATELLITE TELEVISION**  
 Adaptive signal generating system and logic  
 circuits for satellite television systems  
 [NASA-CASE-GSC-11367] c10 N71-26374

**SATELLITE TRACKING**  
 Design and development of tracking receiver for  
 tracking satellites and receiving radio signal  
 transmissions under adverse noise conditions  
 [NASA-CASE-XGS-08679] c10 N71-21473  
 Simultaneous acquisition of tracking data from  
 two stations  
 [NASA-CASE-NPO-13292-1] c32 N75-15854  
 Switchable beamwidth monopulse method and system  
 [NASA-CASE-GSC-11924-1] c33 N76-27472

**SATELLITE TRANSMISSION**  
 Asynchronous, multiplexing, single line  
 transmission and recovery data system --- for  
 satellite use  
 [NASA-CASE-NPO-13321-1] c32 N75-26195

**SATELLITE-BORNE PHOTOGRAPHY**  
 Rotary solenoid shutter drive assembly and  
 rotary inertia damper and stop plate assembly  
 --- for use with cameras mounted in satellites  
 [NASA-CASE-GSC-11560-1] c33 N74-20861

**SATURATION**  
 Saturable magnetic core and signal detection for  
 indicating impending saturation  
 [NASA-CASE-ERC-10089] c23 N72-17747

**SAWTOOTH WAVEFORMS**  
 Linear sawtooth voltage wave generator with  
 transistor timing circuit having capacitor and  
 zener diode feedback loops  
 [NASA-CASE-XMS-01315] c09 N70-41675

**SCANNERS**  
 Electronic and mechanical scanning control  
 system for monopulse tracking antenna  
 [NASA-CASE-IGS-05582] c07 N69-27460  
 Electronic background suppression field scanning  
 sensor for detecting point source targets  
 [NASA-CASE-IGS-05211] c07 N69-39980  
 Electron beam scanning system for improved image  
 definition and reduced power requirements for  
 video signal transmission  
 [NASA-CASE-ERC-10552] c09 N71-12539



## SUBJECT INDEX

## SEAMS (JOINTS)

- Satellite stabilization reaction wheel scanner  
[NASA-CASE-XGS-02629] c14 N71-21082
- Monopulse scanning network for scanning  
volumetric antenna pattern  
[NASA-CASE-GSC-10299-1] c09 N71-24804
- High speed scanner for measuring mass of  
preselected gases at high sampling rate  
[NASA-CASE-LAR-10766-1] c14 N72-21432
- Scan oscilloscope for mapping surface  
sensitivity of photomultiplier tube  
[NASA-CASE-LAR-10320-1] c09 N72-23172
- Ultrasonic scanner for radial and flat panels  
[NASA-CASE-MFS-20335-1] c35 N74-10415
- Apparatus for scanning the surface of a  
cylindrical body  
[NASA-CASE-NPO-11861-1] c36 N74-20009
- Fast scan control for deflection type mass  
spectrometers  
[NASA-CASE-LAR-11428-1] c35 N74-34857
- SCANNING**
- Conversion system for transforming slow scan  
rate of Apollo TV camera on moon to fast scan  
of commercial TV  
[NASA-CASE-XMS-07168] c07 N71-11300
- Operation of vidicon tube for scanning spatial  
charge density pattern  
[NASA-CASE-XNP-06028] c09 N71-23189
- Position determination systems --- using orbital  
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[NASA-CASE-XLE-00586] c15 N71-15968
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[NASA-CASE-XAC-03392] c03 N70-41954  
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[NASA-CASE-YMS-04300] c09 N71-19479  
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[NASA-CASE-XLA-08530] c32 N71-25360  
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[NASA-CASE-KSC-10769-1] c33 N74-29556  
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[NASA-CASE-MPS-22073-1] c33 N75-13139  
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[NASA-CASE-LEW-12217-1] c43 N78-14452

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[NASA-CASE-XNP-01753] c08 N71-22897  
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[NASA-CASE-NPO-10743] c08 N72-21199  
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[NASA-CASE-XNP-03856] c31 N70-34159  
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[NASA-CASE-XLA-00754] c15 N70-34850
- Shock absorbing couch for body support under high acceleration or deceleration forces  
[NASA-CASE-XMS-01240] c05 N70-35152  
Low onset rate energy absorber in form of strut assembly for crew couch of Apollo command module  
[NASA-CASE-MSC-12279-1] c15 N70-35679  
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[NASA-CASE-XMP-02853] c31 N70-36654  
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[NASA-CASE-XMS-03722] c15 N71-21530  
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[NASA-CASE-XLA-01530] c14 N71-23092  
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[NASA-CASE-MSC-12279] c15 N72-17450  
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[NASA-CASE-LAR-10894-1] c18 N73-14584  
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[NASA-CASE-NPO-13528-1] c09 N77-10071
- SHOCK WAVE INTERACTION**  
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[NASA-CASE-XLA-02865] c28 N71-15563
- SHOCK WAVE LUMINESCENCE**  
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[NASA-CASE-XAC-02970] c14 N69-39896
- SHOCK WAVE PROFILES**  
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[NASA-CASE-XAC-02970] c14 N69-39896
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[NASA-CASE-MFS-20890] c14 N72-22439  
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Use of silicon controlled rectifier shorting circuit to protect thermoelectric generator source from thermal destruction  
[NASA-CASE-XGS-04808] c03 N69-25146

Vacuum thermionic converter with short-circuited triodes and increased electron transmission and conversion efficiency  
[NASA-CASE-XLE-01015] c03 N69-39898

Apparatus for automatically testing analog to digital converters for open and short circuits  
[NASA-CASE-XLA-06713] c14 N71-28991

## SHOT PEENING

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[NASA-CASE-MFS-23047-1] c37 N76-18454

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[NASA-CASE-LAR-11919-1] c07 N78-27121

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[NASA-CASE-XLA-01043] c28 N71-10780

## SHUTTERS

High speed shutter --- electrically actuated ribbon loop for shuttering optical or fluid passageways  
[NASA-CASE-ARC-10516-1] c70 N74-21300

## SIDE BANDS

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[NASA-CASE-XNP-02723] c07 N70-41680

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Multiple mode horn antenna with radiation pattern of equal beamwidths and suppressed sidelobes  
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[NASA-CASE-XGS-03502] c10 N71-20852

Method and apparatus for a single channel digital communications system --- synchronization of received PCM signal by digital correlation with reference signal  
[NASA-CASE-NPO-11302-2] c32 N74-10132

Differential phase shift keyed signal resolver  
[NASA-CASE-MSC-14066-1] c33 N74-27705

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[NASA-CASE-GSC-11744-1] c33 N75-26243

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[NASA-CASE-GSC-12115-1] c62 N76-31946

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[NASA-CASE-XMS-04061-1] c09 N69-39885

Feedback controller for sampling error signals within single control formulation time interval  
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Development of family of frequency to amplitude converters for frequency analysis of complex input signal waveforms  
[NASA-CASE-MSC-12395] c09 N72-25257

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[NASA-CASE-MSC-12428-1] c10 N73-25240

Pulse stretcher for narrow pulses  
[NASA-CASE-MSC-14130-1] c33 N74-32711

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[NASA-CASE-MFS-21672-1] c74 N76-19935

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[NASA-CASE-GSC-10087-2] c21 N71-13958

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[NASA-CASE-ERC-10089] c23 N72-17747

Anti-multipath digital signal detector  
[NASA-CASE-LAR-11827-1] c32 N77-10392

Multiple rate digital command detection system with range clean-up capability  
[NASA-CASE-NPO-13753-1] c32 N77-20289

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[NASA-CASE-MSC-16461-1] c32 N78-15331

## SIGNAL DETECTORS

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[NASA-CASE-XLA-00203] c14 N70-34161

Electrical testing apparatus for detecting amplitude and width of transient pulse  
[NASA-CASE-XMP-06519] c09 N71-12519

System for monitoring presence of neutrals in streams of ions - ion engine control  
[NASA-CASE-XNP-02592] c24 N71-20518

Development of apparatus for generating output signal commensurate with information contained in input signal  
[NASA-CASE-ERC-10041] c08 N71-29138

A signal attenuator --- pulse rate sensor circuits  
[NASA-CASE-FRC-11012-1] c33 N78-28339

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[NASA-CASE-MSC-14557-1] c32 N76-16249

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[NASA-CASE-XLA-03076] c07 N71-11266

Secure communication system  
[NASA-CASE-MSC-16462-1] c32 N78-25274

## SIGNAL GENERATORS

Plural recorder system which limits signal recording to signals of sufficient interest  
[NASA-CASE-XMS-06949] c09 N69-21467

Alternating current signal generator providing plurality of amplitude modulated output signals  
[NASA-CASE-XNP-05612] c09 N69-21468

Circuitry for generating sync signals in FM communication systems including video information  
[NASA-CASE-XNP-10830] c07 N71-11281

Apparatus for generating microwave signals at progressively related phase angles for driving antenna array  
[NASA-CASE-ERC-10046] c10 N71-18722

System generating sidereal frequency signals from signals of standard solar frequency without use of mixing operations or feedback loops  
[NASA-CASE-XGS-02610] c14 N71-23174

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[NASA-CASE-XMS-07487] c15 N71-23255

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[NASA-CASE-XMP-04367] c09 N71-23545

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[NASA-CASE-XLE-03061-1] c10 N71-24798

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[NASA-CASE-GSC-11367] c10 N71-26374

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[NASA-CASE-KSC-10020] c10 N71-27338

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[NASA-CASE-NPO-11064] c07 N72-11150

Digital function generator for generating any arbitrary single valued function  
[NASA-CASE-NPO-11104] c08 N72-22165

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[NASA-CASE-LAR-10620-1] c09 N72-25255

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[NASA-CASE-X2R-07895] c26 N72-25679

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System for generating timing and control signals  
[NASA-CASE-NPO-13125-1] c33 N75-19519  
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evaluation --- test signals  
[NASA-CASE-MPS-22671-1] c35 N75-21582  
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[NASA-CASE-ARC-10802-1] c35 N75-30502  
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output signal  
[NASA-CASE-ARC-10897-1] c33 N77-31404  
A versatile LDV burst simulator  
[NASA-CASE-LAP-11859-1] c36 N78-17367
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[NASA-CASE-LEW-12013-1] c33 N77-17360
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[NASA-CASE-XGS-01110] c07 N69-24334
- SIGNAL PROCESSING**  
Adaptive compression signal processor for PCM  
communication systems  
[NASA-CASE-XLA-03076] c07 N71-11266  
Conversion system for transforming slow scan  
rate of Apollo TV camera on moon to fast scan  
of commercial TV  
[NASA-CASE-XMS-07168] c07 N71-11300  
Difference indicating circuit used in  
conjunction with device measuring  
gravitational fields  
[NASA-CASE-XNP-09274] c10 N71-13537  
Circuitry for developing autocorrelation  
function continuously within signal receiving  
period  
[NASA-CASE-XNP-00746] c07 N71-21476  
System generating sidereal frequency signals  
from signals of standard solar frequency  
without use of mixing operations or feedback  
loops  
[NASA-CASE-XGS-02610] c14 N71-23174  
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capacitor for signal processing  
[NASA-CASE-XAC-10607] c10 N71-23669  
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multiplex transmission by Fourier analysis  
[NASA-CASE-NPO-10388] c07 N71-24622  
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volumetric antenna pattern  
[NASA-CASE-GSC-10299-1] c09 N71-24804  
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[NASA-CASE-NPO-10302] c10 N71-26142  
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data to obtain optimum signal to noise ratios  
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using exponentially varying electric signal  
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- [NASA-CASE-ERC-10267] c09 N72-23173  
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remotely controlled from ground station  
[NASA-CASE-NPO-11358] c07 N72-25172  
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singlets to show state of various indicators in  
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[NASA-CASE-GSC-10975-1] c08 N73-13187  
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[NASA-CASE-NPO-11572] c07 N73-16121  
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[NASA-CASE-MPS-20658-1] c14 N73-30386  
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[NASA-CASE-MS-C-12458-1] c08 N73-32081  
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Low level signal limiter  
[NASA-CASE-XLE-04791] c32 N74-22096  
Miniature multichannel biotelemetry system  
[NASA-CASE-NPO-13065-1] c52 N74-26625  
Apparatus and method for processing Korotkov  
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[NASA-CASE-MS-C-13999-1] c52 N74-26626  
Pulse stretcher for narrow pulses  
[NASA-CASE-MS-C-14130-1] c33 N74-32711  
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--- for the analysis of simultaneous analog  
signal components  
[NASA-CASE-ARC-10466-1] c60 N75-13539  
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constant input impedance  
[NASA-CASE-ARC-10348-1] c33 N75-19518  
Television noise reduction device  
[NASA-CASE-MS-C-12607-1] c32 N75-21485  
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[NASA-CASE-MPS-21616-1] c33 N75-30429  
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[NASA-CASE-KSC-10834-1] c33 N76-14371  
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noise from voice communication signals  
[NASA-CASE-MPS-22729-1] c32 N76-21366  
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flowing fluid --- signal processing  
[NASA-CASE-ARC-10755-2] c34 N76-27517  
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[NASA-CASE-NPO-13862-1] c32 N77-17325  
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rate tracking threshold  
[NASA-CASE-MS-C-12743-1] c32 N77-19290  
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[NASA-CASE-GSC-11824-1] c33 N77-26386  
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properties of test specimens  
[NASA-CASE-LAR-11883-1] c09 N77-27131  
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[NASA-CASE-GSC-12111-2] c60 N77-31800  
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radiant energy array computers  
[NASA-CASE-GSC-11839-3] c60 N77-32731  
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[NASA-CASE-MS-C-14916-1] c33 N78-10375  
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[NASA-CASE-LAR-11922-1] c25 N78-17171  
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Quadrature demodulation  
[NASA-CASE-GSC-12137-1] c33 N78-32338
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range and increasing signal to noise ratio  
[NASA-CASE-XNP-00748] c07 N70-36911  
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measurement  
[NASA-CASE-XNP-10843] c07 N71-11267  
Diversity receiving system with diversity phase  
lock  
[NASA-CASE-XGS-01222] c10 N71-20841  
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tracking apparatus  
[NASA-CASE-XGS-03502] c10 N71-20852

## SIGNAL REFLECTION

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- Development of optimum pre-detection diversity combining receiving system adapted for use with amplitude modulation, phase modulation, and frequency modulation systems  
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- Binary data decoding device for use at receiving end of communication channel  
[NASA-CASE-NPO-10118] c07 N71-24741
- Development of electronic circuit for combining input signals on two separate antennas to form two processed signals  
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- Input signal measurement using liquid crystalline elements  
[NASA-CASE-ERC-10275] c26 N72-25680
- Filter for third order phase locked loops in signal receivers  
[NASA-CASE-NPO-11941-1] c10 N73-27171
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[NASA-CASE-NPO-11738-1] c09 N73-30185
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[NASA-CASE-NPO-10166-2] c35 N76-16391
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[NASA-CASE-NPO-14022-1] c32 N78-31321
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- Linear accelerator frequency control system  
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[NASA-CASE-NPO-13140-1] c32 N75-24982
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[NASA-CASE-MSC-12259-1] c07 N70-12616
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[NASA-CASE-XNP-00748] c07 N70-36911
- Detector assembly for discriminating first signal with respect to presence or absence of second signal at time of occurrence of first signal  
[NASA-CASE-XMP-00701] c09 N70-40272
- Automatic estimation of signal to noise ratio and other parameters in signal communication systems  
[NASA-CASE-XNP-05254] c07 N71-20791
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[NASA-CASE-XMP-04367] c09 N71-23545
- Design and characteristics of recording system for selective reprocessing and filtering of data to obtain optimum signal to noise ratios  
[NASA-CASE-ERC-10112] c07 N72-21119
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[NASA-CASE-LAR-10253-1] c09 N72-25258
- Superconductive resonant cavity for improved signal to noise ratio in communication signal  
[NASA-CASE-MSC-12259-2] c07 N72-33146
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- Gated compressor, distortionless signal limiter  
[NASA-CASE-NPO-11820-1] c32 N74-19788
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 Cable suspension and inclined walkway system for simulating reduced or zero gravity environments  
 [NASA-CASE-XLA-01787] c11 N71-16028  
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 [NASA-CASE-XLE-03307] c33 N71-14035  
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[NASA-CASE-NPO-11001] c07 N72-21118  
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 [NASA-CASE-XLE-00810] c15 N70-34861  
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 [NASA-CASE-XLA-00838] c03 N70-36778  
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**SPACECRAFT LAUNCHING**  
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 [NASA-CASE-XMF-00517] c03 N70-34157  
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 [NASA-CASE-XMF-00641] c31 N70-36410  
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-- to provide range requirements for reentry  
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Spark gap type protective circuit for fast  
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[NASA-CASE-IAC-08981] c09 N69-39897  
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drive system therefor  
[NASA-CASE-NPO-11932-1] c35 N74-23040
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obtain spectral data  
[NASA-CASE-INP-04161] c14 N71-15599  
Variable frequency nuclear magnetic resonance  
spectrometer providing drive signals over wide  
frequency range and minimizing noise effects  
[NASA-CASE-INP-09830] c14 N71-26266  
Maksutov spectrograph for low light level research  
[NASA-CASE-XLA-10402] c14 N71-29041
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simultaneously acting as spectrometer and  
diffractometer  
[NASA-CASE-INP-05231] c14 N73-28491  
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of intense radiation using Compton scattering  
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[NASA-CASE-MPS-21441-1] c14 N73-30392  
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[NASA-CASE-LAR-11207-1] c35 N75-19613  
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[NASA-CASE-NPO-13606-1] c35 N75-19627  
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[NASA-CASE-NPO-13614-1] c35 N75-19628  
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[NASA-CASE-NPO-14078-1] c76 N78-13917
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[NASA-CASE-INP-04161] c14 N71-15599  
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[NASA-CASE-INP-02039] c15 N71-15871  
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speed using digital pulses  
[NASA-CASE-INP-06892] c09 N71-24805  
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[NASA-CASE-NPO-11210] c11 N72-20244  
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[NASA-CASE-MPS-20645-1] c37 N74-23070  
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[NASA-CASE-GSC-11127-1] c09 N75-24759  
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- A logic-controlled occlusive cuff system  
[NASA-CASE-MSC-14836-1] c52 N76-27839
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- Nutation damper for use on spinning body  
[NASA-CASE-GSC-11205-1] c15 N73-25513
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[NASA-CASE-XGS-02401] c14 N69-27485
- Bolt-latch mechanism for releasing despin weights from space vehicle  
[NASA-CASE-XIA-00679] c15 N70-38601
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 [NASA-CASE-MFS-21675-1] c25 N74-33378
- STAGE SEPARATION**  
 Stage separation using remote control release of joint with explosive insert  
 [NASA-CASE-XLA-02854] c15 N69-27490  
 Piezoelectric means for missile stage separation indication and stage initiation  
 [NASA-CASE-XLA-00791] c03 N70-39930  
 Space vehicle stage coupling and quick release separation mechanism  
 [NASA-CASE-XLA-01441] c15 N70-41679  
 Stage separation system for spinning vehicles and payloads  
 [NASA-CASE-XLA-02132] c31 N71-10582  
 Payload/spent rocket engine case separation system  
 [NASA-CASE-XLA-05369] c31 N71-15687  
 Separation mechanism for use between stages of multistage rocket vehicles  
 [NASA-CASE-XLA-00188] c15 N71-22874  
 Development of remotely controlled charge for lateral displacement of rocket stages after separation  
 [NASA-CASE-XLA-04804] c31 N71-23008  
 Electrical circuit selection device for simulating stage separation of flight vehicle  
 [NASA-CASE-XKS-04631] c10 N71-23663  
 Frangible connecting link suitable for rocket stage separation  
 [NASA-CASE-MSC-11849-1] c15 N72-22488
- STAGNATION PRESSURE**  
 Flow meter for measuring stagnation pressure in boundary layer around high speed flight vehicle  
 [NASA-CASE-XPR-02007] c12 N71-24692  
 Stagnation pressure probe --- for measuring pressure of supersonic gas streams  
 [NASA-CASE-LAR-11139-1] c35 N74-32878
- STAGNATION TEMPERATURE**  
 Measuring conductive heat flow and thermal conductivity of laminar gas stream in cylindrical plug to simulate atmospheric reentry  
 [NASA-CASE-XLE-00266] c14 N70-34156
- STAINING**  
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 [NASA-CASE-LAR-11649-1] c51 N77-27677
- STAINLESS STEELS**  
 Joining aluminum to stainless steel by bonding aluminum coatings onto titanium coated stainless steel and brazing aluminum to aluminum/titanium coated steel  
 [NASA-CASE-MFS-07369] c15 N71-20443  
 Ultrasonic scanning system for in-place inspection of brazed tube joints  
 [NASA-CASE-MFS-20767-1] c38 N74-15130  
 Method of forming a wick for a heat pipe  
 [NASA-CASE-NPO-13391-1] c34 N76-27515  
 Method of making reinforced composite structure  
 [NASA-CASE-LEW-12619-1] c24 N77-19171  
 Stainless steel panel for selective absorption of solar energy and the method of producing said panel  
 [NASA-CASE-MFS-23518-2] c44 N77-31611
- STANDARDS**  
 Microwave integrated circuit for Josephson voltage standards  
 [NASA-CASE-MFS-23845-1] c33 N78-32347
- STAR TRACKERS**  
 Star sensor system for roll attitude control of spacecraft  
 [NASA-CASE-IMP-01307] c21 N70-41856  
 Sun tracker with rotatable plane-parallel plate and two photocells  
 [NASA-CASE-XGS-01159] c21 N71-10678  
 Photomultiplier detector of Canopus for spacecraft attitude control  
 [NASA-CASE-IMP-03914] c21 N71-10771  
 Attitude detection system using stellar references for three-axis control and spin stabilized spacecraft  
 [NASA-CASE-XGS-03431] c21 N71-15642  
 Relay controlled voltage switching unit for scanning circuitry of star tracker  
 [NASA-CASE-NPO-11253] c09 N72-17157

STARK EFFECT

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Method for producing reticles for use in outer space  
 [NASA-CASE-GSC-11188-2] c21 N73-19630

Production method of star tracking reticles for transmitting in visible and near ultraviolet regions  
 [NASA-CASE-GSC-11188-1] c14 N73-32320

Formation of star tracking reticles  
 [NASA-CASE-GSC-11188-3] c74 N74-20008

Star scanner --- with a reticle with a pair of slits having differing separation  
 [NASA-CASE-GSC-11569-1] c89 N74-30886

**STARK EFFECT**

Resonant waveguide stark cell --- using microwave spectrometers  
 [NASA-CASE-LAR-11352-1] c33 N75-26245

Stark-effect modulation of CO2 laser with NH2D  
 [NASA-CASE-NFO-11945-1] c36 N76-18427

**STARTERS**

Starting circuit design for initiating and maintaining arcs in vapor lamps  
 [NASA-CASE-XNP-01059] c09 N71-12540

Motor run-up system --- power lines  
 [NASA-CASE-NFO-13374-1] c33 N75-19524

**STARTING**

A portable device particularly suited for use in starting air-start units for aircraft  
 [NASA-CASE-FBC-10113-1] c09 N78-19166

**STATIC FRICTION**

Kinetic and static friction force measurement between magnetic tape and magnetic head surfaces  
 [NASA-CASE-XNP-08680] c14 N71-22995

Static coefficient test method and apparatus  
 [NASA-CASE-GSC-11893-1] c35 N76-31489

**STATIC INVERTERS**

Describing static inverter with single or multiple phase output  
 [NASA-CASE-XMP-00663] c08 N71-18752

Development and characteristics of oscillating static inverter  
 [NASA-CASE-XGS-05289] c09 N71-19470

**STATIC LOADS**

Measuring shear-creep compliance of solid and liquid materials used in spacecraft components  
 [NASA-CASE-XLE-01481] c14 N71-10781

Apparatus for measuring load on cable under static or dynamic conditions comprising pulleys pivoting structure against restraint of tension strap  
 [NASA-CASE-XMS-04545] c15 N71-22878

**STATIC PRESSURE**

Pressure probe for sensing ambient static air pressures  
 [NASA-CASE-XLA-00481] c14 N70-36824

Ambient atmospheric pressure sensing device for determining altitude of flight vehicles  
 [NASA-CASE-XLA-00128] c15 N70-37925

Static pressure probe  
 [NASA-CASE-LAR-11552-1] c35 N76-14429

Static pressure orifice system testing and apparatus  
 [NASA-CASE-LAR-12269-1] c09 N78-33123

**STATIONKEEPING**

Method of stationkeeping for lenticular gravity gradient satellites  
 [NASA-CASE-XLA-03132] c31 N71-22969

**STATISTICAL CORRELATION**

Optical sensing of supersonic flows by correlating deflections in laser beams through flow  
 [NASA-CASE-MFS-20642] c14 N72-21407

**STATOR BLADES**

Stator rotor tools  
 [NASA-CASE-MSC-16000-1] c37 N78-24544

**STATORS**

Nickel base alloy --- for gas turbine engine stator vanes  
 [NASA-CASE-LEW-12270-1] c26 N77-32280

Liquid metal slip ring  
 [NASA-CASE-LEW-12277-2] c33 N78-25323

**STEADY STATE**

Steady state thermal radiometers  
 [NASA-CASE-MFS-21108-1] c34 N74-27861

**STEAM TURBINES**

Vapor generating boiler system for turbine motor  
 [NASA-CASE-XLE-00785] c33 N71-16104

**STELS**

Zinc dust formulation for abrasion resistant steel coatings  
 [NASA-CASE-GSC-10361-1] c18 N72-23581

High toughness-high strength iron alloy  
 [NASA-CASE-LEW-12542-2] c26 N78-22205

**STEERABLE ANTENNAS**

Apparatus for generating microwave signals at progressively related phase angles for driving antenna array  
 [NASA-CASE-ERC-10046] c10 N71-18722

Satellite radio communication system with remote steerable antenna  
 [NASA-CASE-XNP-02389] c07 N71-28900

Amplitude steered array  
 [NASA-CASE-GSC-11446-1] c33 N74-20860

Phase array antenna control  
 [NASA-CASE-MSC-14939-1] c33 N77-19320

**STEERING**

Steerable solid propellant rocket motor adapted to effect payload orientation as multistage rocket stage or reduce velocity as retrorocket  
 [NASA-CASE-XNP-00234] c28 N70-38645

**STELLAR LUMINOSITY**

Development of star intensity measuring system which minimizes effects of outside interference  
 [NASA-CASE-XNP-06510] c14 N71-23797

**STELLAR SPECTRA**

Development of star intensity measuring system which minimizes effects of outside interference  
 [NASA-CASE-XNP-06510] c14 N71-23797

**STEREOPHOTOGRAPHY**

Stereo photomicrography system with stereo microscope for viewing specimen at various magnifications  
 [NASA-CASE-LAR-10176-1] c14 N72-20380

**STEREOSCOPIC VISION**

Stereoscopic television system, including projecting pair of binocular images  
 [NASA-CASE-ARC-10160-1] c23 N72-27728

**STERILIZATION**

Using ethylene oxide in preparation of sterilized solid rocket propellants and encapsulating materials  
 [NASA-CASE-XNP-01749] c27 N70-41897

Ethylene oxide sterilization and encapsulating process for sterile preservation of instruments and solid propellants  
 [NASA-CASE-XNP-09763] c14 N71-20461

Environmentally controlled suit for working in sterile chamber  
 [NASA-CASE-LAR-10076-1] c05 N73-20137

Protein sterilization of firefly luciferase without denaturation  
 [NASA-CASE-GSC-10225-1] c06 N73-27086

Heat sterilizable patient ventilator  
 [NASA-CASE-NPO-13313-1] c54 N75-27761

Portable heatable container  
 [NASA-CASE-NPO-14237-1] c37 N78-24554

**STERILIZATION EFFECTS**

Reliability of electrical connectors after heat sterilization  
 [NASA-CASE-NPO-10694] c09 N72-20200

**STIMULATED EMISSION**

Repetitively pulsed wavelength selective carbon dioxide laser  
 [NASA-CASE-ERC-10178] c16 N71-24832

**STIRLING CYCLE**

Stirling cycle engine and refrigeration systems  
 [NASA-CASE-NPO-13613-1] c37 N76-29590

Hot gas engine with dual crankshafts  
 [NASA-CASE-NPO-14221-1] c37 N78-25431

**STIRRING**

Design of mechanical device for stirring several test tubes simultaneously  
 [NASA-CASE-XAC-06956] c15 N71-21177

**STORAGE**

Design and development of fluid sample collector  
 [NASA-CASE-IMS-06767-1] c14 N71-20435

A sodium storage and injection system  
 [NASA-CASE-NPO-14384-1] c25 N78-22187

**STORAGE BATTERIES**

Leak resistant bonded elastomeric seal for secondary electrochemical cells  
 [NASA-CASE-XGS-02631] c03 N71-23006

Automatically charging battery of electric storage cells  
 [NASA-CASE-XNP-04758] c03 N71-24605

Elimination of two step voltage discharge property of silver zinc batteries by using divalent silver oxide capacity of cell to charge anodes to monovalent silver state



- [ NASA-CASE-XGS-01674 ] c03 N71-29129  
Electric storage battery with high impact resistance
- [ NASA-CASE-NPO-11021 ] c03 N72-20032  
Hydrogen-bromine secondary battery
- [ NASA-CASE-NPO-13237-1 ] c44 N76-18641  
Rechargeable battery which combats shape change of the zinc anode
- [ NASA-CASE-RQN-10862-1 ] c44 N76-29699  
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- [ NASA-CASE-LEW-12220-1 ] c44 N77-14581  
Formulated plastic separators for soluble electrode cells --- rubber-ion transport sheeting
- [ NASA-CASE-LEW-12358-1 ] c44 N77-18560
- STORAGE STABILITY**  
Storage stable, thermally activated foaming compositions for erecting and rigidizing mechanisms of thin sheet solar collectors
- [ NASA-CASE-LAR-10373-1 ] c18 N71-26155  
Bag for storing whole blood
- [ NASA-CASE-NPO-13930-1 ] c52 N78-25760
- STORAGE TANKS**  
Expulsion bladder equipped storage tank structure
- [ NASA-CASE-XNP-00612 ] c11 N70-38182  
Development of apparatus and method for testing leakage of large tanks
- [ NASA-CASE-XMF-02392 ] c32 N71-24285  
Apparatus for aligning shadow shields and cryogenic storage tanks in outer space with the sun
- [ NASA-CASE-KSC-10622-1 ] c31 N72-21893
- STRAIN GAGE ACCELEROMETERS**  
Accelerometer with FM output signals indicative of mechanical strain on it
- [ NASA-CASE-XLA-00492 ] c14 N70-34799  
Strain gage accelerometer for angular acceleration measurement
- [ NASA-CASE-XMS-05936 ] c14 N70-41682
- STRAIN GAGE BALANCES**  
Self-balancing strain gage transducer with bridge circuit
- [ NASA-CASE-MFS-12827 ] c14 N71-17656
- STRAIN GAGES**  
Semiconductor p-n junction on needle apex to provide stress and strain sensor
- [ NASA-CASE-XLA-04980 ] c09 N69-27422  
Apparatus for forming wire grids for electric strain gages
- [ NASA-CASE-XLE-00023 ] c15 N70-33330  
Force measuring instrument for structural members, particularly fastening bolts or studs
- [ NASA-CASE-XMF-00456 ] c14 N70-34705  
Strain gage for detecting and measuring mechanical strain in thermally strained specimens
- [ NASA-CASE-PRC-10053 ] c14 N70-35587  
Difference indicating circuit used in conjunction with device measuring gravitational fields
- [ NASA-CASE-XNP-08274 ] c10 N71-13537  
Water cooled gage for strain measurements in high temperature environments
- [ NASA-CASE-XNP-09205 ] c14 N71-17657  
Development of apparatus for measuring successive increments of strain on elastomers
- [ NASA-CASE-XMP-04680 ] c15 N71-19489  
Strain gage measurement of elongation due to thermally and mechanically induced stresses
- [ NASA-CASE-XGS-04478 ] c14 N71-24233  
Method for temperature compensating semiconductor gages by exposure to high energy radiation
- [ NASA-CASE-XLA-04555-1 ] c14 N71-25892  
Pulsed excitation voltage circuit for strain gage bridge transducers
- [ NASA-CASE-PRC-10036 ] c09 N72-22200  
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- [ NASA-CASE-XLA-04980-2 ] c14 N72-28438  
Device for monitoring a change in mass in varying gravimetric environments
- [ NASA-CASE-MFS-21556-1 ] c35 N74-26945  
Strain gauge ambiguity sensor for segmented mirror active optical system
- [ NASA-CASE-MFS-20506-1 ] c35 N75-12273  
Subminiature insertable force transducer --- including a strain gage to measure forces in muscles
- [ NASA-CASE-NPO-13423-1 ] c33 N75-31329
- Self-supporting strain transducer
- [ NASA-CASE-LAR-11263-1 ] c35 N75-33369  
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- [ NASA-CASE-NPO-13170-1 ] c35 N76-14430  
High temperature strain gage calibration fixture
- [ NASA-CASE-LAR-11500-1 ] c35 N76-24523  
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- [ NASA-CASE-LAR-11648-1 ] c35 N77-14407  
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- [ NASA-CASE-LAR-12016-1 ] c39 N78-15512  
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- [ NASA-CASE-PRC-10093-1 ] c35 N78-18393
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- [ NASA-CASE-LAR-10765-1 ] c32 N73-20740
- STRAPDOWN INERTIAL GUIDANCE**  
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- [ NASA-CASE-ARC-10716-1 ] c35 N77-20399
- STRAPS**  
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- [ NASA-CASE-MFS-22189-1 ] c35 N75-19615  
Drop foot corrective device
- [ NASA-CASE-LAR-12259-1 ] c54 N78-18762
- STREAMS**  
Apparatus for measuring a sorbate dispersed in a fluid stream
- [ NASA-CASE-ARC-10896-1 ] c35 N78-19465
- STRESS ANALYSIS**  
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- [ NASA-CASE-MFS-20687 ] c16 N72-11415  
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- [ NASA-CASE-ARC-10154-1 ] c14 N72-22440  
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- [ NASA-CASE-LAR-10765-1 ] c32 N73-20740  
High temperature strain gage calibration fixture
- [ NASA-CASE-LAR-11500-1 ] c35 N76-24523
- STRESS CONCENTRATION**  
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- [ NASA-CASE-LAR-11263-1 ] c35 N75-33369  
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- [ NASA-CASE-LEW-12273-1 ] c33 N77-17357
- STRESS CORROSION**  
Method to prevent stress corrosion cracking in titanium alloys
- [ NASA-CASE-NPO-10271 ] c17 N71-16393  
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- [ NASA-CASE-XIA-07390 ] c15 N71-18616
- STRESS MEASUREMENT**  
Semiconductor p-n junction on needle apex to provide stress and strain sensor
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Force measuring instrument for structural members, particularly fastening bolts or studs
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Self-balancing strain gage transducer with bridge circuit
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- [ NASA-CASE-LAR-12016-1 ] c39 N78-15512
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- [ NASA-CASE-LEW-12493-1 ] c24 N78-22163
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## STRESSES

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## STRESSES

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- Strain arrestor plate for fused silica tile --- bonding of thermal insulation to metallic plates or structural parts  
[NASA-CASE-MS-C-14182-1] c27 N76-14264
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[NASA-CASE-XMS-04170] c05 N71-22748
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[NASA-CASE-NPO-13652-1] c44 N77-28585
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- STRUCTURAL DESIGN**  
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[NASA-CASE-XMP-00710] c15 N71-10778
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- Design of ring wing vehicle of high drag-to-weight ratio to withstand reentry stress into low density atmosphere  
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[NASA-CASE-XIA-03135] c32 N71-16428
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**TENSILE TEST**  
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**TENSILE TESTS**  
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[NASA-CASE-MSC-15158-1] c14 N72-17325  
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[NASA-CASE-LAR-10426-1] c09 N74-19528  
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[NASA-CASE-GSC-11600-1] c35 N74-21019  
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[NASA-CASE-MFS-20761-1] c44 N74-27519  
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[NASA-CASE-LAR-11434-1] c35 N76-22509  
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[NASA-CASE-LAR-11500-1] c35 N76-24523  
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[NASA-CASE-XNP-03578] c11 N71-23030  
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## TEST STANDS

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## TEST STANDS

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**TETHERED SATELLITES**  
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[NASA-CASE-MFS-23564-1] c15 N78-25119

**TETHERING**  
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[NASA-CASE-XLA-02332] c32 N71-17609  
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[NASA-CASE-XMS-10993] c15 N71-28936

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[NASA-CASE-MSC-13512-1] c15 N72-22485  
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[NASA-CASE-MFS-23564-1] c15 N78-25119

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[NASA-CASE-HQN-10364] c06 N71-27363

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[NASA-CASE-MSC-14331-1] c27 N76-24405

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[NASA-CASE-XMP-04208] c33 N71-29051  
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[NASA-CASE-NPO-13581-2] c44 N78-31525

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[NASA-CASE-XGS-01052] c14 N71-15992  
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[NASA-CASE-MSC-12084-1] c12 N71-17569  
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[NASA-CASE-GSC-11304-1] c06 N72-21105  
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[NASA-CASE-NPO-11942-1] c33 N73-32818  
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[NASA-CASE-LEW-12554-1] c34 N78-18355

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[NASA-CASE-XMP-07770-2] c18 N71-26772  
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[NASA-CASE-MFS-20011] c18 N72-22566  
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 threaded boss  
 [NASA-CASE-XNP-04966] c14 N71-17658  
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[NASA-CASE-XLE-03583] c31 N71-17629
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[NASA-CASE-XLE-01449] c15 N70-41646  
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[NASA-CASE-XKS-02582] c15 N71-21234  
Venting device for pressurized space suit helmet to eliminate vomit expelled by crewmen  
[NASA-CASE-XMS-09652-1] c05 N71-26333  
Solid propellant rocket engine with venting system to control effective nozzle throat area  
[NASA-CASE-XNP-03282] c28 N72-20758
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Space simulator with uniform test region radiation distribution, adapted to simulate Venus solar radiations  
[NASA-CASE-XNP-00459] c11 N70-38675
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Aircraft indicator for pilot control of takeoff roll, climbout path and verticle flight path in poor visibility conditions  
[NASA-CASE-XLA-00487] c14 N70-40157
- VERTICAL LANDING**  
Vertically descending flight vehicle landing gear for rough terrain  
[NASA-CASE-XMF-01174] c02 N70-41589
- VERTICAL TAKEOFF AIRCRAFT**  
Mechanical stabilization system for VTOI aircraft  
[NASA-CASE-XLA-06339] c02 N71-13422  
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[NASA-CASE-XAC-08972] c02 N71-20570
- VERY HIGH FREQUENCIES**  
VHF/UHF parasitic probe antenna for spacecraft communication  
[NASA-CASE-XKS-09340] c07 N71-24614
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Lightweight life preserver without fastening devices  
[NASA-CASE-XMS-00864] c05 N70-36493
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[NASA-CASE-GSC-10306-1] c15 N71-24694  
Vibration control of flexible bodies in steady accelerating environment  
[NASA-CASE-LAR-10106-1] c15 N71-27169
- VIBRATION DAMPING**  
Mercury filled pendulum damper for controlling bending vibration induced by wind effects  
[NASA-CASE-LAR-10274-1] c14 N71-17626  
Digital filter for reducing jitter in digital control systems  
[NASA-CASE-NPO-11088] c08 N71-29034  
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[NASA-CASE-XLE-00155] c28 N71-29154
- VIBRATION EFFECTS**  
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[NASA-CASE-XAC-10768] c09 N71-18830  
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[NASA-CASE-NPO-11213] c15 N73-20514  
Development of optical system for detecting defective components in rotating machinery with emphasis on bearing assemblies  
[NASA-CASE-KSC-10752-1] c15 N73-27407
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[NASA-CASE-XAC-11225] c14 N69-27486  
Miniature vibration isolator utilizing elastic tubing material  
[NASA-CASE-XLA-01019] c15 N70-40156  
Vibration damping system operating in low vacuum environment for spacecraft mechanisms  
[NASA-CASE-XMS-01620] c23 N71-15673  
Hermetically sealed vibration damper design for use in gimbal assembly of spacecraft inertial guidance system  
[NASA-CASE-MS-10959] c15 N71-26243  
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[NASA-CASE-LAR-10083-1] c15 N71-27006  
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[NASA-CASE-NPO-13253-1] c37 N75-18573  
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[NASA-CASE-GSC-11302-1] c14 N73-13416

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[NASA-CASE-XMS-05562-1] c09 N69-39986  
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[NASA-CASE-XMS-04215-1] c09 N69-39987  
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[NASA-CASE-GSC-11619-1] c34 N75-12222

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[NASA-CASE-ERC-10125] c09 N71-24893

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[NASA-CASE-NMP-03968] c14 N71-27186

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[NASA-CASE-GSC-11095-1] c14 N72-10375

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[NASA-CASE-LAR-10545-1] c09 N72-21244

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[NASA-CASE-HQN-10703] c21 N73-13643

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[NASA-CASE-ERC-10226-1] c14 N73-16483

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Description of electrical equipment and system for purification of waste water by producing silver ions for bacterial control  
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 [NASA-CASE-ARC-10643-1] c25 N75-12087

Water purification process  
 [NASA-CASE-ARC-10643-2] c51 N75-13506

Air removal device --- for purification of water under zero gravity conditions  
 [NASA-CASE-XLA-8914-2] c34 N76-23522

Process for purification of waste water produced by a Kraft process pulp and paper mill  
 [NASA-CASE-NPO-13847-2] c85 N77-17949

A reverse osmosis membrane of high urea rejection properties  
 [NASA-CASE-ARC-10980-1] c27 N77-18265

Water system virus detection  
 [NASA-CASE-MSC-16098-1] c51 N77-24755

Iodine generator for reclaimed water purification  
 [NASA-CASE-MSC-14632-1] c54 N78-14784

Water quality monitoring system  
 [NASA-CASE-MSC-16778-1] c51 N78-22589

**WATER VAPOR**

Equipment for measuring partial water vapor pressure in gas tank  
 [NASA-CASE-XMS-01618] c14 N71-20741

**WATERPROOFING**

Glass-to-metal seals comprising relatively high expansion metals  
 [NASA-CASE-LFW-10698-1] c37 N74-21063

**WAVE AMPLIFICATION**

Distributed feedback acoustic surface wave oscillator  
 [NASA-CASE-NPO-13673-1] c71 N77-26919

**WAVE DIFFRACTION**

Diffraction grating configuration for X-ray and ultraviolet focusing  
 [NASA-CASE-GSC-12357-1] c74 N78-32857

**WAVE FRONT RECONSTRUCTION**

Recording and reconstructing focused image holograms  
 [NASA-CASE-ERC-10017] c16 N71-15567

**WAVE GENERATION**

Wind tunnel air flow modulating device and apparatus for selectively generating wave motion in wind tunnel airstream  
 [NASA-CASE-XLA-00112] c11 N70-33287

Linear sawtooth voltage wave generator with transistor timing circuit having capacitor and zener diode feedback loops  
 [NASA-CASE-XMS-01315] c09 N70-41675

Sign wave generation simulator for variable amplitude, frequency, damping, and phase pulses for oscilloscope display  
 [NASA-CASE-NPO-10251] c10 N71-27365

Wideband generator for producing sine wave quadrature and second harmonic of input signal  
 [NASA-CASE-NPO-11133] c10 N72-20223

Material suspension within an acoustically excited resonant chamber --- at near weightless conditions  
 [NASA-CASE-NPO-13263-1] c12 N75-24774

**WAVE REFLECTION**

Surface defect detection by reflected microwave radiation pattern  
 [NASA-CASE-ARC-10009-1] c15 N71-17822

Millimeter wave antenna system for spacecraft use  
 [NASA-CASE-GSC-10949-1] c07 N71-28965

**WAVE SCATTERING**

Device and method for determining X ray reflection efficiency, scattering properties, and surface finish of optical surfaces  
 [NASA-CASE-NFS-20243] c23 N73-13662

**WAVEFORMS**

Variable frequency magnetic coupled multivibrator with output signal of constant amplitude and waveform  
 [NASA-CASE-XGS-00131] c09 N70-38995

Cathode ray oscilloscope for analyzing electrical waveforms representing amplitude distribution of time function  
 [NASA-CASE-XNP-01383] c09 N71-10659

Peak polarity selector for monitoring waveforms  
 [NASA-CASE-PRC-10010] c10 N71-24862

Development of family of frequency to amplitude converters for frequency analysis of complex input signal waveforms  
 [NASA-CASE-MSC-12395] c09 N72-25257

Device for performing statistical time-series analysis of complex electrical signal waveforms  
 [NASA-CASE-MSC-12428-1] c10 N73-25240

Low distortion receiver for bi-level baseband PCM waveforms  
 [NASA-CASE-MSC-14557-1] c32 N76-16249

Lightning current waveform measuring system  
 [NASA-CASE-KSC-11018-1] c33 N77-21320

Speech analyzer  
 [NASA-CASE-GSC-11898-1] c32 N77-30309

**WAVEGUIDE ANTENNAS**

Planar array circularly polarized antenna with wall slot excitation  
 [NASA-CASE-NPO-10301] c07 N72-11148

Dielectric loaded aperture antenna with directive radiation pattern from waveguide  
 [NASA-CASE-LAR-11084-1] c09 N73-12216

**WAVEGUIDE FILTERS**

Microwave power divider for providing variable output power to output waveguide in fixed waveguide system  
 [NASA-CASE-NPO-11031] c07 N71-33606

**WAVEGUIDE WINDOWS**

Broadband microwave waveguide window to compensate dielectric material filling  
 [NASA-CASE-XNP-08880] c09 N71-24808

**WAVEGUIDES**

Dual waveguide mode source for controlling amplitudes of two modes  
 [NASA-CASE-XNP-03134] c07 N71-10676

Design of folded traveling wave maser structure  
 [NASA-CASE-XNP-05219] c16 N71-15550

Quasi-optical microwave circuit with dielectric body for use with oversize waveguides  
 [NASA-CASE-ERC-10011] c07 N71-29065

Microwave waveguide mixer  
 [NASA-CASE-ERC-10179] c07 N72-20141

Waveguide, thin film window and microwave irises  
 [NASA-CASE-LAR-10513-1] c07 N72-25170

Development of thin film microwave iris installed in microwave waveguide transverse to flow of energy in waveguide  
 [NASA-CASE-LAR-10511-1] c09 N72-29172

Resonant waveguide stark cell --- using microwave spectrometers  
 [NASA-CASE-LAR-11352-1] c33 N75-26245

Diffused waveguiding capillary tube with distributed feedback for a gas laser  
 [NASA-CASE-NPO-13544-1] c36 N76-18428

Dielectric-loaded waveguide circulator for cryogenically cooled and cascaded maser waveguide structures  
 [NASA-CASE-NPO-14254-1] c36 N78-22359

**WAVELENGTHS**

Method and apparatus using temperature control for wavelength tuning of liquid lasers  
 [NASA-CASE-ERC-10187] c16 N69-31343

Multiple wavelength radiation measuring instrument for determining hot body or gas temperature  
 [NASA-CASE-XLE-00011] c14 N70-81946

Optical system for selecting particular wavelength light beams from multiple wavelength light source  
 [NASA-CASE-ERC-10248] c14 N72-17323

## WEATHERPROOFING

## SUBJECT INDEX

Development of radiant energy sensor to detect the radiant energy wavelength bands from portions of radiating body  
[NASA-CASE-EBC-10174] c14 N72-25409

Dual wavelength system for monitoring film deposition  
[NASA-CASE-MFS-20675] c26 N73-26751

Dual wavelength scanning Doppler velocimeter --- without perturbation of flow fields  
[NASA-CASE-ARC-10637-1] c35 N75-16783

Diatomic infrared gasdynamic laser --- for producing different wavelengths  
[NASA-CASE-ARC-10370-1] c36 N75-31426

Two wavelength double pulse tunable dye laser  
[NASA-CASE-LAR-12012-1] c36 N77-10517

**WEATHERPROOFING**

Weatherproof helix antenna  
[NASA-CASE-IKS-08485] c07 N71-19493

**WEBS (SHEETS)**

Method and apparatus for measuring web material wound on a reel  
[NASA-CASE-GSC-11902-1] c38 N77-17495

**WEBS (SUPPORTS)**

Apparatus for assembling space structure  
[NASA-CASE-MFS-23579-1] c12 N77-31213

Integrated gas turbine engine-nacelle  
[NASA-CASE-LEW-12389-2] c07 N78-18066

**WEDGES**

Two dimensional wedge/translating shroud nozzle  
[NASA-CASE-LAR-11919-1] c07 N78-27121

**WEIGHT (MASS)**

Suspended mass oscillation damper based on impact energy absorption for damping wind induced oscillations of tall stacks, antennas, and umbilical towers  
[NASA-CASE-LAR-10193-1] c15 N71-27146

**WEIGHT INDICATORS**

Device for monitoring a change in mass in varying gravimetric environments  
[NASA-CASE-MFS-21556-1] c35 N74-26945

**WEIGHT MEASUREMENT**

Weighing and recording device for obtaining precise automatic record of small changes in force  
[NASA-CASE-XLA-02605] c14 N71-10773

Device for monitoring a change in mass in varying gravimetric environments  
[NASA-CASE-MFS-21556-1] c35 N74-26945

**WEIGHTLESSNESS**

Apparatus for cryogenic liquid storage with heat transfer reduction and for liquid transfer at zero gravity conditions  
[NASA-CASE-XLE-00345] c15 N70-38020

Liquid-gas separator adapted for use in zero gravity environment - drawings  
[NASA-CASE-IMS-01624] c15 N70-40062

Expulsion and measuring device for determining quantity of liquid in tank under conditions of weightlessness  
[NASA-CASE-IMS-01546] c14 N70-40233

Collapsible auxiliary tank for restarting liquid propellant rocket motors under zero gravity  
[NASA-CASE-IXP-01390] c28 N70-41275

Absorbent apparatus for separating gas from liquid-gas stream used in environmental control under zero gravity conditions  
[NASA-CASE-IMS-01492] c05 N70-41297

Potable water reclamation from human wastes in zero-G environment  
[NASA-CASE-XIA-03213] c05 N71-11207

Describing apparatus for separating gas from cryogenic liquid under zero gravity and for venting gas from fuel tank  
[NASA-CASE-XIE-00586] c15 N71-15968

Cable suspension and inclined walkway system for simulating reduced or zero gravity environments  
[NASA-CASE-XLA-01787] c11 N71-16028

Development of apparatus for simulating zero gravity conditions  
[NASA-CASE-MFS-12750] c27 N71-16223

Quick disconnect latch and handle combination for mounting articles on walls or supporting bases in spacecraft under zero gravity conditions  
[NASA-CASE-MFS-11132] c15 N71-17649

Gauge for measuring quantity of liquid in spherical tank in reduced gravity  
[NASA-CASE-IMS-06236] c14 N71-21007

Zero gravity apparatus utilizing pneumatic decelerating means to create payload subjected to zero gravity conditions by dropping its height  
[NASA-CASE-IXP-06515] c14 N71-23227

Method and apparatus for applying compressional forces to skeletal structure of subject to simulate force during ambulatory conditions  
[NASA-CASE-ARC-10100-1] c05 N71-24738

Device which separates and screens particles of soil samples for vidicon viewing in vacuum and reduced gravity environments  
[NASA-CASE-IXP-09770-3] c11 N71-27036

Description of method for making homogeneous foamed materials in weightless environment using materials having different physical properties  
[NASA-CASE-IXP-09902] c15 N72-11387

Manipulator for remote handling in zero gravity environment  
[NASA-CASE-MFS-14405] c15 N72-28495

Apparatus for mixing two or more liquids under zero gravity conditions  
[NASA-CASE-LAR-10195-1] c15 N73-19458

Zero gravity liquid transfer device, using spiral shaped screen  
[NASA-CASE-KSC-10626] c14 N73-27378

Reduced gravity fecal collector seat and urinal  
[NASA-CASE-MFS-22102-1] c54 N74-20725

Apparatus for conducting flow electrophoresis in the substantial absence of gravity  
[NASA-CASE-MFS-21394-1] c34 N74-27744

Rotary plant growth accelerating apparatus --- weightlessness  
[NASA-CASE-ARC-10722-1] c51 N75-25503

Fluid control apparatus and method  
[NASA-CASE-LAR-11110-1] c34 N75-26282

Method for manufacturing mirrors in zero gravity environment  
[NASA-CASE-MSC-12611-1] c12 N76-15189

Air removal device --- for purification of water under zero gravity conditions  
[NASA-CASE-XLA-8914-2] c34 N76-23522

Zero gravity separator  
[NASA-CASE-LAR-10344-1] c35 N76-33470

Fluid mass sensor for a zero gravity environment  
[NASA-CASE-MSC-14653-1] c35 N77-19385

Method of crystallization --- in gravity-free environments  
[NASA-CASE-MFS-23001-1] c76 N77-32919

**WEIGHTLESSNESS SIMULATION**

Reduced gravity liquid configuration simulator to study propellant behavior in rocket fuel tanks  
[NASA-CASE-XLE-02624] c12 N69-39988

Apparatus for measuring human body mass in zero or reduced gravity environment  
[NASA-CASE-IMS-03371] c05 N70-42000

Harness assembly adapted to support man on ground based apparatus which simulates weightlessness  
[NASA-CASE-MFS-14671] c05 N71-12341

Whole body measurement systems --- for weightlessness simulation  
[NASA-CASE-MSC-13972-1] c52 N74-10975

**WELD STRENGTH**

Grain refinement control in TIG arc welding  
[NASA-CASE-MSC-19095-1] c37 N75-19683

**WELD TESTS**

Nondestructive radiographic tests of resistance welds  
[NASA-CASE-IXP-02588] c15 N71-18613

Method and apparatus for testing integrated circuit microtab welds  
[NASA-CASE-ARC-10176-1] c15 N72-21464

**WELDED JOINTS**

Apparatus for welding blades to rotors  
[NASA-CASE-LEW-10533-2] c37 N74-11300

Ultrasonic scanning system for in-place inspection of brazed tube joints  
[NASA-CASE-MFS-20767-1] c38 N74-15130

Device for measuring the ferrite content in an austenitic stainless-steel weld  
[NASA-CASE-MFS-22907-1] c26 N76-18257

Capillary flow weld-bonding  
[NASA-CASE-LAR-11726-1] c37 N76-27568

**WELDED STRUCTURES**

Grain refinement control in TIG arc welding  
[NASA-CASE-MSC-19095-1] c37 N75-19683

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WIND TUNNEL TESTS

Flanged major modular assembly jig  
 [NASA-CASE-MSC-19372-1] c39 N76-31562

Weld-bonded titanium structures  
 [NASA-CASE-LAP-11549-1] c37 N77-11397

Bimetallic junctions  
 [NASA-CASE-LEW-11573-1] c26 N77-28265

**WELDING**

Segmented back-up bar for butt welding large tubular structures such as rocket booster bodies or tanks  
 [NASA-CASE-XMP-00640] c15 N70-39924

Flexible backup bar for welding awkwardly shaped structures  
 [NASA-CASE-XMF-00722] c15 N70-40204

Apparatus for welding sheet material --- butt joints  
 [NASA-CASE-XMS-01330] c37 N75-27376

Weld-bonded titanium structures  
 [NASA-CASE-LAR-11549-1] c37 N77-11397

Method and apparatus for holding two separate metal pieces together for welding  
 [NASA-CASE-GSC-12318-1] c37 N78-23434

**WELDING MACHINES**

Computer controlled apparatus for maintaining welding torch angle and velocity during seam tracking  
 [NASA-CASE-XMP-03287] c15 N71-15607

Welding torch with automatic speed controller using speed sensing wheel and closed servo system  
 [NASA-CASE-XMP-01730] c15 N71-23050

Development of electric weeding torch with casing on one end to form inert gas shield  
 [NASA-CASE-XMP-02330] c15 N71-23798

Development of apparatus for automatically changing carriage speed of welding machine to obtain constant speed of torch along work surface  
 [NASA-CASE-XMP-07069] c15 N71-23815

Computerized system for translating a torch head  
 [NASA-CASE-MFS-23620-1] c37 N77-24497

**WET CELLS**

Indicator device for monitoring charge of wet cell battery, using semiconductor light emitter and photodetector  
 [NASA-CASE-NPO-10194] c03 N71-20407

**WETTING**

Anti-wettable materials brazing processes using titanium and zirconium for surface pretreatment  
 [NASA-CASE-XMS-03537] c15 N69-21471

**WHEATSTONE BRIDGES**

Self-balancing strain gage transducer with bridge circuit  
 [NASA-CASE-MFS-12827] c14 N71-17656

Development of method for improving signal to noise ratio and accuracy of Wheatstone bridge type radiation measuring instrument  
 [NASA-CASE-XLA-02810] c14 N71-25901

Temperature control system comprised of wheatstone bridge with RC circuit  
 [NASA-CASE-NPO-11304] c14 N73-26430

**WHISKER COMPOSITES**

Composites reinforced with short metal fibers or whiskers and having high tensile strength  
 [NASA-CASE-XLE-00228] c17 N70-38490

**WHISKERS (SINGLE CRYSTALS)**

Catalyst for increased growth of boron carbide crystal whiskers  
 [NASA-CASE-XFO-03903] c15 N69-21922

**WICKS**

Method of forming a wick for a heat pipe  
 [NASA-CASE-NPO-13391-1] c34 N76-27515

**WIDE ANGLE LENSES**

Wide angle eyepiece with long eye-relief distance  
 [NASA-CASE-XMS-06056-1] c23 N71-24857

**WIDEBAND COMMUNICATION**

Wideband heterodyne receiver for laser communication systems  
 [NASA-CASE-GSC-12053-1] c32 N77-28346

**WIRECHES**

Design and characteristics of device for showing amount of cable payed out from winch and load imposed  
 [NASA-CASE-MSC-12052-1] c15 N71-24599

**WIND EFFECTS**

Mercury filled pendulum damper for controlling bending vibration induced by wind effects  
 [NASA-CASE-LAB-10274-1] c14 N71-17626

**WIND MEASUREMENT**

Passive optical wind and turbulence remote detection system  
 [NASA-CASE-XMP-14032] c20 N71-16340

Manometers for measuring peak wind speeds during severe environmental conditions  
 [NASA-CASE-MFS-20916] c14 N73-25460

Wind sensor  
 [NASA-CASE-NPO-13462-1] c35 N76-24524

Focused laser Doppler velocimeter  
 [NASA-CASE-MFS-23178-1] c35 N77-10493

Wind measurement system  
 [NASA-CASE-MFS-23362-1] c47 N77-10753

**WIND PROFILES**

Free-fall body for obtaining wind velocity profiles by radar tracking  
 [NASA-CASE-XLA-02081] c20 N71-16281

**WIND TUNNEL APPARATUS**

Wind tunnel air flow modulating device and apparatus for selectively generating wave motion in wind tunnel airstream  
 [NASA-CASE-XLA-00112] c11 N70-33287

Electric arc device for minimizing electrode ablation and heating gases to supersonic or hypersonic wind tunnel temperatures  
 [NASA-CASE-XAC-00319] c25 N70-41628

Free flight suspension system for use with aircraft models in wind tunnel tests  
 [NASA-CASE-XLA-00939] c11 N71-15926

Burst diaphragm flow initiator for installation in short duration wind tunnels  
 [NASA-CASE-MFS-12915] c11 N71-17600

Electric arc heater with supersonic nozzle and fixed arc length for use in high temperature wind tunnels  
 [NASA-CASE-XAC-01677] c09 N71-20816

Design and characteristics of device for launching models in wind tunnels without disturbance of air flow  
 [NASA-CASE-XNP-03578] c11 N71-23030

Development of wind tunnel microphone structure to minimize effects of vibrations and eliminate unwanted signals in microphone output  
 [NASA-CASE-XNP-00250] c11 N71-28779

Resolution enhanced sound detecting apparatus --- wind tunnel apparatus for airframe noise localization  
 [NASA-CASE-NPO-14134-1] c71 N78-19898

**WIND TUNNEL CALIBRATION**

An electrically scanned pressure sensor module with in situ calibration capability  
 [NASA-CASE-LAR-12230-1] c35 N78-11370

**WIND TUNNEL DRIVES**

Triggering system for electric arc driven impulse wind tunnel  
 [NASA-CASE-XMP-00411] c11 N70-36913

**WIND TUNNEL MODELS**

Wind tunnel method for simulating flow fields around blunt vehicles entering planetary atmospheres without involving high temperatures  
 [NASA-CASE-LAR-11138] c12 N71-20436

Multilegged support system for wind tunnel test models subjected to thermal dynamic loading  
 [NASA-CASE-XLA-01326] c11 N71-21481

Design and characteristics of device for launching models in wind tunnels without disturbance of air flow  
 [NASA-CASE-XNP-03578] c11 N71-23030

Damper system for alleviating air flow shock loads on wind tunnel models  
 [NASA-CASE-XLA-09480] c11 N71-33612

Wind tunnel model and method  
 [NASA-CASE-LAR-10812-1] c09 N74-17955

Method for determining thermo-physical properties of specimens --- photographic recording of changes in thin film phase-change temperature indicating material in wind tunnel  
 [NASA-CASE-LAR-11053-1] c25 N74-18551

**WIND TUNNEL NOZZLES**

Multi-purpose wind tunnel reaction control model block  
 [NASA-CASE-MSC-19706-1] c09 N78-31129

**WIND TUNNEL TESTS**

Metallic hot wire anemometer --- for high speed wind tunnel tests  
 [NASA-CASE-ARC-10911-1] c35 N77-20400

Multi-purpose wind tunnel reaction control model block  
 [NASA-CASE-MSC-19706-1] c09 N78-31129

## WIND TUNNELS

## SUBJECT INDEX

## WIND TUNNELS

Thin film gauge --- for measuring convective heat transfer rates along test surfaces in wind tunnels  
 [NASA-CASE-WFO-10617-1] c35 N74-22095

Wind tunnel flow generation section  
 [NASA-CASE-ARC-10710-1] c09 N75-12969

Apparatus for reducing aerodynamic noise in a wind tunnel  
 [NASA-CASE-MFS-23099-1] c09 N76-23273

Static pressure orifice system testing and apparatus  
 [NASA-CASE-LAR-12269-1] c09 N78-33123

**WIND VELOCITY MEASUREMENT**

Free-fall body for obtaining wind velocity profiles by radar tracking  
 [NASA-CASE-XLA-02081] c20 N71-16281

**WINDING**

Black body radiometer design with temperature sensing and cavity heat source cone winding  
 [NASA-CASE-XNP-09701] c14 N71-26475

Pulse coupling circuit with switch between generator and winding  
 [NASA-CASE-LEW-10433-1] c09 N72-22197

**WINDOWS (APERTURES)**

Waveguide, thin film window and microwave irises  
 [NASA-CASE-LAR-10513-1] c07 N72-25170

Observation window for internal gas confining chamber  
 [NASA-CASE-WFO-10890] c11 N73-12265

**WINDPOWERED GENERATORS**

Wind wheel electric power generator  
 [NASA-CASE-MFS-23515-1] c44 N78-22469

**WINDSHIELDS**

Transparent fire resistant polymeric structures  
 [NASA-CASE-ARC-10813-1] c27 N76-16230

**WING FLAPS**

Upper surface, external flow, jet-augmented flap configuration for high wing jet aircraft for noise reduction  
 [NASA-CASE-XLA-00087] c02 N70-33332

**WING PROFILES**

Supersonic aircraft configuration providing for variable aspect ratio and variable sweep wings  
 [NASA-CASE-XLA-00166] c02 N70-34178

**WING TIP VORTICES**

Wingtip vortex dissipator for aircraft  
 [NASA-CASE-LAR-11645-1] c02 N77-10001

**WING TIPS**

Smoke generator  
 [NASA-CASE-ARC-10905-1] c37 N77-13418

**WINGS**

Development of auxiliary lifting system to provide ferry capability for entry vehicles  
 [NASA-CASE-LAR-10574-1] c11 N73-13257

Surface finishing --- for aircraft wings  
 [NASA-CASE-MSC-12631-1] c24 N77-28225

Variable dihedral shuttle orbiter  
 [NASA-CASE-LAR-10706-2] c05 N77-31132

An improved free wing for an aircraft  
 [NASA-CASE-PRC-10092-1] c05 N77-31135

An annular wing  
 [NASA-CASE-PRC-11007-1] c02 N78-19055

**WIRE**

Transpiration cooled turbine blade made from metallic or ceramic wires  
 [NASA-CASE-XLE-00020] c15 N70-33226

Soldering device particularly suited to making high quality wiring joints for aerospace engineering utilizing capillary attraction to regulate flow of solder  
 [NASA-CASE-XLA-08911] c15 N71-27214

Device for bending metal ribbon or wire  
 [NASA-CASE-XLA-05966] c15 N72-12408

Method of fabricating equal length insulated wire  
 [NASA-CASE-PRC-10038] c15 N72-20444

Shielded flat conductor cable of ribbonlike wires laminates in thin flexible insulation  
 [NASA-CASE-MFS-13687-2] c09 N72-22198

Electrical resistance butt welder for welding fine gauge tungsten/rhenium thermocouple wire  
 [NASA-CASE-LAR-10103-1] c15 N73-14468

Twisted wire or tube superconductor for filament windings  
 [NASA-CASE-LEW-11015] c26 N73-32571

**WIRE BRIDGE CIRCUITS**

Black body cavity radiometer with thermal resistance wire bridge circuit  
 [NASA-CASE-XNP-08961] c14 N71-24809

## WIRE CLOTH

Insulating system for receptacles of liquefied gases using wire cloth for forming frost layer  
 [NASA-CASE-XNP-00341] c15 N70-33323

Method for making screen with unlimited fineness of mesh and screen thickness  
 [NASA-CASE-XLE-00953] c15 N71-15966

**WIRE WINDING**

Adjustable spiral wire winding device  
 [NASA-CASE-XMS-02383] c15 N71-15918

Superconducting alternator design with cryogenic fluid for cooling windings below critical temperature  
 [NASA-CASE-XLE-02823] c09 N71-23443

Direct current motor including stationary field windings and stationary armature winding  
 [NASA-CASE-XGS-07805] c15 N72-33476

**WIRELESS COMMUNICATIONS**

Silent alarm system for multiple room facility or school  
 [NASA-CASE-WFO-11307-1] c10 N73-30205

RF beam center location method and apparatus for power transmission system  
 [NASA-CASE-WFO-13821-1] c44 N78-28594

**WIRING**

Acoustic vibration test apparatus for wiring harnesses  
 [NASA-CASE-MSC-15158-1] c14 N72-17325

**WOODEN STRUCTURES**

Structural wood panels with improved fire resistance --- using prepolymers and hexamethylenetetramine  
 [NASA-CASE-ARC-11174-1] c24 N78-28178

**WORDS (LANGUAGE)**

Encoders designed to generate comma free biorthogonal Reed-Muller type code comprising conversion of 64 6-bit words into 64 32-bit data for communication purposes  
 [NASA-CASE-WFO-10595] c10 N71-25917

Logic circuit for generating multibit binary code word in parallel  
 [NASA-CASE-XNP-04623] c10 N71-26103

Digital memory system with multiple switch cores for driving each word location  
 [NASA-CASE-XNP-01466] c10 N71-26434

**WORK HARDENING**

Method of producing complex aluminum alloy parts of high temper, and products thereof  
 [NASA-CASE-MSC-19693-1] c26 N78-24333

**WORKING FLUIDS**

Heat pipe with dual working fluids  
 [NASA-CASE-ARC-10198] c34 N78-17336

**WRENCHES**

Ultrasonic wrench for applying vibratory energy to mechanical fasteners  
 [NASA-CASE-MFS-20586] c15 N71-17686

System for enhancing tool-exchange capabilities of a portable wrench  
 [NASA-CASE-MFS-22283-1] c37 N75-33395

Zero torque gear head wrench  
 [NASA-CASE-WFO-13059-1] c37 N76-20480

High-torque open-end wrench  
 [NASA-CASE-WFO-13541-1] c37 N78-22375

**WRIST**

Wrist joint assembly  
 [NASA-CASE-MFS-23311-1] c54 N78-17676

**X**

**X RAY APPARATUS**

Device and method for determining X ray reflection efficiency, scattering properties, and surface finish of optical surfaces  
 [NASA-CASE-MFS-20243] c23 N73-13662

**X RAY DIFFRACTION**

Apparatus for use in examining the lattice of a semiconductor wafer by X-ray diffraction  
 [NASA-CASE-MFS-23315-1] c76 N78-24950

**X RAY INSPECTION**

Method of determining bond quality of power transistors attached to substrates --- X ray inspection of junction microstructure  
 [NASA-CASE-MFS-21931-1] c37 N75-26372

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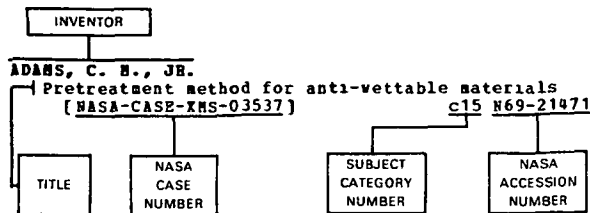
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[NASA-CASE-GSC-10565-1] c06 N72-25149  
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body fluids  
[NASA-CASE-GSC-11092-2] c04 N73-27052  
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luciferase using reduced pressure and  
molecular sieves  
[NASA-CASE-GSC-10225-1] c06 N73-27086  
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detect microorganisms in biological samples by  
measuring light reactions  
[NASA-CASE-GSC-11169-2] c05 N73-32011  
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antimicrobial drug susceptibility  
[NASA-CASE-GSC-12039-1] c51 N77-22794  
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of infected urines without isolation  
[NASA-CASE-GSC-12046-1] c52 N77-26797

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[NASA-CASE-GSC-12158-1] c51 N78-22585  
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[NASA-CASE-MSC-16779-1] c51 N78-22586

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[NASA-CASE-XMS-04670] c54 N78-17678

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[NASA-CASE-ARC-10808-1] c09 N76-24280  
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[NASA-CASE-MSC-12559-1] c18 N76-14186

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[NASA-CASE-NPO-13550-1] c36 N77-26477

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[NASA-CASE-NPO-00250] c11 N71-28779

CHEUNG, D. Y.  
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[NASA-CASE-ARC-10754-1] c07 N75-24736  
Noise suppressor for turbo fan jet engines  
[NASA-CASE-ARC-10812-1] c07 N76-18131  
System for measuring Reynolds in a turbulently flowing fluid  
[NASA-CASE-ARC-10755-2] c34 N76-27517  
System for measuring three fluctuating velocity components in a turbulently flowing fluid  
[NASA-CASE-ARC-10974-1] c34 N77-27345

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[NASA-CASE-MSC-12669-1] c44 N76-16621

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[NASA-CASE-GSC-10376-1] c14 N71-27407

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Phase conjugation method and apparatus for an active retrodirective antenna array  
[NASA-CASE-NPO-13641-1] c32 N77-24340

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[NASA-CASE-LAR-10642-1] c07 N74-31270

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High pulse rate high resolution optical radar system  
[NASA-CASE-NFO-11426] c07 N73-26119

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[NASA-CASE-HQN-10541-1] c07 N71-26291  
Optical frequency waveguide and transmission system  
[NASA-CASE-HQN-10541-3] c23 N72-23695

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[NASA-CASE-ERC-10338] c04 N72-33072

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[NASA-CASE-XLE-00168] c11 N70-33278  
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[NASA-CASE-MSC-13281] c31 N72-18859

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[NASA-CASE-XMS-01115] c05 N70-39922

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[NASA-CASE-LAR-10409-1] c31 N74-21059

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[NASA-CASE-LAR-11302-1] c25 N75-13054  
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[NASA-CASE-GSC-12022-1] c44 N76-28635  
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[NASA-CASE-XLE-00207] c28 N70-33375  
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[NASA-CASE-NPO-13969-2] c76 N77-30984  
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[NASA-CASE-NPO-14295-1] c76 N78-24952

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[NASA-CASE-XLA-00378] c11 N71-15925  
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Pneumatic inflatable end effector  
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[NASA-CASE-MFS-23579-1] c12 N77-31213

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[NASA-CASE-XGS-03864] c15 N69-24320  
Process for making RF shielded cable connector assemblies and the products formed thereby  
[NASA-CASE-GSC-11215-1] c09 N73-28083  
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[NASA-CASE-XLA-00711] c03 N71-12258

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[NASA-CASE-XGS-04767] c08 N71-12494  
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[NASA-CASE-XGS-04766] c08 N71-18602  
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[NASA-CASE-XGS-02317] c09 N71-23525  
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Wind measurement system  
[NASA-CASE-MFS-23362-1] c47 N77-10753

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Method and apparatus for optically monitoring the angular position of a rotating mirror  
[NASA-CASE-GSC-11353-1] c74 N74-21304

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[NASA-CASE-MFS-13686] c15 N71-18132  
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[NASA-CASE-MFS-22907-1] c26 N76-18257  
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[NASA-CASE-MFS-23299-1] c39 N77-28511

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[NASA-CASE-LAR-11932-1] c05 N78-32086

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[NASA-CASE-LEW-12830-1] c07 N77-23106  
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[NASA-CASE-NPO-11147] c14 N72-27408

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[NASA-CASE-ERC-10041] c08 N71-29138

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[NASA-CASE-NPO-14103-1] c28 N78-31255

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[NASA-CASE-LAR-12172-1] c32 N78-29310

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[NASA-CASE-ERC-10072] c09 N70-11148  
Method and apparatus for stable silicon dioxide layers on silicon grown in silicon nitride ambient  
[NASA-CASE-ERC-10073-1] c24 N74-19769

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Rechargeable battery which combats shape change of the zinc anode  
[NASA-CASE-HQN-10862-1] c44 N76-29699

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[NASA-CASE-MFS-11132] c15 N71-17649

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[NASA-CASE-GSC-11169-2] c05 N73-32011

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Method and apparatus for measuring the damping characteristics of a structure

[NASA-CASE-ARC-10154-1]	c14 N72-22440	Annular supersonic decelerator or drogue Patent
COLE, P. T.		[NASA-CASE-XLE-00222] c02 N70-37939
Low friction magnetic recording tape Patent		Penshape exhaust nozzle for supersonic engine Patent
[NASA-CASE-XGS-00373]	c23 N71-15978	[NASA-CASE-XLE-00057] c28 N70-38711
System for recording and reproducing pulse code		Telescoping-spike supersonic inlet for aircraft engines Patent
[NASA-CASE-XGS-01021]	c08 N71-21042	[NASA-CASE-XLE-00005] c28 N70-39899
Friction measuring apparatus Patent		Thrust and direction control apparatus Patent
[NASA-CASE-XNP-08680]	c14 N71-22995	[NASA-CASE-XLE-03583] c31 N71-17629
Helical recorder arrangement for multiple channels of the tape		COBRAD, E. W.
[NASA-CASE-GSC-10614-1]	c09 N72-11224	Thrust vector control apparatus Patent
COLES, W. D.		[NASA-CASE-XLE-00208] c28 N70-34294
Twisted multifilament superconductor		Non-reusable kinetic energy absorber Patent
[NASA-CASE-LEW-11726-1]	c26 N73-26752	[NASA-CASE-XLE-00810] c15 N70-34861
Method of fabricating a twisted composite superconductor		COBRAD, W. M.
[NASA-CASE-LEW-11015]	c26 N73-32571	Frequency modulation demodulator threshold extension device Patent
COLLIER, L.		[NASA-CASE-MSC-12165-1] c07 N71-33696
Garments for controlling the temperature of the body Patent		CONWAY, E. J.
[NASA-CASE-XMS-10269]	c05 N71-24147	Method for detecting pollutants
COLLIN, E. E.		[NASA-CASE-LAR-11405-1] c45 N76-31714
Apparatus and method for skin packaging articles		COOGAN, J. M.
[NASA-CASE-MFS-20855]	c15 N73-27405	Method of planetary atmospheric investigation using a split-trajectory dual flyby mode Patent
COLLINS, D. D.		[NASA-CASE-XAC-08494] c30 N71-15990
Process for removing sulfur dioxide from gas streams		COOK, T. A.
[NASA-CASE-MSC-16299-1]	c45 N77-31668	Metering gun for dispensing precisely measured charges of fluid
Simultaneous treatment of gases and waste water		[NASA-CASE-MFS-21163-1] c54 N74-17853
[NASA-CASE-MSC-16258-1]	c85 N78-15954	COOK, W. H., JR.
COLLINS, D. F., JR.		Detector panels-micrometeoroid impact Patent
Fluid power transmitting gear bearing Patent		[NASA-CASE-XLA-05906] c31 N71-16221
[NASA-CASE-ERC-10097]	c15 N71-20465	COOLIDGE, J. E.
COLLINS, E. B.		Data transfer system Patent
Automated multi-level vehicle parking system		[NASA-CASE-NPO-12107] c08 N71-27255
[NASA-CASE-NPO-13058-1]	c37 N77-22480	COON, G. W.
COLLINS, E. B., JR.		Vibrating element electrometer with output signal magnified over input signal by a function of the mechanical Q of the vibrating element Patent
Impact energy absorbing system utilizing fracturable material		[NASA-CASE-XAC-02807] c09 N71-23021
[NASA-CASE-NPO-10671]	c15 N72-20443	Thermally cycled magnetometer Patent
COLLINS, V. G.		[NASA-CASE-XAC-03740] c14 N71-26135
Recovery of potable water from human wastes in below-G conditions Patent		Trielectrode capacitive pressure transducer
[NASA-CASE-XLA-03213]	c05 N71-11207	[NASA-CASE-ARC-10711-2] c33 N76-21390
COLLINS, W. A.		COOPER, C. R.
Flight control system		Underwater space suit pressure control regulator
[NASA-CASE-MSC-13397-1]	c21 N72-25595	[NASA-CASE-MFS-20332] c05 N72-20097
COLONY, J. A.		Underwater space suit pressure control regulator
Phototropic composition of matter		[NASA-CASE-MFS-20332-2] c05 N73-25125
[NASA-CASE-XGS-03736]	c14 N72-22443	COOPER, D. W.
COBANT, J. E.		Generator for a space power system Patent
Television simulation for aircraft and space flight Patent		[NASA-CASE-XLE-04250] c09 N71-20446
[NASA-CASE-IFR-03107]	c09 N71-19449	Method of forming metal hydride films
COBE, C. D., JR.		[NASA-CASE-LEW-12083-1] c37 N78-13436
Minimum induced drag airfoil body Patent		COOPER, L. P.
[NASA-CASE-XLA-00755]	c01 N71-13410	Supercritical fuel injection system
Minimum induced drag airfoil body Patent		[NASA-CASE-LEW-12990-1] c07 N78-27122
[NASA-CASE-XLA-05828]	c01 N71-13411	COOPER, W. E.
Absolute focus lock for microscopes		Collapsible Apollo couch
[NASA-CASE-LAR-10184]	c14 N72-22445	[NASA-CASE-MSC-13140] c05 N72-11085
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[NASA-CASE-LAR-10773-3]	c51 N77-25769	High speed photo-optical time recording
CONGEE, C. C.		[NASA-CASE-KSC-10294] c14 N72-18411
Inductance device with vacuum insulation		COBBIN, P. L.
[NASA-CASE-LEW-10330-1]	c09 N72-27226	Automatic fatigue test temperature programmer Patent
CONIGLIO, G. V.		[NASA-CASE-XLA-02059] c33 N71-24276
Petzval type objective including field shaping lens Patent		CORNILLE, H. J., JR.
[NASA-CASE-GSC-10700]	c23 N71-30027	Stretch de-spin mechanism Patent
CONN, J. H.		[NASA-CASE-XGS-00619] c30 N70-40016
Moment of inertia test fixture Patent		CORNISH, S. D.
[NASA-CASE-XGS-01023]	c14 N71-22992	Flame detector operable in presence of proton radiation
CONNELL, E. W.		[NASA-CASE-MFS-21577-1] c19 N74-29410
Flexible joint for pressurizable garment		COBSON, B. W., JR.
[NASA-CASE-MSC-11072]	c54 N74-32546	Nozzle Patent
CONNOLLY, D. J.		[NASA-CASE-XLA-00154] c28 N70-33374
Traveling wave tube circuit		Cascade plug nozzle
[NASA-CASE-LEW-12013-1]	c33 N77-17360	[NASA-CASE-LAR-10951-1] c28 N73-19819
CONNOLLY, J. P.		Cascade plug nozzle
Automatic real-time pair-feeding system for animals		[NASA-CASE-LAR-11674-1] c07 N76-18117
[NASA-CASE-ARC-10302-1]	c51 N74-15778	CORWIN, R. R.
COBBOES, J. F.		Apparatus for determining thermophysical properties of test specimens
Annular rocket motor and nozzle configuration Patent		[NASA-CASE-LAR-11883-1] c09 N77-27131
[NASA-CASE-XLE-00078]	c28 N70-33284	COSTAKOS, H. C.
		Deployable flexible tunnel

[NASA-CASE-MFS-22636-1] c37 N76-22540  
**COSTER, B. C.**  
 Smokestack mounted airfoil  
 [NASA-CASE-LAR-11669-1] c34 N76-13419  
 Vortex generator for controlling the dispersion  
 of effluents in a flowing liquid  
 [NASA-CASE-LAR-12045-1] c34 N77-24423  
**COSTES, M. C.**  
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 [NASA-CASE-MFS-20774] c14 N73-19920  
**COSTOGUE, E. W.**  
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 [NASA-CASE-NPO-13652-2] c37 N78-13441  
**COSTON, B. B.**  
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 [NASA-CASE-GSC-10188-1] c23 N71-24725  
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 [NASA-CASE-IGS-04987] c08 N71-20571  
**COUCH, R. B.**  
 Apparatus for aiding a pilot in avoiding a  
 midair collision between a aircraft  
 [NASA-CASE-LAR-10717-1] c21 N73-30641  
 Phase modulating with odd an even finite power  
 series of a modulating signal  
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 nozzle Patent  
 [NASA-CASE-XNP-04389] c28 N71-20942  
**COUVILLON, L. A., JR.**  
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 of mean and standard deviation of integrated  
 signal samples Patent  
 [NASA-CASE-XNP-05254] c07 N71-20791  
 Method and apparatus for frequency division  
 multiplex communications by digital phase  
 shift of carrier  
 [NASA-CASE-NPO-11338] c08 N72-25208  
 Apparatus for deriving synchronizing pulses from  
 pulses in a single channel CM communications  
 system  
 [NASA-CASE-NEO-11302-1] c07 N73-13149  
 Pseudonoise (PN) synchronization of data system  
 with derivation of clock frequency from  
 received signal for clock generator  
 [NASA-CASE-XNP-03623] c09 N73-28084  
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 digital communications system  
 [NASA-CASE-NEO-11302-2] c32 N74-10132  
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 [NASA-CASE-MFS-22040-1] c35 N74-26946  
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 [NASA-CASE-XGS-01143] c31 N71-15647  
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 [NASA-CASE-MSC-13110-1] c08 N72-22163  
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 [NASA-CASE-XLA-01163] c21 N71-15582  
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 [NASA-CASE-ARC-10814-2] c25 N77-31260  
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 Variable contour securing system [NASA-CASE-XLA-11028-1] c24 N74-27035  
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[NASA-CASE-IGS-00886]	c03	N71-11053	[NASA-CASE-XLA-07430]		c11	N72-22246
Method and apparatus for battery charge control Patent			HIGA, W. H.	Refrigeration apparatus		
[NASA-CASE-IGS-05432]	c03	N71-19438	[NASA-CASE-NPO-10309]		c15	N69-23190
Sealing device for an electrochemical cell Patent			Refrigeration apparatus Patent			
[NASA-CASE-IGS-02630]	c03	N71-22974	[NASA-CASE-XNP-08877]		c15	N71-23025
Sealed electrochemical cell provided with a flexible casing Patent			Stirling cycle engine and refrigeration systems			
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[NASA-CASE-XLA-03691]	c31	N71-15674	[NASA-CASE-NPO-11333]		c08	N72-22162
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[NASA-CASE-LAR-10706-2]	c05	N77-31132	[NASA-CASE-NPO-11358]		c07	N72-25172
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Systems and methods for determining radio frequency interference			[NASA-CASE-NPO-13545-1]		c32	N77-12240
[NASA-CASE-GSC-12150-1]	c32	N77-12247	HILBORN, E. H.	Method and means for an improved electron beam scanning system Patent		
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[NASA-CASE-IGS-01587]	c14	N71-15962	[NASA-CASE-EBC-10031]		c12	N71-18603
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Gas purged dry box glove Patent			[NASA-CASE-EBC-10100]		c09	N71-33519
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Method of producing refractory composites containing tantalum carbide, hafnium carbide, and hafnium boride Patent			[NASA-CASE-XNP-00733]		c06	N70-34946
[NASA-CASE-XLE-03940]	c18	N71-26153	Continuous magnetic flux pump			
Refractory metal base alloy composites			[NASA-CASE-XNP-01187]		c15	N73-28516
[NASA-CASE-XLE-03940-2]	c17	N72-28536	Superconductive magnetic-field-trapping device			
HERMAN, C. F.			[NASA-CASE-XNP-01185]		c26	N73-28710
Differential pulse code modulation			Magnetic-flux pump			
[NASA-CASE-MSC-12506-1]	c32	N77-12239	[NASA-CASE-XNP-01188]		c15	N73-32361
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[NASA-CASE-NPO-10373]	c03	N71-18698	HILL, R. K.	Ultrasonic scanner for radial and flat panels		
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A support technique for vertically oriented launch vehicles			[NASA-CASE-MFS-20509]		c11	N72-17183
[NASA-CASE-XLA-02704]	c11	N69-21540	HILL, P. R.	Heat protection apparatus Patent		
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HESS, R. V.			[NASA-CASE-MSC-14623-1]		c52	N77-28717
A technique for breaking ice in the path of a ship			HILLMAN, J. J.	Thermal compensator for closed-cycle helium refrigerator		
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[NASA-CASE-NPO-10070] c15 N71-27372  
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**MAREK, C. J.**  
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 convolute section  
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**MARSIK, S. J.**  
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 [NASA-CASE-LEW-10965-1] c15 N72-25452  
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**MARTIN, J. A.**  
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 tube  
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 Intumescent composition, foamed product prepared  
 therewith, and process for making same  
 [NASA-CASE-ARC-10304-1] c18 N73-26572  
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 neoprene foam  
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 therewith and process for making same  
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 missiles  
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 isocyanates and aromatic dianhydrides  
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**RICE, H. W.**  
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**RICE, W. J.**  
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 [NASA-CASE-MSC-12737-1] c34 N77-22423 [NASA-CASE-WFO-10704] c15 N72-20445  
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 [NASA-CASE-ARC-11053-1] c25 N77-29252 with standard frequency  
 SPITZER, C. B. [NASA-CASE-MSC-14649-1] c33 N76-16331  
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 Exposure interlock for oscilloscope cameras [NASA-CASE-LAR-12099-1] c27 N78-24360  
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 SPITZIG, W. A. STCLAIR, T. L.  
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 Audio system with means for reducing noise effects [NASA-CASE-ERC-10090] c21 N71-24948  
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 discharging fuels  
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radiant energy array computers  
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channel recording on both sides of the tape  
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Magnetic bearing  
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Magnetic bearing system  
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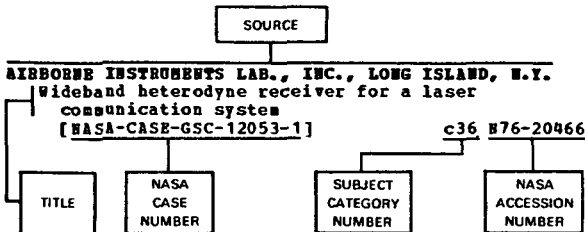
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isotope into positive and negative ions by  
means of an electric field  
[NASA-CASE-LEW-12465-1] c25 N78-25148
- COMPREHENSIVE DESIGNERS, INC., SHERMAN OAKS, CALIF.**  
Vehicle for use in planetary exploration  
[NASA-CASE-NPO-11366] c11 N73-26238
- COMPUTER CONTROL CO., INC., FRAMINGHAM, MASS.**  
Test fixture for pellet-like electrical elements  
[NASA-CASE-XNP-06032] c09 N69-21926  
Support structure for irradiated elements Patent  
[NASA-CASE-XNP-06031] c15 N71-15606  
Counter Patent  
[NASA-CASE-XNP-06234] c10 N71-27137
- CONRAC CORP., PASADENA, CALIF.**  
Penetrating radiation system for detecting the  
amount of liquid in a tank Patent  
[NASA-CASE-MSC-12280] c27 N71-16348
- COOPER UNION, HOUSTON, TEX.**  
Pyrolysis system and process  
[NASA-CASE-MSC-12669-1] c44 N76-16621
- COBBELL UNIV., ITHACA, N. Y.**  
Flux sensing device using a tubular core with  
toroidal gating coil and solenoidal output  
coil wound thereon Patent  
[NASA-CASE-IGS-01881] c09 N70-40123
- CRANE CO., BURBANK, CALIF.**  
Hydraulic transformer Patent  
[NASA-CASE-MFS-20830] c15 N71-30028
- CURTISS-WRIGHT CORP., WOOD-RIDGE, N.J.**  
Gas turbine combustion apparatus Patent  
[NASA-CASE-XLE-103477-1] c28 N71-20330
- CUTLER-HAMMER, INC., BELVILLE, N.Y.**  
Wideband heterodyne receiver for laser  
communication system  
[NASA-CASE-GSC-12053-1] c32 N77-28346
- D**
- DELAWARE UNIV., NEWARK.**  
High field CdS detector for infrared radiation  
[NASA-CASE-LAR-11027-1] c35 N74-18088
- DENVER UNIV., COLO.**  
Metal shearing energy absorber  
[NASA-CASE-HQN-10638-1] c15 N73-30460
- DEPARTMENT OF TRANSPORTATION, CAMBRIDGE, MASS.**  
Optical noise suppression device and method  
[NASA-CASE-MSC-12640-1] c74 N76-31998
- DORNE AND HARGOLIN, INC., BOHEMIA, N.Y.**  
Nose cone mounted heat resistant antenna Patent  
[NASA-CASE-XNS-04312] c07 N71-22984
- DOUGLAS AIRCRAFT CO., INC., SANTA MONICA, CALIF.**  
Recoverable single stage spacecraft booster Patent  
[NASA-CASE-XMP-01973] c31 N70-41588  
Switching circuit employing regeneratively  
connected complementary transistors Patent  
[NASA-CASE-XNP-02654] c10 N70-42032  
Split nut separation system Patent  
[NASA-CASE-XNP-06914] c15 N71-21489  
Artificial gravity spin deployment system Patent  
[NASA-CASE-XNP-02595] c31 N71-21881  
Portable superclean air column device Patent  
[NASA-CASE-XMP-03212] c15 N71-22721  
Energy absorption device Patent  
[NASA-CASE-XNP-01848] c15 N71-28959  
Collapsible pistons  
[NASA-CASE-MSC-13789-1] c11 N73-32152

DUKE UNIV., DURHAM, N. C.  
Regulated dc-to-dc converter for voltage step-up  
or step-down with input-output isolation  
[NASA-CASE-HQN-10792-1] c33 N74-11049

DUMONT ELECTRON TUBES, CLIFTON, N. J.  
High contrast cathode ray tube  
[NASA-CASE-ERC-10468] c09 N72-20206

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EITHEL-MCCULLOUGH, INC., SAN CARLOS, CALIF.  
Method of forming ceramic to metal seal Patent  
[NASA-CASE-XNP-01263-2] c15 N71-26312

ELECTRAC, INC., ANAHEIM, CALIF.  
Optimum predetection diversity receiving system  
Patent  
[NASA-CASE-XGS-00740] c07 N71-23098

ELECTRIC STORAGE BATTERY CO., RALEIGH, N.C.  
Electric battery and method for operating same  
Patent  
[NASA-CASE-XGS-01674] c03 N71-29129

ELECTRO-OPTICAL SYSTEMS, INC., PASADENA, CALIF.  
Focussing system for an ion source having  
apertured electrodes Patent  
[NASA-CASE-XNP-03332] c09 N71-10618

Electrolytically regenerative hydrogen-oxygen  
fuel cell Patent  
[NASA-CASE-XLE-04526] c03 N71-11052

Method of producing refractory bodies having  
controlled porosity Patent  
[NASA-CASE-LEW-10393-1] c17 N71-15468

Soil particles separator, collector and viewer  
Patent  
[NASA-CASE-XNP-09770] c15 N71-20440

Particle detection apparatus including a  
ballistic pendulum Patent  
[NASA-CASE-XMS-04201] c14 N71-22990

Polarity sensitive circuit Patent  
[NASA-CASE-XNP-00952] c10 N71-23271

Ion engine casing construction and method of  
making same Patent  
[NASA-CASE-XNP-06942] c28 N71-23293

Material handling device Patent  
[NASA-CASE-XNP-09770-3] c11 N71-27036

Screen particle separator  
[NASA-CASE-XNP-09770-2] c15 N72-22483

ELECTRONIC IMAGE SYSTEMS CORP., CAMBRIDGE, MASS.  
Drying apparatus for photographic sheet material  
[NASA-CASE-GSC-11074-1] c14 N73-28489

ESB, INC., RALEIGH, N. C.  
Storage battery comprising negative plates of a  
wedge shaped configuration  
[NASA-CASE-NPO-11806-1] c44 N74-19693

ESB, INC., YARDLEY, PA.  
Electric storage battery  
[NASA-CASE-NPO-11021] c03 N72-20032

EWEN KNIGHT CORP., EAST WATICK, MASS.  
Method and means for providing an absolute power  
measurement capability Patent  
[NASA-CASE-ERC-11020] c14 N71-26774

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FAIRCHILD HILLEB CORP., GERMANTOWN, MD.  
Two axis fluxgate magnetometer Patent  
[NASA-CASE-GSC-10441-1] c14 N71-27325

Space simulation and radiative property testing  
system and method Patent  
[NASA-CASE-MFS-20096] c14 N71-30026

Thermal control system for a spacecraft modular  
housing  
[NASA-CASE-GSC-11018-1] c31 N73-30829

FABADAY LABS., INC., LA JOLLA, CALIF.  
Method for attaching a fused-quartz mirror to a  
conductive metal substrate  
[NASA-CASE-MFS-23405-1] c26 N77-29260

FEDERAL-ROGUL CORP., LOS ALAMITOS, CALIF.  
Hydraulic casting of liquid polymers Patent  
[NASA-CASE-XNP-07659] c06 N71-22975

FLORIDA UNIV., GAINESVILLE.  
Safety flywheel  
[NASA-CASE-HQN-10888-1] c37 N77-22484

FMC CORP., NEW YORK.  
Decomposition unit Patent  
[NASA-CASE-XMS-00583] c28 N70-38504

FOOTBILL COLLEGE, LOS ALTOS HILLS, CALIF.  
Electrical conductivity cell and method for  
fabricating the same  
[NASA-CASE-ABC-10810-1] c33 N76-19339

FORD MOTOR CO., DEARBORN, MICH.  
Omnidirectional acceleration device Patent  
[NASA-CASE-HQN-10780] c14 N71-30265

## G

GARBETT CORP., LOS ANGELES, CALIF.  
Relief valve  
[NASA-CASE-XMS-05894-1] c15 N69-21924

Portable environmental control system Patent  
[NASA-CASE-XMS-09632-1] c05 N71-11203

Dual latching solenoid valve Patent  
[NASA-CASE-XMS-05890] c09 N71-23191

Water management system and an electrolytic cell  
therefor Patent  
[NASA-CASE-MSC-10960-1] c03 N71-24718

Low cycle fatigue testing machine  
[NASA-CASE-LAR-10270-1] c32 N72-25877

Process for separation of dissolved hydrogen  
from water by use of palladium and process for  
coating palladium with palladium black  
[NASA-CASE-MSC-13335-1] c06 N72-31140

Flexible joint for pressurizable garment  
[NASA-CASE-MSC-11072] c54 N74-32546

Gas compression apparatus  
[NASA-CASE-MSC-14757-1] c35 N78-10428

GCA CORP., BEDFORD, MASS.  
Analytical photoionization mass spectrometer  
with an argon gas filter between the light  
source and monochromator Patent  
[NASA-CASE-LAR-10180-1] c06 N71-13461

GENERAL DYNAMICS/ASTRONAUTICS, SAN DIEGO, CALIF.  
Determination of spot weld quality Patent  
[NASA-CASE-XNP-02588] c15 N71-18613

Pressure transducer calibrator Patent  
[NASA-CASE-XNP-01660] c14 N71-23036

Plating nickel on aluminum castings Patent  
[NASA-CASE-XNP-04148] c17 N71-24830

GENERAL DYNAMICS/CONVAIR, SAN DIEGO, CALIF.  
Signal generator  
[NASA-CASE-XNP-05612] c09 N69-21468

Separation nut Patent  
[NASA-CASE-XGS-01971] c15 N71-15922

Zero gravity separator Patent  
[NASA-CASE-XLE-00586] c15 N71-15968

Catalyst cartridge for carbon dioxide reduction  
unit  
[NASA-CASE-LAR-10551-1] c25 N74-12813

Heat exchanger  
[NASA-CASE-MFS-22991-1] c34 N77-10463

GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.  
Light radiation direction indicator with a  
baffle of two parallel grids  
[NASA-CASE-XNP-03930] c14 N69-24331

Method and apparatus for attaching physiological  
monitoring electrodes Patent  
[NASA-CASE-XPB-07658-1] c05 N71-26293

Driving lamps by induction  
[NASA-CASE-MFS-21214-1] c09 N73-30181

GENERAL ELECTRIC CO., CINCINNATI, OHIO.  
Dual output variable pitch turbofan actuation  
system  
[NASA-CASE-LEW-12419-1] c07 N77-14025

Reverse pitch fan with divided splitter  
[NASA-CASE-LEW-12760-1] c07 N77-17059

Leading edge protection for composite blades  
[NASA-CASE-LEW-12550-1] c24 N77-19170

Oil cooling system for a gas turbine engine  
[NASA-CASE-LEW-12830-1] c07 N77-23106

Flade retainer assembly  
[NASA-CASE-LEW-12608-1] c07 N77-27116

Platform for a swing root turbomachinery blade  
[NASA-CASE-LEW-12312-1] c07 N77-32148

Deformable bearing seat  
[NASA-CASE-LEW-12527-1] c37 N77-32500

Bearing seat usable in a gas turbine engine  
[NASA-CASE-LEW-12477-1] c37 N77-32501

Oil cooling system for a gas turbine engine  
[NASA-CASE-LEW-12321-1] c37 N78-10467

Impact absorbing blade mounts for variable pitch  
blades  
[NASA-CASE-LEW-12313-1] c37 N78-10468

Variable thrust nozzle for quiet turbofan engine  
and method of operating same  
[NASA-CASE-LEW-12317-1] c07 N78-17055

Gas turbine engine with convertible accessories  
[NASA-CASE-LEW-12390-1] c07 N78-17056

Variable cycle gas turbine engines  
[NASA-CASE-LEW-12916-1] c37 N78-17384

Gas turbine engine with recirculating bleed  
[NASA-CASE-LEW-12452-1] c07 N78-25089

Redundant disc  
[NASA-CASE-LEW-12496-1] c07 N78-33101

**GENERAL ELECTRIC CO., CLEVELAND, OHIO.**  
Variable mixer propulsion cycle  
[NASA-CASE-LEW-12917-1] c07 N78-18067

**GENERAL ELECTRIC CO., PHILADELPHIA, PA.**  
Catalyst for growth of boron carbide single  
crystal whiskers  
[NASA-CASE-IRQ-03903] c15 N69-21922

Didymium hydrate additive to nickel hydroxide  
electrodes Patent  
[NASA-CASE-IGS-03505] c03 N71-10608

Bismuth-lead coatings for gas bearings used in  
atmospheric environments and vacuum chambers  
Patent  
[NASA-CASE-IGS-02011] c15 N71-20739

Automatic control of liquid cooling garment by  
cutaneous and external auditory meatus  
temperatures  
[NASA-CASE-MS-C-13917-1] c05 N72-15098

Method for measuring cutaneous sensory perception  
[NASA-CASE-MS-C-13609-1] c05 N72-25122

Reaction tester  
[NASA-CASE-MS-C-13604-1] c05 N73-13114

Air conditioned suit  
[NASA-CASE-LAR-10076-1] c05 N73-20137

Compton scatter attenuation gamma ray spectrometer  
[NASA-CASE-MFS-21441-1] c14 N73-30392

Inverter ratio failure detector  
[NASA-CASE-NPO-13160-1] c35 N74-18090

Electrophoretic sample insertion  
[NASA-CASE-MFS-21395-1] c25 N74-26948

Apparatus for conducting flow electrophoresis in  
the substantial absence of gravity  
[NASA-CASE-MFS-21394-1] c34 N74-27744

Multiparameter vision testing apparatus  
[NASA-CASE-MS-C-13601-2] c54 N75-27759

Automatic bio waste sampling  
[NASA-CASE-MS-C-14640-1] c54 N76-14804

Voltage feed through apparatus having reduced  
partial discharge  
[NASA-CASE-GSC-12347-1] c33 N78-17297

**GENERAL ELECTRIC CO., PLEASANTON, CALIF.**  
Method of making a cermet Patent  
[NASA-CASE-LEW-10219-1] c18 N71-28729

**GENERAL ELECTRIC CO., SCHEMECTADY, N. Y.**  
Superconductive accelerometer Patent  
[NASA-CASE-INF-01099] c14 N71-15969

Remote manipulator system  
[NASA-CASE-MFS-22022-1] c37 N76-15460

Automatic transponder  
[NASA-CASE-GSC-12075-1] c32 N77-31350

Directionally solidified eutectic gamma plus  
beta nickel-base superalloys  
[NASA-CASE-LEW-12906-1] c26 N77-32279

**GENERAL ELECTRIC CO., UTICA, N. Y.**  
Method of determining bond quality of power  
transistors attached to substrates  
[NASA-CASE-MFS-21931-1] c37 N75-26372

**GENERAL MOTORS CORP., DETROIT, MICH.**  
Hermetic sealed vibration damper Patent  
[NASA-CASE-MS-C-10959] c15 N71-26243

**GENERAL MOTORS CORP., MILWAUKEE, WIS.**  
Adjustable tension wire guide Patent  
[NASA-CASE-XMS-02383] c15 N71-15918

**GENERAL MOTORS CORP., SANTA BARBARA, CALIF.**  
Resilient wheel Patent  
[NASA-CASE-MFS-13929] c15 N71-27091

**GENERAL PRECISION, INC., LITTLE FALLS, N.J.**  
Reversible current control apparatus Patent  
[NASA-CASE-ILA-09371] c10 N71-18724

**GENERAL PRECISION, INC., SUNNYVALE, CALIF.**  
Broadband video process with very high input  
impedance  
[NASA-CASE-NPO-10199] c09 N72-17156

**GENERAL PRECISION SYSTEMS, INC., LITTLE FALLS, N.J.**  
Fluidic-thermochromic display device Patent  
[NASA-CASE-ERC-10031] c12 N71-18603

**GENERAL TECHNOLOGIES CORP., RESTON, VA.**  
Method of making reinforced composite structure  
[NASA-CASE-LEW-12619-1] c24 N77-19171

**GEOPHYSICS CORP. OF AMERICA, BEDFORD, MASS.**  
Inflation system for balloon type satellites  
Patent  
[NASA-CASE-XGS-03351] c31 N71-16081

**GEOPHYSICS CORP. OF AMERICA, BOSTON, MASS.**  
Ionospheric battery Patent

[NASA-CASE-IGS-01593] c03 N70-35408

**GEORGE WASHINGTON UNIV., WASHINGTON, D. C.**  
Bacteria detection instrument and method  
[NASA-CASE-GSC-11533-1] c14 N73-13435

Arterial pulse wave pressure transducer  
[NASA-CASE-GSC-11531-1] c52 N74-27566

**GIANNINI SCIENTIFIC CORP., SANTA ANA, CALIF.**  
Electric arc light source having undercut  
recessed anode  
[NASA-CASE-ARC-10266-1] c33 N75-29318

Combination automatic-starting electrical plasma  
torch and gas shutoff valve  
[NASA-CASE-ILE-10717] c37 N75-29426

**GLOBE-UNION, INC., MILWAUKEE, WIS.**  
Method of coating solar cell with borosilicate  
glass and resultant product  
[NASA-CASE-GSC-11514-1] c03 N72-24037

**GOODYEAR AEROSPACE CORP., AKRON, OHIO.**  
Foldable solar concentrator Patent  
[NASA-CASE-ILA-04622] c03 N70-41580

Method of making a filament-wound container Patent  
[NASA-CASE-ILE-03803-2] c15 N71-17651

Filament wound container Patent  
[NASA-CASE-ILE-03803] c15 N71-23816

Panelized high performance multilayer insulation  
Patent  
[NASA-CASE-MFS-14023] c33 N71-25351

Thermally activated foaming compositions Patent  
[NASA-CASE-LAR-10373-1] c18 N71-26155

Compression test assembly  
[NASA-CASE-LAR-10440-1] c14 N73-32323

Deployable flexible tunnel  
[NASA-CASE-MFS-22636-1] c37 N76-22540

**GRACE (W. R.) AND CO., CLARKSVILLE, MD.**  
Metal containing polymers from cyclic tetrameric  
phenylphosphonitridamides Patent  
[NASA-CASE-HCN-10364] c06 N71-27363

**GRUMMAN AIRCRAFT ENGINEERING CORP., BETHPAGE, N. Y.**  
Sealed cabinetry Patent  
[NASA-CASE-MS-C-12168-1] c09 N71-18600

Out of tolerance warning alarm system for  
plurality of monitored circuits Patent  
[NASA-CASE-XMS-10984-1] c10 N71-19417

**GULF GENERAL ATOMIC, SAN DIEGO, CALIF.**  
Waveform simulator Patent  
[NASA-CASE-NPO-10251] c10 N71-27365

**GULTON INDUSTRIES, INC., ALBUQUERQUE, N. MEX.**  
Analog-to-digital converter  
[NASA-CASE-MS-C-13110-1] c08 N72-22163

## H

**HAMILTON STANDARD, HARTFORD, CONN.**  
Portable breathing system  
[NASA-CASE-MS-C-16182-1] c54 N77-21847

**HAMILTON STANDARD, WINDSOR LOCKS, CONN.**  
Venting device for pressurized space suit helmet  
Patent  
[NASA-CASE-XMS-09652-1] c05 N71-26333

Regenerable device for scrubbing breathable air  
of CO<sub>2</sub> and moisture without special heat  
exchanger equipment  
[NASA-CASE-MS-C-14771-1] c54 N77-32722

**HAMILTON STANDARD DIV., UNITED AIRCRAFT CORP.,  
WINDSOR LOCKS, CONN.**  
Condensate removal device for heat exchanger  
[NASA-CASE-MS-C-14143-1] c77 N75-20139

**HARRIS CORP., MELBOURNE, FLA.**  
Telescoping columns  
[NASA-CASE-LAR-12195-1] c37 N78-33446

**HAYES INTERNATIONAL CORP., BIRMINGHAM, ALA.**  
Space craft soft landing system Patent  
[NASA-CASE-XMP-02108] c31 N70-36845

Device for preventing high voltage arcing in  
electron beam welding Patent  
[NASA-CASE-XMP-08522] c15 N71-19486

**HAYES INTERNATIONAL CORP., HUNTSVILLE, ALA.**  
Method and apparatus for cryogenic wire  
stripping Patent  
[NASA-CASE-MFS-10340] c15 N71-17628

Self-balancing strain gage transducer Patent  
[NASA-CASE-MFS-12827] c14 N71-17656

Automatic closed circuit television arc guidance  
control Patent  
[NASA-CASE-MFS-13046] c07 N71-19433

**HAZLETON LABS., FALLS CHURCH, VA.**  
Use of the enzyme hexokinase for the reduction  
of inherent light levels  
[NASA-CASE-XGS-05533] c04 N69-27487

Light detection instrument Patent  
[NASA-CASE-XGS-05534] c23 N71-16355

Lyophilized reaction mixtures Patent  
[NASA-CASE-XGS-05532] c06 N71-17705

Farefly pump-metering system  
[NASA-CASE-GSC-10218-1] c15 N72-21465

**HERCULES, INC., WILMINGTON, DEL.**  
Method of repairing discontinuity in fiberglass structures  
[NASA-CASE-LAR-10416-1] c24 N74-30001

**HOPPMAN ELECTRONICS CORP., EL MONTE, CALIF.**  
Method for producing a solar cell having an integral protective covering  
[NASA-CASE-XGS-04531] c03 N69-24267

**HONEYWELL, INC., HOPKINS, MINN.**  
Frequency control network for a current feedback oscillator Patent  
[NASA-CASE-GSC-10041-1] c10 N71-19418

**HONEYWELL, INC., MINNEAPOLIS, MINN.**  
Bus voltage compensation circuit for controlling direct current motor  
[NASA-CASE-XMS-04215-1] c09 N69-39987

Apparatus for overcurrent protection of a push-pull amplifier Patent  
[NASA-CASE-MSC-12033-1] c09 N71-13531

Static inverter Patent  
[NASA-CASE-XGS-05289] c09 N71-19470

High impedance measuring apparatus Patent  
[NASA-CASE-XMS-08589-1] c09 N71-20569

Clamping assembly for inertial components Patent  
[NASA-CASE-XMS-02184] c15 N71-20813

Piezoelectric pump Patent  
[NASA-CASE-XNP-05429] c26 N71-21824

Controllers Patent  
[NASA-CASE-XMS-07487] c15 N71-23255

Convoluting device for forming convolutions and the like Patent  
[NASA-CASE-XNP-05297] c15 N71-23811

Failure sensing and protection circuit for converter networks Patent  
[NASA-CASE-GSC-10114-1] c10 N71-27366

Voice operated controller Patent  
[NASA-CASE-XLA-04063] c31 N71-33160

Load current sensor for a series pulse width modulated power supply  
[NASA-CASE-GSC-10656-1] c09 N72-25249

Radiant source tracker independent of nonconstant irradiance  
[NASA-CASE-NFO-11686] c14 N73-25462

Optical instruments  
[NASA-CASE-MSC-14096-1] c74 N74-15095

Method of forming shrink-fit compression seal  
[NASA-CASE-LAR-11563-1] c37 N77-23482

**HOUSTON UNIV., TEX.**  
Analysis of volatile organic compounds  
[NASA-CASE-MSC-14428-1] c23 N77-17161

**HOWARD UNIV., WASHINGTON, D. C.**  
Locking mechanism for orthopedic braces  
[NASA-CASE-GSC-12082-1] c54 N76-22914

A cervix-to-rectum measuring device in a radiation applicator for use in the treatment of cervical cancer  
[NASA-CASE-GSC-12081-2] c52 N77-26796

Locking mechanism for orthopedic braces  
[NASA-CASE-GSC-12082-2] c52 N77-27694

**HUGHES AIRCRAFT CO., CULVER CITY, CALIF.**  
Varactor high level mixer  
[NASA-CASE-XGS-02171] c09 N69-24324

Thermally operated valve Patent  
[NASA-CASE-XLE-00815] c15 N70-35407

Thrust dynamometer Patent  
[NASA-CASE-XLE-00702] c14 N70-40203

Solid state chemical source for ammonia beam maser Patent  
[NASA-CASE-XGS-01504] c16 N70-41578

Canopus detector including automotive gain control of photomultiplier tube Patent  
[NASA-CASE-XNP-03914] c21 N71-10771

Horn feed having overlapping apertures Patent  
[NASA-CASE-GSC-10452] c07 N71-12396

Deflective rod switch with elastic support and sealing means Patent  
[NASA-CASE-XNP-09808] c09 N71-12518

Guidance and maneuver analyzer Patent  
[NASA-CASE-XNP-09572] c14 N71-15621

Method of making screen by casting Patent  
[NASA-CASE-XIE-00953] c15 N71-15966

Fluid flow control valve Patent  
[NASA-CASE-XLE-00703] c15 N71-15967

Low noise single aperture multimode monopulse antenna feed system Patent  
[NASA-CASE-XNP-01735] c07 N71-22750

Multilayer porous ionizer Patent  
[NASA-CASE-XNP-04338] c17 N71-23046

Construction and method of arranging a plurality of ion engines to form a cluster Patent  
[NASA-CASE-XNP-02923] c28 N71-23081

Method for fiberizing ceramic materials Patent  
[NASA-CASE-XNP-00597] c18 N71-23088

Inorganic thermal control pigment Patent  
[NASA-CASE-XNP-02139] c18 N71-24184

Triaxial antenna Patent  
[NASA-CASE-XGS-02290] c07 N71-28809

Variable frequency oscillator with temperature compensation Patent  
[NASA-CASE-XNP-03916] c09 N71-28810

High efficiency ionizer assembly Patent  
[NASA-CASE-XNP-01954] c28 N71-28850

Apparatus for changing the orientation and velocity of a spinning body traversing a path Patent  
[NASA-CASE-HCN-00936] c31 N71-29050

Fabrication of controlled-porosity metals Patent  
[NASA-CASE-XNP-04339] c17 N71-29137

Ion thruster  
[NASA-CASE-LEW-10770-1] c28 N72-22770

Refractory porcelain enamel passive control coating for high temperature alloys  
[NASA-CASE-MPS-22324-1] c27 N75-27160

**HUGHES AIRCRAFT CO., LOS ANGELES, CALIF.**  
Power control circuit  
[NASA-CASE-XNP-02713] c10 N69-39888

Thermal switch Patent  
[NASA-CASE-XNP-00463] c33 N70-36847

Double optic system for ion engine Patent  
[NASA-CASE-XNP-02839] c28 N70-41922

Sample collecting impact bat Patent  
[NASA-CASE-XNP-01412] c15 N70-42034

Bootstrap unloader Patent  
[NASA-CASE-XNP-09768] c09 N71-12516

Difference circuit Patent  
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[NASA-CASE-XAC-06956] c15 N71-21177

Exposure system for animals Patent  
[NASA-CASE-XAC-05333] c11 N71-22375

Vibrating element electrometer with output signal magnified over input signal by a function of the mechanical Q of the vibrating element Patent  
[NASA-CASE-XAC-02807] c09 N71-23021

Hall current measuring apparatus having a series resistor for temperature compensation Patent  
[NASA-CASE-XAC-01662] c14 N71-23037

Transfer valve Patent  
[NASA-CASE-XAC-01158] c15 N71-23051

Hard space suit Patent  
[NASA-CASE-XAC-07043] c05 N71-23161

Method and apparatus for continuously monitoring blood oxygenation, blood pressure, pulse rate

and the pressure pulse curve utilizing an ear  
 oximeter as transducer Patent  
 [NASA-CASE-IAC-05422] c04 N71-23185  
 Feedback integrator with grounded capacitor Patent  
 [NASA-CASE-IAC-10607] c10 N71-23669  
 Floating two force component measuring device  
 Patent  
 [NASA-CASE-IAC-04885] c14 N71-23790  
 Control device Patent  
 [NASA-CASE-IAC-10019] c15 N71-23809  
 Means for suppressing or attenuating bending  
 motion of elastic bodies Patent  
 [NASA-CASE-IAC-05632] c32 N71-23971  
 Device for measuring pressure Patent  
 [NASA-CASE-IAC-04458] c14 N71-24232  
 Transducer circuit and catheter transducer Patent  
 [NASA-CASE-ARC-10132-1] c09 N71-24597  
 Skeletal stressing method and apparatus Patent  
 [NASA-CASE-ARC-10100-1] c05 N71-24738  
 Modified polyurethane foams for fuel-fire Patent  
 [NASA-CASE-ARC-10098-1] c06 N71-24739  
 Deep space monitor communication satellite  
 system Patent  
 [NASA-CASE-IAC-06029-1] c31 N71-24813  
 Laser fluid velocity detector Patent  
 [NASA-CASE-ARC-10770-1] c16 N71-24828  
 Transient video signal recording with expanded  
 playback Patent  
 [NASA-CASE-ARC-10003-1] c09 N71-25866  
 Thermally cycled magnetometer Patent  
 [NASA-CASE-IAC-03740] c14 N71-26135  
 Optical machine tool alignment indicator Patent  
 [NASA-CASE-IAC-09489-1] c15 N71-26673  
 Energy limiter for hydraulic actuators Patent  
 [NASA-CASE-ARC-10131-1] c15 N71-27754  
 Multivibrator circuit with means to prevent  
 false triggering from supply voltage  
 fluctuations Patent  
 [NASA-CASE-ARC-10137-1] c09 N71-28468  
 Locomotion and restraint aid Patent  
 [NASA-CASE-ARC-10153] c05 N71-28619  
 Line following servosystem Patent  
 [NASA-CASE-IAC-00001] c15 N71-28952  
 Mechanically limited, electrically operated  
 hydraulic valve system for aircraft controls  
 Patent  
 [NASA-CASE-IAC-00048] c02 N71-29128  
 Precision rectifier with FET switching means  
 Patent  
 [NASA-CASE-ARC-10101-1] c09 N71-33109  
 Solar cell Patent  
 [NASA-CASE-ARC-10050] c03 N71-33409  
 Phase shift circuit apparatus  
 [NASA-CASE-ARC-10269-1] c10 N72-16172  
 High intensity radiant energy pulse source  
 having means for opening shutter when light  
 flux has reached a desired level  
 [NASA-CASE-ARC-10178-1] c09 N72-17152  
 Telemetry actuated switch  
 [NASA-CASE-ARC-10105] c09 N72-17153  
 Active RC networks  
 [NASA-CASE-ARC-10020] c10 N72-17172  
 Apparatus for automatically stabilizing the  
 attitude of a nonrigid vehicle  
 [NASA-CASE-ARC-10134] c30 N72-17873  
 Flexible fire retardant foam  
 [NASA-CASE-ARC-10180-1] c28 N72-20767  
 Gas chromatograph injection system  
 [NASA-CASE-ARC-10344-1] c14 N72-21433  
 Method and apparatus for swept-frequency  
 impedance measurements of welds  
 [NASA-CASE-ARC-10176-1] c15 N72-21464  
 Space suit having improved waist and torso  
 movement  
 [NASA-CASE-ARC-10275-1] c05 N72-22092  
 RF controlled solid state switch  
 [NASA-CASE-ARC-10136-1] c09 N72-22202  
 Wide range dynamic pressure sensor  
 [NASA-CASE-ARC-10263-1] c14 N72-22438  
 Method and apparatus for measuring the damping  
 characteristics of a structure  
 [NASA-CASE-ARC-10154-1] c14 N72-22440  
 Magnetic position detection method and apparatus  
 [NASA-CASE-ARC-10179-1] c21 N72-22619  
 Fluidic proportional thruster system  
 [NASA-CASE-ARC-10106-1] c28 N72-22769  
 Thermodielectric radiometer utilizing polymer film  
 [NASA-CASE-ARC-10138-1] c14 N72-24477

Polymeric vehicles as carriers for sulfonic acid  
 salt of nitrosubstituted aromatic amines  
 [NASA-CASE-ARC-10325] c06 N72-25147  
 Stereoscopic television system and apparatus  
 [NASA-CASE-ARC-10160-1] c23 N72-27728  
 Metallic intrusion detector system  
 [NASA-CASE-ARC-10265-1] c10 N72-28240  
 Apparatus for ionization analysis  
 [NASA-CASE-ARC-10017-1] c14 N72-29464  
 Nondispersive gas analyzing method and apparatus  
 wherein radiation is serially passed through a  
 reference and unknown gas  
 [NASA-CASE-ARC-10308-1] c06 N72-31141  
 Two degree inverted flexure  
 [NASA-CASE-ARC-10345-1] c15 N73-12488  
 Intumescent paint containing nitrile rubber  
 [NASA-CASE-ARC-10196-1] c18 N73-13562  
 Temperature compensated light source using a  
 light emitting diode  
 [NASA-CASE-ARC-10467-1] c09 N73-14214  
 Self-tuning bandpass filter  
 [NASA-CASE-ARC-10264-1] c09 N73-20231  
 Micrometeoroid analyzer  
 [NASA-CASE-ARC-10443-1] c14 N73-20477  
 Multiple pass reimagining optical system  
 [NASA-CASE-ARC-10194-1] c23 N73-20741  
 Intruder detection system  
 [NASA-CASE-ARC-10097-2] c07 N73-25160  
 Interferometric rotation sensor  
 [NASA-CASE-ARC-10278-1] c14 N73-25463  
 Dual-fuselage aircraft having yawable wing and  
 horizontal stabilizer  
 [NASA-CASE-ARC-10470-1] c02 N73-26005  
 Temperature controller for a fluid cooled garment  
 [NASA-CASE-ARC-10599-1] c05 N73-26071  
 Visual examination apparatus  
 [NASA-CASE-ARC-10329-1] c05 N73-26072  
 Intumescent composition, foamed product prepared  
 therewith, and process for making same  
 [NASA-CASE-ARC-10304-1] c18 N73-26572  
 Infrared tunable laser  
 [NASA-CASE-ARC-10463-1] c09 N73-32111  
 Low power electromagnetic flowmeter providing  
 accurate zero set  
 [NASA-CASE-ARC-10362-1] c14 N73-32326  
 Hand-held photomicroscope  
 [NASA-CASE-ARC-10468-1] c14 N73-33361  
 Alignment apparatus using a laser having a  
 gravitationally sensitive cavity reflector  
 [NASA-CASE-ARC-10444-1] c16 N73-33397  
 Polyimide foam for the thermal insulation and  
 fire protection  
 [NASA-CASE-ARC-10464-1] c27 N74-12812  
 Flexible fire retardant polyisocyanate modified  
 neoprene foam  
 [NASA-CASE-ARC-10180-1] c27 N74-12814  
 Heater-mixer for stored fluids  
 [NASA-CASE-ARC-10442-1] c35 N74-15093  
 Bimetallic fluid displacement apparatus  
 [NASA-CASE-ARC-10441-1] c35 N74-15126  
 Automatic real-time pair-feeding system for  
 animals  
 [NASA-CASE-ARC-10302-1] c51 N74-15778  
 Overvoltage protection network  
 [NASA-CASE-ARC-10197-1] c33 N74-17929  
 Ultrasonic biomedical measuring and recording  
 apparatus  
 [NASA-CASE-ARC-10597-1] c52 N74-20726  
 Ultraviolet and thermally stable polymer  
 compositions  
 [NASA-CASE-ARC-10592-1] c27 N74-21156  
 High speed shutter  
 [NASA-CASE-ARC-10516-1] c70 N74-21300  
 Bio-isolated dc operational amplifier  
 [NASA-CASE-ARC-10596-1] c33 N74-21851  
 Programmable physiological infusion  
 [NASA-CASE-ARC-10447-1] c52 N74-22771  
 Chromato-fluorographic drug detector  
 [NASA-CASE-ARC-10633-1] c25 N74-26947  
 Intumescent composition, foamed product prepared  
 therewith and process for making same  
 [NASA-CASE-ARC-10304-2] c27 N74-27037  
 Photomultiplier circuit including means for  
 rapidly reducing the sensitivity thereof  
 [NASA-CASE-ARC-10593-1] c33 N74-27682  
 G-load measuring and indicator apparatus  
 [NASA-CASE-ARC-10806] c06 N74-27872  
 Concentric differential gearing arrangement  
 [NASA-CASE-ARC-10462-1] c37 N74-27901

Measurement of plasma temperature and density using radiation absorption  
 [NASA-CASE-ARC-10598-1] c75 N74-30156

Abating exhaust noises in jet engines  
 [NASA-CASE-ARC-10712-1] c07 N74-33218

Solid medium thermal engine  
 [NASA-CASE-ARC-10461-1] c44 N74-33379

Automated analysis of oxidative metabolites  
 [NASA-CASE-ARC-10469-1] c25 N75-12086

Method of preparing water purification membranes  
 [NASA-CASE-ARC-10643-1] c25 N75-12087

Method of forming aperture plate for electron microscope  
 [NASA-CASE-ARC-10448-2] c74 N75-12732

Integrated lift/drag controller for aircraft  
 [NASA-CASE-ARC-10456-1] c05 N75-12930

Wind tunnel flow generation section  
 [NASA-CASE-ARC-10710-1] c09 N75-12969

Water purification process  
 [NASA-CASE-ARC-10643-2] c51 N75-13506

Continuous Fourier transform method and apparatus  
 [NASA-CASE-ARC-10466-1] c60 N75-13539

Dual wavelength scanning Doppler velocimeter  
 [NASA-CASE-ARC-10637-1] c35 N75-16783

Signal conditioning circuit apparatus  
 [NASA-CASE-ARC-10348-1] c33 N75-19518

Diode-quad bridge circuit means  
 [NASA-CASE-ARC-10364-3] c33 N75-19520

Reversed cowl flap inlet thrust augmentor  
 [NASA-CASE-ARC-10754-1] c07 N75-24736

Diode-quad bridge circuit means  
 [NASA-CASE-ARC-10364-2] c33 N75-25041

Rotary plant growth accelerating apparatus  
 [NASA-CASE-ARC-10722-1] c51 N75-25503

Shoulder harness and lap belt restraint system  
 [NASA-CASE-ARC-10519-2] c05 N75-25915

Gas chromatograph injection system  
 [NASA-CASE-ARC-10344-2] c35 N75-26334

Reference apparatus for medical ultrasonic transducer  
 [NASA-CASE-ARC-10753-1] c54 N75-27760

Electric arc light source having undercut recessed anode  
 [NASA-CASE-ARC-10266-1] c33 N75-29318

G-load measuring and indicator apparatus  
 [NASA-CASE-ARC-10806-1] c35 N75-29381

NDIR gas analyzer based on absorption modulation ratios for known and unknown samples  
 [NASA-CASE-ARC-10802-1] c35 N75-30502

Diatom infrared gasdynamic laser  
 [NASA-CASE-ARC-10370-1] c36 N75-31426

Pneumatic load compensating or controlling system  
 [NASA-CASE-ARC-10907-1] c37 N75-32465

Combined dual scatter, local oscillator laser Doppler velocimeter  
 [NASA-CASE-ARC-10642-1] c36 N76-14447

Fiber modified polyurethane foam for ballistic protection  
 [NASA-CASE-ARC-10714-1] c27 N76-15310

Transparent fire resistant polymeric structures  
 [NASA-CASE-ARC-10813-1] c27 N76-16230

Noise suppressor for turbo fan jet engines  
 [NASA-CASE-ARC-10812-1] c07 N76-18131

Modulated hydrogen ion flame detector  
 [NASA-CASE-ARC-10322-1] c35 N76-18403

Electrical conductivity cell and method for fabricating the same  
 [NASA-CASE-ARC-10810-1] c33 N76-19339

Method and apparatus for compensating reflection losses in a path length modulated absorption-absorption trace gas detector  
 [NASA-CASE-ARC-10631-1] c74 N76-20958

Trielectrode capacitive pressure transducer  
 [NASA-CASE-ARC-10711-2] c33 N76-21390

Nulling device for detection of trace gases by NDIR absorption  
 [NASA-CASE-ARC-10760-1] c25 N76-22323

Silica reusable surface insulation  
 [NASA-CASE-ARC-10721-1] c27 N76-22376

Optical alignment device  
 [NASA-CASE-ARC-10932-1] c74 N76-22993

Vehicle simulator binocular multiplanar visual display system  
 [NASA-CASE-ARC-10808-1] c09 N76-24280

Readout electrode assembly for measuring biological impedance  
 [NASA-CASE-ARC-10816-1] c35 N76-24525

Schlieren system employing antiparallel reflector in the forward direction  
 [NASA-CASE-ARC-10971-1] c09 N76-26224

System for measuring Reynolds in a turbulently flowing fluid  
 [NASA-CASE-ARC-10755-2] c34 N76-27517

Oblaque-wing supersonic aircraft  
 [NASA-CASE-ARC-10470-3] c05 N76-29217

Accelerometer telemetry system  
 [NASA-CASE-ARC-10849-1] c17 N76-29347

Miniature ingestible telemeter devices to measure deep-body temperature  
 [NASA-CASE-ARC-10583-1] c52 N76-29894

Visual examination apparatus  
 [NASA-CASE-RE-ARC-10329-2] c52 N76-30793

Integrated structure vacuum tube  
 [NASA-CASE-ARC-10445-1] c31 N76-31365

Ultraviolet and thermally stable polymer compositions  
 [NASA-CASE-ARC-10592-2] c27 N76-32315

Biomedical ultrasonoscope  
 [NASA-CASE-ARC-10994-1] c52 N76-33835

Thermistor holder for skin temperature measurements  
 [NASA-CASE-ARC-10855-1] c52 N77-10780

Spectrally balanced chromatic landing approach lighting system  
 [NASA-CASE-ARC-10990-1] c04 N77-12031

Smoke generator  
 [NASA-CASE-ARC-10905-1] c37 N77-13418

Electron microscope aperture system  
 [NASA-CASE-ARC-10448-3] c35 N77-14408

Liquid cooled brassiere and method of diagnosing malignant tumors therewith  
 [NASA-CASE-ARC-11007-1] c52 N77-14736

EKG and ultrasonoscope display  
 [NASA-CASE-ARC-10994-2] c52 N77-15619

A miniature implantable ultrasonic echosonometer  
 [NASA-CASE-ARC-11035-1] c52 N77-15621

Ringless helicopter rotor with improved stability  
 [NASA-CASE-ARC-10807-1] c05 N77-17029

Preparation of dielectric coatings of variable dielectric constant by plasma polymerization  
 [NASA-CASE-ARC-10892-2] c27 N77-17245

Contour detector and data acquisition system for the left ventricular outline  
 [NASA-CASE-ARC-10985-1] c52 N77-17701

The engine air intake system  
 [NASA-CASE-ARC-10761-1] c07 N77-18154

A reverse osmosis membrane of high urea rejection properties  
 [NASA-CASE-ARC-10980-1] c27 N77-18265

Spring operated accelerator and constant force spring mechanism therefor  
 [NASA-CASE-ARC-10898-1] c35 N77-18417

Rotating launch device for a remotely piloted aircraft  
 [NASA-CASE-ARC-10979-1] c09 N77-19076

Low density bismaleimide-carbon microballoon composites  
 [NASA-CASE-ARC-11040-1] c24 N77-19173

Tubular sublimatory evaporator heat sink  
 [NASA-CASE-ARC-10912-1] c34 N77-19353

Selective data segment monitoring system  
 [NASA-CASE-ARC-10899-1] c60 N77-19760

Oxygen post-treatment of plastic surfaces coated with plasma polymerized silicon-containing monomers  
 [NASA-CASE-ARC-10915-2] c27 N77-20256

All sky pointing attitude control system  
 [NASA-CASE-ARC-10716-1] c35 N77-20399

Metallic hot wire anemometer  
 [NASA-CASE-ARC-10911-1] c35 N77-20400

Optical instrument employing reticle having preselected visual response pattern formed thereon  
 [NASA-CASE-ARC-10976-1] c74 N77-22950

Induction powered biological radiosonde  
 [NASA-CASE-ARC-11120-1] c52 N77-23743

Abrasion resistant coatings for plastic surfaces  
 [NASA-CASE-ARC-10915-3] c24 N77-24200

Sampling video compression system  
 [NASA-CASE-ARC-10984-1] c32 N77-24328

Method for making a hot wire anemometer and product thereof  
 [NASA-CASE-ARC-10900-1] c35 N77-24454

Electric discharge for treatment of trace contaminants  
 [NASA-CASE-ARC-10975-1] c54 N77-24771

Pseudo-backscatter laser Doppler velocimeter employing antiparallel-reflector in the

forward direction  
[NASA-CASE-ARC-10970-1] c36 N77-25501

System for measuring three fluctuating velocity components in a turbulently flowing fluid  
[NASA-CASE-ARC-10974-1] c34 N77-27345

Constant lift rotor for a heavier than air craft  
[NASA-CASE-ARC-11045-1] c05 N77-28111

Process for the preparation of calcium superoxide  
[NASA-CASE-ARC-11053-1] c25 N77-29252

An improved controller arm for a remotely related slave arm  
[NASA-CASE-ARC-11052-1] c54 N77-30751

Acoustically swept rotor  
[NASA-CASE-ARC-11106-1] c05 N77-31130

Reduction of nitric oxide emissions from a combustor  
[NASA-CASE-ARC-10814-2] c25 N77-31260

Twin-capacitive shaft angle encoder with analog output signal  
[NASA-CASE-ARC-10897-1] c33 N77-31404

Anthropomorphic master/slave manipulator system  
[NASA-CASE-ARC-10756-1] c54 N77-32721

Preparation of heterocyclic block copolymer from perfluoroalkylene oxide alpha, omega-diamidoximes  
[NASA-CASE-ARC-11060-1] c27 N78-10292

Mechanical energy storage device for hip disarticulation  
[NASA-CASE-ARC-10916-1] c52 N78-10686

Improvements in microelectrophoretic apparatus and process  
[NASA-CASE-ARC-11121-1] c25 N78-11216

Indomethacin-antihistamine combination for gastric ulceration control  
[NASA-CASE-ARC-11118-1] c52 N78-11692

Fire protection covering for small diameter missiles  
[NASA-CASE-ARC-11104-1] c15 N78-13110

Optically selective, acoustically resonant gas detecting transducer  
[NASA-CASE-ARC-10639-1] c35 N78-13400

Intumescent coatings containing 4,4'-dinitrosulfanilide  
[NASA-CASE-ARC-11042-1] c24 N78-14096

Automatic multiple-sample applicator and electrophoresis apparatus  
[NASA-CASE-ARC-10991-1] c25 N78-14104

Flow separation detector  
[NASA-CASE-ARC-11046-1] c35 N78-14364

Honeycomb-laminate composite structure  
[NASA-CASE-ARC-10913-1] c24 N78-15180

Heat pipe with dual working fluids  
[NASA-CASE-ARC-10198] c34 N78-17336

Multi-chamber controllable heat pipe  
[NASA-CASE-ARC-10199] c34 N78-17337

Walking boot assembly  
[NASA-CASE-ARC-11101-1] c54 N78-17675

Full color hybrid display for aircraft simulators  
[NASA-CASE-ARC-10903-1] c09 N78-18083

Spacesuit mobility joints  
[NASA-CASE-ARC-11058-2] c54 N78-18763

Apparatus for measuring a sorbate dispersed in a fluid stream  
[NASA-CASE-ARC-10896-1] c35 N78-19465

Automatic fluid dispenser  
[NASA-CASE-ARC-10820-1] c35 N78-19466

Synthesis of multifunction triaryltrifluoroethanes  
[NASA-CASE-ARC-11097-1] c23 N78-22154

Synthesis of multifunction triaryltrifluoroethanes  
[NASA-CASE-ARC-11097-2] c23 N78-22155

Catalysts for imide formation from aromatic isocyanates and aromatic dianhydrides  
[NASA-CASE-ARC-11107-1] c23 N78-22156

Sweat collection capsule  
[NASA-CASE-ARC-11031-1] c54 N78-22720

Intumescent-ablator coatings using endothermic fillers  
[NASA-CASE-ARC-11043-1] c24 N78-27180

Low density bismaleimide-carbon microballoon composites  
[NASA-CASE-ARC-11040-2] c24 N78-27184

Chelate-modified polymers for atmospheric gas chromatography  
[NASA-CASE-ARC-11154-1] c27 N78-27275

Rotary leveling base platform  
[NASA-CASE-ARC-10981-1] c37 N78-27425

Tread drum for animals  
[NASA-CASE-ARC-10917-1] c51 N78-27733

Structural wood panels with improved fire resistance  
[NASA-CASE-ARC-11174-1] c24 N78-28178

Polymeric foams from cross-linkable poly-n-arylenebenzimidazoles  
[NASA-CASE-ARC-11008-1] c27 N78-31232

Boron trifluoride coatings for thermoplastic materials and method of applying same in glow discharge  
[NASA-CASE-ARC-11057-1] c27 N78-31233

Spacesuit mobility joints  
[NASA-CASE-ARC-11058-1] c54 N78-31735

Spacesuit torso closure  
[NASA-CASE-ARC-11100-1] c54 N78-31736

Fibrous refractory composite insulation  
[NASA-CASE-ARC-11169-1] c24 N78-32189

Process for preparing higher oxides of the alkali and alkaline earth metals  
[NASA-CASE-ARC-10992-1] c26 N78-32229

Reaction cured glass and glass coatings  
[NASA-CASE-ARC-11051-1] c27 N78-32260

Angle detector  
[NASA-CASE-ARC-11036-1] c35 N78-32395

Spray coating apparatus having a rotatable workpiece holder  
[NASA-CASE-ARC-11110-1] c37 N78-32434

Process for producing a well-adhered durable optical coating on an optical plastic substrate  
[NASA-CASE-ARC-11039-1] c74 N78-32854

Micro-fluid exchange coupling apparatus  
[NASA-CASE-ARC-11114-1] c52 N78-33717

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. HUGH L. DRYDEN FLIGHT RESEARCH CENTER, EDWARDS, CALIF.**

Fifth wheel  
[NASA-CASE-PRC-10081-1] c37 N77-14477

An improved free wing for an aircraft  
[NASA-CASE-PRC-10092-1] c05 N77-31135

Window comparator  
[NASA-CASE-PRC-10090-1] c33 N78-18308

Attaching of strain gages to substrates  
[NASA-CASE-PRC-10093-1] c35 N78-18393

An annular wing  
[NASA-CASE-PRC-11007-1] c02 N78-19055

A portable device particularly suited for use in starting air-start units for aircraft  
[NASA-CASE-PRC-10113-1] c09 N78-19166

Air speed and attitude probe  
[NASA-CASE-PRC-11009-1] c06 N78-25088

A signal attenuator  
[NASA-CASE-PRC-11012-1] c33 N78-28339

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. ELECTRONICS RESEARCH CENTER, CAMBRIDGE, MASS.**

Method and apparatus for wavelength tuning of liquid lasers  
[NASA-CASE-ERC-10187] c16 N69-31343

A method for the deposition of beta-silicon carbide by isopitaxy  
[NASA-CASE-ERC-10120] c26 N69-33482

Full flow with shut off and selective drainage control valve Patent application  
[NASA-CASE-ERC-10208] c15 N70-10867

A method for selective gold diffusion of monolithic silicon devices and/or circuits Patent application  
[NASA-CASE-ERC-10072] c09 N70-11148

Method and means for an improved electron beam scanning system Patent  
[NASA-CASE-ERC-10552] c09 N71-12539

Apparatus and method for separating a semiconductor wafer Patent  
[NASA-CASE-ERC-10138] c26 N71-14354

Focused image holography with extended sources Patent  
[NASA-CASE-ERC-10019] c16 N71-15551

Recording and reconstructing focused image holograms Patent  
[NASA-CASE-ERC-10017] c16 N71-15567

Sorption vacuum trap Patent  
[NASA-CASE-XER-09519] c14 N71-18483

Voltage tunable Gunn-type microwave generator Patent  
[NASA-CASE-XER-07894] c09 N71-18721

Array phasing device Patent  
[NASA-CASE-ERC-10046] c10 N71-18722

Parametric microwave noise generator Patent  
[NASA-CASE-XER-11019] c09 N71-23598

Saturation current protection apparatus for saturable core transformers Patent  
[NASA-CASE-ERC-10075] c09 N71-24800

Repetitively pulsed, wavelength selective laser Patent  
 [NASA-CASE-ERC-10178] c16 N71-24832  
 Optical mirror apparatus Patent  
 [NASA-CASE-ERC-10001] c23 N71-24868  
 Unsaturating saturable core transformer Patent  
 [NASA-CASE-ERC-10125] c09 N71-24893  
 Leak detector wherein a probe is monitored with ultraviolet radiation Patent  
 [NASA-CASE-ERC-10034] c15 N71-24896  
 Method for detecting leaks in hermetically sealed containers Patent  
 [NASA-CASE-ERC-10045] c15 N71-24910  
 Satellite aided vehicle avoidance system Patent  
 [NASA-CASE-ERC-10090] c21 N71-24948  
 Transverse piezoresistance and pinch effect electrorechanical transducers Patent  
 [NASA-CASE-ERC-10088] c26 N71-25490  
 A solid state acoustic variable time delay line Patent  
 [NASA-CASE-ERC-10032] c10 N71-25900  
 Method and means for recording and reconstructing holograms without use of a reference beam Patent  
 [NASA-CASE-ERC-10020] c16 N71-26154  
 Electromechanical control actuator system Patent  
 [NASA-CASE-ERC-10022] c15 N71-26635  
 Method and apparatus for detecting gross leaks Patent  
 [NASA-CASE-ERC-10033] c14 N71-26672  
 Field ionization electrodes Patent  
 [NASA-CASE-ERC-10013] c09 N71-26678  
 Voltage regulator Patent  
 [NASA-CASE-ERC-10113] c09 N71-27053  
 A multichannel photoionization chamber for absorption analysis Patent  
 [NASA-CASE-ERC-10044-1] c14 N71-27090  
 Pressure sensitive transducers Patent  
 [NASA-CASE-ERC-10087] c14 N71-27334  
 Constant frequency output two stage induction machine systems Patent  
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Variable thrust nozzle for quiet turbofan engine and method of operating same  
 [NASA-CASE-LEW-12317-1] c07 N78-17055

Gas turbine engine with convertible accessories  
 [NASA-CASE-LEW-12390-1] c07 N78-17056

Closed loop spray cooling apparatus  
 [NASA-CASE-LEW-11981-1] c31 N78-17237

Particle parameter analyzing system  
 [NASA-CASE-XLE-06094] c33 N78-17293

Magnetic heat pumping  
 [NASA-CASE-LEW-12508-1] c34 N78-17335

Variable cycle gas turbine engines  
 [NASA-CASE-LEW-12916-1] c37 N78-17384

Integrated gas turbine engine-nacelle  
 [NASA-CASE-LEW-12389-2] c07 N78-18066

Variable mixer propulsion cycle  
 [NASA-CASE-LEW-12917-1] c07 N78-18067

Tantalum modified ferritic iron base alloys  
 [NASA-CASE-LEW-12095-1] c26 N78-18182

Directionally solidified eutectic gamma-gamma nickel-base superalloys  
 [NASA-CASE-LEW-12905-1] c26 N78-18183

Thermal barrier coating system  
 [NASA-CASE-LEW-12554-1] c34 N78-18355

Selective coating for solar panels  
 [NASA-CASE-LEW-12159-1] c44 N78-19599

Atomic hydrogen storage method and apparatus  
 [NASA-CASE-LEW-12081-2] c72 N78-19907

Closed loop solar array-ion thruster system with power control circuitry  
 [NASA-CASE-LEW-12780-1] c20 N78-22149

In situ self cross-linking of polyvinyl alcohol battery separators  
 [NASA-CASE-LEW-12972-1] c23 N78-22157

Method for alleviating thermal stress damage in laminates  
 [NASA-CASE-LEW-12493-1] c24 N78-22163

High toughness-high strength iron alloy  
 [NASA-CASE-LEW-12542-2] c26 N78-22205

Atomic hydrogen storage method and apparatus  
 [NASA-CASE-LEW-12081-1] c28 N78-24365

Automotive gas turbine fuel control  
 [NASA-CASE-LEW-12785-1] c37 N78-24545

Gas turbine engine with recirculating bleed  
 [NASA-CASE-LEW-12452-1] c07 N78-25089

Counter pumping debris excluder and separator  
 [NASA-CASE-LEW-11855-1] c07 N78-25090

Apparatus for extraction and separation of a preferentially photo-dissociated molecular isotope into positive and negative ions by means of an electric field  
 [NASA-CASE-LEW-12465-1] c25 N78-25148

Formulated plastic separators for soluble electrode cells  
 [NASA-CASE-LEW-12358-2] c25 N78-25149

Liquid metal slip ring  
 [NASA-CASE-LEW-12277-2] c33 N78-25323

Flow compensating pressure regulator  
 [NASA-CASE-LEW-12718-1] c34 N78-25351

Solar cell collector  
 [NASA-CASE-LEW-12552-1] c44 N78-25527

Method of making encapsulated solar cell modules  
 [NASA-CASE-LEW-12185-1] c44 N78-25528

Method for producing solar energy panels by automation  
 [NASA-CASE-LEW-12541-1] c44 N78-25529

Inorganic-organic separators for alkaline batteries  
 [NASA-CASE-LEW-12649-1] c44 N78-25530

Solar cell system having alternating current output  
 [NASA-CASE-LEW-12806-1] c44 N78-25553

Electrochemical cell for rebalancing redox flow system  
 [NASA-CASE-LEW-13150-1] c44 N78-25554

Cesium thermionic converters having improved electrodes  
 [NASA-CASE-LEW-12038-3] c44 N78-25555

Improved back wall cell  
 [NASA-CASE-LEW-12236-2] c44 N78-25556

Method for fabricating solar cells having integral collector grids  
 [NASA-CASE-LEW-12819-2] c44 N78-25558

Supercritical fuel injection system  
 [NASA-CASE-LEW-12990-1] c07 N78-27122

Targets for producing high purity I-123  
 [NASA-CASE-LEW-10518-3] c25 N78-27226

Direct heating surface combustor  
 [NASA-CASE-LEW-11877-1] c34 N78-27357

Self-reconfiguring solar cell system  
 [NASA-CASE-LEW-12586-1] c44 N78-27520

Method of cold welding using ion beam technology  
 [NASA-CASE-LEW-12982-1] c37 N78-28459

Gas path seal  
 [NASA-CASE-LEW-12131-2] c07 N78-31103

Regulated high efficiency, lightweight  
 capacitor-diode multiplier dc to dc converter  
 [NASA-CASE-LEW-12791-1] c33 N78-32341

Redundant disc  
 [NASA-CASE-LEW-12496-1] c07 N78-33101

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.  
 HANDED SPACECRAFT CENTER, CAPE CANAVERAL, FLA.**

Electrode for biological recording  
 [NASA-CASE-XMS-02872] c05 N69-21925

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.  
 HANDED SPACECRAFT CENTER, LANGLEY STATION, VA.**

Plural recorder system  
 [NASA-CASE-XMS-06949] c09 N69-21467

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.  
 MARSHALL SPACE FLIGHT CENTER, HUNTSVILLE, ALA.**

Electrical feed-through connection for printed  
 circuit boards and printed cable  
 [NASA-CASE-XMF-01483] c14 N69-27431

Method for detecting hydrogen gas  
 [NASA-CASE-XMF-03873] c06 N69-39733

Electrical connector Patent Application  
 [NASA-CASE-MFS-14741] c09 N70-20737

Angular measurement system Patent  
 [NASA-CASE-XMF-00447] c14 N70-33179

Insulating structure Patent  
 [NASA-CASE-XMF-00341] c15 N70-33323

Space vehicle electrical system Patent  
 [NASA-CASE-XMF-00517] c03 N70-34157

Pivotal shock absorbing pad assembly Patent  
 [NASA-CASE-XMF-03856] c31 N70-34159

Gimbaled, partially submerged rocket nozzle Patent  
 [NASA-CASE-XMF-01544] c28 N70-34162

Recoverable rocket vehicle Patent  
 [NASA-CASE-XMF-00389] c31 N70-34176

Electrical discharge apparatus for forming Patent  
 [NASA-CASE-XMF-00375] c15 N70-34249

Optical inspection apparatus Patent  
 [NASA-CASE-XMF-00462] c14 N70-34298

Relay binary circuit Patent  
 [NASA-CASE-XMF-00421] c09 N70-34502

Attitude and propellant flow control system and  
 method Patent  
 [NASA-CASE-XMF-00185] c21 N70-34539

Electrical connector for flat cables Patent  
 [NASA-CASE-XMF-00324] c09 N70-34596

Externally pressurized fluid bearing Patent  
 [NASA-CASE-XMF-00515] c15 N70-34664

Force measuring instrument Patent  
 [NASA-CASE-XMF-00456] c14 N70-34705

Seismic displacement transducer Patent  
 [NASA-CASE-XMF-00479] c14 N70-34794

Electric arc welding Patent  
 [NASA-CASE-XMF-00392] c15 N70-34814

Assembly for recovering a capsule Patent  
 [NASA-CASE-XMF-00641] c31 N70-36410

Printed cable connector Patent  
 [NASA-CASE-XMF-00369] c09 N70-36494

Landing pad assembly for aerospace vehicles Patent  
 [NASA-CASE-XMF-02853] c31 N70-36654

Electric arc driven wind tunnel Patent  
 [NASA-CASE-XMF-00411] c11 N70-36913

Gravity device Patent  
 [NASA-CASE-XMF-00424] c11 N70-38196

Injector for bipropellant rocket engines Patent  
 [NASA-CASE-XMF-00148] c28 N70-38710

Electronic motor control system Patent  
 [NASA-CASE-XMF-01129] c09 N70-38712

Slosh suppressing device and method Patent  
 [NASA-CASE-XMF-00658] c12 N70-38997

Air bearing Patent  
 [NASA-CASE-XMF-00339] c15 N70-39896

Instrument support with precise lateral  
 adjustment Patent  
 [NASA-CASE-XMF-00480] c14 N70-39898

Segmented back-up bar Patent  
 [NASA-CASE-XMF-00640] c15 N70-39924

Collapsible loop antenna for space vehicle Patent  
 [NASA-CASE-XMF-00437] c07 N70-40202

Flexible back-up bar Patent  
 [NASA-CASE-XMF-00722] c15 N70-40204

Electro-optical alignment control system Patent  
 [NASA-CASE-XMF-00908] c14 N70-40238

Missile launch release system Patent  
 [NASA-CASE-XMF-03198] c30 N70-40353

Double-acting shock absorber Patent  
 [NASA-CASE-XMF-01045] c15 N70-40354

Portable alignment tool Patent  
 [NASA-CASE-XMF-01452] c15 N70-41371

Device for suppressing sound and heat produced  
 by high-velocity exhaust jets Patent  
 [NASA-CASE-XMF-01813] c28 N70-41582

Unfired-ceramic flange-resistant insulation and  
 method of making the same Patent  
 [NASA-CASE-XMF-01030] c18 N70-41583

Pulse counting circuit which simultaneously  
 indicates the occurrence of the nth pulse Patent  
 [NASA-CASE-XMF-00906] c09 N70-41655

Support apparatus for dynamic testing Patent  
 [NASA-CASE-XMF-01772] c11 N70-41677

Locking device with rolling detents Patent  
 [NASA-CASE-XMF-01371] c15 N70-41829

Tank construction for space vehicles Patent  
 [NASA-CASE-XMF-01899] c31 N70-41948

Positive displacement flowmeter Patent  
 [NASA-CASE-XMF-02822] c14 N70-41994

Hydraulic support for dynamic testing Patent  
 [NASA-CASE-XMF-03248] c11 N71-10604

Fiber optic vibration transducer and analyzer  
 Patent  
 [NASA-CASE-XMF-02433] c14 N71-10616

Method and means for damping nutation in a  
 satellite Patent  
 [NASA-CASE-XMF-00442] c31 N71-10747

Heat pipe thermionic diode power system Patent  
 [NASA-CASE-XMF-05843] c03 N71-11055

Synthesis of siloxane-containing epoxy polymers  
 Patent  
 [NASA-CASE-MFS-13994-1] c06 N71-11240

Bi-carrier demodulator with modulation Patent  
 [NASA-CASE-XMF-01160] c07 N71-11298

Harness assembly Patent  
 [NASA-CASE-MFS-14671] c05 N71-12341

Magnetic matrix memory system Patent  
 [NASA-CASE-XMF-05835] c08 N71-12504

Pulse amplitude and width detector Patent  
 [NASA-CASE-XMF-06519] c09 N71-12515

Microwave power receiving antenna Patent  
 [NASA-CASE-MFS-20333] c09 N71-13486

Hybrid holographic system using reflected and  
 transmitted object beams simultaneously Patent  
 [NASA-CASE-MFS-20074] c16 N71-15565

Reactance control system Patent  
 [NASA-CASE-XMF-01598] c21 N71-15583

Apparatus for welding torch angle and seam  
 tracking control Patent  
 [NASA-CASE-XMF-03287] c15 N71-15607

Multway vortex valve system Patent  
 [NASA-CASE-XMF-04709] c15 N71-15609

Injector assembly for liquid fueled rocket  
 engines Patent  
 [NASA-CASE-XMF-00968] c28 N71-15660

Space capsule ejection assembly Patent  
 [NASA-CASE-XMF-03169] c31 N71-15675

Air cushion lift pad Patent  
 [NASA-CASE-MFS-14685] c31 N71-15689

Method of making a molded connector Patent  
 [NASA-CASE-XMF-03498] c15 N71-15986

Regenerative braking system Patent  
 [NASA-CASE-XMF-01096] c10 N71-16030

Condition and condition duration indicator Patent  
 [NASA-CASE-XMF-01097] c10 N71-16058

Method and apparatus for securing to a  
 spacecraft Patent  
 [NASA-CASE-MFS-11133] c31 N71-16222

Method and apparatus of simulating zero gravity  
 conditions Patent  
 [NASA-CASE-MFS-12750] c27 N71-16223

Passive optical wind and turbulence detection  
 system Patent  
 [NASA-CASE-XMF-14032] c20 N71-16340

Serpentuator Patent  
 [NASA-CASE-XMF-05344] c31 N71-16345

Gravimeter Patent  
 [NASA-CASE-XMF-05844] c14 N71-17587

High pressure gas filter system Patent  
 [NASA-CASE-MFS-12806] c14 N71-17588

Burst diaphragm flow initiator Patent  
 [NASA-CASE-MFS-12915] c11 N71-17600

Vacuum deposition apparatus Patent  
 [NASA-CASE-XMF-01667] c15 N71-17647

Quick disconnect latch and handle combination Patent		Docking structure for spacecraft Patent	
[NASA-CASE-MFS-11132]	c15 N71-17649	[NASA-CASE-XMP-05941]	c31 N71-23912
Method and apparatus for precision sizing and joining of large diameter tubes Patent		High pressure helium purifier Patent	
[NASA-CASE-XMP-05114]	c15 N71-17650	[NASA-CASE-XMP-06888]	c15 N71-24044
Low temperature flexure fatigue cryostat Patent		Horizontal cryostat for fatigue testing Patent	
[NASA-CASE-XMP-02964]	c14 N71-17659	[NASA-CASE-XMP-10968]	c14 N71-24234
Precision stepping drive Patent		Method for leakage testing of tanks Patent	
[NASA-CASE-MFS-14772]	c15 N71-17692	[NASA-CASE-XMP-02392]	c32 N71-24285
Multi-mission module Patent		Internal flare angle gauge Patent	
[NASA-CASE-XMP-01543]	c31 N71-17730	[NASA-CASE-XMP-04415]	c14 N71-24693
Ratchet mechanism Patent		Pulse rise time and amplitude detector Patent	
[NASA-CASE-MFS-12805]	c15 N71-17805	[NASA-CASE-XMP-08804]	c09 N71-24717
Method of making impurity-type semiconductor electrical contacts Patent		System for maintaining a motor at a predetermined speed utilizing digital feedback means Patent	
[NASA-CASE-XMP-01016]	c26 N71-17818	[NASA-CASE-XMP-06892]	c09 N71-24805
Apparatus for the determination of the existence or non-existence of a bonding between two members Patent		Power system with heat pipe liquid coolant lines Patent	
[NASA-CASE-MFS-13686]	c15 N71-18132	[NASA-CASE-MFS-14114-2]	c09 N71-24807
Static inverters which sum a plurality of waves Patent		Magnetomotive metal working device Patent	
[NASA-CASE-XMP-00663]	c08 N71-18752	[NASA-CASE-XMP-03793]	c15 N71-24833
Space environmental work simulator Patent		Apparatus for determining the deflection of an electron beam impinging on a target Patent	
[NASA-CASE-MFS-07488]	c11 N71-18773	[NASA-CASE-XMP-06617]	c09 N71-24843
Space manufacturing machine Patent		Transistor servo system including a unique differential amplifier circuit Patent	
[NASA-CASE-MFS-20410]	c15 N71-19214	[NASA-CASE-XMP-05195]	c10 N71-24861
Extensometer Patent		RC rate generator for slow speed measurement Patent	
[NASA-CASE-XMP-04680]	c15 N71-19489	[NASA-CASE-XMP-02966]	c10 N71-24863
Mechanical simulator of low gravity conditions Patent		Method and apparatus for precision sizing and joining of large diameter tubes Patent	
[NASA-CASE-MFS-10555]	c11 N71-19494	[NASA-CASE-XMP-05114-3]	c15 N71-24865
Weld control system using thermocouple wire Patent		Duct coupling for single-handed operation Patent	
[NASA-CASE-MFS-06074]	c15 N71-20393	[NASA-CASE-MFS-20395]	c15 N71-24903
Evaporant source for vapor deposition Patent		Brushless direct current tachometer Patent	
[NASA-CASE-XMP-06065]	c15 N71-20395	[NASA-CASE-MFS-20385]	c09 N71-24904
Satellite despin device Patent		Self-lubricating gears and other mechanical parts Patent	
[NASA-CASE-XMP-08523]	c31 N71-20396	[NASA-CASE-MFS-14971]	c15 N71-24984
Method of coating circuit paths on printed circuit boards with solder Patent		Pulse width inverter Patent	
[NASA-CASE-XMP-01599]	c09 N71-20705	[NASA-CASE-MFS-10068]	c10 N71-25139
Elastomeric silazane polymers and process for preparing the same Patent		Isothermal cover with thermal reservoirs Patent	
[NASA-CASE-XMP-04133]	c06 N71-20717	[NASA-CASE-MFS-20355]	c33 N71-25353
Method of producing alternating ether siloxane copolymers Patent		Storage container for electronic devices Patent	
[NASA-CASE-XMP-02584]	c06 N71-20905	[NASA-CASE-MFS-20075]	c09 N71-26133
Honeycomb panel and method of making same Patent		Method and apparatus for precision sizing and joining of large diameter tubes Patent	
[NASA-CASE-XMP-01402]	c18 N71-21651	[NASA-CASE-XMP-05114-2]	c15 N71-26148
Portable milling tool Patent		Filter system for control of outgas contamination in vacuum Patent	
[NASA-CASE-XMP-03511]	c15 N71-22799	[NASA-CASE-MFS-14711]	c15 N71-26185
Energy absorbing device Patent		Image magnification adapter for cameras Patent	
[NASA-CASE-MFS-10040]	c15 N71-22877	[NASA-CASE-XMP-03844-1]	c14 N71-26474
Continuous detonation reaction engine Patent		Thickness measuring and injection device Patent	
[NASA-CASE-XMP-06926]	c28 N71-22983	[NASA-CASE-MFS-20261]	c14 N71-27005
Adaptive tracking notch filter system Patent		Personal propulsion unit Patent	
[NASA-CASE-XMP-01892]	c10 N71-22986	[NASA-CASE-MFS-20130]	c28 N71-27585
Meteorological balloon Patent		Power system with heat pipe liquid coolant lines Patent	
[NASA-CASE-XMP-04163]	c02 N71-23007	[NASA-CASE-MFS-14114]	c33 N71-27862
Continuous turning slip ring assembly Patent		Method of making shielded flat cable Patent	
[NASA-CASE-XMP-01049]	c15 N71-23049	[NASA-CASE-MFS-13687]	c09 N71-28691
Automatic welding speed controller Patent		A dc motor speed control system Patent	
[NASA-CASE-XMP-01730]	c15 N71-23050	[NASA-CASE-MFS-14610]	c09 N71-28886
Positive dc to positive dc converter Patent		Cryogenic thermal insulation Patent	
[NASA-CASE-XMP-14301]	c09 N71-23188	[NASA-CASE-XMP-05046]	c33 N71-28892
Zero gravity apparatus Patent		Method of coating through-holes Patent	
[NASA-CASE-XMP-06515]	c14 N71-23227	[NASA-CASE-XMP-05999]	c15 N71-29032
Positive dc to negative dc converter Patent		Response analyzers for sensors Patent	
[NASA-CASE-XMP-08217]	c03 N71-23239	[NASA-CASE-MFS-11204]	c14 N71-29134
Evacuation port seal Patent		Current regulating voltage divider Patent	
[NASA-CASE-XMP-03290]	c15 N71-23256	[NASA-CASE-MFS-20935]	c09 N71-34212
Azimuth laying system Patent		Nuclear mass flowmeter Patent	
[NASA-CASE-XMP-01669]	c21 N71-23289	[NASA-CASE-MFS-20485]	c14 N72-11365
Electron beam instrument for measuring electric fields Patent		Fine adjustment mount Patent	
[NASA-CASE-XMP-10289]	c14 N71-23699	[NASA-CASE-MFS-20249]	c15 N72-11386
Anemometer with braking mechanism Patent		Method of making foamed materials in zero gravity Patent	
[NASA-CASE-XMP-05224]	c14 N71-23726	[NASA-CASE-XMP-09902]	c15 N72-11387
Apparatus for testing a pressure responsive instrument Patent		Air bearing assembly for curved surfaces Patent	
[NASA-CASE-XMP-04134]	c14 N71-23755	[NASA-CASE-MFS-20423]	c15 N72-11388
Electric welding torch Patent		Stud-bonding gun Patent	
[NASA-CASE-XMP-02330]	c15 N71-23798	[NASA-CASE-MFS-20299]	c15 N72-11392
Swivel support for gas bearings Patent		Holographic stress analyzer for solder joints Patent	
[NASA-CASE-XMP-07808]	c15 N71-23812	[NASA-CASE-MFS-20687]	c16 N72-11415
Welding skate with computerized control Patent		Apparatus for obtaining isotropic irradiation of a specimen Patent	
[NASA-CASE-XMP-07069]	c15 N71-23815	[NASA-CASE-MFS-20095]	c24 N72-11595

Wind tunnel test section [NASA-CASE-MFS-20509]	c11 N72-17183	Underwater space suit pressure control regulator [NASA-CASE-MFS-20332-2]	c05 N73-25125
Multiple image storing system for high speed projectile holography [NASA-CASE-MFS-20596]	c14 N72-17324	Maxometers (peak wind speed anemometers) [NASA-CASE-MFS-20916]	c14 N73-25460
Method of manufacturing semiconductor devices using refractory dielectrics [NASA-CASE-XER-08476-1]	c26 N72-17820	Monitoring deposition of films [NASA-CASE-MFS-20675]	c26 N73-26751
Underwater space suit pressure control regulator [NASA-CASE-MFS-20332]	c05 N72-20097	Docking structure for spacecraft [NASA-CASE-MFS-20863]	c31 N73-26876
Apparatus for making diamonds [NASA-CASE-MFS-20698]	c15 N72-20446	Wide temperature range electronic device with lead attachment [NASA-CASE-ERC-10224-2]	c09 N73-27150
An airlock [NASA-CASE-MFS-20922]	c31 N72-20840	Restraint system for ergometer [NASA-CASE-MFS-21046-1]	c14 N73-27377
Photoetching of metal-oxide layers [NASA-CASE-ERC-10108]	c06 N72-21094	Apparatus and method for skin packaging articles [NASA-CASE-MFS-20855]	c15 N73-27405
Liquid aerosol dispenser [NASA-CASE-MFS-20829]	c12 N72-21310	Ergometer [NASA-CASE-MFS-21109-1]	c05 N73-27941
Optical probing of supersonic flows with statistical correlation [NASA-CASE-MFS-20642]	c14 N72-21407	Tilting table for ergometer and for other biomedical devices [NASA-CASE-MFS-21010-1]	c05 N73-30078
Mechanically actuated triggered hand [NASA-CASE-MFS-20413]	c15 N72-21463	Measurement system [NASA-CASE-MFS-20658-1]	c14 N73-30386
Hermetically sealed elbow actuator [NASA-CASE-MFS-14710]	c09 N72-22195	Collimator of multiple plates with axially aligned identical random arrays of apertures [NASA-CASE-MFS-20546-2]	c14 N73-30389
Shielded flat cable [NASA-CASE-MFS-13687-2]	c09 N72-22198	Holographic thin film analyzer [NASA-CASE-MFS-20823-1]	c16 N73-30476
Shock wave convergence apparatus [NASA-CASE-MFS-20890]	c14 N72-22439	Semiconductor surface protection material [NASA-CASE-ERC-10339-1]	c18 N73-30532
Bonding of reinforced Teflon to metals [NASA-CASE-MFS-20482]	c15 N72-22492	Polymerizable disiloxanes having in-chain perfluoroalkyl groups [NASA-CASE-MFS-20979-2]	c06 N73-32030
Inorganic thermal control coatings [NASA-CASE-MFS-20011]	c18 N72-22566	Redundant speed control for brushless Hall effect motor [NASA-CASE-MFS-20207-1]	c09 N73-32107
High temperature furnace for melting materials in space [NASA-CASE-MFS-20710]	c11 N72-23215	Induction motor control system with voltage controlled oscillator circuit [NASA-CASE-MFS-21465-1]	c10 N73-32145
Siloxane containing epoxide compounds [NASA-CASE-MFS-13994-2]	c06 N72-25148	Synthesis of superconducting compounds by explosive compaction of powders [NASA-CASE-MFS-20861-1]	c18 N73-32437
Silphenylenesiloxane polymers having in-chain perfluoroalkyl groups [NASA-CASE-MFS-20979]	c06 N72-25151	Ultrasonic scanner for radial and flat panels [NASA-CASE-MFS-20335-1]	c35 N74-10415
Emergency lunar communications system [NASA-CASE-MFS-21042]	c07 N72-25171	Digital computing cardiometer [NASA-CASE-MFS-20284-1]	c52 N74-12778
Lead attachment to high temperature devices [NASA-CASE-ERC-10224]	c09 N72-25261	Integrated circuit package with lead structure and method of preparing the same [NASA-CASE-MFS-21374-1]	c33 N74-12951
Device for measuring bearing preload [NASA-CASE-MFS-20434]	c11 N72-25288	Vee-notching device [NASA-CASE-MFS-20730-1]	c39 N74-13131
Altitude simulation chamber for rocket engine testing [NASA-CASE-MFS-20620]	c11 N72-27262	Ultrasonic scanning system for in-place inspection of brazed tube joints [NASA-CASE-MFS-20767-1]	c38 N74-15130
Fixture for supporting articles during vibration tests [NASA-CASE-MFS-20523]	c14 N72-27412	Method and apparatus for checking the stability of a setup for making reflection type holograms [NASA-CASE-MFS-21455-1]	c35 N74-15146
Electrical connector [NASA-CASE-MFS-20757]	c09 N72-28225	Method and apparatus for nondestructive testing [NASA-CASE-MFS-21233-1]	c38 N74-15395
Remote control manipulator for zero gravity environment [NASA-CASE-MFS-14405]	c15 N72-28495	Real time moving scene holographic camera system [NASA-CASE-MFS-21087-1]	c35 N74-17153
Thermal compensating structural member [NASA-CASE-MFS-20433]	c15 N72-28496	Nonflammable coating compositions [NASA-CASE-MFS-20486-2]	c27 N74-17283
Semiconductor transducer device [NASA-CASE-ERC-10087-2]	c14 N72-31446	Metering gun for dispensing precisely measured charges of fluid [NASA-CASE-MFS-21163-1]	c54 N74-17853
Coaxial high density, hypervelocity plasma generator and accelerator with ionizable metal disc [NASA-CASE-MFS-20589]	c25 N72-32688	Omnidirectional wheel [NASA-CASE-MFS-21309-1]	c37 N74-18125
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 [NASA-CASE-NPO-11458A] c20 N78-32179

Coal desulfurization  
 [NASA-CASE-NPO-14272-1] c25 N78-33164

Thermoplastic rubber comprising ethylene-vinyl  
 acetate copolymer, asphalt and fluxing oil  
 [NASA-CASE-NPO-8835] c27 N78-33228

Hydrogen-fueled engine  
 [NASA-CASE-NPO-13763-1] c44 N78-33526

Optical probe  
 [NASA-CASE-NPO-14247-1] c52 N78-33715

Plural output optometric sample cell and  
 analysis system  
 [NASA-CASE-NPO-10233-1] c74 N78-33913

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,  
 WESTERN OPERATIONS OFFICE, SANTA MONICA, CALIF.**

Automatic pump Patent  
 [NASA-CASE-XNP-04731] c15 N71-24042

**NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.**

Densitometer Patent  
 [NASA-CASE-XLE-00688] c14 N70-41330

**NATIONAL BUREAU OF STANDARDS, WASHINGTON, D. C.**

Microwave integrated circuit for Josephson  
 voltage standards  
 [NASA-CASE-MFS-23845-1] c33 N78-32347

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,  
 BOULDER, COLO.**

Determining distance to lightning strokes from a  
 single station  
 [NASA-CASE-KSC-10698] c07 N73-20175

**NATIONAL RESEARCH CORP., CAMBRIDGE, MASS.**

Gauge calibration by diffusion  
 [NASA-CASE-XGS-07752] c14 N73-30390

Ultrahigh vacuum measuring ionization gauge  
 [NASA-CASE-XLA-05087] c14 N73-30391

Apparatus for absolute pressure measurement  
 [NASA-CASE-LAR-10000] c14 N73-30394

Ultrahigh vacuum gauge having two collector  
 electrodes  
 [NASA-CASE-LAR-02743] c14 N73-32324

Rock sampling  
 [NASA-CASE-XNP-10007-1] c46 N74-23068

Rock sampling  
 [NASA-CASE-XNP-09755] c46 N74-23069

**NORTH AMERICAN AVIATION, INC., CANOGA PARK, CALIF.**

Method of joining aluminum to stainless steel  
 Patent  
 [NASA-CASE-MFS-07369] c15 N71-20443

Propellant mass distribution metering apparatus  
 Patent  
 [NASA-CASE-NPO-10185] c10 N71-26339

Safety-type locking pin  
 [NASA-CASE-MFS-18495] c15 N72-11385

Hydrogen fire detection system with logic  
 circuit to analyze the spectrum of temporal  
 variations of the optical spectrum  
 [NASA-CASE-MFS-13130] c10 N72-17173

**NORTH AMERICAN AVIATION, INC., DOWNEY, CALIF.**

Heat shield oven  
 [NASA-CASE-XMS-04318] c15 N69-27871

Extensible cable support Patent  
 [NASA-CASE-XMP-07587] c15 N71-18701

High pressure air valve Patent  
 [NASA-CASE-MSC-11010] c15 N71-19485

Load relieving device Patent  
 [NASA-CASE-XMS-06329-1] c15 N71-20441

Optical projector system Patent  
 [NASA-CASE-XNP-03853] c23 N71-21882

Brazing alloy Patent  
 [NASA-CASE-XNP-03063] c17 N71-23365

Vibrophonocardiograph Patent  
 [NASA-CASE-XFR-07172] c05 N71-27234

**NORTH AMERICAN AVIATION, INC., EL SEGUNDO, CALIF.**

Aerodynamic spike nozzle Patent  
 [NASA-CASE-XGS-01143] c31 N71-15647

Expanding center probe and drogue Patent  
 [NASA-CASE-XMS-03613] c31 N71-16346

Radio frequency shielded enclosure  
 [NASA-CASE-XMP-09422] c07 N71-19436

High impedance measuring apparatus Patent  
 [NASA-CASE-XMS-08589-1] c09 N71-20569

Latching mechanism Patent  
 [NASA-CASE-XMS-03745] c15 N71-21076

Tube dimpling tool Patent  
 [NASA-CASE-XMS-06876] c15 N71-21536

Positive locking check valve Patent  
 [NASA-CASE-XMS-09310] c15 N71-22706

Etching of aluminum for bonding Patent  
 [NASA-CASE-XMP-02303] c17 N71-23828

Method and apparatus for varying thermal  
 conductivity Patent  
 [NASA-CASE-INP-05524] c33 N71-24876

Purge device for thrust engines Patent  
 [NASA-CASE-XMS-04826] c28 N71-28849

Method and construction for protecting heat  
 sensitive bodies from thermal radiation and  
 convective heat Patent  
 [NASA-CASE-XNP-01310] c33 N71-28852

Propellant tank pressurization system Patent  
 [NASA-CASE-XNP-00650] c27 N71-28929

Spherical shield Patent  
 [NASA-CASE-XNP-01855] c15 N71-28937

Universal restrainer and joint Patent  
 [NASA-CASE-XNP-02278] c15 N71-28951

Method and device for cooling Patent  
 [NASA-CASE-BQN-00938] c33 N71-29053

**NORTH AMERICAN AVIATION, INC., LOS ANGELES, CALIF.**

Method and system for respiration analysis Patent  
 [NASA-CASE-XPR-08403] c05 N71-11202

**NORTH AMERICAN AVIATION, INC., TORRANCE, CALIF.**

Method and apparatus for detection and location  
 of macroleaks Patent  
 [NASA-CASE-XMP-02307] c14 N71-10779

**NORTH AMERICAN ROCKWELL CORP., CANOGA PARK, CALIF.**

Noncontaminating swabs  
 [NASA-CASE-MFS-18100] c15 N72-11390

Observation window for a gas confining chamber  
 [NASA-CASE-NPO-10890] c11 N73-12265

Droplet monitoring probe  
 [NASA-CASE-NPO-10985] c14 N73-20478

Circuit board package with wedge shaped covers  
 [NASA-CASE-MFS-21919-1] c10 N73-25243

Heat flow calorimeter  
 [NASA-CASE-GSC-11434-1] c34 N74-27859

**NORTH AMERICAN ROCKWELL CORP., DOWNEY, CALIF.**

Spacecraft Patent  
 [NASA-CASE-MSC-13047-1] c31 N71-25434

Latching mechanism Patent  
 [NASA-CASE-MSC-15474-1] c15 N71-26162

Dye penetrant for surfaces subsequently  
 contacted by liquid oxygen Patent  
 [NASA-CASE-XNP-02221] c18 N71-27170

Aircraft crash locator apparatus  
 [NASA-CASE-MFS-16609] c14 N72-21431

Frangible link  
 [NASA-CASE-MSC-11849-1] c15 N72-22488

Impact monitoring apparatus  
 [NASA-CASE-MSC-15626-1] c14 N72-25411

Bonding or repairing process  
 [NASA-CASE-MSC-12357] c15 N73-12489

Self-cycling fluid heater  
 [NASA-CASE-MSC-15567-1] c33 N73-16918

Phase protection system for ac power lines  
 [NASA-CASE-MSC-17832-1] c33 N74-14956

Apparatus for remote handling of materials  
 [NASA-CASE-LAR-10634-1] c37 N74-18123

Grain refinement control in TIG arc welding  
 [NASA-CASE-MSC-19095-1] c37 N75-19683

**NORTH AMERICAN ROCKWELL CORP., EL SEGUNDO, CALIF.**

Apparatus for testing wiring harness by  
 vibration generating means  
 [NASA-CASE-MSC-15158-1] c14 N72-17325

**NORTH AMERICAN ROCKWELL CORP., LOS ANGELES, CALIF.**

Tactile sensing means for prosthetic limbs  
 [NASA-CASE-MFS-16570-1] c05 N73-32013

**NORTH CAROLINA STATE UNIV., RALEIGH.**

Thermal shock resistant hafnia ceramic material  
 [NASA-CASE-LAR-10894-1] c18 N73-14584

Thermal shock and erosion resistant tantalum  
 carbide ceramic material  
 [NASA-CASE-LAR-11902-1] c27 N78-17206

**NORTHEASTERN UNIV., BOSTON, MASS.**

Pulse-width modulation multiplier Patent  
 [NASA-CASE-XER-09213] c07 N71-12390

**NORTHROP CORP., HAWTHORNE, CALIF.**

Shock tube bypass piston tunnel  
 [NASA-CASE-NPO-12109] c11 N72-22245

Folding structure fabricated of rigid panels  
[NASA-CASE-XHQ-02146] c18 N75-27040

**NORTHROP NORTHROPICS, PALOS VERDES PENINSULA, CALIF.**  
Method of making dry electrodes  
[NASA-CASE-FRC-10029-2] c05 N72-25121

Valve seat  
[NASA-CASE-NPO-10606] c15 N72-25451

**NORTHROP SPACE LABS., HAWTHORNE, CALIF.**  
Method of evaluating moisture barrier properties  
of encapsulating materials Patent  
[NASA-CASE-NPO-10051] c18 N71-24934

**NORTHROPICS, PALOS VERDES PENINSULA, CALIF.**  
Flexible conductive disc electrode Patent  
[NASA-CASE-FRC-10029] c09 N71-24618

Gas low pressure low flow rate metering system  
Patent  
[NASA-CASE-FRC-10022] c12 N71-26546

Method of removing insulated material from  
insulated wires  
[NASA-CASE-FRC-10038] c15 N72-20444

**NOTRE DAME UNIV., IND.**  
Synthesis of polymeric schiff bases by  
schiff-base exchange reactions Patent  
[NASA-CASE-XMF-08651] c06 N71-11236

Direct synthesis of polymeric schiff bases from  
two amines and two aldehydes Patent  
[NASA-CASE-XMF-08655] c06 N71-11239

Azine polymers and process for preparing the  
same Patent  
[NASA-CASE-XMF-08656] c06 N71-11242

Synthesis of polymeric schiff bases by reaction  
of acetals and amine compounds Patent  
[NASA-CASE-XMF-08652] c06 N71-11243

Aromatic diamine-aromatic dialdehyde high  
molecular weight schiff base polymers prepared  
in a monofunctional schiff base Patent  
[NASA-CASE-XMF-03074] c06 N71-24740

## O

**OAKLAND UNIV., ROCHESTER, MICH.**  
Optical process for producing classification  
maps from multispectral data  
[NASA-CASE-MSC-14472-1] c43 N77-10584

An interactive color display for multispectral  
imagery using correlation clustering  
[NASA-CASE-MSC-16253-1] c43 N77-31583

**OCCIDENTAL RESEARCH CORP., LA VERNE, CALIF.**  
Process for preparing higher oxides of the  
alkali and alkaline earth metals  
[NASA-CASE-ARC-10992-1] c26 N78-32229

**OHIO STATE UNIV., COLUMBUS.**  
Horn antenna having V-shaped corrugated slots  
[NASA-CASE-LAR-11112-1] c32 N76-15330

Distributed-switch diode radiometer  
[NASA-CASE-GSC-12219-1] c43 N78-22436

**OLD DOMINION UNIV., NORFOLK, VA.**  
Instrumentation for measuring aircraft noise and  
sonic boom  
[NASA-CASE-LAR-11476-1] c07 N76-27232

Differential sound level meter  
[NASA-CASE-LAR-12106-1] c71 N78-14867

**OLD DOMINION UNIV. RESEARCH FOUNDATION, NORFOLK, VA.**  
High-temperature microphone system  
[NASA-CASE-LAR-12375-1] c32 N78-23275

**ORGANON DIAGNOSTICS, EL MONTE, CALIF.**  
Water system virus detection  
[NASA-CASE-MSC-16098-1] c51 N77-24755

## P

**PACKARD-BELL ELECTRONICS CORP., NEWBURY PARK, CALIF.**  
Optical alignment system Patent  
[NASA-CASE-XNP-02029] c14 N70-41955

**PANAURA CORP., PENNSAUKEN, N. J.**  
Method of forming transparent films of ZnO  
[NASA-CASE-FRC-10019] c15 N73-12487

**PENINSULAR CHEMRESEARCH, INC., GAINESVILLE, FLA.**  
Hydroxy terminated perfluoro ethers Patent  
[NASA-CASE-NPO-10768] c06 N71-27254

Perfluoro polyether acyl fluorides  
[NASA-CASE-NPO-10765] c06 N72-20121

Polyurethane resins from hydroxy terminated  
perfluoro ethers  
[NASA-CASE-NPO-10768-2] c06 N72-27144

Highly fluorinated polyurethanes  
[NASA-CASE-NPO-10767-2] c06 N72-27151

Highly fluorinated polyurethanes  
[NASA-CASE-NPO-10767-1] c06 N73-33076

**PHILCO-FORD CORP., HOUSTON, TEX.**  
Frequency modulation demodulator threshold  
extension device Patent  
[NASA-CASE-MSC-12165-1] c07 N71-33696

**PHILCO-FORD CORP., NEWPORT BEACH, CALIF.**  
Mechanically extendible telescoping boom  
[NASA-CASE-NPO-11118] c03 N72-25021

**PHILCO-FORD CORP., PALO ALTO, CALIF.**  
Composite antenna feed  
[NASA-CASE-GSC-11046-1] c07 N73-28013

Amplitude steered array  
[NASA-CASE-GSC-11446-1] c33 N74-20860

**PITTSBURGH UNIV., PA.**  
Device for the detection of phenol and related  
compounds  
[NASA-CASE-LEW-12513-1] c25 N77-18238

**PRATT AND WHITNEY AIRCRAFT, EAST HARTFORD, CONN.**  
Liquid-gas separation system Patent  
[NASA-CASE-XMS-01624] c15 N70-40062

Vibration damping system Patent  
[NASA-CASE-XMS-01620] c23 N71-15673

Vapor pressure measuring system and method Patent  
[NASA-CASE-XMS-01618] c14 N71-20741

Sealing member and combination thereof and  
method of producing said sealing member Patent  
[NASA-CASE-XMS-01625] c15 N71-23022

## Q

**QUANTUM DYNAMICS, TARZANA, CALIF.**  
Respiratory analysis system and method  
[NASA-CASE-MSC-13436-1] c05 N73-32015

## R

**RADIATION, INC., MELBOURNE, FLA.**  
Remote platform power conserving system  
[NASA-CASE-GSC-11182-1] c15 N75-13007

**RADIATION INSTRUMENT DEVELOPMENT LAB., INC.,  
MELROSE PARK, ILL.**  
High speed binary to decimal conversion system  
Patent  
[NASA-CASE-XGS-01230] c08 N71-19544

**RADIATION SYSTEMS, INC., MCLEAN, VA.**  
Monopulse tracking system Patent  
[NASA-CASE-XGS-01155] c10 N71-21483

**RADIO CORP. OF AMERICA, LANCASTER, PA.**  
Bonding graphite with fused silver chloride  
[NASA-CASE-XGS-00963] c15 N69-39735

**RADIO CORP. OF AMERICA, MOORESTOWN, N. J.**  
An improved solar cell and method of forming the  
same  
[NASA-CASE-NPO-14205-1] c44 N78-27541

**RADIO CORP. OF AMERICA, NEW YORK.**  
Water cooled contactor for anode in carbon arc  
mechanism  
[NASA-CASE-XMS-03700] c15 N69-24266

Apparatus for ballasting high frequency  
transistors  
[NASA-CASE-XGS-05003] c09 N69-24318

Helical coaxial resonator RF filter  
[NASA-CASE-XGS-02816] c07 N69-24323

Radiation resistant silicon semiconductor  
devices Patent  
[NASA-CASE-XGS-07801] c09 N71-12513

GaAs solar detector using manganese as a doping  
agent Patent  
[NASA-CASE-XNP-01328] c26 N71-18064

Thermocouple assembly Patent  
[NASA-CASE-XNP-01659] c14 N71-23039

Method of erasing target material of a vidicon  
tube or the like Patent  
[NASA-CASE-XNP-06028] c09 N71-23189

Transient augmentation circuit for pulse  
amplifiers Patent  
[NASA-CASE-XNP-01068] c10 N71-28739

**RADIO CORP. OF AMERICA, PRINCETON, N. J.**  
Connector strips-positive, negative and T tabs  
[NASA-CASE-XGS-01395] c03 N69-21539

Solar cell including second surface mirrors Patent  
[NASA-CASE-NPO-10109] c03 N71-11049

Collapsible reflector Patent  
[NASA-CASE-XMS-03454] c09 N71-20658

Simple method of making photovoltaic junctions  
Patent  
[NASA-CASE-XNP-01960] c09 N71-23027

Method of electrolytically binding a layer of  
semiconductors together Patent  
[NASA-CASE-XNP-01959] c26 N71-23043

- Method and apparatus for distillation of liquids Patent  
[NASA-CASE-XNP-08124] c15 N71-27188
- Maximum power point tracker Patent  
[NASA-CASE-GSC-10376-1] c14 N71-27407
- Method of changing the conductivity of vapor deposited gallium arsenide by the introduction of water into the vapor deposition atmosphere Patent  
[NASA-CASE-XNP-01961] c26 N71-29156
- Radial heat flux transformer  
[NASA-CASE-NFO-10828] c33 N72-17948
- Target acquisition antenna  
[NASA-CASE-GSC-10064-1] c10 N72-22235
- Method for distillation of liquids  
[NASA-CASE-XNP-08124-2] c06 N73-13129
- Hermetically sealed semiconductor  
[NASA-CASE-GSC-10791-1] c15 N73-14469
- Thermal flux transfer system  
[NASA-CASE-NPO-12070-1] c28 N73-32606
- Rotary solenoid shutter drive assembly and rotary inertia damper and stop plate assembly  
[NASA-CASE-GSC-11560-1] c33 N74-20861
- Frequency measurement by coincidence detection with standard frequency  
[NASA-CASE-MSC-14649-1] c33 N76-16331
- RAND CORP., SANTA MONICA, CALIF.**  
Satellite communication system Patent  
[NASA-CASE-XNP-02389] c07 N71-28900
- RAYMOND ENGINEERING LAB., INC., MIDDLETOWN, CONN.**  
Synchronous servo loop control system Patent  
[NASA-CASE-NXP-03744] c10 N71-20448
- RAYTHEON CO., SUDBURY, MASS.**  
Laser Doppler system for measuring three dimensional vector velocity Patent  
[NASA-CASE-MFS-20386] c21 N71-19212
- Clear air turbulence detector  
[NASA-CASE-MFS-21244-1] c36 N75-15028
- RCA SERVICE CO., INC., CAMDEN, N. J.**  
Apparatus for inspecting microfilm Patent  
[NASA-CASE-MFS-20240] c14 N71-26788
- RENSSELAER POLYTECHNIC INST., TROY, N. Y.**  
Coincidence apparatus for detecting particles  
[NASA-CASE-XIA-07813] c14 N72-17328
- Dual acting slit control mechanism  
[NASA-CASE-LAR-11370-1] c35 N78-32399
- RESEARCH TRIANGLE INST., DURHAM, N. C.**  
Semiconductor p-n junction stress and strain sensor  
[NASA-CASE-XIA-04980] c09 N69-27422
- ROCHESTER UNIV., N. Y.**  
Concave grating spectrometer Patent  
[NASA-CASE-IGS-01036] c14 N70-40003
- ROCKETDYNE, CANOGA PARK, CALIF.**  
Frequency to analog converter Patent  
[NASA-CASE-XNP-07040] c08 N71-12500
- Load cell protection device Patent  
[NASA-CASE-XMS-06782] c32 N71-15974
- Thermobulb mount Patent  
[NASA-CASE-NPO-10158] c33 N71-16356
- Laminar flow enhancement Patent  
[NASA-CASE-NPO-10122] c12 N71-17631
- Temperature sensitive flow regulator Patent  
[NASA-CASE-MFS-14259] c15 N71-19213
- Hydrogen leak detection device Patent  
[NASA-CASE-MFS-11537] c14 N71-20442
- Technique of elbow bending small jacketed transfer lines Patent  
[NASA-CASE-XNP-10475] c15 N71-24679
- Gas liquefaction and dispensing apparatus Patent  
[NASA-CASE-NPO-10070] c15 N71-27372
- Locking device for turbine rotor blades Patent  
[NASA-CASE-XNP-00816] c28 N71-28928
- Laser camera and diffusion filter therefore Patent  
[NASA-CASE-NPO-10417] c16 N71-33410
- Hydrazinium nitroformate propellant stabilized with nitroguanidine  
[NASA-CASE-NPO-12000] c27 N72-25699
- Hydrazinium nitroformate propellant with saturated polymeric hydrocarbon binder  
[NASA-CASE-NPO-12015] c27 N73-16764
- Novel polymers and method of preparing same  
[NASA-CASE-NPO-10998-1] c06 N73-32029
- Internally supported flexible duct joint  
[NASA-CASE-MFS-19193-1] c37 N75-19686
- Method of heat treating age-hardenable alloys  
[NASA-CASE-XNP-01311] c26 N75-29236
- Thrust measurement  
[NASA-CASE-XMS-05731] c35 N75-29382
- Device for installing rocket engines  
[NASA-CASE-MFS-19220-1] c20 N76-22296
- ROCKWELL INTERNATIONAL CORP., CANOGA PARK, CALIF.**  
Brazing alloy binder  
[NASA-CASE-XNP-05868] c26 N75-27125
- Brazing alloy composition  
[NASA-CASE-XNP-06053] c26 N75-27126
- Brazing alloy  
[NASA-CASE-XNP-03878] c26 N75-27127
- Method and apparatus for vibration analysis utilizing the Mossbauer effect  
[NASA-CASE-XNP-05882] c35 N75-27329
- Externally supported internally stabilized flexible duct joint  
[NASA-CASE-MFS-19194-1] c37 N76-14460
- Accumulator  
[NASA-CASE-MFS-19287-1] c34 N77-30399
- Laser extensometer  
[NASA-CASE-MFS-19259-1] c36 N78-14380
- ROCKWELL INTERNATIONAL CORP., DOWNEY, CALIF.**  
Insulation for piping  
[NASA-CASE-MSC-19523-1] c31 N76-16245
- Apparatus for positioning modular components on a vertical or overhead surface  
[NASA-CASE-LAR-11465-1] c37 N76-21554
- Flanged major modular assembly jig  
[NASA-CASE-MSC-19372-1] c39 N76-31562
- Aircraft-mounted crash-activated transmitter device  
[NASA-CASE-MFS-16609-3] c03 N76-32140
- Window defect planar mapping technique  
[NASA-CASE-MSC-19442-1] c74 N77-10899
- Sequencing device utilizing planetary gear set  
[NASA-CASE-MSC-19514-1] c37 N77-19459
- Mechanical sequencer  
[NASA-CASE-MSC-19536-1] c37 N77-22482
- Non-floating universal joint  
[NASA-CASE-MSC-19546-1] c37 N77-25536
- Load regulating latch  
[NASA-CASE-MSC-19535-1] c37 N77-32499
- Adjustable securing base  
[NASA-CASE-MSC-19666-1] c37 N78-17383
- System for automatically switching transformer coupled lines  
[NASA-CASE-MSC-16697-1] c33 N78-22298
- Method of producing complex aluminum alloy parts of high temper. and products thereof  
[NASA-CASE-MSC-19693-1] c26 N78-24333
- Flexible pile thermal barrier insulator  
[NASA-CASE-MSC-19568-1] c34 N78-25350
- Variable contour securing system  
[NASA-CASE-MSC-16270-1] c37 N78-27423
- Multi-purpose wind tunnel reaction control model block  
[NASA-CASE-MSC-19706-1] c09 N78-31129
- A pressure limiting propellant actuating system  
[NASA-CASE-MSC-18179-1] c20 N78-31162
- A floating nut retention system  
[NASA-CASE-MSC-16938-1] c37 N78-32431
- ROPH CORP., CHULA VISTA, CALIF.**  
Method of forming shapes from planar sheets of thermosetting materials  
[NASA-CASE-NPO-11036] c15 N72-24522
- ROYAL AIRCRAFT ESTABLISHMENT, FARNBOROUGH (ENGLAND).**  
Garments for controlling the temperature of the body Patent  
[NASA-CASE-XMS-10269] c05 N71-24147
- RYAN AERONAUTICAL CO., SAN DIEGO, CALIF.**  
Wing deployment method and apparatus Patent  
[NASA-CASE-XMS-00907] c02 N70-41630
- Masking device Patent  
[NASA-CASE-XNP-02092] c15 N70-42033

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- SAN FRANCISCO UNIV., CALIF.**  
Micro-fluid exchange coupling apparatus  
[NASA-CASE-ARC-11114-1] c52 N78-33717
- SAN JOSE STATE UNIV., CALIF.**  
Chelate-modified polymers for atmospheric gas chromatography  
[NASA-CASE-ARC-11154-1] c27 N78-27275
- SANDERS ASSOCIATES, INC., WASHUA, N. H.**  
Increasing efficiency of switching type regulator circuits Patent  
[NASA-CASE-XMS-09352] c09 N71-23316
- SANTA BARBARA RESEARCH CENTER, GOLETA, CALIF.**  
Camera arrangement  
[NASA-CASE-GSC-12032-2] c35 N76-19408

- SANTA CLARA UNIV., CALIF.  
 Reversed cowl flap inlet thrust augmentor  
 [NASA-CASE-ARC-10754-1] c07 N75-24736  
 Noise suppressor for turbo fan jet engines  
 [NASA-CASE-ARC-10812-1] c07 N76-18131  
 System for measuring Reynolds in a turbulently  
 flowing fluid  
 [NASA-CASE-ARC-10755-2] c34 N76-27517  
 System for measuring three fluctuating velocity  
 components in a turbulently flowing fluid  
 [NASA-CASE-ARC-10974-1] c34 N77-27345
- SCHJELDAHL (G. T.) CO., NORTHFIELD, MINN.  
 Rotating mandrel for assembly of inflatable  
 devices Patent  
 [NASA-CASE-XIA-04143] c15 N71-17687  
 Traveling sealer for contoured table Patent  
 [NASA-CASE-XIA-01494] c15 N71-24164
- SCIENCE APPLICATIONS, INC., LA JOLLA, CALIF.  
 Process for producing flame resistant polyamides  
 and products produced thereby  
 [NASA-CASE-MSC-16074-1] c27 N77-14262
- SCOTT AVIATION CORP., LANCASTER, N. Y.  
 Self-contained breathing apparatus  
 [NASA-CASE-MSC-14733-1] c54 N76-24900
- SERV-AIR, INC., HOUSTON, TEX.  
 Stator rotor tools  
 [NASA-CASE-MSC-16000-1] c37 N78-24544
- SIKORSKY AIRCRAFT, STRATFORD, CONN.  
 Automatically lockable axially extensible strut  
 [NASA-CASE-LAR-11900-1] c05 N77-18134
- SINGER-GENERAL PRECISION, INC., BINGHAMTON, N. Y.  
 CRT blanking and brightness control circuit  
 [NASA-CASE-KSC-10647-1] c10 N72-31273
- SMITH ELECTRONICS, INC., CLEVELAND, OHIO.  
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- SMITHSONIAN ASTROPHYSICAL OBSERVATORY, CAMBRIDGE,  
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- SOLID STATE RADIATIONS, INC., LOS ANGELES, CALIF.  
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- SOUTHERN METHODIST UNIV., DALLAS, TEX.  
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- SPACE SCIENCES, INC., WALTHAM, MASS.  
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- SPACE TECHNOLOGY LABS., INC., REDONDO BEACH, CALIF.  
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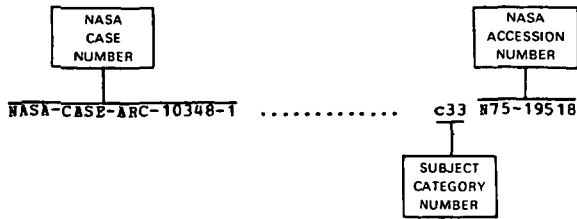
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Section 2

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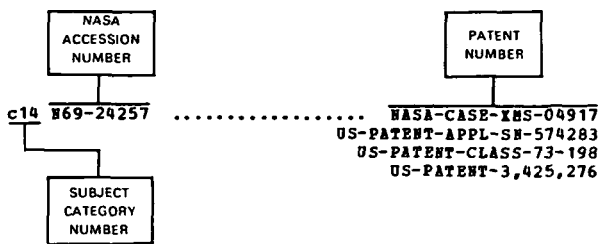
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#### Section 2

#### Typical Accession Number Index Listing



Listings in the index are arranged numerically by NASA accession number. The category number indicates the category in Section 1 (Abstracts) in which the citation is located. The NASA accession number denotes the number by which the citation is identified within the subject category. The patent numbers are the identification numbers that have been assigned to the item by the issuing body or other agency.

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