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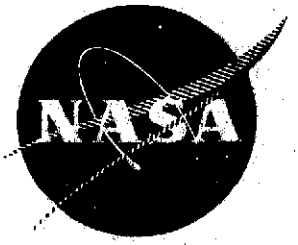

FRACTURE TOUGHNESS TESTING DATA – A BIBLIOGRAPHY

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By James L. Carpenter, Jr., Nestor Moya, and William F. Stuhrke

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CLEVELAND, OHIO 44135

George Mandel, Project Manager

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16. Abstract

This Bibliography is comprised of approximately 800 reference citations related to the mechanics of failure in aerospace structures. Most of the references are for documents that include fracture toughness testing data and its application or documents on the availability and usefulness of fracture mechanics analysis methodology.

The bibliography represents a search of the literature published in the period April 1962 through April 1974 and is largely limited to documents published in the United States. It is a companion volume to NASA CR-134752, Fracture Toughness Testing Data - A Technology Survey.

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FOREWORD

This Bibliography is comprised of approximately 1100 reference citations related to the mechanics of failure in aerospace structures within the scope defined in the Introduction. The literature search which resulted in the bibliography was begun as a part of NASA Lewis Research Center Contract NAS 3-16681 and continued under Contract NAS 3-17640.

The purpose of this publication is to provide, in easy reference form, a survey of the pertinent literature published in the period 1962-1974. Documents referenced that are dated earlier than this period have been included because of the frequency of their citation as referenced, usually because they are regarded as "classics". It therefore provides a basis for broadening the information base produced for the Aerospace Safety Research and Data Institute.

It is recognized that the bibliography is an incomplete listing as any bibliography for such a broad subject must always be. Nevertheless, it is hoped that it will contribute as a guide to those who seek related information. The Bibliography is a companion volume to NASA CR-134752, Fracture Toughness Testing Data – A Technology Survey.

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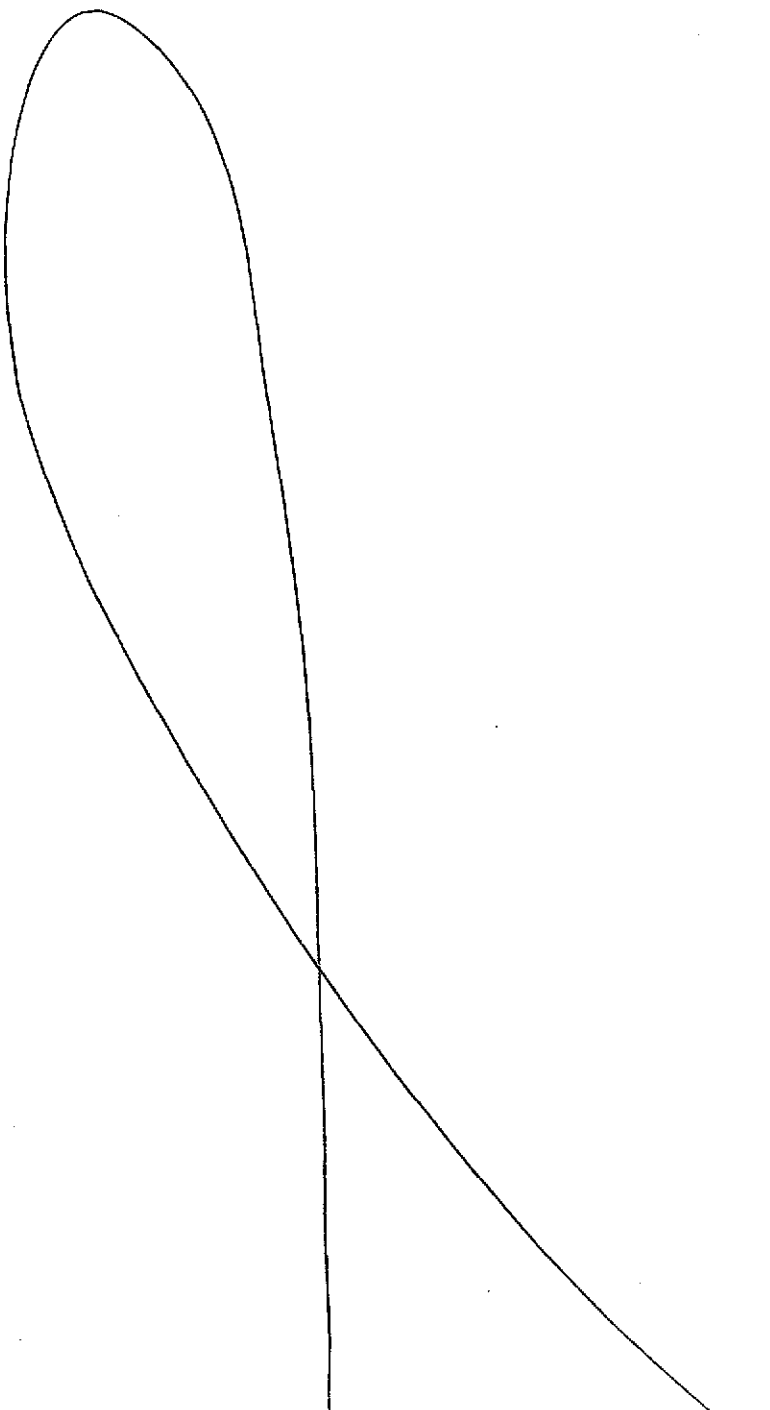

INTRODUCTION

This bibliography contains more than 1100 reference citations pertaining to the mechanics of failure in aerospace structures. These reference citations document the work and conclusions of more than 1200 specialists working in fracture toughness testing and the application of test data, and in fracture mechanics analysis. Particular attention has been given to documents which describe the test method for obtaining plane strain fracture toughness data and, also, results in the developing area of mixed mode, plane stress testing. The availability and usefulness of current fracture mechanics methodology is described.

The bibliography is comprised of citations previously published in NASA CR-121202 under NASA Contract NAS 3-16681 and new citations resulting from significant research of the primary subject under NASA Contract NAS 3-17640. All references are listed alphabetically using the surname of the principal author. When an author could not be identified, a corporate source is cited. The last section of the bibliography is a complete author index, including the names of co-authors.

Each entry includes the author or corporate source, the title, a publication source, and the date. The format used is unique to the purpose of the bibliography. All entries preceded by an asterisk (*) are included in the Aerospace Safety Research and Data Institute data base, i.e., ASRDI Forms 102A were completed for them. The remaining citations are either references cited by authors whose work has been abstracted or are valid references that could not be researched under the current contract because of funding limitations. When it could be readily established, the entry has been qualified to show its availability from one or more of the several government or government-sponsored information distribution centers.

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A particular effort has been made to highlight the date of publication because of its relevance in a field of research that is continually changing.

In general, the source for all references is an activity in the United States of America. It is recognized that considerable Russian, Japanese, and British literature exists in this subject area and that only a fragment of it is referenced. The problem of translation is a constraint, but more significantly, time did not permit an adequate survey of foreign literature of interest.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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REPLY TO
ATTN OF: 0152

February, 1975

To: Recipients of Enclosed Reports

From: Acting Director, NASA Aerospace Safety Research and Data Institute

Subject: Distribution of the following publications:

Life Prediction of Materials Exposed to Monotonic and Cyclic Loading:
A Technology Survey (NASA CR-134750)
A Bibliography (NASA CR-134751)

Fracture Toughness Testing Data:
A Technology Survey (NASA CR-134752)
A Bibliography (NASA CR-134753)

Register of Experts for Information on Mechanics of Structural Failure (NASA CR-134754)
Prepared by Martin Marietta Aerospace, Orlando, FL

The objectives of the NASA Aerospace Safety Research and Data Institute (ASRDI) are:

a. To support NASA, its contractors and the aerospace industry with technical information and consulting on safety problems.

b. To identify areas where safety problems and technology voids exist and to initiate research programs both in-house and on contract in these problem areas.

c. To author and compile state-of-the-art and summary publications in our areas of concern.

d. To operate a Safety Data Bank.

To accomplish its objectives, ASRDI is collecting, organizing and evaluating safety related information. One major activity involves mechanics of failure in aerospace structures.

Five publications resulting from this effort are listed below. For convenience in mailing, these documents are enclosed in two separate packages.

(a) "Register of Experts for Information on Mechanics of Structural Failure" is a compilation of approximately 300 researchers who have published theoretical and/or experimental results.

(b) "Life Prediction of Materials Exposed to Monotonic and Cyclic Loading - A Technology Survey" is composed of analyzed and evaluated technical abstracts of 100 key documents. An overview of the state-of-the-art has been presented in the Introduction.

(c) "Life Prediction of Materials Exposed to Monotonic and Cyclic Loading - A Bibliography" is a listing of some 1200 reference citations and is the companion volume to the Technology Survey, CR-134750.

(d) "Fracture Toughness Testing Data - A Technology Survey" is composed of analyzed and evaluated technical abstracts of 90 key documents. An overview of the state-of-the-art has been presented in the Introduction.

(e) "Fracture Toughness Testing Data - A Bibliography" is a listing of over 800 reference citations and is the companion volume to the Technology Survey, CR-134752.

We hope that these publications will be useful to you and/or your colleagues. Your comments are encouraged in order that future publications of this type may be improved.

George Mandel

for Solomon Weiss

5 Enclosures