

RELIABILITY-MAINTAINABILITY DATA INTERCHANGE

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May 2002

GIDEP OPERATIONS MANUAL
Chapter 9 RELIABILITY-MAINTAINABILITY DATA INTERCHANGE

9.1 INTRODUCTION

This chapter of the GIDEP Operations Manual provides guidance for the submittal, access and distribution of reliability and maintainability (R&M) data. The types of R&M data accepted include reliability, maintainability, and availability information on parts, assemblies, and systems, as well as software, materials, processes and applications which are based on various reliability concepts, data and assessments. Primarily, the GIDEP database contains reliability related information for mechanical, electronic, electromechanical, microelectromechanical (MEM), pneumatic, and hydraulic items for both Military and Commercial-Off-the-Shelf (COTS) products, including Plastic Encapsulated Microcircuits (PEMs).

9.2 OBJECTIVE

The GIDEP reliability database offers an electronic exchange of reliability information between government and industry participants throughout the United States and Canada with the primary goal of reducing the high cost of unreliability by offering specific reliability data, useful reliability concepts and practical engineering tools to the engineers and managers for making reliability decisions

9.3 GUIDELINES

9.3.1 Data Submittal. Each participant should submit reliability related data and documents including those on maintainability and availability. The submittals could range from a document containing general reliability information to those containing part(s) specific data. Upon review and approval, the submittals will be processed and included in the GIDEP.

A limited distribution statement may be used to control distribution of a reliability document and must be defined on the document. GIDEP does not establish or remove the limited distribution statement.

GIDEP does not accept classified or proprietary data, except if the proprietary data is accompanied with release correspondence. Any information with a copyright statement must have a document release attached.

All appropriate reliability information should be submitted, preferably in electronic format, to the GIDEP operations center.

Email data to: gidep@gidep.org

GIDEP participants could also provide a company web site containing reliability reports, which may qualify as participant data submittals. Upon review and approval, GIDEP operations center will download the reports and include in the GIDEP database.

Hardcopies or diskettes may be mailed to:
GIDEP Operation Center
Attention: Reliability Data
P.O. Box 8000
Corona, CA 92878-8000

Because of poor quality of transmission, facsimile submissions are not encouraged.

Documents submitted to GIDEP in paper form are converted to text by optical character reader (OCR) process.

9.3.2 Data Access. GIDEP participants are allowed access to the online database, which contains the reliability data as well as other types of data. Since some information may not properly convert to text, GIDEP recommends obtaining document images or PDF over the processed text. Pre 1993 documents contain limited information and do not reside as text and image files in the database. GIDEP operations center will provide these documents upon request within 24 hours. The phone number is 909-273-4677.

GIDEP participants are also allowed access to the GIDEP Members web site (<http://members.gidep.org>), which contains an extensive amount of information on the types of products and services available only to the participants. In addition to the online database, GIDEP offers other products such as the online utilization reporting, participant directory and quarterly newsletter. Some of the services include the weekly push mail, parts batching, training, GIDEP forum, Urgent Data Request (UDR) and help desk. The help desk personnel is available Monday-Friday, 6:30 AM – 5:30 PM Pacific Time.

Each GIDEP data type has its own unique web page. GIDEP Reliability data page offers additional sources of reliability information, including the most visited documents summary, monthly index, and links to other data sources.

9.3.3 Internal Data Distribution. GIDEP reliability data may be distributed to all potential users within a participant's organization, provided that the GIDEP distribution policy is followed.

9.3.4. Reliability Data Usage. The following delineates some helpful hints in using the GIDEP reliability data.

1. Review weekly push mail summaries. Push mail is generated as a convenience to GIDEP representatives to obtain an overview of information without having to access the database. If a part or title in the listings is of interest, the corresponding document can be retrieved from the database.

2. Search the GIDEP online database. Perform keyword searches or use other searchable fields to find the pertinent reliability data.
3. Call the operations center help desk to access older reliability documents.
4. Search other reliability data sources. Visit the reliability links provided on the GIDEP reliability web page to find other data sources and technical papers.
5. Send an Urgent Data Request (UDR). Query the entire GIDEP community to obtain information not immediately available from the GIDEP database or other sources.
6. Complete an online utilization form to report the value of documents used. Utilization reporting justifies the funding of GIDEP and is used as a measure of its effectiveness.

9.4 Data Types

Each reliability data submittal will be categorized as one of the following four types. These are referred to as document designators (DD) in the GIDEP database. They are: 1) Methodology Data (DD=RM), 2) Prediction Data (DD=RP), 3) Failure Analysis (DD=FA), and 4) Reliability/Failure Statistics Data (DD=RS).

9.4.1 Methodology Data (DD=RM). Any report that addresses reliability allocation, modeling and prediction techniques, specific design approaches and analytical assessment tools to determine reliability unknowns. This category also includes general analyses or technical papers on reliability, maintainability, and availability. Examples are as follows.

1. Reliability modeling
2. Reliability allocation
3. Reliability by design tools and techniques
 - a. Failure Modes, Effects and Criticality Analysis (FMECA)
 - b. Failure Mode and Effects Analysis (FMEA)
 - c. Electrical stress analysis
 - d. Thermal stress analysis
 - e. Worst case analysis
 - f. Sneak circuit analysis
 - g. Fault tree analysis
 - h. Derating
4. Reliability prediction techniques
5. Reliability growth
6. Design of experiments and Analysis of Variance (ANOVA)
7. Reliability management
8. Reliability policies
9. Reliability manuals
10. Reliability and costs
11. Warranty studies
12. Product liability
13. Quality assurance

14. Reliability/Maintainability training
15. Maintenance strategies

9.4.2 Prediction Data (DD=RP). This category includes studies and reports on predicted life of parts, assemblies and systems.

9.4.3 Failure Analysis (DD=FA). Any evaluation or analysis that addresses the origin or root cause of a failure, part failures or part suitability.

1. Failure Analysis (FA) reports
2. Destructive Physical Analysis (DPA) reports
3. Part construction/suitability analysis reports

9.4.4 Reliability/Failure Statistical Data (DD=RS). This type includes reports that contain reliability, failure, and maintainability data. Examples are as follows.

1. Reliability qualification test data
2. Accelerated life test data
3. Environmental Stress Screening (ESS) results
4. Field failure data
5. Part performance/specification data (datasheets)
6. Reliability demonstration test data
7. Maintainability demonstration test data
8. Product acceptance data
9. Environmental testing data
10. Failure Reporting and Corrective Action Systems (FRACAS) data
11. Reliability in manufacturing results (Statistical Process Control (SPC))