RALC-TR-75-253 Final Technica] Report 360p. October 175 ADA 023926 RELIABILITY GROWTH STUDY Hughes Aircraft Company Final technical rept. Approved for public release; distribution unlimited. 5 היה הוה MAY 3 1976 B Rome Air Development Center Air Force Systems Command Griffiss Air Force Base, New York 13441 P- - -· 1 Do not type beyond addid lines 309050 C(II) on which the second second of the Carbon of CX(D

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This technical report has been reviewed and approved for publication.

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TI-15-103 RELIABILITY GROWTH STUDY 2 - 12 - 1 •

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EVALUATION

1. This effort had as its objective the investigation and quantification of electronic equipment reliability growth of two types:

a. Growth in reliability due to operation of the equipment in an environment where failures are reported, analyzed, cause pinpointed and corrective action to the design, production process, or material taken.

b. Growth in reliability due to operation and the ensuing natural weeding out of bad parts and defective workmanship by failures/repairs. Type (a) growth corresponds to in-house testing and type (b) growth to field operation.

2. The objective of the study was met. Six models were extracted from the dozens that were encountered in the literature search and were studied in detail. These were the Duane model, IBM model, exponential model, Lloyd-Lipow model, Aroef model, and the simple exponential.

3. Each of the six models was fitted to data sets (186 data sets for ground equipment and 84 for airborne equipment) which included equipments of different types (communications, radar, data processing, etc.). In addition to including reliability growth information, the data set for each equipment also included information relative to the scope of the reliability program associated with that equipment.

4. In order to determine the degree of fit of the models to the data, two goodness of fit parameters were calculated R and R.E. R is defined as the average absolute percentage error in the predicted versus the observed values. R.E. measures the fraction of the unexplained variation to the total variation. The smaller the values of R & R.E. the better the fit (ideally R = R.E. = 0).

5. The results indicate that although the Duane model seldom was the best fitting model it almost always fit the data.

6. The IBM model fit airborne data the best. This particular model is very useful because by using it you can estimate the number of non-random failures that are present in an equipment before testing is begun on it. The model also allows you to estimate the fraction of non-random failures that have been removed by some time T which means that if you want to remove a certain fraction of the non-random failures in an equipment you can estimate the amount of test time required to do so.

7. Each of the remaining models was found to be the best fit to the data for specific combinations of environment, equipment type, and aggressiveness of reliability program. Each is discussed in detail in the final report.

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8. The reliability gains encountered on the average turned out to be around 5 to 1 which is interesting when compared to the RPM (G.E. growth model) gain of about 10 to 1. This discrepancy could be due to the fact that instead of calculating the limiting MTBF from the models (the Duane model was used for all the reliability gain analysis) the RPM method used the predicted value of MTBF for the limiting MTBF (prediction according to MIL-HDBK-217B).

9. The whole concept of the reliability gain analysis can be somewhat misleading if it is not carefully analyzed. It may and probably is certainly true that the more money that is spent on reliability the higher the MTBF will be. However, there seems to be a point of diminishing returns where the programs with larger expenditures of dollars (usually concentrated in the design phase as opposed to the testing phase) seem to start out with a greater initial MTBF and therefore the potential gain in reliability is less no matter how much money is spent in testing.

10. As expected it was found that a higher reliability gain occurred for ground equipment than for airborne and for in-house testing than for field operation. This might be partially explained by airborne equipment going through more environmental and screening type tests than the ground equipment therefore attaining a greater gain.

11. For each type of equipment in a certain environment and a particular reliability program, the best fitting model can be chosen by comparing the \underline{R} and \underline{R} . E. for each which are given in tables in the final report.

12. With this information and a brief look at the examples given, a project engineer, SPO, or anyone else who has a requirement (specified MTBF) to be met can find out how long it will take to reach this goal, how much tosting it will take, and aggressiveness of the reliability program required, and the initial MTBF that can be expected from the equipment. By the same token, if someone has an equipment which possesses a certain initial reliability, he can estimate what limiting achievable MTBF he can expect to reach and how long it will take to achieve it.

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The data collection and evaluation effort resulted in a data base of two-hundred seventy (270) data sets: one-hundred eighty six (186) data sets on ground based systems/equipments and eighty four (84) on airborne systems. The data were classified further by equipment type, in-house and field, and level of reliability expenditures on the program. The data collection and evaluation effort is discussed in Section 2.0.

A literature search led to the selection of six (6) feasible growth models: Duane, IBM, exponential, Lloyd-Lipow, Aroof and simple exponential. It is interesting to note that the phenomenon of reliability growth was observed on virtually every data set. The models are described in Section 3.0. The popular Duane model, while rarely fitting "best" was seen to fit in almost all cases. The fact that the simple exponential model was far and away most frequently the best fit points out the extreme physical complexity of the growth process since certain properties of the simple exponential model preclude it from being a growth descriptor.

Overall, the reliability gain (final cumulative MTBF divided by initial cumulative MTBF) was on the order of 5 to 1. The reliability gain was greater, generally, for ground than airborne and greater for in-house data than field data.

As expected the reliability gain was greater for moderate to high reliability expenditures than for low reliability expenditures.

An analysis of the Duane model growth rate parameter yielded a growth rate (logarithmic) of 0.45 at a high level of reliability expenditures.

This is very close to the commonly talked about 0.50 figure. While many of the six models fit in a variety of data sets certain conclusions were obvious. For example, the exponential model is vastly superior to the other models for laser systems/ equipments. The Duane model seems to do best in-house for radar systems/ equipments. The results of the data analyses and comparisons between models and data class factors are given in Section 4.0 and 5.0.

One important inclusion is that growth curve analysis should be approached from the standpoint of stochastic process analysis. This and other conclusions are discussed in more detail in Section 6.0.

One important conclusion is that growth curve analysis should be approached from the standpoint of stochastic process analysis. This and other conclusions are discussed in more detail in Section 6.0.

1.1 Purpose of the Study

The purpose of this study is the investigation of the phenomenon of Reliability Growth for both ground based and airborne systems and equipments in two basic environments:

- i) "in-house" where failure reporting and analysis is closely controlled and corrective actions are taken, and
- ii) "in-field" where the equipment or system operates in its intended use environment and where failures are reported.

Generally, the "in-house" phase above is called the developmental testing phase. The investigation was conducted for both ground-based and airborne electronics equipment and systems.

The specific objectives were: 1) test several (six were used) plausible growth models to determine which models fit growth data well, 2) estimate the limits of reliability gain possible, 3) classify the reliability programs associated with the various data classes with respect to "aggressiveness/control" of the growth process to determine the relationship between this aggressiveness and reliability gain, and 4) establish general guidelines for using reliability growth as a development tool. A more detailed description of both the airborne and ground systems/equipment may be found in Section 2.0.

1.2 Introduction to Growth Curves

In this study when we speak of reliability we will mean, as is usual, the mean time between failure* and designate it MTBF. The phenomenon of reliability growth over time has long been recognized. What has happened to spur the relatively recent (roughly the last three years, see [7], [11], [18]) increased interest in reliability growth as a development tool? The answer is fairly simple

- 1) Due to increased "cost" squeezes it has been realized that the standard reliability demonstration test occurs relatively late in the program to really drive design and to make fixes efficiently.
- 2) It is now recognized that MTBF is not a constant, even for a short time, throughout the development and use cycle and that by monitoring the equipment carefully, making fixes, and analyzing failures valuable reliability information can be obtained in time to do some good.

It should be clear that reliability growth occurs by the finding and removing of defects, misapplied parts and workmanship defects. The <u>rate</u> at which this is done determines the rate of reliability growth. The reliability growth <u>curve</u> (actually a mathem. The <u>function</u> fitted to the observed growth data) is a powerful tool in

*One might also consider growth in the reliability function R(t). However, this latter quantity is not often studied in developmental testing programs.

maintaining the growth process and making <u>decisions</u> during the growth process: if the form of the growth curve (function) can be discovered then the parameters of the curve can be estimated early on and present and future (expected) growth can be assessed and fixes made in time to actually improve reliability.

Unfortunately, the growth process is extremely complex and hence difficult to model mathematically. The problems are similar to, in degree of severity at least, those commonly encountered in projecting the results of accelerated tests to normal operating conditions. The situation is complicated further by the fact that almost any mathematical function which is positive and monotone increasing in t (time > 0) is a candidate. If one is not careful the problem reduces to the empirical fitting of ad-hoc models with no <u>physical</u> interpretation in terms of the process being observed. In the next section we discuss the approach taken in this study to avoid some of these problems. Before proceeding to the next section a final remark: growth curves are useful in practically all areas of endeavor, e.g., economics, industrial job learning, biological processes and others. Thus the really deeply interested reader may want to search the literature in these fields. In this report we have searched only the reliability related literature.

1.3 The Study Approach

The basic approach to achieving the objectives mentioned in Section 1.1 can best be described in terms of the study tasks.

Study Tasks

1. Conduct a literature search to identify possible growth models.

The useful results of the literature search are given in the references and bibliography. Actually many more articles and papers were turned up but were not used in this study. It was clear from the literature search that at the present time the overwhelmingly most popular growth model was the Duane model; in fact quite possibly more popular than all the other models combined. The other models were selected on the basis of their intuitive plausibility, the fact that their parameters are interpretable in terms of the growth process, because their forms are tractable encugh to allow reasonably straightforward methods of estimating their parameters. The six models selected are described in Section 3, 0.

2. Identify data sources; collect and evaluate the data.

The results of this task are described in Section 2.0.

3. Develop computational methods.

This task involved the selection and/or development of methods for estimating the unknown parameters in the six models. The resulting methods are described in Section 8.0.

4. Selection of data analyses to be performed.

This task involved the decision as to what analyses were to be performed on the available data. As a first step system equipment data classes were formed.

Actually the establishment of data classes formed the foundation for all the data analyses. The factors defining the classes are four:

Type of system/equipment	
Environment:	Airborne and ground.
Type of data:	In-house and field.
Aggressiveness of Reliability Program:	R1 - 0% of total program acquisition costs expended on Reliability.
	R2 – less than 1% but more than 0% of total program acquisition costs expended on Reliability.
	R3 – more than 1% of the total program acquisition costs expended on Reliability.
Equipment Category	Antennas, radars, etc. for a total of fifteen (over ground and airborne).

In each data class there may be more than one data set and some data classes may be empty. Since the data was gathered after the fact rather than from a statistically designed experiment the "holes" (e.g. no R2 data on ground based radars) are to be expected. Table 2.5 gives a complete picture of the data sets. It is enough to say here that there are a total of 186 data sets for the ground based systems/equipment and 84 data sets for the airborne systems/equipment. Data with less than three failures was not used because it was insufficient to enable fitting of the models.

It was mentioned in Section 1.1 that the amount of reliability gain was also of interest. Thus the following data analyses are required:

- a) Estimate the unknown parameters of the six growth models by data set.
- b) Compute the goodness of fit criteria for each of the six models for each data set.
- c) Decide on the best model for each data set.
- d) Analyze data for generalizations applicable to the data classes: airborne vs. ground, in-house vs. field and R1 vs. R2 vs. R3.
- e) Evaluate reliability gain for each data set.

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f) Analyze reliability gain for possible generalizations in terms of data classes.

These analyses and the conclusions based upon them are discussed in Sections 4.0 and 5.0 respectively.

5. Develop guidelines for applications.

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The purpose of this task is to develop guidelines for the general application of growth models, i.e., what type works well, the gain expected and the goodness of fit expected with respect to the type of data (in-house vs. field), type of environment (airborne vs. ground) and R1, R2, R3. These guidelines are given in Section 6.0.

The models developed herein can be used for two basic purposes. First, during the development phase the model(s) can be used to monitor, control, and predict reliability growth. The data required are the n (= no. of failures) pairs cumulative MTBF and time at failure. The model(s) may then be fit according to the methods given in section 8.0; in particular section 8.4.9. By far the most important use is before the development program begins. A model can be used to predict development time required to achieve a certain MTBF and to estimate initial MTBF. The data required to use the model in this way is the model type, environment, type of equipment, and preliminary parameter estimates from this report. Examples of this important use are given in section 6.1.

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2.1 Data Search

2.1.1 Internal. Data collection began with an internal source survey of electronic systems that might yield usable data. The Systems Effectiveness Department of Hughes Aircraft Company, Ground Systems Group, has personnel with first hand knowledge of most systems built at Hughes Aircraft. In addition Hughes has internal reports such as the Contract Assignment Report and the Closed Contract Register for both Ground Systems and Airborne Systems. Through these reports and the suggestions given by the Systems Effectiveness Department personnel, a list of systems, project heads, managers, reliability engineers, and other information were compiled. Personal and telephone contact was made with the responsible people for each system or project. From each of these a request was made for a description of the reports and the data available, the period of data collection and the names of the reports and people who could supply the reports.

A literature search by the Hughes-Fullerton Library brought forth several useful systems, final reports and acceptance reports.

2.1.2 <u>External</u>. A literature search by the National Aeronautics and Space Administration and by the Defense Documentation Center yielded no useful failure histories. Such reports gave final MTBF and total failures, but none gave a history of cumulative failures versus cumulative time.

Personal contacts with the personnel at the Naval Ship Weapon Systems Engineering Station Port Hueneme, California, led to a large data base for ground systems computers and displays.

2.2 Data Collection

2.2.1 Data Requests. Requests were sent to both internal and external agencies for the various reports. Reports received were of the following types: Monthly reports, final reports, Interdepartmental Correspondence (IDC), Operations and Maintenance Reports (OMR), computer failure listings and Reliability and Maintainability (R/M) Reports. In some cases the reports were so large (several years of monthly reports) it was necessary to sort through boxes of reports and make copies of only the summary data tables and graphs of interest.

2.2.2 Data Center search. The Systems Effectiveness Department maintains a R/M Data Center which contains information gathered during in-house testing and field operations on most of Hughes built systems. A search of the Data Center files gave a large part of the useful data for Ground Systems and some data on Airborne Systems. The data found was of the following types: Field logs, field engineering reports, proposals, failure reports, customer requests, IDC's, OMR's, R/M reports, monthly and final reports.

2.2.3 <u>Special file</u>. As these reports were received, they were evaluated for useful information. If they were found to be useful, a copy was placed in a special growth study file in the Data Center to be used as source material for this study. Tables 2.1 and 2.2 give a description of the systems on which data were collected.

System/Equipment Number*	Description	Period of Data Collection	
1	Shipboard Radar	Aug 1973 to Jun 1974	
2	Ground Based Radar	Apr 1969 to Apr 1971	
4	Satellite Microwave Link	Mar 1968 to Aug 1974	
5	Shipboard Satellite Microwave Communication	Feb 1967 to Sep 1968	
7	Weapon Control	Oct 1971 to Aug 1972	
8	Radar Display	Apr 1966 to Jul 1972	
9	Computer	Nov 1967 to May 1968	
11	Ground Based Radar	Jun 1967 to Apr 1970	
12	Shipboard Radar	Sep 1965 to May 1973	
13	Computer	Apr 1969 to Oct 1969	
14	Computer	Jun 1968 to Jun 1970	
15	Computer	Oct 1971 to Jul 1974	
16	Shipboard Radar	Aug 1968 to Aug 1969	
17	Radar Display and Computer	Jun 1971 to Aug 1972	
18	Ground Based Radar	Mar 1973 to Dec 1973	

System/Equipment Description - Ground

*Numbers 3, 6 and 10 were eliminated after subsequent analysis showed them to be unsuitable.

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ystem/Equipment Number	Description	Period of Data Collection
20	Laser Range Finder	Sep 1971 to Apr 1972
21	Laser Bombing System	Feb 1969 to Jun 1969
22	Visual Scan System	Sep 1970 to Nov 1970
23	Infrared System	May 1963 to Jul 1963
24	Infrared System	Jan 1974 to Feb 1975
25	Radar System	Jan 1972 to Aug 1972
26	Airborne Computer	Jul 1962 to May 1968
27	Radar System	May 1972 to May 1974

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System/Equipment Description - Airborne

2.3 Data evaluation. The final evaluation of the data was based upon three criteria.

2.3.1 <u>Time</u>. First, was the time period long enough to establish some historical growth at normal operations? More than just a few short hours are required. In most cases a continuous history, with a starting time at zero, was maintained for in-house operations. There was a break in time when most systems went into the field. The reason for this, in large systems, is the modular nature of construction. Several systems and their spares would be sent to the field and reassembled in a different (from the original) modular serial number configuration. Also, there would frequently be long gaps of time in the failure reporting or none at all from the field operations.

2.3.2 Failure definition.

2.3.2.1 Relevant failure. The second criterion is: Was the failure relevant? Non-relevant failures were secondary failures, human caused failures and failures of known bad parts. Sometimes, after installation, parts were found to have manufacturing defects, to be below standards or were overstressed, but would be left in the system and replaced upon failure. This would be with customer's agreement. Such failure of parts after this determination were considered non-relevant. All other primary failures were accepted as relevant. If no determination could be made, the failure was considered relevant.

2.3.2.2 <u>Primary failure</u>. Third, was the failure primary? If the failure was relevant, caused the equipment or the system to operate in an unacceptable manner and was not caused by another relevant failure, the failure was primary. Sometimes failures would be caused by a primary failure; such failures were called secondary and were not recorded as a failure. If it could not be determined that a failure was secondary, the failure was then considered primary. Most of the reports used in this study had already filtered out non-relevant and secondary failures.

2.3.3 <u>Useful data</u>. In finding and selecting the useful data within these reports, the form most useful was the table or graph of failures versus cumulative time. In some cases, the failures were taken from a table or graph of MTBF versus cumulative time. In most cases, many tables and graphs had to be merged to give a useful failure history.

Each equipment category, with its corresponding failure history for each serial numbered system and/or equipment, was called a data set. There were many data sets that had to be discarded because of too few failures. Even though the equipment may have operated thousands of hours, the data sets with two or less failures were rejected. A reliability growth evaluation is meaningless for two or less data points. A description of each equipment category is given in table 2.3.

2.4 Construction of data categories.

After evaluation, the data was recorded in tables with such information as: system name, serial number, period of data collection, in-house or field data, description of equipment categories, cumulative failures and hours. Table 2.4 is a sample of the data collected on a system.

2.4.1 <u>Ground and airborne</u>. Ground systems/equipments are those electronic systems/equipments (Radar and microwave systems) installed at a fixed site or those

Equipment Categories

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1	Equipment	Description
1.	Antenna	Pedestal, dish, driver gears, motor, hydraulics
2.	Radar	Receiver, exciter, signal processor, transmitter, power supplies
3.	Microwave	Receiver, exciter, klystron, trans- mitter, power supplies
4.	Display	CRT, data input console, display controls, power supplies
5.	Computer	Computer circuits, CPU, memory, power supplies
6.	Communication	Radio receiver, teletype, etc.
7.	System-Radar	Complete radar system
8.	System-Microwave	Complete microwave system
9.	System-Laser	Complete laser system
10.	System-Infrared	Complete infrared system
11.	System-Visual Scan	Complete system for night time sighting
12.	Laser Transmitter	Laser transmitter and optics, control electronics, power supplies
13.	Laser Receiver	Photo diode detector and optics
14.	Laser Xmtr/Revr	Laser transmitter and receiver, control electronics, power supplies
15.	Infrared Receiver	IR receiver and amplifier, power supplies

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Sample Page of Data

SYSTEM:MK-1B (AN/MSC-46)DATA:FIE LD (B)PERIOD:AUG 1966 - AUG 1974

TYPE OF TEST: OPERATION AV. 20 HRS/DAY

EQUIPMENT SUBSYSTEMS:

ANTENNA

MICROWAVE

- 1. Servo
- 2. Drive
- 3. Radome
- 4. Antenna 40' Dia.
- 1. Transmitter
- 2. Exciter
- 3. Receiver
- 4. Heat Exchanger
- 5. Klystron
- 6. Pwr. Amp.
- 7. Tracking
- 8. Power

COMMUNICATION

- 1. Receiver
- 2. Terminal Equipment

Ref: Report in R/M Data Center Files

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TABLE 2	.4	
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Sample Page of Data* (Continued)

	OCATION R - TURKEY	ANTENNA	MICROWAVE	COMMUNICATION	SYSTEM
DATE	CUMULATIVE OPER. HOURS		CUMULATI	VE FAILURES	
10/1/69					
	620		3		
	1220		4		3
	1840				1
	3120		8.9		8
	4340	1	13		
	4940		20	1	14
	5560	2	23		4 9 14 22 26
	6180	-	25		26
	6780		28	2	29
	7400	3	31	1.5	32
	8000		39	0	39
	8620		45	5 6 7	48
	9240		48		55
	9800		51		58
	10420	4	52		61
	11020		54	723	63
	11640	5	59	8	66
	12240	9	61		72
	12860	7	65		74
	13480	9	70	9	81
	14080				88
	14700	10 11	80 86	10	100
	15300	**			107
	15920	13	90 92		111
	16540	14	74		115
	17120		101		116
	17740	15			125
	18340	40	104		129
	18960				134
	19560		110		135
	20180		114		139
/31/72	20180		116		141
/01/12	20000		118		143

*The "gaps" that occur in the cumulative failures are due to the failure to. record failures continuously in time

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which are mobile (truck or ship). They have good engineering operation and maintenance, and adequate cooling. They are sometimes subjected to high levels of shock and/or vibration. Hughes Aircraft Company at Fullerton is the Ground Systems Group where most of the ground systems/equipments were built and tested. These tests generated most of the in-house data used in this report. Airborne systems are those electronic systems (radar, laser, IR systems) used in airplane cockpits, bomb-bays, and/ or tail or wing installations. The airborne environment generally has extremes of pressure, temperature, shock and vibration. Hughes Aircraft Company at Culver City has the main offices of the Aerospace Group from which the airborne systems data was gathered.

2.4.2 Equipment type. Equipment categories were established for logical subdivisions of the more complex systems. For example, displays, radars, computers, etc. The system itself was assigned to one category. This gave a total of fifteen equipment categories. The use of reference designators for equipment categories (such as E1, E2, etc.) were found to be too confusing and was discontinued. A description of each equipment category is given in table 2.3.

2.4.3 In-house versus field. The in-house data came from good documentation on Hughes built systems during the developmental phase. Whenever the system was under Hughes control, operated and repaired by Hughes personnel, the system was considered to be in-house. The field data came from systems under customer control. In some cases Hughes representatives would make field failure logs for a period of time for a system just received by the customer. Most field data was taken from customer reports to Hughes Aircraft Co. Such reports were at times sketchy as to the nature of the failure, but were taken at face value. In-house data was considered more accurate, but field data generally had more hours of operation.

2.4.4 Quality of parts. A review of the quality of parts for the various systems, the type quality purchased, their in-house testing and screening was made. It was found, that regardless of whether the part was commercial or had high reliability standards, the average of all parts in a system was a minimum military grade. This was true for both ground and airborne systems and equipments. The commercial parts came mostly from purchased assemblies such as a television monitor or a power supply. The high reliability parts were used in some critical areas such as computer memory circuits. The upgrading of the part quality was established by severe burn-in and testing of units or long hours of in-house equipment operation. This was usually a contractual procedure that varied from contract to contract. Therefore a one grade level of part quality had to be established at minimum military standard.

2.4.5 <u>Reliability effort</u>. Most current contracts call for a reliability program plan to insure a system with an acceptable mean time between failure (MTBF). To establish some concept of this reliability effort between different systems, the money spent by a project on reliability was divided by the total contract money to derive a reliability effort percentage.

 $R = \frac{\text{Reliability }}{\text{Total Contract }} \times 100$

Three divisions of reliability effort were established. For those projects where the reliability engineering was not set forth separately, and the money spent on reliability could not be separated from the other costs, a low (R1) reliability effort was assumed. A medium (R2) reliability effort was set at one percent or less but greater than zero. Those projects which spent greater than one percent on reliability were called high (R3).

R1 = 0.0% Low 0.0% < R2 < 1.0% Medium R3 ≥ 1.0% High

There are other variables which can affect the aggressiveness of the reliability program, e.g., the ratio of digital to analog parts; extent of parts standardization and others. Although these factors have not been quantified in this study we can say that they were relatively constant for our data base.

2.5 The Data Base

2.5.1 Equipment data class. The equipment data class is the group of data sets for a particular equipment category, ground or airborne system, in-house or field and one of the divisions of reliability effort (R1, R2, R3). As an example, there were three data sets in the equipment data class for antennas, ground system, in-house and reliability effort R3. It was not possible to find data for all the equipment data classes. Table 2.5 shows the distribution of data sets in the equipment data classes. The number of prototypes can affect the growth results but for our data, most of the in-house systems were developmental models.

2.5.2 <u>Data set distribution</u>. The data set was the failure history for each equipment that was used for analysis. The number of data sets used in each data class (summed over system/equipment categories) is given in table 2.6.

2.5.3 Summary

a. Twenty seven systems were found with useful data.

b. Fifteen equipment categories were established.

c. Number of data sets: 186 data sets for ground systems/equipments and 84 data sets for airborne systems/equipments.

d. Quality of parts averaged out at a minimum military standard.

e. Reliability effort: low (R1), medium (R2) and high (R3).

f. Data sets were coded and put into computer file for analysis. See table 2.7 for sample data set.

Equipment Data Class Distribution

		Grou	nd System	ns			
Equipment Categories	In-House			Field			-
	R1	R2	R3	R1	R2	R3	Total
'intenna			3	21			24
Radar			5	8			13
Microwave	1			20			21
Display		5	7	9	23	3	47
Computer	5	1	8	19		3	36
Communication			2	12			14
System-Radar			2	8			10
System-Microwave	1		Share	20			21

		Airbo	rne Systems		
Antenna		5			5
Radar		6			6
Display		6			6
Computer	5	5			10
Laser Transmitter	2		2		4
Laser Receiver	1		2		3
Laser Xmtr/Rcvr	2		2		4
Infrared Receiver	3	1			4
System-Radar		6			6
System-Laser	2		2		4
System-Infrared	4			26	30
System-Visual Scan		2			2

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Data Set	Distribution
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	Ground Systems/Equipment			Airborne Systems/Equipment			T
	R1	R2	R3	R1	R2	R3	Total
In-House	7	6	27	19	31	8	98
Field	117	23	6			26	172
Total	124	29	33	19	31	34	270

Ground Systems/Equipment Total = 186

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Airborne Systems/Equipment Total = 84

Sample Data Set as Coded in Computer File

Explanation of Data Set Code



In this section we will give a description and derivation of the mathematical models used to fit the growth data in this study. In so doing it is hoped some light will be cast on the physical assumptions about the growth process inherent in the various mathematical functions used.

3.1 The Duane Model

In reference [8] J. T. Duane observed that the logarithm of cumulative MTBF was a linear function of the logarithm of time. That is, (letting Y(t) denote cumulative MTBF)

$$\ln Y(t) = a + b \ln t \tag{3.1}$$

This model is extremely popular for modeling reliability growth. For example, NAVAIR has a series of reliability test program specifications (AR-104, AR-111, AR-112, AR-113) based on the Duane model.

The idea is to estimate the parameters (a, b) and monitor reliability growth with equation (3.1). The method of estimation commonly recommended is to obtain the least squares estimates of (a, b).

Actually, if the matter had ended here, it would be an unsatisfactory situation: just another empirically derived fit. However, Crow [7] and independently, Finkelstein [10] noticed that for a nonhomogenous Poisson process with <u>Weibull</u> intensity function the expected number of events (failures) in time t is given by

(3.2)

(3, 3)

E(no. of events in t) =
$$(t/K)^p$$
.

Hence, the cumulative MTBF, Y(t), by definition must be

0

$$Y(t) = t/E$$
 (no. of events in t) = $K^{\beta}t^{1-\beta}$

and hence

$$\ln Y(t) = \beta \ln K + (1-\beta) \ln t_{\alpha}$$

Setting $1-\beta = b$ and $\beta \ln K = a$ and inspecting equation (3.1) it is clear that the Duane model corresponds to a nonhomogenous Poisson process with Weibull intensity function (the intensity function is

d [E (no. of events in t)]/dt =
$$\frac{\beta t \beta^{-1}}{K^{\beta}}$$
).

The implications of the foregoing are most important. First, the time to occurrence of events (failures) are not independent, identically distributed random variables. Indeed only the first time to failure has a Weibull distribution. Second, inspecting equation (3.1) indicates growth only occurs when b > 0. This means $1-\beta > 0 \Rightarrow \beta < 1$. Thus, growth is observed only if the Weibull shape parameter is less than one. Finally, the implications on estimation of K and β are important. The least squares method is no longer needed, being inefficient, since the maximum likelihood estimates are available and are

$$\widehat{\beta} = n / \sum_{i=1}^{n} \ln (t^*/t_i)$$

$$\widehat{K} = t^*/n^{1/\beta}$$

where

 $t_i = time of i^{th} failure$

n = total number of failures observed

 $t^* = \begin{cases} t_n \text{ if the test is stopped at the last failure} \\ \\ t \text{ if the test is stopped at time } t > t_n^* \end{cases}$

Exact confidence bounds for β are easily obtained since $2n (\beta/\beta)$ is distributed as χ^2 (chi-square) with $2(n^*-1)$ degrees of freedom where $n^* = n$ if $t^* = t_n$ and $n^* = n+1$ if $t^* = t > t_n$. It also turns out that $(\hat{K}/K)^\beta$ is distributed independently of β and K and exact confidence bounds on K can be prepared using Table 1 of ref [11]. The preparation of confidence bounds on β is extremely important since even if the observed data yield $\beta > 1$ the goodness of fit of a Duane model cannot be rejected if the lower confidence bound, say β_L , on β is less than one i.e., if $\beta_L < 1$ the hypothesis that there is growth ($\beta < 1$) cannot be rejected.

Since the time to first failure is Weibull with mean $K\Gamma(1/\beta + 1)$, where $\Gamma(u)$ is the usual gamma function evaluated at u, an estimate of the initial MTBF is given by

 $\hat{K} \Gamma(1/\beta + 1)$.

(3.5)

(3.4)

Equation (3,5) will be extremely important to us when we are estimating reliability gain. A discussion of nonhomogenous Poisson processes can be found in Parzen [14].

An important quantity in the Duane model is the instantaneous MTBF which is taken as the reciprocal of the intensity at time t i.e.,

instantaneous MTBF = $\left[\frac{dE \text{ (no. of events in t)}}{dt}\right]^{-1} = \frac{K^{\beta} t^{1-\beta}}{\beta}$. (3.6)

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The maximum likelihood estimate of this quantity is given by

$$\frac{\hat{\mathbf{k}}^{\hat{\beta}} \mathbf{t}^{1-\hat{\beta}}}{\hat{\beta}} \cdot (3.7)$$

This instantaneous MTBF can be estimated for any future time, t_f , by applying equation (3.7). Also, and very important, Crow [7] gives a method, with tables, for preparing confidence bounds on the instantaneous MTBF at the time of the last of observed failure t_n . The limiting MTBF of the Duane model is the <u>instantaneous MTBF</u> at the time equipment improvement is stopped.

3.2 The IBM Model

This model is based on an approach quite different from the nonhomogenous Poisson process approach of the previous section. It is based on the solution to a differential equation. The IBM model assumes, explicitly, that: 1) there are random (constant failure rate) failures occurring at rate λ , and 2) there are a fixed but unknown, number of <u>non-random</u> design, manufacturing and workmanship defects present in the system at the beginning of testing. Let N(t) be the number of non-random type defects <u>remaining</u> at time $t \ge 0$. This model makes the intuitively plausible assumption that the rate of change of N(t) with respect to time is proportional to the number of non-random defects remaining at t. That is,

$$d N(t)/dt = -K_{2} N(t)$$
 (3.8)

Equation (3.8) implies that

$$\ln N(t) = -K_{2}t + c$$

and hence

$$N(t) = e^{-K_2 t + c}$$

Now if we denote the unknown number of non-random failures present at t = 0 by K_1 then

$$\mathbf{N}(\mathbf{0}) = \mathbf{K}_1 = \mathbf{e}^{\mathbf{C}}$$

and finally

$$N(t) = K_1 e^{-K_2 t} t > 0, K_1, K_2 > 0.$$
 (3.9)

Defining V(t) to be the expected cumulative number of failures up to time t then

$$V(t) = \lambda t + K_1 - N(t)$$

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$$= \lambda t + K_1 - K_1 e^{-K_2 t}$$
$$= \lambda t + K_1 (1 - e^{-K_2 t}).$$

Thus the expected cumulative number of failures by time t is the expected number of random failures by time t plus the expected number of non-random failures removed by time t. It should be noted that V(0) = 0 as expected. Moreover

(3.10)

$$\lim V(t) = \lambda t$$
, as expected.

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Because of the non-linearity of the model (3.10) the estimation of λ , K₁ and K₂ must be accomplished by iterative means and this is discussed in Section 8.3.

There are some extremely nice features of this model. In addition to being "plausible" the most interesting feature is the ability of the model to predict the time when the system/equipment is "q" fraction debugged (i.e., q fraction of the original K_1 non-random failures have been removed, 0 < q < 1). The number of non-random defects removed by time t is clearly

$$N(0) - N(t) = K_1 - K_1 e^{-K_2 t}$$

and hence the fraction (of K_1 initial non-random defects) removed by time t is

$$q = \frac{K_1 - K_1 e^{-K_2 t}}{K_1} = 1 - e^{-K_2 t}$$
(3.11)

Thus having estimated K₂, say \hat{K}_2 , we can find the time at which q=0.95 of the nonrandom defects have been removed by solving (3.11) for t0.95. That is,

$$t_{0,95} = \frac{-\ln 0.05}{\hat{R}_2}$$

In general, for arbitrary q, 0 < q < 1 the time by which the system/equipment is q fraction debugged is

$$t_q = \frac{-\ln (1-q)}{R_2}$$
 (3.12)

Equation (3.12) is a powerful tool because it can be used to help determine the length of development testing.

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Another important feature of the IBM model is that the number of non-random

failures remaining at time t can be estimated and of course is $\hat{k}_1 e^{-2}$. Finally, the estimate of λ , say $\hat{\lambda}$ gives the estimate of the long-run achievable MTBF.

It is well to note that this model could never have been "discovered" by empirical means since the least squares solutions are not available in closed form and hence this model would never have been tried against a given set of data.

More details on this model can be found in ref [17].

3.3 The Exponential-Single Term Power Series Model

In this section and in Sections 3.4, 3.5 and 3.6 the symbol Y(t) will be used to denote cumulative mean time between failures and the real variable t, as usual, represents time. We continue to use the differential equation approach to developing the growth model.

Suppose that K is used to denote the limiting value of Y(t) i.e.,

 $\lim Y(t) = K$

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and suppose the rate of growth dY(t)/dt is jointly proportional to the remaining growth (namely K-Y(t)) and some growth function g(t). Thus

$$dY(t)/dt = [K-Y(t)]g(t)$$
. (3.13)

Taking g(t), the growth function, to be a constant, say $K_2 > 0$, then the solution to the differential equation (3.13) is easily seen to be

$$Y(t) = K (1 - K_1 e^{-K_2 t}), t > 0.$$
(3.14)

Here $K_1 > 0$ is an intercept parameter arising as a constant of integration.

The growth rate (i.e., dY(t)/dt) is largest at t = 0 and is monotonically decreasing in t so that

$$\lim[dY(t)/dt] = 0,$$

t $\rightarrow \infty$

It is entirely plausible that the growth rate is largest at t = 0 and decreases to 0 as $t \rightarrow \infty$. This model is also extremely flexible because it has three parameters

K: The limit of cumulative MTBF.

K₁: When t = 0, $Y(0) = K(1-K_1)$. Thus $K(1-K_1)$ may be thought of as the initial MTBF of the system/equipment when $0 < K_1 < 1$. K_1 may also be thought of as the growth potential.

K₂: The growth function; constant in this case.

The disadvantage of this model is clear enough. Like the IBM model it has three parameters and is non-linear in t; nor can it be transformed to a linear function of t. Thus the least squares estimates of K, K_1 , and K_2 must be obtained by iterative procedures. This procedure is discussed in Section 8.3. More details on this model can be found in ref [15].

3.4 The Lloyd-Lipow Model

This model is also obtained as the solution to a differential equation, where the equation involved results in a property not possessed by any of the other models treated in this report. Suppose that the growth rate is inversely proportional to the square of the growth factor t, i.e.,

$$dY(t)/dt = K_2/t^2, K_2 > 0.$$
 (3.15)

Then clearly,

$$Y(t) = K - K_0/t_{\bullet}$$
 (3.16)

Here K is a constant of integration but it should be noticed that

$$\lim_{t \to \infty} Y(t) = K$$

and thus K is the limiting value of cumulative MTBF.

The parameter K_2 is a growth rate parameter which also affects the location of the curve. Since Y(t) cannot be negative and

$$\lim_{t \to 0} Y(t) = -\infty$$

we must define

$$Y(t) = 0, \quad 0 \leq t < K_0/K$$

This definition provides a time period $(0, K_2/K)$ when the cumulative MTBF is 0 (i.e., a period of no growth) which may be realistic for certain systems/equipments.

By making the change of variable t' = 1/t we see that

 $\mathbf{Y}(\mathbf{t'}) = \mathbf{K} - \mathbf{K}_{\mathbf{9}}\mathbf{t'}$

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and thus Y(t') is linear in t' with slope K_2 and intercept K which means the parameters K and K_2 can be easily estimated by the usual least squares methods. This model is discussed further in ref [13].

3.5 The Aroef Model

In this case we assume that the growth rate is jointly proportional to the growth achieved at t, i.e., Y(t), a constant multiplier (growth rate parameter) K₂ and inversely proportional to t^2 . That is,

$$dY(t)/dt = K_2 Y(t)/t^2$$
. (3.17)

This differential equation has the solution

$$Y(t) = K e^{-K_2/t}$$
. (3.18)

Since lim Y(t) = K the reliability growth limit in cumulative MTBF is K. Also $t \rightarrow \infty$

$$\lim Y(t) = 0_{\bullet}$$

 $t \rightarrow 0$

Since

$$\ln Y(t) = \ln K - K_0/t,$$

letting

$$t' = 1/t$$
,
ln Y(t') = ln K - K₂ t'

and usual linear least squares methods can be used to estimate the constants K and K₂.

(3.19)

3.6 The Simple Exponential Model

The last model we consider in this study is the simple exponential model

$$Y(t) = K e^{\frac{K_2 t}{2}} K, K_2 > 0.$$
 (3.20)

While Y(t) can be obtained as the solution to a certain differential equation it is not a plausible model. The limit (as $t \rightarrow \infty$) of Y(t) is infinite. Also Y(0) = K which is the "initial" cumulative MTBF. Since ln Y(t) = ln K + K₂t then the linear least squares method can be used to fit the constants.

We have included this model as a more or less check on the data and the other models: if this model fits well and often then it may be that either the growth process is quite complex or the other models tried are not very good.

3.7 Criteria for the Goodness of Fit of the Models

There are any number of mathematical functions which can be used to describe reliability growth. One approach to fitting growth curves is to select a very large number of mathematical functions and select the one that fits <u>best</u>. This approach is grossly unsatisfactory and not just because the criterion (or criteria) of "best" may be somewhat arbitrary. The problem is that, for any data set, an arbitrarily good fit can be obtained by selecting a mathematical function with enough parameters. Thus, no matter how "misbehaved" a given data set may be, a mathematical function can be found which will fit it. In essence this amounts to basing all decisions <u>solely</u> in the data and ignoring any other physical/engineering information. Moreover, the problem of interpreting the physical meaning of more than three parameters is very difficult. In this study we have limited all models to at most three parameters.

The Duane model parameter estimates were obtained by maximum likelihood methods because they are superior to the least squares estimates. For all other models the least squares estimates (obtained, in some cases, by suitable linearization) were used. It is important to note that the usual quantities for judging goodness of fit one hears about: coefficient of multiple determination, F tests, t tests for the model coefficients etc. are not applicable since the assumption that the data are multivariate normally distributed has no basis in fact.

Thus we have selected what we feel are two measures of the goodness of model fit. First, we compute

$$\bar{R} = \left(\sum_{i=1}^{n} \left| \frac{Y(t_i) - \hat{Y}(t_i)}{Y(t_i)} \right| / n \right) 100.$$
(3.21)

In equation (3.21) $Y(t_i)$ is the <u>observed</u> cumulative MTBF at time t_i , $\hat{Y}(t_i)$ is the <u>calculated</u> (from the fitted model) cumulative MTBF at time t_i , and n is the number of failures in the data set. Thus i = 1, 2, ..., n. Of course a value of $\overline{R} = 0$ would be ideal but generally this is impossible. Certainly, a good fit would be expected to have $\overline{R} \leq about 25\%$. In words, \overline{R} is the average absolute percentage error in the predicted versus the observed values.

The second measure of godness of fit is defined in terms of relative variability

R.E. =
$$\frac{S_e^2/n-2}{S_{Y(t_i)}^2/n-1}$$
 (3.22)

where

$$\mathbf{s_e^2} = \sum_{i=1}^{n} \left[\mathbf{Y}(\mathbf{t_i}) - \mathbf{\hat{Y}}(\mathbf{t_i}) \right]^2$$

$$s_{\mathbf{Y}(t_i)}^2 = \sum_{i=1}^n \left[\mathbf{Y}(t_i) - \overline{\mathbf{Y}(t_i)} \right]^2$$

 $Y(t_i) = observed cumulative MTBF at t_i$

 $\hat{\mathbf{Y}}(\mathbf{t}_i)$ = calculated cumulative MTBF at \mathbf{t}_i

$$\overline{\mathbf{Y}(t_i)} = \sum_{i=1}^n \mathbf{Y}(t_i)/n$$

Thus, in equation (3.22) the denominator is the sample variance of the ob-• served cumulative MTBF's and the numerator is the squared residual error. The ideal situation would be R.E. = 0 i.e., there is no residual error. This is generally impossible but small values of R.E. indicate good fits.

For one particular given data set if a particular model has the lowest \overline{R} and R.E. of all the models then that model is the best fit.

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4.1 Estimation of Model Parameters

In this section we discuss the data analyses from the standpoint of the parameter estimates for each model and give an example of the use of each model. Comparisons between models and between factors of the data classes and general conclusions are given in Sections 5.0 and 6.0. The analysis of reliability gain is also presented in Section 5.0.

As previously mentioned there were a total of 270 data sets: 186 for ground based systems/equipment and 84 for airborne systems/equipment. This is less than the total amount of data collected since data sets with less than three failures were not used. Each of the six models was fitted to the 270 data sets. That is, the parameters of the models were estimated by the techniques discussed in Section 8.0. The results of the parameter estimation are given in Tables 4.3 and 4.4. However, Table 4.1 should be used in conjunction with Tables 4.3 and 4.4. Table 4.1 gives the explicit form of the models and the notation necessary to use the results given in Tables 4.3 and 4.4. In order to keep some degree of order in the computer routines the "parameter" estimates were designated simply P1, P2, P3 and P4. In addition to the parameter estimates Tables 4.3 and 4.4 give the system number (decoded in Table 2.1), number of failures, total hours of observation, and the two measures of goodness of fit R and R.E. (which are defined in Section 3.7).

4.1.1 Results for the Duane Model. The parameter β is the growth param-That is, in the Duane plot of ln cumulative MTBF versus ln time, $1 - \beta$ is the eter. slope (see Section 3.1 for more details). Since growth only occurs when $1 - \beta > 0$ the Duane model cannot be described as a good fit unless $\beta < 1$. Of course we only have an estimate of β , namely $\hat{\beta}$ (P1 is computer notation) and $\hat{\beta}$ is subject to sampling error. This explains the "parameter" of β_{L} (P3) given in Tables 4.3 and 4.4. β_{L} is the lower 0.90 confidence limit for β based on the particular data set under discussion. This lower confidence limit is extremely important because $\beta > 1$ does not prove $\beta > 1$ due to the sampling error involved in β . By using $\beta_{\rm L}$ in a simple way we can test a hypothesis about β : if $\beta_{L} < 1$ then it could easily be that $\beta < 1$ even though $\hat{\beta} > 1$. On the other hand if $\beta_L > 1$ then clearly (i.e., with at least 0.90 confidence) $\beta > 1$ and the Duane model projects "negative" growth. In this latter case ($\beta_{I,} > 1$ hence $\beta > 1$) we have not proved that the Duane model (which, as mentioned in Section 3.1, corresponds to a nonhomogenous Poisson process with Weibull intensity function) doesn't fit. It may be that the model doesn't fit; it may also be that there indeed was no growth present in the data. To handle this latter problem we calculated the quantity C_{M}^{2} (P4). This is a goodness of fit statistic given in Crow in [7]. The table of critical values for C_{M}^{2} is reproduced in Table 4.2 for varying levels of significance.

In inspecting Table 4.3 for the Duane model results it can be seen that β is, in the large majority of cases, less than one, i.e., growth is positive. Moreover, inspecting the lower confidence limit β_{L} (P3), it is greater than one only twelve (12) times and in only one case (computer, in-house, R1, data set No. 3) was the C_{M}^{2}

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TABLE	4.	1
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Notation Used in Computer	Program
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		Compute	r Symbol	
Model	P1	P2	P3	P4
Duane Y(t) = $K^{\beta} t^{1-\beta}$	β	ĥ	βL	c_{M}^{2}
$IBM = \lambda t + K_1 (1 - e^{-K_2 t})$	â	$\hat{\kappa}_1$	$\hat{\kappa}_2$	
Exponential $-K_2^t$ Y(t) = K (1 - K_1^e)	ĥ	κ̂	κ̂2	
$Lloyd-Lipow$ $Y(t) = K - K_2/t$	ĥ	κ̂ ₂		
Aroef $-K_2/t$ Y(t) = K e	ĥ	ĥ2		
Simple Exponential $Y(t) = K e^{-K_2 t}$	Ŕ	$\hat{\mathbf{k}}_{2}$		

value significant at less than the 0.010 level. Here $C_M^2 = 0.384$, which is significant i.e., the Duane model does not fit at the o < 0.01 level. All this is not to say that the Duane model is always a perfect fit for ground based gear for after all β , β_L and C_M^2 are measures of whether the Duane model fits. The Measures R and R.E. estimate how well the model fits. Inspecting these columns in Table 4.3 shows that the Duane model is quite good with respect to R, the., in about one-half the cases $R \le 25\%$. It is also relatively good with respect to R.E. Actually, for the large number of data sets involved the Duane model performs very well and this, in part, explains why the Duane model is so popular.

For the airborne data (Table 4.4) none of the data sets fail the $\beta_L>1$ and C_M^2 significance test.

However, there are easily identifiable cases where the Duane model does not do well. First, consider the Infrared (I.R.) systems. In-house three of the four β 's exceed one; moreover all four of the \overline{R} 's exceed 30% although RE is not bad. Of the twenty-six field I.R.'s nine β 's exceeded one. Moreover, the \overline{R} 's are uniformly large; the smallest being in excess of 30%. Similarly the Duane model is a mediocre to

TABLE	4,2	
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Critical Values of C_M^2

		I	evel of Significa	nce	
n-1	0.20	0.15	0.10	0.05	0.01
2	0.138	0.149	0.162	0.175	0.186
3	0.121	0.135	0.154	0.184	0.231
4	0.121	0.136	0.155	0.191	0.279
5	0.121	0.137	0.160	0.199	0.295
6	0.123	0.139	0.162	0.204	0.307
7	0.124	0.140	0.165	0.208	0.316
8	0.124	0.141	0.165	0.210	0.319
9	0.125	0.142	0.167	0.212	0.323
10	0.125	0.142	0.167	0.212	0.324
15	0.126	0.144	0.169	0.215	0.327
20	0.128	0.146	0.172	0.217	0.333
30	0.128	0.146	0.172	0.218	0.333
60	0.128	0.147	0.173	0.220	0.333
100	0.129	0.147	0.173	0.220	0.336

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poor description for all laser systems and also the I.R. receiver. On the other hand the Duane model performs excellently for all radar data.

More detailed comparisons and conclusions are given in Section 5.0. We close this section with an example.

<u>Example</u>: As an example consider data set number 1, Ground Based, Computer, Field, R1. The R and R.E. are very low (12.15% and 0.094 respectively). The maximum likelihood estimates were K = 56.92 and $\beta = 0.6644$. Thus $1-\beta =$ growth rate = 0.3356. The calculated cumulative MTBF, i.e., Y(t), is given by

$$\hat{\mathbf{Y}}(t) = (56.92)^{0.6644} t^{0.3356}$$

and is plotted in Figure 4.1a as a function of time along with the observed cumulative MTBF. Figure 4.1b gives the same graph in terms of ln Y(t). It should be noticed that neither of the graphs appears to be a least squares fit. This is because β and \hat{k} are not the least squares estimates but the more efficient maximum likelihood estimates. A commonly occurring phenomenon is also visible in this data set: the "peak" (at the second and third failures) and the "valley" (at the fourth value). Had K and β been estimated as the first few failures became available undoubtedly $\beta > 1$ ("negative" growth) would have been experienced. Early failure data must be carefully screened to determine that the actual failure times are indeed recorded and that the system is operating and being monitored correctly.

4.1.2 <u>Results for the IBM model</u>. This model and all the subsequent models have not been studied as intensely as the Duane model in the literature. Hence the measures of whether and how well the model fits have been combined into the \overline{R} and R.E. quantities.

The IBM model shows some remarkable results. It is clearly not very good (in fact bad) for ground based radars (in-house and field) and microwave systems/ equipment (in-house and field). However, with very minor isolated exceptions the IBM model fits excellently for communications (in-house and field) systems/ equipment, quite well for displays and moderately well for computers and antennas.

For the airborne based systems/equipment the performance of the IBM model would be bad to mediocre except for radars for which the performance is good.

The following example, chosen to be a good fit, illustrates the power of the IBM to give information about the growth process.

Example: Data set No. 4, Airborne, Antenna, In-house, R2.

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It will be recalled that in the IBM model the dependent variable was V(t) = the expected number of failures in time t; specifically

$$V(t) = \lambda t + K_1(1 - e^{-K_2 t}).$$

FIGURE 4.1a





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In Figure 4.2 we have graphed calculated cumulative MTBF (namely $t/\hat{V}(t)$) along with the observed cumulative MTBF. Of course

$$\hat{\mathbf{V}}(\mathbf{t}) = \hat{\mathbf{\lambda}}\mathbf{t} + \hat{\mathbf{K}}_{1}(1 - e^{-\hat{\mathbf{K}}_{2}t}).$$

For this data set $\hat{\lambda} = 0.01037$, $\hat{k}_1 = 11.17$ and $\hat{k}_2 = 0.007259$. \overline{R} and R.E. were very low (4.23% and 0.011 respectively). We can see the utility of the model as follows. First we should note that the total test time was 1,000 hrs and 21 failures were observed. Now $\hat{\lambda}$ is an estimate of the constant (random) failure rate and hence the MTBF for purely random failures is about $(0.01037)^{-1} \approx 100$ hrs. Thus in 1,000 hrs we should see about 10 random failures. The term $\hat{k}_1 = 11.17$ is an estimate of the number of non-random failures in the antenna at the beginning of testing. Thus, roughly, if all the non-random failures have been removed, we have: 10 (random) + 11 (non-random) = 21, the number of failures observed.

We can check this reasoning easily. Let us calculate the fraction of non-random failures removed by t = 1,000 hrs (the total test time). We must use equation (3.12) of Section 3.2. Since

$$t_q = \frac{-\ln (1-q)}{K_2}$$

we can solve for q as follows:

$$-\ln (1-q) = \hat{K}_2 t_q \Rightarrow q = 1 - e^{-\hat{K}_2 t_q}.$$

Thus,

$$q = 1 - e^{-7.259} = 0.9993.$$

The estimate of the fraction of the <u>non-random</u> failures <u>removed</u> by time t = 1,000 hr is then 0.9993. If we had been content to stop testing when 0.90 of the non-random failures were removed we would have stopped at:

$$t_{0.90} = \frac{-\ln (0.10)}{\hat{K}_2} = \frac{-(-2.30)}{0.007259} \approx 317 \text{ hr.}$$

Thus the reliability program "debugged" the antenna quite nicely.

4.1.3 <u>Results for the exponential-single term power series</u>. This model is called simply the exponential model in the computer printouts i.e., Tables 4.3 and 4.4.

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FIGURE 4.2



The results for this model on the ground based data indicate that it does well enough on displays and microwave systems/equipment and from mediocre to poor on the balance of the systems/equipments.

The results for the airborne data are quite different. The exponential-single term power series model is an excellent fit for virtually all airborne data with \overline{R} 's below 10% and between 10 and 20% not only common but occurring the majority of the time. The following example illustrates the use and interpretation of the model.

Example: Data set No. 4, Airborne, Antenna, In-house, R2. Again, by choice. the fit is very good and the model is given by

Cumulative MTBF =
$$Y(t) = K (1 - K_1 e^{-K_2 t}),$$

hence the fitted curve is

$$\hat{\mathbf{Y}}(\mathbf{t}) = \hat{\mathbf{K}} (\mathbf{1} - \hat{\mathbf{K}}_{\mathbf{1}} \mathbf{e}^{-\hat{\mathbf{K}}_{\mathbf{2}}\mathbf{t}})$$

where

$$\hat{\mathbf{K}} = 193.1, \ \hat{\mathbf{R}}_1 = 0.9409 \text{ and } \hat{\mathbf{R}}_2 = 0.000219.$$

 $\hat{Y}(t)$ is graphed in Figure 4.3 along with the observed values. As mentioned in Section 3.3 the parameter K represents the limiting $(t \rightarrow \infty)$ cumulative MTBF which in this case is estimated to be 193.1 hr. Also, the initial MTBF is about $\hat{K}(1 - \hat{K}_1) = 193.1 (0.06) = 11.59$.

4.1.4 <u>Results for the Lloyd-Lipow model</u>. Since (see Section 3.4) K is the limiting value of MTBF only positive values of K (P1) make sense no matter how small R and/or R.E. may be. For the ground based data this (negative K) occurred only eight times. There are no obvious patterns for the ground based data and this model seems to fit mediocre to good for most of the systems/equipments. For the airborne data this model behaves about the same as the ground data except it definitely does not fit laser data well at all.

The following example, chosen from the good fits illustrates the interpretation of this model.

Example: Data set No. 5, Ground, Antenna, Field, R1.

This model is

Cumulative MTBF = $Y(t) = K - K_0/t$

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$$\hat{\mathbf{Y}}(\mathbf{t}) = \hat{\mathbf{K}} - \hat{\mathbf{K}}_2/t.$$

For this data set $\overline{R} = 5.382\%$ and R.E. = 0.038 which indicates a very good fit. K = 183.9 which is an estimate of the limiting MTBF. $K_2/K = 2993/183.9 \approx 16$ hrs. is an estimate of the right end point (the left end point is zero) of the interval of time over which no testing took place. Mathematically this is expressed by Y(t) = 0. The graph of the estimated function along with the observed values is given in Figure 4.4.

4.1.5 <u>Results for the Aroef model</u>. With respect to ground systems/equipments the Aroef model appears to fit, moderately well, all various data classes. For the airborne data the situation is much the same, perhaps even better although the model does not behave well for some laser equipments.

The following example was, as usual, chosen intentionally because it is a reasonably good fit.

Example: Data set No. 5, Ground, Radar, In-house, R3.

As indicated in Section 3.5 the Aroef model is

Cumulative MTBF =
$$Y(t) = K e^{-K_2/t}$$

and hence the estimated model is

$$\hat{\mathbf{Y}}(\mathbf{t}) = \hat{\mathbf{K}} \mathbf{e}^{-\hat{\mathbf{K}}_2/t}$$

For this data set $\hat{K} = 491$ (the limiting cumulative MTBF) and the growth rate parameter $\hat{K}_2 = 182.1$. For this data $\hat{K} = 491$ may be a little low having been "pulled down' by the last point (as can be seen in Figure 4.5). The fit is very good however since $\hat{R} = 7.842$ and \hat{R} . E. = 0.223 are low.

4.1.6 <u>Results for the simple exponential model</u>. This model was used arbitrarily to see if even models not physically correct (but with the appropriate mathematical properties) might fit the various data sets. The model is

Cumulative MTBF =
$$Y(t) = K e^{\frac{K_2 t}{K}} K > 0$$

and hence the fitted curve is

$$\hat{\mathbf{Y}}$$
 (t) = $\hat{\mathbf{K}} \mathbf{e}^{\hat{\mathbf{K}}_2 t}$.





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MTBF (in hundreds of hours)

Since

 $\lim_{t \to \infty} Y(t) = \infty \text{ if } K_2 > 0$

and

 $\lim_{t \to \infty} Y(t) = 0 \text{ if } K_2 < 0$

the model is nonsense physically because a cumulative MTBF of either zero or infinity is absurd; however Y(t) is monotone increasing in t and it is entirely possible for relatively short times (relative to $t \rightarrow \infty$) the model might fit well.

Inspecting Table 4.3 (ground-based data) it is clear that this model fits all the data quite well. For the airborne data in Table 4.4 the model also fits quite well except possibly for laser systems/equipment. Thus even though in the limit as $t \rightarrow \infty$ the model is absurd, it fits well for the relatively short times in the data.

The following is an example of the model when it fits well.

Example: Data set No. 2, Ground, Computer, In-house, R3.

For this data set $\hat{K} = 14.31$ and $\hat{K}_2 = 0.0009096$. The R and R.E., as can be seen from Figure 4.6 are very low. Also Figure 4.6 indicates that while the fit is good for the data observed, it cannot continue since the $\hat{Y}(t)$ is growing exponentially.



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Before beginning the model comparisons over the various factors defining the data classes we give in Section 5.1 some general results concerning how well the models relate to each other using the \overline{R} and R.E. statistics as the criteria of goodness of fit.

5.1 General Comparisons Between Models

A computer run was made to determine, for each data set, which model resulted in the smallest value of \overline{R} and which model resulted in the smallest value of R. E. These results, along with the smallest values themselves, are given in Table 5.2 starting on page 198. A summary of Table 5.2 is given in Table 5.1a and Table 5.1b.

In Table 5. 1a we see that the best model overall was the Simple Exponential. Also, the IBM, Exponential and Aroef models were frequently best. All the numbers presented in Table 5. 1a must be viewed with several important "disclaimers." Before discussing these it should be noted that the median has been used for \overline{R} as the measure of central tendency to eliminate the misleading upward bias of the arithmetic mean due to a few isolated excessively large values. Similarly the geometric mean has been used for R.E. because each R.E. represents a ratio and the arithmetic mean has a misleading upward bias.

Definitions: Let \overline{R}_i and R. E. i represent the individual values of a total of m in a particular category, i.e., $i = 1, \dots, m$.

For m odd

Median \equiv the [(m + 1)/2]th largest value, i.e. the median is $\overline{R}(\frac{m+1}{2})$ when the \overline{R}_i have been ranked from smallest to largest. $(\frac{m+1}{2})$

For m even

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Median
$$\equiv \begin{pmatrix} \overline{R}_{\underline{m}} + \overline{R}_{\underline{m+2}} \\ \underline{2} & \underline{2} \\ 2 \end{pmatrix}$$

i.e., the median is the arithmetic mean of the

two "middle" values when the \overline{R}_{j} have been ranked from smallest to largest.

Geometric mean
$$\equiv \left[\frac{M}{\prod_{i=1}^{M} R.E._{i}}\right]^{1/n}$$

The numbers given in Table 5.1a are "overall" numbers and tend to mask airborne versus ground and in-house versus field differences. In fact, it is clear from Table 5.1a that all the models fit reasonably well on the average. It should be noted that while the IBM model, with the exception of the simple exponential model, was most frequently best it was the highest with respect to both "average" \bar{R} and R. E. These points suggest that the results should be looked at in lower levels of classification and we do this in the next section.

SECTION 5.0 - COMPARISONS BETWEEN MODELS AND DATA CLASS FACTORS

Before beginning the model comparisons over the various factors defining the data classes we give in Section 5.1 some general results concerning how well the models relate to each other using the \overline{R} and R. E. statistics as the criteria of goodness of fit.

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For m odd

Median \equiv the [(m + 1)/2]th largest value, i.e. the median is $\overline{R}(\frac{m+1}{2})$ when the \overline{R}_i have been ranked from smallest to largest.

For m even

Median
$$\equiv \left(\frac{\overline{R}_{m} + \overline{R}_{m+2}}{2}\right)$$
 i.e., the median is the arithmetic mean of the

two "middle" values when the \overline{R}_{j} have been ranked from smallest to largest.

Geometric mean
$$\equiv \left[\frac{M}{\prod_{i=1}^{M} R.E._{i}} \right]^{1/m}$$

The numbers given in Table 5.1a are "overall" numbers and tend to mask airborne versus ground and in-house versus field differences. In fact, it is clear from Table 5.1a that all the models fit reasonably well on the average. It should be noted that while the IBM model, with the exception of the simple exponential model, was most frequently best it was the highest with respect to both "average" \overline{R} and R. E. These points suggest that the results should be looked at in lower levels of classification and we do this in the next section.

		R		1	R.E.	
Model	No.	%	Median	No.	%	Mean*
Duane	13	4.8	26.92	22	8,2	0.96
IBM	53	19.6	26.85	27	10.0	1.10
Exponential	45	16.7	21,45	53	19.6	0.93
Lloyd-Lipow	9	3.3	21.15	29	10.7	0,58
Aroef	46	17.0	19.21	31	11.5	0.54
Simple Exponential	104	38.6	13.39	108	40.0	0.32
Totals	270	100	21.30	270	100	0.68

		TAB	LE 5, 1a			
Analysis of 1	Frequency	of Best	Fits and	l Goodness	of	Fit by Model

TABLE 5.1b

Total Goodness of Fit Analysis for Airborne/Ground and In-House/Field Classifications

	Gro	und	Airb	orne	In-ho	ouse	Fie	ld
	R	R.E.	R	R.E.		R. E.	R	R.E.
Duane	25.46	0.94	31.63	1.01	26.57	0.61	27.05	1.25
IBM	27.42	1.57	20.10	0.43	28.15	0.65	26.27	1.55
Exponential	31.84	1.88	10.97	0.09	15.42	0.31	31.29	1.66
Lloyd-Lipow	21.15	0.65	20.96	0.46	27.31	0.60	20.17	0.57
Aroef	19.55	0.63	18.64	0.39	22.81	0.58	18.52	0.52
Simple Exponential	13.60	0.35	12.91	0.26	15.46	0.28	12.89	0.34
Totals*	23.30	0.86	19.37	0.35	24.69	0.48	23. 22	0.83

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*Median for \overline{R} ; geometric means for R. E.

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5.2 Airborne/Ground and In-House/Field Comparisons by Model

Some interesting conclusions can be obtained from Table 5.1b.

In Table 5.1b, by inspecting the totals, it is clear that airborne systems/ equipment growth dath is better fitted, on the average than the ground based data. This may well be due to the generally more severe missions for airborne systems and hence more aggressive testing and monitoring throughout the life-cycle. While there is little difference with respect to the \overline{R} for in-house versus field, the in-house \overline{R} . E. is significantly better. This is probably due to the more careful testing and monitoring that is accomplished in-house and this result is entirely expected.

Regarding the models themselves, four points are worth noting.

- i) The Duane model does not behave all that well for airborne data.
- ii) The exponential model is much superior for airborne data than it is for ground and it is superior for in-house as against field data.
- iii) The IBM model does its' best, by far, for airborne data.
- iv) The simple exponential model is uniformly good (for a limited time span).

In the next section we investigate the class differences even further.

5.3 Joint Airborne/Ground/In-House/Field Comparisons by Model

The results of this analysis are given in Table 5.3. This table gives a better look at data class differences, if any. The following conclusions are evident.

- i) The Duane model cannot be recommended for airborne field data.
- ii) Conversely, the IBM model is excellent, at its' best, for airborne field data.
- iii) The exponential model is excellent for all airborne data, but is best for airborne field data.
- iv) The Lloyd-Lipow and Aroef models do quite well for airborne-field data.
- v) The simple exponential model is good everywhere although the exponential model is clearly better for all airborne systems/equipments.

In the next section we look at the models in terms of equipment categories.

5.4 Comparisons of Models by Equipment Categories

The results are given in Table 5.4 and lead to the following conclusions.

i) For antennas all the models except the Duane model are quite good.

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TABLE 5.3

		Gro	und			Airb	orne	
	In-He	ouse	Fie	eld	in-H	ouse	Fie	eld
	Ŕ	R.E.	R	R.E.	Ŕ	R.E.	R	R.E.
Duane	28.64	0.73	24.38	1.01	25.44	0.54	67.88	4.1373
IBM	28.43	1.15	26.85	1.73	23.96	0.42	13.66	0.51
Exponential	24.41	1.21	32.05	2.11	11.41	0.10	7.38	0.07
Lloyd-Lipow	25.32	0.64	20.65	0.66	28.42	0.58	11.79	0.27
Aroef	22.30	0.62	19.21	0.63	23.70	0.55	10.57	0.18
Simple Exponential	16.95	0.36	13.08	0.35	13.76	0.24	12.20	0.31

Joint Goodness of Fit Analysis for Airborne/Ground and In-House/Field Classifications

ii) For radar and microwave systems/equipment the Luane model and the simple exponential model are very good.

iii) For display, computer, and communications equipment the Lloyd-Lipow, Aroef and simple exponential models are good.

- iv) For infrared systems equipment all models but the Duane model are excellent.
- v) For all laser systems/equipments the exponential is vastly superior to all other models.
- vi) For the visual scan equipment the exponential model is again superior to the remaining models.
- 5.5 Reliability Gain Analysis

In this section we discuss reliability gain in terms of the various factors that define the data classes. Roughly speaking, for a given data set, the reliability gain is defined as the ratio of the final cumulative MTBF to the initial cumulative MTBF. For computing the reliability gain we will use the Duane model since: (1) it virtually always fits the data, and (2) it provides a convienent means of computing initial MTBF. We will use two measures of reliability gain defined as follows.

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TABLE 5.4 Model Comparisons by Equipment Categories

35.9850 16.7530 23.0410 22.3320 21.5580 16.2990 1.0482 0.7259 0.5796 0.5641 0.5548 0.4177 20.0280 50.1790 72.3920 26.6380 22.6870 12.3960 0.4015 1.7720 6.2718 0.65765 0.6580 0.3157 20.0280 50.1790 72.3920 26.6380 22.6870 12.3960 0.7015 1.7720 6.2718 0.6765 0.6580 0.3157 19.0350 25.4430 15.4510 20.2110 18.7690 11.6750 0.77838 0.9908 33.6450 27.3150 0.8172 0.3025 1.1747 0.7968 1.1845 0.5284 0.4772 0.2424 1.1767 0.7968 1.1845 0.5284 0.4772 0.2424 28.5570 46.8850 2.9100 0.6077 0.5948 0.4772 0.2424 21.1567 2.8600 2.9100 0.6073 0.6339 0.6372 0.5424		Duane	IBM	Exponential	Lloyd	Aroeî	Simple Exponential	
20.0280 50.1790 72.3920 26.6380 22.6870 12.3960 0.4015 1.7720 6.2718 0.6765 0.6580 0.3157 19.0350 25.4430 15.4510 0.7973 0.8172 0.3025 0.7838 0.9908 0.6356 0.7973 0.8172 0.3025 1.1747 0.7968 1.1845 20.2110 18.6920 11.6750 1.1747 0.7968 1.1845 0.5284 0.4772 0.3025 1.1747 0.7968 1.1845 0.5284 0.4772 0.2424 28.5570 46.8850 44.9850 19.0615 17.0070 11.7310 28.5570 46.8850 2.9100 0.65284 0.4772 0.2424 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 46.8850 2.9100 0.6772 0.5949 0.3171 28.5570 1.5675 0.95384 0.6773 0.5948 0.3171 29.7805 0.9549	Antenna	35.9850 1.0482	16.7530 0.7259	23.0410 0.5796	22.3320 0.5841	21.5580 0.5548	16.2990 0.4177	R.E.
19.0350 25.4430 15.4510 20.2110 18.7690 11.6750 0.7838 0.9908 0.6356 0.7973 0.8172 0.3025 1.1747 0.7968 1.1845 0.5284 0.4772 0.3025 1.1747 0.7968 1.1845 0.5284 0.4772 0.3171 28.4580 24.8850 33.6450 0.5284 0.4772 0.3171 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 28.8500 2.9100 0.6077 0.5948 0.3171 28.4698 0.8457 0.9524 0.5233 0.65399 0.6372 30.7875 19.5605 30.8080 21.8400 27.7325 12.1090 14.5100 26.7090	adar	20.0280 0.4015	50.1790 1.7720	72.3920 6.2718	26.6380 0.6765	22.6870 0.6580	12.3960 0.3157	R.E.
28.4680 24.8620 33.6450 22.2150 18.6920 12.0720 1.1747 0.7968 1.1845 0.5284 0.4772 0.2424 1.1747 0.7968 1.1845 0.5284 0.4772 0.2424 28.5570 46.8850 44.9850 19.0615 17.0070 11.7310 28.5570 46.8850 2.9100 0.6077 0.5948 0.3171 28.5570 46.8850 2.9100 2.9100 0.6077 0.5948 0.3171 28.5570 19.5005 30.8080 2.18400 2.5400 16.0990 0.3171 30.7875 19.5005 30.8080 21.8400 20.5389 0.6372 30.7875 0.9457 0.9524 0.5233 0.6372 16.0990 14.5100 26.7090 189.3860 33.2090 27.7325 12.1090 14.5100 26.7090 189.3860 37.7325 0.19769 0.1978 19.3220 19.1505 16.0805 0.7714 0.7769 0.19778 <	Microwave	19.0350 0.7838	25.4430 0.9908	15.4510 0.6356	20.2110 0.7973	18.7690 0.8172	11.6750 0.3025	R.E.
28.5570 46.8850 44.9850 19.0615 17.0070 11.7310 1.1587 2.8860 2.9100 0.6077 0.5948 0.3171 30.7875 19.5005 30.8080 21.8400 20.5840 16.0990 2.4698 0.8457 0.9524 0.6523 0.6389 0.6372 14.5100 26.7090 189.3860 33.2090 27.7325 12.1090 0.1688 1.3847 8.1803 0.7514 0.7769 0.1978 14.5100 26.7090 189.3860 33.2090 27.7325 12.1090 0.1688 1.3847 8.1803 0.7514 0.7769 0.1978 0.1688 1.3847 8.1803 0.7514 0.7769 0.1978 19.3220 19.1505 16.0805 20.2900 19.1680 11.3010 19.3320 19.1505 0.7144 0.9157 0.9182 0.37790 19.3820 219.9044 8.2890 80.0380 48.1175 0.27420 19.3820 2	Display	28.4680 1.1747	24.8820 0.7968	33.6450 1.1845	22.2150 0.5284	18.6920 0.4772	12.0720 0.2424	R.E.
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Computer	28.5570 1.1587	46.8850 2.8860	44.9850 2.9100	19.0615 0.6077	17.0070 0.5948	11.7310 0.3171	R.E.
14.5100 26.7090 189.3860 33.2090 27.7325 12.1090 0.1688 1.3847 8.1803 0.7514 0.7769 0.1978 19.3220 19.1505 16.0805 20.2900 19.1680 11.3010 19.3220 19.1505 16.0805 20.2900 19.1680 11.3010 0.9852 0.7591 0.7144 0.9157 0.9182 0.3717 0.9852 0.7144 8.2890 80.0380 48.1175 0.3717 0.9710 2.3913 0.0189 0.7265 0.7111 0.2242 0.0710 2.3913 0.0189 0.7265 0.7111 0.2242 65.9675 14.2100 11.6100 12.3915 11.5110 12.5170 ed 4.2379 0.5450 0.1148 0.3028 0.2184 0.3516	Communications	30.7875 2.4698	19.5005 0.8457	30.8080 0.9524	21.8400 0.6223	20.5840 0.6389	16.0990 0.6372	R.E.
19.3220 19.1505 16.0805 20.2900 19.1680 11.3010 0.9852 0.7591 0.7144 0.9157 0.9182 0.3717 0.9852 0.7144 8.2890 80.0380 48.1175 30.7790 19.3820 219.9044 8.2890 80.0380 48.1175 30.7790 0.0710 2.3913 0.0189 0.7265 0.7111 0.2242 65.9675 14.2100 11.6100 12.3915 11.5110 12.5170 4.2379 0.5450 0.1148 0.3028 0.2184 0.3516	ystem-Radar	14.5100 0.1688	26.7090 1.3847	189.3860 8.1803	33.2090 0.7514	27.7325 0.7769	12.1090 0.1978	R.E.
19.3820 219.9044 8.2890 80.0380 48.1175 30.7790 0.0710 2.3913 0.0189 0.7265 0.7111 0.2242 65.9675 14.2100 11.6100 12.3915 11.5110 12.5170 ed 4.2379 0.5450 0.1148 0.3028 0.2184 0.3516	iystem- dicrowave	19.3220 0.9852	19.1505 0.7591	16.0805 0.7144	20.2900 0.9157	19.1680 0.9182	11.3010 0.3717	R.E.
65.9675 14.2100 11.6100 12.3915 11.5110 12.5170 4.2379 0.5450 0.1148 0.3028 0.2184 0.3516	ystem-Laser	19.3820 0.0710	219.9044 2.3913	8.2890 0.0189	80.0380 0.7265	48.1175 0.7111	30.7790 0.2242	R.E.
	ystem-Infrared	65.9675 4.2379	14.2100 0.5450	11.6100 0.1148	12.3915 0.3028	11.5110 0.2184	12.5170 0.3516	R.E.

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TABLE 5.4

Model Comparisons by Equipment Categories (Continued)

	Duane Model	IBM Model	Exporential Model	Lloyd Lipow	Aroef Model	Simple Exponential	
System-	13.4620	44.3915	8.7840	23.8460	19.6965	18.2945	R.E.
Visual Scan	0.2909	1.6316	0.1942	0.6400	0.5550	0.3932	
Laser	33.6590	138.9970	15.6250	42.9715	28.8185	31.0705	R.F.
Transmitter	0.2355	0.6332	0.0243	0.3465	0.2770	0.3234	
Laser	51.2480	126.7180	12.0280	52.5700	32.5030	31.7310	R.E.
Receiver	0.3118	0.9517	0.0394	0.6944	0.6587	0.2164	
Laser Xmtr/	25.2970	158.5719	11.4100	66.1775	42.6435	36.0765	R.E.
Rcvr	0.1163	J.9805	0.0293	0.6072	0.5273	0.3072	
Infrared	41.4885	16.1805	22.4500	21.4965	16.2760	19.4350	R.E.
Receiver	0.9573	0.3365	0.0816	0.5767	0.5047	0.6174	

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 $RG_1 = \frac{observed final cumulative MTBF}{calculated initial cumulative MTBF}$

 $RG_2 = \frac{\text{calculated final cumulative MTBF}}{\text{calculated initial cumulative MTBF}}$

In RG₁ one would ordinarily expect to find the observed initial cumulative MTBF in the denominator. However, determining how many failures should be included in calculating "initial" cumulative MTBF is very arbitrary, particularly for data sets with small numbers of failures. To avoid possible serious bias in the results we have used the definitions given above.

It has already been shown (Section 3.1) that for the Duane model the mean time to first failure is

Initial cumulative MTBF = $K\Gamma(1/\beta + 1)$

where Γ (u) is the usual gamma function of u. The maximum likelihood estimate is thus given by $\hat{K}\Gamma(1/\hat{\beta}+1)$. Thus $RG_1 = (t^*/n)/\hat{K}\Gamma(1/\hat{\beta}+1)$,

where t* is the total length of test and n is the number of failures in the data set, and $RG_2 = \hat{R}^{\hat{\beta}} t^{*(1-\hat{\beta})} / \hat{K} \Gamma (1/\hat{\beta} + 1).$

In RG_2 the numerator is the calculated final cumulative MTBF.

In calculating "average" values for RG_1 and RG_2 we have used, since the RG's are ratios, geometric means. These are denoted GM_1 (for RG_1) and GM_2 (for RG_2). For calculation, $GM_i = \begin{pmatrix} m \\ \prod \\ j=1 \end{pmatrix} \frac{1/m}{r}$, i = 1, 2 $j = 1, \cdots, m$.

where m is the number of RG_i 's to be averaged (the average is over all sets in a category).

5.5.1 <u>Analysis of Reliability Gain for Reliability Categories and Ground Versus</u> <u>Airborne Based Systems/Equipments</u>. The results, i.e., the geometric means, are given in Table 5.5. First it should be noticed that the "observed" gains (GM_1) and the calculated gains move together quite nicely. Generally, the least gain is achieved by spending no dollars (R1) <u>although it should be noted that while no reliability money</u> was spent, per se, failures that did occur were recorded and corrective action taken under engineering auspices. The explanation for why the growth was larger for moderate reliability expenditures (R2) than it was for larger expenditures (R3) is two-fold.

i) The larger expenditures concentrated more funds in the design phase (as against testing) and the system/equipment was probably better (less design/workmanship faults) when testing started so there was less gain to be had to achieve the limiting cumulative MTBF. This conclusion was based on the general observation of a number of the individual data sets.

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TABLE 5.5

	Gro	und	Airb	orne
	GM1	GM ₂	GM ₁	GM ₂
R1	3.88	5.42	3.09	5.03
R2	5,79	9.98	5,17	7.65
R3	4.02	7.10	2.17	3.57

Average* Reliability Gains for Reliability Categories and Airborne and Ground Based Data

*Geometric means.

ii) Some data sets barely fell into R2 or R3, i.e., were borderline in the classes. Since the bounds in the classes were arbitrarily selected, the differences in the reliability expenditures in terms of reliability gain are hard to detect.

Whether we deal with GM_1 or GM_2 it is apparent that the reliability gain is larger for ground based systems/equipment than for airborne systems/equipment irrespective of whether the reliability class is R1, R2, or R3. We checked the airborne data fairly carefully and found that generally the airborne systems/equipment undergo more environmental and screening type tests at all levels (card through system) than ground-based systems/equipments. Thus the data we have collected includes some, but not all (e.g. card level) screening/environmental tests. Hence, when the airborne systems/equipment reach developmental testing, they are better (higher initial cumulative MTBF) than the ground-based systems/equipments, and thus less reliability gain is present to be achieved by developmental testing.

The absolute magnitude of the numbers in Table 5.5 are of interest in and of themselves. Personally, we are somewhat surprised they are as large as they are. Gains of 5 to 1 and more occur in seven of the twelve cases. Actually they are somewhat small in terms of what some people claim. For example, R. P. M. (the General Electric Co. version of the Duane model) claims a 10 to 1 increase where the limiting cumulative MTBF is taken as the predicted value, and the prediction is made according to MIL Handbook 217B. We did however, experience a 10 to 1 ratio (R2, ground).

5.5.2 Analysis of Reliability Gain for In-House and Field Data. Table 5.6 gives the geometric means for the in-house and field data sets. The results are entirely believable. Even though the 9.76 result is high (caused by a particular gain present in a limited number of data sets on the ground data) it is clear there is more reliability gain achieved by developmental testing than by field use. This is because most of the design, workmanship, and other non-random failures have been removed before the system enters the field. Thus, developmental testing is doing its' job.

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TABLE 5.6

GM1 GM2 In-House 5.64 9.76 Field 2.45 4.68

Average* Reliability Gain, In-House and Field

*Geometric mean.

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5.5.3 <u>Analysis of Reliability Gain by System/Equipment Category</u>. Tables 5.7 (ground) and 5.8 (airborne) actually present the "average" reliability gains. We have intentionally not averaged the data over reliability categories, in-house versus field or airborne versus ground so as not to obscure equipment/system differences which might be caused by small data sets and/or unusually large reliability gains.

Several very logical results can be seen from the tables. A case in point is the ground based communications equipment in Table 5.7. It shows very modest reliability growth and this phenomenon is probably due to the fact that communications technology is among the oldest and many design problems have long since been solved. Thus the payoff in developmental testing for communications equipment is not large.

Generally, computers and displays exhibit moderate reliability growth which is probably a manifestation of the fact that computers and displays represent a relatively mature technology.

Radars, which are a constantly changing technology reflected in complex designs, generally experienced moderate to large gain.

Microwaves and antennas exhibit generally moderate to large gain.

Actually, except for communications equipment there are very small differences in the gain among the remaining categories.

By referring to Table 2.5 of Section 2, we can see that some of the large gains are due to paucity of data. For example in Table 5.8 the infrared receiver, inhouse, R2, the gain is determined from only one data set.

5.6 Parametric Analysis for the Duane Model

In this section, because of the overwhelming popularity of the Duane model, we give a brief parametric analysis in terms of the slope of the growth line. Here the "line" is in terms of the ln cumulative MTBF versus ln time. In Section 3.1 it is pointed out that this slope is given by $1 - \beta$. Of course we do not have β , but we do have an estimate of β , namely β . The results are given in Table 5.9 which provides ground versus airborne and in-house versus field comparisons. The only significant fact is that the in-house growth rate is significantly larger than the field

	TABI	JE 5.7	
Reliability	Gain,	Ground	Summary

Equipment	- 14-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	REL	GM1	GM2
Antenna	In-house	R3	2.431	5,455
Antenna	Field	R1	2.121	2,928
Radar	In-house	R3	2.328	3.719
Radar	Field	R1	3.771	5.261
Microwave	In-house	R1	1.129	2.174
Microwave	Field	R1	5.400	7.334
Display	In-house	R3	38.402	78.580
Display	In-house	R3	3,217	4.484
Display	Field	R1	5.512	9.329
Display	Field	R2	2.762	4.450
Display	Field	R3	2.363	3.723
Computer	In-house	R1	4.507	7.205
Computer	In-house	R2	1.781	2.212
Computer	In-house	R3 -	11.880	28.419
Computer	Field	R1	22,952	4.091
Computer	Field	R2	5.024	9.331
Communication	In-house	R3	1.464	1.727
Communication	Field	R1	1.507	1.852
System-Radar	In-house	R3	2.642	3.572
System-Radar	Field	R1	11.609	18,239
System-Microwave	In-house	R1	1.129	1,174
System-Microwave	Field	R1	5,335	7.187

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TABLE 5.8Reliability Gain, Airborne Summary

Equipment		REL	GM1	GM2
Antenna	In-house	R2	4.089	6.335
Radar	In-house	R2	13,993	23.341
Display	In-house	R2	2.153	2.837
Computer	In-house	R1	2.376	3.745
Computer	In-house	R2	1.424	1.715
Laser Transmitter	In-house	R1	2.119	3,704
Laser Transmitter	In-house	R3	3.403	6.142
Laser Receiver	In-house	R1	2.990	4.924
Laser Receiver	In-house	R3	3.183	8.207
Laser Xmtr/Rcvr	In-house	R1	3,941	6.601
Laser Xmtr/Rcvr	In-house	R3	7.477	15.057
Infrared Receiver	In-house	R2	25,096	48.205
System-Radar	In-house	R2	12.059	18.692
System-Laser	In-house	R1	9.423	17.675
System-Laser	In-house	R3	7.279	13.973
System-Visual Scan	In-house	R2	2.921	3.969
System-Infrared	In-house	R1	1,283	1.448
System-Infrared	Field	R3	1,344	1,934

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	Ground	Airborne	Totals
In-House	0.38	0.35	0.36
Field	0.29	0.28	0.28
Totals	0.31	0.33	0.32

TABLE 5.9 Growth Rates*, 1 - $\dot{\beta}$, for the Duane Model

*Means

growth rate and this is to be expected because of the closer monitoring and control in-house. It is also interesting to note that for in-house data the commonly "pitched" 0.50 growth rate was not seen here, although 0.36 is not all that far from it. The discrepancy is explained by the fact that, generally, R. P. M. and other monitoring techniques were not applied to the present data.

In Table 5.10, we can clearly see the effects of the expenditure of reliability dollars (as percentage of total contract dollars). For the R3 category, the largest (>1% of contract costs) expenditure class, the growth rate is 0.45 which closely approaches the commonly "heard" 0.50.

TABLE 5.10

Growth Rates*, $1 - \hat{\beta}$, for the Duane Model by Reliability Category

Reliability Category	R1	R2	R3
1 - β	0.30	0.37	0.45

*Means

Although the growth rate is largest for the R3 class this does not necessarily contradict the point made at the bottom of page 48. That is, the rate of growth depends on the agressiveness of the "debugging" program, not necessarily on the absolute amount of growth potential available.

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SECTION 6.0 - GUIDELINES FOR APPLICATIONS AND CONCLUSIONS

The results of the data analyses make it clear that, generally, a number of models can be used to fit any particular situation. In this connection we note that while we tried only six different models here, there are many other possibilities and it is likely some of them would also graduate the data well. It is also important that we distinguish how well a given model fits from whether it fits at all. The primary case here is the Duane model. While it was rarely the best fitting model, significance tests indicate that it virtually always fits; which is quite a point in its favor.

Many interesting things were learned by analyzing this data in terms of the various factors defining the data classes and by investigating reliability gain. These results form the basis for the guidelines for applications.

Before proceeding to these guidelines we note the most important conclusion (perhaps already known to the reader) learned from the study.

THE RELIABILITY GROWTH PROCESS IS AN EXTREMELY COMPLEX PHYSICAL PROCESS AND MAY REQUIRE QUITE SOPHISTICATED MATHEMATICAL TOOLS.

When we say "physically complex" we mean the type of failures present, the rate at which they present themselves for detection, and the aggressiveness and consistency of the testing process. Mathematically the growth process is a stochastic process. Now it turns out that, in spite of the wealth of literature on the subject (see ref. [14]), only relatively simple stochastic processes have been studied and analyzed in any detail. It may well be that quite complex stochastic processes are required to model growth processes closely. This brings up another point. Other than recognizing the Duane model as a nonhomogeneous Poisson process with Weibull intensity (a very recent development) the approach to growth models has been, historically, through the use of differential equations. It is our belief that to achieve physically and mathematically satisfying results, reliability growth will have to be approached from the study of stochastic processes. This will result in better estimators for the unknown parameters and a better understanding of the process itself. Thus, the user would be able to more intelligently select a model.

To prove this point of physical complexity, we recall that the simple exponential model, unappealing because it demands an infinite cumulative MTBF, eventually, was far and away the best fitting model. It appears that reliability growth may encompass several phases and that even several <u>different</u> mathematical functions (models) might be required to describe reliability growth.

Guidelines for Applications – Data Class Factors

• Ground versus Airborne Systems/Equipments

Generally, the models tried here fit the airborne data ($\overline{R} = 19.37$, R.E. = 0.35) better than the ground based data ($\overline{R} = 23.30$, R.E. = 0.86). For ground based data the Lloyd-Lipow, Aroef and simple exponential models are quite good but only the IBM and exponential models are unsatisfactory. For airborne data all the models fit very well except the Duane model; however, the exponential model is superior to all the other models.

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In-House versus Field Data

With respect to R.E., the models describe in-house data better than field data overall. Apart from the simple exponential being a good fit as usual all the models fit in-house reasonably well (the exponential model is better than all save the simple exponential model). For field data only three models are satisfactory: the Lloyd-Lipow, Aroef, and simple exponential models.

- Systems/Equipment Categories
 - Antennas all models are suitable except the Duane model.
 - Radar and microwave the Duane and simple exponential models are very good.
 - Displays, computers, communicators the Lloyd-Lipow, Aroef and simple exponential are models which fit well.
 - Infrared All models except the Duane model are excellent.
 - Lasers the exponential model is vastly superior to the other models.

Reliability Gain

The details of calculating reliability gain are given in section 5.5. Roughly it is the ratio of final cumulative MTBF to initial cumulative MTBF. The results given here are based on the Duane model for reasons given in section 5.5.

Generally speaking the reliability gains, over all data classifications were good, i.e., on the order of about 5 to 1 on the average.

With respect to ground based versus airborne data the <u>potential</u> for reliability gain is larger (i.e., larger reliability gain) for ground based systems/equipments. This may well be due to more intensive card level (pre-equipment and system) tests used on many airborne systems.

In terms of in-house versus field data, the results (see Table 5.6) show that the reliability gain for in-house exceeds the field gain by a factor of 2 to 1. This is as expected and could be summarized by saying, as is well known, the growth potential is greater and the cost of removing/correcting defects is lower during in-house testing.

In terms of the reliability expenditure categories R1 (low), R2 (moderate), R3 (higher), the lowest gain (see Table 5.5) is achieved at the lowest expenditure level R1. There is a "crossover" in that R2 results in more gain than R3. This is probably due to two effects.

i) The additional expenditure (in R3) caused a better design and hence less potential for gain was available.

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ii) There is relatively less R2 and R3 data than R1 and this result may have been due to sampling error, or to incorrect classification, e.g., misclassifying an R2 into an R3 category.

Next we give the growth rate for the Duane model which provides a different but interesting view of the R1, R2 and R3 categories.

Parametric Analysis for the Duane Model

We mentioned in section 3.1 (equation 3.1) that the Duane model is

In cumulative MTBF = $\beta \ln k + (1 - \beta) \ln t$.

Hence $1 - \hat{\beta}$ is an estimate of the logarithmic growth rate $1 - \beta$. There is no difference in the growth rate between airborne and ground equipment. However, for in-house the growth rate (0.36) is much higher than the field growth rate (0.28). The interesting result is to compare the Duane model growth rates in terms of reliability categories. They are:

R1 - 0.30 R2 - 0.37 R3 - 0.45

This last rate, 0.45, is very close to the much talked about 0.50 growth rate for well monitored, well controlled programs.

Procedure for Using Reliability Growth Models

1. Locate in Tables 5.3 and 5.4 the model that has the best fit (try to find the model that between both tables has the lowest \overline{R} & R.E. for the particular situation in question) for the particular equipment, environment, and type of growth being considered.

2. Use Table 4.1 to find the parameters that have to be calculated and the form of the model.

3. Locate in eitner Table 4.3 (for ground) or 4.4 (for airborne) the pertinent data base for the equipment/system being considered. Estimate each parameter by averaging those found for each equipment/system in the data base (i.e., N

 $\hat{P}_{1} = \begin{pmatrix} \tilde{\Sigma} & P_{1}i \\ \frac{i=1}{N} \end{pmatrix} \text{ where } \hat{P}_{1} \text{ is the value of } P_{1} \text{ to be used in}$

the growth model for the equipment/system being considered and P_1 i are the estimated parameters from the data base).

4. Use examples in sections 4.1.1 through 4.1.6 and 6.1 and the explanation of each model in sections 3.1 through 3.6 to aid in calculating the desired times and MTBFs.

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6.1 Examples of Use of Models

Example 1. Suppose it is desired to develop an airborne laser system to a specfied MTBF = θ_0 = 25 hrs. at a low level of reliability effort (i.e. R1). Tables 5.3, 5.4 pages 45, 46 indicates the (single-term power series) exponential model is excellent for in-house airborne systems. Proceeding to Table 4.4, page 169, we find two data sets on system no. 21 for laser systems in-house, airborne, R1. From page 22, equation (3.14) we have

cumulative MTBF = $Y(t) = K(1-K_1 e^{-K_2 t})$

and from the bottom of page 22 the initial $MTBF = K(1-K_1)$. From Table 4.1 we learn that

 $P1 = \hat{K}, P2 = \hat{K}_1, P3 = \hat{K}_2.$

Since the two data sets are on the same system no. we will average the values to obtain our estimates:

$$\widehat{K} = \frac{28.02 + 30.64}{2} = 29.33; \quad \widehat{K}_1 = \frac{0.9524 + 0.8225}{2} = 0.89;$$
$$\widehat{K}_2 = \frac{0.002608 + 0.002798}{2} = 0.0027.$$

Thus, initial MTBF is estimated to be $\hat{K}(1-\hat{K}_1) = 29.33(0.11) = 3.23$.

The key issue is: how much developmental test time is required to achieve $\theta_0 = 25$ hrs. Thus setting

$$25 = \widehat{K}(1-\widehat{K}_{1} e^{-K_{2}t}) \text{ and solving for } t \text{ we get}$$
$$t = \frac{1}{\widehat{K}_{2}} \left\{ -\ln \left[(1-\frac{25}{\widehat{K}}) \left(\frac{1}{\widehat{K}_{1}}\right) \right] \right\}$$
$$= \frac{1}{0.0027} \left\{ -\ln \left[(1-\frac{25}{29.3}) \left(\frac{1}{0.89}\right) \right] \right\}$$
$$= 664 \text{ hrs}$$

If this t is too long then more reliability effort must be expended during the development testing. It should be noted that the parameters for the two data sets were so close a weighted average (based on the number of failures in the two sets) was not used.

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Example 2. In this example we consider development of a radar system (inhouse) to a specified MTBF = 100 hrs at R3. Table 5.4, page 46 indicates the Duane model is a good fit. Table 4.3, page 78, shows two data sets on the same system. Rather than complicate this example with weighted averages of the parameters (the number of failures on the two data sets are 14 and 53) we will just use data set number 2. From equation (3.5), page 19,

initial MTBF = $\hat{K} \Gamma(1/\hat{\beta} + 1) = 24.64 \Gamma (1/0.745 + 1)$ = 24.64 $\Gamma(2.34) = 24.64 (1.195)$ = 29.44 9 0 L57] CLASSIFICATION (if any) 8"x 10¹/₂"Crop Page 57 Type Proof Corr Corr From equation (3.3), page 18, we obtain (for the time required to achieve a cumulative MTBF of 100 hrs)

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$$t^{1-\widehat{\beta}} = Y(t)/\widehat{K}^{\widehat{\beta}} \text{ so that}$$

$$t = \left[Y(t)/\widehat{K}^{\widehat{\beta}}\right]^{1/(1-\widehat{\beta})}$$

$$= \left[100/(24.64)^{0.745}\right]^{1/0.255}$$

$$= 5973 \text{ hrs}$$

This is extremely long because the growth rate (0.255) is low. If the "customer" is satisfied that only the instantaneous (and not the cumulative) MTBF be 150 hrs then equation (3.6), page 19, gives

$$t^{1-\hat{\beta}} = \frac{\hat{\beta} \ (100)}{\hat{K}^{\hat{\beta}}} \text{ so that}$$
$$t = \left[\frac{(100) \ (0.745)}{(24.64)^{0.745}}\right]^{1/0.255}$$

= 1888 hrs.



SECTION 7.0 - RECOMMENDATIONS

As a result of this study a large data base has been built. Moreover, the funds available on this program could not nearly exhaust the analyses that could be run; indeed, a large part of the funds was expended building the data base. Thus we are recommending more analysis of the data now available.

In particular we recommend two or three new models be investigated based on a stochastic process approach. Specifically, the nonhomogeneous Poisson process with intensity functions different from the Weibull intensity (which corresponds to the Duane model) should be investigated. This will improve the parameter estimation techniques and lead to a better understanding of the growth process.

Also, we recommend a more intensive analysis of selected data sets. What we mean is that each individual data set selected should be subjected to a (sequential) failure by failure fit. That is, the models selected shall be fit subsequent to each failure to determine whether the best fit changes from failure to failure.

Finally, (and this point relates to the stochastic process approach mentioned above) the growth rates should be classified and investigated by data class factor.

8.1 General Description

The reliability growth software routines were programmed in Fortran IV, utilizing the Hughes computer installation consisting of an IBM 370-165 with extensive library modules.

Data reduction was accomplished through multi-job step procedures, as depicted in diagram 1. Software coding was minimized by using "canned routines," i.e., programs existing in Hughes software library. New software was added only to merge the existing general purpose routines into an integrated data processing program for the Reliability Growth study. The "canned routines" included the UCLA Biomedical computer programs for non-linear least squares and Hughes own programs for curve fitting; both linear and exponential.

8.2 System Failure Data Sets

The ground and airborne system data was stored in permanent computer storage (data sets). Originally we had two (raw) data sets on ATS (administrative technical service), then the data sets were printed, checked and corrected during the restructuring and creation of new data sets. Restructuring was necessary to make the data compatible with the input requirement of the canned routines. Also, additional information was provided in terms of general parameters necessary for the Biomedical Computer Programs (BMD).

8.3 The Biomedical Computer Program

8.3.1 <u>BMD program</u>. The Biomedical Computer Program, (BMDO7R) nonlinear least squares, was utilized on two models the IBM and the exponential (singleterm power series). The BMDO7R was available only in load module form; consequently, it could not be modified. Therefore, the output coefficients for the models were rekeypunched and stored as separate data sets.

8.3.2 <u>Non-linear least squares program</u>. The non-linear regression program obtains a least squared fit of a specific function to data values by means of step-wise Gauss-Newton iterations on the parameters. Within each iteration parameters are selected for modification in the stepwise manner. The parameter selected at a given step is the one which, differentially at least, makes the greatest reduction in the sum of the squares error.

The IBM and exponential (single term power series) model subroutines were coded in Fortran, with the respective derivatives needed for the coefficient evaluation. In all cases the number of iterations was limited to 100, and in a few of the cases the process would not converge.

8.4 The Main Program

The main program has a subroutine for each of the six growth models which is called for each case of the ground and airborne data sets. The subroutines



Data Reduction Program

DIAGRAM No. 1

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THEPARATION OF RADIC TOCHNICAL REPORTS

perform calculations which are passed back to the main program through calling argument list. The system information is then written on separate data set files for subsequent sorting by equipment type, field or in-house and reliability level. The main program also calculates the β and K for the Duane model.

8.4.1 The Duane subroutine. The Duane Model routine uses the data to calculate the maximum likelihood estimates K and β given in equation (3.4).

8.4.2 The IBM subroutine. The IBM subroutine fits the following expression

$$V(t_i) = t_i + K_1 (1 - e^{-K_2 t_i})$$

where λ , K_1 and K_2 are coefficients to be calculated by the BMD program. The parameter data is read from cards for each case because a link between the BMD routine and the main program could not be established.

8.4.3 The exponential (single-term power series model) subroutine. The above discussion applies to the exponential model where the following expression was fitted

$$Y(t_i) = + K (1 - K_1 e^{-K_2 t_i}).$$

In both the IBM and exponential models the range of x in the factor e^{-x} had to be restricted to less than 174.67 otherwise machine diagnostic would indicate machine underflow.

8.4.4 <u>The Lloyd-Lipow subroutine</u>. In the Lloyd-Lipow subroutine the curve fit routine is called to obtain the coefficients used to fit the following expression:

$$Y(t_i) = MTBF_i = K - K_2/t_i$$

where K and K_2 are derived by the curve fit module, and t_i is equal to the time of the ith failure.

8.4.5 The Aroef subroutine. The procedure is the same as 8.4.4 except the expression to be fitted is as follows:

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$$Y(t_i) = MTBF_i = K e^{-K_2 t_i}.$$

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SAMPL SHEETFOR PREPARATION OF RADC TECHNICAL REPORTS
8.4.6 The simple exponential subroutine. The procedure is the same as 8.4.4 except the expression to be evaluated is as follows:

$$Y(t_i) = MTBF_i = K e^{K_2 t_i}$$

8.4.7 Model output data. The calculation from the model subroutine are further processed to determine the statistical goodness of fit criteria \overline{R} and R, E. (see Section 3.7). The subroutine data and the statistical goodness of fit critieria are stored in permanent disk storage for additional processing in preparation for the report generator.

8.4.8 <u>Report generation</u>. The results from the main program are sorted and merged into one large file to facilitate processing. Individual reports for each model are prepared with a data set summary report. This is done for both the ground and airborne system data (see Tables 4.3, 4.4, and 5.2).

8.4.9 Example of method of estimating model coefficients. To illustrate the method of least squares as applied to estimating the model coefficients consider the (non-linear) exponential-single term power series model:

 $Y(t) = K (1-K_1 e^{-K_2 t})$. Here K, K_1 , and K_2 are unknown. The data consists of n pairs (Y_i, t_i) where Y_i is the cumulative MTBF at time t_i . Defining $\hat{Y}(t) = \hat{K}(1-\hat{K}_i e^{-\hat{K}_2 t})$ we need to find estimates \hat{K} , \hat{K}_1 , and \hat{K}_2 so that $Q = \sum_{i=1}^{n} (\hat{Y}(t_i) - Y_i)^2$ is a <u>minimum</u>. This

is the least squares approach. The equations for \hat{K} , \hat{K}_1 , and \hat{K}_2 are not available in closed form except in the linear case. The computer routines solve the three equations $\frac{\partial Q}{\partial \hat{K}} = 0$; $\frac{\partial Q}{\partial \hat{K}_1} = 0$; $\frac{\partial Q}{\partial \hat{K}_2} = 0$ interatively for \hat{K} , \hat{K}_1 , \hat{K}_2 . For the linear case the equa-

tions may be found in almost every statistics book.

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TABLE 4.3 D U A W E M O D E L G R O U M D B V B T E M A N T E N M A B V B T E M

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	2	0,23526+01	0.7186.400	0.34045.0	10.30051.0	0 . 0152E-01		2	0.13546+00	0,35096+00		1.23246+01	0,15016+01	0.54396-01	0,20276+00
2	51	0.3546+00	0.40004-00	0,41726+04	0.27556+00		•	54		0.4505E+00	0,02726+00	0.42416+00	1.1.30550.0	0,35486+00	0.43456+00
	24	6.3215E-01	0.1847E+00	0,19436+01	0.2470E+00	9,66336+62	2 0 0 E - 6 7 8 4 8 - 6 8 - 6	2	0,14426+02	0° 4057E+02	0.57272+03	0,45816+00	0.22926+62	0.32776+05	0,1020[+03
	1	0*******	0.47186+00	0.51865+00	0.3637E+00	0.76396+00	590 1952 1952 1959 1959 1950 1950	14	0*24346+0	0.84326+00	0.14146+01	0.44746400	0.10128-01	0.4750€+00	0,0002-00
	BUUNB	2700	3200	3700	3700	5952		HUUR	2103	2248	3322	3415	4554		
	NO.FAIL	105	100	20	33	:		NO.FAIL	11	32	2	304	112	٠	12
	01848	•	•	•	•	•		ONBAS	•	•	•	~	~	-	-
		N0. 1	NO. 2	NO. 3	* °0*	59° 5			NO. 1	N0, 2	NO. 3	NO. 4	¥0*	NO. +	NO. 7
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	Direte	NU.FAIL	81004	2	2	2	1	2482	H
	11 1	5	11490	11-10044*1	50+35+02.0	0+30505*0	0-91385-01	12,153	.0.04
2		33	5703		10+30547*0	0.33466+00		25,933	0, 022
P	Zi Si	•	5916		4.12786+53	0.45136+00	•••3•1•6•••	39,481	500.0
-	* 15	•	11000	0*******	0,24425+03	0.55776+00	0.29265+00	24,997	5.201
N0.	~	35	10304	10-Jests'.	40+30671,0	0.40446+00	0.27756+00	16.310	
N0.		m	51132		10-34418-0	0.43796+00	0.75096-01	54,794	1.733
N0. 7	15	•	11209	0"-1818L+00	0-9741E+03	0+95+00	0,5442E-01	26,303	0.012
	15	4	10642	10+355+1"0	8,6491E444		0.78416-01	50.404	37,020
• NO. •	11	•	20101	10-3-201-0	*********	0.41026+00	0.17536+00	30,252	2,307
N0.10	12		23495	0.74518-40	***IIISE***	0.45136+66	0,7377E-01	27,105	0.0.0
N0.11	1 15	10	15741	84+34L14*6	10+31+411"s	0.38456+00	0.20146+89	34.737	9.706
N0.12	15	11	27252		***34461*6	0.4473E+00	0,29276-01	10,131	295
NO.13	:	20	15756	10-32011*0			0,07862-01	13,942	1.705
N0.1.	5	:	13060	10-36001"s	E	0.70216+00	0.4074E-01	15.441	10. 530
N0.15	13	34	23480		1-10056+01	0.+35824.0	0.48985-05	12,937	•€, *0
N0.14	=	5	10325	00-300414"O	0.10016+63	.99465.0	0,14815+00	13,365	5°5°5
N0.17	21	•	24804	10-35261-0	[1+ K2++**	0.02965400	0,25555+00	27.621	1.063
NO. 14	=	36	9633	10+31521*0	10+36944.0	0.11346+01	0,99876-01	31.717	16-710
N0.1.	11	35	12141	00+3C000"0	24+35254*0	0.5377E+00	0.76476-01	13.700	

0.126 896°+ 4.575 0.050 10.07 0, 827 13,522 10.105 2,125 쁥 빝 ž 50,019 24,049 44,733 23, 565 24.077 15e173 29,156 295,392 20.04 RABR RAAR RAGR 0.29612+00 0,15005+00 0,5322E+00 0,2501E+02 0,3705E+00 0,1056E+00 0-13056+01 0.11736+04 0.78676+00 0.31495-01 0456166+98 0,4891E+31 0,4474E+98 0,1440E+00 0,50478+00 0,15166+02 0,336/6+00 0,9215E-01 0.9964E+03 0.1268E+01 0.3840E+00 0*120401 0 10+34251*0 0*155510 0 104306+00 0.00006+00 0.2173E+03 0.5196E+00 0.3154E+01 1540 0.80566+00 0.8240E+02 0.5730E+94 0.7788E+01 2 2 1 2 -1 Ш (н) (н) TABLE 4.3 (Continued) 51976+62 N 2 -0.54496+00 10+35551*0 ĩ 5 3965 4574 2792 10666 4334 2043 11100 1447 HOURD HOURE SYBND NO.FAIL HOURS SYBNO NO.FAIL SYBNO NO.FAIL . --: \$ -2 1 17 -= . -1 NO. 1 2°.2 * • • • ¥0. 2 10. 3 10° - 1 N0. 1 N0. 5 2 -2 2 2 ĩ 8 2 ĩ

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an a		0,223	0,132	10,500	0,073	1,236	1,401	9.121
RAA	40,604	34.031	20.540	75,553	20,317	29.042	33,946	63,262
t		0.43555+00	0.3888E+00 0,1+57E+00	0,38456+01 0,10286+00	0.42254.0	0,77532+00	0,92716.6 .	0.5075E+00 0.2291E+00
5	0,1291£+00	0.31666+00		0.38456+01	0.5300E+00	0.44466+00	0+7655+00	
24	8.1088E+00	0.1006tol	0.49865+01	0.68362+02	0.33195+01	0.21776+01	0,30716+04	0.21026+04
1	0.23746+00		0.54546+00	0-20795+00		0.55026+00	10-15706+01	0+13002+01
BAUDH	1726	1922	2370	2105	3415	1536	9513	•33•
SYSHO NO.FAIL	10	52	54	•	12	5		•
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(Continued) 4.3 TABLE /

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	DNRAR	HO.FAIL	1400×	1	2	2	1	RADE	ž
	•		39400	0.87166+00	0-1714E+04	0+34465+0		11.11	142-1
	•	23		0*90176+00	0.04526+05	0.57652+00		11.11	1,000
1	•	11	1144	10-39611*0	0.49326+04	0.76386+00	10-10000"0	100'22	11.21
	•		41746	10-32505'0	0,26005+05	10+30502*0	stappert's	13,943	10,073
¥0. 5	•	:	33660	0.98376+00	0.20405+04	0.48825+00	**************************************	13,345	-
-	•	1	24920	10+30911*0	0.22056+04	0.88776+90	*************	***	3,000
	•	1.	32000	• • • • • • • • •	0.12236+04	9.54276+00	10-36818.0	m.335	1.022
_	•	*	4200	0.35000,0	0.84926+00 0.1070E+03	0+73136+00	10-34461.0	M.734	-
-	•	•	44800	0.57046+00	0.57046+00 0.01106+00	0.24965.00	1,129M644	51,432	3,900
	•	2	47996	10-30102.0	0.2010[01 0.1214[05 0.2096[01	0.20042+01	******	27,328	1.015
	•	\$	••••	0.07726+00	0.0772E+00 0.1513E+0C 0.6525E+00	0.65256+00		22,040	11.00
	•	•	42000	0*1749E+00	0.77496+00 0,10196+05 0,26476+00	0,20476.00	0,10056+00		12.700

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		Ju	5,000	0,543		¥	0.055	0.100	1.044	0.100	0.035	0,432	0,033	0.398		æ	1.305	0,223
		ALAR	15,206	49,036		aver	16.796	11,032	10.020	19,546	24,520	12,626	12,472	13.017		RAA	24,301	14,431
		2	0.11306+00	0,15956+00	1	4	10-30855"0	0,32216+00	0°13456+00	0,11405+01	0,10245+01	0,7557E+00	0.44506-01	0.4307E+00		2	0,13306+00	.,13068+00
		2	0.63066+00	0.51406+00		2	0,44446+90	0.02536+00	0.36546.0	0+31256+00	0.38085+00	0.42746+00	0,47825+00	0.59865+00	*	2	0.000E+00 0.1338E+00	0.4172E+00 0,1506E+00
	(Continued) # 0 0 E L # 1 0 W	2	0.10042+03	0.20056+03		54	0,1220E+02	0,30906.01	0,13046+03	0.4112E+00	0,75116-01	0,15296+02	10-30000.0	0.25006+01		2	20+30645.0	0.24446+02
		Z	0.0036+00	0.02736+00	202 23 23 23 20 20 20 20 20 20 20 20 20 20 20 20 20	14	0*25*05*0		0-38484.0	0+32776+00	0.43166+00	0,7051E+00	0.50442+00	0.44105+00	0 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3		0.73406+00	0*14596+00
	i	BUNDH	3415	4534		IL HOURS	5152	1549	24604	7000	4342	10304	5914	7574		BUUNB	2076	5005
		HO.FAIL	•	10		NO.FAIL	24	178	170	244	114	101	57	200	an of our of the second	NO.FAIL	14	83
		Sy Bre	~	~		ONBAB		11	12	11		12	12	11		SYSHO NO.F.	-	
à			1.04	NO. 2			19.1		••••			10	1 30H	•			1 -00	× •0:
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2010 0.10076-01 0.110160-02 0.77106-01 0.110100 3032 0.110356-10 0.233056-02 111,702 7138 0.23076-01 0.233056-02 111,702 2003 0.10396-01 0.112316-01 0.223056-02 111,702 2003 0.10396-01 0.112316-01 0.123356-02 111,702 2003 0.10396-01 0.112316-01 0.112316-02 101,012 2010 0.10986-01 0.112316-02 111,702 101,012 2010 0.10986-01 0.112326-02 111,702 101,012 2010 0.10986-01 0.112326-02 111,202 101,012 2010 0.10986-01 0.112326-02 111,202 101,012 2010 0.23036-01 0.112326-02 111,202 111,202 2010 0.23036-01 0.112326-02 111,202 111,202 2010 0.23036-01 0.112066-02 111,202 111,202 2010 0.23036-01 0.112066-02 111,202 111,202 <	~	1	10201	0,1392E-02	0.30416+01	0.74465-03		50.730	3,500
3032 0.11535C-10 0.1014C01 0.2305C-02 11,976 7124 0.2007C-10 0.1326C-02 0.1707C-02 11,772 7003 0.1026C-01 0.12205C-02 11,772 11,772 7003 0.1026C-01 0.12205C-02 11,076 11,702 7003 0.11236C-01 0.12205C-02 11,076 12,010 7003 0.11236C-01 0.12215C-02 12,010 12,010 7004 0.11036C-01 0.12215C-02 13,010 13,020 7004 0.1006C-02 0.12215C-01 11,270 13,020 7004 0.1006C-02 0.12206C-01 0.1006C-02 11,270 7004 0.1006C-02 0.21206C-01 0.1006C-02 11,270 7104 0.1006C-02 0.1006C-02 11,270 11,270 </td <td>*</td> <td>n</td> <td>24804</td> <td>0-10246-02</td> <td>9.11995+02</td> <td>0.77185-03</td> <td></td> <td>\$10,015</td> <td>5,205</td>	*	n	24804	0-10246-02	9.11995+02	0.77185-03		\$10,015	5,205
7126 0.412306401 0.4224356402 0.417076400 0.417076400 11,762 2600 0.410306401 0.412306401 0.412026400 0.412026400 122016 401 0.410006401 0.412306400 0.412016402 0.412016401 122016 401 0.410006401 0.412006400 0.411006400 0.411006400 122,010 4010 0.410006401 0.411006401 0.411006401 0.411006400 122,020 4010 0.410006401 0.411006400 0.411006400 0.411006400 122,020 4010 0.40006401 0.412006400 0.412006400 122,020 122,020 4010 0.40006400 0.412006400 0.412006400 122,020 122,020 111,270 0.412006400 0.412006400 0.412006400 11,1,270 111,010 0.412006400 0.412006400 0.412006400 11,1,270 111,010 0.412006400 0.412006400 0.412006400 11,1,270 111,010 0.412006400 0.412006400 0.41006400 <th< td=""><td></td><td>•</td><td>3032</td><td>0,14556-10</td><td>0.8444401</td><td>0,23406-02</td><td></td><td>11.976</td><td>0,015</td></th<>		•	3032	0,14556-10	0.8444401	0,23406-02		11.976	0,015
Not 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.112316-01 0.101016-01 0	5	•	7124	0-20076-03	0+43286+01	0,22456-02		11,742	0.010
************************************	•	•	2003	0,14546-02	0.11236+03	0.17676-00		12.019	1,555
(1,1,0) $(1,1,0)$ $(1,0)$ $(1,0)$ $(1,1,0)$ $(1,1,0)$ $(1,0)$		•	1.1	0.19966-01	0.15265-04			30,040	1,230
4000 0.10000000 0.59000000 0.59000000 4000 0.10000000 0.13200000 0.13200000 4000 0.400377001 0.13200000 0.13200000 4000 0.400377001 0.13200000 0.1320000 4000 0.400377001 0.13200000 0.13200000 51000 0.21000000 0.100000000 20.100 51000 0.21000000 0.10000000 20.100 51000 0.21000000 0.10000000 20.100 51000 0.21000000 0.10000000 20.100 511700 0.21000000 0.12130000 20.100 511700 0.10000000 0.12130000 20.100 511700 0.10000000 0.12130000 10.1000000 511700 0.10000000 0.12130000 10.1000000 511700 0.100000000 0.12130000 10.10000000 511700 0.100000000 0.111000000 10.10000000 511700 0.11000000000 0.11100000000 10.100000000 511700 0.1100000000 0.111000000000 10.1000000000 51170	•	10	42080	1.3403K-03	0.436565.00			14,103	0.241
47000 6.37346-03 6.33676-01 0.13206-05 32.315 4000 9.403778-03 9.202366-00 0.13206-05 32.315 4000 9.403778-03 9.202366-00 0.10006-02 32.315 51000 0.21046-03 0.132066-00 0.10006-02 24.100 31790 0.230376-03 0.132066-02 0.10006-02 24.100 31790 0.230376-03 0.132066-02 0.121366-02 10.1700 31700 0.1002602 0.121366-02 0.121366-02 10.1700 32000 0.1002603 0.121366-03 0.121366-02 10.1700 32000 0.1002603 0.121366-02 11.1700 10.1700 32000 0.10026-03 0.121366-03 11.1700 10.1700 32000 0.10026-03 0.121366-03 11.1700 10.1700 32000 0.10026-03 0.121366-03 11.1700 10.1700 32000 0.10026-03 0.121366-03 11.1700 10.1700 32000 0.10026-03 0.121366-03 11.1700 10.1700 32000 0.10026003 0.	•			01-365+1°0	0.14166+02	0.59825-04		15.715	0.055
44040 0,0037%*03 0,232264-00 0,232264-00 32,333 44040 0,0037%*03 0,330264-02 0,10006-02 24,193 51400 0,21406-03 0,13266-04 0,10006-02 24,193 51400 0,230376-03 0,13266-04 0,10006-02 24,193 51400 0,230376-03 0,13266-04 0,13366-03 10,0006-02 51400 0,132866-04 0,13136-03 10,1326-03 10,0006 51400 0,10026001 0,13136-03 11,633 10,010 52000 0,1002601 0,731326-03 11,633 11,700 52000 0,1002601 0,731326-03 11,700 11,700 52000 0,1002601 0,731326-03 11,700 11,700 52000 0,1002601 0,731326-03 11,700 11,700 57000 0,1002601 0,731326-03 11,700 11,700 57000 0,1002601 0,731326-03 11,700 11,700 57000 0,1002601 0,731326-03 11,700 11,700 57000 0,1002601 0,7313260 11,70	•	2	47966	0.37566-03	0-31+58-01	0.15206-03		12.220	0.748
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51010 0.2100E-05 0.1920E-01 0.1000E-02 20.100 31790 0.53377E-03 0.1920E-01 0.5003E-01 1.5003E-02 31700 0.1032E-02 0.1920E-02 0.1213E-02 10.1924E-02 32000 0.1043E-02 0.1924E-01 0.1213E-02 10.1924E-02 32000 0.1043E-02 0.1924E-01 0.1213E-02 11.515 32000 0.1043E-02 0.1000E-01 0.7734E-02 11.700 32000 0.1043E-02 0.1000E-01 0.7334E-02 11.700 32000 0.1043E-02 0.1000E-01 0.7334E-02 11.700 32000 0.1043E-02 0.1000E-01 0.7334E-03 11.700 32000 0.1043E-02 0.1000E-01 0.7334E-03 11.700	•	23		1-34296-03	•,35426+02	0.0036-04		11.270	1.00.1
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33000 0.102265-02 0.12136-02 0.12136-02 10.070 32000 0.10036-02 0.00156:01 0.73026-03 11.633 42000 0.10036-10 0.10006:03 0.40006-04 11.750 42000 0.100366-10 0.53216-03 0.40006-04 11.750 35400 0.000316-03 0.53216-03 10.756 10.756	•	2	10240	01-368e1*0	9.35446+12	0,13686-03	ł	16,733	1.007
32800 0.146 36- 02 0,04156+01 0,73426-05 11 ₁ 535 42006 0,149 36- 10 0,10006+03 0,40446+04 11,740 35400 0,44316+03 0,34366+11 0,53216+03 19,745	•	5	33666	0-1055E-05	0-1526E-04	0.12136-02		14.076	1.300
42006 0,14596-10 0,10006+03 0,40486-04 35400 0,00316-03 0,36366-11 0,53216-03	-	•1	32800	0.14636-02	10-35140*0	0.73426-03	ł	11,535	0.111
35400 0.0031E-03 0.3030E-11 0.5321E-03	•		42005	01-355-10	0.10905+03	0,40485-04		11.740	
		22	35400	0.4431E-03	0,36366-11	0.53216-03		19.745	1.230

		Je	4,101	0,015	5 1034,375				¥	4154,051	50.417	2,219	6.700	4.144	42,122	40,612
		1481	264,730	2,861	201,533	1 9 1 1				8424,140	99.99	170,600	+1°010	33, 699	523.707	297.064
		2							2	-		4				
	x	5	0,3725E-08	0,34436+00	0,21626-02				2	0.75746-01	0.48105-03	0-30206-03	Se-10001 .0	0,30026-05	50-35501.0	0.10765-02
TABLE 4.3 (Continued)	0 E L 1 8 7 8 7 E H 8 E	2	0,77826+02	0.10446+01	0,9537E-06 0,2162E-02		0 E L 9 Y 8 T E		2	0,95376-06	0.7841E+02	11-36161*0	0.37936+02	0-51946+01	9.14585+02	0.6416E-02 0.1526E-04
TABLE 4.3		14	0-2581C-02	0.14346-02	0.12865-02				2	0-3326E.0	0.1409E-01	10-36401*0	0,58216-10	0,48146-92	0.14096-02	0.44146-02
	alle a survey	BUNDH	3038	2005	3022				HOURS	2152	24804	1544	714	10304	4342	1574
		NO.FAIL	•	•	•				NO.FAIL	10	:	10	•	11	11	124
		ONSYS		•	•		the state	P	ONBAR	•	2	11	12	12	:	=
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BAUDH	AIL HOURS	NO FAIL HOURS	HOURS	2		2	2	Z	
6369 0.24		28 6364 0,24	6360 0°50	2.	746-05	4344 0.2474E-05 0.2944E+82 0,3444E-05	0,34445-05		20,454
3022 0,13	5 3022 0.11	16 3022 0,11	3022 0.11	-	1736-02	0.13736-02 0.31776+01 0.20906-01	10-30402.0		72,593
5370 0.47	2 5370 0.47	12 5570 0.47	5370 0.47		395-02	5370 0.47356-02 0.15116+01 0.12766-01	0.12785-01		
4450 0.45	1 4450 0.45	11 4650 0.45	8450 0.451		20-32	4450 0.4594£+02 0.4141£+40 0.27245+01	0.27265-01		

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AC AC	2.105	1.700	2.275	1.177	1.345	1.317	0.075	0.784	2.010	0.350	1.235		115-1		2.154	0.657	.197	
TA BR	54.237		101.02	20.265	10.737	25,443	+ + + + + + + + + + + + + + + + + + +	10,070	34.703	10.05	24.790	62.139	30.256	10-507	42.244	10.796	12.704	
24							4							-			decompany when the function	
	0.20336-00	0.38166-08	0,28526-04	0.12196-08	0.21946-03	9.11806-02	0,10426-02	0-36-10,0	0.27726-02	0.4778E-05	0.23456-00	0,29405-09	0,23286-09	0.33466-09		0*3000E=03	.33446-04	
2	0.88156+02	0+5270E+02	20+39267"0	0.51436+01	0°.01086+05	0-15565-04	0,25006+02	9,63326+12	0-3556-04	5+36156+02	0.7001E+62	4.7957E+02	0*3384E+02			9,11036+02	0.2001E+03	
-	0.67256-02 0.88156+02	9.47845-02	9.50696-02	10-30102-01	0,35556-14	0.14751-01	0+21536-92	0+71056-14	0.20076-01	10-30965-07	0*1052E-01	20-30956'0	20-36555.0	0.93226-02		0.31215-02	0,14556-12	
BRUDH		47844	44798	107	2003	1373	7124	3032	101	2767	01929	32660	2492			11700	51440	
NO.FAIL	254		103		;	4 ,		5 2	•	2	205	502	173	192	••	142		
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TABLE 4.3 (Continued) IBH HGDEL GROUND BYBTEN

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			a vou	31.405		RAAR	50.342	e1.52e	204.046	98.045	122.359	137.052	307.492
			Û.			1							
	•		53	0,23286+04	E	5	0+13416-02	0.54016-03	0.5685E=05	0.01346-04	6.1213t-02	0.15985-03	4.70096-02
	TABLE 4.3 (Continued)	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	0.45782-04	0 E L v 8 7 E	24	0,26356+02	0.13396+03	0,31556+01	0+14416+03	0,1526E-04	0,42596+02	9.14795+62
	TABLE 4.3		1	0.28246-01		14	0.45076-02	0.13286-c1	0,36965-63	0.23226-09	9.3000£-02	0-1-355-1-0	0,29396-02
)			ITL HOURS	1122		HOURS	11440	4362	10304	*i4		1	7840
			NO.FAIL	8		NO.FAIL	*	17		•		117	111
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TABLE 4.3 (Continued) I B H H O D E L C R O U H D S Y S 7 E H C I S P L A Y

		JINT NO NO PAIL	IL HOURS		2	53	2	ROAR	ä
	•	13	\$254	0-5544E-03	0.1146E+02	0.49746-03		22.040	0,504
	•	•	***	0.45156+03	0.1892E+01	0.11816-02		27.,775	0,302
	•	:	7570	0,10656-02		5.11916-02		117,047	12,913
	•	11	\$24	0.10505-02	0.56286+01	0.27926-03		34,201	7,347
	•	5	4224	0.10256-03	0.10865+82	0.20506-03		10,333	0.049
	•	•	22037	22037 9,1459E-10	0.41056+01 0.20156-05	0.20156-05		7.520	0.015
1	•	- 17	6466	0,1333E-02	0.19036+01	30-35005	ļ	24,267	2,015
1	ere en	10	-1611	C. 6038E-03	0.1082E+01 0.1688E=02	0.16865-02	,	101,015	102,531
	•	•		0-30006-03	0.14065+01	9.44966-02		7.504	0.149
1	•	•	42210	0°-20005°0	0.75056+01 0.10966-03	0.10966-03		20.021	6.0.5
1	•		33320	0.5+026-03	0.15266-04	9,44415-15		17.039	1,300
	•	:	45477	45477 0,2519E-03	0.55496+01 0.19976-02	0.19976-02		115.0	0.012

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	ž	1,565	1210	0.050
	-	192.478	500.0	26.916
)	1		in commune dependence and	
	5	0.41436-14	0.03066-03	0.24875-02
	25	3784 0.2567E-02 0.1526E-04 0.4163E-16	0330 0,4121E-03 0,9423E+01 0,0386E-03	4576 0,1300E-02 0,3400E+01 0.2487E-02
	a i	9.25476-02	0,41216-03	0.13005-02
	AIL HOURS	3784	•33•	4254
	NO.FAIL	5	12	•
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2945	5,379	2.576	30.021	20,140	12-017
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-	0.24936-02	0-3050E-02	0.4109E-02	0.42746-02	0.22436-02
24	0.48176+02	0.64136+02	0,35596+02	0,30766+02	10-3636-01
ť	2700 0,25066-62 0,48176+62 0,26936-02	3200 0,44326-02 0,44136+02 0,30506-02	3700 0,0006-02 0,35596+02 0,41096-02	3700 0,24076-03 0,30706+02 0,42766-02	2500 0,32026-02 0,74556+01 0.22436-02
HOURS	2700	3200	3700	3700	2500
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¥.	ONBAS	NO.FAIL	BUDH	ĩ	24	:	-	2402	2
	•	11	1012	10-30001-01	2193 0,1000E-01 0,1520E-04 0,1491E-02	0.14916-62		127.300	2.136
	1	32	2246	9.20165-02	2248 0.2416E-02 0.2487E+02 0.1073E-02	5-10736-02		29,447	.700
	•	21	2255	0.20136-02	3322 0.20136-02 0.19916+02 0.05106-04	0.03165-04		21.000	1.220
	•	•	3415	0.23205-00	3415 0.23206-00 0.55576+05 0.43786-05	0.43746-03		5,076	1.325
	~	112	4254	10-305+5*0	4236 0,5456E-01 0,1101E+05 0,1300E-14	•1-30021*0		10.110	1,301
	-	•		0.34126-02	4654 0,3412E-02 0,3652E-04 0,1507E-02	0.15076-02		20.762	1.500
		21	6144	0.23266-09	4144 0.2320E-00 0.3041E+02 0.1527E-03	0.15276-03		10.551	1.931

DNBAS	NO.FAIL	BAUDH	-	2	5	2	2 4 4 2 2	J
	1	11446	9.99406-02	0.54885+02	0.5236-03		77.341	4.548
	33	5703	10-34501.0	3.24036+12	0.43756-02		47,540	
	:	5914	0.32036-02	0.79495+01	0.12716-02		•5.029	1.725
	•	11000	0.32306-02	0,15266-04	0.12936-02		23.600	5.00
	•	11200	21-25000.0	0.25516+02	0.33316-04		73.120	5.073
	•	19642	236964-03	0,16245+01	0.3540E-02		63,350	17.020
	•	14192	0.14556-10	0+14085+02	0.1506E-03		45.450	0.226
	•	23405	1.5038E-03	10.20005.0	2020202.0		10.845	0.190
	20	15756	0.1130C-02	10+32505*0	0.50756-05		32,219	10.170
	1.	13960	0*1+355+1*0	9.43536+02	0.71676-00		14.415	•5.050
	2	23640	0.45436-02	0-3+34E+01	0.22145+00		64.340	0.007
	5	10325	10-36101-0	0.00105-02	0+3560E=02		84,044	19.442
ļ	1.	20504	6,4379E-02	0,15266-04	£.95348-03		50.505	6.030
	•	6496	0.15276-01	0+1307E+03	0.9004E-05		92,270	20.720
	55	19121	0.83326-02	0.1471E+02	9.18885-02		64.672	3.206

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TABLE 4.3 (Continued)

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		51	10-36051-0	0*10036-01	0.21606-05			2	9,36235-02	9.12006-02	0,46306-02	0,2084E-03	E	54	0,12546-01
	(Continued)	 24	10-20110-0	0.48356+01	0.14586461			~	0,24516+02	0.1526E-04	0-13995+01	0,15266-04		*	
	TABLE 4.3 (Continued)	T	20-30041.0	0,24195-02	0,14966-02		0 2 3 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3	14	0,23286-09	9,34016-02	0,33696-02	0.18046-01		Z	0,15546+02 0,31256+01
0		BUUN	3965	4250	•33•	ŧ		BRUOH	1111	2043	11100	2192		BAUON	1540
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	and the second	ž	1.557	0,735	457,616	0.035	•,315	1,001	
(494	4554.773	41.102	257,943	3,347	10,620	32.029	10.720
		1				ŧ			5 0 0 0 0 .
	T	*	0.10026-02	30-32412-0	0.5950E-05	0.70926-05	0-91796-03	·.24396-05	••11106-15
	TABLE 4.3 (Continued) 1 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0 0 1 0 1 0 0 0 1 0 1 0 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0	2	0.15265-04	0.54346+02	0.01205+01	0.59406-07 0.63736+02 0.70926-05	0.40176+02	0-30+02-01	
	TABLE 4.5	-	0.1141E-01 0.1520E-04	0.59666-07	0.07206-05 0.0120E+01	10-30005-0	0,32115-03	0.47586-03	·••3866•••
\bigcirc		BAUDH	1726	2201	3105	3415	4534	1150	+33+
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	¥	1.090	1,202	1,500	1.016	1.000	0,135	0,540	0,240	1.332	1,277			Y	1,026	1,225
	1041	20,609	7.370	32,452	104,307	27.015	*5**11	22,654	12.175	29.625	15.173	:		K V O L	7.140	
	:													:		
n £ 2	ĩd	0.11045-09	0.17776-62	9.10045-02	0.1147E-02	9.04775-02	0.54336-03	9,20475-92	5-10005-03	0.67136-01	9.1867E-94		•	1	0.57205-04	0.1455E-10
TABLE 4.3 (Continued) 1 8 7 0 0 E L 7 0 0 0 0 8 7 8 7 E 7 0 0 0 0 1 0 1 0 1 0	24	9.41236+62	0.95376-06	0°1539E-00	0.1526E-04	11-35000*0	0.30706.01	10+34546.0	0.45426+01	0.15266-04	0.42466+02			24	0.13666+03	0-34036+01
	1	0c5241E+03	0,22556-03	1.20405-03	0°95120°0	0.40276-03	0.30346-03	9-32534-02	21-36006*0	5+36242*	0.2780E-11			14	3415 0,99956-12	0,25478-02
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	0.00505005	0.19765-02	50-35261.0	0-11016-03	9.34846-02	20-30051-0		±.	5	10-30006-01	6-30101°	 5	0.32646-01
2	0.56316+01	0.10076+03	0.1526E-04	0° 35546+02	10-3500\$m0	0.15046+02			2	0.15446+01		~	0.24716+01
14	9.44216-02	5.09416-02	9.49676-02		0,10256-03	0.14921-02				~	•1•365•1•	14	0,2717E-01 0,2471E+01 0,3244E-01
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¥	1,102	0.123	1,302	200.0	1.070	0.576	2,032	1,540	2,221	0,320	0.425	1.700	1,920	1.421			0,205	0.742	
2402	10.730	132.4	25.447	150"4	10,542	5,734	43,226	54.000	54.535	20072	15.147	21.072	50,946	28.194	1.501	10,010	12.486	9°090	-
ž											ſ			ł					
5	0.37305-00	0.66585-03	9.12926-02	9-12136-02	0.23285-00	0,22395-04		0.23286-09		20-31010-0	0.40746-03	0.27456-04	0.20216-00	•*****	0,20605-04	0+62586-03	0,25656-04		
24	20+30464.0	0.62756+02	0.53246-04	0,20506+02	0.10456+02	0,14476+03	0,76665+02	9.92036-02	0,71426+02	10+3479+0	9.38396+02	0.7972E+02	9,94506+02	9,54215+02	0+31012+03	0,13746+92	0.25762+03	0,55406+03	
T	0-36529.0			1,2367E-62	-1005E-01	1,04041-03	0-30429*0	8-34CB2,0	0,05136+62	1	1	0-10101-0	10-30411**	10-315LA***	1-312e5*0		01-35501-0	£1-30045*0	
HUURS	401	30.11	1373	1123	2442	42076	****	11011	44744	101	2107	42418	32000	5455	33600	1174	91440		
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TABLE 4.3 (Continued) I B H H O D E L B Y B T E H O H I E R O

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	2402	• . 321	15,225	20,269 651
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	5.	0.55896-04	0.10005+30	10-39566-01
	24	3038 0.4275£+08 0.4898£+08 0.5589E+08	9005 0.44376+03 0.21876+01 0.10006+34	3822 0,4557E+03 0,000E+02 2,0556E+01
	14	0.42766+04	0.46376+03	0,45576+03
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r	2	0.10005+80	0.47916-04	9.10002+00	0,54551-04	0.10005+00		0,41156-03
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	2	0,2556645	0.47366-05	0,1003E+00	0.10002+00
TABLE 4.3 (Continued) E x P 0 x E w T I A L x 0 D E L G x 0 u x D & Y & T E x A A D A R I A - M 0 U & E	2	6300 0,2459£+03 0,78856+00 0,2556£+05	0.55016+03 0.00357+00 0.47368-05	0.79792+82 0.1003E+00	4659 0.20726+93 0.1000E+00 0.1000E+00
TABLE 4.3 (Cor E x P 0 x C x F A 0 A R F A 0 A R F A 0 A R	z	0,24596+05	0.55012+03	5370 0.1714E+03	0.20726+03
	BRUDH	•3 <u></u> •	2205	5370	4450
	TING NO.FAIL	5	:	12	11
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		10-310	12.241	10.355	13-307	43.320	47.562	14.500	13.072	13.56					10.704	•.200				
	Z							•					1	-	· · ·	1			÷.	
) • • • • • • •	54	0.10005.00	0.4020E-04	0.32036-01			0.45166+02	0.83446-01	0,03176-03	•.100E+00	0.1000[.00	0.00665-01		0-10546-01	0.100540	0.19695-04				
TABLE 4.3 (Continued) E x P 0 N E N T I A L E R 0 U N C S Y S T E T I E L D A Y E	24	0.10005+00	0.80745+00		0,70556+01		0.10005+00	0.5966E-97	0.42096+00	0.1000E+00	9.10005+00	0.59686-07	0.10005.00	10-30005-0						
	-	0,33626+03	0.25826+63	0.39046+02	9.42415+02	0+96120+62	0.50485+02	0,50736+92					20-34/00-0			0.40876+03				
	HOURS	42078	47844	407	2003	1373	1124	3032	2767	35400			33660	19240	00419	51440				
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٩	8498	110.62	200.740	•65'24	156.913	110.012	322.100
	I						
T	5	10-3:055'0	0.10005+00	0.3209E-04	0.10005+00	0.10005+00	0.29156-03
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	-	0.46476+02	0.97566+03	0,19656+03	0,34578+03	0.2004003	0.21495+03
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	DVBAB	NO.FAIL	BRUUM	ī	2	:	1	RAGA	¥.
	٠	15	1425	0.29756+03	0.1000£+00	0.10006+00		19.020	1,737
	•	•	9546	0.02528+93	0.10066+00	0.1000E+00		102.733	2,444
	•	•	1970	0,72468+03	0.10006.00	0.1005.00		141,943	24,400
	•	=	5246	0.50632+03	0.1006E+00	0+1000E+00		50.027	61510
	•	13	42554	0.88452+63	0.10006.00	0.10005+00		40.032	1.077
1		•	22037	0.26406+04	0.10005+00	0.10005+00		90,210	1,500
	•	•	•505*	0,13096+04	0+10005+00	0.1000.00	-	23,000	1.145
	•	11		0,70008+95	0*1000E+00	0,10005+0	b	22,600	1,000
	•	:	11916	0.14695.04	9.10005+00			140,905	300.002
	•	:		0.10056+00	0.10005.00	0.1006400		72,050	1.003
	•	•	43376	0.10046.00	0.10006.00	0,10005+00		53.101	1.103
1	•	•	33320	0.19276-04	0,10005+00	0.1006.00		19.597	1.230
	•		45477	0.31685-94		0°-30020'	1	150.0	0.011
	•	•	19255	0.31886.04 0.10886.08	0.10006.00	0.10005+88		30.354	1-125

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TABLE 4

	Ľ	1.005	1.100	••7••		ž	0,004	0,011	-	a.		248.0	1,100	1,209	1,250	
	4704	176.003	32,016	39.045		u e u	5,038	0,030			14.059		35.274	24.027	11.025	
A Transaction	:		and the second sec			2				1						
	2	10-3250-01	0.10005+00	10-32020 · ·		5	0.57475-04	0-35356-03		5.4	1.5275E.03	0,10005+00	0.10006+00	0.34426+62		
- W. J.L. 4.0 1.2 1.5 1.5 1.5 2.5	2	0.93456.0	0.10005+00	0*43716+01	40 40 45 40 2 >0	~	0.97826+00 0.57676-04	0.92416+00		24	0	0.2274E+01	0.1000E+00	5+-30110*0		
	E	0.40356+03	0.20716+05	0-31002-0	C > 0 W 0 L 2 S 1 A C 0 1 M 0 J 2 M 3 X M 0 0 W	5	0.17996+03	0.12085+03	2 4 5 4 5 4 5 5 5 4 5 6 4 6 6 4 7 6 6 7 7 7 7	E	4.1709E+03	20+36114-0	0,34482.03	20-20012-0	0.30926+05	
	HOURS	3764	+334	4276		BAUDH	3200	5700		BAUDH	5612	2249	2265	•23•	4454	
-	SYBND NO.FAIL		12	•		BYSHO NO.FAIL	100	20		NO.FAIL	11	32	21	112	٠	
	ONGVE	41	~	~		DNSAS	•	•		ONBAS	F	1	2	~	-	
		*0° 1	* .	NO. 3			NO. 2	NO. 3			NO. 1	NO. 2	NO. 3	NO. 5	• •	
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¥	4.45		2.250	2,340	1.000	11.936	17,044	0.760	1.192	1.004	••••	5.522	ee. 753	••••	19,323	4,671	24.707
	75.200	500.00	111,510	15,795	62,612	100.011	075	51,570	31.500	10.019	35,102	100'62	45,700	66°956		54,143	92,135
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5.	0+1000E+00	0.32406-03	0.1060E+00	0.10005+09	9.1990E+06	0.1330E+00		0.10005+00	0.10805+80	0.1006.00	0.10005+00	0,10005+00	0,10005+00	C.1499E-02		0.1996400	0.84006-05
24	0.10406+00	0.4456+00	0.1000E+00	0.10005.00	0.1000E+00	0.1000€+00	0+1000E+00	0.1006.00	0.10085+00	0.10005+00			9.1000600	0.97825+00			6.9791E+00
-	9.42416+02	9.76495+62	0,1736E+03	0.35486+03	0.20076+03	0-1502E+04	0.11036+04	20-25969"0	.12116+04	0.7720£+03	0,76266+03	0.56136+03	0.41306.05	0.17266+03	0,76406+02	0.24146+03	0,38696+03
BAUOH	11400	5703	5914	11000	1.50.	11209	20901	20101	23495	19761	27572	15754	13060	23440	10325	2.001	••53
NO.FAIL	5	11	•	1	32	•	•	•	•	10	17	2	10	*	S .		36
ONBAS	11	11	12	15	2	13	51	15	15	5	:	51	51	5	11	12	I.
	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	40. 7	• • •	• • •	M0.10	N0.11	M0.12	N0.13	M0.14	NO.15	H0,10	N0.17	N0.10
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TABLE 4.3 (Continued) E x P D N E N T I A L M D D E

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	2	0267966+00				24	0*10886+00	0.1000E+00	0.59606-07		-989 	2	0.23736-01
TABLE 4.3 (Continued) E x P 0 N E N T I A L E A P U T E R T A T E F I E L D	2	0.10026+03	0-30005+03 0.05736+00	",71996+93 0,1000E+00	 230 225 325 120 120 120 120	E,	0,31016-03	0.21205+03	0,59616+02		000 2 0000 0000 0000 0000 0000 0000 000	-	
	BRUDH	3965		6336		HOURS	2043	11100	2792			HOURS	13.0
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RAGA	559* 6552	17,400	····	24.407	34,429	21,050
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5.	0.30546-01	0.10036+03	0.10005.00	9.15772+02	0.10065+00	0.10006+00
2	10-30005-0	0.1000E+00	0.10005+00	1,40026+02	9,10885+88 0,18885+98	0*1000E+00 0*1000E+00
14	1726 0.47426+02 0.59406-07 0.80546-01	2201 0.1039E+02 0.1000E+00 0.1003E+05	3105 0,40136+03 0,10006+00 0,10006+00	4530 0,20586-02 0,40026+02 0,15776+02	5313 0,1079E+0A	+334 0,1371E+04
BRUDH	1726	1922	3105	•23•	5168	•33•
NO.FAIL	10	3	-	5	•	•
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	¥	1.003	1,043	1.111	111.1	1.071	1.071	1.071	1.011	1,500	1.020	1.000			2	0.07	
	101	32.049	34,030	4.94	47.049	16.501	20.027	504,65	40.406	30.00	44,744	37.445			18 in	7.027	
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	-	0.19936+80	0.10005+00	0.1005.00	0.10005+00	0.1006.00	0.1006+00		0.10005+00	0.10005+00	0,10306+00	••1000E+90			54	0,30405-02	
		0.1005E+00	0*1000E+00	0.1000£+00	0.10006+00	0.10005-00	0.13885+06	4.1000E+00		0.100E+00	0.10005+00			1 00 1 00 1 00 1 00 1 00 1 00 1 00 1 00	2	0.15555+50	ļ.
2	C	0.20126+04	0.10176+04	0.4557E+04	0.79495+94	0.10416+04	0,16166+00	**1599E+04	0,38665+05	0.30905+04	1.26215+04	0.10386+00		2200 2250 2320 1204 2074	2	0 1329E+03	
NOLD S		35400	1984	51440	41746	33660	54920	32809	12000		47906		1		HOURS	3415	
ND. FATA		:	ŝ	=	11	•	•	•	5.	•	*	8	8		NO.FAIL	50	
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TABLE 4.3 (Continued) E X P 0 N E N T A L M 0 0 E

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		X	390,142	316,905	0*200	997.95	255,025	399,541		¥	0.141	A. 164	1			
		101	599,579	401 a 778	31.052	772,340	3\$7,320	159.651		8482	10,973	• • • 25			X V O L	
		2		1		6 114 116 116 116 11				Ľ				1	:	
		2	0,10006+00	0*10085+00	0°50876-05	0-42016-03	0.10005+0.0	8°-32165-98	A D E L	53	0.24416-02	0,3038E-02			54	
Continued)	2 0 0 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2	**1000E+00			00-jelet*e	+.1000E+00	********	U 2 4 0 0 1 > 4 1 o e u 2 9 0	24	0.036200.0	0.04355+00		- WJ - JFE - 400 - 710 - 710 - 710	2	
TABLE 4.3 (Continued)	NOI 9243 604 804 804 804 804 804 804 804 804 804 8	14	0°1525£++3	£0+31004*0	10-30120 ⁴ 0	0,26226+05	÷,35226+03	50-30400*0	NGI 3 2 2 NG 0 3 F I 4 0 0 1 7 0 5 2 NG 5 M		0.12526+03	0.74986+02		C I O U O U I I C O O I I C O I I C O I I C O I I C O I C O I O I O I O I O I O I O I O I O I O I	1	
-		BRUGH	1519	11012	7846	4302	10304	1574		HOURS	2076	2002			HOURS	
		NO.FAIL	179	170		. 110		505		SYBND NO.FAIL	2	5			NO.FAIL	•
		DNBAS	11	12		11	2			DNBAS	•	•			ONBAS	
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54	0.20002-01					0.10005.00	0.23416+05	0.51936-04	0.74875-01	0.19256-05			-7485-01			3886-60	0,70035-01
:	0.50728-20	10-30001.0	0.45876481		10-30127.0	0	0.10005-00	0.7488400	**********	0.00986.00	0.10005+44			1			
ī	9-2202E+0	\$0+3552408	10-30104-0	10-24100.6	19-30005-0	10-30102.0	9.93366+02		1.24405.02	0.10036+03	0.17046+03	50-30042.0	0.03216+02	113	1.7		1
RENOH	101	3031	1373	7824	2002	42074	4999	47894	•	2767							1
NO.FAIL	11	54	2	:	1	551	323		n	2	501	477	360	205	1	104	104
ONBAB		m	•	en ,	.	•	•	•	.			•	•		•	•	•
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		:	-		11	2	31	6	5	2	23	=	10	:	12							
	24		0.714		110.0	0,030	0,031	1001	500.0	0.320	1,075	5	0.701	0.930	0.625	0.774		0.60	0.536	277.0	0.900	
	101	23,445	42.743	10,300	51.472	5,302	120,462	12,055	14,165	17.013	34.717	32,332	32.300	20.03	43,717	43,514	29,527	13,225	15.277	34.221		
	2															1						
	5								ę		****						•					
	:	10-30-04-0	10-35134 D	********	0.90476+04	**********	0*14875+04	*********	10+32554*0	10-36845.0	40-34244.0	40+31C+1.0	10-36046*-		*** 3028***	44-381EA.4		***38584**	10-39Cal*-	0.12916-0a	20-81+12"o	****
F 2 E L 0	-	0,12566+04	0.53966+04	-,48026+02	0,10366+03	0,13396+03	\$0+30004 ¹ 0	0-3101E-03	0,50446+02	0-3100E+04		0,16736+04	50+30150"0	0.40576+03	-,71566+04	0,12516+94		0,12005+04		9.47826+03	0.32146+03	0.8071E+03
	SPUDH	10304	20005	2767	3032	1373	1124		100	42000		47964		UTUT	91015	31796	19240	33680	24928	32960	12000	35400
	NO.FAIL	•	•		•	•	•		•	10	14	23	•	32	=	2	33	32	:			22
	DNEAE	12	2	•		m	•	•	•	•	•	•	•	•	10	•	•	•	•	•	•	•
		NO. 1	HQ. 2	NO. 3	NO. A	N0. 5	HO. +	4 .04	• • • •	• • •	H0.10	NO.13	NO. 12	NO. 53	N0+1+	N0.15	tile 16	N0.17	4J.10	N0.19	N0.20	15.0%
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TABLE 4.3 (Continued) L L O Y O = L I P O K M G R O U M D S Y S T E M

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TABLE 4.3 (Continued)

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6	allow a contract of the second s	Street of the st	
N 8	9.19746+05	. 30056+04	**********
	3038 0,30036+03 0,10746+05	5069 0,45756433 0,36056+04	3822 0,1580E+037859E+08
SENON	3030	2065	3022
JEAN NO.FASL	•	5	•
ONBAS	-	-	10
	N. 1	S NO. 2	NO, 5
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	ž	0,643	0.6.0	9.797	0.623	200.0		200.0	
	RACE	1.0.00	+*524			25,940			
	2			The second secon					
	50		1 1 1				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
I	2	.20.25.05.0	50+300FE*+	20-35205°0	1,2241E+05			0.4115E+63	.39676484
0 2 2 4 3 4 4 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2	0.8701E+02 0.20A2E+00	•*\$331E+03 ** 3499E+05	0+9502+05 0+202942+02	6105 0*1020E+03 0*3201E+02	0.1410E+03 (10304 C.2050E+03	0,32956+02	0.39386+02 -,39676+04
	BUUCH	2913	30005	164.	6165	110	10304	1302	1974
	NOFAIL	•	5	7.0	2	•	17	71	120
	ONBAS		12		12	12	~	11	11
		¥0* 1	NO. 2	NO. 3	• • • •	s . 94	• •	HO. 7	NO. 0
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TABLE 4.3 (Continued)	1	1		
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	76					
	54					
3 6	24	•.22376+04	0.0006404	0.73096408	•.25776+07	0.55276+05
	1	+3++ 0.1342E+03 0.2857E+84	2576 0.3454E+03 0.8006E+04	3822 0,18186+03 0,73896+08	5370 -,74482+02 -,25776+87	4-50 0.4010E+03 0.5527E+05
	BRUDH	•3••	2074	3022	5370	1.50
	Ŷ	58	•	10	12	
	DNRAB		•			9
		NO. 1	NO. 2	NO. 3	NO. 4	¥0. 5
		33	£.	2	i	1

1		244 0	0.00	0.915	1.005														5c4 0		10.633
			20,125	55.046	21-100	10-117	14.432		44.411	14.295	14.711	20.107		17 407	14.464	100.00		24.211	10.010		
							2	the day - on	Aller and and a demonstration of the second s	e entre e la constante e la constant	And the second second					1499					
i				8					\$	*					****						
2	0.22726+05			0.1336E+05	-,13076+04	0.37036403	0,73756+03		0,03305+04	0.76436+03	3.3049E+05		12976+05	50+350114-		0.28986+04	# · 1058E+04	\$"28578+64	0.57466405	0.20476+05	
1	E+03		Ca. 30111*0	0.15722+03	• 12232+03	0.40075402	0.43506+02	21726+02 -			0.30966.02	0°00226+05	•.20536+03			0.10142+03 0	- 20+20010°C			.0 20030001.0	
BAUOH	42078			++++	44798		2443	1373	7124	3032	101	2707	35400	.2010			5640 0	18240 0	1796		
NO.FAIL	•11				103	:	:	36	25	\$	•	2	167	302	502	173	251	•	142	100	
ONBAS	•	•	1	-	•			÷	*			-	•	•	•	-	•	•	•	•	
	NO. 1	×0. 2		NO. 3	HO. 4	#0* 2	* •	ND. 7		• •	01°0	19.01	11'O	£1*0×	N0.14	N0.15	N0.16	N0.17	N0.18	N0,19	
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TABLE 4.3 (Continued) LLOVD LIPOH

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TABLE 4.3 (Continued)

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	TANK T	22,307	RBAR	\$1.739	66,125	21,000	244,099	22.215	10.019	100.5	20,500	50.529
•	2		Z									
		1	5			and a				1 644 - Olamono		
	2	20+3501+*0	2	0,10102+05		\$0-31-0E+05			0.91446-94		43115+04	0.26326+03
CIG: 0056 1364 +000 549L	ī	0,34066.02	14	11499 0,10005405	0*1+598+93 0* 6929E+94	0,30016+05		9.9710E+02	1.15000403		. 59796+05	0.18946+02
	BRUDH	1133	BUNDH	11490	1305	10300	516	714		1000	24804	7849
n ang ang ang ang ang ang ang ang ang an	NO.FAIL	8	JIE 4'O	36	4 4 5	30	•	•	\$	117	33	111
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	E.	0.050	0.834	0.045	0.771		110.0	0.339	0,727		1,053	0.032	0,018	0,030	0,783	0,025	109.0	0.007	0.360	0,526	
		29,048	44.562	22.319	10.699	37,334	45.659	••••	10.500	4.712		3.052	1.669	2,364	14.473	2,400	: • • 5 1	3.305	21,541	20.700	0
								Territori	No. 1 and	ł		2	ц.			No. 1					
5	•										р 						\$				
2			0.10436+04		0.18126+06		0.4020E+07	0.53526+04		0.40326+05	0.1930E+05		\$0·3000°	0, 1072E+04	0.1149E+06		• 15368+05			0.17926+07	
ī	1.2.4		. 7001E+03	•.33266+05	\$0+34*30*e	0.10566+88				6.50306+03	0,14726+04	- 22036.02	0.50076+03	0.02406-03		- 20-36667.0	0.67926+03 -	- 10+36445'0	0.20516+04 0	0.24176+04 0	
BAUDH			1120	1970	5276	45574	22037	•2020	•4.	visit	17219	2237	2247	2332	1000	18.9	3402			+255+	
NOFAIL		2	•	•		5	*	•	11	2 ¹	11	*	•	•		•	•	11	:	•	
DNBAB		•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•		•	4
	NO. 1		NO. 2	NO. 5	* · ON	*0° S	NO. 6	M0. 7	• • •	• •	W0,10	11°04	M0.12	N0,13	N0.14	N0.15	N0.16	N0.17	N0.10	N0.19	
			~	2	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-

TABLE 4.3 (Continued) L L O Y D - L I P O H C R O U M D B Y B Y F

	¥	0.430		0,310		æ	0,530	0.032	0.407
	2047	23.752	130.740	9.294		2462	75, 305	50.732	40.212
	2					:			
а С С С С С С	2				-) N 0 2 2	53			
TABLE 4.3 (Continued) L L U V D = L I P J H 6 R D U N D = V B T E H D I B P L A V F I E L D F I E L D C C D Y I N U E D)	2	0.07036007	0.31336+04	9.22716+17	0 - L 2 • 0 0 E E O O E E O O E E O O E E O O E E O O E E O O E E O O E E O O E E O O E E O O E O E O O O E O O O E O O O E O O O E O O O E O O O E O O O E O O O E O O O E O O O O E O O O O O O E O	24		9.46625+05	
TABLE 4.3 (Continued) L L U V D = L I P J W 6 R D U N D = V B T E 0 I B P L A V F I E L D F I E L D F I E L D	2	45221 0.11256+05 0.67436+07	45477 0.15736484 0.31336406	45241 0,35876+84	- 100F - 26-1 -	ï	0.70036+03	0.33946+03 0.64426+05	4574 0.20446+05 0,10136+05
	BADOH	12251	11950	19261		BUNDH	3704	6356	
	NO.FAIL	•	:	:		NO.FAIL	n	12	•
	DNBAB	•	•	٠		ONBAS	11	~	~
		15.00	N0.22	NO.25			*0*	¥0. 2	10° 3
		2	2	2			2	2	2

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		•						ţ				•	
	104	37.010	74.510		119-911	31.100			101	47,602	31,551	50.530	
	2								2				
	54								54				
Continued) LIPOH BYBTE	2	0.32016+02	0-11146+03	0,04005+03	0,26426+04			LIPDE TOOF	2		0.53246+03	20395-05	
TABLE 4.3 (1 1 0 4 0 4 0 1 0 0 0 0 1 2 0 0 0 0 1 2 0 0 0 0		2700 0.70046+01	0.13706+02					C 4 4 4 0 5 5 1 4 5 1 8 0 0 5 4 3 5 4 0 5	-	9.72095+02	0.0252E+02	0,1521E+33	
	HOURS	2700	3200	3700	3700	2300			BRUCH	5103	2210	3322	
	NO.FAIL	503	100	5.	33	10			NO.FAIL	11	25	2	
	BYBND	•	•	•	۰	•	1		DNBAS	•	•	•	
		-	~	m .	•		1				•	-	
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0-7006-01 -,56096-05 -,95896-06

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74 HAGA 27	35,860 0.726	191.189 0.801	70.781 9,402	10.052 0,003	0.00 0°.00	4.054			12.373 0.500	19.496 0.475	0.012		10,372 0.703	4.000 1.000		13.788 0.869		
2													ł					
2	9.21015.95	0.22746+04	•-2441E+65	44756+05	0.1669E+05	0.37586+05	0.30446+04		•.:001E+07	0.59726+04	+++152E+++	0,52246+06	·,22456+06	***3378E+03		0.15676+05	-,35446+05	
:	1.22035+03	20-30520'0	0,48426+03	0.34416+03	0*385t-03	0.43226+03	10-30050°0	0.24885+04		23495 0.12512+04			0.72405+03	0.75352+03	0.+0395+03	0.21956+03	0.+0246+03	A TAALEAAT
BAUDH	11400	5703	591.	11800	10304	\$152	11200	10442	20101	23495	19481		15736					
NO.FAIL	34	55	•	•	35	•	•	•	•	1	:	11	2	:	34	39	1	1
ONBAS	11	11	12	13	12	•	15	13	15	15	15	15	53	15	1 51	11	12	
	NO. 1	ND. 2	NG. 5	NO ₉ A	N0. 4	* 0· •	NO. 7	4 °.	×0.	N0.10	N0.11	×0.12	N0.13	N0.14	NO.15	N0.16	ND.17	N0.18
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H B L E H TABLE 4.3 (Continued) 1 1 9 0 4 -. .

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(R647 RE 220.149 0.030		Rear RE 82,006 0,773 337,226 0,901 16,266 0,003 15,137 0,000	141.201 14.052
	T/ABLE 4.3 (Continued) L L O Y D . L I F D H H 6 R O U H D B Y B T E H F I E L D R R P1 P1 P2 B P2 P3 P4 P4 P1 P2 P4	D I I I I I I I I I I I I I	P1 P2 0.522038002 0.15555001 0.1506003 0.2765603 0.3006003 0.23386005 0.30018003 0.12006005 0.30018003 0.12006005	
	AS NO. 1 17 10 3005	35 60. 2 1 1 1 1 1 1 1 1 1 1	R1 NO. 1 1 40 40. R1 NO. 2 1 1 40 40. R1 NO. 2 1 1 2 200. R1 NO. 3 1 4 4 40. R1 NO. 3 1 4 5 100. R1 NO. 3 1 4 5 1000. R1 NO. 5 1 4 5 1000. R1 NO. 5 1 4 2792 2792	NO. 1 13 10 1940
	· I I I I I			

	ž	0.003	050.0	.700	1.452	01610	1.012		1.201
		2009.200	45,120	00,750	12.030	17.350	24.023	20,05	10.010
	Z								
	5								
Continued)	2	0.10736+03	0*3415[+03	0,32466+04		0.26706+03	0.12736+03	15526+00	
	ī	0.47896+82 0.1073E+03	9.27416+02	5.4478+02	0*0109E+05 -*1134E+04		0,3004E+02	**********	
	BAUDH	1726	2261	2370	3105	3415	9250	61150	9330
	NO.FAIL	10	35	2	•	7.6	.,	•	•
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		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	4 · 0x	NO. 7	NO. 8
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		Ĩ	0,794		1,052	0,226	120.0	0,460	0,533	0,736	0.457	0.305	.944	1.927		2	000-0	9,326
		898 W	35,006	33,004	4.572	14,985	12.362	13,524	20.046	30.752	30.120	24,042	10.010	12.906		R AA	74433	39,442
		z						8								2		
									4	ł		1				54	and a	
	(Continued) L 1 0 0 4 3 Y 3 T E	2	-,94586+07	·,3192E+07		************	••3769E+07		0.5022C+07	0.1779E+06	• 1 8 2 9 E + 0 8	•• 57762+08	14706+87	0.1705E+00		2		•,33466.05
	TABLE 4.3	-	0.1017E+04	0.11106+04	0.4466+04	************	0,1446.00	0,1759E+04	0.19476+04	1.42005+05	0,54896+04	1+5564E+05			2301 0230 132< 1300 503↓ 400↓	ĩ	0+13376+03	•••======
)		BRUCH	35400	11010	31440	86419	33666	54920	32000			10047		1200		BUNDH	2415	*23*
		NO.FAIL	•	2	11		:	•	10	5	ب	2	8			NO.FAIL	20	:
		CHEAR	•	•	•		•.	•	•	•	•	•	•	•		SYSHO NO.FAIL	~	~
			1 10. 1	2 .00	1 NO. 3	• • •	80° 5	* • •	4 00	• • •	• • •	H0410	10.11	N0,12			NO, 1	× 104
	production of the second	•	Ĩ	2	2	2	2	2	=	=	=	2	ĩ	2			2	2

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		6. Gao							•.•			0.406	••••		1	
			30.000		30.030	104.147	14.124		39.300		1481	53.195	20,217			
	2		And a contract of the second s	1			ho Advances A	3			:				2	
- - - - - - - - - - - - - - - - - - 	2	:	and which we are special with the special state of the	2 2	· view					т 0 0 E Г	5			H O D E L	5	
	2	0,15676+04	0,10116+03	\$0+352++*-	0.10995.03	0.14306+03	0.41566+04	0.41275+04	0.31526+03	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	2	0,27526+04	0,64066+05		2	0.52005+03
	z	20+3080970	6,2614E+02	0.13168-05	0.1000E+02		0,04395+02		0.23646+02	CI0 0450 1466 1800 5496	-	0.11206+05	.71556+02	C Z A + Q U Z Q I 4 C 4 I 4 0 0 I 4 0 0 I 4 0 0 I 4 0 0 I 4 0 0	2	. 50-34616.0
e : e	BRUCH	2162	1649	24014	7449	1302	10304	501.	1574		HOURS	2076	5005		HOURS	1122
	HOSTALL	52	178	170	244	110	•		0.2		NO, FAIL	:	5		SYBNO NO,FAIL	36
	-	2			=	11	12	2	=		DNBAS	-	-		ONBAS	5
		1 .04	NO. 2	×0, 3	¥0, 4	5°.2		NO. 7	×0.			NO. 1	8 . 3			1 - 104
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1	2		0.075				100.0	1-002		1001										110.0	6.4.6
	494	20.459	17.756	24.094	59.502	14.924	0.870	24.472	43.094	21.100	10.602	10-856	16.021			20.200	12.515	31.445			
	2											in company was and the company of a	 An experiment of the second sec	new of the state state of the s			***	and a second sec			-
ж О О Е L ж А < Е	2											the second			 Mile visit (- Think support of the second se	for more different on entry further as		and the			
4.3 (Continued) 9. L 1 P 0 H 7 2 3 7 5 7 E E H - H 1 C H 0	24		0.70685+03	5°*36612			0.14246405	0.12736+04				.27255+04	••27456+95	-,12016+04	•.29726.04	0.25006+04	3646+04	0.36736+05			
TABLE 4.3	-	0,248.5+62	0,3966E+02	0,45336+02	0.60946+02	0.59768+02	0,29456+03 0	0.94956+02 0	0.13066405		0,27676+02	0.7784E+62		· 20+32125*0		0.90736+02			. 10316003	- 20+30005.0	0-50326+02 0.
	BRUDH	401	3031	1373	7124	2002	42076	41054	47696	44744	191	2767	35000	42010	32866	24926	33660	****	51440		
	NO.FAIL	11	24	32	:	.	135	323	562	102	\$		103	479	360	203	205	101	104	546	10.
	ONGAR	•	•	•	•	••	•	-	•	•			•	-	•	•	•	•	•	•	•
i 1		NG. 1	Nu. 2	NO. 3	NO. 4	10. 5	* .0*	N0, 7	M0. ¢	MOr •	N0.10	N0.11	N0.12	N0.13	N0, 14	N0.15	N0.16	10.17	N0,10	N0.10	N0.20
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W.	0,634	0.574	0,344	10.0	0.031	0.656	1.506	6.400	0,253	1.102	0.996	0,702	0.942		0.741		••••		0.733	0.072	0.1.07
4 C 2	86.673	27,315	10.445	44.44	3,942	66.51	13,164	12,631	14.791	33,326	22,156	26,967	19.574	25,345	38,447	24.530	13.190	15.520	32.241		15-44
40.												-									
54																					
~	0.40566+03		••••••••	0.53986+02	0.4257E+02	0,30876+03	20276+02	6.21705+02	.14582+04	0-30105-03	0.47645+03	*******	** 2548 *03		0.68266+35	•.20476+03	-,76946+05	-,1372E+04	0.3313E+03	0.47466+02	55486+04
	0.12136+04	0.5307E+04	0.10416+03	0.13626+03		0.40816+93	0.50446+03	20+3+465*0	0.27986+04	0.21936+04	0.1 630E +04	• 74376+03	0.40205+03	0.11415+04		6.32216+03		0.10156+04	E0+3225+ 0		0-11165+00
SHOOH	18504	24804	2767	3032	1373	7124	2003	407	42080		47400			51440	31796	18240	53000	24420	32800	42000	35400
40° 7431	•	•	n	•	٠	٠	•	•	•:	:	52	Ŧ	73	13	2	33	55	•	•	:	22
UNBAS	12	12	•	•	•	'n	•	'n	•	do no.	•	•	-	•	•	•	•	•	- 2112 AAN	•	•
	NO. 1	ND. 2	NO. 3	NO. 4	NO. 5	NO. +	NO. 7	• •	40° 6	ND. 10	*0.11	N0.12	N0.13	N0.14	N0.15	N0.16	N0.17	N0.10	N0.10	+0*5+	ND.25
	2		2	2	2		2	-	2	-				-	2	-	2		2	-	2

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TABLE 4.3 (Continued)

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т 0 0 6 Г а 4 8 7 6 ж а 6 4 6 ж а 6 к а 6 ж а 6 к а 6 к а 6 ж а 6 к а 6 к а 7 к а 6		0.1125E+05	•.3254E+02	20+36104
	-	3036 0,2007E+05 0,1125E+05	5085 0.4662E+03 0.3254E+02	3922 0°19952+62 ** 40446+02
	BUNDH	3036	5005	3922
8 4 9	SYSNO NO.FAIL	•		•
	DNBAS	-	1	:
		NS NO. 1	*0. 2	NO. 3
		=	5	-

		1			1				
	ž	0.414	9.844	1.44.0	0.770		126.0	500'0	1,914
	8 - 8	54,180	122.9	44,626	25,440	22.578	10.732	50.074	\$52,252
	2							4	
	54								
	2	0.4276E+02	-,1310E+03	0,19995+82	0,15046+05	0.44825402	0.68716+02	\$,2416E+02	
	1	2513 0,74256+02 0,4276E+02	24804 0,23545+03	0+3196+02	0,10076+03	0.13376+03	18394 0,20316+05	4302 0,2771£+02 5,2816€+02	7574 0,4052E+02 +,6749E+01
	BRUDH	2122	24804	-752	5914	710	10304	4302	1574
	NOFAIL	16	:	70		•	11		129
	ONBAB	1	12	11	12	12	12	11	11
		ND. 1	40°	NO. 5	NO. 4	NO. 5	ND. 6	N0. 7	NC. 8
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3Y3MU0 M0,FAll H0URB P1 P2 P3 1 28 0309 0.12906003 0.300TE+02 1 3 2076 0.3009E+03 0.300TE+02 1 3 2076 0.3009E+03 0.4021E+02 1 3 2076 0.3009E+03 0.4001E+02 10 10 3022 0.1773E+03 0.4001E+02 10 11 3022 0.10713E+03 0.4001E+02						•
3Y3MU NO,FAIL HOURB P1 P2 P3 1 20 0.12906.003 0.3007E+02 1 3 2076 0.3009E+03 0.3007E+02 1 3 2076 0.3009E+03 0.0001E+02 10 10 3022 0.1773E+03 0.4001E+02 10 10 3022 0.1773E+03 0.4001E+02 10 11 3022 0.1773E+03 0.4001E+02 10 11 3022 0.1773E+03 0.4001E+02	1001	20.00	10-557	144.45		7.042
3Y3WU NO,FAIL MOURA P1 P2 1 20 4504 0,12066403 0,34476402 1 3 2076 0,34496403 0,34476402 1 3 2076 0,34496403 0,04216402 1 3 2076 0,34496403 0,04216402 10 10 3022 0,17736403 0,00016402 10 11 3022 0,17736403 0,00016402 10 11 4650 0,00116403 0,10216403	z					
8Y8W0 M0,FAIL 1 28 19 19 19 19	54					
8Y8W0 M0,FAIL 1 28 19 19 19 19	24	0.3647E+02	0.6621E+02	0,40016+02	29495.04	0.10216+03
8Y8W0 M0,FAIL 1 28 19 19 19 19	-	0,12966+03	0,3499E+03		9.26736+03	20+30140-0
8Y8W0 M0,FAIL 1 28 19 19 19 19	HOURS	4349	2076	3022	9258	
	NOFAIL	26	5	:	2	IJ
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ONBAS	-	-		:	
5 5 5 5 5		1 °CN	NO. 2	¥0. 3	NO	KO. 5
		2	5	2	2	2

38	0,943	1,000		1,022	••••		0,100	0.432	•••	0,477	0 c 5 a 5	500.0	1,944	0,000	1.907	1.011	0,934	0.940	9.708	
		24,359	40.700	10,055	10.610	14.041	11,996	30,400	19.013	12,555		12,904	14.652	32,991	22.405	14,260	10.769	310.015	22,075	
2																				
-																t				
2	0.44785+02	0.47176+02	0.11995.03	-,15456+02	9.19646.02	0.19616+02	-,76166+03	9.4528£412	9.16942+22	9.13215+02	20-36205.0		-, 95476+42	20-30515*0	0,27386+02	-,92246+01	0.37766+02		0.13002+03	
z	42078 0,53976+03	0.10576+03	0.14006+03	0,11466+03	20+35101.0	20+30021-0	80+30#55*0	20-30-00-0	1.52006+02	0.36966.02	0.00275+02		0.3188E+02	0.75646+02	0.98506+02	0.95476+02	0.00000+02		0-19326+03	
HOURS	42078		47899		108	2003	1373	1124	3032	101	2767	35400	42610	32800	12412	33600	19249	80118	21 440	
NO.FAIL	•11	•52	540	103	10	:	-	2	÷	•	2	147	202	203	173	152	•••	342	140	
ONBAS	•	•	٠	•					-	18.		•	•	• }	•	•	•	•	•	
	NO. 1	NO. 2	*0* 3	* 0 *	ND, 5	NO. •	NO. 7	NO. 0	NO. •	HO. 10	N0.11	H0,12	N0,13	*0.14	N0.15	N0.16	N0,17	×0.10	ND.19	
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TABLE 4.3 (Continued) 0

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			¥	0.570	3	a a		513°0	****	1,155	0.240		0.436	0.007	C., 982
<i>*</i>			1944	21.265	•	8482 8	57,431	43,986	20,503	\$60 ³ 69	14,062	15.438	44475	10.311	40.707
		1	2		•	₽d							1		
			54		•	5			·				4		
	Continued)		24	0.22045+02		~	0.11716+03	0.90516+02		0.9426E+02	0.20036+02	0.07976+02	17196+05		0.14795+03
	TABLE 4.3 (Continued)	0010 10010 1000 1000 1000 1000 1000 10	- 14	0,34116+02		ĩ	0.15442+05		0,35506+03	0.20326+05	0.10016+03	0.15026+03	0.98286+02		9.10008+02
	•		STUDH	1122		BAUOH	04911	1302	10304	5+1+	714		1	24804	7849
			JIAN NO.FAIL			NO.FAIL	*	11	*	•		:	117	2	177
			ONBAS			DNBAS		:	12	12	12	1	:		11
				NO. 1			1 -04	NG. 2	NO. 3	*0. *	*0° 5	•••	NG. 7	• • •	• • • • • • •
				-				2		-		-	ĩ	=	

u E	6.819	0.030		0.751	0.000	0.766	0.365	0.003	0.657	1.053			0.011	0.702	0.005	0.612	500.0	0.266	
RAR	24.910	11,534	19-010	10.253	32.702	31.967	• • • 22	10.543	6.570	0,599	1.007	5.902	1.686	13.200	1.110	1.665	3.426	15.036	
54								1 1 1 1	*				Applemental managements are to		1				
54			٠																
2	0.18485+03	0.5027E+03	0,12756+05	0.21595+03	0.51306+03	0.1535+04	50+30455°6	50126+05	20+30120,0	0.12936+02		0,20502+03	0.32116+03	0.21015+03	37126+05	-, 81765+62	3216E+02	0.31306+03	
ī	0.43292+03	0.42265+05	0.31005-03	C0+35E00"0	0.55356+03	0,54316+04	0,15246+04 9	0.40936463	0.50146+03 0	0.14726+04 0	. 35026+03	0.6075640.0		0.45235+03	0.1155E+03 -	0.37666+03 -		0.20596+04 0	0.22749400
HUUR	5294	•••	7576	9535	41584	22037	-205+		91411	17219	2837	2247	2352	1	119	2442		44314 0	45224
N0.F41L	15	•	:		5	•	•	11	:	11	-	•	•	n	n	•	5 5		•
ONBAB	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	•	•
	NO. 1	NO, 2	NO. 3	NO. 4	×0. 5	×0.	NO. 7	¥0. B	• •	N0.10	11.01	40,12	N0.13	N0,14	N0.15	HO.10	NG.17	M0.18	KC.19
	2	-	2	22	2	2	2	2	2	2	2	2	2	2		2		2	2 M

TABLE 4.3 (Continued)

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	¥					8		Manufactor data alla all'antigene vede a la co				0.007	0.550	
	ROAR			212,545	150.0		- deferring to a					13116	26.027	
	2						87 a		; ;					
	54					4 ⁰ 4	1			2	•			Ł
TABLE 4.3 (Continued) A TABLE 4.3 (Continued) A TO E T O O E L A TO U NO S T S T E M T S P L C T T E L D T E L D T T N U E D J	24		0.18385+84	[0.]0046.0	0.12306+04		1 4 4			2	0.13186+05	0-15005+03	0.78216+02	
TABLE 4.3 14BLE 4.3 0 8 0 6 7 1 9 8 8 6 1 9 8 8 1 9 8 8 1 9 9 1 9		0-17506-04	0+1132E+05	0+12716+64			- units			E				
	HOURS	33320	45221	45477	[tar a			BUNDH	3784		4376	
	NO.FAIL	•	•	2.	•		And and a set of the s					12	•	
	ONBAS	•	•	•	•			5		JIA NO FAIL	17	~	~	
		N0, 20	N0.21	N0.22	N0,23	to the second					ND. 3	×0. 2	NO. 3	
			2	22	2						24	2	2	

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	2	10-30040.0	1	0,27956+02	0,47426+02	0.49495+02
	ī	2700 0.62556+01 0.46446+01	3200 0,11065+02 0,00635+01	3700 0,32106+02 0,27056+02	3770 0,235964.02 0,47426+02	2500 0.1113E+03 0.4009E+02
	HOURS	2709	3200	3700	3770	
- 100 - 1, 100	JIN NO.FAIL	105	100	20	33	•
	ONCAS	•	•	•	•	•
		NO, 1	× .0×	KO. 3	*0. •	40. 5
		2	2	2	2	2

Z	1.024	510.0	0.976	0.967	1,005	0.047	04010
and a	30,800	20,944	29.069	92720	23,410	0.227	13,109
z	alerinale de la se			Londor Bhi, Yan Ying, An A	F		
:		1					
2	0.35176+02	0.18886+02	-,51226+03	0,12216+61	-,24115+02	21746+04	•,52756+02
a t I	2193 0.67966+02 0.35176+02	2248 8.6819E+02 0.1898E+02	3322 0,21096+03 -,51226+03	0,55706+01 0,12216+01	4536 0,2086E+02 -,2411E+02	4050 0.4379E+02	0,21476+03
BUNDH	2103	2249	3322	3415	4534	4634	
BYBHO NO. FAIL	17	32	12	304	112	•	51
04848		•	•	~	~	-	1
	1.04	NO. 2	NO. 3	NO. 4	KO. S	••	NO. 7
	5		2	-	-	-	2

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				l,				
	NO.FAIL	NGUR	2	~	2	1	204	J.
	-	11490	0.21+75+05	0.13006+03			29,314	8.677
	33	5702	0.41256+02	0.42036+02			100.452	
	1.	5916	0,45708+03	0.15982+03			30,132	•.33•
	.	11000	0,39046+03				10,000	010.0
	51	10304	0.23316+05	0.13036+03		đi 1	29.435	
1.1	\$	5162	0.45526+03	6+12+21+03		0 Mich	500.0	0.122
	•	11200	0-92778+05	0.39486+03	e 1 1 1 1	anda Weiking a dimensionali da dago	17,295	0.567
1	•	19442	0,29316+04	1152E+04			14.343	1.010
1	•	10192	9,11005+04	-,11245+04			12.445	100.0
	•	23045	0.12356+94	0.45146+03			17.319	0.567
		12741	0.40156+03	-, 20-36+02			0.044	161.1
1	17	21572	0.12985+04	0.45946+03			13,000	0.440
	50	15756	0,7206E+03	-,27976+03	and an and a second sec		10,538	0.799
1	•	13960	0* 7528E+03	45856+02				1,002
	2	33686	**36036*03	0,29126+03			10.033	0,704
	35	10323	1-21595+03	0,75106+02		raman	12.434	e. 050
	-	1001	5+++++++++++++++++++++++++++++++++++++	• . 2935+03			23.036	1,072
		•• 3 3	0.35766.03	19816+02			15,305	1.037
	2	12141	2+2494E+03	0.13756+03			32,599	0.724

TABLE 4.3 (Continued) A R O E F M O D E L E R O U N D S Y S T E

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1 0,952 ••5*• 989-0 0.434 6,740 0,932 01010 2.465 1040 ž N. Ĩ -----4.225 RAAR 104.968 35,043 101.17 16.342 191751 668.3 13,273 RAGA RAAR 2 1 2 2 5 **X B T E H** 3965 0,22326+03 0,16776+02 0.17005+03 0.03165+02 0.60776+05 -.37936+03 TABLE 4.3 (Continued) 0.4643E+62 0.3951E+02 C.+3985+01 -,15456+03 0,29986+03 -,14046+03 0.23316+03 0.62346+02 1340 4.59775+02 0.4296E+01 1 3 0 0 4 ~ 3001 2 2 3 \$0+30586 °O 0.33446+03 0 1 1 5 Z • æ 4274 4334 2792 2043 11100 0 HOURS 4467 10466 BRUCH STON NO. FAIL HOURS SYBHD NO.FAIL NO.FAIL . -• : 1 2 5 5 • ONBAB 23 --= : 2 2 -40° 3 NO. 2 NO. 1 NO. 1 NO. 4 NO. 3 ÷ • 0 NG. 1 40. ---. 2 Ē 2 Ĩ 2

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TABLE 4.3 (Continued)

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P2 P2 REAR AG	1724 0.1549E+02 0.4347E+01 215,434 1.272	20.010	0,44946+02	•,2594£+02	0-10526+92	0.13316+01 23,463	-,75396004	
14	+ 0 • 1346	20+32922*0 50	9.5556+02	20+31110"6 5015	5 0.24636+02	+ 0.2007E+02	3 0+3159E+03	
L HOURS	172	3922	2370	310	2013	9259	5150	
SYBNO NO,FAIL	10	2	2	•	74		. ,	
DNBAS	•	•	•	•	~ ~ ~ ~	~	-	
	1 NO. 1	×0. 2	RS- NO. 3	RS NO. 4	NO. 5	* •	NO. 7	
	-	-		-	2	2	2	,

	>	2	0,012				delana		~~	9,605	0.000	0.323	0.916			1	•••••	0,274
C		4464 4	20.244	30.715	01000	19.241	12.667	12.776	24.036	26.366	27,105	24,027	17,566	12.676		202	7.277	21,907
	•	11														z		
	0 8 2	54														24		
	(Continued)	24	••31326•04	15066+04	34846+03	-,5554£+05	1757E+04		0.12716+04			1	··54886+93	0,2712E+04	000 00 00 00 00 00 00 00 00 00	24 4	0,16915+02	0.1.072+03
		-	0*1346E+64	9*1132E+04		0.14036+04	0.15075+04	0.17786+34			0,52436+04	0.12066+04				Ē	0.15326+05	0.42066+05
\bigcirc		BAUDH	35400		51440	41796	33480	34926	32000	42005		47996		12080		HCURS	3115	1231
		NOFAIL	16	5	11	::	:	:		5	•		3 2	•		NO.FAIL	50	01
		GNBAB	•	٠	•	•	•	•	•	•	•1	•	٠	•		ONCAS	~	~
			NO. 1	NO. 2	NO. 3	× •	NO. 5	NO. •	40. 7	• •	• • •	N0.10	NO. 51	N0.12		ţ	N0, 1	40. 2

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		ž	0,459	0,799		64070	1,031	0.746	0.607				JE	0,392	195.0		ž	A ARA
(-	40,023	104-52	100-2	34, 328	••••	15,136					8484	23,530	13,003			
		2				1 B		8 9	3				1			1	-	
		54								No. of Concession			5			۳ ۲ ۲	5	
	4.3 (Continued) F M 0 0 E L F D 3 7 3 7 E M E M - R A D A R	24	0,39495+02	0,13276+02	•, 32146+03	0,12126+02	\$.1101E.02	0.03476+02	4.9163E+02	0.12726+02		т 0 0 С С 8 7 8 7 Е т 8 6 6 6 7 Е т 8 6 6 6 7 6 7	24	0.43956.02	6,21418+62	0 0 6 C 6 C 6 C 6 C 6 C 6 C 6 C 6 C 6 C	25	0.20436402
	TABLE 4.3	14	9.43176+02	0.25136+02	0,13336+05	0ª1475E+02	9,10006.02	0,02076+02	0 + 9070E+02	20-30-22"0	••••	× 2 ₩ 2 ₩ 2 ₩ 2 ₩ 2 ₩ 2 ₩ 2 ₩ 2 ₩		0.11066+03	0.71005+02	2 6230 62300 62300 62372 4660	2	0.31065102
\bigcirc		BRUDH	5152	1514	24884	7843	2051	10504	6165	1974			BAUOH	2676	2005		HOURS	1122
		SYSNO NO.FAIL	:	170	170	244	110	1:0	5	505	an and day		JING NO. FAIL	•	2	ę į	NO.FAIL	25
		ONBAS	=	Ξ	2	11	=	12	12	11			ONBAB	-	-		ONBAS	Ŵ
	*		NO. 1	ND. 2	NO, 3	* 0×	8 °0H	• • • •	N0. 7	×0.				NO. 1	2 °0			40° 1
			2	-	=	=	2	2	=	E				2	2		0	Z

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		0.924	9.461	0.975	426-0	A.005	100.0	1.020	0.010	1.017	0.900		10.0	1.000		0.00	0.001	0.017	0.772	0.941	
	191	10.527	16-561	26.731	43.847	14.400	9.032	23.252	39.917	19.100	•••35	17.632	10.955	120-21	33.950	19.750	12.127		19.065	20.056	10.506
	:							•	and the second												•
11 > 4	2			·																	
TABLE 4.3 (Continued) A R O E F M O D E L F R O U M O B S A B T E F F Y B T E M O M T C R O M	22	0+81336+01	0,10005.02	0,2000£+02	6.7455E+02	0.17056+02	0,48455+02	9,76155+01	0.10066.03	-,42166+02	0,58696+01	3,42572+02	14205+03		6.4671E+02	0.27036+02	34676+02	0.17376+03	0.13436+03		0,25936+02
TABLE 4.3	ī	0.24326+02	0.38716+02	0,43416+02	20+30909"0	0,50005+02	0.29272+05	10-36000.0	0.12846+03		0.27346+42	9.70705+02	0,14496403	0.54295+02	0,40576+02	0.88416+02	- 20-30050.0		0.1003E+03 0	· . 5761E+02 -	0.54556+02
	SAUDH	407	3031	1373	7124	2002	42076	1999	93949	44798	161	2747	35400			24320	33480	41794	51440		10240
1 4 4 1 4 4 4 1	NO.FAIL	11	5	32	:	;	135	325	ŧ	102	5	2	20 3	411	34	502	205	101	101	345	104
	ONBAS	.	in	5	•	•	•	•	•				-	•	•	-	•	•	•		•
		NO. 1	ND. 2	NO. 3	NO. 4	NO. 5	NO. •	NO. 7	••••	• •	N0.10	N0.11	*0.12	N0,13	N0.14	N0.15	N0.16	N0.17	40°18	N0.10	N0,20
		12	E.	1	1	t	ĩ	2	E	æ	-	2	2	2		14	5	2	2	14	2

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	I	R848 86	14.929 0.251	19,442 0.076	****	15.010 0.050	12.120 1.071	14.746 0.154	13.094 1.405	20.504 0,940	21.409 0.665	20.484 0.488	13,547 0,518	22.645 1.049	11.516 8.780	20,626 C,755	22.157 0,577	23,251 0,622	a.519 a.535	17.150 0.500	16.299 0.294	0.400 0.407	23.750 0.720
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	-	:											+	ł	yn gyn an wy y w								
	(Continued) E x P 0 H A S Y S T E	24	9.94745-04	0.88166-04	14125-02	0.4424E=03	0.17586-02	0.32836+03	0,52616-04	6.2696E=02	0.18142-04	0*15596-44	0.1229E-04	0.49546-05	9*99196**	-,39596	0.31126-64	0,28646-04	•, 1431E=04	3+785-04	0.31065-04	0,38436-05	19795-04
		14	0.4002E+03	0,12056+84	+*1785E+04	0,55506+02	20-39610*0	0·1446.63	50+3454t ¹ 0	9,2644E+02	0,14676+04	0,15736+04			0.42116+03	0.22006+05	0,57036+05	0.2077E+03	0,13996+04	0-17536+04	· 25256+03	0.27956+05	0.24126+04
0		BUNDH	10304	24804	2767	3032	1373	7124	2002	407			47400		11040	51440	31796	18240	33480	24920	32000		90t5E
		ND.FAIL	•	n	-	•	٠	•	A mining and the second s	*	:		8	Ŧ	13	:	58	35	35	•			22
		ONBAS	12	12	•		•	\$			•	•	•	•			•	•	•	•	•	•	4
			1.04	×0*	NO. 3	NO.	*0* \$	• •	NO. 7	NO	• • •	N0.10	N0.11	N0.12	N0.13	N0.14	N0,15	N0.16	N0.17	¥0,10	*0°1+	N0.20	N0.21
				-1					-	-		=	2	ĩ		-	ĩ	1	1			-	Ĩ

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(6,266 1,000		P4 N34R RE	36.491 0,301	9.413 0.745							
	TABLE 4.3 (Continued)	50 Zd 14	5+02 0,1101E+02		0,20566+03 -,33426c-03		5d 5d 1d	0.2317E+02 8.9453E+03	0.2000E+031045E=04	0,2730E+02 0,2504E+03	0,1153E+63 0,1096E=03	0.7350E+02 0.1154E-02	0.100%E+05 0.11+0E+04	0,12756+02 0,46156-05	0.32776+92 0.74836-84	
0		BAUDH	3030	2005	3922			5132	24804	1514	5916	714 0		4302	7574 0	
		SYSHO NO.FAIL	•		•		1141900	:	•		34	•	11	14	120	
		ONBAS	-	-				-	12	:	23	2	12	11	=	
			1 - 01	40° 2	NO. 3		L.	*0.	×0° 2	#0* 1	×0*	NO. 5	* •	ND. 7	NO.	
			2	2	2			2	2	2	1	1	ž		2	

	ž	0,320	0.848	200.0	6.231	0*040
	RAA	24,387	\$2,178	25.024	10.340	20,333
	2				ŧ	
	5					
TABLE 4.5 (CONCINED) 8 T P L E E X P O N E Y T A L 6 R O V V D S Y S T E N R A D A K 2 N - N O U S E	54	0.23276-03	0.20396-02	0.31046-03	30026-05	0.1272E-05
		0.48446+82 0.23276+03	0.40302+02 0.20395-02	5.900E+02		1,29366+03
	BAUDH	4349	2076	3022	5370	1050
	SYSND NO.FAIL	50	•	:	18	
	ONBAS		-	:	8	9
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		0.480	0.105			23171			- 00 - 0	0.672	012				0.00		0	•••	0.32	227.0
	A COK	4.913	0.512	10-110		20.04	14-710	110.61	11.070	11.675	2,332	15-844					160333	100.4	42615	
	ť							de minute	venture entering of the second second second	1			er en		a a mu		-		1	
	2								t f									A MARINE AND A MARINE AND A MARINE		
		1.50796-35		4-35212-0	-21454-9H	0-315(s.)	10-30140***	50-31281"-	C0-36+02"0	C-1346E1*0	10-30050°.	K0-91002"0	······································		0.51456-04		0.11095-64	0.47726-04	-11756-00	5-2008C-04
		0*3030E+03	0.74495+02	.7313C+02	1.50056+02			• - 34046 • 03	. 50.3000.0	0.42455+62 0	. 19476+62	. 53335+02	.22766+03 -		100	0.77266+02 0	0.02176+02	1.50		
BAUDH		64634		47899	44798		2063	1373	7124	3032 0	101	2767 0	35400	42610	32000	24920 0	33660 0	10240	41746 0	1440 0.
ND.FAIL			520	240	501	:	0.4	2	42 2	\$	•	56	147	205	205	175	251		10 7 1 7 4	
ONSAS	•		•	•	-	un	,	•		5			•	•	•		•	•	•	•
			×0*	NO. 3	NO. 4	NO. 5	*0*	NO. 7	ND. 3	• •	N0,10	10,11	10.12	N0.13	M0.14	NO.15	M0.16	N0.17	N0.10	N0,19
					1	1					-		-		-	2	Z	2	2	3

TABLE 4.3 (Continued)

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	2	0,636		¥	0.192	0,250	0,620	0.036	••5'•	0.015	0,020	1.031	
	ABA	10.011		RAAR	18,040	19.152	13.925	22.013	416.04	2000-T	10010	14.593	710.7
4 	Z			1									
и 1 л с	2	All second and a second s		2									
L I 2 U 4 O 4 O 4 O 4 O 4 O 4 O 4 O 4 O 4 O 4 O	~	0, 49406-03		~	0.17796-03	0.44472-03			0,36536+02	0.54416-04	19295-04	·.26946-05	0.22756-05
C E Q W 0 0 5 L 2 3 C 4 1 0 0 2 5 M 3 M	14	2002-02	4004 1040 1040 1040	14	0.444¥E+02		•.2727E++5	0.7090E+02	0.23006+02 0,30336+02	P.1107E+03	0.1071E+05		7848 8,99646491 0.23756485
	BUUDH	1122		HOURS	11490	4362	10304	5914	714	7663		34464	7940
	SYSHO NO.FAIL	33		NO.FAIL	*	17		1	•	69	117	22	177
1	DNBAS	un i		DNBAB	:	11	12	3	12	Ĩ	11	2	
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	53			*					9			the market									*
	24	0.47042-04	0.17046-03	0.11376-03	0.38182-04	0.47346-94	0.61875-64	0.48675-04	******	0.21695-02	9.11106-05	57176-05	0.27306-03	0.30205-03	0.32236-03		31556-94		0.39075-00	0.45266-06	
FIELD	1.	0.24718+03-	0,2996.03	0.26596+03	0,44956+03	0+34128+03	0,14146+04	0-0126+05	0,12176+04	0.5000E+05	0.1454E+04	0.25865+84	0.32756+03	6+33956+03							
	HOURS	5246		7570	5255	4253	22037	15054	9479	-1-11	17219	2237	2247	2532	1961	129		ł	4314	5374	
	NO.FAIL	51	•	•	11	51	•	•	11	•	11	•	•					31	-	•	
	01848	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•		
		NO. 1	N0. 2	NO. 3	NO	×0. 5	• •	H0. 7	• •	• •	·1.0	11'0*	40°15	11º0	N0.14	N0.15	N0.1.	N0.17	N0.16	NO.10	
		2		2	2	2	2				-				2	2	2	2	82		

TABLE 4.3 (Continued)

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TABLE 4.3 (Continued)8 1 M P L EE X P U N E N T I A L6 R U N DS Y S T E M0 I S P L A V7 I E L D7 I E L D7 C D N T I N U E D)

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	a H	1.640	- 7a5	1.150
		50.142	59.346	212.05
	:			
	2			
	24	0,07596-00	9.44728-04	0.23026-04
(C O N I I N U E O)	2	*****	45477 0.29866455 0.66726-04	45241 0.19116+04 0.23026-04
	HOURS	15581	45477	19250
	SYSHO HO,FALL	•	•	:
	ONBAS	•	•	•
		N0.21	40°55	N0.23
		2	2	2

TABLE 4.3 (Continued)

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	ž	0.155	0,142	9.146	0,272	0.101
	HVQU	e, 77e	13.015	15,405	1.303	12.090
	2		danagi v.			
	5	\$ } 1			ees ensure e	
	2	0,01016-03	e-36420'0	0.54142-03	0,47986-03	0,35416-03
	14	2700 0,41946+01	0*2050E+01 0*950E+02	5.1220E+02	0*1230E+02	0.60736+02 0,35416-03
•	HOURS	2700	3200	3700	3700	2500
	SYSHO HO.FAIL	105		8	33	•
	04848	•	•	•	•	•
		RE NO. 1	¥0*	NO. 5	• •	NO. 5
		2	2	2	2	2

TABLE 4.3 (Continued)

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2		0.727	1.050	0.100	6.473		1.005
	23,203	25,207	27.377	168.4	10.700	5.746	13.414
			8	and a stranger of the			
	}						
	0,91026-03	0.31936-03		0-13016-03	22465-05	-,22926-02	10776-04
2 . 0 2 . 0 2 . 1 2 . 1	20+35542*0	0*3435E+05 0*3143E+03	0,37036+03	10-30090*0	e,3357E+e2	0,41605+04	+144 0.2290E+03
BUNOH	5.12	2200	3322	3415	4534	4924	
SYBND MO.FAIL	11	2	21	304	211	•	2
ONSTE	•	•	•	≈,	~	-	-
	A3 NO. 1	AS NO. 2	RS NO. 5	R5 NO. 4	NO. 5	*C. •	NO. 7
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ž	0,115	0.414	0,570	01010	0,544	1.000	150'0	0,705	0,071	100'0	956'9	0.105	1,945	1.079	0.150	0.054	544.0	•••••	8.
1647	13.001	31.172	51.395	10,055	32,206	20.012.	5.461	11.253	15.073	15.040	10.405	5.037	11.019	4.391	6-85e	5.84	502.05	11.062	10.
z								- 4					- and a second sec						
5							:			9 0 0 0 1 0		4							
~	0+10976-03	0-31205-03	0-30+52-03	-,2256E-04	0.11356-03	0-31120-j	0,03456-04		-,26026-04	0,35646-04	0.13075-00	9.21196-04	-,7745E-05	78636-96	0.30405-04	0.57686-04	0.16006-04	4277E-04	• 10326-05
	0.11646+03	0,1753E+02	0.98026+02	0.44776+05	9.11046+03	1.15008+03	0,51646+05	0,45478+04	0.17416+84	0.47906.405		50+34620'0	0.01376+05	0*1454E+03	0.39036+05	0.10236.03	0.46502.03		.12206.05
BUUDH	11400	5703	5916	1100	10204	5152	11200	10042	20101	25495	12/21	23572	13756	13960	23666	10323	24004		12141
NOFAIL	*	33	:	:	35		•	•	•	•:	10	11	2	10		35		*	5
ONBAB	::	=	21	81	2	2	15	=	2	5	15	15	:		:3	=	12	11	2:
	1 -04	NG. 2	K0. 3	* . *	¥0° 5	• •	HO. 7	• •	• • •	H0.10	*0.11	#0° 12	N0.15	M0.14	N0.15	N0.16	N0.17	N0.10	M0,10
		2	_		-	2		-	2	2		2	W	-	-	-		2	2

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2	0,302	0,846	119.9		Ju	0,176	1,366	100.0	0,466	0.047			¥	1.000
	114.149	34,345	1.445		A A A	10,455	135,030	11.052	054 *0	2,346	1		4404	12,502
			1		2								z	
:			1	4	54			٠				# 1 1 A L	5	
2	1.1	0,41205-03	••-35255*••		2	0,36796-03	0.17146-02	00-36538 ··	46275-04			20 20 40 20 40 20 40 20 20 20 20 20 20 20 20 20 20 20 20 20	2	-,20576-05
14	0.34796+02	80+3446 * 9 R	0°9536+03	001-3 230 2342 1252 1252 102 102 100 100	1	0.29076+12	9,52826+02	0.47806+05	0.4242E+03	•.1717E+03		2420 255 254 1255 1255 1255 2534 2534	-	- 20+30654*0
BENOH	3965	4254	•33•		BAUDH	1447	2043	11100	10000	2792		1	BAUOH	1540
SYBNO NO.FAIL	10	1.	•	Person	JIA9.0N ONSYS	:	12	:	-	•	â		ND,FAIL	10
ONEAS	-	~	~		ONSAS	=				:			ONBAR	13
	NO. 1	NO. 2	¥. • Ø			#0. 1	NO. 2	80° 3	NO. 4	S			Be description of	NO, 1
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TABLE 4.3 (Continued)

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TABLE 4.3 (Continued) BINPLE EXPONENTIAL GROUND SYSTEN COMPUTER

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	HOURS -1 1726 0.17006001 2301 0.1031602 2301 0.1031602 2301 0.1030602 2301 0.2193602 2013 0.2197602 2013 0.2197602	L HOURS	arano N0,FAIL HOURS P1 arano N0,FAIL HOURS P1 arano 10 1726 0,17000001 arano 23 23 0,10000000 arano 23 23 0,100000000 arano 3105 0,100000000 arano 3105 0,100000000 arano 3015 0,100000000 arano 3015 0,100000000 arano 3015 0,100000000 arano 3015 0,100000000	2 L2 L2 AD		6E-03 0,037	10.250	6E-02 12,959 1,020	4E=05 0.016	86-03 11 21 20 0, 221		
			avano MO, Fall Hours avano MO, Fall Hours avano MO, Fall Hours avano NO, Fall Hours avan	54 · 14	7496+91 0,38396-92	4316+02 0.99966-03	1996+02 0.75366+05	303E+05 0,3284E+02	82-8+62 0.2434E-03		030E+00 0,3266E=03	

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		DNBAB	NO.FAIL	HOURS	E	2	:	4	161	ž
R1 NO. 1		-	:	35400		-,10326-05			27,647	1.107
2	~	•	52		0.11512+04	0.70356-05			20.675	1.017
.0	*	٠	11	51440	0.47895+84				4.318	1.001
NO	and the second s	•	H	4411	60+30965 ² 0	***********			14,797	0.230
-		e	:	33646	0,25626+00	*******			11.200	6,445
RI NO.	•	•;	•	24920	0.1110E+04	0.23595-04			25,347	••••
RI NO.		•	10	32800	0.0675E+03	0,33475-04		shi û derê de ta rezerin şêşêşi de	17,203	0,295
R1 M0.	•	•	:	4200	0.21275+03	0.26495-01			36.240	0.737
R1 NO.	•	•	•		0.25102+04	0,35036-00			14.129	0.201
R1 N0,10		•	36	1000	0.10676+05	-,44576-04	r vieg		18.747	0.240
R1 NO.11	11	•	52		0.15205+04	0.2336E-05		• Annument	10.451	1,005
R1 N0.12		•	n		0.42156+94	0.38496+04			13,325	1,612
				* 9 1	C 1 0 U 0 C 1 U 1 2 C 1 1 2 C 2 2 C 2 M 1 2 C 2 4 U 0 D		-) < 			
		ONC	SYSND NO.FAIL	HOURS	z	2	5	2	202	Z
1 °04		~	50	3415	0*1250E>03				7,464	1,007
N0. 2	~	~	01	4554		0.4449544				

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Service Million for prepare (the Child Child Constraint)

	3E		0.107	640°3	0,062	0.120	0.210	0,315	0,100			ž	0.439	959°C		ž	
	104	29,670	14.676	••5 17	7.150	14.340	9.802	22.440	180.7		1	RABR	25.479	30,034		RAGR	
	4							i	1		•	1				74	
2 4 4 4 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4	2										- - - - -	2	,	1		:	
TABLE 4.3 (Continued) a 1 m P L E E K P O K 6 m O U N D B Y B T E 8 Y B T E N . M A D A M 7 1 E L D	24	0.79418-03	0.14785-03	-,35266-05	0,10246-03	0.57116-03	0.3581£.0	0.20156-03	6-1242E-03			2	0.01936-03	· · · · · · · · · · · · · · · · · · ·		2	0-71446-07
	2	0.25426+02	0.1.225+02	0.14685+03	0.93776+01	0,52276+01	20+35000"0	0.30205.02			CIDM J2U0 6.3FI 5.000 7.2 7.2 7.000 7.000 7.000 7.000	•	0.4410E+02	0,45766+62	C 200 002 14C 4 14C 4 140 242 40 242 40	34	0-10502+02
	HOURS	5152	1549	24034	7949	4302	10201	5-10	1374	1	•	HOURS	2076	2092		HOURS	1122
	NO.FAIL	*	178	170	244	•11		65	200	and state	9 •	NO.FAIL	1.	S		NO.FAIL	
	DNEAR	:	=	12	11		12	2	:			DNEXE	-	•••		ONBAS	
å		×0.	NO. 2	NO. 3	NO. 6	NO. 5	• • •	*0*	• •				NO. 1	NO. 2			NO. 1
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202	20.052		245201	12.002	10.000	5.0.5		17,406		5,300	15.053	15,573	6.246	13.401	11.031	9-550	19.099	11.301	104.4
2						4							Alleria and a						
2										t			9 E			1			
2	10-30525'0	E0-31462'0	19-32+45*-	10-31715.0	*********	0.5876L-05		A.22406-04	**********	11-11-11-11	(1-122s2*0)	**1042E-54	*********			8.74276-05	0*1779E+04		**********
14		0.27936+02		0, 30296+02	50+34204.0	0,25746+03	20-3844920	0.72706+02	10-31000.0	0.19776+02	20+30225'0	50-30061"0	200300001	20+32602.0	20+36514*0	0°,77336+02	1.14816+03	0,13036+05	9.47166+02
HOURS	4.0.4	1695	1373	1124	2002	42074		47896		101	2767	35400		32000	93052	336.60	1794		
NO.FAIL	17	3	25	;	:	135	385		102		2	103	479	346	502	302	101	•••	i
0.848	•	•		•	•	•	•	•	•		•	•	•	•		•	•	•	•
	1 .04	NO. 2	NO. 3	NO. 4	NO. 5	+ °	40° 7	• •	• • • •	N0, 20	11.04	N0.12	N0,13	N0.14	N0,19	H0.10	H0.17	NO. 16	N0.19
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3Y3NU NO,FAIL HUMS 2Y 0 1590 2Y 29 1400 2Y 29 1400 2Y 29 1400 2Y 21 21 1200 2Y 21 22 1400 2Y 21 21 1200 2Y 52 4000 2Y 162 498 2Y 162 498 2Y 162 498 2Y 315 398
375M0 375M0 27 27 27 27 25 25 25

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TABLE 4.4 (Continued)

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		ONBAS	SYBNO NO.FAIL	HOURS	P 1	ž		14	2 V 8 2	36
•	R2 NO. 1	27	13	1100	0.84156+00	1100 0.8415E+00 0.5219E+02	0,50e7E+00 0,1418E+US	0.14185+45	19,034	2.240
	2 NO. 2	27		400	0,6102E+00	400 0,6102E+00 0,3072E+02 C.3946E+C0 0,6732E-01	C. 3946E+C0	0.67526-01	29.373	1.213
	-	25	50	3992	0,72056+00	3992 0,7205E+00 0,1750E+02 0,5933E+00 0,6704E+00	0.5935+00	0.47046+00	36,466	4.423
-	ND	27	13	909	0-72146+00	800 0.7214E+00 0,2241E+02 0,4348E+00	0,43486+00	0.50846-01	20,727	0,333
	NO. 5	27	5	9467	0.82416+00	0.33156+02	0.48386+00	0,15256+00	10.203	
	•	52	11	1200	0.45046+00	1200 0.65068+00 0.30098+02 0.36808+00 0.62568-01	0.3680E+00	0.4256E-01	24.523	0.100

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	RSAR	-31 53,125 3,080	-01 65.848 841.713	+00 73.785 52,324	+00 28,574 0,376	-01 TO TOP 0 143
	9	0.7170E	3.9442E	0.11796	0,1376E	0 0110E
	5.	0.44726+00	0.2504E+00	0.5006E+00 0.1179E+00	0.3244E+00	74.0 0 011464.00 0 3 908 6401 0 36716404 0 0410640
1 E E	24	0.92946+02	0.15+E+03	0,23266+03	0,15026+02	A SAGE AS
	la	536 0.91855+00 0.92946+02 0.44726+00 0.7170E=31	785 0.6816E+00 0.1566E+03 0.2504E+00 3.9462E+01	521 0.13626+01 0.23266+03	0.6248E+00 0,1502E+02 0.3244E+00 0,1376E+00	A 41245405
	HUURS	536	785	125	200	740
	SYSNO NO.FAIL	S	n	n	•	\$
	ONSAS	23	23	23	21	10
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TABLE 4.4 (Continued)

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O.FA	1	SYSNU NO.FAIL HOURS	:	2	2	ĩ	RBAR	J.
		407	0.4742E+00	407 0,6742E+00 0,7976E+02 0,2477E+00 0,1492E+00	0.24776+00	0.14426+00		4.944
11		3994	0.+3336+00	3444 0,4333E+00 0,3803E+02 0,7884E+00 0,2448E+00	0.78865+00	0,26485+00	35.070	
12		0.04	0.94256+00	400 0.56256+00 0.30266+02 0.54336+00 0.50746+01	0.54336+00	0.50746-01	20,227	
27		1400	0.8495+00	1400 0.8499E+00 0.2897E+02 0.6206E+06 0.2787E+01	0.42046+06	0.27875-01	12.301	
1.		800	0,74506+00	800 0,7450E+00 0,2541E+02 0.4725E+00 0.4249E+01	0.47256+00	0.42495-01	17.952	

	a e	0.700	0.074
	844	92,228	35,040
	Ĭ	0.6508E-01	J. 6156E-01
1 7 6 4	54	9.2362E+00	0.28345+00
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	0.4050E+02	0.16636+02
0 C A Z M Z O O M L A M Z O O Z M L A M Z O A Z M A M A M Z A M Z O A Z M A M A M Z A M Z O A M A M A M Z A M Z O A M A M A M Z A M Z O A M A M A M Z A M Z O A M A M A M Z A M Z O A M A M A M A M A M A M A M A M A M A	14	500 0,4427E+00 0,4050E+02 0,2542E+00 0,8508E+01	760 0,5091E+00 0,1663E+02 0,2834E+00 0,6156E-01
	HUURS	200	760
	ITANO NO.FAIL	•	4
	DNBAS	21	21
			~ •
		2	2
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		0.171	0.100
•	1048	32,250	29,462
	7d.	0.43626-01	0.10236+60
1 7 6 4	5	0.30756+00	0.3550E+00
2 C W Z C W	2	0,23096+02	0.10246+02
2008 2100 2100 2100 200 200 200 200	HOURS PI	782 0.5524E+00 0.2309E+02 0.3075E+00 0.4362E+01	767 0.5501E+00 0.1024E+02 0.3550E+00 0.1023E+60
	HOURS	782	767
	SYBND NO.FAIL	•	11
	ONBAS	20	50
		N0. 1	ND. 2
		-	R3 N0.

		¥	0.140		3H	0,027	5,729		36	0.005	0.219
C			39,110		RAR	500*55	51,246		8 V 8 K	22.964	31.100
		1	0.0563E-01		1	0.12466+00	0,18432+00		4	0.6446-01	0,71905-01
		а В В В В В В В В В В В В В В В В В В В	0.3780£+00	ĩ	54	G.1519E+00	0 .2 271E+66	۲۲ مرجع د ا	54	0,38046+00	0.410AE+U0
	(bountinued)	200 E L 200 E L 200 E L 200 E L	0.1716E+02	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24		0,1236E+02	ZCORC NXCORC NXCORC NXCORC	24	0.40016+01	0.1528E+02 0.410AE+U0
	TABLE 4.4 (Continued)	- E 3 WDE0 Zewi 4 cri <u>e</u> 3 mez 6 e.jm	0.4074E+00 0.1714E+02		14	0,34816+00 0,14296+02	0,4320E+00	2 0 2 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	0.54006+00	0.4601E+00
0	1	t thomas	160		HOURS	7.67	762		HOURS	760	200
		JIA .OM	10		NO.FAIL	-	•		NO.FAIL	17	10
		048M0	21		UNBAR	20	07	t	ONSAS	21	5
			NO. 1			NO. 1	NO. 2			NO. 1	K0. 2
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			te.			15	3	-			

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			36	0.24.	0.050		RE	1.003	150.6	2,079	,	2	0* 058
()			200 H	27,630	20,034			454.27	44,329	34,64		ROAR	13,259
			ž	0,20346+00	0.88785-01		1	0,17196+00	0.1357E+00	0,47895-01		Z	0,16156400
		82 >	5	0,35556+00	0.3222E+30	E I V E R	54	0.12346+01	0.48746+00	0.10176+01	5 5 1 5	m d	0.4397E+00
	TABLE 4.4 (Continued)	и С С С С С И С И С И С И С И С И С И С	2	0,51556+01	0.23886+01	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	0,37786+03	0.2481E+03	0 . 1 4 7 4 E + 0 3	NO DEL NE DEL SE DE E	2	0.8233E+00
	TABLE 4.4		2	0,52556+00	0.4692E+00		14	0.25462+01	0+13476+01	0_2087E+01	2 2 2 2 2 0 2 4 2 0 4 2 4 2 4 3 4 2 2 0 4 4 4	2	0.5206E+00
0		and a second	BUNN	782	7.07		SINCH	111	705	536		HOURS	2590
			NO.FAIL	14	15		NO.FAIL	5	'n	e		NO.FAIL	
			ONBAS	50	20		ONSAS	53	23	23		DNBYB	22
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		18.955	14.584	23.697	10.174	200.4	20.500		194	10.207	14.301		2462	20,557
	1	0.5n25E+00	0.3751E+00	0.4722E+00	0.3481E+00	0,14585+00	0,37566+01		2	0.02306-01	0,5857E-01		*	0.64205-01
	6.3	0.4453E+00	0.54146+00	0.45542+00	0.57146+00	0.4470E+00	0.6+32E+00		54	0.34495+00	0,4242E+00		1	0,37126+00
<pre>(Continued)</pre>	24	0.14206+00	0.41736+00	0.19726+00	0.00516-01	0.46346400	0.+7216+01	2 0 0 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0	2	0.51636+00	0.442-5401	200 E L 2 E A 3 E A 3 E A 3 E A	24	0,33446+01
TABLE 4.4 (Continued) 0 U A N E H 0 D E L 1 R B 0 R N E 3 Y 3 T E H • R A 0 J F 1 N • H 0 U 3 E	14	0.53486+00	0.4152E+00	0.54836+00	0.4152E+00	0.4996400	0.9267E+00		2	0.45216+00	0.62866+00		1	0.52695+00
	HUURS	295	1007		1192	2500	1945		BRUCH	200	200	!	HOURS	7.67
	SYSNO NU.FAIL	103	127	65	347	316	371		NO.FAIL	27	•		SYSNO NO.FAIL	17
	DNSAS	27	27	27	25	2	55		DNBAB	51	21		ONBAS	20
		NO. 1	N0. 2	NO. 3	N0. 4	NO. 5	40°			NO. 1	× • •			NO. 1
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782 0,5151£+00 0,3194€+01 0,3624€+00 0,2044€+00

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TABLE 4.4 (Continued) DUANENDOEL AIRBURNE BYSTEN-INFRAFED

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R844	30.776	30.024	59,181	34.773
*	0,23306+00	0,24716+00	10-30202-01	0.4644€-01
5	0.93126+00	0.50126+00	0.50236+00	0.1081E+01
~	534 7.1249E+01 0.5746E+02 0.9312E+00 0.2330E+00	785 0.8854E+00 0.5240E+02 0.5014E+00 0.2471E+00	521 0.16686+01 0.19856+03 0.58236+00 0.78286+01	711 0,2088E+01 0,2483E+03 0,1081E+01 0,4684E+01
:	1.12696+01	0.8556+00	0.16686+01	0,20886+01
AIL HOURS	530	785	125	111
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A E	28,268	6,582	1.277	45,063	71.869	13,316	0,150	0.520	1.000	1,392	0.924	14.040	16.370	5,014	2,696	4.540	7.610	0.130	5,323	22,040
888	65,395	565.07	72,626	54,748	65.903	67.767	30.321	66.5 33	100.00	144,596	74.719	++.032		57,527	49,345	76.033	70.110	•01•	34.890	53,246
80	0.11906+00	0.87336-91	0.10346+00	0.80416-01	0.10972+00	0,10256+00	0.34736-01	0"1043E+05	0.1594E+00	0,19486+08	0,45596-01	0.80746-01	0,13186+09	0,56196-01	0.:6766+00	0,12246+00	0,13456+00	0,58846-01	0,4556E-01	0,10656+00
	0.55946+00	0.31406+00	0.1901E+00	0.5759£+00	0.58736+00	0.33166+00	0,35456+00	0.51366+00	0.10016+05	0.42616+00	0.36026+00	0.+36+04.0	0.31546+00	0.44046+00	0.14376+00	0.29956+00	0.44446+00	0.25706+06	0,4040E+00	0.51086+00
	0.11036+03	0.95116+02	0.9437E+02	0.14376+03	0,21786+03	0.1347E+03	0,35376+02	0.14766+03	0.46776+02	0,12546+05	0.67776+02	0.13156+03	0.10076+03	0.14276+03	0,20046+02	0.89636+02	0.24846+03	0.42556+02	0.1183E+03	0.10836+03
ä	0-15236+01	0.85456+00	0.51736+00	0.13146+01	0.15986+01	0,90266+00	0 1 2 2 E + 0 0	0,13965+01	0.4901E+00	0,97616+00	0.84546+00	0.10005+01	0.05996.00	0.1010E+01	0,4454E+09	0.8151E+00	0.12786+01	0.5889E+C0	0,92556+00	0+1170E+01
	227	344	769	411	433	472	1056	324		-15		255	300	543	307	345	705	940	529	354
	1144,0%		5	3	5	-	•	•	n	•	-	•	-		•	м	'n	×	4	4
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		ND. 2	NO. 3	NO	N0, S	NO. •	NO. 7	NO	NO. +	N0.10	N0.11	N0.12	N0,13	N0,14	N0,15	N0.16	N0.17	N0.16	N0.19	N0,20
				5		2	83	2		2	S	5	2	-	12	52	54	83	RS.	5

TABLE 4.4 (Continued)D U A N E M 0 D E LA I R B 0 R N EA I R D N E</tr

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¥	165,1	10.474	34,354	0.346	2.045	0,334
2102	54.898	64 ,774	53,286	57.160	63,072	74.420
6	0,14656+00	0.91015-01	0.+324E-01	0.59416-01	0.85076-01	0,16566+00
54	0.31446+00	0.23196+00	C.6850E+00 0.6324E+01	0.24146+00		0.19586+00
24	0.10126+03	0.5506E+02 0.2319E+00 0.9101E+01	0,15636+03	0.3819E+02 0.2414E+0n 0.5441E+01	0.1257E+03 0.3027E+00	0.5000£+02
	671 0.7329E+00 0.1012E+03 0.3199E+00 0.1005E+00	318 0.6311E+00	378 0,15696+01	385 0,4000E+00	477 0,62395+00	343 0,5328E+00 0,5000E+02 0,1458E+00 0,1656E+00
ROURS	671	314	376	385	477	393
SYSAD NO.FAIL HOURS		•	•		•	•
Ursas	54	24	24	54	24	54
	R5 N0,21	RS N0.22	R3 N0.23	R5 N0.24	R5 N0,25	N0.26
	5	ŝ	2	5	2	2

	¥	0,262	0,323
	RAA	13,456	13.468
	đ	0,25346+00	0.42096-01
2 4 0	54	0.48285+00	0.45146+00
2 3 4 5 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	2	0+43835+01	0.42936+01
	ĩ	746 C.4521E+00 0,4393E+01 0,4828E+00 0,2534E+00	549 0.8310E+00 0.4293E+01 0.4514E+00 0.4204E-01
de a	IL HOURS	766	549
		50	1
	SYSNO NO.F	22	22
		-	~
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		ä	1.501	1,724	2,431	0,011		ЧĘ.	\$10.5	0.004	0.010	1.232	••••	0.002
			19,773	15,005	37.196	4,228		1101	35,725	4.0.4	7.587	14.787	••••	5.478
								74						
		5.	0,10005+00	0.77856-07	0.35436-04	0.72596-02		23	£.59602-07	0.77356-02	0.34456-02	0.53246+00	0.7303E-02	9. 6248 E-02
(Continued)		24	0,59406=07	0+18056+01	0,58316401	0.11176+02	ມ ພິພີ ພ ຂອ	24	0.48236+03	0,31355+02	0+30515+03	0.59406-07	0.29746+02	0.3102£+02
TABLE 4.4 (Continued)		14	0.3440E-02	0.22176-01	0,33246-01	0.10376-01	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1	0.40026-01	0.1114E-01	0.9423E-01	0.92446-01	0, 37256-08	1300 0.01506-02
		HOURS	1504	1400	400	1200		HUURS	8665	1000	2176	3464	400	1300
	•	SYSND NO.FAIL	•	50		21		NO.FAIL	162	43	382	315	27	42
		DNBAB	25	27	27	27		UNBAS	23	27	52	53	27	27
			NO. 1	NO. 2	NO. 5	ND	and and a		NO. 1	×0. 2	NO. 3	NO. 4	NO. 5	* °0*
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			34	195.0	0,263	1.340	2,023		34	1.400	0.027	3,233
0			2 4 9 2	10.641	17.481	17,045	100,052		FOR	11,0250		272.903
			*						24			
			2	0.35626+01	0.3472E+01	0.5960E-07	0.22446-04		•3	0.52156-07	0.80725-02	0.41536-07
	tinued)	2 E C 8 4 E C	54	0.15896+01	0.25446+01	0.21115+01	0.1293E+00 0.2244E+04	5 L L S 2 L	24	10-30448-01	10+38048+01	0+1+106+00
	TABLE 4.4 (Continued)		1.	0,17926-01	0.14246-01	0,14546+01	0.1145E-01		ä	0.14106-01	0.23266-00	0.23696-01
\bigcirc	TAB		HOURS		009	****	1200		HOURS	53.6	500	740
			NO.FAIL	•	13	5	11		SYSNO NO.FAIL	*	•	10
		,	DKBAS	27	27	27	55		ONSAS	23	21	12
				NO. 2	NO. 4	N0. 5	4 •			ND. 1	4 °0	NO. 5
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	2002	165.48	11,209	20.054	43,006			200.005			134,997	20.508
	1				1			ł		Z		
_	63	0.42176+03	0.10026401	0.15436-05	0,42485-05	1 7 1 6 8	54	0.6822-07	2 4 4 4	:	0-19236-04	0.0015-02
IADLA 4.4 (UNUTINUED)	 24	0.5940E=07	0.10865+01	0.11346+00	0.12576+00	2 C C C C C C C C C C C C C C C C C C C	24	0.1245E+00	1 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	24	0.17865-06	0.95486+01
14014 4.4	T	0.18746-01	0.29536-01	0.20446-01	0.20835-01		ī	760 0.12505-01		14	0.14526-01	0.14085-02
	HUURS	3994	400	1400	900		HOURS	760		SAUDH	782	767
	NO.FAIL	11	1	27	1•		SYSND NO.FAIL	•		SYSNU NO.FAIL	4	11
	ONBAS	27	27	27	27		DNEAS	~		ONBAS	20	20
		ND, 2	NO. 3	NO. 4	N0, 5			NO. 2			ND. 1	N0. 2
		2	2	-	2			=			52	5

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				1.694		RE	0.300	1.052		ž	1.077	•••••		¥	150.5	2,079
•			2014	120,718			157,302	34,014		-	193,259	7.045			123,665	352,308
			4			34				-				z		
		۲. ۲.	E d	0,11556-04	۲ س	£ d	0.7221E+01	0,29016-06	e >	5	0.20095-05	0.27296+00	R > U	5.4	0,10395-02	0,22485-04
	tinued)	D.E.L. N.E.C.E.1 V.E. 9.E.C.E.1 V.E.	24	0.2279E+01 0,1155E-0+	0 E L 7 M E 7 M E	24	0,44026+00	0.50876+00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	0.26156+00	0.12726+01	0 6 C 7 6 C 7 X I 7 7 7 7 7	24	0,50676-02	0.2540E+00
	TABLE 4.4 (Continued)			0.18656-01		1.	0.6131E-02	0.32356-01	C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2	1	7+0 0.3010E-01 0.2415E+00	0,22736-01		14	0,24436-01	0,23456-01
O	TAB		L HDURS	760		HUURS	767	762	, t ;	BRUUH	760	200		RAUOH	782	767
		2	NO.FAIL	10		NO.FAIL	a	•		NO.FAIL	17	10		NO.FAIL	-	15
			ONBAS	51		DNSAS	50	٥٢,		ONGAS	21	12		02820	20	50
				NO. 1	- enderstanding		N0. 1	NO. 2			1.02	HO. 2			NO. 1	NO. 2
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1 Z T T T T T T T T T T T T T T T T T T				SYSNO NO.FAIL HOURS PI	
711 0.6417E-02 0.5940E-07 0.1000E+00	0.44175-02	711 0.44176-02	5 711 0.6417E-02	23 5 711 0.64176-02	~
785 0.4618E-02 0.1753E+00 0.1000E+00	0.44185-02	785 0.46186-02	5 785 0.4618E-02	23 5 705 0.46106-02	5
534 0.1294E=01 0.5940E=07 0.1000E+00	0.12946-01	534 0,1294E=01	8 53+ 0,1294E=01	23 0 536 0,12946-01	•

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	14	0,22976-01
	BUNDH	2500
	SYSNO NO.FAIL	\$
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	and the second second	NO. 1
		22

RE 0.005 0.003 2.510 0.003 0.013 884R 3.555 1.947 •••7•• 2.374 3.820 14.162 8 0.47156-02 0-3015E-0+ 0.4601E-02 0.10165-01 0.12396-01 0.40446+00 5 0+12+06+03 0.40416+02 0.5940E=07 0.5570E+02 0.13976+02 0.7079E+02 2 ⇒ 0.1131E+00 0.11966+00 0.2513E+00 0.4964E-01 0.42256-01 0 - 1 - 30E + 00 0 ã 798 1097 2500 1192 HUUHS 399 3981 NO.FAIL 103 127 347 316 371 -SYSNO 23 5 51 52 27 NO. 1 • • -10. 5 ND. 2 NO. NO. 82 2 H e 83 2 NE

		4E 2,230 2,112		J.	2,445	2.0.2			5	1.160
		8348 312.792 34.117		76 A R	306.990	195.01			104	20.105
		1		đ					4	
		P3 0 .1988E-04 0 .2470E-0 \$		5	0.20136-0.			0 3 X	P.3	0.1000E+00
	TABLE 4.4 (Continued) I B M M U D E L A I P B U R M E A I P B U R M E S Y S T E M C L I N C M U U S E	P2 0,3343£+00 0,2822£+01	۲ ۲ ۲ ۲ ۳ ۳ ۳ ۳ ۳	24	0.5602E-01				54	0.5960E=07 (
	TABLE 4.4	P1 0,51146-01 0,49346-01		ï	0.31326-01		3		ld	0,33056-01
0		×008	1	HOURS	767 782		: *	t.	IL HUURS	536
		7 N0,FAIL		SYSHO NO.FAIL	17	Provinte and			SYEND NO.FAIL	17
		373ND 21 21		04848	202				ONSAS	53
		R1 40, 1 R1 40, 2			R5 N0. 2					R1 N0. 1

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	RE	2.101	2.367	1.734		0,246	0.020	0,041	1.561	3,319	1.072	3,107		N.	1,546	1.722
	844	11.352	143.400	198.242	2.230	7.078		3.055	13.445	83.445	14.755	226.571		202	50,109	32.674
	8													4	4	
ت بد ت	•3	J. # 496E+U0	0.2581E+06	0.46706+00	9.13526+00	0,20186+01	0.80446-01	0.4742E+00	0.4240E-07	0.35306-04	0.1079E+83	0.6029E-07	2 ▼ ∪ 5	:	0.4723E-06	0.1502E-04
TABLE 4.4 (Continued) I B M M U D E L A I R B U R N E S Y S T E M = I N F H A F I E L D	24	0.44045+00	0.1550E+01	0.5940E-07	0,1000E+01	0.50036+00	0,18006+01	0.50106+00	0.6687E+02	0.40816+00	0.59605-07	0.11.8E+03	2 E L 2 E L 4 < 1 S ⊂ A L 3 E	24	0.21196+00	0-1683E+00
TABLE 4.4	14	0,92046-02	0.9611E-02	0.73456-02	0.8772E-02	0.7177E-02	0.47426-02	0.8250E=02	0 - 1414E-01	0.7870E=02	0.1183E=01	c.1371E-J1	5 2 2 3 5 4 0 7 5 4 0 7 5 4 0 7 5 4 0 7 6 4 5 4 7 6 4 5 4	ï	0.5310E-01	0.7882E=01
	RAUDH	411	1050	519	349	543	848	529	354	671	376	385		RAUURS	765	549
	NO.FAIL	•	æ	đ		•	T	3	a	*	7	-		STAND NO.FAIL	59	19
	SYSHO	54	5	54	4	40	42	2	• ~	2	2	24		DNBAG	22	22
 4. 4.1.10 4.1.10 4.1.10<td></td><td>NO</td><td>ND. 7</td><td>NO. 10</td><td>N0,11</td><td>NO.14</td><td>N0,18</td><td>N0, 10</td><td>N0.20</td><td>N0.21</td><td>N0.25</td><td>N0.24</td><td></td><td></td><td>NO. 1</td><td>NU. 2</td>		NO	ND. 7	NO. 10	N0,11	NO.14	N0,18	N0, 10	N0.20	N0.21	N0.25	N0.24			NO. 1	NU. 2
		S	-	ĩ	2	2	2	2	-	2	2	2			2	22

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	a l	1,250	0.035	0.011	0.510			a.	1,005	1,024	0.020	0,300	
	8768	30,562	5,936	4.661	19,038			2 4 8 X	11.497	12.010	5.029	8.408	
	94							4					
2 0 E E F	E e	0.1000E+00	0.17336-02	0.21406-03	0,54216-02	13001		54	9.38126-01	0,1535E+02	0.15056-03	0.33716-02	
.) 4 10 10 10 10 10 10 10 10 10 10 10 10 10	24	0,10006+00	0.71816+00	0.94096+00	0.90536+00	-) = = = 2 2 2	لب ل د ≻ 60	54	0,37256-08	0*1000E+00	0,9482E+00	0.45726+00	A 88945444
C S 3 W O S 0 S I W 0 C S S M X M P P W	ĩ	0,35456+03	0.51936+02	0,19316+03	0,74296+02			14	0,5938E+02	0,51306+02	0.39446+03	0+6544E+02	0 11215401
	HOURB	1584	1400	1200	0000			HUURS	1100	3442	009	4996	0003
	NO.FAIL	•	56	21	25			NO.FAIL	13	20	13	59	• •
	ONSAS	25	27	27	27			ONBAS	27	52	27	27	25
		NO. 1	NO. 2	ND. A	NO. 5				NO. 1	NO. 3	NO	NU, 5	M0. 4
		2	22	22	2				2	2	2	2	-

		Ĕ	0.000	1.103	1.041	0.011		a a a a a a a a a a a a a a a a a a a		ł	A.	0.050	0.014
bray.		8484	6,828	150.0	21.264	3.730		ROAR	. 370		1914	15,625	18.040
		I						4			3		
	200	54	0.45246-02	0.57085-01	0.52196-01	0,3244E-03	м 0 0 Е L М 1 Т Т Е. R	64	0.2300E=02	н 0 0 Е L Н I T T E R	5	0.1854E-02	0-10515-01
	TABLE 4.4 (Continued) E x P 0 M E M T I A L A I R B 0 R N E C 0 H P U T E R I N - H 0 U S E	~	0*42456*0	0.59605-07	0.11186-07	0.8715E+00	1 4 4 5 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1	24	0.9534E+00] () 4 2 1 4 1 4 1 4 1 4 2 2 1 6	24	0.04246+00	0-9846+00
			0.54136+02	0,24756+02	0.40265+02	0,17426+03	2020 2020 2020 2020 2020 2020 2020 202	d	0,11926+03	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	14	0.11926+03	0.77556+03
)		RAUDH	3094	400	1400	000		HOURS	0.00	•	BRUUMB	782	767
		NO.FAIL	11	12	27	14		NG.FAIL	٢	Andere de	NO.FAIL	1	11
		SYBNO	27	27	27	27		ONCAS	2		ONGAS	20	50
			N0. 2	¥0° 3	NO. 4	N0, 5			N0, 2			NO. 1	NO. 2
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			AE	0.001		36	0.0	1,254		ž	0*015	1	ž	1.533
	•		R64	12.028		884	7.486	24,448		8848	14.090		464	39,051
			34			**				a			đ	
		J D E L R	P3	0+6325E-02	л 0 0 Е L	23	0.4037E-03	0.4077E+02	и О Р Е L	63	0.74445-03	н О О Е L Е 1 V Е A	54	0.1000E+00
	(panu	I A L M U D C E I V E R	24	0,92956+00 0,	1 4 L # Q C E 1 V E	24	0.99506+00 0.	0 .824 0£+02 0.	1 A L M Q 1 A L M C	54	0.9640E+00 0.	1 4 1 7 1 1 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2	22	0.10005+00 0.
	(Contiu	►₩₩₩ 22200			₩ 5 2280				►₩I₩ ZZ×09 WC ⊃			- wou 22we	5	
	TABLE 4.4 (Continued)	2 2 2 2 2 0 0 0 1 7 1 4 2 7 1 4 2 7 1 4 2 7 1 4 1 7 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1	14	0.5842E+02	0 2 0 2 1 4 0 2 4 2 2 4 4 4 2 4 4 4	Ĩ.	0+96996+03	0.2633E+02	2 0 8 0 2 0 8 0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ā	0.11526+03		- - -	0.20086+03
0	F		5 and H	760		HOURS	767	182	1	HOURS	767		HCURS	711
			NO.FAIL	10		NO.FAIL	9			NOFAIL	15		ND.FAIL	'n
			a onere	21		N ONBAS	20	30		N ONBAS	50		N ONG AS	23
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				5,869		104	10.534	14,225		2 4 8	1.130	.284			12.151
			4			8				3				2	
		H O O E L	53	0,12036-02	ж () 7 Е L	P.3	0.17165-02	0.7693E+02	4 G O E L	P.3	0, 2608E-02	0.27986-02		E4	0,15256-02
	TABLE 4.4 (Continued)	- u - w - w - w - w - w - w - w - w - w - w	24	0, 40836+00	2 2 4 0 4 0 4 0 5 2 4 0 2 3 2 4 2 4 0 2 5 7 5 2 4 0 2 5 7 5 2 5 7	24	0.75926+00	0.17356+03	2210	2ª	0.9524E+00	0.82256+00	2 Z I S - - - - - - - - - -	2	0.94876+00
petter	TABLE 4.4		ī	0.5358E+07	2040 2047 2040 2047 2040 2047 2040 2047 2040	I	0.64816+01	0.9695E+01		14	0,28026+02	0.30646+02	0 4 5 4 5 4 5 0 7 4 5 0 0 7 4 0 0 0 7 4 0 0 0 0 7 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14	0.47736+02
O			HOURS	2500		RUURS	2500	1962		SHUUHS	750	200	e J	HOURS	767
			NOFAIL	65		SYSNE NO.FAIL	316	371		NO.FAIL	27	14		SYSND NO.FAIL	17
			ONBYS	27		LNSAS	27	\$2		ChiSAS	51	51		SYSNO	50
				2 NO. 1			N0, 5	• •			NO. 1	N0, 2			NO, 1
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		JE	1,067	1.112		a) a	0.022	0.220	0.00.	0,235	0.015	0 .032	1.424	1.500	8: # B		a a	0.500	0.230
	, ,	A A A	32.00	16.657		8 4 8	\$68.4	12.197	2.093	4.700	16.597	2.457	11.419	12,055	7.381		R.8.4	7,956	014.4
		4				94											PE	,	
	2 0 0 6 L	54	0.30786+01	0.14695+03	3 () 0 E L	63	0.14656-02	0.44546-01	0.82646-02	0.42226-02	0.4347E-02	0.78626-02	0.10005+00	0.37246+03	0.3031E-02	2 	Р3	0.1072E-01	0.10002
TABLE 4.4 (Continued)		2	0.31356+02	0-1000E+01	~ 4 J C 4 L 14 Z 14 Z 14 Z 17 J	54	0.90476+00	0.26476+01	0.9466400	0.7442E+00	0.10096+01	0.7952E+00	0,47516+02	0.1000E+00	0.94456+00	▲ 」 〕 ▲ の □ □ ► ₩ > ₩ 2 Z 3 00	24	0.81966+00	0.53946+00
TABLE 4.4 (₩ C E D Z O W O C D ← E & E 0 0 X ↔ > Z W < D ⋈	61	0.370CE+02	0,5264E+02		14	0.15586+03	0.14576+03	G. 9001E+02	0.12006+03	0.1151E+03	0.10726+03	0 . 7000E+02	0,91006+02	0.12776+03	2 2 2 2 2 2 4 0 0 2 4 0 0 2 4 0 × × × × 2 4 0 №	14	0+1814E+02	0,18146+02
		HOURS	536	765		BRUDH	1054	615	349	563	8 # 8	529	354	376	395		HOURS	766	549
		NO.FAIL	17	11		NO.FAIL	C	a	4	4	æ	8	4	-3	4		VU, FAIL	62	1.
		DNBAS	23	23		DNSAS	54	54	24	4	54	24	24	54	24		ONSAS	22	22
			HO. 1	NO. 2			1 .0%	N0.10	N0,11	NG.1.	N0.18	N0.10	N0.20	KD,23	N0,24		a a constant of a constant of	NO. 1	N0. 2
			R	ii ii			-	₽'i D	f 3	5	P	33	5	ŝ	52			RZ	25

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TABLE 4.4 (Continued)

	ONEAS	SYSHO NO.FAIL	BUNDH	14	2	5	4	9940	, 1
	2	•	1584	1584 -, 4012E+02 -, 3772E+06	37726+06				1
	22	*	1400	1400 0,30936+02 0.71556+03	0.71556+03			1	A26-10
	27	•	008	400 0,2747E+02 0,2220E+03	0.22206+03				
1	27	51	1200	1200 0.2720E+02 0.3379E+03	0,33796+03				2007
	27	52	0000	0000 0,75236+02 0,34386+04	0,34386+04			26,735	0.417

		19,929 0,912			15e137 0.600
		1000 0.97575-01 0 51025-03	2176 0.2357E+01 0.4245E+01	3984 0.11746+02	
NO.FAT	142		302	315 3	27
ONSAS	27	27	R	25	27
	NO. 1	¥0. 2	NO. 4	NO. A	NO. 5
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TABLE 4.4 (Continued)

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	ONGAG	SYSNO NO.FAIL	HOURS	ĩ	24	5.	2	101	a a
	27	13	1100	1100 0.6355E+02 0.8442E+03	0,84426+03			10,141	0,042
	27	6	00.	400 0,3792E+02 * 0,4674E+03	0.4474E+03			20.107	0.734
1	25	50	3992	3992 0,4942E+62				11,027	0,013
	27	Î.Î	000	800 0,7448E+02 0,7814E+03	0.78146+03			20,452	102.0
	27	5	4996	4000 0.45195+02 0,10656+04	9.14456+94			11,355	075'0
1	25	11	1200	1200 0,7739E+02 0,1849E+04	0.18995+04			63-514	0.480

,	ž	0.430	0.0	1.016	0,634	0.741
	8408	15.039		10.948	38.447	41.733
	4					
	54					
	24	-,73506+04	0.10926+04	0.6560E+04	0.3940E+03	0,18365+03
	14	536 0,28256+02 .7350E+04	785 0.1045E+03 0.1092E+04	521 0,1687E+03 0,6360E+04	500 0.3341E+02 0.3960E+03	760 0,2698E+02 0,18365+03
	HOURS	536	785	521	200	740
	SYSNO NO.FAIL	n	5	F	•	10
	ONSAS	23	53	23	21	51
	non or community in response	NO. 1	NG. 2	N0. 3	NO	NO. 5
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	ł	0.726	0.407	3.076	0.778	0.010		21	0,055	505.0	1	¥	150.0	160'0
	202	27,440	29,020	0.240	10.627	20.136		NA CT	6,403	••,13•		181	17,150	502.05
	4							4				1		
2 0 E L	54						M 0 0 E L	5		-	100 E L	54		
	24	0.22296+04	0,59276+03	0.1304E+03	0,7338E+03	0.47976+03		2	0,16328+04	•,72166+03		24	0.49526+03	0.2063E+03
	14	0,84546+02	0,53106+02	0,20236+02	0,43416+02	0,42816+02			0.1177E+05	0,64796+02			0,55058+02	0.35848+02
	RAUOH	407	3994	400	1400	008		HOURS				HOURS	782	767
	NO.FAIL		11	12	27			SYSHO NO.FAIL	•	•		ND.FAIL	4	
na na na na	ONSAS	56	27	27	27	**		DNBAB	2	51		ONSÁS	20	50
	Mare white an an and the second	N0, 1	N0. 2	NO. 3	NO. 4	5°0			40. 1	¥0, 2			NO. 1	NOC 2
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TABLE 4.4 (Continued)

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	nerve foto della constanta		z	1.345		2	840.0	540%	P 8 9		 z	0.544	0,364
	1		ALON .	524570			329,260	21,363		1	RARR	00,303	11.545
			1	* * *		2				•	z		
	# 0 0 E L		2		1 0 0 E E	5				Ξ.	54		
			2	0,52156+03		~	20-3160910	0.22076+03		1041	2	0.17786+83	0.17346+03
untip	340			0,4990E+62			0.94426+42 0,64916+03	0,3009E+02 0,2207E+03				760 0.27336+02 0.17786+03	0,34356+02
	5	te a	BAUOH	760		BRUOH	767	782			HOURS	760	200
			NO.FAIL	10		SYSND NO,FAIL	-	•			SYSHO NO.FAIL	17	10
÷.			BYBND	5		ONSAS	•2				DNOAS	2	2
				1 104			NO. 1	NO. 2				10, 1	NO. 2
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TABLE 4.4 (Continued)

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	2942	11,052	100.791
	1	and the second	
R O D E L	5		
	24	0-25:7E+03	0,91266+02
	5	782 0,26056+02 0,25:76+03	747 0,24528+02 0,91266+02
	HOURS	702	767
	SYSHO NOFFAIL	14	15
	ONSAS	~	20
		H0. 1	¥0, 2
	V.	8	2

	Ĩ	0,326	210-0	0,533
	A A A	25.436	12.712	17,557
 	Ĩ		1	-
H O D E L	2		a demonstration of the second seco	
	24		•,12126+05	17516+65
C 2 2 2 0 > 0 0 2 2 2 0 < 1 4 2 0 x 2 m m > 1 1 4 2 0	14	7112324E+032046E+06	705 0,11046+03 -,12126+05	530 0,3530E+02 *,1731E+65
	MOURS.	711	705	536
	SYSND NO.FAIL	•	5	•
	ONBAG	23	23	53
		40° 1	KO. 2	10° J
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and the second se	24	
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	24	0,17056+03
C 2 3 6 O 9 0 0 I 3 9 0 C 2 3 0 L 4 2 0 L 4 2 0 L 4 1		2500 0,2034E+02 0,1705E+03
	SUNDH	2500
	SYBND NO.FAIL	92
•	ONBAS	27
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		ž	110.0	00070	920 0	0.927	0.040	••309		32	0.712	0,507			¥	0.765	0.049
		ROAR	49,149	33,225	20,526	30,450	30.405	13.00		2042	132,175	35,575			8788	109.543	50.533
	11.	2	Mar da			1				7					4		
	L 0 0 1	5.							A 0 0 E L	:				# 0 0 E L	54		
		2	0.9268E+61	0,16586+82	0.43265+01	9,51856+01	0.20206+02			24	9,41726+02	0.0571E+02			24	e.1011E+03	*.2 * 52E+03
1	C Z 3 4 0 W 0 0 I 4 0 4 4 0 3 0 F 4 4 F 4 F 4 F 4 F 4 F 4 F 4 F 4 F 4 F	1	0,37496+01	10.3600.0	399 0.20766+01	0,20256+01	10+35**5*0	0-92036+01		1.	5+13436+62 1	0.16515+12		CI31: C		0.26495402	0.21036+02
		BRUDH	100	1002		1102	2300	300		HOURS	760				SPUDH	747	782
		NOFAIL	103	123		347	916	546		40.FAIL	27	•1			1141°	11	23
		ONSAS	18	27	27	22	27	2		BVBND NO.FAIL	12	31		1	SYAND NO.FAIL	*	2
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H C D E L	53				
IABLE 4.4 (Continued) L L 0 Y 0 - L 1 P 0 H H 0 0 F L A 1 F 0 0 H F A 2 F F H - I F F A F F 0 I N - H 0 U 0 F	2	-,4889E+04	-,16605+04	-,16506+04	1536E+05
	14	536 0,5775E+01 -,6889E+04	785 0,44966+02	521 0,1047E+03	711 0.7034E+02 *1536E+05
	HOURS	536	785	152	111
	SYSNO NO.FAIL	17	11	\$	•
	DNBAS	23	25	52	10
23 - 14 - 10 - 14 - 14 - 14 - 14 - 14 - 14		N0, 1	K0. 2	NO. 3	NO. 4
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		0.422	0.015	0.153	1.011	0.117		0.517	0,046	0,429	0.235	0.170	0.430	0.650	0.200	1110					
		8.058	2.147	154.4	10.528	4.051	12,122	51.924	4.774	55,970	12.836	13.828	10.404	12.661	9.045	30.030	13.679	15.522	103.074		
	7																				
	2			,																	
64		******	0.18106+64	0.18906+04	0,73046+03		0,3041E+04	0.18076+04	•.2467E+05	0.15116+04	0.2280E+04	0,97436+03		5631E+04	0.4017E+04	0.45456+03	*.2103E+05	1067E+06	0.9141E+03	0.29536+04	
Ĩ			0,85436+02	0.12836+03	0.91976+32	0.87616+03	0.11256+03	0.87216+02		0,79526+02	0+15156+03 (0.7854E+62 0.9743E+03	0.10046+02	0.20715+02	0,12536+03 0	0.40196+02 0	*,1495E+03 -	-,14936+03 -	0.89485+02 0	0.10786+03 0	
HOURS	100		344	789	411	433	472	1056	324	940	÷15	349	255	005	563	307	345	705	848	520 0	
NO.FALL		•	n	ſ		5	•	•	•	'n		•	-	n	4	5	2		a	4	
UNSAS	24		24	24	24	54	24	54	24	*	54	24	24	24	24	24	24	24	24	24	
	ND. 1		N0. 2	NO. 3	NU. 8	NO. 5	MO. 6	NO. 7	NO.	NO. 4	ND.10	NO.11	N0.12	×0.13	N0.14	N0.15	N0.16	N0.17	N0.18	N0.16	
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0 0 # 1 0 0 1 (Continued) TABLE 4.4 (Col L L 0 Y 0 - L

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TABLE 4.4 (Continued) A H U E F H U D E L A I F B U R N F A N T E N N A I N - H D U F E	F.2	91746>03	1.23285+02	0.85516+01	0.14856+02	0,93086+02
TABLE 4.4 (Continued A R U E F M U O E L A I F B U R N F A N T E N N A I N - H D U F U F	P 1	1584 0.1277E+03	1400 0.38556+02 7.23286+02	493 9.2671E+02 0.8551E+01	1200 0.2532E+02 0.1405E+02	6000 0.7453E+02 0.4368E+02
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TABLE 4.4 (Continued)

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L HOURS F1 1100 0.6297E+82 400 0.3598E+82 3992 0.4990E+02 800 0.4248E+02 4996 0.6497E+02	avand Nu.FAIL HOURS P1 1 27 13 1100 0.62976402 2 27 8 400 0.35966432 3 25 50 3992 0.49006402 4 27 13 800 0.42486402 5 27 63 4996 0.64976402
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	TABLE 4.4 (Continued) A R O E F M O D E L A I R B O R N E C O M P U T E R I M • M O U S E	24	C, 3625E+02	0.24516+02	0.4632E+01	0,18295102	0.19466+02	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	0,33036+02	0.22686+02
-	TABLE 4.4 (Cont A R O E F M O O A I R B O R N E C O M P U T E R I N • H O U S E	14	0.6291E+02 0,3625E+02	0.51926+02	0.25046+02	0,4269E+02 0,1829E+02	0.41956+02 0.19466+02	A < → H A < → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A < A → H A	la	0,1258E+03	760 0.5774E+02
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(Continued)	~	55826+02	0.33846+02	0.35346+02	0,75446+01		0.36486+02	0,34316+02	24346+03	U.3375E+02	0.37776+02	0.25666+02	·.1060E+03	-,77976+02	0.4+746+02	50+302+02	-,3490E+03	•,5553£+03	0.23146+02	0,40926+02	0,79926+01
TABLE 4.4 (Continued) A R U E F M U D E L A I R B U R M E S T S T E H - I M F R A F I E L D	Ĩ.	0,3423E+02	0+92616*05	0.13416+33	0.91116+02	633 0,0300E+02	0.11445+03	1054 0,62956+02	0.10105+02	0.7582E+02	0.15712+03	0.8270E+62	0.35146+02	0,34826+02	0.12936+93	0.4013E+A2	0.1736E+01	0,30976+02	0.40556+02	0,11226+03	0.724:5+92
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(TABLE 4.4 (Continued) 3 I m P L E E X P n N A I R B U E N E A N T E N N A I N - M G U S E	1	0.7144E+03	0.21046+02	0.1743E+02	0.1354E+02	0.3665E+02		14	0.14626+02 0	0.48356+01	0,12376+01 0	0.14696+32	400 0.5296E+61 0	1306 0.6003E+01 0
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	TABLE 4.4 (Continued) 9 1 4 6 6 6 x 7 0 M A 1 8 6 0 8 M E D 1 8 7 0 4 7 1 M - H 0 U 5 E	14	0 5011E+02	0,22136+02	C+5370E+02	0,23146+02	0.44756+02	0,27316+02		t 1. ž	0,10776+03	20+34224*0	0,10796+83	0,14026+02	0 + 90 80 8 + 01
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	(pend)	24	0,36605-02	0.22586-03	0.82146-03	0.48046-03	0.11556-02		0		2	0,58446-02	0 ,345 4E+02
6	TABLE 4.4 (Continued) 5 I H P L E E K P 0 N 1 R 0 0 R N E 1 R 0 0 R N E 1 N 0 0 R N E 1 N 0 0 0 S E	14	0,32486+02	0,20985+02	0.2302E+02	0.29186+02	0.2470E+02				14	500 0,1857E+02 0,5866E+02	0.12406+02 0.34546+02
C		HOURS	407	3994		1400	0				HOURS	200	760
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£.	TABLE 4.4 (Continued) 8 1 H P L E E K P 0 N A 1 R B 0 R N E L A B E R 7 R A N S M 1 N - M 0 U 5 E		0-1446.402	C 30 1000 1000 1000 1000 1000 1000 1000 1	P1 0,1376E+02	C 34 010 1462 1627 5244	ĩ	0 .8095 E+01 0 .2002 E+02
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			1			44				-			
		2 4 1 4 2 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1	2			 Sa			N 1 1 A L 1 V E R	2			
	TABLE 4.4 (Continued)	2 2 2 2 2 2 2 4 2 4 2 4 2 4 2 4 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	24	0,35216-02	0.46655-02	~	9,22016+02	0,30406-02	2 W 6 2 W 7 2 W 6 2 W 7 2 W 6 2 W 7 2 W 6 2 W 7 2 W 7	24	-,32506-02	-,21976-03	-+1305E-02
	TABLE 4.4	2 2 9 U 2 2 0 U 2 0	14	0.4779E+01	0.1012E+02	1	0-12246+02	0,7325E+01			0,90256+03	0,10106+03	0,14546+03
			HOUR	760	200	HOURS	102	7.07		BUNDH	111	785	536
			SYSNO NO.FAIL	11	10	NO.FAIL	1¢			NO.FAIL	s	s.	••
ø			ONBAS	12	12	DNBAS	56	50		ONRAR	2	23	23
				NO. 1	N0, 2		NO. 1	NO4 2			NC. 1	NO. 2	NO. 3
				E	=		2	2			2	-	=

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		181.0		ž	0.061	1 . 0 . 1	520.0	0.117	0,382	0.623		J.	0.740	0,257
0		27,004		194	6.244	5,246	5,020	10.041	21.769	13,277		R648	41,249	20,309
		:		1								1		
		54	1 4 1 4 7	5								P.3		
	Continued) E x P D N E E 0 A E C E 3 E	72 0,4951E=03	2 L C 4 A 0 X 4 U W L U Z 9 6)	~	0.2040E-62	0.11115002	0.33126-02	0.11386-02	0.49456=03	-,17476-03	х, в е пппппп х < с е с е с п с п с к	~	0,41725-02	0+30486-02
	TABLE 4.4 (Continued) 3 I M P L E E X P D N A I R P D R N E I N F R A R E D R C I N - H D U 3 E	P1 0.66895E+01	CIDM INDE INDE SKIN	la	0.1975E+01	0,2975E+01	0.18085+01	0+1120E+01	0.30746+01	0,1312E+02	₩813 -!0₩0 LØ+I IEØ+ IEØ+ I EØ+	2	0,31056+01	0,74726+01
C		HOURS 2500		HUURS	198	1047		1192	2500	1945		HOURS	760	200
		N0, FAIL		NO.FAIL	103	127	65	347	316	125		NO.FAIL	27	•1
		SYBHO 27		ONSIS	27	27	27	2	27	ŝ		ONBAS	12	12
		NO, 1		The second to	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	*0. •			NO 1	×0. 2
		2		and the second second second second	2	2	č	2	2	2			ĩ	Ĩ
							194		,	,	171			

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		a c	0,199	5		ų		1.121	1.348	0.245
)		848	42,705	7.7.7		1101	27,639	17,029	115.51	500.0
						Z				
	2 7 1 a L	63								
	TABLE 4.4 (Continued) SIMPLE E X PONENT AIRBURNE X PONENT SYSTENCLASER IN . HOUSE	24	0.2855E=02	0.22895-32		2	-,11105-02	0,40426-04	0,72526-34	11486-02
	TABLE 4.04 TABLE 4.04 TABLE 4.04 TABLE 4.04 TABLE 4.04 TABLE 4.04	, D,	0,72216+01	782 0,9762E+01	C 3 3 W O W C L 1 4 D J 1 4 D J 1 4 M 1 4 M 1 4 M 1 4 M 1 4 M	ĩ	534 0,40106+02	785 0,51086+02	521 0.1072E+03	711 0.10016+03 -,11006-02
3		IL HOURS	767	782		SAUCH J	534	785	125	111
	Normal Statement		11	1		NO.FAI	17	11	5	•
	1	SYBND NO.FA	20	50		ONGAS	52	\$	23	2
		nga angang	NO. 1	NO. 2			1 00	N0, 2	NO. 3	NO. 4
			2	2			-	2	2	

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		¥	1.7.41	0.301	146.0		500.0	110.1	0.344	E	0.016		112.0	0.404	956'0	945°0	6°.072	0,200	0,527	0,325	0,350	. 249
)		4504	10,045	12,135	19.840	1		13.007	23,966	5.140	10,072	24,020	31,215	\$50'0	13,050	12,745	10,000	11 -040	14.716	25,003	12.275	10.457
		1																				
		5 d			•				dive						•			1				
	(Continued) E E Z P N E N E Z P N E	24	•,34226+02	0.40405-02	0,6827E-92	0,5532E+03	+,1091E-02	0.22226-02	0.1830E-02	10005-01	0.6543E-02	0,49626-02	0.5041E-02		-,41225-02	0.17516-02	0-11526-01	32846-01	-,47925~02	0.58836-02	0.19736-02	0.40316-03
	TABLE 4.4 (C S I H P L E A I R B C A S Y S T E L D	14	- 20+31404*0	0.33196+02 0	0.15436+02 0	0 20030001 0	0.16676+03 -	0.5717E+02 0	0 2751E+02 0	0,47495+63 -	0.10362+02 0	0.17536+02 0	0.20032+02 0	0,19736+03 -	0.11316+0) -	0.59452462.0	0.10076+87 0	0.15696+34	0.8487E+03 -	0.11986+02 0.	0.51276+02 0.	0.41336+02 0
		HOURS	227	344	750	114	433	472	1054	324		-15		255	300	563	307	345	205		529	354 0
		NO.FAIL	2	~	•		•	•	•	•	•	•	•	•	-		n.	•	n	4	•	•
		ONSAS	54	5	24	54	45	24	24	24	2	54	53	24	54	-	22	*2	24	24	54	54
			NG. 1	NO. 2	HO. 3	NO. 4	N0. 5	• • • • •	40. 7	NO. 8	NG. •	N0.10	N0.11	N0.12	N0.13	10°14	N0.15	N0.15	N0.17	NO.18	N0.1.	N0.20
			-	5	2	2	2	2	2	2	2	=	2		2	-	2	N	2	2	82	R.S. 1

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		RE	0,074	0.236	0,045	0.300	0.667	0.007		ž	0.611	0,295
0		4 V 8 F	11,001	9.022	•.761	59,672	21.206	11,535		104	24,245	10.320
·										1		
	6d) E N T I A L R A R E O	53								5		
	TABLE 4.4 (Continued)5 1 H P L EE X P D N EA 1 R B 0 R N EA 1 R B 0 R N EA 1 R B 0 R N EA 1 E L DF 1 E L DC C N 1 I N U E 0)	2	0.17946-02	0.60136-02	-,12276-02	0.57826-02	0.41046-02	0,54306-02	U 4 8 7 2 2 3 4 3 4 3 4 4 1 1 2 4 8 2 4 8 1 2 4 8	24	0.18885-02	0,13156-02
-		•	0.50136+02 0.17946-02	0,21556+02	0+11786+03	0,14696+02	0,3221E+02	0+1571E+02	C I 3 V O W O L I 4 0 J S 4 H H H D S S	ī	0+9526+01	0.73726+01
C		HOURS	471	314	370	305	477	343		BAUDH	10	545
		SYSNO NO.FAIL	w	r			r	m		NO.FAIL	54	
		SYSND	54	2	54	54	~	54		ONBAS	22	22
			12.04	N0,22	N0.23	N0.24	N0.25	40.26			N0. 1	40° 2
	i li		2	2	2	2	=	2			2	~

TABLE 5.2

G B D U N D S A N T E N N A I N • H D U S E YSTEN

		8 Y 8 N 0	R B A R	RE
83	ND, 1	1	EXPONENTIAL	EXPONENTIAL
RS	ND, 2	1	1 8 M H U D E L	IBM MODEL
83	NO, 3	10	2.861 8 I H P L E X P O 8.64	0,015 8 I M P L E E X P U 1,060

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G R U U N D A N T E N N F I E L D S Y S TEM

5 7 8 N U R RE

R1	NO. 1	12	8	E M	PLE EXPO	SIMPLE EXPO
	NO. 2	12	• 1	t H	14.929 PLE EXPO	0,251 8 I K P L E E X P O
R1	NO. 3	5		I H	19,462 PLE EXPO	0.078 SIMPLE EXPU
R1 '	NO. 4	5	1.0	M	HODEL	CAPONENTIAL
RS	NO, S	5	5	. P	DNENTIAL	0,015 EXPONENTIAL
R1	NO	5	1 8	M		1 8 M M U B L
R1	NO. 7	5	1 0) M		0,010 SINPLE EXPO
R1	NO. B	5	A #	0	12.010 EFMODEL	1,493 EXPONENTIAL
R1	NO. 9	4	1 0) M		0,464 I B H H O D E L
R1	ND.10	4	1.	•		0,241 SIMPLE EXPC
R1	NO.11	4	1 0	•		0,600 · · · · · · · · · · · · · · · · · ·
	NO.12	•		H	12,220 PLE EXPO	0,518 LLDYD - LIPOH
R1	NO.13	٠	1.0	M		0,701 8 I H 7 L E E X P O
	40,14	4	X 0	M		ARDEF MUDEL
Rt	NO,15	٠	1.0	M		IBM HODEL
<u>#1</u>	NO.10	4	1.	H	HGDEL	0,320 8 I M P L E E X P O
R1	NO.17	4	8 1	M	16,753 PLE EXPO	BIMPLE EXPO
R1	NO.18		LL	0		0,535 LLOYD - LIPON
P1	ND.19		1.0	M	15,277 M 0 0 E L 11,535	IBM MODEL
R1	ND.20	4	8 I	M	PLE EXPO	BINPLE EXPO
R1	NO.21	٠	A . R	0		0.607 A R D E F M () D E L 0.187

TABLE 5.2 (Continued)

			6 I R (D	8		ΤE	M	
			1	N = 1	H ()	U 8	£				
		8 7 8 N (0	ľ		A R					RE
R3	NO. 1	1	DUA	N E		0 0	E		E		ENTIAL
RS	NO. 5	1	A R O	2 7	H.	0 0			۸	ROEF	0.083 MODEL
RS	NO, 3	10	A R O	E 7	H	0 D	2	•	0	UANE	.369 NODEL
RS	ND, 4	1.0	A R O	E #	H	0 0	E	•		ROEP	HODEL
R3	NO. 5	1.	ARO	E F	H		E I		A	RGE	.057 H U D E L

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GROUND SYSTEM RADAR FIELD

		8 7 8 N D	R B A R	RE
RL	NO. 1	10	DUANE HODEL	DUANE HODEL
#1	NO. 2	12	ARDEFHDDEL	0.038 SIMPLE EXPO
#1	NO. 3	11	9.257 DUANEHDDEL	DUANE MODEL
RS	NO. 4	12	15,407 8 I H P L E E X P O	SIMPLE EXPO
R1	NO. 5	15	10.029 8 I M P L E E X P D 10.936	C.416 SIMPLE EXPO
#1	ND	12	A R O E F H O D E L 10,732	ARDEF HUDEL
RL	NO. 7	11	STHPLE EXPO	0.937 DUANE MODEL
#1	NO. 8	11	16,287 SIMPLEEXPO 10,783	0,038 SIMPLE EXPO

					M	1 1	; A		0 # A U 8	V.	Y 8 E	ΤΕ	M							
			8 ¥ 5 N	0			R	8	A P							R	ł			
	RS	ND. 1	5	E	x P	0	N		T : 857		L	E	x	٩	0	N E 1 0,274		I	٨	L
					G I H S				D H A			E	M							
			8 Y 8 N	0			R	•	A R							R 8				
	Ri	NO. 1	٠	8 1	1 11	P	L	E	E X 13	•	0	\$	I	M	P	L E 0.680	E	X	P	0
	.R1	NO. 2	•	8 1	1 11	۲	L	- ·	Ë X Lty	۲	0	8	I	M	₽	L E	-	X	P	0
	R1	NO. 3	4	٤.)	t P	0	N	E N 12.1	11	4	L	E	X	₽	0	NEN	T	1		L
	R1.	NO, 4	4	8 1	E M	•		E	EX	P	0	8	. 1	:H	P	0.074 L E	E	X	•	0
	#1	NO. 5	5	A 1	1 0	E	F	. M (0 0	EI	•	Ľ	X	P	0	0.173 N E N	-	1		٢
	RI	NO, 6	5	6 1	(P	0	N	E N	TI		L	Ľ	8	•	0	NEN	T	1	٨	L
		NO. 7	5	i 1	. 0	۷	0		I	•		L	L	0	۷	0,852		1 (• (
	R1	NO, B	5	1 ()	H	0	0 (L L			I	8	M		00	E	L		
	RL	NO. 9	5	1 (6 M	H	0		E L			8	1	M	P	L E		X	•	0
	R1	NO.10	8	8 1	E H	•		Ľ	EX	P	0	8	1	H	P	0.672 L E	-	X	•	0
	R1	NO,11	5	E)	(P	0	4	EŇ	7 I		L	E	x	P	0		1	1		L
a sur	81	NO,12	4			•	L (Ľ	872 E X	•	0		1	M	•	0,274 L E	-	X	P	0
		NO. 13	٠		H	•	L (EX	P	0		1	H	•	0.851 L E	-	X	P	0
		NO,14		8 1		•			E X	P	0	3	1	H	•	0,850 L E	E	x	•	0
		NO.15	•	. 1		•	L		£ X	P	0		1	Ħ	•	0.141 L E		X		
	R1	NO.10	4	. 1	H	P	6	12.! E	553 E X	•	0	3	I	M	p .	0.558 L E	E	X	P	0
		NO.17		\$ 3	M I		. 1		087 E X	•	0					0.656 L E		×		
		NO.10	•	a 1		•		2	124 E X							0,132 L E		X		
	R1	NO,19		E 1		0	N	17.(E N								0.422 N E N				
	P1	NO.20	•	Į 8				♥, i D 7, i	200 E L		7					0,125 L E 0,348	E	X		

									0	1	8	Þ			۷		۷	8	٢	E	H		
			۷	8	N	0						k	b	A	R								RE
85	NO.	1		0			1	8	N		M	0								I	8	м	
RZ	NO.	2		8			1		M		M	0	0	3 E 7	L					1	8	N	
R2	ND,	3		6			E	X	•	(0 1	N (2 1		1	1	N (L		E	X	P	DNENTIAL
85	NO.	4		٠			I	8	M		M		0	E	L					1	8	H	
82	NO.	5		•			I	8	M		H	0	0	£	L					8	I	M	0,203 PLE EXPO 0,101

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TABLE 5.2 (Continued)

6 R 0 D 1 S I N -£ RS NO. 1 £ ... NO. 1 7 1 RS NO. 7 83 8 ND. R3 NO. 2 ٥ 0 43 NO 1 Ð RS NO, 7 1 B F L

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TABLE 5.2 (Continued) GROUNO SYSTEM DISPLAY FTELD

		8 7 8 N	0 8848	R E
RZ	NO. 1		SIMPLE EXPU	SINPLE EXPO
RZ	NO. 2	8	7,198 8 I M P L E E X P O	C.064 SIMPLE EXPO
RZ	NO. 3		7,976 31MPLE 21PO	SIMPLE EXPO
RZ	NO, 4	•	4,527 8 3 M P L L E X P O	0.033 SIMPLE EXPO
88	NO. 5	٠	5,980 1 B M H O D E L	0.315 1 0 4 4 0 0 E L
82	NO	6	10,333 8 I M P L E E X P D	0,069 SINPLE EXPO
88	NO, 7		ARDEFHODEL	0,000 LLDYD+ LIPON
RZ	ND, 8		SIMPLE EXPO	0,330 81 H P L E 2 X P O
Rz	aŭ, •	8	8 1 H P L E E X P D	0,341 8 1 M P L E E X P Q
82	NO.10	٠	ARDEF HUDEL	9,146 8 I H P L E E X P O
82	NO.11	٠	AROEF HODEL	0,802 ARDEFHODEL
	NO.12		ARDEF HODEL	0,007 ARDEFHODEL
82	NG.13		APDEF PDDEL	AROEFHODEL
82	NO.14	•	8 1 H P L E E X P G	0,011
42	NO.15	٠	ARDEP HODEL	ARGEFHODEL
	N0,10	٠	SIMPLE EXPO	0,005
	NO, 17	•	0.947 8 I H P L E E X P O	3,197
Ra	NO.18		2.135 1 0 H H D D E L	8 I M P L 5 E X P O 0,407 I B M N O D E L
82	ND. 29		7,500 1 8 H H D D E L	0.149
88	ND.20	•	20.021 1 8 4 4 0 0 E L	10 4 400EL 0,095 8 I M P L E E X P D
RZ	ND.21	•	17.630 A R O E F - H O D E L	1,150
	NO,22		18,692 I 8 M M D D E L	DUANE NUDEL 0,122
82	NO,23	8	9,311 AROEPHODEL	EXPONENTIAL 0.011
		•	8,651	0,318

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TABLE 5.2 (Continued) G R O U N O S Y S T E H O 1 S P L A Y F T E L O

		8 Y 5 N 0	P 6 A R	RE
R3	NO. 1	17	SIMPLE EXPO	DUANE HODEL
RSE	NO. 2	2	44.176 I B M M U D E L	0.253 8 T H P L E E X P D
RS	NO, 3	2	1 S M HUDEL	I B M M O D E L
			26,916	0,059

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GROUND SYSTEM COMPUTER IN-HOUSE

			8 7 8	NG	R B + R	RE
R1	ND.	1	11	D U	15.173	DUANE NODEL
R1	NO,	2	14	0 U	ANE MODEL 40.733	0.007 DUANENDDEL
R1	NO.	3	14	8 I.	LMPLE EXPO	0,027 8 I H P L E E E F O
	NO.	٠	14	8 1	11,052 HPLEEXPO 0,750	0,497 8 I H P L E E X P D
RS	NO.	5	14	8 1	MPLEEXPO 2,346	8 3 H P L E E X P O 0,047

6 R D 6 J H 1 N H UPH NUO 0 T U E ŘE E RZ NO. 1 13 £ E X 0 8 2 1 L E 1,000 EXP 0 12,502

TABLE 5.2 (Continued) GROUND SYSTEM COMPUTER IN-HUUSE

			IS 7	8 N Q		RBAR	A E	
R3	ND.	1		•	DUAN	40,804	DUANE MUDEL 0,004	
RY	NO.	5		٠	8 I H P		8 1 H P L E E X P D 0,037	
RS	NO.	3		٠	5 I H P	LE EXPO 19,254	DUANE HODEL 0,132	
R3	NO.	4		•	8 I M P		8 I H P L E E X P D 1,424	
RS	NO.	5		5		LE EXPO 2.763	SIHPLE EXPO	
RS	HO.	٠		2	I 0 H	H O O E L	8 I M P L E E X P O 0,221	
RS	NO.	7		1	AROE	F MODEL 14,685	AROFF HODEL 0,303	
RS	NO.	•		1	ARUE	F HODEL 14,985	LLO/D-LIPON 1,201	

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TABLE 5.2 (Continued) G H O U N D B Y B T E M C O H P U T E R F I E L D

		5 7 5 N	0	RUAR	₩ E
R1	HO, 1	11		EMODEL	CUANE NODEL
81	NO. 2	11		12.153 E MODEL	DUANE HODEL
R1	NO. 3	12	ARCE	25,533	550.0
R1	ND. 4	15		39.132 LEEXPO	0.095
Rj	NO. S	12	DUAN	10,055	LLOYD - LIPON 0,095
		3 4	OUAN	E HODEL 10,310	DUANE NODEL 0,211
RL	NO. 6	16	LLOY	0 - LIPON 6.056	LLOYD - LIPOH
R1	NO, 7	15	8 I H P	LEEXPO	0.090 SIMPLE EXPO
	NO. 8	15		5.461	0,051 SIMPLE EXPO
81	NO, +	15	LLOY	84.255 0 - LIPON	0,793
Rt	NO.10	13	1.0.0	12,173 H O D E L	0,580
where an es				10,048	1 B H H D D E L 0,194
Rt	NO.11	15	LLOY	0 - LIPOH	BINFLE EXPO
R1	HO.15	15	8 I H P	LE EXPO	0,050 BIMPLE EXPO
R1	NO.13	15	LLOY	5,037 D - LIPON	0,165 LLOVD - LIPOH
Rt	NO.14	15	LLOY	10.372 D + L I P D H	0.783 LLOYD - LIPON
R.;	NO.15	15		4,098	1.000
			8 I M P	L 2 E X P O 6.050	SIMPLE EXPO 9,150
R1	NO.14	11	8 I M P	LE EXPO	SIMPLE EXPO
R1	NO,17	12		LE EXPO	0,054 BINPLE EXPO
RL	NO,10	11	8 I M P	20,205 L E E X P O	0,005 BIMPLE EXPO
	NO. 19	11	8 X H P	11.062 LEEXPO 11.001	0.489 DUANENDDEL 0.103

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6 8 0 U N C 0 H P U F I E L D D 8 R YSTEN E S N D 8 . R RE RS NO. 1 17 D U . N E HODEL HODEL 0 U N E 59,819 18 H H D D E L 12,648 L L O Y D - L I P D H 0.324 N E N RS ND. 2 2 E X . 0 T 0.029 ND. 3 R3 2 LLDYD LIP 0,420 0 . 6,188
								а С	R	0	U) (N U	U N	I	3	3	٧	1	1) E 0	MN	\$								
			5 Y	5	N G						A	1	5		N										R	E				
RS	NO.	1		2			X													E	X	•	0	N	E	N	T	I		L
R3	NO.	2		2		E	X	P	C) (V	5	Ň	44	1	I	•	L		E	X	•	0	NO	5	N 11	ł	1	*	L

GROUND SYSTEN COMMUNICATIONS FIELD

		8 Y S N D	R B A R	A E
RL	NO. 1	4	SINPLE EXPO	LLOYD - LIPON
	ND. 2	4	27,667 8 I M P L E E X P O	0,794 LLOYD - LIPGH
71	NO. 3	4	26,675 8 I M P L E E X P O	0,862 8 I H P L E E X P O
RL	NO, 4		8 I H P L E E X P G	1,001 LLOYD - LIPOH
RI	NC; S		14.797 8 I H P L E E X P O	0,226 8 I H P L E E X P O
RL	NC	4	ARDEF HODEL	0,465 ARDEFHODEL
81	NO. 7		12.776 184 HODEL	0,451 I B H H Q D E L
R1	NO, 8		1.956 8 8 0 H D D E L	0.135 1 0 H H Q D E L
	NO	•	22,656 2 8 H H D D E L	0,560 8 I H P L E E X P D
	NO.10		12,173 8 I H P L E E X P O	0.201 8 1 H P L L E X P O
	NU.11	•	15,747 1 8 4 4 0 0 E L	0.249 LLOYD - LIPON
81	NO.12	•	15.173 A R U E F M O D E L	0.944 LLOYD - LIPOH
			12,676	0,927

D 3 M D Ì E U 0 . 0 A NO. 1 83 1 1 M DDEL NO, 2 1 EX 0 N NT 1 0 N EN ,023 0.164

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TABLE 5.2 (Continued) G R D U N D S Y S T E M S Y S T E M • R A D A R F I E L D

		3 Y S N 6	R B A H	RE
11	NO. 1	10	DUANE MOD 16.706	EL DUANE MODEL 0,053
RL	NO, 2	11	DUANE HUD 11.832	
71	NO, 3	15	ARDEF MOD 9.081	
R1	NO. 4	11	8 T H P L E E 2 7.130	
<u>P1</u>	NO. 5	11	8 I H P L E E 10,360	
R1	NO	12	SIMPLE E	
RE	NO. 7	12	DUANE MOD 12,472	
RL	NO, 8	11	8 1 M P L E E 5 7,951	PO BIMPLE EXPO

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6 R O U N D 8 Y 8 T E M 8 Y 5 T E M = M I C R O W I N = H O U 8 E -----V E N O RE ÊXPUNENTIAL 0,201 RS PONENTIAL NO. 1 5 EX 12,627

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TABLE 5.2 (Continued) GROUND SYSTEM SYSTEM-HICROHAVE FIFLD

			R B A R	P E
	NO. 1	5	EXPONENTIAL	EXPONENTIAL
	NO. 2	5	19,207 I B M M U D E L	0,885 8 1 H P L E E X P O
R1	NO, 3	5	6,521 8 1 M P L C E X P O	0.111 8 1 H P 4 E E X P D
Rį	ND, 4	5	184 H 0 0 L L	0,780 I B H H O D E L
R1	NO. 5	5	9.451 EXPONENTIAL	0.092 EXPONENTIAL
	NO. 6		15,400 1 6 M H D D E L	0,906 814PLE EXPO
Rs	NQ. 7	•	5,734 SIMPLE EXPO	0,693 8 I H P L E E X P D
R1	NO, B	4	B,484 EXPONENTIAL	0,201 EXPONENTIAL
81	NO. 9	4	11,952 1 M P L E Z X P O	BINPLE EXPO
R1	NO,10	5	8 1 H P L E E X P D	0.214 SINPLE EXPO
R1	NO,11	5		8,218 E X P O N E N T I A L
	NO.12	•	ARDEF NODEL	81HPLE EXPO
R1	NO.13	٠	14,955 8 I M P L E E X P O	SINPLE EXPO
	NO.14		6,245 8 I M P L I E X P Q	8 I H P L E E X P D
R1	NO.15	4	13,481 8 I H P L E E X P O	0,143 SINPLE EXPO
	NO.10	4	10 M H U D E L	0.626 8 I H P L E X P O
RL	NO.17	•	SIMPLE EXPO	8 I H P L E E X P O
81	NO,18			8.442 E 2 P O N E N T I A L
81	NO.19		1 . H H D D E L	0.153 8 I H P L E E X P D
R1	ND.20	•	9,086 8 I H P L E E X P O 10,260	0,513 8 I M P L E E X P D 0,210
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TABLE 5.2 (Continued)

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58	NO.	1	25	4	R	O	ε	F	M	0	D	E	L			R	n	E		м	0	D	ε	L	
R2	NO.	÷ ,	27	E	X	P	0	N	15 E	+ 3 N	95 T - 1		4	L					0	,23 E	7				
82	ND.	3	27	5	I	M	P	L	E	••	38 E)	. 1	p	0					0	.03 E	5			-	
82	NO.	4	27	I	8	M		• 0	4	• 3' E	0 D								0	.04	8				
58	NO.	5	27	k	x	P	υ	N	4 E	.2	28 T 1			L					0	01 E	1				
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		1	R		U		N	E

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		8 Y 8	NO	ROAR	RE
82	NO. 1	27	5	INPLE EXPO	SINPLE EXPO
#2	NO. 2	27	I	6.571 8 H H D D E L	0,110 I B H H D D E L
RZ	and the second designed and			4,0%	0,004
and the second second	NO. 3	25	I	8 H H U D E L 7.587	I B H H O D E L
82	ND. 4	25	- 81	IMPLE EXPO	SIHPLE EXPO
85	NO, 5	27	5 1	12.396 IMPLE EXPU	0,492 8 I H P L E E X P G
82	NO	27		4,885	0.044
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TABLE 5.2 (Continued) A I R H U R N E D I S P L A Y I N - H U U S E

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Rt	NO.	2	23		4	R	0	ε 1		11. M			EL			R	0		0.605 MODEL
Ri	NO,	3	23		8	1	H	P (. (, 0; (0			I	M		D.O.LEEXP
Rt	ND,		21		9	1	H	P	. 1	5	, • (1	8			0.275 0.0 E L
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R2	NO.	3	27		3	I	M	P	L	E	٠.	82 E	8 X	9	0	5	I	м	P	0.066 L E	Ł	- -	P	0
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••••••••••••••••••••••••••••••••••••••			LAIN	8	8 U A E N H O U	N X S	E H 1 E	R	/	R C	۷	R						
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R1 N0, 1	8 Y 8 N 0 21 21	E	I N X P X P	0 N 0 N	H O U R B A E N 11.4 E N	5 R T I 10 T I	E 	L		F X E X	•	0	N 0,	E N 040 E N	T	1	A A	
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R1 N0, 1 R1 N0, 2	8 Y 8 N 0 21 21	E	I N X P X P		H O U R B A E N 11.44 E N 7.1 8 U R	5 R T I 10 T I 44	E A A	L		F X	•	0	N 0,	E N 040 E N	T	1	A	
R1 N0, 1 R1 N0, 2	8 Y 8 N 0 21 21	E E	I N X P X P		H O U R B A 11.44 E N 7.1	8 8 7 I 10 7 I 64	E A A	L		F X	•	0	N	E N 940 E N 942	T	1	•	
R1 NO. 2	8 Y 8 N 0 21 21	E	I N X P X P X P		H O U R B A E N 11.4 E N 7,1	8 8 7 I 10 7 I 64 8 8	E A A E E	L	/	F X E X R C	• •	0	N 0. N 0.	E N 040 E N	T			

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TABLE 5.2 (Continued) ATRHONNE INFRARED RECEIVEN IN-HUUSE SYSNU RAAR RE A R O E F M O D E L RI ND. 1 23 ARDEF NODEL 17.526 H D D E L 0,205 A R O E F H O O E L R1 NU. 2 23 AROEF 12,566 0,783 R1 NO. 3 23 ARUEF HODEL ARDEF HODEL 15,226 0.509 A I R B O R N E I N F R A R E C RECEIVER IN . HOUSE 8 Y 8 N 0 R . ۵ RE 88 NO. 1 27 I 8 H ODEL Ħ IBK HODEL 4,700 0,003 A I H H (I R N E S V S T E M = H A D A R I H = H II U S E 5 Y 5 N G H 6 AR RE 82 NO. 1 27 184 MUDEL HODEL ¥. 3,555 0.005 #2 ND. 2 27 ODEL 1 8 HODEL M 1,947 9,003 21 NU. 3 27 EXPO M LE EXPU 0,025 L E 5 5 .028 82 ND. 4 25 1 8 U Ō HODEL 4 H. EL

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A I R B O R N E 8 Y 8 T E H - L 1 N - H O U 8 E ASER SYSNO RBAR RE NO. 1 **R1** EXPONENTIAL 51 8 0 NEN TIAL 7.130 E K P U N E N T I 4 L NENTIAL 81 NO., 2 21 3 • 0 965,8 0.030 A I R B G R N E S Y S T E M ~ L I N ~ H D U S E ASER NO RBAR 7 8 R E 83 NJ, 1 20 EXPONENTIAL ε 0 NEN TIAL 0.014 L E 12.151 RS NU. 2 20 8 1 HPLE EXPO 0 £ ¥ 7. 0,065 767 BOR TEM HOU S Y I N 8 Ĩ • RARED NÜ R RE R1 NO. 1 23 1 0 0 E L H U 20,105 HODEL 58 R1 NO. 2 23 0 E . HUDE O E 830 0.878 D = L 1.279 R1 NO. 3 23 L 0 ٥ LI U 0 1 1 15 027 Rt NO, 23 5 I Ē EXPO 8 I L E 0,245 EXPU 6,682

TABLE 5.2 (Continued) 4 1 F H U H N E 3 Y S T F H - I N F R A H F D F I E L D

		S Y S H I	PRAR	P E
P3	NO. 1	24	ARDEF HUDEL	AROEF MODEL
R3	NO. 2	24	ARDEF HODEL	ARGEF MOVEL
#3	NC. 3	24	ARUEF MUDEL	0,004 LLUYD + LIPOH
R3	ND. 4	24	9,916 SIMPLE EXPU	0,155 SIMPLE EXPO
83	NU. 5	24	ARDEF MUDEL	0,908 ARIEFHUDEL
RJ	NO. N	20	AROEF MIDEL	0,272 LLUYD - LIPDH
R3	NU, 7	24	11.930 EXPONENTIAL	0,808 EXPONENTIAL
83	ND. 8	24	ARDEF MODEL	0,022 AROEFHUDEL
R3	NO. 9	24	SIMPLE EXPO	0.009 SIMPLE EXPU
	NO.10	24	IC,872 EXPONENTIAL	0,016 EXPONENTIAL
R3	NO.11	24	12,197 EXPONENTIAL	0,226 E X P O N E N T I A L
RS	90.12	24	2,093 SIMPLE EXPU	0,004 SIMPLE EXPO
R3	H0,13	24	AROEF HODEL	ARDEF NODEL
RS	ND, 14	24	11,514 EXPONENTIAL	0,568 E X P I) N E N T I A L
83	NO,15	24	BIMPLE EXPU	0,235 SINPLE EXPO
R3	ND,10	24	ARDEP HODEL	ARDEP MUDEL
83	NO.17	24	ARDEF HODEL	0,123 AROEF MUDEL
83	ND.18	24	12,350 1 8 M M U D Z L	0.334 EXPONENTIAL
#3	NO.19	24	EXPUNENTIAL	0.015 EXPONENTIAL
83	ND.20	24	SIMPLE EXPU	0,032 SINPLE EXPO
<u>R3</u>	NU,21	24	SINPLE EXPO	1,307 SIHPLE EXPO
R3	NO, 22	24	ARDEF MODEL	ARDEF MODEL
R3	ND.23	24	2.900 SIMPLE EXPO	0.037 SIMPLE EXPU
RS	NU . 24	24	9,761 EXPONENTIAL	0.845 EXPONENTIAL
RS	NI: . 25	24	7.381 ARGEFMUDEL	0,008 ARIEFMODEL
83	ND.26	24	C+016 3 I M P L E E X P U 11+535	0,0 SI4PLE EXPU 0,007

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Rome Air Development Center

RADC is the principal AFSC organization charged with planning and executing the USAF exploratory and advanced development programs for information sciences, intelligence, command, control and communications technology, products and services oriented to the needs of the USAF. Primary RADC mission areas are communications, electromaynetic guidance and control, surveillance of ground and aerospace objects, intelligence data collection and handling, information system technology, and electronic reliability, maintainability and compatibility. PADC has missior responsibility as assigned by AFSC for demonstration and acquisition of selected subsystems and systems in the intelligence, mapping, charting, command, control and communications areas.



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Sample Sheet for preparation of RADC technical reports

TABLE4.3 DUANE MODEL GROUND SYSTEM ANTENNA FIELG

3			SYSNO	NO.FAIL	HOURS	P1	PZ	PS	P4	RBAR	RE
3	Ri	NO. 1	15	7	18304	0,56298+00	0.5770E+03	0,3133E+00	0.8248E=01	41.103	1,711
8	Ri	ND. 2	12	3	24804	0,6051E+00	0.4037E+04	0,2223E+00	0.1077E+00	71,271	0.695
z	R1	ND. 3	5	3	2767	0,8703E+00	0,7830E+03	0.3198E+00	0,8991E=01	71,526	13,342
	R1	NO. 4	5	•	3035	0,4925E+00	0,3500E+02	0,2549E+00	0.1675E+00	29,430	0,105
ł	R1	N(), 5	5	6	1373	0,7538E+00	0,1275E+03	0,3962E+00	0.82128-01	64.673	0,330
1	R1	NU. 6	5	6	7124	0,4868E+00	0,1795E+03	0.2558E+00	0,1125E+00	42.240	0.067
	Rt	NO. 7	5	4	2003	0.1193E+01	0,8328E+03	0,5205E+00	0.1:76E+00	52,984	23,105
l	R1	ND. 8	5	7	407	0.1043E+01	0.62988+02	0,5805E+00	0,1365E+00	54,384	2.044
	R1	ND, 9	4	18	42080	0.1144E+01	0.3367E+04	0.7615E+00	0,2103E+00	51,979	3.032
l.	R1	NO.10	4	14	46500	0.7566E+00	0.1430E+04	0,5118E+00	0,1819E+00	33,669	1.004
L	81	NO.11	4	53	47900	0,8416E+00	0,1154E+04	0,5944E+00	0,7809E-01	20,192	0.837
	ORI	N0.12	4	41	46360	0.8564E+00	0.6132E+03	0.67136+00	0,4102E+00	26,704	1.174
6	R1	NG.13	4	73	46840	0,82546+00	0,2584E+03	0,6938E+00	0,2774E+00	14.240	1,171
•	RS	NO.14	4	13	51440	10+34455.0	0,1661E+05	0.15092+01	0,1661E+00	36,215	0.675
4	R1	NG.15	4	28	31798	0.97462400	0.1041E+04	0,7168E+00	0.8140E+00	46.807	524.0
1	Ri	N0.16	4	33	18240	0.7178E+00	0.139CE+03	0,5437E+00	0,4969E+00	31,362	1-254
6	R1	N0.17	40	35	33680	0.1237E+01	0,1900E+04	0.9775E+00	0,6881E-01	12,580	1,176
	R1	NO.18	4	14	24920	0,8436E+00	0.1091E+04	0,5707E+00	0,2314E+00	35,985	5.500
t	R1	ND.19	4	61	35400	0.8251E+00	0,2250E+03	0.6929240.0	0.62496+00	19,128	0.274
I.	R1	NO.20	4	80	42000	0,6778E+00	0.0541E+02	0.9748E+00	0,1240E+01	23,429	2.710
	R1	ND21	4	55	35400	0.1203E+01	0.27102+04	0,3881E+00	0,2363E+00	24,960	0.673
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ſ A B L E 4.3 (Cont'd) D U A N E MODEL G R O U N D S Y S T ₹ M M I C R U W A V E F I E L O

		SYSHO	ND.FAIL	HOURS	P1	P2	PS	P 4	RBAR	RE
Ri	NO. 1	4	114	42078	0,9399E+00	0,2727E+03	0,3213E+00	0,2226E+00	•.001	0,866
81	NQ. 2	4	259	46860	0,6516E+00	0,9275E+01	0.5979E+00	0,1030E+01	17.304	0,398
RI	ND. 3	4	240	47899	0,7259E+00	0.2520E+02	0.6636E+00	0.2200E+01	20,617	0,180
R1	NO. 4	4	183	46795	0,5676E+00	0.48342+01	0.5116E+00	0,24482+01	23,682	0.824
31	ND, 5	5	10	407	0,1111E+01	0,5120E+02	0.6912E+00	0,1634E+00	36,699	2,230
R 1	NU. 6	5	40	2663	0,9726E+00	50+30000.0	0.7596E+00	0,2814E+00	17,453	1.094
81	NO. 7	5	26	1373	0,2491E+01	0,3713E+03	0,1806E+01	0,6773E+01	15,535	0,568
R1	NU, B	5	42	7124	0.5598E+00	0.8971E+01	0.4523E+00	0,3020E+00	24.314	0,227
R1	NO. 9	5	45	3032	0,8131E+00	0.28092+02	C.0458E+00	0.2734E+00	16,302	1,055
R1	NO.10	5	4	101	0,1046E+01	0,4277E+02	0,2882E+00	0.7207E-01	55,890	7,075
41	NO.11	5	26	2767	0,8101E+00	0,4957E+c2	0.6143E+00	0,1232E+00	17,762	0,384
R1	N0.12	4	147	35400	0.8754E+00	0.1184E+C3	0.7786E+00	0.1339E+01	19,175	1,806
Ri	NO.13	4	305	42618	0.6614E+00	0,7582E+01	0,6110E+00	0.2845E+01	22.177	1,805
R1	NO.14	4	283	32800	0.6850E+00	0.8640E+01	0.0310E+00	0,1068E+01	18,679	0,247
R1	NO.15	4	173	24920	0,7291E+00	S0+32515+05	0.4550E+00	0,6997E+00	19,035	0,961
R1	NU.16	4	251	33680	0,7558E+00	0,2251E+02	0.6924E+00	0,1067E+01	15,322	1,658
R1	NO.17	4	149	18240	0.63082+00	0.65452+01	0.56152+00	0,1225E+01	21.691	0,649
R1	ND.18	4	142	41798	0,94912+00	0,2257E+03	0.8422E+00	0,1909E+01	27.643	0,764
RI	NO.19	4	160	51440	0,6532E+00	0,2173E+02	0,5641E+00	0,7892E+00	12,946	0,240
R1	ND.20	4	448	46834	0,70862+00	0.84912+01	0,6645E+00	0,1562E+01	14,623	0.959

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R3 NU, 2 1 5 5085 0,4413E+00 0,1326E+03 0,2149E+00 0,6792E+01 60,558 0,24 R3 NU, 3 16 4 3822 0,4705E+00 0,2007E+03 0,2053E+00 0,5747E+01 59,858 60,44 R3 NU, 3 16 4 3822 0,4705E+00 0,2007E+03 0,2053E+00 0,5747E+01 59,858 60,44 R4 NU, 3 16 4 3822 0,4705E+00 0,2007E+03 0,2053E+00 0,5747E+01 59,858 60,44 SY3ND NU, FAIL HOURS P1 P2 P3 P4 RBAR RE SY3ND NU, FAIL HOURS P1 P2 P3 P4 RBAR RE R1 NU, 2 12 99 24804 0,9872E+00 0,92361E+03 0,8624E+06 0,3512E+00 12,277 1,11 R1 NU, 3 11 70 6751 0,6561E+00 0,1460E+02 0,5358E+00 0,1769E+00 12,277 1,11 R1 NU, 4 12 34						ANTENN IN-HOU					
R3 NO, 2 1 5 5085 $0,4413E+00$ $0,1326E+03$ $0,2149E+00$ $0,9792E+01$ $60,558$ $0,2148E+00$ $0,9792E+01$ $60,558$ $0,2148E+00$ $0,9792E+01$ $60,558$ $0,2148E+00$ $0,9792E+01$ $59,658$ $60,441$ R3 NG, 3 18 4 3822 $0,4705E+00$ $0,2007E+03$ $0,2053E+00$ $0,5747E=01$ $59,658$ $60,441$ R4 NG, 5 Y S NO NO,FAIL HOURS P1 P2 P3 P4 RBAR RE SYSNO NO,FAIL HOURS P1 P2 P3 P4 RBAR RE R1 NO, 2 12 99 24804 $0,9872E+00$ $0,2361E+03$ $0,8624E+06$ $0,3512E+00$ $12,277$ $1,116$ R1 NO, 2 12 99 24804 $0,9872E+00$ $0,4254E+02$ $0,5378E+00$ $0,1082E+00$ $15,497$ $0,0$ R1 NO, 4 12 34 9165 $0,7073E+00$ $0,4264E+02$ $0,5335E+00$ $0,1769E+00$ $20,028$ $0,44$			SYSNO	NO.FAIL	HOURS	P1	P2	₽3	P4	RBAR	RE
R3 NU, 3 18 4 3822 0,4705E+00 0,2007&+03 0,2053E+00 0,5747E=01 59,858 60,44 B U A N E MO D E E 60,44 B U A N E MO D E E 60,44 B U A N E MO D E E C C A	R3	NO. 1	1	4	3035	0,4262E+00	0.1174E+03	0,1860E+00	0,1046E+00	52,812	0,42
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	83	ND. 2	1	5	5085	0,4413E+00	0.13268+03	0.2149E+00	0.4792E-01	60,558	0,26
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	RS	NQ. 3	18	4	3955	0,4705E+00	0,20072+03	0,20532+00	0,5747E=01	59,858	60,49
SYSNO NO, FAIL HOURS P1 P2 P3 P4 RBAR RE SR1 NO. 1 16 16 2513 0,49632400 0,9420E401 0,3454E406 0,4526E401 22,140 0,0 R1 NO. 2 12 99 24804 0,9672E400 0,2361E403 0,8624E406 0,3512E400 12.277 1,12 R1 NO. 3 11 70 6751 0,6561E400 0,1041E402 0,5578E400 0,1082E400 15,497 0,0 R1 NO. 4 12 34 9165 0,7073E400 0,6264E402 0,5385E400 0,11769E400 20,028 0,44 R1 NO. 4 12 34 9165 0,7073E400 0,1460E403 0,3845E400 0,1339E400 54,306 3,64 R1 NO. 6 12 77 18304 0,8766E400 0,7513E400 0,3066E400 13,735 1,04 R1 NO. 6 12 77 18304 0,8766E400 0,7513E400						G R O U N O R A D A R		н			
2 R1 NO, 1 16 2513 0,49632+00 0,9420E+01 0,3454E+06 0,4526E=01 22,140 0,01 R1 NO, 2 12 99 24804 0,9672E+00 0,2361E+03 0,8624E+06 0,3512E+00 12.277 1,12 R1 NO, 3 11 70 6751 0,6561E+00 0,1041E+02 0,5578E+00 0,1082E+00 15,497 0,02 R1 NO, 4 12 34 9165 0,7073E+00 0,6264E+02 0,5385E+00 0,1769E+00 20,028 0,44 R1 NO, 4 12 4 714 0,8608E+v0 0,1480E+03 0,3845E+00 0,1339E+00 54,306 3,6 R1 NO, 6 12 77 18304 0,8766E+00 0,1290E+03 0,7513E+00 0,3066E+00 13,735 1,00 R1 NO, 6 12 77 18304 0,8766E+00 0,1458E+01 0,2051E+00 13,735 1,00 R1 NO, 6 12 77 18304 0,8766E+00 0,1458E+01 0,2051E+00 16,400 0,0			SYSNO	NO. FATI	HOURS		83		84		ĐĒ
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R1 NO, 3 11 70 6751 0,6561E+00 0,1041E+02 0,5578E+00 0,1082E+00 15,497 0,0 R1 NO, 4 12 34 9165 0.7073E+00 0,6264E+02 0,5385E+00 0,1769E+C0 20,028 0,44 R1 NO, 4 12 34 9165 0.7073E+00 0,6264E+02 0,5385E+00 0,1769E+C0 20,028 0,44 R1 NO, 5 12 4 714 0.8608E+J0 0,1480E+03 0,3845E+00 0,1339E+00 54,306 3,64 R1 NO, 6 12 77 18304 0,8766E+00 0,1240E+03 0,7513E+00 0,3066E+00 13,735 1,04 R1 NO, 7 11 71 4362 0,5323E+00 0,1458E+01 0,2051E+00 16,400 0,0							· · · · ·		erten 🖷 de un sold univer tras entitation a	and a second	
R1 NO, 4 12 34 9165 0,7073E+00 0,6264E+02 0,5385E+00 0,1769E+C0 20,028 0,44 R1 NU, 5 12 4 714 0,8808E+J0 0,1480E+03 0,3845E+00 0,1339E+00 54,306 3,6 R1 NO, 6 12 77 18304 0,8766E+00 0,1240E+03 0,7513E+00 0,3066E+00 13,735 1,0 R1 NO, 7 11 71 4362 0,5323E+00 0,1458E+01 0,2051E+00 16,400 0,0											
R1 NU, 5 12 4 714 0,8808E+J0 0,1480E+03 0,3845E+00 0,1339E+00 54,306 3,6 R1 NO, 6 12 77 18304 0,8766E+00 0,1240E+03 0,7513E+00 0,3066E+00 13,735 1,0 R1 NO, 7 11 71 4382 0,5323E+00 0,1458E+01 0,4531E+00 0,2051E+00 16,400 0,0	R1			34							
R1 ND, 6 12 77 18304 0,8766E+00 0,1240E+03 0,7513E+00 0,3066E+00 13,735 1,0 R1 ND, 7 11 71 4362 0,5323E+00 0,1456E+01 0,4531E+00 0,2051E+00 16,400 0,0	81	NU, 5	12	4							
	R1	ND. 6	12	77	18304	0,87662+00	0,1240E+03	0.7513E+00	0,3066E+00		1.0
R1 NU, 8 11 120 7574 0,7468E+00 0,1131E+02 0,6639E+00 0,3726E+00 14,116 1.1	R1	ND. 7	11	71	4382	0,53232+00	0,1458E+01	0.45512+00	0,20518+00	16,400	0,0
	R1	NQ. 8	11	15+	7574	0,7468E+00	0,1131E+02	0.66392+00	0.3726E+00	14,116	3.1

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TABLE 4.3 (Cont'd) DUANÉ HODEL GRUUND SYSTEM RADAR IN-HOUSE

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		SYSHD	ND, FAIL	HOURS	P1	P2	P3	P4	RBAR	PE
R3	NO. 1	1	28	6369	0,6267E+00	0.3124E+02	0,4805E+00	0,1043E+00	12,994	0,131
P 3	NO. 2	1	3	2076	0,4693E+00	0,1998E+03	0.1724E+00	0,8670E+01	74,955	0.471
83	NO. 3	18	18	3955	0,8340E+00	0,1194E+03	0,5941E+00	0.2311E+00	28,742	0,542
R3	ND. 4	18	12	5370	0,2316E+01	0,1837E+04	0,1355E+01	0.4074E-01	21,423	0,661
R3	NO, 5	18	11	4650	0.1208E+01	0,6392E+03	0.7714E+00	0,1180E+00	49,557	6,840

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		SYSHO	NO, FAIL	HOURS	P1	92	P3	P4	RBAR	RE
R1	NO. 1	5	33	5311	0,9619E+00	0,2060E+02	0,7545E+0¢	0,1953E+00	26,176	0,819

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			SYSNO	NO, FAIL	HOURS	P1	#2	P3	P4	RBAR	RE
R1	ND.	1	11	34	11490	0,52472+00	0.13866+02	0,3095E+00	0,1295E+00	19.879	0.043
RS	NO.	s	11	17	4382	0.582584+00	0,3383E+02	0.4104E+00	0,4809E+01	19,679	0,070
91	NØ.	3	12	30	18304	0.0076E+00	0,11228+03	0,4973E+00	0,5620E+00	25,051	1,320
R 1	NO.	4	12	7	9165	0,3219E+00	0,2173E+02	0.17926+00	0,25446+00	44.857	0,027
3 R1	NO.	5	12	4	714	0,5710E+00	50+30026,0	0.24928+90	0,556_2=01	57,190	0,619
R1	NÜ.	6	11	49	9663	0.82035+00	0,8408E+02	0.6742E+00	0,1181E+00	11.954	0,800
R1	NO.	7	11	117	10304	0,1079E+01	0,1290E+03	0.4500E+00	0,2722E=01	6,915	0,623
R1	NO.	8	12	33	24804	0.9671E+00	0.6673E+03	0.75852+00	0,10252+00	18,535	1,003
R 1	NO.	9	11	177	7849	0.4995E+00	0,24802+00	0.4320E+00	0,12302+01	21.994	0.125

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			SYSNO	NO.FAIL	HOURS	P1	65	P3	P4	RBAR	RE
•	82	NO, 1	8	15	9425	0,7435E+00	0,24682+03	0.4594E+00	v,9983E=01	20,417	0.449
	RZ	NO. 2	8	7	8246	0.00178+00	0.3248E+03	0.2711E+00	0,1472E+00	35,864	0,401
	RZ	NO. 3	8	16	7570	0.73598+00	0.17492+03	0.4738E+00	0.1038E+00	20,416	0,506
	RZ	NU, 4	8	11	9425	0,1171E+01	0.1215E+04	0,6623E+00	0,52682-01	31,936	7,122
	82	NO. 5	8	15	45376	0.4610E+00	0,12768+03	0,3166E+00	0,19922+00	35,726	0,713
	82	NO, 6	8	4	22037	0.68562+00	0.2917E+04	0.2992E+00	0,1301E+00	54,427	0.866
G	82	ND. 7	8	•	45059	0,46412+00	3,3959E+03	0.2802E+00	0,8643E=01	30,555	4,573
1	RZ	NO. 8	8	17	8979	0,17382+01	0.1700E+04	0,1134E+01	0,9323E-01	26,547	8,887
	R2	ND. 9		18	11915	0,97312+00	0.0112E+03	0.6475E+00	0,3432E=01	14,317	3,498
•	RZ	NO.10	8	11	17219	0,1149E+01	0,2135E+04	0.7333E+00	0,2245E=01	22.075	739,381
6	282	NG.11		3	2237	0,3780E+01	0.1673E+04	0.6677E+00	0,10246+00	78,569	65,416
	RZ	N0.12	•	4	2247	0,1283E+01	0,7627E+03	0.3536E+00	0,5004E-01	45.804	21,155
•	82	NO.13		5	2332	0,12256+01	0,9508E+03	0,2163E+00	0,88528-01	90,429	15,158
6	82	NO.14	8	3	1980	10+39551,0	0,8097E+03	0.21702+00	0,1206E+00	74,622	21,488
	RZ	NO.15	٠	3	631	0,3454E+01	0,4591E+03	0.4100E+00	0,1021E+00	78,919	79,382
•	RZ	NO.16	3	4	3492	0,1823E+01	0,1632E+04	0.5024E+00	0,5302E-01	62,298	1319,069
C	R2	ND.17	. 8	1 2	4096	0,1346E+01	0,7350E+03	0.784/E+00	0,1255E=01	25,382	153.850
	RZ	NO.18	8	14	44314	0,0721E+00	0,8733F+03	0.4546E+00	0,3157E=01	26,732	0.409
(82	NO.19		9	45374	0,5305E+00	0,72102+93	0.3203E+00	0,8880E=01	24.078	0.473
0	RZ	N0.20	8		33328	0,5625E+00	0.1378E+04	0,2956E+00	0,7705E-01	\$3,225	7,485

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T A B L E 4.3 (Cont'd) D U A N E H U D E L G R O U N D S Y S T E H D I S P L A Y F I E L D (C O N T I N U E D)

		373ND	NO.FAIL	HOURS	P 1	P2	P3	P4	R7AR	RE
R2	ND.21	8	3	45221	A.5541E+00	0.0226E+04	0,2036E+00	0,8589E=01	93,164	0,122
RZ	N0.22		16	45477	0.4721E+00	0,1280E+03	0.3286E+00	0,4611E=01	21.140	0,019
82	N0.23	8	10	45201	0,8230E+00	0.2758E+04	0.5121E+00	0,5942E+01	34,775	0,934

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			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
2R3	NO.	1	17	5	3764	0.69352+00	0,37162+03	0.+35545.0	0.87428-01	88,368	0,253
R3	NU	5	Z	12	6336	0.66952+00	0.1549E+63	0,43692+00	0,1101E+00	28.894	0,516
R3	NO. 3	3	2		4576	0,55068+00	0.1048E+03	0.3206E+00	0,2891E-01	29.341	0.274

1 A B L D U A N G R D U D I S P I N - H 4.3 (Cont'd) HODEL E ŧ NOLAU Y 8 1 H 8 E ŧ P3 RÉ NO.FAIL HOURS PI 24 P4 RBAR SYSNO RZ 0.3215E-01 NO. 1 105 2700 0,4135E+00 0.3564E+00 0.2352E+01 30,586 0,304 . RZ NO. 2 8 100 3200 20.674 0,053 0.4718E+00 0.1847E+90 0,4080E+00 0,7188E+00 NO. 3 50 0.2406E+00 20.964 0.045 R2 6 3700 0.5180E+00 0.1943E+01 0,4172E+00 NO. 4 RE 8 33 3700 52,469 0,250 0,3637E+00 0.2470E+00 0.2755E+00 0,1490E+01 8 2500 23,723 0,519 RZ NO. 5 16 0.7634E+00 0,6633E+02 0.4918E+00 0,9152E+01 6 8 ODEL D PDU ISP N-NE U A • G N D DI PLAY E 4 SYSND NO.FAIL HUURS P1 24 P3 P4 RBAR RE €. 17 2193 R3 NO. 1 1 0,9634E+00 0,14422+02 0.3690E-00 0.1354E+00 19,695 0,124 0,761 7 32 0.3509E+00 32,296 R3 ND. 2 2245 6 0,86322+00 0,4057E+02 0.6505E+00 7 R3 12 3325 40,806 0,980 ND. 3 0.14142+01 0,5729E+03 0.82722+00 0,17885+00 4 83 ND, 4 2 384 3415 0.6674E+00 0,4581E+00 0,5241E+00 0,2324E+01 20.075 3,452 2 0,981 R3 ND. 5 115 4536 0.10128+01 0,2292E+02 0,9239E+00 0,1501E+01 24,945 4 1,969 1 6 4659 0,5439E+01 05,229 R3 NO. 6 0.6750E+00 0.3277E+03 0,3548E+00 6 2,534 21 23,039 RJ NO, 7 1 0.6345E+00 0,2027E+00 6144 0.8663E+00 0,1828E+03 £ t . -(C C. 53

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T A P L E 4.3 (Cont'd) D U A N E H O D E L G R O U N D S Y S T E H C O M P U T E R F I E L D

		SYSNO	ND, FAIL	HOURS	Pl	P2	P 3	P 4	BBAR	RE
R1	NO. 1	11	34	11490	0,00435+00	S0+35495,0	0.50586+00	0,8138E-01	12,153	C.094
R1	ND. S	11	33	5703	0.4417E+00	0.2080E+01	0,33462+00	5,20412+00	25,533	0,022
R1	NC. 3	12	16	9165	0.0484E+00	0,1274E+03	0.43132+03	0,20185+00	39,451	0,095
R1	ND, 4	15	19	11800	0,7750E+00	0,2642E+03	0.55778+00	0,2926E+00	26,997	5,201
R.1	ND. 5	12	35	18304	0,5186E+00	0,1930E+02	0.4049E+00	0,27752+00	16,316	0,211
Ri	ND. 6	16	5	2513	0.89952+00	0.41992+03	0.4379E+00	0,7599E=01	54,794	1,733
P 1	NO. 7	15	ę	11209	0,7816E+00	0,5741E+03	0,4045E+00	0,5662E=01	26,303	0,612
R1	ND. 8	15	7	18643	0.19552+01	0,68+1E+34	0,1088E+01	0,7841E=01	50,406	37,829
R1	NQ. 9	15	9	16192	0.10242+01	0,18948+(1	0.4182E+00	0,1753E+00	30,252	2,387
81	ND.10	15	19	23495	0,9651E+00	0,1112E+04	0.6513E+00	0,7377E=01	27,105	693,0
RI	ND+11	15	10	15741	0.6179E+00	0,3701E+03	0.3845E+00	0,2014E+00	36,737	•,706
74 R1	N0,12	15	17	23572	0,48215400	0,1340E+04	0.6473E+00	0.2927E=01	19,131	1,562
R1	NO.13	15	50	15756	0,1102E+01	0,1040E+0#	0.8004E+00	0,87842-01	13,942	1,705
R1	ND.14	15	16	13960	0.1009E+01	0,8936E+03	0.7021E+00	0,6074E=01	15,681	10,900
R1	NU.15	15	34	23000	0,8580E+00	0,3885E+03	0.4532E+00	0,60988-01	12,937	0,336
Ri	NO.16	- 11	35	10323	0,7799E+00	0.1081E+03	0.5466E+00	0,1481E+00	13,365	0,593
R1	ND.17	12	41	24804	0.10252+01	0.65236+03	9.8259E+70	0,2555E+00	27.621	1,063
R1	NO.18	11	36	9833	0,15418+01	0.96052+03	0.1184E+01	0,9047E=01	31,717	16.718
81	10.19	11	35	12141	0,6803E+00	0.65232+02	0.5377E+00	0.7547E+01	13.704	0,103

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T A B L E 4.3 (Cont'd) D U A N E M O D E L G R O U N D S Y S T I C O M P U T E R F I E L D TE

			SYSNO	NO,FAIL	HOURS	P1	54	P3	P 4	RBAR	RE
R3	NO.	1	17	10	3965	0,54492+00	0,5797E+02	0,2961E+00	0,1308E+00	59,419	0,126
RS	ND.	2	2	16	4576	0.53222+00	0.2501E+02	0,3705E+00	0,1056E+00	29,977	0,050
#3	ND.	3	2	9	6336	0.13038+01	0.1173E+04	0.7867E+00	0,3149E=01	26,069	4,965

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C	C	M	P	U	T	E	R					-10	
t	N		H.	0	-11								

			SYSND	NO, FAIL	HOURS	P1	24	P3	P 4	RBAR	RE
R1	NO.	1	11	46	4467	0,5618E+00	0,4891E+01	0.4474E+00	0,1640E+00	15,173	0,097
R1	NO.	S	1.4	12	2043	0,5067E+00	0.15162+02	0.33076+00	0,9215E=01	46,733	0,027
1 R 1	NU.	3	14	43	11189	0,1555E+01	0,99642+03	0,1260E+01	0,3840E+00	29,156	14,105
R1	NO.	4	14	45	10666	0.1509E+01	0.85558+03	0,12295+01	0:1878€+00	23,585	13,522
R1	NO.	5	14	•	2792	0,000E+00	0.21732+03	0,5196E+00	0,3159E=01	25,392	4,575
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DUANE MODEL GROUND SYSTEM CONPUTER IN-HOUSE

RE NO.	1 13	18							
		Vilo das	1340	0,8056E+00	3.4260E+02	0.57342+00	0.77888-01	26,842	2,125
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			SYSNO	NO.FAIL	HOURS	P1	92	P3	P4	RBAR	RE
RS	40.	1	•	10	1726	0.2376E+00	C.1068E+00	0,1291E+00	0,1864E+00	40.804	0,004
R3	NC.	2	٠	25	2241	0.41928+00	0.10468+01	0.3160E+00	0.6355E+00	36,051	0,223
R3	NO.	3	9	24	2370	0,5454E+00	0,6786E+01	0,3886E+00	0,1957E+00	28,540	5,132
83	ND.	4	9	3	3105	0.2874E+00	0.68362+02	0,3865E+01	0,10285+00	75,553	49,588
R3	NO.	5	2	74	3415	0.62052+00	0,3319E+01	0.5300E+00	0,44232+00	20,317	0,873
RJ	ND.	٠	2	67	4556	0,5502E+00	0.2177E+01	0.46602+00	0,7753E+00	29,042	1,256
RS	NC.	7	1	5	8513	0,1578E+01	0,3071E+08	0,7683E+00	0,0271E=01	53,946	1,401
83	NŬ.	5	1	4	6339	0.1300E+01	0.21822+04	0,5675E+00	0,22912+00	63.262	9,121
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			SYSNO	NU,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	N0.	1	4	14	35400	7.8716E+U0	0.1714E+04	0.53966+00	0,2946E+00	39,570	1.261
R1	NO.	2	4	25	46840	0.8017E+00	0,84522+03	0.57652+00	0,4140E+00	34,242	1.226
R1	NO.	3	84	11	51440	0,1196E+01	0,69322+04	0,7638E+00	0,8049E-01	22.481	14,198
RI	NO.	4	4	11	41798	0.5052E+01	0,2600E+05	0.28582+01	0,10946+00	63.943	14,093
R1	NO.	5	4	16	33680	0,9887E+00	0,20406+64	0.4882E+00	0,1371E+00	23,303	1,496
R1	ND.	6	4	16	24920	0,1160E+01	0,22855+04	0.8077E+08	0,17172+00	46.508	3,400
R1	ND.	7	4	16	32800	0,8430E+00	0,12232+04	0.54272+00	0,81436-01	27,333	0,422
R1	NO.	8	4	95	42000	0,84922+00	0,1970E+03	0,7313E+00	0,1346E+01	26,752	0.000
-B1	NO.	9	4	4	46800	0.5704E+00	0,41186+04	0.2490E+00	0,1259E+00	53,952	3,500
RI	ND.1	0	4	36	47900	0,2610E+01	0.1214E+05	0.20062+01	0,2008E+00	27,322	5,875
R1	ND.1	1	4	53	46860	0.6772E+00	0,1313E+04	0.65255+00	0,24845+00	22.869	1,455
RI	N0-1	Z	4	3	42080	0,7749E+00	0,1019E+05	0.28476+00	9,1085E+00	66,803	12,780

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					DUANE	4.3 (Cont'd) HODEL	۲۰ مع		•	
					G R O U N D C O M M U N I N = M O U	NICATIO	DN S			
		573NO	NO.FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE
R3	ND. 1	2	2 0	3415	0,8683E+00	0.10842+03		0,1130E+00	15,286	3.80
R3	NO. 5		10	4536	0.8273E+00	0,2805E+03		0,1525E+00	49,836	0.5
					DUANE	NODEL				
					G R D U N D S Y S T E H	SYSTE - RADAR	R M			
		373NO	NO, FAIL	HOURS	FIELD	• 3				
81	NO. 1	16	24 24		P1	P2	P3	P3	RBAR	RE
Ri	ND. 5	1 der	178	2513	0,39651+00	0,1220E+02		0,55808=01	16,700	0,0
R1	NO. 3		170	24604	0,0049E+00	0.13846E+01	0.62538+00	0,3221E+00	11,832	0,1
R1					0,98988+00	0,1384E+03		0,1242E+00	10.020	1.0
	NO. 4		244	7849	0,5577E+00	0,4112E+00	0,512LE+00	0,1160E+01	19,546	0,1
2 ^{R1}	NO. S		114	4382	0,43162+00	0,7511E=01	0,38062400	0,1024E+01	24,520	fr . C
R1	NO, 6		148	18304	0,70512+00	0,1529E+02	0.42746+00	0,7537E+00	12.626	0,4
R1	NO, 7		57	9165	0,5844E+00	G. 9064E+01	0,47822+00	0,6658E=01	12,472	0.0
R1	NO. 8	11	200	7574	0.0010E+00	0,250**+01	0.5986E+00	0,6307E+00	13,817	0.

				SYSNO	NO.FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE
•	RS	NO.	J. Vice destinations	1 1	14	2076	0.73402+00	0.56992+02	0.4966E+00	0,1338E+00	26,301	0,303
4	RS	NO.	2	1	53	5085	0,7450E+00	0,2464E+02	0.4172E+00	0,1306E+00	14,431	0,223

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TABLE4.3 (Cont'd) DUANEMODEL GROUND SYSTEM SYATEM-MICHGWAYE FIELD Cint

		SYSNG	HO,FAIL	HOURS	P1	54	P3	P4	RBAR	RE
R1	NO. 1	5	17	407	0.1077E+01	0,2930E+02	0,7587E+00	0,2399E+00	30,721	1,547
R1	NO. 2	5	54	3031	0,7311E+00	0.12948+02	0.5945E+00	0,2287E+00	13,655	0,260
R1	NU. 3	5	32	1373	0.1608E+01	0,1783E+03	0,1279E+01	0,1243E+00	102.292	54,715
R1	ND. 4	5	48	7124	0,5474E+90	0.6044E+01	0.44592+00	0,3582E+00	24,447	505,0
Rį	NO. 5	5	44	5995	0,1003E+01	0.0109E+02	0,7938E+00	0,3725E+00	19,322	5.042
Rı	NO, 6	4	135	42076	0,9572E+00	0.25028+03	0.8465E+00	0,24162+00	8.440	0.740
R1	NO. 7	4	353	46856	0.6839E+00	C,1004E+C2	0.4335E+00	0,1321E+01	16,772	0,033
R1	ND. 5	4	299	47896	0,8059E+03	0.4060E+02	0.7442E+00	0,2672E+01	20,646	0,286
R1	NÜ. 9	4	201	46798	0.5781E+00	0.43526+01	0,5237E+00	0,2599E+01	23,697	0,886
R1	NO.10	5	5	161	0,1074E+0;	0.3595E+02	0.37482+00	0,8591E=01	43,600	11,435
R1	NO.11	5	29	2767	0,8116E+00	0.43666+02	0.6254E+00	0,17308+00	16,466	0,547
3 R1	N0.12	4	183	35400	0,9037E+00	C.1110E+03	0.4145E+70	0,1643E+01	19,990	1,454
R1	NU.13	4	477	42618	0.0901E+00	0.5601E+01	0.64852+00	0,27522+01	16,832	1,727
71	NO.14	4	360	32800	0.7064E+00	0.78902+01	0,65722+00	0,1212E +01	17.411	0.212
R1	NO.15	4	203	24+20	0,7576E+00	0,23425+02	0.6857E+00	0,4503E+00	17,024	1,047
81	N0,16	.4	302	33680	0,70962+00	0.2665E+02	0.7336E+00	0,1064E+01	13,693	1,858
:R1	NU.17	4	181	41794	0,9725E+00	0,19932+03	0.8759E+00	0,3029E+01	30,463	0,871
R1	NO.18	4	184	51440	0,7078E+00	0.3247E+02	0.43812+00	0,4233E+00	10,589	0,226
R1	NO.19	4	544	40840	0,72665+00	0.8010E+01	0.68582+00	0,1991E+01	14,568	1,155
R1	ND,20	4	184	18240	0,6412E+00	0.53518+01	0,57802+20	0.16682+11	23,048	0,025

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TABL^E0⁴C³E^Cont'd IBN H^E0⁴C³E^Cont'd GROUND BYBTEM ANTENNA FIELU

		SYSNG	ND,FAIL	HOURS	P1	P 2	P3	P4	RBAR	RR
a1	NO. 1	12	7	18304	0,1392E-02	0.30612+01	0.7466E=03		50,730	3,589
R1	NO. 2	12	3	24804	0.1829E-02	0.1189E+02	0.7718E-03		90,845	5,285
R1	ND. 4	5	9	3032	0,1455E+10	0,8604E+01	0.23406-02		11,970	0,015
R1	N0 6	5	6	7124	0,2067E=03	0,4328E+01	0.2245E=02		11,742	0,010
R1	ND. 7	5	4	2663	0,1854E-02	0,1123E+03	0,1767E=09		12.019	1,553
R1	NO. 8	5	7	407	0,19062-01	0,1526E-04	0.1263E-02		38,040	1,230
R1	N0, ¢	t	18	42080	0,3483E=03	0.66462+00	0.4160E-02	-	14,183	0,241
R1	NU.10	4	14	46500	0,1455E=10	0.14162+02	0.5782E-04		15,715	0,855
R1	ND.11	4	23	47900	0,3756E=03	0.5367E+01	0.1528E=03		12.228	0,741
Ri	N0,12	4	41	46860	0.9837E-03	0,28232+03	0.23282-09		32,315	1.040
R1	NO,15	4	73	46840	0,64286-03	0,33C2E+02	0.6683E=04		11,278	1.001
R1	NO.14	4	13	51440	0,2168E=03	0,1526E-04	0.1000E=02		24,190	1.300
R1	1.0.15	4	28	31798	0,54372-03	0,50332+01	0,50632-03	40%	19,326	0,320
R1	N0.16	4	33	18240	0.1455E-10	0.3546E+02	0,1368E=03		16,753	1.081
R1	NO.17	4	35	33680	0,1022E=02	0.1526E-04	0,1213E=02		14.076	1,38
R1	ND.19	4	61	32800	0,1463E-02	0.8415E+01	0.73428-03		11,535	0,11
R1	ND.20	4	80	42000	0,1455E-10	0.1090E+03	0,4048E=04		11.760	0,91
RL	N0.21	4	22	35400	0,6631E=03	0,3638E-11	0,53215-03		19,765	1,23

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		SYSHO	NO,FAIL	HUURS	P1	P2	PS	P4	RBAR	PE
83	ND. 1	1	4	3038	0,2581E+02	0,77622+02	0,3725E-06		284,738	4,10
R3	NO, 2	1	5	5085	0,1434E+02	0.1044E+01	C.3603E+00		2,861	C.01
R3	NO. 3	18	4	10.33	0 13805-02	0,95378-06	0.21825-02		281,533	1034,37

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		SYSND	NO, FAIL	HOURS	• 5	P2	P3	P4	RBAR	RE
2R1	NO. 1	16	16	2513	0,3328E=03	0,9537E=06	0.75746-01	-	8626,160	4156,031
81	ND, 2	12	99	24804	0.1409E-01	0.78415+02	0.0810E-03		80.980	30,417
R1	ND, 3	11	70	6751	0,1079E=01	0.1819E-11	0.9628E=03		170,848	2,219
RS	ND. 5	12	4	714	0,5821E-10	0.3793E+02	0.1680E=03		61,010	4.700
R1	NO. 6	12	77	18304	0,6614E-02	0.51962+01	0,3002E-03		33,699	4.164
R1	NO. 7	11	71	4382	0.1409E=02	0,16582+02	0,4655E=03		523,787	42,122
81	ND. 8	11	124	7574	0.64162-02	0.15268-04	0.1676E-02		297.066	40,612

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			SYSNO	NU,FAIL	HOURS	P1	24	P 3	P4	RBAR	RE
	R1	NO. 2	4	259	46860	0,6725E-02	0,8415E+02	0,2833E-00		54,237	2,185
	<u>R1</u>	ND. 3	ų	240	47899	0,4784E-02	0.52788+02	0.3810E=08		43,458	1.706
	R1	ND. 4	4	103	46798	0,5865E=02	0,69262+02	0,2852E=04		56.191	2,275
	R1	NO, 5	5	10	402	0,2010E=01	0,5163E+01	0,12108-08		20,263	1,177
(.	R1	ND. 6	5	40	2003	0,3553E-14	0,91952+02	0,21948-03		14.737	1,343
	R1	NO. 7	5	26	1373	0,1475E=01	0.1526E-04	0,11802-02		25,443	1.317
ľ	R1	NO. B	5	42	7124	0,21532-02	0,2580E+02	0.1042E-02		9,404	0,079
	81	ND. 9	5	45	3032	0.7105E-14	0,0332E+02	0,4143E+03		10.070	0.784
	R1	NO.10	5	4	1+1	0.28078-01	0.1526E-04	0.2772E-02		36,763	2.810
	RI	ND.11	5	26	2767	0,5960E=07	0,3413E+02	0.4778E-03	· · · · · · · · · · · · · · · · · · ·	16.895	0,358
	R1	NO.13	4	302	42618	0,10252-01	0.7081E+02	0.2345E+09		26.790	1,235
	1 m 1	N0,14	(4)	283	32900	0,9466E=02	0,7937E+02	0,2947E+09		62,130	1,099
	R1	NO.15	4	173	24920	0,84592-02	0.5344E+02	0-3328E=04		30,256	1.511
ł	R1	N0,16	240	251	33680	50-35556,0	50+31548.0	0,3346E-09		: 8.597	1,351
	R1	ND.17	4	149	18240	10-35515.0	0.15255-04	0.23286-04		42,266	2.154
1	R1	NO.18	4	142	41798	50=31216.0	0+1163E+02	0,56682-03	an amerikansya tanga da, Ap da sa amerika	18.794	0,657
r In	R1	ND,19	4	160	51440	0.14558-10	0.20017.+03	0.3366E=04		12.784	0,197
	R 1	NO.20	4	448	46834	0,23902-02	0,3568E+03	0,5419E=04		7.171	0,444

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R1 ND, 1	878ND	NO, FAIL	U U H = N I P1 0,2824E=01	S E P2 0,4576E=04	P3	P 4	RBAR 31.605	RE

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		SYSNO	NO.FAIL	HOURS	P1	P2	P3		-	RE
ND.	1	11	34	11490	0,45078-02	0,2635E+02	0,13416-02		\$0.342	1,021
NO.	5	11	17	4382	0,13286-01	0.10342+03	0.5001E-C3		41,524	3,545
ND.	3	12	30	18304	0,3698E-03	0,3155E+01	0,5885E=03		204.046	70,441
NO.	5	12	4	714	0,23282-09	0,1961E+03	0.8134E-04	_	**.0+3	1,533
NO.	•	11	49	9663	0,30862-02	0,1526E-04	0,1213E-02		122,399	28,747
ND.	7	11	117	10809	0,14556-10	0,42342+02	0.1508E-03		137,652	70,317
NO.	5 9 3	11	177	7849	0,2939E+02	0,1478E+02	0.7009E=02		307.092	\$7,835
	ND. ND. ND. ND.	NO, 1 NO, 2 NO, 3 NO, 5 NO, 6 NO, 7 NO, 9	NO. 1 11 NO. 2 11 NO. 3 12 NO. 5 12 NO. 6 11 NO. 7 11	NO. 1 11 34 NO. 2 11 17 NO. 3 12 30 NO. 5 12 4 NO. 6 11 49 NO. 7 11 117	NO. 1 11 34 11490 NO. 2 11 17 4362 NO. 3 12 30 18304 NO. 5 12 4 714 NO. 6 11 49 9663 NO. 7 11 117 10809	ND, 1 11 34 11490 0,4507E=02 NO, 2 11 17 4362 0,1326E=01 NO, 3 12 30 18304 0,3696E=03 NO, 5 12 4 714 0,2326E=09 NO, 6 11 49 9663 0,3086E=02 NO, 7 11 117 10809 0,14558E=10	NO, 1 11 34 11440 0.4507E-02 0.2635E+02 NO, 2 11 17 4382 0.1328E-01 0.1039E+03 NO, 3 12 30 18304 0.3698E-03 0.3155E+01 NO, 5 12 4 714 0.2328E-09 0.19461E+03 NO, 6 11 49 9663 0.3086E-02 0.1526E-04 NO, 7 11 117 10809 0.1455E+10 0.4239E+02	ND, 1 11 34 11490 0,4507E=02 0,2635E+02 0,1341E=02 NO, 2 11 17 4362 0,1326E=01 0,1039E+03 0,5601E=03 NO, 3 12 30 18304 0,3696E=03 0,3155E+01 0,5685E=03 NO, 5 12 4 714 0,2328E=09 0,1961E+03 0,6139E=06 NO, 6 11 49 9663 0,3086E=02 0,1526E=04 0,1213E=02 NO, 7 11 117 10809 0,1455E=10 0,4239E+02 0,1596E=03	ND, 1 11 34 11490 0.4507E-02 0.2635E+02 0.1341E-02 NO, 2 11 17 4362 0.1328E-01 0.1039E+03 0.5601E-03 NO, 3 12 30 16304 0.3698E+03 0.3155E+01 0.5885E+03 NO, 5 12 4 714 0.2328E-09 0.1961E+03 0.6139E-06 NO, 6 11 49 9663 0.3086E-02 0.1526E-04 0.1213E-02 NO, 7 11 117 10609 0.1455E+10 0.4239E+02 0.1596E-03	ND, 1 11 34 11440 0.4507E-02 0.2635E+02 0.1341E-02 10.342 NO, 2 11 17 4362 0.1326E-01 0.1034E+03 0.5601E-03 41.324 NO, 3 12 30 18304 0.3646E-03 0.3155E+01 0.5665E+03 204.044 NO, 5 12 4 714 0.2328E-04 0.1941E+03 0.6134E-04 46.043 NO, 6 11 44 463 0.3066E-02 0.1526E-04 0.1213E-02 122.354 NO, 7 11 117 10604 0.1455E+10 0.4234E+02 0.1546E-03 137.452

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T A B L E 4.3 (Cont'd) I B M M O D E L G R O U N D B Y S T E M D I S P L A Y F I E L D

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			578NO	NO, FAIL	HOURS	P1	24	P3	P 4	RBAR	RE
	82	NO. 1	8	15	9425	0.55948-03	0.1146E+02	0.4974E-03		82.840	0,506
	R2	NO. 2	8	7	8246	0,8515E=03	0,1842E+01	0.1181E=02		25.775	0,302
	82	NO. 3	8	16	7570	0,1665E=02	0,15268+04	0,11418-02		117,097	12,913
	R2	ND. 4	8	11	9425	0.1050E-02	0,3628E+01	0.2792E=03		36,291	7,367
	R2	NO. 5	8	15	45376	0,14256-03	0,10862+02	0.20506-03		10,333	0,069
	82	ND.	8	4	22037	0,1455E-10	0,4105E+01	0.20158-03		7.524	0.015
	R2	ND. 8	8	17	8979	0,13338-02	0.10032+01	0,78958-02	_	26,267	2,015
	R2	ND. 9	8	18	11916	0,6038E=03	0,1082E+01	0,1688E-02		101.815	182,531
20	R2	NO.18	8	14	44314	0,3408E-03	0.1406E+01	0,4096E-02		7.504	0,149
۰	RZ	NO.19	8	9	45376	0,5080E=04	0.7505E+01	0,1096E-03	ville de Sance chim	20.021	0,095
E .	R2	N0,20	8	٠	33328	0.56022-03	0.1526E-04	0.44418-15		17,639	1,308
	⁴ 12	N0.55	8	16	45477	0,2519E-03	0,5549E+01	0,1997E=02		9,311	0,012

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6	R	0	V	N	0		3	¥	8	Ť	Ł	M
D	1	8		L	-	Y	80	947 - 5 Paller				and a super-

R3 N0, 2 2 12 6336 0,4121E=03 0,9423E+01 0,6386E=03 9,993 0,1												
R3 N0, 2 2 12 6336 0,4121E=03 0,9423E+01 0,6386E=03 9,993 0,1				SYSND	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
	R3	NO.	1	17	Marrie Martine San Arag	3784	0.2567E=02	0.1526E-04	0,4163E-16		192.478	1,563
R3 N0, 3 2 8 4576 0,1360E=02 0,3408E+01 0,2487E=02 26,916 0,0	R 3	NO.	S	2	12	6336	0,4121E-03	0,9423E+01	0.03862-03		9,993	0,121
	R3	NO.	3	5	8	4576	0.13008-02	0,3408E+01	0,2487E-02		26.916	0,059

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T A B L E 4.3 (Cont'd) I B H M O D E L G R D U N D S Y S Y E H D I B P L A Y I N = H O U S E

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				SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
16	82	N0.	1	8	105	2700	0,25045+02	0,4817E+02	0.2693E-02	-	5.379	0,011
	RZ	ND.	S	C	100	3200	0,9932E-02	0,6413E+02	0,3050E-02		2.776	0.003
	RZ	NÖ.	3	8	50	3700	0.6600E+02	0,35592+02	0.4109E-02		30.021	0,188
	58	ND.	4	8	33	3700	0.24076=05	0,30786+02	0.42765-02		28,149	0,203
16	82	ND.	5	8	16	2500	0.32028-02	0,7455E+01	\$0+55433+05		12.017	0,265

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				SYSNO	NO.FAIL	HOURS	P1	65	P3	₽4	RBAR	RE
ŧ.	00 R3	NQ.	1	7	17	2193	0,10608=01	0.1526E=04	0.1491E=02	n speakt for Valder passion of	127.393	2,136
£	*3	ND.	2	7	32	2248	0,2416E=02	0,24875+02	0.10738-02		23,497	0,788
	RS	ND.	3	7	12	3322	0.2013E=02	0,1991E+02	0.8510E-04		21.686	1,229
C	RS	NO.	4	2	584	3415	0.2328E=04	0.55376+93	0.43788-03	Latitivity and the second	5,674	0,325
0	RS	ND.	5	2	211	4536	0,5458E-01	0.11014+03	0.13688-16		19.117	1,301
	RS	ND.	6	1	٠	4659	0.3412E-02	0.3052E=04	0.1507E-02		89,768	1,598
C	R3	NO.	7	1	15	6144	0.23288-09	0.3841E+02	0.15276+03		14,551	1,931

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1. 8.4 3 T A B L E 4.3 (Cont'd) I B M H O D E L G R O U N D S Y S T E C O M P U Y E R F I E L O ٠ YSTEM £ SVSND NO, FAIL HOURS PI 24 P3 •4 RBAR RE € R1 NO. 1 11 34 0.99602-02 11490 0.5608E+02 0.5223E-03 77.341 4,508 . ND. 2 11 33 € 5703 0.1057E-01 0.26832+02 0,4375E-02 47.550 0,909 Ri NO. 3 12 1. 9165 0-3203E-02 0,7949E+01 0.1271E-02 05,029 1,725 C R1 ND. 4 15 19 11800 0.32308-02 0.1526E-04 0.1293E-02 23,688 5,009 R1 € NO. 7 15 . 11209 0,9095E-12 0.2571E+02 0,3331E-04 73,126 5,475 R1 NO. 8 15 7 18642 0.6904E-03 0.:624E+01 0.3540E-02 63,350 17.026 1 R1 ND. 9 15 9 16192 0,1455E=10 3.1400E+02 0.1506E-03 45.458 8,226 a R1 NO.19 15 19 23495 0.58388-03 0,24492+01 0.5038E-03 10.845 0.194 R1 NO.13 15 20 15750 0,11386-02 0,5832E+C1 0.5075E-03 32.217 10,173 R1 NO.14 15 16 13960 0.1455E-10 0.43336+02 0.7167E-04 46,885 95,050 RI NO.15 15 34 23680 0,4543E-C2 0.2954E+01 0.2214E+00 64,340 8.607 28 R 1 NO.16 11 35 10323 0.1019E-01 0.6618E+02 0.3560E-02 84,844 19,442 .1 NO.17 12 41 24804 0.4379E-02 0.1526E-04 0,9534E-03 58.505 4,934 R1 NO.18 11 36 9833 0.1527E-01 0.1307E+03 0,9084E-03 92,270 24,720 R1 NO.19 11 35 12141 0.83328-02 0.16715+02 0,1888E-02 64,672 6 3,286 ŧ 0 0 1 0 0 4 ŧ 0 0

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						TABLE4 IBMMC GROUND COMPUT FIELD	DEL DYSTE	Е М			
			SYSNO	NU,FAIL	HOURS	91	29	P3	P4	RBAR	RE
R3	ND.	1	17	10	3965	50-30897,0	0.61148401	0,12038-01		80.460	1.904
RS	NO.	2	2	16	4576	0.26198-02	0.48352+01	0.1095E-01		12.648	C.032
R3	ND.	3	2	•	6330	0,14968-02	0.14588+01	0.21682-05		9,323	1,406

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1	N	•	Η	0	U	8	E				

			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	HBAR	RE
R1	NO.	1	11	46	4467	0,23885-09	0,24512+02	0,36232-02		34,172	1,808
R1	NO.	2	14	12	2043	50-31046.0	0,15268-04	0.12885-02		2462,302	10,943
	NO.	3	14	43	11189	0.33446-02	0.1398E+01	0,4630E-02		24,227	3,364
R1	NO.	5	1.0	•	2792	0,1804E-01	0,1526E-04	0,2084E-03		73,466	39,874

IBH NODEL GROUND BYBTEH COMPUTER IN + HOUSE SYBND NU, FAIL HOURS P1 P8 P3 P4

R2 ND. 1		SYEND	NO, FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE	
	NO	ND. 1	13	10	1540	0,1334E-02	0,31252+01	0,1254E=01		147.208	60,421
			der	i ang.				-	Walds and a suggestive a		
							development restore		a	a. w workspringe System assessments. How we	
TABLE 403-(Cont'd) IBH HUJTE(Cont'd) GROUND SYSTEH COMPUTER IN-HOUSE

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			SYSNO	NU.FAIL	HOURS	P1	54	P3	P4	RBAR	RE
R3	NO.	1		10	1726	0,11918-01	0,1526E=04	0.1682E-02		4558,773	1,557
R3	ND.	s	9	25	1 455	0,5960E=07	0,5434E+02	0.2192E-02		41,102	0,733
R3	NO.	4	•	3	3105	C. 6726E=03	0,8120E+01	0,5950E=03		257,963	457.616
R3	NO.	5	2	74	3415	0.5960E-07	0,8373E+02	0.70922=03		3,347	0.035
R3	NO.	6	S	67	4536	0.3211E-03	0.6817E+02	0.8175E-03	k	10,628	0,313
R3	NO.	7	1	5	8513	0,6758E=03	0,2868E+01	0,2434E-05		22.429	1.661
RS	NO.	8	1	4	6339	0,83582-03	0.15262-04	0,1110E-15		18,724	1,043

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B L E 4.3 (Cont'd) M N O D E L O U N D S Y S T I M M U N 1 C A T I C E L D T I A 8 GCF ROI ē 8 N NO, FAIL HOURS 23 RBAR RE SYSND PS 54 P4 0.1164E=09 ND. 1 14 35400 0.52618-03 0,4123E+02 786,65 1,098 4 NO, 3 4 11 52440 0,22558=03 0.9537E=06 0.1777E-02 7.374 1,242 41798 0.20605-03 0,1526E-04 0,1000E+02 32,452 1,508 NO, 4 11 ٥ ND, 5 16,347 16 33080 0.02158-03 0.1526E-04 0.1147E-02 1.416 4 0.6477E=02 27,415 1.084 NO. 6 4 16 24920 0.66275-03 0,4045E-11 11,956 0,5433E=03 0,135 ND. 7 4 16 32800 0,3634E=03 0,30786+01

0,36572+01

0,4342E+01

0.1526E-04

50+34454.0

0,2847E-02

0.10902-03

0,6713E=01

0.1867E=04

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0,22532-02

0.90958-12

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0.27268-11

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-	-		Nev to a summer of		age in tangangana		ICATIO	N 8			
			SYSNO	NO, FAIL	HOURS	Pi	P2	P3	PA	RBAR	RE
R3	ND.	1	2	20	3415	0, 90952-12	0,1306E+03	0.5920E-04	esperandonially an over the education of the	7,148	1,026
85	ND.	2	2	10	4536	0,25478-02	0.3403E+01	0,1455E-10		83,080	1,225



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12,173

29,625

15,173

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0,249

1,332

1,277

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											4.
						FIELD	- R A D A R			· P ·	
		-	SYSNO	NO.FAIL		P1	•2	P3	P4	ROAR	
R1	ND.		11	178	6751		0,8831E+01			477.150	194
R1	NO.		11	244	7849		0,1087E+03		3	22,312	0
R1 R1	ND.		11	114	4382		0.1526E-04			2517,703	264
	ND.		12	57	9165		0,3554E+02			330,250	243
R1	NO.		11	200	7574		0.4082E+01 0.1504E+02			368.554	142
										444,606	384
						I B M M O G R O U N D S Y S T E M	5 Y S T E • R A D A R	H			
92						I N . H O U	S E				
R3	NO.		SYSNO	NO,FAIL	HOURS	P1	*2	P3	P4	RBAR	
R3	NO.		1	14	2076		0,1544E+01 0,8943E+02		-	10,516	0
						I B M M O				31,106	•
						GROUND		.			
			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
R1	NO.	1	,	34	1122	0,2717E-01	0,2471E+01	0,3264E-01		13,764	0
	·								\		*****
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T A B L E 4.3 (Cont'd) I B M M O D E L G R O U N D S Y B T E S Y B T E M = M I C R O F I E L D TEM A V E

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		\$Y\$N0	NO.FAIL	HUURS	P.1	P2	P3	P4	RBAR	RE
R1	ND. 1	5	17	407	0,4535E=01	50+30000,0	0.3730E-04		19,739	1,102
<u>81</u>	N0, 2	5	54	3031	0,5960E=07	0+6275E+02	0.0058E-03		6,521	0,123
R1	NO. 3	5	32	1373	0,1910E=01	0,1526E-04	\$0-35 9 51,0		25,447	1,302
R1	NO. 4	5	48	7124	0,2567E=02	0,2830E+02	0.1213E-02		9.451	0,092
R1	NO. 5	5	44	2002	0,18022-01	0,1045E+03	0.2324E-09		18,562	1,070
Ri	NO. 6	4	135	42076	0,8606E-03	0.14672+03	0.2239E-04		5,734	0,576
	ND. 7	4	323	40856	0,82908-02	0,76668+02	0,5821E-10		43,226	2,032
81	NO. 8	4	299	47896	0,5836E+02	0.5203E+02	0.23282-04		56,898	1,540
81	ND. 9	4	201	46798	0,6313E-02	0.7182E+02	0.30198-09		54,535	155,5
P1	ND.10	5	5	161	0,5960E-07	0.6977E+01	C.0197E-02		7,093	0,328
.R1	ND.11	5	29	2767	0.5960E-07	0.38396+02	0,48748-03		15,167	0,425
RI	N0.13	4	477	42618	0,1519E=01	0,7572E+02	0.27452-09		21,072	1,709
R1	ND.14	4	360	32800	0.1170E-01	0,8450E+02	0,2831E-08		58,946	1,920
R1	N0,15	4	203	24920	0.9731E-02	0,54212+02	+0-33285-04		25,194	1,421
R1	N0.16	4	302	33680	0,58218-10	0,5701E+03	0,2460E-04		8.501	0,989
R1	NO.17	4	101	41794	0,3920E+02	0.1374E+02	0,6258E-03		19,019	0,649
R1	NO.18	4	104	51440	0,1455E-10	C.2576E+03	0.25652-04		12,486	0,265
R1	N0.19	4	546	46840	0.5684E+13	0,5540E+03	0,4862E=04		9,086	0,742
R1	NU.20	4	184	18240	0,1370E-01	0,7643E+02	0-31505.0		39,731	2,064
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T A B L E 4.3 (Cont'd) E X P O N E N T I A L M U D E L G R O U N O S Y B T E M A N T E N N A F I E L O 12: - Y

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			SYSNO	NO.FASL	HOURS	P1	P2	P3	P4	RUAR	RE
	R1	NO. 1	12	7	18304	0,60792+03	0.1000E+00	0,1000E+00		32,068	2,630
	R1	NO. 2	12	3	24894	0,5003E+03	0.8096E+00	0.8728E-04		90.550	5,259
	R1	NC. 4	5	9	3032	0,86302+04	0,99552+00	0,1209E-04		12.042	0,015
	R1	NO. 5	5	•	1373	0,1839E+03	0.1014E+01	0,67362-02		3,443	0,029
(R1	NO. 6	5	•	7124	0,4687E+03	0.1526E-04	0.1886E-01		146.704	1,250
(.	R1	NÚ. 7	5	4	2003	0,52558+03	0.1000E+00	0,1000E+C0		12,990	1.500
h ,-	R1	NO. 6	5	7	407	0,5613E+02	0.9769E+00	0,2004E-01		13,254	0,464
ŧ	R1	ND. 9	Щ.	18	42080	0,24528+04	0,1000E+00	0,1000E+00		31.840	1,063
•	R1	ND.10	4	14	46800	0.2204E+04	0.1000E+00	0.19092+00		37,160	1,083
	R1	NO.11	4	53	47900	0.1596E+04	0.1000E+00	0,1000E+00		23.041	1.048
•	Ri	ND.12	4	41	46860	0,96532+03	0.1000E+00	0.1000E+00		29,340	1.026
1	2 *1	NO.13	4	73	46840	0.51028+03	0,1000E+00	0,1000E+00		19.711	1.014
4	R1	NO.14	4	13	51440	0,69616+04	0,1000E+00	0,10002+00		52,552	1,091
(R1	NO.15	4	28	31798	0,1115E+04	0.1000E+00	0,1000E+00		50,349	1.038
(R1	ND.16	4	33	18240	0,36292+03	0,1000E+00	0.1000E+00		31,292	1.032
	Ri	NO.17	4	35	33680	0,10952+04	0.1000E+00	0.1000E+00	No. or an and a second s	18,232	1.030
(R1	NO.18	4	14	24920	0,12986+04	0,10008+00	0,1000E+00		22,044	1.083
ſ	R1	NO.19	4	61	32800	0,4436E+03	0.1000E+00	0.1000E+00		40.173	1.017
	R1	NO.20	4	80	42000	0,3169E+03	0,10002+00	0.1000E+00	-1000000	7,567	1.013
(Ri	N0.21	4	55	35400	0,1805E+04	0.1000E+00	0,10002+00		27,942	1,050

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		SYSND	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
83	NU. 1	1	4	3038	0.4276E+04	0.98982+00	0,55892-04		6,321	500.0
R3	ND. 2	1	5	5085	0,4637E+03	0.21872+01	0.1000E+00		15,223	0,224

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4 3822 0,6557E+03 0,9997E+02 0,9556E=01

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					SYSNO	NO.FAIL	HUURS	P1	P2	P3	P4	RBAR	RE
1		R1	NO.	1	16	16	2513	0,3363E+04	0.1000E+00	0,1000E+00	Any spectrum and any set of the	9643,195	5216,492
		R1	ND.	S	12	99	24804	0,1003E+03	0.8487E+00	0,47916-04		78,943	29,271
	26	R1	N0.	3	11	70	6751	0, 4688E+02	0.1000E+00	0,1000E+00		179,150	2,555
6		R1	NO.	5	12	4	714	0.69062+03	0.86835+00	0,5455E=04		15,653	1,073
		R1	NÜ.	6	12	77	18304	0,1436E+03	0.10002+00	0,1000E+00		29,750	4,789
7		R1	NO.	7	11	71	4382	0,5272E+03	0.8248E+00	0,7723E=04		468,146	38,085
		R1	ND.	8	11	129	7574	0,3472E+03	0.99912+00	0,41152-03		387,092	108,360

T A B L F 4.3 (Cont'd) E X P O N E N T I A L H O D E L G R O U N O S Y S T E M R A D A R I N - H O U S E

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			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
RS	NO.	1	1	28	6369	0.24592+03	0,7825E+00	0,2556E=03		16,400	0,083
#3	ND.	3	18	18	3885	0.5501E+C3	0,98352+00	0,4738E=03		73,885	7.349
R3	NO.	4	18	12	5370	0.1714E+03	0.7979E+02	0,1000E+00		72,392	4,013
R3	NO.	5	18	11	4650	0.2072E+03	0.1000E+00	0,1000E+00		50,330	7,159

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T A B L E 4.3 (Cont'd) E X P Q N E N T I A L M O D E L G R O U N D S Y S T E M M I C R D W A V E F I E L D

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		SYSNO	NO,FAIL	HOURS	₽1	P2	P3	P4	RBAR	RE
R1	NO. i	4	114	42078	0,33826+03	0,1000E+00	0,100CE+00		10,316	1.000
R1	ND. 5	J.	240	47899	0,25522+03	0.8070E+00	0 . 4020E-04		12,241	0.074
R1	NO. 5	5	10	407	0,3904E+02	0,8119E+00	0.3283E=01		18,355	0,917
P1	ND. 6	5	40	2003	0,6241E+02	0,7855E+01	0.1000E+00		13,307	0,852
R1	NU. 7	5	26	1373	0,98128+02	0,1000E+00	0.1000E+00		43,329	1,042
RI	ND. B	5	42	7124	0,80486+02	0.1000E+00	0.4516E+02		47.562	1,025
R1	ND. 9	5	45	3032	0,50736+02	0.5960E=07	0.8344E-01		16,599	1.026
R1	NO.11	5	59	2767	0,11932+03	0.62992+00	0.6317E=03		13,972	0,279
R1	ND . 15	4	147	35400	0,2068E+03	0.1000E+00	0.1000E+00		13,551	1.007
Ri	ND.13	4	302	42618	0,85564+02	0,1000E+00	0.1000E+0r		17,593	1.004
R1	NO.14	4	283	32800	0,76982+02	0,5960E=07	0.80668=01		36,681	1,004
Ri	NO.16	4	251	33680	0,9679E+02	0,1000E+00	0+1709E+03		14,303	1.005
R1	ND.17	4	149	18240	0,6844E+02	0,5960E=07	0.7854E-01		20.730	1,007
R1	ND.18	4	142	41798	C 2577E+03	0,1000E+00	0.1000E+00		32,700	1,132
R1	ND.19	- 4	160	51440	0.4087E+03	0.72402+00	0,1949E-04		9,200	0,125

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							HICRONIN - HOI	NAVE UBE				
				SN0 N0	.FAIL	HOURS	P1	P2	P3	P4	RBAR	
-	RI	ND, 1		. (no man dan mai yar 10, 1	33	1155	0,36978+02	0.68602+00	0,4392E-02		12,857	0
							EXPON		HODEL			
			Addie Wester		-		DISPL				analista an analisa di analisa an	
				5N0 N0		ມດາເອຍ	FIELD			11		
	R1	ND. 1			FAIL	HOURS	P1	P2	P3	P4	RBAR	
	R1	ND. 3		Num Annua -	30	18304	0,4667E+02 0,4756E+03				53,911	2
	R1	NO. 5			4	714	0,1406E+03		0,1000E+00		200,746	47
	2 R1	NO, 6			49	9663	0,3457E+03	-	0,3208E-04 0,1000E+00		*2,558	1
	R1	NU, 7			117	10809	0,20846+03	0.10008+00	0,1000E+00	Conversion of the second se	150,913	43
	81	ND. 9			177	7849					118,612	46
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				angolating A to the set	in magning		talan a sama ana ang katalan sa			entropolitikation opens tiperer vikepe		
t.	2.10				77.275	-		-				- pa 44
	99	20		SAR	19	1.		SAVEN	Contraction (19	100	5.12	
10	100	883	1.1	2.5	2.5	25	6.		36210		212.5	1.
5		2	15	100			18 A			0	**	Vie.
12			445	2.31	11		and services	and and a	1. 1. 1. 1. 1.		64 H.C.N	5

T A B L E 4.3 (Cont'd) HODEL E X P O N E N T I A L HODEL G R O U N D B Y S T E H O I S P L A Y P I E L O N. .

1				. SYSNO	NO, FAIL	HUURS	P1	P2	P3	P4	RBAR	RE
¢.	RZ	N53.	1	8	15	9425	0,2975E+03	0.1000E+00	0.1000E+00		18,820	1,737
	RZ	ND.	2	8	7	8246	0,82528+03	0,1000E+00	0.1000E+00		102.733	2,444
(R2	ND.	3	8	16	7570	0,72462+03	0,1000E+00	0.1000E+00		161,963	24,008
1	82	NO.	4	8	11	9425	0,50632+03	0.1000E+00	0.1000E+00		30,027	6,314
(82	NO.	5	8	15	45376	0.8845E+03	0.1000E+00	0.1000E+00		40.832	1.077
t	RZ	ND.	6	8	4	22037	0.2640E+04	0,1000E+00	0.1000E+00		50.210	1,500
a k	R2	NO.	7	8	9	45059	0.1309E+04	0,10002+00	0.1000E+00		23.809	1,143
	RZ	NO.	8	8	17	8979	0,7000E+03	0.1000E+00	0.1000E+00		22,680	1,088
	#5	NO.	9	٠	18	11916	0.1469E+04	0.1000E+00	0.1000E+00		160.985	380,002
•	RZ	NO.1	8	8	14	44314	0,1865E+04	0.1000E+00	0.1000E+00		72,059	1,083
٠	8 R.	NO.1	9	8	٠	45376	0,1884E+94	0.1000E+00	0.1000E+00		53,101	1,143
	RZ	ND.2	0	8	•	33328	0,1927E+04	0.1000E+00	0.10006+00		19,597	1,250
	25	ND . 2	2	- 8	16	45477	0,3162E+04	0, 95982+00	0.42062-04	1788 1987 1966 197	+,851	0,011
	82	NO.2	3	8	10	45261	0.3188E+04	0.1000E+00	0.1000E+00		38,354	1,125

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						T A B L E 4 E X P O N E G R O U N D D I S P L A		MODEL			
			SYSND	ND.FAIL	HOURS	FIELD P1	P2 -	P3	P4	RBAR	
R3	NO.	1	17	5	3784		0.9545E+00			176,863	1
R3	ND.		2	12	6336	and the second providence of the second second	0,1000E+00			32,016	
R3	NO.		2	8	4576	0,2691E+03	0,4371E+01	0,4282E=01	1.11.11.11.11.11.11.11.11.11.11.11.11.1	35,845	een boo neer wer
						E X P Q N E G R Q U N D D I S P L A I N - H Q U	SYSTE	MODEL			
			SYSND	NO.FAIL	HOURS	P1	PZ	P3	P 4	RBAR	
R2	ND.	2	8	100	3200	0.1799E+03	0,97822+00	0.5767E=04	ala na manana ang ang ang ang ang ang ang ang an	5,838	
88 8	NO.	3	8	50	3700	0.1208E+03	0,9261E+00	0,2535E-03		8,634	1
						E X P O N E G R O U N D O I S P L A I N = H O U	3 7 3 T E	HODEL EM			
			SYSNO	NO,FAIL		P1	12	P3	P4	RBAR	
RJ	NO.		7	17			0,8885E+00			14,059	
R3	NO.		1	32			0,2274E+01			31,416	
R3	NO.			12			0.1000E+00			35,274	
R3	NO.		2	211	4659		0,9110E+02 0,1000E+00	0,34628+02		26.027	
R3 R3	ND.		1	۰ ۲			0,1000E+00			13,717	
2001										1	

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TABLE 43 (Cont'd) EXPONENTIAL MODEL GROUND SYSTEM COMPUTER FIELD

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		878N0	NO.FAIL	HOURS	P1	P2	93	Pq	RBAR	RE
RI	ND. 1	11	34	11400	\$0+4241E+02	0.1000E+00	0.1000E+00		75,200	4,963
R1	ND. 2	11	33	5703	0,7649E+02	0,8945E+00	0.3240E-03		44,985	0.910
R1	NO. 3	12	16	P105	0,17382+03	0,1000E+00	0.10032+00		111,510	8,258
R1	NO. 4	15	1.0	11800	0,35402+03	0,1000E+00	0,1000E+00		15,795	2,348
R1	ND. 5	12	35	10304	0.20076+03	0,1000E+00	0.10002+00		42,612	1,009
R1	NU. 7	15	S 9 2 .	11209	0.1502E+04	0.1000E+00	0.1000E+00		108.011	11,936
R1	NU. 8	15	7	18642	0.11036+04	0,1000E+00	0.1000E+00		66.075	17.844
R1	NO. 9	15	•	19195	0,69657+03	0,1000E+00	0,10002+00		51,578	8,758
81	NO.10	15	19	23495	0,12116+04	0.1000E+00	0.1000E+00		31.564	1,192
R1	NO.11	15	10	15741	0,7724E+03	0,1000E+00	0,1000E+00		16,419	1.864
_R1	NC.12	15	17	23572	0,7024E-03	0,1000E+00	0.1000E+00		35,182	6.060
R1	NO.13	15	20	15756	0.56132+03	0,1000E+00	0,1000E+00		25,991	5,522
R1	N0.14	15	16	13960	0,41302+03	0.1000E+00	3,1000E+00		45,704	88,753
R1	N0.15	15	34	23680	0,1726E+03	0,97826+00	0.1490E=02		68,854	9,986
R1	N0.16	11	35	10323	0,7640E+02	0,95992+00	0,15365-03		84,668	19,323
R1	NO.17	12	41	34804	0,2414E+03	0.10005+00	0,1000E+00		56,143	4.671
RS	NO.18	11	36	4833	0,38092+03	0.97912+00	0.9400E-05		92,135	24,707
R1	NO.19	11	35	12141	0,94256+02	0,83292+00	0,5163E-03		66,111	3,463
	R1 R1 R1 R1 R1 R1 R1 R1 R1 R1 R1 R1 R1 R	R1 ND, 2 R1 ND, 3 R1 ND, 4 R1 ND, 5 R1 ND, 5 R1 ND, 5 R1 ND, 6 R1 ND, 6 R1 ND, 6 R1 ND, 10 R1 ND, 11 SR1 ND, 13 R1 ND, 14 R1 ND, 14 R1 ND, 14 R1 ND, 15 R1 ND, 16 R1 ND, 16 R1 ND, 16	R1 NU, 1 11 R1 NO, 2 11 R1 NO, 3 12 R1 NO, 4 15 R1 NO, 4 15 R1 NO, 5 12 R1 NO, 5 12 R1 NO, 6 15 R1 NO, 6 15 R1 NO, 6 15 R1 NO, 10 15 R1 NO, 10 15 R1 NO, 11 15 R1 NO, 13 15 R1 NO, 13 15 R1 NO, 14 15 R1 NO, 14 15 R1 NO, 14 15 R1 NO, 16 11 R1 NO, 17 12 R1 NO, 18 11	R1 ND, 1 11 36 R1 ND, 2 11 33 R1 ND, 3 12 16 R1 ND, 4 15 19 R1 ND, 5 12 35 R1 ND, 5 12 35 R1 ND, 6 15 7 R1 ND, 10 15 10 R1 ND, 11 15 10 R1 ND, 13 15 20 R1 ND, 13 15 34 R1 ND, 15 15 34 R1 ND, 16 11 35 R1 ND, 16 11 35 R1 ND, 16 11 36	R1 NU, 1 11 36 11400 R1 NO, 2 11 33 5703 R1 NO, 3 12 16 9165 R1 NO, 4 15 19 11800 R1 NO, 5 12 35 16304 R1 NO, 5 12 35 1642 R1 NO, 6 15 7 16642 R1 NO, 6 15 7 16642 R1 NO, 6 15 7 16642 R1 NO, 10 15 10 1572 R1 NO, 10 15 10 15741 S 10 15741 15 10 15741 S R1 NO, 13 15 20 15756 R1 NO, 13 15 34 23600 R1 NO, 15 15 34 23600 R1 NO, 16 11 35 16323 R1 NO, 17 12 41 24604 R1 NO, 16 </td <td>R1NU, 11136114000,4241E+02R1ND, 2113357030,7649E+02R1ND, 3121691650,1738E+03R1ND, 41519118000,3540E+03R1ND, 51235163040,2007E+03R1ND, 7159112090,1502E+04R1ND, 8157166420,1103E+04R1ND, 8157166420,1103E+04R1ND, 101519234950,1211E+04R1ND, 101510157410,7724E+03$2^{R1}$ND, 131520157560,5613E+03R1ND, 131534236800,1726E+03R1ND, 141516139600,4130E+03R1ND, 161135163230,7660E+02R1ND, 161135163230,7660E+02R1ND, 161135163230,7660E+02R1ND, 16113696330,3609E+03</td> <td>R1 ND, 1 11 34 11440 0,4241E+02 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 R1 ND, 3 12 16 9165 0,1738E+03 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 R1 ND, 5 12 35 18304 0,2007E+03 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 R1 ND, 8 15 7 18642 0,1103E+04 0,1000E+00 R1 ND, 9 15 9 15192 0,6965F+03 0,1000E+00 R1 ND, 10 15 19 23495 0,1211E+04 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 R1 NO, 13 15 20 15756 0,5613E+03 0,1000E+00 R1 NO, 13 15 34 23600 0,1726E+03 0,1000E+00 R1</td> <td>R1 ND, 1 11 34 11400 0,4241E+02 0,1000E+00 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 0,3240E+03 R1 ND, 3 12 16 9165 0,1736E+03 0,1000E+00 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 0,1000E+00 R1 ND, 5 12 35 16304 0,2007E+03 0,1000E+00 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 R1 ND, 8 15 7 16442 0,1103E+04 0,1000E+00 0,1000E+00 R1 ND, 9 15 9 15192 0,4665F+03 0,1000E+00 0,1000E+00 R1 ND, 10 15 19 23495 0,1211E+04 0,1000E+00 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 0,1000E+00 R1 ND, 13 15 20 15756</td> <td>R1 NU, 1 11 36 11490 0,4241E+02 0,1000E+00 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 0,3240E-03 R1 ND, 3 12 16 9165 0,1730E+03 0,1000E+00 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 0,1000E+00 R1 ND, 5 12 35 18304 0,2007E+03 0,1000E+00 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 R1 ND, 8 15 7 18642 0,1103E+04 0,1000E+00 0,1000E+00 R1 ND, 9 15 9 15192 0,6965F+03 0,1000E+00 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 0,1000E+00 R1 ND, 13 15 20 15756 0,5613E+03 0,1000E+00 0,1000E+00 R1 ND, 15 15 34 23640</td> <td>R1 NU, 1 11 34 11400 0,4241E+02 0,1000E+00 0,1000E+00 75,200 R1 NU, 2 11 33 5703 0,7649E+02 0,4943E+00 0,3240E-03 44,965 R1 NU, 3 12 16 9165 0,1730E+03 0,1000E+00 0,1000E+00 111,510 R1 NU, 4 15 19 11A00 0,3540E+03 0,1000E+00 0,1000E+00 15,795 R1 NU, 5 12 35 18304 0,2007E+03 0,1000E+00 0,1000E+00 42,612 R1 NU, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 108,011 R1 NU, 8 15 7 16442 0,1103E+04 0,1000E+00 0,1000E+00 51,576 R1 NU, 9 15 9 15192 0,6465F+03 0,1000E+00 0,1000E+00 51,576 R1 NU, 10 15 19 23495 0,1100E+03 0,1000E+00 31,566 R1 NU, 11 15 10 15741 0,7724E+03<</td>	R1NU, 11136114000,4241E+02R1ND, 2113357030,7649E+02R1ND, 3121691650,1738E+03R1ND, 41519118000,3540E+03R1ND, 51235163040,2007E+03R1ND, 7159112090,1502E+04R1ND, 8157166420,1103E+04R1ND, 8157166420,1103E+04R1ND, 101519234950,1211E+04R1ND, 101510157410,7724E+03 2^{R1} ND, 131520157560,5613E+03R1ND, 131534236800,1726E+03R1ND, 141516139600,4130E+03R1ND, 161135163230,7660E+02R1ND, 161135163230,7660E+02R1ND, 161135163230,7660E+02R1ND, 16113696330,3609E+03	R1 ND, 1 11 34 11440 0,4241E+02 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 R1 ND, 3 12 16 9165 0,1738E+03 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 R1 ND, 5 12 35 18304 0,2007E+03 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 R1 ND, 8 15 7 18642 0,1103E+04 0,1000E+00 R1 ND, 9 15 9 15192 0,6965F+03 0,1000E+00 R1 ND, 10 15 19 23495 0,1211E+04 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 R1 NO, 13 15 20 15756 0,5613E+03 0,1000E+00 R1 NO, 13 15 34 23600 0,1726E+03 0,1000E+00 R1	R1 ND, 1 11 34 11400 0,4241E+02 0,1000E+00 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 0,3240E+03 R1 ND, 3 12 16 9165 0,1736E+03 0,1000E+00 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 0,1000E+00 R1 ND, 5 12 35 16304 0,2007E+03 0,1000E+00 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 R1 ND, 8 15 7 16442 0,1103E+04 0,1000E+00 0,1000E+00 R1 ND, 9 15 9 15192 0,4665F+03 0,1000E+00 0,1000E+00 R1 ND, 10 15 19 23495 0,1211E+04 0,1000E+00 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 0,1000E+00 R1 ND, 13 15 20 15756	R1 NU, 1 11 36 11490 0,4241E+02 0,1000E+00 0,1000E+00 R1 ND, 2 11 33 5703 0,7649E+02 0,8945E+00 0,3240E-03 R1 ND, 3 12 16 9165 0,1730E+03 0,1000E+00 0,1000E+00 R1 ND, 4 15 19 11800 0,3540E+03 0,1000E+00 0,1000E+00 R1 ND, 5 12 35 18304 0,2007E+03 0,1000E+00 0,1000E+00 R1 ND, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 R1 ND, 8 15 7 18642 0,1103E+04 0,1000E+00 0,1000E+00 R1 ND, 9 15 9 15192 0,6965F+03 0,1000E+00 0,1000E+00 R1 ND, 11 15 10 15741 0,7724E+03 0,1000E+00 0,1000E+00 R1 ND, 13 15 20 15756 0,5613E+03 0,1000E+00 0,1000E+00 R1 ND, 15 15 34 23640	R1 NU, 1 11 34 11400 0,4241E+02 0,1000E+00 0,1000E+00 75,200 R1 NU, 2 11 33 5703 0,7649E+02 0,4943E+00 0,3240E-03 44,965 R1 NU, 3 12 16 9165 0,1730E+03 0,1000E+00 0,1000E+00 111,510 R1 NU, 4 15 19 11A00 0,3540E+03 0,1000E+00 0,1000E+00 15,795 R1 NU, 5 12 35 18304 0,2007E+03 0,1000E+00 0,1000E+00 42,612 R1 NU, 7 15 9 11209 0,1502E+04 0,1000E+00 0,1000E+00 108,011 R1 NU, 8 15 7 16442 0,1103E+04 0,1000E+00 0,1000E+00 51,576 R1 NU, 9 15 9 15192 0,6465F+03 0,1000E+00 0,1000E+00 51,576 R1 NU, 10 15 19 23495 0,1100E+03 0,1000E+00 31,566 R1 NU, 11 15 10 15741 0,7724E+03<



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	ND 4		NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
R3	ND. 1	•	10	1726	0,4742E+02 0,1639E+02		0,8056E=01	anter ange	2555,655	
R3	NO. 4	•	3	3105	0,1634E+02 0,4013E+03		0,1043E+03 0,1000E+00		17,489	112
RS	ND, 6	2	67	4536	0,24552+02		0,15772+02		669.519 24.407	312
R3	ND. 7	1	5	8513	0,1879E+04		0,1000E+00		34,429	
RS	NU. 8	1	4	6339		0,1000E+00			21,454	
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23 T A E X G R C O F I BLE4.3 (Cont'd) PONENTIAL MODEL OUND SYSTEM MMUNICATIONS ELD € P4 RBAR RE SYSNO NO.FAIL HOURS PI P2 P3 0.1000E+00 32.040 1.083 NO. 1 35400 0.2012E+04 0.1000E+00 R1 4 14 1.043 4 0.1417E+04 0.1000E+00 0,1000E+00 34,030 R1 ND. 2 25 46540 4 0.4557E+04 0.1000E+00 6.945 1.111 11 51440 0,1000E+00 R1 NO. 3 NO. 4 4 41798 0.7969E+04 0.1000E+00 0.1000E+00 47.069 1.111 R1 11 1.071 R1 NO. 5 4 16 33680 0.1841E+04 0.1000E+00 0.1000E+00 16,501 0 1.071 R1 NO. 6 4 16 24920 0,1616E+04 0.1000E+00 0.1000E+00 26,427 0 0.1000E+00 44,685 1.071 4 16 32800 0.1599E+04 0.1000E+00 R1 NO. 7 ٤ R1 NO. 8 4 95 42000 0,3866E+03 0.1000E+00 0.1000E+00 40,486 1.011 0.1000E+00 0.1000E+00 30.808 1,500 R1 NO. 9 4 4 46800 0.3890E+04 0 1.029 47900 0.1000E+00 0.1000E+00 48,766 R1 NO.10 4 36 0.2621E+04 4 23 46860 0.1632E+04 0.1000E+00 0.1000E+00 17,447 1.048 3 R1 NO.11 0 E R G R C O I N TIAL MODEL N €. 104 1 1 0 1 À N 0 RE SYSND P3 P4 RBAR HOURS PZ NO.FAIL -1 0 7.027 0.897 R3 NO. 1 2 20 3415 0.1329E+03 0.1884E+00 0.3040E-02 0,211 19,467 0.28465-02 R3 NO. 2 2 10 4536 0.4151E+03 0.1114E+01 0 £ 0 1 Ter 10 0



¢ A B L X P O R O U Y S T I E L (Cont'd) TIAL MODEL SYSTEM MICROWAVE TA 3 ENNE 4 C G R S Y D F D P3 P4 RBAR SYSNO NO, FAIL HOURS P1 P2 RE NO. 1 5 0,2383E+02 0.58722+00 10-28682-01 19,287 0.889 R1 17 407 NO. 2 5 R1 54 3031 0.7099E=01 18,300 0.3735E+02 0.5960E-07 1,022 R1 NO. 3 5 32 1373 0.64102+02 0.6587E+01 0.1230E+00 24,874 0.883 (5 1,023 R1 ND. 4 48 7124 0.6979E+02 0.1000E+00 0.1106E+03 55,651 NO. 5 5 0 R1 44 2002 0.5884E+02 0.7514E+01 0.1000E+00 15,490 0,906 R1 NO. 6 4 135 42076 0,2919E+03 0.1000E+00 0.1000E+00 9,953 1,008 ¢ R1 NO. 7 4 323 46856 0,9330E+02 0,1000E+00 0,2341E+03 24,230 1.001 4 47896 11,952 R1 299 0,19526+03 0.7425E+00 0.5193E=04 ۰ NO. 8 0.104 R1 NO.10 5 5 161 0,2440E+02 0.3725E-08 0.7427E-01 10,847 1,331 5 29 2767 0.6898E+00 14,888 R1 10.11 0.1603E+03 0.1925E-03 0.416 4 a R1 NO.12 183 35400 0.1744E+03 0.1000E+00 0.1000E+00 16.671 1,004 4 42618 14,032 R1 NO.13 477 0,5689E+02 0.1000E+00 0.4274E+02 1.005 1 3 R1 4 32800 37.146 NO.14 360 0.6321E+02 0.5960E-07 0.7643E-01 1.00 4 302 33680 0.8639E+02 0.1000E+00 0,5031E+03 12,336 1,005 £ RI NO.16 41794 ND.17 4 33,747 R1 181 0.2079E+03 0.1000E+00 1,134 0.1000E+00 0 R1 4 184 51440 0,27812+03 0,6071E+00 0.3824E-04 8.696 NO.18 0.15 R1 ND,20 4 184 18240 0.5689E+02 0.5960E-07 0.7643E=01 19,965 1.000 C (0 0 € . E.s.

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					T A B L E 4 L L O Y D - G R O U N D A N T 5 N N F I E L D	O SYSTEM	MODEL M			
		SYSND	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	ND, 1	12	7	18304	0,1256E+04	0.6048E+06			28,445	0.684
R1	NO. 2	12	3	24804	0,5396E+04	0.4875E+07			42,763	0,714
R1	NO, 3	5	3	2767	-,4802E+02	+. 4698E+06			10,300	0,311
R1	NO. 4	5	9	3032	0,1604E+03	0.5847E+04			61,472	0,911
R1	NO. 5	5	٠	1373	0,1839E+03	0,2993E+04			5,382	0,038
R1	NO. 6	5	6	7124	0,7948E+03	0,1457E+06			126,482	0,631
R1	NO. 7	5	4	2663	0,5191E+03	-,6649E+04			12,853	1.497
R1	NO. 8	5	7	407	0,5844E+02	0.7552E+03			14,165	0,485
R1	ND, 9	4	18	42080	0.2789E+04	0.26548+07			17.013	0,328
R1	NO.10	4	14	46800	0,2308E+04	0,9620E+06			36.717	1.075
R1	NO.11	4	23	47900	0,1673E+04	0.7047E+06			22,332	0,993
381	NO.12	4	41	46860	0,6514E+03	3443E+07			32.300	0.701
RI	ND.13	4	73	46840	0,4857E+03	-,2072E+06			20.643	0,930
R1	NO.14	4	13	51440	-,7150E+04	.,4520E+09			43.717	0.623
R1	NO.15	4	28	31798	0,1241E+04	0.63185+06			43,514	0.774
R1	NO.10	4	33	18240	0,33622+03				29,527	0.976
R1	NO.17	4	35	33680	0.1000E+04	-,9830E+06		1	13,225	0.599

0,9930E+03 +,1938E+07

32800 0,4782E+03 0,1291E+06

42000 0.3218E+03 0.2161E+05

35400 0,8071E+03 -.1316E+08

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						G R O U N D A N T E N N					
			SYSNO	NO.FAIL	HOURS	I N - H O U P1	P2	P3	P 4	RBAR	(RE
R3	NO.	1	1	4	3038	0,3083E+03	0.1974E+05			83,133	0,71
R3	NO.	2	1	5	5085	0,4674E+03	0,3685E+04			18,183	0,21
RS	NU.	3	18	4	3022	0.1880E+03	-,7899E+04			8.764	1,19

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LLOYD - LIPOH MODEL GROUND SYSTEM RADAR FIELO

1							FIELD					
				SYSNO	ND.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
4	R1	ND,	1	15	16	2513	0,8701E+02	0,2042E+04			90,891	0,643
٤	SR1	NŪ.	2	12		24804	0,23512+03	-, 3499E+05			9,524	0,868
C	Ri	NO.	3	11	70	6751	S0+30580.0	0,5074E+03			75,018	0.707
	R1	NO,	4	12	34	9165	0,1+30E+03	0+22412+05		Annual State State State State State	24,638	0,823
C	R1	NO.	5	12)4	714	0.14182+03	9.6161E+04			25,940	0,982
(81	ND.	6	12	77	18304	0,20522+03	0.11772+05			10,999	0,940
C	R1	ND.	7	11	71	4382	0,32952+02	0.6115E+03			72,939	0,852
(R1	NQ.	8	11	129	7574	0,3438E+02	-, 3967E+04			28,054	0,951

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1 1000 1. . T A B L L C Y G R O U R A D A I N • H E 4.3 (D • L N D S R O U S E (Cont'd) NODEL STEM ¢ SYSNO NO.FAIL HOURS P1 P3 P4 24 RBAR RE R3 NO. 1 1 28 6369 0.1342E+03 32,651 0,2237E+04 0,729 ۱ 83 ND. 2 3 2076 0.3454E+03 0.8096E+04 25.927 0.440 R3 18 18 NO. 3 3822 0,1810E+03 0.7389E+04 27,280 0,664 NO. 4 R3 18 12 5370 .,7680E+02 .2577E+07 9,251 0,107 18 11 R3 NO. 5 4650 0,4810E+03 0,5527E+05 8,591 0.234 (C ŧ ŧ 109 ٤ 8 8 8 ¢ 0 0 0 ŧ 1 0

T A B L E 4.3 (Cont'd) L L O Y D = L I P D W H O D E L G R O U N D S Y S T E M H I C R D W A Y E F I E L D

			SYSND	NO, FAIL	HOURS	P1	65	P3	P 4	RBAR	RE
	R1	NO. 1	4	:14	42078	0,3420E+03	0,2272E+05		Advances	9,963	0,962
	R1	N0. 2	4	259	46860	0,1114E+03	0,61402+04			28,123	0,988
	R1	ND. 3	4	240	47899	0.1572E+03	0,1336E+05			55,860	0,915
	R1	NO. 4	4	183	46798	0,1223E+03	-,1307E+04	derrage schalle state	un constan que	21,108	1,005
	R1	ND. 5	5	10	407	0,40976+02	0.3703E+03			19,117	0,951
	R1	ND. 6	5	40	5993	0,6350E+02	0.7375E+03			14,432	0,926
	R1	ND. 7	5	26	1373	-,21726+02	-,10215+06			9,668	0,095
	R.1	ND. 6	5	42	7124	0,91318+02	0,4330E+04			46,411	0,907
	R1	NU, 9	5	45	3032	0,52802+02	0.7665E+03			16,298	0,956
	R1	ND.10	5	4	101	0,3694E+02	0,38452+03	References and appropriate states	10	14.711	0,545
•	R1	N0.11	5	26	2767	0,8955E+02	0,3905E+04			20,197	0.603
	5 R1	ND.12	4	147	35400	0,20512+03	-,1297E+05			13,555	0,983
	R1	NO.13	4	302	42618	0,8384E+02	+,1105E+05			17.487	0,942
	R1	NO.14	4	283	35900	0,78982+02	0.40252+04			36,450	0,964
	R1	NO.15	4	173	24920	0.1016E+03	0,28902+04			23,277	0,991
	R1	NO.16	4	251	33680	0, \$700E+02	1058E+04			14,305	1.002
	R1	N0 . 17	4	149	18240	0,7062E+02	0.24578+04			20,211	0,933
	Ri	ND .18	4	142	41798	0,2966E+03	0,57602+05			30,930	0,938
	R1	NO.19	4	160	51440	0.19982+03	0.2047E+05			22.744	0,835
	81	ND.20	4	448	4+834	50+35649'0	-, 3549E+04			21,325	0,988

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			SYSNO	NO,FAIL	HOURS	I N + H D U P1	S E P2	P3	P4	RBAR
R1	NO,	1	5	33	1155	0,34462+02	0,6105E+03			12,347
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			es sens allaño			G R D U N D D I S P L A	SYSTE	HODEL	anna	
						FIELD				
≓ 	ND.	1	SYSND 11	NO,FAIL	HDUR8	P1	P2 0.1616E+05	P3	P4	RBAR 81,739
R1	ND.		11	17	4382	0,16282+03		aya aya garadgan ayanna - Ana daga - Ana daga - Ana daga -		60,125
R1	ND.		12	30	18304	0,3661E+03				21.090
RL	NO.	4	12	7	9165	0,4078E+03	0,2692E+05		18 Star 16 for an	244,899
RI	NO.	5	12	4	714	0.9710E+02	0,12692+04			22,215
R1	ND.	•	11	49	9663	0.15896+02	0,91668+04			16.619
R1	NO.	7	11	117	10809		-,2180E+05	eppingupaness on a science see	allandrase of research the line	4,601
81	NO.		12	33	24804	-ta ar	-, 9311E+06			20,588
R1	NO.	9	11	177	7849	0.18962+02	0,2632E+03			50,529
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						SYSTEM	HODEL			
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	
82	ND. 1	8	15	9425	0.45572+03	0.8009E+05			28,048	0
R 2	ND. 2	8	7	8246	0,70812+03	0,18932+06			44.562	0
R2	NO. 3	8	16	7570	0.33268+03	J.*084E+05			22,319	0
RZ	NO. 4		11	9425	0,8909E+03	0.18128+06			10,688	0
R2	NO. 5	8	15	45376	0,10562+04	0.52716+04			37,334	0
82	NO. 6	8	4	22037	0.39952+04	0,4825E+07			45.659	0
R2	NO. 7		•	45059	0.14922+04	0.53526+06			9,688	0
RZ	NO. 8	8	17	8979	0.61912+03	-,42628+06			18,599	0
82	ND. 9	8	18	11916	0,5838E+03	0,4832E+05			6.712	0
82	NO.10	8	11	17219	0.1472E+04	0,1930E+05			0.604	1
R2	NO.11	8	3	2237	*.2263E()2	•.1661E+07			3,052	0
IZ RZ	NO.12		4	2247	0.58876+03	0,8690E+05			1.669	0
R2	NO.13	8	3	3335	7.82405+03	0,1672E+06			2.864	0
82	NO.14	8	3	1980		0.1149E+05			14,475	0
82	NO.15	8	3	631	0.43556+02	-,1017E+06			2,404	0
82	NO.16	8	4	3492		-,7436E+05			1,651	0
RZ	NO.17		11	4096		-,1284E+05			3,385	0
R2	NO.18	8	14	44314		0,4358E+06			21,541	0
R2	NO.19	8	٠		0,2417E+04				20,700	0
R2	N0.20	8	6	33328	0.17328+04	94718+06			18.813	1
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						TABLE	4.3 (Cont'd)				
						GROUND		MODEL			
							S E				
			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
R 2	NO.	1		105	2700	0,7006E+01	0.3201E+02			37.010	
R2	N0,	2	8	100	3200	0,1370E+02	0.1119E+03			74,530	
R2	NO.	3	8	50	3700	0,4000E+02	0,8488E+03			85,001	
82	N0.	4	8	33	3700	0,4259E+02	0,2642E+04			118.731	
R2	NO.	5	8	16	2500	0,11836+03	0.5799E+04			31,100	
						G R O U N D	SYSTE				
						0 1 5 P L 4 1 N - H D U	SE				
			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
R3	ND.	1	7	17	2193	0,7289E+02	0.1462E+04			47,602	
= R3	N0.	s	7	32	2248	0.02528+02	0.5324E+03			31,551	
R 3	NO.	3	7	12	3322	0,1521E+03	-,2839E+06			38.338	
R3	NQ.	4	s	384	3415	0.5408E+01	0.7000E+01	the state of the s		9,108	
R3	NO.	5	2	211	4536	0,2186E+02	.,5605E+03			25,824	
R3	ND.	6	1		4659	52615+03	.,9525E+06			6,432	
R3	NU.	7	1	21	6144	0.2171E+03	.1189E+05		. 12 m 1 1	13,253	_
							- Andrewski - A	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			
						19.19.19					
-1-		111	135757	,				1		·····	
103 10	1000		10.000	and the second	CALCER ST					l.	

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							MODEL			
		SYSND	NO,FAIL	HOURS	P1	F2	P3	P4	RBAR	
R1	NO 1	11	34	11490	0.2285E+03	0.21018+05			35,860	_
R1	ND. 5	11	33	5703	0,9256E+02	0.2274E+04			191.189	
R1	NO. 3	12	16	9165	0,4802E+03	0.2941E+05			70.781	
R1	NO. 4	15	19	11800	0,3941E+03	-,4475E+05			10.652	
R1	NO. 5	12	35	18304	0,2453E+03	0.1659E+05			40.598	
R1	NO. 6	16	5	2513	0.4322E+03	0.3738E+05			6.054	
R1	NO. 7	15	9	11209	0,93822+03	0.3044E+06	1		20,138	-
R1	NO. 8	15	,	18642	0.2988E+04	3581E+07			14,533	-
R1	NO. 9	15	9	16192	0.1158E+04	-,1801E+07			12.373	
R1	NO.10	15	19	23495	0.12516+04	0,5972E+06			19,496	-
R1	NO.11	15	10	15741		.6152E+04			8,812	
F1	NO.12	15	17	23572	0,1312E+04	0.5224E+06			13,525	4
5R1	NO.13	15	50	15756		*,2245E+06			10,372	-
R1	NO.14	15	16	13960		*,3378E+05			4.098	
R1	NO.15	15	34	23680	0,6039E+03				20.647	-
R1	NO.16	11	35	10323	0,2195E+03	0.1567E+05			13,768	-
R1	NO.17	12	41	24804		-,3544E+05			26,290	
R1	NO.18	11	36	9833		4830E+04			15,922	
R1	NO.19	11	35	12141	0,2439E+03	0,2829E+05			38,494	
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						.3 (Cont'd) LIPOW	MODEL			
					COMPUT	SYSTER			Y.	
					FIELD P1	92	P3	P4	RBAR	RE
R3	NO 1	SYSNO 17	NO.FAIL	HOURS	G.2993E+03				228.169	0,8
RS	NO. 1	2	16		0.19256+03				96,132	0.5
R3	ND. 3	2	•		0.5970E+03				6.188	0.4
					6 R 0 U N 0 C 0 M P U T T N + H 0 U	ER	MODEL			
		SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	NO. 1	11	46	4467	0,52852+02	0.1555E+04			42,998	0.7
81	NO. 2	14	12	2043	0.1158E+03	0.2765E+03		13	337,224	0,5
1 R1	NO. 3	14	43	11189	0.3404E+C3	+,5315E+05			16,264	0,9
R1	ND. 4	14	45	10666	0.3041E+03	·. 4332E+05			15,137	0.8
R1	NO. 5	14	•	2792	0.2334E+03	0.12948+05			7,252	0,5
						SYSTEP				
		SYSND	NO.FAIL	HOURS		P2	P3	P4	RBAR	RE
RZ	NO. 1	13	18	1540	0,61028+02				19,291	1.0
								0		E Straine

200 0 L E 4.3 (Cont'd) D L I P O W N D S Y S U I F T A G R C O I N BOOM C YUPI HODEL ER YSTEM Ó SYSND NO,FAIL HOURS P1 P2 P3 P4 RBAR RE R3 NO. 1 9 10 1726 0.6780E+02 0.1073E+03 2009.268 A.8 R3 NO. 2 9 0 25 0.2741E+02 2261 0,3915E+03 45,128 0.9 R3 NO. 3 9 24 2370 0.6497E+02 0.3246E+04 68,758 0.70 C R3 ND. 4 9 3 3105 0,41062+02 -.1154E+04 12.626 1,45 R3 NO. 5 2 0 74 3415 0.2547E+02 0.2678E+03 17,350 0,9 NO. 6 R3 г 67 4536 0,3004E+02 0.12732+03 24,823 1.0 0 R3 NO. 7 1 5 8513 .1629E+04 .1552E+08 20,852 0.39 R3 6 NQ. 8 4 1 6339 0.1581E+04 0.5126E+06" 18,414 1.14 1,26 8 117 ۲ ¢ 0 0 0 0 0 £ 8 1 to in D

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			SYSNO	NO.FAIL	HOURS	P1	24	P3	P 4	RBAR	RE
R1	ND.	1	4	14	35400	0.1017E+04	-,9658E+07			35,086	0.74
R1	NO.	2	4	25	46840	0,1110E+04	-,3192E+07			33,904	0,8
R1	NO.	3	42	11	51440	0,4466E+04	1534E+07			6.572	1,0
R1	ND.	4	4	_11	41798	76402+04	51872+09	ang paga ar ang a ng kalan di ka ang kalang ka	a angles an	14,985	0,2
R1	NŪ.	5	4	16	33690	0,14662+04	-, 3700E+07			12,362	0,4
R1	ND.	6	4	16	24920	0,1759E+04	0.66845+06			13,524	0.4
R1	ND.	7	4	16	32800	0,1947E+04	0,18228+07		and a second	29.846	0,5
R1	NO.	8	4	95	42000	0,42488403	0.1777E+06			30.752	0.7
Ri	NO.	9	4	4	46800	0,5489E+04	0.1024E+08			30,126	0,8
== R1	NO.	10	4	36	47900	0,6584E+03	+.5776E+08		eegaan aay oo aa	24,862	0,3
81	NO.	11	4	23	46860	0,1496E+04	1470E+07			18,818	0,9
R1	ND.	12	4	3	42080	0.83802+04	0,1705E+08	a an a spectrum at	 value of the state of the state of the state 	12.906	0,9

LLOYD • LIPOH MODEL GROUND SYSTEM COMMUNICATIONS IN • HOUSE

			SYSNO	ND, FAIL	NOURS	P1	P2	P3	P.4.	RBAR	RE
R3	NO,	1	2	20	3415	0,1337E+03	0.22256+04	description of the state of the		7,423	0,94
R3	ND.	2	2	10	4536	0,42032+03	0,3346E+05			33,882	0,32



					SYSTEM	- MICRON	AVE			
		SYSNO	NO,FAIL	HOURS	Pi	P2	P3	P4	RBAR	,
R1	NO. 1	5	17	407	0,2486E+02	0.1694E+03			.459	0
Ri	NO. 2	5	54	3031	0,3966E+02	0.7068E+03			17.758	0
R1	NO. 3	5	32	1373	0,6533E+02	0.7199E+03			26,896	0
R1	NO. 4	5	45	7124	0.8094E+02	0.6096E+04			53,582	0
R1	NO. 5	5	44	2992	0.5976E+02	0,5923E+03			16.926	. 0
R1	NO, 6	4	135	42076	0,2945E+03	0.14295+05			9.879	0
R1	NO. 7	4	323	46856	0,9405E+02	0.1273E+04			24.472	1
R1	NO. 8	4	299	47896	0,1386E+33	0.1100E+05			43.094	0
R1	NO. 9	4	201	46798	0,1141E+03	4932E+04			21.184	1
R1	NO.10	5	5	161	0,27676+02	0,1552E+03	1	-	10.662	0
R1	NO.11	5	29	2767	0.7784E+02	0,2725E+04			18,359	0
SR1	NO.12	4	183	35400	0,1706E+03	+,2745E+05			15,923	0
R1	NO.13	4	477	42618	0.5712E+02	-,1261E+04	4		14,084	0
R1	NO.14	4	360	32800	0.6487E+02	0.2972E+04			36,838	0
R1	NO.15	4	203	24920	0.9073E+02	0,2388E+04			20.290	0
R1	N0,16	4	302	33680	0.8608E+02	-,3646E+04	1991 A.	-	12,315	0
R1	ND.17	4	181	41794	0,23918+03	0.3673E+05			31,685	0
R1	NO.18	4	184	51440	0,1931E+03	0,1921E+05			19,426	0
R1	NO.19	4	546	46840	0,58888+02	6616E+04			21.108	0

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					FIELD	•				
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	ND. 1	12	7	18304	0.1213E+04	0,6058E+03			26.673	0,63
R1	ND. 2	12	3	24804	0.5307E+04	0.1765E+04			27.315	0.57
R1	ND. 3	5	3	2767	0.1641E+03	-,9257E+03	1.1		10,695	0,34
R1	NO. 4	5	9	3032	0.1302E+03	0.5398E+02			44.449	0.94
R1	NO. 5	5		1373	0.1914E+03	0.42575+02			3,942	0.03
R1	ND. 6	5	٠	7124	0,6081E+03	0.3087E+03			66.511	0.65
R1	NO. 7	5	4	2663	0.5099E+03	-,2027E+02			13,164	1.50
R1	ND. 8	5	,	407	0.5964E+02	0.2170E+02			12,831	0,48
R1	NO. 9	4	18	42080	0.2798E+04	0.1458E+04			14.791	0,25
R1	ND.10	4	14	46800	0,2193E+04	0.5618E+03			33,320	1,10
R1	NO.11	4	23	47900	0,1630E+04	0,4769E+03			22,156	0.99
R1	ND.12	4	41	46860	0.7437E+03	·,2131E+04			26,967	0,70
12 12 12	NO.13	4	73	45540	0.4828E+03	-,2564E+03			19.574	0,94
R1	NO.14	4	13	51440	0.11418+04	-,5231E+05			25,365	0.60
R1	ND.15	4	28	31798	0,1155E+04	0.6826E+03			38,487	0.74
R1	NO.16	4	33	18240	0.3221E+03	-,2097E+03			26,580	0,99
R1	NO.17	4	35	33680	0,1003E+04	7604E+03			13.196	0,00
R1	ND.18	4	14	24920	0.10156+04	1372E+04			15,528	0,61
41	NO.19	4	61	32800	0,45222+03	0.3313E+03	<u> </u>		32.241	0.73
R1	NO.20	4		42000	0,3184E+03	0.6740E+02			8,891	0.9
R1	NO.21	4	22	35400	0.1116E+04	5560E+04			15.648	0.16

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					TABLE4	3 (Cont'd)				
					GROUND					
ę						A				
• • • •		SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
RS	NO, 1	1	4	3038					44,975	
R3		1	5	5085	and the second second				13.881	
RS		18	4	3822					8,927	,
-										
					GROUND	SYSTE	M			
					FIELD					
•		SYSNO	NG.FAIL	HOURS		P2	P3	P4	RBAR	
R1	NO. 1	16	16	2513		0.4276E+02			54,180	
Ra		12	99	24804		+,1310E+03			9,257	
12 81		11	70	6751		0,19995+02			44,826	
RI		12	34	9165		0.1504E+03	1.1.4		25,668	
R1		12	4	714		0.46828+02	1		22.578	
		12	77	18304		0.6871E+02			10.732	
R1		11	71	4362		0,2416E+02			50,074	
R1			129		0.40528+02				23,252	
R1	NO. 8	11	16.	131-	0,40300.00					-
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	1	1.								
			1000							5
			-							
1000		and the second								
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		1100								
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2.35	735-13	a second	5. 3. 6 B	128		and the state of the		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1	- 2 -
. 9	a series hi		C. Maria	1	and the second	CALLER.	in the second		34 199	
1	E CINE -		See See	State ?	the second of		and the second			×.
1993	The states	and the second	1223	15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R. SILLE	Part of the let	and Server and	0		23

6 1 T ABBLE 4.3 (Cont'd) A R O E F M O D E L G R O U N D S Y S T E R A D A R I N • H O U S E 8 SYSTEM 0 SYSNO NO.FAIL HOURS 21 92 PS P4 RBAR RE 6369 0,1296E+03 0,3647E+02 24,804 0,654 R3 NO. 1 1 28 ND. 2 1 3 2076 0.3499E+03 0.6621E+02 18,557 0,369 P3 0.68818+02 22,687 0.609 NO. 3 18 18 3822 0.1773E+03 R3 8.283 R3 NO. 4 18 12 5370 0.26736+03 -,20406+04 0,057 7.842 18 11 0.4914E+03 0.1821E+03 0,223 R3 NO. 5 4650 C ¢ 6 . 0 123 C 0 \mathbb{O} 0 0 \bigcirc C 0 ¢ 1 0

4							3 (Cont'd)			
(11	G R D U N D M I C R D W F I E L D	SYSTEM AVE		ander gan einersten Ang	
	** * `	• • • •	SYSNO	NO FAIL	HOURS	P1	P2	P3 P4	RBAR	RE
1	R1	NO. 1	4	114	42078	0,3397E+03	0.6578E+02	an and a second descent descent and a second second	9,884	0,96
(R1	NU. 2	4	259	46860	0,10578+03	0.4717E+02		26,359	1,00
	R1	ND. 3	4	240	47899	0.14085+03	0,1198E+03		48,788	0,94
	RL	NO. 4	4	183	46798	0,1166E+03	-,1545E+02	and the second s	19,955	1,02
	RS	ND. 5	5	10	407	0,40132+02	0.1064E+02		18.014	0.96
	R1	ND, 6	5	40	2663	50+39959.0	0,1961E+02		14,081	0,96
(R 1	ND. 7	5	26	1373	0,3549E+02	-,76168+03		11,994	0,10
6.	R1	ND. 8	5	42	7124	50+34408.0	0.6528E+02		38,489	0,93
	81	ND. 9	5	45	3632	0.52081+02	0,16942+02		15,013	0,99
1	81	ND,10	5	4	161	0.3696€+02	0.13212+02		12,555	0,41
¢ :	#1	ND+11	5	26	2267	0,88272+02	0,58342+02		18,504	0.5
	R1	NU,12	4	147	35400	0,20202+03	-,5965E+02		12,904	0,9
\$.	124 R1	ND,13	4	302	42618	0,8188E+02	-,9547E+02		16,652	0.9
¢	R1	NO.14	4	283	32800	0,73648+02	0,51502+02		32,991	0,9
	R1	N0.15	4	173	24920	0,4830E+02	0,27382+02		22,485	1.0
C	R1	ND.16	4	251	33680	0.95478+02	-,9224E+01	 and matchings and face - Proper Spin and - Advanced - Management - M Management - Management - M	14,268	1.0
C	R1	NO.17	4	149	18240	0.68402+02	0.37762+02		18,769	0.9
	Ri	ND.18	4	142	41798	0,20242+03	0,21952+03		30.815	0,9
(R1	ND.19	4	160	51440	0.19326+03	0.1368E+03	Makelyste (* 1. ekstelenster 1950) - negesjerettelestelegt - net untersteindere (MAR) (1.1.1.1.1.1)	22.075	0.7
(81	ND.20	4	448	46834	0.08152+02	39872+02		20,217	1.0

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TAGH AR R IN 4, 3 (Cont'd) B00C -EURH N O O € DW TEM A I U \$ £ STSNO' NO PATE HOURS " TPI · RE P 2 P3' RBA'R PZ R1 NO. 1 5 33 1122 0,3411E+02 0,2286E+0 0,57 21,265 (R O E R O U I S P I E L A G F ODEL 6 M NLD D 8 4 DF A C SYSND NO,FAIL HOURS Pt 72 PS P4 RBAR RE Ģ 11490 0.1544E+03 R1 ND. 1 11 34 0,1171E+03 57,431 0,83 R1 NO. 2 11 4382 t 17 0.1461E+03 0,9051E+02 43,936 0,57 12 #1 ND. 3 30 18304 0,99 0,35382+03 0,94842+02 20,583 E. 0.20326+03 #1 NO. 4 15 7 9165 0,94265+02 69,094 1,15 125 R1 12 6 ND. 5 4 714 0.1001E+03 50+3E885.0 14,862 0.29 RL 11 49 15,638 0.94 NO. 6 9663 0.1582E+03 0.8792E+02 € R1 NO. 7 117 4.477 0,43 11 10809 50+35500,0 ₩U1719E+03 C RI NO. 8 12 33 16.311 0,48 24804 -,6941E+03 0.6020E+01 ND. 9 177 R1 11 0.1370E+02 40,797 0,98 ł 7849 0,1668E+02 1 ((C C 1 £ ¢ . Ū

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					G R O U N D	4.3 (Cont'd) MODEL DSYSTE AY	μ	and a second secon		
		373NO	NO, FAIL	HOURS		P2	P3	P4	RBAR	RE
R2	ND. 1		15	4425	0.43242+03	0,1840E+03			24,919	0,819
RZ	NO, 2	8	7	8246	0,0220E+03	0,3027E+03			33,534	0,834
58	ND. 3	6	16	7570	0,31842+03	0,1275E+03			19,010	0,833
42	ND. 4	8	11	9425	0,8835E+03	0,2159E+03			10,253	0.751
82	ND. 5		15	45576	0,9535E+03	0,5130E+03			32,782	0,864
82	NO	8	4	22037	0.3631E+04	0.1603E+04			31,967	0.766
RZ	ND. 7		9	45059	0.15242+04	0,5548E+03	and an an an and a state of the		9,022	0,343
R2	NO. 8	8	17	8979	0.0093E+03	-,5812E+03			18,543	0,803
RZ	ND. 9	8	18	11916	0.5816E+03	0,8310E+02			6,570	0.857
RZ	ND.10	6	11	17219	0.14725+04	0,12932+02		androjo gapan elizardinano adresi	0,544	1,053
126	NO.11		3	2237	0,3502E+03	1000E+04_			1.407	0.007
82	ND.12	٠	4	2247	0.0075E+03	0,2050E+03			500.0	0.006
85	ND,13	8	5	5325	0.87328+03	0.3211E+03	Andrewickie - An an analysis - An and Andrewickie	iga stadi naja da sigan gala gang gala g	1.646	0.011
82	NU.14		3	1980	0,65232+03	0.21818+03			13,208	0.702
82	ND.15	8	3	631	0.11552+03	-, 3712E+03			1.116	0,005
82	ND 16	8	4	3445	0.8706E+03	-,8176E+02	wijster / open	PARTICIPATION AND A CONTRACTOR OF	1,655	0,612
82	NO.17	8	11	4096	0,30002+03	3210E+02			3,426	0,893
R2	NO.18	8	14	44314	0,20598+04	0,5130E+03			15,030	0,265
RZ	ND.19	8	•	45376	0,23762+04	0.1204E+04	Anticipate and a sup-module parameter		21.709	0,462

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		SYSNO	NO.FAIL	HOURS	P3	P2	P3	P4	RBAR	#E
82	ND.20	8	٠	33328	0,1750E+04	*,3539E+03			18,448	1.187
R2	N0.21	8	ذ	45221	0,11322+05	0.18342+64			18,692	0.371
RZ	N0.55	.8	16	45477	0,1271E+04	0.46682+05		1	77,545	0,669
RZ	ND,23	8	10	45261	0,36792+04	0.12302+04	k		8,651	0.340
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	Ť		L	D								

			SYSND	ND, FAIL	HOURS	₽1	P2	P3	P4	RBAR	RE
13R3	ND.	1	17	Patro samo mine Constitutioned	3784	0,04812+03	0,1318E+03			45,129	0,442
RS	ND,	S	2	12	6336	0,31812+03	0.1500E+03			26,776	0.617
R3	NO,	3	2		4576	0,2778E+03	0,7821E+02			28,427	0,531

T A B L E 4.3 (Cont'd A R O E F M O D E L G R O U N D S Y S T E M D I S P L A Y I N - H O U S E

			SYSNU	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R3	N0, 1		7	17	5142	0,6796E+02	0.3519E+02			39,598	0,024
RJ	ND.	2	7	32	2248	0,6010E+02	0.1808E+02			28,944	0,872
RJ	ND, 1	5	7	12	3355	0,2185E+03	-,51228+03			29.009	0,976
RS	NO. 4		5	384	3415	0,5370E+01	0,1221E+01	estadore especializat	_	8,730	0,987
RS	ND.	5	S	211	4536	\$0+30805,0	-,2411E+02			23,418	1.005
R3	NŪ.		1	٠	4659	0,4379E+02	•,2174E+04			8,227	0,047
RS	NO. 1		1	51	6144	0,21472+03	•,5275E+02		and allow tight - spectrum - spec	13,189	0,978

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Ģ	R	0	V	N	D		\$	Y	8	T	E	M
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			\$¥\$N0	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
82	NO.	1	8	105	2700	0,62558+01	0,4644E+01	-	vide and of ag	31,425	0,978
R2	NO.	5	8	100	3200	0.11042+02	0,9863E+01			50.476	0,980
R2	ND.	3	8	50	3700	0,3218E+02	0,2705E+02			59,622	0,902
Sa	NO.	4	8	33	3700	0,23998402	0,4742E+02		randorsgenelatorea) - rapine - r	70,154	1,028
RZ	NO.	5	8	16	2200	0,1113E+03	0,48692+02			28,942	0,887

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	And in case of the local division of the loc	

					TABLE 1.3 (Cont'd) AROEF HODEL GROUND SYSTEM COMPUTER FIELD							
		843N0	NO.FAIL	HOURS	P1	P2	P3	PA	RBAR	RE		
R1	NG 1	11	34	11490	0,21672+03	0,1308E+03			29,314	0.677		
Ri	NO. 2	11	33	5703	0,61252+02	0.4203E+02			100,452	0,936		
RI	NQ. 3	12	10	9165	0,45786+03	0,15902+03			39,132	0,330		
R1	ND. a	15	19	11800	0.39042+03	1118E+03			10.669	0,910		
R1	NO. 5	12	35	18304	0,2331E+05	0,1303€+03			29,435	0,544		
RI	NO. 6	16	5	2513	0,4552E+03	0.15426+03			6,695	0,122		
R1	NO. 7	15		11204	0,91778+03	0,3448E+03			17,295	0,567		
R1	NO. 8	15	7	18642	0,2931E+04	11522+04			14.343	1.019		
R1	NG. 9	15	•	10192	0,1186E+04	1124E+04			12.445	0.601		
Ri	NO.10	15	19	23495	0.12358+04	0.65148+03	antes approximations	Werediseli-thirtic and region	17.319	0,387		
R1	NO.11	15	10	15741	0.6815E+03	-,2603E+02			8,844	1.131		
0.R1	N0.12	15	17	23572	0.12982+04	0,4394E+03			13,000	0,649		
R1	NO.13	15	20	15756	0,72066+03	-,2797E+03	ange over spin	the streement lings a discuss on	10.535	0,799		
	NO.14	15	1.6	13960	0,75228+03	•,4585E+02			4.699	1,002		
R1	ND.15	15	34	23680	0,54058+03	0,2912E+03			19,633	0,704		
81	NO.16	11	35	10323	0,2159E+03	0.73108+02	~d	and any and a straightformary	12,638	0,858		
R1	NO.17	12	41	24804	0.60902+03	0,2433E+03			23,038	1,072		
R1	NO.18	11	36	4833	0.3576E+03	-,1981E+02			15,305	1.037		
RS	NO.19	11	35	12141	0,22848+03	0.1475E+03			32.599	0.724		

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				T A B L E 4 A R O E F I G R O U N O C O M P U T F I E L D	8 Y 8 T E N				
	SYSNO	NO,FAIL	HOURS	P1	PZ	P3	Pa	RBAR	RE
NO. 1	17	10	3465	0,223222,0	0.1677E+02			106,968	0,952

RS

R3

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NO. 2

2

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6576

0,1700E+03

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0.452

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83	NQ. 3	2	9	6336	0,0077E+03	-,37932+03		6,225	0,436
					A R O E F G R O U N D	SYSTEN			
					COMPUT	ER	NA ALAYYA BUYAYA KAYA KAYA KAYA KAYA KAYA KAYA KAYA		

0,9316E+02

						IN + HOU	8 E				
			SYSND	ND.FAIL	HOURS	P1	P2	PJ	P4	RBAR	RE
	NO.	1	11	46	4467	0,48432+02	0.39512+02		and the state of the second se	35,043	0,740
i R1	NO.	2	5 4	12	2043	0,9850E+02	0,4348E+01			77,191	0,596
R1	ND.	3	14	43	11189	0,33448+03	-,1565E+03			16,342	0,932
R1	ND.	4	14	45	10446	0,29988+03	-,1404E+03		nas Anaridanan sapataparata ar	15,141	0,916
81	NO.	5	14	•	2742	0,23318+03	0.6234E+02			6,890	0,463

		•			SYSTE.	H			
	SYBNO	NO, FAIL	HOURS		P2	P3	P4	ABAR	RE
NO. 1	13	18	1540	0,5477E+02	0,4296E+01			13,273	1,060

 $\begin{array}{c} T \land B \downarrow B & 4 & 3 \\ \hline A \land O & E & H & O & O & O & E \\ \hline G \land O & U \land D & S & Y & S & T & H \\ \hline C & O & H & P & U & T & E & R \\ \hline I & N & = & H & O & U & S & E \end{array}$

10- F

			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R3	NŪ,	1	9	10	1726	0,15992+02	0,43872+01		and a constant of the second sec	215,406	1,272
R3	NO.	5	9	25	1922	50+35855,0	0,1203E+02			29,010	0,999
RS	NO,	3	ę ●	24	2370	0,54368+02	0.6494E+02			53,350	0.711
R3	NO.	4	•	3	3105	0,41112+02	-,2304E+02	tion of charges in a second state of the second		12,443	1,470
R3	NO.	5	2	74	3415	50+32045.0	0.10522+02			15,941	0.916
RS	NO.	٠	2	67	4536	0,2867E+02	0.13312+01			23,463	1,030
RJ	NO.	7	1	5	8513	0,31582+03	•,7535E+04	The second distant data as a second		14.685	0,303
R3	NO.	8	1	4	6339	0,15335+04	0,35242+03			16.905	1,283

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TABLE 4_H³ (Cont'd) GRDUND SYSTEM CONMUNICATIONS FIELD

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			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	PBAR	RE
R1_	NÜ,	1	-	14	35400	0.13464+04	•,31322+04	Print or propagation - Haldbackbackare descapes argument		28,294	518, 3
R1	NO.	S	4	25	46840	0,11358+04	-,15862+04			30,715	0,870
R1	NO.	3	4	11	51440	0,4450E+04	.3486E+03				1,054
R1	ND.	4	4	11	41798	0.14032+04	+,5334E+05	Service and an and a		19,201	0,235
R1	ND.	5	4	16	33680	0.15077.+04	-,1757E+04			12,689	0.499
R1	NO.	٠	4	16	24920	0.17785+04	0,6470E+03		1	12,776	0,451
R1	NO.	7	4	16	32800	0.1877E+04	0.1271E+04	MAX THE RESIDENCE OF THE PARTY AND		26,436	0.451
R1	N0.	8	4	95	42000	0.4102E+03	0,64285+03			26,866	0,683
R1	NG.	9	4	4	46800	0.52432+04	0,23102+04		andra ger	27,105	0.809
R1	ND.1	0	34	36	47900	0.1299E+04	-,1663E+05			24,827	0,823
R1	ND.1	1	4	52	46860	0,1511E+04	-,54302+03			17,568	0,766
R1	NO.1	2	4	3	42080	0.8496E+04	0,2712E+04			12.676	0.940

132					A R O E F G R O U N D C O H H U N I N - H O U	S Y S T E	M N S			
		SYSNO	NO, FAIL	HOURS	P1	P2	PS statement and and a statement are trained	74	RBAR	RE
RS	ND. 1	2	20	3415	9.13322+03	0,1691E+02			7.277	0,940
83	NO. 2	5	10	4526	0,42062+03	0.1609E+03	view is	 A Spheroper rederendage 	21.907	0,274

		Bendifilitation for also pro-		-	Alfantasiana adaptation a	-				1
		SYSND	NO,FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE
R1	ND. 1	16	24	2513	0,63178+02	0,3949E+92		-	40,823	0,459
R1	NO. 5	11	178	6751	0,25136+02	0,1327E+62			25,941	0,799
R1	ND, 3	12	170	24804	0,13338+03	-,3214E+03			.061	0,619
R1	NO. 4	11	244	7849	0.1475E+02	0,1212E+02	-		34,328	0,975
P1	NO. S	11	114	4382	0,10992+02	0.1101E+02			67,890	1,031
R1	ND. 6	12	148	18304	0,8287E+02	0.63472+02			15,130	0,768
R1	NO. 7	12	57	9165	0,00702+02	0. 9183E+02	and a state of the	a a constant	49,660	0,697
R1	ND. 8	11	200	7574	0,22648+02	0.1272E+02	L de		23,493**	0,980
133					GROUND	. RADAR				
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
RS	NO. 1	1	14	2076	0,1109E+03	0.43936+02			23,330	0,392
R3	NO, 2		53	5085	0,71068+02	0,21418+02	an dan berkana dan ang Shirahan enganake	nder sinstear diffi des das san auf <mark>100</mark> -102 au er	13.083	0,361

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IN 0 SYSNO NO.FAIL HOURS P3 -72 **P**4 RE P1 Rt NO. 1 34 \$122 0,3106E+02 0,2043E+02 22,923 5 0,630

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T A B L E 4.3 (Cont'd) A R O E F M O D E L G R O U N D S Y S T E M S Y S T E M = M I C R O W A V E F I E L D

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		SYNN	ND.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	ND, 1	5	17	407	0,24328+02	0,81332+01			19,527	0,924
R1	NO, 2	5	54	3031	0,3871E+02	0,18948+02			16,501	0,861
R1	NO, 3	5	32	1373	0,6341E+02	50+30005,0			24.731	0,972
RL	NO. 4	5	48	7124	0,6969E+02	0.7455E+02	watting and a	we show the state	43, 597	0,926
R1	NO. 5	5	44	2002	0.5888E+02	0.1701E+02			16,000	1.005
Ri	NC. 6	4	135	42076	0,2927E+03	0.4845E+02			9,832	0,983
R1	ND, 7	4	323	46856	0,9043E+02	0,7615E+01		e ordennegelie educe e	23,252	1,020
81	NG. 8	4	299	47896	0,12868+03	0.10462+03			39,917	0,918
R1	NO. 9	4	201	46798	0,10912+03	-,4216E+02			19,168	1,017
R1	N0,10	5	5	161	0,2734E+02	0,5869E+01	na sa	je tor vit te naturpitalje u sujere vanog plajneti skoliki kliki slititi	9.835	0.900
R1	NU.11	3	54	2767	0,7679E+02	0.4437E+02			17,432	0,682
RS	N0.12	4	183	35400	0,16692+03	1420E+03			14,955	0,975
R1	NO,13	4	477	42618	0,5424E+02	1943E+02		interally ends this product in the second	13,951	1.000
R1	N0.14	4	340	32800	0,4057E+02	0.4471E+02			33,858	0,989
81	ND.15	4	203	24920	50+31488,0	0.2763E+02			19,758	0,998
• 1	ND.16	4	305	33680	0,8504E+02	-, 34678+02	Jaar viine kulture viiteks ettiläite aitti	váslar ellenen – a kölmességer – sveis verjójalfyjdálkak kölmönsekelekelekelekelekelekelekelekelekeleke	12.127	0,943
R1	ND.17	4	181	41794	0,2270E+03	0.1737E+03			31,596	0,937
R1	NO,18	4	184	51440	0,1883E+03	0,13436+03			19,065	0.772
R1	ND,19	4	546	46840	0.57612+02	8101E+02	t		20.056	0,961
R1	NO,20	4	184	10240	0,56528+02	0.2593E+02			18,586	0,972

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T A B L E 4.3 (Cont'd) S I M P L E E X P O N E N T I A L G R O U N D S Y B T E M A N T E N N A F I E L O

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		SYSND	ND, FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	N0. 1	12	7	18304	0.002E+03	0,96762-04			14,929	0,251
R1	ND. 2	12	3	24804	0,1205E+04	0.8816E-04			19,462	0.078
R1	ND, 3	5	3	2767	0,1705E+04	+.1412E=02			9,986	0,296
R1	NO. 4	5	•	3032	0,5530E+02	0.6424E-03			15.018	0,050
R1	NO. 5	5	6	1373	0,4196E+02	0.1758E-02			55.120	1.671
.81	NO. 6	5	•	7124	0,1446E+03	0.3283E-03			14,748	0,154
R1	ND. 7	5	4	2003	0,4856E+03	0.5261E-04			13.094	1,403
R1	ND ₀ 8	5	7	407	0,2644E+02	0.2696E-02			26,584	0,960
R1	NO. 9	4	18	42080	0.1467E+04	0.1816E-04			21,409	0,663
R1	NO.10	4	14	46800	0,1573E+04	G.1559E-04			20.684	0,688
R1	NO.11	4	23	47900	0,1202E+04	0.12298-04			13,547	0,518
3 R1	NU.12	4	41	46860	0,8208E+03	0.4954E-05			22,665	1,049
R1	NO.13	4	73	46840	0,4211E+03	0,8516E=05		Auge-register date	11,516	C,780
R1	NO.14	4	13	51440	0,22688405	3454E-04			28,626	0,755
R 1	NO.15	4	28	31798	0,5703E+03	0.3112E-04			22.157	0,377
81	ND.16	4	33	18240	0,2877E+03	0.2844E=04	teles ar researches a service de	_	23,251	0,022
R1	N0+17	4	35	33680	0,1394E+04	1431E=04			8,519	0,535
81	ND.18	4	14	24920	0,1733E+04	3678E=04			17.158	0,546
R1_	ND.19	4	61 	32800	0,25258403	0.31062-04	Manufaldure + + Mar	-10-1-10-10-10-10-10-10-10-10-10-10-10-1	16.299	0,294
R1	NO.20	4		42000	0,2793E+03	0,6843E-05			8,604	0,607
R1	N0,21	4	22	35400	0,2412E+04	-,1979E=04			23,758	0,720

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					TABLE4.3 SIMPLE GROUND	EXPON				
						1 A 1 3 E				
		SYAND	NO,FAIL	HOURS	Pl	P2	P3	P4	RBAR	RE
RS	NO. 1	1	4	3038	0,6716E+02	0,1101E-02			15,373	0,045
R3	NO. 2	2 1	5	5085	0,3380E+02	0.1305E=02			113,363	2,425
83	NO. 3	5 18	4	3822	0,24362+03	-, 33428-03			0.264	1,060

BIMPLE EXPONENTIAL GROUND SYBTEM RADAP FIELD

			SYSNO	ND.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	ND.	1	1.	16	2513	0,2317E+02	0,9653E=03		1 - market and an approximate and a second second	36.401	0,561
R1	ND.	2	12	79	24804	0,26991+03	1045E-04			9,413	0,763
136 R 1	NO,	3	11	70	6751	0,2730E+02	0,2504E+03			52,523	0,477
81	ND.	4	12	34	9165	0,1133E+03	0,10962-03		and a sub-date product of the date of the state of the st	18,829	0,416
<u>8</u> 1	NO.	5	12	4	714	0,7350E+02	0.11545-02			10,938	0,171
R1	NU.	٠	12	77	18304	C,1803E+03	0.11++E=04			10,966	0,939
R1	NO.	7	11	71	4382	0,12752+02	0.4615E-03			16,287	0,187
R1	NO.	8	11	129	7574	0,3277E+02	0.7483E=04		alpa, s	10,783	0,925

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						T A B L E 4.3 5 1 M P L E 6 R O U N D R A D A R 1 N + M O U					
			575NO	ND, FAIL	HOURS	P1	PZ	P3	P 4	RBAR	RE
RS	NO.	1	1	28	6369	0,68642+02	0.23278-03			26,387	0,320
R3	NQ.	2	1	3	2076	0,4030E+02	0.2039E-02			52,178	0,848
R3	ND.	3	18	18	3855	\$0+3800#,0	0,3104E-03			25,024	0,683
RS	ND.	4	18	12	5370	0,2000E+04	-,3002E-03			10.340	0,235
R3	NO.	5	1.0	11	4650	0,2936E+03	0.1272E-03			20,333	0,848

TABLE4.3 (Cont'd) SIMPLE EXPONENTIAL GROUND SYSTEM MICRONAVE FIELD

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		SYSNO	ND.FAIL	HOURS	24	P2	P3	P 4	RBAR	RE
R1	NO, 1	4	114	42078	0,3038E+03	0,5074E-05			6.413	r,680
	ND. 2	4	259	46860	0,74695+02	0.2034E-04			8,512	0,105
R1	ND, 3	4	240	47899	0,7313E+02	0.2723E+04			18,118	0,205
F1	ND. 4	4	143	46798	0,8400E+02	0,21655-04		eremer-skulaster min susse ditrikt etimiteret	8,683	0,173
R1	NO. 5	5	10	407	0,33522+02	0,4321E=03			20,848	1,133
R1	ND. 6	5	40	2003	0,6077E+02	-,4914E-05			16,739	1,035
R1	ND, 7	5	26	1373	0,3004E+03	-,1457E-02		a sampler with a manufigurer and game	12,011	0,167
RS	ND. 8	5	42	7124	0,46642+92	0,20452-03			11,478	0,082
R1	NO, 9	5	45	3035	0,42652+02	0.1340E=03			11,075	0,672
R1	ND.10	5	4	1+1	0,14478+02	0.45402-02	a alle and alle	and the state of t	2,332	0,012
R1	N0,11	5	56	2767	0,5333E+02	0.29918-03			15,866	0.375
	ND.12	4	147	35400	0,2276E+03	-,7561E-05			12,840	0,851
27 R1	ND.13	14	305	42618	0,7168E+02	0,11338-04		rate equilibrium on equi strate	11.379	0,850
81	NO.14	4	283	32800	0.4807E+02	0.3145E-04			12,962	0.141
R1	NO.15	4	173	24920	0,7726E+02	0.2460E-04			12,553	0.558
	ND.10	4	251	33680	0,8217E+02	0,11892=04		· · · · · · · · · · · · · · · · · · ·	9,88 7	0,685
RI	ND.17	4	149	18240	0,5056E+02	0.4772E-04			4,329	0,132
R1	ND,18	4	142	41798	0,1823E+03	0,1758E-04			17,936	0,422
R1.	NO.19	atter the	100	51440	0,1285E+03	0,2048E=04		an in an an air air an	11.068	0,210
R1	NO,20	4	648	46834	0,54002+02	0.13898-04			8,629	0,348

									r - 1 - 1 - Line	6 ¹ 4
					TABLE 4.3	(Cont'd)				
					SIMPLE	E X P Q N 8 Y 8 T E A V E	ENTIAL		_	
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	₽4	RBAR	RE
R1	NO. 1	5	33	1122	0,2006E+02	0,6740E=03			18.811	0,636

SIMPLE EXPONENTIAL GROUND SYSTEM DISPLAY FIELD

			878ND	ND, FAIL	HOURS	P1	P2	PS	P 4	RBAR	RE
81	ND.	1		34	11490	0,64498+02	0,1779E=03	Statistic Columbic day symptotic and spin symptotic symptot		18,040	0,192
R 1	ND.	s	11	17	4382	0,5585E+02	0,4447E=03			17,152	0,250
R1	NO.	3	12	30	18304	0,27272+03	0,38488-04			13,925	0.620
3 R1	NO.	4	12	7	9165	0,70982+02	0,33518-03			22,678	0,026
R 1	NO.	5	12	4	714	0,23065+02	0,36336+02			40,316	0,584
R1	ND.	6	11	49	9663	0,1187E+03	0.56415-04			10,008-	0,613
R1	ND.	7		117	10809	0,1071E+03	-,1929E-04			6,991	0,820
81	ND.	8	12	33	24804	0,6905E+03	-,2694E-05			14,593	1,031
R1	ND.	٠	11	177	7849	0,9964E+01	0.22752-03			7.917	0.080



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T A B L E 4.3 (Cont'd) 8 I M P L E E X P O N E N T I A L G R O U N O S Y S T E M D I S P L A Y F I E L D

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	SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
NO. 1	8	15	9425	0,26718+03	0.9704E=04		vià	7,198	0,064
ND, ž		7	8246	0,2996E+03	0.1704E-03			7,478	0.031
NO, 3	8	16	7570	0,2040E+03	0.1137E-03			4,527	0,033
ND. 4	8	11	9425	0,66952+03	0.3810E-04		villes	5,989	0,315
NO. 5	e	15	47376	0.54122+03	0.4704E-04			12.869	0.081
N0. 6	8	4	22037	0,14142+04	0.6187E-04			4,258	0,006
NO. 7		•	45059	0,00122+03	0.4867E-04	an Brah Add		19,680	0,936
NO. 8	8	17	8979	0.12176+04	-,9588E-04			10,178	0,341
ND. 9		18	11910	0.50008+03	0,2169E-04			2,747	0,146
ND.10	8	11	17219	0.14548+04	0.11108+05	nimered a data a data barra a se		0.002	0,002
NO.11	8	3	2237	0,2586E+04	\$717E-03			4,751	0,086
ND.12	8	4	2247	0.35758+03	0.2738E=03			8,737	0,307
ND.13	8	3	2332	0,33058+03	0,4026E-03	and a supervised to an address of	and provide the second	10,959	0,328
N0.14	8	3	1980	0,34176+03	0.35536-03			5,152	0,087
ND.15	8	3	631	0,54432+03	1498E=02			4.397	0,092
N0.10		4	3492	0,97872+03	3155E-04		n., nasapabanananin Maabibibibibibibi at melih Maabipahimahas	0.947	0,197
NO.17	•	11	4096	0,4377E+03	-,2965E-04			2,255	0.407
NO.18	8	14	44314	0,8470E+03	0.39078-04			42.226	0,924
ND.19	8	•	45376	0,97386+03	0.46201-04	elificiplication - and - define d		20.750	0.269
ND.20		•	33328	0.2129E+04	19518-04			17.894	1.158
	ND, 2 ND, 3 ND, 4 ND, 5 ND, 5 ND, 5 ND, 7 ND, 6 ND, 7 ND, 1 ND, 10 ND, 11 ND, 12 ND, 13 ND, 14 ND, 15 ND, 16 ND, 17 ND, 18 ND, 19	N0, 1 8 N0, 2 8 N0, 3 8 N0, 4 8 N0, 5 2 N0, 5 2 N0, 5 8 N0, 7 8 N0, 8 8 N0, 9 8 N0, 10 8 N0, 11 8 N0, 12 8 N0, 13 8 N0, 14 8 N0, 15 8 N0, 16 8 N0, 17 8 N0, 18 8 N0, 19 8	NO, 1 8 15 NO, 2 8 7 NO, 3 8 16 NO, 4 8 11 NO, 5 2 15 NO, 5 2 15 NO, 6 8 4 NO, 7 8 9 NO, 8 8 17 NO, 9 8 18 NO, 10 8 11 NO, 11 8 3 NO, 12 8 4 NO, 13 8 3 NO, 14 8 3 NO, 15 8 3 NO, 15 8 3 NO, 16 8 14 NO, 17 11 14	NO, 1 8 15 9425 NO, 2 8 7 8246 NO, 3 8 16 7570 NO, 4 8 11 9425 NO, 4 8 11 9425 NO, 5 6 15 4*376 NO, 5 6 15 4*376 NO, 6 8 4 22037 NO, 7 8 9 45059 NO, 8 8 17 8979 NO, 10 8 11 17219 NO, 11 8 3 2237 NO, 11 8 3 2332 NO, 13 8 3 2332 NO, 14 8 3 1960 NO, 15 8 3 631 NO, 15 8 3 44314 NO, 16 8 14 44314 NO, 19 8 9 45376	ND, 1 8 15 9425 0,26718+03 ND, 2 8 7 8246 0,29962+03 ND, 3 8 16 7570 0,20608+03 ND, 4 8 11 9425 0,66958+03 ND, 4 8 11 9425 0,66958+03 ND, 5 6 15 47376 0,84122+03 ND, 6 8 4 22037 0,161482+04 ND, 7 9 45059 0,90122+03 ND, 8 6 17 6979 0,12178+04 ND, 9 8 18 11916 0,50008+03 ND, 10 8 11 17219 0,14548+04 ND, 11 8 3 2237 0,25668+04 ND, 12 6 4 2247 0,32758+03 ND, 13 8 3 1960 0,34178+03 ND, 14 8 3 1960 0,34178+03 ND, 15 8 3 651 0,97678+03 ND, 15 8 3492 0,97678+03 0,97078+	ND, 1 8 15 9425 0,26712+03 0,9704E-04 ND, 2 8 7 8246 0,2996E+03 0,11704E-03 ND, 3 8 14 7570 0,2060E+03 0,1137E-03 ND, 4 8 11 9425 0,6695E+03 0,3810E-04 ND, 4 8 11 9425 0,6695E+03 0,4704E-04 ND, 5 8 15 45376 0,5412E+03 0,4704E-04 ND, 6 8 4 22037 6,1414E+04 0,6187E-04 ND, 7 8 9 45059 0,9012E+03 0,4867E-04 ND, 8 6 17 8979 0,1217E+04 -,9586E-04 ND, 9 8 11 17219 0,1454E+04 0,1110E+05 ND,10 8 11 17219 0,1454E+04 0,2738E=03 ND,11 8 3 2332 0,3275E+03 0,2738E=03 ND,12 8 4 2247 0,3275E+03 0,4264E=03 ND,13 8 3532 0,5305E+03 -,1698E=02	NO, 1 8 15 9425 0,26718+03 0,9704E=04 NO, 2 8 7 6246 0,2996E+03 0,1704E=03 NO, 3 8 16 7570 0,2060E+03 0,1137E=03 NO, 4 8 11 9425 0,6695E+03 0,3810E=04 NO, 5 8 15 45376 0,5412E+03 0,4704E=04 NO, 6 8 4 22037 0,1414E+04 0,6187E=04 NO, 7 9 45059 0,9012E+03 0,48647E=04 NO, 7 9 45059 0,9012E+03 0,48647E=04 NO, 7 9 45059 0,9012E+03 0,48647E=04 NO, 7 8 18 11916 0,5000E+03 0,2164E=04 NO, 9 8 18 11916 0,5000E+03 0,2164E=04 NO, 10 8 11 17219 0,1454E+04 0,1110E=05 NO, 11 8 3 2332 0,3305E+03 0,4026E=03 NO, 12 8 4 2247 0,3275E+03 0,4026E=03 N	ND, 1 8 15 9425 0,2671E+03 0,9704E=04 NO, 2 8 7 8246 0,2996E+03 0,1704E=03 NO, 3 8 16 7370 0,2060E+03 0,1137E=03 NO, 4 8 11 9425 0,6695E+03 0,3810E=04 NO, 4 8 11 9425 0,6695E+03 0,4704E=04 NO, 5 2 15 45376 0,5412E+03 0,4704E=04 NO, 6 8 4 22037 0,11414E+04 0,6187E=04 NO, 7 9 45059 0,9012E+03 0,4867E=04 NO, 7 9 45059 0,9012E+03 0,2169E=04 NO, 7 9 45059 0,9012E+03 0,2169E=04 NO, 8 11 17219 0,1217E+04 -,9580E=04 NO, 10 11 17219 0,1454E+04 0,1110E=05 NO,11 8 3 2237 0,2586E+04 -,5717E=03 NO,12 6 4 2247 0,3575E+03 0,4026E=03 NO,13 8 3<	NO, 1 8 15 9425 0,26718+03 0,9704E=04 7,198 NO, 2 8 7 8246 0,2996E+03 0,1704E=03 7,976 NO, 3 8 16 7570 0,2060E+03 0,1137E=03 4,527 NO, 4 6 11 9425 0,6495E+03 0,3810E=04 5,989 NO, 5 7 15 4*376 0,812E+03 0,4704E=04 12,669 NO, 6 8 4 22037 0,1414E+04 0,6187E=04 4,258 NO, 7 9 45059 0,9012E+03 0,4867E=04 10,178 NO, 7 9 45059 0,9012E+03 0,2164E=04 10,178 NO, 7 9 45059 0,9012E+03 0,2164E=04 10,178 NO, 9 8 118 11916 0,5000E+03 0,2164E=04 2,747 NO, 10 8 11 17219 0,1217E+03 0,2734E=03 6,602 NO,11 8 3 2237 0,2256E+04 -,5717E+03 6,737 NO,12 8 3

 $\begin{array}{c} T \ \Lambda \ B \ L \ E \ <_2 \ 3 \ (Cont'd) \\ S \ I \ M \ P \ L \ E \ E \ X \ P \ U \\ A \ I \ R \ B \ U \ R \ N \ E \\ S \ Y \ S \ T \ E \ M \ = \ I \ N \ F \ R \\ F \ I \ E \ L \ D \\ (\ C \ O \ N \ T \ I \ N \ U \ E \ O \) \end{array}$ AL E N 1 I E D ٥ P3 RE NO, FAIL HOURS P1 29 RBAR SYSNO D 4 1.060 0,10992+04 59,142 N0.21 15221 0.6754E=04 3 S R 8 59,368 0.745 N0,22 16 45477 0.2986E+03 0.6672E=04 R2 29,312 1,150 10 0.19116+04 0.23828-04 NU.23 45261 82 8

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						TABLE4. SIMPLE GROUND DISPLA FIELD	3 (Cont'd) E X P U N B Y S T E	ENTIAL			-
			878N0	NO,FAIL	HUURS	P1	P2	P3	P4	RBAR	RE
R3	NO.	1	17	5	3784	0,8525E+02	0.6900E=03			44,178	0,65
83	NO.	S	2	12	6336	0.18482+03	0.1735E=03			10,035	0.10
#3	ND.	3	5	٠	4376	0,9665E+02	0,5297E=03			38,635	0,31

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((8 I H P L E G R O U N D D I S P L A I N - H O U	Y SYSTE	ENTIAL			Pe del distanzage
				578ND	NO, FAIL	HOURS	P1	54	P3	P 4	RBAR	RE
•	SR	NÜ,	1	8	105	2700	0.41542+01	0,8101E=03			9.774	0,15
4	¹³ R2	NO.	5	٠	100	3200	0,3829E+01	0,6295E=03			13,815	0,10
4	85	NU.	3	8	50	3700	50+34245+02	0.54142-03			15,405	0.14
٤	RZ	NO.	4	8	33	3700	0,1239E+02	0,6798E=03	and the second second		41.393	0,27
	R2	ND.	5	8	16	2500	0.6973E+02	0,3501E-03			12.890	0.18

T A B L E 4.3 (Cont'd) 8 I H P L E E X P O N E N T I A L G R O U N D S Y S T E H D I S P L A Y I N - H O U S E

			SYSNO	NO,FAIL	HOURS	21	P2	P3	P4	RBAR	RE
RS	ND.	1	7	17	\$193	0,2755E+02	0, 9102E-03			23,283	0,451
R 3	NO.	2	7	32	8455	0,3935E+02	0,31932-03			25,207	0,7±7
RS	NO.	3	7	12	3322	0,3763E+03	-,1058E-03			27.377	1.058
R 3	NO,	4	2	384	3415	0,4608E+01	0,1361E-03			4,537	0,180
RJ	NO.	5	2	211	4536	0,3357E+02	-,2246E-03			18.708	0,473
R3	NO.	6	1	6	4659	0,4168E+04	-,2292E-02			5.746	0,025
R3	NO.	7	1	21	6144	0,22902+03	1077E-04	-		13.414	1,045

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TABLE4.3 (Cont'd) SIMPLE EXPONENTIAL GROUND SYSTEM COMPUTER FIELD

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		878N0	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	ND. 1	11	34	11490	0,1164E+03	0.1097E-03		64	13.661	0.115
R1	ND. 2	11	33	5703	0,1755E+02	0,5031E=03			31,172	0,414
R 1	ND. 3	12	16	9165	50+35089,0	0,2564E-03			57.343	0.574
R1	ND. 4	15	19	11800	0,4477E+03	-,2256E-04	AT & BETTER M	alitis, ajus alitististististus as ajus;	10.355	0,918
R 1	ND. 5	12	35	18304	0,1104E+03	0.1135E-03			32,786	0,544
R 1	ND, 6	16	5	2513	0,15686403	0.0219E-03			26,8121	1.000
R1	NO. 7	15	•	11209	0,5104E+03	0,0365E-04			5,461	0,051
RS	ND. 8	15	7	18645	0,4567E+04	-,2597E-04			11,253	0,741
R1	NG. 9	15	•	16192	0.1761E+04	-,26028-04			15.873	0,871
Ri	ND.10	15	19	23495	0,6740E+03	0,3564E-04		again a	15,840	0,481
R1	N0.11	15	10	15741	0.04302+03	0,1407E+04			10,405	0,95
² R1	N0,12	15	17	23572	0.42472+03	0,2119E-04			5,037	0.16
_ F1	ND.13	15	20	15756	0,0137E+03	-,7763E-05	-utur glass		11,819	0,96!
R1	ND.14	15	16	13960	0.76562+03	-,7863E-06			4,391	1,070
#1	N0.15	15	34	23480	0,3403E+03	0.3040E=04			6.050	0,15
R1	N0.16	11	35	10323	0,:6238+03	0,5768E=04	entites heldels existing and subleman sumporting		3.844	0,05
R1	NO.17	12	4 1	24804	0,4650E+03	0.1688E-08			20,205	0,99
R1	NC.18	11	36	9833	0,4697E+03	-,4277E-04			11,062	0.58
R1	NU.19	11	35	12141	0.12242+03	0,10322+03			11,081	0,12

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						T A B L E 4.3 S I M P L E G R O U N D C D M P U T	E X P O N I S Y S T E		an-targe - spensor		
			SYSND	NO,FAIL	HOURS	FIELD P1	25	P3	P4	RBAR	
R3	NU,	1	17	10		0.3470E+02				114.149	in months
RS	ND.	2	5	16	4576	0.3749E+02	0.6120E-03			36,365	
R3	NO.	3	2	٠	6336	0,85538+03	¢,5535E+04			8,645	

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.				SYSND	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
	R1	ND.	1	11	46	4467	9,25072+02	0,36798-03	nume of a real of the desired of the		16,455	0,176
t	Ri	ND,	5	14	12	2043	0,1282E+02	U.1716E-02			135,839	1,366
1	₩.R1	NO,	3	14	43	11189	0,47802+03	-,44642-04			11.052	6.497
	R1	NO,	4	14	45	10606	0,42428+03		nine entre e e e entre entre		8,756	0,406
0	Rį	NO.	5	14	٠	2792	0,1717E+03	0.1809E+03		at anything. Market and and any	2,346	0.047





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					ТАВLЕ4.3 ВІМР LЕ	EXPON				
					G R O U N D C O M P U T I N - H U U	SYST,E ER SE	м			
		SYSNO	NO.FAIL	HOURS	P1	24	P3	P4	RBAR	
83	NO. 1	9	10	1726	0,17482+01	0,3039E=02	an, ray annumph	alite anglatigation and	66,764	
83	ND, 3	•	23	5591	0,1431E+02				6.670	
R3	NO. 3	•	24	2370	0.21558+02				19,254	
R3	NCI. 4	9	3	3105		•,3286E=02	do parte de antes de formanse		12,368	
R3	ND. 5	2	74	3415		0.2634E+03			2.763	
R3	NO. 6	5	67	4536	0.2197E+02				11,643	
R3	NO. 7	1	5	8513	4, 44,	-,3266E=03		· · · · ·	18,899	
RS	NO. 5	1	4	6339	0.10322404	0.6972E=04			17.440	
			uigh a		star -		uniter falle-strateging a signala summale salar			
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		SYSNO	NG,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
R1	NO. 1	4	14	35400	0,1005E+04	-,1032E-05		NATES AND DESCRIPTION AND ADDRESS OF ADDRESS	27.667	1,107
Rì	NO. 2	4	25	46840	0.1151E+04	0.78338-05			26.675	1,017
81	ND. 3	4	11	51440	0,47802+04	18478-05			6,318	1,001
R1	ND. 4	4	11	41798	0,5460E+05	-,6089Ec04	Miler under suger is transforming oppositionist		14,797	0,230
R1	NO. 5	4	16	33680	0,25628+04	-,24958-04			11.194	0,465
R1	ND. 6	4	16	24920	0,1110E+04	0.2350E+04			23.367	0,960
R1	ND. 7	4	10	32800	0.8675E+03	0.3347E-04			17,283	0,295
R1	NC. S	4	95	42000	0,2127E+03	0.5340E-04			26.249	0.737
R1	ND. 9	4	4	46800	0,25102+04	0,3503E-04			14,129	0.201
81	ND.10	4	36	47900	0.1067E+05	-,4437E-04			15.747	0.245
R1	NO.11		23	46860	0.1520E+04	0.2330E-05			16.451	1,065
R1	NO.12	4	3	42080	0,4215E+04	0.30492-04			13,323	1.01
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SIMPLE EXPONENTIAL GROUND SYSTEM COMMUNICATIONS IN-HOUSE

			SYSND	NO, FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE
R3	ND.	1	8	20	3415	0,12502+03	0.28255-04			7,464	1,007
83	NO.	2	2	10	4536	0.1271E+03	0.4087E=03		-	37,318	1,530



R1 NO	1	\$78ND	NO,FAIL		FIELD	+ R A D A R				
R1 NO			NO FAIL							
R1 NO				HOURS	P1	P2	P3	P4	RBAR	
R1 NO		16	24	2513	0,23422+02	G,79418-03			29,870	
		11	178	6751	0,1622E+02	0,1478E-C3			14,676	
R1 NO	• 3	12	170	24804	0,14582+03	-,3124E+05			9 , 5 17	
	. 4	11	244	7849	0,9377E+01	0,1824E=r3			7.130	
R1 ND	. 5	11	114	4382	0,5227E+01	0,5711E=03			16,360	
	. 6	12	148	18304	0.0055+02	0.4184E=04			8,802	
	. 1	12	57	9165	0,30208+02	0,2015E-03	_		22.060	
R1 ND	. 8	11	200	7574	0,15998+02	0,1242E-03			7,951	
					SIMPLE		ENTIAL			
					S Y S T E M Z N • H D U	- R A D A R S E		- •		
	4	SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RSAR	
	1	-the ter address of coloradore	14 	2076	0,44136+02	0.8193E=03	n ayahigin completina datapan - sisanda Milaphaghita, nanasana	andre management of the angle of the state o	26,479	
RS NO,	, 2		53	5085	0,43782+02	v	• • • • • •		30,034	
					8 I M P L E G R D U N O 8 Y 8 T E M I N = H D U	E X P O N I S Y S T E I - M I C R O I S E	ENTIAL N NAVE			-
		SYSND	NO, FAIL	HOURS	PL	*2	P3	P4	RUAR	
RI NO	1	5	34	1122	0,18588+02	C,7188E-03			17,849	
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	Internet and	A The star designed as reasons	Aller a state of the participant of the participant of the state		And the second s	and the second se		the second se		

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		373ND	NO.FAIL	HOURS	P1	P2	P3	P 4	RBAR	RE
R1	ND. 1	5	17	407	0,2017E+02	0.52346=03			20,652	1,067
81	NO, 2	5	54	3031	0,2743E+02	0,2391E=03			6,618	0,111
R1	ND. 3	5	32	1373	0,83642+02	3743E=03			24,281	0,789
R1	NO. 4	5	48	7124	0,3829E+07	0,2171E-03			12,902	0,110
R1	NO. 5	5	44	2002	0,0059E+0#	-,5071E-04			18,860	0,985
R1	ND, 6	4	135	42076	0.2574E+03	A.5878L=05			6,045	0,493
R1	ND. 7	4	383	46856	0,07928+02	0.1671E=04	ada hadi airin	Prist at	8,484	0,201
R1	ND. 8	4	244	47896	0,7278E+02	0.22485-04			17,406	0,277
RI	NO, 9	4	201	46798	0,8461E+02	0.2037E=04			9,101	0.214
R1	ND.10	5	5	161	0,19778+02	0,2673E=02		that were descent	5,396	0,218
R1	ND.11	5	34	2767	0,5220E+02	0.2422E=03			15,053	0,436
5 81	N0,12	47	183	35400	0,1988E+03	-,1042E-04			15,573	0,805
R1	ND.13	4	477	42618	50+34000,0	0.1305E=04	ini danara ing	egge fielde telefoldsammer i sim ops	6,245	0,351
R1	N0 . 14	4	360	32800	0.38435+02	0.3130E=04			13,481	0,143
R1	ND.15	4	203	24920	0,71558<02	0.2076E-04			11,031	0,626
R1	NO.10	4	302	33680	0,7733E+02	0.7627E=05	and the second		9,556	0,892
R1	NO.17	4	181	41794	0,14512+03	0.1775E=04			19.099	0,442
R1	NO.18	4	184	51440	0,13032+03	0,1098E=04			11.301	0,257
R1	NO.19	4	546	46840	0,4716E+02	0.1215E-04	a	aliterative set	9,601	0,513
R1	ND.20	4	184	18240	0,4334E+02	0.42588-04			10,268	0,218

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TABLE 44 OUANE MODEL AIRBORNE ANTENNA IN-MOUSE

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e.				SYSNO	NO.FAIL	HOURS	P1	29	P3	P4	RBAR	RE
	RS	NO.	1	25	6	1584	C.2:74E+01	0.6946E+03	0,8818E+00	0,10235+00	39,107	1,543
[85	NU.	2	27	29	1400	0.7870E+00	0,1941E+02	0,58262+00	0,4037E=01	13,459	0,171
	R2	NO.	3	27	8	400	0,6583E+00	0.1699E4G2	0,3833E+00	0,91556-01	32.080	2.248
	R5	N0.	4	27	21	1200	0,5372E+00	0,4150E+01	0,3936E+00	0.1144E+00	23,559	0.304
	RZ	NO.	5	27	52	6000	0+6237E+00	0.1063E+02	0,5048E+00	0.6239E+00	24,760	0.506

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	I	R	B	0	R	N	E			
R		D		R						
1	M		ы	n	11	a	5			

			SYSNO	NU,FAIL	HOURS	P1	P 2	P3	P4	RBAR	RE
HR2	NO.	1	27	162	4988	0,6964E+00	0,3350E+01	0.6231E+00	0,4763E+00	15.003	0,459
RS	NO.	S	27	43	1000	0,4857E+00	0.4400E+00	0.3841E+00	0.4577E+00	25,172	0,147
R2	NU.	3	25	382	2176	0,4967E+00	0.1377E=01	0.4631E+00	0,2343E+01	16,845	0,145
82	ND,	4	25	315	3984	0,9724E+00	0,1074E+02	0,8999E+00	0,2896E+01	18.804	1,133
R2	NO.	5	27	27	400	0,5994E+00	0,1637E+01	0.4377E+00	0,4094E+00	25,533	0.987
R2	ND.	6	27	42	1300	0.4727E+00	0.4788E+00	0.3719E+00	0,4720E+00	25,418	0,136

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T A B L E 4.4 (Cont'd) D U A N E M U D E L A I R B O R N E D I S P L A Y I N = M O U S E

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			SYSNU	ND.FAIL	HUURS	F1	- 24	P3	P4	RBAR	RE
 R2	ND.	1	27	13	1100	0.8415E+00	0,5219E+02	0.5069E+00	0,1418E+00	19,834	2,240
85	ND.	2	27	6	400	0.81022+00	0,3072E+02	0.3946E+00	0,6752E=01	29.073	1,213
R2	ND.	3	25	50	3992	0.7205E+00	0,1750E+02	0.5933E+00	0,5704E+00	28,468	4,423
R2	N0.	4	27	13	800	0,7219E+00	0,2291E+02	0,4348E+00	0.5084E=01	20,727	0,333
85	NO.	5	ž 7	63	4996	0,8261E+00	0.33152+02	G.6838E+00	0,1525E+00	10.283	0.446
RZ	NUL	6	25	11	1200	0,6506£+00	0.3009E+02	0,3680E+00	0.62568-01	24,523	0.160

D	U		N	Ł	H	(D.	D	E	L
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	10			SYSNO	NO.FAIL	HOURS	P1	54	P3	P4	RBAR	RE
S.	151 91	ND,	1	23	-1000 5 -1000	536	0,9185E+00	0,9294E+02	0.4472E+00	0,7170E=01	53,123	3,080
C	R1	ND.	S	23	3	785	0.6815E+00	0,1566E+G3	0.2504E+00	0,9462E=01	65,848	841.714
¢.	R1	ND.	3	23	3	521	0,13628+01	0.53566+03	0.50062+00	0.1179E+00	73.785	52,324
0	R1	NO.	4	21	9	500	0,6268E+00	0,1502E+02	0.3244E+00	0,1376E+00	28,574	0,376
(R1	NO.	5	51	10	760	0,4134E+00	0.2898E+01	0,2573E+00	0,9430E=01	30,304	0,163

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						4 (Cont'd)			
					A I R B U R C O H P U T I N • H O U	ER			
		373NU	ND.FAIL	HOURS	P1	P2	P3	P4	RBAR
RZ	NO. 1	26	3	407	0,6742E+00	50+387PT.0	0.2477E+00	0.1492E+00	68,149
82	ND. 2	27	77	3994	C,9333E+00	0,3803E+02	0,78862+00	0,2648E+00	35,878
R2	N0, 3	27	12	400	0,9625E+00	0.3026E+02	0,5633E+00	0.5074E-01	20,227
RZ	NO. 4	27	27	1400	0,8499E+00	0.28976+02	0.02062+00	0.2787E-01	12.381
58	NO. 5	27	14	800	0,7650E+00	0.2541E+02	0,4725E+00	0,4269E-01	17,752
					DUANE	HODEL			
			-		A I R B O R L A S E R		ITTER		
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR
R1	ND. 1	21	3	500	0,6427E+00	0,9050E+02	0.2362E+00	0,8508E-01	92,228
R1	ND, 2	21	7	760	0,5091E+00	0,1663E+02	0.2834E+00	0,4156E=01	35,060
				-	0 U A N E A I R 8 O H L A S E R I N = H D L	TRANSH JSE		-	
			ND.FAIL		P1	P2	P3	P4	RBAR
R 3		20	7	782		0,2309E+02			32,256
R3	NO , 2	20	11	767	0,5561E+00	0.1029E+02	0 .3550E+00	0,1023£+00	25,462
and and a second									
33	1.00	513	1.00	100	-		-		
		4. E.				1247.5		2 Cart	

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OBNE 440(Goptid) R B U R N E S E R R E C E I V E R • H D U S E A I L A I N SYSNG NO.FAIL HOURS PI 59 P3 P4 ROAR RE R1 NO. 1 21 760 0.6074E+00 0.1716E+02 0.3780E+00 0.8561E+01 10 30,116 0.19/ DUA AIR LAS IN N E B O R H O HODEL 0 R RNERECEIVER ου SE SYSNO NO, FAIL HOURS P1 54 P3 P4 RABR RE H3 NO. 1 20 767 0,3481E+00 0,1429E+02 0,1519E+00 4 0.1246E+00 55,885 0.027 R3 NO. 2 20 782 0,4320E+00 0,1236E+02 0,2271E+00 0,1893E+00 6 51,248 5,729 DUAN AIRB LASE IN = H Ĕ NUD * O R N E R X H O U S E 153 RIRCVR T SYSND NO.FAIL HOURS P1 92 P 3 P4 RBAR RE R1 NO. 1 21 17 760 0.5400E+00 0.4001E+01 0.3804E+00 0.8444E-01 22.964 0.368 R1 ND. 2 21 10 500 0.6601E+00 0.1528E+02 0.4108E+00 0.7190E=01 31.184 0,219 . C

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(_					DUANE AIRBOR LASER	XHTR/R	CVR			
(373NO	ND,FAIL	HOURS	I N - H D U P1	9 E 9 Z	P3	P4	RBAR	RE
	R3	NO. 1	20	14			0,5155E+01			27.630	0,24
	RJ	NO. 2	20	15			0,2366E+01			20,634	0.05
		dalar.									
	a Marca a de la						MODEL NE ED REC	EIVER			
						INHOU			0412		
(SYSND			P1	P2	P3	P4	RBAR	RE
	R1	NU. 1	23	5	711		0,3778E+03			45,637	1,08
4	R1	NO, 2	23	5			0,248:E+03			44,329 38,648	2,87
1	R1	NO. 3	53	8	050	0,208/2+01	0,1979E+03	0.101/2+01			
¢	-										
t	154		na vajitaje upotravana daga	nyay alaalaan dagaba ayaa gara a	-and-an angle		HODEL NE ED REC	EIVER			
N.J			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	HBAR	RE
5	R2	NU. 1	27	65					0,1615E+00	13,259	0,02
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1			1 400 G		and a de	A Contraction			* · O	•**	for all
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		SYSNO	NU,FAIL	HOURS	P1	P 2	P3	P4	RBAR	RE
RZ	ND.	1 27	103	798	0,5368E+00	0.1420E+00	0.46532+00	0,5025E+00	18,988	0,125
R2	NO.	2 27	127	1097	0.6152E+00	0.41735+00	0,5418E+00	0,3751E+00	14.589	0,141
82	ND.	3 27	65	399	0,5483E+00	0.1972E+00	0.4554E+00	0,6722E+00	23,697	0,422
82	NO.	4 25	347	1192	0.0152E+00	0,88516-01	0.57162+00	0,3981E+00	10,174	0,060
82	NO.	5 27	316	2500	0.6990E+00	0.5639E+00	0.6470E+00	0,1458E+00	6.482	0.030
RZ	ND.	6 25	371	3981	0,9267E+00	0.6721E+01	0.8632E+00	0,3756E+01	20.566	1,295

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1							IN-HOU	SE				
				SYSHO	NO,FAIL	HOURS	P1	P2	P 3	P4	RBAR	RE
1	5 R1	ND.	1	21	27	760	0.4521E+00	0.5183E+00	0.3448E+00	0,62388=01	18.207	0,025
C	R1	NU.	2	21	19	500	0.62866+00	0,4621E+01	0.4242E+00	0,5857E=01	14,391	0,115

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P				SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
ſ	R3	NO.	1	20	17	767	0,5269E+00	0.3544E+01	0.37126+00	0,6920E-01	20,557	0,048
¢	RJ	ND.	s	20	17	782	0.5151E+00	0,3196E+01	0,3629E+00	0,2094E+00	27,446	0,184

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E 4.4 (Cont'd) E NODEL URNE E M - INFRA OUSE AU IY N LNBTH BA R S PED 8 I SYSND NO.FAIL HOURS P1 RE: 29 P3 PØ 17 536 0,1269E+01 0,5746E+02 0,8312E+00 0,2330E+00 R1 NO. 1 23 30. 776

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	R1	NO• 5	2	3	11	785	0.8859E+00	0,5240E+02	0,5012E+00	0,2471E+00	30,826	2,159
	R1	ND. 3	2	3	5	521	0.1668E+01	0,19852+03	0.5823E+00	0.7820E=01	59.181	27.805
-	Ri	NO. 4	- 2	3	9	711	0,20886+01	0,2483E+03	0,1081E+01	0,4544E=01	36,773	11,888



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T A B L E 4.4 (Cont'd) D U A N E MODEL A I R B O R N E S Y S T E M • I N F R A R E C F I E L D P.

		SYSNO	ND.FAIL	HOURS	PI	54	P3	P4	RBAR	RE
R3	NO. 1	24	3	227	0,1523E+01	0.1103E+03	0,5596E+00	0.1190E+00	65,395	28,268
83	NU. 2	24	3	344	0.65451+00	0,9511E+02	0,3140E+00	0.87338=01	20.535	5.82
R3	NO. 3	24	5	789	0,5173E+00	0,9437E+02	0.19016+00	0.1034E+00	72,626	1,277
R3	N0. 4	24	4	411	0.1319E+01	0.1437E+03	0.5759E+00	0.8041E=01	54.768	45,863
R3	NU. 5	24	3	433	0,1598E+01	0,2178E+03	0.5873E+00	0,10976+00	65,903	71.869
R3	N0. 6		3	472	0.9026E+00	0,1397E+03	0.3316E+00	0,1025E+00	67.747	13,316
R3	10. 7		8	1056	0.01325+00	0,3537E+02	0,3565E+00	0,3973E-01	30,321	0,159
R3	NO. 6	445-4	3	324	0.1398E+01	0.1476E+03	0,5134E+00	0,10422+00	68,533	8,528
83	ND, 9		3	440	0,4901E+00	0.4677E+02	0.1801E+00	0.1594E+00	69,681	1.089
R3	NU.10		4	519	0.9761E+00	0,1254E+03	0.4261E+00	0,19486+00	164,596	1,392
R3	NO.11		4	349	0.8459E+00	0,6777E+02	0.36925+00	0.4889E=01	74.719	0.924
157R3	NO.12		3	255	0,1660E+01	0,1315E+03	0.6098E+00	0.89786-01	66,032	16.040
R3	N0.13		3	390	0,85996+00	0.1087E+03	0.3159E+00	0.1318E+00	69,109	18,370
RS	NO.14		4	563	0,1010E+01	0.1427E+03	0.4409E+00	0,5619E=01	57,527	5,814
R3	ND.1		3	307	0,4456E+00	0.2009E+02	0.1637E+00	0,1676E+00	69,345	2,698
R3	N0.10		3	345	0.8151E+00	0.8963E+02	0.2995E+00	0,1224E+00	76.033	6,54(
R3	ND.1	Auron or contrast	3	705	0,1278E+01	0,2984E+03	0.4694E+00	0,1345E+00	70,116	7,61
R3	ND . 5		4	448	0.5889E+00	0.42556+02	0.2570E+00	0,56865-01	68,016	0,13
R3	NO.1		4	529	0,9255E+00	0,1183E+03	0,4040E+00	0,4556E-01	54,890	5,32
83	ND.2		4	354	0,1170E+01	0.1083E+03	0.5108E+00	0,1065E+00	51,246	22,89

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T A B L E 4.4 (Cont'd) D U A N E M O D E L A I R B D R N E S Y S T E M = I N F R A R E D F I E L D (C D N T I N U E D)

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		SYSNO	NO,FAIL	HOURS	P1	P2	#3	P4	RBAR	RE
H3	N0.21	24	4	• 71	0,7329E+00	0,1012E+03	0.31992+00	0,1465E+00	54.898	1,53
R3	ND.22	24	3	314	0,6311E+00	0.5506E+02	0.2319E+00	0,9101E=01	64,774	10,47
R3	ND.23	24	4	378	0,1569E+01	0,1563E+03	0.6850E+00	0.6324E-01	53.286	30,35
R3	NO.24	24	4	385	0,6000E+00	0.3819E+02	0.2619E+00	0,5961E=01	57,160	0.34
R3	NU.25	24	3	477	0.8239E+00	0,1257E+03	0.3027E+00	0.8507E=01	83.072	2,09
R3	N0.26	24	3 -	393	0,5328E+00	0,5000E+02	0,1958E+00	0,1656E+00	74.420	0.33

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a z adampter					a Andrea	A I R B O R S Y S T E M I N ~ H O U	T . VISUA	L SCAN			
			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
RZ	NO	1	22	65	766	0,6521E+00	0,4383E+01	0,4828E+00	0,2534E+00	13,458	0,26
R2	NO	5	22	41	549	0.8310E+00	0.62935+01	0.45145+00	0.4209E=01	13.468	0.12

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					TABLE	.4 Cont'd				
			Annual 1 (1) (1)		AIRBOR	NE			· · · · · · · · ·	
						SE				
		SYSNO	NO.FAIL	HOURS	P1	P2	P3	P 4	PBAR	
R2	ND. 1	25	6	1584	0.34908-02	0,596CE=07	0,1000E+00		19,773	
RZ	ND. 2	27	29	1400	0,2217E+01	0.1805E+01	0.7785E=07		45.885	
R2	ND, 3	27	8	400	0,3324E=01	0,58312+01	0,3543E-06		37.196	
RS	ND. 4	27	21	1200	0.1037E-01	0,1117E+02	0.72598-02	8 88 27 59194 vm (m) (m) (27 5	4,228	4827-1428-1428
					18 M M O	DEL				
-		teres - size - aligo - demonstrationeder - diference -				NE				
					IN-HOU	SE				
		SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	
R2	ND. 1	27	16?	4988	0.4002E=01	0.48232+03	0,5960E=07	realized within the state time	35,725	
R2	ND. 2	27	43	1000	0,1114E=01	0,3135E+02	0,7735E-02		4.096	
R2	ND, 3	25	385	2176	0,9423E=01	0,2130E+03	0.3465E-02		7.587	
15982	NU. 4	25	315	3984	0,9246E=01	0.5960E=07	0.53242+00	and a second	14,787	gate -
R2	NO. 5	27	27	400	0,3725E=08	0.2474E+02	0,7383E-02		6,949	
82	NC. 6	27	42	1300	0,8150E=02	0.3102E+02	0.62485-02		3.478	
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	RBAR 16.641 17.481 17.045	100.652	RBAR	11.259	8.040	272,903			
a and the second second second	Ρ4	N 07-0 972	P4	elener via skile skilad bese site		•	_		
	P3 0,3562E+01 0,3472E+01 0,5960E=07	0,2244E=04	P3	0.5215E-07	0.8072E-02	0.6153E=07			72-4-12-1-1-
	D E L N E Y 3 E P2	0,1293E+00 D E L N E	P2	0,8690E-01	0.8908E+01	0,1410E+00			
•	AIRBOR	0.1145E=01 I B M M U A I R B D R C O M P U T	P1	0.1610E-01	0.2328E-09	0,2369E=01			the state of the second
	HOURS 400 600 4996	1200	HOURS	536	500				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
•••••••	NO ₊ FAIL 8 13 63	11	NO,FAIL	5	9	10			
	SY SND 27 27 27 27	25	BYSNO	23	21	21		-	
	NO. 2 NO. 4 NO. 5	ND, 6		ND. 1	NO, 4	NO, 5			1.5
	R2 R2 R2	R2		RI	R1	R1 160			 30

AB T A B I B M A I R C O M L E 4.4 (Cont'd) M O D E L C A I R B O R N E C O M P U T E R I N + H O U S E NO.FAIL HOURS 29 P3 94 RBAR RE SYSNO P1 ND. 2 27 77 3994 0,1876E=01 0,5960E=07 0,8217E+03 49,281 1,0 RZ 2,1 NO. 3 27 12 400 0.1086E+01 11,209 R2 0,2953E=01 0,1682E+01 28.854 1,8 R2 NO. 4 27 27 1-00 0,2064E=01 C.1134E+00 0,1543E=05 K2 NO. 5 27 14 600 0,2083E=01 0,1257E+00 0,4248E=35 43,886 2,1 HODEL I B M (IRBURNE ASER TR N = HOUSE A LAIN NSH 1 TTER C SYSNO NO.FAIL HOURS P1 24 P3 P4 RE RUAR 0 R1 NO. 2 21 760 0.12458+00 0.68828=07 7 0.1259E=01 2,5 256.445 . 101 B H H O D E I R B O R N A S E R T HODEL C 1 A L NSHI TTER R IN . HOUSE 1 SYSND NO.FAIL HOURS P4 RE 21 24 P3 RBAR 782 0,14528-01 0,17888-06 0,19238-06 138,997 NO. 1 20 7 2,4 R3 20.508 0.0 NO. 2 20 11 767 0,1408E=02 0,9548E+01 0,6661E=02 R3 0 C 0

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$T \stackrel{B}{\to} \stackrel{B}{\to} \stackrel{L}{\to} \stackrel{E}{\to} \stackrel{4}{\to} \stackrel{4}{\bullet} \stackrel{4}{\bullet} \stackrel{(Cont'd)}{\bullet}$ < AIRBURNE LASEN RECEIVER IN . HUUSE P1 SYSNO NO,FAIL HOURS P2 P3 P4 RBAR RE 5 760 0,1865E=01 0,2279E+01 0,1155E=06 R1 10 126,718 1.6 NO. 1 21 M MODEL I B AIRBORNE LASER RECEIVER IN-HOUSE ł RE SYSNU NO.FAIL HOURS F1 59 P3 P4 RBAR 6 R3 NO. 1 20 767 0,6:31E=02 0,4602E+00 0,7221E+01 157,302 0,3 4 83 NU. 2 782 0,3235E-01 0,5087E+00 0,2901E=06 1.6 20 34.014 e IBM HODEL 162 AIRBORNE LASER XH IN-HOUSE SYSNO NO.FAIL HOURS 29 RBAR RE P1 F-3 P4 R1 NO. 1 21 17 760 0,3010E=01 0,2615E+00 0,2008E=05 193,259 1.8 7,943 0,2273E-01 0,1272E+01 0,2729E+00 R1 NO. 2 21 10 500 0.0 4.3 M MODE R B D R N E S E R X K HODEL 1 8 € I LASER IN+HOU X K T R / R C V R SE SYSNO NO.FAIL HOURS P1 P3 P4 RE 45 RBAR 0 R3 NO. 1 20 14 782 0,2643E=01 0,5087E=02 0,1039E=02 123,885 2,8 R3 NC 2 20 15 767 0,2393E=01 0,2540E+00 0,2248E=04 2,8 352,386 613

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						TABLE4 IBMMO AIRBOR	I.4 (Cont'd) DEL NE				
Rpan.						INFRAR IN-HOU	ED REC	EIVER			
			SYSNO	NO.FAIL	HOURS	P.1	P2	P3	P4	HBAN	
	R1	NO. 1	23	5	711	0.6417E-02	0.5960E=07	0,1000E+00		27,413	
	R1	ND. 5	23	5	785	0.6618E=02	0.1753E+00	0,1000E+00		16,927	
	R1	NO. 3	22	8	536	0.1294E-01	0,5960E=07	0.1000E+00		15,434	
-						IBM MO AIRBOR INFRAR		EIVER			
						IN + H D L	- 17		•		
			\$7 \$NO	NU,FAIL	HOURS	P1	P2	P3	P.4	RBAR	
	82	NO. 1	27	65	2500	0,2297E=01	0.1743E+02	0,15252-01	. ar de desarra de pas co	4,700	4
163											
				-ang ke		I B M M O A I R B U R S Y S T E P I N = M O U	DEL RNE SEADAR JSE				
			373NO	NO.FAIL	HOURS	P1	P2	٢3	P4	RBAR	
_	RZ	NU. 1	27	103	798		0.5570E+02			3,555	
	RZ	ND. 2	27	127	1097	Addeduction where of some recommendation of the state with	0,7079E+02	• •		1.947	
	RZ	NU. 3	27	65	399	0.2513E+00	0.1397E+02	0.3015E-06		66,764	
	RZ	NO. 4	25	347	1192	0.19302+00	0.1260E+03	0.6601E-02		2.374	
	RZ	NO. 5	27	316	2500	0.1196E+00	0.4061E+02	0.12398-01		3,820	
and the second se	R2	ND, 6	25	371	3981	0,1131E+00	0.5960E=07	0,46642+00		14,162	
								n en e estera estera			
19 pr	-			2				~		Y	
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T A B L E 4.4 (Cont'd) I B M M O D E L A I R B O R N E S Y S T E M \rightarrow L A S \subseteq R I N - HOUSE RE P4 RBAR SYSND ND.FAIL HOURS P1 59 P3 312.742 2,23 0,5114E-01 0,3343E+00 0,1988E-04 760 R1 NO. 1 21 27 84.117 2,11 0,4936E-01 0,2822E+01 0,2470E-06 19 500 21 R1 NO. 2 1 8 M MODEL 6 R 6 U R N E S T E M • L • H Û U S E 1 A SYIN SE C RE SYSNO NO, FAIL HOURS P4 P1 SQ P3 RUAR C 306,990 2.44 NO. 1 20 17 767 0.2419E=01 0.5602E=01 0.2013E=06 R3 2,84 17 782 0,3132E-01 0,3286E-01 0,2814E-06 132,819 NU. 2 20 R3 C 164 5 Ē HODEL I B H C A I R B D R N E S Y S T E H • I I N • H D U S E NFRA R ED (RE P3 24 RBAR SYSNO NO, FAIL HOURS P1 P2 (20.105 1,18 536 0,3305E-01 0,5960E-07 0,1000E+00 R1 NO. 1 23 17 C C C 1 • 0

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TABLE4, A (Cont'd) IBM MODEL AIRBORNE SYSTEA - INFRA FIELD RED

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(A)

		SYSNU	NO,FAIL	HOURS	P1	54	P 3	P 4	RBAR	RE
R3	ND. 4	24	4	411	0,9204E=02	0,4406E+00	0.4496E+00		11.352	2,101
-R3	ND. 7	24	8	1056	0,9611E=02	0,1550E+01	0.2881E=06		143,409	2.367
R3	NU.10	24	4	519	0.73458-02	0,5960E=07	0.4670E+00		188,242	1.704
R3	NO.11	24	4	349	0,8772E=02	0,1000E+01	0.1352E+00		2.230	0,008
R3	NO.14	24	4	563	0.71776-02	0.5803E+00	0.20186+01		7.078	0.246
R3	NO.18	24	4	448	0.4742E=02	0,1800E+01	0.0046-01		6,883	0.026
R3	NO.19	24	4	529	0.8250E=02	0.5818E+00	0.6742E+00		3.055	0.041
R3	ND.20	24	4	354	0.1414E-01	0.6687E+02	0.6240E+07		13.065	1,561
R3	ND.21	24	4	671	0.7870E=02	0.4081E+00	0.3530E=06		83.685	3,319
R3	NO,23	24	4	378	0,1183E=01	0.5960E=07	0.10792+03		14,755	1,972
2R3	N0.24	24	4	385	0,1371E=01	0.1168E+03	0.6029E=C7		226,571	3,187
	alter to									

							U R E M	NE VISUA	LSCAN			
			SYSND	ND,FAIL	HOURS	I N + H	0 9	S E P2	P3	P4	RGAR	RE
R2	NC.	1	22	29	766	0,5310E	-01	0.2119E+00	0,4723E-06		56,109	1,546
R2	NÜ.	z	22	41	549	0,78826	-01	0,1683E+00	0.1502E-04		32,674	1,722





		-				TABLES EXPUNE AIRBOR ANTENN IN-MOJ	N E	MODEL		
			375NI)	NO,FAIL	HOURS	P1	8 E P2	P3	P4	RBAR
R2	ND.	1	25	U U	1584	0,3545E+03		0,1000E+00		30,562
R2	NO.		27	20	1400	0,5143E+02	0.71816+00	0,1733E=02		5,938
72	ND.	4	27	21	1500	0,1931E+03	0,9409E+00	G.2190E-03		4,661
R2	NO,	5	27	52	6000	0,7429E+02	0,9053E+00	0,3421E=02		19,038
• •••••••••••••••••••••••••••••••••••••										
						EXPONE	NTIAL	HUDEL		
			_	_		A I R B O R D I S P L A I N - H O U	N E Y S E			-
			\$7\$N0	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR
RZ	NQ.	1	27	13	1100	0,5938E+02	0,3725E-08	0.3812E-01		11,497
582	NO.	3	25	50	3992	0,5130E+02	0.1000E+00	0.15358+02		12.919
R2	ND.	4	27	13	800	0,3944E+03	0,9482E+00	0,15056=03		5,029
RZ	N0,	5	27	63	4996	0,6544E+02	0.6572E+00	0,3371E-02		8,408
R2	N0.	8	25	11	1200	0,1181E+03	0.85802-00	0,15416-02		10.359
		-					ergen Mar		add-malare	
							entite de delas servetite			 respectively.
					AF A.S.					
										4
<u>, 1</u> , 1	A A A A A A A A A A A A A A A A A A A	7		a a martial	- 1 (C	and the second	NY 5 2		- die wo	

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T A B L E 4.4 (Cont'd) E X P O N E N T I A L A I R B O R N E C C M P U T E R I N = H O U S E HODEL RE RBAR PI P4 NO.FAIL HOURS 54 P3 SYSND 0,064 3994 0,5413E+02 0,9595E+00 0,4524E-02 6,828 77 27 5 .UN 82 1.103 8,851 0.5708E=01 0.2675E+02 0.5960E=07 ND. 1 12 400 RZ 27 21.264 1.041 1400 0,4026E+02 0,1118E-07 0,5219E-01 75 27 R2 ND. 4 0,011 2,730 800 0,1742E+03 0,8715E+00 0,3244E-03 27 14 NO, 5 82 R EXPONENTIAL HODEL (A I R B O R N E L A S E R T R I N = H O U S E TTER . 1 C RBAR RE P4 HOURS PZ P3 SYSNO HO,FAIL P1 C 8,370 0,000 760 0,1192E(03 0,9534E+00 0,2269E-02 NO. 2 21 R1 107 .) 167 E X P O N E N T I A L A I R B O R N E L A S E R T R A N S I N + H O U J E ODEL C ITTER RBAR RE P3 P4 NO, FAIL HOURS P2 P1 SYSNU 762 0,11928+03 0,89298+00 0,18598-02 15,625 0,05 R3 ND. 1 20 7 0.03 18.069 0.7755E+03 0.9846E+00 0.1051E=03 50 11 767 R3 NU, 2 € C 1 3 0

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TABLE4.4 (Cont'd) EXPONENTIAL MODEL C AIRBORNE LASER RECEIVER IN . HOUSE (RBAR P4 RE P3 SYSNO NO.FAIL HOURS P2 P1 0,081 760 0,5842E+02 0,9295E+00 0,6325E=02 12,028 NU. 1 R1 21 10 EXPONENTIAL HODEL (A I R B U R N E L A S E R R E C E I V E R IN . HOUSE RE RBAN P3 P4 HOURS P1 • 2 SYSNO NO.FAIL C 7.486 767 0,6993E+03 0,9950E+00 0,4037E=03 0.0 R3 NO. 1 50 4 1.254 782 0,26338+02 0,82408+02 0,40778+02 24,448 R3 NO. 2 20 6 E X P O N E N T I A L A I R B O R N E L A S E R X M T R / F HODEL 168 C IN . HOUSE € RE SYSNO NO, FAIL HOURS P1 29 P3 P 4 RBAN C 767 0,1152E+03 0,9640E+00 0,7464E=03 15,090 0.01 R3 NO. 2 20 15 EXPONENTIAL MODEL AIRBORNE INFRARED RECEIVE RECEIVER IN . HOUSE P4 RE P3 RBAR SYSNO NO.FAIL HUURS P1 59 39,031 1.333 711 0,2008E+03 0,1000E+00 0,1000E+00 Ri NU. 1 23 5 3 0

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C.



C.

SYSNU NO,FAIL HOURS P1 P2 P3 P4 RBAR R1 N(1, 1 23 17 536 0,3700E+02 0,3135E+02 0,5676E+01 32,100 R1 N(1, 2 23 11 785 0,5264E+02 0.1000E+00 0,1469E+03 18,657 R1 N(1, 2 23 11 785 0,5264E+02 0.1000E+00 0,1469E+03 18,657 R1 N(1, 2 23 11 785 0,5264E+02 0.1000E+00 0,1469E+03 18,657 R1 N(1, 1 24 N(1, 1) P1 P2 P3 P4 RBAR R3 N(1, 1) 24 4 1056 0,1554+03 0,2647E+01 0,665E+01 12,197 R3 N(1, 1) 24 4 3140 0,4001E+02 0,4045E+00 1,8264E+02 2,003 R3 N(1, 1) 24 4 3140 0,1000E+01 0,6122EE+02 2,003 R3 N(1, 1) 24	-						NE • INFRA	N U D E L R E V		
NI, NO, 1 23 11 755 0,5264E+02 0,1000E+00 0,1466E+03 18,657 R1 NO, 2 23 11 785 0,5264E+02 0,1000E+00 0,1466E+03 18,657 E x P O N E N T 1 A L N O O E L 3 Y 3 T E N - I N F R A R E O R3 NO, 7 24 8 1056 0,1558E+03 0,9047E+00 0,1465E+02 6,492 R3 NO, 10 24 4 519 0,1457E+03 0,2647E+01 0,6435E=02 6,492 R3 NO,11 24 4 349 0,9001E+02 0,9466E+00 7,6226+02 6,700 R3 NO,18 24 4 349 0,7002E+02 0,7002E+02 6,475 R3 NO,18 24 4 349 0,1009E+01 0,6347E+02 18,597 R3 NO,18 24 4 349 0,7002E+02 0,4751E+02 0,1000E+00 11,610 R3 NO,20 24 4 354 0,7002E+02 0,4751E+02 0,1000E+00 11,610 R3 NU,223 24 4			SYSNU	ND.FAIL	HOURS	P1	54	P3	P 4	RBAR
NI NO, P PJ NI NO, NI, P PJ NI	Ri	NU. 1	23	17	536	0.3700E+02	0,3135E+02	0.5678E+01		52,100
EXPONENTIAL MODEL AINBORNE SYSNO NO.FAIL HOURS PI P2 P3 P3 P4 RBAR R3 ND, 7 24 B 1056 0.15545403 0.9047E+00 0.1465E+02 R3 ND, 10 24 4 319 0.1457E+03 0.2647E+01 0.6456E=01 12.107 R3 ND,11 24 4 349 0.9001E+02 0.9446E+00 3.8264E+02 2.093 R3 ND,18 24 4 565 0.1260E+03 0.7642E+00 0.6537E=02 18.597 R3 NO,19 24 4 529 0.1072E+03 0.7952E+00 0.7862E=02 2.657 R3 NO,20 24 4 365 0.1277E+03 0.9445E+00 0.3031E=02 7.381 R3 NU,223 24 4 365 0.1277E+03 0.9445E+00 0.3031E=02 7.381 R3	R1	NO. 2	23	11	785	0,5264E+02	0.1000E+00	0.1469E+03		18,657
A J R B D R N E S Y S T E H - I N F R A R E D SYSN() NO, FAIL HOURS P1 P2 P3 P4 RBAR R3 NO, 7 24 R 1056 0,155A1+03 0,9047E+00 0,1465E=02 6,492 R3 NO, 10 24 4 519 0,1457E+03 0,2647E+01 0,64356E=01 12,197 R3 NO,11 24 4 349 0,9001E+02 0,9466E+00 3,8264E=02 2,093 R3 NO,11 24 4 363 0,1260E+03 0,7642E+00 0,6222E=02 6,700 R3 NO,18 24 4 363 0,1260E+03 0,7032E+00 0,7662E=02 2,657 R3 NO,19 24 4 354 0,7000E+02 0,4751E+02 0,1000E+00 11.610 R3 NO,20 24 4 376 0,9106E+02 0,1000E+00 0,3724E+03 12,055 R3 NO,220 24 4 365 0,1277E+03 0,9445E+00 0,3031E=02 7,381 E x P O N E N T I A L M U D E L X S Y S T E M + V										
S Y S T E H - I N F R A R E D F I E L D SYBND NO, FAIL HOURS P1 P2 P3 P4 RBAR H3 NO, 7 24 B 1056 0.15584:03 0.9047E:00 0.1465E:02 6.490E R3 MO, 10 24 4 519 0.1457E:03 0.2647E:01 0.64556E:01 12.197 R3 NO, 11 24 4 349 0.9001E:02 0.9466E:00 0.8264E:02 2.093 R3 NO, 11 24 4 563 0.1260E:03 0.7642E:00 0.6222E:02 6.700 R3 NO, 18 24 4 488 0.11512:03 0.1009E:01 0.6347E:02 18.597 R3 NO, 19 24 4 529 0.1072E:03 0.7952E:00 0.7662E:02 2.657 R3 NO, 20 24 4 354 0.9100E:02 0.4751E:02 0.1000E:00 11.610 R3 NO, 20 24 4 365 0.1277E:03 0.9445E:00 0.3031E:02 7.381 24 4						-		HODEL		
R3 NO, 7 24 8 1056 0.15584±03 0.9047E+00 0.1465E=02 6.492 R3 NO, 10 24 4 519 0.1457E+03 0.2647E+01 0.6456E=01 12.197 R3 NO, 11 24 4 349 0.9001E+02 0.9466E+00 3.8264t=02 2.093 R3 NO, 11 24 4 563 0.1260E+03 0.7642E+00 0.6222E=02 6.700 R3 NO, 18 24 4 448 0.11512+03 0.1009E+01 0.6347E=02 18.597 R3 NO, 19 24 4 529 0.1072E+03 0.7952E+00 0.7862E=02 2.657 R3 NO, 20 24 4 378 0.9100E+02 0.1000E+00 11.610 R3 NU, 23 24 4 365 0.1277E+03 0.9445E+00 0.3031E=02 7.381 E x P O N E N T I A L M O D E L A I R ® O R N E S Y S T E M = Y I S U A L S C A N SYSNU NO, FAIL HOURS P1 P2 P3 P4 RBAR			-			SYSTEM		RED		
R3 N0, 7 24 6 10.50 0,157.100 0,2647E+01 0,6456E=01 12,197 R3 N0,10 24 4 519 0,1457E+03 0,2647E+01 0,6456E=01 12,197 R3 N0,11 24 4 349 0,9001E+02 0,9466E+00 3,8264E=02 2,093 R3 N0,14 24 4 563 0,1260E+03 0,7642E+00 0,6522E=02 6,700 R3 N0,18 24 4 448 0,11512+03 0,1009E+01 0,6347E=02 18,597 R3 N0,19 24 4 529 0,1072E+03 0,7952E+00 0,7862E=02 2,657 R3 N0,20 24 4 376 0,9100E+02 0,4751E+02 0,1000E+00 11.610 R3 NU,23 24 4 385 0,1277E+03 0,9445E+00 0,3031E+02 7,381 R3 N0,24 24 4 385 0,1277E+03 0,9445E+00 0,3031E+02 7,381 R3 N0,24 24 4 385 0,1277E+03			SYSNO	NO.FAIL	HOURS	P1	54	P3	P4	RBAR
R3 NO,10 24 4 519 0.1457E+03 0.2647E+01 0.64356E+01 12.197 R3 NO,11 24 4 349 0.9001E+02 0.9466E+00 3.8264E+02 2.093 R3 NO,14 24 4 563 0.1260E+03 0.7642E+00 0.6222E+02 6.700 R3 NO,18 24 4 563 0.1260E+03 0.7542E+00 0.6347E+02 18.597 R3 NO,19 24 4 529 0.1072E+03 0.7952E+00 0.7662E=02 2.657 R3 NO,20 24 4 354 0.7000E+02 0.4751E+02 0.1000E+00 11.610 R3 NU.23 24 4 376 0.9100E+02 0.1000E+00 0.3724E+03 12.055 R3 NU.24 24 4 385 0.1277E+03 0.9445E+00 0.3031E=02 7.381 E x P O N E N T I A L M O D E L A I R B D R N E S Y S N(J NO,FAIL HOURS P1 P2 P3 P4 RBAR SYSN(J NO,FAIL HOURS P1	R3	ND. 7	24	8	1056	0,15545+03	0.9047E+00	0.1465E-02		6.498
R3 NO.11 24 4 349 0.9001E+02 0.9466E+00 3.8264E+02 2.093 R3 NO.14 24 4 363 0.1260E+03 0.7642E+00 0.6222E+02 6.700 R3 NO.18 24 4 448 0.11512+03 0.1009E+01 0.6347E+02 18.597 R3 NO.19 24 4 529 0.1072E+03 0.7952E+00 0.7862E=02 2.657 R3 NO.20 24 4 354 0.7000E+02 0.4751E+02 0.1000E+00 11.610 R3 NU.23 24 4 365 0.1277E+03 0.9445E+00 0.3031E+02 7.381 R3 NU.24 24 4 365 0.1277E+03 0.9445E+00 0.3031E+02 7.381 R3 NU.24 24 4 365 0.1277E+03 0.9445E+00 0.3031E+02 7.381 R4 R B O R N E X R B O R N E X R B C R N E X R B R X R B R X VO. 24 24 4 365 0.1277E+03 0.9445E+00 0.3031E+02 7			24	4	519	0,1457E+03	0.2647E+01	0.6456E=01		12,197
R3 NO.14 24 4 563 0.1260E+03 0.7642E+00 0.6222E+02 6.700 R3 NO.18 24 4 448 0.11512+03 0.1009E+01 0.6347E=02 18.597 R3 NO.19 24 4 529 0.1072E+03 0.7952E+00 0.7662E=02 2.657 R3 NO.20 24 4 354 0.7000E+02 0.4751E+02 0.1000E+00 11.610 R3 NO.23 24 4 378 0.9100E+02 0.4751E+02 0.1000E+00 11.610 R3 NU.23 24 4 378 0.9100E+02 0.400E+00 0.3724E+03 12.055 R3 NU.24 24 4 385 0.1277E+03 0.9445E+00 0.3031E=02 7.361 Ex P O N E N T I A L H O D E L A I R B O R N E 5 Y S T E M - Y I S U A L 3 C A N 1 N - H O U S E SYSNO NO.FAIL HOURS P1 P2 P3 P4 RBAR R2 NO.1 22 29 766 C.1814E+02 0.8196E+00 0.1072E=01			24	4	349	0,9001E+02	0.9466E+00	3.82641=02		2,093
R3 N0,18 24 4 446 0,11512+03 0,1009E+01 0,6347E=02 18,597 R3 N0,19 24 4 529 0,1072E+03 0,7952E+00 0,7862E=02 2,657 R3 N0,20 24 4 354 0,7000E+02 0,4751E+02 0,1000E+00 11,610 R3 N0,23 24 4 378 0,9100E+02 0,4000E+00 0,3724E+03 12,055 R3 N0,24 24 4 385 0,1277E+03 0,9445E+00 0,3031E=02 7,381 E X P O N E N T I A L M O D E L A I R B O R N E S Y S T E M + Y I S U A L S C A N I NO, 5AIL HOURS Y S T E M + Y I S U A L S C A N I NO, 1 22 29 766 C,1814E+02 0,8196E+00 0,1072E=01 7,958			24	4	563	0,1260E+03	0.7642E+00	50+35559.0		
R3 ND,19 24 4 529 0,1072E+03 0,7952E+00 0.7862E=02 2:657 R3 ND,20 24 4 354 0,7000E+02 0,4751E+02 0,1000E+00 11.610 R3 ND,23 24 4 378 0,9100E+02 0,1000E+00 0.3724E+03 12,055 R3 ND,24 24 4 385 0,1277E+03 0.9445E+00 0.3031E=02 7.381 E x P O N E N T I A L M U D E L A I R B O R N E 5 Y S T E M - V I S U A L 3 C A N SYSNU NO,FAIL HOURS P1 P2 P3 P4 RBAR R2 ND, 1 22 29 766 C,1814E+02 0,8196E+00 0,1072E=01 7,958	and a second second	Analysis and a second second	And an of the second	4	448	0.11512+03	0.1009E+01	0.6347E-02		18,597
R3 ND.20 24 4 354 0,7000E+02 0,4751E+02 0,1000E+00 11.610 R3 NU.23 24 4 376 0,9100E+02 0,1000E+00 0,3724E+03 12,055 R3 NU.24 24 4 385 0,1277E+03 0,9445E+00 0,3031E=02 7,381 E x P O N E N T I A L M O D E L A I R B O R N E S Y S T E M - V I S U A L S C A N I N - H O U S E SYSNU NO,FAIL HOURS P1 P2 P3 P4 RBAR R2 NO, 1 22 29 766 C,1614E+02 0,6196E+00 0,1072E=01 7,958	0		24	4	529	0.1072E+03	0.7952E+00	0.7862E=02		2,657
R3 NU,23 24 4 378 0,9100E+02 0,1000E+00 0,3724E+03 12,055 R3 NU,24 24 4 385 0,1277E+03 0,9445E+00 0,3031E+02 7,381 E x P O N E N T I A L M O D E L A I R B O R N E SYSNU NO,FAIL HOURS P1 P2 P3 P4 R8AR R2 NO, 1 22 29 766 C,1814E+02 0,8196E+00 0,1072E=01 7,958			24	4	354	0,7000E+02	0,4751E+02	0,10002+00		
R3 NU,24 24 4 305 0,1277005 000000000 E X P O N N 1 N 0 D E A I R B O N E N E S Y S T E N I N H D U B E S Y S T P P3 P4 RBAR H2 N N 1 22 29 766 C, 1814E+02 0,8196E+00 0,1072E=01 7,958	adarba con a contra	NU, 23	24	4	378	0,9100E+02	0.1000E+00	0.3724E+03		
A I R B O R N E S Y S T E H - V I S U A L S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E <	R3	NU,24	24	4	385	0,1277E+03	0.9445E+00	0,3031E+02	New York wat has not reaction that has fine	7 , 381
A I R B O R N E S Y S T E H - V I S U A L S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E S Y S N D H - N D U S E <				VI Russing diagram water and	Mar ger an					
SYSNU ND,FAIL HDURS P1 P2 P3 P4 RBAR R2 ND, 1 22 29 766 0,8196E+00 0,8197E=01 7,958						E X P O N I A I R B O S Y S T E	ENTIAL RNE M-VISU	HODEL AL SCAN		
R2 NJ. 1 22 29 766 C. 1814E+02 0.8196E+00 0.1072E=01 7.958			SYSNE	NO,FAIL	HOURS		P2	P3	P4	RBAR
	R2	ND. 1			take ander the			0,1072E=01	names unaffer upon a	7,958
		Contraction of the local division of the loc	al in the state of the local sector of the state of the s	and the second						9,610
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T A B L E 4.4 (Cont'd) L L O Y D • L I P O • H U D E L A I R B O R N E A N T E N N A I N = H O U S E

			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	RE
82	NC.	1	25	6	1584	+,4012E+02	-, 3772E+06			20,559	0,32
82	NO.	2	27	29	1400	0,3993E+02	0,7155E+03			28,317	0,63
R2	NQ.	3	27	8	400	0,2747E+02	£0+30555.0			17.090	0.85
82	NÜ.	4	27	21	1200	50+38575,0	0,3379E+03			38,012	0,775
R2	N0.	5	27	52	0000	0,7523E+02	0,3438E+04			26.735	0.41

LLOYD + LIPOW MODEL AIRBORNE RADAR IN - HOUSE

171			SYSND	ND,FAIL	HOUPS	P1	54	P3	P4	PSAR	RE
RZ	NO.	1	27	162	4988	0,2051E+02	G.1928E+03		-	19,929	0,91
R2	NO.	2	27	43	1000	0,9757E+01	0,5387E+02			49,546	0,90
RZ	NO.	3	25	382	2176	0,2357E+01	0.4265F+01			48.997	0.94
R2	ND.	4	25	315	3984	0,1174E+02	-,6967E+03	-		15,137	0,691
R2	NO.	5	27	27	400	0,75582+01	0,1910E+02			16,948	0,93
82	NO.	6	27	42	1300	0,1245E+02	0.8613E+02			52.597	0,901

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E 4.4 Cont'd) D • L I P D # D R N E L A Y D U S E A B L L O Y I R B I S P N - H T L NODEL ٨ D 1 P4 RE P3 RBAR SYSNO NO, FAIL HOURS P1 29 0,63552+02 0,84422+03 0,84 10,161 58 ND. 1 27 13 1100 20.187 0.7 27 400 0,3792E+02 0,4674E+03 R2 ND, 2 8 11.027 0.8 25 50 3992 0,4942E+02 -,1464E+04 82 NO. 3 29,452 ND, 4 27 13 800 0,44482+02 0,78142+03 0,70 82 11,355 27 63 4996 0,6519E+02 0,1665E+04 0,50 R2 NO. 5 0,/739E+02 0,1899E+04 43,514 25 0.41 RZ NO. 6 11 1200 (£. C LLOY AIRB COMP 31 D LI P 0 MOD 0 U R N ER 172 1 E OUSE IN .H C P4 RE SYSNO ND.FAIL HOURS 92 RBAR P1 P3 15,839 0.6 53 5 0.28258+02 -.73508+04 R1 NU. 1 536 0.0 23 3 0.048 NO. 2 785 0,1065E+03 0,1092E+04 R1 10,948 1.0 NO. 3 23 0.1689E+03 0.6360E+04 R1 3 521 £ NO. 4 21 9 38,447 0.8 R1 500 0,3341E+02 0,3960E+03 0.7 81 ND. 5 21 10 760 0,2698E+02 0,1836E+03 81.733 C ¢ C 6 2 . O

for excision and		_			LLOYD = AIRBOR COMPUT	4 (Cont'd) LIPOW NE ER SE	HODEL		
		SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR
RZ	ND. 1	* 26	3	407	0,845JE+02	40+3622°°0			27.340
R2	ND. 2	27	77	3994	0,53102+02	0,59272+03			29,028
82	NU. 3	27	12	400	0,2823E+02	0.1304E+03			8,240
R2	NO. 4	27	27	1400	0,4361E+02	0,7338E+03			18,627
#2	NO. 5	27	14	800	0,4281F*02	0.6797E+03			20.134
					LLOYD = AIRBOR LASER	LIPOW NE TRANSM	HODEL		
			NO,FAIL	HOURS	I N - H O U P1	\$ E \$2	P3	P4	RBAR
R1	ND. 1	SYSN0 21	3	500		0,1632E+04			6.403
R1 173	NO. 2	21	7	760	And a second sec	0,7218E+03	Non automicial		48,138
			 		LLOYD AIRBOI LASER IN-HOU	LIPOW RNE TRANSM JSE	MODEL ITTER		
		SYSNO	ND.FAIL	HOURS	P1	P2	P3	P4	RBAR
R3	NO. 1	20	7	782	0,5505E+02	0.49522+03	ala iya	et-0	37,150
R3	ND, 2	20	11	767	0,3584E+02	0.2063E+03			48,793
kanal	p100								
				•					al a sua se a se
	-				-		1		1

A. . L E 4.4 (Cont'd) Y D • L I P O W B O R N E HODEL CEIV . SYSND NO.FAIL HOURS 29 P3 P1 P4 RBAR R RI NO. 1 21 10 760 0,4990E+02 0,5216E+03 52.570 0. 0 LLOYD = L AIRBORNE LASER PE IN = HOUSE IPOW HOOFL 1 CEI C SYSNO NO, FAIL HOURS P1 P2 P3 P 4 R RBAR R3 NO, 1 20 767 0,9842E+02 0,6891E+03 320,260 4 0. R3 NO. 2 782 0,3069E+02 0,2287E+03 0 20 21,363 0. ¢ ¢ F 174 C 0 D 1 URO R LASE IN=H X N U S E 1 C NO,FAIL HOURS SYSNO P1 54 P3 P4 RBAR ۵ R1 ND. 1 51 17 760 0.2733E+02 0.1778E+03 88,303 0,9 R1 ND. 2 15 10 0,3435E+02 0,1734E+03 500 41,543 0. C C C 0

T A B L L O A I R L A S I N • LE (Cont'd) YO LIPOW BORNE ER XMYR/ HOUSE HODEL ő. VR r RE HOURS SYSNO NO, FAIL P1 92 P3 P4 RBAR NO. 1 782 0,2605E+02 0,2317E+03 0.833 R3 20 14 44,052 767 0,24522+02 0,91262+02 0,824 R3 NO. 2 20 15 106.781 LLO AIR INF IN-NUDEL LIPOW Y D (• ORNE ARED OUSE B RECEIVER H C P3 P.4 RBAR RE ND.FAIL HOURS SYSNO P1 P2 1 NO. 1 25,436 0,326 23 5 711 -,2324E+03 -.2046E+06 R1 12.712 NO. 2 53 5 785 0,1146E+03 -,1212E+05 0.812 R1 17.91 0,533 23 17.557 NO. 3 8 536 0,3538E+02 =,1731E+05 C (L L O A I R I N P I N -0 = 0 R A R 0 U LIPON MODEL Y B R H C NEDSE RECEIVER P4 RBAR RE SYSNO NO, FAIL HOURS P1 29 P3 2500 0,2036E+02 0,1705E+03 85,868 0.78 R2 ND, 1 27 65 C

1. 1

H2 R2	NO. 2	27 27	103	798	C, 3749E+01 0,5C33E+01	0.9260E+01 0.1634E+02			45,169 33,223
R2 R2	NU. 3 NO. 4	27 25	65 347	599 1192	0,2876E+01 0,2025E+01	0,4326E+01 0,3183E+01			28,524 39,450
H2	ND. 5	27	316	2500	0.5645E+01	20+36264			36,490
RZ	ND. 6	25	371	3981	0.9243E+01	•.8033E+03			13,800
					LLOYD AIRBOR SYSTER	LIPOW NE -LASER	NODEL		
						SE			2012
		SYSND	NO,FAIL	HOURS	P1	P2	P3	P4	RUAR
R1 R1	NO. 1	21	27	760		0,4172E+02 0,8371E+02	ada an		132,175
			19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	10 - 10 - 10 - 10 - 10 - 10 - 10				Routed 2 and encode	r gage area area a
						LIPOW NE LASER	HODEL		
		SYSNO	NU,FAIL	HOURS	P1	P2	P3	P4	RBAR
R3	NO. 1	20	17	767	0.2669E+02	0.1011E+03	ter allerenter		109,543
R3	NO. 2	20	17	782	0,2163E+02	0,2032E+03			50,533
-				Allergerfil (songlight file	an a same sameline part in a same sameline part in a s				-00

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T A B L E 4.4 Cont'd L L O Y O - L I P O A I R B O R N E S Y S T E M - I N F I I N - H O L S E . ODEL D F 1 P1 SYSNO NO, FAIL HOURS 59 P3 94 FBAR (R1 NU. 1 23 17 536 0,5775E+01 -.6884E+04 32,368 NO. 2 R1 53 11 785 0,4496E+02 -,1660E+04 16.578 R1 NO. 3 23 5 521 0,1047E+03 -.1650E+04 14.027 R1 NU. 4 23 711 4 0.7034E+02 -,1528E+05 10.730 (. \$. . 177 t. 177 ((((£ 12 0

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TABLE4.4 (Cont'd) LLOYD • LIPON HODEL AIRBORNE SYSTEM • INFRARED FIELD Vien to B

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<i>a</i> .			373N0	NU.FAIL	HOURS	·P1	P2	P3	P4	RBAR	RE
ľ	R3	NO. 1	24	3	227	0,3106E+02	-,3899E+04			8.058	0.4
	RJ	ND. 2	24	3	344	0,8643E+02	0.18102+04			2,147	0,0
	R3	NU. 5	24	3	789	0,1283E+03	0.1890E+04			.951	0,1
	R3	NO. 4	24	u	411	0,9197E+02	0,7309E+03			10,528	1,4
	R3	ND. 5	24	3	433	C.8761E+02	8876E+04			4,651	0 " 3
	R3	NU. 6	24	3	472	0,1125E+03	0.3061E+04			12,122	0,,8
	R3	NU. 7	24	8	1056	0.87216+02	0.1807E+04			51,924	0.5
	R3	NU. B	24	3	324	-,6699E+02	-,2467E+05			4,776	0 , 0
	R3	NO. 9	24	3	440	0,7952E+02	0.1511E+04			55,978	0.4
	R3	NO.10	24	4	519	0.1515E+03	0,2280E+04			12.835	0.2
	17 R3	NO.11	24	4	349	C.78541+02	0, 9743E+03			13.828	0,1
	R3	N0.12	24	3	255	0.16846+02	8411E+04			10.404	0.4
	R3	NO.13	24	3	390	0,2071E+02	-,5631E+04			12.661	0.6
	R3	N0.14	24	4	563	0.1253E+03	0.4017E+04			9.045	0,2
	R3	N0+15	24	3	307	0,4019E+02	0.4565E+03			30,038	0,31
	R3	1.0.16	24	3	345	-,1495E+03	+,2103E+05		Page	13.679	0,2
	83	ND,17	24	3	705	-,1493E+03	-,1067E+06			15.522	0,4
	R3	ND,18	24	4	448	0.8948E+02	0.4161E+03			103.874	0,5
	RS	ND.19	24	4	529	0,1078E+03	0.2953E+04			4,541	0,0
	R3	N0.20	24	4	354	0.7342E+02	0.6017E+03			11,465	1.3

TABLE4.4 (Cont'd) LLOYD MLIPOW MODEL AIRBORNE SYSTEM MINFRARED FIELD (CONTINUED)

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		SYSND	NO,FAIL	HOURS	P1	:P2 .	P3	Pq	RBAR	Rű
R3	ND.21	24	4	671	0,1211E+03	0.46692+04			36.147	0.841
R3	ND.22	24	3	314	0.5061E+0?	0,64402+03			4.194	0,064
R3	N0.23	24	4	378	0,7728E+02	-,2513E+04			10,246	1.021
R3	N0,24	24	4	385	0.6003E+02	0,4844E+03			36,393	0,58
93	NO.25	24	3	477	0,1331E+03	C.3239E+04			1,327	0.00
R3	N0.26	24	3	393	0,1056E+03	0.2097E+04			77.101	0,531







						TABLE4 AROEF AIRBOR	.4 (Cont'd) M D D E L N E			
							3 E			
			878NU	NO,FAIL	HOURS	P1	P2	PJ	P4	RBAR
RZ		0, 1	25	6	1584	0,1277E+03				15,395
Ra) , 2	27	59	1400	0,38555+02				25,804
Ra		3	27	8	400		0,8551E+01			15,156
R		. 4	27	21	1500					31,730
R	2 N	0, 5	27	52	6000	0.7453(+02	0,83888+02			21,558
400 - 400		10 10000					MODEL			
	p gadas addasad with asses				-			-		~
			SYSNO	NO,FAIL	HOURS	P1	P2	Ρ3	P4	RBAR
180	2 N	D, 1	27	162	4983		0,1095E+02			18,807
R		0, 2	27	43	1000	0,84612+01	0.5850E+01	4	an an ann	36,972
R		0, 3		362		0.2119E+01				41.701
R		0, 4	25	315	3984		+,4295E+02			14,915
R		0, 5		27	400		0.2374E+01			15,193
		0. 6		42	1300		0,7525E+01			37.846
				-		alline Alle				
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					ningan and the difference in the		adaman hala (kalandara da kalandara da kalandara da kalandara da kalandara da kalandara da kalandara da kalanda	alan) manana dinan mananana d	nator mare	
		ana o a grafina analani								
						an algor and algorithms a		ng uga gapagan karang di para kabulah sang di kabu	n ang ana ang ang ang ang ang ang ang an	
			98999 ¹ 981-999-9999999999999999999999999999							
-	The same			Contraction of the state			and the second second second second			

T A B L E 4.4 (Cont'd) A R O E F M O D E L A I R B O R N E D I S P L A Y I N = H O U S E P3 P4 RBAR RE 24 SYSNO NO.FAIL HOURS PI 9,788 0,8 1100 0,62971+02 0.1412E+02 82 NO. 1 27 13 17,468 27 8 400 0,3688E+02 0.1396E+02 0.6 5 R NO, 2 1 50 3992 0,4"005+02 -,27184+02 10,854 0.8 25 NG, 3 RZ £ 25,449 0.0 27 13 800 0.42486+02 0,2102E+02 R2 ND. 4 0.4 10,531 0,6497E+02 0,3435E+02 27 63 4996 R2 NO. 5 32,577 0.1 R2 NO. 6 25 11 1200 0.7374E+02 0.3900E+02 (11 AROEF HODEL C A I R B O R N E C O M P U T E R I N = H O U B E 181 C a l RBAR Rt P4 P3 12 SYSNO NO FAIL HOURS P1 0 13,703 0.1 -,8871E+02 536 0,4098E+02 NO, 1 23 5 R1 0.0 0.024 3 785 0,1067E+03 0,1106E+02 23 R1 NO. 2 C 10,531 0.9 521 0,1680E+03 0,4284E+02 23 3 RI NO. 3 6 28,281 0.0 500 0,3058E+02 0,1376E+02 9 R1 NO. 4 21 46,945 0. 760 0.2274E+02 0.1126E+02 10 RI ND. 5 21 1 1 1 0

						A I R B O R C O M P U T	4 (Cont'd) MODEL NE ER			
			575NO	NO,FAIL	HUURS	IN-HOU P1	S E P2	P3	P 4	RBAR
	R2	NO. 1	26	3	407		0,36255+02			24,248
-	RZ	NO. 2	27	17	3994	0.5192E+02	0,2451E+02			18.475
	RZ	NO. 3	27	12	400	0.2804E+02				8,002
	R2	NO. 4	27	27	1400	0,4269E+02				17.745
	R2	NU. 5	27	14	956	0,41952+02				17.109
-										
						A I R B O F L A S E R I N = H O L	MODEL NE TRANSMI JSE	TTER		
			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR
82	R1	ND. 1	21	3	500	0,1258E+03	0,3303E+02			4,304
	R1	NO. 2	21	7	760	0,5774E+02	0.2268E+02	a (No. 10)		50,560
						A R O E F A I R B O I L A S E R I N = H O I	M O D E L R N E T R A N S M J U S E	TTER		
-			SYSND	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR
	R3	N0. 1	20	7	782	0,5397E+02	0,1762E+02			25,197
	RJ	ND. 2	20	11	767	0,3318E+02	0.1091E+02			32,440
				na napa kana maga waka na na manaka a maganakana kana na manakana	-					
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TABLE4.4 (Cont'd) ARUEF HODEL AIRBORNE LASER RECEIVER IN-HOUSE P1 P3 P4 SYSND ND, FAIL HOURS 54 PBAR 10 760 0,4816E+02 0,2023E+02 R1 NO. 1 21 32,503 1 ARDEF MODEL AIRBURNE LASER RECEIVER IN• MOUSE £ 0 SYSNO NO,FAIL HOURS P2 P3 P1 RBAR P4 R3 NO. 1 20 4 767 0,5977E+02 0,1679E+02 88.338 R3 ND, 2 20 6 782 0,29828+02 0,84168+01 19,740 A R O E F M O D E L A I R B U R N E L A S E R X M T R / R I N • M O U S E 183 C C V R D'0 SYSNO NO.FAIL HOURS 54 P3 P1 P4 RBAR 0 15 17 760 0.2404E+02 0.1235E+02 R1 NO. 1 56,456 NU. 2 21 10 500 0,3391E+02 0,1082E+02 R1 (25,949 (C 4

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				TABLE AROEF AIRBO LASER IN • HOI	⁴ н ⁴ 0 (Сорт'с R N E Х M T R / U S E			
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T A B L E 4.4 (Cont'd) ARDEF HODEL ٨ IRBURNE RED RA RECEI F I N IN-HOUSE RBAR P4 P3 SYSND NO.FAIL HOURS P1 29 17,326 0 0,2676E+02 -,9102E+03 R1 NU. 1 23 5 711 0 12.566 0,1177E+03 +,7729E+02 785 23 5 RI NC. 2 15,226 0 0,5290E+02 -,1550E+03 536 53 NO. 3 A R1 (1.9 ARDEF MODEL (IRBORNENFRARED . INFRA RECEIVER - HOUSE IN (RBAR 23 P4 65 SYSNO NO FAIL HOURS P1 64,902 2500 0,1713E+02 0,1341E+02 27 65 S8 NU. 1 (177 (185 ARDEF HODEL ¢ R B O R N E S T E M = R I Y ٨ RADAR 3 IN . HOUSE € RBAR P3 P4 P2 HOURS P1 SYSNO NO.FAIL C 37,765 0,2736E+01 27 103 798 0,3376E+01 R2 NO. 1 29,524 0 0,3586E+01 27 127 1097 0,4718E+01 R2 NO. 2 1 U 25,260 399 0,2708E+01 0,1484E+01 NO. 3 27 65 RZ 0 35,443 0,1925E+01 1192 0,1876E+01 347 NO. 4 25 R2 33,955 0 0,5368E+01 27 316 2500 0,5310E+01 RZ NO, 5 1 14,139 0,9197E+01 +,5555E+02 371 3981 25 R2 NO. 6

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IN + HOUSE SYSNO NO,FAIL HOURS P1 P2 P3 P4 RBAR R1 NO, 1 21 27 760 0,1055E+02 0,5952E+01 79,663 R1 NO, 2 21 19 500 0,1593E+02 0,8150E+01 26,631 R1 NO, 2 21 19 500 0,1593E+02 0,8150E+01 26,631 R1 NO, 2 21 19 500 0,1593E+02 0,8150E+01 26,631 S1 NO, 2 21 19 500 0,1593E+02 0,8150E+01 26,631 S1 NO, 2 20 17 767 0,2220E+02 0,8085E+01 59,71 R3 NO, 2 20 17 767 0,2220E+02 0,8085E+01 59,71 B3 NO, 2 20 17 767 0,2220E+02 0,1066E+02 36,52 S4 R D F H P1 P2 P3 P4 R8AR B4 NO, 2 23 17 536 0,1867E+02 +1.97FRARED <th>SYSNO NU, FAIL HOURS P1 P2 P3 P4 RBAR R1 ND, 1 21 27 760 0,1055E+02 0,5952E+01 79,663 R1 ND, 2 21 19 500 0,1593E+02 0,8150E+01 26,633 R1 ND, 2 21 19 500 0,1593E+02 0,8150E+01 26,633 A I D E M O E A R B R A R D E 26,633 SYSNO NO, FAIL HUURS P1 P2 P3 P4 RBAR R3 NO, 1 20 17 767 0,2220E+02 0,8085E+01 59,71 R3 NO, 2 20 17 762 0,1668E+02 0,1066E+02 36,52 SYSNO NO, FAIL HUURS P1 P2 P3 P4 RBAR SYSNO NO, FAIL HUURS P1 P2</th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th>A R O E F A I R B O R S Y S T E H</th> <th>.4 (Cont'd) M D D E L N E - L A S E R</th> <th></th> <th></th> <th></th>	SYSNO NU, FAIL HOURS P1 P2 P3 P4 RBAR R1 ND, 1 21 27 760 0,1055E+02 0,5952E+01 79,663 R1 ND, 2 21 19 500 0,1593E+02 0,8150E+01 26,633 R1 ND, 2 21 19 500 0,1593E+02 0,8150E+01 26,633 A I D E M O E A R B R A R D E 26,633 SYSNO NO, FAIL HUURS P1 P2 P3 P4 RBAR R3 NO, 1 20 17 767 0,2220E+02 0,8085E+01 59,71 R3 NO, 2 20 17 762 0,1668E+02 0,1066E+02 36,52 SYSNO NO, FAIL HUURS P1 P2 P3 P4 RBAR SYSNO NO, FAIL HUURS P1 P2				-			A R O E F A I R B O R S Y S T E H	.4 (Cont'd) M D D E L N E - L A S E R			
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A R B O R N E S Y S NO NO, FAIL HUURS P1 P2 P3 P3 NO, 1 P3 NO, 1 P3 NO, 2 P3 P4 P3 P4 P3 P4 P3 P4 P3 P4 P3 NO, 1 P3 NO, 2 P4 P3 P4 P4 P4 P4 P5 P5 P4 P4 P5 P5 P6 P5 P4 P5 P5 P5 P6 P6 P6 P6 P6 P6 P6 P6 P6 P6 P6 P7 P6 P6 P7 P7 P7 P7 P7 P7 P7 P7 P7 P7 P7 P7 <	A R B O R N E S Y S NO NO. FAIL NO. 1 20 17 767 0.12220E+02 0.8085E+01 7 767 0.12220E+02 0.1068E+02 7 767 0.12220E+02 0.1066E+02 36.52 36.52 36.52 36.52 37 NO. 2 20 37 782 38 NO. 2 39 17 782 0.1688E+02 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 36.52 37.5 38.7 39.7 39.7 39.7 39.7 39.	Ri	and the contract of the second		21	19	500					26,637
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R3 NO, 2 20 17 782 0,1688E+02 0,1066E+02 36,52 Image: Strain St	R3 NO, 2 20 17 782 0,1688E+02 0,1066E+02 36,52 Image: Strain St	0.1	ND							P3	74	
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		R1 R1 R1	ND.	1 2 3	23 23 23	17 11 5	536 785 521	I N - H D U P1 0,1887E+02 0,4522E+63 0,1037E+03	N E I N F R A S E P2 I 1279E+03 I 2779E+02 I 1416E+02		P4	23,14 15,03 14,13

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T A B L E 4.4 (Cont'd) A R O E F M O D E L A I R B O R N E S Y S T E M = I N F R A R E O F I E L D E. F.

			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P4	RBAR	R
	R3	ND. 1	24	3	227	0,3923E+02	-,5642E+02			7,325	0,
4	R3	NO, 2	24	3	344	0,9192E+02	0,3386E+02			0,968	0,
C	R3	NO, 3	24	3	789	0,1361E+03	0.3534E+02			9,916	0.
	R3	ND. 4	24		411	0,9111E+02	0,7594E+01			10,384	1,
(R3	ND. 5	24	3	433	0,9390E+02	6660E+02			4.347	0.
(R3	NO. 6	24	3	472	0.1144E+03	0.3648E+02			11,930	0.
	R3	NO. 7	24	8	1056	0,82952+02	0,3631E+02			31.768	9.
(R3	ND. 8	24	3	324	0.1610E+02	*,2639E+03			1,980	0.
6	R3	ND. 9	24	3	440	0.75828+02	0.3375E+02			36,464	0.
	R3	NU.10	24	4	519	0.1571E+03	0.3777E+02	ndig Maxima .	and the second	12,837	0.
	» R3	ND.11	24	4	349	0.8270E+02	0,25862+02			9,625	٥,
187	RJ	N0.12	24	3	255	0.3514E+02	-,1060E+03			10.642	0.
	R3	ND,13	24	3	390	0,3482E+02	-,7707E+02	fan de samme myneter varente stelle i va	dana ayada a palasalah musa genasalah musak	11,514	0,
(R3	NO.14	24	4	563	0.1293E+03	0,4674E+02			7.857	0.
(R3	N0.15	24	3	307	0,4013E+02	0,1930E+02			30,163	0,
	R3	NO.16	24	3	345	0,1736E+01	-,3490E+03		1 opening game and enter-states and another	8,811	0.
(R3	NO.17	24	3	705	0,3097E+02	+,5553E+03			12.350	0.1
C	R3	NU.18	24	4	448	0.8055E+02	0,2316E+02			53,116	0.4
	R3	NO.19	24	4	529	0,11222+03	0,4092E+02	a a secolar dag yang yang yang yang yang yang yang ya	and the state of the	3,647	0.0
•	R3	NO.20	24	4	354	0,7241E+02	0,7992E+01			11.704	1.1

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1 E 4 4 (Cont'd) F M O D E L O R N E E M • I N F R T A B L A R O E A I R B S Y S T F I E L (C O N RARED DINU Ð ED) RBAR P3 .4 P1 P2 SYSNO NO.FAIL HOURS 27,900 0 671 0.1123E+03 0.4756E+02 24 4 NO.21 R3 2,900 0,5329E+02 0,1948E+02 314 3 N0,22 24 P3 10.496 1 0,76968+02 -,28968+02 24 4 378 NO.23 R3 22.723 C 0,5965E+02 0,1744E+02 385 R3 N0.24 24 4 0,016 0 0,1437E+03 0,4807E+02 24 3 477 R3 NU.25 41.938 0 0,9917E+02 0,4016E+02 393 24 3 N0.26 R3 0 Ø 8 188 FOE HODEL RNE M = V 1 SUAL A R A I O E R B (SCAN 8 3 T 0 IN ٠ U 5 н E (RBAR P4 P3 29 SYSNO NU, FAIL HOURS P1 C 20,581 0,1624E+02 0,6124E+01 22 29 766 RZ NU. 1 18,812 0.1117E+02 0.6857E+01 41 549 NU, 2 55 RZ C 4 0

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	aat at Synax					A I R B O R A N T E N N I N - H O U					
			SYSND	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
85	NO.		25	6	1584	0,7144E+03	+,7251E=03			19,535	
82	NO.		27	59	1400	0,2104E+02	0.7516E=03			11.594	
85	NO.	3	27	6	400	0.1743E+02	0.2430E-02			4,390	
RS	ND.	4	27	21	1200	0.1354E+02	0.14538-02			6,833	
RZ	NO.	5	27	52	6000	0.3685E+02	0.2497E=03			35,232	
189		_			@3 y@4	SIMPLE AIRBOR RADAR	E X P O N N E	ENTIAL			
66						RADAR IN=HOU	SE				
			SYSND	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
R2	NO.	1	27	162	4988	0,1462E+02	0.15682-03			6.571	
R2	ND.	5	27	43	1000	0,4843E+01	0.1805E-02			7.929	
RZ	NO.	3	25	382	2176	0,1237E+01	0.90778-03			14.150	
R2	NÜ.	4	25	315	3984	0,1680E+02	1863E-03		Nagethand an eligiburghand a south other a stage	12,396	
R2) .	5	27	27	400	0,5296E+01	0.23855-02			4,885	
RZ	ND.	6	27	42	1300	0,6003E+01	0.14728-02			8,494	
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 -						T A B L E 4 S I M P L E A I R B D R D I S P L A I N • H O U	N E Y	ENTIAL			
			SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR	
82	NO.	1	27	13	1100	0,5011E+02	0.3781E=03			7,773	
RZ	NŪ.	2	27	8	400	0,2213E+02	50-30405.0			3,321	
85	ND.	3	25	50	3992	0.53708+02	3861E=04			12.072	
RZ	ND.	4	27	13	800	0.2314E+02	0.13582-02			5,691	
RZ	NO.	5	27	63	4996	0.4975E+02	0.9812E=04			10,145	
R2	NŪ.	6	25	11	1200	0,27316+02	0.1456E-02			21.150	
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(-						IN . HOU	8 E				- 1
CF-	190			SYSNO	NO,FAIL	HOURS	P1	P2	P3	P 4	RBAR	R
- (RI	ND.	1	23	5	536	0.1077E+03	=.2291E=02	elifektions and aper 40000 original	aday ada a darar	16,180	0.
(R1	ND.	2	23	3	785	50+39556.0	0.3778E-03			0.924	0.
	R1	NO.	3	23	3	521	0,1070±+03	0.8579E=03			5.944	٥.
0	R1	NJ.	4	21	9	500	0,16026+02	0,2595E+02		an angulutur data	6.760	0.
	R1	NO.	5	21	10	760	0,8080E+01	0,40285-02		-144 -	29.270	0,

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		5Y5H0	NO.FAIL	HOURS	I N - H U L	1 S E P2	P 3	P 4	RBAR
R2	NU. 1	20	3	407		0.3680E=02			12,364
R2	NO. 2	27	77	3994		0,2258E-03			40,855
R2	NO. 3	27	12		0.2302E+02				3,702
RZ	NO. 4	27	27		0,2918E+02				6,623
R2	ND, 5	27	14		0,2470E+02				5,099
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					AIRBOI	E EXPON RNE			
- A de la grande de la destrucción destrucción destrucción destrucción de la destrucción de la destruc				Antonio antino delos		TRANSH JSE	ITTER		
		SYSNO	NO.FAIL	HOURS	P1	P2	P3	P4	RBAR
191 R1	NO. 1	21	3			0,5866E=02			32,714
R1	NO. 2	21	7		0,1290E+02		an ann ann an		32,903
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		and the and economic on the state of the sta	a a processinguises are common the delet effective		Agardan dana dagi a si sarangkan anat				
Mary Constant and					and the second			nge under a to endplore a	laga georiago a sugago agus abiangidea a ingener
armouth distant design of plants			alaina dalamatiki apalapartikina no 10 man	deligiopopolitika en esta en esta deligio del		theready is a second a gap	(Mare)		1 10 1 ATMEN 1
* ***				eren för föra skanstalla det föra kalla skalar och		agaaggementer v ander			

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- -TABLE 4.4 (Cont'd) SIMPLE EXPONENTIAL AIRBORNE LASER XMTR/PCVR IN-HOUSE P3 RBAR PF SYSND NO.FAIL HOURS PI 29 P4 21 0.6779E+01 0.3521E=02 34,147 0,7 RI NO. 1 17 760 R1 38,006 0.8 NO, 2 21 500 0,1012E+02 0,4665E=02 10 2 5 1 MPLE EXPONENTIAL A I R B O R N E L A S E R X M I N - H Q U S E î TR/ C ¢ SYSNO NO.FAIL HOURS P3 P4 PI 59 REAR RE € 83 ND. 1 20 14 782 50-3105540 50+3625140 13,370 0.0 0.1 R3 ND, 2 20 0,7025E+01 0,3090E+02 44,769 C 15 767 1 3 S I M P L E E A I R B D R N E I N F R A R E D I N - M D U S E C EXPONENTIAL 193 REC IVER F. C RBAR RE NO.FAIL HUURS SYSNO P3 94 P1 24 • 22,776 R1 NO. 1 23 5 711 0,9025E+03 -,3250E+02 0.4 5 R1 NO. 2 23 785 0,1618E+03 -,2197E=03 16,094 1.2 60 23 RI NU. 3 8 536 0,1454E+03 -,1385E-02 15,960 0.7 03

E 4.4 (Cont'd) LE EXPONENTIAL ORNE AREO RECEIVER OUSE S I A I I N BMRF LP BR H Ă 1 IN h P3 P4 RBAR SYSNO NO, FAIL HOURS P1 P2 27,044 NO. 1 27 2500 0,6645E+01 0,9951E=03 R2 65 S I H P A I R B S Y S T I N - H L E O R E M O U ONENTIAL EX ERE . 0 R A 1 ND.FAIL HOURS RBAR SYSNO PI 59 P3 P4 C 8,294 82 NO. 1 27 103 798 0.1975E+01 0.2040E-02 Ö C R 2 NO. 2 23 127 1097 0,2975E+01 0,1111E=02 5,248 ŋ R2 NO. 3 27 65 399 -0-1808E+01 0.3312E=02 5,028 0 6 0 NO. 4 25 347 10,941 R2 1192 0,1128E+01 0.1138E-02 RZ ND. 5 21 316 2500 0.3074E+01 0.4945E=03 21.769 0 C 194 0,1312E+02 -.1747E=03 R2 NU. 6 25 371 3981 13.277 0 (194 SIM AIR SYS 3 I M P L E A I R 5 O R S Y 8 T E M I N = H O U ONENTIAL C E X ø N E . . SE C NU,FAIL HOURS PG RBAR SYSNO P3 P1 24 R1 NO. 1 31 27 760 0.3105E+01 0,4172E=02 41,249 0 19 20,309 Q NO. 2 21 500 0,7472E+01 0,3098E-02 R1 0 1 0

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1 3 L E 4.4 (0 M P L E E R B U R N E S T E M • L • H O U S E 4.4 (Cont'd) E EXPONENTIAL RNE T A S J A I S Y I N ASER 3 SYSND NO.FATI HOURS P1 92 P3 P4 RBAR RE R3 ND. 1 20 17 767 0,7221E+01 0,2855E=02 42,785 0,1 R3 ND, 2 20 17 782 50-36855.0 10+35976.0 7.767 0,0 S I M P L E E A I R B U R N E S Y S T E M - I I N - M U U S E 1 X ONENTIAL N E D C SYSNO NO FAIL HOURS P1 29 P3 P4 RBAR RE 1 . RI NO. 1 23 17 0,4616E+02 -,1118E-02 536 27,639 0,9 R1 NO. 2 23 11 785 0,51086+02 0,4042E-04 17,829 1.1 R1 NO. 3 23 5 521 0,1072E+03 0,7252E=04 15,511 1,3 56 R1 NO. 4 23 9 711 0,1881E+03 -,1188E-02 8,682 0.2 (561 C Ċ 0

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T A B L E 4.4 (Cont'd) S I M P L E E X P O N E N T I A L A I R 6 O R N E S Y S T E M = I N F R A R E D F I E L D 3

			SYSNO	NO, FAIL	HOURS	P1	P2	P3	P4	RBAR	
	R3	ND. 1	24	3	227	0,9881E+02	••3455E=05			10.045	0
\$	83	NO. 2	24	3	344	0.3319E+02	0.4068E-02			12,135	0
	83	ND. 3	24	3	789	0,1568E+02	0.6827E-02			18.864	0
Ĩ.,	83	NO, 4	24	4	411	0,7689E+02	0,5532E=03			8,461	0
•	R3	NO. 5	24	3	433	0.1667E+03	10916-02			6.669	0
	R3	NO. 6	24	3	472	0,5717E+02	0.55555=05			13,067	1
•	R3	NO. 7	24	8	1056	0,2731E+02	0,1830E=02			23,964	0
4	R3	NO. 8	24	3	324	0,4789E+03	1060E-01			5.140	0
c	R3	ND. 9	24	3	440	0.10302+02	0.6543E=02			10,872	0
	R3	NU.10	24	4	519	0.1753E+02	0.4962E=02			26,420	0
(R3	N0.11	24	4	349	0.2004E+02	0.50418-02			31,215	0
2	_R3	N0,12	24	3	255	0,1973E+03	6581E-02			9,955	0
C	ORS	ND.13	34	3	390	0.1131E+03	-,4122E=02			13.830	0
C	R3	NO.14	24	4	563	0.5949E+02	0.1731E=02			12.761	0
C	R3	N0,15	24	3	307	0,1007E+02	0,1152E=01			16.060	0
	R3	NO.16	24	3	345	0.15692+04	- 3284E=01			11.048	0
C	R3	NU.17	24	3	705	0,8487E+03	-,4792E-02			14.716	0
	R3	NU,18	24	4	448	0,1198E+02	0.5863E=02			25,003	0
•	R3	ND.19	24	4	529	0.5127E+02	0,1973E-02			12,273	0
۲	R3	ND.20	24	4	354	0,6133E+02	0,6031E=03			10.657	1

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T A B L E 4.4 (Cont'd) S I M P L E E X P U N E N I I A L G R O U N D S Y S T E M D I S P L A Y F I E L D (C O N T I N U E D) P1 SYSNO NO FAIL HOURS 92 P3 P4 1 Part

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								145	2541	
	R 3	N0+51	24	4	671	0,5013E+02	0.1794E=02		11.001	0.074
1	R3	55.0M	24	3	314	0.21552+02	0.6013E=02		\$\$0,022	0,238
	R3	ND.23	24	4	378	0.1178E+03	1227E-02		9,761	0,845
	R3	NO.24	24	4	385	0.1469E+02	0.5782E=02		39.472	0,366
	R3	N0.25	24	3	477	0,3221E+02	0.4106E=02		21.296	0,667
	R3	NO.26	24	3	393	0.1571E+02	0.5930E=02		11,535	0,007

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4	6-4							1	R	8 (0 1	E R N	E						T	1	A	L						
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				SYSND	NO.FAIL	HOURS			P1					P	2				P3			-	P4		RBAI	R	R	E
	R2	NO.	1	55	29	766	0	.86	22	E+	01	0	•1	88	8E	=0	2							-10-	26,20	53	0.	611
)	82	NO.	2	2.2	41	549	0	•73	72	E+	01	0	• 1	31	5E	•0	2								10.3	26	0.	253

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