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CH-54 OPERATIONAL STATISTICS

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Final Report

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Prepared for
EUSTIS DIRECTORATE
U. S. ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LABORATORY
Fort Eustis, Va. 23604

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EUSTIS DIRECTORATE POSITION STATEMENT

The CH-54 helicopter has been validated in the Army Reliability and Maintainability (R&M) Model. A factorial analysis was used to design a set of simulation experiments to determine model sensitivity, credibility, and sufficiency. Changes in operational availability resulting from changes in TBO policy, major inspection policies, failure rates, Not Operationally Ready Supply (NORS) rates, and utilization rates were consistent with actual data from the field.

The conclusions contained herein are concurred in by this Directorate.

The technical monitors for this contract were Mr. Howard M. Bratt, Mr. Robert L. Walker, and Mr. Gary R. Newport, Military Operations Technology Division, Eustis Directorate.

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TBO concepts, major inspection durations, and repair/replacement time distributions were studied. Effects on operational availability, intrinsic availability, unscheduled elapsed maintenance downtime (including and excluding NORS time), and mission accomplishment were evaluated.

A baseline model was established by making successive simulation iterations and refinements until all output statistics tested fell within the allowable statistical range of the expected CH-54B R&M characteristics and operational conditions.

Among the ^{find}major findings of this program were:

- a) Simulation error was very large, but could be reduced substantially by employing a factorial arrangement of simulation runs.
- b) Simulation error could be further reduced if the model's logic were changed in the method of simulating failures.
- c) Despite the large simulation error, sensitivities were able to be established for most parameters studied. Low utilization for the number of aircraft simulated was probably the primary cause for little or no change in mission accomplishment.
- d) Types of repair/replacement distribution assumed do not alter the simulation results, provided the mean time to repair/replace value is correct.
- e) Short-term scheduled maintenance requirements of 30 hours between major inspections as opposed to longer term "periodic" scheduled maintenance of 100 hours show indications of compromising operational availability and maintenance man-hour resources.

The study results were substantiated on a rigorous statistical basis.

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SUMMARY

The CH-54 Operational Statistics program was performed under Contract DAAJ02-74-C-0064 for the purpose of validating the CH-54 helicopter in the Army's tactical aircraft Reliability and Maintainability (R&M) model and to analyze the results obtained from the factorically designed arrangement of R&M simulation runs on sensitivity, credibility, sufficiency and application regimes.

The NORS and cannibalization subroutine was employed using CH-54B field data gathered through the ORME⁽¹⁾ program and the subroutine was exercised throughout the study effort. The studies showed that employment of the NORS and cannibalization subroutine used in conjunction with an 8 hour a day, 5 days a week peacetime utilization introduces very large variation into the model. As a consequence, simulations covering a company unit operating period of 18 months were required to minimize this variability.

The CH-54 program provides a new dimension into the study of simulation results in that it provides a statistical methodology for the acceptance or rejection of simulation results as sufficiently representative of known field flight operations and for the determination of significant simulation results.

A baseline model was established by making successive simulation iterations and model refinements until all output statistics tested fell within allowable statistics limits of the expected R&M characteristics and operational conditions of the CH-54B. Having established the baseline, changes in utilization, failure rate, NORS waiting time, TBO concepts, major inspection durations and repair/replacement time distributions were studied.

Significant results found during this study were:

- 1) The simulation error associated with the operational availability model output is very large and hampers the ability of the model to measure the effects of major changes in Reliability and Maintainability aircraft characteristics.
- 2) Despite the large simulation error, the model generally provides the expected results, for example, increasing either utilization, failure rate or NORS waiting time by 20% produced about the same

Note (1): The ORME program which was completed in mid 1974 was a U. S. Army-Sikorsky Operational Reliability/Maintainability Program established to collect and evaluate CH-54 R/M field data by trained R/M engineering personnel. Its purpose was to construct accurate and timely data profiles of failure and maintenance problems observed under monitored operational conditions and establish failure trends in order to intensify R/M improvement in current and future helicopter designs.

net effect, i.e., that of decreasing operational availability by 5%. A notable exception of this was found in attempting to measure the effect on mission accomplishment where the simulation error totally masked any cause/effect relationship induced by increasing NORS, failure rate, and utilization. Low utilization for the number of aircraft simulated appeared to play a most significant part in causing little or no change in mission accomplishment.

- 3) The ability to measure changes in operational response was enhanced by the use of the factorial analysis procedures in the study. The use of the factorial approach in this study not only minimized the influence of simulation error which threatened to cloud the determination of real changes in model output, but also substantially reduced the number of simulation runs required to perform the analysis. In many cases this reduction in runs was by a factor of 3 to 1.

The simulation error of this model is large and the number of iterative simulation runs required to establish the validity of the model and to perform sensitivity studies was excessive despite the mollifying influence of the factorial approach. A method is recommended for minimizing the simulation error of the R/M model which will have the combined effect of reducing the number of iterative runs required and improving the sensitivity of the model. This recommendation involves a change in the method of simulating failures according to "when discovered" events.

PREFACE

The work for this study was authorized by Contract DAAJ02-74-C-0064 by the Eustis Directorate, U. S. Army Air Mobility Research and Development Laboratory, Fort Eustis, Virginia, under the technical cognizance of Mr. Howard Bratt, Mr. Gary Newport and Mr. Robert Walker.

The Sikorsky Aircraft personnel involved in performing and contributing to this study were:

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- Mr. R. W. Caseria, Reliability Engineer and Program Manager
- Mr. J. V. Stern, Computer Programmer
- Mr. N. T. Spencer, CH-54 Field Reliability Engineer
- Mr. C. D. Holbert, Maintainability Engineer
- Mr. J. K. Bosse, Computer Programmer

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INTRODUCTION

This program was undertaken to validate the Army R&M model for use in simulating CH-54B operation. A secondary but equally important purpose was to incorporate some statistical rigor into the measurement and interpretation of the simulation results.

The information collected and analyzed during this program is presented in the following seven sections:

- (1) CH-54B Aircraft Description
- (2) CH-54B Aircraft Operation
- (3) R&M Model Data Input for CH-54B
- (4) R&M Model Program Updates to Accommodate the CH-54B Aircraft/Operation
- (5) Validation of the CH-54B Version of the R&M Model
- (6) Statistical Analysis of Simulation Results
- (7) Conclusions and Recommendations

The CH-54B field experience used in constructing the CH-54B version of the R&M model was primarily taken from the Operations Reliability/Maintainability Engineering (ORME) program. This was an Army/Sikorsky data collection and product improvement program which included 3 years of CH-54B operation by 25 aircraft. The ORME program provided the expected values used in the CH-54B/R&M model validation.

The sensitivity studies were based on varying certain aircraft and operational factors in a factorial design arrangement to improve the statistical interpretation of the simulation results. The methods of varying these factors were optional in some cases. In the case of utilization, this change was produced by varying the number of mission launches per day as opposed to varying the number of aircraft required for a mission or the mission duration. The NORS factor was varied by changing the delay time to acquire a spare rather than changing the probability that a spare part was needed but not available.

DISCUSSION

The CH-54B model is a modification of the UH-1N R&M simulation model which was supplied to Sikorsky Aircraft by the Eustis Directorate. The first part of this discussion describes the CH-54B aircraft characteristics and CH-54B operational environment that are being simulated. As part of the aircraft description, Appendix I is provided to identify the elements of the CH-54B and their failure rates. Following this information is a discussion describing the specific input and model logic changes incorporated into the original UH-1N R&M model to construct the CH-54B model. Appendixes II, III, and IV further identify these modifications. The last part of this discussion describes the CH-54B model validation effort and a statistical analysis of the simulation results of running the model under a variety of alternative operating conditions and maintenance concepts, and the conclusions and results derived therefrom. Appendix V provides additional detail on the factorially designed statistical analysis performed in this program. Figure 1 illustrates the input, constraints and output that are essential to the CH-54B model described herein.

CH-54B AIRCRAFT DESCRIPTION

The CH-54B is a crane-type, 40,000-lb category helicopter. It has been used extensively in Southeast Asia to move heavy Army equipment and to retrieve downed aircraft. The operation simulated in this program, however, is peacetime, state-side operation.

For the purposes of the R&M model input function structure for failure, repair, and replace information, the CH-54B has been identified according to the following subsystem/component breakdown, which has been described as consisting of 20 subsystems comprising a total of 296 components. The categories of main and tail rotor blades, engines and fuel controls are represented by more than one component element to permit tracking each blade, etc., individually for monitoring their scheduled TBO removal times. The system codes to be used in describing the 20 subsystems and their components are consistent with those used in the Operational Reliability/Maintainability Engineering (ORME) program and are identified below.

<u>Subsystem</u>	<u>Subsystem Code</u>	<u>Components Elements</u>
Airframe	01	01-20
Landing Gear	02	01-24
Mechanical Flight Controls	03	01-13
Rotors/Blades	04	01-32
APP Installation	05	01-08
Transmission	06	01-23
Power Plant Installation	07	01-22
Heater/Anti-Ice	08	01-05
Electrical	09	01-16
Hydraulic Flight Controls	10	01-11
Hydraulics	11	01-13
Fuel System	12	01-05
Utilities	13	01-08

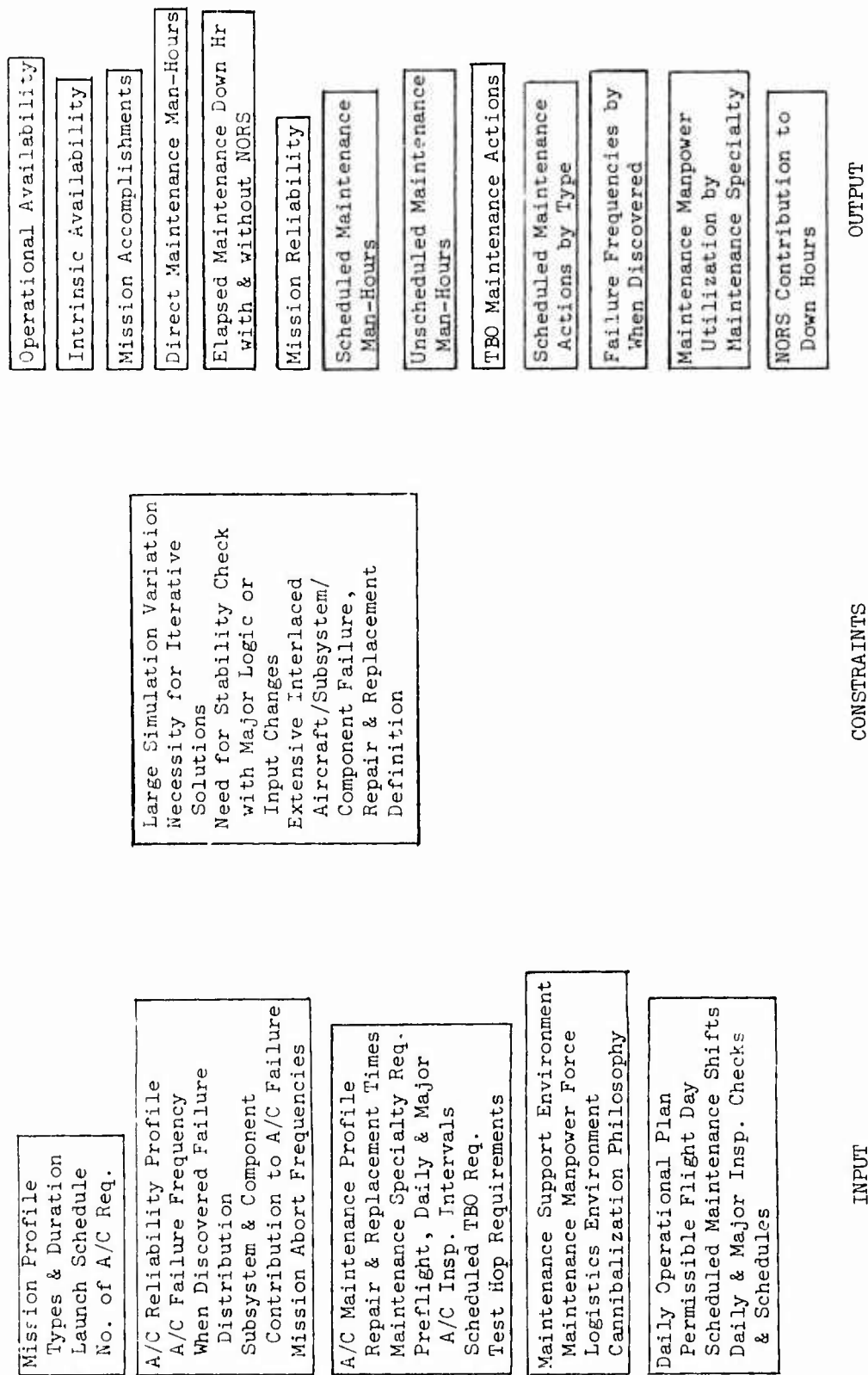


Figure 1. CH-54B Model Input/Output Description.

<u>Subsystem</u>	<u>Subsystem Code</u>	<u>Components Elements</u>
Cargo Handling	14	01-11
Instruments	15	01-26
AFCS	16	01-15
Communications	17	01-14
Navigation	18	01-07
Turboshaft Engine	19	01-15
APP	20	01-08

The individual component identifications and the failure rates observed in the field relative to the components identified are contained in Appendix I. This information was taken from the ORME program and is representative of the 3-year history reported in SER-64344, Revision K.⁽¹⁾ The time change components, as identified in the CH-54B Organizational Maintenance Manual, TM 55-1520-217-20-2, are shown below with their high time removal limits.

<u>Components</u>	<u>Number of Items</u>	<u>TBO (Hr)</u>
Main Rotor Head	1	800
Tail Rotor Head	1	800
Main Rotor Blade	6	2500
Tail Rotor Blade	4	1600
Main Gearbox	1	625
Intermediate Gearbox	1	1200
Tail Gearbox	1	1200
AFCS Servo Assembly	1	1200
Fuel Control	2	800
Engine	2	800
Cargo Hoist	1	240 ⁽²⁾

CH-54B AIRCRAFT OPERATION

The CH-54B baseline operation is comprised of the following information.

- . CH-54B Company Unit = 9 aircraft
- . Operational Week = 5 Days
- . Operational Day = 8:30 a.m. to 4:30 p.m.
- . Number of Standby Aircraft = 1 (of the 9) aircraft
- . Number of Holidays and General Inspection
Nonflying Days = 18 Days per year
- . Flight Hours for a 9-A/C Company Unit for 18 Months (28 Days/Month)=
2394 Hr, 1596 FH/Year, 14.8 FH/AC/Month
- . Operational Availability = 54.5%

(1) Geffert, G., and Holbert, C., Operations Reliability/Maintainability Engineering Program Quarterly Evaluation Report, Sikorsky Aircraft, SER-64344, Rev. K, May 15, 1974.

(2) Since the cargo hoist is used for no more than 10% of the missions, the simulation model input actually reflects $240/.1 = 2400$ hours.

The company unit maintenance force used in the baseline operation is as follows:

<u>Maintenance Specialist</u>	<u>MOS</u>	<u>No. Per Company Unit</u>
a) A/C Maintenance Tech.	671C0	2
b) Helicopter Repairman	67x20	37
c) Electrician	67F20	2
d) Avionics Mechanic	35K20	3
e) Airframe Repairman	68G20	1
f) Engine Repairman	68B20	2
g) Tech. Inspector	67x30	2
h) Hydraulic Repairman	68H20	2
i) Power Train Repairman	68D20	1
j) Flight Engineer	67x2F	9

To provide a realistic distribution of failures for the various operational events for the baseline, information was taken from the CH-54 ORME program. Specifically the information was taken from the ORME Discrepancy/Corrective Action Reports. "When discovered" data and, in the case of in-flight aborts, the effect on mission data from these reports were used. The relationship between the data as collected through the ORME "when discovered" codes and the R&M model's operational events is shown below. In the cases of special inspections, acceptance inspections, transfer inspections and "on ground - not covered by above" actions, some engineering judgement was required to appropriately enter this data into the model. These judgements are indicated below and were made based on discussions with Sikorsky ORME reliability engineers and with the manager of the ORME program.

Relationship of ORME Data to R&M Model Requirements

<u>ORME</u>	<u>R&M MODEL</u>
Exterior & Interior Checks	1. Preflight
APP Start to Takeoff	2. In-Flight
In-Flight	3. In-Flight Aborts (as further determined by "effects on mission" code)
On Ground to Eng. Shutdown	
Daily Inspection	4. Daily Inspection
Intermediate Inspection	5. Intermediate Inspection
Periodic Inspection	6. Periodic Inspection
Special Inspection	Prorated over 1, 4, 5, and 6 above
Acceptance Inspection (3)	Not Included
Transfer Inspection (3)	Not Included
On Ground - not covered by above	Prorated over 1, 4, 5, and 6 above

Table I shows the number of observed M.A.'s in the 9172 CH-54B flight hours (including those M.A.'s prorated) and the resulting system by system cumulative probability distribution for each aircraft operational event.

(3) M.A.'s discovered during acceptance and transfer inspections together accounted for only .6% of the total M.A.'s and were not included since they occurred before, or were found after, the normal operation/maintenance cycle of the CH-54.

TABLE I. SYSTEM/EVENT MAINTENANCE ACTION DISTRIBUTION

Event System	<u>Preflight</u>		<u>In-Flight</u>		<u>In-Flt. Abort</u>		<u>Daily</u>		<u>Intermediate Insp.</u>		<u>Periodic Insp.</u>	
	MA's	Cum. Prob.	MA's	Cum. Prob.	MA's	Cum. Prob.	MA's	Cum. Prob.	MA's	Cum. Prob.	MA's	Cum. Prob.
01	23.2	.0824	13	.0087	2	.0210	50.2	.0453	13.1	.0645	120.5	.1201
02	16	.1392	33	.0307	1	.0270	63.7	.1027	20.2	.1640	115.3	.2350
03	15.3	.1936	18	.0427	-	-	18.6	.1195	23.8	.2812	20	.2549
04	46.1	.3574	50	.0761	13	.1053	151	.2256	32.5	.4413	181.4	.4356
05	4.3	.3727	20	.0895	7	.1475	25.9	.2790	-	-	35.8	.4713
06	36	.5006	123	.1716	23	.2861	155.2	.4189	20.8	.5438	107	.5779
07	12	.5432	119	.2510	20	.4066	146.3	.5508	10.3	.5945	70.5	.6481
08	8.2	.5723	36	.2750	-	-	7.3	.5574	.5	.5970	4	.6521
09	31.2	.6823	87	.3330	-	-	89.6	.6382	11.1	.6517	33.3	.6853
10	1.2	.6866	37	.3577	-	-	8.3	.6457	.2	.6527	13.3	.6936
11	24.8	.7747	87	.4157	25	.5572	94.4	.7308	3.9	.6719	37.9	.7364
12	5.4	.7939	42	.4437	5	.5873	2.9	.7334	10.8	.7251	23.9	.7622
13	4	.8081	33	.4657	7	.6295	13	.7451	.4	.7271	10.6	.7703
14	12.3	.8518	27	.4837	6	.6656	36.5	.7780	2.7	.7404	11.5	.7823
15	17.2	.9129	237	.6419	13	.7439	37.6	.8119	10.5	.7921	76.7	.8557
16	9.4	.9463	208	.7808	11	.8102	11.5	.8223	2.8	.8059	26.3	.8849
17	3.4	.9584	140	.8743	1	.8162	16.1	.8368	1.9	.8153	12.6	.8975
18	.5	.9602	62	.9157	-	-	5.7	.8419	.5	.8178	2.3	.8993
19	5.9	.9812	86	.9731	23	.9548	145.6	.9732	31.9	.9749	85.6	.9851
20	5.1	.9999	40	.9999	9	.9999	29.7	.9999	5.1	.9999	15.1	.9999
Total	281.5		1496.0		166.0		1109.1		203.0		1003.6	

Above data covers CH-54B operation from 1 April 1971 to 31 March 1974 and is based on 9172 aircraft flight hours.

CH-54B/R&M MODEL CHARACTERISTICS

The CH-54B R&M model incorporates an 8 hour a day, 5 day a week, 28 day a month operation. The company unit strength of 9 aircraft has a flight operational requirement of approximately 14.8 flight hours per aircraft per month. Preflight, daily, intermediate, and periodic inspections are required. The average mission duration is 1.9 hours with .7 hours required for test hops. The model is detailed to reflect the failure rates, maintenance manhours to repair and to replace, and the elapsed maintenance times on approximately 300 components. Abort data, probability of the aircraft being not operationally ready, and requirements for test hops are also defined for these components. This information is covered in detail in the two previous sections and in Appendix II.

VALIDATION OF THE CH-54B

The validation of the CH-54B simulation model consists of three essential steps: the establishment of the CH-54B baseline model expected values as determined from ORME data, the evaluation of the simulation error associated with the CH-54B/R&M model, and finally the verification that the model has been revised and refined to agree with the expected values within the allowable tolerance permitted by the simulation error.

Table II contains the expected values for the baseline simulation. These are key field experience statistics collected through the CH-54B ORME program which provide the basis for validating the CH-54B simulation model output values as representative of CH-54B field experience. The information reflected in the table was accumulated over a 36-month period that extended from 1 April 1971 to 31 March 1974. The operational sites monitored were Ft. Eustis, Ft. Sill, Ft. Rucker, and Ft. Wainwright.

The CH-54B ORME program report SER-64344, Revision K, reflected a history of 422,592 total aircraft hours, of which 9171.6 were flight hours. Of the 422,592 hours, 5544 were discounted because they were associated with a downed Alaskan aircraft in which parts were not ordered for its re-activation. Total accountable aircraft hours were, therefore, 422,592 - 5544, or 417,048.

Because of the low CH-54B utilization, i.e., 9171.6 flight hours in 417,048 total hours, or 2.20% utilization, and because of the added simulation variation resulting from the incorporation of not operationally ready due to supply (NORS) and cannibalization data into the CH-54B simulation model, runs simulating 18-month company unit operation were needed to provide sufficiently accurate simulation output statistics for meaningful analysis. The need for the 18-month simulation runs is discussed further in the next section. As a result of the 18-month simulation duration, however, 9 aircraft x 24 hours per day x 28 days per month x 18-months, or 108,864 accountable aircraft hours, were reflected in the simulation runs. This resulted in a 9171.6 flight hour x (108,864/417,048) or a 2394.1 flight hour requirement for the 18-month baseline CH-54B simulation.

Total failure rates and abort rates shown in Table II have been taken from the SER-04344, Revision K, and the failure rate distribution has been derived from the study of the ORME Discrepancy Action Reports. The failure rates include both primary and secondary failures. They specifically exclude corrective maintenance actions found to be needed during acceptance and transfer inspections which account for .6 percent of the total corrective actions observed in CH-54B operation. Cannibalization M.A.'s which are incorporated into the model by way of probability of cannibalization indices and scheduled component replacement actions which are taken care of through the scheduled TBO subroutine are also excluded from these rates. Therefore, the model failure rate descriptions together with the M.A.'s accounted for by the cannibalization and scheduled TBO subroutines approximate 99.4 percent of the total observed CH-54B M.A.'s. The failure rates shown in Table II translate into the following expected number of failures for the various CH-54B operational events, based on the expected 2394 flight hours.

<u>CH-54B Event</u>	<u>Fail. Rate x Flt. Time = Expected Failures</u>
Preflight	.03069F/Hr x 2394 Flt. Hr = 73 Failures
Inflight	.16333F/Hr x 2394 Flt. Hr = 391 Failures
Inflight Abort	.01810F/Hr x 2394 Flt. Hr = 43 Failures
FMI	.02213F/Hr x 2394 Flt. Hr = 53 Failures
Daily	.12093F/Hr x 2394 Flt. Hr = 290 Failures
PMP	.10942F/Hr x 2394 Flt. Hr = 262 Failures

To determine what simulation duration was appropriate for estimating simulation error and for the factorial analysis study, the stability of the output statistics was analyzed over an 18-month period.

Figure 2 shows the convergence of important statistics exhibited by the CH-54B version of the R&M model over the simulation duration. To provide these statistics, two simulation runs were made under identical conditions, except for different random number sequences, and statistics were collected after each 2-month interval for the duration of the 18-month simulation. To highlight the variation of output values as the simulation progressed, the statistical value accumulated to the end of a period was compared with the value reflected at the end of the previous interval, and the percentage of differences was computed and plotted. The values were plotted through the 18th month. The plots were examined first to see whether any systematic error was evident. If the trend lines for the simulation runs reflected values that were consistently plus or consistently minus, then it would be reasonable to conclude that the model has not stabilized and was still seeking its normal long term, average operational condition. Review of this figure shows no evidence of systematic error. Second, the plots were examined to evaluate whether the improved stability of the 18-month statistics was sufficient to warrant the longer simulation running time. The plots showed no profound change in the stability of the statistics after the 10th month. The low CH-54B utilization, however, was known to cause high simulation error which could cloud the true operational characteristics. To obtain a better appreciation of this simulation error, statistical outputs from the two different runs were compared with particular attention paid to

TABLE II. ORME VERIFICATION STATISTICS

CH-54B Operational Data (April '71 to March '74)	Date Source & Value	
	SER-64344 Rev. K	ORME Discrep/ Corr. Act. Rpts.
Total Aircraft Hours (Include 24 Hr a Day, 7 Days a Week Accountability)	417,048 Hr	
Total Active Hours	91,842 Hr	
Total Flight Hours	9,171.6 Hr	
Flight Hours per A/C per Month	14.78 Hr	
Total Failure Rate	.4465 Fail./Hr	
Total Abort Rate	.0181 Abort/Hr	
Failure Rate Distribution		
• Preflight		.03069F/Hr
• Inflight		.16333F/Hr
• Daily		.12093F/Hr
• PMI		.02213F/Hr
• FMP		.10942F/Hr
Number of Flights	5326	
Test Hop Flight Hours (Subcategory of the 9171.6 Flight Hours)	441.2 Hr	
Operating and Ready Hours	227,248 Hr	
Operational Availability = (227,248/417,048) x 100	54.5%	
NORS	86,725 Hr	
NORM	26,613 Hr	

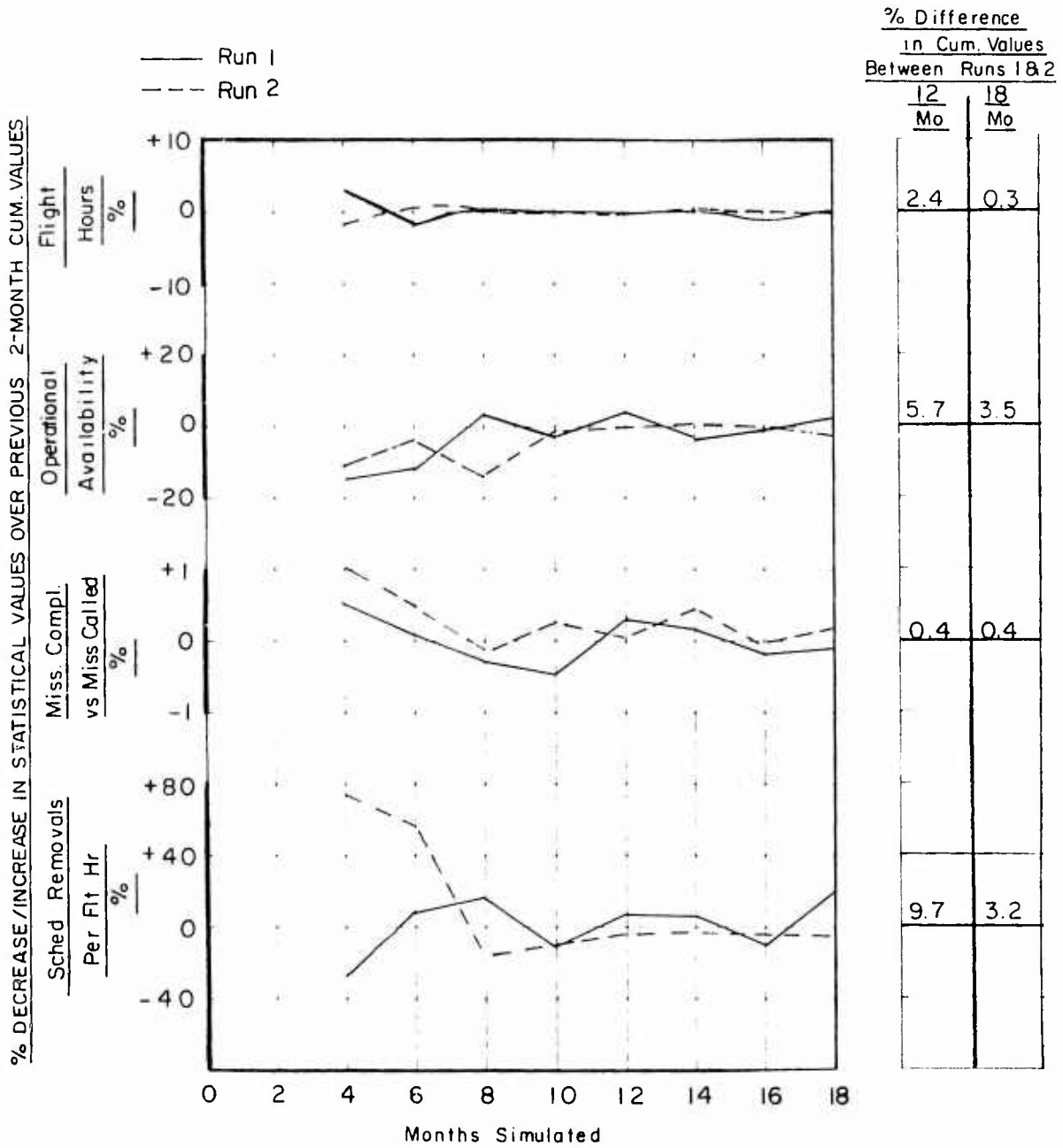


Figure 2. Convergence of CH-54B/R&M Model Output Statistics.

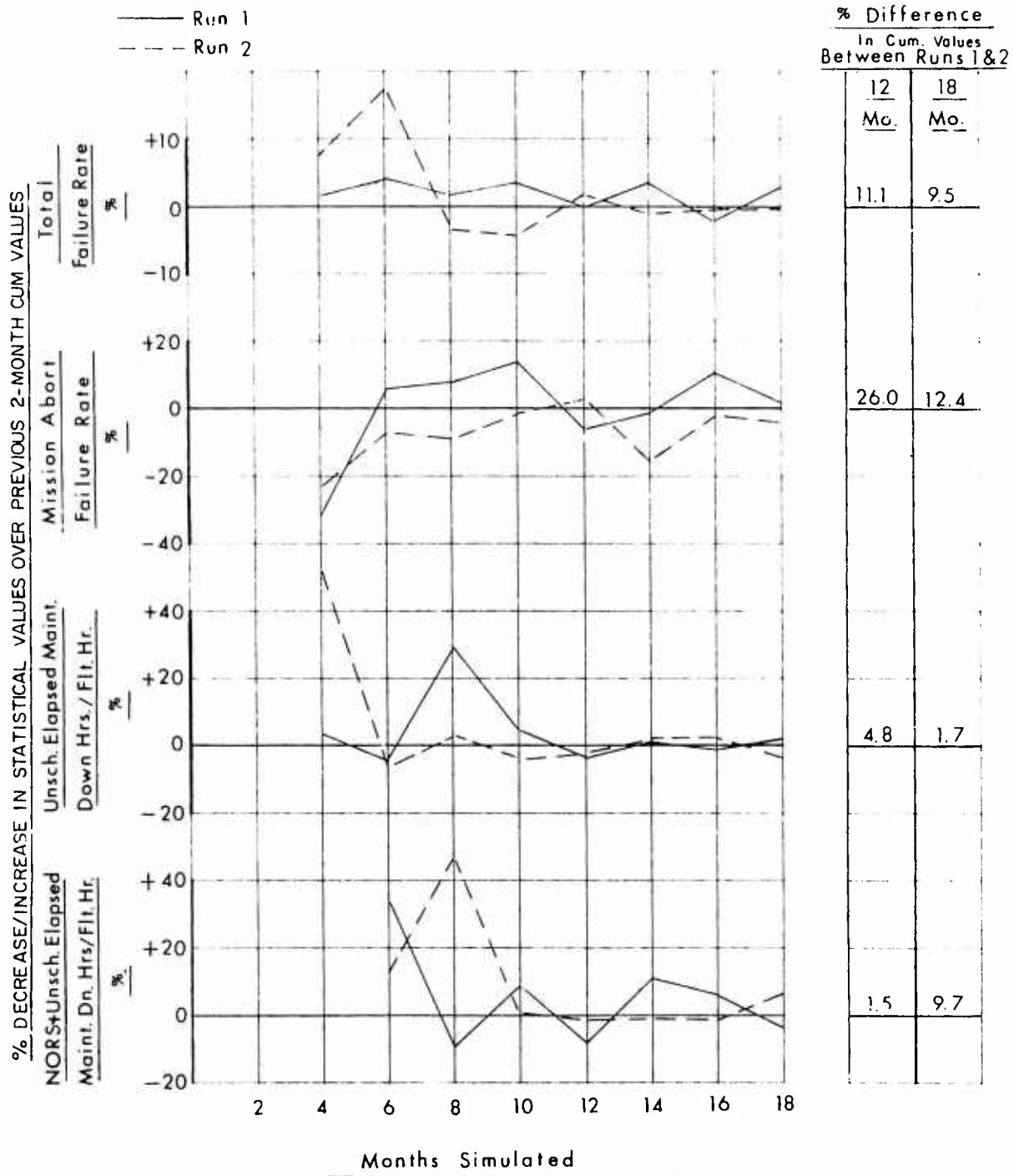


Figure 2. (Continued)

the 10th through 18th month region. Least squares trend lines using the data from the 10th through the 18th month were computed and drawn. The differences in statistical values between the two runs are shown in Figure 3, together with the trend lines. Based on these trend lines, about a 25 percent reduction in scatter between the two runs, when averaged over all eight statistical trends studied, was achieved. Operational availability and mission accomplishment did not exhibit the characteristic improvement, however, the fluctuation of these statistics is such that exceptions to the normal trend will frequently occur. The important fact is that a general improvement in statistical scatter has been achieved by extending the simulated duration to 18 months. Therefore, to help guard against the adverse effects of large variation, the 18-month runs were considered desirable and were used in the subsequent studies.

Table III compares the baseline simulation model statistics with expected baseline values. Four separate 18-month simulation runs were made with the CH-54B baseline model with the random number seed changed. These four runs permitted the evaluation of the error inherent in the simulation model itself. Table III shows the expected values for the subject baseline model and the simulation deviation allowed from the expected values as determined from the four simulation runs referred to above. If the specific simulation run output statistics deviate from the expected values by more than the allowable values, the run is judged to be nonrepresentative of the expected values and further refinement of the model is required. The allowable deviation has been determined on a rigorous statistical basis and conforms to a level of significance criteria of $\alpha = .01$. This means, given that the model is truly representative of the expected values, there is only a 1% chance that a specific simulation statistic will deviate from the expected value by more than the allowable deviation value. Conversely, since this possibility is so remote, if a value does fall outside the allowable limit there is sufficient statistical justification to conclude that the simulation model does not fully represent the expected value and further refinement is required.

After successive simulation iterations and refinements to the model, a baseline model was established in which all output statistics tested fell within the allowable statistical limits; i.e., the resultant model was found to adequately represent the inherent R&M characteristics of the CH-54B when flown in accordance with those operational conditions reflected in the ORME operational data. As indicated above, Table V shows the allowable deviation and the actual difference recorded between the baseline model statistics and the expected values. In all cases these differences were within the allowable deviation, thus giving statistical credibility to the baseline model as adequately representing the expected values.

SENSITIVITY ANALYSES OF THE CH-54B MODEL USING FACTORIAL ANALYSIS APPROACH

Two factorial analyses were selected for study, one having quantitative input levels of utilization, failure rate and not operationally ready due to spares (NORS) varied, and the second having the qualitative factors of major inspection maintenance concepts, elapsed repair/replacement time distributions, and on-condition removals studied.

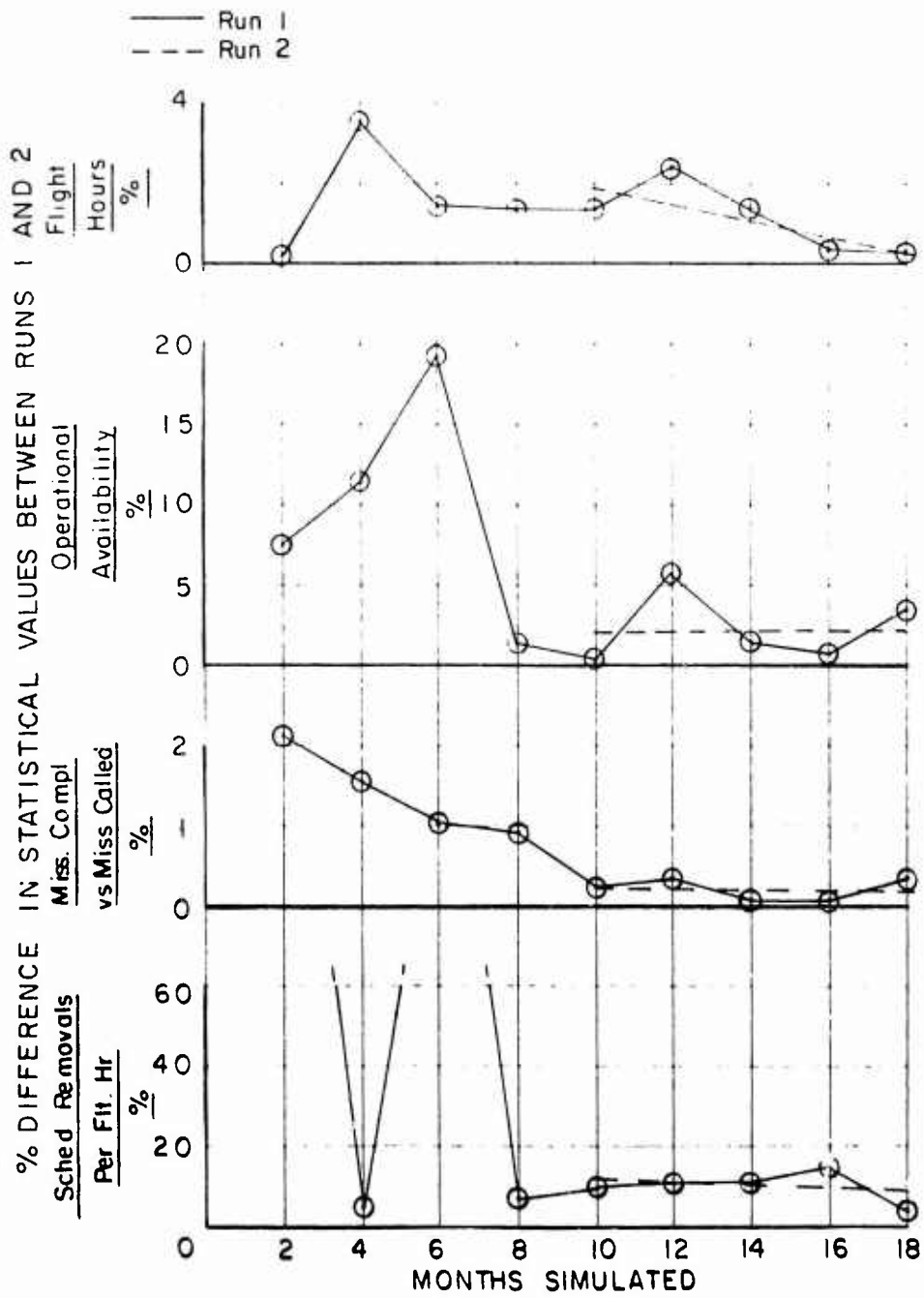


Figure 3. Percentage Difference Between Statistical Output of the Two Stability Runs with Least-Squares Fit.

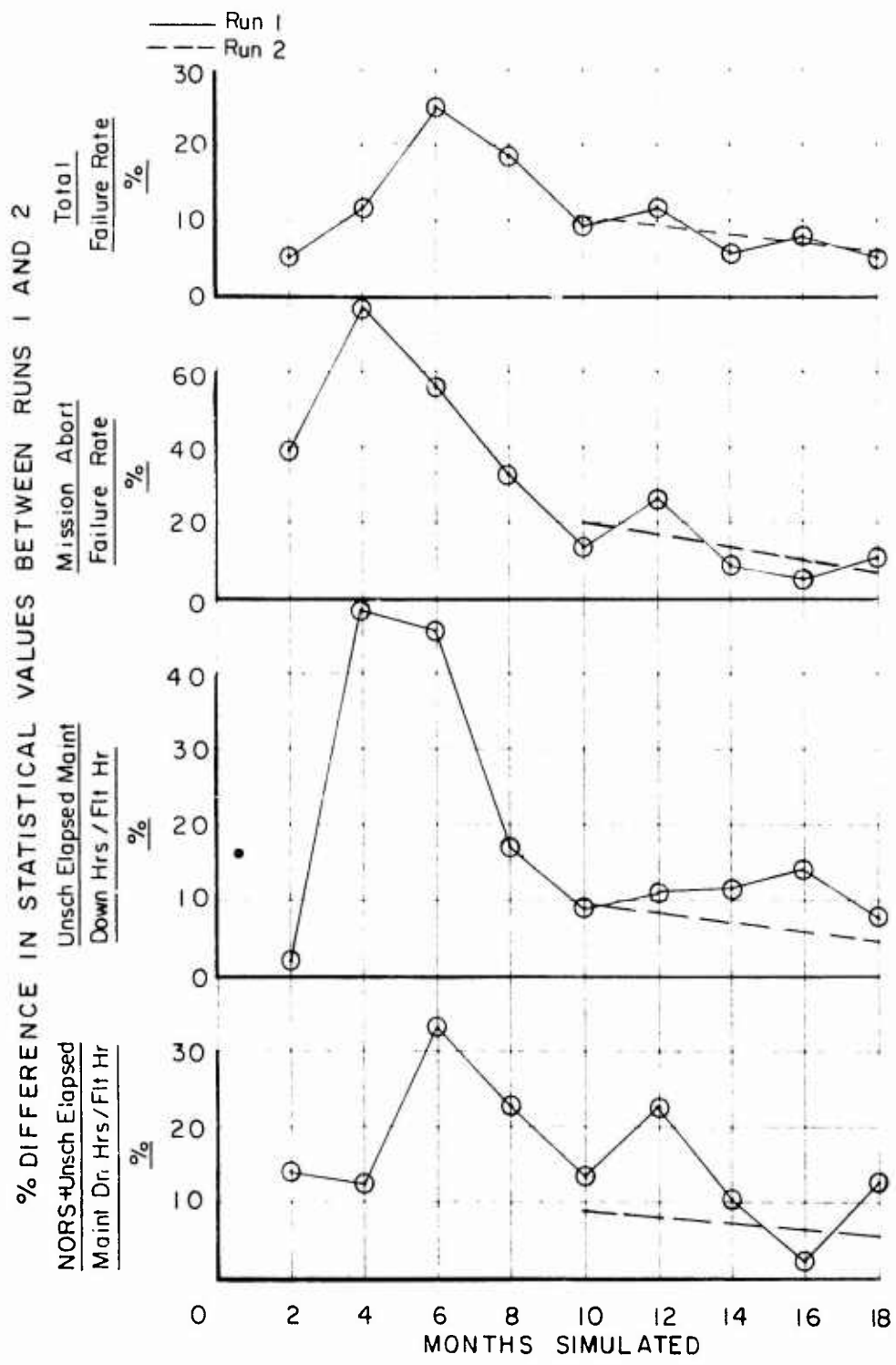


Figure 3. (Continued)

TABLE III. COMPARISON OF BASELINE SIMULATION MODEL STATISTICS WITH EXPECTED BASELINE VALUES

Output Parameter Measured	18-Month Operation		Allowable Error (99% Level)	Actual Error
	Baseline Expected Values	Simulation Statistics		
Utilization - Flt. Hr	2394	2380	±37	14
Failure Rate - Fail./Hr	.4465	.4311	±.0438	.0154
Failures	1069	1026	±93	43
Failures by When Discovered				
Preflight	73	83	±22	10
Inflight	391	405	±31	16
Daily Inspection	290	266	±20	4
P-I Inspection	53	43	±10	10
PMP Inspection	262	209	±86	53
Abort Failure Rate - Fail./Hr	.0181	.0172	±.0064	.0009
Abort Failures	43	41	±3	2
Average Flight Duration - Hr	1.722	1.736	±.040	.014
Test Hop Proportion - %	4.81	4.51	±1.08	.30
Operational Availability - %	54.5	56.6	±5.1	2.1

The first factorial analysis was originally set to study the effects on operational availability and other output statistics caused by changes to the baseline ranging from -25 to +25 percent for NORS and 0 to +20 percent increase in utilization and failure rate. These points of consideration were the corners of the right-hand cube shown in Figure 4. When these test conditions were studied, an upper bound was discovered to exist beyond which the company unit utilization could not be reached. This required a change in the study points for the factorial analysis from a center point that measured the baseline (BL) plus 10 percent utilization and an upper set of points that evaluated BL plus 20 percent utilization to equivalent points for the factorial analysis measuring BL minus 10 percent and BL minus 20 percent. In Figure 4 the left hand cube shows the changes required in the test region due to the utilization limit. Figure 5 shows each of the test conditions simulated and studied. These test conditions are identified in terms of flight hours per aircraft per month for utilization, failures per hour for failure rate, and percentage increase/decrease in NORS for supply. Table IV shows these test condition values and the associated expected values of key operational parameters. The test conditions were simulated for the revised set of study points. Test point 5 was repeated four times and Table V shows the results. These four runs were discussed in relation to measuring the simulation error relative to the baseline run and are used throughout the analysis to justify computer runs being sufficiently close to the expected values to be statistically acceptable at the .01 level of significance. To compute the 1 percent level of significance, the standard deviation was computed for each significant statistic and multiplied by the normal distribution coefficient of 2.576, which corresponds to the 1 percent level of significance. As indicated above, all baseline values were checked with this deviation criterion to prove that the simulation results were sufficiently close to the expected values to be accepted as representative of the ORME operational statistics expected values.

Iterative computer runs were made at each of the study points until they were in the region of acceptability. One point was found to be out of limits. Condition 3, which was felt to be influenced by the utilization boundary, was out of limits. However, this point was accepted for the analysis because the expected flight-hour value could not be reached despite several attempts to get closer to the expected value. Saturating the flight schedule would permit the flight-hour value to be reached, but this would distort other important output statistics such as mission completion values. Although the analysis is slightly distorted by the use of this study point result, the distortion was not considered, in an analysis of this sort, to be sufficient to seriously jeopardize the overall study results. In the factorial analysis employed, the low and high utilization points are averaged over four values each, and therefore, any error is desensitized by this averaging process. Table VI shows the simulation statistics generated for the various test conditions. Table VII shows the difference between the values expected at each study point and those observed after successive iterations. Test point 1 shows an out-of-tolerance condition for inflight failures, but since at the total failure level the number of failures observed was in tolerance, the run was considered to be acceptable. It should be noted that Table VII defines over 100

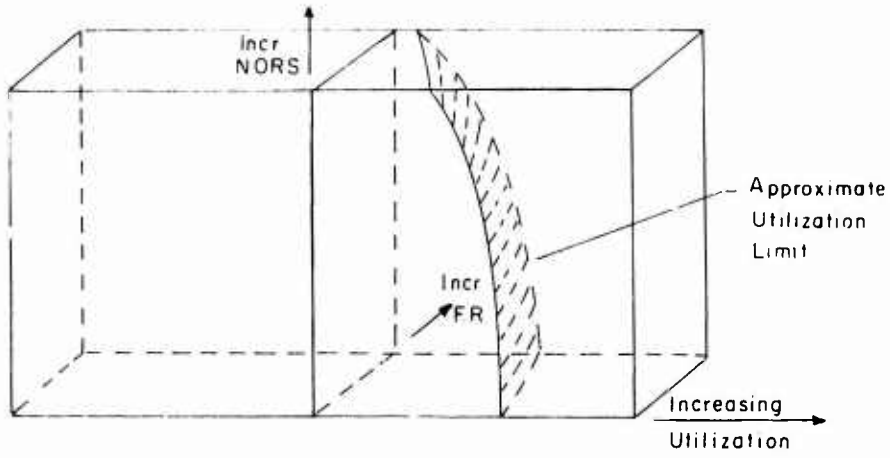


Figure 4. Utilization Boundary.

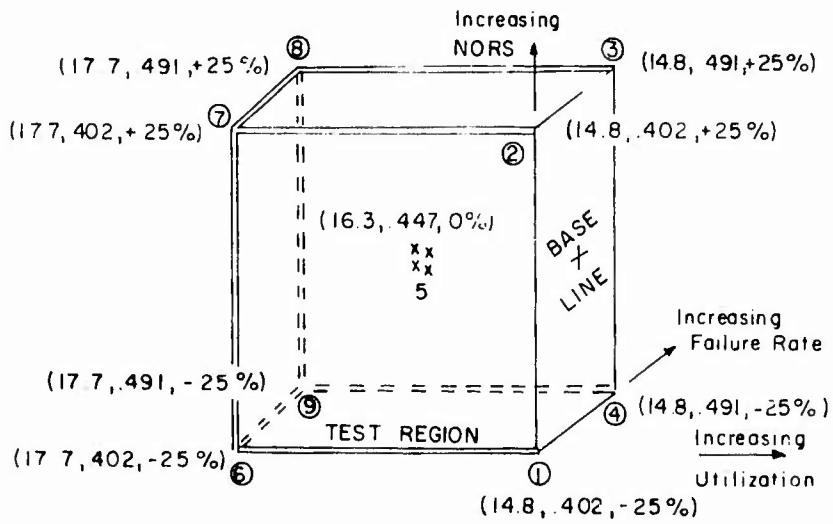


Figure 5. Test Region Studied.

TABLE IV. SIMULATION STATISTICS - COMPARISON OF EXPECTED
VALUES AND SIMULATION STATISTICS FOR FACTORIAL TEST POINTS

FACTORIAL TEST POINT	BASELINE BL	1		2		3	
		EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL
<u>Test Condition</u>							
Utilization, Flight Hours	2394		2394*		2394		2394
Failure Rate, F/FH	.4465		.4019		.4019		.4912
NORS (observed CH-54B)							
<u>Output Values</u>							
Utilization, Flight Hours	2394		2399		2376		2295
Failure Rate, F/FH	.4465		.3718		.4086		.4750
NORS							
Failures By When Found							
Preflight Inspection	.0305	.0276	.0313	.0276	.0337	.0338	.0366
Inflight	.1633	.1470	.1317	.1470	.1435	.1796	.1678
Daily Inspection	.1211	.1086	.1100	.1086	.1141	.1332	.1329
PMI Inspection	.0221	.0200	.0200	.0200	.0194	.0242	.0222
PMP Inspection	.1094	.0986	.0788	.0986	.0981	.1203	.1155
Abort Failures	.0200	.0163	.0138	.0163	.0119	.0201	.0205
Avg Flt Duration, Hour	1.722	BL	1.75	BL	1.74	BL	1.73
Test Hop Prop., %	4.81	BL	4.15	BL	4.03	BL	5.13
Operational Avail, %	54.5	MEAS	65.46	MEAS	58.61	MEAS	50.02

TC = Test Condition
 * 2394 Flight Hours = 2394/(9 Aircraft x 18 Months) = 14.8 Flight Hours per Aircraft per Month.
 (Shown in Figure 4)

TABLE IV (Continued)

FACTORIAL TEST POINT	BASELINE * (BL)	4		5		6	
		EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL
<u>Test Condition</u>							
Utilization, Flight Hours	2394		2394		2155		1915
Failure Rate, F/FH	.4465		.4912		.4465		.4019
NORS (observed CH-54B)							
<u>Output Values</u> (18-month Simulation)							
Flight Hours	2394	TC	2409	TC	2142	TC	1912
Failure Rate, F/FH	.4465	TC	.4698	TC	.4679	TC	.4033
NORS							
<u>Failures By When Found</u>							
Preflight	.0305	.0338	.0374	.0306	.0336	.0278	.0303
Inflight	.1633	.1796	.1785	.1633	.1657	.1467	.1616
Daily Inspection	.1211	.1332	.1312	.1206	.1242	.1091	.1067
PMI Inspection	.0221	.0242	.0224	.0218	.0229	.0198	.0188
PMP Inspection	.1094	.1203	.1005	.1109	.1214	.0987	.0858
Abort Failures	.0200	.0201	.0145	.0181	.0182	.0162	.0115
Avg Fit Duration, Hr.	1.722	BL	1.74	BL		BL	
Test Hop Prop., %	4.81	BL	4.85	BL	4.62	BL	4.15
Operational Avail., %	54.5	MEAS	57.93	MEAS	55.98	MEAS	70.63

*Repeated for reference.
TC = Test Condition

TABLE IV (Continued)

FACTORIAL TEST POINT	BASELINE* (BL)	7		8		9	
		EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL
<u>Test Condition</u>							
Utilization, Flight Hours	2394		1915		1915		1915
Failure Rate, F/FH	.4465		.4019		.4912		.4912
NORS (observed CH-54B)							
<u>Output Values</u> (18-month Simulation)							
Flight Hours	2394	TC	1911	TC	1930	TC	1910
Failure Rate, F/FH	.4465	TC	.3971	TC	.4688	TC	.4742
NORS		TC		TC		TC	
<u>Failures By When Found</u>							
Preflight	.0305	.0277	.0220	.0339	.0285	.0339	.0330
Inflight	.1633	.1467	.1575	.1796	.1663	.1796	.1686
Daily Inspection	.1211	.1091	.1073	.1332	.1409	.1332	.1382
PMI Inspection	.0221	.0200	.0183	.0240	.0264	.0240	.0277
PMP Inspection	.1094	.0987	.0921	.1206	.1078	.1206	.1068
Abort Failures	.0200	.0162	.0194	.0200	.0223	.0200	.0157
Avg Flt Duration, Hr.	1.722	BL		BL		BL	
Test Hop Prop., %	4.81	BL	4.15	BL	4.58	BL	4.70
Operational Avail., %	54.5	MEAS	60.99	MEAS	54.97	MEAS	66.90
*Repeated for reference.							
TC = Test Condition							

STATISTIC	EXPECTED VALUE	CENTER POINT WITH DIFF. RANDOM NOS.*				MEAN	ST. DEV.	% LEVEL OF SIGN $\pm A$
		A	B	C	D			
Utilization, Flight Hours	2154.7	2141.5	2173.0	2148.2	2144.6	2151.8	14.39	37.07
Failure Rate, F/Flt. Hr	.4465	.4679	.4463	.4296	.4350	.4447	.0170	.0438
Failures (Total)	962	1002	970	923	933	957.00	36.18	93.20
Failures by When Found	-	-	-	-	-	-	-	-
Preflight Inspection	66	72	80	62	63	69.25	8.46	21.79
Inflight	352	355	332	334	352	343.25	11.93	30.73
Daily Inspection	261	266	263	264	280	268.25	7.93	20.43
PMI Inspection	48	49	42	49	49	47.25	3.70	9.52
PMP Inspection	236	260	253	214	189	229.00	35.96	86.24
Abort Failure Rate, A/Flt Hr	.0181	.0182	.0143	.0139	.0186	.0163	.0025	.0064
Abort Failures	39	39	31	30	40	35.00	5.23	13.47
Avg. Flt Duration, Hr	1.722	1.731	1.747	1.752	1.718	1.7370	.0455	.0399
Test Hop Proportion, %	4.81	4.62	4.27	4.09	5.05	4.51	.42	1.06
Operational Availability, %	-	55.98	58.48	54.06	57.95	56.618	2.016	5.193

* 18 Month Runs Using Different Random Number Sets.

TABLE VI. SIMULATION STATISTICS FOR VARIOUS TEST CONDITIONS

Test Condition	Test Point *								
	1	2	3	4	5	6	7	8	9
Utilization, Flight Hours	2394	2394	2394	2394	2142	1915	1915	1915	1915
Failure Rate, F/Flt. Hr	.4019	.4019	.4912	.4912	.4465	.4019	.4019	.4912	.4912
NORS (Observed CH-54B=100%)	75%	125%	125%	75%	100%	75%	125%	125%	75%
<u>Observed Values</u>									
Utilization, Flight Hours	2399	2376	2295	2409	2142	1912	1911	1930	1910
Failure Rate, F/Flt. Hr	.3718	.4086	.4750	.4698	.4679	.4033	.3971	.4688	.4742
Failures (Total)	892	971	1090	1132	1002	771	759	905	906
Failures by When Found	-	-	-	-	-	-	-	-	-
Preflight Inspection	75	80	84	90	72	58	42	55	63
Inflight	316	341	385	430	355	309	301	321	322
Daily Inspection	264	271	305	316	266	204	205	272	264
PMI Inspection	48	46	51	54	49	36	35	51	53
PMP Inspection	189	233	265	242	260	164	176	706	204
Abort Failures	33	28	47	35	39	22	37	43	30
Avg. Flt. Duration Hrs	1.75	1.74	1.73	1.74	1.73	1.75	1.74	1.74	1.73
Test Hop Proportion, %	4.15	4.03	5.13	4.85	4.62	4.48	4.15	4.58	4.70
Operational Availability	65.46	58.61	50.02	57.93	55.98	70.63	60.99	54.97	66.90

* As defined in Table IV.

TABLE VII. COMPARISON OF ACTUAL DIFFERENCE OF EXPECTED AND OBSERVED VALUES AND THE ALLOWABLE DIFFERENCE

	Allow. Error	Actual Test Point Errors												
		1	2	3	4	5	6	7	8	9				
Utilization, Flight Hours	37	5	18	99	15	13	3	4	15	5				
Failure Rate, F/Flt. Hr	.0438	.0301	.0067	.0161	.0214	.0233	.0014	.0046	.0224	.0179				
Failures (Total)	93	70	9	44	86	38	1	11	35	36				
Failures By When Discovered														
Preflight Inspection	22	9	14	3	9	6	5	11	10	2				
Inflight	31	36	11	45	0	3	25	20	23	22				
Daily Inspection	20	4	11	14	3	6	5	4	17	9				
PMI Inspection	10	0	2	7	4	2	2	3	5	7				
PMP Inspection	86	47	3	17	16	21	25	13	25	27				
Abort Failures	13	6	11	1	13	0	9	6	5	5				
Avg. Flight Duration, Hr	.040	.029	.036	.008	.009	.009	.024	.020	.020	.021				
Test Hop Proportion of Total Flight Time, %	1.08	.66	.78	.04	.32	.19	.33	.66	.25	.11				

tests of significance at the 1 percent level; therefore, it is highly likely that one statistic in 100 would be found slightly out-of-tolerance. Test point 3 has already been noted. After several iterations, the computer run exhibiting the closest value to the expected utilization was chosen for the analysis with the recognition that some error would be introduced into the analysis.

The first factorial analysis includes a study of the eight basic factorial analysis points to ascertain how, for example, the simulation output operational availability changes in relation to discrete changes in utilization, failure rate and NORS levels. It also includes the incorporation of the center point data to assess the curvature associated with the surfaces reflecting constant operational availability. The definition of operational availability used here is

Operational Availability =

Flight Time + Ready Time

Flt. Time + Ready Time + Corr. Maint. + Prevent Maint. + Supply & Admin.
Downtime

Table VIII shows the factorial analyses results for operational availability. Table XIII in Appendix V shows in expanded arithmetic detail the information contained in Table VIII. The values for availability have been taken from Tables V and VI. Several observations must be made before proceeding. First, from a statistical viewpoint, there are eight degrees of freedom (df) associated with the data shown in the "Aircraft Availability Values" column since the data is derived from eight distinct test points. In the center point evaluation of the simulation error, four test points, and therefore a df of four, are reflected: one associated with the mean and three associated with the variance. Using an F level of significance test, the computed effects can be analyzed to determine whether they are true effects or simply perturbations due to simulation error. Based on an $\alpha = .05$ and the df information above, if the F statistic (equal to the mean square value divided by the simulation error) exceeds the F distribution value for a .05 level of significance with 1 df in the numerator and 3 df in the denominator, then the effect associated with the mean square is judged to be a real effect. The critical $F_{1,3}$ distribution value for $\alpha = .05$ is 10.1, and the F statistic in the case of the NORS effect is $167.72/4.06$, or 41.3. Therefore, the change in operational availability due to the computer input change in NORS level is real, and the best estimate of this change is -9.16 percent in operational availability when the NORS level is changed from its low to its high value. The changes in operational availability due to changes in failure rate and utilization are also found to be real.

This information coupled with the center point data permitted the drawing of operational response surfaces. These surfaces are shown in Figure 6 together with the contour lines of constant operational availability displayed on each face of the cubic space studied.

TABLE VIII. FACTORIAL ANALYSIS OF OPERATIONAL AVAILABILITY									
TEST POINT (Table VII)	TEST X1 NORS	FACTOR X2 FAIL RATE	FACTOR X3 LOW UTIL	AIRCRAFT		TEST FACTOR INTERACTIONS	F STATISTIC	ESTIMATE OF CHANGE	
				AVAILABILITY VALUES (From Sim.Runs)	Average Response				
6	BL-25%	BL-10%	BL-20%	70.63		Average Response		60.65	
7	BL+25%	BL-10%	BL-20%	60.99		X1	*41.3	-9.16	
9	BL-25%	BL+10%	BL-20%	66.90		X2	*20.1	-6.39	
8	BL+25%	BL+10%	BL-20%	54.97		X1, X2	0.3	-0.76	
1	BL-25%	BL-10%	BL	65.46		X3	*14.6	-5.44	
2	BL+25%	BL-10%	BL	58.61		X1, X3	1.3	1.63	
4	BL-25%	BL+10%	BL	57.93		X2, X3	1.1	1.52	
3	BL+25%	BL+10%	BL	50.02		X1, X2, X3	0.1	0.38	

Operational Availability for Center Point (RMULT Runs): 55.98, 58.48, 54.06, 57.95
Mean Op Avail = 56.62% St. Dev = 2.016 (3 Degrees of Freedom)
 α = .05 Critical Value for F_{1,3} = 10.1
Center Point Variance = 4.06
*Real Effect

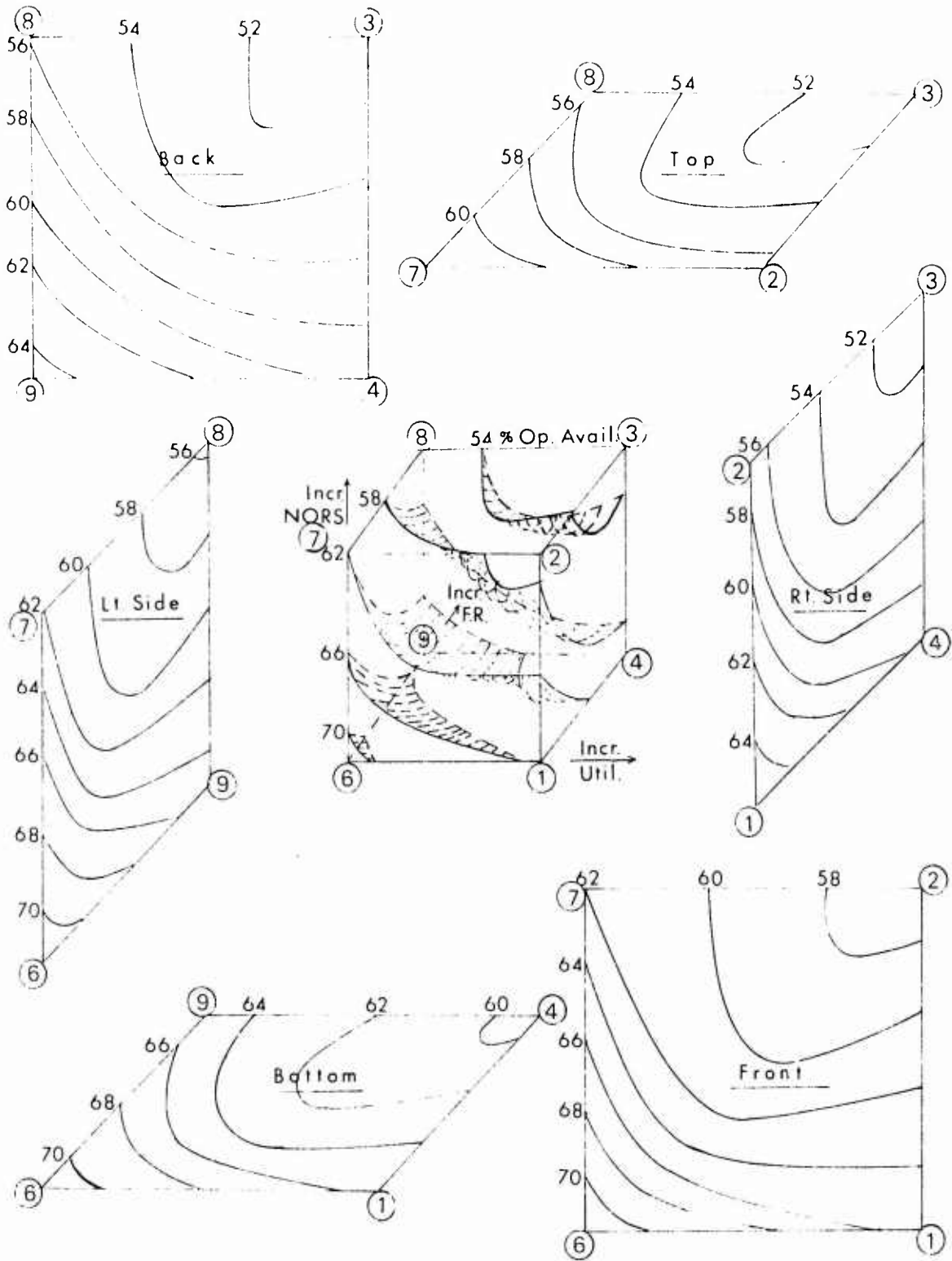


Figure 6. Operational Availability Contours.

From the analysis of the first factorial arrangement as it applies to operational availability, the following conclusions are drawn.

- (1) The simulation error in relation to the operational availability model output is large and hampers the ability of the model to measure the effects of major changes in aircraft R&M characteristics. As a consequence, the contour lines and surfaces of constant operational availability shown in Figure 6 must be somewhat uncertain.
- (2) Despite the large simulation error, the model yields consistent results; for example, decreasing the utilization by 20 percent has approximately the same effect on operational availability as decreasing failure rate by 20 percent. The utilization decrease results in about 5.4 percent decrease in availability; failure rate results in about 6.4 percent. The NORS level was decreased about 40 percent and resulted in a proportional 9.2 percent increase in availability.
- (3) The consistency is enhanced by the employment of the factorial arrangement. Although only eight test points were used to measure the effects of changes in utilization, failure rate, and NORS, the factorial arrangement permitted all eight test points, four at the low factor level and four at the high factor level, to be used to measure each factor response. This provided a major improvement in accuracy per test point over an arrangement which would measure each factor separately.
- (4) Because of the high number of computer iterations required to "home in" on the factor levels of utilization and failure rate, especially failure rate, the study was limited to the factorial analysis indicated in the statement of work; however, a more forceful and exacting experimental design could be employed, if the required number of iteration runs could be cut down. The experimental design referred to is called the central composite design and is discussed in O. L. Daves book on Experimental Design.⁽⁴⁾ This test design would provide a major improvement in computing the response surfaces. Figure 6 is simply a synthesis of the 8-point factorial analysis results shown in Table VIII and the center-point analysis also shown in that table.

To evaluate the overall sensitivity and credibility of the CH-54B model, several output parameters were evaluated on a statistical basis. Three levels of significance were used: $\alpha = .10$, where the results were considered to be significant; $\alpha = .05$, where the results were considered to be highly significant; and $\alpha = .01$, where the results were considered to be very highly significant. The reason for considering several levels of significance is that an overall appreciation of the model's output is the focal point of this part of the evaluation, rather than decisionmaking. In a decision situation, one level of significance would be chosen based on

(4) Daves, Owen L., DESIGN AND ANALYSIS OF INDUSTRIAL EXPERIMENTS, Second Edition, New York, Hafner Publishing Company, 1963, pp 532-553.

the consequences of making a wrong decision. In this evaluation the interest lies in the question: do the expected effects show up using this model, and how pronounced are those effects? In other words, are the effects believable, and how sensitive is the model to changes in aircraft quality or operational conditions? Table IX contains a listing of the effects shown to be significant, and Appendix V shows the computational detail establishing these effects as significant.

Failure rate, utilization, and NORS waiting time were the factors varied. The output values selected for study were unscheduled elapsed maintenance down hours; NORS hours plus unscheduled elapsed maintenance down hours; percentage of intrinsic availability where intrinsic availability measured the proportion of flight hours to flight hours plus unscheduled down hours and also the proportion of flight hours to flight hours plus scheduled and unscheduled down hours; direct maintenance man-hours per flight hour; percentage of mission accomplishment; and finally, observed NORS hours.

Table IX contains a summary of the responses found to be significant and estimates of these responses. The expected responses are summarized as follows. An increase in NORS waiting factor should adversely affect all the output statistics except those that measure active maintenance down time alone, namely, unscheduled elapsed maintenance down hours and direct maintenance man-hours per flight hour. An increase in failure rate should adversely affect all the output statistics. Finally, an increase in utilization should adversely affect all output statistics except intrinsic availability and direct maintenance man-hours per flight hour which would be expected to remain constant with increased flight hours.

The consistency of the actual significant effects with those expected is apparent. The major exception to this is in mission accomplishment, where it is expected that increases in NORS time, failure rate or utilization would cause less aircraft to be available and therefore less chance of performing and completing a mission that is called. In this instance it must be concluded that the model is not sensitive enough to measure the change in mission accomplishment for the changes in the levels of the factors analyzed. Another exception of concern was in direct maintenance man-hours per flight hour, where an increase in utilization has resulted in a decreased value for this statistic. Reflecting on the reasons that could cause this phenomenon led to an investigation of the difference in scheduled maintenance requirements per flight hour for both daily and preflight inspections. The four low utilization runs showed the need for .692 daily per flight hour and .727 preflight per flight hour, and the four high utilization runs showed .600 and .702 respectively. As the utilization goes up, therefore, the need for additional dailies and preflights goes up much more slowly, resulting in the lower scheduled maintenance man-hour per flight hour requirement. Table IX shows that the best estimate of the difference in direct maintenance man-hours per flight hour is -.57. Since it takes 5.4 man-hours per flight hour for performing daily inspections and 1.8 for preflights, the expected difference from this source should be

$$(.600 - .702) 5.4 + (.692 - .727) 1.8 = -.61$$

TABLE IX

SIGNIFICANT EFFECTS FROM THE QUANTITATIVE FACTORIAL ANALYSIS

OUTPUT STATISTIC	EFFECTED X FACTOR	ESTIMATE OF EFFECT	SIGNIFICANCE OF EFFECT	FAIL RATE	EFFECT UTIL
Unsched Active Elapsed Maint. Down Hours	Fail Rate	+1109	HS		VHS
	Util NORS	+1598	N		
NORS + Unsched Elapsed Maint Down Hours	NORS	+8232	VHS	HS	HS
	Fail Rate Util	+5711 +5292			
% Intrinsic Availability = (F.H./F.H. + Unsched. Down Hours)	NORS	-2.09	VHS	HS	
	Fail Rate Util	-1.57			N
% Intrinsic Availability = (F.H./F.H. + Unsched. + Sched. Down Hours)	NORS	-1.76	VHS	HS	N
	Fail Rate Util	-1.34			
Direct Maint. Man Hours/Flt. Hr.	Fail Rate	+28	S		VHS
	Util NORS	-.57	N		
NORS Down Hours	NORS	+9888	VHS	HS	
	Fail Rate Util	+6368			N
S -Significant					
HS -Highly Significant					
VHS -Very Highly Significant					
N -Negligible					

Again this shows the consistency of the CH-54B model and shows that, relative to certain statistical output, the model has a very sensitive response.

The above analysis is a further indication of the areas of sensitivity and lack of sensitivity produced by the CH-54B model, and of the care that must be exercised in the interpretation of results relative to the simulation error. The factorial analysis method employed here provides a viable and efficient method of minimizing the effects of this simulation error and should be seriously considered for use in all subsequent simulation studies of this type.

CONCLUSIONS

Conclusions are presented for five general areas: the variation associated with the model; the adequacy of the CH-54B model; the conclusions derived from the factorial analysis varying factors of NORS waiting time, failure rate, and utilization; the conclusions derived from the factorial analysis varying factors of major inspection policy, TBO policy, and repair/replacement time distribution; and finally, the conclusions derived from the statistical methodology employed.

The CH-54B model evidences a very large variation in operational availability and other output statistics. A large part of this variation is associated with the use of the NORS and cannibalization subroutines. Also, a low daily utilization of aircraft contributes to this variation. Despite this variation, the model yields statistical output that is consistent with expected changes in operational parameters.

The CH-54B baseline model was verified to reflect known CH-54B field operation as reported by the ORME field data collection program. This verification of the baseline model established that, within the error inherent in the model itself, the utilization, failure rates, and other aircraft/operational parameters were found to be representative of the ORME field data.

The simulation error associated with CH-54B R&M simulation model output was large but, due to the improved ability of the factorial analysis procedure to measure operational responses, changes in NOR waiting time, failure rate, and utilization factors, provided statistical output that was consistent with expectations and was relatively sensitive. For example, increasing either utilization, failure rate, or NORS waiting time by 20% produced about the same net effect of decreasing operational availability by 5%. This consistency and sensitivity were true for all statistical output studies, which included measures of intrinsic availability, direct maintenance man-hours per flight hour, unscheduled elapsed maintenance down hours, and not operationally ready time due to spares. The lone exception to this sensitivity was in the measurement of mission accomplishment (ratio of missions called to missions completed). Increased NORS waiting time, failure rate, or utilization would be expected to reduce mission accomplishment, but it was found that the model was not sufficiently sensitive for the prescribed 18-month simulation operation to measure this reduction.

The final conclusion is that statistical procedures are required to analyze the R&M model simulation output if real effects are to be discerned from random scatter and that factorial analysis is an important statistical procedure to minimize the required number of simulation runs.

RECOMMENDATIONS

1. The CH-54B model, which incorporates NORS data, evidences large variability in its simulated output, making it difficult to measure effects and creating an unnecessary number of iterative runs to home in on the failure rates associated with the specific condition simulated. This large variability is associated with how the basic R&M model is constructed and is inherent in the UH-1N model as well as the derivative CH-54B model. In the daily inspection, for example, a probability distribution of the number of failures is input to the model based on an expected number of daily inspections. Since the number of dailies can easily vary by 7%, as is reflected in Table VIII in the spread of daily inspections for different random number seeds, this variability is added to that created by the probability distribution of the number of failures. This probability distribution reflects the Poisson distribution based on the exponential time to failure, which implies a totally random occurrence of failure. The Poisson probability distribution already reflects the maximum spread of failure rates that should be expected. The introduction of variation due to the number of dailies unnecessarily and unrealistically magnifies this variability. It is recommended, therefore, to substantially reduce the computer time for the same simulation accuracy or, conversely, to substantially improve the accuracy for the same simulation time, that the model be changed in the method of simulating failures. Rather than simulating the number of failures each time a daily occurs, simulate failures independently of the events and then assign them on a probability distribution basis to the various events. This approach would not only eliminate unrealistic model variability, but would do it in a way that would simplify the model input function requirements.

The Reliability and Maintainability (R&M) Model currently used by the Eustis Directorate, USAAMRDL, has been modified to incorporate the failure methodology outlined above. The GAMMA distribution is used to compute the time to next failure, for each component, in terms of aircraft operating hours. When the aircraft reaches the precomputed operating hours, the component fails. Monte Carlo techniques are employed to determine if the failure is discovered at the time of failure, in subsequent missions, or in an inspection event, such as daily, preventive maintenance periodic (PMP), etc. The failure is placed on a list of other failures awaiting discovery when the appropriate event occurs.

2. It is further recommended that a statistical methodology be established for use in subsequent studies employing the R&M simulation model or the ARMS model. This methodology should be based on the statistical procedures put forth in this study. This methodology should encompass:

- a) Evaluation of simulation error.
- b) Validation of baseline model as consistent with expected values using a level of significance criterion in conjunction with simulation error measurement.
- c) Use of factorial analysis procedures to evaluate alternative operational conditions.

- d) Use of central composite design where response surface studies are desirable.

The establishment of such a statistical methodology would substantially enhance the efficiency of performing these studies, would produce improved sensitivity analyses, and would provide a better grasp and understanding of the trends brought about by changes in aircraft/operational characteristics.

APPENDIX I
ELEMENT IDENTIFICATION AND FAILURE RATE

Table X contains the numerical codes used to identify the subsystems and elements of the CH-54B. The element nomenclature and the failure rate associated with each element are identified in this table.

TABLE X. ELEMENT IDENTIFICATION AND FAILURE RATE

CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.	CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.
01-	AIRFRAME	(23.99)	02-12	Main Wheel Brake Disc	2.181
-01	R. H. Cockpit Door Sliding Window	.981	-13	Wheel Brake Pwr. Boost Cylinder	.436
-02	L. H. Windshield Assy	.327		Piston Seal	1.963
-03	Personnel Door Assy	.981	-14	Copilot's Pwr. Boost Cylinder	.545
-04	Lower Cockpit Avionics Door Seal	.436	-15	Wheel Brake Pwr. Boost Cylinder	1.527
-05	STA 229 Frame Assy	.218		Internal Seal	3.816
-06	Stringer-Fwd Frame Assy	.218	-16	Main Wheel Tire-Type 3	.545
-07	Support-Fwd Frame Assy	.327	-17	Main Wheel Tire-Type III	.654
-08	Fwd Fuselage Work Platform Assy	.654	-18	Main L. G. Brake Pucks	.327
-09	Rt. Top Fuselage Util. Hyd. Cover Assy	1.963	-19	Main L. G. Wheel Brake Assy	.327
-10	Lt. Top Fuselage Util. Hyd. Cover Assy	1.636	-20	Tail Skid Upper Yoke Bushing	.654
-11	Compass Flux Valve Support Assy	.327	-21	Tail Skid Attachment Bushing	.327
-12	Lower Tail Pylon Bulk Head Assy	.218	-22	Tail Skid Brace Assy Bushing	.654
-13	Fitting Assy, Stabil. Aft. Spar	.109	-23	Tail Skid Actuator	.703
-14	Sleeve Bushing, Stabil. Aft. Spar	.109	-24	Land. Gear Catchall	9.704
-15	L. H. Land. Gear Support Strip	.109	03-	MECHANICAL FLT. CONTROL	(10.43)
-16	R. H. Land. Gear Support Strip	.109	-01	Collective Stick Boot	.436
-17	R. H. Land. Gear Upper Fwd Fairing Assy	.218	-02	Coll. Stick Grip Switch	.109
-18	R. H. Land. Gear Fwd Fairing Frame	.327	-03	Coll. Friction Lock Sleeve Assy	.218
-19	Pilot Inertia Reel	18	-04	Coll. Friction Lock Collet	.763
-20	Airframe Catchall	14.501	-05	Rt. Lat. Control Servo Rod End Bearing	.218
02-	LANDING GEAR	(27.06)	-06	Cyclic Pitch Control Connecting Rods	.436
-01	Nose Wheel Centering Lock Cable	.109	-07	Lt. Lat. Control Servo Rod End Bearing	.163
-02	Nose Wheel Lock Control Handle	.327	-08	Rt. Lat. Cyclic Control Bellcrank	.218
-03	Nose Gear Lock Mech.	.327	-09	Aft Tail Cone Rt. Directional Control Cable	.218
-04	Nose Wheel Lock Bellcrank	.458	-10	Rt. Fwd. Upper Deck Directional Control Cable	.327
-05	Nose Gear Ski Cable	.218	-11	Aft Tail Cone Lt. Directional Control Cable	.218
-06	Nose Wheel Tire	.327	-12	Directional Control, Rod End Bearing	.349
-07	Main Land. Gear Scissors Bolt	.327			
-08	Nose Gear Torque Arm Bushing	.218			
-09	Main Land. Gear Torque Arm Bushing	.436			
-11	Parking Brake Valve	.872			

CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 HRS.	CODE SYS.-ELEM.	COMMENTS	FAIL RATE OVER ALL EVENTS F/1000 HRS.
03-13	Mech. Flt. Control Catchall	6.760	05-	APP INSTALLATION	(9.35)
04-	ROTORS/BLADES	(50.26)	-01	APP Start Valve	.327
-01	Main Rotor Head	2.399	-02	APP Start Accumulator	.763
-02	Rotating Swash Plate Control Arm Bearing	.436	-03	APP Starter	3.053
-03	Pitch Control Rod Boot	.436	-04	APP Starter Drive Coupling	.215
-04	Sleeve and Spindle Assy	2.181	-05	APP Engine Mount Strut Assy	.718
-05	Main Rotor Damper Assy	1.090	-06	APP Pit Mount Rod End Upper Bearing	1.199
-06	M. R. H. Pitch Change Link	.654	-07	APP Air Mount Rod End Lower Bearing	2.072
-07	Sleeve and Spindle Oil Seal	5.452	-08	APP Installation	1.527
-08	Rotating Scissors Laminated Shim	1.090	06-	TRANSMISSION	(48.19)
-09	Rotating Scissors Link Assy	1.199	-01	M. G. B. Rotor Brake Output seal	1.090
-10	Main Rotor Damper Trunnion Assy	3.380	-02	No. 1 Engine Input seal	1.527
-11	M. R. Damper Bearing	3.271	-03	T. R. Takeoff Seal	.327
-12	M. R. Damper Accumulator Assy	.981	-04	Main Gear Box	2.720
-13	Tail G. B. Output Housing Seal	1.090	-05	No. 2 Engine Input Seal	.545
-14	Tail Rotor Head Assy	1.090	-06	M. G. B. Oil Pump Assy	1.090
-15	T. R. Pitch Change Link	1.308	-07	M. G. B. Chip Detector	.215
-16	T. R. Blade Control Arm	.436	-08	Intermediate Gear Box Output Seal	.436
-17	M. R. Blade Attaching Bolt	.763	-09	Intermediate Gear Box	.215
-18	BIM Indicating Sys.	.327	-10	Tail Gear Box	.109
-19	Main Rotor Blade Assy	.091	-11	Tail Drive Shaft Disc. Assy	.109
-20	Main Rotor Blade Assy	.091	-12	Tail Drive Shaft Bearing Support Assy	2.290
-21	Main Rotor Blade Assy	.091	-13	Tail Drive Shaft Bearing Housing	.109
-22	Main Rotor Blade Assy	.091	-14	APP Clutch	8.941
-23	Main Rotor Blade Assy	.091	-15	APP Clutch Carbon Seal	.109
-24	Main Rotor Blade Assy	.091	-16	APP Clutch Inboard Seal	.545
-25	Main Blade Pocket Assy	.109	-17	Rotor Brake Disc	5.010
-26	T. R. Blade Attaching Bolt	.327	-18	Rotor Brake Package	.703
-27	T. R. Tip Cap Assy	.872	-19	Rotor Brake Press Switch	.545
-28	Tail Blade Assy	1.036	-20	M. G. B. Oil Cooler Bearing	3.380
-29	Tail Blade Assy	1.036	-21	M. G. B. Oil Cooler Blower	1.527
-30	Tail Blade Assy	1.036	-22	M. G. B. Oil Cooler V Belt	
-31	Tail Blade Assy	1.036			
-32	Rotors/Blades Catchall	17.663			

TABLE 3. CONTINUED					
CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.	CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.
06-23	Trans. Catchall	17.445	09-	ELECTRICAL	(27.50)
07-	POKER PLANT INSTALLATION	(39.04)	-01	M. L. G. Isolation Valve Switch	1.537
-01	N2 Speed Sense Cable Adapter Seal	.327	-02	Pilot's Foot ICS Switch	.981
-02	Anti-Ice Bleed Air Line Jacket Assy	1.199	-03	Chip Detector Cannon Plug	.327
-03	R. H. Eng. Support Assy	.327	-04	Generator Terminal Board Cover	.109
-04	Eng. Exhaust Attachment Bolt	1.199	-05	D. C. Power Reverse Current Relay	.654
-05	Anti-Ice Bleed Air Line	.436	-06	APP Ignition Coil	.436
-06	Eng. Exhaust Tail Pipe Assy	9.813	-07	Eng. Start Time Delay Relay	.981
-07	Coll. Input Main Fuel Shutoff Control Installation	.436	-08	Battery	.872
-08	Coll. Input Fuel Shutoff Control	.763	-09	Fwd. Anti-Collision Beacon Assy	1.854
-09	Synchronizer	4.906	-10	Aft Position Light	2.944
-10	Coll. Input Fuel Shutoff Control	3.380	-11	Aft Anti-Collision Beacon Assy	5.106
-11	Bellcrank	4.906	-12	Spot Light Control	.545
-12	Eng. Control Coll. Bias Shear Pin	3.380	-13	Fuel Gage Instrument Light	.327
-13	N1 Eng. Control Assy	4.797	-14	Overhead Dome Light	.109
-14	Eng. Speed Control Actuator	.545	-15	Dimmer Control Unit	.131
-15	Eng. Hyd. Starter	1.090	-16	Electrical Catchall	9.595
-16	Eng. Start Valve	.785	10-	HYD. FLIGHT CONTROLS	(6.54)
-17	Eng. Hyd. Start Pressure Line	.218	-01	Prim. Servo Center Web Support	.109
-18	Eng. Mount Inboard Support Bushing	.218	-02	Lt. Lat. Primary Servo Cylinder	.109
-19	Eng. Mount Deck Fitting Bearing	.109	-03	Rt. Lat. Primary Servo Cylinder	.654
-20	Eng. Fwd. Strut Assy	.218	-04	AFCS Coll. Control Open Loop Spring	.545
-21	EAPS Filter Element	.436	-05	AFCS Hyd. Servo	1.745
-22	EAPS Blower Unit	.327	-06	Coll. Control Spring Assy	.545
	Power Plant Installation Catchall	7.294	-07	AFCS Servo Clutch Synchronizer	.763
08-	HEATER/ANTI-ICE	(6.11)	-08	T. R. Servo Link Assy	.109
-01	Heater Ignitor Unit Assy	.545	-09	Tail Rotor Servo Assy	.109
-02	Heater Control Assy	.763	-10	T. R. Servo Fitting Seal	.109
-03	Ignitor Plug	1.636	-11	Hyd. Flt. Control Catchall	1.745
-04	Eng. Anti-Ice Valve	1.417	11-	HYDRAULICS	(27.0-)
-05	Heater/Anti-Ice Catchall	1.745	-01	Utility Hyd. Pump	2.508
			-02	Utility Pump Seal	.218
			-03	Hoist Pump	1.854

TABLE X - CONTINUED

CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.	CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 Hrs.
11-04	Hyd. Solenoid Valve	.545	14-08	Cargo Winch Decoupler Assy	.763
-05	Flt. Cont. Hydraulic Manifold Tube	.327	-09	Cargo Winch Hook Assy	.436
-06	Flt. Cont. Hydraulic Manifold Assy	.872	-10	Load Leveler Grip Assy	.436
-07	2nd Stage Solenoid Pressure Switch	.763	-11	Cargo Handling Catchall	3.489
-08	2nd Stage Servo Pressure Switch	.872			
-09	Hoist Well Hyd. Fitting Seal	.218	15-	INSTRUMENTS	(41.32)
-10	Hyd. Panel Seal	.218	-01	Tach Generator	2.944
-11	Cargo Hoist Hyd. Pump	.327	-02	Hoist Indicator	.763
-12	Cargo Hoist Manifold Assy	1.527	-03	Eng. Press. Ratio Fluid Damper	.545
-13	Hydraulics Catchall	16.791	-04	Fuel Flow Indicator	.545
			-05	Directional Gyro	.327
12-	FUEL	(9.27)	-06	Course Indicator	.109
-01	Eng. Fuel Press. Switch	.981	-07	Radio Magnetic Indicator	.218
-02	Fuel Filter Element	1.745	-08	J-2 Compass Amplifier	.109
-03	Fuel Boost Pump Pressure Switch	1.854	-09	Attitude Indicator	.545
-04	Fuel Filter Assy	.436	-10	Altimeter	.545
-05	Fuel Catchall	4.252	-11	Turn and Slip Indicator	.436
			-12	Flight Direction Indicator	.654
13-	UTILITIES	(6.65)	-13	Stand By Compass	1.308
-01	Windshield Wiper Assy	.763	-14	Stand By Compass Shock Mounts	.109
-02	Wiper Blade	.109	-15	Torque Sensor	.436
-03	Windshield Washer Nozzle Assy	.109	-16	Altitude Control Cover Assy	1.090
-04	APP Fire Detector Bracket	.545	-17	Eng. Speed Switch	.545
-05	Eng. Fire Detectors	.763	-18	ERP Transmitter	.436
-06	Voice Warning Reproducer Converter	.436	-19	Torque Indicator	5.561
-07	Voice Warning Signal Adapter	.981	-20	Main Trans. Oil Pressure Switch	1.745
-08	Utilities Catchall	2.944	-21	ICB Oil Press. Switch	.327
			-22	Main Trans. Chip Detectors	.545
14-	CARGO HANDLING	(9.81)	-23	OAT Indicator	.327
-01	Load Leveler Accumulator	.218	-24	Hoist Indicator Panel	.763
-02	Load Leveler Actuator	1.199	-25	Caution Panel Assy	.545
-03	Cargo Lashing Reel	.327	-26	Instruments Catchall	19.844
-04	Cargo Winch Cable Assy	.763			
-05	Cargo Hoist Assy	.327	16-	AFCs	(28.13)
-06	Cargo Cable Guide Liner	1.090	-01	Bar Altitude Controller	.981
-07	Cargo Winch Decoupler Cylinder	.763	-02	AFCs Control Panel	3.925

TABLE X - CONTINUED

CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 HRS.	CODE SYS.-ELEM.	NOMENCLATURE	FAIL RATE OVER ALL EVENTS F/1000 HRS.
16-03	AFCS Control Panel Relay	.545	18 -03	ARN-33 ADF Receiver	2.617
-04	Stick Trim Amplifier	1.527	-04	ARN-33 ADF Audio Trans.	.218
-05	AFCS Yaw Control Amplifier	3.816	-05	ADF Antenna Inboard	.109
-06	AFCS Pitch Module	.872	-06	ADF Antenna Outboard	1.368
-07	AFCS Roll Module	.654	-07	Nav. Catchall	.981
-08	AFCS Yaw Module	.545			
-09	AFCS Pitch Amplifier	.545	19-	TURBO SHAFT ENGINE	(38.71)
-10	Vertical Gyro	.763	-01	Oil Strainer Seal	3.815
-11	Rate Gyro	1.199	-02	Eng. Oil Strainer Cover	3.271
-12	Remote Stick Assy	1.963	-03	Eng. Exhaust Light Gage Duct	.872
-13	Remote Stick Resistor	.327	-04	Speed Sense Cable	3.489
-14	Remote Stick Amplifier	.327	-05	Eng. Oil Press. Switch	1.636
-15	AFCS Catchall	10.140	-06	Eng. Over Speed Monitor Switch	2.017
			-07	Eng. Exhaust Heavy Gage Duct	1.199
17-	COMMUNICATIONS	(18.97)	-08	Eng. No. 1 Fuel Control	.763
-01	ARC-102 HF Antenna Fwd	.327	-09	Eng. No. 2 Fuel Control	.763
-02	ARC-102 HF Antenna Aft	.545	-10	Engine Assy No. 1	2.399
-03	ARC-134 VHF Controller	.327	-11	Engine Assy No. 2	2.399
-04	ARC-134 VHF Rec.-Trans.	2.617	-12	Eng. Anti-Ice Valve	.763
-05	ARC-131 Controller	.218	-13	Eng. Turbine Case Assy	2.508
-06	ARC-131 Rec.-Trans.	2.290	-14	Eng. Fuel Monitoring Installation	1.745
-07	ARC-51 UHF Antenna	.109	-15	Turbo Eng. Catchall	10.467
-08	ARC-51 UHF Rec.Trans.	2.726			
-09	AIC-12 ICS Control	5.670	20-	AUXILIARY POWER PLANT	(10.36)
-10	AIC-12 ICS Radio Switch	.545	-01	APP Control Assy	1.636
-11	ICS Receptacle	.763	-02	90% Speed Switch	1.199
-12	APX-72 IFF Control	.218	-03	Fuel Pressure Switch Assy	.327
-13	APX-72 IFF Receiver	.763	-04	APP Gas Turbine Eng.	.654
-14	Commun. Catchall	1.854	-05	APP Input Shaft	.327
			-06	Fuel Control	.436
18-	NAVIGATION	(7.74)	-07	APP Unit	.981
-01	ARN-82 VOR Receiver	2.290	-08	APP Catchall	4.797
-02	ARN-82 VOR Course Indicator	.218			

APPENDIX II
CH-54B MODEL INPUT FUNCTION DEFINITION

The R&M model input data as organized from the ORME information base is described for the various functions below. These functions relate an independent value in the simulation model to a dependent value, and through these functions, the specific CH-54B aircraft/operation characteristics are introduced into the R&M model. For example, when the daily inspection logic is encountered in a model simulation and the probability of successfully passing the inspection without discovering a failure is required, Function 2, independent value 16, is located and the CH-54B value of .813781 is introduced into the simulation as that probability. This input data described is for the baseline model which has been used in the validation of the CH-54B. Appendix III contains a detailed listing of all CH-54B input functions.

Function 1

An average 1.9-hour single-point winch mission configuration flight was considered.

Function 2

Probability values for successfully passing various ground events without discovering a failure, to be used in the CH-54 baseline simulation, are given as follows:

<u>Ground Event</u>	<u>Success Probability</u>
1 (Ordance Loading)	.999999
2 (Preflight)	.957697
5 (Aircrew)	.999999
8 (Intermediate Insp.)	.481713
11 (Turnaround Insp.)	.999999
16 (Daily Insp.)	.813781
17 (Periodic Insp.)	.000020
21 (% Good Parts from Supply)	.960000

Events 1, 5, and 11 were, in effect, ignored by entering a probability of success of certainty into the function, since based on observations of Sikorsky ORME reliability engineers, these three ground events do not occur in CH-54B operation. Probability values for events 2, 8, 16 and 17 were based on actual CH-54B failure rate records as reported by the ORME program. The probability value for event 21 is based on discussions with ORME reliability engineers, and its relatively high rate of bad parts from supply is born out by a joint AMRDL/Sikorsky helicopter maintenance effectiveness analysis study.⁽⁵⁾

(5) Holbert, Calvin, and Newport, Gary, Helicopter Maintenance Effectiveness Analysis, Sikorsky Aircraft, USAAMRDL Technical Report 75-14.

Function 3

The probability of no maintenance action discovered during flight is .737472. This was determined from the ORME Program Quarterly Evaluation Report, SER-64344, Revision K. The "when discovered" summary of the number of maintenance actions of Table II shows 1498 M.A.'s in 9172 flight hours, or a .1633 rate of corrective maintenance actions to flight hours. For a 1.9-hour mission and a .7-hour test flight, the probabilities of sustaining no M.A.'s are

$$P(0) = e^{-.1633 \times 1.9} = .7332 \text{ \& } P(0) = e^{-.1633 \times .7} = .8920.$$

Aborted missions reduce the average mission time, resulting in the higher function 3 values.

Function 4

From SER-64344, Revision K, the average flight durations were found to be between .7 and .8 hour for test hops and between 1.8 and 1.9 hours for single-point winch. Because .7 and 1.9 yielded the closest baseline flight hours, they were chosen.

Function 5

From SER-64344, Revision K, the probability of no abort given a M.A. in-flight was found to be .8892. Data from this SER showed 166 aborts in 1498 in-flight failures, or probability of abort equal to

$$\frac{166}{1498} = .1108$$

Therefore, $P(\text{no abort}) = 1 - .1108 = .8892$.

Function 6

This function defines the number of maintenance men, the maintenance work centers, i.e., the maintenance manpower specialty codes, and the elapsed maintenance times, as observed in the ORME preventive maintenance reporting forms to perform the preflight and daily inspections. The function reflects the following information:

Preflight requires two helicopter repairmen for .9 hour.

Daily requires two helicopter repairmen for 2.7 hours.

Function 7

The logic in the R&M model is so constructed as to reverse the priority convention used in the basic GPSS computer language. The priority values referred to in this function are for obtaining manpower to perform the various inspection events. This maintenance priority function, therefore, assigns the lowest priority numbers to the highest priority events. As

noted in the following assignment of priority numbers, the highest priority event is preflight, followed in order by daily, PMI and PMP inspections. These priorities agree with actual CH-54B operations as observed by Sikorsky ORME reliability engineers.

Function 7 values are:

<u>Event</u>	<u>Priority No.</u>
Preflight	5
Daily	15
PMI	29
PMP	30

Functions 10, 11, 12, 14 and 56

These functions have been revised to simulate CH-54B maintenance frequencies. The functions define the probabilities of multiple maintenance actions (M.A.'s) given that at least one M.A. has occurred. These functions provide the information for during flight, preflight, daily inspection and intermediate inspection, respectively. Since it was not feasible to construct this information from the ORME data base, the functions were derived using the assumption that the probability of a given number of M.A.'s follows a Poisson distribution. In functions 2 and 3, the probabilities of zero M.A.'s are defined for the various events, i.e.:

$$P(0) = e^{-\lambda} \text{ where } \lambda = \text{the frequency of the M.A.}$$

$$\text{the } P \text{ (at least one M.A.)} = 1 - P(0)$$

The Poisson distribution defines the probability of x occurrences by the formula

$$P(x) = \lambda^x e^{-\lambda} / x!$$

Therefore, the probability of x M.A.'s given that an M.A. has occurred is provided by the equation

$$P(x)/1 - P(0) = (\lambda^x e^{-\lambda} / x!) / (1 - e^{-\lambda})$$

Specific values for these functions can be observed in Appendix I.

Functions 15 and 23

These are sorting functions which permit the R&M model to sort down from the aircraft to the system and to the component within the system to identify the item causing the M.A. The functions have been revised to account for intermediate inspections. Specifically, these two functions direct the R&M model to other functions which describe the probability that an aircraft M.A. occurs in a given system and then to a second set of functions that describe the probability that a system M.A. occurs in

a given element or component. The description of the two functions as they relate to the various aircraft operational events is contained below.

<u>Event</u>	<u>Event Code</u>	<u>FN15</u>	<u>FN23</u>
Preflight	2	FN19	FN27
Aircrew ⁽⁶⁾	5	FN15	FN24
In-flight	6	FN17	FN25
In-flight Abort	7	FN18	FN26
Intermed. Insp.	8	FN57	FN58
Preflight	12	FN19	FN27
Daily	16	FN20	FN28
Periodic Insp.	17	FN21	FN29

Functions 17, 18, 19, 20, 21, and 57

These functions provide the probability of a system's sustaining an M.A. given that the aircraft has sustained an action for the events of in-flight, in-flight abort, preflight, daily, periodic inspection and intermediate inspection. The specific values contained in these functions are shown in Table I under columns headed Cumulative Probability.

Functions 25, 26, 27, 28, 29 and 58

These functions provide the probability of an element or component sustaining an M.A. given that a particular system has sustained an action for the events in-flight, in-flight abort, preflight, daily periodic inspection and intermediate inspection respectively. For the CH-54B, each of these functions contains approximately 300 data entries which describe the most significant components from the viewpoint of frequency of occurrence, expenditures of manpower, and impact on mission success. In order to keep the number of elements reasonable, the least important elements in each system were grouped into a catchall element where cumulative frequency, the average maintenance times, and the most representative maintenance specialists were assigned to these catchall items. These 20 catchall elements accounted for slightly over 30% of all the M.A.'s.

A function 58 was added to this data set since the ORME data included the necessary information. It was not necessary to assume, as was the case in previous Army simulation efforts, that the same distribution of M.A.'s discovered during the more encompassing periodic inspection also applied to the intermediate inspection. The specific values of these functions are seen in Appendix III. These probabilities represent an actual count and the resulting ratio of component maintenance actions within each sub-system as observed within each event.

(6) Aircrew inspection is covered in these functions because it exists in the R&M model supplied by the Army; however, it will not be activated in the CH-54B simulations since the CH-54B has no comparable event.

Functions 32, 34 and 35

Function 32 defines the probability of a CH-54B aircraft's being not operationally ready (ROR) given a "no abort" in-flight M.A. This function, which prescribes a probability for each aircraft component, was generated from data taken from the ORME Discrepancy/Corrective Action Reports. The probabilities were computed for each element by taking the proportion of in-flight "no abort" M.A.'s that were identified in these ORME reports as having caused the aircraft to be placed in a "downed" status upon completion of the flight.

Functions 34 and 35 reflect, for each CH-54B component, the computed proportion of M.A.'s discovered in preflight and daily inspection, respectively, that down the aircraft. The specific values of these functions are shown in Appendix III.

Functions 37, 40, 42, 43, 53, 54 and 70

These functions describe the on-aircraft and off-aircraft work performed to correct equipment discrepancies (maintenance actions) discovered during the course of equipment operation and inspection. The functions describe the number of maintenance men, their active working time, their specialty codes, and the mean elapsed maintenance time required to perform the corrective action for each component. These are "packed" functions in that their six-digit values convey two or three bits of information rather than the usual one bit of information. Where three bits are addressed, i.e., the six-digit values are in actuality three two-digit values, they are referred to as the A, B and C packs or AP, BP, CP. Where two bits of information are conveyed by the function, the two three-digit values are distinguished by referring to AP and BP. Table XI describes the packed functions as they have been defined to reflect the CH-54B aircraft/operation. Also, the following comments are offered to further describe this information by identifying the sources and limitations of the ORME data used.

a) The remove and replace data contained in Functions 37, 42, 43 and 70 was derived from ORME Discrepancy/Corrective Action Reports, where the disposition codes were identified as:

- Removed, Repaired, Reinstalled
- Removed, Repaired, Made Ready for Issue (RFI)
- Removed, Scrapped
- Removed, Returned to Depot
- Removed, Tested O.K., Made RFI

These Discrepancy/Corrective Action Reports included all time spent on removing the discrepant part and its replacement either with the same part or with a like item. In the first two cases above, however, some off-aircraft repair time is included. The error introduced by this fact is small since less than 15 percent of all removals observed fall into these two categories.

TABLE XI. ON AND OFF AIRCRAFT MAINTENANCE REQUIREMENTS

Function	On Aircraft Repair Data	Remove & Replace Data	Off Aircraft Repair Data	Other Data
# 37 AP, BP		AP = % M.A.'s Requiring Component Remove & Replace		BP = % Components Repaired Given They Are Received at P.S.
40 AF, BP, CP	BP = Secondary Manpower Work Center CP = Primary Manpower Work Center		AP = Manpower Work Center	
42 AP, BP, CP		BP = Mean number of Men Req. From Secondary Work Center CP = Mean Number of Men Req. From Primary Work Center	AP = Mean Number of Men Required	
43 AP, BP		BP = Mean Elapsed Maintenance Time For Performing R&R	AP = Mean Elapsed Maintenance Time For Performing Repair	
53 AP, BP	AP = Mean Elapsed Maintenance Time			BP = 20% Not used in R&M Model
54 AP, BP, CP	BP = Mean Number of Men Req. From Secondary Work Center CP = Mean Number of Men Req. From Primary Work Center			AP = 40% Not used in R&M Model
70 AF, BP, CP		BP = Secondary Manpower Work Center CP = Primary Manpower Work Center		AF = 30% Not used in R&M Model

b) Data for on-aircraft repair functions 40, 53, and 54 was taken from Discrepancy/Corrective Action Reports where the Disposition Code was defined as either "Repaired on Aircraft" or "Checked on Aircraft, Tested O.K."

c) In function 37, BP entries for each component have been set to zero. This was done because the ORME program did not contain data with which to measure the percentage of elements repaired given that they are received at G.S.

d) In functions 40, 42, and 43, the AP values were set to zero since the ORME program did not contain this information.

e) The ORME data shows, in many cases, that more than two maintenance specialties (work centers) were involved in correcting the faults associated with each component. As a result, two things were done. First, since the specialty requirements were somewhat different for remove and replace, as opposed to on-aircraft repair, a separate function, function 70, was created to distinguish between the primary and secondary specialists required for remove and replace vs. those required for on-aircraft repair. Second, where there still remained requirements for more than two maintenance specialties, their times were added to the primary or secondary specialist category that they most closely matched. If no match existed, the times were prorated over the primary and secondary work centers.

Function 44

All CH-54B component elements were reviewed with ORME engineers to define test hop requirements. Based on this work, function 44 has been revised to reflect CH-54B test hop component candidates. Appendix III identifies each component which may require a test hop by associating it with a value one. Appendix IV shows a change in the probability of a maintenance action requirement which was selected in order to bring the test hop flight time to 4.81 percent of the total flight time as was reflected in actual CH-54B operational history.

Function 71

Since function 70 was added to distinguish between work centers required for removal and replacement of a component, as opposed to its repair on-aircraft, an additional function is required to permit sorting the proper digits in the packed function. This function plus its associated variable statements (which also had to be added) are identified below.

71	Function	P1, E3			
	V270	2	V269	3	V268

where V268 = FN70/10,000 for off-equipment W.C.
V269 = FN70 @ 10,000/100 for secondary W.C., R&R
V270 = FN70 @ 100 for primary W.C., R&R

APPENDIX III

CH-54B MODEL INPUT FUNCTION LISTING

The following is a listing of all the input function values used in the CH-54B model. Frequent references to these functions are made in the main body of the report.

	STORAGE	542,20										00002470
	STORAGE	545-354,899										00002471
*												00002480
*												00002490
*												00002500
1	FUNCTION	P4,D2										00002510
0	1	1	1									00002520
*												00002530
*												00002540
2	FUNCTION	P17,D0										00002550
1	9999992	9570975										00002560
17	00002021	960000										00002570
*												00002580
*												00002590
3	FUNCTION	P8,D2										00002600
0	8941221	737472										00002610
*												00002620
*												00002630
4	FUNCTION	P8,D2										00002640
0	7	1	15									00002650
*												00002660
*												00002670
5	FUNCTION	P8,D2										00002680
0	8891061	889106										00002690
*												00002700
*												00002710
6	FUNCTION	P17,D2										00002720
2	20030916	200327										00002730
*												00002740
*												00002750
7	FUNCTION	P17,D10										00002760
1	1	2	5	3	28	8	29	11	10	12	5	00002770
16	15	17	30	22	20	23	25					00002780
*												00002790
*												00002800
8	FUNCTION	P17,D2										00002810
1	0	3	999999									00002820
*												00002830
*												00002840
9	FUNCTION	P19,E9										00002850
2	FN11	5	FN13	0	FN10	7	FN10	0	FN56	12	FN11	00002860
16	FN12	17	FN14	21	FN51							00002870
*												00002880
*												00002890
10	FUNCTION	RN1,D4										00002900
0.86571	0.90702	0.99913	0.99994									00002910
*												00002920
*												00002930
11	FUNCTION	RN1,D5										00002940
0.97051	0.99972	0.99993										00002950
*												00002960
*												00002970
12	FUNCTION	RN1,D4										00002980
0.90051	0.99332	0.99973	0.99994									00002990
*												00003000
*												00003010
13	FUNCTION	RN1,D2										00003020
0.99101	0.99992											00003030
*												00003040
*												00003050
14	FUNCTION	RN1,D25										00003060
0.00021	0.00142	0.00503	0.01694	0.04145	0.08576							00003070
0.15437	0.24718	0.35859	0.480010	0.599211	0.706812							00003080
0.796513	0.865914	0.916015	0.950016	0.971617	0.984618							00003090
0.992019	0.996120	0.998121	0.999122	0.999623	0.999824							00003100
0.999925												00003110

```

*
*
15  FUNCTION  P19,L8      WHEN DISCOVERED SORT SYSTEM FAILURE
2   FN19  5   FN16  6   FN17  7   FN18  8   FN57  12  FN19
16  FN20  17  FN21
*
*
16  FUNCTION  RN1,D21     PROB SYSTEM MA  AIRCREW/MA  AIRCREW
0.180201  0.189202  0.207203  0.252304  0.342305  0.531506  00003120
0.617107  0.716208  0.725209  0.842310  0.878411  0.891912  00003130
0.905413  0.914414  0.936915  0.955019  0.959520  0.968522  00003140
0.973023  0.977524  0.999925
*
*
17  FUNCTION  KN1,D20     PROB SYSTEM MA  IN-FLIGHT/MA  IN-FLIGHT
0.008701  0.030702  0.042703  0.076104  0.089505  0.171606  00003150
0.251007  0.275008  0.335009  0.357710  0.415711  0.443712  00003160
0.465713  0.483714  0.641915  0.780816  0.874317  0.915718  00003170
0.975119  0.999920
*
*
18  FUNCTION  RN1,D15     PROB SYSTEM MA  ABORT IN-FLT/MA  ABT IN-FLT
0.021001  0.027002  0.105304  0.147505  0.286106  0.406607  00003180
0.557211  0.587312  0.629513  0.665614  0.743915  0.810216  00003190
0.816217  0.954819  0.999920
*
*
19  FUNCTION  KN1,D20     PROB SYSTEM MA  PREFLIGHT/MA  PREFLIGHT
0.082401  0.139202  0.193603  0.357404  0.372705  0.500606  00003200
0.543207  0.572308  0.682309  0.686610  0.774711  0.793912  00003210
0.806113  0.851614  0.912915  0.946316  0.956417  0.960218  00003220
0.981219  0.999920
*
*
20  FUNCTION  RN1,D20     PROB SYSTEM MA  DAILY/MA  DAILY
0.045301  0.102702  0.119503  0.225604  0.279005  0.418906  00003230
0.550807  0.557408  0.638209  0.645710  0.730811  0.733412  00003240
0.745113  0.776014  0.811915  0.822316  0.836817  0.841918  00003250
0.973219  0.999920
*
*
21  FUNCTION  RN1,D20     PROB SYSTEM MA  PMP/MA  PMP
0.120101  0.235002  0.254903  0.455604  0.471305  0.577906  00003260
0.648107  0.652108  0.685309  0.698610  0.736411  0.760212  00003270
0.770813  0.782314  0.855715  0.884916  0.897517  0.899818  00003280
0.985119  0.999920
*
*
22  FUNCTION  P3,L20      NUMBER OF ELEMENTS IN SYSTEMS
01  20  02  24  03  13  04  32  05  8  06  23  00003290
07  22  08  5  09  16  10  11  11  13  12  5  00003300
13  8  14  11  15  26  16  15  17  14  18  7  00003310
19  15  20  6
*
*
23  FUNCTION  P19,L8      WHEN DISCOVERED SORT ELEMENT FAILURE
2   FN27  5   FN24  6   FN25  7   FN26  8   FN58  12  FN27  00003320
16  FN28  17  FN29
*
*
24  FUNCTION  FN40,L241    PROB ELEMENT MA  AIRCREW/MA  SYS  AIRCREW
0101  025  0102  000  0103  050  0104  025  0105  050  0106  150  00003330
0107  125  0108  050  0109  050  0110  075  0111  100  0112  000  00003340
0113  075  0114  100  0115  075  0116  050  0201  000  0202  999  00003350
0203  000  0204  000  0205  000  0301  250  0302  250  0303  250  00003360
0304  250  0305  000  0401  000  0402  200  0403  000  0404  000  00003370

```

0405	000	0406	000	0407	000	0408	000	0409	000	0410	000	00003780
0411	100	0412	000	0413	000	0414	000	0415	200	0416	200	00003790
0417	000	0418	100	0419	100	0420	000	0421	100	0422	000	00003800
0423	000	0424	000	0425	000	0501	200	0502	100	0503	000	00003810
0504	000	0505	000	0506	150	0507	250	0508	000	0509	000	00003820
0510	250	0511	000	0512	000	0513	050	0514	000	0515	000	00003830
0516	000	0517	000	0601	000	0602	000	0603	000	0604	000	00003840
0605	071	0606	095	0607	214	0608	048	0609	000	0610	000	00003850
0611	143	0612	048	0613	214	0614	071	0615	000	0616	071	00003860
0617	000	0618	024	0701	105	0702	000	0703	053	0704	105	00003870
0705	000	0706	000	0707	000	0708	158	0709	000	0710	000	00003880
0711	000	0712	053	0713	053	0714	053	0715	053	0716	105	00003890
0717	053	0718	053	0719	053	0720	000	0721	000	0722	000	00003900
0723	000	0724	105	0725	000	0801	000	0802	091	0803	136	00003910
0804	000	0805	000	0806	091	0807	000	0808	091	0809	000	00003920
0810	000	0811	045	0812	273	0813	000	0814	000	0815	045	00003930
0816	045	0817	045	0818	136	0819	000	0820	000	0821	000	00003940
0901	500	0902	000	0903	000	0904	500	0905	000	0906	000	00003950
0907	600	0908	000	1001	077	1002	038	1003	000	1004	192	00003960
1005	192	1006	231	1007	038	1008	077	1009	077	1010	000	00003970
1011	000	1012	000	1013	000	1014	038	1015	000	1016	038	00003980
1017	000	1018	000	1019	000	1101	375	1102	000	1103	125	00003990
1104	000	1105	000	1106	000	1107	125	1108	000	1109	375	00004000
1110	000	1201	000	1202	333	1203	000	1204	000	1205	000	00004010
1206	000	1207	667	1208	000	1209	000	1301	000	1302	333	00004020
1303	333	1304	000	1305	333	1401	000	1402	500	1403	000	00004030
1404	500	1405	000	1406	000	1407	000	1408	000	1409	000	00004040
1410	000	1411	000	1501	200	1502	000	1503	000	1504	200	00004050
1505	000	1506	000	1507	000	1508	000	1509	200	1510	200	00004060
1511	000	1512	200	1513	000	1514	000	1515	000	1516	000	00004070
1517	000	1518	000	1519	000	1520	000	1521	000	1522	000	00004080
1601	000	1602	000	1603	000	1701	000	1702	000	1703	000	00004090
1801	000	1802	000	1803	000	1901	000	1902	000	1903	000	00004100
1904	000	1905	750	1906	250	2001	000	2002	000	2003	999	00004110
2101	000	2201	999	2202	000	2203	000	2301	999	2401	999	00004120
2501	999											00004130
*												00004140
*												00004150
25	FUNCTION	FN40, L296	PROB	ELEMENT	MA	IN-FLIGHT/SYS	MA	IN-FLIGHT	00004160			
0101	000	0102	077	0103	077	0104	000	0105	000	0106	000	00004170
0107	000	0108	000	0109	000	0110	000	0111	000	0112	000	00004180
0113	000	0114	000	0115	000	0116	000	0117	000	0118	000	00004190
0119	000	0120	846	0201	030	0202	030	0203	061	0204	030	00004200
0205	000	0206	000	0207	000	0208	000	0209	000	0210	000	00004210
0211	000	0212	303	0213	000	0214	000	0215	000	0216	091	00004220
0217	061	0218	030	0219	000	0220	000	0221	000	0222	000	00004230
0223	091	0224	273	0301	000	0302	055	0303	000	0304	333	00004240
0305	000	0306	000	0307	000	0308	000	0309	000	0310	000	00004250
0311	000	0312	000	0313	611	0401	080	0402	000	0403	000	00004260
0404	020	0405	000	0406	020	0407	060	0408	000	0409	000	00004270
0410	020	0411	120	0412	000	0413	000	0414	020	0415	000	00004280
0416	000	0417	000	0418	000	0419	034	0420	004	0421	004	00004290
0422	004	0423	004	0424	004	0425	000	0426	000	0427	000	00004300
0428	000	0429	000	0430	000	0431	000	0432	640	0501	000	00004310
0502	050	0503	850	0504	100	0505	000	0506	000	0507	000	00004320
0508	000	0601	000	0602	000	0603	008	0604	106	0605	000	00004330
0606	008	0607	000	0608	000	0609	008	0610	000	0611	000	00004340
0612	008	0613	008	0614	228	0615	000	0616	000	0617	008	00004350
0618	211	0619	057	0620	000	0621	008	0622	024	0623	317	00004360
0701	008	0702	017	0703	000	0704	000	0705	000	0706	017	00004370
0707	025	0708	042	0709	218	0710	185	0711	034	0712	218	00004380
0713	008	0714	034	0715	017	0716	000	0717	000	0718	000	00004390
0719	000	0720	017	0721	000	0722	160	0801	083	0802	167	00004400
0803	333	0804	167	0805	250	0901	103	0902	034	0903	000	00004410
0904	000	0905	034	0906	011	0907	040	0908	011	0909	069	00004420
0910	094	0911	230	0912	023	0913	023	0914	011	0915	000	00004430

0916	510	1001	000	1002	000	1003	054	1004	135	1005	351	00004440
1006	108	1007	162	1008	000	1009	000	1010	000	1011	189	00004450
1101	103	1102	000	1103	103	1104	011	1105	011	1106	034	00004460
1107	034	1108	069	1109	000	1110	000	1111	011	1112	034	00004470
1113	586	1201	071	1202	333	1203	238	1204	048	1205	310	00004480
1301	030	1302	000	1303	030	1304	000	1305	182	1306	061	00004490
1307	242	1308	455	1401	000	1402	074	1403	037	1404	111	00004500
1405	037	1406	000	1407	037	1408	148	1409	074	1410	000	00004510
1411	481	1501	080	1502	021	1503	017	1504	013	1505	013	00004520
1506	004	1507	008	1508	004	1509	013	1510	008	1511	017	00004530
1512	017	1513	017	1514	000	1515	008	1516	000	1517	004	00004540
1518	013	1519	198	1520	051	1521	008	1522	013	1523	008	00004550
1524	025	1525	013	1526	426	1601	043	1602	144	1603	019	00004560
1604	058	1605	154	1606	034	1607	029	1608	024	1609	019	00004570
1610	029	1611	043	1612	067	1613	010	1614	014	1615	313	00004580
1701	007	1702	000	1703	021	1704	157	1705	014	1706	129	00004590
1707	000	1708	157	1709	329	1710	029	1711	043	1712	014	00004600
1713	050	1714	050	1801	339	1802	032	1803	387	1804	000	00004610
1805	016	1806	081	1807	145	1901	035	1902	058	1903	000	00004620
1904	012	1905	093	1906	198	1907	000	1908	041	1909	041	00004630
1910	081	1911	081	1912	023	1913	000	1914	128	1915	209	00004640
2001	075	2002	200	2003	075	2004	100	2005	050	2006	075	00004650
2007	100	2008	325									00004660
26	FUNCTION	FN46,L296		PRUB	ELEMENT	MA	INFLT	ABT/SYS	MA	INFLT	ABT	00004670
0101	000	0102	000	0103	000	0104	000	0105	000	0106	000	00004680
0107	000	0108	000	0109	000	0110	000	0111	000	0112	000	00004690
0113	000	0114	000	0115	000	0116	000	0117	000	0118	000	00004700
0119	000	0120	999	0201	000	0202	000	0203	000	0204	000	00004710
0205	000	0206	000	0207	000	0208	000	0209	000	0210	000	00004720
0211	000	0212	000	0213	000	0214	000	0215	000	0216	999	00004730
0217	000	0218	000	0219	000	0220	000	0221	000	0222	000	00004740
0223	000	0224	000	0301	000	0302	000	0303	000	0304	000	00004750
0305	000	0306	000	0307	000	0308	000	0309	000	0310	000	00004760
0311	000	0312	000	0313	000	0401	077	0402	000	0403	000	00004770
0404	154	0405	000	0406	000	0407	000	0408	077	0409	000	00004780
0410	000	0411	000	0412	000	0413	000	0414	077	0415	000	00004790
0416	000	0417	000	0418	000	0419	013	0420	013	0421	013	00004800
0422	013	0423	013	0424	013	0425	077	0426	000	0427	000	00004810
0428	000	0429	000	0430	000	0431	000	0432	462	0501	000	00004820
0502	286	0503	571	0504	000	0505	000	0506	000	0507	000	00004830
0508	143	0601	000	0602	000	0603	000	0604	174	0605	000	00004840
0606	000	0607	043	0608	000	0609	043	0610	000	0611	043	00004850
0612	000	0613	000	0614	261	0615	000	0616	000	0617	000	00004860
0618	043	0619	000	0620	000	0621	000	0622	087	0623	304	00004870
0701	000	0702	050	0703	000	0704	000	0705	000	0706	000	00004880
0707	000	0708	100	0709	300	0710	200	0711	050	0712	100	00004890
0713	000	0714	050	0715	000	0716	000	0717	000	0718	000	00004900
0719	000	0720	000	0721	000	0722	150	0801	000	0802	000	00004910
0803	000	0804	000	0805	000	0901	000	0902	000	0903	000	00004920
0904	000	0905	000	0906	000	0907	000	0908	000	0909	000	00004930
0910	000	0911	000	0912	000	0913	000	0914	000	0915	000	00004940
0916	000	1001	000	1002	000	1003	000	1004	000	1005	000	00004950
1006	000	1007	000	1008	000	1009	000	1010	000	1011	000	00004960
1101	160	1102	000	1103	000	1104	000	1105	000	1106	080	00004970
1107	000	1108	080	1109	000	1110	000	1111	000	1112	120	00004980
1113	560	1201	200	1202	000	1203	000	1204	000	1205	800	00004990
1301	000	1302	000	1303	000	1304	000	1305	429	1306	000	00005000
1307	000	1308	571	1401	000	1402	000	1403	000	1404	000	00005010
1405	167	1406	000	1407	167	1408	500	1409	000	1410	000	00005020
1411	167	1501	308	1502	000	1503	000	1504	000	1505	000	00005030
1506	000	1507	000	1508	000	1509	000	1510	000	1511	000	00005040
1512	000	1513	000	1514	000	1515	077	1516	000	1517	077	00005050
1518	000	1519	077	1520	154	1521	077	1522	077	1523	000	00005060
1524	000	1525	000	1526	154	1601	000	1602	091	1603	182	00005070
1604	000	1605	091	1606	000	1607	091	1608	000	1609	000	00005080
1610	000	1611	000	1612	091	1613	000	1614	000	1615	455	00005090

1701	000	1702	000	1703	000	1704	000	1705	000	1706	000	00005100
1707	000	1708	000	1709	000	1710	000	1711	000	1712	000	00005110
1713	000	1714	999	1801	000	1802	000	1803	000	1804	000	00005120
1805	000	1806	000	1807	000	1901	000	1902	043	1903	000	00005130
1904	000	1905	000	1906	000	1907	000	1908	043	1909	043	00005140
1910	087	1911	087	1912	000	1913	000	1914	304	1915	000	00005150
2001	111	2002	333	2003	000	2004	111	2005	000	2006	000	00005160
2007	000	2008	444									00005170
27	FUNCTION	FN#6,L296	PRUB	ELEMENT	MA	PREFLIGHT/SYS	MA	PREFLIGHT				00005180
0101	056	0102	000	0103	056	0104	000	0105	000	0106	000	00005190
0107	000	0108	000	0109	000	0110	000	0111	000	0112	022	00005200
0113	009	0114	009	0115	009	0116	000	0117	000	0118	000	00005210
0119	022	0120	019	0201	000	0202	000	0203	000	0204	050	00005220
0205	000	0206	000	0207	000	0208	000	0209	000	0210	000	00005230
0211	100	0212	125	0213	000	0214	069	0215	000	0216	100	00005240
0217	000	0218	000	0219	094	0220	000	0221	000	0222	000	00005250
0223	003	0224	400	0301	065	0302	000	0303	000	0304	000	00005260
0305	033	0306	201	0307	033	0308	000	0309	000	0310	000	00005270
0311	000	0312	052	0313	556	0401	096	0402	087	0403	022	00005280
0404	003	0405	028	0406	000	0407	000	0408	152	0409	043	00005290
0410	000	0411	000	0412	000	0413	022	0414	098	0415	022	00005300
0416	000	0417	000	0418	000	0419	000	0420	000	0421	000	00005310
0422	000	0423	000	0424	000	0425	000	0426	000	0427	000	00005320
0428	019	0429	019	0430	019	0431	019	0432	289	0501	000	00005330
0502	485	0503	000	0504	000	0505	000	0506	000	0507	000	00005340
0508	535	0601	000	0602	000	0603	000	0604	000	0605	000	00005350
0606	000	0607	000	0608	000	0609	000	0610	000	0611	028	00005360
0612	009	0613	000	0614	061	0615	000	0616	006	0617	000	00005370
0618	000	0619	000	0620	000	0621	031	0622	197	0623	608	00005380
0701	000	0702	000	0703	000	0704	000	0705	083	0706	183	00005390
0707	017	0708	000	0709	000	0710	000	0711	000	0712	000	00005400
0713	150	0714	067	0715	000	0716	000	0717	016	0718	000	00005410
0719	083	0720	016	0721	000	0722	383	0801	061	0802	000	00005420
0803	306	0804	573	0805	000	0901	000	0902	000	0903	000	00005430
0904	000	0905	000	0906	000	0907	000	0908	000	0909	282	00005440
0910	051	0911	186	0912	000	0913	000	0914	000	0915	010	00005450
0916	405	1001	000	1002	853	1003	000	1004	000	1005	000	00005460
1006	000	1007	167	1008	000	1009	000	1010	000	1011	000	00005470
1101	113	1102	000	1103	161	1104	121	1105	000	1106	000	00005480
1107	000	1108	000	1109	000	1110	081	1111	000	1112	000	00005490
1113	524	1201	000	1202	000	1203	426	1204	093	1205	481	00005500
1301	000	1302	000	1303	000	1304	000	1305	050	1306	000	00005510
1307	050	1308	900	1401	041	1402	146	1403	163	1404	000	00005520
1405	041	1406	000	1407	244	1408	000	1409	041	1410	325	00005530
1411	000	1501	157	1502	000	1503	012	1504	000	1505	000	00005540
1506	000	1507	000	1508	000	1509	000	1510	000	1511	000	00005550
1512	000	1513	000	1514	000	1515	029	1516	000	1517	000	00005560
1518	012	1519	000	1520	000	1521	012	1522	029	1523	058	00005570
1524	000	1525	116	1526	576	1601	000	1602	160	1603	000	00005580
1604	053	1605	000	1606	021	1607	000	1608	000	1609	021	00005590
1610	021	1611	000	1612	000	1613	021	1614	000	1615	702	00005600
1701	000	1702	000	1703	000	1704	000	1705	000	1706	000	00005610
1707	000	1708	882	1709	000	1710	059	1711	059	1712	000	00005620
1713	000	1714	000	1801	000	1802	000	1803	000	1804	999	00005630
1805	000	1806	000	1807	000	1901	203	1902	000	1903	000	00005640
1904	000	1905	000	1906	000	1907	000	1908	000	1909	000	00005650
1910	000	1911	000	1912	000	1913	000	1914	000	1915	707	00005660
2001	588	2002	137	2003	000	2004	000	2005	000	2006	039	00005670
2007	235	2008	000									00005680
28	FUNCTION	FN#6,L296	PRUB	ELEMENT	MA	DAILY	/SYS	MA	DAILY			00005690
0101	102	0102	000	0103	000	0104	080	0105	000	0106	000	00005700
0107	000	0108	000	0109	167	0110	046	0111	000	0112	010	00005710
0113	006	0114	006	0115	006	0116	000	0117	000	0118	000	00005720
0119	010	0120	568	0201	000	0202	000	0203	000	0204	013	00005730
0205	000	0206	000	0207	016	0208	000	0209	000	0210	000	00005740
0211	025	0212	094	0213	000	0214	124	0215	000	0216	122	00005750

0217	077	0218	000	0219	214	0220	000	0221	000	0222	016	00005760		
0223	016	0224	477	0301	108	0302	000	0303	000	0304	000	00005770		
0305	027	0306	000	0307	000	0308	000	0309	000	0310	000	00005780		
0311	000	0312	043	0313	823	0401	030	0402	000	0403	007	00005790		
0404	068	0405	004	0406	000	0407	170	0408	000	0409	046	00005800		
0410	076	0411	044	0412	037	0413	000	0414	023	0415	007	00005810		
0416	000	0417	000	0418	010	0419	000	0420	000	0421	000	00005820		
0422	000	0423	000	0424	000	0425	000	0426	000	0427	044	00005830		
0428	015	0429	015	0430	015	0431	015	0432	372	0501	000	00005840		
0502	077	0503	212	0504	000	0505	000	0506	062	0507	243	00005850		
0508	405	0601	036	0602	075	0603	006	0604	039	0605	032	00005860		
0606	000	0607	013	0608	006	0609	000	0610	000	0611	000	00005870		
0612	056	0613	000	0614	209	0615	006	0616	002	0617	026	00005880		
0618	077	0619	000	0620	000	0621	050	0622	008	0623	357	00005890		
0701	014	0702	031	0703	007	0704	068	0705	021	0706	495	00005900		
0707	002	0708	007	0709	033	0710	041	0711	007	0712	031	00005910		
0713	037	0714	005	0715	000	0716	000	0717	002	0718	000	00005920		
0719	014	0720	002	0721	014	0722	171	0801	068	0802	137	00005930		
0803	000	0804	315	0805	479	0901	000	0902	033	0903	017	00005940		
0904	003	0905	033	0906	000	0907	000	0908	047	0909	025	00005950		
0910	158	0911	241	0912	033	0913	011	0914	000	0915	003	00005960		
0916	394	1001	000	1002	000	1003	000	1004	000	1005	000	00005970		
1006	120	1007	036	1008	000	1009	120	1010	000	1011	723	00005980		
1101	054	1102	021	1103	000	1104	011	1105	000	1106	040	00005990		
1107	029	1108	011	1109	000	1110	000	1111	021	1112	117	00006000		
1113	692	1201	000	1202	000	1203	828	1204	172	1205	000	00006010		
1301	308	1302	000	1303	000	1304	308	1305	023	1306	154	00006020		
1307	023	1308	185	1401	014	1402	148	1403	000	1404	036	00006030		
1405	014	1406	173	1407	082	1408	000	1409	014	1410	000	00006040		
1411	521	1501	000	1502	027	1503	008	1504	000	1505	000	00006050		
1506	000	1507	000	1508	000	1509	053	1510	027	1511	000	00006060		
1512	053	1513	000	1514	000	1515	013	1516	027	1517	053	00006070		
1518	008	1519	000	1520	000	1521	508	1522	013	1523	000	00006080		
1524	027	1525	000	1526	684	1601	000	1602	130	1603	000	00006090		
1604	043	1605	000	1606	026	1607	000	1608	000	1609	026	00006100		
1610	026	1611	000	1612	348	1613	026	1614	000	1615	374	00006110		
1701	000	1702	248	1703	000	1704	000	1705	000	1706	000	00006120		
1707	000	1708	000	1709	280	1710	019	1711	019	1712	000	00006130		
1713	000	1714	435	1801	000	1802	000	1803	000	1804	088	00006140		
1805	000	1806	912	1807	000	1901	180	1902	103	1903	021	00006150		
1904	000	1905	048	1906	024	1907	041	1908	000	1909	000	00006160		
1910	062	1911	062	1912	034	1913	146	1914	023	1915	257	00006170		
2001	101	2002	027	2003	000	2004	034	2005	000	2006	010	00006180		
2007	044	2008	785									00006190		
29	FUNCTION	FN46,L296	PROB	ELEMENT	MA	P	M	P	/SYS	MA	P	M	P	00006200
0101	022	0102	017	0103	056	0104	000	0105	017	0106	017	00006210		
0107	017	0108	050	0109	070	0110	095	0111	025	0112	004	00006220		
0113	002	0114	002	0115	032	0116	008	0117	017	0118	025	00006230		
0119	004	0120	551	0201	000	0202	017	0203	000	0204	007	00006240		
0205	000	0206	026	0207	017	0208	009	0209	035	0210	000	00006250		
0211	028	0212	017	0213	035	0214	078	0215	043	0216	014	00006260		
0217	245	0218	033	0219	013	0220	013	0221	000	0222	026	00006270		
0223	004	0224	333	0301	000	0302	000	0303	100	0304	050	00006280		
0305	025	0306	000	0307	025	0308	100	0309	050	0310	100	00006290		
0311	000	0312	040	0313	510	0401	025	0402	000	0403	011	00006300		
0404	033	0405	040	0406	028	0407	118	0408	007	0409	006	00006310		
0410	077	0411	095	0412	019	0413	030	0414	006	0415	039	00006320		
0416	022	0417	039	0418	008	0419	000	0420	000	0421	000	00006330		
0422	000	0423	000	0424	000	0425	006	0426	017	0427	007	00006340		
0428	032	0429	032	0430	032	0431	032	0432	269	0501	084	00006350		
0502	056	0503	134	0504	000	0505	056	0506	263	0507	355	00006360		
0508	034	0601	021	0602	021	0603	009	0604	037	0605	000	00006370		
0606	000	0607	000	0608	028	0609	049	0610	009	0611	000	00006380		
0612	070	0613	000	0614	181	0615	000	0616	003	0617	000	00006390		
0618	075	0619	000	0620	035	0621	177	0622	012	0623	312	00006400		
0701	000	0702	064	0703	028	0704	000	0705	000	0706	142	00006410		

0707	004	0708	014	0709	201	0710	043	0711	000	0712	128	00006420
0713	026	0714	011	0715	000	0716	028	0717	004	0718	028	00006430
0719	014	0720	004	0721	000	0722	260	0801	125	0802	000	00006440
0803	000	0804	000	0805	875	0901	150	0902	090	0903	045	00006450
0904	004	0905	000	0906	090	0907	150	0908	084	0909	000	00006460
0910	048	0911	084	0912	000	0913	000	0914	000	0915	009	00006470
0916	240	1001	075	1002	000	1003	301	1004	000	1005	226	00006480
1006	000	1007	023	1008	075	1009	000	1010	075	1011	226	00006490
1101	148	1102	000	1103	106	1104	000	1105	053	1106	032	00006500
1107	034	1108	000	1109	053	1110	000	1111	000	1112	000	00006510
1113	575	1201	000	1202	000	1203	000	1204	021	1205	979	00006520
1301	187	1302	094	1303	000	1304	094	1305	028	1306	000	00006530
1307	028	1308	566	1401	043	1402	157	1403	000	1404	235	00006540
1405	043	1406	217	1407	000	1408	261	1409	043	1410	000	00006550
1411	000	1501	069	1502	013	1503	004	1504	013	1505	000	00006560
1506	000	1507	000	1508	000	1509	000	1510	013	1511	000	00006570
1512	000	1513	104	1514	013	1515	007	1516	104	1517	026	00006580
1518	004	1519	052	1520	052	1521	004	1522	007	1523	000	00006590
1524	000	1525	000	1526	515	1601	000	1602	057	1603	038	00006600
1604	019	1605	114	1606	011	1607	000	1608	000	1609	011	00006610
1610	011	1611	076	1612	000	1613	011	1614	000	1615	650	00006620
1701	159	1702	074	1703	000	1704	159	1705	000	1706	238	00006630
1707	079	1708	000	1709	119	1710	024	1711	024	1712	000	00006640
1713	000	1714	119	1801	000	1802	000	1803	000	1804	217	00006650
1805	000	1806	783	1807	000	1901	014	1902	043	1903	058	00006660
1904	242	1905	000	1906	041	1907	047	1908	041	1909	041	00006670
1910	061	1911	061	1912	000	1913	021	1914	020	1915	310	00006680
2001	149	2002	053	2003	000	2004	066	2005	066	2006	020	00006690
2007	086	2008	510									00006700
30	FUNCTION	FN46	L241	PRDB	ARCRW	GRD	ABURT/MA	DURING	AIRCREW			00006710
0101	000	0102	000	0103	000	0104	000	0105	000	0106	000	00006720
0107	000	0108	500	0109	000	0110	000	0111	000	0112	000	00006730
0113	000	0114	000	0115	333	0116	000	0201	000	0202	999	00006740
0203	000	0204	000	0205	000	0301	000	0302	000	0303	000	00006750
0304	000	0305	000	0401	000	0402	500	0403	000	0404	000	00006760
0405	000	0406	000	0407	000	0408	000	0409	000	0410	000	00006770
0411	000	0412	000	0413	000	0414	000	0415	500	0416	000	00006780
0417	000	0418	000	0419	000	0420	000	0421	000	0422	000	00006790
0423	000	0424	000	0425	000	0501	000	0502	000	0503	000	00006800
0504	000	0505	000	0506	333	0507	400	0508	000	0509	000	00006810
0510	000	0511	000	0512	000	0513	000	0514	000	0515	000	00006820
0516	000	0517	000	0601	000	0602	000	0603	000	0604	000	00006830
0605	000	0606	250	0607	222	0608	500	0609	000	0610	000	00006840
0611	500	0612	000	0613	000	0614	667	0615	000	0616	667	00006850
0617	000	0618	999	0701	000	0702	000	0703	000	0704	500	00006860
0705	000	0706	000	0707	000	0708	000	0709	000	0710	000	00006870
0711	000	0712	000	0713	000	0714	000	0715	000	0716	000	00006880
0717	000	0718	000	0719	999	0720	000	0721	000	0722	000	00006890
0723	000	0724	500	0725	000	0801	000	0802	500	0803	000	00006900
0804	000	0805	000	0806	500	0807	000	0808	000	0809	000	00006910
0810	000	0811	000	0812	500	0813	000	0814	000	0815	000	00006920
0816	999	0817	999	0818	000	0819	000	0820	000	0821	000	00006930
0901	000	0902	000	0903	000	0904	000	0905	000	0906	000	00006940
0907	000	0908	000	1001	999	1002	000	1003	000	1004	999	00006950
1005	200	1006	633	1007	999	1008	999	1009	500	1010	000	00006960
1011	000	1012	000	1013	000	1014	999	1015	000	1016	000	00006970
1017	000	1018	000	1019	000	1101	999	1102	000	1103	999	00006980
1104	000	1105	000	1106	000	1107	999	1108	000	1109	000	00006990
1110	000	1201	000	1202	999	1203	000	1204	000	1205	000	00007000
1206	000	1207	999	1208	000	1209	000	1301	000	1302	999	00007010
1303	999	1304	000	1305	000	1401	000	1402	000	1403	000	00007020
1404	999	1405	000	1406	000	1407	000	1408	000	1409	000	00007030
1410	000	1411	000	1501	000	1502	000	1503	000	1504	999	00007040
1505	000	1506	000	1507	000	1508	000	1509	000	1510	000	00007050
1511	000	1512	000	1513	000	1514	000	1515	000	1516	000	00007060
1517	000	1518	000	1519	000	1520	000	1521	000	1522	000	00007070

1801	000	1802	000	1803	000	1701	000	1702	000	1703	000	00007080
1801	000	1802	000	1803	000	1901	000	1902	000	1903	000	00007090
1904	000	1905	999	1906	999	2001	000	2002	000	2003	999	00007100
2101	000	2201	500	2202	000	2203	000	2301	000	2401	999	00007110
2501	000											00007120
*												00007130
*												00007140
31	FUNCTION	P19,E4				PRUB	OF	NORM	SORT			00007150
2	FN34	5	FN33	6	FN32	16	FN35					00007160
*												00007170
*												00007180
32	FUNCTION	FN46,L296				PRUB	NOR/MA	IN-FLIGHT	NO	ABORT		00007190
0101	0000000102	0000000103	0000000104	0000000105	0000000106	0000000107	0000000108	0000000109	0000000110	0000000111	0000000112	000000007200
0107	0000000108	0000000109	0000000110	0000000111	0000000112	0000000113	0000000114	0000000115	0000000116	0000000117	0000000118	000000007210
0113	0000000114	0000000115	0000000116	0000000117	0000000118	0000000119	0000000120	0000000121	0000000122	0000000123	0000000124	000000007220
0119	0000000120	111110201	0000000202	0000000203	0000000204	0000000205	0000000206	0000000207	0000000208	0000000209	0000000210	000000007230
0205	0000000206	0000000207	0000000208	0000000209	0000000210	0000000211	0000000212	0000000213	0000000214	0000000215	0000000216	000000007240
0211	0000000212	2000000213	0000000214	0000000215	0000000216	0000000217	0000000218	0000000219	0000000220	0000000221	0000000222	9999990007250
0217	9999990218	0000000219	0000000220	0000000221	0000000222	0000000223	0000000224	0000000225	0000000226	0000000227	0000000228	000000007260
0223	0000000224	222220301	0000000302	0000000303	0000000304	0000000305	0000000306	0000000307	0000000308	0000000309	0000000310	000000007270
0305	0000000306	0000000307	0000000308	0000000309	0000000310	0000000311	0000000312	0000000313	0000000314	0000000315	0000000316	000000007280
0311	0000000312	0000000313	0000000314	0000000315	0000000316	0000000317	0000000318	0000000319	0000000320	0000000321	0000000322	000000007290
0404	0000000405	0000000406	0000000407	0000000408	0000000409	0000000410	0000000411	0000000412	0000000413	0000000414	0000000415	000000007300
0410	9999990411	0000000412	0000000413	0000000414	0000000415	0000000416	0000000417	0000000418	0000000419	0000000420	0000000421	000000007310
0416	0000000417	0000000418	0000000419	0000000420	0000000421	0000000422	0000000423	0000000424	0000000425	0000000426	0000000427	000000007320
0422	0000000423	0000000424	0000000425	0000000426	0000000427	0000000428	0000000429	0000000430	0000000431	0000000432	1923080501	000000007330
0428	0000000429	0000000430	0000000431	0000000432	0000000433	0000000434	0000000435	0000000436	0000000437	0000000438	0000000439	000000007340
0502	0000000503	4615380504	0000000505	0000000506	0000000507	0000000508	0000000509	0000000510	0000000511	0000000512	0000000513	000000007350
0508	0000000509	0000000510	0000000511	0000000512	0000000513	0000000514	0000000515	0000000516	0000000517	0000000518	0000000519	000000007360
0606	9999990607	0000000608	0000000609	0000000610	0000000611	0000000612	0000000613	0000000614	0000000615	0000000616	0000000617	000000007370
0612	0000000613	9999990614	0000000615	0000000616	0000000617	0000000618	0000000619	0000000620	0000000621	0000000622	0000000623	000000007380
0618	0000000619	1428570620	0000000621	0000000622	0000000623	0000000624	0000000625	0000000626	0000000627	0000000628	0000000629	1250000007390
0701	9999990702	0000000703	0000000704	0000000705	0000000706	0000000707	0000000708	0000000709	0000000710	0000000711	0000000712	5000000007400
0707	3333330708	3333330709	2000000710	3333330711	3333330712	3333330713	3333330714	3333330715	3333330716	3333330717	3333330718	3333330007410
0713	9999990714	0000000715	0000000716	0000000717	0000000718	0000000719	0000000720	0000000721	0000000722	0000000723	0000000724	000000007420
0719	0000000720	0000000721	0000000722	0000000723	0000000724	0000000725	0000000726	0000000727	0000000728	0000000729	0000000730	16666700007430
0803	0000000804	3333330805	0000000901	0000000902	0000000903	0000000904	0000000905	0000000906	0000000907	0000000908	0000000909	0000000007440
0904	0000000905	0000000906	0000000907	0000000908	0000000909	0000000910	0000000911	0000000912	0000000913	0000000914	0000000915	0000000007450
0910	0000000911	0000000912	0000000913	0000000914	0000000915	0000000916	0000000917	0000000918	0000000919	0000000920	0000000921	0000000007460
0916	111111001	0000001002	0000001003	0000001004	0000001005	0000001006	0000001007	0000001008	0000001009	0000001010	0000001011	46153800007470
1006	2500001007	1566671008	0000001009	0000001010	0000001011	0000001012	0000001013	0000001014	0000001015	0000001016	0000001017	28571400007480
1101	2000001102	0000001103	3333331104	9999991105	9999991106	0000001107	0000001108	0000001109	0000001110	0000001111	0000001112	0000000007490
1107	0000001108	5000001109	0000001110	0000001111	0000001112	0000001113	0000001114	0000001115	0000001116	0000001117	0000001118	0000000007500
1113	4594591201	0000001202	0000001203	0000001204	0000001205	0000001206	0000001207	0000001208	0000001209	0000001210	0000001211	33333300007510
1301	0000001302	0000001303	0000001304	0000001305	3333331306	0000001307	0000001308	0000001309	0000001310	0000001311	0000001312	0000000007520
1307	0000001308	0909091401	0000001402	0000001403	0000001404	0000001405	0000001406	0000001407	0000001408	0000001409	0000001410	66666700007530
1405	0000001406	0000001407	9999991408	9999991409	9999991410	0000001411	0000001412	0000001413	0000001414	0000001415	0000001416	0000000007540
1411	2500001501	2000001502	0000001503	0000001504	0000001505	0000001506	0000001507	0000001508	0000001509	0000001510	0000001511	0000000007550
1506	0000001507	0000001508	0000001509	0000001510	0000001511	0000001512	0000001513	0000001514	0000001515	0000001516	0000001517	0000000007560
1512	0000001513	0000001514	0000001515	0000001516	0000001517	0000001518	0000001519	0000001520	0000001521	0000001522	0000001523	0000000007570
1518	0000001519	0434781520	1000001521	9999991522	5000001523	0000001524	0000001525	0000001526	0000001527	0000001528	0000001529	0000000007580
1524	0000001525	0000001526	0303031601	0000001602	0689661603	9999990007590	0000001604	0000001605	0000001606	0000001607	0000001608	0000000007590
1604	0000001605	0000001606	1428571607	0000001608	0000001609	0000001610	0000001611	0000001612	0000001613	0000001614	0000001615	0000000007600
1610	0000001611	1111111612	2307691613	0000001614	0000001615	0000001616	0000001617	0000001618	0000001619	0000001620	0000001621	18333300007610
1701	0000001702	0000001703	0000001704	0000001705	0000001706	0000001707	0000001708	0000001709	0000001710	0000001711	0000001712	0000000007620
1707	0000001708	0000001709	0000001710	0000001711	0000001712	0000001713	0000001714	0000001715	0000001716	0000001717	0000001718	0000000007630
1713	0000001714	0000001801	0000001802	0000001803	0000001804	0000001805	0000001806	0000001807	0000001808	0000001809	0000001810	0000000007640
1805	0000001806	0000001807	0000001901	0000001902	2500001903	0000001904	0000001905	0000001906	0000001907	0000001908	0000001909	0000000007650
1904	9999991905	1250001906	0588241907	0000001908	2000001909	2000001910	0000001911	0000001912	0000001913	0000001914	0000001915	2000000007660
1910	3000001911	3000001912	0000001913	0000001914	9999991915	11111100007670	0000001916	0000001917	0000001918	0000001919	0000001920	0000000007670
2001	0000002002	8000002003	6666672004	3333332005	5000002006	66666700007680	0000002007	0000002008	0000002009	0000002010	0000002011	0000000007680
2007	5000002008	777777				00007690						00007700
*						00007710						00007720
*						00007730						00007740
33	FUNCTION	P22,D241				PRUB	NOR/MA	NO	ABORT	AIRCREW		00007750
0101	9999990102	0000000103	5000000104	9999990105	0000000106	5000000007730						00007760

0107	8000000108	9999990109	5000000110	9999990111	2500000112	00000000007740
0113	9999990114	5000000115	0000000116	9999990201	0000000202	00000000007750
0203	0000000204	0000000205	0000000301	0000000302	9999990303	00000000007760
0304	9999990305	0000000401	0000000402	0000000403	0000000404	00000000007770
0405	0000000406	0000000407	0000000408	0000000409	0000000410	00000000007780
0411	9999990412	0000000413	0000000414	0000000415	9999990416	00000000007790
0417	0000000418	0000000419	0000000420	0000000421	9999990422	00000000007800
0423	0000000424	0000000425	0000000501	7500000502	9999990503	00000000007810
0504	0000000505	0000000506	9999990507	6666670508	0000000509	00000000007820
0510	0000000511	0000000512	0000000513	0000000514	0000000515	00000000007830
0516	0000000517	0000000601	0000000602	0000000603	0000000604	00000000007840
0605	6666670606	3333330607	7142860608	9999990609	0000000610	00000000007850
0611	6666670612	9999990613	2222220614	9999990615	0000000616	00000000007860
0617	0000000618	0000000701	5000000702	0000000703	9999990704	99999900007870
0705	0000000706	0000000707	0000000708	6666670709	0000000710	00000000007880
0711	0000000712	9999990713	0000000714	0000000715	9999990716	99999900007890
0717	0000000718	9999990719	0000000720	0000000721	0000000722	00000000007900
0723	0000000724	9999990725	0000000801	0000000802	0000000803	66666700007910
0804	0000000805	0000000806	9999990807	0000000808	5000000809	00000000007920
0810	0000000811	0000000812	0000000813	0000000814	0000000815	00000000007930
0816	0000000817	0000000818	6666670819	0000000820	0000000821	00000000007940
0901	9999990902	0000000903	0000000904	9999990905	0000000906	00000000007950
0907	0000000908	0000001001	0000001002	9999991003	0000001004	00000000007960
1005	5000001006	0000001007	0000001008	0000001009	0000001010	00000000007970
1011	0000001012	0000001013	0000001014	0000001015	0000001016	00000000007980
1017	0000001018	0000001019	0000001101	0000001102	0000001103	00000000007990
1104	0000001105	0000001106	0000001107	0000001108	0000001109	33333300008000
1110	0000001201	0000001202	0000001203	0000001204	0000001205	00000000008010
1206	0000001207	0000001208	0000001209	0000001301	0000001302	00000000008020
1303	0000001304	0000001305	0000001401	0000001402	0000001403	00000000008030
1404	0000001405	0000001406	0000001407	0000001408	0000001409	00000000008040
1410	0000001411	0000001501	9999991502	0000001503	0000001504	00000000008050
1505	0000001506	0000001507	0000001508	0000001509	0000001510	00000000008060
1511	0000001512	0000001513	0000001514	0000001515	0000001516	00000000008070
1517	0000001518	0000001519	0000001520	0000001521	0000001522	00000000008080
1601	0000001602	0000001603	0000001701	0000001702	0000001703	00000000008090
1801	0000001802	0000001803	0000001901	0000001902	0000001903	00000000008100
1904	0000001905	0000001906	0000002001	0000002002	0000002003	00000000008110
2101	0000002201	9999992202	0000002203	0000002301	0000002401	00000000008120
2501	000000					00008130
*						00008140
*						00008150
34	FUNCTION	FN46, L296	PRUB NOR/MA	PREFLIGHT		00008160
0101	0000000102	0000000103	0000000104	0000000105	0000000106	00000000008170
0107	0000000108	0000000109	0000000110	0000000111	0000000112	99999900008180
0113	0000000114	0000000115	0000000116	0000000117	0000000118	00000000008190
0119	0000000120	1368420201	0000000202	0000000203	0000000204	00000000008200
0205	0000000206	0000000207	0000000208	0000000209	0000000210	00000000008210
0211	0000000212	5000000213	0000000214	0000000215	0000000216	18750000008220
0217	0000000218	0000000219	0000000220	0000000221	0000000222	00000000008230
0223	0000000224	109370301	0000000302	0000000303	0000000304	00000000008240
0305	0000000306	0000000307	0000000308	0000000309	0000000310	00000000008250
0311	0000000312	0000000313	2352940401	5555550402	9999990403	00000000008260
0404	0000000405	7692300406	0000000407	0000000408	5555550409	99999900008270
0410	0000000411	0000000412	0000000413	9999990414	5777770415	00000000008280
0416	0000000417	0000000418	0000000419	0000000420	0000000421	00000000008290
0422	0000000423	0000000424	0000000425	0000000426	0000000427	00000000008300
0428	9705880429	9705880430	9705880431	9705880432	6842110501	00000000008310
0502	0000000503	0000000504	0000000505	0000000506	0000000507	00000000008320
0508	4347830601	0000000602	0000000603	0000000604	0000000605	00000000008330
0606	0000000607	0000000608	0000000609	0000000610	0000000611	00000000008340
0612	4800000613	0000000614	0454550615	0000000616	0000000617	00000000008350
0618	0000000619	0000000620	0000000621	0000000622	4225350623	48401800008360
0701	0000000702	0000000703	0000000704	0000000705	9999990706	00000000008370
0707	0000000708	0000000709	0000000710	0000000711	0000000712	00000000008380
0713	5555550714	0000000715	0000000716	0000000717	0000000718	00000000008390

0719	0000000720	0000000721	0000000722	0652170801	0000000802	0000000008400
0803	0000000804	0000000805	0000000901	0000000902	0000000903	0000000008410
0904	0000000905	0000000906	0000000907	0000000908	0000000909	0000000008420
0910	0000000911	0000000912	0000000913	0000000914	0000000915	0000000008430
0916	0000001001	0000001002	9999991003	0000001004	0000001005	0000000008440
1006	0000001007	0000001008	0000001009	0000001010	0000001011	0000000008450
1101	0000001102	0000001103	5000001104	333331105	0000001106	0000000008460
1107	0000001108	0000001109	0000001110	0000001111	0000001112	0000000008470
1113	2000001201	0000001202	0000001203	4347831204	0000001205	0000000008480
1301	0000001302	0000001303	0000001304	0000001305	0000001306	0000000008490
1307	0000001308	0000001401	0000001402	0000001403	0000001404	0000000008500
1405	5000001406	0000001407	0000001408	0000001409	0000001410	0000000008510
1411	0000001501	0000001502	0000001503	0000001504	0000001505	0000000008520
1506	0000001507	0000001508	0000001509	0000001510	0000001511	0000000008530
1512	0000001513	0000001514	0000001515	0000001516	0000001517	0000000008540
1518	0000001519	0000001520	0000001521	0000001522	0000001523	0000000008550
1524	0000001525	0000001526	1313131601	0000001602	0000001603	0000000008560
1604	0000001605	0000001606	0000001607	0000001608	0000001609	0000000008570
1610	0000001611	0000001612	0000001613	0000001614	0000001615	0909090008580
1701	0000001702	0000001703	0000001704	0000001705	0000001706	0000000008590
1707	0000001708	0000001709	0000001710	0000001711	0000001712	0000000008600
1713	0000001714	0000001801	0000001802	0000001803	0000001804	0000000008610
1805	0000001806	0000001807	0000001901	0000001902	0000001903	0000000008620
1904	0000001905	0000001906	0000001907	0000001908	0000001909	0000000008630
1910	0000001911	0000001912	0000001913	0000001914	0000001915	2978720008640
2001	0000002002	0000002003	0000002004	0000002005	0000002006	0000000008650
2007	0000002008	000000				00008660
*						00008670
*						00008680
35	FUNCTION	FN46,L296	PRUB NUR/MA DAILY			00008690
0101	0000000102	0000000103	0000000104	0000000105	0000000106	0000000008700
0107	0000000108	0000000109	0000000110	0000000111	0000000112	9999990008710
0113	0000000114	0000000115	0000000116	0000000117	0000000118	0000000008720
0119	0000000120	0842110201	0000000202	0000000203	0000000204	0000000008730
0205	0000000206	0000000207	0000000208	0000000209	0000000210	0000000008740
0211	0000000212	0000000213	0000000214	0000000215	0000000216	2179490008750
0217	0000000218	0000000219	0000000220	0000000221	0000000222	0000000008760
0223	0000000224	1085530301	0000000302	0000000303	0000000304	0000000008770
0305	0000000306	0000000307	0000000308	0000000309	0000000310	0000000008780
0311	0000000312	0000000313	0000000401	5555550402	0000000403	0000000008790
0404	0980390405	0000000406	0000000407	0000000408	0000000409	0000000008800
0410	0869570411	0000000412	0000000413	0000000414	1176470415	0000000008810
0416	0000000417	0000000418	0000000419	0000000420	0000000421	0000000008820
0422	0000000423	0000000424	0000000425	0000000426	0000000427	0000000008830
0428	1910110429	1910110430	1910110431	1910110432	0873440501	0000000008840
0502	0000000503	0000000504	0000000505	0000000506	6250000507	0000000008850
0508	0000000601	0000000602	1709400603	0000000604	3333330605	4000000008860
0606	0000000607	0000000608	0000000609	0000000610	0000000611	0000000008870
0612	0919540613	0000000614	0566420615	0000000616	0000000617	0000000008880
0618	0833330619	0000000620	0000000621	0000000622	0000000623	0613720008890
0701	5000000702	222220703	0000000704	0000000705	0000000706	0552490008900
0707	0000000708	0000000709	6250000710	0000000711	0000000712	2222200008910
0713	1851850714	0000000715	0000000716	0000000717	0000000718	0000000008920
0719	0000000720	0000000721	0000000722	0680000801	0000000802	0000000008930
0803	0000000804	0000000805	0000000901	0000000902	0000000903	0000000008940
0904	0000000905	0000000906	0000000907	0000000908	0000000909	0000000008950
0910	0000000911	0000000912	0000000913	0000000914	0000000915	0000000008960
0916	0000001001	0000001002	0000001003	0000001004	0000001005	0000000008970
1006	0000001007	0000001008	0000001009	9999991010	0000001011	3333330008980
1101	0000001102	0000001103	0000001104	0000001105	0000001106	0000000008990
1107	0000001108	0000001109	0000001110	0000001111	0000001112	0000000009000
1113	1439511201	0000001202	0000001203	0000001204	0000001205	0000000009010
1301	0000001302	0000001303	0000001304	0000001305	0000001306	0000000009020
1307	0000001308	0000001401	0000001402	0000001403	0000001404	7692310009030
1405	9999991406	0000001407	3333331408	0000001409	0000001410	0000000009040
1411	0526221501	0000001502	0000001503	0000001504	0000001505	0000000009050

1506	0000001507	0000001508	0000001509	0000001510	0000001511	00000000009060						
1512	0000001513	0000001514	0000001515	0000001516	0000001517	00000000009070						
1518	0000001519	0000001520	0000001521	0000001522	0000001523	00000000009080						
1524	0000001525	0000001526	0280001601	0000001602	0000001603	00000000009090						
1604	0000001605	0000001606	0000001607	0000001608	0000001609	00000000009100						
1610	0000001611	0000001612	5000001613	0000001614	0000001615	09302300009110						
1701	0000001702	0000001703	0000001704	0000001705	0000001706	00000000009120						
1707	0000001708	0000001709	0000001710	0000001711	0000001712	00000000009130						
1713	0000001714	0000001801	0000001802	0000001803	0000001804	00000000009140						
1805	0000001806	0000001807	0000001901	0763361902	2666671903	00000000009150						
1904	0000001905	0000001906	0000001907	1666671908	0000001909	00000000009160						
1910	1666661911	1666661912	0000001913	2358491914	3030301915	14973300009170						
2001	0000002002	0000002003	0000002004	9999992005	0000002006	00000000009180						
2007	0000002008	171674				00009190						
*						00009200						
*						00009210						
36	FUNCTION	FN5,L25	LOG NORMAL DISTRIBUTION				00009220					
0	0	.025	332	.050	388	.100	466	.150	527	.200	580	00009230
.250	631	.500	680	.400	774	.500	883	.600	1003	.700	1148	00009240
.750	1237	.800	1345	.850	1482	.900	1675	.920	1782	.940	1921	00009250
.960	2119	.970	2261	.980	2465	.990	2845	.995	3200	.999	4183	00009260
.9998	5185											00009270
*												00009280
37	FUNCTION	FN46,L296	PERCENT REM & REPL,PERCENT GS RPK/RCD				00009290					
0101	9990000102	9990000103	9990000104	5000000105	0000000106	00000000009300						
0107	0000000108	9990000109	9990000110	9990000111	0000000112	00000000009310						
0113	9990000114	9990000115	0000000116	0000000117	5000000118	00000000009320						
0119	9990000120	5800000201	9990000202	9990000203	0000000204	99900000009330						
0205	9990000206	9990000207	9990000208	9990000209	9990000210	99900000009340						
0211	9990000212	8240000213	9990000214	8820000215	8180000216	76900000009350						
0217	9720000218	9990000219	9990000220	9990000221	9990000222	99900000009360						
0223	9990000224	8040000301	9990000302	9990000303	9990000304	66700000009370						
0305	9990000306	9990000307	9990000308	9990000309	9990000310	99900000009380						
0311	9990000312	9990000313	8410000401	2860000402	0000000403	00000000009390						
0404	2380000405	0910000406	9990000407	3000000408	0000000409	92300000009400						
0410	9090000411	8390000412	8570000413	9990000414	0000000415	99900000009410						
0416	9990000417	9990000418	9990000419	8330000420	8330000421	83300000009420						
0422	8330000423	8330000424	8330000425	9990000426	9990000427	99900000009430						
0428	8110000429	8110000430	8110000431	8110000432	6130000501	99900000009440						
0502	8750000503	9990000504	9990000505	9990000506	9990000507	94700000009450						
0508	8240000601	9990000602	9290000603	9990000604	3640000605	25000000009460						
0606	9990000607	5000000608	7500000609	5000000610	9990000611	99900000009470						
0612	2640000613	9990000614	6830000615	9990000616	9990000617	99900000009480						
0618	7500000619	9990000620	9990000621	6880000622	5000000623	65200000009490						
0701	9990000702	9990000703	3330000704	6670000705	9990000706	87900000009500						
0707	0000000708	9990000709	8890000710	9990000711	8000000712	68200000009510						
0713	9990000714	9990000715	5000000716	9990000717	9990000718	99900000009520						
0719	5000000720	5000000721	9990000722	6020000801	9990000802	99900000009530						
0803	9330000804	9230000805	9380000901	2860000902	8890000903	99900000009540						
0904	9990000905	9990000906	9990000907	9990000908	9990000909	99900000009550						
0910	9990000911	9990000912	9990000913	9990000914	9990000915	99900000009560						
0916	8110001001	0000001002	9990001003	6670001004	0000001005	62500000009570						
1006	0000001007	8180001008	9990001009	9990001010	0000001011	78600000009580						
1101	6540001102	0000001103	4820001104	8330001105	9990001106	75000000009590						
1107	9990001108	9990001109	9990001110	9990001111	6670001112	85700000009600						
1113	8810001201	7780001202	9990001203	9990001204	5000001205	90700000009610						
1301	9990001302	9990001303	9990001304	6000001305	9990001306	83300000009620						
1307	8890001308	7780001401	9990001402	9990001403	9990001404	83300000009630						
1405	9990001406	9990001407	9990001408	9990001409	9990001410	99900000009640						
1411	5530001501	9630001502	7140001503	8330001504	6670001505	66700000009650						
1506	9990001507	9990001508	5000001509	9990001510	7500001511	80000000009660						
1512	9990001513	6000001514	9990001515	9990001516	9990001517	60000000009670						
1518	7500001519	5490001520	9380001521	9990001522	7140001523	66700000009680						
1524	5710001525	7150001526	7150001601	7780001602	9740001603	99900000009690						
1604	7860001605	6000001606	0000001607	5000001608	6000001609	99900000009700						
1610	8570001611	9990001612	9990001613	6670001614	9990001615	74500000009710						

1701	6670001702	9990001703	9990001704	9090001705	9990001706	0000000009720
1707	6670001708	9990001709	9420001710	9990001711	1670001712	6670000009730
1713	9990001714	6470001801	9570001802	9990001803	8400001804	9990000009740
1805	7500001806	9990001807	7500001901	9990001902	9990001903	5000000009750
1904	9990001905	9990001906	8750001907	6360001908	8570001909	8570000009760
1910	5710001911	5710001912	0000001913	0500001914	9990001915	5670000009770
2001	7860002002	9990002003	8330002004	5000002005	6670002006	5000000009780
2007	5000002008	873000				00009790
38	FUNCTION	FN46,L296	PROB OF PART AVAILABILITY			00009800
0101	999 0102	999 0103	999 0104	999 0105	999 0106	999 00009810
0107	999 0108	999 0109	999 0110	999 0111	999 0112	999 00009820
0113	999 0114	999 0115	999 0116	999 0117	999 0118	999 00009830
0119	999 0120	909 0201	999 0202	999 0203	999 0204	999 00009840
0205	999 0206	999 0207	999 0208	999 0209	999 0210	999 00009850
0211	999 0212	857 0213	999 0214	733 0215	999 0216	999 00009860
0217	800 0218	999 0219	400 0220	999 0221	999 0222	999 00009870
0223	999 0224	932 0301	999 0302	999 0303	000 0304	999 00009880
0305	999 0306	000 0307	999 0308	999 0309	999 0310	999 00009890
0311	999 0312	999 0313	854 0401	000 0402	999 0403	999 00009900
0404	000 0405	999 0406	999 0407	272 0408	999 0409	600 00009910
0410	867 0411	143 0412	999 0413	999 0414	999 0415	000 00009920
0416	999 0417	833 0418	667 0419	500 0420	500 0421	500 00009930
0422	500 0423	500 0424	500 0425	999 0426	999 0427	500 00009940
0428	600 0429	600 0430	600 0431	600 0432	800 0501	667 00009950
0502	429 0503	724 0504	999 0505	999 0506	999 0507	999 00009960
0508	857 0601	999 0602	900 0603	999 0604	999 0605	999 00009970
0606	999 0607	999 0608	999 0609	999 0610	999 0611	000 00009980
0612	963 0613	999 0614	804 0615	999 0616	999 0617	800 00009990
0618	694 0619	999 0620	999 0621	875 0622	833 0623	843 00010000
0701	999 0702	875 0703	999 0704	999 0705	999 0706	999 00010010
0707	999 0708	884 0709	919 0710	976 0711	999 0712	630 00010020
0713	706 0714	999 0715	999 0716	000 0717	999 0718	999 00010030
0719	999 0720	999 0721	999 0722	538 0801	999 0802	714 00010040
0803	999 0804	583 0805	923 0901	999 0902	999 0903	999 00010050
0904	999 0905	500 0906	750 0907	667 0908	750 0909	999 00010060
0910	999 0911	980 0912	999 0913	999 0914	999 0915	999 00010070
0916	873 1001	999 1002	999 1003	999 1004	999 1005	556 00010080
1006	999 1007	999 1008	999 1009	999 1010	999 1011	400 00010090
1101	000 1102	999 1103	000 1104	000 1105	999 1106	167 00010100
1107	800 1108	875 1109	999 1110	999 1111	999 1112	636 00010110
1113	787 1201	999 1202	864 1203	999 1204	999 1205	806 00010120
1301	857 1302	999 1303	999 1304	999 1305	857 1306	400 00010130
1307	750 1308	722 1401	000 1402	999 1403	999 1404	600 00010140
1405	999 1406	999 1407	500 1408	000 1409	300 1410	999 00010150
1411	250 1501	962 1502	999 1503	999 1504	999 1505	500 00010160
1506	999 1507	000 1508	000 1509	999 1510	999 1511	999 00010170
1512	600 1513	999 1514	999 1515	999 1516	999 1517	999 00010180
1518	333 1519	500 1520	933 1521	999 1522	999 1523	999 00010190
1524	000 1525	000 1526	808 1601	867 1602	639 1603	999 00010200
1604	909 1605	719 1606	999 1607	999 1608	999 1609	200 00010210
1610	667 1611	999 1612	500 1613	999 1614	999 1615	855 00010220
1701	999 1702	999 1703	999 1704	950 1705	999 1706	999 00010230
1707	999 1708	999 1709	959 1710	999 1711	999 1712	999 00010240
1713	999 1714	900 1801	909 1802	500 1803	999 1804	999 00010250
1805	999 1806	999 1807	333 1901	999 1902	774 1903	750 00010260
1904	143 1905	400 1906	900 1907	333 1908	000 1909	000 00010270
1910	650 1911	650 1912	999 1913	999 1914	250 1915	843 00010280
2001	818 2002	900 2003	999 2004	667 2005	999 2006	999 00010290
2007	667 2008	933				00010300
39	FUNCTION	P1,E3	VARIABLE SORT FGR WORK CENTER			00010310
1	V50 2	V49 3	V48			00010320
*						00010330
*						00010340
40	FUNCTION	FN46,L296	SKILL CODE-WORK CENTER ON A/C REPAIR			00010350
0101	0000000102	0000000103	0000000104	0000030105	0003070106	00030700010360
0107	0000070108	0000000109	0000000110	0000000111	0000070112	00010300010370

0113	0000000114	0000000115	0003070116	0003070117	0000070118	00000700010380
0119	0000000120	0007030201	0000000202	0000000203	0000030204	00000000010390
0205	0000000206	0000000207	0000000208	0000000209	0000000210	00000000010400
0211	0000000212	0000000213	0000000214	0000000215	0000100216	00030200010410
0217	0000000218	0000000219	0000000220	0000000221	0000000222	00000000010420
0223	0000000224	0000000301	0000000302	0000000303	0000000304	00000300010430
0305	0000000306	0000000307	0000000308	0000000309	0000000310	00000000010440
0311	0000000312	0000000313	0010030401	0002030402	0000030403	00020300010450
0404	0006030405	0006030406	0000000407	0001030408	0001030409	00000300010460
0410	0005030411	0003060412	0000030413	0000000414	0001030415	00000000010470
0416	0000000417	0000000418	0000000419	0000090420	0000090421	00000900010480
0422	0000090423	0000090424	0000090425	0000000426	0000000427	00000000010490
0428	0006070429	0006070430	0006070431	0006070432	0002030501	00000000010500
0502	0000030503	0000000504	0000000505	0000000506	0000000507	00000100010510
0508	0007030601	0000000602	0000030603	0000000604	0001030605	00060300010520
0606	0000000607	0000000608	0000030609	0001030610	0000000611	00000000010530
0612	0000030613	0000000614	0009030615	0000000616	0000000617	00000000010540
0618	0008030619	0000000620	0000000621	0008070622	0000030623	00060300010550
0701	0000000702	0000000703	0000070704	0000030705	0000000706	00020300010560
0707	0009030708	0000000709	0000030710	0000000711	0000030712	00030900010570
0713	0000000714	0000000715	0000030716	0000000717	0000000718	00000000010580
0719	0000030720	0000030721	0000000722	0009030801	0000000802	00000000010590
0803	0000030804	0000100805	0000080901	0003080902	0000040903	00000000010600
0904	0000000905	0000000906	0000000907	0000000908	0000000909	00000000010610
0910	0000000911	0000000912	0000000913	0000000914	0000000915	00000000010620
0916	0003081001	0002071002	0000001003	0003081004	0000031005	00020400010630
1006	0008051007	0008051008	0000001009	0000001010	0000031011	00030500010640
1101	0010031102	0005031103	0000031104	0000031105	0000001106	00030200010650
1107	0000001108	0000001109	0000001110	0000001111	0000031112	00000300010660
1113	0008031201	0008031202	0000001203	0000001204	0000031205	00080300010670
1301	0000001302	0000001303	0000001304	0000071305	0000001306	00000400010680
1307	0000041308	0008031401	0000001402	0000001403	0000001404	00000300010690
1405	0000001406	0000001407	0000001408	0000001409	0000001410	00000000010700
1411	0008031501	0000031502	0000081503	0000091504	0000081505	00000400010710
1506	0000001507	0000001508	0000041509	0000001510	0000081511	00000800010720
1512	0000001513	0010041514	0000001515	0000001516	0000001517	00000800010730
1518	0000021519	0009081520	0010031521	0000001522	0000081523	00000800010740
1524	0003081525	0000101526	0008031601	0000101602	0000041603	00000000010750
1604	0000041605	0000041606	0000041607	0000041608	0000041609	00000000010760
1610	0000041611	0000001612	0000001613	0000041614	0000001615	00000400010770
1701	0004031702	0000001703	0000001704	0000041705	0000001706	00000400010780
1707	0000041708	0000001709	0000041710	0000001711	0001041712	00000400010790
1713	0000001714	0000041801	0000041802	0000001803	0000041804	00000000010800
1805	0000041806	0000001807	0000041901	0000001902	0000001903	00000700010810
1904	0000001905	0000001906	0010081907	0009011908	0010091909	00100900010820
1910	0009031911	0009031912	0002031913	0009071914	0000001915	00090300010830
2001	0000032002	0000002003	0000092004	0008032005	0000032006	00030900010840
2007	0000032008	000203				00010850
*						00010860
*						00010870
41	FUNCTION	FILES	VARIABLE SUKT	MANPOWER	DEFINITION	00010880
1	V54	2	V53	3	V52	00010890
*						00010900
*						00010910
42	FUNCTION	FN46, L296	MPR REMOVE	& REPLACE	2NDARY WC, PRIMARY	WC00010920
0101	0000100102	0002160103	0006050104	0006040105	0000000106	00000000010930
0107	0000000108	0000100109	0004060110	0006040111	0000000112	00000000010940
0113	0000200114	0000200115	0000000116	0000000117	0010100118	00000000010950
0119	0000100120	0004120201	0000170202	0004060203	0000000204	00001300010960
0205	0006060206	0000150207	0002080208	0005150209	000100210	00011700010970
0211	0004060212	0001170213	0000040214	0001090215	0004060216	00042100010980
0217	0000190218	0000260219	0006100220	0000100221	0000130222	00001000010990
0223	0002090224	0001120301	0000100302	0000100303	0000100304	00001000011000
0305	0000100306	0000110307	0000200308	0000100309	0000200310	00051100011010
0311	0006100312	0000200313	0004140401	0001280402	0000000403	00000000011020
0404	0001290405	0000200406	0000120407	0001170408	0000000409	00001200011030

0410	0001160411	0001150412	0000150413	0003170414	0000280415	00001100011040
0416	0000100417	0000190418	0000170419	0004200420	0004200421	00042000011050
0422	0004200423	0004200424	0004200425	0007130426	0004090427	00011200011060
0428	0003140429	0003140430	0003140431	0003140432	0014040501	00031000011070
0502	0000190503	0001120504	0000100505	0000100506	0002090507	00010900011080
0508	0003070601	0001150602	0004160603	0006130604	0004110605	00003000011090
0606	0000200607	0000100608	0001120609	0000300610	0000200611	00002000011100
0612	0000200613	0000140614	0002120615	0000100616	0000130617	00001000011110
0618	0001110619	0002080620	0002080621	0006070622	0002130623	00011100011120
0701	0002080702	0004060703	0000400704	0001090705	0008080706	00021500011130
0707	0000000708	0005090709	0007080710	0004090711	0006120712	00070600011140
0713	0003080714	0002080715	0000100716	0000100717	0000200718	00001000011150
0719	0000140720	0000100721	0000100722	0004090801	0002080802	00030700011160
0803	0003080804	0000040805	0005070901	0003070902	0000100903	00001000011170
0904	0000100905	0002100906	0001090907	0000100908	0003110909	00040600011180
0910	0001090911	0001090912	0005050913	0005050914	0000100915	00001000011190
0916	0000051001	0000001002	0002201003	0000171004	0000001005	00012000011200
1006	0000001007	0003121008	0000101009	0000141010	0000001011	00031100011210
1101	0002121102	0000001103	0004101104	0002111105	0004101106	00050500011220
1107	0000061108	0001081109	0000101110	0000201111	0000151112	00001100011230
1113	0001101201	0009011202	0000161203	0007041204	0001131205	00030900011240
1301	0001091302	0000101303	0000101304	0000101305	0000121306	00040700011250
1307	0000061308	0004071401	0000101402	0003071403	0005181404	00041300011260
1405	0000301406	0000101407	0000201408	0000201409	0002091410	00001000011270
1411	0009101501	0004061502	0000101503	0005071504	0003071505	00001000011280
1506	0000101507	0000101508	0000101509	0000101510	0004061511	00050500011290
1512	0003101513	0003071514	0000101515	0000111516	0000101517	00030700011300
1518	0002081519	0002111520	0005051521	0005051522	0001121523	00050500011310
1524	0002081525	0003071526	0002081601	0000111602	0001111603	00010900011320
1604	0000121605	0000121606	0000001607	0000151608	0000101609	00001000011330
1610	0002061611	0000111612	0000101613	0000181614	0000151615	00011000011340
1701	0003071702	0000171703	0001091704	0000101705	0000101706	00000000011350
1707	0003071708	0000101709	0003071710	0005051711	0000101712	00001000011360
1713	0000101714	0001101801	0000101802	0000101803	0001091804	00002000011370
1805	0004161806	0000131807	0000101901	0000101902	0001091903	00041100011380
1904	0004091905	0002081906	0003071907	0001191908	0009121909	00091200011390
1910	0008111911	0008111912	0000001913	0005161914	0008101915	00051000011400
2001	0003082002	0004072003	0002132004	0000202005	0000192006	00060800011410
2007	0005142008	000606				00011420
*						00011430
*						00011440
43	FUNCTION	FN46, L296	OFF EQUIP	MENT, REM	& REPLACE	MENT
0101	0000700102	0000590103	0000190104	0000090105	0000000106	00000000011460
0107	0000000108	0000460109	0000180110	0000230111	0000000112	00000000011470
0113	0000300114	0000300115	0000000116	0000000117	0000250118	00000000011480
0119	0000170120	0000180120	0000200202	0000170203	0000000204	00001600011490
0205	0000230206	0000180207	0000120208	0000200209	0000150210	00003500011500
0211	0000250212	0000220213	0000420214	0000210215	0000240216	00001800011510
0217	0000170218	0000340219	0000230220	0000100221	0000130222	00002300011520
0223	0000140224	0000200301	0000150302	0000150303	0000300304	00001500011530
0305	0000130306	0000230307	0000150308	0000150309	0000270310	00002400011540
0311	0000170312	0000120313	0000200401	0001750402	0000000403	00000000011550
0404	0002380405	0000150406	0000200407	0000580408	0000000409	00001800011560
0410	0000240411	0000260412	0000330413	0000200414	0000350415	00001300011570
0416	0000200417	0000590418	0000190419	0000260420	0000260421	00002600011580
0422	0000260423	0000260424	0000260425	0000230426	0000450427	00001600011590
0428	0000170429	0000170430	0000170431	0000170432	0000510501	00001200011600
0502	0000150503	0000240504	0000140505	0000100506	0000110507	00001600011610
0508	0000130601	0000840602	0001030603	0000470604	0002860605	00004000011620
0606	0000500607	0000050608	0000370609	0000500610	0003750611	00002200011630
0612	0000870613	0000700614	0000310615	0000360616	0000320617	00001200011640
0618	0000210619	0000120620	0000230621	0000440622	0000230623	00002100011650
0701	0000150702	0000170703	0000400704	0000050705	0000090706	00001700011660
0707	0000000708	0000370709	0000410710	0000480711	0000470712	00002000011670
0713	0000280714	0000170715	0000200716	0000100717	0000200718	00001300011680
0719	0000090720	0000220721	0000110722	0000230801	0000250802	00004400011690

0803	0000120804	0000160805	0000160901	0000120902	0000130903	00000800011700
0904	0000120905	0000320906	0000220907	0000120908	0000120909	00001500011710
0910	0000070911	0000170912	0000190913	0000020914	0000050915	00002000011720
0916	0000191001	0000001002	0000451003	0000301004	0000001005	00013000011730
1006	0000001007	0000391008	0000201009	0002801010	0000001011	00003400011740
1101	0000251102	0000001103	0000281104	0000221105	0000151106	00001300011750
1107	0000081108	0000141109	0000651110	0000091111	0000351112	00002700011760
1113	0000151201	0000091202	0000151203	0000111204	0000551205	00002200011770
1301	0000091302	0000031303	0000031304	0000141305	0000121306	00001000011780
1307	0000071308	0000121401	0000151402	0000201403	0000131404	00006100011790
1405	0001731406	0000081407	0000651408	0000351409	0000431410	00000500011800
1411	0000431501	0000111502	0000061503	0000161504	0000101505	00001000011810
1506	0000101507	0000081508	0000101509	0000061510	0000041511	00000800011820
1512	0000091513	0000091514	0000101515	0000171516	0000261517	00001000011830
1518	0000091519	0000171520	0000071521	0000081522	0000111523	00001000011840
1524	0000081525	0000151526	0000101601	0000111602	0000101603	00002100011850
1604	0000121605	0000061606	0000001607	0000061608	0000111609	00000900011860
1610	0000111611	0000221612	0000161613	0000131614	0000151615	00001800011870
1701	0000141702	0000371703	0000141704	0000061705	0000081706	00000000011880
1707	0000101708	0000071709	0000071710	0000111711	0000101712	00000700011890
1713	0000091714	0000361801	0000061802	0000151803	0000101804	00007000011900
1805	0000211806	0000221807	0000061901	0000061902	0000111903	00018100011910
1904	0000221905	0000101906	0000121907	0001071908	0001081909	00010800011920
1910	0001931911	0001931912	0000001913	0001101914	0000781915	00004500011930
2001	0000392002	0000222003	0000092004	0000732005	0000232006	00001800011940
2007	0000672008	000020				00011950

44	FUNCTION	FN46,L296		TEST HUP CANDIDATES								
0101	0	0102	1	0103	0	0104	0	0105	0	0106	0	00011960
0107	0	0108	0	0109	0	0110	0	0111	0	0112	1	00011970
0113	1	0114	0	0115	0	0116	0	0117	0	0118	0	00011980
0119	0	0120	1	0201	0	0202	0	0203	0	0204	0	00011990
0205	0	0206	0	0207	0	0208	0	0209	0	0210	0	00012000
0211	0	0212	0	0213	0	0214	1	0215	0	0216	0	00012010
0217	0	0218	0	0219	0	0220	0	0221	0	0222	0	00012020
0223	0	0224	0	0301	0	0302	0	0303	0	0304	0	00012030
0305	0	0306	1	0307	0	0308	1	0309	1	0310	1	00012040
0311	0	0312	0	0313	1	0401	1	0402	1	0403	0	00012050
0404	0	0405	1	0406	1	0407	1	0408	0	0409	1	00012060
0410	1	0411	1	0412	0	0413	0	0414	1	0415	0	00012070
0416	1	0417	0	0418	0	0419	1	0420	1	0421	1	00012080
0422	1	0423	1	0424	1	0425	1	0426	0	0427	1	00012090
0428	1	0429	1	0430	1	0431	1	0432	1	0501	0	00012100
0502	0	0503	0	0504	0	0505	0	0506	0	0507	0	00012110
0508	0	0601	0	0602	0	0603	0	0604	1	0605	0	00012120
0606	1	0607	0	0608	0	0609	1	0610	1	0611	1	00012130
0612	1	0613	0	0614	1	0615	0	0616	0	0617	0	00012140
0618	0	0619	0	0620	0	0621	1	0622	1	0623	1	00012150
0701	0	0702	0	0703	1	0704	0	0705	0	0706	1	00012160
0707	1	0708	1	0709	1	0710	0	0711	1	0712	1	00012170
0713	0	0714	0	0715	0	0716	0	0717	0	0718	1	00012180
0719	0	0720	1	0721	0	0722	1	0801	0	0802	0	00012190
0803	0	0804	0	0805	1	0901	0	0902	0	0903	0	00012200
0904	0	0905	0	0906	0	0907	0	0908	0	0909	0	00012210
0910	0	0911	0	0912	0	0913	0	0914	0	0915	0	00012220
0916	0	1001	0	1002	1	1003	1	1004	0	1005	1	00012230
1006	0	1007	0	1008	0	1009	1	1010	0	1011	1	00012240
1101	1	1102	0	1103	1	1104	0	1105	0	1106	0	00012250
1107	0	1108	0	1109	0	1110	0	1111	1	1112	1	00012260
1113	1	1201	0	1202	0	1203	0	1204	0	1205	1	00012270
1301	0	1302	0	1303	0	1304	0	1305	0	1306	0	00012280
1307	0	1308	0	1401	0	1402	0	1403	0	1404	0	00012290
1405	1	1406	0	1407	1	1408	1	1409	0	1410	0	00012300
1411	1	1501	0	1502	0	1503	0	1504	0	1505	1	00012310
1506	1	1507	1	1508	1	1509	1	1510	1	1511	0	00012320
1512	1	1513	0	1514	0	1515	1	1516	0	1517	0	00012330

1518	0	1519	1	1520	0	1521	0	1522	0	1523	0	00012360
1524	0	1525	0	1526	1	1601	1	1602	1	1603	0	00012370
1604	0	1605	1	1606	1	1607	1	1608	1	1609	0	00012380
1610	1	1611	1	1612	0	1613	0	1614	0	1615	1	00012390
1701	0	1702	0	1703	0	1704	0	1705	0	1706	0	00012400
1707	0	1708	0	1709	0	1710	0	1711	0	1712	0	00012410
1713	0	1714	1	1801	0	1802	0	1803	0	1804	0	00012420
1805	0	1806	0	1807	1	1901	0	1902	0	1903	0	00012430
1904	1	1905	0	1906	1	1907	0	1908	1	1909	1	00012440
1910	1	1911	1	1912	0	1913	0	1914	1	1915	1	00012450
2001	0	2002	0	2003	0	2004	0	2005	0	2006	0	00012460
2007	0	2008	0									00012470
45	FUNCTION		FN46,L296		SUPPLY DELAY							00012480
0101	0	0102	0	0103	0	0104	0	0105	0	0106	0	00012490
0107	0	0108	0	0109	0	0110	0	0111	0	0112	0	00012500
0113	0	0114	0	0115	0	0116	0	0117	0	0118	0	00012510
0119	0	0120	1367	0201	0	0202	0	0203	0	0204	0	00012520
0205	0	0206	0	0207	0	0208	0	0209	0	0210	0	00012530
0211	0	0212	2880	0213	0	0214	3445	0215	0	0216	0	00012540
0217	3771	0218	0	0219	1727	0220	0	0221	0	0222	0	00012550
0223	0	0224	2640	0301	0	0302	0	0303	960	0304	0	00012560
0305	0	0306	4080	0307	0	0308	0	0309	0	0310	0	00012570
0311	0	0312	0	0313	960	0401	4350	0402	0	0403	0	00012580
0404	3957	0405	0	0406	0	0407	3957	0408	0	0409	1787	00012590
0410	840	0411	1767	0412	0	0413	0	0414	0	0415	2400	00012600
0416	0	0417	5040	0418	1200	0419	2640	0420	2640	0421	2640	00012610
0422	2640	0423	2640	0424	2640	0425	0	0426	0	0427	1787	00012620
0428	2160	0429	2160	0430	2160	0431	2160	0432	1787	0501	1440	00012630
0502	720	0503	373	0504	0	0505	0	0506	0	0507	0	00012640
0508	720	0601	0	0602	880	0603	0	0604	0	0605	0	00012650
0606	0	0607	0	0608	0	0609	0	0610	0	0611	1440	00012660
0612	1440	0613	0	0614	2417	0615	0	0616	0	0617	1440	00012670
0618	1197	0619	0	0620	0	0621	1440	0622	1440	0623	1440	00012680
0701	0	0702	4980	0703	0	0704	0	0705	0	0706	0	00012690
0707	0	0708	960	0709	3503	0710	3360	0711	0	0712	4900	00012700
0713	9920	0714	0	0715	0	0716	20	0717	0	0718	0	00012710
0719	0	0720	0	0721	0	0722	2107	0801	0	0802	1920	00012720
0803	0	0804	1680	0805	1200	0901	0	0902	0	0903	0	00012730
0904	0	0905	3017	0906	480	0907	963	0908	4560	0909	0	00012740
0910	0	0911	3017	0912	0	0913	0	0914	0	0915	0	00012750
0916	3017	1001	0	1002	0	1003	0	1004	0	1005	7440	00012760
1006	0	1007	0	1008	0	1009	0	1010	0	1011	2320	00012770
1101	5966	1102	0	1103	3745	1104	1800	1105	0	1106	240	00012780
1107	1800	1108	1800	1109	0	1110	0	1111	0	1112	2240	00012790
1113	1800	1201	0	1202	773	1203	0	1204	0	1205	1520	00012800
1301	2360	1302	0	1303	0	1304	0	1305	3840	1306	2360	00012810
1307	1800	1308	2360	1401	2160	1402	0	1403	0	1404	2880	00012820
1405	0	1406	0	1407	2160	1408	1280	1409	2160	1410	0	00012830
1411	2160	1501	2742	1502	0	1503	0	1504	0	1505	2742	00012840
1506	0	1507	1080	1508	2742	1509	0	1510	0	1511	0	00012850
1512	1440	1513	0	1514	0	1515	0	1516	0	1517	0	00012860
1518	2040	1519	3594	1520	10	1521	0	1522	0	1523	0	00012870
1524	1320	1525	960	1526	2742	1601	1825	1602	2640	1603	0	00012880
1604	1825	1605	1762	1606	0	1607	0	1608	0	1609	1825	00012890
1610	1080	1611	0	1612	1257	1613	0	1614	0	1615	7440	00012900
1701	0	1702	0	1703	0	1704	0	1705	0	1706	0	00012910
1707	0	1708	0	1709	0	1710	0	1711	0	1712	0	00012920
1713	0	1714	0	1801	0	1802	0	1803	0	1804	0	00012930
1805	0	1806	0	1807	0	1901	0	1902	1637	1903	1626	00012940
1904	6600	1905	1970	1906	1626	1907	1320	1908	4410	1909	4410	00012950
1910	1960	1911	1980	1912	0	1913	0	1914	6540	1915	1626	00012960
2001	10320	2002	480	2003	0	2004	1680	2005	0	2006	0	00012970
2007	6720	2008	4160									00012980
46	FUNCTION		P22,D296		ELEMENTS TABLE CODE							00012990
0101	1	0102	2	0103	3	0104	4	0105	5	0106	6	00013000
0107	7	0108	8	0109	9	0110	10	0111	11	0112	12	00013010

0113	13	0114	14	0115	15	0116	16	0117	17	0118	18	00013020
0119	19	0120	20	0201	21	0202	22	0203	23	0204	24	00013030
0205	25	0206	26	0207	27	0208	28	0209	29	0210	30	00013040
0211	31	0212	32	0213	33	0214	34	0215	35	0216	36	00013050
0217	37	0218	38	0219	39	0220	40	0221	41	0222	42	00013060
0223	43	0224	44	0301	45	0302	46	0303	47	0304	48	00013070
0305	49	0306	50	0307	51	0308	52	0309	53	0310	54	00013080
0311	55	0312	56	0313	57	0401	58	0402	59	0403	60	00013090
0404	61	0405	62	0406	63	0407	64	0408	65	0409	66	00013100
0410	67	0411	68	0412	69	0413	70	0414	71	0415	72	00013110
0416	73	0417	74	0418	75	0419	76	0420	77	0421	78	00013120
0422	79	0423	80	0424	81	0425	82	0426	83	0427	84	00013130
0428	85	0429	86	0430	87	0431	88	0432	89	0501	90	00013140
0502	91	0503	92	0504	93	0505	94	0506	95	0507	96	00013150
0508	97	0601	98	0602	99	0603	100	0604	101	0605	102	00013160
0606	103	0607	104	0608	105	0609	106	0610	107	0611	108	00013170
0612	109	0613	110	0614	111	0615	112	0616	113	0617	114	00013180
0618	115	0619	116	0620	117	0621	118	0622	119	0623	120	00013190
0701	121	0702	122	0703	123	0704	124	0705	125	0706	126	00013200
0707	127	0708	128	0709	129	0710	130	0711	131	0712	132	00013210
0713	133	0714	134	0715	135	0716	136	0717	137	0718	138	00013220
0719	139	0720	140	0721	141	0722	142	0801	143	0802	144	00013230
0803	145	0804	146	0805	147	0901	148	0902	149	0903	150	00013240
0904	151	0905	152	0906	153	0907	154	0908	155	0909	156	00013250
0910	157	0911	158	0912	159	0913	160	0914	161	0915	162	00013260
0916	163	1001	164	1002	165	1003	166	1004	167	1005	168	00013270
1006	169	1007	170	1008	171	1009	172	1010	173	1011	174	00013280
1101	175	1102	176	1103	177	1104	178	1105	179	1106	180	00013290
1107	181	1108	182	1109	183	1110	184	1111	185	1112	186	00013300
1113	187	1201	188	1202	189	1203	190	1204	191	1205	192	00013310
1301	193	1302	194	1303	195	1304	196	1305	197	1306	198	00013320
1307	199	1308	200	1401	201	1402	202	1403	203	1404	204	00013330
1405	205	1406	206	1407	207	1408	208	1409	209	1410	210	00013340
1411	211	1501	212	1502	213	1503	214	1504	215	1505	216	00013350
1506	217	1507	218	1508	219	1509	220	1510	221	1511	222	00013360
1512	223	1513	224	1514	225	1515	226	1516	227	1517	228	00013370
1518	229	1519	230	1520	231	1521	232	1522	233	1523	234	00013380
1524	235	1525	236	1526	237	1601	238	1602	239	1603	240	00013390
1604	241	1605	242	1606	243	1607	244	1608	245	1609	246	00013400
1610	247	1611	248	1612	249	1613	250	1614	251	1615	252	00013410
1701	253	1702	254	1703	255	1704	256	1705	257	1706	258	00013420
1707	259	1708	260	1709	261	1710	262	1711	263	1712	264	00013430
1713	265	1714	266	1801	267	1802	268	1803	269	1804	270	00013440
1805	271	1806	272	1807	273	1901	274	1902	275	1903	276	00013450
1904	277	1905	278	1906	279	1907	280	1908	281	1909	282	00013460
1910	283	1911	284	1912	285	1913	286	1914	287	1915	288	00013470
2001	289	2002	290	2003	291	2004	292	2005	293	2006	294	00013480
2007	295	2008	296									00013490
*												00013500
*												00013510
47	FUNCTION	P22,02	PERCENT	NRTS	(1-8),	PERCENT	NRTS	(1-9)				00013520
101	0	2008	0									00013530
*												00013540
*												00013550
48	FUNCTION	FN46,L296	PROB	OF NU	CANNIBALIZATION	GIVEN	NORS					00013560
0101	999	0102	999	0103	999	0104	999	0105	999	0106	999	00013570
0107	999	0108	999	0109	999	0110	999	0111	999	0112	999	00013580
0113	999	0114	999	0115	999	0116	999	0117	999	0118	999	00013590
0119	999	0120	667	0201	999	0202	999	0203	999	0204	999	00013600
0205	999	0206	999	0207	999	0208	999	0209	999	0210	999	00013610
0211	999	0212	000	0213	999	0214	250	0215	999	0216	999	00013620
0217	571	0218	999	0219	999	0220	999	0221	999	0222	999	00013630
0223	999	0224	667	0301	999	0302	999	0303	000	0304	999	00013640
0305	999	0306	667	0307	999	0308	999	0309	999	0310	999	00013650
0311	999	0312	999	0313	667	0401	999	0402	999	0403	999	00013660
0404	331	0405	999	0406	999	0407	429	0408	999	0409	000	00013670

0410	000	0411	999	0412	999	0413	999	0414	999	0415	999	00013680
0416	999	0417	999	0418	000	0419	500	0420	500	0421	500	00013690
0422	500	0423	500	0424	500	0425	999	0426	999	0427	000	00013700
0428	000	0429	000	0430	000	0431	000	0432	722	0501	000	00013710
0502	000	0503	000	0504	999	0505	999	0506	999	0507	999	00013720
0508	999	0601	999	0602	999	0603	999	0604	999	0605	999	00013730
0606	999	0607	999	0608	999	0609	999	0610	999	0611	000	00013740
0612	000	0613	999	0614	273	0615	999	0616	999	0617	000	00013750
0618	636	0619	999	0620	999	0621	000	0622	000	0623	000	00013760
0701	999	0702	000	0703	999	0704	999	0705	999	0706	999	00013770
0707	999	0708	999	0709	667	0710	999	0711	999	0712	100	00013780
0713	000	0714	999	0715	999	0716	000	0717	999	0718	999	00013790
0719	999	0720	999	0721	999	0722	611	0801	999	0802	500	00013800
0803	999	0804	000	0805	999	0901	999	0902	999	0903	999	00013810
0904	999	0905	000	0906	000	0907	000	0908	000	0909	999	00013820
0910	999	0911	000	0912	999	0913	999	0914	999	0915	999	00013830
0916	000	1001	999	1002	999	1003	999	1004	999	1005	000	00013840
1006	999	1007	999	1008	999	1009	999	1010	999	1011	667	00013850
1101	438	1102	999	1103	000	1104	000	1105	999	1106	000	00013860
1107	000	1108	000	1109	999	1110	999	1111	999	1112	000	00013870
1113	000	1201	999	1202	667	1203	999	1204	999	1205	000	00013880
1301	000	1302	999	1303	999	1304	999	1305	000	1306	000	00013890
1307	999	1308	000	1401	000	1402	999	1403	999	1404	000	00013900
1405	999	1406	999	1407	000	1408	000	1409	000	1410	999	00013910
1411	467	1501	000	1502	999	1503	999	1504	999	1505	000	00013920
1506	999	1507	500	1508	000	1509	999	1510	999	1511	999	00013930
1512	000	1513	999	1514	999	1515	999	1516	999	1517	999	00013940
1518	999	1519	071	1520	000	1521	999	1522	999	1523	999	00013950
1524	000	1525	500	1526	000	1601	000	1602	000	1603	999	00013960
1604	000	1605	444	1606	999	1607	999	1608	999	1609	000	00013970
1610	999	1611	999	1612	500	1613	999	1614	999	1615	000	00013980
1701	999	1702	999	1703	999	1704	000	1705	999	1706	999	00013990
1707	999	1708	999	1709	000	1710	999	1711	999	1712	999	00014000
1713	999	1714	000	1801	000	1802	000	1803	999	1804	999	00014010
1805	999	1806	999	1807	000	1901	999	1902	571	1903	000	00014020
1904	750	1905	777	1906	000	1907	999	1908	667	1909	667	00014030
1910	000	1911	000	1912	999	1913	999	1914	667	1915	000	00014040
2001	000	2002	000	2003	999	2004	000	2005	999	2006	999	00014050
2007	000	2008	667									00014060
49	FUNCTION		P22,D2									00014070
101	55	2902	55									00014080
*												00014090
*												00014100
51	FUNCTION		RN1,D2									00014110
.1	1	.9	1									00014120
*												00014130
*												00014140
52	FUNCTION		P22,D2									00014150
101	0	2008	0									00014160
53	FUNCTION		FN46,L296									00014170
0101	0000000102		0000000103			0000000104	0110000105	0930000106		05300000014180		
0107	0450000108		0000000109			0000000110	0000000111	0160000112		09500000014190		
0113	0000000114		0000000115			0800000116	0800000117	0050000118		02100000014200		
0119	0000000120		0270000201			0000000202	0000000203	0100000204		00000000014210		
0205	0000000206		0000000207			0000000208	0000000209	0000000210		00000000014220		
0211	0000000212		0130000213			0000000214	0060000215	0230000216		02800000014230		
0217	0150000218		0000000219			0000000220	0000000221	0000000222		00000000014240		
0223	0000000224		0080000301			0000000302	0000000303	0000000304		01300000014250		
0305	0000000306		0000000307			0000000308	0000000309	0000000310		00000000014260		
0311	0000000312		0000000313			0530000401	0710000402	0200000403		02400000014270		
0404	0730000405		0310000406			0000000407	0150000408	0270000409		01800000014280		
0410	0080000411		0170000412			0070000413	0000000414	0210000415		00000000014290		
0416	0000000417		0000000418			0000000419	0200000420	0200000421		02000000014300		
0422	0200000423		0200000424			0200000425	0000000426	0000000427		00000000014310		
0428	0190000429		0190000430			0190000431	0190000432	0230000501		00000000014320		
0502	0120000503		0000000504			0000000505	0000000506	0000000507		00400000014330		

0508	0100000601	0000000602	0040000603	0000000604	0260000605	08300000014340
0606	0000000607	0050000608	0900000609	0350000610	0000000611	00000000014350
0612	0030000613	0000000614	0160000615	0000000616	0000000617	00000000014360
0616	0100000619	0000000620	0000000621	0140000622	0070000623	01700000014370
0701	0000000702	0000000703	0100000704	0030000705	0000000706	01400000014380
0707	0520000708	0000000709	0130000710	0000000711	0200000712	00900000014390
0713	0000000714	0000000715	0080000716	0000000717	0000000718	00000000014400
0719	0020000720	0030000721	0000000722	0110000801	0000000802	00000000014410
0803	0200000804	0020000805	0030000901	0060000902	0020000903	00000000014420
0904	0000000905	0000000906	0000000907	0000000908	0000000909	00000000014430
0916	0000000911	0000000912	0000000913	0000000914	0000000915	00000000014440
1006	0140001001	0900001002	0000001003	0100001004	0070001005	00000000014450
1006	0730001007	0130001008	0000001009	0000001010	0150001011	04000000014460
1101	0100001102	0140001103	0140001104	0400001105	0000001106	01000000014470
1107	0000001108	0000001109	0000001110	0000001111	0060001112	00800000014480
1113	0070001201	0130001202	0000001203	0000001204	0090001205	02400000014490
1301	0000001302	0000001303	0000001304	0150001305	0000001306	00500000014500
1307	0100001306	0100001401	0000001402	0000001403	0000001404	01000000014510
1405	0000001406	0000001407	0000001408	0000001409	0000001410	00000000014520
1411	0130001501	0040001502	0200001503	0150001504	0070001505	00500000014530
1506	0000001507	0000001508	0150001509	0000001510	0300001511	00300000014540
1512	0000001513	0050001514	0000001515	0000001516	0000001517	01100000014550
1518	0100001519	0150001520	0080001521	0000001522	0060001523	00200000014560
1524	0080001525	0030001526	0110001601	0040001602	0050001603	00000000014570
1604	0120001605	0090001606	0130001607	0110001608	0150001609	00000000014580
1610	0100001611	0000001612	0000001613	0600001614	0000001615	02100000014590
1701	0150001702	0000001703	0000001704	0050001705	0000001706	00300000014600
1707	0040001708	0000001709	0040001710	0000001711	0060001712	01500000014610
1713	0000001714	0080001801	0150001802	0000001803	0050001804	00500000014620
1805	0200001806	0000001807	0050001901	0000001902	0000001903	01100000014630
1904	0000001905	0000001906	0040001907	0080001908	0050001909	00500000014640
1910	0310001911	0310001912	0120001913	0120001914	0000001915	04500000014650
2001	0060002002	0000002003	0100002004	0070002005	0150002006	01200000014660
2007	0180002008	011000				00014670
54	FUNCTION	FN46, L29c	MPR ON-EQUIP	RPR ZNDARY	WC, PRIMARY	WC 00014680
0101	0000000102	0000000103	0000000104	0000000105	0007100106	00091000014690
0107	0006100108	0000000109	0000000110	0000000111	0000100112	00011100014700
0113	0000000114	0000000115	0010100116	0010100117	0000100118	00001000014710
0119	0000000120	0010040201	0000000202	0000000203	0000100204	00000000014720
0205	0000000206	0000000207	0000000208	0000000209	0000000210	00000000014730
0211	0000000212	0000100213	0000000214	0000100215	0000100216	00200200014740
0217	0000200218	0000000219	0000000220	0000000221	0000000222	00000000014750
0223	0000000224	0000120301	0000000302	0000000303	0000000304	00001000014760
0305	0000000306	0000000307	0000000308	0000000309	0000000310	00000000014770
0311	0000000312	0000000313	0001130401	0009190402	0002200403	00051300014780
0404	0001140405	0003150406	0000000407	0001100408	0001170409	00001000014790
0410	0004140411	0009100412	0000200413	0000000414	0001100415	00000000014800
0416	0000000417	0000000418	0000000419	0000100420	0000100421	00001000014810
0422	0000100423	0000100424	0000100425	0000000426	0000000427	00000000014820
0428	0004060429	0004060430	0004060431	0004060432	0002140501	00000000014830
0502	0000200503	0000000504	0000000505	0000000506	0000000507	00000400014840
0508	0002130601	0000000602	0000100603	0000000604	0001160605	00081200014850
0606	0000000607	0000100608	0000200609	0003070610	0000000611	00000000014860
0612	0000100613	0000000614	0002110615	0000000616	0000000617	00000000014870
0618	0003090619	0000000620	0000000621	0001090622	0000190623	00021300014880
0701	0000000702	0000000703	0000100704	0000100705	0000000706	00061000014890
0707	0006120708	0000000709	0002110710	0000000711	0000100712	00060800014900
0713	0000000714	0000000715	0000100716	0000000717	0000000718	00000000014910
0719	0000100720	0000100721	0000000722	0005080801	0000000802	00000000014920
0803	0000100804	0000100805	0000100901	0002080902	0000100903	00000000014930
0904	0000000905	0000000906	0000000907	0000000908	0000000909	00000000014940
0910	0000000911	0000000912	0000000913	0000000914	0000000915	00000000014950
0916	0001111001	0004061002	0000001003	0005101004	0000101005	00020800014960
1006	0001091007	0018081008	0000001009	0000001010	0000101011	00030800014970
1101	0001091102	0004071103	0000191104	0000201105	0000001106	00030700014980
1107	0000001108	0000001109	0000001110	0000001111	0000201112	00001000014990

1113	0004091201	0008031202	0000001203	0000001204	0000101205	00010900015000								
1301	0000001302	0000001303	0000001304	0000101305	0000001306	00001000015010								
1307	0000101308	0008031401	0000001402	0000001403	0000001404	00002000015020								
1405	0000001406	0000001407	0000001408	0000001409	0000001410	00000000015030								
1411	0002101501	0000301502	0000101503	0000101504	0000101505	00001000015040								
1506	0000001507	0000001508	0000101509	0000001510	0000161511	00001000015050								
1512	0000001513	0005151514	0000001515	0000001516	0000001517	00001000015060								
1518	0000101519	0003131520	0005051521	0000001522	0000101523	00001000015070								
1524	0004081525	0000101526	0008031601	0000101602	0000101603	00000000015080								
1604	0000111605	0000181606	0000101607	0000101608	0000101609	00000000015090								
1610	0000101611	0000001612	0000001613	0000101614	0000001615	00001200015100								
1701	0007031702	0000001703	0000001704	0000101705	0000001706	00001000015110								
1707	0000101708	0000001709	0000101710	0000001711	0006041712	00001000015120								
1713	0000001714	0000101801	0000101802	0000001803	0000101804	00000000015130								
1805	0000101806	0000001807	0000101901	0000001902	0000001903	00001000015140								
1904	0000001905	0000001906	0003071907	0004191908	0015051909	00150500015150								
1910	0010031911	0010031912	0003191913	0002091914	0000001915	00050800015160								
2001	0000102002	0000002003	0000102004	0003142005	0000202006	00020800015170								
2007	0000172008	000509				00015180								
55	FUNCTION	P1,E3				00015190								
1	V136	2	V137	3	V52	00015200								
*						00015210								
56	FUNCTION	RN1,D6	PROB	MULT	MA/MA	PMI	00015220							
0.67891	0.92692	0.98713	0.99824	0.99985	0.99996		00015230							
*							00015240							
*							00015250							
57	FUNCTION	RN1,D19	PROB	SYSTEM	MA	PMI/MA	PMI	00015260						
0.064501	0.164002	0.281203	0.441304	0.543806	0.594507			00015270						
0.597008	0.651709	0.852710	0.671911	0.725112	0.727113			00015280						
0.740414	0.792115	0.805916	0.815317	0.817818	0.974919			00015290						
0.999920								00015300						
*								00015310						
*								00015320						
58	FUNCTION	FN46,L296	PROB	ELEMENT	MA	P	M	I	/SYS	MA	P	M	I	00015330
0101	000	0102	000	0103	000	0104	000	0105	000	0106	000			00015340
0107	076	0108	000	0109	091	0110	091	0111	000	0112	038			00015350
0113	015	0114	015	0115	015	0116	000	0117	000	0118	000			00015360
0119	036	0120	618	0201	000	0202	000	0203	050	0204	040			00015370
0205	099	0206	000	0207	000	0208	050	0209	000	0210	000			00015380
0211	079	0212	000	0213	000	0214	000	0215	000	0216	000			00015390
0217	000	0218	000	0219	074	0220	074	0221	149	0222	099			00015400
0223	050	0224	238	0301	042	0302	000	0303	000	0304	000			00015410
0305	021	0306	000	0307	021	0308	000	0309	042	0310	042			00015420
0311	084	0312	033	0313	714	0401	138	0402	000	0403	000			00015430
0404	000	0405	000	0406	000	0407	000	0408	043	0409	031			00015440
0410	142	0411	000	0412	000	0413	000	0414	000	0415	092			00015450
0416	000	0417	000	0418	000	0419	021	0420	021	0421	021			00015460
0422	021	0423	021	0424	021	0425	000	0426	000	0427	000			00015470
0428	017	0429	017	0430	017	0431	017	0432	363	0501	000			00015480
0502	000	0503	000	0504	000	0505	000	0506	000	0507	000			00015490
0508	000	0601	106	0602	000	0603	000	0604	096	0605	000			00015500
0606	000	0607	000	0608	000	0609	000	0610	000	0611	000			00015510
0612	063	0613	000	0614	000	0615	000	0616	010	0617	000			00015520
0618	000	0619	000	0620	063	0621	106	0622	063	0623	495			00015530
0701	000	0702	000	0703	000	0704	097	0705	000	0706	330			00015540
0707	019	0708	000	0709	000	0710	000	0711	000	0712	437			00015550
0713	000	0714	078	0715	000	0716	000	0717	019	0718	000			00015560
0719	000	0720	019	0721	000	0722	000	0801	999	0802	000			00015570
0803	000	0804	000	0805	000	0901	000	0902	000	0903	000			00015580
0904	018	0905	000	0906	000	0907	000	0908	000	0909	000			00015590
0910	144	0911	523	0912	000	0913	000	0914	000	0915	027			00015600
0916	288	1001	000	1002	000	1003	000	1004	000	1005	000			00015610
1006	000	1007	999	1008	000	1009	000	1010	000	1011	000			00015620
1101	000	1102	000	1103	000	1104	000	1105	000	1106	000			00015630
1107	000	1108	256	1109	000	1110	000	1111	000	1112	000			00015640
1113	744	1201	555	1202	185	1203	213	1204	046	1205	000			00015650

1301	000	1302	000	1303	000	1304	000	1305	500	1306	000	00015660
1307	500	1308	000	1401	185	1402	000	1403	000	1404	000	00015670
1405	185	1406	444	1407	000	1408	000	1409	185	1410	000	00015680
1411	000	1501	000	1502	000	1503	019	1504	095	1505	000	00015690
1506	000	1507	000	1508	000	1509	000	1510	095	1511	000	00015700
1512	000	1513	000	1514	000	1515	048	1516	095	1517	000	00015710
1518	019	1519	000	1520	000	1521	019	1522	048	1523	000	00015720
1524	000	1525	000	1526	562	1601	000	1602	536	1603	000	00015730
1604	179	1605	000	1606	071	1607	000	1608	000	1609	071	00015740
1610	071	1611	000	1612	000	1613	071	1614	000	1615	000	00015750
1701	000	1702	000	1703	000	1704	000	1705	000	1706	000	00015760
1707	000	1708	000	1709	000	1710	105	1711	105	1712	000	00015770
1713	000	1714	789	1801	000	1802	000	1803	000	1804	999	00015780
1805	000	1806	000	1807	000	1901	107	1902	197	1903	000	00015790
1904	323	1905	000	1906	000	1907	031	1908	000	1909	000	00015800
1910	024	1911	024	1912	000	1913	000	1914	000	1915	295	00015810
2001	588	2002	137	2003	000	2004	000	2005	000	2006	039	00015820
2007	235	2008	000									00015830
70	FUNCTION	FN46,L296		SKILL CODE	WORK CENTER	REMOVE & REPLACE						00015840
0101	0000030102	0002030103		0007030104	0007030105	0000000106						0000000015850
0107	0000000108	0000070109		0007030110	0007030111	0000000112						0000000015860
0113	0000030114	0000030115		0000000116	0000000117	0007050118						0000000015870
0119	0000030120	0007030201		0000030202	0003020203	0000000204						0000030015880
0205	0003020206	0000030207		0002030208	0002030209	0000030210						00010300015890
0211	0005030212	0002030213		0000050214	0005030215	0002050216						00020300015900
0217	0000030218	0000030219		0002030220	0000030221	0000030222						00000300015910
0223	0010030224	0002030301		0000030302	0000040303	0000030304						00000300015920
0305	0000030306	0000030307		0000030308	0000030309	0000030310						00030200015930
0311	0002030312	0000030313		0010030401	0001030402	0000000403						00000000015940
0404	0001030405	0000030406		0000030407	0001030408	0000000409						00000300015950
0410	0006030411	0006030412		0000030413	0001030414	0000030415						00000300015960
0416	0000030417	0000030418		0000030419	0002030420	0002030421						00020300015970
0422	0002030423	0002030424		0002030425	0007030426	0005030427						00020300015980
0428	0007030429	0007030430		0007030431	0007030432	0002030501						00020300015990
0502	0000030503	0002030504		0000030505	0000020506	0002030507						00020300016000
0508	0005030601	0006030602		0006030603	0002030604	0009030605						00000300016010
0606	0000030607	0000030608		0001030609	0000030610	0000030611						00000300016020
0612	0000030613	0000030614		0009030615	0000030616	0000030617						00000300016030
0618	0008030619	0002080620		0002030621	0007030622	0006030623						00060300016040
0701	0009030702	0009030703		0000030704	0009030705	0002030706						00020300016050
0707	0000000708	0003090709		0009030710	0003090711	0009030712						00030900016060
0713	0005030714	0005030715		0000030716	0000030717	0000030718						00000300016070
0719	0000030720	0000030721		0000030722	0003090801	0008020802						00080300016080
0803	0002030804	0009030805		0007030901	0002080902	0000080903						00000800016090
0904	0000030905	0003080906		0008030907	0000680908	0003080909						00030800016100
0910	0002030911	0003080912		0003080913	0000030914	0000020915						00000200016110
0916	0008031001	0000001002		0001031003	0000031004	0000001005						00010300016120
1006	0000001007	0003041008		0000031009	0000031010	0000001011						00010300016130
1101	0005031102	0000001103		0005031104	0002031105	0005031106						00080300016140
1107	0005081108	0002081109		0000031110	0000031111	0000031112						00000300016150
1113	0005031201	0002031202		0000031203	0003081204	0001031205						00020300016160
1301	0002031302	0000031303		0000031304	0000031305	0000081306						00080400016170
1307	0008041308	0007081401		0000031402	0003081403	0001031404						00080300016180
1405	0000031406	0000031407		0000031408	0000031409	0008031410						00000300016190
1411	0002031501	0008031502		0000081503	0009031504	0002031505						00000400016200
1506	0000041507	0000041508		0000081509	0000081510	0003081511						00080400016210
1512	0001041513	0004031514		0000081515	0000081516	0000071517						00030800016220
1518	0008031519	0009081520		0008031521	0003021522	0001031523						00080300016230
1524	0003081525	0004081526		0003081601	0000041602	0001041603						00020400016240
1604	0000041605	0000041606		0000001607	0000041608	0000041609						00000400016250
1610	0003081611	0000041612		0000041613	0000041614	0000041615						00010400016260
1701	0008031702	0000041703		0001041704	0000041705	0000041706						00000000016270
1707	0003041708	0000041709		0008041710	0008041711	0000011712						00000400016280
1713	0000041714	0008041801		0000041802	0000041803	0008041804						00000400016290
1805	0003041806	0000041807		0000041901	0000031902	0009031903						00090300016300
1904	0003091905	0003081906		0008031907	0001091908	0003091909						00030900016310

1910	0003091911	0003091912	0000001913	0009031914	0009031915	00030900016320
2001	0009032002	0009032003	0008032004	0000032005	0000032006	00090200016330
2007	0007092008	000309				00016340
71	FUNCTION	P1,2,3	VARIABLE SORT FOR WORK CENTERS, K&R			00016350
1	V27G 2	V269 3	V268			00016360
	INITIAL	XH78,1566				00016370
	INITIAL	MH11(1-4,5),1	MON	ROW=LAUNCH,DATA=PRIORITY		00016380
	INITIAL	MH13(1-5,5),1	TUE	ROW=LAUNCH,DATA=PRIORITY		00016400
	INITIAL	MH14(1-4,5),1	THU	ROW=LAUNCH,DATA=PRIORITY		00016410
	INITIAL	MH15(1-4,5),1	FRI	ROW=LAUNCH,DATA=PRIORITY		00016420
	INITIAL	MH11(1,10),1	MON	NO. OF A/C LAUNCH1		00016430
	INITIAL	MH13(1,10),1	WED	NO. OF A/C LAUNCH1		00016450
	INITIAL	MH14(1,10),1	THU	NO. OF A/C LAUNCH1		00016460
	INITIAL	MH15(1,10),1	FRI	NO. OF A/C LAUNCH1		00016470
	INITIAL	MH11(2,10),1	MON	NO. OF A/C LAUNCH2		00016480
	INITIAL	MH13(2,10),1	WED	NO. OF A/C LAUNCH2		00016500
	INITIAL	MH14(2,10),1	THU	NO. OF A/C LAUNCH2		00016510
	INITIAL	MH15(2,10),1	FRI	NO. OF A/C LAUNCH2		00016520
	INITIAL	MH11(3,10),2	MON	NO. OF A/C LAUNCH3		00016530
	INITIAL	MH13(3,10),1	WED	NO. OF A/C LAUNCH3		00016550
	INITIAL	MH14(3,10),2	THU	NO. OF A/C LAUNCH3		00016560
	INITIAL	MH15(3,10),1	FRI	NO. OF A/C LAUNCH3		00016570
	INITIAL	MH11(4,10),1	MON	NO. OF A/C LAUNCH4		00016580
	INITIAL	MH13(4,10),2	WED	NO. OF A/C LAUNCH4		00016600
	INITIAL	MH14(4,10),1	THU	NO. OF A/C LAUNCH4		00016610
	INITIAL	MH15(4,10),1	FRI	NO. OF A/C LAUNCH4		00016620
	INITIAL	MH13(5,10),1	WED	NO. OF A/C LAUNCH5		00016625
	INITIAL	MH11(1,11),88	MON	TIME FROM 00:12 TO 1ST LAUNCH		00016630
	INITIAL	MH13(1,11),88	WED	TIME FROM 00:12 TO 1ST LAUNCH		00016650
	INITIAL	MH14(1,11),88	THU	TIME FROM 00:12 TO 1ST LAUNCH		00016660
	INITIAL	MH15(1,11),88	FRI	TIME FROM 00:12 TO 1ST LAUNCH		00016670
	INITIAL	MH11(2,11),5	MON	TIME BETWEEN LAUNCH 1&2		00016680
	INITIAL	MH13(2,11),1	WED	TIME BETWEEN LAUNCH 1&2		00016700
	INITIAL	MH14(2,11),5	THU	TIME BETWEEN LAUNCH 1&2		00016710
	INITIAL	MH15(2,11),5	FRI	TIME BETWEEN LAUNCH 1&2		00016720
	INITIAL	MH11(3,11),20	MON	TIME BETWEEN LAUNCH 2&3		00016730
	INITIAL	MH13(3,11),4	WED	TIME BETWEEN LAUNCH 2&3		00016750
	INITIAL	MH14(3,11),20	THU	TIME BETWEEN LAUNCH 2&3		00016760
	INITIAL	MH15(3,11),20	FRI	TIME BETWEEN LAUNCH 2&3		00016770
	INITIAL	MH11(4,11),20	MON	TIME BETWEEN LAUNCH 3&4		00016780
	INITIAL	MH13(4,11),20	WED	TIME BETWEEN LAUNCH 3&4		00016800
	INITIAL	MH14(4,11),20	THU	TIME BETWEEN LAUNCH 3&4		00016810
	INITIAL	MH15(4,11),20	FRI	TIME BETWEEN LAUNCH 3&4		00016820
	INITIAL	MH13(5,11),20	WED	TIME BETWEEN LAUNCH 4&5		00016825
	INITIAL	MH11(2,12),107	MON	TIME BETWEEN LAUNCH 4&00:12		00016830
	INITIAL	MH13(2,12),107	WED	TIME BETWEEN LAUNCH 4&00:12		00016850
	INITIAL	MH14(2,12),107	THU	TIME BETWEEN LAUNCH 4&00:12		00016860
	INITIAL	MH15(2,12),107	FRI	TIME BETWEEN LAUNCH 4&00:12		00016870
	INITIAL	MH11(1,12),4	MON	NO. OF LAUNCHES PER DAY		00016880
	INITIAL	MH13(1,12),5	WED	NO. OF LAUNCHES		00016900
	INITIAL	MH14(1,12),4	THU	NO. OF LAUNCHES PER DAY		00016910
	INITIAL	MH15(1,12),4	FRI	NO. OF LAUNCHES PER DAY		00016920
	INITIAL	MH1(1,13),460	NON	FLYING HOURS WEEKEND		00016930
	INITIAL	MH1(1,14),1200		FLYING HOURS WEEKDAYS		00016940
	INITIAL	MH1(3,12),5		SLACK TIME		00016950
	INITIAL	MH1(8,12),14		TIME FROM CALL TO LAUNCH		00016960
	INITIAL	MH1(6,13),0		TIME TO PERFORM AIRCREW INSPECTION		00016970
	INITIAL	MH1(7,13),5		LAUNCH TIME TO REPLACE ABORTS		00016980
	INITIAL	MH1(1,17),999		PERCENT IN-FLT ABORTS REPLACED		00016990
	INITIAL	MH1(1,15),1		NO STANDBY A/C BY MISSION TYPE		00017000
	INITIAL	MH1(1,18),18		FLT DURATION FOR ABORT REPLACEMENT		00017010
	INITIAL	MH1(1,16),2		NO.PRELAUNCH EVENTS		00017020
	INITIAL	MH1(1,21),5		TIME LAUNCH WINDOW STAYS OPEN		00017030
	INITIAL	MH1(1,15),1		STANDBY AIRCRAFT MISSION 1		00017040
	INITIAL	MH1(2,16),2		PRELAUNCH EVENTS		00017050
	INITIAL	MH1(6,17),1200		5 DAY FLYING PERIOD		00017060

APPENDIX IV

CH-54B MODEL PROGRAM UPDATE AND PROGRAM LISTING
WITH NECESSARY MODIFICATIONS TO THE
GOVERNMENT-FURNISHED MODEL IDENTIFIED

PROGRAM UPDATE FOR THE CH-54B MODEL

The program update for the CH-54B model is contained in this Appendix. This update contains the reasons for all Sikorsky-initiated changes. Eustis Directorate initiated some changes to improve the overall model, and these changes are noted without comment. Certain specific changes made by Sikorsky are of particular significance and are elaborated on below.

Incorporation of Log Normal Distribution

The log normal distribution has been incorporated into the CH-54B baseline simulation model to replace the exponential distribution previously contained in the simulation model input function 36. The log normal (to the Base e) is more representative of the replacement and repair elapsed maintenance time distributions evidenced by the CH-54B. Contained in figure 7 are graphs comparing the two distributions followed by pertinent facts about the log normal distribution used for CH-54B simulation runs.

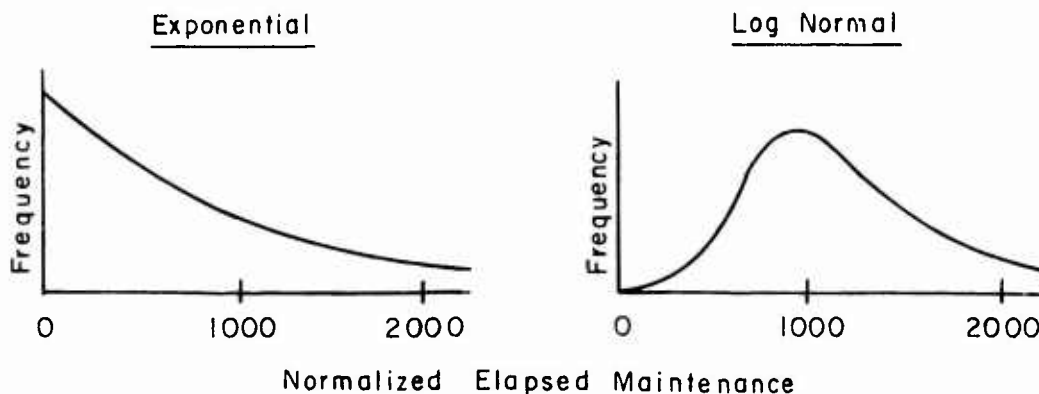


Figure 7. Alternative Elapsed Maintenance Time Distributions

The elapsed maintenance time distributions of eight different CH-54B components were studied to ascertain the most appropriate distribution for the CH-54B. The eight components were singled out because they contained the most data. The shape of the observed distributions dictated that the log normal be used instead of the exponential distribution. Therefore, the exponential distribution with mean = 1000 was replaced by the log normal distribution with mean = 1000. The log normal distribution, which was found to best represent the eight observed distributions, reflected the following log values:

θ_i = Mean of the natural log of the variable $x = 6.784$
 σ_i^2 = Variance of the natural log of the variable $x = .25$

TBO Initialization

The CH-54B R&M model reflects that components reaching their TBO times are replaced with components having their full TBO time remaining. The simulation runs bear out the adequacy of present logic. Based on the TBO component scheduled removal times as defined under "CH-54B Aircraft Description", the removal rate for all scheduled TBO replacements should approximate 17 scheduled removals/1000 flight hours. The slightly higher value results from the interaction of the initialized component times and the first preventive maintenance periodic (PMP) inspection. Because of the 100 flight hour duration between PMP's, components having less than 100 hours remaining before TBO expiration are replaced. This results in a slightly higher rate of replacement. This, however, is consistent with procedures practiced in the field.

Modified Daily Inspection Schedule

The daily inspection subroutine has been modified to eliminate the possibility of daily inspections being performed on overtime hours. This was in compliance with an Army request. This modification resulted in a less flexible daily flight schedule, since all flying and daily inspections as well as preflights had to be packed into the 8-hour operational day.

CH-54B MODEL PROGRAM LISTING WITH NECESSARY MODIFICATION TO THE GOVERNMENT-FURNISHED MODEL IDENTIFIED

The following is a list of changes made to the Government-furnished model to convert the UH-1N R&M model to conform to CH-54B aircraft and operational characteristics. Changes made by the Government to update the original UH-1N R&M model are so noted with no further comment.

1. The change in the reallocation of functions, variables, full-word save-values, and transactions was necessary to reapportion the allocation of entities in the model to accommodate changes to simulate CH-54B operation.
2. Variable 9 has been corrected to allow general use of the variable as well as inclusion of a snap feature.
3. Variable 19 has been modified to be general with respect to the start of the first shift.
4. Variable 38 has been generalized with respect to the end of the first shift.
5. Per a Eustis Directorate correction, variable 73 is now correct.
6. Variable 233 has been added per Eustis Directorate directive.
7. Variable 238 has been added per Eustis Directorate directive.

8. Variables 268, 269, 270 have been added to provide different centers for remove and replace actions. These variables decode the "packed" information contained in function 70.
9. Variable 267 was added to accommodate the scheduling of launch calls on a daily basis. This variable will define the half matrix to be used for that particular day's launches.
10. Boolean variable 11 has been changed per Eustis Directorate.
11. Boolean variable 19 has been changed per Eusvis Directorate.
12. Half matrices 11-17 have been added for the daily launch schedule. Half matrix 11 is Monday's launches and matrix 17 is Sunday's.
13. Table 9 has been changed to give a more meaningful output of downtime distribution for the CH-54B.
14. Table 18 has been added to tabulate the start of each daily inspection.
15. Table 19 has been added to tabulate the number of deferred maintenance actions caused by the aircraft at the start of the daily inspection.
16. Storages 33 through 42 have been limited to the levels defined by the CH-54B TOE.
17. The PMI has been added to function 7 (event code 8).
18. Function 15 has been modified to identify function 57 for the system failure for PMI.
19. Function 23 has been modified to identify function 58 for the element failure for PMI.
20. The log normal distribution has been substituted for the exponential distribution.
21. Function 40 has been redefined as the skill codes (or work centers) for on-aircraft repair only. It was formerly the skill codes for on-aircraft repair as well as remove and replace.
22. Function 48 has been redefined as the probability of no cannibalization given a NORS item.
23. Function 58 has been added to define the probability of element failure given system failure during PMI.
24. Function 70 has been added to define separate work centers for remove and replace actions.
25. Function 71 has been added to use variables 268, 269, and 270 to decode the data contained in function 70.

26. In order to define the daily flight schedule in half matrices 1 through 17, these initial statements have been added. The structure is defined such that the rows and columns contain the data in the same matrix location as half matrix 1 formerly contained. Data other than flight schedule data is still retained in half matrix 1.
27. These initial statements were added per Eustis Directorate.
28. This initial statement defines save-value 1601 as the time of the end of first shift. It is used in variable 38.
29. These model logic changes were added to define a flight schedule on a daily basis.
30. Changed per Eustis Directorate.
31. Number of TBO items to be initialized has been generalized.
32. Added per Eustis Directorate.
33. Added per Eustis Directorate.
34. Added per Eustis Directorate.
35. Added per Eustis Directorate.
36. Table 18 added to tabulate time daily performed.
37. Table 19 added to tabulate number of deferred maintenance actions carried at the start of the daily inspection.
38. Added per Eustis Directorate.
39. Added per Eustis Directorate.
40. Added per Eustis Directorate.
41. Added per Eustis Directorate.
42. Corrected per Eustis Directorate.
43. Added to insure that if the item is a remove and replace action 100% of the time, and if the random number comes up as 999, it still will be a remove and replace action.
44. Changed to be consistent with the definition of function 38 being probability of part availability.
45. Logic change to assign remove and replace work centers from function 70 and on-aircraft repair work centers from function 40.

46. Removed truncation of elapsed maintenance times. With the use of the log normal distribution of repair times in place of exponential, truncation of the distribution was not necessary.
47. Added per Eustis Directorate.
48. Removed the test to put test hops in the second shift. The CH-54B is a one-shift operation.
49. The CH-54B baseline requires a .650 value in this statement to get the proper percentage of test hop flight time.
50. Changed per Eustis Directorate.
51. Added to require secondary work centers for cannibalization remove and replace actions when needed.
52. Untruncated cannibalization remove and replace time to correspond with CH-54B data.
53. Added per Eustis Directorate.
54. Report changed to more clearly output CH-54B simulated operational statistics.

	REALLOCATE	BLU,1450	0000010
	REALLOCATE	STU,90	0000020
	REALLOCATE	QUE,70	0000030
	REALLOCATE	LEG,40	0000040
	REALLOCATE	FUN,60	0000050
	REALLOCATE	IAD,20	0000060
	REALLOCATE	LVR,20	0000070
1	REALLOCATE	VAR,270	0000080
	REALLOCATE	HSV,1750	0000090
	REALLOCATE	HSV,90	0000100
	REALLOCATE	CHA,60	0000110
	REALLOCATE	GRP,70	0000120
	REALLOCATE	FMS,5	0000130
	REALLOCATE	HMS,20	0000140
	REALLOCATE	XAL,400	0000150
	REALLOCATE	CUM,175000	0000160
	SIMULATE	JG	0000170
	UNLIST	ABS	0000180
1	VARIABLE	P2+K5 MISSION MATRIX COLUMN NUMBERS	0000190
2	VARIABLE	P11+K5 MISSION MATRIX NUMBERS	0000200
3	VARIABLE	P11+K8 "MISSION FLYING HOUR GOAL" SWITCH NUMBERS	0000210
4	VARIABLE	P11+K11 "MISSION FLYING HOURS" SAVEVALUE NUMBERS	0000220
5	VARIABLE	P4+K5 "AIRCRAFT NOT AVAILABLE WHEN CALLED" MISSION XH	0000230
6	VARIABLE	P4+K3 "MISSION LAUNCH GATE" SWITCH NUMBERS	0000240
7	VARIABLE	P11+K13 "MISSION CYCLIC FLYING HOUR" SWITCH NUMBERS	0000250
8	VARIABLE	P4+K13 "MISSION CYCLIC FLYING HOUR" SWITCH NUMBERS	0000260
9	VARIABLE	P3-C1 CORRECTED 11.5.74	0000270
10	VARIABLE	(KN1*1000+RN1)@X195 INITIAL DAYS SINCE PMP	0000280
11	VARIABLE	(P47+(C1/240))@X195 DAYS SINCE PMP	0000290
12	VARIABLE	KN1*1000+KN1 SIX DIGIT RANDOM NUMBER	0000300
13	VARIABLE	P8+K5 MISSION STORE + LAUNCH GATE SWITCH NUMBERS	0000310
14	VARIABLE	P8+K13 "MISSION CYCLIC FLYING HOUR" SWITCH NUMBERS	0000320
15	VARIABLE	P8+K18 NUMBER OF EACH MISSION FLOWN WITHOUT MA'S	0000330
16	VARIABLE	P8+K24 SAVEVALUE NUMBERS - FLIGHT HOURS BY MISSION	0000340
17	VARIABLE	FN4/2 ABORT FLIGHT TIME DURATION	0000350
18	VARIABLE	(MX3(3,4)+240-V20)@240 TIME TO START OF 1ST SHIFT	0000360
19	VARIABLE	C1@240 TIME OF DAY-TENTHS OF HOURS	0000370
20	VARIABLE	V14@MX1(1,10) 0=TIME FOR ALTERNATE DAILY	0000380
21	VARIABLE	FN6/10000 MANPOWER REQUIRED	0000390
22	VARIABLE	FN6/100@100 WORK CENTER	0000400
23	VARIABLE	FN6@100 MEAN ELAPSED TIME TO PERFORM EVENT	0000410
24	VARIABLE	P17+8 EVENT STORE NUMBER	0000420
25	VARIABLE	P2+32 WORK CENTER QUEUE + 1ST SHIFT STORE NUMBERS	0000430
26	VARIABLE	P2+43 2ND SHIFT WORK CENTER STORE NUMBER	0000440
27	VARIABLE	P22*P20 MAN HOURS X 100	0000450
28	VARIABLE	P2+8 SAVEVALUE NUMBERS OF MMH VS. WORK CENTER	0000460
29	VARIABLE	P2+43-P4*11 SKILL LINK NUMBERS	0000470
30	VARIABLE	U+BV14 MATRIX COLUMN NUMBER-PMP/PMI ELAPSE TIME	0000480
31	VARIABLE	K2+BV14*8 MATRIX ROW NUMBER-PMP OR PMI, MEN	0000490
32	VARIABLE	K3+BV14*6 MATRIX ROW NUMBER-PMP OR PMI, TIME/MAN	0000500
33	VARIABLE	Z20-C1@240 TIME REMAINING SECOND SHIFT	0000510
34	VARIABLE	P3*P4 MAN HOURS X 100	0000520
35	VARIABLE	P2+20 SAVEVALUE NUMBERS-PMP/PMI MAN HOURS BY WORK CENTER	0000530
36	VARIABLE	X1001-C1@240 TIME REMAINING - FIRST SHIFT	0000540
37	VARIABLE	P4-P20 EMT IN EXCESS OF CURRENT SHIFT LENGTH	0000550
38	VARIABLE	P2+29 SAVEVALUE NUMBERS, NUMBER OF P2 MA'S/EVENT	0000560
39	VARIABLE	P19+39 SAVEVALUE NUMBERS, NUMBER OF MA'S/P19 EVENT	0000570
40	VARIABLE	P3*100+P5 ELEMENT NUMBER	0000580
41	VARIABLE	FN37/K1000 PROBABILITY OF R + R	0000590
42	VARIABLE	P22/100 ELEMENT SYSTEM NUMBER	0000600
43	VARIABLE	P1+25 PARAMETER IDENTIFICATION - WORK CENTER	0000610

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48	VARIABLE	FN40/1000 DS/GS WORK CENTER	0000620
49	VARIABLE	FN40@10000/100 ORGANIZATIONAL SECONDARY WORK CENTER	0000630
50	VARIABLE	FN40@100 ORGANIZATIONAL PRIMARY WORK CENTER	0000640
51	VARIABLE	P1+23 PARAMETER IDENTIFICATION - M.P.	0000650
52	VARIABLE	FN+2/1000 DS/GS MANPOWER (M.P.)	0000660
53	VARIABLE	FN42@10000/100 ORGANIZATIONAL SECONDARY M.P.	0000670
54	VARIABLE	FN+2@100 ORGANIZATIONAL PRIMARY M.P.	0000680
55	VARIABLE	KC+(FN+3@1000*FN36+500)/1000 MEMT - R + K	0000690
56	VARIABLE	P4*10 UNITS CONVERSION	0000700
57	VARIABLE	(MX1(4,5)*FN36+500)/1000 MEAN GSE DELAY TIME	0000710
58	VARIABLE	P2+37 SAVEVALUE NUMBERS-UNSCHEDED MMH BY WORK CENTER	0000720
59	VARIABLE	1+EV4 MATRIX COLUMN IDENTIFICATION	0000730
60	VARIABLE	M1*K10 UNITS CONVERSION	0000740
61	VARIABLE	FN45*(1+(X1@02/100)) SUPPLY DELAY	0000750
62	VARIABLE	N\$NRD-N\$NRW NURS TEST VALUE	0000760
63	VARIABLE	P2+K49 SAVEVALUE NUMBERS-CANNIBALIZATION MMH BY WORK	0000770
64	VARIABLE	P1+C1 TIME WHEN PART BECOMES AVAILABLE	0000780
65	VARIABLE	(FN43/1000*FN36+K500)/1000 OFF-EQUIPMENT RPR MEMT	0000790
66	VARIABLE	FN+3/1000 OFF-EQUIPMENT REPAIR TIME	0000800
67	VARIABLE	P28+K66 STORES INDEX FOR GS WORK CENTERS	0000810
68	VARIABLE	P28+K45 QUEUE INDEX FOR GS WORK CENTERS	0000820
69	VARIABLE	P28+K63 SAVEVALUE NUMBERS FOR WORK CENTER TOTAL MMH'S	0000830
70	VARIABLE	P31*P4 MAN HOURS X 100	0000840
71	VARIABLE	FN37@K1000 PERCENT ELEMENTS REPAIRED @ GS	0000850
72	VARIABLE	FN+7/1000 PERCENT ELEMENTS NRIS (1-8) @ GS	0000860
73	VARIABLE	FN+7@1000 PERCENT ELEMENTS NRIS (9) @ GS	0000870
74	VARIABLE	P3+MX3(*2,4)-C1 DELAY TIME IN MPC/SHIFT ROUTINE	0000880
76	VARIABLE	P8-K*1 NUMBER OF MEN STILL REQUIRED	0000890
77	VARIABLE	P4+43 SECOND SHIFT WORK CENTER CHAIN/STORE INDEX	0000900
78	VARIABLE	P4+32 FIRST SHIFT WORK CENTER CHAIN/STORE INDEX	0000910
79	VARIABLE	P3+P5 TIME INTERVAL	0000920
80	VARIABLE	P2+K4+4(K3-P14) MANPOWER REDUCTION MATRIX INDEX	0000930
81	VARIABLE	K21+P4+K11(K3-P14) MANPOWER CONTROL CHAIN/STORE INDEX	0000940
82	VARIABLE	P5-C1@P3 MANPOWER REDUCTION CONTROL TIME	0000950
83	VARIABLE	P6-R*7 MANPOWER DIFFERENCE	0000960
84	VARIABLE	MX1(5,2)+MX1(5,3)+MX1(5,4) MAN HOUR SUMMATION	0000970
135	VARIABLE	FN31/1000 ELEMENT PROBABILITY OF NUR	0000980
136	VARIABLE	FN34@100 MANPOWER - ON EQUIPMENT REPAIR	0000990
137	VARIABLE	FN34/K100 MANPOWER - ON EQUIPMENT REPAIR	0001000
138	VARIABLE	(FN33/1000*FN36+500)/1000 MEMT-ON EQUIPMENT REPAIR	0001010
139	VARIABLE	FN32/1000 PROBABILITY OF REPAIR BY IUS	0001020
140	VARIABLE	FN32@1000 PROBABILITY OF REPAIR BY DS	0001030
141	VARIABLE	P28+K77 STORES INDEX FOR DS WORK CENTERS	0001040
142	VARIABLE	P28+56 QUEUE INDEX FOR DS WORK CENTERS	0001050
143	VARIABLE	P28+95 SAVEVALUE NUMBERS FOR WORK CENTERS TOTAL MMH'S	0001060
144	VARIABLE	CH1+W\$AKM1+ AIRCRAFT AVAILABLE NEXT AM	0001070
145	VARIABLE	240-P3-P2 NON-SHIFT HOURS	0001080
146	VARIABLE	(MH0(20,P15)*KN1/1000)	0001090
*		USE (MH0(10,P15)*RN1/1000) WITH TBO RUN	0001100
147	VARIABLE	P40@X189 GENERAL	0001110
148	VARIABLE	P40@X190 GENERAL	0001120
149	VARIABLE	MH0(P14,P12)*10-P40 TIME-ELEMENT REPLACEMENT DUE	0001130
150	VARIABLE	P40/10+MH0(20,*12) NEXT TIME REPLACEMENT DUE	0001140
151	VARIABLE	P14+K200 SAVE VALUE NU-MISSIONS CALLED EA ACFT/MONTH	0001150
152	VARIABLE	P14+K800 SAVEVALUE NU-MISSIONS CALLED EA ACFT/SIMULA	0001160
153	VARIABLE	P14+K225 SAVEVALUE NU-MISSIONS COMPLETED EA ACFT/MON	0001170
154	VARIABLE	P14+K825 SAVEVALUE NU-MISSIONS COMPLETED EA ACFT/SIM	0001180
155	VARIABLE	P14+K250 SAVEVALUE NU-MISSION FLIGHT HR EA ACFT/MONTH	0001190
156	VARIABLE	P14+K850 SAVEVALUE NU- MISSION FLIGHT HR EA ACFT/SIMU	0001200
157	VARIABLE	P14+K275 SAVEVALUE NU-NUMBER OF PREFLIGHTS EA ACFT/MON	0001210
158	VARIABLE	P14+K875 SAVEVALUE NU-NU OF PREFLIGHTS EA ACFT/SIMU	0001220
159	VARIABLE	P14+K300 SAVEVALUE NU-PREFLIGHT MMH'S X 100 EA ACFT	0001230
160	VARIABLE	P14+K900 SAVEVALUE NU-PREFLIGHT MMH'SX100, EA ACFT/SI	0001240
161	VARIABLE	P14+K325 SAVEVALUE NU-NU OF DAILY'S EA ACFT/MONTH	0001250
162	VARIABLE	P14+K925 SAVEVALUE NU-NU OF DAILY'S, EA ACFT/SIMU	0001260
163	VARIABLE	P14+K350 SAVEVALUE NU-DAILY MMH'SX100, EA ACFT,MONTH	0001270

164	VARIABLE	P14+K950	SAVEVALUE NU-DAILY MMH'SX100, EA ACFT MON	00001280
165	VARIABLE	P14+375	SAVEVALUE NU-PMI'S BY AIRCRAFT S/N / MONTH	00001290
166	VARIABLE	P14+475	SAVEVALUE NU-PMI'S BY AIRCRAFT S/N/SIMULATION	00001300
167	VARIABLE	P14+400	SAVEVALUE NU-MONTHLY PMI MAN HR BY ACFT S/N	00001310
168	VARIABLE	P14+1000	SAVEVALUE NU-SIMULATION PMI MAN HR BY ACFT	00001320
169	VARIABLE	P14+425	SAVEVALUE NU-PMP'S BY ACFT S/N/MONTH	00001330
170	VARIABLE	P14+1025	SAVEVALUE NU-PMP'S BY ACFT S/N/SIMULATION	00001340
171	VARIABLE	P14+450	SAVEVALUE NU-PMP MMH BY ACFT S/N/MONTH	00001350
172	VARIABLE	P14+1050	SAVEVALUE NU-PMP MMH BY ACFT S/N/SIMULATION	00001360
173	VARIABLE	P14+475	SAVEVALUE NU-UMA BY ACFT S/N/MONTH	00001370
174	VARIABLE	P14+1075	SAVEVALUE NU-UMA BY ACFT S/N/SIMULATION	00001380
175	VARIABLE	P14+500	SAVEVALUE NU-UMA BY ACFT S/N / MONTH	00001390
176	VARIABLE	P14+1100	SAVEVALUE NU-UMA BY ACFT S/N / SIMULATION	00001400
177	VARIABLE	P5+525	SAVEVALUE NU-SCHEDULED MAINT MH BY ACFT S/N/MONTH	000001410
178	VARIABLE	K300+P5	PARAMETERS 1-4 OFFSET VALUES FOR SAVEVALUE IN	00001420
179	VARIABLE	K350+P5	PARAMETERS 1-4 OFFSET VALUES FOR SAVEVALUE IN	00001430
180	VARIABLE	K400+P5	PARAMETERS 1-4 OFFSET VALUES FOR SAVEVALUE IN	00001440
181	VARIABLE	K450+P5	PARAMETERS 1-4 OFFSET VALUES FOR SAVEVALUE IN	00001450
182	VARIABLE	X*1+X*2+X*3+X*4	SAVEVALUE SUMMATION	00001460
183	VARIABLE	X325+X375+X425+X475	SAVEVALUE SUMMATION	00001470
184	VARIABLE	P14+1175	SAVEVALUE NU-SIMULATION-SCHEDULED MA'S BY AC	00001480
185	VARIABLE	P14+575	SAVEVALUE NU-MONTHLY-SCHEDULED MA'S BY ACFT	00001490
186	VARIABLE	P14+1200	SAVEVALUE NU-SIM ELAPSED UNSCH MAINT ACFT	00001500
187	VARIABLE	P14+600	SAVEVALUE NU-MONTHLY ELAPSED UNSCH MAINT A/C	00001510
188	VARIABLE	P5+1125	SAVEVALUE NU-SIMULATION TOTAL SCHED MAINT MH	00001520
189	VARIABLE	P14+550	SAVEVALUE NU-MONTHLY SCHED MAINT MH BY ACFT	00001530
190	VARIABLE	P14+1150	SAVEVALUE NU-SIMULATION SCHED MAINT MH BY AC	000001540
191	VARIABLE	P20*P22	MAN HOURS X 100	00001550
192	VARIABLE	P14+1225	SAVEVALUE NU-SIMULATION DIR MAINT MH BY ACFT	00001560
193	VARIABLE	K625+P6	SAVEVALUE NU-MONTHLY DIR MAINT MH BY ACFT S	00001570
194	VARIABLE	K1250+P14	SAVEVALUE NU-SIMULATION NORM TIME (.1 HR)	00001580
195	VARIABLE	K650+P14	SAVEVALUE NU-MONTHLY NORM TIME (.1 HR)	00001590
204	VARIABLE	K1350+P14	SAVEVALUE NU-SIMULATION TEST HOPS BY ACFT	00001600
205	VARIABLE	K750+P14	SAVEVALUE NU-MONTHLY TEST HOPS BY ACFT S/N	00001610
206	VARIABLE	K1375+P14	TEST HOP FLT.HRS SAVE NO.S.-TOTAL	00001620
207	VARIABLE	K775+P14	TEST HOP FLT.HRS SAVE NO.S.-MONTHLY	00001630
208	VARIABLE	K1475+P14	FLT.ABORTS- SAVE NO.S - TOTAL	00001640
209	VARIABLE	K1425+P14	FLT.ABORTS- SAVE NO.S - MONTHLY	00001650
210	VARIABLE	K1500+P14	ABORT FLIGHT HOURS- SAVE NO'S-TOTAL	00001660
211	VARIABLE	K1450+P14	ABORT FLIGHT HOURS- SAVE NO'S-MONTHLY	00001670
212	VARIABLE	(X*1+X*2)*10	SAVEVALUE SUMMATION + UNITS CONVERSION	00001680
213	VARIABLE	P7/(X*3+X*4+X*5)	CONVERSION TO RATIOS	00001690
214	VARIABLE	(X550+X575)*10/(X275+X600+X1475)	AVAIL. CALL.	00001700
215	VARIABLE	X275+X600+X1475	SAVEVALUE SUMMATION	00001710
216	FVARIABLE	(C1-X*1-X*3-X*4)*10000/C1		00001720
217	FVARIABLE	(X191*C1-X675-X1425-X1660-X1750)*10000/(X191*C1)		00001730
218	FVARIABLE	X*1*10000/X*2	ACFT MONTHLY AVAIL PERCENT MISSIONS CUM	000001740
219	FVARIABLE	(X*1+X*2)*10000/X*3	ACFT MONTHLY AVAIL, MISSIONS RATIO	000001750
220	FVARIABLE	(X250+X1450)*10000/X225	PLAT-MONTHLY AVAIL-MISS.RATIO	000001760
221	FVARIABLE	X250*10000/X225	PLATOON MONTHLY AVAIL, PERCENT MISS	000001770
222	VARIABLE	P14+K525	SAVEVALUE NU-MONTHLY SCHED MAINT MH BY ACFT	00001780
223	VARIABLE	P14+K1125	SAVEVALUE NU-SIMULATION SCHED MAINT MH BY AC	000001790
224	VARIABLE	G1+G32+G30+G37		00001800
225	VARIABLE	(G31+G32)*K80		00001810
226	VARIABLE	(G31+G32)*560		00001820
227	VARIABLE	(G30+G37)*K80		00001830
228	VARIABLE	(G30+G37)*K560		00001840
229	FVARIABLE	(XH11/(XH11+(X188/10)))*10000		00001850
230	FVARIABLE	(XH11/(XH11+(X188/10)+X187))*10000		00001860
231	VARIABLE	(RN1*K1000+KN1)*X189		00001870
232	VARIABLE	P14+K1400		00001880
233	VARIABLE	C1-P48		00001890
234	VARIABLE	X189-FN4	GENERAL	00001900
235	VARIABLE	X190-FN4	GENERAL	00001910
236	VARIABLE	X195-X196	PMP CALENDAR	00001920
237	VARIABLE	720-1440		00001930

7	238	VARIABLE	P40-P49		00001940
	239	VARIABLE	C1-P46		00001950
	240	VARIABLE	P1+325		00001960
	243	VARIABLE	MX1(5,1)-P10		00001961
	244	VARIABLE	1660+P14		00001962
	245	VARIABLE	MX1(5,1)-K2		00001963
	241	VARIABLE	P1+225		00001970
	266	VARIABLE	C1@1680/240	NORA	00001975
	268	VARIABLE	FN70/10000		00001980
8	269	VARIABLE	FN70@10000/100	SEC. W.C. RER	00001990
	270	VARIABLE	FN70@100	PRI. W.C. RER	00002000
9	267	VARIABLE	C1@1680/240+11	DAY OF WEEK+10 FOR LAUNCH MATRICES	00002010
	1	BVARIABLE	V20*G*250	DUMMY NU POST FLIGHT	00002020
	2	BVARIABLE	V20*G*250	DUMMY NU RESPOT	00002030
	3	BVARIABLE	V20*L*K166*V20*G*K59		00002040
	4	BVARIABLE	P25*L*K1359		00002050
	7	BVARIABLE	V20*L*250		00002060
10	11	BVARIABLE	V20*L*X149*V20*GE*MX1(1,2)*V233*GE*X200		00002070
	14	BVARIABLE	P17*E*K8		00002080
	17	BVARIABLE	V144*L*X144*PB*E*1*P26*E*1	OVERTIME TEST	00002090
	18	BVARIABLE	P19*L*2+P19*E*5		00002100
11	19	BVARIABLE	V20*G*MX3(3,4)*V20*L*X1601*LR14*CH60*E*0	NORA	00002110
	20	BVARIABLE	V20*G*MX1(1,2)*V239*GE*720		00002120
	1	MATRIX	H,10,22		00002130
	2	MATRIX	H,2,2		00002140
	3	MATRIX	H,45,9		00002150
	5	MATRIX	H,45,9		00002160
	6	MATRIX	H,28,26		00002170
	11	MATRIX	H,10,12		00002180
	12	MATRIX	H,10,12		00002190
12	13	MATRIX	H,10,12		00002200
	14	MATRIX	H,10,12		00002210
	15	MATRIX	H,10,12		00002220
	16	MATRIX	H,10,12		00002230
	17	MATRIX	H,10,12		00002240
	1	MATRIX	X,15,13		00002250
	2	MATRIX	X,15,27		00002260
	3	MATRIX	X,12,11		00002270
	4	MATRIX	X,2,40		00002280
	5	MATRIX	X,45,9		00002290
	1	TABLE	P17,0,1,27	NUMBER INSPECTIONS PERFORMED	00002300
	2	TABLE	P8,0,1,11	FLIGHTS BY MISSION TYPE	00002310
	3	TABLE	P17,0,1,27	NUMBER INSPECTIONS	00002320
	4	TABLE	P19,0,1,27	MA'S BY WHEN DISCOVERED	00002330
	5	TABLE	P3,0,1,45	MA'S BY SYSTEM	00002340
	6	TABLE	P19,0,1,27	MA'S BY SYSTEM + WHEN DISCOVERED	00002350
	7	TABLE	FN46,0,1,300		00002360
13	8	TABLE	V56,20,20,125	ORGANIZATIONAL MTR	00002370
	9	TABLE	V60,100,100,250	DOWNTIME DISTRIBUTION	00002380
	10	TABLE	FN46,0,1,300	NURS EVENTS	00002390
	11	TABLE	FN46,0,1,300	CANNIBALIZED PARTS	00002400
	12	TABLE	FN46,0,1,300	PARTS CAUSING NURS OR CANNIBALIZATION	00002410
	13	TABLE	FN46,0,1,300	PARTS R AND R BY SERVICE PLATOON	00002420
	14	TABLE	V56,0,20,125	MTR FOR OFF AIRCRAFT PART REPAIR	00002430
14	15	TABLE	FN46,0,1,300		00002440
	18	TABLE	V20,83,1,60	TIME OF START OF DAILY	00002441
15	19	TABLE	P24,0,1,50	DEFERRED MA'S	00002450
		STORAGE	S33,20		00002460
		STORAGE	S34,20		00002461
		STORAGE	S35,20		00002462
16		STORAGE	S36,20		00002463
		STORAGE	S37,20		00002464
		STORAGE	S38,10		00002465
		STORAGE	S39,10		00002466
		STORAGE	S40,20		00002467
		STORAGE	S41,20		00002468

STORAGE		542,26											00002470
STORAGE		543-554,899											00002471
*													00002480
*													00002490
*													00002500
1	FUNCTION	P4,D2	RECONFIGURATION SORT										00002510
0	1	1	1										00002520
*													00002530
*													00002540
2	FUNCTION	P17,D8	GROUP EVENT PROB OF SUCCESS										00002550
1	9999992	4570975	9999998	48171311	99999916	8137810							00002560
17	00002021	960000											00002570
*													00002580
*													00002590
3	FUNCTION	P8,D2	PROB NO MA DURING FLIGHT										00002600
0	8941221	757472											00002610
*													00002620
*													00002630
4	FUNCTION	P8,D2	MISSION DURATION										00002640
0	7	1	15										00002650
*													00002660
*													00002670
5	FUNCTION	P8,D2	PROB OF NO ABJKT/MA IN FLIGHT										00002680
0	8891061	889106											00002690
*													00002700
*													00002710
6	FUNCTION	P17,D2	LINE MAINTENANCE MANPOWER,MUS,+DURATION										00002720
2	20030916	200327											00002730
*													00002740
*													00002750
17	FUNCTION	P17,D10	MAINTENANCE PRIORITY										00002760
1	1	2	5	3	28	8	29	11	10	12	5		00002770
16	15	17	30	22	20	23	25						00002780
*													00002790
*													00002800
8	FUNCTION	P17,D2	QUEUE LIMIT GROUND EVENTS										00002810
1	0	3	999999										00002820
*													00002830
*													00002840
9	FUNCTION	P19,D9	WHEN DISCOVERED SORT MULTI-FAILURES										00002850
2	FN11	5	FN13	0	FN10	7	FN10	8	FN56	12	FN11		00002860
16	FN12	17	FN14	21	FN51								00002870
*													00002880
*													00002890
10	FUNCTION	RN1,D4	PROB MULT MA/MA DURING FLIGHT										00002900
0.86571	0.98702	0.99913	0.99994										00002910
*													00002920
*													00002930
11	FUNCTION	RN1,D3	PROB MULT MA/MA DURING PREFLIGHT										00002940
0.97851	0.99972	0.99993											00002950
*													00002960
*													00002970
12	FUNCTION	RN1,D4	PROB MULT MA/MA DURING DAILY										00002980
0.90051	0.99332	0.99973	0.99994										00002990
*													00003000
*													00003010
13	FUNCTION	RN1,D2	PROB MULT MA/MA DURING AIRCREW										00003020
0.99101	0.99992												00003030
*													00003040
*													00003050
14	FUNCTION	RN1,D25	PROB MULT MA/MA PMP										00003060
0.00021	0.00142	0.00563	0.01694	0.04145	0.08576								00003070
0.15437	0.24718	0.35859	0.480010	0.599211	0.706812								00003080
0.796513	0.865914	0.916015	0.950016	0.971617	0.984618								00003090
0.992019	0.996120	0.996121	0.999122	0.999623	0.999824								00003100
0.999975													00003110

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* FUNCTION P19,EB WHEN DISCOVERED SORT SYSTEM FAILURE											
2	FN19	5	FN16	6	FN17	7	FN18	8	FN57	12	FN19
16	FN20	17	FN21								
*											
*											
* FUNCTION RN1,D21 PROB SYSTEM MA AIRCREW/MA AIRCREW											
0.180201	0.189202	0.207203	0.252304	0.342305	0.531506						
0.617107	0.716208	0.725209	0.842310	0.878411	0.891912						
0.905413	0.914414	0.936915	0.955019	0.959520	0.968522						
0.973023	0.977524	0.999925									
*											
*											
* FUNCTION RN1,D20 PROB SYSTEM MA IN-FLIGHT/MA IN-FLIGHT											
0.000701	0.030702	0.042703	0.076104	0.089505	0.171606						
0.251607	0.275008	0.335009	0.357710	0.415711	0.443712						
0.465713	0.483714	0.641915	0.780816	0.874317	0.915718						
0.973119	0.999920										
*											
*											
* FUNCTION RN1,D15 ABLRT IN-FLT/MA ABT IN-FLT											
0.021001	0.027002	0.105304	0.147505	0.286106	0.406607						
0.557211	0.587312	0.629513	0.665614	0.743915	0.810216						
0.816217	0.954819	0.999920									
*											
*											
* FUNCTION RN1,D20 PROB SYSTEM MA PREFLIGHT/MA PREFLIGHT											
0.082401	0.139202	0.193603	0.357404	0.372705	0.500606						
0.543207	0.572308	0.682309	0.686610	0.774711	0.793912						
0.808113	0.851814	0.912915	0.946316	0.958417	0.960218						
0.981219	0.999920										
*											
*											
* FUNCTION RN1,D20 PROB SYSTEM MA DAILY/MA DAILY											
0.045301	0.102702	0.119503	0.225604	0.279005	0.418906						
0.550807	0.557408	0.638209	0.645710	0.730811	0.733412						
0.745113	0.776614	0.811915	0.822316	0.836817	0.841918						
0.973219	0.999920										
*											
*											
* FUNCTION RN1,D20 PROB SYSTEM MA PMP/MA PMP											
0.120101	0.235002	0.254903	0.455604	0.471305	0.577906						
0.648107	0.652108	0.685309	0.698610	0.736411	0.760212						
0.770813	0.782314	0.856715	0.884916	0.897517	0.899818						
0.985119	0.999920										
*											
*											
* FUNCTION P3,L20 NUMBER OF ELEMENTS IN SYSTEMS											
01	20	02	24	03	13	04	32	05	8	06	23
07	22	08	5	09	16	10	11	11	13	12	5
13	8	14	11	15	26	16	15	17	14	18	7
19	15	20	6								
*											
*											

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* FUNCTION P19,EB WHEN DISCOVERED SORT ELEMENT FAILURE											
2	FN27	5	FN24	6	FN25	7	FN26	8	FN58	12	FN27
16	FN28	17	FN29								
*											
*											
* FUNCTION FN40,L241 PROB ELEMENT MA AIRCREW/MA SYS AIRCREW											
0101	025	0102	000	0103	050	0104	025	0105	050	0106	150
0107	125	0108	050	0109	050	0110	075	0111	100	0112	000
0113	075	0114	100	0115	075	0116	050	0201	000	0202	999
0203	000	0204	000	0205	000	0301	250	0302	250	0303	250
0304	250	0305	000	0401	000	0402	200	0403	000	0404	000

1506	0000001507	0000001508	0000001509	0000001510	0000001511	0000000009060
1512	0000001513	0000001514	0000001515	0000001516	0000001517	0000000009070
1518	0000001519	0000001520	0000001521	0000001522	0000001523	0000000009080
1524	0000001525	0000001526	0280001601	0000001602	0000001603	0000000009090
1604	0000001605	0000001606	0000001607	0000001608	0000001609	0000000009100
1610	0000001611	0000001612	5000001613	0000001614	0000001615	09302300009110
1701	0000001702	0000001703	0000001704	0000001705	0000001706	0000000009120
1707	0000001708	0000001709	0000001710	0000001711	0000001712	0000000009130
1713	0000001714	0000001801	0000001802	0000001803	0000001804	0000000009140
1805	0000001806	0000001807	0000001901	0763361902	2666671903	0000000009150
1904	0000001905	0000001906	0000001907	1666671908	0000001909	0000000009160
1910	1666661911	1666661912	0000001913	2358491914	3030301915	14973300009170
2001	0000002002	0000002003	0000002004	9999992005	0000002006	0000000009180
2007	0000002008	171674				00009190

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36	FUNCTION	RN5,C25	LOG NORMAL DISTRIBUTION									
0	0	.025	332	.050	388	.100	466	.150	527	.200	580	00009230
.250	631	.300	680	.400	779	.500	883	.600	1003	.700	1148	00009240
.750	1237	.800	1345	.850	1482	.900	1675	.920	1782	.940	1921	00009250
.960	2119	.970	2261	.980	2465	.990	2845	.995	3200	.999	4183	00009260
.9998	5185											00009270
												00009280

37	FUNCTION	FN46,L296	PERCENT REM. & REPL, PERCENT GS RPR/RCD								
0101	9990000102	9990000103	9990000104	5000000105	0000000106	000000009300					
0107	0000000108	9990000109	9990000110	9990000111	0000000112	000000009310					
0113	9990000114	9990000115	0000000116	0000000117	5000000118	000000009320					
0119	9990000120	5800000201	9990000202	9990000203	0000000204	999000009330					
0205	9990000206	9990000207	9990000208	9990000209	9990000210	999000009340					
0211	9990000212	8240000213	9990000214	8820000215	8180000216	769000009350					
0217	9720000218	9990000219	9990000220	9990000221	9990000222	999000009360					
0223	9990000224	8040000301	9990000302	9990000303	9990000304	667000009370					
0305	9990000306	9990000307	9990000308	9990000309	9990000310	999000009380					
0311	9990000312	9990000313	8410000401	2860000402	0000000403	000000009390					
0404	2380000405	0910000406	9990000407	3000000408	0000000409	923000009400					
0410	9090000411	8390000412	8570000413	9990000414	0000000415	999000009410					
0416	9990000417	9990000418	9990000419	8330000420	8330000421	833000009420					
0422	8330000423	8330000424	8330000425	9990000426	9990000427	999000009430					
0428	8110000429	8110000430	8110000431	8110000432	6130000501	999000009440					
0502	8750000503	9990000504	9990000505	9990000506	9990000507	947000009450					
0508	8240000601	9990000602	9290000603	9990000604	3640000605	250000009460					
0606	9990000607	5000000608	7500000609	5000000610	9990000611	999000009470					
0612	2640000613	9990000614	6830000615	9990000616	9990000617	999000009480					
0618	7500000619	9990000620	9990000621	6880000622	5000000623	652000009490					
0701	9990000702	9990000703	3330000704	6670000705	9990000706	879000009500					
0707	0000000708	9990000709	8890000710	9990000711	8000000712	682000009510					
0713	9990000714	9990000715	5000000716	9990000717	9990000718	999000009520					
0719	5000000720	5000000721	9990000722	6020000801	9990000802	999000009530					
0803	9330000804	9230000805	9380000901	2860000902	8890000903	999000009540					
0904	9990000905	9990000906	9990000907	9990000908	9990000909	999000009550					
0910	9990000911	9990000912	9990000913	9990000914	9990000915	999000009560					
0916	8110001001	0000001002	9990001003	6670001004	0000001005	625000009570					
1006	0000001007	8180001008	9990001009	9990001010	0000001011	786000009580					
1101	6540001102	0000001103	8820001104	8330001105	9990001106	750000009590					
1107	9990001108	9990001109	9990001110	9990001111	6670001112	857000009600					
1113	8810001201	7780001202	9990001203	9990001204	5000001205	907000009610					
1301	9990001302	9990001303	9990001304	6000001305	9990001306	833000009620					
1307	8890001308	7780001401	9990001402	9990001403	9990001404	833000009630					
1405	9990001406	9990001407	9990001408	9990001409	9990001410	999000009640					
1411	5530001501	9630001502	7140001503	8330001504	6670001505	667000009650					
1506	9990001507	9990001508	5000001509	9990001510	7500001511	800000009660					
1512	9990001513	6000001514	9990001515	9990001516	9990001517	600000009670					
1518	7500001519	5490001520	9380001521	9990001522	7140001523	667000009680					
1524	5710001525	5710001526	7150001601	7780001602	9740001603	999000009690					
1604	7860001605	6000001606	0000001607	5000001608	6000001609	999000009700					
1610	8570001611	9990001612	9990001613	6670001614	9990001615	745000009710					

1701	0670001702	9990001703	4990001704	9090001705	9990001706	0000000009720	
1707	0670001708	9990001709	9420001710	9990001711	1670001712	0670000009730	
1713	9990001714	6470001801	9570001802	9990001803	8400001804	9990000009740	
1805	7500001806	9990001807	7500001901	9990001902	9990001903	5000000009750	
1904	9990001905	9990001906	8750001907	6360001908	8570001909	8570000009760	
1910	5710001911	5710001912	0600001913	0500001914	9990001915	5670000009770	
2001	7860002002	9990002003	8330002004	5000002005	6670002006	5000000009780	
2007	5000002008	873000				00009790	
38	FUNCTION	FN46,L296	PRUB	OF PART	AVAILABILITY	00009800	
0101	999 0102	999 0103	999 0104	999 0105	999 0106	999 0009810	
0107	999 0108	999 0109	999 0110	999 0111	999 0112	999 0009820	
0113	999 0114	999 0115	999 0116	999 0117	999 0118	999 0009830	
0119	999 0120	909 0201	999 0202	999 0203	999 0204	999 0009840	
0205	999 0206	999 0207	999 0208	999 0209	999 0210	999 0009850	
0211	999 0212	857 0213	999 0214	733 0215	999 0216	999 0009860	
0217	000 0218	999 0219	400 0220	999 0221	999 0222	999 0009870	
0223	999 0224	932 0301	999 0302	999 0303	000 0304	999 0009880	
0305	999 0306	000 0307	999 0308	999 0309	999 0310	999 0009890	
0311	999 0312	999 0313	854 0401	000 0402	999 0403	999 0009900	
0404	000 0405	999 0406	999 0407	272 0408	999 0409	600 0009910	
0410	007 0411	143 0412	999 0413	999 0414	999 0415	000 0009920	
0416	999 0417	833 0418	667 0419	500 0420	500 0421	500 0009930	
0422	500 0423	500 0424	500 0425	999 0426	999 0427	500 0009940	
0428	600 0429	600 0430	600 0431	600 0432	800 0501	667 0009950	
0502	429 0503	724 0504	999 0505	999 0506	999 0507	999 0009960	
0508	857 0601	999 0602	400 0603	999 0604	999 0605	999 0009970	
0606	999 0607	999 0608	999 0609	999 0610	999 0611	000 0009980	
0612	663 0613	999 0614	804 0615	999 0616	999 0617	800 0009990	
0618	694 0619	999 0620	999 0621	875 0622	833 0623	843 00010000	
0701	999 0702	875 0703	999 0704	999 0705	999 0706	999 00010010	
0707	999 0708	889 0709	919 0710	976 0711	999 0712	630 00010020	
0713	700 0714	999 0715	999 0716	600 0717	999 0718	999 00010030	
0719	999 0720	999 0721	999 0722	538 0801	999 0802	714 00010040	
0803	999 0804	583 0805	923 0901	999 0902	999 0903	999 00010050	
0904	999 0905	500 0906	750 0907	667 0908	750 0909	999 00010060	
0910	999 0911	980 0912	999 0913	999 0914	999 0915	999 00010070	
0916	873 1001	999 1002	999 1003	999 1004	999 1005	556 00010080	
1006	999 1007	999 1008	999 1009	999 1010	999 1011	400 00010090	
1101	000 1102	999 1103	000 1104	000 1105	999 1106	167 00010100	
1107	800 1108	875 1109	999 1110	999 1111	999 1112	636 00010110	
1113	787 1201	999 1202	864 1203	999 1204	999 1205	806 00010120	
1301	857 1302	999 1303	999 1304	999 1305	857 1306	400 00010130	
1307	750 1308	722 1401	000 1402	999 1403	999 1404	600 00010140	
1405	999 1406	999 1407	500 1408	000 1409	000 1410	999 00010150	
1411	250 1501	962 1502	999 1503	999 1504	999 1505	500 00010160	
1506	999 1507	000 1508	000 1509	999 1510	999 1511	999 00010170	
1512	000 1513	999 1514	999 1515	999 1516	999 1517	999 00010180	
1518	333 1519	500 1520	933 1521	999 1522	999 1523	999 00010190	
1524	000 1525	000 1526	808 1601	867 1602	639 1603	999 00010200	
1604	909 1605	719 1606	999 1607	999 1608	999 1609	200 00010210	
1610	667 1611	999 1612	500 1613	999 1614	999 1615	855 00010220	
1701	999 1702	999 1703	999 1704	950 1705	999 1706	999 00010230	
1707	999 1708	999 1709	959 1710	999 1711	999 1712	999 00010240	
1713	999 1714	900 1801	909 1802	500 1803	999 1804	999 00010250	
1805	999 1806	999 1807	333 1901	999 1902	774 1903	750 00010260	
1904	143 1905	400 1906	900 1907	333 1908	000 1909	000 00010270	
1910	650 1911	650 1912	999 1913	999 1914	250 1915	843 00010280	
2001	818 2002	900 2003	999 2004	667 2005	999 2006	999 00010290	
2007	667 2008	933				00010300	
39	FUNCTION	P1,E3	VARIABLE SORT FOR WORK CENTER			00010310	
1	V50	2	V49	3	V48	00010320	
*						00010330	
*						00010340	
21	40	FUNCTION	FN46,L296	SKILL CODE	WORK CENTER	ON A/C REPAIR	00010350
0101	0000000102	0000000103	0000000104	0000000105	0003070106	00030700010360	
0107	0003070108	0000000109	0000000110	0000000111	0000070112	00010300010370	

0113	13	0114	14	0115	15	0116	16	0117	17	0118	18	00013020
0119	19	0120	20	0201	21	0202	22	0203	23	0204	24	00013030
0205	25	0206	26	0207	27	0208	28	0209	29	0210	30	00013040
0211	31	0212	32	0213	33	0214	34	0215	35	0216	36	00013050
0217	37	0218	38	0219	39	0220	40	0221	41	0222	42	00013060
0223	43	0224	44	0301	45	0302	46	0303	47	0304	48	00013070
0305	49	0306	50	0307	51	0308	52	0309	53	0310	54	00013080
0311	55	0312	56	0313	57	0401	58	0402	59	0403	60	00013090
0404	61	0405	62	0406	63	0407	64	0408	65	0409	66	00013100
0410	67	0411	68	0412	69	0413	70	0414	71	0415	72	00013110
0416	73	0417	74	0418	75	0419	76	0420	77	0421	78	00013120
0422	79	0423	80	0424	81	0425	82	0426	83	0427	84	00013130
0428	85	0429	86	0430	87	0431	88	0432	89	0501	90	00013140
0502	91	0503	92	0504	93	0505	94	0506	95	0507	96	00013150
0508	97	0601	98	0602	99	0603	100	0604	101	0605	102	00013160
0606	103	0607	104	0608	105	0609	106	0610	107	0611	108	00013170
0612	109	0613	110	0614	111	0615	112	0616	113	0617	114	00013180
0618	115	0619	116	0620	117	0621	118	0622	119	0623	120	00013190
0701	121	0702	122	0703	123	0704	124	0705	125	0706	126	00013200
0707	127	0708	128	0709	129	0710	130	0711	131	0712	132	00013210
0713	133	0714	134	0715	135	0716	136	0717	137	0718	138	00013220
0719	139	0720	140	0721	141	0722	142	0801	143	0802	144	00013230
0803	145	0804	146	0805	147	0901	148	0902	149	0903	150	00013240
0904	151	0905	152	0906	153	0907	154	0908	155	0909	156	00013250
0910	157	0911	158	0912	159	0913	160	0914	161	0915	162	00013260
0916	163	1001	164	1002	165	1003	166	1004	167	1005	168	00013270
1006	169	1007	170	1008	171	1009	172	1010	173	1011	174	00013280
1101	175	1102	176	1103	177	1104	178	1105	179	1106	180	00013290
1107	181	1108	182	1109	183	1110	184	1111	185	1112	186	00013300
1113	187	1201	188	1202	189	1203	190	1204	191	1205	192	00013310
1301	193	1302	194	1303	195	1304	196	1305	197	1306	198	00013320
1307	199	1308	200	1401	201	1402	202	1403	203	1404	204	00013330
1405	205	1406	206	1407	207	1408	208	1409	209	1410	210	00013340
1411	211	1501	212	1502	213	1503	214	1504	215	1505	216	00013350
1506	217	1507	218	1508	219	1509	220	1510	221	1511	222	00013360
1512	223	1513	224	1514	225	1515	226	1516	227	1517	228	00013370
1518	229	1519	230	1520	231	1521	232	1522	233	1523	234	00013380
1524	235	1525	236	1526	237	1601	238	1602	239	1603	240	00013390
1604	241	1605	242	1606	243	1607	244	1608	245	1609	246	00013400
1610	247	1611	248	1612	249	1613	250	1614	251	1615	252	00013410
1701	253	1702	254	1703	255	1704	256	1705	257	1706	258	00013420
1707	259	1708	260	1709	261	1710	262	1711	263	1712	264	00013430
1713	265	1714	266	1801	267	1802	268	1803	269	1804	270	00013440
1805	271	1806	272	1807	273	1901	274	1902	275	1903	276	00013450
1904	277	1905	278	1906	279	1907	280	1908	281	1909	282	00013460
1910	283	1911	284	1912	285	1913	286	1914	287	1915	288	00013470
2001	289	2002	290	2003	291	2004	292	2005	293	2006	294	00013480
2007	295	2008	296									00013490
*												00013500
*												00013510
47	FUNCTION	P22,U2	PERCENT NRTS (1-8),	PERCENT NRTS (1-9)								00013520
101	0	2008	0									00013530
*												00013540
*												00013550
22	48	FUNCTION	FN46,L296	PR0B OF NU	CANNIBALIZATION	GIVEN NORS						00013560
0101	999	0102	999	0103	999	0104	999	0105	999	0106	999	00013570
0107	999	0108	999	0109	999	0110	999	0111	999	0112	999	00013580
0113	999	0114	999	0115	999	0116	999	0117	999	0118	999	00013590
0119	999	0120	667	0201	999	0202	999	0203	999	0204	999	00013600
0205	999	0206	999	0207	999	0208	999	0209	999	0210	999	00013610
0211	999	0212	000	0213	999	0214	250	0215	999	0216	999	00013620
0217	571	0218	999	0219	999	0220	999	0221	999	0222	999	00013630
0223	999	0224	667	0301	999	0302	999	0303	000	0304	999	00013640
0305	999	0306	667	0307	999	0308	999	0309	999	0310	999	00013650
0311	999	0312	999	0313	667	0401	999	0402	999	0403	999	00013660
0404	333	0405	999	0406	999	0407	629	0408	999	0409	000	00013670

1113	0004091201	0008031202	0000001203	0000001204	0000101205	00010900015000									
1301	0000001302	0000001303	0000001304	0000101305	0000001306	00001000015010									
1307	0000101308	0008031401	0000001402	0000001403	0000001404	00002000015020									
1405	0000001406	0000001407	0000001408	0000001409	0000001410	00000000015030									
1411	0002101501	0000301502	0000101503	0000101504	0000101505	00001000015040									
1506	0000001507	0000001508	0000101509	0000001510	0000161511	00001000015050									
1512	0000001513	0005151514	0000001515	0000001516	0000001517	00001000015060									
1518	0000101519	0003131520	0005051521	0000001522	0000101523	00001000015070									
1524	0004081525	0000101526	0008031601	0000101602	0000101603	00000000015080									
1604	0000111605	0000181606	0000101607	0000101608	0000101609	00000000015090									
1610	0000101611	0000001612	0000001613	0000101614	0000001615	00001200015100									
1701	0007031702	0000001703	0000001704	0000101705	0000001706	00001000015110									
1707	0000101708	0000001709	0000101710	0000001711	0006041712	00001000015120									
1713	0000001714	0000101801	0000101802	0000001803	0000101804	00000000015130									
1805	0000101806	0000001807	0000101901	0000001902	0000001903	00001000015140									
1904	0000001905	0000001906	0003071907	0004191908	0015051909	00150500015150									
1910	0010031911	0010031912	0003191913	0002091914	0000001915	00050800015160									
2001	0000102002	0000002003	0000102004	0003142005	0000202006	00020800015170									
2007	0000172008	000509				00015180									
55	FUNCTION	P1,E3				00015190									
1	V136	2	V137	3	V52	00015200									
*						00015210									
56	FUNCTION	RN1,D6	PROB	MULT	MA/MA	PMI	00015220								
0.67891	0.92692	0.98713	0.99824	0.99985	0.99996		00015230								
*							00015240								
*							00015250								
57	FUNCTION	RN1,D19	PROB	SYSTEM	MA	PMI/MA	PMI	00015260							
0.064501	0.164002	0.281203	0.441304	0.543806	0.594507			00015270							
0.597008	0.651709	0.652710	0.671911	0.725112	0.727113			00015280							
0.740414	0.792115	0.805916	0.815317	0.817818	0.974919			00015290							
0.999920								00015300							
*								00015310							
*								00015320							
58	FUNCTION	FN46,L296	PROB	ELEMENT	MA	P	M	I	/SYS	MA	P	M	I	00015330	
0101	000	0102	000	0103	000	0104	000	0105	000	0106	000				00015340
0107	076	0108	000	0109	091	0110	091	0111	000	0112	038				00015350
0113	015	0114	015	0115	015	0116	000	0117	000	0118	000				00015360
0119	036	0120	618	0201	000	0202	000	0203	050	0204	040				00015370
0205	099	0206	000	0207	000	0208	050	0209	000	0210	000				00015380
0211	079	0212	000	0213	000	0214	000	0215	000	0216	000				00015390
0217	000	0218	000	0219	074	0220	074	0221	149	0222	099				00015400
0223	050	0224	238	0301	042	0302	000	0303	000	0304	000				00015410
0305	021	0306	000	0307	021	0308	000	0309	042	0310	042				00015420
0311	084	0312	033	0313	714	0401	138	0402	000	0403	000				00015430
0404	000	0405	000	0406	000	0407	000	0408	043	0409	031				00015440
0410	142	0411	000	0412	000	0413	000	0414	000	0415	092				00015450
0416	000	0417	000	0418	000	0419	021	0420	021	0421	021				00015460
0422	021	0423	021	0424	021	0425	000	0426	000	0427	000				00015470
0428	017	0429	017	0430	017	0431	017	0432	363	0501	000				00015480
0502	000	0503	000	0504	000	0505	000	0506	000	0507	000				00015490
0508	000	0601	106	0602	000	0603	000	0604	096	0605	000				00015500
0606	000	0607	000	0608	000	0609	000	0610	000	0611	000				00015510
061	063	0613	000	0614	000	0615	000	0616	010	0617	000				00015520
0616	000	0619	000	0620	063	0621	106	0622	063	0623	495				00015530
0701	000	0702	000	0703	000	0704	097	0705	000	0706	330				00015540
0707	019	0708	000	0709	000	0710	000	0711	000	0712	437				00015550
0713	000	0714	078	0715	000	0716	000	0717	019	0718	000				00015560
0719	000	0720	019	0721	000	0722	000	0801	999	0802	000				00015570
0803	000	0804	000	0805	000	0901	000	0902	000	0903	000				00015580
0904	018	0905	000	0906	000	0907	000	0908	000	0909	000				00015590
0910	144	0911	523	0912	000	0913	000	0914	000	0915	027				00015600
0916	288	1001	000	1002	000	1003	000	1004	000	1005	000				00015610
1006	000	1007	999	1008	000	1009	000	1010	000	1011	000				00015620
1101	000	1102	000	1103	000	1104	000	1105	000	1106	000				00015630
1107	000	1108	256	1109	000	1110	000	1111	000	1112	000				00015640
1113	744	1201	555	1202	185	1203	213	1204	046	1205	000				00015650

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1301	000	1302	000	1303	000	1304	000	1305	500	1306	000	00015660
1307	500	1308	000	1401	185	1402	000	1403	000	1404	000	00015670
1405	185	1406	444	1407	000	1408	000	1409	185	1410	000	00015680
1411	000	1501	000	1502	000	1503	019	1504	095	1505	000	00015690
1506	000	1507	000	1508	000	1509	000	1510	095	1511	000	00015700
1512	000	1513	000	1514	000	1515	048	1516	095	1517	000	00015710
1518	019	1519	000	1520	000	1521	019	1522	048	1523	000	00015720
1524	000	1525	000	1526	562	1601	000	1602	536	1603	000	00015730
1604	179	1605	000	1606	071	1607	000	1608	000	1609	071	00015740
1610	071	1611	000	1612	000	1613	071	1614	000	1615	000	00015750
1701	000	1702	000	1703	000	1704	000	1705	000	1706	000	00015760
1707	000	1708	000	1709	000	1710	105	1711	105	1712	000	00015770
1713	000	1714	789	1801	000	1802	000	1803	000	1804	999	00015780
1805	000	1806	000	1807	000	1901	107	1902	197	1903	000	00015790
1904	323	1905	000	1906	000	1907	031	1908	000	1909	000	00015800
1910	024	1911	024	1912	000	1913	000	1914	000	1915	295	00015810
2001	588	2002	137	2003	000	2004	000	2005	000	2006	039	00015820
2007	235	2008	000									00015830

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70	FUNCTION	FN46, L296	SKILL CODE	WORK CENTER	REMOVE & REPLACE	00015840
0101	0000030102	0002030103	0007030104	0007030105	0000000106	0000000015850
0107	0000000108	00000070109	0007030110	0007030111	0000000112	0000000015860
0113	0000030114	0000030115	0000000116	0000000117	0007050118	0000000015870
0119	0000030120	0007030201	0000030202	0003020203	0000000204	00000300015880
0205	0003020206	0000030207	0002030208	0002030209	0000030210	00010300015890
0211	0005030212	0002030213	0000050214	0005030215	0002050216	00020300015900
0217	0000030218	0000030219	0002030220	0000030221	0000030222	00000300015910
0223	0010030224	0002030301	0000030302	0000040303	0000030304	00000300015920
0305	0000030306	0000030307	0000030308	0000030309	0000030310	00030200015930
0311	0002030312	0000030313	0010030401	0001030402	0000000403	0000000015940
0404	0001030405	0000030406	0000030407	0001030408	0000000409	00000300015950
0410	0006030411	0006030412	0000030413	0001030414	0000030415	00000300015960
0416	0000030417	0000030418	0000030419	0002030420	0002030421	00020300015970
0422	0002030423	0002030424	0002030425	0007030426	0005030427	00020300015980
0428	0007030429	0007030430	0007030431	0007030432	0002030501	00020300015990
0502	0000030503	0002030504	0000030505	0000020506	0002030507	00020300016000
0508	0005030601	0006030602	0006030603	0002030604	0009030605	00000300016010
0606	0000030607	0000030608	0001030609	0000030610	0000030611	00000300016020
0612	0000030613	0000030614	0009030615	0000030616	0000030617	00000300016030
0618	0008030619	0002080620	0002030621	0007030622	0006030623	00060300016040
0701	0009030702	0009030703	0000030704	0009030705	0002030706	00020300016050
0707	0000000708	0003090709	0009030710	0003090711	0009030712	00030900016060
0713	0005030714	0005030715	0000030716	0000030717	0000030718	00000300016070
0719	0000030720	0000030721	0000030722	0003090801	0008020802	00080300016080
0803	0002030804	0009030805	0007030901	0002080902	0000080903	00000800016090
0904	0000030905	0003080906	0008030907	0000080908	0003080909	00030800016100
0910	0002030911	0003080912	0003080913	0003080914	0000020915	00000800016110
0916	0008031001	0000001002	0001031003	0000031004	0000001005	00010300016120
1006	0000001007	0003041008	0000031009	0000031010	0000001011	00010300016130
1101	0005031102	0000001103	0005031104	0002031105	0005031106	00080300016140
1107	0005081108	0002081109	0006031110	0000031111	0007031112	00000300016150
1113	0005031201	0002031202	0000031203	0003081204	0001031205	00020300016160
1301	0002031302	0000031303	0000031304	0000031305	0000081306	00080400016170
1307	0008041308	0007081401	0000031402	0003081403	0001031404	00080300016180
1405	0000031406	0000031407	0000031408	0000031409	0008031410	00000300016190
1411	0002031501	0008031502	0006081503	0009031504	0002031505	00000400016200
1506	0000041507	0000041508	0000081509	0000081510	0003081511	00080400016210
1512	0001041513	0004031514	0000081515	0000081516	0000071517	00030800016220
1518	0008031519	0009081520	0008031521	0003021522	0001031523	00080300016230
1524	0003081525	0004081526	0003081601	0000041602	0001041603	00020400016240
1604	0000041605	0000041606	0000001607	0000041608	0000041609	00000400016250
1610	0003081611	0000041612	0000041613	0000041614	0000041615	00010400016260
1701	0008031702	0000041703	0001041704	0000041705	0000041706	0000000016270
1707	0003041708	0000041709	0008041710	0008041711	0000011712	00000400016280
1713	0000041714	0008041801	0000041802	0000041803	0008041804	00000400016290
1805	0003041806	0000041807	0006041901	0000031902	0009031903	00090300016300
1904	0003091905	0003081906	0008031907	0001091908	0003091909	00030900016310

1910	0003091911	0003091912	0000001913	0009031914	0009031915	00030900016320
2001	0009032002	0009032003	0008032004	0000032005	0000032006	00090200016330
0007	0007092008	000309				00016340
25	71	FUNCTION	VARIABLE SORT FOR WORK CENTERS, RGR			00016350
1	V270	2	V209	3	V268	00016360
	INITIAL	XH78,1586				00016370
	INITIAL	MH11(1-4,5),1	MON	ROW=LAUNCH,DATA=PRIORITY		00016380
	INITIAL	MH13(1-5,5),1	ROW=LAUNCH,DATA=PRIORITY			00016400
	INITIAL	MH14(1-4,5),1	THU	ROW=LAUNCH,DATA=PRIORITY		00016410
	INITIAL	MH15(1-4,5),1	FRI	ROW=LAUNCH,DATA=PRIORITY		00016420
	INITIAL	MH11(1,10),1	MON	NO. OF A/C LAUNCH1		00016430
	INITIAL	MH13(1,10),1	WED	NO. OF A/C LAUNCH1		00016450
	INITIAL	MH14(1,10),1	THU	NO. OF A/C LAUNCH1		00016460
	INITIAL	MH15(1,10),1	FRI	NO. OF A/C LAUNCH1		00016470
	INITIAL	MH11(2,10),1	MON	NO. OF A/C LAUNCH2		00016480
	INITIAL	MH13(2,10),1	WED	NO. OF A/C LAUNCH2		00016500
	INITIAL	MH14(2,10),1	THU	NO. OF A/C LAUNCH2		00016510
	INITIAL	MH15(2,10),1	FRI	NO. OF A/C LAUNCH2		00016520
26	INITIAL	MH11(3,10),2	MON	NO. OF A/C LAUNCH3		00016530
	INITIAL	MH13(3,10),1	WED	NO. OF A/C LAUNCH3		00016550
	INITIAL	MH14(3,10),2	THU	NO. OF A/C LAUNCH3		00016560
	INITIAL	MH15(3,10),1	FRI	NO. OF A/C LAUNCH3		00016570
	INITIAL	MH11(4,10),1	MON	NO. OF A/C LAUNCH4		00016580
	INITIAL	MH13(4,10),2	WED	NO. OF A/C LAUNCH4		00016600
	INITIAL	MH14(4,10),1	THU	NO. OF A/C LAUNCH4		00016610
	INITIAL	MH15(4,10),1	FRI	NO. OF A/C LAUNCH4		00016620
	INITIAL	MH13(5,10),1	WED	NO. OF A/C LAUNCH5		00016625
	INITIAL	MH11(1,11),88	MON	TIME FROM 00:12 TO 1ST LAUNCH		00016630
	INITIAL	MH13(1,11),88	WED	TIME FROM 00:12 TO 1ST LAUNCH		00016650
	INITIAL	MH14(1,11),88	THU	TIME FROM 00:12 TO 1ST LAUNCH		00016660
	INITIAL	MH15(1,11),88	FRI	TIME FROM 00:12 TO 1ST LAUNCH		00016670
	INITIAL	MH11(2,11),5	MON	TIME BETWEEN LAUNCH 1&2		00016680
	INITIAL	MH13(2,11),1	WED	TIME BETWEEN LAUNCH 1&2		00016700
	INITIAL	MH14(2,11),5	THU	TIME BETWEEN LAUNCH 1&2		00016710
	INITIAL	MH15(2,11),5	FRI	TIME BETWEEN LAUNCH 1&2		00016720
	INITIAL	MH11(3,11),20	MON	TIME BETWEEN LAUNCH 2&3		00016730
	INITIAL	MH13(3,11),4	WED	TIME BETWEEN LAUNCH 2&3		00016750
	INITIAL	MH14(3,11),20	THU	TIME BETWEEN LAUNCH 2&3		00016760
	INITIAL	MH15(3,11),20	FRI	TIME BETWEEN LAUNCH 2&3		00016770
	INITIAL	MH11(4,11),20	MON	TIME BETWEEN LAUNCH 3&4		00016780
	INITIAL	MH13(4,11),20	WED	TIME BETWEEN LAUNCH 3&4		00016800
	INITIAL	MH14(4,11),20	THU	TIME BETWEEN LAUNCH 3&4		00016810
	INITIAL	MH15(4,11),20	FRI	TIME BETWEEN LAUNCH 3&4		00016820
	INITIAL	MH13(5,11),20	WED	TIME BETWEEN LAUNCH 4&5		00016825
	INITIAL	MH11(2,12),107	MON	TIME BETWEEN LAUNCH 4&00:12		00016830
	INITIAL	MH13(2,12),107	WED	TIME BETWEEN LAUNCH 4&00:12		00016850
	INITIAL	MH14(2,12),107	THU	TIME BETWEEN LAUNCH 3&00:12		00016860
	INITIAL	MH15(2,12),107	FRI	TIME BETWEEN LAUNCH 4&00:12		00016870
	INITIAL	MH11(1,12),4	MON	NO. OF LAUNCHES PER DAY		00016880
	INITIAL	MH13(1,12),5	WED	NO. OF LAUNCHES		00016900
	INITIAL	MH14(1,12),4	THU	NO. OF LAUNCHES PER DAY		00016910
	INITIAL	MH15(1,12),4	FRI	NO. OF LAUNCHES PER DAY		00016920
	INITIAL	MH1(1,13),480	NON	FLYING HOURS WEEKEND		00016930
	INITIAL	MH1(1,14),1200	FLYING	HOURS WEEKDAYS		00016940
	INITIAL	MH1(3,12),5	SLACK	TIME		00016950
	INITIAL	MH1(8,12),14	TIME	FROM CALL TO LAUNCH		00016960
	INITIAL	MH1(6,13),0	TIME	TO PERFORM AIRCREW INSPECTION		00016970
	INITIAL	MH1(7,13),5	LAUNCH	TIME TO REPLACE ABORTS		00016980
	INITIAL	MH1(1,17),999	PERCENT	IN-FLT ABORTS REPLACED		00016990
	INITIAL	MH1(1,15),1	NO	STANDBY A/C BY MISSION TYPE		00017000
	INITIAL	MH1(1,18),18	FLT	DURATION FOR ABORT REPLACEMENTS	00017010	
	INITIAL	MH1(1,16),2	NO.	PRELAUNCH EVENTS		00017020
	INITIAL	MH1(1,21),5	TIME	LAUNCH WINDOW STAYS OPEN		00017030
	INITIAL	MH1(1,15),1	STANDBY	AIRCRAFT MISSION 1		00017040
	INITIAL	MH1(2,16),2	PRELAUNCH	EVENTS		00017050
	INITIAL	MH1(6,17),1200	5	DAY FLYING PERIOD		00017060

INITIAL	MH1(0,18),480	2 DAY NONFLYING PERIOD	00017070
INITIAL	MX3(1,1),80	FIRST SHIFT DURATION = 8 HRS	00017080
INITIAL	MX3(2,1),0	SECOND SHIFT DURATION = 0 HRS	00017090
INITIAL	MX3(1,4),83	START OFFSET SHIFT 1 PERIOD 1	00017100
INITIAL	MX3(3,2),80	WORKING INTERVAL DAILY *****	00017110
INITIAL	MX3(3,3),160	NON WORKING INTERVAL DAILY *****	00017120
INITIAL	MX3(3,4),85	START WORK OFFSET *****	00017130
INITIAL	MX3(2,2),1200	WORKING INTERVAL CONTROL WEEKLY***	00017140
INITIAL	MX3(2,3),480	NONWORKING INTERVAL WEEKLY *****	00017150
INITIAL	MX1(2,1),20	PMP MANPOWER PRIMARY W.C.(1)	00017160
INITIAL	MX1(2,3),10	PMP MANPOWER SECONDARY W.C.(3)	00017170
INITIAL	MX1(3,1),160	PMP HOURS PRIMARY W.C.(1)	00017180
INITIAL	MX1(3,3),100	PMP HOURS SECONDARY W.C.(3)	00017190
INITIAL	MX1(1,8),160	PMP LOOK PHASE EMT	00017200
INITIAL	MX1(10,1),10	PMI MANPOWER PRIMARY W.C.(1)	00017210
INITIAL	MX1(10,3),10	PMI MANPOWER SECONDARY W.C.(3)	00017220
INITIAL	MX1(11,1),60	PMI HOURS PRIMARY W.C.(1)	00017230
INITIAL	MX1(11,3),60	PMI HOURS SECONDARY W.C.(3)	00017240
INITIAL	MX1(1,9),60	PMI LOOK PHASE EMT	00017250
INITIAL	MX1(1,2),63	FIRST DAILY AT 8:30 *****	00017260
INITIAL	MX1(1,3),240	TIME BETWEEN DAILIES	00017270
INITIAL	MX1(4,7),1	NURS/CANNIB. ELEMENT MODE	00017280
INITIAL	MX1(1,8),720	MINIMUM ELAPSED DOWNTIME PMP = 72 HRS	00017290
INITIAL	MX1(1,9),280	MINIMUM ELAPSED DOWNTIME PMI = 28 HRS	00017300
INITIAL	MX1(1,10),3	DAYS BETWEEN DAILIES NON FLYING	00017310
INITIAL	MX1(4,10),15	DEFERRED MA'S MAXIMUM NO. ALLOWED	00017320
INITIAL	MX1(5,9),1	SIMULATE FACTOR	00017430
*****	TBO TIMES		00017431
INITIAL	MH6(26,1-2),800/MH6(26,3-8),2500/MH6(26,9-12),1600		00017440
INITIAL	MH6(26,13),625/MH6(26,14-16),1200/MH6(26,17),2400		00017450
INITIAL	MH6(26,18-21),800		00017460
*****	TBO ELEMENTS		00017461
INITIAL	MH6(27,1),401/MH6(27,2),414/MH6(27,3),419		00017470
INITIAL	MH6(27,4),420/MH6(27,5),421/MH6(27,6),422		00017480
INITIAL	MH6(27,7),423/MH6(27,8),424/MH6(27,9),428		00017490
INITIAL	MH6(27,10),429/MH6(27,11),430/MH6(27,12),431		00017500
INITIAL	MH6(27,13),604/MH6(27,14),609/MH6(27,15),610		00017510
INITIAL	MH6(27,16),1005/MH6(27,17),1405/MH6(27,18),1908		00017520
INITIAL	MH6(27,19),1909/MH6(27,20),1910/MH6(27,21),1911		00017530
*****	TBO DISPOSITION 4=CONDEMNED,6=OVERHAULED		00017531
INITIAL	MH6(28,1-21),4		00017540
INITIAL	MH1(1,22),000	% MISSION AC WITH ORONANCE	00017550
INITIAL	MH1(0,14),30000	FLYING HOUR GUAL	00017560
INITIAL	X195,99999		00017570
INITIAL	X196,00		00017580
INITIAL	X197,21	NO. TBO ITEMS	00017590
INITIAL	X191,9	NO. AIRCRAFT PER COMPANY	00017600
INITIAL	X189,1000	PMP INTERVAL	00017610
INITIAL	X193,480	NO.OF *WEEKEND* NON-WORKING HOURS	00017620
INITIAL	X194,0	OVERTIME CRITERIA (NO. AIRCRAFT)	00017630
INITIAL	X190,250	PMI INTERVAL	00017640
INITIAL	X192,5	NO. OF WORKING DAYS/WEEK	00017650
INITIAL	X1526,720		00017660
INITIAL	X1527,-720		00017670
INITIAL	MX1(5,1),120960	EIGHTEEN MONTHS	00017680
INITIAL	MX1(4,6),99999	MAXIMUM FLYING HOURS	00017690
INITIAL	X199,135	TIME OF LAST DAILY, 13:30	00017700
INITIAL	X200,190	HRS CANNOT PERFORM DAILY	00017710
INITIAL	X1601,165	TIME OF END OF 1ST SHIFT	00017720
INITIAL	MX1(4,8),5	TIME TO GET PART	00017721
INITIAL	X1602,0	% INCREASE SUPPLY DELAY (0=DUMMY)	00017722
*			00017730
*	MISSION GENERATOR ROUTINE		00017740
*			00017750
*	SCHEDULED MISSION SUBROUTINE		00017760
*			00017770

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					00017780
	ZZA	GENERATE	,,2,1,50,,25,F		00017790
		SPLIT	1,DLCA,,25		00017800
		SPLIT	1,EUSIM,,65	1.27	00017801
		SPLIT	1,MPCA,,25		00017810
		SPLIT	1,FTA,,25		00017820
		SPLIT	1,DCRA,,25		00017830
		SPLIT	1,DATA,,25		00017840
		SPLIT	1,HLDY1,,25	NORA	00017841
		ASSIGN	13,11		00017850
	SMGF	ASSIGN	9+,K1		00017860
	SMGG	ADVANCE	MH*P13(*9,11)	DAILY LAUNCH SCHEDULE CHANGE	00017870
		TEST E	P9,K1,SMGT		00017880
		SPLIT	1,SACA,,25		00017890
	SMGT	ASSIGN	2,5		00017900
	SMGB	TEST GE	MH*P13(*9,V1),K1,SMGE	DAILY LAUNCH SCHEDULE CHANGE	00017910
		ASSIGN	3,MH*P13(*9,V1)	DAILY LAUNCH SCHEDULE CHANGE	00017920
		ASSIGN	4,MH*P13(*9,*2)	DAILY LAUNCH SCHEDULE CHANGE	00017930
		LOOP	2,SMGC		00017940
	SMGD	SPLIT	1,SMGH,,25		00017950
	SMGE	GATE LR	2,SMGQ		00017960
		TEST E	P9,MH*P13(1,12),SMGF	DAILY LAUNCH SCHEDULE CHANGE	00017970
		ADVANCE	MH*P13(2,12)	DAILY LAUNCH SCHEDULE CHANGE	00017980
		ASSIGN	9,K1		00017990
	SIK6	GATE LR	1	DAILY LAUNCH SCHEDULE CHANGE	00018000
		ASSIGN	13,V267	FOR DAY OF WEEK LAUNCH MATRIX	00018010
		TEST NE	MH*P13(1,12),0,SIK5	IS THERE FLYING TODAY?	00018011
		TRANSFER	,SMGG		00018020
	SMGL	SPLIT	1,SMGH,,25		00018030
		TRANSFER	,SMGB		00018040
	SMGH	GATE LR	V8,SMGQ		00018050
		GATE LR	1,SMGQ		00018060
		GATE LR	2,SMGQ		00018070
		ASSIGN	2+,K1		00018080
		ASSIGN	6,C1		00018090
		SPLIT	1,SMGR,,25		00018100
		SAVEVALUE	P4+,P3,H		00018110
	SMGN	ALTER	16,ALL,7,P6,15,1		00018120
		ALTER	16,ALL,8,*4,15,1		00018130
	SMGK	UNLINK	1,PLAB,1,11,P4,SMGJ		00018140
		LOOP	3,SMGK		00018150
	SMGQ	TERMINATE			00018160
	SMGJ	ASSIGN	1+,K1		00018170
		TEST E	P1,K6,SMGL		00018180
		TEST E	P11,K0,SMGM		00018190
		MARK	7		00018200
		ASSIGN	11,1		00018210
		ASSIGN	8,MH1(3,12)		00018220
	SMGM	ADVANCE	1		00018230
		TEST G	MP7,P8,SMGP		00018240
		UNLINK	4,ARM37,1,,ARM39		00018250
		SPLIT	1,ARM40,,60		00018260
		ASSIGN	3-,K1		00018270
	ARM39	SAVEVALUE	V5+,P3,H		00018280
		TRANSFER	,SMGQ		00018290
	SMGL	ASSIGN	4,FN1		00018300
		TRANSFER	,SMGK		00018310
	SMGP	ASSIGN	1,K0		00018320
		ASSIGN	4,MH*P13(*9,*2)	DAILY LAUNCH SCHEDULE CHANGE	00018330
		TRANSFER	,SMGN		00018340
	SMGR	ADVANCE	MH1(8,12)		00018350
		BUFFER			00018360
		LOGICS	V6		00018370
		LOGICS	19		00018380
		ADVANCE	MH1(P4,21)		00018390
		BUFFER			00018400

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29(2)

	LOGICR	V6		00018410
	LOGICR	19		00018420
	TRANSFER	,SMGQ		00018430
29(3)	SIK5	ADVANCE	240 DELAY ONE DAY IF NO LAUNCHES TODAY	00018440
	TRANSFER	,SIK6	RETURN TO LAUNCH GENERATOR NEXT DAY	00018441
	HLDY1	ADVANCE	238	NORA 00018442
	HLDY6	TEST G	RN8,52,HLDY2	NORA 00018443
	HLDY5	ADVANCE	240	NORA 00018444
	TRANSFER	,HLDY6		NORA 00018445
	HLDY2	UNLINK	1,NORA1,ALL	NORA 00018446
	TEST NE	V266,5,HLDY8		NORA 00018447
	TEST NE	V266,0,HLDY9		NORA 00018448
	ASSIGN	1,240		NORA 00018449
	HLDYA	ADVANCE	P1	NORA 00018450
	HLDY7	UNLINK	60,NORA2,ALL	NORA 00018451
	TRANSFER	,HLDY6		NORA 00018452
	HLDY8	ASSIGN	1,720	NORA 00018453
	TRANSFER	,HLDYA		NORA 00018454
	HLDY9	ASSIGN	1,480	NORA 00018455
	TRANSFER	,HLDYA		NORA 00018456
	NORA1	MARK		NORA 00018457
	LINK	60,FIFO		NORA 00018458
	NORA2	SAVEVALUE	1750+,M1	NORA 00018459
	LINK	1,FIFO		NORA 00018460
*				00018470
*	FLYING TERMINATION SUBROUTINE			00018480
*				00018490
	FTA	PRIORITY	80	00018500
	SPLIT	1,FTH,,25		00018510
	SPLIT	4,FTb,2,25		00018520
	FTb	ASSIGN	3,MH1(*2,14)	00018530
	TEST GE	P3,K1,SMGQ		00018540
	ASSIGN	4,MH1(*2,13)		00018550
	ADVANCE	V9		00018560
	FTC	LOGICS	1	00018570
	SPLIT	1,FTF,,25		00018580
	ADVANCE	P4		00018590
	UNLINK	2,SMGQ,1		00018600
	UNLINK	2,FTD,1,,,FTE		00018610
	TRANSFER	,FTG		00018620
	FTE	LOGICR	1	00018630
	FTG	ADVANCE	P3	00018640
	TRANSFER	,FTC		00018650
	FTF	LINK	2,FIFO	00018660
	FTD	TRANSFER	,FTF	00018670
	FTH	ASSIGN	1,MX1(4,6)	00018680
	TEST NL	P1,KU,SMGQ		00018690
	SPLIT	1,FTR,,25		00018700
	FTJ	TEST GE	XH11,P1,FTK	00018710
	LOGICS	2		00018720
	LOGICS	1		00018730
	TERMINATE			00018740
	FTK	ADVANCE	20	00018750
	TRANSFER	,FTJ		00018760
	FTR	SPLIT	1,FTL,,25	00018770
	SPLIT	1,FTI,,25		00018780
	SPLIT	4,FTX,11,25		00018790
	FTX	ASSIGN	5,MH1(V2,16)	00018800
	TEST GE	P9,K1,SMGQ		00018810
	ASSIGN	1,V3		00018820
	ASSIGN	6,MH1(V2,17)		00018830
	LOGICS	V7		00018840
	ADVANCE	MH1(V2,16)		00018850
	FTZ	LOGICR	V7	00018860
	ADVANCE	P6		00018870
	LOGICS	V7		00018880

	ADVANCE	P9		00018890
	GATE LR	*1,SMGQ		00018900
	TRANSFER	,FTZ		00018910
FTL	SPLIT	4,FTP,11,25		00018920
FTP	ASSIGN	9,MH1(V2,14)		00018930
	TEST GE	P9,K1,SMGQ		00018940
	ASSIGN	1,V3		00018950
	ASSIGN	8,V4		00018960
FTN	TEST GE	XH*8,P9,FTM		00018970
	LOGICS	V7		00018980
	LOGICS	*1		00018990
	TERMINATE			00019000
FTM	ADVANCE	10		00019010
	TRANSFER	,FTN		00019020
FTI	SPLIT	4,FTS,11,25		00019030
FTS	ASSIGN	9,MH1(V2,15)		00019040
	TEST GE	P9,K1,SMGQ		00019050
	LOGICS	V7		00019060
	ADVANCE	P9		00019070
	LOGICS	V7		00019080
	TERMINATE			00019090
				00019100
				00019110
				00019120
				00019130
				00019140
				00019150
				00019160
				00019170
				00019180
				00019190
				00019200
				00019210
				00019220
ZZB	GENERATE	,,1,X191,90,60,F	GENERAL	00019230
	ASSIGN	47,V10		00019240
	ASSIGN	11,1		00019250
AAA	JOIN	25		00019260
	ASSIGN	41,V11		00019270
	ASSIGN	40,V231	INITIALIZE AIRFRAME HOURS	00019280
				00019290
	ASSIGN	46,X1527	FLAG AIRCRAFT FOR DAILY	00019300
	ASSIGN	48,X1527	FLAG AIRCRAFT FOR DAILY	00019310
				00019320
				00019330
				00019340
	ASSIGN	14,N\$AAA		00019350
	JOIN	13		00019351
	MSAVEVALUE	6,25,P14,P40,H		00019360
	SAVEVALUE	17+,K1,H		00019370
	ASSIGN	15,X197	ITBO ITEMS TO BE INITIALIZED	00019380
ARM16	MSAVEVALUE	6,P14,P15,V146,H		00019390
	LOOP	15,ARM16		00019400
	JOIN	16		00019410
	JOIN	23		00019420
AAC	ASSIGN	15,1		00019430
	TEST NE	P35,999,HLH2	INSURES AGAINST A SECOND PMI	00019440
	TEST L	V147,V234,ARM17	GENERAL	00019450
	TEST L	V11,V236,ARM17	TEST FOR CALENDAR PMP	00019460
	TEST L	V148,V235,ARM19	GENERAL	00019470
HLH2	JOIN	29	THIS LOGIC IS VALID FOR	00019480
	ASSIGN	35,K0	ALL RUNS TO STOP EXTRA PMI'S	00019490
AAD	TEST NE	8V20,1,DL6		00019500
	LINK	1,FIFO		00019510
AAB	TEST NE	P26,K2,AAF		00019520
	ASSIGN	16,K0		00019530

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	AAF	PRIORITY	90	00019540
		TRANSFER	,AAC	00019550
32	ARM17	TEST G	V238,FN4,HLH2	00019560
		ASSIGN	15,K0	00019570
		JOIN	30	00019580
		ASSIGN	17,17	00019590
		SAVEVALUE	V169+,K1	00019600
		SAVEVALUE	V170+,K1	00019610
		SAVEVALUE	450+,K1	00019620
		SAVEVALUE	1050+,K1	00019630
		TRANSFER	,ARM18	00019640
	ARM19	TEST G	V238,FN4,HLH2	00019650
		ASSIGN	15,K0	00019660
		JOIN	37	00019670
		ASSIGN	17,8	00019680
		SAVEVALUE	V165+,K1	00019690
	SAVEVALUE	V166+,K1	00019700	
	SAVEVALUE	400+,K1	00019710	
	SAVEVALUE	1000+,K1	00019720	
	TRANSFER	,ARM23	00019730	
*				00019740
*				00019750
*		STANDBY AIRCRAFT SUBROUTINE		00019760
*				00019770
	SACA	PRIORITY	70	00019780
		ASSIGN	4,K0	00019790
		SPLIT	4,SACB,4,25	00019800
	SACB	ASSIGN	3,MH1(*4,15)	00019810
		GATE LR	V8,SMGQ	00019820
		TEST GE	P3,K1,SMGQ	00019830
	SACG	EXECUTE	SMGH	00019840
		ASSIGN	2,P4	00019850
	SACE	ALTER	16,ALL,8,*4,15,1	00019860
		GATE LR	1,SMGQ	00019870
		TEST L	8V3,K1,SMGQ	00019880
	SACC	UNLINK	1,PLAA,1,,,SACD	00019890
		LOOP	3,SACC	00019900
		TERMINATE		00019910
	SACD	ASSIGN	1+,K1	00019920
		TEST GE	P1,K6,SACT	00019930
		ASSIGN	4,P2	00019940
		ASSIGN	1,K0	00019950
		ADVANCE	1	00019960
		TRANSFER	,SACE	00019970
	SACF	ASSIGN	4,FN1	00019980
		TRANSFER	,SACC	00019990
	SACH	ASSIGN	4,P8	00020000
		REMOVE	32	00020010
		ASSIGN	1,K0	00020020
		ASSIGN	3,1	00020030
		TRANSFER	,SACG	00020040
	ARM40	ASSIGN	8,K1	00020050
		TRANSFER	,SACH	00020060
*				00020070
*				00020080
*				00020090
*		AIRCRAFT MAINLINE SUBROUTINE		00020100
*				00020110
*				00020120
*		PRELAUNCH LOOP		00020130
*				00020140
	PLAA	ASSIGN	16,1	00020150
	PLAB	ASSIGN	15,2	00020160
		TEST E	P16,KJ,ARM41	00020170
		SAVEVALUE	V151+,K1	00020180
		SAVEVALUE	225+,K1	00020190

	SAVEVALUE	V152+,K1	00020200
	SAVEVALUE	825+,K1	00020210
ARM41	REMOVE	29	00020220
	JOIN	28	00020230
PLAT	ASSIGN	19,K0	00020240
	ASSIGN	17,MH1(*8,16)	00020250
	TEST NE	P8,P11,PLAG	00020260
	ASSIGN	9,K1	00020270
PLAG	ASSIGN	1,MH1(*8,22)	00020280
PLAX	TEST E	P17,K1,PLAC	00020290
	TRANSFER	,*1,PLAM,PLAC	00020300
PLAC	TRANSFER	SBR,LIA,5	00020310
	TEST LE	V13,FN2,PLAK	00020320
PLAH	LOOP	17,PLAX	00020330
PLAN	ASSIGN	17,5	00020340
	ENTER	1	00020350
	ADVANCE	MH1(6,13)	00020360
	TABULATE	3	00020370
	TEST LE	V13,FN2,PLAL	00020380
PLAJ	TEST NE	P16,K1,PLAD	00020390
PLAF	ENTER	2	00020400
	GATE LS	V14	00020410
PLAQ	REMOVE	28	00020420
	MARK		00020430
	UNLINK	3,TSTHA,ALL,12,P12	00020440
	LEAVE	2	00020450
	GATE LR	V15,PLAM	00020460
	TRANSFER	,FLTA	00020470
PLAM	LEAVE	1	00020480
	TRANSFER	,AAB	00020490
PLAK	ASSIGN	19,P17	00020500
	REMOVE	28	00020510
	ASSIGN	18,PLAR	00020520
	TRANSFER	,LMA	00020530
PLAL	ASSIGN	19,P17	00020540
	REMOVE	28	00020550
	ASSIGN	18,PLAS	00020560
	TRANSFER	,CMA	00020570
PLAD	JOIN	27	00020580
	REMOVE	28	00020590
	ASSIGN	15,K37	00020600
	LINK	4,FIFU	00020610
PLAE	REMOVE	27	00020620
	ASSIGN	15,K2	00020630
	SPLIT	1,SACH,,60	00020640
	JOIN	28	00020650
	TRANSFER	,PLAF	00020660
PLAR	JOIN	28	00020670
	TRANSFER	,PLAH	00020680
PLAS	JOIN	28	00020690
	TRANSFER	,PLAJ	00020700
ARM37	ASSIGN	16,K0	00020710
	SAVEVALUE	V151+,K1	00020720
	SAVEVALUE	V152+,K1	00020730
	SAVEVALUE	225+,K1	00020740
	SAVEVALUE	825+,K1	00020750
	TRANSFER	,PLAN	00020760
			00020770
*			00020780
*			00020790
*			00020800
*			00020810
*			00020820
*	FLIGHT LOOP		00020830
*			00020840
FLTA	JOIN	26	00020850

	FLTL	TABULATE	Z		00020860
		ENTER	V14		00020870
		TEST LE	P8,K5,FLTE		00020880
		TEST LE	V13,FN3,FLTC		00020890
		SAVEVALUE	V16+,K1,M		00020900
	FLTD	ADVANCE	FN4		00020910
33		ASSIGN	40,X1527	AIRCRAFT HAS FLOWN, FLAG FOR DAILY	00020920
		TEST G	P8,K0,ARM42		00020930
		SAVEVALUE	V153+,K1		00020940
		SAVEVALUE	Z50+,K1		00020950
		SAVEVALUE	V154+,K1		00020960
		SAVEVALUE	850+,K1		00020970
		SAVEVALUE	V155+,FN4	TABULATE FLIGHT TIME	00020980
		SAVEVALUE	275+,FN4	THESE LOGIC CHANGES	00020990
		SAVEVALUE	V156+,FN4	ARE GOOD FOR ALL SUCCESSIVE	00021000
		SAVEVALUE	875+,FN4	RUNS	00021010
		ASSIGN	40+,FN4	CORRECT ERROR IN ACCOUNTING P40	00021020
	FLTH	LEAVE	V14	THIS CHANGE IS GOOD FOR ALL RUNS	00021030
		ASSIGN	10,K0		00021040
		TEST LE	P8,K5,FLTK		00021050
	FLTG	SAVEVALUE	V17+,M1,H		00021060
		SAVEVALUE	11+,M1,H		00021070
		SAVEVALUE	7+,M1		00021080
		ASSIGN	11,P8		00021090
		LEAVE	1		00021100
		PRIORITY	20,BUFFER		00021110
		PRIORITY	90		00021120
		REMOVE	20		00021130
		REMOVE	34		00021140
		TEST G	P19,5,AAB		00021150
		ASSIGN	18,AAB		00021160
		TRANSFER	,LMA		00021170
	ARM42	SAVEVALUE	V205+,K1		00021180
		SAVEVALUE	775+,K1		00021190
		SAVEVALUE	V207+,FN4	GENERALIZE ACCOUNTING OF	00021200
		SAVEVALUE	800+,FN4	TEST HOP FLIGHT HOURS	00021210
		SAVEVALUE	V204+,K1		00021220
		SAVEVALUE	1375+,K1		00021230
		SAVEVALUE	V206+,FN4	THIS CHANGE IS GOOD FOR ALL	00021240
		SAVEVALUE	1400+,FN4	SUBSEQUENT RUNS	00021250
		ASSIGN	40+,FN4	ACCOUNT FOR TEST HOPS ON P40	00021260
		TRANSFER	,FLTH		00021270
	FLTC	TEST LE	V13,FN5,FLTJ		00021280
		ASSIGN	19,6		00021290
		TRANSFER	,FLTD		00021300
	FLTJ	ASSIGN	19,7		00021310
		TRANSFER	.999,FLTF,FLTE		00021320
	FLTF	UNLINK	4,FLTB,1,8,P8		00021330
	FLTE	ADVANCE	V18		00021340
34		ASSIGN	40,X1527	AIRCRAFT HAS FLOWN, FLAG FOR DAILY	00021350
				FOLLOWING CHANGE GOOD FOR ALL RUNS	00021360
		TEST G	P8,K0,HLH3	ROUTE ABORTED TEST HOPS	00021370
		TEST L	V147,V234,HLH21	GENERAL-ROUTINE INSURES	00021380
		TEST L	V11,V236,HLH21		00021390
		TEST L	V148,V235,HLH21	AGAINST DOING AN	00021400
		TRANSFER	,HLH22	EXTRA PMI ON AN	00021410
	HLH21	ASSIGN	35,999	ABORT,RIGHT AFTER A	00021420
	HLH22	SAVEVALUE	V208+,K1	PMI.GOOD FOR ALL RUNS.	00021430
		SAVEVALUE	V209+,K1		00021440
		SAVEVALUE	V210+,V18	GENERALIZE ACCOUNTING OF	00021450
		SAVEVALUE	V211+,V18	ABORTED FLIGHT TIME	00021460
		SAVEVALUE	1450+,K1		00021470
		SAVEVALUE	1500+,K1	CHANGES ARE GOOD FOR	00021480
		SAVEVALUE	1475+,V18	ALL SUBSEQUENT RUNS	00021490
		SAVEVALUE	1398+,V18	ALL SUBSEQUENT RUNS	00021500
		ASSIGN	40+.V18	ACCOUNT FOR ABORTED HRS ON A/C	00021510

	TRANSFER	,FLTH	CHANGES GOOD FOR ALL RUNS	00021520
HLH3	SAVEVALUE	198+,K1	# OF ABORTED TEST HOPS	00021530
	ASSIGN	40+,V18	GENERALIZE	00021540
	TEST L	V147,V234,HLH5	ACCOUNTING	00021550
	TEST L	V11,V236,HLH5		00021560
	TEST L	V148,V235,HLH5	ON ABORTED	00021570
	TRANSFER	,FLTH	TEST HOPS	00021580
HLH5	ASSIGN	35,K999		00021590
	TRANSFER	,FLTH		00021600
FLT8	SPLIT	1,SACH,,60		00021610
	ADVANCE	MH1(7,13)		00021620
	ASSIGN	46,V237		00021630
	ASSIGN	40+,MH1(7,13)		00021640
	MARK			00021650
	ASSIGN	8+,K6		00021660
	TRANSFER	,FLTA		00021670
TSTHP	ASSIGN	8,K0		00021680
	GATE LR	1,AAB		00021690
	JOIN	34		00021700
	MARK	6		00021710
	ENTER	1		00021720
	GATE LS	19		00021730
	SPLIT	1,TSTHB,,60		00021740
	LINK	3,FIFO		00021750
TSTHB	TEST E	BV2,G,TSTHC		00021760
	ADVANCE	V19		00021770
TSTHC	UNLINK	3,TSTHA,ALL		00021780
	TERMINATE			00021790
TSTHA	MARK			00021800
	TRANSFER	,FLTL		00021810
UNLK	TRANSFER	P,21		00021820
FLTK	ASSIGN	8-,K6		00021830
	TRANSFER	,FLTG		00021840
*				00021850
*				00021860
*	POST FLIGHT LOOP			00021870
*				00021880
PFAG	TEST E	P19,K0,PFAP		00021890
PFAE	TEST E	BV2,K1,PFAA		00021900
	ASSIGN	17,K12		00021910
	JOIN	28		00021920
	ASSIGN	10,K2		00021930
	TRANSFER	SBR,LIA,5		00021940
	REMOVE	28		00021950
	TEST LE	V13,FN2,PFAD		00021960
PFAC	TRANSFER	,AAB		00021970
PFAF	ASSIGN	18,PFAE		00021980
	TRANSFER	,CMA		00021990
PFAA	ASSIGN	18,AAB		00022000
PFAU	ASSIGN	17,11		00022010
	JOIN	35		00022020
	TRANSFER	SBR,LIA,5		00022030
	REMOVE	35		00022040
	TRANSFER	P,18		00022050
PFAD	ASSIGN	19,12		00022060
	ASSIGN	16,K0		00022070
	ASSIGN	15,PFAC		00022080
	TRANSFER	,CMA		00022090
*				00022100
*				00022110
*				00022120
*				00022130
*	PREVENTIVE MAINTENANCE ROUTINE			00022140
*				00022150
*				00022160
*	DAILY INSPECTION SUBROUTINE			00022170

*					00022180
	ULCA	PRIORITY	40		00022190
		ASSIGN	2, MX1(1,3)		00022200
		TEST GE	P2, K1, SMOU		00022210
		ADVANCE	MX1(1,2)		00022220
	ARM36	ASSIGN	3, X192		00022230
*				CH-47C	00022240
	ULCB	GATE LR	1, ULCC		00022250
	DLCD	UNLINK	1, DLB, ALL		00022260
		UNLINK	4, DLA, ALL		00022270
		ASSIGN	14, KO		00022280
	ULCE	ADVANCE	P2		00022290
		LOOP	3, DLCB		00022300
		ADVANCE	X193		00022310
*			ON THIS CARD FOR OTHER THAN A 7 DAY WLEK USE ADVANCE 480		00022320
		TRANSFER	AKM36		00022330
		TRANSFER	ULCB		00022340
	ULCC	ASSIGN	14, K1		00022350
		TEST E	V21, KO, DLCE		00022360
		TRANSFER	DLCD		00022370
	DLA	ASSIGN	16, KO		00022380
		REMOVE	27		00022390
		LEAVE	1		00022400
		ASSIGN	19, KO		00022410
		TEST GE	V239, X1526, DLB2	TEST FOR DAILY	00022420
		TEST G	BV11, KO, DLB2	TEST TO SEE IF DAILY CAN BE DONE	00022430
		MARK	46		00022440
		MARK	48	MARK TIME OF LAST DAILY	00022450
		ASSIGN	17, 16		00022460
		REMOVE	29		00022470
		ASSIGN	16, KO		00022480
		ASSIGN	15, 2		00022490
		TRANSFER	DLH		00022500
		LINK	1, FIFU		00022510
	DLB2	ASSIGN	17, K16		00022520
	ULM	TABULATE	18	TIME DAILY PERFORMED	00022525
		TABULATE	19	NUMBER OF DEFERRED MA'S	00022530
		TEST LE	P24, MX1(4, 10), RLARA		00022540
		JOIN	33		00022550
		TRANSFER	SBR, LIA, 5		00022560
	ULD	ADVANCE	KO		00022570
		REMOVE	33		00022580
		TEST GE	V148, V235, DLC	LOGIC CHANGE TO FLAG AIRCRAFT	00022590
		ASSIGN	35, 999	THAT HAVE JUST HAD A PMI	00022600
		TEST G	V13, FN2, AAB		00022610
		ASSIGN	19, P17		00022620
		ASSIGN	18, AAB		00022630
		TRANSFER	CMA		00022640
*					00022650
*					00022660
*			LINE MAINTENANCE SUBROUTINE		00022670
*					00022680
	LIA	QUEUE	P17		00022690
		ASSIGN	22, V23		00022700
		ASSIGN	2, V24		00022710
		TEST NE	P22, KO, LMM		00022720
		MARK			00022730
		ENTER	V26		00022740
		QUEUE	V27		00022750
	LMI	GATE LR	20, LMB		00022760
	LNF	ASSIGN	3, V28		00022770
		ASSIGN	4, KO		00022780
	LMD	TEST GE	R*3, P22, LMG		00022790
		DEPART	V27		00022800
		DEPART	P17		00022810
		ENTER	*3, P22		00022820

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	ASSIGN	23, FN7		00J23490
	ASSIGN	2, K0		00023500
	SPLIT	1, PMCF, ,60		00023510
	QUEUE	P17		00023520
	ENTER	V26		00023530
	DEPART	P17		00023540
	SPLIT	1, PMCG, ,60		00023550
	SPLIT	1, PMCR, ,60		00023560
PMCM	ASSEMBLE	13		00023570
	PRIORITY	90		00023580
	LEAVE	V26		00023590
	TABULATE	3		00023600
	REMOVE	30		00023610
	REMOVE	37		00023620
	TEST NE	P17, K17, PMCZ		00023630
	TEST E	P17, KB, ARM33		00023640
ARM33	SPLIT	1, REEG		00023650
	TEST LE	V13, FN2, HLH1	PUT IN LOGIC TO	00023660
	ASSIGN	27, K0	DETECT FAILURES AT	00023670
	TEST E	P24, K0, RLARA	PMI AND DO AWAY WITH TEST HOPS	00023680
	TRANSFER	, AAB	AFTER PMI. GOOD FOR ALL RUNS	00023690
PMCAA	TEST LE	V13, FN2, PMCS		00023700
	TEST E	P24, K0, PMCT		00023710
	TRANSFER	, ARRG		00023720
HLH1	ASSIGN	19, P17	CHANGES TO ALLOW FOR	00023730
	ASSIGN	25, K1	UNSCHEDULED MAINTENANCE	00023740
	ASSIGN	27, K0	AT PMI, AND TO DO AWAY WITH TEST	00023750
	TRANSFER	, CMA	HOPS. GOOD FOR ALL RUNS	00023760
PMCZ	SPLIT	1, REAA, ,60		00023770
	TRANSFER	, PMCAA		00023780
PMCS	ASSIGN	19, P17		00023790
	ASSIGN	25, K1		00023800
	ASSIGN	27, K1		00023810
	TRANSFER	, CMA		00023820
PMCT	ASSIGN	27, K1		00023830
	TRANSFER	, RLARA		00023840
PMCF	LINK	27, FIFO		00023850
PMCG	ADVANCE	MX1(1, V32)		00023860
	UNLINK	27, SMGQ, 1, 14, P14		00023870
	TRANSFER	, PMCM		00023880
PMCR	SPLIT	10, PMCU, 2, 60		00023890
PMCU	ASSIGN	3, MX1(V33, *2)		00023900
	TEST GE	P3, K1, PMCM		00023910
	ASSIGN	4, MX1(V34, *2)		00023920
	TEST E	P17, K8, ARM34		00023930
	SAVEVALUE	V167+, V36		00023940
	SAVEVALUE	V168+, V36		00023950
	SAVEVALUE	425+, V36		00023960
	SAVEVALUE	1025+, V36		00023970
PMCV	QUEUE	V27		00023980
PMCH	GATE LR	20, PMCJ		00023990
	ASSIGN	7, V28		00024000
	ASSIGN	20, V35		00024010
	ASSIGN	55, PMCV	10.23.74	00024020
	TEST G	P20, 0, PMCN1	10.23.74	00024030
	ASSIGN	8, 1		00024040
PMCK	TEST GE	R*7, P3, PMCL		00024050
PMCD	TEST LE	P4, P20, PMCN		00024060
PMCQ	DEPART	V27		00024070
	ENTER	*7, P3		00024080
	ADVANCE	P4		00024090
	LEAVE	*7, P3		00024100
	UNLINK	P7, UNLK, ALL		00024110
	MSAVEVALUE	2+, P2, P17, V36		00024120
	SAVEVALUE	V37+, V36		00024130
	SAVEVALUE	32+, V36		00024140

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	TEST E	P26,KO,PMCP		00024150
	TRANSFER	,PMCM		00024160
ARM34	TEST L	P17,K17,PMCV		00024170
	SAVEVALUE	V171+,V36		00024180
	SAVEVALUE	V172+,V36		00024190
	SAVEVALUE	475+,V36		00024200
	SAVEVALUE	1075+,V36		00024210
	TRANSFER	,PMCV		00024220
PM CJ	ASSIGN	7,V27		00024230
	ASSIGN	8,KO		00024240
	ASSIGN	20,V38		00024250
	TRANSFER	,PMCK		00024260
PMCN	ASSIGN	22,V39		00024270
	ASSIGN	4,P20		00024280
	ASSIGN	26,K1		00024290
	TEST E	P4,KO,PMCU		00024300
	DEPART	V27		00024310
PMCP	ASSIGN	4,P22		00024320
	PRIORITY	1,BUFFER		00024330
	PRIORITY	20		00024340
	ASSIGN	26,KO		00024350
	TRANSFER	,PMCV		00024360
PMCL	LINK	P7,P23		00024370
ARM24	SPLIT	1,ARM20		00024380
	TRANSFER	,ARM21		00024390
PMCN1	ADVANCE		10.23.74	00024400
	TEST E	P55,PMCV,QTEST	10.23.74	00024410
DEPQ	DEPART	V27	10.23.74	00024420
	PRIORITY	90	10.23.74	00024430
	ADVANCE	MX3(3,3)	10.23.74	00024440
	PRIORITY	20	10.23.74	00024450
RETUR	TRANSFER	P,55	10.23.74	00024460
FIRST	PRIORITY	1,BUFFER	10.23.74	00024470
	PRIORITY	20	10.23.74	00024480
	TRANSFER	,RETUR	10.23.74	00024490
QTEST	TEST E	P55,UNSK,QTT1	10.23.74	00024500
	DEPART	25	10.23.74	00024510
	TRANSFER	,DEPQ	10.23.74	00024520
QTT1	DEPART	44	10.23.74	00024530
	TRANSFER	,DEPW	10.23.74	00024540
*				00024550
*	TIME CHANGE	OVERHAUL ,RETIREMENT SUBROUTINE		00024560
*				00024570
*				00024580
ARM20	ASSIGN	22,MM6(27,P12)		00024590
	MSAVEVALUE	0,*14,*12,V150,H		00024600
	ASSIGN	12,1		00024610
	ASSIGN	6,9		00024620
	ASSIGN	25,K1359		00024630
	ASSIGN	17,19		00024640
	MSAVEVALUE	5+,V46,*6,K1,H		00024650
	SAVEVALUE	V175+,K1		00024660
	SAVEVALUE	525+,K1		00024670
	SAVEVALUE	V176+,K1		00024680
	SAVEVALUE	1125+,K1		00024690
	TRANSFER	,MPAA		00024700
*				00024710
*				00024720
*				00024730
*				00024740
*	FAILURE	DETERMINATION ROUTINE		00024750
*				00024760
CMA	ASSIGN	2,FNY		00024770
	TABULATE	4		00024780
	TEST LE	P2,K10,FDA NEEDED TO ENSURE PROPER SAVEVALUES		00024790
*		WHEN GREATER THAN 10 MMS ARE FOUND		00024800

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*			00024810	
*			00024820	
FDA	SAVEVALUE	V40+,K1,H	00024830	
	ASSIGN	24+,K1	00024840	
	ASSIGN	3, FN15	00024850	
	TABULATE	5	00024860	
	TABULATE	6	00024870	
	SAVEVALUE	V173+,K1	00024880	
	SAVEVALUE	500+,K1	00024890	
	SAVEVALUE	V174+,K1	00024900	
	SAVEVALUE	1100+,K1	00024910	
	SAVEVALUE	V41+,K1,H	00024920	
	ASSIGN	4,K23	00024930	
	SAVEVALUE	1,RN2	00024940	
	ASSIGN	5, FN22	00024950	
	MSAVEVALUE	2,2,1,0,H	00024960	
FDB	ASSIGN	22,V42	00024970	
	TEST NE	P5,K1,ARM54	00024980	
	MSAVEVALUE	2+,2,1, FN*4,H	00024990	
ARM55	TEST LE	X1, MH2(2,1), FDU	00025000	
	TABULATE	7	00025010	
	SPLIT	1, FDK, ,60	00025020	
	TEST E	P19,K7, FDL	00025030	
	ASSIGN	19,6	00025040	
FDC	ASSIGN	25,K1	00025050	
FDF	LOOP	2, FUA	00025060	
	TEST E	P25,K1, FDN	00025070	
	TEST E	BV18,1, KLARA	00025080	
	UNLINK	+, ARM37,1,,, ARM38	00025090	
	SPLIT	1, ARM40, ,60	00025100	
ARM38	TEST E	P19,K5, RLARA	00025110	
	SAVEVALUE	33+,K1	00025120	
	TRANSFER	, RLARA	00025130	
FUD	LOOP	5, FUB	00025140	
FDL	TEST E	P19,K5, FDP	00025150	
	TEST G	RN3, FN30, FDC	00025160	
FUR	GATE LS	1, FDF	00025170	
	TRANSFER	, FDC	00025180	
FON	TEST NE	P27,K1, FDM	00025190	
	ASSIGN	25,K0	00025200	
	ASSIGN	19,K0	00025210	
	TRANSFER	P,18	00025220	
FUK	LINK	32, FIFO	00025230	
ARM54	MSAVEVALUE	2,2,1,999,H	00025240	
	TRANSFER	, ARM55	00025250	
FDM	ASSIGN	27,K0	00025260	
	TEST E	P35,999, ARM56	00025270	
	ASSIGN	35,0	00025280	
	TRANSFER	, TSTHP	00025290	
FUP	TEST L	RN3, V135, FDF	00025300	
	TRANSFER	, FDC	00025310	
ARM56	TEST L	V147, V234, ARM17	GENERAL	00025320
	TEST L	V11, V236, ARM17		00025330
	TEST L	V148, V235, ARM19	GENERAL	00025340
	TRANSFER	, TSTHP		00025350
*			00025360	
*			00025370	
*			00025380	
*			00025390	
*	REPAIR LOCATION AND RESPOT SUBROUTINE		00025400	
*			00025410	
RLARA	JOIN	32	00025420	
	TEST E	P19,K5, RLARB	00025430	
	LEAVE	1	00025440	
RLARB	TEST E	P16,K1, RLARC	00025450	
	SPLIT	1, SACH, ,60	00025460	

42	RLARC	TEST E	BV1,K1,RLARD	00025470
		ASSIGN	18,RLARK	00025480
		TRANSFER	,PFAB	00025490
	RLARD	MARK		00025500
	RLARK	TEST E	BV2,K1,RLARE	00025510
		TEST E	BV7,K0,RLARE	00025520
		ASSIGN	18,V44	00025530
		TEST L	P18,MX1(4,2),RLARL	00025540
		ASSIGN	18,MX1(4,2)	00025550
	RLARL	ADVANCE	P18	00025560
		SAVEVALUE	34+,M1	00025570
	RLARE	PRIORITY	80,BUFFER	00025580
		PRIORITY	90	00025590
		UNLINK	32,USMA,ALL,14,P14,AAB	00025600
		ASSIGN	20,K123	00025610
		ASSIGN	24+,K1	00025620
		REMOVE	32	00025630
		SPLIT	1,RLARH,,60	00025640
		TRANSFER	,ARRA	00025650
	KLARH	PRIORITY	110,BUFFER	00025660
		SPLIT	1,RLARG,,60	00025670
	RLARF	JOIN	32	00025680
		ASSEMBLE	P24	00025690
		SAVEVALUE	V187+,M1	00025700
		SAVEVALUE	625+,M1	00025710
		SAVEVALUE	V186+,M1	00025720
		SAVEVALUE	1225+,M1	00025730
		SAVEVALUE	35+,M1	00025740
		SAVEVALUE	V195+,M1	00025750
		SAVEVALUE	675+,M1	00025760
		SAVEVALUE	V194+,M1	00025770
		SAVEVALUE	1275+,M1	00025780
		SCAN	40,14,P14,,,RLARM	00025790
		REMOVE	32	00025800
		JOIN	31	00025810
	RLARN	MATCH	RLARP	00025820
		TERMINATE		00025830
	RLARG	JOIN	40	00025840
		ASSEMBLE	P24	00025850
		SAVEVALUE	36+,M1	00025860
		REMOVE	40	00025870
	RLARP	MATCH	RLARN	00025880
		JOIN	32	00025890
	RLARQ	MATCH	ARRJ	00025900
	RLARM	TERMINATE		00025910
	*			00025920
	*			00025930
	*			00025940
	*			00025950
	*			00025960
	*	REPAIR PART ASSESSMENT SUBROUTINE		00025970
	*			00025980
	USMA	PRIORITY	60,BUFFER	00025990
43		MARK		00026000
		ASSIGN	18,K0	00026010
		ASSIGN	25,V45	00026020
	RPAB	TEST NE	P25,999,RPAA IF 999 THEN R+R 12.18.74	00026029
		TRANSFER	.#25,RPAD,RPAA 12.18.74	00026030
	RPAA	ADVANCE	MX1(4,8)	00026040
		ASSIGN	25,K1359	00026050
		MSAVEVALUE	5+,V46,2,1,M	00026060
44		SAVEVALUE	175+,K1	00026070
		TEST LE	RN1, FN38, NORCA 11.12.74	00026080
	RPAC	TRANSFER	,MPAA	00026090
	RPAD	MSAVEVALUE	5+,V46,1,1,M	00026100
		SAVEVALUE	176+,K1	00026110

*				00026120
*				00026130
*		MANPOWER ASSESSMENT SUBROUTINE		00026140
*				00026150
	MPAA	ASSIGN	1,K3	00026160
	MPAB	TEST E	P25,K1359,ARM1 REMOVE AND REPLACE?	00026170
		ASSIGN	V47, FN71 ASSIGN W.C. FOR REMOVE AND REPLACE	00026180
45		ASSIGN	V51, FN41 ASSIGN MANPOWER REMOVE AND REPLACE	00026190
		TRANSFER	,ARM2	00026200
	ARM1	ASSIGN	V47, FN39 ASSIGN W.C. UN AIRCRAFT REPAIR	00026210
	ARM2	ASSIGN	V51, FN55 ASSIGN MANPOWER UN AIRCRAFT REPAIR	00026220
		GROUP	1,MPAB	00026230
*				00026240
*				00026250
*		MTIR SUBROUTINE		00026260
*				00026270
	ARM3	TEST E	P25,K1359,ARM4	00026280
	MTKA	ASSIGN	4,V55	00026290
		TRANSFER	,ARM5	00026300
	ARM4	ASSIGN	4,V13B	00026310
	ARM5	TABULATE	8	00026320
46		TEST L	P4,K1,GSEA 12.12.74 WAS K2	00026330
		ASSIGN	4,K1 12.12.74 WAS K2	00026340
*				00026350
*		GSE SUBROUTINE		00026360
*				00026370
	GSEA	TRANSFER	,UNSA	00026380
	GSEB	ASSIGN	1,V57	00026390
		ADVANCE	P1	00026400
		SAVEVALUE	37+,P1	00026410
*				00026420
*				00026430
*				00026440
*				00026450
*		UNSCHEDULED MAINTENANCE ROUTINE		00026460
*				00026470
	UNSA	TEST NE	P17,K19,ARM25	00026480
		ASSIGN	17,K23	00026490
	ARM25	TEST E	P27,K0,UNSB	00026500
	UNSJ	ASSIGN	3,P24	00026510
		ASSIGN	2,P26	00026520
		ASSIGN	26,K0	00026530
	UNSK	QUEUE	V27	00026540
		QUEUE	25	00026550
	UNSE	GATE LR	20,UNSC	00026560
		ASSIGN	7,V28	00026570
		ASSIGN	20,V35	00026600
47		ASSIGN	55,UNSK 10.23.74	00026601
		TEST G	P20,G,PMCNI 10.23.74	00026602
		ASSIGN	8,1	00026610
	UNSD	TEST GE	R*7,P3,UNSP	00026620
		TEST LE	P4,P20,UNSF	00026630
	UNSG	DEPART	V27	00026640
		DEPART	25	00026650
		ENTER	*7,P3	00026660
		ADVANCE	P4	00026670
		TEST NE	BV17,K1,ARM14	00026680
	ARM15	LEAVE	*7,P3	00026690
		UNLINK	P7,UNLK,ALL	00026700
		MSAVEVALUE	2+,P2,P17,V36	00026710
		TEST NE	P17,K19,ARM10	00026720
	ARM61	SAVEVALUE	V58+,V36	00026730
		SAVEVALUE	49+,V36	00026740
		SAVEVALUE	V189+,V36	00026750
		SAVEVALUE	575+,V36	00026760
		SAVEVALUE	V190+,V36	00026770

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ARRA ASSIGN 10,C1 1.27 00027440
GATHER P24 1.27 00027450
ASSIGN 10,U 1.27 00027451
PRIORITY 90,BUFFER 00027452
TEST NE P20,K123,ARRB 00027460
48 * *****DELETED TEST NE P8,K0,ARRB THERE IS NO 2ND SHIFT 00027470
TEST E FN44,L,ARRB 00027480
49 TRANSFER 0057,ARRB,ARRH CH-548 DATA 2.3.75 00027490
ARRH LOGICS 21 00027500
ARRB ASSEMBLE P24 00027510
ARRJ MATCH KLAHQ 00027520
ASSIGN 19,K0 00027530
ASSIGN 24,K0 00027540
ASSIGN 20,K0 00027550
ASSIGN 25,K0 00027560
ASSIGN 16,K0 00027570
ARRC TABULATE 9 00027580
SAVEVALUE 188+,V60 00027590
TEST E P27,K1,ARRD 00027600
ASSIGN 27,K0 00027610
TRANSFER ,ARRE 00027620
ARRU GATE LS 21,ARRF 00027630
ARRE LOGICK 21 00027640
TEST NE P35,999,ARRG 00027650
TEST L V147,V234,ARM17 GENERAL 00027660
TEST L V11,V236,ARM17 00027670
TEST L V148,V235,ARM19 GENERAL 00027680
ARRG ASSIGN 17,2 00027690
MARK 44 00027700
ASSIGN 8,K0 00027710
TRANSFER SBR,LIA,5 00027720
TEST LE V13,FN2,AARH 00027730
ASSIGN 35,U 00027740
TRANSFER ,TSTHP 00027750
ARRF GATE LR 1,AAB 00027760
TEST NE P17,K16,AAB 00027770
TEST E BV11,K1,AAB 00027780
TEST GE MX1(1,3),K1,AAB GENERAL 00027790
TRANSFER ,DLB 00027800
AARH ASSIGN 27,K1 00027810
ASSIGN 19,2 00027820
TRANSFER ,CMA 00027830
*
*
*
*
* NURS/CANNIBALIZATION ROUTINE
*
50 NORCA TEST LE RN6,FN46,NORA 11.12.74 00027840
ASSIGN 1,V61 00027850
TABULATE 10 00027860
ASSIGN 18,K1 00027870
SPLIT 1,RLARF,,25 00027880
ADVANCE P1 00027890
TEST E BV19,K1 TEST FOR PREVENTING OFF SHIFT MAINT. 00027900
SAVEVALUE V232+,M1 00027910
SAVEVALUE 1425+,M1 00027920
SPLIT 1,RLARG,,25 00027930
TRANSFER ,MPAA 00027940
NORCB SPLIT 1,NORCD 00027950
TRANSFER ,NORCE 00027960
NORCD ADVANCE P1 00027970
TRANSFER ,CAND 00027980
NORA ASSIGN 23,74 00027990
TEST E V62,CH2K 00028000

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	TEST E	W\$NORL,KO		00028080
	ASSIGN	1,KO		00028090
	GATE LS	22,NORC		00028100
	GATE LR	23		00028110
	SCAN	12,14,P14,,,NORM		00028120
	SPLIT	1,NORT,,,60		00028130
	SPLIT	1,NORS,,,60		00028140
	SPLIT	1,RLARF,,,60		00028150
	TRANSFER	,NORJ		00028160
CAND	ASSIGN	17,K22		00028170
	TRANSFER	,CANP		00028180
NORT	UNLINK	28,NORL,1,14,P14		00028190
NORG	PRIORITY	110		00028200
NORN	JOIN	11		00028210
NORH	LINK	29,FIFO		00028220
NORM	LOGICS	23		00028230
	TEST E	W\$NURL,KO		00028240
NORB	UNLINK	28,CANA,1,,,NORE		00028250
	SAVEVALUE	75,KO,H		00028260
	SAVEVALUE	*23,P22,H		00028270
	GATE LS	24		00028280
	LOGICR	24		00028290
	TEST E	XH75,KO,NORB		00028300
	ASSIGN	1,XH76		00028310
	UNLINK	29,CANB,1,14,P1		00028320
	BUFFER			00028330
NORLE	TABULATE	11		00028340
	MSAVEVALUE	5+,V46,2,K1,H		00028350
	LOGICK	23		00028360
	ASSIGN	19,K14		00028370
	TABULATE	0		00028380
	ASSIGN	1,K5431		00028390
	ASSIGN	3,V54		00028400
	ASSIGN	2,V270		00028410
	ASSIGN	4,V55		00028420
	TEST E	V269,0,SIK1	FOR 2ND W.C.	00028421
	TEST L	P4,K1,CANE	12.12.74 WAS K5	00028430
	ASSIGN	4,K1	12.12.74 WAS K5	00028440
	QUEUE	V27		00028450
	QUEUE	44		00028460
CANM	GATE LR	20,CANF		00028470
	ASSIGN	7,V28		00028480
	ASSIGN	20,V35		00028510
	ASSIGN	55,CANE	10.23.74	00028511
	TEST G	P20,0,PHCN1	10.23.74	00028512
	ASSIGN	8,K1		00028520
CANG	TEST GE	R*7,P3,CANJ		00028530
	TEST LE	P4,P20,CANL		00028540
CANK	DEPART	V27		00028550
	DEPART	44		00028560
	ENTLR	*7,P3		00028570
	ADVANCE	P4		00028580
	LEAVE	*7,P3		00028590
	UNLINK	P7,UNLK,ALL		00028600
	ASSIGN	17,24		00028610
	MSAVEVALUE	2+,P2,P17,V36		00028620
	SAVEVALUE	V63+,V36		00028630
	SAVEVALUE	61+,V36		00028640
	MSAVEVALUE	5+,V46,2,V36		00028650
	TEST E	P26,KO,CANM		00028660
	TEST NE	P5,K9999,CANN	FOR 2ND W.C.	00028661
	TEST E	P1,K5431,CANN		00028670
	TRANSFER	,MPAA		00028680
NURS	ASSIGN	18,K1		00028690
	TABULATE	10		00028700
	LINK	30,EJEU		00028710

NURC	LOGICS	22	00028720
NURD	TABULATE	10	00028730
	SPLIT	1,NURG,,60	00028740
	SPLIT	1,NLARF,,00	00028750
	SPLIT	1,NURJ,,00	00028760
	ASSIGN	18,K1	00028770
NURL	PRIORITY	10,BUFFER	00028780
	ASSIGN	2,MX,(1,P14)	00028790
	JOIN	12	00028800
NURF	LINK	28,P2	00028810
NURE	LOGICK	23	00028820
	BUFFER		00028830
	TRANSFER	,NURU	00028840
CANB	SPLIT	1,NORN,,60	00028850
	ASSIGN	22,XH*23	00028860
	SPLIT	1,NURN,,60	00028870
NURJ	PRIORITY	50	00028880
	ASSIGN	1,V61	00028890
	ASSIGN	3,V64	00028900
	TEST E	P3,MX,(1,P14),NURK	00028910
	SAVEVALUE	4,1,*14,*3	00028920
NURK	ADVANCE	P1	00028930
	ASSIGN	19,K15	00028940
	TABULATE	6	00028950
	TABULATE	12	00028960
	GATE LR	25	00028970
	TEST E	V62,CH28	00028980
	LOGICS	25	00028990
	SAVEVALUE	62,P22	00029000
	UNLINK	28,NURP,ALL	00029010
	GATE LR	25	00029020
	GATE LS	20,CAND	00029030
	LOGICK	26	00029040
CANN	TERMINATE		00029050
CANL	LOGICS	24	00029060
	TEST E	P22,XH*23,NURH	00029070
	SAVEVALUE	75,K1,H	00029080
	TRANSFER	,NURH	00029090
NURQ	JOIN	10	00029100
	GATE LR	27	00029110
	GATE LS	28,NORR	00029120
	TEST E	P22,X62,NORR	00029130
	LOGICK	28	00029140
	TERMINATE		00029150
NGRR	REMOVE	10	00029160
	PRIORITY	110	00029170
	TRANSFER	,NURH	00029180
CANA	ASSIGN	24,XH*23	00029190
	UNLINK	29,CANC,ALL,14,P14	00029200
	SAVEVALUE	76,P14,H	00029210
	PRIORITY	110,BUFFER	00029220
	GATE LR	23	00029230
	TRANSFER	,NORL	00029240
NURP	GATE LS	25,NORF	00029250
	LOGICS	27	00029260
	UNLINK	29,NORQ,ALL,14,P14	00029270
	BUFFER		00029280
	SCAN	10,22,X62,,NORU	00029290
	LOGICS	28	00029300
	LOGICK	27	00029310
	LOGICK	25	00029320
	TEST E	G10,K1,NORF	00029330
	ASSIGN	22,X62	00029340
NORM	LOGICS	26	00029350
	TEST E	BV19,K1 TEST FOR PREVENTING OFF SHIFT MAINT.	00029360
	SAVEVALUE	63+-M1	00029370

	SAVEVALUE	V232+,M1	THESE SAVEVALUES SHOULD ACCOUNT	00029380
	SAVEVALUE	1425+,M1	FOR MORS BY A/C + CO.	00029390
	UNLINK	30,NURX,ALL,14,P14		00029400
	REMOVE	12		00029410
NORX	SPLIT	1,RLARG		00029420
	TRANSFER	,MPAA		00029430
NURU	LOGICR	27		00029440
	GATE LR	25		00029450
	TRANSFER	,NORF		00029460
CANF	ASSIGN	7,V27		00029470
	ASSIGN	20,V38		00029480
	ASSIGN	8,KO		00029490
	TRANSFER	,CANG		00029500
CANJ	ASSIGN	23,FM7		00029510
	ASSIGN	21,CANH		00029520
	LINK	P7,P23		00029530
CANL	ASSIGN	19,V39		00029540
	ASSIGN	4,P20		00029550
	ASSIGN	26,K1		00029560
	TEST E	P4,KO,CANK		00029570
	DEPART	V27		00029580
	DEPART	44		00029590
	PRIORITY	1,BUFFER		00029600
	PRIORITY	90		00029610
CANM	ASSIGN	4,P19		00029620
	ASSIGN	26,KO		00029630
	TRANSFER	,CANE		00029640
	SIRI	SPLIT 1,SIR3,,60	FOR 2ND W.C.	00029641
		TRANSFER ,SIR4	FOR 2ND W.C.	00029642
	SIKS	ASSIGN 5,K9999	FUR 2ND W.C.	00029643
		ASSIGN 3,V53	FUR 2ND W.C.	00029644
		ASSIGN 2,V209	FUR 2ND W.C.	00029645
		TRANSFER ,SIR4	FUR 2ND W.C.	00029646
EDSIM	ADVANCE	V245		1.27 00029647
	ASSIGN	14,X191		1.27 00029648
ALNUM	JOIN	13		1.27 00029650
	SCAN E	13,14PF,PF14,10PF,10PF,HER		1.27 00029651
	TEST NE	P10,U,HER		1.27 00029652
	SAVEVALUE	1060+,V243		1.27 00029653
	SAVEVALUE	V244+,V243		1.27 00029654
HER	LOOP	14,ALNUM		1.27 00029655
	TERMINATE			1.27 00029656
*				00029660
*				00029670
*				00029680
*	SERVICE PLATOON, DIRECT SUPPORT, GENERAL SUPPORT COMP REPAIR			00029690
*				00029700
IMAH	ASSIGN	0,K6		00029710
	TRANSFER	,IMAG		00029720
IMAA	ASSIGN	4,V05		00029730
	TABULATE	13		00029740
	TABULATE	14		00029750
	TEST LE	V139,KN3,ARM6		00029760
	TEST LE	V140,KN1,ARM7		00029770
	TEST NE	V66,KO,IMAH		00029780
	TEST L	P4,KO,IMAB		00029790
	ASSIGN	4,K6		00029800
IMAB	QUEUE	45		00029810
IMAC	GATE SNF	FN49,IMAD		00029820
	DEPART	45		00029830
	ENTER	FN49		00029840
	ASSIGN	32,V07		00029850
	QUEUE	V08		00029860
IMAF	TEST GE	R*32,P31,IMAE		00029870
	DEPART	V08		00029880
	ENTER	*32,P31		00029890

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	SAVEVALUE	V69+,V70	00029900
	SAVEVALUE	75+,V70	00029910
	ADVANCE	P4	00029920
	LEAVE	FN49	00029930
	LEAVE	*32,P31	00029940
	UNLINK	31,IMAC,ALL	00029950
	UNLINK	55,IMAF,ALL,32,P32	00029960
	ASSIGN	6,K3	00029970
	SAVEVALUE	77,RN7,H	00029980
	TEST L	XH77,V71,ARM45	00029990
	ASSIGN	0+,K3	00030000
	TEST G	XH77,V72,ARM46	00030010
	ASSIGN	0-,K2	00030020
	TEST G	XH77,V73,ARM47	00030030
	ASSIGN	6+,K1	00030040
	SAVEVALUE	182+,K1	00030050
IMAG	MSAVEVALUE	5+,V46,*6,K1,H	00030060
	MSAVEVALUE	5+,V46,*6,V70	00030070
	SAVEVALUE	V193+,V70	00030080
	SAVEVALUE	650+,V70	00030090
	SAVEVALUE	V192+,V70	00030100
	SAVEVALUE	1250+,V70	00030110
	TEST E	P6,K6,SM6Q	00030120
DEPA	TABULATE	15	00030130
	TERMINATE		00030140
ARM45	SAVEVALUE	179+,K1	00030150
	TRANSFER	,IMAG	00030160
ARM46	SAVEVALUE	180+,K1	00030170
	TRANSFER	,ARM26	00030180
ARM47	SAVEVALUE	181+,K1	00030190
	TRANSFER	,ARM26	00030200
ARM6	ASSIGN	12,	00030210
	PRIORITY	0	00030220
	ASSIGN	29,,P31	00030230
	ASSIGN	30,K0	00030240
	TEST E	P28,K5,ARM8	00030250
	ASSIGN	26,K2	00030260
ARM9	ASSIGN	27,0	00030270
	ASSIGN	17,16	00030280
	ASSIGN	6,7	00030290
	SAVEVALUE	177+,K1	00030300
	MSAVEVALUE	5+,V46,*6,K1,H	00030310
	TRANSFER	,UNSJ	00030320
ARM8	ASSIGN	20,3	00030330
	TRANSFER	,ARMY	00030340
IMAD	LINK	31,FIFU	00030350
IMAE	LINK	55,FIFU	00030360
ARM7	ASSIGN	32,V141	00030370
	QUEUE	V142	00030380
ARM13	TEST GE	R*32,P31,ARM12	00030390
	DEPART	V142	00030400
	ENTER	*32,P31	00030410
	SAVEVALUE	V143+,V70	00030420
	SAVEVALUE	107+,V70	00030430
	ADVANCE	F4	00030440
	LEAVE	*32,P31	00030450
	UNLINK	57,ARM13,ALL,32,P32	00030460
	ASSIGN	6,8	00030470
	SAVEVALUE	178+,K1	00030480
	TRANSFER	,IMAG	00030490
ARM12	LINK	57,FIFU	00030500
ARM26	ASSIGN	12,24	00030510
ARM27	TEST NE	P22,MM6(27,*12),ARM28	00030520
	LOOP	12,ARM27	00030530
	TRANSFER	,IMAG	00030540
ARM28	SPLIT	1,ARM27,0000	00030550

	TRANSFER	,IMAG	00030560
AKM29	TEST E	P6,MH6(26,*12),SMGW	00030570
	MSAVEVALUE	6,*14,*12,V150,H	00030580
	TERMINAL		00030590
*			00030600
*			00030610
*			00030620
*			00030630
*	MANPOWER CONTROL ROUTINE		00030640
*			00030650
*			00030660
*	SHIFT TERMINATION SUBROUTINE		00030670
*			00030680
MPCA	PRIORITY	100	00030690
	SPLIT	1,MPC E,,25	00030700
	SPLIT	3,MPC B,2,25	00030710
MPCB	ASSIGN	3,MX3(*2,2)	00030720
	TEST GE	P5,K1,SMGW	00030730
	ASSIGN	5,MX3(*2,3)	00030740
	ADVANCE	V74	00030750
MPCN	ASSIGN	1,K31	00030760
	SPLIT	22,MPC X,1,25	00030770
MPC C	LOGICS	29	00030780
	SPLIT	1,MPC U,,25	00030790
	ADVANCE	P5	00030800
	UNLINK	56,SMGW,1,13	00030810
	UNLINK	56,MPC F,1,13,,MPC G	00030820
	ADVANCE	P3	00030830
	TRANSFER	,MPC C	00030840
MPC X	TEST L	R*1,K900,SMGW	00030850
	TEST E	S*1,KU,MPC JA	00030860
MPC L	ASSIGN	11,R*1	00030870
	ENTER	*1,P11	00030880
	GATE LR	29	00030890
	LEAVE	*1,P11	00030900
	TERMINATE		00030910
MPC K	ASSIGN	15,V76	00030920
	ASSIGN	8,P15	00030930
MPC JB	SPLIT	1,MPC L,,25	00030940
	ASSIGN	21,MPC M	00030950
	ASSIGN	23,K1	00030960
	LINK	P1,P23	00030970
MPC D	LINK	56,FIFO	00030980
MPC F	TRANSFER	,MPC D	00030990
MPC M	TEST E	P8,R*1,MPC K	00031000
	TRANSFER	,MPC L	00031010
MPC G	LOGICR	29	00031020
	ADVANCE	P3	00031030
	UNLINK	56,MPC F,1,13,,MPC N	00031040
	TRANSFER	,MPC C	00031050
MPC JA	ASSIGN	8,S*1	00031060
	TRANSFER	,MPC JB	00031070
*			00031080
*			00031090
*	SHIFT CHANGE SUBROUTINE		00031100
*			00031110
MPC E	ASSIGN	3,MX3(1,1)	00031120
	ASSIGN	2,MX3(2,1)	00031130
	ADVANCE	MX3(1,4)	00031140
MPC J	LOGICI	20	00031150
	GATE LR	30,MPC AA	00031160
	LOGICI	30	00031170
	ASSIGN	4,11	00031180
MPC AB	UNLINK	V77,UNLK,ALL	00031190
	LOOP	4,MPC AB	00031200
MPC AD	ADVANCE	P3	00031210

	TRANSFER	,MPCJ		00031220
MPCAA	LOGICI	30		00031230
	ASSIGN	4,11		00031240
MPCAC	UNLINK	V78,UNLK,ALL		00031250
	LOOP	4,MPCAC		00031260
	ADVANCE	P2		00031270
	ADVANCE	V145		00031280
	TRANSFER	,MPCJ		00031290
*				00031300
*				00031310
*	DATA COMPILATION ROUTINE			00031320
*				00031330
DCRA	ASSIGN	3,MX1(5,1)		00031340
	PRIORITY	1,6BUFFER		00031350
	ADVANCE	V9	RUN TIME MINUS 2	00031370
	SAVEVALUE	1,6,11,V84		00031400
	ASSIGN	5,11		00031410
ARM35	ASSIGN	1,V178		00031420
	ASSIGN	2,V179		00031430
	ASSIGN	3,V180		00031440
	ASSIGN	4,V181		00031450
	SAVEVALUE	V177+,V182		00031460
	SAVEVALUE	V188+,V182		00031470
	LOOP	5,ARM35		00031480
	SAVEVALUE	550+,V183		00031490
	SAVEVALUE	1150+,V183		00031500
	ASSIGN	6,K1		00031510
	ASSIGN	1,526		00031520
	ASSIGN	2,551		00031530
	ASSIGN	3,251		00031540
	ASSIGN	4,776		00031550
	ASSIGN	5,1451		00031560
ARM44	ASSIGN	7,V212		00031570
	SAVEVALUE	V193,V213		00031580
	TEST E	P6,X191,ARM43		00031590
	SAVEVALUE	650,V214		00031600
	SAVEVALUE	183,V215		00031610
	ASSIGN	2,699		00031620
	ASSIGN	3,1424	ESTABLISH SAVEVALUE NOS. FOR NORS /AVAIL.	00031630
	ASSIGN	1,674		00031640
ARM49	SAVEVALUE	*2,V216		00031650
	ASSIGN	2-,K1		00031660
	ASSIGN	3-,K1	SET UP SAVE NOS FOR NORS TO CALC. AVAIL	00031670
	TEST NE	P1,651,ARM48		00031680
	LOOP	1,ARM49		00031690
	TERMINATE			00031700
ARM48	SAVEVALUE	700,V217		00031710
	ASSIGN	1,226		00031720
	ASSIGN	2,1426		00031730
	ASSIGN	3,201		00031740
	ASSIGN	4,701		00031750
ARM50	SAVEVALUE	*4,V219		00031760
	TEST NE	P4,724,ARM51		00031770
	ASSIGN	1+,1		00031780
	ASSIGN	2+,1		00031790
	ASSIGN	3+,1		00031800
	ASSIGN	4+,1		00031810
	TRANSFER	,ARM50		00031820
ARM51	SAVEVALUE	725,V220		00031830
	ASSIGN	1,226		00031840
	ASSIGN	2,201		00031850
	ASSIGN	3,726		00031860
ARM52	SAVEVALUE	*3,V218		00031870
	TEST NE	P3,736,ARM53		00031880
	ASSIGN	1+,1		00031890
	ASSIGN	2+,1		00031900

	ASSIGN	3+,1	00031910
	TRANSFER	,AKM52	00031920
AKM53	SAVEVALUE	750,V221	00031930
	ASSIGN	2,K11	00031940
DCRB	ASSIGN	3,MX1(6,P2)	00031950
	TEST GE	P3,K1,DCRC	00031960
	ASSIGN	17,25	00031970
	MSAVEVALUE	2+,P2,P17,P3	00031980
	SAVEVALUE	26+,P3	00031990
	SAVEVALUE	V30+,P3	00032000
DCRC	LOOP	2,DCRB	00032010
	TEST E	MX1(5,8),K0,DCRE	00032020
DCRD	UNLINK	27,REAA,ALL	00032030
	UNLINK	28,REAB,ALL	00032040
DCRE	BUFFER		00032050
	ASSIGN	2,25	00032060
DCRG	ASSIGN	3,K14	00032070
DCRF	ASSIGN	5,MX2(*3,*2)	00032080
	MSAVEVALUE	2+,15,*2,*5	00032090
	LOOP	3,DCRF	00032100
	LOOP	2,DCRG	00032110
REED	TRANSFER	,RELA	00032120
ARM43	ASSIGN	1+,K1	00032130
	ASSIGN	2+,K1	00032140
	ASSIGN	3+,K1	00032150
	ASSIGN	4+,K1	00032160
	ASSIGN	5+,K1	00032170
	ASSIGN	6+,K1	00032180
	TRANSFER	,ARM44	00032190
KEEA	SAVEVALUE	185,V229	00032200
	SAVEVALUE	186,V230	00032210
	TERMINATE	1	00032230
REAA	ASSIGN	2,K3	00032240
	ASSIGN	3,MX1(5,7)	00032250
	MSAVEVALUE	2+,4,17,P3	00032260
	SAVEVALUE	V37+,P3	00032270
	SAVEVALUE	32+,P3	00032280
REEG	SAVEVALUE	90+,M1	00032290
	SAVEVALUE	187+,M1	00032300
	SAVEVALUE	V185+,M1	00032310
	SAVEVALUE	600+,M1	00032320
	SAVEVALUE	V184+,M1	00032330
	SAVEVALUE	1200+,M1	00032340
	SAVEVALUE	V195+,M1	00032350
	SAVEVALUE	675+,M1	00032360
	SAVEVALUE	V194+,M1	00032370
	SAVEVALUE	1275+,M1	00032380
	TERMINATE		00032390
REAB	TABULATE	9	00032400
	SAVEVALUE	36+,M1	00032410
	SAVEVALUE	63+,M1	00032420
	TERMINATE		00032430
PMCB	TERMINATE		00032440
DATA	PRIORITY	0	00032450
	ADVANCE	K60	00032460
DATA1	ASSIGN	2,K4	00032470
DATA2	ADVANCE	230	00032480
	TEST E	V224,K0,DATA4	00032490
DATA3	ADVANCE	K10	00032500
	LOOP	2,DATA2	00032510
	ADVANCE	K710	00032520
	TEST E	V224,K0,DATA6	00032530
DATA5	ADVANCE	K10	00032540
	TRANSFER	,DATA1	00032550
DATA4	SAVEVALUE	188-,V225	00032560
	SAVEVALUE	187-,V227	00032570

	TRANSFER	DATA3	00032580
DATA6	SAVEVALUE	188-,V226	00032590
	SAVEVALUE	187-,V228	00032600
	TRANSFER	DATA5	00032610
	RMULT	,,,,,,31	00032620
	START	1,,,1	00032630
	REPORT		00032640
	EJECT		00032654
	SPACE	3	00032660
57	TEXT	ARMY R + M SIMULATION MODEL	00032670
57	TEXT	-----	00032680
	SPACE	2	00032690
2	TEXT	SCENARIO SIMULATED	00032700
	SPACE	1	00032710
4	TEXT	ONE PLATOON OF NINE CH-54B ARMY HELICOPTERS	00032720
	SPACE	1	00032730
4	TEXT	FLYING PROGRAM CONSISTED OF FIVE FLYING DAYS PER WEEK	00032740
	SPACE	1	00032760
4	TEXT	MISSION LENGTH IS 1.8 HOURS	00032770
	SPACE	1	00032790
4	TEXT	LAUNCH SCHEDULE DURING EACH FLYING DAY	00032800
6	TEXT		00032810
6	TEXT		00032820
6	TEXT		00032830
6	TEXT		00032840
6	TEXT		00032850
	SPACE	1	00032860
4	TEXT	OTHER FLIGHT CONSIDERATIONS	00032870
	SPACE	1	00032871
6	TEXT	STANDBY AIRCRAFT READY AT ALL TIMES DURING THE SCHEDULED FLYING INTERVALS.	00032880
	SPACE	1	00032890
6	TEXT	MISSION FLIGHT IS POSSIBLE UP TO THIRTY MINUTES AFTER SCHEDULED FLIGHT TIME. AFTER THIS INTERVAL, FLIGHT IS SCRUBBED.	00032900
	SPACE	2	00032920
2	TEXT	MAINTENANCE CONCEPT SIMULATED	00032930
	SPACE	1	00033000
4	TEXT	PREVENTIVE MAINTENANCE DAILY (PMD) INSPECTIONS OCCUR DAILY IF THE AIRCRAFT HAS FLOWN OR EVERY 72 HOURS IF NOT FLYING.	00033010
	SPACE	1	00033020
4	TEXT	INTERMEDIATE MAINTENANCE INSPECTIONS OCCUR EVERY 25 HOURS.	00033031
	SPACE	1	00033032
4	TEXT	PERIODIC MAINTENANCE INSPECTIONS OCCUR EVERY 100 HOURS.	00033033
	SPACE	2	00033035
4	TEXT	MAINTENANCE PERSONNEL ARE AVAILABLE BETWEEN 0830 AND 1630 DURING THE FIVE DAY FLYING PERIOD PER WEEK.	00033036
	SPACE	1	00033040
	SPACE	1	00033050
	SPACE	1	00033060
	SPACE	1	00033090
4	TEXT	THE AIRCRAFT CONSISTS OF 296 ELEMENTS. THERE ARE 21 TIME CHANGE COMPONENTS.	00033100
	SPACE	1	00033110
4	TEXT	ORGANIZATIONAL MAINTENANCE INCLUDES AN INTEGRATED DIRECT SUPPORT MAINTENANCE CAPABILITY.	00033120
	SPACE	1	00033170
4	TEXT	OFF EQUIPMENT COMPONENT MAINTENANCE IS DUMMIED OUT.	00033180
	SPACE	1	00033190
4	TEXT	CONDEMNATION OR BRITS STATUS IS DUMMIED OUT.	00033200
	SPACE	1	00033240
4	TEXT	NUKS AND CANNIBALIZATION ROUTINE IS ACTIVE.	00033241
	SPACE	2	00033242
2	TEXT	EVALUATION THIS SIMULATION RUN:	00033250
	SPACE	1	00033260
10	TEXT	BASIC CH-54B MISSION AND MAINTENANCE PHILOSOPHY	00033270
10	TEXT		00033271

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	SPACE	1					00033272
10	TEXT						00033273
	SPACE	1					00033274
	EJECT						00033280
19	TEXT		MISSION				00033290
	SPACE	1					00033300
19	TEXT		INFORMATION				00033310
*			-----				00033320
	SPACE	3					00033330
10	TEXT	AIRCRAFT	MISSIONS		MISSIONS		*00033340
	MISSION						00033350
10	TEXT	TAIL NUMBER	CALLED		FLOWN		*00033360
	FLYING HOURS						00033370
	SPACE	3					00033380
10	TEXT	1	#X201,2/XXX#		#X226*	00033390	
	,2/XXX#	#X251,2/1LXXX.X#				00033400	
*						00033410	
	SPACE	3					00033420
10	TEXT	2	#X202,2/XXX#		#X227*	00033430	
	,2/XXX#	#X252,2/1LXXX.X#				00033440	
	SPACE	3					00033450
10	TEXT	3	#X203,2/XXX#		#X228*	00033460	
	,2/XXX#	#X253,2/1LXXX.X#				00033470	
	SPACE	3					00033480
10	TEXT	4	#X204,2/XXX#		#X229*	00033490	
	,2/XXX#	#X254,2/1LXXX.X#				00033500	
	SPACE	3					00033510
10	TEXT	5	#X205,2/XXX#		#X230*	00033520	
	,2/XXX#	#X255,2/1LXXX.X#				00033530	
	SPACE	3					00033540
10	TEXT	6	#X206,2/XXX#		#X231*	00033550	
	,2/XXX#	#X256,2/1LXXX.X#				00033560	
	SPACE	3					00033570
10	TEXT	7	#X207,2/XXX#		#X232*	00033580	
	,2/XXX#	#X257,2/1LXXX.X#				00033590	
	SPACE	3					00033600
10	TEXT	8	#X208,2/XXX#		#X233*	00033610	
	,2/XXX#	#X258,2/1LXXX.X#				00033620	
	SPACE	3					00033630
10	TEXT	9	#X209,2/XXX#		#X234*	00033640	
	,2/XXX#	#X259,2/1LXXX.X#				00033650	
10	TEXT					*00033660	
						00034120	
	SPACE	2					00034130
10	TEXT	TOTALS	#X225,2/XXXX#		#X250*	00034140	
	,2/XXXX#	#X275,2/1LXXX.X#				00034150	
	EJECT					00034160	
19	TEXT		SCHEDULED			00034170	
	SPACE	1					00034180
19	TEXT		INSPECTION INFORMATION				00034190
*			-----				00034200
	SPACE	3					00034210
4	TEXT	AIRCRAFT	PREFLIGHT	PREFLIGHT	DAILY		*00034220
	DAILY	PM1	PM1	PMP	PMP		00034230
4	TEXT	TAIL	NUMBER OF	MAINT.	NUMBER OF		*00034240
	MAINT.	NUMBER OF	MAINT	NUMBER OF	MAINT		00034250
4	TEXT	NUMBER	INSPECTION	MAN HRS.	INSPECTION		*00034260
	MAN HRS.	INSPECTION	MAN HRS.	INSPECTION	MAN HR		00034270
	SPACE	3					00034280
3	TEXT	1	#X276,2/XXX#		#X301,2/2LXXX.X		*00034290
X#	#X326,2/XXX#	#X351,2/2LXXX.XX#				00034300	
78	TEXT	#X376,2/XXX#		#X401,2/2LXXX.XX#		#X*	00034310
	,2/XXX#	#X451,2/2LXXX.XX#				00034320	
	SPACE	3					00034330
3	TEXT	2	#X277,2/XXX#		#X302,2/2LXXX.X		*00034340
X#	#X327,2/XXX#	#X352,2/2LXXX.XX#				00034350	

10	TEXT	#X311,2/XXXX#	#X402,2/2LXXX.XX#	#X*00034360
427,2/XXX#	SPACE	#X452,2/2LXXX.XX#		00034370
3	TEXT	3	#X278,2/XXX#	#X303,2/2LXXX.XX*00034390
X#	#X328,2/XXX#	#X353,2/2LXXX.XX#		00034400
78	TEXT	#X578,2/XXX#	#X403,2/2LXXX.XX#	#X*00034410
428,2/XXX#	SPACE	3	#X453,2/2LXXX.XX#	00034420
3	TEXT	4	#X279,2/XXX#	#X304,2/2LXXX.XX*00034440
X#	#X529,2/XXX#	#X354,2/2LXXX.XX#		00034450
78	TEXT	#X379,2/XXX#	#X404,2/2LXXX.XX#	#X*00034460
429,2/XXX#	SPACE	3	#X454,2/2LXXX.XX#	00034470
3	TEXT	5	#X280,2/XXX#	#X305,2/2LXXX.XX*00034490
X#	#X330,2/XXX#	#X355,2/2LXXX.XX#		00034500
78	TEXT	#X580,2/XXX#	#X405,2/2LXXX.XX#	#X*00034510
430,2/XXX#	SPACE	3	#X455,2/2LXXX.XX#	00034520
3	TEXT	6	#X281,2/XXX#	#X306,2/2LXXX.XX*00034540
X#	#X331,2/XXX#	#X356,2/2LXXX.XX#		00034550
78	TEXT	#X581,2/XXX#	#X406,2/2LXXX.XX#	#X*00034560
431,2/XXX#	SPACE	3	#X456,2/2LXXX.XX#	00034570
3	TEXT	7	#X282,2/XXX#	#X307,2/2LXXX.XX*00034590
X#	#X332,2/XXX#	#X357,2/2LXXX.XX#		00034600
78	TEXT	#X382,2/XXX#	#X407,2/2LXXX.XX#	#X*00034610
432,2/XXX#	SPACE	3	#X457,2/2LXXX.XX#	00034620
3	TEXT	8	#X283,2/XXX#	#X308,2/2LXXX.XX*00034640
X#	#X333,2/XXX#	#X358,2/2LXXX.XX#		00034650
78	TEXT	#X383,2/XXX#	#X408,2/2LXXX.XX#	#X*00034660
433,2/XXX#	SPACE	3	#X458,2/2LXXX.XX#	00034670
3	TEXT	9	#X284,2/XXX#	#X309,2/2LXXX.XX*00034690
X#	#X334,2/XXX#	#X359,2/2LXXX.XX#		00034700
78	TEXT	#X384,2/XXX#	#X409,2/2LXXX.XX#	#X*00034710
434,2/XXX#	SPACE	3	#X459,2/2LXXX.XX#	00034720
16	TEXT			-----*00035490
				00035500
*				00035510
*				00035520
4	TEXT	TOTALS	#X300,2/XXX#	#X325,2/2LXXX.XX*00035540
#	#X350,2/XXX#	#X375,2/2LXXX.XX#		00035550
78	TEXT	#X400,2/XXX#	#X425,2/2LXXX.XX#	#X*00035560
450,2/XXX#	SPACE	3	#X475,2/2LXXX.XX#	00035570
	EJECT			00035580
	SPACE	3		00035590
19	TEXT		MAINTENANCE	00035600
	SPACE	1		00035610
19	TEXT		INFORMATION	00035620
	SPACE	3		00035630
4	TEXT	AIRCRAFT	NUMBER OF MAINT ACTIONS	MAINTENANC*00035640
E MAN	HOURS	ELAPSED MAINT	DOWNTIME	00035650
4	TEXT	TOTAL		00035660
4	TEXT	NUMBER	UNSCHEDULED SCHEDULED	UNSCHEDE*00035670
U	SCHEDULED	UNSCHEDULED	SCHEDULED	00035680
	SPACE	3		00035690
5	TEXT	1	#X476,2/XXX#	#X501,2/XXX#
	#X551,2/2LXXX.XX#	#X526,2/2LXXX.XX#		00035700
77	TEXT	#X601,2/1LXXX.XX#	#X576,2/1LXXX.XX#	00035720
	SPACE	3		00035730
5	TEXT	2	#X477,2/XXX#	#X502,2/XXX#
	#X552,2/2LXXX.XX#	#X527,2/2LXXX.XX#		00035740
77	TEXT	#X602,2/1LXXX.XX#	#X577,2/1LXXX.XX#	00035760
	SPACE	3		00035770
5	TEXT	3	#X478,2/XXX#	#X503,2/XXX#
				*00035780

		#X553,2/2LXXXX.XX#	#X528,2/2LXXXX.XX#			00035790
77	TEXT	#X603,2/1LXXXX.XX#	#X578,2/1LXXXX.XX#			00035800
	SPACE	3				00035810
5	TEXT	4	#X479,2/XXXX#	#X504,2/XXXX#		*00035820
		#X554,2/2LXXXX.XX#	#X529,2/2LXXXX.XX#			00035830
77	TEXT	#X604,2/1LXXXX.XX#	#X579,2/1LXXXX.XX#			00035840
	SPACE	3				00035850
5	TEXT	5	#X480,2/XXXX#	#X505,2/XXXX#		*00035860
		#X555,2/2LXXXX.XX#	#X530,2/2LXXXX.XX#			00035870
77	TEXT	#X605,2/1LXXXX.XX#	#X580,2/1LXXXX.XX#			00035880
	SPACE	3				00035890
5	TEXT	6	#X481,2/XXXX#	#X506,2/XXXX#		*00035900
		#X556,2/2LXXXX.XX#	#X531,2/2LXXXX.XX#			00035910
77	TEXT	#X606,2/1LXXXX.XX#	#X581,2/1LXXXX.XX#			00035920
	SPACE	3				00035930
5	TEXT	7	#X482,2/XXXX#	#X507,2/XXXX#		*00035940
		#X557,2/2LXXXX.XX#	#X532,2/2LXXXX.XX#			00035950
77	TEXT	#X607,2/1LXXXX.XX#	#X582,2/1LXXXX.XX#			00035960
	SPACE	3				00035970
5	TEXT	8	#X483,2/XXXX#	#X508,2/XXXX#		*00035980
		#X558,2/2LXXXX.XX#	#X533,2/2LXXXX.XX#			00035990
77	TEXT	#X608,2/1LXXXX.XX#	#X583,2/1LXXXX.XX#			00036000
	SPACE	3				00036010
5	TEXT	9	#X484,2/XXXX#	#X509,2/XXXX#		*00036020
		#X559,2/2LXXXX.XX#	#X534,2/2LXXXX.XX#			00036030
77	TEXT	#X609,2/1LXXXX.XX#	#X584,2/1LXXXX.XX#			00036040
16	TEXT					*00036060
						00036070
4	TEXT	TOTALS	#X500,2/XXXX#	#X525,2/XXXX#		*00036090
		#X575,2/2LXXXX.XX#	#X550,2/2LXXXX.XX#			00036700
77	TEXT	#X625,2/1LXXXX.XX#	#X600,2/1LXXXX.XX#			00036710
	EJECT					00036720
	SPACE	3				00036730
19	TEXT		AIRCRAFT			00036740
	SPACE	1				00036750
19	TEXT		CHARACTERISTICS			00036760
*						00036770
	SPACE	2				00036780
4	TEXT	AIRCRAFT	DIRECT	NOT	NOT	*00036790
		AVAILABILITY				00036800
4	TEXT	TAIL	MAINT. MAN	OPERATIONALLY	OPERATIONA	*00036810
LLY						00036820
4	TEXT	NUMBER	HOURS PER	READY-	READY-	*00036830
	UP TIME/	MISSIONS FLOWN/	FLIGHT HR.	MISSIONS COMP/	SUPPLY	00036840
4	TEXT	MISSIONS CALLED		MAINTENANCE		*00036850
	TOTAL TIME			MISSIONS CALLED		00036860
*						*00036870
						00036880
	SPACE	2				00036890
5	TEXT	1	#X626,2/2LXX.XX#	#X651,2/1LXXXX.		*00036900
X#		#X1401,2/1LXXXX.XX#	#X676,2/2LXX.XX#			00036910
76	TEXT	#X701,2/2LXXX.XX#	#X726,2/2LXXX.XX#			00036920
	SPACE	2				00036930
5	TEXT	2	#X627,2/2LXX.XX#	#X652,2/1LXXXX.		*00036940
X#		#X1402,2/1LXXXX.XX#	#X677,2/2LXX.XX#			00036950
76	TEXT	#X702,2/2LXXX.XX#	#X727,2/2LXXX.XX#			00036960
	SPACE	2				00036970
5	TEXT	3	#X628,2/2LXX.XX#	#X653,2/1LXXXX.		*00036980
X#		#X1403,2/1LXXXX.XX#	#X678,2/2LXX.XX#			00036990
76	TEXT	#X703,2/2LXXX.XX#	#X728,2/2LXXX.XX#			00037000
	SPACE	2				00037010
5	TEXT	4	#X629,2/2LXX.XX#	#X654,2/1LXXXX.		*00037020
X#		#X1404,2/1LXXXX.XX#	#X679,2/2LXX.XX#			00037030
76	TEXT	#X704,2/2LXXX.XX#	#X729,2/2LXXX.XX#			00037040
	SPACE	2				00037050
5	TEXT	5	#X630,2/2LXX.XX#	#X655,2/1LXXXX.		*00037060

X#		#X1405,2/1LXXXX.X#	#X680,2/2LXX.XX#	00037070
76	TEXT	#X705,2/2LXXX.XX#	#X730,2/2LXXX.XX#	00037080
	SPACE	2		00037090
5	TEXT	6	#X631,2/2LXX.XX# #X656,2/1LXXXX.X#	*00037100
X#		#X1406,2/1LXXXX.X#	#X681,2/2LXX.XX#	00037110
76	TEXT	#X706,2/2LXXX.XX#	#X731,2/2LXXX.XX#	00037120
	SPACE	2		00037130
5	TEXT	7	#X632,2/2LXX.XX# #X657,2/1LXXXX.X#	*00037140
X#		#X1407,2/1LXXXX.X#	#X682,2/2LXX.XX#	00037150
76	TEXT	#X707,2/2LXXX.XX#	#X732,2/2LXXX.XX#	00037160
	SPACE	2		00037170
5	TEXT	8	#X633,2/2LXX.XX# #X658,2/1LXXXX.X#	*00037180
X#		#X1408,2/1LXXXX.X#	#X683,2/2LXX.XX#	00037190
76	TEXT	#X708,2/2LXXX.XX#	#X733,2/2LXXX.XX#	00037200
	SPACE	2		00037210
5	TEXT	9	#X634,2/2LXX.XX# #X659,2/1LXXXX.X#	*00037220
X#		#X1409,2/1LXXXX.X#	#X684,2/2LXX.XX#	00037230
76	TEXT	#X709,2/2LXXX.XX#	#X734,2/2LXXX.XX#	00037240
10	TEXT	-----		*00037250
				00037260
4	TEXT	TOTALS	#X650,2/2LXX.XX# #X675,2/1LXXXX.X#	*00037280
X.X#		#X1425,2/1LXXXX.X#	#X700,2/2LXX.XX#	00037290
77	TEXT	#X725,2/2LXX.XX#	#X750,2/2LXX.XX#	00037300
	EJECT			00037310
	SPACE	3		00037320
30	TEXT	PLATOON STATISTICS		00037330
	SPACE	3		00037340
15	TEXT	TOTAL FLYING HOURS	#X183,2/1LX*	00037350
XXX.X#				00037360
	SPACE	2		00037370
18	TEXT	FLYING HOURS-COMPLETED MISSIONS	#X275,2/1LX*	00037380
XXX.X#				00037390
	SPACE	1		00038000
18	TEXT	FLYING HOURS-ABORTED MISSIONS	#X1475,2/1L*	00038010
XXX.X#				00038020
	SPACE	1		00038030
18	TEXT	FLYING HOURS-TEST HOPS	#X800,2/1LX*	00038040
XXX.X#				00038050
	SPACE	3		00038060
15	TEXT	THE SERVICE PLATOON PERFORMED #X176,2/XXX# UN AIRCRAF	*00038070	
T REPAIRS.				00038080
	SPACE	2		00038090
15	TEXT	THE SERVICE PLATOON ALSO REMOVED AND REPLACED #X175,2*	00038100	
/XXX# PARTS LN THE AIRCRAFT.				00038110
	OUTPUT			00038290
	END			00038300

APPENDIX V

FACTORIAL APPROACH TO SIMULATION MODEL SENSITIVITY ANALYSIS

The factorial approach incorporated into this study is a powerful method of optimizing the number of test simulation runs to provide the output statistics required for analysis.

The purposes of this appendix are to give the statistical background upon which the factorial analysis is based and to provide the tables and statistical evidence of significant effects observed in other output parameters studied and referred to in the main body of this report.

The first step is to develop an independent estimate of simulation or experimental error. Table III in this appendix and Table VIII in the main body of the report, show four separate computer runs under identical conditions, except that the random number seed was changed. The variation, or simulation error, associated with operational availability was computed from these four runs by the following formula:

$$\text{Variance} = \frac{\sum (x_i - \bar{x})^2}{N - 1}$$

where x_i is the individual observations, \bar{x} is the mean of the observations, and N is the number of observations.

Therefore, the variance associated with the output statistic of operational availability is

$$\frac{(55.98 - 56.62)^2 + (58.48 - 56.62)^2 + (54.06 - 56.62)^2 + (57.95 - 56.62)^2}{4 - 1}$$

$$\frac{.410 + 3.460 + 6.554 + 1.769}{3} = \frac{12.193}{3} = 4.06$$

The second step is to see if the variation that occurs when a factor level is changed is consistent with this simulation variation, in which case there is no reason to believe that the change in the level of the factor produced any change in the output value. If the variation that occurs when a factor level is changed is significantly larger than the simulation variation, then there is sufficient statistical evidence to conclude that the change in the level of the factor has caused the observed change in the output parameter.

Consider the change in NORS level vs. the observed change in operational availability as shown in the following case. Note that these values are the ones recorded in Table XII.

TABLE XII. FACTORIAL ANALYSIS WORKSHEET FOR OPERATIONAL AVAILABILITY

x ₁	x ₂	x ₃	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
			Avail. Values	Effects Isolated	Value of Each Effect	Effect Nomenclature			
Low NORS (-)	Low Fail. Rate (-)	Low Util. (-)	70.63	485.21	60.65	Average Response	23425.59		
			60.99	-36.63	-9.16	X ₁ (NORS) Effect	157.72		
			66.90	-25.57	-6.39	X ₂ (F.R.) Effect	81.73		
			54.97	-3.05	-0.76	X ₁ x ₂ Interaction	1.46		
			65.46	-21.77	-5.14	X ₃ (Util.) Effect	59.14		
			58.31	6.51	1.63	X ₁ x ₃ Interaction	5.10		
			57.93	-6.07	-1.52	X ₂ x ₃ Interaction	4.51		
			50.02	1.53	.38	X ₁ x ₂ x ₃ Interaction	.39		
Reported Center Points			55.98	57.95	Mean = 56.62%	St. Dev. = 2.016	(3 Degrees of Freedom)		
Critical Values For F _{1,3} is 10.1 for α = .05			Variance For Center Points = (2.016) ² = 4.06						

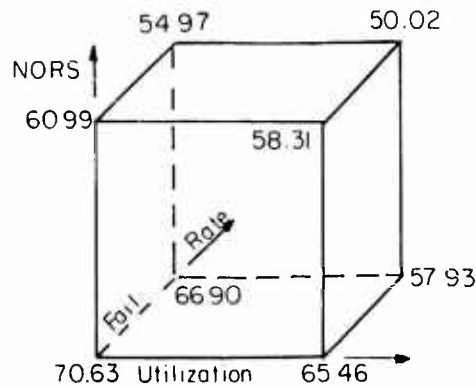


Figure 8. Observed Operational Availability Values

The Yates algorithm shown in Table XII is simply a mathematical procedure to facilitate the computation of effects. Using the availability values shown in Table XII and illustrated in Figure 8, the average effect on changing NORS level is

$$\frac{(60.99 - 70.63) + (54.97 - 66.90) + (58.31 - 65.46) + (50.02 - 57.93)}{4}$$

$$= \frac{-36.63}{4} = -9.16\% \text{ in operational availability}$$

Now the variation associated with this estimate is

$$\frac{(36.63)^2}{8} = 167.72$$

If there is no real change in operational availability caused by the change in NORS level, then this variability reflects simply the variability associated with simulation error, i.e., it is simply another estimate of simulation error.

The distribution generated by taking the quotient of two independent estimates of the same simulation error is given by the F distribution. The appropriate F distribution is dependent on the number of degrees of freedom associated with the numerator estimate and the denominator estimate.

Table XII shows that eight test points were used in generating the eight mean square values. There are eight separate bits of information used in the analysis; therefore, the data contains eight degrees of freedom. There are eight independent mean square outputs; therefore, there is one degree of freedom associated with each. In the case of the independent estimate of simulation error, there are four bits of data and therefore four degrees of freedom associated with the data; one is associated with estimating the

mean, \bar{x} , and the other three are associated with the estimate of error.

The NORS effect shows a variation value of 167.72 with $df = 1$, and the simulation variation value is 4.06 with $df = 3$. The $F_{1,3}$ distribution shows that at the $\alpha = .05$ level of significance, given two independent estimates of the same error, the quotient of these two estimates should not exceed 10.1.

$$\frac{167.72}{4.06} = 41.31$$

Since this exceeds 10.1, we must conclude that the deviation or difference observed in operational availability when changing from a low to a high level of NORS is not simply a manifestation of simulation error, but in actuality is a true effect caused by this change in NORS level. The best estimate of this change is a -9.16% in operational availability.

The factorial analyses are performed for the following computer output values. Significant effects are asterisked in the table showing the factorial analyses, and these effects are summarized and discussed in the main body of the report.

- 1) Unscheduled Elapsed Maintenance Down Hours
- 2) NORS Plus Unscheduled Elapsed Maintenance Down Hours
- 3) Percentage of Intrinsic Availability for Flight Hours Divided by Flight Hours Plus Unscheduled Down Hours
- 4) Percentage of Intrinsic Availability for Flight Hours Divided by Flight Hours Plus Scheduled and Unscheduled Down Hours
- 5) Direct Maintenance Man-Hours Per Flight Hour
- 6) Percentage of Mission Accomplishment
- 7) NORS Down Hours

Table XII has been included to show the factorial analysis in detail. Table VIII in the main body of the report summarizes the factorial analysis findings for operational availability. Tables XIII through XIX summarize the findings for each of the seven model output statistics stated above.

TABLE XIII. FACTORIAL ANALYSIS OF UNSCHEDULED RELEASED MAINTENANCE WORK HOURS WITH NORS, FAILURE RATE, AND UTILIZATION AS FACTORS									
X1	X2	X3	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
						Effects Isolated	Value of Each Effect		
Low NORS (-)	Low Fail. Rate (-)	Low Util. (-)	4730	9511	20789	47969	5996	Average Response	-
+	-	-	4761	11275	27150	- 219	- 55	X1 NORS Effect	5,724
-	+	-	5707	12250	- 55	4435	1102	X2 (F.R.) Effect	5,815.5
+	+	-	5571	14924	- 134	311	78	X1 X2 Interaction	1,000.5
-	-	+	6286	51	1767	6391	1998	X3 Util. Effect	2,000.5
+	-	+	5970	- 136	2660	- 49	- 12	X1 X3 Interaction	11
-	+	+	7371	- 316	- 187	901	225	X2 X3 Interaction	101,75
+	+	+	7553	182	498	665	171	X1 X2 X3 Interaction	37,213
Reported Center Points			6969.5	6960.3	6569.5	7561.0	Mean = 7105.700	St. Dev. = 1,000.0	Regression Problem
<p>5.54 for $\alpha = .10$ 10.1 for $\alpha = .05$ 34.1 for $\alpha = .01$</p> <p>Variance For Center Points = (300,000) = 100,000</p>									
<p>** Highly Significant *** Very Highly Significant</p>									

TABLE XIV. FACTORIAL ANALYSIS OF NORS PLUS UNSCHEDULED ELAPSED MAINTENANCE DOWN HOURS WITH NORS, FAILURE RATE, AND UTILIZATION AS FACTORS

X ₁	X ₂	X ₃	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
			19384	45973	100092	Effects Isolated	Value of Each Effect		
Low NORS (-)	Low Fail. Rate (-)	Low Util. (-)	19384	45973	100092	221350	27669	Average Response	-
+	-	-	26589	54119	121258	32928	8232	X ₁ (NORS) Effect	155,531,544
-	+	-	22304	53281	16716	22842	5711	X ₂ (F.R.) Effect	65,222,512
+	-	+	31815	67977	16212	2792	698	X ₁ X ₂ Interaction	27,504
-	+	+	22709	7205	8146	2166	5292	X ₃ (Util.) Effect	55,774,240
+	-	-	30572	9511	14696	-504	-126	X ₁ X ₃ Interaction	31,744
-	+	+	29814	7863	2306	6550	1638	X ₂ X ₃ Interaction	4,622,544
+	+	+	38163	8349	486	-1820	-455	X ₁ X ₂ X ₃ Interaction	104,160
Reported Center Points			31298.8	28281.4	32390.4	31872.7	Mean = 30960.825	St. Dev. = 1542.13	F Increase = 3.18
Critical Values For F _{1,3}			Variance For Center Points = (1641.660) / 3 = 547.220						
5.54 for α = .10									
10.1 for α = .05									
34.1 for α = .01									
** Highly Significant									
*** Very Highly Significant									

TABLE XV. FACTORIAL ANALYSIS OF % INTRINSIC AVAILABILITY (FLIGHT HOURS/FLIGHT HOURS + UNSCHEDULED DOWN HOURS) WITH NORs, FAILURE RATE, AND UTILIZATION AS FACTORS

X1	X2	X3	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
			Low Fail. Rate (-)	Low Util. (-)	Effects Isolated	Value of Each Effect			
-	-	-	9.20	16.40	30.24	61.20	$\frac{61.20}{8}$	Average Response	-
+	-	-	7.20	13.84	30.96	-8.34	$\frac{-8.34}{4}$	X1 (NORS) Effect	6.69
-	+	-	7.99	17.33	-4.14	-6.26	$\frac{-6.26}{4}$	X2 (F.R.) Effect	4.90
+	+	-	5.85	13.63	-4.20	.76	$\frac{.76}{4}$	X1 X2 Interaction	.07
-	-	+	9.94	-2.00	-2.56	.72	$\frac{.72}{4}$	(Util.) Effect	.06
+	-	+	7.39	-2.14	-3.70	-.06	$\frac{-.06}{4}$	X1 X3 Interaction	.00
-	+	+	7.64	-2.55	-.14	-1.14	$\frac{-1.14}{4}$	X2 X3 Interaction	.16
+	+	+	5.99	-1.65	.90	1.04	$\frac{1.04}{4}$	X1 X2 X3 Interaction	.14
Reported Center Points			6.66	7.43	6.52	6.45	Mean = 6.7650, St. Dev. = .4518		.3 Degrees of Freedom
<p>5.54 for $\alpha = .10$ 10.1 for $\alpha = .05$ 34.1 for $\alpha = .01$</p> <p>Variance For Center Points = $(.4518)^2 = .2041$</p>									
<p>** Highly Significant *** Very Highly Significant</p>									

TABLE XVI. FACTORIAL ANALYSIS OF F INTERMITTENT AVAILABILITY (FLIGHT HOURS/FLIGHT HOURS + UNSCHEDULED & SCHEDULED DOWN HOURS) WITH MORS, FAILURE RATE, AND UTILIZATION AS FACTORS

λ 1	λ 2	λ 3	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
						Effects Isolated	Value of Each Effect		
Low MORS (-)	Low Fail. Rate (-)	Low Util. (-)	6.39	15.10	27.95	50.39	7.05	Average Response	-
+	-	-	6.72	12.58	25.41	-7.05	-1.74	λ 1 (MORS) Effect	6.21 ***
-	+	-	7.37	15.78	-3.52	-5.37	-1.34	λ 2 (F.R.) Effect	3.60 **
+	+	-	5.51	12.03	-3.53	.47	.12	λ 1 λ 2 Interaction	.03
-	-	+	5.94	-1.66	-2.22	.43	.11	λ 3 (Util.) Effect	.02
+	-	+	6.84	-1.56	-3.15	-.01	.00	λ 1 λ 3 Interaction	.00
-	+	+	7.03	-2.10	-.20	-.93	-.23	λ 2 λ 3 Interaction	.11
+	+	+	5.60	-1.43	.67	.57	-.22	λ 1 λ 2 λ 3 Interaction	.09
Reported Center Points			6.17	6.89	6.10	6.03	Mean = 6.2975, St. Dev. = .3999		(3 Degrees of Freedom)
Critical Values For F 1,3			Variance For Center Points = (.3999) ² = .1599						
			5.54 for α = .10						
			10.1 for α = .05						
			34.1 for α = .01						
			** Highly Significant						
			*** Very Highly Significant						

TABLE XVII. FACTORIAL ANALYSIS OF DIRECT MAINTENANCE MAN HOURS PER HOUR WITH NORS, FAILURE RATE, AND UTILIZATION AS FACTORS									
λ_1	λ_2	λ_3	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square
			Low Fail. Rate (-)	Low Util. (-)	Effects Isolated	Value of Each Effect			
-	-	-	7.57	15.67	31.47	60.65	$\frac{60.65}{6}$	Average Response	-
+	-	-	7.80	15.30	29.18	.01	$\frac{.01}{4}$	λ_1 (NORS) Effect	.01
-	+	-	7.91	14.10	-.09	1.11	$\frac{1.11}{4}$	λ_2 (F.R.) Effect	.28 *
+	+	-	7.89	15.03	.10	-.29	$\frac{-.29}{4}$	$\lambda_1 \lambda_2$ Interaction	.01
-	-	+	6.94	-.07	.13	-2.29	$\frac{-2.29}{4}$	λ_3 (Util.) Effect	.54 ***
+	-	+	7.10	-.02	.98	.19	$\frac{.19}{4}$	$\lambda_1 \lambda_3$ Interaction	.00
-	+	+	7.60	.22	.05	.35	$\frac{.35}{4}$	$\lambda_2 \lambda_3$ Interaction	.09
+	+	+	7.48	-.12	-.34	-.39	$\frac{-.39}{4}$	$\lambda_1 \lambda_2 \lambda_3$ Interaction	.04
Reported Center Points			7.69	7.95	7.77	7.65	Mean = 7.7650, St. Dev. = .13300		3 Degrees of Freedom
<p>5.54 for $\alpha = .10$ 20.1 for $\alpha = .05$ 34.1 for $\alpha = .01$</p> <p>Variance For Center Points = $(.13300)^2 = .01769$</p>									
<p>* Significant *** Very Highly Significant</p>									

TABLE XVII. FACTORIAL ANALYSIS OF MISSION ACCOMPLISHMENT (MISSIONS COMPLETED/MISSIONS VALLEY) WITH SPEED, FAILURE RATE, AND UTILIZATION AS FACTORS

X1	X2	X3	Yates Algorithm			Average Effect		Effect Nomenclature	Mean Square		
			Low Fail. Rate (-)	Low Util. (-)	Effects Isolated	Value of Each Effect					
-	-	-	97.33	193.05	386.37	771.88	$\frac{771.88}{4}$	96.49	Average Response	-	
+	-	-	95.75	193.29	385.51	- 1.50	$\frac{-1.50}{4}$	- .38	X1 (NORS) Effect	.23	
-	+	-	95.93	193.74	- .15	- 1.76	$\frac{-1.76}{4}$	- .44	X2 (F.R.) Effect	.24	
+	+	-	97.36	191.77	- 1.35	2.18	$\frac{2.18}{4}$.55	X1 X2 Interaction	.24	
-	-	+	97.30	- 1.58	.21	- .86	$\frac{-1.86}{4}$	- .22	X3 (Util.) Effect	.24	
+	-	+	96.74	1.43	- 1.97	- 1.20	$\frac{-1.20}{4}$	- .30	X1 X3 Interaction	.14	
-	+	+	96.43	- .26	3.01	- 2.18	$\frac{-2.18}{4}$	- .55	X2 X3 Interaction	.24	
+	+	+	55.34	- 1.09	- .83	- 3.84	$\frac{-3.84}{4}$	- .96	X1 X2 X3 Interaction	1.14	
Reported Center Points			96.09	96.77	97.01	96.17	Mean = 96.5100, St. Dev. = .4508		Degrees of Freedom		
Critical Values For F _{1,3}			5.54 for $\alpha = .10$	10.1 for $\alpha = .05$	Variance For Center Points = $(.4508)^2 = .2032$						
* Significant											

TABLE XIX. FACTORIAL ANALYSIS OF NORS HOURS WITH NORS COMPONENT
WAITING TIME, FAILURE RATE, AND UTILIZATION AT VAN DYKE

X1	X2	X3	Yates Algorithm			Average Effect		Effect Non-Additive	Mean Square	
						Effects Isolated	Value of each Effect			
-	-	-	17158	43175	97954	210169	$\frac{210169}{8}$	26271	Average Residual	-
+	-	-	26017	54779	112215	39551	$\frac{39551}{4}$	9888	X1 (NORS) Effect	***
-	+	-	20613	49174	22412	25471	$\frac{25471}{4}$	6368	X2 (F.R.) Effect	**
+	+	-	34166	63041	17139	2761	$\frac{2761}{4}$	690	X1 X2 Interaction	
-	-	+	19819	8859	11604	14261	$\frac{14261}{4}$	3565	X3 (Util.) Effect	
+	-	+	29355	13553	13867	-5273	$\frac{-5273}{4}$	-1318	X1 X3 Interaction	
-	+	+	27719	9530	4694	2263	$\frac{2263}{4}$	566	X2 X3 Interaction	
+	+	+	35322	7603	-1933	-6627	$\frac{-6627}{4}$	-1657	X1 X2 X3 Interaction	
Reported Center Points			29774.8	27571.2	32641.9	28698.8	Mean = 29671.675 St. Dev. = 2174.960		(3 Degrees of Freedom)	
								Variance For Center Points = $(2174.960)^2 = 4,730,451$		
								5.54 for $\alpha = .10$		
								10.1 for $\alpha = .05$		
								34.1 for $\alpha = .01$		
								** Highly Significant		
								*** Very Highly Significant		

LIST OF SYMBOLS AND ABBREVIATIONS

α	level of significance
θ	mean of distribution
σ	standard deviation of distribution
A/C	aircraft
act.	action
admin.	administrative
AFCS	automatic flight control system
APP	auxiliary power plant
avail.	availability
coll.	collective
cont.	control
corr.	corrective
cum.	cumulative
discrep.	discrepancy
EAPS	engine air particle separator
EMT	elapsed maintenance time
eng.	engine
flt.	flight
F.R.	failure rate
GSE	ground support equipment
HS	highly significant
hyd.	hydraulic
IGB	intermediate gearbox
Insp.	inspection
land	landing

LIST OF SYMBOLS AND ABBREVIATIONS (CONTINUED)

lat.	lateral
L.H.	left hand
Lt.	left
M.A.	maintenance action
Math.	mathematical
Mech.	mechanism
M.G.B.	main gearbox
M.L.G.	main landing gear
MMH	maintenance man-hours
MMH/FH	maintenance man-hours per flight hour
MOS	military occupational speciality
MR	main rotor
MRH	main rotor head
MTBF	mean time between failures
MTBMA	mean time between maintenance actions
MTBR	mean time between removals
MTTR	mean time to repair
No.	number
NORM	not operationally ready - maintenance
NORS	not operationally ready - spares
ORME	operations reliability/maintainability engineering program
PMD	preventive maintenance - daily inspection
PMI	preventive maintenance - intermediate inspection
PMP	preventive maintenance - periodic inspection
Press.	pressure

LIST OF SYMBOLS AND ABBREVIATIONS (CONTINUED)

Prevent.	preventive
Prim	primary
Prob.	probability
Pwr.	power
R&M	reliability and maintainability
Req.	required
Rec.-Trans	receiver - transmitter
R.H.	right hand
Rt.	right
R&R	remove and replace
S	significant
Sta.	station
Stabil.	stabilizer
St. Dev.	standard deviation
Tach.	tachometer
TBO	time between overhauls (scheduled)
Tech.	technician
TOE	table of organization and equipment
T.R.	tail rotor
Trans.	transmission
Util.	utility
VHS	very highly significant
W.C.	work center