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MANEUVER FLIGHT LOADS DATA FROM RF-101C AIRCRAFT

TECHNICAL DOCUMENTARY REPORT ASD-TDR-62-923

January 1963

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Structures and Air Environment Division
Aeronautical Systems Division
Air Force Systems Command
Wright-Patterson Air Force Base, Ohio

Weapon System 217A

(Prepared under Contract No. AF 33(616)-7593
by Technology Incorporated, Dayton, Ohio
Author: Dudley C. Ward, Jr.)

NO

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3. Load distribution
4. Gust loads
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FOREWORD

This report was prepared for the Structures and Air Environment Division, Directorate of Defense and Transport Systems Engineering, Deputy for Systems Engineering, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, as a portion of Contract AF 33(616)-7593. The program leading to this report was conducted by Technology Incorporated under the direction of Messrs. James R. Braun, George R. Boone, and Kenneth L. Rickey. The Aeronautical Systems Division project monitors were Lt. Ned Sandlin and Mr. Richard W. Bachman of the Structures and Air Environment Division.

This report is based on data collected on RF-101C aircraft based at Laon and Toul-Rosiers Air Force bases, France. The data were collected from 1 April 1961 to 1 November 1961.

ABSTRACT

Structural flight loads data from RF-101C aircraft assigned to normal squadron operation with the United States Air Force in Europe are presented in this report. The basic in-flight maneuver data include normal acceleration at the center of gravity, airspeed, and altitude. The information derived from these parameters is intended for use in estimating the fatigue and service life effects of the maneuver environment upon the RF-101C aircraft structure.

PUBLICATION REVIEW

This report has been reviewed and is approved.

FOR THE COMMANDER

William B Miller

WILLIAM B. MILLER
Chief, Structures and Air
Environment Division

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SECTION I

INTRODUCTION

This report presents a study of the maneuver loads data gathered on RF-101C aircraft assigned to normal operational duty with the 18th and 38th Tactical Reconnaissance squadrons of the United States Air Force in Europe. These squadrons were based, respectively, at Laon Air Force Base and Toul-Rosiers Air Force Base, France. The maneuver loads data, recorded by the Model F Willys Flight Loads Recorder, include three in-flight parameters: normal acceleration at the center of gravity, airspeed, and altitude; these are commonly denoted as "VGH."

The RF-101C maneuver loads program was initiated by the Aeronautical Systems Division as a supplemental part of the F-101 fatigue certification program under Weapon System 217A. Technology Incorporated received the award of the supplemental agreement to Contract AF 33(616)-7593 on 1 March 1961 and commenced installation of the Willys recorder on that date. Installation was completed on 17 May 1961. The first maneuver data was recorded on 30 March 1961; the last, on 16 October 1961. The Aeronautical Systems Division provided technical guidance and supervision for the recording program.

A. Data Recording System

The Model F Willys Recorder is a direct-write instrument which employs fixed styli to transcribe the parameter deflections onto carbon impregnated paper when electrical impulses are fed to them from the transducers. Each stylus, identified by a number, was fixed to represent a specific band within a parameter range. The contractor, utilizing the facilities of the Aeronautical Systems Division, established the coverage of these bands during the calibration process.

The Willys recorder has two inherent deficiencies which decrease the data accuracy and limit the recorder response to the lower frequency inputs. The recorder is insensitive to any input frequencies in excess of one cycle per second; in fact, a frequency of one-half cycle per second is borderline. Consequently, data recorded during turbulent flight conditions do not include all the added loading caused by the gust inputs; hence, loads spectra based on such recordings will be unconservative to some degree. Since the Willys recorder is essentially a digital recorder, resolution of the recorder only approaches some of the established divisions (data blocks) of the parameter ranges; in some instruments, the bands of the acceleration magnitude represented by the styli slightly exceed the bands of the corresponding data blocks. Therefore, as the values represented by one stylus could cover a range including the band of one data block and parts of the bands of the adjacent two data blocks, an acceleration depicted by a stylus could be of a magnitude equal to that represented by any one of the three data blocks. Such an acceleration, however, would be recorded as a value in the lowest of these blocks. Obviously, such data would cause the load factor spectrum to be unconservative to some degree.

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B. Data Processing

To facilitate analysis of the recorded data, the flight profile of the RF-101C aircraft was divided into five major missions:

Mission I	Photo High
Mission II	Photo Low
Mission III	Photo High - Low - High
Mission IV	Transition and Test Hops
Mission V	Navigation and Instrument

Mission I includes mainly the data of Photo Reconnaissance Missions during which vertical pinpoint and vertical strip photographs were taken. Most of the data of Mission I were acquired between the altitudes of 25,000 to 40,000 feet. Mission II comprises the data of Photo and Visual Reconnaissance Missions. Four types of photography were employed during Mission II: side oblique, forward oblique, vertical pinpoint, and vertical strip photographs. Most of the data obtained during Mission II were recorded below 2,000 feet Mission III is a combination of Missions I and II. Mission IV consists of data essentially from transition and test flights, including chase, tactical evaluation, and standardization board flights. Mission V contains data of instrument and navigation flights, including day formation, night flying (singly or in formation), maximum range without radio, navigation proficiency, TACAN, and GCA flights.

The semiautomatic Benson-Lehner oscillograph reader was used to measure the analog VGH data and to transcribe it in digital form onto IBM cards. The associated times for the subsequent compilation of the periods spent within specific airspeed and altitude ranges were also noted. Personnel in the computer facilities of the Aeronautical Systems Division prepared the data for processing through the IBM 7090 computer by using the IBM 1401 converter to transcribe the information from the punched cards to tape. A computer program in FORTRAN language governed the calculations and sorting operations for the grouping of data according to the required combinations of type of mission and ranges of gross weight, equivalent airspeed, altitude, and normal acceleration. The IBM 1403 generated the data printout tabulations from the output tape of the IBM 7090.

The criteria for reading the acceleration trace on the Willys records required a positive peak to be equal to or more than 2.0 g and a negative peak to be equal to or less than 0 g. When two or more peaks beyond these limiting levels appeared during the period defined by departure from and return to the 1.0-g level, the following points were read: the maximum peak and every other peak whose adjacent troughs were vertically removed from it by two or more styli (the vertical displacement between any two styli is approximately 0.8 g).

SECTION II

DISCUSSION

The normal accelerations which occurred during 2025.4 in-flight hours are presented in the form of normal load factors as functions of Mach number in Figure 1. This figure shows a point at 7.5 g which exceeds the 7.33-g structural limit. Inspection of the original recording revealed a load factor level between 7.2 and 7.6 g, the exact value being undetermined since the styli, as mentioned above, represent values within increments rather than a precise measurement. The instantaneous gross weight for the instant of this acceleration occurrence was determined to be 31,741 pounds which yields an $n_z W_i$ of 241,232 pounds (based on a load factor of 7.6 g). Design gross weight for this aircraft is 37,000 pounds, and the allowable load for the design limit load factor is 271,000 pounds. Therefore, the structural limit was not exceeded, even though the design limit load factor level was surpassed (Figure 1). Also of interest in Figure 1 are the apparent load factor exceedances at the lower Mach numbers; however, it must be noted that the V-n diagram in this figure is based on sea level and basic flight design gross-weight conditions, whereas the plots emanated from accelerations which occurred with various combinations of altitude and gross weight, each parameter varying within its range of values.

Figures 2 through 6 present the percentages of total mission flight time spent in various altitude ranges for each mission. The considerable percentage of time spent below 2,000 feet is particularly significant. The findings from other similar programs have revealed that the gust environment below 2,000 feet contributes markedly to the over-all fatigue spectrum of most aircraft. Since the effect of the gust environment becomes more severe as the airspeed increases, the large percentages of time spent at relatively high airspeeds, indicated in Figures 8 through 12, add to the significance of the low-altitude flight dominance. Table 1, based on the data of all missions, shows the actual flight times spent at these low altitudes and high velocities. The percentages of total flight time, including the times of all missions, spent in various altitude and airspeed intervals are displayed in Figures 7 and 13, respectively.

The percentages of total mission flight time spent in various gross weight ranges for each mission are presented in Figures 14 through 18. Figure 19 is a composite of the data in these five figures. For the purpose of comparing various distributions of the total flight (composite of all missions) time, Figure 20 is a composite including five figures which depict the following: percentages of flight time spent in selected altitude, airspeed, and gross weight ranges (Figures 7, 13, and 19), percentages of flight time spent in the five mission types, and the average flight time per mission type.

Figures 21 through 25 present the maneuver load factor environment for each of the five missions. Mission IV is apparently the most severe, whereas Mission I is the least severe.

The RF-101C maneuver load factor spectrum, based upon the 2025.4 hours of flight data, is presented in Figure 26. The figure indicates that an RF-101C aircraft will probably reach its design limit normal load factor approximately every 2500 hours. However, as the stability of the curve is rather questionable above the 4.5- to 5.0-g range, predictions beyond this range should be considered discreetly. Of more interest, perhaps, is the number of flight hours to equal or exceed the design limit load (see Figure 27). The data indicate that the higher load factors occurred at relatively low gross weights. Such occurrences would explain the apparent trend of the curve which indicates that a large number of flight hours would be required to encounter the design limit load. This hypothesis should be tempered somewhat, for the few occurrences recorded at the higher percentages do not allow a sufficient degree of confidence to be placed in the curve above 60 to 70% of the design limit load. Curves derived from F-101C maneuver loads data (Reference 2) are also included in Figures 26 and 27 for comparison purposes since the F-101C and RF-101C aircraft are basically the same aerodynamically and structurally. As the data collected on the F-101C aircraft totaled only 1302 flight hours, the F-101C curves probably did not reach the degree of stability attained by the RF-101C curves; therefore, no strong conclusions should be drawn between the two sets of data.

The distribution of equivalent maneuver load factors as a function of Mach number for all missions is shown in Table 2. Table 3 presents the distribution of maneuver load factors by equivalent airspeed for all missions, and Tables 4 through 8 show the individual mission breakdown. These data are also presented for various altitude and gross weight ranges in Tables 9 through 23.

SECTION III

CONCLUSIONS

1. All maneuver loads measured on the RF-101C aircraft are within the design limit load.

2. Since 43.9% of the total recorded flight time (all missions) was spent below 2,000 feet, the aircraft encountered a considerable number of gust loads. However, as the Willys recorder is insensitive to the effects of turbulence, a fatigue spectrum based on such recorded data would be unconservative.

3. Additional flight loads data on the RF-101C aircraft, especially gust data, should be acquired to obtain a more rigorous fatigue load spectrum.

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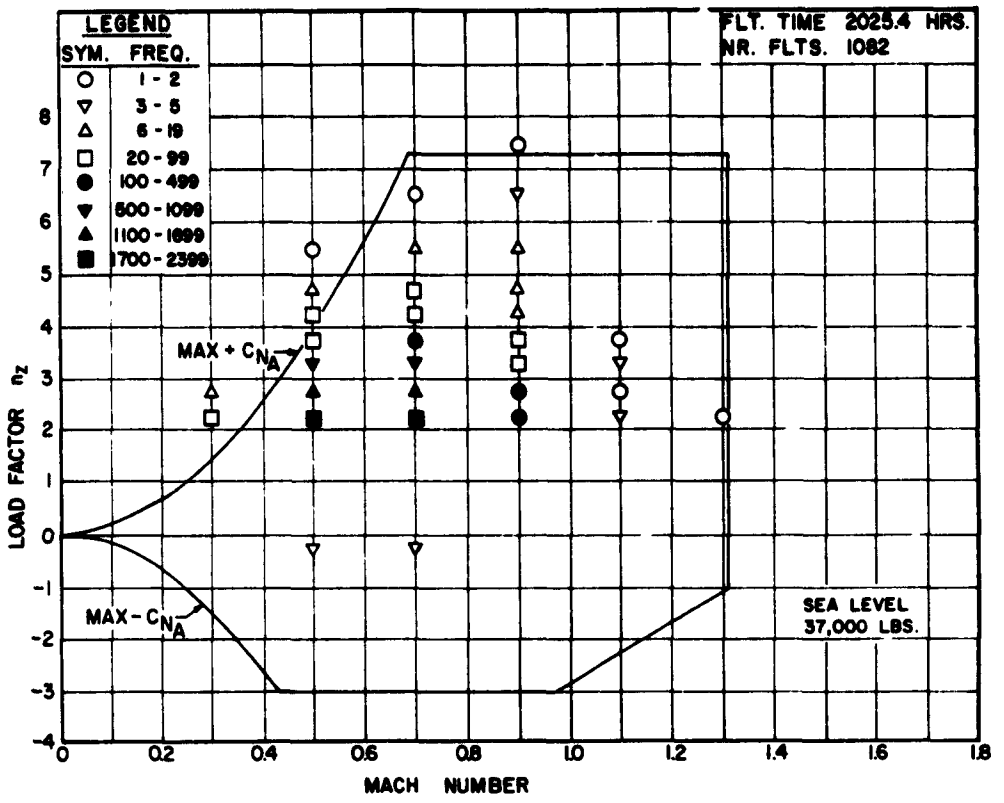
1. Braun, Joseph F., Flight Loads Instrumentation for the RF-101C, F-101A, and F-101C Aircraft, Technology Incorporated Report Number 7593-IR-002, January 1962.

2. Ward, Dudley C., Jr., and Berens, Alan P., Structural Flight Loads Data from F-101A and F-101C Aircraft, ASD Technical Documentary Report 62-912, Volume II, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, October 1962.



LOAD FACTOR (n_z)	MACH NUMBER						TOTAL NO. n_z
	0.20 to 0.39	0.40 to 0.59	0.60 to 0.79	0.80 to 0.99	1.00 to 1.19	1.20 to 1.39	
7.0 to 7.99				1			1
6.0 to 6.99			1	4			5
5.0 to 5.99		2	11	9			22
4.5 to 4.99		9	29	17			55
4.0 to 4.49		36	64	9			109
3.5 to 3.99		61	131	40	2		234
3.0 to 3.49		501	523	79	4		1107
2.5 to 2.99	7	1596	1256	123	2		2984
2.0 to 2.49	42	2323	1729	270	3	1	4368
0.0 to -0.49		3	3				6
-0.5 to -0.99							
-1.0 to -1.49							
TOTALS	49	4531	3747	552	11	1	8891

TOTAL FLIGHT TIME (2025.4 hrs.) NUMBER OF FLIGHTS (1082)

Figure 1
Diagram and Tabulation of Mach Number Versus Load Factor

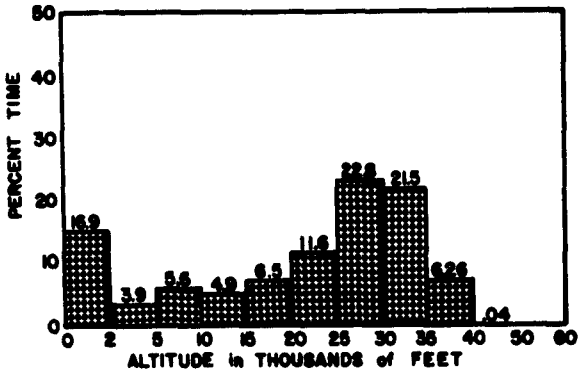


Figure 2
Percentages of Total Flight (Mission I)
Time Spent in Selected Altitude Ranges

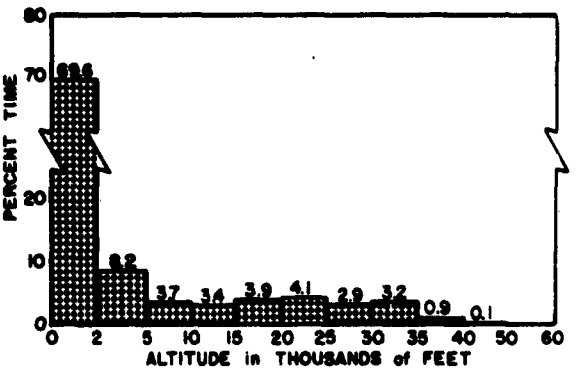


Figure 3
Percentages of Total Flight (Mission II)
Time Spent in Selected Altitude Ranges

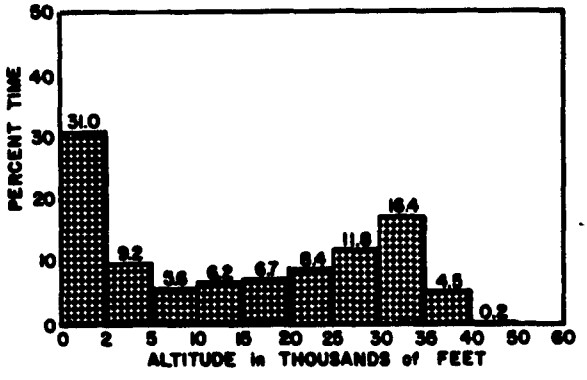


Figure 4
Percentages of Total Flight (Mission III)
Time Spent in Selected Altitude Ranges

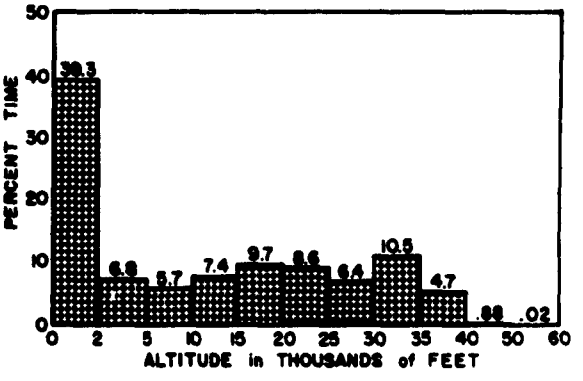


Figure 5
Percentages of Total Flight (Mission IV)
Time Spent in Selected Altitude Ranges

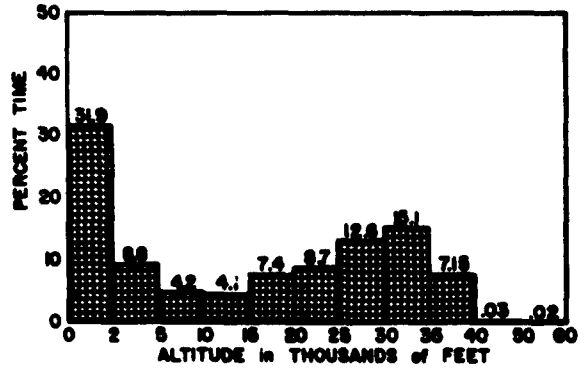


Figure 6
Percentages of Total Flight (Mission V)
Time Spent in Selected Altitude Ranges

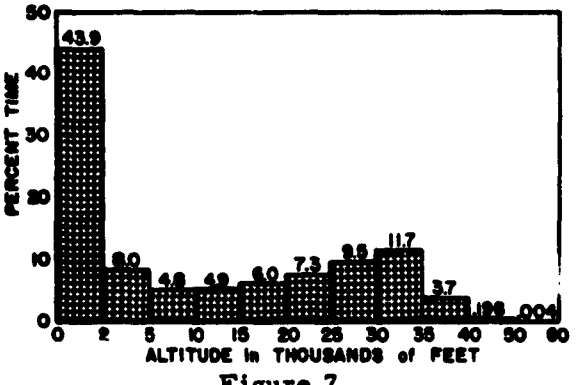


Figure 7
Percentages of Total Flight (Composite of All Missions) Time Spent in Selected Altitude Ranges

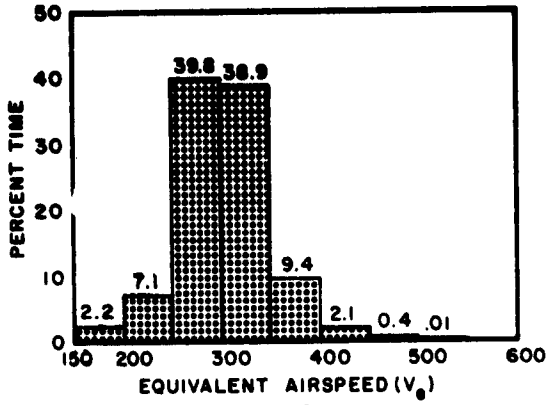


Figure 8
Percentages of Total Flight (Mission I) Time Spent in Selected Airspeed Ranges

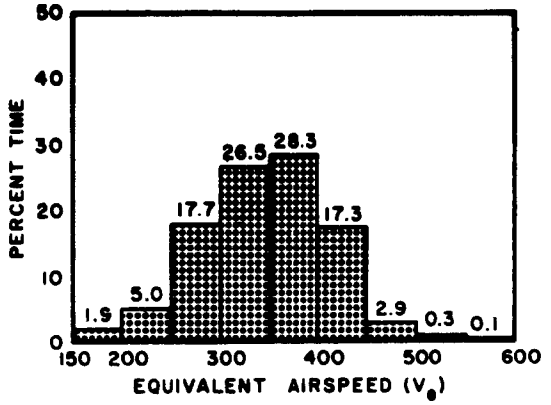


Figure 9
Percentages of Total Flight (Mission II) Time Spent in Selected Airspeed Ranges

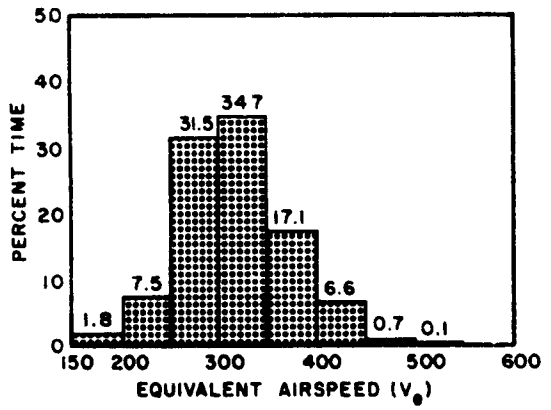


Figure 10
Percentages of Total Flight (Mission III) Time Spent in Selected Airspeed Ranges

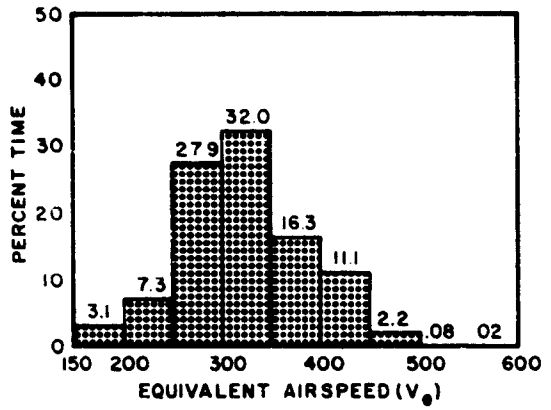


Figure 11
Percentages of Total Flight (Mission IV) Time Spent in Selected Airspeed Ranges

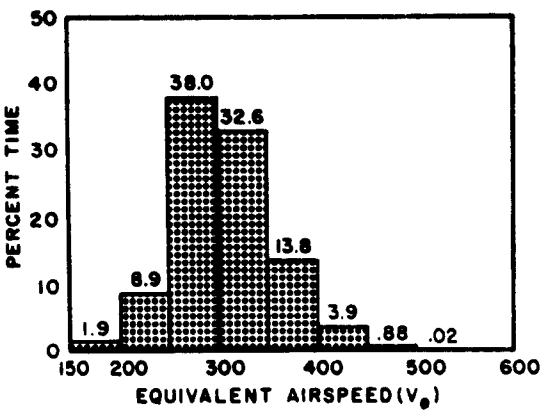


Figure 12
Percentages of Total Flight (Mission V) Time Spent in Selected Airspeed Ranges

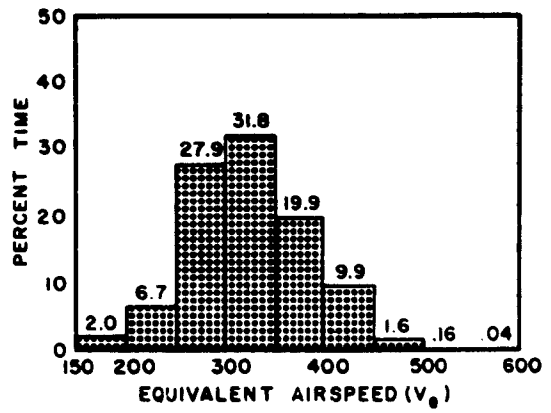


Figure 13
Percentages of Total Flight (Composite of All Missions) Time Spent in Selected Airspeed Ranges

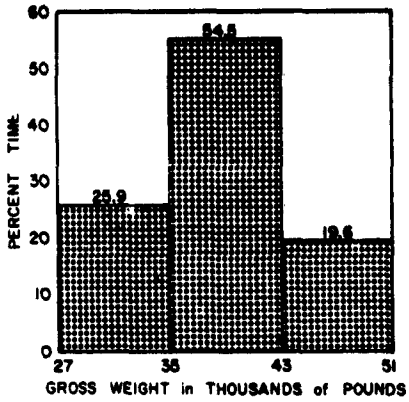


Figure 14
Percentages of Total Flight (Mission I) Time Spent in Selected Gross Weight Ranges

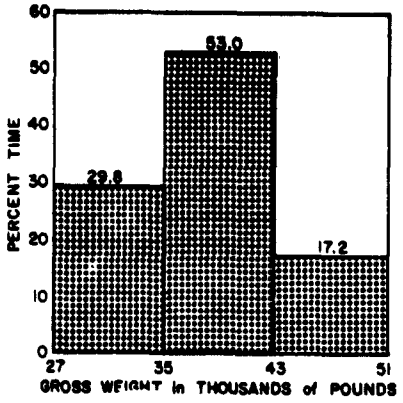


Figure 15
Percentages of Total Flight (Mission II) Time Spent in Selected Gross Weight Ranges

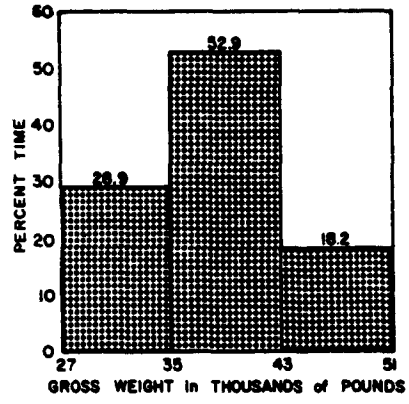


Figure 16
Percentages of Total Flight (Mission III) Time Spent in Selected Gross Weight Ranges

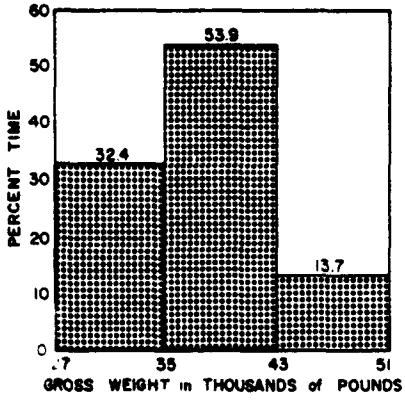


Figure 17
Percentages of Total Flight (Mission IV) Time Spent in Selected Gross Weight Ranges

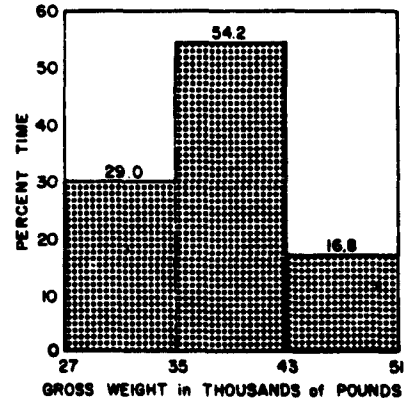


Figure 18
Percentages of Total Flight (Mission V) Time Spent in Selected Gross Weight Ranges

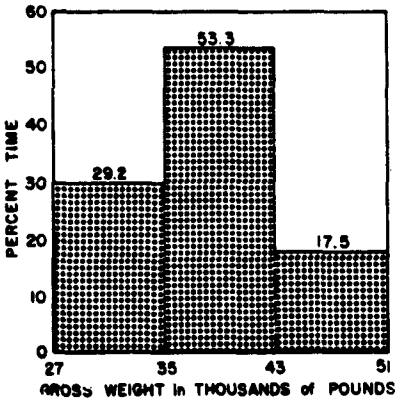


Figure 19
Percentages of Total Flight (Composite of All Missions) Time Spent in Selected Gross Weigh Ranges

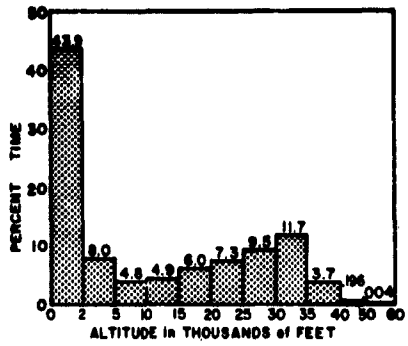


Figure 20a
Percentages of Total Flight Time
Spent in Selected Altitude Ranges

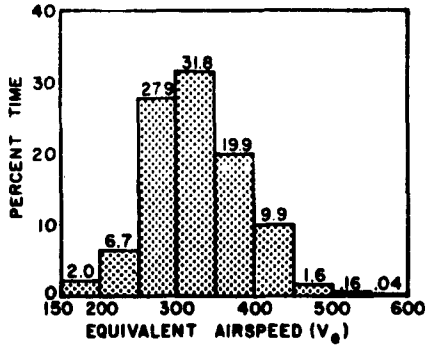


Figure 20b
Percentages of Total Flight Time
Spent in Selected Airspeed Ranges

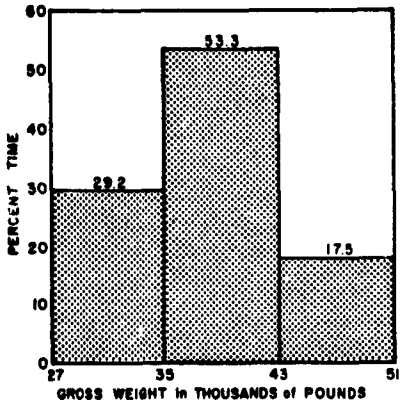


Figure 20c
Percentages of Total Flight Time Spent
in Selected Gross Weight Ranges

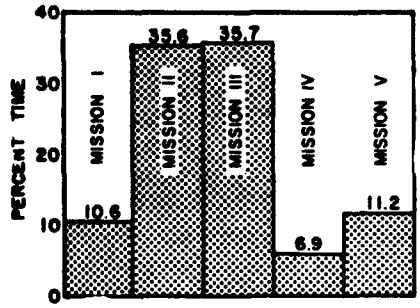


Figure 20d
Percentages of Total Flight Time Spent
in Performing Selected Missions

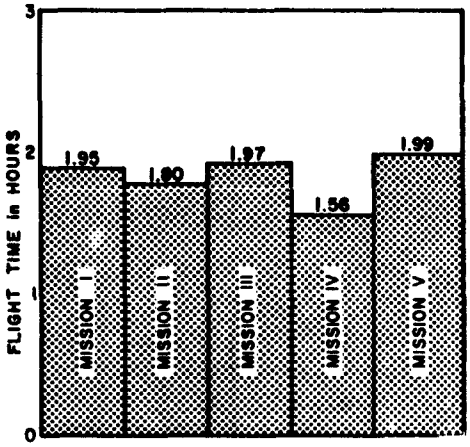


Figure 20e
Average Duration of Flights
by Selected Missions

Figure 20

Summary of Total Flight (Composite of All Missions) Time Distributed by Parameter Ranges and Mission Type with the Average Flight Time of Each Mission Type

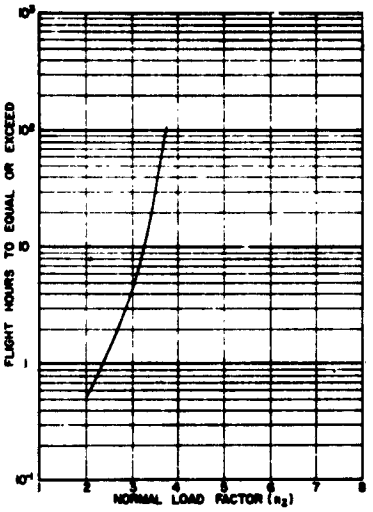


Figure 21
Probability Curve —
Mission I (Photo High)

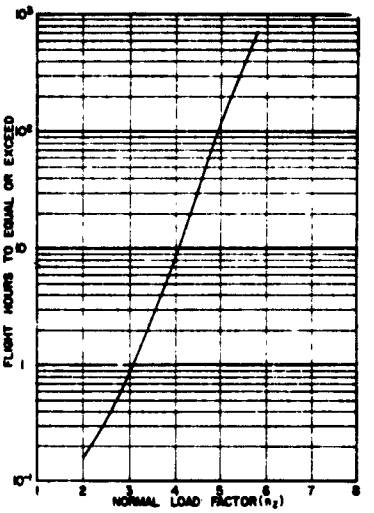


Figure 22
Probability Curve —
Mission II (Photo Low)

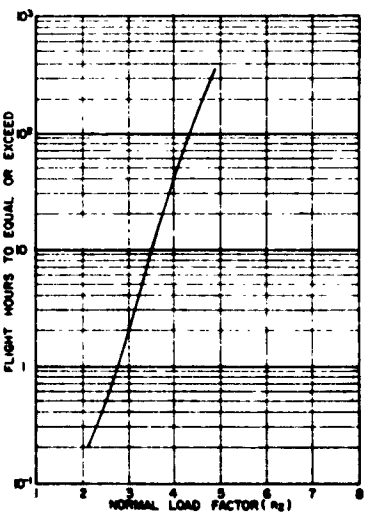


Figure 23
Probability Curve —
Mission III (Photo
High - Low - High)

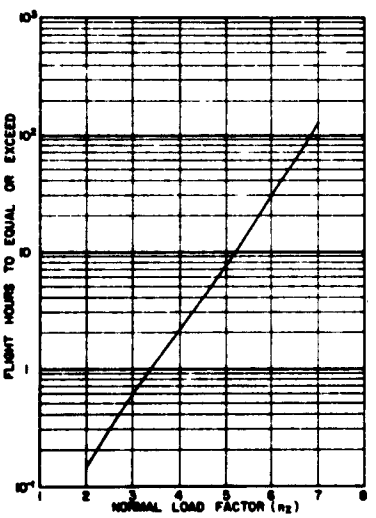


Figure 24
Probability Curve —
Mission IV (Transition
and Test Hops)

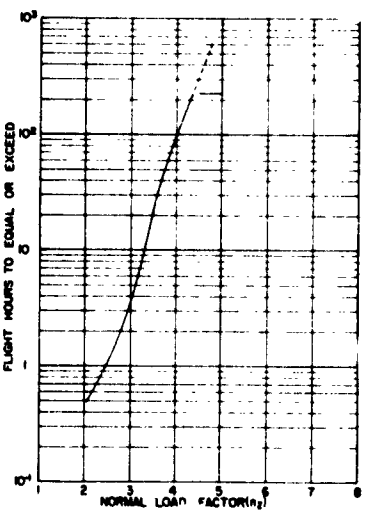


Figure 25
Probability Curve —
Mission V (Navigation
and Instruments)

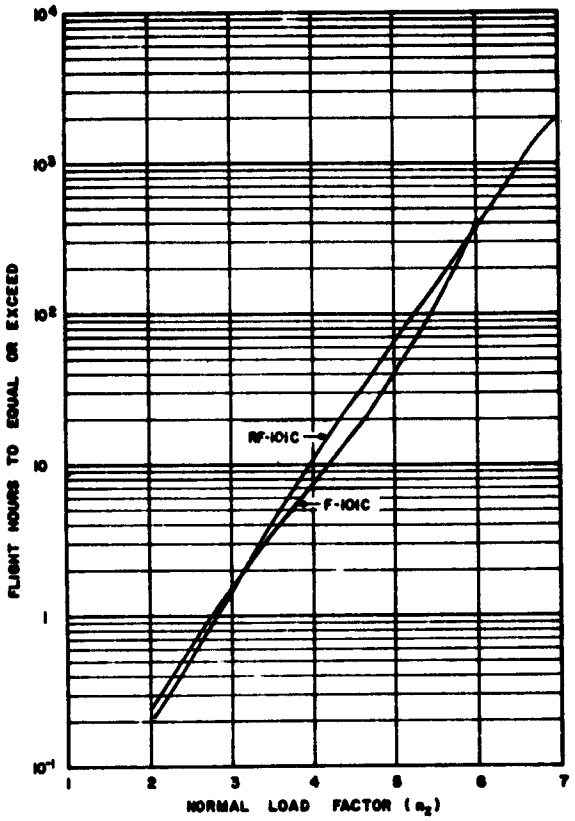


Figure 26

Probability Curves — Composites (Load Factor) of RF-101C and F-101C Aircraft Data

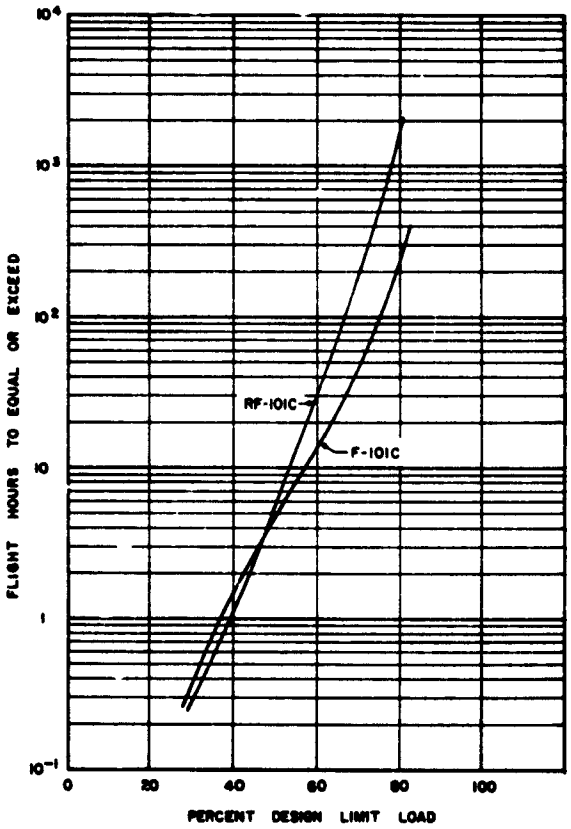


Figure 27

Probability Curves — Composites (Design Limit Load) of RF-101C and F-101C Aircraft Data

Table 1
Distribution of Flight Hours by Equivalent Airspeed and Altitude — Composite of All Missions

ALTITUDE KILO FT	EQUIVALENT AIRSPEED - V_E KNOTS									FLT TIME (hr)
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	
50 to 59.99		0.03	0.06							0.09
40 to 49.99	0.49	0.04	4.44	0.12						5.29
35 to 39.99	2.99	4.91	48.12	5.38	0.07	0.02				75.09
30 to 34.99	3.19	31.23	153.36	48.78	0.28	0.02	0.02			236.80
25 to 29.99	0.74	12.19	72.77	104.95	2.47	0.10	0.02			192.94
20 to 24.99	0.92	10.55	49.49	72.83	12.11	1.18				147.08
15 to 19.99	1.41	9.22	41.47	49.32	17.12	2.12	0.16			120.82
10 to 14.99	0.65	3.78	23.34	40.70	24.77	3.47	1.06	0.11		99.88
5 to 9.99	0.49	4.21	17.64	44.28	23.74	5.68	0.85	0.21		97.10
2 to 4.99	1.19	5.24	24.53	69.57	46.05	14.06	2.04	0.16	0.05	162.89
0 to 1.99	28.23	54.76	118.58	208.74	273.54	174.50	28.03	2.21	0.71	889.30
FLT TIME (hr)	39.90	136.16	566.00	644.29	402.15	201.15	32.18	2.69	0.76	2025.28

Table 2
Distribution of Equivalent Maneuver Load Factors by Mach Number — Composite of All Missions

EQUIVALENT LOAD FACTOR (n_{z_e})	MACH NUMBER						ΣTOTAL NO n_{z_e}
	0.20 to 0.39	0.40 to 0.59	0.60 to 0.79	0.80 to 0.99	1.00 to 1.19	1.20 to 1.39	
7.0 to 7.99							
6.0 to 6.99				1			1
5.0 to 5.99		3	7	6			16
4.5 to 4.99		5	22	10			37
4.0 to 4.49		18	70	14			102
3.5 to 3.99		102	201	29	1		333
3.0 to 3.49	2	475	609	72	3		1161
2.5 to 2.99	2	1224	1331	113	3	1	2674
2.0 to 2.49	13	2098	1477	250	1		3839
0.0 to -0.49		3	3				6
-0.5 to -0.99							
-1.0 to -1.49							
TOTALS	17	3928	3720	496	8	1	8169

TOTAL FLIGHT TIME (2025.4 hrs.) NUMBER OF FLIGHTS (1082)

Table 3
Distribution of Maneuver Load Factors by Equivalent Airspeed — Composite of All Missions

LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_E(KNOTS)										TOTAL NO. n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99								1			1
6.0 to 6.99						1	3		1		5
5.0 to 5.99				2	1	9	8	2			22
4.5 to 4.99				2	20	16	13	4			55
4.0 to 4.49			5	16	25	42	16	3	2		109
3.5 to 3.99			4	30	74	93	25	7	1		234
3.0 to 3.49			44	230	440	325	83	10	5		1107
2.5 to 2.99		4	209	803	1065	747	146	9	2		2984
2.0 to 2.49		27	403	1274	1648	909	178	25	7		4388
0.0 to -0.49					3	3					6
-0.5 to -0.99											
TOTALS		31	665	2357	3443	2148	471	61	18		8891

TOTAL FLIGHT TIME (2025.4 hrs.) NUMBER OF FLIGHTS (1082)

Table 4
Distribution of Maneuver Load Factors by Equivalent Airspeed — Mission I

LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_E (KNOTS)										TOTAL NO. n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99											
6.0 to 6.99											
5.0 to 5.99											
4.5 to 4.99											
4.0 to 4.49					1	1					2
3.5 to 3.99				1	1	1	2				5
3.0 to 3.49			1	19	14	12					46
2.5 to 2.99			7	34	35	17	8				101
2.0 to 2.49			49	96	29	18	5				197
0.0 to -0.49											
-0.5 to -0.99											
TOTALS			57	150	80	49	15				351

Flight Time (214.2 Hrs.) Number of Flights (110)

Table 5
Distribution of Maneuver Load Factors by Equivalent Airspeed — Mission II

LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_e (KNOTS)										TOTAL NO. n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99											
6.0 to 6.99									1		1
5.0 to 5.99				1		2	1				4
4.5 to 4.99				2	3	3	10	2			20
4.0 to 4.49			3	12	13	30	11	3	1		73
3.5 to 3.99			3	8	39	55	12	3			120
3.0 to 3.49			26	85	223	204	48	2	5		593
2.5 to 2.99		1	97	336	504	470	72	6	2		1488
2.0 to 2.49		15	157	464	743	569	112	24	7		2091
0.0 to -0.49					3	2					5
-0.5 to -0.99											
TOTALS		16	286	908	1528	1333	266	40	16		4395

Flight Time (720.2 Hrs.) Number of Flights (481)

Table 6
Distribution of Maneuver Load Factors by Equivalent Airspeed — Mission III

LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_e (KNOTS)										TOTAL NO. n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99											
6.0 to 6.99											
5.0 to 5.99						2					2
4.5 to 4.99					1	2					3
4.0 to 4.49					5	7	4		1		17
3.5 to 3.99				10	13	20	2	3	1		49
3.0 to 3.49			10	84	133	73	28	5			305
2.5 to 2.99		3	47	333	370	193	36	2			1004
2.0 to 2.49		11	153	523	535	184	41	1			1448
0.0 to -0.49						1					1
-0.5 to -0.99											
TOTALS		14	230	950	1057	482	103	11	2		2829

Flight Time (724.0 Hrs.) Number of Flights (367)

Table 7
Distribution of Maneuver Load Factors by Equivalent Airspeed — Mission IV

LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_e (KNOTS)										TOTAL NO. n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99								1			1
6.0 to 6.99						1	3				4
5.0 to 5.99					1	5	7	2			15
4.5 to 4.99					16	11	3	2			32
4.0 to 4.49				4	6	3	1				14
3.5 to 3.99			1	10	18	15	9	1			54
3.0 to 3.49			1	21	40	24	10	3			99
2.5 to 2.99			16	64	101	54	22	1			258
2.0 to 2.49			25	115	127	93	13				373
0.0 to -0.49											
-0.5 to -0.99											
TOTALS			43	214	309	206	68	10			850

Flight Time (140.8 Hrs.) Number of Flights (90)

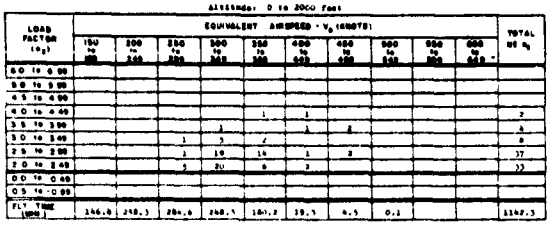
Table 8
Distribution of Maneuver Load Factors by Equivalent Airspeed — Mission V

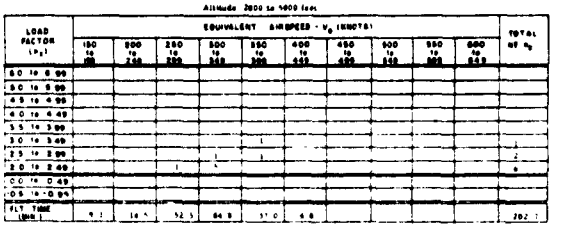
LOAD FACTOR (n_z)	EQUIVALENT AIRSPEED - V_e (KNOTS)										TOTAL NO n_z
	150 to 199	200 to 249	250 to 299	300 to 349	350 to 399	400 to 449	450 to 499	500 to 549	550 to 599	600 to 649	
7.0 to 7.99											
6.0 to 6.99											
5.0 to 5.99				1							1
4.5 to 4.99											
4.0 to 4.49						1					1
3.5 to 3.99				1	3	4					8
3.0 to 3.49			6	21	20	12	5				64
2.5 to 2.99			22	36	55	13	7				133
2.0 to 2.49		1	19	76	111	45	7				259
0.0 to -0.49											
-0.5 to -0.99											
TOTALS		1	47	135	189	75	19				466

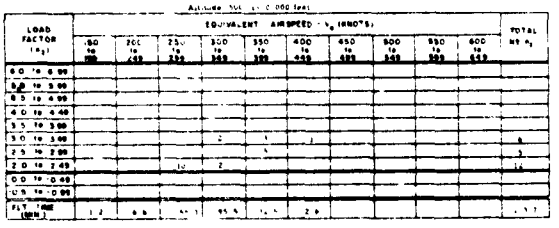
Flight Time (226.4 Hrs.) Number of Flights (124)

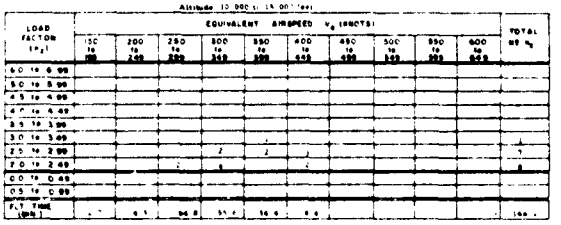
Table 9

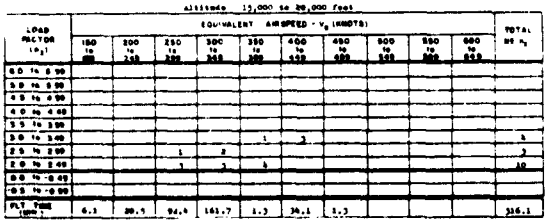
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission I — Gross Weight Range: 27,000 to 35,000 lb.

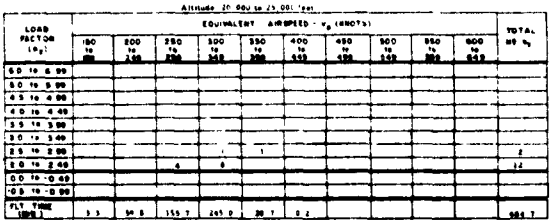


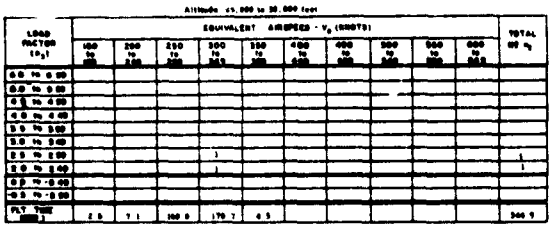


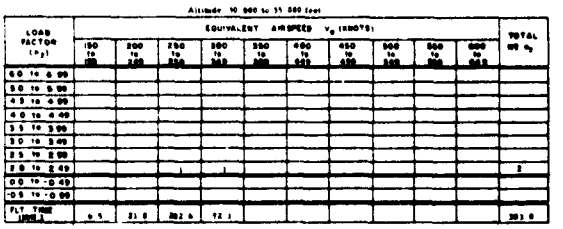


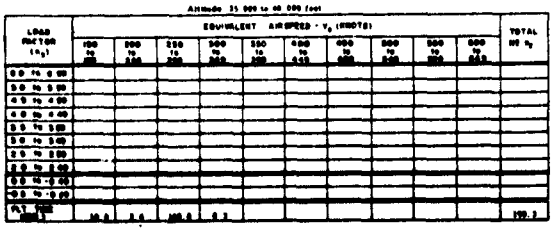












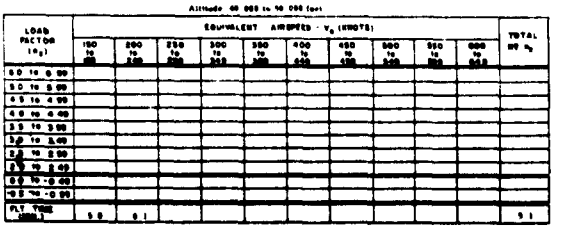
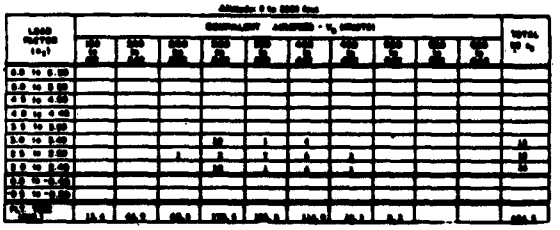
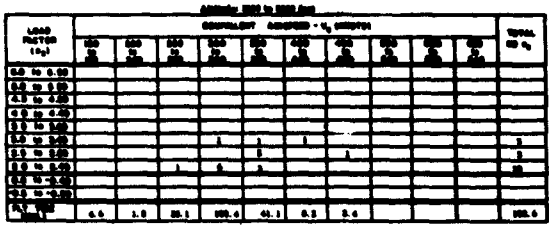
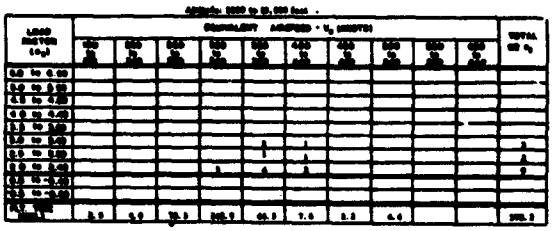


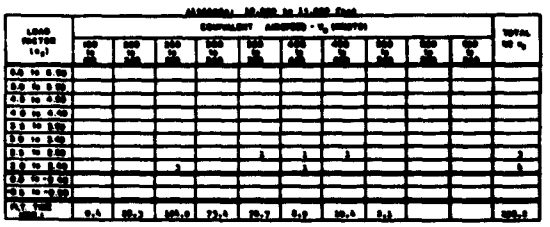
Table 10

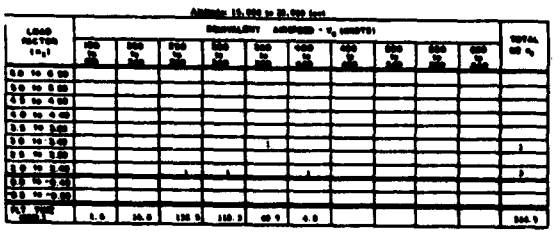
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission I — Gross Weight Range: 35,000 to 43,000 lb.

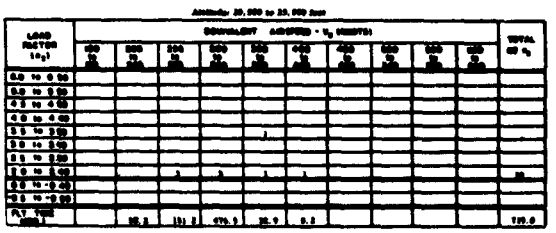


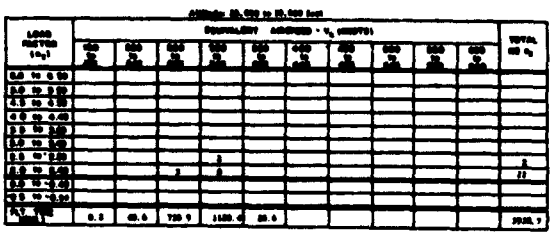


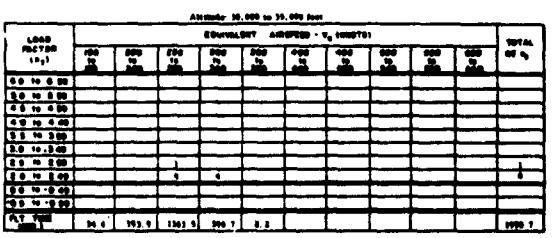












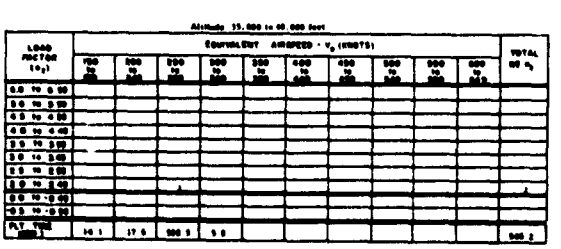
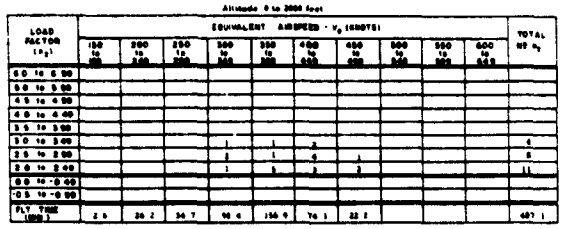
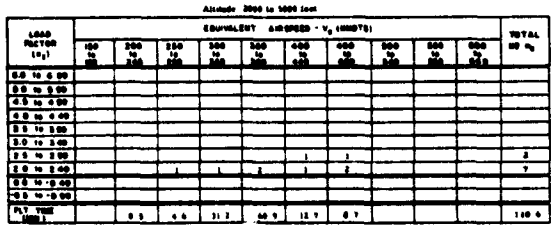
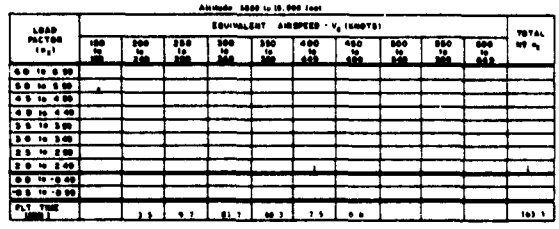


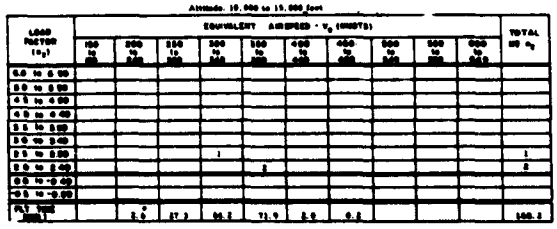
Table 11

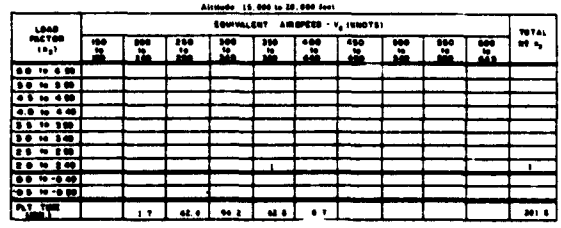
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission I — Gross Weight Range: 43,000 to 51,000 lb.

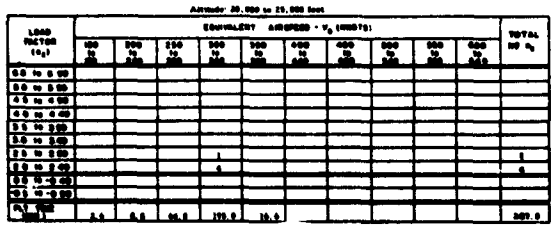


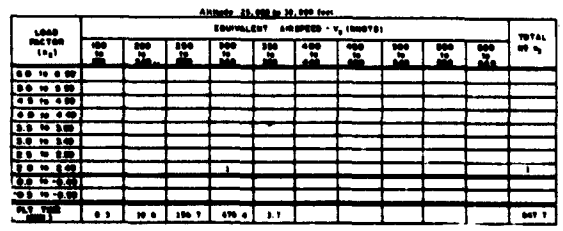


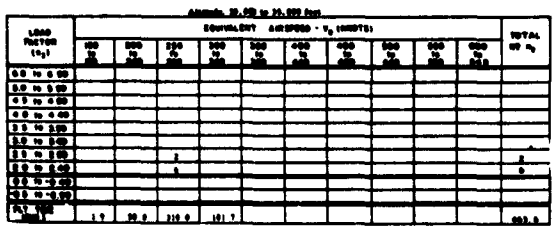












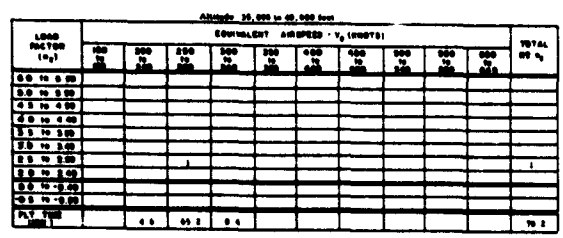
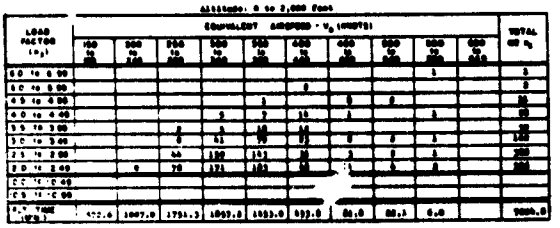
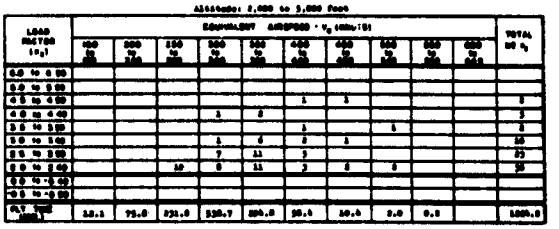
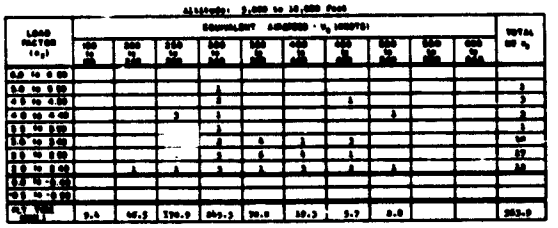


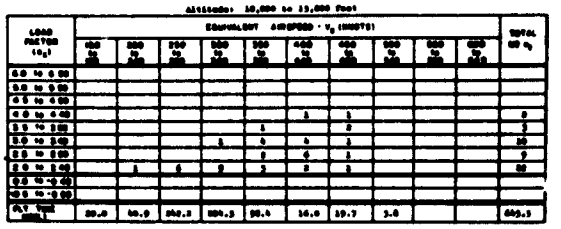
Table 12

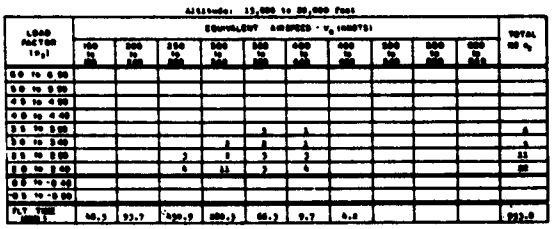
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission II — Gross Weight Range: 27,000 to 35,000 lb.

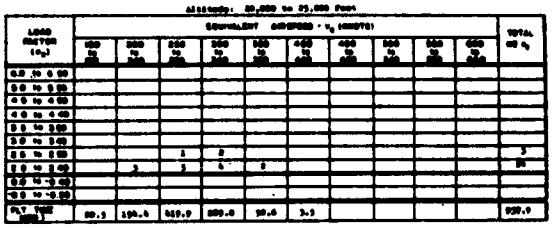


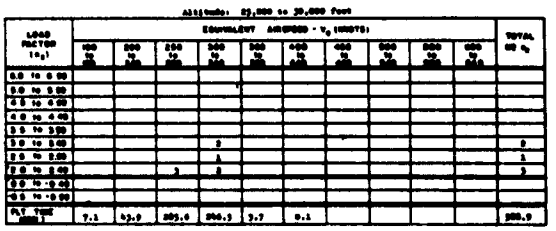


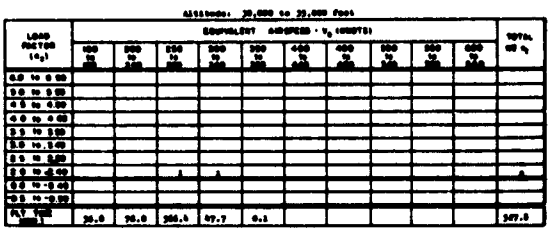


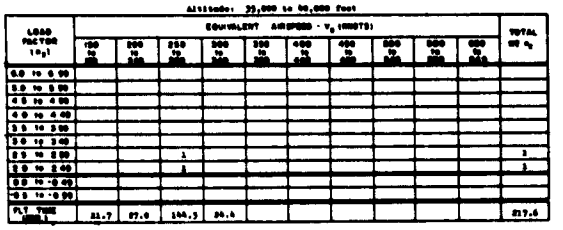












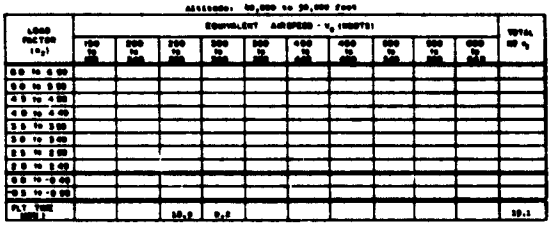
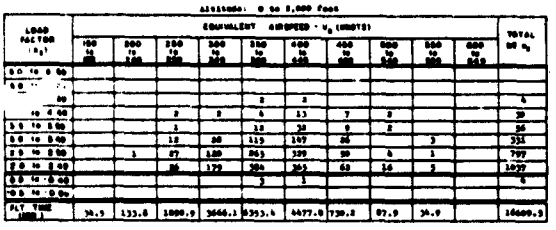
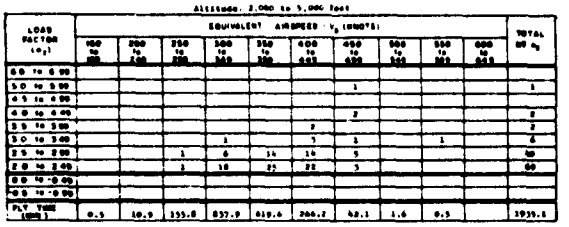
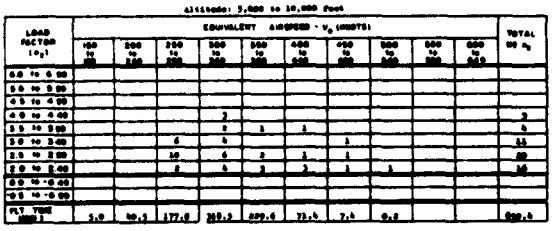


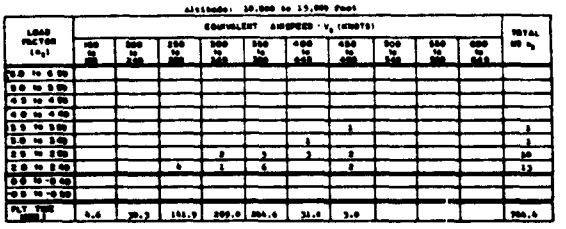
Table 13

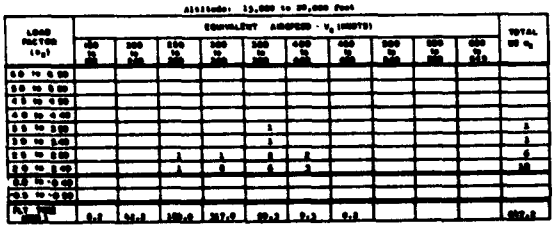
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission II — Gross Weight Range: 35,000 to 43,000 lb.

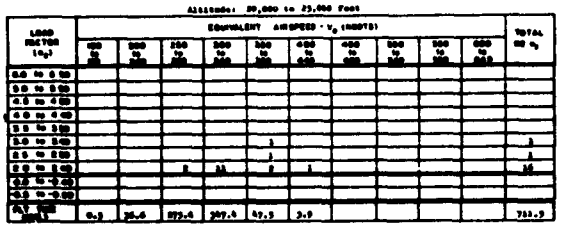


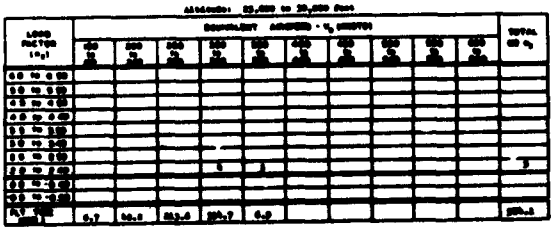


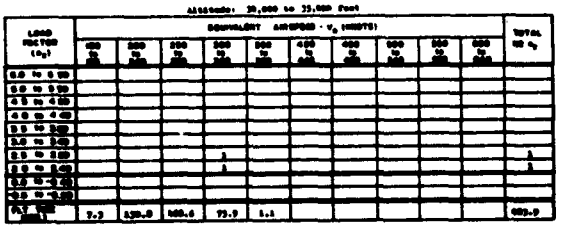


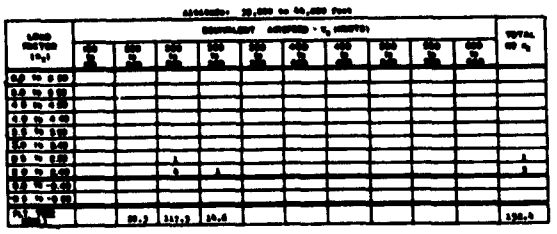












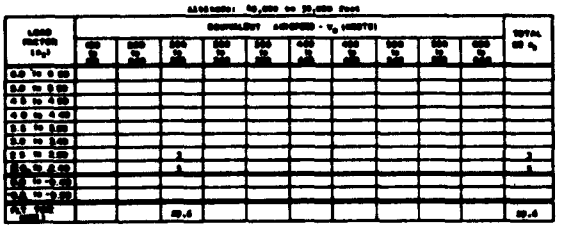
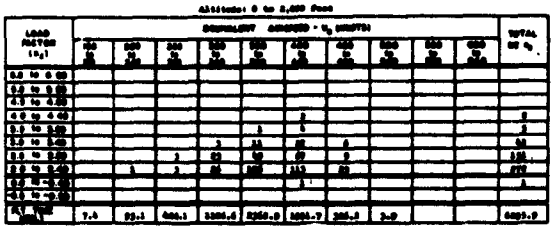
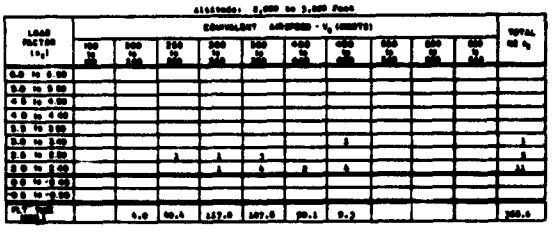
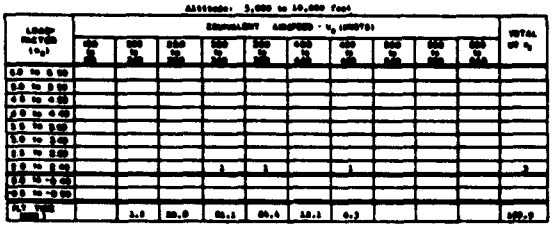


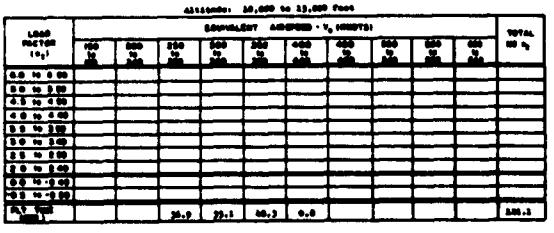
Table 14

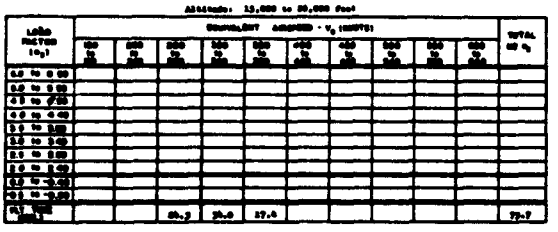
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission II — Gross Weight Range: 43,000 to 51,000 lb.

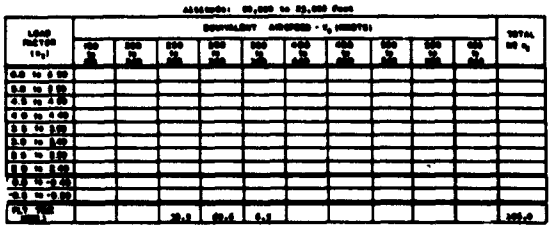


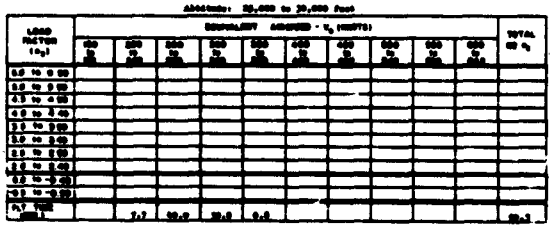


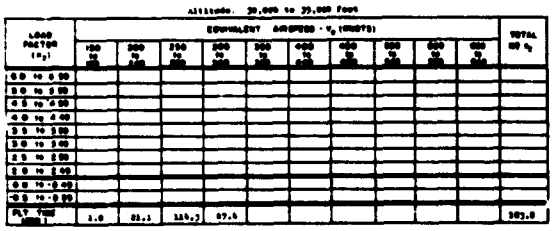












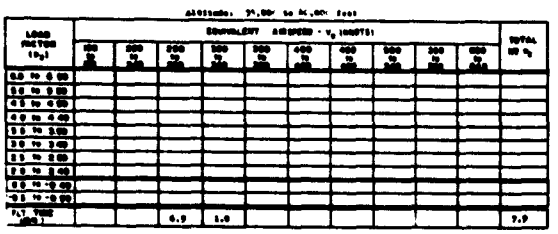
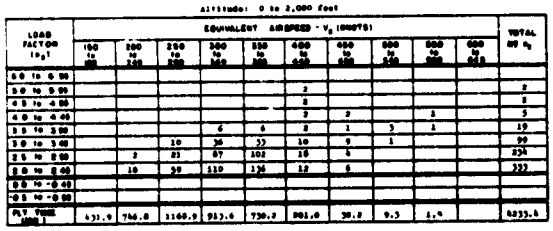
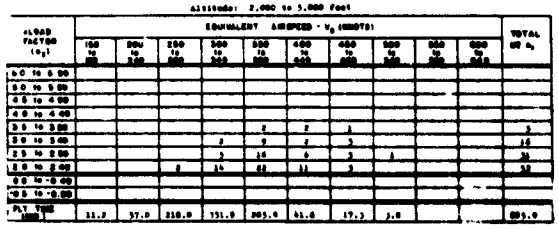
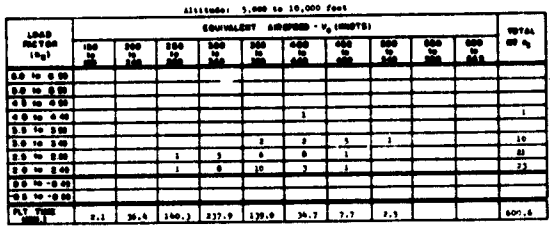


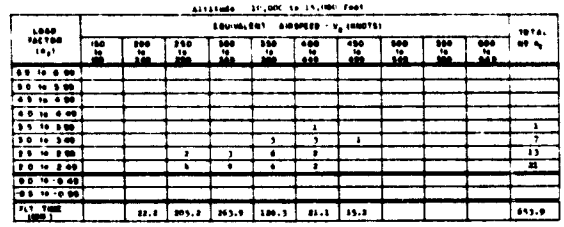
Table 15

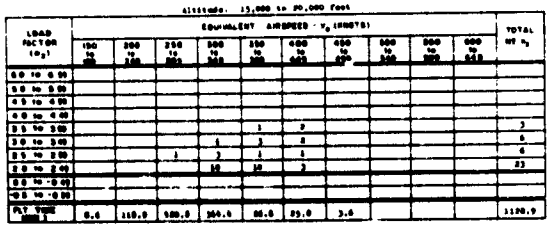
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission III — Gross Weight Range: 27,000 to 35,000 lb.

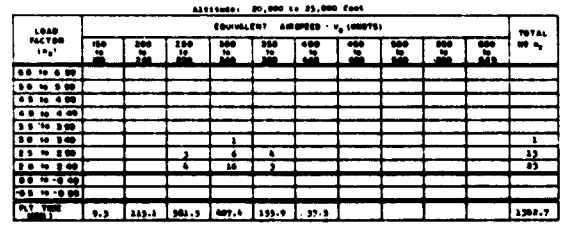


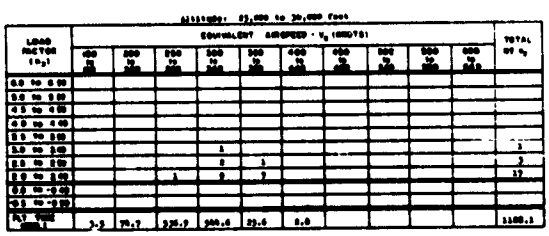


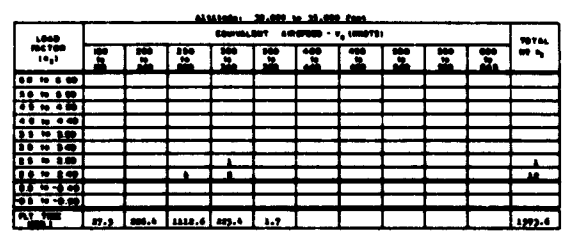


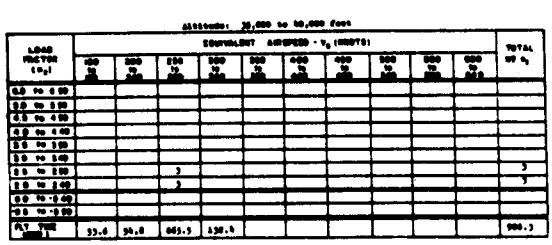












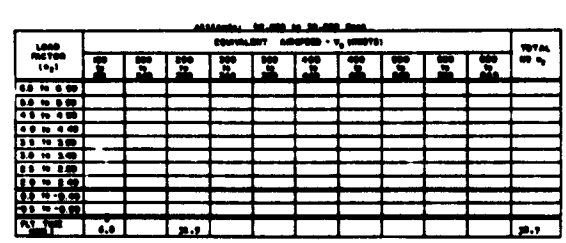
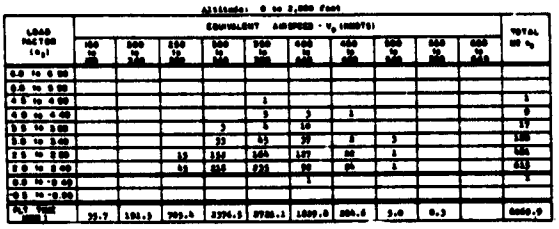
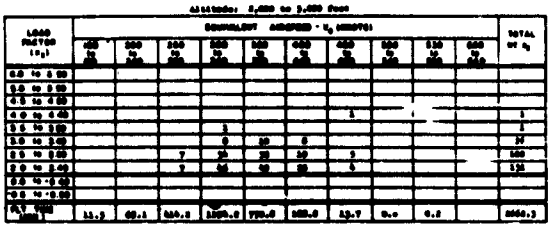
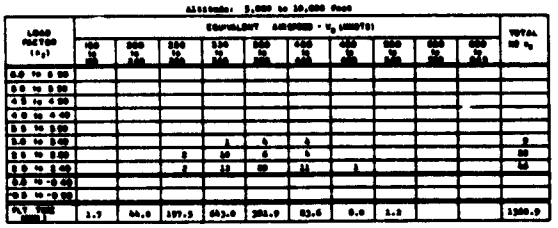


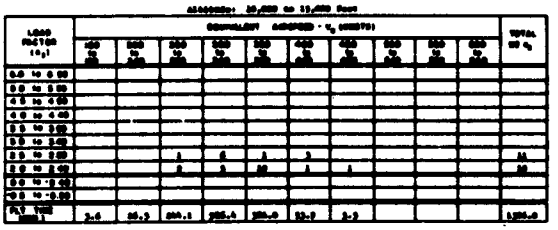
Table 16

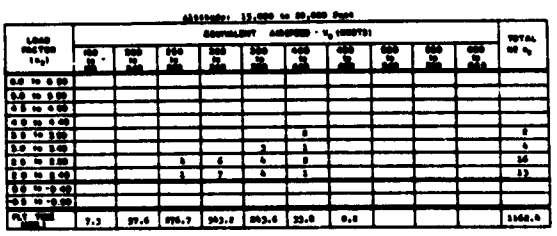
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission III — Gross Weight Range: 35,000 to 43,000 lb.

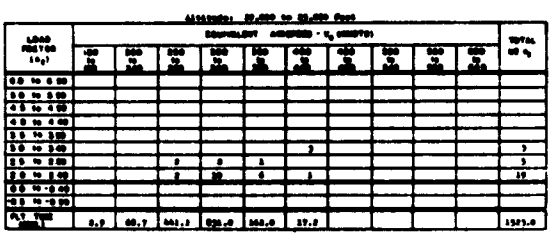


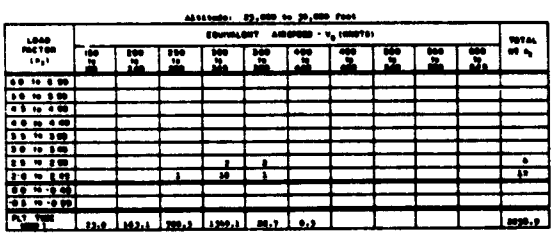


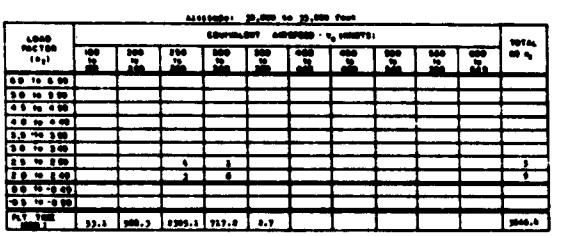


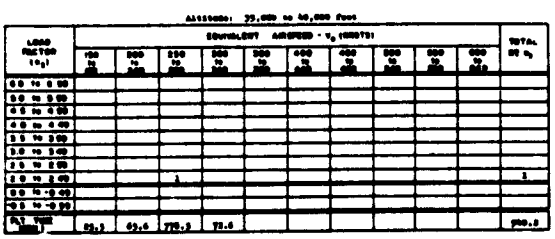












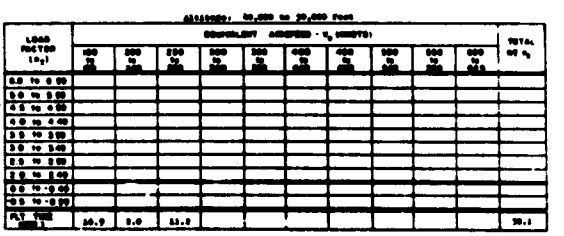
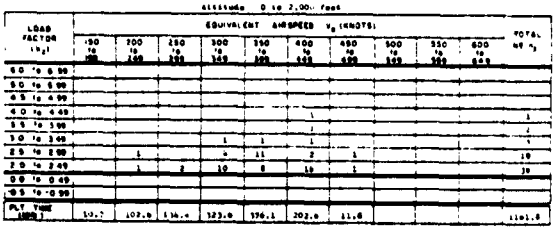
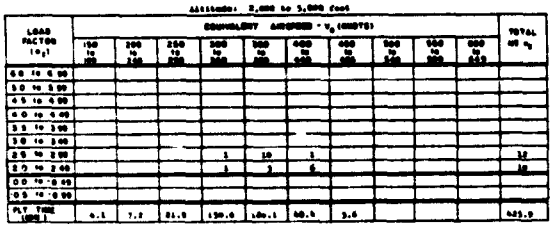
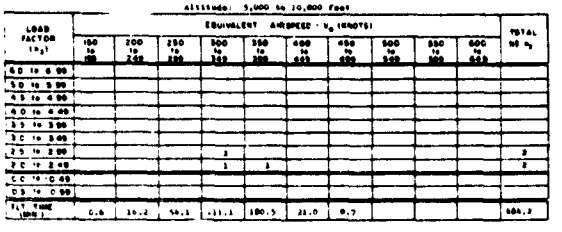


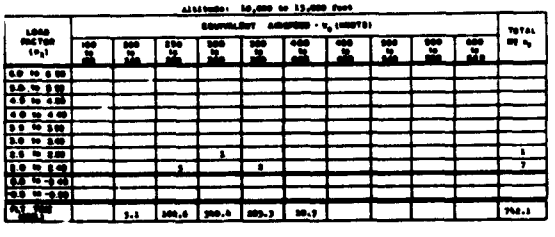
Table 17

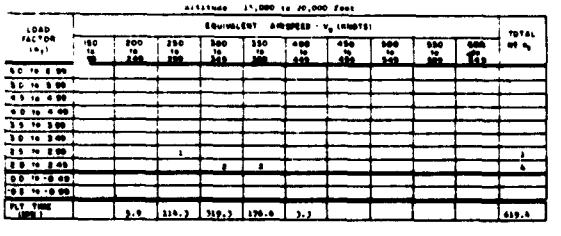
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission III — Gross Weight Range: 43,000 to 51,000 lb.

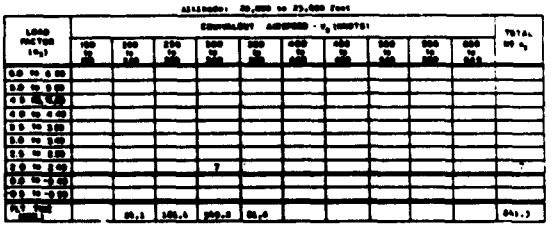


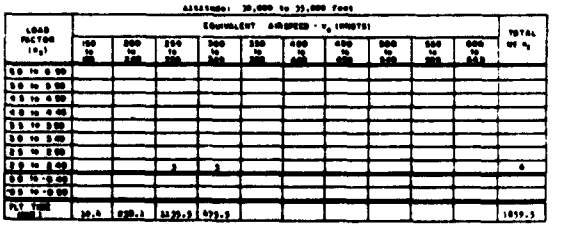


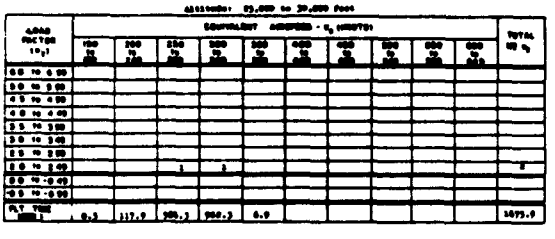












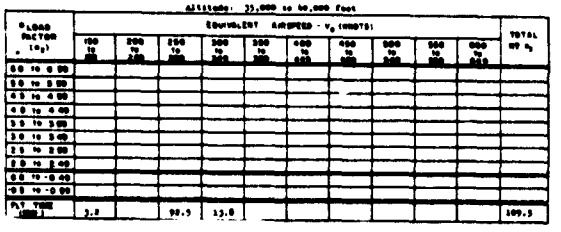
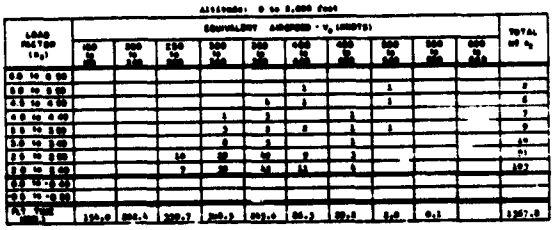
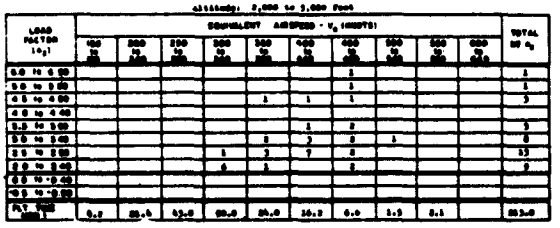
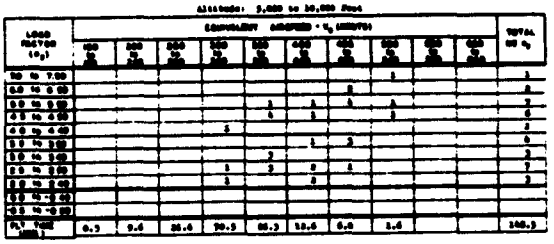


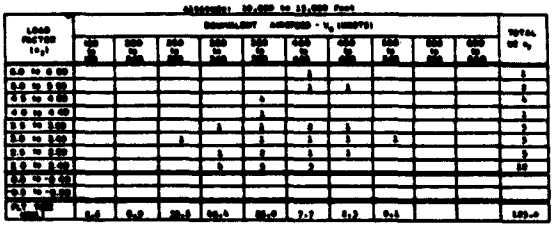
Table 18

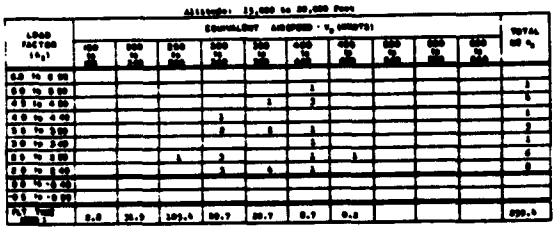
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission IV — Gross Weight Range: 27,000 to 35,000 lb.

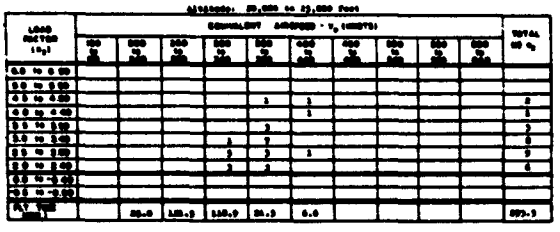


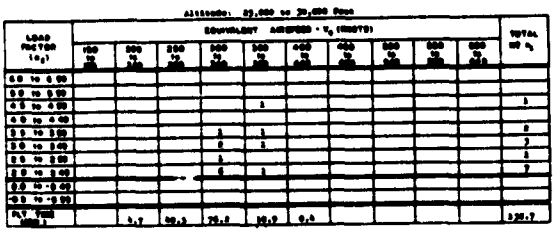


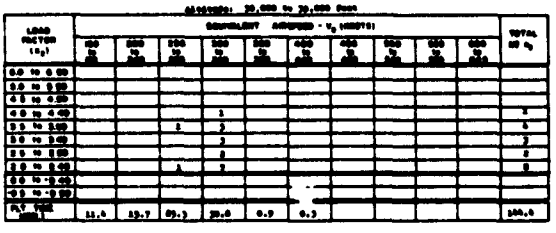


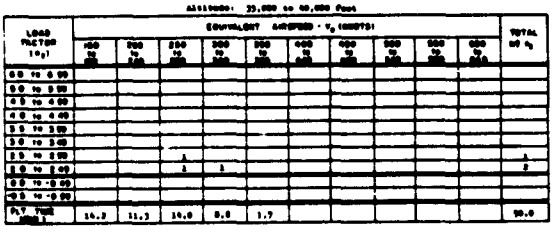












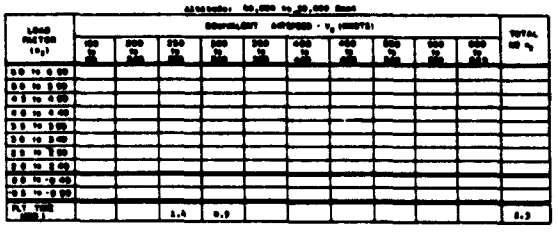


Table 19

Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission IV — Gross Weight Range: 35,000 to 43,000 lb.

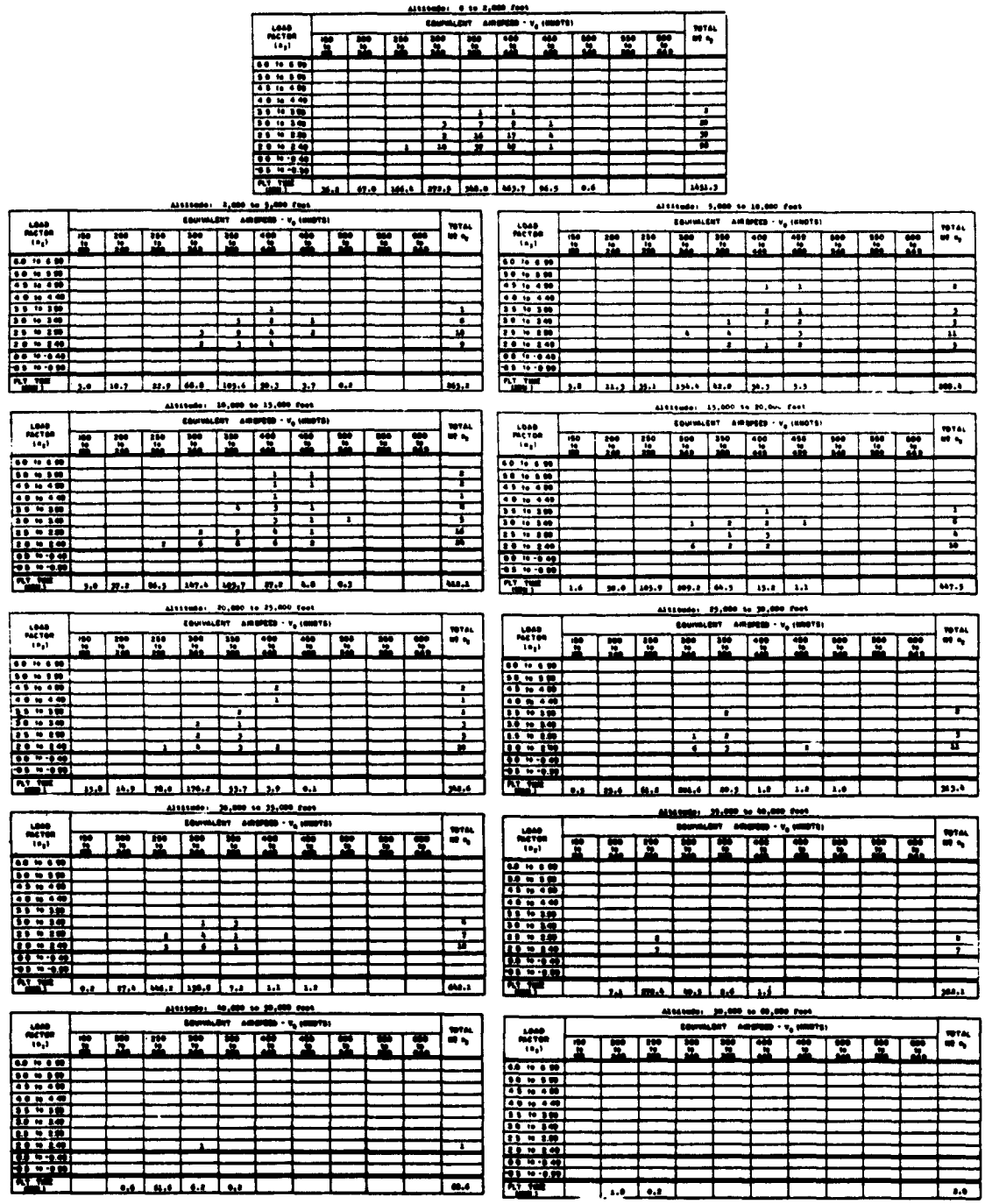
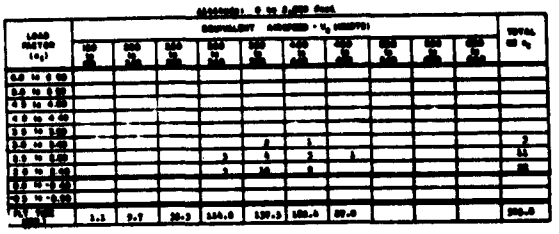
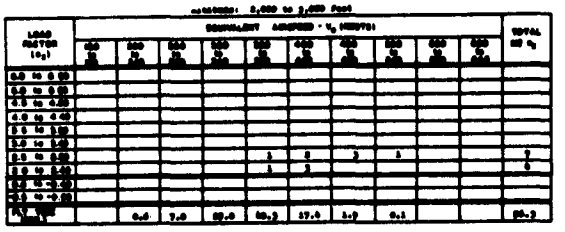
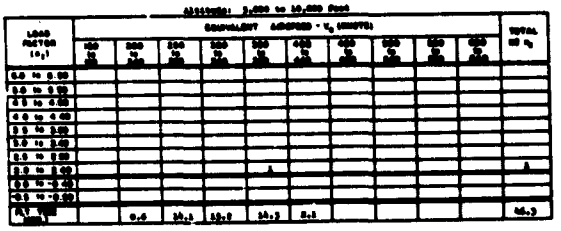


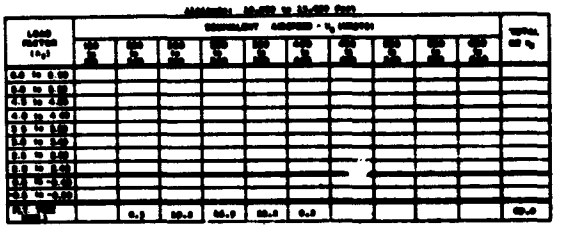
Table 20

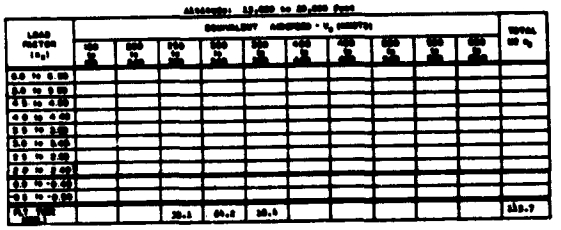
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission IV — Gross Weight Range: 43,000 to 51,000 lb.

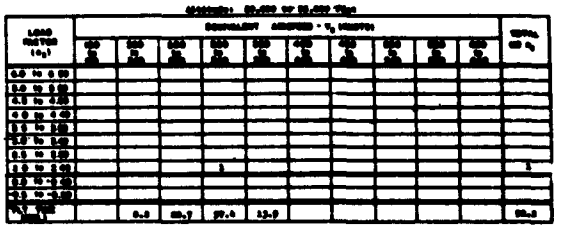


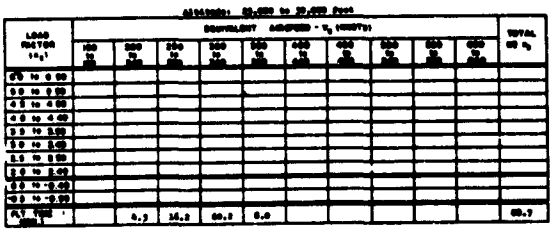


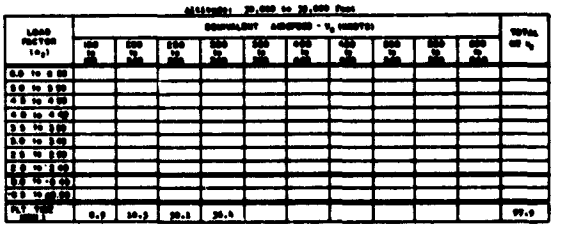


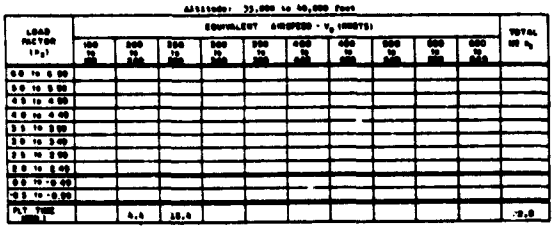












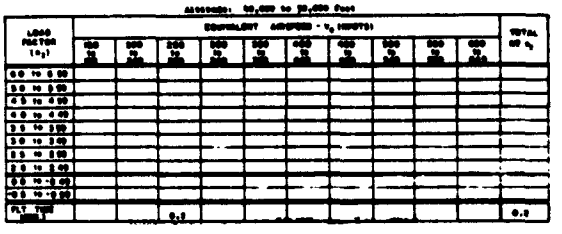
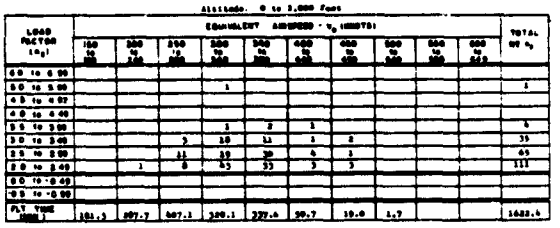
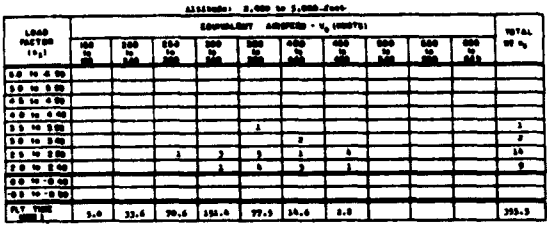
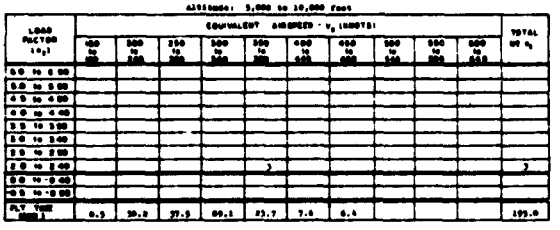


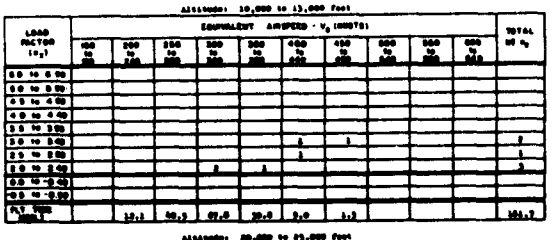
Table 21

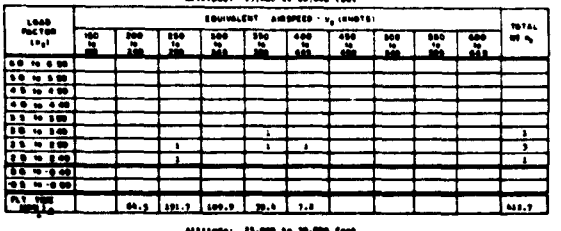
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission V — Gross Weight Range: 27,000 to 35,000 lb.

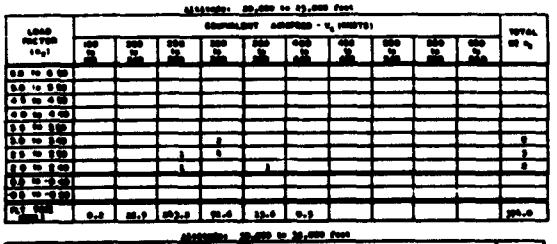


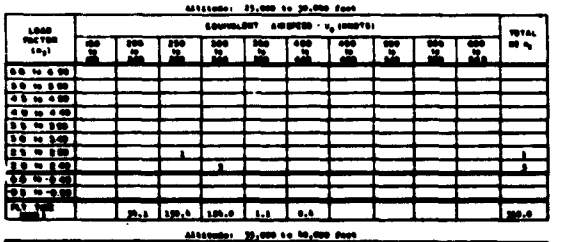


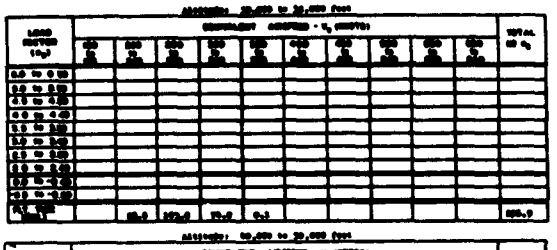


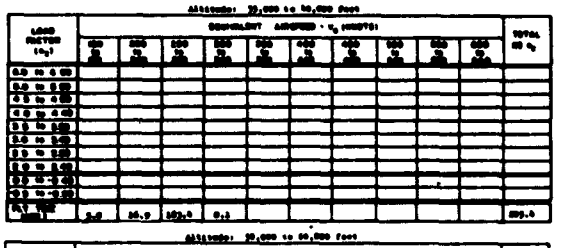


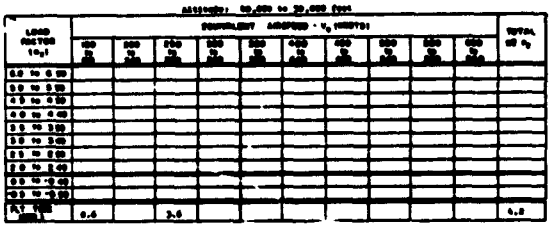












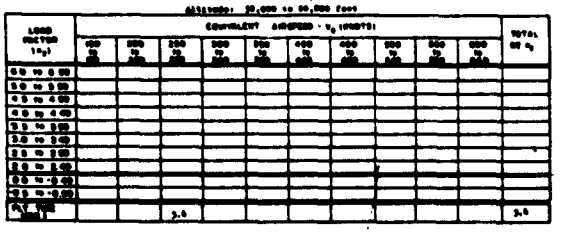
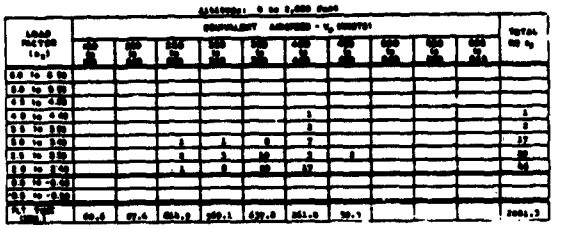
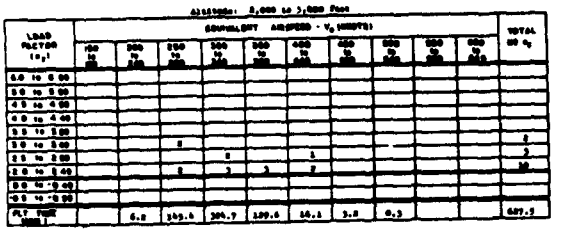
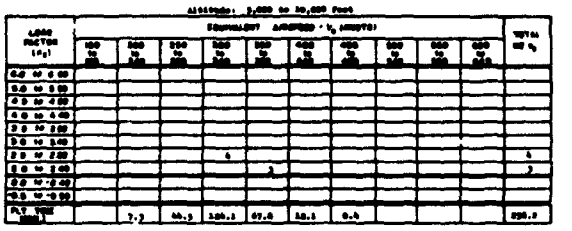


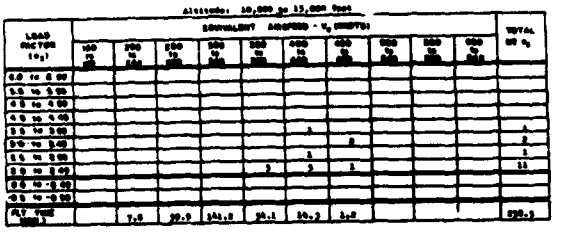
Table 22

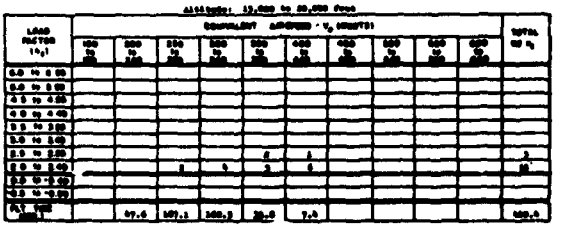
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission V — Gross Weight Range: 35,000 to 43,000 lb.

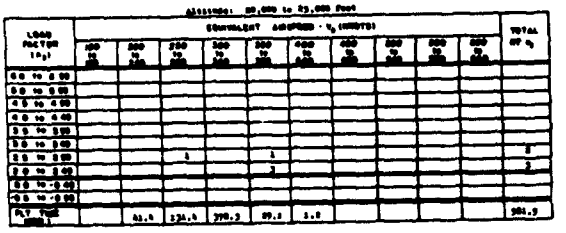


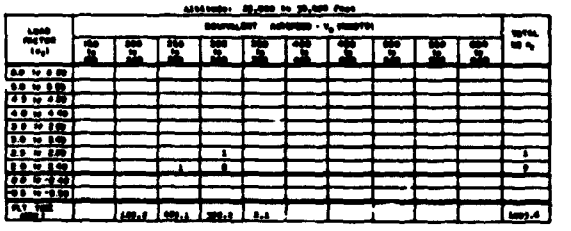


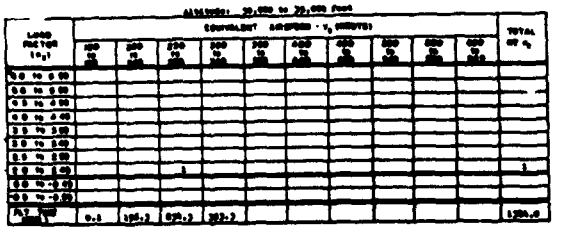












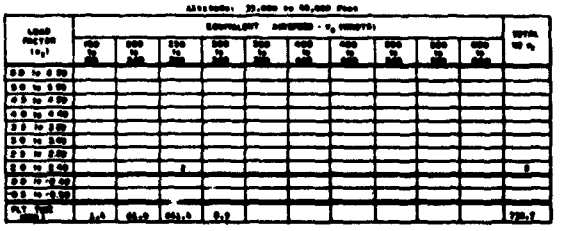
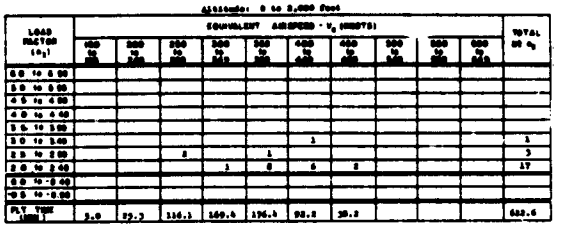
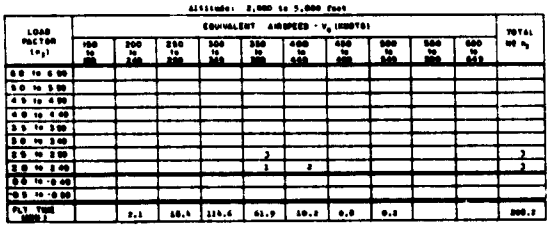
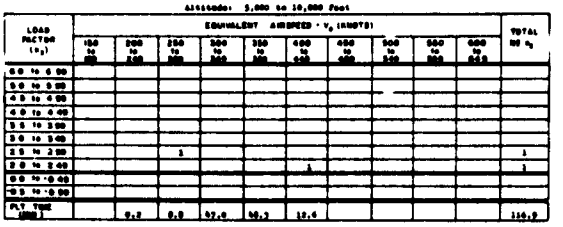


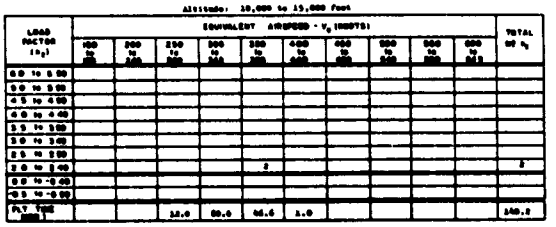
Table 23

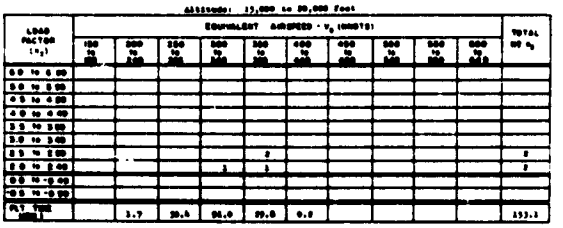
Distribution of Maneuver Load Factors by Equivalent Airspeed and Altitude — Mission V — Gross Weight Range: 43,000 to 51,000 lb.

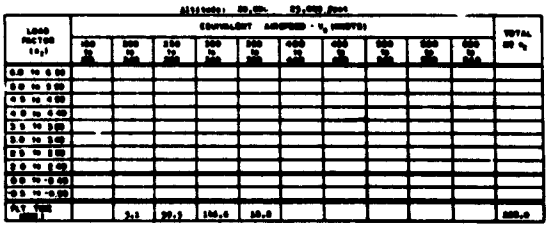


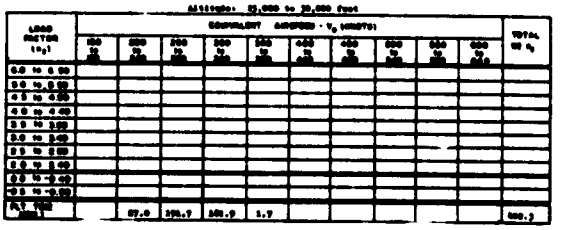


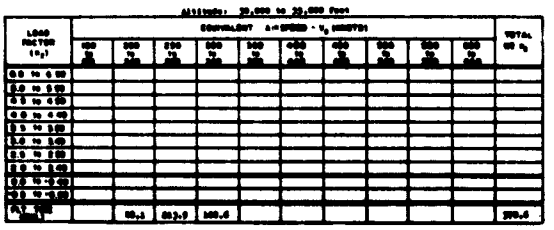


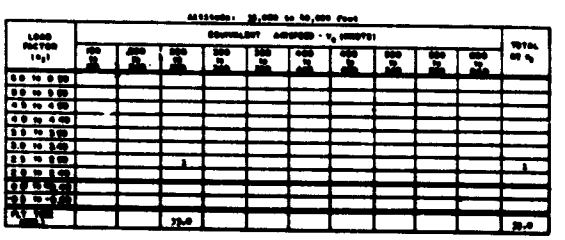












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(over)

acceleration at the center of gravity, airspeed, and altitude. The information derived from these parameters is intended for use in estimating the fatigue and service life effects of the maneuver environment upon the RF-101C aircraft structure.

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