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THE NASA DIGITAL VGH PROGRAM -
EXPLORATION OF METHODS AND FINAL RESULTS

Volume V - DC 10 Data 1981-1982: 129 HOURS

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FOREWORD

This report was prepared by Eagle Engineering, Inc., Hampton Division, under contract NASW 4430, sponsored by NASA Langley Research Center and the Federal Aviation Administration Technical Center under the FAA-NASA Interagency Agreement No. DTFA03-890-A-00019 of 13 June 1989. This report fulfills the requirement of the Program Plan for the National Aging Aircraft Research Program, DOT/FAA/CT-88/32, August 1989, Paragraph 2.3.2.1, Flight Loads.

The Eagle Engineering, Inc. effort was performed by Norman L. Crabill and administered under the direction of Joseph W. Stickle (NASA Langley Research Center) and Thomas DeFiore (FAA Technical Center).

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THE NASA DIGITAL VGH PROGRAM-
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Volume V: DC 10 Data 1981-1981: 129 HOURS

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SUMMARY

Data obtained from the Digital Flight Data Recorder System of Douglas DC 10 aircraft in 23 flights and 129 hours of airline revenue operations are presented as an extension of the work documented in Volume I of this report. Data on conditions with flap deployment are given. No discussion of the data is presented.

INTRODUCTION

This document presents the results of the NASA DVGH Program obtained during 1981-1982 operations of Douglas DC 10 aircraft. The volume is an extension of work and methods documented in Volume I. The data reduction analysis and methods and data presentation are essentially the same as those reported in Volume I.

AIRCRAFT AND INSTRUMENTATION

Aircraft

The aircraft type was the Douglas DC 10-30 with three General Electric CF6-6D1 turbofan engines. Characteristics of the aircraft used in the data reduction process are given in Table I. The configuration is shown in figure 1.

Instrumentation

The data were obtained from the Digital Flight Data Recorder System described in Volume I. Measurements were:

<u>Parameter</u>	<u>Range and Units</u>	<u>Samples per Second</u>
$a_n + 1$	-3g to +6g	4
a_y	-1g to +1g	4
CAS	100 to 450 kts	1
HP	-1,000 to 50,000 ft	1
FLP	-5° to 60°	1

SCOPE OF DATA

Data were collected from several aircraft operating in regular airline service over the area shown in figure 2 during 1980 through 1982: All of the data (23 flights and 129 hours) were obtained during passenger-carrying revenue service. Due to operational difficulties, it was not practical to obtain continuous data from one aircraft as in Volumes I and II; it was therefore decided to obtain the data from any of several DC 10-30 aircraft being operated by the airline over the service route during the 11 months of the test.

DATA REDUCTION PROCESS

The Data Reduction Process is basically the same as described in Volume I. The filter used to separate maneuver and gust acceleration was the same as that described in Volume I, with the low and high limits of the band pass set at 0.09 and 1.2 Hz, respectively, based on an inspection of representative spectra.

RESULTS

Presentation of Flight Profile Statistics results is similar to that described in Volume I. Flight Profile Statistics are given in Percent of Time, and as Maximum Values on a Percent of Flight basis for Entire Flights (flaps up or down) and for Flaps Deflected. For operations reported in this volume, the conditions existing at flap retraction after lift off, and the conditions existing at flap deflection before landing are given.

Acceleration Derived Statistics are also presented as in Volume I, except that with Flaps Deflected, the maximum a_n per flight and the Equivalent Airspeed occurring are presented for the various flap detents in take off and landing.

The detailed Flight Profile and Acceleration Derived Statistics are given in figures 3 through 24, as shown in Table II. No discussion of the data is presented. The Acceleration Derived quantities in this volume are subject to the same limitations discussed in Volume I, which indicates that the exceedances derived from the DFDR system at 4 samples per second may be significantly less than if actual peak values were counted.

CONCLUDING REMARKS

Data obtained from the Digital Flight Data Recorder system of Douglas DC 10-30 in 23 flights and 129 hours of airline revenue operations are presented as an extension of the work documented in Volume I of this report. Some new data on conditions with flap deployment are given. No general discussion of the data is presented.

TABLE I

DOUGLAS DC 10-30 CHARACTERISTICS USED IN THE ANALYSIS

O Geometrical Characteristics

- o Wing Area = 3647.5 ft²
- o Wing Mean Chord = 24.65 ft

O Lift Curve Slope $C_{L\alpha}$ per degree

o Flaps up = f(M,HP)

o Flaps down = f(FLP)

<u>M</u>	<u>HP = 0</u>	<u>20 kft</u>	<u>40 kft</u>	<u>FLP, deg</u>	<u>HP $\approx$ 0</u>
.2	.0885	.0890	.0890	0	.0885
.4	.0850	.0890	.0915	2	.0930
.5	.0825	.0890	.0925	12	.0970
.6	.0790	.0890	.0940	17	.0970
.7	.0755	.0900	.0980	24	.0980
.8	-	.0935	.1050	37	.0970
.90	-	.1005	.1160	50	.0985

- o Weight was computed linearly with time from take off to landing as described in Appendix C in Volume I.

TABLE II
INDEX OF FLIGHT PROFILE AND ACCELERATION STATISTICS

FLIGHT PROFILE STATISTICS

o ENTIRE FLIGHTS

Figure Number	Subject	Page Numbers
3	Weight vs. Flight Duration	11-16
4	Altitudes and Gross Weights	17
5	Altitudes and Airspeeds	18-21
6	Altitude Summary	22
7	Maximum Altitudes	23-24

o FLAPS DEFLECTED

8	Flap Detent Use	25
9	Weights, Altitudes and Airspeeds	26-36
10	Flap Deflection Times	37-39
11	Equivalent Airspeeds and Detents	40
12	Flap Use above 10,000 ft	41

TABLE II (Continued)
ACCELERATION DERIVED STATISTICS

o ENTIRE FLIGHTS

Figure Number	Subject	Page Numbers
13	Normal Acceleration Exceedances	
(a)	a_n matrix	42
(b)	a_{nM} matrix	43
(c)	a_{nG} matrix	44
(d)-(m)	a_n , a_{nM} , a_{nG} plots	45-54
14	Lateral Acceleration Exceedances	
(a)	a_y matrix	55
(b)-(k)	a_y plots	56-65
15	U_{de} Exceedances	
(a)	U_{de} matrix	66
(b)-(k)	U_{de} plots	67-76
16	Peak Positive and Negative a_n vs. Altitude	
(a)	a_n matrix	77
(b)-(k)	a_n plots	78-87
17	Peak Positive and Negative a_{nM} vs. Altitude	
(a)	a_{nM} matrix	88
(b)-(k)	a_{nM} plots	89-98
18	Peak Positive and Negative a_{nG} vs. Altitude	
(a)	a_{nG} matrix	99
(b)-(k)	a_{nG} plots	100-109

TABLE II (Concluded)

19 Peak Positive and Negative U_{de} vs. Altitude

(a)	U_{de} matrix	110
(b)-(k)	U_{de} plots	111-120

o FLAPS DEFLECTED

Figure Number	Subject	Page Numbers
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20 a_n Exceedances with Flaps Deflected

(a)	Take Off Detents matrix	121
(b)	Take Off Detents plot	122
(c)	Landing Detents matrix	123
(d)	Landing Detents plot	124

21 Peak Positive and Negative a_n per flight and EAS bands

(a)-(d)	Take Off Detents	125-128
(e)-(j)	Landing Detents	129-135

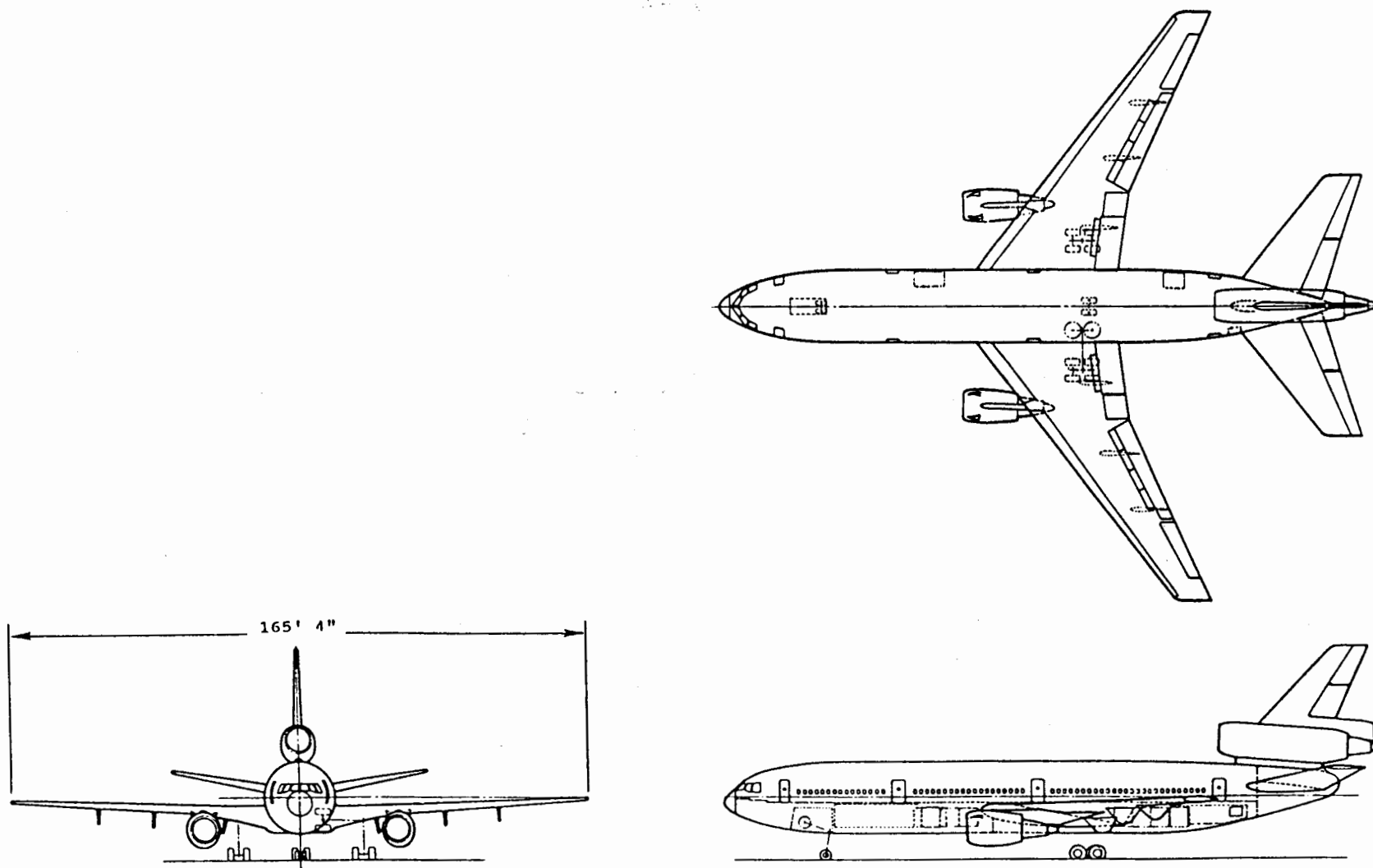
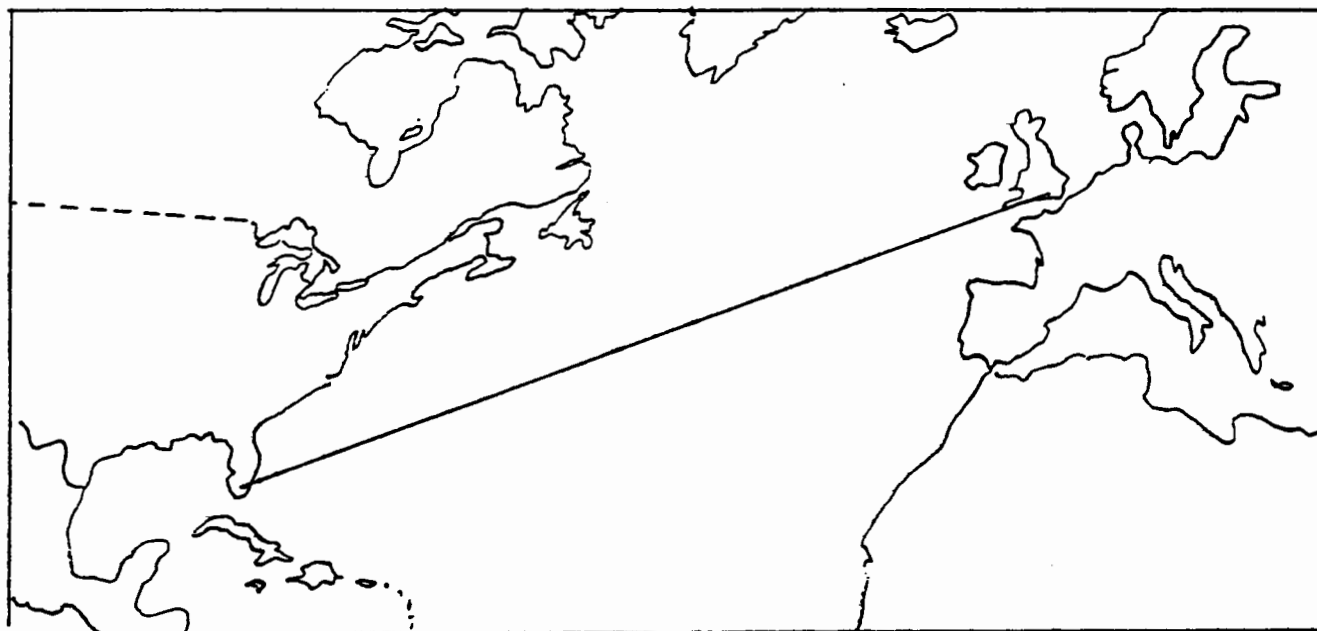


FIGURE 1.- Three view drawing of the aircraft.



April 1981 - March 1982

23 Flights

129 Hours

59905 N. Miles

Figure 2. - Location of service area and scope of data.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	260 TO	290 TO	320 TO	350 TO	380 TO	410 TO	440 TO	470 TO	500 TO	530 TO
	290 KLBS	320 KLBS	350 KLBS	380 KLBS	410 KLBS	440 KLBS	470 KLBS	500 KLBS	530 KLBS	560 KLBS
9.0-10	0	0	0	0	0	0	4.3	4.3	13.0	0
8.0-9.0	0	0	0	0	0	0	0	0	8.7	8.7
7.5-8.0	0	0	0	0	0	0	0	0	4.3	4.3
7.0-7.5	0	0	0	0	0	0	0	0	4.3	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	0	0	0	0	8.7	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	0	0	0	0	0	4.3	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	0	0	0	0	4.3	0	0	0	0
2.0-2.5	0	0	0	4.3	4.3	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	0	0	17.4	4.3	0	0	0	0	0	0
.0- .5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	0	0	17.4	8.7	13.0	4.3	8.7	4.3	30.4	13.0

(a) Gross weight at take off

Figure 3.- Percent of flights; weights vs durations.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	260 TO 290 KLS	290 TO 320 KLS	320 TO 350 KLS	350 TO 380 KLS	380 TO 410 KLS	410 TO 440 KLS	440 TO 470 KLS	470 TO 500 KLS	500 TO 530 KLS	530 TO 560 KLS
9.0-10	0	4.3	17.4	0	0	0	0	0	0	0
8.0-9.0	0	0	4.3	13.0	0	0	0	0	0	0
7.5-8.0	0	0	0	4.3	4.3	0	0	0	0	0
7.0-7.5	0	0	0	4.3	0	0	0	0	0	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	0	4.3	4.3	0	0	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	0	0	0	4.3	0	0	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	0	0	4.3	0	0	0	0	0	0
2.0-2.5	0	0	8.7	0	0	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	0	8.7	13.0	0	0	0	0	0	0	0
.0- .5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	0	17.4	47.8	26.1	8.7	0	0	0	0	0

(b) Gross weight at landing

Figure 3.- Continued.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	0 TO 25 KLBS	25 TO 50 KLBS	50 TO 75 KLBS	75 TO 100 KLBS	100 TO 125 KLBS	125 TO 150 KLBS	150 TO 175 KLBS	175 TO 200 KLBS	200 TO 225 KLBS	225 TO 250 KLBS
9.0-10	0	0	0	0	0	0	0	8.7	13.0	0
8.0-9.0	0	0	0	0	0	0	0	8.7	8.7	0
7.5-8.0	0	0	0	0	0	0	0	8.7	0	0
7.0-7.5	0	0	0	0	0	0	0	4.3	0	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	0	0	0	0	8.7	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	0	0	0	4.3	0	0	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	0	0	4.3	0	0	0	0	0	0
2.0-2.5	0	0	8.7	0	0	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	0	21.7	0	0	0	0	0	0	0	0
.0-.5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	0	21.7	8.7	4.3	13.0	0	0	30.4	21.7	0

(c) Fuel weight at take off

Figure 3.- Continued.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	0 TO 25 KLBS	25 TO 50 KLBS	50 TO 75 KLBS	75 TO 100 KLBS	100 TO 125 KLBS	125 TO 150 KLBS	150 TO 175 KLBS	175 TO 200 KLBS	200 TO 225 KLBS	225 TO 250 KLBS
9.0-10	0	21.7	0	0	0	0	0	0	0	0
8.0-9.0	0	17.4	0	0	0	0	0	0	0	0
7.5-8.0	0	8.7	0	0	0	0	0	0	0	0
7.0-7.5	0	4.3	0	0	0	0	0	0	0	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	4.3	4.3	0	0	0	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	4.3	0	0	0	0	0	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	4.3	0	0	0	0	0	0	0	0
2.0-2.5	0	8.7	0	0	0	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	0	21.7	0	0	0	0	0	0	0	0
.0-.5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	4.3	95.7	0	0	0	0	0	0	0	0

(d) Fuel weight at landing

Figure 3.- Continued.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	0 TO 25 KLBS	25 TO 50 KLBS	50 TO 75 KLBS	75 TO 100 KLBS	100 TO 125 KLBS	125 TO 150 KLBS	150 TO 175 KLBS	175 TO 200 KLBS	200 TO 225 KLBS	225 TO 250 KLBS
9.0-10	0	0	0	0	0	0	13.0	8.7	0	0
8.0-9.0	0	0	0	0	0	0	8.7	8.7	0	0
7.5-8.0	0	0	0	0	0	0	8.7	0	0	0
7.0-7.5	0	0	0	0	0	4.3	0	0	0	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	0	0	0	8.7	0	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	0	4.3	0	0	0	0	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	0	4.3	0	0	0	0	0	0	0
2.0-2.5	0	8.7	0	0	0	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	21.7	0	0	0	0	0	0	0	0	0
.0-.5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	21.7	8.7	8.7	8.7	0	4.3	30.4	17.4	0	0

(e) Fuel burn vs flight duration

Figure 3.- Continued.

DURATION OF FLIGHT, HOURS	PERCENT OF FLIGHTS									
	0 TO 15 KILBS	15 TO 30 KILBS	30 TO 45 KILBS	45 TO 60 KILBS	60 TO 75 KILBS	75 TO 90 KILBS	90 TO 105 KILBS	105 TO 120 KILBS	120 TO 135 KILBS	135 TO 150 KILBS
9.0-10	0	4.3	0	17.4	0	0	0	0	0	0
8.0-9.0	0	0	0	4.3	0	0	0	0	0	0
7.5-8.0	0	0	0	0	0	0	0	0	0	0
7.0-7.5	0	0	0	4.3	0	0	0	0	0	0
6.5-7.0	0	0	0	0	0	0	0	0	0	0
6.0-6.5	0	0	0	0	0	0	0	0	0	0
5.5-6.0	0	0	0	0	0	0	0	0	0	0
5.0-5.5	0	0	0	0	0	0	0	0	0	0
4.5-5.0	0	4.3	4.3	0	0	0	0	0	0	0
4.0-4.5	0	0	0	0	0	0	0	0	0	0
3.5-4.0	0	0	0	0	0	0	0	0	0	0
3.0-3.5	0	0	0	0	0	0	0	0	0	0
2.5-3.0	0	0	0	0	0	4.3	0	0	0	0
2.0-2.5	0	0	4.3	4.3	0	0	0	0	0	0
1.5-2.0	0	0	0	0	0	0	0	0	0	0
1.0-1.5	0	0	0	0	0	0	0	0	0	0
.5-1.0	0	8.7	4.3	4.3	4.3	0	0	0	0	0
.0-.5	0	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	0	17.4	13.0	34.0	4.3	26.1	4.3	0	0	0

(f) Payload weight vs flight duration

Figure 3.- Concluded.

PRESSURE ALTITUDE BANDS

GROSS WEIGHT KILBS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
CLIMB										
260-290	0	0	0	0	0	0	0	0	0	0
290-320	0	0	0	0.0317	0.0091	0	0	0	0	0.0408
320-350	0.0855	0.0817	0.1297	0.1012	0.0275	0	0	0	0	0.4257
350-380	0.0661	0.0774	0.1002	0.0881	0.0638	0.0653	0.0560	0.2138	0	0.7309
380-410	0.0803	0.0803	0.0743	0.0526	0.0862	0.0836	0.0903	0.1945	0	0.7420
410-440	0.0199	0.0187	0.0299	0.0237	0.0336	0.0527	0.0997	0.0299	0	0.3083
440-470	0.0444	0.0651	0.0771	0.0698	0.0674	0.0944	0.1604	0.0858	0	0.6644
470-500	0.0400	0.0211	0.0305	0.0763	0.0957	0.1506	0.2776	0.0067	0	0.6985
500-530	0.2503	0.2299	0.2815	0.2428	0.3254	0.3421	0.2084	0	0	1.8802
530-560	0.1068	0.1243	0.1192	0.1351	0.1877	0.1785	0.0566	0	0	0.9080
PERCENT TOTAL TIME =	0.6933	0.6985	0.8425	0.8214	0.8964	0.9671	0.9489	0.5307	0	6.3987
AVE GROSS WEIGHT IN ALTITUDE BAND	461.05	459.97	453.32	455.38	480.31	484.60	468.14	395.44	0	
LEVEL										
260-290	0	0	0	0	0	0	0	0	0	0
290-320	0.0271	0	0.0802	0.0336	0.1541	0	0	0.9151	0	1.2101
320-350	0.0336	0.0763	0.1228	0.1176	0.3204	0.0427	0.2741	5.0852	0	6.0727
350-380	0.0621	0.1732	0.0194	0	0.0983	0.1125	0.1876	13.1288	0	13.7818
380-410	0	0.0646	0	0	0	0	2.8452	13.8930	0	16.8028
410-440	0	0	0	0	0	0.2365	6.0564	9.8545	0	16.1473
440-470	0	0	0	0	0	1.0516	7.9362	5.2395	0	14.2273
470-500	0	0	0	0	0	2.0732	9.1432	1.1780	0	12.3944
500-530	0	0.0168	0	0	0	1.8449	3.9342	0	0	5.7960
530-560	0	0	0	0	0	0.4872	0.2250	0	0	0.7122
PERCENT TOTAL TIME =	0.1228	0.3310	0.2224	0.1513	0.5727	5.8485	30.6019	49.2941	0	87.1447
AVE GROSS WEIGHT IN ALTITUDE BAND	343.53	371.56	326.80	328.33	332.08	488.24	459.20	383.67	0	
DESCENT										
260-290	0	0	0	0	0	0	0	0	0	0
290-320	0.2176	0.1127	0.1230	0.1196	0.0594	0.0483	0.0547	0.0625	0	0.7978
320-350	0.6314	0.3920	0.3600	0.2892	0.2259	0.2064	0.2096	0.1426	0	2.4571
350-380	0.3827	0.3404	0.2801	0.2362	0.2501	0.2950	0.2801	0.3625	0	2.4269
380-410	0.1354	0.1086	0.0657	0.0356	0.0409	0.0429	0.0681	0.2276	0	0.7748
410-440	0	0	0	0	0	0	0	0	0	0
440-470	0	0	0	0	0	0	0	0	0	0
470-500	0	0	0	0	0	0	0	0	0	0
500-530	0	0	0	0	0	0	0	0	0	0
530-560	0	0	0	0	0	0	0	0	0	0
PERCENT TOTAL TIME =	1.3671	0.9537	0.8289	0.6804	0.5763	0.5925	0.6125	0.8452	0	6.4566
AVE GROSS WEIGHT IN ALTITUDE BAND	344.57	349.00	345.44	343.27	349.19	351.83	352.71	365.36	0	
PERCENT TIME = $\frac{\text{HOURS IN ALTITUDE \& CLIMB (LEVEL, DESCENT) \& GROSS MASS BANDS}}{\text{TOTAL TIME, HOURS}} \times 100$										
										TOTAL FLIGHTS 23
										TOTAL TIME 128.82
										TOTAL AIRMILES 59904.33

Figure 4.- Percent time in altitude and gross weight bands.

PRESSURE ALTITUDE BANDS										
CAS INTERVAL, KTS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
120-130	0	0	0	0	0	0	0	0	0	0
130-140	0	0	0	0	0	0	0	0	0	0
140-150	0	0	0	0	0	0	0	0	0	0
150-160	0.0055	0	0	0	0	0	0	0	0	0.0055
160-170	0.0264	0	0	0	0	0	0	0	0	0.0264
170-180	0.0487	0.0037	0	0	0	0	0	0	0	0.0524
180-190	0.0838	0.0022	0	0	0	0	0	0	0	0.0860
190-200	0.1019	0.0011	0	0	0	0	0	0	0	0.1030
200-210	0.0766	0.0062	0	0	0	0	0	0	0	0.0828
210-220	0.0625	0.0028	0	0	0	0	0	0	0	0.0653
220-230	0.0537	0.0034	0	0	0	0	0	0	0	0.0571
230-240	0.0396	0.0131	0.0149	0	0	0	0	0	0	0.0677
240-250	0.0496	0.0948	0.0403	0.0052	0	0	0	0.0037	0	0.1935
250-260	0.0694	0.2210	0.0821	0.0131	0.0026	0	0	0.0625	0	0.4506
260-270	0.0252	0.0963	0.0431	0.0030	0.0015	0	0	0.1113	0	0.2804
270-280	0.0190	0.0678	0.0362	0.0037	0.0022	0	0.0192	0.2010	0	0.3490
280-290	0.0101	0.0418	0.0455	0.0159	0.0032	0	0.0881	0.1240	0	0.3286
290-300	0.0045	0.0129	0.0515	0.0254	0.0037	0.0022	0.2698	0.0272	0	0.3972
300-310	0.0037	0.0205	0.0912	0.0700	0.0963	0.0972	0.3877	0.0011	0	0.7677
310-320	0.0039	0.0390	0.1583	0.2693	0.2983	0.3306	0.1419	0	0	1.2412
320-330	0.0078	0.0470	0.2101	0.3773	0.3645	0.4268	0.0422	0	0	1.4756
330-340	0.0015	0.0149	0.0358	0.0056	0.0268	0.0685	0	0	0	0.1530
340-350	0	0.0090	0.0336	0.0325	0.0442	0.0310	0	0	0	0.1504
350-360	0	0.0011	0	0.0002	0.0532	0.0108	0	0	0	0.0653
360-370	0	0	0	0	0	0	0	0	0	0
370-380	0	0	0	0	0	0	0	0	0	0
380-390	0	0	0	0	0	0	0	0	0	0
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	217.7350	270.1828	300.7327	317.1118	321.9004	321.1884	302.0782	273.7628	0	
TOTAL HRS IN ALT. & CLIMB	0.8937	0.9006	1.0861	1.0589	1.1556	1.2467	1.2233	0.6842	0	8.2492
PERCENT TIME, IN ALT. & CLIMB	0.6933	0.6985	0.8425	0.8214	0.8964	0.9671	0.9489	0.5307	0	6.3987
$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& CLIMB}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{TFC CAS}}{T} \times 100$										
									TOTAL FLIGHTS	23
									TOTAL HOURS	129

(a) Climb

Figure 5.- Percent time in altitude and airspeed bands.

PRESSURE ALTITUDE BANDS										
CAS INTERVAL, KTS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
120-130	0	0	0	0	0	0	0	0	0	0
130-140	0	0	0	0	0	0	0	0	0	0
140-150	0.0022	0	0	0	0	0	0	0	0	0.0022
150-160	0.0218	0	0	0	0	0	0	0	0	0.0218
160-170	0.0132	0	0	0	0	0	0	0	0	0.0132
170-180	0.0116	0	0	0	0	0	0	0	0	0.0116
180-190	0.0196	0	0	0	0	0	0	0	0	0.0196
190-200	0.0058	0.0060	0	0	0	0	0	0	0	0.0119
200-210	0.0043	0.0261	0	0	0	0	0	0	0	0.0304
210-220	0.0138	0.0457	0	0	0	0	0	0	0	0.0595
220-230	0.0265	0.0065	0	0	0	0	0	0	0	0.0330
230-240	0.0021	0.0071	0	0	0	0	0	0	0	0.0092
240-250	0.0019	0.1228	0.0211	0	0	0	0	0.0028	0	0.1486
250-260	0	0.0887	0.0229	0	0	0	0.1112	6.0636	0	6.2815
260-270	0	0.0162	0.0164	0	0	0	0.4458	15.4770	0	15.9554
270-280	0	0.0082	0.0170	0	0.0076	0	0.1432	10.3749	0	10.5510
280-290	0	0.0022	0.0159	0	0.0024	0	1.4565	17.3689	0	18.8459
290-300	0	0.0022	0.0147	0.0136	0.0145	0.1599	20.9808	0.0068	0	21.1924
300-310	0	0.0022	0.0137	0.0302	0.0030	0.0651	7.2516	0	0	7.3657
310-320	0	0.0021	0.0105	0.0032	0.0107	1.0624	0.1867	0	0	1.2756
320-330	0	0	0.0254	0.0060	0.0220	4.4785	0.0224	0	0	4.5542
330-340	0	0	0.0099	0.0349	0.1575	0.0828	0.0037	0	0	0.2879
340-350	0	0	0.0135	0.0599	0.0868	0	0	0	0	0.1603
350-360	0	0	0.0144	0.0039	0.1316	0	0	0	0	0.1500
360-370	0	0	0.0219	0.0004	0.1151	0	0	0	0	0.1374
370-380	0	0	0.0050	0	0.0215	0	0	0	0	0.0265
380-390	0	0	0	0	0	0	0	0	0	0
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	190.8421	241.8620	304.0673	329.1382	345.7176	322.2825	296.3665	272.9247	0	
TOTAL HRS IN ALT & CLIMB	0.1583	0.4267	0.2867	0.1950	0.7383	7.5399	39.4519	63.5498	0	112.3467
PERCENT TIME, IN ALT & CLIMB	0.1228	0.3310	0.2224	0.1513	0.5727	5.8485	30.6019	49.2941	0	87.1447
$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& LEVEL}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{THC CAS}}{T} \times 100$										
										TOTAL FLIGHTS 23
										TOTAL HOURS 129

(b) Level

Figure 5.- Continued.

PRESSURE ALTITUDE BANDS										
CAS INTERVAL, KTS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
120-130	0	0	0	0	0	0	0	0	0	0
130-140	0.0444	0	0	0	0	0	0	0	0	0.0444
140-150	0.2887	0	0	0	0	0	0	0	0	0.2887
150-160	0.2071	0	0	0	0	0	0	0	0	0.2071
160-170	0.1674	0	0	0	0	0	0	0	0	0.1674
170-180	0.1045	0.0082	0	0	0	0	0	0	0	0.1127
180-190	0.1088	0.0209	0	0	0	0	0	0	0	0.1297
190-200	0.0547	0.0278	0	0	0	0	0	0	0	0.0825
200-210	0.0873	0.1081	0	0	0	0	0	0	0	0.1954
210-220	0.0793	0.0614	0.0073	0	0	0	0	0	0	0.1480
220-230	0.0560	0.0265	0.0108	0	0	0	0	0	0	0.0933
230-240	0.0250	0.0780	0.0241	0	0	0	0	0	0	0.1272
240-250	0.0720	0.2698	0.0518	0	0	0	0	0	0	0.3935
250-260	0.0655	0.2310	0.0507	0	0	0	0	0.0306	0	0.3779
260-270	0.0062	0.0360	0.0274	0	0	0	0.0019	0.5680	0	0.6396
270-280	0	0.0136	0.0427	0.0151	0.0247	0.0131	0.0338	0.1513	0	0.2943
280-290	0	0.0099	0.0601	0.0702	0.0340	0.0250	0.1098	0.0751	0	0.3843
290-300	0	0.0099	0.0440	0.0761	0.0646	0.0164	0.1715	0.0200	0	0.4024
300-310	0	0.0095	0.0509	0.0383	0.0169	0.0560	0.1517	0	0	0.3233
310-320	0	0.0102	0.0849	0.0371	0.0508	0.0830	0.1120	0	0	0.3780
320-330	0	0.0241	0.0763	0.0746	0.1001	0.1816	0.0284	0	0	0.4852
330-340	0	0.0080	0.0524	0.0390	0.0661	0.1120	0.0032	0	0	0.2807
340-350	0	0.0009	0.0936	0.1319	0.0713	0.0855	0	0	0	0.3831
350-360	0	0	0.0694	0.0545	0.0750	0.0129	0	0	0	0.2118
360-370	0	0	0.0628	0.1265	0.0575	0.0069	0	0	0	0.2537
370-380	0	0	0.0187	0.0172	0.0153	0	0	0	0	0.0513
380-390	0	0	0.0011	0	0	0	0	0	0	0.0011
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	180.0199	242.5367	309.1649	330.2961	328.5059	323.9818	299.7463	268.9171	0	
TOTAL HRS IN ALT & CLIMB	1.7624	1.2294	1.0686	0.8772	0.7430	0.7639	0.7897	1.0896	0	8.3238
PERCENT TIME, IN ALT & CLIMB	1.3671	0.9537	0.8289	0.6804	0.5763	0.5925	0.6125	0.8452	0	6.4566
$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& DESCENT}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{TBC CAS}}{\text{T}} \times 100$										
										TOTAL FLIGHTS 23
										TOTAL HOURS 129

(c) Descent

Figure 5.- Continued.

PRESSURE ALTITUDE BANDS										
CAS INTERVAL, KTS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
120-130	0	0	0	0	0	0	0	0	0	0
130-140	0.0444	0	0	0	0	0	0	0	0	0.0444
140-150	0.2909	0	0	0	0	0	0	0	0	0.2909
150-160	0.2344	0	0	0	0	0	0	0	0	0.2344
160-170	0.2070	0	0	0	0	0	0	0	0	0.2070
170-180	0.1648	0.0119	0	0	0	0	0	0	0	0.1767
180-190	0.2122	0.0231	0	0	0	0	0	0	0	0.2353
190-200	0.1625	0.0349	0	0	0	0	0	0	0	0.1974
200-210	0.1682	0.1405	0	0	0	0	0	0	0	0.3087
210-220	0.1556	0.1099	0.0073	0	0	0	0	0	0	0.2728
220-230	0.1362	0.0364	0.0108	0	0	0	0	0	0	0.1834
230-240	0.0668	0.0983	0.0390	0	0	0	0	0	0	0.2040
240-250	0.1235	0.4874	0.1131	0.0052	0	0	0	0.0065	0	0.7356
250-260	0.1349	0.5356	0.1558	0.0131	0.0026	0	0.1112	6.1568	0	7.1100
260-270	0.0315	0.1485	0.0868	0.0030	0.0015	0	0.4477	16.1564	0	16.8754
270-280	0.0190	0.0896	0.0959	0.0187	0.0345	0.0131	0.1963	10.7272	0	11.1944
280-290	0.0101	0.0539	0.1215	0.0862	0.0396	0.0250	1.6545	17.5680	0	19.5588
290-300	0.0045	0.0250	0.1101	0.1151	0.0827	0.1784	21.4221	0.0541	0	21.9920
300-310	0.0037	0.0321	0.1559	0.1385	0.1161	0.2183	7.7910	0.0011	0	8.4567
310-320	0.0039	0.0513	0.2537	0.3096	0.3598	1.4759	0.4406	0	0	2.8949
320-330	0.0078	0.0711	0.3118	0.4579	0.4865	5.0869	0.0931	0	0	6.5150
330-340	0.0015	0.0228	0.0980	0.0786	0.2504	0.2633	0.0069	0	0	0.7216
340-350	0	0.0099	0.1407	0.2243	0.2023	0.1166	0	0	0	0.6938
350-360	0	0.0011	0.0838	0.0586	0.2599	0.0237	0	0	0	0.4271
360-370	0	0	0.0847	0.1269	0.1726	0.0069	0	0	0	0.3911
370-380	0	0	0.0237	0.0172	0.0368	0	0	0	0	0.0778
380-390	0	0	0.0011	0	0	0	0	0	0	0.0011
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	192.6052	252.1621	304.8151	323.6392	330.4303	322.2756	296.5994	272.8666	0	
TOTAL HRS IN ALTITUDE BAND	2.8145	2.5567	2.4414	2.1311	2.6369	9.5506	41.4649	65.3236	0	128.9197
PERCENT TIME, IN ALT AND DESCENT	2.1832	1.9831	1.8937	1.6531	2.0454	7.4081	32.1634	50.6700	0	100.0000
$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{TH CAS}}{T} \times 100$										
									TOTAL FLIGHTS	23
									TOTAL HOURS	129

(d) All flight modes

Figure 5.- Concluded.

PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT
TIME INTERVAL, HRS IN ALTITUDE BAND									
9.00-10.00	0	0	0	0	0	0	0	0	0
8.00- 9.00	0	0	0	0	0	0	0	4.348	0
7.50- 8.00	0	0	0	0	0	0	0	4.348	0
7.00- 7.50	0	0	0	0	0	0	4.348	0	0
6.50- 7.00	0	0	0	0	0	0	4.348	0	0
6.00- 6.50	0	0	0	0	0	0	0	4.348	0
5.50- 6.00	0	0	0	0	0	0	0	0	0
5.00- 5.50	0	0	0	0	0	4.348	4.348	0	0
4.50- 5.00	0	0	0	0	0	0	8.696	8.696	0
4.00- 4.50	0	0	0	0	0	0	0	21.739	0
3.50- 4.00	0	0	0	0	0	0	4.348	4.348	0
3.00- 3.50	0	0	0	0	0	0	4.348	4.348	0
2.50- 3.00	0	0	0	0	0	0	4.348	0	0
2.00- 2.50	0	0	0	0	0	0	0	4.348	0
1.50- 2.00	0	0	0	0	0	0	0	8.696	0
1.00- 1.50	0	0	0	0	0	4.348	4.348	0	0
.80- 1.00	0	0	0	0	0	0	0	0	0
.70- .80	0	0	0	0	0	4.348	0	0	0
.60- .70	0	0	0	0	0	0	4.348	0	0
.50- .60	0	0	0	0	0	0	0	0	0
.40- .50	0	0	0	0	0	4.348	0	0	0
.30- .40	0	0	0	0	0	4.348	0	0	0
.20- .30	0	4.348	0	0	4.348	0	0	0	0
.15- .20	21.739	8.696	4.348	4.348	13.043	8.696	4.348	0	0
.10- .15	60.870	34.783	52.174	26.087	47.826	26.087	8.696	0	0
.05- .10	17.391	52.174	43.478	69.565	34.783	21.739	21.739	0	0
.00- .05	0	0	0	0	0	0	0	0	0
TOTAL HOURS IN ALT BAND	2.8145	2.5567	2.4414	2.1311	2.6369	9.5506	41.4649	65.3236	0
TOTAL PERCENT TIME IN ALT BAND	2.1832	1.9831	1.8937	1.6531	2.0454	7.4081	32.1634	50.6700	0

Figure 6.- Percent of flights vs time in altitude bands.

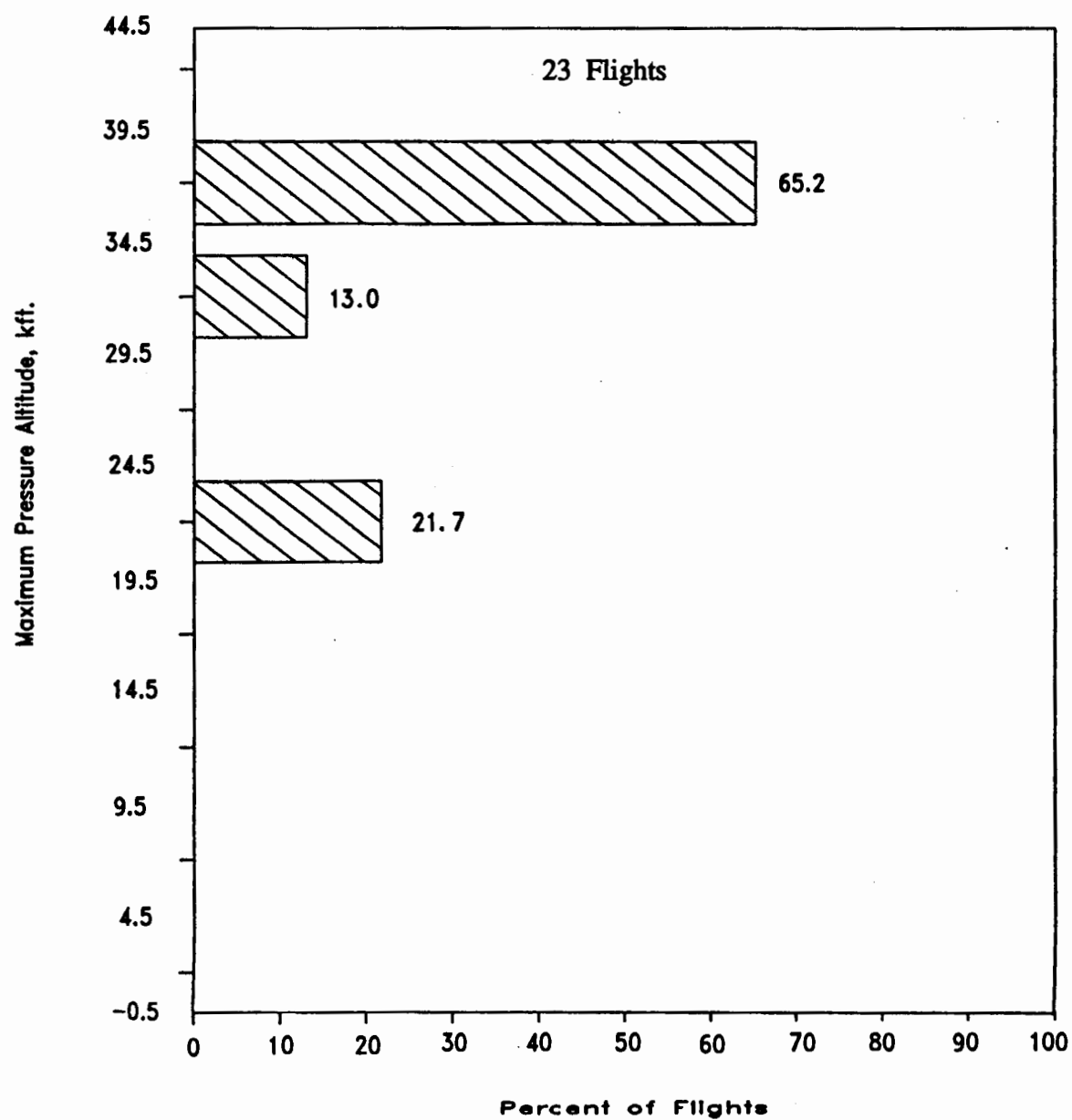
PERCENT OF FLIGHTS

TO MAXIMUM PRESSURE ALTITUDE BAND IN EACH FLIGHT VS DURATION

DURATION OF FLIGHT, HOURS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT
9.0-10.0	0	0	0	0	0	0	0	21.7	0
8.0- 9.0	0	0	0	0	0	0	4.3	13.0	0
7.5- 8.0	0	0	0	0	0	0	8.7	0	0
7.0- 7.5	0	0	0	0	0	0	0	4.3	0
6.5- 7.0	0	0	0	0	0	0	0	0	0
6.0- 6.5	0	0	0	0	0	0	0	0	0
5.5- 6.0	0	0	0	0	0	0	0	0	0
5.0- 5.5	0	0	0	0	0	0	0	0	0
4.5- 5.0	0	0	0	0	0	0	0	8.7	0
4.0- 4.5	0	0	0	0	0	0	0	0	0
3.5- 4.0	0	0	0	0	0	0	0	4.3	0
3.0- 3.5	0	0	0	0	0	0	0	0	0
2.5- 3.0	0	0	0	0	0	0	0	4.3	0
2.0- 2.5	0	0	0	0	0	0	0	8.7	0
1.5- 2.0	0	0	0	0	0	0	0	0	0
1.0- 1.5	0	0	0	0	0	0	0	0	0
.5- 1.0	0	0	0	0	21.7	0	0	0	0
.0- .5	0	0	0	0	0	0	0	0	0
TOTAL PERCENTS, ALL FLIGHTS	0	0	0	0	21.7	0	13.0	65.2	0

(a) Maximum altitude vs flight duration matrix

Figure 7.- Percent of flights to maximum altitude.



(b) Percent of flights to maximum pressure altitude per flight : Plot.

Figure 7.- Concluded.

$$\text{Percent Time} = \frac{\text{Time in flap detent in takeoff or landing}}{\text{Total flight time}} \times 100$$

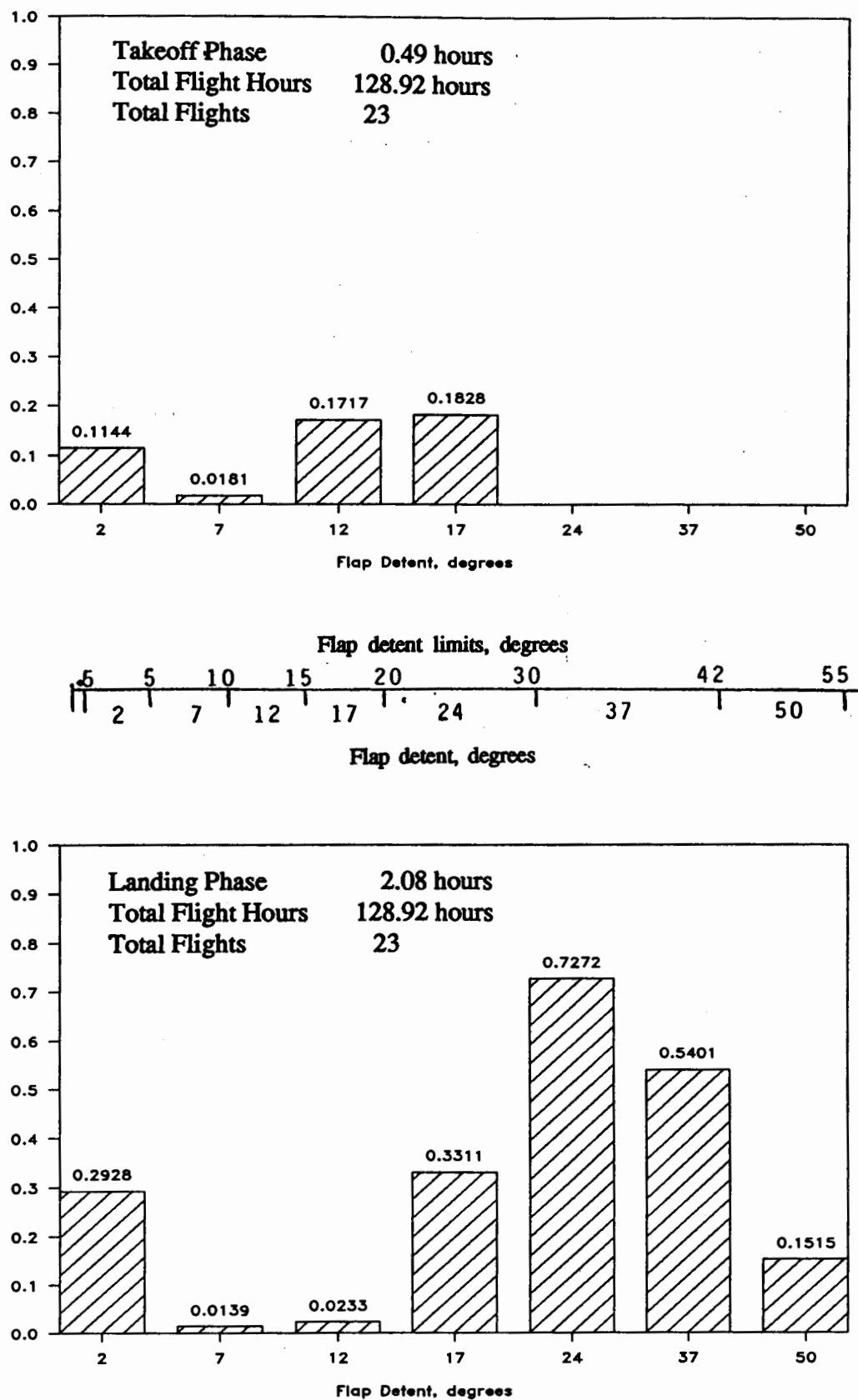
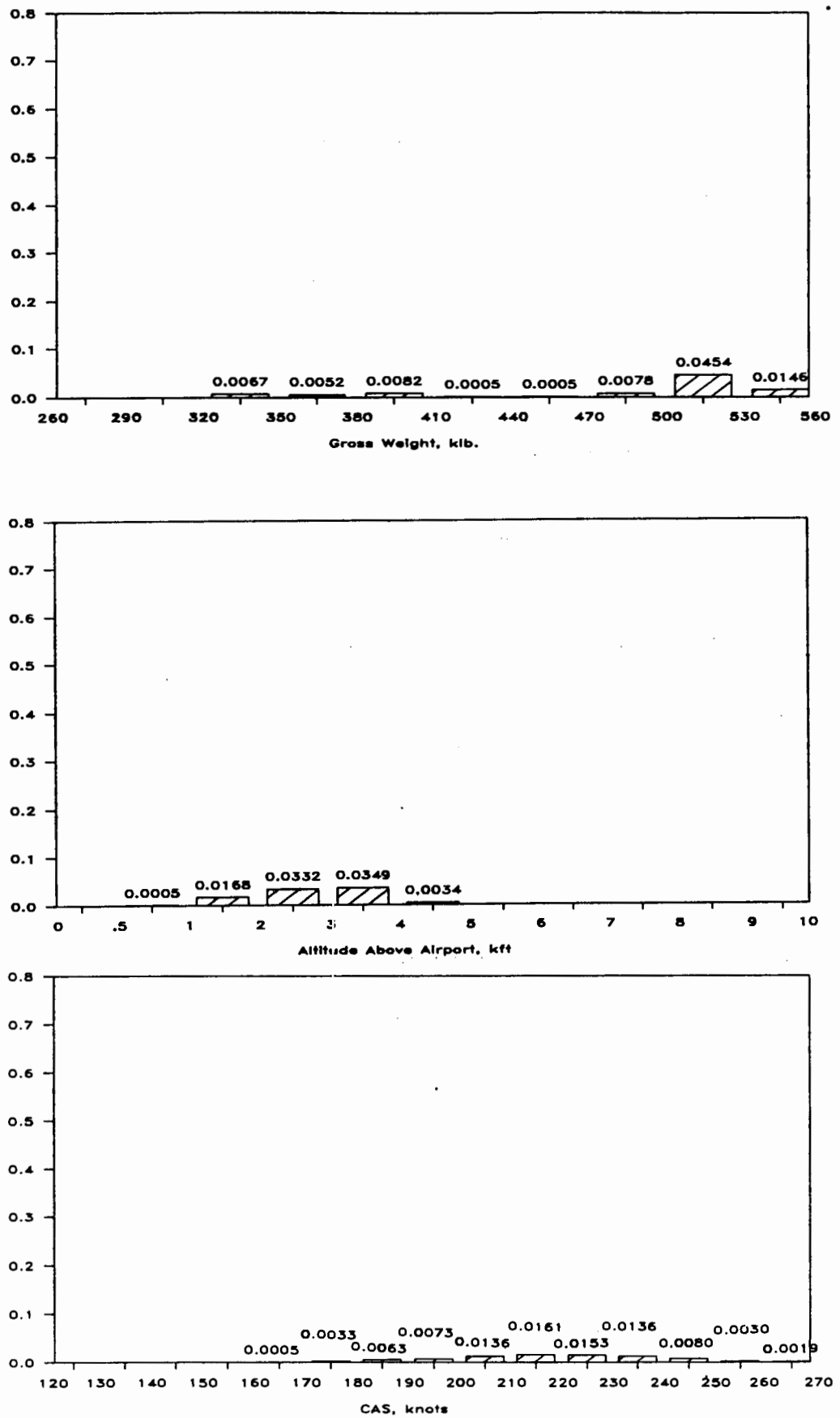


Figure 8.- Percent of total flight time at each flap detent.

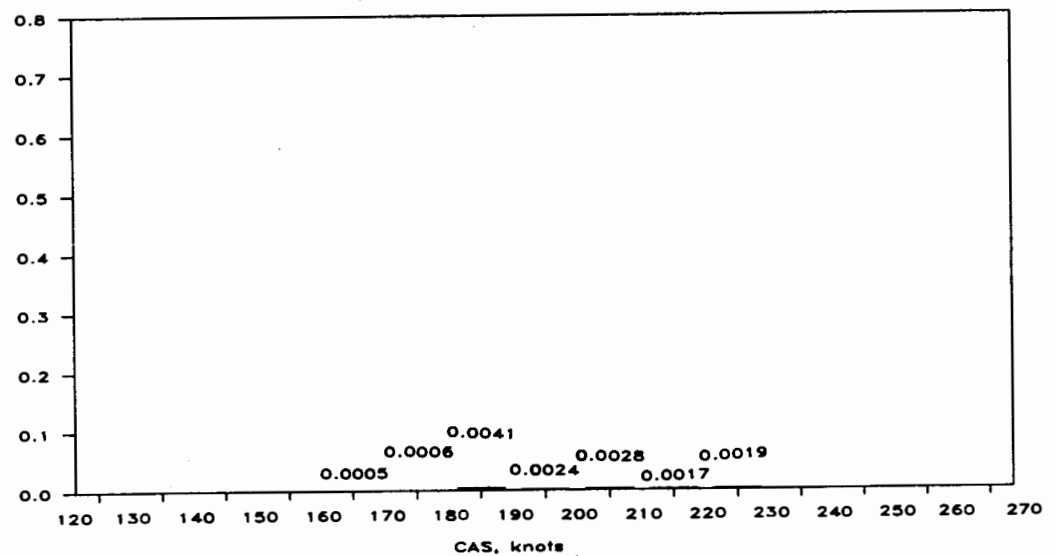
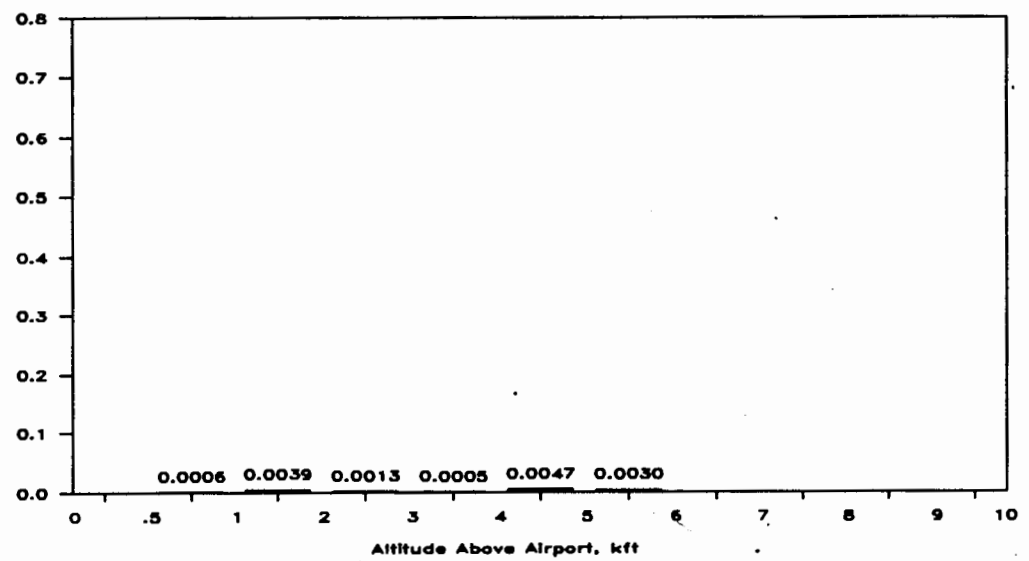
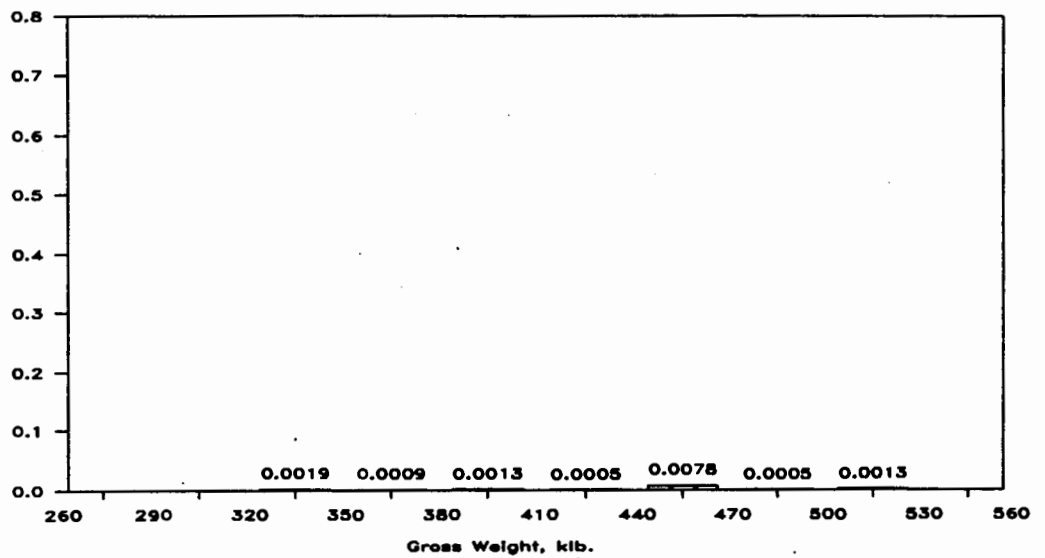
Percent Time = $\frac{\text{Time in airspeed or altitude or weight band with flaps} = 2^0}{\text{Total flight time}} \times 100$



(a) Take off, flaps = 2^0 ; 0.1144 hours

Figure 9.- Gross weight, altitude above airport, and airspeed time distributions.

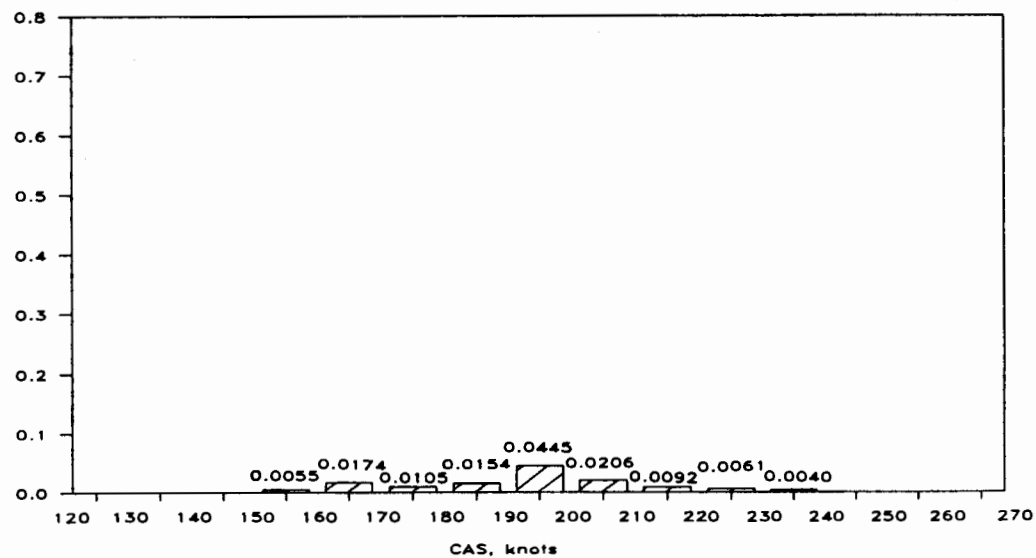
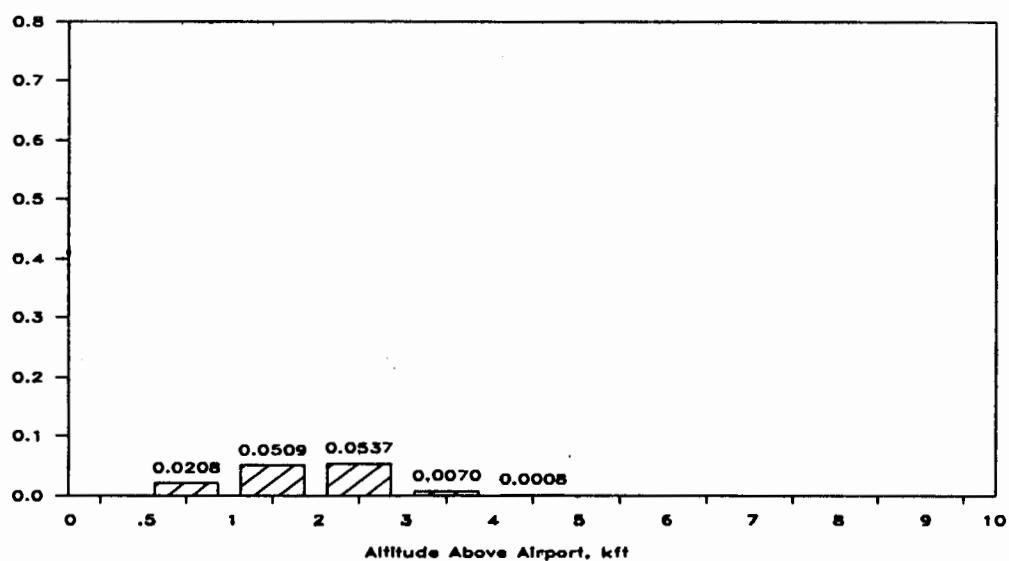
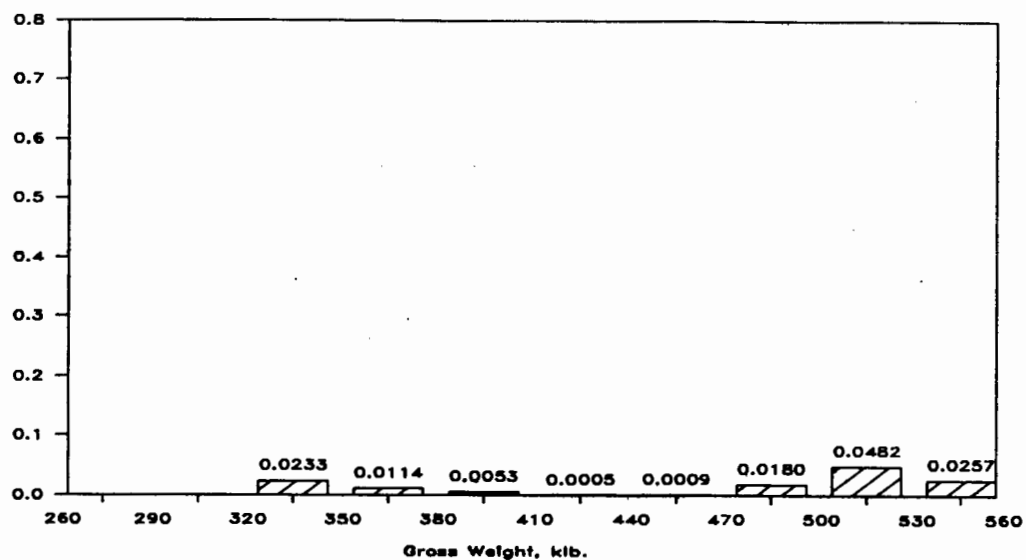
Percent Time = $\frac{\text{Time in airspeed or altitude or weight band with flaps} = 7^\circ}{\text{Total flight time}} \times 100$



(b) Take off, flaps = 7° ; 0.0181 hours

Figure 9. - Continued.

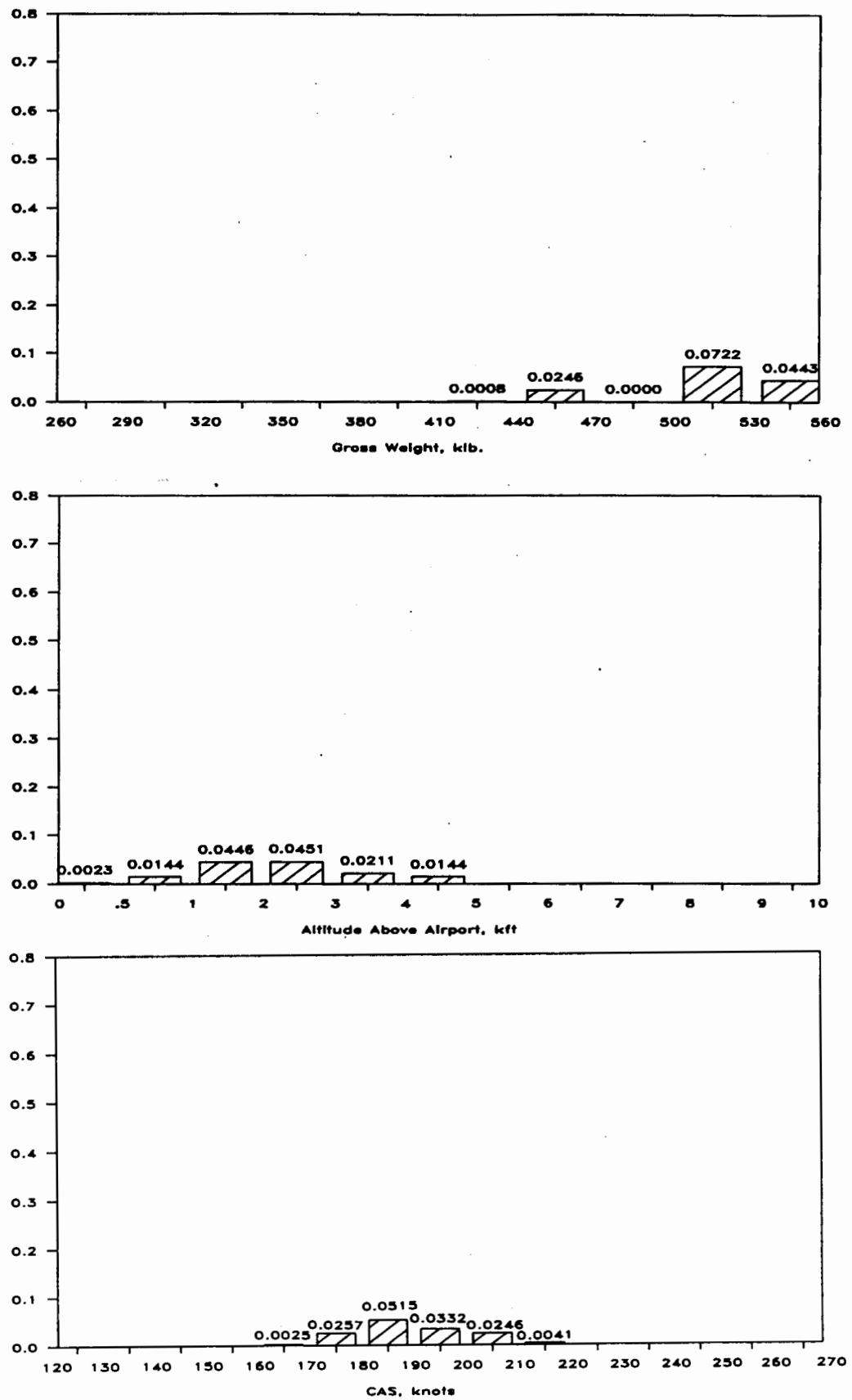
Time in airspeed or altitude or weight band with flaps = 12°
 X 100
 Percent Time=
 Total flight time



(c) Take off, flaps = 12°; 0.1717 hours

Figure 9.- Continued.

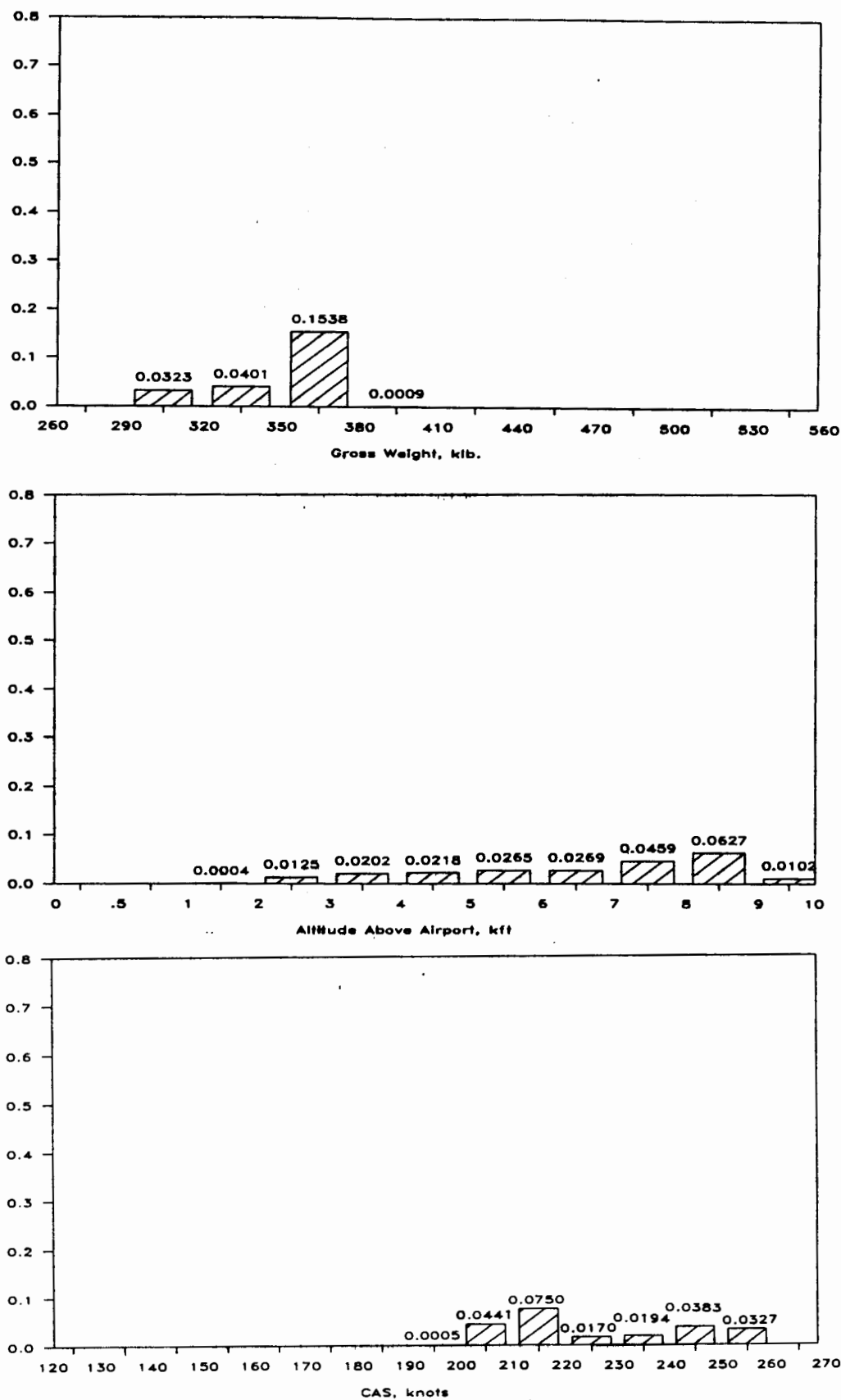
Time in airspeed or altitude or weight band with flaps = 17°
 Total flight time
 Percent Time =



(d) Take off, flaps = 17°; 0.1828 hours

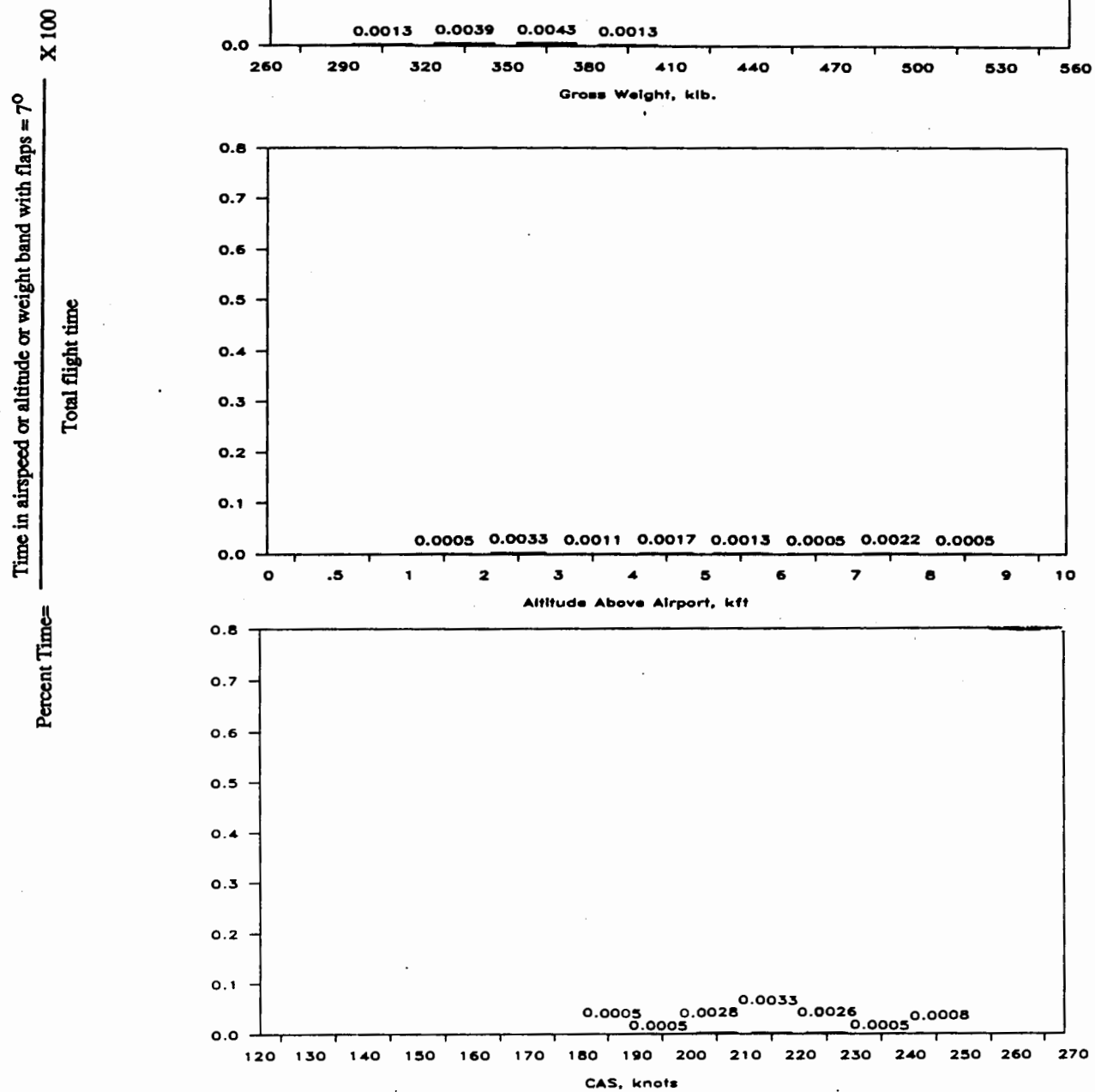
Figure 9.- Continued.

Percent Time = $\frac{\text{Time in Airspeed or Altitude or Gross Weight Bands with flaps} = 2^0}{\text{Total Flight Time}} \times 100$



(e) Landing, flaps = 2^0 ; 0.2928 hours

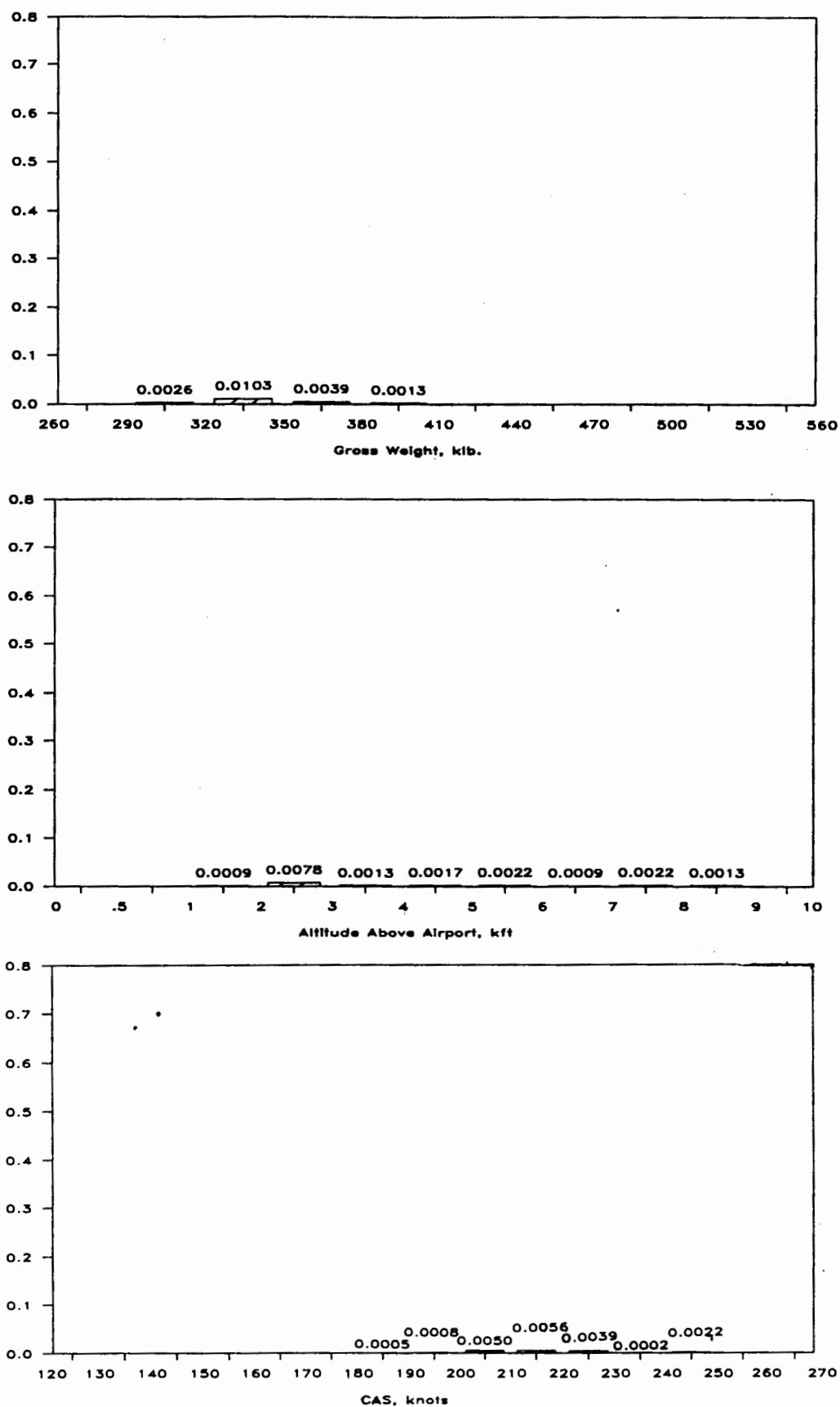
Figure 9. - Continued.



(f) Landing, flaps = 7° ; 0.0139 hours

Figure 9. - Continued.

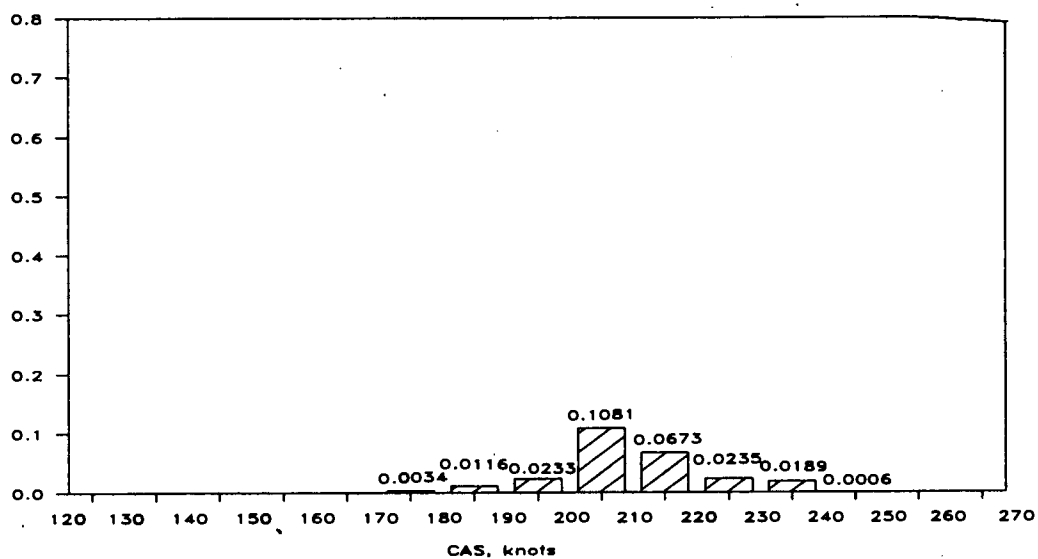
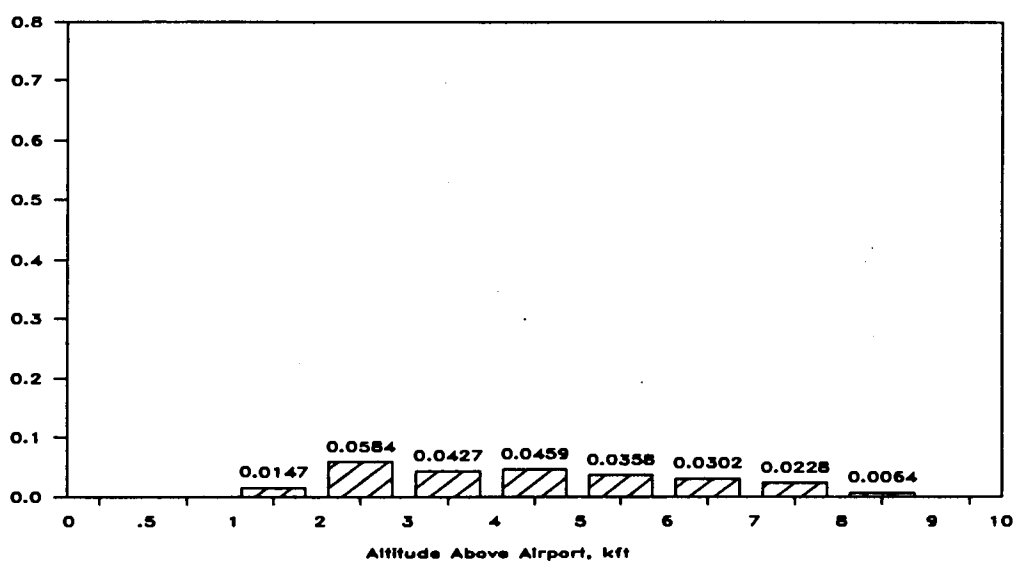
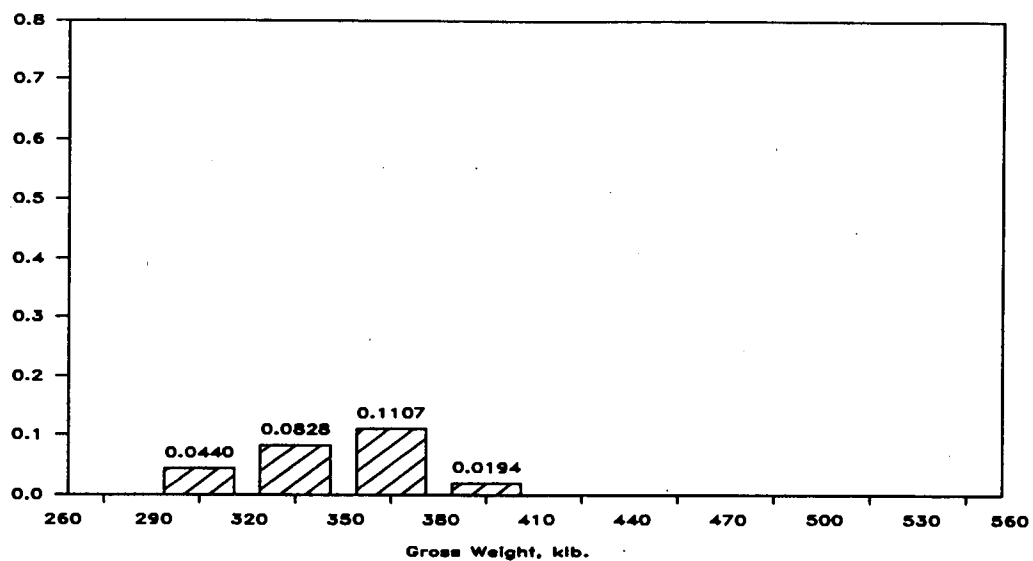
Percent Time = $\frac{\text{Time in airspeed or altitude or weight band with flaps} = 12^\circ}{\text{Total flight time}} \times 100$



(g) Landing, flaps = 12° ; 0.0233 hours

Figure 9. - Continued.

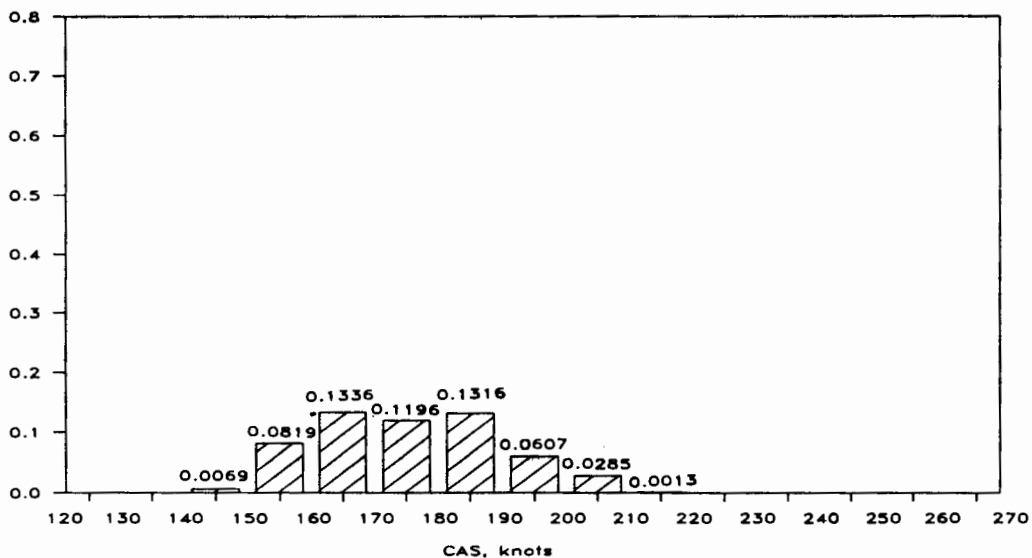
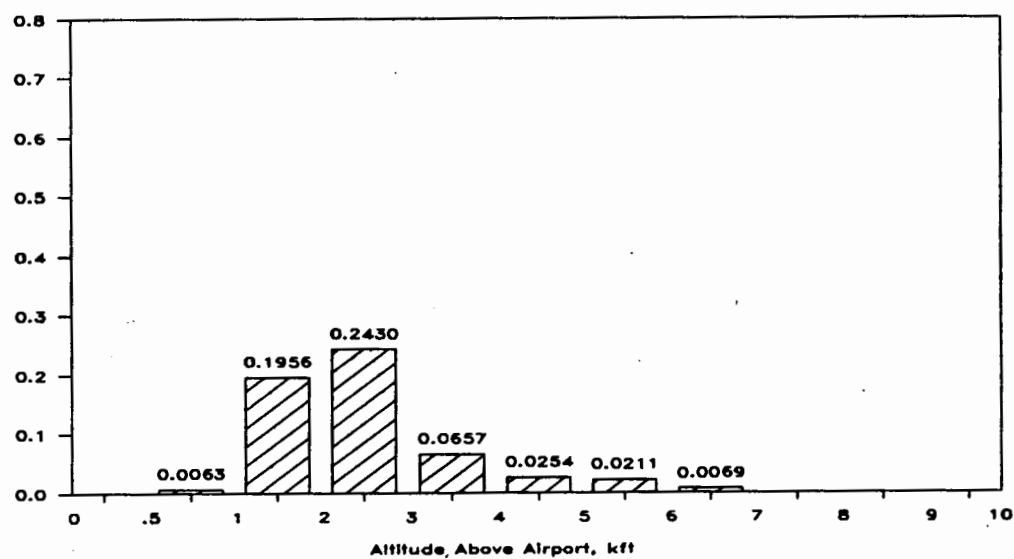
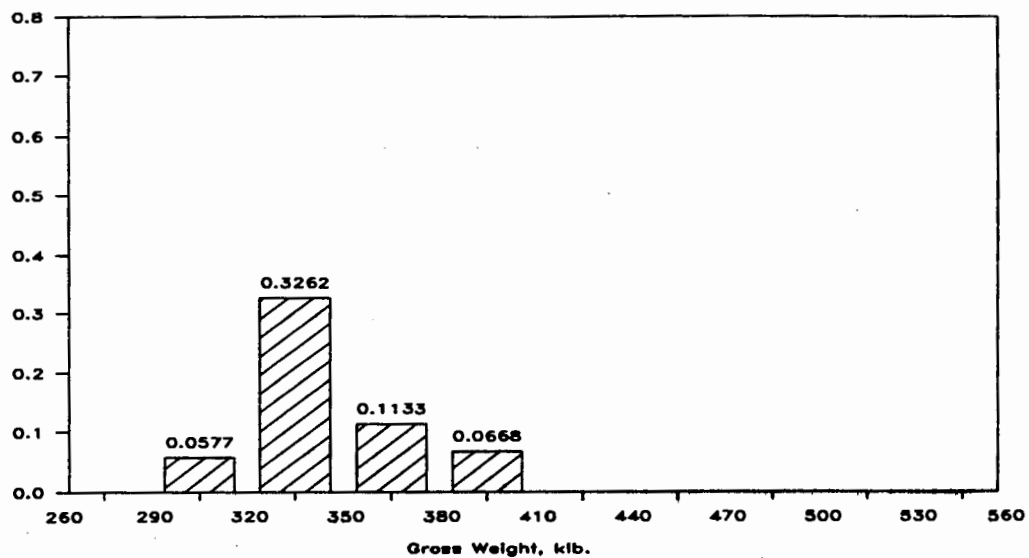
Percent Time = $\frac{\text{Time in airspeed or altitude or weight band with flaps} = 17^\circ}{\text{Total flight time}} \times 100$



(h) Landing, flaps = 17° ; 0.3311 hours

Figure 9. - Continued.

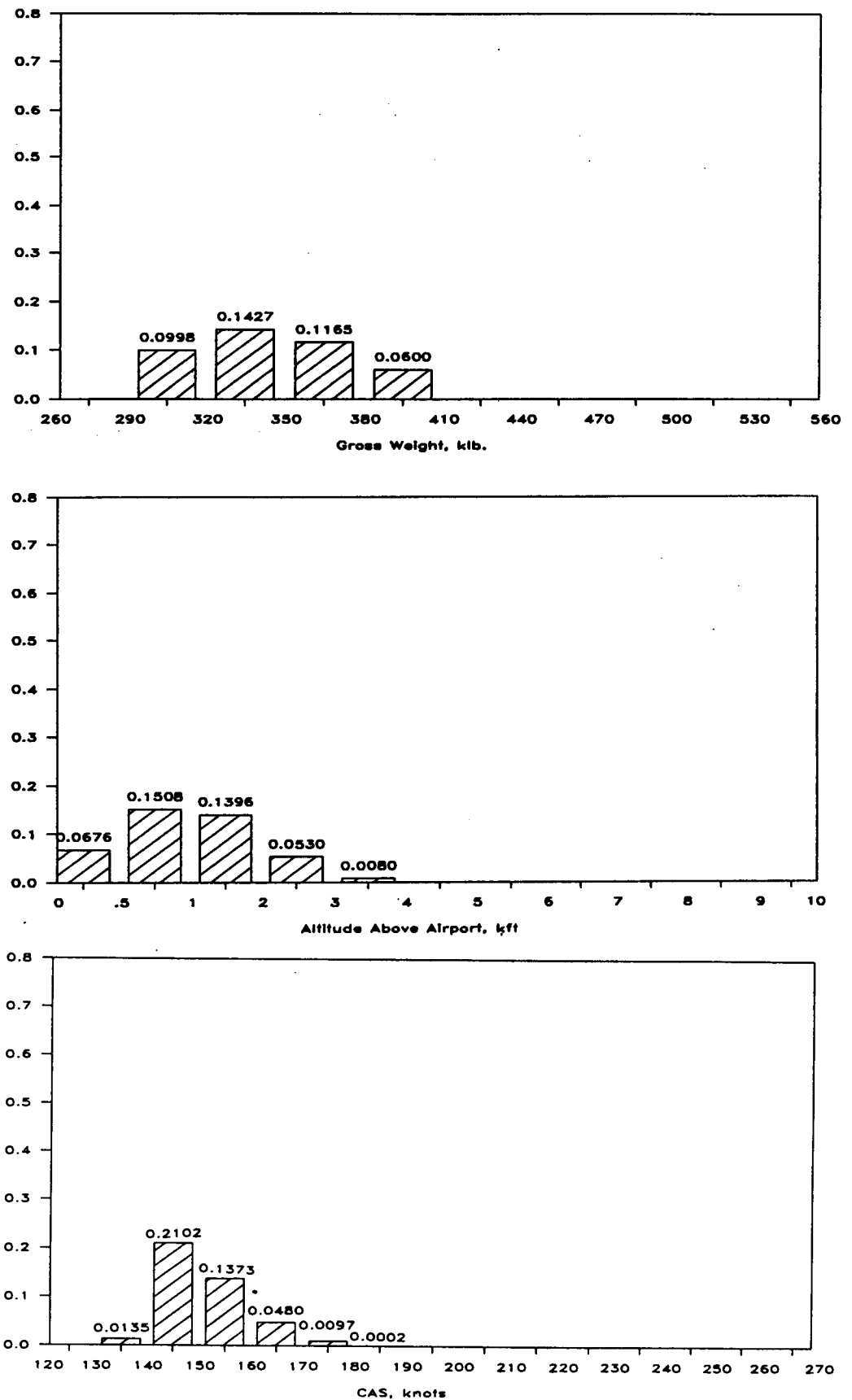
Percent Time = $\frac{\text{Time in airspeed or altitude or weight band with flap} = 24^\circ}{\text{Total flight time}} \times 100$



(i) Landing, flaps = 24° ; 0.7272 hours

Figure 9. - Continued.

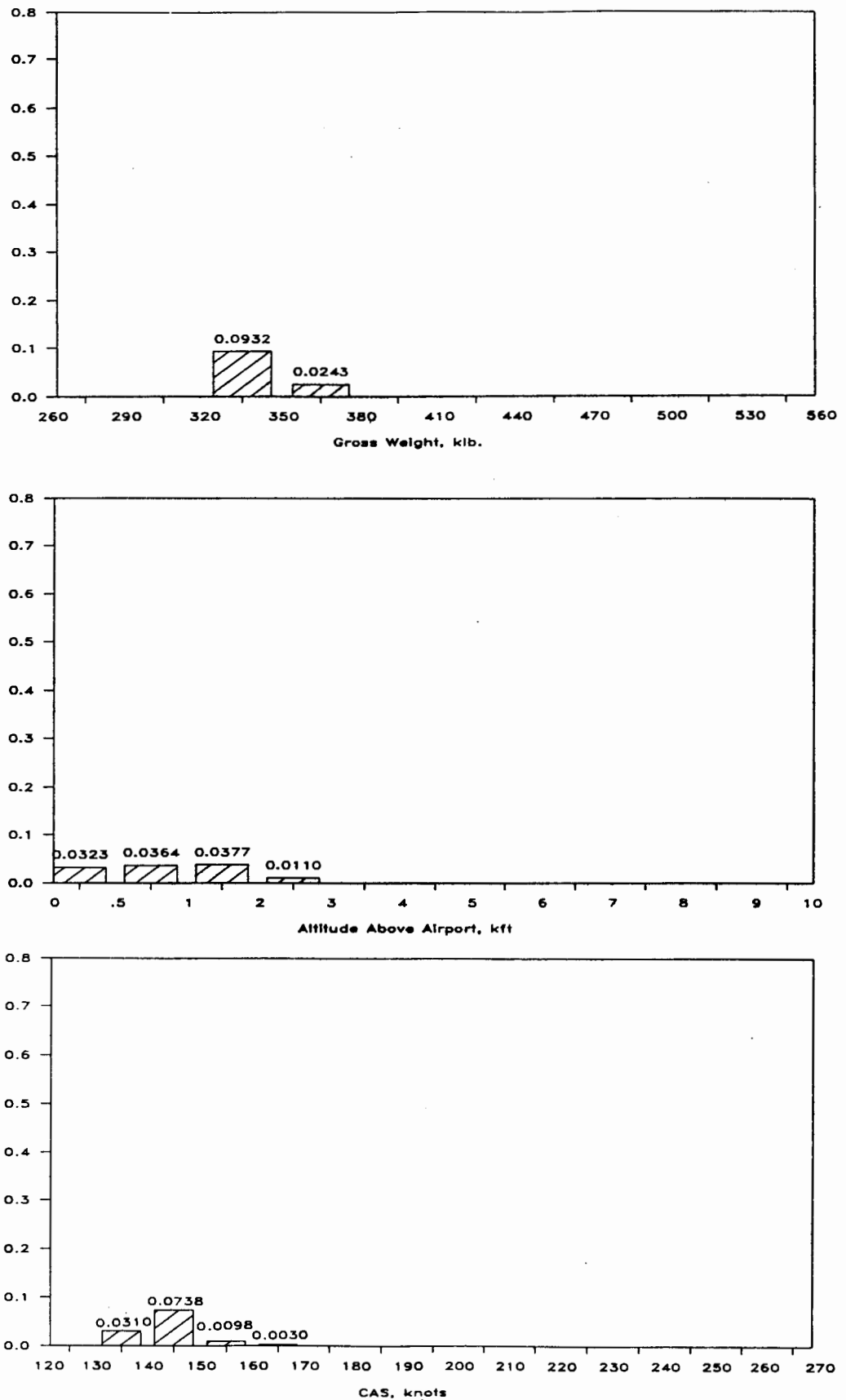
Percent time = $\frac{\text{Time in airspeed or altitude or weight band with flap} = 37^\circ}{\text{Total flight time}} \times 100$



(j) Landing, flaps = 37° ; 0.5401 hours

Figure 9. - Continued.

Percent time =
 Total flight time
 Time in airspeed or altitude or weight band with flap = 50°
 X 100



(k) Landing, flaps=50° ; 0.1515 hours

Figure 9. - Concluded.

FLAP DEFLECTION, DEGREES

TIME AFTER LIFTOFF, MINUTES	42.0	30.0	20.0	15.0	10.0	5.0	0.5
0 - .10	0	0	0	4.3	8.7	0	4.3
.10 - .20	0	0	0	0	26.1	21.7	8.7
.20 - .30	0	0	0	4.3	4.3	4.3	13.0
.30 - .40	0	0	0	0	0	0	0
.40 - .50	0	0	0	0	0	0	0
.50 - .60	0	0	0	0	4.3	4.3	0
.60 - .80	0	0	0	0	8.7	4.3	13.0
.80 - 1.0	0	0	0	4.3	8.7	4.3	4.3
1.0 - 1.2	0	0	0	0	0	4.3	8.7
1.2 - 1.4	0	0	0	4.3	4.3	0	0
1.4 - 1.6	0	0	0	4.3	17.4	4.3	0
1.6 - 1.8	0	0	0	8.7	13.0	4.3	0
1.8 - 2.0	0	0	0	0	0	0	4.3
2.0 - 2.2	0	0	0	0	0	0	21.7
2.2 - 2.4	0	0	0	0	0	4.3	4.3
2.4 - 2.6	0	0	0	0	0	0	0
2.6 - 2.8	0	0	0	0	0	0	0
2.8 - 3.0	0	0	0	0	0	0	0
3.0 - 3.5	0	0	0	4.3	4.3	0	0
3.5 - 4.0	0	0	0	0	0	0	4.3
4.0 - 4.5	0	0	0	0	0	0	0
4.5 - 5.0	0	0	0	0	0	0	0
5.0 - 6.0	0	0	0	0	0	0	0
6.0 - 7.0	0	0	0	0	0	0	0
7.0 - 8.0	0	0	0	0	0	0	0
8.0 - 9.0	0	0	0	0	0	0	0
9.0 - 10.0	0	0	0	0	0	0	0
10.0 - 15.0	0	0	0	0	0	0	0
15.0 - 20.0	0	0	0	0	0	0	0
20.0 - 25.0	0	0	0	0	0	0	0
0 - 25.0	0	0	0	34.8	100	56.5	87.0

Notes:

- 1) 23 Flights
- 2) The first 15 seconds after lift off for each flight are not included.
- 3) Flap deflections less than .5 degrees were considered to be zero.

(a) Take off: Percent of flights vs times when take off flap deflection is reduced below indicated values

Figure 10.- Flap deflection times.

TIME BEFORE TOUCHDOWN, MINUTES	FLAP DEFLECTION, DEGREES						
	.5	5.0	10.0	15.0	20.0	30.0	42.0
0 - .50	0	0	0	0	0	0	17.4
0.5 - 1.0	0	0	0	0	0	13.0	4.3
1.0 - 1.5	0	0	0	0	0	39.1	8.7
1.5 - 2.0	0	0	0	0	4.3	13.0	4.3
2.0 - 2.5	4.3	4.3	4.3	4.3	21.7	13.0	0
2.5 - 3.0	4.3	13.0	17.4	21.7	17.4	8.7	0
3.0 - 3.5	17.4	13.0	13.0	8.7	8.7	13.0	4.3
3.5 - 4.0	0	0	4.3	4.3	4.3	0	0
4.0 - 4.5	0	4.3	0	0	21.7	0	0
4.5 - 5.0	4.3	8.7	8.7	13.0	0	0	0
5.0 - 5.5	21.7	21.7	21.7	17.4	8.7	0	0
5.5 - 6.0	0	0	8.7	8.7	8.7	0	0
6.0 - 6.5	8.7	8.7	13.0	13.0	0	0	0
6.5 - 7.0	8.7	13.0	8.7	8.7	4.3	0	0
7.0 - 7.5	8.7	0	0	0	0	0	0
7.5 - 8.0	0	0	0	0	0	0	0
8.0 - 8.5	0	0	0	0	0	0	0
8.5 - 9.0	0	0	0	0	0	0	0
9.0 - 9.5	0	4.3	0	0	0	0	0
9.5 - 10.0	0	0	0	0	0	0	0
10.0 - 11.0	8.7	0	0	0	0	0	0
11.0 - 12.0	0	0	0	0	0	0	0
12.0 - 13.0	0	0	0	0	0	0	0
13.0 - 14.0	0	0	0	0	0	0	0
14.0 - 15.0	0	0	0	0	0	0	0
15.0 - 17.0	0	0	0	0	0	0	0
17.0 - 19.0	0	0	0	0	0	0	0
19.0 - 21.0	0	0	0	0	0	0	0
21.0 - 23.0	0	0	0	0	0	0	0
23.0 - 25.0	0	0	0	0	0	0	0
25.0 - 30.0	0	0	0	0	0	0	0
30.0 - 35.0	0	0	0	0	0	0	0
35.0 - 40.0	0	0	0	0	0	0	0
40.0 - 60.0	0	0	0	0	0	0	0
0 - 60.0	87.0	91.3	100	100	100	100	39.1

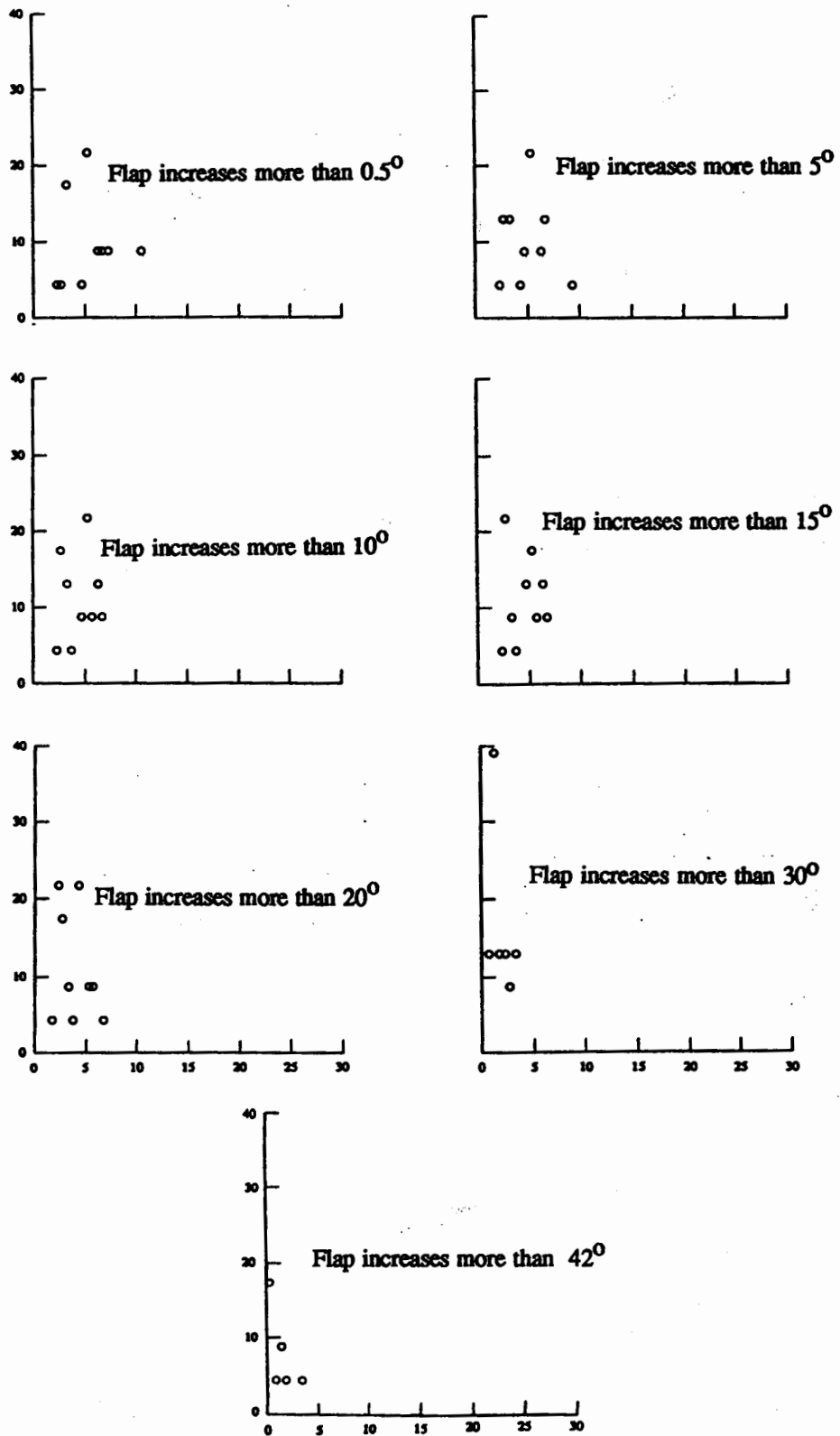
Notes:

- 1) 23 Flights
- 2) The last 15 seconds before touchdown on each flight are not included.
- 3) Flap deflections less than .5 degrees were considered to be zero.

(b) Landing: Percent of flights vs times when landing flap deflection is increased to greater than indicated values

Figure 10.- Continued.

Percent of Flights



Time before touchdown that flap is changed, minutes

(c) Landing : Plots of data from Figure 10(b)

Figure 10.- Concluded.

HAS																					
		120 TO 130 KTS	130 TO 140 KTS	140 TO 150 KTS	150 TO 160 KTS	160 TO 170 KTS	170 TO 180 KTS	180 TO 190 KTS	190 TO 200 KTS	200 TO 210 KTS	210 TO 220 KTS	220 TO 230 KTS	230 TO 240 KTS	240 TO 250 KTS	250 TO 260 KTS	260 TO 270 KTS	270 TO 280 KTS	280 TO 290 KTS	290 TO 300 KTS	300 TO 310 KTS	310 TO 320 KTS
FLAP RANGE	FLAP DETENT																				
42-55	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-55	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-30	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-20	17	0	0	0	0	0	9	9	13	4	0	0	0	0	0	0	0	0	0	0	0
10-15	12	0	0	0	0	9	17	30	17	13	4	0	9	0	0	0	0	0	0	0	0
5-10	7	0	0	0	0	4	9	22	9	4	9	0	0	0	0	0	0	0	0	0	0
.5-5	2	0	0	0	0	4	13	17	0	9	4	9	13	9	4	4	0	0	0	0	0

(a) Take off

		HAS																			
		120 TO 130 KTS	130 TO 140 KTS	140 TO 150 KTS	150 TO 160 KTS	160 TO 170 KTS	170 TO 180 KTS	180 TO 190 KTS	190 TO 200 KTS	200 TO 210 KTS	210 TO 220 KTS	220 TO 230 KTS	230 TO 240 KTS	240 TO 250 KTS	250 TO 260 KTS	260 TO 270 KTS	270 TO 280 KTS	280 TO 290 KTS	290 TO 300 KTS	300 TO 310 KTS	310 TO 320 KTS
FLAP RANGE	FLAP DETENT																				
.5-5	2	0	0	0	0	0	0	0	4	4	22	9	4	30	13	0	0	0	0	0	0
5-10	7	0	0	0	0	0	0	4	4	17	9	26	22	9	0	0	0	0	0	0	0
10-15	12	0	0	0	0	0	0	4	4	13	22	26	22	9	0	0	0	0	0	0	0
15-20	17	0	0	0	0	0	0	4	4	22	30	26	4	9	0	0	0	0	0	0	0
20-30	24	0	0	0	0	0	9	9	13	48	17	4	0	0	0	0	0	0	0	0	0
30-55	37	0	0	0	22	39	30	4	4	0	0	0	0	0	0	0	0	0	0	0	0
42-55	50	0	4	9	9	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(b) Landing

Figure 11.- Percent of flights vs equivalent airspeed at flap detent change.

**NO OCCURRENCES
in
23 Flights and 129 Hours**

Figure 12.- Flap use above 10,000 feet altitude.

a_n LEVEL g's	PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
1.60	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0
.80	0	0	0	0	0	0	0	0	0	0
.70	0	0	0	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0
.30	0	0.78	0.41	0.47	0	0	0	0	0	0.03
.20	8.53	8.21	2.46	1.88	0.38	0	0.05	0.03	0	0.47
.15	28.07	29.34	9.01	3.28	1.14	0.84	0.31	0.28	0	1.75
.10	106.95	91.53	52.84	21.58	12.14	2.72	2.36	1.55	0	7.50
.05	326.88	188.53	169.99	119.19	66.74	25.34	25.06	16.30	0	35.63
0	844.55	998.96	1181.70	1316.21	1446.37	1208.83	2446.98	2334.61	0	2171.50
-.05	289.93	176.01	137.63	147.34	99.36	24.82	18.88	14.76	0	32.28
-.10	72.84	32.86	20.48	21.12	15.55	2.30	1.35	1.61	0	4.72
-.15	20.96	9.39	2.87	4.22	3.79	0.10	0.19	0.23	0	1.03
-.20	4.26	2.74	0	0	0.76	0.10	0.02	0.06	0	0.21
-.30	0	0	0	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0	0	0	0
-.50	0	0	0	0	0	0	0	0	0	0
-.60	0	0	0	0	0	0	0	0	0	0
-.70	0	0	0	0	0	0	0	0	0	0
-.80	0	0	0	0	0	0	0	0	0	0
-1.00	0	0	0	0	0	0	0	0	0	0
-1.20	0	0	0	0	0	0	0	0	0	0
-1.40	0	0	0	0	0	0	0	0	0	0
-1.60	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.09	0	59904.53
TOTAL FLIGHTS										73
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN										59904.53

(a) a_n Level crossing counts per hour within pressure altitude bands

Figure 13.- Normal acceleration exceedances.

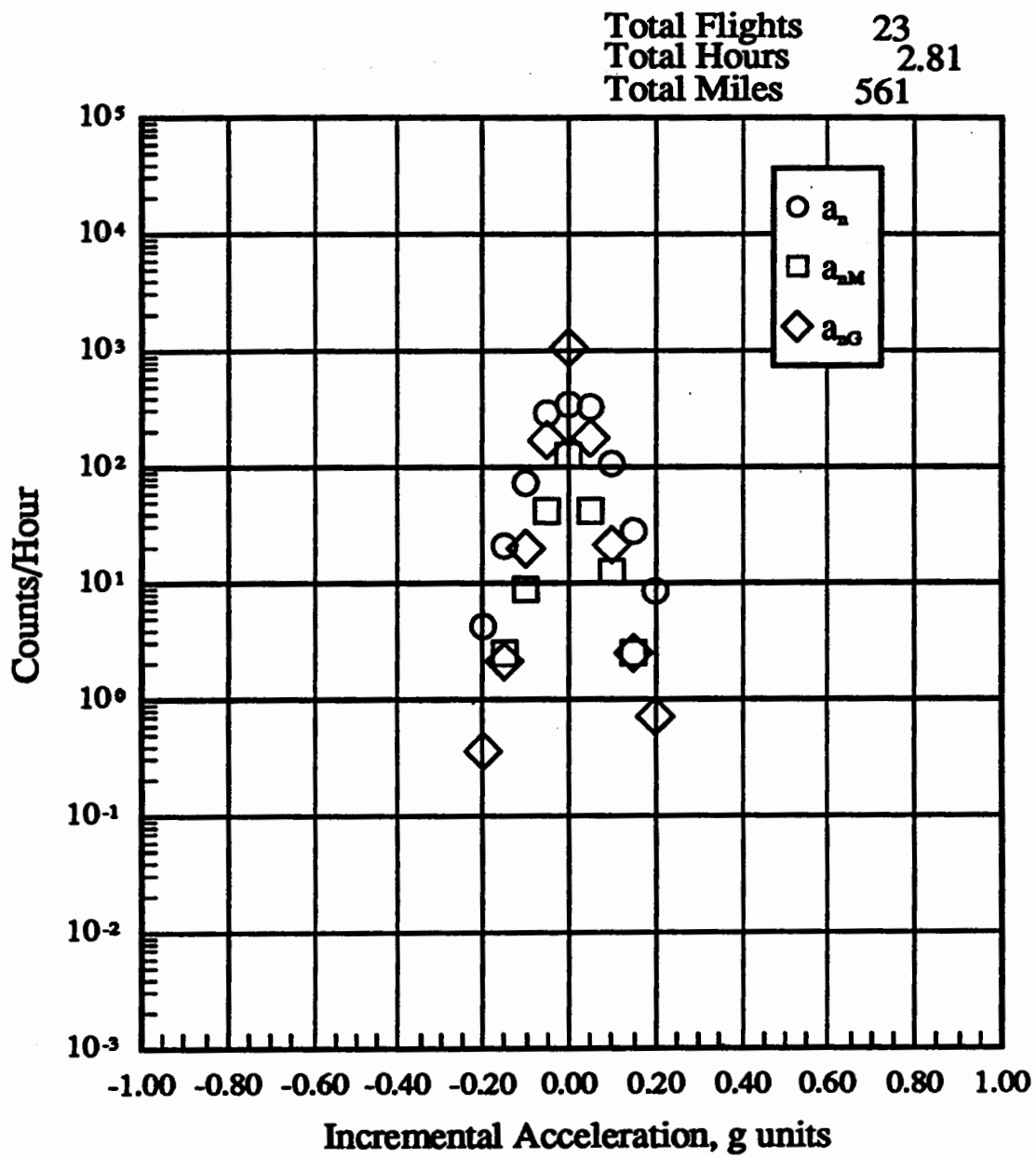
a _{nm} LEVEL g's	PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
1.60	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0
.80	0	0	0	0	0	0	0	0	0	0
.70	0	0	0	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0
.30	0	0	0	0	0	0	0	0	0	0
.20	0	0.39	0.41	0	0	0	0	0	0	0.02
.15	2.49	4.69	0.82	0.94	0	0.10	0	0	0	0.19
.10	12.44	14.47	7.78	2.82	1.14	0.21	0.12	0	0	0.83
.05	41.93	35.59	23.76	15.02	8.72	1.99	0.72	0.21	0	2.99
0	126.13	101.30	106.09	110.27	116.04	72.98	96.11	104.13	0	100.05
-.05	41.93	25.03	18.02	15.95	14.41	1.47	0.58	0.51	0	2.86
-.10	8.88	5.87	1.64	2.82	2.28	0.21	0.05	0.05	0	0.49
-.15	2.49	0.78	0	0.47	0	0	0.02	0	0	0.09
-.20	0	0	0	0	0	0	0	0	0	0
-.30	0	0	0	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0	0	0	0
-.50	0	0	0	0	0	0	0	0	0	0
-.60	0	0	0	0	0	0	0	0	0	0
-.70	0	0	0	0	0	0	0	0	0	0
-.80	0	0	0	0	0	0	0	0	0	0
-1.00	0	0	0	0	0	0	0	0	0	0
-1.20	0	0	0	0	0	0	0	0	0	0
-1.40	0	0	0	0	0	0	0	0	0	0
-1.60	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.09	0	59904.53
TOTAL FLIGHTS										23
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN										59904.53

(b) a_{nm} Level crossing counts per hour within pressure altitude bands

PRESSURE ALTITUDE BANDS										
a_{nG} LEVEL g's	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
1.60	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0
.80	0	0	0	0	0	0	0	0	0	0
.70	0	0	0	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0
.30	0	0.39	0	0	0	0	0	0	0	0.01
.20	0.71	1.96	0.41	0.47	0.38	0	0	0.02	0	0.09
.15	2.49	3.13	1.64	0.94	0.38	0.10	0.05	0.14	0	0.26
.10	21.32	12.13	5.73	6.10	1.52	0.84	0.63	0.86	0	1.84
.05	178.01	68.06	45.47	44.11	24.27	7.12	9.12	8.36	0	15.02
0	1061.64	1242.24	1302.95	1427.89	1498.70	1566.51	1647.90	1646.40	0	1607.05
-.05	171.26	68.06	49.15	47.39	21.62	7.22	8.87	8.51	0	14.95
-.10	19.90	12.13	5.73	7.04	3.79	0.63	0.39	0.93	0	1.62
-.15	2.13	4.30	0.41	0.94	0.76	0.10	0.07	0.18	0	0.29
-.20	0.36	0.39	0.41	0	0	0.10	0	0.06	0	0.06
-.30	0	0	0	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0	0	0	0
-.50	0	0	0	0	0	0	0	0	0	0
-.60	0	0	0	0	0	0	0	0	0	0
-.70	0	0	0	0	0	0	0	0	0	0
-.80	0	0	0	0	0	0	0	0	0	0
-1.00	0	0	0	0	0	0	0	0	0	0
-1.20	0	0	0	0	0	0	0	0	0	0
-1.40	0	0	0	0	0	0	0	0	0	0
-1.60	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.09	0	59904.53
TOTAL FLIGHTS										23
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN										59904.53

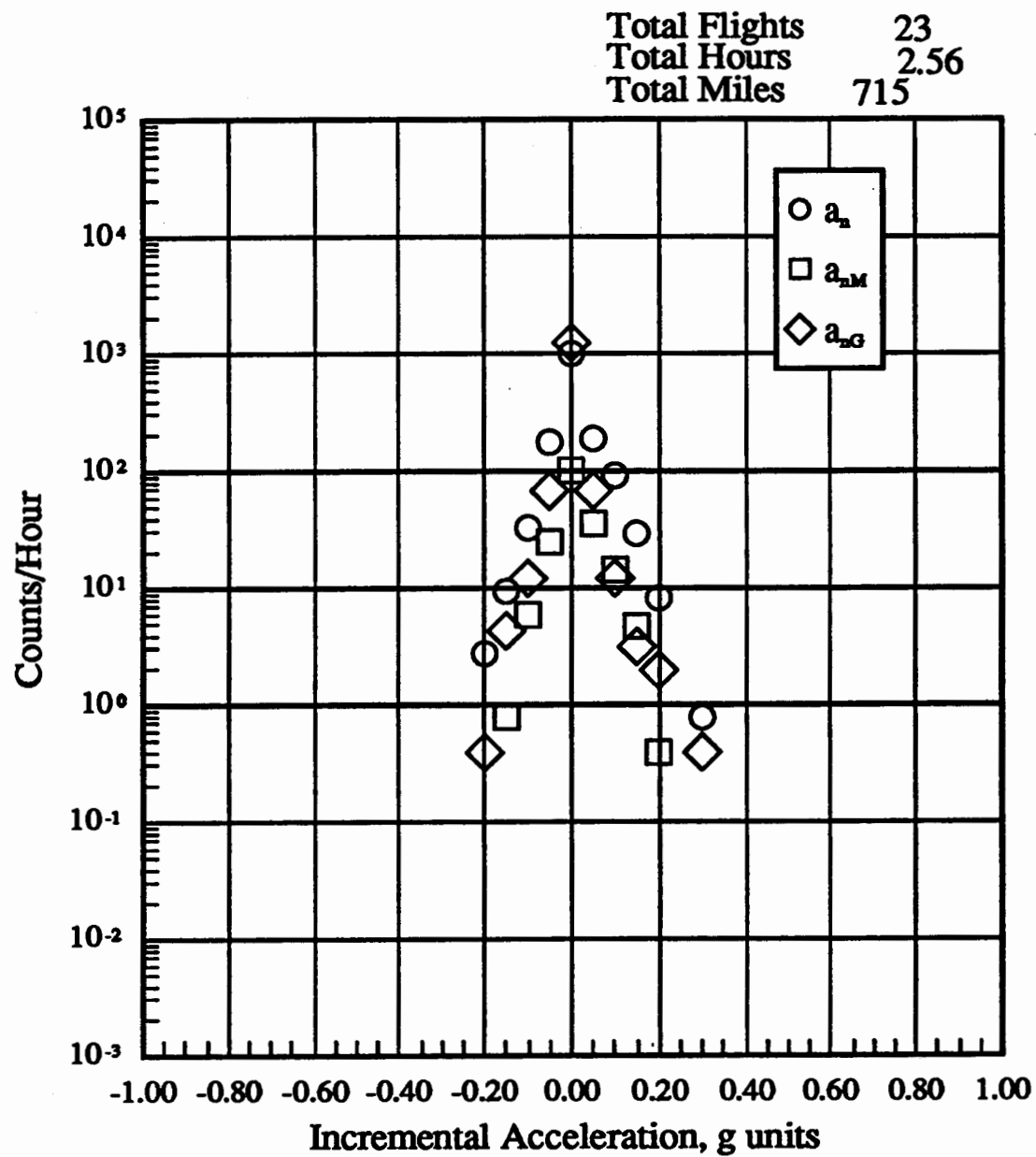
(c) a_{nG} Level crossing counts per hour within pressure altitude bands

Figure 13.- Continued.



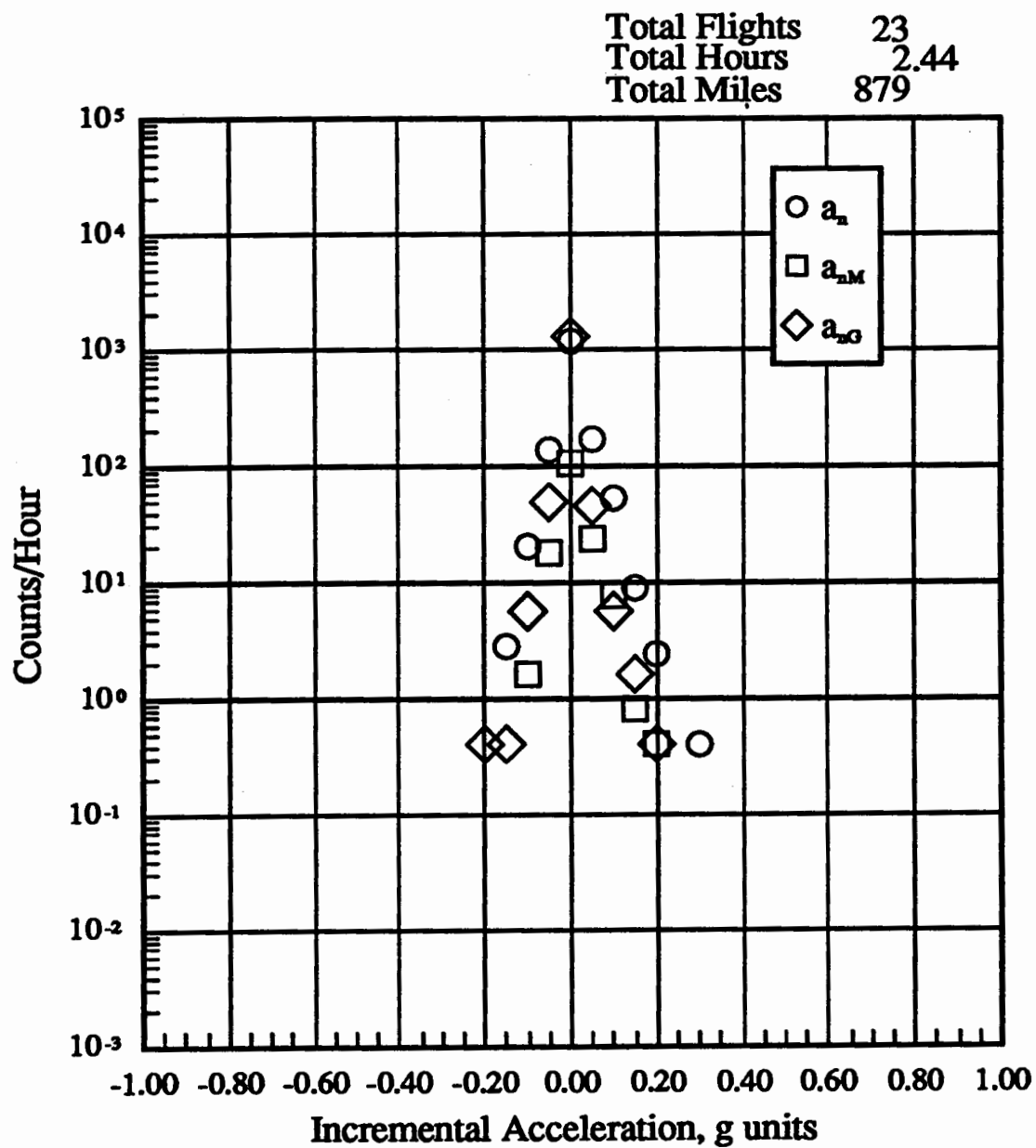
(d) a_n , a_{nM} , a_{nG} , -500 to 4500 feet altitude

Figure 13.- Continued.



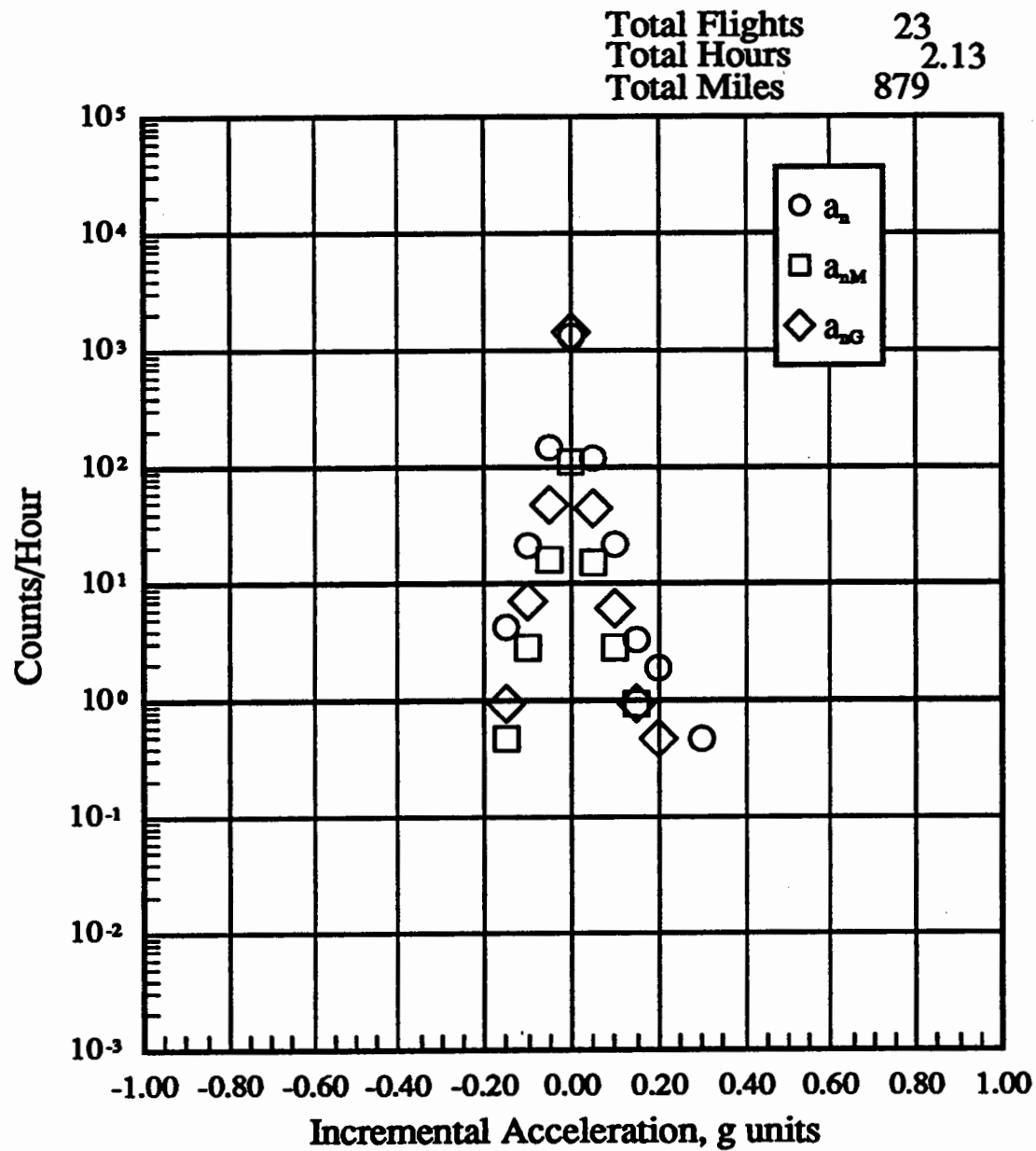
(e) a_n , a_{nM} , a_{nG} , 4500 to 9500 feet altitude

Figure 13.- Continued.



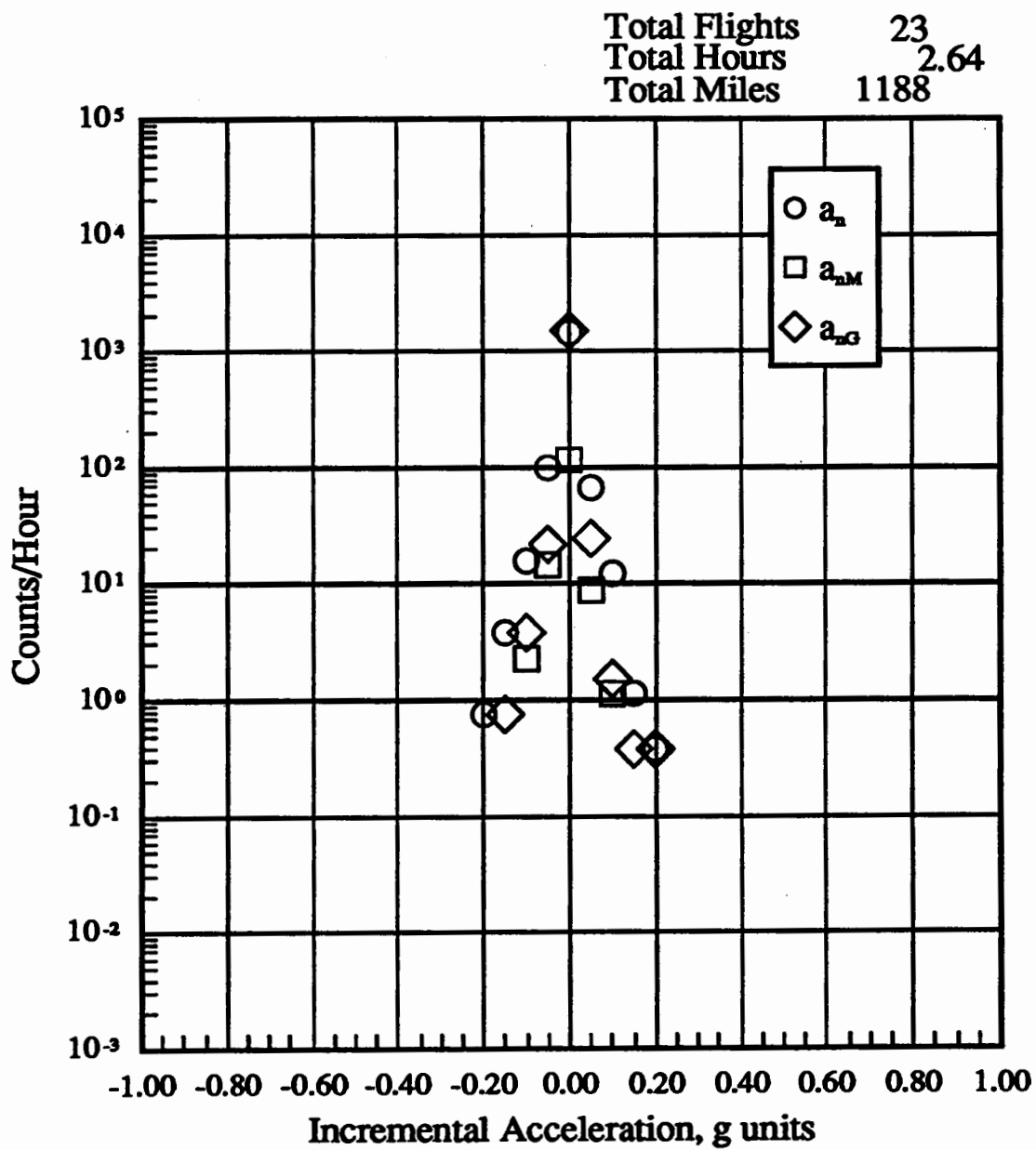
(f) a_n , a_{nM} , a_{nG} , 9500 to 14500 feet altitude

Figure 13.- Continued.



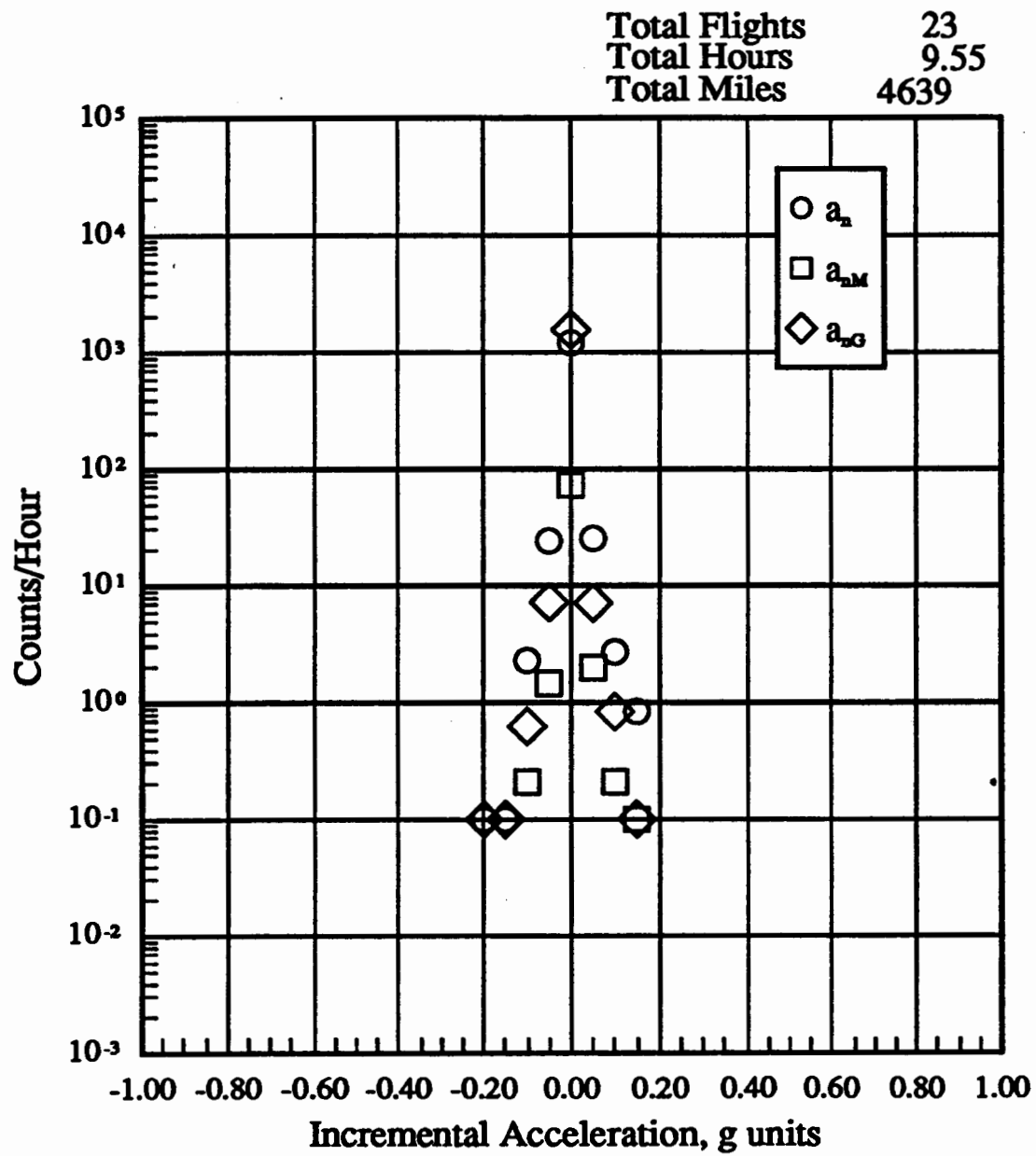
(g) a_n , a_{nM} , a_{nG} , 14500 to 19500 feet altitude

Figure 13.- Continued.



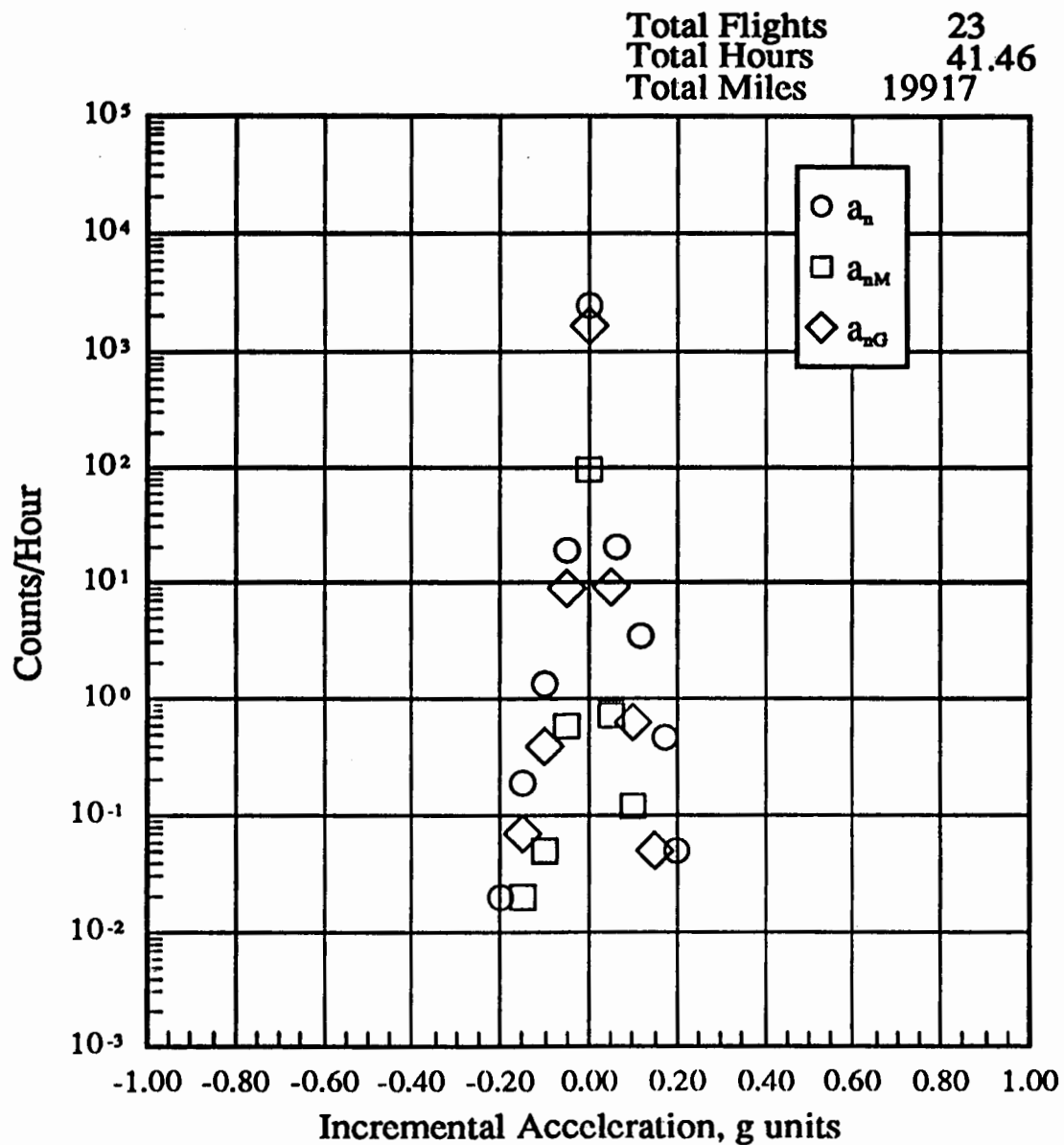
(h) a_n , a_{nM} , a_{nG} , 19500 to 24500 feet altitude

Figure 13.- Continued.



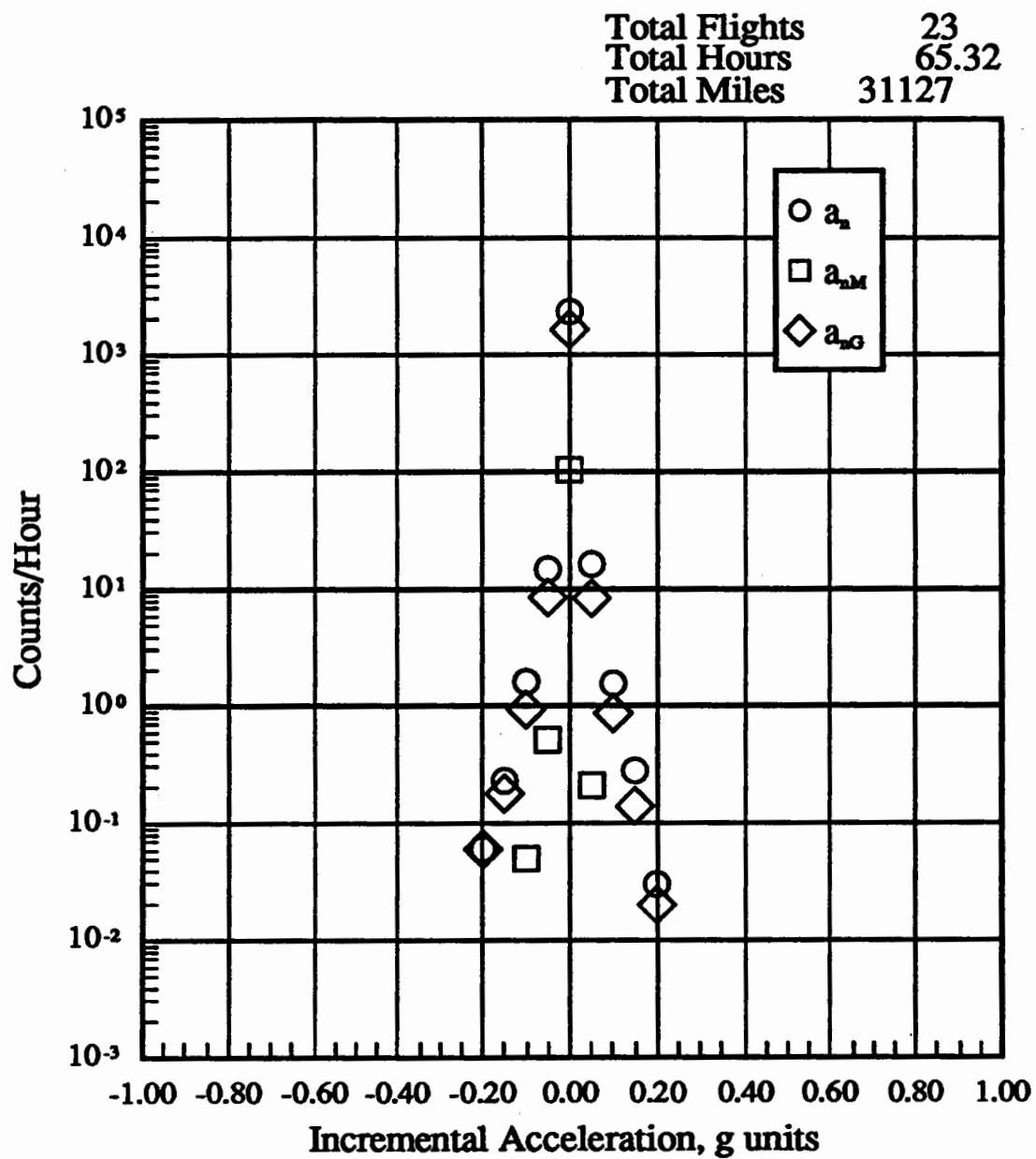
(i) a_n , a_{nM} , a_{nG} , 24500 to 29500 feet altitude

Figure 13.- Continued.



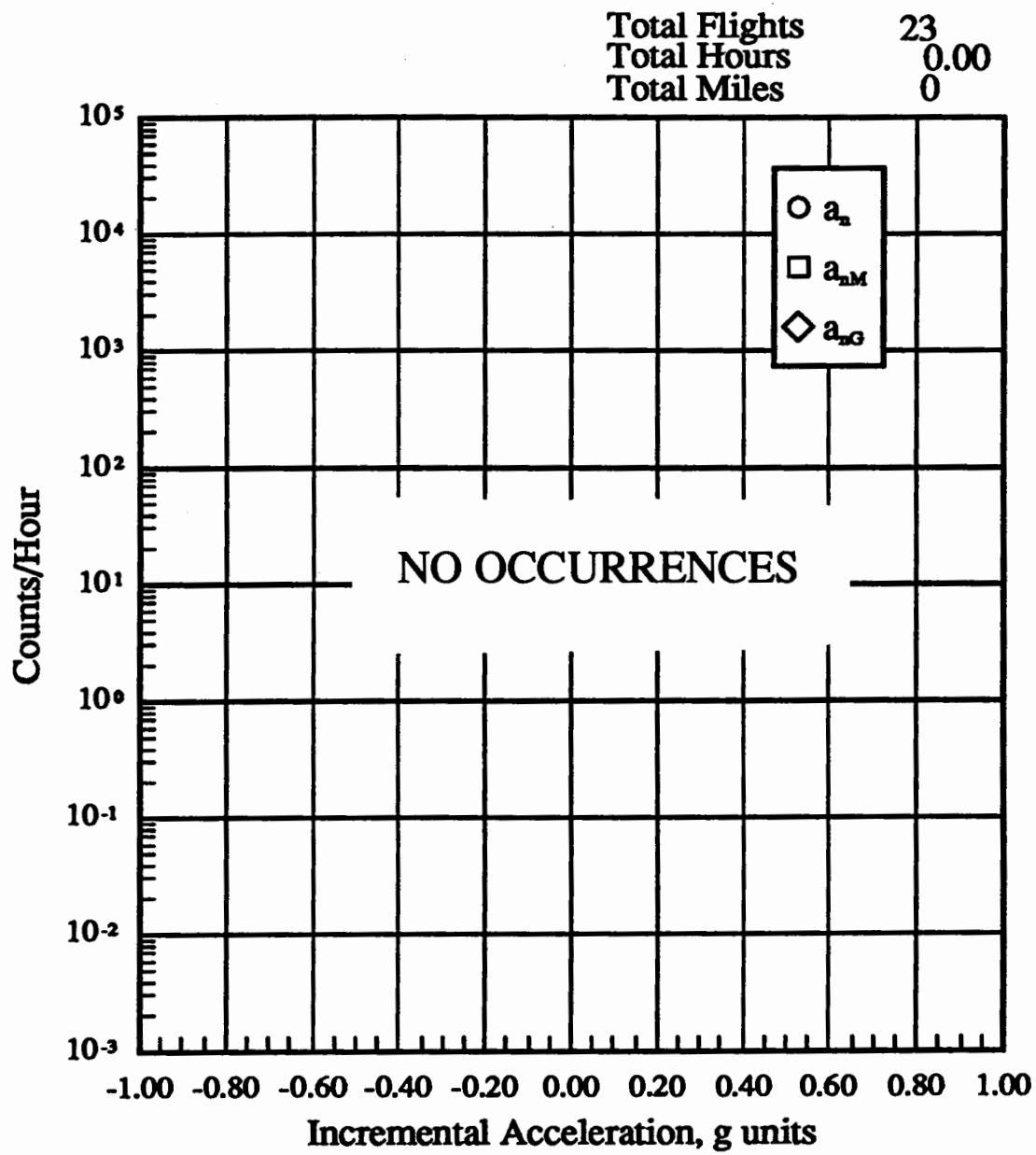
(j) a_n , a_{nM} , a_{nG} , 29500 to 34500 feet altitude

Figure 13.- Continued.



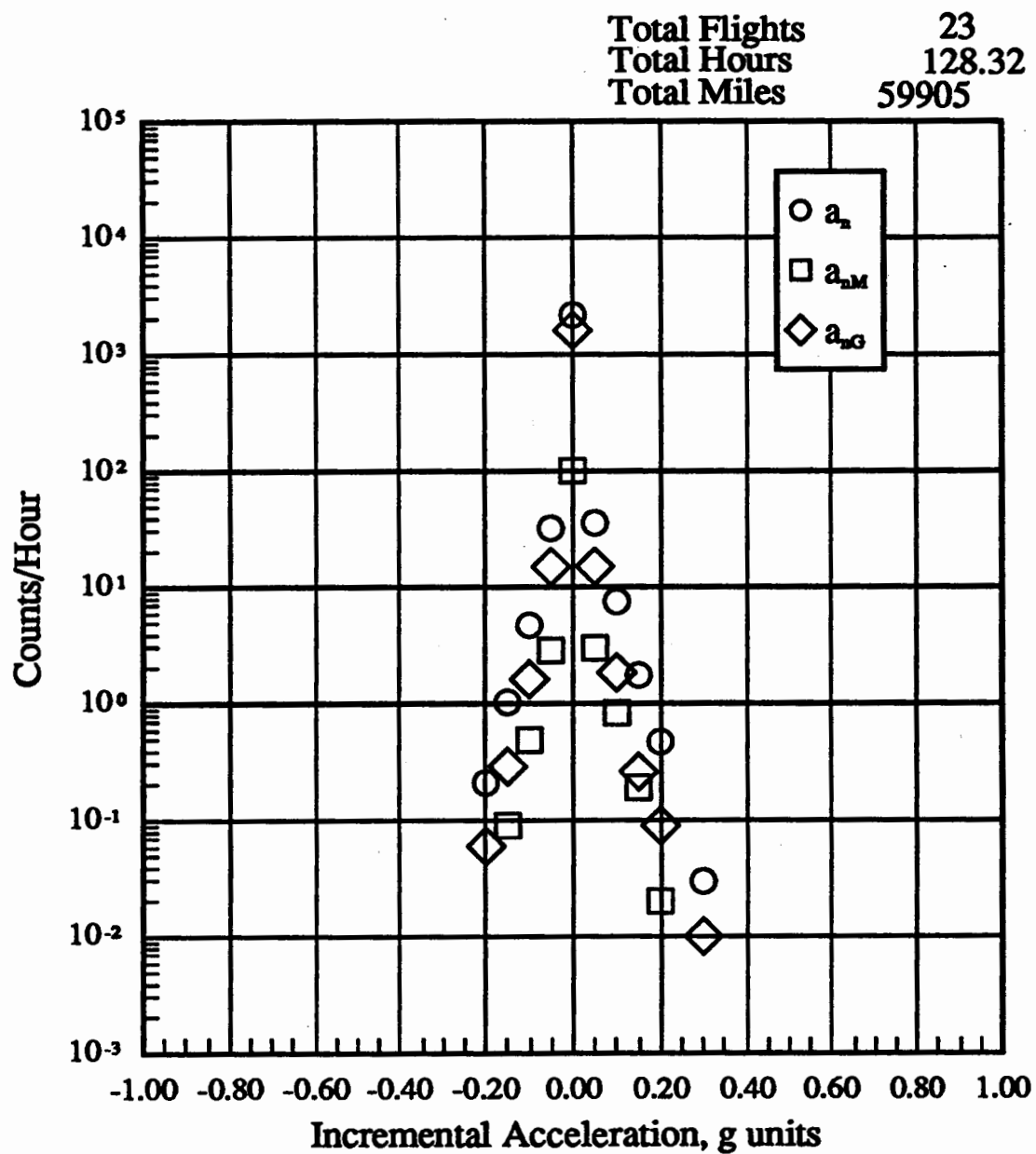
(k) a_n , a_{nM} , a_{nG} , 34500 to 39500 feet altitude

Figure 13.- Continued.



(1) a_n , a_{nM} , a_{nG} , 39500 to 44500 feet altitude

Figure 13.- Continued.



(m) a_n , a_{nM} , a_{nG} , -500 to 44500 feet altitude

Figure 13.- Concluded.

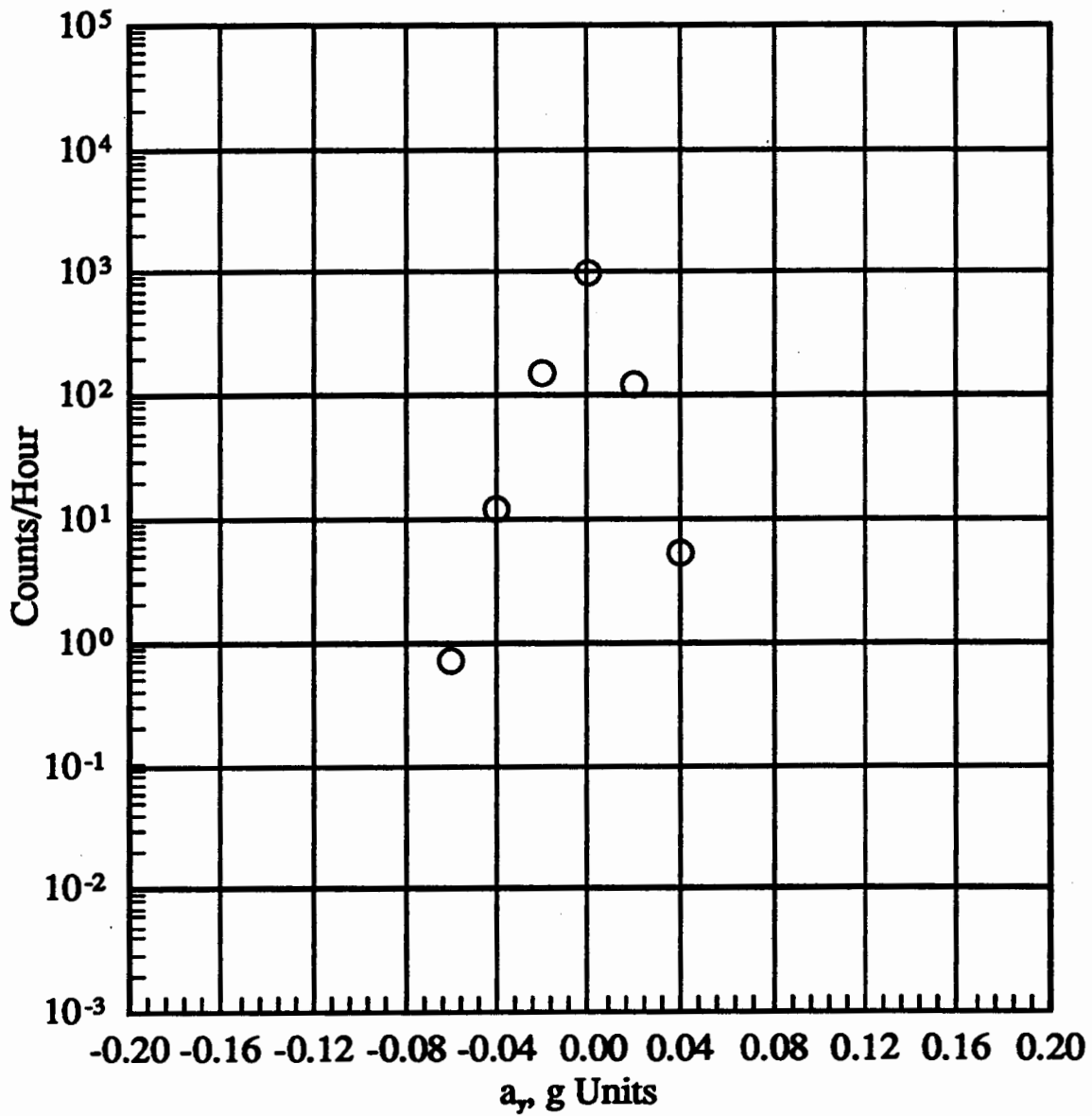
PRESSURE ALTITUDE BANDS										
a_y LEVEL g's	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
.48	0	0	0	0	0	0	0	0	0	0
.44	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0
.36	0	0	0	0	0	0	0	0	0	0
.32	0	0	0	0	0	0	0	0	0	0
.28	0	0	0	0	0	0	0	0	0	0
.24	0	0	0	0	0	0	0	0	0	0
.20	0	0	0	0	0	0	0	0	0	0
.16	0	0	0	0	0	0	0	0	0	0
.12	0	0	0.41	0	0	0	0	0	0	0.01
.08	0	0	1.23	0	0	0	0	0.02	0	0.03
.06	0	0.39	2.87	0.47	0	0	0	0.03	0	0.09
.04	5.33	1.96	10.24	1.88	0.76	0.21	0.12	0.35	0	0.63
.02	122.93	75.49	61.03	39.42	20.86	6.18	5.23	6.66	0	11.93
0	994.49	928.94	848.70	872.31	836.57	906.96	1317.52	1218.20	0	1195.95
-.02	152.07	53.98	49.97	59.59	19.34	6.07	4.24	4.45	0	10.79
-.04	12.08	2.74	6.96	4.69	1.90	0.42	0.17	0.35	0	0.83
-.06	0.71	0	1.64	0.47	0	0	0	0.03	0	0.07
-.08	0	0	0.82	0	0	0	0	0	0	0.02
-.12	0	0	0	0	0	0	0	0	0	0
-.16	0	0	0	0	0	0	0	0	0	0
-.20	0	0	0	0	0	0	0	0	0	0
-.24	0	0	0	0	0	0	0	0	0	0
-.28	0	0	0	0	0	0	0	0	0	0
-.32	0	0	0	0	0	0	0	0	0	0
-.36	0	0	0	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0	0	0	0
-.44	0	0	0	0	0	0	0	0	0	0
-.48	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.09	0	59904.53
TOTAL FLIGHTS										23
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN										59904.53

(a) a_y Level crossing counts per hour within pressure altitude bands

Figure 14.- Lateral acceleration exceedances.

Total Flights
Total Hours
Total Miles

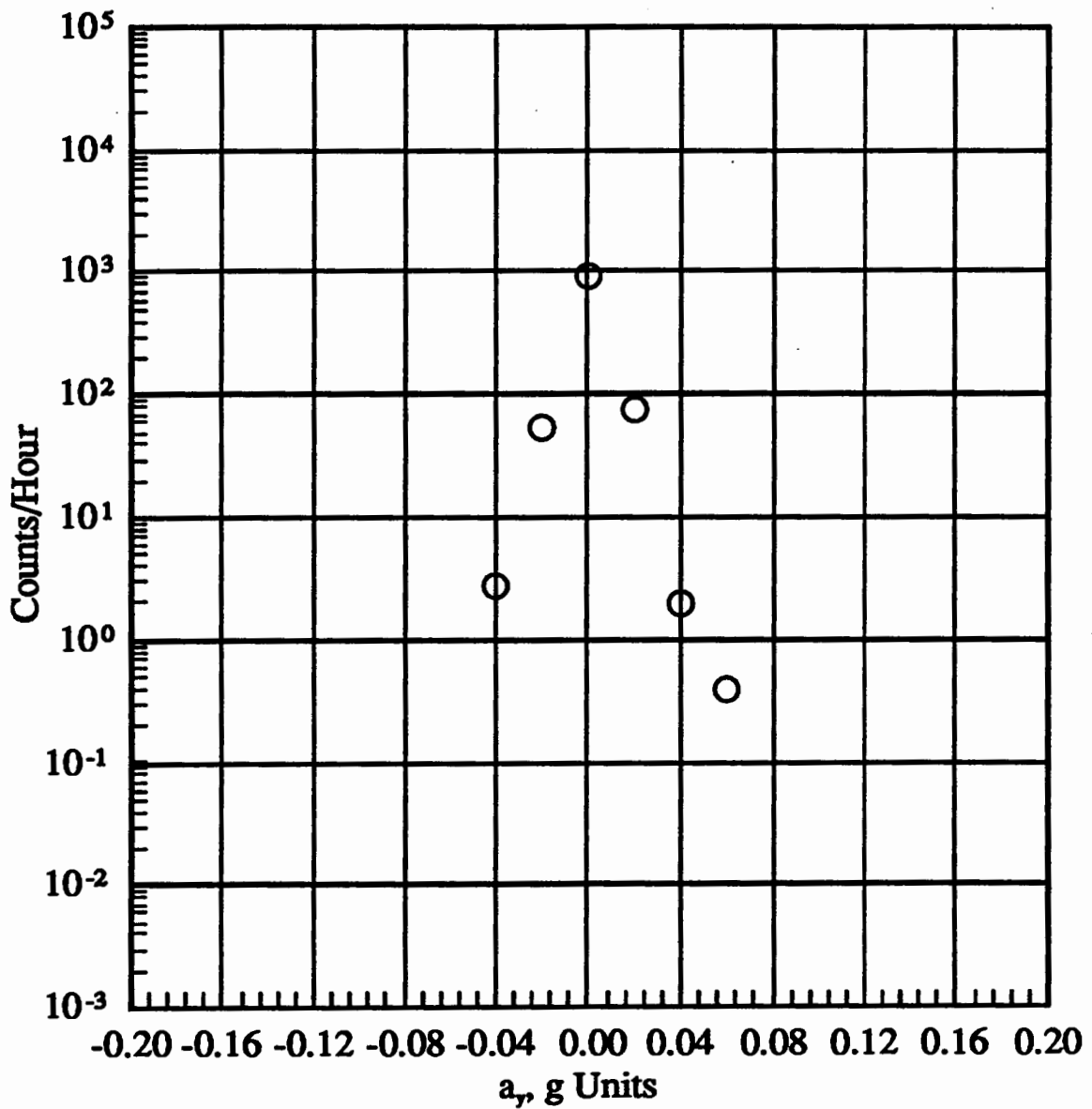
23
2.81
561



(b) -500 to 4500 feet altitude

Figure 14.- Continued.

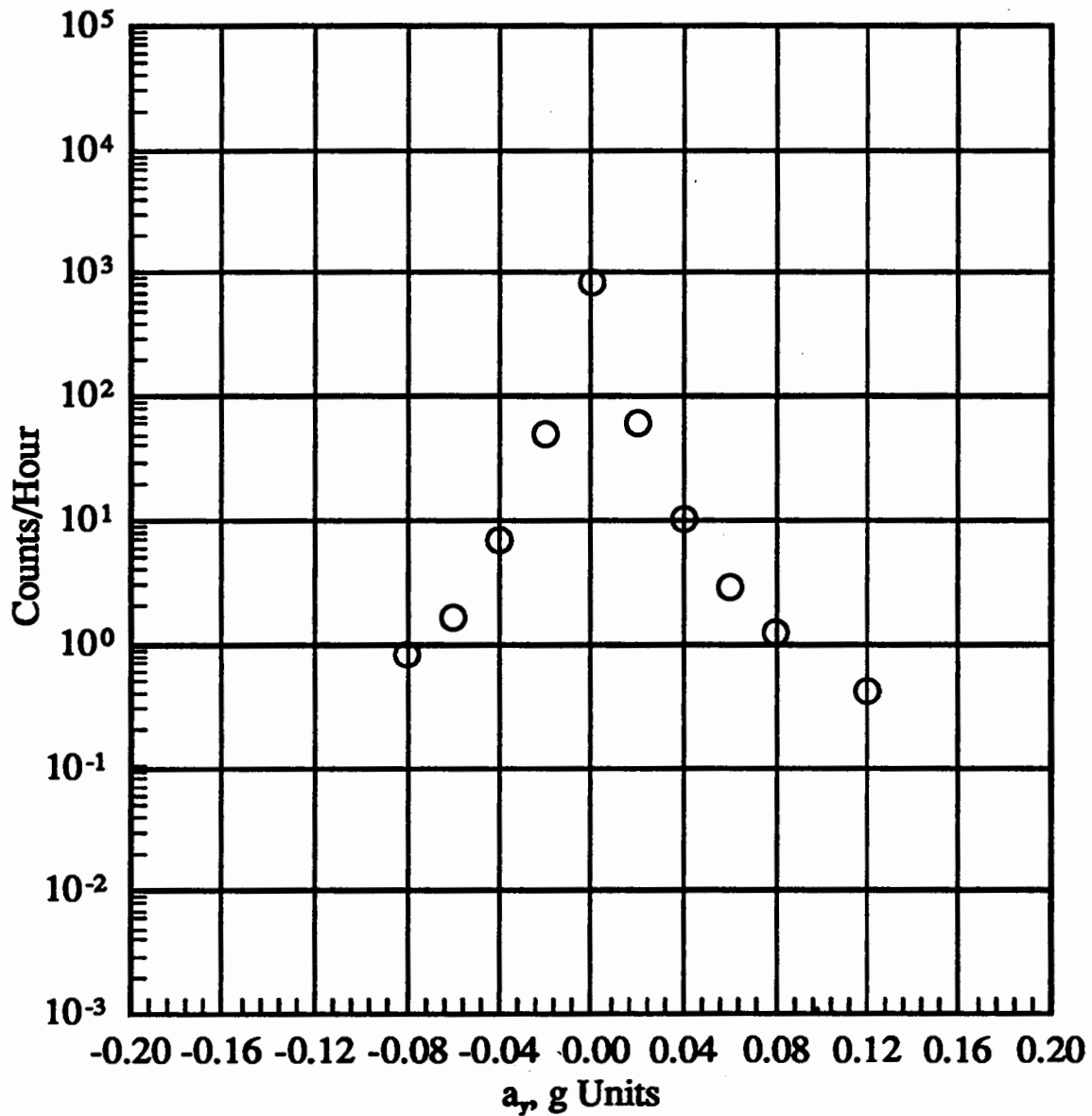
Total Flights	23
Total Hours	2.56
Total Miles	715



(c) 4500 to 9500 feet altitude

Figure 14.- Continued.

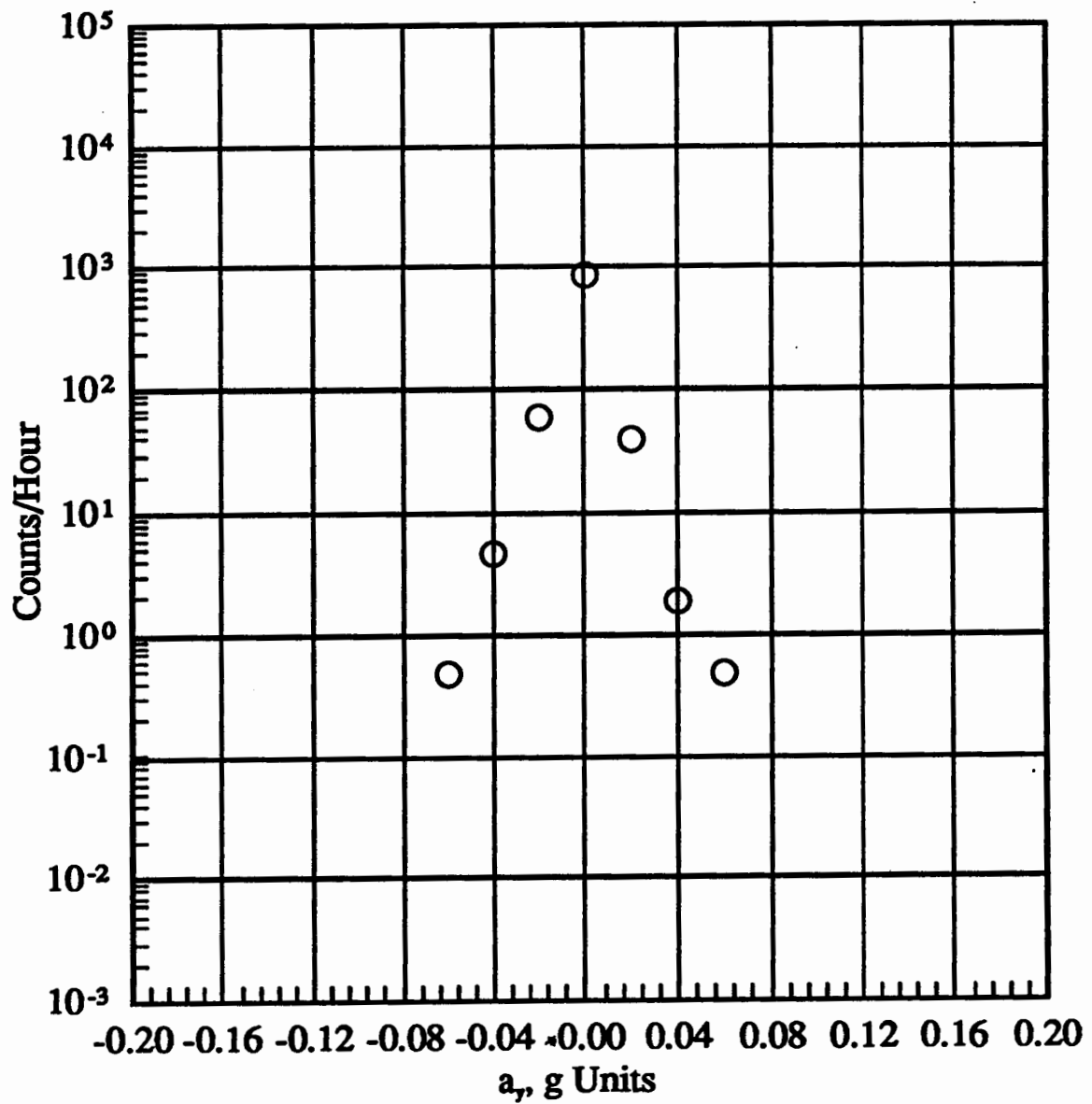
Total Flights	23
Total Hours	2.44
Total Miles	879



(d) 9500 to 14500 feet altitude

Figure 14.- Continued.

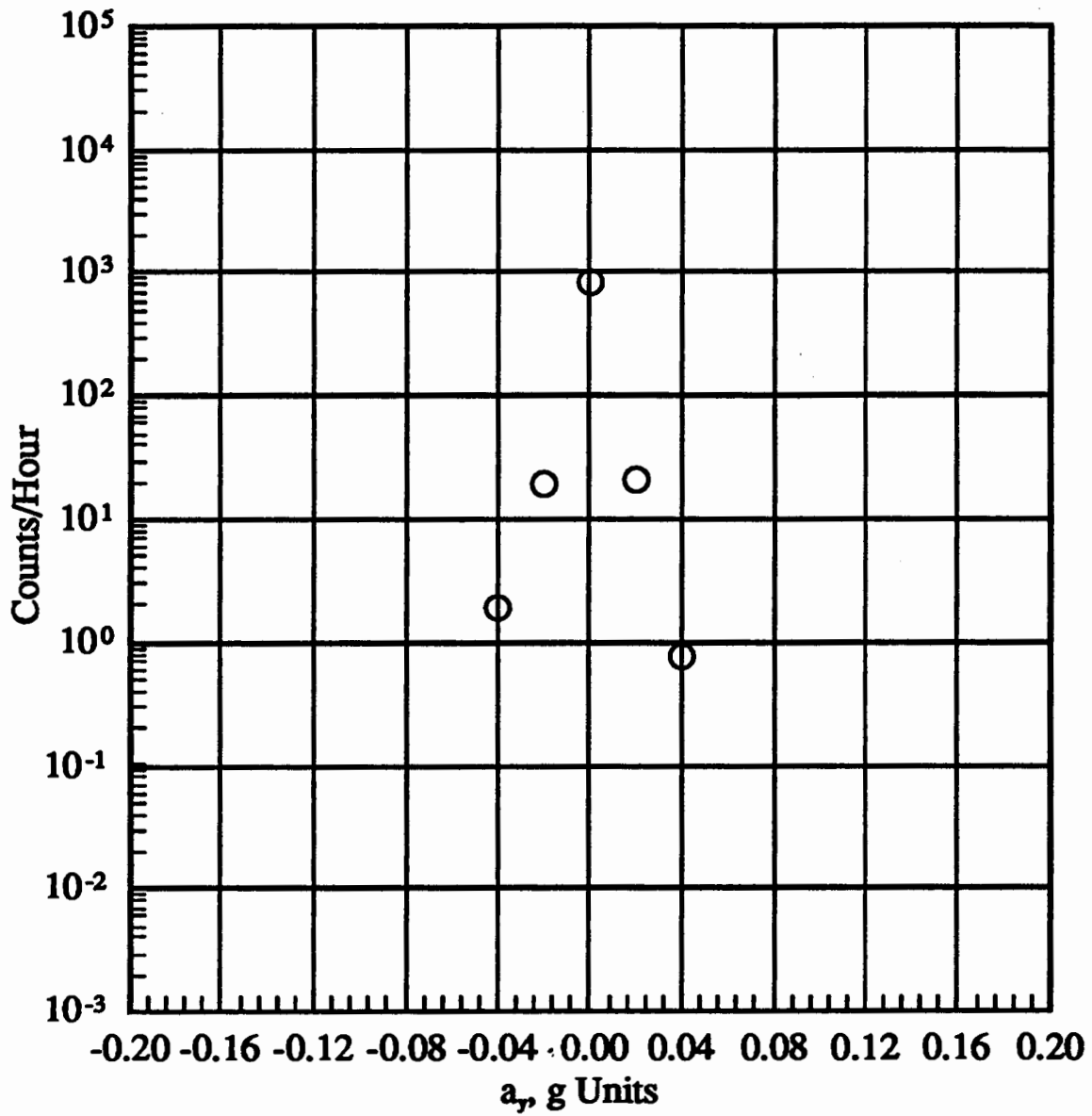
Total Flights	23
Total Hours	2.13
Total Miles	879



(e) 14500 to 19500 feet altitude

Figure 14.- Continued.

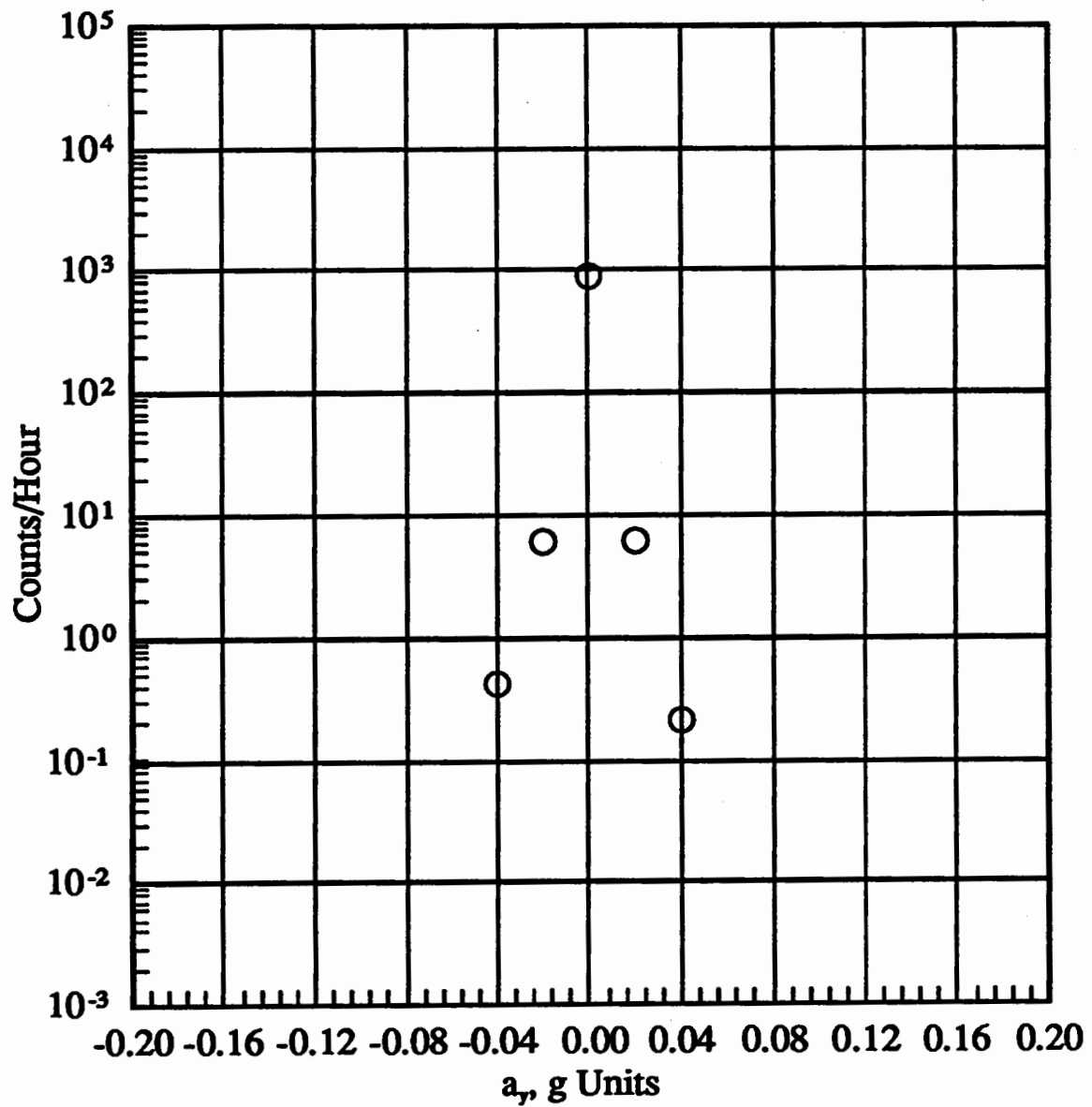
Total Flights	23
Total Hours	2.64
Total Miles	1188



(f) 19500 to 24500 feet altitude

Figure 14.- Continued.

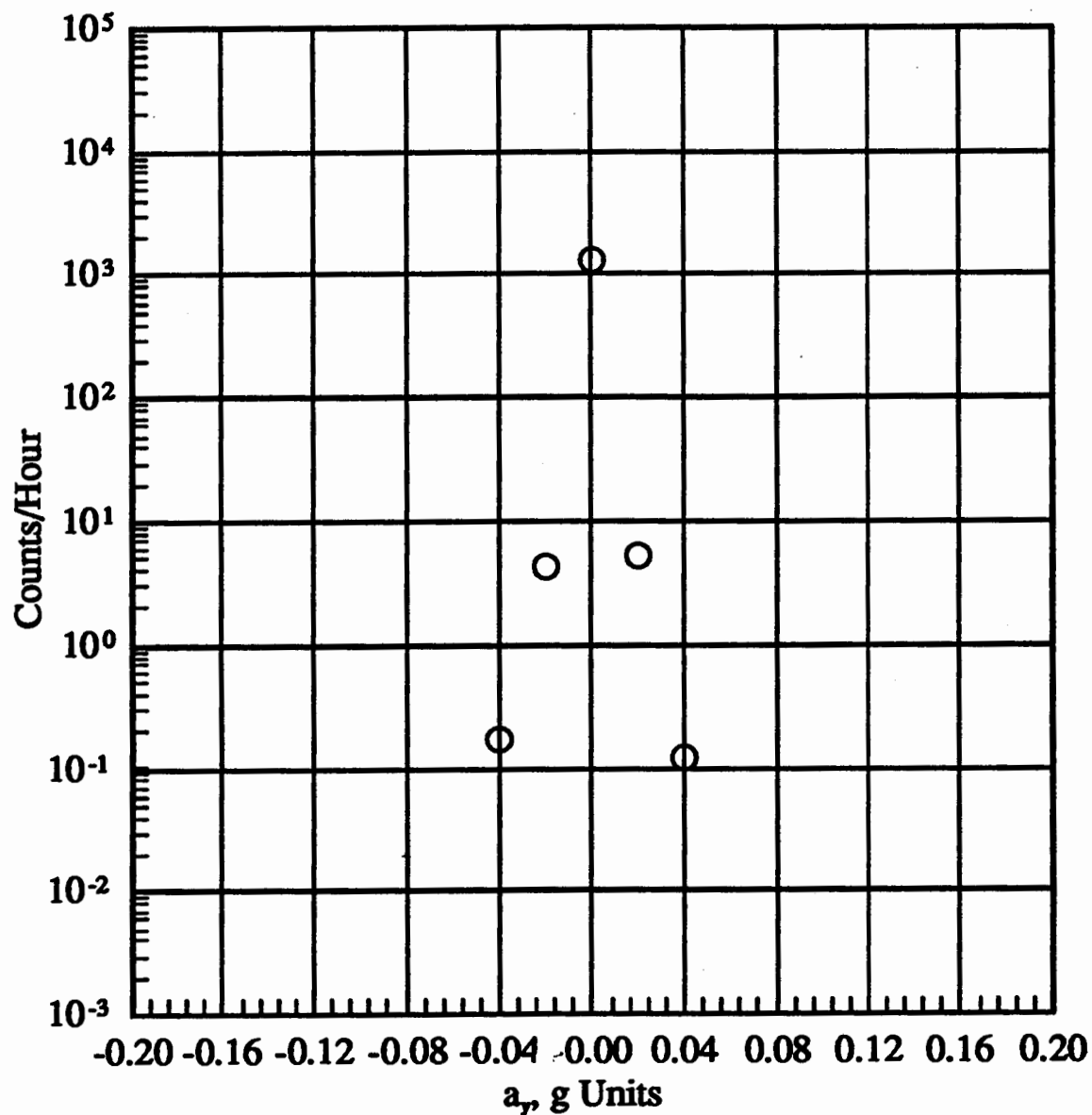
Total Flights	23
Total Hours	9.55
Total Miles	4639



(g) 24500 to 29500 feet altitude

Figure 14.- Continued.

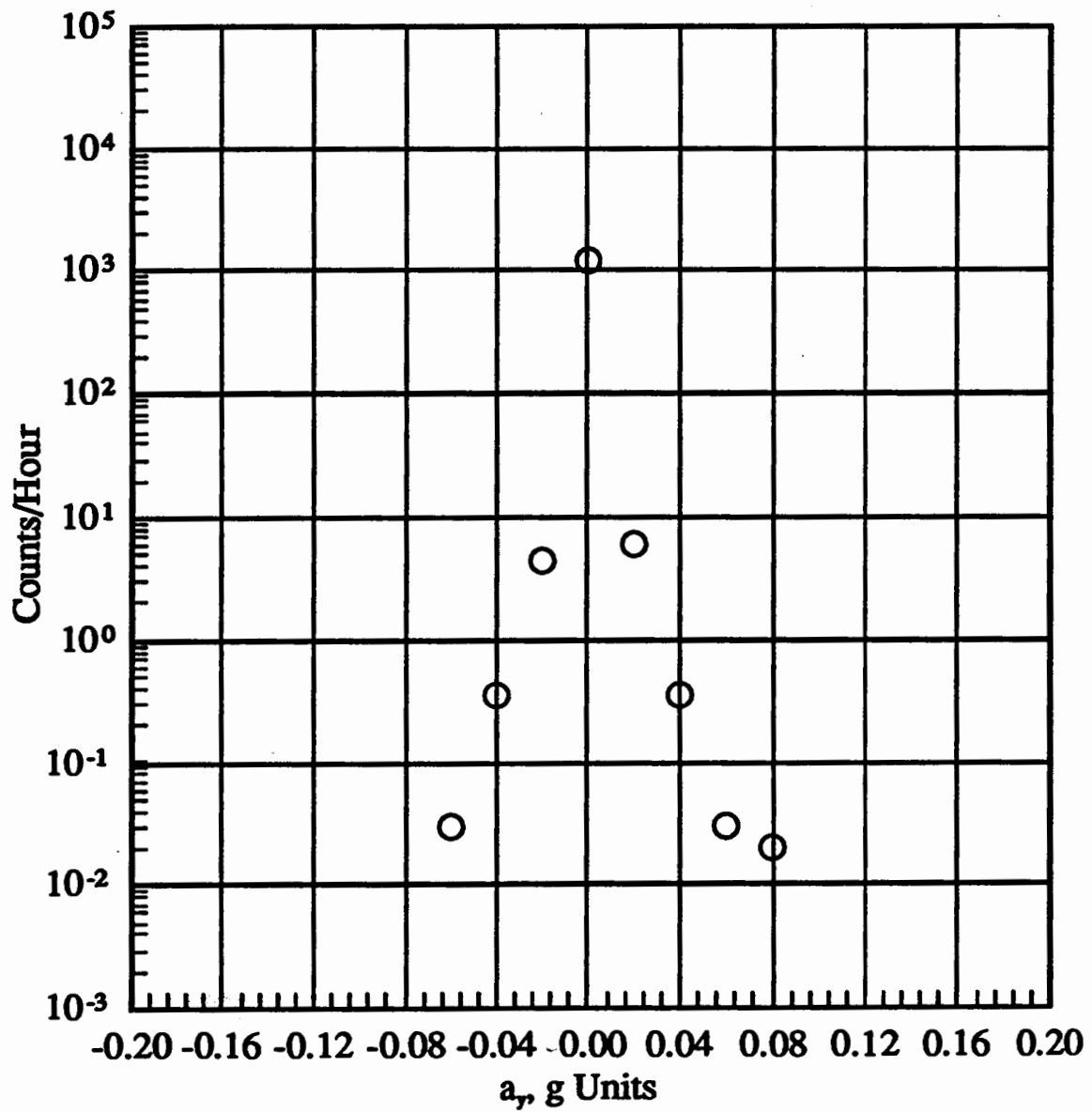
Total Flights	23
Total Hours	41.46
Total Miles	19917



(h) 29500 to 34500 feet altitude

Figure 14.- Continued.

Total Flights	23
Total Hours	65.32
Total Miles	31127

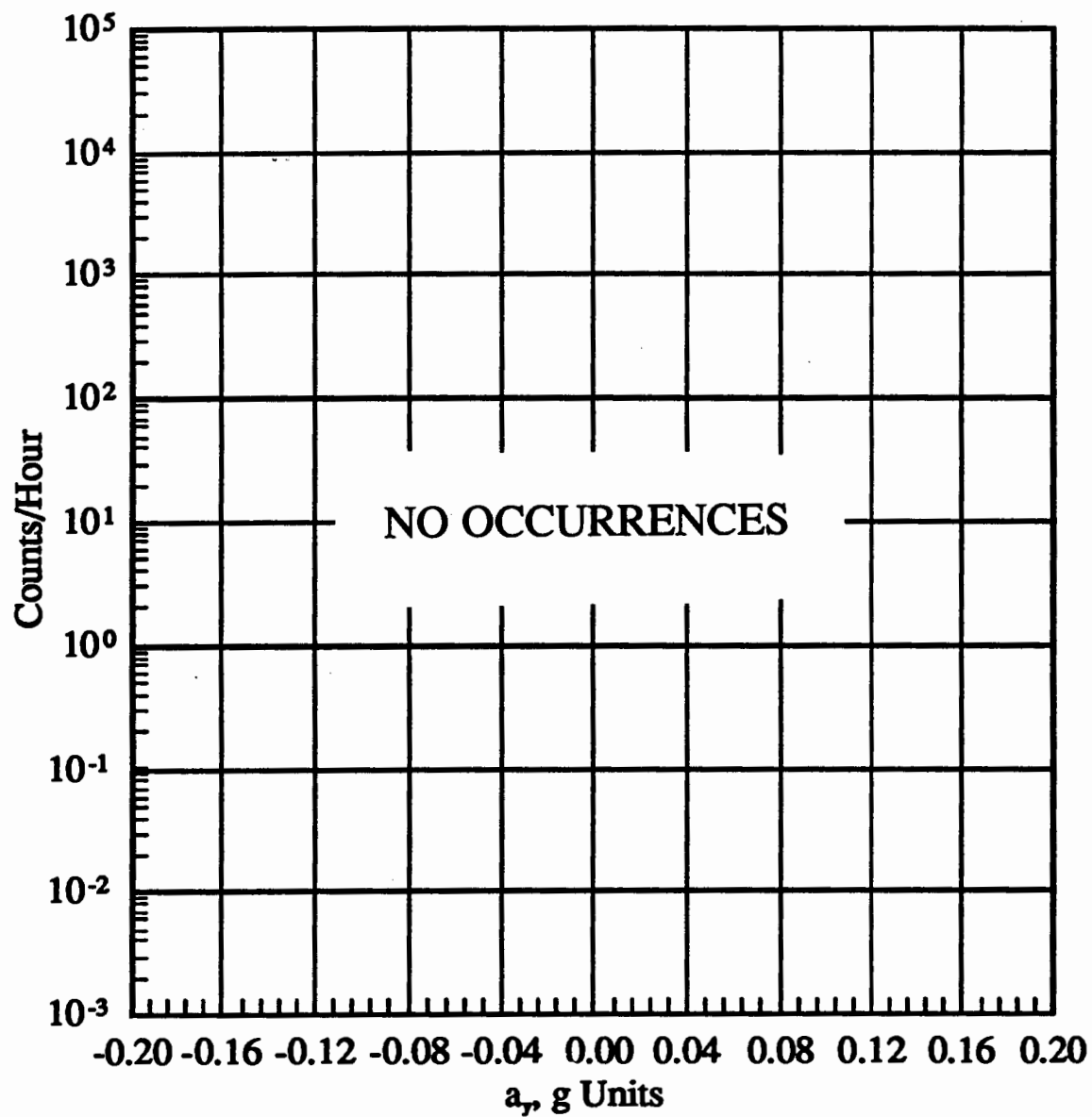


(i) 34500 to 39500 feet altitude

Figure 14.- Continued.

Total Flights
Total Hours
Total Miles

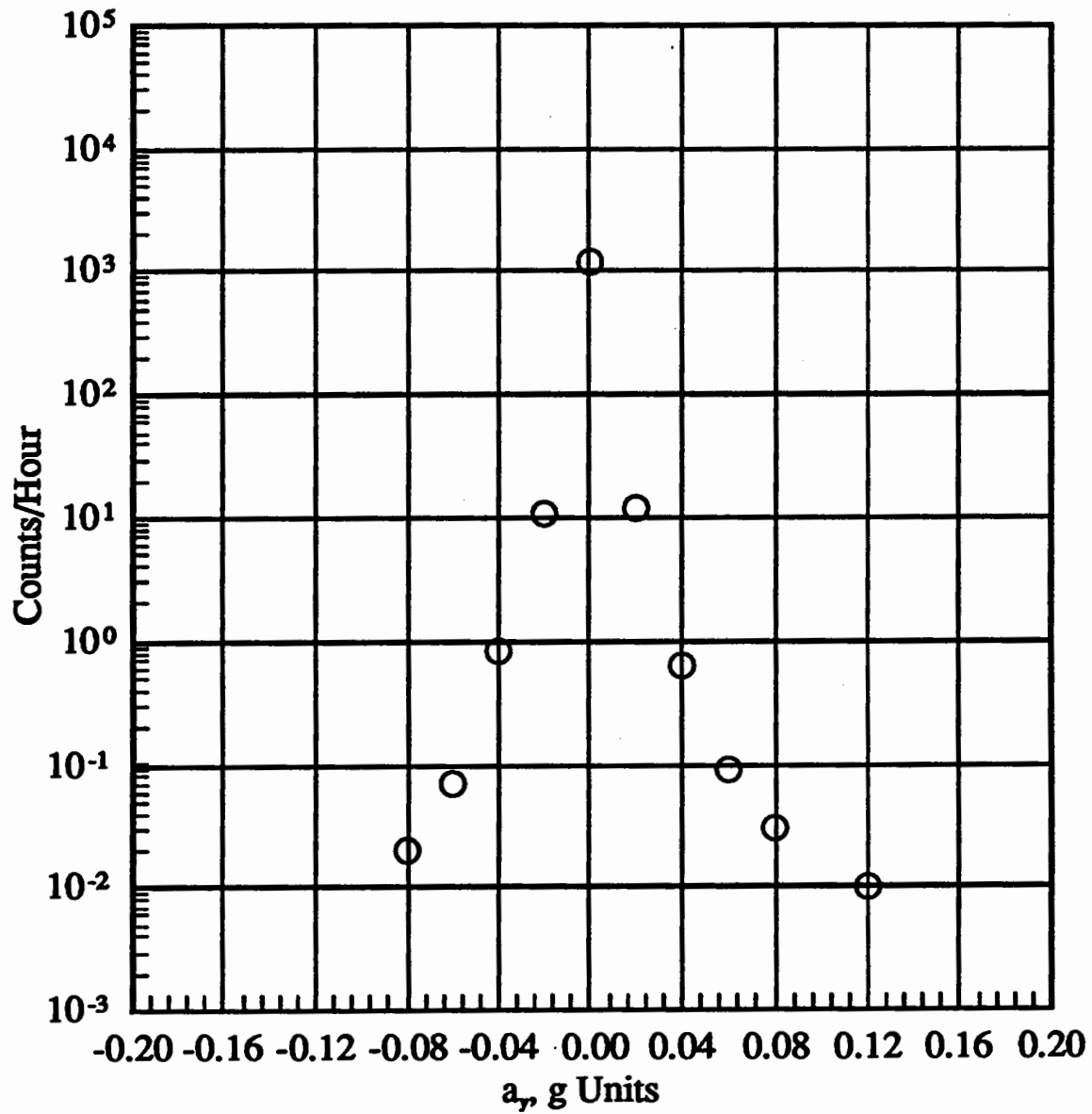
23
0.00
0



(j) 39500 to 44500 feet altitude

Figure 14.- Continued.

Total Flights	23
Total Hours	128.32
Total Miles	59905



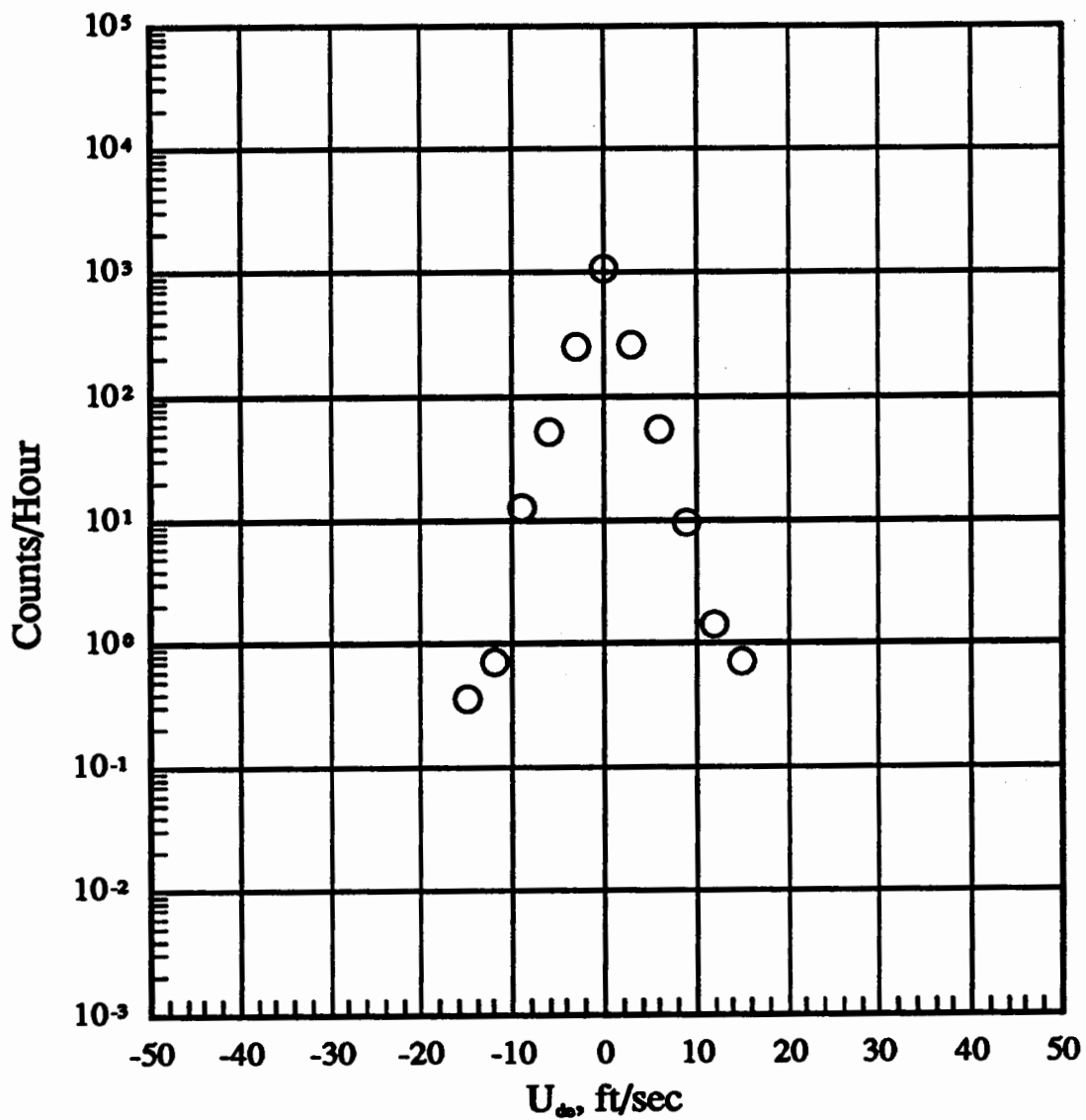
(k) -500 to 44500 feet altitude

Figure 14.- Concluded.

PRESSURE ALTITUDE BANDS										
U_{de} DERIVED GUST VELOCITY LEVEL FT/SEC	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
100	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
15	0.71	0.39	0	0	0	0	0	0	0	0.02
12	1.42	1.17	0	0	0	0	0	0	0	0.05
9	9.59	3.13	0	0.47	0	0	0	0	0	0.28
6	54.72	12.13	2.87	2.82	0.38	0.21	0.10	0.15	0	1.67
3	258.66	66.49	21.30	23.93	5.69	3.04	4.24	2.72	0	10.85
0	1061.64	1242.24	1302.95	1427.89	1498.70	1566.51	1647.90	1646.40	0	1607.05
-3	250.49	65.32	21.71	24.87	6.45	3.25	3.69	3.06	0	10.70
-6	52.23	13.30	0.41	4.22	0.76	0.10	0.14	0.20	0	1.65
-9	12.79	4.30	0	0.47	0	0.10	0	0.02	0	0.39
-12	0.71	0.39	0	0	0	0	0	0	0	0.02
-15	0.36	0	0	0	0	0	0	0	0	0.01
-20	0	0	0	0	0	0	0	0	0	0
-30	0	0	0	0	0	0	0	0	0	0
-40	0	0	0	0	0	0	0	0	0	0
-50	0	0	0	0	0	0	0	0	0	0
-60	0	0	0	0	0	0	0	0	0	0
-70	0	0	0	0	0	0	0	0	0	0
-80	0	0	0	0	0	0	0	0	0	0
-90	0	0	0	0	0	0	0	0	0	0
-100	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.79	1187.79	4638.71	19917.03	31127.09	0	59904.53
TOTAL FLIGHTS										23
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN										59904.53

(a) U_{de} Level crossing counts per hour withing pressure altitude bandsFigure 15.- U_{de} exceedances.

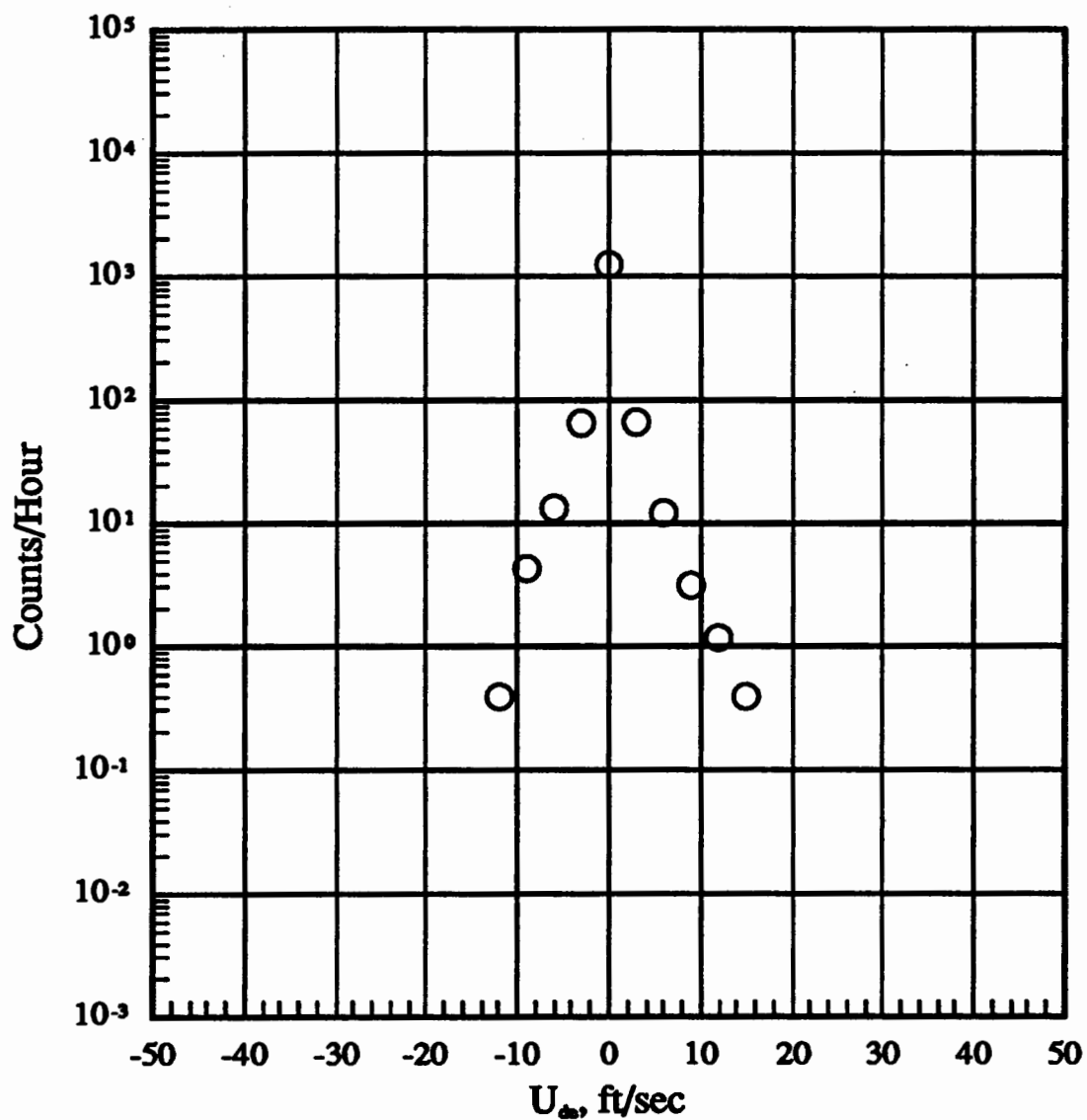
Total Flights	23
Total Hours	2.81
Total Miles	561



(b) -500 to 4500 feet altitude

Figure 15.- Continued.

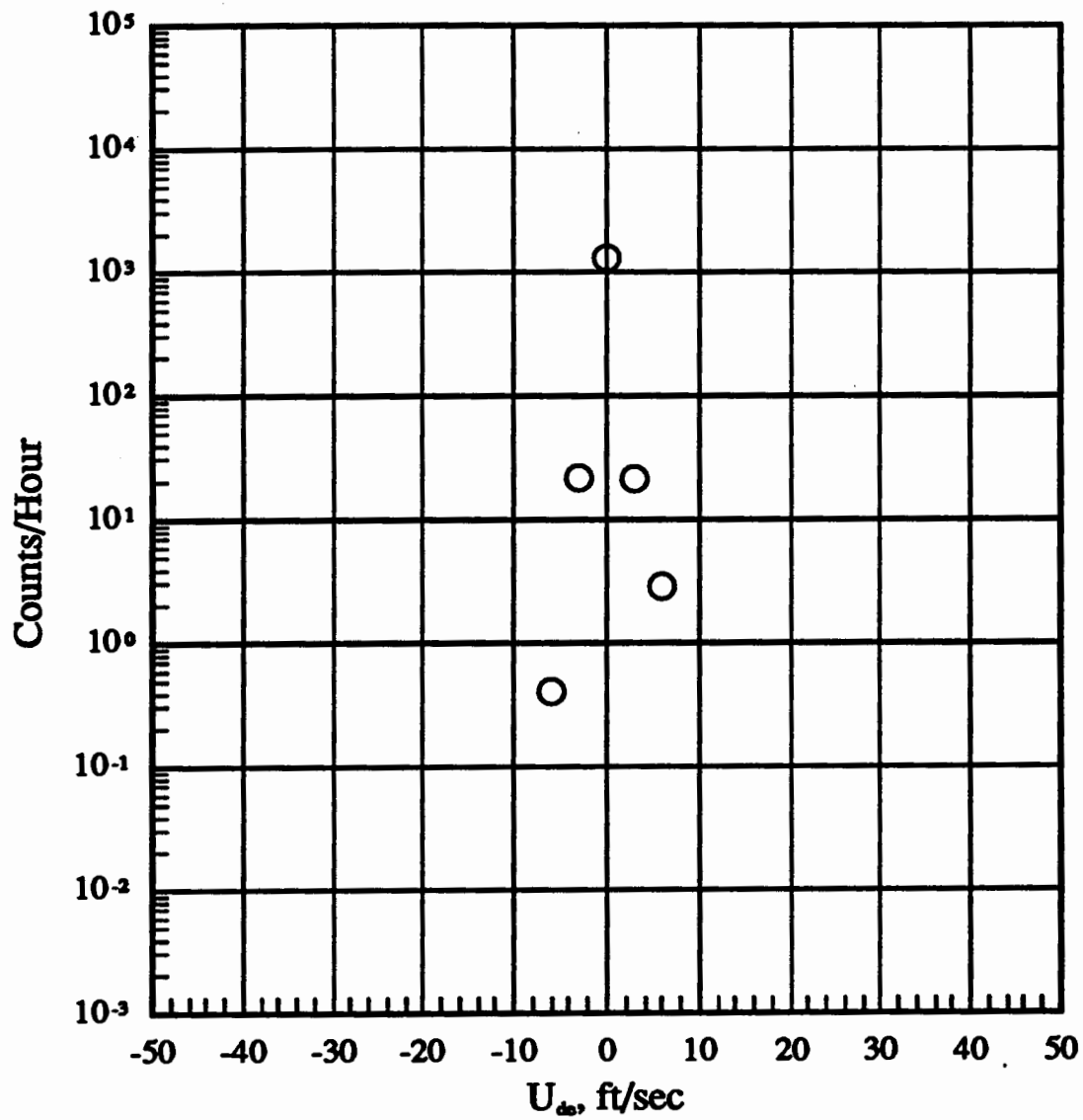
Total Flights	23
Total Hours	2.56
Total Miles	715



(c) 4500 to 9500 feet altitude

Figure 15.- Continued.

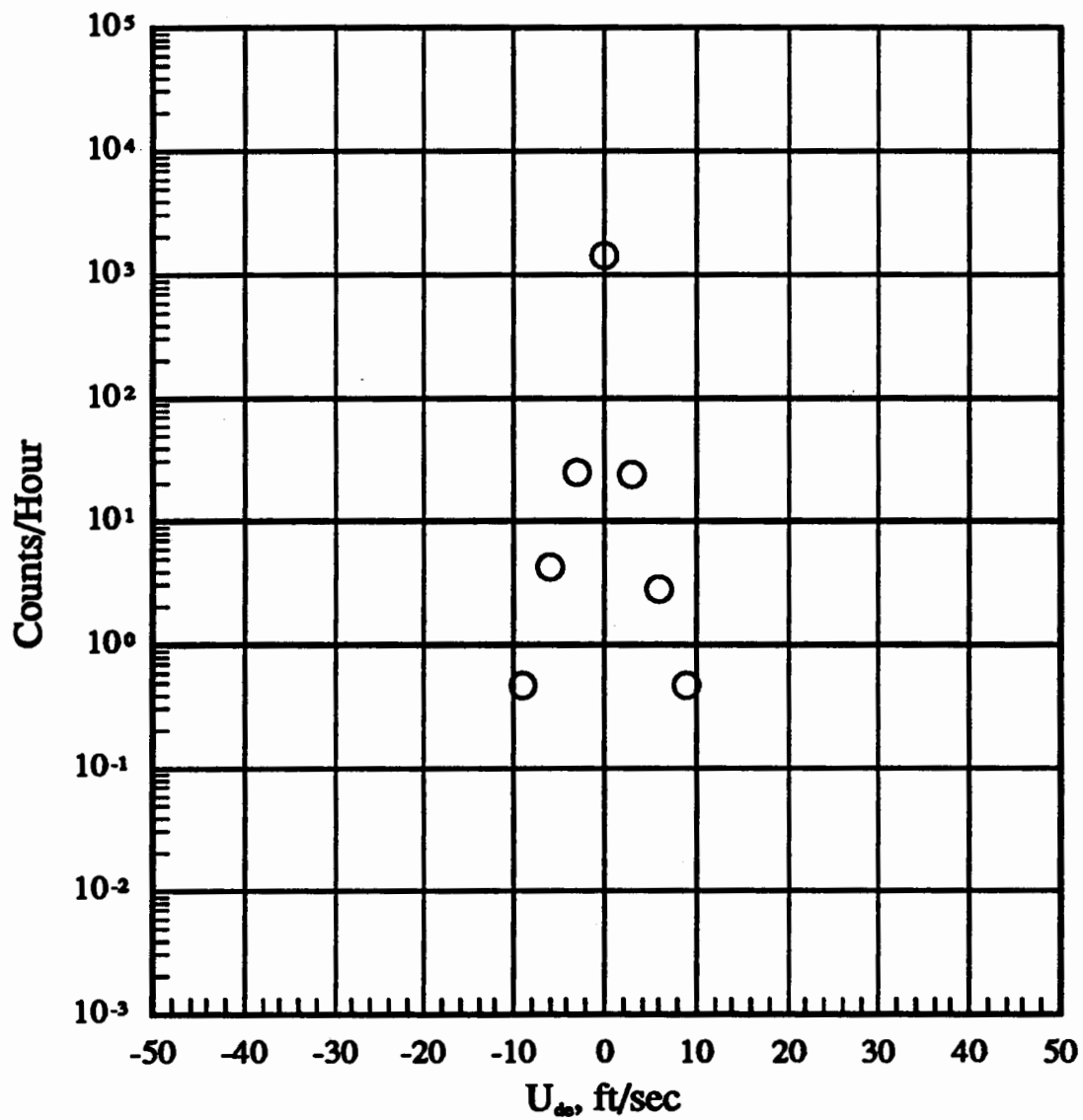
Total Flights	23
Total Hours	2.44
Total Miles	879



(d) 9500 to 14500 feet altitude

Figure 15.- Continued.

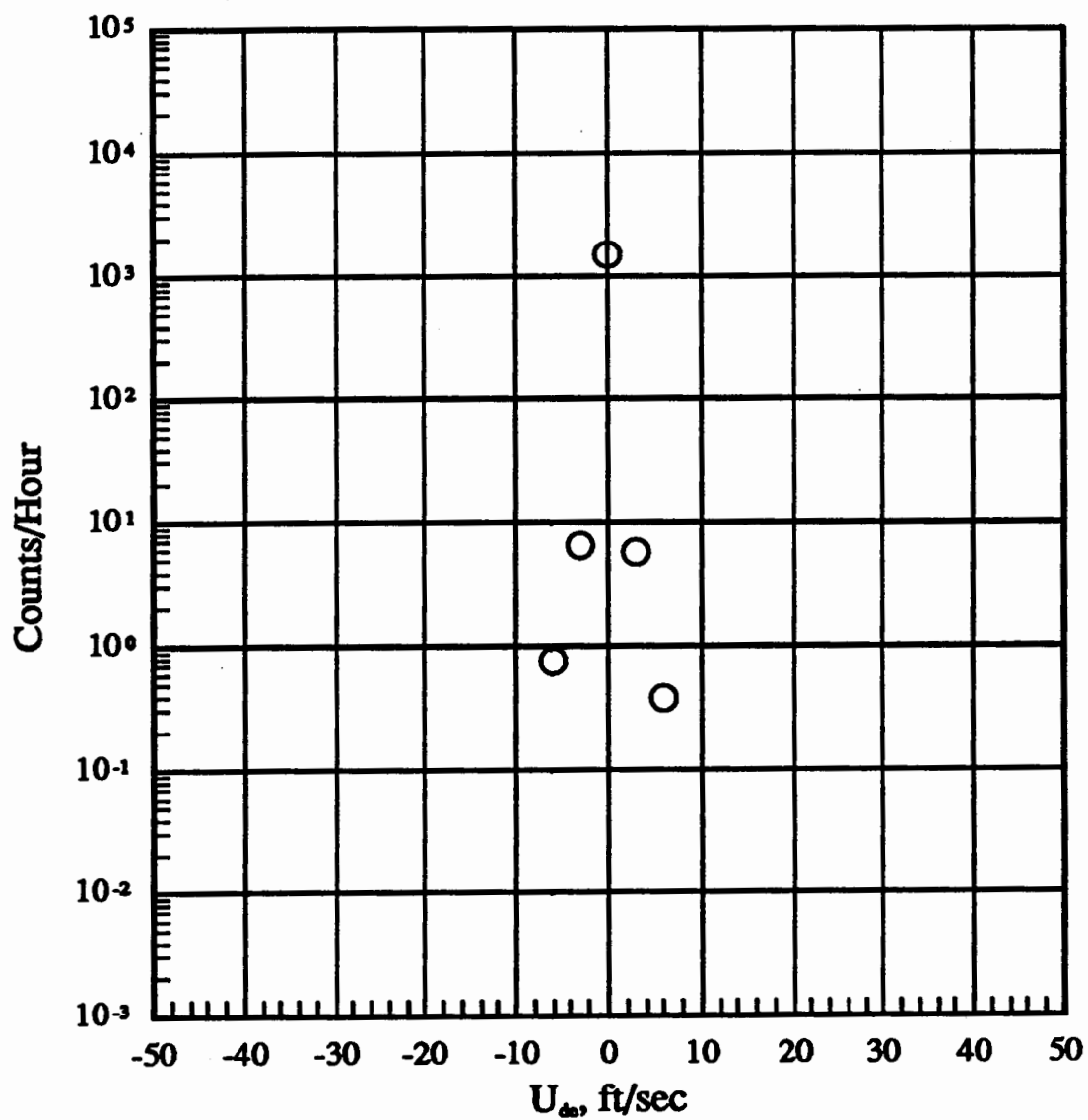
Total Flights	23
Total Hours	2.13
Total Miles	879



(e) 14500 to 19500 feet altitude

Figure 15.- Continued.

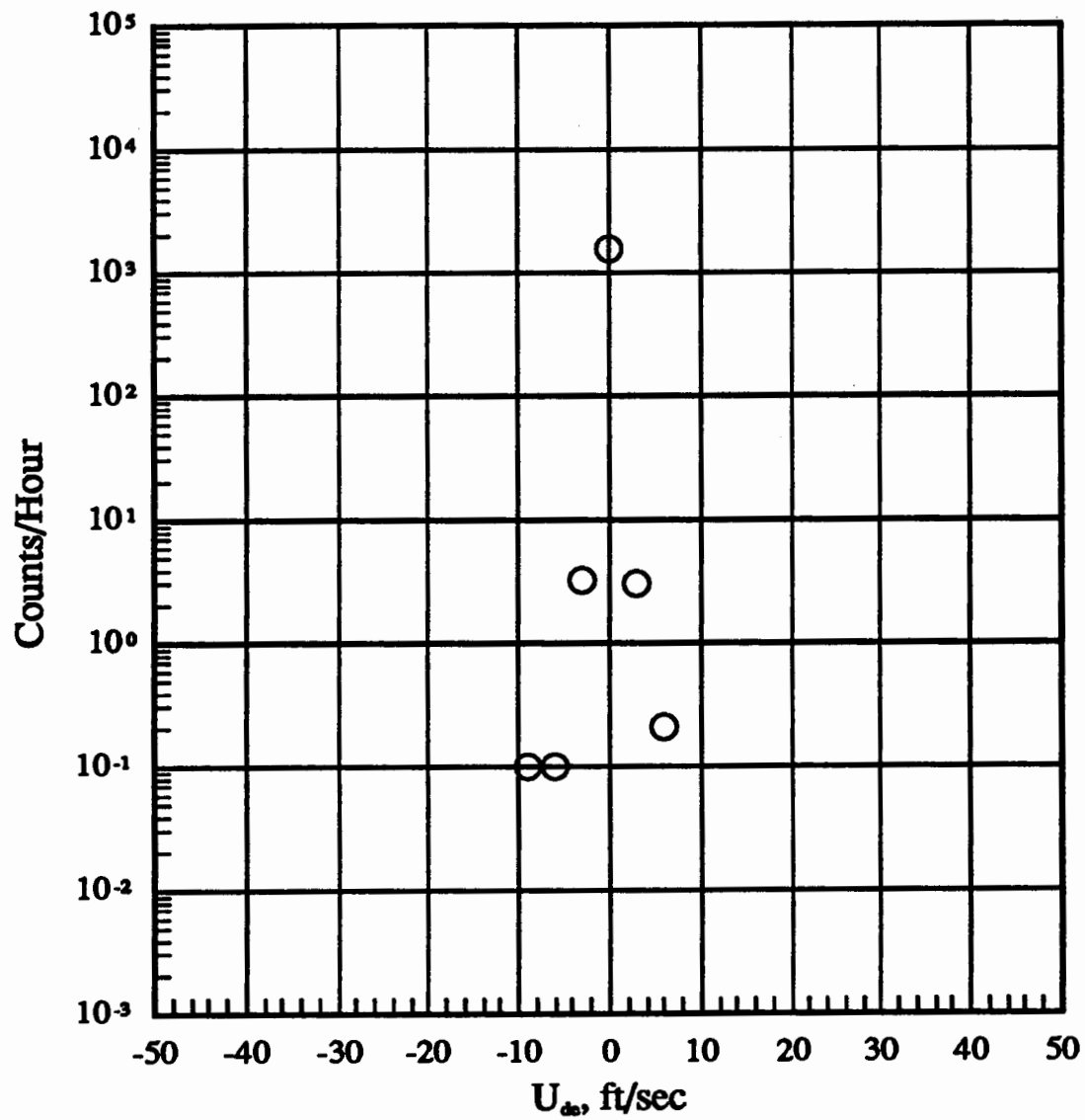
Total Flights	23
Total Hours	2.64
Total Miles	1188



(f) 19500 to 24500 feet altitude

Figure 15.- Continued.

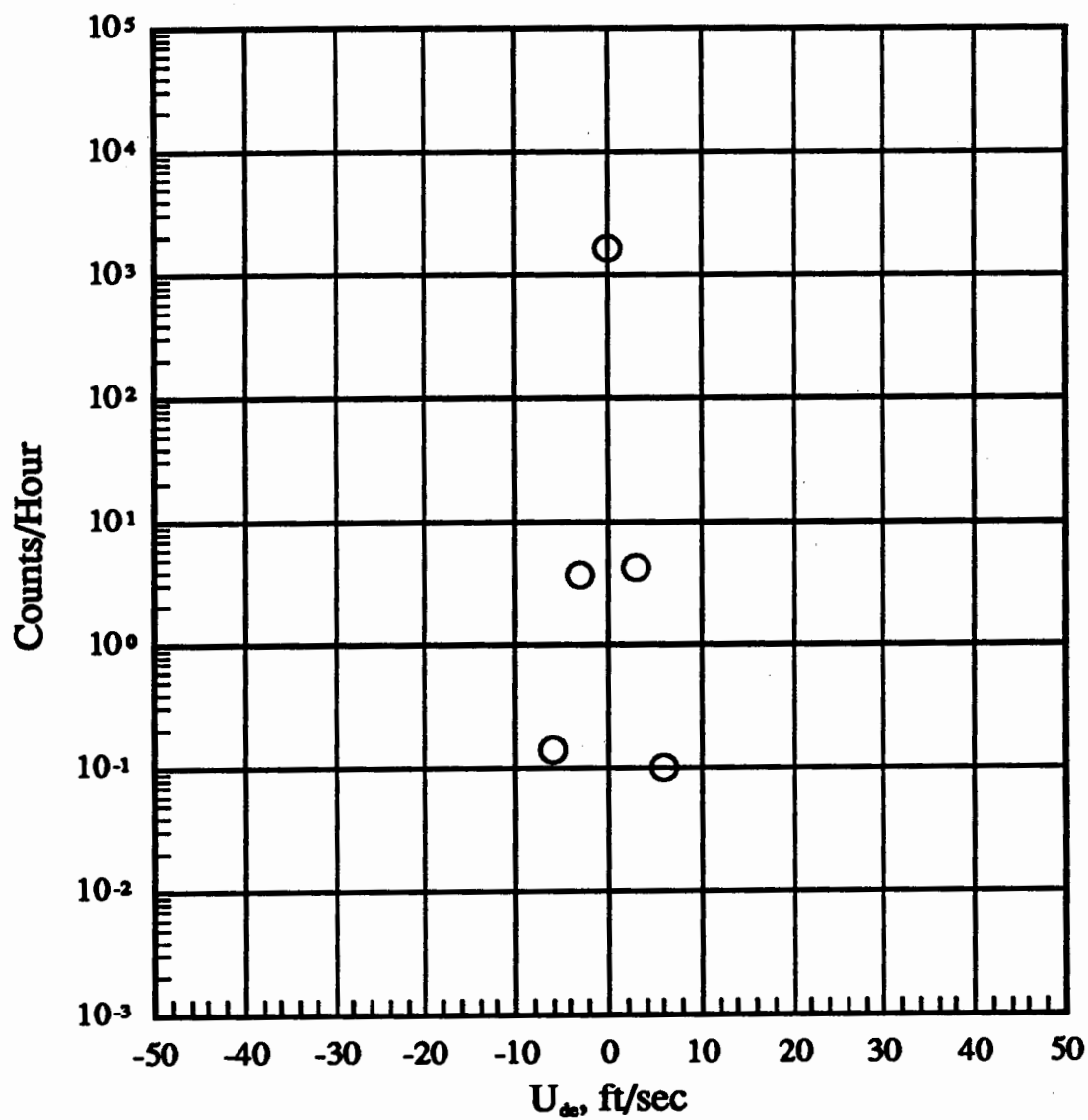
Total Flights	23
Total Hours	9.55
Total Miles	4639



(g) 24500 to 29500 feet altitude

Figure 15.- Continued.

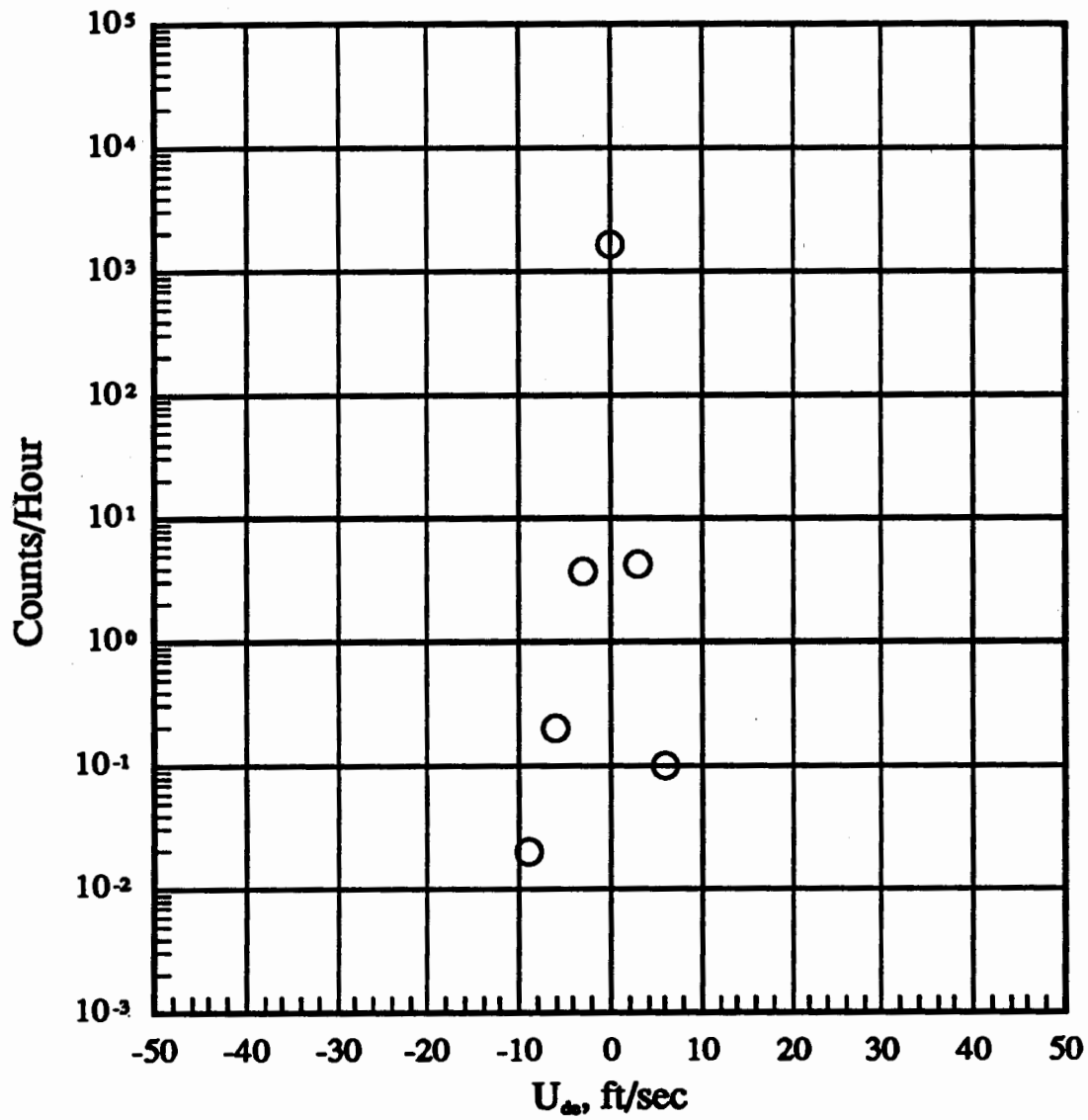
Total Flights 23
Total Hours 41.45
Total Miles 19917



(h) 29500 to 34500 feet altitude

Figure 15.- Continued.

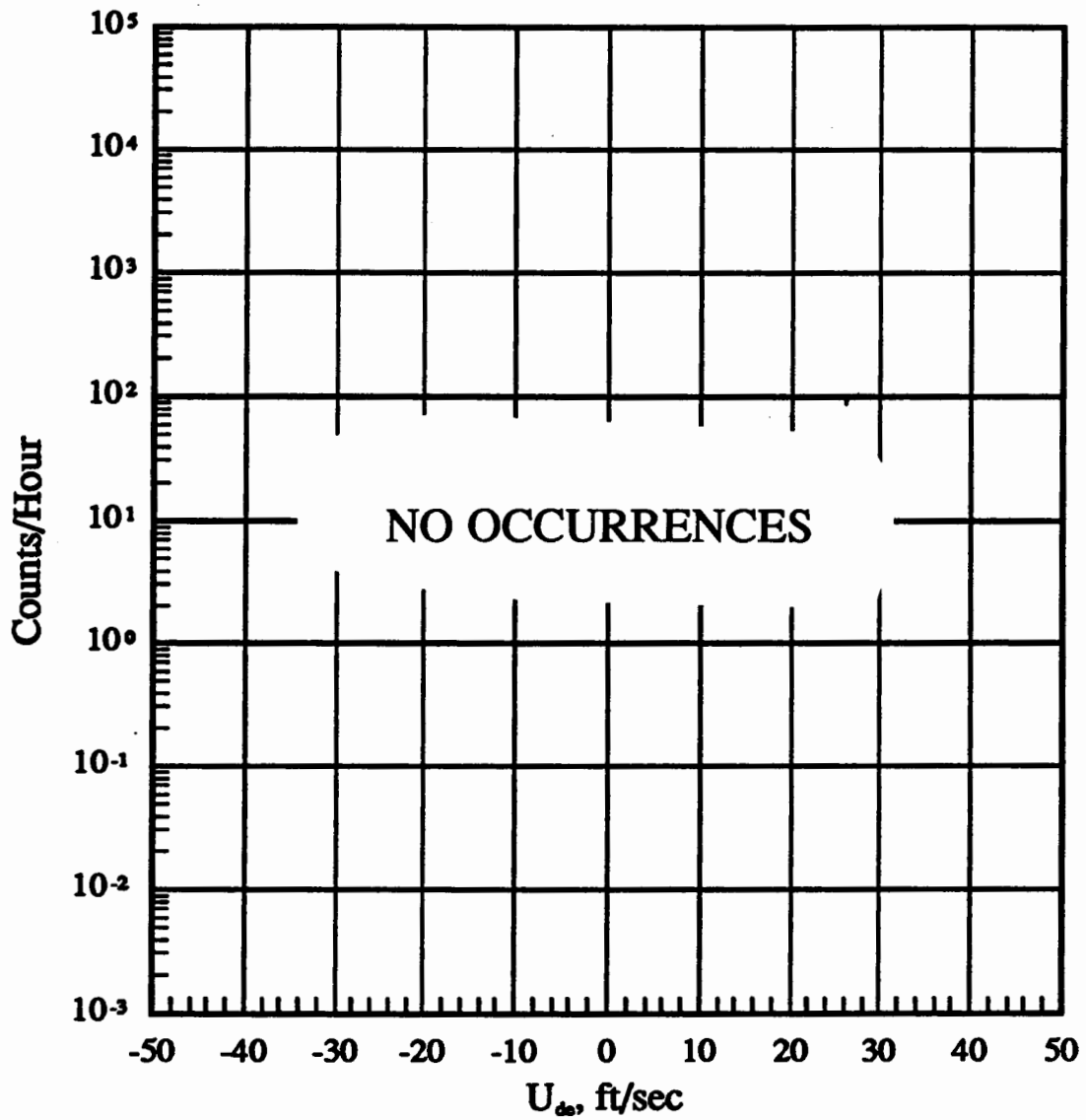
Total Flights 23
Total Hours 65.32
Total Miles 31127



(i) 34500 to 39500 feet altitude

Figure 15.- Continued.

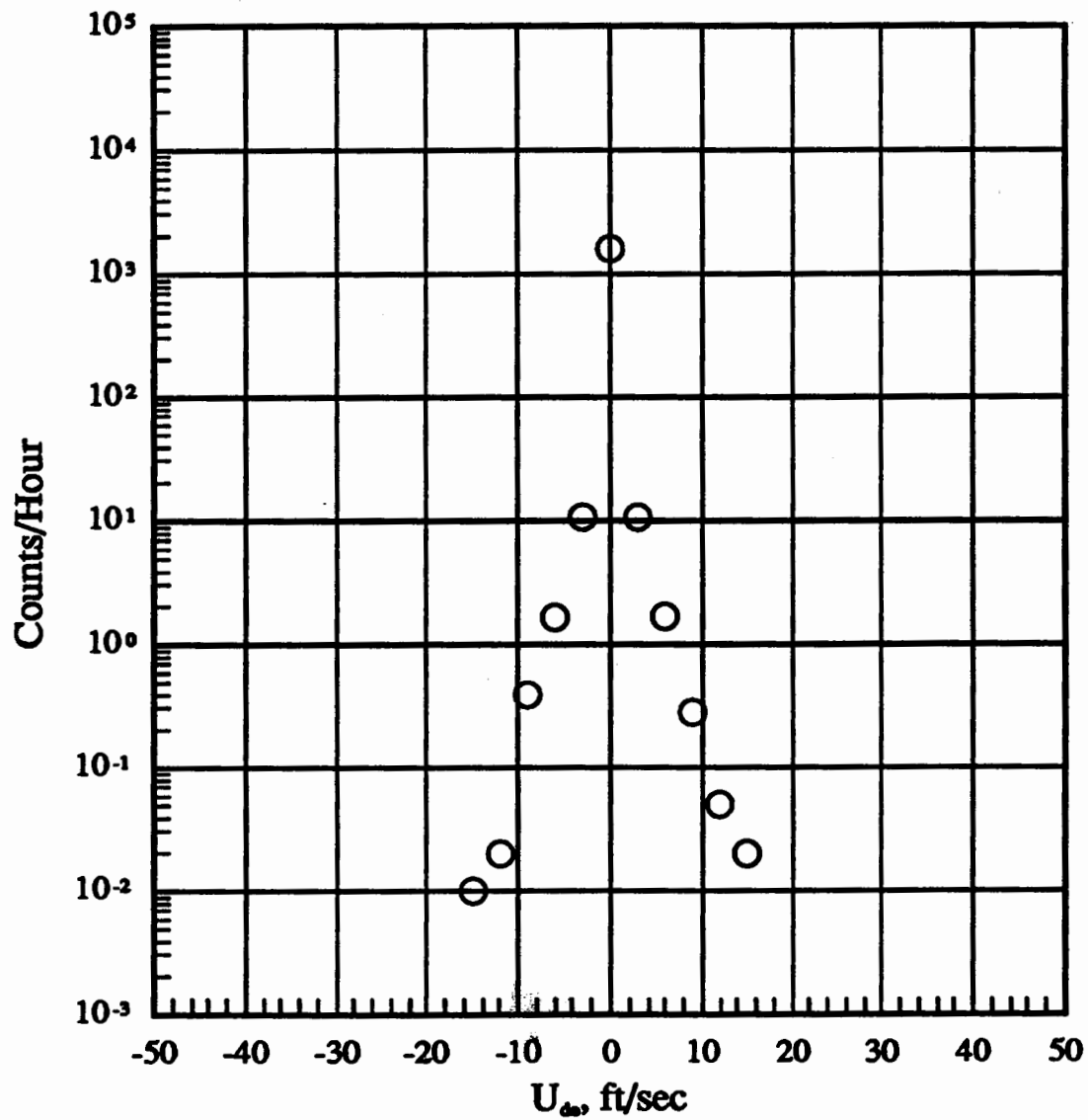
Total Flights	23
Total Hours	0.00
Total Miles	0



(j) 39500 to 44500 feet altitude

Figure 15.- Continued.

Total Flights 23
Total Hours 128.82
Total Miles 59905



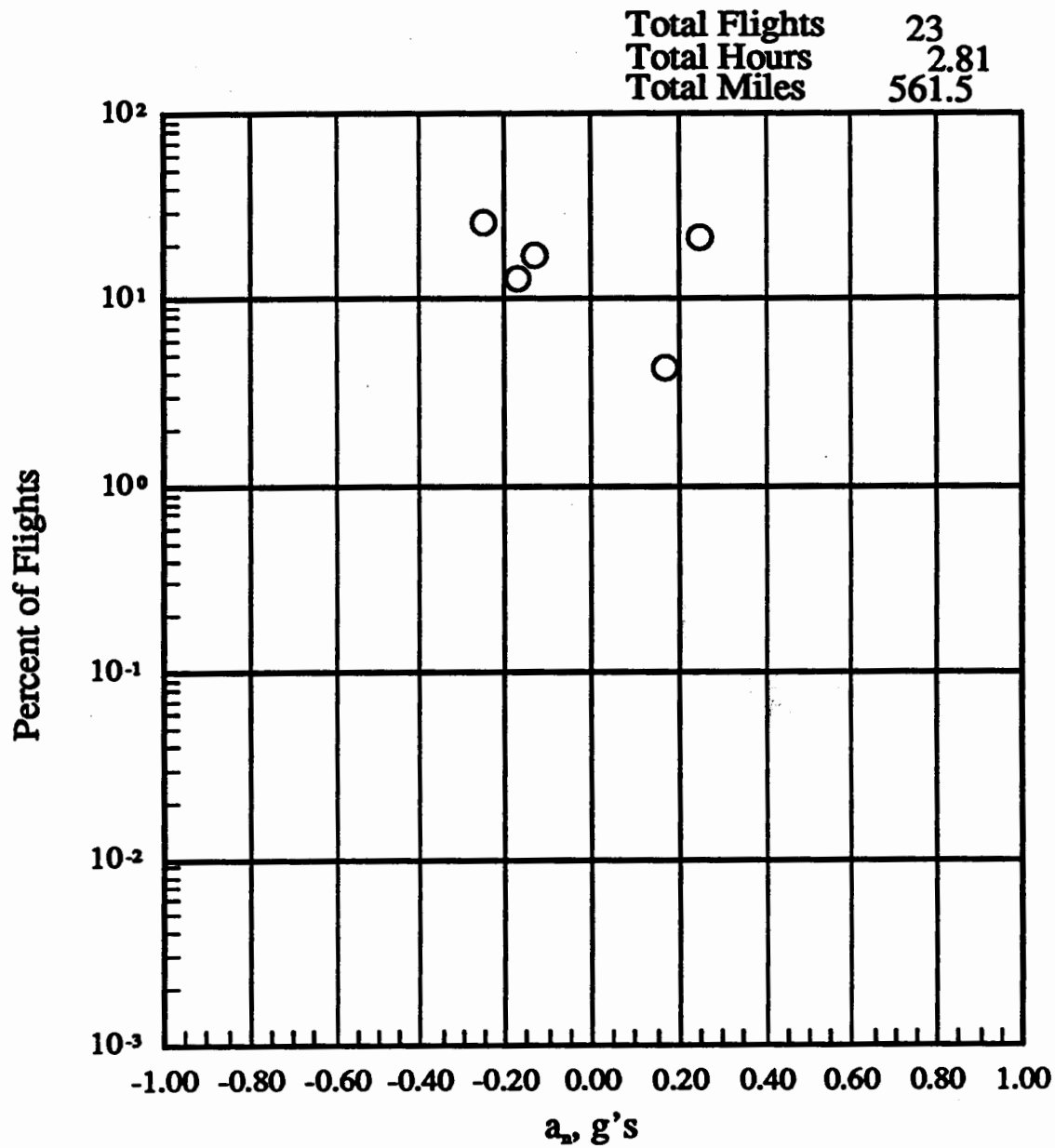
(k) -500 to 44500 feet altitude

Figure 15.- Concluded.

		PRESSURE ALTITUDE BANDS									
		-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
MAXIMUM a_n LEVEL FOR EACH FLIGHT g' S FROM TO											
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	8.7	4.3	4.3	0	0	0	0	0	17.4
.20	0.30	21.7	17.4	4.3	4.3	0	0	8.7	4.3	0	60.9
.15	0.20	4.3	8.7	0	0	0	0	0	0	0	13.0
.10	0.15	0	4.3	4.3	0	0	0	0	0	0	8.7
.05	0.10	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	17.4	0	0	0	0	0	0	0	0	17.4
-.15	-0.20	13.0	0	0	0	0	0	0	4.3	0	17.4
-.20	-0.30	26.1	13.0	0	0	4.3	4.3	4.3	13.0	0	65.2
-.30	-0.40	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT		2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT		561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.10	0	59904.53
TOTAL FLIGHTS											23

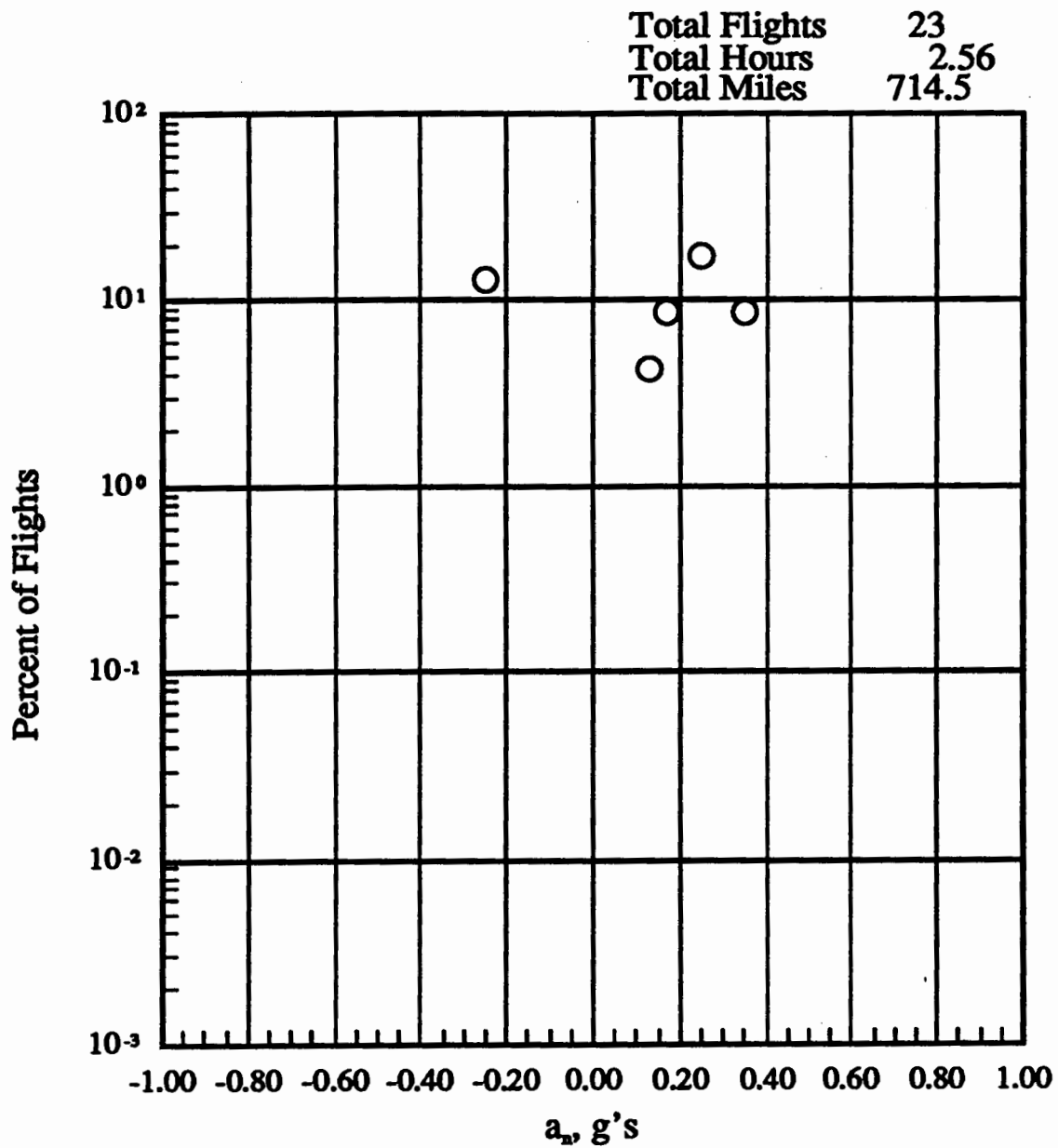
(a) Percent of flights where peak positive and negative a_n per flight occurs within pressure altitude bands, any flap

Figure 16.- Peak positive and negative a_n vs altitude.



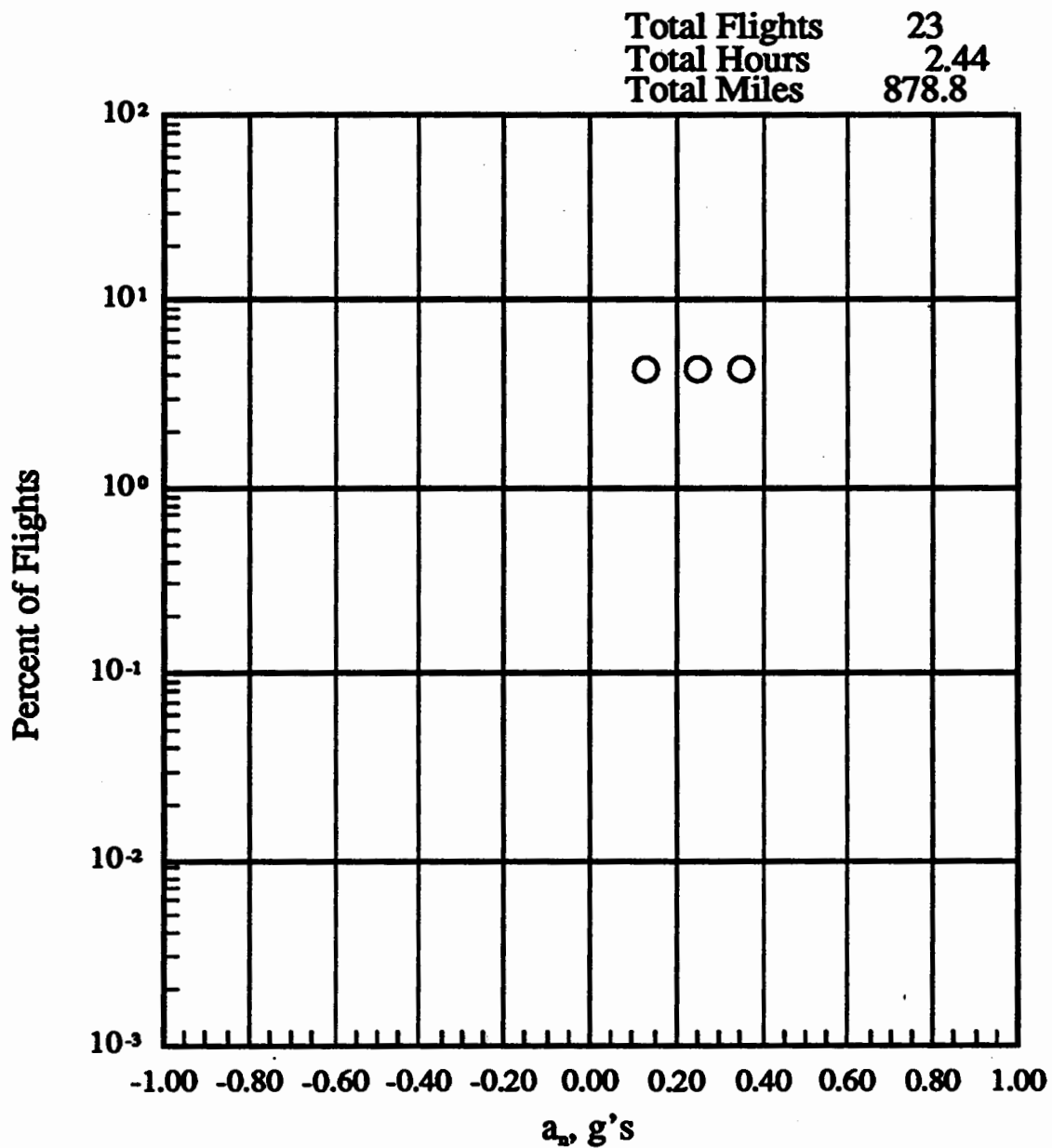
(b) -500 to 4500 feet altitude

Figure 16.- Continued.



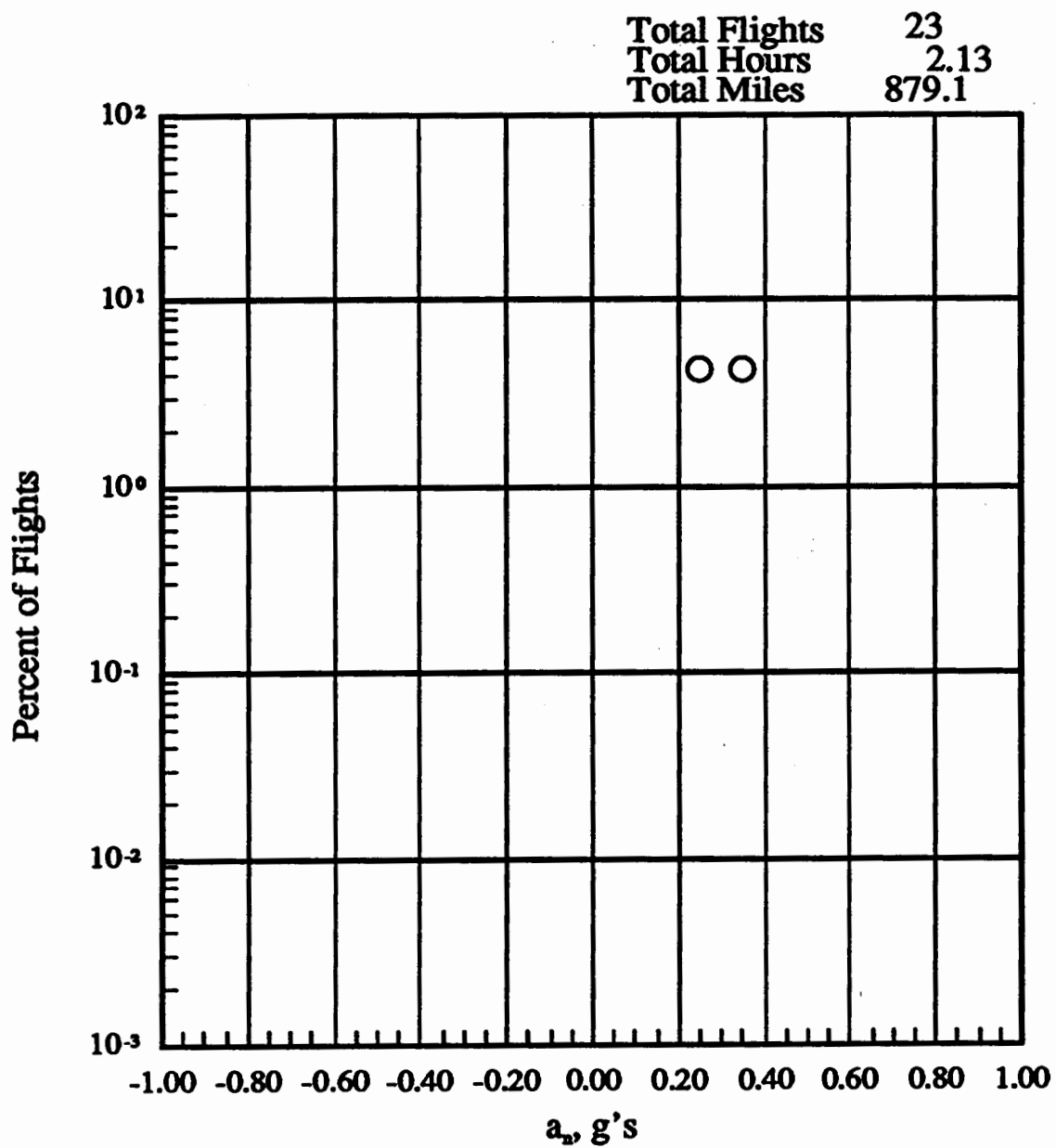
(c) 4500 to 9500 feet altitude

Figure 16.- Continued.



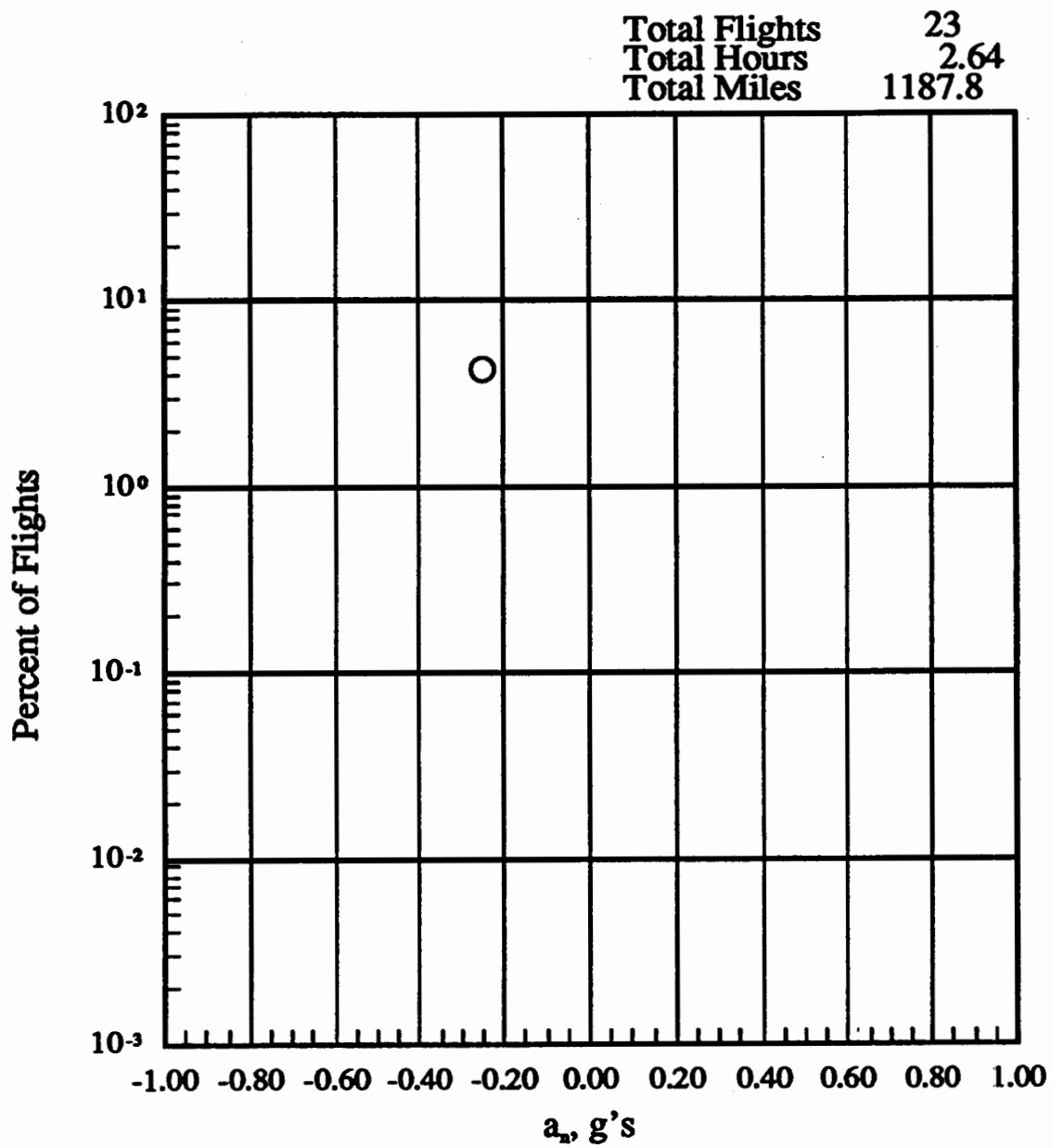
(d) 9500 to 14500 feet altitude

Figure 16.- Continued.



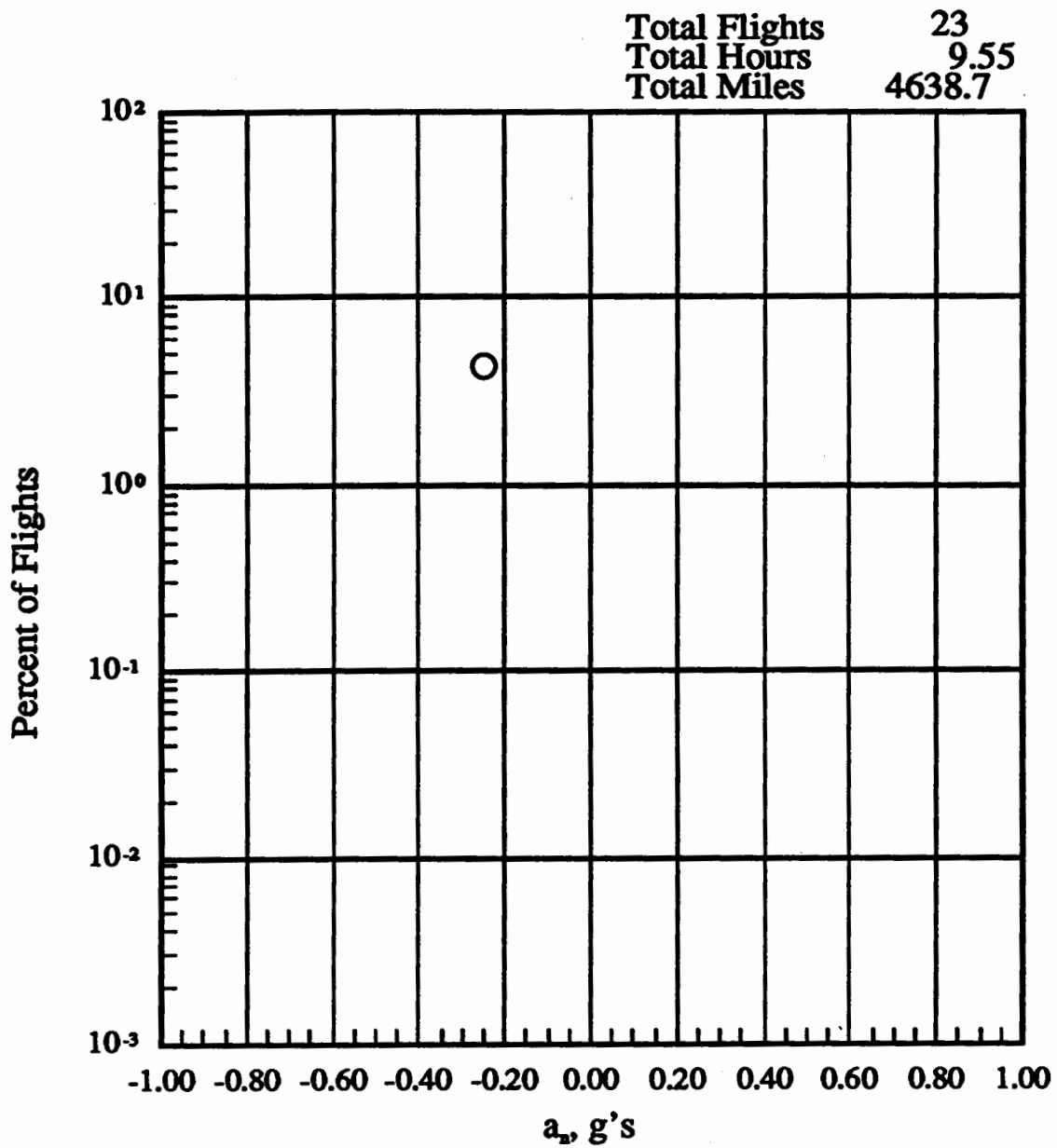
(e) 14500 to 19500 feet altitude

Figure 16.- Continued.



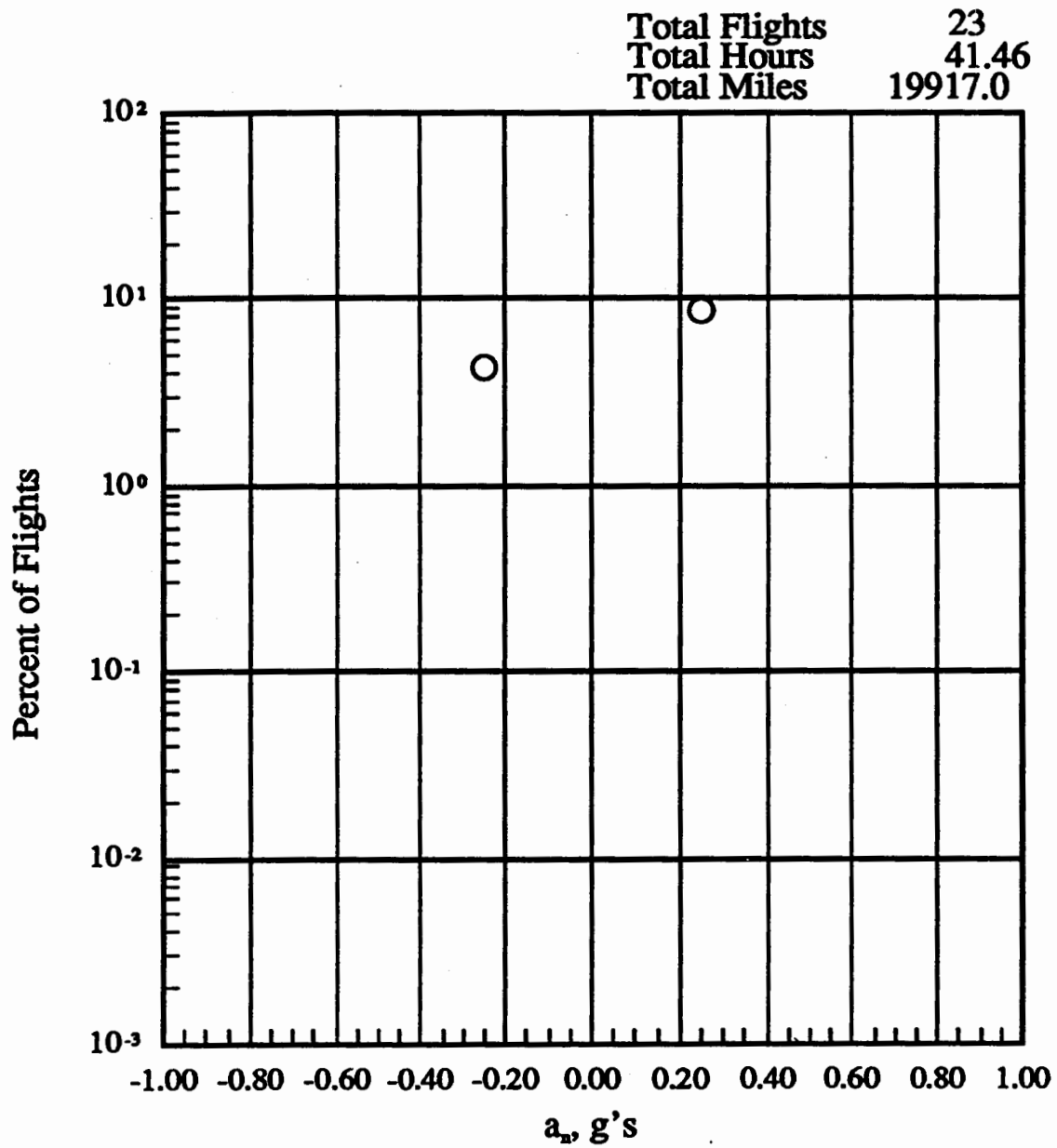
(f) 19500 to 24500 feet altitude

Figure 16.- Continued.



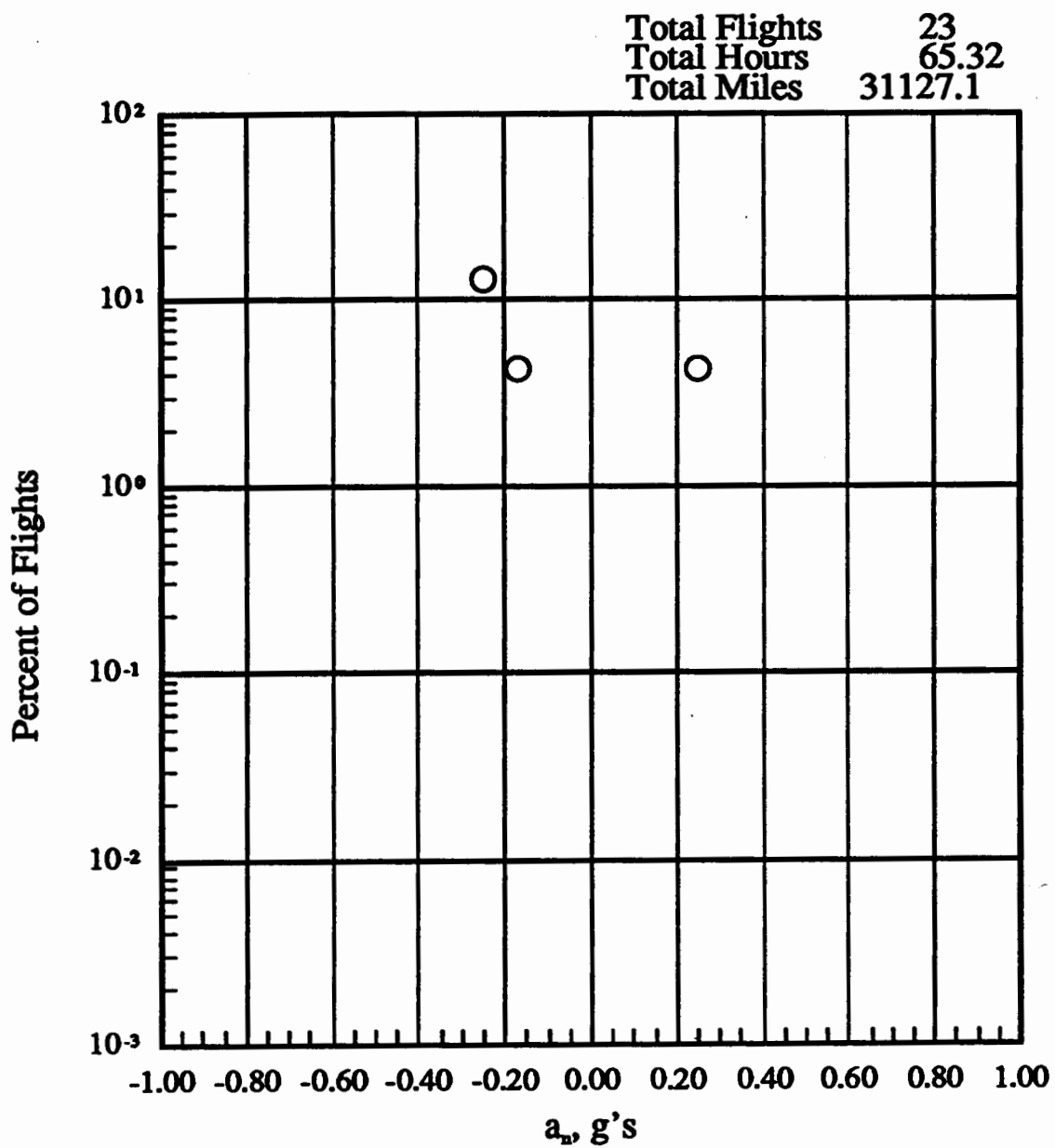
(g) 24500 to 29500 feet altitude

Figure 16.- Continued.



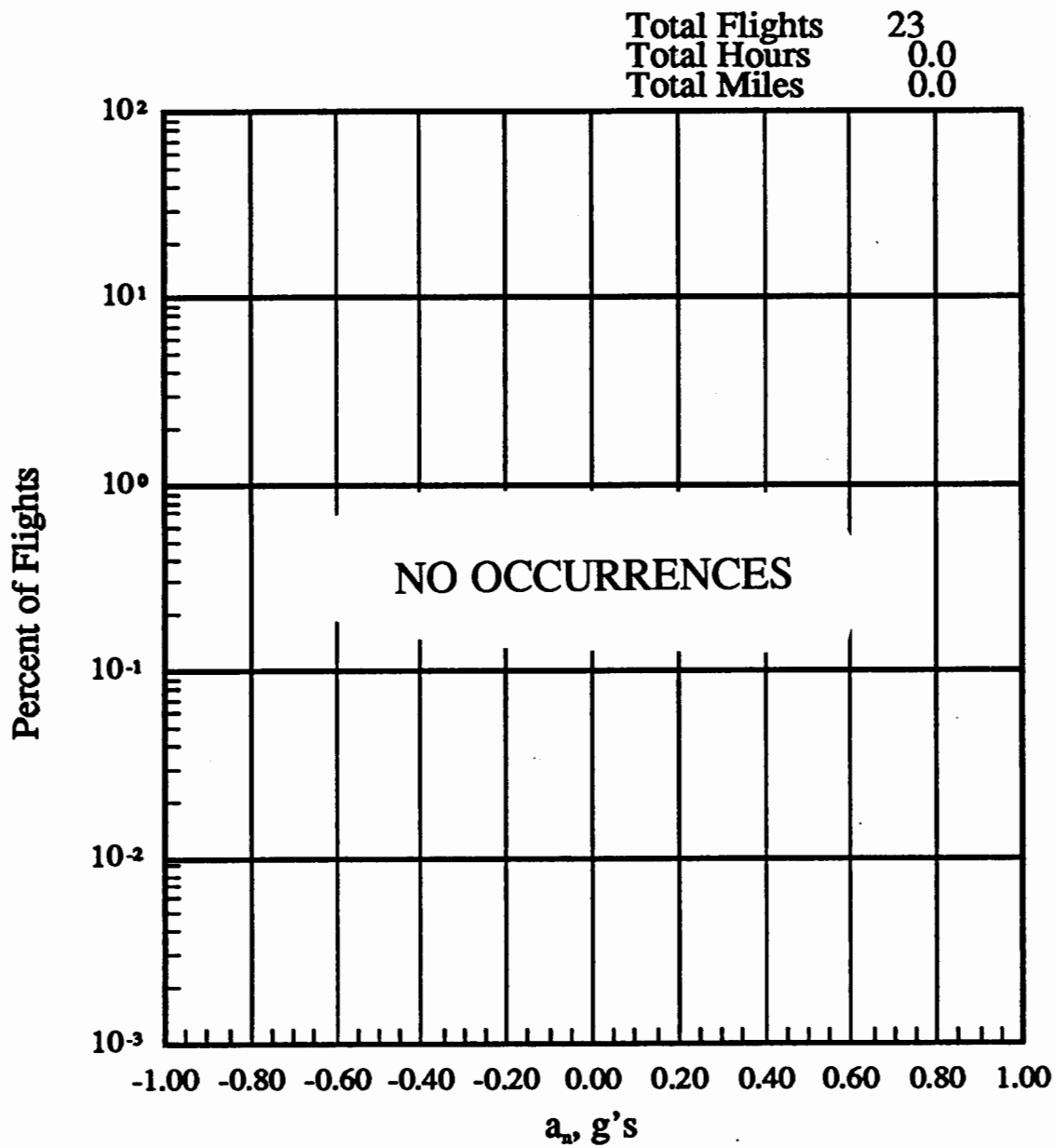
(h) 29500 to 34500 feet altitude

Figure 16.- Continued.



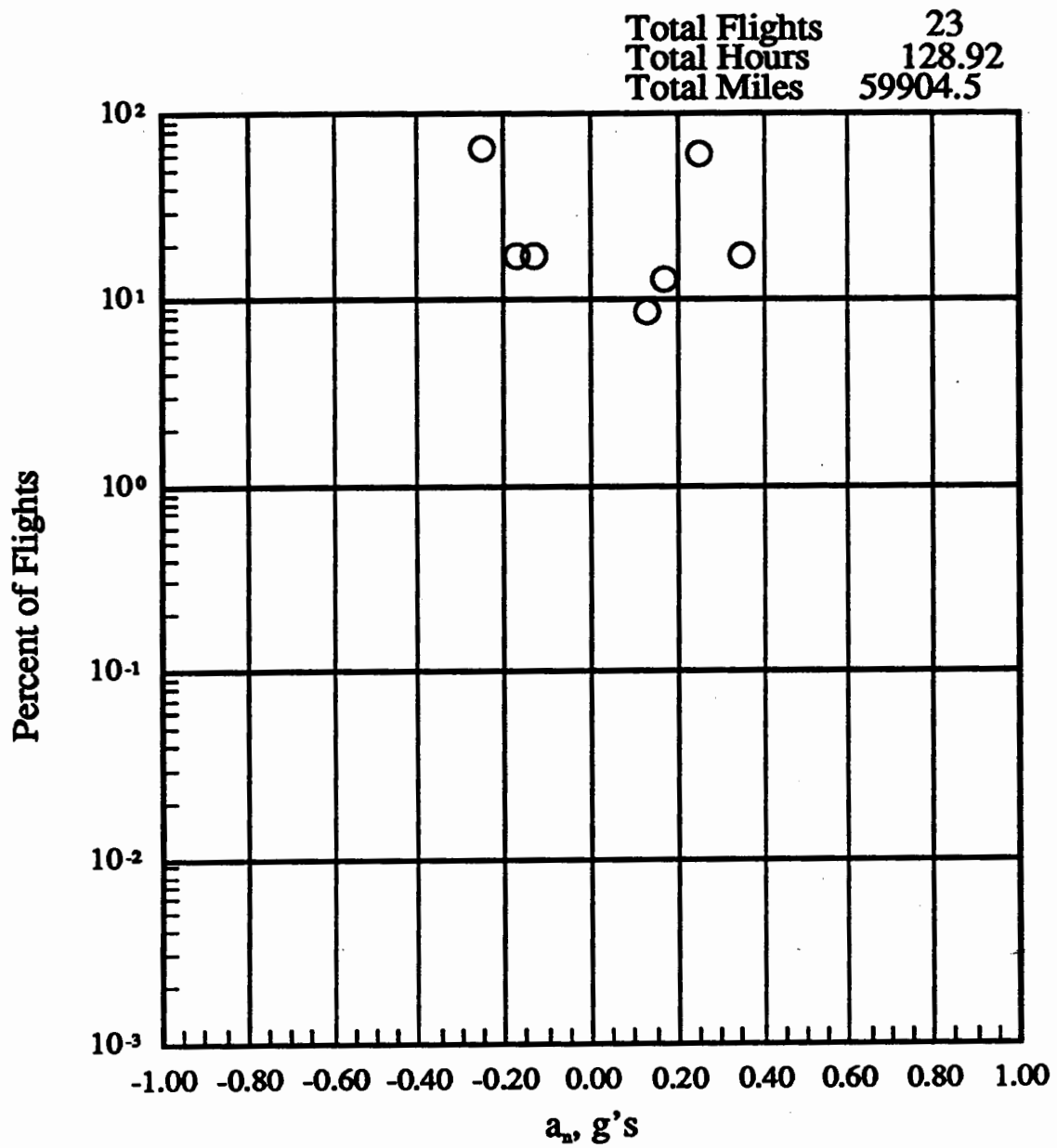
(i) 34500 to 39500 feet altitude

Figure 16.- Continued.



(j) 39500 to 44500 feet altitude

Figure 16.- Continued.



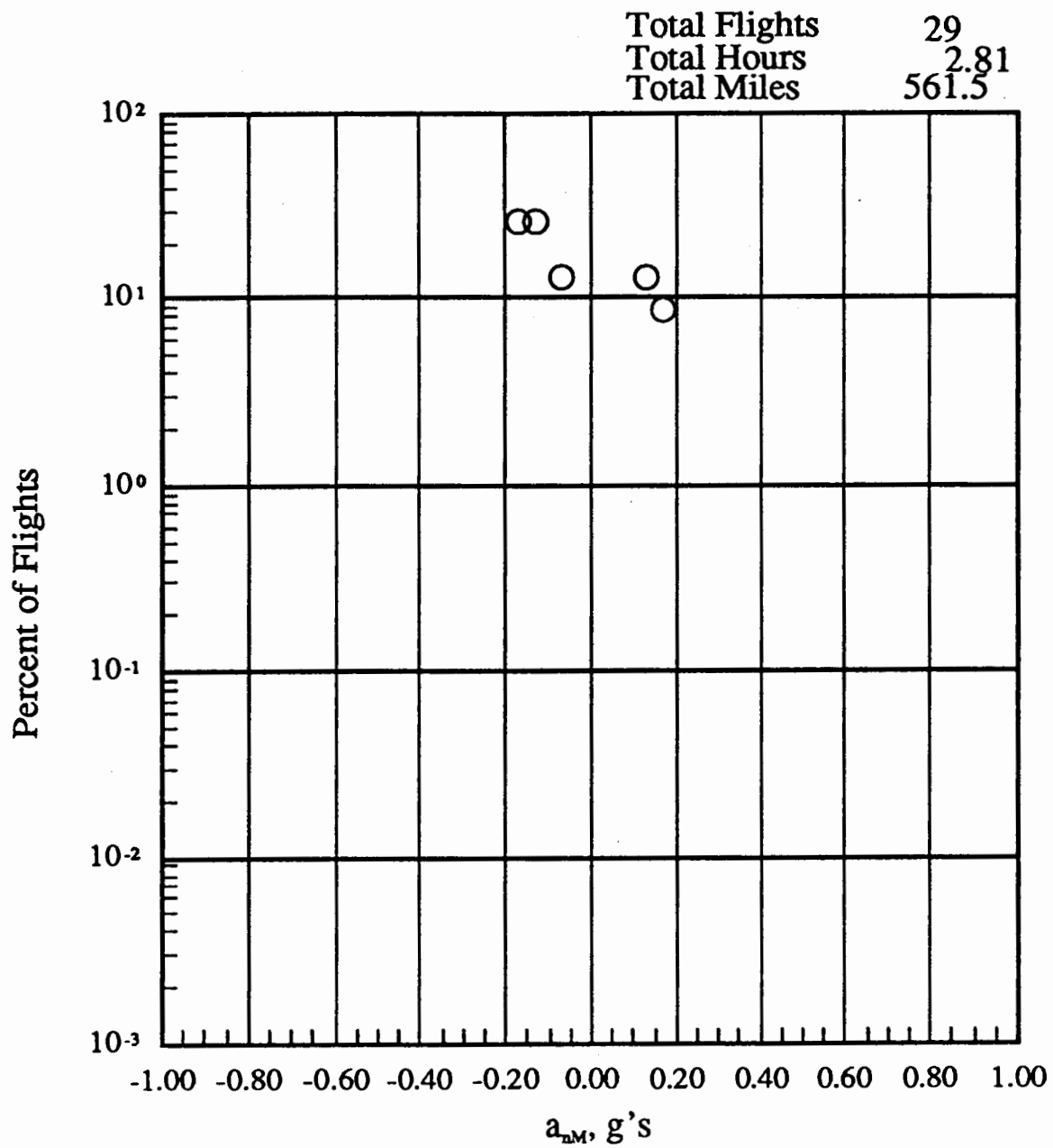
(k) -500 to 44500 feet altitude

Figure 16.- Concluded.

PRESSURE ALTITUDE BANDS											
		-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
MAXIMUM a_{nM} LEVEL FOR EACH FLIGHT g's FROM TO											
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	4.3	4.3	0	0	0	0	0	0	8.7
.15	0.20	8.7	30.4	0	8.7	0	4.3	0	0	0	52.2
.10	0.15	13.0	13.0	0	0	0	0	4.3	0	0	30.4
.05	0.10	0	0	8.7	0	0	0	0	0	0	8.7
-.05	-0.10	13.0	0	0	0	0	0	0	0	0	13.0
-.10	-0.15	26.1	4.3	8.7	0	8.7	0	0	4.3	0	52.2
-.15	-0.20	26.1	4.3	0	0	0	0	4.3	0	0	34.8
-.20	-0.30	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT		2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT		561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.10	0	59904.53
TOTAL FLIGHTS											23

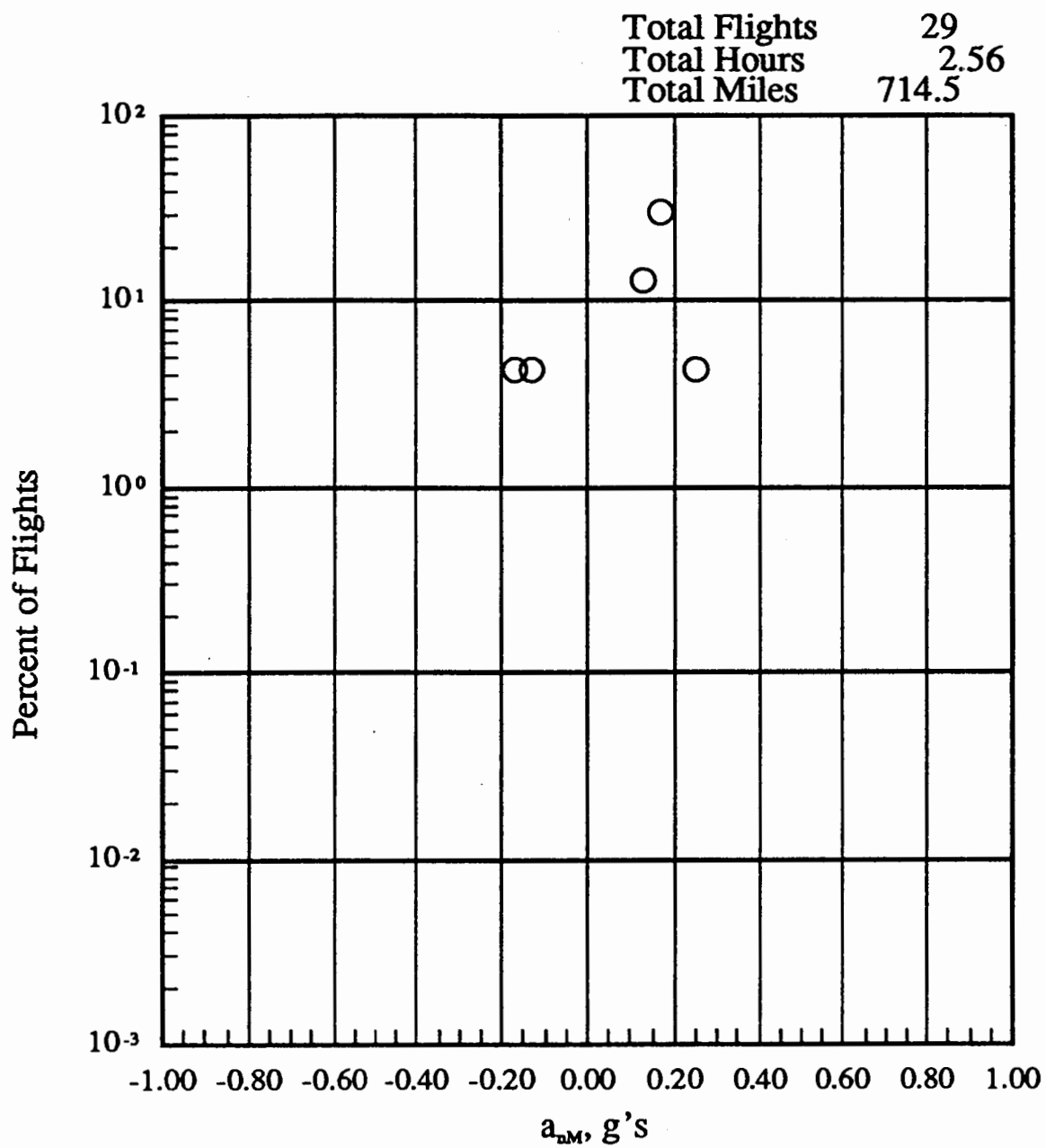
(a) Percent of flights where peak positive and negative a_{nM} per flight occurs within pressure altitude bands, any flap

Figure 17.- Peak positive and negative a_{nM} vs altitude.



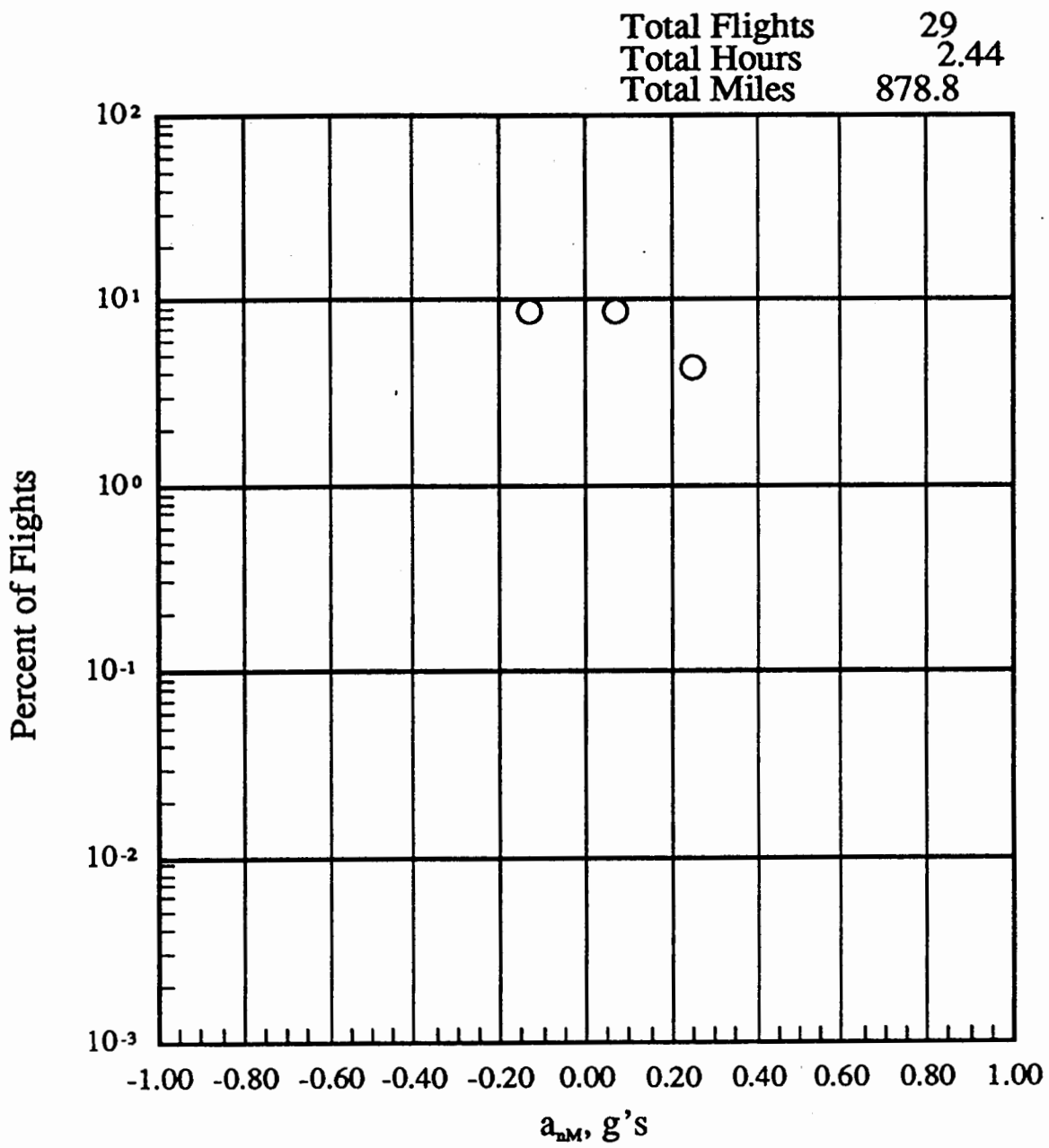
(b) -500 to 4500 feet altitude

Figure 17.- Continued.



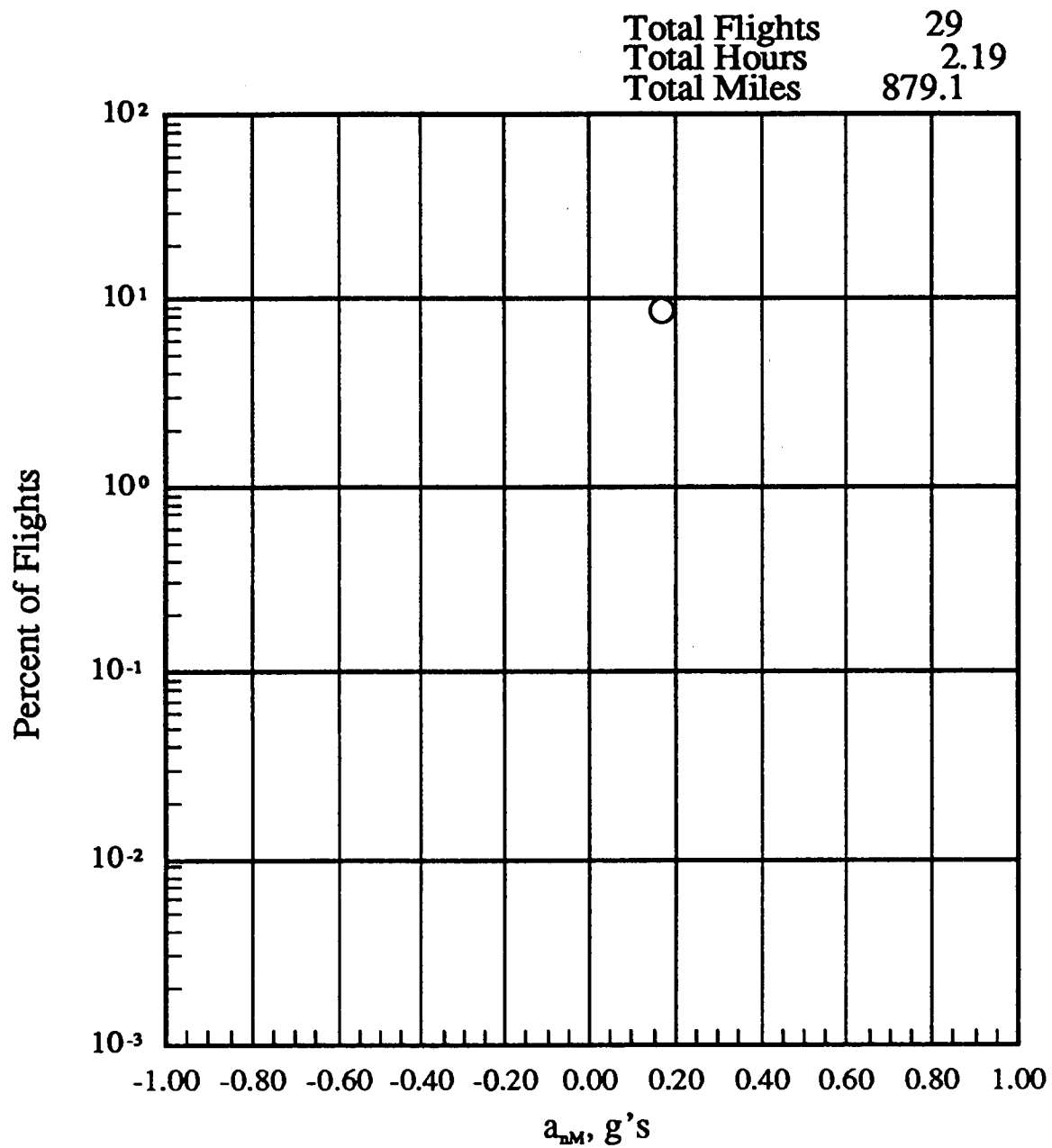
(c) 4500 to 9500 feet altitude

Figure 17.- Continued.



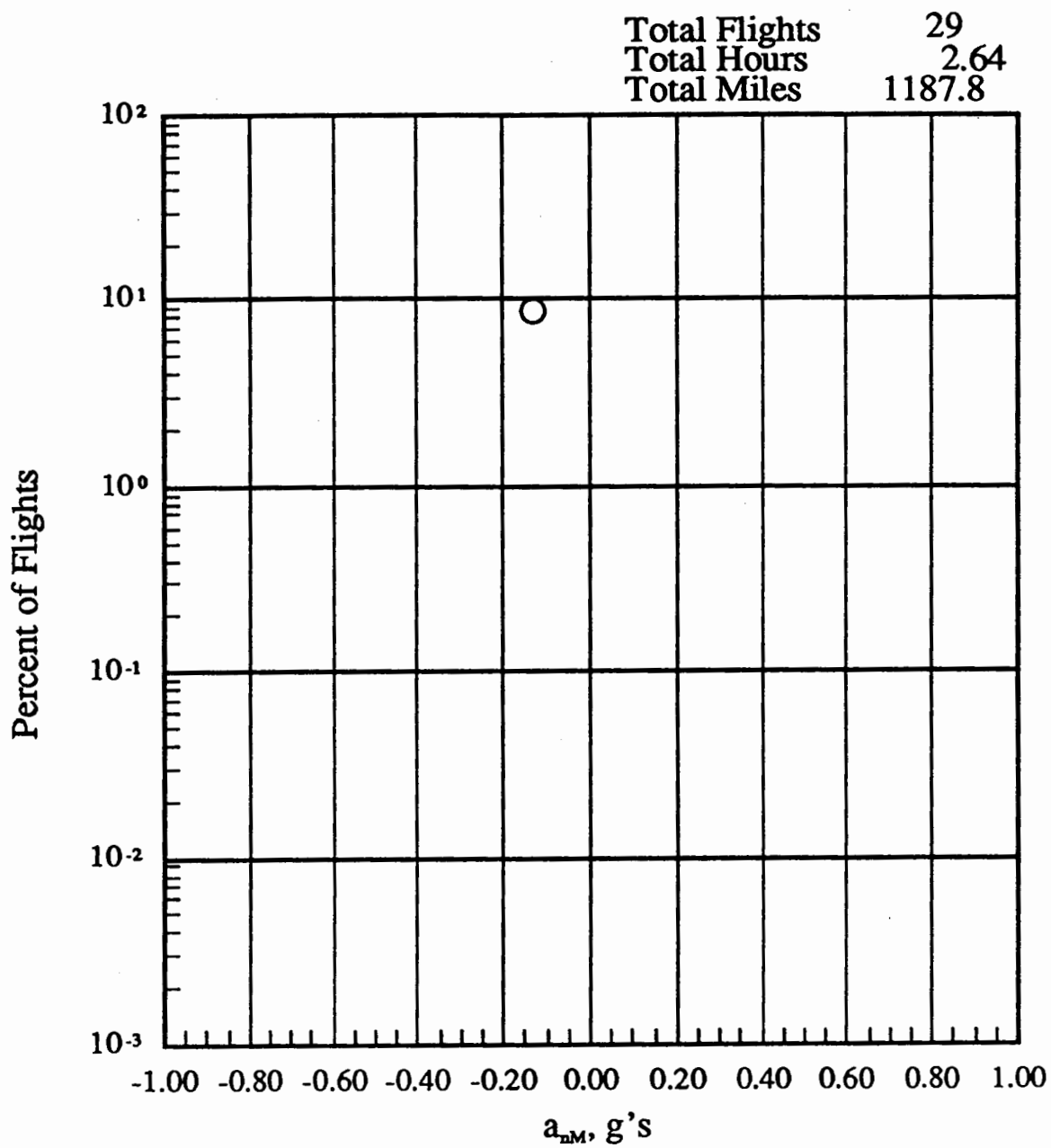
(d) 9500 to 14500 feet altitude

Figure 17.- Continued.



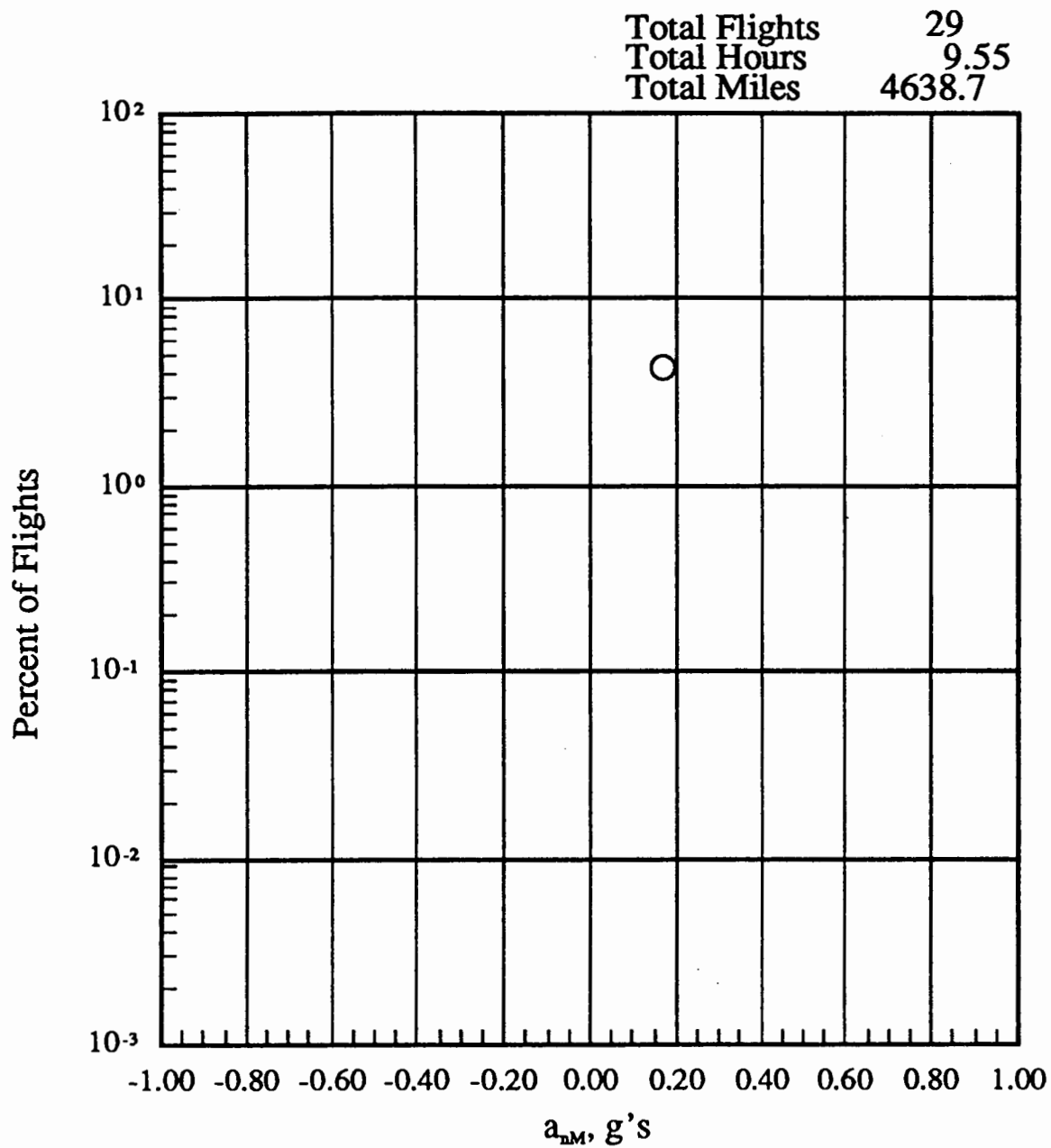
(e) 14500 to 19500 feet altitude

Figure 17.- Continued.



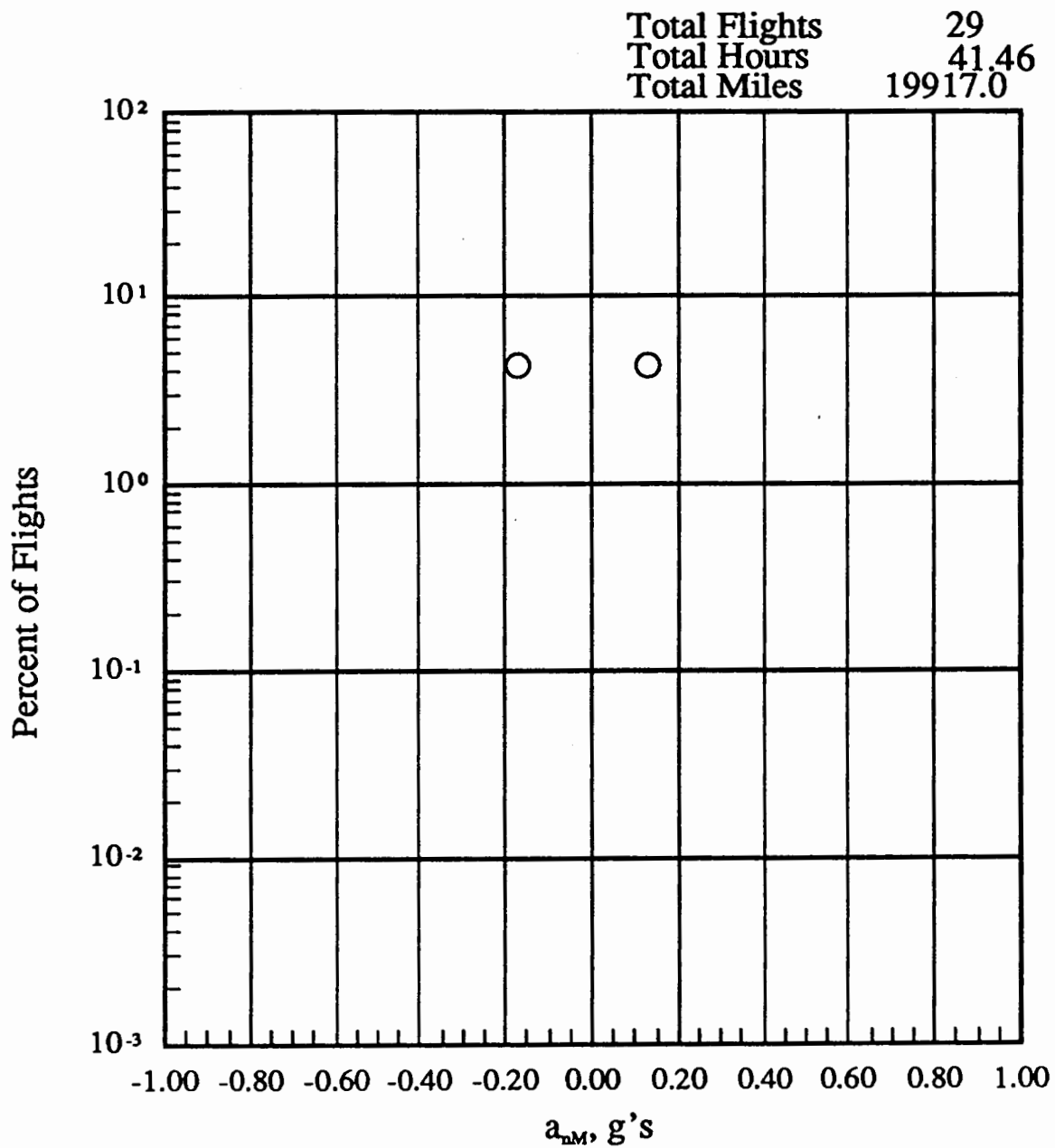
(f) 19500 to 24500 feet altitude

Figure 17.- Continued.



(g) 24500 to 29500 feet altitude

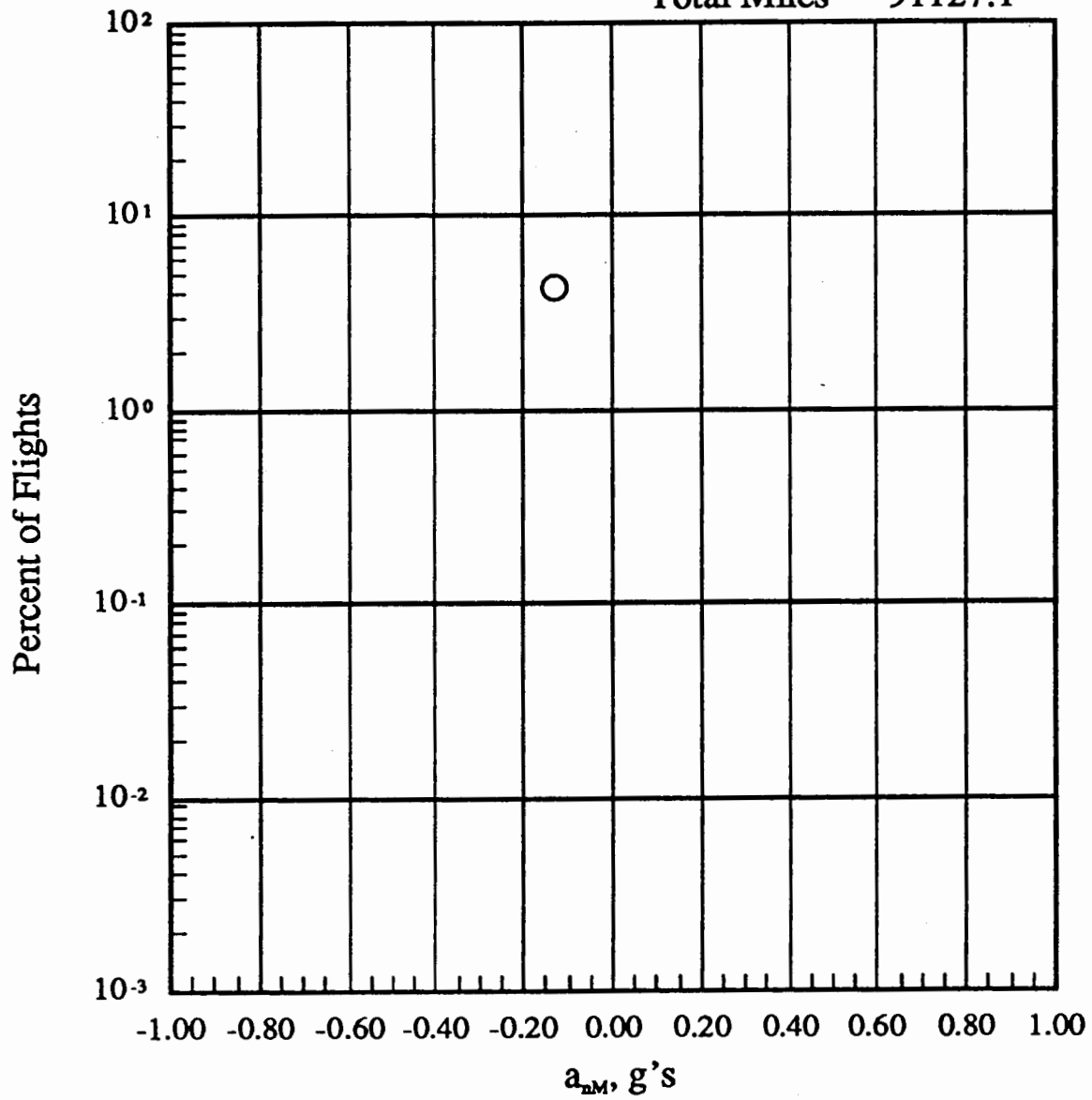
Figure 17.- Continued.



(h) 29500 to 34500 feet altitude

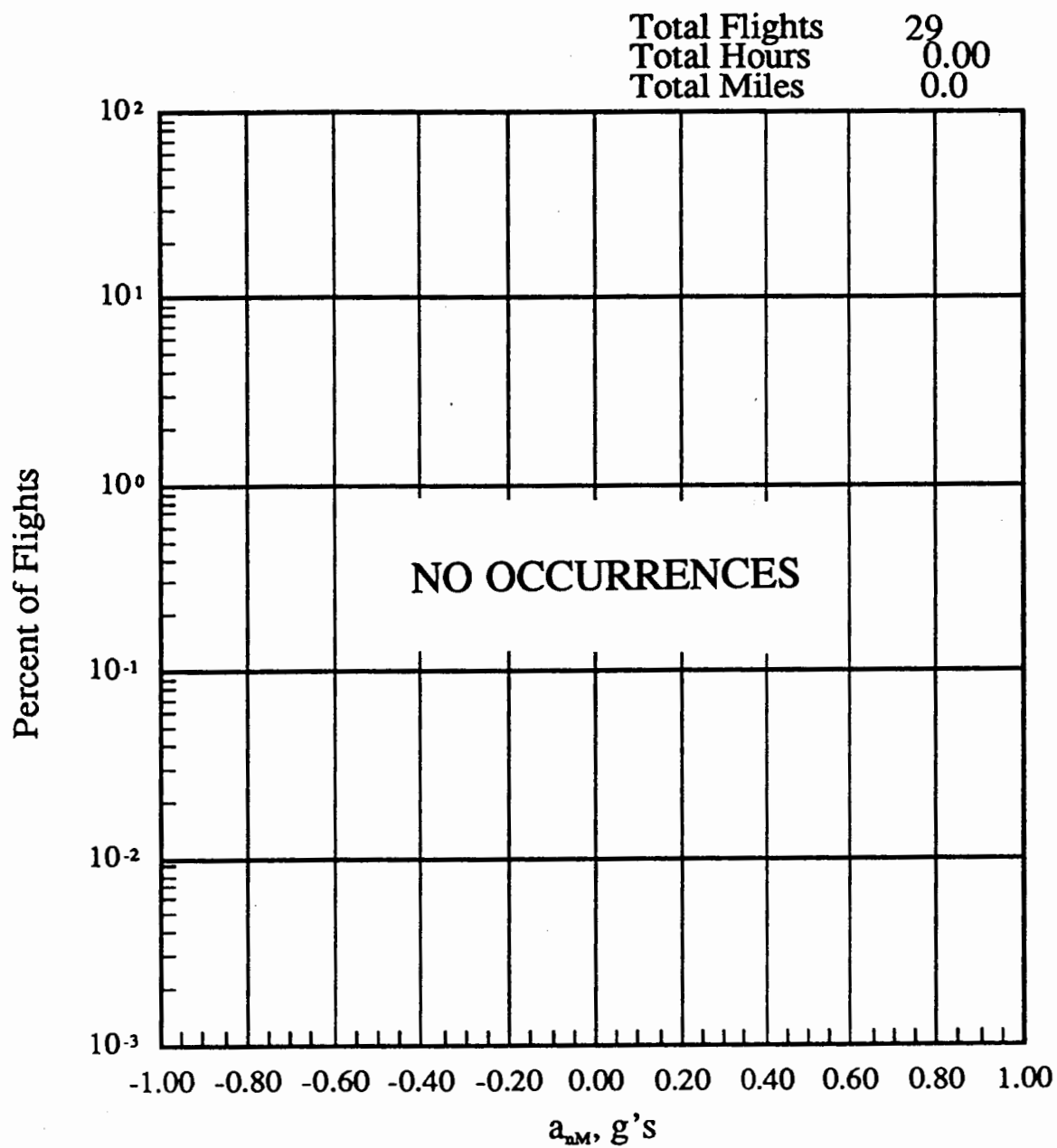
Figure 17.- Continued.

Total Flights 29
Total Hours 65.32
Total Miles 91127.1



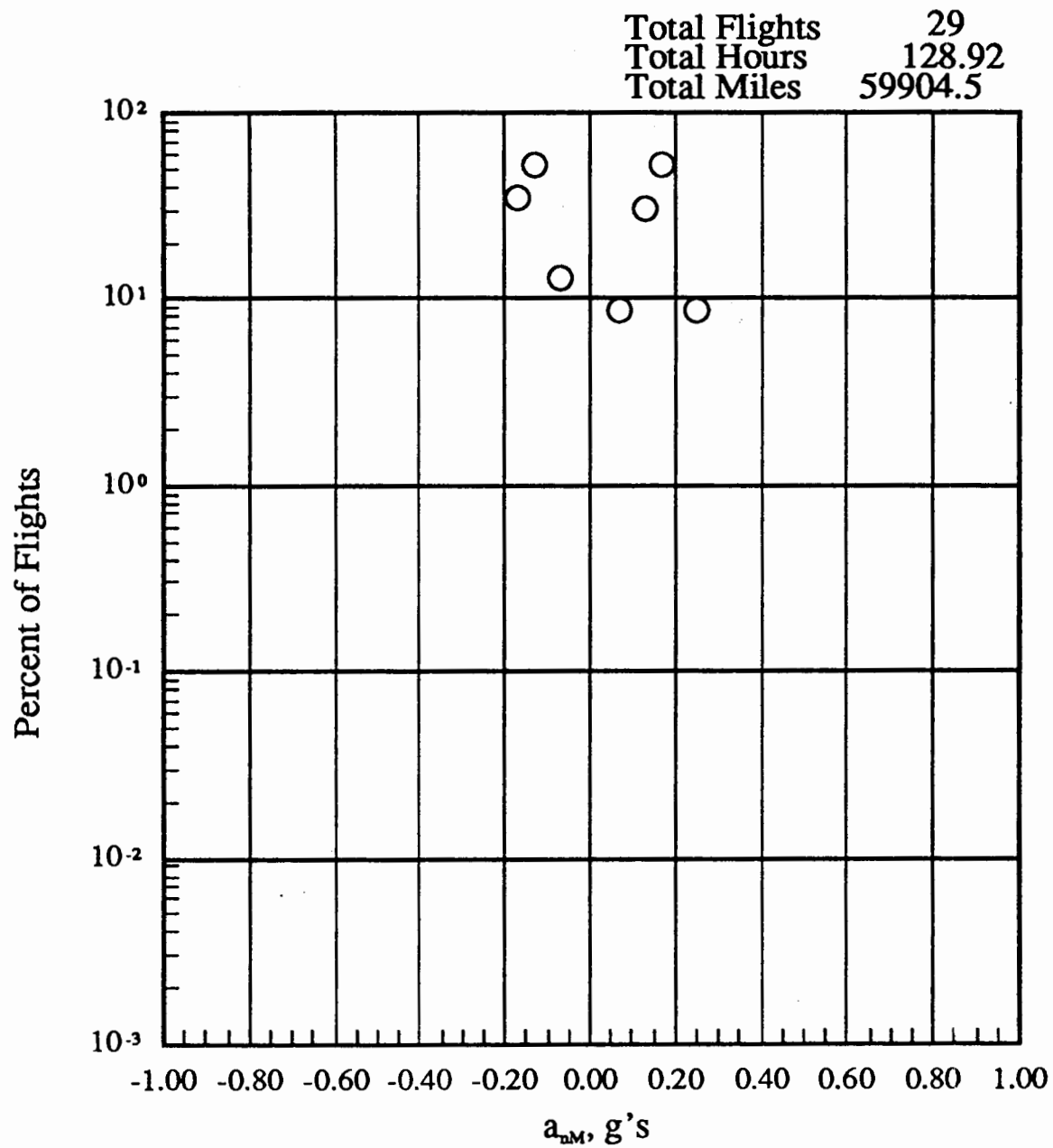
(i) 34500 to 39500 feet altitude

Figure 17.- Continued.



(j) 39500 to 44500 feet altitude

Figure 17.- Continued.



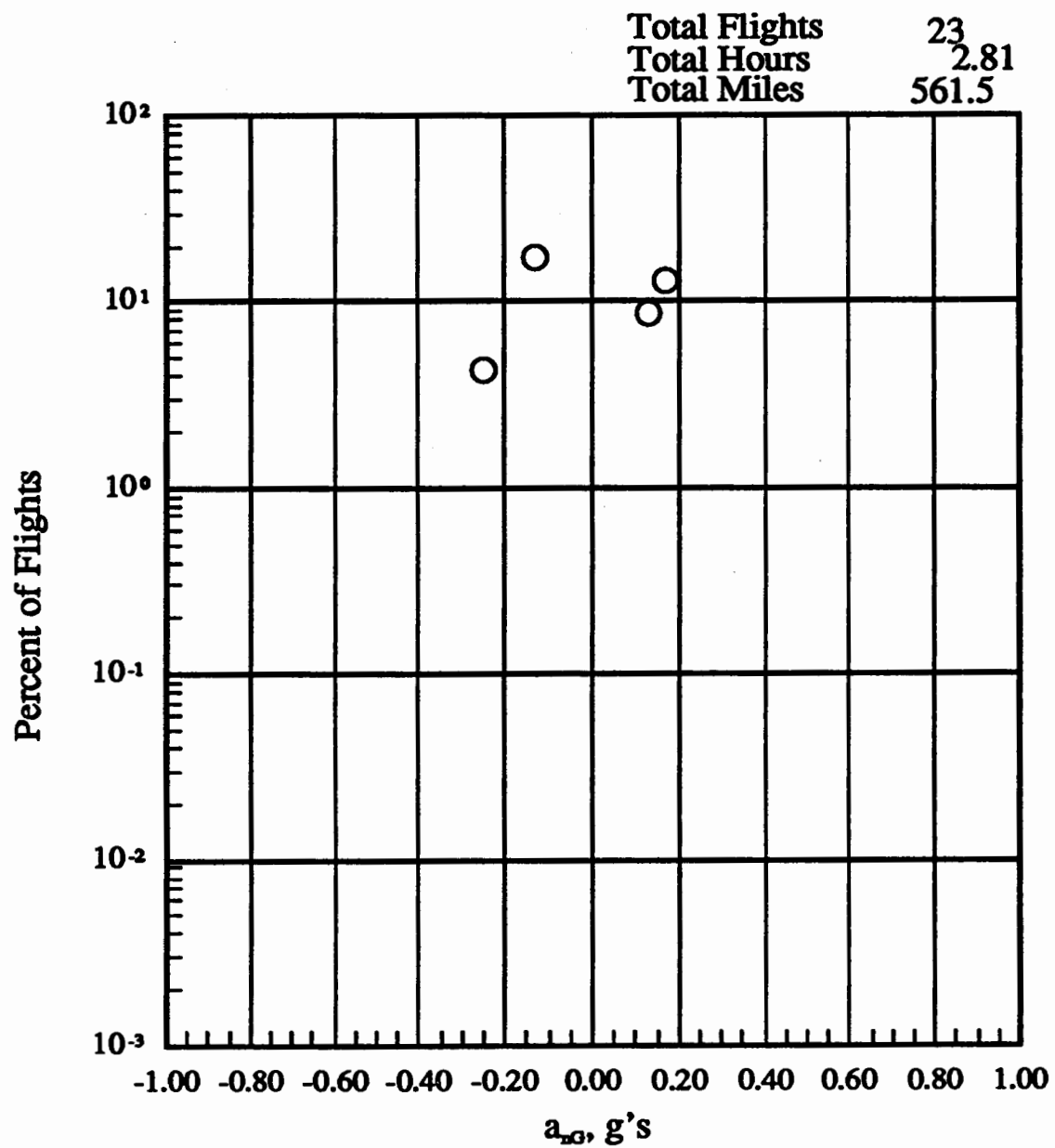
(k) -500 to 44500 feet altitude

Figure 17.- Concluded.

		PRESSURE ALTITUDE BANDS									
MAXIMUM a_{nG}		-500 TO	4500 TO	9500 TO	14500 TO	19500 TO	24500 TO	29500 TO	34500 TO	39500 TO	-500 TO
LEVEL FOR EACH FLIGHT		4500 FT	9500 FT	14500 FT	19500 FT	24500 FT	29500 FT	34500 FT	39500 FT	44500 FT	44500 FT
g' S FROM TO											
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	4.3	0	0	0	0	0	0	0	4.3
.20	0.30	0	8.7	4.3	4.3	4.3	0	0	4.3	0	26.1
.15	0.20	13.0	0	0	4.3	0	0	8.7	4.3	0	30.4
.10	0.15	8.7	8.7	0	0	4.3	0	4.3	4.3	0	30.4
.05	0.10	0	0	0	0	0	0	0	8.7	0	8.7
-.05	-0.10	0	0	0	0	0	0	0	4.3	0	4.3
-.10	-0.15	17.4	0	0	0	0	0	0	8.7	0	26.1
-.15	-0.20	0	17.4	0	0	4.3	0	8.7	8.7	0	39.1
-.20	-0.30	4.3	4.3	4.3	0	0	4.3	0	13.0	0	30.4
-.30	-0.40	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT		2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT		561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.10	0	59904.53
TOTAL FLIGHTS											23

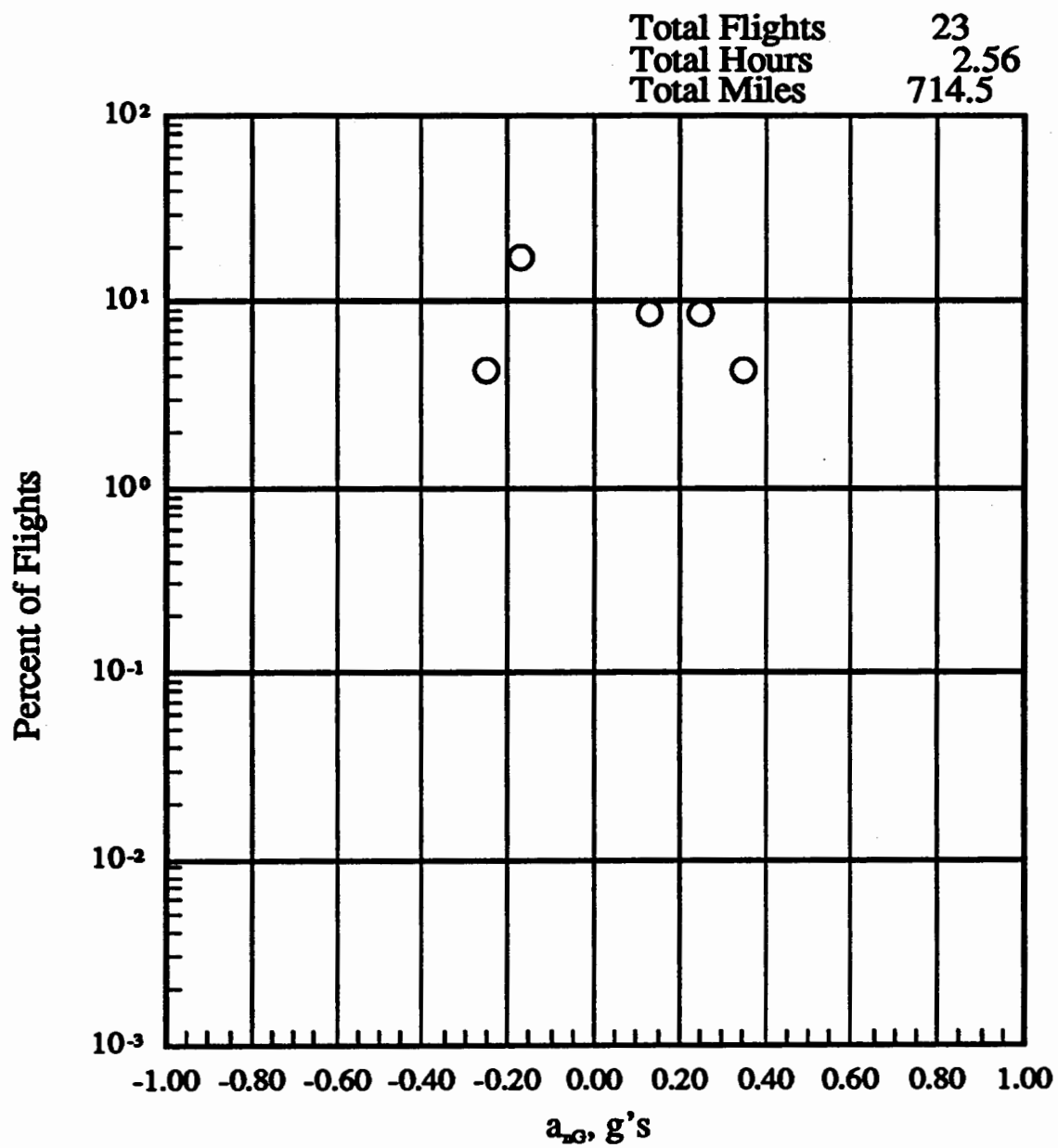
(a) Percent of flights where peak positive and negative a_{nG} per flight occurs within pressure altitude bands, any flap

Figure 18.- Peak positive and negative a_{nG} vs altitude.



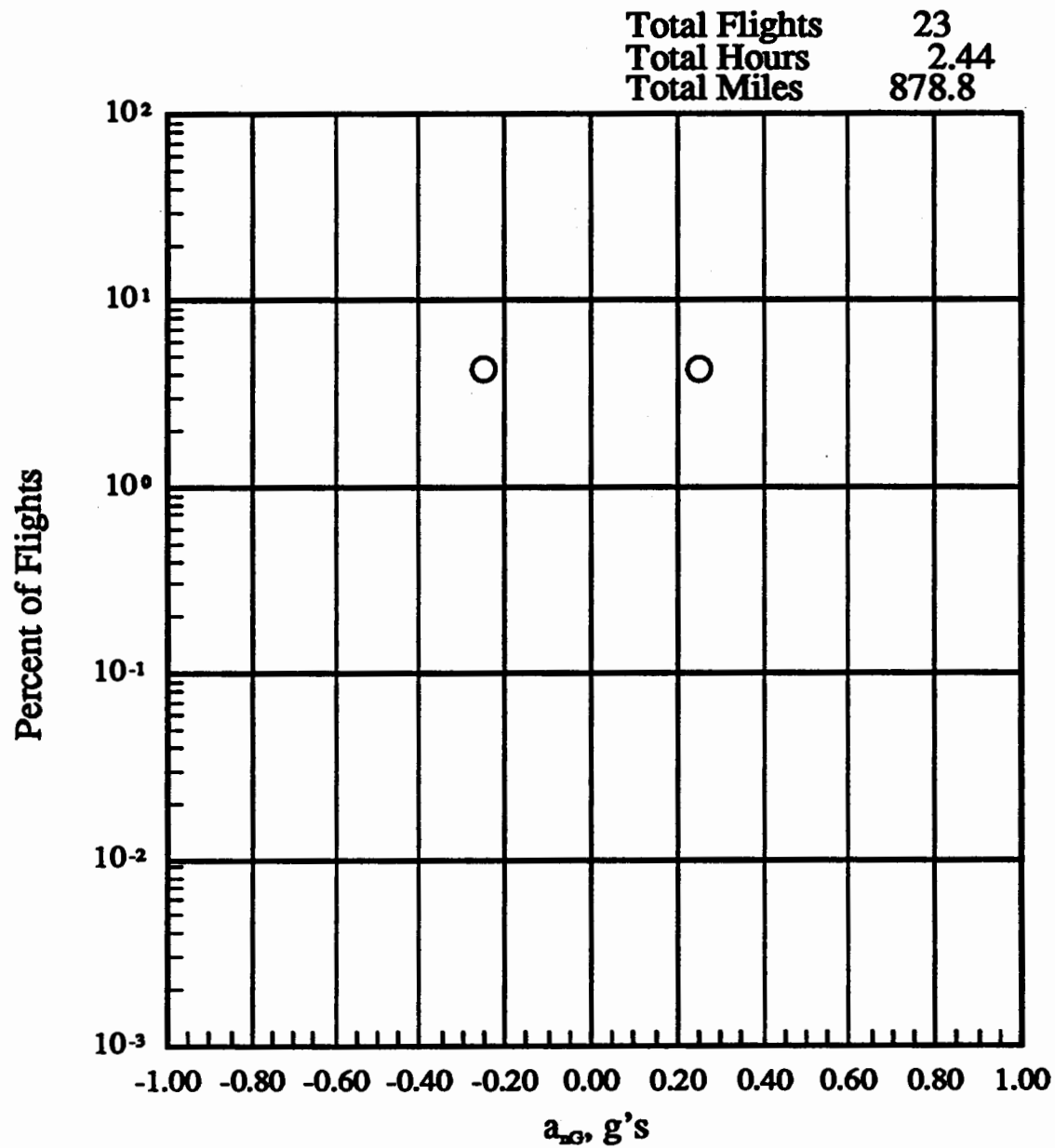
(b) -500 to 4500 feet altitude

Figure 18.- Continued.



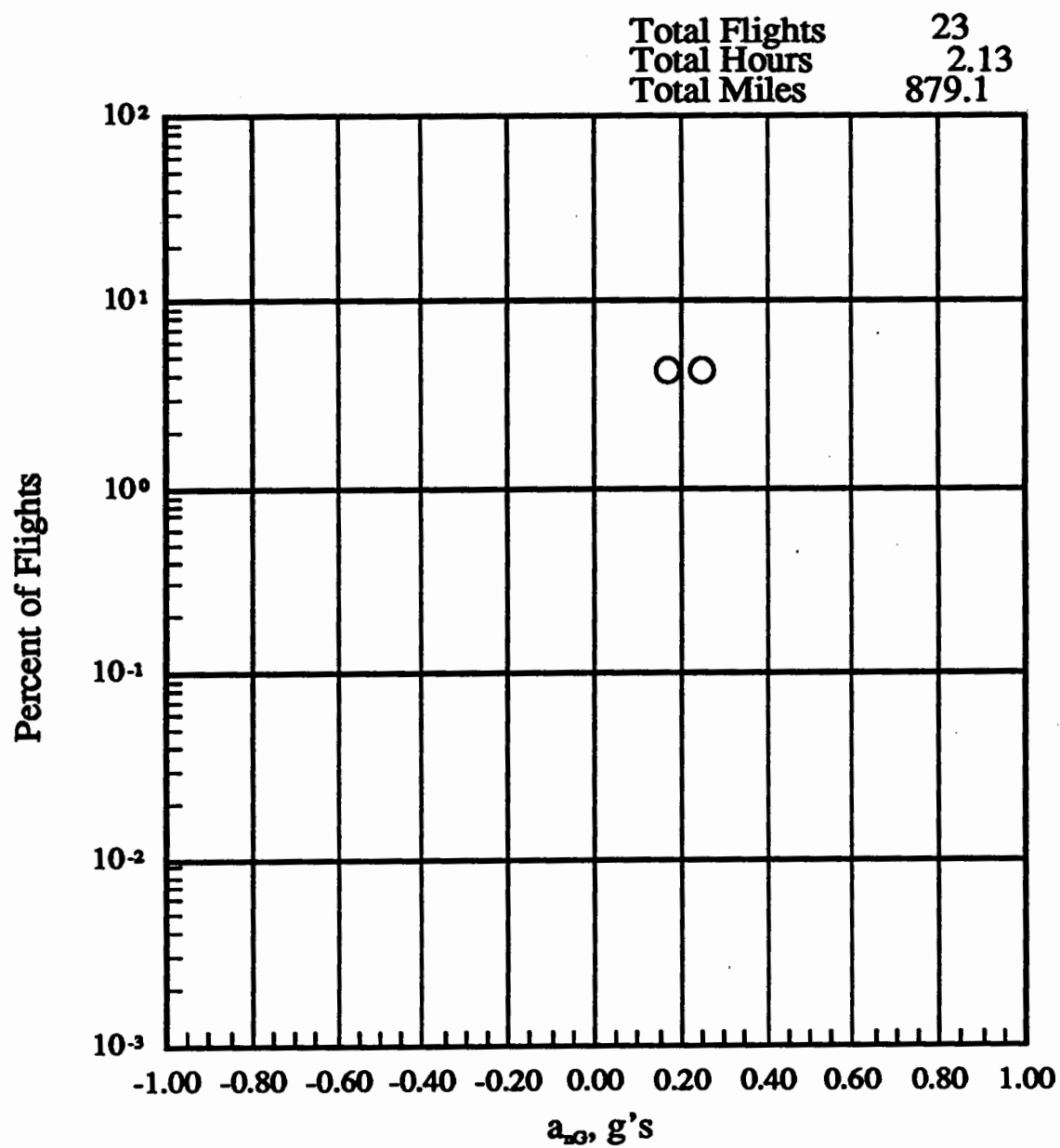
(c) 4500 to 9500 feet altitude

Figure 18.- Continued.



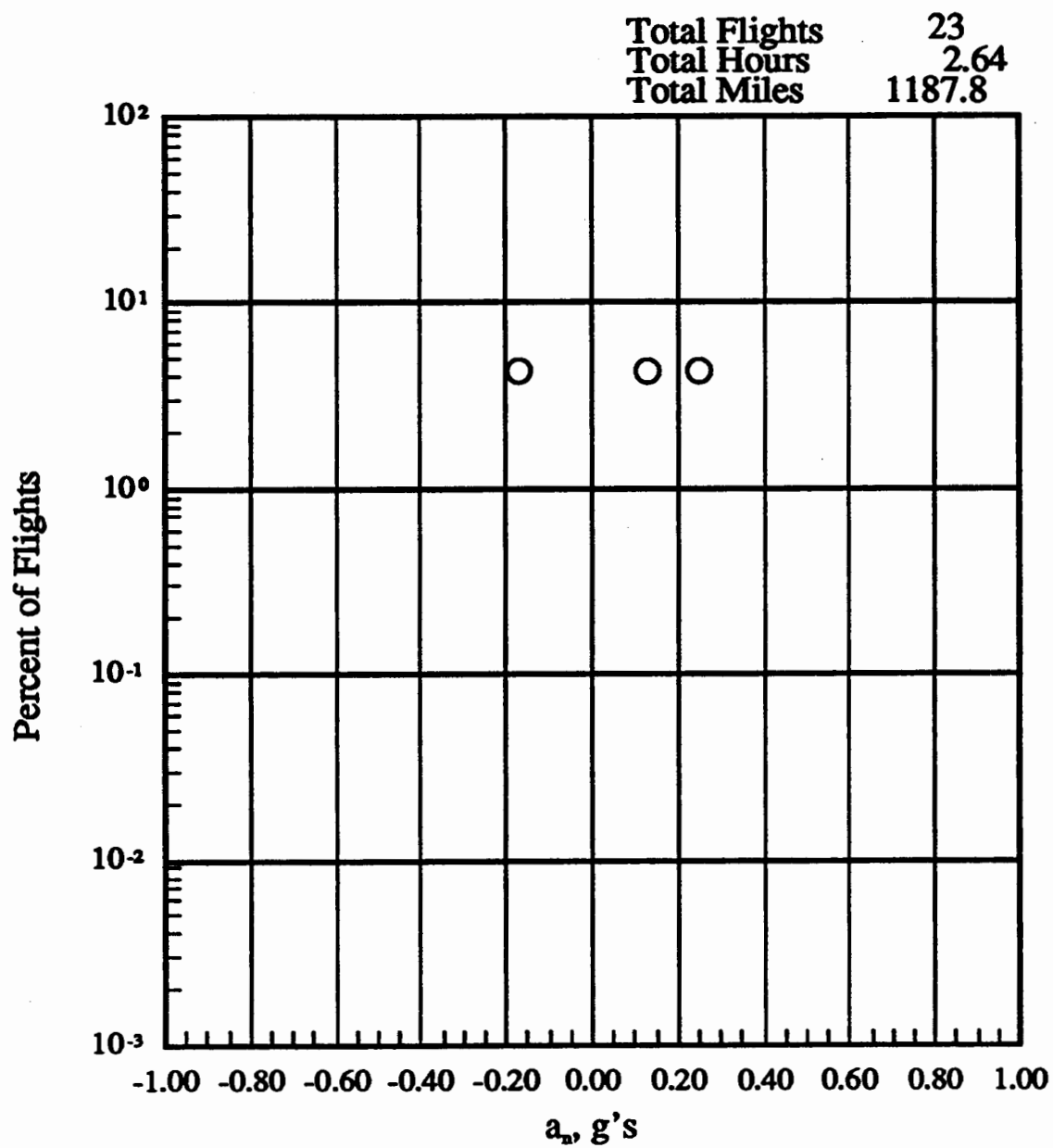
(d) 9500 to 14500 feet altitude

Figure 18.- Continued.



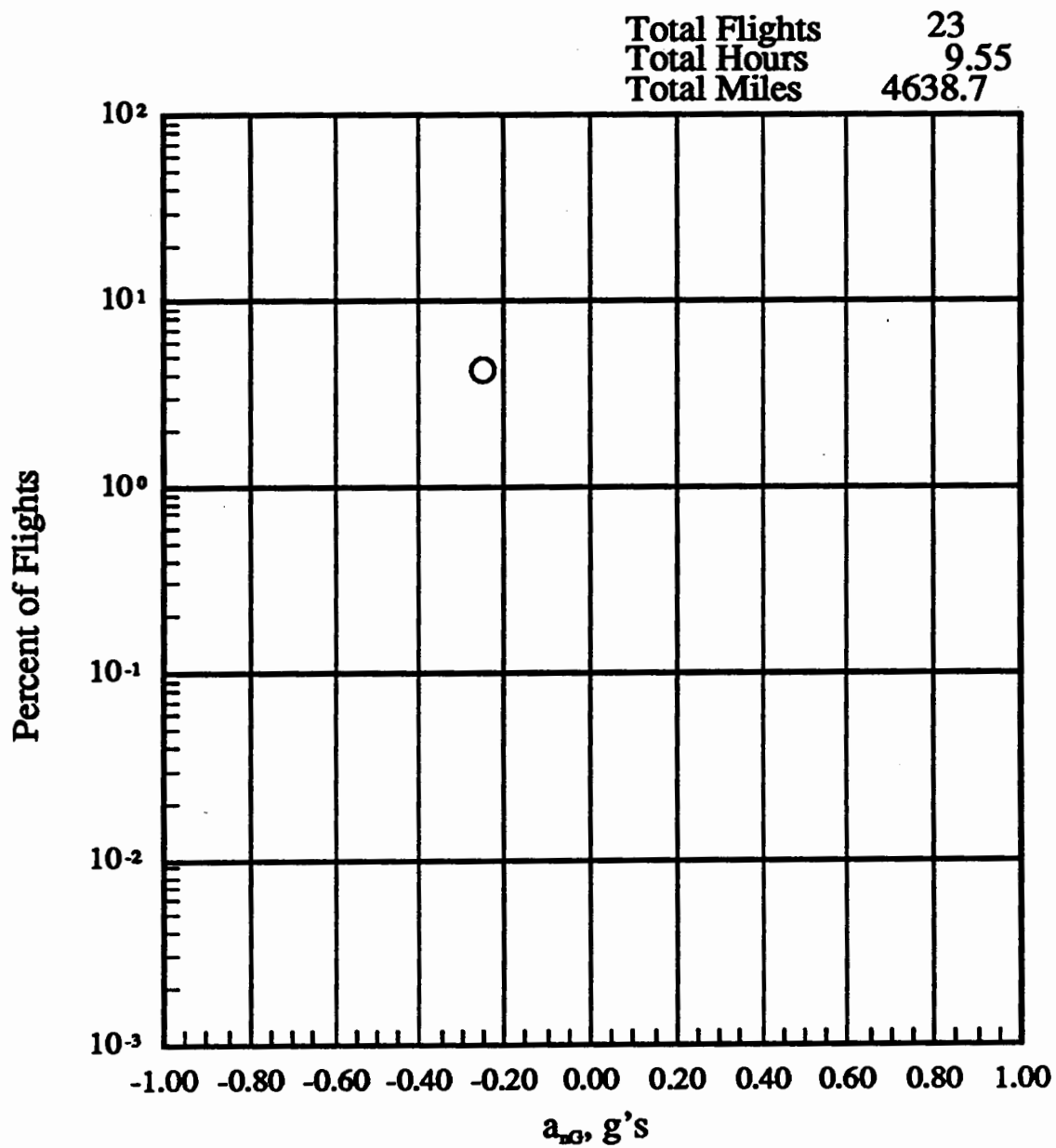
(e) 14500 to 19500 feet altitude

Figure 18.- Continued.



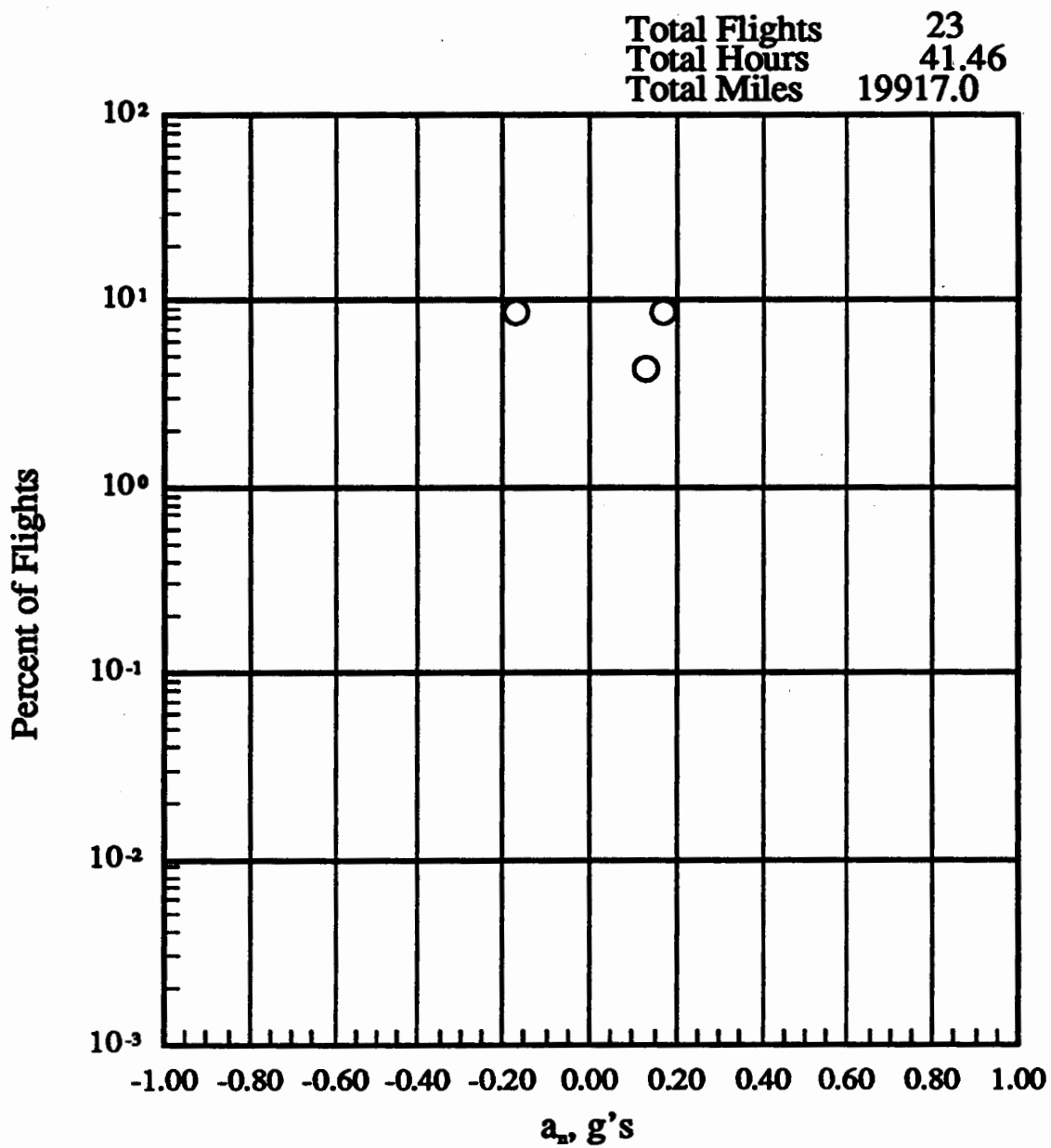
(f) 19500 to 24500 feet altitude

Figure 18.- Continued.



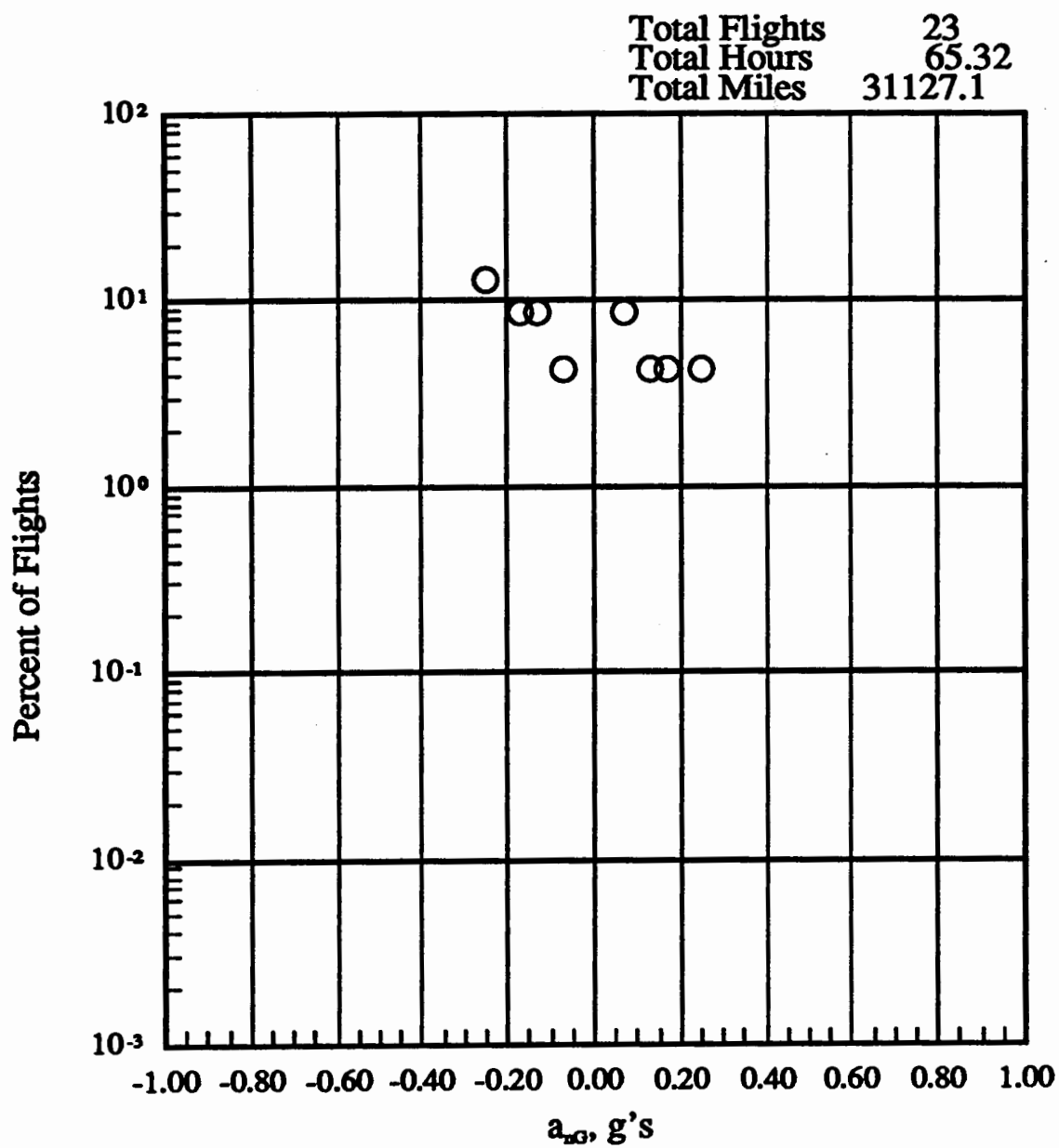
(g) 24500 to 29500 feet altitude

Figure 18.- Continued.



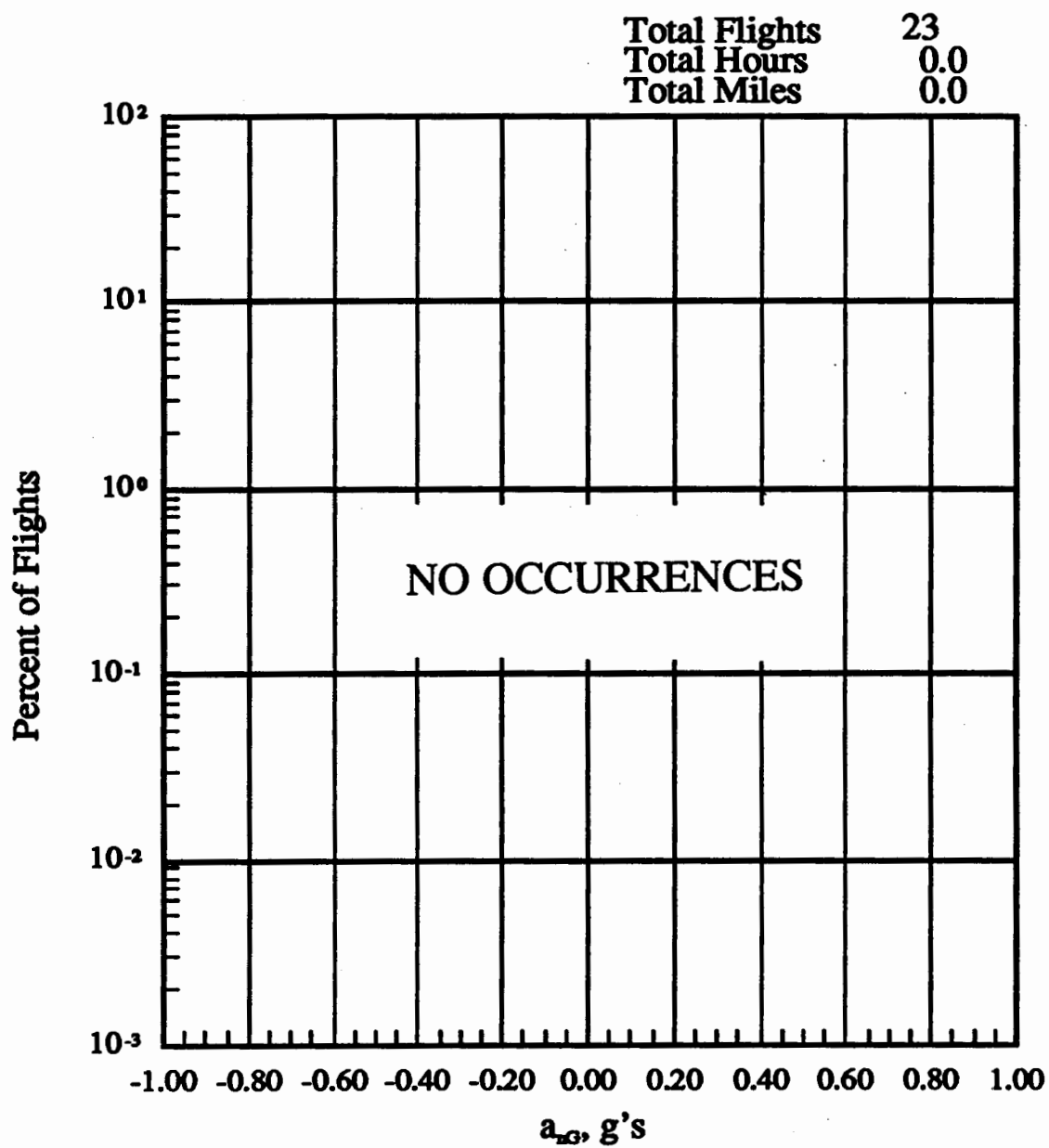
(h) 29500 to 34500 feet altitude

Figure 18.- Continued.



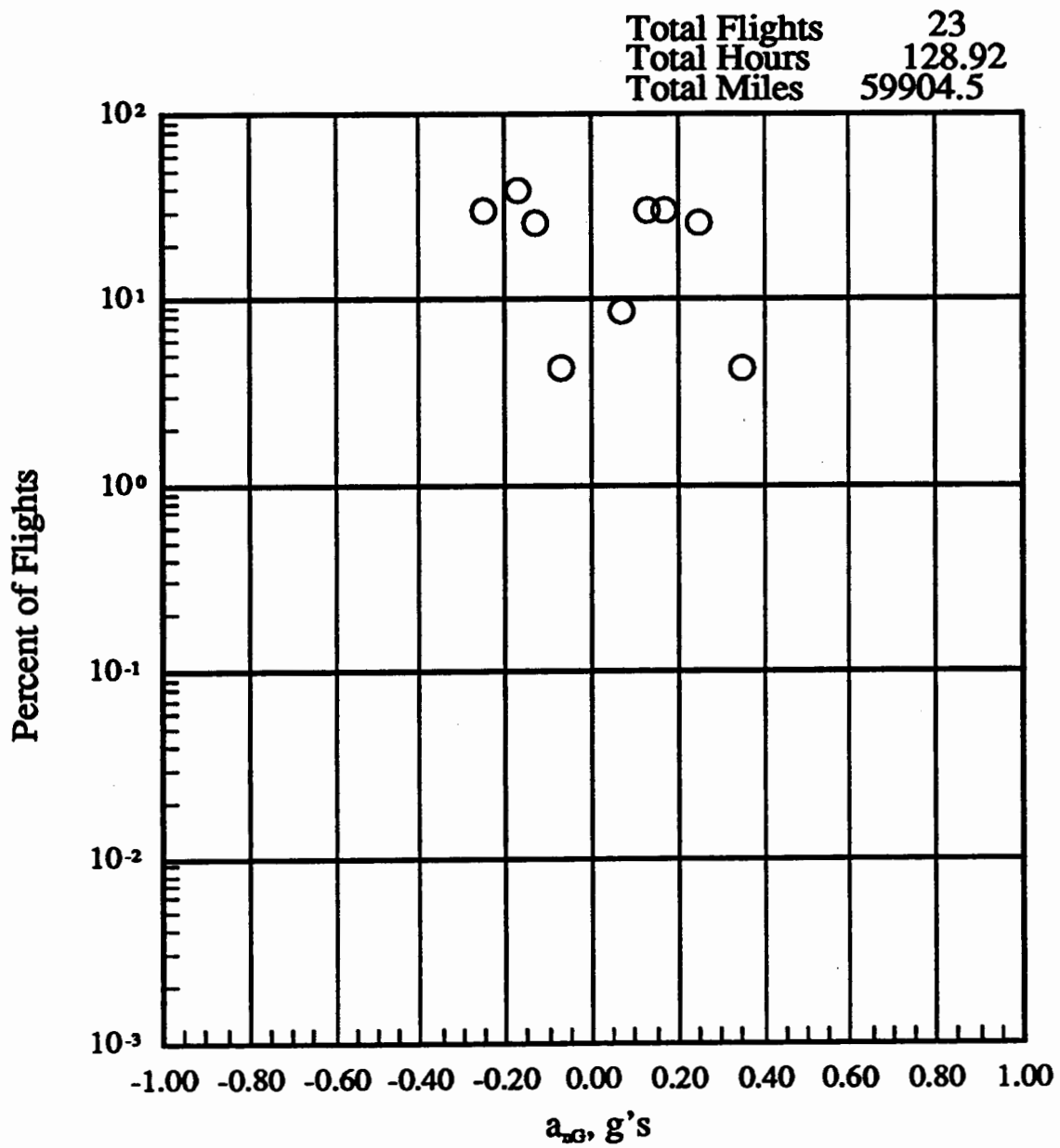
(i) 34500 to 39500 feet altitude

Figure 18.- Continued.



(j) 39500 to 44500 feet altitude

Figure 18.- Continued.



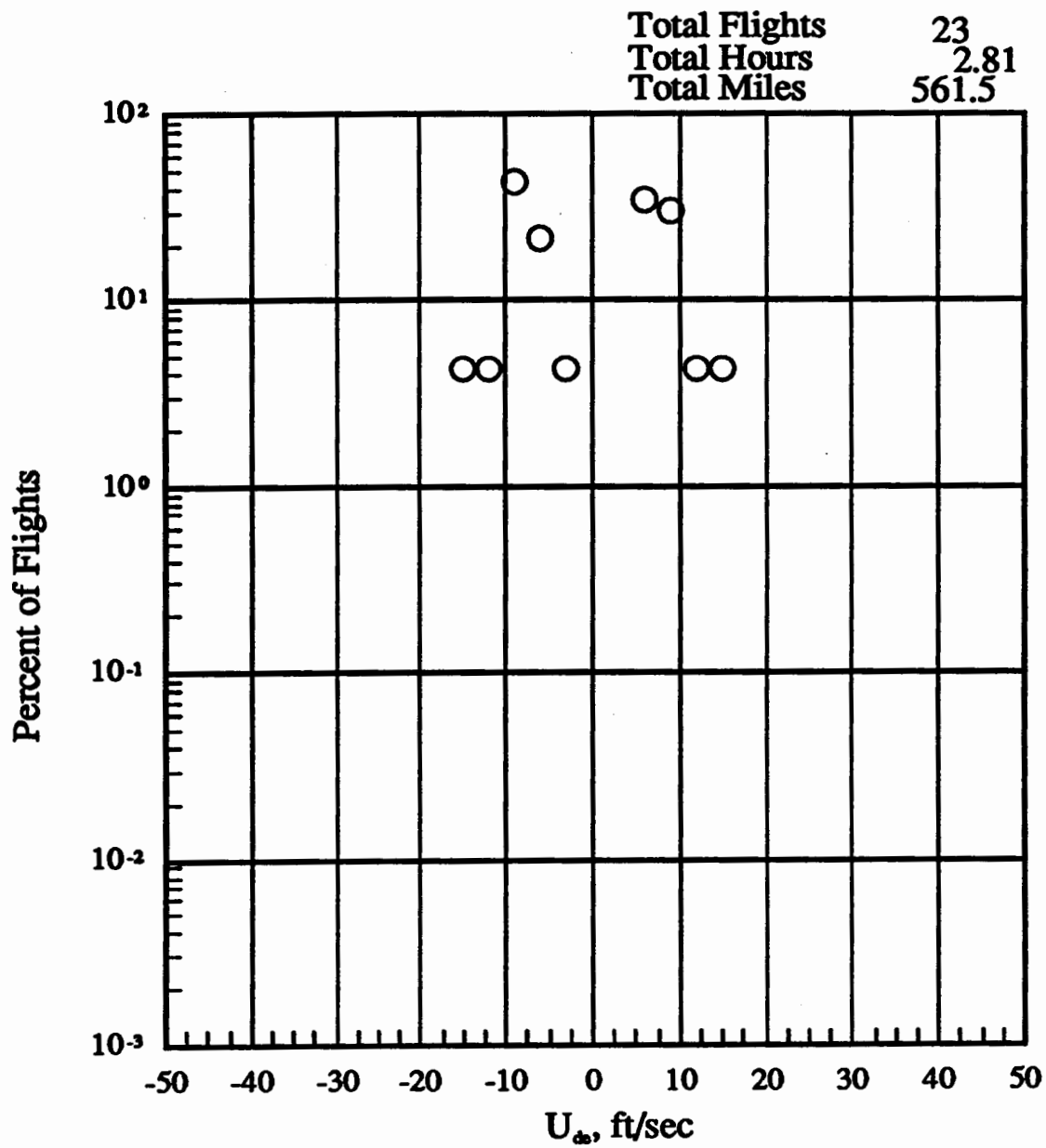
(k) -500 to 44500 feet altitude

Figure 18.- Concluded.

	PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
MAXIMUM U_{de} LEVEL FOR EACH FLIGHT FT/SEC										
100	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
15	4.3	4.3	0	0	0	0	0	0	0	8.7
12	4.3	0	0	0	0	0	0	0	0	4.3
9	30.4	8.7	0	4.3	0	0	0	0	0	43.5
6	34.8	0	0	0	0	0	4.3	4.3	0	43.5
3	0	0	0	0	0	0	0	0	0	0
-3	4.3	0	0	0	0	0	0	0	0	4.3
-6	21.7	0	0	0	0	0	0	4.3	0	26.1
-9	43.5	13.0	0	0	0	0	0	0	0	56.5
-12	4.3	0	0	0	0	0	0	0	0	8.7
-15	4.3	0	0	0	0	0	0	0	0	4.3
-20	0	0	0	0	0	0	0	0	0	0
-30	0	0	0	0	0	0	0	0	0	0
-40	0	0	0	0	0	0	0	0	0	0
-50	0	0	0	0	0	0	0	0	0	0
-60	0	0	0	0	0	0	0	0	0	0
-70	0	0	0	0	0	0	0	0	0	0
-80	0	0	0	0	0	0	0	0	0	0
-90	0	0	0	0	0	0	0	0	0	0
-100	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ ALT	2.81	2.56	2.44	2.13	2.64	9.55	41.46	65.32	0	128.92
FLIGHT MILES @ ALT	561.49	714.53	878.79	879.09	1187.79	4638.71	19917.03	31127.10	0	59904.53
TOTAL FLIGHTS										23

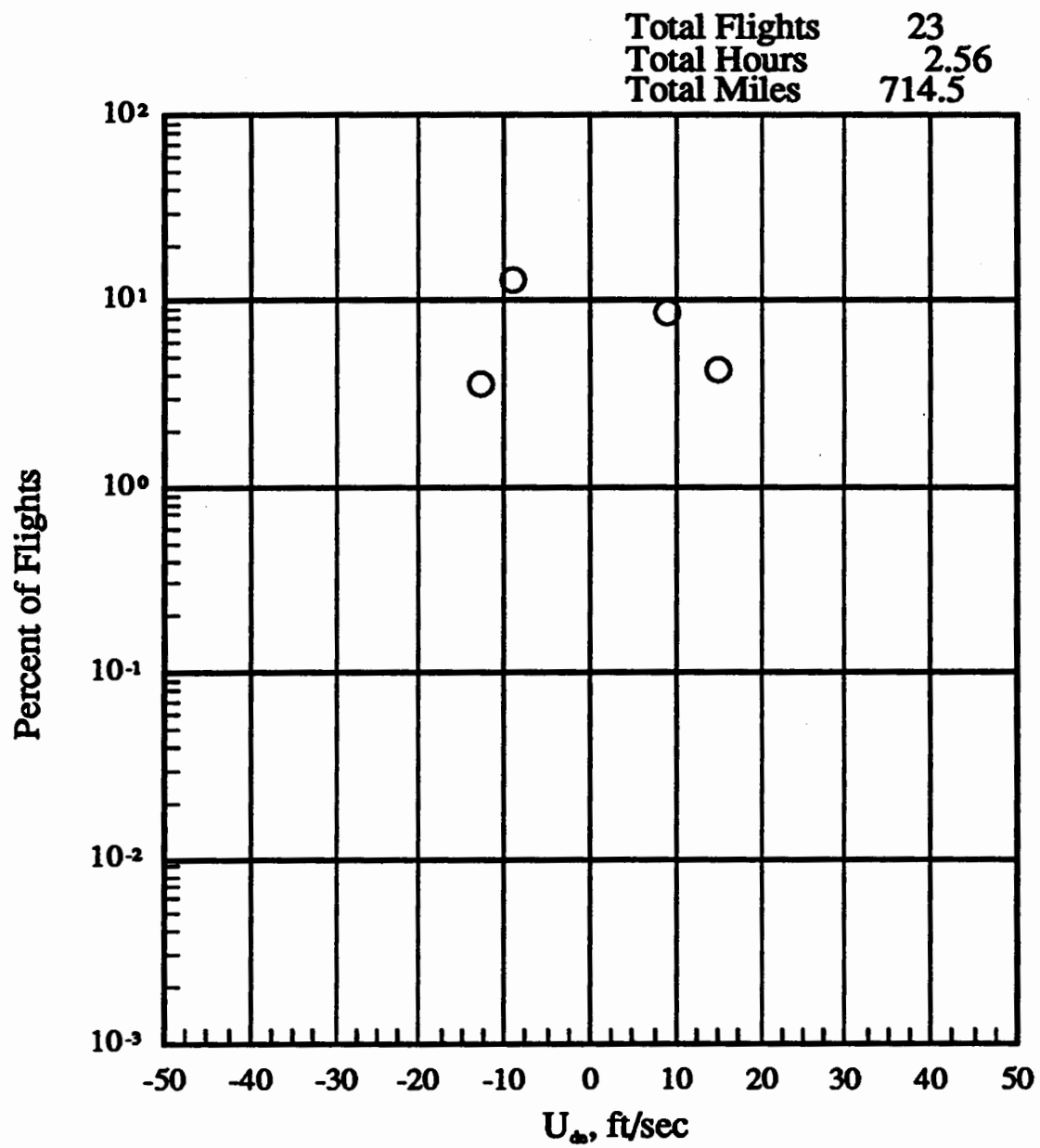
(a) Percent of flights where peak positive and negative U_{de} per flight occurs within pressure altitude bands, any flap

Figure 19.- Peak positive and negative U_{de} vs altitude.



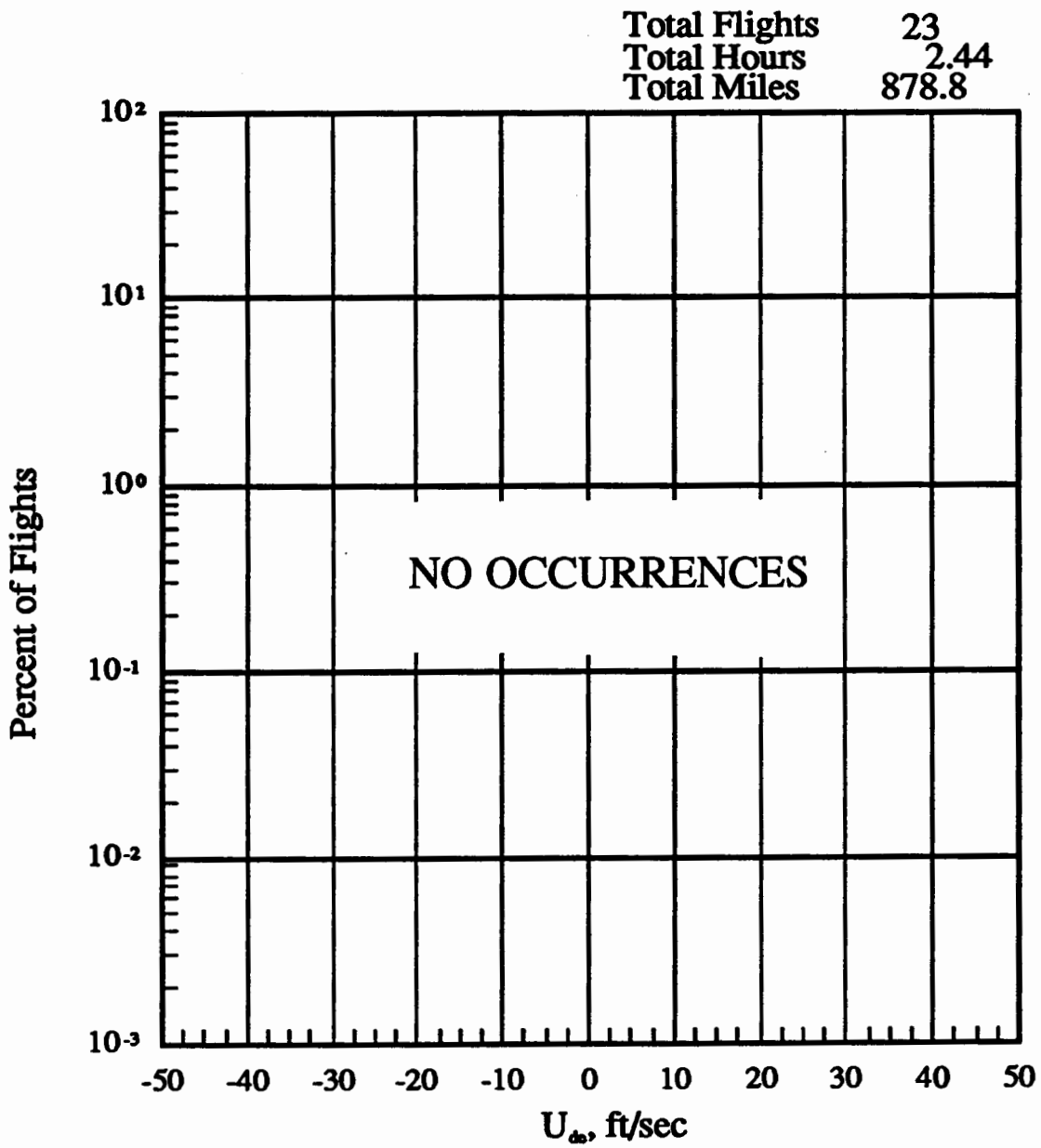
(b) -500 to 4500 feet altitude

Figure 19.- Continued.



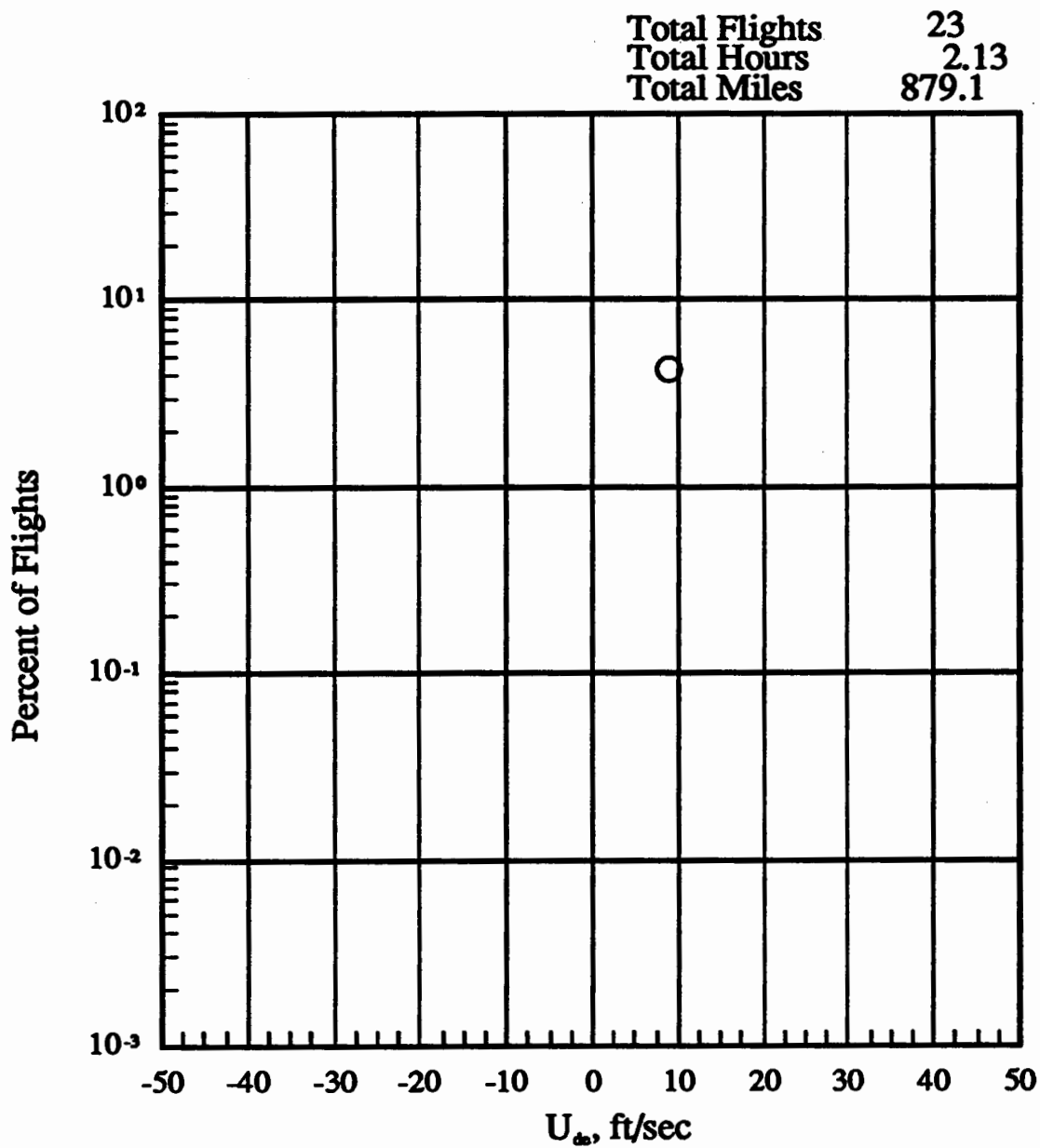
(c) 4500 to 9500 feet altitude

Figure 19.- Continued.



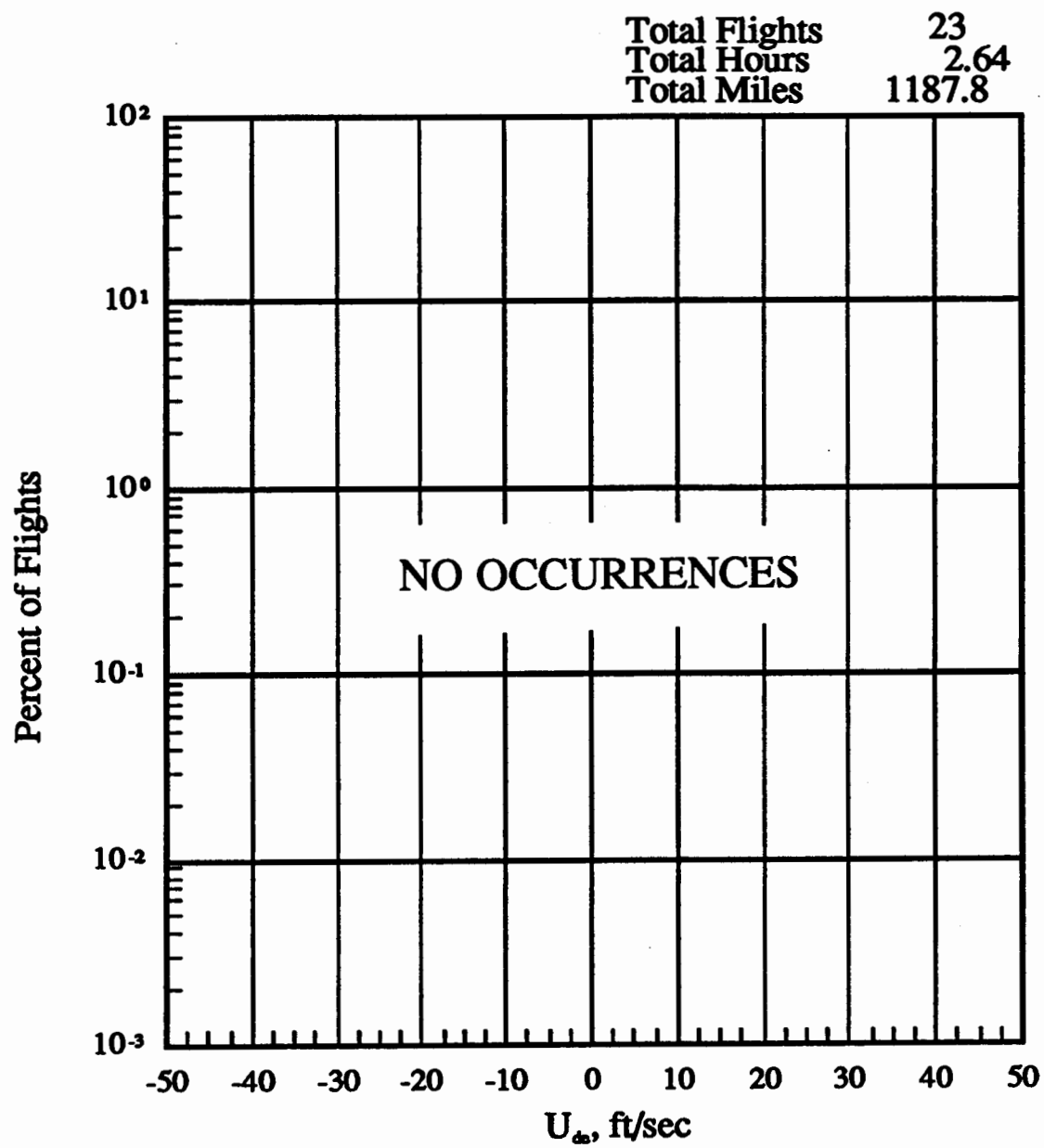
(d) 9500 to 14500 feet altitude

Figure 19.- Continued.



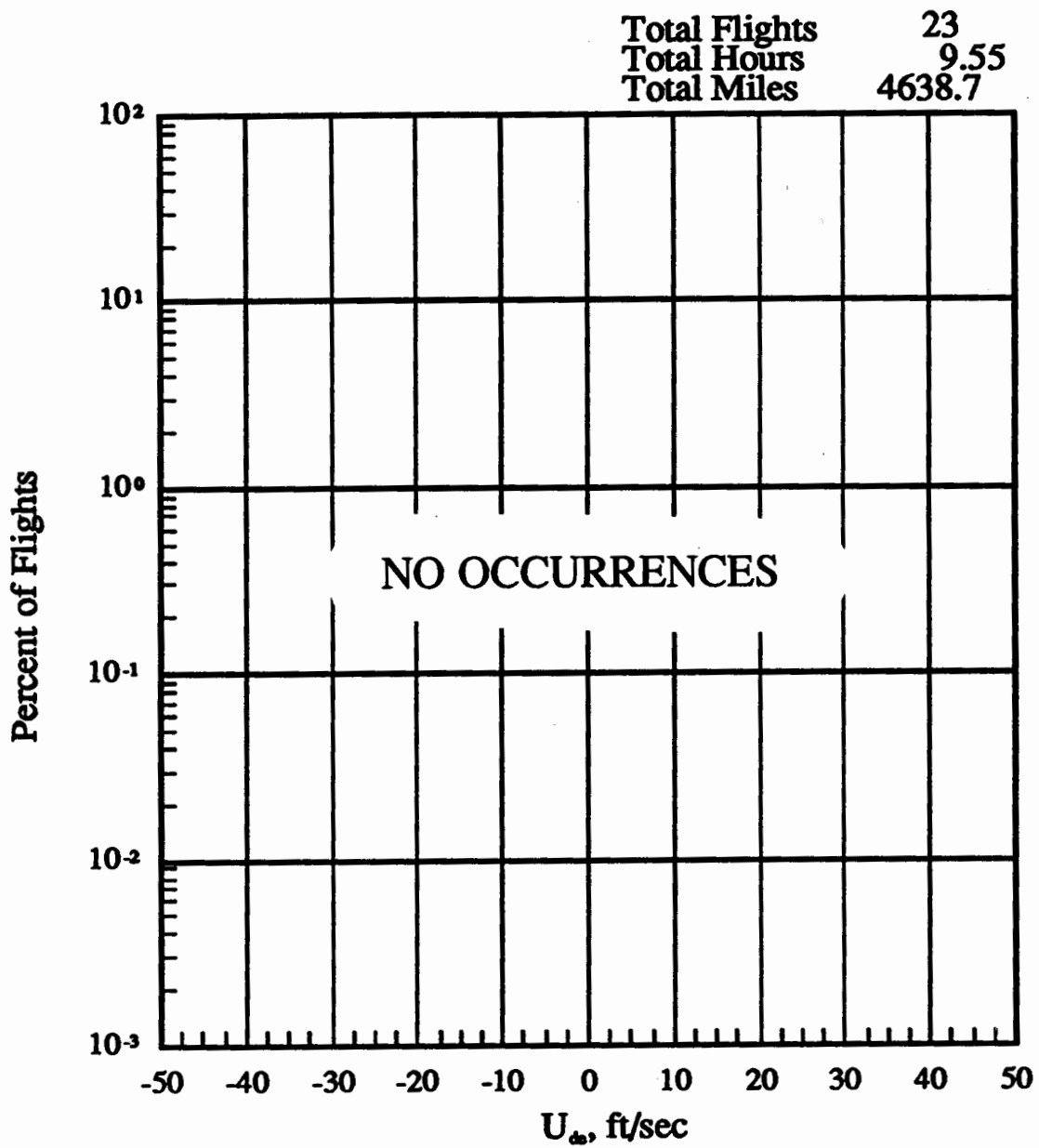
(e) 14500 to 19500 feet altitude

Figure 19.- Continued.



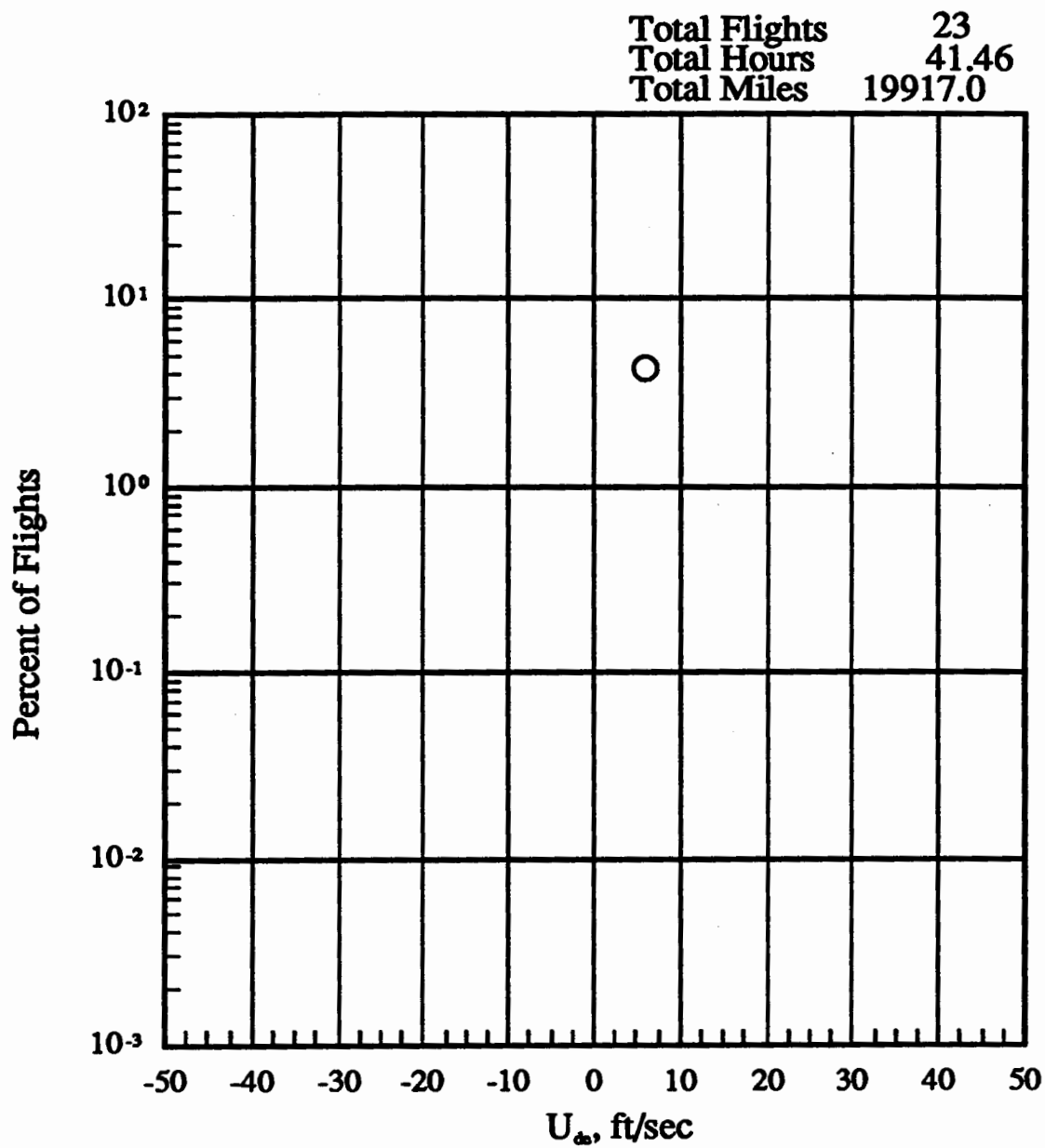
(f) 19500 to 24500 feet altitude

Figure 19.- Continued.



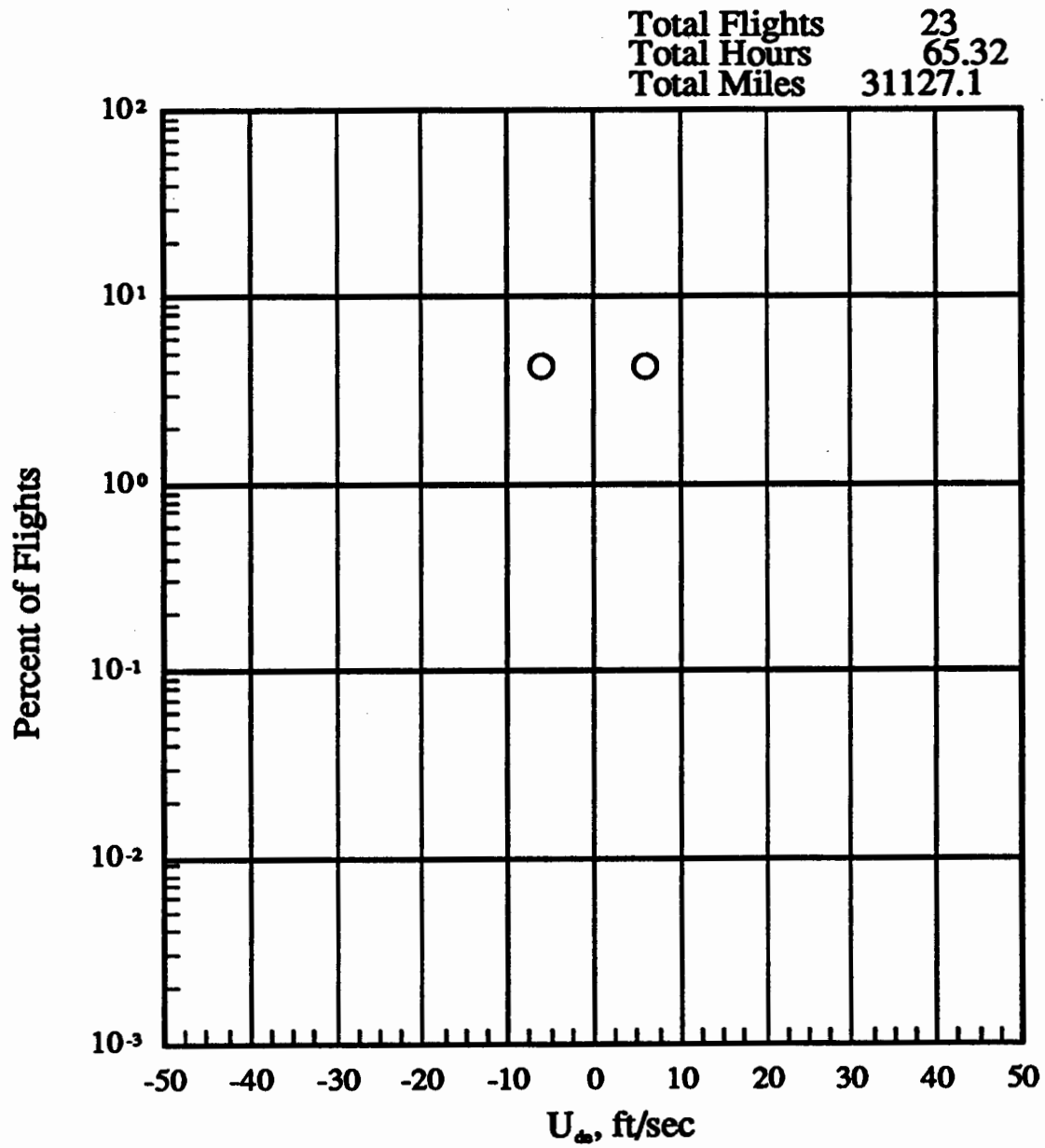
(g) 24500 to 29500 feet altitude

Figure 19.- Continued.



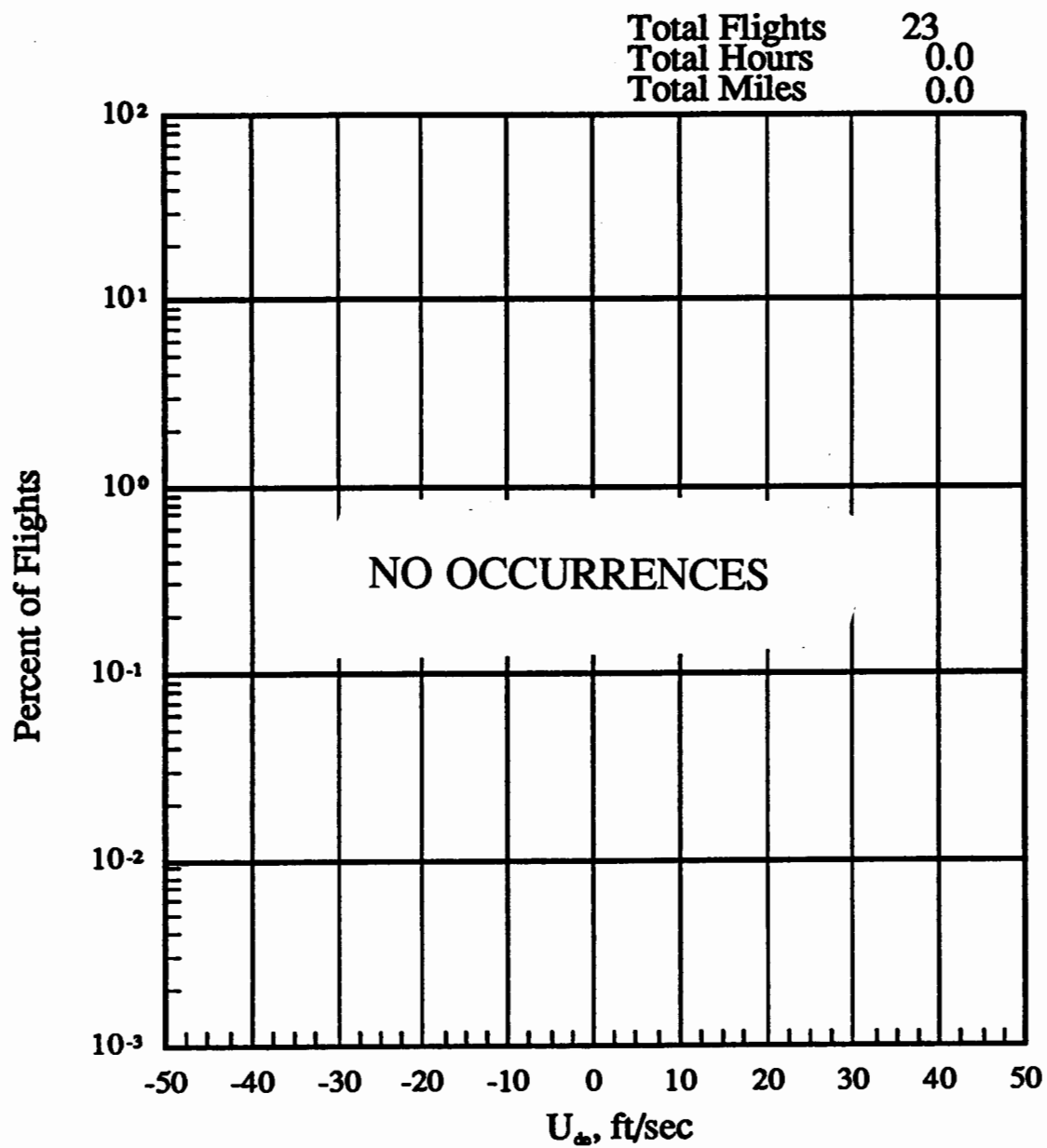
(h) 29500 to 34500 feet altitude

Figure 19.- Continued.



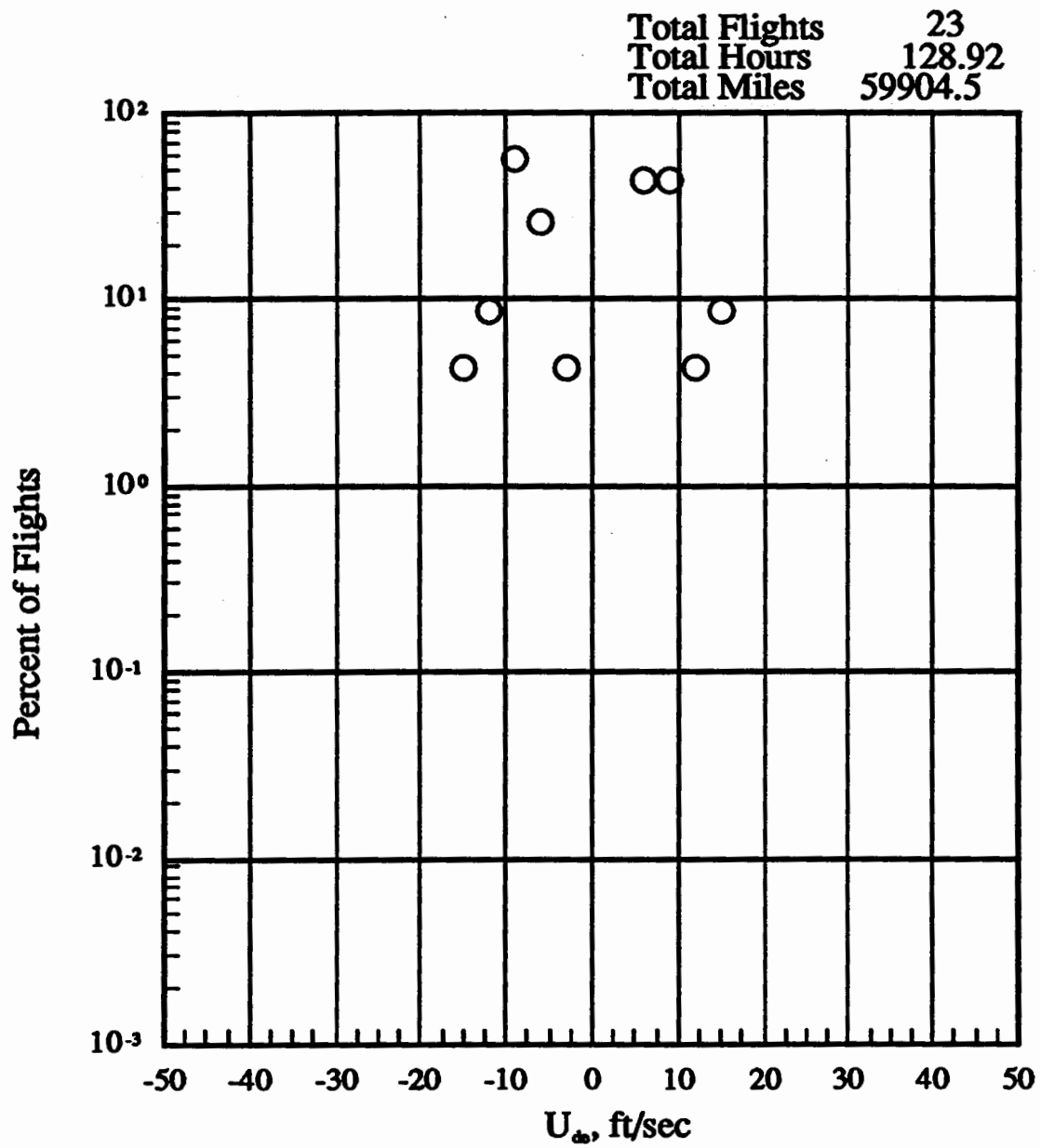
(i) 34500 to 39500 feet altitude

Figure 19.- Continued.



(j) 39500 to 44500 feet altitude

Figure 19.- Continued.



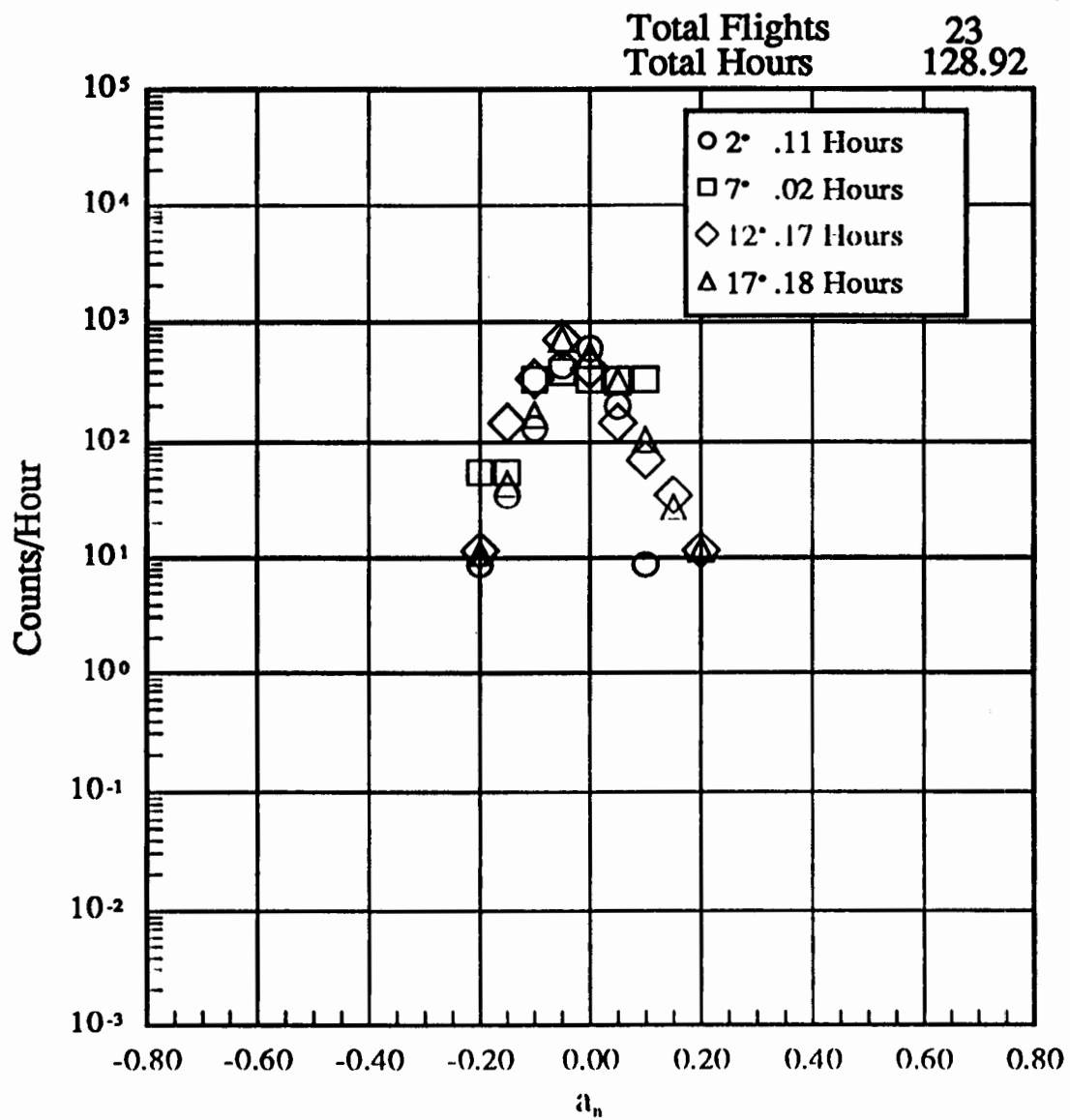
(k) -500 to 44500 feet altitude

Figure 19.- Concluded.

FLAP DETENT, DEGREES							
a_n LEVEL g's	2	7	12	17	24	37	50
1.60	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0
.80	0	0	0	0	0	0	0
.70	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0
.30	0	0	0	0	0	0	0
.20	0	0	11.650	5.471	0	0	0
.15	0	0	34.951	27.356	0	0	0
.10	8.738	332.308	69.903	103.951	0	0	0
.05	200.971	332.308	145.631	317.325	0	0	0
0	602.913	332.308	407.767	530.699	0	0	0
-.05	436.893	387.693	716.505	722.188	0	0	0
-.10	131.068	332.308	337.864	169.605	0	0	0
-.15	34.951	55.385	145.631	43.769	0	0	0
-.20	8.738	55.385	11.650	10.942	0	0	0
-.30	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0
-.50	0	0	0	0	0	0	0
-.60	0	0	0	0	0	0	0
-.70	0	0	0	0	0	0	0
-.80	0	0	0	0	0	0	0
-1.00	0	0	0	0	0	0	0
-1.20	0	0	0	0	0	0	0
-1.40	0	0	0	0	0	0	0
-1.60	0	0	0	0	0	0	0
FLIGHT HOURS IN DETENT	0.114	0.018	0.172	0.183	0	0	0
TOTAL HOURS							0.49
TOTAL FLIGHTS							20
TOTAL FLIGHT HOURS FLAPS UP AND DOWN							128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN							59904.53

(a) Take off

Figure 20.- a_n exceedances with flaps deflected.



(b) Take off

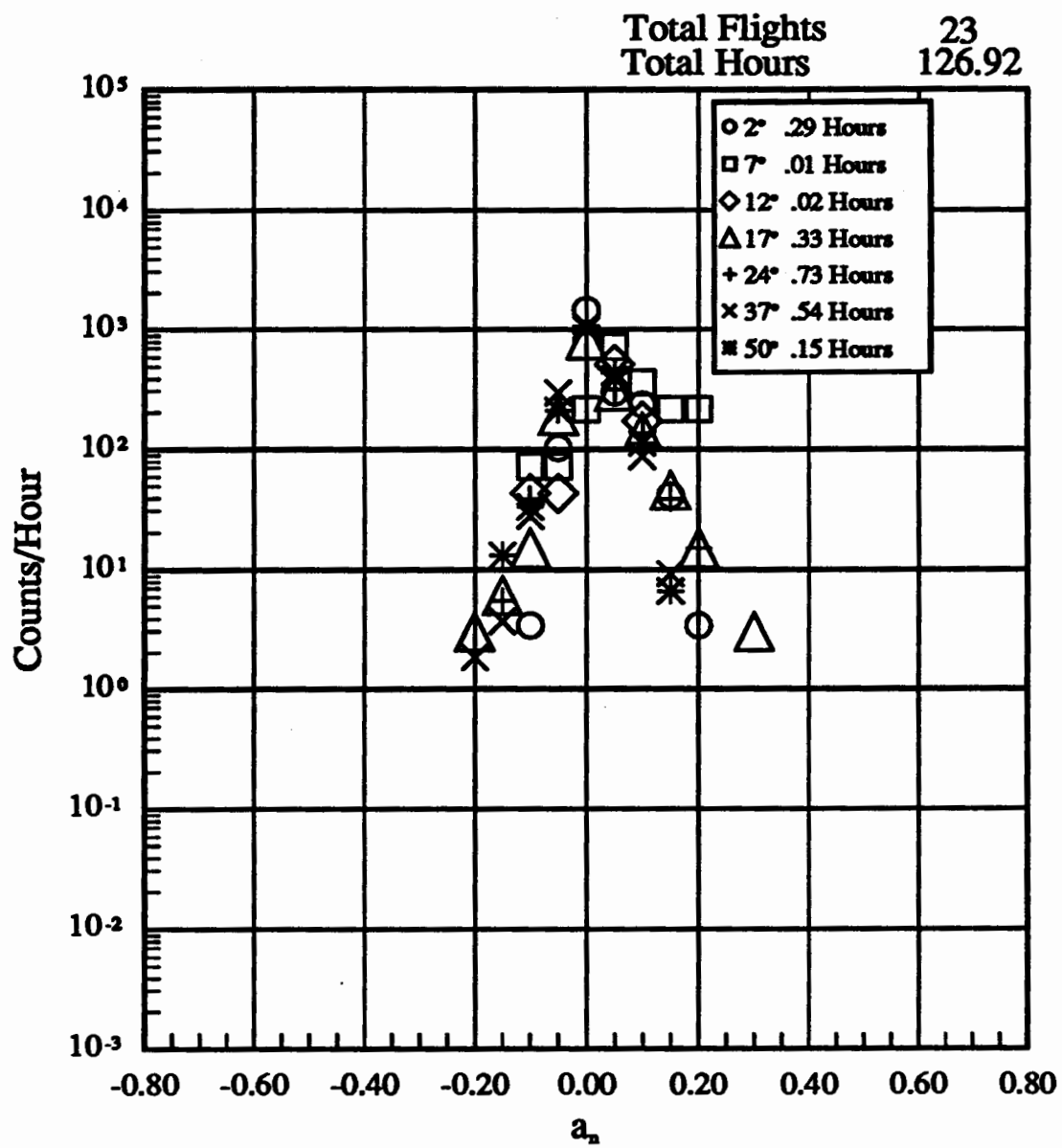
Figure 20.- Continued.

FLAP DETENT, DEGREES

^a _n LEVEL g's	2	7	12	17	24	37	50
1.60	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0
.80	0	0	0	0	0	0	0
.70	0	0	0	0	0	0	0
.60	0	0	0	0	0	0	0
.50	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0
.30	0	0	0	3.020	0	0	0
.20	3.416	216.000	0	15.101	15.126	0	0
.15	40.987	216.000	0	45.302	38.503	9.257	6.602
.10	235.674	360.000	171.429	138.926	136.134	86.650	112.242
.05	297.154	720.000	514.286	305.034	314.897	386.938	435.763
0	1455.028	216.000	300.000	821.477	925.439	1007.148	1069.601
-.05	102.467	72.000	42.857	190.268	211.765	296.220	211.279
-.10	3.416	72.000	42.857	15.101	38.503	27.771	33.012
-.15	0	0	0	6.040	5.500	3.703	13.205
-.20	0	0	0	3.020	0	1.851	0
-.30	0	0	0	0	0	0	0
-.40	0	0	0	0	0	0	0
-.50	0	0	0	0	0	0	0
-.60	0	0	0	0	0	0	0
-.70	0	0	0	0	0	0	0
-.80	0	0	0	0	0	0	0
-1.00	0	0	0	0	0	0	0
-1.20	0	0	0	0	0	0	0
-1.40	0	0	0	0	0	0	0
-1.60	0	0	0	0	0	0	0
FLIGHT HOURS IN DETENT	0.293	0.014	0.023	0.331	0.727	0.540	0.151
TOTAL HOURS							2.08
TOTAL FLIGHTS							23
TOTAL FLIGHT HOURS FLAPS UP AND DOWN							128.92
TOTAL FLIGHT MILES FLAPS UP AND DOWN							59904.53

(c) Landing

Figure 20.- Continued.



(d) Landing.

Figure 20.- Concluded.

MAXIMUM a_n LEVEL FOR EACH FLIGHT			EAS KTS																			
FROM	g's TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	
.05	0.10	0	0	0	0	0	0	0	10	5	10	5	0	0	0	5	0	0	0	0	0	
-.05	-0.10	0	0	0	0	10	10	5	0	0	10	0	5	0	0	0	0	0	0	0	0	
-.10	-0.15	0	0	0	0	0	5	10	5	5	5	0	5	0	0	0	0	0	0	0	0	
-.15	-0.20	0	0	0	0	0	15	5	0	10	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.30	-0.40	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL PEAKS @ EAS		0	0	0	0	2	7	4	3	4	5	3	1	1	0	1	0	0	0	0	0	
FLIGHT HOURS @ EAS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FLIGHT MILES @ EAS		0	0	0	0	0	1	2	3	5	5	4	3	2	1	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																				20		
TOTAL FLIGHTS ANALYZED																				23		
TOTAL FLIGHT HOURS, ANY FLAP																				128.92		
TOTAL FLIGHT MILES, ANY FLAP																				59904.53		

(a) Take off; flaps 2 degree detent

Figure 21.- Peak positive and negative a_n per flight vs EAS bands; percent of flights.

MAXIMUM a_n LEVEL FOR EACH FLIGHT			KAS KTS																			
FROM	g's TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.15	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.10	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.05	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.05	-0.10	0	0	0	0	0	0	30	23	0	0	0	0	0	0	0	0	0	0	0		
-.10	-0.15	0	0	0	0	0	15	15	0	15	0	0	0	0	0	0	0	0	0	0		
-.15	-0.20	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0		
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL PEAKS @ KAS		0	0	0	0	2	4	9	4	3	0	0	0	0	0	0	0	0	0	0		
FLIGHT HOURS @ KAS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
FLIGHT MILES @ KAS		0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0		
TOTAL FLIGHTS INCLUDED																				13		
TOTAL FLIGHTS ANALYZED																				23		
TOTAL FLIGHT HOURS, ANY FLAP																				128.92		
TOTAL FLIGHT MILES, ANY FLAP																				59904.53		

(b) Take off; flaps 7 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT			KAS KTS																		
FROM	TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	0	0	4	0	9	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	0	4	4	4	22	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	0	0	4	9	4	0	4	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	0	0	0	4	9	9	22	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ KAS		0	0	0	1	4	7	4	13	3	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ KAS		0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ KAS		0	0	0	1	4	2	4	13	5	3	1	1	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																					23
TOTAL FLIGHTS ANALYZED																					23
TOTAL FLIGHT HOURS, ANY FLAP																					128.92
TOTAL FLIGHT MILES, ANY FLAP																					59904.53

(c) Take off; flaps 12 degree detent

Figure 21.- Continued.

MAXIMUM a_z		KIAS KTS																			
LEVEL FOR EACH FLIGHT																					
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	0	0	0	25	25	13	0	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PERKS @ KIAS		0	0	0	0	0	4	4	3	1	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ KIAS		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ KIAS		0	0	0	0	1	5	13	9	6	1	0	0	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																					8
TOTAL FLIGHTS ANALYZED																					23
TOTAL FLIGHT HOURS, ANY FLAP																					128.92
TOTAL FLIGHT MILES, ANY FLAP																					59904.53

(d) Take off; flaps 17 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT		KAS KTS																			
FROM	TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	0	0	0	0	5	0	0	0	15	0	0	0	0	0	0	0	
.10	0.15	0	0	0	0	0	0	0	5	10	10	0	5	5	0	0	0	0	0	0	
.05	0.10	0	0	0	0	0	0	0	15	20	20	5	10	0	0	0	0	0	0	0	
-.05	-0.10	0	0	0	0	0	0	0	10	0	0	0	5	10	0	0	0	0	0	0	
-.10	-0.15	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	
-.15	-0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL PEAKS @ KAS		0	0	0	0	0	0	0	7	6	6	2	8	3	0	0	0	0	0	0	
FLIGHT HOURS @ KAS		0	0	0	0	0	0	0	0.1	0.1	0	0	0.1	0	0	0	0	0	0	0	
FLIGHT MILES @ KAS		0	0	0	0	0	0	0	16	19	4	6	19	9	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																				20	
TOTAL FLIGHTS ANALYZED																				23	
TOTAL FLIGHT HOURS, ANY FLAP																				128.92	
TOTAL FLIGHT MILES, ANY FLAP																				59904.53	

(e) Landing; flaps 2 degree detent

Figure 21.- Continued.

MAXIMUM a_n			EAS KTS																			
LEVEL FOR EACH FLIGHT																						
FROM	G's	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
			130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30		0	0	0	0	0	0	0	0	5	0	5	5	0	0	0	0	0	0	0	0
.15	0.20		0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
.10	0.15		0	0	0	0	0	0	0	0	10	5	10	0	5	0	0	0	0	0	0	0
.05	0.10		0	0	0	0	0	0	5	0	0	5	24	10	14	0	0	0	0	0	0	0
-.05	-0.10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15		0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
-.15	-0.20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ EAS			0	0	0	0	0	0	1	0	3	2	9	4	4	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS			0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																					21	
TOTAL FLIGHTS ANALYZED																					23	
TOTAL FLIGHT HOURS, ANY FLAP																					128.92	
TOTAL FLIGHT MILES, ANY FLAP																					59904.53	

(f) Landing; flaps 7 degree detent

Figure 21.- Continued.

MAXIMUM a_n		EAS KTS																			
LEVEL FOR EACH FLIGHT																					
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	0	0	0	0	0	0	0	9	4	4	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	0	0	0	0	0	22	9	9	4	9	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
-.15	-0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ EAS		0	0	0	0	0	0	0	0	5	4	4	2	3	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		0	0	0	0	0	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				22.50	
TOTAL FLIGHTS ANALYZED																				23	
TOTAL FLIGHT HOURS, ANY FLAP																				128.92	
TOTAL FLIGHT MILES, ANY FLAP																				59904.53	

(g) Landing; flaps 12 degree detent

Figure 21.- Continued.

MAXIMUM a_z		KAS KTS																			
LEVEL FOR EACH FLIGHT																					
g's		120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
FROM	TO	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	0	0	0	0	0	9	0	22	4	0	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	0	0	0	0	0	13	9	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	0	0	4	0	0	17	13	17	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ KAS		0	0	0	0	0	1	1	3	12	11	5	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ KAS		0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ KAS		0	0	0	0	0	0	3	7	28	21	10	5	1	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				23	
TOTAL FLIGHTS ANALYZED																				23	
TOTAL FLIGHT HOURS, ANY FLAP																				128.92	
TOTAL FLIGHT MILES, ANY FLAP																				59904.53	

(h) Landing; flaps 17 degree detent

Figure 21.- Continued.

MAXIMUM a_n		EAS KTS																			
LEVEL FOR EACH FLIGHT																					
g's		120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
FROM	TO	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	4	0	9	4	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	0	0	0	4	9	9	4	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	4	9	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	4	0	4	4	0	13	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	0	13	9	9	17	4	4	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	4	4	4	4	4	0	4	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	0	0	0	0	0	4	0	4	4	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ EAS		0	0	2.0	7	4	5	11	3	9	2	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0	0.1	0.2	0.1	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		0	0	1.0	16	27	26	33	16	10	2	0	0	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				23	
TOTAL FLIGHTS ANALYZED																				23	
TOTAL FLIGHT HOURS, ANY FLAP																				128.92	
TOTAL FLIGHT MILES, ANY FLAP																				59904.53	

(i) Landing; flaps 24 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT			KAS KTS																			
FROM	g's TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.15	0.20	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
.10	0.15	0	0	17	22	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0		
.05	0.10	0	0	9	9	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.05	-0.10	0	0	22	17	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.10	-0.15	0	0	13	17	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.15	-0.20	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.20	-0.30	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL PEAKS @ KAS		0	0	15	15	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0		
FLIGHT HOURS @ KAS		0	0	0.3	0.2	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
FLIGHT MILES @ KAS		0	2	38	28	12	3	1	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL FLIGHTS INCLUDED																				23		
TOTAL FLIGHTS ANALYZED																				23		
TOTAL FLIGHT HOURS, ANY FLAP																				128.92		
TOTAL FLIGHT MILES, ANY FLAP																				89904.53		

(j) Landing; flaps 37 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT		KAS KTS																			
g's		120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
FROM	TO	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	44	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	11	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PEAKS @ KAS		0	3	10	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ KAS		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ KAS		0	5	13	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				9	
TOTAL FLIGHTS ANALYZED																				23	
TOTAL FLIGHT HOURS, ANY FLAP																				128.92	
TOTAL FLIGHT MILES, ANY FLAP																				59904.53	

(k) Landing; flaps 50 degree detent

Figure 21.- Concluded.



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