NASA Contractor Report 181909, Volume V
DOT/FAA - CT - 89/36 - V

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

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

Norman L. Crabill

Eagle Engineering, Incorporated
Hampton Division
Hampton, Virginia 23666

Contract NASW 4430
December 1989

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23665

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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Norman L. Crabill

Eagle Engineering, Inc.
Hampton Division
Hampton, Virginia

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:

Parameter	Range and Units	Samples per Second
$a_n + 1$	-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 sywtem 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

- Geometrical Characteristics
  - Wing Area = 3647.5 ft^2
  - Wing Mean Chord = 24.65 ft

- Lift Curve Slope C_{l_α} per degree
  - Flaps up = f(M,HP)

M	HP = 0	20 kft	40 kft
.2	.0885	.0890	.0890
.4	.0850	.0890	.0915
.5	.0825	.0890	.0925
.6	.0790	.0890	.0940
.7	.0755	.0900	.0980
.8	-	.0935	.1050
.90	-	.1005	.1160

  - Flaps down = f(FLP)

FLP, deg	HP ≈ 0
0	.0885
2	.0930
12	.0970
17	.0970
24	.0980
37	.0970
50	.0985

- 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

TABLE II (Continued)

ACCELERATION DERIVED STATISTICS

o ENTIRE FLIGHTS

TABLE II (Concluded)

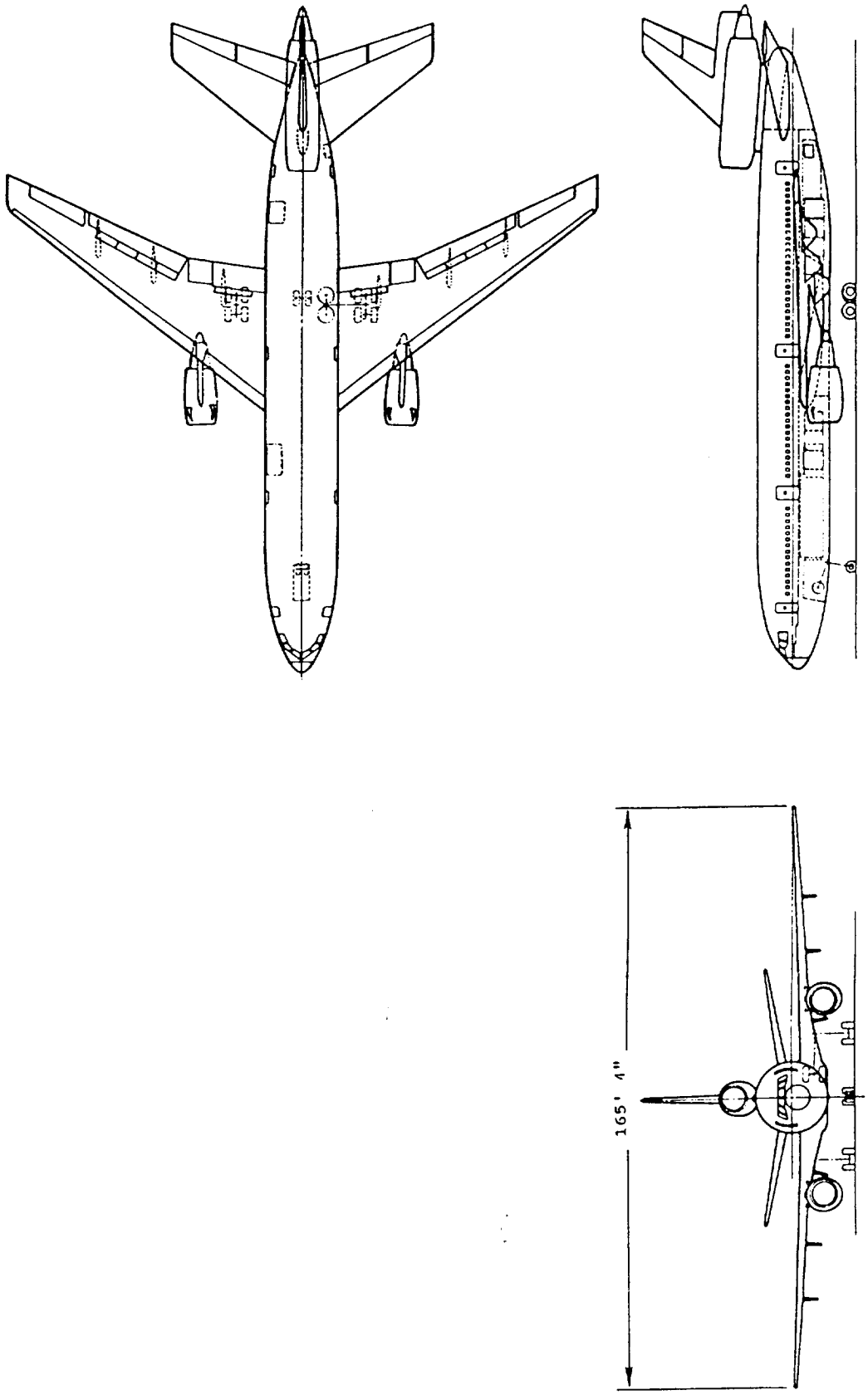
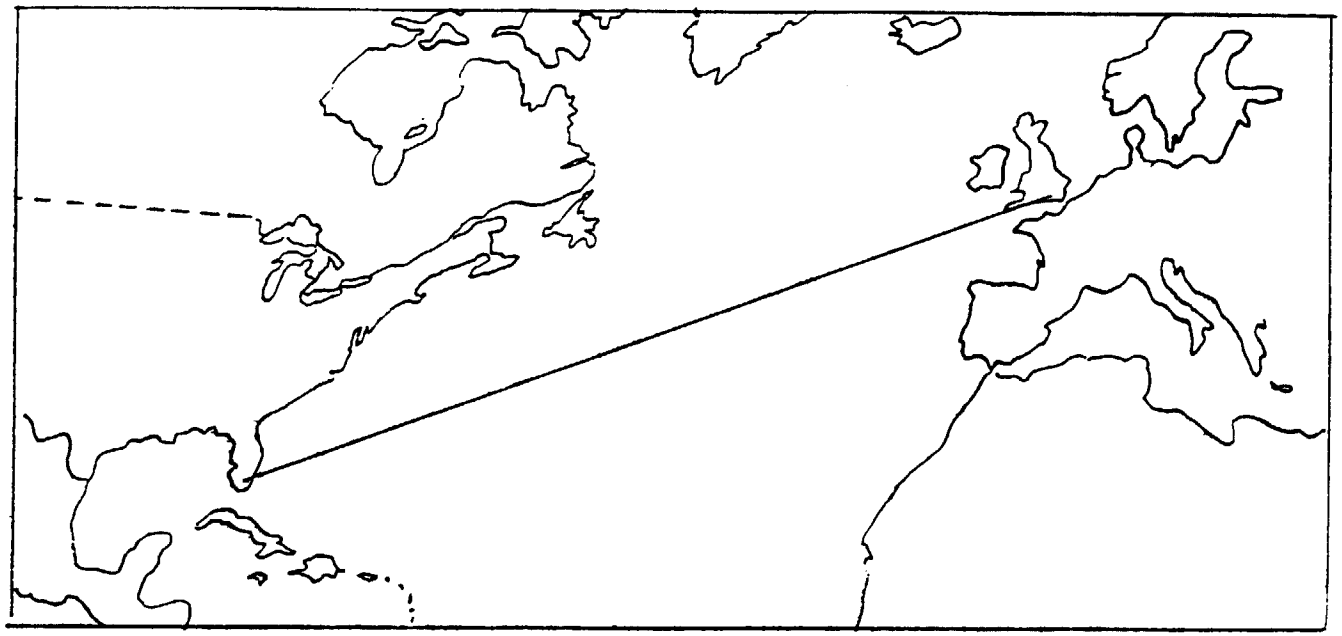


FIGURE 1.- Three view drawing of the aircraft.



April 1981 - March 1982

23 Flights
129 Hours
59905 N. Miles

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

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	260 TO 290 KLBS	290 TO 320 KLBS	320 TO 350 KLBS	350 TO 380 KLBS	380 TO 410 KLBS	410 TO 440 KLBS	440 TO 470 KLBS	470 TO 500 KLBS	500 TO 530 KLBS	530 TO 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.

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	260 TO 290 KLBS	290 TO 320 KLBS	320 TO 350 KLBS	350 TO 380 KLBS	380 TO 410 KLBS	410 TO 440 KLBS	440 TO 470 KLBS	470 TO 500 KLBS	500 TO 530 KLBS	530 TO 560 KLBS
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.

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	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.

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	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.

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	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.

PERCENT OF FLIGHTS

DURATION OF FLIGHT, HOURS	0 TO 15 KLBS	15 TO 30 KLBS	30 TO 45 KLBS	45 TO 60 KLBS	60 TO 75 KLBS	75 TO 90 KLBS	90 TO 105 KLBS	105 TO 120 KLBS	120 TO 135 KLBS	135 TO 150 KLBS
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	34.8	4.3	26.1	4.3	0	0	0

(f) Payload weight vs flight duration

Figure 3.- Concluded.

PRESSURE ALTITUDE BANDS

GROSS WEIGHT KLBS	-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	393.67	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	

$$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& CLIMB (LEVEL,DESCENT) \& GROSS MASS BANDS}}{\text{TOTAL TIME, HOURS}} \times 100$$

TOTAL FLIGHTS	23
TOTAL TIME	128.82
TOTAL AIRMILES	59904.53

Figure 4.- Percent time in altitude and gross weigth 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

$$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& CLIMB}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{THC CAS}}{\text{T}} \times 100$$

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	0.0340	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

$$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& LEVEL}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{THC CAS}}{\text{T}} \times 100$$

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

$$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS \& DESCENT}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{TRC CAS}}{\text{T}} \times 100$$

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

$$\text{PERCENT TIME} = \frac{\text{HOURS IN ALTITUDE \& AIRSPEED BANDS}}{\text{TOTAL TIME, HOURS}} \times 100 = \frac{\text{TH CAS}}{\text{T}} \times 100$$

TOTAL FLIGHTS 23
TOTAL HOURS 129

(d) All flight modes

Figure 5.- Concluded.

PRESSURE ALTITUDE BANDS

TIME INTERVAL, HRS IN ALTITUDE BAND	-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
9.00-10.00	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.

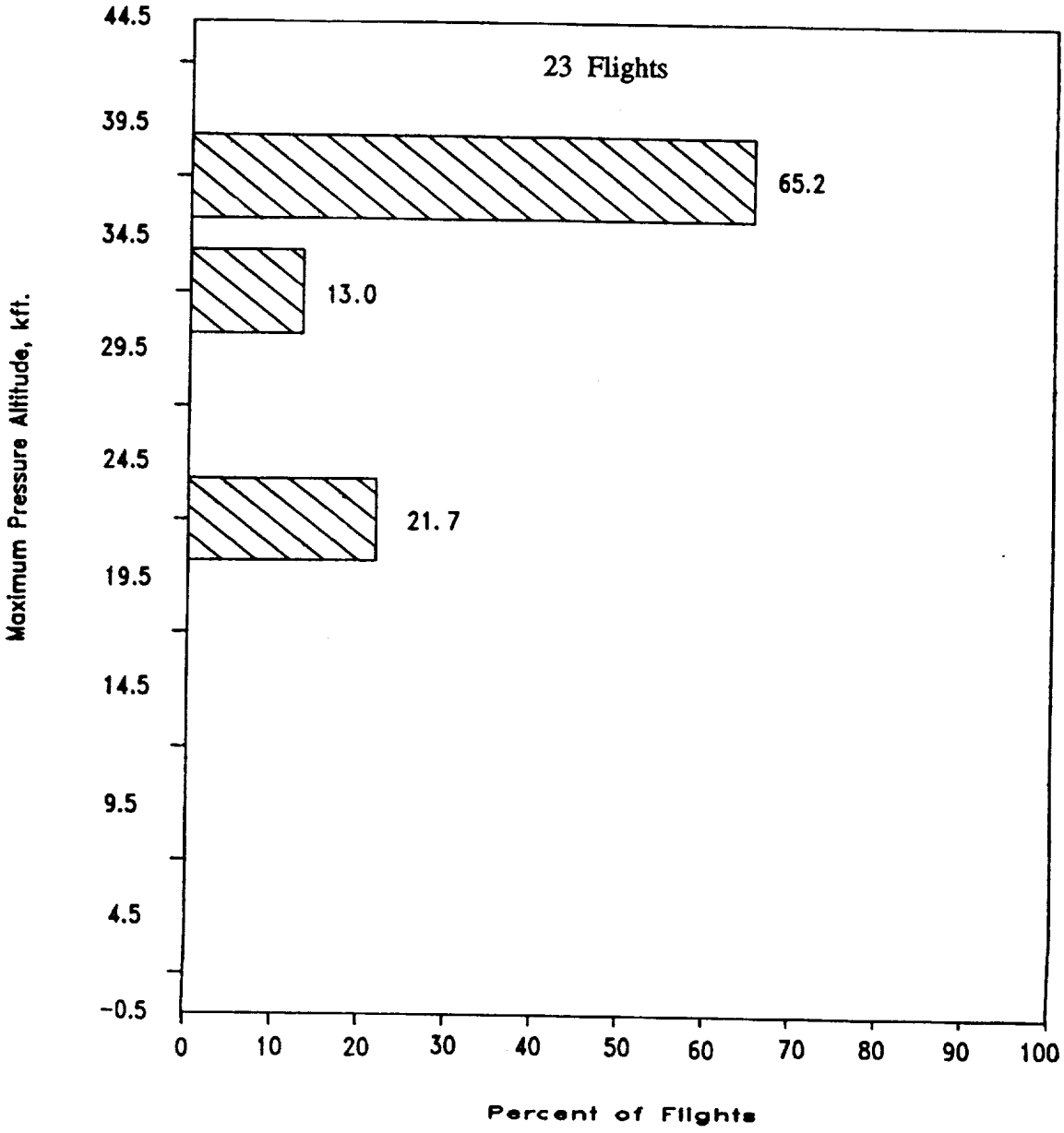
PERCENT OF FLIGHTS

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.

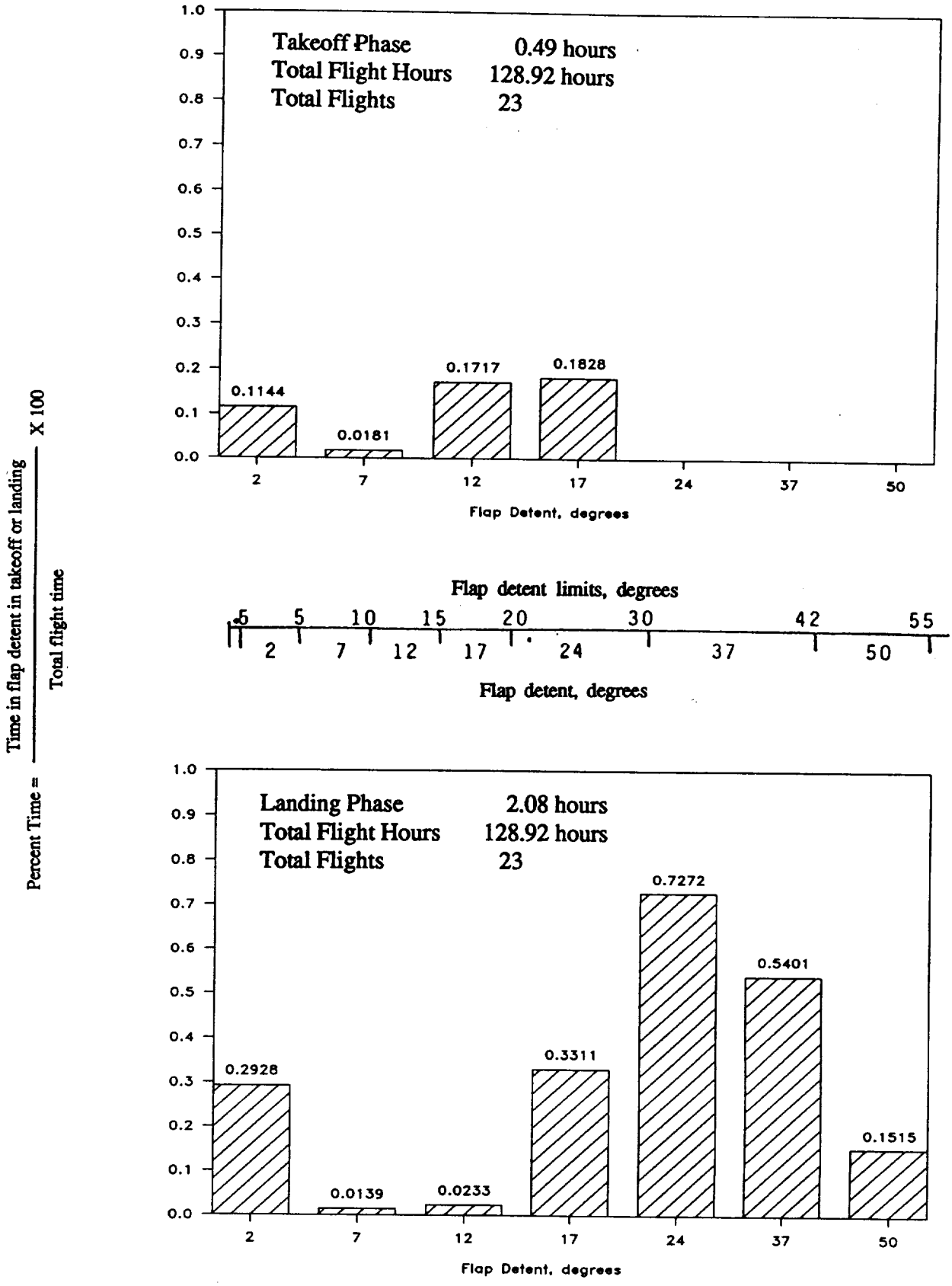
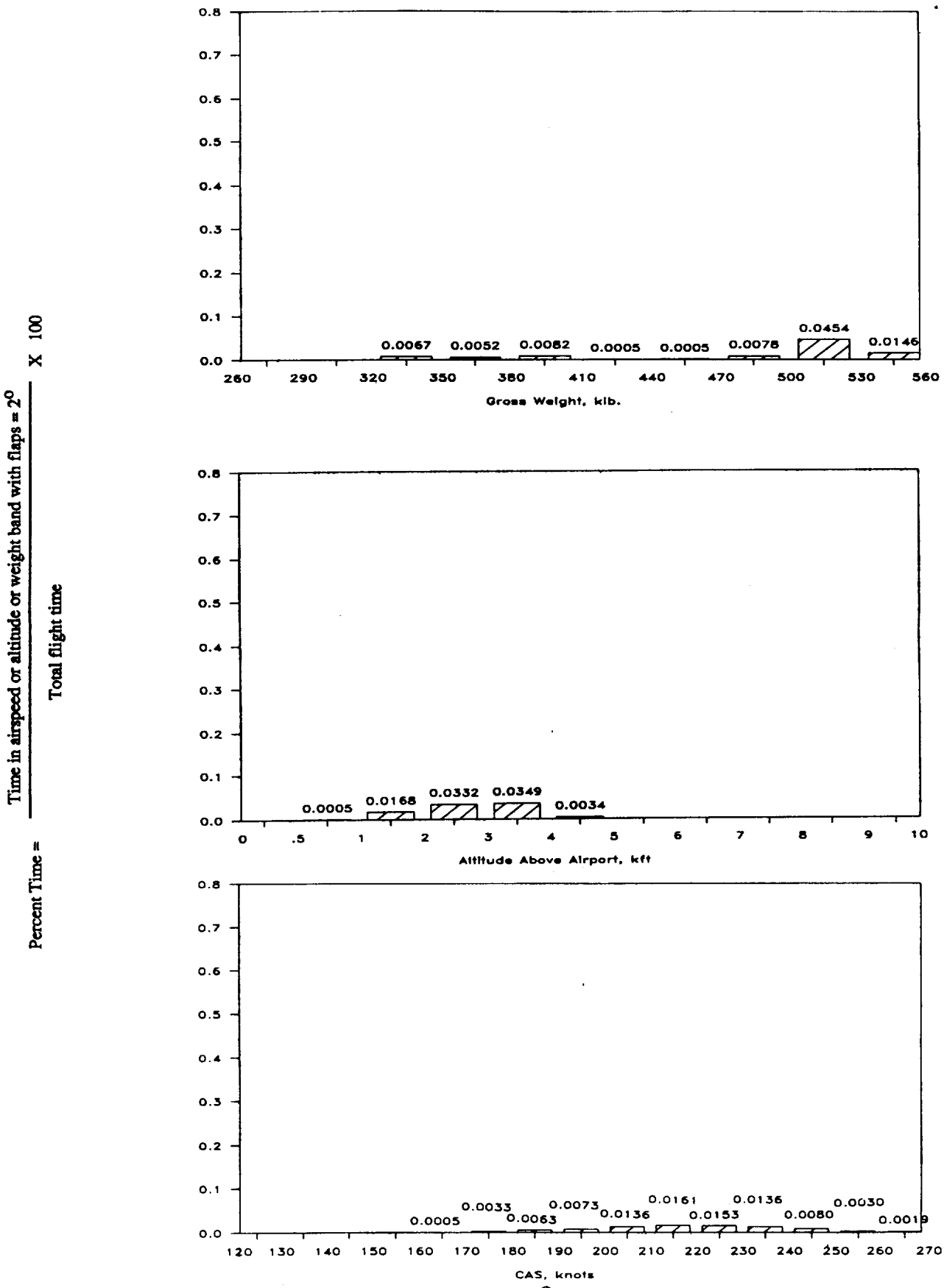
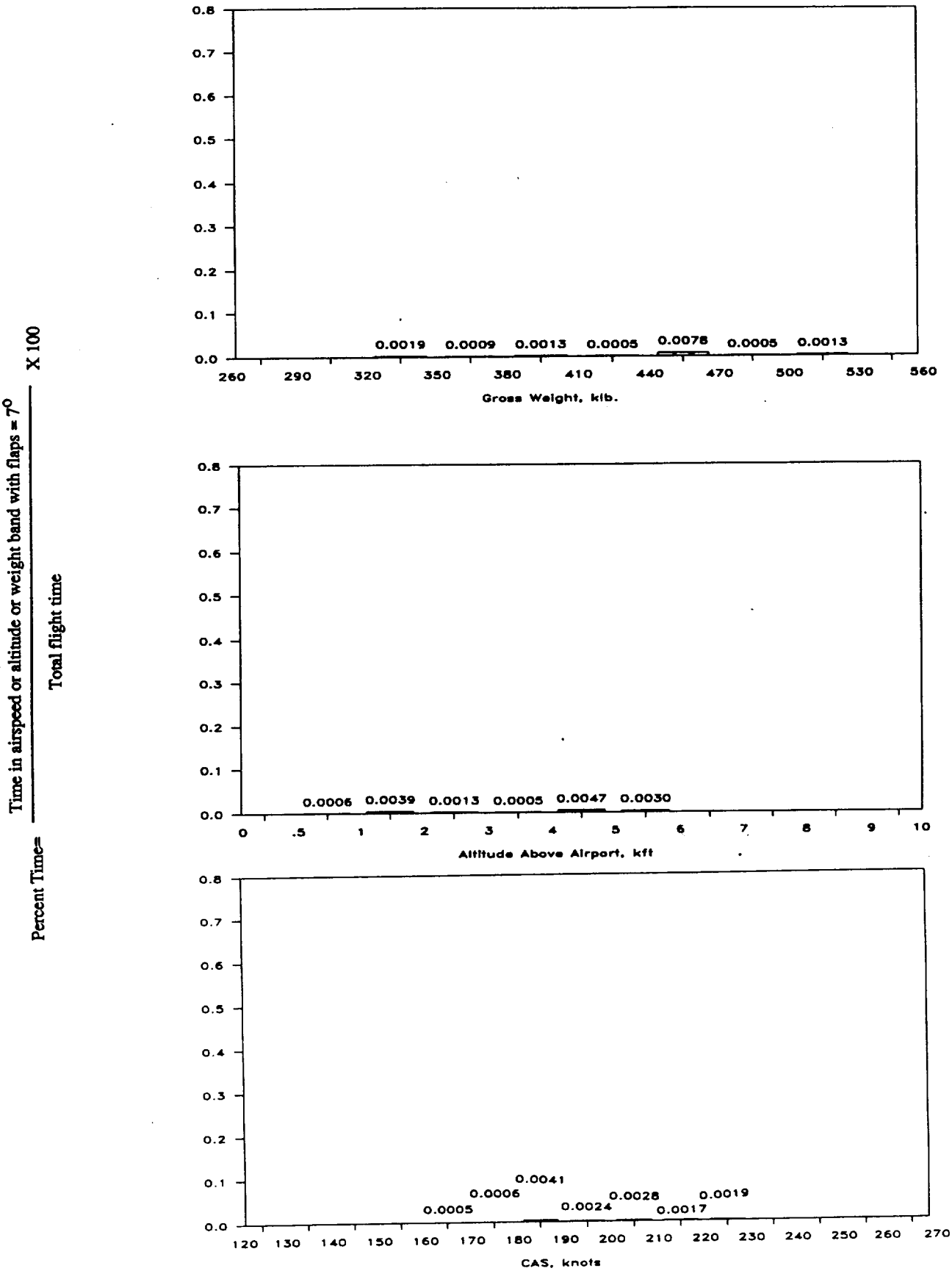


Figure 8.- Percent of total flight time at each flap detent.



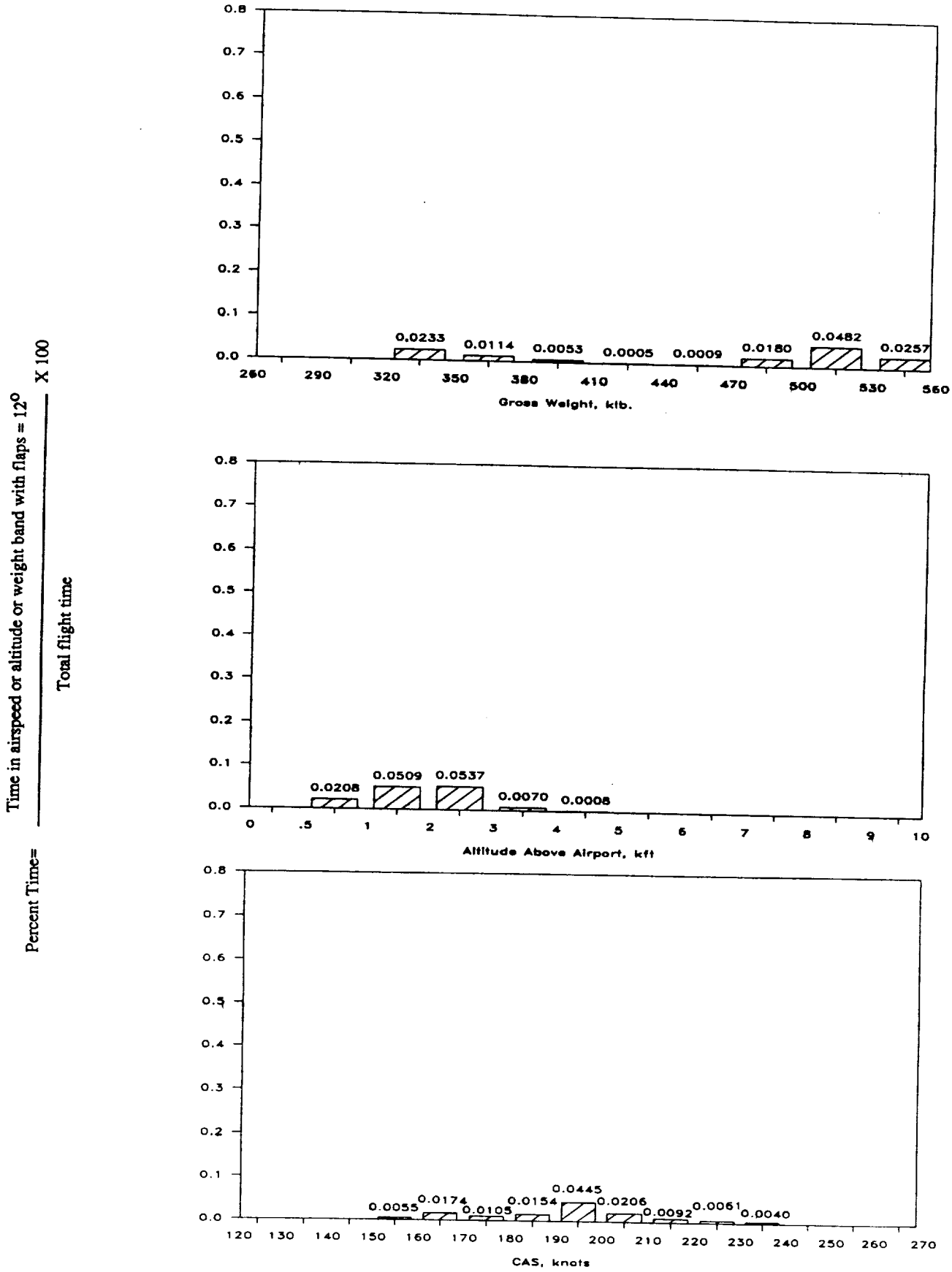
(a) Take off, flaps = 2^{o}; 0.1144 hours

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



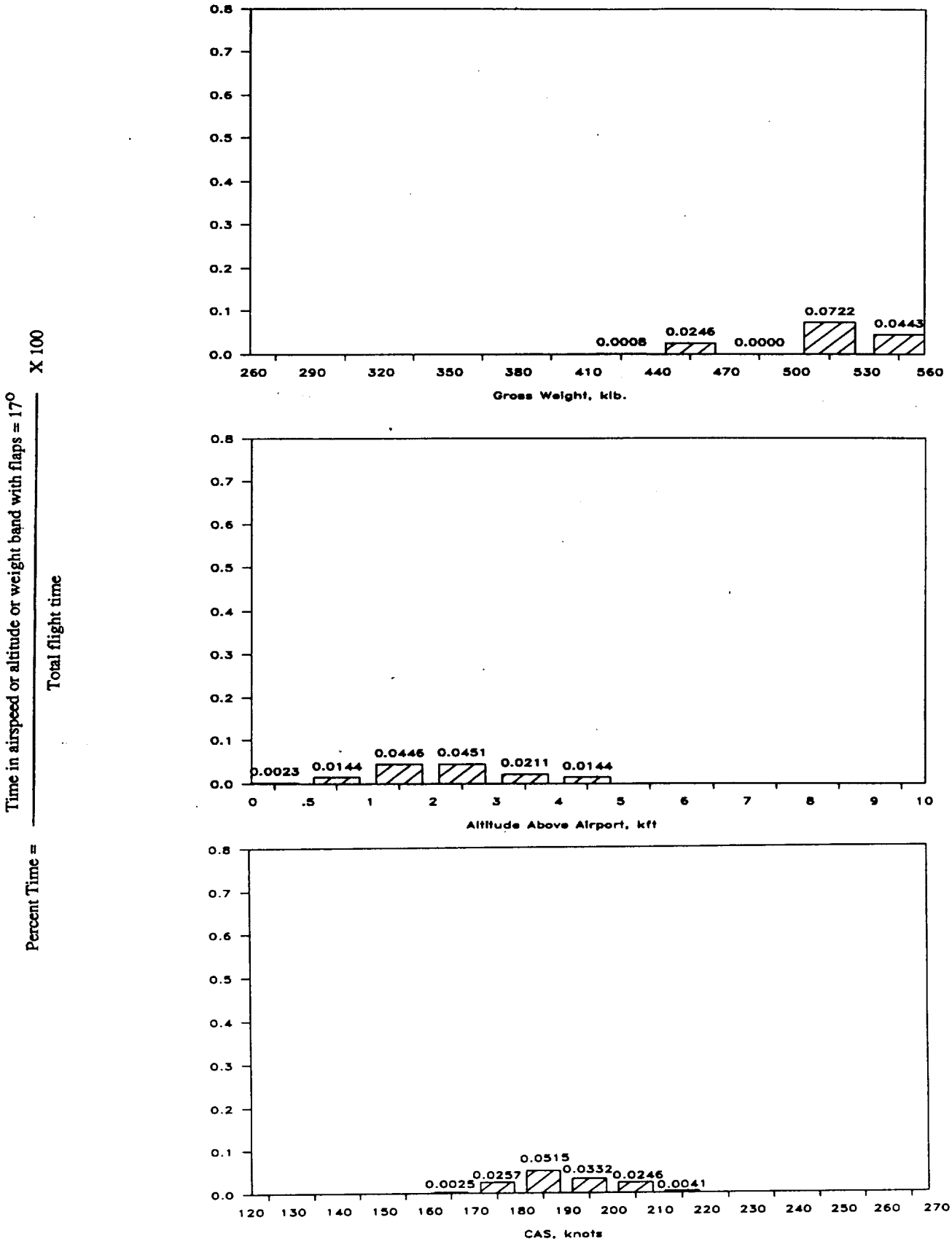
(b) Take off, flaps = 7^{O}; 0.0181 hours

Figure 9. - Continued.



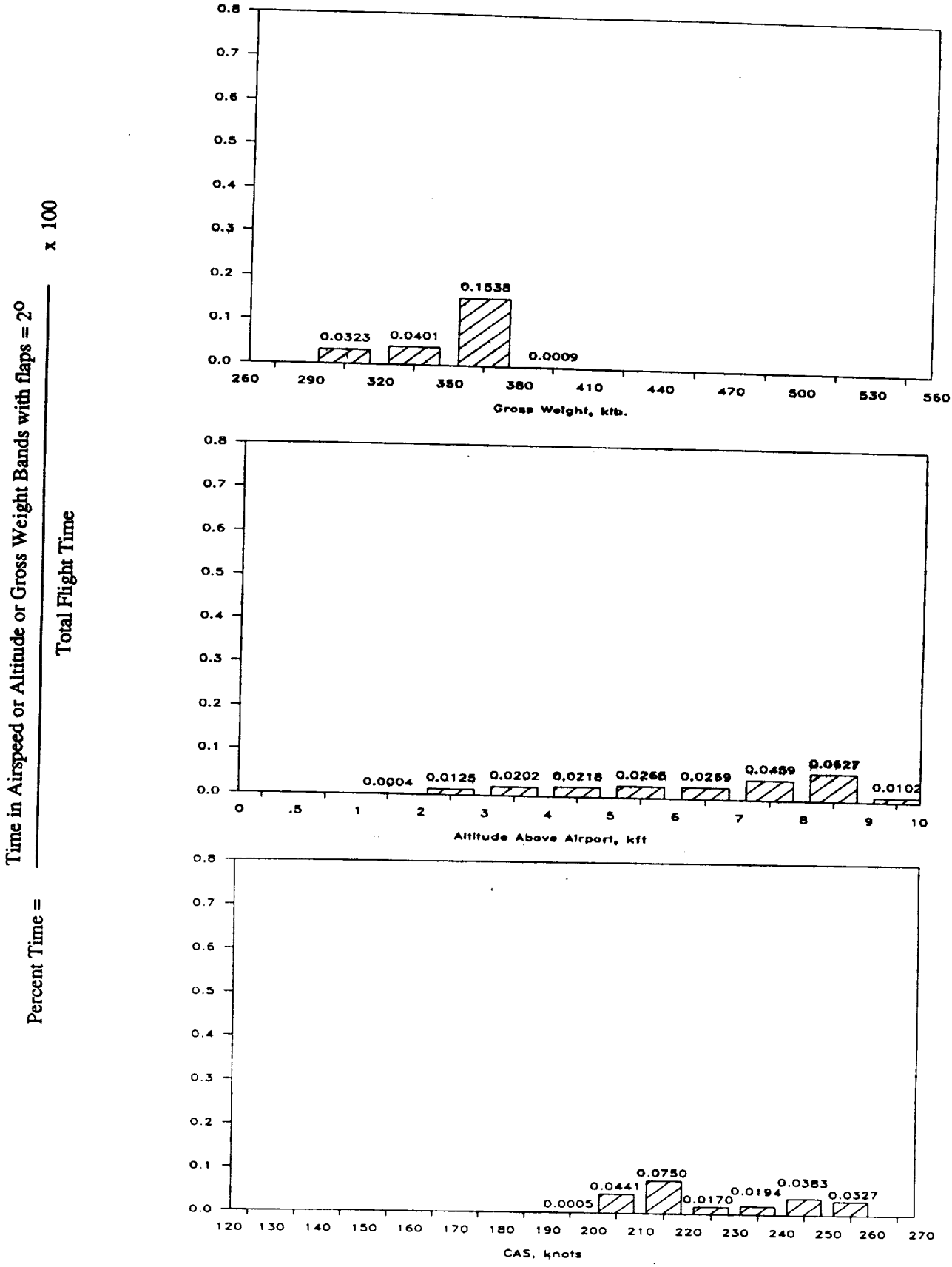
(c) Take off, flaps = 12°; 0.1717 hours

Figure 9.- Continued.



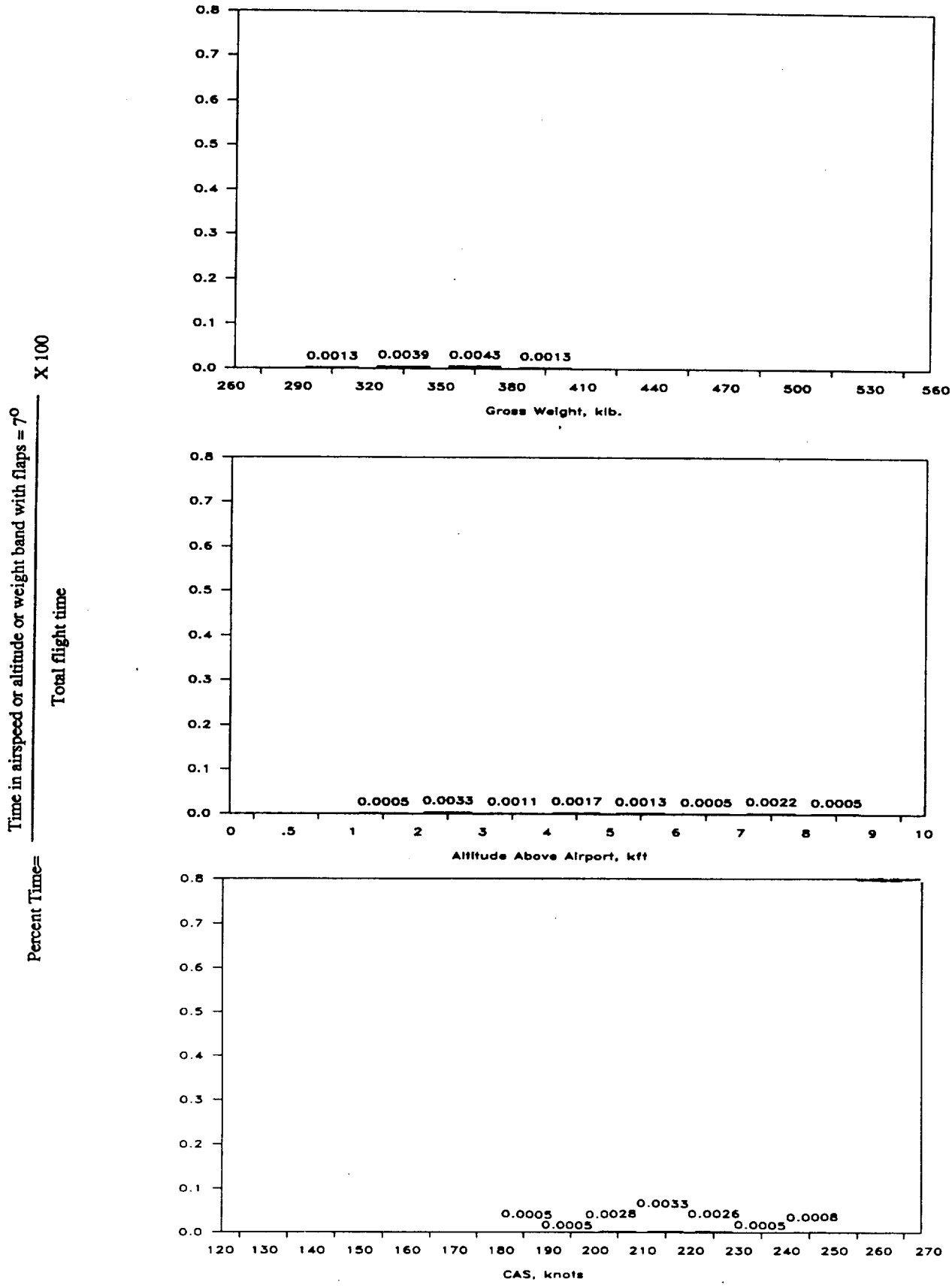
(d) Take off, flaps = 17^{O}; 0.1828 hours

Figure 9.- Continued.



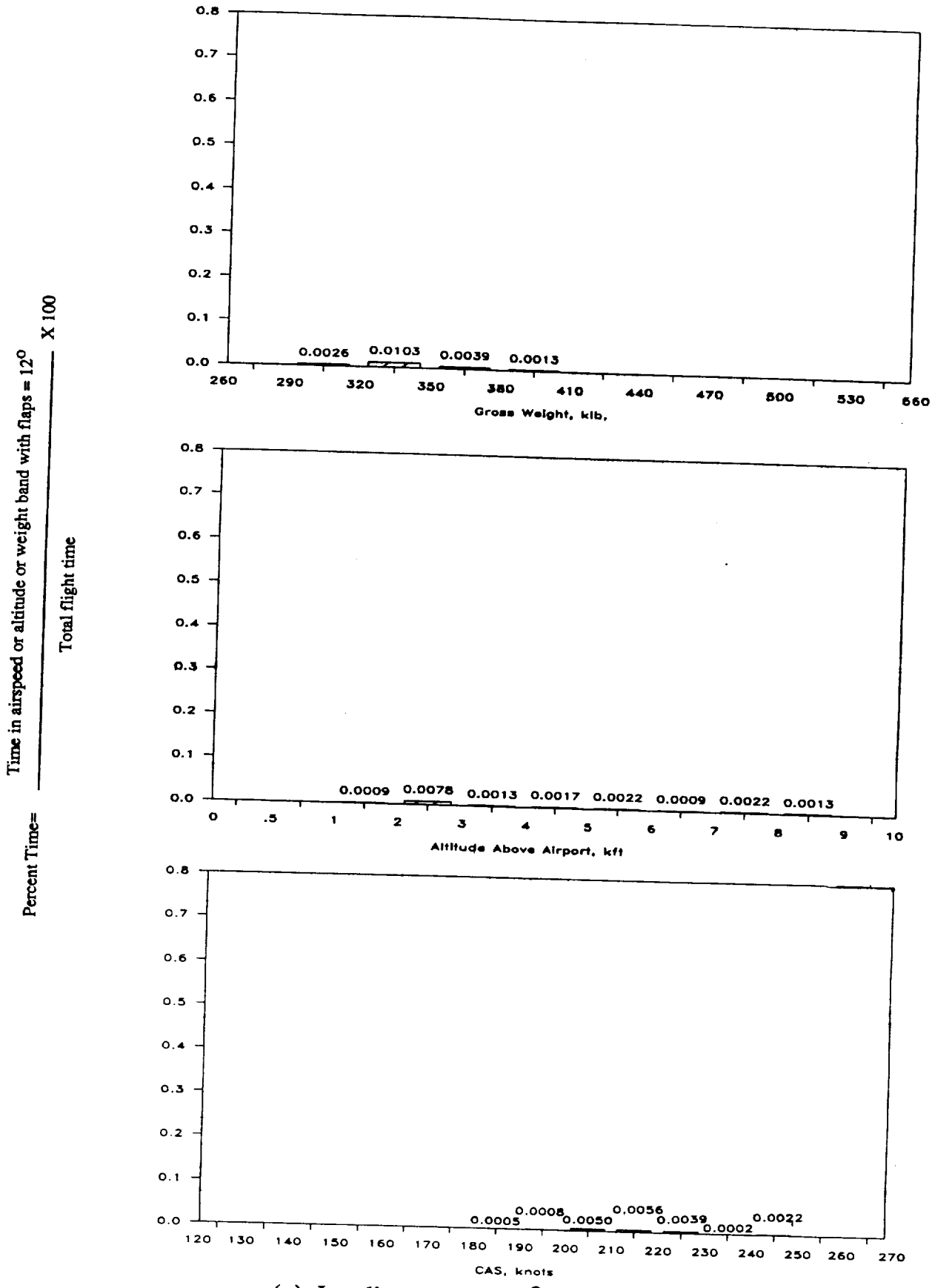
(e) Landing, flaps = 2^{o}; 0.2928 hours

Figure 9. - Continued.



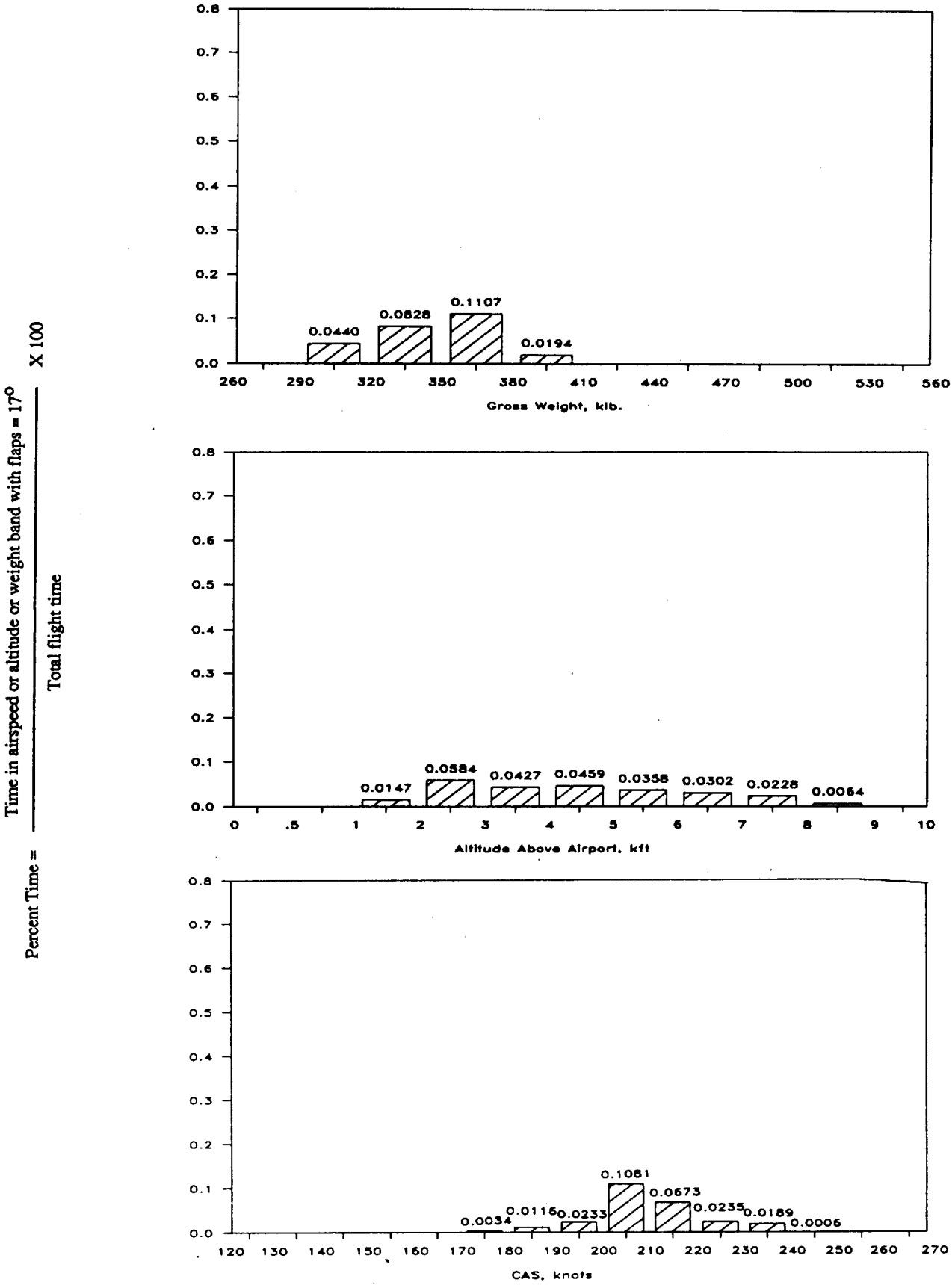
(f) Landing, flaps = 7^{o}; 0.0139 hours

Figure 9. - Continued.



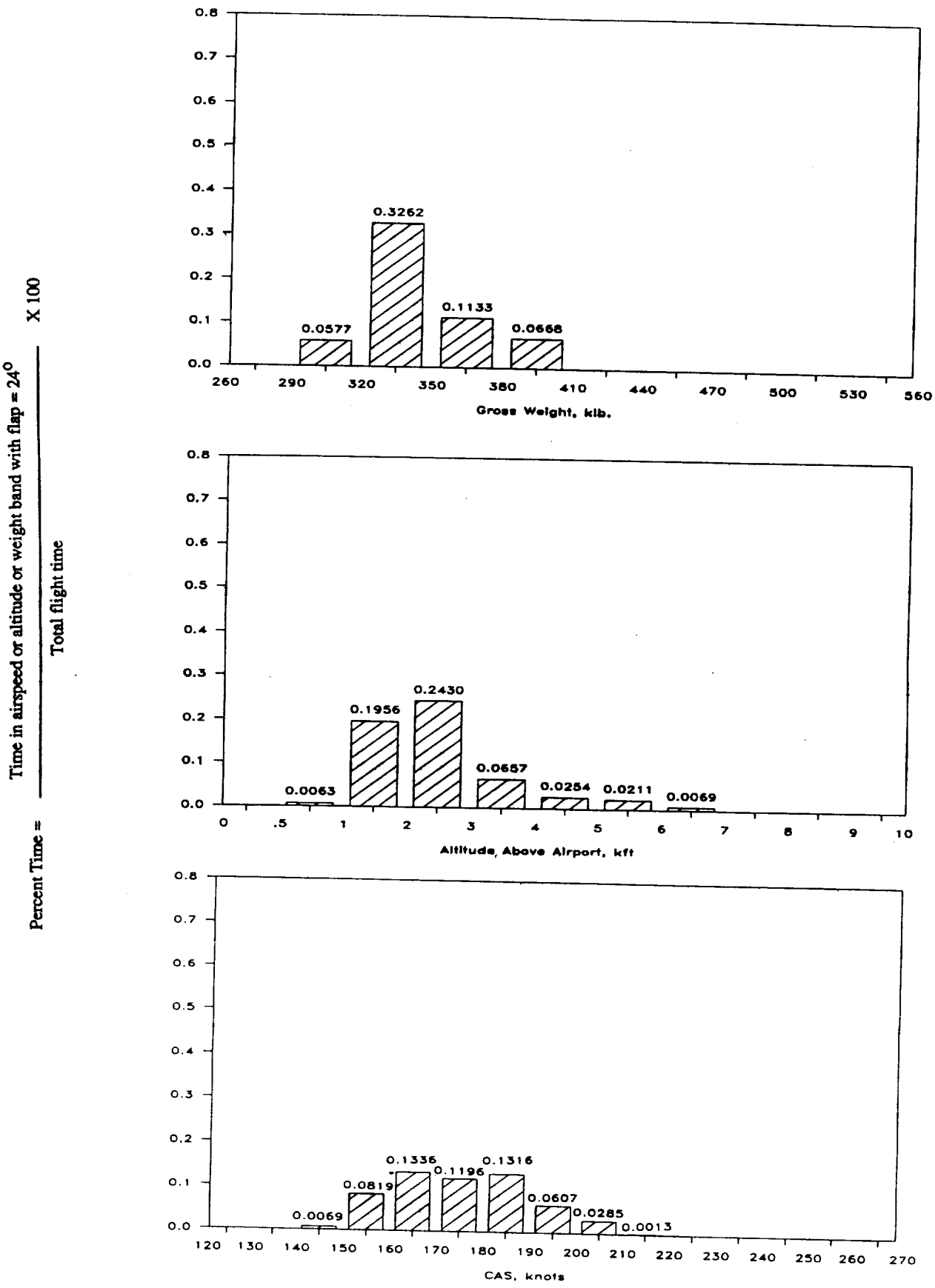
(g) Landing, flaps = 12^{o}; 0.0233 hours

Figure 9. - Continued.



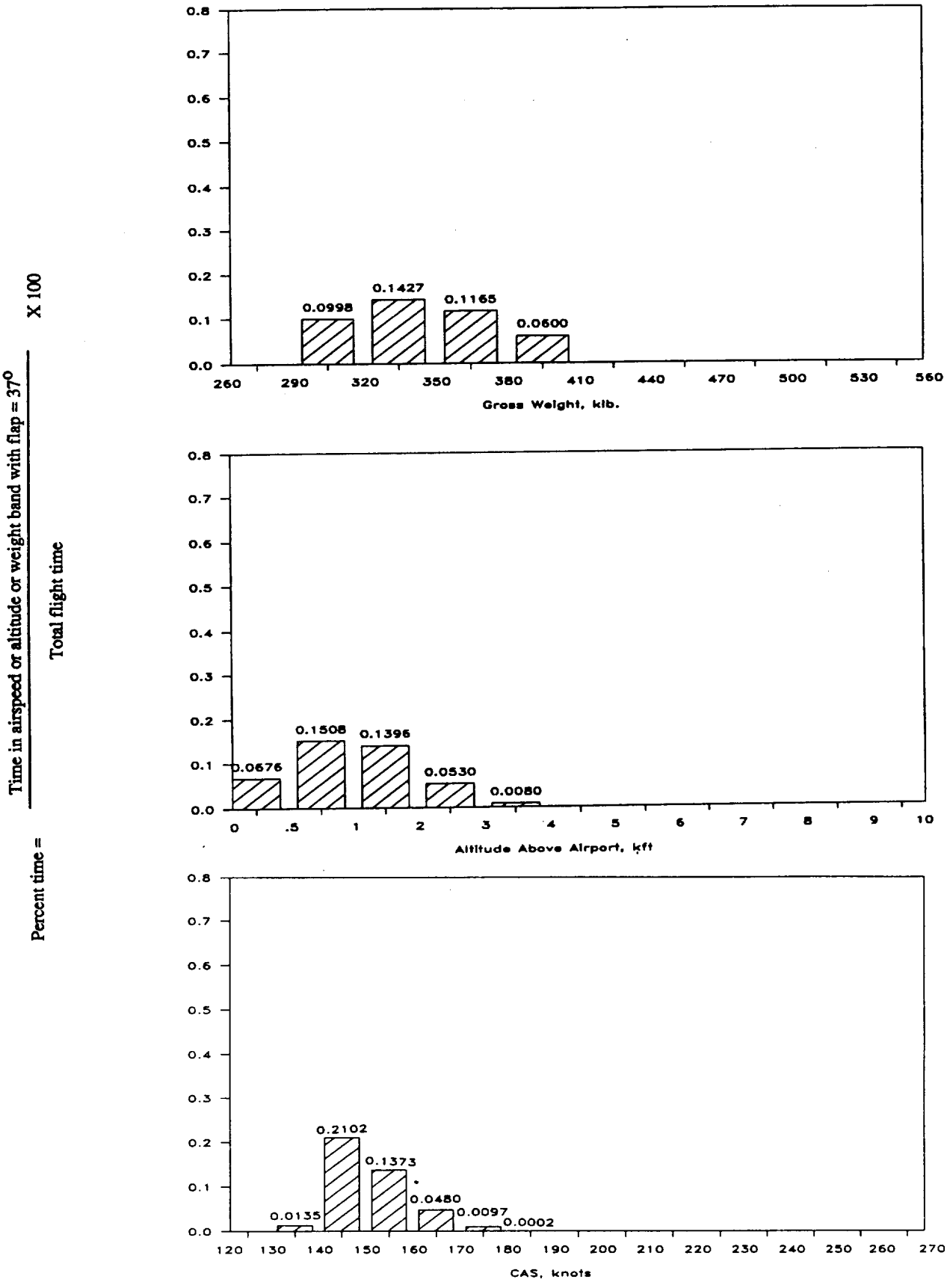
(h) Landing, flaps = 17^{o}; 0.3311 hours

Figure 9. - Continued.



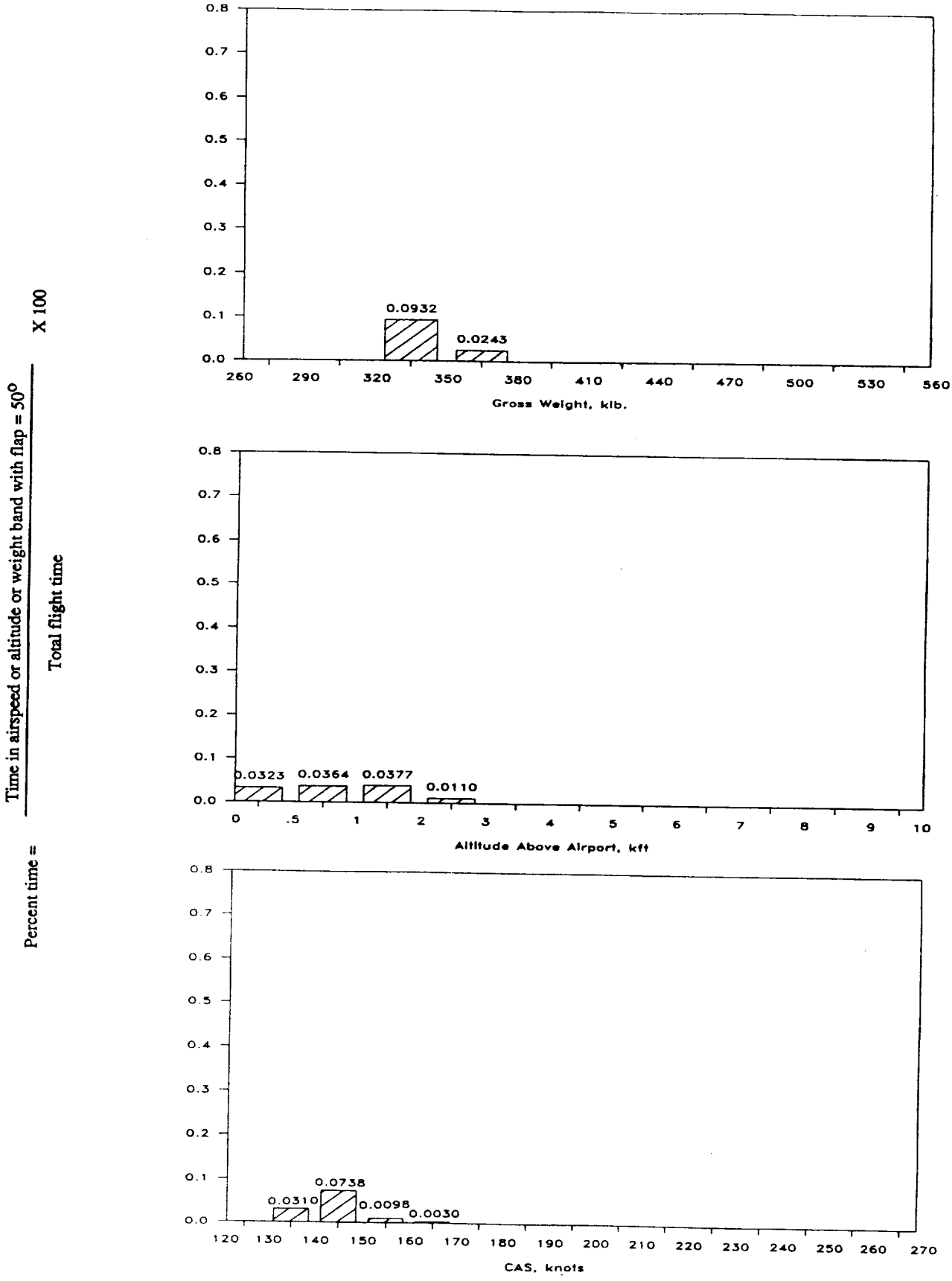
(i) Landing, flaps = 24°; 0.7272 hours

Figure 9. - Continued.



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

Figure 9. - Continued.



(k) Landing, flaps=50° ; 0.1515 hours

Figure 9. - Concluded.

TIME AFTER LIFTOFF, MINUTES	FLAP DEFLECTION, DEGREES 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.

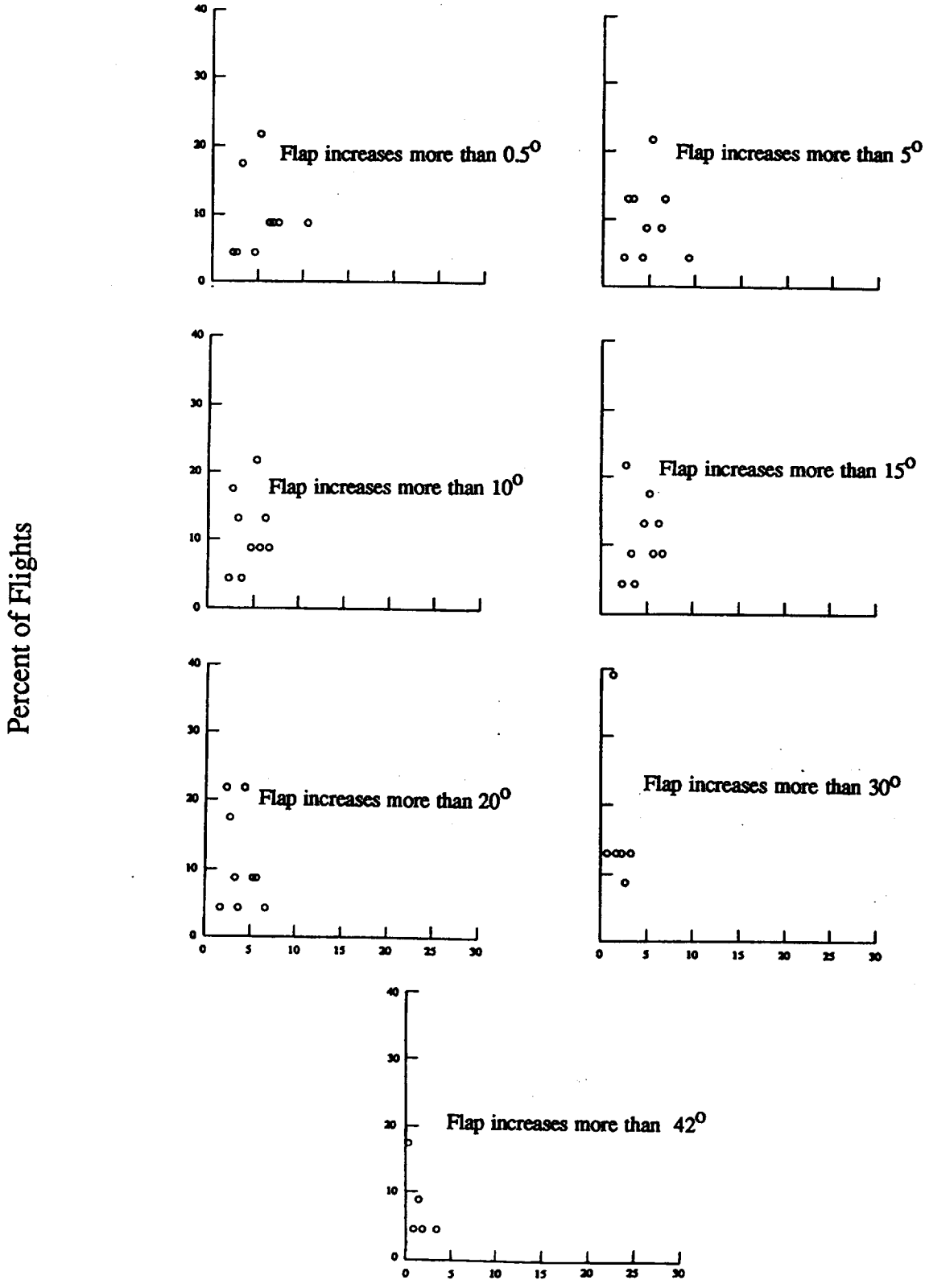
TIME BEFORE TOUCHDOWN, MINUTES	FLAP DEFLECTION, DEGREES						
	.5	5.0	10.0	15.0	20.0	30.0	42.0
0 - .50	0	0	0	0	0	0	17.4
0.5 - 1.0	0	0	0	0	0	13.0	4.3
1.0 - 1.5	0	0	0	0	0	39.1	8.7
1.5 - 2.0	0	0	0	0	4.3	13.0	4.3
2.0 - 2.5	4.3	4.3	4.3	4.3	21.7	13.0	0
2.5 - 3.0	4.3	13.0	17.4	21.7	17.4	8.7	0
3.0 - 3.5	17.4	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.



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

Figure 10.- Concluded.

FLAP RANGE	FLAP DETENT	EAS 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
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

FLAP RANGE	FLAP DETENT	EAS 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
.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.

PRESSURE ALTITUDE BANDS

a_n 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	0.78	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.

PRESSURE ALTITUDE BANDS

a_{nM} 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	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

Figure 13.- Continued.

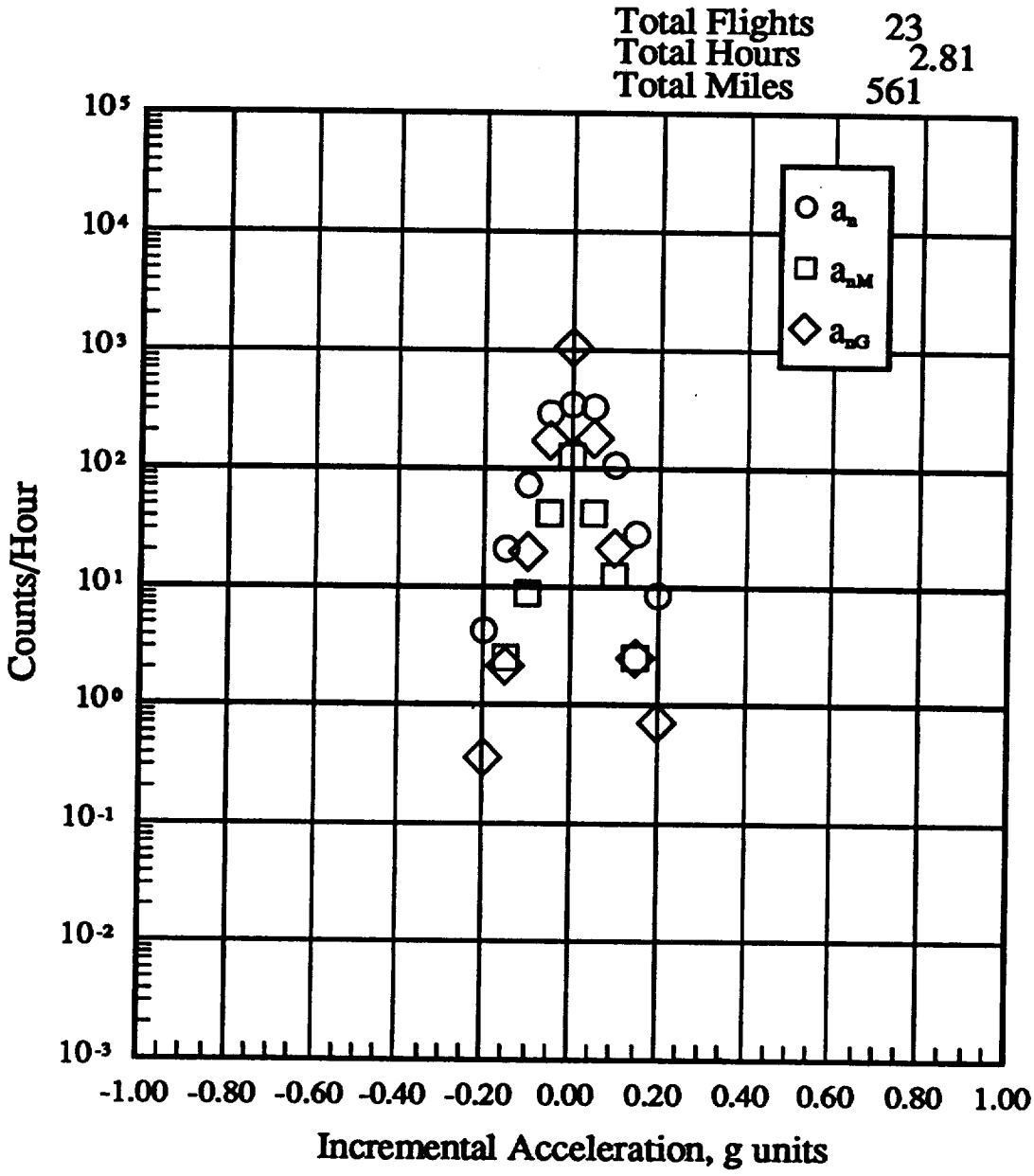
PRESSURE ALTITUDE BANDS

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

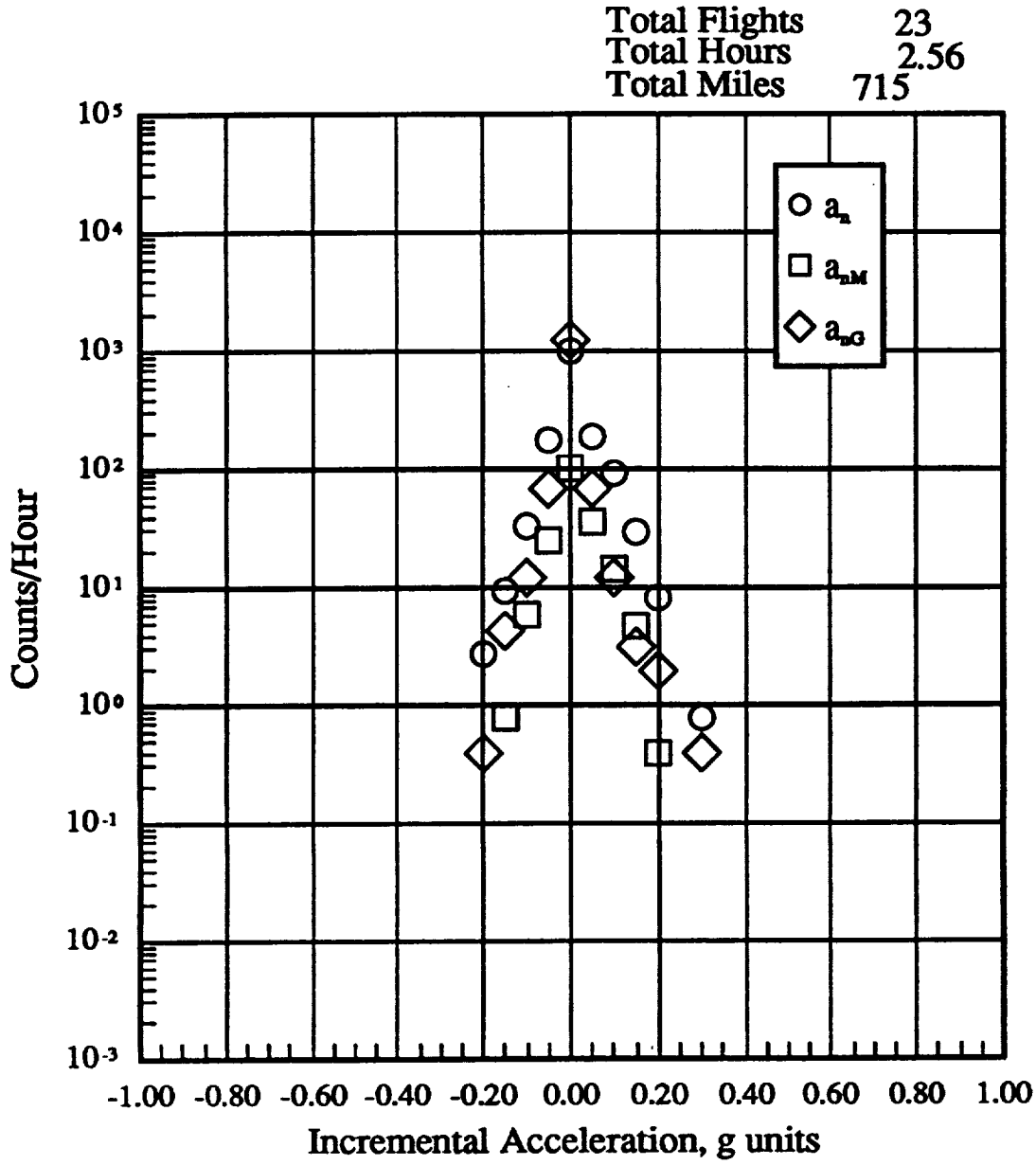
(c) a_{nG} Level crossing counts per hour within pressure altitude bands

Figure 13.- Continued.



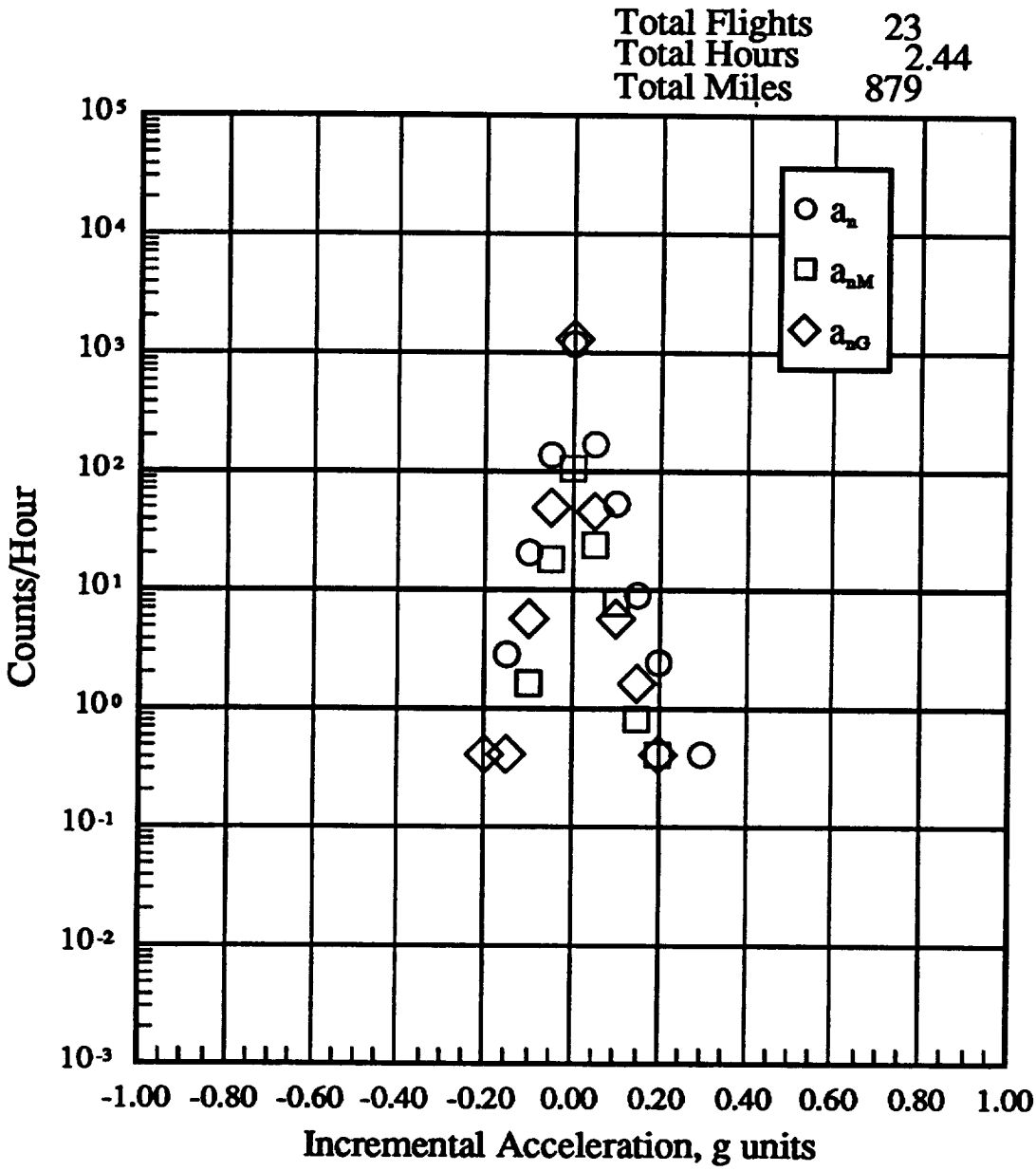
(d) a_n, a_{nM}, a_{nG}, -500 to 4500 feet altitude

Figure 13.- Continued.



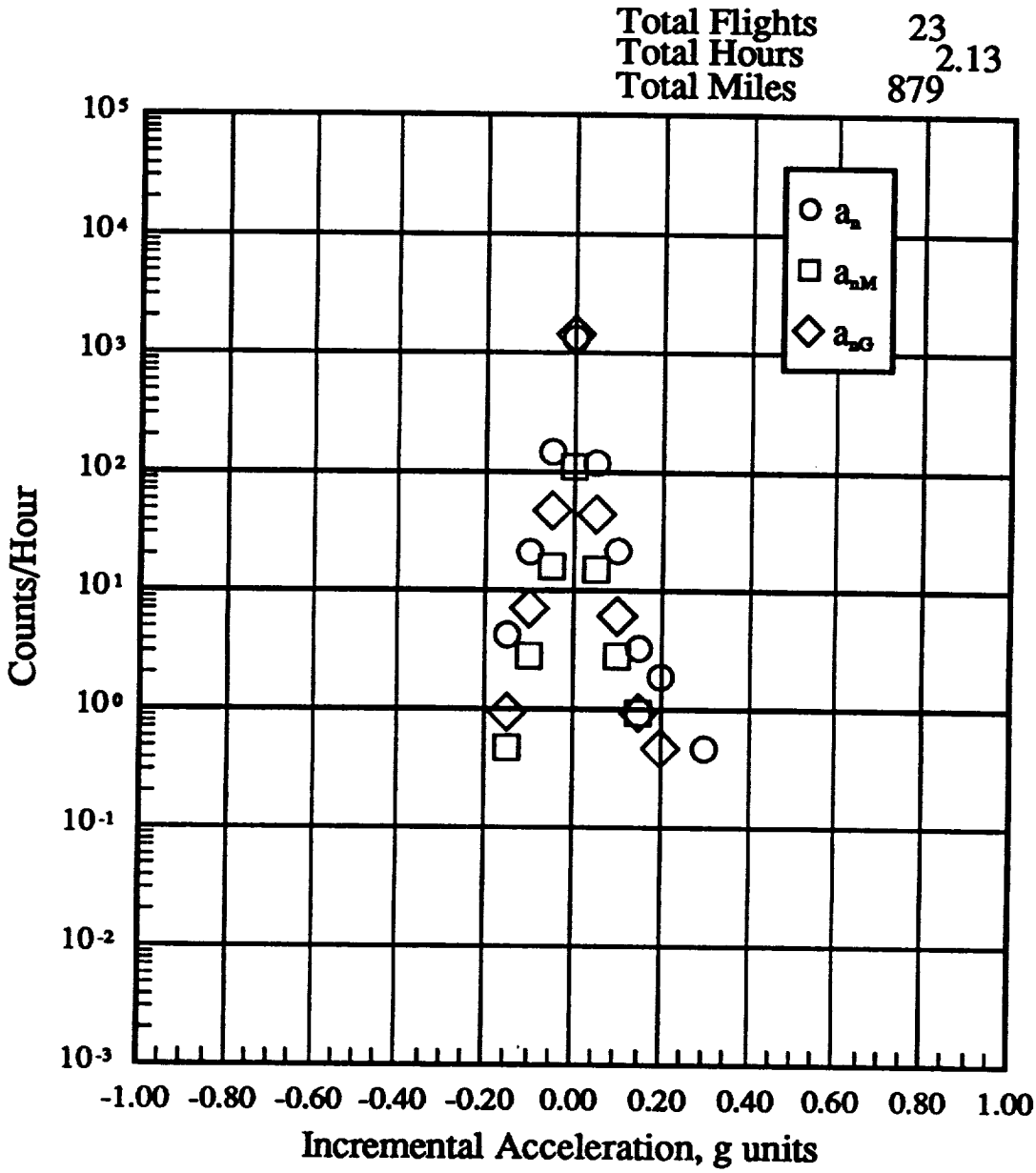
(e) a_n, a_{nM}, a_{nG}, 4500 to 9500 feet altitude

Figure 13.- Continued.



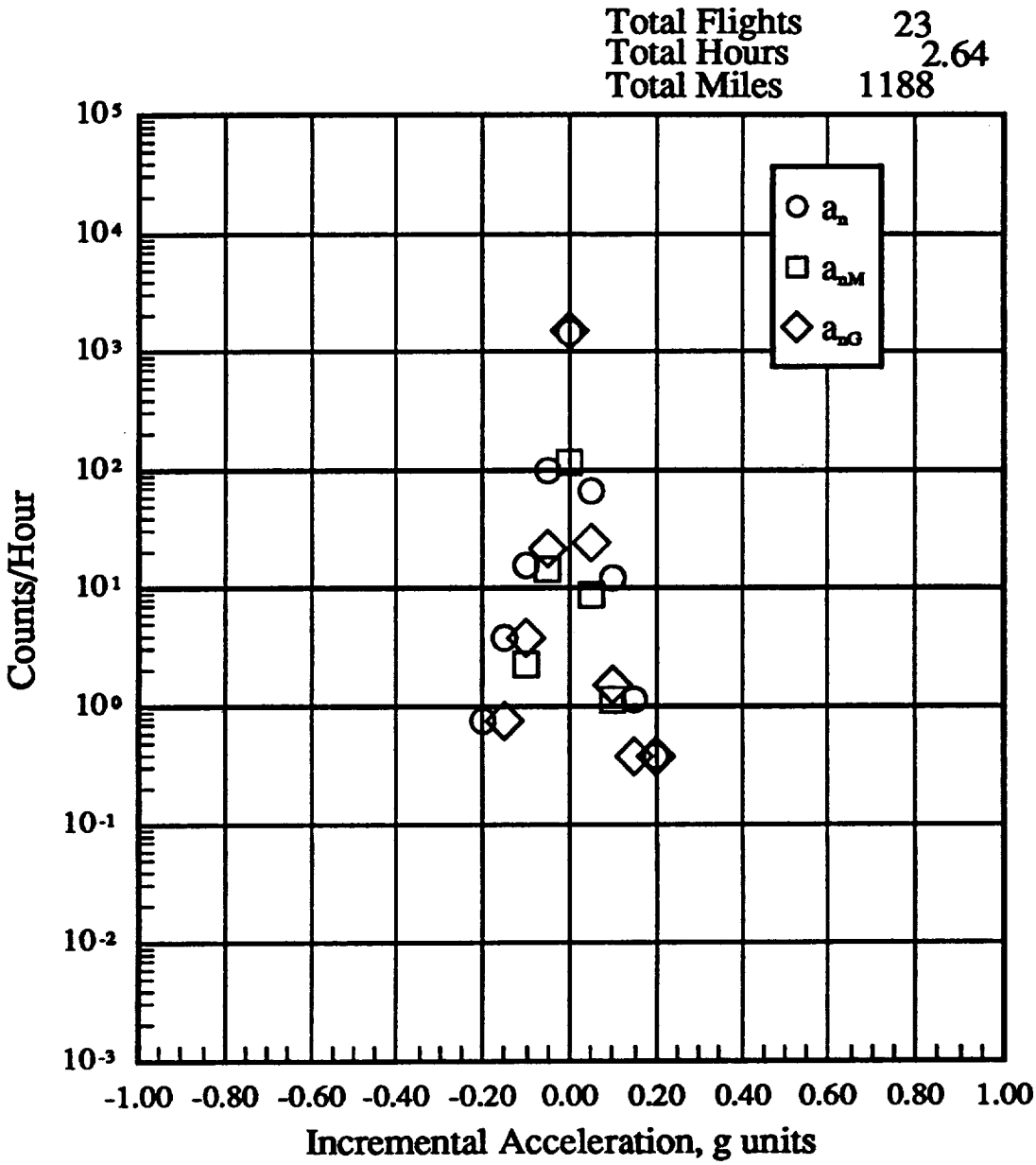
(f) a_n, a_{nM}, a_{nG}, 9500 to 14500 feet altitude

Figure 13.- Continued.



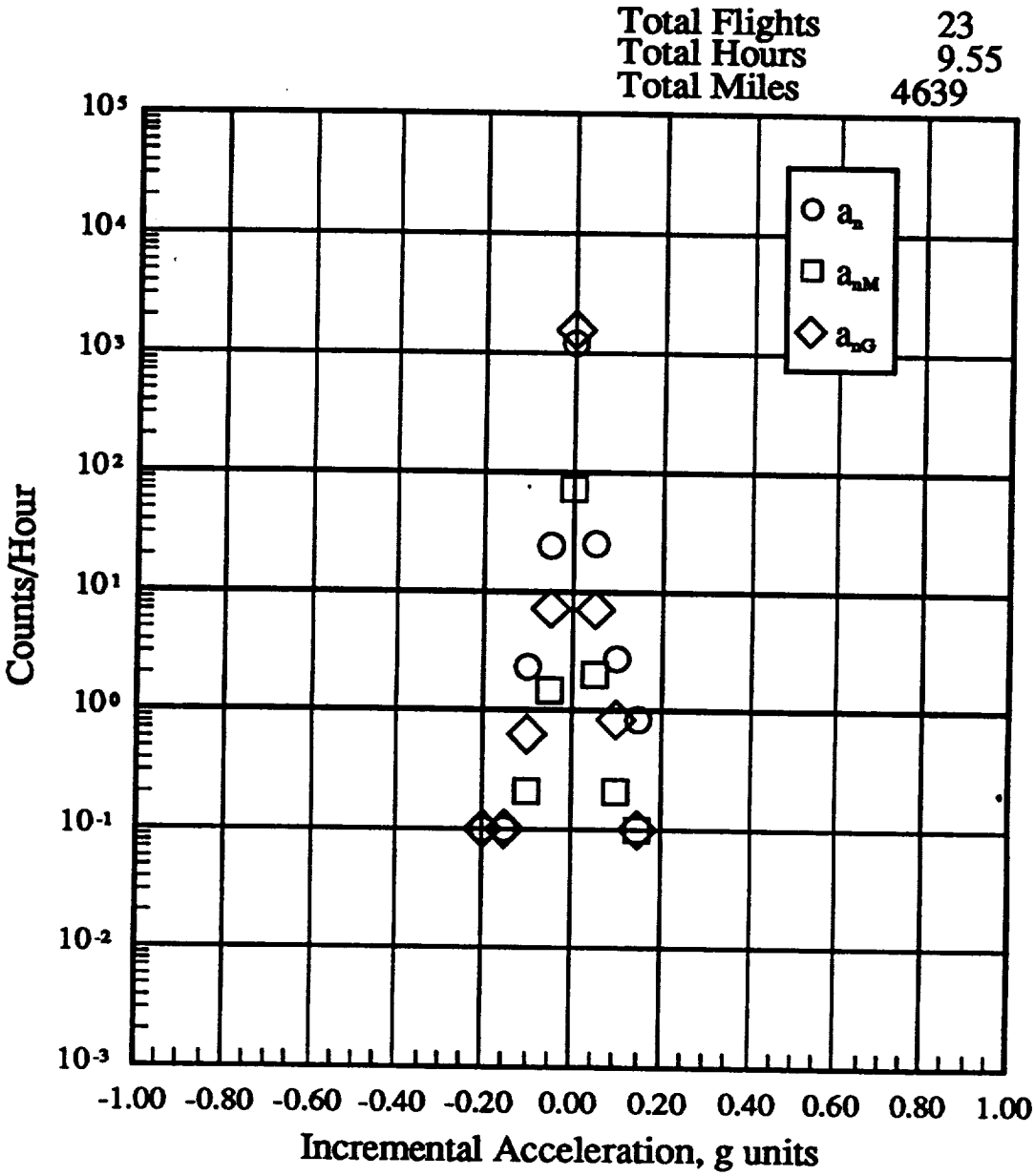
(g) a_n, a_{nM}, a_{nG}, 14500 to 19500 feet altitude

Figure 13.- Continued.



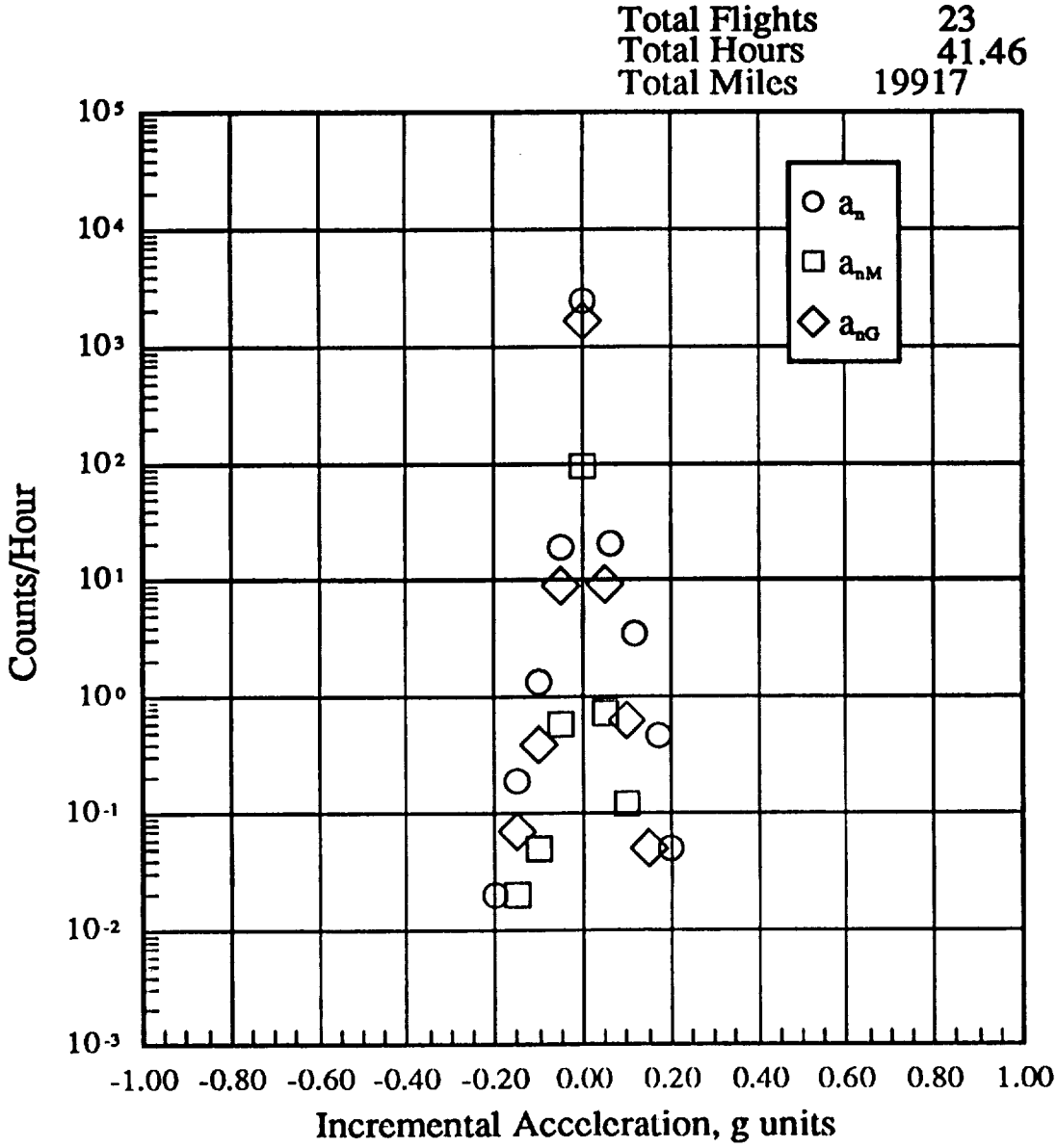
(h) a_n, a_{nM}, a_{nG}, 19500 to 24500 feet altitude

Figure 13.- Continued.



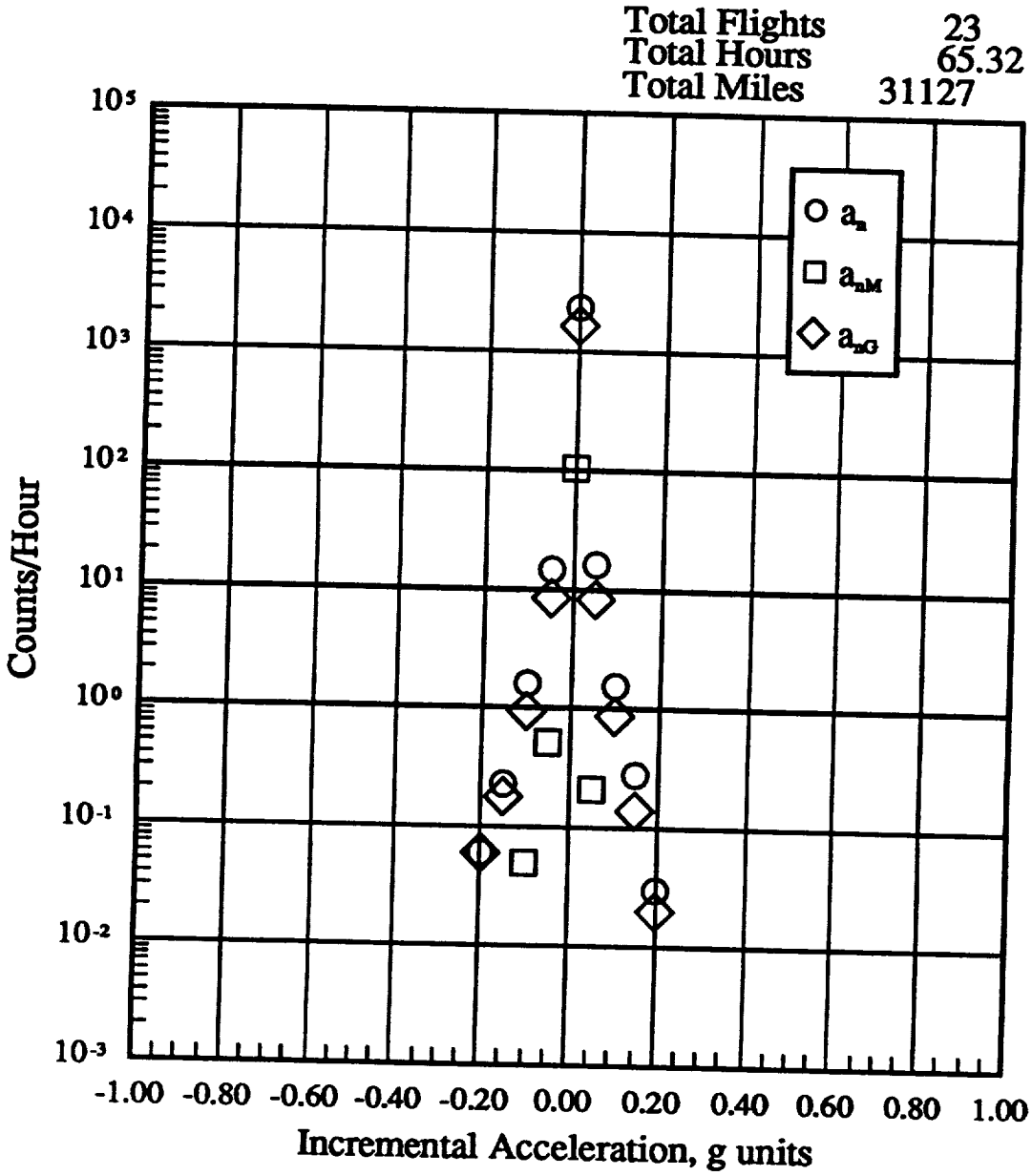
(i) a_n, a_{nM}, a_{nG}, 24500 to 29500 feet altitude

Figure 13.- Continued.



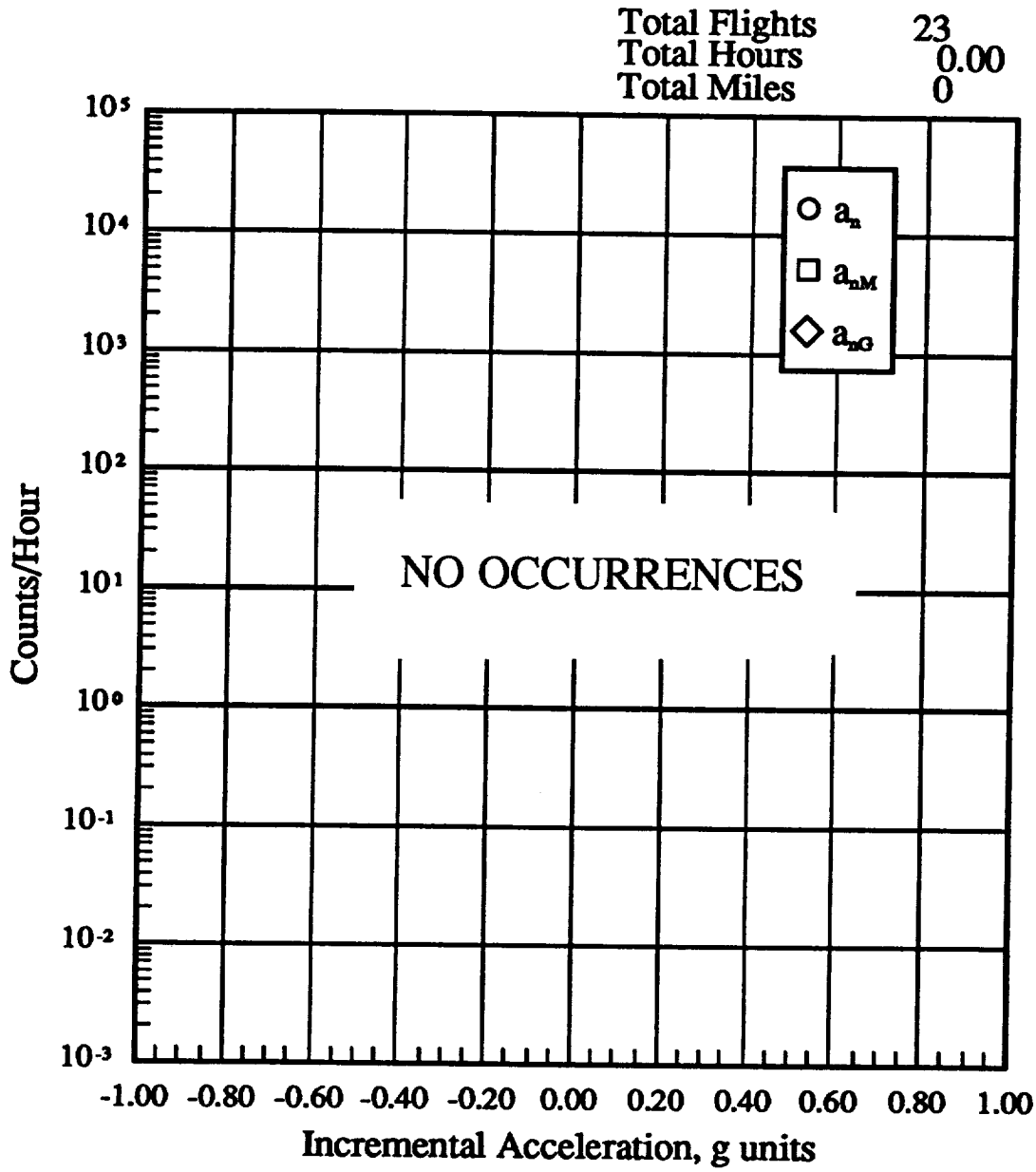
(j) a_n, a_{nM}, a_{nG}, 29500 to 34500 feet altitude

Figure 13.- Continued.



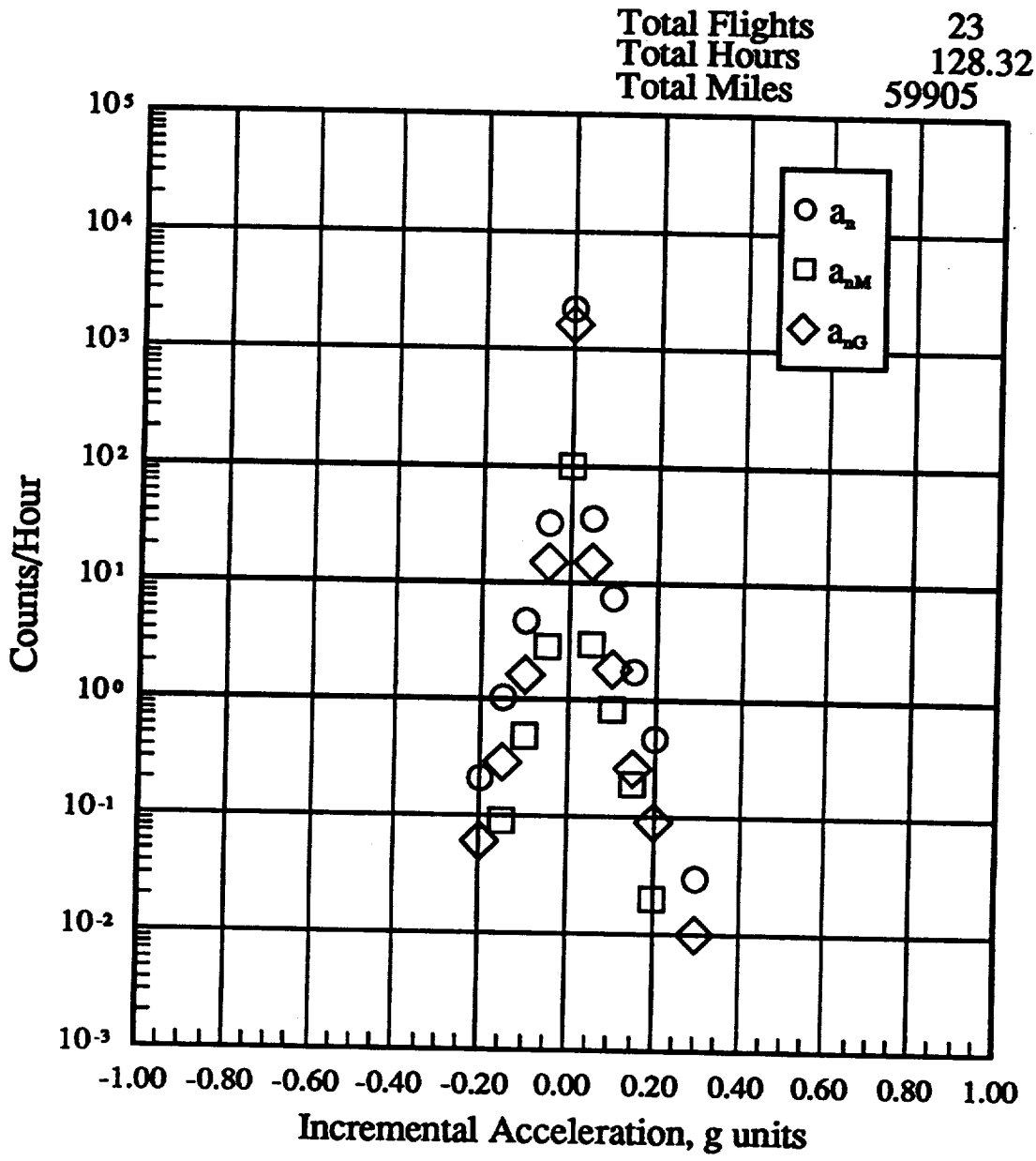
(k) a_n, a_{nM}, a_{nG}, 34500 to 39500 feet altitude

Figure 13.- Continued.



(l) 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.

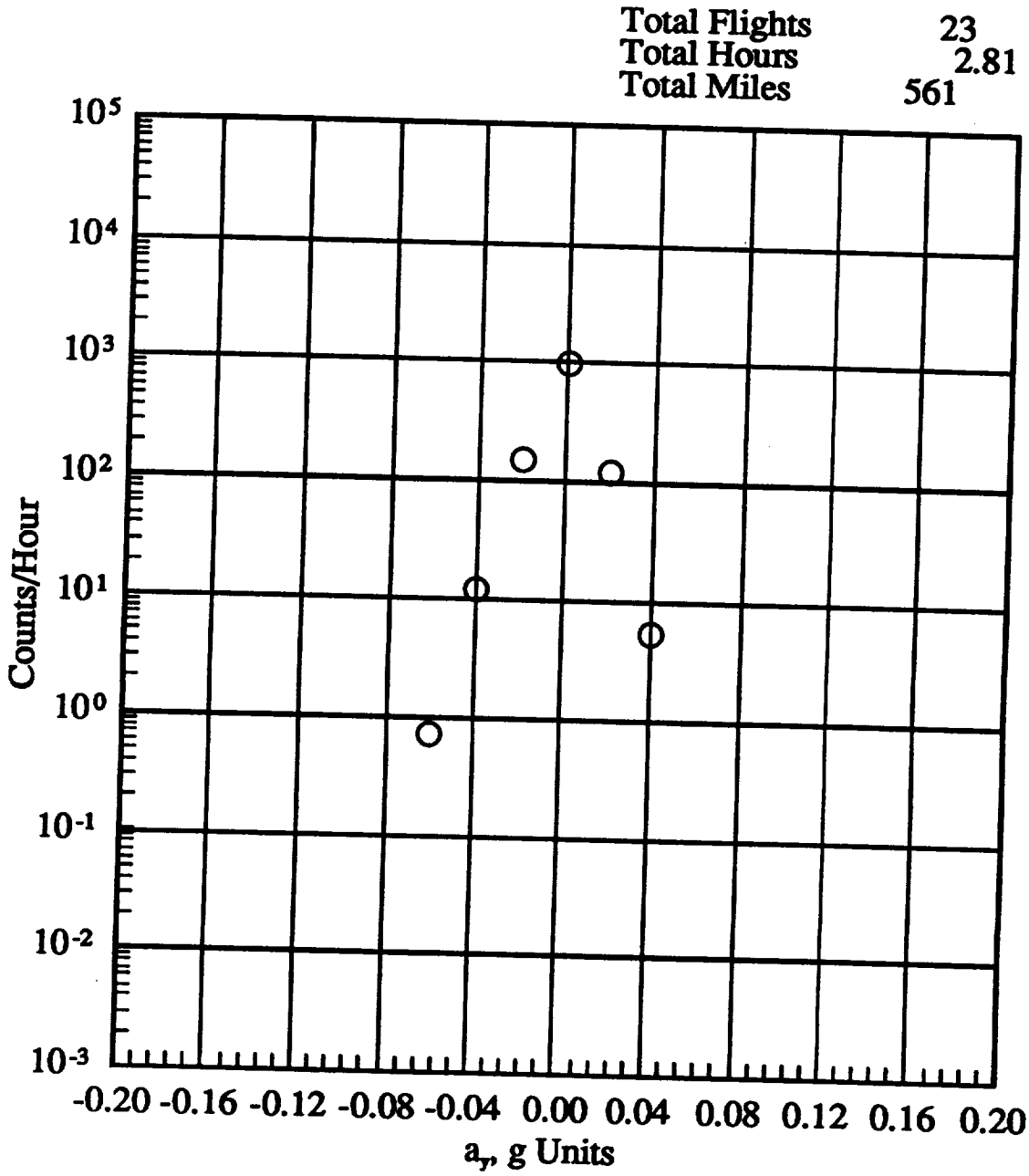
PRESSURE ALTITUDE BANDS

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

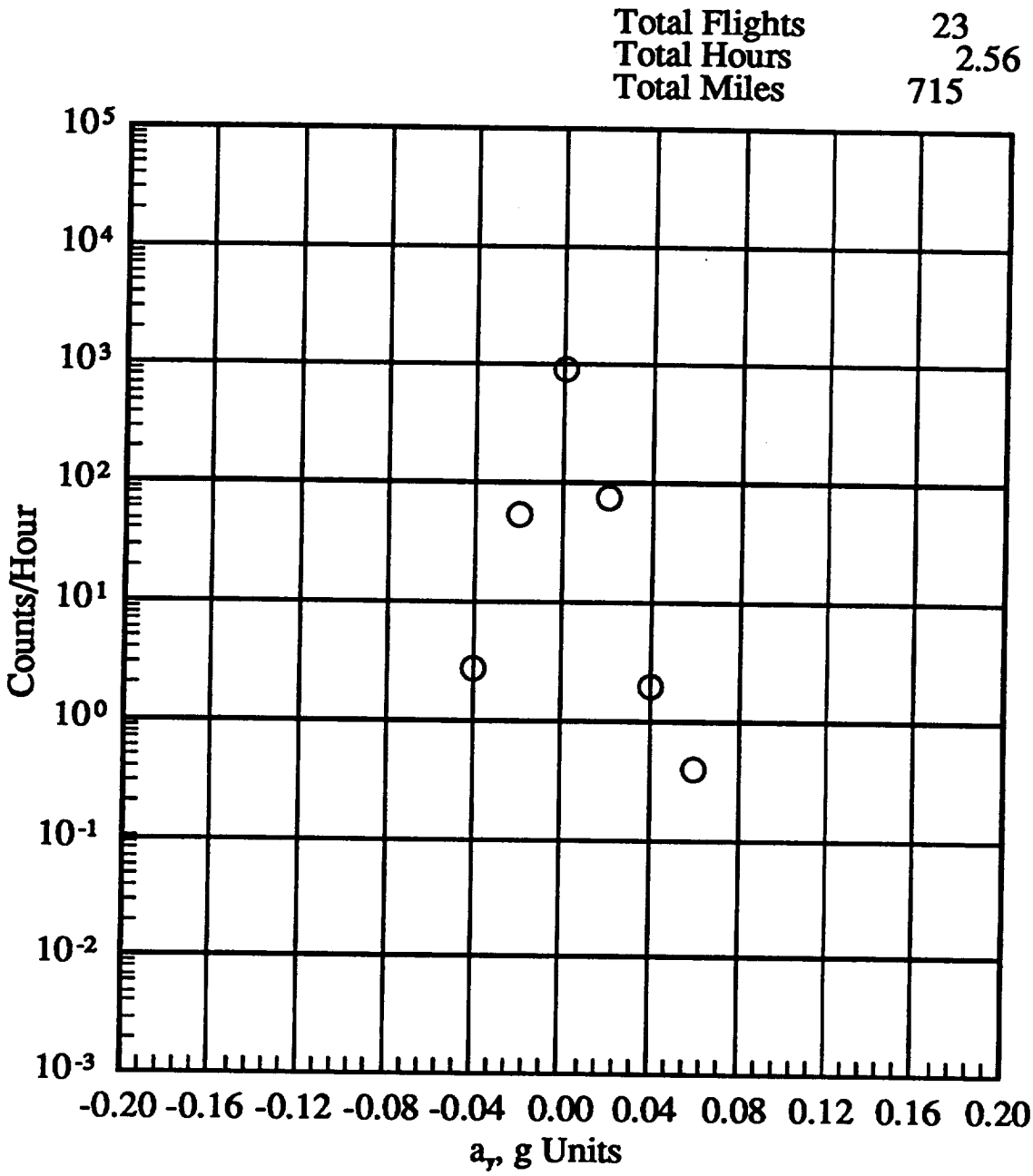
(a) a_y Level crossing counts per hour within pressure altitude bands

Figure 14.- Lateral acceleration exceedances.



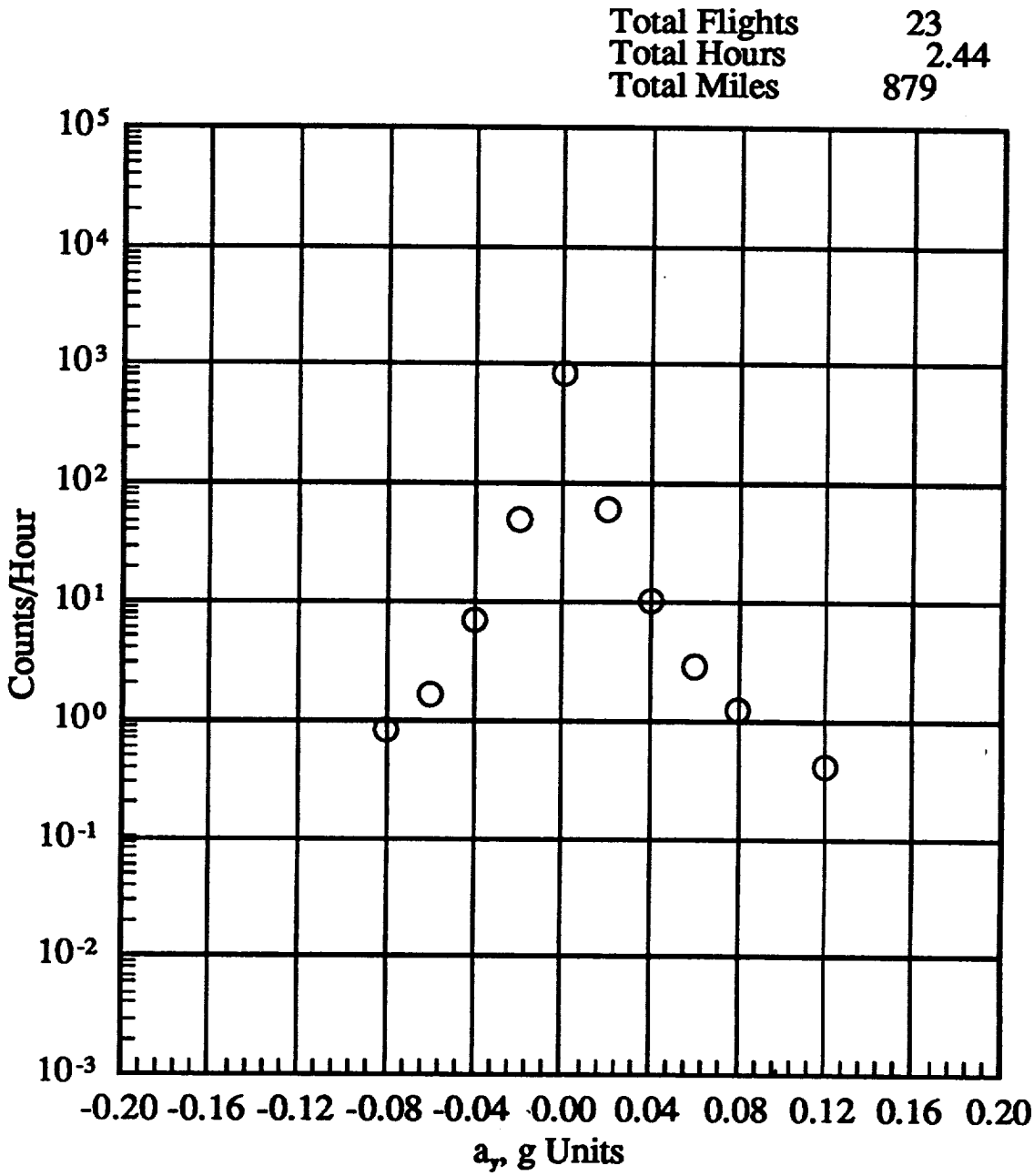
(b) -500 to 4500 feet altitude

Figure 14.- Continued.



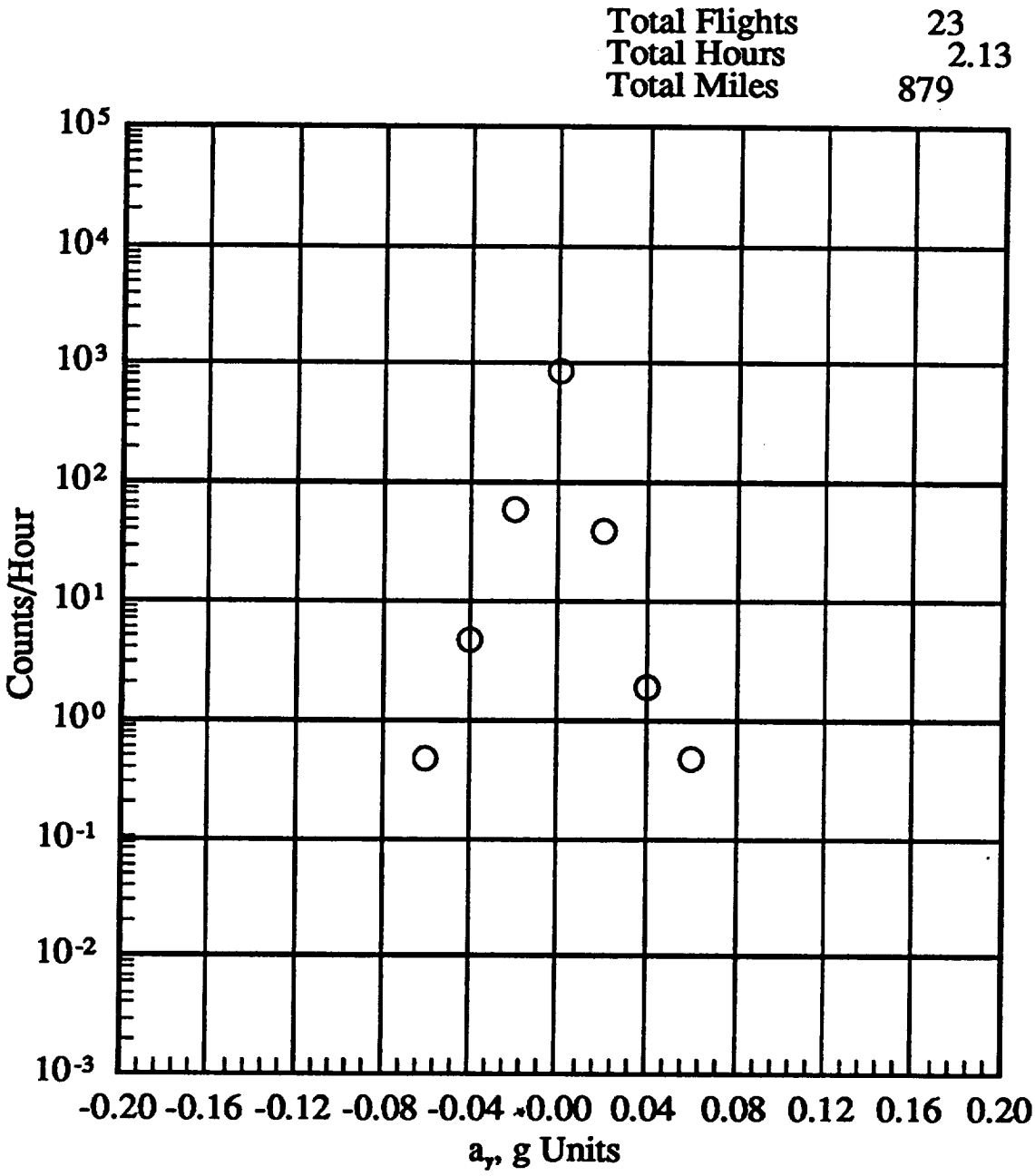
(c) 4500 to 9500 feet altitude

Figure 14.- Continued.



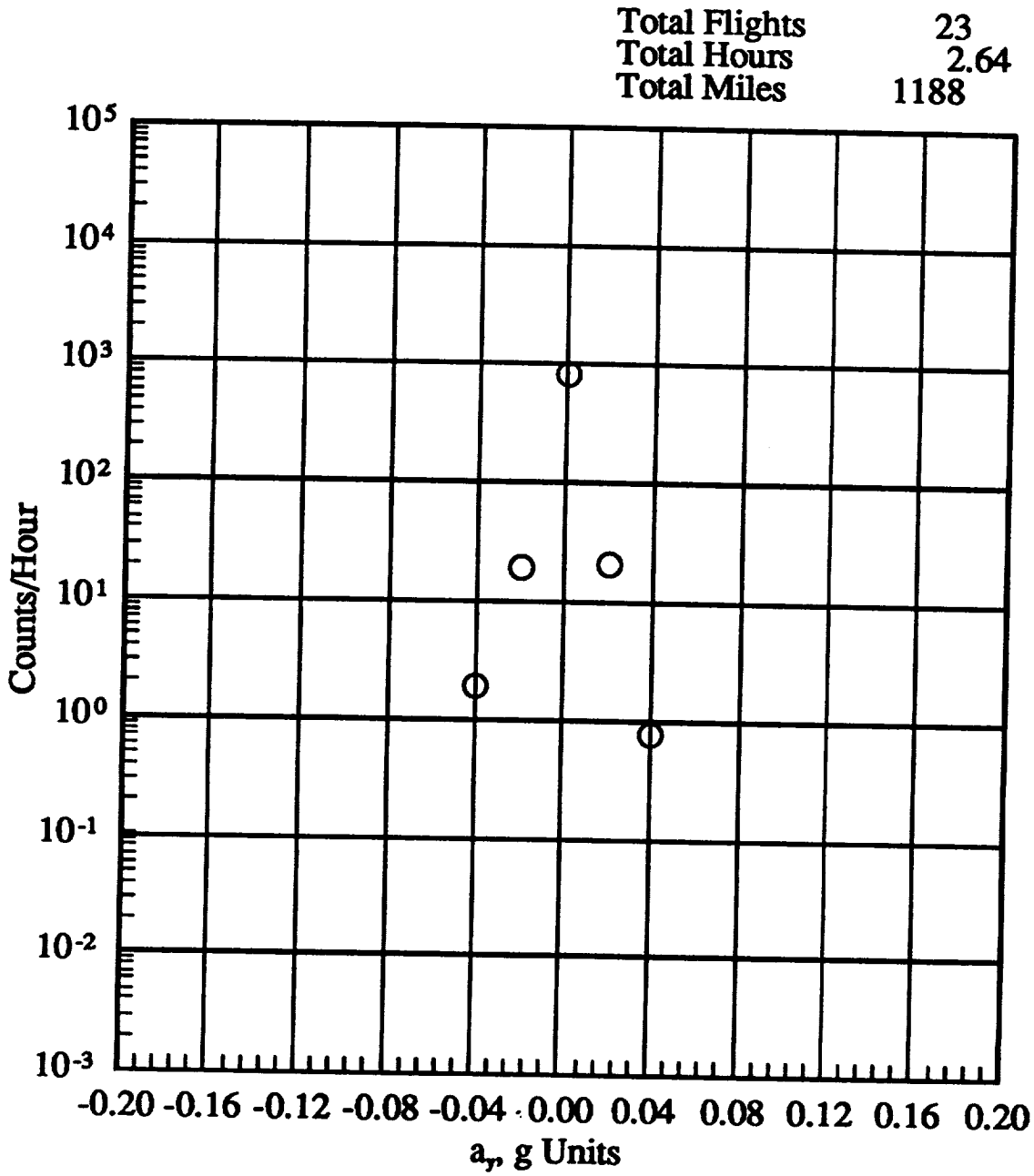
(d) 9500 to 14500 feet altitude

Figure 14.- Continued.



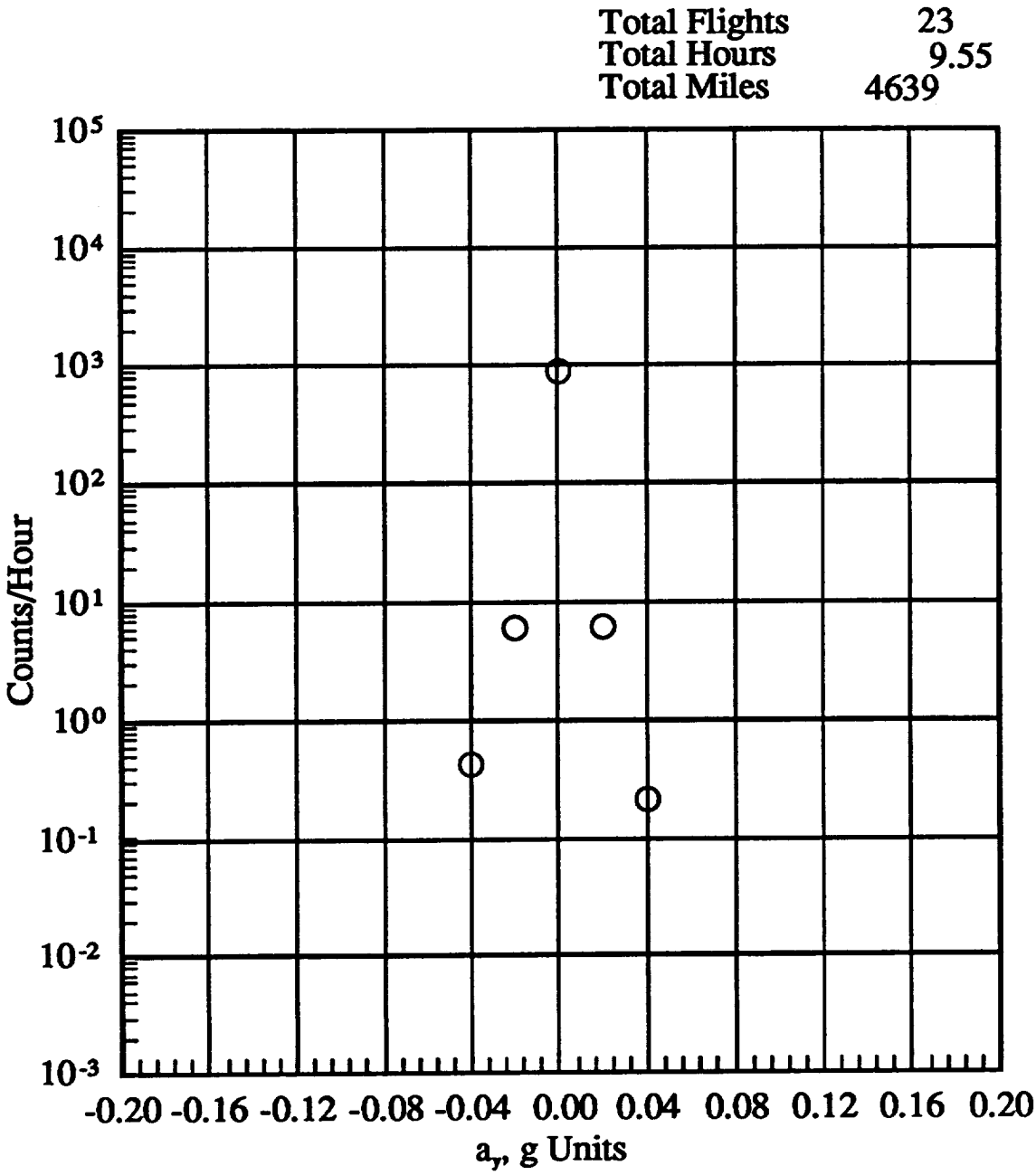
(e) 14500 to 19500 feet altitude

Figure 14.- Continued.



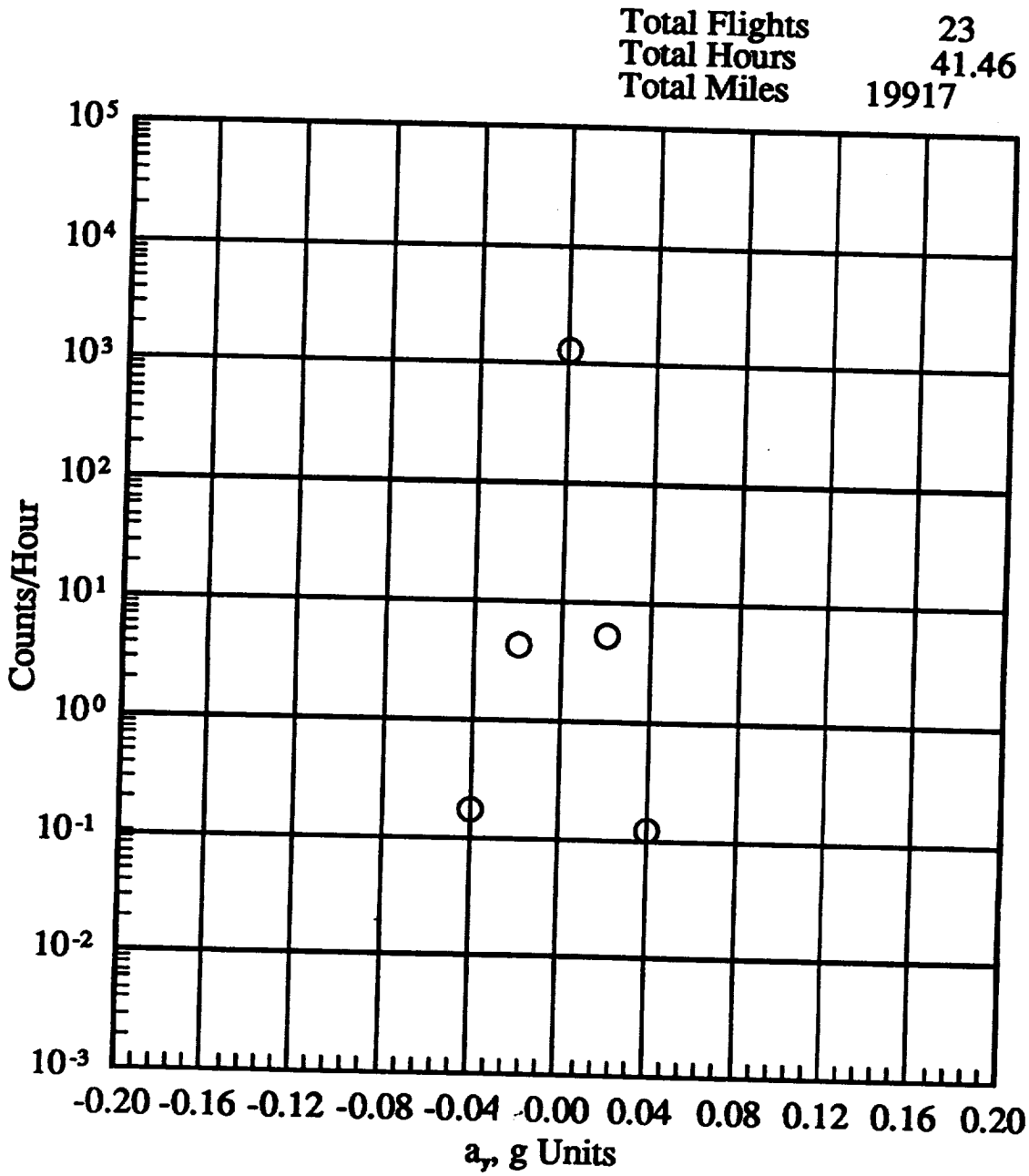
(f) 19500 to 24500 feet altitude

Figure 14.- Continued.



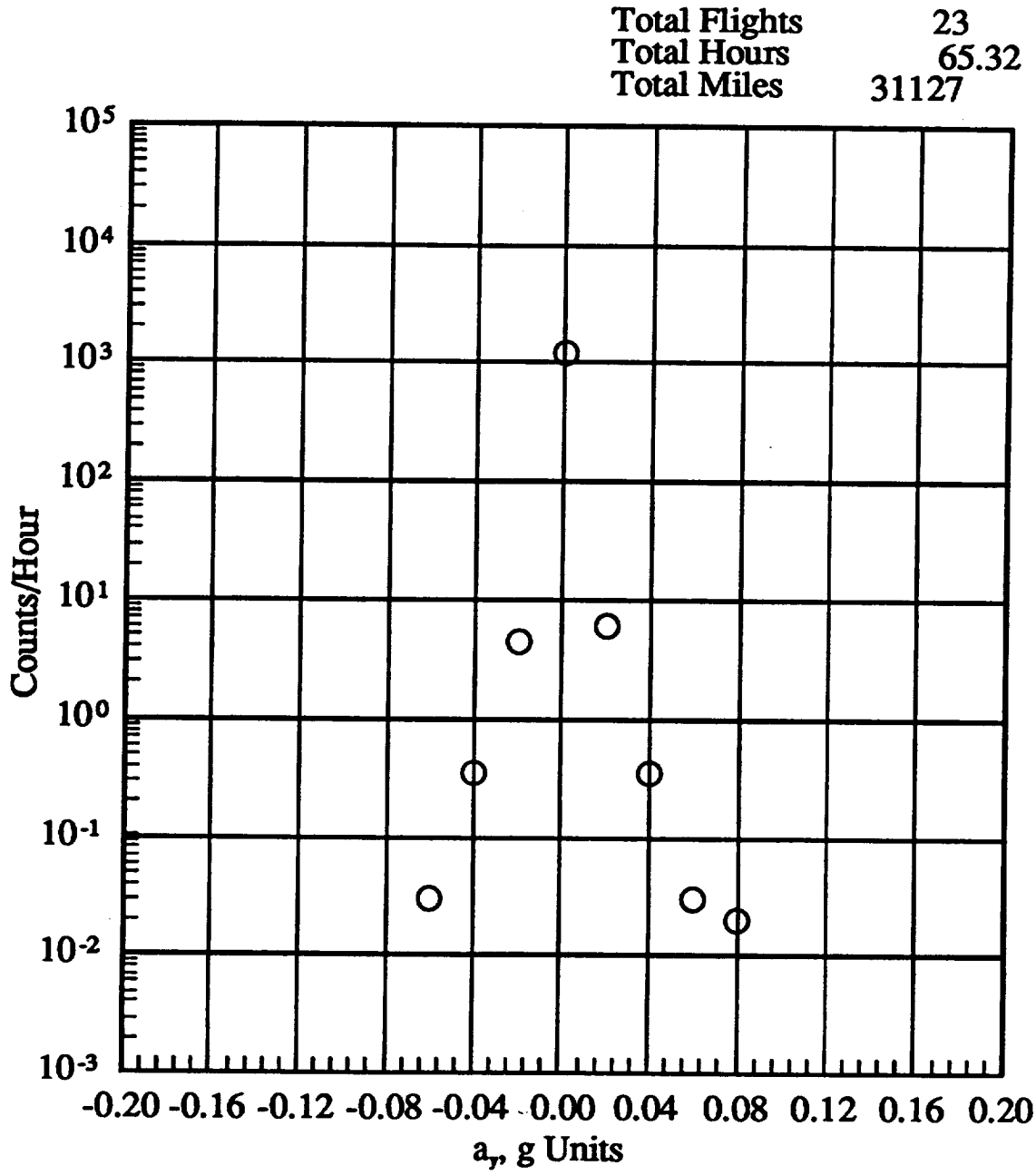
(g) 24500 to 29500 feet altitude

Figure 14.- Continued.



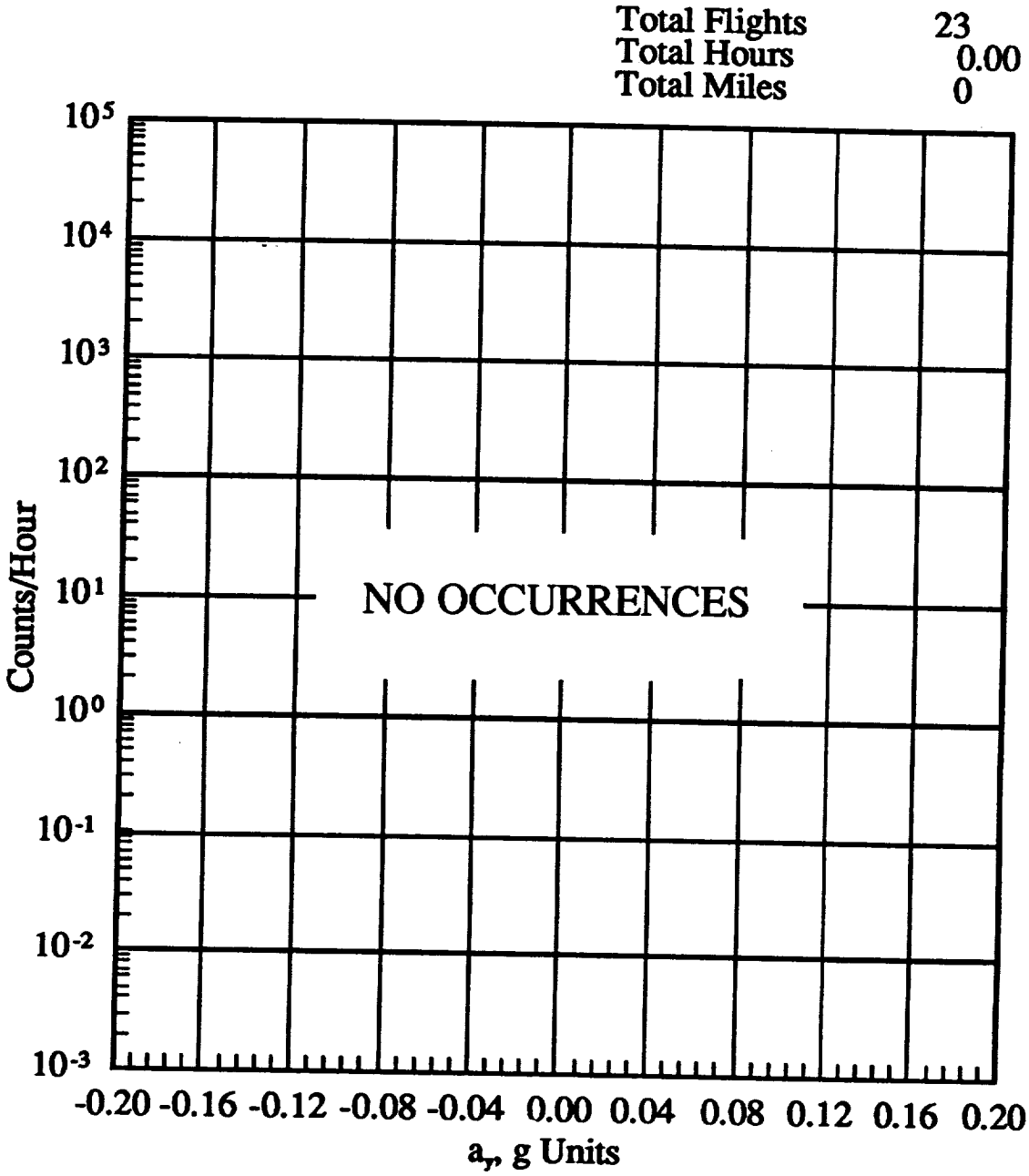
(h) 29500 to 34500 feet altitude

Figure 14.- Continued.



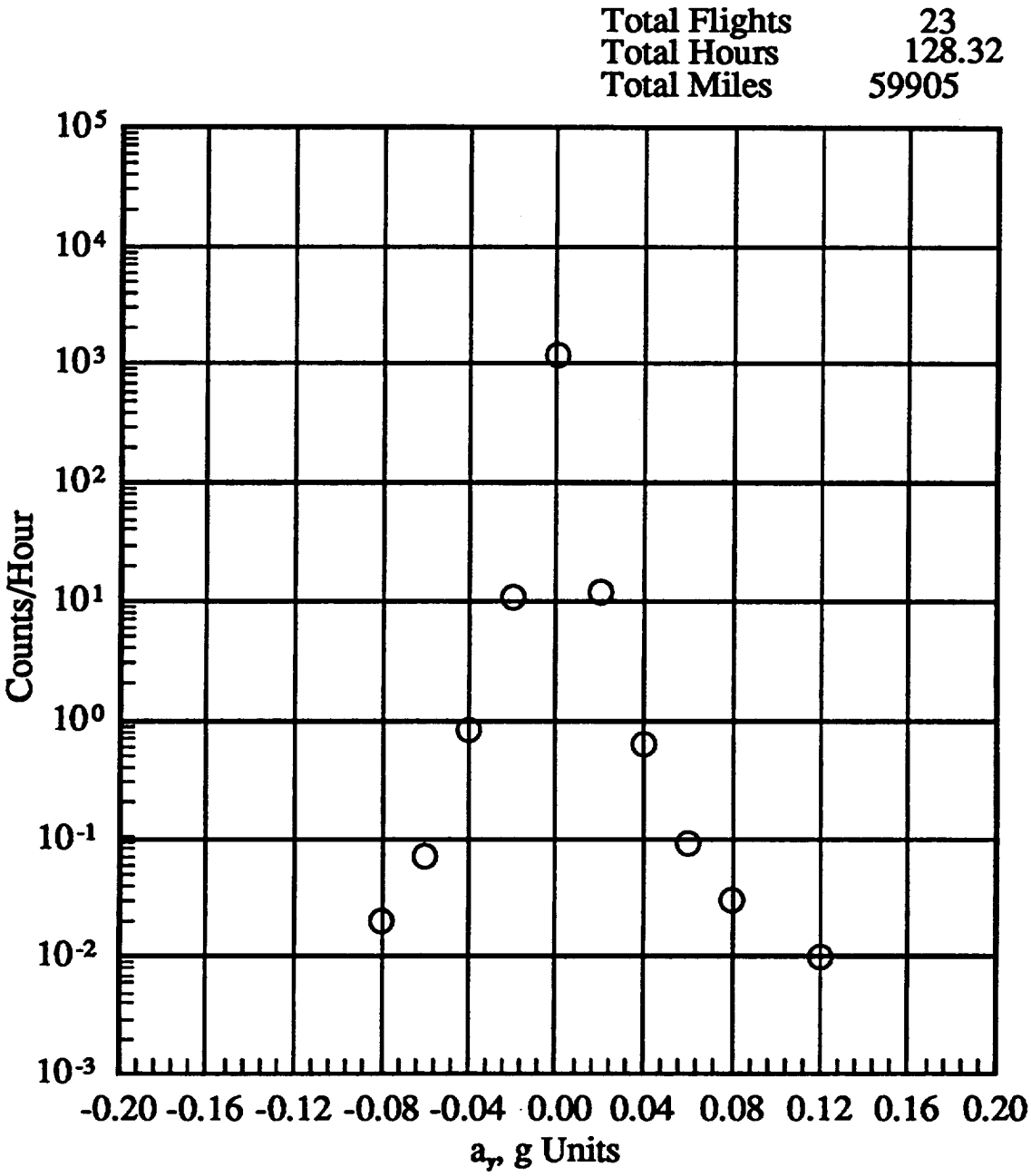
(i) 34500 to 39500 feet altitude

Figure 14.- Continued.



(j) 39500 to 44500 feet altitude

Figure 14.- Continued.



(k) -500 to 44500 feet altitude

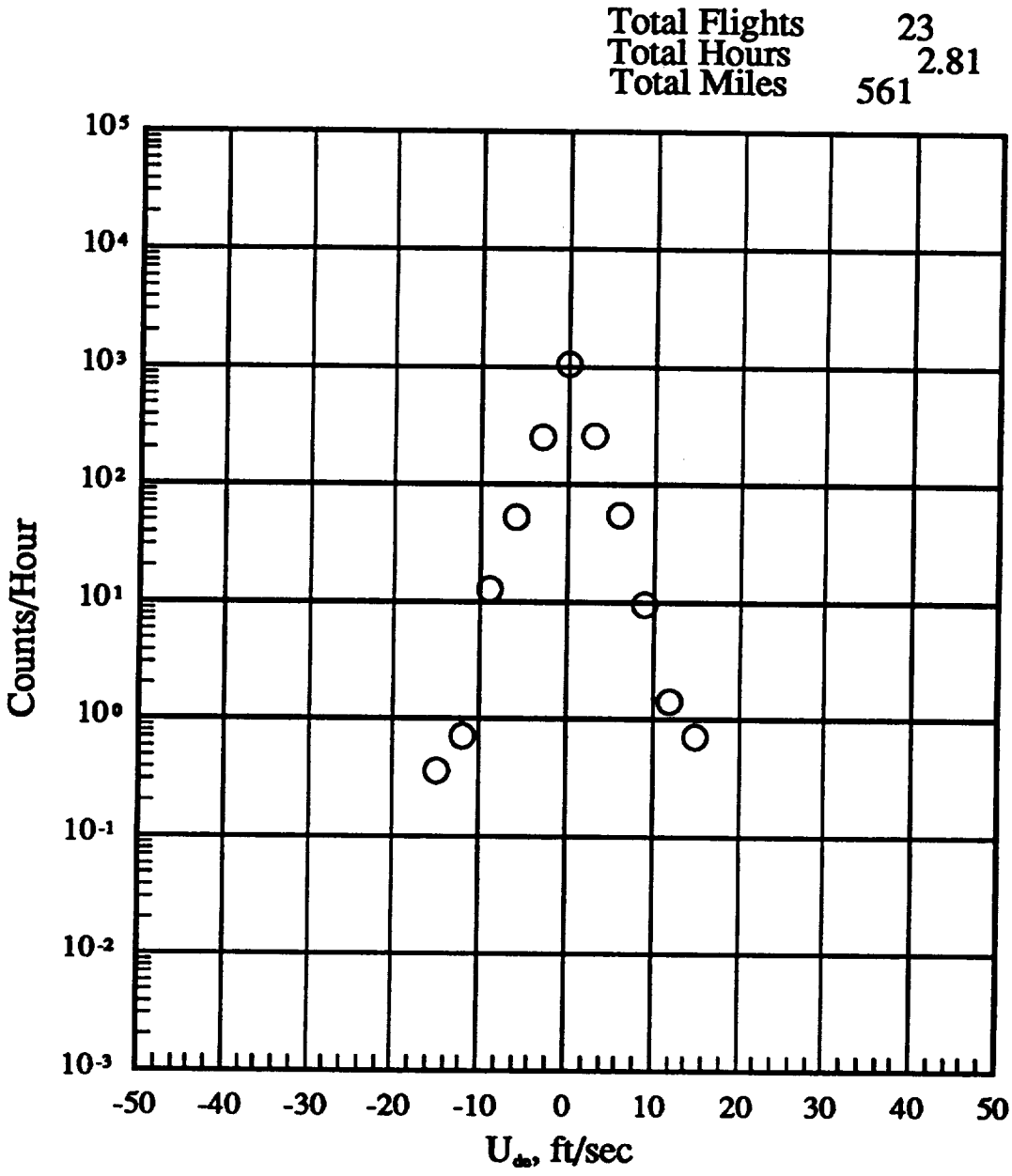
Figure 14.- Concluded.

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	
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
12	1.42	1.17	0	0	0	0	0	0	0	0.02
9	9.59	3.13	0	0.47	0	0	0	0	0	0.05
6	54.72	12.13	2.87	2.82	0.38	0.21	0.10	0.15	0	0.28
3	258.66	66.49	21.30	23.93	5.69	3.04	4.24	2.72	0	1.67
0	1061.64	1242.24	1302.95	1427.89	1498.70	1566.51	1647.90	1646.40	0	10.85
-3	250.49	65.32	21.71	24.87	6.45	3.25	3.69	3.06	0	1607.05
-6	52.23	13.30	0.41	4.22	0.76	0.10	0.14	0.20	0	10.70
-9	12.79	4.30	0	0.47	0	0.10	0	0.02	0	1.65
-12	0.71	0.39	0	0	0	0	0	0	0	0.39
-15	0.36	0	0	0	0	0	0	0	0	0.02
-20	0	0	0	0	0	0	0	0	0	0.01
-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

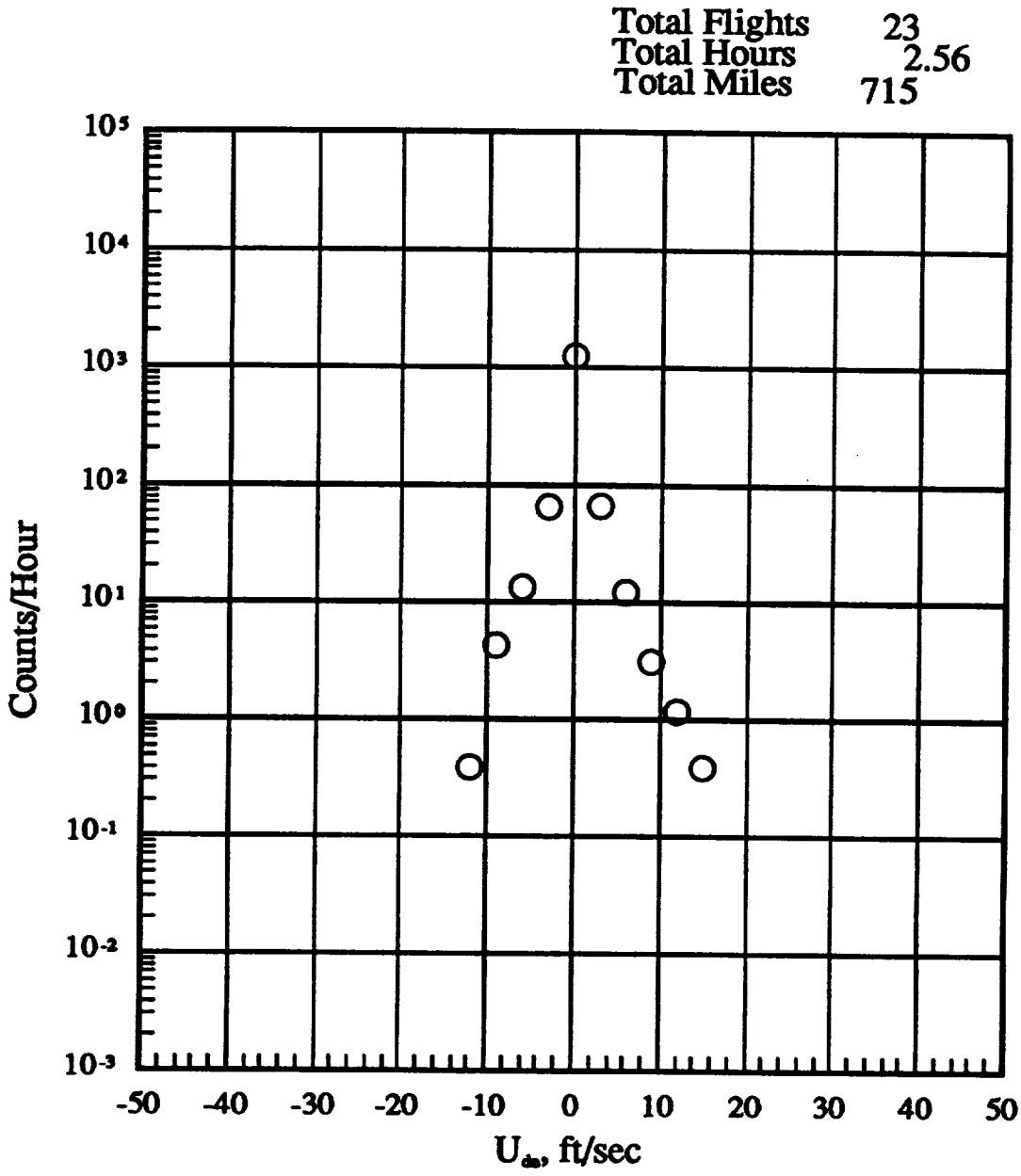
(a) U_{de} Level crossing counts per hour withing pressure altitude bands

Figure 15.- U_{de} exceedances.



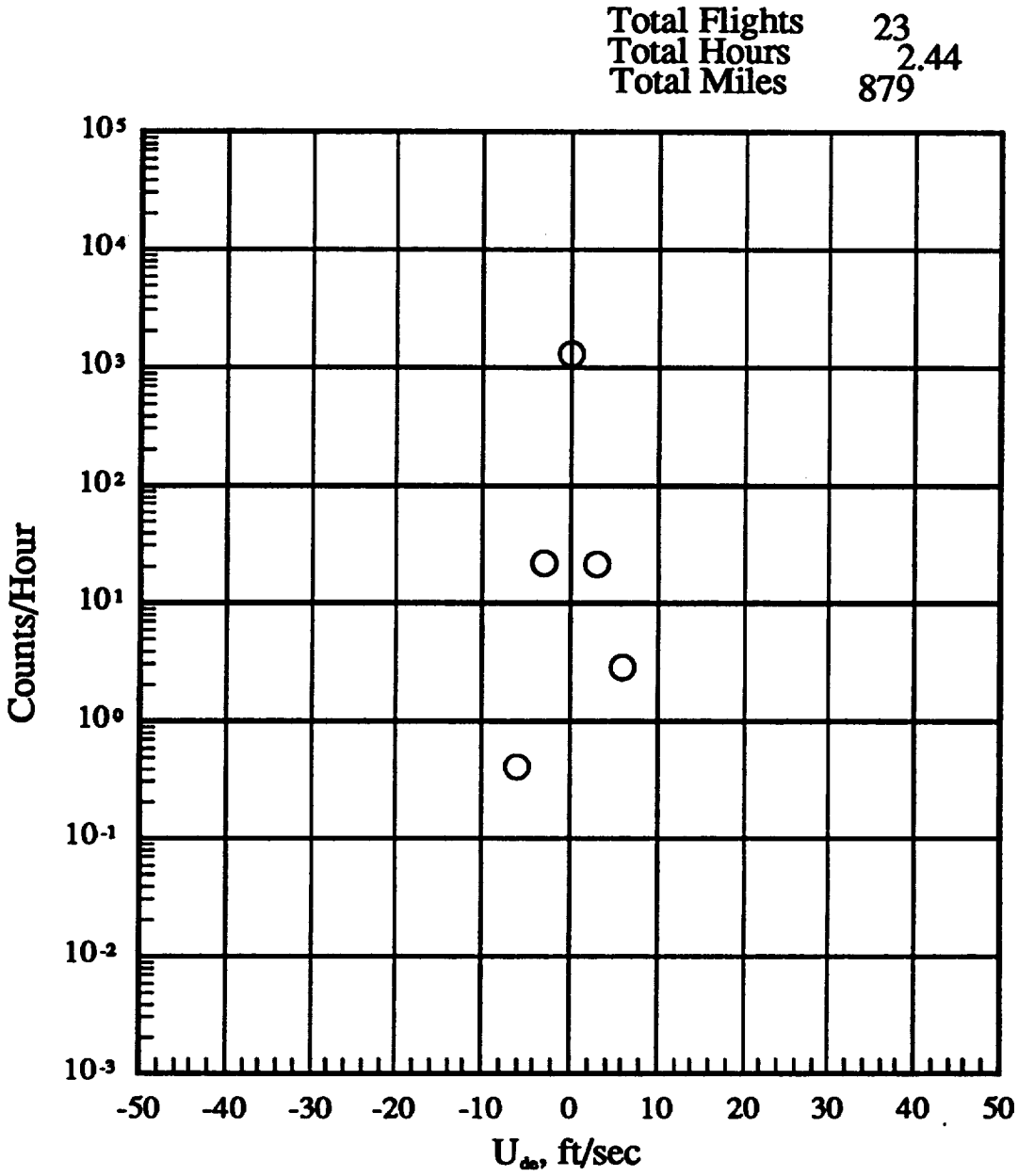
(b) -500 to 4500 feet altitude

Figure 15.- Continued.



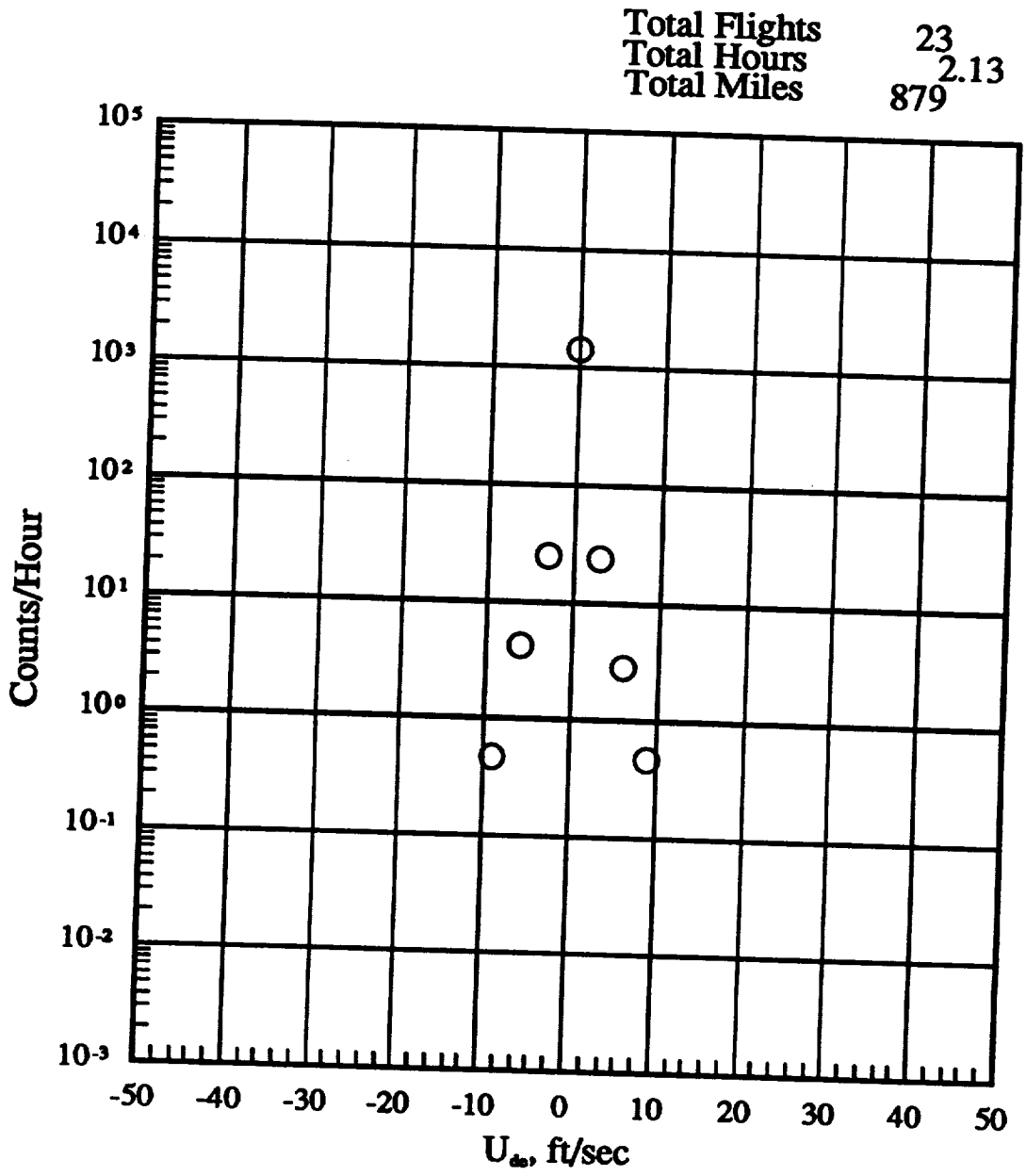
(c) 4500 to 9500 feet altitude

Figure 15.- Continued.



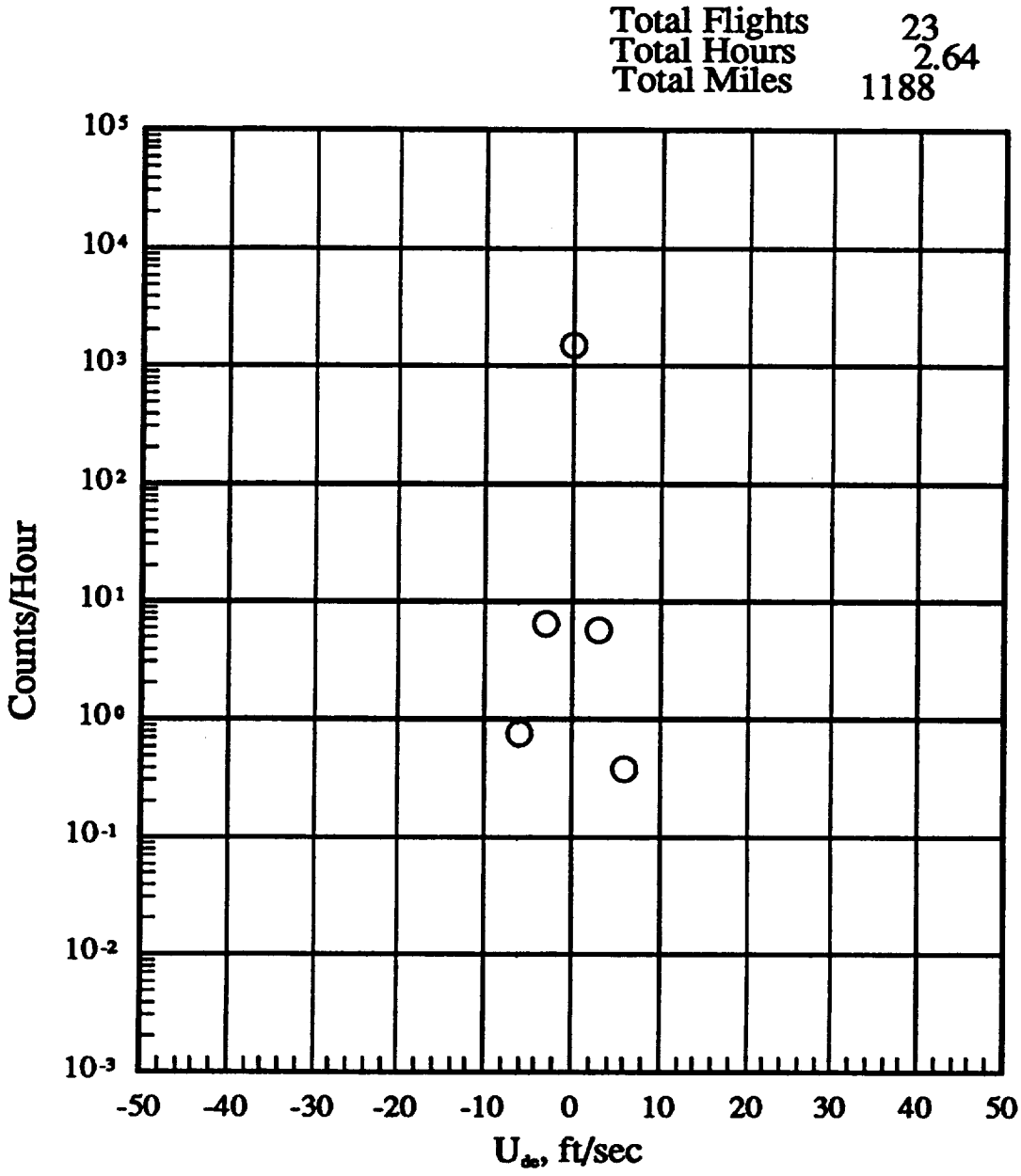
(d) 9500 to 14500 feet altitude

Figure 15.- Continued.



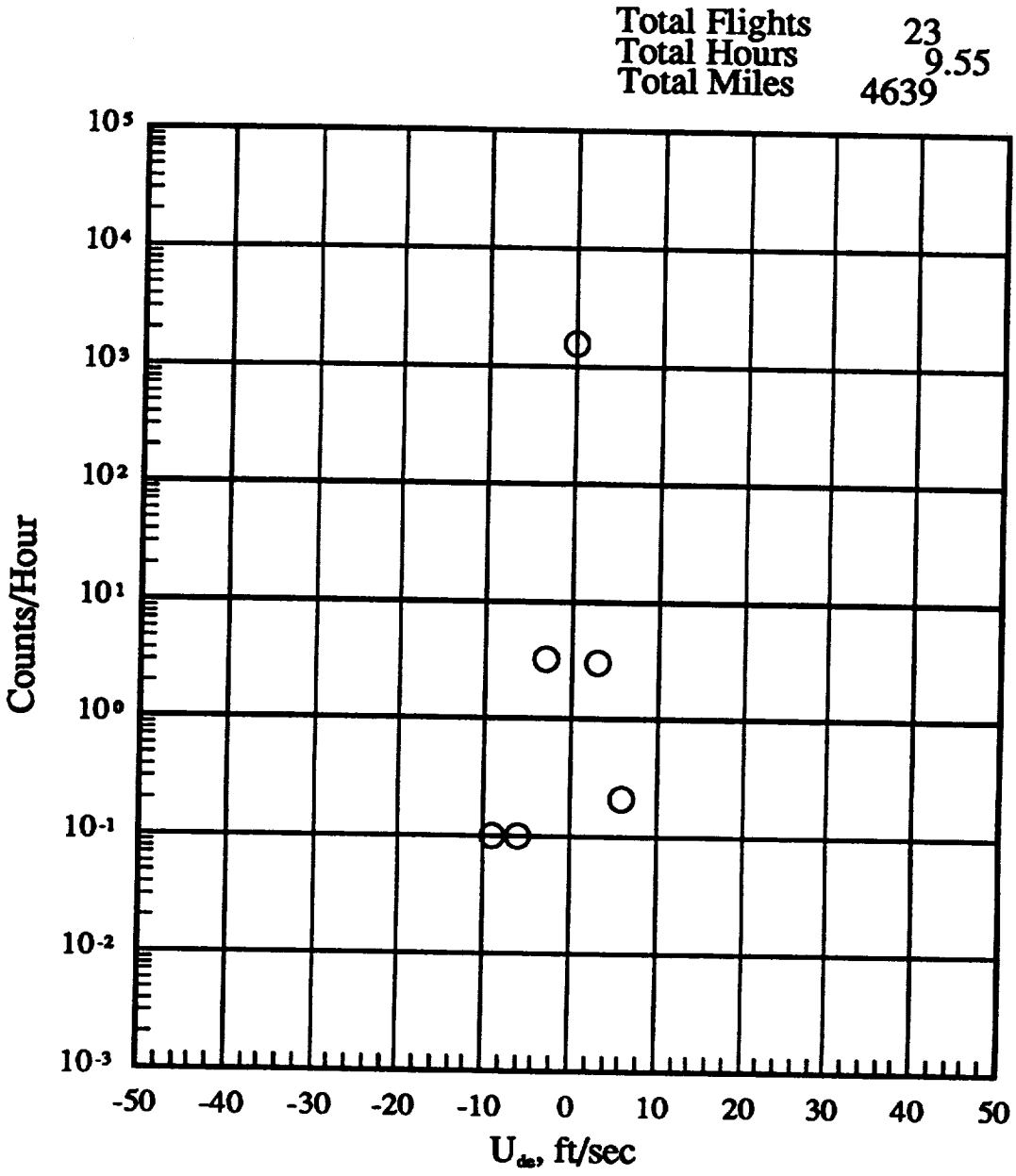
(e) 14500 to 19500 feet altitude

Figure 15.- Continued.



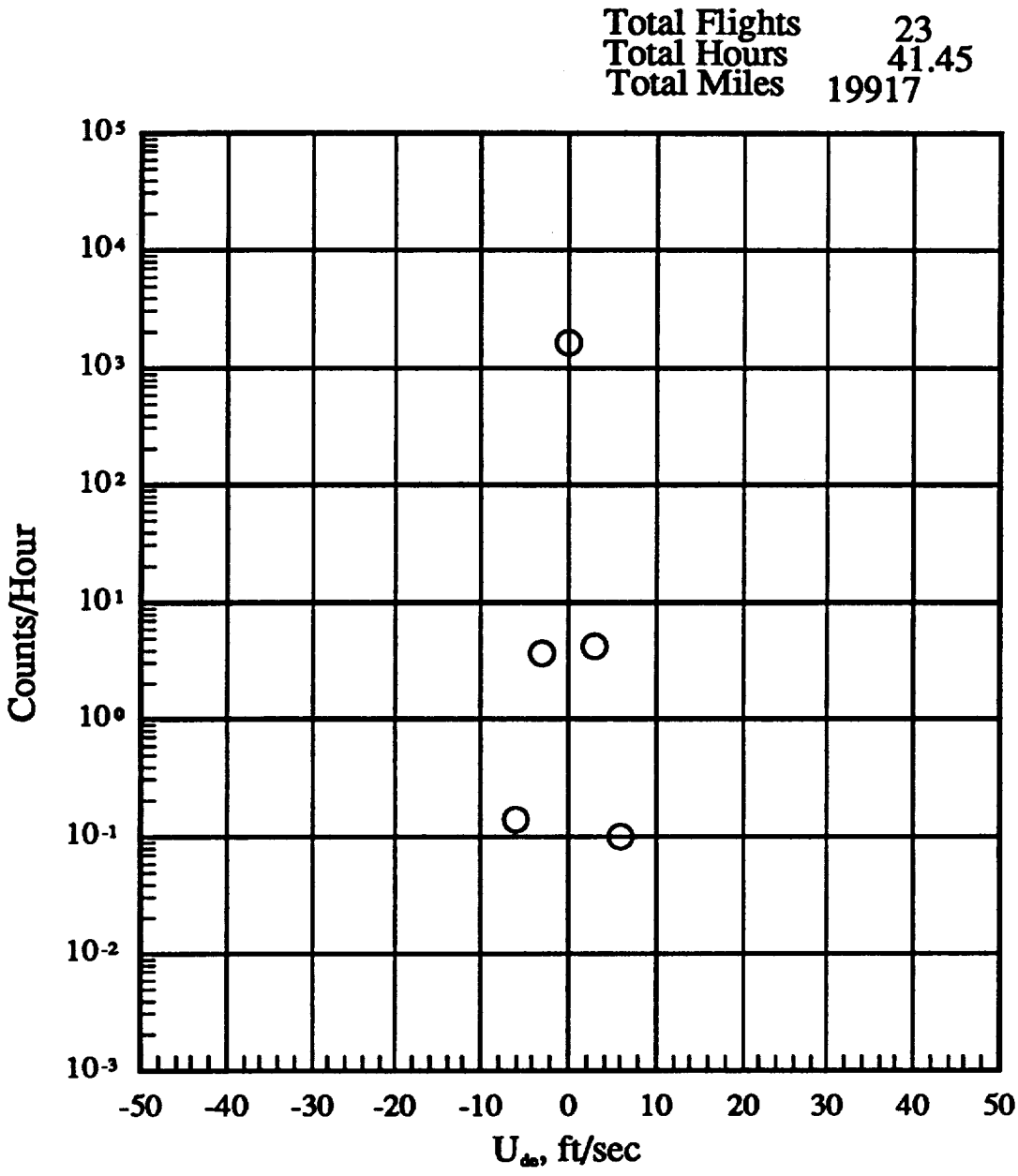
(f) 19500 to 24500 feet altitude

Figure 15.- Continued.



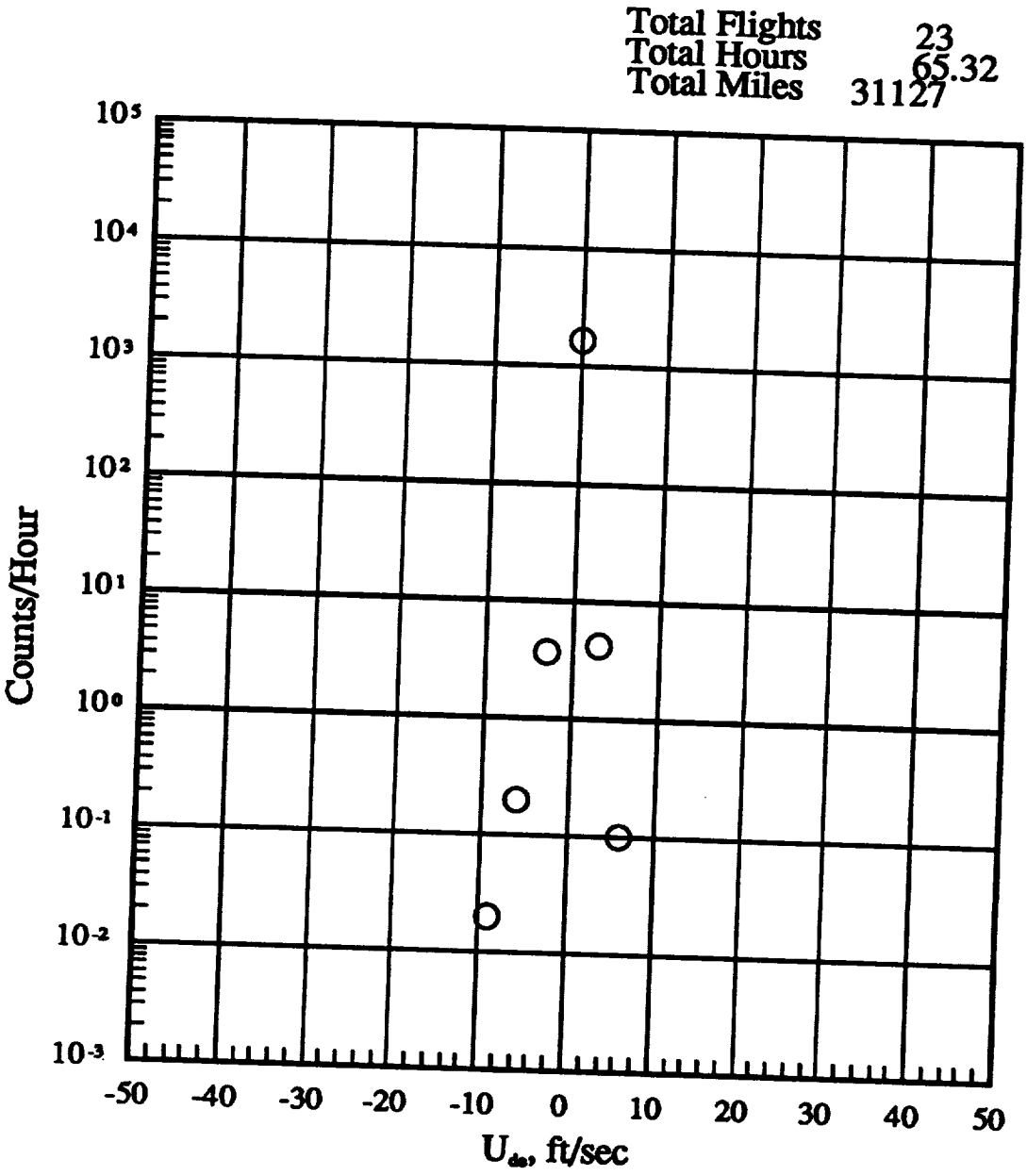
(g) 24500 to 29500 feet altitude

Figure 15.- Continued.



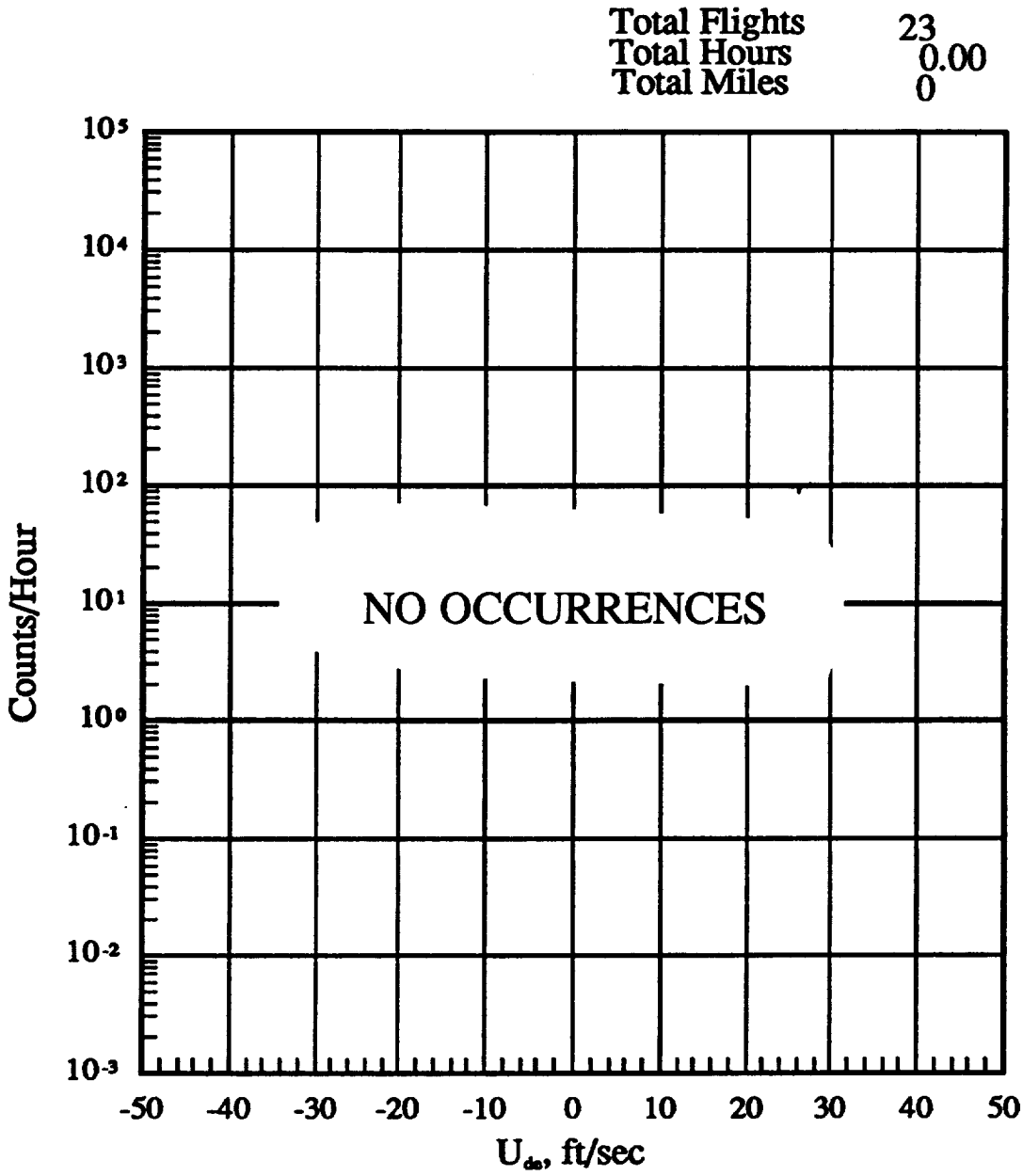
(h) 29500 to 34500 feet altitude

Figure 15.- Continued.



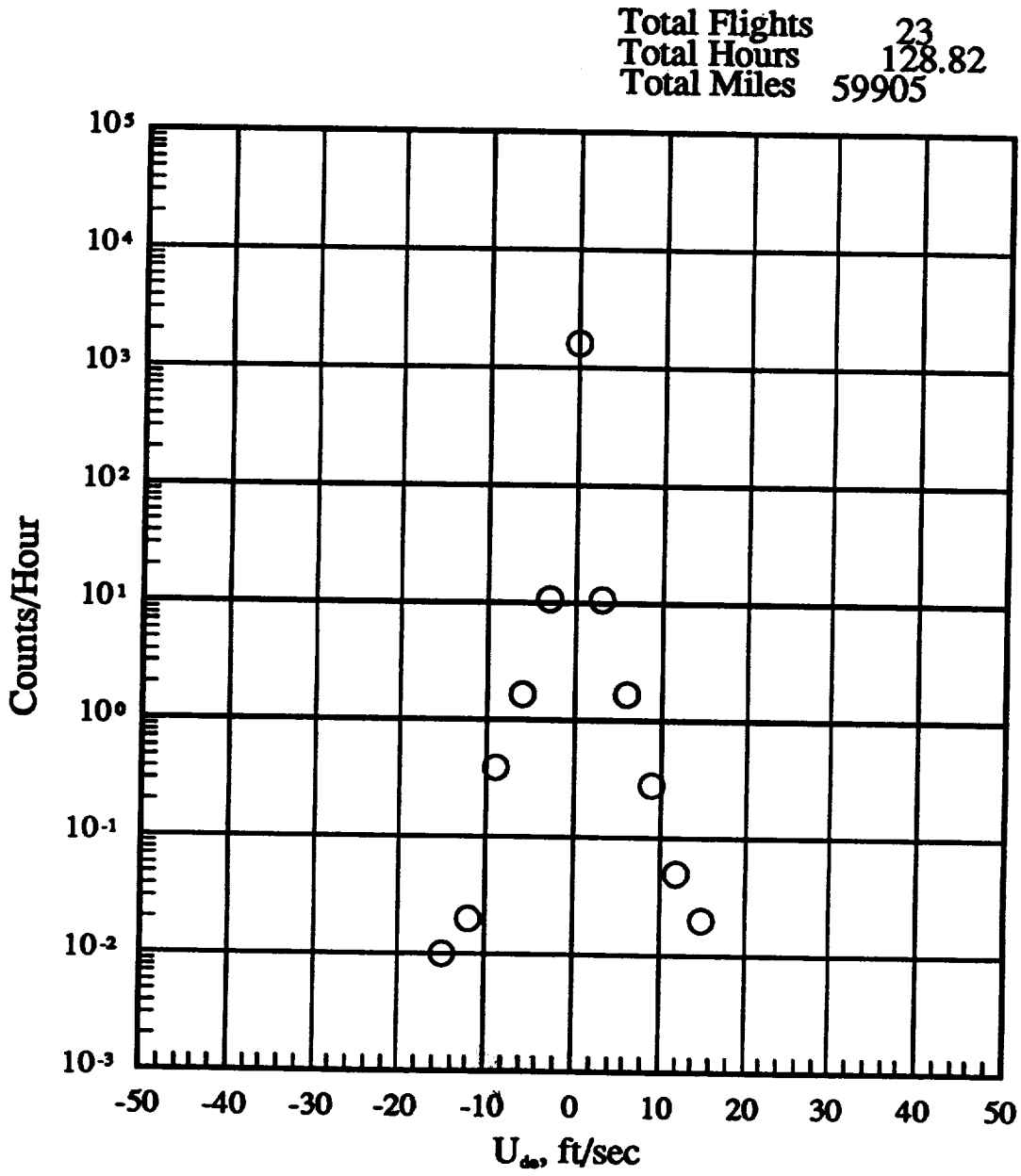
(i) 34500 to 39500 feet altitude

Figure 15.- Continued.



(j) 39500 to 44500 feet altitude

Figure 15.- Continued.



(k) -500 to 44500 feet altitude

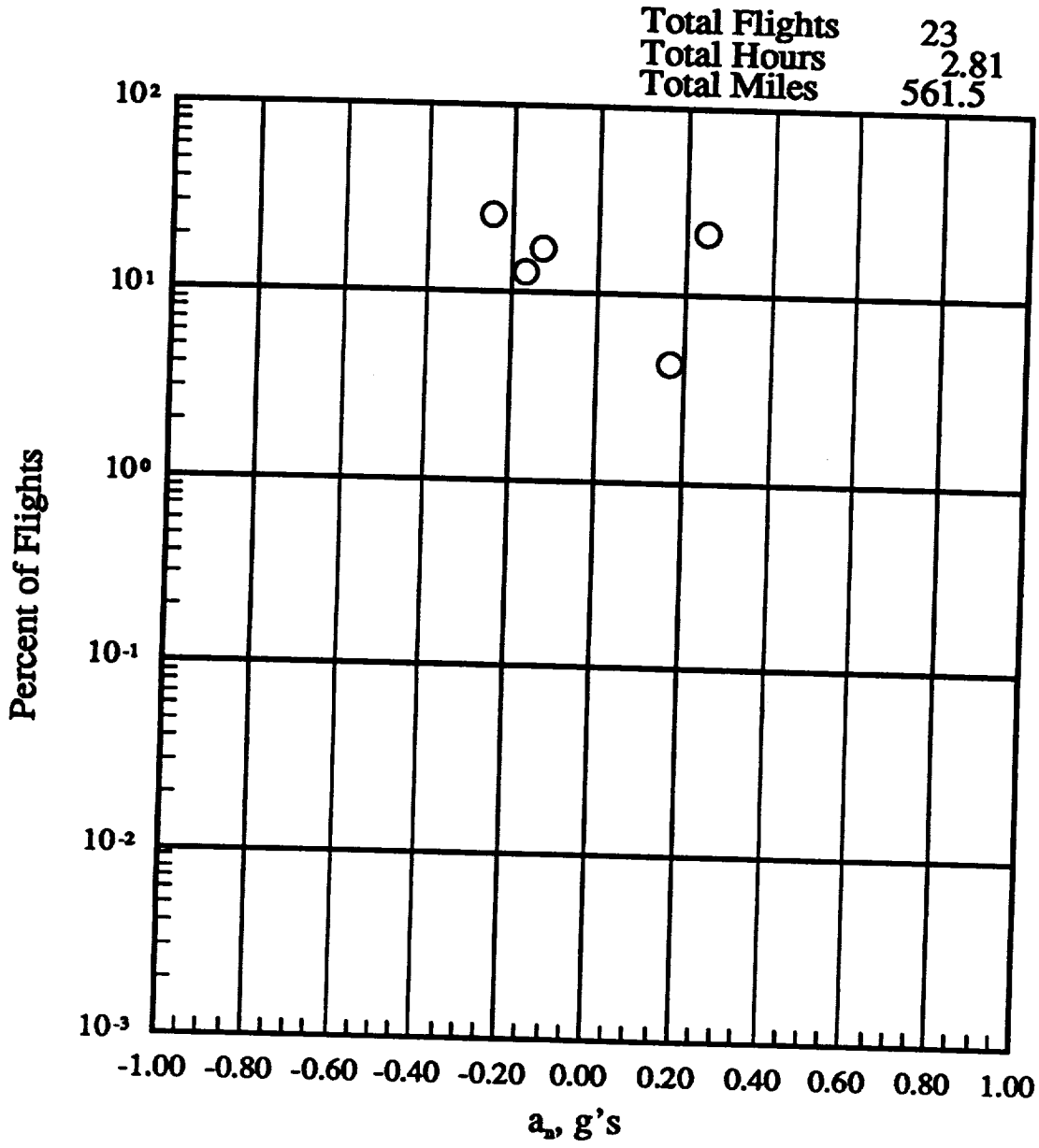
Figure 15.- Concluded.

PRESSURE ALTITUDE BANDS

MAXIMUM a_n LEVEL FOR EACH FLIGHT g'S FROM	TO	-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	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

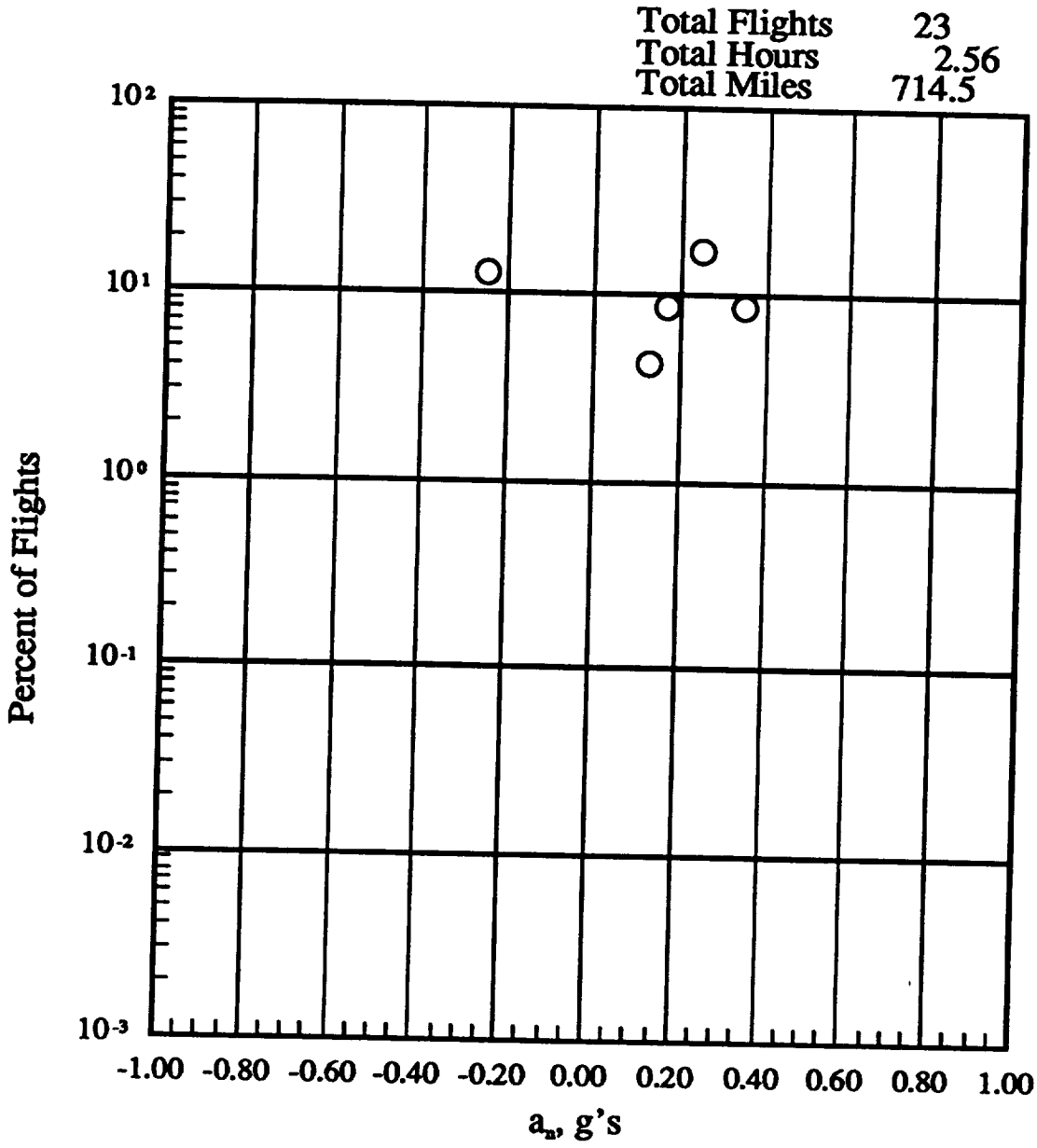
(a) Percent of flights where peak positive and negative a_n per flight occurs within pressure altitude bands, any flap

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



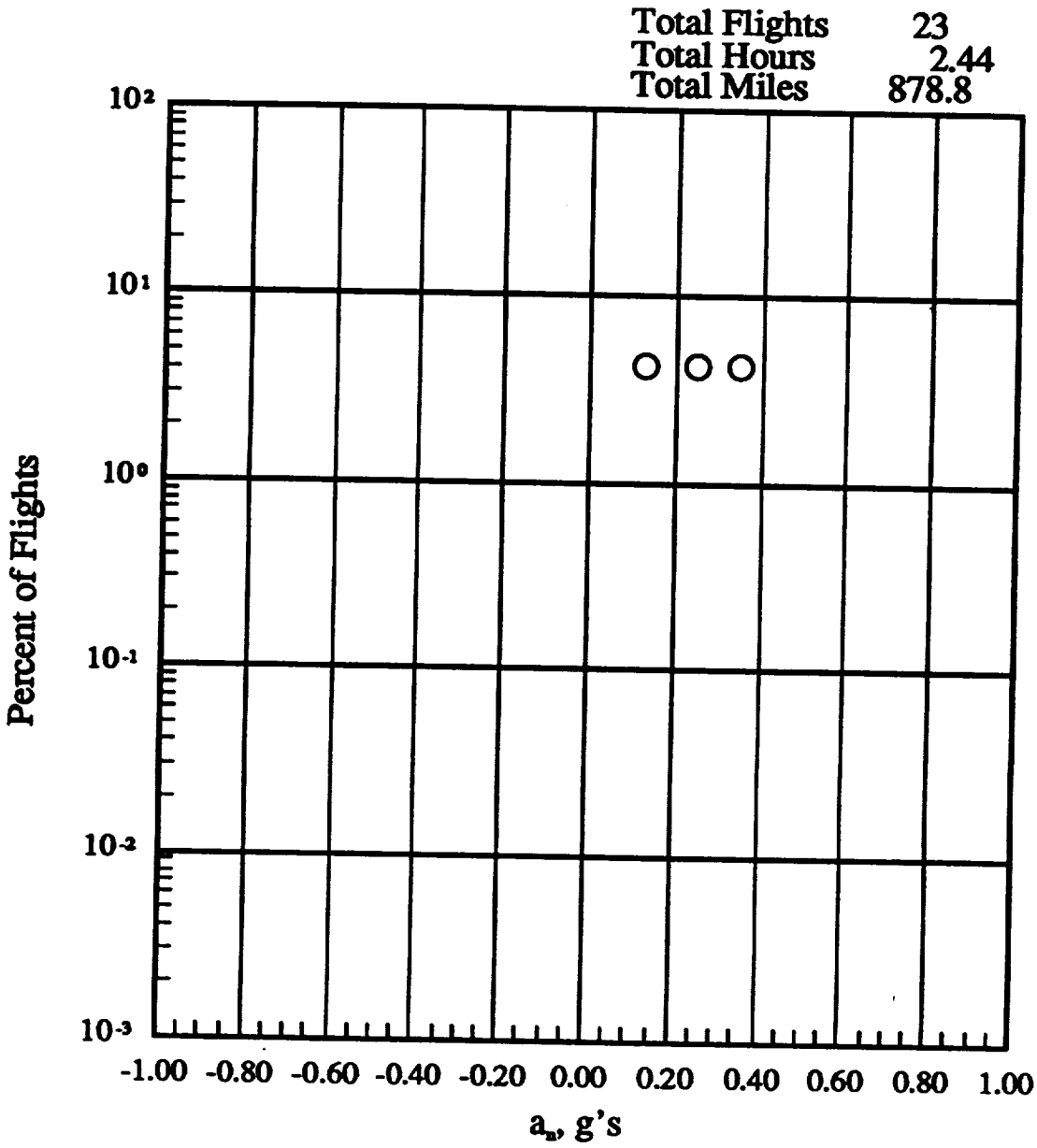
(b) -500 to 4500 feet altitude

Figure 16.- Continued.



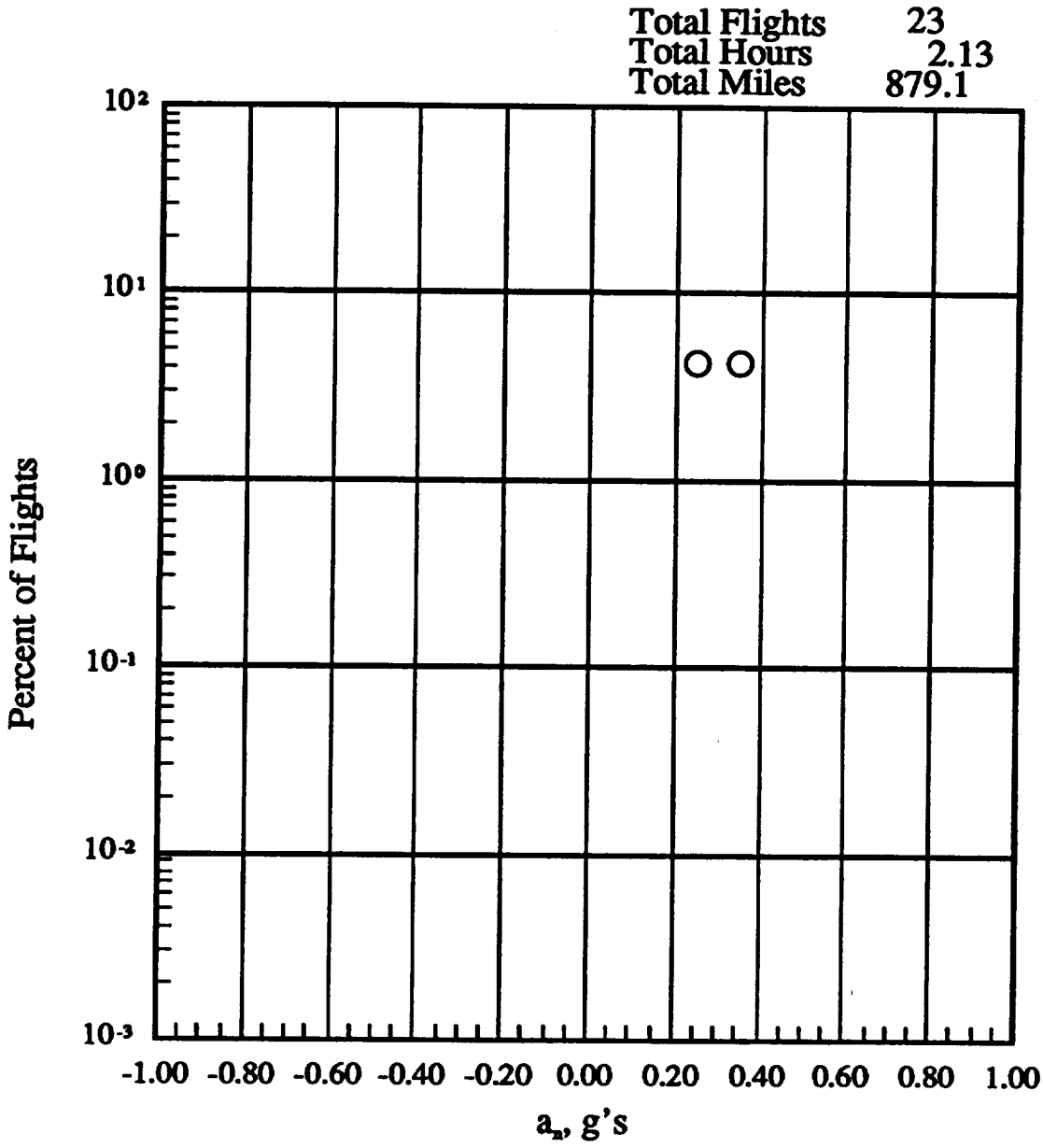
(c) 4500 to 9500 feet altitude

Figure 16.- Continued.



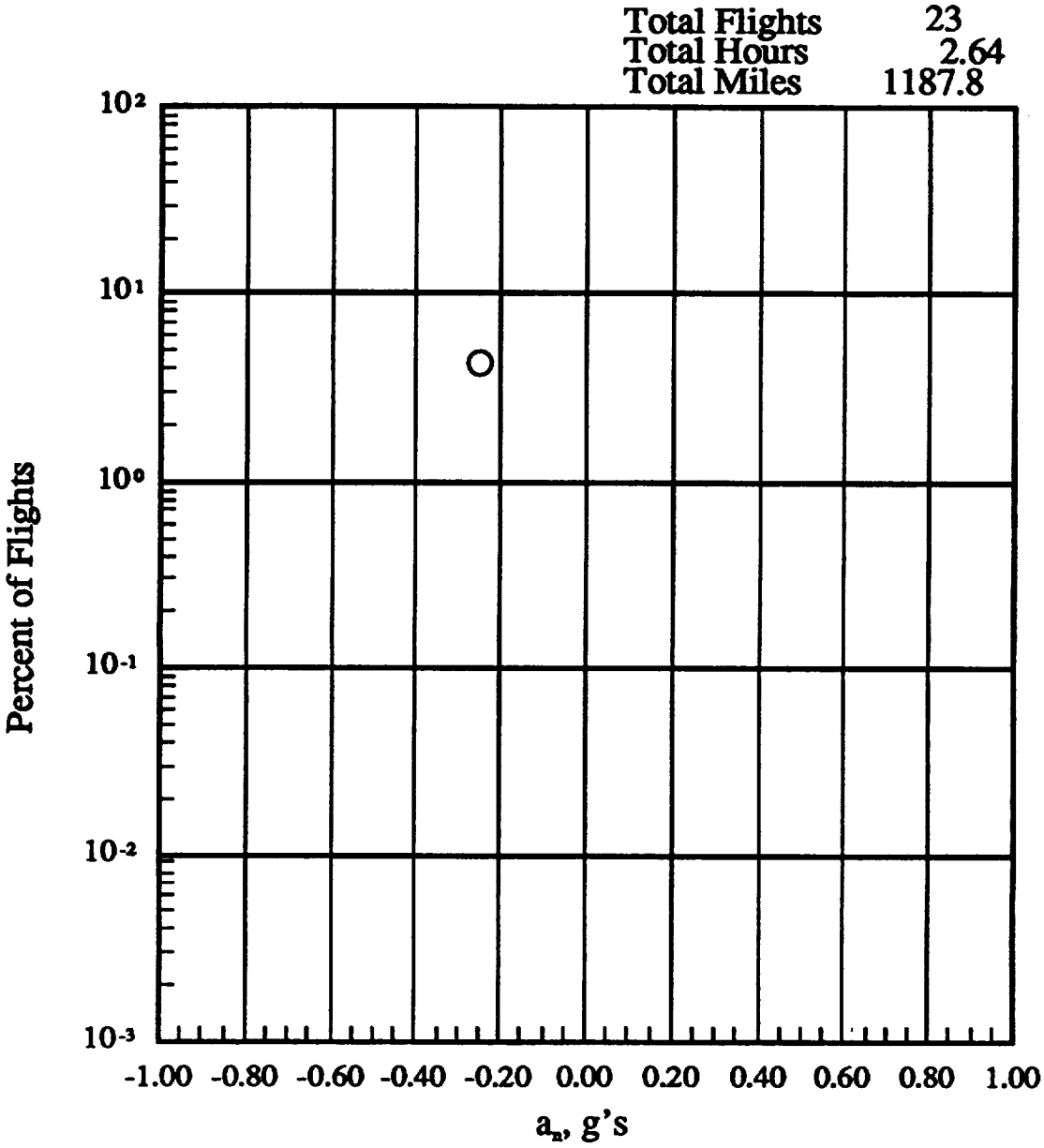
(d) 9500 to 14500 feet altitude

Figure 16.- Continued.



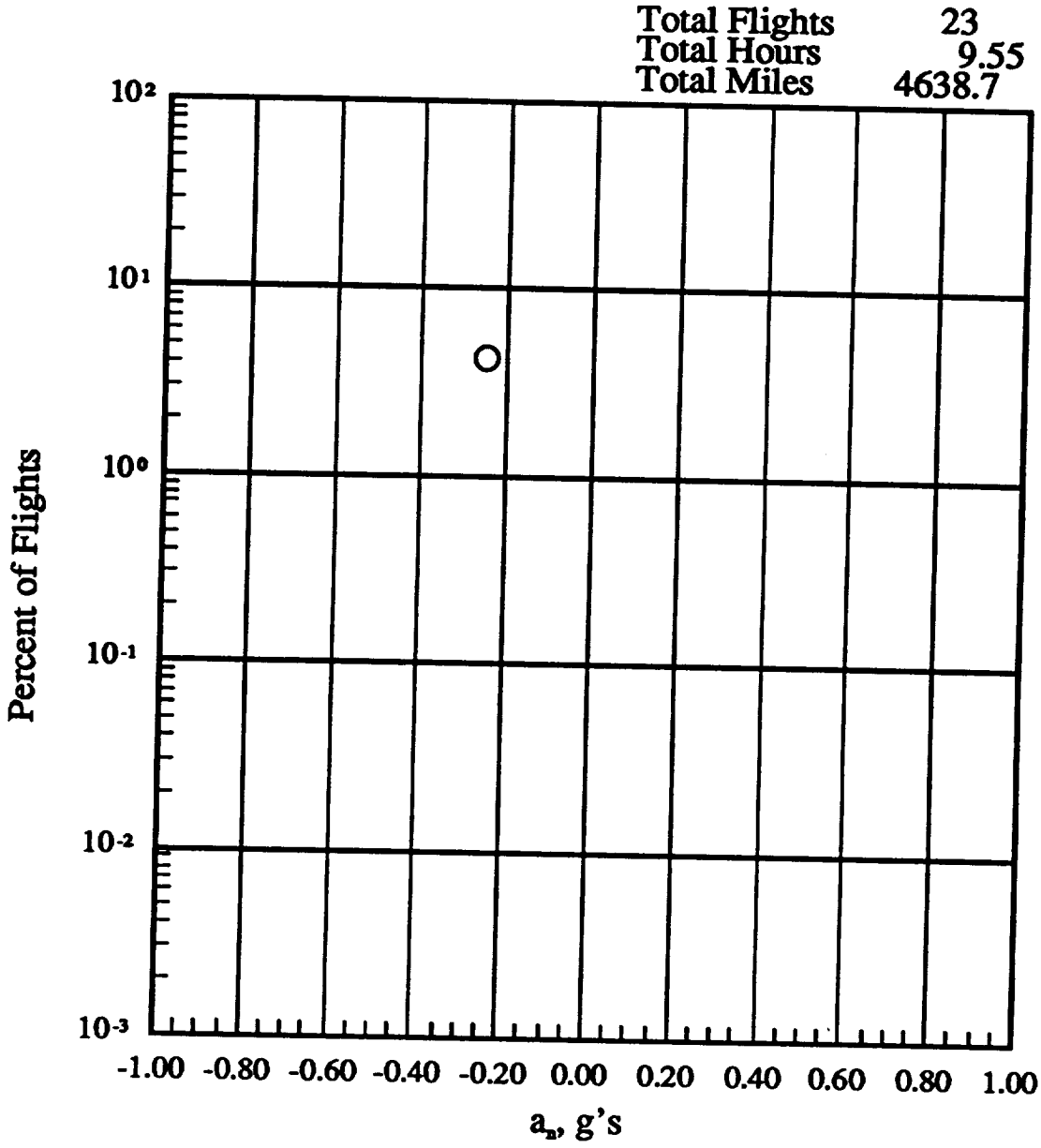
(e) 14500 to 19500 feet altitude

Figure 16.- Continued.



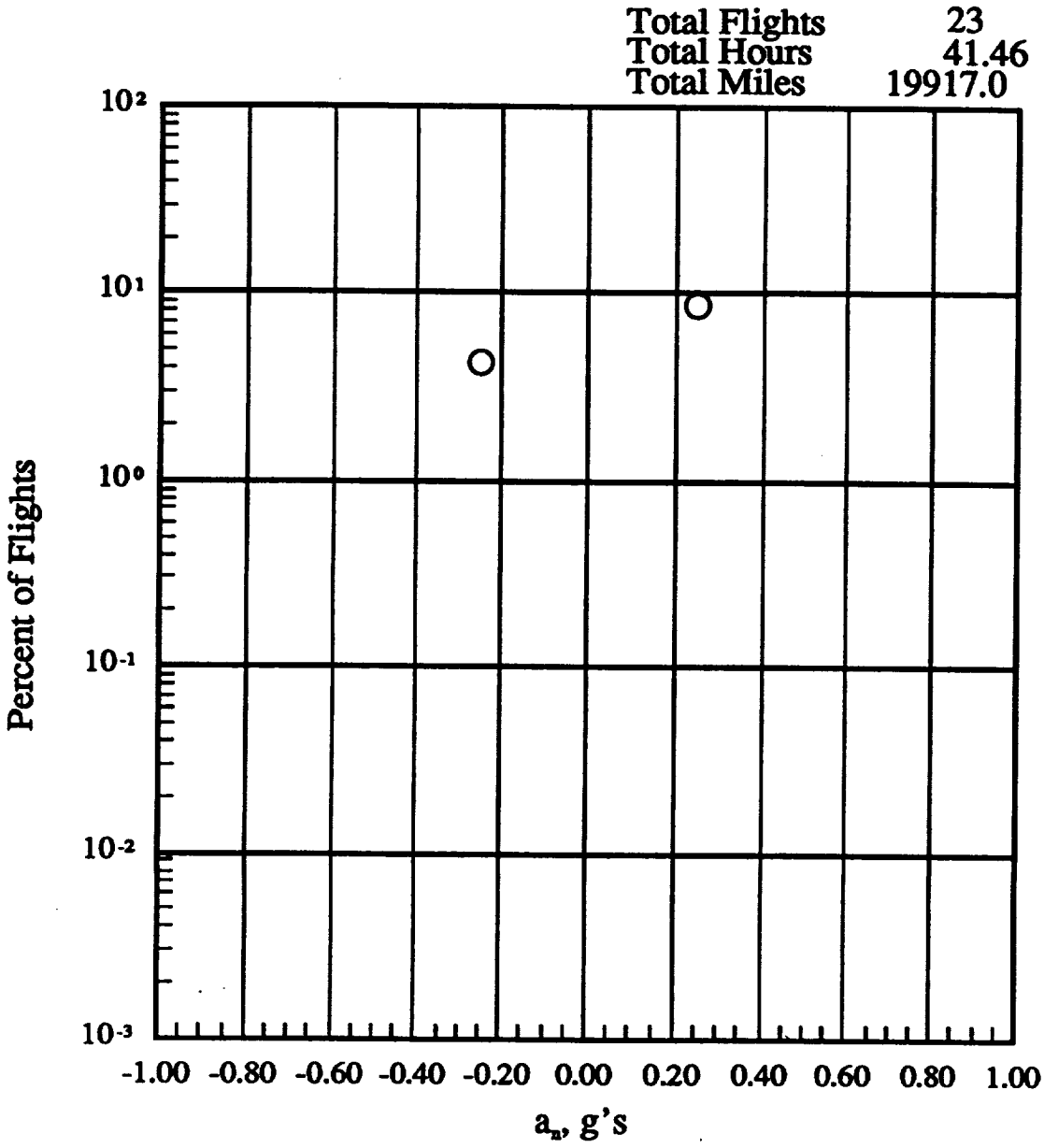
(f) 19500 to 24500 feet altitude

Figure 16.- Continued.



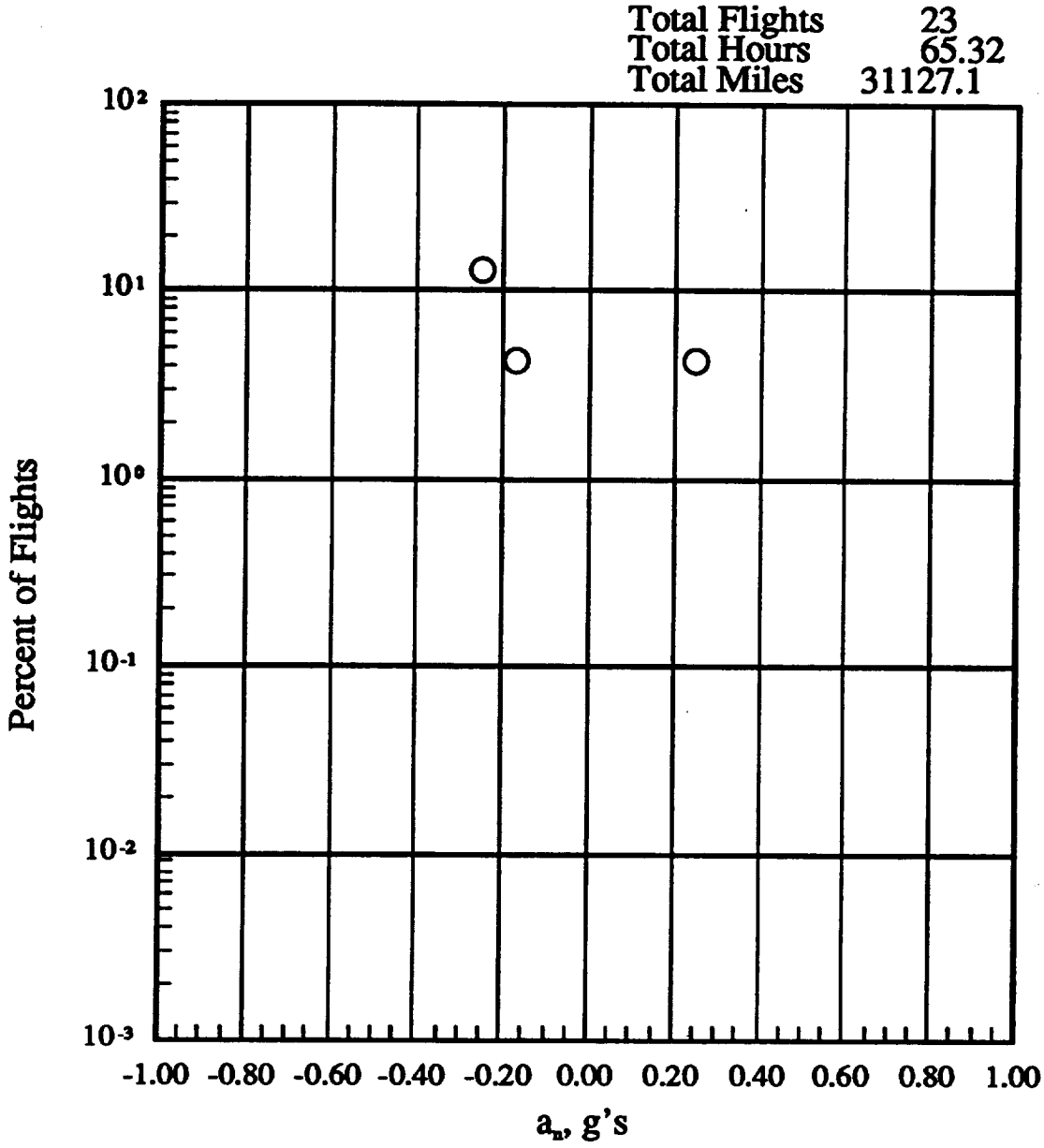
(g) 24500 to 29500 feet altitude

Figure 16.- Continued.



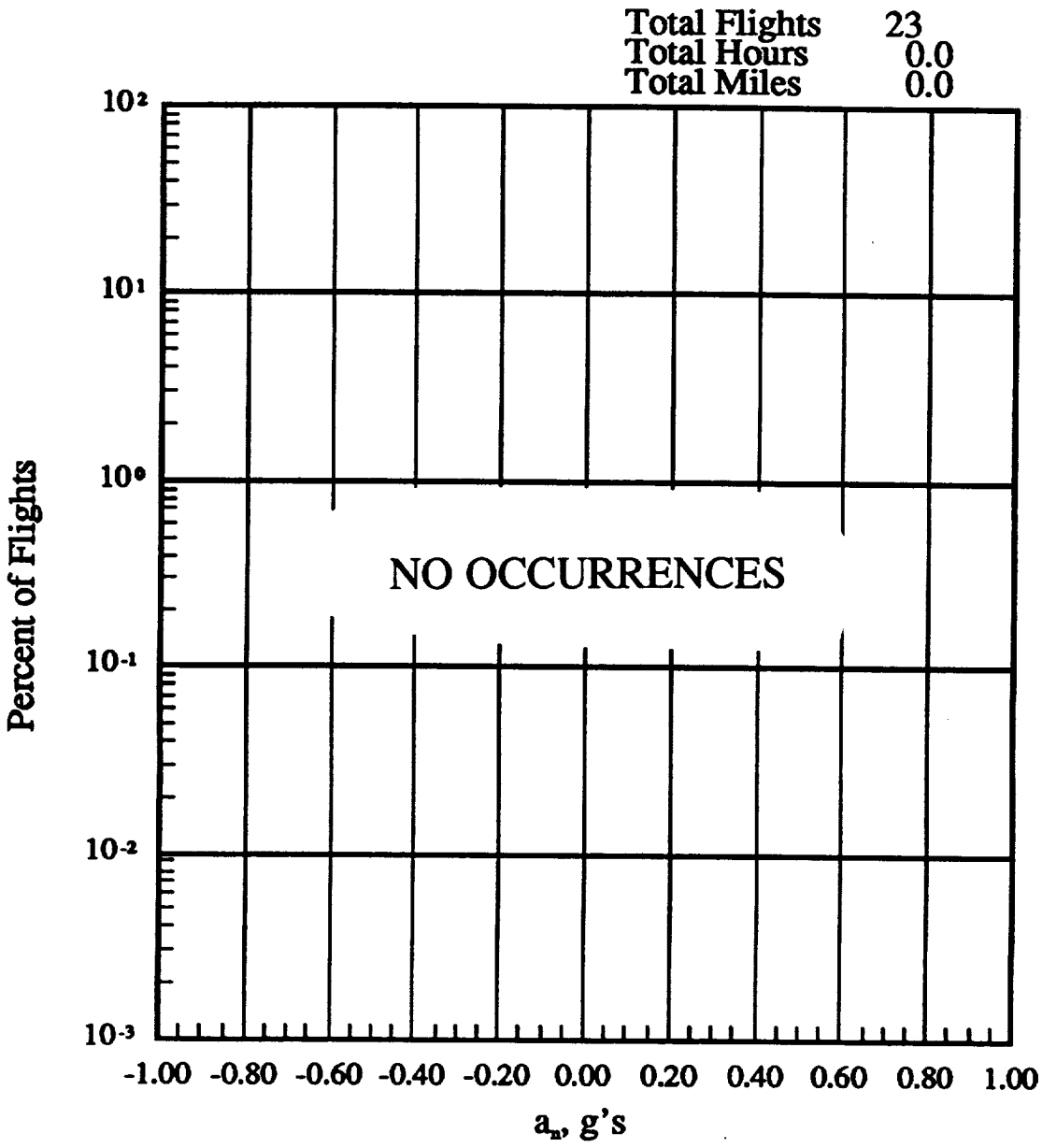
(h) 29500 to 34500 feet altitude

Figure 16.- Continued.



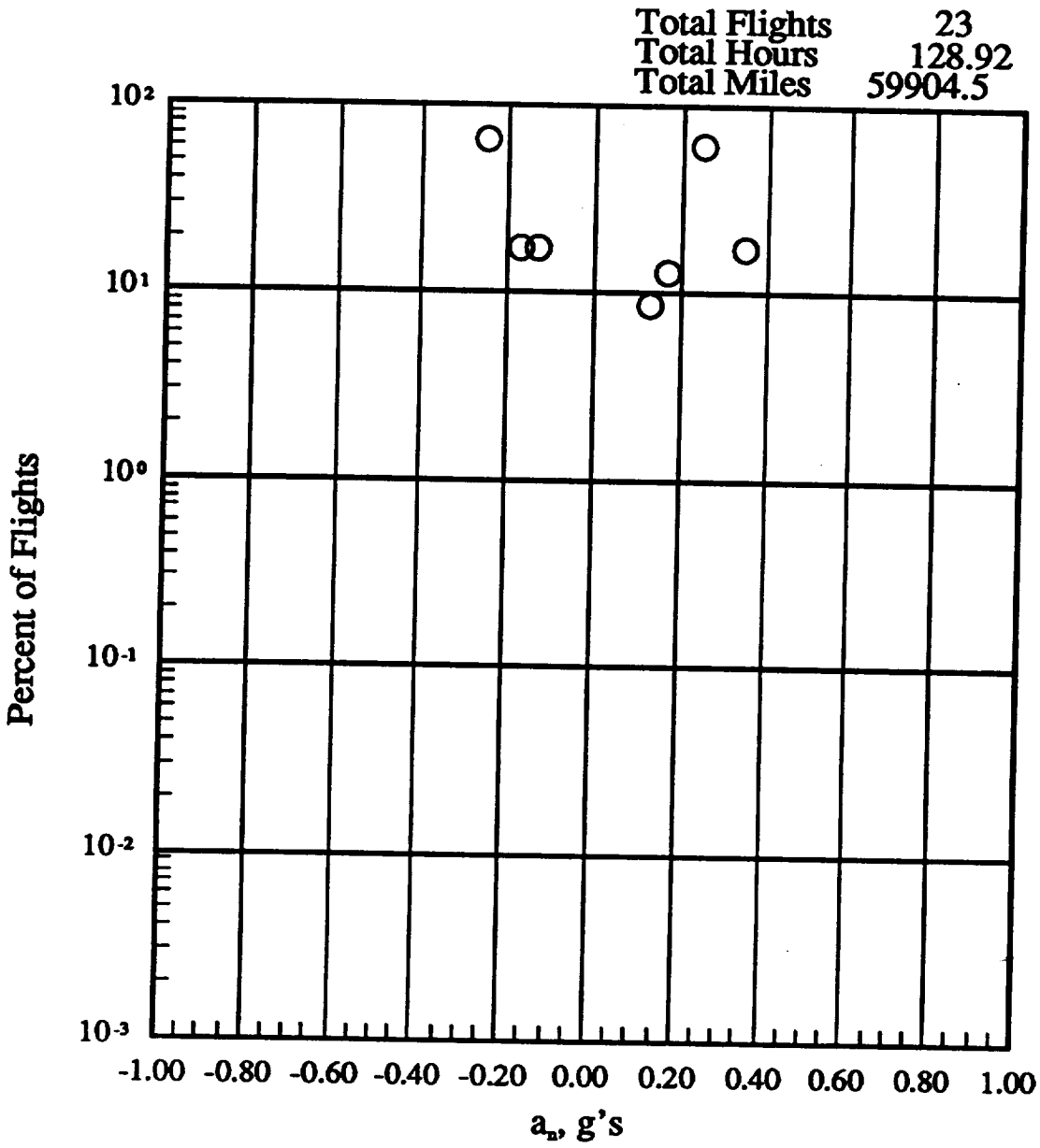
(i) 34500 to 39500 feet altitude

Figure 16.- Continued.



(j) 39500 to 44500 feet altitude

Figure 16.- Continued.



(k) -500 to 44500 feet altitude

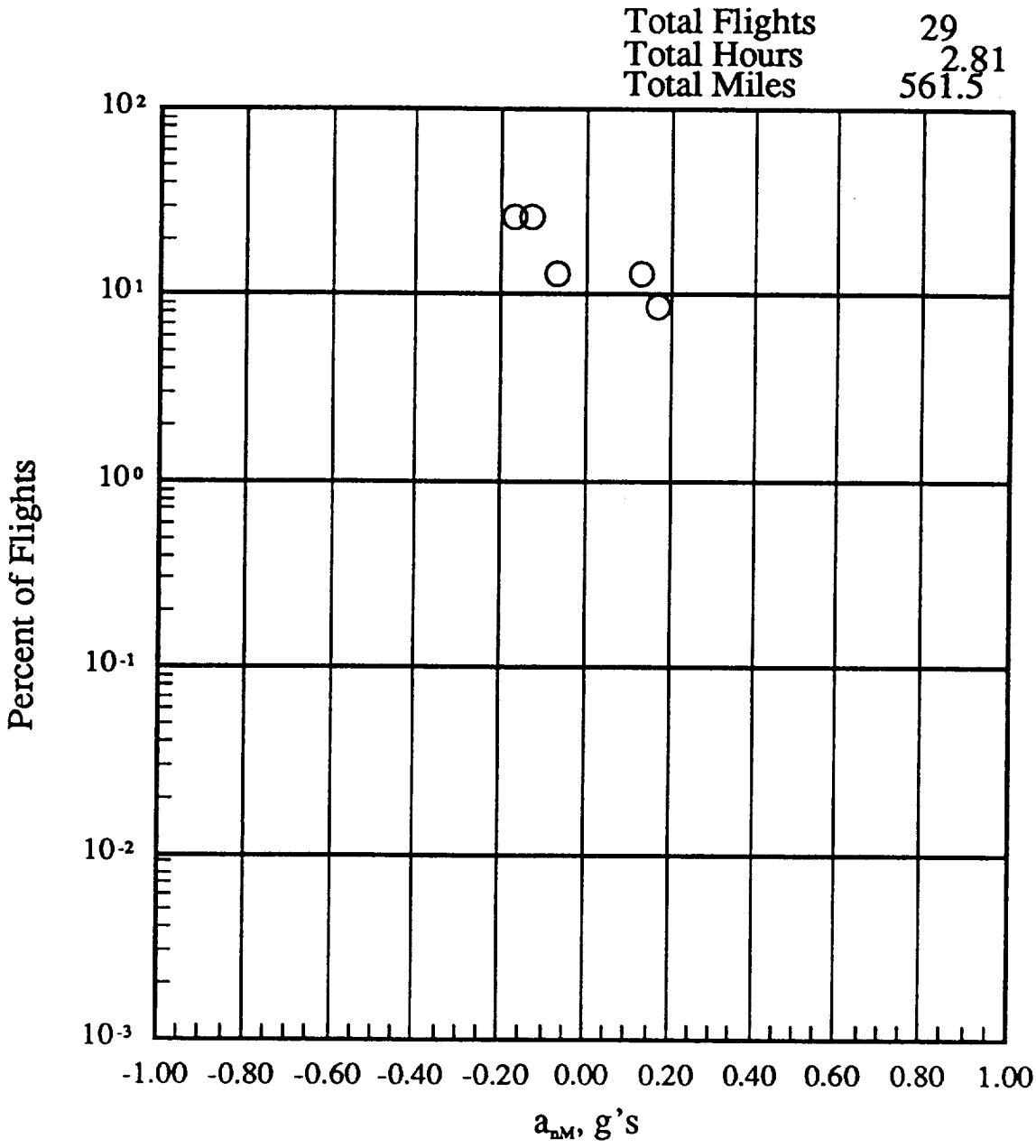
Figure 16.- Concluded.

PRESSURE ALTITUDE BANDS

MAXIMUM a_{nM} LEVEL FOR EACH FLIGHT g'S FROM	TO	-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	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

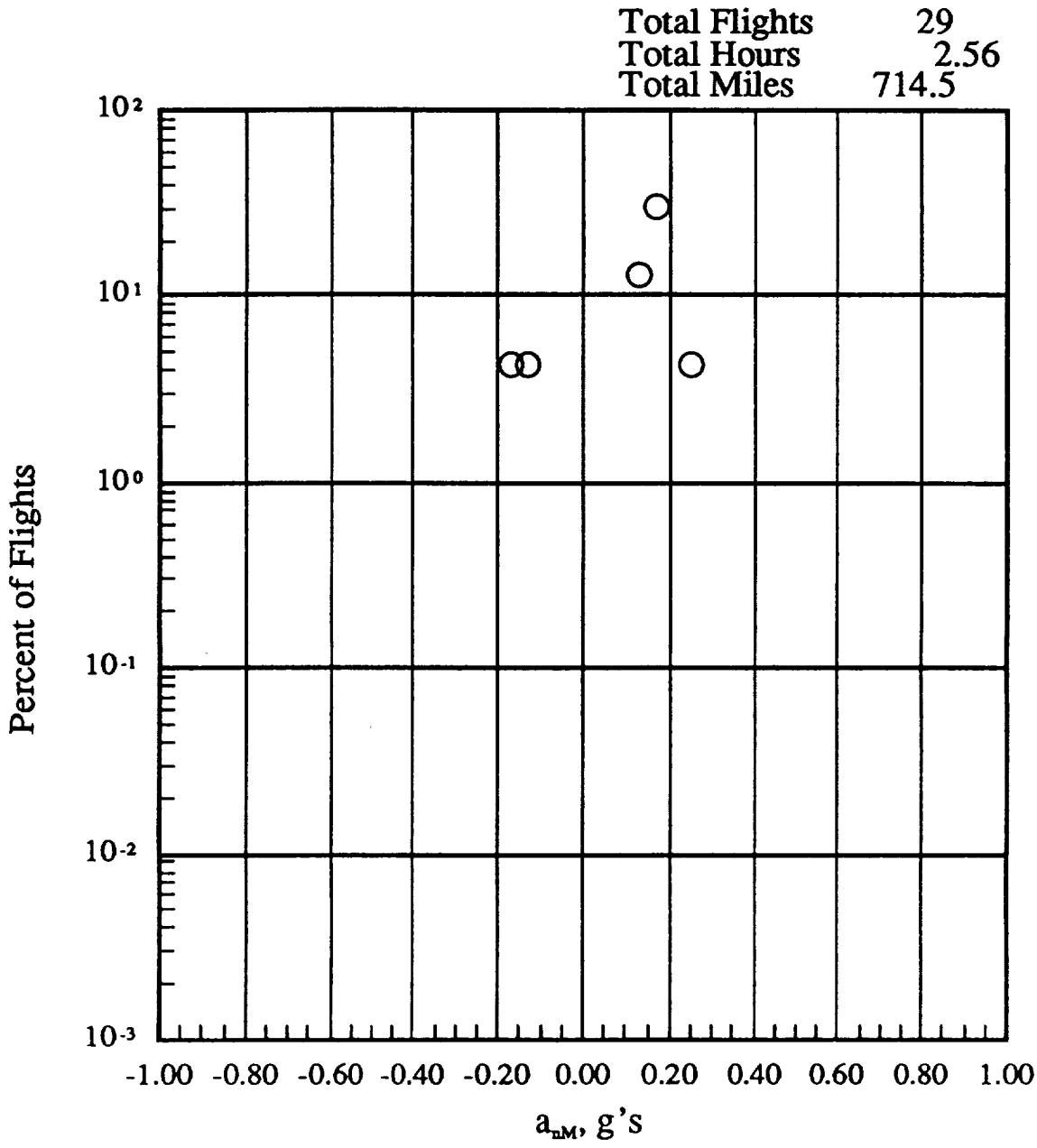
(a) Percent of flights where peak positive and negative a_{nM} per flight occurs within pressure altitude bands, any flap

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



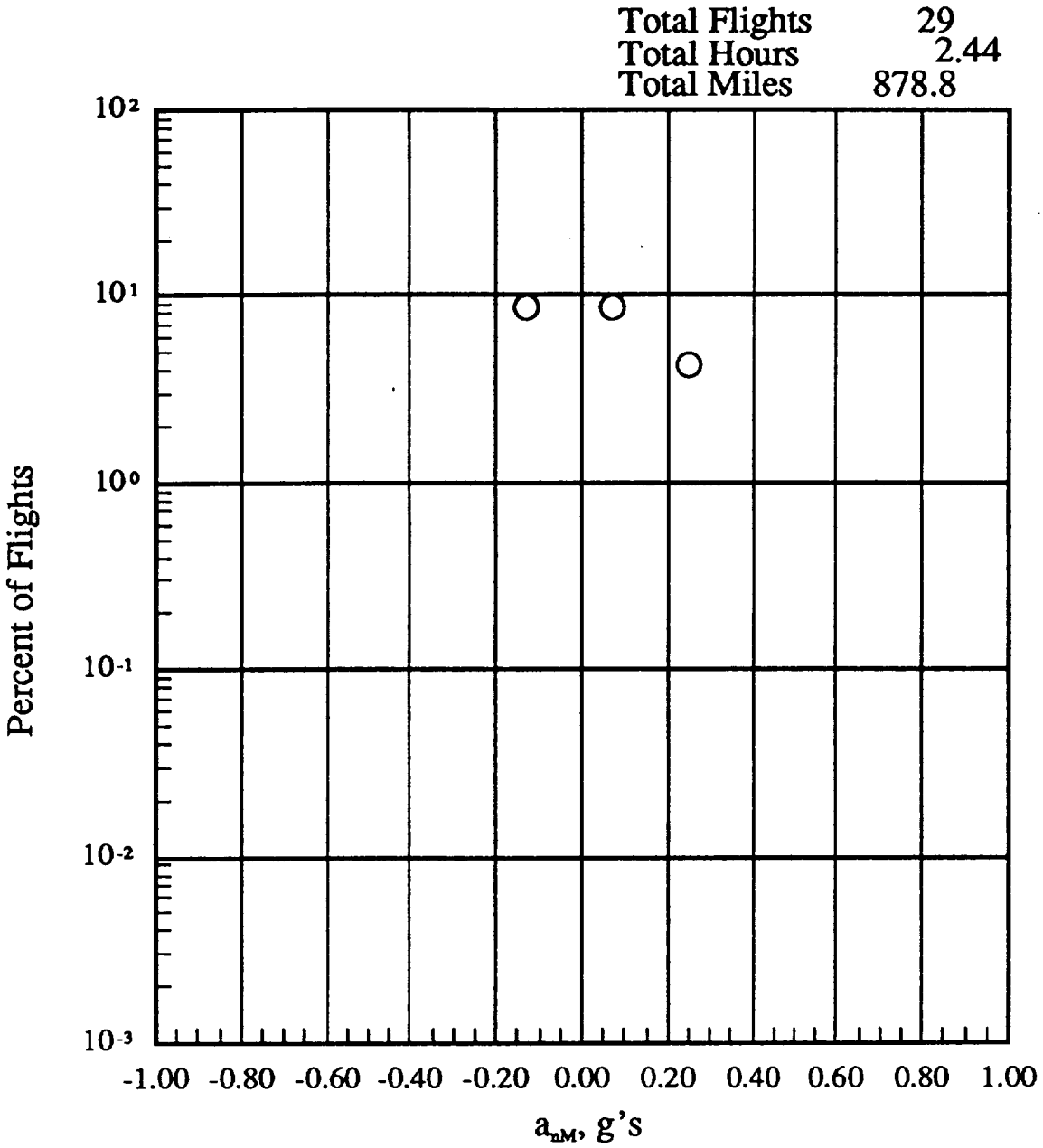
(b) -500 to 4500 feet altitude

Figure 17.- Continued.



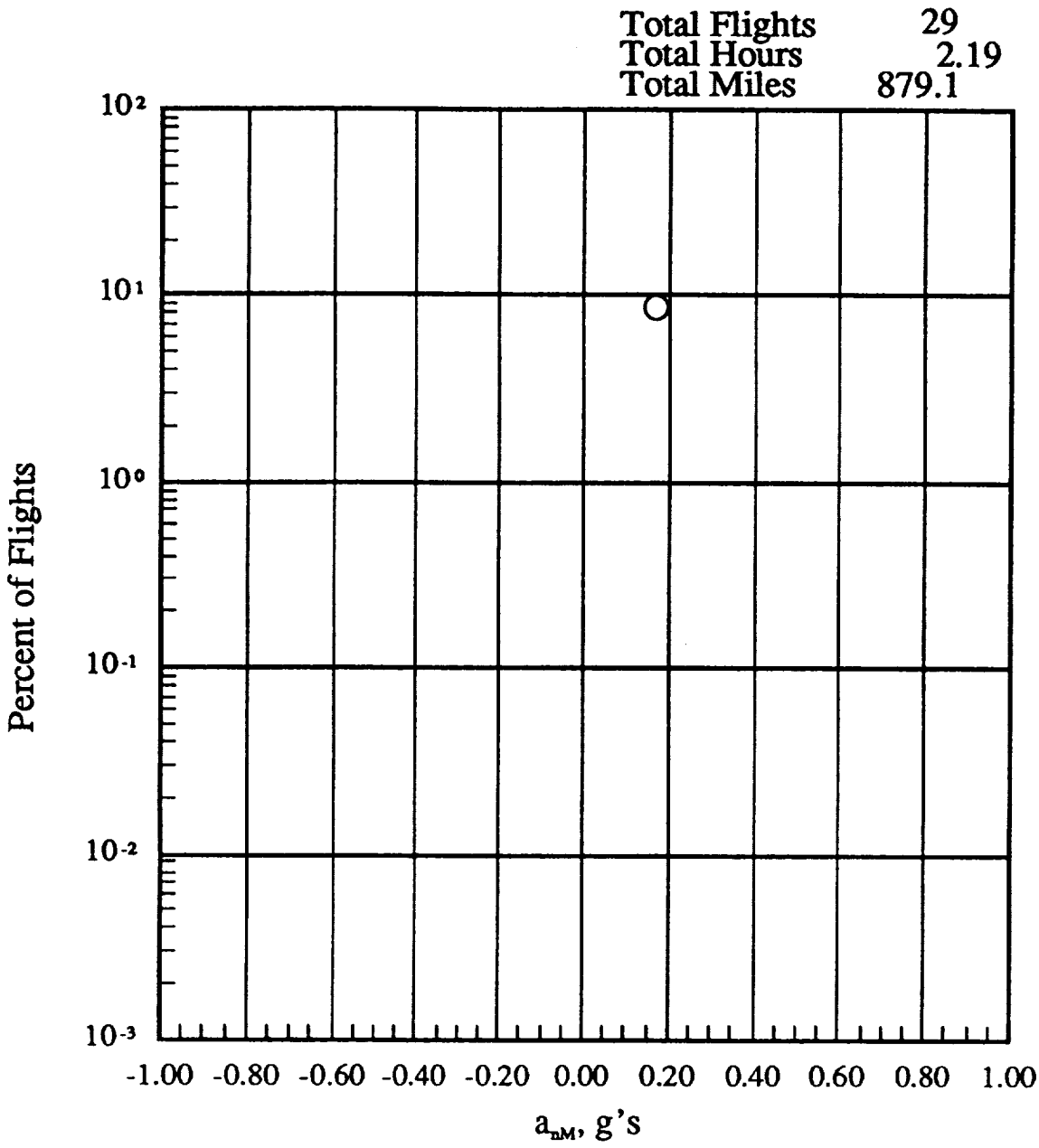
(c) 4500 to 9500 feet altitude

Figure 17.- Continued.



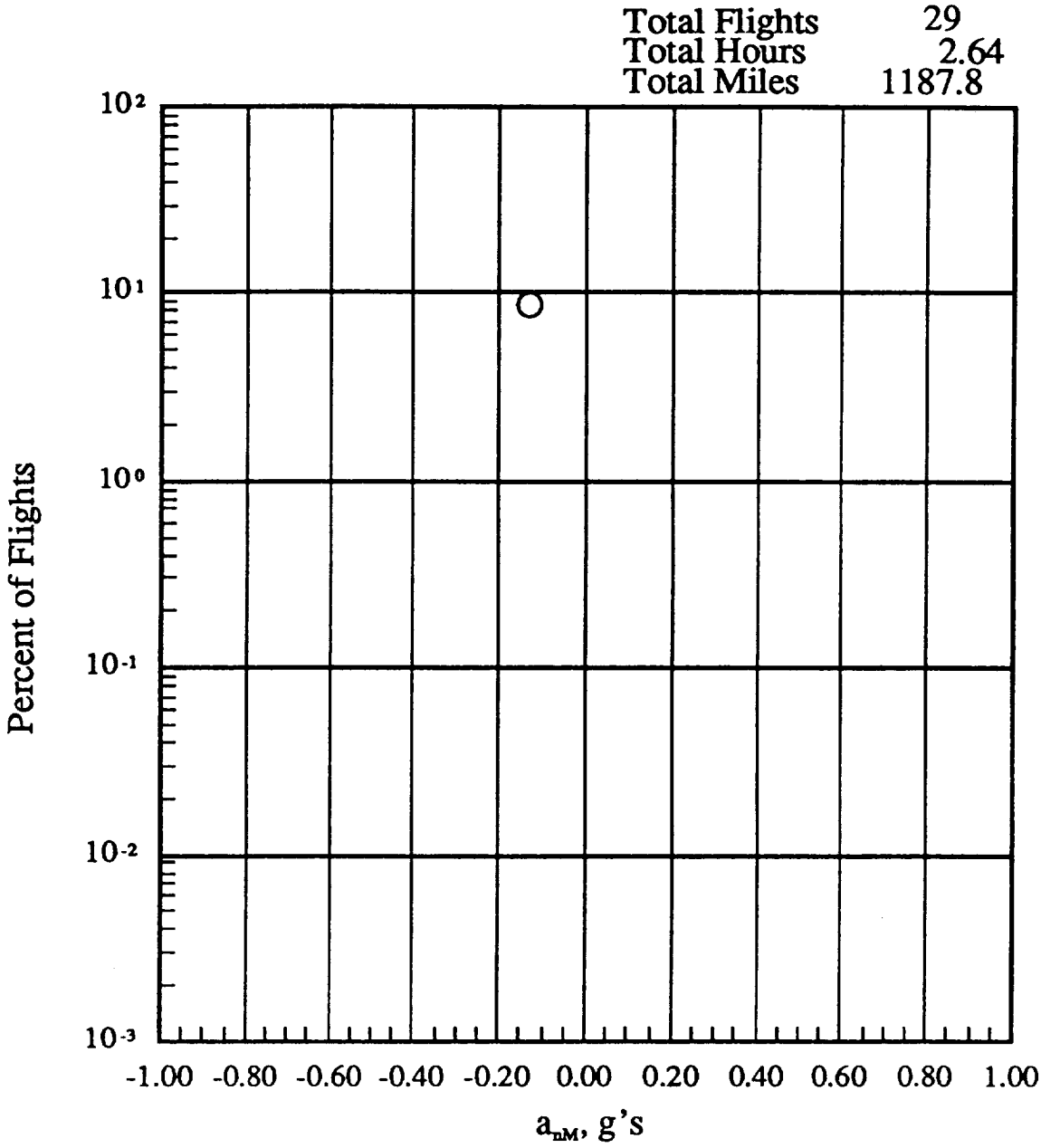
(d) 9500 to 14500 feet altitude

Figure 17.- Continued.



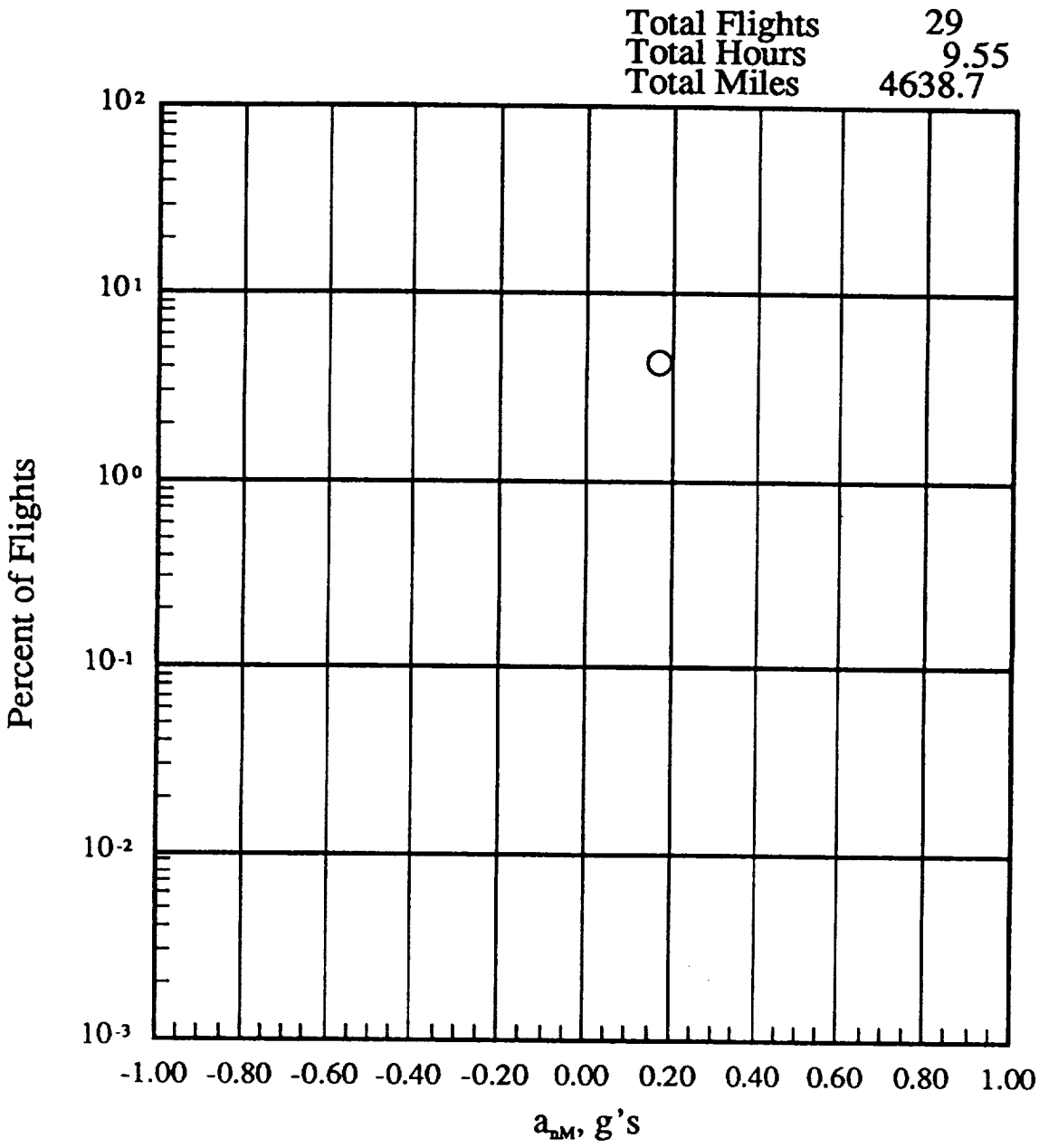
(e) 14500 to 19500 feet altitude

Figure 17.- Continued.



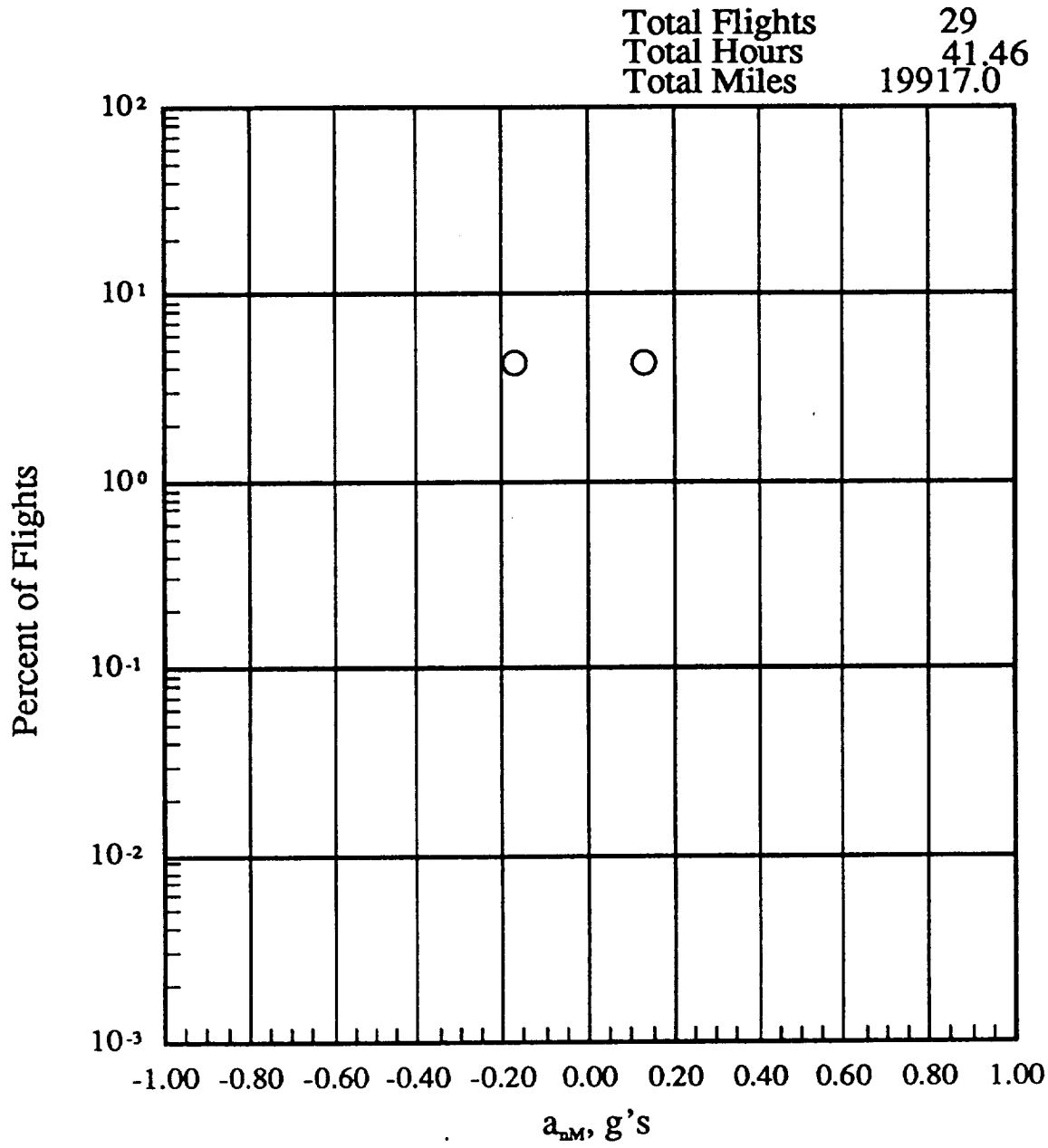
(f) 19500 to 24500 feet altitude

Figure 17.- Continued.



(g) 24500 to 29500 feet altitude

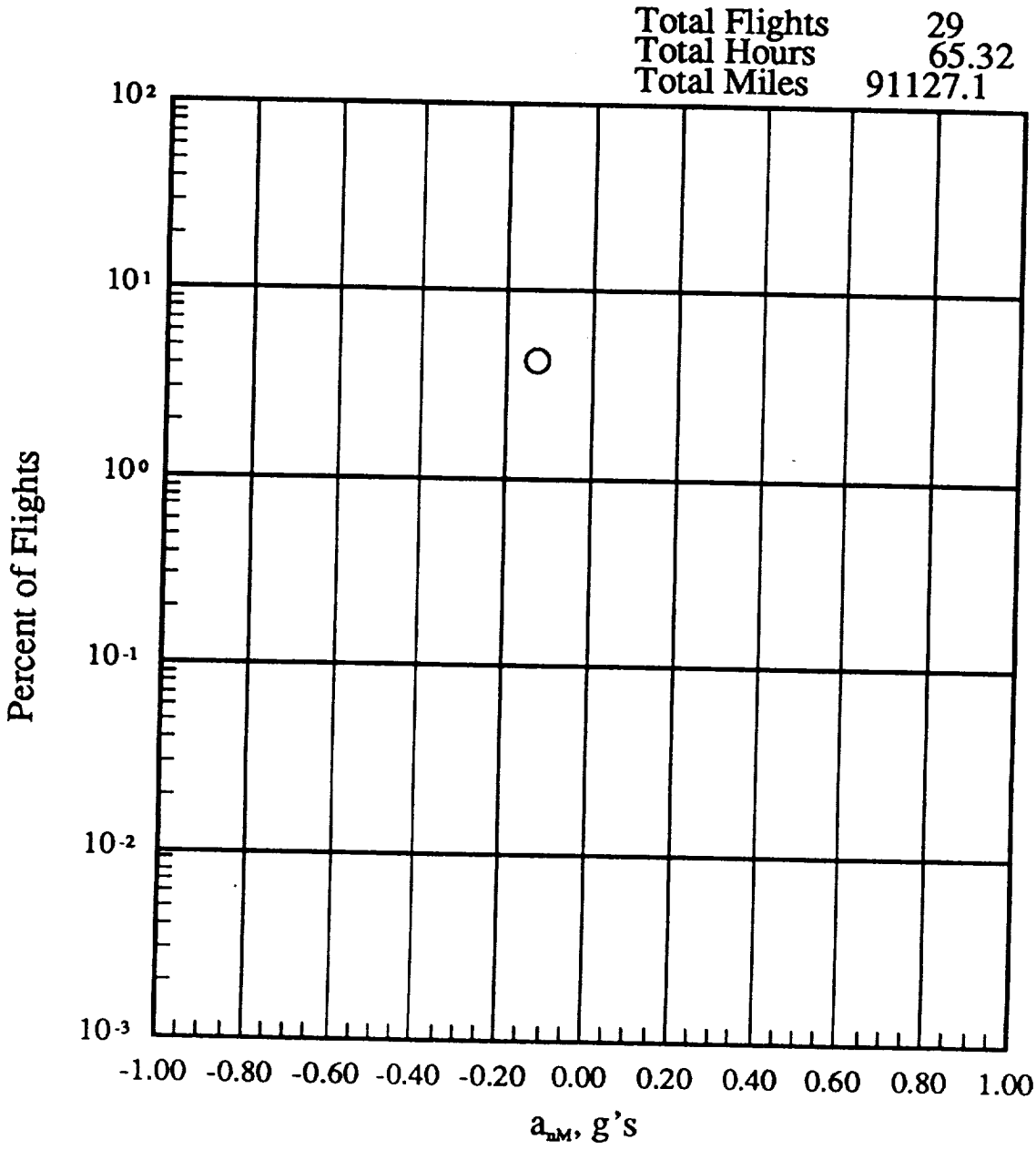
Figure 17.- Continued.



(h) 29500 to 34500 feet altitude

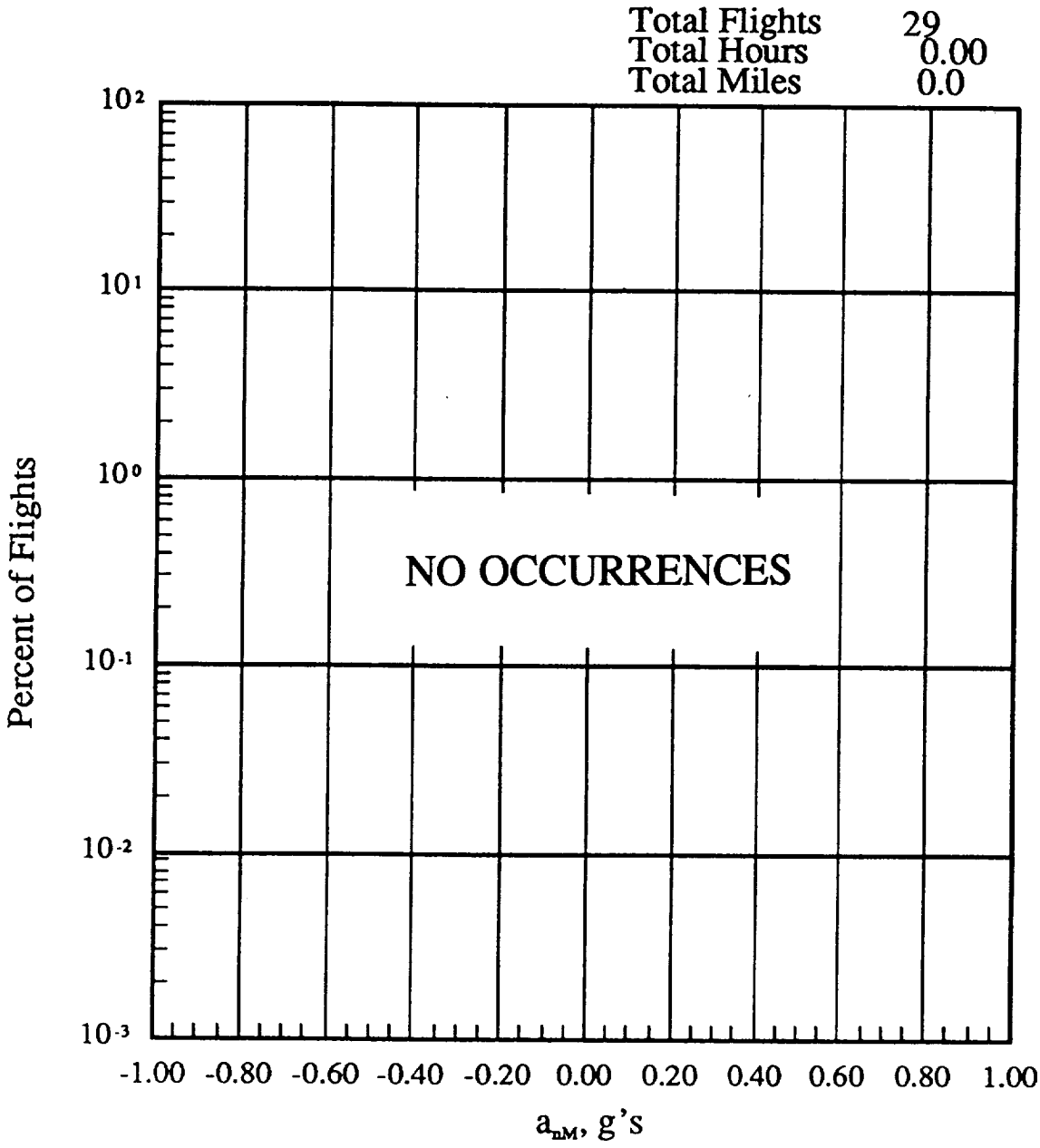
Figure 17.- Continued.

C.2



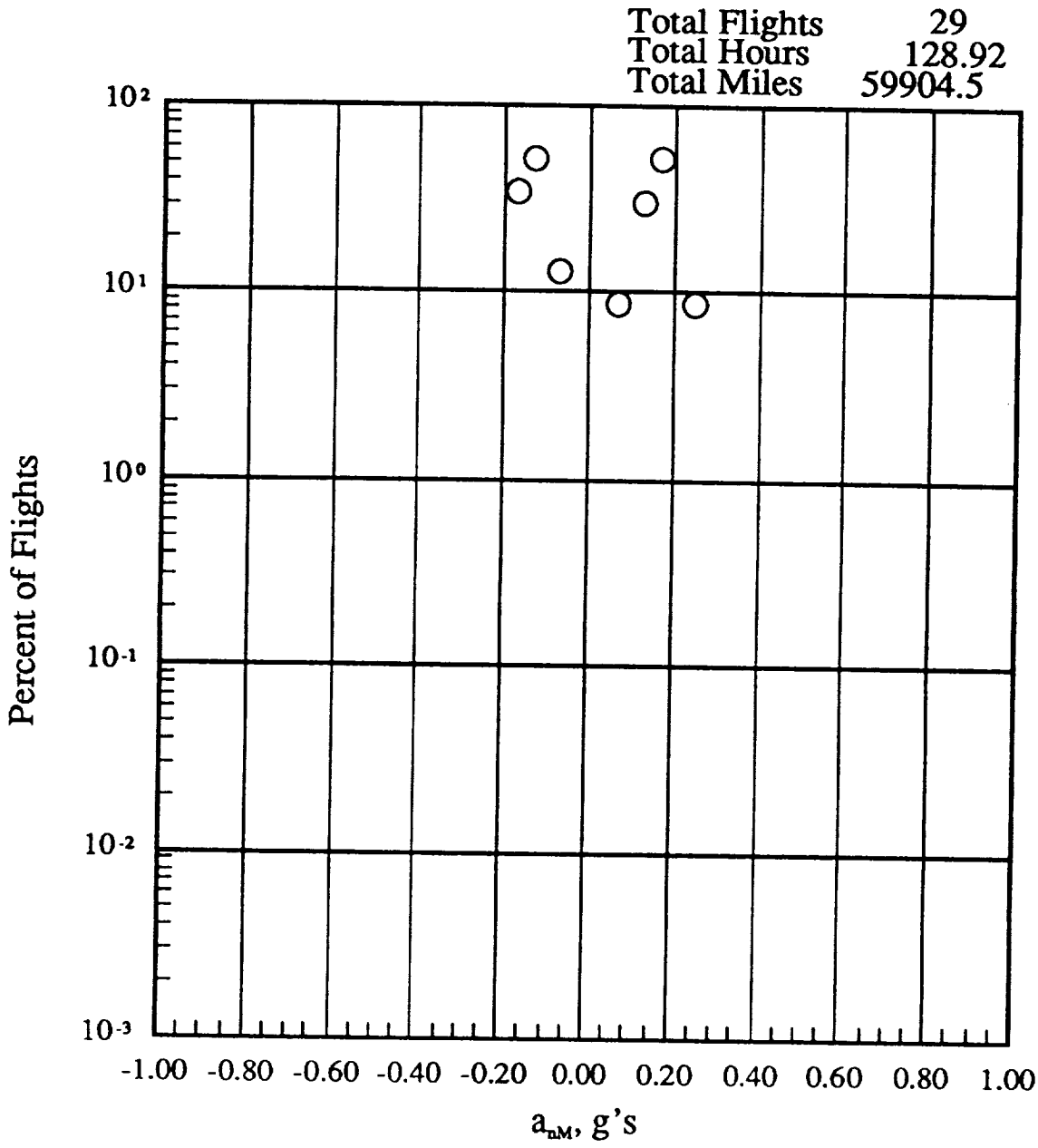
(i) 34500 to 39500 feet altitude

Figure 17.- Continued.



(j) 39500 to 44500 feet altitude

Figure 17.- Continued.



(k) -500 to 44500 feet altitude

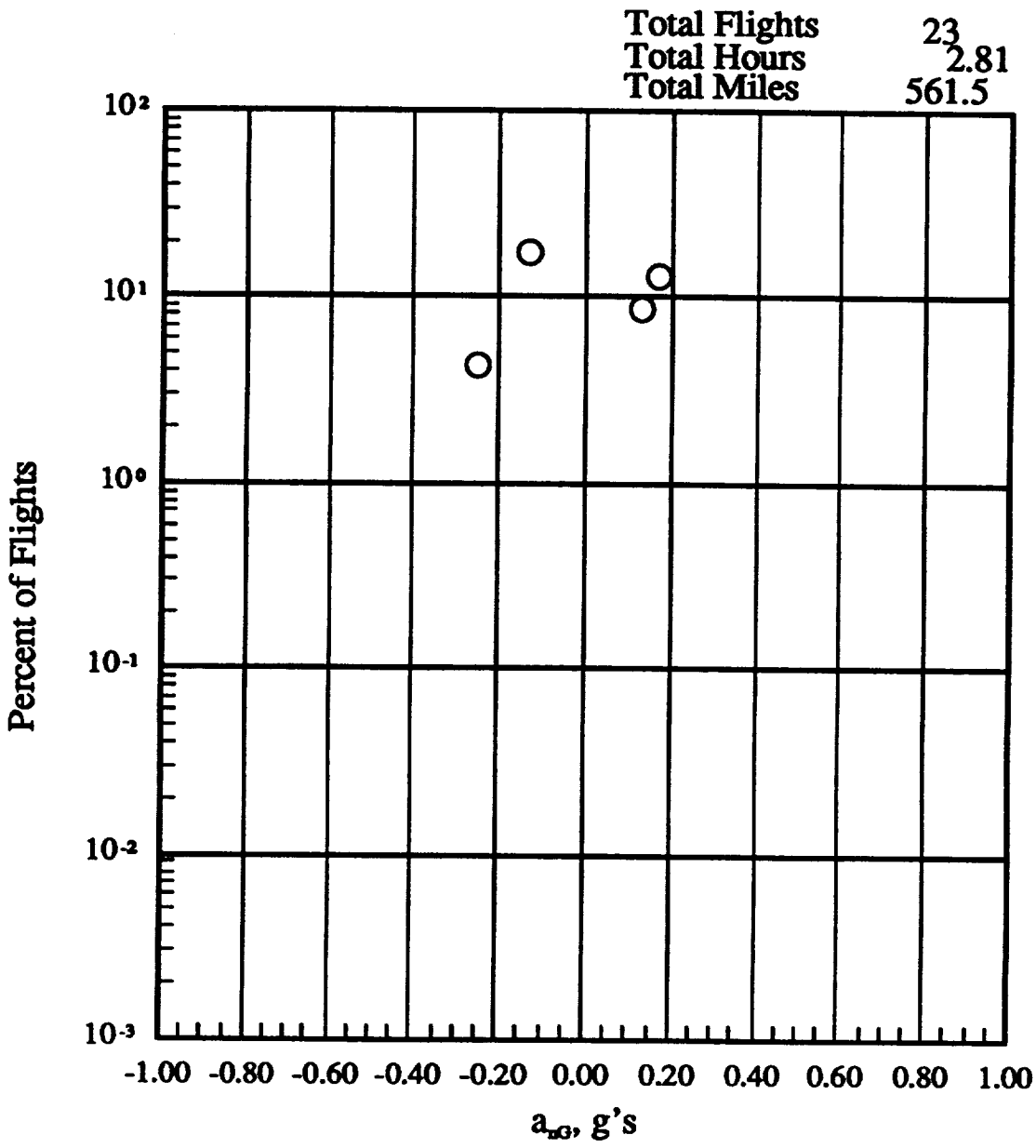
Figure 17.- Concluded.

PRESSURE ALTITUDE BANDS

MAXIMUM a_{nG} LEVEL FOR EACH FLIGHT g'S FROM	TO	-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	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

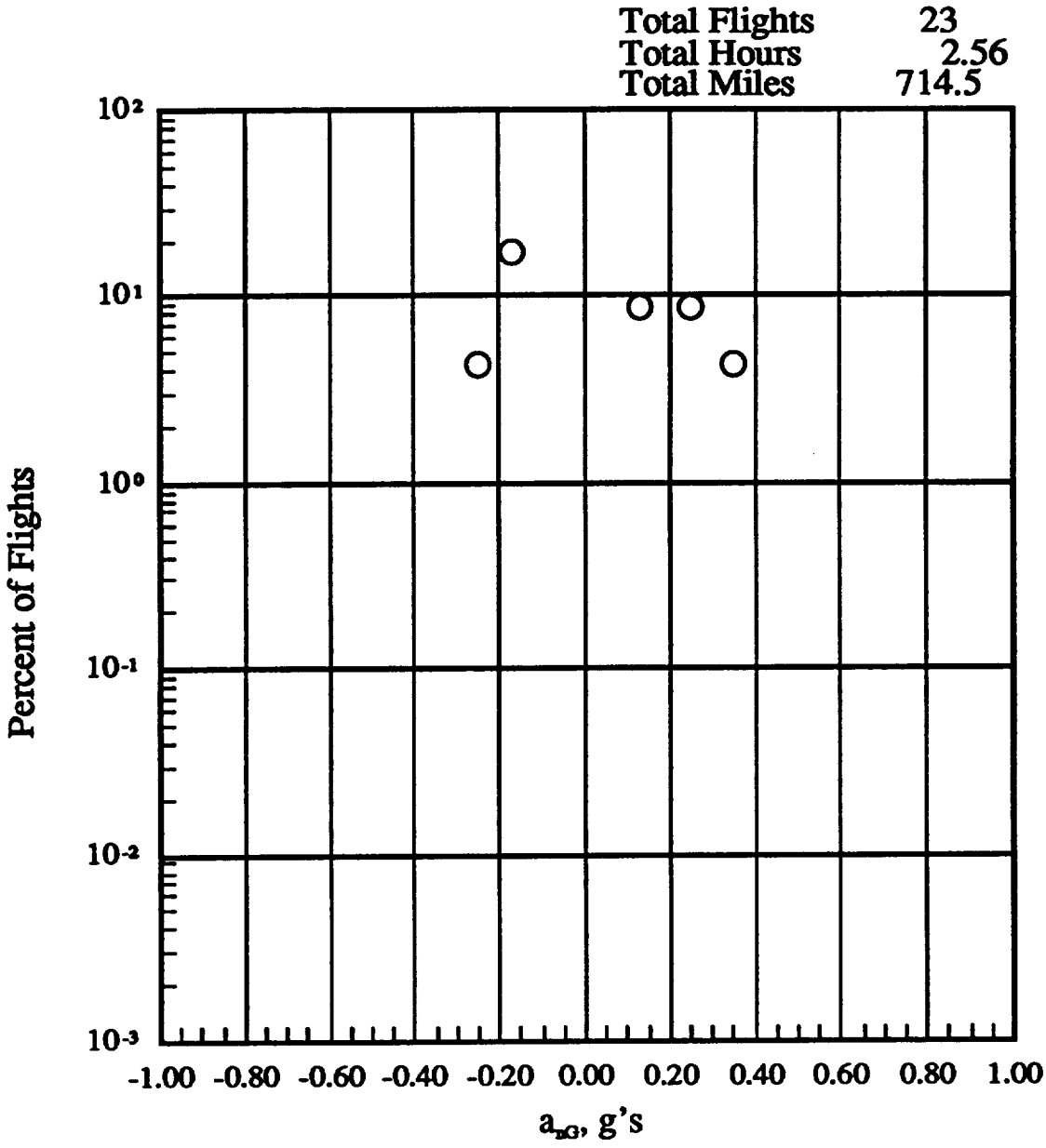
(a) Percent of flights where peak positive and negative a_{nG} per flight occurs within pressure altitude bands, any flap

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



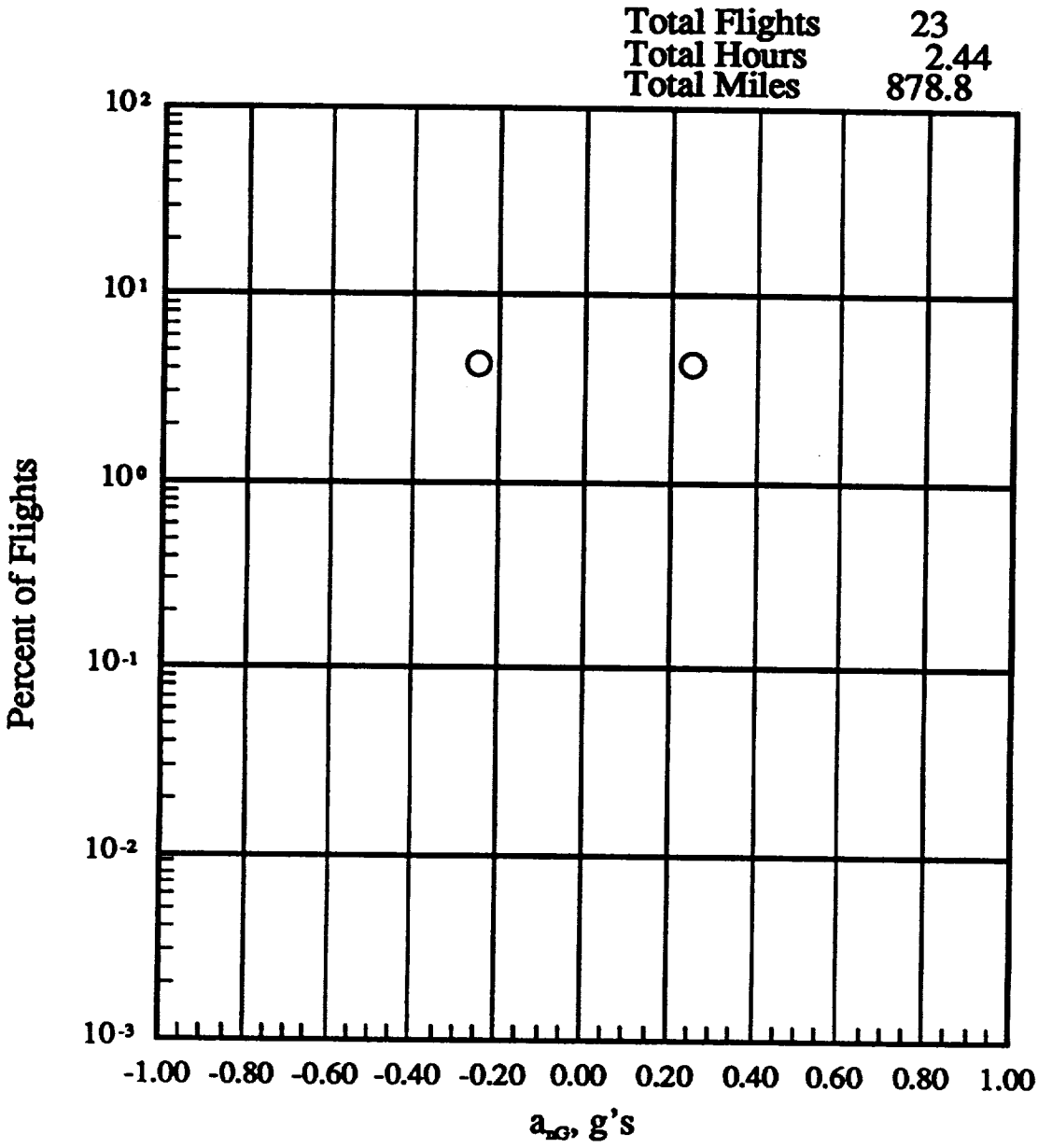
(b) -500 to 4500 feet altitude

Figure 18.- Continued.



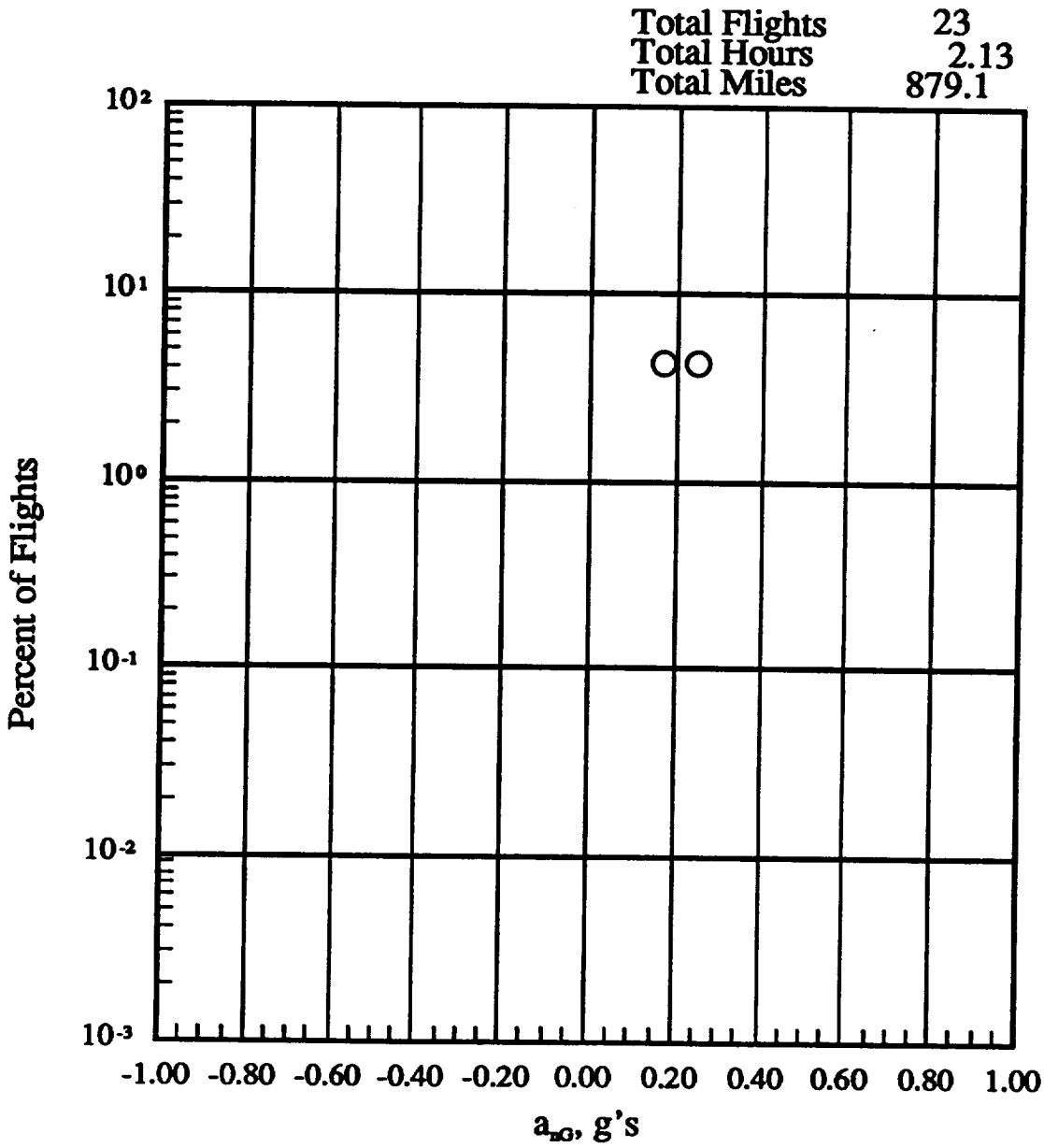
(c) 4500 to 9500 feet altitude

Figure 18.- Continued.



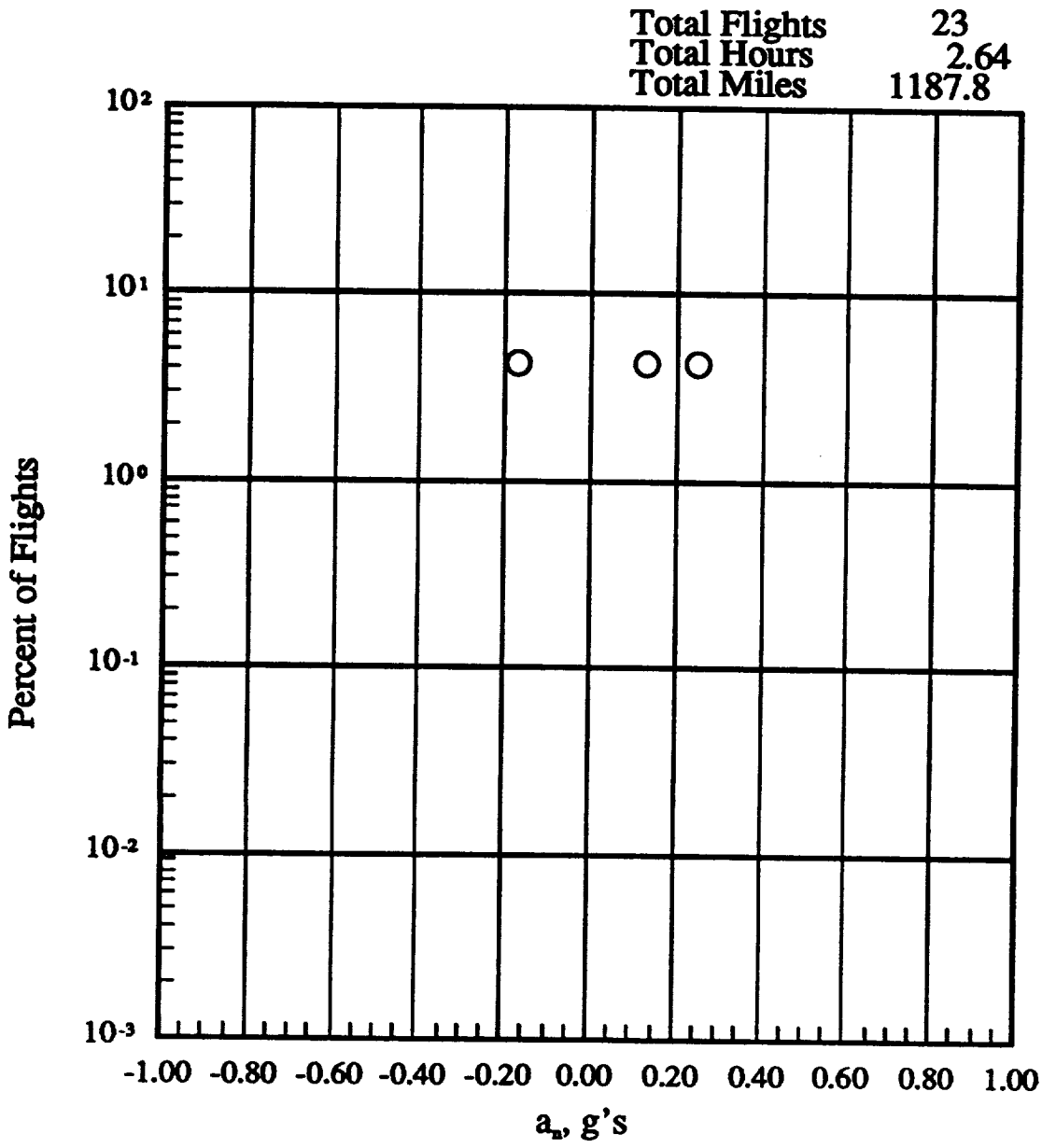
(d) 9500 to 14500 feet altitude

Figure 18.- Continued.



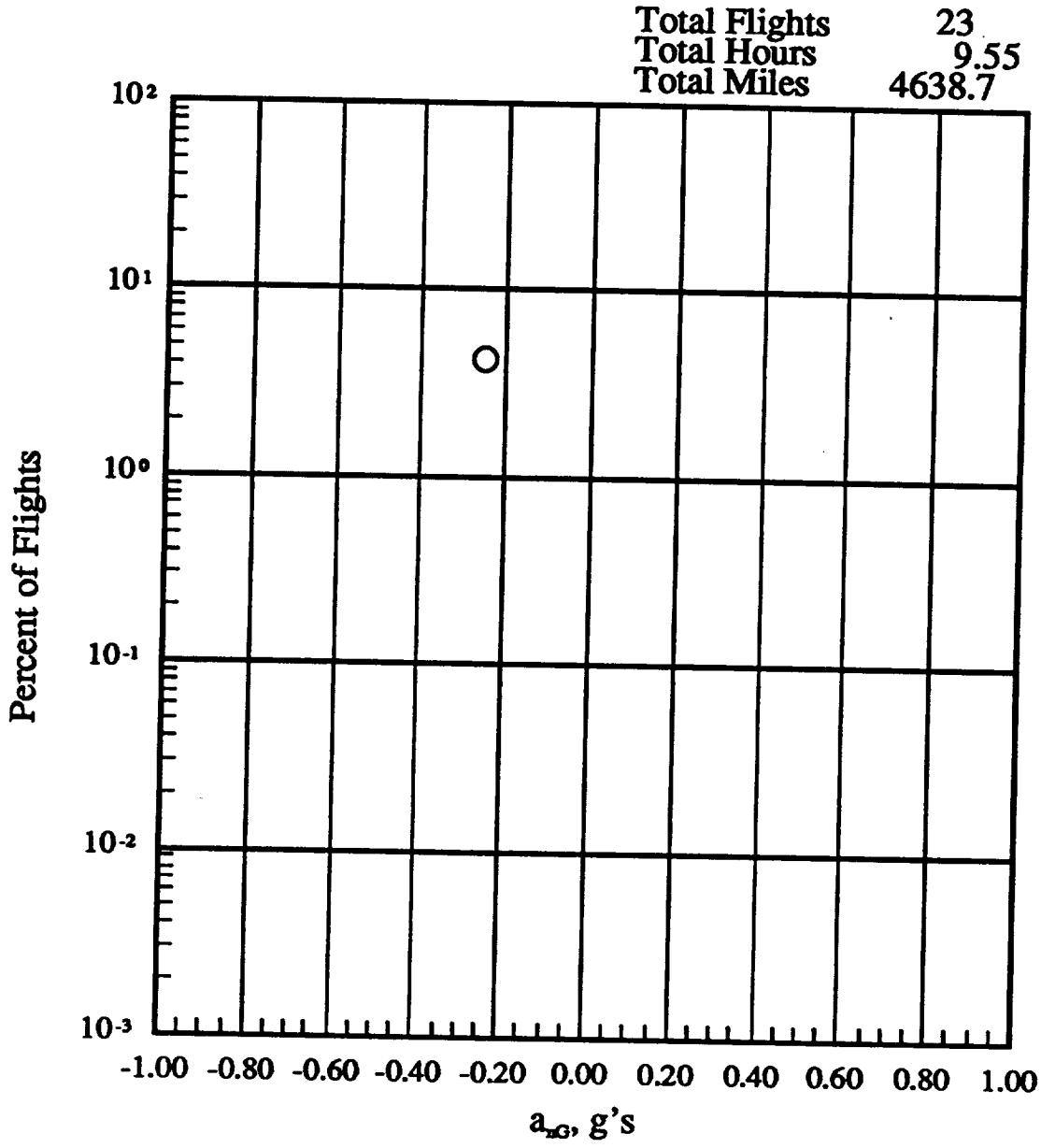
(e) 14500 to 19500 feet altitude

Figure 18.- Continued.



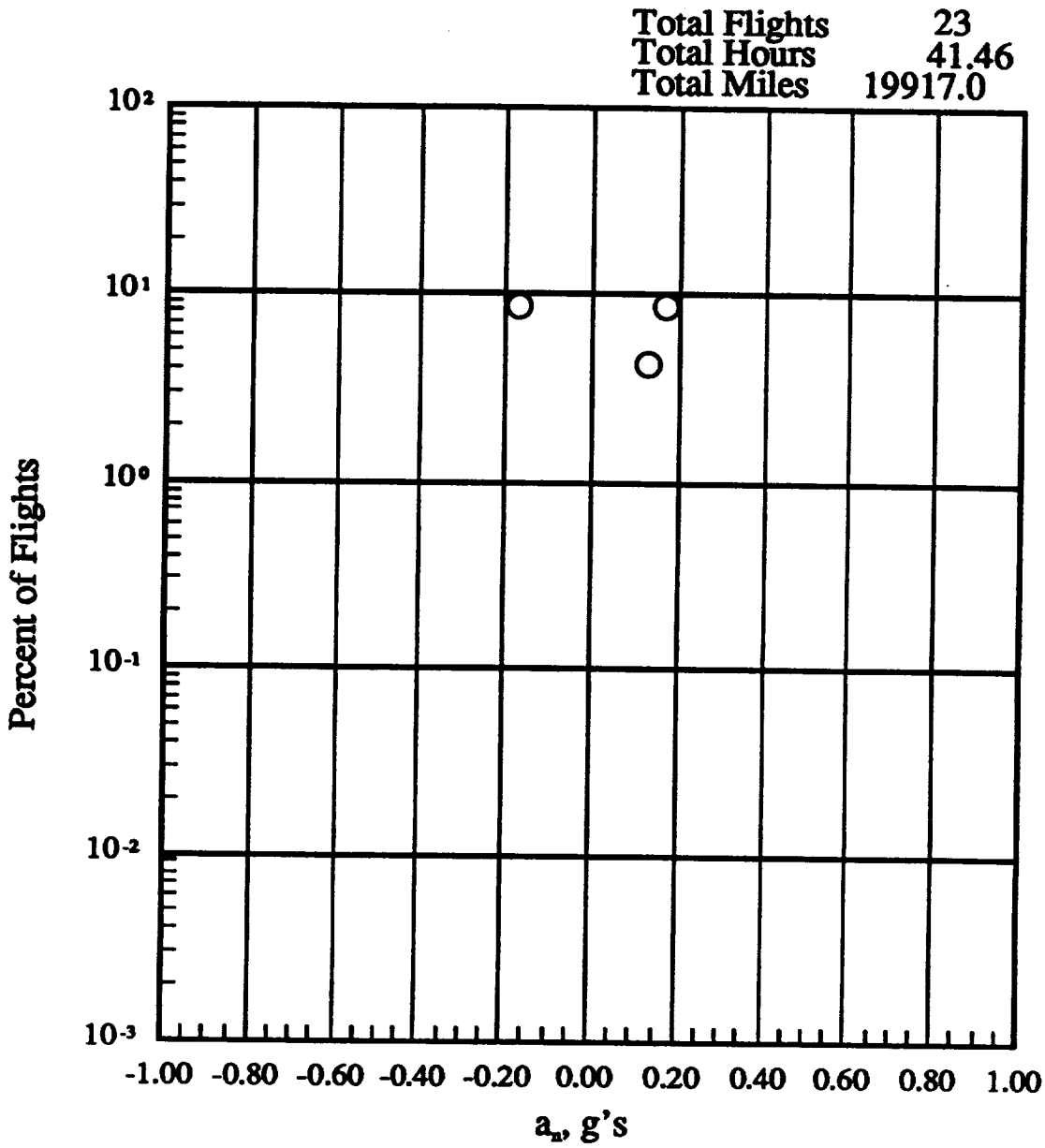
(f) 19500 to 24500 feet altitude

Figure 18.- Continued.



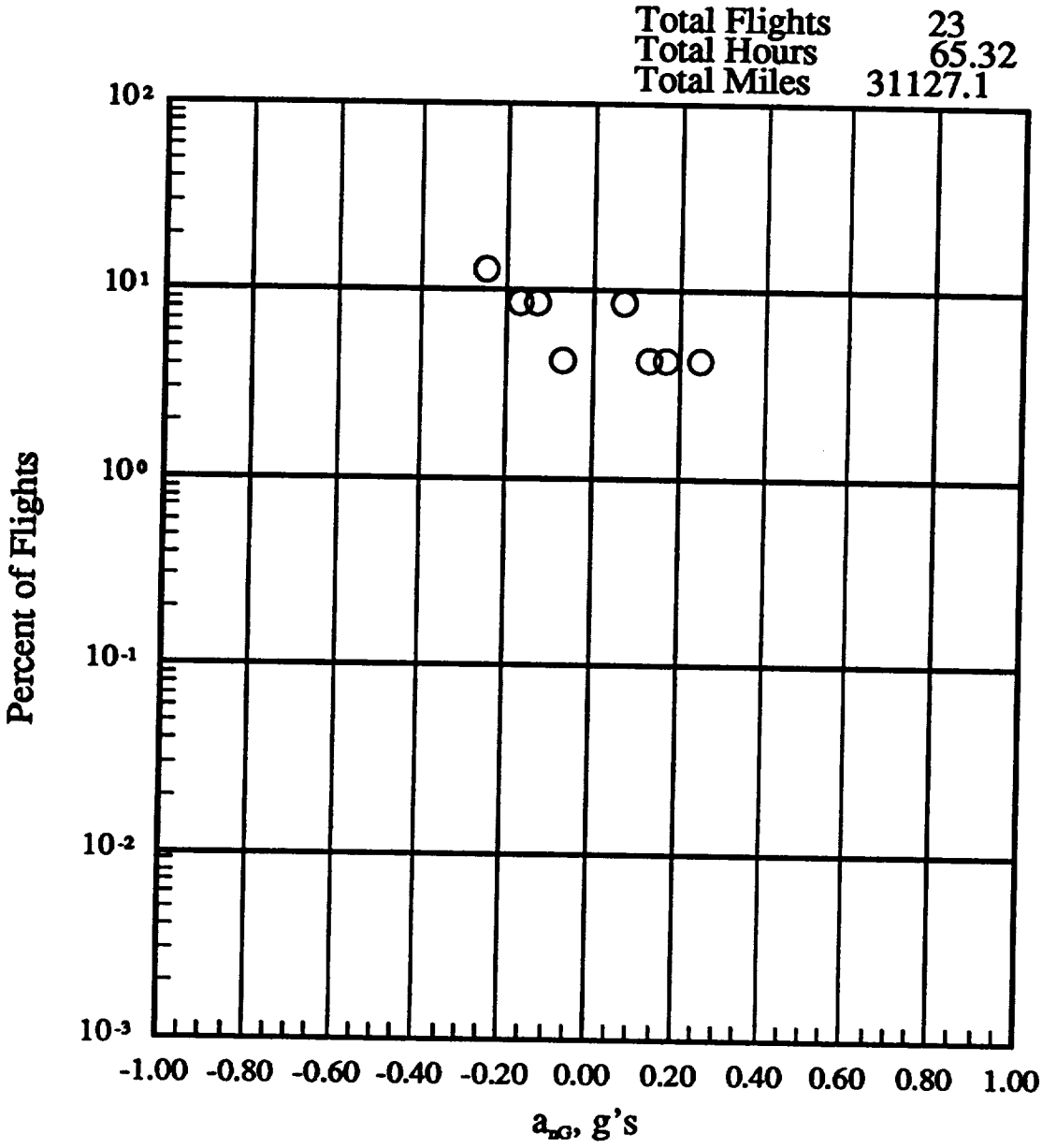
(g) 24500 to 29500 feet altitude

Figure 18.- Continued.



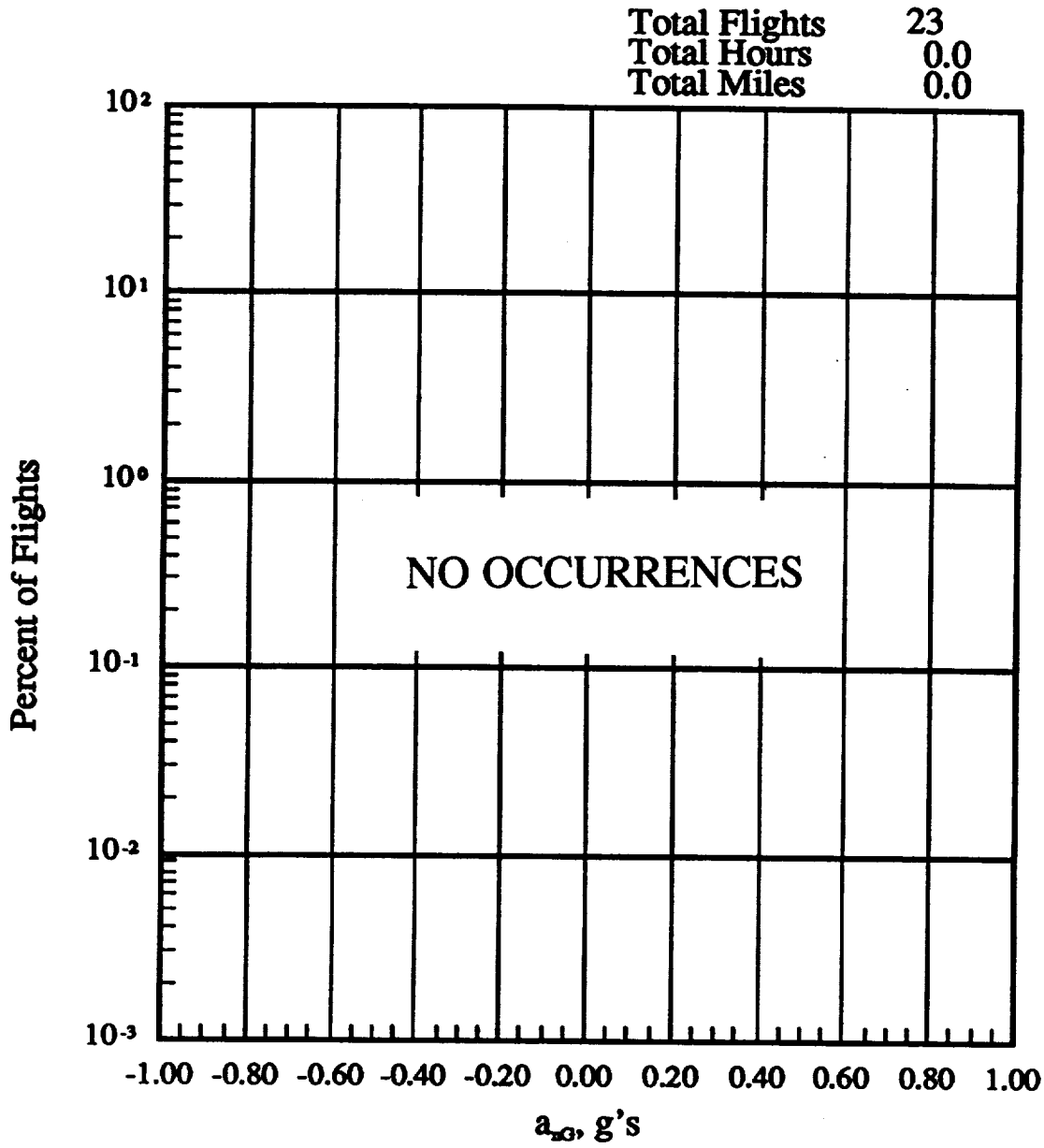
(h) 29500 to 34500 feet altitude

Figure 18.- Continued.



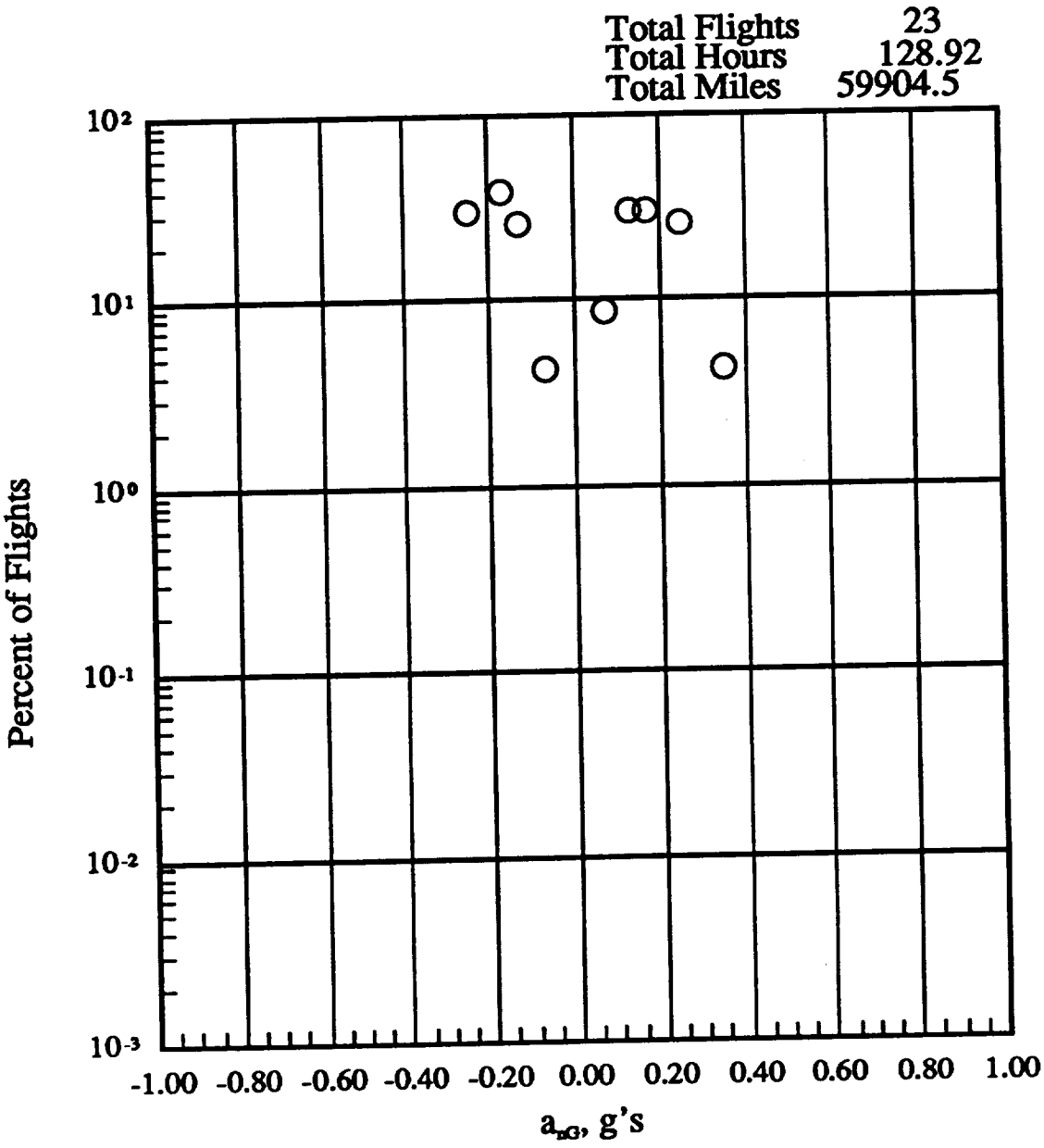
(i) 34500 to 39500 feet altitude

Figure 18.- Continued.



(j) 39500 to 44500 feet altitude

Figure 18.- Continued.



(k) -500 to 44500 feet altitude

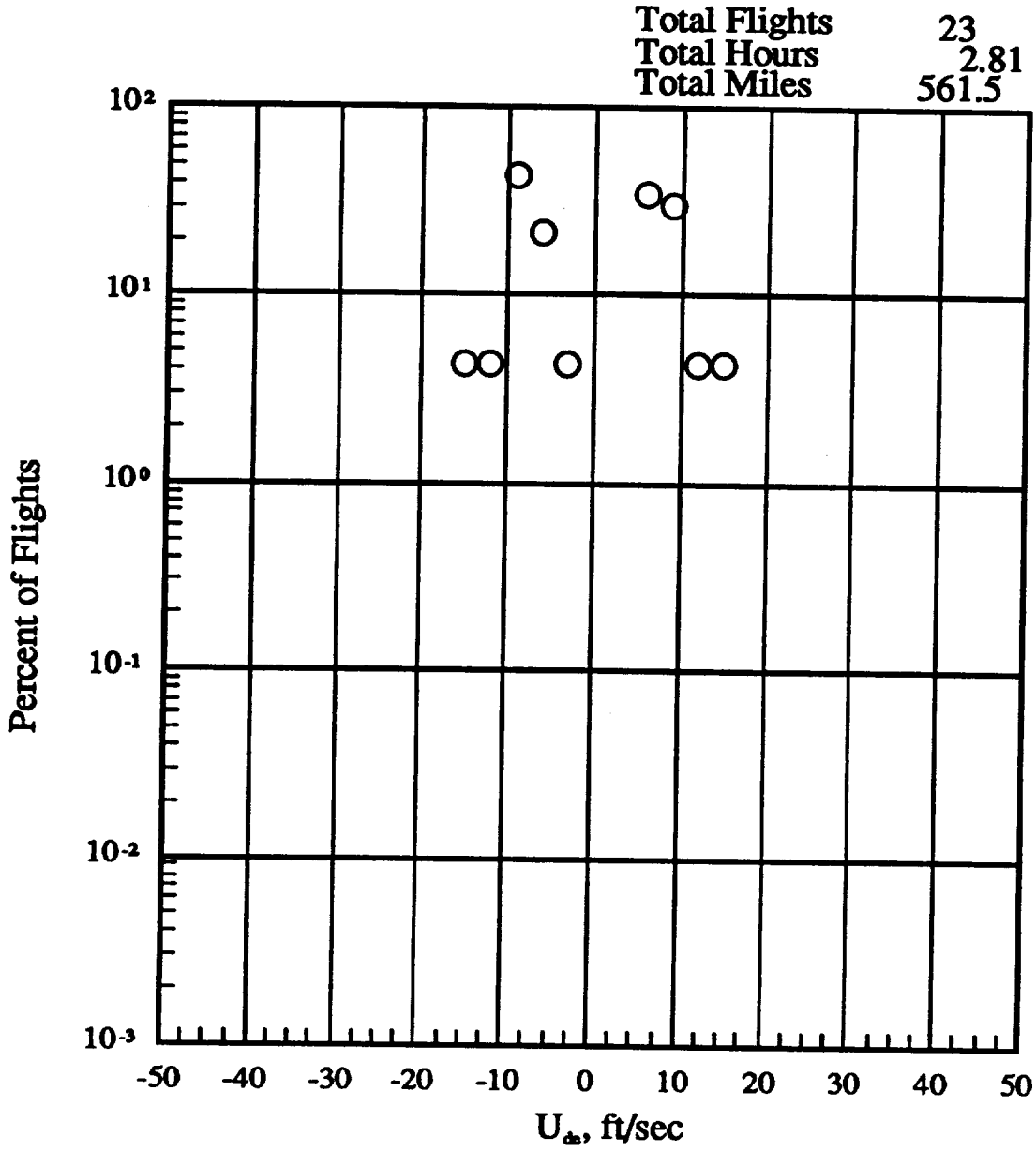
Figure 18.- Concluded.

PRESSURE ALTITUDE BANDS

MAXIMUM U_{de} LEVEL FOR EACH FLIGHT 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	4.3	4.3	0	0	0	0	0	0	0	0
12	4.3	0	0	0	0	0	0	0	0	8.7
9	30.4	8.7	0	4.3	0	0	0	0	0	4.3
6	34.8	0	0	0	0	0	0	0	0	43.5
3	0	0	0	0	0	0	4.3	4.3	0	43.5
							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

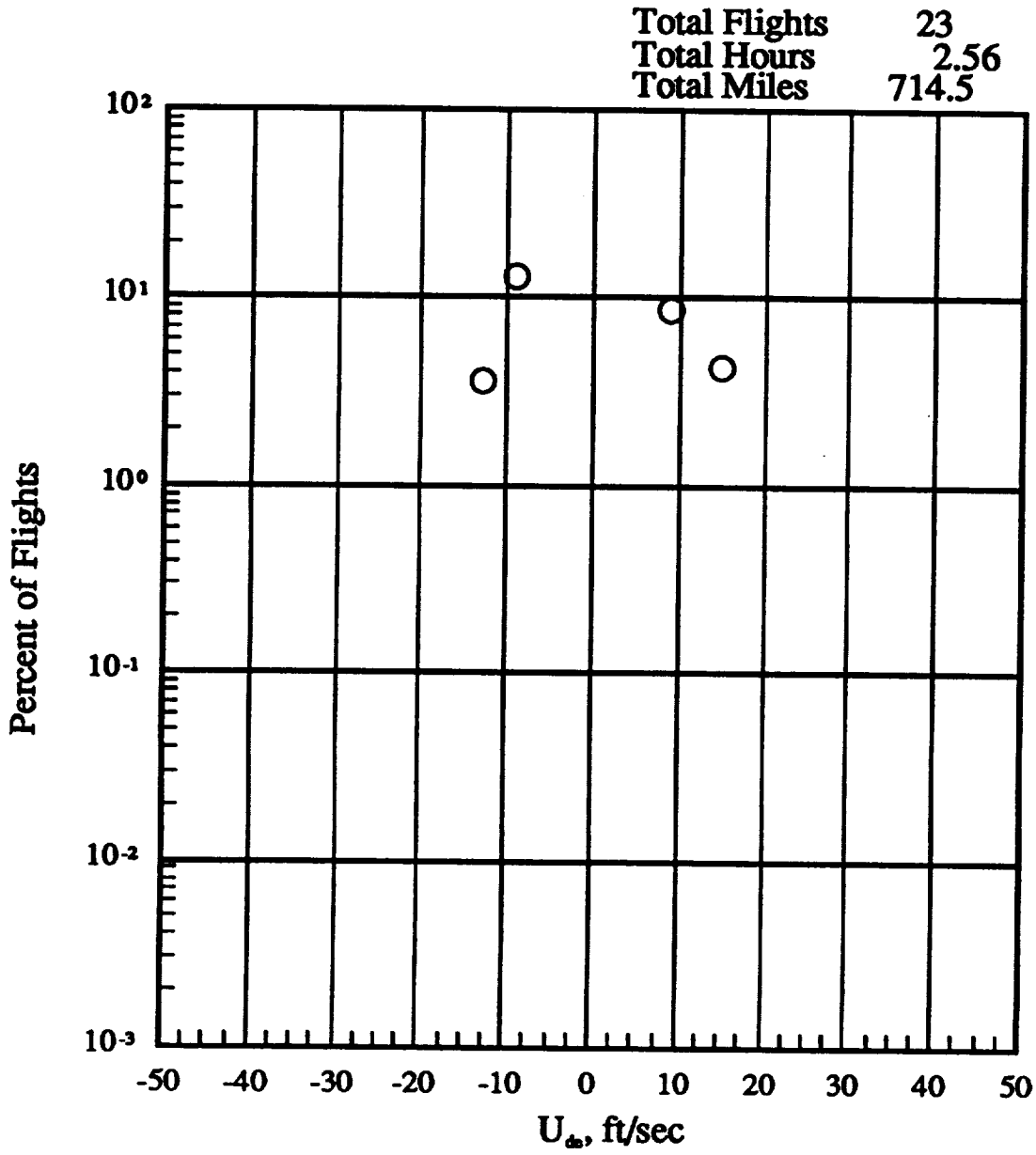
(a) Percent of flights where peak positive and negative U_{de} per flight occurs within pressure altitude bands, any flap

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



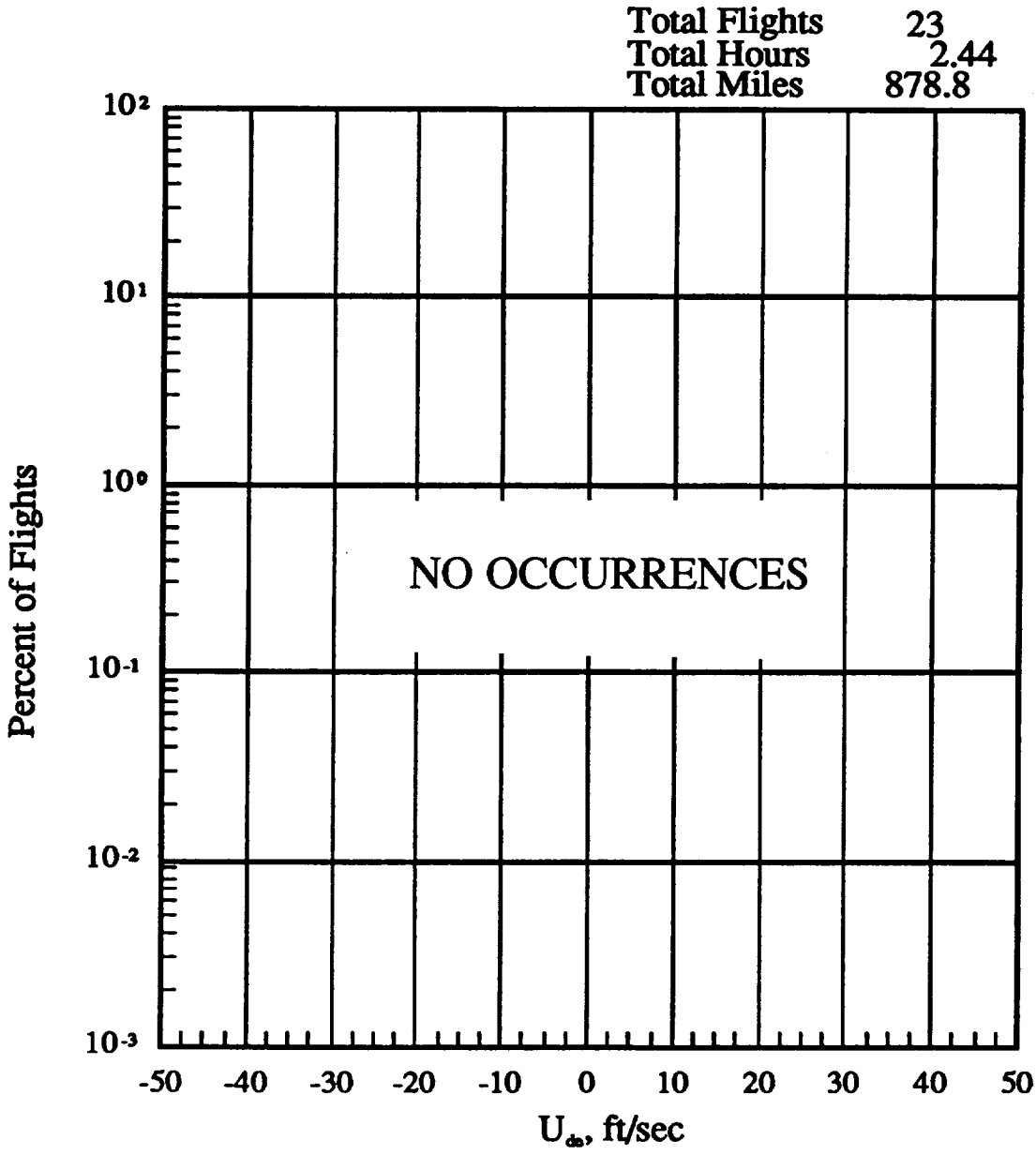
(b) -500 to 4500 feet altitude

Figure 19.- Continued.



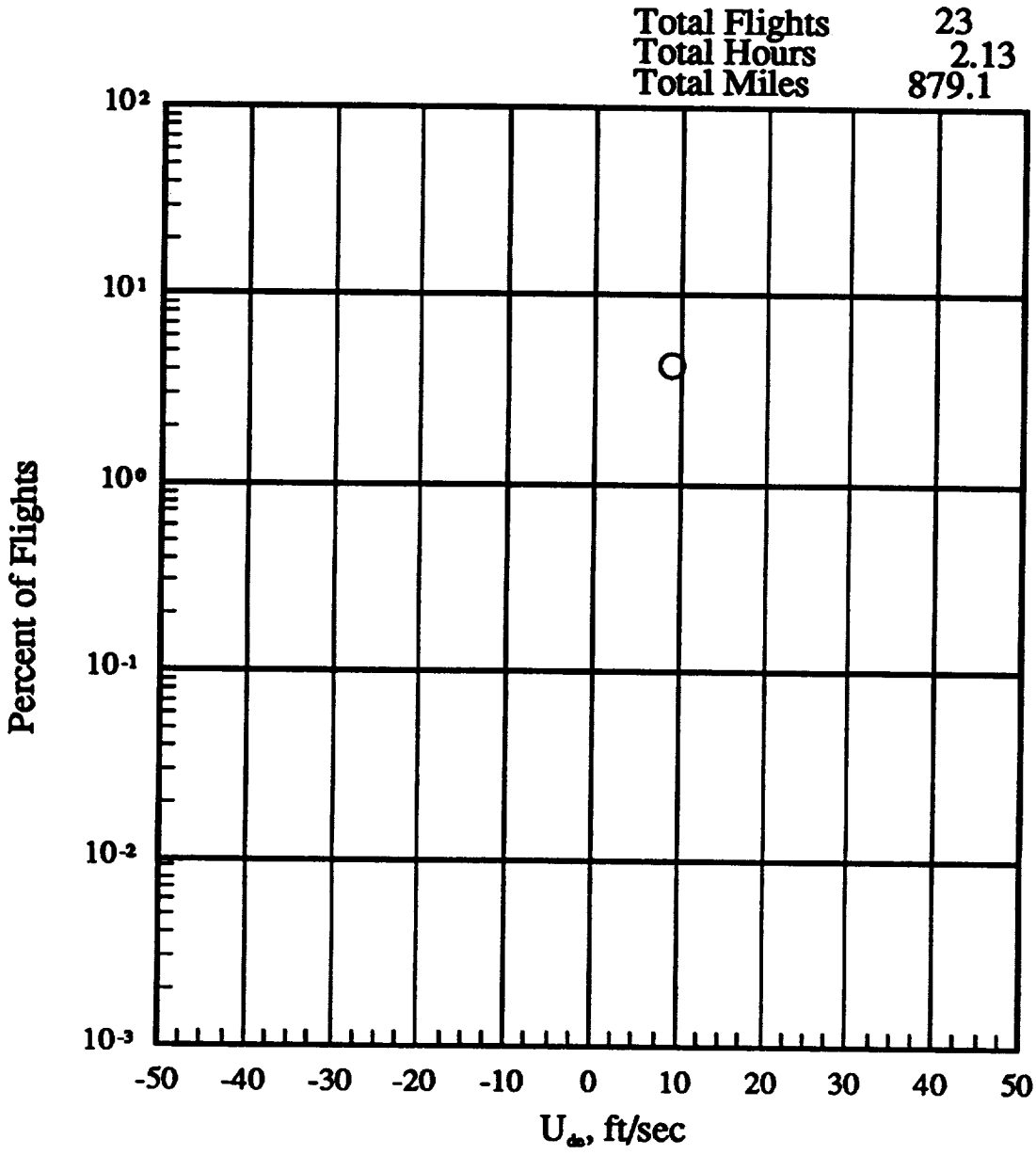
(c) 4500 to 9500 feet altitude

Figure 19.- Continued.



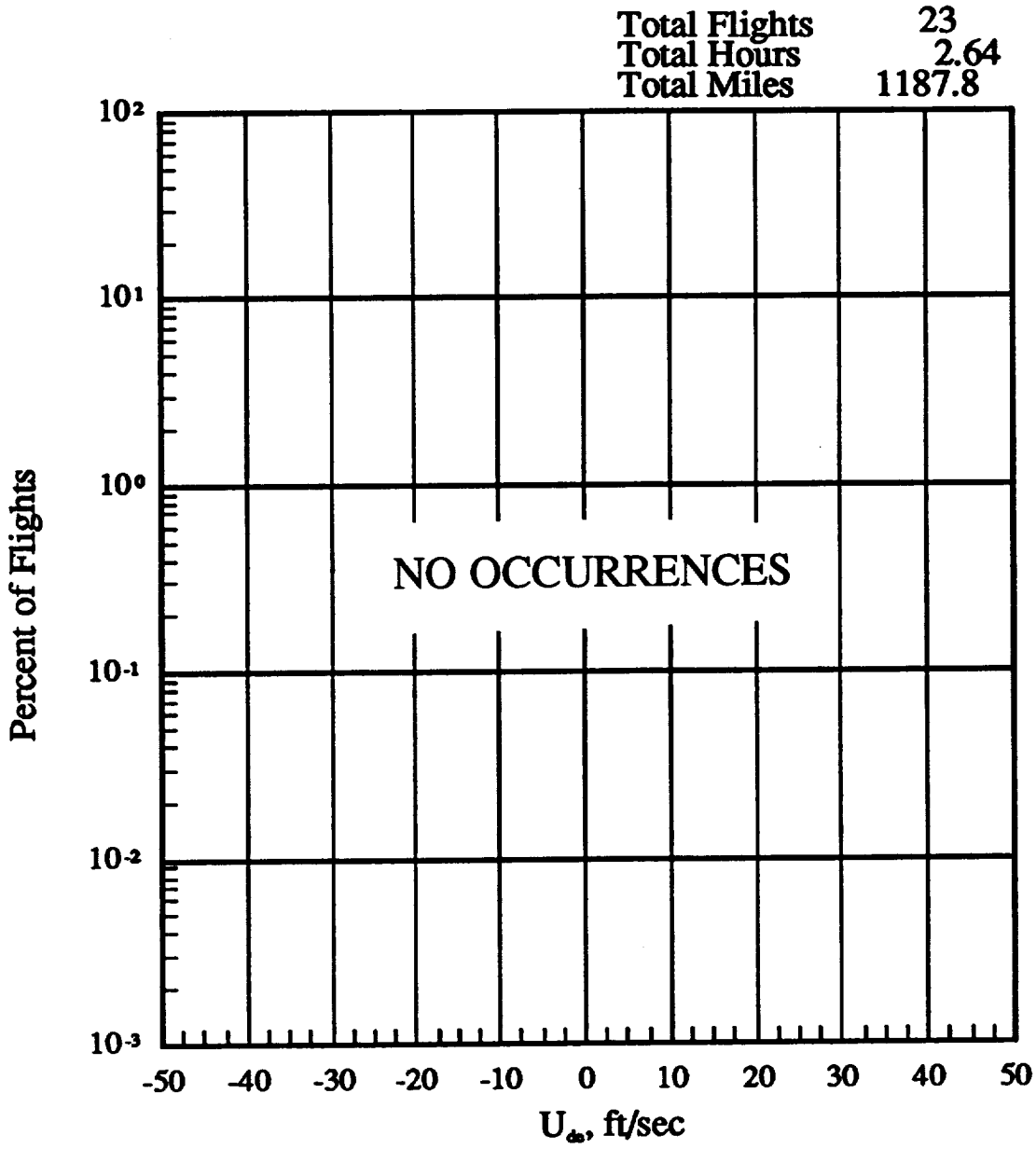
(d) 9500 to 14500 feet altitude

Figure 19.- Continued.



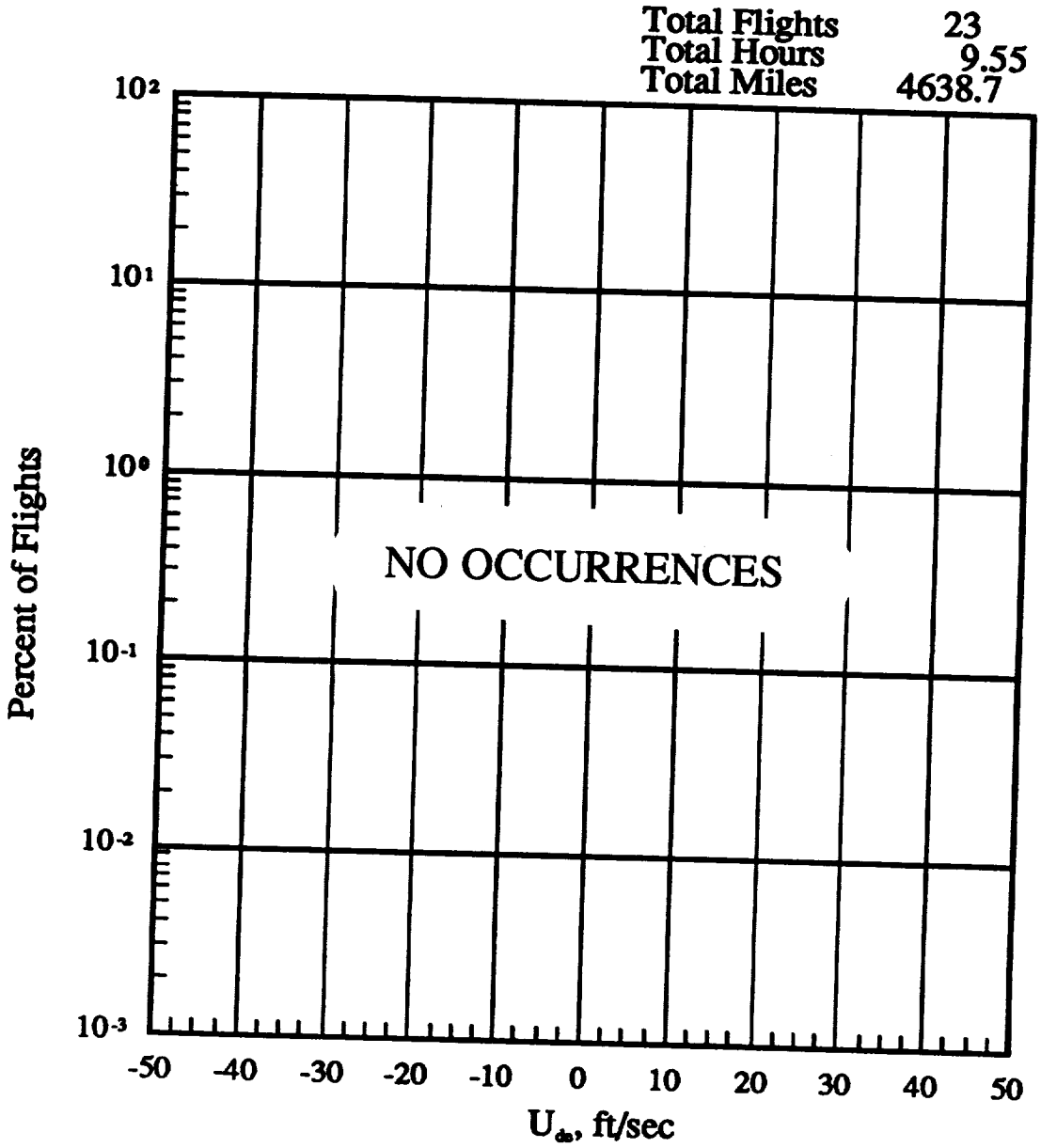
(e) 14500 to 19500 feet altitude

Figure 19.- Continued.



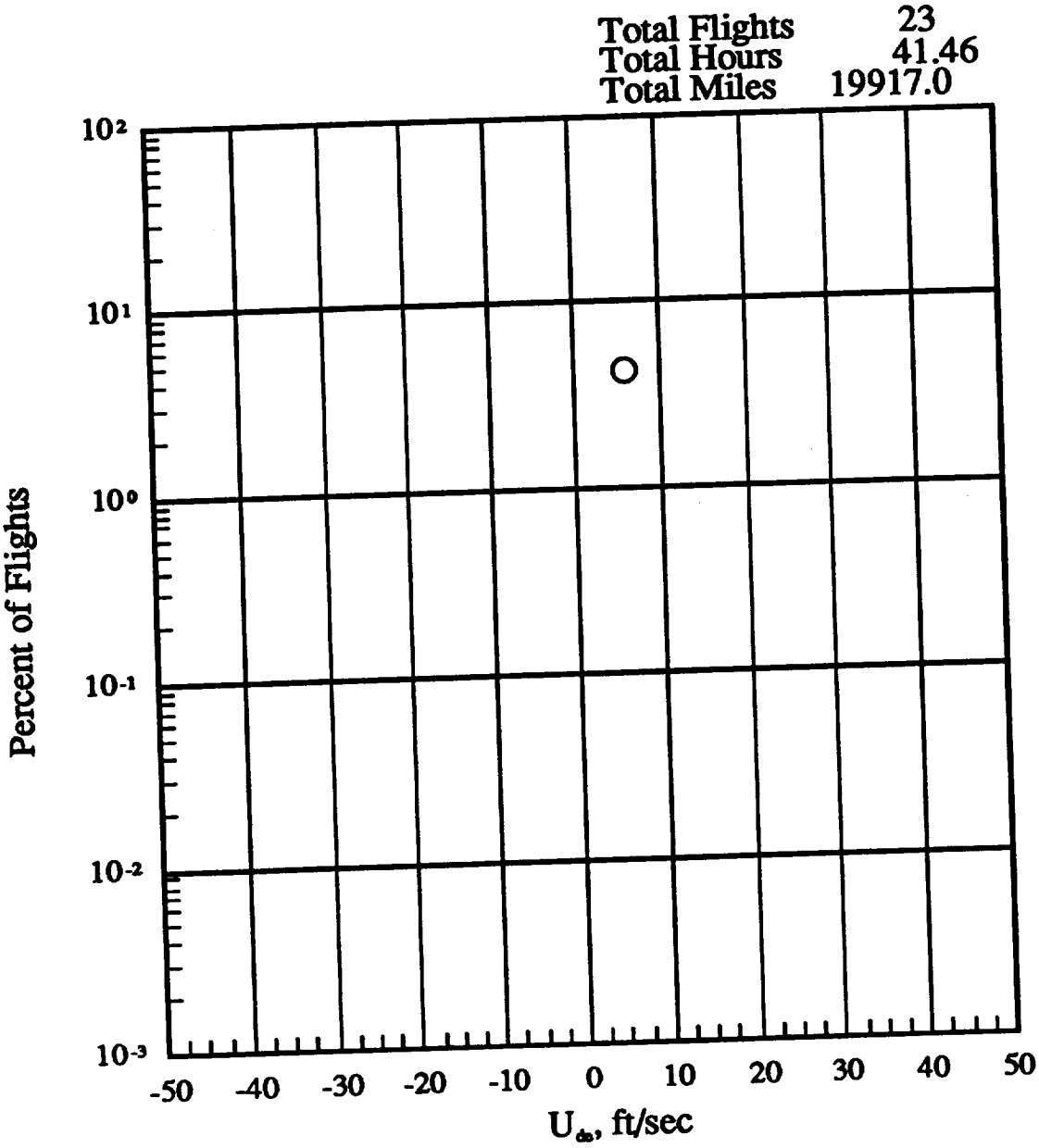
(f) 19500 to 24500 feet altitude

Figure 19.- Continued.



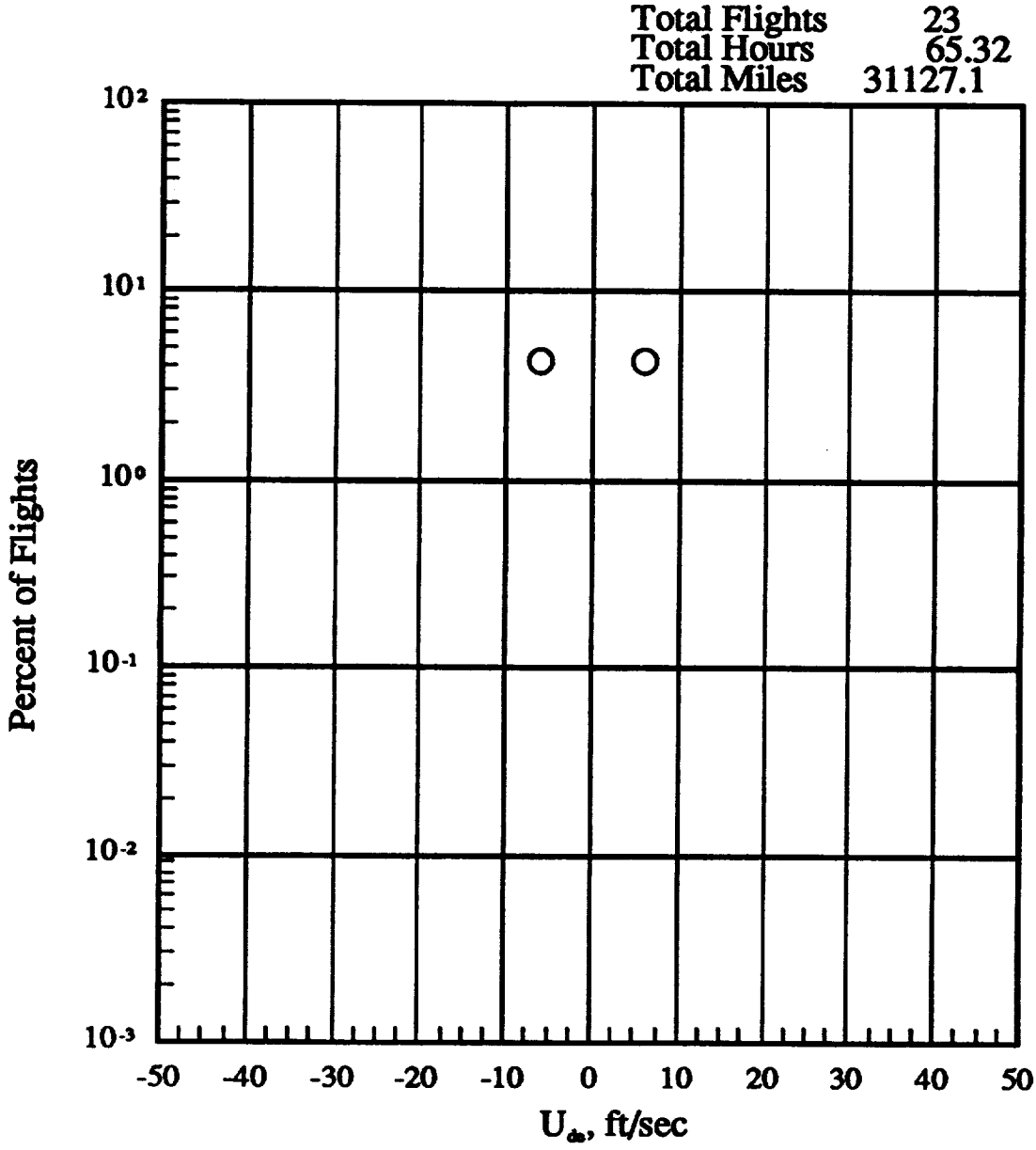
(g) 24500 to 29500 feet altitude

Figure 19.- Continued.



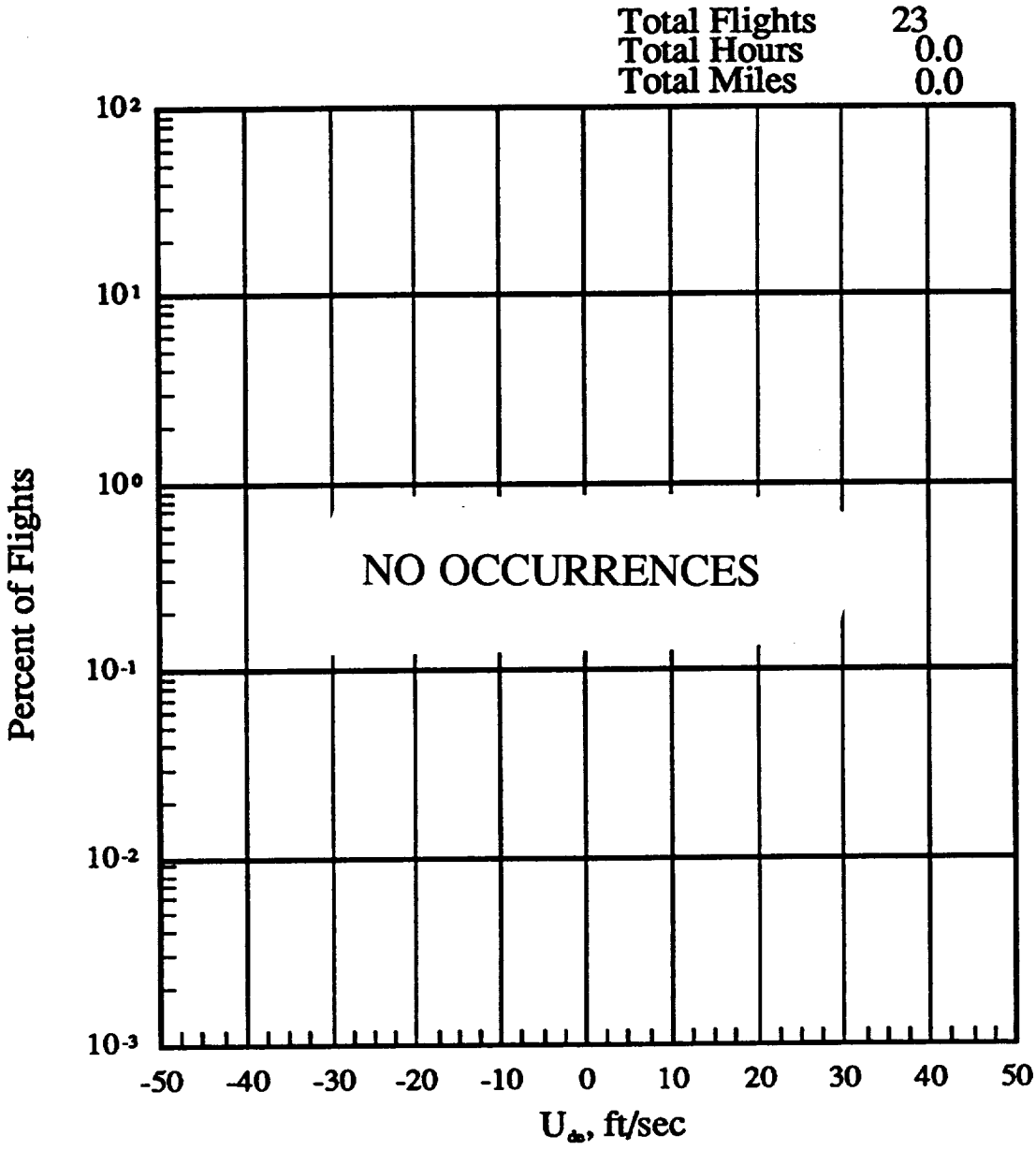
(h) 29500 to 34500 feet altitude

Figure 19.- Continued.



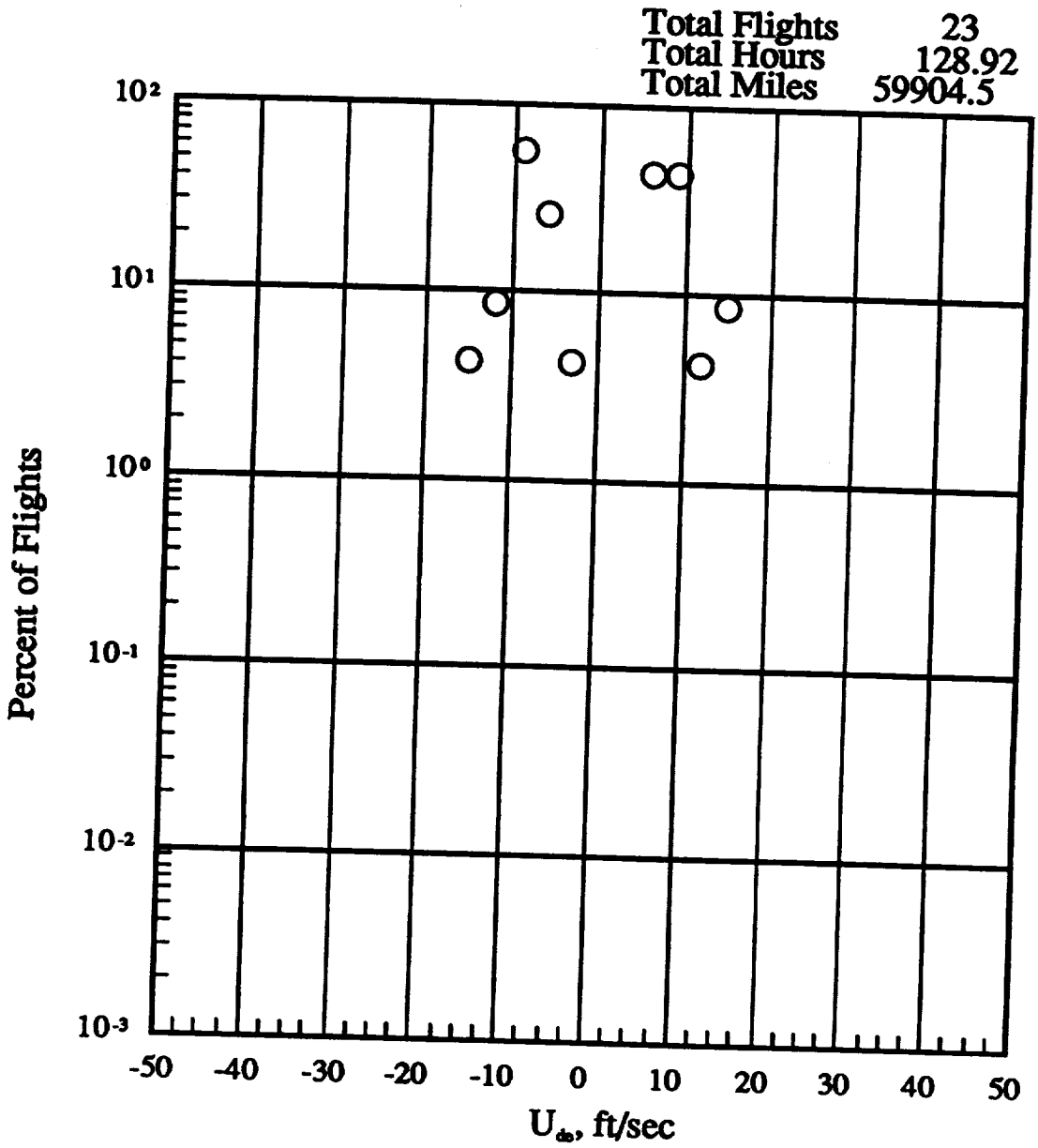
(i) 34500 to 39500 feet altitude

Figure 19.- Continued.



(j) 39500 to 44500 feet altitude

Figure 19.- Continued.



(k) -500 to 44500 feet altitude

Figure 19.- Concluded.

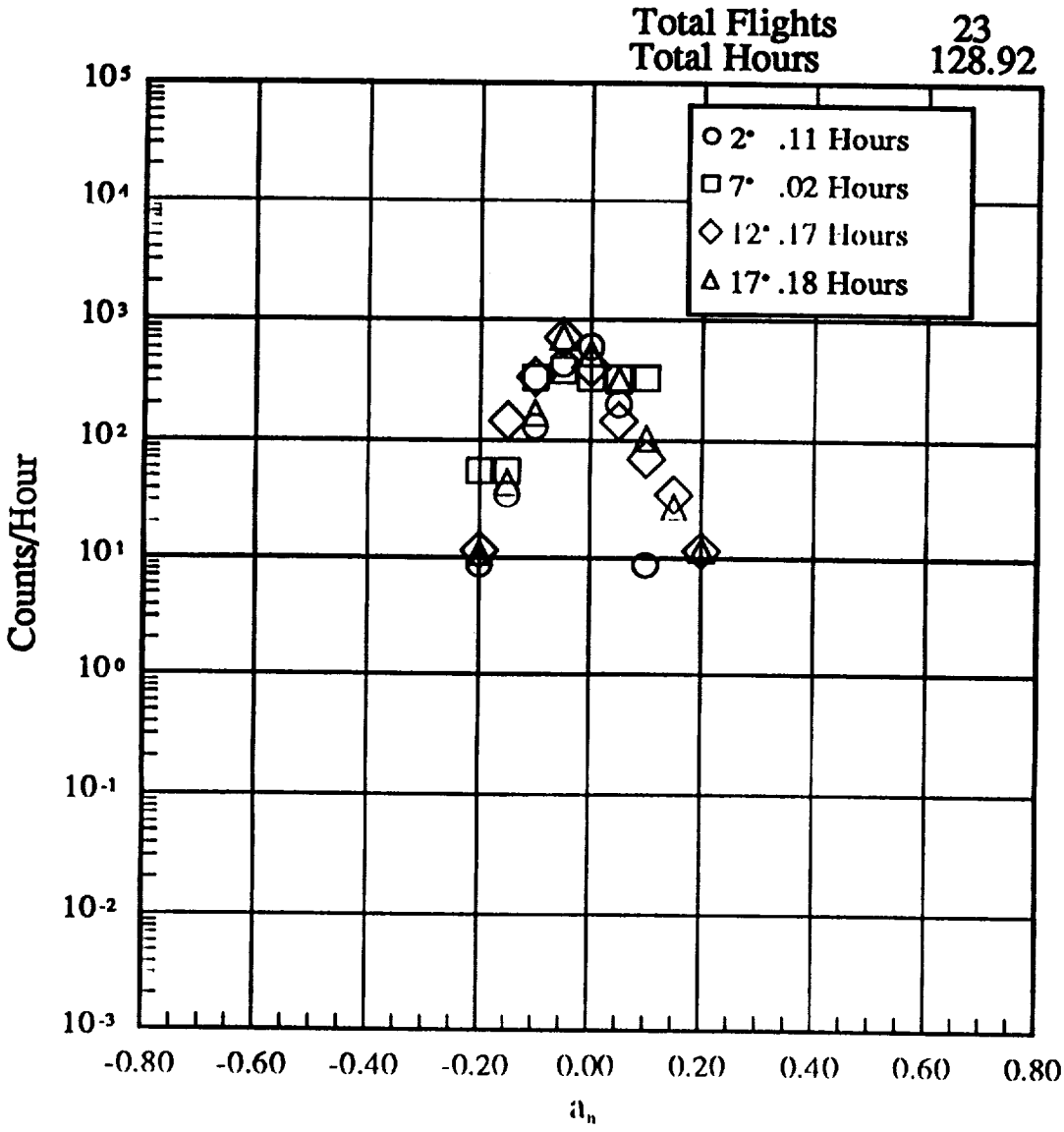
FLAP DETENT, DEGREES

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.

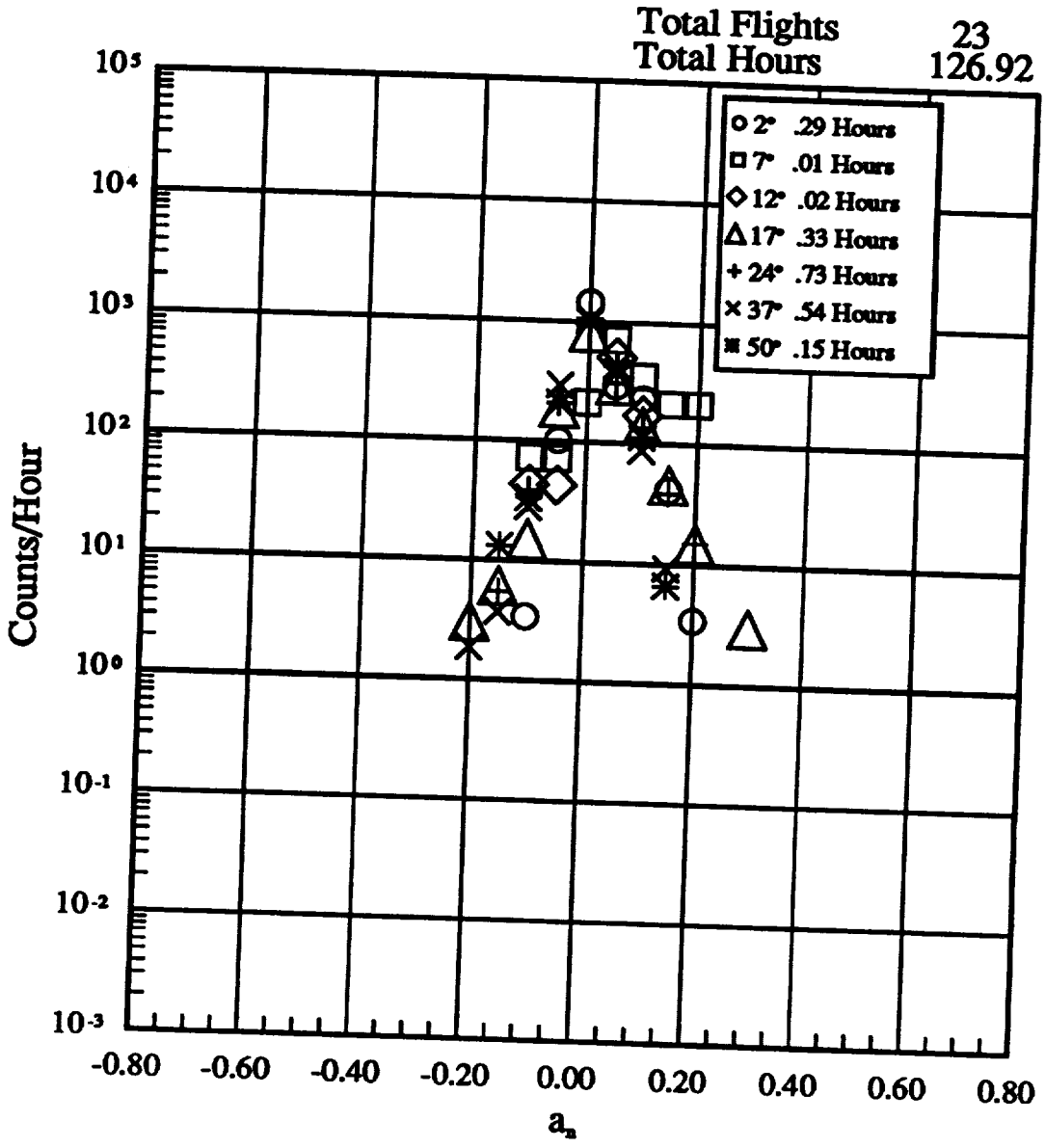
FLAP DETENT, DEGREES

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

g's FROM	TO	EAS KTS 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	0	5	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	5	0	5	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

g's FROM	g's TO	EAS KTS 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	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	0
-.05	-0.10	0	0	0	0	0	0	38	23	0	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	0
-.15	-0.20	0	0	0	0	0	0	15	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	2	4	9	4	3	0	0	0	0	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	1	1	1	1	0	0	0	0	0	0	0	0	0	0

TOTAL FLIGHTS INCLUDED	13
TOTAL FLIGHTS ANALYZED	23
TOTAL FLIGHT HOURS, ANY FLAP	126.92
TOTAL FLIGHT MILES, ANY FLAP	59904.53

(b) Take off; flaps 7 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT

g's FROM	TO	EAS KTS 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 @ EAS		0	0	0	1	4	7	4	13	3	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		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.

(d) Take off; flaps 17 degree detent

Figure 21.- Continued.

MAXIMUM n_z
LEVEL FOR EACH FLIGHT

g's 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	5	0	0	0	0	0	0	0	0
.15	0.20	0	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	0	5	10	10	0	5	5	0	0	0	0	0	0
.05	0.10	0	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	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	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	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	7	6	6	2	8	3	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0	0	0	0	0	0	0.1	0.1	0	0	0.1	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		0	0	0	0	0	0	0	0	16	19	4	6	19	9	0	0	0	0	0	0

EAS KTS

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
LEVEL FOR EACH FLIGHT

EAS KTS

g's 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	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
LEVEL FOR EACH FLIGHT

g's FROM	TO	EAS KTS 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	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_n

LEVEL FOR EACH FLIGHT

g's FROM	g's TO	EAS KTS 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	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	0	0	0	0	0	0	9	0	22	4	0	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 @ EAS		0	0	0	0	0	1	1	3	12	11	5	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		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
LEVEL FOR EACH FLIGHT

g's FROM	g's TO	EAS KTS 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	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

g's FROM	g's TO	KEAS 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	17	22	13	4	0	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	0
-.05	-0.10	0	0	22	17	9	0	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	0
-.15	-0.20	0	0	4	0	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	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	15	15	9	3	0	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	0
FLIGHT MILES @ KAS		0	2	38	28	12	3	1	0	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	59904.53

(j) Landing; flaps 37 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT

g's FROM	g's TO	EAS KTS 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	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 @ EAS		0	3	10	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		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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National Aeronautics and Space Administration

Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
NASA CR-181909, VOL. V DOT/FAA-CT-89/36-V		

4. Title and Subtitle
The NASA Digital VGH Program -
Exploration of Methods and Final Results
Volume V - DC 10 Data 1981-1982: 129 Hours

5. Report Date
December 1989

6. Performing Organization Code

7. Author(s)
Norman L. Crabill

8. Performing Organization Report No.

10. Work Unit No.
505-63-01-05

9. Performing Organization Name and Address
Eagle Engineering, Inc.
Hampton Division
Tower Box 77, 2101 Executive Drive
Hampton, Va 23666

11. Contract or Grant No.
NASW-4430

13. Type of Report and Period Covered
Contractor Report

12. Sponsoring Agency Name and Address
National Aeronautics and Space Administration
Washington, DC 20546-0001 and
U.S. Department of Transportation
FAA Technical Center
Atlantic City International Airport, NJ 08405

14. Sponsoring Agency Code

15. Supplementary Notes
Langley Technical Monitor: Joseph W. Stickle
FAA Technical Center COTR: Thomas DeFiore

16. Abstract
DC 10 Digital Flight Data Recorder data taken in 1981 through 1982 were analyzed to provide statistical data useful for updating airliner airworthiness design criteria.

17. Key Words (Suggested by Author(s))
Flight Recorder, Digital Flight Data Recorder, VGH, Digital VGH, Airworthiness, Airliner, B 747

18. Distribution Statement
Unclassified - Unlimited
Subject Category 06

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of pages	22. Price
Unclassified	Unclassified	140	A07

NASA FORM 1626 OCT 86