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

Volume III - B 727 Data 1978-1980: 1765 HOURS

Norman L. Crabill

**Eagle Engineering, Incorporated
Hampton Division
Hampton, Virginia 23666**

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**National Aeronautics and
Space Administration**

**Langley Research Center
Hampton, Virginia 23665**

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FOREWORD

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

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

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THE NASA DIGITAL VGH PROGRAM
EXPLORATION OF METHODS AND FINAL RESULTS
VOLUME III: B 727 Data 1978-1980: 1765 HOURS

Norman L. Crabill
Eagle Engineering, Inc.
Hampton Division
Hampton, Virginia

SUMMARY

Data obtained from the Digital Flight Data Recorder System of B 727 aircraft in 985 flights and 1765 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 and autopilot use are given. In addition, acceleration statistics are presented from about 26 hours on nonrevenue flights. No discussion of the data is presented.

INTRODUCTION

This document presents the results of the NASA DVGH Program obtained during 1978-1980 operations of Boeing 727 aircraft. This Volume is an extension of the 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. However, this report does contain additional data on autopilot usage and some limited acceleration-derived exceedance data obtained from nonrevenue flights.

AIRCRAFT AND INSTRUMENTATION

Aircraft

The aircraft type was the Boeing 727-200 with three Pratt and Whitney JT8D-15 turbofan engines. Characteristics of the aircraft used in the data reduction process are given in Table I; the configuration is shown in figure 1.

Instrumentation

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

<u>Parameter</u>	<u>Range and Units</u>	<u>Samples per Second</u>
$a_n + 1$	-3g to +6g	4
a_y	-1g to +1g	4
CAS	100 to 450 kts	1
HP	-1,000 to 50,000 ft	1
FLP	-5° to 60°	1
Autopilot Status	Off or Not-Off	Discrete
Cabin Pressure	0 to ~ 15 psia	1

Note that Spoiler data are not reported here, although they were in Volume I. Flap deflection (FLP) is for the inboard right trailing-edge flap as shown in figure 1. The cabin pressure data type is new, and was not available in the tests reported in Volumes I and II.

SCOPE OF DATA

Data were collected from up to 20 aircraft operating in regular airline service over the service area, shown in figure 2, during 1978 through 1980: Almost all of the data (985 flights and 1765 hours) were obtained during passenger-carrying revenue service; a small amount (64 flights and 25.9 hours) was obtained during nonrevenue service (ferry flights mainly, although some training and maintenance flights may have been included). 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 the twenty 727-200 aircraft being operated by the airline over the service route during the 22 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 accelerations was similar to that described in Volume I except that the high limit of the band pass was set at 1.5 Hz based on an inspection of representative spectra. Although the results of reference 13 in Volume I indicate that the operation of the autopilot can cause up to a 20 percent reduction in the normal acceleration peak response to continuous turbulence, it was decided, after consultation with the industry, not to account for this in deriving U_{de} , in order to maintain comparability with the earlier VGH results, even though the autopilot status was being monitored.

RESULTS

Flight and Acceleration Derived Statistics

Presentation of Flight Profile Statistics results is as described in Volume II. 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. Also new are level crossing counts for the Acceleration Derived quantities for non-revenue flights. All other results are for revenue flights. The Acceleration Derived quantities are subject to the same limitations discussed in Volume I, which indicates that the exceedances derived from the DFDR system at 4 samples per second may be significantly less than if actual peak values were counted.

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.

Autopilot Usage and Effects

Autopilot status was monitored as off, or on, without regard to the exact on-mode for 223 hours of operations. The autopilot was on about 56 percent of the time; 23.7 percent of the time that

the autopilot was on, the low amplitude limit cycle in normal acceleration noted in Volumes I and II appeared. Its characteristics are summarized in figure 25. This phenomenon is believed to be due to off-nominal autopilot operation in the altitude-hold mode and is more fully discussed in Volumes I and II.

Cabin Pressure

Absolute cabin pressure was measured and used to compute the quantity "Maximum Differential Cabin Pressure per Flight" by using the measured absolute cabin pressure and the standard atmosphere based on the indicated pressure altitude. The distribution of this quantity as a function of the percent of flights is shown in figure 26.

CONCLUDING REMARKS

Data obtained from the Digital Flight Data Recorder system of B 727-200 aircraft in 985 flights and 1765 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 and autopilot usage are given. In addition, acceleration statistics are presented from about 26 hours on nonrevenue flights. No general discussion of the data is presented.

TABLE I
BOEING B 727 CHARACTERISTICS USED IN THE ANALYSIS

O Geometrical Characteristics

- o Wing Area = 1560 ft²
- o Wing Mean Chord = 15.06 ft

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

- o Flaps up = f(M,HP)

- o Flaps down

<u>M</u>	<u>HP = 0</u>	<u>20 kft</u>	<u>40 kft</u>	<u>FLP, deg</u>	<u>HP $\approx$ 0</u>
.2	.0980	.0980	.0980	0	.0980
.4	.0920	.0975	.1010	5	.1110
.5	.0890	.0965	.1025	10	.1150
.6	.0870	.0978	.1050	25 (TO)	.1167
.7	.0845	.0990	.1100	40 (LD)	.1056
.8	-	.1040	.1185		
.9	-	.1150	.1325		

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

TABLE II
INDEX OF FLIGHT PROFILE AND ACCELERATION STATISTICS

FLIGHT PROFILE STATISTICS

o ENTIRE FLIGHTS

Figure Number	Subject	Page Numbers
3	Weight vs. Flight Duration	12-17
4	Altitudes and Gross Weights	18
5	Altitudes and Airspeeds	19-22
6	Altitude Summary	23
7	Maximum Altitudes	24-25

o FLAPS DEFLECTED

8	Flap Detent Use	26
9	Weights, Altitudes and Airspeeds	27-36
10	Flap Deflection Times	37-39
11	Equivalent Airspeeds and Detents	40
12	Flap Use above 10,000 ft	41

TABLE II (continued)
ACCELERATION DERIVED STATISTICS

o ENTIRE FLIGHTS

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

TABLE II (concluded)

19	Peak Positive and Negative U_{de} vs. Altitude	
(a)	U_{de} matrix	110
(b)-(k)	U_{de} plots	111-120
o	FLAPS DEFLECTED	
	Figure Number	Subject Page Numbers
20	a_n Exceedances with Flaps Deflected	
(a)	Take Off Detents matrix	121
(b)	Take Off Detents plot	122
(c)	Landing Detents matrix	123
(d)	Landing Detents plot	124
21	Peak Positive and Negative a_n per flight and EAS bands	
(a)-(d)	Take Off Detents	125-128
(e)-(j)	Landing Detents	129-134
o	NON-REVENUE FLIGHTS	
	Figure Number	Subject Page Numbers
22	Normal Acceleration Exceedances	
(a)	a_n matrix	135
(b)	a_{nM} matrix	136
(c)	a_{nG} matrix	137
(d)-(m)	a_n, a_{nM}, a_{nG} plots	138-147
23	Lateral Acceleration Exceedances	
(a)	a_y matrix	148
(b)-(k)	a_y plots	149-158
24	U_{de} Exceedances	
(a)	U_{de} matrix	159
(b)-(k)	U_{de} plots	160-169

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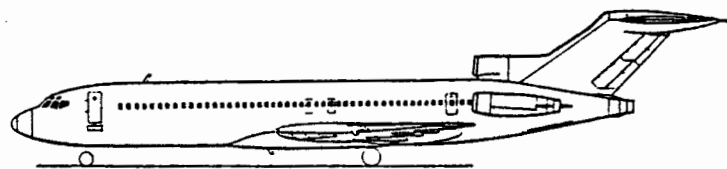
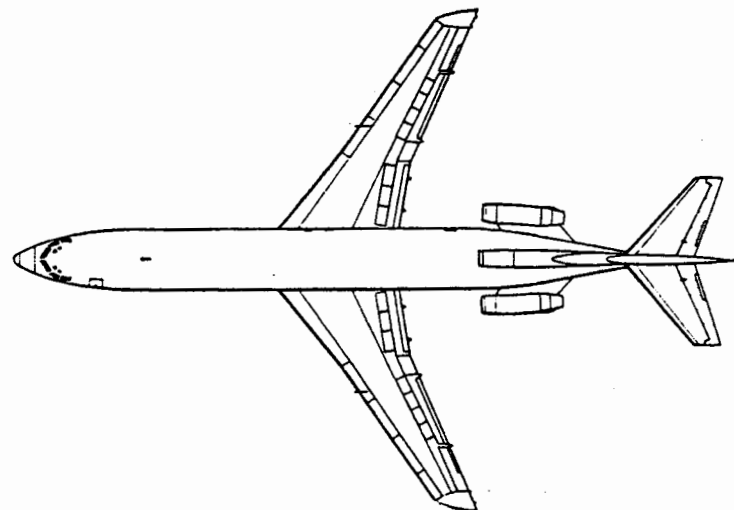
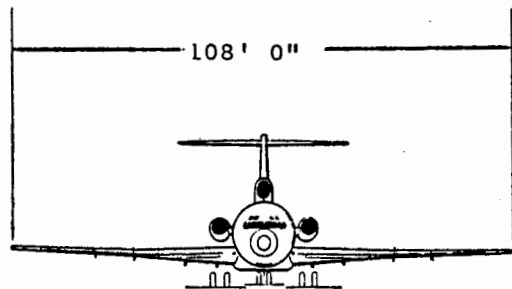
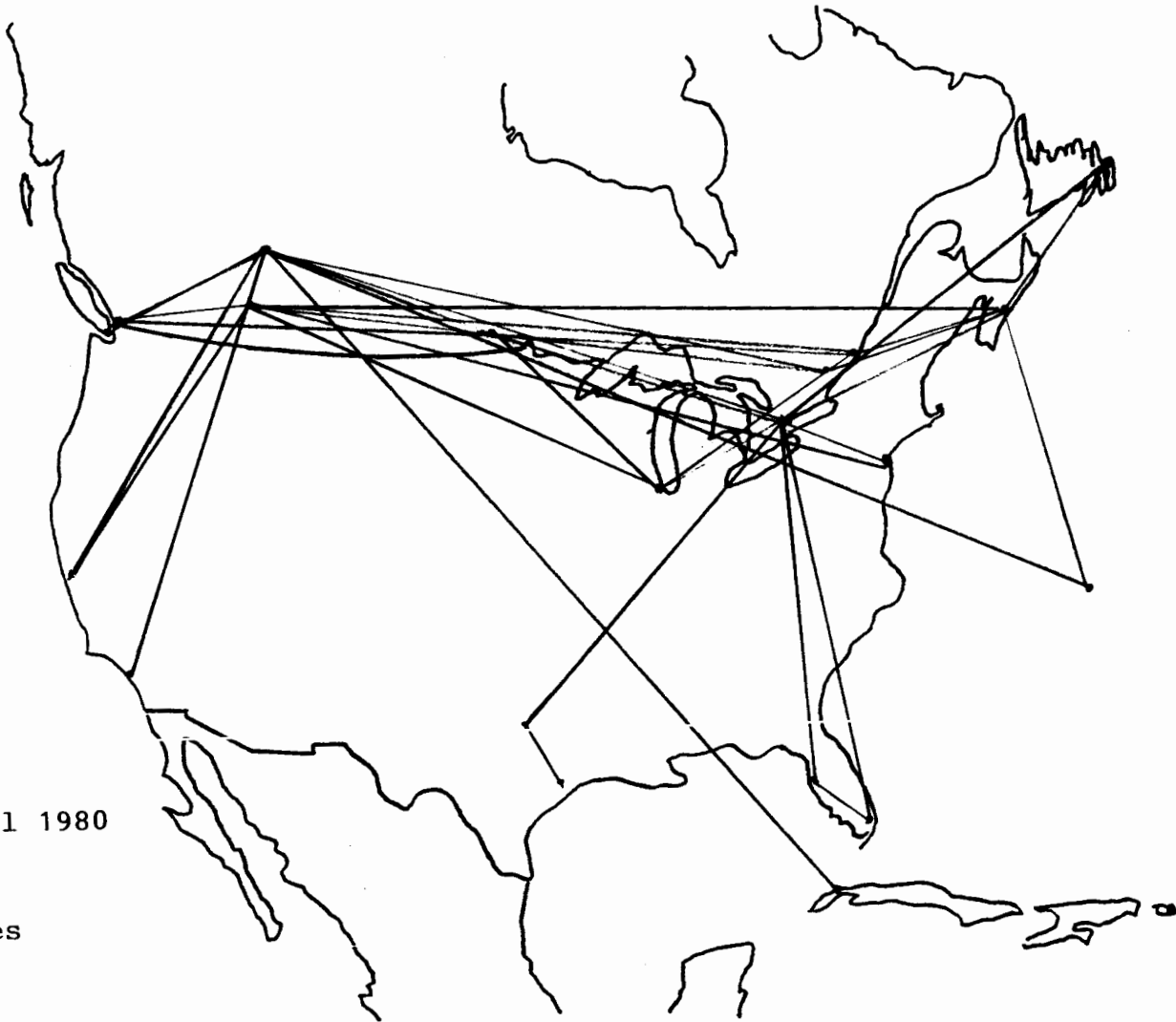


Figure 1.- Three view drawing of aircraft.



A map of the United States showing a network of flight paths. Numerous lines connect various points across the country, with a high concentration of lines in the eastern half, particularly around the New York City area. The lines represent flight routes between different locations.

June 1978 - April 1980
985 Flights
1765 Hours
723,033 N.Miles

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

	PERCENT OF FLIGHTS									
	110 TO 120 KLBS	120 TO 130 KLBS	130 TO 140 KLBS	140 TO 150 KLBS	150 TO 160 KLBS	160 TO 170 KLBS	170 TO 180 KLBS	180 TO 190 KLBS	190 TO 200 KLBS	200 TO 210 KLBS
DURATION OF FLIGHT, HOURS										
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	0.1	0	0	0
4.5-5.0	0	0	0	0	0	0.1	0.3	0.3	0	0
4.0-4.5	0	0	0	0.1	0	0.1	0.5	0.5	0.5	0
3.5-4.0	0	0	0	0	0.3	0.3	1.0	0.7	0	0
3.0-3.5	0	0	0	0.1	0.4	2.7	2.0	0.4	0	0
2.5-3.0	0	0	0.1	1.1	4.6	5.1	4.2	0.3	0	0
2.0-2.5	0	0	0.2	1.9	4.7	5.4	1.6	0	0	0
1.5-2.0	0	0.1	1.0	4.3	4.4	4.3	0.3	0	0	0
1.0-1.5	0	0.6	4.0	7.0	6.1	1.7	0.1	0.1	0	0
.8-1.0	0	0.1	2.9	6.2	2.9	0.2	0	0	0	0
.6-.8	0	1.4	4.1	1.7	0.8	0	0	0	0	0
.5-.6	0	0.8	1.4	0.4	0	0	0	0	0	0
.4-.5	0	0.3	0.5	0.1	0	0	0	0	0	0
.3-.4	0	0.1	1.1	0.1	0.1	0	0	0	0	0
.0-.3	0	0	1.0	0	0	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	0	3.5	16.3	23.0	24.3	19.9	10.2	2.3	0.5	0

(a) Gross weight at take off

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

	PERCENT OF FLIGHTS										
	110 TO 120 KLBS	120 TO 130 KLBS	130 TO 140 KLBS	140 TO 150 KLBS	150 TO 160 KLBS	160 TO 170 KLBS	170 TO 180 KLBS	180 TO 190 KLBS	190 TO 200 KLBS	200 TO 210 KLBS	
DURATION OF FLIGHT, HOURS											
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	0.1	0	0	0	0	0	0	0	0	
4.5-5.0	0	0.2	0.5	0	0	0	0	0	0	0	
4.0-4.5	0.1	0.1	0.4	0.9	0.2	0	0	0	0	0	
3.5-4.0	0	0.4	0.7	1.1	0.1	0	0	0	0	0	
3.0-3.5	0.1	0.1	2.9	2.3	0.2	0	0	0	0	0	
2.5-3.0	0.1	2.5	5.6	6.2	0.9	0	0	0	0	0	
2.0-2.5	0.1	2.1	5.5	5.3	0.8	0	0	0	0	0	
1.5-2.0	0.3	2.4	5.5	4.7	1.4	0	0	0	0	0	
1.0-1.5	0.6	4.4	8.2	5.2	1.0	0.1	0	0.1	0	0	
.8-1.0	0.1	2.3	5.6	4.2	0.2	0	0	0	0	0	
.6-.8	0.7	3.7	2.1	1.5	0	0	0	0	0	0	
.5-.6	0.6	1.2	0.7	0.1	0	0	0	0	0	0	
.4-.5	0	0.8	0	0.1	0	0	0	0	0	0	
.3-.4	0	0.6	0.7	0.1	0	0	0	0	0	0	
.0-.3	0	0.2	0.8	0	0	0	0	0	0	0	
TOTAL PERCENT ALL FLIGHTS	2.7	21.2	39.3	31.7	4.9	0.1	0	0.1	0	0	

(b) Gross weight at landing

Figure 3.- Continued.

	PERCENT OF FLIGHTS									
	0 TO 10 KLS	10 TO 20 KLS	20 TO 30 KLS	30 TO 40 KLS	40 TO 50 KLS	50 TO 60 KLS	60 TO 70 KLS	70 TO 80 KLS	80 TO 90 KLS	90 TO 100 KLS
DURATION OF FLIGHT, HOURS										
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	0.1	0	0	0
4.5-5.0	0	0	0	0	0.1	0.4	0.2	0	0	0
4.0-4.5	0	0	0	0	0.3	1.0	0.4	0	0	0
3.5-4.0	0	0	0	0.1	1.5	0.6	0.1	0	0	0
3.0-3.5	0	0	0	0.8	4.7	0.2	0	0	0	0
2.5-3.0	0	0	0.4	8.4	5.6	0.7	0.2	0	0	0
2.0-2.5	0	0	1.9	9.5	1.8	0.5	0	0	0	0
1.5-2.0	0	0.1	8.3	4.6	1.2	0.1	0	0	0	0
1.0-1.5	0	4.7	11.5	3.5	0	0	0	0	0	0
.8-1.0	0	5.3	6.6	0.5	0	0	0	0	0	0
.6-.8	0	4.0	3.9	0.2	0	0	0	0	0	0
.5-.6	0	1.6	1.0	0	0	0	0	0	0	0
.4-.5	0	0.8	0.1	0	0	0	0	0	0	0
.3-.4	0	1.0	0.3	0.1	0	0	0	0	0	0
.0-.3	0	0.9	0.1	0	0	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	0	18.4	34.1	27.7	15.2	3.6	1.0	0	0	0

(c) Fuel weight at take off

Figure 3.- Continued.

	PERCENT OF FLIGHTS									
	0 TO 10 KLBS	10 TO 20 KLBS	20 TO 30 KLBS	30 TO 40 KLBS	40 TO 50 KLBS	50 TO 60 KLBS	60 TO 70 KLBS	70 TO 80 KLBS	80 TO 90 KLBS	90 TO 100 KLBS
DURATION OF FLIGHT, HOURS										
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	0.1	0	0	0	0	0	0	0	0
4.5-5.0	0.3	0.4	0	0	0	0	0	0	0	0
4.0-4.5	0.3	1.3	0.1	0	0	0	0	0	0	0
3.5-4.0	0.7	1.4	0.2	0	0	0	0	0	0	0
3.0-3.5	0.6	5.1	0	0	0	0	0	0	0	0
2.5-3.0	2.8	10.9	1.3	0.3	0	0	0	0	0	0
2.0-2.5	2.5	9.5	1.4	0.3	0	0	0	0	0	0
1.5-2.0	2.8	9.8	1.4	0.2	0	0	0	0	0	0
1.0-1.5	6.0	11.7	1.9	0	0	0	0	0	0	0
.8-1.0	4.2	7.6	0.6	0	0	0	0	0	0	0
.6-.8	1.4	6.2	0.4	0	0	0	0	0	0	0
.5-.6	1.0	1.6	0	0	0	0	0	0	0	0
.4-.5	0.3	0.5	0.1	0	0	0	0	0	0	0
.3-.4	0.1	1.2	0.1	0	0	0	0	0	0	0
.0-.3	0.3	0.7	0	0	0	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	23.5	68.1	7.6	0.8	0	0	0	0	0	0

(d) Fuel weight at landing

Figure 3.- Continued.

	PERCENT OF FLIGHTS									
	0 TO 5 KLBS	5 TO 10 KLBS	10 TO 15 KLBS	15 TO 20 KLBS	20 TO 25 KLBS	25 TO 30 KLBS	30 TO 35 KLBS	35 TO 40 KLBS	40 TO 45 KLBS	45 TO 50 KLBS
DURATION OF FLIGHT, HOURS										
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	0.1
4.5-5.0	0	0	0	0	0	0	0	0	0.4	0.3
4.0-4.5	0	0	0	0	0	0	0.1	0.2	1.3	0.1
3.5-4.0	0	0	0	0	0	0.1	0.8	1.2	0.2	0
3.0-3.5	0	0	0	0	0.1	3.4	2.2	0	0	0
2.5-3.0	0	0	0	0.4	6.7	8.0	0.2	0	0	0
2.0-2.5	0	0	0	3.2	10.1	0.5	0	0	0	0
1.5-2.0	0	0	3.9	9.9	0.4	0.1	0	0	0	0
1.0-1.5	0	5.6	13.7	0.3	0	0	0	0	0	0
.8-1.0	0	11.4	1.0	0	0	0	0	0	0	0
.6-1.8	0	8.0	0	0	0	0	0	0	0	0
.5-1.6	0	2.6	0	0	0	0	0	0	0	0
.4-1.5	0.7	0.2	0	0	0	0	0	0	0	0
.3-1.4	1.4	0	0	0	0	0	0	0	0	0
.0-1.3	1.0	0	0	0	0	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	3.1	27.8	18.6	13.9	17.3	12.1	3.4	1.4	1.9	0.5

(e) Fuel burn vs flight duration

Figure 3.- Continued.

	PERCENT OF FLIGHTS									
	0 TO 5 KLBS	5 TO 10 KLBS	10 TO 15 KLBS	15 TO 20 KLBS	20 TO 25 KLBS	25 TO 30 KLBS	30 TO 35 KLBS	35 TO 40 KLBS	40 TO 45 KLBS	45 TO 50 KLBS
DURATION OF FLIGHT, HOURS										
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	0.1	0	0	0	0	0	0	0
4.5-5.0	0	0.2	0.1	0.2	0.2	0	0	0	0	0
4.0-4.5	0.1	0.1	0.1	0.1	0.5	0.8	0	0	0	0
3.5-4.0	0	0.3	0.2	0.4	0.6	0.8	0	0	0	0
3.0-3.5	0.1	0.1	1.0	1.2	1.6	1.4	0.2	0	0	0
2.5-3.0	0.1	1.4	3.5	3.7	2.9	2.9	0.8	0	0	0
2.0-2.5	0.4	1.1	2.0	3.7	3.2	3.0	0.3	0	0	0
1.5-2.0	0.4	1.3	3.2	2.9	2.5	3.5	0.4	0	0	0
1.0-1.5	0.5	1.9	4.0	4.7	4.3	3.9	0.2	0	0	0.2
.8-1.0	0.2	1.1	2.2	2.8	2.8	3.0	0.1	0	0	0
.6-.8	1.5	2.4	1.8	0.6	0.7	0.8	0.1	0	0	0
.5-.6	0.4	1.1	0.4	0.5	0.2	0	0	0	0	0
.4-.5	0	0.4	0.5	0	0	0	0	0	0	0
.3-.4	0.1	0.3	0.8	0.2	0	0	0	0	0	0
.0-.3	0	0.1	0.5	0.2	0.2	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	3.9	12.0	20.5	21.2	19.9	20.2	2.1	0	0	0.2

(f) Payload weight vs flight duration

Figure 3.- Continued.

PRESSURE ALTITUDE BANDS										
GROSS WEIGHT KILBS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
CLIMB										
110-120	0	0	0.0010	0.0019	0.0018	0.0019	0.0063	0.0039	0.0027	0.0194
120-130	0.0465	0.0577	0.0857	0.0795	0.1009	0.0791	0.0416	0.0482	0	0.5392
130-140	0.2202	0.2708	0.3546	0.3144	0.3859	0.3245	0.3332	0.2751	0	2.4787
140-150	0.3102	0.4024	0.5463	0.5024	0.6175	0.6682	0.8287	0.4364	0	4.3120
150-160	0.3400	0.4355	0.5773	0.5539	0.6737	0.7399	1.0099	0.3211	0	4.6513
160-170	0.2963	0.3913	0.5203	0.4823	0.6159	0.6686	0.9154	0.1230	0	4.0131
170-180	0.1457	0.2086	0.2644	0.2476	0.2767	0.2824	0.2558	0.0082	0	1.6894
180-190	0.0367	0.0551	0.0646	0.0538	0.0611	0.0690	0.0481	0.0029	0	0.3913
190-200	0.0094	0.0093	0.0148	0.0110	0.0130	0.0062	0.0025	0	0	0.0662
200-210	0	0	0	0	0	0	0	0	0	0
PERCENT TOTAL TIME =	1.4051	1.8306	2.4289	2.2467	2.7464	2.8397	3.4416	1.2188	0.0027	18.1607
AVE GROSS WEIGHT IN ALTITUDE BAND	153.90	154.42	154.12	154.14	153.93	154.66	154.81	146.81	115.00	
LEVEL										
110-120	0.0016	0.0144	0.0206	0.0019	0.0038	0.0006	0.0420	0.1376	0.0155	0.2379
120-130	0.0595	0.0504	0.1365	0.0200	0.0760	0.2034	0.2281	1.4587	0.0001	2.2328
130-140	0.1620	0.1488	0.2217	0.0198	0.1446	0.6966	1.3455	7.9540	0	10.6928
140-150	0.1294	0.1413	0.1740	0.0590	0.1249	0.8922	4.8961	13.7972	0	20.2143
150-160	0.0358	0.0268	0.0578	0.0274	0.0763	0.6861	8.4492	9.6020	0	18.9614
160-170	0	0.0013	0	0	0.0031	0.3615	5.6321	2.7331	0	8.7312
170-180	0	0.0040	0.0019	0	0	0.0757	2.1943	0.0716	0	2.3474
180-190	0	0	0	0	0	0.0409	0.2074	0.0203	0	0.2686
190-200	0	0	0	0	0	0	0.0020	0	0	0.0020
200-210	0	0	0	0	0	0	0	0	0	0
PERCENT TOTAL TIME =	0.3884	0.3870	0.6125	0.1282	0.4287	2.9570	22.9968	35.7745	0.0156	63.6885
AVE GROSS WEIGHT IN ALTITUDE BAND	138.57	138.50	136.95	142.03	139.74	147.35	155.96	146.14	115.08	
DESCENT										
110-120	0.0943	0.0666	0.0432	0.0217	0.0160	0.0113	0.0095	0.0050	0.0005	0.2679
120-130	0.8297	0.6679	0.4520	0.2731	0.2448	0.1649	0.1188	0.0583	0	2.8096
130-140	1.5349	1.4288	1.0561	0.6545	0.6110	0.5597	0.4932	0.1905	0	6.5287
140-150	1.3454	1.3249	1.0466	0.7116	0.7032	0.6953	0.6334	0.2270	0	6.6875
150-160	0.2115	0.2618	0.2491	0.1874	0.1990	0.2486	0.3061	0.1032	0	1.7667
160-170	0.0057	0.0041	0.0032	0.0025	0.0027	0.0138	0.0353	0.0040	0	0.0713
170-180	0	0	0	0	0	0.0012	0.0013	0	0	0.0025
180-190	0.0024	0.0040	0.0028	0.0016	0.0019	0.0017	0.0015	0.0007	0	0.0167
190-200	0	0	0	0	0	0	0	0	0	0
200-210	0	0	0	0	0	0	0	0	0	0
PERCENT TOTAL TIME =	4.0239	3.7581	2.8529	1.8525	1.7786	1.6965	1.5991	0.5887	0.0005	18.1509
AVE GROSS WEIGHT IN ALTITUDE BAND	136.94	137.87	138.61	139.24	139.73	141.25	142.67	141.47	115.00	
PERCENT TIME = $\frac{\text{HOURS IN ALTITUDE \& CLIMB (LEVEL, DESCENT) \& GROSS WEIGHT BANDS}}{\text{TOTAL TIME, HOURS}}$										TOTAL FLIGHTS 985.00 TOTAL TIME 1765.59 TOTAL AIRMILES 723033.26

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

PRESSURE ALTITUDE BANDS										
CAS INTERVAL, KTS	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
120-130	0.0002	0	0	0	0	0	0	0	0	0.0002
130-140	0.0004	0	0	0	0	0	0	0	0	0.0004
140-150	0.0056	0.0005	0	0	0	0	0	0	0	0.0060
150-160	0.0451	0.0034	0	0	0	0	0	0	0	0.0484
160-170	0.1278	0.0120	0	0	0	0	0	0	0	0.1397
170-180	0.1696	0.0205	0	0	0	0	0	0	0	0.1900
180-190	0.1774	0.0347	0	0	0	0	0	0	0	0.2121
190-200	0.1824	0.0472	0.0005	0	0	0	0	0	0	0.2301
200-210	0.1780	0.0669	0.0022	0	0	0	0	0	0	0.2471
210-220	0.1646	0.1005	0.0070	0.0003	0	0	0	0	0.0016	0.2741
220-230	0.1372	0.1628	0.0203	0.0023	0	0	0	0.0265	0.0011	0.3502
230-240	0.1195	0.4429	0.0993	0.0083	0.0014	0.0012	0.0048	0.1594	0	0.8368
240-250	0.0779	0.6892	0.2615	0.0086	0.0034	0.0045	0.0957	0.4635	0	1.6043
250-260	0.0175	0.2002	0.2411	0.0179	0.0159	0.0108	0.6481	0.3955	0	1.5469
260-270	0.0014	0.0363	0.2479	0.0760	0.0695	0.1077	1.1295	0.1665	0	1.8349
270-280	0.0006	0.0099	0.2646	0.1257	0.1251	0.2039	1.0736	0.0075	0	1.8108
280-290	0	0.0026	0.2559	0.1344	0.1736	0.6961	0.4087	0	0	1.6712
290-300	0	0.0009	0.2987	0.2662	0.3410	0.8821	0.0736	0	0	1.8626
300-310	0	0.0002	0.4607	1.0466	1.4497	0.7880	0.0076	0	0	3.7527
310-320	0	0	0.2223	0.4877	0.5031	0.1225	0.0001	0	0	1.3358
320-330	0	0	0.0302	0.0526	0.0489	0.0196	0	0	0	0.1513
330-340	0	0	0.0096	0.0133	0.0140	0.0028	0	0	0	0.0398
340-350	0	0	0.0044	0.0032	0.0006	0.0005	0	0	0	0.0087
350-360	0	0	0.0011	0.0019	0.0002	0	0	0	0	0.0031
360-370	0	0	0.0008	0.0015	0	0	0	0	0	0.0024
370-380	0	0	0.0009	0.0001	0	0	0	0	0	0.0010
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	200.6517	235.5087	280.4137	301.5625	302.0673	293.6124	268.7446	249.4190	219.0588	
TOTAL HOURS IN ALT & CLIMB	24.8090	32.3214	42.8851	39.6678	48.4908	50.1376	60.7642	21.5194	0.0472	320.6426
PERCENT TIME IN ALT & CLIMB	1.4051	1.8306	2.4289	2.2467	2.7464	2.8397	3.4416	1.2188	0.0027	18.1607
										TOTAL FLIGHTS 985
										TOTAL HOURS 1765

(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	0.0013	0	0	0	0	0	0	0	0	0.0013
130-140	0.0061	0.0008	0	0	0	0	0	0	0	0.0069
140-150	0.0241	0.0062	0	0	0	0	0	0	0	0.0303
150-160	0.0879	0.0299	0	0	0	0	0	0	0	0.1178
160-170	0.0774	0.0299	0	0	0	0	0	0	0	0.1073
170-180	0.0647	0.0185	0	0	0	0	0	0	0	0.0832
180-190	0.0411	0.0179	0	0	0	0	0	0	0	0.0590
190-200	0.0200	0.0178	0.0097	0	0.0004	0	0	0	0	0.0480
200-210	0.0241	0.0408	0.0547	0.0005	0.0091	0.0039	0.0003	0	0	0.1334
210-220	0.0120	0.0254	0.0321	0.0023	0.0031	0.0092	0.0082	0	0.0002	0.0926
220-230	0.0112	0.0288	0.0245	0.0012	0.0061	0.0098	0.0257	0.0278	0.0089	0.1439
230-240	0.0067	0.0684	0.0721	0.0019	0.0085	0.0180	0.0552	0.5740	0.0064	0.8111
240-250	0.0069	0.0714	0.1110	0.0139	0.0138	0.0135	0.0549	4.3488	0.0001	4.6288
250-260	0.0015	0.0222	0.0449	0.0065	0.0056	0.0097	0.0571	11.3550	0	11.5025
260-270	0.0034	0.0034	0.0320	0.0030	0.0062	0.0556	1.6382	18.5794	0	20.3212
270-280	0	0.0020	0.0306	0.0030	0.0079	0.0770	13.3971	0.8930	0	14.4106
280-290	0	0.0022	0.0377	0.0104	0.0177	0.1146	6.1669	0.0020	0	6.3514
290-300	0	0.0003	0.0408	0.0144	0.0277	0.6715	1.5629	0	0	2.3176
300-310	0	0.0002	0.0297	0.0134	0.0183	0.9765	0.0303	0	0	1.0685
310-320	0	0.0001	0.0207	0.0273	0.0391	0.6106	0	0	0	0.6978
320-330	0	0.0001	0.0230	0.0076	0.0951	0.3585	0	0	0	0.4844
330-340	0	0.0001	0.0265	0.0080	0.1459	0.0280	0	0	0	0.2085
340-350	0	0.0001	0.0139	0.0072	0.0205	0.0006	0	0	0	0.0423
350-360	0	0.0001	0.0077	0.0012	0.0038	0	0	0	0	0.0129
360-370	0	0.0002	0.0009	0.0040	0	0	0	0	0	0.0051
370-380	0	0	0	0.0023	0	0	0	0	0	0.0023
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	175.8187	213.5582	262.1649	298.7830	312.3425	303.6620	278.0729	259.1361	229.1230	
TOTAL HOURS										
ALT. & LEVEL	6.8567	6.8322	10.8145	2.2631	7.5682	52.2079	406.0278	631.6297	0.2756	1124.4756
PERCENT TIME										
IN ALT & LEVEL	0.3884	0.3870	0.6125	0.1282	0.4287	2.9570	22.9968	35.7745	0.0156	63.6885
										TOTAL FLIGHTS 985
										TOTAL HOURS 1765

(b) Level

Figure 5.- Continued.

PRESSURE ALTITUDE BANDS

	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
CAS INTERVAL, KTS										
120-130	0.1953	0.0089	0	0	0	0	0	0	0	0.2042
130-140	0.8450	0.0482	0	0	0	0	0	0	0	0.8931
140-150	0.6169	0.0593	0	0	0	0	0	0	0	0.6762
150-160	0.5573	0.1088	0.0003	0	0	0	0	0	0	0.6664
160-170	0.4565	0.1384	0.0006	0	0	0	0	0	0	0.5955
170-180	0.3527	0.1741	0.0031	0	0	0	0	0	0	0.5300
180-190	0.2277	0.1439	0.0048	0	0	0	0	0	0	0.3763
190-200	0.1869	0.1699	0.0134	0	0	0	0	0	0	0.3702
200-210	0.1724	0.3059	0.0609	0.0073	0.0008	0	0	0	0	0.5473
210-220	0.1291	0.2309	0.0244	0.0080	0.0037	0	0	0	0	0.3960
220-230	0.1115	0.3110	0.0320	0.0072	0.0074	0.0062	0.0062	0.0006	0	0.4821
230-240	0.0988	0.7438	0.1566	0.0253	0.0073	0.0103	0.0046	0.0067	0.0001	1.0535
240-250	0.0605	1.0389	0.3569	0.0457	0.0181	0.0108	0.0111	0.0484	0.0004	1.5917
250-260	0.0103	0.2111	0.2427	0.0226	0.0146	0.0129	0.0418	0.1907	0	0.7467
260-270	0.0013	0.0316	0.2185	0.0322	0.0173	0.0185	0.2344	0.3202	0	0.8740
270-280	0.0016	0.0115	0.2873	0.0931	0.0764	0.0596	0.5989	0.0218	0	1.1501
280-290	0.0002	0.0102	0.5489	0.4616	0.4140	0.4444	0.4885	0.0003	0	2.3681
290-300	0	0.0038	0.4628	0.6526	0.7040	0.7109	0.1876	0	0	2.7217
300-310	0	0.0024	0.1636	0.2200	0.2136	0.2552	0.0224	0	0	0.8773
310-320	0	0.0020	0.0674	0.0754	0.0888	0.1106	0.0036	0	0	0.3479
320-330	0	0.0011	0.0788	0.0757	0.1049	0.0429	0	0	0	0.3034
330-340	0	0.0014	0.0665	0.0702	0.0653	0.0119	0	0	0	0.2154
340-350	0	0.0001	0.0247	0.0233	0.0261	0.0023	0	0	0	0.0764
350-360	0	0	0.0136	0.0114	0.0098	0	0	0	0	0.0349
360-370	0	0.0001	0.0173	0.0112	0.0052	0	0	0	0	0.0337
370-380	0	0	0.0076	0.0094	0.0013	0	0	0	0	0.0183
380-390	0	0	0.0002	0.0005	0	0	0	0	0	0.0007
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	163.9242	220.7603	275.7677	294.0602	296.7056	294.0248	278.4078	260.1140	243.3333	
TOTAL HOURS IN ALT BAND	71.0449	66.3527	50.3701	32.7079	31.4031	29.9538	28.2339	10.3947	0.0083	320.4695
TOTAL HOURS IN ALT BAND	4.0239	3.7581	2.8529	1.8525	1.7786	1.6965	1.5991	0.5887	0.0005	18.1509
									TOTAL FLIGHTS	985
									TOTAL HOURS	1765

(c) Descent

Figure 5.- Continued.

PRESSURE ALTITUDE BANDS

	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
CAS INTERVAL, KTS										
120-130	0.1968	0.0089	0	0	0	0	0	0	0	0.2057
130-140	0.8515	0.0490	0	0	0	0	0	0	0	0.9005
140-150	0.6465	0.0659	0	0	0	0	0	0	0	0.7125
150-160	0.6902	0.1422	0.0003	0	0	0	0	0	0	0.8327
160-170	0.6616	0.1802	0.0006	0	0	0	0	0	0	0.8425
170-180	0.5870	0.2131	0.0031	0	0	0	0	0	0	0.8032
180-190	0.4462	0.1965	0.0048	0	0	0	0	0	0	0.6474
190-200	0.3893	0.2350	0.0236	0	0.0004	0	0	0	0	0.6483
200-210	0.3745	0.4136	0.1177	0.0079	0.0099	0.0039	0.0003	0	0	0.9278
210-220	0.3057	0.3568	0.0636	0.0106	0.0068	0.0092	0.0082	0	0.0018	0.7627
220-230	0.2599	0.5026	0.0767	0.0107	0.0136	0.0159	0.0319	0.0550	0.0100	0.9762
230-240	0.2251	1.2550	0.3280	0.0355	0.0172	0.0295	0.0645	0.7400	0.0065	2.7014
240-250	0.1453	1.8003	0.7294	0.0682	0.0352	0.0289	0.1617	4.8552	0.0050	7.8247
250-260	0.0293	0.4336	0.5287	0.0470	0.0362	0.0333	0.7470	11.9412	0	13.7962
260-270	0.0060	0.0714	0.4985	0.1112	0.0930	0.1818	3.0021	19.0660	0	23.0301
270-280	0.0022	0.0234	0.5824	0.2219	0.2093	0.3404	15.0696	0.9223	0	17.3715
280-290	0.0002	0.0150	0.8425	0.6063	0.6053	1.2551	7.0640	0.0023	0	10.3907
290-300	0	0.0050	0.8023	0.9332	1.0726	2.2645	1.8241	0	0	6.9018
300-310	0	0.0028	0.6540	1.2801	1.6816	2.0197	0.0603	0	0	5.6984
310-320	0	0.0022	0.3104	0.5904	0.6310	0.8438	0.0037	0	0	2.3815
320-330	0	0.0012	0.1320	0.1359	0.2489	0.4210	0	0	0	0.9391
330-340	0	0.0015	0.1027	0.0915	0.2252	0.0428	0	0	0	0.4636
340-350	0	0.0002	0.0430	0.0336	0.0472	0.0034	0	0	0	0.1275
350-360	0	0.0002	0.0224	0.0145	0.0138	0	0	0	0	0.0508
360-370	0	0.0003	0.0190	0.0167	0.0052	0	0	0	0	0.0412
370-380	0	0	0.0085	0.0118	0.0013	0	0	0	0	0.0216
380-390	0	0	0.0002	0.0005	0	0	0	0	0	0.0007
390-400	0	0	0	0	0	0	0	0	0	0
AV CAS	173.5895	224.8120	276.2687	298.1906	301.0313	297.6715	276.9469	258.8363	228.0453	
TOTAL HOURS IN ALTITUDE BAND	102.7106	105.5062	104.0697	74.6388	87.4622	132.2994	495.0259	663.5437	0.3311	1765.5876
PERCENT TIME IN ALTITUDE BAND	5.8174	5.9757	5.8943	4.2274	4.9537	7.4932	28.0375	37.5820	0.0188	100.0000
									TOTAL FLIGHTS	985
									TOTAL HOURS	1765

(d) All flight modes

Figure 5.- Continued.

PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT
TIME INTERVAL, HRS IN ALTITUDE BAND									
6.50-7.00	0	0	0	0	0	0	0	0	0
6.00-6.50	0	0	0	0	0	0	0	0	0
5.50-6.00	0	0	0	0	0	0	0	0	0
5.00-5.50	0	0	0	0	0	0	0	0	0
4.50-5.00	0	0	0	0	0	0	0	0	0
4.00-4.50	0	0	0	0	0	0	0	0.102	0
3.50-4.00	0	0	0	0	0	0	0.203	0.102	0
3.00-3.50	0	0	0	0	0	0	0.711	0.406	0
2.50-3.00	0	0	0	0	0	0.102	1.929	1.320	0
2.00-2.50	0	0	0	0	0	0.305	3.147	5.787	0
1.50-2.00	0	0	0	0	0	0.305	4.975	11.168	0
1.00-1.50	0	0	0	0	0	0.609	7.716	11.777	0
.90-1.00	0	0	0	0	0	0.406	1.929	2.741	0
.80-.90	0	0	0	0	0.102	0.102	2.030	2.944	0
.70-.80	0	0	0	0	0	0.203	2.335	2.437	0
.60-.70	0	0	0	0	0	0.406	1.827	2.234	0
.50-.60	0	0	0.102	0	0	0.406	2.944	3.756	0
.45-.50	0	0	0	0	0	0.609	1.827	2.234	0
.40-.45	0.102	0	0.102	0.102	0.203	0.203	1.218	3.249	0
.35-.40	0	0.102	0	0.102	0.203	0.305	2.030	2.234	0
.30-.35	0	0	0.102	0	0.203	1.929	2.538	0.609	0.102
.25-.30	0.305	0.203	0.406	0.305	0.203	1.827	2.843	1.624	0
.20-.25	1.015	0.812	1.218	0.406	1.320	2.132	3.756	1.320	0
.15-.20	7.817	9.543	7.716	0.711	3.046	7.614	2.640	1.117	0
.10-.15	46.294	41.827	36.447	6.497	14.518	16.548	15.635	0.305	0
.05-.10	35.939	47.005	52.893	87.107	76.650	60.508	22.944	0.203	0
.00-.05	8.528	0.305	0	2.538	0.711	0.711	0.203	0.203	0.102
TOTAL HOURS IN ALT BAND	102.7106	105.5062	104.0697	74.6388	87.4622	132.2994	495.0259	663.5437	0.3311
TOTAL PERCENT TIME IN ALT BAND	5.8174	5.9757	5.8943	4.2274	4.9537	7.4932	28.0375	37.5820	0.0188

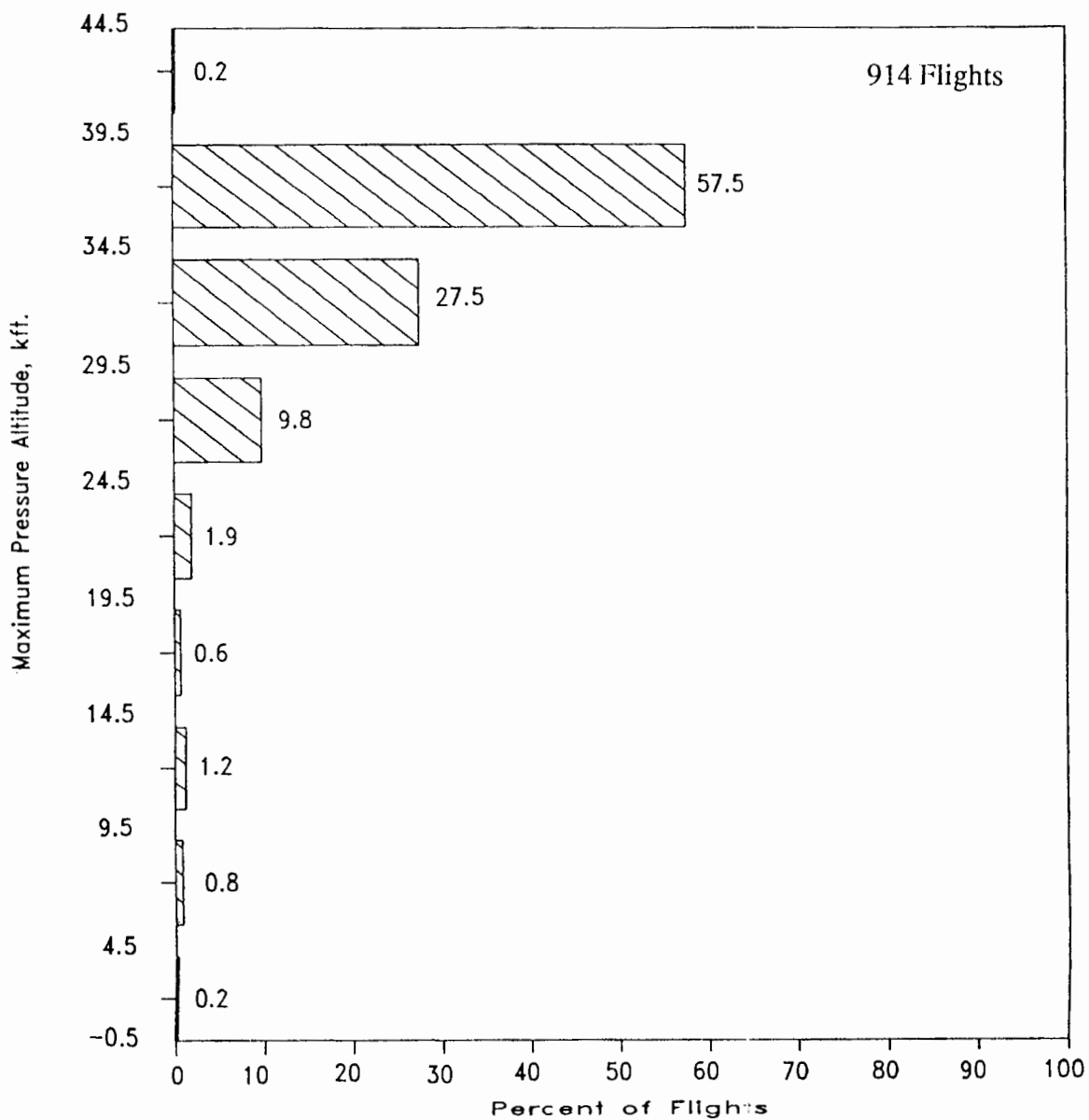
Figure 6.- Percent of flights vs time in altitude bands.

	PERCENT OF FLIGHTS								
	-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
DURATION OF FLIGHT, HOURS									
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	0.1	0
4.5-5.0	0	0	0	0	0	0	0	0.7	0
4.0-4.5	0	0	0	0	0	0	0.7	1.0	0
3.5-4.0	0	0	0	0	0	0	0.4	1.9	0
3.0-3.5	0	0	0	0	0	0	2.2	3.5	0
2.5-3.0	0	0	0	0	0	0.1	3.8	11.5	0
2.0-2.5	0	0	0	0	0	0.2	3.4	10.2	0.1
1.5-2.0	0	0	0	0	0	0	3.7	10.7	0
1.0-1.5	0	0	0	0	0	0.5	6.7	12.3	0.1
.8-1.0	0	0	0	0	0.1	1.1	5.5	5.7	0
.6-.8	0	0	0	0.1	0.6	6.1	1.0	0.2	0
.5-.6	0	0	0	0	0.7	1.8	0.1	0	0
.4-.5	0	0	0.3	0.2	0.3	0	0.1	0	0
.3-.4	0	0	0.9	0.3	0.2	0	0	0	0
.0-.3	0.2	0.8	0	0	0	0	0	0	0
TOTAL PERCENT ALL FLIGHTS	0.2	0.8	1.2	0.6	1.9	9.8	27.5	57.7	0.2

24

(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.

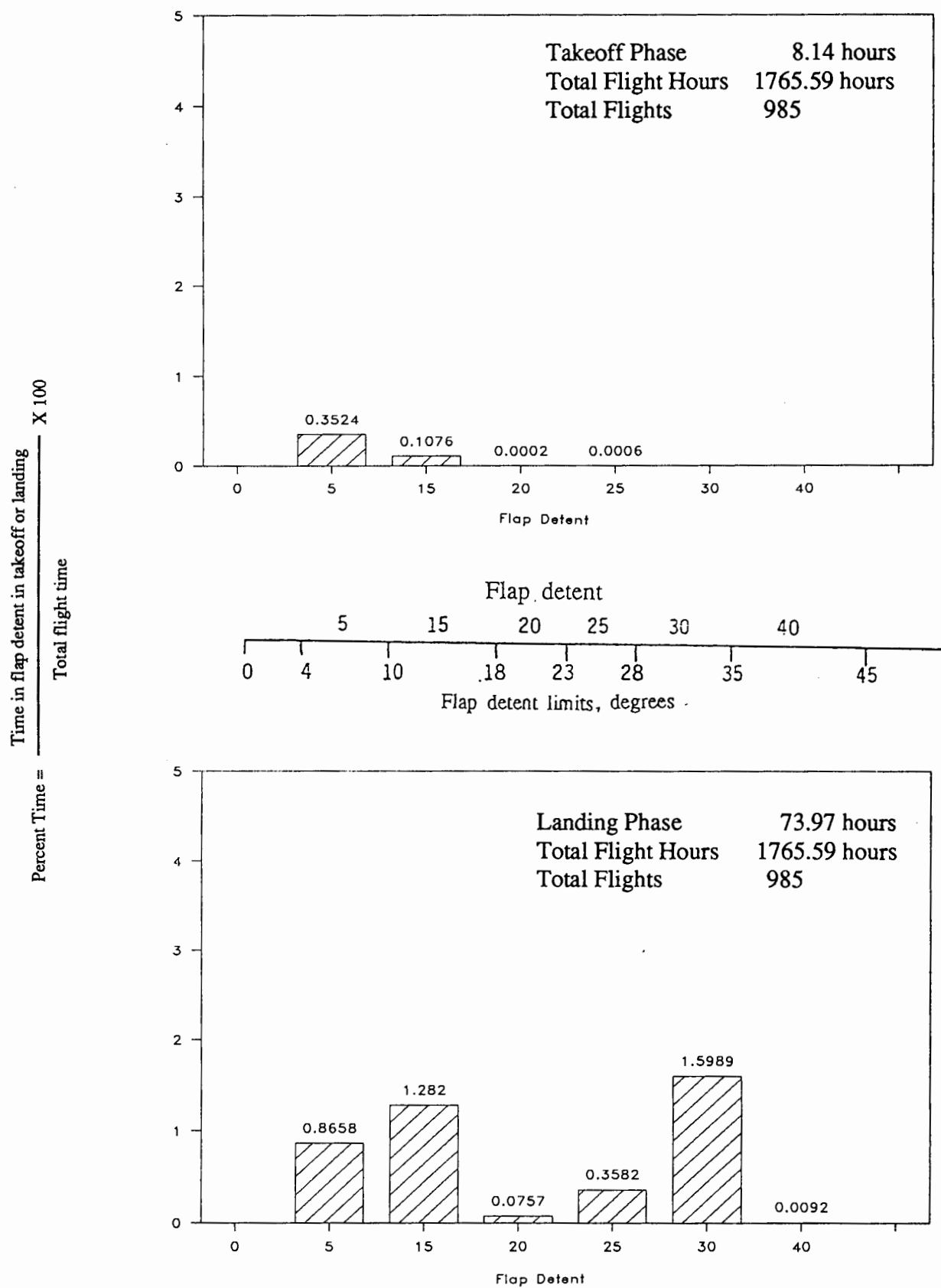
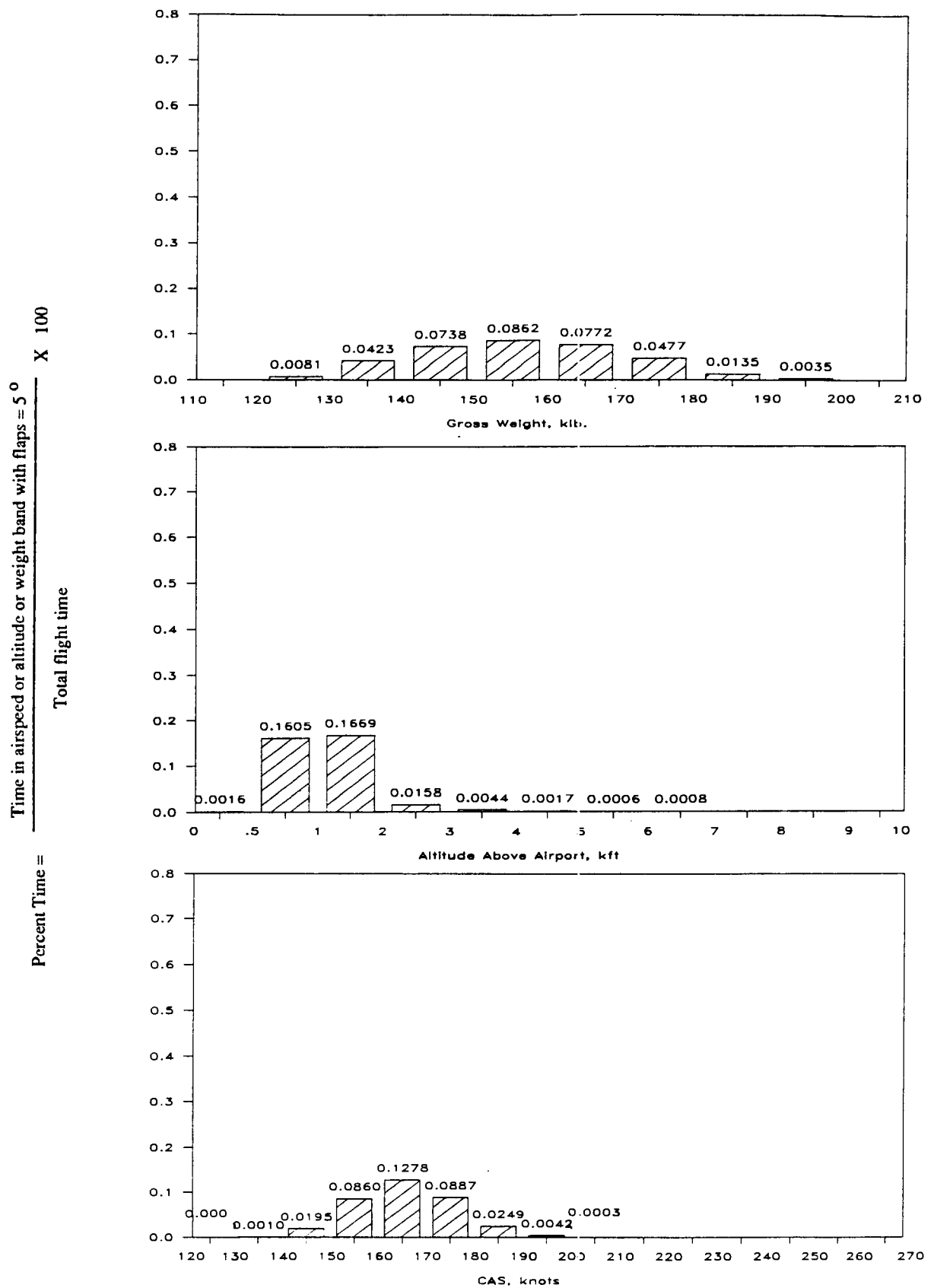


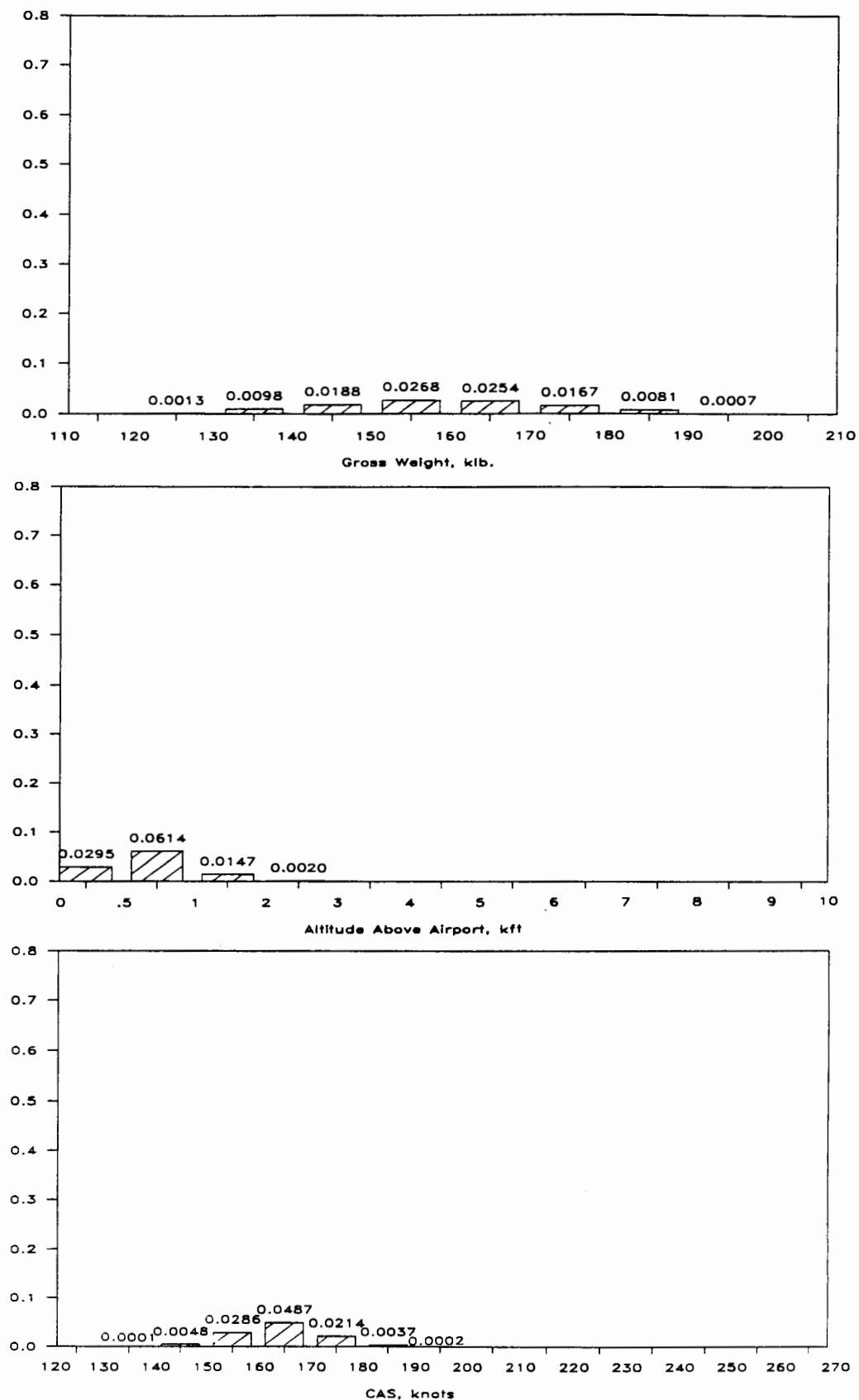
Figure 8.- Percent of total flight time at each flap detent.



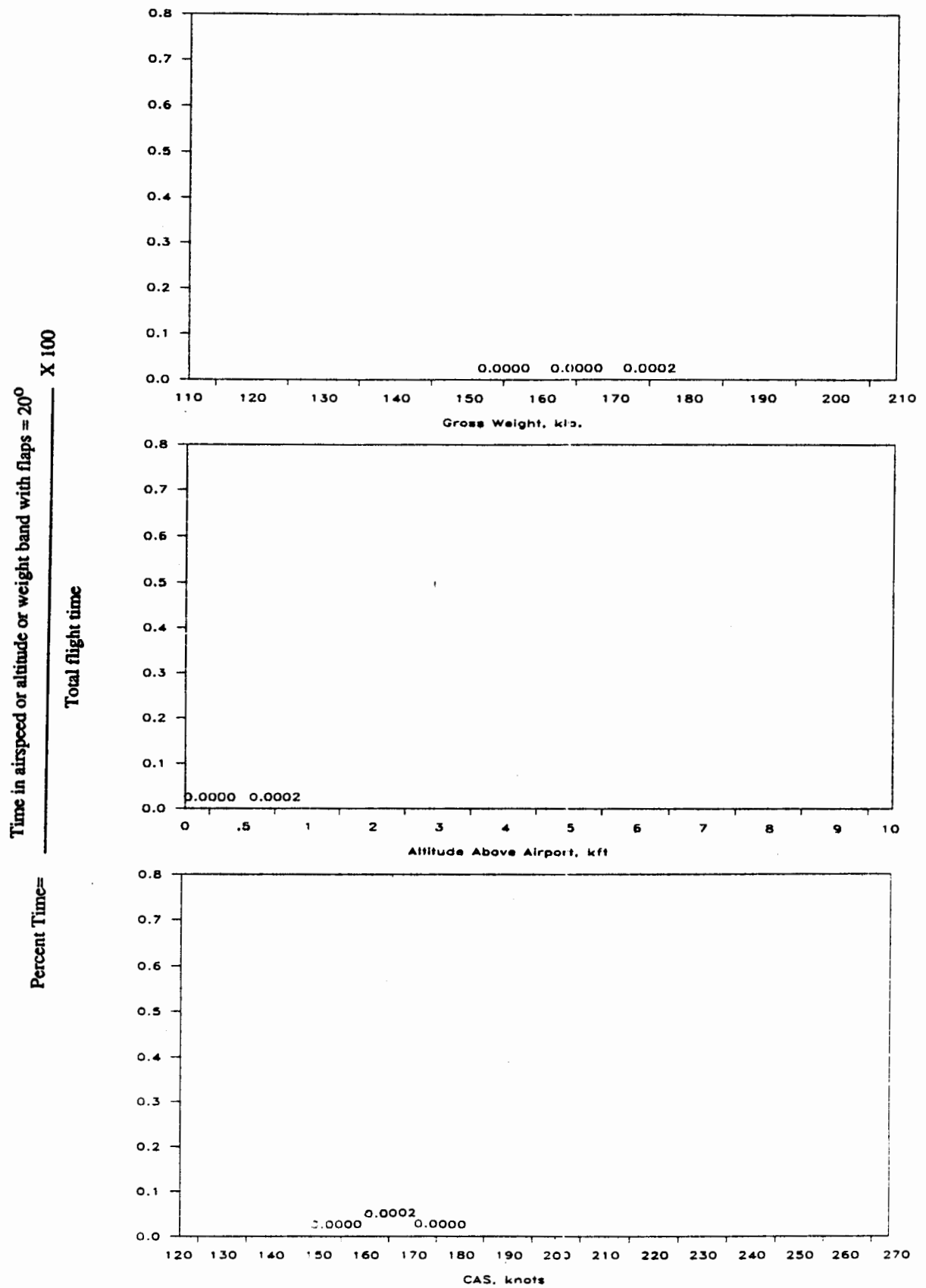
(a) Takeoff, flaps=5°; 6.2223 hours

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

Percent Time =
 Total flight time
 Time in airspeed or altitude or weight band with flaps = 15°
 X 100



(b) Takeoff, flaps=15°; 1.8993 hours



(c) Takeoff, flaps=20°; 0.0033 hours

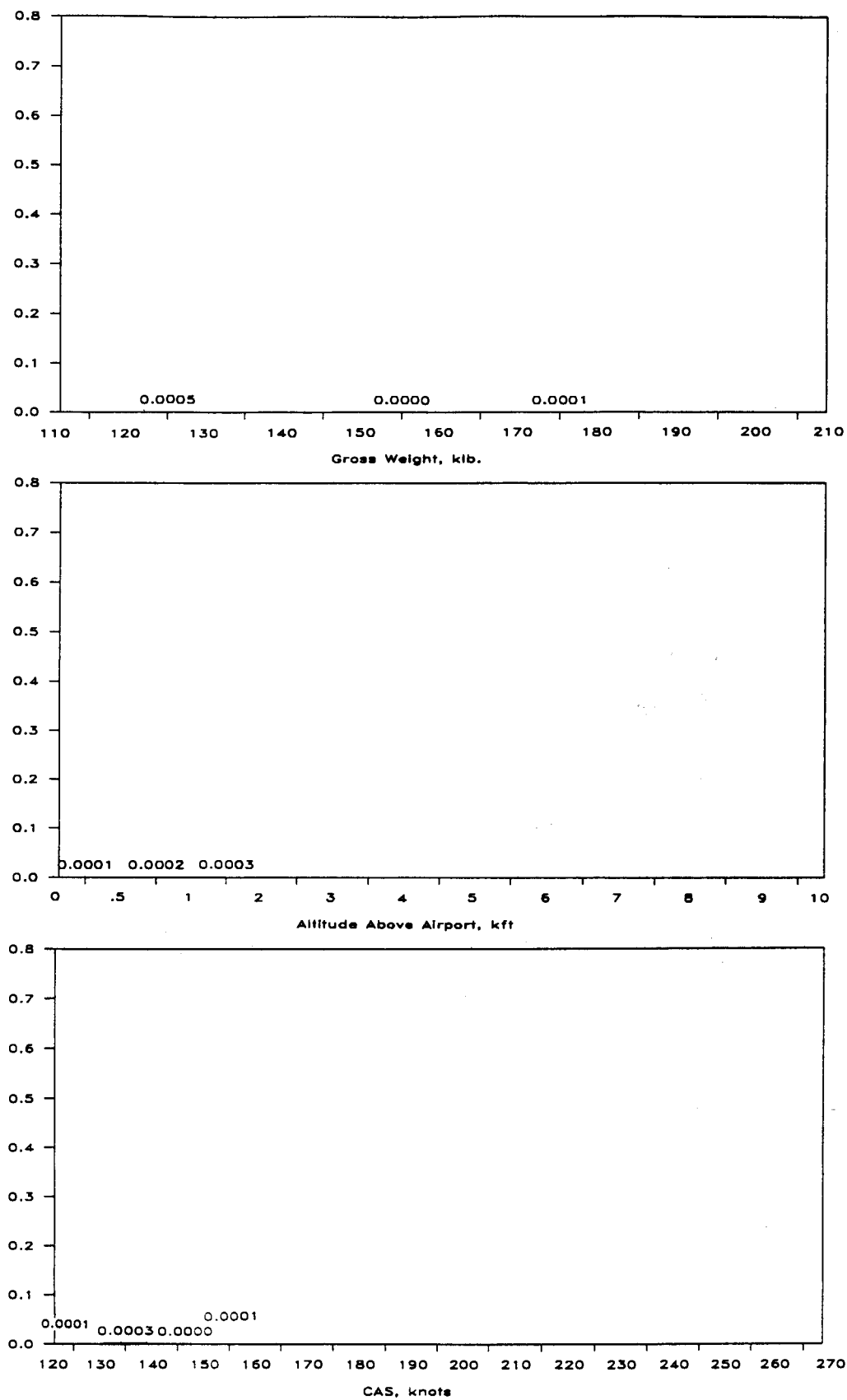
Figure 9.- Continued.

Time in airspeed or altitude or weight band with flaps = 25°

X 100

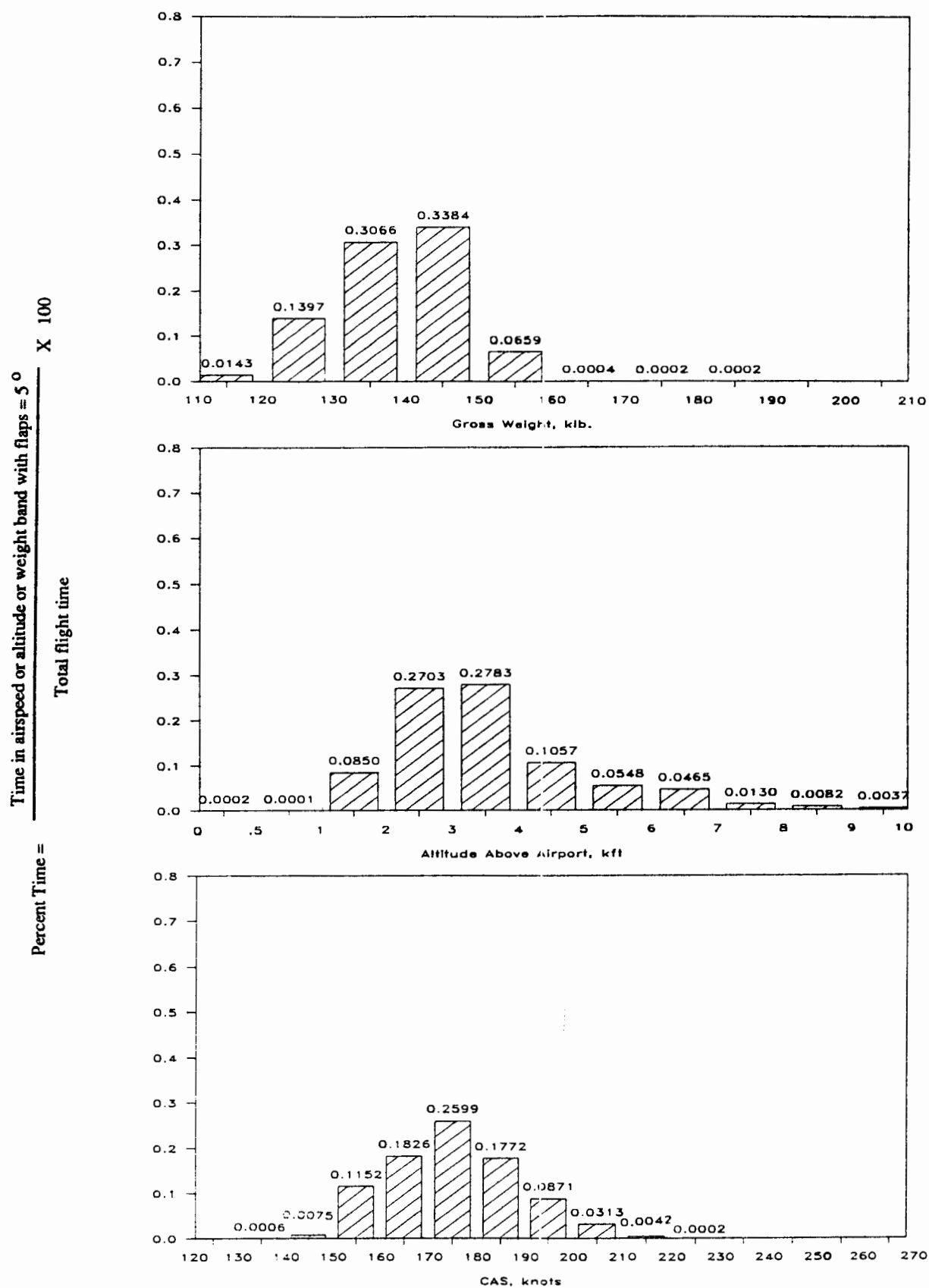
Total flight time

Percent Time =

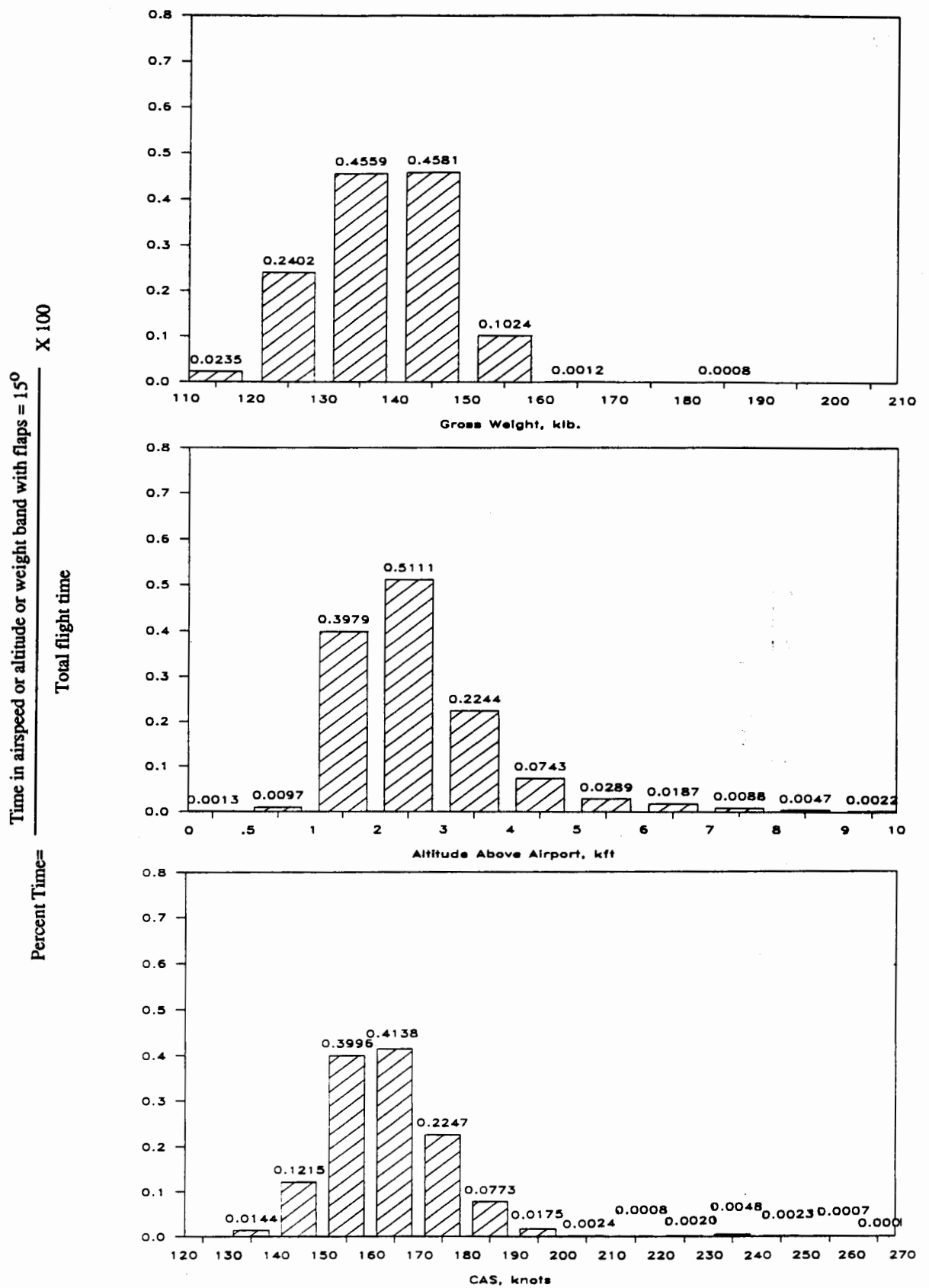


(d) Takeoff, flaps=25°; .0108 hours

Figure 9.- Continued.



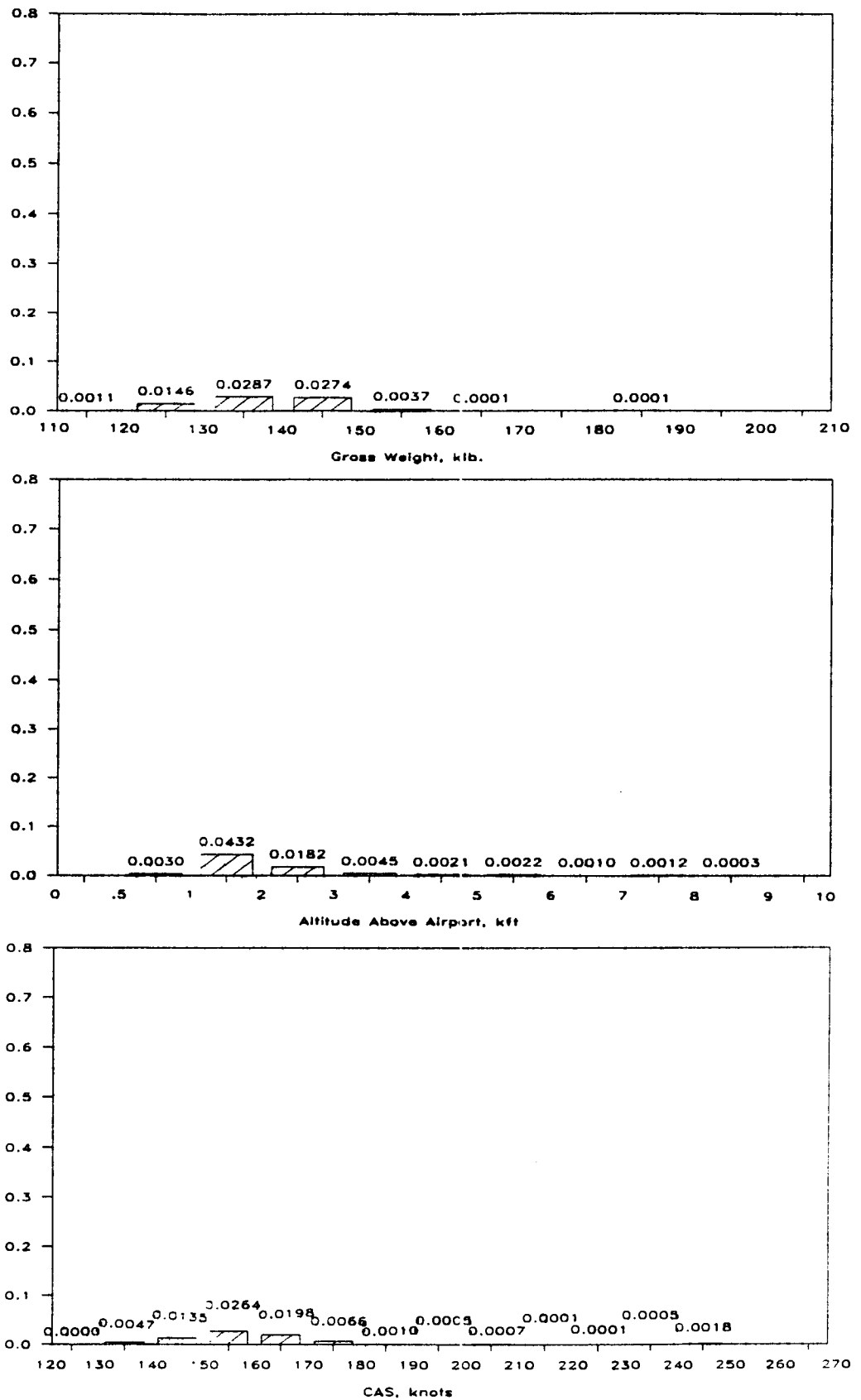
(e) Landing, flaps=5°; 15.2862 hours



(f) Landing, flaps=15°; 22.635 hours

Figure 9.- Continued.

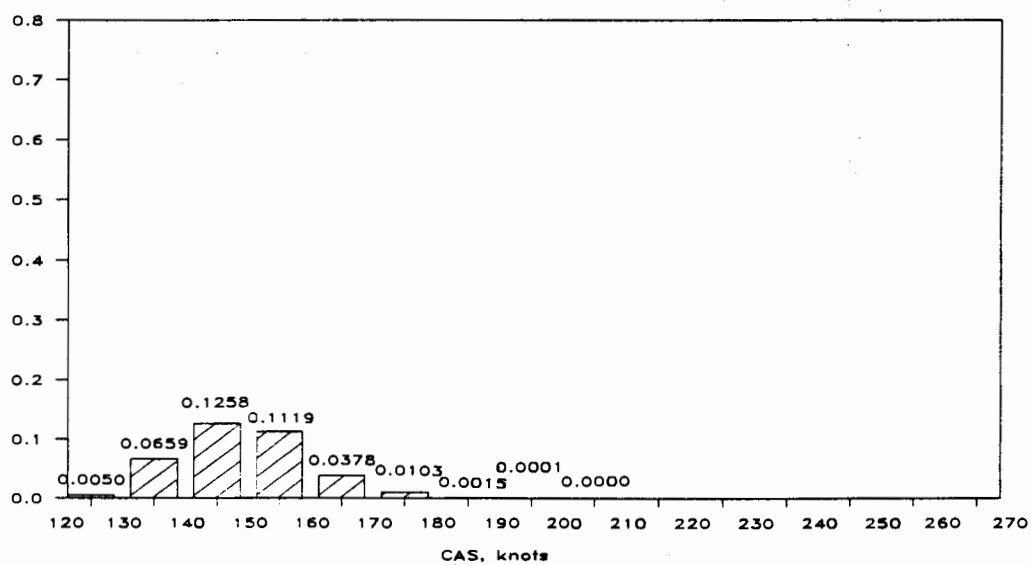
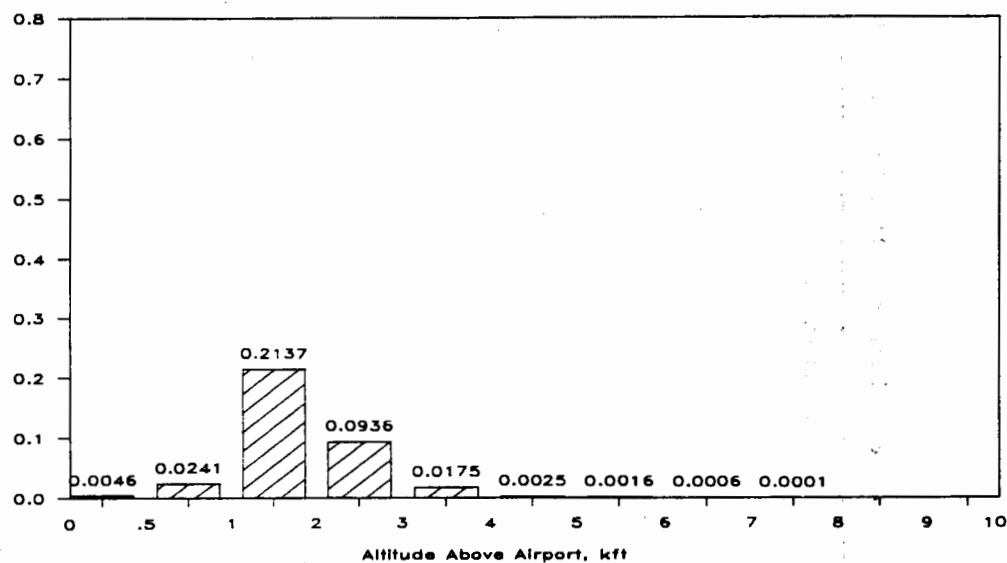
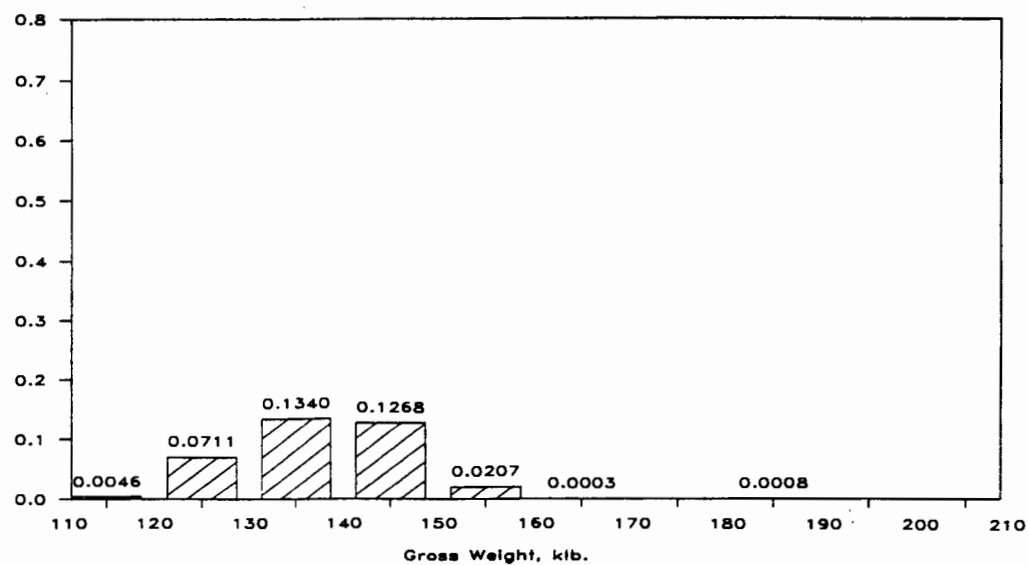
Time in airspeed or altitude or weight band with flaps = 20°
 Total flight time
 X 100
 Percent Time=



(g) Landing, flaps=20°; 1.3367 hours

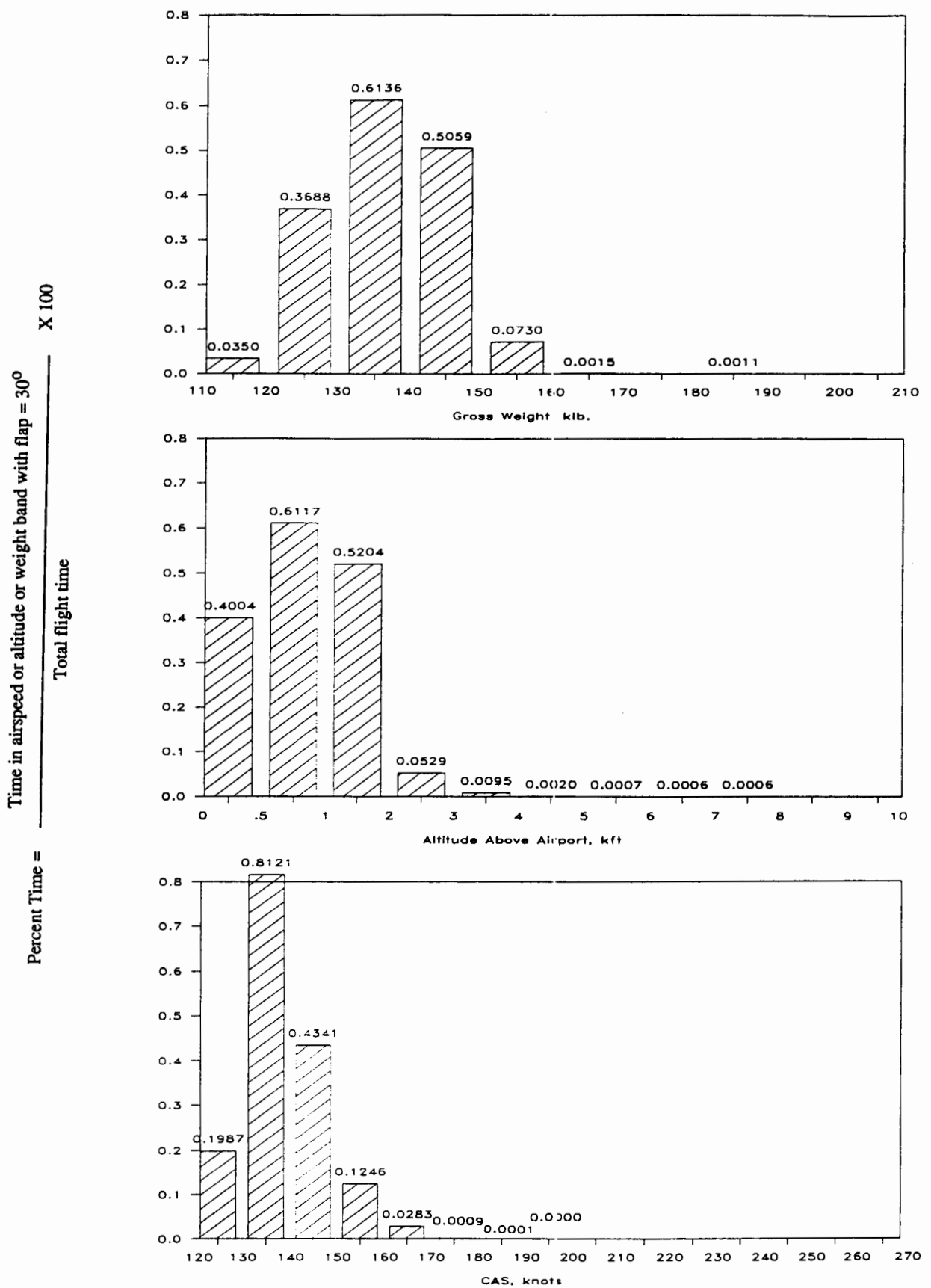
Figure 9.- Continued.

Time in airspeed or altitude or weight band with flaps = 25°
 X 100
 Total flight time
 Percent Time =



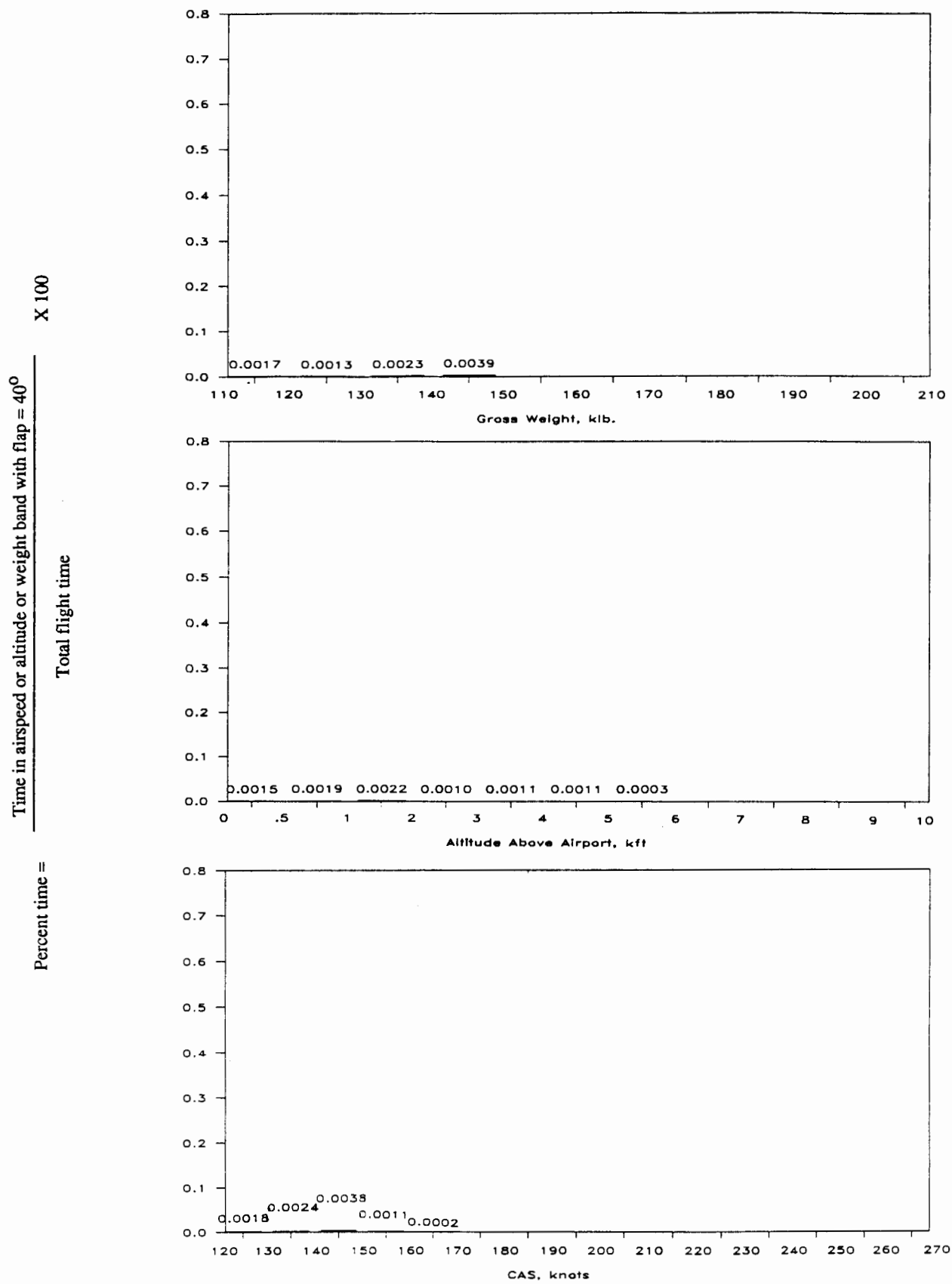
(h) Landing, flaps=25°; 6.3246 hours

Figure 9.- Continued.



(i) Landing, flaps=30°; 28.2303 hours

Figure 9.- Continued.



(j) Landing, flaps=40°; 0.1619 hours

Figure 9.- Concluded.

TIME AFTER LIFTOFF, MINUTES	FLAP DEFLECTION, DEGREES					
	35.0	28.0	23.0	18.0	10.0	4.0
0.0 - 0.1	0	0	0.1	0.2	44.0	2.2
0.1 - 0.2	0	0	0.1	0	22.2	7.8
0.2 - 0.3	0	0	0	0.1	5.8	15.7
0.3 - 0.4	0	0	0	0	3.9	17.4
0.4 - 0.5	0	0	0.1	0	1.8	14.9
0.5 - 0.6	0	0	0	0	1.2	14.7
0.6 - 0.8	0	0	0	0	1.8	14.2
0.8 - 1.0	0	0	0	0	0.2	6.6
1.0 - 1.2	0	0	0	0	0	3.0
1.2 - 1.4	0	0	0	0	0	0.8
1.4 - 1.6	0	0	0	0	0.1	0.3
1.6 - 1.8	0	0	0	0	0.1	0.3
1.8 - 2.0	0	0	0	0	0	0.4
2.0 - 2.2	0	0	0	0	0	0
2.2 - 2.4	0	0	0	0	0	0.2
2.4 - 2.6	0	0	0	0	0	0.1
2.6 - 2.8	0	0	0	0	0	0
2.8 - 3.0	0	0	0	0	0	0
3.0 - 3.5	0	0	0	0	0	0
3.5 - 4.0	0	0	0	0	0	0
4.0 - 4.5	0	0	0	0	0	0.1
4.5 - 5.0	0	0	0	0	0	0
5.0 - 6.0	0	0	0	0	0	0
6.0 - 7.0	0	0	0	0	0	0
7.0 - 8.0	0	0	0	0	0	0
8.0 - 9.0	0	0	0	0	0	0
9.0 - 10.0	0	0	0	0	0	0
10.0 - 15.0	0	0	0	0	0	0
15.0 - 20.0	0	0	0	0	0	0
20.0 - 25.0	0	0	0	0	0	0
0.0 - 25.0	0	0	0.3	0.3	79.1	98.9

Notes:

- 1) 985 Flights
- 2) The first 15 seconds after lift off for each flight are not included.
- 3) Flap deflections less than 4 degrees were considered to be zero.

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

Figure 10.- Flap deflection times.

FLAP DEFLECTION, DEGREES

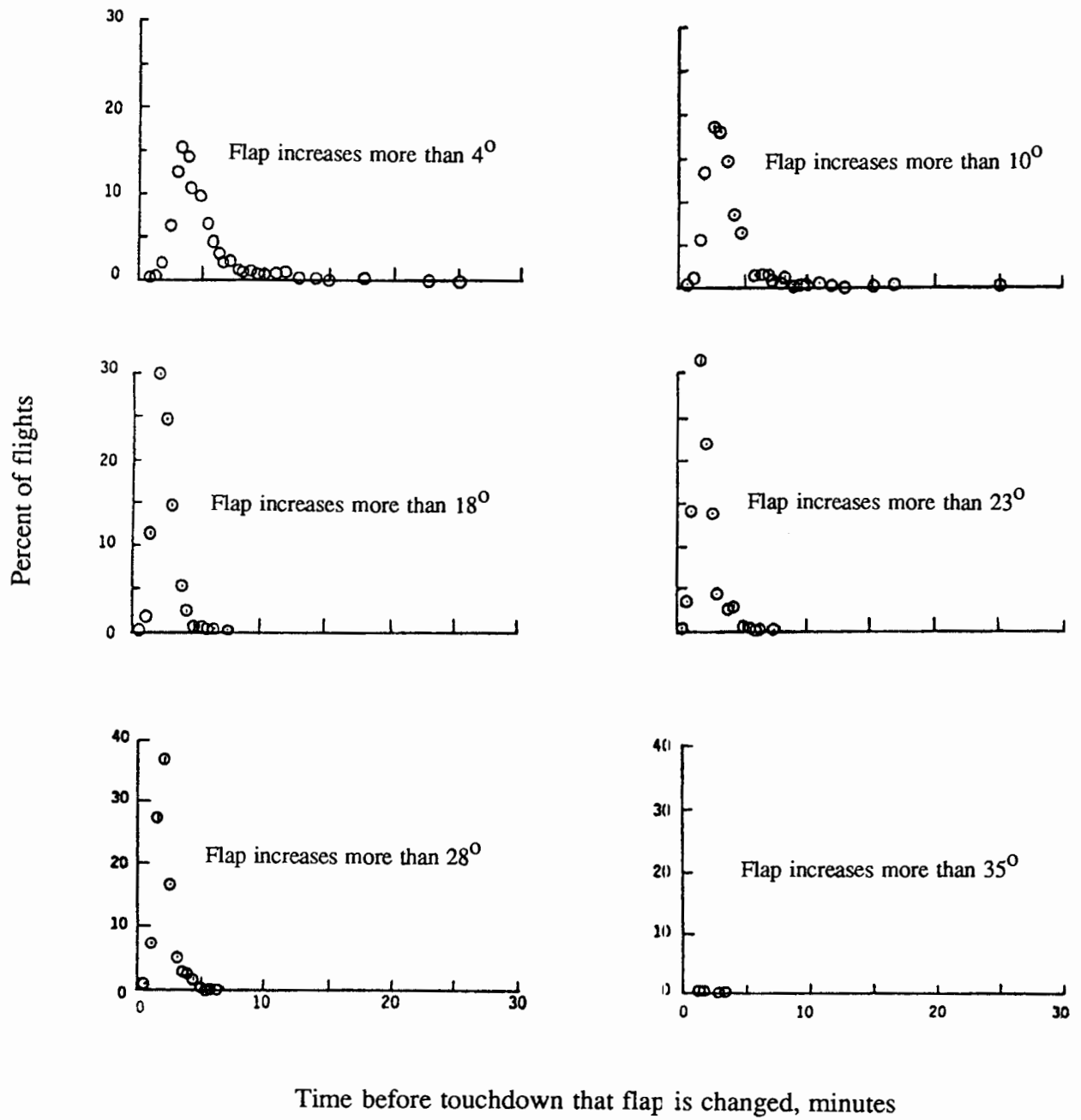
TIME BEFORE TOUCHDOWN, MINUTES	4.0	10.0	18.0	23.0	28.0	35.0
0.0 - 0.5	0	0	0.1	0.3	0.6	0
0.5 - 1.0	0.2	0.4	2.2	3.4	7.8	0
1.0 - 1.5	0.8	1.7	11.6	14.2	27.3	0.1
1.5 - 2.0	2.5	5.8	29.9	32.9	36.6	0.2
2.0 - 2.5	6.5	13.2	24.4	22.8	16.9	0
2.5 - 3.0	12.4	18.9	14.8	14.2	5.6	0.2
3.0 - 3.5	15.3	18.2	5.4	4.8	1.4	0.2
3.5 - 4.0	13.6	14.9	2.8	2.2	1.2	0
4.0 - 4.5	10.4	8.3	2.4	2.4	0.9	0
4.5 - 5.0	9.8	6.6	0.7	0.6	0.1	0
5.0 - 5.5	6.8	3.2	0.4	0.3	0.2	0
5.5 - 6.0	4.7	1.9	0.2	0.3	0.1	0
6.0 - 6.5	3.2	1.7	0.3	0.2	0.1	0
6.5 - 7.0	2.2	1.1	0	0	0.1	0
7.0 - 7.5	2.4	0.7	0.2	0.2	0	0
7.5 - 8.0	1.3	0.4	0	0	0	0
8.0 - 8.5	1.0	0.8	0	0	0	0
8.5 - 9.0	1.5	0.2	0	0	0	0
9.0 - 9.5	0.8	0.3	0	0	0	0
9.5 - 10.0	0.6	0.4	0	0	0	0
10.0 - 11.0	0.8	0.3	0	0	0	0
11.0 - 12.0	0.9	0.2	0	0	0	0
12.0 - 13.0	0.3	0.1	0	0	0	0
13.0 - 14.0	0.3	0	0.1	0	0	0
14.0 - 15.0	0.1	0.1	0	0	0	0
15.0 - 17.0	0.3	0.2	0	0	0	0
17.0 - 19.0	0	0	0	0	0	0
19.0 - 21.0	0	0	0	0	0	0
21.0 - 23.0	0.1	0	0	0	0	0
23.0 - 25.0	0.1	0.1	0	0	0	0
25.0 - 30.0	0	0	0	0	0	0
30.0 - 35.0	0	0	0	0	0	0
35.0 - 40.0	0	0	0	0	0	0
40.0 - 60.0	0.1	0	0	0	0	0
0.0 - 60.0	99.3	99.9	95.6	98.9	99.0	0.7

Notes:

- 1) 985 flights
- 2) The last 15 seconds before touchdown on each flight are not included.
- 3) Flap deflections less than 4 degrees were considered to be zero.

(b) Landing: Percent of flights vs times when take off flap deflection is reduced to greater than indicated values

Figure 10.- Continued.



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

Figure 10.- Concluded.

		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
FLAP RANGE	FLAP DETENT																				
35-40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28-35	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23-28	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18-23	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10-18	15	0	0	2	22	36	16	3	0	0	0	0	0	0	0	0	0	0	0	0	
4-10	5	0	0	0	1	16	35	31	13	2	0	0	0	0	0	0	0	0	0	0	

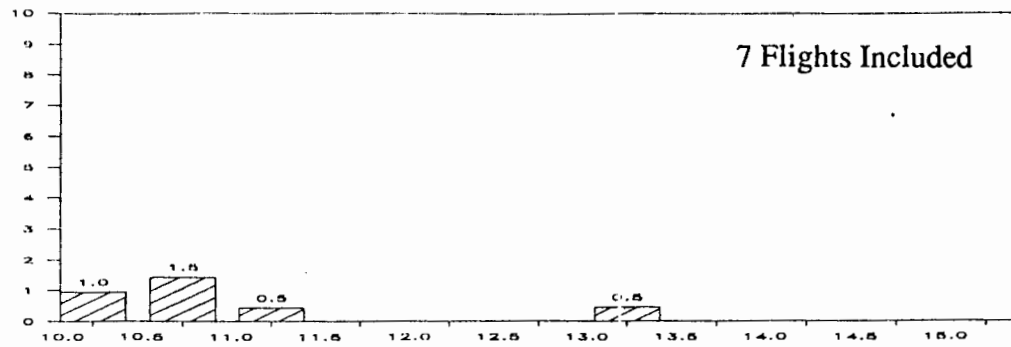
(a) Take off

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
FLAP RANGE	FLAP DETENT																				
4-10	5	0	0	0	1	4	16	27	30	17	4	0	0	0	0	0	0	0	0	0	0
10-18	15	0	0	1	7	18	27	28	13	4	0	0	0	0	0	0	0	0	0	0	0
18-23	20	0	3	17	32	31	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0
23-28	25	0	3	19	36	29	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0
28-35	30	1	16	34	32	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35-45	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

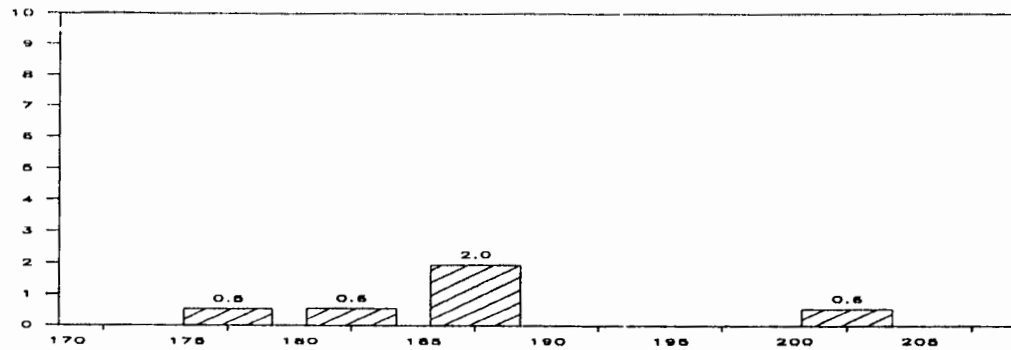
(b) Landing

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

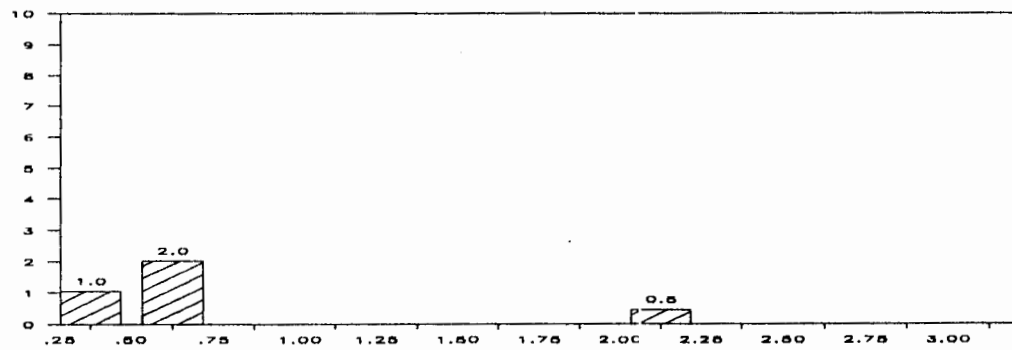
Number of Flights



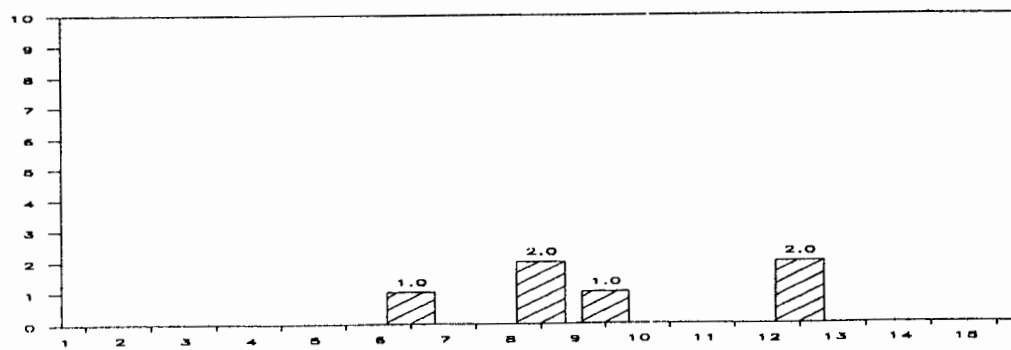
(a) Pressure altitude at initial flap deflection, kft.



(b) Calibrated airspeed at initial flap deflection, kft.



(c) Minutes above 10,000 ft. that flaps deflected > .5 degrees



(d) Minutes before touchdown of initial flap detection

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

PRESSURE ALTITUDE BANDS										
a_n	-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
LEVEL										
g's										
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	0.02	0	0	0	0	0
.70	0	0	0	0	0.03	0.02	0	0	0	0
.60	0.01	0	0.01	0	0.03	0.02	0	0	0	0
.50	0.03	0.01	0.02	0.03	0.05	0.04	0	0	0	0.01
.40	0.11	0.09	0.09	0.05	0.13	0.07	0	0	0	0.03
.30	0.91	0.69	0.52	0.33	0.39	0.28	0.03	0.02	0	0.19
.20	10.19	7.04	4.05	2.10	2.18	1.47	0.34	0.12	0	1.70
.15	34.50	23.60	15.84	7.05	6.33	4.82	1.25	0.46	0	5.85
.10	108.23	79.62	51.88	28.87	23.72	17.32	5.83	2.72	3.02	20.46
.05	322.04	245.26	195.96	142.55	112.53	93.77	41.56	27.70	24.16	85.63
0	684.93	564.41	585.57	671.23	744.40	980.28	1102.65	983.25	800.34	925.62
-.05	285.33	191.96	170.66	149.69	141.17	103.38	46.40	27.25	48.32	82.46
-.10	69.54	41.84	36.12	22.58	21.54	15.61	6.22	3.70	0	15.00
-.15	14.22	9.59	7.17	4.39	4.94	3.64	1.09	0.66	0	3.08
-.20	2.88	2.23	1.89	1.18	1.50	1.13	0.26	0.13	0	0.74
-.30	0.17	0.12	0.34	0.24	0.38	0.33	0.03	0.01	0	0.10
-.40	0	0.01	0.07	0.09	0.19	0.10	0.01	0	0	0.03
-.50	0	0	0.01	0.03	0.07	0.06	0	0	0	0.01
-.60	0	0	0	0	0.03	0.04	0	0	0	0
-.70	0	0	0	0	0.02	0.02	0	0	0	0
-.80	0	0	0	0	0.02	0.02	0	0	0	0
-1.00	0	0	0	0	0	0.01	0	0	0	0
-1.20	0	0	0	0	0	0.01	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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS										985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN										723033.21

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

Figure 13.- Normal acceleration exceedances.

PRESSURE ALTITUDE BANDS										
a _{nM}	-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
LEVEL										
g's										
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	0.05	0.04	0.04	0	0	0.01	0	0	0	0.01
.20	0.94	0.80	0.35	0.15	0.13	0.06	0.03	0.01	0	0.15
.15	4.16	2.98	1.98	0.55	0.55	0.39	0.14	0.04	0	0.67
.10	14.75	12.59	7.85	3.04	2.23	1.73	0.56	0.28	0	2.71
.05	48.62	45.16	35.01	19.01	14.20	11.93	4.77	3.34	3.02	12.58
0	149.23	118.70	114.90	96.59	98.10	119.21	151.36	158.30	193.29	142.39
-.05	39.92	29.88	27.81	17.20	15.54	11.07	5.55	3.91	3.02	11.10
-.10	4.25	3.87	3.97	1.58	1.36	1.16	0.50	0.45	0	1.24
-.15	0.27	0.47	0.34	0.15	0.18	0.16	0.03	0.06	0	0.12
-.20	0.01	0.05	0.02	0.01	0.06	0.03	0.01	0.01	0	0.01
-.30	0	0	0.01	0	0	0.01	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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS										985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN										723033.21

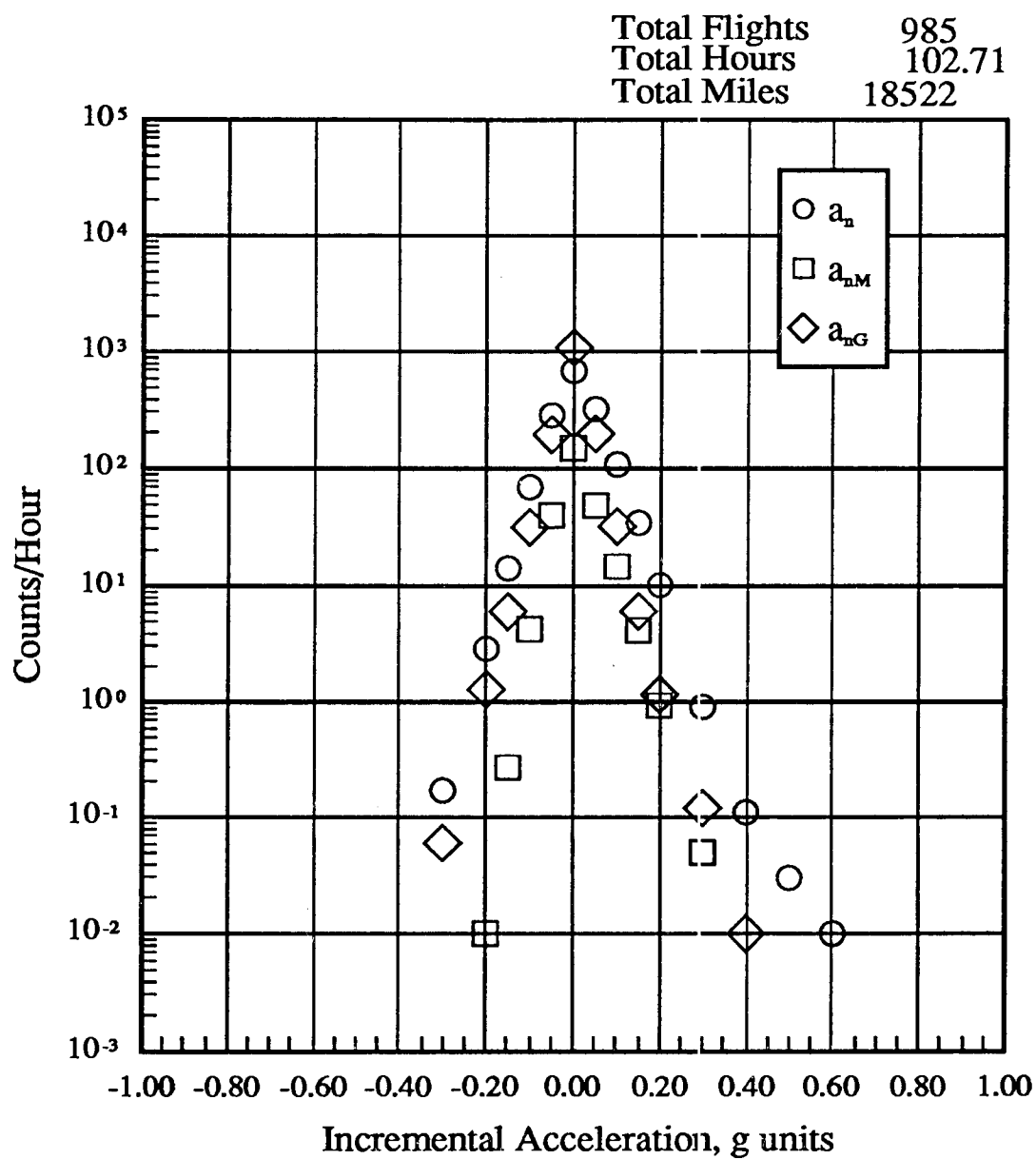
(b) a_{nM} Level crossing counts per hour within pressure altitude bands

Figure 13.- Continued.

PRESSURE ALTITUDE BANDS										
a _{nG}	-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
LEVEL										
g's										
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	0.01	0.01	0	0	0	0
.70	0	0	0	0	0.02	0.01	0	0	0	0
.60	0	0	0	0	0.02	0.02	0	0	0	0
.50	0	0	0	0.01	0.05	0.02	0	0	0	0
.40	0.01	0.01	0.02	0.03	0.10	0.06	0	0	0	0.01
.30	0.12	0.06	0.16	0.13	0.27	0.17	0.01	0	0	0.05
.20	1.16	1.14	0.86	0.60	0.90	0.63	0.09	0.04	0	0.34
.15	6.05	4.12	2.90	1.93	2.25	1.59	0.39	0.16	0	1.25
.10	32.15	17.52	11.90	8.17	7.99	5.55	1.89	0.89	0	5.64
.05	197.19	105.34	74.31	53.48	47.57	37.34	17.24	9.52	18.12	37.98
0	1083.63	1139.33	1258.02	1521.30	1615.16	1749.36	1896.69	1848.57	2268.12	1707.62
-.05	194.46	106.43	75.56	54.19	48.07	37.63	16.77	9.49	0	37.89
-.10	31.63	16.89	11.61	8.15	7.91	5.45	1.86	0.86	0	5.52
-.15	6.02	3.93	2.84	1.98	2.23	1.51	0.42	0.17	0	1.24
-.20	1.29	1.03	0.95	0.75	0.81	0.64	0.10	0.05	0	0.36
-.30	0.06	0.09	0.17	0.17	0.29	0.16	0.01	0	0	0.06
-.40	0	0	0.01	0.04	0.15	0.07	0	0	0	0.02
-.50	0	0	0.01	0.01	0.06	0.05	0	0	0	0.01
-.60	0	0	0	0.01	0.05	0.03	0	0	0	0.01
-.70	0	0	0	0	0.02	0.02	0	0	0	0
-.80	0	0	0	0	0.02	0.01	0	0	0	0
-1.00	0	0	0	0	0	0.01	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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS										985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN										723033.21

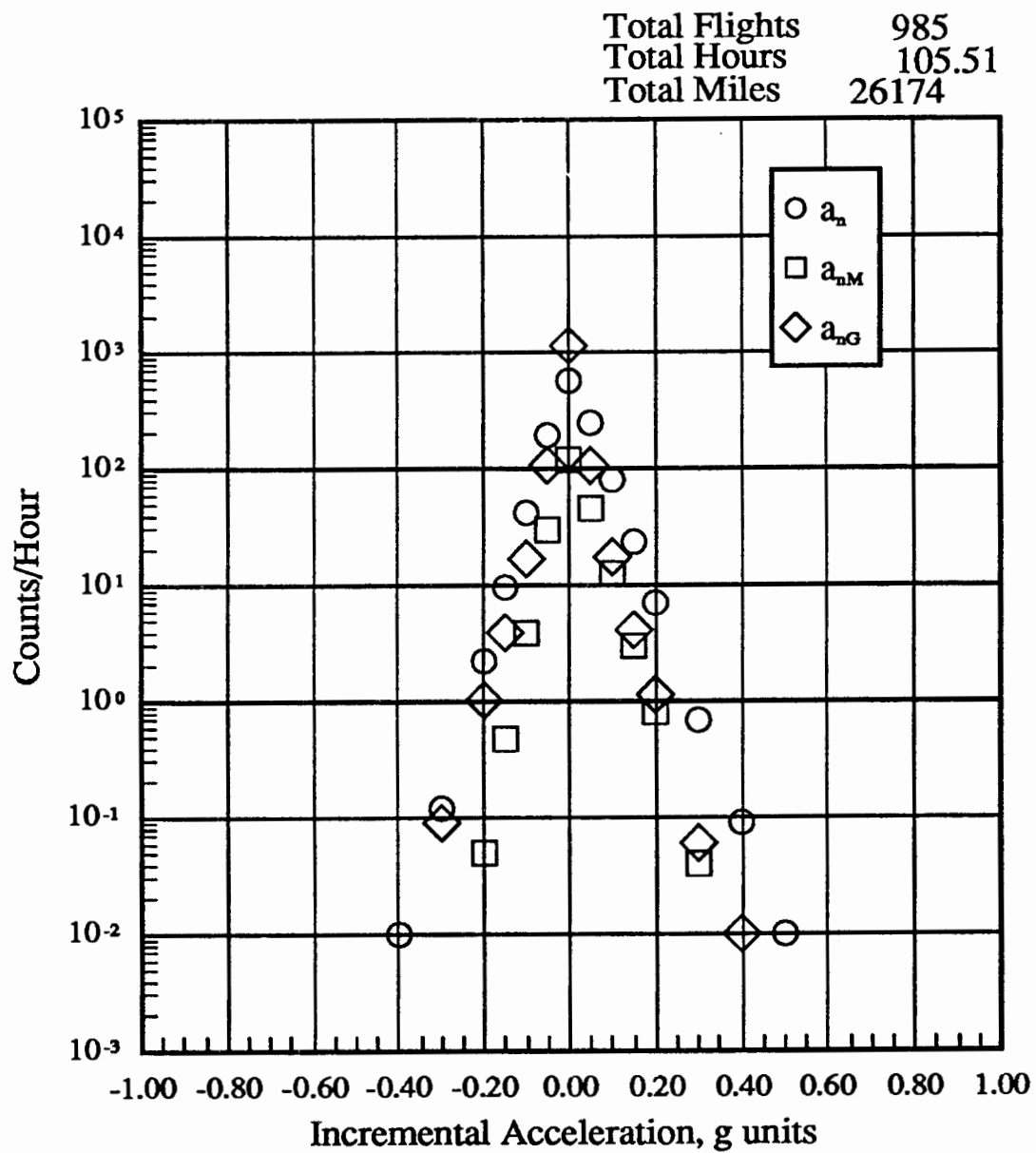
(c) a_{nG} Level crossing counts per hour within pressure altitude bands

Figure 13.- Continued.



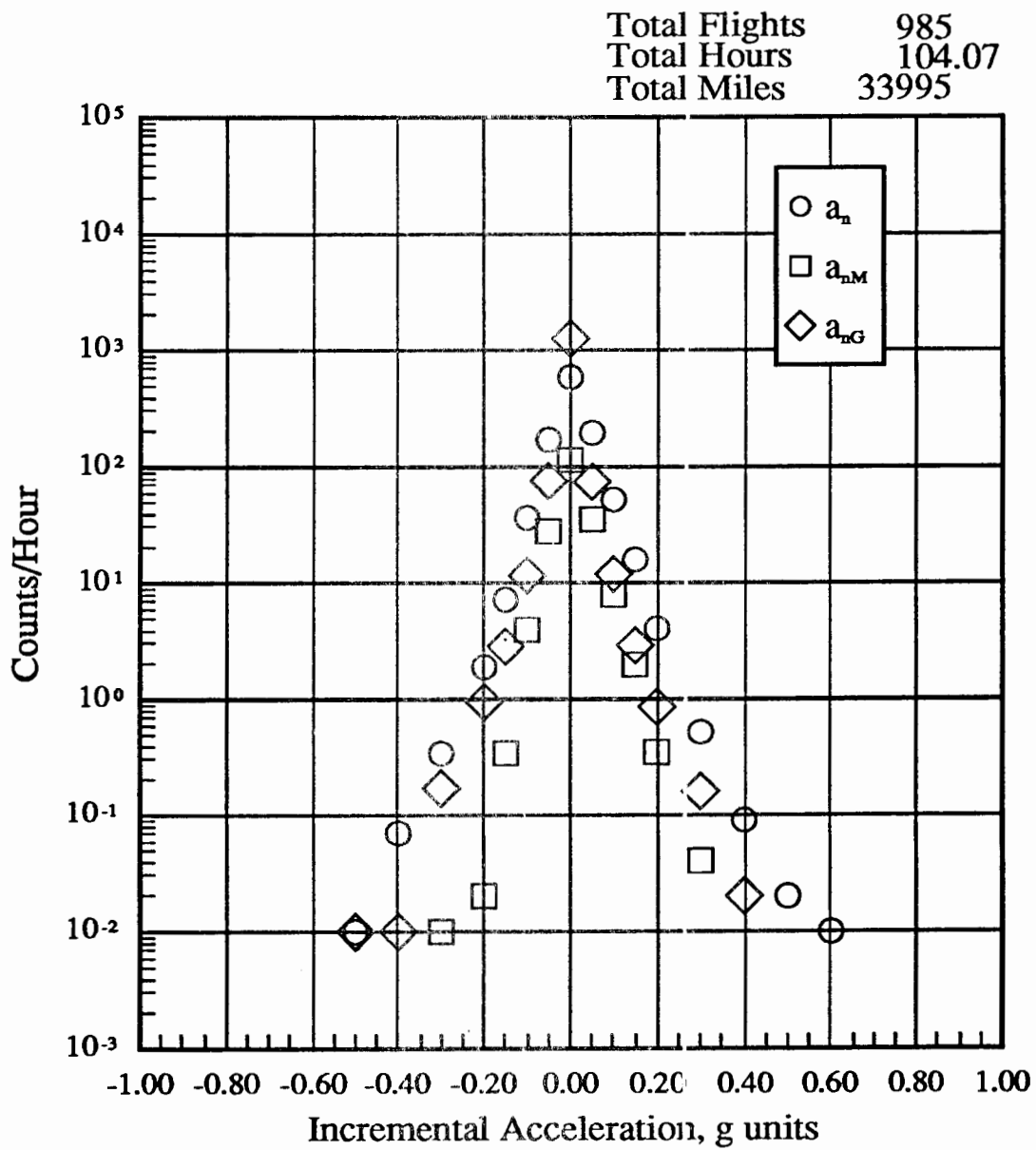
(d) a_n , a_{nM} , a_{nG} , -500 to 4500 feet altitude

Figure 13.- Continued.



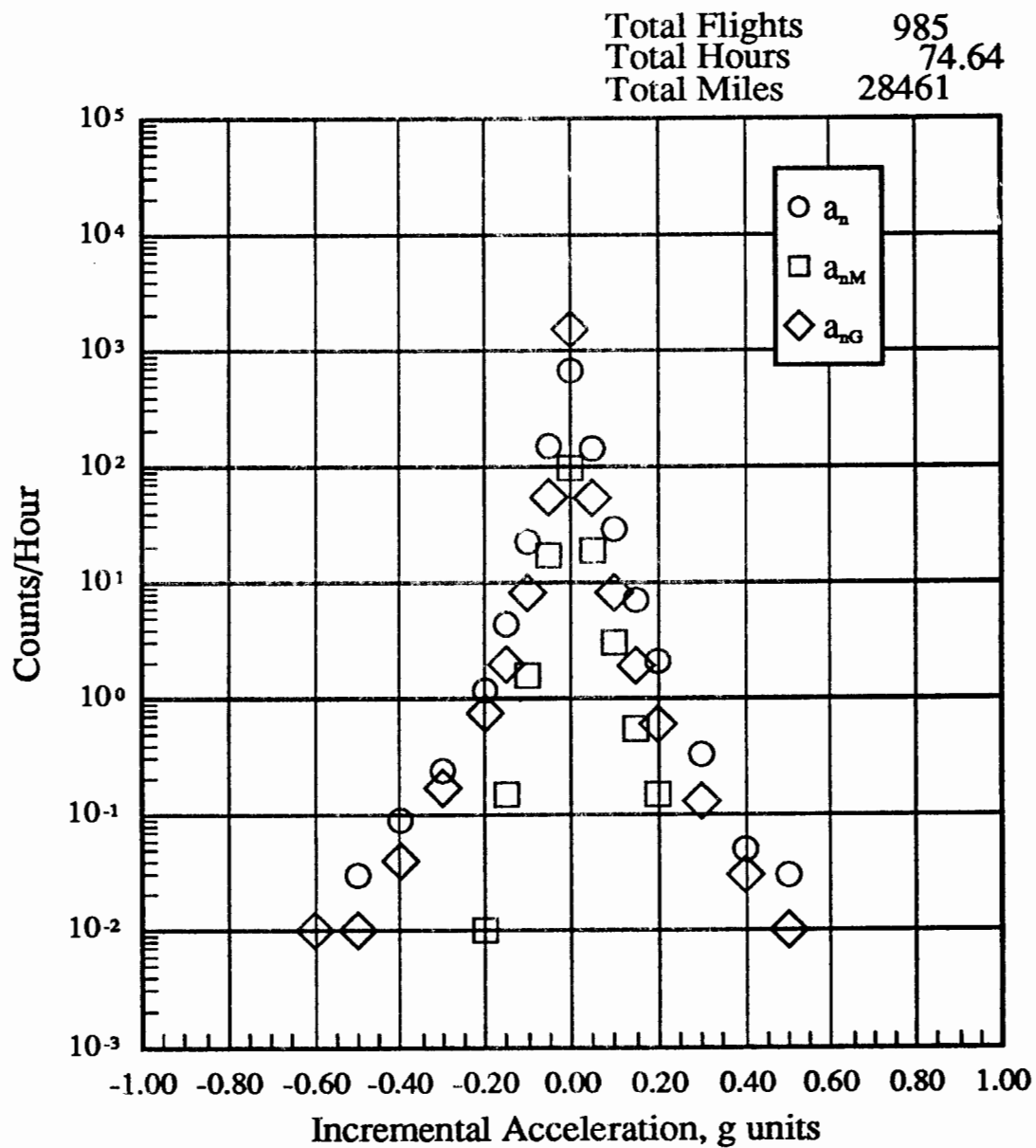
(e) a_n , a_{nM} , a_{nG} , 9500 to 14500 feet altitude

Figure 13.- Continued.



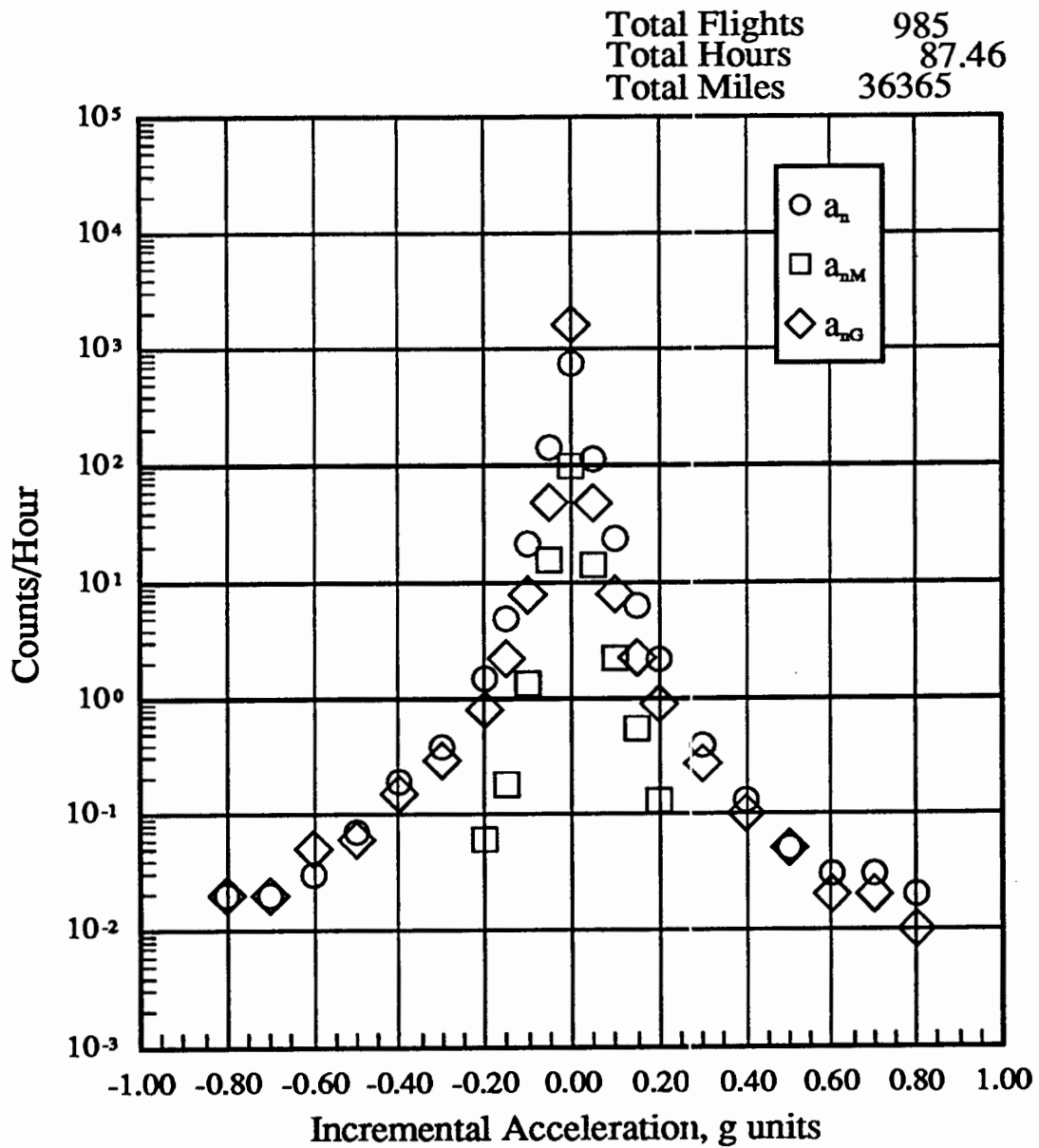
(f) a_n , a_{nM} , a_{nG} , 9500 to 14500 feet altitude

Figure 13.- Continued.



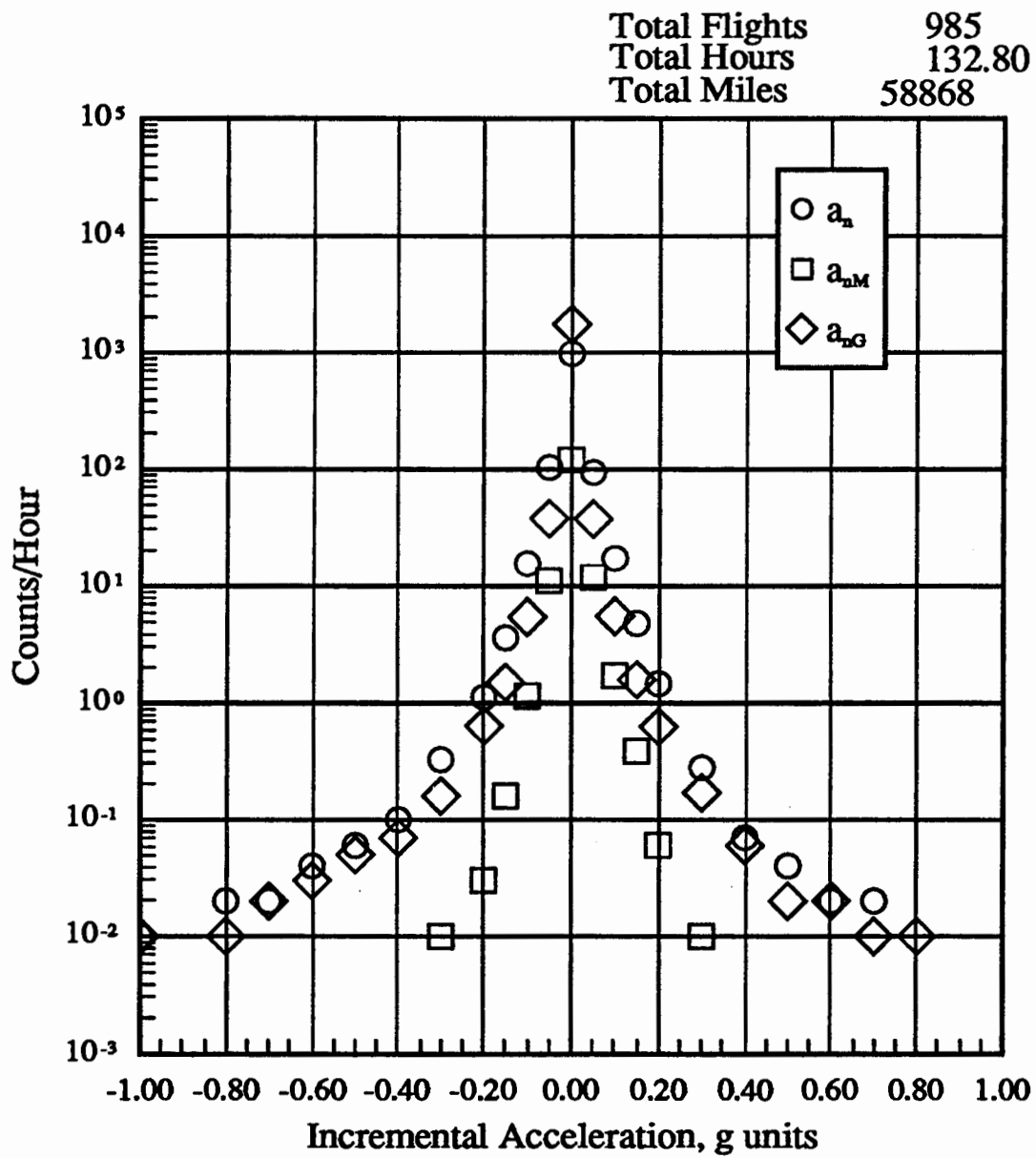
(g) a_n , a_{nM} , a_{nG} , 14500 to 19500 feet altitude

Figure 13.- Continued.



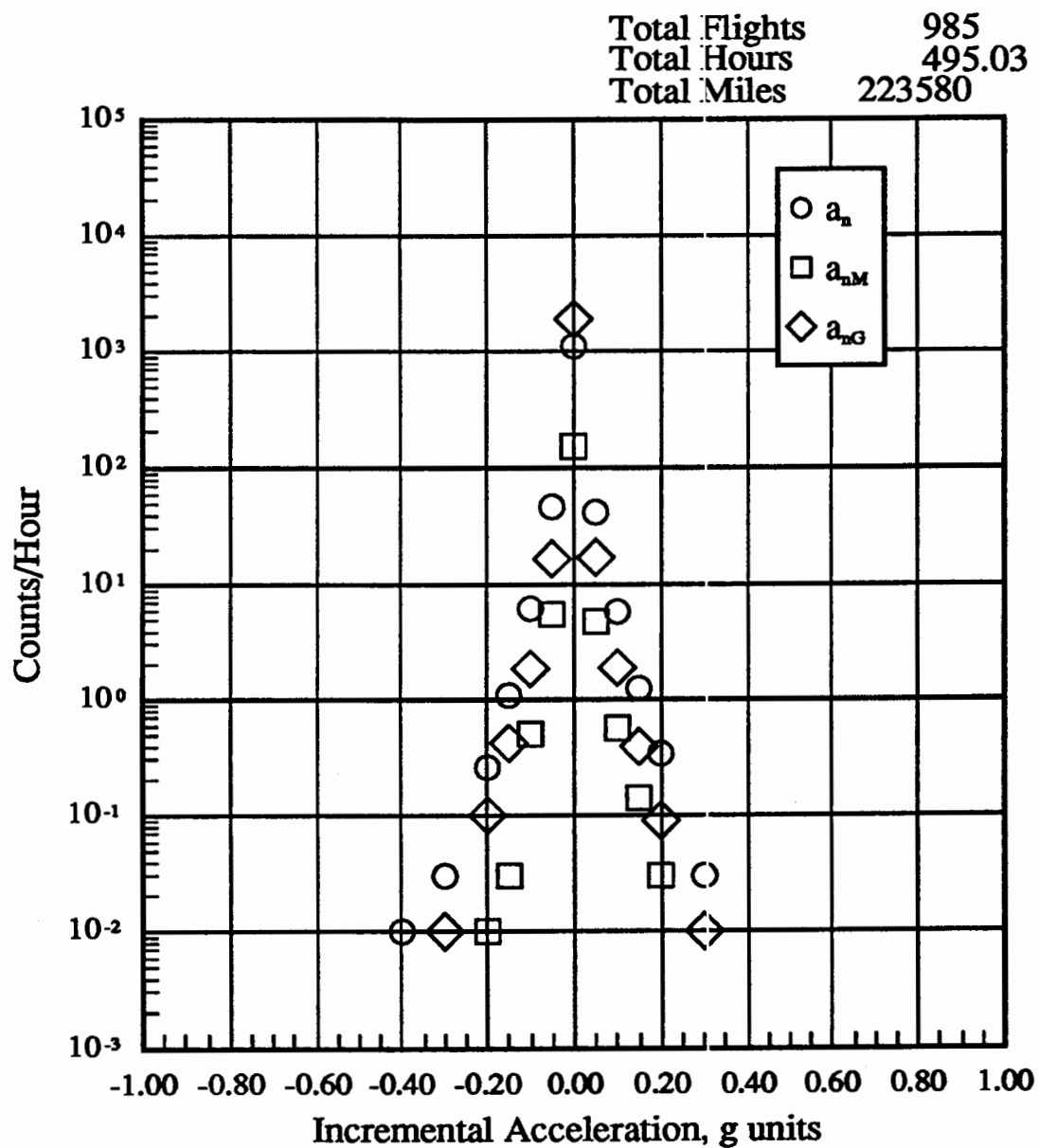
(h) a_n , a_{nM} , a_{nG} , 19500 to 24500 feet altitude

Figure 13.- Continued.



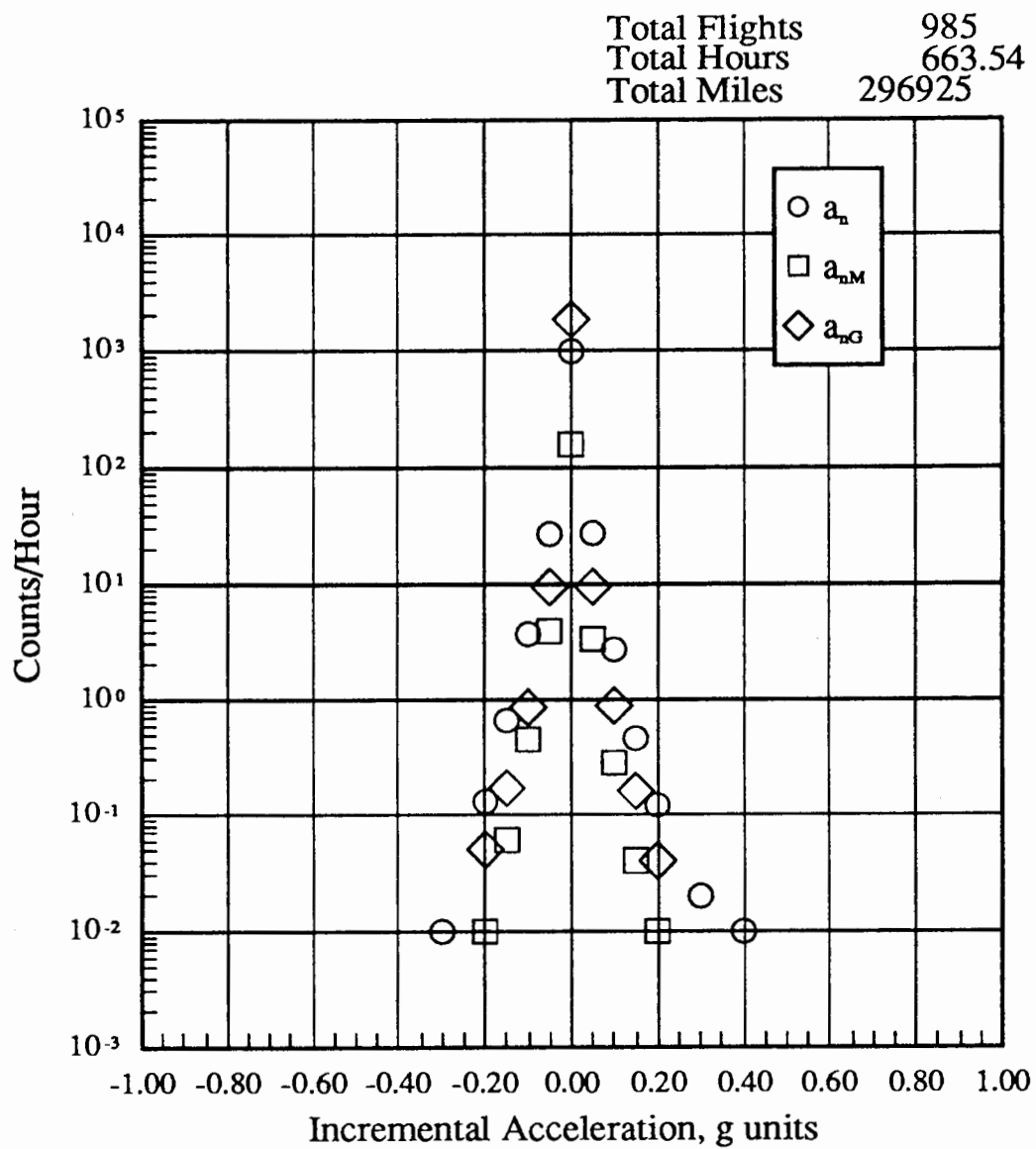
(i) a_n , a_{nM} , a_{nG} , 24500 to 29500 feet altitude

Figure 13.- Continued.



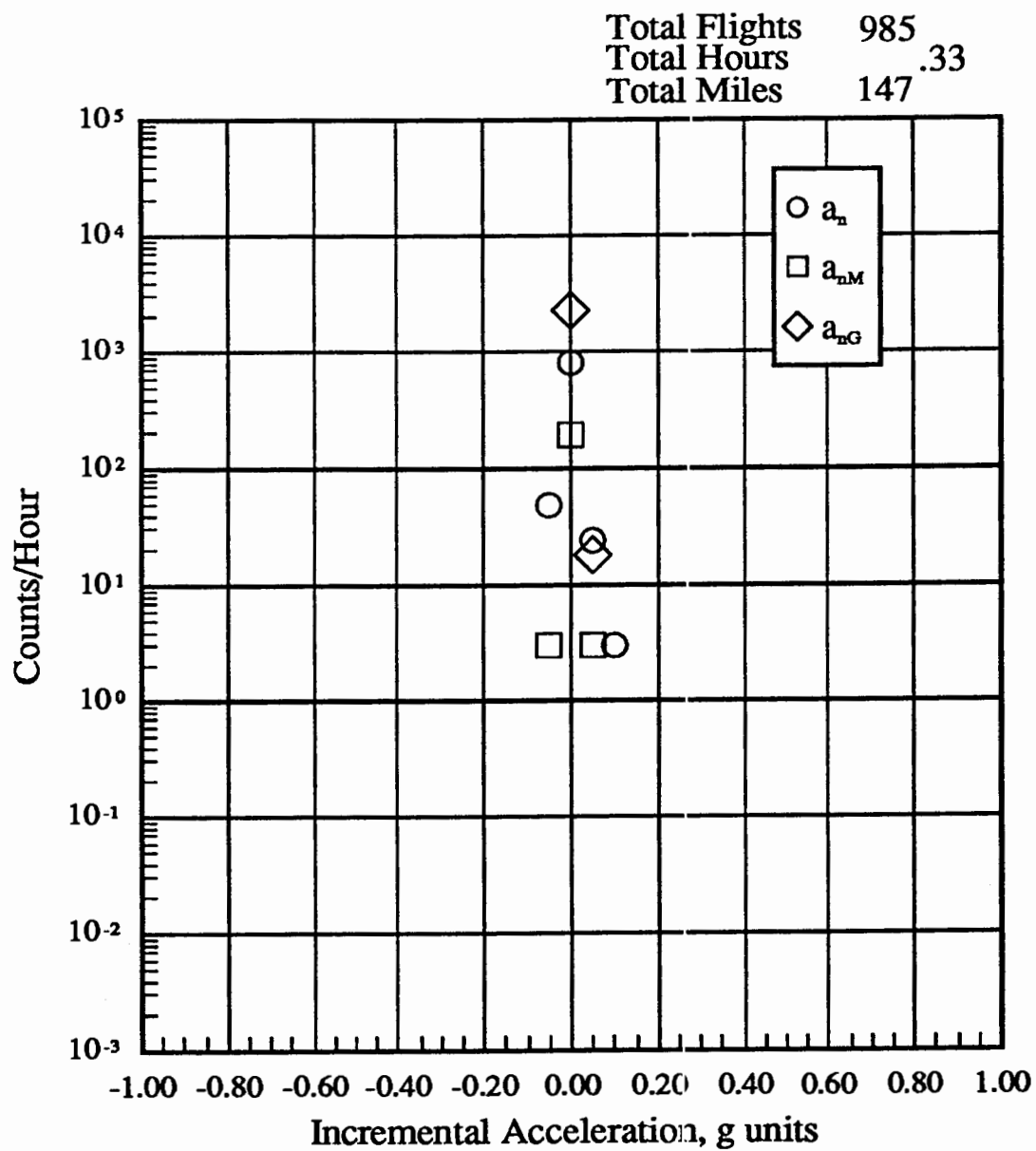
(j) a_n , a_{nM} , a_{nG} , 29500 to 34500 feet altitude

Figure 13.- Continued.



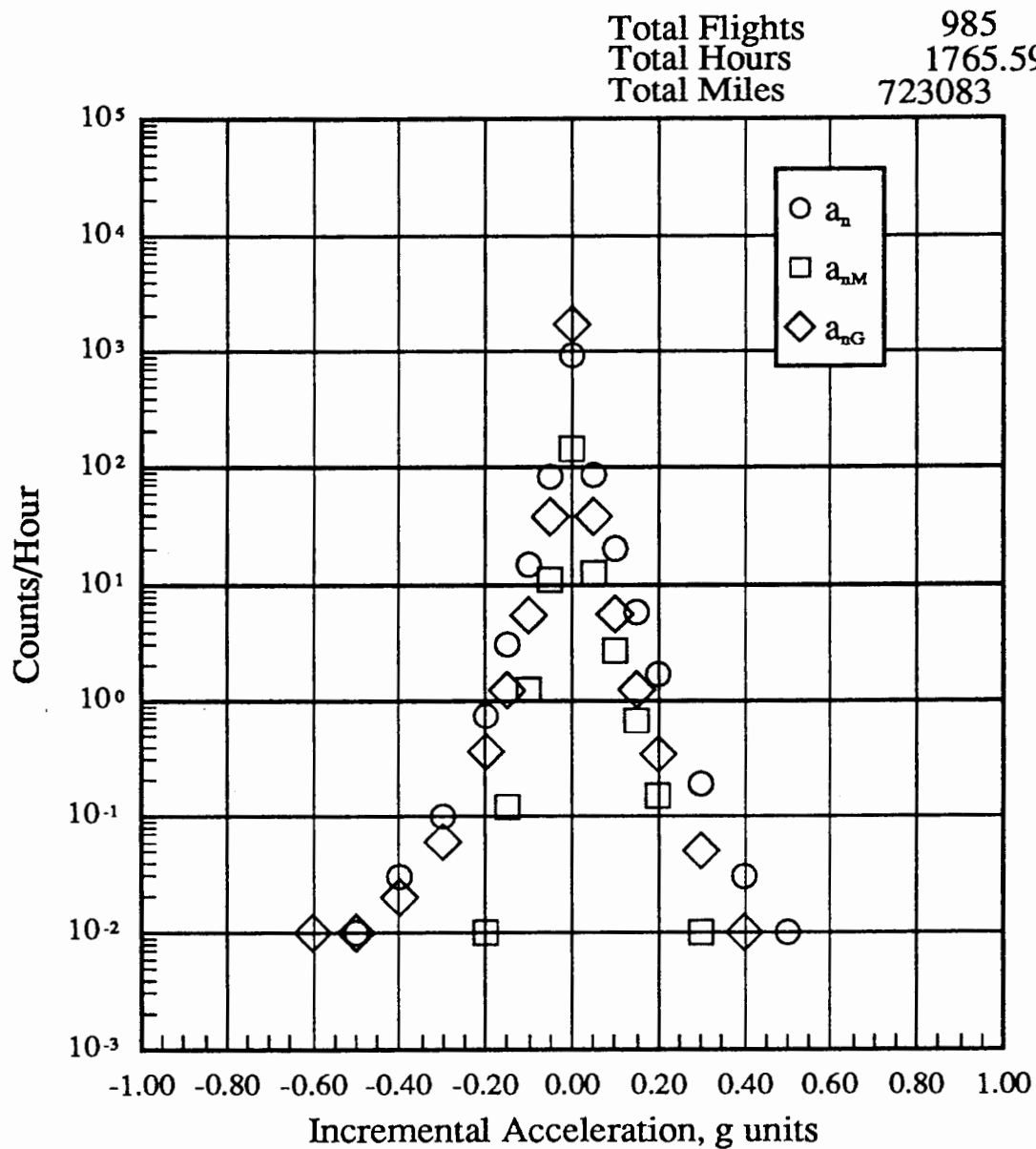
(k) a_n , a_{nM} , a_{nG} , 34500 to 39500 feet altitude

Figure 13.- Continued.



(I) 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.

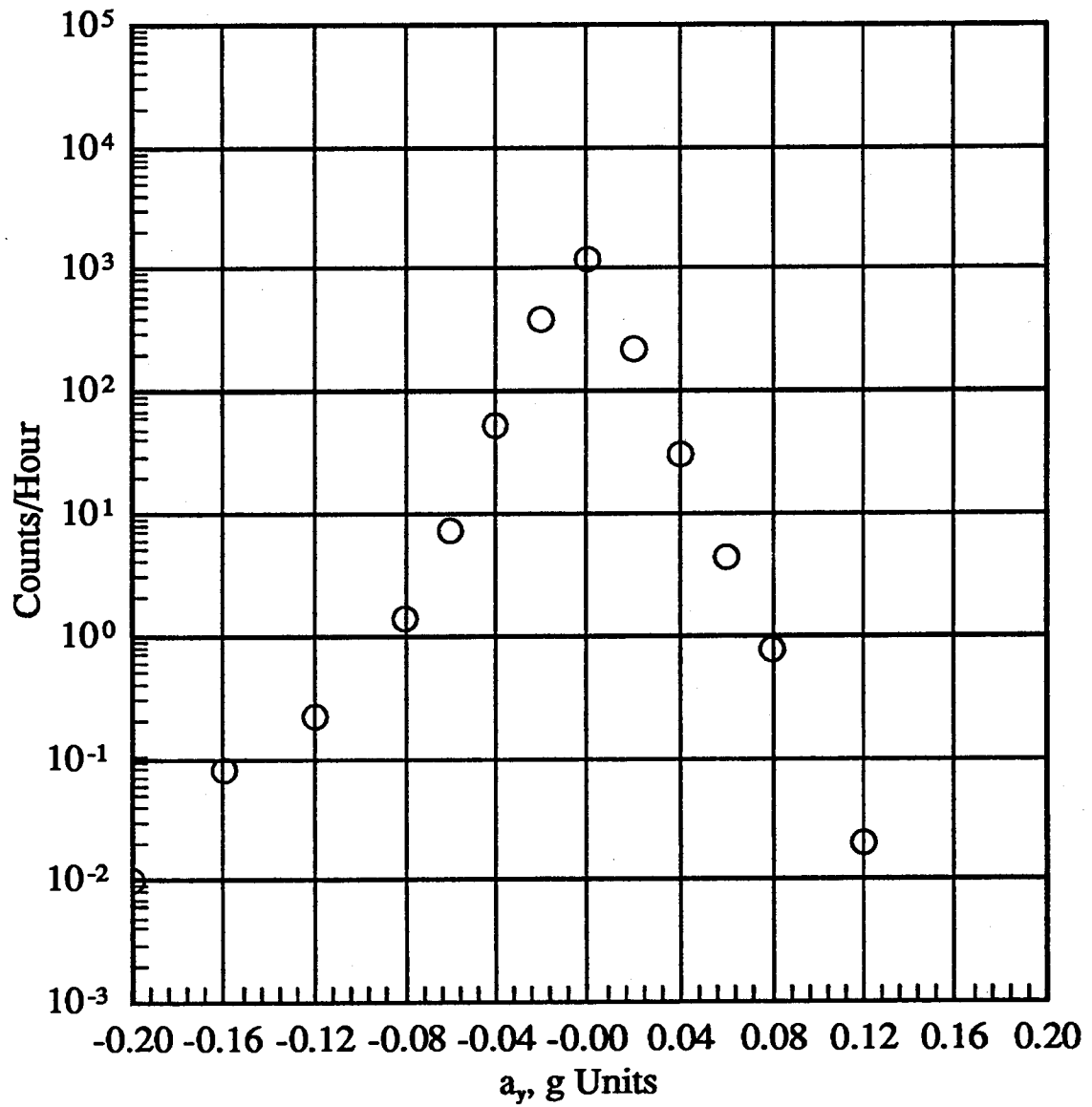
PRESSURE ALTITUDE BANDS										
a_y LEVEL g's	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
.48	0	0	0	0	0	0	0	0	0	0
.44	0	0	0	0	0	0	0	0	0	0
.40	0	0	0	0	0	0	0	0	0	0
.36	0	0	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	0.02	0	0	0	0
.20	0	0	0	0	0.02	0.02	0	0	0	0
.16	0	0	0	0	0.07	0.02	0	0	0	0.01
.12	0.02	0	0.02	0.03	0.08	0.09	0.01	0	0	0.02
.08	0.76	0.22	0.20	0.21	0.33	0.27	0.05	0.02	0	0.13
.06	4.35	1.35	0.73	0.74	1.03	0.74	0.28	0.09	0	0.63
.04	30.91	9.62	4.26	3.48	4.07	3.10	1.45	0.73	0	3.89
.02	222.65	87.94	42.08	31.31	30.20	26.18	14.49	9.33	6.04	33.04
0	1205.53	900.69	839.85	900.22	970.23	1111.53	1245.60	1121.27	1522.15	1113.78
-.02	387.15	171.07	88.58	65.09	47.43	32.89	14.62	10.20	0	53.46
-.04	53.20	15.85	7.10	5.23	5.08	3.61	1.32	0.57	0	5.79
-.06	7.29	1.78	1.06	0.99	1.28	0.87	0.23	0.08	0	0.86
-.08	1.38	0.27	0.19	0.32	0.53	0.36	0.04	0.01	0	0.19
-.12	0.22	0	0.03	0	0.18	0.11	0	0	0	0.03
-.16	0.08	0	0.01	0	0.08	0.06	0	0	0	0.01
-.20	0.01	0	0	0	0.03	0.04	0	0	0	0.01
-.24	0.01	0	0	0	0.01	0.02	0	0	0	0
-.28	0.01	0	0	0	0	0.01	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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS										985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN										723033.21

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

Figure 14.- Lateral acceleration exceedances.

Total Flights
Total Hours
Total Miles

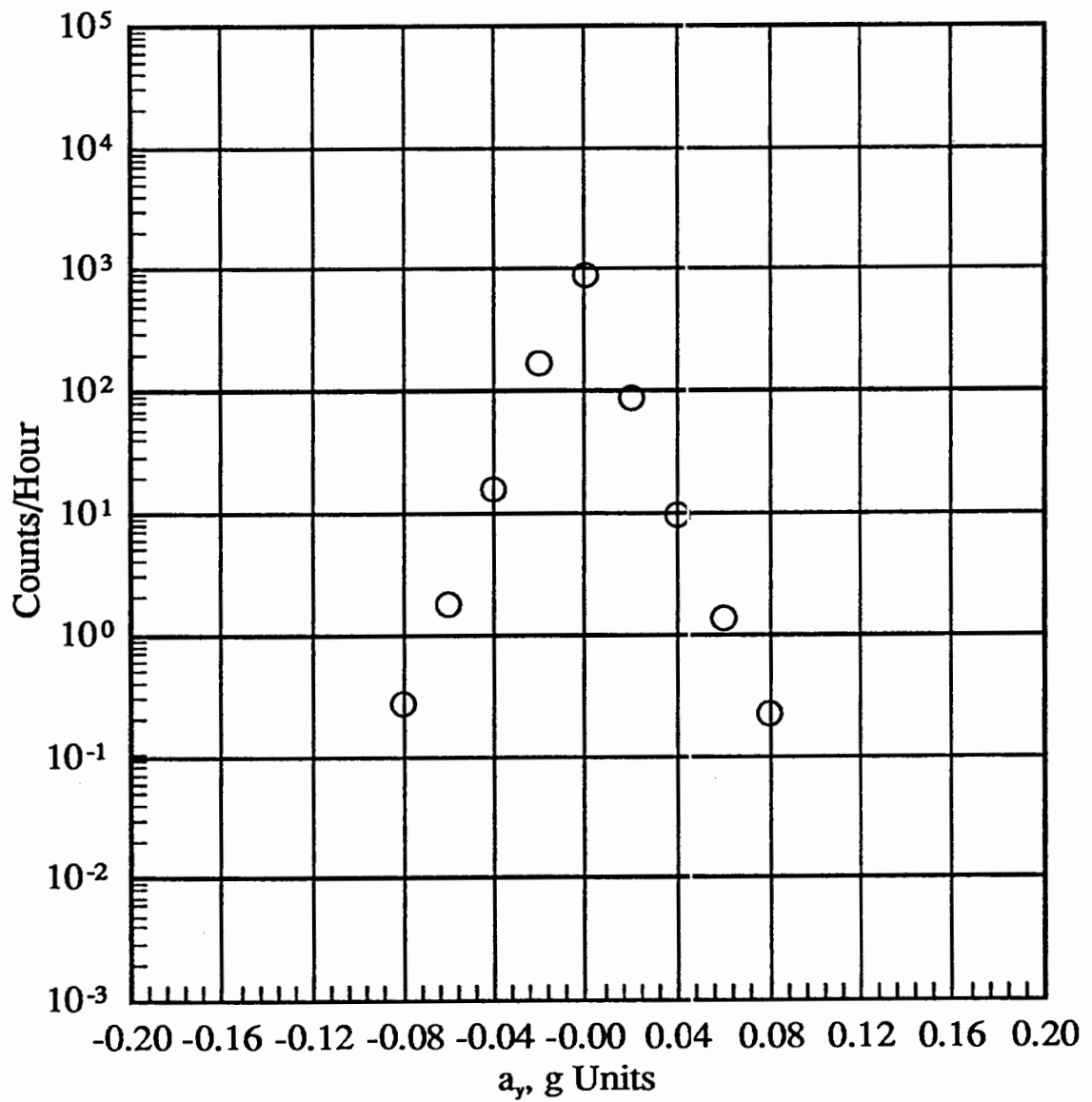
985
102.71
18522



(b) -500 to 4500 feet altitude

Figure 14.- Continued.

Total Flights	985
Total Hours	105.51
Total Miles	26174

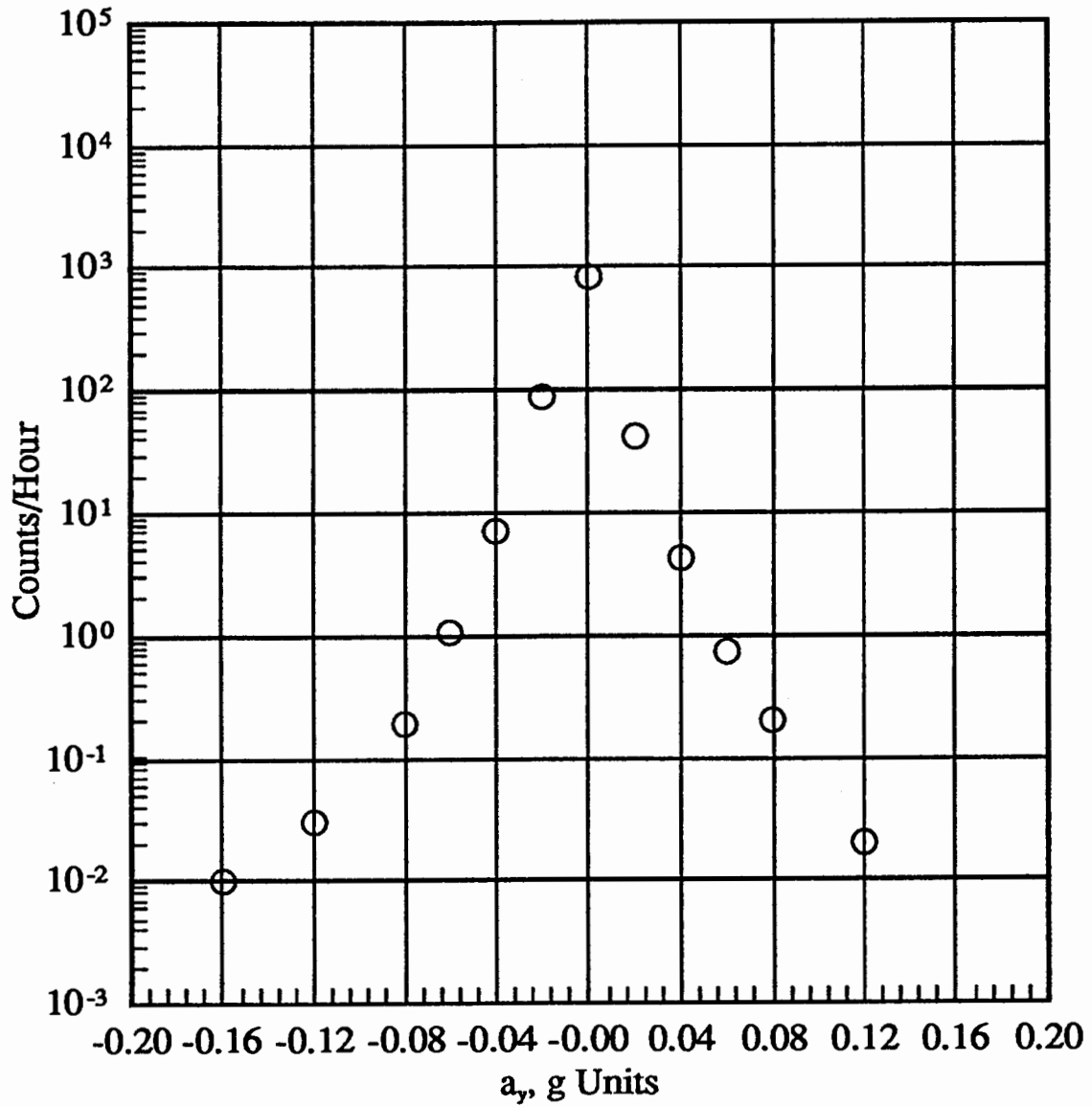


(c) 4500 to 9500 feet altitude

Figure 14.- Continued.

Total Flights
Total Hours
Total Miles

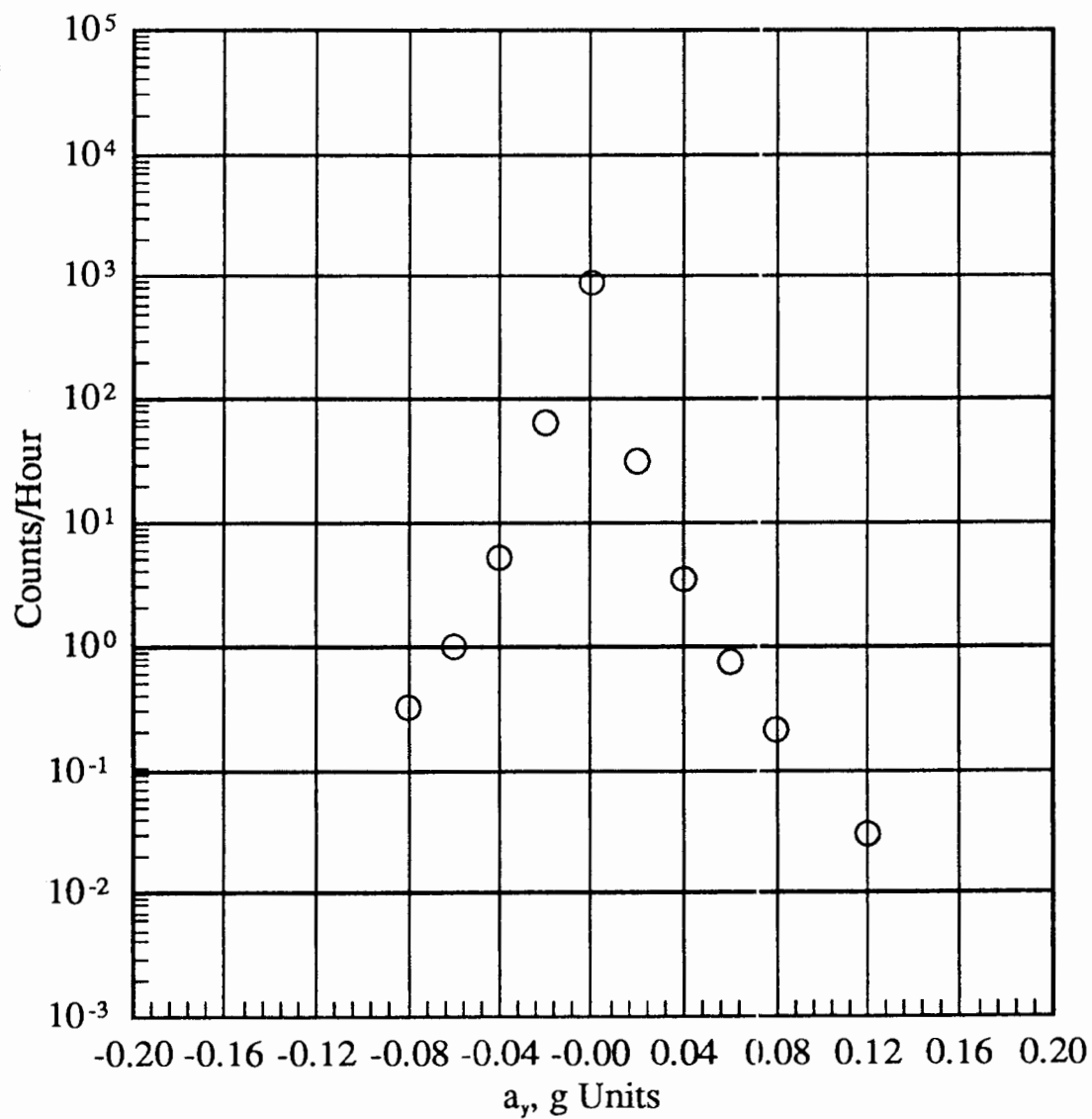
985
104.07
33995



(d) 9500 to 14500 feet altitude

Figure 14.- Continued.

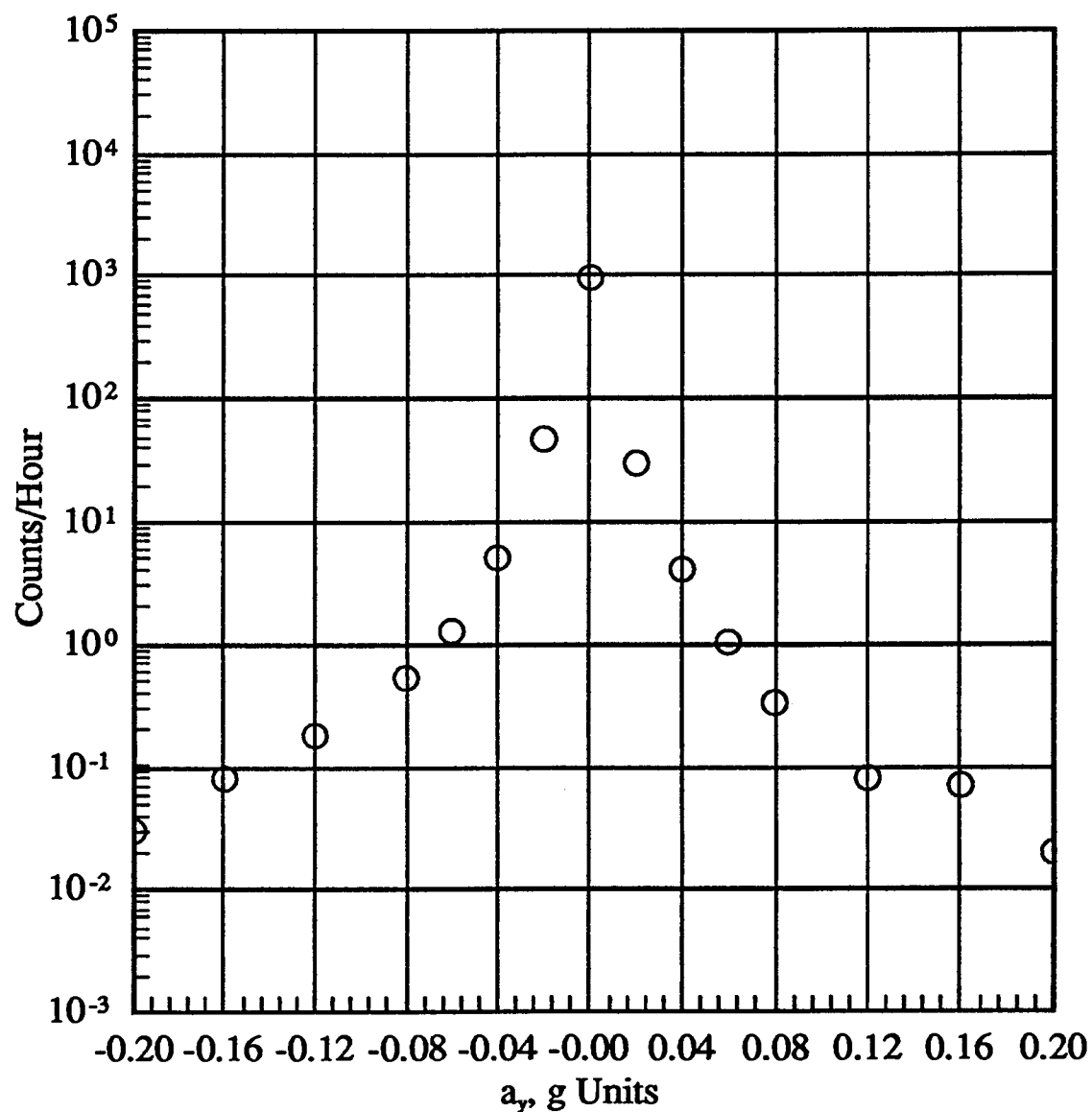
Total Flights	985
Total Hours	74.64
Total Miles	28461



(e) 14500 to 19500 feet altitude

Figure 14.- Continued.

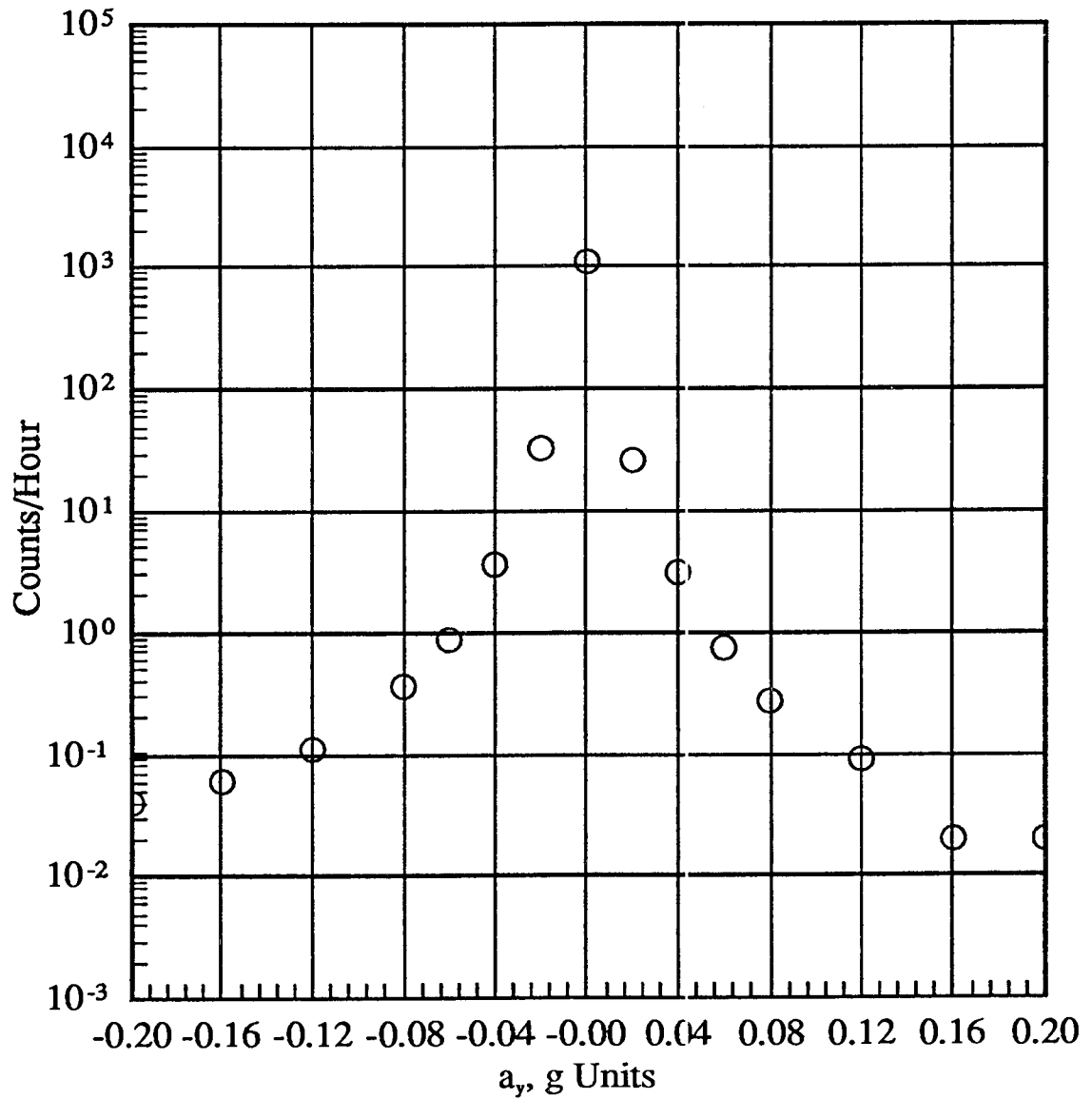
Total Flights	985
Total Hours	87.46
Total Miles	36365



(f) 19500 to 24500 feet altitude

Figure 14.- Continued.

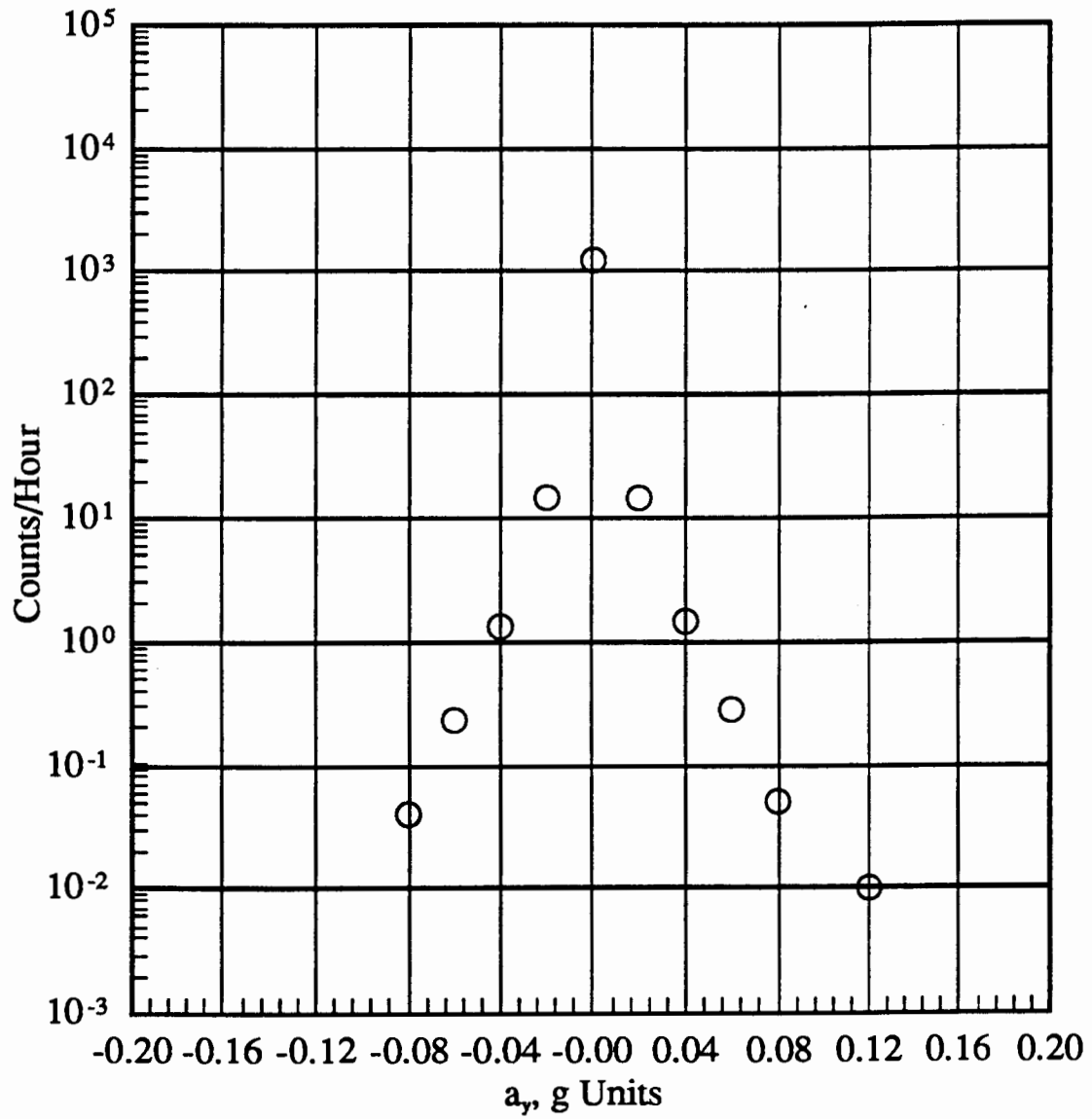
Total Flights	985
Total Hours	132.30
Total Miles	58868



(g) 24500 to 29500 feet altitude

Figure 14.- Continued.

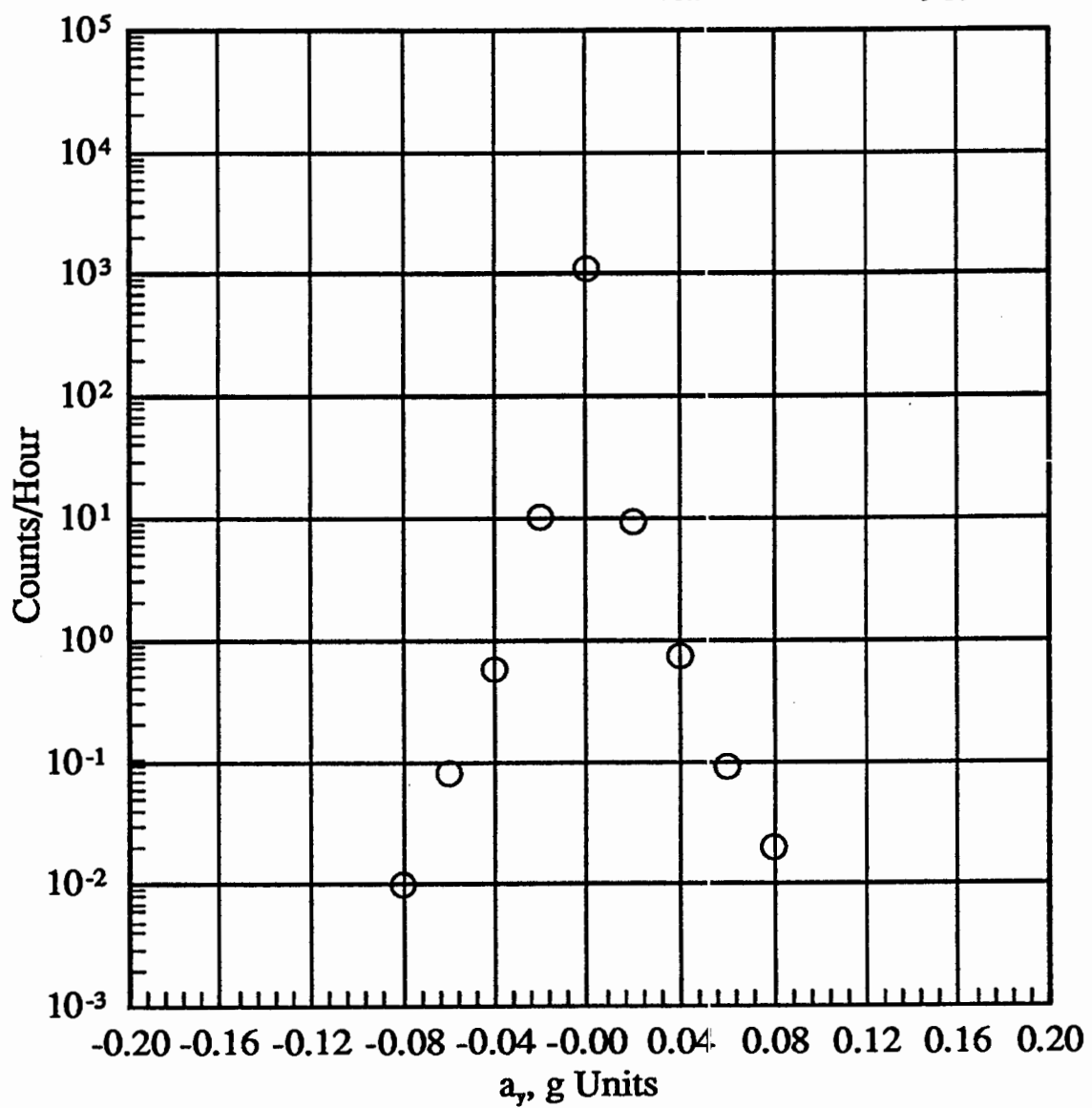
Total Flights	985
Total Hours	495.03
Total Miles	223580



(h) 29500 to 34500 feet altitude

Figure 14.- Continued.

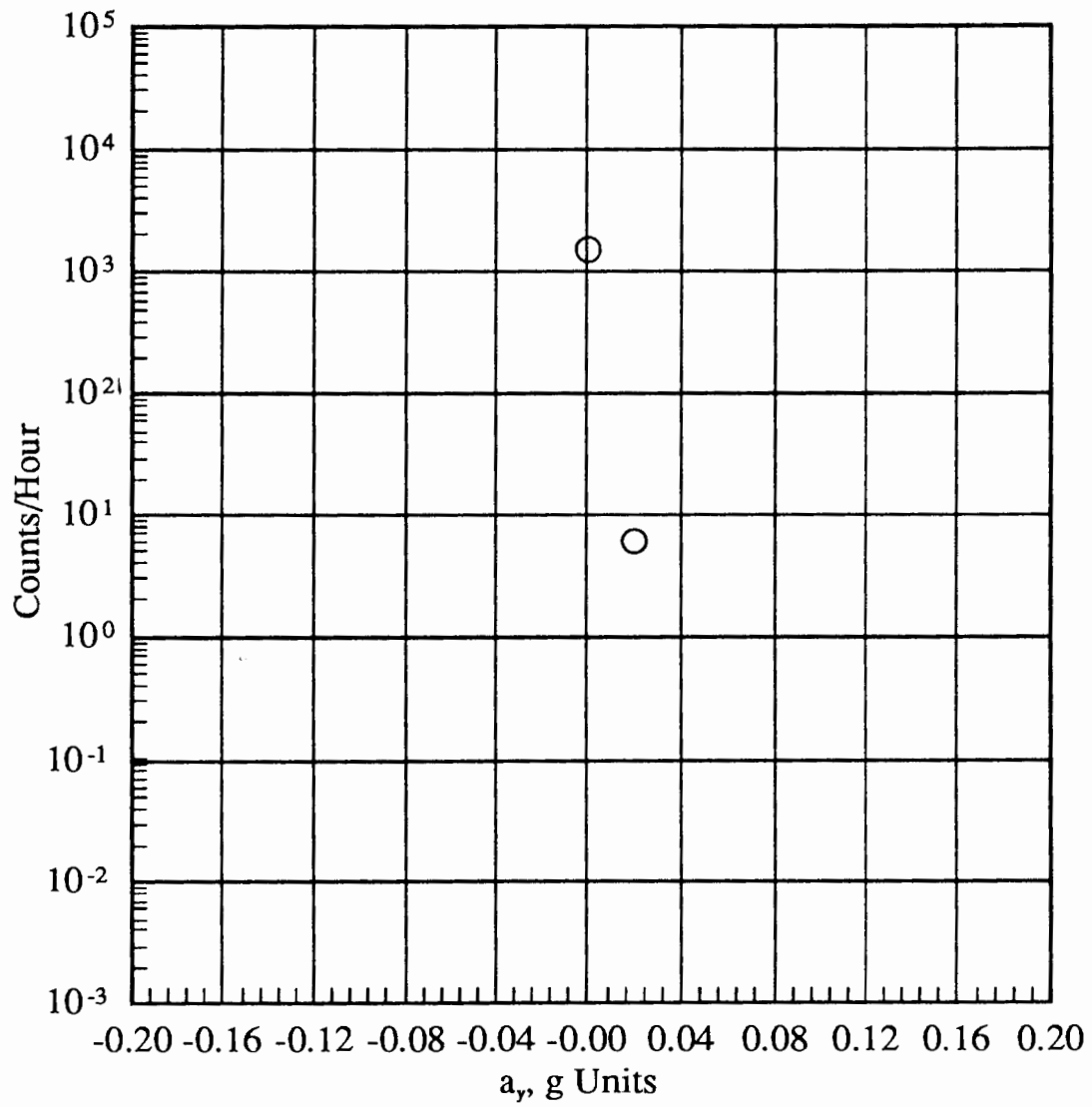
Total Flights	985
Total Hours	663.54
Total Miles	296925



(i) 34500 to 39500 feet altitude

Figure 14.- Continued.

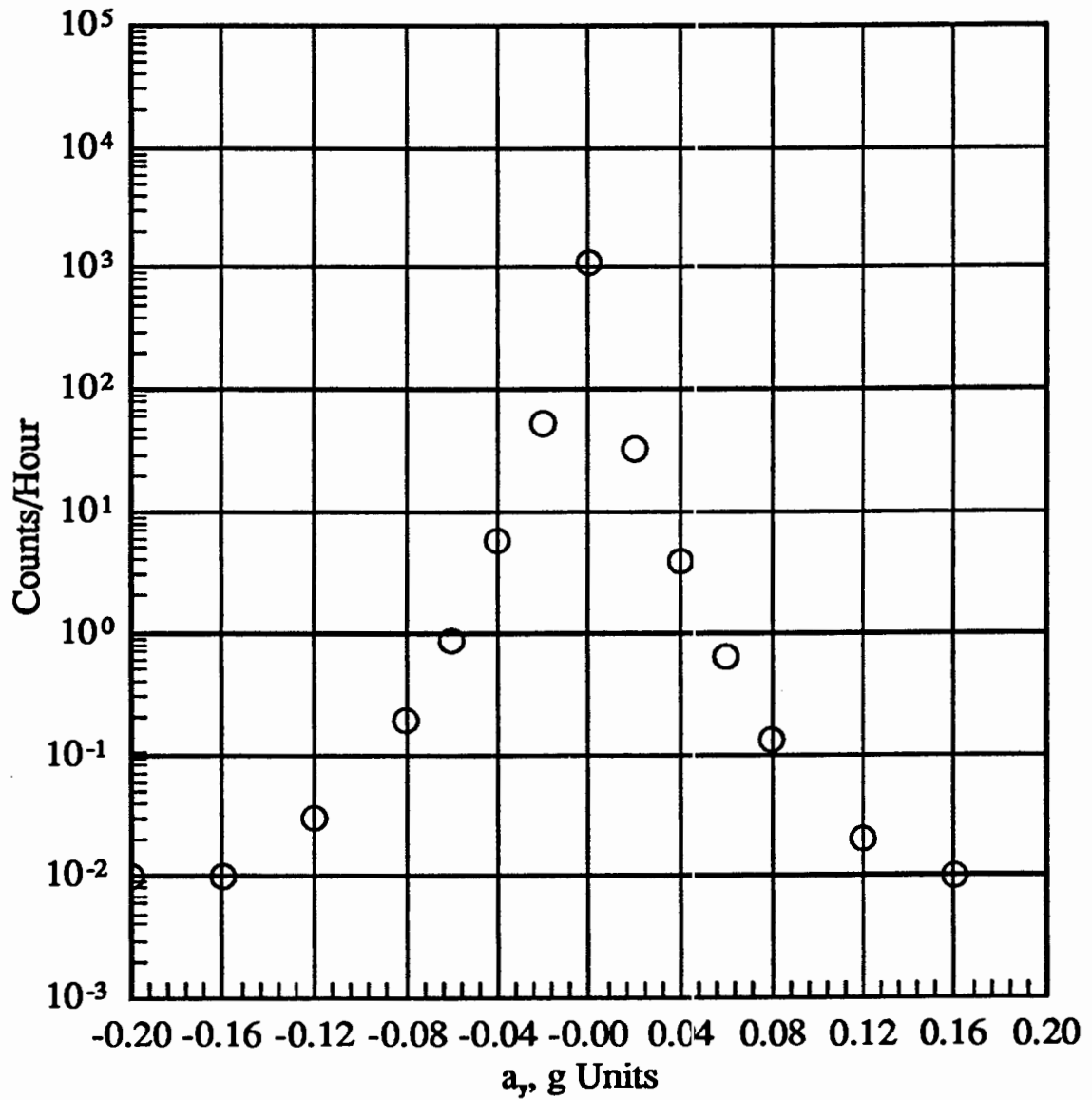
Total Flights	985
Total Hours	0.33
Total Miles	147



(j) 39500 to 44500 feet altitude

Figure 14.- Continued.

Total Flights	.985
Total Hours	1765.59
Total Miles	723033.21



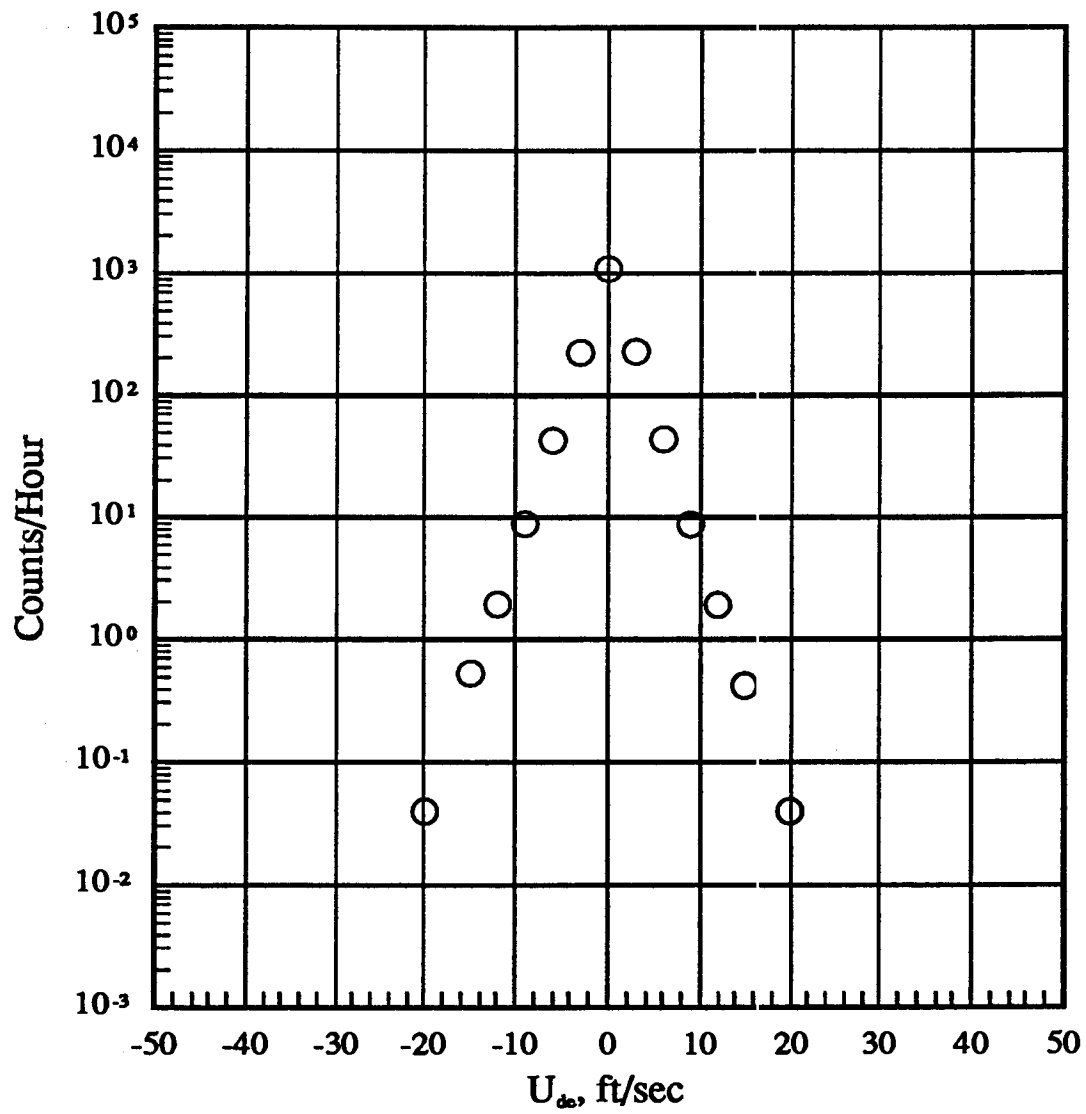
(k) -500 to 44500 feet altitude

Figure 14.- Concluded.

U _{de} DERIVED GUST VELOCITY LEVEL FT/SEC	PRESSURE ALTITUDE BANDS									
	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
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	0.01	0	0	0	0	0
20	0.04	0.01	0	0	0.05	0.02	0	0	0	0.01
15	0.42	0.08	0.07	0.03	0.10	0.05	0	0	0	0.04
12	1.92	0.36	0.22	0.08	0.18	0.11	0.01	0	0	0.17
9	8.75	2.00	0.75	0.24	0.56	0.28	0.03	0.01	0	0.74
6	43.58	10.39	3.58	1.63	1.88	1.18	0.22	0.10	0	3.72
3	228.43	73.75	30.02	16.55	13.17	8.59	3.64	1.70	0	23.12
0	1083.63	1139.33	1258.02	1521.30	1615.16	1749.36	1896.69	1848.57	2068.12	1707.62
-3	223.92	74.65	30.31	16.53	13.55	8.53	3.50	1.67	0	22.88
-6	42.44	10.08	3.65	1.76	1.73	1.06	0.25	0.11	0	3.64
-9	8.84	2.03	0.80	0.42	0.59	0.29	0.03	0.01	0	0.76
-12	1.94	0.40	0.27	0.15	0.25	0.12	0.01	0	0	0.18
-15	0.53	0.09	0.05	0.04	0.13	0.07	0	0	0	0.05
-20	0.04	0.01	0.01	0.01	0.06	0.04	0	0	0	0.01
-30	0	0	0	0	0.01	0.01	0	0	0	0
-40	0	0	0	0	0	0.01	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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS										985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN										723033.21

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

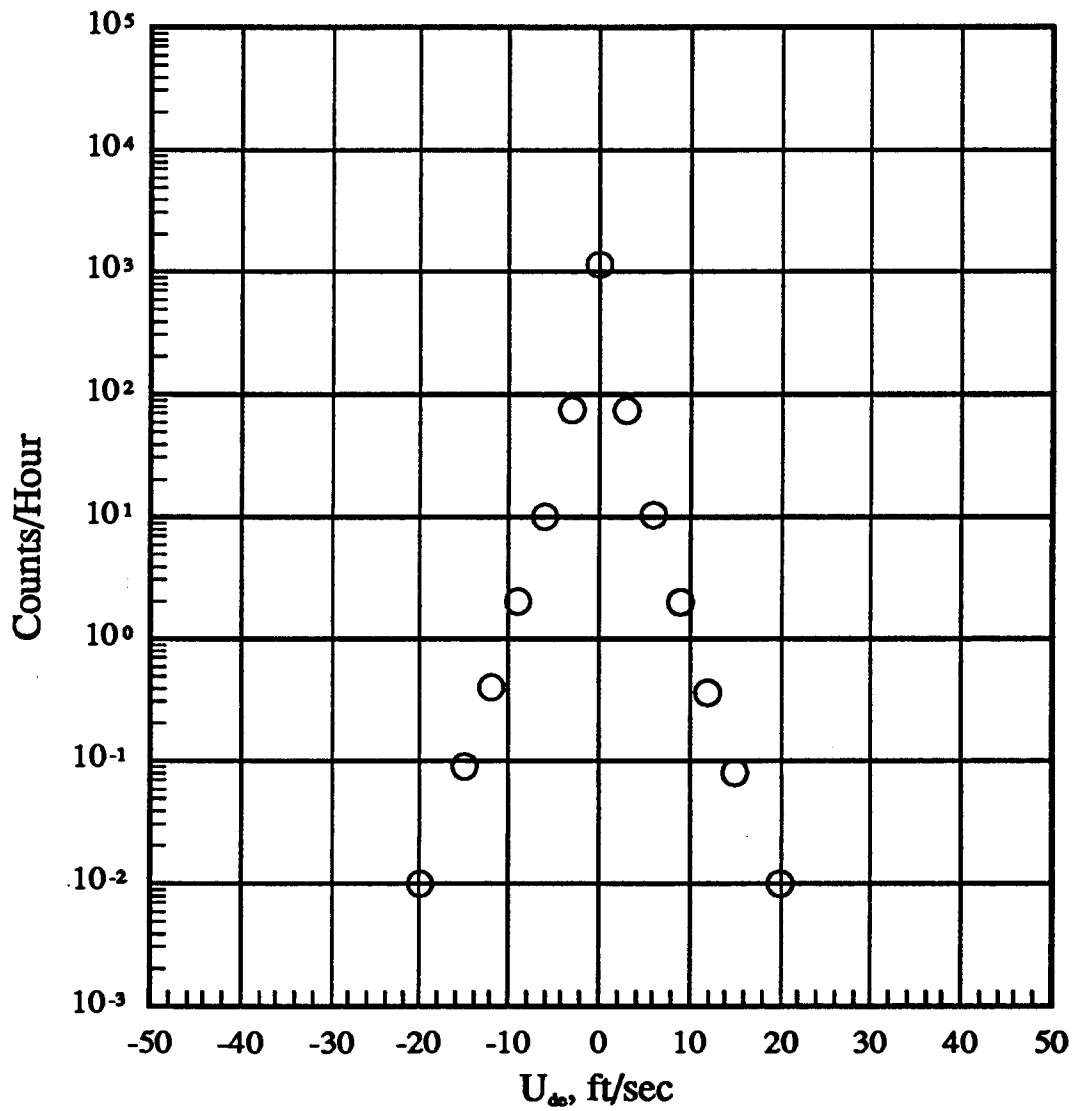
Total Flights	985
Total Hours	102.71
Total Miles	18522



(b) -500 to 4500 feet altitude

Figure 15.- Continued.

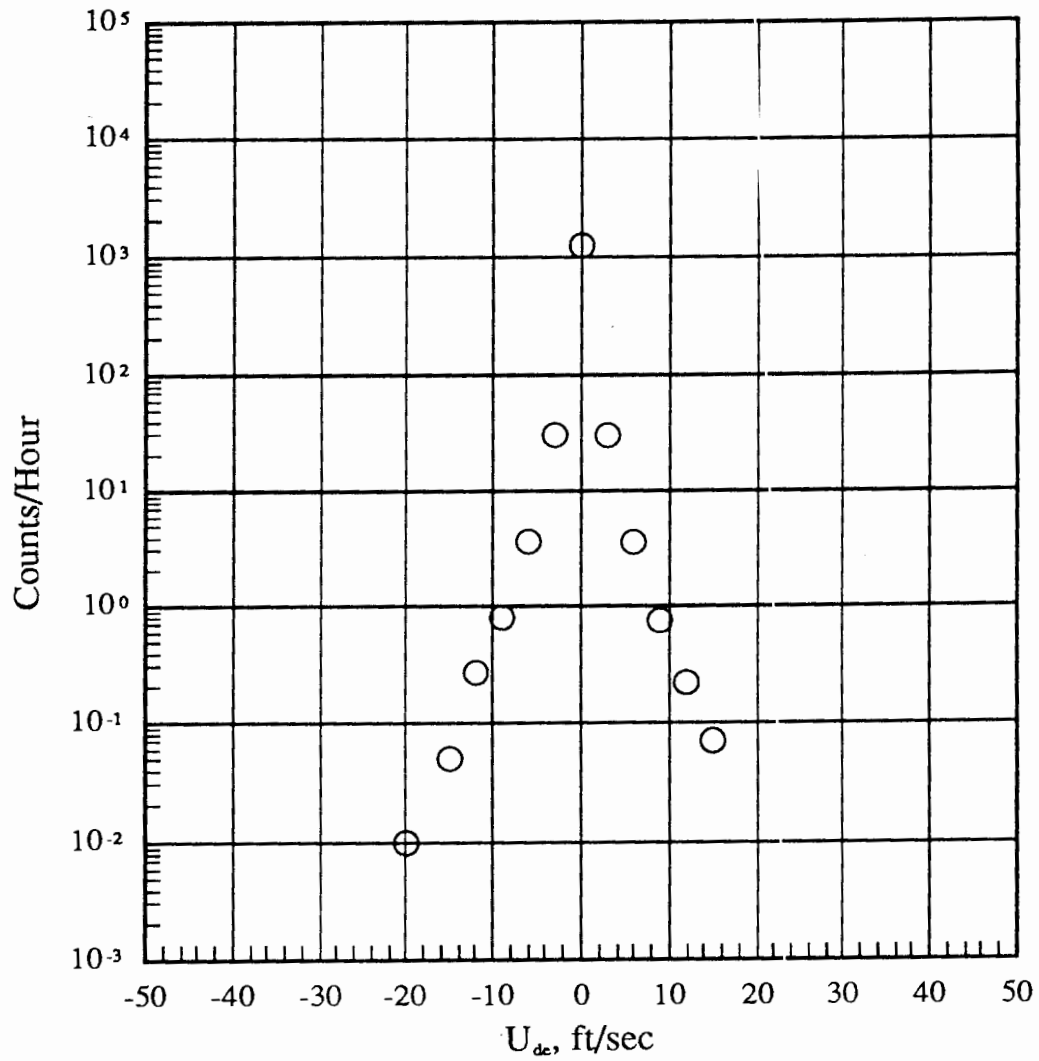
Total Flights	985
Total Hours	105.51
Total Miles	26174



(c) 4500 to 9500 feet altitude

Figure 15.- Continued.

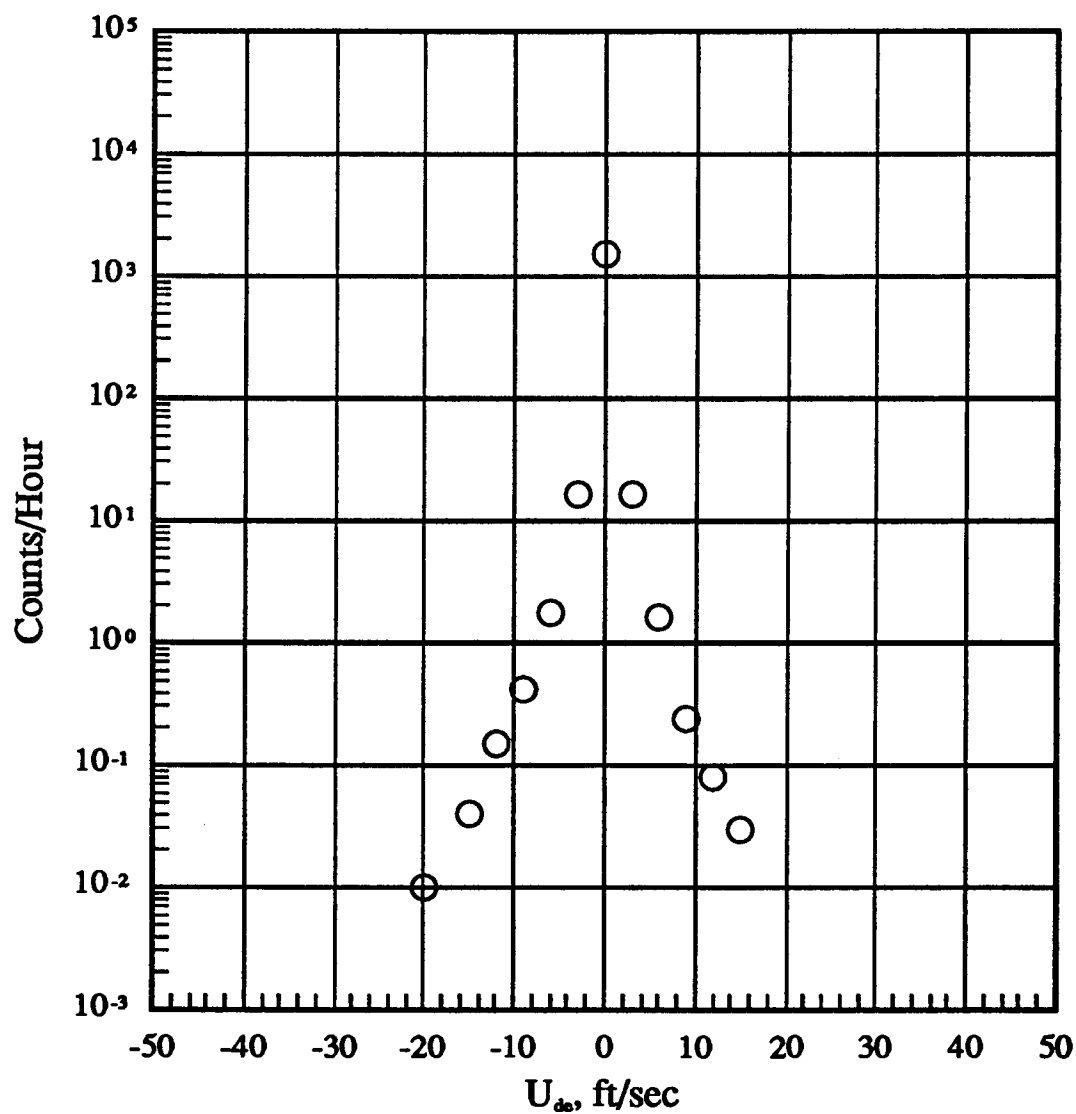
Total Flights	985
Total Hcurs	104.07
Total Miles	33995



(d) 9500 to 14500 feet altitude

Figure 15.- Continued.

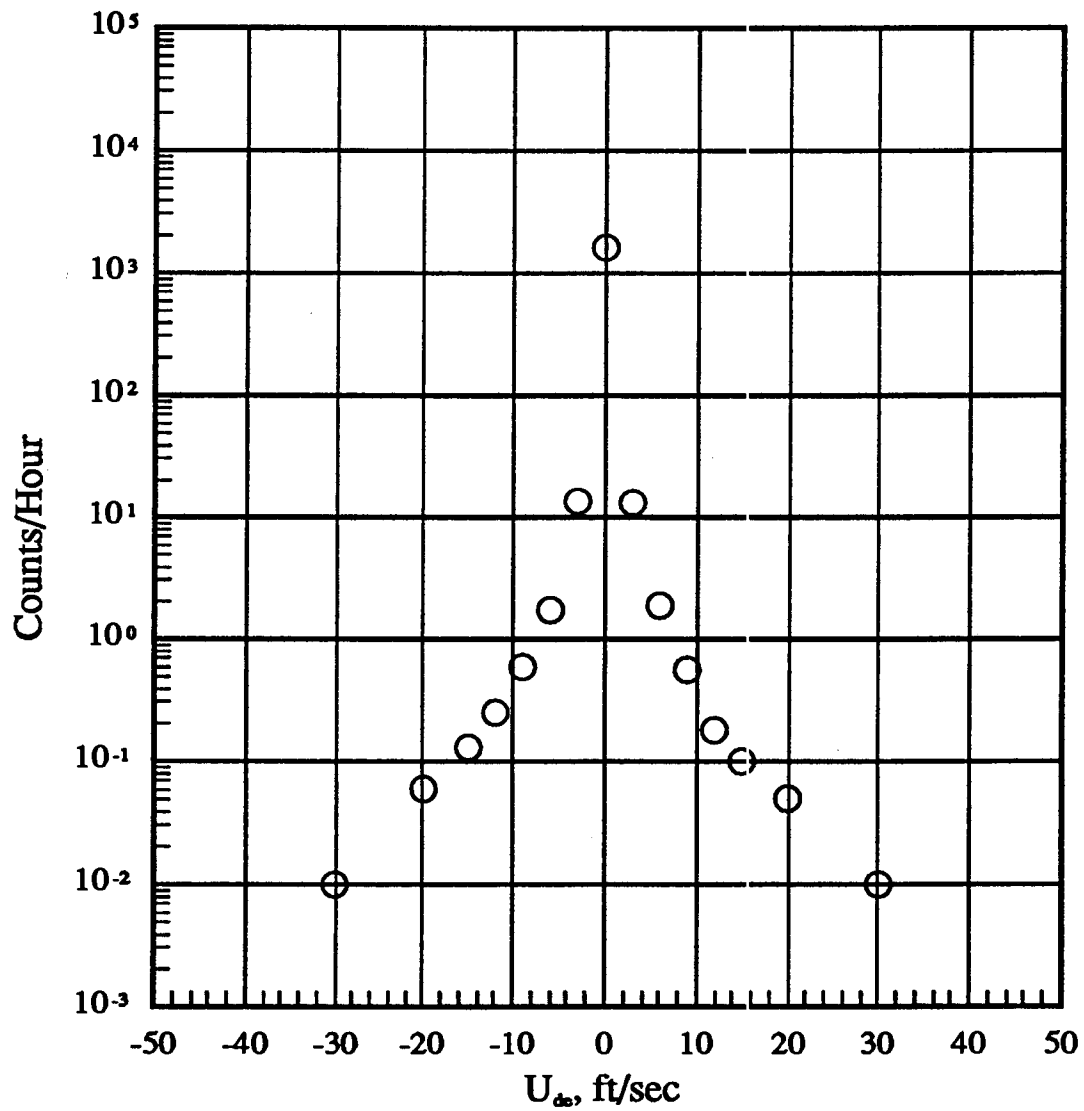
Total Flights	985
Total Hours	74.64
Total Miles	28461



(e) 14500 to 19500 feet altitude

Figure 15.- Continued.

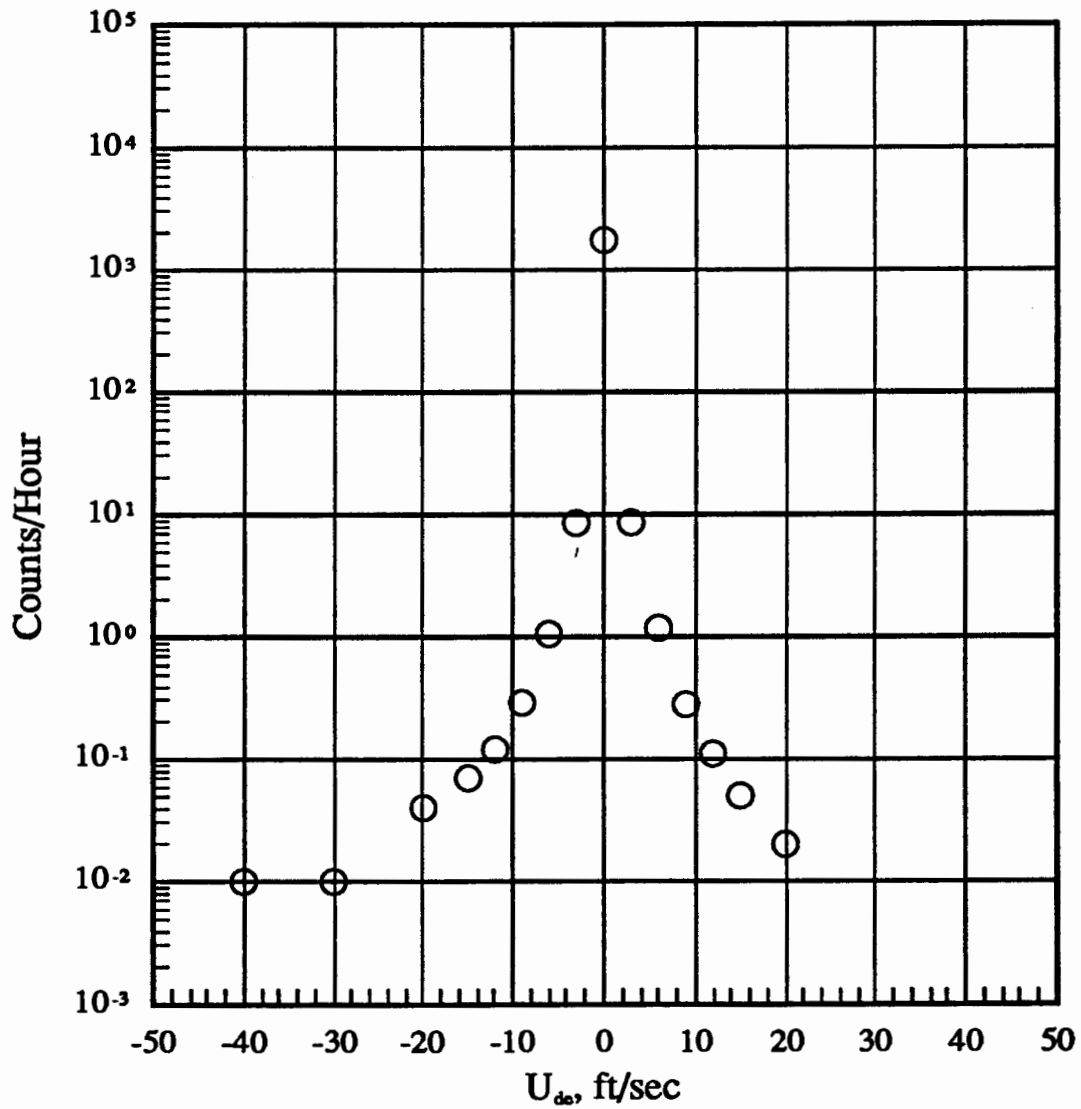
Total Flights	985
Total Hours	87.46
Total Miles	36365



(f) 19500 to 24500 feet altitude

Figure 15.- Continued.

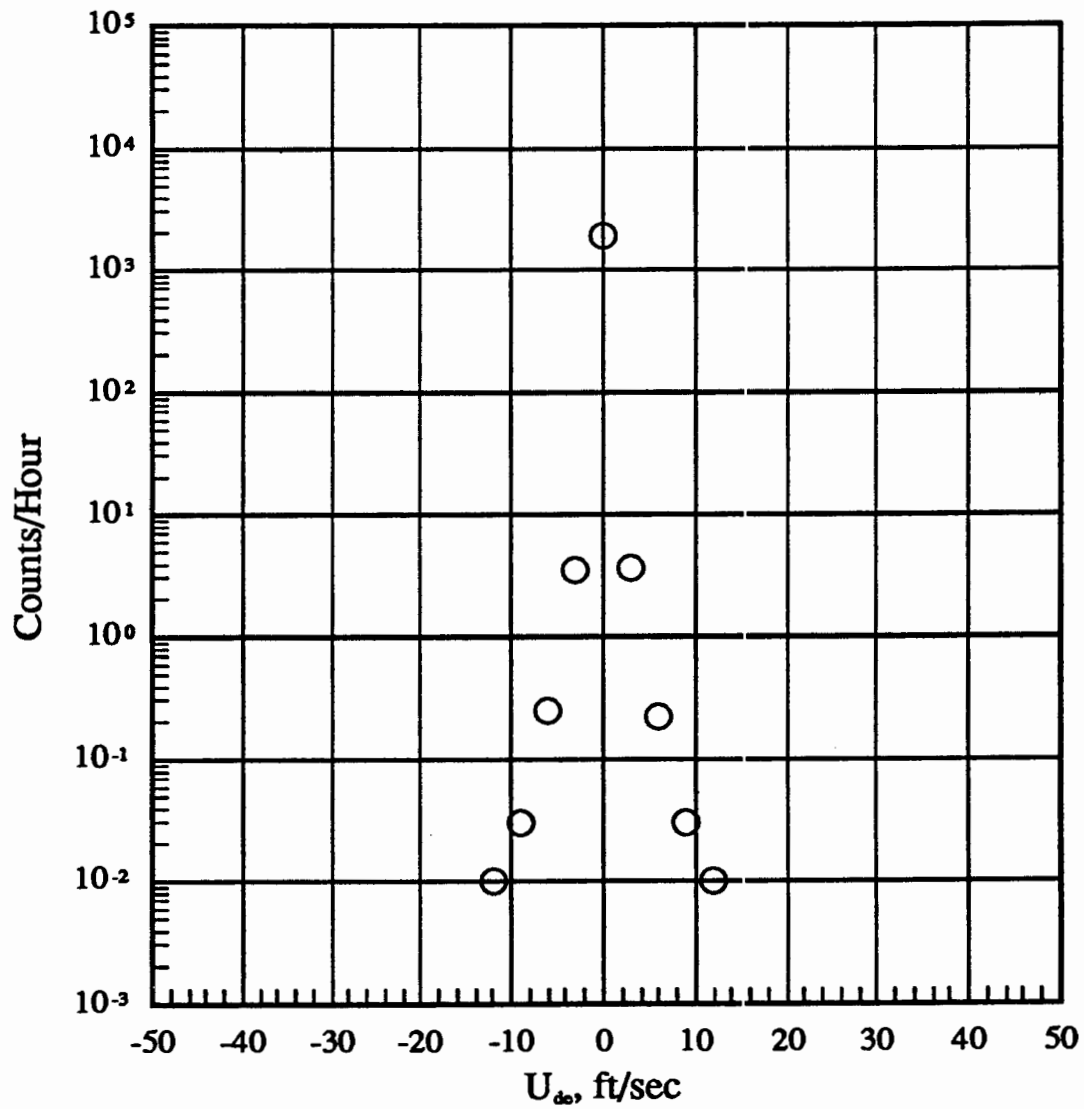
Total Flights	985
Total Hours	132.80
Total Miles	58868



(g) 24500 to 29500 feet altitude

Figure 15.- Continued.

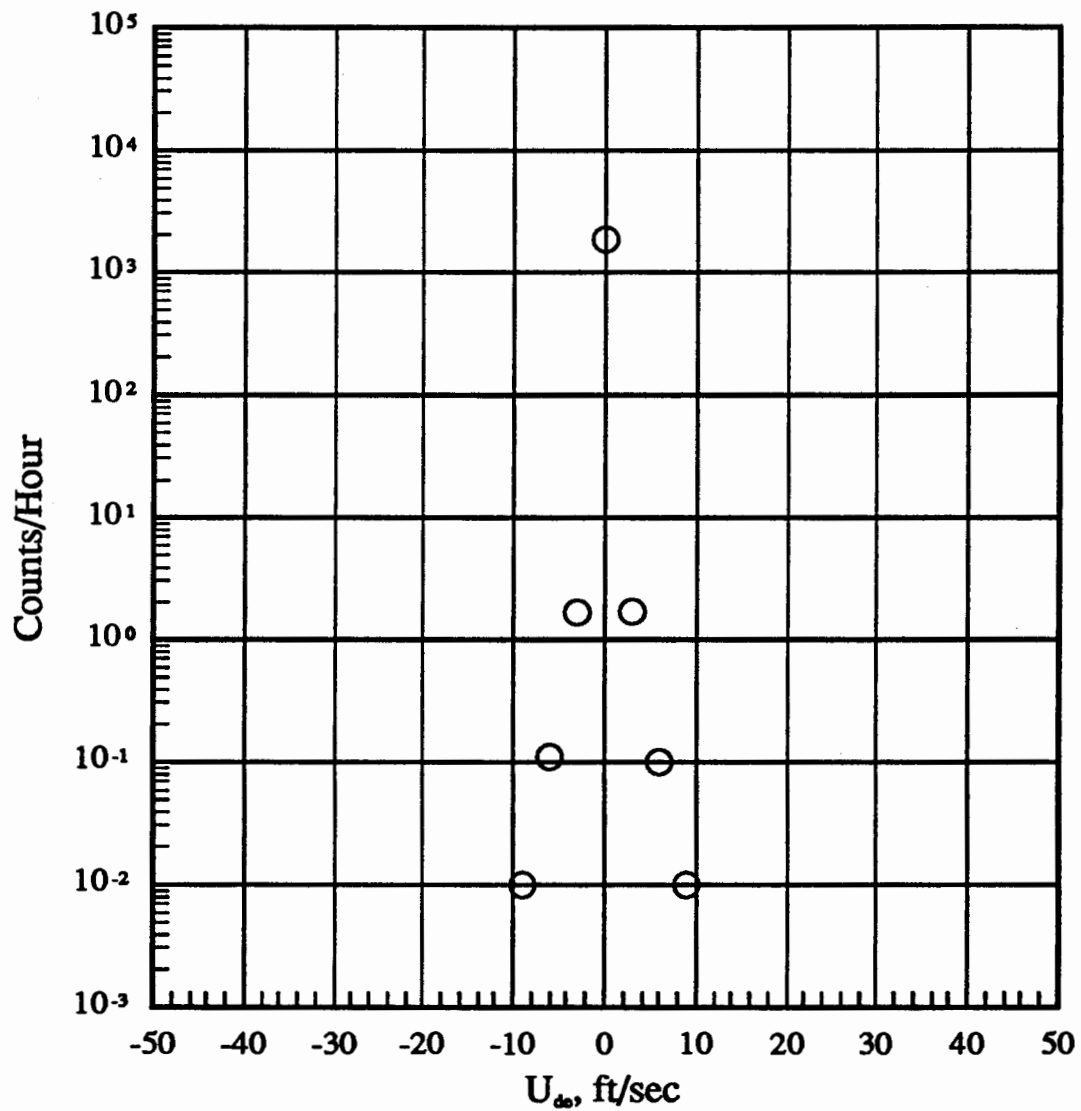
Total Flights 985
Total Hours 465.03
Total Miles 223580



(h) 29500 to 34500 feet altitude

Figure 15.- Continued.

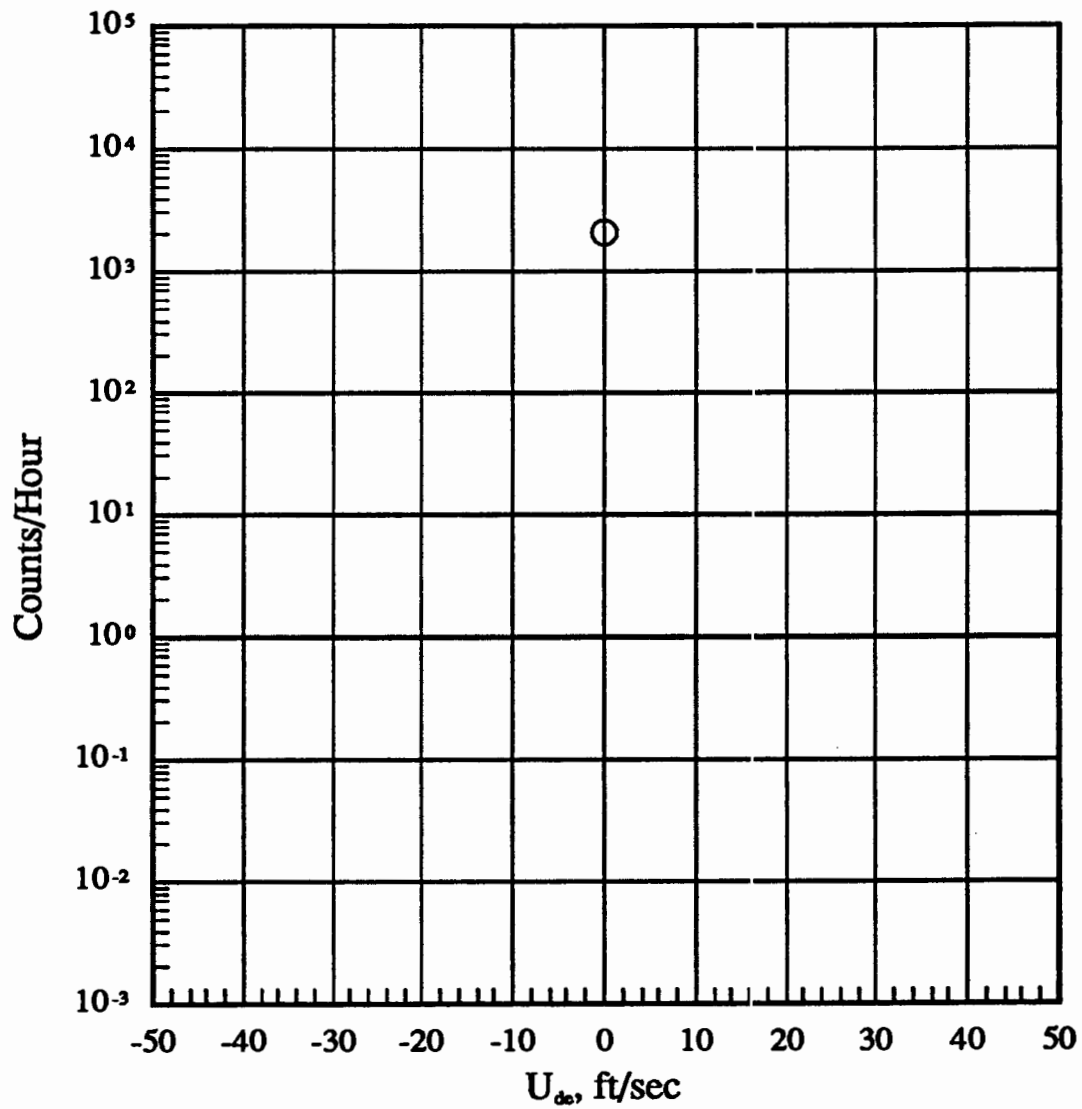
Total Flights	985
Total Hours	663.54
Total Miles	296925



(i) 34500 to 39500 feet altitude

Figure 15.- Continued.

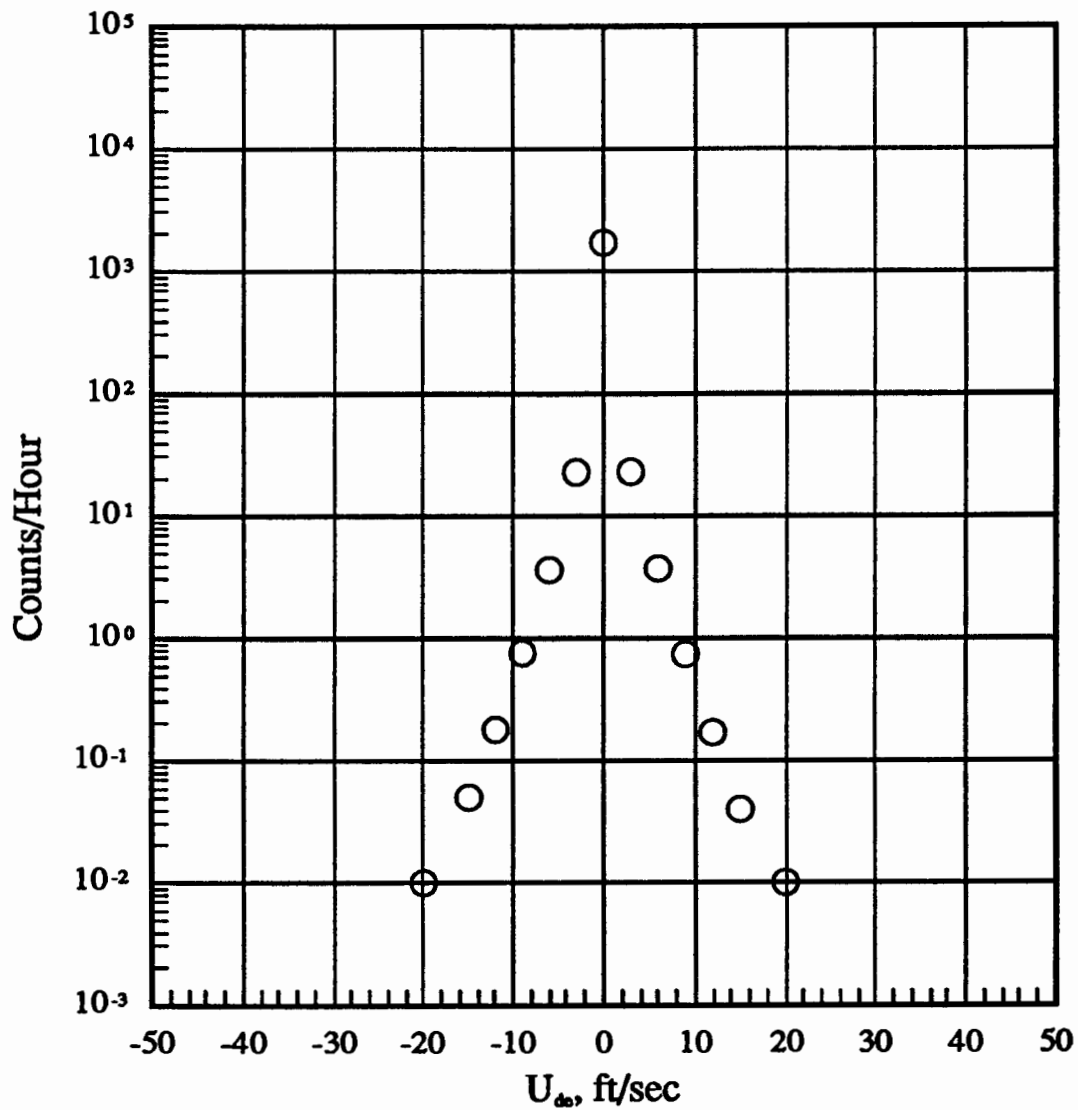
Total Flights	985
Total Hours	147.33
Total Miles	



(j) 39500 to 44500 feet altitude

Figure 15.- Continued.

Total Flights	985
Total Hours	1765.59
Total Miles	723083



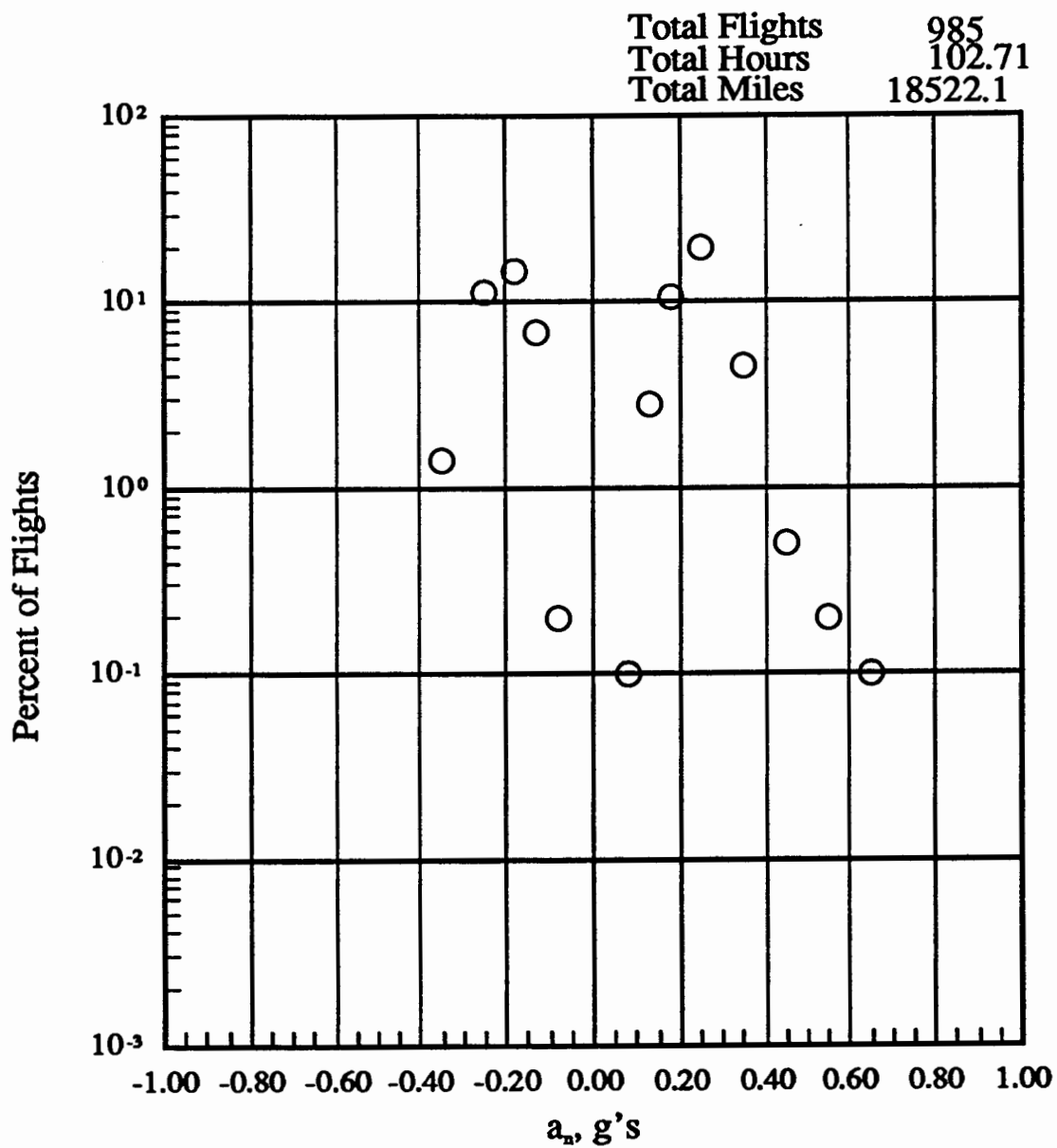
(k) -500 to 44500 feet altitude

Figure 15.- Concluded.

PRESSURE ALTITUDE BANDS											
		-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
a_n max	LEVEL FOR EACH FLIGHT										
g's FROM	TO										
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0.10	0	0	0	0	0.10
.70	.80	0	0	0	0	0	0	0	0	0	0
.60	.70	0.10	0	0.10	0	0	0	0	0	0	0.20
.50	.60	0.20	0.10	0.10	0.20	0	0.10	0.10	0	0	0.80
.40	.50	0.50	0.60	0.30	0	0.10	0.20	0.10	0.10	0	1.90
.30	.40	4.50	3.00	1.20	0.50	0.50	0.50	0.70	0.50	0	11.50
.20	.30	19.70	12.60	6.70	2.10	2.20	2.00	2.60	1.10	0	49.10
.15	.20	10.70	6.60	3.90	1.20	0.40	1.00	2.80	1.10	0	27.70
.10	.15	2.80	2.40	1.10	0.10	0.10	0.20	0.80	0.60	0	8.20
.05	.10	0.10	0.10	0.10	0	0	0	0	0.10	0	0.40
-.05	-.10	0.20	0.10	0	0	0	0	0	0.30	0	0.60
-.10	-.15	6.90	3.20	3.60	0.40	0.80	0.70	2.20	2.40	0	20.30
-.15	-.20	14.80	6.00	5.60	2.60	1.50	1.30	3.00	3.00	0	38.00
-.20	-.30	11.40	8.00	4.40	1.80	1.70	2.00	2.30	2.20	0	33.90
-.30	-.40	1.40	1.10	1.10	0.20	0.20	0.40	0.60	0.30	0	5.40
-.40	-.50	0	0.10	0.20	0.20	0.20	0.10	0.20	0.10	0	1.10
-.50	-.60	0	0	0	0.10	0.10	0.10	0.10	0	0	0.40
-.60	-.70	0	0	0	0	0.10	0	0	0	0	0.10
-.70	-.80	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0.10	0	0	0	0	0.10
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0
-1.20	-1.40	0	0	0	0	0	0.10	0	0	0	0.10
-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		102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT		18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS											985

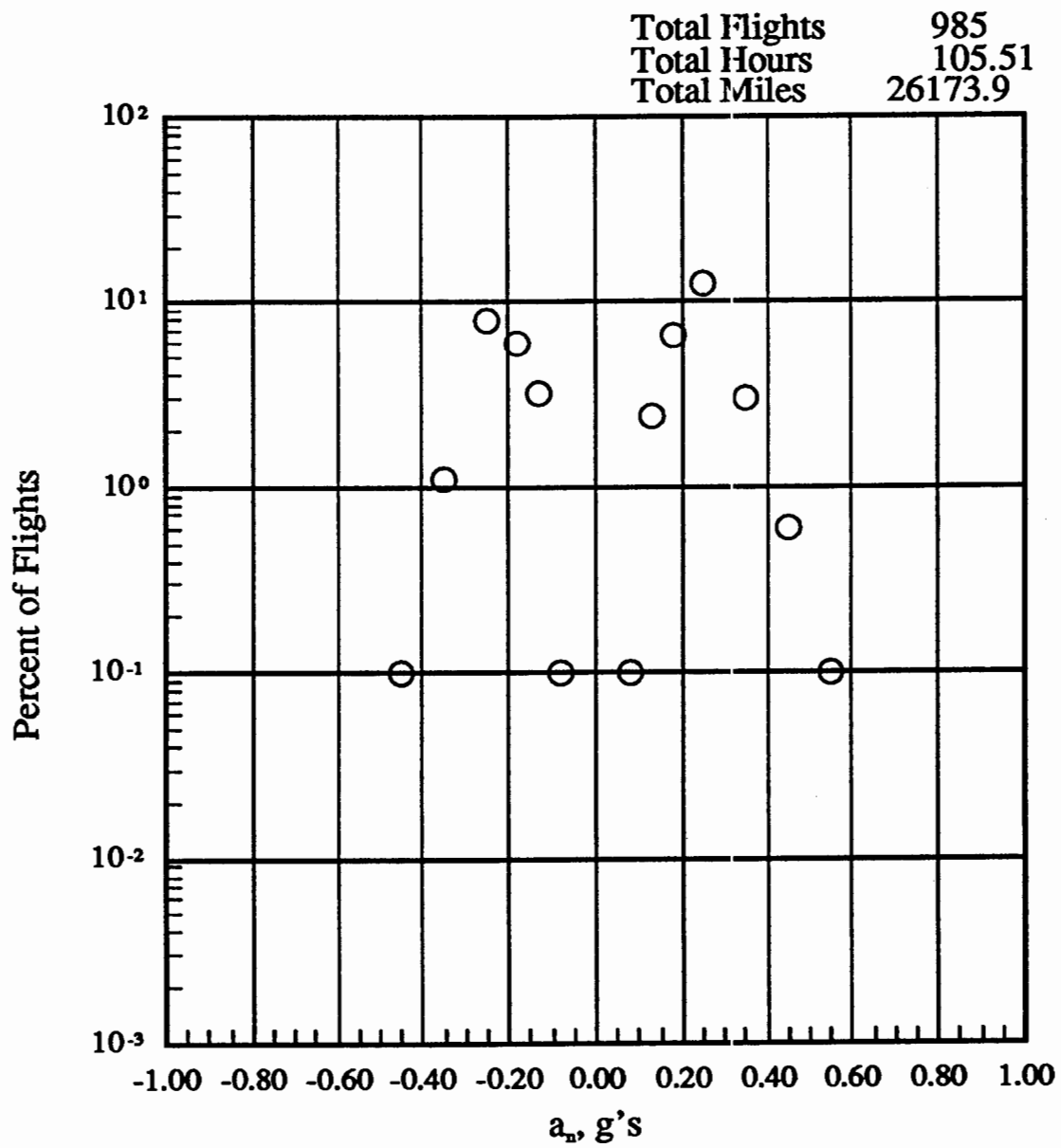
(a) Percent of flights where peak positive and negative a_n per flight
occures within pressure altitude bands, any flap

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



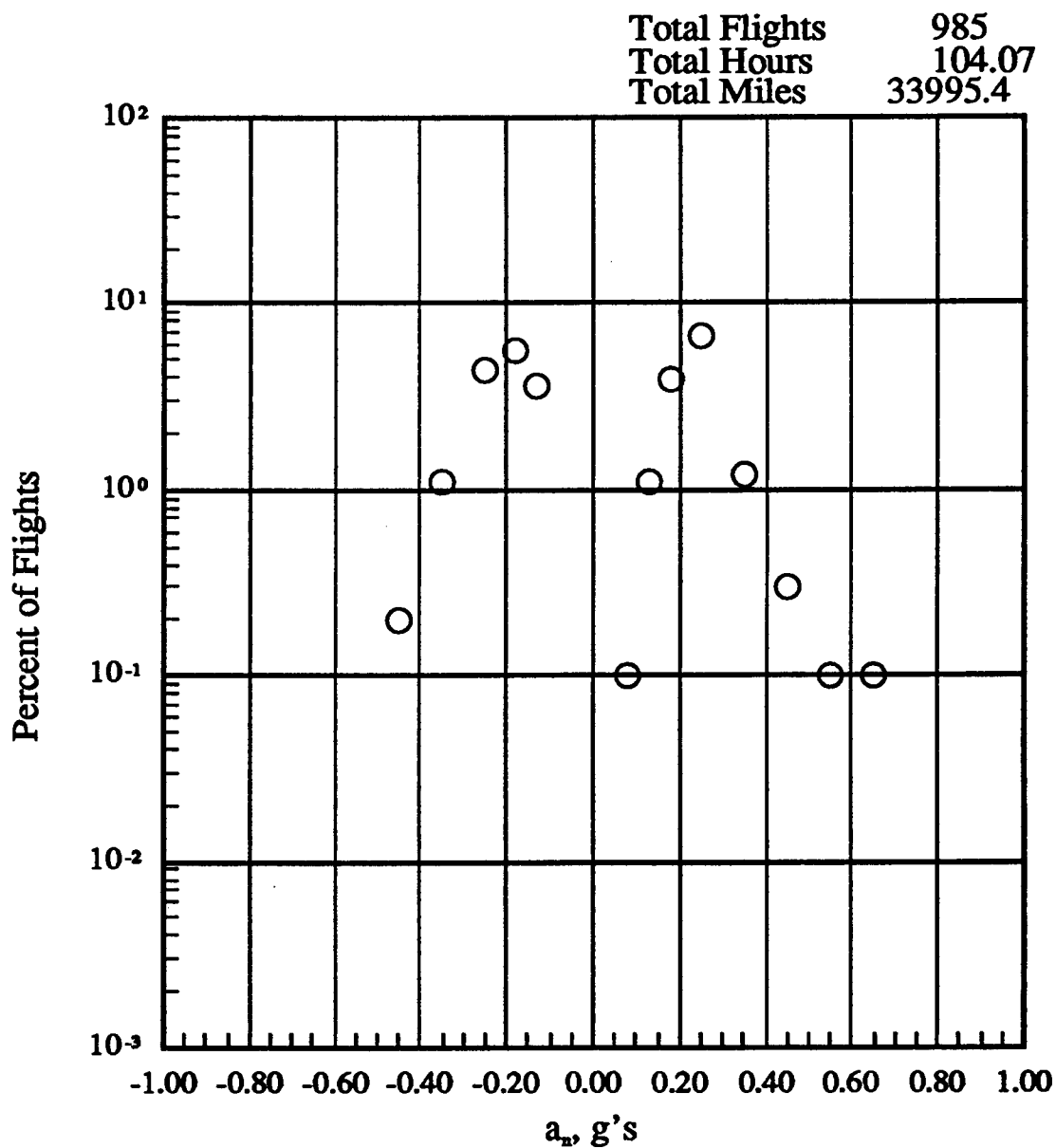
(b) -500 to 4500 feet altitude

Figure 16.- Continued.



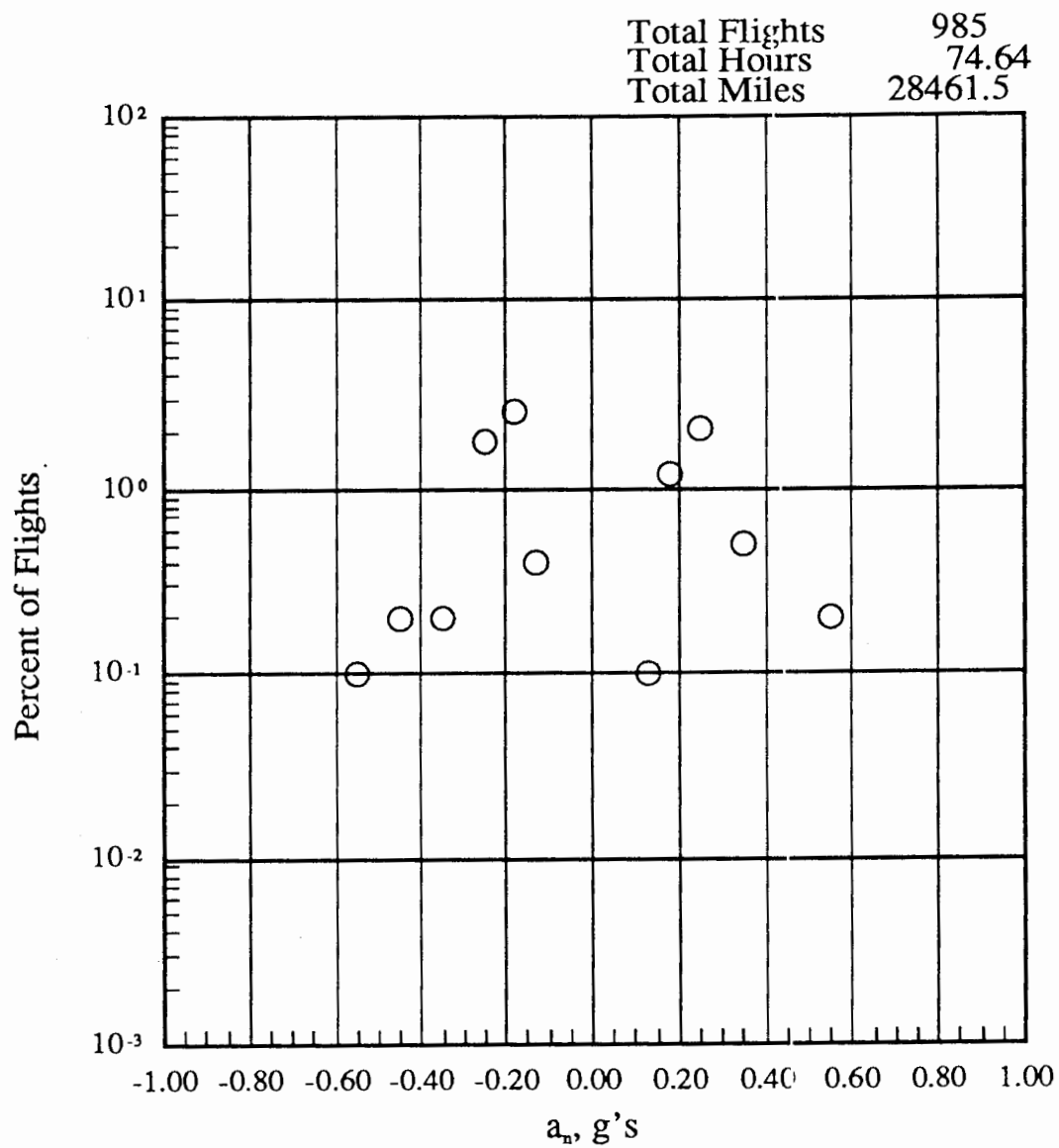
(c) 4500 to 9500 feet altitude

Figure 16.- Continued.



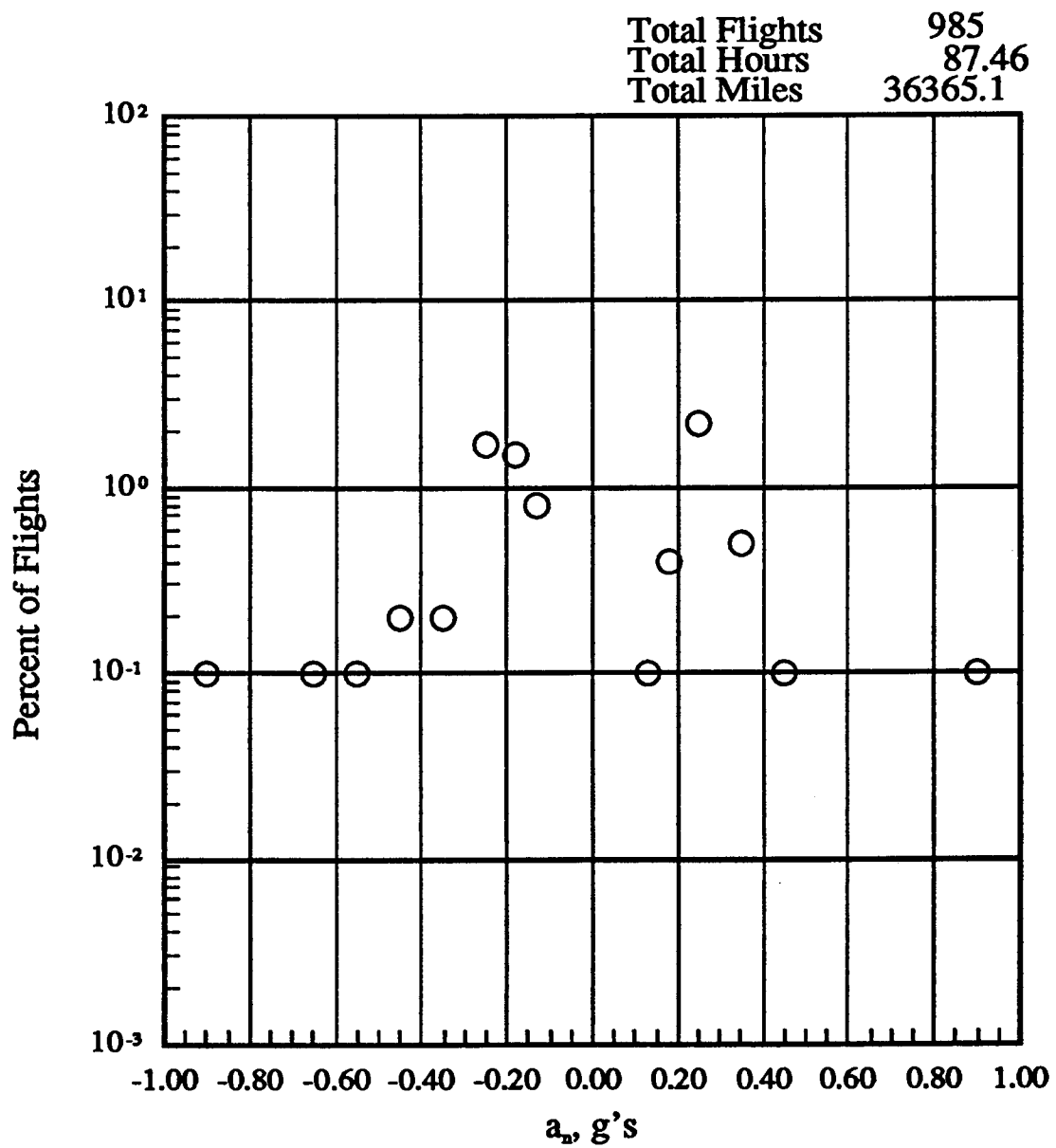
(d) 9500 to 14500 feet altitude

Figure 16.- Continued.



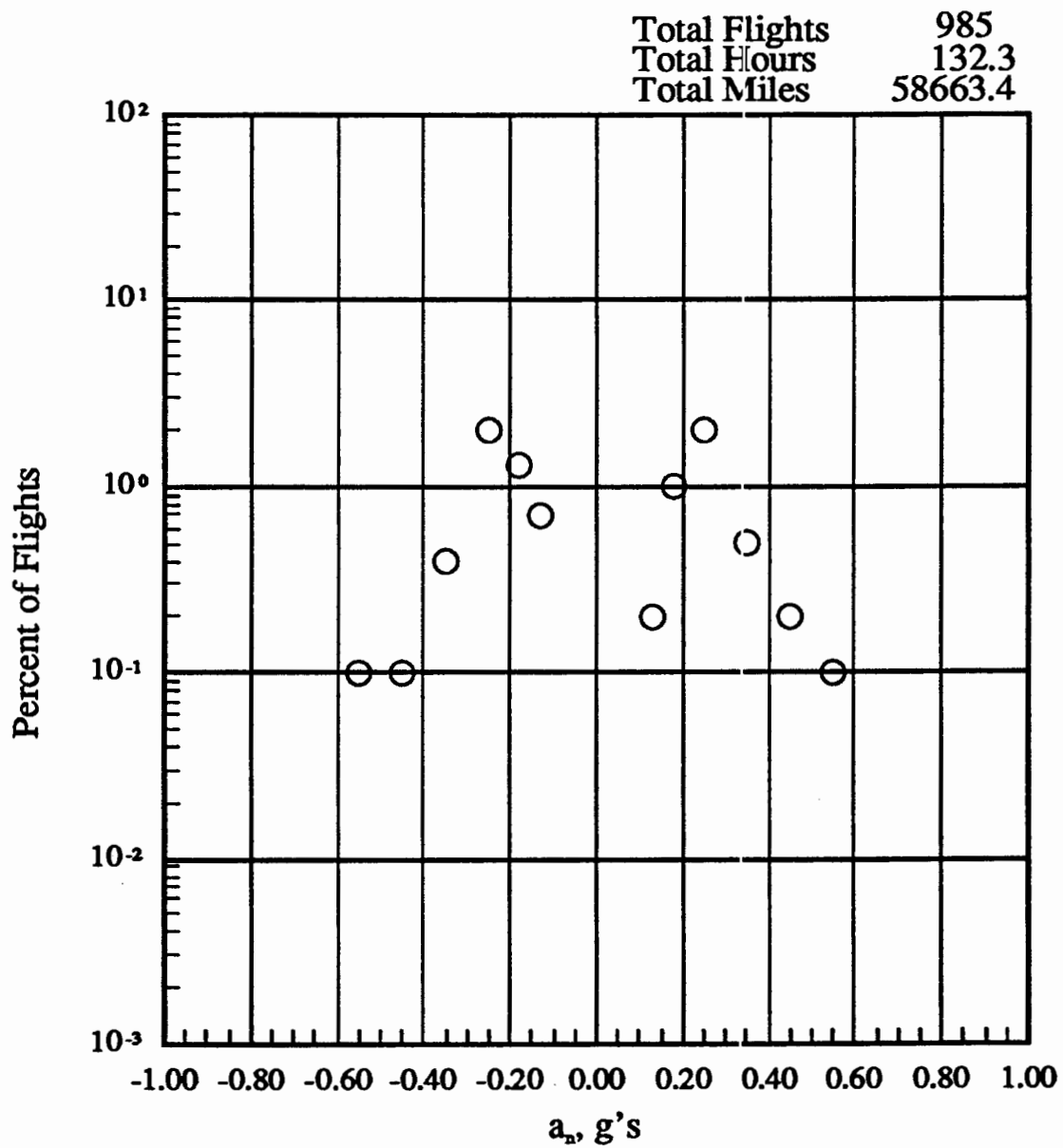
(e) 14500 to 19500 feet altitude

Figure 16.- Continued.



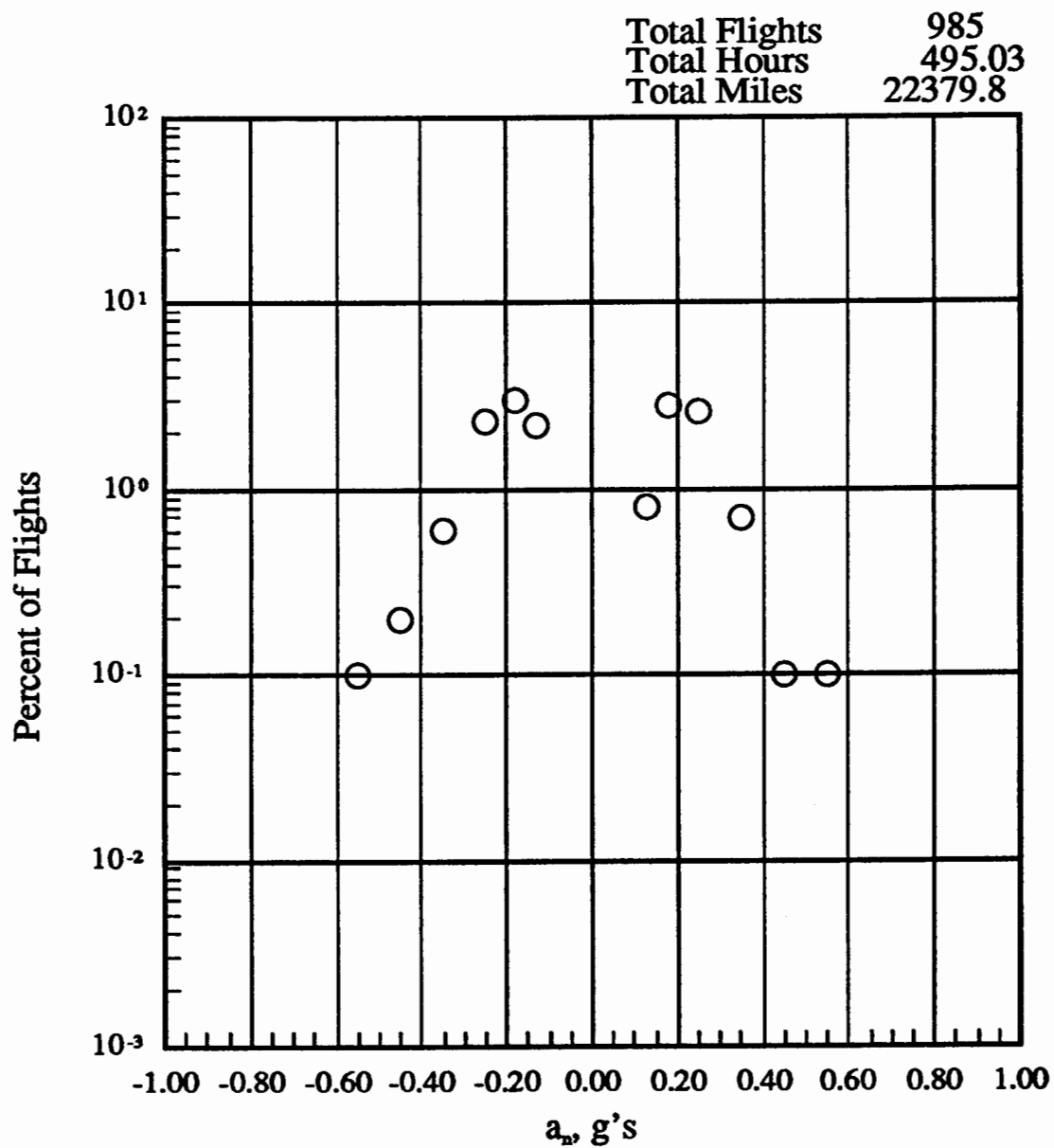
(f) 19500 to 24500 feet altitude

Figure 16.- Continued.



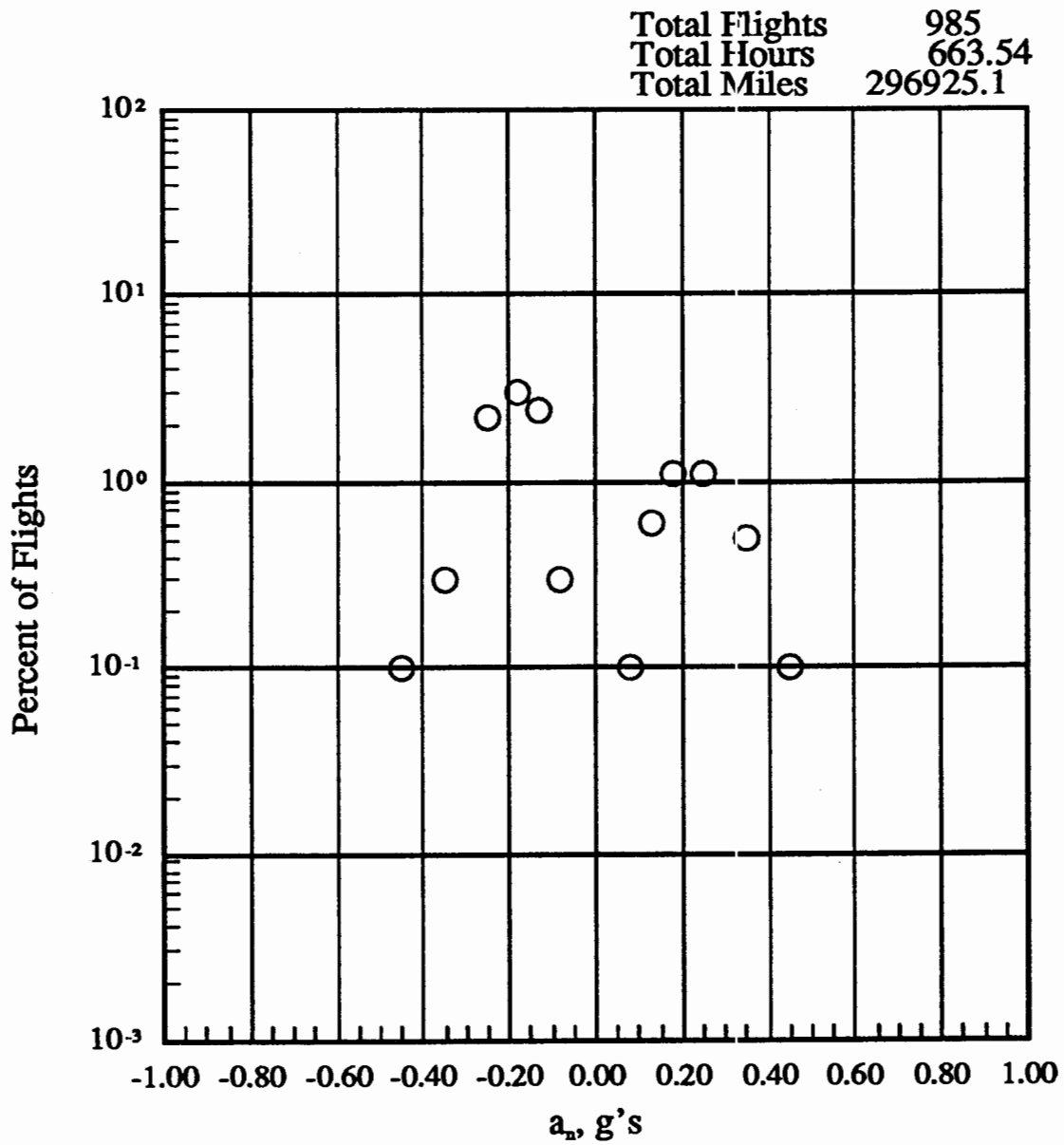
(g) 24500 to 29500 feet altitude

Figure 16.- Continued.



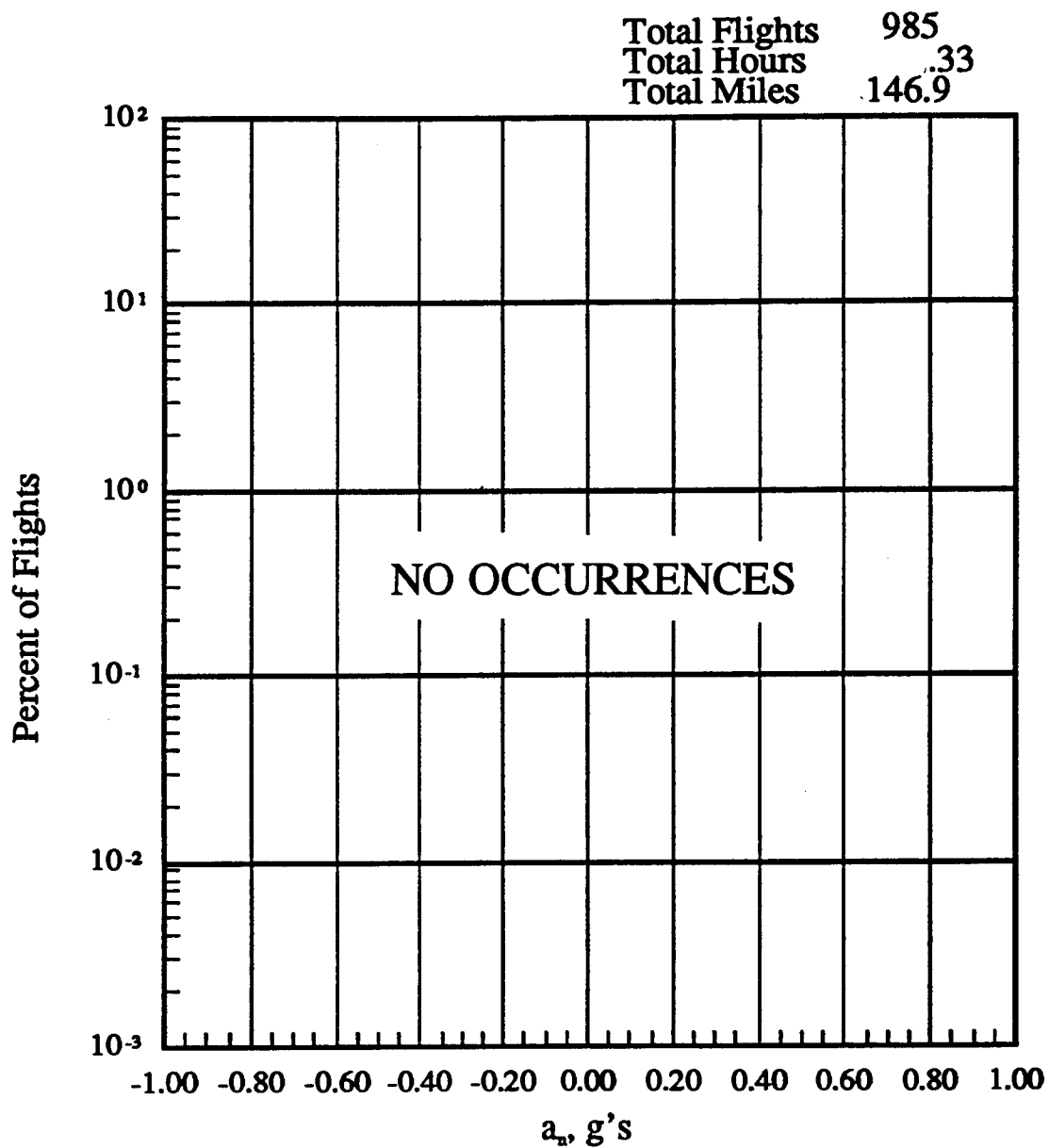
(h) 29500 to 34500 feet altitude

Figure 16.- Continued.



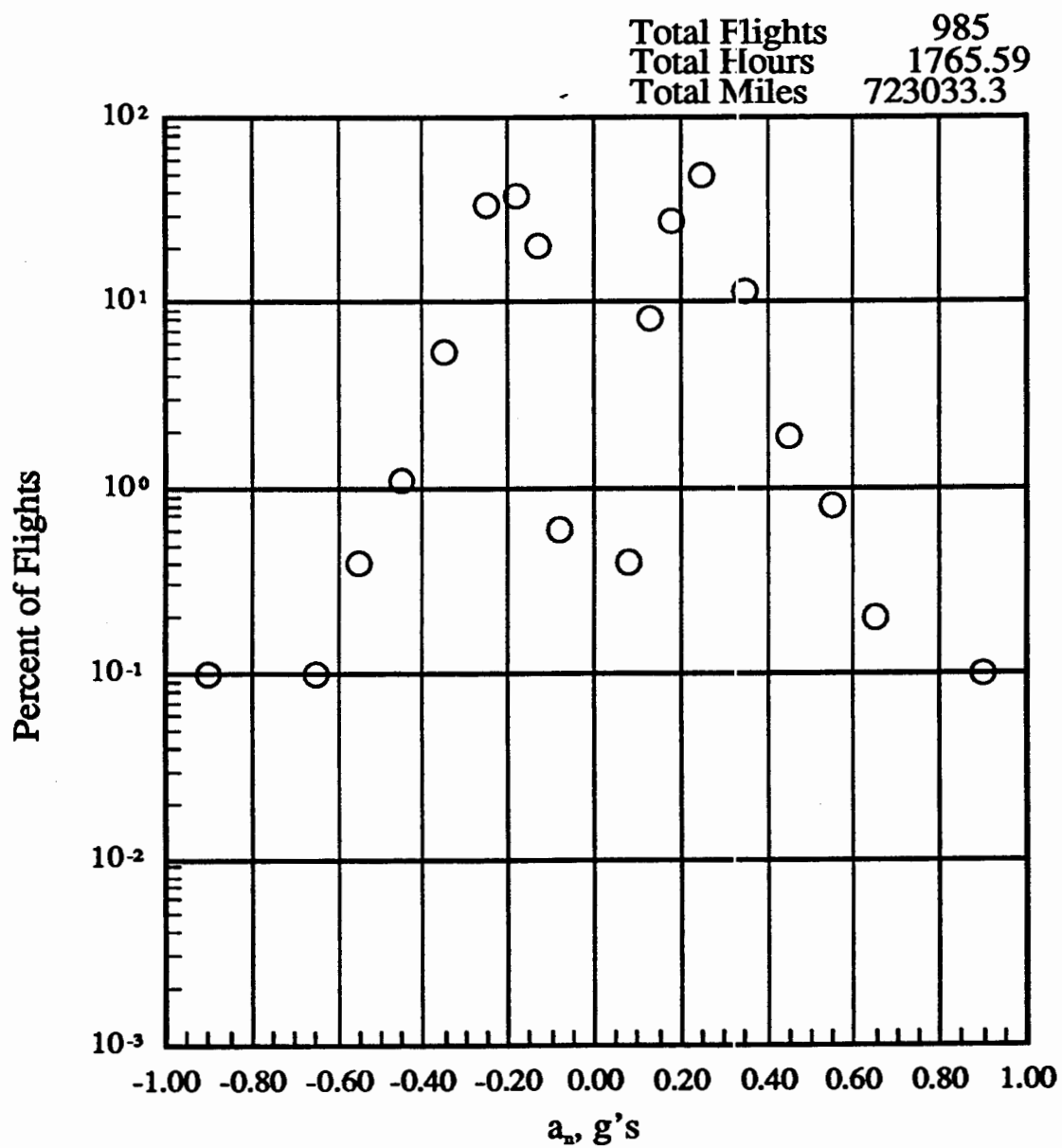
(i) 34500 to 39500 feet altitude

Figure 16.- Continued.



(j) 39500 to 44500 feet altitude

Figure 16.- Continued.



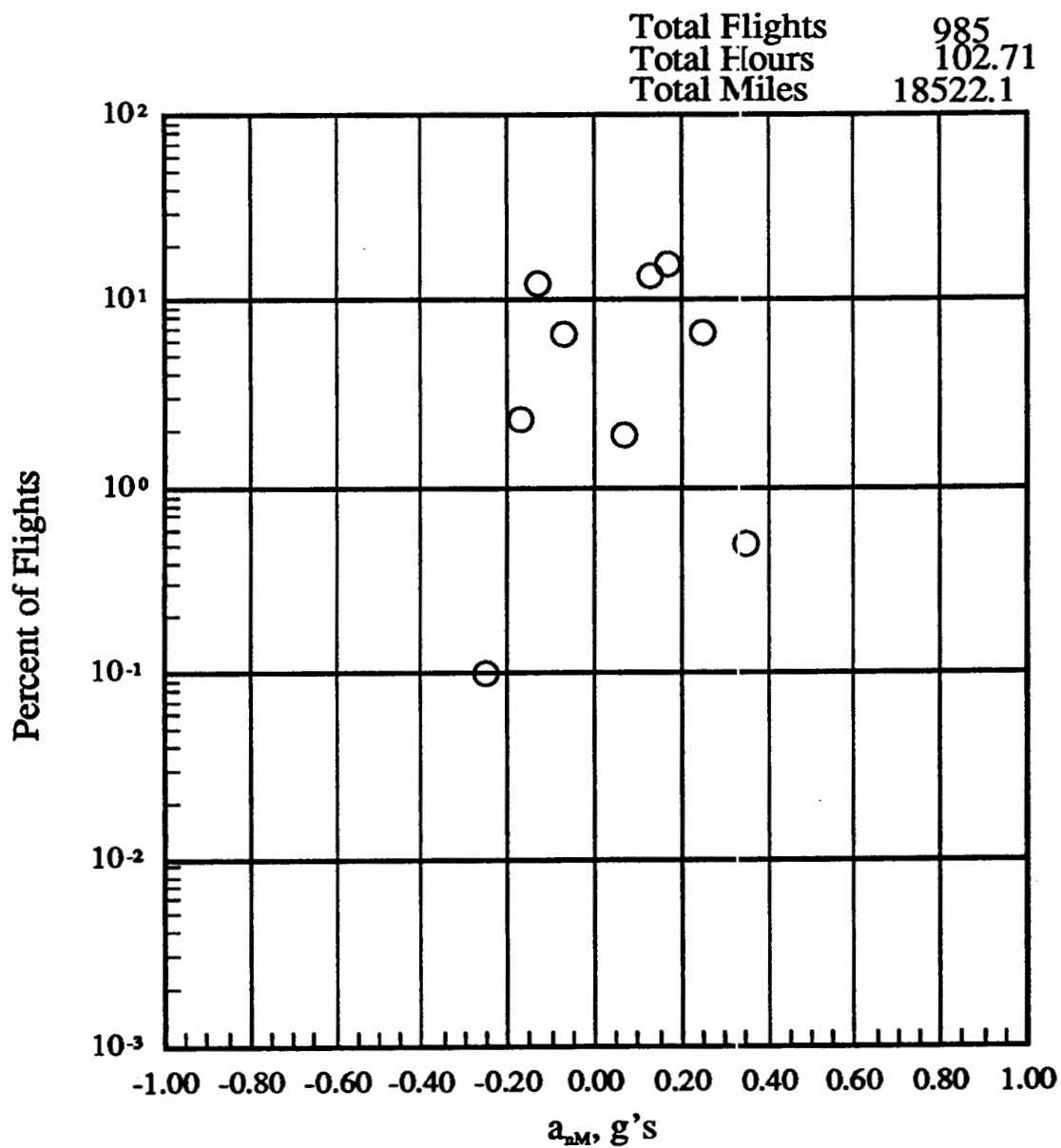
(k) -500 to 44500 feet altitude

Figure 16.- Concluded.

PRESSURE ALTITUDE BANDS											
a_{NM} LEVEL FOR EACH FLIGHT		-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
g's FROM	TO										
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0
.30	0.40	0.50	0.40	0.30	0	0.10	0	0	0	0	1.30
.20	0.30	6.70	6.20	2.40	0.90	0.70	0.40	0.80	0.40	0	18.60
.15	0.20	15.70	9.00	5.50	1.40	1.40	1.40	1.60	0.30	0	36.40
.10	0.15	13.60	10.50	5.60	1.80	1.00	1.70	2.20	1.20	0	37.70
.05	0.10	1.90	1.30	1.50	0.10	0.10	0.40	0.30	0.30	0	6.00
-.05	-0.10	6.60	3.40	3.40	0.60	0.80	0.80	2.70	3.60	0	21.80
-.10	-0.15	12.40	10.40	13.20	2.10	2.50	4.20	7.80	9.20	0	61.80
-.15	-0.20	2.30	3.60	2.40	0.70	0.70	1.30	0.90	2.10	0	14.10
-.20	-0.30	0.10	0.50	0.10	0.10	0.30	0.30	0.20	0.30	0	1.90
-.30	-0.40	0	0	0.10	0	0	0.10	0.10	0	0	0.30
-.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		102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT		18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS											985

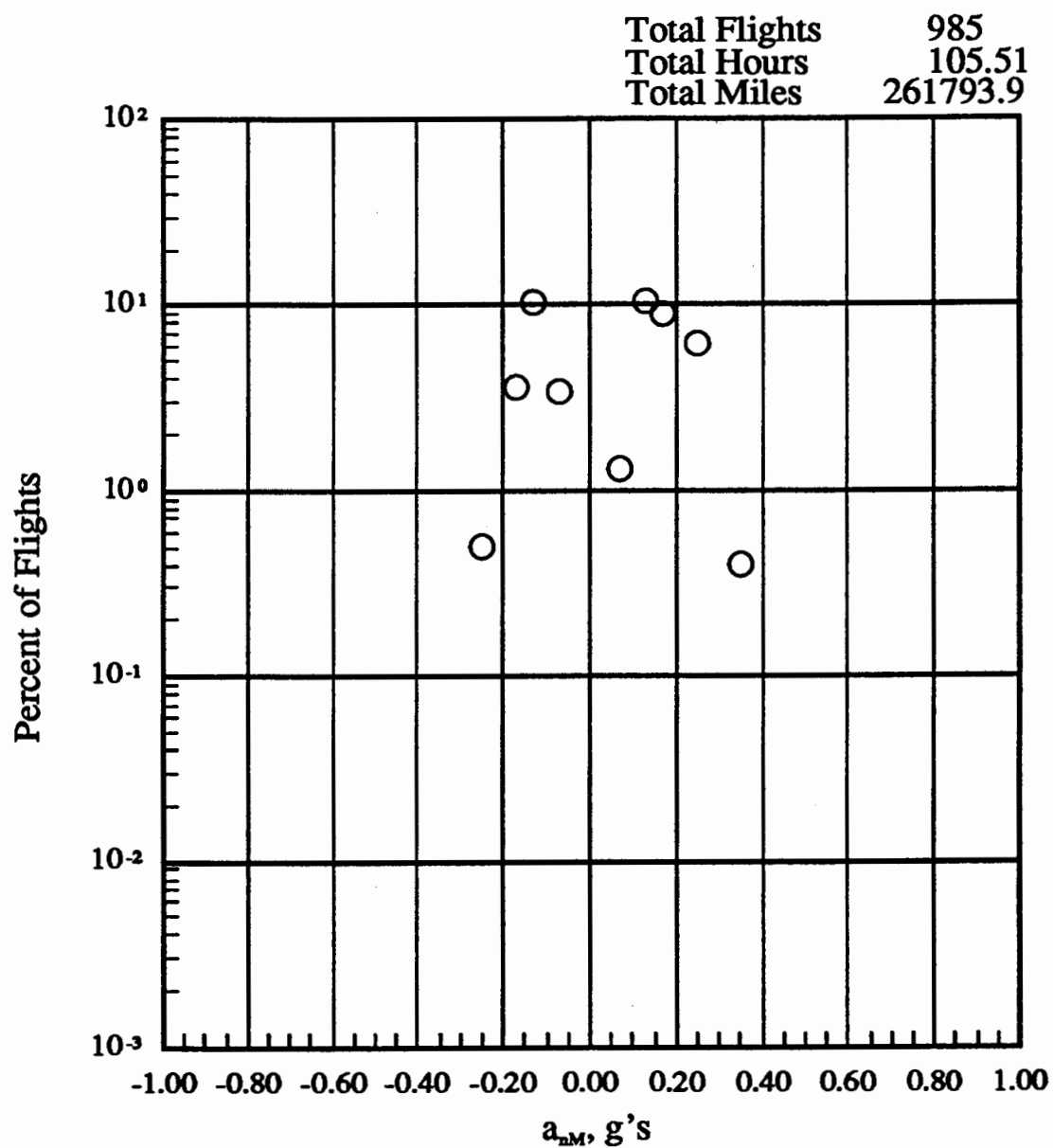
(a) Percent of flights where peak positive and negative a_{NM} per flight occurs within pressure altitude bands, any flap

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



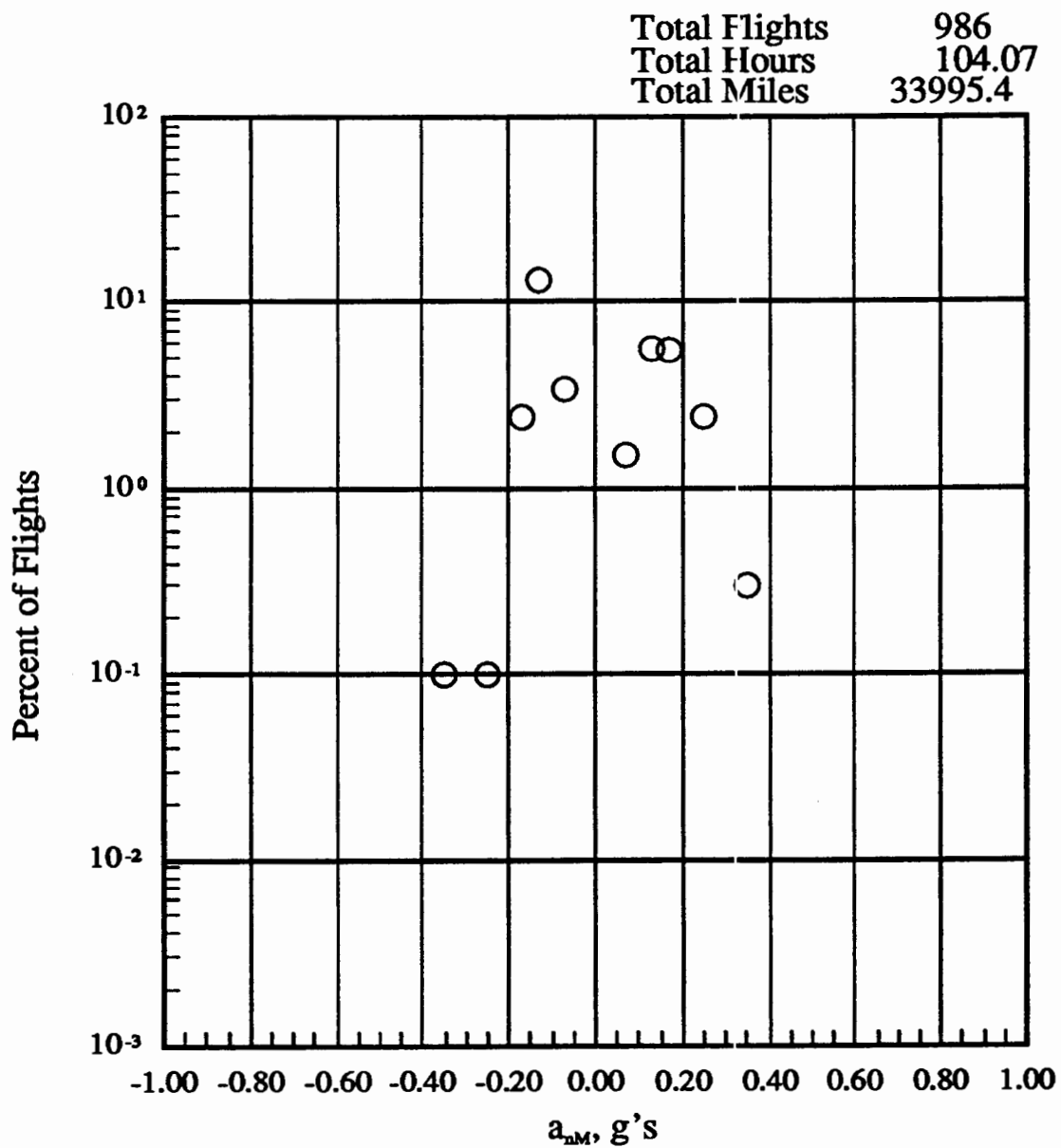
(b) -500 to 4500 feet altitude

Figure 17.- Continued.



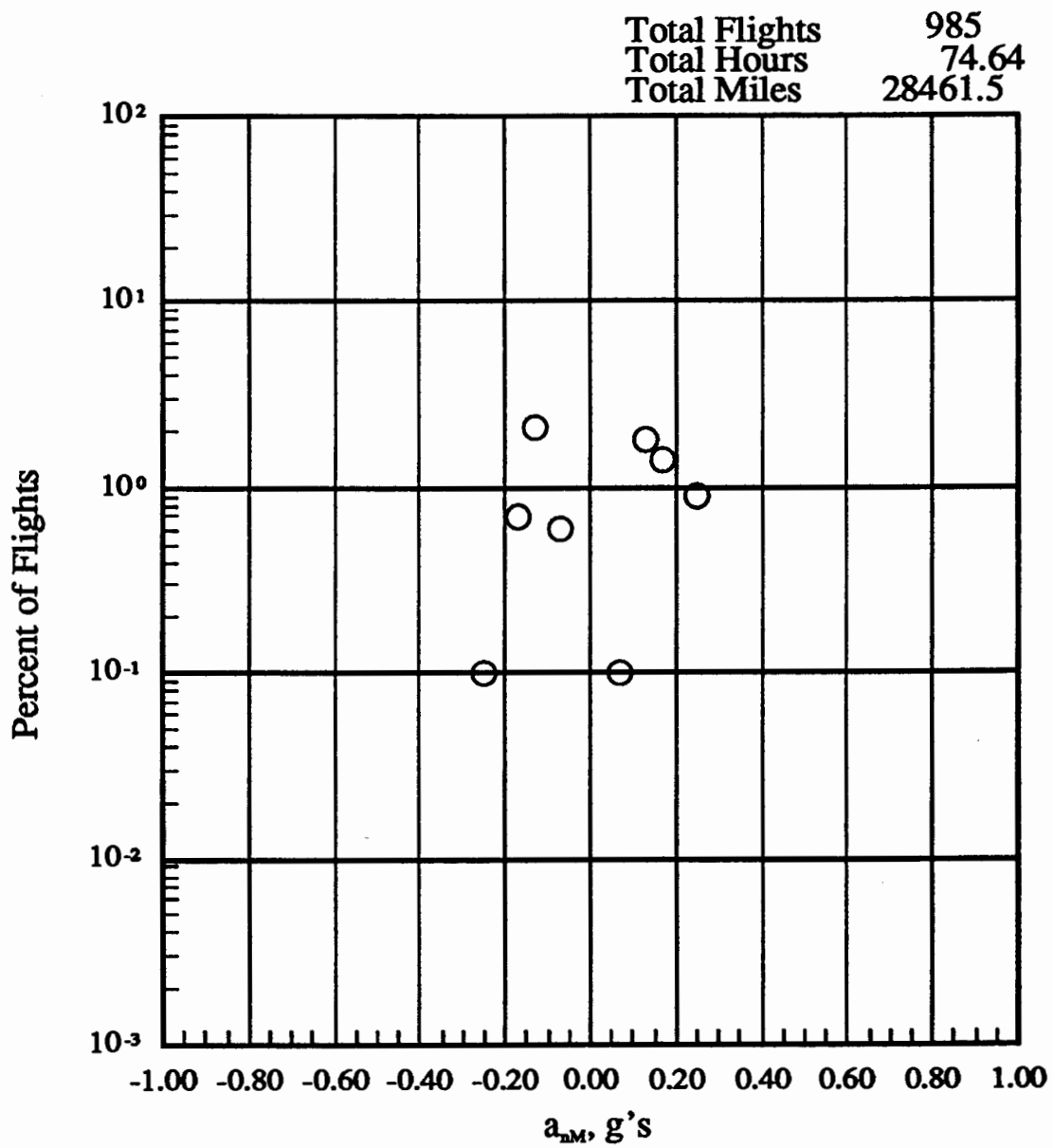
(c) 4500 to 9500 feet altitude

Figure 17.- Continued.



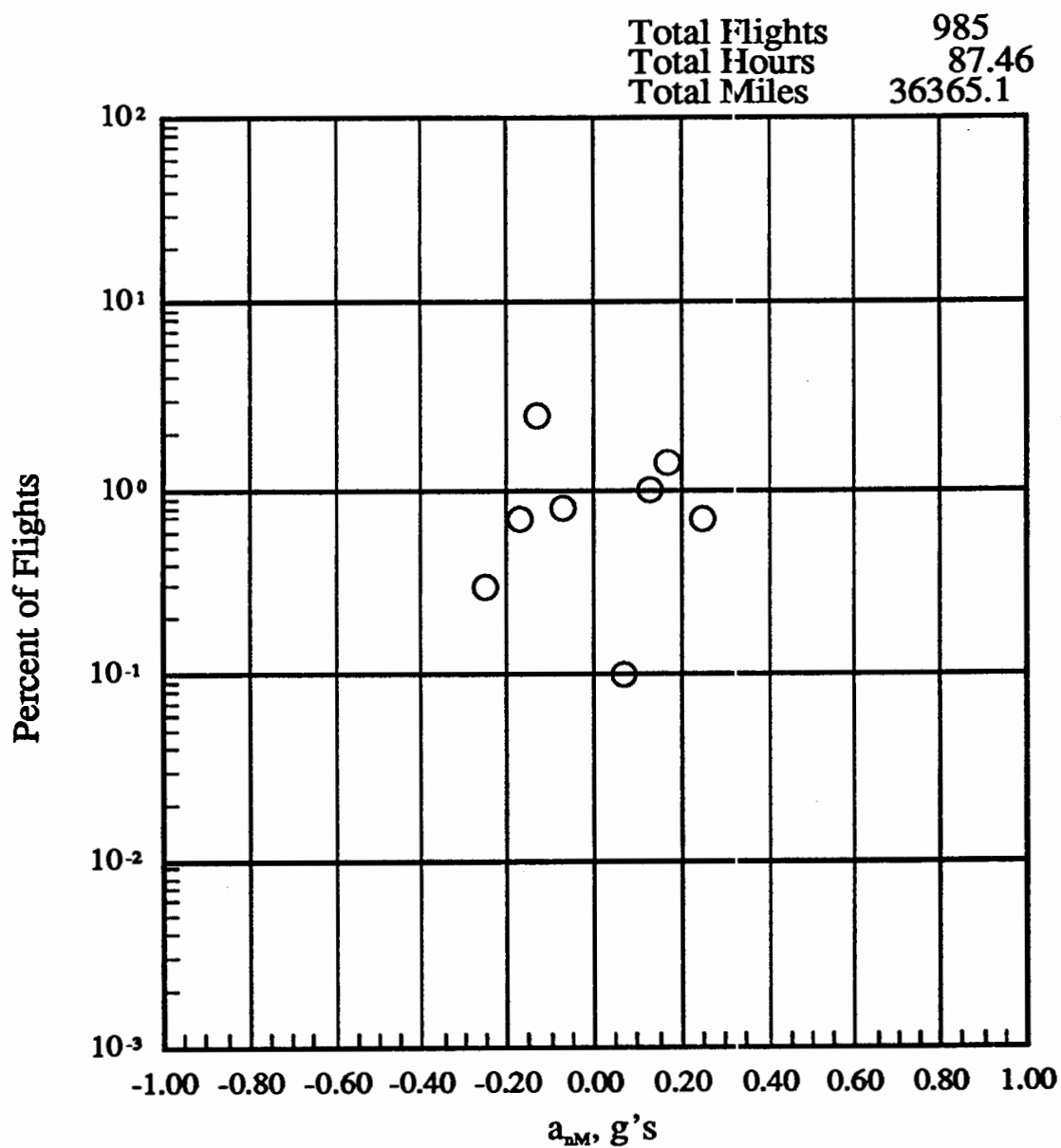
(d) 9500 to 14500 feet altitude

Figure 17.- Continued.



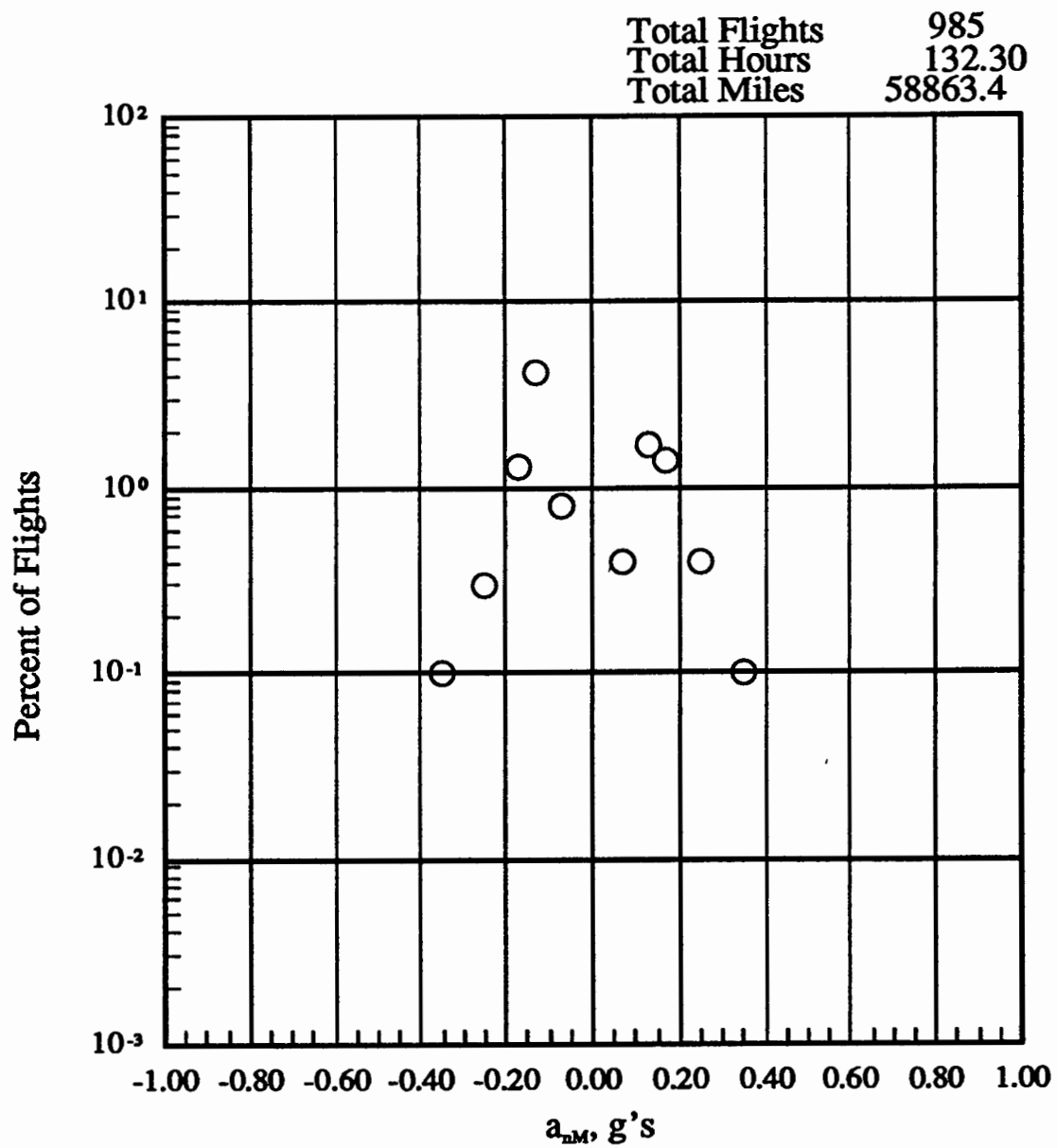
(e) 14500 to 19500 feet altitude

Figure 17.- Continued.



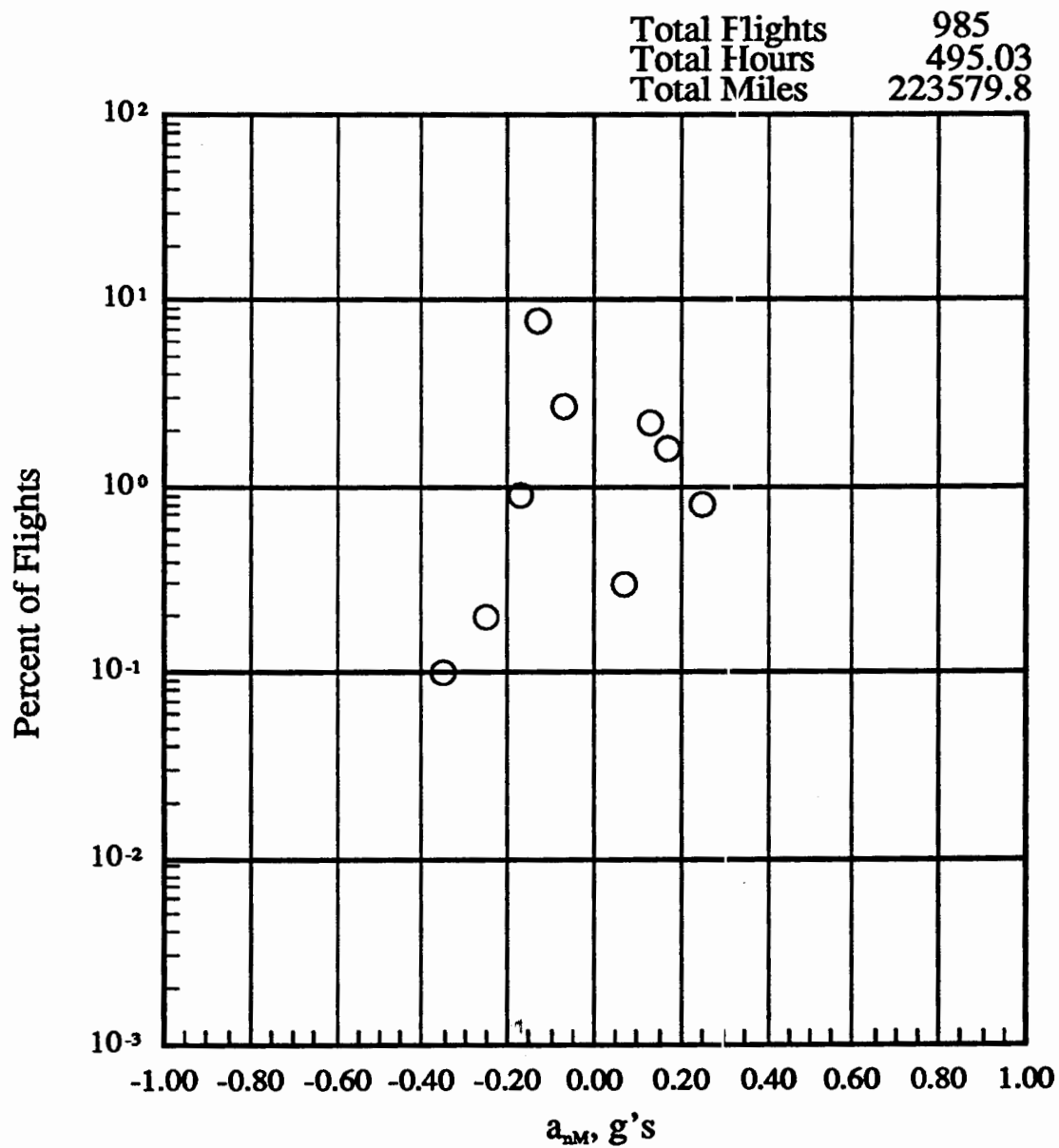
(f) 19500 to 24500 feet altitude

Figure 17.- Continued.



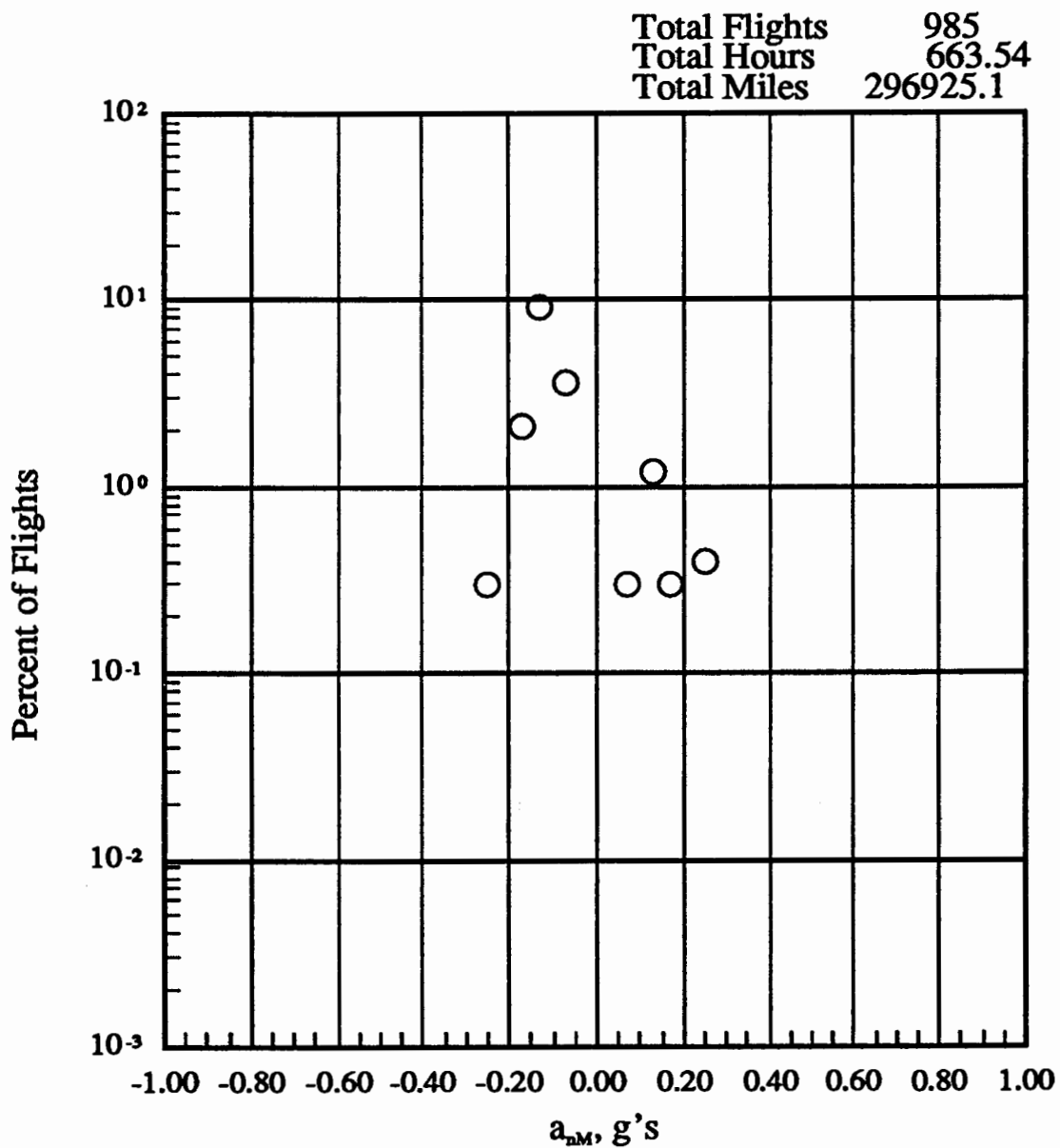
(g) 24500 to 29500 feet altitude

Figure 17.- Continued.



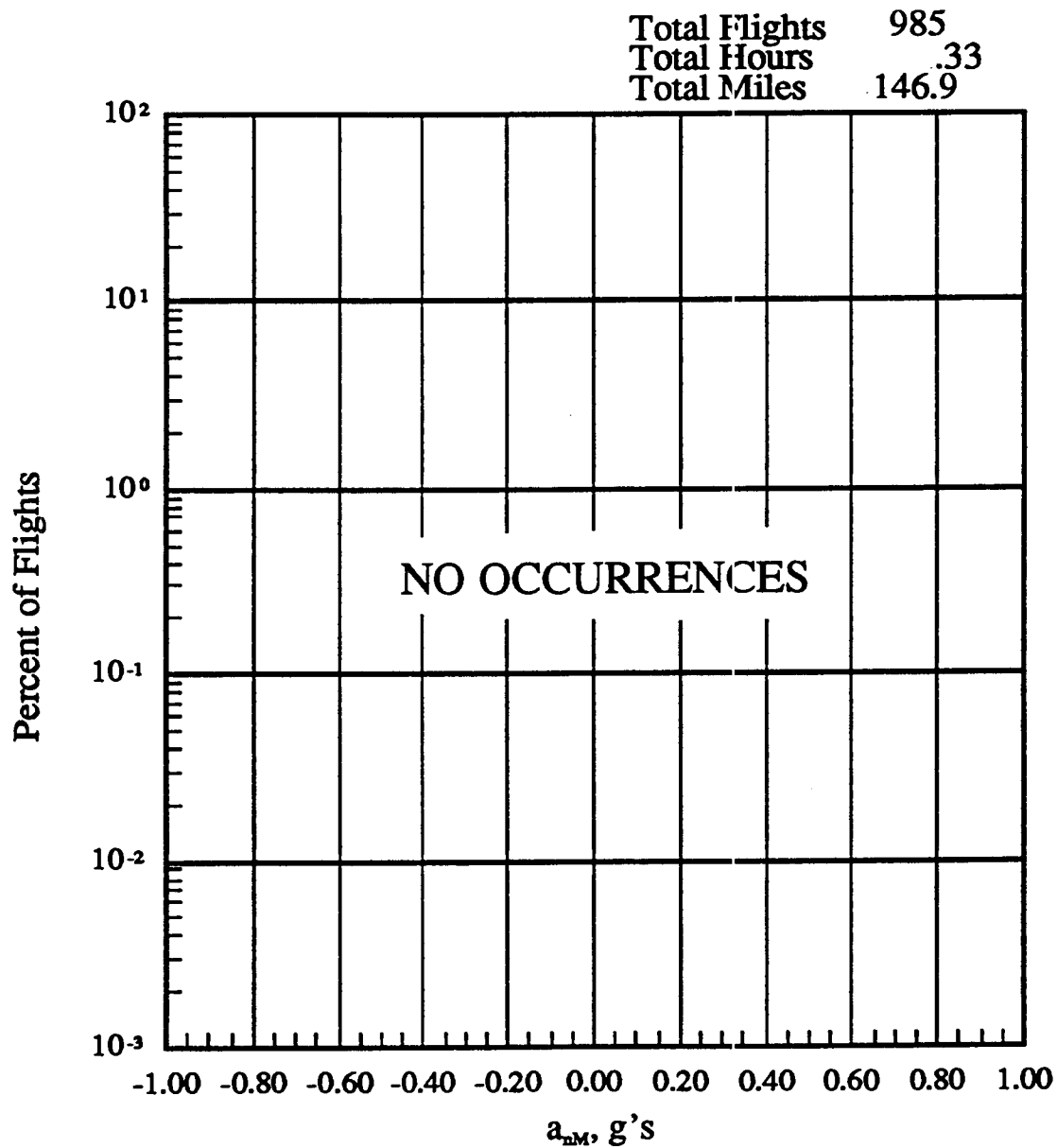
(h) 29500 to 34500 feet altitude

Figure 17.- Continued.



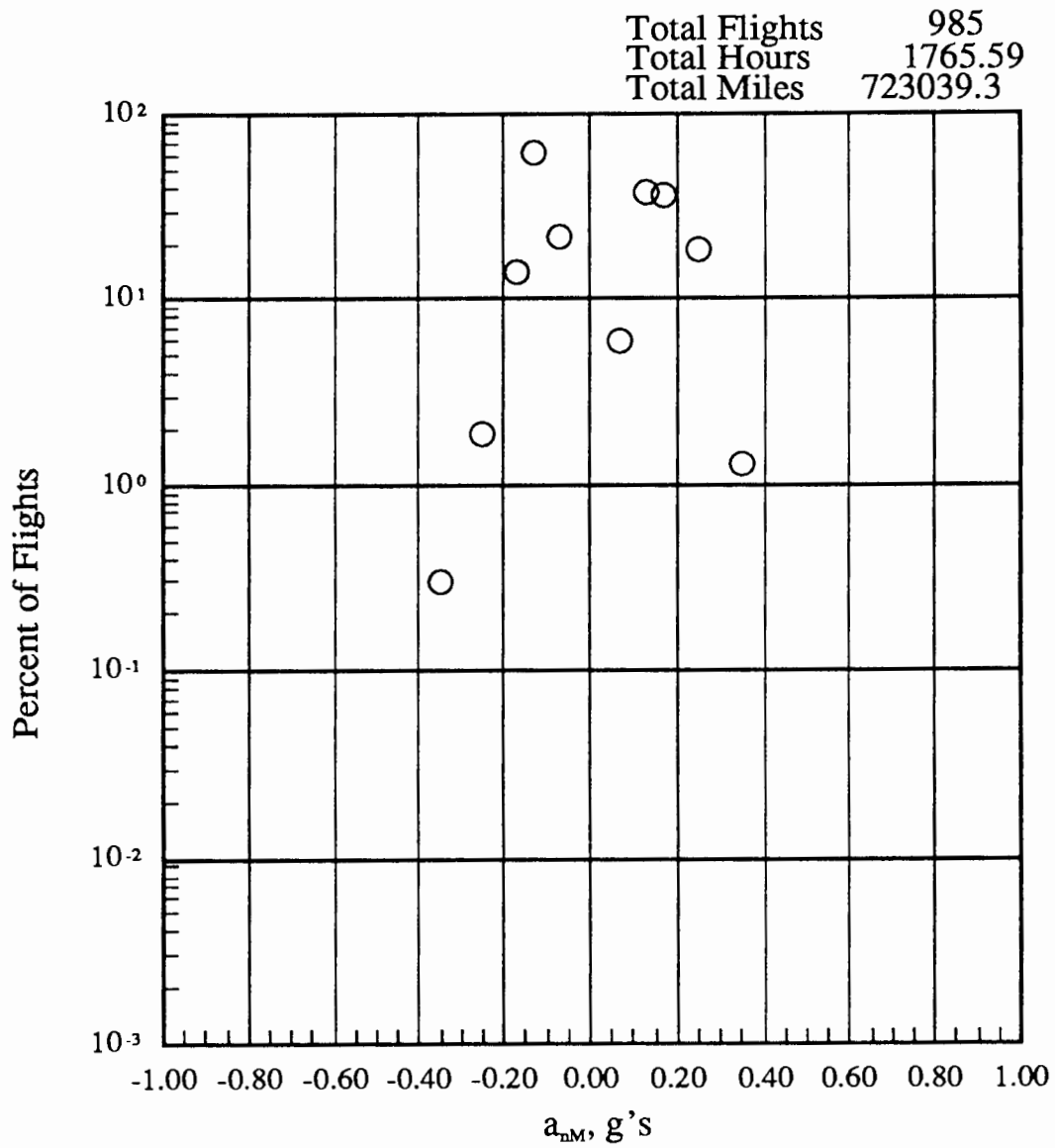
(i) 34500 to 39500 feet altitude

Figure 17.- Continued.



(j) 39500 to 44500 feet altitude

Figure 17.- Continued.



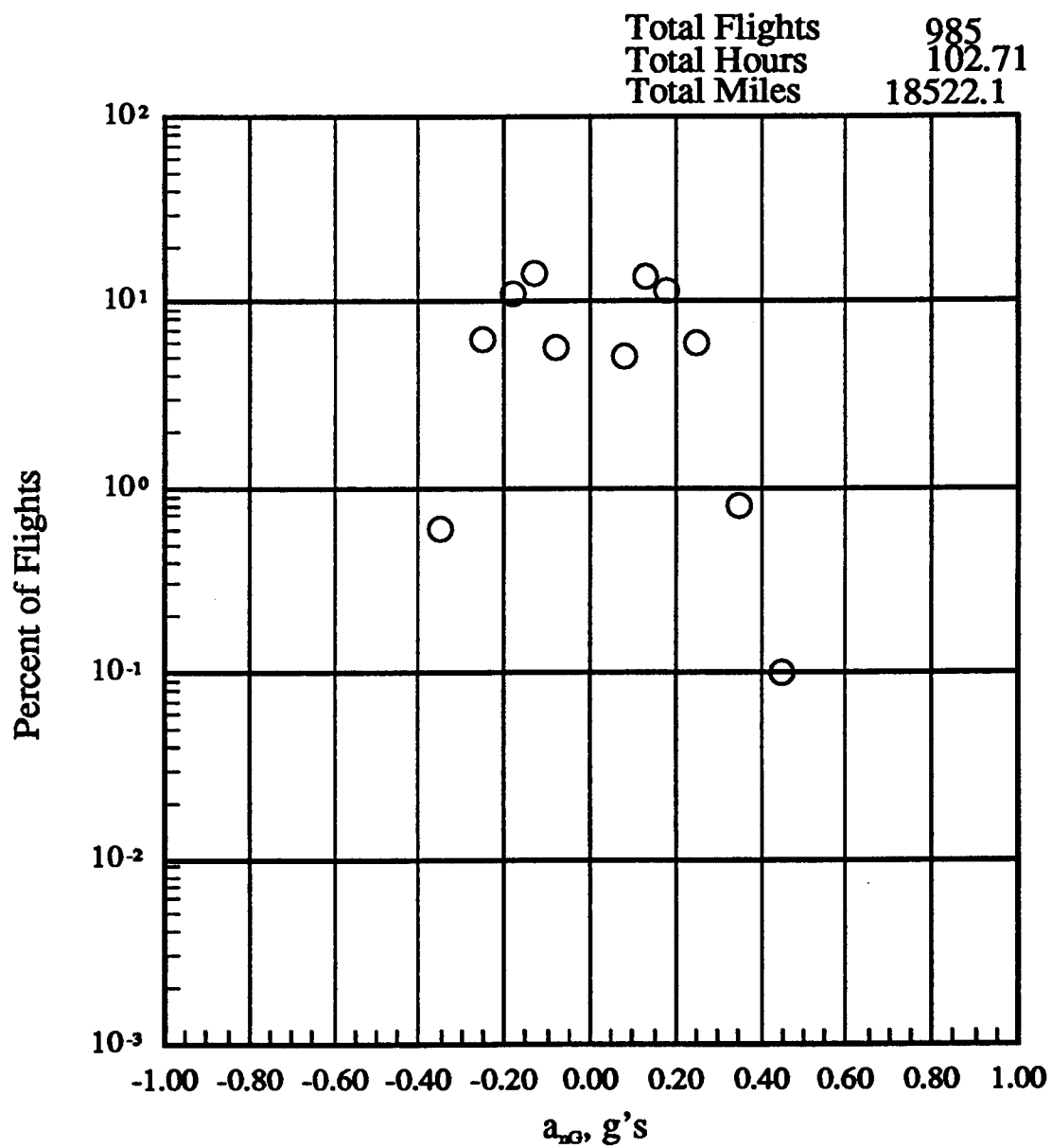
(k) -500 to 44500 feet altitude

Figure 17.- Concluded.

PRESSURE ALTITUDE BANDS											
a_{nG} max		-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
LEVEL FOR EACH FLIGHT											
g's FROM	TO										
1.60	1.80	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0.10	0	0	0	0	0.10
.70	.80	0	0	0	0	0	0	0	0	0	0
.60	.70	0	0	0	0	0	0	0	0	0	0
.50	.60	0	0	0	0.10	0	0.10	0	0	0	0.20
.40	.50	0.10	0.10	0.10	0.10	0.10	0	0.10	0	0	0.60
.30	.40	0.80	0.50	0.70	0	0.20	0.30	0.20	0.10	0	2.80
.20	.30	6.00	4.70	1.70	1.30	1.40	1.10	1.40	1.10	0	18.80
.15	.20	11.50	4.80	3.50	1.70	1.60	1.20	2.50	1.20	0	28.00
.10	.15	13.70	5.80	5.10	2.00	1.60	1.00	2.80	2.40	0	34.50
.05	.10	5.10	2.30	1.70	0.80	0.30	1.20	1.60	1.30	0	14.40
-.05	-.10	5.70	2.80	1.80	0.80	0.50	1.00	1.40	1.90	0	16.00
-.10	-.15	14.30	5.50	4.40	2.10	1.60	1.40	2.30	1.30	0	33.00
-.15	-.20	11.10	4.70	3.60	1.70	1.60	0.70	2.30	1.40	0	27.10
-.20	-.30	6.30	3.90	2.70	1.20	0.50	1.40	1.30	1.50	0	18.90
-.30	-.40	0.60	1.00	0.70	0.30	0.30	0.20	0.30	0.20	0	3.70
-.40	-.50	0	0	0	0.10	0.10	0	0	0	0	0.20
-.50	-.60	0	0	0.10	0	0.10	0.10	0.10	0	0	0.40
-.60	-.70	0	0	0	0.10	0	0	0	0	0	0.10
-.70	-.80	0	0	0	0	0	0	0	0	0	0
-.80	-1.00	0	0	0	0	0.10	0	0	0	0	0.10
-1.00	-1.20	0	0	0	0	0	0.10	0	0	0	0.10
-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		102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT		18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
TOTAL FLIGHTS											985

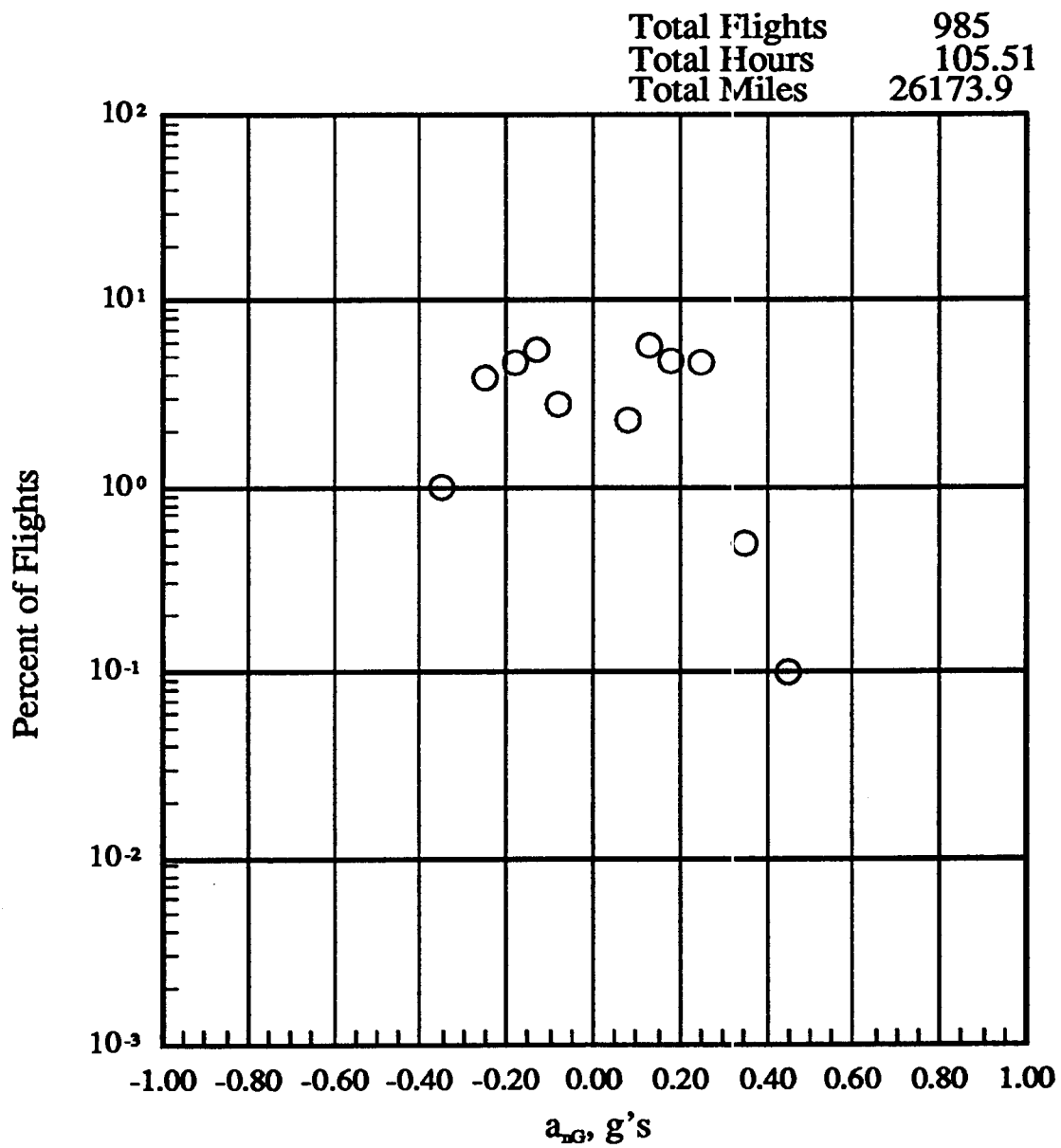
(a) Percent of flights where peak positive and negative a_{nG} per flight
occures within pressure altitude bands, any flap

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



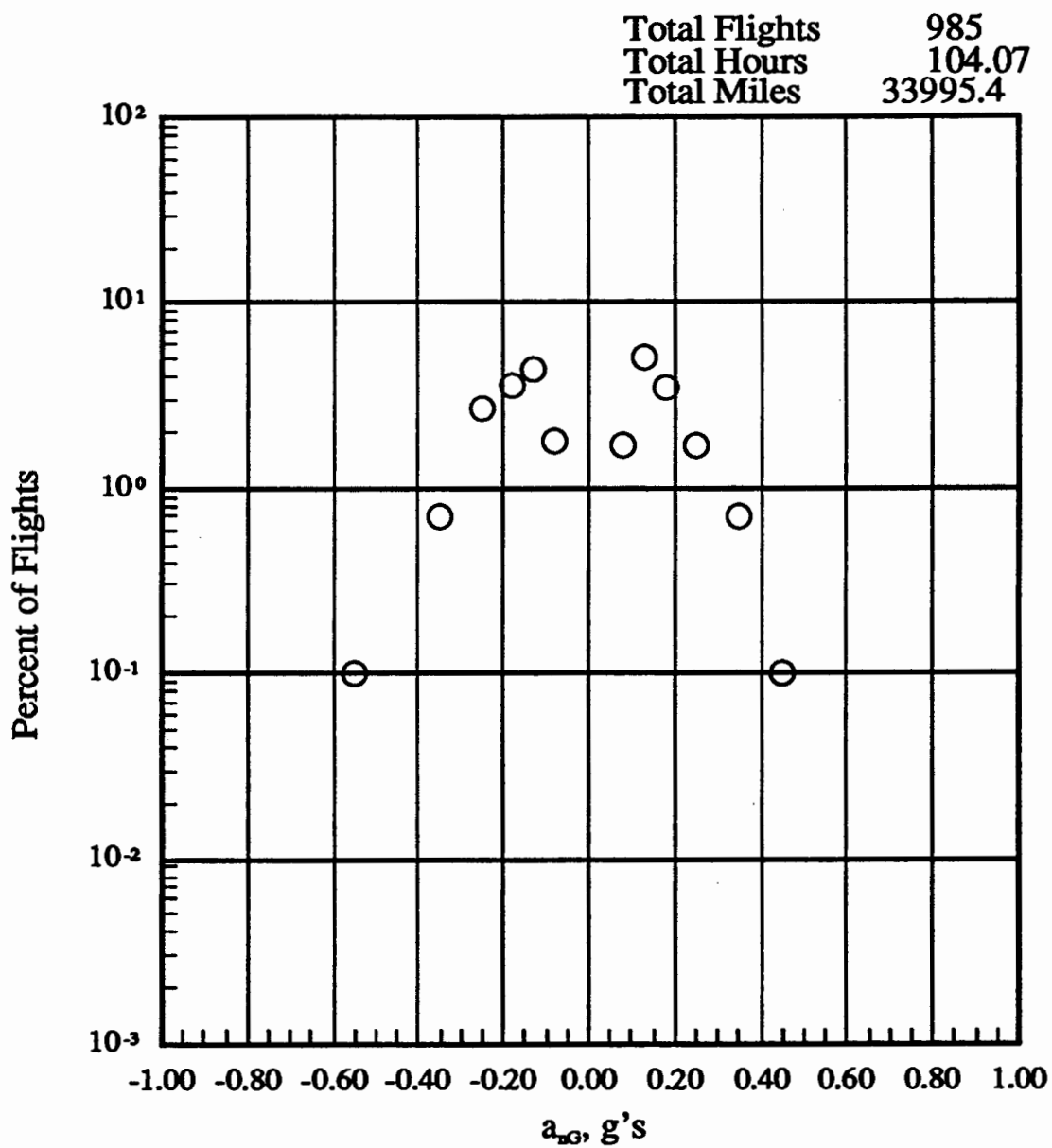
(b) -500 to 4500 feet altitude

Figure 18.- Continued.



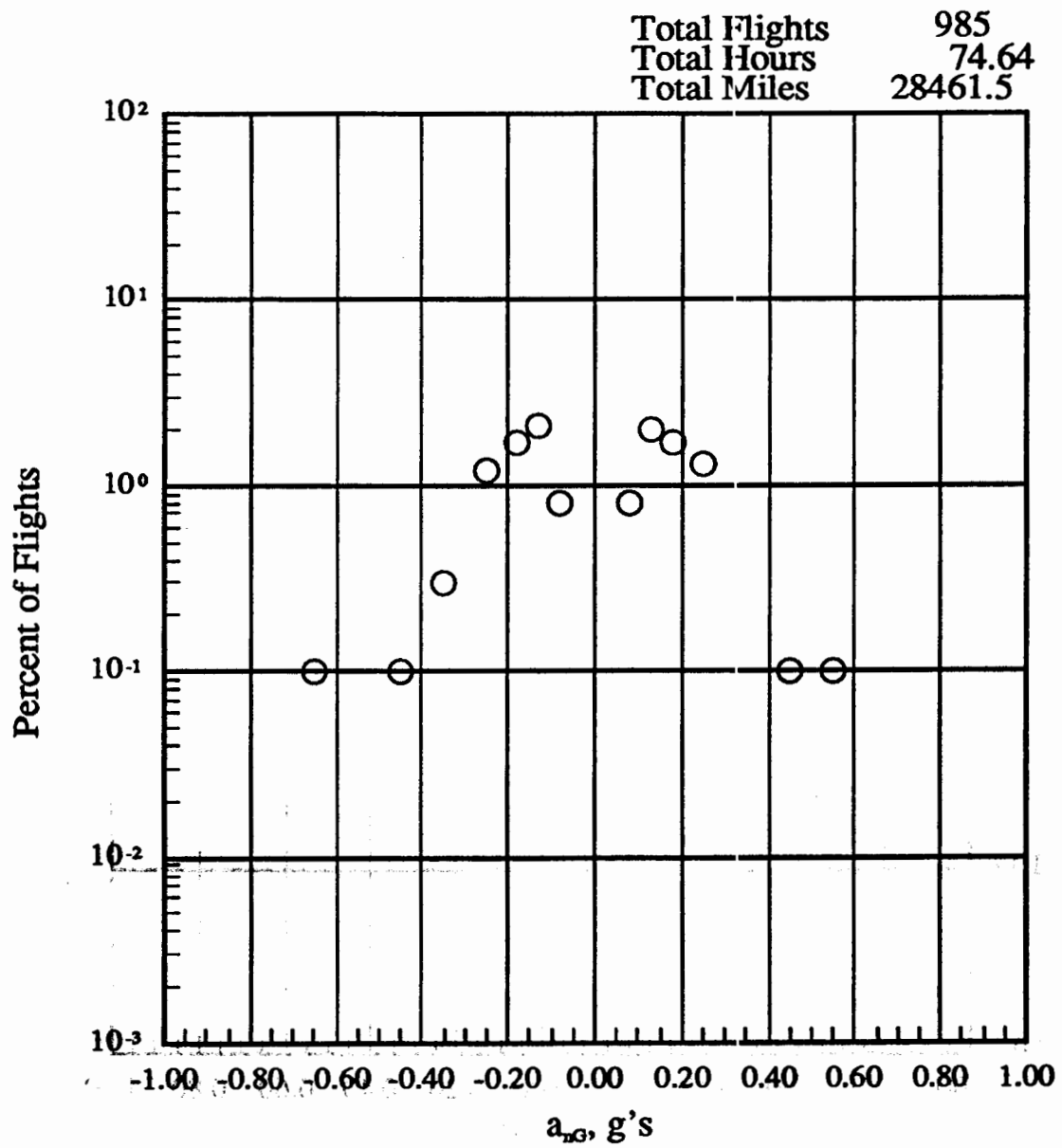
(c) 4500 to 9500 feet altitude

Figure 18.- Continued.



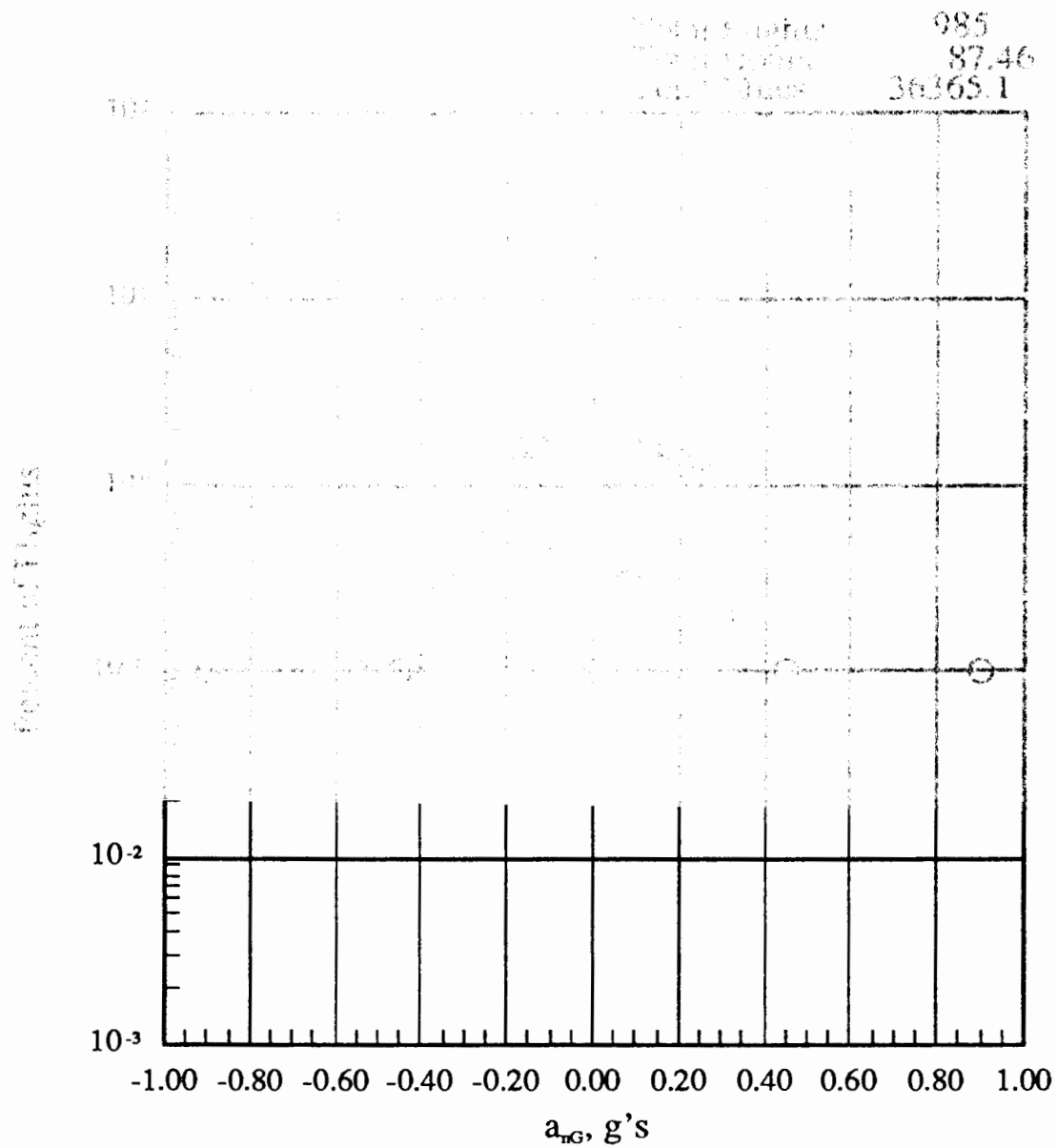
(d) 9500 to 14500 feet altitude

Figure 18.- Continued.



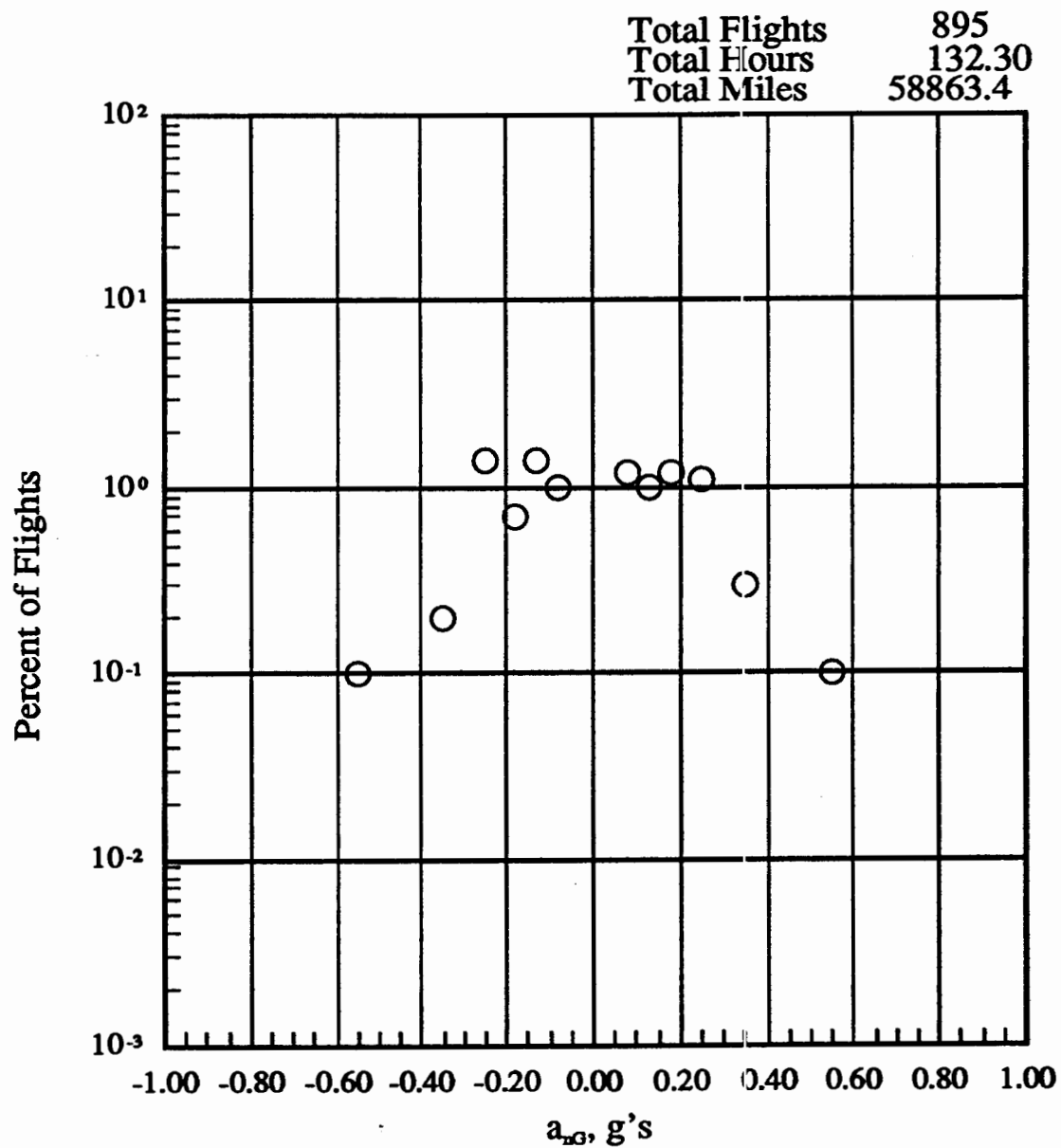
(e) 14500 to 19500 feet altitude

Figure 18.- Continued.



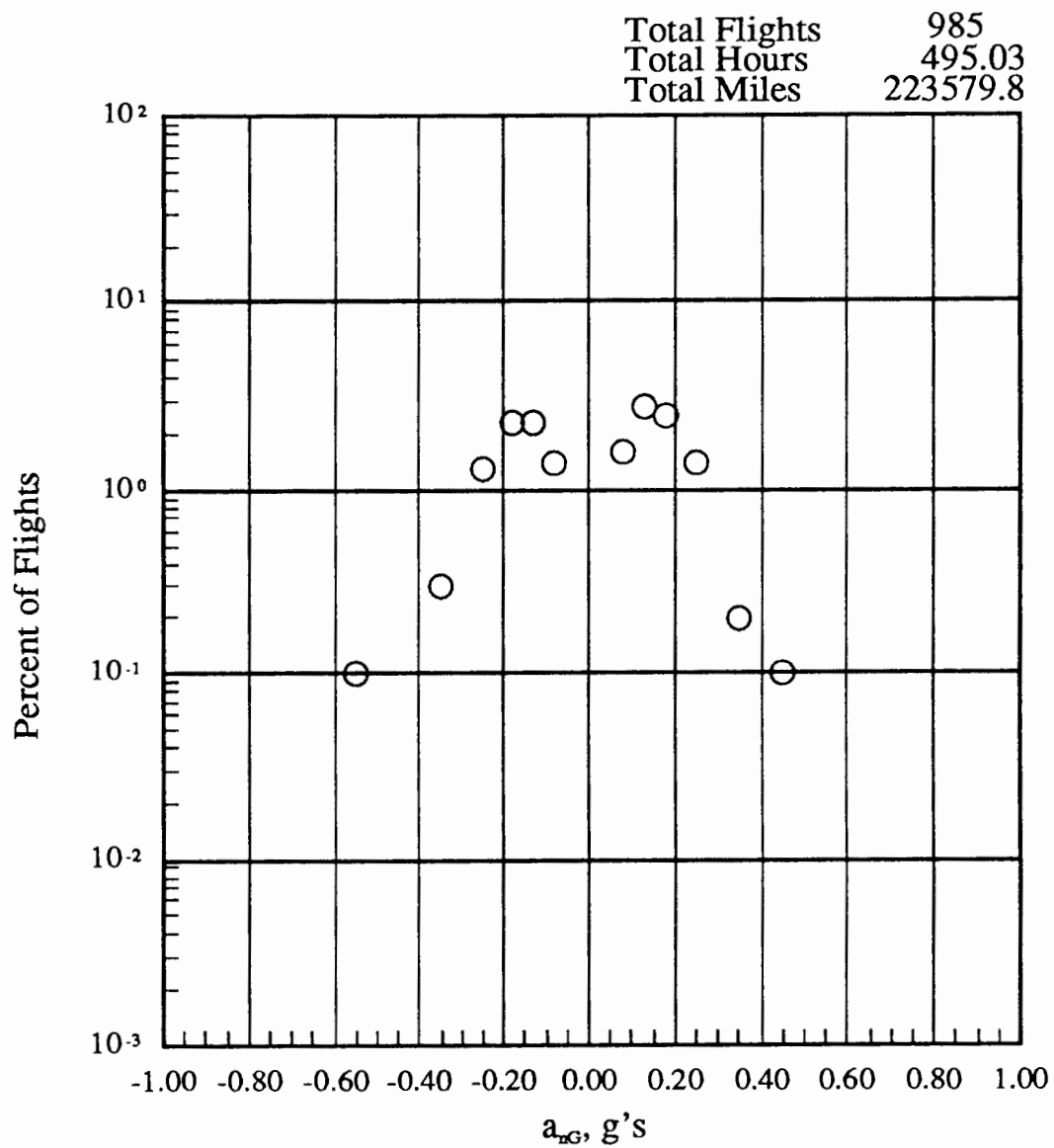
(f) 19500 to 24500 feet altitude

Figure 18.- Continued.



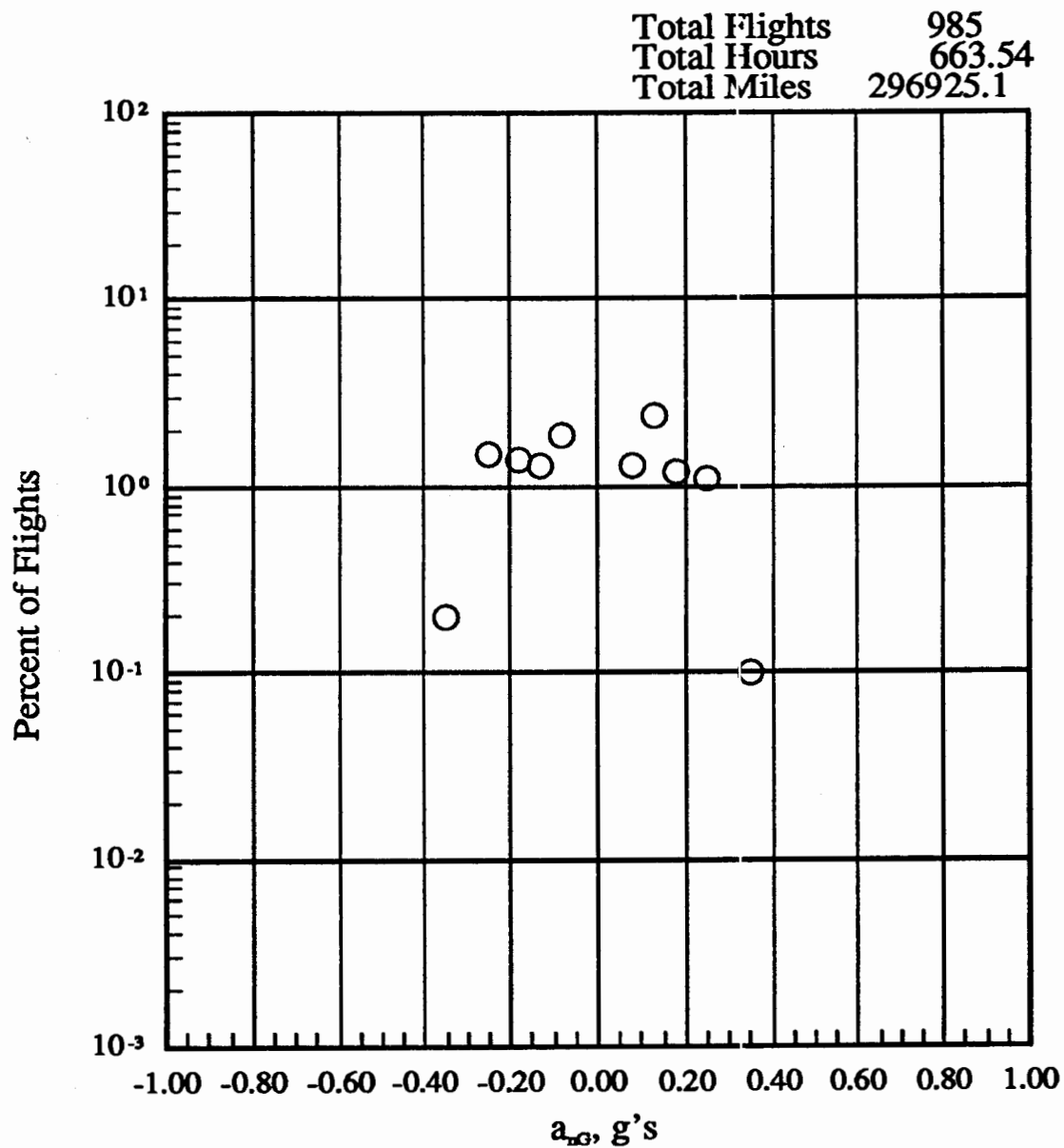
(g) 24500 to 29500 feet altitude

Figure 18.- Continued.



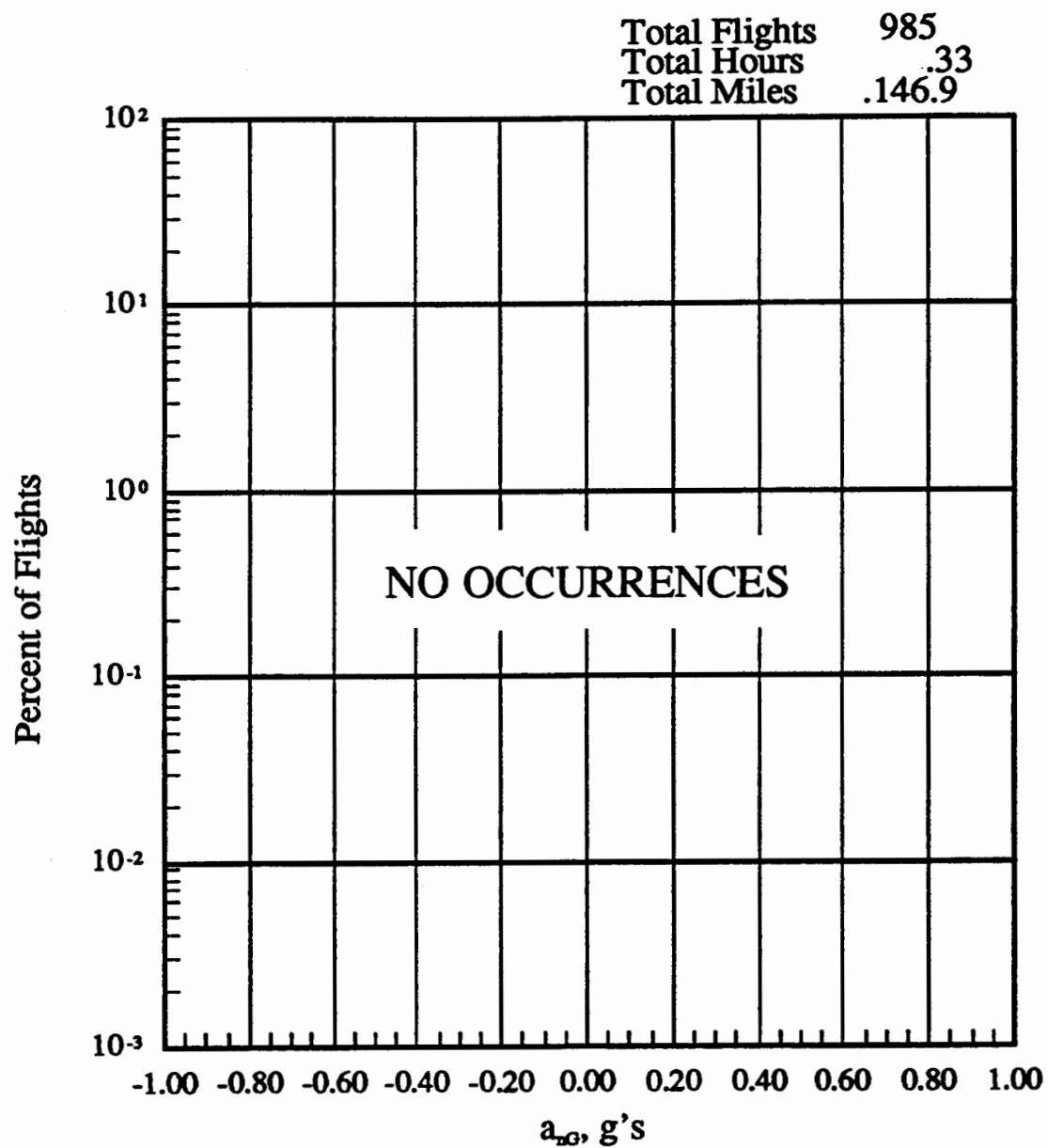
(h) 29500 to 34500 feet altitude

Figure 18.- Continued.



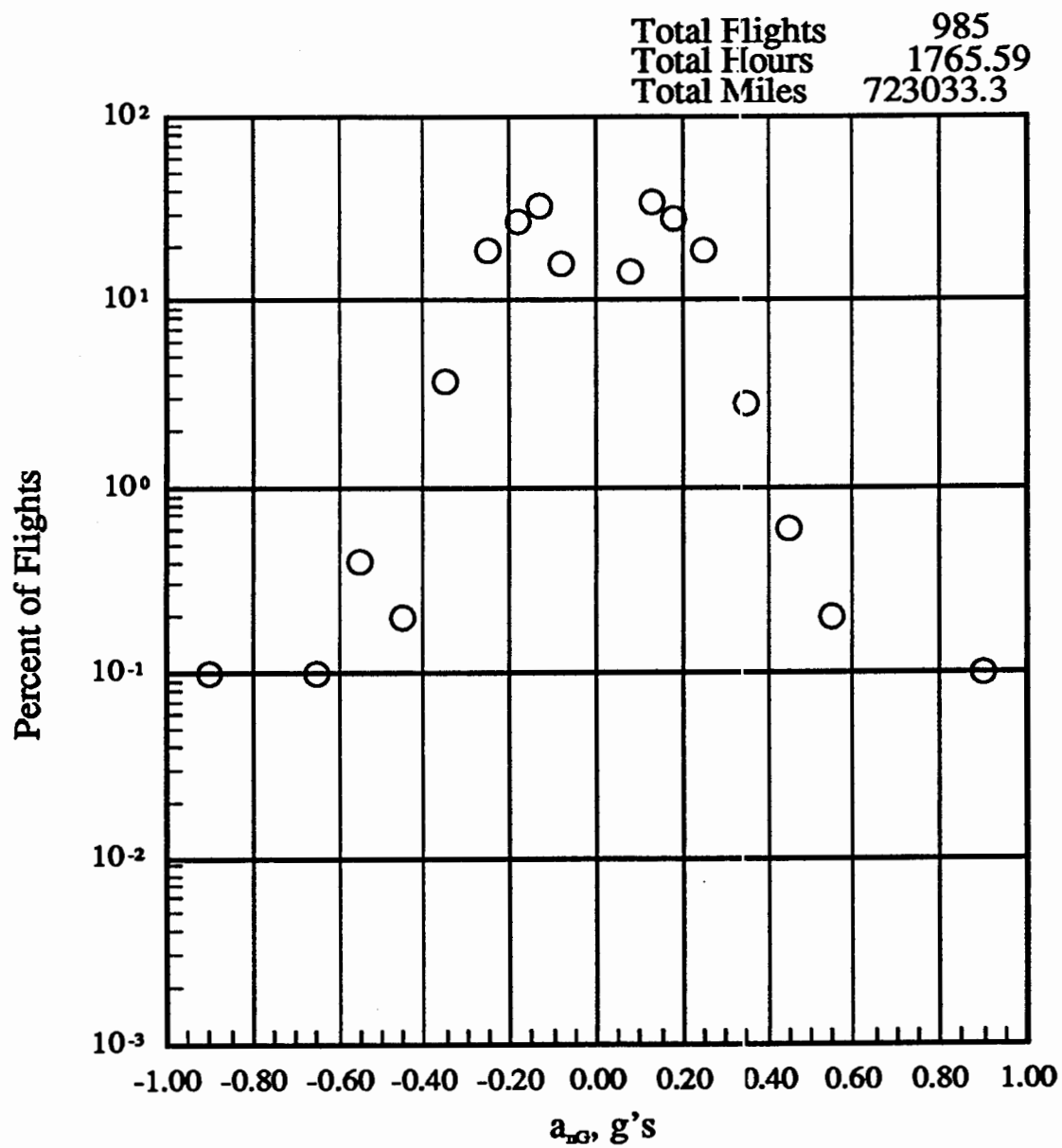
(i) 34500 to 39500 feet altitude

Figure 18.- Continued.



(j) 39500 to 44500 feet altitude

Figure 18.- Continued.



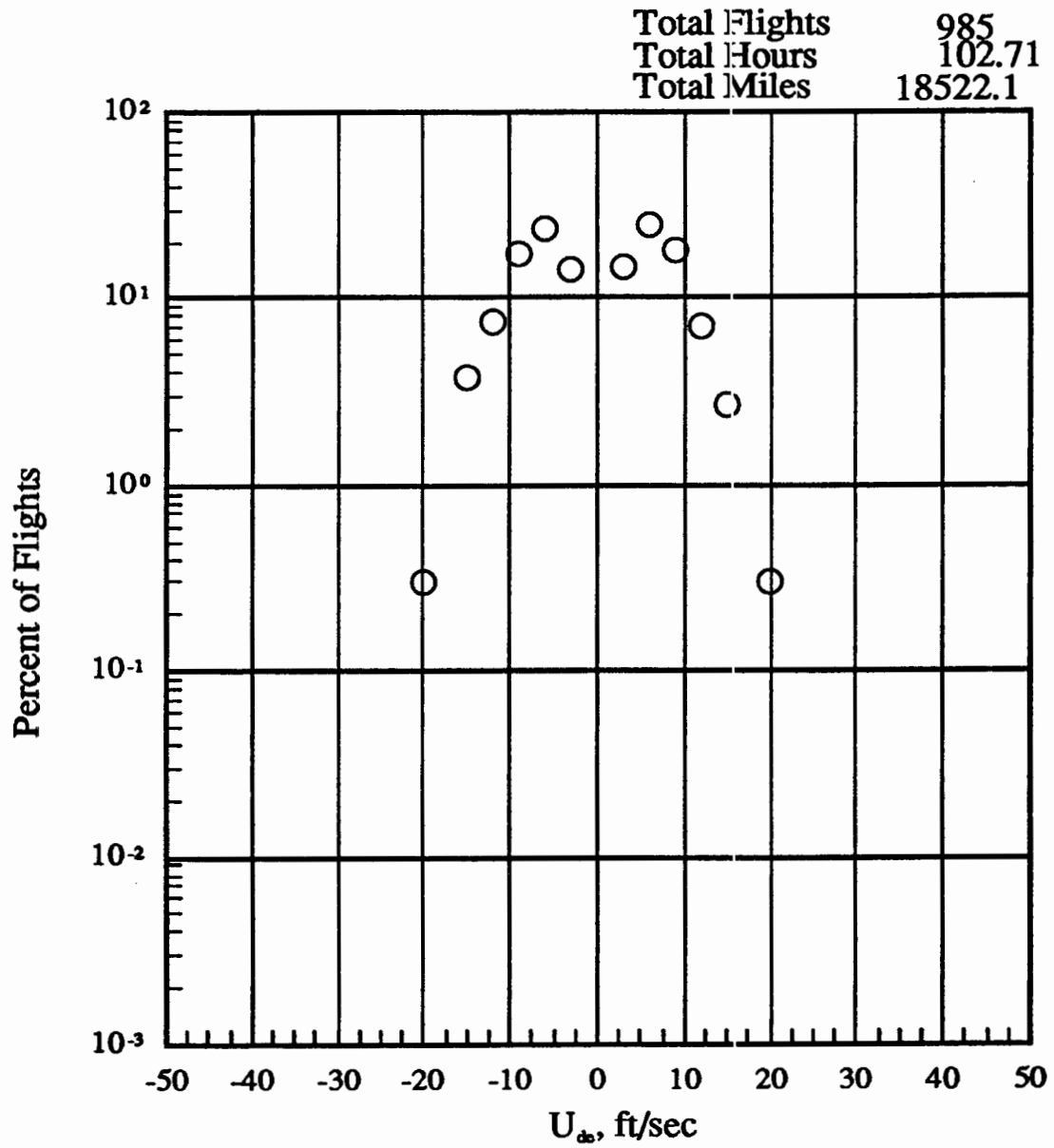
(k) -500 to 44500 feet altitude

Figure 18.- Concluded.

	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
MAXIMUM U_{de} LEVEL FOR EACH FLIGHT FT/SEC										
100	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0.10	0	0	0	0	0.10
20	0.30	0.10	0	0	0	0	0	0	0	0.40
15	2.70	0.60	0.30	0.20	0.10	0.10	0.10	0	0	4.20
12	7.10	1.60	0.50	0	0.10	0.10	0.10	0.10	0	9.60
9	18.10	4.20	1.10	0.20	0.30	0.60	0.30	0.30	0	25.10
6	24.80	5.30	2.60	0.80	0.80	0.50	1.20	0.60	0	36.60
3	14.70	3.10	1.90	0.80	0.50	0.10	1.30	0.70	0	23.20
-3	14.30	4.40	1.80	0.70	0.60	0.20	0.90	0.40	0	23.40
-6	23.70	4.40	2.20	1.00	0.40	0.90	1.00	0.90	0	34.50
-9	17.30	4.00	0.80	0.30	0.50	0.50	0.30	0.60	0	24.30
-12	7.50	1.90	0.50	0.20	0	0.10	0	0	0	10.30
-15	3.80	0.70	0.20	0.10	0.20	0.10	0.20	0	0	5.30
-20	0.30	0.10	0.10	0.10	0.20	0	0	0	0	0.80
-30	0	0	0	0	0	0	0	0	0	0
-40	0	0	0	0	0	0.10	0	0	0	0.10
-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	102.71	105.51	104.07	74.64	87.46	132.30	495.03	663.54	0.33	1765.59
FLIGHT MILES @ ALT	18522.12	26173.93	33995.36	28461.45	36365.13	58863.40	223579.81	296925.11	146.91	723033.21
	TOTAL FLIGHTS									985

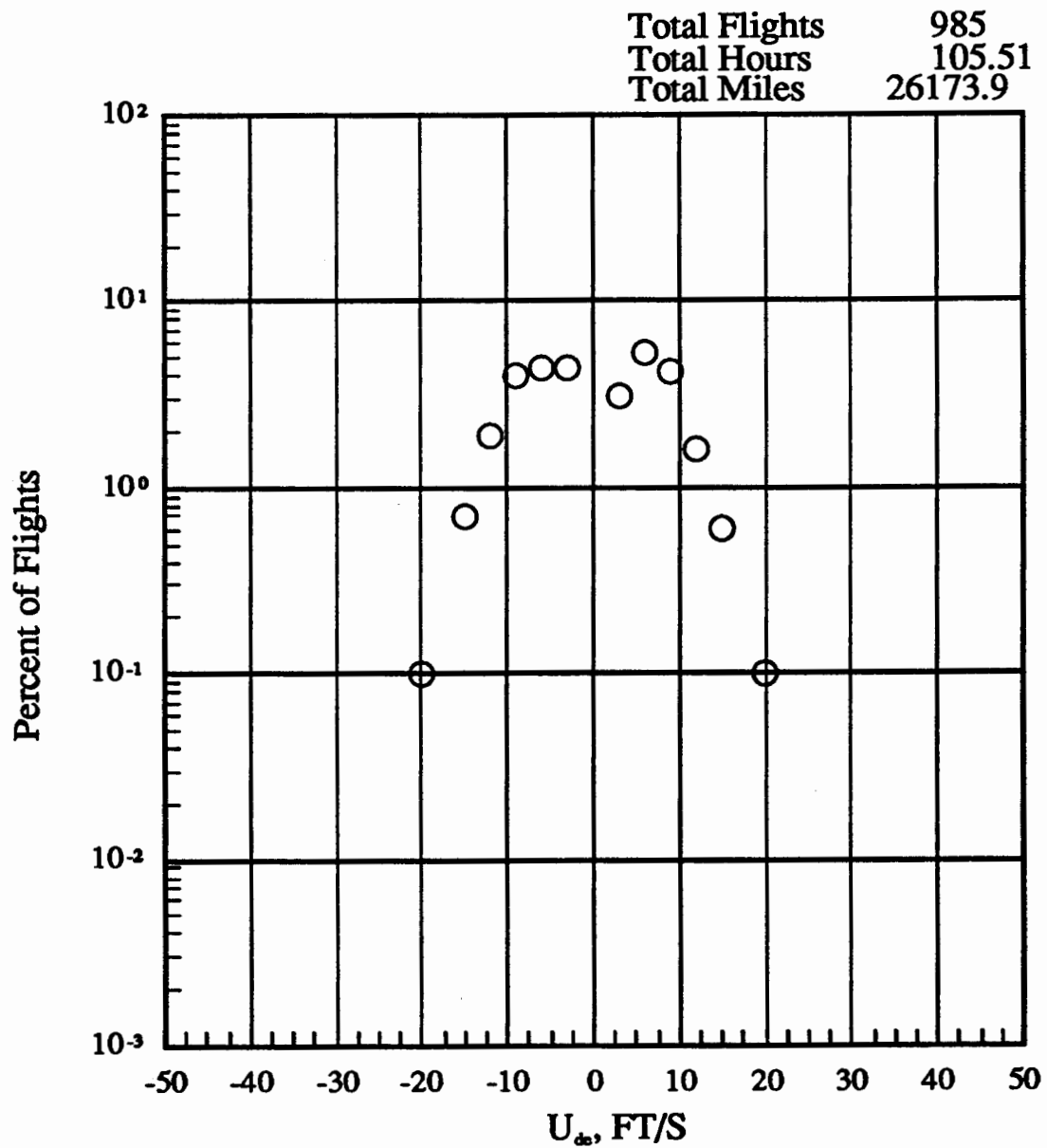
(a) Percent of flights where peak positive and negative U_{de} per flight occurs within pressure altitude bands, any flap

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



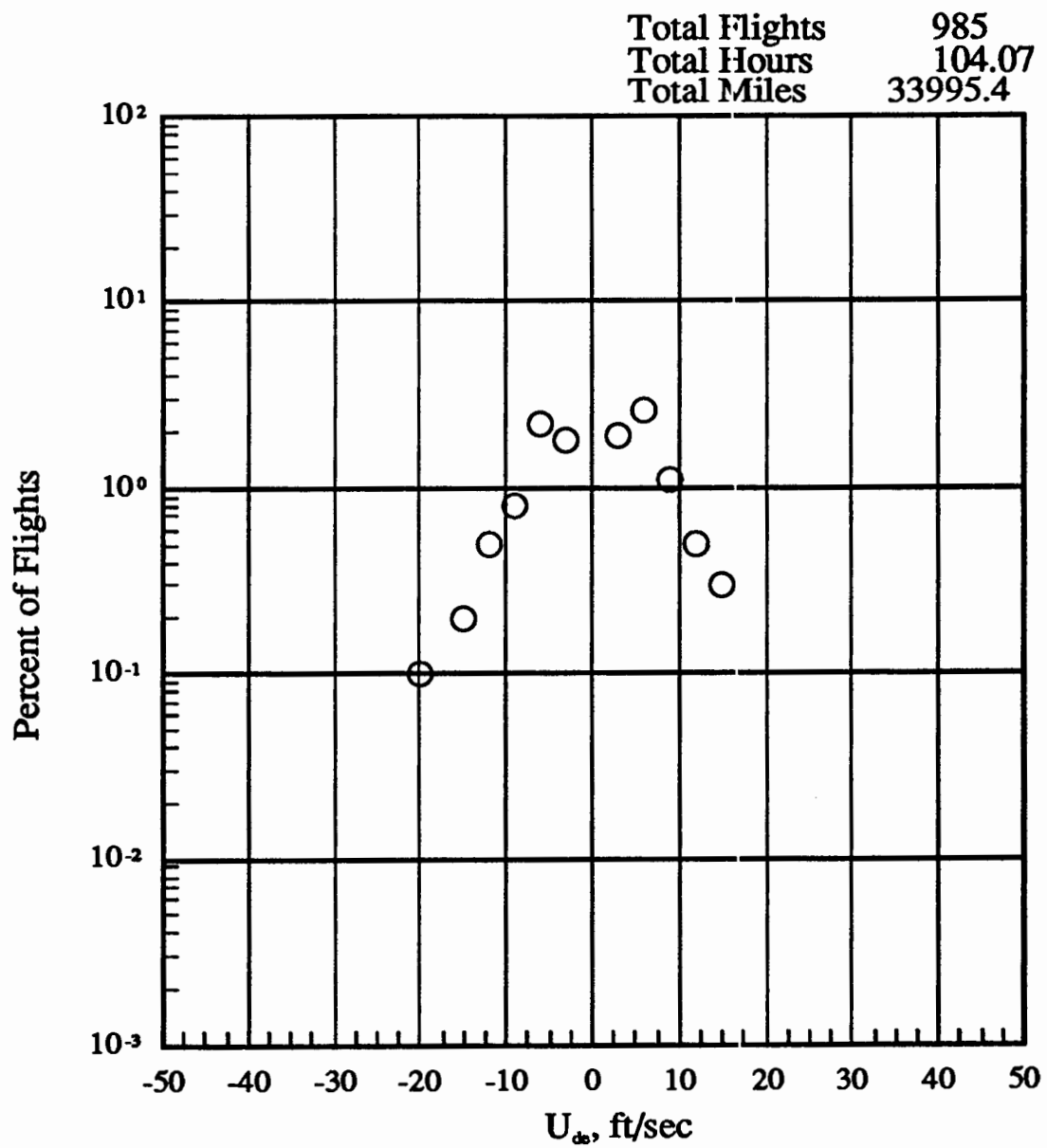
(b) -500 to 4500 feet altitude

Figure 19.- Continued.



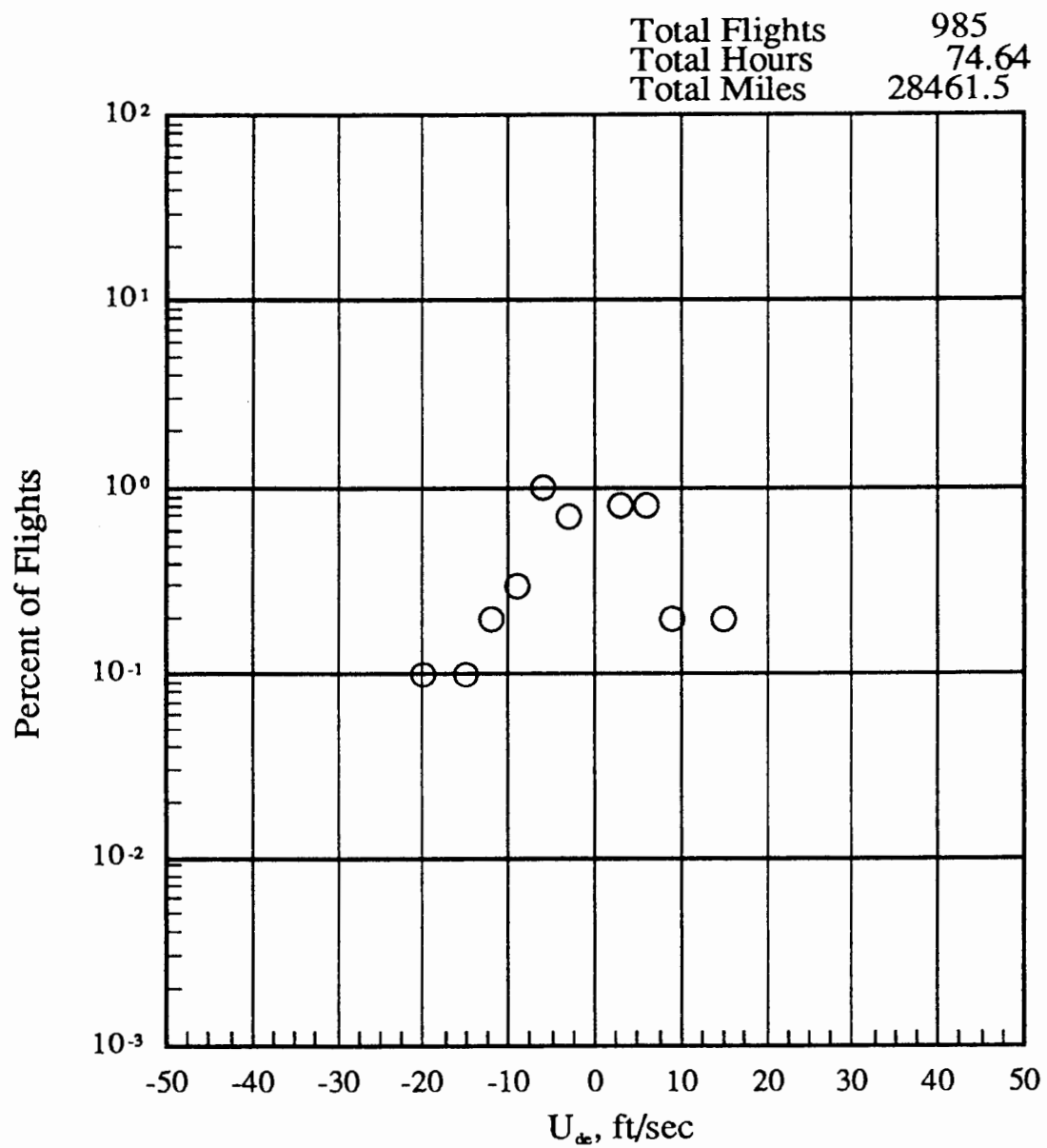
(c) 4500 to 9500 feet altitude

Figure 19.- Continued.



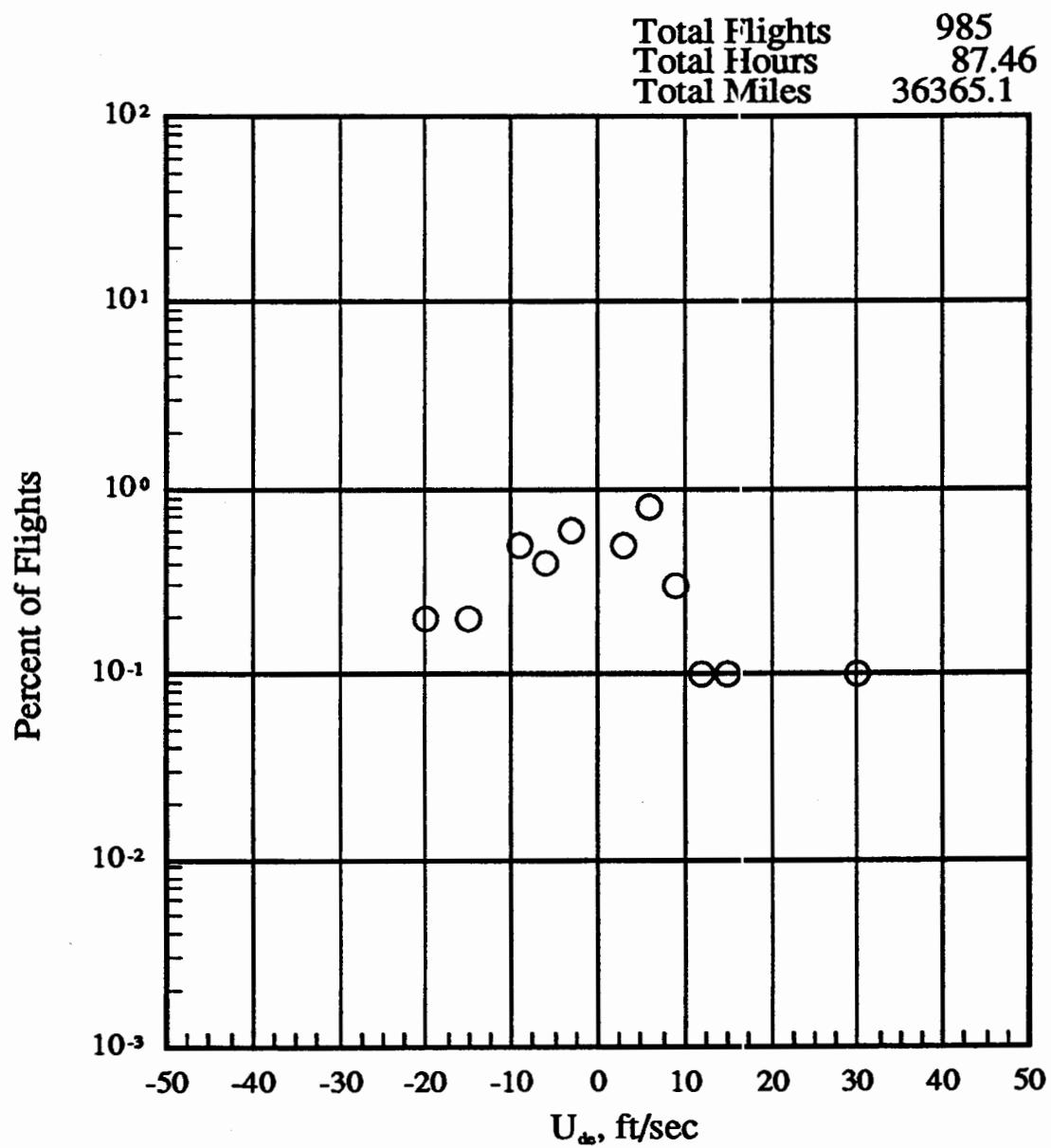
(d) 9500 to 14500 feet altitude

Figure 19.- Continued.



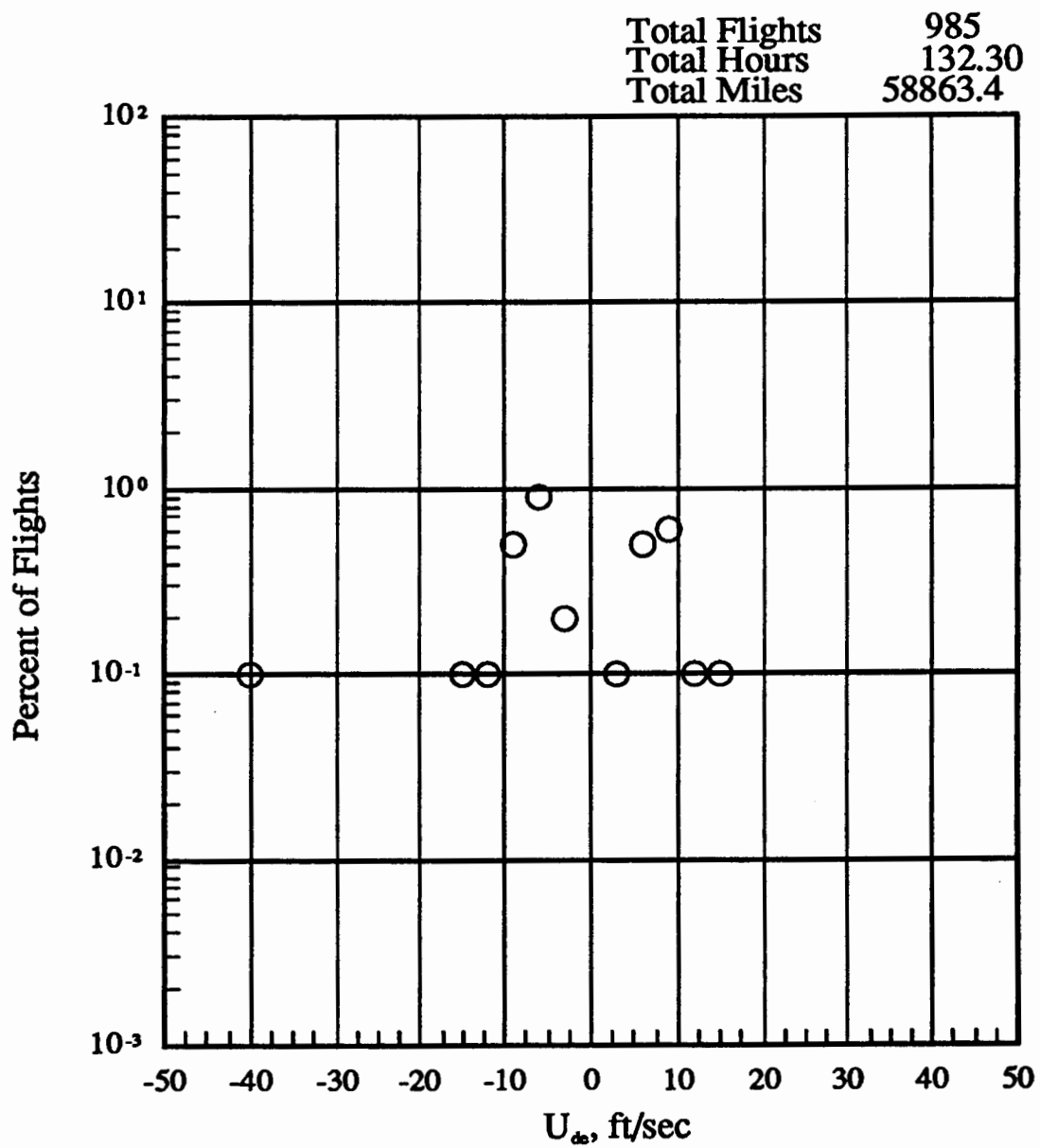
(e) 14500 to 19500 feet altitude

Figure 19.- Continued.



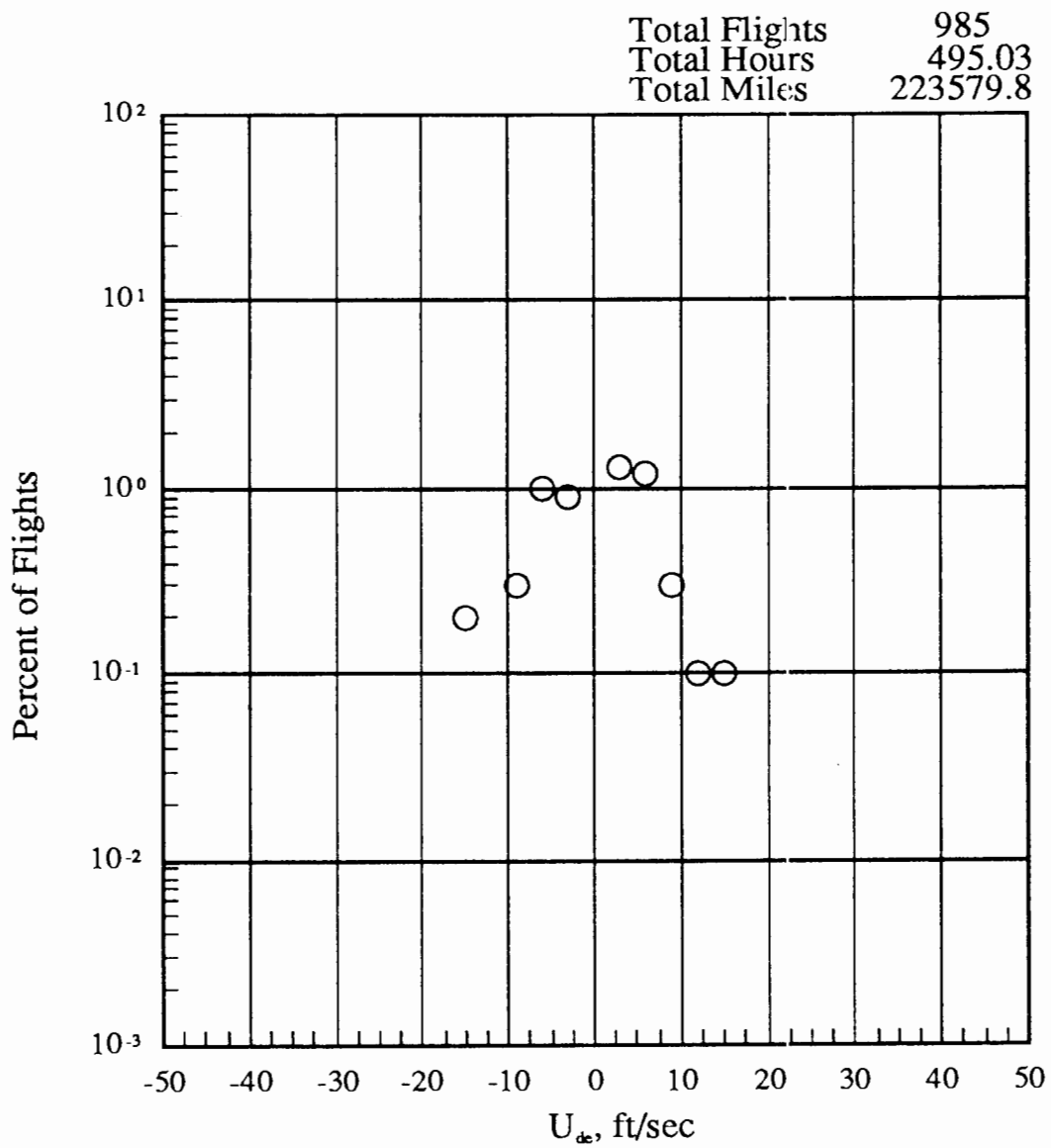
(f) 19500 to 24500 feet altitude

Figure 19.- Continued.



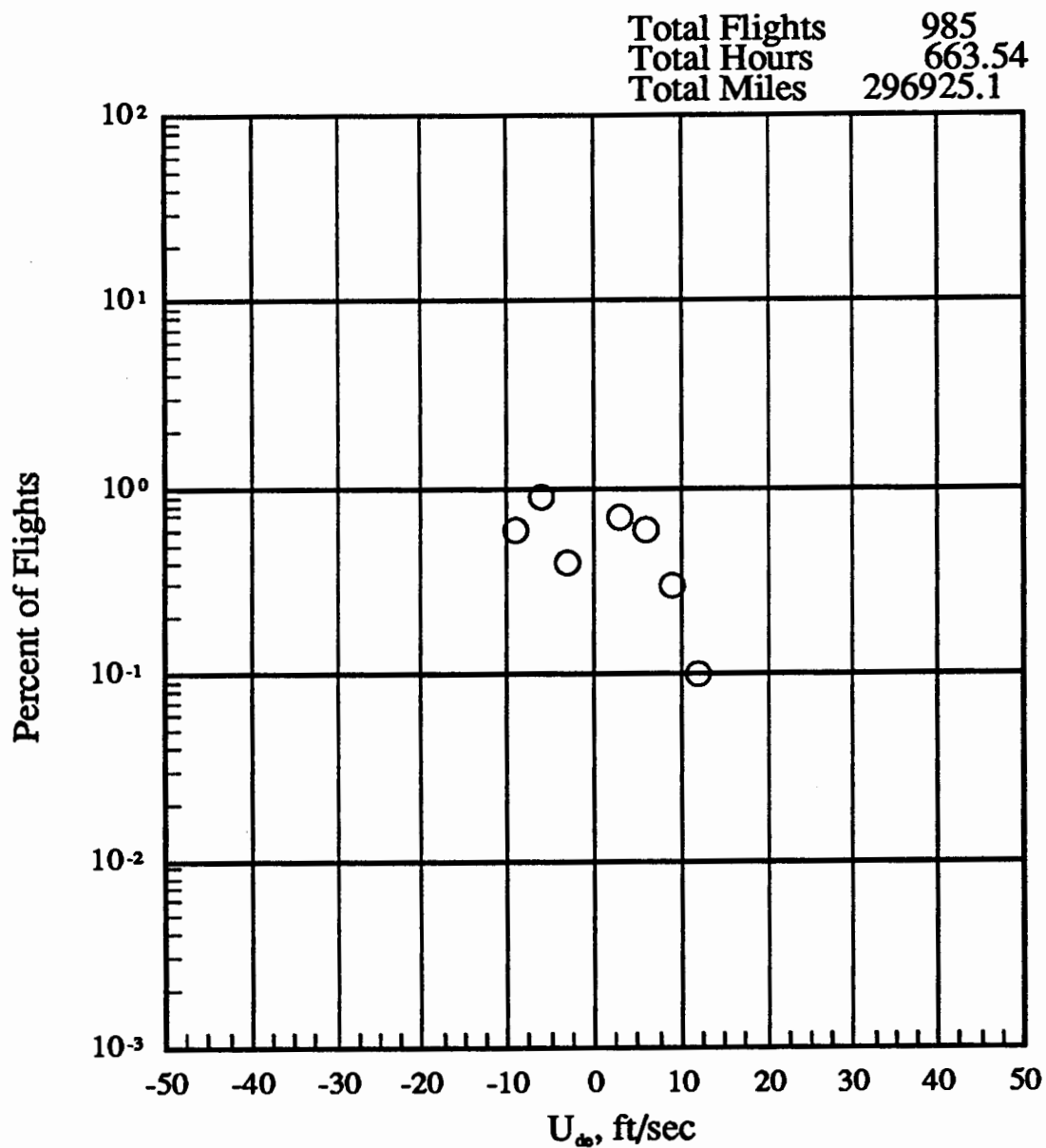
(g) 24500 to 29500 feet altitude

Figure 19.- Continued.



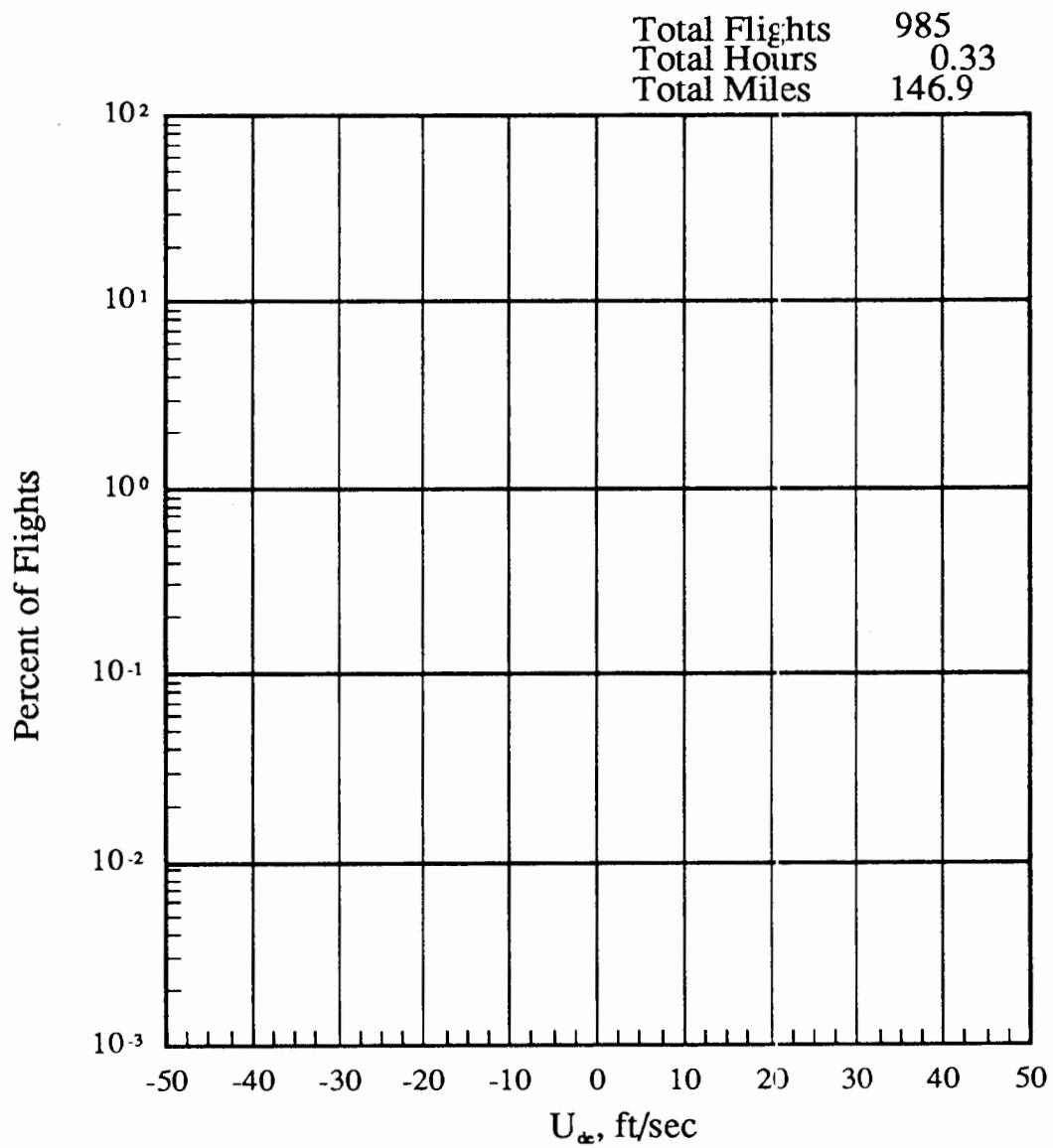
(h) 29500 to 34500 feet altitude

Figure 19.- Continued.



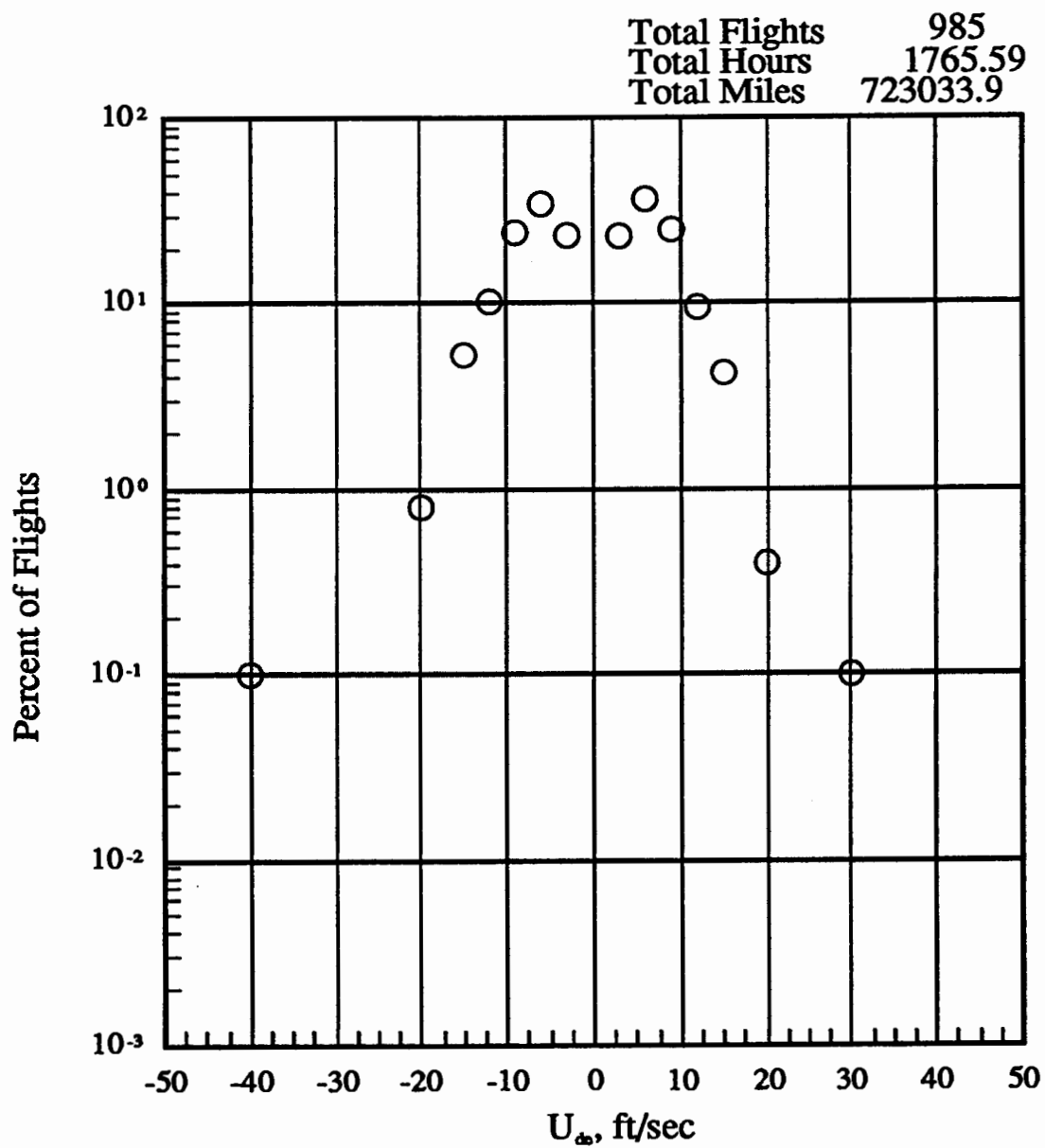
(i) 34500 to 39500 feet altitude

Figure 19.- Continued.



(j) 39500 to 44500 feet altitude

Figure 19.- Continued.



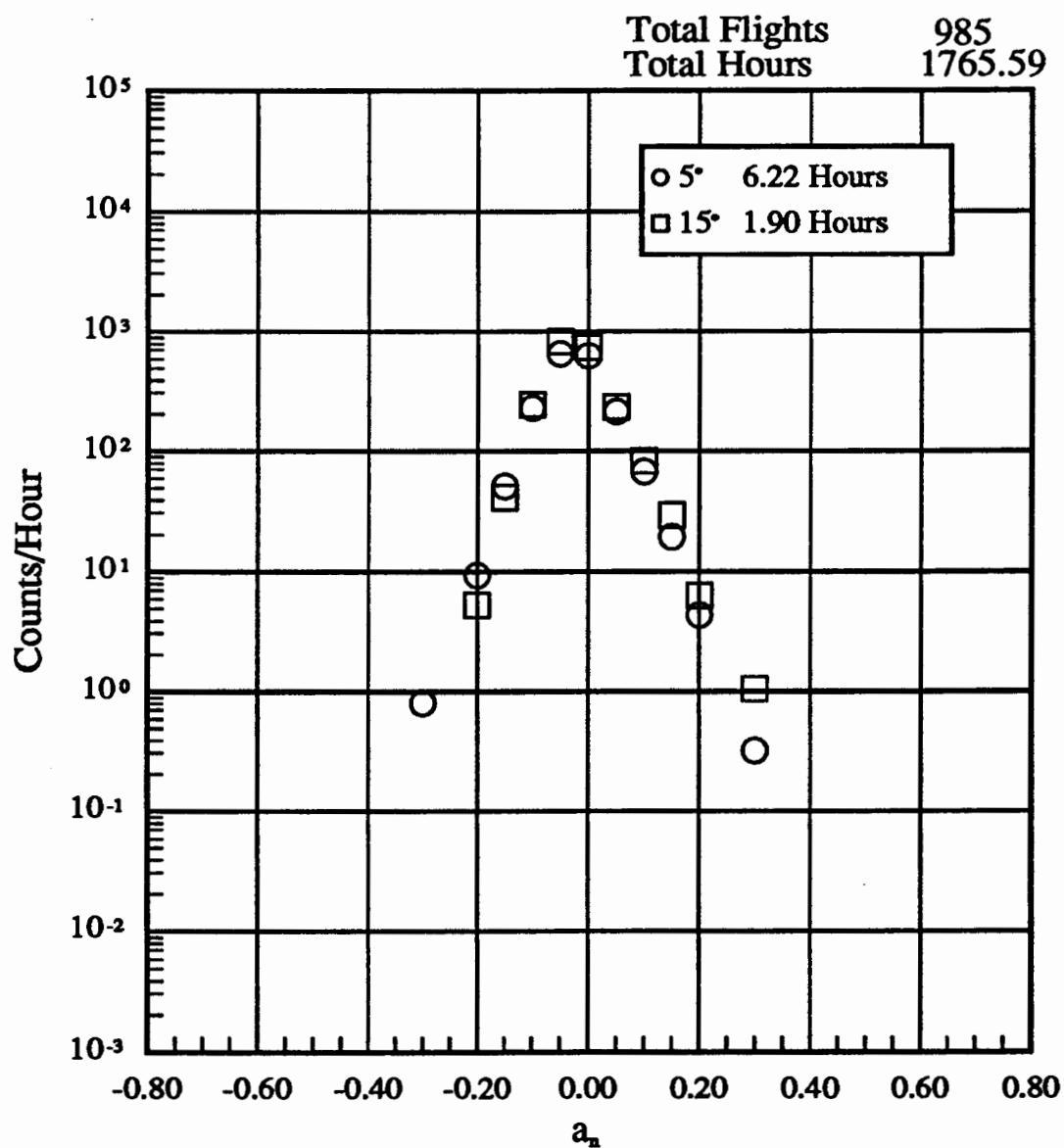
(k) -500 to 44500 feet altitude

Figure 19.- Concluded.

FLAP DETENT							
a_n LEVEL g's	5	15	20	25	30	40	45
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	0.321	1.053	0	0	0	0	0
.20	4.339	6.318	0	0	0	0	0
.15	19.446	29.484	0	0	0	0	0
.10	67.178	82.662	0	0	0	0	0
.05	214.069	232.190	0	92.308	0	0	0
0	626.297	733.952	300.000	184.615	0	0	0
-.05	651.368	830.830	1200.000	1200.000	0	0	0
-.10	229.015	244.826	600.000	369.231	0	0	0
-.15	50.946	41.068	0	0	0	0	0
-.20	9.321	5.265	0	0	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	6.222	1.899	0.003	0.011	0	0	0
TOTAL HOURS							8.14
TOTAL FLIGHTS							985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN							1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN							723033.21

(a) Take off

Figure 20.- a_n exceedances with flaps deflected.



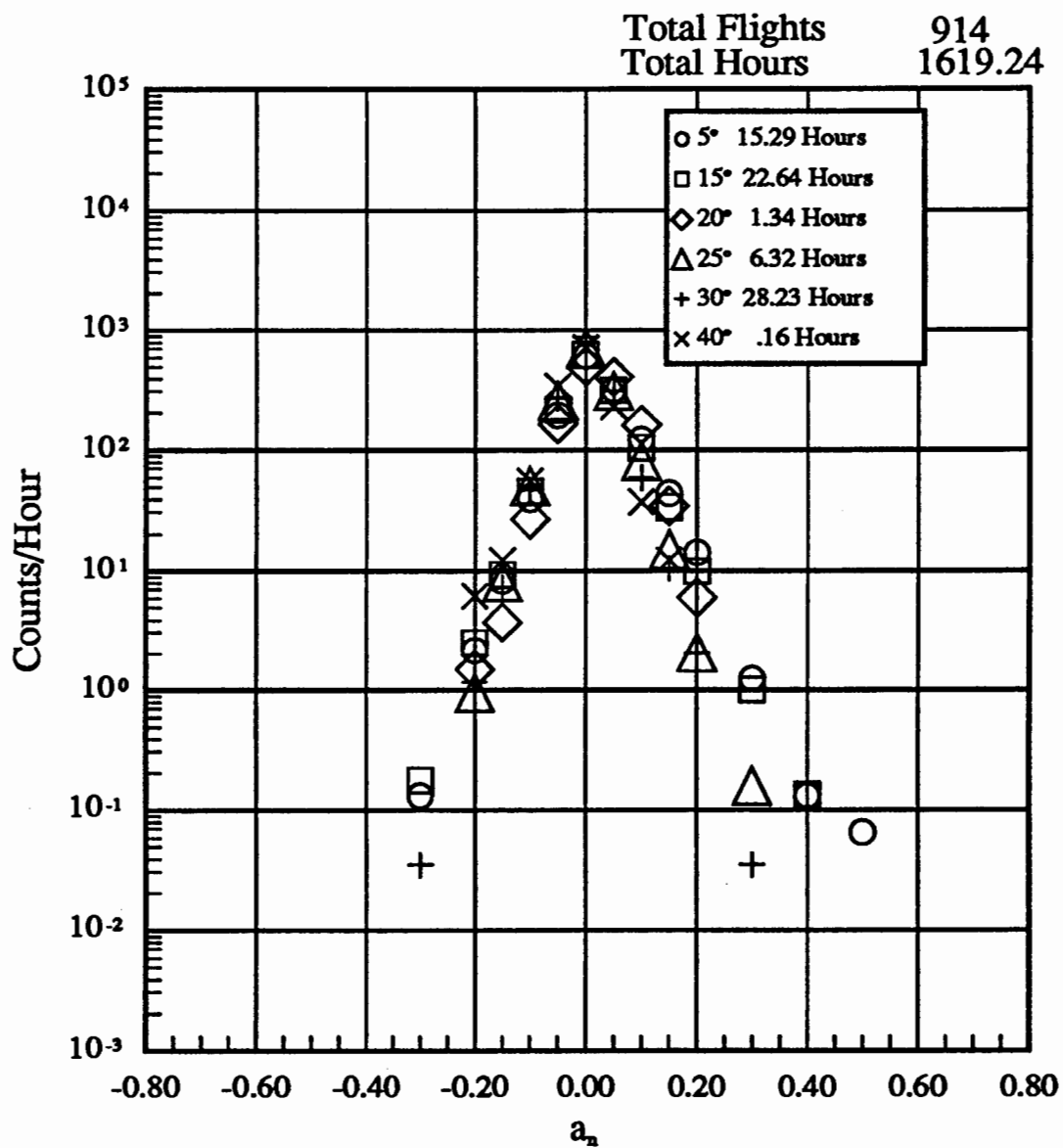
(b) Take off

Figure 20.- Continued.

a _n LEVEL g's	FLAP DETENT						
	5	15	20	25	30	40	45
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	0.065	0	0	0	0	0	0
.40	0.131	0.133	0	0	0	0	0
.30	1.243	1.016	0	0.158	0.035	0	0
.20	14.261	9.896	5.985	2.055	2.055	0	0
.15	43.700	33.620	34.414	15.021	10.485	12.350	0
.10	121.413	104.440	160.100	80.638	58.412	37.050	0
.05	317.869	314.557	401.746	308.795	310.021	228.473	0
0	606.430	622.841	492.269	698.070	871.013	716.295	0
-.05	193.574	215.242	164.589	256.143	266.097	339.623	0
-.10	39.382	45.593	26.933	50.280	46.581	55.575	0
-.15	8.243	9.366	3.741	8.064	7.226	12.350	0
-.20	2.159	2.518	1.496	0.949	1.169	6.175	0
-.30	0.131	0.177	0	0	0.035	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	15.286	22.635	1.337	6.325	28.230	0.162	0
TOTAL HOURS							73.97
TOTAL FLIGHTS							985
TOTAL FLIGHT HOURS FLAPS UP AND DOWN							1765.59
TOTAL FLIGHT MILES FLAPS UP AND DOWN							723033.21

(c) Landing

Figure 20.- Continued.



(d) Landing.

Figure 20.- Concluded.

MAXIMUM a_n LEVEL FOR EACH FLIGHT g's		EAS KTS																				
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	0	0	0	1	3	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
.05	0.10	0	0	0	3	9	11	4	2	0	0	0	0	0	0	0	0	0	0	0	0	
-.05	-0.10	0	0	1	5	14	10	4	1	0	0	0	0	0	0	0	0	0	0	0	0	
-.10	-0.15	0	0	0	5	14	11	7	1	0	0	0	0	0	0	0	0	0	0	0	0	
-.15	-0.20	0	0	0	2	5	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	1	1	1	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		1.0	0	16	164	473	456	221	51	8	0	0	0	0	0	0	0	0	0	0	0	
FLIGHT HOURS @ EAS		0	0	0.1	0.7	2.0	2.1	1.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0	
FLIGHT MILES @ EAS		0	0	8	111	355	378	217	49	9	0	0	0	0	0	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																					973.50	
TOTAL FLIGHTS ANALYZED																					985	
TOTAL FLIGHT HOURS, ANY FLAP																					1765.59	
TOTAL FLIGHT MILES, ANY FLAP																					723033.26	

(a) Take off; flaps 5 degree detent

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

MAXIMUM g_z LEVEL FOR EACH FLIGHT g's		EAS KTS																			
FROM	TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	0	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
.05	0.10	0	0	1	4	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.05	-0.10	0	0	3	15	27	10	2	0	0	0	0	0	0	0	0	0	0	0	0	
-.10	-0.15	0	0	1	10	12	5	1	0	0	0	0	0	0	0	0	0	0	0	0	
-.15	-0.20	0	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL PEAKS @ EAS		1	0	39	262	426	170	29	0	0	0	0	0	0	0	0	0	0	0	0	
FLIGHT HOURS @ EAS		0	0	0.1	0.6	0.8	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
FLIGHT MILES @ EAS		0	0	20	98	144	50	7	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																				773.50	
TOTAL FLIGHTS ANALYZED																				985	
TOTAL FLIGHT HOURS, ANY FLAP																				1765.59	
TOTAL FLIGHT MILES, ANY FLAP																				723033.26	

(b) Take off; flaps 15 degree detent

Figure 21.- Continued.

MAXIMUM a_n		EAS KTS																				
LEVEL FOR EACH FLIGHT																						
g's																						
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	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	0
.80	1.00	0	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	0
.60	0.70	0	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	0
.40	0.50	0	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	0
.20	0.30	0	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	0
.10	0.15	0	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	0
-.05	-0.10	0	0	0	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	0	33	33	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	0
-.20	-0.30	0	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	0
-.40	-0.50	0	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	0
-.60	-0.70	0	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	0
-.80	-1.00	0	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	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	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	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	0
TOTAL PEAKS @ EAS		0	0	0	1	2	1	0	0	0	0	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	0
FLIGHT MILES @ EAS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MAXIMUM a_z		EAS KTS																				
LEVEL FOR EACH FLIGHT																						
g's																						
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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	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	0
.80	1.00	0	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	0
.60	0.70	0	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	0
.40	0.50	0	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	0
.20	0.30	0	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	0
.10	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	33	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	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	33	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	0
-.20	-0.30	0	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	0
-.40	-0.50	0	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	0
-.60	-0.70	0	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	0
-.80	-1.00	0	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	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	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	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	0
TOTAL PEAKS @ EAS		0	2	0	0	1	0	0	0	0	0	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	0
FLIGHT MILES @ EAS		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																					3	
TOTAL FLIGHTS ANALYZED																					985	
TOTAL FLIGHT HOURS, ANY FLAP																					1765.59	
TOTAL FLIGHT MILES, ANY FLAP																					723033.22	

(d) Take off; flaps 22 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT g's		EAS KTS																				
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	1	1	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	1	2	5	3	3	1	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	0	0	0	1	3	7	6	6	3	1	0	0	0	0	0	0	0	0	0	0	
.05	0.10	0	0	0	1	5	9	9	7	3	0	0	0	0	0	0	0	0	0	0	0	
-.05	-0.10	0	0	1	3	5	8	10	7	3	1	0	0	0	0	0	0	0	0	0	0	
-.10	-0.15	0	0	0	1	3	4	4	3	2	1	0	0	0	0	0	0	0	0	0	0	
-.15	-0.20	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	0	0	1	0	1	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	1	9	78	194	348	358	284	157	20	1	0	0	0	0	0	0	0	0	0	
FLIGHT HOURS @ EAS		0	0	0.1	2.1	3.1	4.4	3.0	1.7	0.7	0.1	0	0	0	0	0	0	0	0	0	0	
FLIGHT MILES @ EAS		0	2	22	350	549	825	592	344	144	24	1	0	0	0	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																					981.50	
TOTAL FLIGHTS ANALYZED																					985	
TOTAL FLIGHT HOURS, ANY FLAP																					1765.59	
TOTAL FLIGHT MILES, ANY FLAP																					723033.2	

(e) Landing; flaps 5 degree detent

Figure 21.- Continued.

MAXIMUM a_z LEVEL FOR EACH FLIGHT g's		KAS KTS																			
FROM	TO	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	1	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	0	3	6	5	2	1	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	0	0	2	5	9	7	5	1	0	0	0	0	0	0	0	0	0	0	0	
.05	0.10	0	0	4	7	11	9	4	1	0	0	0	0	0	0	0	0	0	0	0	
-.05	-0.10	0	0	4	10	16	9	4	2	0	0	0	0	0	0	0	0	0	0	0	
-.10	-0.15	0	0	2	8	7	4	2	0	0	0	0	0	0	0	0	0	0	0	0	
-.15	-0.20	0	0	1	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
-.20	-0.30	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.30	-0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.40	-0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.50	-0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.60	-0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.70	-0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.80	-1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.00	-1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.20	-1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.40	-1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-1.60	-1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL PEAKS @ KAS		0	11	131	377	554	387	199	77	17	0	2	1	0	1	0	0	0	0	0	
FLIGHT HOURS @ KAS		0	0.2	2.1	7.0	7.0	4.0	1.6	0.4	0.1	0	0	0.1	0	0	0	0	0	0	0	
FLIGHT MILES @ KAS		0	35	325	1136	1212	732	302	87	17	4	9	24	8	3	1	0	0	0	0	
TOTAL FLIGHTS INCLUDED																				984	
TOTAL FLIGHTS ANALYZED																				985	
TOTAL FLIGHT HOURS, ANY FLAP																				1763.59	
TOTAL FLIGHT MILES, ANY FLAP																				723033.26	

(f) Landing; flaps 15 degree detent

Figure 21.- Continued.

MAXIMUM a_n		EAS KTS																			
LEVEL FOR EACH FLIGHT																					
g's																					
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	0	3	7	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	2	13	22	19	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	0	2	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	0	1	1	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
-.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	26	184	336	316	111	17	2	2	0	0	0	1	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0	0.1	0.2	0.4	0.4	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		0	11	34	71	62	25	4	3	2	1	1	4	7	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				936	
TOTAL FLIGHTS ANALYZED																				985	
TOTAL FLIGHT HOURS, ANY FLAP																				1765.59	
TOTAL FLIGHT MILES, ANY FLAP																				723033.26	

(g) Landing; flaps 20 degree detent

Figure 21.- Continued.

MAXIMUM a_z LEVEL FOR EACH FLIGHT g's		EAS KTS																			
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	0	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	0	1	5	8	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	0	3	13	18	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	0	4	12	12	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	0	1	4	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	0	1	0	1	1	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		9	105	359	442	250	83	4	4	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		0.1	1.0	2.1	2.0	0.8	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		11	146	315	319	139	41	6	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FLIGHTS INCLUDED																				972.50	
TOTAL FLIGHTS ANALYZED																				985	
TOTAL FLIGHT HOURS, ANY FLAP																				1765.59	
TOTAL FLIGHT MILES, ANY FLAP																				723033.26	

(h) Landing; flaps 25 degree detent

Figure 21.- Continued.

MAXIMUM a_z		EAS KTS																			
LEVEL FOR EACH FLIGHT																					
G'S																					
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.20	0.30	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.15	0.20	1	5	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.10	0.15	2	13	10	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.05	0.10	5	24	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.05	-0.10	4	23	12	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.10	-0.15	2	13	9	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.15	-0.20	1	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-.20	-0.30	0	0	1	1	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		146	804	497	195	62	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT HOURS @ EAS		3.7	13.9	7.6	2.4	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLIGHT MILES @ EAS		489	1920	1112	376	101	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL FLIGHTS INCLUDED	975
TOTAL FLIGHTS ANALYZED	985
TOTAL FLIGHT HOURS, ANY FLAP	1765.59
TOTAL FLIGHT MILES, ANY FLAP	723033.26

(i) Landing; flaps 30 degree detent

Figure 21.- Continued.

MAXIMUM a_n LEVEL FOR EACH FLIGHT g's		EAS KTS																				
FROM	TO	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
		130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	
1.60	1.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.40	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.20	1.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.00	1.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.80	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.70	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.60	0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.50	0.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.40	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.30	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.20	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.15	0.20	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.10	0.15	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
.05	0.10	0	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.05	-0.10	14	0	14	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
-.10	-0.15	0	14	0	14	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	
-.20	-0.30	0	0	14	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		2	2	5	1	1	0	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		4	6	10	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL FLIGHTS INCLUDED																					7	
TOTAL FLIGHTS ANALYZED																					965	
TOTAL FLIGHT HOURS, ANY FLAP																					1765.59	
TOTAL FLIGHT MILES, ANY FLAP																					723033.22	

(j) Landing; flaps 40 degree detent

Figure 21.- Continued.

PRESSURE ALTITUDE BANDS										
a_n	-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
LEVEL										
g's										
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	0.90	0.52	0	0	0	0	0.08
.40	0.61	0	0.65	3.61	0.52	0	0	0	0	0.42
.30	6.42	1.02	3.23	5.42	2.07	0	0.52	0	0	2.74
.20	40.59	6.14	12.94	8.13	5.69	1.75	4.12	0.41	0	15.42
.15	91.71	20.47	27.17	7.22	28.97	3.50	7.73	0.69	0	35.75
.10	198.69	75.25	53.69	55.98	24.83	15.74	10.31	1.38	10.05	78.51
.05	397.14	204.75	137.14	170.65	68.81	139.03	66.48	12.54	25.11	177.81
0	651.57	552.82	562.16	504.74	844.38	1078.16	926.02	1005.27	626.58	784.47
-.05	266.90	138.21	128.73	139.95	89.51	132.04	73.69	17.77	18.84	132.58
-.10	79.36	39.14	43.34	18.96	13.45	36.73	14.43	3.31	5.02	36.40
-.15	24.47	7.17	8.41	6.32	2.59	11.37	11.85	0.69	1.26	10.91
-.20	6.18	1.02	5.18	6.32	0.52	2.62	2.06	0.28	0	3.01
-.30	0.48	0	1.29	0.90	0.52	1.75	3.09	0	0	0.62
-.40	0	0	0	0	0.52	0	1.03	0	0	0.12
-.50	0	0	0	0.90	0.52	0	0	0	0	0.08
-.60	0	0	0	0.90	0.52	0	0	0	0	0.08
-.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	8.25	1.95	1.55	1.11	1.93	1.14	1.94	7.26	0.80	25.93
FLIGHT MILES @ ALT	1509.73	468.11	479.05	419.35	770.93	480.15	869.28	3264.04	358.21	8618.85
TOTAL FLIGHTS										64
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										25.93
TOTAL FLIGHT MILES FLAPS UP AND DOWN										8618.85

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

Figure 22.- Normal acceleration exceedances; Non-revenue flights.

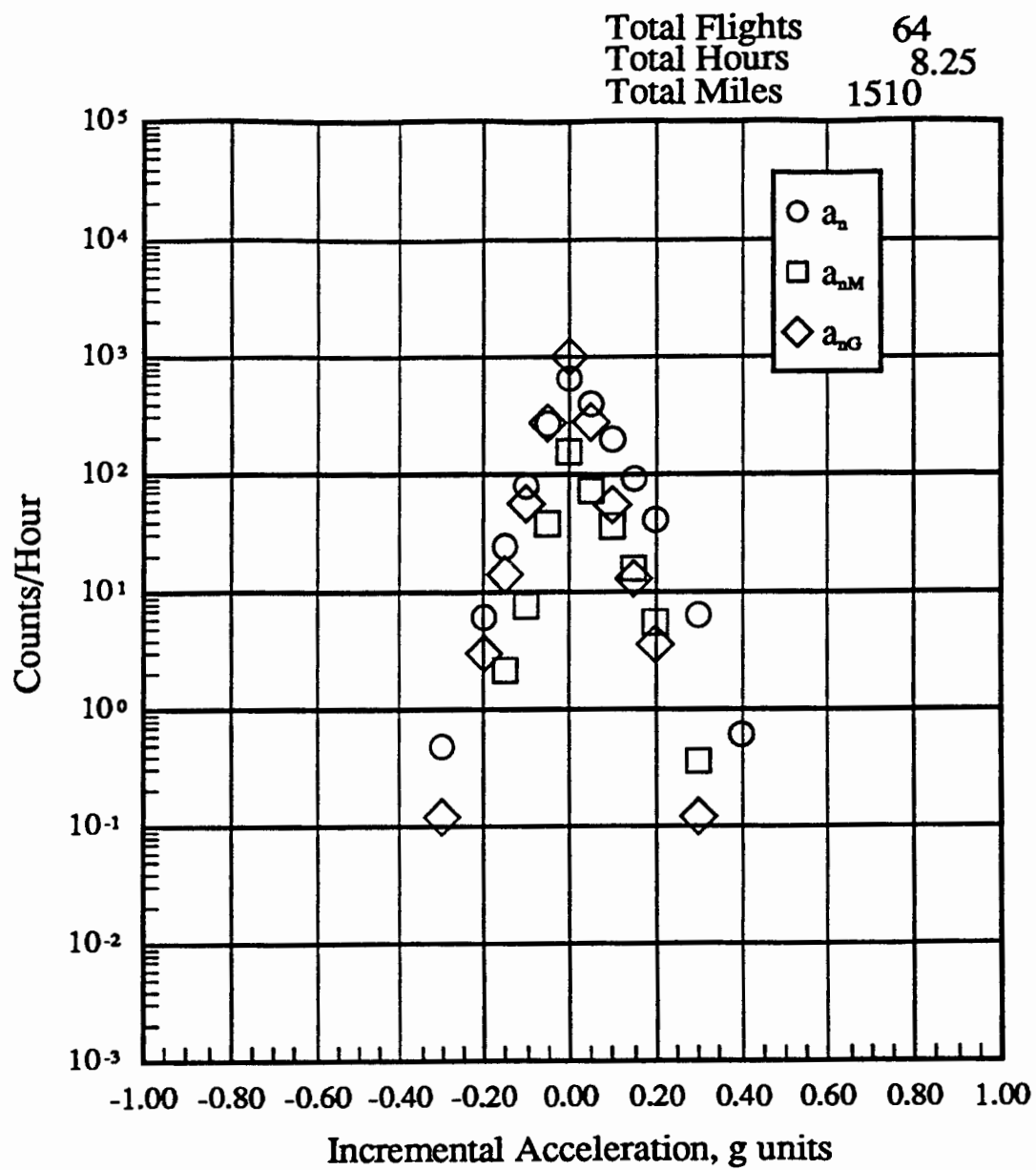
PRESSURE ALTITUDE BANDS										
a_{NM} LEVEL g/s	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
1.60	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0
1.00	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	0.52	0	0	0	0	0.04
.40	0	0	0	0.90	0.52	0	0	0	0	0.08
.30	0.36	0	0.65	1.81	0.52	0	0	0	0	0.27
.20	5.57	1.02	2.59	3.61	2.07	0	0.52	0.28	0	2.43
.15	15.87	5.12	5.18	3.61	5.69	0.87	1.55	0.41	0	6.59
.10	36.47	15.87	18.11	9.03	8.80	2.62	2.06	0.41	1.26	15.53
.05	72.69	47.09	40.75	37.02	20.70	20.11	14.43	3.44	10.05	35.48
0	156.41	111.59	95.09	106.55	104.00	118.92	133.98	157.62	148.17	140.10
-.05	37.92	29.69	28.46	29.80	18.11	20.11	14.43	3.44	7.53	21.79
-.10	7.63	6.65	6.47	3.61	3.62	6.12	4.64	0.69	2.51	4.63
-.15	2.18	0	1.29	2.71	0.52	1.75	2.58	0.28	1.26	1.31
-.20	0	0	0.65	1.81	0.52	0.87	1.03	0	0	0.27
-.30	0	0	0	0	0.52	0	0.52	0	0	0.08
-.40	0	0	0	0	0.52	0	0	0	0	0.04
-.50	0	0	0	0	0.52	0	0	0	0	0.04
-.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	8.25	1.95	1.55	1.11	1.93	1.14	1.94	7.26	0.80	25.93
FLIGHT MILES @ ALT	1509.73	468.11	479.05	419.35	770.93	480.15	869.28	3264.04	358.21	8618.85
TOTAL FLIGHTS										64
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										25.93
TOTAL FLIGHT MILES FLAPS UP AND DOWN										8618.85

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

Figure 22.- Continued.

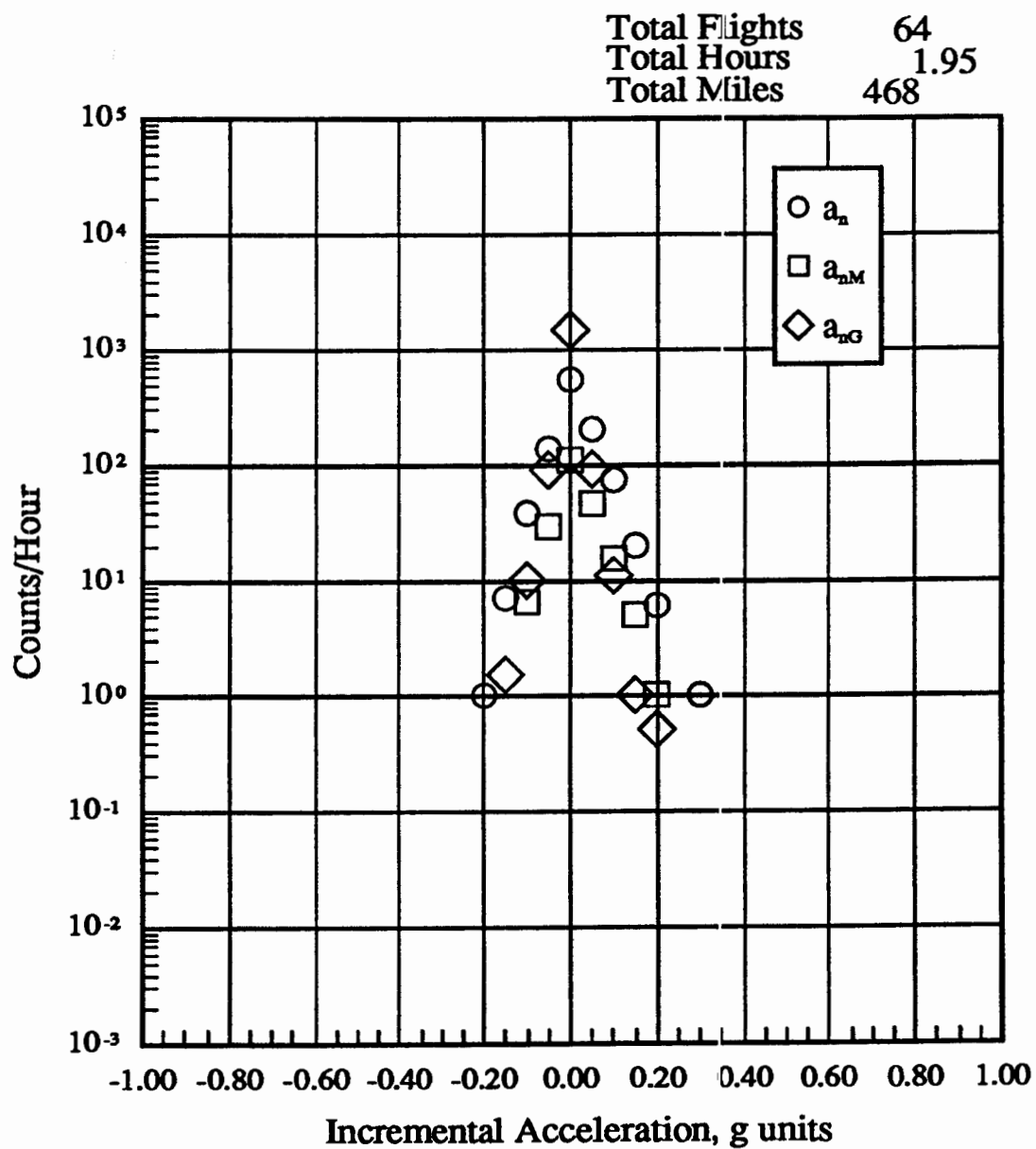
PRESSURE ALTITUDE BANDS										
a _{nG} LEVEL g's	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
1.60	0	0	0	0	0	0	0	0	0	0
1.40	0	0	0	0	0	0	0	0	0	0
1.20	0	0	0	0	0	0	0	0	0	0
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	0.12	0	0	0	0	0	0	0	0	0.04
.20	3.63	0.51	0.65	0.90	0	0	0.52	0	0	1.31
.15	12.96	1.02	2.59	0.90	1.03	0	2.58	0	0	4.67
.10	55.00	11.26	12.94	5.42	3.62	3.50	7.21	0.41	0	20.44
.05	278.05	92.65	72.45	55.98	27.42	72.58	30.92	5.51	11.30	111.64
0	1005.46	1486.99	1538.98	1278.56	1713.08	1645.66	1762.90	1543.03	1598.47	1391.52
-.05	272.35	91.63	67.28	58.69	28.97	72.58	28.86	6.34	8.79	109.67
-.10	56.22	10.24	12.94	6.32	3.10	5.25	5.15	0.41	0	20.67
-.15	14.18	1.54	1.94	0.90	0	0	1.03	0	0	4.86
-.20	3.03	0	0	1.81	0	0	0.52	0	0	1.00
-.30	0.12	0	0	0	0	0	0	0	0	0.04
-.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	8.25	1.95	1.55	1.11	1.93	1.14	1.94	7.26	0.80	25.93
FLIGHT MILES @ ALT	1509.73	468.11	479.05	419.35	770.93	480.15	869.28	3264.04	358.21	8618.85
TOTAL FLIGHTS										64
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										25.93
TOTAL FLIGHT MILES FLAPS UP AND DOWN										8618.85

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



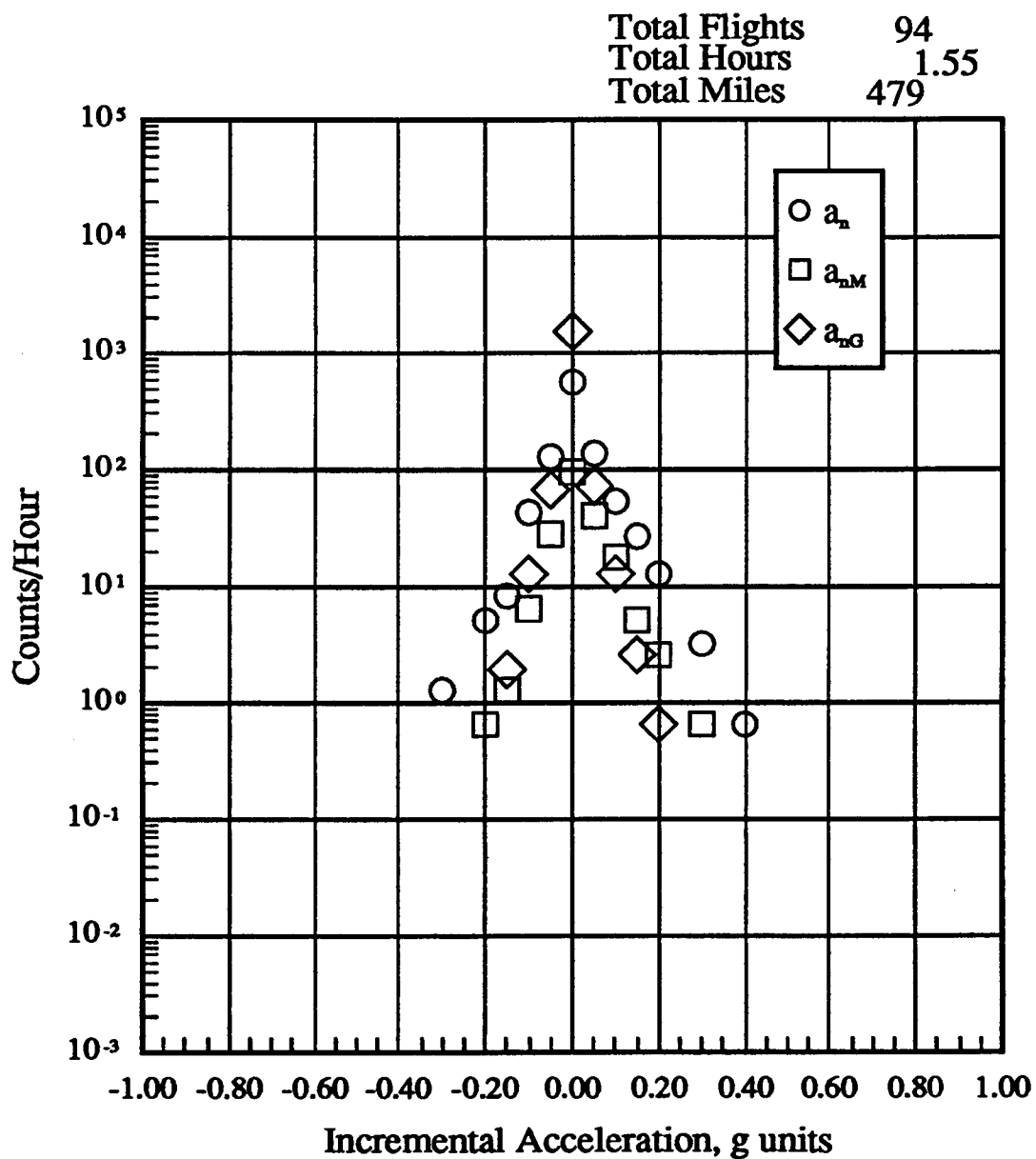
(d) a_n , a_{nM} , a_{nG} , -500 to 4500 feet altitude

Figure 22.- Continued.



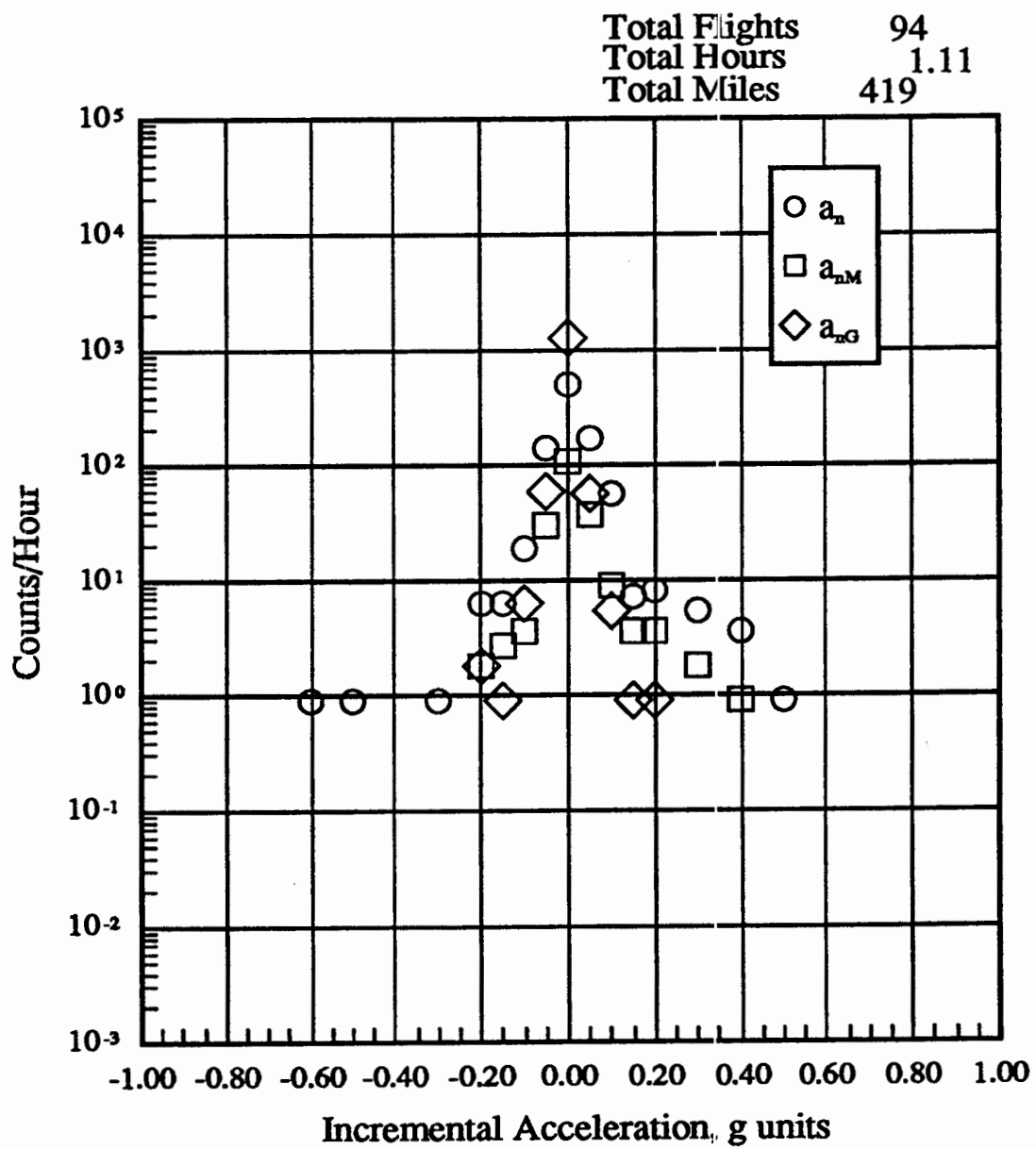
(e) a_n , a_{nM} , a_{nG} , 4500 to 9500 feet altitude

Figure 22.- Continued.



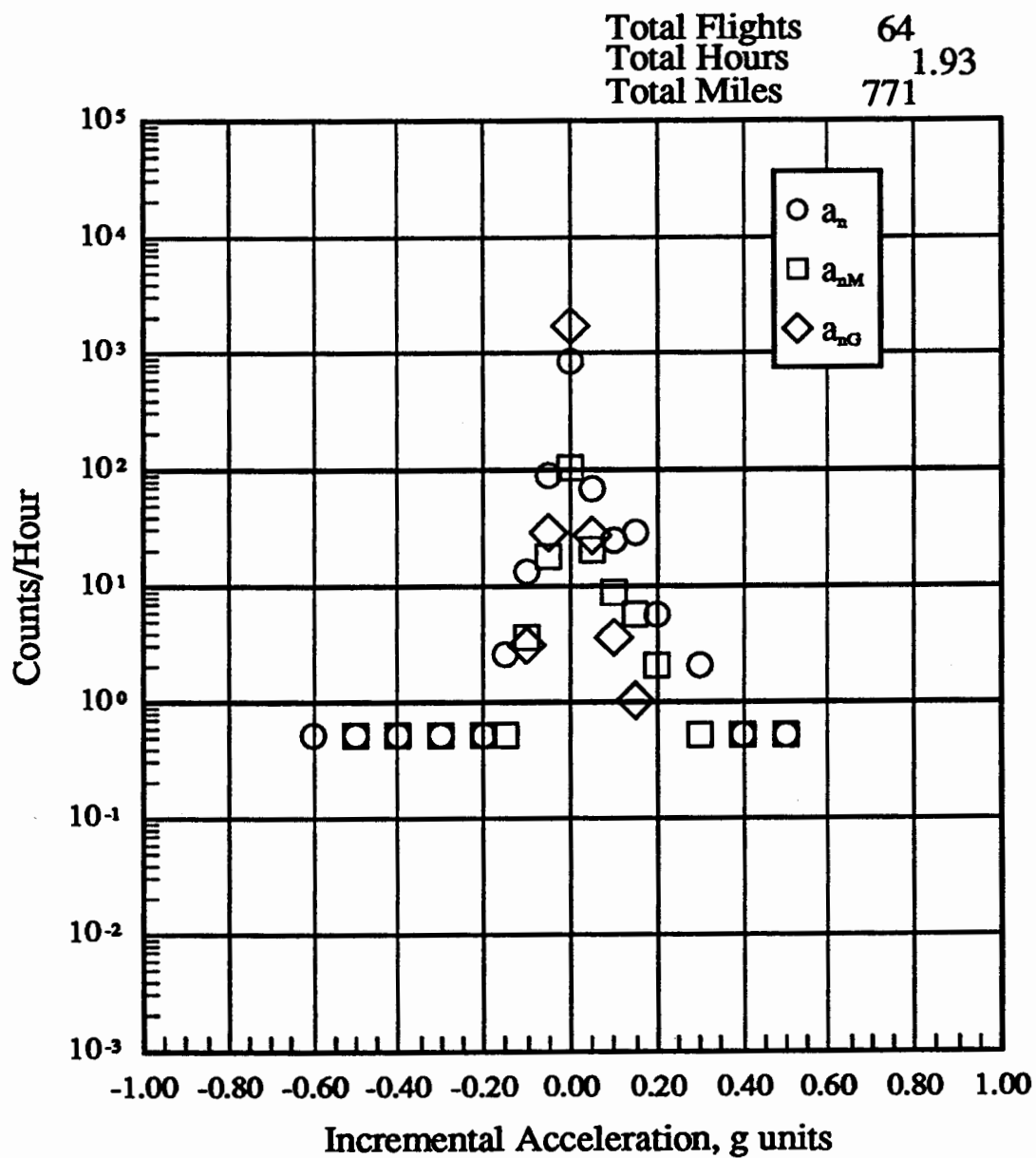
(f) a_n , a_{nM} , a_{nG} , 9500 to 14500 feet altitude

Figure 22.- Continued.



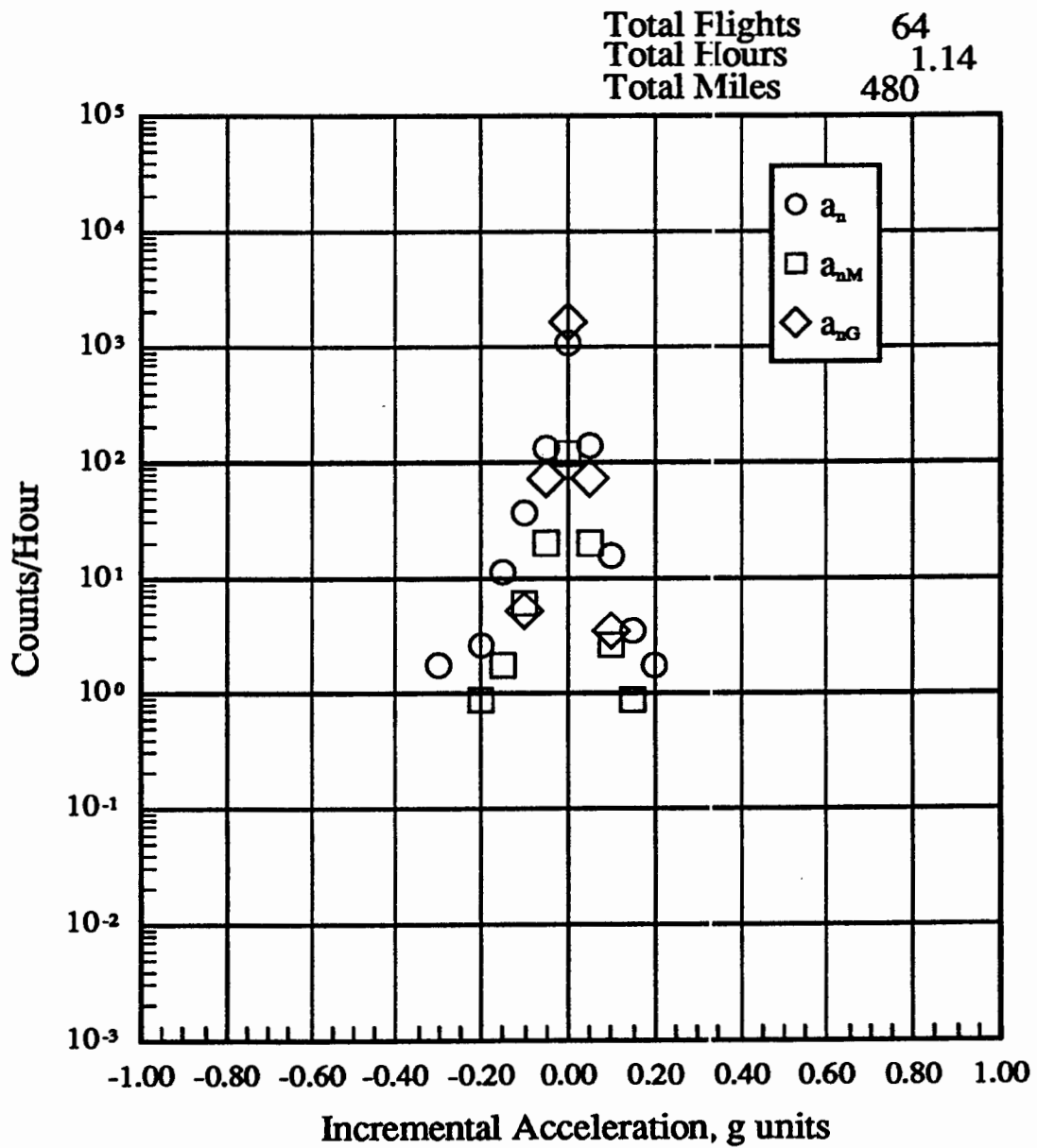
(g) a_n , a_{nM} , a_{nG} , 14500 to 19500 feet altitude

Figure 22.- Continued.



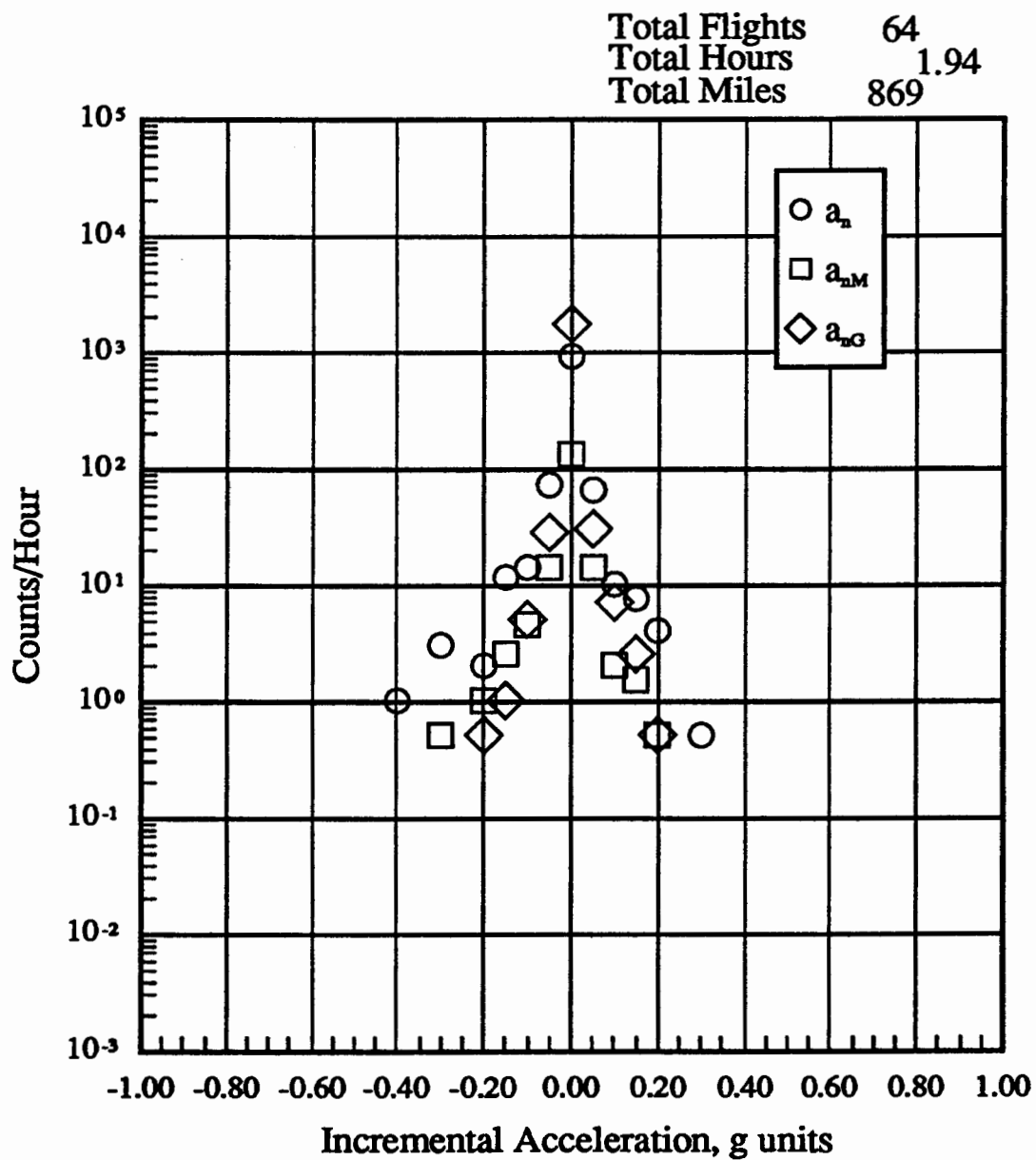
(h) a_n , a_{nM} , a_{nG} , 19500 to 24500 feet altitude

Figure 22.- Continued.



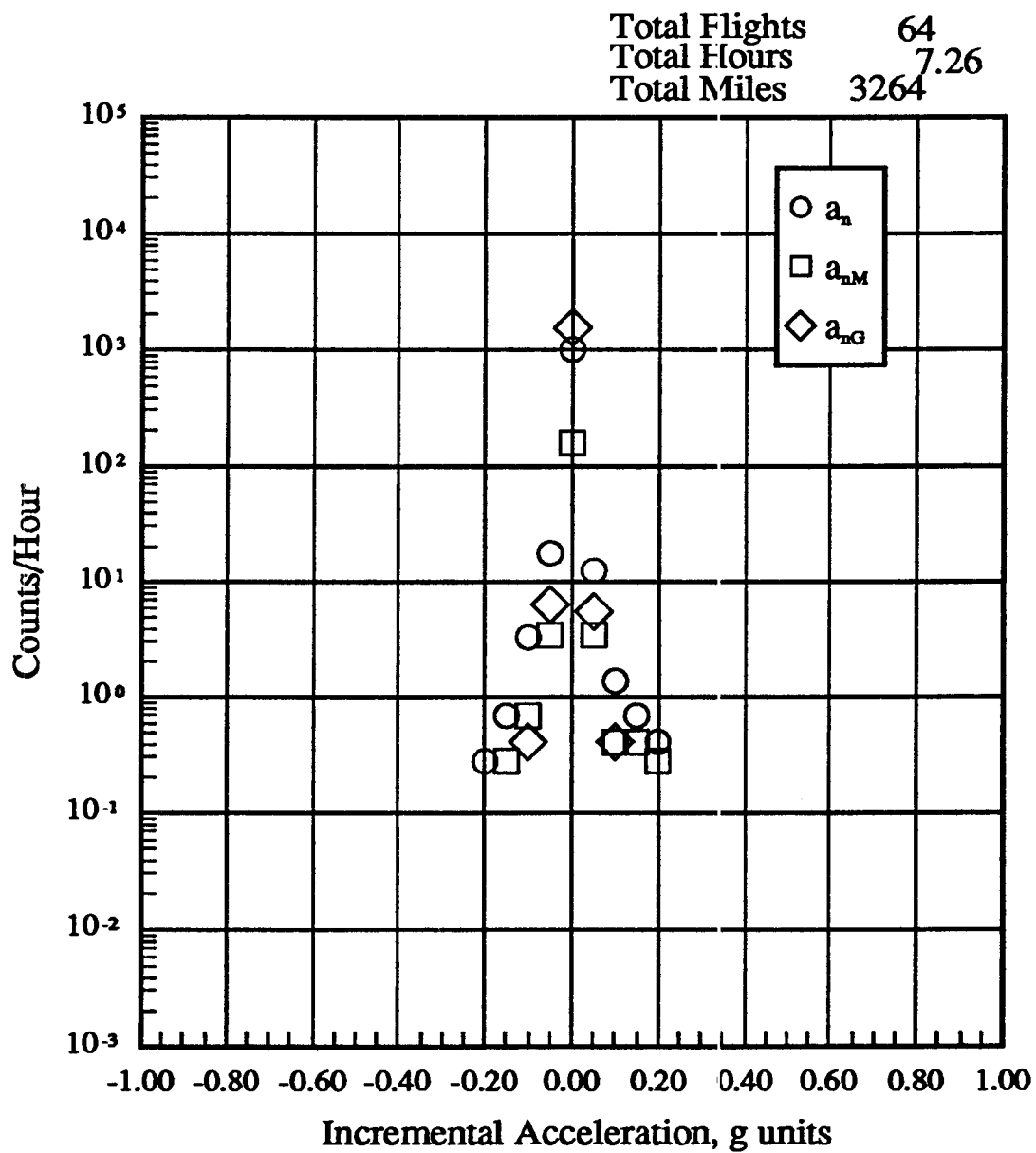
(i) a_n , a_{nM} , a_{nG} , 24500 to 29500 feet altitude

Figure 22.- Continued.



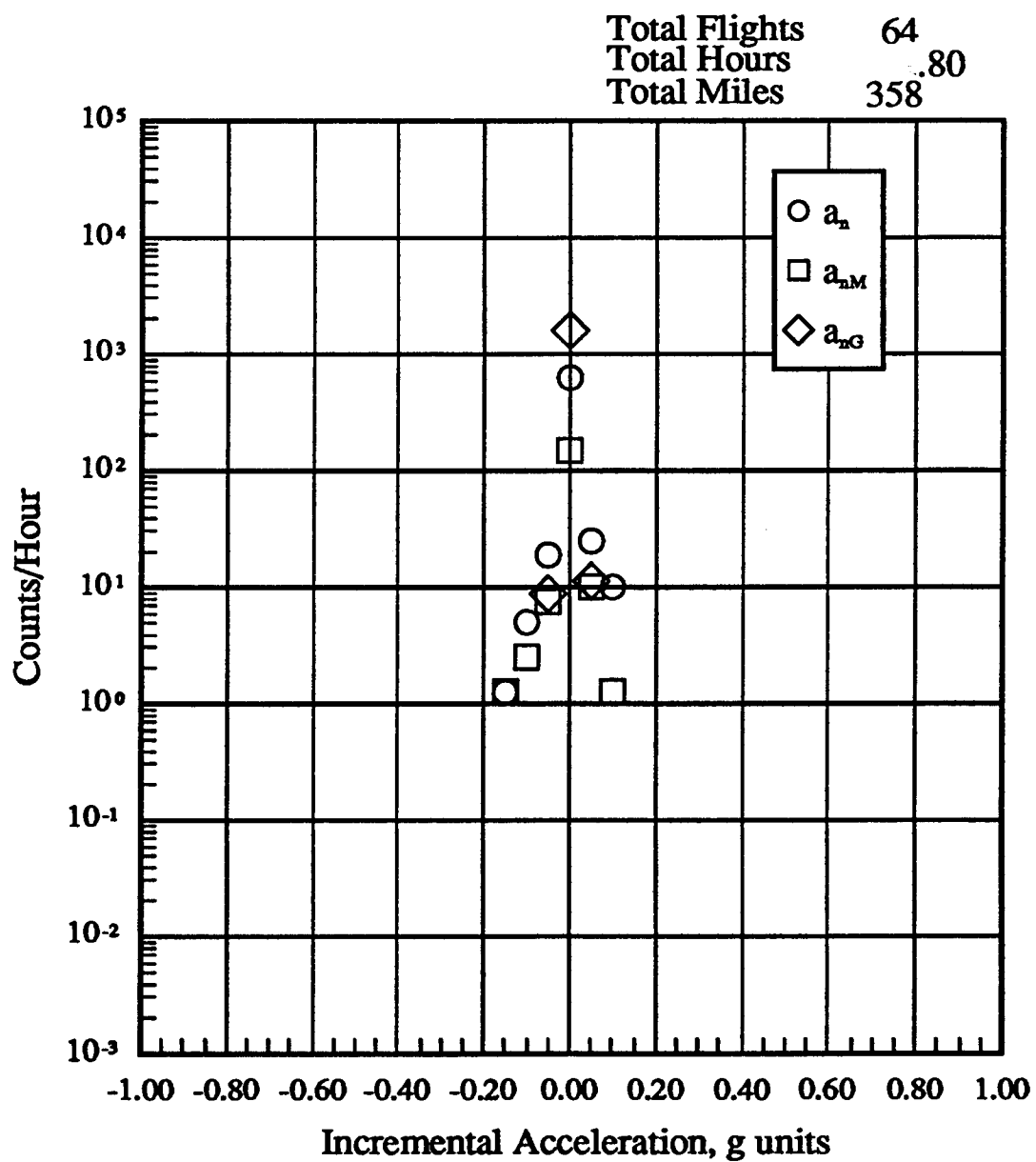
(j) a_n , a_{nM} , a_{nG} , 29500 to 34500 feet altitude

Figure 22.- Continued.



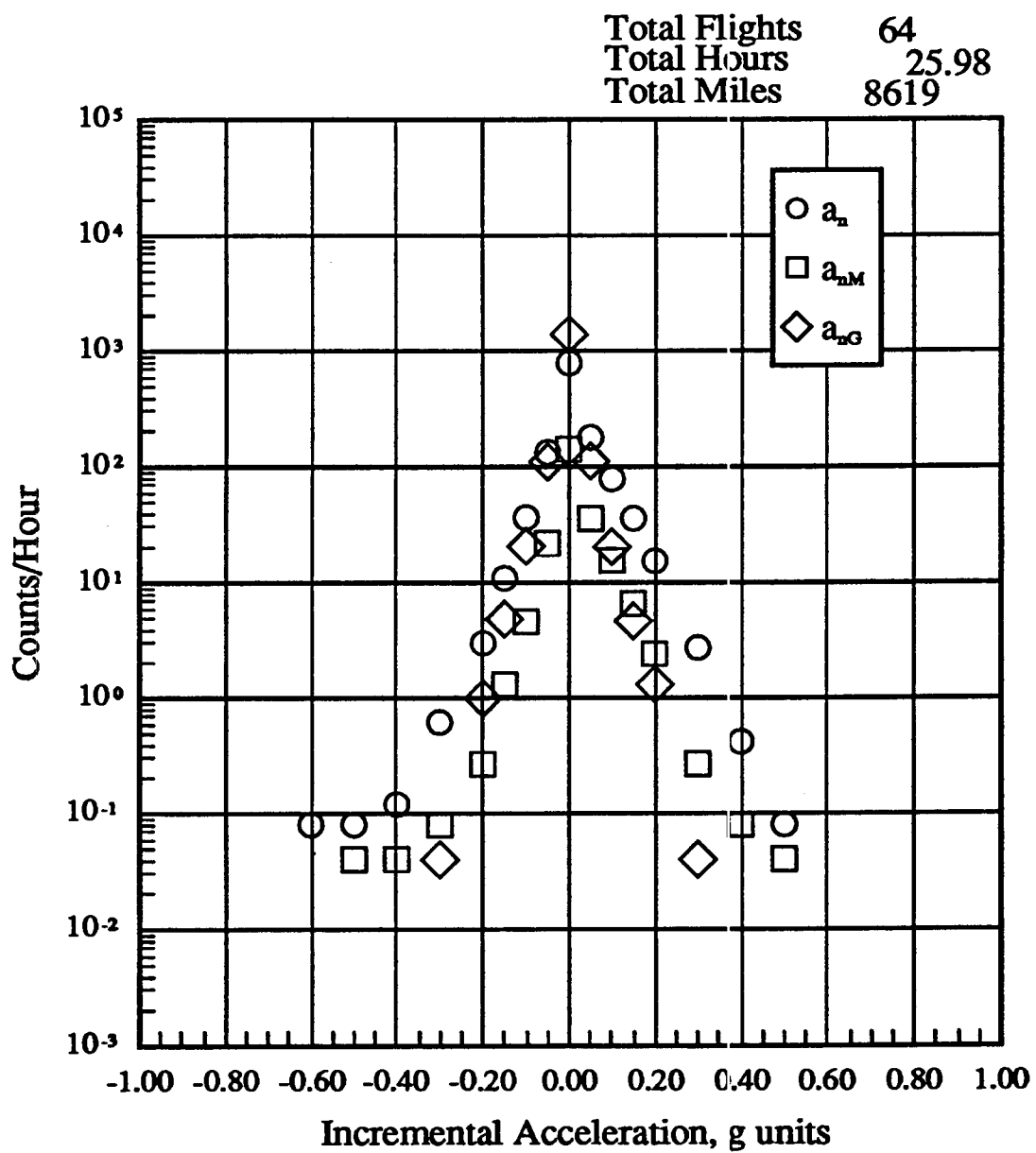
(k) a_n , a_{nM} , a_{nG} , 34500 to 39500 feet altitude

Figure 22.- Continued.



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

Figure 22.- Continued.



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

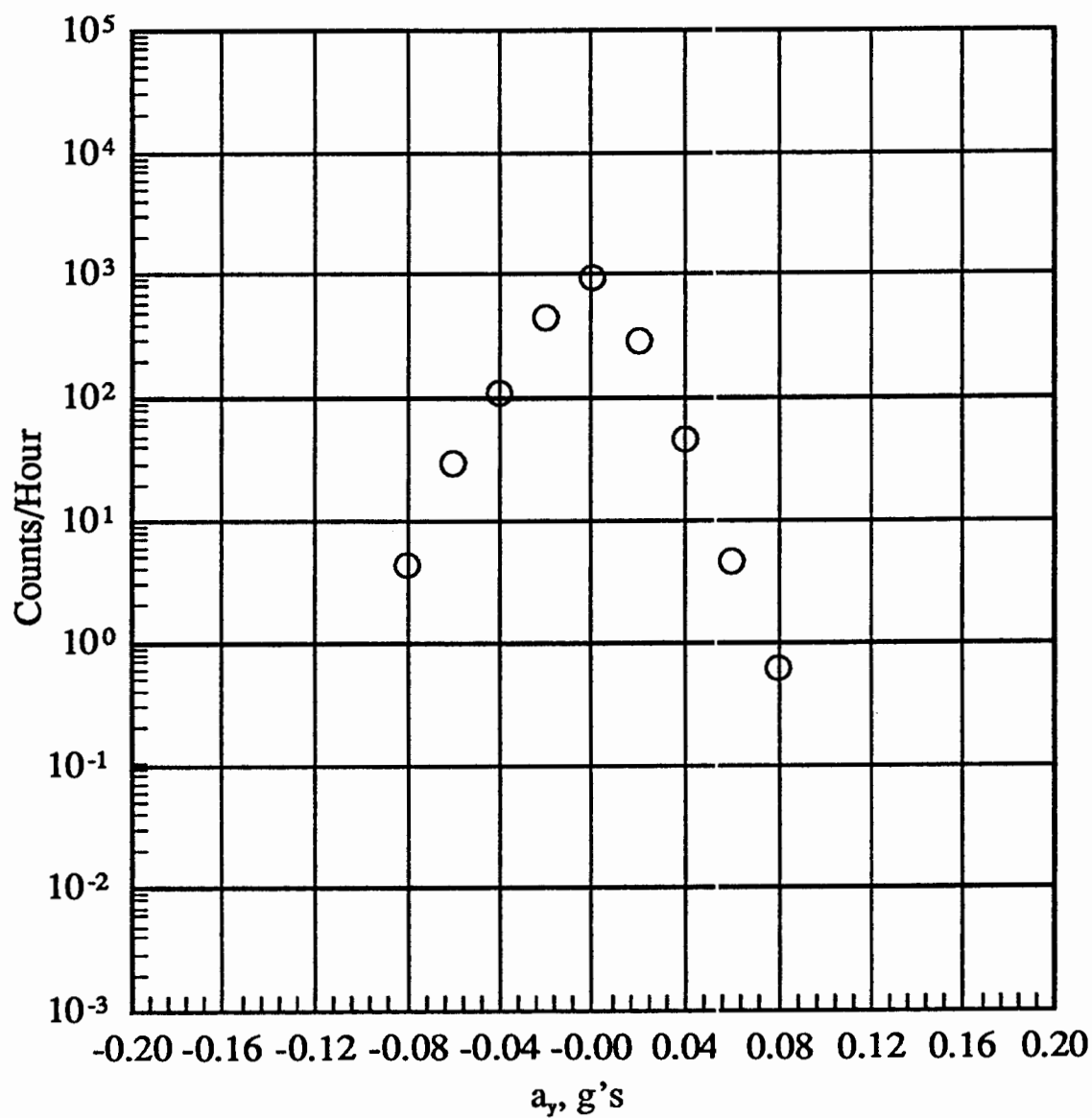
Figure 22.- Continued.

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
.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	0	0	0	0	0	0	0
.08	0.61	0	0	0	0	0	0	0	0	0.19
.06	4.60	0	0	0	0	0.87	0	0	0	1.50
.04	46.77	4.09	1.94	0.90	0	4.37	0	0	0	15.54
.02	293.92	87.00	39.46	9.93	6.73	37.60	13.91	1.52	0	106.55
0	951.42	543.61	458.01	745.82	836.62	888.41	944.57	1278.49	1251.90	971.42
-.02	453.24	176.08	80.22	34.31	36.22	24.48	8.76	0.14	1.26	168.29
-.04	111.34	17.40	2.59	2.71	0	0	1.03	0	0	37.21
-.06	29.93	2.05	0	0	0	0	0	0	0	9.68
-.08	4.36	0	0	0	0	0	0	0	0	1.39
-.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	8.25	1.95	1.55	1.11	1.93	1.14	1.94	7.26	0.80	25.93
FLIGHT MILES @ ALT	1509.73	468.11	479.05	419.35	770.93	480.15	869.28	3264.04	358.21	8618.85
TOTAL FLIGHTS										64
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										25.93
TOTAL FLIGHT MILES FLAPS UP AND DOWN										8618.85

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

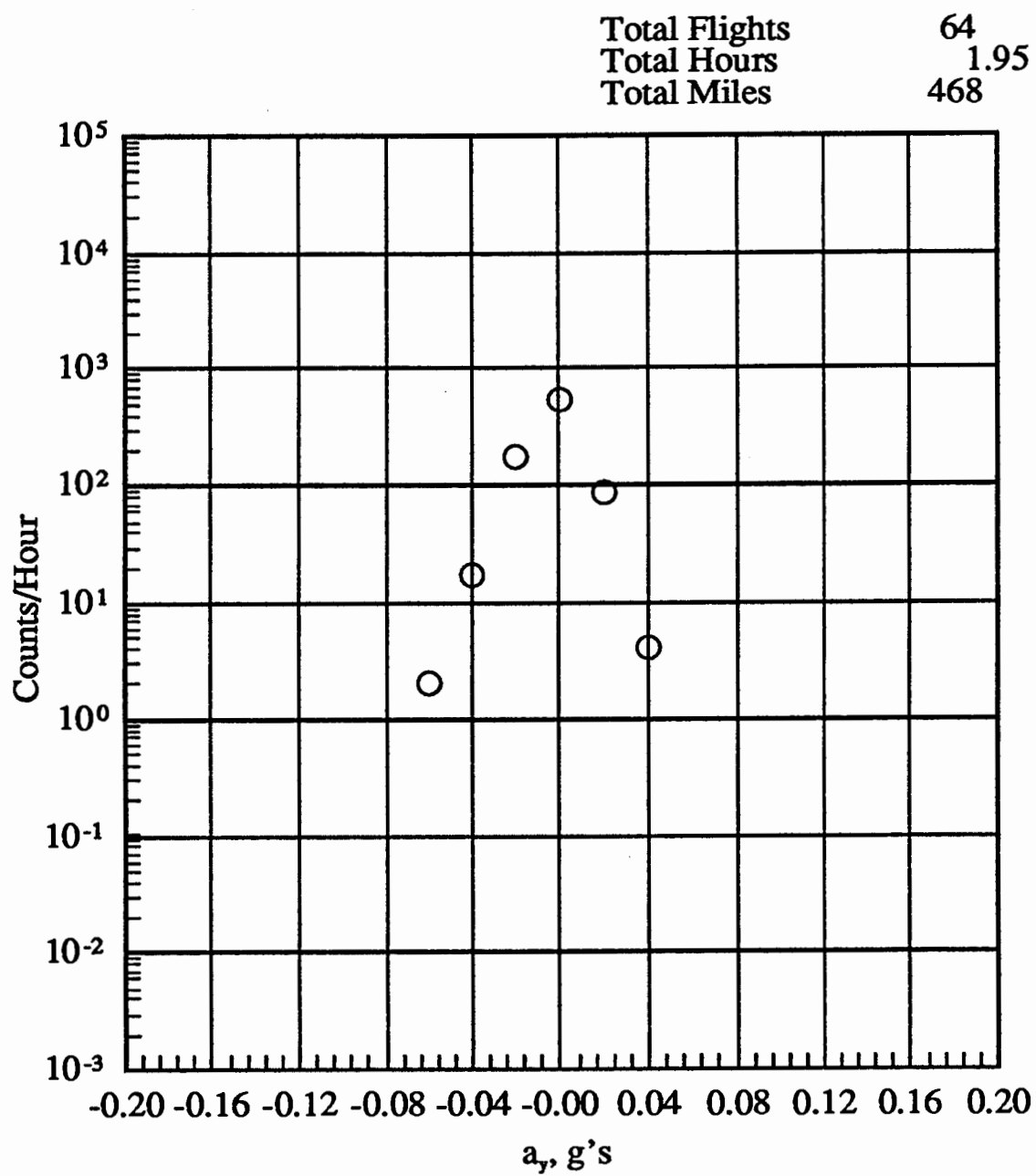
Figure 23.- Lateral acceleration exceedances: Non-revenue flights.

Total Flights	64
Total Hours	8.25
Total Miles	1510



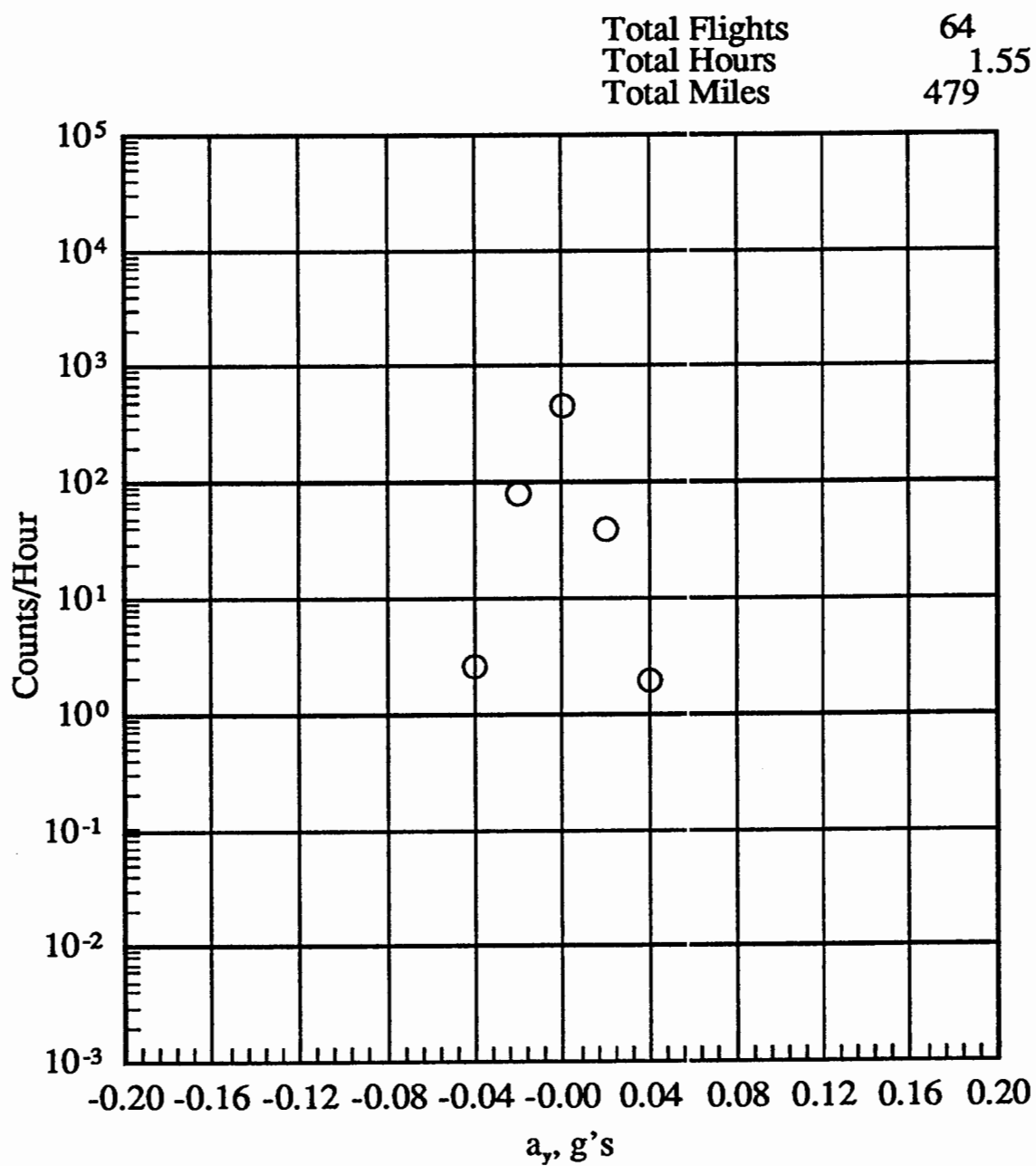
(b) -500 to 4500 feet altitude

Figure 23.- Continued.



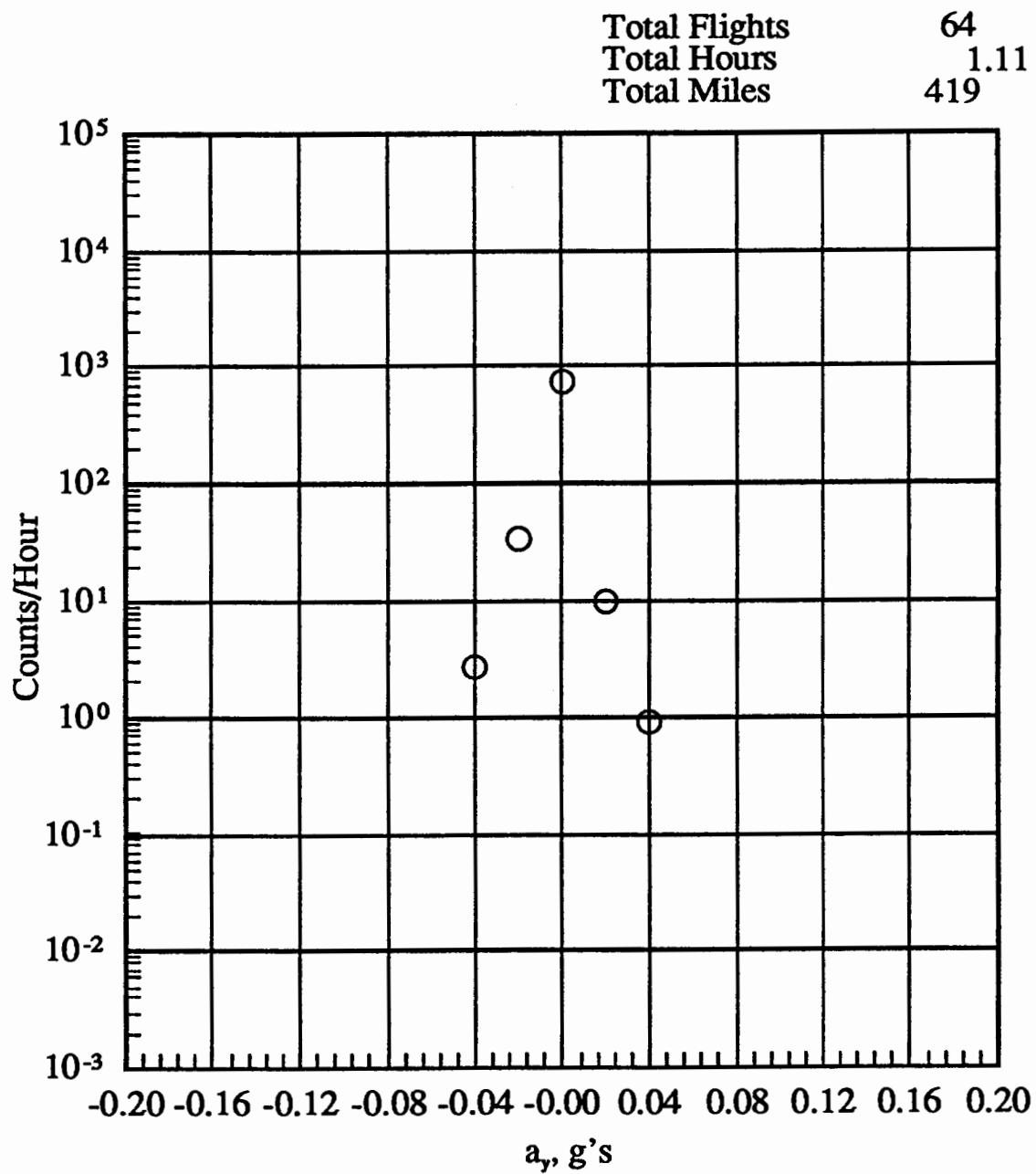
(c) 4500 to 9500 feet altitude

Figure 23.- Continued.



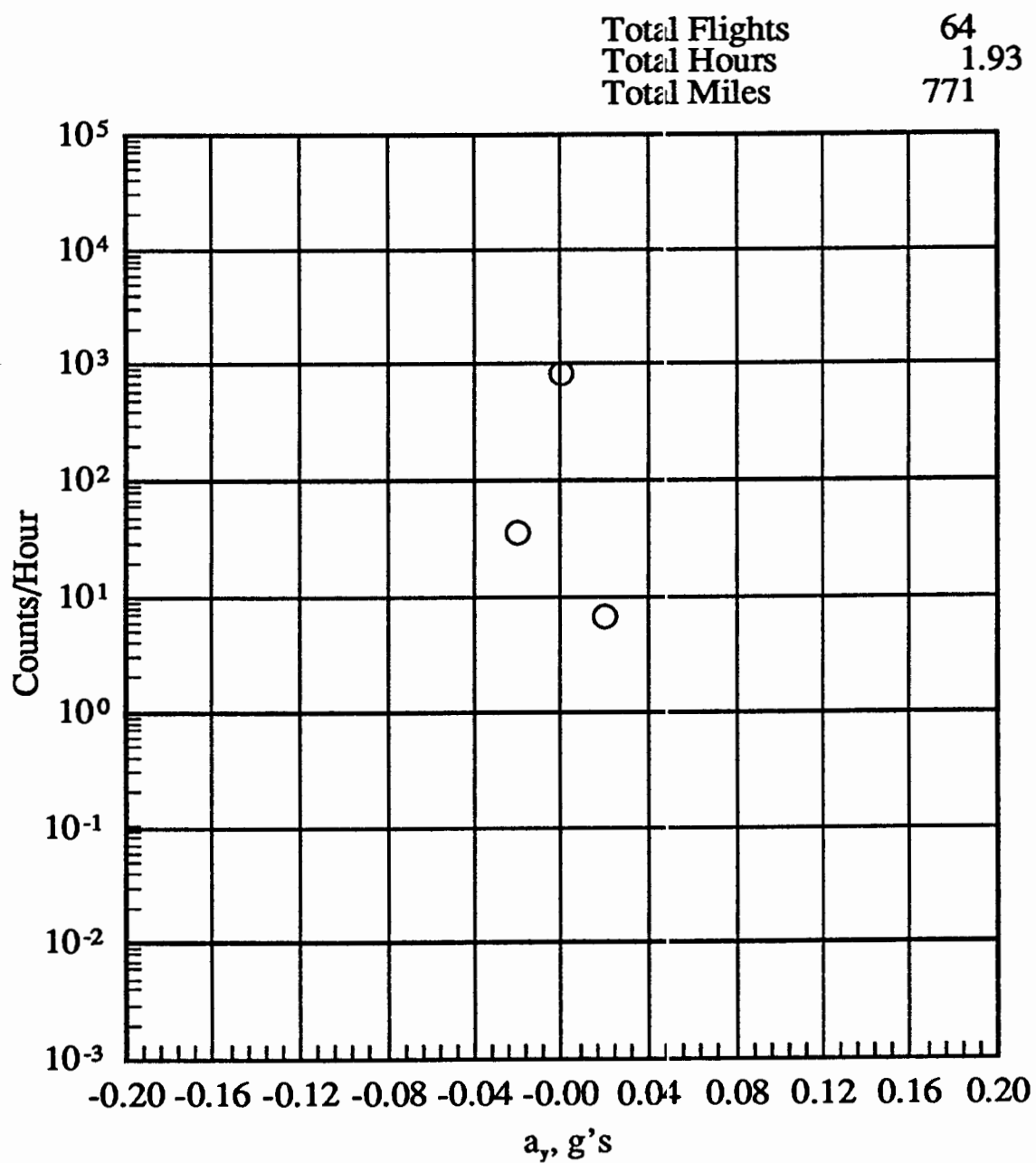
(d) 9500 to 14500 altitude

Figure 23.- Continued.



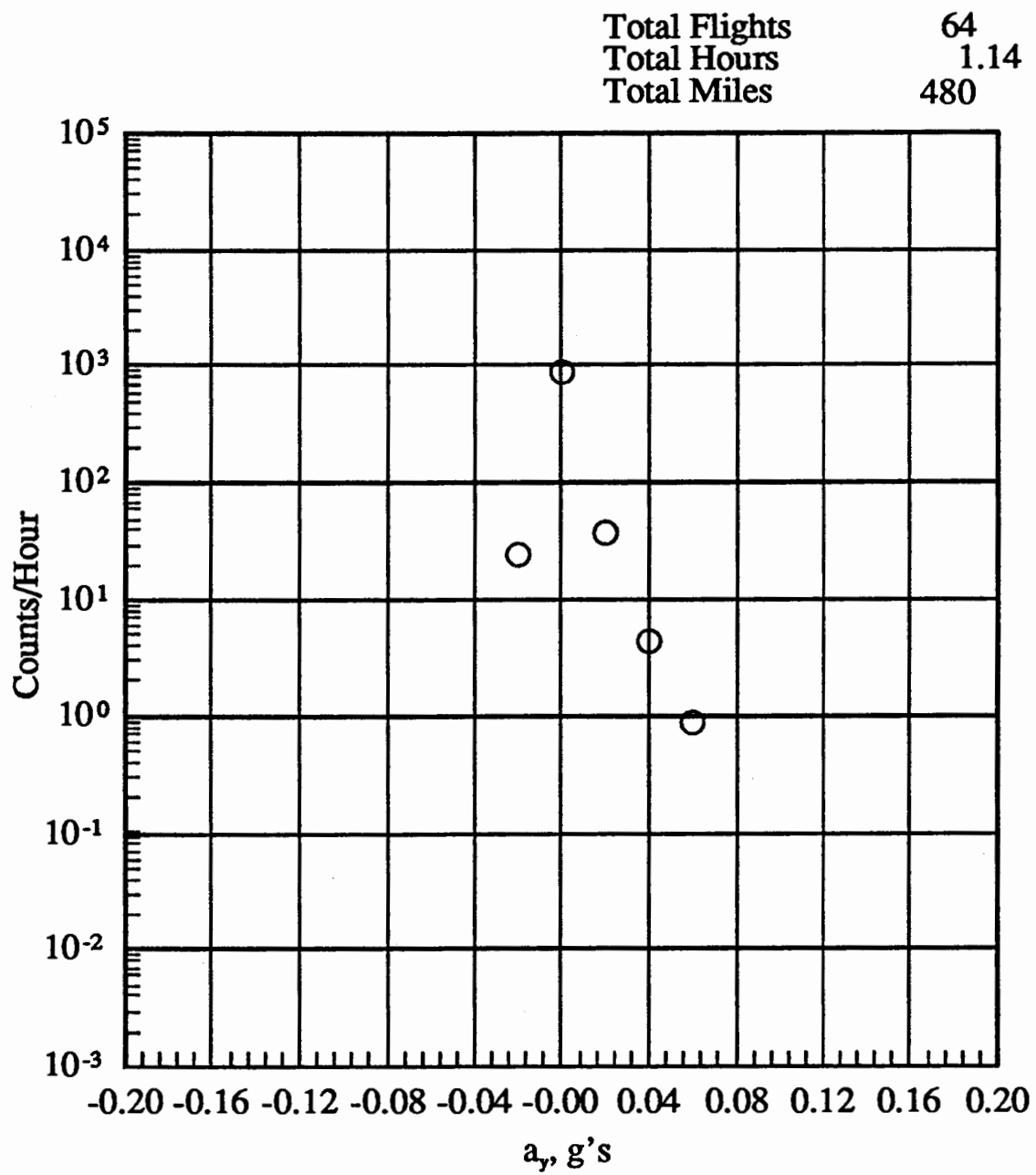
(e) 14500 to 19500 feet altitude

Figure 23.- Continued.



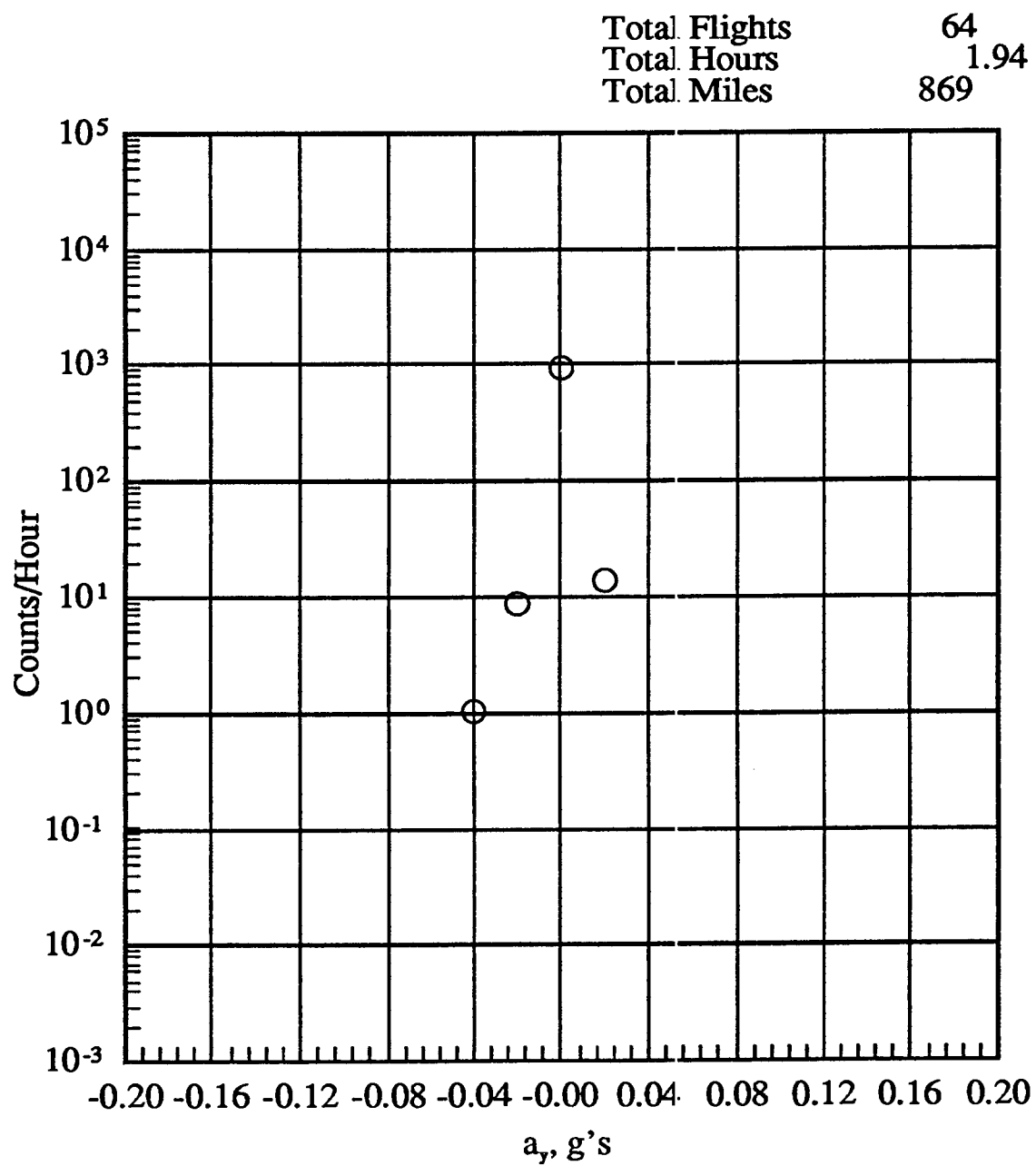
(f) 19500 to 24500 feet altitude

Figure 23.- Continued.



(g) 24500 to 29500 feet altitude

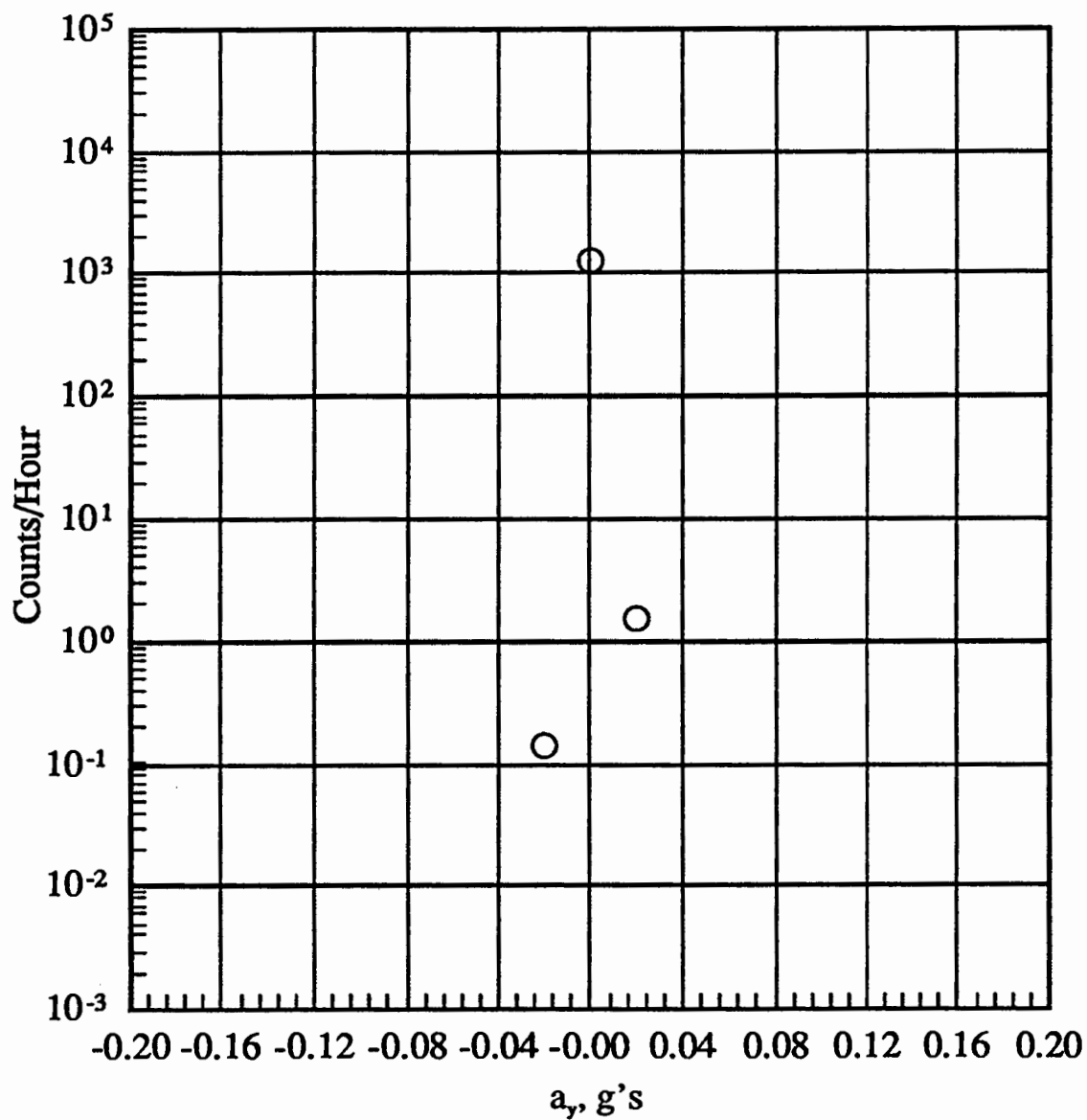
Figure 23.- Continued.



(h) 29500 to 34500 feet altitude

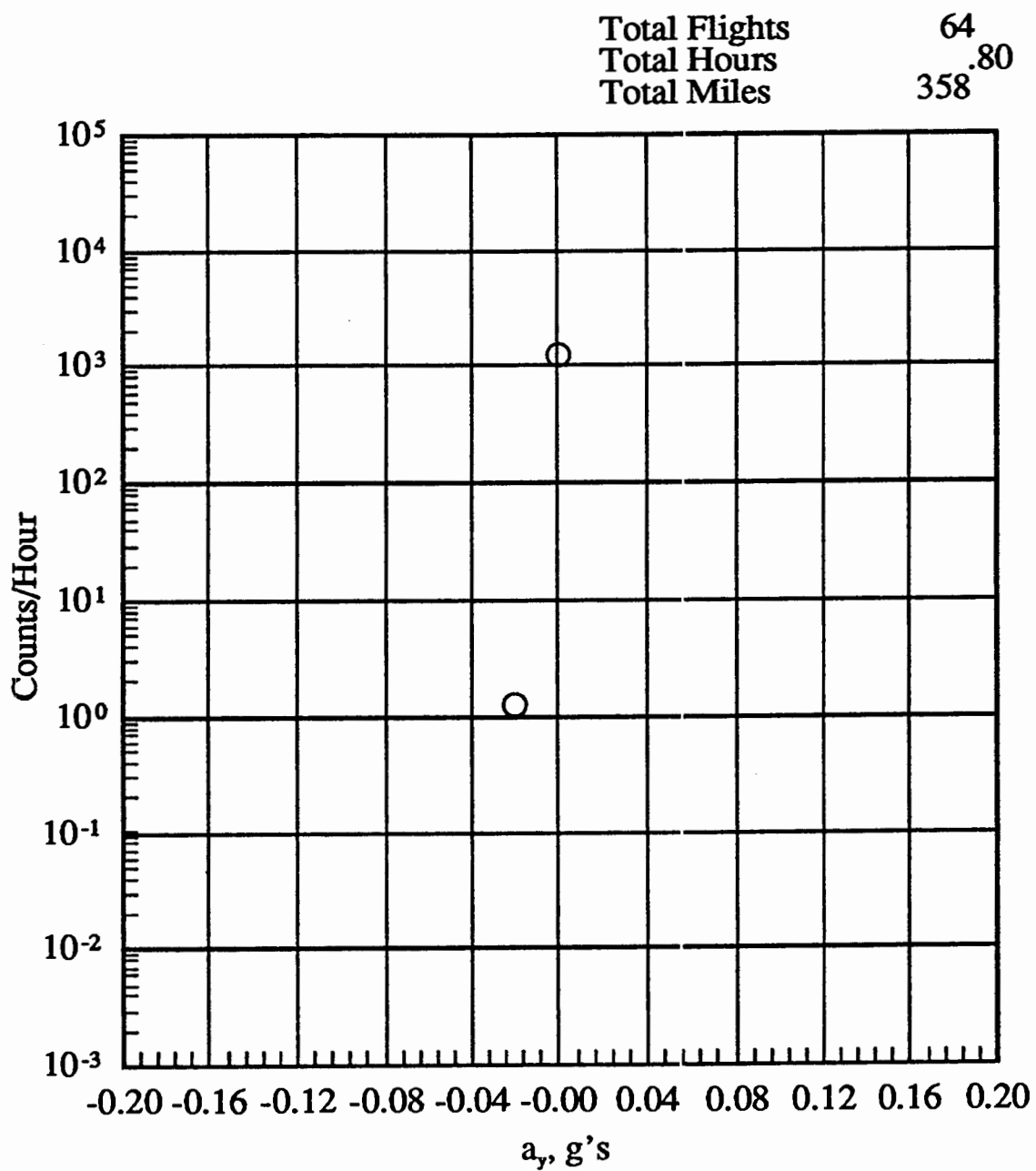
Figure 23.- Continued.

Total Flights	64
Total Hours	7.26
Total Miles	3264



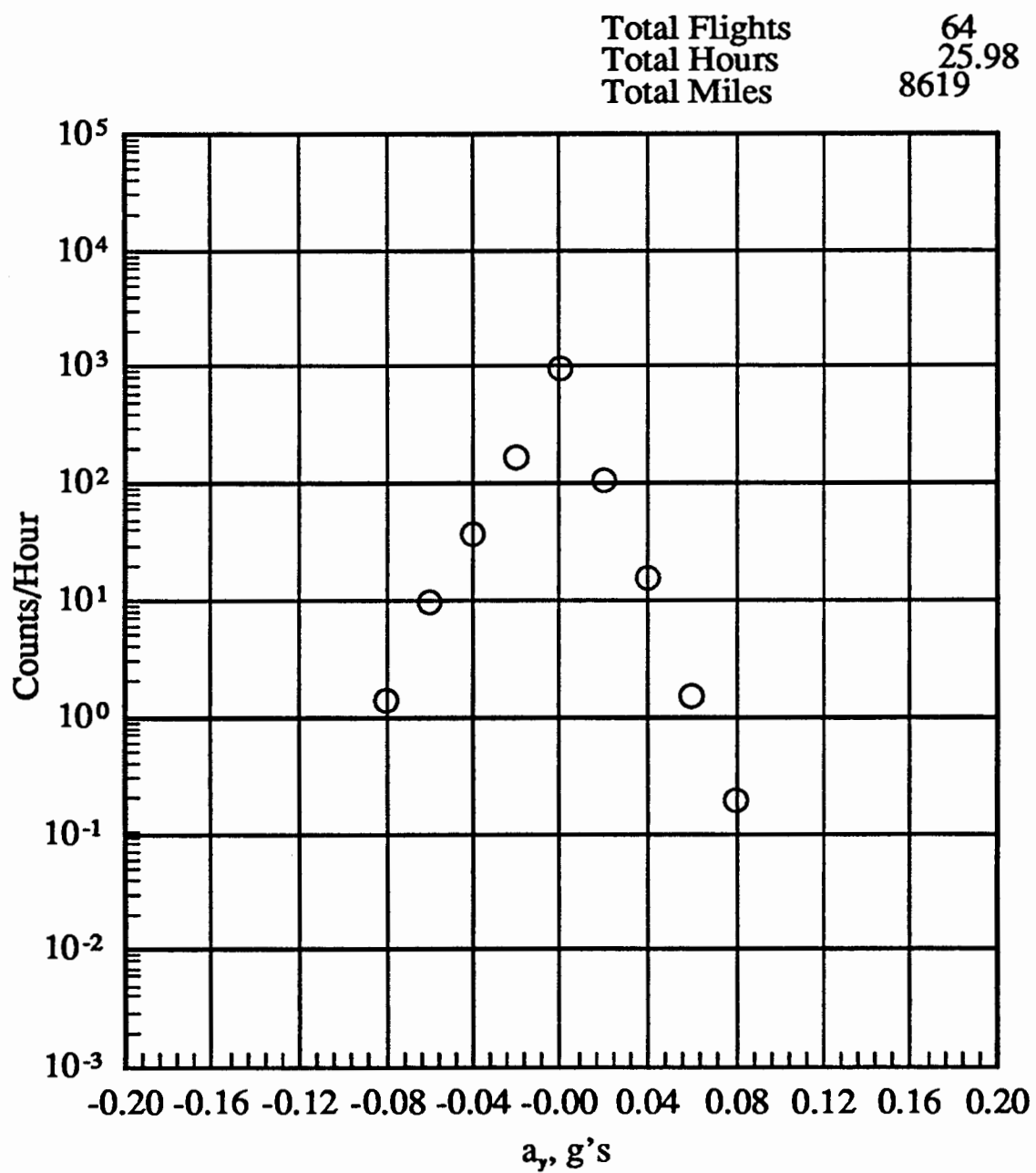
(i) 34500 to 39500 feet altitude

Figure 23.- Continued.



(j) 39500 to 44500 feet altitude

Figure 23.- Continued.



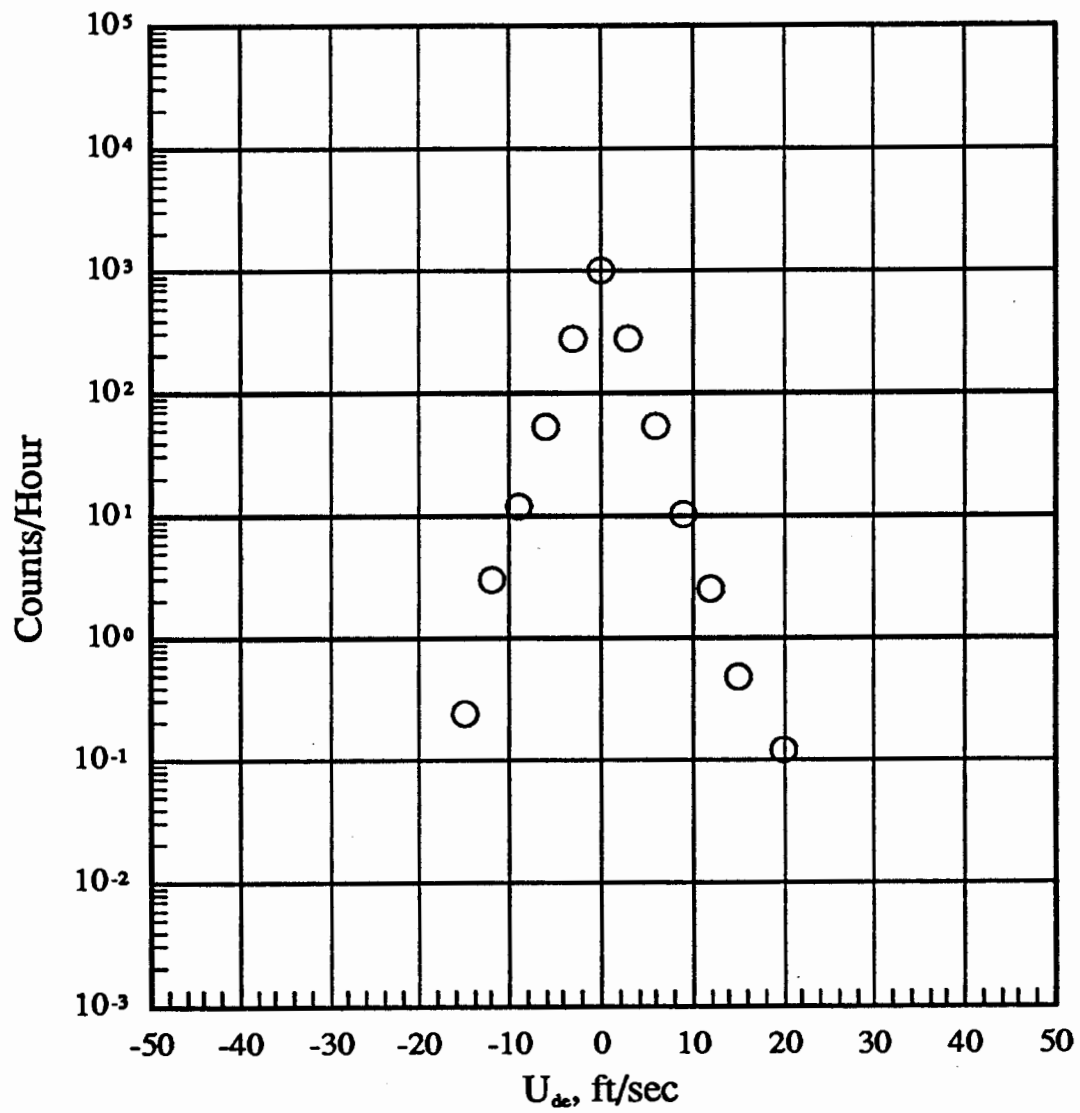
(k) -500 to 44500 feet altitude

Figure 23.- Concluded.

U _{de} DERIVED GUST VELOCITY LEVEL FT/SEC	-500 TO 4500 FT	4500 TO 9500 FT	9500 TO 14500 FT	14500 TO 19500 FT	19500 TO 24500 FT	24500 TO 29500 FT	29500 TO 34500 FT	34500 TO 39500 FT	39500 TO 44500 FT	-500 TO 44500 FT
100	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
20	0.12	0	0	0	0	0	0	0	0	0.04
15	0.48	0	0	0	0	0	0	0	0	0.15
12	2.54	0	0	0	0	0	0	0	0	0.81
9	10.30	0.51	0	0	0	0	0	0	0	3.32
6	53.91	6.14	0.65	0.90	0	0	1.03	0	0	17.78
3	279.50	52.72	25.88	9.93	3.62	5.25	6.70	0.41	0	96.02
0	1005.46	1486.99	1538.98	1278.56	1713.08	1645.66	1762.90	1543.03	1598.47	1391.52
-3	276.72	59.89	21.35	14.45	4.66	4.37	5.67	0.41	0	95.56
-6	53.07	4.61	0.65	0	0	0	0.52	0	0	17.31
-9	11.99	1.02	0	0	0	0	0	0	0	3.89
-12	3.03	0	0	0	0	0	0	0	0	0.96
-15	0.24	0	0	0	0	0	0	0	0	0.08
-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	9.25	1.95	1.55	1.11	1.93	1.14	1.94	7.26	0.60	25.93
FLIGHT MILES @ ALT	1509.00	468.11	479.05	419.35	770.93	480.15	869.28	3264.04	358.21	8618.85
TOTAL FLIGHTS										64
TOTAL FLIGHT HOURS FLAPS UP AND DOWN										25.93
TOTAL FLIGHT MILES FLAPS UP AND DOWN										8618.85

(a) U_{de} Level crossing counts per hour within pressure altitude bandsFigure 24.- U_{de} exceedances: Non-revenue flights.

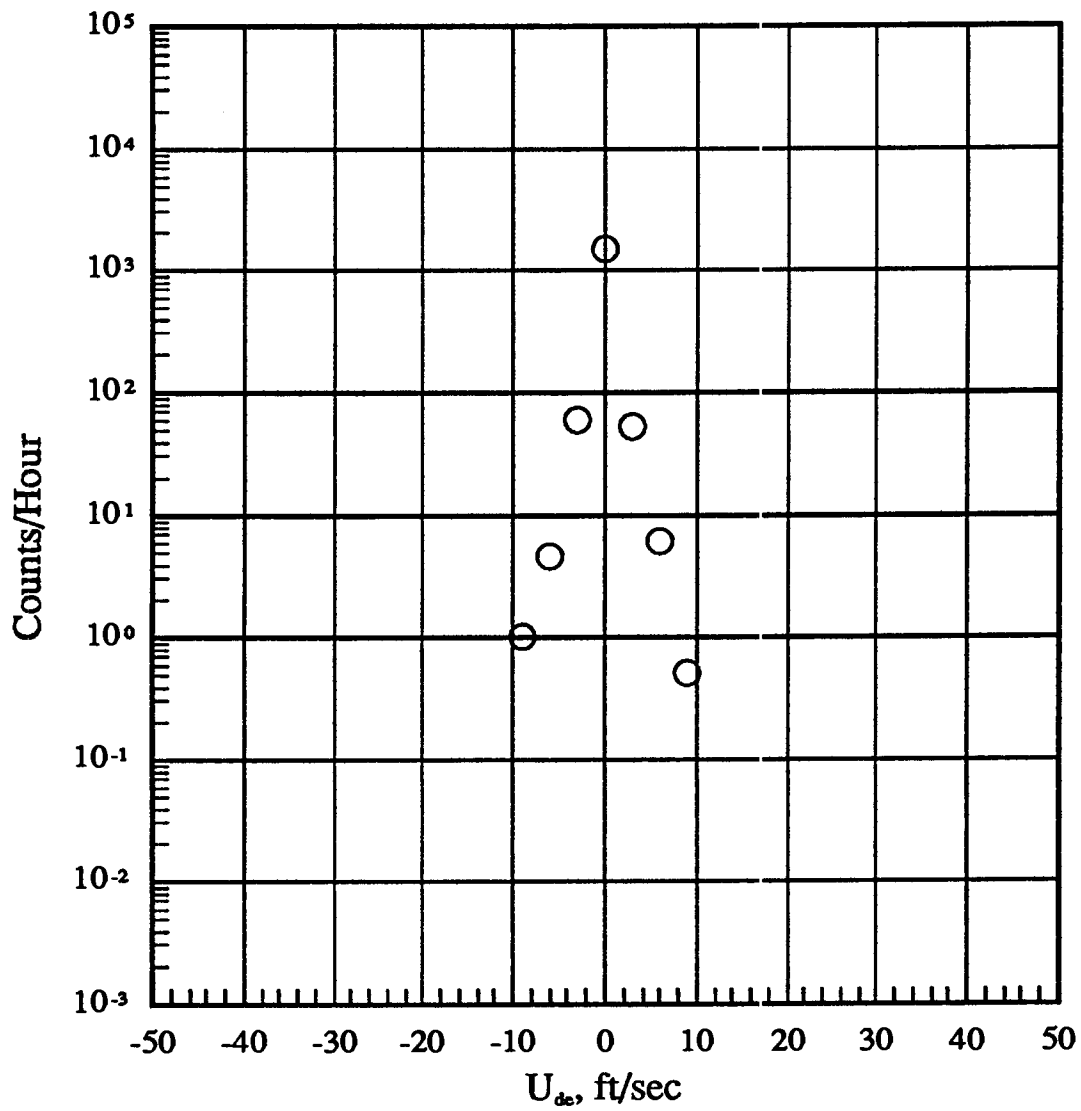
Total Flights	64
Total Hours	8.25
Total Miles	1510



(b) -500 to 4500 feet altitude

Figure 24.- Continued.

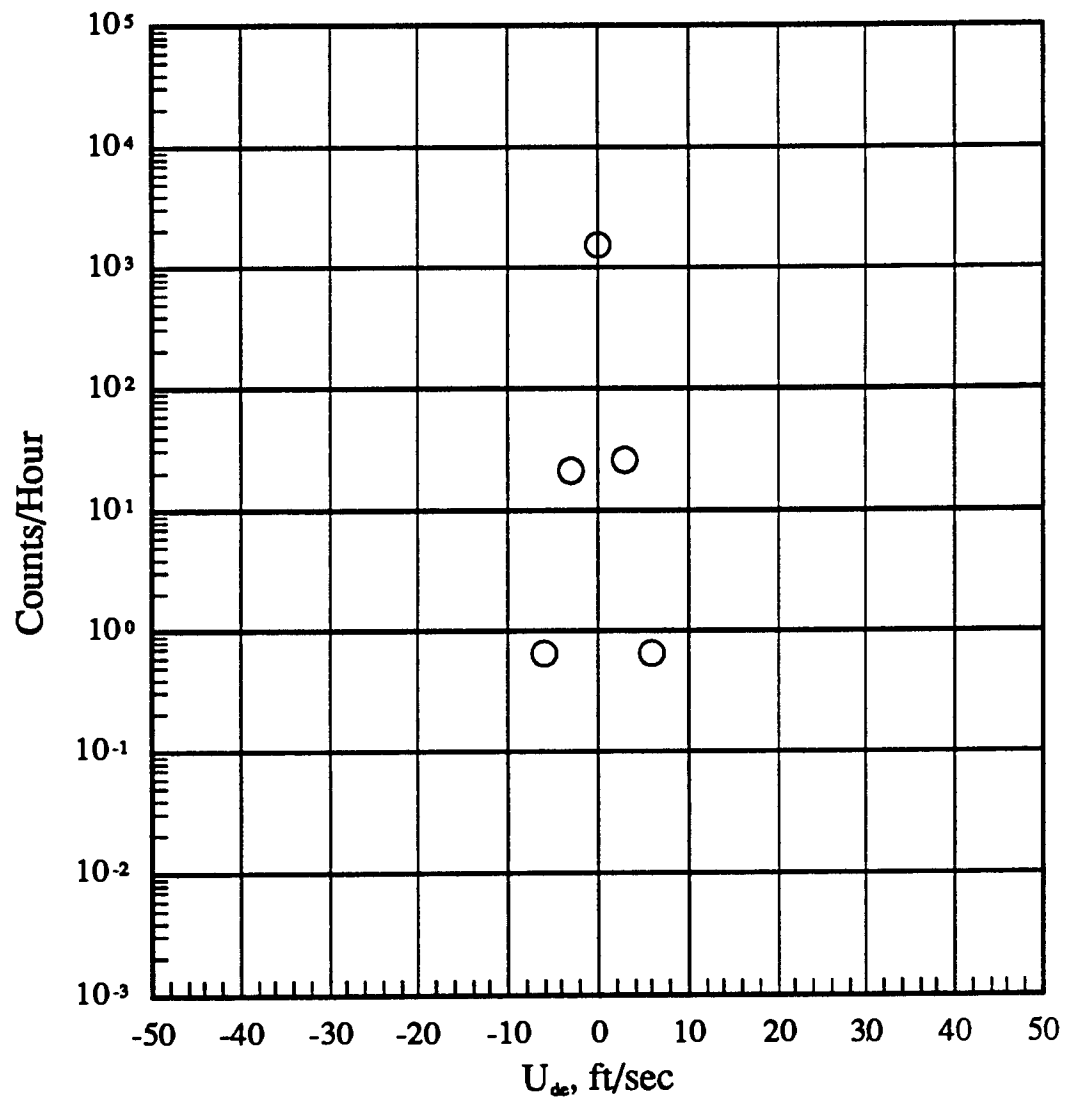
Total Flights	64
Total Hours	1.95
Total Miles	468



(c) 4500 to 9500 feet altitude

Figure 24.- Continued.

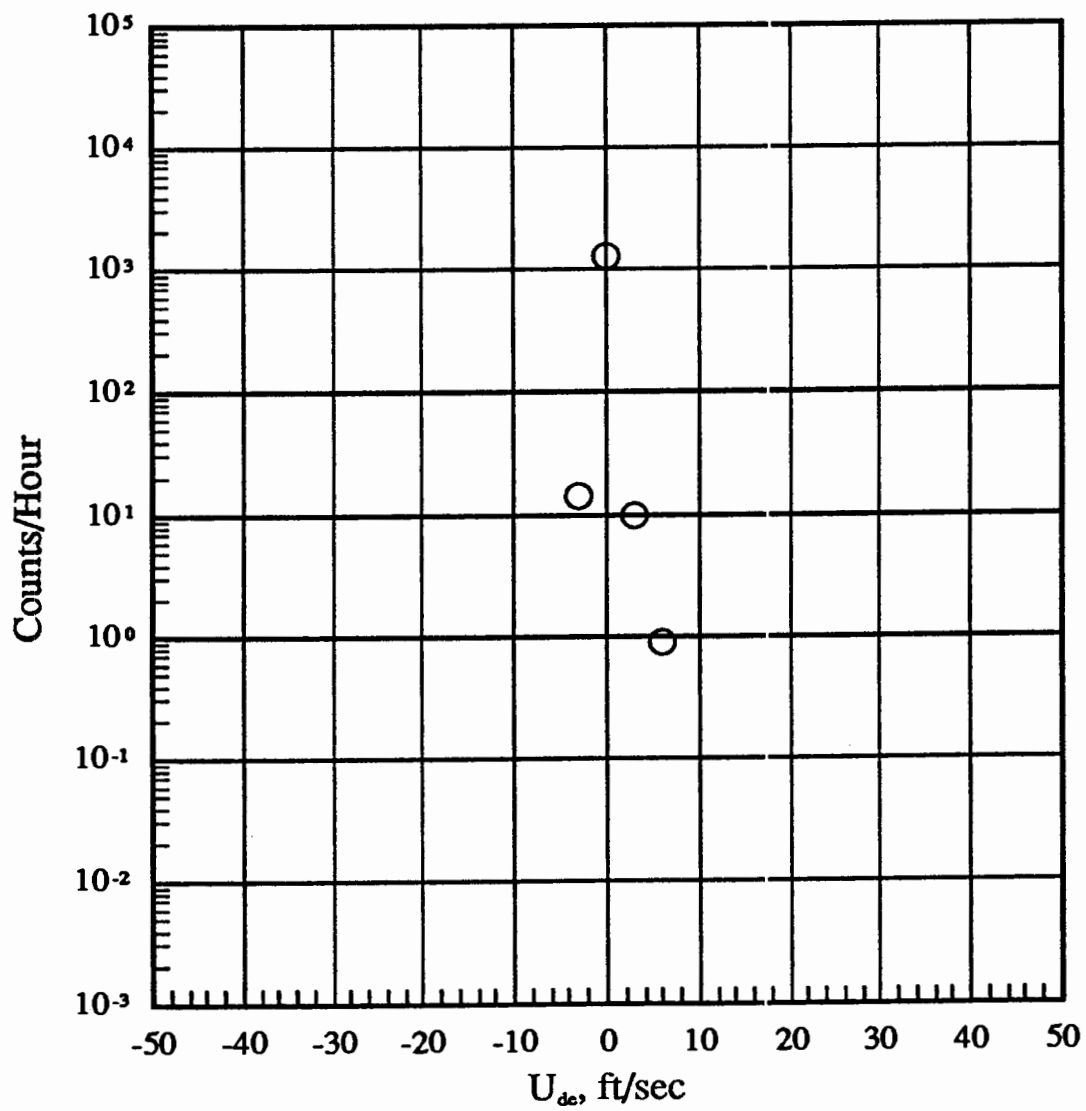
Total Flights	64
Total Hours	1.55
Total Miles	479



(d) 9500 to 14500 feet altitude

Figure 24.- Continued

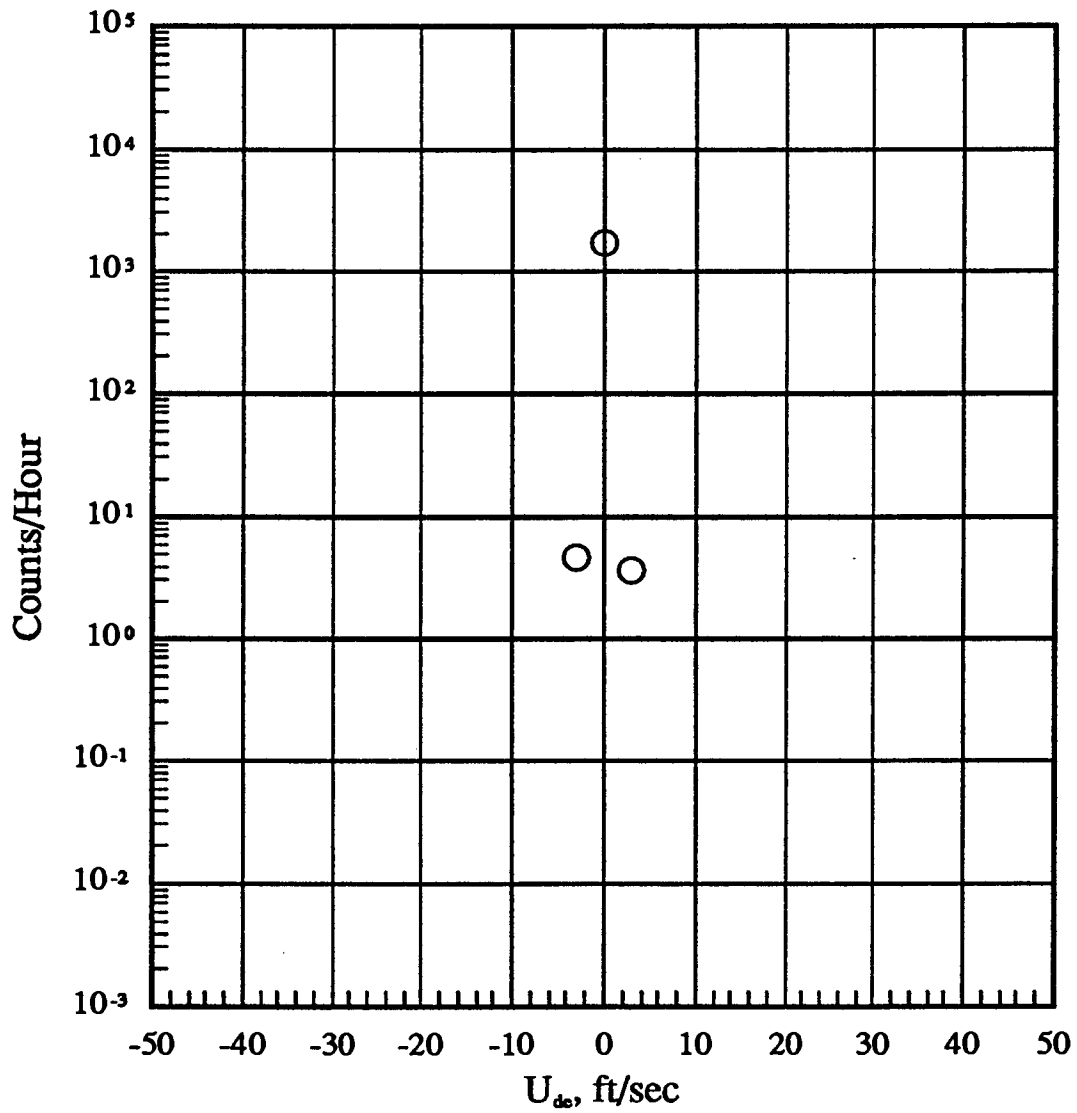
Total Flights	64
Total Hours	1.11
Total Miles	419



(e) 14500 to 19500 feet altitude

Figure 24.- Continued.

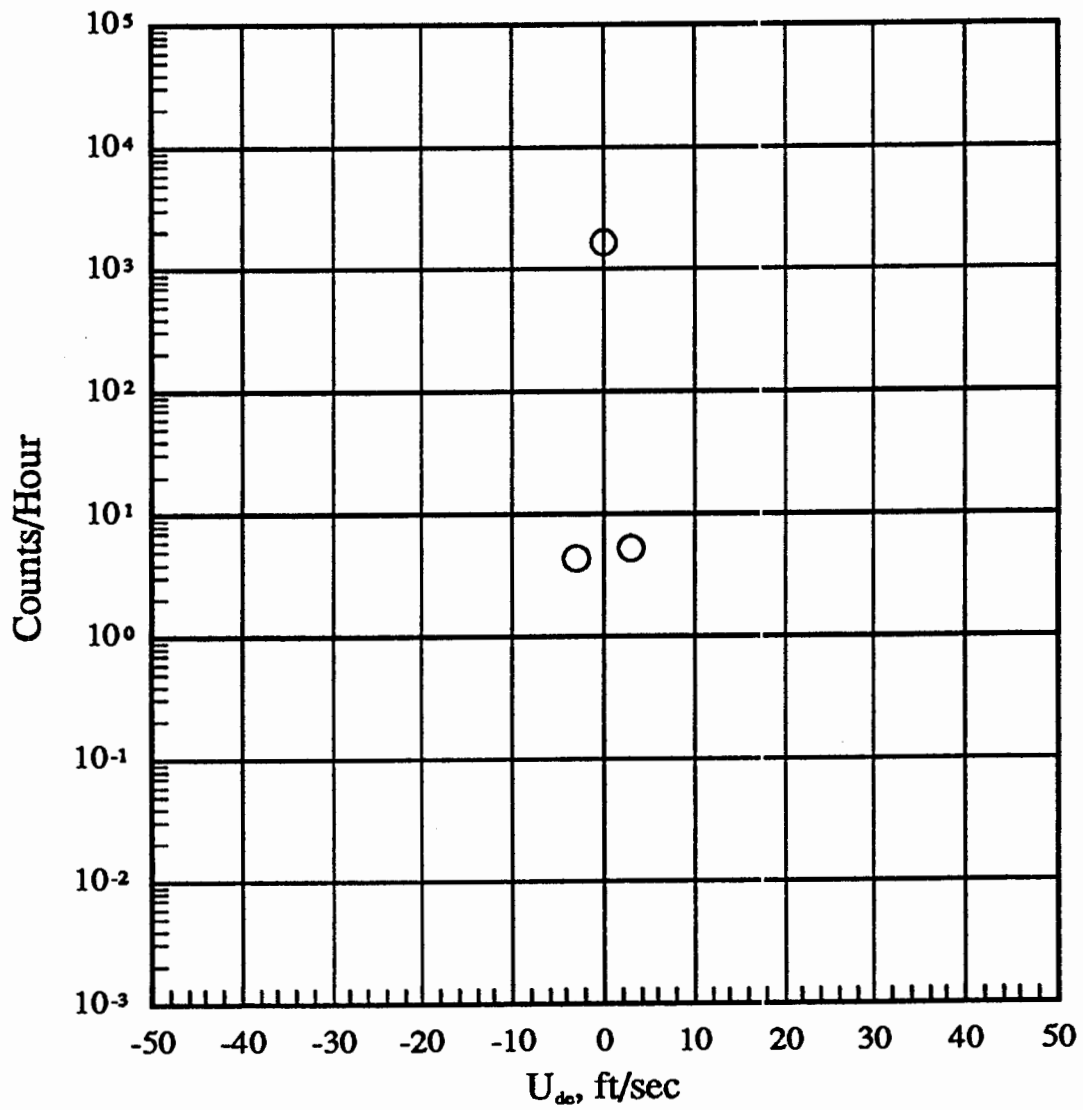
Total Flights	64
Total Hours	1.93
Total Miles	771



(f) 19500 to 24500 feet altitude

Figure 24.- Continued.

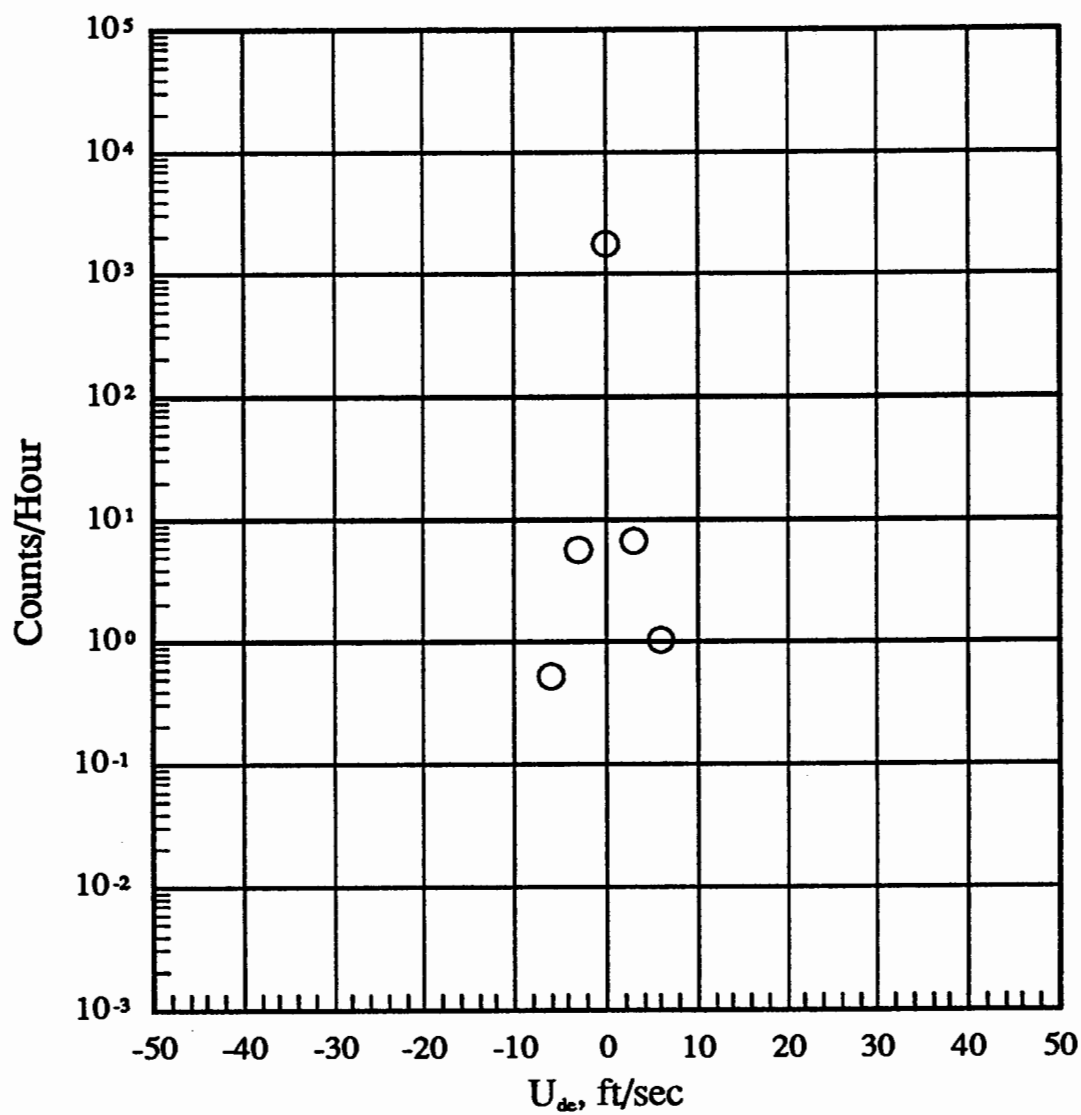
Total Flights	64
Total Hours	1.14
Total Miles	480



(g) 24500 to 29500 feet altitude

Figure 24.- Continued.

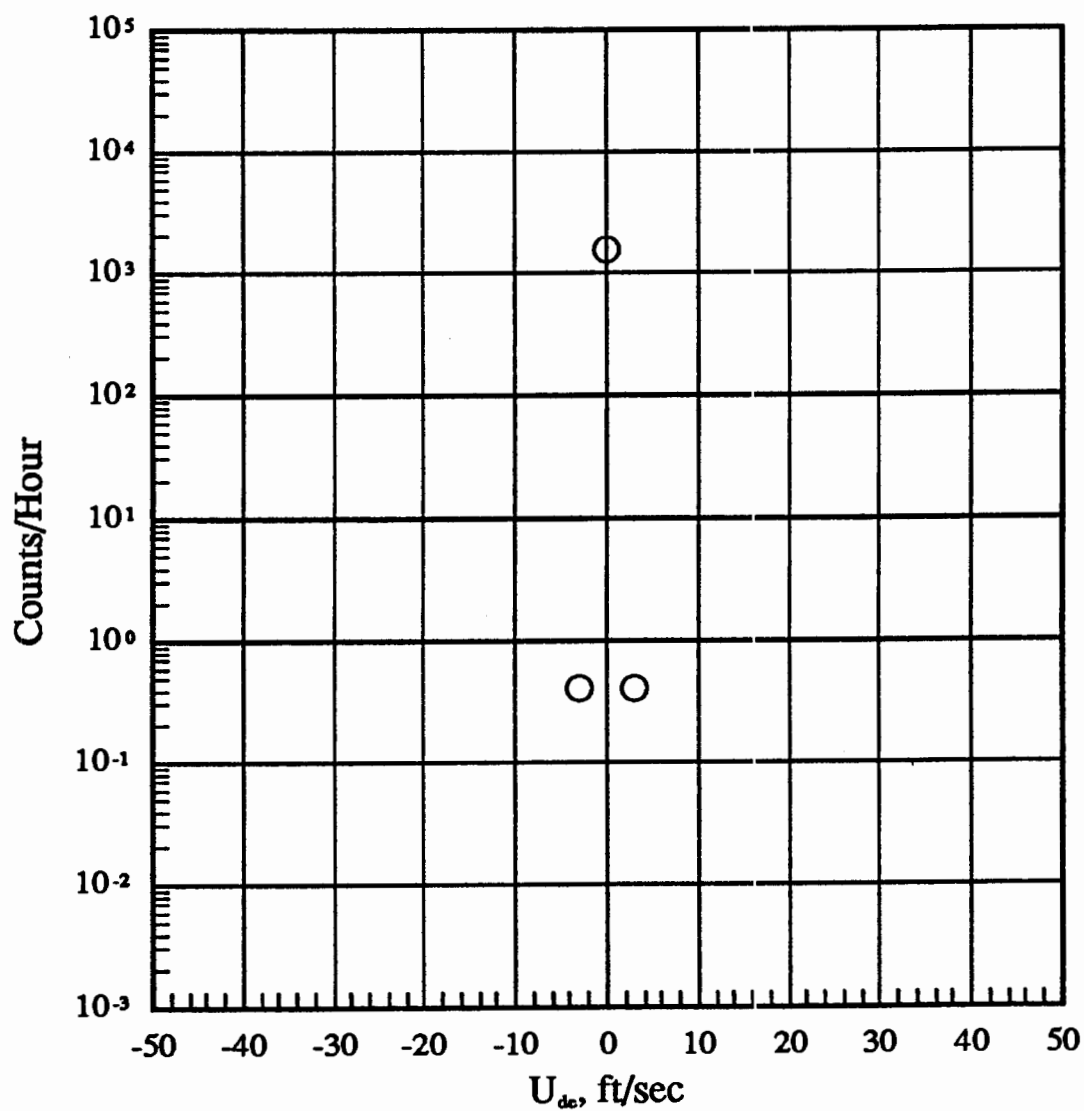
Total Flights	64
Total Hours	1.94
Total Miles	869



(h) 29500 to 34500 feet altitude

Figure 24.- Continued.

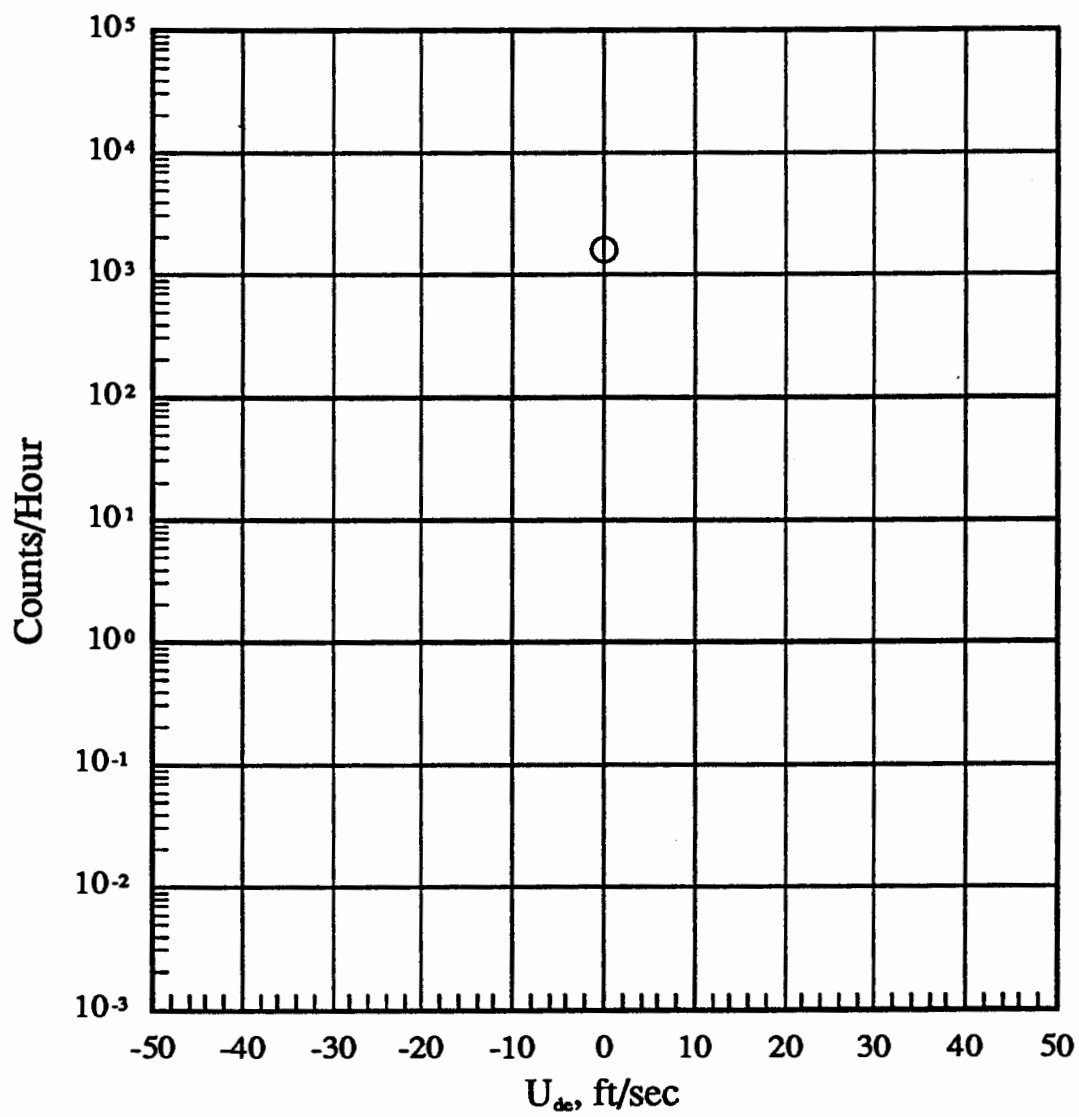
Total Flights	64
Total Hours	7.26
Total Miles	3264



(i) 34500 to 39500 feet altitude

Figure 24.- Continued.

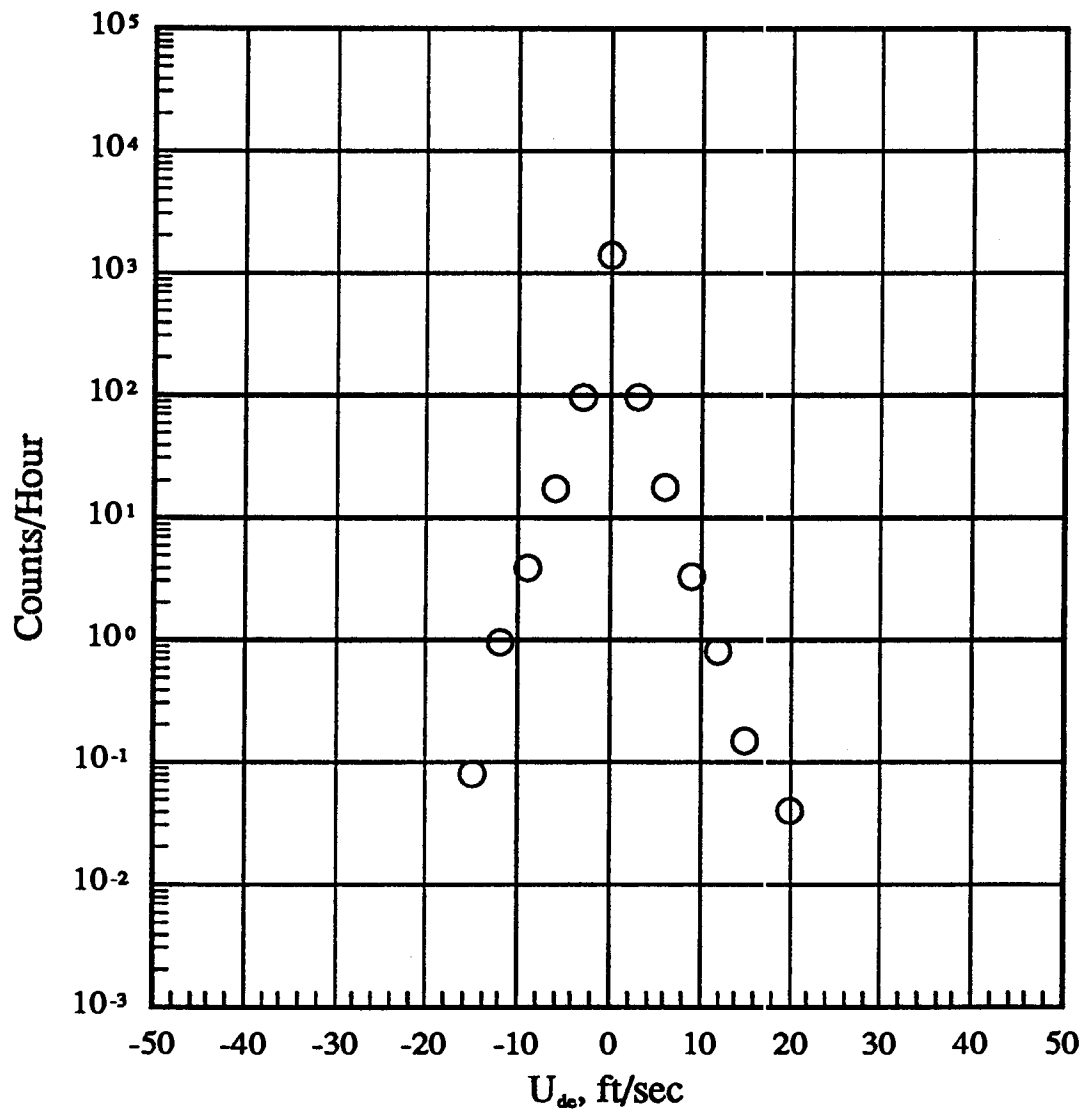
Total Flights	64
Total Hours	.08
Total Miles	358



(j) 39500 to 44500 feet altitude

Figure 24.- Continued.

Total Flights	64
Total Hours	25.98
Total Miles	8619



(k) -500 to 44500 feet altitude

Figure 24.- Concluded.

DATA FROM 223 HOURS & 146 FLIGHTS

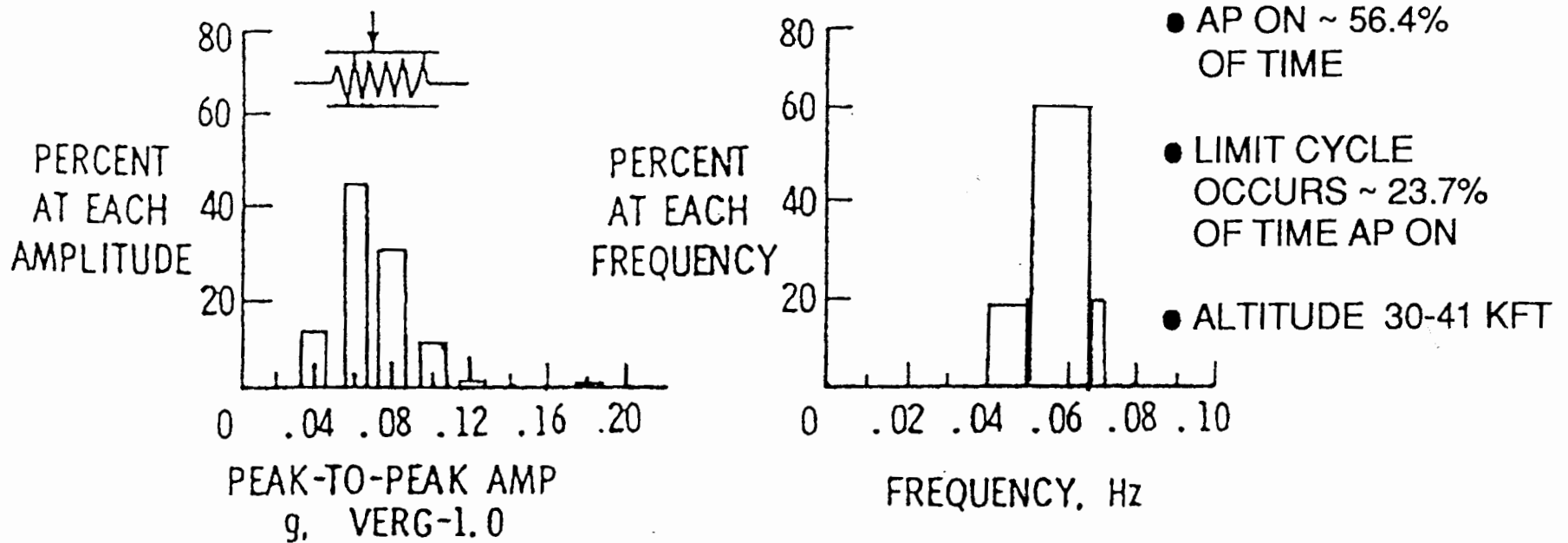


Figure 25.- Autopilot "limit cycle" experience.

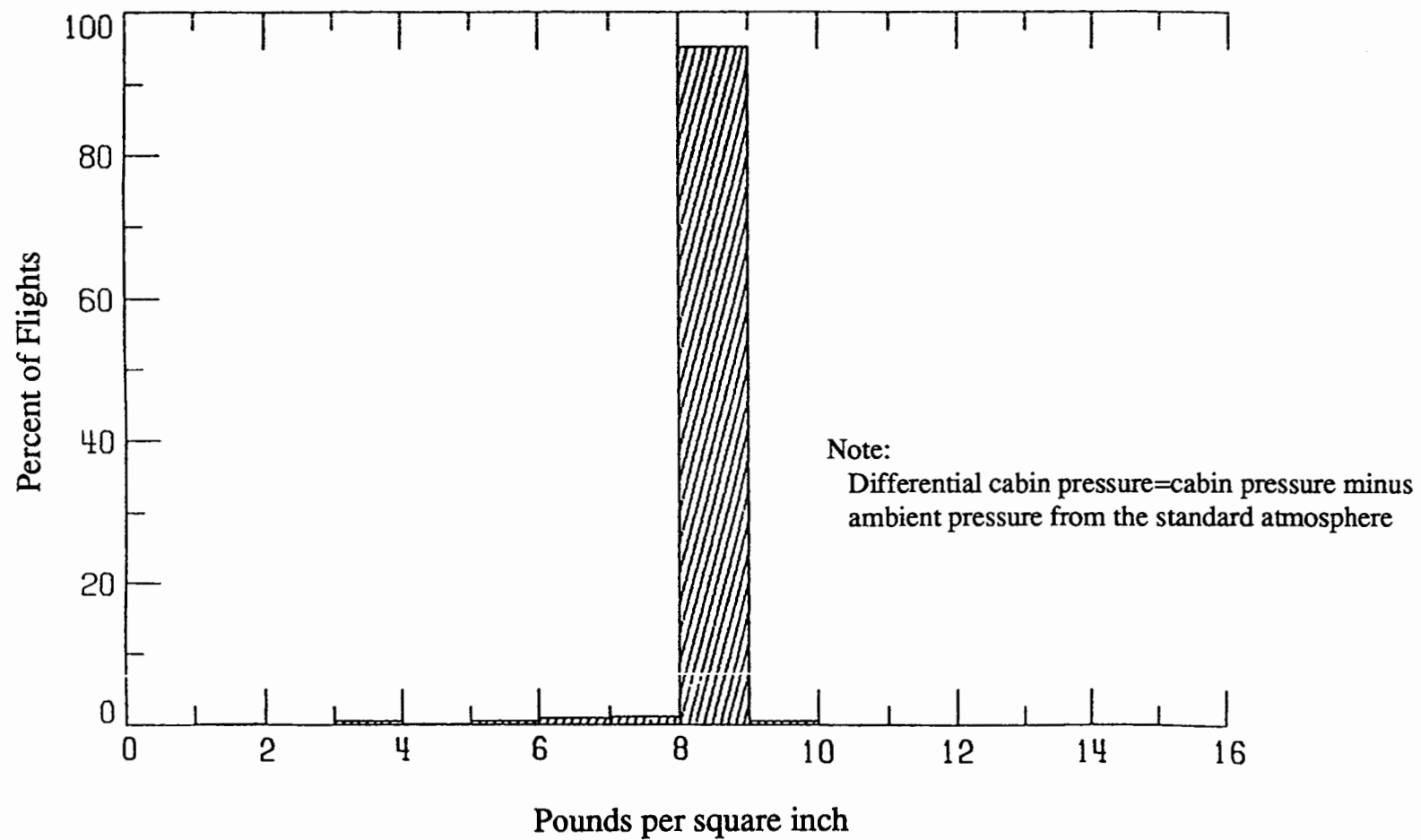


Figure 26.- Maximum differential cabin pressure per flight; Percent of flights.



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