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RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS

OF P-61C AIRPLANES WITHIN THUNDERSTORMS

SEPTEMBER 11, 1946 TO SEPTEMBER 16, 1946

AT ORLANDO, FLORIDA

By

H. B. Tolefson

Langley Memorial Aeronautical Laboratory
Langley Field, Va.

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RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS OF P-61C AIRPLANES WITHIN THUNDERSTORMS SEPTEMBER 11, 1946 TO SEPTEMBER 16, 1946 AT ORLANDO, FLORIDA

By H. B. Tolefson

The results obtained from measurements of gust velocities, draft velocities, and ambient-air temperature within thunderstorms for the period from September 11, 1946 to September 16, 1946 at Orlando, Florida are presented herein. These data are summarized in tables I, II, and III, respectively, and are of the type presented in reference 1 for previous flights.

Langley Memorial Aeronautical Laboratory
National Advisory Committee for Aeronautics
Langley Field, Va.

Harold B. Tolefson
Harold B. Tolefson
Aeronautical Engineer

Approved: Richard V. Rhode
Richard V. Rhode
Chief of Aircraft Loads Division

MEL

REFERENCE

1. Tolefson, H. B.: Evaluation of Gust and Draft Velocities from Flights of P-61C Airplanes within Thunderstorms August 23, 1946 to September 4, 1946 at Orlando, Florida. NACA RM No. L7A14, 1947.

TABLE I.- SUMMARY OF GUST MEASUREMENTS FROM FLIGHTS

OF P-61C AIRPLANES WITHIN THUNDERSTORMS

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 350 Traverse 1	Time (EST) 144515 - 144827; Length of traverse 203.1 sec, 69,000 ft; Initial heading (deg) 130							
0 - 3	26,000	----	-----	----	-----	----	----	0
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-----	----	-----	----	----	0
9 - 12	26,500	----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	0
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	0
21 - 24		5.4	-2.5	----	-----	----	----	5
24 - 27		2.9	-1.6	4.4	-----	216	----	7
27 - 30		12.4	-2.9	19.9	-11.3	104	103	9
30 - 33	27,000	3.2	-20.0	----	-----	----	----	5
33 - 36		11.4	-13.0	11.5	-----	167	----	4
36 - 39		6.7	-2.2	----	-5.0	----	68	4
39 - 42		----	-8.9	----	-14.8	----	224	2
42 - 45		5.4	-6.7	----	-----	----	----	5
45 - 48		9.5	-4.5	12.8	-16.6	33	101	6
48 - 51		5.1	-3.5	10.3	-13.3	169	339	4
51 - 54		----	-5.1	----	-----	----	----	4
54 - 57		----	-----	----	-----	----	----	1
57 - 60	27,500	4.8	-3.2	----	-----	----	----	3
60 - 63		----	-9.2	6.6	-12.0	256	347	1
63 - 66	27,000	5.7	-3.5	6.1	-----	102	----	7
66 - 69		----	-----	----	-----	----	----	0
Airplane 350 Traverse 2	Time (EST) 145600 - 145718; Length of traverse 154.0 sec, 54,249 ft; Initial heading (deg) 230							
0 - 3	26,000	3.8	-----	----	-----	----	----	1
3 - 6		9.8	-5.1	----	-14.4	----	389	2
6 - 9		5.4	-3.8	----	-7.8	----	113	8
9 - 12		9.5	-2.5	13.1	-----	36	----	8
12 - 15		2.5	-6.6	----	-----	----	----	6

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 350 Traverse 2	Time (EST) 145600 - 145718; Length of traverse 154.0 sec, 54,249 ft; Initial heading (deg) 230							
15 - 18	26,000	10.1	-6.6	16.4	-----	276	----	5
18 - 21		2.8	-4.1	----	-----	----	----	6
21 - 24		6.9	-3.8	----	-----	----	----	8
24 - 27		5.4	-3.2	----	-----	----	----	12
27 - 30		5.1	-5.1	9.9	-----	34	----	8
30 - 33		10.4	-4.4	----	-----	----	----	5
33 - 36	26,500	8.5	-3.8	----	-12.0	----	70	7
36 - 39		6.3	-----	8.7	-7.9	94	64	2
39 - 42		2.5	-8.5	----	-----	----	----	7
42 - 45		5.7	-2.2	15.2	-7.3	101	34	9
45 - 48	26,000	6.3	-2.2	----	-----	----	----	6
48 - 51		----	-3.2	4.8	-10.3	71	71	2
51 - 54		2.2	-3.8	----	-5.7	----	35	6
54 - 57		----	-----	----	-----	----	----	0
Airplane 350 Traverse 3	Time (EST) 150352 - 150555; Length of traverse 140.8 sec, 48,201 ft; Initial heading (deg) 50							
0 - 3	26,000	2.2	-3.1	----	-5.5	----	70	2
3 - 6		----	-----	----	-----	----	----	1
6 - 9		----	-----	----	-----	----	----	0
9 - 12		----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	1
15 - 18		----	-----	----	-----	----	----	0
18 - 21		5.0	-2.2	----	-----	----	----	4
21 - 24		4.7	-4.4	8.5	-----	105	----	7
24 - 27		12.9	-3.1	15.1	-----	276	----	8
27 - 30		10.4	-4.1	----	-----	----	----	14
30 - 33		9.1	-9.4	----	-----	----	----	5
33 - 36		5.7	-7.2	----	-----	----	----	2
36 - 39		----	-----	----	-----	----	----	2
39 - 42		----	-----	----	-----	----	----	0
42 - 45		6.9	-3.8	10.1	-----	131	----	5
45 - 48		2.2	-----	5.7	-----	34	----	2
48 - 51		----	-----	----	-----	----	----	0

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 350 Traverse 4	Time (EST) - (a) Length of traverse 77.2 sec, 27,532 ft Initial heading (deg) - (a)							
0 - 3	16,000	5.6	-6.2	6.4	-----	71	----	4
3 - 6		13.7	-16.2	----	-----	----	----	2
6 - 9		8.4	-3.4	----	-----	----	----	6
9 - 12		5.6	-4.1	----	-----	----	----	3
12 - 15		4.7	-5.9	12.6	-6.0	144	213	3
15 - 18		4.4	-4.7	----	-----	----	----	6
18 - 21		5.3	-1.9	----	-----	----	----	8
21 - 24		5.0	-5.0	----	-----	----	----	7
24 - 27		8.1	-2.2	----	-----	----	----	2
27 - 30		----	-1.6	----	-----	----	----	1
Airplane 348 Traverse 1	Time (EST) - (b) Length of traverse 279.4 sec, 91,471 ft Initial heading (deg) 120							
0 - 3	21,000	----	-----	----	-----	----	----	0
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-----	----	-----	----	----	0
9 - 12		----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	0
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	0
21 - 24		----	-----	----	-----	----	----	0
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-4.1	----	-----	----	----	1
30 - 33		----	-----	----	-----	----	----	0
33 - 36		----	-----	----	-----	----	----	0
36 - 39		----	-10.2	----	-----	----	----	3
39 - 42		12.1	-10.8	23.0	-----	152	----	7
42 - 45		4.5	-9.6	16.8	-----	59	----	9
45 - 48		11.8	-8.3	----	-----	----	----	5
48 - 51		9.2	-3.8	----	-----	----	----	4

[a]No records obtained.
[b]Clock not installed in airplane.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 348 Traverse 1		Time (EST) - (b) Length of traverse 279.4 sec, 91,471 ft Initial heading (deg) 120						
51 - 54	21,500	4.1	-7.0	----	-----	----	----	7
54 - 57		14.0	-9.2	----	-----	----	----	5
57 - 60		6.7	-8.0	----	-----	----	----	5
60 - 63		13.7	-6.7	----	-----	----	----	4
63 - 66		8.3	-7.3	----	-----	----	----	5
66 - 69	22,000	12.4	-20.1	----	-----	----	----	7
69 - 72		11.5	-9.9	----	-----	----	----	4
72 - 75		7.3	-12.4	----	-----	----	----	2
75 - 78		9.6	-1.0	----	-----	----	----	3
78 - 81	22,500	----	-4.1	----	-----	----	----	1
81 - 84		----	-4.1	----	-----	----	----	1
84 - 87		----	-----	----	-----	----	----	0
87 - 90		----	-----	----	-----	----	----	0
90 - 93		----	-----	----	-----	----	----	0
Airplane 348 Traverse 2		Time (EST) - (b) Length of traverse 182.5 sec, 58,588 ft Initial heading (deg) 290						
0 - 3	21,000	----	-----	----	-----	----	----	0
3 - 6		5.1	-----	----	-----	----	----	1
6 - 9		5.1	-3.8	----	-----	----	----	2
9 - 12		----	-4.1	----	-----	----	----	1
12 - 15		6.6	-6.3	----	-----	----	----	4
15 - 18		6.6	-5.4	----	-----	----	----	3
18 - 21	20,500	6.6	-----	----	-----	----	----	1
21 - 24		----	-----	----	-----	----	----	0
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-4.1	----	-----	----	----	1
30 - 33	21,000	----	-10.1	----	-----	----	----	2
33 - 36		----	-11.4	----	-----	----	----	1
36 - 39		7.0	-10.1	----	-----	----	----	4
39 - 42	20,500	11.1	-9.2	----	-----	----	----	5
42 - 45		12.3	-11.4	----	-----	----	----	5
45 - 48		8.2	-5.4	----	-----	----	----	4

[b]Clock not installed in airplane.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 348 Traverse 2	Time (EST) - (b) Length of traverse 182.5 sec, 58,588 ft Initial heading (deg) 290							
48 - 51	20,500	4.1	-----	10.4	-----	91	----	3
51 - 54		----	-----	----	-----	----	----	0
54 - 57		5.4	-----	----	-----	----	----	1
57 - 60		----	-----	----	-----	----	----	0
Airplane 345 Traverse 1	Time (EST) - (a) Length of traverse 339.2 sec, 88,036 ft Initial heading (deg) - (a)							
0 - 3	15,500	----	-----	----	-----	----	----	0
3 - 6		----	-5.1	----	-----	----	----	5
6 - 9		4.8	-5.1	9.3	-----	155	----	5
9 - 12		3.8	-3.2	----	-----	----	----	5
12 - 15		----	-3.2	----	-----	----	----	8
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	0
21 - 24		----	-----	----	-----	----	----	1
24 - 27	16,000	----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-3.8	----	-----	----	----	3
33 - 36	15,500	3.8	-3.5	----	-6.9	----	134	7
36 - 39		5.1	-2.9	----	-----	----	----	4
39 - 42		2.2	-----	----	-----	----	----	1
42 - 45		----	-3.2	----	-----	----	----	4
45 - 48		----	-----	----	-----	----	----	0
48 - 51		4.5	-10.5	----	-11.9	----	72	9
51 - 54		7.7	-7.0	----	-6.8	----	55	7
54 - 57		4.5	-----	----	-----	----	----	1
57 - 60		----	-----	----	-----	----	----	1
60 - 63		----	-----	----	-----	----	----	1
63 - 66		6.4	-5.7	----	-----	----	----	4
66 - 69		7.7	-11.5	14.6	-----	29	----	10
69 - 72		17.2	-16.6	----	-----	----	----	7
72 - 75		16.9	-5.7	----	-----	----	----	7
75 - 78		6.7	-2.6	13.0	-----	118	----	7

[a]No records obtained.
[b]Clock not installed in airplane.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 345 Traverse 1	Time (EST) - (a) Length of traverse 339.2 sec, 88,036 ft Initial heading (deg) - (a)							
78 - 81	15,500	3.5	-10.5	----	-----	----	----	6
81 - 84		8.9	-10.8	15.5	-----	164	----	6
84 - 87		----	-6.1	----	-----	----	----	5
87 - 90		3.2	-----	----	-----	----	----	3
Airplane 345 Traverse 2	Time (EST) - (a) Length of traverse 192.3 sec, 48,325 ft Initial heading (deg) - (a)							
0 - 3	15,500	----	-----	----	-----	----	----	1
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-3.2	----	-----	----	----	1
9 - 12		----	-3.8	----	-----	----	----	4
12 - 15		----	-4.4	----	-----	----	----	7
15 - 18		----	-5.4	----	-----	----	----	6
18 - 21		5.1	-6.0	----	-----	----	----	10
21 - 24		8.9	-3.8	----	-----	----	----	7
24 - 27		9.5	-7.0	21.4	-----	175	----	5
27 - 30		6.0	-8.6	----	-----	----	----	7
30 - 33		5.1	-5.7	----	-8.3	----	190	8
33 - 36		6.7	-7.6	----	-10.2	----	96	10
36 - 39		3.8	-3.2	7.5	-8.8	51	179	6
39 - 42		3.2	-----	----	-----	----	----	4
42 - 45		----	-----	----	-----	----	----	0
45 - 48		----	-3.8	----	-----	----	----	1
48 - 51		----	-----	----	-----	----	----	0
Airplane 331 Traverse 1	Time (EST) 143645 - 144139 Length of traverse 300.6 sec, 85,629 ft Initial heading (deg) 80							
0 - 3	11,000	6.4	-----	----	-----	----	----	1
3 - 6	11,500	7.1	-6.4	----	-----	----	----	4
6 - 9		4.8	-10.3	----	-5.7	----	72	5
9 - 12		8.7	-8.0	----	-----	----	----	7

[a]No records obtained.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 331 Traverse 1		Time (EST) 143645 - 144139 Length of traverse 300.6 sec, 85, 629 ft Initial heading (deg) 80						
12 - 15	11,000	12.2	-7.7	----	-----	----	----	6
15 - 18		8.3	-7.1	----	-11.0	----	61	8
18 - 21		3.8	-----	----	-----	----	----	4
21 - 24		3.2	-2.6	----	-----	----	----	2
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-----	----	-----	----	----	0
33 - 36		----	-----	----	-----	----	----	0
36 - 39		----	-----	----	-----	----	----	0
39 - 42		----	-----	----	-----	----	----	0
42 - 45		----	-----	----	-----	----	----	0
45 - 48		----	-3.5	----	-4.8	----	28	2
48 - 51		7.4	-7.1	----	-----	----	----	11
51 - 54	11,500	11.5	-10.3	24.4	-----	73	----	7
54 - 57		8.3	-12.5	13.1	-----	56	----	8
57 - 60		12.5	-6.7	----	-----	----	----	8
60 - 63		9.0	-10.6	10.5	-----	117	----	7
63 - 66		11.2	-9.0	----	-21.3	----	178	11
66 - 69		4.8	-6.1	----	-----	----	----	4
69 - 72		14.1	-15.7	----	-----	----	----	8
72 - 75		10.3	-9.6	----	-----	----	----	9
75 - 78		8.3	-8.3	----	-----	----	----	7
78 - 81		3.5	-3.2	----	-----	----	----	3
81 - 84		10.3	-6.4	----	-----	----	----	5
84 - 87		7.1	-5.8	----	-----	----	----	2
Airplane 331 Traverse 2		Time (EST) 144633 - 144858 Length of traverse 171.6 sec, 46,664 ft Initial heading (deg) 200						
0 - 3	11,000	----	-----	----	-----	----	----	0
3 - 6		4.8	-5.4	----	-----	----	----	4
6 - 9		4.1	-----	----	-----	----	----	3
9 - 12		10.5	-9.2	----	-----	----	----	7
12 - 15		14.3	-10.2	----	-----	----	----	8

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 331 Traverse 2		Time (EST) 144633 - 144858 Length of traverse 171.6 sec, 46,664 ft Initial heading (deg) 200						
15 - 18	11,000	4.5	-9.9	----	-----	----	----	3
18 - 21		----	-----	----	-----	----	----	0
21 - 24		3.8	-1.9	----	-----	----	----	4
24 - 27		3.8	-4.5	----	-----	----	----	2
27 - 30		4.1	-3.5	----	-----	----	----	3
30 - 33		4.5	-3.8	8.9	-6.6	79	80	2
33 - 36	11,500	----	-----	----	-----	----	----	0
36 - 39		----	-----	----	-----	----	----	0
39 - 42		----	-----	----	-----	----	----	0
42 - 45		----	-6.1	----	-----	----	----	1
45 - 48	11,000	----	-----	----	-----	----	----	0
Airplane 331 Traverse 3		Time (EST) 145413 - 145902 Length of traverse 306.5 sec, 87,636 ft Initial heading (deg) 40						
0 - 3	11,500	12.4	-12.4	----	-----	----	----	8
3 - 6		15.9	-19.1	----	-----	----	----	9
6 - 9		14.9	-6.7	----	-----	----	----	7
9 - 12		----	-----	----	-----	----	----	0
12 - 15	12,000	9.5	-2.5	----	-----	----	----	2
15 - 18		6.4	-9.5	----	-----	----	----	6
18 - 21	11,500	3.8	-4.4	----	-----	----	----	4
21 - 24		7.0	-----	----	-----	----	----	1
24 - 27	11,000	----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-----	----	-----	----	----	0
33 - 36		----	-----	----	-----	----	----	0
36 - 39		----	-----	----	-----	----	----	0
39 - 42		----	-----	----	-----	----	----	0
42 - 45		----	-----	----	-3.2	----	234	1
45 - 48	11,500	----	-----	----	-----	----	----	0
48 - 51		----	-----	----	-----	----	----	0
51 - 54		----	-7.9	----	-----	----	----	2
54 - 57		4.8	-7.0	7.8	-----	73	----	4

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 331 Traverse 3		Time (EST) 145413 - 145902 Length of traverse 306.5 sec, 87,636 ft Initial heading (deg) 40						
57 - 60	11,500	7.9	-10.5	----	-----	----	----	8
60 - 63		4.4	-4.1	----	-8.0	----	159	5
63 - 66	11,000	3.2	-----	----	-----	----	----	2
66 - 69		3.5	-----	----	-----	----	----	4
69 - 72		4.4	-4.1	----	-----	----	----	6
72 - 75		5.7	-5.7	8.6	-----	92	----	4
75 - 78		2.2	-4.1	----	-3.4	----	59	4
78 - 81		3.5	-5.7	----	-----	----	----	6
81 - 84		5.7	-4.4	----	-----	----	----	5
84 - 87		----	-----	----	-----	----	----	0
87 - 90		----	-----	----	-----	----	----	0
Airplane 331 Traverse 4		Time (EST) 150340 - 150639 Length of traverse 198.8 sec, 55,248 ft Initial heading (deg) 230						
0 - 3	11,000	----	-----	----	-----	----	----	0
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-----	----	-----	----	----	0
9 - 12		----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	0
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	0
21 - 24	10,500	4.1	-4.7	----	-----	----	----	2
24 - 27		3.5	-----	4.5	-----	58	----	3
27 - 30		----	-----	----	-----	----	----	0
30 - 33		3.5	-7.3	----	-----	----	----	3
33 - 36		2.2	-6.9	----	-----	----	----	5
36 - 39		4.7	-2.2	----	-----	----	----	3
39 - 42	11,000	----	-----	----	-----	----	----	0
42 - 45		----	-----	----	-----	----	----	0
45 - 48		1.6	-2.8	----	-2.8	----	80	2
48 - 51		2.2	-----	----	-----	----	----	1
51 - 54	10,500	----	-----	----	-----	----	----	0
54 - 57		----	-----	----	-----	----	----	0

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $\bar{U}_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 11, 1946 - Flight 34								
Airplane 351 Traverse 1		Time (EST) 143500 - 144043 Length of traverse 348.4 sec, 88,107 ft Initial heading (deg) 120						
(c)	5,500							
Airplane 351 Traverse 2		Time (EST) 144615 - 144813 Length of traverse 128.0 sec, 31,167 ft Initial heading (deg) 210						
0 - 3	5,500	4.5	-----	----	-----	----	----	2
3 - 6		4.5	-3.5	----	-6.1	----	49	2
6 - 9		4.8	-7.3	----	-----	----	----	5
9 - 12		5.1	-7.3	----	-----	----	----	6
12 - 15		6.4	-7.3	----	-11.9	----	73	5
15 - 18		----	-7.0	----	-----	----	----	1
18 - 21		----	-4.8	----	-----	----	----	1
21 - 24		----	-----	----	-----	----	----	0
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-----	----	-----	----	----	0
Airplane 351 Traverse 3		Time (EST) 145347 - 145603 Length of traverse 146.2 sec, 36,034 ft Initial heading (deg) 120						
0 - 3	5,500	7.3	-----	10.5	-----	184	----	2
3 - 6		4.8	-3.2	----	-10.2	----	215	4
6 - 9		----	-5.1	----	-----	----	----	2
9 - 12		----	-4.4	----	-8.5	----	192	2
12 - 15		----	-----	----	-----	----	----	0
15 - 18		----	-3.5	----	-----	----	----	1
18 - 21		4.4	-----	9.3	-----	152	----	1
21 - 24		4.4	-3.5	----	-5.4	----	148	3
24 - 27		----	-3.5	----	-----	----	----	1
27 - 30		4.4	-6.4	----	-----	----	----	4
30 - 33		7.3	-6.4	13.4	-----	24	----	2
33 - 36		----	-----	----	-----	----	----	0
36 - 39		----	-----	----	-----	----	----	0

[c]Failure in operation of accelerometer prevented computations for gust velocities.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 351 Traverse 1	Time (EST) 135102 - 135633 Length of traverse 333.5 sec, 104,942 ft Initial heading (deg) 245							
0 - 3	21,000	5.4	-3.5	----	-----	----	----	4
3 - 6		5.4	-4.5	----	-----	----	----	2
6 - 9		2.9	-5.4	----	-----	----	----	2
9 - 12		12.4	-5.4	9.5	-9.5	87	29	5
12 - 15		12.8	-5.4	----	-----	----	----	4
15 - 18		5.7	-----	----	-----	----	----	1
18 - 21		----	-----	----	-----	----	----	0
21 - 24		5.7	-7.7	----	-----	----	----	2
24 - 27		2.9	-5.7	----	-----	----	----	2
[d]27 - 45								
45 - 48	20,500	----	-7.0	----	-----	----	----	1
48 - 51		15.0	-5.7	----	-----	----	----	6
51 - 54		12.1	-13.4	----	-----	----	----	5
54 - 57	21,000	10.5	-4.5	----	-----	----	----	3
57 - 60		5.4	-19.1	----	-----	----	----	5
60 - 63	21,500	15.9	-12.4	----	-----	----	----	8
63 - 66		15.0	-13.1	----	-15.1	----	137	8
66 - 69		7.0	-12.4	----	-21.9	----	252	7
69 - 72		6.1	-8.3	----	-----	----	----	3
72 - 75		----	-----	----	-----	----	----	0
75 - 78		7.0	-8.3	----	-----	----	----	6
78 - 81	22,000	----	-5.7	----	-----	----	----	2
81 - 84		10.2	-8.9	19.4	-----	134	----	9
84 - 87		8.3	-14.0	----	-----	----	----	6
87 - 90	21,500	----	-----	----	-----	----	----	0
90 - 93		----	-----	----	-----	----	----	0
93 - 96		----	-----	----	-----	----	----	0
96 - 99		----	-----	----	-----	----	----	0
99 - 102		----	-----	----	-----	----	----	0
102 - 105		----	-----	----	-----	----	----	0

[d]Failure in operation of accelerometer prevented computations for gust velocities over intervals from 27,000 to 45,000 feet.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 351 Traverse 2		Time (EST) 141003 - 141344 Length of traverse 233.0 sec, 80,105 ft Initial heading (deg) 90						
0 - 3	21,000	10.7	-12.6	----	-----	----	----	4
3 - 6		4.4	-6.9	----	-----	----	----	4
6 - 9		2.5	-4.7	----	-----	----	----	2
9 - 12		4.1	-8.8	----	-----	----	----	5
12 - 15		6.9	-13.9	----	-----	----	----	7
15 - 18	21,500	13.9	-12.9	----	-----	----	----	5
18 - 21		6.0	-8.5	----	-18.4	----	215	6
21 - 24		4.4	-4.4	----	-----	----	----	5
24 - 27		6.0	-6.0	----	-----	----	----	7
27 - 30	22,000	6.6	-8.8	----	-----	----	----	5
30 - 33		6.6	-10.1	----	-----	----	----	4
33 - 36		13.5	-6.3	11.1	-----	100	----	4
36 - 39		8.8	-6.9	----	-6.7	----	68	7
39 - 42		----	-4.7	10.0	-----	34	----	3
42 - 45		4.7	-7.9	8.9	-----	170	----	2
45 - 48		7.2	-8.2	11.1	-----	100	----	5
48 - 51		4.4	-6.3	----	-----	----	----	4
51 - 54		5.4	-7.9	----	-----	----	----	4
54 - 57		----	-8.8	----	-10.0	----	34	2
57 - 60		6.3	-4.7	14.3	-10.0	106	34	6
60 - 63		4.1	-6.9	11.5	-----	34	----	5
63 - 66		----	-4.7	----	-10.1	----	33	4
66 - 69		4.7	-----	8.9	-----	171	----	3
69 - 72		----	-5.7	----	-----	----	----	1
72 - 75		----	-----	----	-----	----	----	0
75 - 78		----	-----	----	-----	----	----	0
78 - 81		----	-----	----	-----	----	----	0
Airplane 351 Traverse 3		Time (EST) 142201 - (e) Length of traverse 227.8 sec, 73,768 ft Initial heading (deg) 270						
0 - 3	21,000	3.1	-----	----	-----	----	----	1
3 - 6		3.1	-----	----	-----	----	----	2
6 - 9		6.6	-16.9	----	-----	----	----	5

[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 351 Traverse 3	Time (EST) 142201 - (e) Length of traverse 227.8 sec, 73,768 ft Initial heading (deg) 270							
9 - 12	21,000	6.6	-5.6	----	-----	----	----	4
12 - 15		----	-5.9	9.7	-----	99	----	2
15 - 18		6.6	-----	----	-----	----	----	1
18 - 21		----	-7.5	----	-----	----	----	2
21 - 24		7.2	-4.7	----	-----	----	----	3
24 - 27		3.1	-8.8	----	-----	----	----	3
27 - 30		5.9	-15.0	----	-----	----	----	3
30 - 33		6.9	-4.1	----	-----	----	----	4
33 - 36		9.4	-5.6	----	-----	----	----	5
36 - 39		----	-4.7	----	-----	----	----	1
39 - 42		----	-----	----	-----	----	----	0
42 - 45		----	-4.7	----	-----	----	----	2
45 - 48		3.1	-4.1	----	-----	----	----	2
48 - 51		3.1	-----	----	-----	----	----	1
51 - 54		----	-5.9	8.3	-----	92	----	4
54 - 57		9.4	-8.1	9.2	-----	61	----	11
57 - 60		5.3	-3.4	20.6	-----	151	----	7
60 - 63		----	-----	----	-----	----	----	0
63 - 66		----	-----	----	-----	----	----	0
66 - 69		----	-----	----	-----	----	----	0
69 - 72		----	-----	----	-----	----	----	0
72 - 75		----	-----	----	-----	----	----	0
Airplane 351 Traverse 4	Time (EST) - (a) Length of traverse 257.3 sec, 88,740 ft Initial heading (deg) - (a)							
0 - 3	21,000	----	-----	----	-----	----	----	0
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-----	----	-----	----	----	0
9 - 12		----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	0
15 - 18		4.0	-4.6	----	-----	----	----	3

[a]No records obtained.
[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 351 Traverse 4	Time (EST) - (a) Length of traverse 257.3 sec, 88,740 ft Initial heading (deg) - (a)							
18 - 21	21,000	4.9	-5.9	5.8	-13.8	128	159	3
21 - 24		5.9	-16.0	13.4	----	66	----	9
24 - 27		7.4	-11.1	----	----	----	----	8
27 - 30		8.0	-5.9	----	----	----	----	5
30 - 33		12.3	-6.5	----	-12.0	----	72	6
33 - 36		2.5	-3.1	----	----	----	----	2
36 - 39		3.1	----	----	----	----	----	1
39 - 42		----	----	----	----	----	----	0
42 - 45		----	----	----	----	----	----	0
45 - 48		----	-3.7	----	-6.0	----	104	4
48 - 51		10.2	----	----	----	----	----	4
51 - 54		7.7	-5.2	----	----	----	----	3
54 - 57		8.6	-6.8	----	----	----	----	5
57 - 60		8.0	-9.3	----	----	----	----	14
60 - 63		11.1	-8.0	20.8	----	144	----	3
63 - 66		8.3	-8.3	----	----	----	----	6
66 - 69		11.1	-7.1	----	----	----	----	7
69 - 72		11.7	-7.7	----	----	----	----	7
72 - 75	21,500	8.9	-7.4	----	----	----	----	3
75 - 78		7.7	-9.6	----	----	----	----	5
78 - 81	22,000	----	-6.5	----	----	----	----	1
81 - 84		6.8	-8.9	----	----	----	----	6
84 - 87		----	-8.6	----	----	----	----	3
87 - 90		----	----	----	----	----	----	0
Airplane 351 Traverse 5	Time (EST) 143517 - 143920 Length of traverse 252.2 sec, 91,530 ft Initial heading (deg) 360							
0 - 3	21,500	10.5	-18.9	----	-37.8	----	32	5
3 - 6	21,000	----	----	----	-9.6	----	69	0
6 - 9		----	----	----	----	----	----	0
9 - 12		----	----	----	----	----	----	0
12 - 15		4.0	-5.9	----	----	----	----	5

[a] No records obtained.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 351 Traverse 5	Time (EST) 143517 - 143920 Length of traverse 252.2 sec, 91,530 ft Initial heading (deg) 360							
15 - 18	21,000	5.6	-3.7	15.7	-----	99	----	2
18 - 21		----	-11.5	----	-5.8	----	209	3
21 - 24		-4.3	-5.0	----	-----	----	----	3
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-----	----	-----	----	----	0
33 - 36		----	-----	----	-----	----	----	0
36 - 39		----	-5.9	----	-----	----	----	3
39 - 42		-8.7	-----	----	-----	----	----	3
42 - 45		----	-12.4	----	-----	----	----	1
45 - 48		8.4	-7.4	7.1	-----	105	----	5
48 - 51		4.7	-12.4	----	-----	----	----	5
51 - 54		5.6	-9.0	----	-----	----	----	3
54 - 57		-2.8	-5.0	----	-----	----	----	2
57 - 60		----	-----	----	-----	----	----	0
60 - 63		----	-----	----	-----	----	----	0
63 - 66		----	-----	----	-----	----	----	0
66 - 69		----	-----	----	-----	----	----	0
69 - 72		----	-----	----	-----	----	----	0
72 - 75		----	-----	----	-----	----	----	0
75 - 78		2.8	-----	8.1	-----	142	----	3
78 - 81		----	-----	----	-----	----	----	0
81 - 84		----	-5.3	----	-----	----	----	1
84 - 87		----	-6.5	----	-----	----	----	2
87 - 90		----	-----	----	-----	----	----	0
90 - 93		----	-----	----	-----	----	----	0
Airplane 333 Traverse 1	Time (EST) 135000 - 135604 Length of traverse 382.2 sec, 124,589 ft Initial heading (deg) 210							
0 - 3	16,000	-3.2	-----	----	-----	----	----	2
3 - 6		----	-----	----	-----	----	----	2
6 - 9		----	-----	----	-----	----	----	1
9 - 12		----	-----	----	-----	----	----	5

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 333 Traverse 1	Time (EST) 135000 - 135604 Length of traverse 382.2 sec, 124,589 ft Initial heading (deg) 210							
12 - 15	16,000	----	-4.1	----	-7.4	----	32	8
15 - 18		----	-4.1	----	----	----	----	9
18 - 21		----	-3.2	7.9	-5.0	-62	-62	7
21 - 24		3.2	-7.0	----	----	----	----	14
24 - 27		6.4	----	----	----	----	----	4
27 - 30		5.1	----	----	-7.1	----	33	7
30 - 33		----	----	----	----	----	----	0
33 - 36		5.1	-3.2	7.9	-7.9	-62	-63	8
36 - 39		----	-6.1	----	----	----	----	5
39 - 42		8.9	-11.5	14.6	----	30	----	7
42 - 45	15,500	8.9	-4.5	----	-8.7	----	-60	5
45 - 48		5.7	----	----	----	----	----	4
48 - 51	16,000	12.8	-11.5	14.8	----	-63	----	13
51 - 54		6.1	-7.3	----	-13.2	----	96	15
54 - 57		12.1	-6.4	17.3	-8.7	98	96	16
57 - 60	16,500	10.8	-10.8	7.1	----	-66	----	8
60 - 63		9.9	-15.9	----	----	----	----	8
63 - 66		7.0	-4.1	8.7	----	-62	----	6
66 - 69		8.3	-7.7	----	----	----	----	14
69 - 72	16,000	10.5	-7.0	----	----	----	----	14
72 - 75		7.0	-8.9	9.2	-23.2	66	169	4
75 - 78		14.3	-10.5	18.4	----	139	----	7
78 - 81		9.6	-7.0	----	----	----	----	3
81 - 84		3.8	-6.7	----	----	----	----	4
84 - 87		12.4	-6.7	----	----	----	----	14
87 - 90		4.8	-10.8	----	----	----	----	8
90 - 93		10.5	-9.9	----	----	----	----	11
93 - 96		11.5	-14.3	----	----	----	----	11
96 - 99		10.8	-6.1	----	----	----	----	8
99 - 102	16,500	----	----	----	----	----	----	4
102 - 105		----	----	----	----	----	----	2
105 - 108		----	-3.2	----	----	----	----	2
108 - 111		----	----	----	----	----	----	0
111 - 114		----	----	----	----	----	----	0

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 333 Traverse 1	Time (EST) 135000 - 135604 Length of traverse 382.2 sec, 124,589 ft Initial heading (deg) 210							
114 - 117	16,500	4.8	-7.0	----	-----	----	----	7
117 - 120	16,000	14.7	-7.0	22.9	-26.9	137	71	9
120 - 123		9.9	-4.8	----	-----	----	----	8
123 - 126		2.9	-6.4	----	-----	----	----	3
Airplane 333 Traverse 2	Time (EST) 140710 - 140839 Length of traverse 105.0 sec, 34,881 ft Initial heading (deg) 50							
0 - 3	16,000	18.4	-11.1	21.1	-----	94	----	9
3 - 6		7.0	-7.3	8.4	-----	34	----	8
6 - 9	16,500	18.4	-17.5	----	-----	----	----	7
9 - 12		15.6	-7.6	----	-13.4	----	67	4
12 - 15		6.7	-10.5	----	-----	----	----	13
15 - 18		16.5	-6.7	11.4	-----	66	----	8
18 - 21		7.9	-17.1	21.3	-21.3	66	198	10
21 - 24		10.8	-11.1	----	-----	----	----	6
24 - 27	16,000	----	-8.6	----	-----	----	----	9
27 - 30		14.3	-5.1	----	-----	----	----	6
30 - 33		----	-----	----	-----	----	----	0
33 - 36		4.8	-----	----	-----	----	----	1
Airplane 333 Traverse 3	Time (EST) 140922 - 141313 Length of traverse 244.8 sec, 82,479 ft Initial heading (deg) 90							
0 - 3	16,000	9.2	-----	----	-----	----	----	1
3 - 6		4.1	-6.3	----	-----	----	----	5
6 - 9		----	-4.1	----	-----	----	----	4
9 - 12		3.2	-----	----	-----	----	----	1
12 - 15		3.2	-----	----	-----	----	----	3
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	1
21 - 24		----	-----	----	-----	----	----	0
24 - 27		4.1	-7.3	----	-----	----	----	5

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 333 Traverse 3	Time (EST) 140922 - 141313 Length of traverse 244.8 sec, 82,479 ft Initial heading (deg) 90							
27 - 30	16,000	5.7	-6.0	----	-----	----	----	8
30 - 33		6.7	-2.9	15.4	-----	34	----	5
33 - 36		7.3	-6.7	----	-----	----	----	8
36 - 39		4.4	-6.0	----	-----	----	----	8
39 - 42	16,500	5.1	-4.8	----	-----	----	----	4
42 - 45		7.3	-7.6	----	-16.2	----	96	8
45 - 48		4.8	-3.8	----	-----	----	----	2
48 - 51	16,000	3.2	-----	----	-8.4	----	197	4
51 - 54		7.3	-----	9.1	-----	33	----	6
54 - 57		2.2	-----	----	-----	----	----	8
57 - 60		2.9	-----	----	-----	----	----	4
60 - 63		9.2	-5.1	----	-----	----	----	9
63 - 66		6.3	-10.5	----	-----	----	----	6
66 - 69		----	-3.8	----	-----	----	----	2
69 - 72		6.0	-8.3	6.8	-8.4	101	34	5
72 - 75		----	-----	----	-----	----	----	10
75 - 78		4.8	-2.9	----	-----	----	----	9
78 - 81		3.8	-2.9	----	-----	----	----	6
81 - 84		----	-----	----	-----	----	----	3
Airplane 333 Traverse 4	Time (EST) 141759 - 142354 Length of traverse 374.2 sec, 118,551 ft Initial heading (deg) 280							
0 - 3	16,000	----	-----	----	-----	----	----	0
3 - 6		4.1	-3.2	----	-----	----	----	5
6 - 9		5.4	-6.6	----	-7.2	----	31	6
9 - 12		----	-----	----	-----	----	----	2
12 - 15		3.2	-2.5	----	-----	----	----	6
15 - 18		2.5	-5.0	----	-----	----	----	8
18 - 21		----	-----	----	-----	----	----	0
21 - 24		6.3	-----	----	-----	----	----	8
24 - 27		4.4	-3.2	7.9	-----	31	----	12
27 - 30		3.5	-4.4	----	-----	----	----	7
30 - 33		11.7	-6.9	----	-----	----	----	4
33 - 36		6.9	-11.0	17.7	-----	184	----	10

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 333 Traverse 4	Time (EST) 141759 - 142354 Length of traverse 374.2 sec, 118,551 ft Initial heading (deg) 280							
36 - 39	16,000	----	-6.6	----	-----	----	----	7
39 - 42	15,500	5.7	-3.2	7.7	-----	64	----	4
42 - 45		4.1	-----	----	-----	----	----	4
45 - 48		4.7	-----	----	-----	----	----	7
48 - 51		----	-3.8	----	-----	----	----	8
51 - 54	16,000	----	-----	----	-----	----	----	3
54 - 57		----	-----	----	-----	----	----	0
57 - 60		5.4	-----	----	-----	----	----	2
60 - 63		3.8	-----	5.5	-----	57	----	4
63 - 66		3.8	-6.0	----	-----	----	----	3
66 - 69		3.5	-----	----	-----	----	----	6
69 - 72		----	-----	----	-----	----	----	2
72 - 75		6.6	-3.2	----	-13.9	----	177	5
75 - 78		5.4	-5.7	----	-----	----	----	11
78 - 81		4.7	-6.6	----	-----	----	----	6
81 - 84		4.1	-10.1	----	-7.9	----	64	9
84 - 87		15.1	-2.8	20.3	-----	68	----	9
87 - 90		15.8	-8.2	9.1	-----	66	----	9
90 - 93		12.9	-7.6	----	-----	----	----	10
93 - 96		5.7	-9.1	----	-----	----	----	14
96 - 99		5.0	-7.6	----	-----	----	----	15
99 - 102		4.4	-9.8	----	-----	----	----	4
102 - 105		5.0	-4.7	11.0	-----	65	----	7
105 - 108		12.9	-6.3	14.7	-----	233	----	5
108 - 111		14.2	-5.0	----	-----	----	----	6
111 - 114		5.0	-6.6	----	-----	----	----	7
114 - 117		3.2	-3.2	----	-----	----	----	8
117 - 120		3.2	-----	----	-----	----	----	3
Airplane 333 Traverse 5	Time (EST) 143108 - 143506 Length of traverse 254.5 sec, 84,000 ft Initial heading (deg) 50							
0 - 3	16,000	14.4	-6.9	----	-11.0	----	160	4
3 - 6		14.1	-8.8	11.6	-11.6	128	139	2
6 - 9		11.3	-4.7	----	-----	----	----	4

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 333 Traverse 5	Time (EST) 143108 - 143506 Length of traverse 254.5 sec, 84,000 ft Initial heading (deg) 50							
9 - 12	16,000	----	-4.1	----	-----	----	----	3
12 - 15		8.1	-11.0	7.0	-10.2	31	64	7
15 - 18		16.9	-12.8	----	-----	----	----	10
18 - 21		10.6	-9.4	----	-23.0	----	130	13
[e]21 - 24		5.0	-----	----	-----	----	----	2
Airplane 350 Traverse 1	Time (EST) 134800 - (e) Length of traverse 552.9 sec, 163,814 ft Initial heading (deg) 260							
0 - 3	11,000	9.3	-2.9	----	-15.7	----	306	7
3 - 6		10.3	-17.0	7.2	-----	90	----	10
6 - 9		15.4	-15.1	----	-----	----	----	3
9 - 12		2.2	-4.8	----	-----	----	----	3
12 - 15		4.2	-5.5	----	-----	----	----	2
15 - 18		----	-----	----	-----	----	----	0
18 - 21		4.5	-----	----	-----	----	----	1
21 - 24		3.2	-----	----	-----	----	----	1
24 - 27		----	-----	----	-----	----	----	0
27 - 30		----	-----	----	-----	----	----	0
30 - 33		----	-----	----	-----	----	----	0
33 - 36		3.5	-5.5	9.3	-----	60	----	2
36 - 39		5.1	-1.6	----	-4.8	----	149	4
39 - 42		4.8	-3.9	----	-----	----	----	3
42 - 45		4.5	-9.0	----	-11.1	----	189	4
45 - 48		5.1	-4.5	6.3	-----	27	----	5
48 - 51		5.8	-5.5	----	-----	----	----	4
51 - 54		10.6	-5.8	----	-----	----	----	4
54 - 57		12.8	-3.2	----	-----	----	----	9
57 - 60		5.8	-9.3	----	-----	----	----	4
60 - 63	11,500	5.1	-13.8	----	-----	----	----	5
63 - 66		5.5	-8.0	----	-----	----	----	4
66 - 69		9.9	-5.8	----	-----	----	----	7
69 - 72		2.2	-2.6	----	-----	----	----	2
72 - 75		----	-----	----	-----	----	----	0

[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 350 Traverse 1	Time (EST) 134800 - (e) Length of traverse 552.9 sec, 163,814 ft Initial heading (deg) 260							
75 - 78	11,500	5.1	-4.2	----	-----	----	----	3
78 - 81		2.6	-5.5	3.2	-----	154	----	7
81 - 84		15.1	-19.3	----	-----	----	----	9
84 - 87		18.6	-4.5	----	-----	----	----	2
87 - 90	12,000	17.3	-9.0	----	-----	----	----	4
90 - 93		9.6	-9.0	----	-----	----	----	5
93 - 96		16.4	-6.7	----	-----	----	----	7
96 - 99		10.6	-15.1	----	-----	----	----	2
99 - 102		5.1	-4.5	----	-4.8	----	58	5
102 - 105		6.4	-----	11.6	-----	262	----	3
105 - 108		6.1	-7.7	----	-----	----	----	4
108 - 111		2.4	-5.8	----	-11.6	----	90	3
111 - 114		9.3	-3.2	----	-5.4	----	204	3
114 - 117		4.5	-3.2	----	-----	----	----	6
117 - 120		4.2	-2.9	----	-----	----	----	6
120 - 123		6.4	-7.4	----	-----	----	----	3
123 - 126		9.6	-5.5	----	-----	----	----	6
126 - 129		7.1	-2.9	----	-----	----	----	5
129 - 132	12,500	11.9	-5.5	19.0	-----	117	----	5
132 - 135		10.3	-9.9	----	-----	----	----	4
135 - 138		6.1	-1.9	----	-7.3	----	245	4
138 - 141		8.7	-4.8	13.7	-----	31	----	6
141 - 144		9.0	-6.4	----	-7.6	----	191	7
144 - 147		12.8	-5.1	----	-----	----	----	7
147 - 150		12.5	-7.1	----	-----	----	----	9
150 - 153		13.5	-12.8	----	-----	----	----	8
153 - 156		----	-2.2	----	-----	----	----	1
156 - 159		10.9	-9.9	6.6	-----	160	----	6
159 - 162	13,000	4.8	-1.3	----	-----	----	----	5
162 - 165		6.4	-2.9	----	-----	----	----	2

[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 350 Traverse 2	Time (EST) 140642 - 141222 Length of traverse 366.5 sec, 109,681 ft Initial heading (deg) 90							
0 - 3	11,000	4.1	-8.3	----	-----	----	----	4
3 - 6		5.1	-----	8.2	-----	88	----	4
6 - 9		4.8	-10.8	----	-8.7	----	58	6
9 - 12		7.3	-5.1	----	-----	----	----	4
12 - 15		3.5	-6.7	----	-----	----	----	2
15 - 18		4.4	-2.5	8.7	-6.7	89	149	4
18 - 21		4.8	-9.2	4.0	-----	29	----	7
21 - 24		7.0	-----	----	-----	----	----	1
24 - 27		6.0	-10.2	6.8	-----	119	----	3
27 - 30		6.7	-8.3	8.4	-----	145	----	3
30 - 33		10.2	-12.4	7.9	-----	145	----	4
33 - 36		5.4	-7.0	----	-----	----	----	5
36 - 39		4.1	-5.7	6.3	-----	59	----	5
39 - 42		4.4	-----	9.4	-----	155	----	3
42 - 45		4.8	-----	----	-----	----	----	2
45 - 48		3.8	-3.2	----	-----	----	----	3
48 - 51		6.0	-----	----	-8.6	----	225	4
51 - 54		4.1	-4.1	7.1	-5.4	282	95	5
54 - 57		1.9	-3.2	----	-----	----	----	3
57 - 60		5.4	-4.4	5.8	-----	61	----	5
60 - 63		----	-4.4	----	-----	----	----	2
63 - 66		2.5	-3.8	6.3	-----	134	----	4
66 - 69		4.1	-4.4	----	-----	----	----	2
69 - 72		9.5	-5.1	----	-6.7	----	158	8
72 - 75		6.0	-7.0	----	-----	----	----	3
75 - 78		6.4	-2.9	----	-----	----	----	7
78 - 81		4.8	-5.7	----	-5.3	----	30	3
81 - 84		7.0	-4.1	----	-----	----	----	5
84 - 87		5.1	-5.7	----	-----	----	----	4
87 - 90		1.9	-4.1	----	-----	----	----	4
90 - 93		14.6	-6.4	----	-6.7	----	150	6
93 - 96		6.7	-4.1	7.4	-----	63	----	6
96 - 99		5.7	-6.0	----	-----	----	----	8
99 - 102		11.7	-5.7	8.2	-----	85	----	12
102 - 105		15.6	-11.1	----	-----	----	----	5
105 - 108		4.8	-5.4	----	-5.3	----	145	9
108 - 111		4.4	-7.3	7.3	-----	177	----	5

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft x 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 350 Traverse 3	Time (EST) 141650 - 142317 Length of traverse 427.1 sec, 125,453 ft Initial heading (deg) 270							
0 - 3	11,000	6.0	-3.2	7.6	-----	83	----	6
3 - 6		2.2	-2.5	3.6	-2.0	169	197	3
6 - 9		6.3	-6.0	----	-----	----	----	2
9 - 12		11.7	-4.1	----	-----	----	----	7
12 - 15		4.7	-5.7	8.7	-----	29	----	6
15 - 18		16.1	-8.2	----	-----	----	----	6
18 - 21		----	-4.7	----	-5.0	----	328	1
21 - 24		----	-2.8	----	-----	----	----	1
24 - 27		----	-2.2	----	-3.8	----	270	1
27 - 30		----	-6.0	----	-----	----	----	1
30 - 33		2.2	-3.2	----	-----	----	----	2
33 - 36		2.2	-----	4.7	-----	29	----	1
36 - 39		3.5	-----	----	-----	----	----	1
39 - 42		1.9	-2.5	----	-----	----	----	2
42 - 45		----	-5.7	----	-----	----	----	1
45 - 48		6.3	-----	----	-----	----	----	2
48 - 51		----	-----	----	-----	----	----	0
51 - 54		----	-1.9	----	-----	----	----	1
54 - 57		2.2	-5.4	3.6	-----	169	----	3
57 - 60		5.7	-6.0	10.5	-----	132	----	5
60 - 63		12.6	-8.5	----	-----	----	----	6
63 - 66		11.4	-11.7	----	-----	----	----	7
66 - 69		20.5	-18.0	----	-----	----	----	6
69 - 72		11.7	-12.3	----	-----	----	----	5
72 - 75		12.3	-9.2	----	-----	----	----	8
75 - 78		9.8	-20.2	----	-----	----	----	5
78 - 81		4.1	-1.9	----	-4.2	----	115	3
81 - 84		3.8	-2.2	----	-----	----	----	3
84 - 87		----	-4.5	----	-----	----	----	1
87 - 90		2.2	-5.0	----	-----	----	----	2
90 - 93		2.2	-3.2	4.0	-----	58	----	2
93 - 96		2.8	-4.7	----	-----	----	----	2
96 - 99		2.8	-2.2	----	-3.7	----	95	3
99 - 102		4.4	-2.8	----	-----	----	----	4
102 - 105		1.9	-3.5	----	-----	----	----	4

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 350 Traverse 3		Time (EST) 141650 - 142317 Length of traverse 427.1 sec, 125,453 ft Initial heading (deg) 270						
105 - 108	11,000	3.5	-----	----	-----	----	----	4
108 - 111		4.4	-7.9	3.1	-----	183	----	3
111 - 114		6.6	-3.8	----	-7.3	----	187	5
114 - 117		4.4	-7.6	----	-----	----	----	5
117 - 120		3.5	-1.9	----	-----	----	----	3
120 - 123		2.2	-2.8	----	-----	----	----	3
123 - 126		2.2	-4.4	----	-----	----	----	3
Airplane 350 Traverse 4		Time (EST) 142843 - 143254 Length of traverse 333.4 sec, 101,023 ft Initial heading (deg) 360						
0 - 3	11,000	17.9	-17.9	----	-----	----	----	7
3 - 6		6.3	-5.0	----	-----	----	----	6
6 - 9		12.9	-7.2	----	-----	----	----	9
9 - 12		10.3	-6.6	----	-----	----	----	4
12 - 15		4.4	-7.8	----	-8.2	----	160	3
15 - 18		4.1	-2.8	----	-----	----	----	7
18 - 21		8.2	-17.2	----	-----	----	----	12
21 - 24		7.8	-6.9	----	-18.0	----	295	6
24 - 27		12.5	-5.6	----	-----	----	----	6
27 - 30		8.5	-14.1	----	-----	----	----	3
30 - 33		15.0	-9.1	----	-----	----	----	4
33 - 36		5.3	-4.1	----	-----	----	----	5
36 - 39		6.9	-5.6	----	-----	----	----	8
39 - 42	11,500	14.1	-11.9	5.1	-----	62	----	8
42 - 45		21.6	-12.2	----	-----	----	----	6
45 - 48	12,000	8.2	-11.3	----	-----	----	----	4
48 - 51	12,500	7.5	-15.4	----	-----	----	----	3
51 - 54		12.5	-8.2	----	-----	----	----	3
54 - 57		2.2	-5.6	3.8	-----	194	----	2
57 - 60	12,000	12.5	-4.1	----	-8.4	----	152	3
60 - 63		7.2	-3.1	----	-----	----	----	6
63 - 66		1.9	-4.4	----	-----	----	----	4
66 - 69		3.4	-3.1	----	-----	----	----	3

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 12, 1946 - Flight 35								
Airplane 350 Traverse 4	Time (EST) 142843 - 143254 Length of traverse 333.4 sec, 101,023 ft Initial heading (deg) 360							
69 - 72	12,000	1.9	-----	----	-----	----	----	3
72 - 75		1.9	-----	----	-----	----	----	1
75 - 78		----	-----	----	-----	----	----	0
78 - 81		1.9	-----	----	-----	----	----	1
81 - 84		----	-----	----	-----	----	----	0
84 - 87		----	-6.3	----	-----	----	----	2
87 - 90		6.0	-6.3	----	-----	----	----	6
90 - 93		4.4	-----	----	-4.9	----	284	4
93 - 96		5.3	-2.8	7.9	-----	129	----	3
96 - 99		2.8	-2.2	----	-----	----	----	2
99 - 102		4.4	-2.8	----	-----	----	----	2
September 16, 1946 - Flight 36								
Airplane 348 Traverse 1	Time (EST) - (a) Length of traverse 270.1 sec - (a) Initial heading (deg) - (a)							
(a)								
Airplane 348 Traverse 2	Time (EST) - (a) Length of traverse 73.9 sec - (a) Initial heading (deg) - (a)							
(a)								
Airplane 351 Traverse 1	Time (EST) 124532 - 124722 Length of traverse 177.5 sec, 56,404 ft Initial heading (deg) 300							
(a)								

[a]No records obtained.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 350 Traverse 1	Time (EST) 124332 - 124700 Length of traverse 214.2 sec, 66,061 ft Initial heading (deg) 290							
0 - 3	16,000	10.8	-7.0	----	-9.8	----	64	8
3 - 6		10.2	-8.3	19.7	-----	535	----	4
6 - 9		4.8	-8.6	12.3	-----	30	----	7
9 - 12		12.1	-----	----	-----	----	----	3
12 - 15		----	-5.1	----	-8.7	----	409	1
15 - 18		1.9	-2.6	----	-6.7	----	384	2
18 - 21		2.2	-4.8	----	-9.1	----	246	2
21 - 24		2.2	-----	----	-----	----	----	1
24 - 27		----	-3.5	----	-5.6	----	125	4
27 - 30		6.7	-1.0	----	-5.6	----	156	5
30 - 33		7.3	-6.1	----	-----	----	----	9
33 - 36		7.3	-17.6	----	-----	----	----	7
36 - 39		4.1	-8.3	----	-19.7	----	123	3
39 - 42		7.7	-8.3	11.2	-----	150	----	6
42 - 45		9.6	-6.4	----	-11.9	----	332	4
45 - 48	16,500	3.2	-----	----	-----	----	----	1
48 - 51		2.2	-4.5	----	-10.0	----	146	6
51 - 54		2.2	-----	6.7	-----	122	----	2
54 - 57	16,000	2.6	-3.2	----	-----	----	----	4
57 - 60		4.1	-----	----	-----	----	----	2
60 - 63		3.2	-3.2	----	-----	----	----	3
63 - 66		3.2	-6.4	12.3	-----	400	----	5
66 - 69		----	-----	----	-----	----	----	0
Airplane 350 Traverse 2	Time (EST) 125142 - 125432 Length of traverse 187.1 sec, 56,025 ft Initial heading (deg) 30							
0 - 3	16,000	4.8	-3.8	----	-----	----	----	5
3 - 6		2.5	-----	5.1	-----	149	----	2
6 - 9		----	-3.2	----	-----	----	----	1
9 - 12		10.8	-7.0	9.5	-----	182	----	3
12 - 15		4.8	-3.8	----	-9.8	----	300	6
15 - 18		4.8	-4.8	----	-9.8	----	90	3
18 - 21		2.9	-8.6	----	-----	----	----	4

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 350 Traverse 2	Time (EST) 125142 - 1245432 Length of traverse 187.1 sec, 56,025 ft Initial heading (deg) 30							
21 - 24	16,000	5.1	-3.8	5.1	-----	117	----	4
24 - 27		6.7	-3.5	----	-4.4	----	240	4
27 - 30	16,500	2.2	-6.0	----	-----	----	----	2
30 - 33		2.2	-5.1	----	-----	----	----	2
33 - 36		3.2	-2.9	----	-----	----	----	5
36 - 39		5.1	-5.7	----	-----	----	----	3
39 - 42		2.5	-5.7	----	-----	----	----	5
42 - 45		3.8	-8.6	----	-----	----	----	2
45 - 48		7.3	-----	----	-----	----	----	1
48 - 51		----	-----	----	-----	----	----	1
51 - 54		5.7	-7.9	----	-----	----	----	6
54 - 57		2.2	-8.6	----	-----	----	----	4
Airplane 350 Traverse 3	Time (EST) 130932 - 131304 Length of traverse 223.1 sec, 70,263 ft Initial heading (deg) 250							
0 - 3	16,000	6.0	-8.8	----	-10.8	----	96	5
3 - 6		12.2	-6.6	----	-----	----	----	6
6 - 9		1.9	-11.3	----	-----	----	----	5
9 - 12		12.2	-2.8	----	-----	----	----	5
12 - 15		1.9	-5.3	----	-----	----	----	4
15 - 18		4.4	-2.5	----	-----	----	----	5
18 - 21	16,500	11.0	-8.2	----	-----	----	----	5
21 - 24		14.8	-3.1	----	-----	----	----	4
24 - 27		6.6	-4.1	12.7	-----	160	----	5
27 - 30		7.5	-6.6	21.5	-----	60	----	7
30 - 33		11.3	-8.5	25.1	-----	312	----	4
33 - 36		17.6	-5.7	----	-----	----	----	10
36 - 39		8.2	-11.2	----	-----	----	----	6
39 - 42		----	-----	----	-----	----	----	0
42 - 45		1.9	-----	----	-----	----	----	1
45 - 48		4.4	-3.1	----	-----	----	----	3
48 - 51		5.3	-2.8	----	-----	----	----	4
51 - 54		3.5	-5.0	----	-----	----	----	3
54 - 57		4.4	-4.4	----	-----	----	----	3

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 350 Traverse 3	Time (EST) 130932 - 131304 Length of traverse 223.1 sec, 70,263 ft Initial heading (deg) 250							
57 - 60	16,500	6.0	-6.0	----	-----	----	----	5
60 - 63		3.1	-4.7	----	-----	----	----	2
63 - 66		6.3	-3.1	5.8	-----	314	----	2
66 - 69		3.5	-5.3	7.4	-----	222	----	4
69 - 72		3.5	-----	----	-----	----	----	1
Airplane 331 Traverse 1	Time (EST) 123928 - 124415 Length of traverse 290.8 sec, 80,019 ft Initial heading (deg) 300							
0 - 3	11,500	9.2	-7.3	10.0	-----	80	----	7
3 - 6		8.9	-11.2	----	-----	----	----	8
6 - 9		25.2	-10.5	12.8	-----	129	----	7
9 - 12		12.4	-5.1	15.6	-----	79	----	7
12 - 15	11,000	9.6	-11.5	18.2	-----	27	----	5
15 - 18		----	-----	----	-----	----	----	0
18 - 21	11,500	5.1	-10.5	7.1	-----	83	----	5
21 - 24		----	-----	----	-----	----	----	0
24 - 27		8.0	-2.2	----	-----	----	----	5
27 - 30		10.5	-----	----	-----	----	----	5
30 - 33		4.5	-10.2	----	-16.1	----	204	9
33 - 36		7.3	-8.6	13.2	-4.9	189	115	6
36 - 39		10.8	-8.6	----	-----	----	----	5
39 - 42		4.1	-4.5	----	-----	----	----	5
42 - 45		5.4		8.9	-----	56		3
45 - 48			-2.2	----	-3.8	----	83	1
48 - 51	12,000	----	-----	----	-----	----	----	0
51 - 54		----	-----	----	-----	----	----	0
54 - 57		----	-----	----	-----	----	----	0
57 - 60	11,500	----	-2.2	----	-----	----	----	1
60 - 63		4.8	-2.2	----	-4.1	----	56	2
63 - 66	12,000	----	-----	----	-----	----	----	0
66 - 69		----	-5.7	----	-----	----	----	4

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 331 Traverse 1	Time (EST) 123928 - 124415 Length of traverse 290.8 sec, 80,019 ft Initial heading (deg) 300							
69 - 72	12,000	2.2	-4.5	6.1	-----	83	----	3
72 - 75		4.5	-----	----	-----	----	----	2
75 - 78		2.9	-3.5	4.1	-----	57	----	3
78 - 81		2.9	-----	----	-----	----	----	1
Airplane 331 Traverse 2	Time (EST) 125050 - 125504 Length of traverse 280.6 sec, 76,800 ft Initial heading (deg) 90							
0 - 3	11,000	9.2	-----	18.7	-----	261	----	2
3 - 6		----	-6.0	----	-6.7	----	138	2
6 - 9		----	-3.5	----	-5.6	----	42	1
9 - 12		----	-4.1	----	-10.1	----	223	1
12 - 15		2.2	-----	3.8	-----	84	----	1
15 - 18		4.8	-5.4	----	-----	----	----	2
18 - 21		4.1	-2.9	----	-----	----	----	2
21 - 24		5.1	-8.2	----	-7.9	----	189	5
24 - 27	10,500	10.1	-4.8	11.2	-----	26	----	5
27 - 30		5.7	-7.9	----	-----	----	----	8
30 - 33		7.0	-6.7	----	-----	----	----	7
33 - 36		4.8	-----	----	-----	----	----	1
36 - 39		7.0	-4.8	9.6	-11.5	27	85	5
39 - 42		2.9	-5.4	----	-----	----	----	3
42 - 45		2.9	-----	----	-----	----	----	1
45 - 48	11,500	----	-----	----	-----	----	----	0
48 - 51	11,000	3.8	-5.4	----	-----	----	----	4
51 - 54		4.8	-4.4	----	-----	----	----	3
54 - 57		7.3	-4.4	----	-----	----	----	4
57 - 60		----	-----	----	-----	----	----	0
60 - 63		11.4	-----	----	-----	----	----	3
63 - 66		4.8	-10.1	----	-----	----	----	4
66 - 69		7.9	-8.6	----	-----	----	----	7
69 - 72		5.1	-2.9	----	-----	----	----	3
72 - 75		5.4	-4.3	----	-----	----	----	4
75 - 78		3.8	-5.1	----	-----	----	----	3

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 15, 1946 - Flight 36								
Airplane 331 Traverse 3	Time (EST) 130855 - 131300 Length of traverse 275.7 sec, 79,895 ft Initial heading (deg) 240							
0 - 3	11,000	5.0	-11.0	----	-----	----	----	8
3 - 6		11.0	-8.2	20.5	-----	276	----	3
6 - 9		11.0	-9.4	----	-----	----	----	11
9 - 12		7.2	-8.2	----	-----	----	----	3
12 - 15		14.4	-10.7	----	-9.4	----	58	9
15 - 18		11.3	-5.6	----	-----	----	----	9
18 - 21		6.0	-11.3	----	-----	----	----	8
21 - 24		5.0	-8.5	5.9	-----	82	----	8
24 - 27		5.0	-4.1	----	-8.7	----	138	4
27 - 30	11,500	6.0	-10.0	5.2	-----	54	----	6
30 - 33	11,000	12.9	-4.4	----	-----	----	----	7
33 - 36		3.1	-6.9	7.3	-----	180	----	4
36 - 39	11,500	6.0	-6.6	----	-13.6	----	284	2
39 - 42		----	-7.2	----	-----	----	----	1
42 - 45		----	-2.8	----	-----	----	----	1
45 - 48		3.4	-3.4	----	-5.9	----	86	2
48 - 51		4.7	-----	----	-----	----	----	1
51 - 54		2.8	-4.7	----	-7.6	----	58	4
54 - 57	11,000	4.1	-----	----	-----	----	----	3
57 - 60		4.4	-----	6.6	-----	30	----	2
60 - 63		4.4	-1.9	----	-----	----	----	4
63 - 66		2.5	-5.6	----	-----	----	----	2
66 - 69		5.0	-----	5.3	-----	30	----	2
69 - 72		----	-----	----	-----	----	----	0
72 - 75		2.5	-2.5	----	-----	----	----	2
75 - 78		2.5	-----	----	-----	----	----	1
78 - 81		----	-----	----	-----	----	----	0
Airplane 331 Traverse 4	Time (EST) 131438 - 131809 Length of traverse 237.5 sec, 68,939 ft Initial heading (deg) 90							
0 - 3	11,000	4.1	-3.1	----	-----	----	----	2
3 - 6		3.4	-----	----	-----	----	----	1
6 - 9		11.6	-7.5	----	-----	----	----	7

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 331 Traverse 4	Time (EST) 131438 - 131809 Length of traverse 237.5 sec, 68,939 ft Initial heading (deg) 90							
9 - 12	11,000	9.7	-7.2	----	-17.5	----	182	6
12 - 15		3.1	-10.0	----	-----	----	----	6
15 - 18		10.9	-3.4	----	-----	----	----	7
18 - 21		6.1	-15.6	13.9	-----	84	----	3
21 - 24		9.1	-----	----	-----	----	----	4
24 - 27		7.2	-10.9	----	-----	----	----	11
27 - 30		13.4	-6.9	----	-----	----	----	5
30 - 33	11,500	13.8	-17.8	----	-----	----	----	11
33 - 36		6.6	-7.2	----	-----	----	----	8
36 - 39		14.4	-16.3	----	-----	----	----	7
39 - 42		14.7	-8.4	----	-----	----	----	9
42 - 45	11,000	12.8	-5.9	----	-----	----	----	6
45 - 48		13.4	-4.7	10.3	-----	78	----	13
48 - 51	11,500	8.8	-4.1	----	-----	----	----	8
51 - 54		14.1	-10.0	----	-----	----	----	7
54 - 57	12,000	6.6	-8.8	----	-----	----	----	11
57 - 60		8.8	-11.3	----	-----	----	----	5
60 - 63		4.1	-7.2	----	-----	----	----	6
63 - 66	11,500	6.9	-7.2	----	-----	----	----	6
66 - 69		10.3	-7.2	----	-----	----	----	6
Airplane 331 Traverse 5	Time (EST) 132315 - (e) Length of traverse 537.3 sec, 152,711 ft Initial heading (deg) 240							
0 - 3	11,000	7.8	-6.5	----	-----	----	----	7
3 - 6		5.3	-5.6	----	-----	----	----	7
6 - 9		7.8	-7.2	8.5	-----	90	----	5
9 - 12		7.2	-12.8	----	-----	----	----	3
12 - 15	11,500	5.0	-1.9	6.4	-----	89	----	4
15 - 18		----	-7.5	----	-----	----	----	3
18 - 21		5.0	-7.5	6.6	-10.3	30	118	6
21 - 24	11,000	3.7	-----	----	-----	----	----	1

[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 331 Traverse 5	Time (EST) 132315 - (e) Length of traverse 537.3 sec, 152,711 ft Initial heading (deg) 240							
24 - 27	11,500	4.4	-5.9	----	-5.3	----	92	4
27 - 30		6.2	-7.8	----	-----	----	----	3
30 - 33		7.8	-4.4	----	-4.6	----	59	7
33 - 36		3.1	-10.9	----	-----	----	----	5
36 - 39	11,000	14.0	-2.5	----	-----	----	----	4
[e]39 - 42		2.2	-5.3	----	-6.8	----	93	2
Airplane 333 Traverse 1	Time (EST) (e) - 124045 Length of traverse 185.6 sec, 56,432 ft Initial heading (deg) - (e)							
0 - 3	6,000	10.5	-3.2	----	-----	----	----	3
3 - 6		10.8	-10.5	----	-----	----	----	3
6 - 9		20.1	-15.3	11.0	-----	31	----	6
9 - 12		8.6	-5.1	11.6	-----	94	----	4
12 - 15		12.4	-7.3	26.8	-----	266	----	6
15 - 18		8.6	-7.3	----	-----	----	----	7
18 - 21		9.3	-7.0	----	-18.4	----	216	3
21 - 24		7.0	-2.9	6.5	-----	60	----	4
24 - 27		8.3	-8.3	----	-----	----	----	5
27 - 30		11.8	-7.7	19.8	-----	292	----	4
30 - 33		7.7	-7.3	3.5	-----	89	----	7
33 - 36		7.3	-5.7	----	-----	----	----	10
36 - 39		7.3	-7.3	----	-----	----	----	7
39 - 42		3.8	-5.7	----	-----	----	----	5
42 - 45		3.8	-3.8	----	-----	----	----	2
45 - 48		3.2	-----	----	-----	----	----	2
48 - 51		----	-----	----	-----	----	----	0
51 - 54		3.8	-----	----	-----	----	----	1
54 - 57		3.8	-----	----	-----	----	----	2

[e]Records not obtained for complete traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 333 Traverse 2	Time (EST) 124805 - 125228 Length of traverse 287.2 sec, 80,457 ft Initial heading (deg) 50							
0 - 3	6,000	7.0	-----	----	-----	----	----	1
3 - 6		4.4	-4.4	----	-----	----	----	3
6 - 9		-----	-----	----	-----	----	----	0
9 - 12		----	-----	----	-----	----	----	0
12 - 15		----	-----	----	-----	----	----	0
15 - 18		----	-----	----	-----	----	----	0
18 - 21		----	-----	----	-----	----	----	0
21 - 24		----	-----	----	-----	----	----	0
24 - 27		4.4	-----	7.6	-----	53	----	3
27 - 30		8.6	-3.2	----	-----	----	----	4
30 - 33		4.4	-----	----	-----	----	----	1
33 - 36		9.2	-4.1	----	-----	----	----	8
36 - 39		9.2	-8.3	10.5	-----	109	----	6
39 - 42		7.6	-8.3	6.4	-----	167	----	6
42 - 45		12.1	-7.0	----	-----	----	----	8
45 - 48		9.8	-4.4	13.8	-----	39	----	9
48 - 51		7.6	-6.0	----	-13.0	----	176	6
51 - 54		8.9	-----	15.6	-----	56	----	5
54 - 57		7.9	-7.6	14.3	-----	116	----	4
57 - 60		14.6	-4.8	----	-----	----	----	6
60 - 63		7.9	-8.9	9.3	-----	60	----	7
63 - 66		11.4	-7.6	----	-----	----	----	10
66 - 69		20.6	-7.9	----	-----	----	----	5
69 - 72		5.7	-7.3	----	-----	----	----	5
72 - 75		7.6	-10.5	----	-10.9	----	62	6
75 - 78		6.7	-5.1	----	-----	----	----	5
78 - 81		11.1	-6.3	11.8	-----	247	----	6
Airplane 333 Traverse 3	Time (EST) 130515 - 130955 Length of traverse 299.1 sec, 86,252 ft Initial heading (deg) 240							
0 - 3	6,000	3.1	-----	----	-----	----	----	1
3 - 6		4.1	-3.1	6.4	-----	115	----	3
6 - 9		11.6	-----	12.6	-----	87	----	3

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 333 Traverse 3	Time (EST) 130515 - 130955 Length of traverse 299.1 sec, 86,252 ft Initial heading (deg) 240							
9 - 12	6,000	----	-8.2	----	-----	----	----	1
12 - 15		15.7	-7.5	14.6	-----	87	----	7
15 - 18		10.7	-3.8	16.9	-----	190	----	3
18 - 21		2.5	-5.6	6.0	-18.4	53	323	5
21 - 24		11.6	-13.5	6.4	-----	61	----	9
24 - 27		7.5	-5.3	9.4	-6.1	119	86	4
27 - 30		8.2	-3.1	10.3	-----	136	----	3
30 - 33		4.1	-4.1	----	-8.3	----	111	4
33 - 36		12.2	-8.2	5.3	-12.9	54	108	7
36 - 39		7.5	-4.4	----	-----	----	----	4
39 - 42		7.2	-3.5	----	-----	----	----	6
42 - 45		7.5	-2.8	9.3	-----	152	----	3
45 - 48		3.8	-3.8	----	-----	----	----	2
48 - 51		----	-3.8	----	-----	----	----	1
51 - 54		----	-----	----	-----	----	----	0
54 - 57		3.8	-----	----	-----	----	----	1
57 - 60		----	-----	----	-----	----	----	0
60 - 63		2.8	-----	3.7	-----	60	----	1
63 - 66		----	-----	----	-----	----	----	0
66 - 69		22.6	-----	----	-----	----	----	1
69 - 72		3.8	-----	6.0	-----	207	----	2
72 - 75		4.1	-----	----	-----	----	----	1
75 - 78		4.1	-----	----	-----	----	----	1
78 - 81		4.1	-4.1	----	-----	----	----	2
81 - 84		----	-----	----	-----	----	----	0
84 - 87		6.3	-----	7.3	-----	116	----	2
Airplane 333 Traverse 4	Time (EST) 131200 - 131652 Length of traverse 316.3 sec, 89,026 ft Initial heading (deg) 90							
0 - 3	6,000	----	-----	----	-----	----	----	0
3 - 6		----	-----	----	-----	----	----	0
6 - 9		----	-----	----	-----	----	----	0
9 - 12		4.4	-4.4	----	-----	----	----	4

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Concluded

Space interval ft × 10^3	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
September 16, 1946 - Flight 36								
Airplane 333 Traverse 4	Time (EST) 131200 - 131652 Length of traverse 316.3 sec, 89,026 ft Initial heading (deg) 90							
12 - 15	6,000	5.9	-6.3	----	-7.8	----	162	6
15 - 18		11.9	-4.1	16.0	-----	85	----	8
18 - 21		5.0	-7.5	----	-13.1	----	115	7
21 - 24		12.5	-9.4	10.0	-----	27	----	7
24 - 27		6.6	-11.3	----	-----	----	----	8
27 - 30		6.3	-10.6	----	-----	----	----	6
30 - 33		5.6	-5.3	----	-----	----	----	7
33 - 36		10.0	-6.9	----	-----	----	----	12
36 - 39		7.2	-3.8	9.0	-----	87	----	5
39 - 42		6.6	-11.3	----	-----	----	----	6
42 - 45		8.8	-7.5	----	-----	----	----	8
45 - 48		11.6	-3.8	----	-4.8	----	58	8
48 - 51		8.4	-5.3	----	-----	----	----	8
51 - 54		4.1	-4.1	----	-----	----	----	2
54 - 57		11.3	-5.9	----	-----	----	----	10
57 - 60		12.8	-20.7	----	-----	----	----	10
60 - 63		6.3	-5.6	----	-----	----	----	12
63 - 66		17.2	-6.9	----	-10.6	----	86	7
66 - 69		10.3	-5.6	----	-----	----	----	9
69 - 72		4.4	-16.6	----	-28.5	----	174	3
72 - 75		5.6	-----	----	-----	----	----	1
75 - 78		10.3	-8.1	----	-----	----	----	5
78 - 81		4.7	-----	7.4	-----	29	----	1
81 - 84		3.8	-----	----	-----	----	----	1
84 - 87		8.8	-3.4	5.9	-----	122	----	3
87 - 90		3.8	-2.8	5.9	-----	124	----	3
Airplane 333 Traverse 5	Time (EST) 132134 - (e) Length of traverse - (e) Initial heading (deg) 240							
0 - 3	6,000	7.2	-----	7.8	-----	157	----	3
3 - 6		3.7	-----	----	-----	----	----	1
6 - 9		14.3	-7.2	5.9	-----	209	----	4
[e]9 - 12		6.2	-5.9	----	-----	----	----	6

[e]Records not obtained for complete traverse.

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TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS FROM FLIGHTS OF P-61C AIRPLANES WITHIN THUNDERSTORMS

Date	Flight no.	Airplane no.	Assigned altitude (ft)	Traverse no.	Draft location from cloud entry (ft)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
9-11-46	34	350	26,000	1	37,038	40,234	3,196	33.3
					49,660	53,902	4,222	19.0
					57,120	60,935	3,815	24.6
				2	10,434	14,161	3,827	26.1
				a_3				
				a_4				
		348	21,000	1	48,391	54,547	6,156	36.7
					55,825	61,897	6,072	-14.9
					62,909	71,219	8,310	21.6
				2	17,930	25,899	7,969	-17.8
		345	16,000	a_1				
				2	18,914	23,644	4,730	-14.0
		331	11,000	1	49,369	51,417	2,028	28.5
					63,000	71,387	8,383	14.9
					73,250	76,682	3,432	-36.6
				a_2				
				a_3				
				a_4				
		351	6,000	a_1				
				a_2				
				a_3				
9-12-46	35	351	21,000	1	12,170	25,458	13,288	4.4
					49,448	60,127	10,679	16.7
					60,478	67,066	6,588	34.2

[a]No draft velocities indicated by records.

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TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS - Continued

Date	Flight no.	Airplane no.	Assigned altitude (ft)	Traverse no.	Draft location from cloud entry (ft)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
9-12-46	35	351	21,000	2	36,075	42,229	6,154	20.0
				3	7,245	11,828	4,583	-16.4
					34,184	38,763	4,519	16.4
				[a]4				
				5	42,482	49,102	6,620	-12.3
		333	16,000	1	17,881	26,444	8,563	-20.3
					50,735	59,389	8,654	31.7
				2	6,000	19,900	13,900	14.8
				3	34,500	43,000	8,500	12.4
					45,970	52,999	7,029	-17.3
				4	90,800	100,300	9,500	25.7
				5	9,456	12,307	2,851	20.7
		350	11,000	1	44,202	52,617	8,415	-14.7
					52,704	72,454	19,750	12.5
					83,468	848,401	13,715	19.3
					97,183	103,878	6,695	-12.2
					104,455	110,216	5,761	14.6
					125,781	133,852	8,071	15.5
					144,420	159,763	15,343	11.0
				2	35,605	46,097	10,492	-9.0
					67,217	73,994	6,777	13.9
				3	7,649	14,819	7,170	-13.2
					14,819	20,745	5,926	24.5
					59,716	66,108	6,392	-23.5
					70,914	76,207	5,293	20.7
				4	11,574	18,095	6,521	27.7
					32,489	49,307	16,818	27.3

[a]No draft velocities indicated by records.

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TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS - Concluded

Date	Flight no.	Airplane no.	Assigned altitude (ft)	Traverse no.	Draft location from cloud entry (ft)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
9-16-46	36	348	26,000	1	(b)			
				2	(b)			
		351	21,000	1	22,143 37,353	33,996 44,492	11,853 7,139	16.8 18.1
		350	16,000	1	34,667 45,157	45,149 56,574	10,482 11,417	9.7 -7.6
				2	24,054	28,195	4,141	20.6
				3	3,230 10,417	6,541 20,820	3,311 10,403	26.6 8.8
		331	11,000	1	27,216	30,050	2,834	30.5
				[a]2				
				3	10,227	18,500	8,273	15.1
				4	45,900	56,000	10,100	25.7
				[a]5				
		333	6,000	[a]1				
				2	29,470 40,403	40,403 51,609	10,933 11,206	5.7 -10.2
				[a]3				
				[a]4				
				[c]5	8,586 149,944	13,519 155,714	4,933 5,770	30.1 6.6

[a]No draft velocities indicated by records.
[b]No records obtained.
[c]Records not obtained for complete traverse.

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TABLE III.- SUMMARY OF INDICATIONS OF AMBIENT

AIR TEMPERATURE WITHIN THUNDERSTORMS

Date	Flight no.	Airplane no.	Traverse no.	Time (EST)	Distance from cloud entry (ft)	Milliammeter reading
9-11-46	34	331	1	143645	0	300
				143700	4,000	290
				143715	7,600	320
				143800	20,000	320
				143815	24,700	330
				143830	29,400	330
				143845	34,100	325
				143900	38,800	315
				143915	43,300	300
				143945	51,900	300
				144000	56,100	320
				144015	60,400	325
				144030	64,300	340
				144045	68,400	350
				144100	72,800	340
				144115	77,000	340
				144130	81,200	350
			2	144633	0	320
				144730	15,300	320
				144745	19,700	330
				144800	24,200	330
				144815	28,500	320
				144845	36,600	320
			3	145413	0	330
				145430	4,000	330
				145445	7,600	340
				145515	15,400	340
				145530	19,100	330
				145545	23,300	320
				145600	28,000	320
				145615	32,800	315
				145630	37,500	300
				155700	42,100	300
				145715	47,500	315
				145730	50,600	320
				145745	54,800	315
				145800	58,900	320

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TABLE III.- SUMMARY OF INDICATIONS - Continued

Date	Flight no.	Airplane no.	Traverse no.	Time (EST)	Distance from cloud entry (ft)	Milliammeter reading
9-11-46	34	331	3	145815	63,500	320
				145830	68,100	325
				145845	73,000	340
				145900	77,300	340
			4	150340	0	315
				150400	5,400	320
				150415	9,500	320
				150430	13,500	330
				150500	22,000	330
				150515	26,100	320
				150630	30,500	320
		351	1	143500	0	750
				143530	7,600	800
				143615	19,000	850
				143630	22,800	875
				143645	26,600	850
				143700	30,400	875
				143745	41,700	875
				143800	45,600	850
				143915	64,500	850
				143930	68,300	925
				144030	83,500	900
9-12-46	35	351	2	141003	0	500
				141100	19,500	500
				141115	24,800	475
				141130	29,800	500
				141145	34,600	550
				141215	45,000	550
				141230	50,000	575
				141245	55,400	600
				141315	65,600	600
				141330	71,000	650
				141345	76,100	650
9-16-46	36	331	1	123928	0	340
				123945	4,600	340
				124000	8,600	350
				124030	16,700	350

TABLE III.- SUMMARY OF INDICATIONS - Concluded

Date	Flight no.	Airplane no.	Traverse no.	Time (EST)	Distance from cloud entry (ft)	Milliammeter reading
9-16-46	36	331	1	124045	20,800	340
				124115	29,000	340
				124130	33,200	345
				124145	37,300	350
				124245	53,800	350
				124300	57,800	360
				124315	62,000	360
				124330	66,000	350
				124415	78,700	350
			3	130855	0	320
				130915	5,300	310
				130930	9,700	310
				130945	13,800	315
				131000	18,300	315
				131015	21,400	310
				131030	26,300	320
				131045	30,700	320
				131100	35,000	330
				131115	39,500	320
				131130	43,800	330
				131145	48,200	340
				131230	61,300	340
				131245	66,000	330
				131300	70,500	330

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