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RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS OF P-61C AIRPLANES WITHIN THUNDERSTORMS AUGUST 7, 1947 TO AUGUST 13, 1947 AT CLINTON COUNTY ARMY AIR FIELD, OHIO

By

Jack Funk

Langley Memorial Aeronautical Laboratory
Langley Field, Va.

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EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS OF P-61C AIRPLANES WITHIN THUNDERSTORMS AUGUST 7, 1947 TO AUGUST 13, 1947 AT CLINTON COUNTY ARMY AIR FIELD, OHIO

By Jack Funk

The results obtained from measurements of gust and draft velocities within thunderstorms at Clinton County Army Air Field, Ohio, for the period of August 7, 1947 to August 13, 1947 are presented herein. These data are summarized in tables I and II, 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.

Jack Funk
Jack Funk
Aeronautical Engineer

Approved:

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

RCM

REFERENCE

1. Tolefson, H. B.: Evaluation of Gust and Draft Velocities from Flights of P-61C Airplanes within Thunderstorms May 13, 1947 to May 29, 1947, at Clinton County Army Air Field, Ohio. NACA RM No. L7J29, 1947.

TABLE I.- SUMMARY OF GUST MEASUREMENTS FROM FLIGHTS OF P-61C AIRPLANES WITHIN THUNDERSTORMS

Time interval (sec)	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
August 7, 1947 - Flight 19								
Airplane 353 - Traverse 1 Length of traverse 126.2 sec, 41,096 ft								
0 - 10	15,500	----	-----	16.1	-----	97	---	1
[a]10 - 20	15,000	----	-----	----	-----	---	---	0
20 - 50		----	-----	----	-----	---	---	0
50 - 60		----	-8.0	----	-----	---	---	1
60 - 70		----	-----	----	-----	---	---	0
70 - 80		5.5	-----	----	-----	---	---	2
80 - 90		----	-10.3	----	-----	---	---	2
90 - 100		10.6	-18.3	----	-----	---	---	5
100 - 110		----	-----	----	-----	---	---	0
[b]110 - 120		----	-----	----	-----	---	---	0
120 - 130		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 2 Length of traverse 256.2 sec, 76,028 ft								
0 - 40	15,500	----	-----	----	-----	---	---	0
[a]40 - 50		----	-----	----	-----	---	---	0
50 - 60	15,000	7.7	-8.3	----	-----	---	---	3
60 - 70		14.4	-7.7	----	-----	---	---	5
70 - 80		----	-3.5	----	-15.6	---	193	3
80 - 110		----	-----	----	-----	---	---	0
110 - 130	15,500	----	-----	----	-----	---	---	0
130 - 160	15,000	----	-----	----	-----	---	---	0
[b]160 - 170		----	-----	----	-----	---	---	0
170 - 180		----	-----	----	-----	---	---	0
180 - 190		2.2	-----	6.6	-----	64	---	1
190 - 220		----	-----	----	-----	---	---	0
220 - 230		----	-4.2	----	-7.8	---	69	1
230 - 260		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 7, 1947 - Flight 19								
Airplane 353 - Traverse 3 Length of traverse 188.3 sec, 55,215 ft								
0 - 10	16,000	----	-----	----	-----	---	---	0
10 - 30	15,500	----	-----	----	-----	---	---	0
30 - 40	16,000	----	-----	----	-----	---	---	0
[a]40 - 50		----	-----	----	-----	---	---	0
50 - 90		----	-----	----	-----	---	---	0
90 - 100		2.9	-5.1	7.9	-9.2	118	97	2
100 - 110		9.6	-8.0	----	-----	---	---	3
110 - 120		5.7	-12.8	----	-----	---	---	3
120 - 130		4.5	-----	----	-----	---	---	2
130 - 140		----	-4.5	----	-----	---	---	1
140 - 150		----	-----	----	-----	---	---	0
[b]150 - 160		----	-----	----	-----	---	---	0
160 - 190		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 4 Length of traverse 76.6 sec, 23,142 ft								
0 - 10	15,500	----	-----	----	-----	---	---	0
[a]10 - 20		----	-----	----	-----	---	---	0
20 - 80		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 5 Length of traverse 214.3 sec, 64,503 ft								
0 - 10	15,500	----	-4.1	----	-----	---	---	2
10 - 20		----	-----	----	-----	---	---	0
[a]20 - 30	15,000	4.8	-----	7.9	-----	42	---	1
30 - 100		----	-----	----	-----	---	---	0
100 - 110		4.1	-----	11.7	-----	113	---	1
110 - 120		----	-5.7	----	-----	---	---	1
120 - 170		----	-----	----	-----	---	---	0
170 - 180		----	-7.0	----	-----	---	---	1
[b]180 - 190	14,500	----	-7.0	----	-----	---	---	2
190 - 200		2.5	-----	5.8	-----	45	---	1
200 - 220		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 7, 1947 - Flight 19								
Airplane 353 - Traverse 6 Length of traverse 263.6 sec, 80,447 ft								
0 - 10	14,000	----	-----	----	-----	---	---	0
10 - 40	14,500	----	-----	----	-----	---	---	0
[a]40 - 50		----	-----	----	-----	---	---	0
50 - 70		----	-----	----	-----	---	---	0
70 - 80		----	-5.0	----	-7.5	---	148	1
80 - 160		----	-----	----	-----	---	---	0
160 - 170		3.5	-6.0	----	-----	---	---	2
170 - 180		----	-4.4	----	-----	---	---	2
180 - 190		5.0	-3.8	----	-----	---	---	3
190 - 220		----	-----	----	-----	---	---	0
220 - 230		----	-3.8	----	-----	---	---	1
[b]230 - 240		3.2	-----	----	-----	---	---	2
240 - 270		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 7 Length of traverse 108.1 sec, 31,736 ft								
0 - 20	14,000	----	-----	----	-----	---	---	0
20 - 30		----	-4.7	----	-----	---	---	1
30 - 40		4.4	-----	----	-----	---	---	1
40 - 110		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 8 Length of traverse 291.4 sec, 87,864 ft								
0 - 70	13,500	----	-----	----	-----	---	---	0
70 - 110	14,000	----	-----	----	-----	---	---	0
[a]110 - 120		----	-----	----	-----	---	---	0
120 - 180		----	-----	----	-----	---	---	0
180 - 230	13,500	----	-----	----	-----	---	---	0
230 - 240		----	-4.7	----	-7.0	---	132	2
240 - 250		4.7	-----	8.3	-----	88	---	1
250 - 260		----	-----	----	-----	---	---	0
260 - 270		6.3	-5.6	----	-----	---	---	3
270 - 280		----	-7.8	----	-----	---	---	1
[b]280 - 290		----	-----	----	-----	---	---	0
290 - 300		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 7, 1947 - Flight 19								
Airplane 333 - Traverse 1 Length of traverse 236.1 sec, 55,259 ft								
0 - 50	1,500	----	-----	----	-----	---	---	0
50 - 60		4.0	-3.3	7.1	-----	109	---	5
60 - 70		5.4	-2.4	----	-----	---	---	2
70 - 90		----	-----	----	-----	---	---	0
90 - 100		----	-3.6	----	-----	---	---	1
100 - 110		2.2	-----	4.4	-----	117	---	1
110 - 240		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 2 Length of traverse 238.9 sec, 59,943 ft								
0 - 110	2,000	----	-----	----	-----	---	---	0
110 - 120		----	-2.4	----	-4.7	---	117	1
120 - 130		----	-----	----	-----	---	---	0
130 - 140		3.8	-3.3	----	-----	---	---	2
140 - 150		7.9	-7.9	----	-----	---	---	5
[a]150 - 160	1,500	4.2	-4.9	4.1	-----	88	---	4
160 - 170		5.7	-----	----	-----	---	---	2
170 - 180		5.6	-5.2	----	-----	---	---	7
180 - 190		6.7	-2.3	----	-----	---	---	3
190 - 240		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 3 Length of traverse 255.2 sec, 67,116 ft								
0 - 80	3,500	----	-----	----	-----	---	---	0
80 - 90		4.4	-----	8.0	-----	194	---	1
90 - 100		2.9	-3.1	----	-3.7	---	88	2
100 - 110		6.2	-2.4	----	-----	---	---	2
110 - 120		8.4	-1.8	----	-----	---	---	4
120 - 130		5.2	-6.2	----	-----	---	---	3
[a]130 - 140		6.6	-4.6	----	-8.1	---	101	3
140 - 150	3,000	----	-2.3	----	-----	---	---	1

[a]Cloud entry.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 7, 1947 - Flight 19								
Airplane 333 - Traverse 3 Length of traverse 255.2 sec, 67,116 ft								
150 - 160	3,000	3.6	-----	----	-----	---	---	1
160 - 170		2.1	-5.5	----	-----	---	---	2
170 - 180		7.5	-3.1	----	-----	---	---	2
180 - 200		----	-----	----	-----	---	---	0
200 - 250	2,500	----	-----	----	-----	---	---	0
[b]250 - 260		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 4 Length of traverse 221.4 sec, 57,619 ft								
[c]0 - 120	3,500	----	-----	----	-----	---	---	0
120 - 130		----	-2.4	----	-6.0	---	100	1
130 - 140		----	-4.7	----	-----	---	---	1
140 - 150		5.3	-----	----	-----	---	---	1
150 - 160		----	-----	----	-----	---	---	0
160 - 170		----	-1.9	----	-----	---	---	3
170 - 180		7.1	-----	6.4	-----	176	---	2
180 - 190		----	-2.2	----	-6.9	---	80	1
190 - 200		----	-1.7	----	-5.4	---	136	1
200 - 210		----	-----	----	-----	---	---	0
[b]210 - 220		----	-----	----	-----	---	---	0
220 - 230		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 5 Length of traverse 171.1 sec, 43,296 ft								
[c]0 - 170	2,500	----	-----	----	-----	---	---	0
[b]170 - 180		----	-----	----	-----	---	---	0

[b]Cloud exit.
[c]Cloud entry light on at beginning of traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 351 15,000 ft								
(e)								
Airplane 353 - Traverse 1 Length of traverse 65.4 sec, 18,733 ft								
0 - 20	9,000	----	-----	----	-----	---	---	0
20 - 30		4.9	-7.2	----	-10.8	---	79	2
[a]30 - 40		6.2	-7.9	----	-10.3	---	183	5
40 - 50		----	-7.9	----	-----	---	---	3
50 - 60		9.9	-11.2	9.2	-----	84	---	8
[b]60 - 70		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 2 Length of traverse 35.6 sec, 10,097 ft								
0 - 10	9,000	7.1	-5.5	----	-----	---	---	7
[a]10 - 20		6.7	-7.1	----	-7.1	---	128	5
20 - 30		8.1	-6.9	----	-15.3	---	254	4
[b]30 - 40		10.6	-----	----	-----	---	---	1
Airplane 353 - Traverse 3 Length of traverse 21.4 sec, 5,628 ft								
0 - 30	9,000	----	-----	----	-----	---	---	0
Airplane 353 - Traverse 4 Length of traverse 18.4 sec, 4,839 ft								
0 - 20	9,000	----	-----	----	-----	---	---	0
Airplane 353 - Traverse 5 Length of traverse 29.4 sec, 7,639 ft								
0 - 30	9,000	----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.
[e]Failure in operation of airspeed-altitude recorder prevented computation of gust velocities for all traverses.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 6 Length of traverse 292.4 sec, 81,240 ft								
0 - 130	9,500	----	-----	----	-----	---	---	0
[a]130 - 140	9,000	----	-----	----	-----	---	---	0
140 - 150		----	-----	----	-----	---	---	0
150 - 160		3.9	-3.7	----	-----	---	---	4
160 - 170		7.1	-6.0	----	-----	---	---	5
[b]170 - 180		----	-5.6	----	-----	---	---	1
180 - 190	9,500	----	-----	----	-----	---	---	0
190 - 200		4.4	-4.0	----	-----	---	---	4
200 - 210		----	-----	----	-----	---	---	0
210 - 220		----	-4.2	----	-----	---	---	1
220 - 230		----	-9.4	----	-----	---	---	1
[a]230 - 240		----	-----	----	-----	---	---	0
240 - 250	9,000	----	-----	----	-4.3	---	42	1
250 - 270		----	-----	----	-----	---	---	0
[b]270 - 280		2.0	-----	5.3	-----	40	---	1
[a]280 - 290		----	-----	----	-----	---	---	0
[b]290 - 300		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 7 Length of traverse 207.7 sec, 55,326 ft								
0 - 120	9,000	----	-----	----	-----	---	---	0
120 - 160	9,500	----	-----	----	-----	---	---	0
160 - 170		2.1	-4.8	5.1	-8.3	53	68	2
170 - 180		4.0	-----	8.0	-----	34	---	1
180 - 200		----	-----	----	-----	---	---	0
200 - 210		----	-4.5	----	-----	---	---	1
Airplane 353 - Traverse 8 Length of traverse 98.0 sec, 28,548 ft								
0 - 30	9,000	----	-----	----	-----	---	---	0
[a]30 - 40		7.7	-9.6	16.0	-----	115	---	2
40 - 50		13.5	-13.8	----	-12.8	---	31	10
50 - 60		16.4	-11.2	----	-----	---	---	7

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 8 Length of traverse 98.0 sec, 28,548 ft								
60 - 70	9,500	13.7	-9.2	----	-----	---	---	8
70 - 80		23.3	-----	----	-----	---	---	2
80 - 90		----	-12.9	----	-----	---	---	3
[b]90 - 100		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 9 Length of traverse 705.6 sec, 202,899 ft								
0 - 10	9,500	----	-----	----	-----	---	---	0
[a]10 - 20		----	-----	----	-----	---	---	0
20 - 50		----	-----	----	-----	---	---	0
50 - 60		14.2	-----	7.3	-----	39	---	2
60 - 70		7.5	-13.3	----	-----	---	---	8
70 - 90		----	-----	----	-----	---	---	0
90 - 100		----	-4.7	----	-----	---	---	1
100 - 110		3.6	-20.3	----	-14.1	---	212	3
110 - 120		9.1	-13.3	----	-----	---	---	7
120 - 130		9.1	-12.8	----	-----	---	---	7
[b]130 - 140		5.3	-----	----	-----	---	---	1
140 - 220		----	-----	----	-----	---	---	0
220 - 230		8.8	-----	----	-----	---	---	1
230 - 240	9,000	7.9	-4.2	7.2	-6.0	64	111	5
240 - 250		6.8	-4.7	----	-----	---	---	2
250 - 260		----	-6.2	----	-----	---	---	1
[a]260 - 270		----	-9.9	----	-----	---	---	2
270 - 280		8.1	-4.4	----	-----	---	---	6
280 - 290		4.0	-3.7	----	-----	---	---	6
290 - 300		7.7	-9.5	----	-----	---	---	5
300 - 310		5.6	-----	7.8	-----	42	---	1
310 - 330		----	-----	----	-----	---	---	0
330 - 340		4.0	-2.9	----	-----	---	---	3
340 - 350		----	-----	----	-----	---	---	0
350 - 360	9,500	8.7	-11.9	10.5	-10.9	47	242	9
360 - 370		----	-9.0	----	-----	---	---	1
370 - 380		3.3	-----	7.4	-----	180	---	1
380 - 390		----	-11.7	----	-----	---	---	1
390 - 400		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 9 Length of traverse 705.6 sec, 202,899 ft								
[b]400 - 410	9,500	----	-----	----	-----	---	---	0
410 - 550		----	-----	----	-----	---	---	0
[a]550 - 560		----	-----	----	-----	---	---	0
560 - 570		----	-----	----	-----	---	---	0
570 - 580		----	-5.0	----	-8.2	---	121	1
580 - 590		4.2	-2.5	----	-5.1	---	197	2
590 - 600		----	-----	----	-----	---	---	0
[b]600 - 610		3.9	-----	----	-----	---	---	1
610 - 620		----	-----	----	-----	---	---	0
620 - 630		----	-4.4	----	-5.0	---	58	1
[a]630 - 640		5.4	-6.0	----	-----	---	---	3
640 - 650		7.8	-13.4	----	-----	---	---	6
650 - 660		8.8	-5.1	----	-----	---	---	4
660 - 670		----	-6.4	----	-----	---	---	1
[b]670 - 680		----	-----	----	-----	---	---	0
680 - 710		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 10 Length of traverse 65.8 sec, 18,847 ft								
0 - 10	9,000	----	-----	----	-----	---	---	0
10 - 20		3.8	-4.5	----	-----	---	---	3
20 - 30		----	-4.5	----	-6.6	---	127	2
[a]30 - 40		9.8	-8.0	----	-----	---	---	4
40 - 50		9.1	-14.0	----	-----	---	---	5
[b]50 - 60		4.0	-3.0	----	-----	---	---	2
60 - 70		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 11 Length of traverse 817.8 sec, 237,316 ft								
0 - 30	9,500	----	-----	----	-----	---	---	0
[a]30 - 40		4.6	-6.5	----	-12.3	---	139	5
[b]40 - 50		4.7	-----	----	-----	---	---	1
50 - 60		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 11 Length of traverse 817.8 sec, 237,316 ft								
60 - 80	9,000	----	-----	----	-----	---	---	0
[a]80 - 90		----	-6.6	----	-----	---	---	2
90 - 100		----	-10.9	----	-----	---	---	5
100 - 110		15.1	-13.4	----	-----	---	---	4
110 - 120		----	-7.6	----	-----	---	---	2
[b]120 - 130		----	-----	----	-----	---	---	0
130 - 140		6.4	-8.2	10.5	-----	201	---	3
140 - 190	9,500	----	-----	----	-----	---	---	0
190 - 200		5.4	-6.3	----	-----	---	---	5
[a]200 - 210		10.0	-8.3	15.5	-----	255	---	7
210 - 220		11.2	-10.6	----	-----	---	---	2
[b]220 - 230		----	-----	----	-----	---	---	0
[a]230 - 240		----	-----	----	-----	---	---	0
240 - 250		7.8	-9.4	----	-----	---	---	9
250 - 260		----	-5.4	----	-9.7	---	57	3
260 - 270		1.2	-----	2.1	-----	68	---	1
[b]270 - 280		----	-----	----	-----	---	---	0
280 - 330		----	-----	----	-----	---	---	0
[a]330 - 340		6.0	-8.0	----	-13.9	---	71	7
340 - 350		----	-----	----	-----	---	---	0
[b]350 - 360		----	-----	----	-----	---	---	0
360 - 390		----	-----	----	-----	---	---	0
390 - 400		----	-3.4	----	-----	---	---	1
400 - 410	9,000	----	-2.7	----	-----	---	---	1
410 - 440		----	-----	----	-----	---	---	0
440 - 450		----	-4.9	----	-8.0	---	182	1
450 - 460		7.1	-----	7.4	-----	33	---	2
460 - 480		----	-----	----	-----	---	---	0
[a]480 - 490		7.1	-7.3	----	-----	---	---	4
[b]490 - 500		2.6	-4.1	6.5	-----	76	---	2
500 - 570		----	-----	----	-----	---	---	0
570 - 620	9,500	----	-----	----	-----	---	---	0
[a]620 - 630		----	-----	----	-----	---	---	0
630 - 640	9,000	8.6	-4.9	4.6	-----	74	---	5
[b]640 - 650		4.7	-4.1	6.2	-----	52	---	3
650 - 660		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 11 Length of traverse 817.8 sec, 237,316 ft								
660 - 740	9,500	----	-----	----	-----	---	---	0
740 - 770	9,000	----	-----	----	-----	---	---	0
[a]770 - 780		----	-----	----	-----	---	---	0
780 - 790		12.3	-10.7	----	-----	---	---	4
[b]790 - 800		----	-----	----	-----	---	---	0
800 - 820		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 12 Length of traverse 76.0 sec, 22,431 ft								
0 - 10	9,000	2.5	-5.0	----	-----	---	---	3
10 - 20		----	-----	----	-----	---	---	0
[a]20 - 30		8.9	-5.5	----	-----	---	---	6
30 - 40	9,500	5.7	-5.9	----	-----	---	---	6
40 - 50		7.8	-7.8	----	-----	---	---	5
50 - 60	10,000	7.6	-6.8	----	-----	---	---	3
60 - 70		----	-4.3	----	-----	---	---	1
[b]70 - 80		----	-----	----	-----	---	---	0
Airplane 353 - Traverse 13 Length of traverse 33.5 sec, 99,020 ft								
0 - 10	9,500	----	-4.3	----	-7.1	---	183	1
10 - 20		----	-----	----	-----	---	---	0
[a]20 - 30		6.9	-5.0	----	-----	---	---	5
30 - 40		3.7	-----	5.7	-----	21	---	1
40 - 50		10.2	-7.9	----	-----	---	---	4
50 - 60		7.2	-13.6	----	-----	---	---	5
60 - 70		6.4	-10.8	----	-14.2	---	106	4
[b]70 - 80		----	-3.2	----	-10.1	---	231	1
80 - 90		7.6	-----	----	-----	---	---	3
90 - 100		----	-2.7	----	-----	---	---	1
100 - 110		----	-----	----	-----	---	---	0
110 - 130	9,000	----	-----	----	-----	---	---	0
130 - 140	9,500	----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 12, 1947 - Flight 20								
Airplane 353 - Traverse 13 Length of traverse 33.5 sec, 99,020 ft								
140 - 150	9,500	3.9	-----	----	-----	---	---	2
150 - 160		7.6	-----	9.4	-----	71	---	2
160 - 170		10.8	-----	12.3	-----	118	---	1
170 - 220		----	-----	----	-----	---	---	0
220 - 230		----	-5.4	----	-----	---	---	1
[a]230 - 240		7.2	-6.5	----	-----	---	---	6
[b]240 - 250		----	-8.4	----	-----	---	---	2
250 - 260		6.7	-----	11.1	-----	199	---	2
[a]260 - 270		11.4	-7.6	----	-----	---	---	8
270 - 280		9.6	-10.7	----	-----	---	---	5
280 - 290		3.7	-2.7	----	-----	---	---	4
290 - 300		----	-4.3	----	-----	---	---	1
[b]300 - 310		----	-----	----	-----	---	---	0
310 - 340		----	-----	----	-----	---	---	0
Airplane 344 6,000 ft								
(d)								
August 12, 1947 - Flight 21								
Airplane 344 10,000 ft								
(d)								
Airplane 333 10,000 ft								
(d)								
August 13, 1947 - Flight 22								
Airplane 351 25,000 ft								
(e)								

[a]Cloud entry.
[b]Cloud exit.
[d]Failure in operation of accelerometer prevented computation of gust velocities for all traverses.
[e]Failure in operation of airspeed-altitude recorder prevented computation of gust velocities for all traverses.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{e_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
August 13, 1947 - Flight 22								
Airplane 327 - Traverse 1 Length of traverse 800.8 sec - (f)								
0 - 140	9,500	----	-----	----	-----	---	---	0
140 - 150		----	-5.6	----	-----	---	---	1
150 - 330		----	-----	----	-----	---	---	0
330 - 340		3.6	-3.1	----	-----	---	---	2
340 - 370		----	-----	----	-----	---	---	0
370 - 380		2.8	-----	8.1	-----	141	---	1
380 - 440		----	-----	----	-----	---	---	0
440 - 450		----	-3.6	----	-4.3	---	37	3
450 - 460		3.6	-----	----	-----	---	---	2
460 - 470		----	-2.3	----	-----	---	---	1
470 - 480		----	-3.9	----	-----	---	---	1
[a]480 - 490		----	-----	----	-----	---	---	0
490 - 500		----	-----	----	-5.5	---	76	1
500 - 510		8.9	-----	14.7	-----	96	---	1
510 - 520		5.9	-----	22.0	-----	89	---	1
520 - 530		----	-----	----	-----	---	---	0
[b]530 - 540		3.6	-----	----	-----	---	---	1
540 - 660		----	-----	----	-----	---	---	0
660 - 670		----	-5.2	----	-----	---	---	1
670 - 690		----	-----	----	-----	---	---	0
690 - 700		4.4	-5.5	----	-----	---	---	4
700 - 710		5.2	-5.1	----	-11.5	---	60	6
710 - 720		----	-3.8	----	-----	---	---	2
720 - 730		1.6	-4.0	10.0	-----	58	---	2
730 - 810		----	-----	----	-----	---	---	0
Airplane 327 - Traverse 2 Length of traverse 1317.8 sec - (f)								
0 - 10	9,500	----	-----	----	-----	---	---	0
10 - 20		----	-4.2	----	-9.0	---	199	1
20 - 30		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.
[f]Length of traverse in feet not computed to expedite handling of data.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 327 - Traverse 2 Length of traverse 1317.8 sec - (f)								
30 - 40	9,500	----	-3.8	----	-6.1	---	132	1
40 - 60		----	-----	----	-----	---	---	0
60 - 70		----	-2.4	----	-5.5	---	97	1
70 - 90		----	-----	----	-----	---	---	0
90 - 100		2.9	-----	8.4	-----	58	---	1
100 - 110		----	-3.7	----	-----	---	---	1
110 - 120		----	-----	----	-----	---	---	0
[a]120 - 130		5.4	-----	11.8	-----	25	---	2
130 - 140		----	-6.1	----	-9.9	---	56	1
140 - 150		3.0	-3.9	----	-----	---	---	5
150 - 160		----	-3.7	----	-----	---	---	1
160 - 170		6.6	-----	----	-----	---	---	1
170 - 410		----	-----	----	-----	---	---	0
410 - 420		3.8	-5.8	----	-----	---	---	3
420 - 430		----	-3.7	----	-----	---	---	1
430 - 490		----	-----	----	-----	---	---	0
490 - 500		2.8	-4.1	6.6	-8.3	19	84	3
500 - 510		8.9	-5.5	9.6	-----	46	---	6
510 - 520		----	-8.1	----	-----	---	---	1
520 - 550	10,000	----	-----	----	-----	---	---	0
550 - 560		----	-3.7	----	-----	---	---	1
560 - 570	9,500	----	-----	----	-----	---	---	0
570 - 580		1.4	-----	6.2	-----	69	---	1
580 - 590		3.6	-4.8	9.4	-8.2	215	283	3
590 - 600		----	-----	----	-----	---	---	0
600 - 610		4.3	-----	7.0	-----	178	---	2
610 - 620		2.7	-5.3	7.9	-3.6	132	163	2
620 - 630		5.7	-----	----	-----	---	---	1
630 - 640		----	-5.7	----	-----	---	---	1
640 - 690		----	-----	----	-----	---	---	0
[b]690 - 700		----	-----	----	-----	---	---	0
700 - 800		----	-----	----	-----	---	---	0
800 - 810		5.0	-4.9	----	-----	---	---	3
810 - 830		----	-----	----	-----	---	---	0

[a]Cloud entry.
[b]Cloud exit.
[f]Length of traverse in feet not computed to expedite handling of data.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 327 - Traverse 2 Length of traverse 1317.8 sec - (f)								
830 - 840	9,500	3.7	-----	----	-----	---	---	1
840 - 940		----	-----	----	-----	---	---	0
940 - 950		3.7	-3.7	----	-----	---	---	4
950 - 980		----	-----	----	-----	---	---	0
[a]980 - 990		----	-----	----	-----	---	---	0
990 - 1020		----	-----	----	-----	---	---	0
1020 - 1030		4.3	-----	7.6	-----	73	---	2
1030 - 1040		----	-4.1	----	-6.2	---	30	1
1040 - 1060		----	-----	----	-----	---	---	0
1060 - 1070		----	-2.9	----	-5.8	---	75	1
1070 - 1120		----	-----	----	-----	---	---	0
1120 - 1130		8.2	-5.9	----	-----	---	---	8
1130 - 1140		4.6	-11.6	----	-----	---	---	2
1140 - 1150		6.2	-4.4	----	-----	---	---	2
1150 - 1160		3.7	-6.5	----	-----	---	---	5
1160 - 1170		4.8	-4.1	----	-----	---	---	3
1170 - 1180		2.7	-4.9	----	-7.9	---	177	3
1180 - 1190		4.9	-----	10.3	-----	239	---	1
1190 - 1220		----	-----	----	-----	---	---	0
1220 - 1230		----	-----	5.7	-----	103	---	1
1230 - 1250		----	-----	----	-----	---	---	0
1250 - 1260		6.3	-----	----	-----	---	---	1
1260 - 1280		----	-----	----	-----	---	---	0
[b]1280 - 1290		----	-----	----	-----	---	---	0
1290 - 1320		----	-----	----	-----	---	---	0
Airplane 327 - Traverse 3 Length of traverse 948.8 sec - (f)								
0 - 80	9,500	----	-----	----	-----	---	---	0
[a]80 - 90		----	-----	----	-----	---	---	0
90 - 110		----	-----	----	-----	---	---	0
110 - 120		4.8	-5.2	4.7	-----	73	---	4
120 - 130		4.3	-5.2	----	-----	---	---	4
130 - 140		4.8	-----	----	-----	---	---	1

[a]Cloud entry.

[b]Cloud exit.

[f]Length of traverse in feet not computed to expedite handling of data.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 327 - Traverse 3 Length of traverse 948.8 sec - (f)								
140 - 150	9,500	----	-----	----	-----	---	---	0
150 - 160		----	-3.5	----	-5.8	---	105	2
160 - 170		4.8	-3.5	8.0	-----	91	---	2
170 - 180		2.2	-5.5	----	-7.2	---	66	3
180 - 190		----	-----	----	-----	---	---	0
190 - 200		1.4	-3.5	6.0	-5.7	266	122	2
200 - 270		----	-----	----	-----	---	---	0
270 - 280		4.7	-6.5	----	-12.2	---	44	6
280 - 290		----	-----	----	-----	---	---	0
290 - 300		11.6	-8.1	----	-6.8	---	66	6
300 - 310		9.6	-10.0	----	-----	---	---	7
310 - 320		14.6	-12.6	----	-----	---	---	9
320 - 330		7.5	-11.5	----	-----	---	---	7
330 - 340	10,000	8.6	-5.3	----	-----	---	---	3
340 - 370		----	-----	----	-----	---	---	0
[b]370 - 380		----	-----	----	-----	---	---	0
380 - 470		----	-----	----	-----	---	---	0
470 - 480		----	-4.6	----	-----	---	---	1
480 - 490		4.7	-----	9.8	-----	180	---	2
490 - 500		9.5	-8.7	----	-----	---	---	6
500 - 520		----	-----	----	-----	---	---	0
520 - 530		8.8	-11.8	7.2	-16.3	34	85	9
530 - 540		13.7	-9.3	----	-----	---	---	11
540 - 550		16.6	-5.9	----	-----	---	---	8
550 - 560		13.2	-25.6	----	-----	---	---	7
560 - 640		----	-----	----	-----	---	---	0
640 - 650		7.9	-----	----	-----	---	---	1
650 - 660		4.7	-5.9	----	-----	---	---	6
[a]660 - 670		8.3	-10.2	----	-----	---	---	9
[b]670 - 680		8.2	-7.3	----	-----	---	---	3
680 - 690		2.6	-----	----	-----	---	---	1
690 - 710		----	-----	----	-----	---	---	0
710 - 720		3.5	-9.1	----	-18.0	---	152	4

[a]Cloud entry.
[b]Cloud exit.
[f]Length of traverse in feet not computed to expedite handling of data.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 327 - Traverse 3 Length of traverse 948.8 sec - (f)								
720 - 730	10,000	----	-2.9	----	-----	---	---	1
730 - 740	9,500	3.3	-----	----	-----	---	---	1
740 - 750		3.4	-3.3	----	-----	---	---	2
750 - 760		4.1	-3.9	----	-----	---	---	6
760 - 810		----	-----	----	-----	---	---	0
810 - 820		5.3	-----	9.4	-----	140	---	2
820 - 870		----	-----	----	-----	---	---	0
870 - 880		----	-3.4	----	-4.7	---	111	1
880 - 920		----	-----	----	-----	---	---	0
920 - 930		----	-2.6	----	-5.1	---	183	1
930 - 950		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 1 Length of traverse 558.2 sec, 148,846 ft								
0 - 200	5,500	(g)						
200 - 210		----	-----	----	-----	---	---	0
210 - 220		----	-4.1	----	-4.2	---	81	1
220 - 300		----	-----	----	-----	---	---	0
300 - 310		1.9	-----	3.0	-----	96	---	1
310 - 320		----	-----	----	-----	---	---	0
320 - 330		6.1	-----	10.3	-----	32	---	1
330 - 340		3.2	-----	4.9	-----	136	---	1
340 - 360		----	-----	----	-----	---	---	0
360 - 370		----	-3.2	----	-----	---	---	1
370 - 380		----	-----	5.6	-----	82	---	1
380 - 410		----	-----	----	-----	---	---	0
410 - 420		2.2	-----	3.5	-----	200	---	2
420 - 430		----	-----	----	-----	---	---	0

[f]Length of traverse in feet not computed to expedite handling of data.
[g]Accelerometer inoperative for first 198 sec of traverse.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 333 - Traverse 1 Length of traverse 558.2 sec, 148,846 ft								
430 - 440	5,500	----	-6.7	----	-----	---	---	1
440 - 460		----	-----	----	-----	---	---	0
460 - 470		3.5	-----	----	-----	---	---	2
[b]470 - 480		----	-----	----	-----	---	---	0
480 - 560		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 2 Length of traverse 672.5 sec, 178,145 ft								
0 - 200	5,000	(h)						
200 - 240		----	-----	----	-----	---	---	0
240 - 250		----	-----	----	-5.1	---	218	1
250 - 290		----	-----	----	-----	---	---	0
290 - 300		3.5	-----	4.3	-----	145	---	2
300 - 310		----	-3.2	----	-5.9	---	112	1
310 - 370		----	-----	----	-----	---	---	0
370 - 380		----	-2.2	----	-3.4	---	130	2
380 - 420		----	-----	----	-----	---	---	0
420 - 430		----	-2.5	----	-----	---	---	1
430 - 440		----	-----	----	-----	---	---	0
440 - 450		5.4	-----	10.8	-----	121	---	1
450 - 460	5,000	----	-----	----	-----	---	---	0
460 - 470		5.1	-----	7.9	-----	113	---	3
470 - 480		----	-4.7	----	-----	---	---	3
480 - 490		4.4	-----	----	-----	---	---	1
490 - 500		4.4	-3.8	----	-----	---	---	8
500 - 510		3.8	-4.7	4.8	-----	50	---	2
510 - 520		----	-4.4	----	-----	---	---	3
520 - 530		----	-11.0	----	-----	---	---	3
530 - 540		9.2	-5.7	----	-----	---	---	5

[b]Cloud exit.
[h]Accelerometer inoperative for first 193 sec. of traverse.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 333 - Traverse 2 Length of traverse 672.5 sec, 178,145 ft								
540 - 550	4,500	7.3	-5.4	----	-----	---	---	4
550 - 560		5.1	-----	----	-----	---	---	1
560 - 630	5,000	----	-----	----	-----	---	---	0
[b]630 - 640		4.7	-----	13.1	-----	153	---	2
640 - 680		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 3 Length of traverse 417.0 sec, 119,200 ft								
0 - 240	4,500	(i)						
240 - 250		4.4	-----	----	-----	---	---	1
250 - 260		----	-4.1	----	-6.4	---	196	1
260 - 270		3.1	-1.9	----	-----	---	---	3
270 - 280		----	-3.5	----	-----	---	---	2
280 - 300		----	-----	----	-----	---	---	0
300 - 310		----	-----	4.3	-----	135	---	1
310 - 330		----	-----	----	-----	---	---	0
330 - 340		2.5	-----	4.3	-----	47	---	1
[b]340 - 350		----	-----	----	-----	---	---	0
350 - 360		----	-----	----	-----	---	---	0
360 - 370		2.8	-2.8	----	-----	---	---	3
370 - 380		2.5	-----	3.8	-----	109	---	1
380 - 420		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 4 Length of traverse 602.1 sec, 169,628 ft								
0 - 250	5,500	(j)						
[a]250 - 260		4.7	-----	----	-----	---	---	1
260 - 270		5.9	-7.8	7.4	-----	94	---	4
270 - 280		6.6	-3.4	6.6	-----	78	---	6

[a]Cloud entry.
[b]Cloud exit.
[i]Accelerometer inoperative for first 246 sec of traverse.
[j]Accelerometer inoperative for first 255 sec of traverse.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 333 - Traverse 4 Length of traverse 602.1 sec, 169,628 ft								
280 - 290	5,500	3.7	-5.9	----	-5.3	---	121	4
290 - 300		3.1	-2.2	----	-----	---	---	2
300 - 310		----	-----	----	-----	---	---	0
310 - 320		3.4	-2.2	----	-----	---	---	3
320 - 370		----	-----	----	-----	---	---	0
370 - 380		4.4	-----	----	-----	---	---	1
380 - 390		5.9	-5.9	----	-----	---	---	6
390 - 400		6.2	-7.5	----	-----	---	---	4
400 - 410		8.7	-7.2	----	-----	---	---	4
410 - 420		4.1	-7.2	7.1	-----	51	---	4
420 - 430		3.4	-4.4	5.4	-----	96	---	4
430 - 440		4.7	-3.4	----	-5.8	---	99	4
440 - 450		4.1	-4.4	----	-----	---	---	4
450 - 460		5.6	-5.0	----	-----	---	---	3
460 - 470		5.6	-7.8	----	-----	---	---	3
470 - 480		5.3	-2.8	----	-3.8	---	55	2
480 - 490		----	-----	----	-----	---	---	0
490 - 500		10.3	-3.4	17.8	-3.4	138	132	3
500 - 510		8.1	-6.2	----	-----	---	---	3
510 - 530		----	-----	----	-----	---	---	0
530 - 540		----	-6.9	----	-----	---	---	1
540 - 550		5.0	-3.7	----	-6.1	---	262	2
550 - 560		5.6	-2.2	8.5	-----	57	---	5
560 - 570		3.7	-3.7	----	-----	---	---	3
570 - 580		3.1	-2.8	----	-----	---	---	2
580 - 600		----	-----	----	-----	---	---	0
[b]600 - 610		----	-----	----	-----	---	---	0
Airplane 333 - Traverse 5 Length of traverse 347.2 sec, 96,221 ft								
0 - 110	5,500	(k)						
110 - 120		4.0	-3.7	----	-----	---	---	2
120 - 130		5.0	-----	----	-----	---	---	2
130 - 140		3.4	-----	----	-----	---	---	1

[b]Cloud exit.

[k]Accelarometer inoperative for first 115 sec of traverse.

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TABLE I.- SUMMARY OF GUST MEASUREMENTS - Concluded

Time interval (sec)	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
August 13, 1947 - Flight 22								
Airplane 333 - Traverse 5 Length of traverse 347.2 sec, 96,221 ft								
140 - 150	5,500	3.7	-7.8	----	-----	---	---	3
150 - 160		----	-3.1	----	-3.0	---	84	1
160 - 190		----	-----	----	-----	---	---	0
190 - 200		3.7	-2.8	5.8	-17.1	107	107	3
200 - 210		4.0	-2.8	3.9	-----	103	---	3
210 - 220		5.0	-4.0	5.3	-----	142	---	5
220 - 230		5.6	-----	----	-----	---	---	2
230 - 240		6.5	-----	5.3	-----	118	---	2
240 - 250		----	-4.3	----	-----	---	---	1
250 - 260		----	-----	----	-----	---	---	0
260 - 270		----	-4.7	----	-10.5	---	128	1
270 - 280		----	-6.8	----	-----	---	---	1
280 - 300		----	-----	----	-----	---	---	0
[b]300 - 310		----	-----	----	-----	---	---	0
310 - 350		----	-----	----	-----	---	---	0

[b]Cloud exit.

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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 start of traverse (sec)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
8-7-47	19	353	15,000	[a]1				
				a2				
				a3				
				a4				
				a5				
				a6				
				a7				
				a8				
		333	2,000 to 4,000	a1				
				2	125.5	184.0	14,776	-13.0
				3	126.5	199.0	19,015	-8.1
				4	124.5	193.6	17,879	-6.8
				a5				
8-12-47	20	351	15,000	(b)				
		353	10,000	a1				
				a2				
				a3				
				a4				

[a]No draft velocities indicated by records.
[b]Failure in operation of airspeed-altitude recorder prevented computation of draft velocities for all traverses.

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COMMITTEE FOR AERONAUTICS

TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS - Continued

Date	Flight no.	Airplane no.	Assigned altitude (ft)	Traverse no.	Draft location from start of traverse (sec)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
8-12-47	20	353	10,000	[a]5				
				[a]6				
				[a]7				
				8	55.0	72.5	5,048	31.4
				9	51.5	67.8	4,797	12.9
				[a]10				
				11	97.4	106.8	2,745	-22.6
				12	25.2	37.8	3,796	23.8
				[a]13				
		344	6,000	1	11.5	36.0	6,403	10.4
				[a]2				
				3	15.3	47.8	8,515	5.8
				[a]4				
				[a]5				
	21	344	10,000	[a]1				
				2	47.4	80.0	9,942	9.6
				3	56.5	77.2	6,467	42.8
				[a]4				
				[a]5				

[a]No draft velocities indicated by records.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS - Concluded

Date	Flight no.	Airplane no.	Assigned altitude (ft)	Traverse no.	Draft location from start of traverse (sec)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
8-12-47	21	344	10,000	6	41.6	49.8	2,434	24.4
					174.6	194.0	5,703	7.7
					206.5	224.4	5,209	20.3
					247.8	275.6	8,637	18.9
				7	15.0	42.5	7,914	11.8
					63.4	105.9	13,069	10.6
				[a]8				
		333	10,000	1	62.0	123.7	18,983	12.6
				2	307.5	356.3	14,832	4.9
				[a]3				
				4	22.4	50.2	8,298	6.3
				5	87.0	112.2	7,686	7.4
				6	82.5	92.5	3,180	21.2
8-13-47	22	351	25,000	(b)				
		327	10,000	[a]1				
				[a]2				
				[a]3				
		333	5,000	[a]1				
				[a]2				
				[a]3				
				[a]4				
				[a]5				

[a]No draft velocities indicated by records.

[b]Failure in operation of airspeed-altitude recorder prevented computation of draft velocities for all traverses.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

INDEX

Subject	Number
Gusts - Structure	6.1.2.1
Gusts - Frequency	6.1.2.2
Gusts - Turbulence	6.1.2.3

ABSTRACT

The gust and draft velocities from records of NACA instruments installed in P-61C airplanes participating in thunderstorm flights at Clinton County Army Air Field, Ohio, from August 7, 1947 to August 13, 1947 are presented.

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