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THE VELOCITY FIELD DOWNSTREAM FROM
A TWO-DIMENSIONAL MODEL HILL

PART 2

by

E. J. Plate and C. W. Lin

Final Report on Grant No. DA AMC-36-039-63-G7

August 1965

UNIVERSITY OF MICHIGAN

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**Fluid Dynamics and Diffusion Laboratory
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Fort Collins, Colorado**

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INTRODUCTION

In this second part of the report on the wind field downstream from a two dimensional model hill the experimental data are presented in tabular form. For a first interpretation of the large quantity of data, the first part of the report should be consulted.

In the following paragraphs, the tables and the notations used for them are briefly explained.

Tables 1 to 8: Velocity Distribution Data

The data tabulated in tables 1 to 6 are presented graphically in Figs. 15 to 32 in Pt. 1 of this report. The data tabulated in tables 7 and 8 pertain to velocity distributions in thermally stratified boundary layers downstream from a two dimensional hill. They were taken with the intention of finding out whether temperature gradients actually do have any effect on the highly turbulent flow downstream from the model hills, or whether all effects are obliterated by the large mixing. An analysis of these data has not yet been attempted.

In tables 1 to 8 the symbols used have the following significance: Hill models are described by the model shape and the ratio of height to base length. For example, a hill 1" x 4" will denote a hill with a height of 1" and a base of 4". $P_{atm.}$ is the atmospheric pressure at the beginning of an experiment. If the pressure did not change by more than 0.1 in. Hg. during a series of experiments then only one pressure is given on one page of a table.

The ambient velocity U_0 is measured at the horizontal distance $x = -36$ in. upstream from the hill, and at 3 ft. from the floor. The local ambient velocities are given by the asymptotic value of U for large vertical distances y from the wind tunnel floor. In Pt. 1, the ratio of the dynamic head corresponding to the local ambient velocity to the dynamic head based

on U_0 is shown in Figs. 15 to 32 to indicate possible pressure gradients which might have to be considered in a more refined analysis of the experimental data.

The horizontal distance from the crest of the model is denoted by x . The temperatures T of the ambient air were, in the small wind tunnel, measured by means of a mercury thermometer attached to one of the windows of the wind tunnel. In the large wind tunnel, the temperature was measured with a pneumatic bulb which is used for controlling the air temperature of the wind tunnel through the refrigeration system.

The vertical distance is denoted by y . Small errors in y of the order of $1/16''$ might have been possible due to non-linearity in the mechanism translating distance into the voltage of the $x - y$ plotter.

The pressure reading for each elevation y is given under the heading mm Hg. These are readings, corresponding to the output of the pressure transducer, averaged over the width of the trace on the $x - y$ plotter. The averaging was done by eye. From the pressures, the mean velocity was calculated by using the formula $U = 54\sqrt{\text{mm Hg}}$. The coefficient 54 used in this formula is exact for a temperature of 68°F and a density of the air of $0.002 \text{ slugs /ft}^3$. No attempt was made to correct the velocity data for pressure or temperature, nor, for that matter, for turbulence effects.

In the last column, the $\overline{U^2}$ denotes the average square of the turbulent fluctuating velocity component in the direction of the flow. (i. e. in x - direction).

The cases of the different hill models and velocities as tabulated in Table 1 to 8 are listed in the table of contents.

Table 9: Vertical pressure distributions

For one hill model, wedge 2" x 2", the pressure in the vertical direction was measured in order to check the momentum balance near the hill. The procedure of checking the momentum balance is explained in 3.2 of Pt. 1 of this report. The data were taken with the static holes of the pilot-static tube. The pressure was referenced against the atmospheric pressure outside of the wind tunnel.

Table 10: Pressure distributions along the wall

Distances x are measured from the hill crest, $h =$ model height. $P =$ wall pressure, made non-dimensional by dividing through $1/2 \rho U_0^2$, where U_0 is the reference velocity measured at a distance of 3 feet upstream from the model.

Table 11: Pressure distributions about the models

The vertical distance y from the floor is made dimensionless by dividing through the model height. p_f is the pressure on the front, p_r the pressure on the rear side of the model, both are given in mm Hg.

Table 12: Summary of calculated data

Table 12 contains a summary of the parameters which were calculated from the experimental data tabulated in Table 1 to 11. Δh_a is again the pressure reading of the ambient air, obtained at a distance of 3 ft. upstream from the crest of the hill, and U_0 is the corresponding velocity, while $P_{atm.}$ is the atmospheric pressure.

The drag coefficient C_D was calculated by the integral

$$C_D = \int_0^h \frac{p \sin \alpha - P_d \sin \alpha}{\frac{1}{2} \rho U_0^2} dy$$

In this expression, p is the pressure on the front of the model, p_d is the pressure on the back of the model, while h is the model height and y the vertical coordinate. The angle α is given by the slope of the model surface

at the elevation y . All pressures were measured in mm Hg and divided by Δh_a which, to a constant factor, gives $\frac{1}{2} \rho U_0^2$. The integration was performed graphically by plotting the pressures, $p \sin \alpha - p_d \sin \alpha$ which were calculated from the experimental data, against y , by connecting the pressure end points with a smooth curve, and determining the area under the curve with a planimeter.

The temperature T was measured, and the density ρ was determined according to the atmospheric pressure and the temperature from handbook values.

The displacement thickness δ^* was calculated from its definition:

$$\delta^* = \int_0^{\delta} \left(1 - \frac{U}{U_0} \right) dy$$

where U_0 is the asymptotic value of the velocity at large distances y at the given distance x , except in those cases where the velocity had a maximum rather than an asymptotic value. This occurred for boundary layers of small thickness and for wedge models (in the small wind tunnel). In these cases, the boundary layer thickness δ was defined as the distance from the floor, where the total head reached 99% of its asymptotic value at great heights above the floor.

The integration was performed by plotting $1 - \frac{U}{U_0}$ against y , fairing a smooth curve through the data points, and determining the area under the curve with a planimeter.

The momentum thickness θ was determined in the same manner from the defining equation

$$\theta = \int_0^{\delta} \frac{U}{U_0} \left(1 - \frac{U}{U_0} \right) dy$$

The form factor H denotes the ratio

$$H = \frac{\delta^*}{\theta}$$

U^* is the shear velocity. It was calculated by first determining the shear stress coefficient c_f from the equation of Ludwig and Tillman which is given as Eq. 3-22 on p. 27 of Pt. 1 of this report. The shear velocity is then given by the relation

$$U^* = \sqrt{\frac{c_f}{2} U_0}$$

The quantity Θ denotes the contribution of the turbulent intensity to the momentum equation, i.e.

$$\Theta = \int_0^{\delta} \frac{\overline{U^2}}{U_0^2} dy$$

where $\overline{U^2}$ is the average value of the squared turbulent velocity component in the direction of flow. Again, the integral was determined graphically.

The distance σ is the width of the turbulent intensity "jet" (see p. 38 of Pt. 1).

Table 1

		Velocity Distribution				Small Wind Tunnel						
		Hill 1" x 4"				P _{atm.} = 24.70 in. Hg.						
		U ₀ = 30 fps		Model shape: Wedge								
		x = -36 in.		x = 18 in.		x = -6 in.		x = 0 in.		x = 4 in.		
		T = 76° F		T = 82° F		T = 82° F		T = 82° F		T = 78° F		
		x = 8 in.								T = 76° F		
y (in)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)
0.25	.118	18.5	.113	18.2	.070	14.3						
0.50	.133	19.7	.147	20.7	.090	16.2						
0.75	.178	22.8	.183	23.1	.117	18.5						
1.00	.192	23.6	.193	23.7	.127	19.3	.203	24.4	0			
1.50	.223	25.6	.230	25.9	.156	21.3	.278	28.5	.003	3.0	0	
2.00	.250	27.0	.250	27.0	.185	23.2	.305	29.8	.047	11.7	.037	10.4
2.50	.268	28.0	.269	28.0	.208	24.7	.319	30.5	.194	23.8	.120	18.7
3.00	.280	28.6	.283	28.8	.230	25.9	.335	31.2	.320	30.6	.234	26.1
3.50	.290	29.1	.295	29.3	.247	26.8	.338	31.4	.361	32.4	.314	30.3
4.00	.296	29.4	.301	29.6	.258	27.5	.340	31.5	.374	33.0	.345	31.7
4.50	.302	29.7	.305	29.8	.265	27.8	.341	31.5	.378	33.2	.359	32.4
5.00	.305	29.8	.308	30.0	.272	28.2	.342	31.6	.379	33.2	.366	32.6
5.50	.306	29.8	.310	30.0	.278	28.5	.342	31.6	.378	33.2	.369	32.8
6.00	.307	29.9	.311	30.1	.284	28.8	.341	31.5	.376	33.1	.370	32.9
6.50	.308	30.0	.312	30.2	.289	29.0	.340	31.5	.374	33.0	.368	32.7
7.00	.309	30.0	.313	30.2	.295	29.3	.339	31.4	.370	32.8	.366	32.7
7.50	.310	30.1	.313	30.2	.298	29.5	.338	31.4	.368	32.7	.365	32.6
8.00	.310	30.1	.313	30.2	.300	29.6	.337	31.3	.364	32.6	.363	32.5
8.50					.302	29.7	.336	31.3	.361	32.4	.360	32.4
9.00					.304	29.8	.336	31.3	.356	32.2	.356	32.2
9.50					.305	29.8	.336	31.3	.354	32.1	.354	32.1
10.50					.307	29.9	.335	31.2	.347	31.8	.350	32.0
11.50					.309	30.0	.332	31.1	.344	31.6	.345	31.7
12.50					.311	30.1	.331	31.1	.338	31.4	.341	31.5
13.50					.312	30.1	.329	31.0	.337	31.3	.338	31.4
14.50					.313	30.2	.328	30.9	.334	31.2	.335	31.3
15.50					.314	30.3	.327	30.9	.330	31.0	.333	31.2
16.50					.314	30.3	.327	30.9	.328	30.9	.330	31.0
17.50							.326	30.8	.326	30.8	.328	30.9
18.50							.325	30.8	.325	30.8	.325	30.8
19.50							.324	30.7	.324	30.7	.324	30.7
20.50							.323	30.7	.323	30.7	.323	30.7
21.50							.322	30.6	.320	30.6	.322	30.6
22.50							.321	30.6	.319	30.5	.321	30.6
23.50							.320	30.5	.317	30.4	.319	30.5
24.50							.319	30.5	.316	30.3	.318	30.4
25.50							.318	30.4	.314	30.2	.316	30.3
26.50							.317	30.4	.313	30.2	.315	30.3
27.50							.316	30.3	.312	30.1	.314	30.2
28.50							.315	30.3			.312	30.1
29.50							.315	30.3			.312	30.1

Table 1

y(in)	Velocity Distribution		Hill 1" x 4"		Small Wind Tunnel	
	U ₀ = 30 fps		Model shape: Wedge		P _{atm.} = 24.70 in. Hg.	
	x = 12 in. T = 79° F		x = 16 in. T = 80° F		x = 24 in. T = 81° F	
	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)
0.25					.036	10.2
0.50					.044	11.3
0.75			.005	3.8	.052	12.3
1.00			.010	5.4	.061	13.3
1.50	.006	4.2	.028	9.0	.083	15.6
2.00	.047	11.7	.063	13.6	.105	17.5
2.50	.114	18.3	.116	18.4	.143	20.4
3.00	.192	23.7	.177	22.7	.178	22.8
3.50	.260	27.6	.230	25.9	.216	25.1
4.00	.300	29.6	.272	28.1	.252	27.1
4.50	.326	30.8	.300	29.6	.272	28.1
5.00	.341	31.5	.318	30.5	.288	29.0
5.50	.350	31.9	.327	30.9	.302	29.7
6.00	.356	32.2	.333	31.2	.311	30.1
6.50	.358	32.3	.337	31.4	.315	30.3
7.00	.359	32.4	.340	31.5	.319	30.5
7.50	.358	32.4	.342	31.6	.321	30.6
8.00	.357	32.3	.343	31.6	.322	30.6
8.50	.356	32.2	.342	31.6	.324	30.7
9.00	.355	32.2	.342	31.6	.324	30.7
9.50	.352	32.0	.341	31.5	.325	30.8
10.50	.348	31.9	.340	31.5	.325	30.8
11.50	.346	31.8	.338	31.4		
12.50	.344	31.7	.337	31.4		
13.50	.342	31.6	.337	31.4		
14.50	.340	31.5	.336	31.3		
15.50	.337	31.3	.335	31.3		
16.50	.335	31.2	.334	31.2		
17.50	.334	31.2	.333	31.2		
18.50	.332	31.1	.332	31.1		
19.50	.331	31.1	.331	31.1		
20.50	.330	31.0	.330	31.0		
21.50	.328	30.9	.329	31.0		
22.50	.327	30.9	.328	30.9		
23.50	.326	30.8	.327	30.9		
24.50	.325	30.8	.325	30.8		
25.50	.323	30.7	.324	30.7		
26.50	.322	30.6	.323	30.7		
27.50	.320	30.6	.322	30.6		
28.50	.319	30.5	.322	30.6		
29.50	.318	30.4				
30.50	.317	30.4				
31.50	.317	30.4				

Table 1

		Velocity Distribution		Hill 1 " x 4 "		Small Wind Tunnel							
		$U_0 = 30$ fps		Model Shape: Wedge		$P_{atm.} = 24.70$ in. Hg.							
		$x = 32$ in. $T = 82^\circ$ F		$x = 48$ in. $T = 82^\circ$ F		$x = 72$ in. $T = 82^\circ$ F		$x = 108$ in. $T = 82^\circ$ F		$x = 156$ in. $T = 82^\circ$ F		$x = 180$ in. $T = 82^\circ$ F	
y (in)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm. Hg.	U (fps)	
0.25	.066	13.9	.096	16.7	.106	17.6	.108	17.8	.115	18.3	.109	17.8	
0.50	.076	14.9	.102	17.2	.122	18.9	.123	19.0	.133	19.7	.126	19.2	
0.75	.085	15.7	.122	18.8	.140	20.2	.150	20.9	.154	21.2	.168	22.1	
1.00	.095	16.6	.133	19.7	.154	21.2	.166	22.0	.176	22.6	.186	23.3	
1.50	.114	18.2	.152	21.0	.176	22.6	.190	23.5	.201	24.2	.206	24.5	
2.00	.138	20.0	.167	22.0	.191	23.6	.207	24.6	.216	25.1	.218	25.3	
2.50	.157	21.4	.184	23.2	.204	24.4	.216	25.1	.227	25.7	.230	25.9	
3.00	.183	23.1	.200	24.2	.217	25.2	.228	25.8	.236	26.2	.237	26.3	
3.50	.208	24.7	.216	25.1	.227	25.8	.236	26.2	.244	26.7	.245	26.7	
4.00	.236	26.2	.234	26.1	.237	26.3	.244	26.7	.252	27.1	.252	27.1	
4.50	.258	27.4	.248	26.9	.247	26.8	.251	27.0	.258	27.4	.258	27.5	
5.00	.276	28.4	.264	27.8	.258	27.4	.258	27.5	.266	27.8	.263	27.7	
5.50	.290	29.1	.277	28.4	.269	28.0	.264	27.8	.271	28.1	.269	28.0	
6.00	.299	29.5	.287	28.9	.277	28.4	.271	28.1	.277	28.4	.273	28.3	
6.50	.307	29.9	.296	29.4	.286	28.9	.278	28.5	.283	28.7	.279	28.5	
7.00	.311	30.1	.304	29.8	.295	29.4	.287	29.9	.289	29.0	.283	28.7	
7.50	.313	30.2	.310	30.0	.303	29.8	.295	29.3	.295	29.3	.288	29.0	
8.00	.315	30.3	.315	30.3	.309	30.0	.301	29.6	.299	29.5	.244	29.3	
8.50	.316	30.4	.317	30.4	.312	30.2	.305	29.8	.304	29.8	.299	29.5	
9.00	.317	30.4	.318	30.5	.314	30.3	.309	30.0	.309	30.0	.303	29.8	
9.50	.318	30.4	.319	30.5	.315	30.4	.312	30.2	.312	30.1	.306	29.9	
10.50	.319	30.5	.320	30.6	.317	30.4	.317	30.4	.317	30.4	.312	30.2	
11.50	.320	30.6	.320	30.6	.319	30.5	.320	30.6	.320	30.5	.317	30.4	
12.50	.320	30.6	.320	30.6	.320	30.6	.323	30.7	.321	30.6	.319	30.5	
13.50							.323	30.7	.323	30.7	.321	30.6	
									.323	30.7	.321	30.6	

Table 2

y(in)	Velocity Distribution		Hill 2" x 2"		Small Wind Tunnel							
	$U_0 = 15$ fps		Model shape: Wedge		$P_{atm.} = 24.45$ in. Hg.							
	x = -18 in.		x = 0 in.		x = 2 in.		x = 6 in.		x = 10 in.		x = 14 in.	
	T = 78° F		T = 78° F		T = 78° F		T = 78° F		T = 78° F		T = 78° F	
	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25												
0.50	.0310	9.51										
0.75	.0360											
1.00	.0400	10.80										
1.50	.0500	12.07										
2.00	.0570	12.90	.0500	12.07			.0010	1.71				
2.50	.0620	13.43	.0610	13.32	0		.0050	3.82	.0040	3.42	.004	3.42
3.00	.0660	13.88	.0770	15.00	.0300	9.36	.0160	6.83	.0120	5.92	.010	5.40
3.50	.0690	14.19	.0830	15.57	.0830	15.56	.0450	11.45	.0320	9.66	.025	8.54
4.00	.0720	14.48	.0870	15.93	.0930	16.47	.0820	15.48	.0540	12.55	.044	11.32
4.50	.0740	14.70	.0890	16.10	.0980	16.90	.0980	16.90	.0800	15.28	.067	13.98
5.00	.0760	14.90	.0910	16.30	.1010	17.17	.1030	17.33	.0930	16.47	.082	15.45
5.50	.0770	15.00	.0930	16.48	.1040	17.41	.1060	17.60	.1000	17.09	.093	16.48
6.00	.0780	15.09	.0940	16.57	.1055	17.53	.1080	17.75	.1050	17.50	.099	17.00
6.50	.0785	15.12	.0950	16.65	.1055	17.53	.1085	17.80	.1080	17.75	.1035	17.38
7.00	.0790	15.18	.0955	16.70	.1050	17.50	.1090	17.83	.1100	17.91	.1060	17.58
7.50	.0790	15.18	.0955	16.70	.1045	17.45	.1090	17.83	.1105	17.96	.107	17.67
8.00	.0790	15.18	.0950	16.65	.1030	17.32	.1085	17.80	.1100	17.91	.1075	17.70
8.50	.0790	15.18	.0948	16.60	.1010	17.17	.1075	17.70	.1090	17.82	.1075	17.70
9.00	.0790	15.18	.0945	16.60	.1000	17.09	.1060	17.58	.1085	17.80	.1070	17.67
9.50			.0943	16.58	.0990	17.00	.1050	17.50	.1070	17.68	.1060	17.58
10.50			.0940	16.55	.0975	16.87	.1030	17.32	.1050	17.50	.1045	17.45
11.50			.0928	16.45	.0960	16.73	.1007	17.12	.1028	17.30	.1027	17.29
12.50			.0920	16.40	.0950	16.65	.0990	17.00	.1010	17.18	.1010	17.18
13.50			.0910	16.29	.0940	16.55	.0973	16.85	.0992	16.99	.0992	16.99
14.50			.0900	16.21	.0930	16.45	.0960	16.72	.0985	16.83	.0985	16.95
15.50			.0895	16.15	.0918	16.35	.0948	16.61	.0968	16.79	.0971	16.81
16.50			.0890	16.10	.0910	16.30	.0930	16.47	.0955	16.70	.0960	16.73
17.50			.0890	16.10	.0900	16.20	.0922	16.39	.0945	16.59	.0948	16.61
18.50			.0890	16.10	.0900	16.20	.0915	16.33	.0930	16.47	.0940	16.55
19.50							.0905	16.22	.0925	16.42	.0925	16.42
20.50							.0895	16.13	.0920	16.38	.0920	16.40
21.50							.0885	16.04	.0910	16.28	.0916	16.32
22.50							.0880	16.00	.0900	16.19	.0911	16.28
23.50							.0875	15.96	.0890	16.10	.0905	16.22
24.50							.0872	15.93	.0885	16.04	.0900	16.19
25.50							.0870	15.91	.0880	16.00	.0895	16.13
26.50							.0865	15.87	.0875	15.96	.0890	16.10
27.50							.0860	15.82	.0870	15.91	.0885	16.04
28.50							.0860	15.82	.0865	15.87	.0881	16.01
									.0860	15.82	.0878	15.99
									.0860	15.82	.0875	15.96
											.0870	15.91
											.0870	15.91

Table 2

Velocity Distribution		Hill 2" x 2 "		Small Wind Tunnel	
$U_p = 30$ fps		Model shape: Wedge		$P_{atm.} = 24.45$ in. Hg.	
$x = -18$ in.	$x = 0$ in.	$x = 2$ in.	$x = 6$ in.	$x = 10$ in.	
$T = 78^\circ F$	$T = 78^\circ F$	$T = 78^\circ F$	$T = 80^\circ F$	$T = 80^\circ F$	
y (in)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps) $\overline{U^2}$ (fps) ²	mm. Hg. U (fps) $\overline{U^2}$	mm. Hg. U (fps) $\overline{U^2}$ (fps) ²
0.25	.117 18.45				
0.50	.141 20.25		.64		12.04
0.75	.162 21.70				
1.00	.182 23.00		1.14	0	12.04
1.50	.210 24.70			.001 1.71	
2.00	.233 26.05	.161 21.65	.005 3.82 1.80	.004 3.41	.002 2.41 12.11
2.50	.252 27.10	.295 29.30	.008 4.82 11.16	.019 7.45	.016 6.83 13.99
3.00	.270 28.00	.330 31.00	.170 22.30 60.84	.068 14.10	.040 10.80 21.81
3.50	.281 28.60	.345 31.70	.361 32.40 22.56	.207 24.50	.085 15.73 37.82
4.00	.285 28.80	.351 32.00	.397 34.00 10.69	.361 32.40	.161 21.60 54.32
4.50	.290 29.05	.355 32.15	.410 34.55 6.45	.413 34.70	.273 28.20 59.29
5.00	.291 29.10	.356 32.20	.414 34.75 4.28	.431 35.40	.360 32.40 48.30
5.50	.293 29.20	.357 32.25	.412 34.60 2.56	.439 35.75	.412 34.60 28.52
6.00	.294 29.25	.356 32.20	.410 34.55 1.61	.440 35.80	.438 35.70 13.99
6.50	.295 29.30	.355 32.15	.406 34.35 1.14	.439 35.70	.449 36.15 7.13
7.00	.297 29.40	.354 32.10	.404 34.30 .87	.435 35.60	.452 36.25 4.00
7.50	.297 29.40	.354 32.10	.400 34.10 .60	.432 35.45	.450 36.20 2.56
8.00	.298 29.50	.353 32.05	.394 33.90 .45	.428 35.30	.449 36.15 1.46
8.50	.298 29.50	.352 32.00	.390 33.70 .36	.421 35.00	.445 36.00 .87
9.00	.299 29.55	.352 32.00	.387 33.60 .28	.417 34.85	.440 35.80 .64
9.50	.300 29.60	.351 31.95	.384 33.40 .28	.412 34.60	.436 35.65 .45
10.50	.301 29.60	.350 31.90	.377 33.10 .21	.401 34.20	.430 35.40 .36
11.50	.302 29.65	.349 31.90	.370 32.85 .11	.394 33.90	.420 34.95 .22
12.50	.304 29.75	.347 31.80	.367 32.70	.388 33.65	.412 34.60 .16
13.50	.304 29.75	.345 31.70	.364 32.60	.382 33.35	.406 34.40 .16
14.50	.306 29.85	.344 31.65	.360 32.40	.377 33.15	.400 34.10
15.50	.307 29.90	.343 31.60	.357 32.30	.370 32.80	.393 33.80
16.50	.308 29.95	.342 31.55	.354 32.10	.366 32.60	.390 33.70
17.50	.308 29.95	.341 31.50	.351 32.00	.362 32.45	.385 33.50
18.50	.309 30.00	.340 31.45	.348 31.85	.360 32.40	.380 33.30
19.50	.310 30.05	.338 31.35	.345 31.75	.358 32.30	.375 33.05
20.50		.336 31.25	.342 31.55	.355 32.15	.372 32.90
21.50		.334 31.20	.342 31.55	.352 32.00	.374 33.00
22.50		.333 31.15	.340 31.45	.349 31.90	.371 32.90
23.50		.332 31.10	.339 31.40	.346 31.75	.368 32.75
24.50		.331 31.05	.337 31.35	.343 31.60	.365 32.60
25.50		.330 31.00	.335 31.25	.341 31.50	.362 32.45
26.50		.329 30.95	.333 31.15	.340 31.45	.360 32.35
27.50		.327 30.85	.331 31.05	.338 31.40	.357 32.25
28.50		.326 30.80	.329 30.95	.335 31.25	.355 32.15
29.50		.325 30.75	.327 30.85	.332 31.10	.352 32.00
30.50		.324 30.70	.326 30.80	.330 31.00	.349 31.90

Table 2

Velocity Distribution			Hill 2" x 2"		Small Wind Tunnel				
$U_0 = 30 \text{ fps}$			Model shape: Wedge		$P_{\text{atm.}} = 24.45$				
$x = 14 \text{ in.}$			$x = 18 \text{ in.}$		$x = 22 \text{ in.}$				
$T = 80^\circ \text{ F}$			$T = 80^\circ \text{ F}$		$T = 80^\circ \text{ F}$				
$y(\text{in})$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$
0.25						12.04			12.04
0.50									
0.75									
1.00						14.98			14.98
1.50						19.45			19.45
2.00	0			.001	1.71	27.14	0	.002	2.41
2.50	.018	7.25		.015	6.61	34.57	.022	8.00	.019
3.00	.063	13.54		.042	11.05	44.76	.053	12.40	.072
3.50	.117	18.46		.108	17.74	58.37	.108	17.70	.115
4.00	.196	23.90		.187	23.30	64.16	.163	21.80	.164
4.50	.290	29.05		.258	27.40	62.41	.227	25.80	.218
5.00	.355	32.10		.310	30.50	55.20	.284	28.70	.269
5.50	.389	33.65		.352	32.00	37.82	.335	31.20	.312
6.00	.412	34.60		.380	33.25	19.45	.364	32.50	.340
6.50	.420	35.00		.396	33.90	11.56	.381	33.30	.359
7.00	.426	35.20		.402	34.20	7.13	.390	33.70	.370
7.50	.428	35.30		.409	34.50	4.28	.392	33.80	.372
8.00	.425	35.20		.408	34.45	2.56	.394	33.85	.371
8.50	.422	35.00		.406	34.40	1.44	.390	33.70	.370
9.00	.418	34.90		.404	34.30	1.01	.388	33.60	.370
9.50	.413	34.70		.401	34.20	.64	.385	33.50	.370
10.50	.409	34.50		.397	34.00	.36	.383	33.40	.369
11.50	.400	34.10		.393	33.85	.28	.380	33.25	.369
12.50	.394	33.90		.388	33.60	.22	.378	33.20	.367
13.50	.389	33.65		.382	33.30	.22	.375	33.05	.366
14.50	.382	33.30		.379	33.20	.16	.372	32.90	.365
15.50	.379	33.20		.376	33.05		.369	32.75	.363
16.50	.376	33.10		.372	32.90		.364	32.55	.361
17.50	.372	32.90		.369	32.80		.362	32.45	.360
18.50	.368	32.75		.365	32.60		.360	32.40	.360
19.50	.365	32.60		.363	32.50		.358	32.30	.359
20.50	.362	32.45		.359	32.35		.357	32.25	.356
21.50	.358	32.30		.357	32.25		.354	32.10	.354
22.50	.354	32.10		.354	32.10		.351	31.95	.352
23.50	.352	32.00		.352	32.05		.348	31.85	.350
24.50	.350	31.90		.349	31.90		.346	31.75	.348
25.50	.347	31.80		.347	31.80		.344	31.65	.346
26.50	.345	31.70		.345	31.70		.342	31.60	.344
27.50	.343	31.60		.341	31.50		.340	31.50	.344
28.50	.342	31.55		.339	31.45		.338	31.40	.343
29.50	.340	31.45		.337	31.30		.337	31.30	.342
30.50	.336	31.30		.335	31.20		.335	31.20	.342

Table 2

y(in)	Velocity Distribution			Hill 2" x 2"			Small Wind Tunnel					
	U ₀ = 30 fps			Model shape: Wedge			P _{atm.} = 24.45 in. Hg.					
	x = 46 in. T = 81° F			x = 86 in. T = 81° F			x = 126 in. T = 81° F			x = 166 in. T = 81° F		
	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.040	10.80		.100	17.10		.116	18.40		.110	17.90	
0.50	.049	11.95	31.47	.131	19.60	22.56	.136	19.40	19.27	.152	21.10	16.56
0.75	.058	13.00		.146	20.65		.160	21.60		.172	22.40	
1.00	.068	14.10	36.48	.157	21.40	23.81	.178	22.80	18.84	.186	23.40	16.00
1.50	.087	15.92	39.69	.171	22.30	24.50	.197	24.00	18.66	.204	24.40	15.57
2.00	.102	17.41	43.96	.184	23.20	24.60	.210	24.80	18.23	.218	25.20	14.98
2.50	.121	18.80	46.79	.195	23.90	25.10	.218	25.25	17.72	.229	25.85	14.44
3.00	.141	20.30	46.79	.203	24.40	25.70	.226	25.70	17.14	.235	26.20	13.99
3.50	.157	21.40	46.79	.212	24.90	25.70	.233	26.10	16.89	.241	26.55	13.54
4.00	.177	22.70	45.43	.219	25.30	25.10	.240	26.50	16.56	.246	26.80	13.47
4.50	.201	24.20	43.16	.227	25.70	24.40	.247	26.85	16.00	.252	27.10	12.96
5.00	.237	25.80	39.69	.236	26.25	23.81	.254	27.20	15.92	.258	27.45	12.11
5.50	.254	27.20	33.99	.244	26.70	22.66	.260	27.60	15.52	.263	27.75	11.83
6.00	.274	28.25	27.88	.252	27.10	21.25	.266	27.90	14.98	.268	28.00	11.16
6.50	.290	29.10	21.90	.260	27.60	19.45	.272	28.20	14.14	.272	28.20	10.76
7.00	.302	29.70	17.14	.270	28.10	17.81	.279	28.55	13.47	.277	28.45	10.24
7.50	.315	30.35	12.04	.278	28.50	16.00	.284	28.80	12.96	.283	28.80	9.86
8.00	.326	30.90	8.64	.288	29.00	14.52	.290	29.10	12.04	.289	29.10	9.24
8.50	.331	31.10	6.45	.296	29.40	12.53	.295	29.40	11.15	.293	29.30	8.64
9.00	.334	31.25	5.15	.304	29.80	10.69	.300	29.60	10.24	.298	29.55	8.29
9.50	.335	31.30	3.72	.311	30.10	8.94	.305	29.85	9.00	.303	29.80	7.84
10.50	.336	31.35	1.96	.324	30.80	5.76	.315	30.40	6.76	.312	30.20	6.81
11.50	.337	31.40	1.14	.330	31.05	3.49	.324	30.80	5.15	.321	30.60	5.66
12.50	.337	31.40	.64	.332	31.15	2.56	.331	31.15	3.72	.327	30.95	4.58
13.50	.337	31.40	.45	.333	31.20	1.63	.335	31.30	2.56	.332	31.20	3.80
14.50	.337	31.40	.35	.333	31.20	1.14	.335	31.30	1.85	.335	31.30	3.03
15.50	.337	31.40	.28	.332	31.10	.759	.335	31.30	1.38	.336	31.35	2.37
16.50	.337	31.40	.26	.332	31.10	.545	.335	31.30	1.01	.336	31.35	1.61
17.50	.337	31.40	.22	.331	31.05	.378	.335	31.30	.78	.336	31.35	1.14
18.50	.337	31.40		.331	31.05		.335	31.30	.64	.336	31.35	.83
19.50	.337	31.40		.330	31.00		.335	31.30	.45	.336	31.35	.60
20.50	.337	31.40		.330	31.00		.335	31.30		.336	31.35	

Table 2

Velocity Distribution		Hill 2" x 2"		Small Wind Tunnel				
$U_b = 60$ fps		Model shape: Wedge		$P_{atm.} = 24.45$ in Hg.				
y(in)	x = - 18 in.		x = 0 in.		x = 2 in.		x = 6 in.	
	mm. Hg.	T = 81° F	mm. Hg.	T = 83° F	mm. Hg.	T = 83° F	mm. Hg.	T = 84° F
	U (fps)	$\overline{U^2}$ (fps) ²	U (fps)	$\overline{U^2}$ (fps) ²	U (fps)	$\overline{U^2}$ (fps) ²	U (fps)	$\overline{U^2}$ (fps) ²
0.25								
0.50	.450	36.20				2.25		
0.75								
1.00	.580	41.10				4.04		
1.50	.675	44.30				4.51		
2.00	.775	47.50	.500	38.10		6.30	0	
2.50	.870	50.30	1.100	56.70	.010	5.40	.090	16.20
3.00	.940	52.30	1.260	60.60	.380	32.25	.250	27.00
3.50	.990	53.70	1.285	61.20	1.300	61.50	.600	41.80
4.00	1.030	54.80	1.300	61.50	1.410	64.10	1.250	60.30
4.50	1.060	55.60	1.320	62.00	1.465	65.30	1.500	66.10
5.00	1.085	56.20	1.330	62.25	1.500	66.00	1.545	67.10
5.50	1.110	56.80	1.340	62.50	1.515	66.30	1.565	67.50
6.00	1.125	57.30	1.350	62.70	1.520	66.60	1.580	67.80
6.50	1.145	57.80	1.365	63.10	1.530	66.80	1.595	68.10
7.00	1.160	58.20	1.380	63.40	1.540	67.00	1.610	68.50
7.50	1.170	58.40	1.390	63.70	1.545	67.10	1.615	68.60
8.00	1.180	58.70	1.400	63.90	1.550	67.20	1.625	68.80
8.50	1.190	58.90	1.410	64.10	1.550	67.20	1.630	68.90
9.00	1.195	59.00	1.420	64.30	1.550	67.20	1.635	69.00
9.50	1.200	59.15	1.430	64.50	1.545	67.10	1.650	69.30
10.50	1.205	59.25	1.420	64.30	1.535	66.90	1.630	68.90
11.50	1.210	59.40	1.410	64.10	1.515	66.45	1.600	68.30
12.50	1.215	59.50	1.400	63.90	1.500	66.00	1.575	67.75
13.50	1.220	59.65	1.395	63.80	1.485	65.80	1.550	67.20
14.50	1.225	59.80	1.390	63.70	1.470	65.50	1.530	66.80
15.50	1.228	59.85	1.385	63.55	1.455	65.15	1.510	66.40
16.50	1.230	59.90	1.380	63.40	1.445	65.00	1.490	65.90
17.50	1.235	60.00	1.375	63.30	1.435	64.75	1.475	65.55
18.50	1.240	60.10	1.370	63.20	1.425	64.50	1.460	65.20
19.50	1.245	60.30	1.365	63.10	1.425	64.50	1.450	65.00
20.50	1.245	60.30	1.360	63.00	1.420	64.35	1.440	64.80
21.50	1.248	60.35	1.350	62.75	1.410	64.10	1.435	64.65
22.50	1.250	60.40	1.340	62.50	1.400	63.90	1.430	64.55
23.50			1.330	62.30	1.390	63.70	1.425	64.45
24.50			1.325	62.10	1.385	63.55	1.415	64.25
25.50			1.320	62.00	1.380	63.40	1.410	64.10
26.50			1.315	61.90	1.375	63.30	1.400	63.85
27.50			1.315	61.90	1.370	63.20	1.390	63.70
28.50					1.365	63.10	1.380	63.45
29.50			1.310	61.80	1.360	62.95	1.375	63.30
30.50					1.355	62.80	1.370	63.20

Table 2

y(in)	Velocity Distribution		Hill 2 " x 2 "		Small Wind Tunnel							
	$U_0 = 60 \text{ fps}$		Model shape: Wedge		$P_{\text{atm.}} = 24.45 \text{ in. Hg.}$							
	x = 10 in. T = 84° F	x = 14 in. T = 84° F	x = 18 in. T = 84° F	x = 22 in. T = 85° F	x = 26 in. T = 85° F							
	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$
0.25												
0.50			42.50									34.70
0.75												
1.00			42.50									52.80
1.50			42.70		0					.025	8.53	91.00
2.00	0		49.50	0	.030	9.35	93.50	.100	17.10	.100	17.10	121.00
2.50	.050	12.10	77.00	.090	.085	15.70	119.00	.135	19.80	.185	23.20	146.00
3.00	.200	24.10	132.00	.250	.225	25.60	156.00	.250	27.00	.320	30.50	174.00
3.50	.475	37.20	190.00	.450	.400	34.10	199.00	.400	34.10	.460	36.60	196.00
4.00	.825	49.00	253.00	.700	.650	43.50	225.00	.585	41.30	.620	42.50	196.00
4.50	1.100	56.60	190.00	1.050	.900	51.10	219.00	.810	48.50	.815	48.70	185.00
5.00	1.325	62.20	119.00	1.260	1.140	57.70	196.00	1.010	54.25	.970	53.10	164.00
5.50	1.440	64.75	52.70	1.360	1.250	60.30	139.00	1.150	57.90	1.100	56.70	139.00
6.00	1.520	66.50	30.40	1.430	1.340	62.50	90.50	1.275	61.00	1.210	59.40	95.30
6.50	1.575	67.75	22.65	1.490	1.415	64.20	56.40	1.370	63.20	1.310	61.80	68.20
7.00	1.620	68.70	16.10	1.540	1.465	65.30	39.20	1.415	64.20	1.360	63.00	42.40
7.50	1.650	69.30	10.64	1.580	1.510	66.30	23.90	1.440	64.75	1.400	63.90	29.00
8.00	1.665	69.70	9.05	1.620	1.535	66.80	16.10	1.460	65.20	1.425	64.50	22.60
8.50	1.680	70.00	4.50	1.650	1.550	67.25	14.14	1.480	65.70	1.440	64.80	18.15
9.00	1.690	70.20	3.06	1.670	1.565	67.50	8.30	1.500	66.10	1.450	65.00	13.10
9.50	1.685	70.10	2.62	1.670	1.570	67.60	4.00	1.525	66.70	1.460	65.25	9.05
10.50	1.670	69.80	.56	1.660	1.585	68.00	3.06	1.535	66.90	1.475	65.60	3.06
11.50	1.645	69.25	.25	1.630	1.585	68.00	1.00	1.525	66.70	1.480	65.70	1.25
12.50	1.620	68.70		1.615	1.575	67.70	.56	1.520	66.50	1.480	65.70	1.00
13.50	1.590	68.05		1.590	1.555	67.30		1.510	66.30	1.475	65.60	.39
14.50	1.565	67.50		1.570	1.535	66.80		1.500	66.10	1.470	65.50	
15.50	1.545	67.15		1.550	1.520	66.55		1.490	65.90	1.465	65.35	
16.50	1.525	66.70		1.530	1.510	66.30		1.480	65.70	1.460	65.25	
17.50	1.505	66.20		1.515	1.490	65.90		1.470	65.45	1.450	65.00	
18.50	1.490	65.90		1.500	1.480	65.60		1.460	65.20	1.445	64.90	
19.50	1.475	65.55		1.485	1.465	65.35		1.450	65.00	1.440	64.80	
20.50	1.460	65.20		1.470	1.450	65.00		1.440	64.75	1.430	64.60	
21.50	1.445	64.90		1.450	1.435	64.70		1.430	64.55	1.425	64.50	
22.50	1.430	64.55		1.435	1.425	64.45		1.420	64.30	1.420	64.30	
23.50	1.420	64.30		1.425	1.410	64.10		1.410	64.10	1.415	64.20	
24.50	1.415	64.20		1.420	1.400	63.90		1.400	63.90	1.410	64.10	
15.50	1.410	64.10		1.410	1.395	63.75		1.390	63.65	1.405	64.00	
16.50	1.400	63.90		1.400	1.390	63.65		1.385	63.55	1.400	63.90	
17.50	1.390	63.60		1.390	1.380	63.45		1.380	63.45	1.395	63.75	
18.50	1.380	63.40		1.380	1.370	63.20		1.375	63.30	1.390	63.65	
19.50	1.370	63.20		1.370	1.360	63.00		1.370	63.20	1.385	63.55	
20.50	1.360	62.95		1.360	1.350	62.75		1.360	63.00	1.380	63.45	

Table 2

		Velocity Distribution				Hill 2" x 2"				Small Wind Tunnel					
		$U_0 = 60 \text{ fps}$				Model shape: Wedge				$P_{\text{atm.}} = 24.45$					
		$x = 46 \text{ in.}$		$x = 66 \text{ in.}$		$x = 86 \text{ in.}$		$x = 106 \text{ in.}$		$x = 126 \text{ in.}$		$x = 46 \text{ in.}$		$x = 166 \text{ in.}$	
		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$		$T = 86^\circ \text{ F}$	
$y(\text{in})$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$	$\overline{U^2}(\text{fps})^2$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$	$\overline{U^2}(\text{fps})^2$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$	$\overline{U^2}(\text{fps})^2$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps})^2$
0.25	.150	20.93			.360	32.40			.440	35.80			.470	37.00	
0.50	.185	23.21	110.00	91.20	.410	34.60	76.70	64.30	.500	38.20	60.20	58.50	.550	40.00	53.50
0.75	.220	25.34			.440	35.80			.560	40.40			.630	42.80	
1.00	.250	27.00	128.00	105.00	.470	37.00	85.75	72.00	.600	41.80	66.30	60.00	.670	44.20	56.40
1.50	.300	29.60	137.00	114.00	.520	38.90	90.50	76.00	.660	43.90	70.50	62.50	.740	46.50	58.40
2.00	.360	32.40	154.00	123.00	.570	40.80	95.30	80.40	.700	45.10	72.60	63.40	.790	48.00	54.40
2.50	.420	35.00	164.00	128.00	.610	42.20	100.40	82.30	.730	46.10	77.00	64.30	.830	49.10	60.20
3.00	.475	37.20	164.00	130.00	.650	43.50	100.24	83.70	.760	47.00	77.50	64.30	.860	50.00	61.00
3.50	.560	40.40	156.00	135.00	.690	44.80	100.50	84.60	.780	47.60	77.50	64.30	.880	50.60	63.40
4.00	.640	43.20	156.00	135.00	.740	46.40	100.80	84.60	.810	48.50	77.50	64.30	.900	51.20	64.10
4.50	.730	46.10	154.00	132.00	.780	47.70	100.50	85.50	.840	49.50	77.50	64.30	.920	51.80	64.10
5.00	.820	48.90	144.00	128.00	.820	48.90	100.50	85.50	.870	50.40	77.50	64.30	.940	52.40	66.30
5.50	.900	51.20	128.00	121.00	.860	50.10	100.24	85.50	.900	51.20	77.50	64.30	.950	52.60	64.10
6.00	.975	53.40	108.00	108.00	.910	51.50	100.04	84.60	.930	52.00	77.50	63.40	.970	53.10	64.10
6.50	1.055	55.50	95.40	93.70	.950	52.70	95.30	82.30	.960	52.90	77.50	63.40	.990	53.70	64.10
7.00	1.120	57.20	72.50	78.40	1.000	54.00	85.75	80.40	.990	53.70	77.00	60.50	1.010	54.20	62.30
7.50	1.180	58.60	60.25	64.30	1.040	55.10	81.10	75.00	1.020	54.50	77.00	57.70	1.040	55.00	61.00
8.00	1.225	59.80	45.70	50.00	1.090	56.40	72.50	68.00	1.050	55.30	72.60	56.20	1.060	55.60	58.40
8.50	1.255	60.50	27.70	37.70	1.140	57.60	64.10	62.50	1.080	56.10	68.30	53.50	1.090	56.40	56.40
9.00	1.280	61.10	22.60	29.40	1.180	58.70	54.60	57.00	1.120	57.10	60.20	50.00	1.110	56.90	52.70
9.50	1.300	61.60	16.10	24.50	1.220	59.70	45.70	51.70	1.150	57.80	56.40	46.75	1.130	57.40	49.10
10.50	1.335	62.40	7.62	13.30	1.290	61.30	30.40	40.50	1.210	59.40	49.10	39.00	1.180	58.60	45.70
11.50	1.355	62.90	4.50	8.00	1.310	61.80	21.40	32.00	1.260	60.60	37.70	30.70	1.230	59.90	40.70
12.50	1.360	63.00	2.25	5.57	1.330	62.30	13.20	22.30	1.310	61.70	26.30	24.50	1.270	60.90	33.20
13.50	1.360	63.00	1.56	3.57	1.330	62.30	7.61	14.30	1.330	62.20	17.10	18.10	1.300	61.50	25.10
14.50			1.00	1.99			5.10	9.36	1.350	62.70	16.10	13.30	1.310	61.80	21.40
15.50			.56	1.39			3.06	6.96	1.350	62.70	10.30	9.36	1.330	62.20	16.10
16.50			.39	.80			1.88	5.57			7.61	6.70	1.340	62.50	12.30
17.50				.50			1.25	3.72			5.11	4.71			8.30
18.50							1.00	2.72			4.00	3.38			6.25
19.50							.56	1.66			3.06	2.34			4.50

Table 3

Velocity Distribution		Hill 2" x 4 "		Small Wind Tunnel								
$U_0 = 15 \text{ fps}$		Model Shape: Wedge		$P_{\text{atm.}} = 24.60 \text{ in. Hg.}$								
	$x = -36 \text{ in.}$	$x = 0 \text{ in.}$	$x = 4.5 \text{ in.}$	$x = 8.5 \text{ in.}$	$x = 12.5 \text{ in.}$	$x = 16.5 \text{ in.}$						
	$T = 85^\circ \text{ F}$		$T = 85^\circ \text{ F}$		$T = 85^\circ \text{ F}$							
$y(\text{in})$	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)						
0.25	0.0280	9.04		0.0024	2.64	0.0014	2.02					
0.50	0.0300	9.35		0.0024	2.64	0.0014	2.02					
0.75	0.0420	11.10		0.0024	2.64	0.0014	2.02					
1.00	0.0470	11.70		0.0024	2.64	0.0016	2.16					
1.50	0.0540	12.50		0.0024	2.64	0.0017	2.22					
2.00	0.0590	13.10		0.0020	2.41	0.0020	2.41					
2.50	0.0640	13.70	0.059	13.1	0.0020	2.41	0.0028	2.86				
3.00	0.0680	14.10	0.069	14.2	0.0120	5.91	0.0060	4.17				
3.50	0.0710	14.40	0.077	15.0	0.0426	11.45	0.0170	7.05				
4.00	0.0735	14.60	0.081	15.4	0.0741	14.68	0.0360	10.10				
4.50	0.0750	14.80	0.083	15.6	0.0826	15.50	0.0554	12.71				
5.00	0.0766	14.96	0.085	15.7	0.0880	16.01	0.0780	15.08				
5.50	0.0770	14.98	0.086	15.8	0.0925	16.41	0.0872	15.90				
6.00	0.0773	15.00	0.087	15.9	0.0957	16.68	0.0956	16.70				
6.50	0.0773	15.00	0.088	16.0	0.0990	16.98	0.0985	16.95				
7.00			0.089	16.1	0.1005	17.14	0.1008	17.15				
7.50			0.089	16.1	0.1008	17.15	0.1015	17.19				
8.00			0.088	16.0	0.1002	17.10	0.1012	17.17				
8.50			0.088	16.0	0.0990	16.98	0.1012	17.17				
9.00			0.088	16.0	0.0980	16.89	0.1010	17.16				
9.50			0.088	16.0	0.0974	16.85	0.1007	17.13				
10.50			0.087	15.9	0.0963	16.76	0.0997	17.02				
11.50			0.086	15.8	0.0951	16.63	0.0979	16.88				
12.50			0.086	15.8	0.0931	16.47	0.0970	16.80				
13.50			0.086	15.8	0.0927	16.42	0.0958	16.70				
14.50			0.085	15.7	0.0916	16.32	0.0947	16.59				
15.50					0.0907	16.25	0.0931	16.47				
16.50					0.0903	16.22	0.0924	16.41				
17.50					0.0895	16.13	0.0920	16.37				
18.50					0.0885	16.04	0.0910	16.28				
19.50					0.0876	15.97	0.0893	16.12				
20.50					0.0869	15.91	0.0890	16.10				
21.50					0.0867	15.88	0.0884	16.03				
22.50					0.0860	15.83	0.0877	15.98				
23.50					0.0860	15.83	0.0870	15.90				
24.50					0.0858	15.81	0.0864	15.87				
25.50					0.0852	15.75	0.0860	15.83				
26.50					0.0852	15.75	0.0860	15.83				
27.50							0.0862	15.85				
								0.0862	15.85			
									0.0860	15.83		
										0.0860	15.83	
											0.0006	1.32
											0.0006	1.32
											0.0006	1.32
											0.0008	1.53
											0.0014	2.02
											0.0028	2.86
											0.0024	4.32
											0.0112	5.70
											0.0222	8.05
											0.0414	10.98
											0.0634	13.59
											0.0790	15.17
											0.0905	16.23
											0.0964	16.77
											0.1013	17.18
											0.1030	17.31
											0.1036	17.35
											0.1032	17.32
											0.1028	17.31
											0.1022	17.25
											0.1003	17.11
											0.0992	16.99
											0.0976	16.85
											0.0960	16.71
											0.0942	16.55
											0.0941	16.55
											0.0933	16.50
											0.0925	16.42
											0.0916	16.32
											0.0906	16.24
											0.0892	16.11
											0.0883	16.02
											0.0879	15.99
											0.0876	15.97
											0.0872	15.93
											0.0869	15.91
											0.0862	15.85
											0.0860	15.83
											0.0860	15.83

Table 3

Velocity Distribution				Hill 2" x 4"			Small Wind Tunnel								
$U_0 = 30$ fps				Model Shape: Wedge			$P_{atm.} = 24.60$ in. Hg.								
$x = -36$ in.				$x = 0$ in.			$x = 4.5$ in.		$x = 8.5$ in.		$x = 12.5$ in.				
$T = 74^{\circ}$ F				$T = 74^{\circ}$ F			$T = 76^{\circ}$ F		$T = 77^{\circ}$ F		$T = 78^{\circ}$ F				
y(in)	mm Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	0.123	18.92					0.006	4.18		0.006	4.19				
0.50	0.161	21.65	17.50				0.006	4.18	2.66	0.007	4.51	8.06			10.60
0.75	0.184	23.18					0.006	4.18		0.007	4.51				
1.00	0.200	24.15	14.10				0.006	4.18	2.89	0.007	4.51	6.55			11.10
1.50	0.229	25.80	10.20				0.006	4.18	2.92	0.008	4.83	6.15			12.10
2.00	0.251	27.05	7.30	0.166	22.0	10.60	0.006	4.18	3.38	0.012	5.91	7.29	0		14.10
2.50	0.267	29.90	5.02	0.273	24.25	10.60	0.009	4.86	12.60	0.014	6.39	15.80	0.006	4.20	19.40
3.00	0.279	28.52	3.42	0.300	29.56	9.74	0.045	11.46	44.50	0.031	9.50	30.70	0.020	7.64	29.20
3.50	0.287	28.94	2.40	0.314	30.24	7.30	0.182	23.04	66.50	0.100	17.08	50.50	0.066	13.88	42.60
4.00	0.292	29.18	1.64	0.322	30.63	5.80	0.322	30.65	28.30	0.174	22.50	61.00	0.104	17.41	56.70
4.50	0.296	29.40	1.04	0.334	31.20	3.96	0.357	32.24	12.60	0.300	29.60	40.80	0.166	22.00	54.60
5.00	0.298	29.52	0.72	0.342	31.56	2.89	0.373	32.95	6.86	0.367	32.70	21.90	0.246	26.78	33.80
5.50	0.299	29.54	0.50	0.350	31.94	1.80	0.384	33.44	4.25	0.397	34.10	10.60	0.346	31.75	19.40
6.00	0.300	29.58	0.46	0.354	32.14	1.30	0.396	33.95	2.66	0.410	34.60	5.80	0.380	33.30	9.74
6.50	0.301	29.63	0.40	0.356	32.20	0.99	0.399	34.10	1.64	0.418	34.90	3.65	0.400	34.18	4.84
7.00	0.302	29.68	0.32	0.356	32.20	0.72	0.400	34.15	0.99	0.416	34.80	1.93	0.413	34.70	2.89
7.50	0.303	29.74	0.32	0.357	32.24	0.50	0.400	34.15	0.72	0.415	34.80	1.28	0.411	34.16	1.64
8.00	0.304	29.78	0.24	0.356	32.19	0.42	0.399	34.10	0.50	0.414	34.70	0.78	0.407	34.42	0.99
8.50	0.305	29.82	0.24	0.355	32.16	0.29	0.395	33.95	0.40	0.411	34.60	0.50	0.405	34.38	0.72
9.00	0.305	29.82	0.20	0.354	32.14	0.18	0.392	33.83	0.29	0.409	34.50	0.40	0.403	34.32	0.46
9.50	0.306	29.85	0.18	0.353	32.08	0.18	0.388	33.59	0.24	0.402	34.20	0.32	0.400	34.18	0.32
10.50	0.307	29.90	0.18	0.352	32.02		0.380	33.25	0.18	0.396	34.00	0.18	0.394	33.92	0.18
11.50	0.307	29.90		0.349	31.90		0.375	33.05	0.16	0.390	33.70	0.16	0.386	33.54	
12.50	0.308	29.95		0.346	31.74		0.370	32.82	0.16	0.384	33.40	0.16	0.381	33.32	
13.50	0.308	29.95		0.344	31.62		0.367	32.75	0.16	0.379	33.20	0.12	0.380	33.28	
14.50	0.308	30.00		0.344	31.62		0.363	32.50		0.372	32.90		0.373	33.10	
15.50	0.309	30.00		0.344	31.62		0.361	32.45		0.372	32.90		0.370	32.83	
16.50				0.343	31.60		0.358	32.30		0.369	32.80		0.367	32.70	
17.50				0.343	31.60										
18.50				0.342	31.56		0.354	32.10		0.367	32.70		0.363		
19.50				0.341	31.52		0.351	32.00		0.363	32.60		0.359		
20.50				0.340	31.48		0.348	31.90		0.359	32.40		0.356		
21.50				0.340	31.48		0.345	31.70		0.355	32.20		0.353		
22.50				0.339	31.44		0.342	31.60		0.352	32.00		0.351		
23.50				0.338	31.40		0.340	31.50		0.349	31.90		0.348		
24.50				0.337	31.36		0.340	31.50		0.348	31.90		0.346		
25.50				0.336	31.30		0.339	31.40		0.346	31.80		0.344		
26.50				0.335	31.24		0.338	31.35		0.344	31.60		0.343		
27.50				0.335	31.24		0.338	31.35		0.343	31.60		0.342		
28.50				0.334	31.20		0.336	31.30		0.342	31.60		0.342		
29.50				0.334	31.20		0.335	31.30		0.340	31.50		0.342		

Table 3

		Velocity Distribution			Hill 2" x 4"		Small Wind Tunnel						
		$U_0 = 30$ fps			Model Shape: Wedge		$P_{atm.} = 24.60$ in. Hg.						
		x = 68.5 in.		x = 88.5 in.		x = 108.5 in.		x = 128.5 in.		x = 148.5 in.		x = 168.5 in.	
		T = 78° F		T = 78° F		T = 67° F		T = 74° F		T = 76° F		T = 76° F	
y(in)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	$\overline{U^2}$ (fps) ²
0.25		0.128	19.3			0.146	20.6			0.142	20.4		
0.50	32.20	0.143	20.4	18.80	21.90	0.162	21.8	25.80	19.40	0.167	22.1	21.90	
0.75		0.154	21.2			0.176	22.6			0.180	22.9		
1.00	34.70	0.160	21.6	20.00	21.90	0.187	23.4	25.00	19.60	0.190	23.5	20.90	
1.50	36.50	0.174	22.5	20.60	21.90	0.200	24.2	24.70	19.60	0.205	24.4	20.60	
2.00	37.20	0.184	23.2	21.90	21.90	0.208	24.6	24.00	19.40	0.214	25.0	20.00	
2.50	38.00	0.194	23.8	22.60	21.90	0.214	25.0	23.50	19.40	0.221	25.4	19.40	
3.00	38.00	0.199	24.1	23.40	21.90	0.220	25.3	23.05	19.10	0.228	25.8	18.80	
3.50	37.80	0.207	24.6	23.00	21.90	0.227	25.8	22.60	19.10	0.234	26.1	18.10	
4.00	38.00	0.214	25.0	22.20	21.90	0.234	26.1	21.90	18.80	0.240	26.4	17.60	
4.50	37.20	0.222	25.4	21.90	21.90	0.240	26.5	21.20	18.15	0.245	26.0	17.20	
5.00	36.50	0.230	25.9	21.20	21.60	0.244	26.7	20.60	17.90	0.248	26.9	17.00	
5.50	34.70	0.236	26.2	20.60	20.60	0.248	26.9	20.00	17.50	0.252	27.2	16.30	
6.00	32.20	0.244	26.7	19.40	19.60	0.254	27.2	19.10	17.00	0.258	27.4	15.80	
6.50	29.20	0.254	27.2	18.10	18.80	0.261	27.6	18.20	16.30	0.261	27.6	15.20	
7.00	25.40	0.262	28.0	17.00	18.10	0.268	28.0	17.00	15.80	0.268	28.0	14.70	
7.50	21.20	0.270	28.5	15.80	16.70	0.272	28.2	16.30	15.20	0.271	28.1	14.10	
8.00	16.30	0.278	28.8	13.80	14.90	0.277	28.4	15.20	14.70	0.275	28.3	13.80	
8.50	13.10	0.284	29.2	12.10	13.60	0.280	28.6	14.40	13.60	0.281	28.6	13.40	
9.00	11.20	0.292	29.5	10.60	12.60	0.284	28.8	13.40	12.80	0.284	28.8	12.60	
9.50	9.61	0.299	30.2	8.89	11.20	0.287	28.9	12.70	12.40	0.288	29.0	12.10	
10.50	6.15	0.312	30.5	6.55	8.89	0.289	29.5	10.50	10.60	0.295	29.3	11.10	
11.50	4.25	0.322	30.7	4.54	6.86	0.308	30.0	8.06	8.70	0.302	29.7	9.74	
12.50	2.89	0.324	30.8	2.89	5.15	0.315	30.2	5.81	6.35	0.309	30.0	8.06	
13.50	1.82	0.326	30.8	2.02	3.96	0.317	30.4	4.41	4.54	0.317	30.4	6.55	
14.50	0.99	0.328	30.9	1.64	2.89	0.323	30.7	3.14	3.38	0.320	30.5	5.15	
15.50	0.68	0.328	30.9	1.04	2.02	0.326	30.8	2.22	2.66	0.325	30.8	4.25	
16.50				0.73	1.44	0.330	31.0	1.56	2.02	0.328	30.9	3.14	
17.50				0.50	0.99	0.330	31.0	1.04	1.56	0.330	31.0	2.22	
18.50				0.36	0.78			0.85	1.04	0.331	31.1	1.56	
19.50				0.32	0.68			0.72	0.85	0.331	31.1	1.30	
20.50					0.61				0.68			1.04	

Table 3

		Velocity Distribution Hill 2" x 4"			Small Wind Tunnel							
		$U_0 = 60 \text{ fps}$ Model Shape: Wedge			$P_{\text{atm.}} = 24.60 \text{ in. Hg.}$							
		$x = 0 \text{ in.}$ $T = 85^\circ \text{ F}$			$x = 4.5 \text{ in.}$ $T = 85^\circ \text{ F}$							
		$x = -36 \text{ in.}$ $T = 75^\circ \text{ F}$			$x = 8.5 \text{ in.}$ $T = 86^\circ \text{ F}$							
		$x = 12.5 \text{ in.}$ $T = 86^\circ \text{ F}$										
$y(\text{in})$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps}^2)$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps}^2)$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps}^2)$	mm. Hg.	$U(\text{fps})$	$\overline{U^2}(\text{fps}^2)$
0.25	0.56	40.4										
0.50	0.64	43.2	61.60			4.50			30.60			40.60
0.75	0.69	44.8										
1.00	0.75	46.7	48.70			8.95			34.40			41.80
1.50	0.84	49.5	38.20			8.95			24.80			43.50
2.00	0.91	51.5	27.40	0.63	42.8	44.60			24.80			50.40
2.50	0.97	53.1	18.00	1.13	57.4	44.60	0.025	8.5	18.90			73.90
3.00	1.03	54.9	12.20	1.25	60.3	41.40	0.250	27.0	92.10	0.05	12.1	52.10
3.50	1.08	56.1	7.50	1.32	61.9	32.80	0.830	49.2	193.00	0.15	20.9	110.00
4.00	1.12	57.2	3.96	1.36	62.9	26.00	0.43	35.4	155.00	0.20	24.2	117.00
4.50	1.15	57.9	2.22	1.42	64.4	14.00	0.43	35.4	155.00	0.350	31.9	163.00
5.00	1.17	58.5	1.25	1.42	64.4	14.00	0.84	49.5	209.00	0.628	42.8	188.00
5.50	1.20	59.2	0.56	1.43	64.6	8.95	1.530	66.8	63.70	0.951	52.7	188.00
6.00	1.21	59.4	0.38	1.580	67.9		1.580	67.9	32.80	1.250	60.5	138.00
6.50	1.22	59.6	0.25	1.610	68.5	20.20	1.430	64.6	132.00	1.405	64.0	89.50
7.00	1.225	59.7	0.09	1.635	69.0	13.60	1.530	66.8	63.70	1.510	66.3	48.60
7.50	1.225	59.7	0.06	1.655	69.3	8.95	1.635	69.0	13.60	1.628	68.9	30.00
8.00				1.660	69.5	2.22	1.660	69.5	2.22	1.680	70.0	20.20
8.50				1.670	69.7	3.96	1.660	69.5	2.22	1.680	70.2	11.30
9.00				1.680	70.5	6.20	1.670	69.7	3.96	1.700	70.4	6.20
9.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
10.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
10.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
11.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
11.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
12.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
12.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
13.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
13.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
14.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
14.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
15.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
15.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
16.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
16.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
17.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
17.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
18.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
18.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
19.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
19.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
20.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
20.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
21.00				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20
21.50				1.680	70.5	6.20	1.680	70.5	6.20	1.700	70.4	6.20

Table 3

Velocity Distribution Hill 2" x 4" Small Wind Tunnel
 $U_0 = 60 \text{ fps}$ Model Shape: Wedge $P_{\text{atm.}} = 24.60 \text{ in Hg.}$

y(in)	x = 16.5 in. T = 78° F		x = 20.5 in. T = 82° F		x = 24.5 in. T = 83° F		x = 28.5 in. T = 83° F		x = 48.5 in. T = 83° F	
	mm. Hg.	U(fps) $\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps) $\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps) $\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps) $\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps) $\overline{U^2}(\text{fps})^2$
0.25									0.186	23.3
0.50		35.00		23.60		35.00		21.80	0.210	24.8 78.40
0.75									0.235	26.2
1.00		39.30		32.80		34.80	0	41.00	0.260	27.5 87.20
1.50		48.60		46.90	0.020	7.6 54.50	0.045	11.5 65.80	0.315	30.3 99.30
2.00		65.60	0.015	6.6 67.50	0.070	14.3 74.10	0.100	17.1 96.90	0.370	32.8 106.00
2.50	0.045	11.5 82.90	0.100	17.1 97.00	0.150	20.9 106.00	0.170	22.3 119.00	0.435	35.6 117.00
3.00	0.160	21.6 120.00	0.220	25.4 132.00	0.270	28.1 139.00	0.280	28.6 146.50	0.490	37.8 123.00
3.50	0.400	34.2 138.00	0.410	34.6 161.00	0.400	34.2 161.00	0.400	34.2 161.00	0.560	40.4 128.00
4.00	0.630	42.3 172.00	0.620	42.5 174.00	0.500	40.0 172.00	0.550	40.0 166.00	0.630	42.9 123.00
4.50	0.878	50.6 177.00	0.840	49.5 177.00	0.775	47.5 164.00	0.700	45.1 164.00	0.715	45.6 112.00
5.00	1.160	58.1 161.00	1.030	54.9 154.00	0.914	51.5 149.00	0.855	49.9 139.00	0.820	48.9 102.00
5.50	1.350	62.8 110.00	1.210	59.4 114.00	1.050	55.4 117.00	1.015	54.5 112.00	0.900	51.2 92.00
6.00	1.476	65.5 67.50	1.330	62.3 75.90	1.175	58.5 87.50	1.150	58.0 78.40	1.000	54.0 82.90
6.50	1.565	67.5 39.00	1.420	64.3 52.10	1.300	61.5 58.00	1.250	60.4 60.00	1.070	55.9 69.70
7.00	1.625	68.9 26.00	1.480	65.8 34.20	1.380	63.5 41.00	1.335	62.4 44.10	1.140	57.6 58.00
7.50	1.675	69.9 16.80	1.540	67.0 22.40	1.450	65.0 26.60	1.400	63.9 26.60	1.190	58.9 44.10
8.00	1.700	70.5 10.50	1.560	67.5 14.90	1.490	65.9 18.50	1.435	64.7 19.50	1.240	60.1 34.80
8.50	1.715	70.7 6.20	1.580	67.8 8.19	1.530	66.8 11.80	1.460	65.2 14.40	1.280	61.0 26.60
9.00	1.720	70.8 3.46	1.590	68.1 5.01	1.540	67.0 7.30	1.475	65.6 9.35	1.305	61.7 19.50
9.50	1.715	70.7 1.68	1.595	68.2 3.02	1.540	67.0 4.86	1.480	65.7 6.05	1.325	62.1 15.50
10.50	1.700	70.4 0.56	1.600	68.3 0.99	1.530	66.8 1.82	1.486	65.9 2.19	1.345	62.6 8.70
11.50	1.680	70.0 0.25	1.600	68.3 0.49	1.525	66.6 0.88	1.480	65.7 0.97	1.360	63.0 4.88
12.50	1.660	69.5 0.14	1.590	68.0 0.25	1.515	66.5 0.37	1.480	65.7 0.54	1.365	63.1 2.19
13.50	1.640	69.1 0.09	1.580	67.9 0.14	1.510	66.3 0.20	1.470	65.5 0.37	1.365	63.1 1.21
14.50	1.615	68.6	1.570	67.7 0.09	1.505	66.2 0.13	1.465	65.4 0.24		.55
15.50	1.600	68.3	1.565	67.6	1.500	66.1 0.06	1.460	65.2 0.13		.24
16.50	1.580	67.9	1.550	67.2	1.495	66.0	1.460	65.2 0.06		.13
17.50	1.565	67.6	1.535	66.9	1.485	65.8	1.455	65.1		
18.50	1.550	67.2	1.525	66.6	1.480	65.7	1.450	65.0		
19.50	1.540	67.0	1.515	66.4	1.470	65.5	1.445	64.9		
20.50	1.530	66.7	1.510	66.3	1.465	65.4	1.440	64.8		
21.50	1.525	66.6	1.505	66.2	1.465	65.4	1.440	64.8		

Table 3

Velocity Distribution		Hill 2"x4"		Big Wind Tunnel	
$U_0 = 15 \text{ fps}$		Model Shape:Wedge		$P_{\text{atm.}} = 24.67$	
$x = -36 \text{ in.}$	$x = 4.5 \text{ in.}$	$x = 8.5 \text{ in.}$	$x = 12.5 \text{ in.}$	$x = 16.5 \text{ in.}$	$x = 20.5 \text{ in.}$
$T = 31.0^\circ \text{ C}$	$T = 30.5^\circ \text{ C}$	$T = 30.5^\circ \text{ C}$	$T = 30.5^\circ \text{ C}$	$T = 30.5^\circ \text{ C}$	$T = 30.5^\circ \text{ C}$
$y(\text{in})$	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)
0.25	.0214 7.91			.0005 1.21	.0003 0.94
0.50	.0250 8.55			.0007 1.43	.0006 1.32
0.75	.0283 9.10			.0007 1.43	.0009 1.62
1.00	.0308 9.48			.0007 1.43	.0012 1.87
1.50	.0357 10.20		.0007 1.43	.0008 1.53	.0005 1.21
2.00	.0390 10.70		.0021 2.48	.0015 2.09	.0020 2.42
2.50	.0415 11.00	.0020 2.42	.0070 4.52	.0043 3.54	.0065 4.36
3.00	.0440 11.33	.0140 6.39	.0158 6.80	.0129 6.13	.0140 6.40
3.50	.0457 11.55	.0415 11.00	.0286 9.13	.0230 8.20	.0224 8.09
4.00	.0480 11.84	.0640 13.70	.0459 11.60	.0370 10.40	.0323 9.71
4.50	.0497 12.03	.0680 14.10	.0621 13.50	.0540 12.56	.0430 11.20
5.00	.0513 12.24	.0695 14.20	.0698 14.30	.0623 13.50	.0530 12.45
5.50	.0533 12.50	.0710 14.40	.0720 14.50	.0666 13.95	.0621 13.47
6.00	.0556 12.70	.0722 14.50	.0737 14.70	.0692 14.20	.0665 13.93
6.50	.0575 12.95	.0732 14.60	.0757 14.90	.0715 14.45	.0686 14.15
7.00	.0590 13.10	.0743 14.74	.0772 15.00	.0740 14.70	.0702 14.30
7.50	.0610 13.35	.0755 14.85	.0787 15.20	.0757 14.90	.0718 14.50
8.00	.0613 13.60	.0762 14.90	.0795 15.23	.0772 15.00	.0736 14.70
8.50	.0650 13.80	.0772 15.00	.0803 15.30	.0787 15.15	.0750 14.80
9.00	.0668 13.96	.0781 15.10	.0813 15.40	.0800 15.30	.0764 14.95
9.50	.0685 14.14	.0790 15.20	.0821 15.50	.0810 15.40	.0774 15.04
10.50	.0719 14.50	.0811 15.40	.0841 15.70	.0829 15.55	.0797 15.25
11.50	.0740 14.70	.0830 15.60	.0857 15.80	.0848 15.70	.0820 15.50
12.50	.0750 14.80	.0843 15.70	.0868 15.90	.0863 15.90	.0842 15.70
13.50	.0760 14.90	.0851 15.80	.0877 16.00	.0872 16.00	.0859 15.84
14.50	.0769 15.00	.0860 15.85	.0883 16.10	.0877 16.00	.0874 16.00
15.50					
16.50					
17.50					

Table 3

y(in)	Velocity Distribution Hill 2" x 4 "						Big Wind Tunnel			
	U ₀ = 15 fps		Model Shape: Wedge		P _{atm.} = 24.69 in. Hg.					
	x = 28.5 in. T = 30.2° C	x = 36.5 in. T = 30.0° C	x = 52.5 in. T = 30.0° C	x = 76.5 in. T = 30.0° C	x = 112.5 in. T = 30.0° C	mm. Hg.	U(fps)	mm. Hg.	U(fps)	
0.25	.0007	1.43	.0043	3.54	.0118	5.87	.0179	7.22	.0200	7.63
0.50	.0010	1.71	.0048	3.74	.0148	6.57	.0218	7.98	.0234	8.27
0.75	.0016	2.16	.0052	3.90	.0165	6.93	.0242	8.40	.0258	8.68
1.00	.0022	2.53	.0057	4.08	.0183	7.31	.0265	8.79	.0278	9.01
1.50	.0043	3.54	.0067	4.42	.0202	7.67	.0283	9.09	.0305	9.43
2.00	.0071	4.55	.0076	4.71	.0220	8.02	.0316	9.60	.0330	9.81
2.50	.0100	5.40	.0098	5.35	.0236	8.29	.0338	9.83	.0351	10.10
3.00	.0144	6.48	.0150	6.62	.0260	8.71	.0351	10.10	.0372	10.40
3.50	.0207	7.77	.0241	8.38	.0280	9.20	.0365	10.30	.0391	10.70
4.00	.0272	8.90	.0316	9.60	.0318	9.63	.0377	10.50	.0408	10.90
4.50	.0358	10.20	.0372	10.40	.0350	10.10	.0391	10.70	.0424	11.12
5.00	.0445	11.40	.0456	11.53	.0379	10.50	.0403	10.89	.0441	11.35
5.50	.0502	12.10	.0491	11.97	.0415	11.00	.0425	11.13	.0459	11.60
6.00	.0547	12.60	.0538	12.50	.0450	11.47	.0445	11.40	.0472	11.7
6.50	.0587	13.10	.0579	13.00	.0484	11.90	.0467	11.70	.0490	11.97
7.00	.0614	13.40	.0608	13.30	.0519	12.30	.0491	11.97	.0510	12.20
7.50	.0635	13.60	.0629	13.55	.0546	12.60	.0515	12.25	.0524	12.40
8.00	.0658	13.85	.0648	13.75	.0586	13.10	.0541	12.57	.0543	12.60
8.50	.0677	14.05	.0666	13.94	.0616	13.40	.0570	12.90	.0562	12.80
9.00	.0698	14.25	.0684	14.10	.0643	13.70	.0593	13.15	.0580	13.00
9.50	.0714	14.40	.0702	14.30	.0666	13.90	.0619	13.43	.0598	13.20
10.50	.0762	14.90	.0736	14.65	.0702	14.30	.0667	13.95	.0630	13.60
11.50	.0797	15.20	.0763	14.90	.0734	14.65	.0703	14.30	.0665	13.90
12.50	.0822	15.50	.0786	15.15	.0757	14.85	.0737	14.70	.0699	14.30
13.50	.0843	15.70	.0808	15.35	.0777	15.05	.0764	14.95	.0730	14.60
14.50	.0858	15.80	.0825	15.50	.0793	15.20	.0783	15.10	.0757	14.90
15.50	.0866	15.90	.0836	15.60	.0803	15.30	.0797	15.25	.0780	15.10
16.50			.0842	15.70	.0810	15.40	.0802	15.30	.0793	15.20
17.50					.0813	15.40			.0803	15.30

Table 3

y(in)	Velocity Distribution			Hill 2" x 4"			Big Wind Tunnel							
	$U_0 = 30$ fps			Model shape: Wedge			$P_{atm.} = 24.90$ in. Hg.							
	$x = -36$ in. T = 25.0°C	$x = 4.5$ in. T = 25.0°C	$x = 8.5$ in. T = 25.0°C	$x = 12.5$ in. T = 25.0°C	$x = 16.5$ in. T = 25.0°C									
	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²		
0.25	0.098	17.0					.001	1.7		.002	2.4			
0.50	.122	18.8	0.98			3.92	.005	3.8	4.83	.004	3.4	3.18		
0.75	.139	20.1					.007	4.5		.006	4.2			
1.00	.149	20.8	0.82			3.35	.010	5.4	5.07	.012	5.9	4.95		
1.50	.169	22.2	0.47			3.29	.021	7.8	5.85	.018	7.2	8.15		
2.00	.184	23.2	1.21			4.56	.030	9.4	8.63	.043	11.2	11.62		
2.50	.195	23.8	.005	3.8	6.36	.007	4.5	8.21	.056	12.8	14.80	.073	14.6	17.00
3.00	.205	24.4	.056	12.8	24.42	.027	8.9	17.93	.095	16.6	19.30	.107	17.7	24.40
3.50	.213	24.9	.183	23.1	23.40	.067	14.0	24.45	.155	21.1	27.20	.153	21.1	28.65
4.00	.222	25.4	.274	28.2	11.86	.134	19.9	23.35	.210	24.8	29.00	.200	24.1	28.40
4.50	.232	26.0	.285	28.8	5.81	.188	23.4	14.38	.249	27.0	21.40	.242	26.6	23.50
5.00	.240	26.4	.291	29.1	4.01	.241	26.5	8.33	.281	28.6	12.40	.267	27.9	17.43
5.50	.249	26.9	.297	29.4	3.38	.278	28.4	5.58	.294	29.3	7.25	.281	28.1	12.60
6.00	.258	27.4	.301	29.6	2.99	.295	29.3	4.20	.301	29.6	5.46	.289	29.0	8.96
6.50	.267	27.9	.305	29.8	2.81	.298	29.4	3.55	.308	30.0	4.26	.297	29.4	6.51
7.00	.273	28.2	.308	30.0	2.71	.305	29.8	3.14	.314	30.2	3.53	.302	29.7	5.31
7.50	.299	28.5	.312	30.2	2.62	.307	29.9	2.94	.318	30.4	3.20	.307	29.9	4.47
8.00	.285	28.8	.316	30.3	2.53	.313	30.2	2.87	.322	30.6	2.94	.314	30.2	3.86
8.50	.291	29.1	.319	30.5	2.36	.314	30.3	2.87	.326	30.8	2.72	.318	30.4	3.66
9.00	.297	29.4	.322	30.6	2.21	.320	30.5	2.81	.330	31.0	2.63	.323	30.7	3.14
9.50	.304	29.8	.325	30.8	2.04	.321	30.6	2.81	.333	31.2	2.54	.327	30.9	2.81
10.50	.315	30.3	.329	31.0	1.66	.327	30.9	2.63	.338	31.4	2.33	.335	31.2	2.23
11.50	.326	30.8	.334	31.2	1.48	.334	31.2	2.48	.344	31.6	2.20	.343	31.6	1.89
12.50	.332	31.1	.339	31.4	1.29	.340	31.5	2.25	.349	31.9	2.04	.347	31.8	1.55
13.50	.336	31.3	.343	31.6	1.00	.344	31.7	1.74	.354	32.1	1.74	.350	31.9	1.18
14.50	.338	31.4	.345	31.7	0.82	.348	31.8	1.46	.356	32.2	1.21	.354	32.1	0.85
15.50			.347	31.8	0.55	.351	32.0	0.98	.357	32.3	0.92	.357	32.3	0.61
16.50					0.36	.353	32.1	0.77			0.59	.358	32.3	0.47
17.50								0.68			0.44			0.33
											0.36			0.26

y(in)	$x = 20.5$ in. T = 25.0°C			$x = 28.5$ in. T = 25.0°C			$x = 36.5$ in. T = 25.0°C			$x = 52.5$ in. T = 25.0°C		
	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.005	3.8		.006	4.2		.013	6.2		.060	13.2	
0.50	.007	4.5	1.85	.011	5.7	3.50	.018	6.7	4.14	.066	13.9	6.70
0.75	.010	5.4		.017	7.0		.025	8.5		.070	14.3	
1.00	.013	6.2	3.92	.023	8.2	5.59	.028	9.0	6.28	.080	15.3	7.97
1.50	.024	8.4	5.70	.041	10.9	8.49	.048	11.8	9.24	.095	16.6	9.42
2.00	.043	11.2	9.85	.061	13.3	12.00	.063	13.6	12.78	.106	17.6	10.45
2.50	.070	14.3	13.35	.086	15.8	16.22	.082	15.5	16.10	.118	18.5	11.48
3.00	.104	17.4	16.98	.116	18.4	20.85	.102	17.2	18.80	.130	19.4	12.40
3.50	.144	20.5	20.70	.144	20.5	23.25	.124	19.0	20.70	.144	20.5	13.08
4.00	.183	23.1	21.50	.174	22.5	24.20	.153	21.1	20.70	.158	21.4	13.40
4.50	.217	25.2	18.80	.209	24.7	22.35	.183	23.1	19.70	.173	22.4	13.40
5.00	.237	26.3	14.34	.230	25.9	18.90	.209	24.7	17.90	.186	23.3	12.75
5.50	.253	27.2	9.81	.244	26.7	14.80	.227	25.8	14.80	.200	24.2	11.62
6.00	.266	27.8	6.40	.256	27.3	9.15	.240	26.4	10.90	.209	24.7	10.53
6.50	.275	28.3	4.56	.266	27.9	6.40	.250	27.0	7.06	.222	25.5	8.50
7.00	.282	28.7	3.74	.274	28.3	5.25	.260	27.5	6.12	.237	26.3	7.30
7.50	.290	29.1	3.26	.280	28.6	4.41	.269	28.0	4.95	.242	26.6	6.13
8.00	.295	29.3	2.84	.287	29.0	3.77	.275	28.3	3.98	.251	27.1	4.83
8.50	.300	29.6	2.51	.293	29.2	3.29	.281	28.6	3.50	.260	27.5	4.07
9.00	.304	29.8	2.33	.299	29.5	2.89	.288	29.0	3.05	.267	27.9	3.34
9.50	.308	29.9	2.14	.305	29.8	2.63	.294	29.3	2.72	.274	28.2	2.93
10.50	.318	30.4	1.74	.314	30.2	2.21	.305	29.8	2.32	.286	28.9	2.04
11.50	.326	30.8	1.54	.323	30.7	1.82	.316	30.4	1.98	.297	29.4	1.63
12.50	.334	31.2	1.33	.333	31.2	1.38	.324	30.7	1.74	.306	29.8	1.31
13.50	.341	31.5	1.06	.338	31.4	1.08	.330	31.0	1.46	.314	30.2	0.86
14.50	.347	31.6	0.78	.343	31.6	0.85	.334	31.2	1.13	.319	30.5	0.72
15.50	.349	31.9	0.53	.347	31.8	0.72	.338	31.4	0.87	.323	30.7	0.51
16.50			0.44	.350	31.9	0.56	.340	31.5	0.64	.326	30.8	0.28
17.50						0.45			0.51			0.27

Table 3

Velocity Distribution			Hill 2" x 4 "			Big Wind Tunnel						
$U_0 = 30 \text{ fps}$			Model Shape: Wedge			$P_{\text{atm.}} = 24.98$						
$x = 76.5 \text{ in.}$			$x = 112.5 \text{ in.}$			$x = 160.5 \text{ in.}$			$x = 208.5 \text{ in.}$			
$T = 25.0^\circ \text{ C}$			$T = 25.0^\circ \text{ C}$			$T = 25.0^\circ \text{ C}$			$T = 23.0^\circ \text{ C}$			
y(in)	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$	mm. Hg.	U(fps)	$\overline{U^2}(\text{fps})^2$
0.25	.091	16.3		.136	19.9		.128	19.3		0.89	16.1	
0.50	.120	18.2	5.65	.137	20.0	4.47	.140	20.2	3.62	.120	18.8	3.62
0.75	.126	19.2		.139	20.1		.145	20.6		.134	20.0	
1.00	.133	19.7	5.95	.142	20.4	4.65	.151	21.0	3.84	.143	20.6	3.42
1.50	.138	20.0	6.34	.148	20.8	4.83	.157	21.4	3.95	.154	21.2	3.22
2.00	.142	20.4	6.80	.155	21.2	4.95	.163	21.8	4.05	.161	21.7	3.02
2.50	.147	20.7	7.25	.162	21.8	5.10	.168	22.1	4.10	.166	22.0	3.02
3.00	.150	20.9	7.55	.168	22.1	5.31	.173	22.4	4.18	.171	22.3	3.18
3.50	.162	21.7	7.85	.175	22.6	5.55	.178	22.8	4.27	.178	22.6	3.34
4.00	.169	22.2	8.15	.181	23.0	5.65	.182	23.0	4.32	.180	22.9	3.50
4.50	.175	22.6	8.49	.186	23.3	5.85	.188	23.4	4.36	.184	23.2	3.66
5.00	.185	23.1	8.75	.189	23.5	6.09	.193	23.7	4.50	.188	23.4	3.83
5.50	.190	23.5	8.94	.193	23.7	6.33	.197	24.0	4.56	.193	23.7	3.83
6.00	.199	24.1	9.09	.198	24.0	6.48	.201	24.2	4.74	.197	24.0	3.83
6.50	.208	24.6	8.81	.203	24.4	6.66	.206	24.5	4.74	.202	24.3	3.83
7.00	.215	25.0	8.51	.210	24.8	6.73	.211	24.8	4.74	.207	24.6	3.83
7.50	.225	25.6	8.15	.216	25.1	6.85	.216	25.1	4.74	.211	24.8	3.83
8.00	.235	26.2	7.55	.225	25.6	6.85	.221	25.4	4.74	.215	25.0	3.83
8.50	.244	26.7	6.85	.231	26.0	6.60	.227	25.8	4.64	.218	25.2	3.83
9.00	.254	27.2	5.97	.238	26.4	6.40	.233	26.1	4.50	.222	25.4	3.83
9.50	.262	27.6	5.22	.248	26.9	6.13	.240	26.4	4.44	.228	25.8	3.83
10.50	.279	28.5	3.92	.263	27.7	5.43	.253	27.2	4.27	.238	26.3	3.74
11.50	.292	29.2	2.86	.278	28.5	4.52	.266	27.8	3.98	.250	27.0	3.58
12.50	.300	29.6	1.89	.292	29.2	3.80	.278	28.4	3.35	.263	27.7	3.41
13.50	.310	30.0	1.27	.301	29.6	2.57	.290	29.1	2.64	.274	28.2	3.23
14.50	.317	30.4	0.89	.307	29.9	1.51	.301	29.6	1.85	.282	28.7	2.74
15.50	.323	30.7	0.66	.316	30.4	1.06	.308	30.0	1.19	.291	29.1	2.32
16.50	.327	30.9	0.47	.322	30.6	0.81	.314	30.2	0.71	.298	29.5	1.85
17.50			0.36			0.54	.320	30.5	0.46	.303	29.7	0.86
18.50						0.48	.323	30.7	0.36	.308	30.0	0.58
19.50										.310	30.0	

Table 3

		Velocity Distribution				Hill 2" x 4"		Big Wind Tunnel						
		U ₀ = 60 fps		Model shape: Wedge		P _{atm.} = 24.68								
x = 28.5 in. T = 29.6° C		x = 36.5 in. T = 29.8° C		x = 52.5 in. T = 30.0° C		x = 76.5 in. T = 30.5° C		x = 112.5 in. T = 30.5° C		x = 160.5 in. T = 30.7° C		x = 208.5 in. T = 31.0° C		
y(in)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25			.005	3.8	.190	23.6	.318	30.0	.335	31.3	.342	31.6	.425	35.2
0.50	.002	2.5	.013	6.2	.220	25.4	.366	32.7	.405	34.4	.450	36.2	.475	37.2
0.75	.005	3.8	.020	7.6	.245	26.8	.410	34.6	.455	36.4	.500	38.2	.525	39.1
1.00	.014	6.4	.026	8.7	.265	27.8	.440	35.8	.500	38.2	.525	39.2	.565	40.6
1.50	.040	10.8	.052	12.3	.300	29.6	.466	36.9	.545	39.9	.560	40.5	.613	42.3
2.00	.075	12.1	.095	16.7	.332	31.2	.491	37.2	.580	41.2	.590	41.5	.643	43.4
2.50	.124	19.0	.150	20.9	.365	32.6	.515	38.8	.600	41.8	.613	42.3	.670	44.2
3.00	.197	24.0	.207	24.6	.400	34.2	.537	39.6	.605	42.0	.625	42.7	.695	45.0
3.50	.290	29.5	.296	29.4	.442	35.9	.565	40.5	.615	42.4	.650	43.5	.713	45.6
4.00	.405	34.4	.405	34.4	.480	37.4	.590	41.5	.625	42.7	.668	44.1	.730	46.1
4.50	.535	39.5	.520	39.0	.525	39.2	.618	42.5	.650	43.6	.690	44.9	.745	46.6
5.00	.650	43.5	.614	42.3	.577	41.0	.644	43.4	.675	44.4	.708	45.4	.767	47.4
5.50	.760	47.1	.715	45.7	.620	42.5	.670	44.2	.692	44.7	.729	46.1	.785	47.9
6.00	.850	49.9	.795	48.1	.664	44.1	.694	45.0	.715	45.7	.750	46.8	.800	48.3
6.50	.932	52.2	.875	50.5	.725	46.0	.724	46.0	.745	46.6	.768	47.4	.815	48.8
7.00	.981	53.6	.917	51.6	.775	47.5	.750	46.8	.775	47.5	.790	48.0	.830	49.2
7.50	1.025	54.7	.955	52.8	.835	49.4	.780	47.7	.805	48.5	.810	48.6	.848	49.7
8.00	1.065	55.8	.985	53.6	.875	50.5	.812	48.7	.835	49.4	.835	49.4	.865	50.3
8.50	1.096	56.5	1.015	54.5	.913	51.6	.850	49.8	.860	50.1	.855	50.0	.885	50.8
9.00	1.120	57.2	1.040	55.0	.950	52.6	.890	51.0	.880	50.7	.875	50.5	.903	51.4
9.50	1.142	57.8	1.063	55.7	.975	53.4	.925	52.0	.900	51.3	.890	51.0	.925	52.0
10.50	1.190	59.0	1.110	57.0	1.035	55.0	.995	53.9	.963	53.0	.930	52.1	.950	52.6
11.50	1.225	59.8	1.150	58.0	1.085	56.3	1.055	55.5	1.015	54.5	.985	53.6	.990	53.8
12.50	1.260	60.7	1.190	59.0	1.125	57.4	1.112	57.4	1.070	55.9	1.025	54.7	1.025	54.7
13.50	1.290	61.4	1.223	59.8	1.165	58.4	1.161	58.3	1.125	57.3	1.070	55.9	1.070	55.9
14.50	1.312	61.9	1.243	60.2	1.195	59.0	1.195	59.0	1.165	58.4	1.110	56.9	1.113	57.0
15.50	1.342	62.6	1.270	60.9	1.225	59.8	1.215	59.5	1.200	59.2	1.152	58.0	1.160	58.1
16.50	1.360	63.0	1.293	61.4	1.240	60.2	1.240	60.1	1.230	60.0	1.195	59.0	1.200	59.2
17.50			1.312	61.8	1.255	60.5	1.255	60.5	1.245	60.4	1.225	59.8	1.240	60.2
18.50					1.265	60.8			1.255	60.5	1.240	60.1	1.270	60.9

Table 4

Velocity Distribution		Hill 2" x 8"		Small Wind Tunnel								
$U_0 = 30$ fps		Model shape: Wedge		$P_{atm.} = 24.50$ in. Hg								
$x = -18$ in.		$x = -6$ in.		$x = -4$ in.		$x = -2$ in.		$x = 0$ in.		$x = 8$ in.		
y(in)	mm. Hg	U(fps)	mm. Hg.	U(fps)	mm. Hg	U(fps)	mm. Hg	U(fps)	mm. Hg	U(fps)	mm. Hg	U(fps)
0.25	.116	18.4	.060	13.2	.021	7.8	.004	3.4	.158	21.4		
0.50	.138	20.0	.076	14.9	.032	9.6	.015	6.6	.194	23.8		
0.75	.152	21.0	.094	16.5	.048	11.8	.028	9.0	.217	25.1		
1.00	.166	22.0	.110	17.9	.064	13.7	.045	11.5	.235	26.2		
1.50	.192	23.6	.137	20.0	.092	17.0	.075	14.8	.263	27.7		
2.00	.208	24.6	.161	21.7	.122	18.8	.110	18.0	.284	28.8	.005	3.8
2.50	.225	25.6	.183	23.1	.153	21.1	.140	20.2	.295	29.3	.020	7.6
3.00	.237	26.2	.200	24.1	.176	22.6	.173	22.5	.304	29.8	.055	12.6
3.50	.247	26.8	.213	24.9	.195	23.8	.200	24.1	.310	30.1	.125	19.1
4.00	.253	27.2	.224	25.5	.213	24.9	.223	25.5	.314	30.2	.225	25.6
4.50	.260	27.5	.239	26.4	.230	25.9	.241	26.5	.316	30.3	.310	30.1
5.00	.265	27.8	.250	27.0	.245	26.7	.257	27.4	.322	30.7	.342	31.6
5.50	.272	28.1	.261	27.6	.257	27.3	.270	28.1	.325	30.8	.362	32.5
6.00	.275	28.3	.272	28.2	.267	27.8	.282	28.6	.328	30.9	.373	33.0
6.50	.276	28.3	.280	28.6	.277	28.4	.291	29.1	.329	31.0	.377	33.2
7.00	.278	28.4	.287	28.9	.286	28.9	.300	29.6	.330	31.0	.380	33.3
7.50	.288	28.8	.293	29.2	.293	29.2	.306	30.0	.332	31.1	.378	33.2
8.00	.288	29.0	.300	29.6	.298	29.5	.310	30.1	.334	31.2	.377	33.2
8.50	.290	29.1	.306	29.9	.303	29.7	.315	30.3	.333	31.2	.377	33.2
9.00	.295	29.2	.311	30.2	.308	30.0	.318	30.5	.335	31.3	.377	33.2
9.50	.296	29.4	.315	30.3	.313	30.2	.320	30.6	.334	31.2	.375	33.1
10.50	.297	29.4	.322	30.6	.320	30.5	.324	30.7	.335	31.2	.372	32.9
11.50	.299	29.5	.326	30.8	.323	30.7	.327	30.8	.334	31.2	.368	32.7
12.50	.301	29.6	.330	31.0	.326	30.8	.328	30.9	.333	31.1	.362	32.5
13.50	.302	29.7	.332	31.1	.327	30.8	.329	30.9	.332	31.1	.358	32.3
14.50	.304	29.8	.334	31.2	.328	30.9	.329	30.9	.331	31.0	.354	32.1
15.50	.305	29.9	.336	31.3	.328	30.9	.328	30.9	.330	31.0	.350	31.9
16.50	.307	29.9	.337	31.3	.328	30.9	.328	30.9	.330	31.0	.346	31.7
17.50	.308	30.0	.338	31.4	.327	30.8	.327	30.8	.330	31.0	.343	31.6
18.50			.338	31.4	.327	30.8	.327	30.8			.340	31.5

$x = 12$ in.		$x = 16$ in.		$x = 20$ in.		$x = 24$ in.		$x = 28$ in.		$x = 32$ in.		
y (in)	mm. Hg	U (fps)	mm. Hg	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25								.004	1.1	.017	7.0	
0.50								.006	1.3	.020	7.6	
0.75							.004	1.1	.012	5.9	.025	8.5
1.00							.005	1.2	.014	6.4	.030	9.4
1.50					.005	3.8	.012	5.9	.025	8.5	.040	10.8
2.00	.005	3.8	.008	4.8	.020	7.8	.029	9.2	.038	10.5	.055	12.7
2.50	.020	7.6	.030	9.4	.041	10.9	.050	12.1	.058	13.0	.075	14.8
3.00	.055	12.7	.065	13.8	.071	14.4	.076	14.9	.088	16.1	.100	16.9
3.50	.106	17.6	.105	17.5	.110	17.9	.110	17.9	.120	18.7	.126	19.2
4.00	.175	22.6	.161	21.7	.158	21.5	.146	20.6	.154	21.2	.154	21.2
4.50	.265	27.8	.235	26.2	.212	24.9	.185	23.2	.190	23.5	.179	22.9
5.00	.320	30.7	.295	28.3	.260	27.5	.230	25.9	.226	25.7	.211	24.8
5.50	.355	32.2	.331	31.1	.295	29.3	.265	27.8	.259	27.5	.236	26.2
6.00	.374	33.0	.351	32.0	.324	30.7	.291	29.2	.278	28.4	.268	28.0
6.50	.385	33.5	.361	32.5	.336	31.3	.310	30.1	.298	29.5	.287	28.9
7.00	.391	33.8	.368	32.7	.348	31.9	.326	30.8	.310	30.1	.297	29.4
7.50	.392	33.8	.374	33.0	.352	32.1	.335	31.2	.319	30.5	.304	29.8
8.00	.390	33.7	.375	33.0	.358	32.3	.341	31.6	.325	30.8	.312	30.2
8.50	.390	33.7	.377	33.2	.359	32.4	.344	31.6	.328	30.9	.316	30.3
9.00	.385	33.5	.377	33.2	.360	32.4	.348	31.9	.334	31.2	.323	30.7
9.50	.385	33.5	.376	33.1	.360	32.4	.348	31.9	.336	31.3	.325	30.8
10.50	.384	33.4	.376	33.1	.363	32.5	.351	31.9	.338	31.4	.329	30.9
11.50	.380	33.3	.374	33.0	.364	32.5	.352	32.0	.339	31.4	.330	31.0
12.50	.376	33.1	.371	32.9	.363	32.5	.351	31.9	.340	31.5	.332	31.1
13.50	.370	32.8	.367	32.7	.361	32.4	.350	31.9	.342	31.6	.332	31.1
14.50	.366	32.6	.363	32.5	.359	32.3	.349	31.9	.342	31.6		
15.50	.362	32.4	.360	32.4	.356	32.2	.349	31.9	.341	31.5		
16.50	.357	32.2	.356	32.2	.353	32.0	.346	31.7	.340	31.5		
17.50	.352	32.0	.353	32.0	.350	31.9	.344	31.6	.339	31.4		
18.50	.348	31.8	.350	31.9	.348	31.8	.343	31.6	.338	31.4		

Table 4

y(in)	Velocity Distribution		Hill 2" x 8"		Small Wind Tunnel		Hill 2" x 8"		Small Wind Tunnel		Hill 2" x 8"	
	U ₀ = 30 fps		U ₀ = 30 fps		U ₀ = 30 fps		U ₀ = 30 fps		U ₀ = 30 fps		U ₀ = 30 fps	
	x = 52 in.	x = 72 in.	x = 92 in.	x = 112 in.	x = 132 in.	x = 152 in.	x = 52 in.	x = 72 in.	x = 92 in.	x = 112 in.	x = 132 in.	x = 152 in.
	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25	.072	14.5	.103	17.3	.124	19.0	.117	18.5	.132	19.6	.126	19.1
0.50	.077	15.0	.110	17.9	.134	19.8	.134	19.8	.150	20.9	.145	20.6
0.75	.085	16.0	.119	18.6	.140	20.2	.152	21.0	.161	21.6	.156	21.3
1.00	.091	16.3	.127	19.3	.145	20.5	.154	21.2	.170	22.3	.170	22.3
1.50	.102	17.2	.138	20.0	.155	21.3	.168	22.2	.182	23.0	.185	23.2
2.00	.113	18.3	.146	20.6	.163	21.8	.180	22.9	.191	23.6	.195	23.8
2.50	.120	18.7	.155	21.2	.168	22.2	.187	23.3	.199	24.1	.205	24.4
3.00	.131	19.6	.164	21.8	.176	22.7	.196	23.9	.205	24.5	.212	24.9
3.50	.147	20.7	.174	22.5	.182	23.1	.200	24.2	.210	24.7	.217	25.2
4.00	.165	21.7	.180	22.9	.194	23.8	.205	24.4	.215	25.1	.225	25.6
4.50	.180	22.9	.190	23.6	.202	24.3	.211	25.0	.220	25.3	.227	25.7
5.00	.200	24.2	.200	24.1	.209	24.7	.219	25.3	.226	25.7	.233	26.1
5.50	.217	25.1	.210	24.7	.220	25.3	.225	25.6	.232	26.0	.238	26.4
6.00	.234	26.1	.224	25.6	.225	25.6	.229	25.8	.235	26.2	.243	26.6
6.50	.250	27.0	.235	26.2	.234	26.1	.236	26.2	.240	26.5	.246	26.8
7.00	.262	27.6	.250	27.0	.245	26.7	.244	26.6	.247	26.8	.252	27.1
7.50	.274	28.2	.262	27.6	.255	27.3	.250	27.0	.252	27.1	.256	27.3
8.00	.285	28.8	.272	28.2	.264	27.8	.257	27.3	.256	27.4	.259	27.5
8.50	.292	29.3	.283	28.7	.271	28.1	.265	27.8	.263	27.7	.262	27.6
9.00	.300	29.5	.289	29.0	.280	28.6	.274	28.2	.270	28.1	.266	27.8
9.50	.305	29.8	.295	29.3	.285	28.8	.280	28.5	.272	28.2	.272	28.2
10.50	.313	30.2	.305	29.8	.300	29.6	.293	29.2	.284	28.8	.282	28.7
11.50	.316	30.3	.313	30.2	.309	30.0	.302	29.6	.296	29.3	.290	29.1
12.50	.319	30.5	.318	30.4	.316	30.3	.310	30.0	.304	29.8	.298	29.5
13.50	.320	30.5	.320	30.5	.320	30.5	.314	30.2	.312	30.1	.306	29.8
14.50	.320	30.5	.320	30.5	.322	30.6	.319	30.5	.316	30.3	.310	30.0
15.50	.321	30.6			.323	30.6	.322	30.6	.319	30.5	.312	30.1
16.50	.321	30.6			.323	30.6	.323	30.6	.321	30.6	.315	30.3
17.50							.323	30.6	.324	30.7	.319	30.5
18.50									.325	30.8	.321	30.6

Table 4

Velocity Distribution		Hill 2" x 8"				Small Wind Tunnel			
$U_0 = 60$ fps		Model Shape: Wedge				$P_{atm} = 24.50$ in. Hg			
$x = -18$ in.	$x = -6$ in.	$x = -4$ in.	$x = 2$ in.	$x = 0$ in.	$x = 8$ in.				
y(in)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)				
0.25	.382 33.3	.199 24.1	.109 17.8	.052 12.3					
0.50	.450 36.2	.260 27.5	.165 21.9	.097 16.8					
0.75	.504 39.0	.300 29.6	.218 25.2	.133 19.7					
1.00	.565 40.5	.350 32.0	.265 27.8	.175 22.6					
1.50	.650 43.6	.430 35.4	.360 32.4	.304 29.7					
2.00	.720 45.9	.503 38.4	.450 36.2	.425 35.2	.745 46.6				
2.50	.774 47.5	.580 41.2	.580 39.7	.560 40.4	.815 48.8				
3.00	.820 48.9	.640 43.2	.610 42.2	.670 44.2	.880 50.7				
3.50	.870 50.4	.690 44.8	.675 44.4	.770 47.3	.940 52.4				
4.00	.907 51.4	.750 46.8	.748 46.8	.850 49.8	.995 53.9				
4.50	.945 52.5	.805 48.4	.810 49.2	.937 52.3	1.045 55.2				
5.00	.964 53.0	.868 50.2	.875 50.5	1.000 54.0	1.088 56.3				
5.50	.986 53.6	.913 51.6	.945 52.5	1.065 55.7	1.130 57.2				
6.00	1.005 54.2	.960 53.0	1.000 54.0	1.100 56.6	1.168 58.3				
6.50	1.026 54.7	1.000 54.0	1.045 55.0	1.135 57.6	1.200 59.1				
7.00	1.045 55.2	1.034 55.0	1.085 56.2	1.160 58.0	1.225 60.0				
7.50	1.063 55.7	1.065 55.6	1.123 57.3	1.188 58.9	1.250 60.5				
8.00	1.079 56.0	1.096 56.7	1.155 58.0	1.210 59.4	1.264 60.8				
8.50	1.091 56.4	1.124 57.3	1.180 58.2	1.230 60.0	1.280 61.0				
9.00	1.102 56.9	1.140 57.7	1.195 58.9	1.245 60.1	1.290 61.3				
9.50	1.108 56.9	1.155 58.0	1.210 59.5	1.260 60.5	1.310 61.7				
10.50	1.115 57.0	1.185 59.0	1.230 60.0	1.280 61.0	1.320 62.0				
11.50	1.123 57.2	1.200 59.1	1.248 60.6	1.288 61.2	1.328 62.2				
12.50	1.125 57.3	1.220 59.6	1.260 60.6	1.296 61.5	1.326 62.2				
13.50	1.127 57.4	1.240 60.1	1.261 60.6	1.294 61.4	1.322 62.1				
14.50	1.129 57.4	1.245 60.3	1.263 60.7	1.292 61.3	1.319 62.0				
15.50	1.132 57.4	1.250 60.4	1.267 60.8	1.291 61.3	1.314 61.9				
16.50	1.136 57.5	1.255 60.5	1.268 60.8	1.290 61.3	1.309 61.8				
17.50	1.142 57.6	1.260 60.6	1.268 60.8	1.288 61.2	1.303 61.6				
18.50	1.150 57.9	1.270 60.8		1.285 61.2	1.300 61.5				

	$x = 12$ in.	$x = 16$ in.	$x = 20$ in.	$x = 24$ in.	$x = 28$ in.	$x = 32$ in.
y(in)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)	mm. Hg U(fps)
0.25					.006 1.3	.050 12.1
0.50					.010 5.4	.065 13.8
0.75					.022 8.0	.082 15.5
1.00			.010 5.4	.010 5.4	.035 10.1	.100 17.1
1.50			.050 12.1	.404 10.8	.060 13.2	.133 19.7
2.00	.010 5.4	.025 8.5	.130 19.5	.080 15.3	.110 17.9	.165 21.9
2.50	.090 16.2	.080 13.3	.245 26.7	.140 20.2	.180 23.0	.220 25.3
3.00	.200 24.1	.180 22.9	.380 33.3	.220 25.3	.260 27.5	.300 29.6
3.50	.400 34.2	.325 30.8	.540 39.7	.360 32.4	.370 32.8	.400 34.2
4.00	.610 42.2	.520 39.0	.720 45.8	.490 37.8	.480 37.4	.505 38.4
4.50	.900 51.2	.745 46.6	.880 50.6	.630 42.8	.600 41.8	.605 42.0
5.00	1.110 56.8	.945 52.5	1.040 55.1	.780 47.7	.720 45.8	.715 45.7
5.50	1.250 60.5	1.080 56.1	1.120 57.1	.910 51.5	.840 49.5	.795 48.1
6.00	1.300 61.5	1.190 58.9	1.190 58.9	1.000 54.0	.930 52.0	.880 50.6
6.50	1.340 62.5	1.265 60.7	1.230 59.8	1.070 55.9	1.000 54.0	.975 53.4
7.00	1.365 63.2	1.310 61.8	1.255 60.5	1.130 57.5	1.060 55.6	1.050 55.4
7.50	1.380 63.5	1.340 62.4	1.280 61.1	1.190 58.9	1.100 56.6	1.100 56.6
8.00	1.400 64.0	1.360 62.9	1.300 61.5	1.240 60.1	1.140 57.6	1.140 57.7
8.50	1.415 64.2	1.375 63.4	1.310 61.8	1.260 60.6	1.170 58.4	1.170 58.4
9.00	1.425 64.4	1.385 63.5	1.320 62.0	1.280 61.1	1.195 59.1	1.190 59.4
9.50	1.430 64.5	1.390 63.6	1.345 62.6	1.310 61.8	1.245 60.2	1.231 60.0
10.50	1.430 64.5	1.390 63.6	1.350 62.7	1.315 61.9	1.265 60.7	1.250 60.4
11.50	1.420 64.3	1.400 63.9	1.350 62.7	1.310 61.8	1.270 60.8	1.260 60.6
12.50	1.410 64.2	1.385 63.5	1.350 62.7	1.311 61.8	1.280 61.1	1.257 60.5
13.50	1.392 63.6	1.380 63.4	1.341 62.5	1.303 61.6	1.280 61.1	1.257 60.5
14.50	1.375 63.2	1.369 63.2	1.328 62.2	1.300 61.5	1.278 61.0	1.252 60.4
15.50	1.357 62.8	1.351 62.7	1.319 61.9	1.297 61.5	1.275 61.0	1.251 60.4
16.50	1.342 62.5	1.340 62.5	1.311 61.8	1.294 61.4	1.272 60.9	1.251 60.4
17.50	1.330 62.2	1.328 62.2	1.309 61.8	1.292 61.4	1.272 60.9	1.255 60.5
18.50	1.321 62.0	1.322 62.1				

Table 4

Velocity Distribution		Hill 2" x 8"		Small Wind Tunnel			
$U_p = 60$ fps		Model shape: Wedge		$P_{atm} = 24.50$ in Hg			
x = 52 in.		x = 92 in		x = 132 in.		x = 172 in.	
y(in)	mm. Hg U(fps)	mm. Hg U (fps)		mm. Hg U (fps)		mm. Hg U (fps)	
0.25	.241 26.5	.386 34.0		.390 33.7		.465 36.8	
0.50	.270 28.1	.470 37.0		.495 38.0		.545 39.9	
0.75	.290 29.1	.510 38.5		.545 39.8		.584 41.2	
1.00	.312 30.2	.540 39.7		.590 41.5		.625 42.7	
1.50	.350 32.0	.585 41.3		.640 43.2		.690 44.9	
2.00	.385 33.6	.610 42.2		.675 44.4		.725 46.0	
2.50	.420 35.0	.635 43.0		.700 45.2		.750 46.8	
3.00	.460 36.6	.655 43.7		.725 46.0		.780 47.6	
3.50	.515 38.8	.675 44.4		.745 46.6		.800 48.2	
4.00	.570 40.8	.695 45.6		.767 47.4		.815 48.7	
4.50	.640 43.2	.720 45.8		.795 48.2		.835 49.3	
5.00	.705 45.4	.740 46.4		.800 48.3		.845 49.6	
5.50	.770 47.4	.770 47.4		.815 48.7		.855 49.9	
6.00	.830 49.2	.790 48.0		.832 49.2		.865 50.2	
6.50	.883 50.7	.815 48.7		.850 49.8		.880 50.6	
7.00	.933 52.2	.840 49.5		.865 50.2		.890 51.0	
7.50	.985 53.6	.870 50.4		.885 50.8		.905 51.4	
8.00	1.030 54.8	.895 51.1		.905 51.4		.925 51.9	
8.50	1.065 55.7	.925 51.9		.925 51.9		.940 52.4	
9.00	1.095 56.5	.950 52.6		.945 52.5		.955 52.8	
9.50	1.120 57.1	.980 53.5		.960 52.9		.972 53.3	
10.00	1.155 58.0	1.043 55.2		1.000 54.0		1.000 54.0	
11.00	1.180 58.6	1.085 56.3		1.035 54.9		1.030 54.7	
12.00	1.193 59.1	1.130 57.5		1.070 55.8		1.050 55.4	
13.00	1.200 59.2	1.153 57.9		1.098 56.6		1.061 55.6	
14.00	1.200 59.2	1.161 58.2		1.124 57.2		1.080 56.1	
15.00		1.166 58.3		1.145 57.8		1.102 56.7	
16.00		1.171 58.4		1.161 58.2		1.130 57.4	
17.00		1.175 58.5		1.179 58.6		1.150 57.9	
		1.180 58.6		1.188 58.9		1.175 58.5	

Table 5

Velocity Distribution Hill 2" x 10" Big Wind Tunnel
 $U_p = 30$ fps Model Shape: Sinusoidal $P_{atm.} = 24.72$ in. Hg.

x = 41 in. T = 26.5°C			x = 5 in. T = 26.5°C			x = 0 in. T = 26.5°C			
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.091	16.3				2.80	.014	6.4	10.00
0.50	.111	18.0				4.93	.025	8.5	11.40
0.75	.127	19.2		.006	4.2	8.40	.040	10.8	12.45
1.00	.140	20.2		.019	7.4	15.72	.063	13.6	13.10
1.50	.158	21.5		.082	15.5	13.92	.087	16.8	10.09
2.00	.170	22.3		.153	21.1	6.10	.126	19.2	8.89
2.50	.182	23.0		.175	22.6	4.06	.151	21.0	4.67
3.00	.192	23.6		.189	23.4	3.48	.170	22.3	3.76
3.50	.200	24.1		.202	24.2	3.12	.183	23.1	3.30
4.00	.207	24.6		.210	24.8	2.76	.193	23.7	2.94
4.50	.216	25.1		.222	25.4	2.59	.203	24.3	2.66
5.00	.223	25.5		.232	26.0	2.41	.211	24.8	2.56
5.50	.231	26.0		.242	26.6	2.27	.221	25.4	2.46
6.00	.237	26.5		.249	26.9	2.16	.228	25.8	2.41
6.50	.243	26.6		.256	27.4	2.05	.237	26.3	2.27
7.00	.250	27.0		.262	27.6	1.99	.243	26.6	2.13
7.50	.256	27.3		.269	28.0	1.87	.251	27.1	2.03
8.00	.262	27.6		.275	28.3	1.74	.258	27.4	1.83
8.50	.267	27.9		.280	28.6	1.65	.263	27.7	1.76
9.00	.272	28.2		.285	28.8	1.51	.270	28.0	1.61
9.50	.278	28.4		.290	29.0	1.42	.275	28.3	1.48
10.50	.288	29.0		.299	29.5	1.16	.286	28.9	1.22
11.50	.296	29.4		.306	29.9	0.92	.295	29.3	0.96
12.50	.301	29.6		.312	30.2	0.70	.303	29.7	0.72
13.50	.306	29.9		.317	30.4	0.51	.309	30.0	0.53
14.50	.309	30.0		.320	30.6	0.33	.315	30.3	0.40
15.50	.310	30.0		.321	30.6	0.24	.316	30.4	0.32
16.50	.310	30.0		.321	30.6	0.20	.316	30.4	0.28
17.50						0.20			0.27
18.50						0.20			0.26

x = 13 in. T = 26.5°C			x = 17 in. T = 26.5°C			x = 21 in. T = 26.5°C			
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.054	12.5	7.74	.072	14.5	6.93	.084	15.6	5.83
0.50	.064	13.7	8.70	.080	15.3	7.69	.095	16.6	6.31
0.75	.075	14.8	9.62	.090	16.2	8.63	.105	17.5	6.78
1.00	.087	15.9	10.40	.100	17.1	9.14	.114	18.2	7.28
1.50	.110	17.9	10.40	.118	18.5	9.14	.125	19.1	7.98
2.00	.132	19.6	8.40	.133	19.7	8.20	.137	20.0	7.42
2.50	.150	20.9	5.12	.150	20.9	6.02	.151	21.0	5.90
3.00	.167	22.1	3.66	.164	21.9	4.49	.167	22.1	4.61
3.50	.180	22.9	3.24	.176	22.6	3.48	.180	22.9	3.67
4.00	.193	23.7	2.94	.187	23.4	2.94	.192	23.7	3.01
4.50	.204	24.4	2.74	.197	24.0	2.66	.203	24.4	2.67
5.00	.213	24.9	2.54	.207	24.6	2.51	.213	25.0	2.31
5.50	.220	25.4	2.38	.215	25.0	2.28	.222	25.5	2.17
6.00	.229	25.8	2.23	.222	25.4	2.13	.229	25.8	2.02
6.50	.235	26.2	2.08	.230	25.9	1.99	.237	26.3	1.97
7.00	.243	26.6	1.94	.238	26.4	1.85	.243	26.6	1.94
7.50	.249	26.9	1.82	.245	26.7	1.79	.250	27.0	1.85
8.00	.255	27.2	1.72	.251	27.1	1.69	.257	27.4	1.74
8.50	.262	27.6	1.61	.258	27.4	1.58	.262	27.6	1.60
9.00	.268	27.9	1.49	.264	27.7	1.47	.269	28.0	1.46
9.50	.273	28.2	1.39	.270	28.0	1.36	.274	28.2	1.30
10.50	.285	28.8	1.18	.283	28.8	1.17	.285	28.8	1.02
11.50	.295	29.3	0.95	.293	29.2	0.96	.293	29.2	0.82
12.50	.304	29.8	0.68	.301	29.6	0.68	.302	29.7	0.64
13.50	.311	30.1	0.44	.307	29.9	0.44	.307	29.9	0.47
14.50	.314	30.2	0.30	.312	30.2	0.30	.309	30.0	0.31
15.50	.316	30.4	0.23	.313	30.2	0.21	.312	30.2	0.26
16.50	.316	30.4	0.21	.314	30.2	0.20	.314	30.3	0.24
17.50			0.21	.314	30.2	0.20	.314	30.3	0.23
18.50			0.21			0.20			0.23

Table 5

Velocity Distribution				Hill 2"x10"				Big Wind Tunnel				
$U_p = 30$ fps				Model Shape: Sinusoidal				$P_{atm.} = 24.72$ in. Hg.				
$x = 29$ in.				$x = 37$ in.				$x = 53$ in.				
$T = 26.5^\circ C$				$T = 26.5^\circ C$				$T = 26.5^\circ C$				
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.088	16.0	5.04	.093	16.5	5.16	.095	16.6	3.91			
0.50	.097	16.8	5.25	.105	17.5	5.16	.113	18.1	3.97			
0.75	.104	17.4	5.43	.114	18.2	5.16	.123	18.9	4.01			
1.00	.113	18.2	5.66	.120	18.7	5.16	.134	19.8	4.07			
1.50	.127	19.2	5.94	.134	19.8	5.16	.146	20.6	4.12			
2.00	.140	20.2	5.94	.140	20.2	5.16	.156	21.3	4.20			
2.50	.151	21.0	5.76	.149	20.8	5.26	.164	21.9	4.25			
3.00	.163	21.8	5.30	.160	21.6	5.38	.174	22.5	4.27			
3.50	.174	22.5	4.47	.176	22.6	5.16	.183	23.1	4.27			
4.00	.185	23.2	3.86	.187	23.4	4.47	.193	23.7	4.06			
4.50	.196	23.9	3.23	.199	24.1	3.48	.202	24.3	3.91			
5.00	.205	24.4	2.74	.206	24.5	2.97	.211	24.8	3.48			
5.50	.215	25.0	2.37	.217	25.2	2.63	.220	25.3	3.09			
6.00	.225	25.6	2.11	.224	25.6	2.35	.227	25.8	2.74			
6.50	.233	26.1	1.98	.233	26.1	2.12	.236	26.3	2.41			
7.00	.240	26.3	1.92	.240	26.4	1.94	.244	26.7	2.16			
7.50	.247	26.8	1.84	.246	26.8	1.79	.249	26.9	1.95			
8.00	.254	27.2	1.72	.252	27.1	1.64	.256	27.3	1.83			
8.50	.260	27.5	1.59	.258	27.4	1.54	.263	27.7	1.60			
9.00	.267	27.9	1.46	.264	27.7	1.42	.269	28.0	1.44			
9.50	.272	28.1	1.30	.269	28.0	1.31	.273	28.2	1.32			
10.50	.281	28.6	1.09	.277	28.4	1.12	.282	28.7	1.10			
11.50	.290	29.1	0.89	.286	28.9	0.96	.290	29.1	0.91			
12.50	.298	29.5	0.60	.295	29.3	0.71	.298	29.5	0.74			
13.50	.305	29.8	0.42	.304	29.8	0.50	.307	29.9	0.57			
14.50	.309	30.0	0.32	.308	30.0	0.40	.312	30.2	0.41			
15.50	.310	30.1	0.25	.310	30.1	0.32	.314	30.3	0.32			
16.50	.310	30.1	0.21	.311	30.1	0.23	.315	30.3	0.27			
17.50			0.20			0.21	.315	30.3	0.25			
18.50			0.20			0.21			0.25			
$x = 77$ in.				$x = 113$ in.				$x = 161$ in.				
$T = 78^\circ F$				$T = 77^\circ F$				$T = 78^\circ F$				
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.093	16.5	3.37	.084	15.6	3.15	.084	15.7	3.23			
0.50	.114	18.2	3.21	.107	17.7	3.02	.107	17.7	3.02			
0.75	.127	19.3	3.08	.120	18.7	2.93	.119	18.6	2.85			
1.00	.134	19.8	2.97	.133	19.7	2.84	.130	19.4	2.69			
1.50	.147	20.7	2.94	.148	20.8	2.77	.141	20.4	2.49			
2.00	.156	21.3	2.94	.156	21.3	2.59	.156	21.4	2.39			
2.50	.162	21.7	2.94	.165	21.9	2.59	.165	21.9	2.32			
3.00	.169	22.2	2.94	.171	22.3	2.59	.174	22.6	2.28			
3.50	.175	22.6	3.03	.178	22.8	2.59	.181	23.0	2.28			
4.00	.183	23.1	3.15	.184	23.2	2.59	.189	23.5	2.28			
4.50	.191	23.6	3.07	.192	23.6	2.59	.197	24.0	2.28			
5.00	.199	24.1	2.94	.198	24.0	2.52	.203	24.4	2.28			
5.50	.208	24.6	2.83	.205	24.4	2.49	.209	24.7	2.28			
6.00	.217	25.2	2.70	.212	24.9	2.44	.216	25.1	2.28			
6.50	.223	25.5	2.49	.220	25.3	2.37	.222	25.4	2.27			
7.00	.232	26.0	2.29	.227	25.8	2.28	.228	25.8	2.21			
7.50	.238	26.4	2.07	.234	26.1	2.17	.232	26.0	2.19			
8.00	.245	26.8	1.85	.242	26.6	2.09	.238	26.4	2.11			
8.50	.253	27.2	1.71	.248	26.9	1.83	.244	26.6	2.00			
9.00	.260	27.5	1.59	.254	27.2	1.67	.251	27.1	1.85			
9.50	.267	27.9	1.48	.262	27.6	1.50	.256	27.3	1.70			
10.50	.278	28.5	1.24	.273	28.2	1.19	.268	27.9	1.45			
11.50	.287	28.9	0.98	.282	28.7	0.97	.278	28.5	1.21			
12.50	.294	29.3	0.77	.292	29.2	0.81	.289	29.0	0.98			
13.50	.300	29.6	0.63	.300	29.6	0.68	.299	29.5	0.75			
14.50	.304	29.8	0.49	.305	29.8	0.50	.308	30.0	0.55			
15.50	.307	29.9	0.32	.308	30.0	0.34	.313	30.2	0.40			
16.50	.309	30.0	0.22	.310	30.0	0.27	.315	30.3	0.29			
17.50	.310	30.0	0.21	.310	30.0	0.22	.316	30.4	0.23			
18.50	.310	30.0	0.21			0.21			0.23			

Table 5

Velocity Distribution

Hill 2" x 10"

Big Wind Tunnel

 $U_0 = 30$ fps

Model shape: Sinusoidal

 $P_{atm.} = 24.80$ in. Hg.

y(in)	x = 209 in. T = 78°F			x = 257 in. T = 78°F			x = 305 in. T = 78°F			x = 353 in. T = 78°F		
	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.087	15.9	3.42	.081	15.4	3.33	.078	15.1	3.47	.084	15.6	3.58
0.50	.104	17.4	3.25	.102	17.2	3.12	.099	17.0	3.30	.108	17.8	3.30
0.75	.120	18.7	3.16	.116	18.4	2.94	.111	18.0	3.14	.123	18.9	3.05
1.00	.127	19.2	3.03	.127	19.2	2.77	.123	18.9	2.84	.134	19.8	2.85
1.50	.142	20.4	2.77	.143	20.9	2.49	.138	20.0	2.77	.149	20.8	2.74
2.00	.152	21.0	2.66	.155	21.2	2.37	.150	20.9	2.60	.159	21.5	2.63
2.50	.161	21.7	2.51	.163	21.8	2.29	.160	21.6	2.59	.167	22.1	2.55
3.00	.169	22.2	2.44	.170	22.3	2.21	.169	22.2	2.48	.174	22.5	2.47
3.50	.177	22.7	2.34	.178	22.8	2.14	.177	22.7	2.44	.180	22.9	2.42
4.00	.183	23.1	2.28	.184	23.2	2.08	.186	23.3	2.36	.186	23.3	2.36
4.50	.190	23.5	2.28	.192	23.6	2.05	.192	23.6	2.24	.193	23.7	2.32
5.00	.197	24.0	2.28	.198	24.0	2.02	.196	23.9	2.21	.198	24.0	2.23
5.50	.203	24.4	2.28	.206	24.5	2.00	.201	24.2	2.19	.205	24.4	2.20
6.00	.210	24.7	2.28	.211	24.8	1.99	.206	24.5	2.18	.210	24.7	2.16
6.50	.217	25.2	2.23	.217	25.2	1.97	.210	24.7	2.15	.215	25.1	2.14
7.00	.223	25.5	2.21	.222	25.5	1.95	.215	25.0	2.13	.220	25.3	2.13
7.50	.230	25.9	2.17	.228	25.8	1.89	.220	25.3	2.10	.225	25.6	2.11
8.00	.236	26.2	2.14	.232	26.0	1.83	.225	25.6	2.08	.230	25.9	2.10
8.50	.241	26.5	2.10	.237	26.3	1.79	.229	25.8	2.02	.236	26.2	2.08
9.00	.247	26.8	2.06	.242	26.6	1.72	.234	26.1	1.99	.241	26.5	2.06
9.50	.252	27.1	2.00	.247	26.8	1.68	.240	26.4	1.92	.247	26.8	1.99
10.50	.263	27.7	1.87	.256	27.3	1.56	.250	27.0	1.80	.255	27.2	1.88
11.50	.275	28.3	1.66	.268	28.0	1.41	.258	27.4	1.67	.264	27.6	1.75
12.50	.285	28.8	1.43	.278	28.5	1.23	.268	28.0	1.51	.270	28.1	1.60
13.50	.293	29.2	1.28	.286	28.9	1.06	.278	28.4	1.36	.279	28.5	1.47
14.50	.302	29.7	1.03	.295	29.3	0.85	.287	28.9	1.20	.286	28.9	1.29
15.50	.308	30.0	0.80	.302	29.7	0.61	.294	29.3	1.01	.293	29.3	1.07
16.50	.312	30.2	0.61	.305	29.8	0.42	.300	29.6	0.80	.299	29.5	0.80
17.50	.313	30.2	0.45	.	30.0	0.28	.306	29.8	0.53	.305	29.8	0.61
18.50	.313	30.2	0.34			0.21	.314	30.2	0.38	.310	30.5	0.49

Table 5

Velocity Distribution

Hill 2" x 10"

Big Wind Tunnel

 $U_0 = 60$ fps

Model shape: Sinusoidal

 $P_{atm.} = 24.66$ in.Hg.

y(in)	x = -41 in. T = 34.5°C		x = 5 in. T = 34.5°C		x = 9 in. T = 34.5°C		x = 13 in. T = 34.5°C		x = 17 in. T = 34.5°C		x = 21 in. T = 32.0°C	
	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm.Hg.	U(fps)	mm.Hg.	U(fps)	mm. Hg.	U(fps)	mm.Hg.	U(fps)
0.25	.40	34.1	0	0	.16	21.6	.31	30.1	.40	34.1	.40	34.0
0.50	.47	37.0	.02	7.6	.22	25.3	.35	31.6	.45	36.2	.44	35.8
0.75	.51	38.6	.10	17.1	.29	29.1	.39	33.7	.48	37.4	.48	37.4
1.00	.56	40.4	.25	27.0	.36	32.4	.42	35.0	.51	38.6	.51	38.6
1.50	.65	43.5	.55	40.1	.48	37.4	.51	38.6	.57	40.7	.56	40.4
2.00	.67	44.2	.64	43.2	.55	40.1	.57	40.7	.62	42.5	.61	42.7
2.50	.71	45.5	.69	44.8	.63	42.8	.63	42.8	.67	44.2	.66	43.8
3.00	.75	46.7	.75	46.7	.68	44.5	.68	44.5	.72	45.8	.71	45.5
3.50	.79	48.0	.79	48.0	.73	46.1	.72	45.8	.76	47.1	.75	46.8
4.00	.82	48.9	.82	48.9	.78	47.7	.78	47.1	.80	48.3	.79	47.9
4.50	.85	49.8	.84	49.5	.82	48.9	.80	48.3	.84	49.5	.82	49.0
5.00	.87	50.4	.90	51.2	.85	49.8	.83	49.2	.87	50.4	.86	50.1
5.50	.90	51.2	.94	52.3	.88	50.6	.86	50.1	.90	51.2	.89	50.9
6.00	.93	52.1	.97	53.2	.91	51.5	.89	50.9	.93	52.1	.92	51.7
6.50	.96	52.9	1.00	54.0	.94	52.3	.92	51.8	.96	52.9	.95	52.6
7.00	.99	53.7	1.02	54.6	.97	53.2	.95	52.6	.99	53.7	.97	53.1
7.50	1.01	54.3	1.04	55.1	1.00	54.0	.98	53.4	1.01	54.3	.99	53.7
8.00	1.03	54.8	1.07	55.9	1.03	54.8	1.00	54.0	1.04	55.1	1.01	54.2
8.50	1.05	55.4	1.09	56.4	1.05	55.4	1.03	54.8	1.06	55.6	1.03	54.8
9.00	1.08	56.1	1.11	56.9	1.07	55.9	1.06	55.6	1.08	56.1	1.06	55.6
9.50	1.10	56.6	1.13	57.4	1.10	56.6	1.08	56.1	1.10	56.6	1.08	56.0
10.50	1.14	57.6	1.16	58.2	1.13	57.4	1.13	57.4	1.14	57.6	1.12	57.1
11.50	1.18	58.6	1.19	58.9	1.17	58.4	1.16	58.2	1.18	58.6	1.16	58.1
12.50	1.20	59.2	1.22	59.6	1.20	59.2	1.20	59.2	1.22	59.6	1.18	58.6
13.50	1.22	59.6	1.24	60.2	1.22	59.6	1.23	59.9	1.25	60.4	1.21	59.4
14.50	1.23	59.9	1.25	60.4	1.24	60.2	1.25	60.4	1.27	60.8	1.23	59.8
15.50	1.23	59.9	1.25	60.4	1.24	60.2	1.25	60.4	1.28	61.1	1.24	60.1
									1.29	61.3	1.24	60.1
									1.29	61.3		

 $P_{atm.} = 24.63$ in. Hg.

y(in)	x = 29 in. T = 32.2°C		x = 37 in. T = 32.5°C		x = 53 in. T = 32.6°C		x = 77 in. T = 32.9°C		x = 113 in. T = 33.0°C		x = 161 in. T = 32.2°C	
	mm. Hg.	U (fps)	mm. Hg.	U (fps)	mm.Hg.	U(fps)	mm.Hg.	U(fps)	mm.Hg	U(fps)	mm.Hg.	U(fps)
0.25	.46	36.6	.43	35.4	.44	35.8	.44	35.8	.41	34.6	.41	34.6
0.50	.50	38.2	.48	37.4	.50	38.2	.51	38.6	.50	38.2	.48	37.4
0.75	.53	39.3	.52	38.9	.54	39.7	.56	40.4	.55	40.1	.54	39.7
1.00	.55	40.1	.55	40.1	.58	41.2	.59	41.5	.59	41.5	.58	41.2
1.50	.59	41.4	.60	41.8	.63	42.8	.64	43.2	.64	43.2	.64	43.2
2.00	.63	42.8	.63	42.8	.67	44.2	.68	44.5	.68	44.5	.67	44.2
2.50	.67	44.1	.67	44.2	.70	45.2	.71	45.5	.71	45.5	.71	45.5
3.00	.70	45.2	.70	45.2	.73	46.2	.74	46.5	.73	46.2	.73	46.2
3.50	.74	46.4	.74	46.4	.76	47.1	.77	47.4	.76	47.1	.76	47.1
4.00	.78	47.6	.78	47.6	.79	48.0	.79	48.0	.78	47.7	.78	47.7
4.50	.81	48.6	.82	49.0	.82	48.9	.82	48.9	.81	48.6	.80	48.3
5.00	.85	49.8	.85	49.8	.85	49.8	.84	49.5	.83	49.2	.82	48.9
5.50	.89	50.9	.88	50.6	.88	50.7	.88	50.7	.85	49.8	.84	49.5
6.00	.92	51.7	.91	51.5	.91	51.4	.90	51.2	.88	50.7	.87	50.3
6.50	.94	52.4	.93	52.0	.94	52.3	.93	52.1	.90	51.2	.89	51.0
7.00	.97	53.1	.96	52.9	.96	52.9	.96	52.9	.92	51.8	.91	51.4
7.50	.99	53.7	.99	53.7	.99	53.7	.98	53.5	.95	52.7	.93	52.1
8.00	1.01	54.2	1.01	54.2	1.01	54.3	1.01	54.3	.97	53.2	.95	52.7
8.50	1.04	55.0	1.04	55.0	1.04	55.1	1.03	54.8	1.00	54.0	.97	53.2
9.00	1.06	55.6	1.06	55.6	1.06	55.6	1.05	55.3	1.02	54.5	1.00	54.0
9.50	1.08	56.1	1.08	56.1	1.08	56.2	1.07	55.9	1.04	55.1	1.02	54.5
10.50	1.12	57.0	1.12	57.0	1.12	57.2	1.11	56.9	1.09	56.4	1.07	55.9
11.50	1.15	57.8	1.15	57.9	1.16	58.2	1.15	57.9	1.13	57.4	1.11	56.9
12.50	1.18	58.6	1.18	58.6	1.18	58.7	1.18	58.7	1.16	58.2	1.14	57.7
13.50	1.20	59.1	1.20	59.1	1.20	59.2	1.20	59.2	1.19	58.9	1.17	58.4
14.50	1.22	59.6	1.22	59.6	1.22	59.7	1.22	59.7	1.21	59.4	1.20	59.2
15.50	1.23	59.9	1.23	59.8	1.23	59.9	1.23	59.9	1.22	59.7	1.22	59.7
16.50	1.23	59.9	1.24	60.1	1.24	60.2	1.24	60.2	1.23	59.9	1.23	59.9
17.50			1.24	60.1	1.24	60.2	1.24	60.2	1.24	60.2	1.24	60.2
									1.24	60.2	1.24	60.2

Table 5

Velocity Distribution		Hill 2" x 10"		Big Wind Tunnel	
$U_0 = 60$ fps		Model shape: Sinusoidal		$P_{atm.} = 24.63$ in. Hg.	
$x = 209$ in. $T = 33.3^{\circ}C$		$x = 257$ in. $T = 33.6^{\circ}C$			
y(in)	mm. Hg. U (fps)	mm. Hg.	U (fps)		
0.25	.41 34.6	.39	33.7		
0.50	.50 38.2	.48	37.4		
0.75	.54 39.7	.54	39.4		
1.00	.58 41.2	.59	41.5		
1.50	.64 43.2	.64	43.2		
2.00	.69 44.8	.67	44.2		
2.50	.71 45.5	.70	45.2		
3.00	.73 46.2	.72	45.8		
3.50	.76 47.1	.75	46.8		
4.00	.77 47.4	.77	47.4		
4.50	.79 48.0	.79	48.0		
5.00	.82 48.9	.82	48.9		
5.50	.84 49.5	.84	49.5		
6.00	.86 50.1	.87	50.3		
6.50	.89 51.0	.89	51.0		
7.00	.91 51.4	.91	51.4		
7.50	.93 52.1	.93	52.1		
8.00	.95 52.7	.95	52.7		
8.50	.97 53.2	.97	53.2		
9.00	.99 53.7	.99	53.7		
9.50	1.01 54.3	1.00	54.0		
10.50	1.05 55.3	1.04	55.1		
11.50	1.09 56.4	1.07	55.9		
12.50	1.11 56.9	1.11	56.9		
13.50	1.15 57.9	1.14	57.7		
14.50	1.18 58.7	1.17	58.4		
15.50	1.20 59.2	1.20	59.2		
16.50	1.22 59.7	1.22	59.7		
17.50	1.23 59.9	1.23	59.9		
18.50	1.24 59.2	1.23	59.9		
19.50	1.24 60.2				

Table 6

Velocity Distribution			Hill 4" x 20"			Big Wind Tunnel		
$U_0 = 30$ fps			Model Shape: Sinusoidal			$P_{atm.} = 24.68$ in. Hg.		
$x = 46$ in.			$x = 10$ in.			$x = 14$ in.		
$T = 32.6^\circ C$			$T = 32.5^\circ C$			$T = 32.5^\circ C$		
y(in)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.093	16.5	.008	4.8		.008	4.8	
0.50	.115	18.3	.009	5.1	1.40	.015	6.6	4.25
0.75	.129	19.4	.011	5.7		.023	8.2	
1.00	.140	20.2	.012	5.9	2.11	.033	9.8	7.8
1.50	.160	21.6	.026	8.7	8.25	.066	13.9	11.80
2.00	.173	22.4	.060	13.2	13.05	.106	17.6	13.30
2.50	.183	23.1	.132	19.6	12.05	.142	20.4	11.20
3.00	.193	23.7	.168	22.1	8.58	.165	21.9	7.98
3.50	.202	24.3	.187	23.4	5.57	.177	22.7	6.22
4.00	.210	24.7	.197	24.0	4.51	.187	23.4	5.14
4.50	.220	25.3	.209	24.7	4.02	.196	23.9	4.36
5.00	.226	25.7	.217	25.1	3.64	.204	24.4	3.85
5.50	.233	26.1	.228	25.8	3.36	.213	25.0	3.41
6.00	.240	26.5	.238	26.4	3.09	.221	25.4	3.01
6.50	.247	26.8	.247	26.8	2.83	.231	26.0	2.73
7.00	.251	27.0	.255	27.3	2.61	.237	26.3	2.47
7.50	.257	27.3	.263	27.7	2.41	.246	26.8	2.25
8.00	.263	28.1	.269	28.0	2.21	.254	27.2	2.06
8.50	.270	28.2	.275	28.3	2.08	.270	28.1	1.90
9.00	.273	28.8	.282	28.7	1.96	.277	28.4	1.76
9.50	.284	29.1	.289	29.0	1.80	.287	28.9	1.65
10.50	.289	29.4	.303	29.8	1.50	.300	29.6	1.37
11.50	.296	29.7	.313	30.0	1.12	.309	30.0	1.06
12.50	.303	29.8	.320	30.6	.81	.319	30.5	0.78
13.50	.304	29.9	.329	31.0	.56	.324	30.7	0.54
14.50	.306	30.1	.332	31.1	.47	.326	30.8	0.46
15.50	.310	30.1	.334	31.2	.24	.327	30.9	0.24
16.50	.310	30.1	.336	31.3	.17			0.17
17.50					.11			0.15
18.50					.09			0.13

Table

						$P_{atm.} = 24.65$ in. Hg.		
$x = 18$ in.			$x = 22$ in.			$x = 26$ in.		
$T = 32.5^\circ C$			$T = 32.5^\circ C$			$T = 32.4^\circ C$		
y(in)	mm. Hg.	U(fps)	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²
0.25	.044	11.3	.068	14.1		.083	15.6	
0.50	.050	12.1	.074	14.7	7.98	.087	15.9	7.50
0.75	.056	12.8	.080	15.3		.092	16.4	
1.00	.064	13.7	.089	16.1	9.00	.096	16.8	8.05
1.50	.080	15.3	.104	17.4	10.25	.110	17.9	8.70
2.00	.100	17.1	.117	18.5	10.98	.120	18.7	9.00
2.50	.131	19.6	.133	19.7	10.80	.136	19.9	8.90
3.00	.154	21.2	.146	20.6	10.00	.152	21.1	8.34
3.50	.169	22.2	.158	21.5	8.40	.167	22.1	7.31
4.00	.182	23.0	.170	22.3	6.50	.183	23.1	6.24
4.50	.193	23.7	.182	23.1	5.00	.196	23.9	5.08
5.00	.203	24.4	.193	23.7	3.84	.206	24.5	4.26
5.50	.212	24.9	.204	24.4	3.27	.215	25.0	3.66
6.00	.220	25.3	.214	25.0	2.83	.222	25.4	3.17
6.50	.228	25.8	.224	25.6	2.55	.229	25.9	2.73
7.00	.237	26.3	.232	26.0	2.39	.236	26.2	2.40
7.50	.244	26.7	.240	26.5	2.23	.245	26.7	2.15
8.00	.251	27.1	.248	26.9	2.03	.251	27.1	1.99
8.50	.256	27.3	.256	27.3	1.91	.257	27.4	1.80
9.00	.263	27.7	.263	27.7	1.70	.263	27.7	1.67
9.50	.268	28.0	.268	28.0	1.54	.268	28.0	1.57
10.50	.284	28.6	.277	28.4	1.29	.279	28.5	1.33
11.50	.294	29.3	.286	28.9	1.00	.289	29.0	1.02
12.50	.304	29.8	.296	29.4	0.70	.297	29.4	0.73
13.50	.312	30.2	.303	29.8	0.46	.305	29.8	0.49
14.50	.316	30.3	.310	30.1	0.28	.310	30.1	0.30
15.50	.321	30.6	.316	30.4	0.17	.313	30.2	0.19
16.50	.322	30.6	.318	30.5	0.10	.315	30.3	0.13
17.50					0.08	.316	30.4	0.09
18.50					0.08			0.07

Table 6

Velocity Distribution				Hill 4 " x 20 "				Big Wind Tunnel				
$U_0 = 30$ fps				Model Shape: Sinusoidal				$P_{atm.} = 24.65$ in. Hg.				
$x = 34$ in.				$x = 42$ in.				$x = 58$ in.				
$T = 32.3^\circ C$				$T = 32.3^\circ C$				$T = 32.3^\circ C$				
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.103	17.3		.105	17.5		.107	17.7				
0.50	.110	17.9	6.48	.121	18.8	5.84	.121	18.8	5.10			
0.75	.117	18.5		.130	19.5		.133	19.7				
1.00	.122	18.9	6.85	.136	19.9	6.03	.141	20.3	4.91			
1.50	.130	19.5	7.20	.144	20.5	6.15	.153	21.1	4.72			
2.00	.140	20.2	7.48	.150	20.9	6.30	.160	21.6	4.67			
2.50	.147	20.7	7.82	.157	21.4	6.62	.167	22.1	4.67			
3.00	.157	21.4	7.82	.165	21.9	7.12	.170	22.5	4.77			
3.50	.166	22.0	7.49	.172	22.4	6.91	.182	23.0	5.10			
4.00	.176	22.7	7.08	.182	23.0	6.40	.189	23.5	5.50			
4.50	.188	23.4	6.35	.192	23.7	5.92	.196	23.9	5.82			
5.00	.202	24.3	5.43	.200	24.2	5.20	.202	24.3	5.55			
5.50	.212	24.8	4.56	.210	24.7	4.61	.208	24.6	5.13			
6.00	.220	25.3	3.73	.218	25.2	4.00	.216	25.1	4.53			
6.50	.228	25.8	3.13	.227	25.7	3.31	.224	25.6	4.00			
7.00	.235	26.2	2.58	.236	26.2	2.80	.230	25.9	3.41			
7.50	.243	26.7	2.18	.245	26.7	2.47	.238	26.4	2.90			
8.00	.251	27.0	1.84	.252	27.1	2.15	.246	26.8	2.48			
8.50	.257	27.4	1.64	.259	27.5	1.93	.254	27.2	2.18			
9.00	.263	27.7	1.45	.265	27.8	1.77	.261	27.6	1.94			
9.50	.268	28.0	1.33	.270	28.1	1.57	.267	27.9	1.67			
10.50	.279	28.5	1.19	.280	28.6	1.29	.280	28.6	1.26			
11.50	.290	29.1	1.00	.288	29.0	1.00	.290	29.1	0.94			
12.50	.297	29.4	0.74	.295	29.3	0.69	.297	29.4	0.70			
13.50	.303	29.8	0.48	.302	29.7	0.46	.303	29.7	0.50			
14.50	.308	30.0	0.30	.306	29.9	0.29	.306	29.9	0.33			
15.50	.312	30.1	0.19	.309	30.0	0.19	.309	30.0	0.22			
16.50	.313	30.3	0.12	.310	30.1	0.11	.311	30.1	0.17			
17.50			0.10			0.09			0.12			
18.50			0.10			0.08			0.11			
$x = 82$ in.				$x = 118$ in.				$x = 166$ in.				
$T = 32.2^\circ C$				$T = 32.1^\circ C$				$T = 32.1^\circ C$				
y(in)	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U(fps)	$\overline{U^2}$ (fps) ²
0.25	.111	18.0		.115	18.3		.097	16.8				
0.50	.129	19.4	4.15	.130	19.5	3.74	.120	18.7	4.04			
0.75	.140	20.2		.143	20.4		.131	19.6				
1.00	.150	20.9	3.82	.152	21.1	3.65	.141	20.3	3.61			
1.50	.162	21.7	3.78	.164	21.9	3.49	.157	21.4	3.33			
2.00	.170	22.3	3.78	.173	22.5	3.41	.169	22.2	3.02			
2.50	.176	22.7	3.78	.178	22.8	3.21	.178	22.8	2.83			
3.00	.181	23.0	3.82	.184	23.2	3.12	.184	23.2	2.75			
3.50	.187	23.4	3.95	.189	23.5	3.12	.192	23.7	2.69			
4.00	.193	23.7	4.04	.195	23.8	3.22	.197	24.0	2.65			
4.50	.197	24.0	4.15	.198	24.0	3.33	.202	24.3	2.65			
5.00	.203	24.4	4.26	.201	24.2	3.41	.207	24.6	2.65			
5.50	.207	24.6	4.29	.206	24.5	3.50	.213	25.0	2.69			
6.00	.213	25.0	4.26	.212	24.8	3.51	.218	25.2	2.75			
6.50	.221	25.4	4.08	.219	25.3	3.48	.223	25.6	2.75			
7.00	.227	25.7	3.87	.227	25.7	3.41	.227	25.7	2.75			
7.50	.230	25.9	3.56	.234	26.1	3.39	.231	26.0	2.71			
8.00	.240	26.5	3.22	.240	26.5	3.32	.236	26.2	2.65			
8.50	.246	26.8	2.79	.246	26.8	3.04	.240	26.5	2.59			
9.00	.253	27.2	2.31	.252	27.1	2.65	.245	26.7	2.48			
9.50	.260	27.6	2.12	.257	27.4	2.29	.250	27.0	2.38			
10.50	.274	28.3	1.63	.268	28.0	1.80	.260	27.5	2.12			
11.50	.285	28.8	1.22	.280	28.6	1.42	.272	28.2	1.79			
12.50	.296	29.4	0.89	.289	29.1	0.95	.283	28.8	1.30			
13.50	.303	29.8	0.60	.298	29.5	0.60	.293	29.3	0.92			
14.50	.306	29.9	0.39	.304	29.8	0.39	.301	29.6	0.69			
15.50	.309	30.0	0.26	.308	30.0	0.25	.306	29.9	0.40			
16.50	.310	30.1	0.18	.312	30.1	0.16	.309	30.0	0.22			
17.50			0.12	.313	30.2	0.11	.311	30.1	0.13			
18.50			0.11			0.10			0.10			

Table 6

Velocity Distribution Hill 4" x 20" Big Wind Tunnel
 $U_0 = 30$ fps Model shape: Sinusoidal $P_{atm.} = 24.66$ in. Hg.

y (in)	x = 214 in. T = 32.0°			x = 262 in. T = 32.0° C			x = 310 in. T = 32.0° C			x = 358 in. T = 32.0° C		
	mm. Hg	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²	mm. Hg.	U (fps)	$\overline{U^2}$ (fps) ²
0.25	.097	16.8		.096	16.8		.103	17.3		.101	17.2	
0.50	.121	18.8	2.58	.115	18.3	2.82	.123	18.9	2.61	.116	18.4	1.80
0.75	.139	20.1		.129	19.4		.137	20.0		.134	19.8	
1.00	.152	21.1	2.42	.140	20.2	2.58	.141	20.7	2.55	.142	20.4	1.74
1.50	.169	22.2	2.24	.160	21.6	2.40	.160	21.6	2.44	.156	21.3	1.70
2.00	.177	22.7	2.12	.170	22.3	2.25	.172	22.4	2.30	.168	22.1	1.68
2.50	.186	23.3	2.05	.178	22.8	2.13	.180	22.9	2.15	.177	22.7	1.68
3.00	.191	23.6	1.97	.184	23.2	2.05	.187	23.4	1.92	.184	23.2	1.68
3.50	.196	23.9	1.87	.188	23.4	1.98	.193	23.7	1.79	.193	23.7	1.66
4.00	.202	24.3	1.80	.194	23.8	1.92	.198	24.0	1.72	.199	24.1	1.61
4.50	.206	24.5	1.80	.198	24.0	1.89	.203	24.4	1.68	.204	24.4	1.52
5.00	.212	24.8	1.80	.203	24.4	1.82	.208	24.7	1.64	.210	24.7	1.45
5.50	.216	25.1	1.74	.209	24.7	1.77	.214	25.0	1.62	.215	25.1	1.41
6.00	.220	25.3	1.68	.216	25.1	1.69	.218	25.2	1.58	.220	25.3	1.40
6.50	.224	25.6	1.68	.220	25.3	1.68	.223	25.5	1.56	.224	25.6	1.40
7.00	.228	25.8	1.68	.226	25.6	1.64	.227	25.7	1.55	.227	25.7	1.40
7.50	.234	26.1	1.68	.231	25.9	1.61	.233	26.1	1.52	.230	25.9	1.39
8.00	.240	26.5	1.68	.235	26.2	1.55	.236	26.2	1.50	.232	26.1	1.38
8.50	.244	26.7	1.67	.240	26.5	1.51	.241	26.5	1.48	.236	26.2	1.36
9.00	.247	26.8	1.62	.244	26.7	1.44	.244	26.7	1.42	.241	26.5	1.32
9.50	.253	27.2	1.60	.250	27.0	1.40	.250	27.0	1.40	.246	26.8	1.30
10.50	.263	27.7	1.50	.257	27.4	1.29	.257	27.4	1.29	.255	27.3	1.22
11.50	.274	28.3	1.36	.266	27.8	1.11	.265	27.8	1.20	.265	27.8	1.17
12.50	.284	28.8	1.15	.276	28.4	0.99	.273	28.2	1.13	.272	28.2	1.09
13.50	.294	29.3	0.94	.284	28.8	0.89	.279	28.5	1.00	.281	28.6	0.98
14.50	.301	29.6	0.69	.293	29.2	0.72	.288	29.0	0.85	.285	28.9	0.84
15.50	.305	29.8	0.41	.301	29.6	0.52	.295	29.3	0.63	.293	29.3	0.70
16.50	.309	30.0	0.25	.305	29.8	0.33	.302	29.7	0.44	.299	29.6	0.55
17.50	.311	30.1	0.13	.309	30.0	0.21	.307	29.9	0.33	.305	29.9	0.40
18.50	.313	30.2	0.09	.311	30.1	0.13	.312	30.2	0.20	.309	30.1	0.29

Table 7

Velocity Distribution Hill 2" x 4" -Temp. Case Big Wind Tunnel
 $U_0 = 60$ fps Model shape: Wedge $P_{atm.} = 24.65$ in. Hg.

y(in)	x = 36 in. T = 72° F		x = 4.5 in. T = 72° F		x = 8.5 in. T = 72° F		x = 12.5 in. T = 72° F		x = 16.5 in. T = 72° F		x = 20.5 in. T = 72° F	
	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25	.330	31.2										
0.50	.457	36.5										
0.75	.535	39.5										
1.00	.590	41.5										
1.50	.656	43.7										
2.00	.693	45.0										
2.50	.725	45.9	.015	6.6	.020	7.6	.027	8.9			.058	13.0
3.00	.763	47.2	.150	20.9	.100	17.1	.115	18.3	.091	16.3	.134	19.8
3.50	.800	48.3	.584	41.3	.260	27.5	.243	26.6	.250	27.0	.265	27.8
4.00	.830	49.2	.982	53.5	.580	41.1	.455	36.4	.430	35.4	.423	35.1
4.50	.860	50.1	1.105	56.8	.940	52.3	.705	45.3	.615	42.3	.558	40.3
5.00	.895	51.1	1.165	58.4	1.120	57.2	.840	51.8	.792	48.0	.745	46.6
5.50	.925	51.9	1.190	58.9	1.194	59.0	1.085	56.3	.942	52.4	.889	50.9
6.00	.955	52.8	1.200	59.2	1.234	60.0	1.180	58.6	1.063	55.7	1.000	54.0
6.50	.985	53.6	1.210	59.4	1.258	60.6	1.230	59.9	1.122	57.2	1.051	55.4
7.00	1.015	54.4	1.220	59.6	1.275	60.9	1.263	60.7	1.156	58.1	1.092	56.4
7.50	1.040	55.1	1.230	59.9	1.294	61.4	1.278	61.0	1.185	58.8	1.126	57.3
8.00	1.065	55.8	1.240	60.1	1.306	61.8	1.290	61.3	1.207	59.4	1.150	57.9
8.50	1.092	56.4	1.250	60.4	1.316	61.9	1.297	61.5	1.225	59.8	1.170	58.4
9.00	1.115	57.0	1.264	60.8	1.330	62.3	1.308	61.8	1.240	60.1	1.196	59.1
9.50	1.135	57.5	1.280	61.1	1.340	62.5	1.315	61.9	1.261	60.6	1.225	59.8
10.50	1.180	58.7	1.300	61.5	1.357	62.8	1.335	62.3	1.290	61.4	1.272	60.9
11.50	1.200	59.2	1.330	62.3	1.375	63.3	1.360	63.0	1.321	62.1	1.304	61.7
12.50	1.216	59.5	1.350	62.8	1.390	63.7	1.380	63.4	1.350	62.7	1.335	62.3
13.50	1.228	59.9	1.365	63.2	1.405	64.1	1.400	63.9	1.372	63.2	1.361	63.0
14.50	1.244	60.2	1.380	63.4	1.410	64.2	1.421	64.4	1.386	63.6	1.381	63.5
15.50	1.250	60.4	1.390	63.7	1.410	64.2	1.425	64.5	1.399	63.9	1.392	63.7
16.50									1.400	63.9	1.398	63.8
17.50									1.402	64.0	1.398	63.8
									1.403	64.0		

y(in)	x = 28.5 in. T = 72° F		x = 36.5 in. T = 72° F		x = 52.5 in. T = 72° F		x = 76.5 in. T = 72° F		x = 112.5 in. T = 72° F	
	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)	mm. Hg.	U(fps)
0.25	.012	5.9	.063	13.5	.150	20.9	.225	25.6	.350	31.9
0.50	.021	7.8	.082	15.5	.200	24.2	.305	29.8	.386	33.5
0.75	.030	9.4	.100	17.1	.235	26.2	.350	31.9	.424	35.2
1.00	.036	10.2	.115	18.3	.265	27.8	.375	33.1	.450	36.2
1.50	.070	14.3	.151	21.0	.300	29.6	.410	34.6	.484	37.6
2.00	.110	17.9	.190	23.5	.335	31.3	.440	35.8	.518	38.9
2.50	.151	21.0	.235	26.2	.370	32.9	.475	37.2	.546	39.9
3.00	.231	25.9	.290	29.1	.405	34.4	.510	38.6	.578	41.1
3.50	.325	30.8	.353	32.1	.445	36.0	.545	39.9	.601	41.8
4.00	.425	34.5	.435	35.6	.485	38.0	.575	40.9	.625	42.7
4.50	.525	39.1	.515	38.8	.545	39.9	.620	42.5	.650	43.5
5.00	.642	43.2	.608	42.1	.605	42.0	.660	43.9	.677	44.4
5.50	.751	46.8	.686	44.7	.665	44.1	.700	45.2	.708	45.5
6.00	.840	49.5	.771	47.4	.725	45.9	.735	46.3	.738	46.4
6.50	.911	51.5	.841	49.5	.785	47.8	.775	47.5	.768	47.3
7.00	.980	53.4	.900	51.2	.840	49.5	.815	48.8	.796	48.1
7.50	1.023	54.6	.948	52.6	.895	51.1	.869	50.1	.828	49.2
8.00	1.050	55.3	.991	53.7	.935	52.2	.900	51.2	.856	49.9
8.50	1.076	56.0	1.032	54.8	.980	53.4	.995	52.5	.887	50.8
9.00	1.100	56.6	1.062	55.7	1.020	54.5	.980	53.4	.920	51.8
9.50	1.125	57.3	1.082	56.2	1.050	55.3	1.010	54.3	.948	52.6
10.50	1.171	58.4	1.133	57.5	1.105	56.8	1.080	56.1	1.011	54.3
11.50	1.221	59.7	1.176	58.6	1.150	57.9	1.150	57.9	1.076	56.0
12.50	1.255	60.5	1.210	59.4	1.185	58.8	1.200	59.2	1.135	57.6
13.50	1.292	61.4	1.247	60.3	1.225	59.8	1.235	60.0	1.183	58.7
14.50	1.325	62.2	1.275	60.9	1.255	60.5	1.265	60.7	1.226	59.8
15.50	1.344	62.6	1.292	61.4	1.275	60.9	1.285	61.2	1.251	60.4
16.50	1.348	62.7	1.308	61.8	1.295	61.4	1.295	61.4	1.270	60.9
17.50	1.351	62.8	1.316	61.9	1.300	61.5	1.295	61.4	1.276	61.0
18.50	1.353	62.8	1.321	62.1	1.300	61.5			1.281	61.1

Table 8

Velocity Distribution		Hill 4" x 20"-Temp. Case		Big Wind Tunnel		
$U_0 = 30$ fps		Model shape: Sinusoidal		$P_{atm.} 24.74$ in. Hg.		
$x = -46$ in.	$x = 10$ in.	$x = 14$ in.	$x = 18$ in.	$x = 22$ in.	$x = 26$ in.	
$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	
y (in)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	
0.25	.077 15.0			.015 6.6	.053 12.4	.059 13.1
0.50	.100 17.1		.005 3.8	.026 8.7	.065 13.8	.070 14.3
0.75	.116 18.4		.020 7.5	.037 10.4	.076 14.9	.080 15.3
1.00	.125 19.1		.034 10.0	.048 11.8	.084 15.6	.089 16.1
1.50	.140 20.2	.010 5.4	.045 11.4	.072 14.5	.098 16.9	.104 17.4
2.00	.151 21.0	.065 13.8	.072 14.5	.092 16.4	.113 18.2	.119 18.6
2.50	.160 21.6	.121 18.8	.119 18.6	.115 18.3	.127 19.2	.133 19.7
3.00	.169 22.2	.156 21.3	.145 20.6	.134 19.8	.140 20.2	.145 20.6
3.50	.179 22.8	.179 22.8	.165 21.9	.153 21.1	.152 21.1	.158 21.4
4.00	.187 23.4	.193 23.7	.178 22.8	.166 22.0	.163 21.8	.171 22.3
4.50	.196 23.9	.203 24.3	.191 23.6	.178 22.8	.175 22.6	.182 23.0
5.00	.202 24.3	.212 24.9	.201 24.2	.189 23.5	.186 23.3	.192 23.7
5.50	.211 24.8	.220 25.3	.210 24.7	.199 24.1	.196 23.9	.201 24.2
6.00	.219 25.3	.228 25.8	.220 25.3	.208 24.6	.206 24.5	.210 24.7
6.50	.228 25.8	.236 26.2	.230 25.9	.218 25.2	.216 25.1	.218 25.2
7.00	.236 26.2	.245 26.7	.241 26.5	.226 25.7	.224 25.6	.226 25.7
7.50	.243 26.6	.254 27.2	.251 27.0	.234 26.1	.233 26.1	.236 26.2
8.00	.251 27.0	.261 27.6	.260 27.5	.242 26.6	.240 26.5	.243 26.6
8.50	.258 27.4	.269 28.0	.269 28.0	.248 26.9	.248 26.9	.250 27.0
9.00	.264 27.7	.276 28.4	.276 28.4	.255 27.3	.255 27.3	.257 27.4
9.50	.269 28.0	.282 28.7	.284 28.8	.262 27.6	.261 27.6	.263 27.7
10.50	.282 28.6	.295 29.3	.297 29.4	.275 28.3	.273 28.2	.275 28.3
11.50	.290 29.2	.307 29.9	.308 30.0	.287 28.9	.284 28.8	.286 28.9
12.50	.297 29.4	.319 30.5	.317 30.4	.299 29.5	.294 29.2	.294 29.2
13.50	.303 29.7	.329 31.0	.325 30.8	.311 30.1	.304 29.8	.304 29.7
14.50	.308 30.0	.337 31.4	.332 31.1	.320 30.5	.315 30.3	.314 30.2
15.50	.313 30.2	.345 31.7	.337 31.4	.330 31.0	.322 30.6	.321 30.6
16.50	.316 30.4	.347 31.8	.343 31.6	.335 31.2	.330 31.0	.325 30.8
17.50	.316 30.4	.347 31.8	.345 31.7	.335 31.2	.334 31.2	.326 30.8
18.50			.346 31.8		.334 31.2	.330 31.0

Table

$x = 34$ in.	$x = 42$ in.	$x = 58$ in.	$x = 82$ in.	$x = 118$ in.	$x = 166$ in.	
$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	$T = 50^\circ F$	
y (in)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	mm. Hg. U (fps)	
0.25	.091 16.3	.090 16.2	.101 17.2	.094 16.5	.068 14.1	.078 15.1
0.50	.097 16.8	.100 17.1	.107 17.6	.106 17.6	.085 15.7	.094 16.5
0.75	.103 17.3	.106 17.6	.113 18.2	.116 18.4	.105 17.5	.107 17.6
1.00	.109 17.8	.109 17.8	.119 18.6	.122 18.9	.124 19.0	.118 18.5
1.50	.119 18.6	.121 18.8	.128 19.3	.136 19.9	.143 20.4	.138 20.0
2.00	.128 19.3	.130 19.5	.137 20.0	.147 20.7	.152 21.0	.151 21.0
2.50	.138 20.1	.142 20.3	.148 20.8	.156 21.3	.158 21.5	.162 21.7
3.00	.147 20.7	.150 20.9	.158 21.4	.164 21.9	.163 21.8	.170 22.3
3.50	.157 21.4	.160 21.6	.167 22.1	.172 22.4	.167 22.0	.177 22.7
4.00	.166 22.0	.167 22.1	.176 22.6	.178 22.8	.171 22.3	.183 23.1
4.50	.177 22.7	.177 22.7	.185 23.2	.185 23.2	.176 22.6	.190 23.5
5.00	.186 23.3	.183 23.1	.194 23.8	.193 23.7	.182 23.0	.194 23.8
5.50	.196 23.9	.194 23.8	.202 24.3	.201 24.2	.191 23.6	.200 24.1
6.00	.205 24.4	.202 24.3	.210 24.7	.208 24.6	.198 24.0	.204 24.4
6.50	.214 25.0	.212 24.9	.218 25.2	.216 25.1	.206 24.5	.209 24.7
7.00	.221 25.4	.222 25.4	.225 25.6	.223 25.5	.214 25.0	.215 25.0
7.50	.229 25.8	.230 25.9	.233 26.1	.229 25.8	.222 25.4	.220 25.3
8.00	.235 26.2	.238 26.3	.241 26.5	.236 26.2	.229 25.8	.225 25.6
8.50	.244 26.7	.246 26.8	.248 26.9	.245 26.7	.234 26.1	.233 26.0
9.00	.250 27.0	.253 27.2	.256 27.3	.251 27.0	.240 26.4	.240 26.5
9.50	.257 27.4	.260 27.5	.262 27.6	.259 27.5	.247 26.8	.245 26.7
10.50	.270 28.1	.270 28.1	.273 28.2	.272 28.2	.260 27.5	.257 27.4
11.50	.283 28.8	.282 28.6	.284 28.8	.283 28.7	.274 28.3	.269 28.0
12.50	.294 29.3	.291 29.1	.294 29.2	.294 29.3	.287 28.9	.282 28.7
13.50	.306 29.9	.300 29.6	.304 29.8	.303 29.7	.297 29.4	.296 29.4
14.50	.316 30.4	.308 30.0	.313 30.2	.312 30.2	.308 30.0	.306 29.9
15.50	.321 30.6	.317 30.4	.321 30.6	.320 30.5	.317 30.4	.314 30.3
16.50	.324 30.7	.324 30.7	.325 30.8	.325 30.8	.324 30.7	.320 30.5
17.50	.325 30.8	.326 30.8	.326 30.8	.328 30.9	.328 30.9	.327 30.8
18.50	.325 30.8	.326 30.8	.327 30.9	.330 31.0	.330 31.0	.328 30.9

Table 8

Velocity Distribution		Hill 4" x 20"-Temp. Case		Big Wind Tunnel	
$U_0 = 60$ fps		Model shape: Sinusoidal		$P_{atm.} = 24.71$ in. Hg.	
$x = 214$ in.		$x = 262$		$x = 310$ in.	
$T = 72^\circ F$		$T = 72^\circ F$		$T = 72^\circ F$	
y(in)	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)	mm. Hg. U(fps)
0.25	.314 30.3	.301 29.6	.261 28.1		
0.50	.413 34.7	.383 33.4	.328 30.9		
0.75	.482 37.5	.448 36.1	.398 34.1		
1.00	.530 39.3	.500 38.2	.450 36.2		
1.50	.605 42.0	.565 40.6	.532 39.4		
2.00	.653 43.7	.621 42.6	.593 41.6		
2.50	.700 45.2	.671 44.2	.641 43.2		
3.00	.728 46.1	.700 45.2	.685 44.7		
3.50	.749 46.7	.722 45.8	.724 45.9		
4.00	.775 47.5	.740 46.4	.750 46.8		
4.50	.788 47.9	.767 47.2	.778 47.6		
5.00	.810 48.6	.790 48.0	.798 48.2		
5.50	.823 49.0	.814 48.7	.820 48.9		
6.00	.846 49.6	.832 49.2	.838 49.4		
6.50	.865 50.2	.856 49.9	.858 50.0		
7.00	.881 50.7	.879 50.6	.879 50.6		
7.50	.899 51.2	.899 51.2	.896 51.1		
8.00	.922 51.8	.921 51.8	.916 51.6		
8.50	.948 52.6	.935 52.2	.930 52.1		
9.00	.948 53.0	.952 52.7	.948 52.6		
9.50	.990 53.7	.972 53.2	.961 52.9		
10.50	1.035 54.9	1.014 54.4	.990 53.7		
11.50	1.079 56.1	1.055 55.4	1.031 54.8		
12.50	1.116 57.0	1.096 56.5	1.072 55.9		
13.50	1.150 57.9	1.126 57.4	1.110 56.9		
14.50	1.175 58.5	1.152 58.0	1.140 57.7		
15.50	1.206 59.3	1.183 58.8	1.172 58.5		
16.50	1.232 59.9	1.211 59.4	1.190 58.9		
17.50	1.246 60.3	1.230 59.9	1.210 59.4		
18.50	1.247 60.3	1.234 60.0	1.221 59.7		

TABLE 9
VERTICAL PRESSURE DISTRIBUTION

y	Pressure Measurement			Hill 2" x 2"		Small Wind Tunnel			
	$U_0 = 30$ fps			Δh_a mmHg=0.31		$P_{atm.} = 24.72$ in Hg.			
	x = 2"	x = 6"	x = 10"	x = 14"	x = 1'6"	x = 1'-10"	x=2'-2"	x =3'-10"	x=7'-10"
	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.	Δh mmHg.
0	-0.271	-0.272	-0.279	-0.263	-0.226	-0.200	-0.163	-0.120	-0.123
1	-0.283	-0.307	-0.292	-0.279	-0.243	-0.213	-0.182	-0.130	-0.130
2	-0.282	-0.290	-0.296	-0.282	-0.253	-0.221	-0.191	-0.133	-0.133
3	-0.281	-0.290	-0.296	-0.286	-0.258	-0.226	-0.196	-0.140	-0.136
4	-0.253	-0.282	-0.291	-0.281	-0.256	-0.226	-0.194	-0.140	-0.136
5	-0.225	-0.261	-0.276	-0.264	-0.246	-0.218	-0.189	-0.140	-0.136
6	-0.203	-0.241	-0.253	-0.243	-0.231	-0.207	-0.178	-0.133	-0.136
7	-0.189	-0.221	-0.235	-0.231	-0.218	-0.194	-0.169	-0.130	-0.135
8	-0.176	-0.209	-0.230	-0.218	-0.207	-0.187	-0.163	-0.130	-0.133
9	-0.169	-0.196	-0.212	-0.210	-0.197	-0.179	-0.161	-0.123	-0.131
10	-0.163	-0.194	-0.203	-0.203	-0.191	-0.176	-0.161	-0.121	-0.130
11	-0.158	-0.182	-0.194	-0.196	-0.186	-0.172	-0.159	-0.123	-0.130
12	-0.151	-0.174	-0.187	-0.187	-0.181	-0.168	-0.154	-0.121	-0.126
13	-0.149	-0.171	-0.179	-0.182	-0.177	-0.166	-0.153	-0.123	-0.126
14	-0.148	-0.164	-0.176	-0.177	-0.172	-0.163	-0.153	-0.123	-0.126
15	-0.144	-0.161	-0.171	-0.171	-0.169	-0.163	-0.149	-0.123	-0.125
16	-0.140	-0.158	-0.166	-0.168	-0.168	-0.159	-0.149	-0.123	-0.126
17	-0.138	-0.153	-0.161	-0.163	-0.163	-0.158	-0.149	-0.123	-0.125
18	-0.136	-0.148	-0.158	-0.158	-0.159	-0.153	-0.146	-0.125	-0.123
19	-0.130	-0.149	-0.154	-0.154	-0.156	-0.151	-0.146	-0.125	-0.123
20	-0.130	-0.144	-0.151	-0.154	-0.153	-0.149	-0.146	-0.125	-0.123

Table 10

Pressure Distribution along the wall <u>Hill 1" x 4"</u> Small Wind Tunnel						
Model Shape: Wedge		Reference pressure at x/h = 72		$P_{atm.} = 24.7$ in Hg. T = 78°F		
x/h	$U_0 = 15$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$	$U_0 = 20$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$	$U_0 = 30$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$	$U_0 = 40$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$	$U_0 = 45$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$	$U_0 = 60$ fps $\frac{p}{\frac{1}{2}\rho U_0^2}$
4	-.204		-.20		-.184	-.186
8	-.391		-.388		-.382	-.355
12	-.154		-.168		-.187	-.153
16	-.025		-.018		-.030	-.016
20	+.026		.023		.018	.014
24	.041		.045		.043	.032
28	.048		.048		.048	.037
40	.041		.040		.036	.028
52	.035		.037		.033	.026
64	.032		.036		.033	.026
76	.030		.027		.030	.024
88	.022		.020		.022	.015
100	.012		.010		.008	.004
112	.015		.017		.018	.013
124	.008		.006		.005	.003
136	.003		.003		.004	.001
148	0		0		0	0

<u>Hill 2" x 2"</u>				$P_{atm.} = 24.35$ in Hg. T = 84°F	
1	-.410		-.445		-.444
3	-.449		-.484		-.484
5	-.475		-.494		-.500
7	-.411		-.442		-.420
9	-.321		-.339		-.323
11	-.180		-.219		-.202
13	-.096		-.113		-.101
19	.041		.045		.034
25	.058		.057		.049
31	.051		.052		.043
37	.050		.040		.036
43	.033		.024		.021
49	.022		.015		.011
55	.021		.013		.016
61	.015		.005		.003
67	.000		0		0
73	0		0		0

<u>Hill 2" x 4"</u>				$P_{atm.} = 620.3$ mm Hg. T = 84°F	
2	-.465		-.436		-.424
4	-.477		-.455		-.453
6	-.426		-.426		-.439
8	-.322		-.346		-.364
10	-.194		-.258		-.252
12	-.077		-.136		-.151
14	-.013		-.048		-.056
20	+.045		.006		.045
26	.045		.045		.046
32	.037		.036		.038
38	.032		.034		.032
44	.022		.029		.022
50	.012		.021		.008
56	.017		.010		.014
62	.005		.017		.001
66	.003		.003		.000
72	0		0		0

<u>Hill 2" x 8"</u>					$P_{atm.} = 24.45$ in Hg. T = 80°F	
4		-.394	-.405	-.382		-.371
6		-.453	-.485	-.473		-.411
8		-.372	-.388	-.418		-.404
10		-.205	-.243	-.255		-.306
12		-.095	-.094	-.118		-.115
14		-.022	-.013	-.027		-.062
16		+.018	.019	-.012		-.040
22		.048	.045	.043		.027
28		.040	.029	.031		.029
34		.015	.007	.006		.008
40		.037	.023	.022		.024
46		.033	.019	.018		.021
52		.009	.007	.008		.009
58		.003	.004	.003		.004
64		.001	.001	.001		.001
70		0	0	0		0
76		0	0	0		0

Table 11

y/h	Pressure distribution over models				Small Wind Tunnel			
	<u>Hill 1" x 4"</u>				Model shape: Wedge			
	U ₀ = 15 fps		U ₀ = 30 fps		U ₀ = 45 fps		U ₀ = 60 fps	
	P _f	P _r	P _f	P _r	P _f	P _r	P _f	P _r
	(mm Hg)		(mm Hg)		(mm Hg)		(mm Hg)	
0			0.150	0.0325	0.322	0.075	0.464	0.130
0.125	0.029	0.0085	0.150	0.0350	0.320	0.075	0.480	0.130
0.250	0.032	0.0082	0.1525	0.0350	0.320	0.075	0.500	0.130
0.375	0.0332	0.0085	0.160	0.0350	0.330	0.075	0.510	0.130
0.500	0.034	0.0085	0.1625	0.0325	0.340	0.075	0.530	0.130
0.625	0.0338	0.0085	0.1650	0.0325	0.342	0.075	0.550	0.130
0.750	0.325	0.0082	0.1575	0.0325	0.340	0.075	0.540	0.130
0.875	0.030	0.0080	0.150	0.0350	0.320	0.075	0.510	0.130
1.00	0	0	0	0	0	0	0	0
0	0.0265	0.009						

y/h	Pressure distribution over models				Small Wind Tunnel			
	<u>Hill 2" x 2"</u>				Model shape: Wedge			
	U ₀ = 15 fps		U ₀ = 30 fps		U ₀ = 45 fps		U ₀ = 60 fps	
	P _f	P _r	P _f	P _r	P _f	P _r	P _f	P _r
0.077	0.0430	0.0364	0.173	0.102	0.411	0.207	0.650	0.388
0.154	0.0430	0.0362	0.173	0.102	0.401	0.207	0.640	0.391
0.231	0.0420	0.0362	0.173	0.102	0.403	0.207	0.632	0.399
0.308	0.0426	0.0362	0.174	0.102	0.412	0.207	0.637	0.402
0.385	0.044	0.0358	0.178	0.102	0.423	0.207	0.650	0.400
0.461	0.0445	0.0356	0.181	0.102	0.434	0.207	0.660	0.400
0.538	0.045	0.0345	0.185	0.102	0.439	0.207	0.618	0.393
0.615	0.044	0.0338	0.184	0.102	0.432	0.207	0.587	0.391
0.692	0.0405	0.0335	0.179	0.102	0.426	0.207	0.573	0.386
0.770	0.035	0.0327	0.170	0.102	0.400	0.207	0.558	0.382
0.846	0.028	0.0323	0.140	0.098	0.351	0.203	0.502	0.380
0.924	0.0182	0.0229	0.101	0.068	0.282	0.187	0.404	0.318

y/h	Pressure distribution over models				Small Wind Tunnel	
	<u>Hill 2" x 4"</u>				Model shape: Wedge	
	U ₀ = 15 fps		U ₀ = 30 fps		U ₀ = 45 fps	
	P _f	P _r	P _f	P _r	P _f	P _r
0.077	0.04	0.0135	0.155	0.059	0.366	0.118
0.154	0.038	0.0140	0.155	0.062	0.370	0.118
0.231	0.037	0.0145	0.155	0.063	0.374	0.118
0.308	0.039	0.0145	0.159	0.062	0.381	0.118
0.385	0.040	0.0145	0.169	0.062	0.390	0.118
0.461	0.041	0.0140	0.175	0.061	0.403	0.118
0.538	0.042	0.0145	0.180	0.064	0.408	0.118
0.615	0.040	0.0140	0.175	0.065	0.409	0.118
0.692	0.038	0.0150	0.169	0.063	0.407	0.118
0.770	0.037	0.0145	0.160	0.062	0.400	0.118
0.846	0.034	0.0140	0.150	0.060	0.370	0.118
0.924	0.024	0.0135	0.135	0.053	0.270	0.116

Table 12
SUMMARY OF CALCULATED DATA

Hill 2" x 4 "			Model shape: Wedge		Small Wind Tunnel			
$\Delta h_a = .0780$ mm Hg			$U_0 = 15$ fps	$C_D = 0.924$	$P_{atm} = 24.60$ in Hg.			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)	Φ (inch)	σ (inch)
-36			.650	.498	1.30	.500		
4.5	85 $^{\circ}$ F	1.84×10^{-3}	3.18	.828	3.84	.094		
8.5			3.52	.878	4.01	.082		
12.5			3.90	.899	4.34	.064		
16.5			4.12	.805	5.12	1.920		
20.5			3.97	1.055	3.76	.095		
24.5			3.92	1.040	3.78	.123		
28.5			3.71	1.10	3.37	.125		
48.5			2.62	1.53	1.72	.416		
88.5			1.99	1.489	1.34	.560		
128.5			1.875	1.508	1.24	.604		
168.5			1.92	1.544	1.24	.607		

$\Delta h_a = .309$			$U_0 = 30$ fps	$C_D = 0.970$	$P_{atm} = 24.60$ in Hg			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)	Φ (inch)	σ (inch)
4.5			2.96	0.645	4.59	.099	10.7×10^{-2}	3.90
8.5	80 $^{\circ}$ F	1.86×10^{-3}	3.13	0.745	4.20	.13	14.4×10^{-2}	4.60
12.5			3.98	0.665	5.98			
16.5			3.825	0.680	5.62	.045	16.9×10^{-2}	5.10
20.5			3.84	0.798	4.81	.080	20.5×10^{-2}	5.70
24.5			3.58	.935	3.83	.16	22.1×10^{-2}	5.95
28.5			3.27	1.210	2.71	.38	22.4×10^{-2}	5.85
48.5	82 $^{\circ}$ F	1.85×10^{-3}	2.18	1.360	1.60	.83	24.8×10^{-2}	6.05
88.5			1.76	1.374	1.28	1.05	28.8×10^{-2}	6.80
128.5		1.85×10^{-3}	1.67	1.390	1.21	1.15	21.8×10^{-2}	8.60
168.5			1.63	1.392	1.17	1.13	26.0×10^{-2}	9.40
-36			.648	.496	1.31	1.18	24.2×10^{-2}	

$\Delta h_a = 1.24$ mm Hg			$U_0 = 60$ fps	$C_D = 0.916$	$P_{atm} = 24.60$ in Hg			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)	Φ (inch)	σ (inch)
-36			.701	.526	1.333	2.10		
4.5	86 $^{\circ}$ F	1.84×10^{-3}	8.96	.366	3.28	.0066	7.4×10^{-2}	4.68
8.5			3.56	.564	6.31	.049	12.3×10^{-2}	5.50
12.5			3.80	.664	5.72	.083	15.4×10^{-2}	6.12
16.5	82 $^{\circ}$ F	1.85×10^{-3}	3.88	.712	5.45	.093	16.5×10^{-2}	6.40
20.5			3.64	.854	4.27	.21	17.6×10^{-2}	6.62
24.5			3.70	1.01	3.66	.34	18.1×10^{-2}	7.00
28.5	83 $^{\circ}$ F		3.58	1.115	3.21	.47	18.6×10^{-2}	7.18
48.5			2.622	1.531	1.713	1.41	19.9×10^{-2}	8.25
88.5	82 $^{\circ}$ F		2.138	1.581	1.352	1.88	18.8×10^{-2}	11.30
128.5			1.997	1.586	1.257	2.01	17.1×10^{-2}	13.37
168.5	85 $^{\circ}$ F	1.84×10^{-3}	2.129	1.704	1.247	2.01	15.1×10^{-2}	14.50

Table 12 (cont.)
SUMMARY OF CALCULATED DATA

Hill 2" x 4"			Model shape: Wedge		Big Wind Tunnel (neutral case)			
$\Delta h_a = .0780$ mm Hg			$U_0 = 15$ fps	$C_D = 0.863$	$P_{atm} = 24.68$ in Hg.			
X (inch)	T ($^{\circ}$ C)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	④ (inch)	σ (inch)
-36	31 $^{\circ}$ C	1.83×10^{-3}	2.068	1.548	1.336	.547		
4.5	30.5 $^{\circ}$	"	3.681	.830	4.435	.055		
8.5	"	"	3.577	.996	3.591	.104		
12.5	30.5 $^{\circ}$	"	3.738	1.162	3.271	.138		
16.5	"	"	4.057	1.280	3.170	.170		
20.5	"	"	4.090	1.529	2.675	.202		
28.5	30.2 $^{\circ}$	"	4.119	1.755	2.347	.256		
36.5	30.0 $^{\circ}$	"	3.868	1.869	2.070	.314		
52.5	"	"	3.397	2.121	1.602	.435		
76.5	"	"	3.080	2.143	1.437	.490		
112.5	"	"	3.090	2.227	1.388	.506		

$\Delta h_a = .319$ mm Hg			$U_0 = 30$ fps	$C_D = 0.770$	$P_{atm} = 24.90$ in Hg.			
X (inch)	T ($^{\circ}$ C)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	④ (inch)	σ (inch)
-36	25 $^{\circ}$	1.85×10^{-3}	1.839	1.414	1.301	1.07		
4.5	"	"	3.582	.702	5.103	.061	6.2×10^{-2}	4.00
8.5	"	"	4.154	.994	4.180	.121	8.3×10^{-2}	4.60
12.5	"	"	3.181	1.271	2.503	.402	10.1×10^{-2}	4.90
16.5	"	"	3.220	1.329	2.423	.460	11.7×10^{-2}	5.40
20.5	"	"	3.319	1.504	2.207	.530	8.98×10^{-2}	5.40
28.5	"	"	3.273	1.655	1.978	.630	11.9×10^{-2}	5.80
36.5	"	"	3.311	1.754	1.888	.735	11.5×10^{-2}	6.10
52.5	"	"	2.913	1.949	1.495	.866	10.1×10^{-2}	7.20
76.5	"	"	2.723	1.998	1.363	.957	9.0×10^{-2}	10.0
112.5	"	"	2.644	2.022	1.308	.992	8.1×10^{-2}	12.3
160.5	"	"	2.738	2.127	1.287	1.005	6.5×10^{-2}	13.8

$\Delta h_a = 1.24$ mm Hg			$U_0 = 60$ fps	$C_D = 0.675$	$P_{atm} = 24.66$ in Hg			
X (inch)	T ($^{\circ}$ C)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	④ (inch)	σ (inch)
-36	27 $^{\circ}$	1.85×10^{-3}	1.850	1.451	1.275	1.925		
4.5	29 $^{\circ}$	1.84×10^{-3}	3.600	.874	4.119	.235		
8.5	29.2 $^{\circ}$	"	3.799	.924	4.110	.238		
12.5	"	"	4.116	1.065	3.865	.277		
16.5	29.5 $^{\circ}$	"	4.333	1.265	3.425	.387		
20.5	"	"	4.489	1.401	3.204	.450		
28.5	29.6	"	4.443	1.668	2.664	.662		
36.5	"	"	4.358	1.887	2.309	.844		
52.5	"	"	3.648	2.302	1.585	1.437		
76.5	30.5 $^{\circ}$	1.83×10^{-3}	3.224	2.279	1.415	1.630		
112.5	"	"	3.043	2.276	1.337	1.731		
160.5	30.7 $^{\circ}$	"	3.040	2.306	1.318	1.755		
208.5	"	"	2.936	2.281	1.287	1.810		

Big Wind Tunnel (Thermal Boundary Layer)								
$\Delta h_a = .31$ mm Hg			$U_0 = 30$ fps	$C_D = 0.770$	$P_{atm} = 24.60$ in Hg.			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	$T_{plate} = 300^{\circ}$ F $T_{air} = 72^{\circ}$ F		H (-)	U * (fps)	④ (inch)	σ (inch)
			δ * (inch)	θ (inch)				
-36	72 $^{\circ}$	1.89×10^{-3}	2.234	1.647	1.356	.976		
4.5	"	"	3.011	1.407	2.140	.562		
8.5	"	"	4.342	.438	9.906			
12.5	"	"	4.529	.858	5.279			
16.5	"	"	4.902	.954	5.139			
20.5	"	"	4.562	1.512	3.018			
28.5	"	"	4.304	2.057	2.093			
36.5	"	"	4.035	2.172	1.858	.649		
52.5	"	"	3.693	2.329	1.585	.793		
76.5	"	"	3.518	2.237	1.573	.788		
112.5	"	"	3.735	2.501	1.494	.830		
160.5	"	"	3.525	2.487	1.418	.881		
208.5	"	"	3.365	2.459	1.369	.915		

$\Delta h_a = 1.24$			$U_0 = 60$ fps	$P_{atm} = 24.65$ in Hg.				
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	④ (inch)	σ (inch)
-36	72 $^{\circ}$	1.89×10^{-3}	1.810	1.405	1.288	1.902		
4.5	"	"	3.731	1.783	2.093	1.04		
8.5	"	"	3.917	.7671	5.106			
12.5	"	"	4.143	.9535	4.345			
16.5	"	"						
20.5	"	"						
28.5	"	"	4.167	1.815	2.296	.868		
36.5	"	"	3.936	2.048	1.922	1.120		
52.5	"	"	3.521	2.166	1.626	1.403		
76.5	"	"	3.173	2.137	1.485	1.607		
112.5	"	"	3.108	2.226	1.396	1.700		

Table 12 (cont.)

SUMMARY OF CALCULATED DATA

Hill 2" x 2"			Model shape: Wedge		Small Wind Tunnel			
X (inch)	$\Delta h_a = .078$ mm Hg		$U_0 = 15$ fps	$C_D = 0.997$	$P_{atm} = 24.45$ in Hg.		σ (inch)	
	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)		
-36	78 $^{\circ}$	1.86x10 $^{-3}$						
2	"	"						
6								
10								
14								
18								
22								
26								
46	78 $^{\circ}$	1.86x10 $^{-3}$	2.541	1.397	1.819	.397		
86	"	"	1.923	1.408	1.347	.572		
126	"	"	1.657	1.315	1.260	.620		
166	"	"	1.601	1.283	1.269	.615		

Hill 2" x 2"			Model shape: Wedge		Small Wind Tunnel			
X (inch)	$\Delta h_a = .31$		$U_0 = 30$ fps	$C_D = 0.975$	$P_{atm} = 24.45$ in Hg.		σ (inch)	
	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ *(inch)	θ (inch)	H (-)	U* (fps)		
-36	78 $^{\circ}$	1.86x10 $^{-3}$						
2	"	"					9.48x10 $^{-2}$	
6	80 $^{\circ}$	"						
10	"	"					17.2x10 $^{-2}$	
14								
18	80 $^{\circ}$	1.86x10 $^{-3}$					24.7x10 $^{-2}$	
22	"	"						
26							24.3x10 $^{-2}$	
46	81 $^{\circ}$	1.85x10 $^{-3}$	2.306	1.369	1.684	.80	29.0x10 $^{-2}$	
86			1.721	1.329	1.295	1.07	22.4x10 $^{-2}$	
126			1.558	1.248	1.248	1.13	17.7x10 $^{-2}$	
166	"	"	1.511	1.243	1.216	1.21	15.5x10 $^{-2}$	

Hill 2" x 2"			Model shape: Wedge		Small Wind Tunnel			
X (inch)	$\Delta h_a =$		$U_0 = 60$ fps	$C_D = 0.903$	$P_{atm} = 24.45$ in Hg.		σ (inch)	
	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)		
-36								
2	78 $^{\circ}$	1.86x10 $^{-3}$					7.28x10 $^{-2}$	
6								
10							18.1x10 $^{-2}$	
14	80 $^{\circ}$	1.86x10 $^{-3}$						
18							23.1x10 $^{-2}$	
22	82 $^{\circ}$	1.85x10 $^{-3}$						
26							23.4x10 $^{-2}$	
46	83 $^{\circ}$	1.85x10 $^{-3}$	2.676	1.545	1.73	1.410	27.7x10 $^{-2}$	
86			2.261	1.604	1.41	1.790	24.0x10 $^{-2}$	
126	83.5	1.85x10 $^{-3}$	2.173	1.661	1.31	1.925	22.7x10 $^{-2}$	
166			1.951	1.563	1.25	2.020	20.4x10 $^{-2}$	

Hill 1" x 4"			Model shape: Wedge		Small Wind Tunnel			
X (inch)	$\Delta h_a = .31$ mmHg		$U_0 = 30$ fps	$C_D = 0.937$	$P_{atm} = 24.70$ in Hg.		σ (inch)	
	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)		
-36	82 $^{\circ}$	1.85x10 $^{-3}$						
4	76 $^{\circ}$	1.88x10 $^{-3}$						
8	79 $^{\circ}$	1.87x10 $^{-3}$						
12	80 $^{\circ}$	1.86x10 $^{-3}$						
16	81 $^{\circ}$	"	1.789	.988	1.780	.759		
24	82 $^{\circ}$	1.85x10 $^{-3}$	1.597	1.022	1.560	.888		
32	82 $^{\circ}$	"	1.409	1.011	1.390	1.020		
48			1.307	1.007	1.298	1.096		
72	"	"	1.315	1.026	1.282	1.110		
108			1.222	0.981	1.246	1.155		
156	82 $^{\circ}$	"	1.235	.988	1.250	1.140		

Hill 1" x 4"			Model shape: Wedge		Small Wind Tunnel			
X (inch)	$\Delta h_a = 1.25$ mm Hg		$U_0 = 60$ fps	$C_D = 0.848$	$P_{atm} = 24.70$ in Hg.		σ (inch)	
	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U* (fps)		
-36	83 $^{\circ}$	1.85x10 $^{-3}$						
4	86 $^{\circ}$	1.84x10 $^{-3}$						
8	86 $^{\circ}$	"						
12	"	"						
16	"	"	1.956	1.118	1.750	1.411		
24	"	"	1.736	1.125	1.543	1.654		
32	"	"	1.559	1.130	1.380	1.87		
48								

Table 12 (cont.)

SUMMARY OF CALCULATED DATA

Hill 2" x 8"			Model shape: Wedge		Small Wind Tunnel			
$\Delta h_a = 0.330$ mm Hg			$U_0 = 30$ fps		$P_{atm} = 24.50$ in Hg.			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ^* (inch)	θ (inch)	H (-)	U* (fps)	\textcircled{H} (inch)	σ (inch)
-18			1.21	.997	1.210			
-4			2.408	1.498	1.610			
0			.465	.506	.919			5.20
8								5.50
12								5.90
16								6.00
20			2.734	0.300	9.110			6.25
24			3.029	0.730	4.150			6.50
28			2.972	0.945	3.140			6.90
32			2.836	1.323	2.140	.559		7.80
52			2.605	1.736	1.500	.557		10.30
72			2.632	1.947	1.350	.976		12.80
92			2.387	1.826	1.310	1.013		12.70
112			2.400	1.889	1.270	1.037		
152			2.349	1.898	1.240	1.060		
192			2.324	1.893	1.230			

Hill 2" x 8"			Model shape: Wedge		Small Wind Tunnel			
$\Delta h_a = 1.240$ mm Hg			$U_0 = 60$ fps		$P_{atm} = 24.50$ in Hg.			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ^* (inch)	θ (inch)	H (-)	U* (fps)	\textcircled{H} (inch)	σ (inch)
-18			2.277	1.833	1.242			
-4			2.453	1.534	1.600			
0			2.549	0.467	5.47			
8								
12								
16								
20								
24			3.592	1.104	3.250			
28			3.682	1.428	2.580			
32			3.475	1.689	2.060			
52			3.171	2.097	1.510			
72			3.001	2.289	1.310			
92			2.922	2.297	1.275			
112			2.818	2.273	1.240			

Hill 2" x 10"			Model shape: Sinusoidal		Small Wind Tunnel			
$\Delta h_a = .31$ mm Hg			$U_0 = 30.5$ (fps)		$P_{atm} = 24.60$			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ^* (inch)	θ (inch)	H (-)	U* (fps)	\textcircled{H} (inch)	σ (inch)
-36	80 $^{\circ}$	1.86x10 $^{-3}$						
0	77 $^{\circ}$	"						
5	78 $^{\circ}$	"						
9	"	"						
13	"	"	1.251	.829	1.509	.966		
17	"	"	.990	.721	1.373	1.04		
21	79 $^{\circ}$	1.87x10 $^{-3}$.958	.707	1.355	1.09		
29	80 $^{\circ}$	"	.884	.669	1.321	1.13		
37	"	"	.786	.621	1.265	1.20		
53	"	"	.737	.591	1.277	1.225		
77	"	"	.734	.600	1.223	1.245		
113	"	"	.702	.573	1.217	1.265		
161	"	"	.761	.613	1.243	1.28		

Table 12 (cont.)

SUMMARY OF CALCULATED DATA

Hill 2" x 10"			Model shape: Sinusoidal		Big Wind Tunnel (neutral case)			
$\Delta h_a = .31 \text{ mm Hg}$			$U_0 = 30 \text{ fps}$	$C_D = 0.0742$	$P_{\text{atm}} = 24.72 \text{ in Hg.}$			
X (inch)	T ($^{\circ}\text{C}$)	ρ (slugs/ ft^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-41	26.5 $^{\circ}$	1.87x10 $^{-3}$	1.837	1.422	1.292	1.04		
5			2.654	1.225	2.167	.543	4.7x10 $^{-2}$	1.90
9			2.611	1.621	1.611	.803	5.1x10 $^{-2}$	1.90
13	26.5 $^{\circ}$	1.87x10 $^{-3}$	2.41	1.667	1.446	.908	4.9x10 $^{-2}$	2.50
17	"	"	2.375	1.698	1.399	.940	4.7x10 $^{-2}$	3.00
21			2.245	1.643	1.366	.963	4.4x10 $^{-2}$	3.30
29			2.225	1.634	1.362	.961	4.3x10 $^{-2}$	4.75
37			2.231	1.665	1.340	.977	4.3x10 $^{-2}$	5.40
53	26.5 $^{\circ}$	1.87x10 $^{-3}$	2.150	1.636	1.314	1.01	4.0x10 $^{-2}$	7.10
77	"	"	2.215	1.699	1.304	1.005	3.5x10 $^{-2}$	8.20
113			2.280	1.734	1.315	.992	2.2x10 $^{-2}$	9.00
161	26.5 $^{\circ}$	1.87x10 $^{-3}$	2.424	1.841	1.317	.990	3.2x10 $^{-2}$	9.60
209	"	"	2.485	1.881	1.321	.980	3.8x10 $^{-2}$	10.80
257			2.478	1.892	1.310	.985	3.4x10 $^{-2}$	
305			2.814	2.141	1.311	.981	3.8x10 $^{-2}$	
353	26.5 $^{\circ}$	1.87x10 $^{-3}$	2.543	1.973	1.290	.994	3.9x10 $^{-2}$	

Hill 4" x 20"			Model shape: Sinusoidal		Big Wind Tunnel (neutral case)			
$\Delta h_a = 1.25 \text{ mm Hg}$			$U_0 = 60 \text{ fps}$	$C_D = 0.0702$	$P_{\text{atm}} = 24.64$			
X (inch)	T ($^{\circ}\text{C}$)	ρ (slugs/ ft^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-41	34.5 $^{\circ}$	1.83x10 $^{-3}$						
5	"	"						
9	"	"						
13								
17								
21	32.0 $^{\circ}$	1.84x10 $^{-3}$	2.076	1.581	1.312	1.873		
29	32.2 $^{\circ}$	"	1.984	1.542	1.287	1.888		
37	32.5 $^{\circ}$	"	2.057	1.601	1.285	1.890		
53	32.6 $^{\circ}$	"	1.990	1.564	1.272	1.910		
77	32.9 $^{\circ}$	"	1.991	1.572	1.267	1.920		
113	33.0 $^{\circ}$	"	2.120	1.688	1.257	1.910		
116	33.2 $^{\circ}$	"	2.218	1.746	1.270	1.884		
209	33.5 $^{\circ}$	1.83x10 $^{-3}$	2.275	1.805	1.260	1.89		
257	33.6 $^{\circ}$	"	2.262	1.789	1.264	1.84		
305								
353	33.8 $^{\circ}$	"						

Hill 4" x 20"			Model shape: Sinusoidal		Big Wind Tunnel (neutral case)			
$\Delta h_a = .0775 \text{ mm Hg}$			$U_0 = 15 \text{ fps}$	$C_D = 0.0662$	$P_{\text{atm}} = 24.80$			
X (inch)	T ($^{\circ}\text{C}$)	ρ (slugs/ ft^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-20	31.8 $^{\circ}$	1.85x10 $^{-3}$	1.777	1.360	1.310	.573		
10	"	"	3.232	1.516	2.130	.304		
14			3.221	1.644	1.960	.339		
18			3.055	1.805	1.692	.410		
22			2.748	1.831	1.500	0.450		
26			2.876	1.877	1.530	0.478		
34	31.8 $^{\circ}$	1.85x10 $^{-3}$	2.636	1.878	1.402	0.513		
42			2.400	1.781	1.347	0.528		
58			2.378	1.766	1.342	0.537		
82	31.8 $^{\circ}$	1.85x10 $^{-3}$	2.313	1.751	1.321	0.543		
118			2.422	1.833	1.321	0.544		
166			2.541	1.903	1.335	0.540		

Hill 4" x 20"			Model shape: Sinusoidal		Big Wind Tunnel (neutral case)			
$\Delta h_a = 0.31 \text{ mm Hg}$			$U_0 = 30 \text{ fps}$	$C_D = 0.0645$	$P_{\text{atm}} = 24.66$			
X (inch)	T ($^{\circ}\text{C}$)	ρ (slugs/ ft^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-20	32.5 $^{\circ}$	1.84x10 $^{-3}$	1.451	1.132	1.282	1.08		
10			3.135	1.585	1.978	0.634	5.0x10 $^{-2}$	3.30
14			2.951	1.662	1.776	0.725	5.7x10 $^{-2}$	3.35
18			2.813	1.830	1.537	0.848	6.3x10 $^{-2}$	3.65
22	32.5 $^{\circ}$	1.84x10 $^{-3}$	2.704	1.870	1.446	0.913	6.3x10 $^{-2}$	4.32
26			2.510	1.786	1.405	0.935	5.9x10 $^{-2}$	4.80
34			2.334	1.745	1.338	0.987	5.9x10 $^{-2}$	5.90
42			2.177	1.657	1.314	1.020	5.5x10 $^{-2}$	6.30
58			2.156	1.661	1.298	1.030	5.1x10 $^{-2}$	7.50
82			2.117	1.667	1.270	1.042	4.7x10 $^{-2}$	9.20
118	32.5 $^{\circ}$	1.84x10 $^{-3}$	2.215	1.747	1.268	1.042	4.3x10 $^{-2}$	10.20
166			2.271	1.785	1.272	1.025	4.1x10 $^{-2}$	10.60

Table 12 (cont.)
SUMMARY OF CALCULATED DATA

Hill 4" x 20"			Model shape: Sinusoidal		Big Wind Tunnel (neutral case)			
$\Delta h_a = 1.24$ mm Hg			$U_0 = 60$ fps	$C_D = 0.0598$	$P_{atm} = 24.85$ in Hg.			
X (inch)	T ($^{\circ}$ C)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-20	29.6 $^{\circ}$	1.86x10 $^{-3}$	1.898	1.474	1.288	1.890		
10	31 $^{\circ}$	"	3.214	1.515	2.121	1.026		
14	31.4 $^{\circ}$	"	3.066	1.663	1.844	1.250		
18	31.6 $^{\circ}$	1.85x10 $^{-3}$	2.982	1.925	1.549	1.530		
22	32.2 $^{\circ}$	"	2.847	1.938	1.469	1.610		
26	32.5 $^{\circ}$	"	2.678	1.921	1.394	1.70		
34	33 $^{\circ}$	"	2.520	1.855	1.358	1.76		
42	33.2 $^{\circ}$	"	2.412	1.807	1.336	1.785		
58	33.5 $^{\circ}$	1.84x10 $^{-3}$	2.341	1.782	1.314	1.820		
82	33.8 $^{\circ}$	"	2.330	1.798	1.296	1.830		
118	34 $^{\circ}$	"	2.349	1.797	1.307	1.830		
166	34.3 $^{\circ}$	"	2.513	1.947	1.291	1.830		

Hill 4" x 20"			Model shape: Sinusoidal		Big Wind Tunnel (Thermal boundary layer)			
T plate average = 300 $^{\circ}$ F			$U_0 = 30$ fps		$P_{atm} = 24.73$ in Hg.			
$\Delta h_a = .31$ mm Hg.			δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-20	50 $^{\circ}$	1.99x10 $^{-3}$	2.335	1.738	1.343	0.961		
10	"	"	3.987	1.258	3.168	0.250		
14	"	"	3.512	1.853	1.895	0.649		
18	"	"	3.399	2.075	1.638	0.806		
22	"	"	3.189	2.162	1.475	0.843		
26	50 $^{\circ}$	1.99x10 $^{-3}$	3.018	2.086	1.447	0.889		
34	"	"	2.836	2.033	1.395	0.921		
42	"	"	2.858	2.070	1.380	0.930		
58	"	"	2.728	2.006	1.360	0.950		
82	"	"	2.756	2.055	1.341	0.963		
118	50 $^{\circ}$	1.99x10 $^{-3}$	3.004	2.190	1.372	0.935		
166	"	"	2.914	2.163	1.347	0.950		

$\Delta h_a = 1.24$			$U_0 = 60$ fps		$P_{atm} = 24.73$ in Hg.			
X (inch)	T ($^{\circ}$ F)	ρ (slugs/ f^3)	δ * (inch)	θ (inch)	H (-)	U * (fps)	Φ (inch)	σ (inch)
-20	50 $^{\circ}$	1.99x10 $^{-3}$	1.666	1.315	1.265	1.936		
10	"	"	3.389	1.507	2.251	0.915		
14	"	"	3.279	1.609	2.039	1.062		
18	"	"	2.988	1.875	1.592	1.450		
22	50 $^{\circ}$	1.99x10 $^{-3}$	2.803	1.901	1.473	1.582		
26	"	"	2.571	1.815	1.416	1.670		
34	50 $^{\circ}$	1.99x10 $^{-3}$	2.332	1.717	1.358	1.775		
42	"	"	2.219	1.656	1.339	1.788		
58	50 $^{\circ}$	1.99x10 $^{-3}$	2.168	1.651	1.312	1.822		
82	"	"	2.107	1.630	1.292	1.854		
118	"	"	2.355	1.788	1.318	1.820		
166	"	"	2.451	1.883	1.301	1.828		
214	"	"	2.458	1.897	1.292	1.820		
262	"	"	2.564	1.957	1.311	1.777		
310	"	"	2.632	1.979	1.33	1.750		