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EFFECTS OF ROUNDING CORNERS AND LEADING EDGES ON THE WINDWARD-SURFACE PRESSURES OF A DELTA WING SWEPT 65° AT A MACH NUMBER OF 5.96 AT ANGLES OF ATTACK FROM 65° TO 115° AND ANGLES OF ROLL FROM 0° TO 25° AT 90° ANGLE OF ATTACK

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EFFECTS OF ROUNDING CORNERS AND LEADING EDGES ON THE WINDWARD-SURFACE PRESSURES OF A DELTA WING SWEPT 65° AT A MACH NUMBER OF 5.96 AT ANGLES OF ATTACK FROM 65° TO 115° AND ANGLES OF ROLL FROM 0° TO 25° AT 90° ANGLE OF ATTACK

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SUMMARY

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Detailed pressures on the windward surface of two flat-plate delta wings swept 65° and with rounded corners (one having square leading edges and the other having rounded leading edges) were obtained at a Mach number of 5.96 through an angle-of-attack range from 65° to 115° and at angles of roll from 0° to 25° at an angle of attack of 90°. These results were compared with those previously reported for a similar wing having sharp corners and square edges. At all attitudes tested, any effect on the pressure distributions caused by rounding the corners only or by rounding the corners and leading edges was confined to about the last 10 percent of the radial rays emanating from the centroid of the model. The normal-force coefficient was essentially unaffected by rounding the corners only but was decreased by approximately 4 percent by rounding the corners and leading edges.

INTRODUCTION

Some recent studies concerning the problems of reentry (such as refs. 1 and 2) have shown the desirability of winged configurations capable of generating high lift or high drag or both. The ability of winged configurations to vary their lift and drag provides maneuverability during atmospheric reentry. (See refs. 3 and 4.) Considerations of high lift capability combined with moderate leading-edge heating make the highly swept delta wing attractive for hypersonic glide and reentry flights. The heating rates to delta wings at hypersonic speeds both to the critical leading edge and the windward surface of the wing will be influential in determining vehicle design.

The interest in the delta planform as a primary shape for consideration in the design of reentry vehicles has given rise to the determination of aerodynamic forces and moments and pressure distributions over an angle-of-attack range from 0° to 90°. Some recent experimental results are reported in references 3 to 10. Although the method of reference 11 suitably predicts the center-line pressure on the windward surface of delta wings at angles of attack from 0° to 90° and the empirical method of reference 12 has been shown to be valid in predicting the windward-surface pressure distribution at an angle of attack of 90° for various planforms with sharp edges, there is at present no method to predict adequately the entire pressure distribution on the windward surface of delta wings at all angles of attack.

The purpose of this investigation is to present detailed pressures on the windward surfaces of two 65° swept, flat-plate delta wings with rounded corners (one with square leading edges and the other with rounded leading edges) at a Mach number of 5.96, at angles of attack of 65° to 115°, and at angles of roll from 0° to 25° at an angle of attack of 90° and to compare them with the results obtained for a similar wing having sharp corners and square leading edges reported in reference 8. The present investigation was carried out in the Langley 20-inch Mach 6 tunnel at a Reynolds number of 6.94×10^{6} per foot.

SYMBOLS

C_N	normal-force coefficient, $\frac{F_N}{q_\infty S}$
$C_{N,90^\circ}$	normal-force coefficient in roll at $\alpha = 90^{\circ}$
$C_{p,l}$	local pressure coefficient, $\frac{p_l - p_\infty}{q_\infty}$
$C_{p,max}$	maximum pressure coefficient, $\frac{p_{t,2} - p_\infty}{q_\infty}$
F_N	normal force
p_∞	free-stream static pressure
p_l	local measured pressure on model
$p_{t,2}$	stagnation pressure behind normal shock
q_∞	free-stream dynamic pressure

r	length of ray from model centroid
S	planform area
s	distance along ray or chord
x,y	body-axis system of coordinates (see table I)
α	angle of attack
ϕ	angle of roll at $\alpha = 90^{\circ}$

APPARATUS AND METHODS

Wind Tunnel

This investigation was conducted in the Langley 20-inch Mach 6 tunnel. This tunnel, which has been described in reference 13, is a blowdown-to-atmosphere type capable of operation at a maximum stagnation pressure of 580 pounds per square inch absolute and a maximum stagnation temperature of 600° F. The air is dried by an activated alumina dryer designed to provide a dewpoint temperature of -40° F at a pressure of 600 pounds per square inch absolute. The test Mach number is achieved with fixed two-dimensional nozzle blocks forming a test section 20.5 inches high and 20 inches wide.

The models were supported in the tunnel by a gooseneck support system which pitched the model in the horizontal plane. (See figs. 1 and 2. The specific model shown in fig. 2 was not used in these tests but is the one which was reported in ref. 8.) This support system provided a movement of ±25°.

Models

The models used in this investigation were 1/8-inch-thick, flat-plate delta wings swept 65° and had a root chord of 3.750 inches. Both models had rounded corners of 0.280-inch radius. One model (designated model 2) had square edges, whereas the other model (designated model 3) had semicylindrical leading edges of 0.0625-inch radius. The sharp-cornered square-edged model of reference 8 is designated model 1 in this paper. All model dimensions and orifice locations, as well as rays along which pressure distributions were obtained, are given in table I. A photograph of the models is shown in figure 3. The model orifices, with inside diameters of 0.013 inch, were connected just behind the model to tubing with an inside diameter of 0.070 inch.

Tests

The models were mounted normal to the center line of the sting which resulted in an angle-of-attack range from 65° to 115°. A 90° rotation of the model on the

sting permitted tests at angles of roll from 0° to 25° at an angle of attack of 90°. The angles of attack and roll, which were taken in 5° increments, were measured by a mechanically operated counter geared to the vertical shaft of the support system.

Pressure data were recorded by photographing a multiple-tube mercury manometer. Tunnel stagnation pressure was measured with a Bourdon gage calibrated from 0 to 600 pounds per square inch and was photographically recorded simultaneously with all model pressures.

All tests reported herein were conducted at a stagnation pressure of 365 pounds per square inch absolute and a temperature of 400° F which yields a Reynolds number of 6.94×10^{6} per foot.

Data Reduction and Accuracy

In order that pressure distributions over the windward surface of the model be obtained, pressures along all rays shown in table I were cross faired so that the value at each intersection point was the same for all curves through that point. Because the models are symmetrical about the longitudinal axis, the pressures at the same locations on each side of the root chord were averaged and the results are presented for only half of the model at all angles of attack.

The estimated maximum error of the measured local pressures on the model is 1/2 percent of the maximum measured value. The tunnel stagnation pressure is believed to be accurate to 1/4 percent of full scale. Model alinement and angles of attack and roll are believed to be accurate to better than $\pm 1/2^{\circ}$. The Mach number for these tests was 5.96 ± 0.02.

RESULTS AND DISCUSSION

Basic Presentation

Typical schlieren photographs of the models tested at angle of attack and angle of roll at $\alpha = 90^{\circ}$ are presented in figure 4 to indicate the shape of the shock of each model at these attitudes. Schlieren photographs of the square-edged sharp-cornered model of reference 8 are also included for comparative purposes. The pressures, in terms of the ratio of the local pressure to free-stream static pressure, at each orifice and intersection point for all rays are tabulated in table II. Although the pressure distributions for these models are not plotted in the present paper, the trends for all rays are very similar to those of the model having sharp corners and square edges (ref. 8), except for differences in magnitude near the leading edges.

Radial Pressure Distributions From Centroid

A comparison of the windward-surface pressure distributions on all three models at several angles of attack and roll is shown in figure 5. The comparison is made on the basis of the ratio of local to maximum pressure coefficients $\frac{C_{p,l}}{C_{p,max}}$ as a function of s/r, the nondimensionalized distance along each ray emanating from the centroid. It can be seen that all effects which can be attributed to rounding the corners only or to rounding both the corners and the leading edges were confined to about the last 10 percent of the rays ($0.9 < s/r < 1.0$). Rounding the corners only (compare model 2 with model 1) increased the pressures in the region noted along ray 1 for $\alpha > 90^{\circ}$, along ray 4 for $\alpha < 90^{\circ}$ and for $\phi > 0^{\circ}$, but only for the downstream corner, and along rays 6 and 7 for $\alpha \geqq 65^{\circ}$. It is interesting to note that along the leading edge only ray 5 was not affected by rounding the corners.

Rounding both the corners and the leading edges (model 3) reduced the pressures in the region of about the last 10 percent along rays 1, 5, 6, and 7 at all angles of attack and roll with the largest effect being confined to about the last 5 percent of these rays. Inasmuch as the trailing edges of the three models are square, it is to be expected that the pressure distributions along rays 2 and 3 are essentially the same. In general, these results are in agreement with reference 9.

Normal-Force Coefficient

The effects on the normal-force coefficient of rounding the corners and leading edges are presented in figure 6. These normal-force coefficients were obtained by first integrating along each indicated chord line and then integrating in the spanwise direction. Rounding the corners only had essentially no effect on the normal-force coefficient at all attitudes (both angle of attack and roll), inasmuch as all values are within 2 percent of those obtained for the sharp-cornered model. Rounding the leading edges reduced the normal-force coefficient by about 4 percent of the values obtained for the round-cornered model at all attitudes. However, the magnitude of this reduction may be somewhat questionable because the values of C_N obtained from the force data of reference 5 resulted in a reduction of about $2\frac{1}{2}$ percent by the rounding of the corners and leading edges. On the other hand, the prediction of normal-force coefficient by the method of reference 11 is in good agreement with the results of these pressure tests for the model having rounded corners and leading edges.

Center-Line Pressures

A comparison of predicted and measured center-line pressure coefficients, normalized by the stagnation pressure coefficient behind a normal shock, is presented in figure 7. Throughout the angle-of-attack range of the investigation the values predicted by the method of reference 11 are in excellent agreement

with the data measured at the centroid of the models. The integrated average of the center-line pressures is approximately equal to the values obtained at the centroid only at angles of attack between 65° and 75° but are lower than the values obtained at the centroid or those predicted by the three methods shown at angles of attack above about 75°.

CONCLUSIONS

The results of an investigation to determine the effects of rounding corners and leading edges on the windward-surface pressures of a flat-plate delta wing swept 65° at a Mach number of 5.96, at angles of attack from 65° to 115°, and at angles of roll from 0° to 25° at an angle of attack of 90° indicate the following:

1. At all attitudes tested, any effect on the pressure distributions caused by rounding the corners only or rounding the corners and leading edges was confined to about the last 10 percent of the radial rays emanating from the centroid of the model.

2. The normal-force coefficient was essentially unaffected by rounding the corners only but was decreased by approximately 4 percent by rounding the corners and leading edges.

3. The pressure coefficients at the centroid of the models are the same for all models and can be predicted by an existing method with a high degree of accuracy for the angle-of-attack range of the investigation.

Langley Research Center,
National Aeronautics and Space Administration,
Langley Station, Hampton, Va., March 25, 1963.

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TABLE I.- MODEL DIMENSIONS AND ORIFICE LOCATIONS

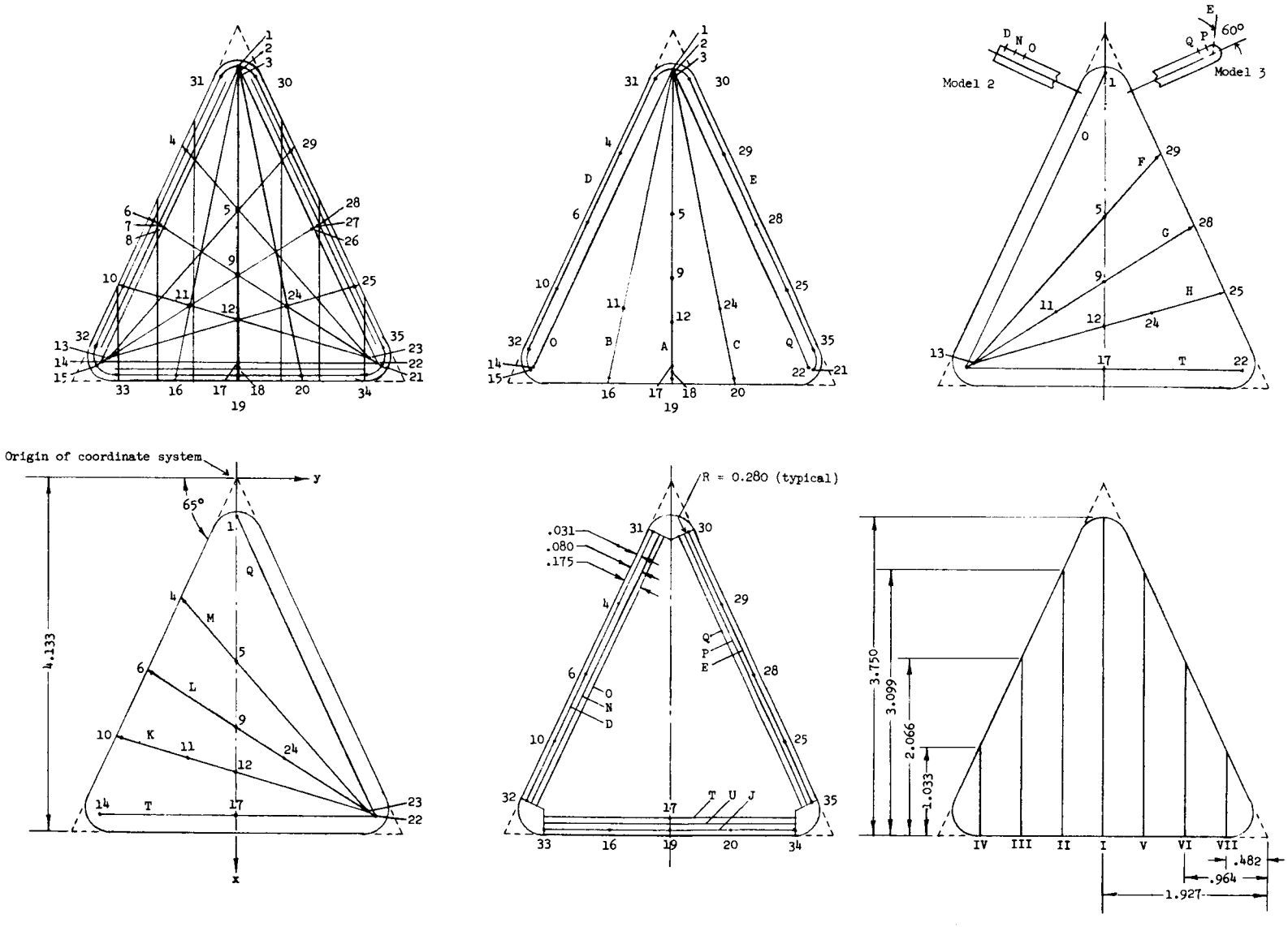


TABLE I.- MODEL DIMENSIONS AND ORIFICE LOCATIONS - Concluded

Ray	Orifice	Intersection point	x, in.	y, in.	s, in.
A	1		0	0.414	0
	2			.481	.067
	3			.548	.134
	5			2.096	1.680
	9			2.905	2.491
	12			3.461	3.047
	17			3.958	3.544
	18			4.030	3.616
		A-U		4.038	3.624
	19			4.102	3.688
B	1		0	.414	0
		B-M	-.286	1.770	1.386
		B-F-L	-.455	2.615	2.263
		B-II	-.482	2.701	2.337
	11		-.599	3.287	2.941
		B-H	-.680	3.659	3.315
		B-T	-.745	3.958	3.622
		B-U	-.763	4.038	3.704
	16		-.777	4.102	3.769
C	1		0	.414	0
		C-F	.286	1.770	1.386
		C-G-M	.455	2.615	2.263
		C-V	.482	2.701	2.337
	24		.599	3.287	2.941
		C-K	.680	3.659	3.315
		C-T	.745	3.958	3.622
		C-U	.763	4.038	3.704
	20		.777	4.102	3.769
D	1		0	.414	0
	31		-.226	.558	.283
		D-II	-.482	1.107	.888
	4		-.616	1.394	1.205
		D-III	-.963	2.140	2.028
	6		-1.018	2.257	2.157
	10		-1.391	3.056	3.038
		D-IV	-1.445	3.173	3.168
	32		-1.713	3.747	3.803
	15		-1.697	3.986	4.053
E	1		0	.419	0
	30		.226	.558	.283
		E-V	.482	1.107	.888
	29		.616	1.394	1.205
		E-VI	.964	2.140	2.028
	28		1.018	2.257	2.157
	25		1.391	3.056	3.038
		E-VII	1.445	3.173	3.168
	35		1.713	3.747	3.803
	21		1.697	3.986	4.053
G	15		-1.697	3.986	0
	14		-1.653	3.958	.053
	13		-1.608	3.930	.106
		G-IV	-1.445	3.826	.299
		G-III	-.964	3.519	.870
	11		-.599	3.287	1.303
		G-II	-.482	3.212	1.441
	9		0	2.905	2.013
		G-M-C	.455	2.615	2.553
		G-V	.482	2.598	2.584
	26		.872	2.350	3.046
		G-Q	.896	2.335	3.075
	27		.944	2.304	3.131
		G-VI	.963	2.292	3.155
		G-P	.976	2.283	3.170
	28		1.018	2.257	3.220

Ray	Orifice	Intersection point	x, in.	y, in.	s, in.
F	13		-1.608	3.930	0
		F-IV	-1.445	3.744	.247
		F-III	-.964	3.195	.978
		F-K	-.954	3.183	.993
		F-II	-.482	2.645	1.708
		F-L-B	-.455	2.615	1.748
	5		0	2.096	2.439
		F-C	.285	1.770	2.872
		F-V	.482	1.547	3.170
		F-Q	.512	1.512	3.216
		F-P	.580	1.434	3.319
	29		.616	1.394	3.373
H	13		-1.608	3.930	0
		H-IV	-1.445	3.882	.170
		H-III	-.964	3.742	.671
		H-B	-.680	3.659	.967
		H-II	-.482	3.601	1.173
	12		0	3.461	1.675
		H-V	.482	3.321	2.177
	24		.599	3.287	2.299
		H-M	.954	3.183	2.668
		H-VI	.964	3.180	2.679
		H-Q	1.251	3.097	2.978
		H-P	1.343	3.070	3.074
	25		1.391	3.056	3.123
J	15		-1.697	3.986	0
	33		-1.488	4.102	.250
		J-IV	-1.445		.292
		J-III	-.964		.774
	16		-.777		.961
		J-II	-.482		1.256
	19		0		1.738
		J-V	.482		2.219
	20		.777		2.514
		J-VI	.964		2.701
		J-VII	1.445		3.183
	34		1.488		3.225
	21		1.697	3.986	3.475
K	23		1.608	3.930	0
		K-VII	1.445	3.882	.170
		K-VI	.964	3.742	.671
		K-C	.680	3.659	.967
		K-V	.482	3.601	1.173
	12		0	3.461	1.675
		K-II	-.482	3.321	2.177
	11		-.599	3.287	2.299
		K-F	-.954	3.183	2.668
		K-III	-.964	3.180	2.679
		K-O	-1.251	3.097	2.978
		K-N	-1.343	3.070	3.074
	10		-1.391	3.056	3.123
L	21		1.697	3.986	0
	22		1.653	3.958	.053
	23		1.608	3.930	.106
		L-VII	1.445	3.826	.299
		L-VI	.964	3.519	.870
	24		.599	3.287	1.303
		L-V	.482	3.212	1.441
	9		0	2.905	2.013
		L-F-B	-.455	2.615	2.553
		L-II	-.482	2.598	2.584
	8		-.872	2.350	3.046
		L-O	-.896	2.335	3.075
	7		-.944	2.304	3.131
		L-III	-.964	2.292	3.155
		L-N	-.976	2.283	3.170
	6		-1.018	2.257	3.220

Ray	Orifice	Intersection point	x, in.	y, in.	s, in.
M	23		1.608	3.930	0
		M-VII	1.445	3.744	.247
		M-VI	.964	3.195	.978
		M-H	.954	3.183	.993
		M-V	.482	2.645	1.708
		M-G-C	.455	2.615	1.748
	5		0	2.096	2.439
		M-B	-.256	1.770	2.872
		M-II	-.482	1.547	3.170
		M-O	-.512	1.512	3.216
		M-N	-.580	1.434	3.319
	4		-.616	1.394	3.373
N		N-R	-.181	.578	0
		N-II	-.482	1.222	.711
		N-M	-.580	1.434	.944
		N-III	-.964	2.256	1.851
		N-L	-.976	2.283	1.891
		N-K	-1.343	3.070	2.759
		N-IV	-1.445	3.289	2.991
		N-R	-1.673	3.778	3.520
O	1		0	.414	0
		O-II	-.482	1.446	1.140
		O-M	-.512	1.512	1.212
		O-L	-.896	2.335	2.120
		O-III	-.964	2.386	2.280
		O-K	-1.251	3.097	2.960
		O-IV	-1.445	3.515	3.420
	14		-1.653	3.958	3.912
P		P-R	.181	.578	0
		P-V	.482	1.220	.711
		P-F	.580	1.434	.944
		P-VI	.964	2.256	1.851
		P-G	.976	2.283	1.891
		P-H	1.343	3.070	2.759
		P-VII	1.445	3.289	2.991
		P-R	1.673	3.778	3.520
Q	1		0	.414	0
		Q-V	.482	1.446	1.140
		Q-F	.512	1.512	1.212
		Q-G	.896	2.335	2.120
		Q-VI	.963	2.386	2.280
		Q-H	1.251	3.097	2.960
		Q-VII	1.445	3.513	3.420
	22		1.653	3.958	3.912
T	14		-1.653	3.958	0
		T-IV	-1.445		.208
		T-III	-.964		.690
		T-B	-.745		.908
		T-II	-.482		1.171
	17		0		1.653
		T-V	.482		2.135
		T-C	.745		2.398
		T-VI	.964		2.617
		T-VII	1.445		3.098
	22		1.653		3.306
U		U-R	-1.488	4.038	0
		U-IV	-1.445		.042
		U-III	-.964		.524
		U-B	-.763		.724
		U-II	-.482		1.006
		U-A	0		1.488
		U-V	.482		1.969
		U-C	.763		2.251
		U-VI	.964		2.451
		U-VII	1.445		2.933
		U-R	1.488		2.975

Spanwise station	Orifice	Intersection point	y, in.	s, in.
I	1		0	0.031
	2			.098
	3			.165
	5			1.713
	9			2.522
	12			3.078
	17			3.575
	18			3.647
		A-U		3.655
	19			3.719
II		II-D	-.482	.073
		II-N		.189
		II-O		.413
		II-M		.514
		II-L		1.565
		II-F		1.612
		II-B		1.668
		II-G		2.179
		II-K		2.288
		II-H		2.568
		II-T		2.925
		II-U		3.005
		II-J		3.069
III		III-D	-.964	.073
		III-N		.189
		III-L		.225
		III-O		.413
		III-K		1.113
		III-F		1.128
		III-G		1.452
		III-H		1.675
		III-T		1.891
		III-U		1.971
		III-J		2.035
IV		IV-D	-1.445	.073
		IV-N		.189
		IV-O		.413
		IV-F		.644
		IV-G		.726
		IV-H		.782
		IV-T		.858
		IV-U		.938
		IV-J		1.002
V		V-E	.482	.073
		V-P		.189
		V-Q		.413
		V-F		.514
		V-G		1.565
		V-M		1.612
		V-C		1.668
		V-L		2.179
		V-H		2.288
		V-K		2.568
		V-T		2.925
		V-U		3.005
		V-J		3.069
VI		VI-E	.964	.073
		VI-P		.189
		VI-G		.225
		VI-Q		.413
		VI-H		1.113
		VI-M		1.128
		VI-L		1.452
		VI-K		1.675
		VI-T		1.891
		VI-U		1.971
		VI-J		2.035
VII		VII-E	1.445	.073
		VII-P		.189
		VII-Q		.413
		VII-M		.644
		VII-L		.726
		VII-K		.782
		VII-T		.858
		VII-U		.938
		VII-J		1.002

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS

(a) Model 2: rounded corners, square edges

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
A	0	45.681	43.718	41.956	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	.067	45.982	45.707	45.310	42.424	40.492	38.137	36.109	34.248	32.106	29.977	27.364	39.050	39.024	39.391	39.097	39.555	38.597
	.134	45.530	45.956	46.219	43.902	42.292	39.911	38.048	36.066	33.780	31.514	28.593	40.798	40.946	41.182	40.915	41.255	40.282
	1.680	42.515	43.718	45.461	45.381	46.041	45.233	44.614	43.643	42.149	40.430	38.125	45.170	45.528	45.210	44.855	44.654	42.886
	2.491	41.158	42.375	44.401	44.494	45.441	45.824	45.956	45.461	44.583	43.505	41.507	45.461	45.676	45.360	44.855	44.654	42.579
	3.047	39.349	40.436	42.734	43.163	44.391	45.223	45.956	46.219	46.105	45.503	44.274	48.878	44.937	44.614	44.098	43.727	41.507
	3.544	34.977	35.661	37.581	38.127	39.892	41.242	42.972	44.249	45.344	46.118	46.272	40.798	40.946	40.585	40.158	39.710	37.525
	3.616	33.167	33.572	35.460	35.920	37.642	39.172	40.883	42.431	43.670	45.042	45.657	38.613	38.729	38.347	38.036	37.392	35.381
	3.624	33.167	33.424	35.460	35.920	37.642	38.581	40.585	42.203	43.061	44.734	45.503	38.176	37.042	37.302	36.975	36.774	34.615
	3.688	28.494	28.797	30.156	30.599	32.244	33.555	35.213	36.975	38.649	40.430	42.121	33.076	32.964	32.677	32.278	31.984	30.173
B	0	45.681	43.718	41.976	38.443	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	1.386	42.816	43.868	45.765	45.233	45.140	43.754	43.271	42.431	41.170	37.971	35.511	44.878	45.233	44.464	45.158	45.117	43.805
	2.263	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	45.824	45.807	45.916	45.735	44.877
	2.337	42.062	42.972	45.007	44.642	45.441	45.233	45.210	44.401	43.670	42.275	40.430	45.170	45.824	45.807	45.916	45.735	44.724
	2.941	39.952	41.033	43.037	43.311	45.541	45.381	45.658	45.613	45.192	44.427	42.890	44.878	45.696	45.956	46.068	46.044	44.111
	3.315	38.444	39.540	41.825	41.833	43.791	44.198	45.061	45.310	45.648	45.042	44.581	43.421	44.494	44.464	44.552	45.426	43.498
	3.622	34.977	36.109	37.885	38.433	40.192	41.390	42.823	44.401	44.583	45.503	45.196	40.507	41.390	41.480	41.521	42.336	41.048
	3.704	32.263	33.721	35.308	35.920	37.493	38.729	40.585	42.431	43.061	44.274	44.274	38.467	38.729	39.093	38.945	40.637	38.291
	3.769	29.398	29.693	31.217	31.781	33.443	34.738	36.407	38.188	39.562	41.660	43.198	34.387	35.329	35.512	35.763	35.692	34.155
C	0	45.681	43.718	41.976	38.443	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	1.386	42.816	43.868	45.765	45.233	45.140	43.754	43.271	42.431	41.170	37.971	35.511	44.878	44.642	43.718	43.188	42.645	40.435
	2.263	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	44.789	44.166	43.340	42.336	40.741
	2.337	42.062	42.972	45.007	44.642	45.441	45.233	45.210	44.401	43.670	42.275	40.430	45.461	44.937	44.166	43.340	42.336	40.741
	2.941	39.952	41.033	43.037	43.311	45.541	45.381	45.658	45.613	45.192	44.427	42.890	44.876	44.346	43.569	42.734	41.873	39.669
	3.315	38.444	39.540	41.825	41.833	43.791	44.198	45.061	45.310	45.648	45.042	44.581	43.421	43.016	42.077	41.218	40.173	36.678
	3.622	34.977	36.109	37.885	38.433	40.192	41.390	42.823	44.401	44.583	45.503	45.196	40.507	39.616	38.496	37.581	36.465	34.308
	3.704	32.263	33.721	35.308	35.920	37.493	38.729	40.585	42.431	43.061	44.274	44.274	38.030	37.103	36.109	35.157	33.993	31.858
	3.769	29.398	29.693	31.217	31.781	33.443	34.738	36.407	38.188	39.562	41.660	43.198	33.804	33.112	32.677	31.823	31.057	29.101
D	0	45.681	43.718	41.976	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	.283	40.856	40.436	40.006	37.694	35.993	33.851	32.080	30.308	28.454	26.287	23.828	34.387	35.181	36.258	36.975	38.164	38.444
	.888	37.992	37.899	38.642	37.546	36.893	35.477	34.020	33.338	31.041	28.901	26.749	35.262	35.476	37.302	38.339	40.328	40.435
	1.205	37.540	37.601	38.642	37.694	37.493	36.659	35.512	34.399	33.019	31.360	29.362	34.970	36.216	37.452	38.642	40.019	40.435
	2.028	34.374	34.617	36.066	35.329	35.093	34.738	34.318	33.035	31.953	30.899	28.747	33.804	35.476	36.705	38.188	39.555	40.435
	2.157	34.072	34.318	35.157	34.885	34.943	34.442	33.870	32.884	31.802	30.438	28.747	33.659	35.181	36.556	38.188	39.864	40.588
	3.038	32.564	33.124	34.399	34.146	34.643	34.885	34.776	34.247	33.628	32.744	31.207	33.950	36.068	37.601	39.551	41.718	42.732
	3.168	32.414	32.677	33.945	33.851	34.043	34.590	34.617	34.247	33.475	32.590	31.360	33.950	36.068	37.302	41.067	42.027	43.498
	3.803	28.946	29.394	30.762	30.894	31.794	32.668	33.423	33.945	34.084	34.128	33.666	32.202	34.738	37.004	39.551	42.645	44.570
	4.053	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	41.814	36.434	31.182	33.407	35.213	37.581	40.482	42.120
E	0	45.681	43.718	41.976	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	.283	40.856	40.436	40.006	37.694	35.993	33.851	32.080	30.308	28.454	26.287	23.828	34.970	34.442	34.162	33.187	33.220	32.317
	.888	37.992	37.899	38.642	37.546	36.893	35.477	34.020	33.338	31.041	28.901	26.749	34.970	34.885	33.572	32.429	32.138	30.939
	1.205	37.540	37.601	38.642	37.694	37.493	36.659	35.512	34.399	33.019	31.360	29.362	34.970	34.242	33.423	33.429	32.138	30.786
	2.028	34.374	34.617	36.066	35.329	35.093	34.738	34.318	33.035	31.953	30.899	28.747	35.552	24.294	33.274	32.429	31.829	30.633
	2.157	34.072	34.318	35.157	34.885	34.943	34.442	33.870	32.884	31.802	30.438	28.747	35.116	34.146	33.124	32.126	31.520	30.020
	3.038	32.564	33.124	34.399	34.146	34.643	34.885	34.776	34.247	33.628	32.744	31.207	34.407	33.998	32.826	31.671	30.748	29.101
	3.168	32.414	32.677	33.945	33.851	34.043	34.590	34.617	34.247	33.475	32.590	31.360	34.970	33.851	32.528	31.520	30.593	28.795
	3.803	28.946	29.394	30.762	30.894	31.794	32.668	33.423	33.945	34.084	34.128	33.666	32.493	30.894	29.543	28.186	27.349	25.731
	4.053	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	41.814	36.434	30.453	29.120	28.051	26.974	26.267	24.812
J	0	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	35.819	36.434	31.182	33.407	35.213	37.581	40.482	42.120
	.250	27.891	28.201	29.701	30.303	31.794	33.407	34.915	36.975	38.649	40.738	42.429	32.784	34.590	35.959	37.127	38.164	37.678
	.292	28.042	28.350	30.005	30.451	31.944	33.851	34.766	37.127	38.649	40.892	42.429	32.930	34.738	36.109	37.127	37.855	37.372
	.774	29.248	29.842	30.914	31.633	33.293	34.738	36.407	38.188	39.562	41.814	43.198	34.096	35.477	35.810	36.369	36.465	34.921
	.961	29.398	29.693	31.217	31.781	33.443	34.738	36.407	38.188	39.562	41.660	43.198	34.387	35.329	35.512	35.763	35.692	34.155
	1.256	28.946	29.543	31.065	31.633	33.293	34.294	36.109	37.885	39.410	41.507	42.736	33.804	34.590	34.318	33.945	34.302	32.624
	1.738	28.494	28.797	30.156	30.599	32.244	33.555	35.213	36.975	38.649	40.430	42.121	33.076	32.964	32.677	32.278	31.984	30.173
	2.219	28.946	29.543	31.065	31.633	33.293	34.294	36.109	37.885	39.410	41.507	42.736	33.222	32.964	32.677	31.823	31.211	29.254
	2.514	29.398	29.693	31.217	31.781	33.443	34.738	36.407	38.188	39.562	41.660	43.198	33.804	33.112	32.677	31.823	31.057	29.101
	2.701	29.248	29.842	30.914	31.633	33.293	34.738	36.407	38.188	39.562	41.814	43.198	33.804	33.112	32.378	31.520	30.593	28.641
	3.183	28.042	28.350	30.005	30.451	31.944	33.851	34.766	37.127	38.497	40.892	42.429	32.785	31.929	30.737	29.247	28.276	26.334
	3.225	27.891	28.201	29.701	30.303	31.794	33.407	34.915	36.975	38.649	40.738	42.429	32.493	31.338	30.289	28.944	27.812	26.191
	3.475	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	35.819	36.434	30.453	29.120	28.051	26.974	26.267	24.812

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(a) Model 2: rounded corners, square edges - Continued

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
F	0	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.884	42.583	42.583	38.030	36.511	35.064	33.641	32.447	30.479
	.247	36.484	37.153	39.551	39.616	41.092	42.128	42.525	43.037	43.366	43.659	42.736	40.798	43.016	43.569	44.855	46.199	45.796
	.978	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	45.528	45.360	46.068	46.354	45.796
	.993	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	45.528	45.360	46.068	46.354	45.796
	1.708	42.213	42.972	45.158	44.789	45.291	45.233	45.061	44.401	43.214	42.275	40.123	45.170	45.824	45.807	46.068	46.044	44.877
	1.748	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	45.824	45.807	45.916	45.735	44.877
	2.439	42.515	43.718	45.461	45.381	46.041	45.233	44.614	43.643	42.149	40.430	38.125	45.170	45.528	45.210	44.855	44.654	42.886
	2.872	42.816	43.868	45.765	45.233	45.140	43.754	43.271	42.431	41.170	37.971	35.511	44.878	44.642	43.718	43.188	42.645	40.435
	3.170	42.665	43.420	44.401	43.311	43.341	41.685	40.883	40.158	37.584	35.819	32.898	42.255	41.685	40.585	40.461	39.555	38.291
	3.216	42.062	41.928	43.037	42.572	42.292	40.650	39.988	39.097	36.671	34.743	31.975	40.507	40.059	38.794	38.794	37.701	37.372
	3.319	39.499	39.690	40.461	40.503	40.042	39.024	37.899	37.127	34.845	33.205	30.438	36.864	37.103	35.492	35.763	34.920	34.615
	3.373	37.540	37.601	38.642	37.694	37.493	36.659	35.512	34.399	33.019	31.360	29.362	34.970	34.294	33.423	32.429	32.138	30.786
M	0	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.884	42.583	42.583	38.030	36.511	35.064	33.641	32.447	30.479
	.247	36.484	37.153	39.551	39.616	41.092	42.128	42.525	43.037	43.366	43.659	42.736	40.507	39.320	38.347	36.824	35.074	33.389
	.978	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	43.163	42.226	40.916	39.246	37.678
	.993	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	43.163	42.226	40.916	39.246	37.678
	1.708	42.213	42.972	45.158	44.789	45.291	45.233	45.061	44.401	43.214	42.275	40.123	45.170	44.789	44.166	43.340	42.336	40.741
	1.748	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	44.789	44.166	43.340	42.336	40.741
	2.439	42.515	43.718	45.461	45.381	46.041	45.233	44.614	43.643	42.149	40.430	38.125	45.170	45.528	45.210	44.855	44.654	42.886
	2.872	42.816	43.868	45.765	45.233	45.140	43.754	43.271	42.431	41.170	37.971	35.511	44.878	45.233	44.464	45.158	45.117	43.805
	3.170	42.665	43.420	44.401	43.311	43.341	41.685	40.883	40.158	37.584	35.819	32.898	42.110	43.016	43.718	45.007	45.117	44.417
	3.216	42.062	41.928	43.037	42.572	42.292	40.650	39.988	39.097	36.671	34.743	31.975	40.507	42.276	43.121	43.946	44.963	44.111
	3.319	39.499	39.690	40.461	40.503	40.042	39.024	37.899	37.127	34.845	33.205	30.438	37.739	38.729	39.988	41.218	42.954	42.120
	3.373	37.540	37.601	38.642	37.694	37.493	36.659	35.512	34.399	33.019	31.360	29.362	34.970	36.216	37.452	38.642	40.019	40.435
G	0	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	35.819	36.434	31.182	33.407	35.213	37.581	40.482	42.120
	.053	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	35.844	38.137	40.286	42.279	44.654	45.336
	.106	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.844	42.583	42.583	37.884	40.059	42.077	43.946	45.890	45.949
	.299	36.032	37.004	38.794	39.911	40.942	41.833	42.673	43.188	43.974	43.966	43.966	40.798	42.868	43.868	45.310	46.508	45.643
	.870	39.198	40.286	42.128	42.572	43.641	44.494	45.061	44.855	44.887	44.581	43.659	43.421	44.937	45.509	46.068	46.354	45.183
	1.303	39.952	41.033	43.037	43.311	44.541	45.381	45.658	45.613	45.192	44.427	42.890	44.878	45.676	45.956	46.068	46.044	44.111
	1.441	40.404	41.628	43.491	43.755	44.841	45.696	45.956	45.613	45.192	44.427	42.730	45.170	45.972	45.807	45.613	45.581	43.805
	2.013	41.158	42.375	44.401	44.494	45.411	45.824	45.956	45.461	44.583	43.505	41.507	45.461	45.676	45.360	44.855	44.654	42.579
	2.553	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	44.789	44.166	43.340	42.336	40.741
	2.584	42.213	43.122	45.158	44.789	45.291	45.233	45.061	44.098	42.909	41.814	39.969	45.024	44.642	44.166	43.188	42.336	40.588
	3.046	40.103	40.883	42.128	41.981	42.442	41.981	41.182	40.309	38.953	37.510	35.511	41.818	40.946	39.839	38.794	38.010	36.146
	3.075	39.801	40.137	41.825	41.537	41.842	41.242	40.734	39.703	38.344	37.048	34.896	41.381	40.207	39.391	38.188	37.392	35.840
	3.131	38.746	39.242	40.461	40.355	40.642	40.059	39.242	38.339	37.127	35.665	33.666	40.216	39.172	38.048	36.975	36.310	34.462
	3.155	38.595	39.242	40.158	40.207	40.642	40.059	39.242	38.188	37.127	35.665	33.666	40.216	39.172	37.899	36.521	36.310	34.155
	3.170	37.238	37.899	38.794	38.433	39.292	38.729	37.601	36.369	35.301	34.128	33.666	37.593	36.955	35.661	34.096	33.993	30.786
	3.220	34.072	34.318	35.157	34.885	34.943	34.442	33.870	32.884	31.802	30.438	28.747	35.116	34.146	33.124	32.126	31.520	30.020
L	0	27.137	27.305	28.641	28.973	30.144	31.338	32.378	33.641	34.693	35.819	36.434	30.453	29.120	28.051	26.974	26.267	24.812
	.053	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	36.573	35.033	33.721	32.429	31.366	29.407
	.106	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.844	42.583	42.583	38.030	36.511	35.064	33.641	32.447	30.479
	.299	36.032	37.004	38.794	39.911	40.942	41.833	42.673	43.188	43.974	43.966	43.966	40.507	39.172	37.899	36.672	35.229	33.083
	.870	39.198	40.286	42.128	42.572	43.641	44.494	45.061	44.855	44.887	44.581	43.659	43.858	42.868	41.629	40.764	39.770	37.372
	1.303	39.952	41.033	43.037	43.311	44.541	45.381	45.658	45.613	45.192	44.427	42.890	44.878	44.346	43.569	42.734	41.873	39.669
	1.441	40.404	41.628	43.491	43.755	44.841	45.696	45.956	45.613	45.192	44.427	42.730	45.170	44.937	43.868	43.037	42.336	40.129
	2.013	41.158	42.375	44.401	44.494	45.411	45.824	45.956	45.461	44.583	43.505	41.507	45.461	45.676	45.360	44.855	44.654	42.579
	2.553	42.213	43.122	45.158	44.937	45.441	45.233	45.061	44.249	43.214	42.275	40.123	45.170	45.824	45.807	45.916	45.735	44.877
	2.584	42.213	43.122	45.158	44.789	45.291	45.233	45.061	44.098	42.909	41.814	39.969	45.024	45.824	45.807	46.068	46.044	44.877
	3.046	40.103	40.883	42.128	41.981	42.442	41.981	41.182	40.309	38.953	37.510	35.511	41.818	43.163	44.166	45.310	46.354	45.796
	3.075	39.801	40.137	41.825	41.537	41.842	41.242	40.734	39.703	38.344	37.048	34.896	41.381	43.163	44.166	44.855	46.354	45.643
	3.131	38.746	39.242	40.461	40.355	40.642	40.059	39.242	38.339	37.127	35.665	33.666	39.779	41.242	42.525	43.946	45.272	45.183
	3.155	38.595	39.242	40.158	40.207	40.642	40.059	39.242	38.188	37.127	35.665	33.666	39.779	41.242	42.525	43.795	45.117	45.183
	3.170	37.238	37.899	38.794	38.433	39.292	38.729	37.601	36.369	35.301	34.128	33.666	38.030	39.320	40.585	42.128	44.190	44.111
	3.220	34.072	34.318	35.157	34.885	34.943	34.442	33.870	32.884	31.802	30.438	28.747	33.659	35.181	36.556	38.188	39.864	40.588
N	0	42.213	41.033	40.158	38.433	36.593	34.885	32.826	31.217	29.213	27.056	23.367	35.553	35.772	35.810	37.581	38.473	38.291
	.711	40.404	40.137	40.612	40.355	39.592	38.137	37.004	36.824	34.084	31.975	28.593	37.447	38.137	39.391	40.915	42.182	41.813
	.944	39.499	39.690	40.461	40.503	40.042	39.024	37.899	37.127	34.845	33.205	30.438	37.739	38.729	39.988	41.218	42.954	42.120
	1.851	37.540	38.198	39.097	39.172	39.442	38.877	38.048	36.521	35.453	33.974	32.283	38.030	39.320	40.585	42.431	44.190	43.805
	1.891	37.238	37.899	38.794	38.433	39.292	38.729	37.601	36.369	35.301	34.128	33.666	38.030	39.320	40.585	42.128	44.190	44.111
	2.759	34.374	34.915	36.369	36.068	37.193	37.251	36.705	36.218	35.758	35.204	35.665	37.010	39.616	40.585	42.128	43.881	44.264
	2.991	33.167	33.722	35.157	34.885	36.143	36.364	36.092	35.915	35.758	35.357	35.972	36.282	38.729	40.137	42.128	43.881	44.264
	3.520	30.152	30.439	31.520	31.929	32.543	33.851	34.467	35.157	36.062	36.280	36.895	33.950	35.699	38.347	40.764	43.727	45.183
P	0	42.213	41.033	40.158	38.433	36.593	34.885	32.826	31.217	29.213	27.056	23.367	34.970	35.329	35.512	34.399	33.993	33.389
	.711	40.404	40.137	40.612	40.355	39.592	38.137	37.004	36.824	34.084	31.975	28.593	37.156	36.955	35.810	35.763	34.456	34.615
	.944	39.499	39.690	40.461	40.503	40.042	39.024	37.899	37.127	34.845	33.205	30.438	36.864	37.103	35.492	35.763	34.920	34.615
	1.851	37.540	38.198	39.097	39.172	39.442	38.877	38.048	36.521	35.453	33.974	32.283	37.884	37.251	35.810	34.551	33.993	33.236
	1.891	37.238	37.899	38.794	38.433	39.292	38.729	37.601	36.369	35.301	34.128	33.666	37.593	36.955	35.661	34.096	33.993	30.786
	2.759	34.374	34.915	36.369	36.068	37.193	37.251	36.705	36.218	35.758	35.204	35.665	37.884	35.772	34.020	33.338	32.756	30.939
	2.991	33.167	33.722	35.157	34.885	36.143	36.364	36.092	35.915	35.758	35.357	35.972	37.301	35.477	33.721	32.732	32.447	30.173
	3.520	30.152	30.439	31.520	31.929	32.543	33.851	34.467	35.157	36.062	36.280	36.895	33.513	32.373	31.483	30.156	29.357	27.569

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(a) Model 2: rounded corners, square edges - Continued

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
H	0	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.844	42.583	42.583	37.884	40.059	42.077	43.946	45.890	45.949
	.170	35.429	36.109	38.339	38.433	40.042	40.798	42.077	43.491	43.670	43.812	43.812	40.070	41.981	42.972	44.704	45.890	45.489
	.671	37.992	38.943	40.915	41.094	43.041	43.311	44.464	44.703	45.192	44.581	44.427	42.547	43.755	44.166	44.552	45.426	44.570
	.967	38.444	39.540	41.825	41.833	43.791	44.198	45.061	45.310	45.648	45.042	44.581	43.421	44.494	44.464	44.552	45.426	43.498
	1.173	38.896	40.137	42.128	42.572	44.091	44.642	45.360	45.765	45.952	45.503	44.581	43.858	44.642	44.464	44.249	44.808	43.192
	1.675	39.349	40.436	42.734	43.163	44.391	45.233	45.956	46.219	46.105	45.503	44.274	44.878	44.937	44.614	44.098	43.727	41.507
	2.177	39.801	41.182	43.037	43.459	44.691	45.381	45.658	45.765	45.496	44.735	43.505	45.170	44.642	44.017	43.037	42.491	39.822
	2.299	39.952	41.182	43.037	43.311	44.541	45.381	45.658	45.613	45.192	44.427	42.890	44.878	44.346	43.569	42.734	41.873	39.669
	2.668	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	43.163	42.226	40.916	39.246	37.678
	2.679	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.401	43.822	43.659	42.275	44.004	43.016	42.226	39.822	39.246	37.678
	2.978	36.937	37.601	39.703	39.763	40.492	40.650	40.585	40.158	39.562	39.047	38.586	40.798	39.024	37.302	36.369	35.692	33.696
	3.074	34.374	34.915	36.369	36.068	37.193	37.251	36.705	36.218	35.758	35.204	35.665	37.884	35.772	34.020	33.338	32.756	30.939
	3.123	32.564	33.124	34.399	34.146	34.643	34.885	34.766	34.247	33.628	32.744	31.207	35.407	33.998	32.826	31.671	30.748	29.101
K	0	33.017	33.572	35.308	35.920	37.193	38.285	40.436	41.067	41.844	42.583	42.583	38.030	36.511	35.064	33.641	32.447	30.479
	.170	35.429	36.109	38.339	38.433	40.042	40.798	42.077	43.491	43.670	43.812	43.812	39.772	38.729	37.302	35.915	34.920	32.471
	.671	37.992	38.943	40.915	41.094	43.041	43.311	44.464	44.703	45.192	44.581	44.427	42.401	41.685	40.734	39.551	38.627	35.840
	.967	38.444	39.540	41.825	41.833	43.791	44.198	45.061	45.310	45.648	45.042	44.581	43.421	43.016	42.077	41.218	40.173	36.678
	1.173	38.896	40.137	42.128	42.572	44.091	44.642	45.360	45.765	45.952	45.503	44.581	43.858	43.607	42.972	42.128	41.473	38.903
	1.675	39.349	40.436	42.734	43.163	44.391	45.233	45.956	46.219	46.105	45.503	44.274	44.878	44.937	44.614	44.098	43.727	41.507
	2.177	39.801	41.182	43.037	43.459	44.691	45.381	45.658	45.765	45.496	44.735	43.505	45.024	45.528	45.956	45.461	45.272	43.498
	2.299	39.952	41.182	43.037	43.311	44.541	45.381	45.658	45.613	45.192	44.427	42.890	44.878	45.676	45.956	46.068	46.044	44.111
	2.668	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	45.528	45.360	46.068	46.354	45.796
	2.679	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.401	43.822	43.659	42.275	44.004	45.528	45.360	46.068	46.354	45.796
	2.978	36.937	37.601	39.703	39.763	40.492	40.650	40.585	40.158	39.562	39.047	38.586	40.798	42.424	43.569	44.855	46.354	45.949
	3.074	34.374	34.915	36.369	36.068	37.193	37.251	36.705	36.218	35.758	35.204	35.665	37.010	39.616	40.585	42.128	43.881	44.264
	3.123	32.564	33.124	34.399	34.146	34.643	34.885	34.766	34.247	33.628	32.744	31.207	33.950	36.068	37.601	39.551	41.718	42.732
O	0	45.681	43.718	41.976	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	1.140	42.213	42.375	43.188	42.720	42.292	40.798	39.839	38.945	36.519	34.435	31.514	40.361	41.981	42.823	43.795	44.499	43.805
	1.212	42.213	42.375	43.037	42.572	42.292	40.650	39.988	39.097	36.671	34.743	31.975	40.507	42.276	43.121	43.946	44.963	44.111
	2.120	39.801	40.137	41.825	41.537	41.842	41.242	40.734	39.703	38.344	37.048	34.896	41.381	43.163	44.166	44.855	46.354	45.643
	2.280	39.499	39.839	41.521	41.390	41.692	41.242	40.883	39.855	38.497	37.356	35.357	41.381	43.163	44.166	44.855	46.354	45.796
	2.960	36.937	37.601	39.703	39.763	40.492	40.650	40.585	40.158	39.562	39.047	38.586	40.798	42.424	43.569	44.855	46.354	45.949
	3.420	34.826	35.512	37.581	37.694	38.692	39.468	39.690	39.551	40.170	40.123	39.969	38.612	41.094	42.375	43.946	45.735	45.796
	3.912	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	35.844	38.137	40.286	42.279	44.654	45.336
Q	0	45.681	43.718	41.976	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	1.140	42.213	42.375	43.188	42.720	42.292	40.798	39.839	38.945	36.519	34.435	31.514	40.361	39.911	38.944	38.794	37.855	37.372
	1.212	42.213	42.375	43.037	42.572	42.292	40.650	39.988	39.097	36.671	34.743	31.975	40.507	40.059	38.794	38.794	37.701	37.372
	2.120	39.801	40.137	41.825	41.537	41.842	41.242	40.734	39.703	38.344	37.048	34.896	41.381	40.207	39.391	38.188	37.392	35.840
	2.280	39.499	39.839	41.521	41.390	41.692	41.242	40.883	39.855	38.497	37.356	35.357	41.381	40.207	39.093	38.188	37.083	35.524
	2.960	36.937	37.601	39.703	39.763	40.492	40.650	40.585	40.158	39.562	39.047	38.586	40.798	39.024	37.302	36.369	35.692	33.696
	3.420	34.826	35.512	37.581	37.694	38.692	39.468	39.690	39.551	40.170	40.123	39.969	39.196	37.398	35.959	35.408	33.684	31.858
	3.912	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	36.573	35.033	33.721	32.429	31.366	29.407
T	0	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	35.884	38.137	40.286	42.279	44.654	45.336
	.208	33.318	33.721	35.460	36.216	37.792	38.581	39.988	42.128	41.996	42.736	43.044	37.884	40.059	40.883	42.734	44.499	44.417
	.690	34.826	35.810	37.581	38.137	39.892	40.798	42.375	43.946	44.127	44.889	44.889	39.924	41.094	41.480	42.128	43.418	42.273
	.908	34.977	36.109	37.885	38.433	40.192	41.537	42.972	43.946	44.735	45.350	45.196	40.216	41.242	41.480	42.128	42.645	41.201
	1.171	34.977	36.109	37.885	38.433	40.192	41.685	43.121	44.401	45.040	45.811	45.811	40.798	41.242	41.182	40.915	41.564	39.822
	1.653	34.977	35.661	37.581	38.137	39.892	41.242	42.972	44.249	45.344	46.118	46.272	40.798	40.946	40.585	40.158	39.710	37.525
	2.135	34.977	36.109	37.885	38.433	40.192	41.685	43.121	44.401	45.040	45.811	45.811	40.798	40.207	39.391	38.642	38.164	35.227
	2.398	34.977	36.109	37.885	38.433	40.192	41.537	42.972	43.946	44.735	45.350	45.196	40.507	39.616	38.496	37.581	36.310	34.002
	2.617	34.826	35.810	37.581	38.137	39.892	40.798	42.375	43.946	44.127	44.889	44.889	40.216	39.024	37.601	36.672	35.383	33.083
	3.098	33.318	33.721	35.460	36.216	37.792	38.581	39.988	42.128	41.996	42.736	43.044	38.759	36.659	35.064	33.945	32.911	30.633
	3.306	31.509	31.931	33.641	33.998	35.243	36.659	37.899	39.248	40.170	41.045	41.199	36.573	35.033	33.721	32.429	31.366	29.407
U	0	30.152	30.140	32.126	33.112	34.193	35.625	38.198	38.794	39.714	41.353	42.429	33.804	36.809	38.496	39.400	41.718	41.354
	.042	30.152	30.439	32.429	33.259	34.493	35.920	38.496	39.248	40.170	42.429	42.275	34.679	37.103	38.496	39.551	41.718	41.201
	.524	31.811	32.378	33.641	35.181	36.593	38.137	39.988	42.128	42.757	43.966	43.812	37.593	38.729	38.496	39.855	40.791	39.882
	.724	32.263	33.274	34.854	35.625	37.043	38.877	40.286	42.279	43.214	44.274	44.581	38.030	39.024	38.496	39.551	40.328	39.057
	1.006	32.715	33.274	34.854	35.625	37.193	39.024	40.585	42.582	43.518	44.735	44.889	38.321	39.024	38.048	38.642	38.937	37.372
	1.488	33.167	33.274	34.854	35.625	37.193	39.024	40.585	42.128	43.366	44.581	45.811	38.176	38.433	37.302	36.975	36.465	34.615
	1.969	32.715	33.274	34.854	35.625	37.193	39.172	39.839	41.521	43.061	44.581	44.889	37.884	37.398	36.556	35.763	34.920	32.777
	2.251	32.564	33.274	34.854	35.625	37.193	39.172	39.391	41.067	42.909	44.274	44.581	37.739	37.103	36.109	35.308	34.302	32.164
	2.451	31.811	32.826	34.702	35.329	36.593	38.137	39.093	40.915	42.301	43.659	44.120	37.301	36.364	35.363	34.247	33.065	31.858
	2.933	30.303	30.439	32.429	33.407	34.493	35.772	37.899	39.097	40.018	41.507	42.583	34.970	34.146	32.528	31.823	30.593	28.335
	2.975	30.152	30.140	32.126	33.112	34.193	35.625	38.198	38.794	39.714	41.353	42.429	34.533	33.851	32.229	31.368	29.975	28.028

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(a) Model 2: rounded corners, square edges - Concluded

Spanwise station	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
I	0.031	45.681	43.718	41.956	38.433	36.293	34.146	32.378	30.611	28.910	27.056	24.904	34.824	35.033	35.213	35.005	35.383	34.615
	.098	45.982	45.707	45.310	42.424	40.492	38.137	36.109	34.248	32.106	29.977	27.364	39.050	39.024	39.391	39.097	39.555	38.597
	.165	45.530	45.956	46.219	43.902	42.292	39.911	38.048	36.066	33.780	31.514	28.593	40.798	40.946	41.182	40.915	41.255	40.282
	1.713	42.515	43.718	45.461	45.381	46.041	45.233	44.614	43.643	42.149	40.430	38.125	45.170	45.528	45.210	44.855	44.654	42.886
	2.522	41.158	42.375	44.401	44.494	45.441	45.824	45.956	45.461	44.583	43.505	41.507	45.461	45.676	45.360	44.855	44.654	42.579
	3.078	39.349	40.436	42.734	43.163	44.391	45.223	45.956	46.219	46.105	45.503	44.274	48.878	44.937	44.614	44.098	43.727	41.507
	3.575	34.977	35.661	37.581	38.137	39.892	41.242	42.972	44.249	45.344	46.118	46.272	40.798	40.946	40.585	40.158	39.710	37.525
	3.647	33.167	33.572	35.460	35.920	37.642	39.172	40.883	42.431	43.670	45.042	45.657	38.613	38.729	38.347	38.036	37.392	35.381
	3.655	33.167	33.423	35.460	35.920	37.642	38.581	40.585	42.203	43.061	44.734	45.503	38.176	37.042	37.302	36.975	36.774	34.615
	3.719	28.494	28.797	30.156	30.599	32.244	33.555	35.213	36.975	38.649	40.430	42.121	33.076	32.964	32.677	32.278	31.984	30.173
II	.073	37.992	37.899	38.642	37.546	36.893	35.477	34.020	33.338	31.041	28.901	26.749	35.362	35.476	37.302	38.339	40.328	40.435
	.189	40.404	40.137	40.612	40.355	39.592	38.137	37.004	36.824	34.084	31.975	28.593	37.447	38.137	39.391	40.915	42.182	41.813
	.413	42.213	42.375	43.188	42.720	42.292	40.798	39.839	38.945	36.519	34.435	31.514	40.361	41.981	42.823	43.795	44.499	43.805
	.514	42.665	43.420	44.401	43.311	43.341	41.685	40.883	40.158	37.584	35.819	32.898	42.110	43.016	43.718	45.007	45.117	44.417
	1.565	42.213	43.122	45.158	44.789	45.291	45.233	45.061	44.098	42.909	41.814	39.969	45.024	45.824	45.807	46.068	46.044	44.877
	1.612	42.213	42.972	45.158	44.789	45.291	45.233	45.061	44.401	43.214	42.275	40.123	45.170	45.824	45.807	46.068	46.044	44.877
	1.668	42.062	42.972	45.007	44.642	45.441	45.233	45.210	44.401	43.670	42.275	40.430	45.170	45.824	45.807	45.916	45.735	44.724
	2.179	40.404	41.628	43.491	43.755	44.841	45.696	45.956	45.613	45.192	44.427	42.730	45.170	45.972	45.807	45.613	45.581	43.805
	2.288	39.801	41.182	43.037	43.459	44.691	45.381	45.658	45.765	45.496	44.735	43.505	45.024	45.528	45.956	45.461	45.272	43.498
	2.568	38.896	40.137	42.128	42.572	44.091	44.642	45.360	45.765	45.952	45.503	44.581	43.858	44.642	44.464	44.249	44.808	43.192
	2.925	34.977	36.109	37.885	38.433	40.192	41.685	43.121	44.401	45.040	45.811	45.811	40.798	41.242	41.182	40.915	41.564	39.822
	3.005	32.715	33.274	34.854	35.625	37.193	39.024	40.585	42.582	43.518	44.735	44.889	38.321	39.024	38.048	38.642	38.937	37.372
	3.069	28.946	29.543	31.065	31.633	33.293	34.294	36.109	37.885	39.410	41.507	42.736	33.804	34.590	34.318	33.945	34.302	32.624
III	.073	34.374	34.617	36.066	35.329	35.093	34.738	34.318	33.035	31.953	30.899	28.747	33.804	35.476	36.705	38.188	39.555	40.435
	.189	37.540	38.198	39.097	39.172	39.442	38.877	38.048	36.521	35.453	33.974	32.283	38.030	39.320	40.585	42.431	44.190	43.805
	.225	38.595	39.242	40.158	40.207	40.642	40.059	39.242	38.188	37.127	35.665	33.666	39.779	41.242	42.525	43.795	45.117	45.183
	.413	39.499	39.839	41.521	41.390	41.692	41.242	40.883	39.855	38.497	37.356	35.357	41.381	43.163	44.166	44.855	46.354	45.796
	1.113	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	45.528	45.360	46.068	46.354	45.796
	1.128	40.404	41.182	43.491	43.163	44.391	44.937	44.464	44.855	44.127	43.966	42.275	44.004	45.528	45.360	46.068	46.354	45.643
	1.452	39.198	40.286	42.128	45.572	43.641	44.494	45.061	44.855	44.887	44.581	43.659	43.421	44.937	45.509	46.068	46.354	45.183
	1.675	37.992	38.943	40.915	41.094	43.041	43.311	44.464	44.703	45.192	44.581	44.427	42.547	43.755	44.166	44.552	45.426	44.570
	1.891	34.826	35.810	37.581	38.137	39.892	40.798	42.375	43.946	44.127	44.889	44.889	39.924	41.094	41.480	42.128	43.418	42.273
	1.971	31.811	32.378	33.641	35.181	36.593	38.137	39.988	42.128	42.757	43.966	43.812	37.593	38.729	38.496	39.855	40.791	39.882
	2.035	29.248	29.842	30.914	31.633	33.293	34.738	36.407	38.188	39.562	41.814	43.198	34.096	35.477	35.810	36.369	36.465	34.921
IV	.073	32.414	32.677	33.945	33.851	34.043	34.590	34.617	34.247	34.475	32.590	31.360	33.950	36.068	37.302	41.067	42.027	43.498
	.189	33.167	33.722	35.157	34.885	36.143	36.364	36.092	35.915	35.758	35.357	35.972	36.282	38.729	40.137	42.128	43.881	44.264
	.413	34.826	35.512	37.581	37.694	38.692	39.468	39.690	39.551	40.170	40.123	39.969	38.612	41.094	42.375	43.946	45.735	45.796
	.644	36.484	37.153	39.551	39.616	41.092	42.128	42.525	43.037	43.366	43.659	42.736	40.798	43.016	43.569	44.855	46.199	45.796
	.726	36.032	37.004	38.794	39.911	40.942	41.833	42.673	43.188	43.974	43.966	43.966	40.798	42.868	43.868	45.310	46.408	45.643
	.782	35.429	36.109	38.339	38.433	40.042	40.798	42.077	43.491	43.670	43.812	43.812	40.070	41.981	42.972	44.704	45.890	45.489
	.858	33.318	33.721	35.460	36.216	37.792	38.581	39.988	42.128	41.996	42.736	43.044	37.884	40.059	40.883	42.734	44.499	44.417
	.938	30.152	30.439	32.429	33.259	34.493	35.920	38.496	39.248	40.170	42.429	42.275	34.679	37.103	38.496	39.551	41.718	41.201
	1.002	28.042	28.350	30.005	30.451	31.944	33.851	34.766	37.127	38.649	40.832	42.429	32.930	34.738	36.109	37.127	37.855	37.372
V	.073	37.992	37.899	38.642	37.546	36.893	35.477	34.020	33.338	31.041	28.901	26.749	34.970	34.885	33.572	32.429	32.138	30.939
	.189	40.404	40.137	40.612	40.355	39.592	38.137	37.004	36.824	34.084	31.975	28.593	37.156	36.955	35.810	35.763	34.456	34.615
	.413	42.213	42.375	43.188	42.720	42.292	40.798	39.839	38.945	36.519	34.435	31.514	40.361	39.911	38.944	38.794	37.855	37.372
	.514	42.665	43.420	44.401	43.311	43.341	41.685	40.883	40.158	37.584	35.819	32.898	42.255	41.685	40.585	40.461	39.555	38.291
	1.565	42.213	43.122	45.158	44.789	45.291	45.233	45.061	44.098	42.909	41.814	39.969	45.024	44.642	44.166	43.188	42.336	40.588
	1.612	42.213	42.972	45.158	44.789	45.291	45.233	45.061	44.401	43.214	42.275	40.123	45.170	44.789	44.166	43.340	42.336	40.741
	1.668	42.062	42.972	45.007	44.642	45.441	45.233	45.210	44.401	43.670	42.275	40.430	45.461	44.937	44.166	43.340	42.336	40.741
	2.179	40.404	41.628	43.491	43.755	44.841	45.696	45.956	45.613	45.192	44.427	42.730	45.170	44.937	43.868	43.037	42.336	40.129
	2.288	39.801	41.182	43.037	43.459	44.691	45.381	45.658	45.765	45.496	44.735	43.505	45.170	44.642	44.017	43.037	42.491	39.822
	2.568	38.896	40.137	42.128	42.572	44.091	44.642	45.360	45.765	45.952	45.503	44.581	43.858	43.607	42.972	42.128	41.473	38.903
	2.925	34.977	36.109	37.885	38.433	40.192	41.685	43.121	44.401	45.040	45.811	45.811	40.798	40.207	39.391	38.642	38.164	35.227
	3.005	32.715	33.274	34.854	35.625	37.193	39.024	40.585	42.582	43.518	44.735	44.889	37.884	37.398	36.556	35.763	34.920	32.777
	3.069	28.946	29.543	31.065	31.633	33.293	34.294	36.109	37.885	39.410	41.507	42.736	33.222	32.964	32.677	31.823	31.211	29.254
VI	.073	34.374	34.617	36.066	35.329	35.093	34.738	34.318	33.035	31.953	30.899	28.747	35.552	24.294	33.274	32.429	31.829	30.633
	.189	37.540	38.198	39.097	39.172	39.442	38.877	38.048	36.521	35.453	33.974	32.283	37.884	37.251	35.810	34.551	33.993	33.236
	.225	38.595	39.242	40.158	40.207	40.642	40.059	39.242	38.188	37.127	35.665	33.666	40.216	39.172	37.899	36.521	36.310	34.155
	.413	39.499	39.839	41.521	41.390	41.692	41.242	40.883	39.855	38.497	37.356	35.357	41.381	40.207	39.093	38.188	37.083	35.524
	1.113	40.404	41.182	43.340	43.163	44.391	44.937	44.464	44.552	43.974	43.659	42.275	44.004	43.016	42.226	39.822	39.246	37.678
	1.128	40.404	41.182	43.491	43.163	44.391	44.937	44.464	44.855	44.127	43.966	42.275	44.004	43.163	42.226	40.916	39.246	37.678
	1.452	39.198	40.286	42.128	45.572	43.641	44.494	45.061	44.855	44.887	44.581	43.659	43.858	42.868	41.629	40.764	39.770	37.372
	1.675	37.992	38.943	40.915	41.094	43.041	43.311	44.464	44.703	45.192	44.581	44.427	42.401	41.685	40.734	39.551	38.627	35.840
	1.891	34.826	35.810	37.581	38.137	39.892	40.798	42.375	43.946	44.127	44.889	44.889	40.216	39.024	37.601	36.672	35.383	33.083
	1.971	31.811	32.378	33.641	35.181	36.593	38.137	39.988	42.128	42.757	43.966	43.812	37.301	36.364	35.363	34.247	33.065	31.858
	2.035	29.248	29.842	30.914	31.633	33.293	34.738	36.407	38.188	39.562	41.814	43.198	33.804	33.112	32.378	31.520	30.593	28.641
VII	.073	32.414	32.677	33.945	33.851	34.043	34.590	34.617	34.247	34.475	32.590	31.360	34.970	33.851	32.528	31.520	30.593	28.795
	.189	33.167	33.722	35.157	34.885	36.143	36.364	36.092	35.915	35.758	35.357	35.972	37.301	35.477	33.721	32.732	32.447	30.173
	.413	34.826	35.512	37.581	37.694	38.692	39.468	39.690	39.551	40.170	40.123	39.969	39.196	37.398	35.959	35.408	33.684	31.858
	.644	36.484	37.153	39.551	39.616	41.092	42.128	42.525	43.037	43.366	43.659	42.736	40.507	39.320	38.347	36.824	35.074	33.389
	.726	36.032	37.004	38.794	39.911	40.942	41.833	42.673	43.188	43.974	43.966	43.966	40.507	39.172	37.899	36.672	35.229	33.083
	.782	35.429	36.109	38.339	38.433	40.042	40.798	42.077	43.491	43.670	43.812	43.812	39.772	38.729	37.302	35.915	34.920	32.471
	.858	33.318	33.721	35.460	36.216	37.792	38.581	39.988	42.128	41.996	42.736	43.044	38.759	36.659	35.064	33.945	32.911	30.633
	.938	30.152	30.439	32.429	33.259	34.493	35.920	38.496	39.248	40.170	42.429	42.275	34.970	34.146	32.528	31.823	30.593	28.335
	1.002	28.042	28.350	30.005	30.451	31.944	33.851	34.766	37.127	38.649	40.832	42.429	32.785	31.929	30.737	29.247	28.276	26.334

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(b) Model 3: rounded corners, rounded leading edges

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
A	0	44.625	40.734	39.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	.067	46.133	45.509	44.583	41.159	39.257	36.672	34.338	32.583	31.039	28.121	25.803	37.301	37.206	37.153	36.975	37.048	36.587
	.134	45.681	45.956	46.105	43.536	41.996	39.551	37.279	35.376	33.548	30.439	27.812	40.070	40.000	39.988	39.703	39.816	39.354
	1.680	42.513	43.868	45.648	45.765	46.561	45.765	44.887	44.375	43.110	40.482	38.164	45.315	45.441	44.912	44.552	43.966	42.736
	2.491	41.158	42.525	44.735	44.725	46.105	46.219	46.257	46.237	45.618	43.572	41.719	45.753	45.588	45.210	44.704	43.966	42.429
	3.047	39.198	40.585	43.061	43.091	45.343	45.310	46.105	46.237	46.559	45.117	44.345	44.733	44.706	44.166	43.491	43.198	41.507
	3.544	34.826	35.661	37.736	38.336	40.323	41.825	43.366	44.996	46.559	46.354	46.663	41.090	41.029	40.436	40.006	39.201	37.510
	3.616	33.017	33.721	35.606	36.256	38.192	39.703	41.388	43.289	45.148	45.426	46.199	38.904	38.971	38.347	38.036	37.202	35.511
	3.624	33.017	33.721	35.606	36.256	38.192	39.565	41.083	43.212	44.522	44.963	45.735	38.176	37.941	37.302	36.975	36.587	34.743
	3.688	28.192	28.648	30.280	30.906	32.562	34.096	35.758	37.859	39.975	40.946	42.800	33.367	33.235	32.826	32.409	42.800	30.284
B	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	1.386	42.816	43.868	45.800	45.319	45.800	44.704	44.127	43.445	41.072	38.473	35.692	44.733	45.000	44.464	44.855	44.274	43.351
	2.263	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	45.588	45.658	45.765	45.350	44.427
	2.337	41.912	42.972	44.887	44.874	45.953	46.068	45.496	45.462	44.835	42.645	40.482	45.170	45.588	45.807	45.765	45.503	44.274
	2.941	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	45.315	45.735	45.956	45.916	45.657	44.120
	3.315	38.595	39.690	41.844	42.051	44.431	44.855	45.344	45.927	46.402	45.272	44.808	43.421	44.265	44.166	45.158	44.735	43.498
	3.622	35.127	36.109	38.040	38.633	40.779	42.128	42.757	44.375	46.245	45.426	45.117	40.507	41.390	40.286	42.431	42.736	41.814
	3.704	32.112	33.423	34.996	35.958	37.736	38.793	39.866	41.893	44.208	44.190	44.345	38.176	38.529	38.198	40.006	40.277	39.047
	3.769	28.645	29.096	30.746	31.204	33.019	34.551	36.214	38.479	40.288	41.409	43.263	34.096	34.559	34.915	34.702	34.589	33.359
C	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	1.386	42.816	43.868	45.800	45.319	45.800	44.704	44.127	43.445	41.072	38.473	35.692	44.733	43.971	43.121	42.734	42.121	41.199
	2.263	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	44.559	44.315	43.340	42.121	40.891
	2.337	41.912	42.972	44.887	44.874	45.953	46.068	45.496	45.462	44.835	42.645	40.482	45.315	44.706	44.017	43.188	42.121	40.738
	2.941	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	44.878	44.346	43.569	42.734	41.873	39.669
	3.315	38.595	39.690	41.844	42.051	44.431	44.855	45.344	45.927	46.402	45.272	44.808	43.421	42.206	41.480	40.309	40.123	37.663
	3.622	35.127	36.109	38.040	38.633	40.779	42.128	42.757	44.375	46.245	45.426	45.117	40.507	38.824	37.600	36.975	35.357	33.513
	3.704	32.112	33.423	34.996	35.958	37.736	38.793	39.866	41.893	44.208	44.190	44.345	37.593	36.765	35.512	34.551	32.590	31.053
	3.769	28.645	29.096	30.746	31.204	33.019	34.551	36.214	38.479	40.288	41.409	43.263	33.804	33.112	32.677	31.823	31.057	29.101
D	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	.283	31.057	27.604	24.041	19.614	16.586	15.002	13.086	11.792	10.817	9.425	8.344	12.822	13.676	15.965	19.094	22.752	26.441
	.888	21.710	18.800	16.586	14.264	12.173	12.123	10.347	9.465	8.465	7.108	7.108	9.908	10.882	13.429	15.760	20.600	24.750
	1.205	19.559	17.010	15.825	14.116	12.934	12.275	10.956	10.240	9.563	8.498	7.726	10.491	11.912	14.175	17.427	21.522	25.673
	2.028	20.956	19.994	19.477	18.128	17.346	16.972	15.216	14.275	14.109	12.515	11.743	15.737	18.235	20.591	24.398	27.978	30.746
	2.157	21.408	20.292	19.781	18.722	17.651	17.275	15.825	14.895	14.266	13.133	12.206	16.465	18.971	22.083	25.155	28.901	32.129
	3.038	15.981	15.219	15.064	14.710	13.694	14.458	13.238	12.878	12.228	11.434	10.661	14.279	14.853	17.457	21.821	26.595	31.207
	3.168	15.528	14.772	14.607	13.819	13.086	14.245	12.781	12.413	11.757	10.816	10.507	13.697	14.559	17.159	21.821	26.287	30.746
	3.803	14.172	14.026	14.303	14.710	13.542	15.912	13.999	13.809	13.639	13.133	12.824	14.134	14.853	18.353	24.398	30.592	36.741
	4.053	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	32.493	34.559	36.855	39.248	41.814	43.659
E	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	.283	31.057	27.604	24.041	19.614	16.586	15.002	13.086	11.792	10.817	9.425	8.344	18.505	16.324	14.473	13.032	12.452	11.683
	.888	21.710	18.800	16.586	14.264	12.173	12.123	10.347	9.465	8.465	7.108	7.108	13.697	12.059	10.445	9.698	9.224	8.609
	1.205	19.559	17.010	15.825	14.116	12.934	12.275	10.956	10.240	9.563	8.498	7.726	13.988	12.059	10.743	10.002	9.377	8.916
	2.028	20.956	19.994	19.477	18.128	17.346	16.972	15.216	14.275	14.109	12.515	11.743	17.047	15.000	13.727	12.729	11.837	11.376
	2.157	21.408	20.292	19.781	18.722	17.651	17.275	15.825	14.895	14.266	13.133	12.206	17.631	15.441	14.026	13.184	12.452	11.837
	3.038	15.981	15.219	15.064	14.710	13.694	14.458	13.238	12.878	12.228	11.434	10.661	14.425	12.500	11.191	10.456	9.685	9.070
	3.168	15.528	14.772	14.607	13.819	13.086	14.245	12.781	12.413	11.757	10.816	10.507	14.279	12.059	10.892	10.002	9.224	8.609
	3.803	14.172	14.026	14.303	14.710	13.542	15.912	13.999	13.809	13.639	13.133	12.824	15.882	13.382	11.638	10.608	9.839	9.224
	4.053	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	28.413	26.765	25.216	24.095	23.059	21.983
J	0	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	32.493	34.559	36.855	39.248	41.814	43.659
	.250	27.589	27.902	29.671	30.016	31.954	33.641	35.301	37.859	39.505	40.791	42.800	33.076	34.706	36.109	37.127	38.278	37.971
	.292	27.740	28.051	30.128	30.312	32.258	33.793	35.301	38.014	39.661	41.100	42.645	33.076	35.000	36.109	37.278	38.125	37.817
	.774	28.645	29.245	30.736	31.501	33.171	34.551	35.910	38.790	40.445	41.718	42.954	33.804	35.000	35.213	35.157	35.050	34.128
	.961	28.645	29.096	30.746	31.204	33.019	34.551	36.214	38.479	40.288	41.409	43.263	34.096	34.559	34.915	34.702	34.589	33.359
	1.256	28.494	28.947	30.432	30.906	32.562	34.248	35.606	38.169	40.132	41.409	42.954	33.804	33.971	34.169	33.641	33.205	31.975
	1.738	28.192	28.648	30.280	30.906	32.562	34.096	35.562	37.859	39.975	40.946	42.800	33.367	33.235	32.826	32.409	31.822	30.284
	2.219	28.494	28.947	30.432	30.906	32.562	34.248	35.606	38.169	40.132	41.409	42.954	33.513	32.794	32.378	31.520	31.053	28.901
	2.514	28.645	29.096	30.746	31.204	33.019	34.551	36.214	38.479	40.288	41.409	43.263	33.513	32.647	31.782	31.065	29.977	28.440
	2.701	28.645	29.245	30.736	31.501	33.171	34.551	35.910	38.790	40.445	41.718	42.954	33.222	32.647	31.782	30.914	29.977	27.978
	3.183	27.740	28.051	30.128	30.312	32.258	33.793	35.301	38.014	39.661	41.100	42.645	32.785	31.618	30.439	28.641	28.132	25.980
	3.225	27.589	27.902	29.671	30.163	31.954	33.641	35.301	37.859	39.505	40.791	42.800	32.493	31.029	29.842	28.489	27.364	25.673
	3.475	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	32.493	34.559	36.855	39.248	41.814	43.659

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(b) Model 3: rounded corners, rounded leading edges - Continued

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
F	0	33.318	33.870	35.758	36.107	37.736	38.945	40.322	41.893	42.953	42.645	42.645	38.615	41.029	42.972	44.704	46.426	46.426
	.247	36.484	37.004	39.714	39.822	41.692	43.188	42.909	44.065	44.678	43.727	42.954	41.090	43.235	44.315	45.461	46.272	46.426
	.978	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.727	42.336	44.004	45.294	45.658	46.068	46.118	45.350
	.993	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.881	42.336	44.004	45.294	45.658	46.068	46.118	45.350
	1.708	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.617	44.521	42.645	40.173	45.170	45.588	45.658	45.613	45.350	44.581
	1.748	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	45.588	45.658	45.765	45.350	44.427
	2.439	42.513	43.868	45.648	45.765	46.561	45.765	44.887	44.375	43.110	40.482	38.164	45.315	45.441	44.912	44.552	43.966	42.736
	2.872	42.816	43.868	45.800	45.319	45.800	44.704	44.127	43.445	41.072	38.473	35.692	44.733	43.971	43.121	42.734	42.121	41.199
	3.170	42.665	42.674	44.127	43.091	43.366	41.825	40.931	40.497	37.937	34.920	32.447	41.527	40.588	39.690	39.400	38.125	37.971
	3.216	42.062	41.928	42.909	41.753	41.996	40.461	39.562	39.100	36.996	33.684	30.902	39.341	37.794	37.302	37.127	36.126	37.202
	3.319	36.183	34.318	34.997	34.175	34.997	33.338	31.954	33.204	31.353	27.812	24.722	31.327	29.706	27.454	27.428	27.056	28.901
	3.373	19.599	17.010	15.825	14.116	12.934	12.275	10.956	10.240	9.563	8.498	7.726	13.988	12.059	10.743	10.002	9.377	8.916
M	0	33.318	33.870	35.758	36.107	37.736	38.945	40.322	41.893	42.953	42.645	42.645	38.030	36.176	34.467	33.035	31.668	29.977
	.247	36.484	37.004	39.714	39.822	41.692	43.188	42.909	44.065	44.678	43.727	42.954	40.507	39.118	37.601	36.066	34.589	32.898
	.978	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.727	42.336	44.004	42.794	42.077	40.915	39.047	37.817
	.993	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.881	42.336	44.004	43.088	42.375	40.915	39.201	37.817
	1.708	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.617	44.521	42.645	40.173	45.170	44.706	44.166	43.340	42.121	40.738
	1.748	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	44.559	44.315	43.340	42.121	40.891
	2.439	42.513	43.868	45.648	45.765	46.561	45.765	44.887	44.375	43.110	40.482	38.164	45.315	45.441	44.912	44.552	43.966	42.736
	2.872	42.816	43.868	45.800	45.319	45.800	44.704	44.127	43.445	41.072	38.473	35.692	44.733	45.000	44.464	44.552	44.274	43.351
	3.170	42.665	42.674	44.127	43.091	43.366	41.825	40.931	40.497	37.937	34.920	32.447	41.673	42.647	43.569	44.552	44.889	44.427
	3.216	42.062	41.928	42.909	41.753	41.996	40.461	39.562	39.100	36.996	33.684	30.902	39.487	41.176	42.525	43.037	44.427	43.966
	3.319	36.183	34.318	34.997	34.175	34.997	33.338	31.954	33.204	31.353	27.812	24.722	29.725	33.235	35.213	37.278	38.125	39.047
	3.373	19.599	17.010	15.825	14.116	12.934	12.275	10.956	10.240	9.563	8.498	7.726	10.491	11.912	14.175	17.427	21.522	25.673
G	0	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	32.493	34.559	36.855	39.248	41.814	43.659
	.053	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.078	40.946	41.255	36.578	38.971	41.182	43.340	45.350	46.118
	.106	33.318	33.870	35.758	36.107	37.736	38.945	40.332	41.893	42.953	42.645	42.645	38.613	41.029	42.972	44.704	46.426	46.426
	.299	36.032	37.202	39.410	39.376	41.388	42.279	43.214	44.375	44.678	43.881	43.572	41.236	43.235	44.315	45.765	46.426	45.811
	.870	39.198	40.236	42.301	42.793	44.279	45.310	45.344	45.772	46.402	44.808	43.572	43.858	45.147	45.658	46.068	46.272	44.889
	1.303	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	45.315	45.735	45.956	45.916	45.657	44.120
	1.441	40.404	41.330	43.670	43.685	45.496	46.068	46.105	46.548	46.402	44.345	42.954	45.315	45.735	45.807	45.613	45.350	43.966
	2.013	41.158	42.525	44.735	44.725	46.105	46.219	46.257	46.237	45.618	43.572	41.719	45.753	45.588	45.210	44.704	43.966	42.429
	2.553	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	44.559	44.315	43.340	42.121	40.891
	2.584	42.062	42.823	45.344	44.874	45.953	45.916	45.344	45.151	44.208	42.336	39.864	45.024	44.412	44.166	43.188	41.968	40.584
	3.046	39.801	40.585	41.844	41.753	42.301	41.673	40.931	40.341	39.348	36.928	34.920	41.381	40.000	38.794	37.733	36.741	35.204
	3.075	39.349	40.137	41.236	41.010	41.388	41.067	40.475	39.721	38.721	36.465	33.993	40.361	39.118	37.899	36.369	35.665	35.050
	3.131	37.690	38.048	39.257	38.930	39.257	38.642	37.888	37.238	36.213	33.993	32.138	38.321	36.912	35.512	34.399	33.666	32.283
	3.155	36.484	36.109	38.344	37.890	38.192	37.885	37.279	35.376	35.115	33.993	31.057	36.719	34.559	34.169	32.409	31.975	30.591
	3.170	35.278	35.213	37.432	37.147	36.823	36.672	35.605	35.066	34.175	32.138	29.357	34.679	32.941	30.737	30.611	27.978	28.440
	3.220	21.408	20.292	19.781	18.722	17.651	17.275	15.825	14.895	14.266	13.133	12.206	17.631	15.441	14.026	13.184	12.452	11.837
L	0	25.931	26.261	27.541	27.935	29.519	30.611	31.649	33.204	34.645	34.920	35.847	28.413	26.765	25.216	24.095	23.059	21.983
	.053	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.078	40.946	41.255	35.699	33.824	32.229	30.914	29.669	28.132
	.106	33.318	33.870	35.758	36.107	37.736	38.945	40.332	41.893	42.953	42.645	42.645	38.030	36.176	34.467	33.035	31.668	29.977
	.299	36.032	37.202	39.410	39.376	41.388	42.279	43.214	44.375	44.678	43.881	43.572	40.507	38.824	37.601	36.066	34.589	32.898
	.870	39.198	40.236	42.301	42.793	44.279	45.310	45.344	45.772	46.402	44.808	43.572	43.858	42.647	41.480	40.006	39.047	37.048
	1.303	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	45.170	44.265	43.271	42.279	41.353	39.508
	1.441	40.404	41.330	43.670	43.685	45.496	46.068	46.105	46.548	46.402	44.345	42.954	45.170	44.706	43.868	43.037	41.968	40.277
	2.013	41.158	42.525	44.735	44.725	46.105	46.219	46.257	46.237	45.618	43.572	41.719	45.753	45.588	45.210	44.704	43.966	42.429
	2.553	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.306	44.364	42.336	40.173	45.170	45.588	45.658	45.765	45.350	44.427
	2.584	42.062	42.823	45.344	44.874	45.953	45.916	45.344	45.151	44.208	42.336	39.864	45.170	45.588	45.360	45.613	45.350	44.427
	3.046	39.801	40.585	41.844	41.753	42.301	41.673	40.931	40.341	39.348	36.928	34.920	41.381	42.647	43.718	44.855	45.657	45.657
	3.075	39.349	40.137	41.236	41.010	41.388	41.067	40.475	39.721	38.721	36.465	33.993	40.507	42.059	43.271	44.249	45.196	45.503
	3.131	37.690	38.048	39.257	38.930	39.257	38.642	37.888	37.238	36.213	33.993	32.138	38.613	40.000	41.331	42.734	44.120	44.735
	3.155	36.484	36.109	38.344	37.890	38.192	37.885	37.279	35.376	35.115	33.993	31.057	35.699	36.176	38.645	40.915	43.736	43.812
	3.170	35.278	35.213	37.432	37.147	36.823	36.672	35.605	35.066	34.175	32.138	29.357	34.096	34.559	37.309	40.309	43.198	43.351
	3.220	21.408	20.292	19.781	18.722	17.651	17.275	15.825	14.895	14.266	13.133	12.206	16.465	18.971	22.083	25.155	28.901	32.129
N	0	36.183	31.632	27.389	23.774	23.737	20.003	18.259	17.378	15.677	14.215	12.670	21.565	22.941	23.575	25.913	28.286	30.746
	.711	36.183	33.870	33.932	32.689	33.780	31.520	30.128	31.497	25.082	25.958	22.868	27.976	32.500	33.870	35.763	36.126	36.895
	.944	36.183	34.318	34.997	34.175	34.997	33.338	31.954	33.204	31.353	27.812	24.722	29.725	33.235	35.213	37.278	38.125	39.047
	1.851	35.580	35.363	36.975	36.701	36.519	36.218	35.302	35.066	34.018	31.829	28.894	33.950	36.176	37.004	40.309	42.736	43.044
	1.891	35.278	35.213	37.432	37.147	36.823	36.672	35.605	35.066	34.175	32.138	29.357	34.096	34.559	37.302	40.309	43.198	43.351
	2.759	30.454	29.842	32.106	32.095	31.802	32.580	31.954	31.962	31.353	29.975	28.739	29.725	30.882	34.915	37.884	42.121	42.275
	2.991	28.494	31.632	29.519	30.015	29.367	30.611	30.128	30.411	29.785	28.739	27.967	28.122	28.824	33.423	36.369	40.738	42.121
	3.520	21.860	22.381	23.128	24.368	23.585	25.458	25.563	25.912	25.396	24.722	25.340	24.479	25.000	28.051	32.126	36.895	41.199
P	0	36.183	31.632	27.389	23.774	23.737	20.003	18.259	17.378	15.677	14.215	12.670	25.062	23.235	22.083	21.518	20.600	20.446
	.711	36.183	33.870	33.932	32.689	33.780	31.520	30.128	31.497	25.082	25.958	22.868	30.016	28.235	26.261	26.065	26.287	27.978
	.944	36.183	34.318	34.997	34.175	34.997	33.338	31.954	33.204	31.353	27.812	24.722	31.327	29.706	27.454	27.428	27.056	28.901
	1.851	35.580	35.363	36.975	36.701	36.519	36.218	35.302	35.066	34.018	31.829	28.894	34.387	32.794	30.588	30.156	28.132	28.286
	1.891	35.278	35.213	37.432	37.147	36.823	36.672	35.605	35.066	34.175	32.138	29.357	34.679	32.941	30.737	30.611	27.978	28.440
	2.759	30.454	29.842	32.106	32.095	31.802	32.580	31.954	31.962	31.353	29.975	28.739	33.076	31.176	29.096	28.489	25.673	24.596
	2.991	28.494	31.632	29.519	30.015	29.367	30.611	30.128	30.411	29.785	28.739	27.967	31.765	29.853	27.454	26.519	23.982	22.905
	3.520	21.860	22.381	23.128	24.368	23.585	25.458	25.563	25.912	25.396	24.722	25.340	24.625	23.529	20.442	18.488	17.678	16.910

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Continued

(b) Model 3: rounded corners, rounded leading edges - Continued

Ray	s, in.	p_l/p_∞																
		α, deg											ϕ, deg					
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
H	0	33.318	33.870	35.758	36.107	37.736	38.945	40.322	41.893	42.953	42.645	42.645	38.613	41.029	42.972	44.704	46.426	46.426
	.170	35.429	36.109	38.344	38.633	40.475	41.521	42.301	44.065	44.521	43.572	44.418	40.361	42.500	43.569	45.007	46.118	45.811
	.671	37.841	38.944	41.083	41.307	43.670	44.249	44.431	45.306	46.089	44.808	44.654	42.693	43.971	44.166	46.068	45.350	44.735
	.967	38.595	39.690	41.844	42.051	44.431	44.855	45.344	45.927	46.402	45.272	44.808	43.421	44.265	44.166	45.152	44.735	43.498
	1.173	39.047	39.988	42.301	42.496	44.735	45.007	45.648	46.237	46.716	45.272	44.808	44.004	44.559	44.166	44.249	44.274	43.198
	1.675	39.198	40.585	43.061	43.091	45.343	45.310	46.105	46.237	46.559	45.117	44.345	44.733	44.706	44.166	43.491	43.198	41.507
	2.177	39.801	41.182	43.214	43.091	45.343	45.765	45.953	46.548	46.559	44.808	43.572	45.170	44.412	43.569	42.582	41.507	39.969
	2.299	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	45.170	44.265	43.271	42.279	41.353	39.508
	2.668	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.881	42.336	44.004	43.088	42.375	40.915	39.047	37.817
	2.679	40.404	41.033	43.518	43.388	44.887	45.916	45.040	45.927	45.462	43.036	42.336	44.004	43.088	42.375	40.915	39.047	37.817
	2.978	36.937	37.601	38.649	39.525	39.562	40.461	40.475	40.186	40.602	38.628	38.010	40.216	37.647	36.109	35.157	33.513	32.590
	3.074	30.454	29.842	32.106	32.095	31.802	32.580	31.954	31.962	31.353	29.975	28.739	33.076	31.176	29.096	28.489	25.673	24.596
	3.123	15.981	15.219	15.064	14.710	13.694	14.458	13.238	12.878	12.228	11.434	10.661	14.425	12.500	11.191	10.456	9.685	9.070
K	0	33.318	33.870	35.758	36.107	37.736	38.945	40.322	41.893	42.953	42.645	42.645	38.030	36.176	34.467	33.035	31.668	29.977
	.170	35.429	36.109	38.344	38.633	40.475	41.521	42.301	44.065	44.521	43.572	44.418	39.924	37.941	36.556	35.157	34.435	32.283
	.671	37.841	38.944	41.083	41.307	43.670	44.249	44.431	45.306	46.089	44.808	44.654	42.547	41.029	39.690	38.642	38.278	35.819
	.967	38.595	39.690	41.844	42.051	44.431	44.855	45.344	45.927	46.402	45.272	44.808	43.421	42.206	41.480	40.309	40.123	37.663
	1.173	39.047	39.988	42.301	42.496	44.735	45.007	45.648	46.237	46.716	45.272	44.808	44.004	43.235	42.226	41.521	41.045	38.893
	1.675	39.198	40.585	43.061	43.091	45.343	45.310	46.105	46.237	46.559	45.117	44.345	44.733	44.706	44.166	43.491	43.198	41.507
	2.177	39.801	41.182	43.214	43.091	45.343	45.765	45.953	46.548	46.559	44.808	43.572	45.170	45.735	45.807	45.613	45.042	43.659
	2.299	40.103	41.182	43.366	43.536	45.192	45.765	45.953	46.548	46.402	44.499	43.263	45.315	45.735	45.956	45.916	45.657	44.120
	2.668	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.881	42.336	44.004	45.294	45.658	46.068	46.118	45.350
	2.679	40.404	41.033	43.518	43.388	44.887	45.916	45.040	45.927	45.462	43.036	42.336	44.004	45.147	45.658	46.219	46.118	45.503
	2.978	36.937	37.601	38.649	39.525	39.562	40.461	40.475	40.186	40.602	38.628	38.010	40.216	41.176	42.823	44.401	46.118	46.118
	3.074	30.454	29.842	32.106	32.095	31.802	32.580	31.954	31.962	31.353	29.975	28.739	29.725	30.882	34.915	37.884	42.121	42.275
	3.123	15.981	15.219	15.064	14.710	13.694	14.458	13.238	12.878	12.228	11.434	10.661	14.279	14.853	17.457	21.821	26.595	31.207
O	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	1.140	42.062	41.928	43.061	41.902	42.149	40.612	39.410	39.100	36.840	33.220	30.284	39.341	40.882	42.375	42.734	43.966	43.659
	1.212	42.062	41.928	42.909	41.753	41.996	40.461	39.562	39.100	36.996	33.684	30.902	39.487	41.176	42.525	43.037	44.427	43.966
	2.120	39.349	40.137	41.236	41.010	41.388	41.067	40.475	39.721	38.721	36.465	33.993	40.507	42.059	43.271	44.249	45.196	45.503
	2.280	39.047	39.839	40.931	41.010	41.083	41.067	40.475	39.876	39.034	36.928	34.456	40.653	42.059	43.271	44.249	45.350	45.657
	2.960	36.937	37.601	38.649	39.525	39.562	40.461	40.475	40.186	40.602	38.628	38.010	40.216	41.176	42.823	44.401	46.118	46.118
	3.420	34.826	35.512	36.671	37.296	38.344	39.097	39.562	40.031	40.759	39.864	39.246	38.612	40.000	42.077	43.946	46.118	46.272
	3.912	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.072	40.946	41.255	36.573	38.971	41.182	43.340	45.350	46.118
Q	0	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	1.140	42.062	41.928	43.061	41.902	42.149	40.612	39.410	39.100	36.840	33.220	30.284	39.050	36.647	37.153	37.278	36.126	37.048
	1.212	42.062	41.928	42.909	41.753	41.996	40.461	39.562	39.100	36.996	33.684	30.902	39.341	37.794	37.302	37.127	36.126	37.202
	2.120	39.349	40.137	41.236	41.010	41.388	41.067	40.475	39.721	38.721	36.465	33.993	40.361	39.118	37.899	36.369	35.665	35.050
	2.280	39.047	39.839	40.931	41.010	41.083	41.067	40.475	39.876	39.034	36.928	34.456	40.653	38.971	37.750	36.672	35.357	35.050
	2.960	36.937	37.601	38.649	39.525	39.562	40.461	40.475	40.186	40.602	38.628	38.010	40.216	37.647	36.109	35.157	33.513	32.590
	3.420	34.826	35.512	36.671	37.296	38.344	39.097	39.562	40.031	40.759	39.864	39.246	38.467	35.588	34.169	33.035	31.360	30.438
	3.912	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.072	40.946	41.255	35.699	33.924	32.229	30.914	29.669	28.132
T	0	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.072	40.946	41.255	36.573	38.971	41.182	43.340	45.350	46.118
	.208	33.318	33.721	35.606	36.404	38.344	39.248	40.475	41.893	43.267	42.954	42.800	38.824	40.441	41.480	43.491	45.042	45.196
	.690	34.826	35.810	37.736	38.336	40.475	41.521	42.301	43.755	45.462	45.117	44.808	39.924	41.176	41.928	43.037	43.505	43.044
	.908	34.977	36.109	38.040	38.633	40.779	42.128	42.757	44.375	46.089	45.581	45.117	40.216	41.176	41.779	42.431	42.736	41.814
	1.171	34.977	36.109	38.040	38.633	40.779	42.279	43.214	44.686	46.402	46.044	45.735	40.798	41.176	41.331	41.521	41.660	40.277
	1.653	34.826	35.661	37.736	38.336	40.323	41.825	43.366	44.996	46.559	46.354	46.663	41.090	41.029	40.436	40.006	39.201	37.510
	2.135	34.977	36.109	38.040	38.633	40.779	42.279	43.214	44.686	46.402	46.044	45.735	40.798	39.853	38.645	38.339	36.895	35.204
	2.398	34.977	36.109	38.040	38.633	40.779	42.128	42.757	44.375	46.089	45.581	45.117	40.507	38.824	37.601	36.975	35.665	33.666
	2.617	34.826	35.810	37.736	38.336	39.892	41.521	42.301	43.755	45.462	45.117	44.808	40.216	37.941	36.705	35.763	34.435	32.590
	3.098	33.318	33.721	35.606	36.404	38.344	39.248	40.475	41.893	43.267	42.954	42.800	38.824	35.294	33.721	32.884	31.360	29.823
	3.306	31.509	31.931	33.628	34.027	35.606	36.824	38.040	39.721	41.072	40.946	41.255	35.699	33.824	32.229	30.914	29.669	28.132
U	0	30.152	30.140	32.258	33.112	34.693	36.521	38.953	39.721	40.912	41.564	42.645	33.804	36.471	38.347	38.793	39.816	39.662
	.042	30.152	30.439	32.562	33.432	34.997	36.672	38.953	40.031	41.386	41.718	42.941	34.679	36.617	38.496	39.097	39.969	39.662
	.524	31.811	32.378	33.780	35.364	37.127	38.794	39.866	41.583	43.581	43.572	44.036	37.593	38.824	39.093	40.006	41.045	40.277
	.724	32.263	33.274	34.997	35.810	37.584	39.400	40.170	42.048	43.894	43.881	44.808	38.030	38.824	38.496	39.551	40.277	39.201
	1.006	32.715	33.274	34.997	35.810	37.736	39.703	40.475	42.514	44.364	44.345	45.117	38.321	38.824	38.048	38.642	38.739	37.510
	1.488	33.167	33.274	34.997	35.810	37.736	39.703	41.083	42.514	44.521	44.808	45.735	38.176	38.235	37.302	36.975	36.280	34.743
	1.969	32.715	33.274	34.997	35.810	37.736	39.703	40.627	42.514	44.364	44.808	45.117	37.884	37.206	36.109	35.460	33.974	32.283
	2.251	32.564	33.274	34.997	35.810	37.736	39.703	40.170	42.048	44.208	44.499	44.808	37.739	36.765	35.512	34.702	32.898	31.207
	2.451	31.811	32.826	34.845	35.513	37.127	39.097	39.866	41.893	43.581	43.881	44.345	37.301	35.882	34.766	33.641	31.975	30.438
	2.933	30.303	30.439	32.562	33.581	34.997	36.672	38.649	40.031	41.229	41.718	42.800	34.970	33.824	32.528	31.520	30.131	28.286
	2.975	30.152	30.140	32.258	33.284	34.693	36.521	38.953	39.721	40.916	41.564	42.645	34.533	33.676	32.229	31.065	29.669	28.132

TABLE II.- WINDWARD-SURFACE PRESSURE RATIOS - Concluded

(b) Model 3: rounded corners, rounded leading edges - Concluded

Spanwise station	s, in.	p_l/p_∞																	
		α, deg											ϕ, deg						
		65	70	75	80	85	90	95	100	105	110	115	0	5	10	15	20	25
I	0.071	44.625	40.734	37.584	33.581	31.193	28.792	26.628	24.981	23.515	21.168	19.468	29.433	29.265	29.245	29.095	28.747	28.747
	.098	46.133	45.509	44.583	41.159	39.257	36.672	34.388	32.583	31.039	28.121	25.803	37.301	37.206	37.153	36.975	37.048	36.587
	.165	45.681	45.956	46.105	43.536	41.996	39.551	37.279	35.376	33.548	30.439	27.812	40.070	40.000	39.988	39.703	39.816	39.354
	1.713	42.513	43.868	45.648	45.765	46.561	45.765	44.887	44.375	43.110	40.482	38.164	45.315	45.441	44.912	44.552	43.966	42.736
	2.522	41.158	42.525	44.735	44.725	46.105	46.219	46.257	46.237	45.618	43.572	41.719	45.753	45.588	45.210	44.704	43.966	42.429
	3.078	39.198	40.585	43.061	43.091	45.343	45.310	46.105	46.237	46.559	45.117	44.345	44.733	44.706	44.166	43.491	43.198	41.507
	3.575	34.826	35.661	37.736	38.336	40.323	41.825	43.366	44.996	46.559	46.354	46.663	41.090	41.029	40.436	40.006	39.201	37.510
	3.647	33.017	33.721	35.606	36.256	38.192	39.703	41.388	43.289	45.148	45.426	46.199	38.904	38.971	38.347	38.036	37.202	35.511
	3.655	33.017	33.721	35.606	36.256	38.192	39.565	41.083	43.212	44.522	44.963	45.735	38.176	37.941	37.302	36.975	36.587	34.743
	3.719	28.192	28.648	30.280	30.906	32.562	34.096	35.758	37.859	39.975	40.946	42.800	33.367	33.235	32.826	32.409	42.800	30.284
II	.073	21.710	18.800	16.586	14.264	12.173	12.123	10.347	9.465	8.465	7.108	7.108	9.908	10.882	13.429	15.760	20.600	24.750
	.189	36.183	33.870	33.932	32.689	33.780	31.520	30.128	31.497	25.082	25.958	22.868	27.976	32.500	33.870	35.763	36.126	36.895
	.413	42.062	41.928	43.061	41.902	42.149	40.612	39.410	39.100	36.840	33.220	30.284	39.341	40.882	42.375	42.734	43.966	43.659
	.514	42.665	42.674	44.127	43.091	43.366	41.825	40.931	40.479	37.937	34.920	32.447	41.673	42.647	43.569	44.552	44.889	44.427
	1.565	42.062	42.823	45.344	44.874	45.953	45.916	45.344	45.151	44.208	42.336	39.864	45.170	45.588	45.360	45.613	45.350	44.427
	1.612	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.617	44.521	42.645	40.173	45.170	45.588	45.658	45.613	45.350	44.581
	1.668	41.912	42.972	44.887	44.874	45.953	46.068	45.496	45.462	44.835	42.645	40.482	45.170	45.588	45.807	45.765	45.503	44.274
	2.179	40.404	41.330	43.670	43.685	45.496	46.068	46.105	46.548	46.402	44.345	42.954	45.315	45.735	45.807	45.613	45.350	43.966
	2.288	39.801	41.182	43.214	43.091	45.343	45.765	45.953	46.548	46.559	44.808	43.572	45.170	45.735	45.807	45.613	45.042	43.659
	2.568	39.047	39.988	42.301	42.496	44.735	45.007	45.648	46.237	46.716	45.272	44.808	44.004	44.559	44.166	44.249	44.274	43.198
	2.925	34.977	36.109	38.040	38.633	40.779	42.279	43.214	44.686	46.402	46.044	45.735	40.798	41.176	41.331	41.521	41.660	40.277
	3.005	32.715	33.274	34.997	35.810	37.736	39.703	40.475	42.514	44.364	44.345	45.117	38.321	38.824	38.048	38.642	38.739	37.510
	3.069	28.494	28.947	30.432	30.906	32.562	34.248	35.606	38.169	40.132	41.409	42.954	33.804	33.971	34.169	33.641	33.205	31.975
III	.073	20.956	19.994	19.477	18.128	17.346	16.972	15.216	14.275	14.109	12.515	11.743	15.737	18.235	20.591	24.398	27.978	30.746
	.189	35.580	35.363	36.975	36.701	36.519	36.218	35.302	35.066	34.018	31.829	28.894	33.950	36.176	37.004	40.309	42.736	43.044
	.225	36.484	36.109	38.344	37.890	38.192	37.985	37.279	35.376	35.115	33.993	31.057	35.699	36.176	38.645	40.915	43.736	43.812
	.413	39.047	39.839	40.731	41.010	41.083	41.067	40.475	39.876	39.034	36.928	34.456	40.653	42.059	43.271	44.249	45.350	45.657
	1.113	40.404	41.033	43.518	43.388	44.887	45.916	45.040	45.927	45.462	43.036	42.336	44.004	45.147	45.658	46.219	46.118	45.503
	1.128	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.727	42.336	44.004	45.294	45.658	46.068	46.118	45.350
	1.452	39.198	40.236	42.301	42.793	44.279	45.310	45.344	45.772	46.402	44.808	43.572	43.858	45.147	45.658	46.068	46.272	44.889
	1.675	37.841	38.944	41.083	41.307	43.670	44.249	44.431	45.306	46.089	44.808	44.654	42.693	43.971	44.166	46.068	45.350	44.735
	1.891	34.826	35.810	37.736	38.336	40.475	41.521	42.301	43.755	45.462	45.117	44.808	39.924	41.176	41.928	43.037	43.505	43.044
	1.971	31.811	32.378	33.780	35.364	37.127	38.794	39.866	41.583	43.581	43.572	44.036	37.593	38.824	39.093	40.006	41.045	40.277
	2.035	28.645	29.245	30.736	31.501	33.171	34.551	35.910	38.790	40.445	41.718	42.954	33.804	35.000	35.213	35.157	35.050	34.128
IV	.073	15.528	14.772	14.607	13.819	13.086	14.245	12.781	12.413	11.757	10.816	10.507	13.697	14.559	17.159	21.821	26.287	30.746
	.189	28.494	31.632	29.519	30.015	29.367	30.611	30.128	30.411	29.785	28.739	27.967	28.122	28.824	33.423	36.369	40.738	42.121
	.413	34.826	35.512	36.671	37.296	38.344	39.097	39.562	40.031	40.759	39.864	39.246	38.612	40.000	42.077	43.946	46.118	46.272
	.644	36.484	37.004	39.714	39.822	41.692	43.188	42.909	44.065	44.678	43.727	42.954	41.090	43.235	44.315	45.461	46.272	46.476
	.726	36.032	37.202	39.410	39.376	41.388	42.279	43.214	44.375	44.678	43.881	43.572	41.236	43.235	44.315	45.765	46.426	45.811
	.782	35.429	36.109	38.344	38.633	40.475	41.521	42.301	44.065	44.521	43.572	44.418	40.361	42.500	43.569	45.007	46.118	45.811
	.858	33.318	33.721	35.606	36.404	38.344	39.248	40.475	41.893	43.267	42.954	42.800	38.824	40.441	41.480	43.491	45.042	45.196
	.938	30.152	30.439	32.562	33.432	34.997	36.672	38.953	40.031	41.386	41.718	42.941	34.679	36.617	38.496	39.097	39.969	39.662
	1.002	27.740	28.051	30.128	30.312	32.258	33.793	35.301	38.014	39.661	41.100	42.645	32.639	35.000	36.109	37.278	38.125	37.817
V	.073	21.710	18.800	16.586	14.264	12.173	12.123	10.347	9.465	8.465	7.108	7.108	13.697	12.059	10.445	9.698	9.224	8.609
	.189	36.183	33.870	33.932	32.689	33.780	31.520	30.128	31.497	25.082	25.958	22.868	30.016	28.235	26.261	26.065	26.287	27.978
	.413	42.062	41.928	43.061	41.902	42.149	40.612	39.410	39.100	36.840	33.220	30.284	39.050	37.647	37.153	37.278	36.126	37.048
	.514	42.665	42.674	44.127	43.091	43.366	41.825	40.931	40.479	37.937	34.920	32.447	41.527	40.588	39.690	39.400	38.125	37.202
	1.565	42.062	42.823	45.344	44.874	45.953	45.916	45.344	45.151	44.208	42.336	39.864	45.024	44.412	44.166	43.188	41.968	40.584
	1.612	42.062	42.972	45.344	44.874	45.953	45.916	45.496	45.617	44.521	42.645	40.173	45.170	44.706	44.166	43.340	42.121	40.738
	1.668	41.912	42.972	44.887	44.874	45.953	46.068	45.496	45.462	44.835	42.645	40.482	45.315	44.706	44.017	43.188	42.121	40.738
	2.179	40.404	41.330	43.670	43.685	45.496	46.068	46.105	46.548	46.402	44.345	42.954	45.170	44.706	43.868	43.037	41.968	40.277
	2.288	39.801	41.182	43.214	43.091	45.343	45.765	45.953	46.548	46.559	44.808	43.572	45.170	44.412	43.569	42.582	41.507	39.969
	2.568	39.047	39.988	42.301	42.496	44.735	45.007	45.648	46.237	46.716	45.272	44.808	44.004	43.235	42.226	41.521	41.045	38.893
	2.925	34.977	36.109	38.040	38.633	40.779	42.279	43.214	44.686	46.402	46.044	45.735	40.798	39.853	38.645	38.339	36.895	35.204
	3.005	32.715	33.274	34.997	35.810	37.736	39.703	40.475	42.514	44.364	44.345	45.117	37.884	37.206	36.109	35.460	33.974	32.283
	3.069	28.494	28.947	30.432	30.906	32.562	34.248	35.606	38.169	40.132	41.409	42.954	33.512	32.794	32.378	31.520	31.053	28.901
VI	.073	20.956	19.994	19.477	18.128	17.346	16.972	15.216	14.275	14.109	12.515	11.743	17.047	15.000	13.727	12.729	11.837	11.376
	.189	35.580	35.363	36.975	36.701	36.519	36.218	35.302	35.066	34.018	31.829	28.814	34.387	32.794	30.588	30.156	28.132	28.286
	.225	36.484	36.109	38.344	37.890	38.192	37.985	37.279	35.376	35.115	33.993	31.057	36.719	34.559	34.169	32.409	31.975	30.591
	.413	39.047	39.839	40.731	41.010	41.083	41.067	40.475	39.876	39.034	36.928	34.456	40.653	38.971	37.750	36.672	35.357	35.050
	1.113	40.404	41.033	43.518	43.388	44.887	45.916	45.040	45.927	45.462	43.036	42.336	44.004	43.088	42.375	40.915	39.047	37.817
	1.128	40.404	41.033	43.366	43.536	45.040	45.916	45.192	45.617	45.148	43.727	42.336	44.004	42.794	42.077	40.915	39.201	37.971
	1.452	39.198	40.236	42.301	42.793	44.279	45.310	45.344	45.772	46.402	44.808	43.572	43.858	42.647	41.480	40.006	39.047	37.048
	1.675	37.841	38.944	41.083	41.307	43.670	44.249	44.431	45.306	46.089	44.808	44.654	42.547	41.029	39.690	38.642	38.278	35.819
	1.891	34.826	35.810	37.736	38.336	40.475	41.521	42.301	43.755	45.462	45.117	44.808	40.216	37.941	36.705	35.763	34.435	32.590
	1.971	31.811	32.378	33.780	35.364	37.127	38.794	39.866	41.583	43.581	43.572	44.036	37.301	35.882	34.766	33.641	31.975	30.438
	2.035	28.645	29.245	30.736	31.501	33.171	34.551	35.910	38.790	40.445	41.718	42.954	33.222	32.647	31.782	30.914	29.977	27.978
VII	.073	15.528	14.772	14.607	13.819	13.086	14.245	12.781	12.413	11.757	10.816	10.507	14.279	12.059	10.892	10.002	9.224	8.609
	.189	28.494	31.632	29.519	30.015	29.367	30.611	30.128	30.411	29.785	28.739	27.967	31.765	29.853	27.454	26.519	23.982	22.905
	.413	34.826	35.512	36.671	37.296	38.344	39.097	39.562	40.031	40.759	39.864	39.246	38.467	35.588	34.169	33.035	31.360	30.438
	.644	36.484	37.004	39.714	39.822	41.692	43.188	42.909	44.065	44.678	43.727	42.954	40.507	39.118	37.601	36.066	34.589	32.898
	.726	36.032	37.202	39.410	39.376	41.388	42.279	43.214	44.375	44.678	43.881	43.572	40.507	38.824	37.601	36.066	34.589	32.898
	.782	35.429	36.109	38.344	38.633	40.475	41.521	42.301	44.065	44.521	43.572	44.418	39.924	37.941	36.556	35.157	34.435	32.283
	.858	33.318	33.721	35.606	36.404	38.344	39.248	40.475	41.893	43.267	42.954	42.800	38.824	35.294	33.721	32.884	31.360	29.823
	.938	30.152	30.439	32.562	33.432	34.997	36.672	38.953	40.031	41.386	41.718	42.941	34.970	33.824	32.528	31.520	30.131	28.286
	1.002	27.740	28.051	30.128	30.312	32.258	33.793	35.301	38.014	39.661	41.100	42.645	32.785	31.618	30.439	28.641	28.132	25.980

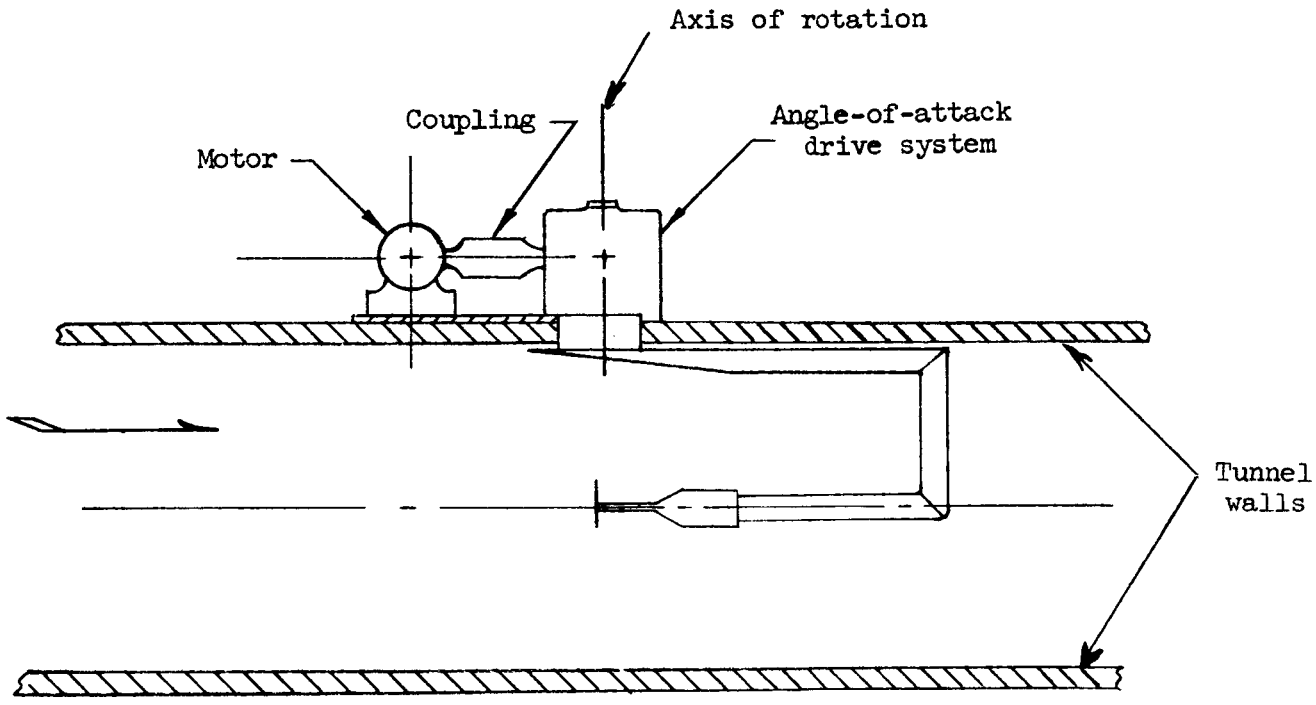


Figure 1.- Schematic diagram of model support system.

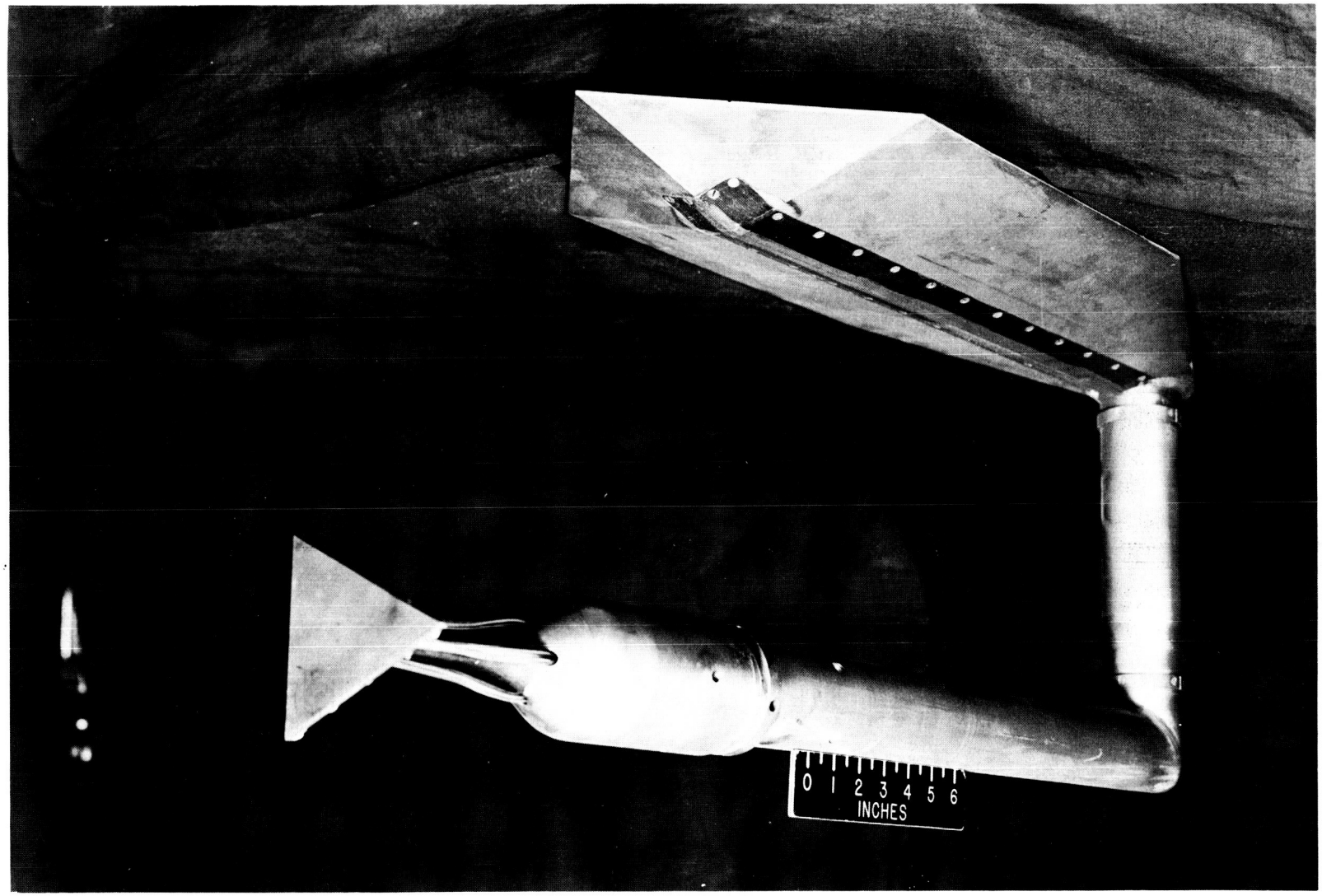


Figure 2.- Photograph of model on gooseneck support system.

L-61-1204

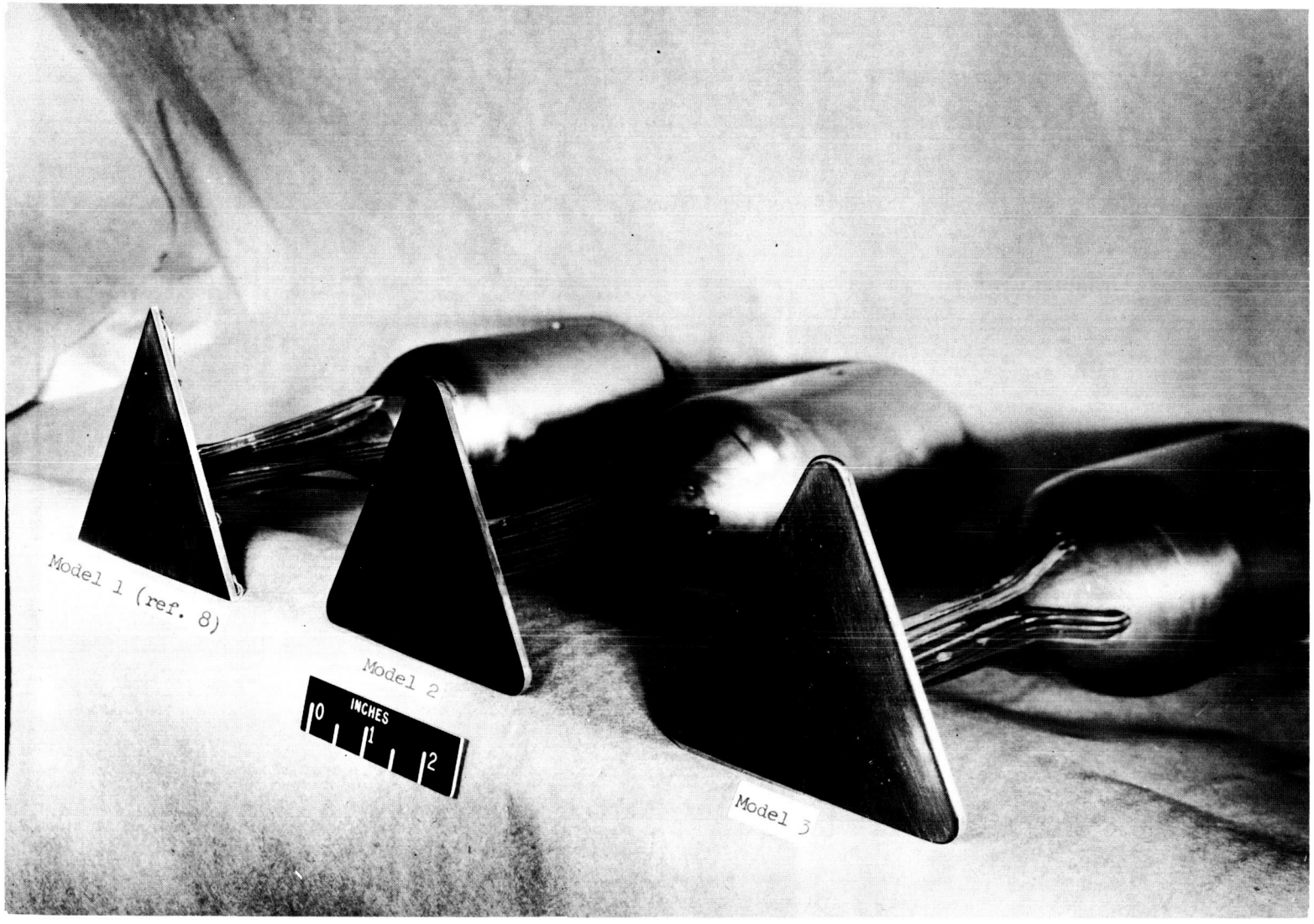


Figure 3.- Photograph of models.

L-62-5768

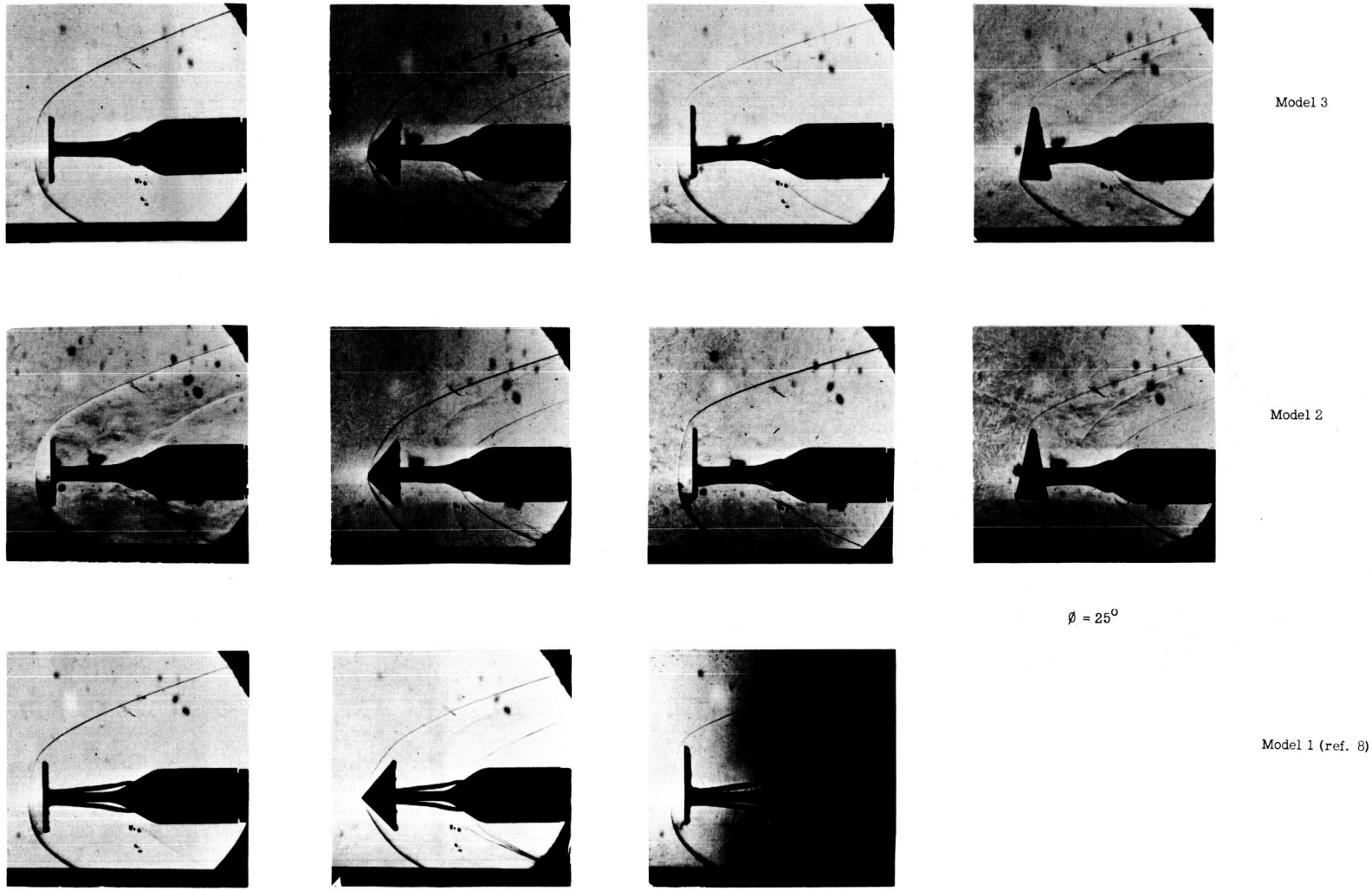
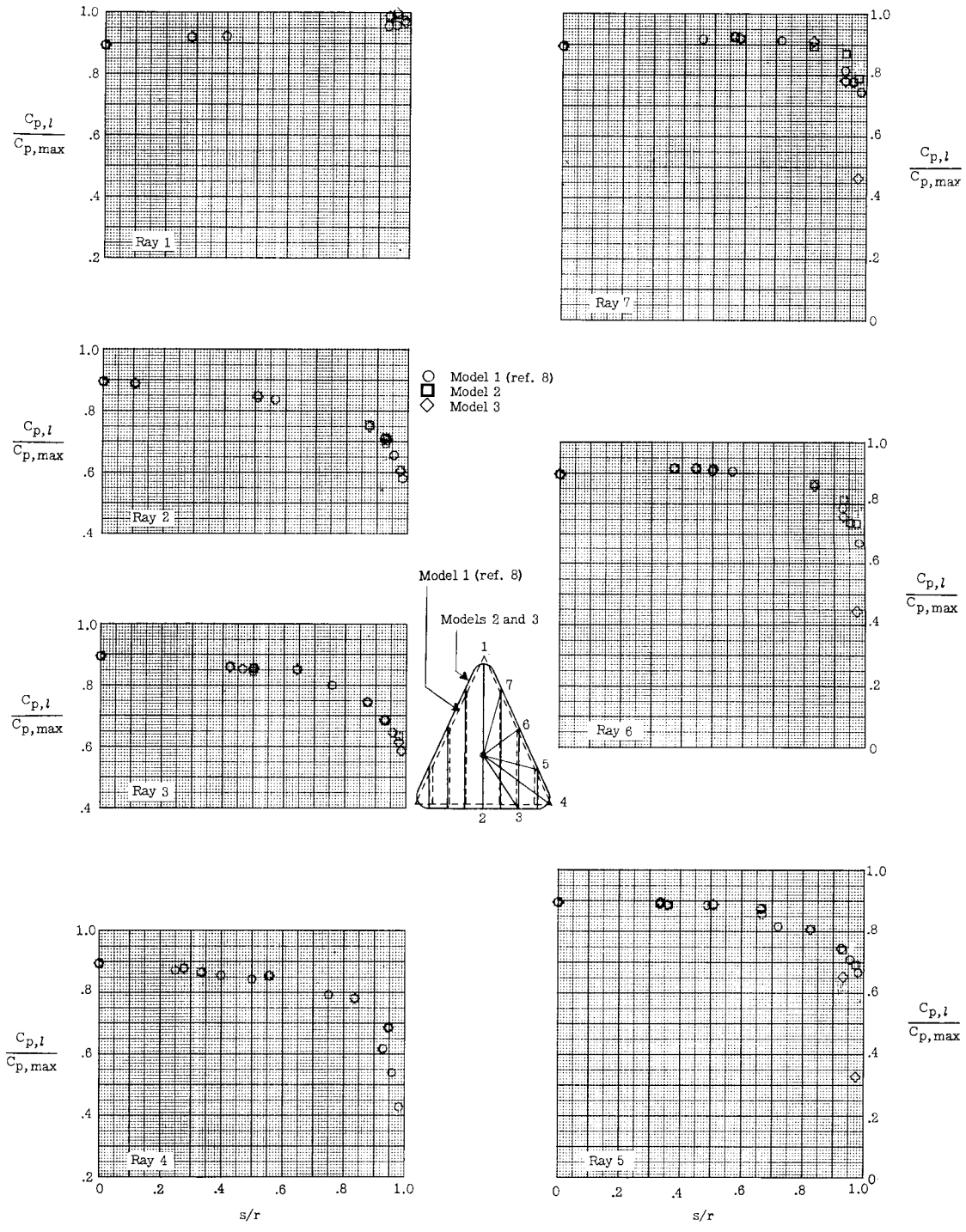
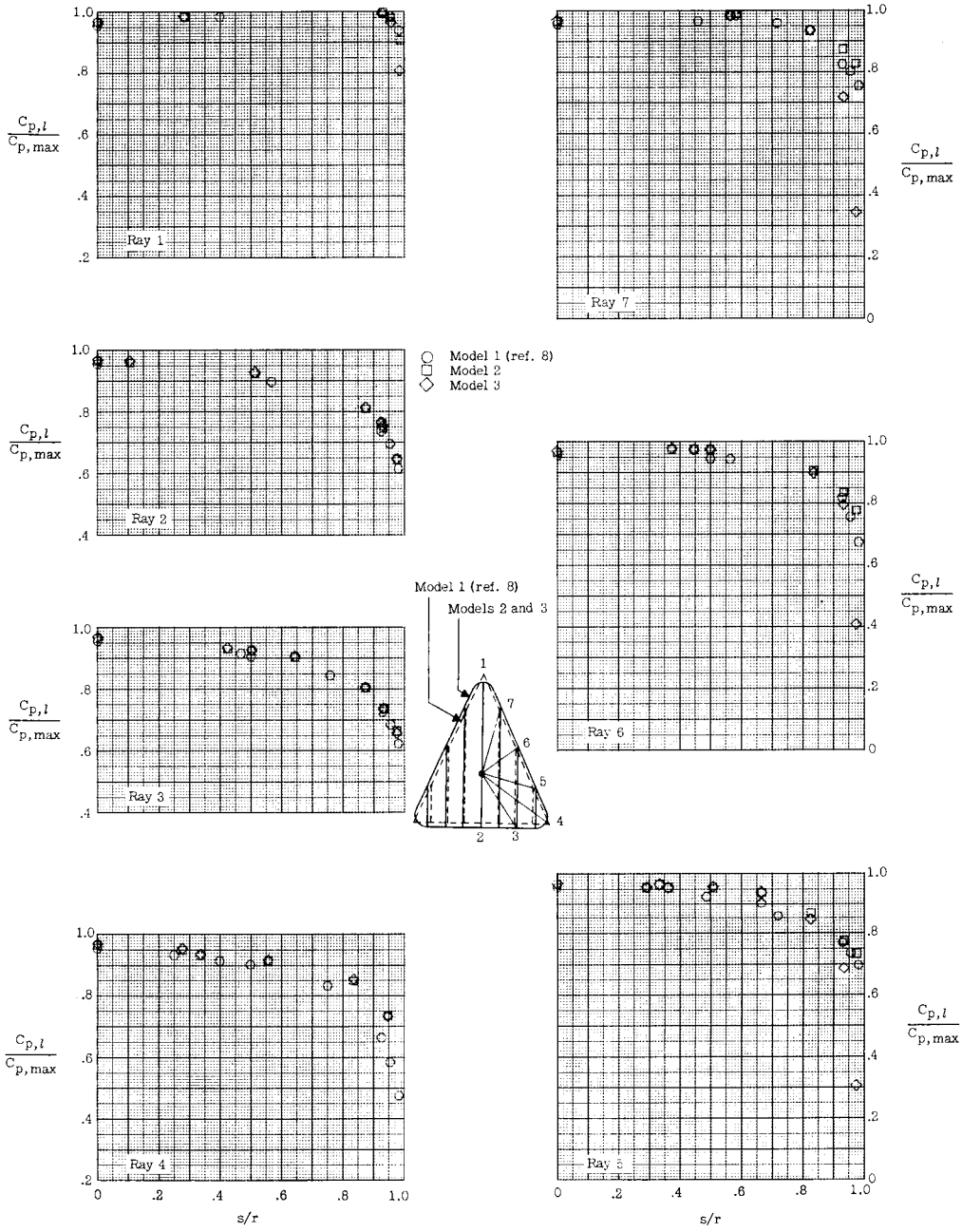


Figure 4.- Typical schlieren photographs of all models at angles of attack and roll. L-63-98



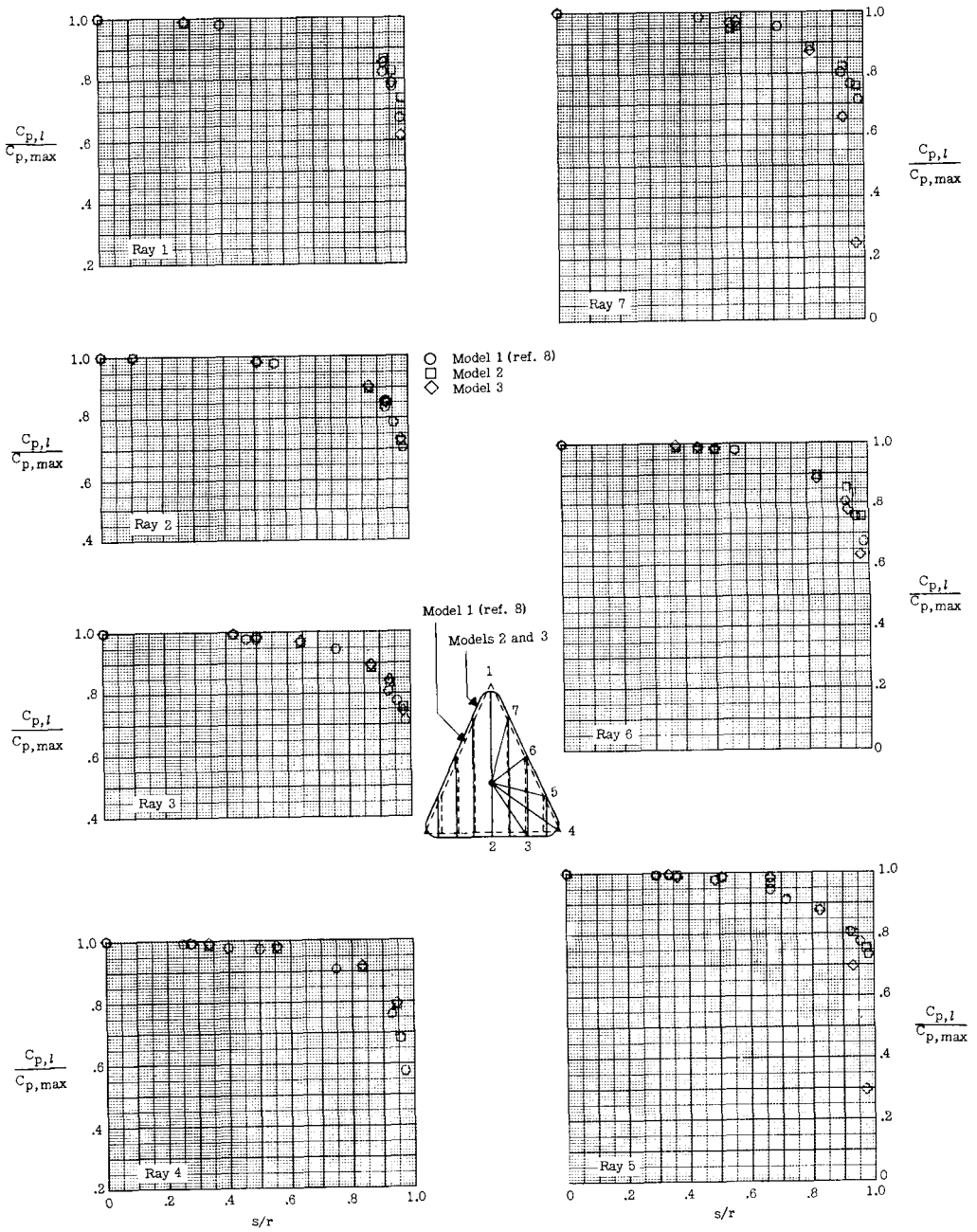
(a) $\alpha = 65^{\circ}$.

Figure 5.- Effects of rounding corners and leading edges on nondimensionalized pressure distributions along radial rays emanating from centroid of models at various angles of attack and roll.



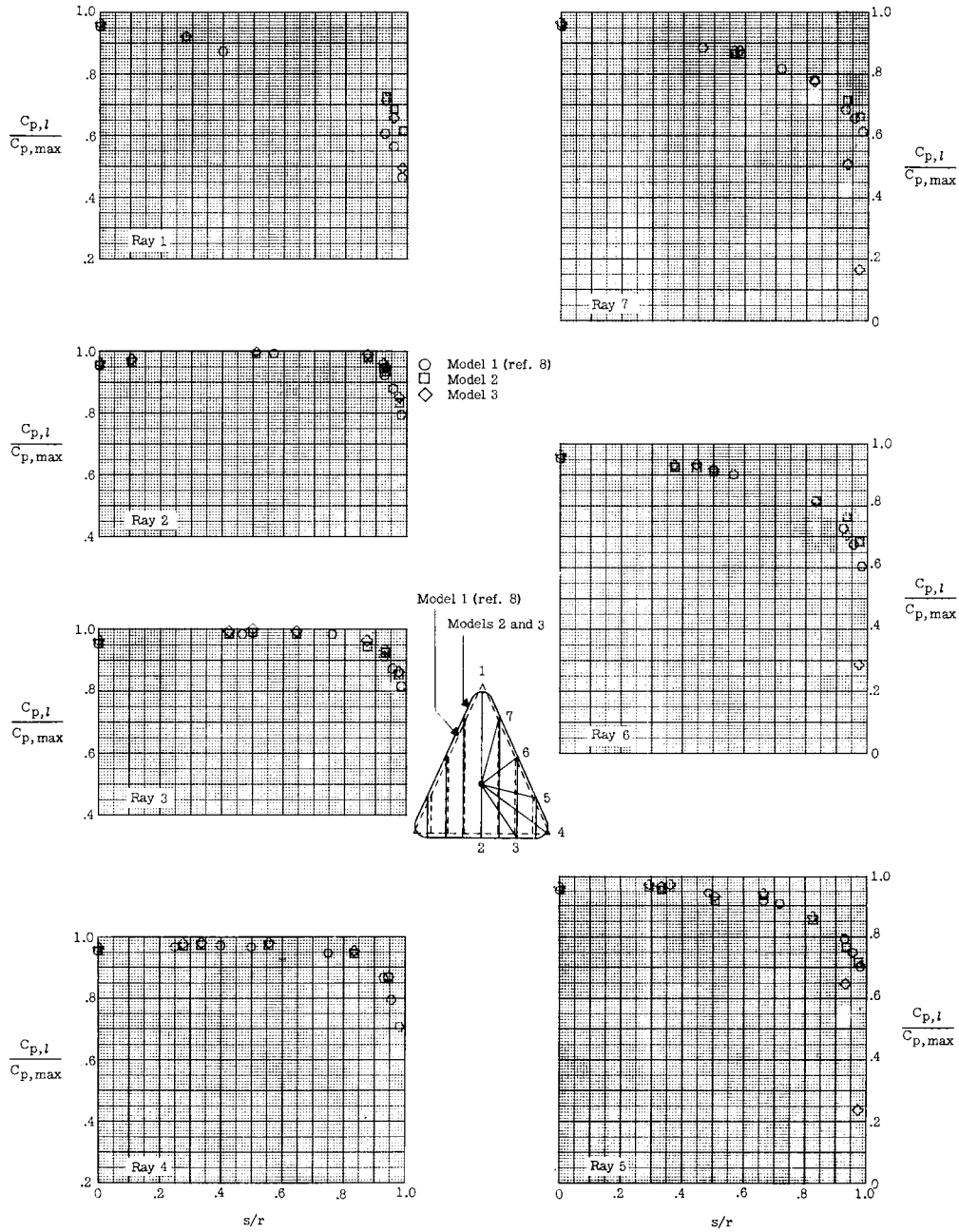
(b) $\alpha = 75^{\circ}$.

Figure 5.- Continued.



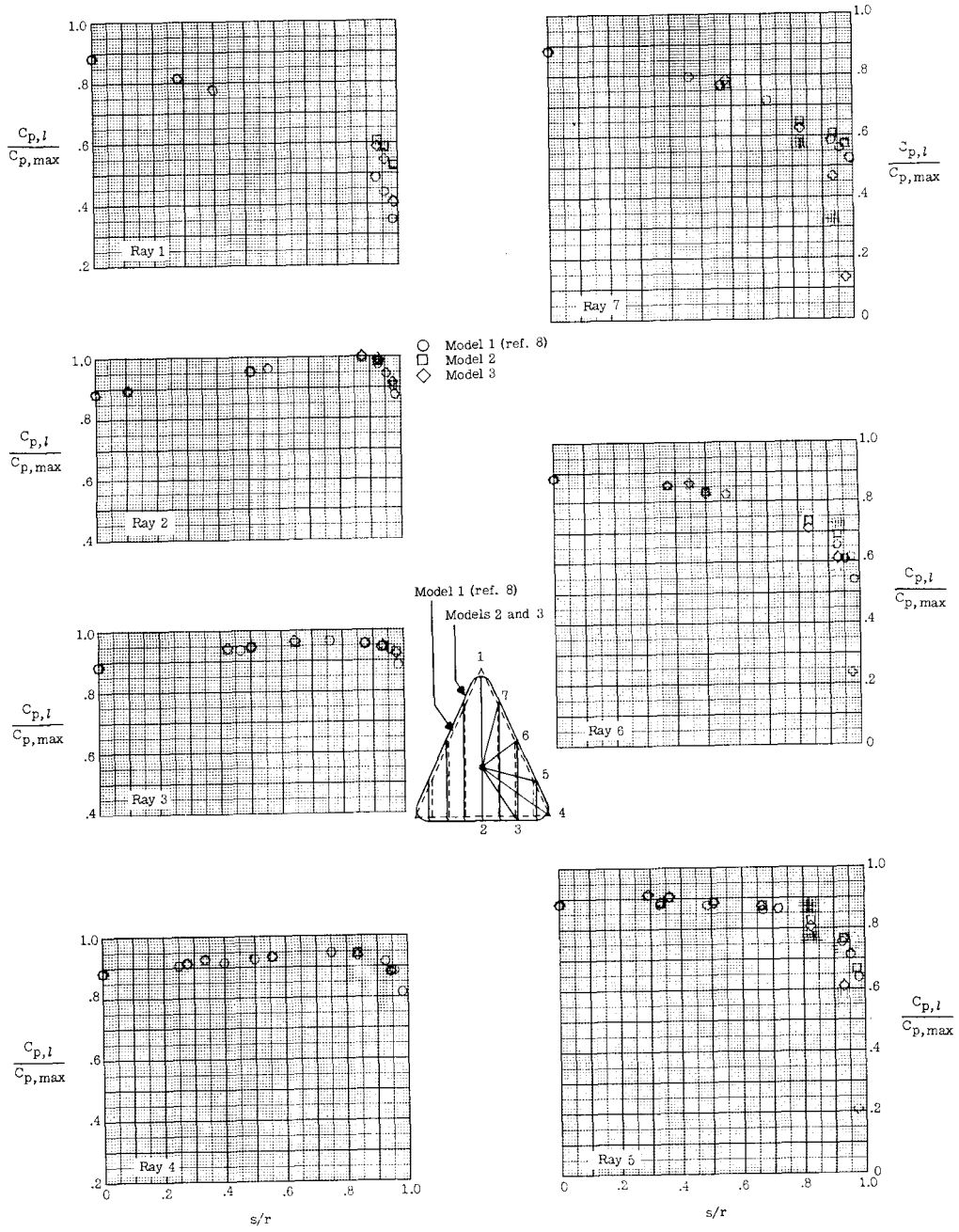
(c) $\alpha = 90^{\circ}$.

Figure 5.- Continued.



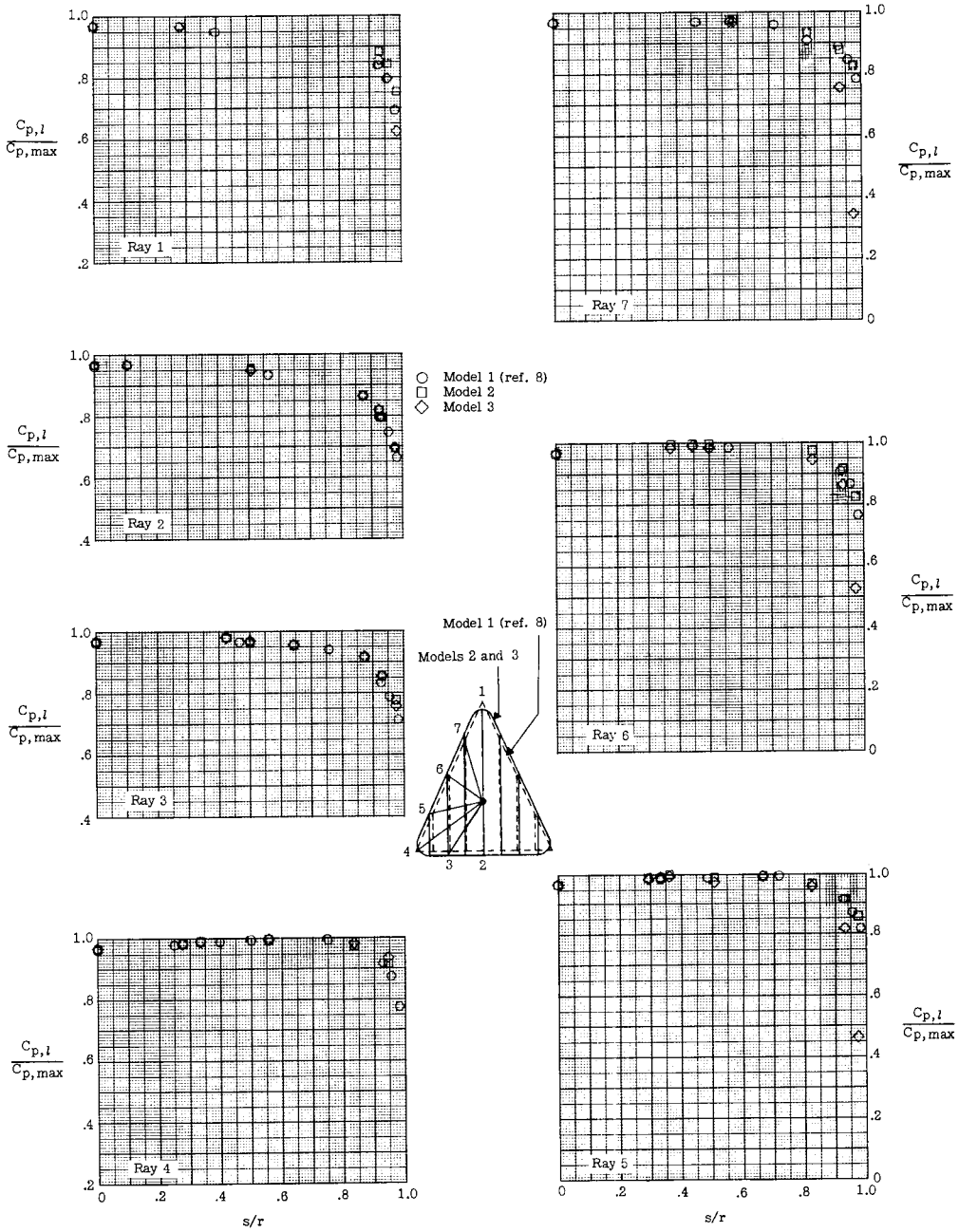
(d) $\alpha = 105^{\circ}$.

Figure 5.- Continued.



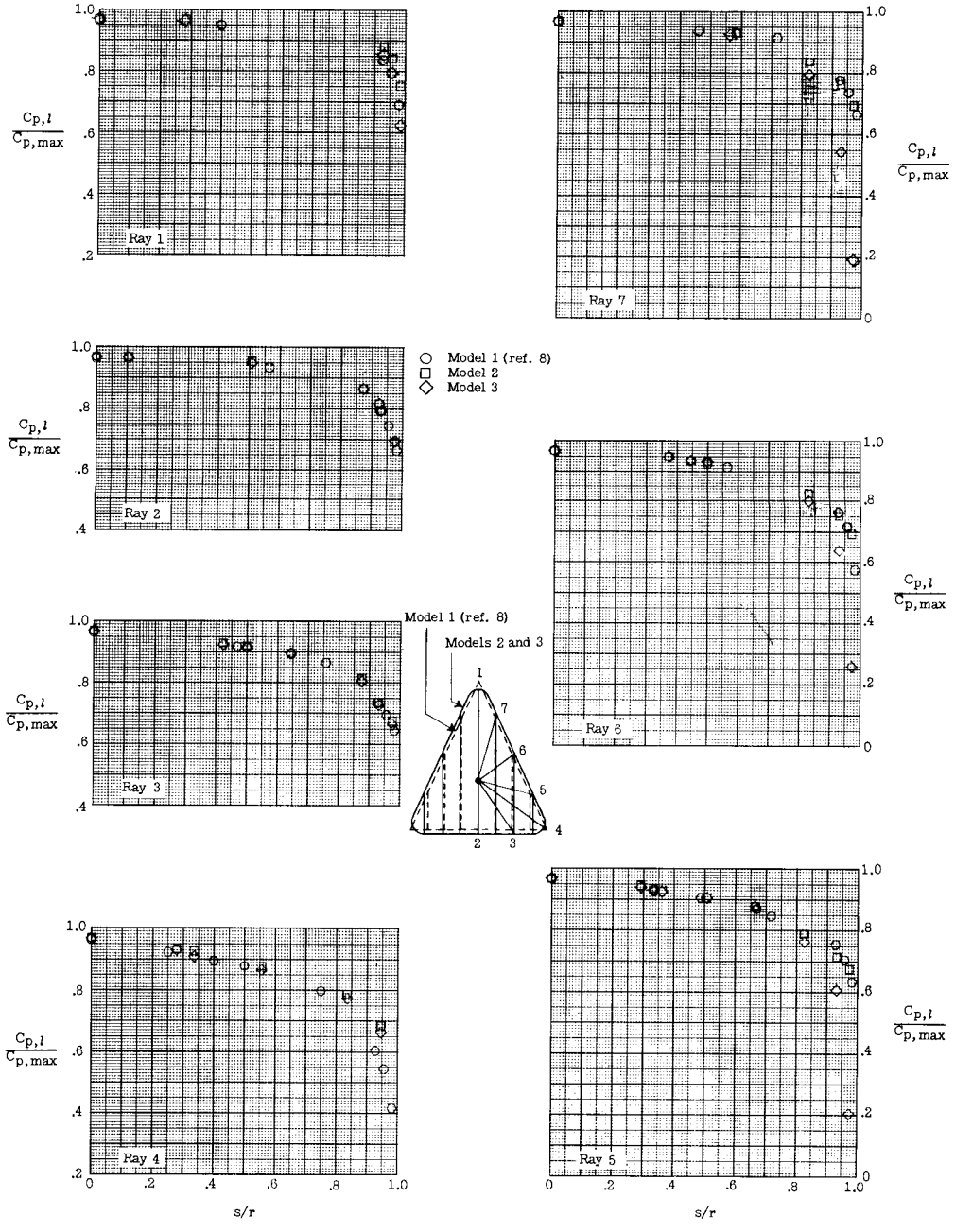
(e) $\alpha = 115^{\circ}$.

Figure 5.- Continued.



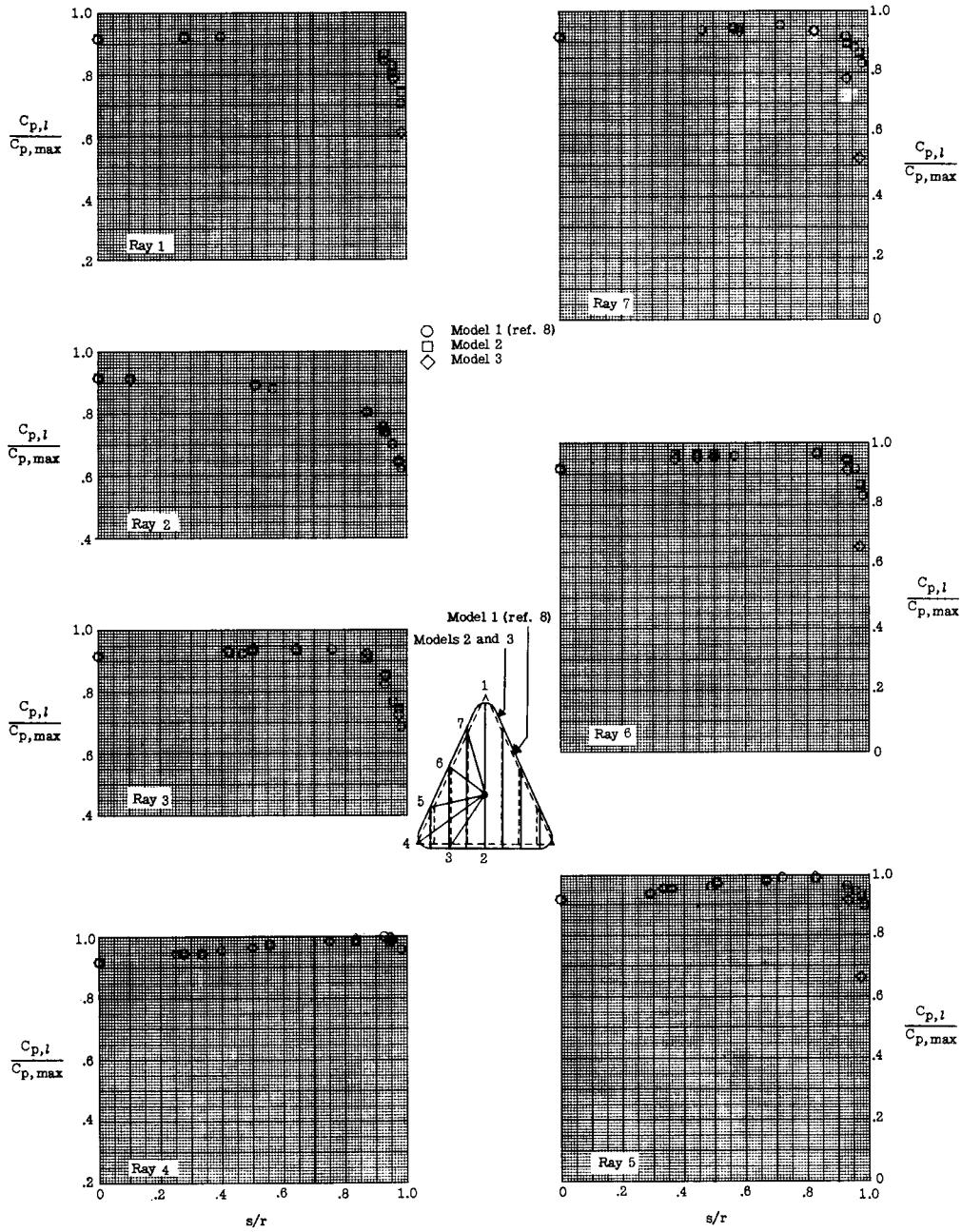
(f) $\phi = 15^{\circ}$ (most upstream side).

Figure 5.- Continued.



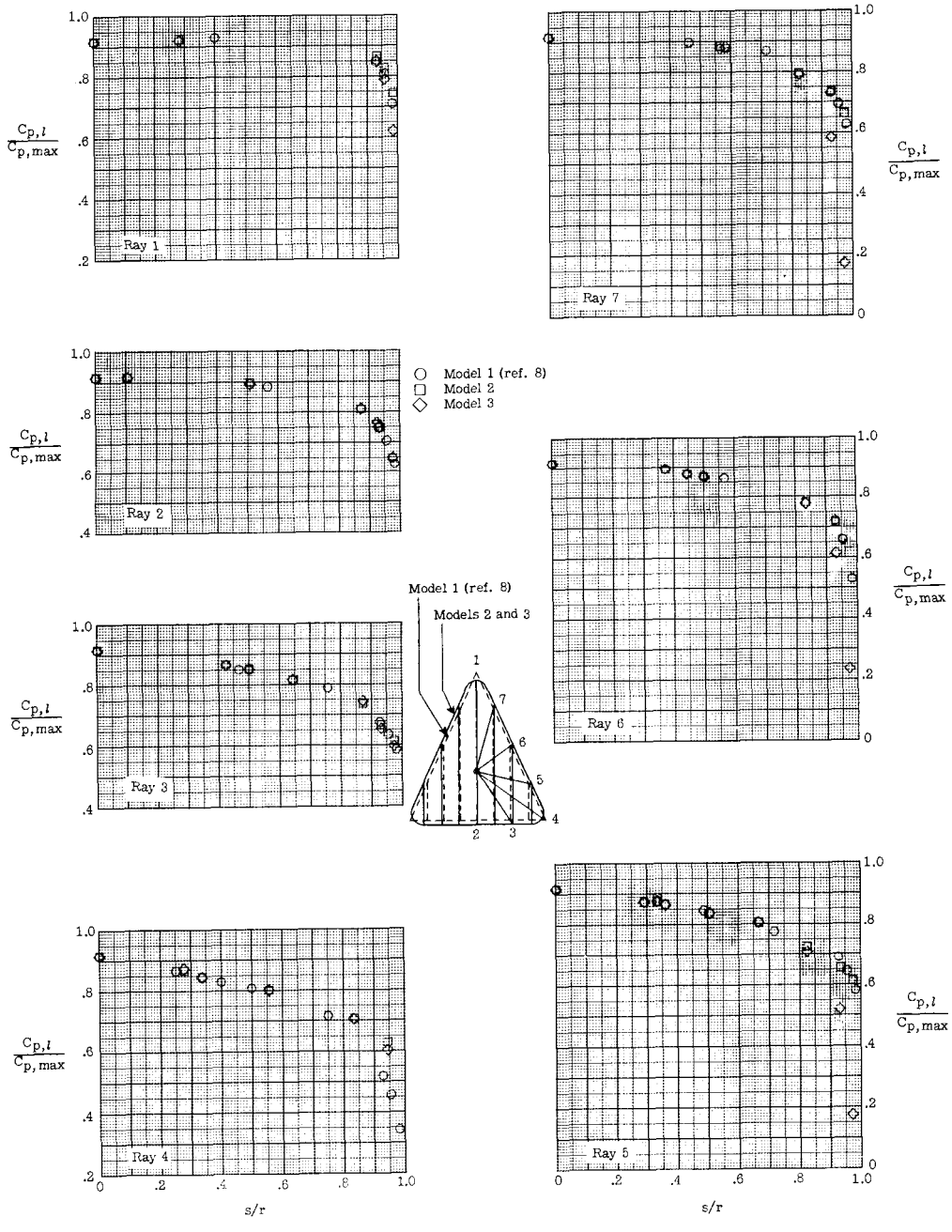
(g) $\phi = 15^{\circ}$ (most downstream side).

Figure 5.- Continued.



(h) $\phi = 25^{\circ}$ (most upstream side).

Figure 5.- Continued.



(i) $\phi = 25^{\circ}$ (most downstream side).

Figure 5.- Concluded.

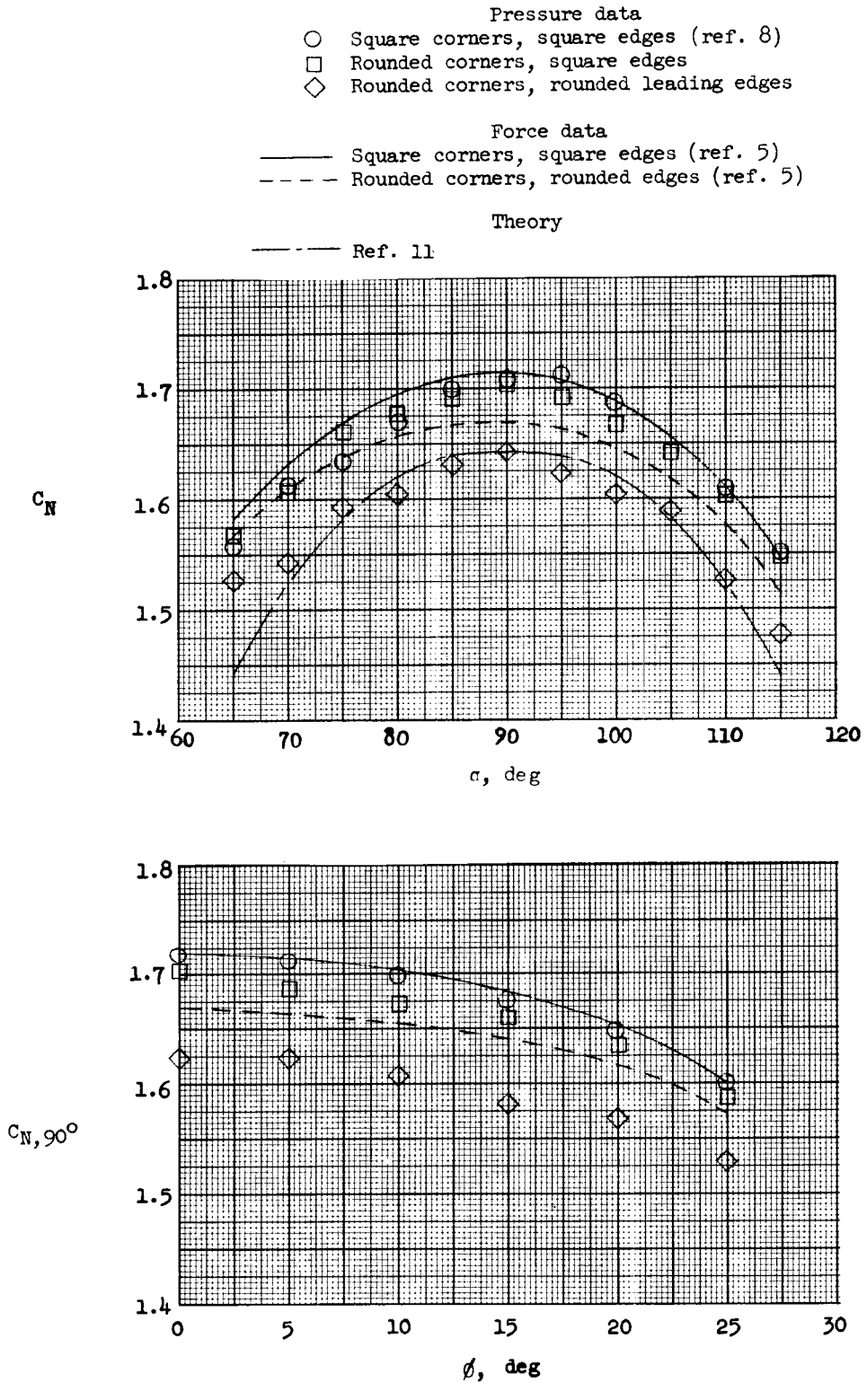


Figure 6.- Effects on normal-force coefficient of rounding corners and leading edges.

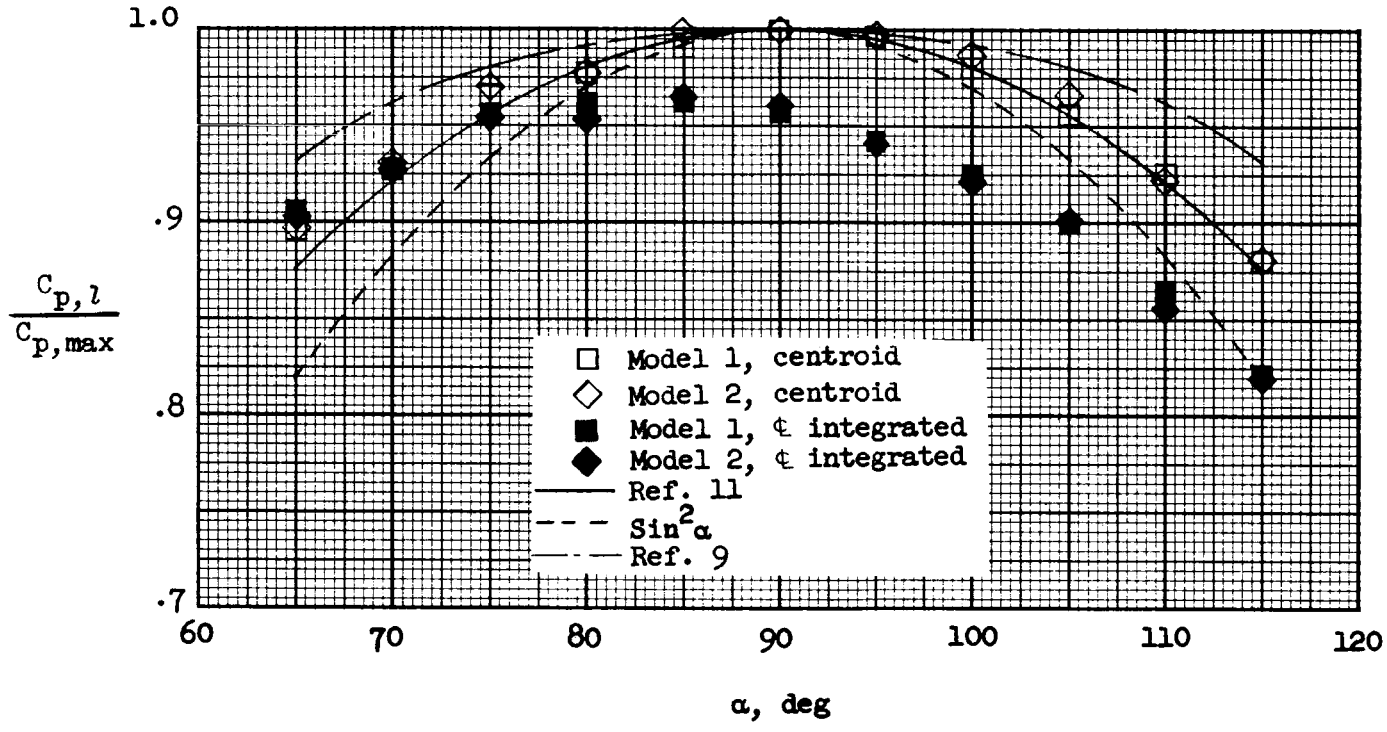


Figure 7.- Normalized pressure coefficients on center line of models.