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Experimental Results for the Eppler 387 Airfoil at Low Reynolds Numbers in the Langley Low-Turbulence Pressure Tunnel

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Contents

Abstract

Experimental results have been obtained for an Eppler 387 airfoil in the Langley Low-Turbulence Pressure Tunnel (LTPT). The tests were conducted over a Mach number range from 0.03 to 0.13 and a chord Reynolds number range from 60 000 to 460 000. Lift and pitching-moment data were obtained from airfoil surface pressure measurements, and drag data were obtained from wake surveys. Oil flow visualization was used to determine laminar-separation and turbulent-reattachment locations. Comparisons of these results with data on the Eppler 387 airfoil from two other facilities, as well as with predictions from the Eppler airfoil code, are included.

Introduction

Recent interest in low Reynolds number aerodynamics has increased for both military and civil applications with emphasis on providing better vehicle performance (ref. 1). Reynolds numbers below 500 000 are usually identified as being in this classification. Applications are varied and include remotely piloted vehicles, ultralight human-powered vehicles, wind turbines, and propellers.

Although the design and evaluation techniques for airfoils at Reynolds numbers above 500 000 are well developed, serious problems related to boundary-layer separation and transition have been encountered at lower Reynolds numbers. Presently available design and analysis methods generally do not adequately model flow phenomena such as laminar separation bubbles. Experimental results obtained on an Eppler 387 airfoil at low Reynolds numbers in the Model Wind Tunnel at Stuttgart (ref. 2) and the Low-Turbulence Tunnel at Delft (ref. 3) have shown large differences in airfoil performance. This is not surprising because of the sensitivity of the airfoil boundary layer to free-stream disturbances, model contour accuracy, and model surface roughness. Also, the model forces and pressure differences are small and difficult to measure accurately.

NASA Langley Research Center has initiated a research program to develop test techniques to determine performance characteristics of airfoils at low Reynolds numbers ($R \leq 500\,000$) (ref. 4). This experimental program uses the Langley Low-Turbulence Pressure Tunnel and consists of performance evaluation of both force and pressure models of an Eppler 387 airfoil. Oil flow visualization and surface-mounted thin-film gages were used to determine laminar-separation and turbulent-reattachment locations. Also, test-section turbulence and acoustic measurements were obtained.

This report presents only the pressure model results obtained from this research program. Tests on a pressure model of the Eppler 387 airfoil have been conducted over a Mach number range from 0.03 to 0.13 and a chord Reynolds number range from 60 000 to 460 000. Lift and pitching-moment data were obtained from airfoil surface pressure measurements, and drag data were obtained from wake surveys. Oil flow visualization was used to determine laminar-separation and turbulent-reattachment locations. Comparisons of these results with data on the Eppler 387 airfoil from two other facilities, as well as with predictions from the Eppler airfoil code, are included. A discussion of the most pertinent results from this test is reported in reference 5. The data are presented herein in both tabulated and plotted formats.

Symbols

The symbols in parentheses are those used in computer-generated tables in the appendixes.

b	(B)	airfoil span, in.
C_p		pressure coefficient, $\frac{p-p_\infty}{q_\infty}$
c	(C)	airfoil chord, 6 in.
c_c		section chord-force coefficient, $\int C_p \, d(z/c)$
c_d	(CD)	section profile-drag coefficient, $\int_{\text{wake}} c'_d \, d(h/c)$
c'_d		point-drag coefficient (see appendix A)
c_l	(CL)	section lift coefficient, $c_n \cos\alpha - c_c \sin\alpha$
c_m	(CM)	section pitching-moment coefficient about quarter-chord point, $-\int C_p(x/c - 0.25) \, d(x/c) + \int C_p \, z/c \, d(z/c)$
c_n		section normal-force coefficient, $-\int C_p \, d(x/c)$
h		vertical distance in wake profile, in.
M		free-stream Mach number
p		static pressure, psi
p_t	(PT)	total pressure, psi
q		dynamic pressure, psi
R		Reynolds number based on free-stream conditions and airfoil chord of 6 in.

R/ft		unit Reynolds number
$\tilde{u}/u$		ratio of fluctuating velocity to mean velocity in streamwise direction
x	(X)	airfoil abscissa, in.
y	(Y)	spanwise distance along model from centerline, in.
z		airfoil ordinate, in.
α	(ALPHA)	angle of attack, deg

Subscripts:

des	design
diff	difference
max	maximum
meas	measured
∞ (INF)	free-stream conditions

Abbreviations:

LS	laminar separation from flow visualization
LTPT	Low-Turbulence Pressure Tunnel
NT	natural transition from flow visualization
rms	root mean square
sep.	separation
TR	turbulent reattachment from flow visualization

Model, Apparatus, and Procedure

Model

The airfoil model was machined from stainless steel. To provide structural integrity and room for pressure tubing, the trailing edge of the model was thickened from 0 to 0.01 in. The additional thickness was blended into the Eppler 387 coordinates at $x/c = 0.95$. (See table I.) The basic camber distribution of the Eppler 387 airfoil was retained. The model had a chord length of 6 in. and a span of 36 in. A drawing of the Eppler 387 section shape is shown in figure 1. A photograph of the model mounted in the LTPT is shown in figure 2. The model design contour accuracy was within ± 0.001 in. The differences between the design and measured coordinates are shown in figure 3 as a function of both chordwise and spanwise locations. In general, the specified fabrication tolerance was maintained except on the model upper surface between chordwise locations of $x/c = 0.60$ and $x/c = 0.80$. A surface finish of 64 μin. (rms) was specified.

Grooves were machined in the surface of the steel model and pressure tubing was routed through the grooves for orifice locations. The grooves were filled with epoxy resin. Orifices were drilled through the metal surface into the tubing with their axes perpendicular to the local surface. Each orifice had a diameter of 0.020 in. except at $x/c = 0.95$ where a diameter of 0.010 in. was used. The locations of both upper and lower surface orifices are indicated in table II. The orifices were staggered to alleviate mutual interference, as illustrated by the photograph of figure 4.

Wind Tunnel

The test was conducted in the LTPT. This facility is described in detail in reference 6, and dynamic flow quality measurements are reported in reference 7. The LTPT is a pressurized, closed-circuit, continuous-flow wind tunnel with an operating pressure from approximately 0.10 to 10 atm. The test section was designed for two-dimensional testing of airfoil sections and is 7.5 ft high, 7.5 ft long, and 3 ft wide. The contraction ratio is 17.6:1, and 9 antiturbulence screens are installed in the settling chamber.

This facility was selected to develop test techniques for low Reynolds number aerodynamics because of its good flow quality, precision pressure instrumentation, and variable pressure capability. The tunnel operating envelope for a 6-in-chord airfoil model is shown in figure 5; test conditions for the Eppler 387 model are also indicated. In order to enchance the resolution of model forces and pressure differences, it is desirable to operate at the higher end of the dynamic pressure envelope.

To supplement the turbulence measurements for the LTPT (see ref. 7) in the low Reynolds number range, additional test-section turbulence was measured with a hot-wire anemometer by Gregory S. Jones of the Langley Research Center. These preliminary results, shown in figure 6, indicate that free-stream turbulence is increased for a constant unit Reynolds number as the tunnel total pressure is decreased. For example, at a unit Reynolds number of 200 000 per foot, the test-section turbulence level (frequency bandpass from 1 to 50 000 Hz) increases from about 0.06 percent to 0.18 percent as the total pressure is reduced from 15 psi to 3 psi. It is well known (ref. 1) that boundary-layer receptivity is strongly affected by the frequency content of the

disturbance environment as well as by the magnitude of both velocity and pressure fluctuations.

Wake Survey Rake

The wake survey rake (fig. 7) was mounted on the tunnel survey apparatus and located 1.50 chords behind the trailing edge of the airfoil. The rake contained seven total-pressure tubes, each 0.063 in. in diameter, which were flattened to 0.020 in. (internal height) over a length of 0.25 in. from the tip of the tube. The rake is equipped with both standard and disc-type static-pressure probes. The standard probes were used to measure the static pressure in the wake for the present test. The static probes were 0.125 in. in diameter with eight flush orifices (0.018 in. diameter) drilled 45° apart and located 8 tube diameters from the tip of the probe. The rake also contained two claw-type flow-angularity probes, which consisted of two open-ended probes inclined 90° with respect to each other. These probes were used to obtain the mean flow direction of the wake.

Survey Apparatus

The wake rake was positioned at various spanwise stations behind the model by means of the remote-controlled survey apparatus (fig. 8). The apparatus basically consists of an articulating arm mounted on an arc strut. Movement of the arm enables the wake surveys to be made for various angles of attack.

The arm is composed of three movable components: a main boom, an offset boom, and a forward pivoting head. Each component has a position control device. The main boom is mounted on the strut with a pivot point allowing rotation in the vertical plane. Its motion is controlled by the linear actuator. The offset boom can be rotated about the main boom by the roll actuator. This allows survey positions to be made at distances up to 12 in. from the tunnel centerline. The forward pivoting head is mounted at the end of the offset boom and may be rotated in the vertical plane by the (internally mounted) pitch adjustment mechanism. Figure 8 shows the survey apparatus with the wake rake mounted on the forward pivoting head assembly. In addition, the entire apparatus can be positioned vertically in the wind tunnel by using the movable strut that moves within the confines of fixed leading- and trailing-edge fairings. Positioning and rate of movement of the rake are controlled by a microprocessor controller. In general, wake surveys using this apparatus provided good drag results with a survey rate of about 0.10 in/sec or less.

Instrumentation

Measurements of pressure on the model surfaces, wake-rake pressures, and basic tunnel pressures were made with variable-capacitance precision transducers. These transducers have an accuracy of ±0.25 percent of reading. An automatic pressure-scanning system was used to record the model pressures. The following full-scale ranges of pressure transducers were used: p_t, 1000 mm Hg; q, 10 mm Hg; wake rake, 10 mm Hg; model upper surface, 50 and 10 mm Hg; model lower surface, 10 mm Hg.

Model angle of attack was measured by a calibrated digital shaft encoder driven by a pinion gear and rack attached to the pitch mechanism. Data were obtained by a high-speed data acquisition system and recorded on magnetic tape. Real-time data displays on cathode-ray tubes were available for tunnel parameters, model pressures, and wake profiles.

Tests and Methods

The pressure model was tested at Reynolds numbers based on airfoil chord from approximately 60 000 to 460 000 and Mach numbers from 0.03 to 0.13. The model was generally tested in a smooth condition except for a strip of turbulator tape used at a Reynolds number of 100 000. This tape was 0.008 in. thick and 0.08 in. wide. The leading edge of the tape formed a zig zag pattern and was located at $0.22c$ on the model upper surface.

Laminar-separation and turbulent-reattachment locations were determined using the oil flow technique reported in reference 8. These results are shown in table III and a typical result for a Reynolds number of 300 000 is illustrated in the photograph of figure 9.

The static-pressure measurements at the model surface were reduced to standard pressure coefficients and numerically integrated to obtain section normal-force and chord-force coefficients and section pitching-moment coefficients about the quarter-chord point. Section profile-drag coefficients were computed from the wake-rake total and static pressures by the method of reference 9.

Standard low-speed wind-tunnel boundary corrections (ref. 9) have been applied to the section data. Corrections were applied to the free-stream dynamic pressure because of solid and wake blockage and applied to lift, pitching moment, and angle of attack because of the effects of floor and ceiling constraints on streamline curvature. No blockage corrections have been applied to the pressure coefficient data. The

magnitude of these corrections for the Eppler 387 airfoil are

$$\alpha \text{ corrected} = \alpha + 0.0083(c_l + 4c_m)$$
$$c_l \text{ corrected} = c_l(0.9988 - 0.0333c_d)$$
$$c_m \text{ corrected} = c_m(0.9997 - 0.0333c_d) + 0.0002c_l$$
$$c_d \text{ corrected} = c_d(0.9995 - 0.0333c_d)$$

It is important when measuring performance characteristics of airfoils to provide some indication of the data accuracy. There are several areas in two-dimensional airfoil testing at low Reynolds numbers that contribute to the overall uncertainty of the results: tunnel flow quality, experimental apparatus, and instrumentation accuracy.

The major errors introduced by the apparatus are confinement effects of the wind-tunnel walls, sidewall boundary-layer interaction, and large-scale vortices in the wake if wake-rake surveys are used to determine drag. For the present tests, the confinement effect of the wind-tunnel walls was minimized by testing a model with a chord-to-tunnel-height ratio of about 0.07. The sidewall boundary-layer interaction effect was reduced by using a pressure model with orifices near the center of the model and a model span-to-chord ratio of 6. To survey the spanwise flow structure in the wake, the wake rake was traversed in the spanwise direction. However, the wake-rake technique of determining drag is still subject to errors related to the changing flow direction in the unsteady wake. Figure 10 illustrates typical wake profiles where two different total-pressure probes traversed through the complete wake. Note the unsteady wakes for $R \leq 100\,000$. (See ref. 1.) The degree of uncertainty associated with the instrumentation accuracy was minimized by using precision pressure transducers.

An estimate of the uncertainties in the section data for $\alpha = 4°$, using the technique of reference 10, is shown in appendix A.

Presentation of Results

The results of this investigation have been reduced to coefficient form and tabulated in appendixes B through E. Selected results are presented in the following figures:

Discussion of Results

Experimental Results

Effect of tunnel environment. Figures 11 through 15 illustrate the effect of tunnel environment. It is well known (ref. 1) that boundary-layer phenomena,

such as laminar-separation bubbles, can be affected by the tunnel environment. The effects of several free-stream conditions on the airfoil section data at $R = 100\,000$ are shown in figure 11(b). The measured turbulence levels (fig. 6) vary from about 0.06 percent at $p_t = 15$ psi and $M = 0.03$ to about 0.16 percent at $p_t = 5$ psi and $M = 0.08$. Increasing the tunnel turbulence level at constant Reynolds number showed no effect on the lift and pitching-moment data. However, some effect on the drag data did occur as illustrated by the drag polar of figure 11(b). Increasing the turbulence level of the tunnel would be expected to have a beneficial effect on the bubble characteristics, similar to that observed for surface roughness (ref. 1), and hence, cause a reduction in drag. However, this result is not clearly indicated. Significant spanwise variations in c_d are shown (fig. 12(a)) at $R = 100\,000$ for these free-stream conditions. The lowest values of c_d were measured at span station 3 in., which is where the model surface pressure orifices were located. Large improvements in spanwise variations of c_d are shown (fig. 12(b)) at Reynolds numbers of 200 000 and 300 000. The pressure data of figure 13 illustrate the effect of the tunnel environment on the bubble characteristics for several angles of attack. The main effect of different free-stream conditions is the location of flow reattachment on the upper surface of the airfoil. These results illustrate the sensitivity of the bubble phenomena to the free-stream environment.

Figure 11(a) illustrates the effects of two free-stream conditions on the section data at $R = 60\,000$. The tunnel turbulence levels were about 0.16 percent for $p_t = 5$ psi and $M = 0.05$, and 0.20 percent for $p_t = 3$ psi and $M = 0.09$. For the data taken at $p_t = 5$ psi and $M = 0.05$, two different flow phenomena (laminar separation with and without turbulent reattachment) were observed at the same angle of attack. This unsteady flow occurred for angles of attack between about 3° and 7°. The pressure data of figure 14 illustrate the two flow regimes for several angles of attack, and spanwise pressure data are shown in figure 15 for $\alpha = 5°$. It should be noted that the pressure data were obtained using an automatic pressure scanning system; thus each pressure was measured at a different time. The data at $p_t = 3$ psi and $M = 0.09$ for the angle-of-attack range where the two flow regimes were observed always resulted in laminar separation without flow reattachment. Consistent flow reattachment occurred at $\alpha = 7.5°$ (fig. 11(a)) for both tunnel conditions. Large increases in drag are shown in the angle-of-attack range where flow reattachment did not occur. These results illustrate the extreme sensitivity of the airfoil boundary-layer characteristics at $R = 60\,000$.

Reynolds number effects. Figures 16 through 25 illustrate Reynolds number effects. The effects of increasing Reynolds number from 60 000 to 460 000 on the airfoil section data are shown in figure 16. The data presented are for the free-stream environment where the lowest disturbance levels were measured (fig. 6). Increasing the Reynolds number results in large improvements in airfoil performance because of the decrease in size of the laminar-separation bubble. The pressure data of figure 18 illustrate this favorable Reynolds number effect. For example, for $\alpha = 4°$ (fig. 18(d)), a decrease in the extent of the upper surface laminar-separation bubble from more than $0.50c$ to about $0.10c$ is indicated for an increase in Reynolds number from 60 000 to 460 000. A corresponding decrease in c_d of 0.0310 is indicated. As discussed earlier, two flow regimes (laminar separation with and without turbulent reattachment) occurred at $R = 60\,000$ for several angles of attack. For Reynolds numbers greater than 60 000, when laminar separation occurred, turbulent reattachment always resulted. The pressure data (fig. 18) also indicate the changes in airfoil loading because of increases in Reynolds number ($R = 60\,000$ to 200 000) and the resulting decrease in the magnitude of the pitching-moment coefficients. Figures 19 and 20 summarize the effects of Reynolds number on drag coefficient and maximum lift coefficient.

A more detailed effect of Reynolds number and angle of attack on the upper surface bubble characteristics from the oil flow results is shown in figure 21 for Reynolds numbers from 100 000 to 300 000. The pressure data and oil flow results are shown in comparison in figure 22. A decrease in bubble length is shown for either an increase in angle of attack at a constant Reynolds number or an increase in Reynolds number at a constant angle of attack. Increasing the Reynolds number resulted in only a small effect on the location of laminar separation compared with turbulent reattachment. For example, for $\alpha = 4°$, increasing the Reynolds number from 100 000 to 300 000 produced only about $0.05c$ movement in the laminar-separation point compared with about $0.15c$ movement in the turbulent-reattachment location. At Reynolds numbers of 200 000 and 300 000 and angles of attack between 7° and 8°, the flow remained attached and natural transition occurred. This condition generally resulted in the best lift-to-drag ratio for the airfoil.

The importance of hysteresis phenomena for airfoils at low Reynolds numbers is pointed out in reference 1. The presence and extent of these phenomena are generally determined by the location of

separation and/or transition in the boundary layer. Hysteresis data were obtained at Reynolds numbers from 60 000 to 300 000 by increasing the angle of attack from $-3°$ to stall and then decreasing the angle of attack from stall to about $0°$. Figure 23 illustrates the hysteresis effect on the section data and figures 24 and 25 show the effects on the chordwise pressure data. Generally, no hysteresis loops were observed; however, as previously discussed, two flow regimes were present for a small angle-of-attack range for $R = 60\,000$.

Effect of turbulator. Figures 26 and 27 illustrate the effect of the turbulator. Performance characteristics of airfoils at low Reynolds numbers are dominated by laminar-separation bubbles. One approach to provide improvements is the introduction of suitable disturbances in the boundary layer such that transition occurs ahead of where laminar separation would normally occur. Thus, a boundary-layer disturbance or turbulator was employed. A spanwise strip of tape was placed at $0.22c$ on the model upper surface, and the results for $R = 100\,000$ are illustrated in figures 26 and 27. The turbulator was effective in reducing drag up to a lift coefficient of about 1.0, as shown by the drag polar of figure 26. The pressure data for $\alpha = 4°$ (fig. 27(h)) show typical effects on the laminar-separation bubble due to the turbulator. The turbulator tape did not eliminate the bubble; however, turbulent reattachment occurred further forward on the airfoil upper surface, as indicated by the forward movement of the aft pressure recovery. A reduction in c_d of about 17 percent resulted. For $\alpha = 7°$ (fig. 27(k)), transition occurred ahead of the turbulator tape (because of the adverse pressure gradient near the leading edge) and as expected, no reduction in c_d resulted.

Comparison With Results From Other Facilities

The results of the present experiment are compared with data obtained on an Eppler 387 airfoil model in the Model Wind Tunnel at Stuttgart and the Low-Turbulence Tunnel at Delft, where the free-stream turbulence levels are 0.08 percent and 0.03 percent, respectively. Data shown for the LTPT are for the environment where the lowest turbulence levels were measured (0.06 percent for $R = 100\,000$ and $R = 200\,000$, and 0.16 percent for $R = 60\,000$). The lift data for the LTPT tests were obtained from surface pressure measurements while the data from the other facilities were obtained from force-balance measurements. Drag data for all three facilities were obtained from pressure measurements by using a wake survey rake. For Reynolds numbers of 100 000 and 200 000 (figs. 28(b) and 28(c)), generally good agreement between the LTPT and Delft data is shown; the major discrepancy is in the lift data in the high-angle-of-attack range where the LTPT data show higher values of lift coefficients. This difference may be attributed to the flow interference effects between the tunnel sidewall and model end plates, since a balance was used for the Delft tests. However, large differences are shown between the Stuttgart data and data from the LTPT or Delft. The Stuttgart lift data are generally lower, particularly at the higher angles of attack, and large differences in drag data are indicated. The Stuttgart drag data, compared with the other tunnels, indicate lower values of c_d at lift coefficients where the bubble has a large influence on c_d, and generally higher values of c_d in the low lift coefficient range. (See fig. 28(b), $R = 100\,000$.) These differences in drag data may be attributed to tunnel flow quality, or perhaps model contour accuracy and surface roughness effects.

The data from the three facilities at $R = 60\,000$ is shown in comparison in figure 28(a). As previously discussed, the LTPT data displayed two flow regimes at several angles of attack and showed extreme sensitivity to the tunnel environment at $R = 60\,000$. The LTPT and Delft data both indicate that laminar stall near $c_l \approx 0.6$ occurred with large increases in c_d, and flow reattachment occurred near $c_l = 1.0$. However, the Stuttgart data do not display these phenomena.

Comparison of Results With Eppler Airfoil Code

The Eppler airfoil code (ref. 11) has been one of the most useful codes for the design and analysis of low-speed airfoils. The most important and difficult part of the boundary-layer calculations for low Reynolds numbers is to account for the laminar-separation bubble. This code contains a bubble analogue that is evaluated from conventional computational methods based on the integral momentum and energy equations.

Lift and pitching-moment coefficients are determined from the potential flow. Viscous corrections are applied, including a correction for boundary-layer separation. Drag coefficients are obtained by applying a modified Squire-Young formula to the boundary-layer characteristics at the trailing edge. The prediction of separation is determined by the shape factor based on energy and momentum thicknesses. The prediction of transition is based on an empirical criterion that contains the Reynolds number (based on local conditions and momentum thickness) and the shape factor. The code predicts the existence of significant laminar-separation bubbles and provides a warning to indicate that the predicted

drag coefficient is probably too low. However, the code does not account quantitatively for the influence of the bubble on drag.

The LTPT data and predictions from the Eppler code are shown in comparison in figure 29 for Reynolds numbers from 60 000 to 460 000. For Reynolds numbers of 200 000 or larger, agreement between theory and experiment is considered good. Bubble warnings occurred only at the extremities of the drag polar. For $R = 100\,000$ (fig. 29(b)), good agreement between theory and experiment is indicated for the lift and pitching-moment data. However, the experimental drag data are higher than predicted except near a lift coefficient of about 1.06. Bubble warnings appear for all lift coefficients except $c_l = 1.06$. For $R = 60\,000$ (fig. 29(a)), bubble warnings appear at all conditions. The code does predict laminar stall for a lift coefficient of about 0.6 with flow reattachment occurring at a higher c_l, as is also indicated by the experimental results. Thus, even though the code cannot account for the influence of bubbles on the drag, the boundary-layer phenomena that occur at low Reynolds numbers are predicted well. The code prediction of laminar-separation locations and the oil flow data are shown in comparison in figure 21 for different angles of attack and Reynolds numbers. Generally good agreement between theory and experiment is indicated.

Concluding Remarks

Wind-tunnel tests have been conducted in the Langley Low-Turbulence Pressure Tunnel to determine the performance characteristics of the Eppler 387 airfoil at Reynolds numbers from 60 000 to 460 000. These tests are part of a research effort to develop test techniques for low Reynolds number aerodynamics. The tests were conducted in a manner as to minimize both experimental apparatus and instrumentation uncertainties. The following results were determined from this investigation:

1. The performance of the Eppler 387 airfoil is dominated by laminar-separation bubbles at Reynolds numbers below 200 000.
2. The wind-tunnel test-section environment had a measurable influence on the size of the laminar-separation bubble and, thus, on airfoil performance.
3. Two flow phenomena, laminar separation with and without turbulent reattachment, were observed at the same angle of attack for a Reynolds number of 60 000.
4. A boundary-layer turbulator was effective in decreasing bubble size and, hence, drag at a Reynolds number of 100 000.
5. The comparison of results from the Langley Low-Turbulence Pressure Tunnel with data from the Delft tunnel generally showed good agreement; however, the comparison with data from the Stuttgart tunnel showed large differences.
6. Comparison of the present results with predictions from the Eppler airfoil code generally showed good agreement for the lift and pitching-moment data. However, large differences between predicted and measured drag occurred at Reynolds numbers below 200 000.

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Table I. Design and Measured Airfoil Coordinates With Thickened Trailing Edge

$\left[\frac{y}{b/2} = -0.14\right]$

Upper surface				Lower surface			
$\frac{x}{c}$	$\frac{z_{des}}{c}$	$\frac{z_{meas}}{c}$	$\left(\frac{z}{c}\right)_{diff}$	$\frac{x}{c}$	$\frac{z_{des}}{c}$	$\frac{z_{meas}}{c}$	$\left(\frac{z}{c}\right)_{diff}$
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
.00043	.00233	.00197	−.00037	.00092	−.00287	−.00288	−.00002
.00518	.00932	.00920	−.00012	.00717	−.00682	−.00678	.00003
.01423	.01727	.01742	.00015	.01890	−.01017	−.01017	.00000
.02748	.02562	.02555	−.00007	.03597	−.01265	−.01278	−.00013
.04493	.03408	.03398	−.00010	.05827	−.01425	−.01430	−.00005
.06643	.04238	.04233	−.00005	.08568	−.01500	−.01498	.00002
.09185	.05033	.05032	−.00002	.11800	−.01502	−.01497	.00005
.12093	.05775	.05772	−.00003	.15490	−.01442	−.01433	.00008
.15345	.06448	.06440	−.00008	.19598	−.01328	−.01318	.00010
.18907	.07037	.07025	−.00012	.24083	−.01177	−.01165	.00012
.22742	.07528	.07518	−.00010	.28892	−.00998	−.00987	.00012
.26813	.07908	.07903	−.00005	.33968	−.00803	−.00793	.00010
.31078	.08157	.08160	.00003	.39252	−.00605	−.00597	.00008
.35505	.08247	.08260	.00013	.44678	−.00410	−.00402	.00008
.40077	.08173	.08182	.00008	.50182	−.00228	−.00220	.00008
.44767	.07937	.07935	−.00002	.55693	−.00065	−.00060	.00005
.49548	.07547	.07535	−.00012	.61147	.00073	.00077	.00003
.54393	.07020	.07005	−.00015	.66472	.00187	.00187	.00000
.59272	.06390	.06372	−.00018	.71602	.00268	.00265	−.00003
.64137	.05697	.05675	−.00022	.76475	.00320	.00317	−.00003
.68922	.04975	.04955	−.00020	.81027	.00342	.00333	−.00008
.73567	.04248	.04227	−.00022	.85202	.00337	.00323	−.00013
.78007	.03540	.03518	−.00022	.88943	.00307	.00317	.00010
.82183	.02867	.02845	−.00022	.92205	.00258	.00257	−.00002
.86035	.02242	.02227	−.00015	.94942	.00197	.00182	−.00015
.89510	.01678	.01673	−.00005	1.00000	−.00083	−.00098	−.00015
.92553	.01183	.01188	.00005				
.95128	.00763	.00787	.00023				
1.00000	.00083	.00147	.00063				

Table I. Concluded

$\left[\frac{y}{b/2} = 0.56\right]$

Upper surface				Lower surface			
$\frac{x}{c}$	$\frac{z_{des}}{c}$	$\frac{z_{meas}}{c}$	$\left(\frac{z}{c}\right)_{diff}$	$\frac{x}{c}$	$\frac{z_{des}}{c}$	$\frac{z_{meas}}{c}$	$\left(\frac{z}{c}\right)_{diff}$
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
.00043	.00233	.00220	−.00013	.00092	−.00287	−.00268	.00018
.00518	.00932	.00912	−.00020	.00717	−.00682	−.00695	−.00013
.01423	.01727	.01715	−.00012	.01890	−.01017	−.01028	−.00012
.02748	.02562	.02572	.00010	.03597	−.01265	−.01267	−.00002
.04493	.03408	.03407	−.00002	.05827	−.01425	−.01430	−.00005
.06643	.04238	.04230	−.00008	.08568	−.01500	−.01502	−.00002
.09185	.05033	.05022	−.00012	.11800	−.01502	−.01498	.00003
.12093	.05775	.05772	−.00003	.15490	−.01442	−.01435	.00007
.15345	.06448	.06432	−.00017	.19598	−.01328	−.01320	.00008
.18907	.07037	.07018	−.00018	.24083	−.01177	−.01167	.00010
.22742	.07528	.07515	−.00013	.28892	−.00998	−.00987	.00012
.26813	.07908	.07900	−.00008	.33968	−.00803	−.00793	.00010
.31078	.08157	.08153	−.00003	.39252	−.00605	−.00597	.00008
.35505	.08247	.08247	.00000	.44678	−.00410	−.00402	.00008
.40077	.08173	.08172	−.00002	.50182	−.00228	−.00220	.00008
.44767	.07937	.07930	−.00007	.55693	−.00065	−.00062	.00003
.49548	.07547	.07535	−.00012	.61147	.00073	.00077	.00003
.54393	.07020	.07008	−.00012	.66472	.00187	.00187	.00000
.59272	.06390	.06380	−.00010	.71602	.00268	.00267	−.00002
.64137	.05697	.05688	−.00008	.76475	.00320	.00317	−.00003
.68922	.04975	.04967	−.00008	.81027	.00342	.00337	−.00005
.73567	.04248	.04237	−.00012	.85202	.00337	.00330	−.00007
.78007	.03540	.03535	−.00005	.88943	.00307	.00295	−.00012
.82183	.02867	.02863	−.00003	.92205	.00258	.00243	−.00015
.86035	.02242	.02243	.00002	.94942	.00197	.00190	−.00007
.89510	.01678	.01685	.00007	1.00000	−.00083	−.00090	−.00007
.92553	.01183	.01197	.00013				
.95128	.00763	.00788	.00025				
1.00000	.00083	.00083	.00000				

Table II. Model Orifice Locations, $c = 6$ in.

Upper surface			
Orifice	$\frac{x}{c}$	$\frac{y}{b/2}$	$\frac{z}{c}$
Chordwise			
1	0.0000	0.1667	0.0000
2	.0047	.1722	.0095
3	.0100	.1778	.0138
4	.0150	.1556	.0180
5	.0200	.1611	.0215
6	.0250	.1667	.0245
7	.0300	.1722	.0272
8	.0400	.1778	.0320
9	.0500	.1556	.0363
10	.0600	.1612	.0402
11	.0750	.1667	.0453
12	.1000	.1722	.0527
13	.1500	.1778	.0640
14	.2000	.1556	.0720
15	.2500	.1611	.0775
16	.3001	.1667	.0810
17	.3500	.1722	.0823
18	.4000	.1778	.0817
19	.4500	.1556	.0792
20	.5000	.1611	.0750
21	.5500	.1667	.0695
22	.6000	.1722	.0630
23	.6500	.1778	.0557
24	.7000	.1556	.0482
25	.7500	.1611	.0402
26	.8000	.1667	.0322
27	.8500	.1722	.0238
28	.9000	.1778	.0160
29	.9500	.1556	.0080
Spanwise			
31	0.0500	0.2223	0.0363
32	.0500	.3334	.0363
33	.0501	.4445	.0363
34	.0500	.5556	.0363
35	.0500	.6667	.0363
36	.0500	.7778	.0363
37	.0500	.8890	.0363
38	.0501	.9446	.0363
39	.9000	.2222	.0160
40	.9000	.3334	.0160
41	.9000	.4445	.0160
42	.9000	.5556	.0160
43	.9000	.6667	.0160
44	.9001	.7778	.0160
45	.9001	.8889	.0160
46	.9000	.9446	.0160

Lower surface			
Orifice	$\frac{x}{c}$	$\frac{y}{b/2}$	$\frac{z}{c}$
102	0.0051	0.1055	−0.0062
103	.0100	.1111	−.0072
104	.0150	.1167	−.0092
105	.0201	.1222	−.0105
106	.0251	.1000	−.0113
107	.0307	.1056	−.0122
108	.0402	.1111	−.0132
109	.0499	.1167	−.0143
110	.0600	.1222	−.0143
111	.0750	.1000	−.0148
112	.1001	.1056	−.0150
113	.1500	.1111	−.0147
114	.2000	.1167	−.0130
115	.2500	.1222	−.0113
116	.3000	.1000	−.0093
117	.3500	.1056	−.0077
118	.4000	.1111	−.0058
119	.4501	.1167	−.0040
120	.5049	.1224	−.0022
121	.5500	.1000	−.0008
122	.6000	.1056	.0005
123	.6500	.1112	.0015
124	.7001	.1167	.0025
125	.7501	.1222	.0032
126	.8000	.1001	.0035
127	.8500	.1056	.0034
128	.9000	.1111	.0030
129	.9501	.1167	.0022

Table III. Upper Surface Chordwise Locations (x/c) of Separation and Reattachment From Oil Flow Visualization

$R = 100\,000$			$R = 200\,000$			$R = 300\,000$		
α, deg	LS	TR	α, deg	LS	TR	α, deg	LS	TR
−2.9	0.51	0.97	−2	0.53	0.80	−2	0.53	0.74
−2	.50	.90	0	.48	.74	0	.48	.69
0	.45	.87	2	.43	.67	2	.45	.62
2	.41	.79	4	.40	.62	4	.40	.58
4	.35	.73	5	.38	.59	5	.39	.55
5	.34	.67	6	.37	.55	6	.38	.50
6	.33	.62	7	.33	.48	6.5	.38	.44
7	.32	.56	8	(NT at .32)		7	(NT at .40)	
8	.29	.47	8.5	.03	.18	7.5	(NT at .30)	
8.5	.03	.11				8	(NT at .20)	
9	.02	.02				8.5	.04	.12

LS laminar separation
TR turbulent reattachment
NT natural transition

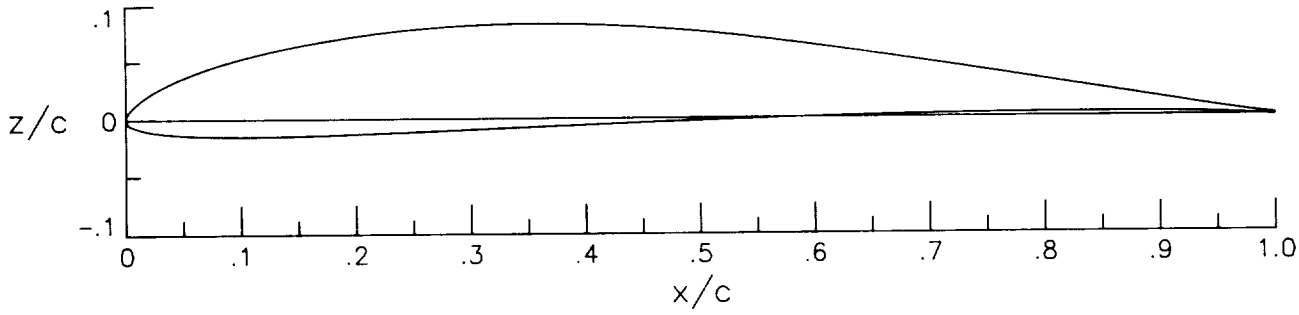
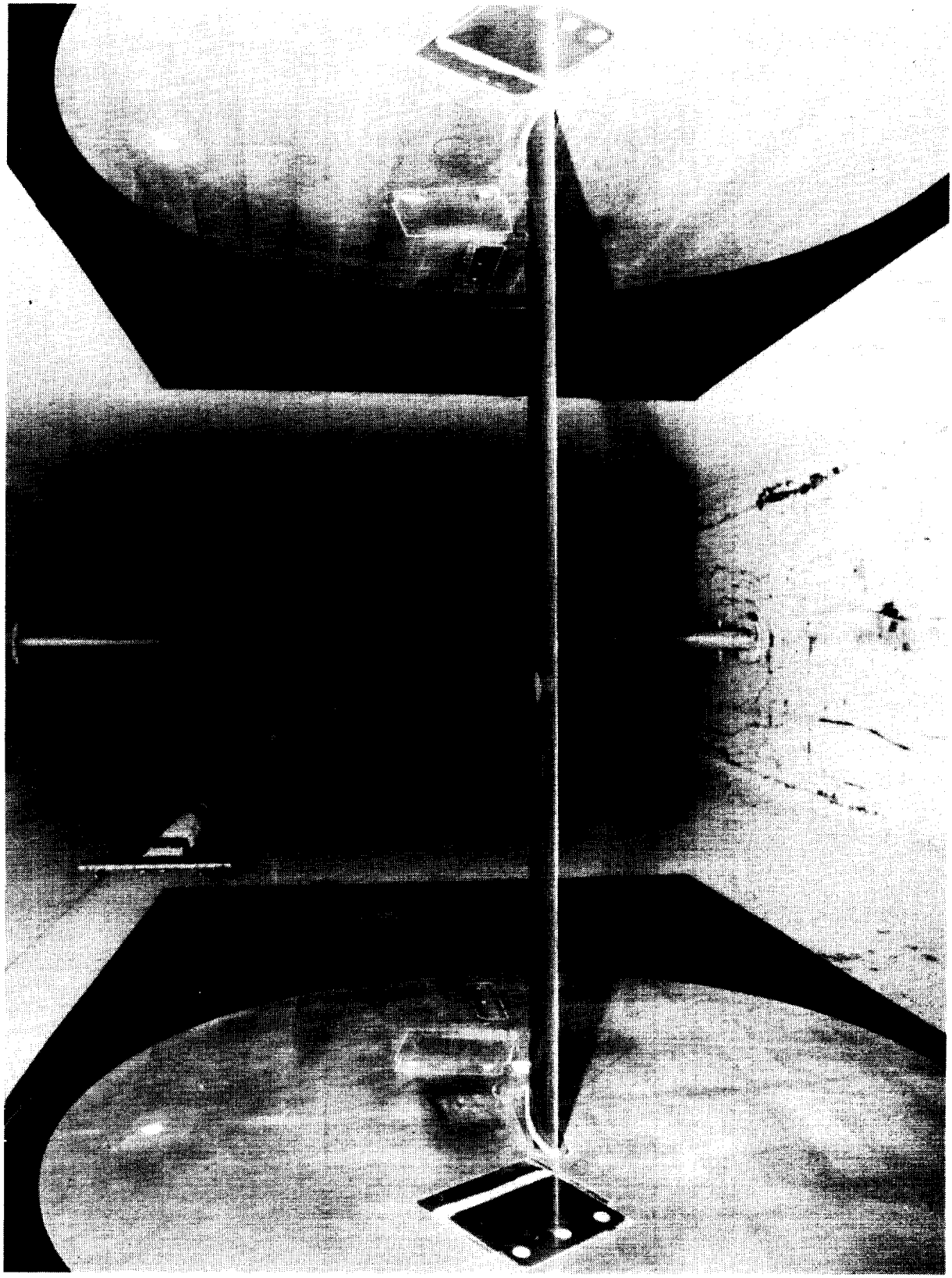
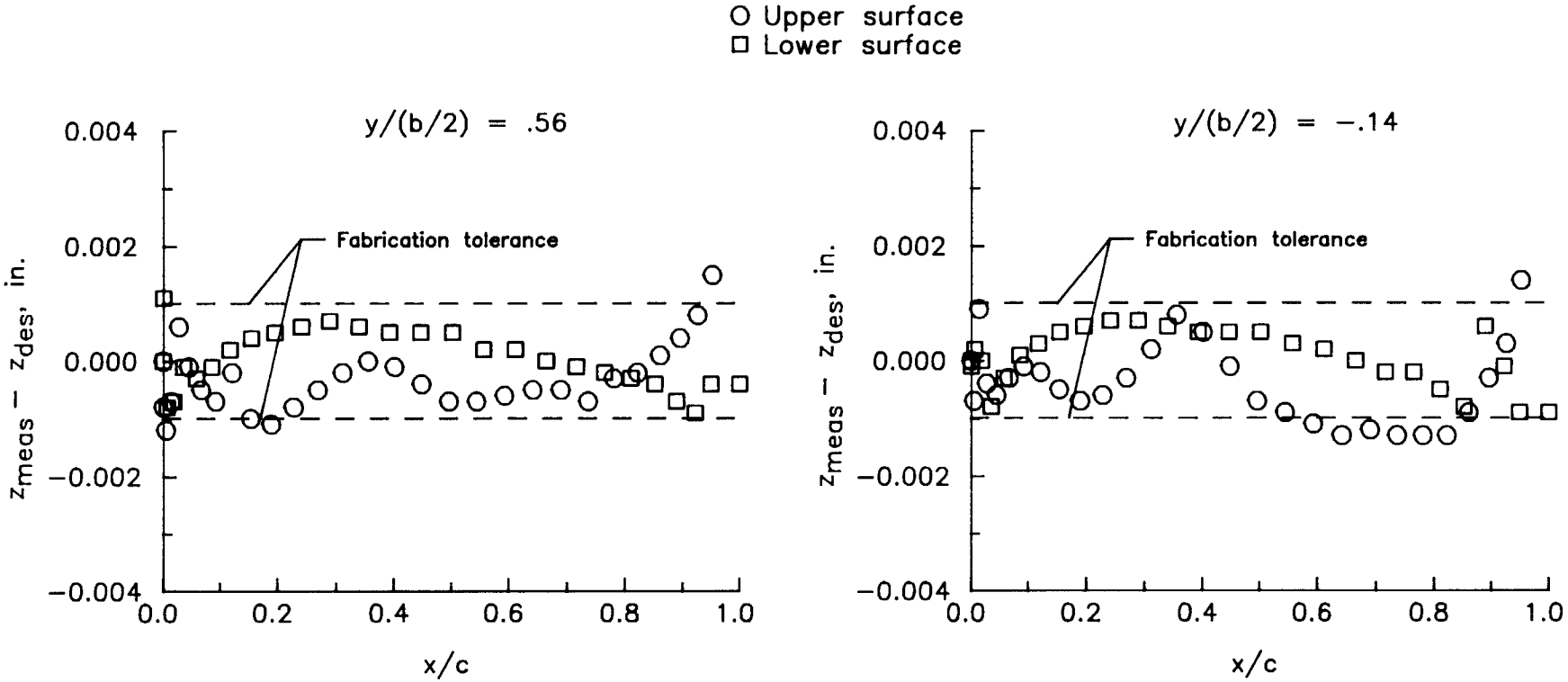


Figure 1. Section shape for Eppler 387 airfoil.



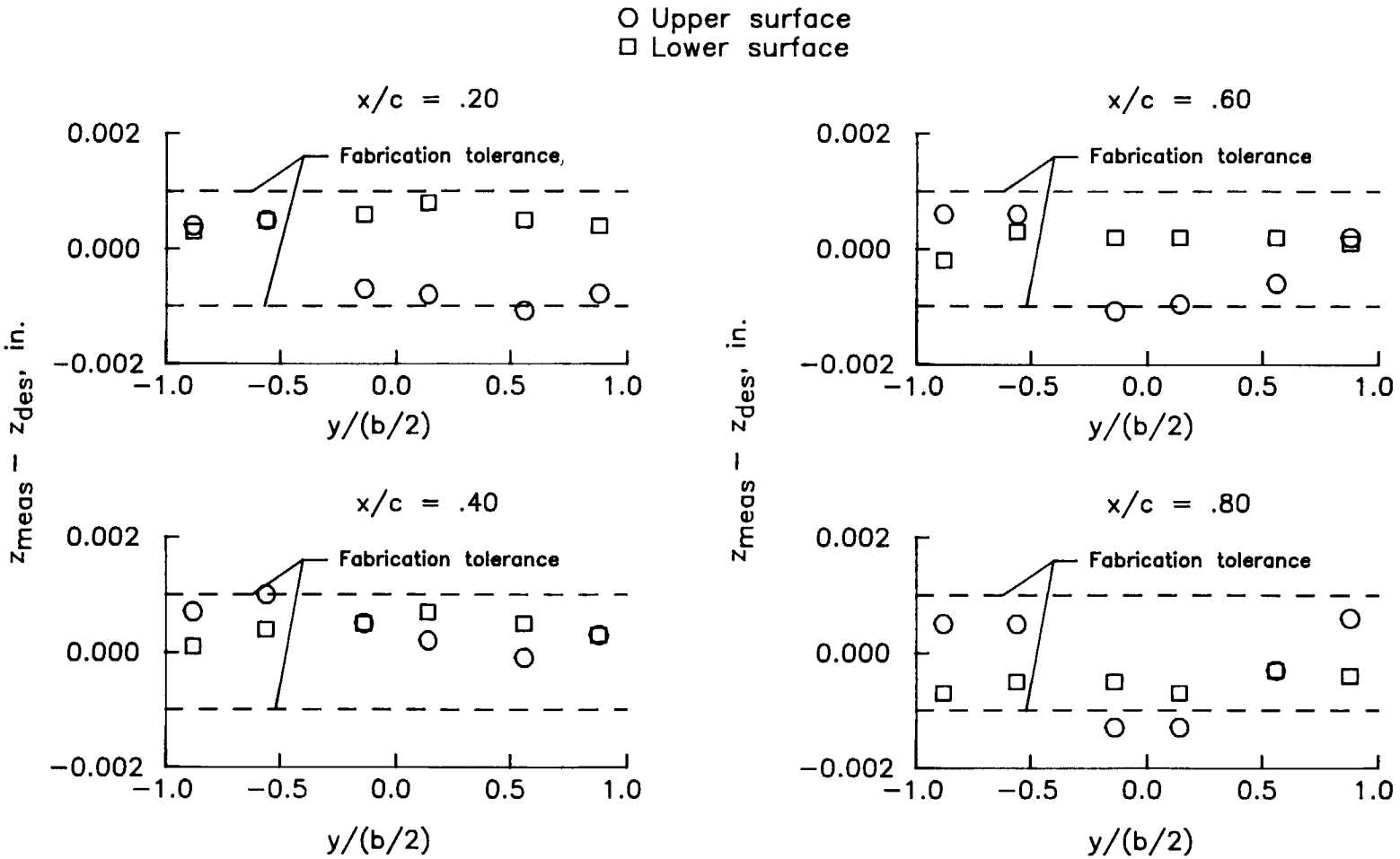
L-86-10,387

Figure 2. Photograph of the Eppler 387 airfoil model mounted in LTPT.



(a) Chordwise.

Figure 3. Measured airfoil coordinate error.



(b) Spanwise.

Figure 3. Concluded.

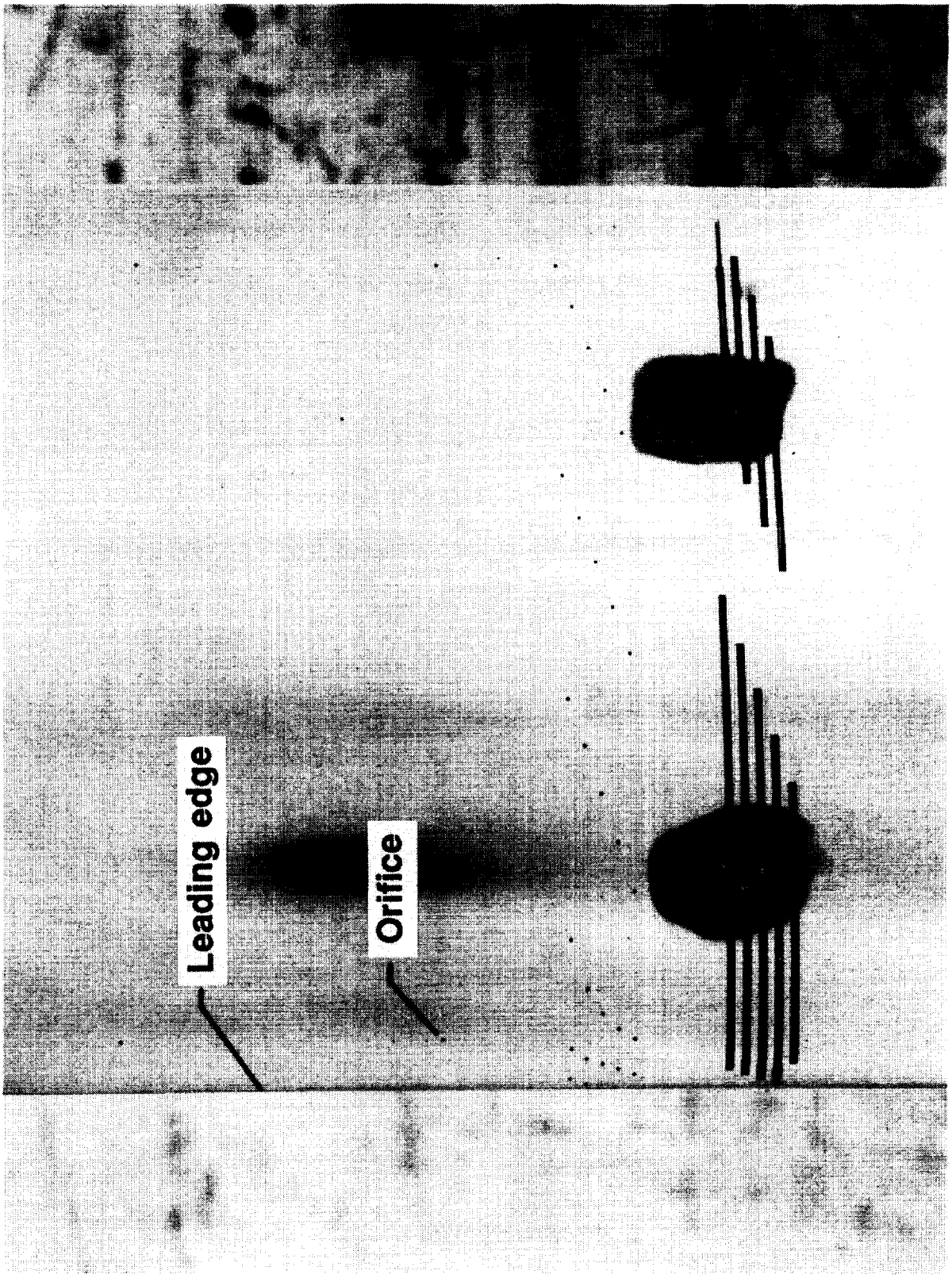


Figure 4. Orifice installation for Eppler 387 pressure model.

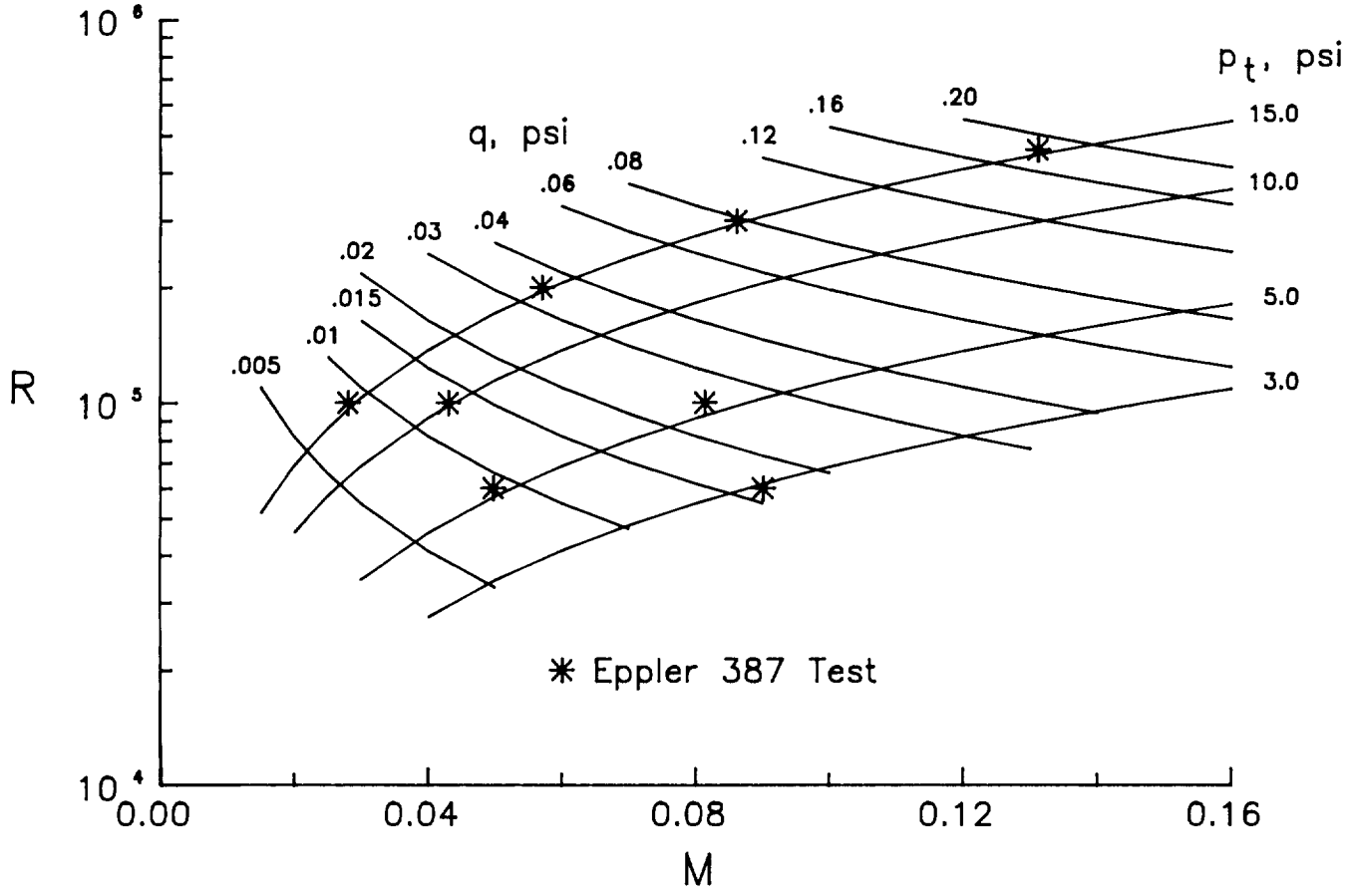


Figure 5. Low Reynolds number operating envelope for LTPT for $c = 6$ in.

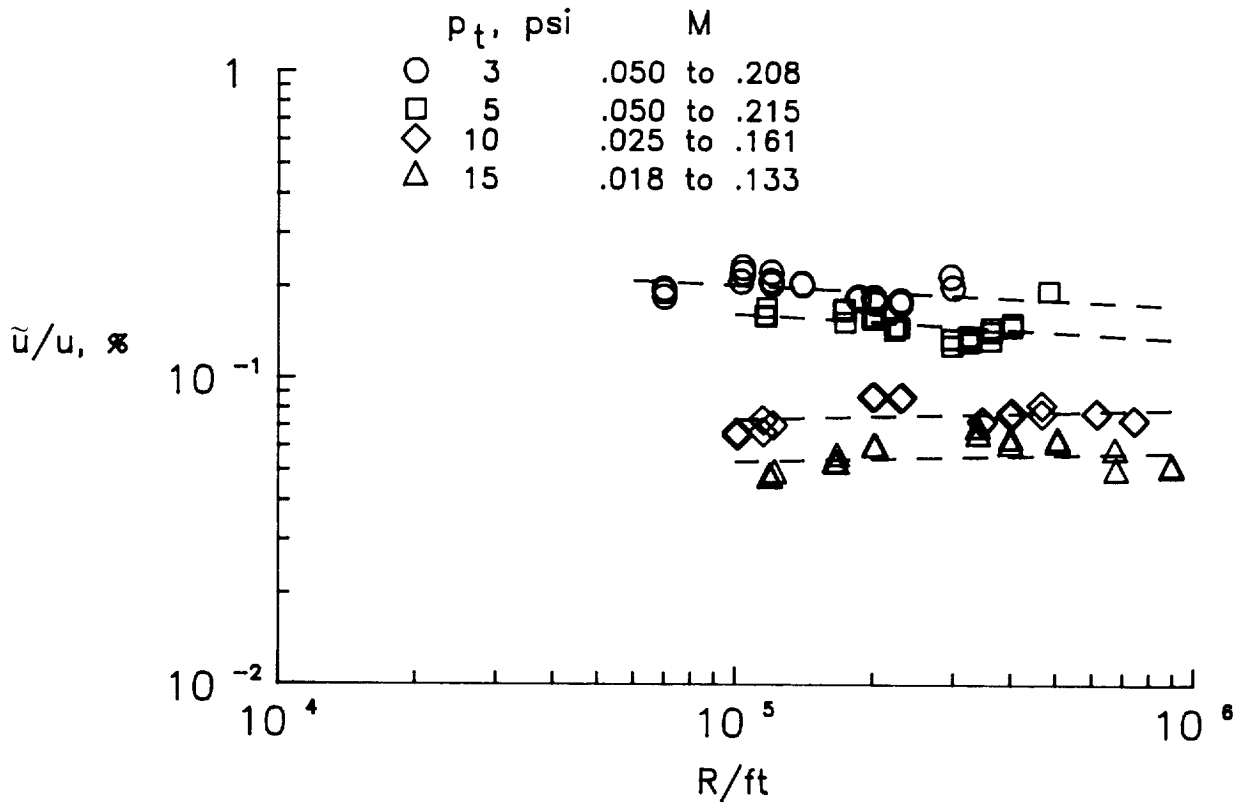


Figure 6. Preliminary test-section turbulence levels for LTPT.

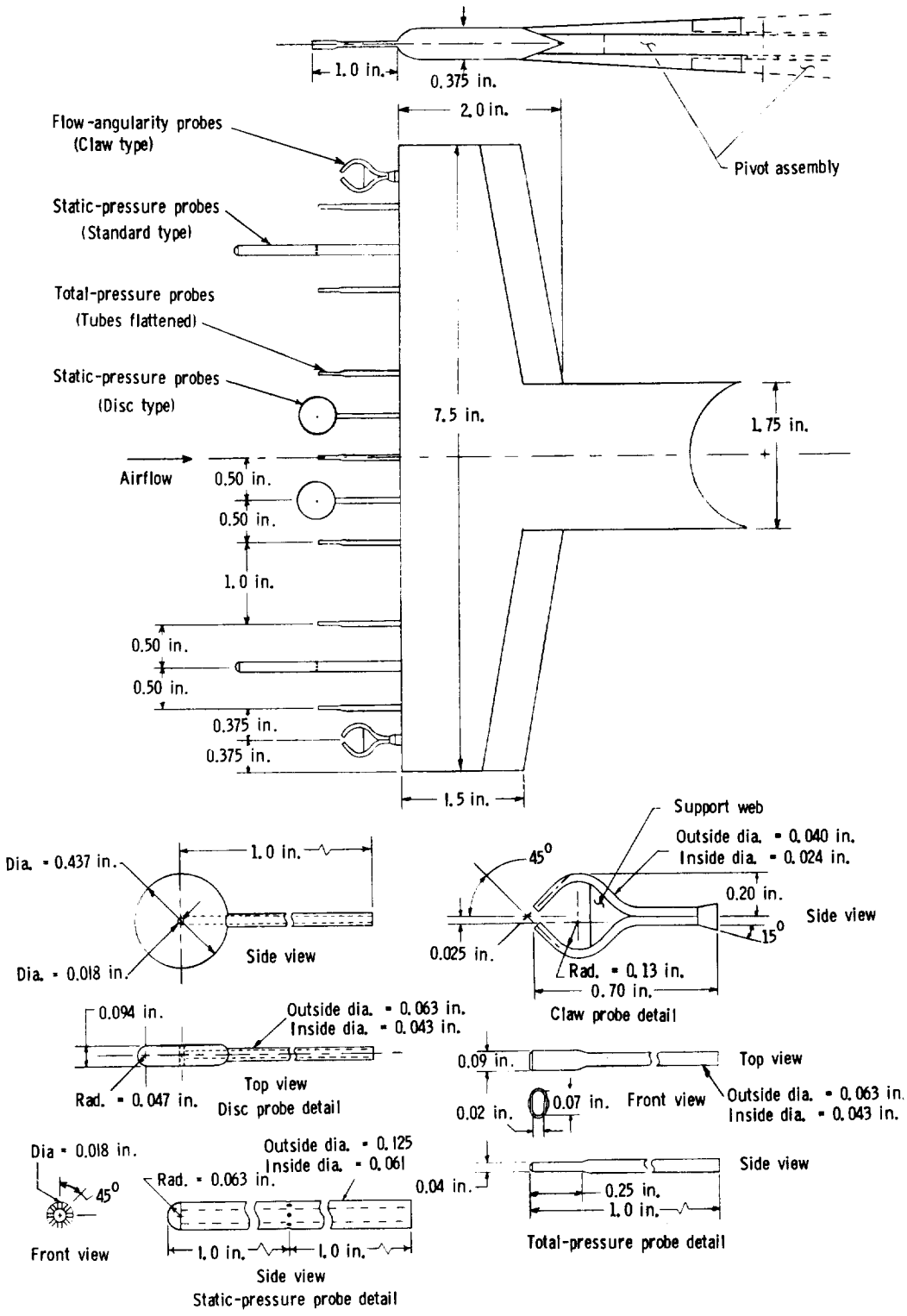


Figure 7. Wake survey rake.

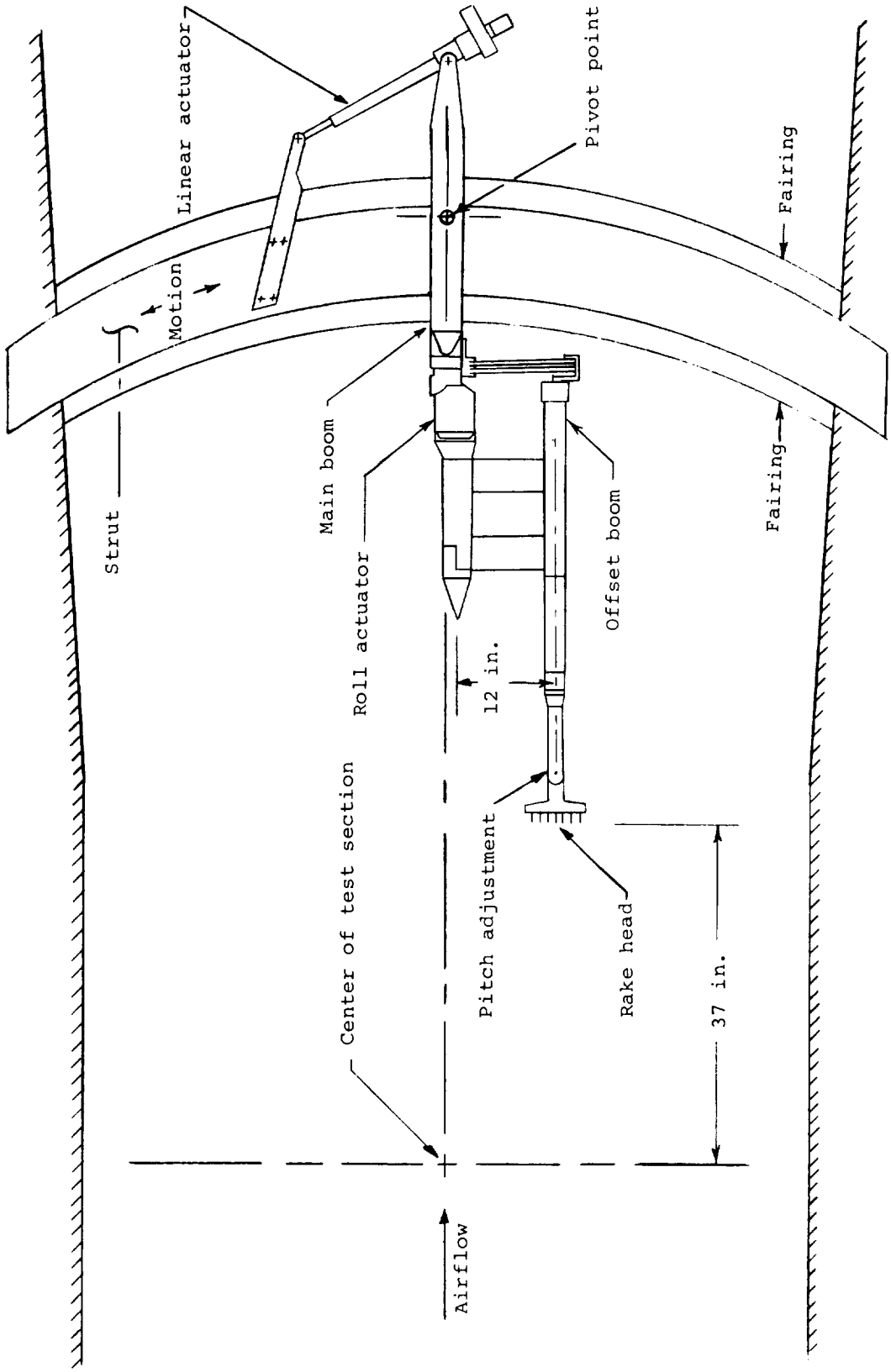
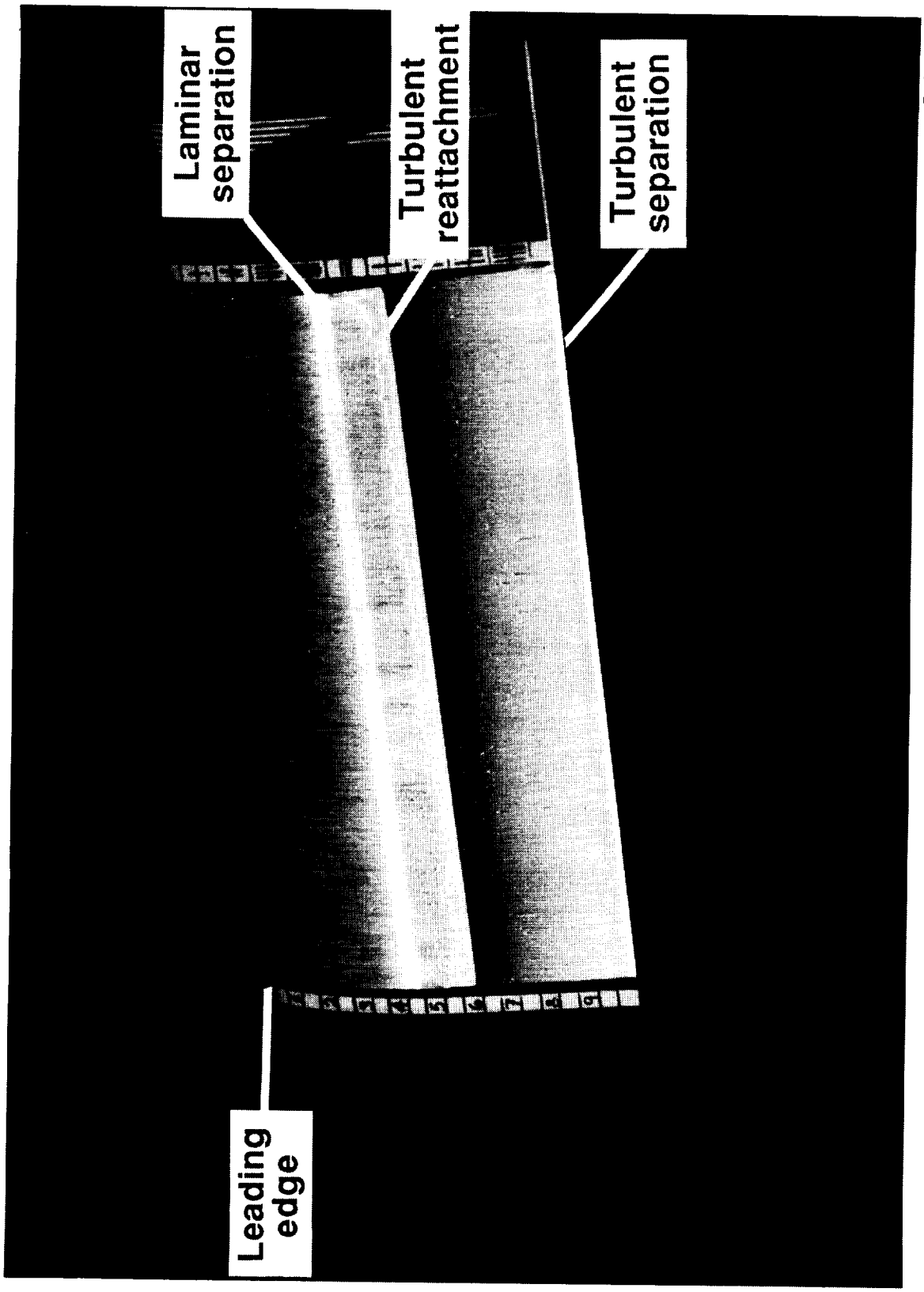


Figure 8. Sketch of remote-controlled survey apparatus for the Langley Low-Turbulence Pressure Tunnel.



L-88-109

Figure 9. Oil flow photograph; $R = 300\,000$ and $\alpha = 4°$.

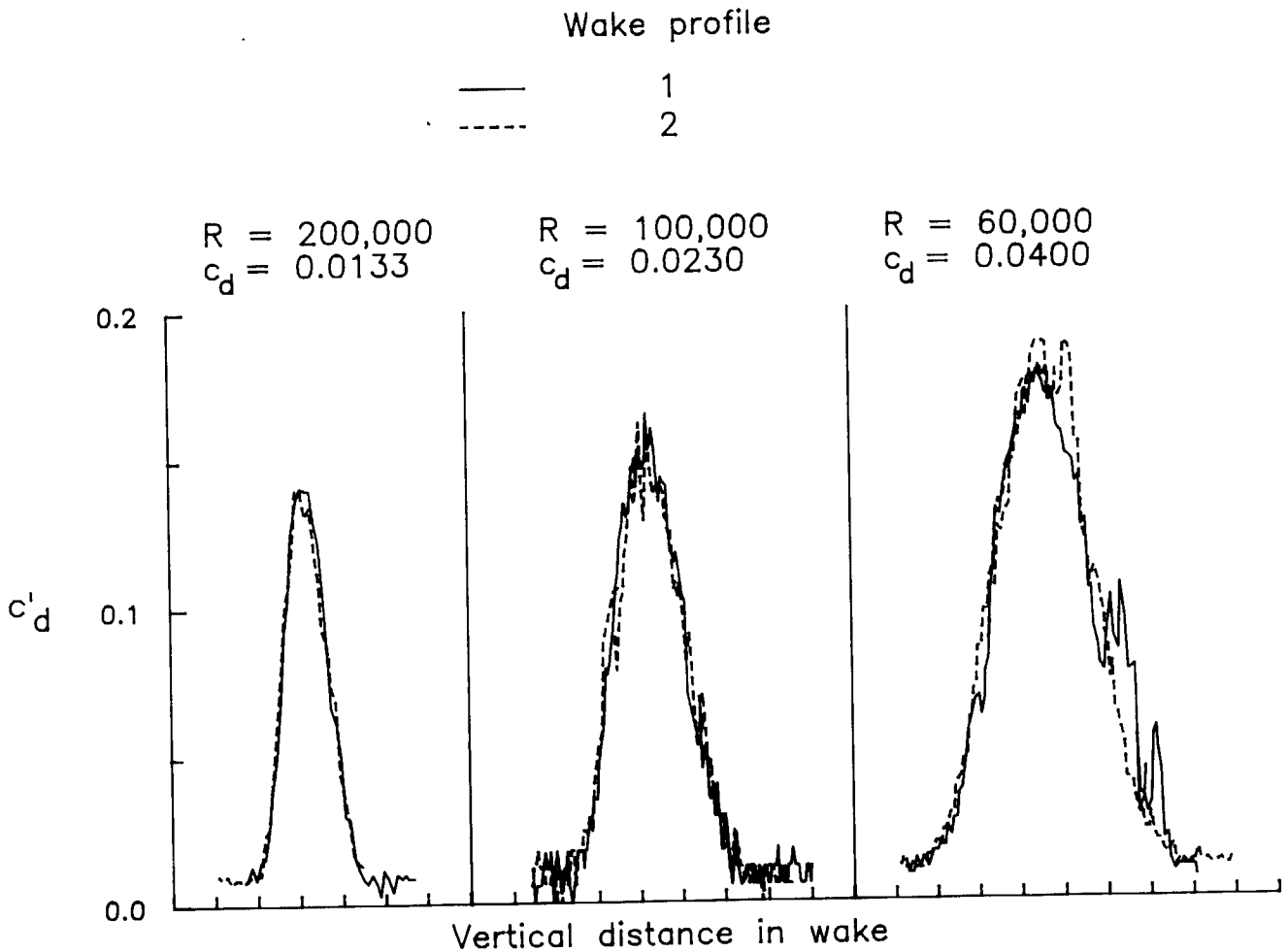
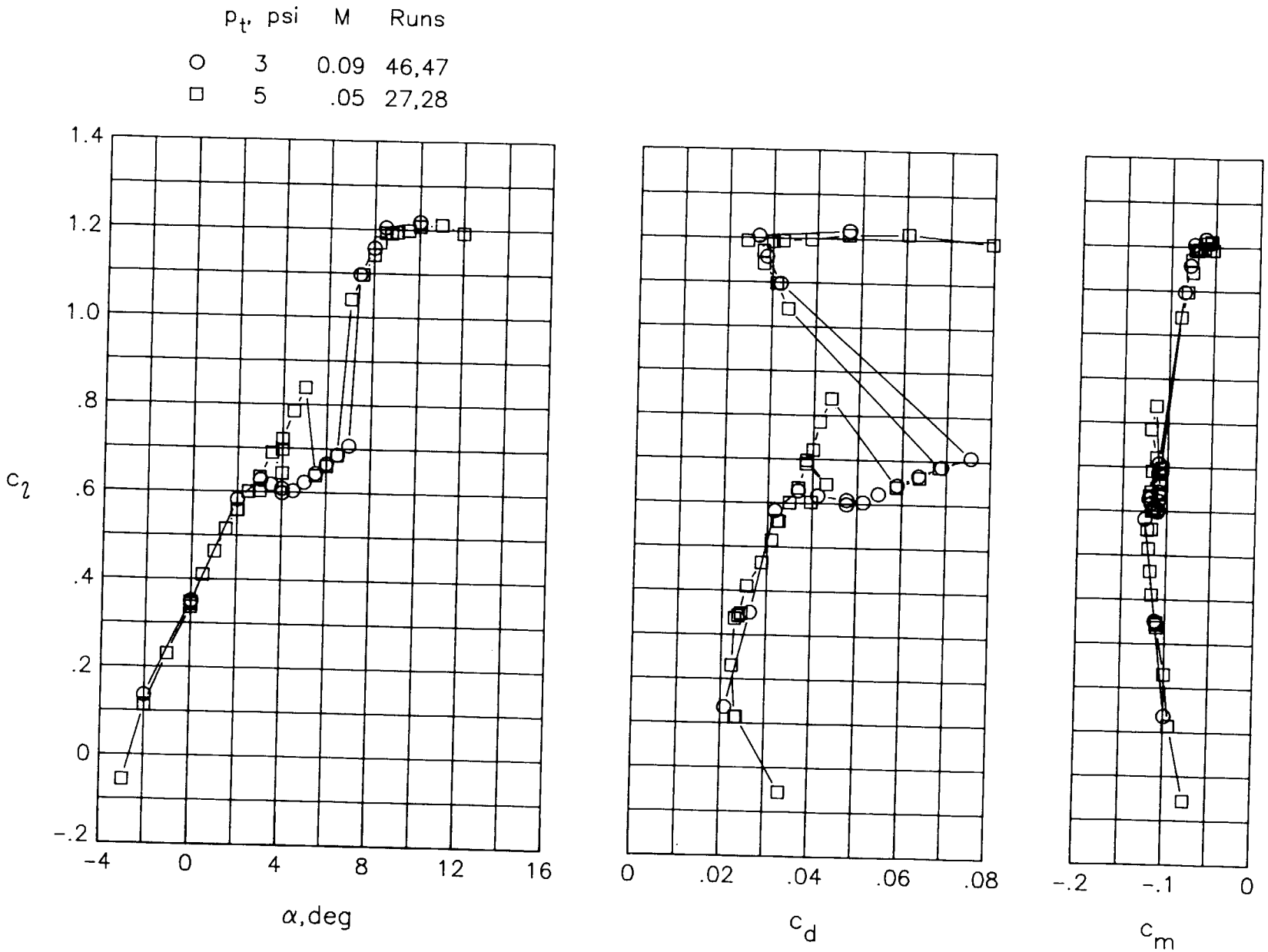
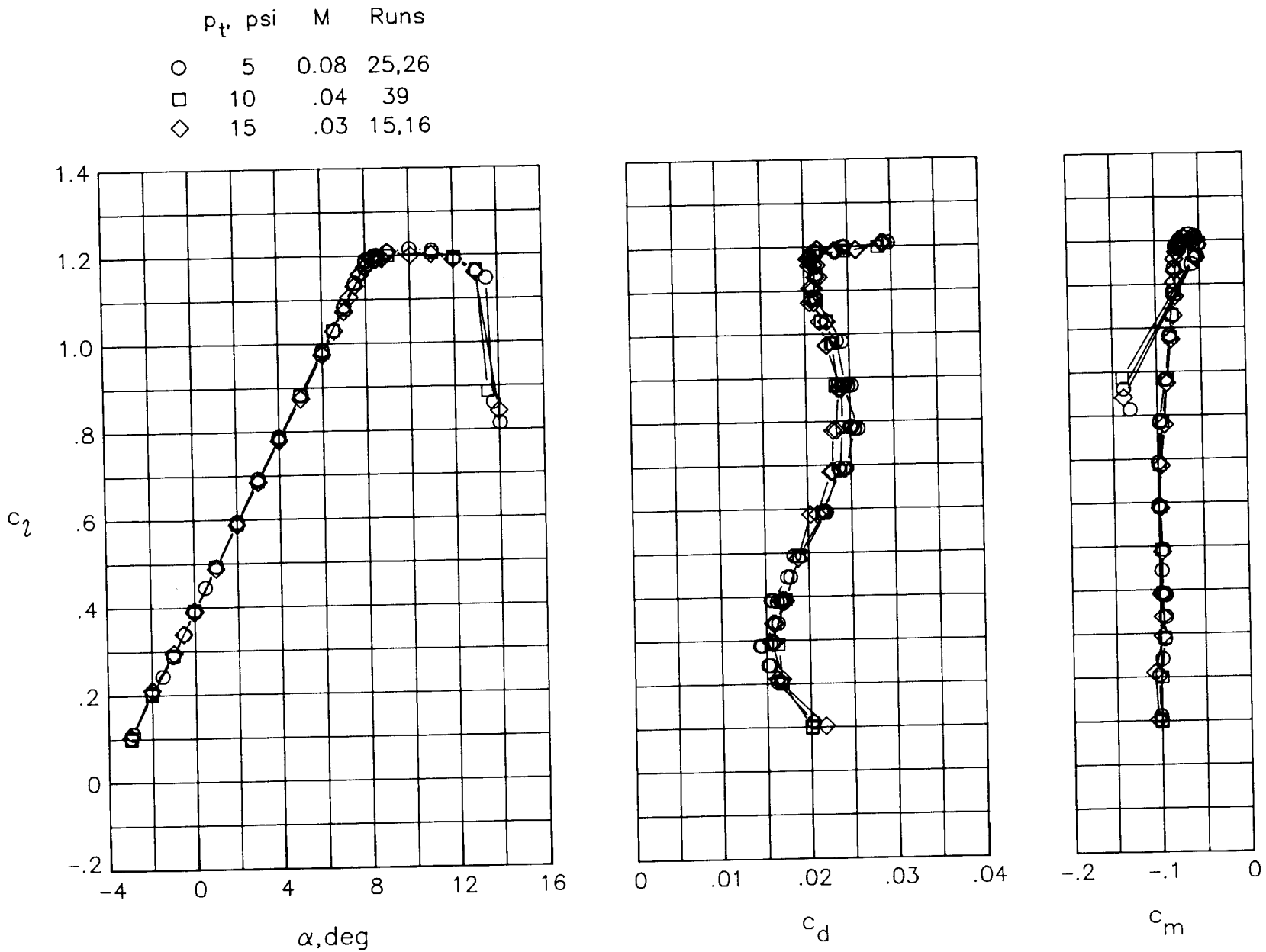


Figure 10. Typical wake profiles for Eppler 387 airfoil; $\alpha = 4°$.



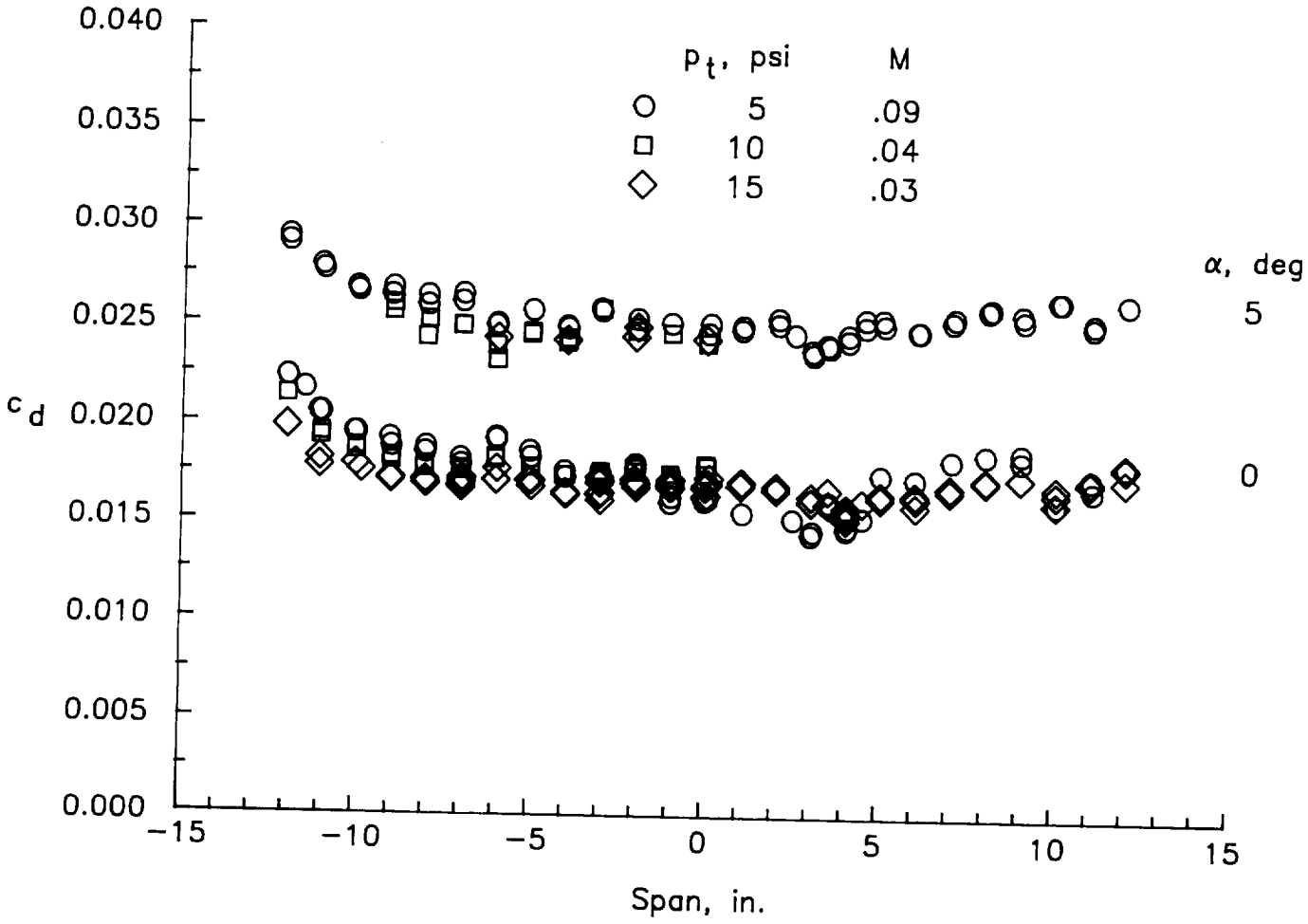
(a) $R = 60\,000$.

Figure 11. Effect of tunnel environment on section data.



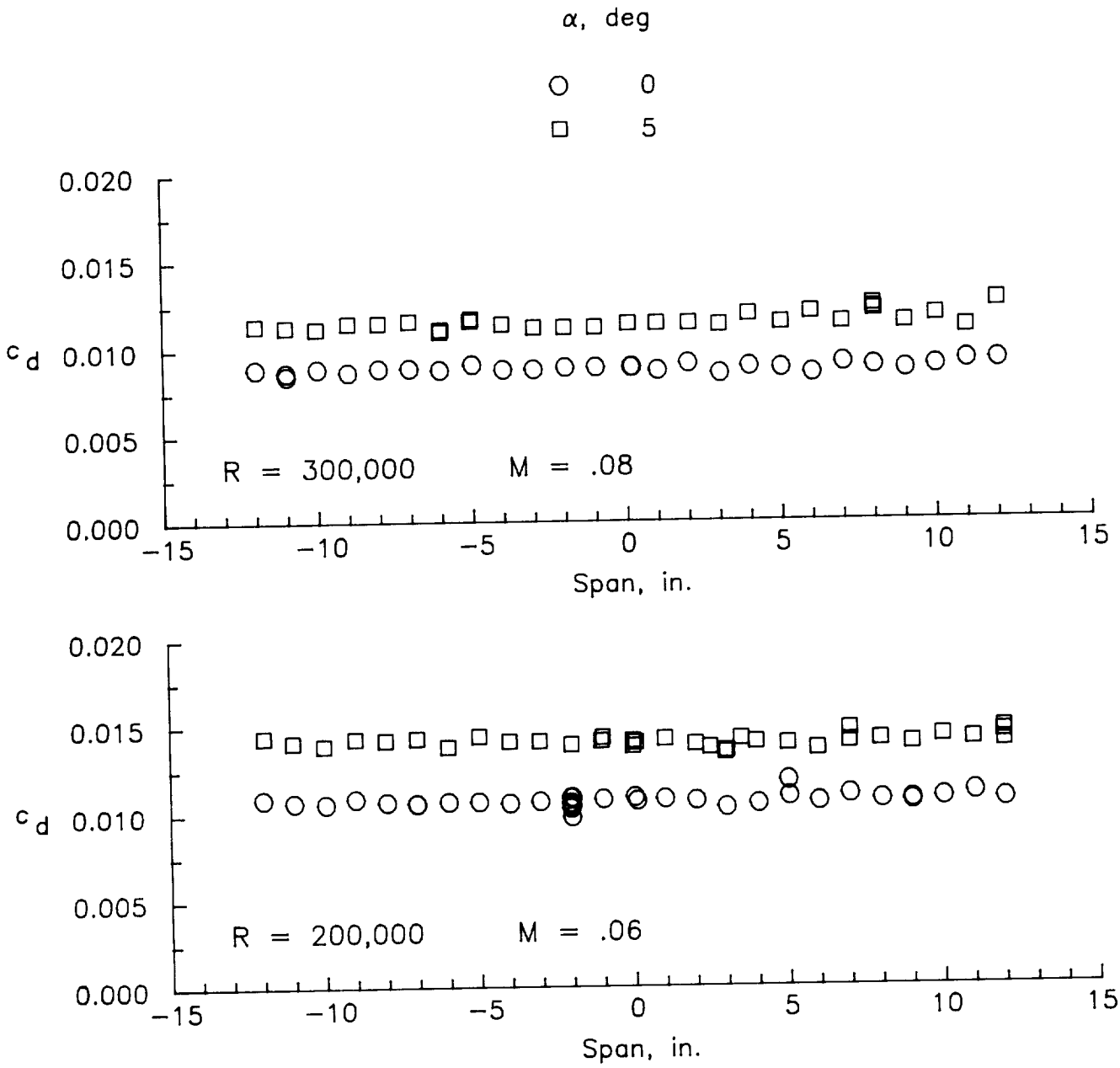
(b) $R = 100\,000$.

Figure 11. Concluded.



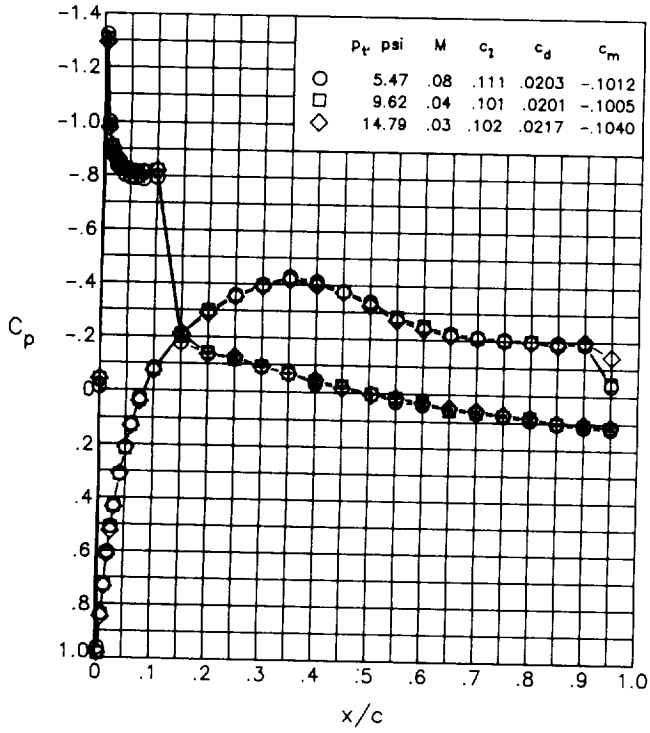
(a) $R = 100\,000$.

Figure 12. Spanwise drag data.

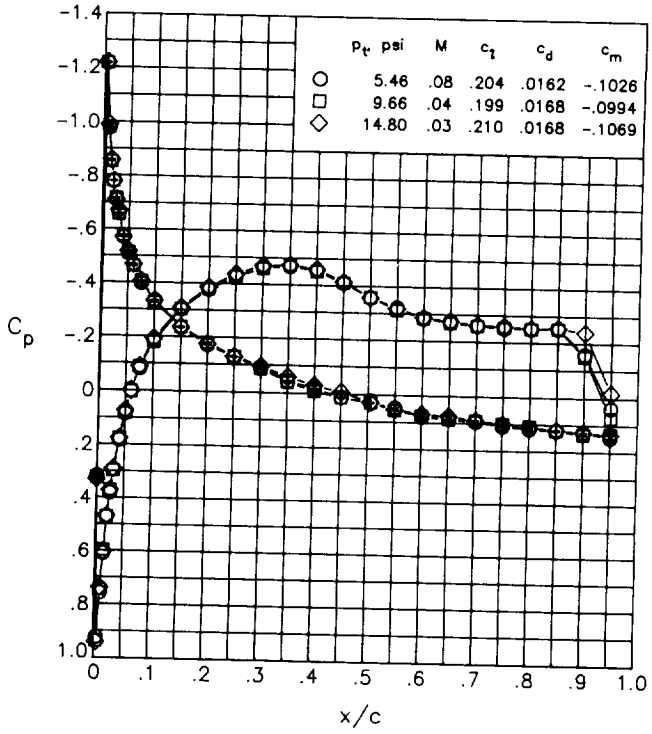


(b) $R = 200\,000$ and $300\,000$.

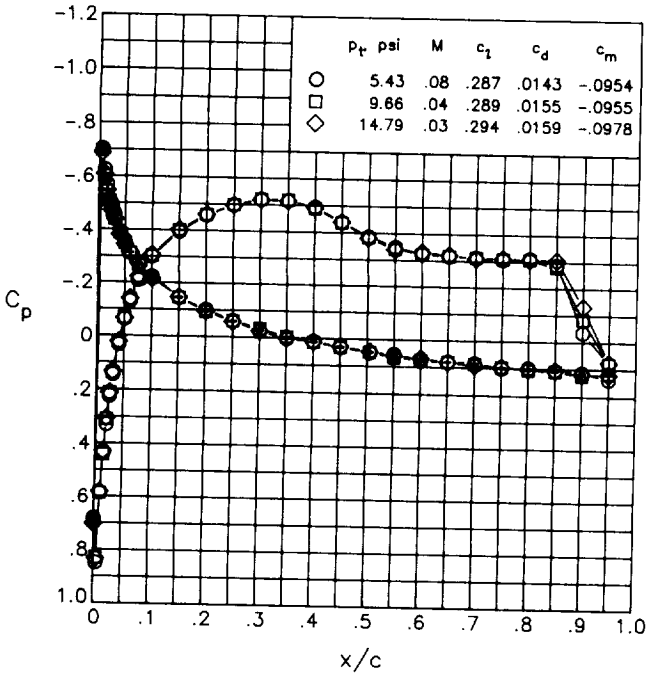
Figure 12. Concluded.



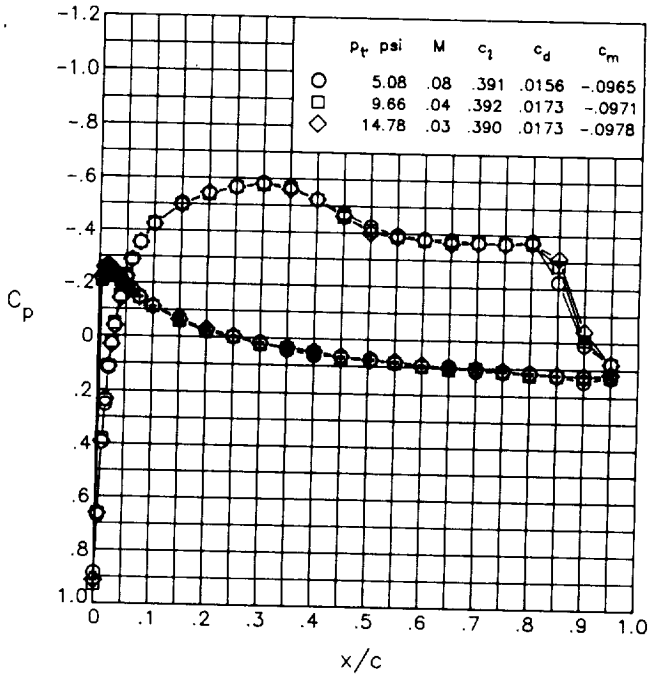
(a) $\alpha \approx -3°$.



(b) $\alpha = -2°$.

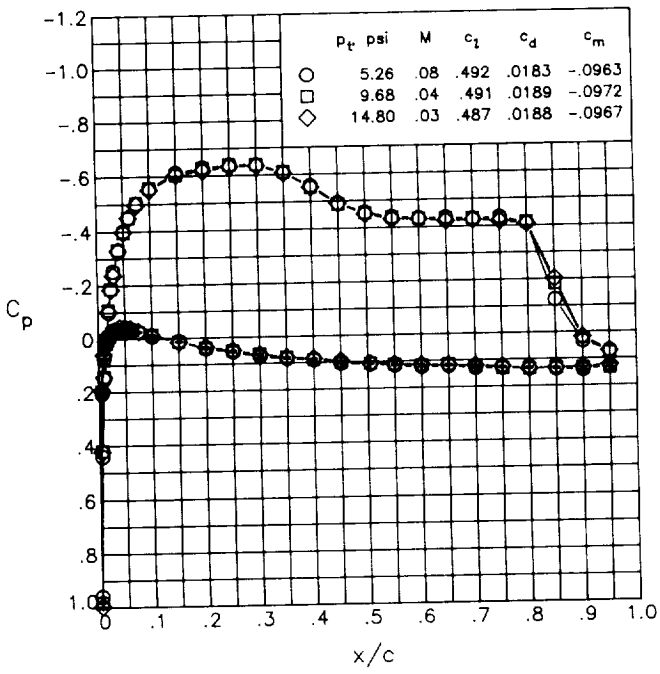


(c) $\alpha = -1°$.

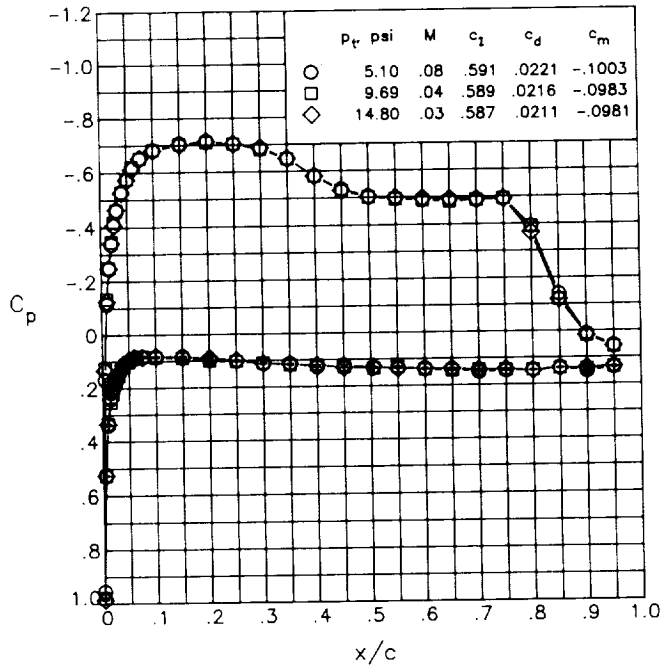


(d) $\alpha = 0°$.

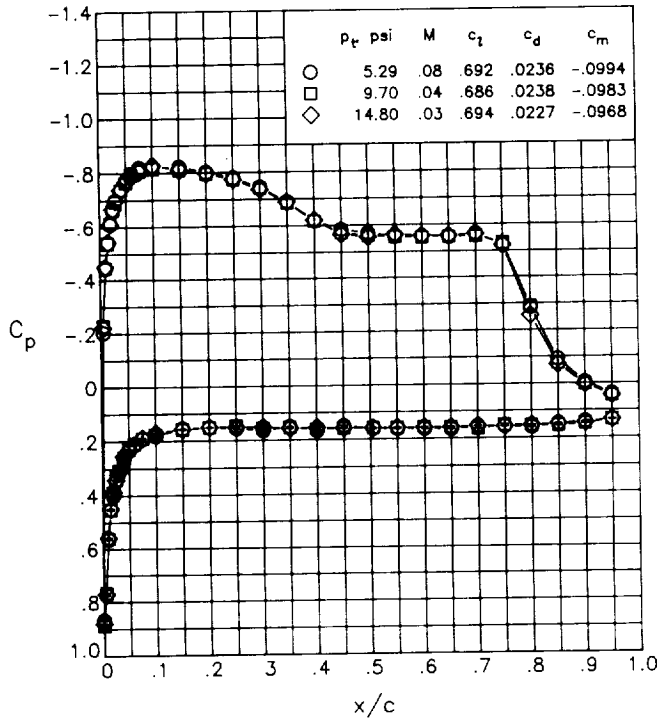
Figure 13. Effect of tunnel environment on chordwise pressure distributions for $R = 100\,000$. Centered symbol designates lower surface.



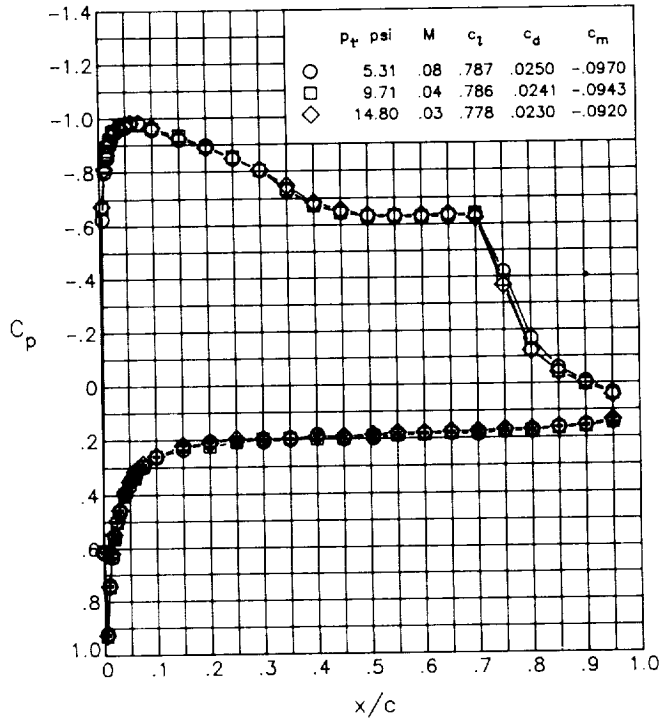
(e) $\alpha = 1°$.



(f) $\alpha = 2°$.

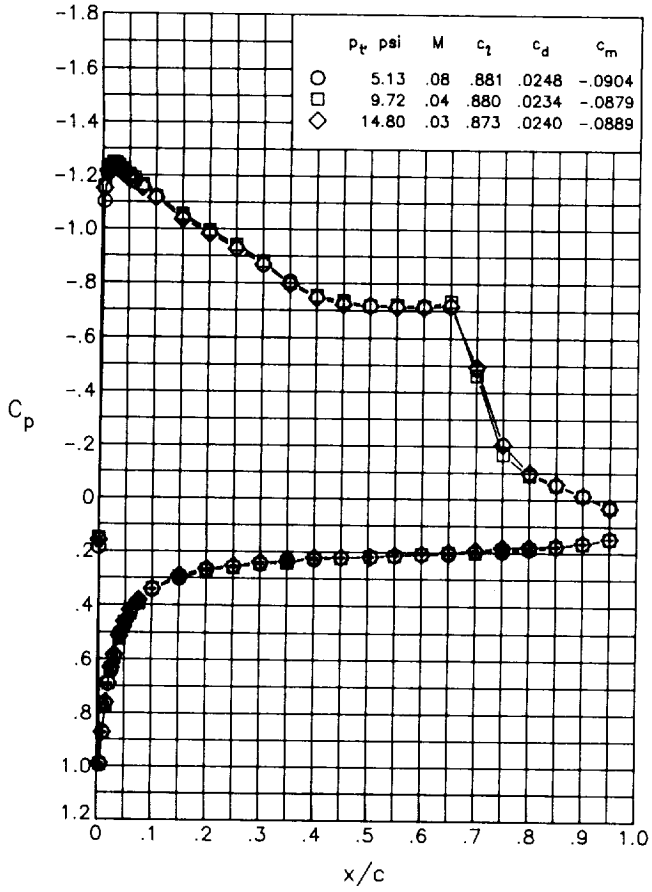


(g) $\alpha = 3°$.

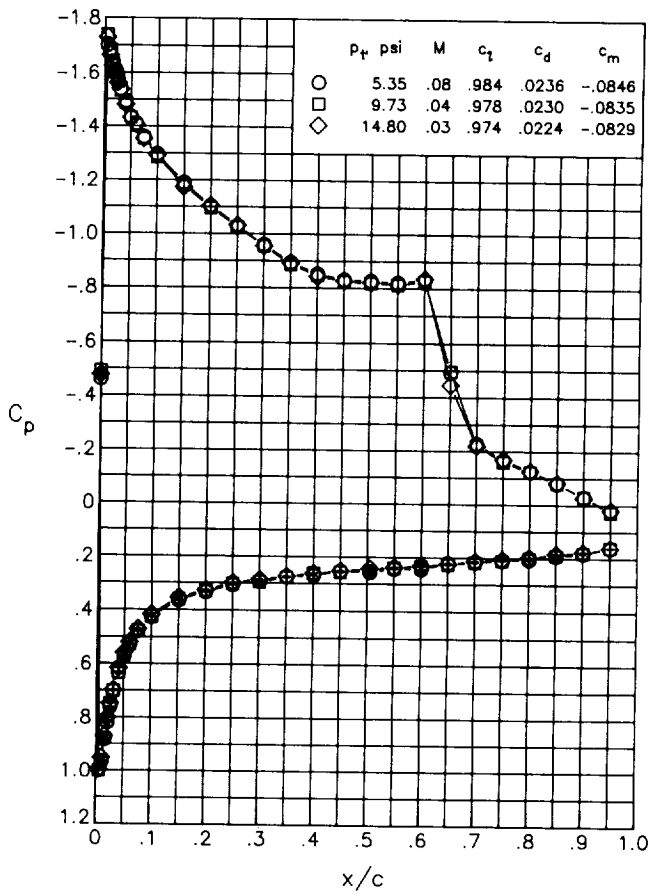


(h) $\alpha = 4°$.

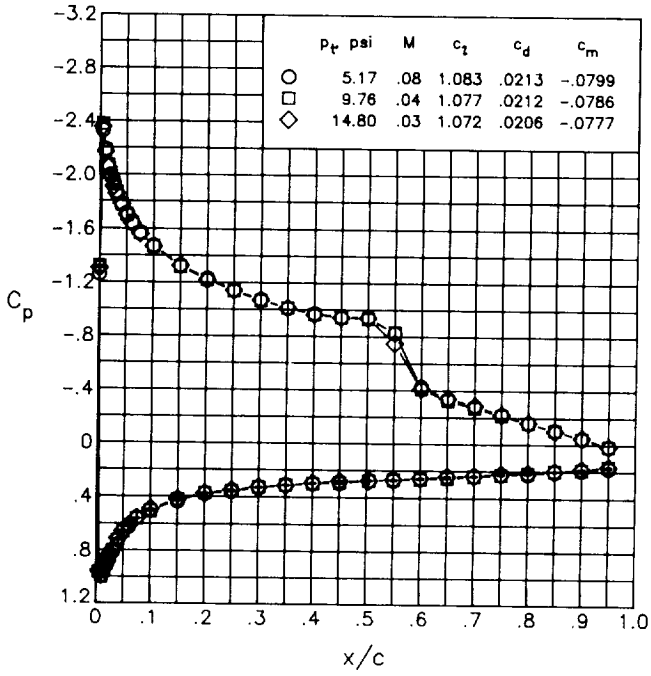
Figure 13. Continued.



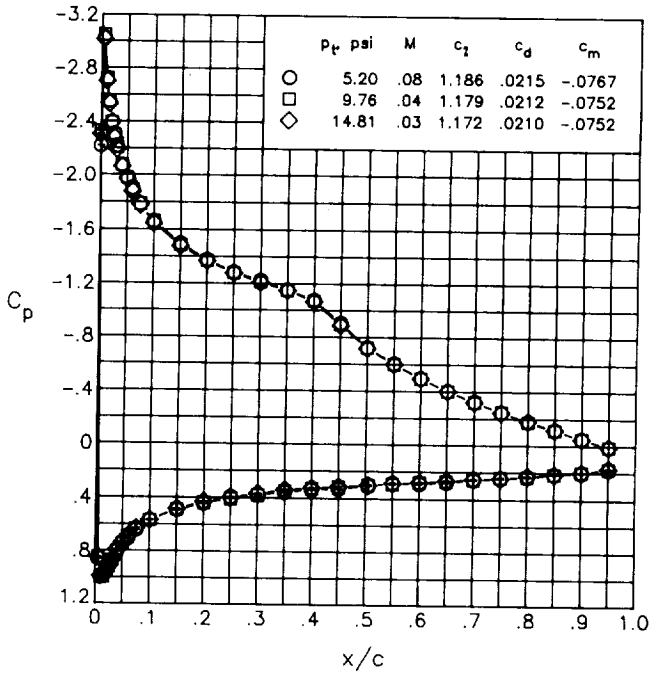
(i) $\alpha = 5°$.



(j) $\alpha = 6°$.

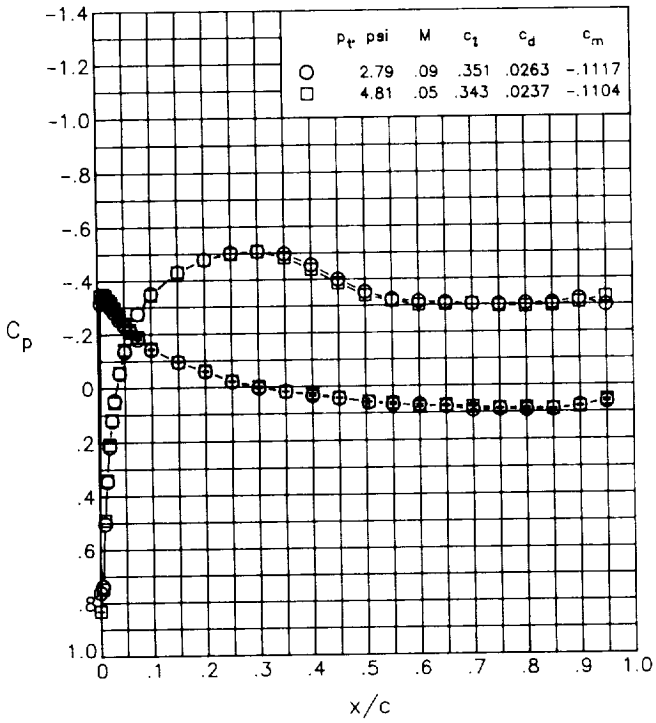


(k) $\alpha = 7°$.

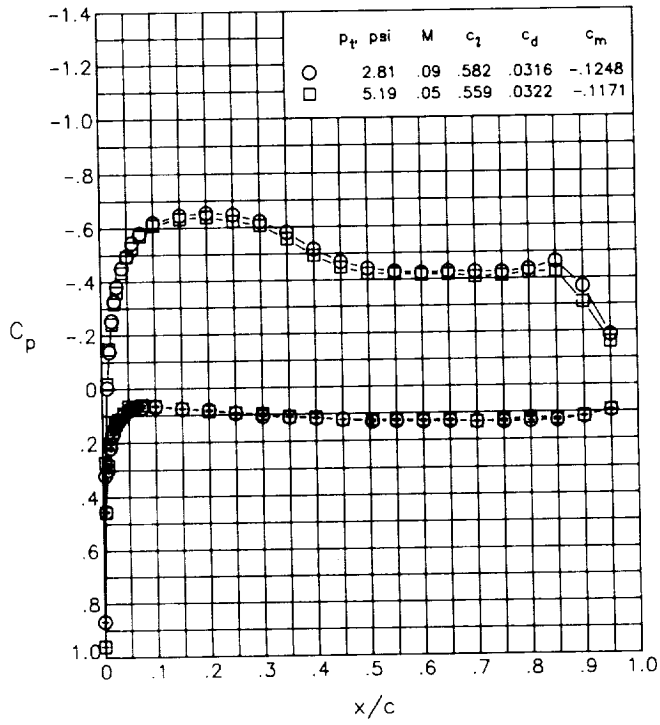


(l) $\alpha = 8°$.

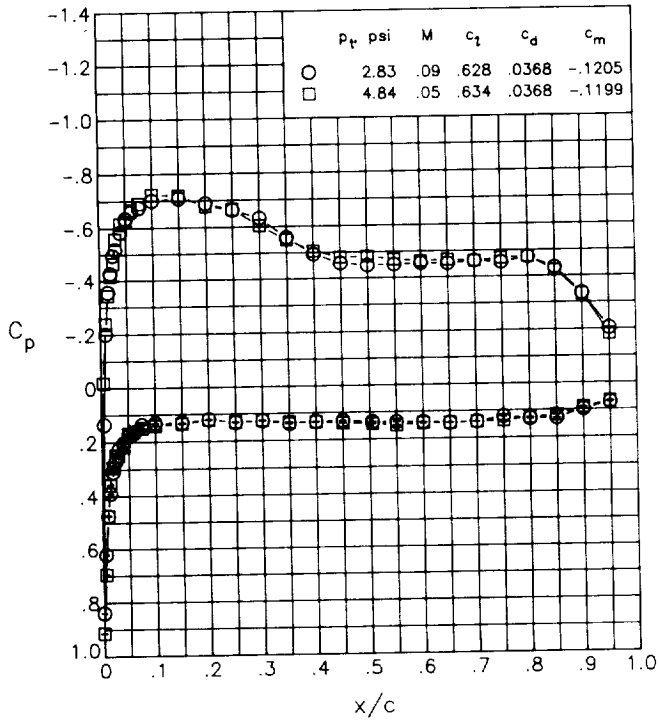
Figure 13. Concluded.



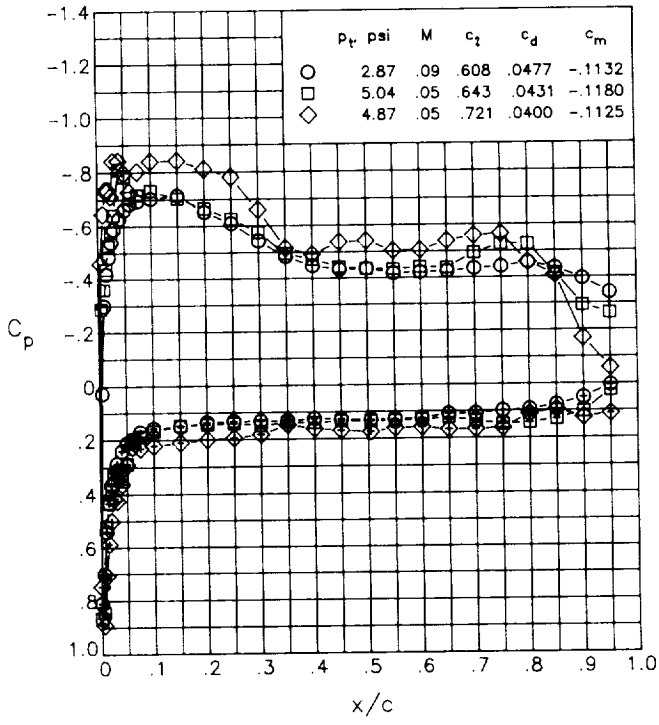
(a) $\alpha = 0°$.



(b) $\alpha = 2°$.

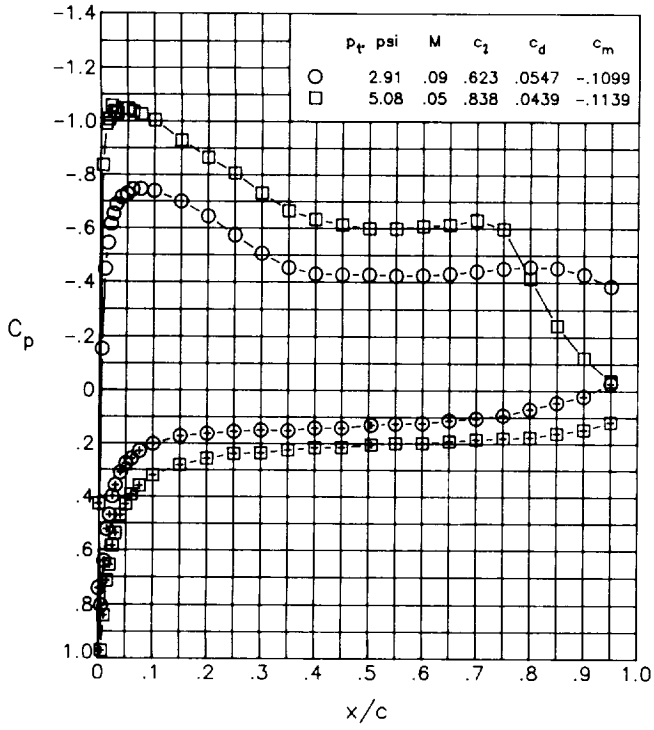


(c) $\alpha = 3°$.

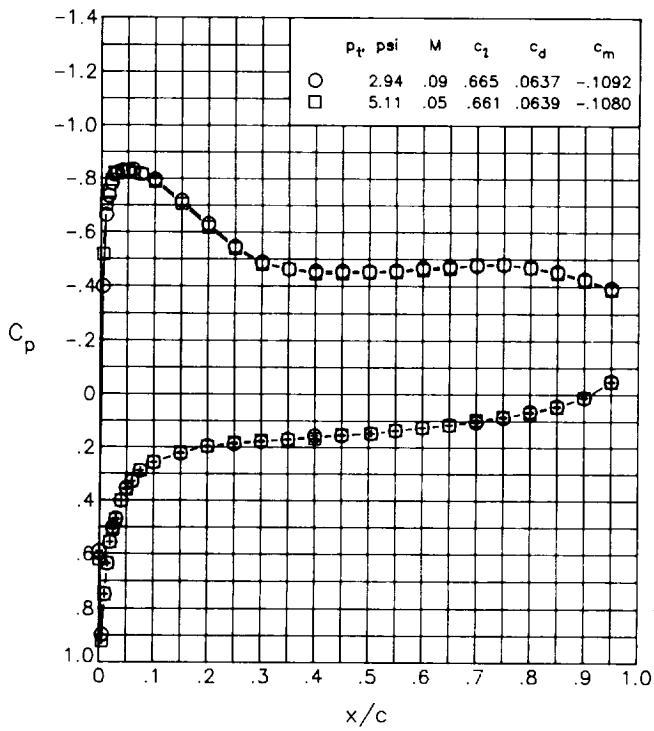


(d) $\alpha = 4°$.

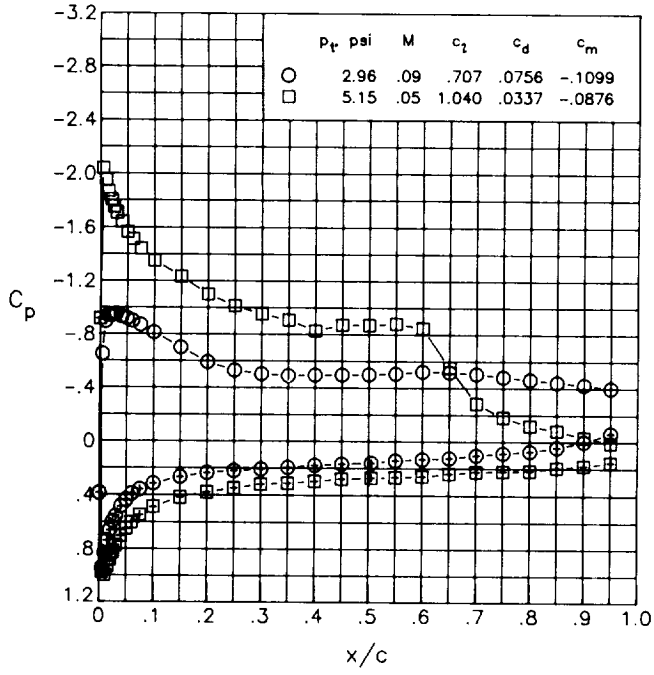
Figure 14. Effect of tunnel environment on chordwise pressure distributions for $R = 60\,000$. Centered symbol designates lower surface.



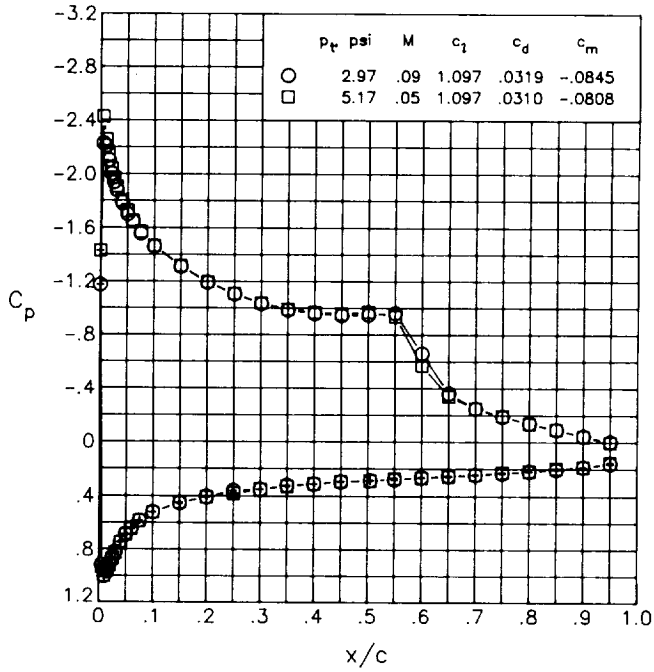
(e) $\alpha = 5°$.



(f) $\alpha = 6°$.

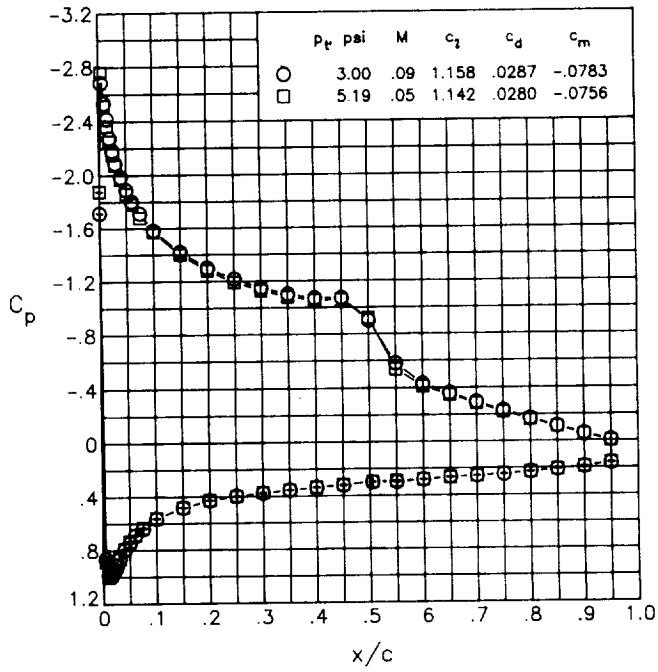


(g) $\alpha = 7°$.

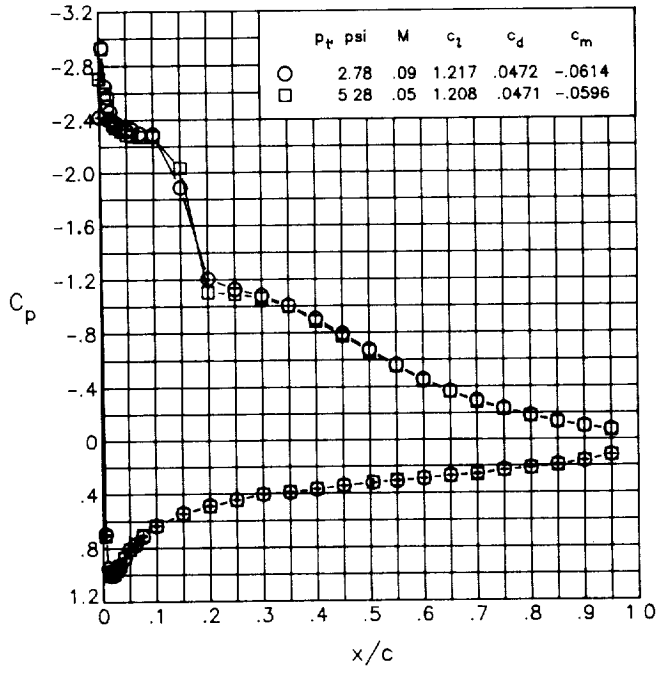


(h) $\alpha = 7.5°$.

Figure 14. Continued.

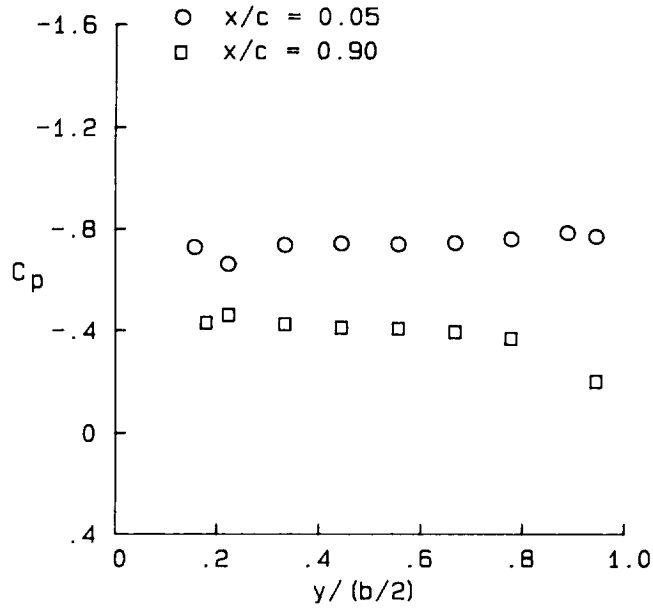


(i) $\alpha = 8°$.

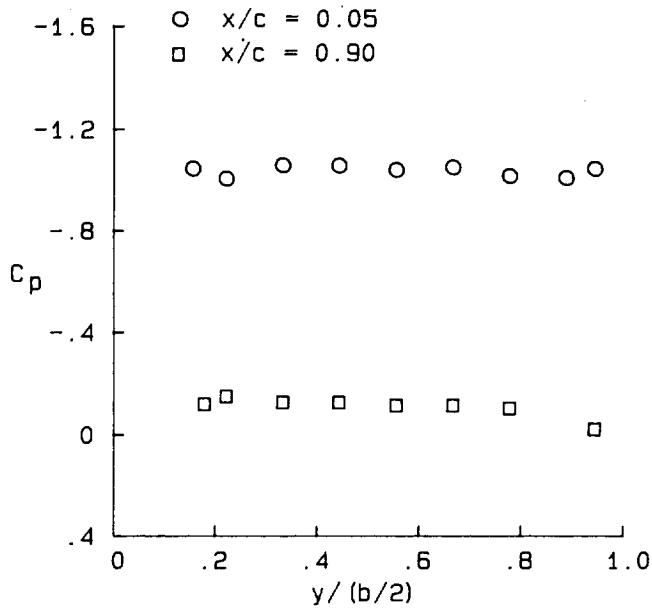


(j) $\alpha = 10°$.

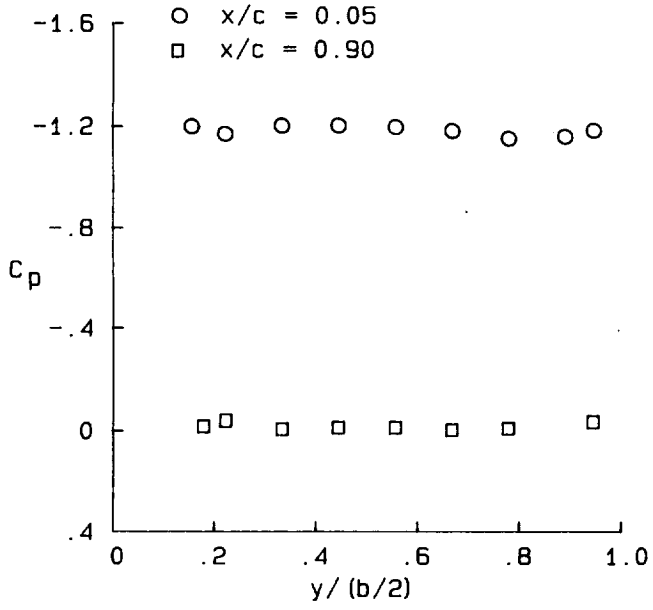
Figure 14. Concluded.



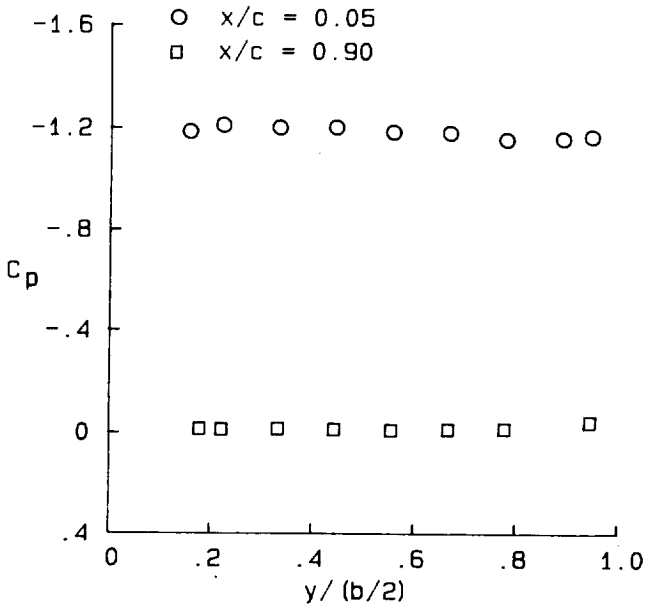
(a) $p_t = 3$ psi; $M = 0.09$; $R = 60\,000$.



(b) $p_t = 5$ psi; $M = 0.05$; $R = 60\,000$.



(c) $p_t = 5$ psi; $M = 0.08$; $R = 100\,000$.



(d) $p_t = 15$ psi; $M = 0.03$; $R = 100\,000$.

Figure 15. Spanwise pressure data for $\alpha = 5°$.

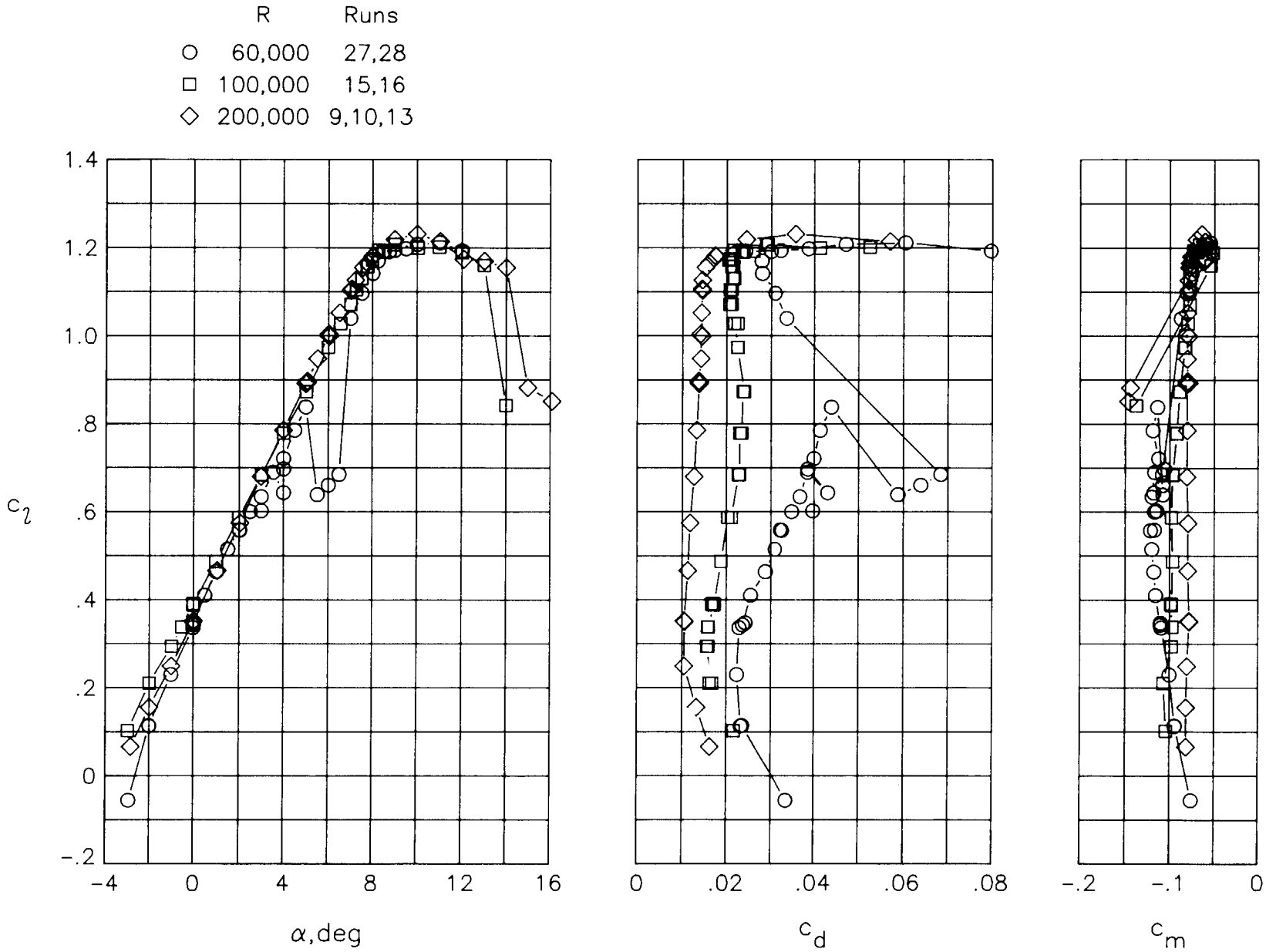


Figure 16. Effect of Reynolds number on section data.

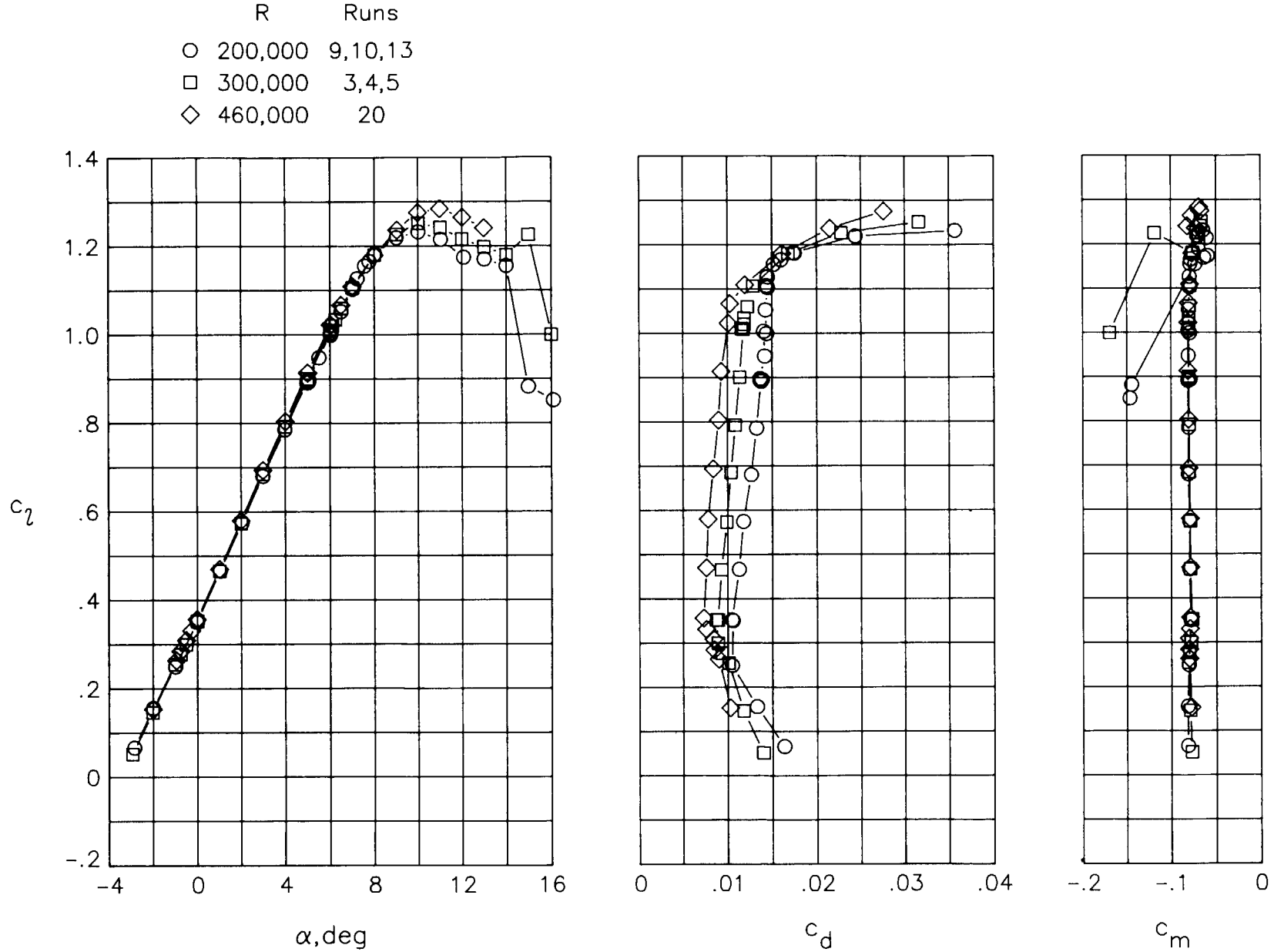
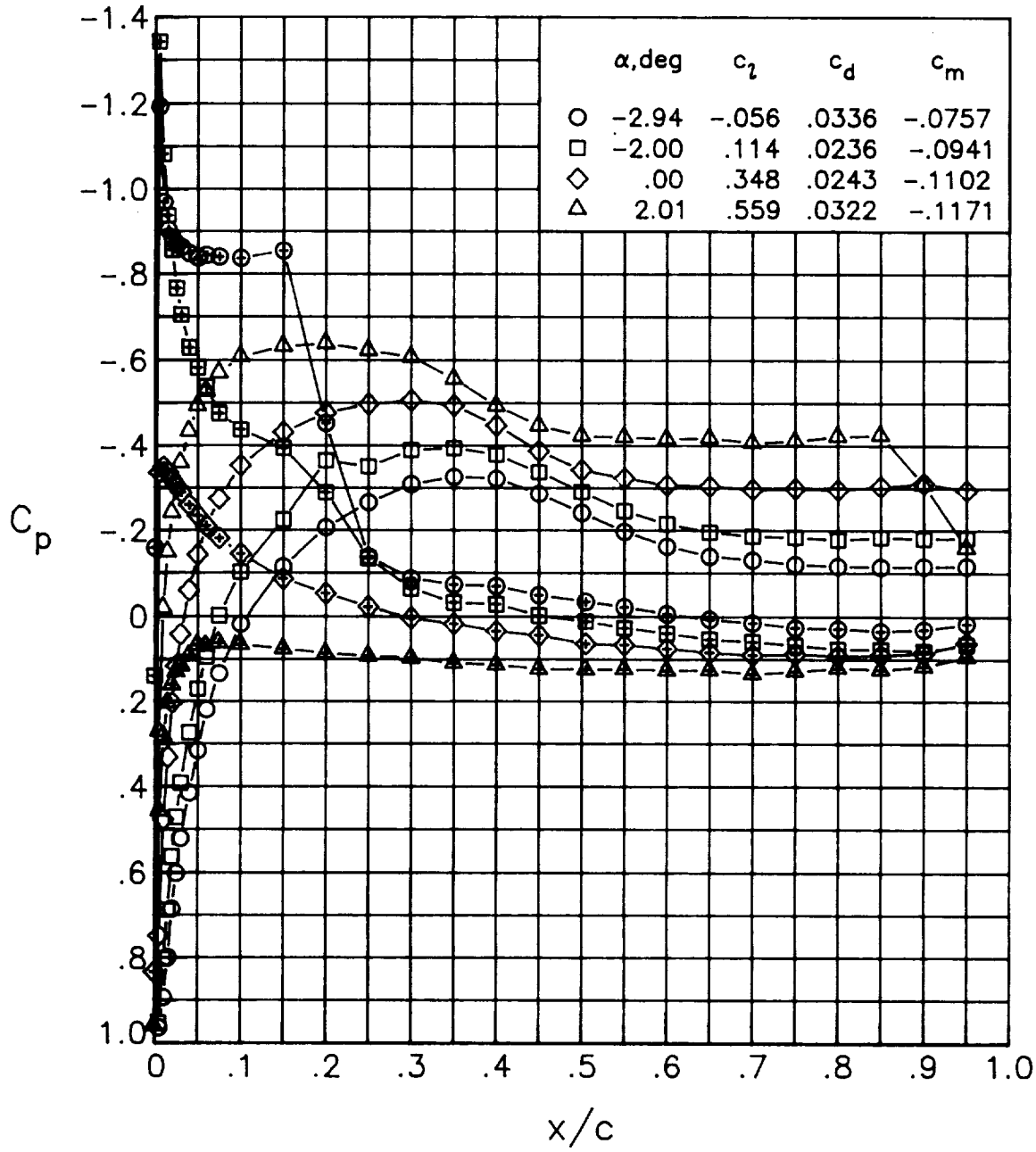
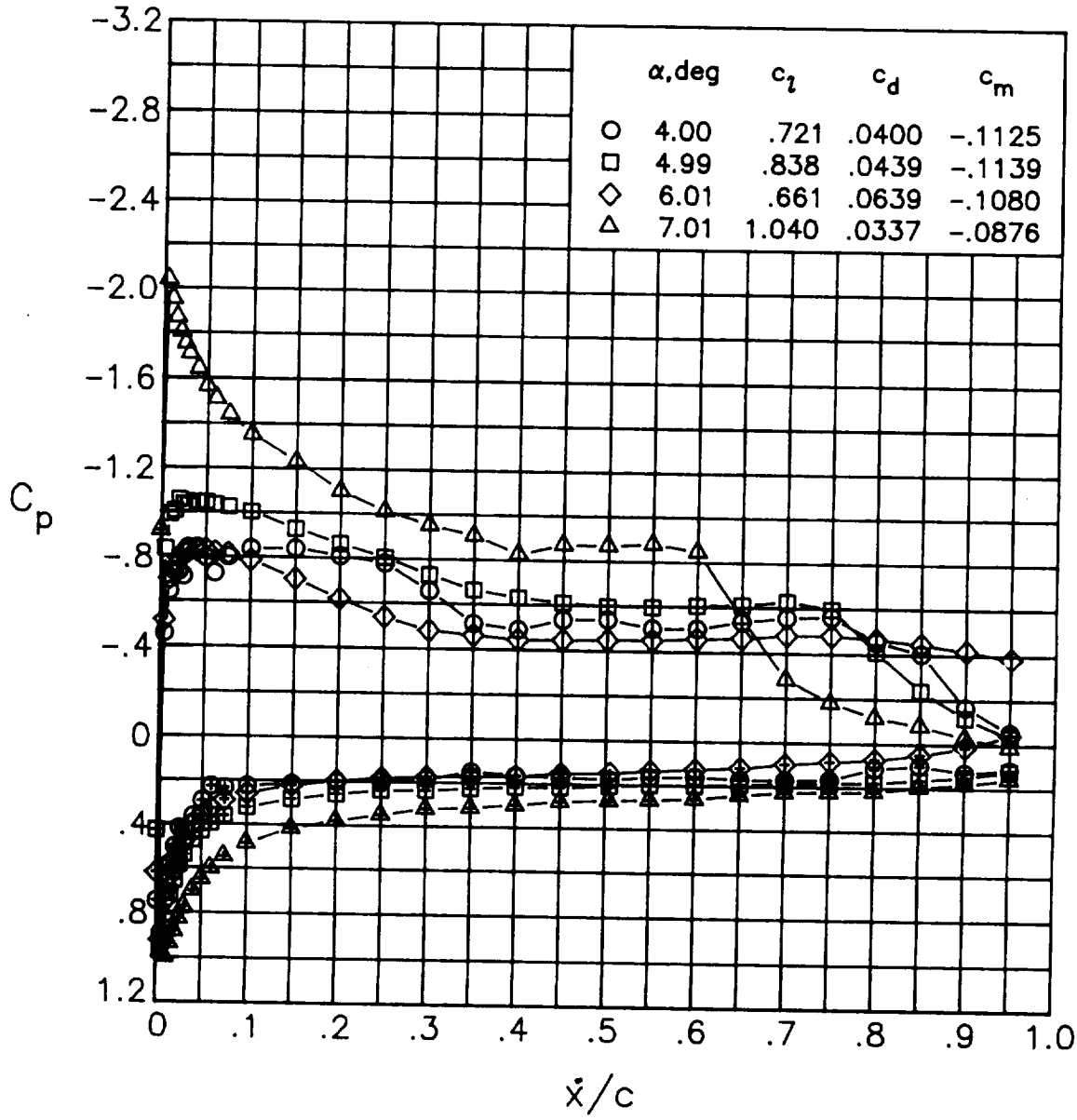


Figure 16. Concluded.



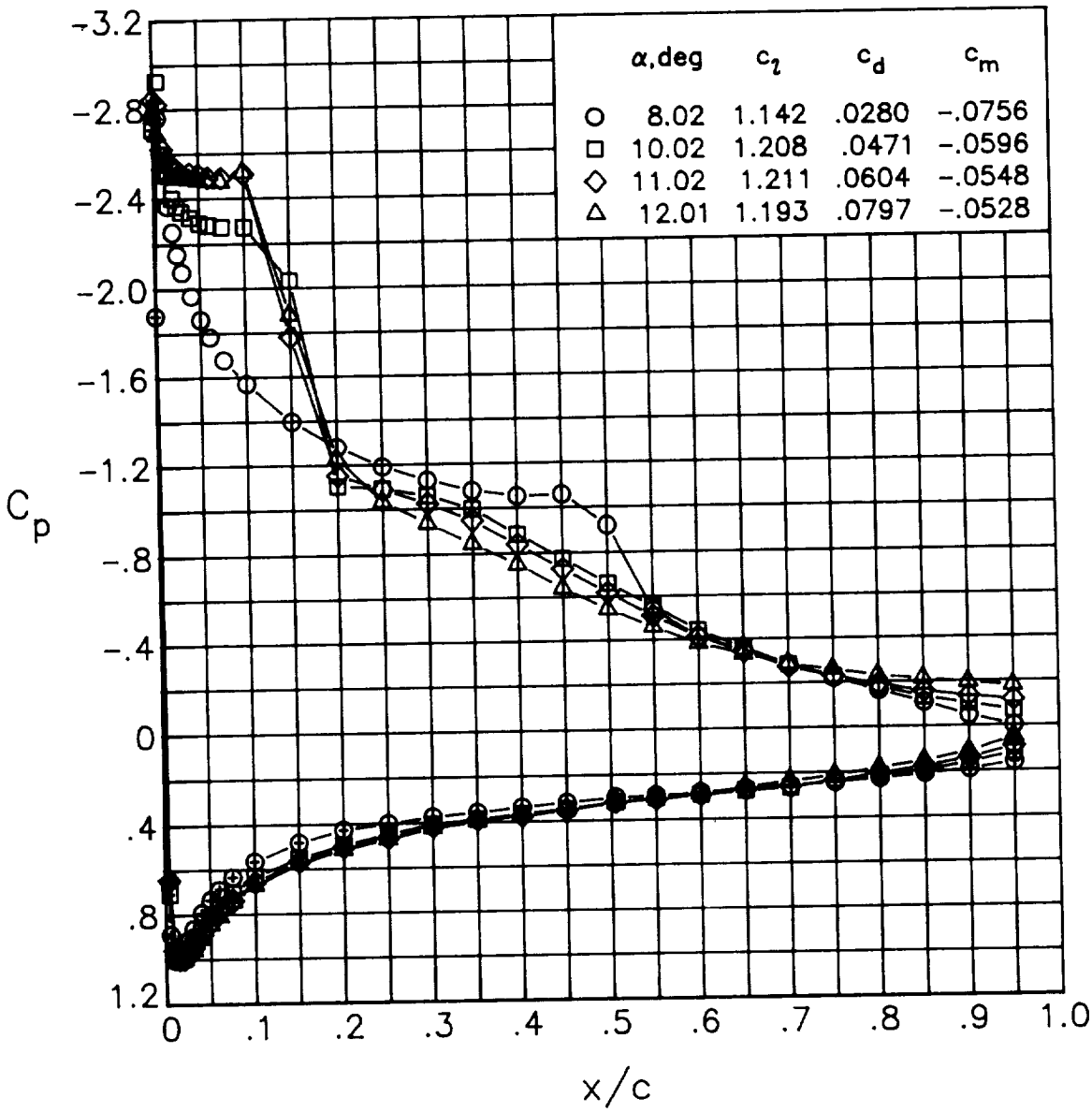
(a) $R = 60\,000$.

Figure 17. Effect of angle of attack on chordwise pressure distributions. Centered symbol designates lower surface.



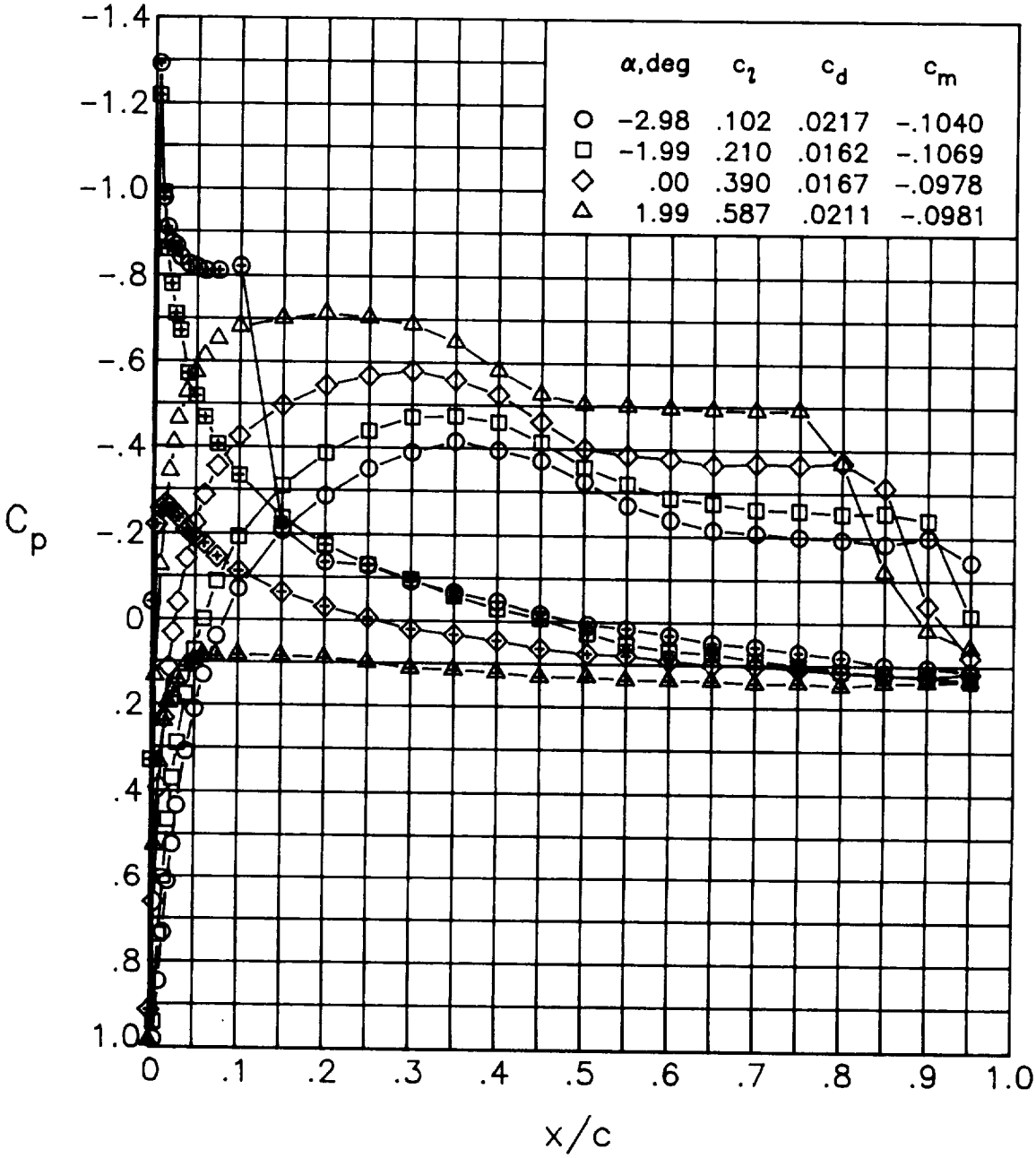
(a) $R = 60\,000$. Continued.

Figure 17. Continued.



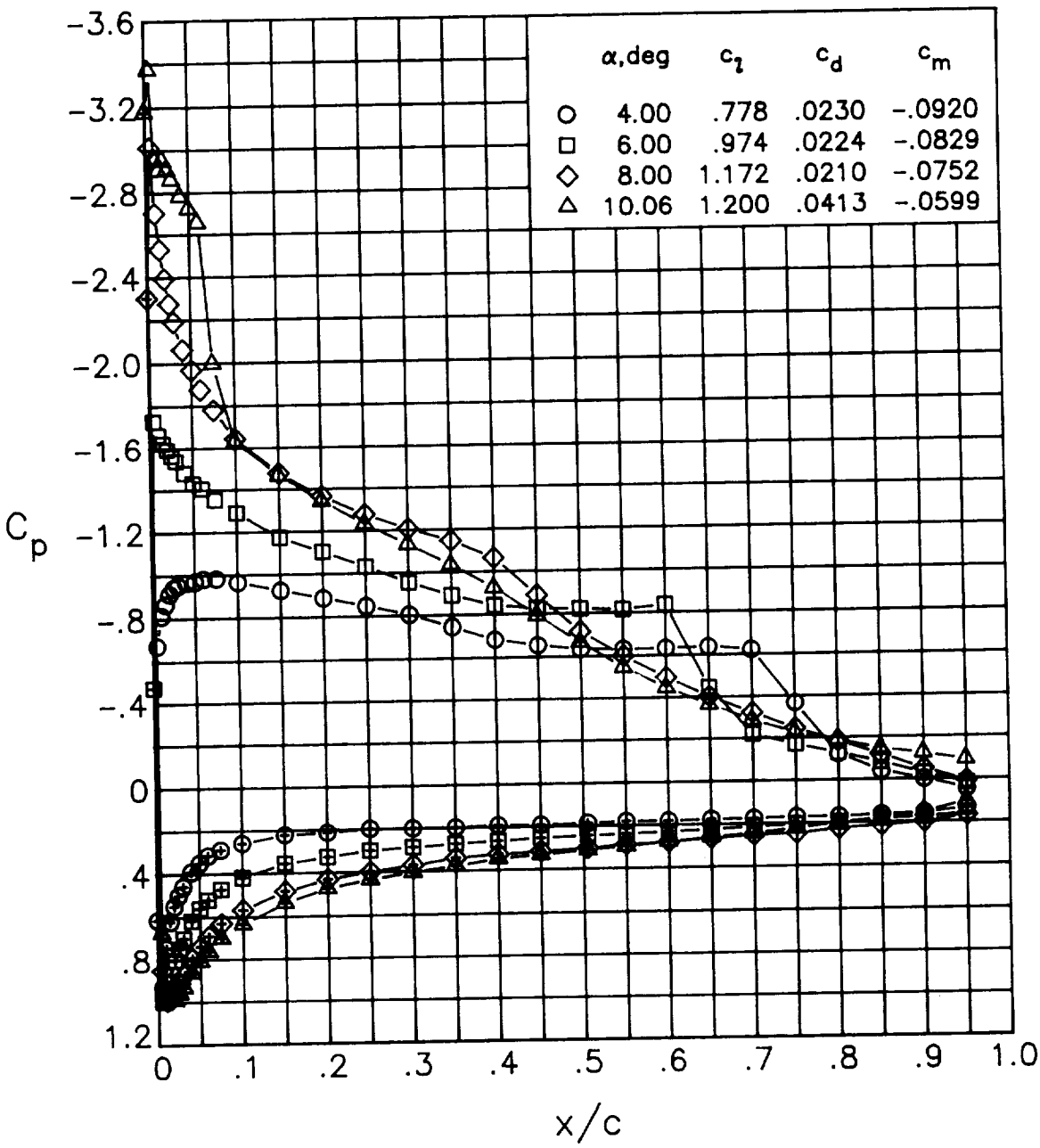
(a) $R = 60\,000$. Concluded.

Figure 17. Continued.



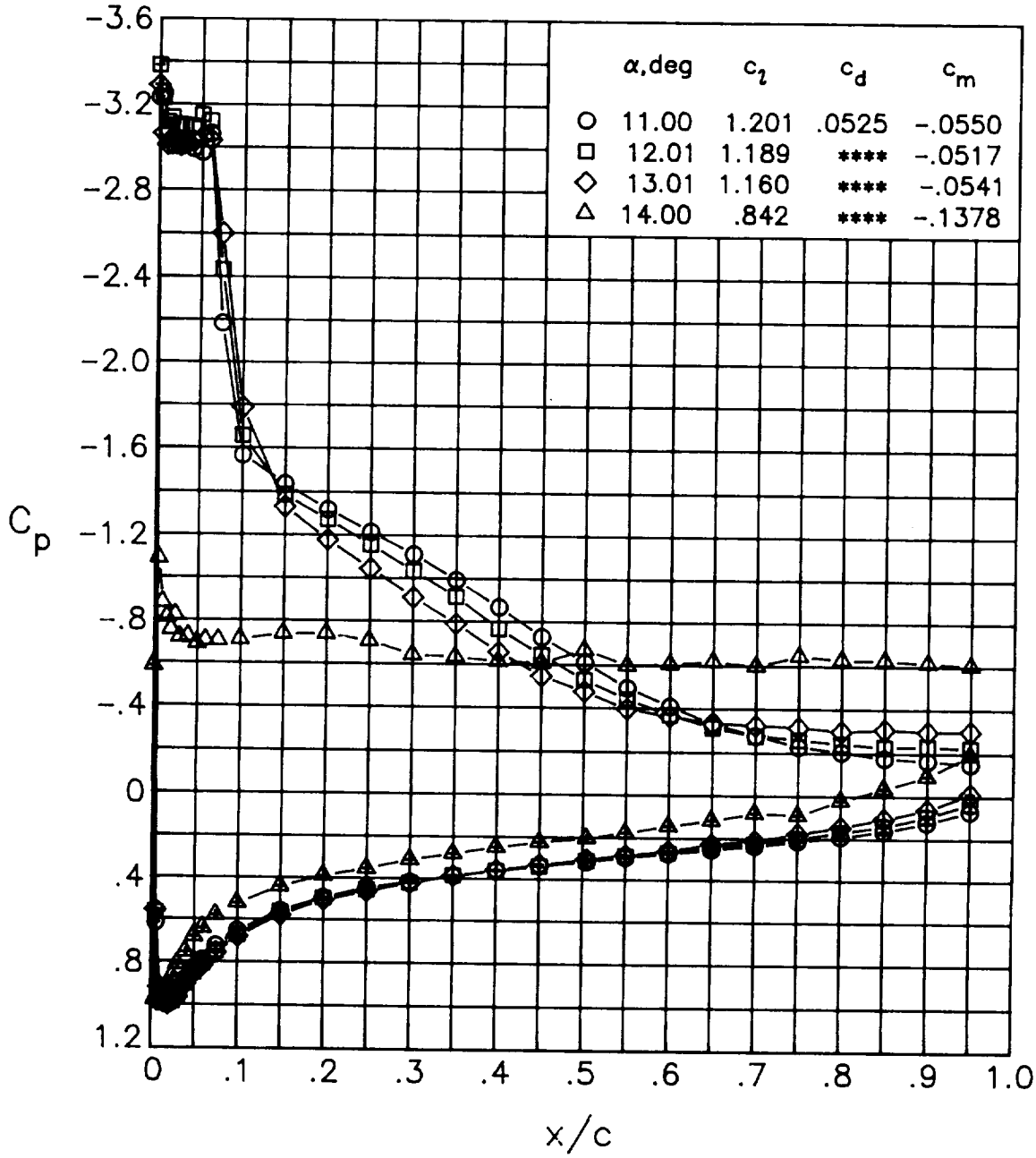
(b) $R = 100\,000$.

Figure 17. Continued.



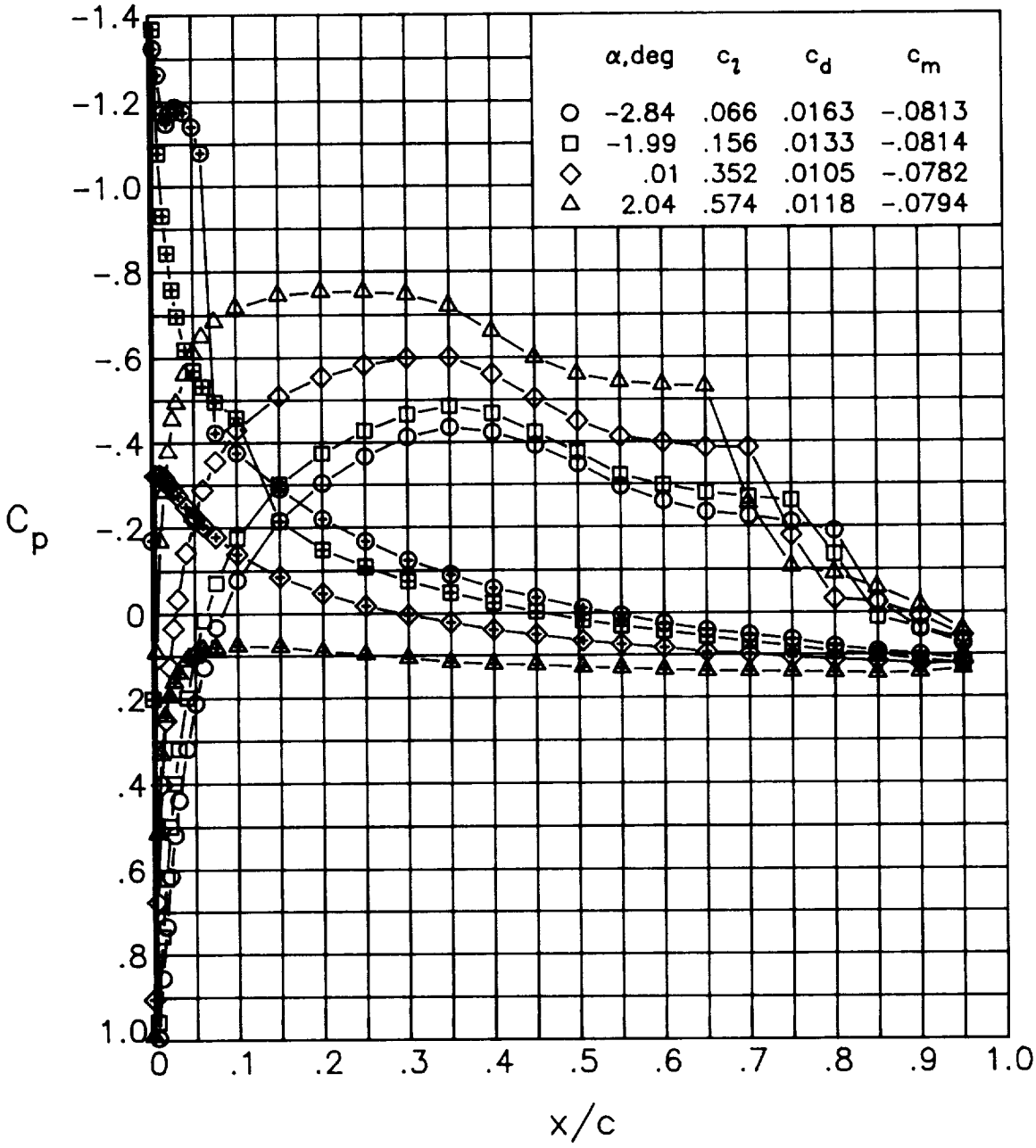
(b) $R = 100\,000$. Continued.

Figure 17. Continued.



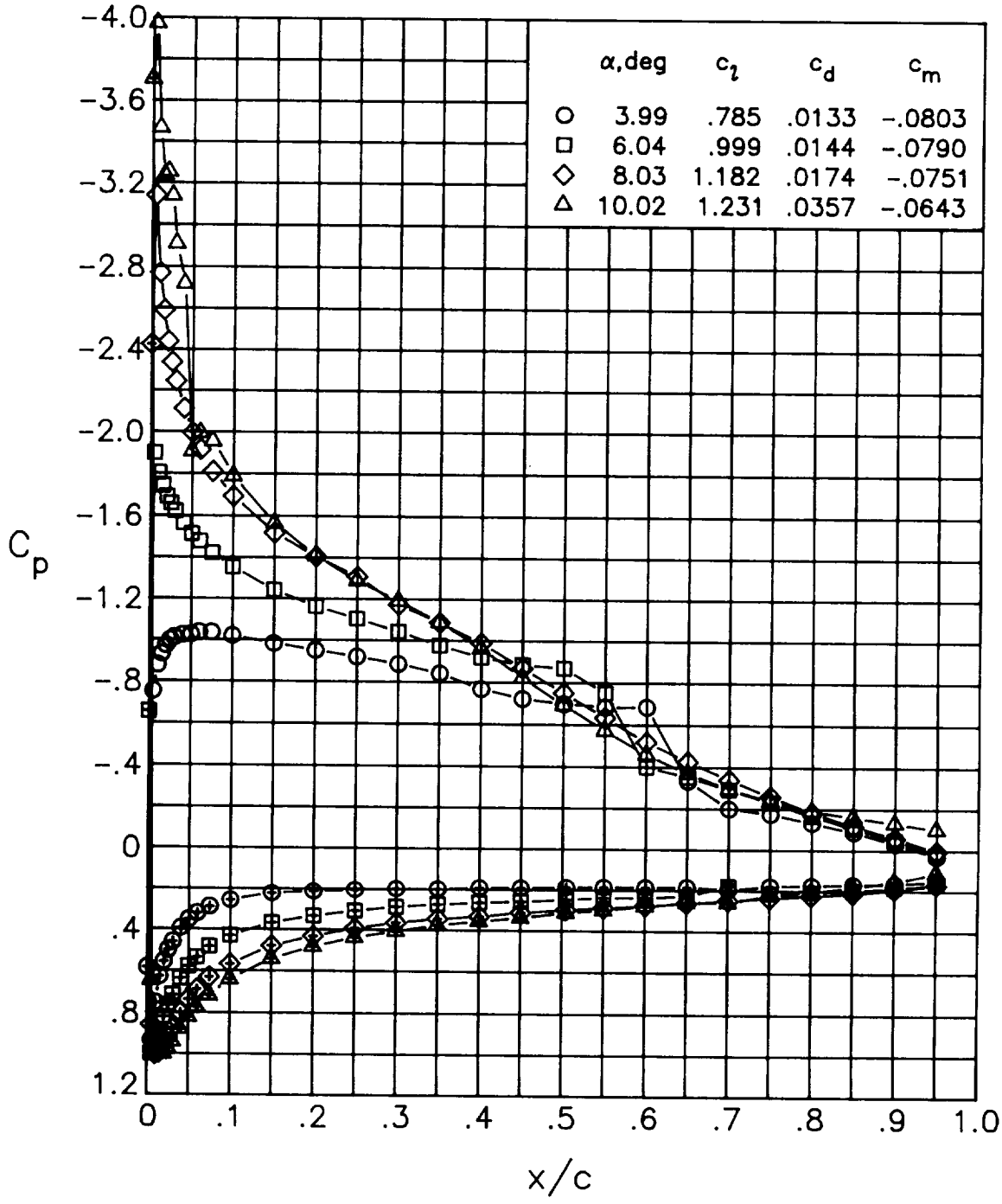
(b) $R = 100\,000$. Concluded.

Figure 17. Continued.



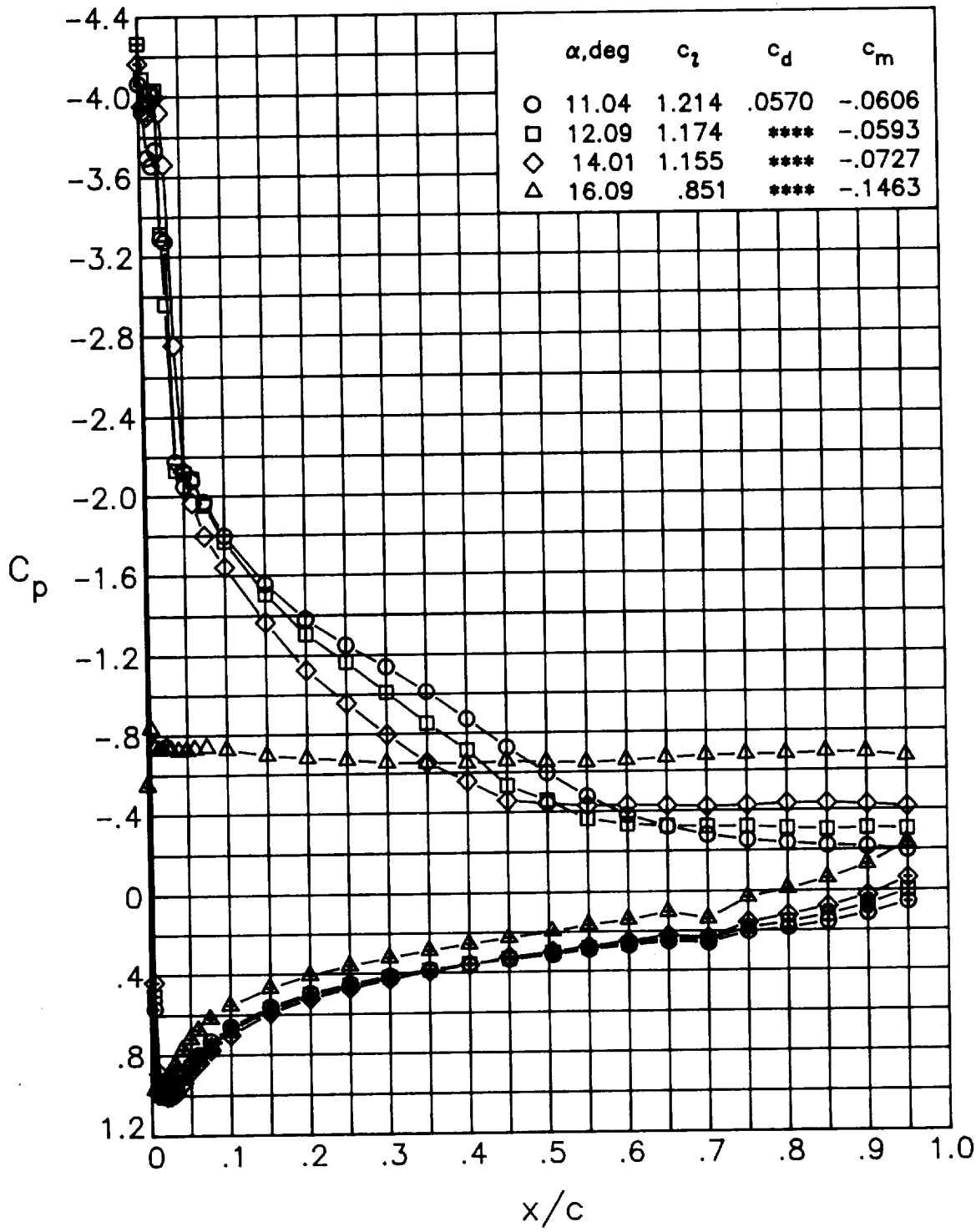
(c) $R = 200\,000$.

Figure 17. Continued.



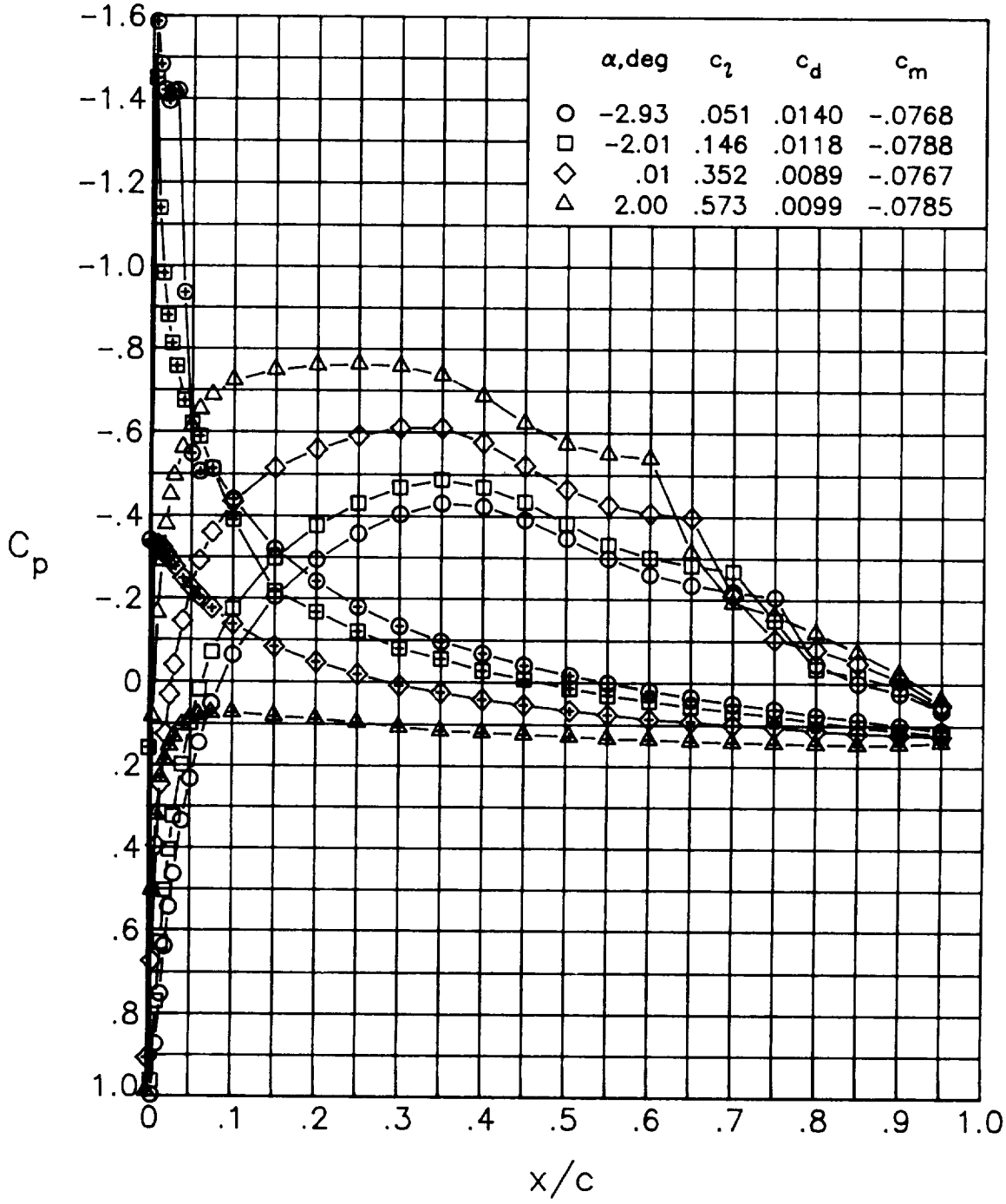
(c) $R = 200\,000$. Continued.

Figure 17. Continued.



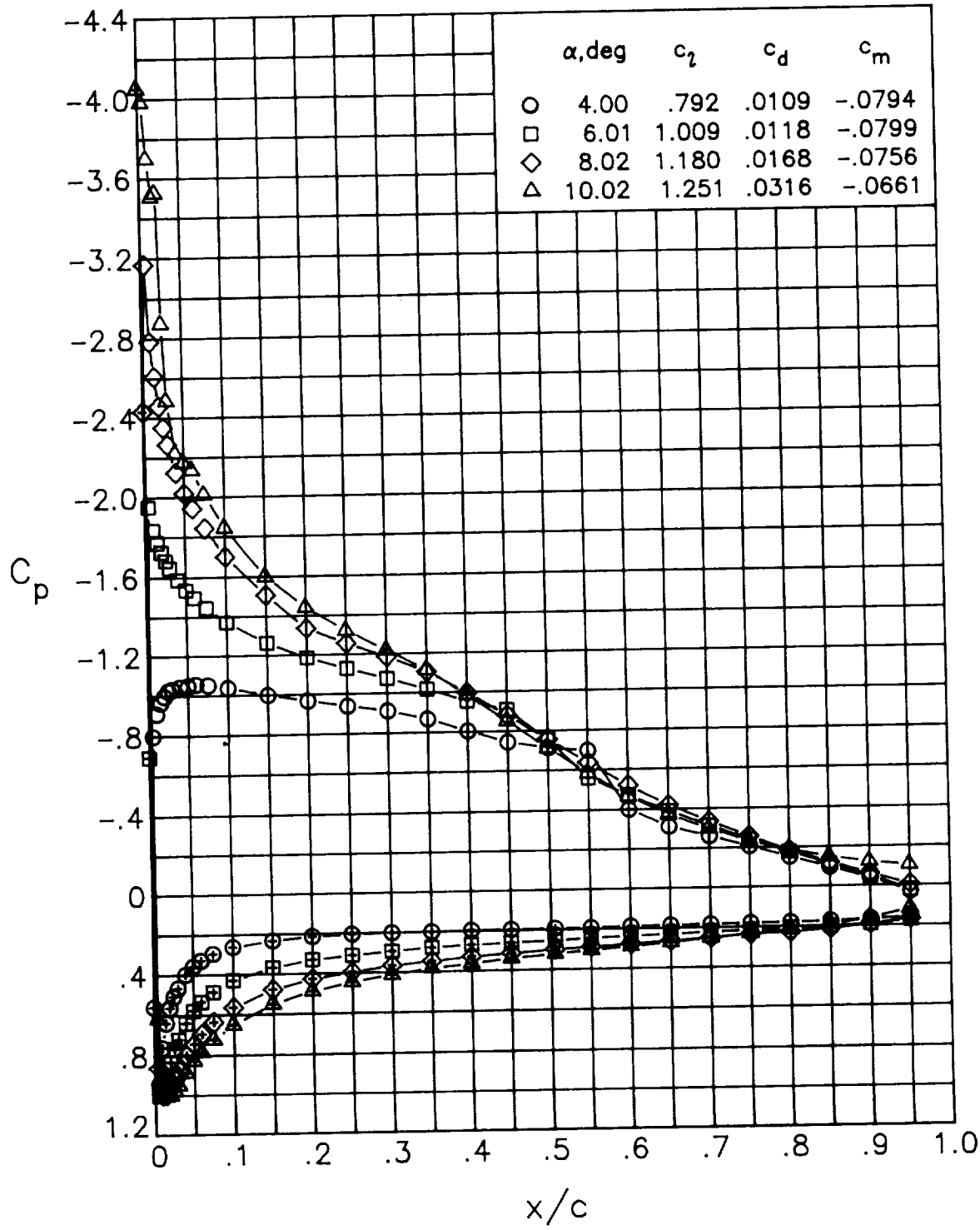
(c) $R = 200\,000$. Concluded.

Figure 17. Continued.



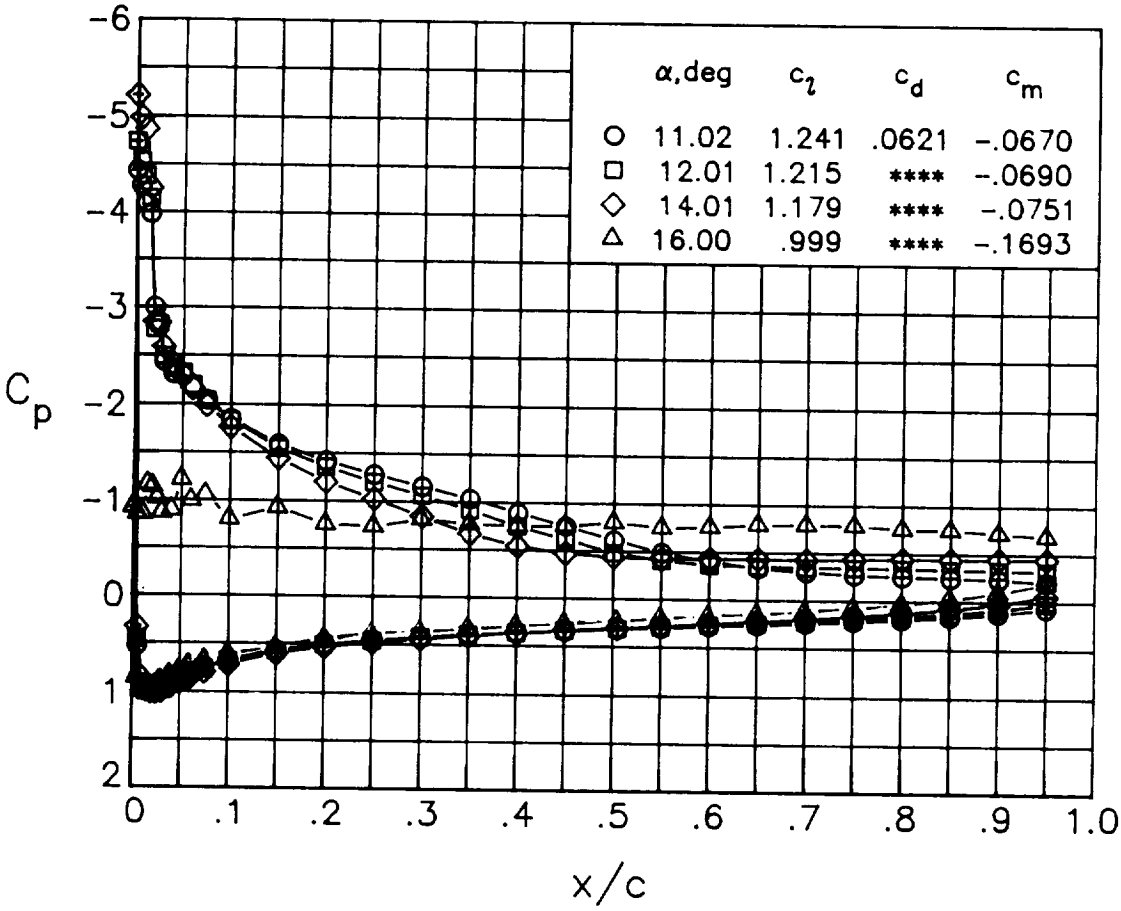
(d) $R = 300\,000$.

Figure 17. Continued.



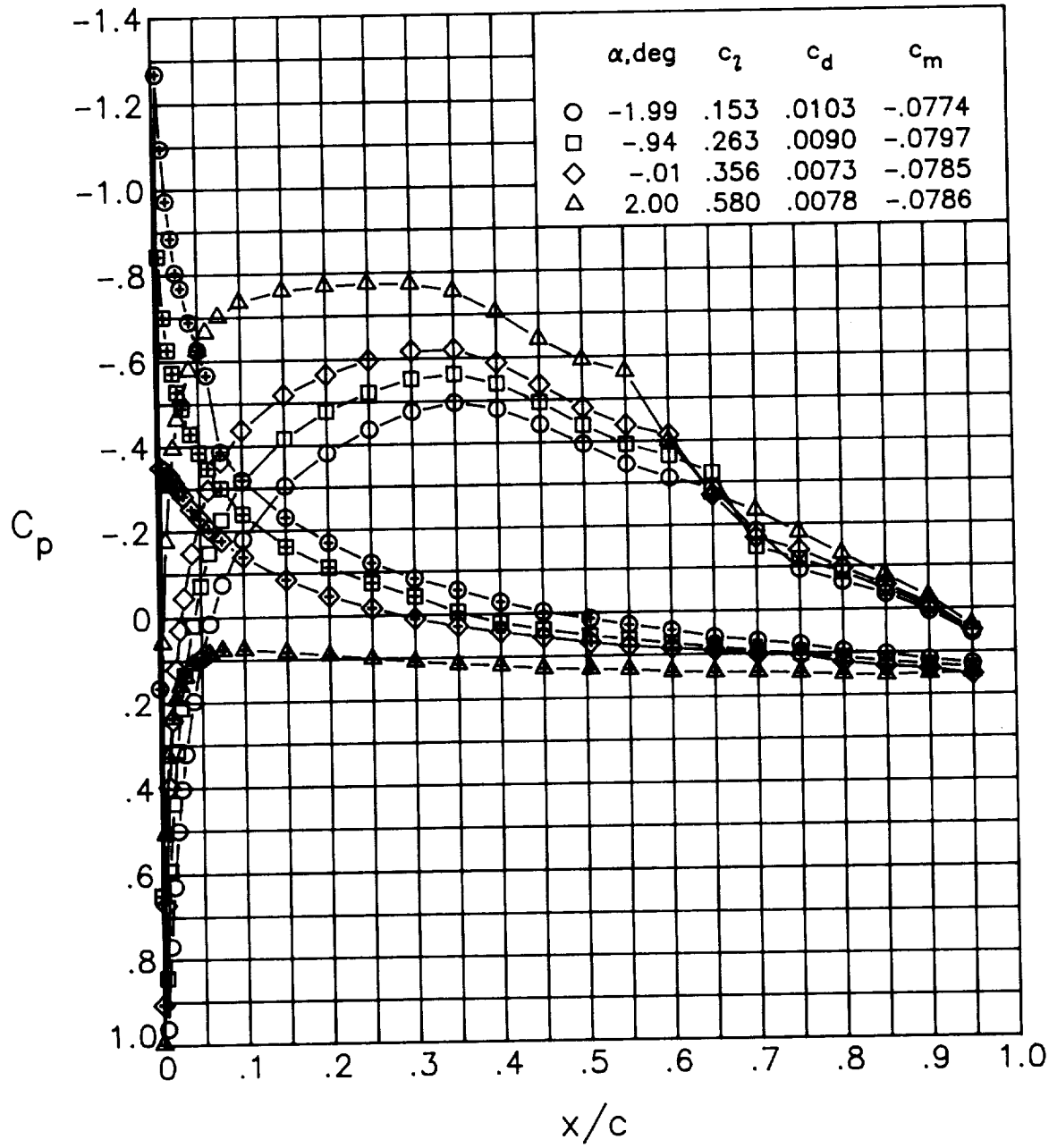
(d) $R = 300\,000$. Continued.

Figure 17. Continued.



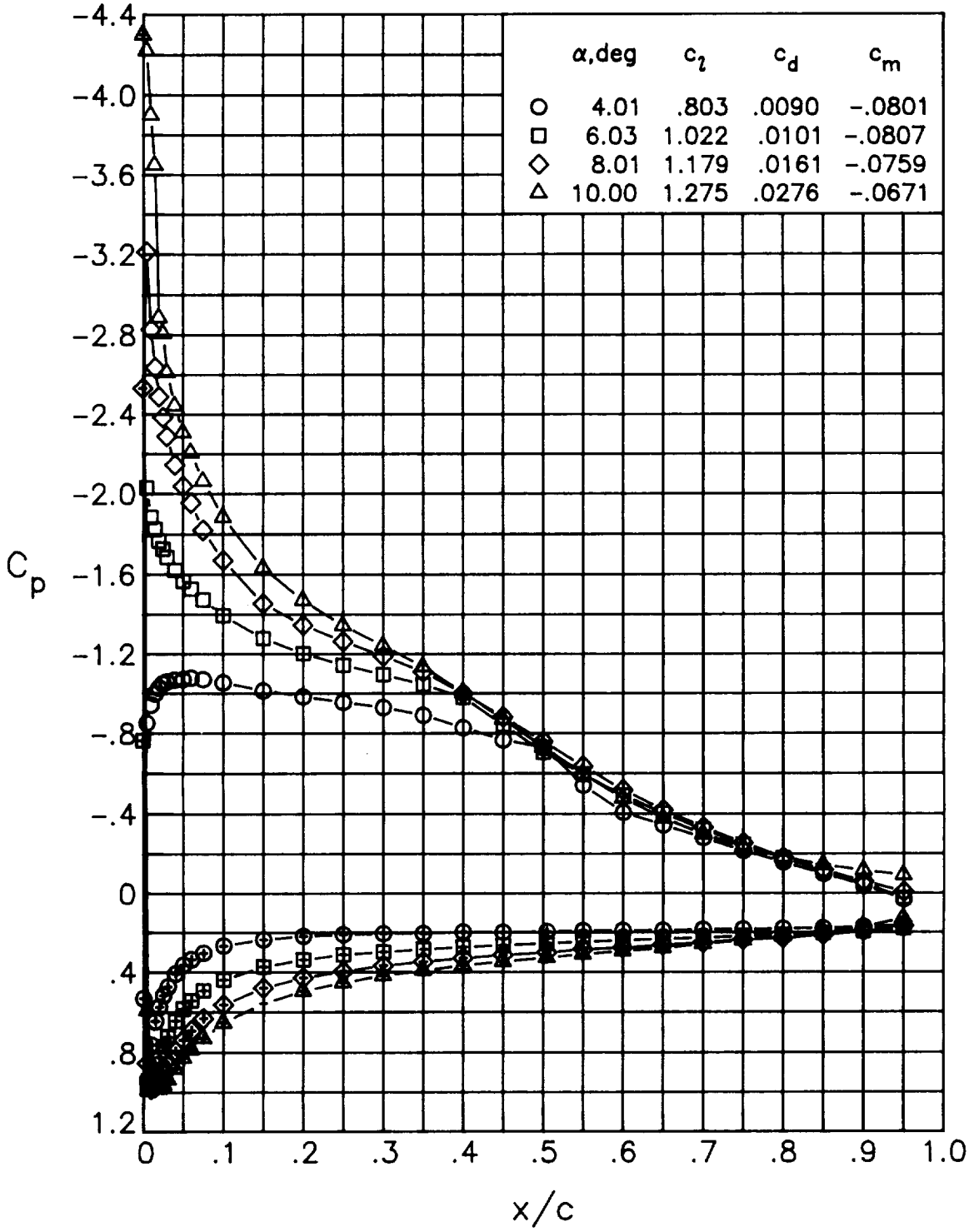
(d) $R = 300\,000$. Concluded.

Figure 17. Continued.



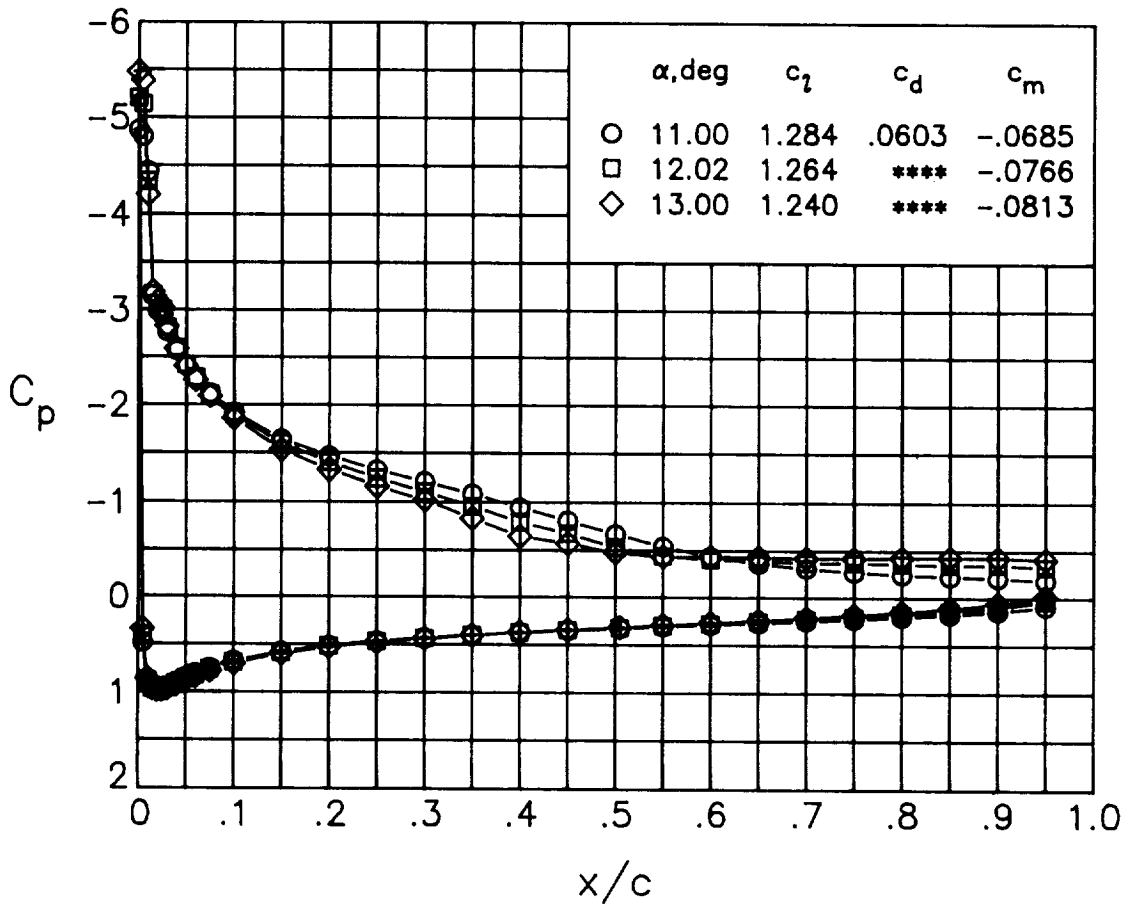
(e) $R = 460\,000$.

Figure 17. Continued.



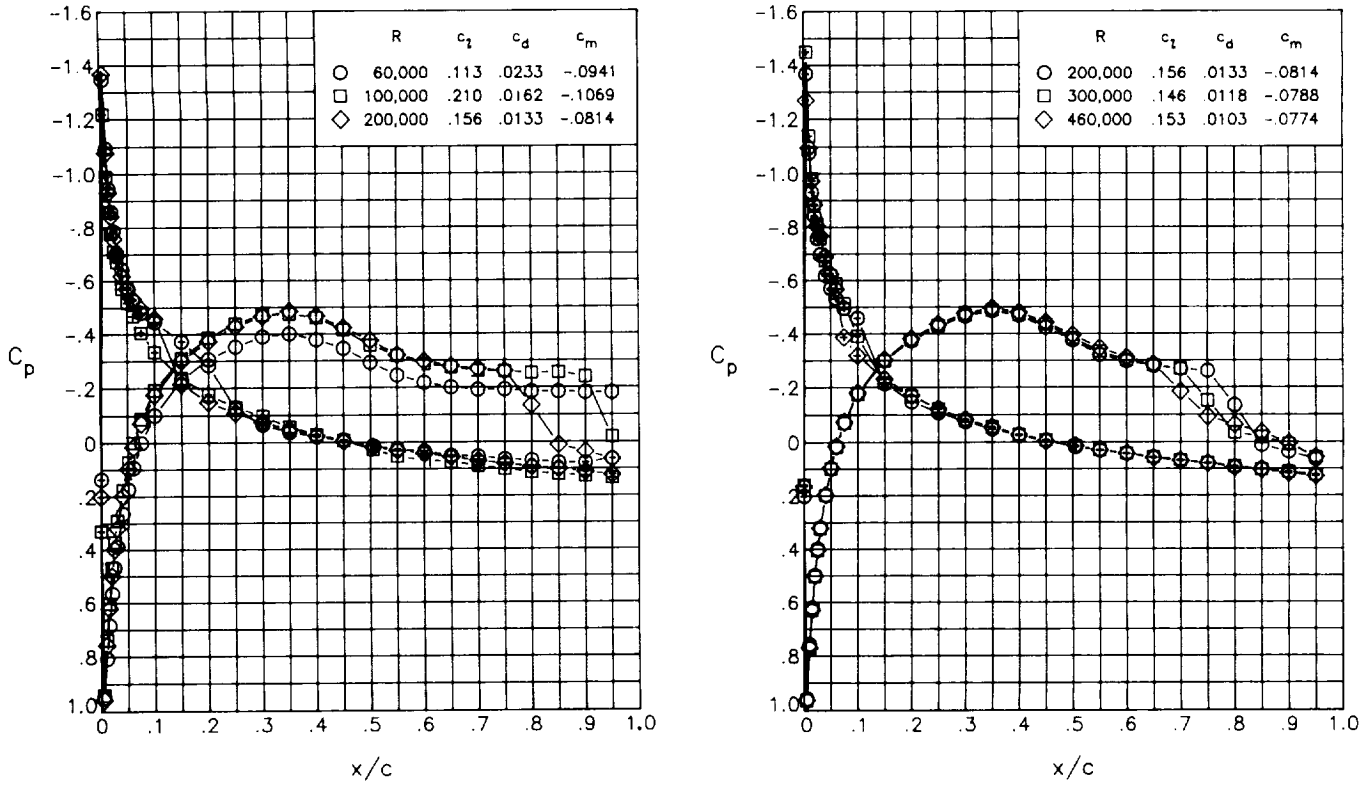
(e) $R = 460\,000$. Continued.

Figure 17. Continued.

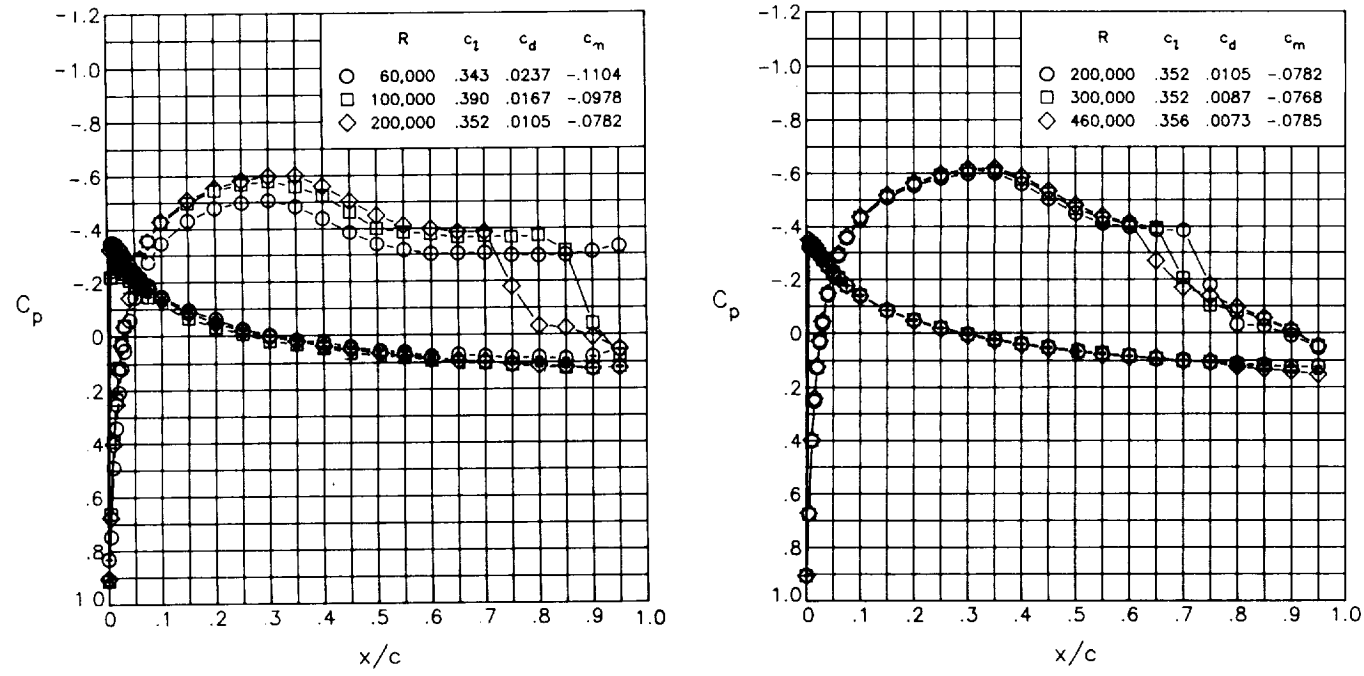


(e) $R = 460\,000$. Concluded.

Figure 17. Concluded.

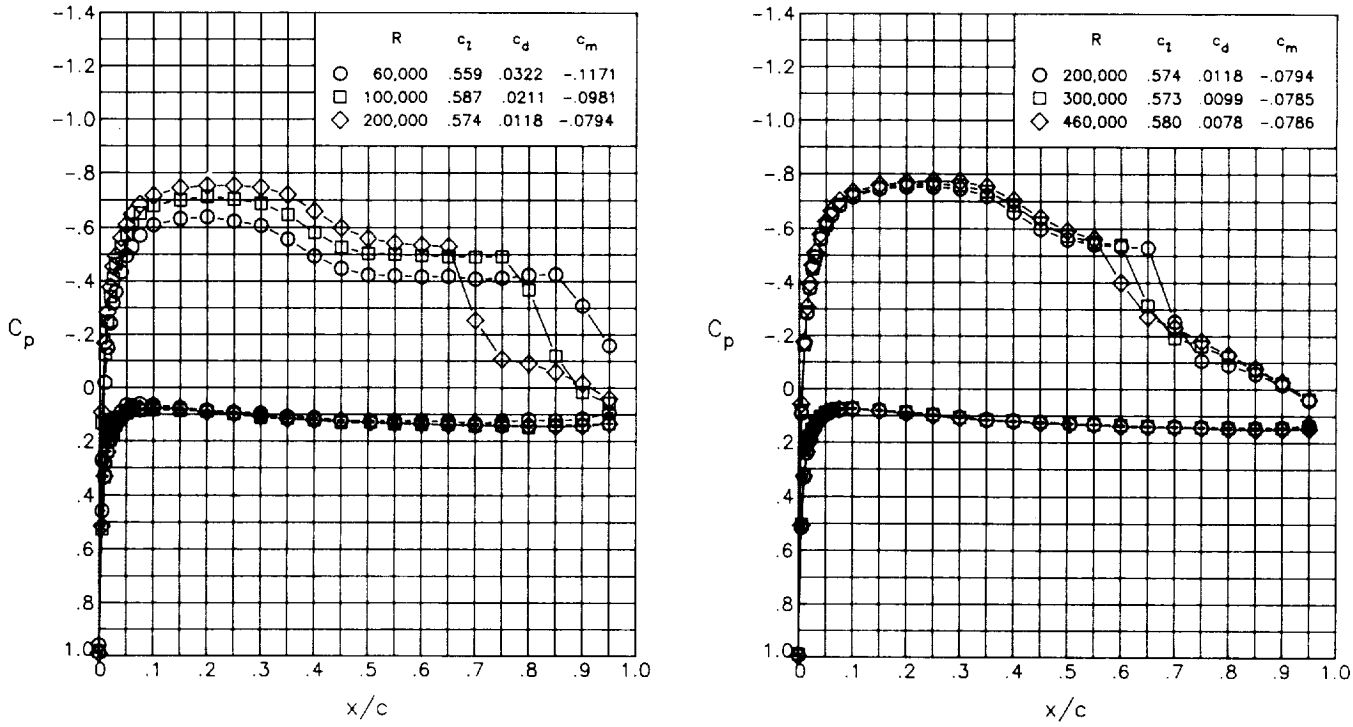


(a) $\alpha = -2°$.

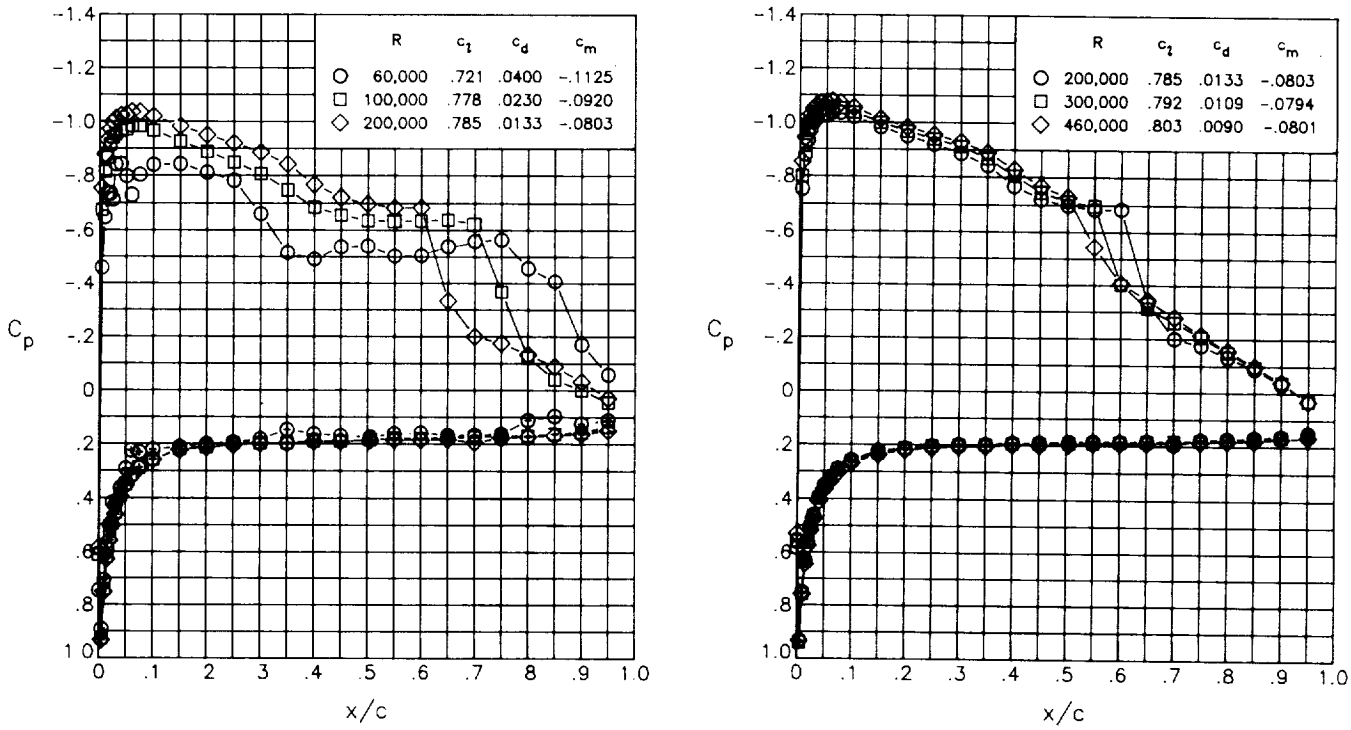


(b) $\alpha = 0°$.

Figure 18. Effect of Reynolds number on chordwise pressure distributions. Centered symbol designates lower surface.

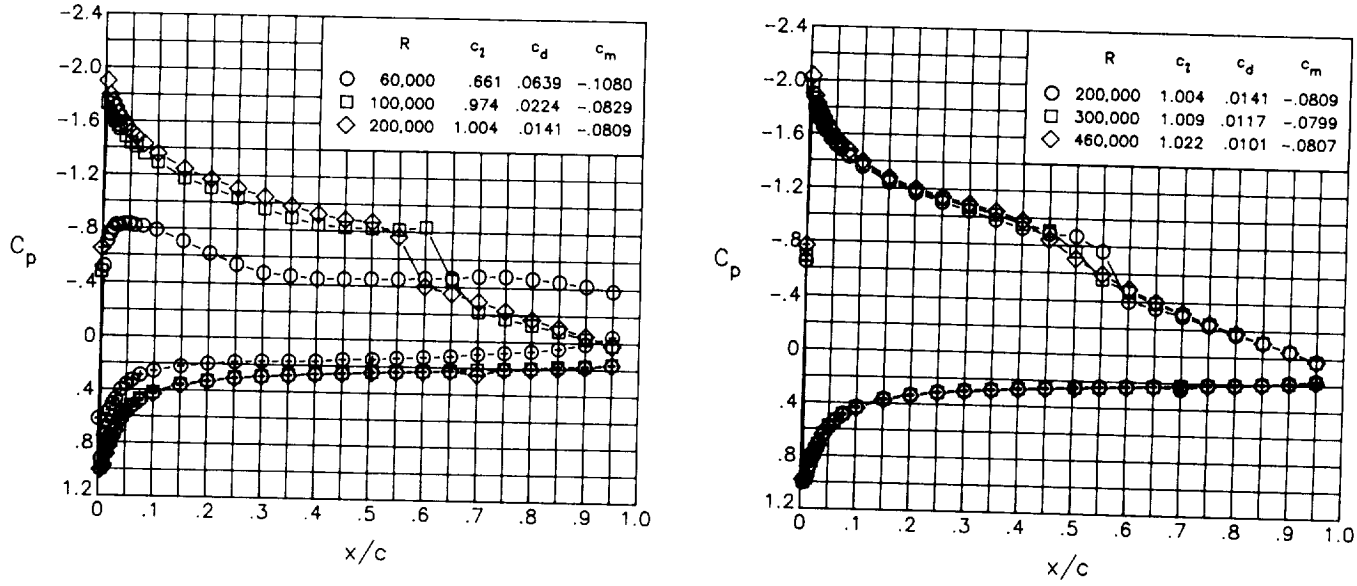


(c) $\alpha = 2°$.

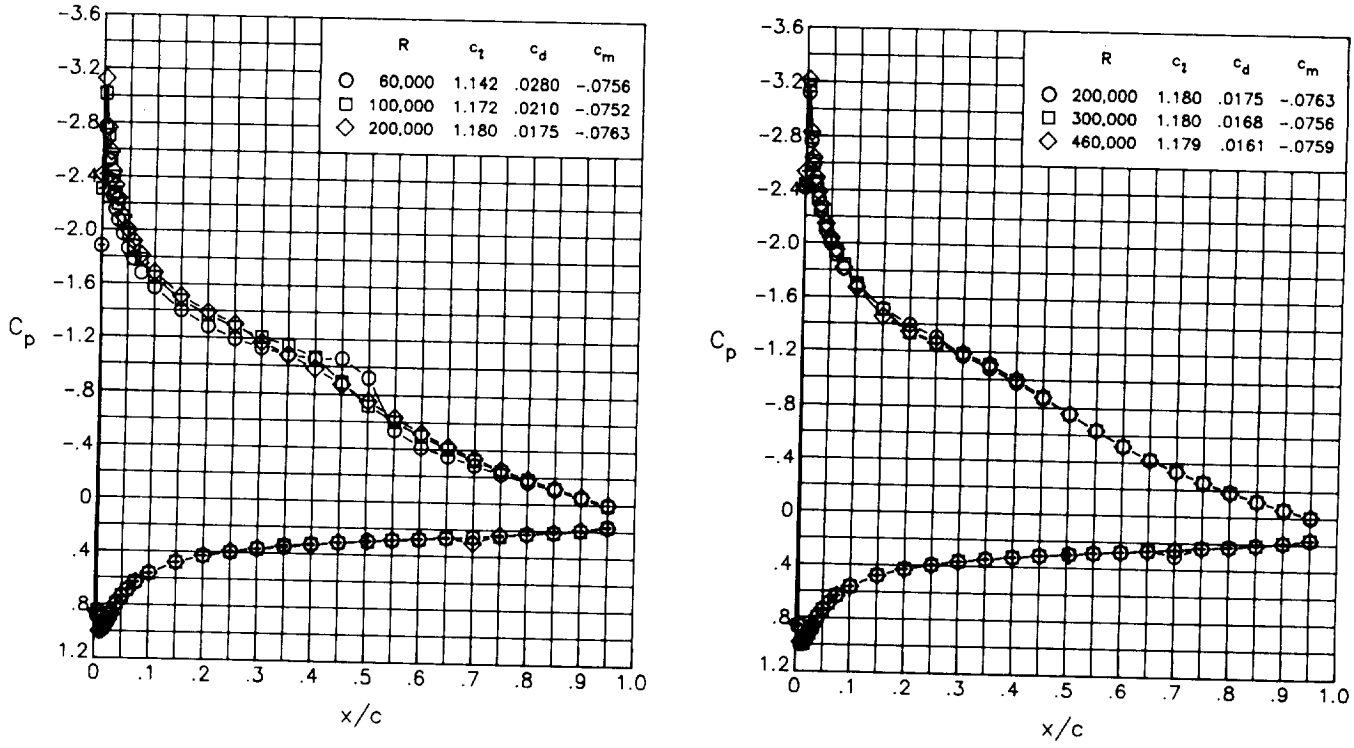


(d) $\alpha = 4°$.

Figure 18. Continued.

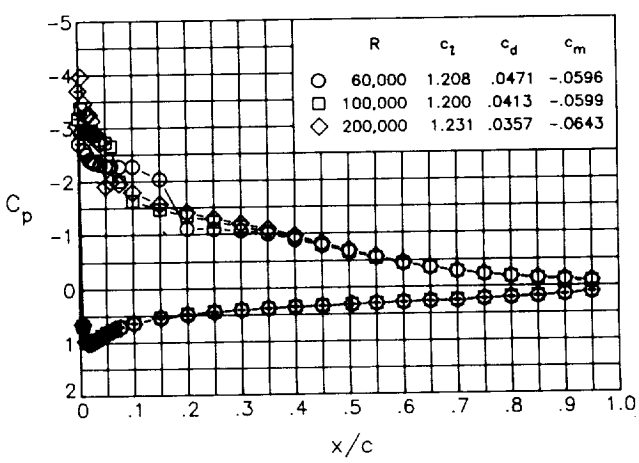


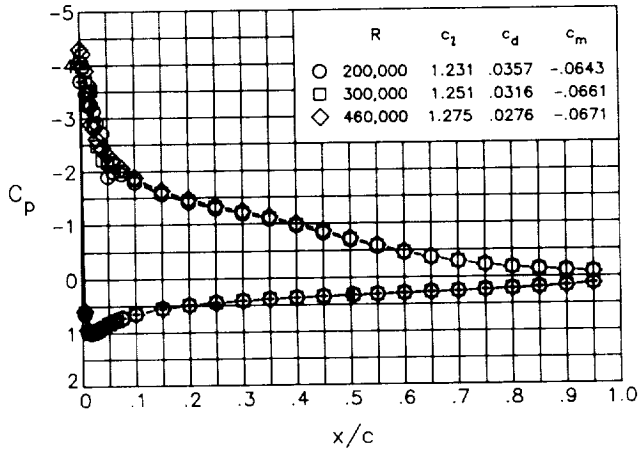
(e) $\alpha = 6°$.



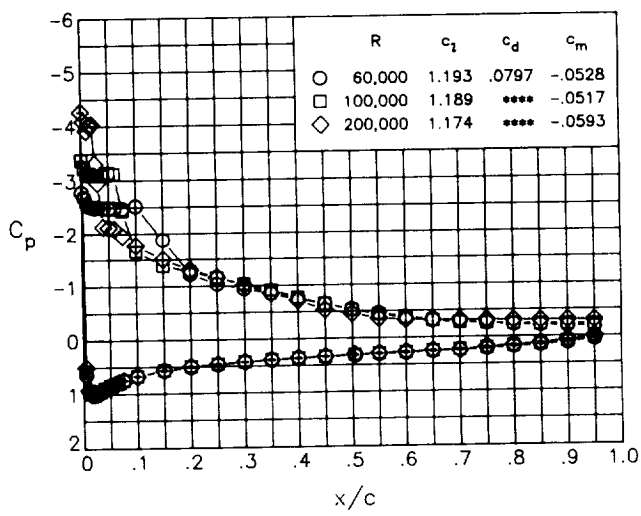
(f) $\alpha = 8°$.

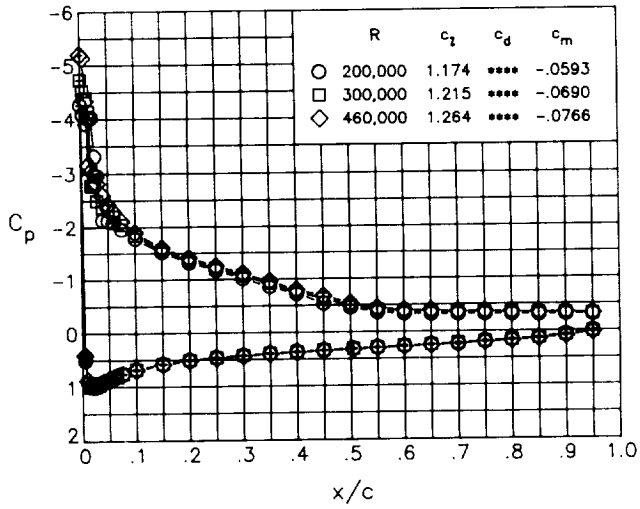
Figure 18. Continued.





(g) $\alpha = 10°$.





(h) $\alpha = 12°$.

Figure 18. Concluded.

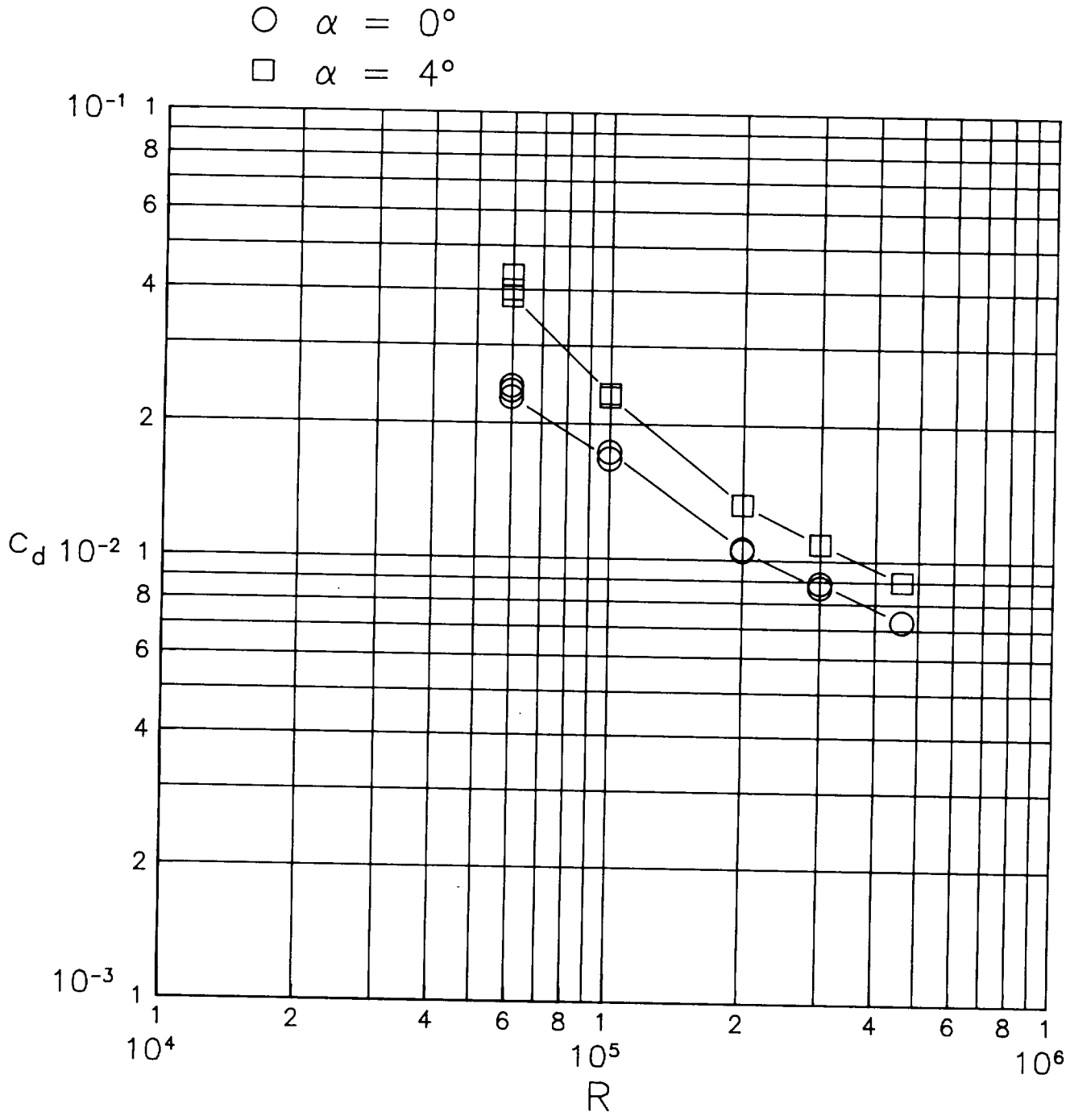


Figure 19. Variation of drag coefficient with Reynolds number.

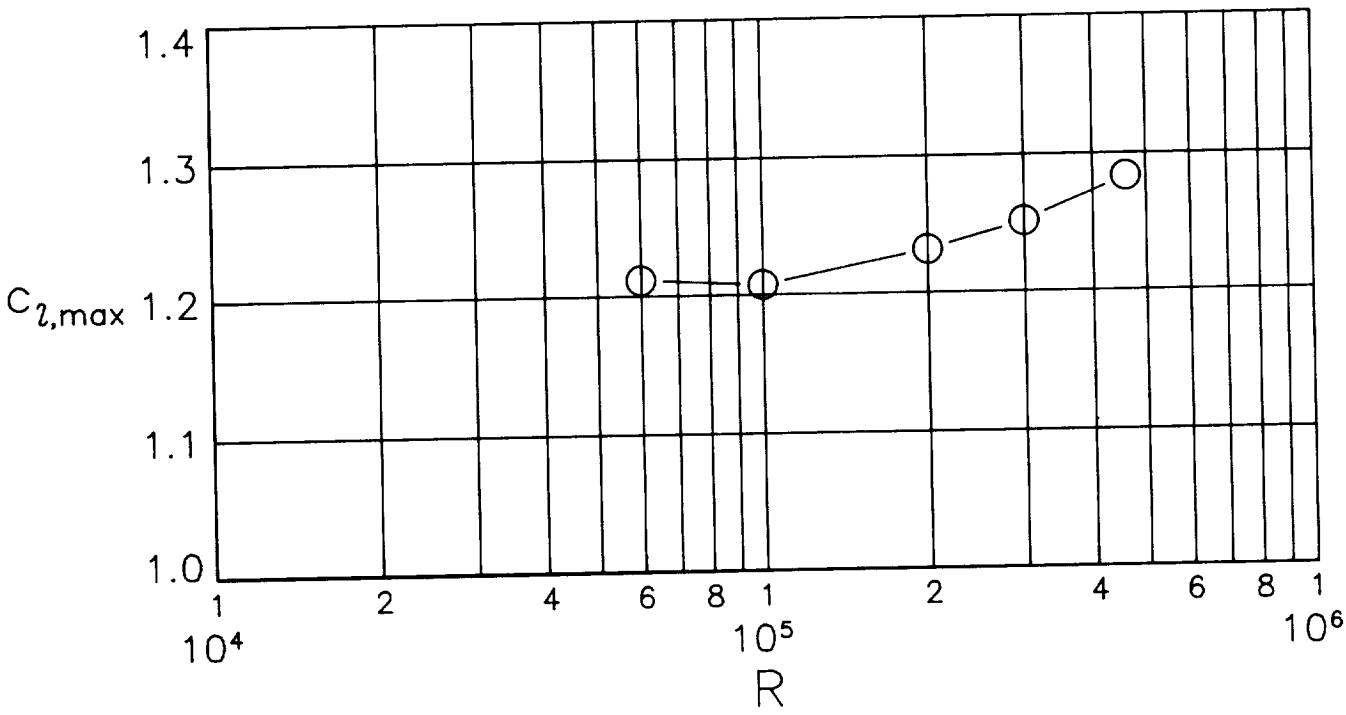


Figure 20. Variation of maximum lift coefficient with Reynolds number.

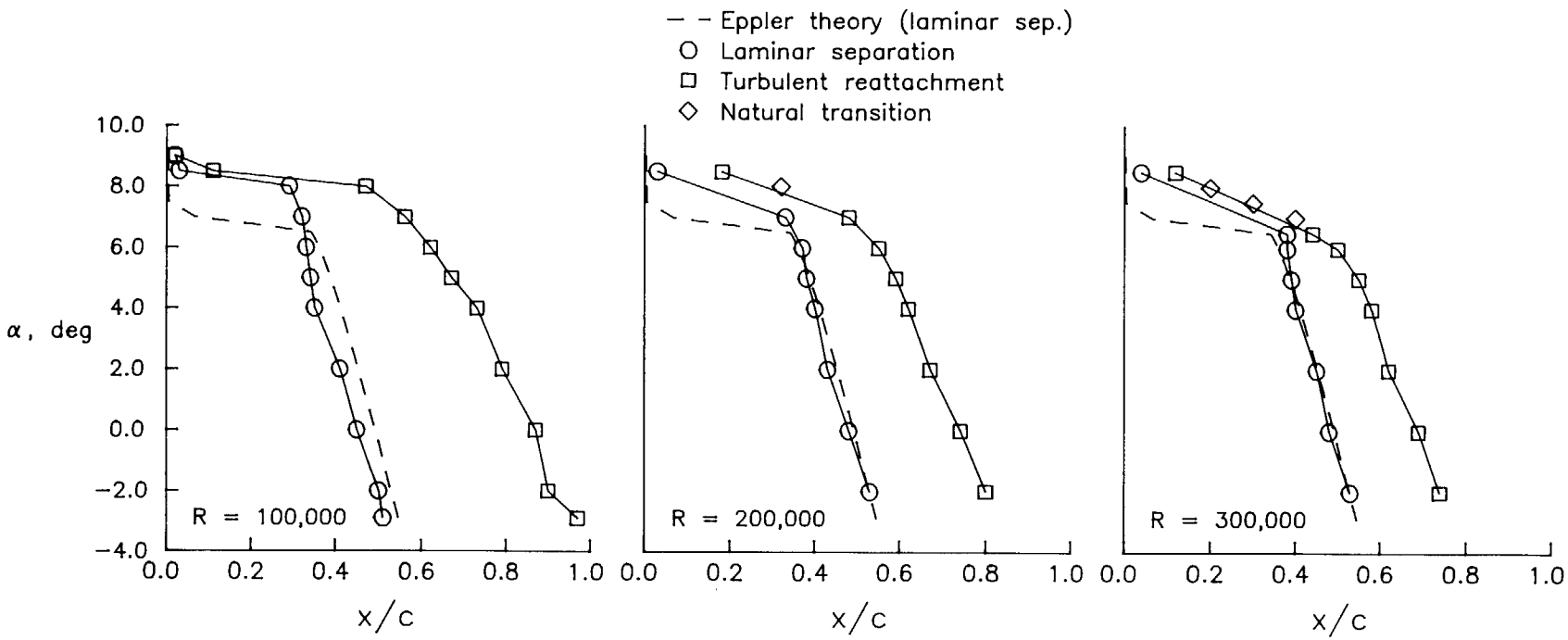
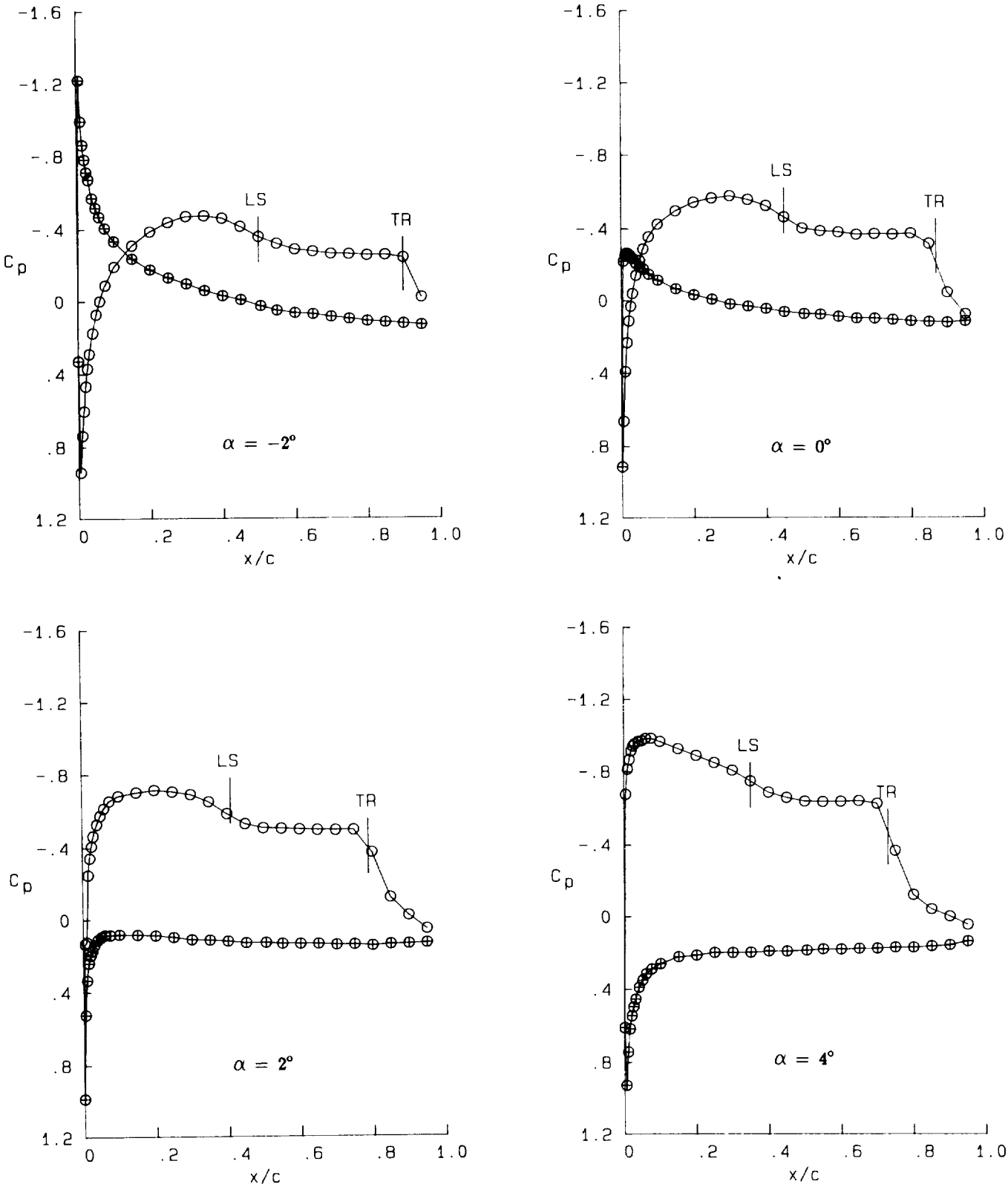
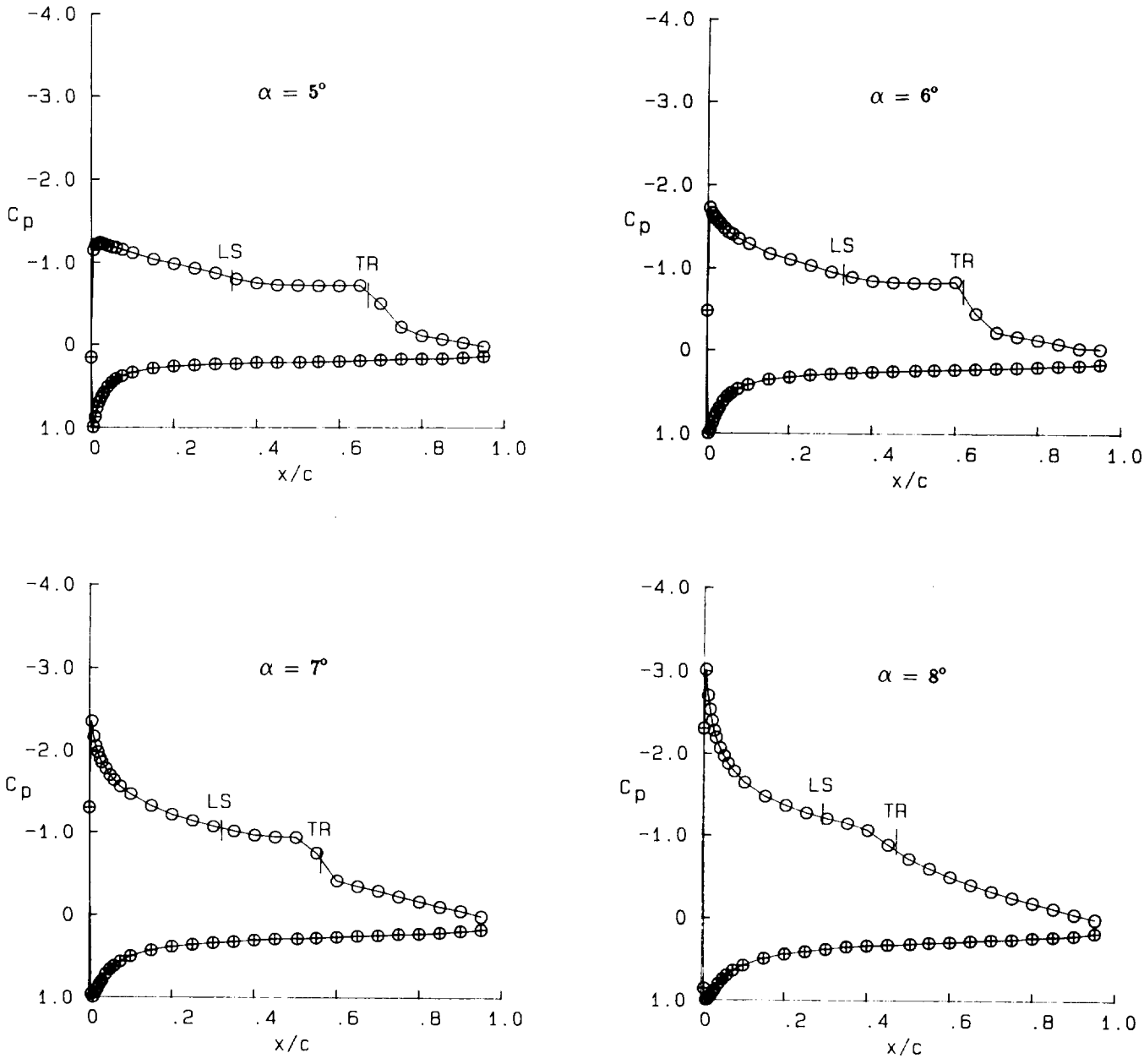


Figure 21. Separation and reattachment locations from oil flow data.



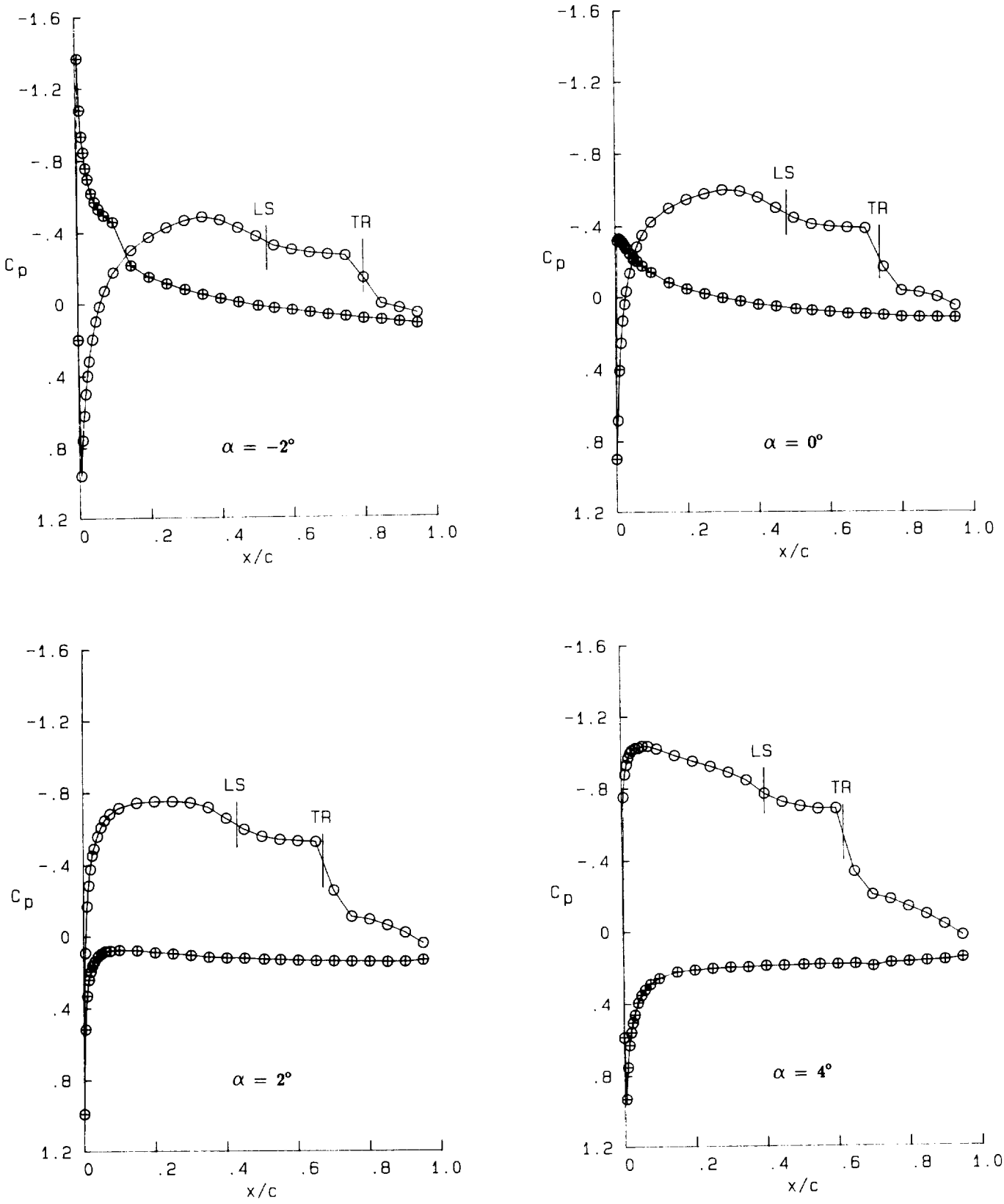
(a) $R = 100\,000$.

Figure 22. Comparison of pressure data with oil flow results illustrating laminar-separation and turbulent-reattachment locations. Centered symbol designates lower surface.



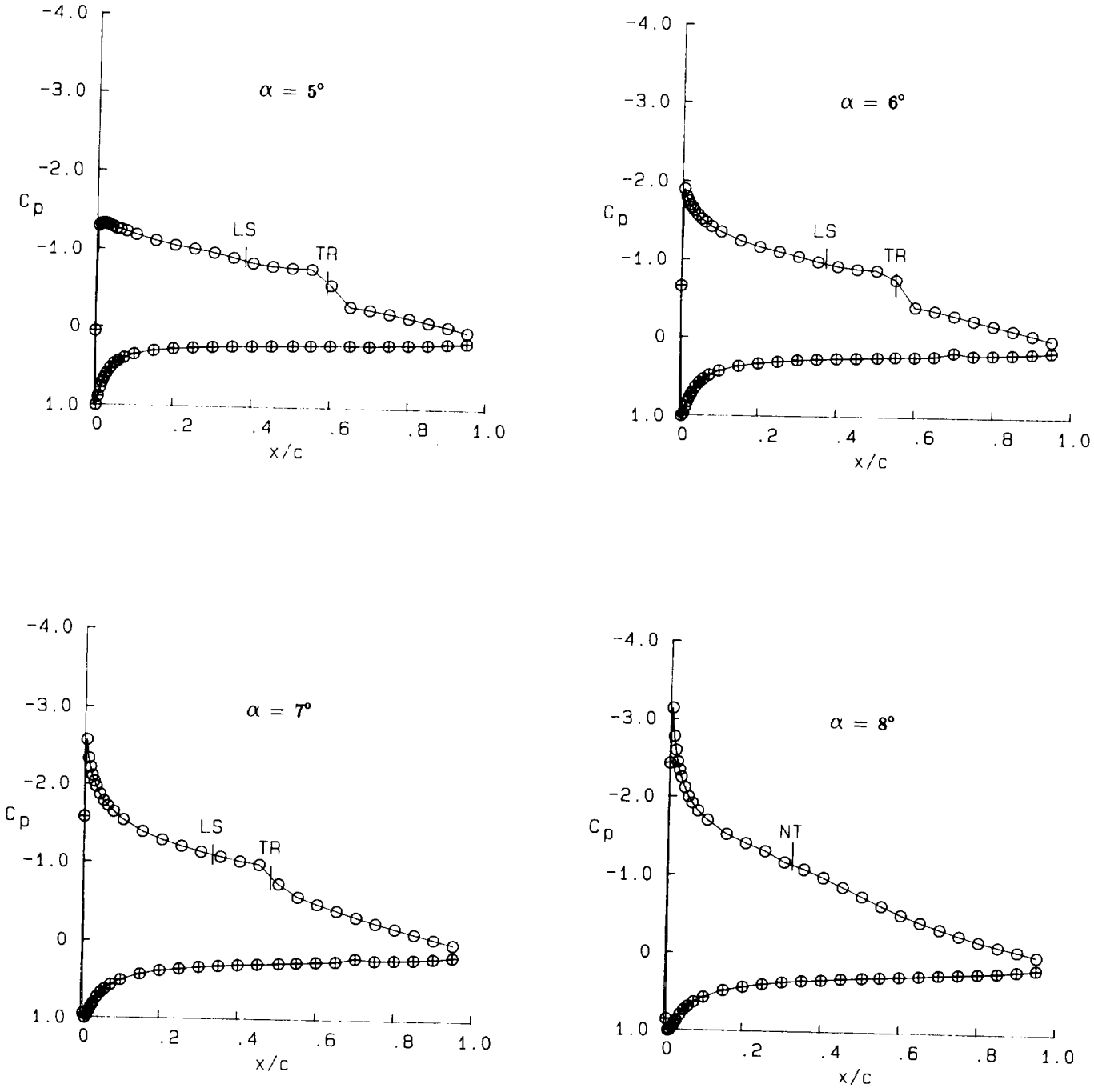
(a) $R = 100\,000$. Concluded.

Figure 22. Continued.



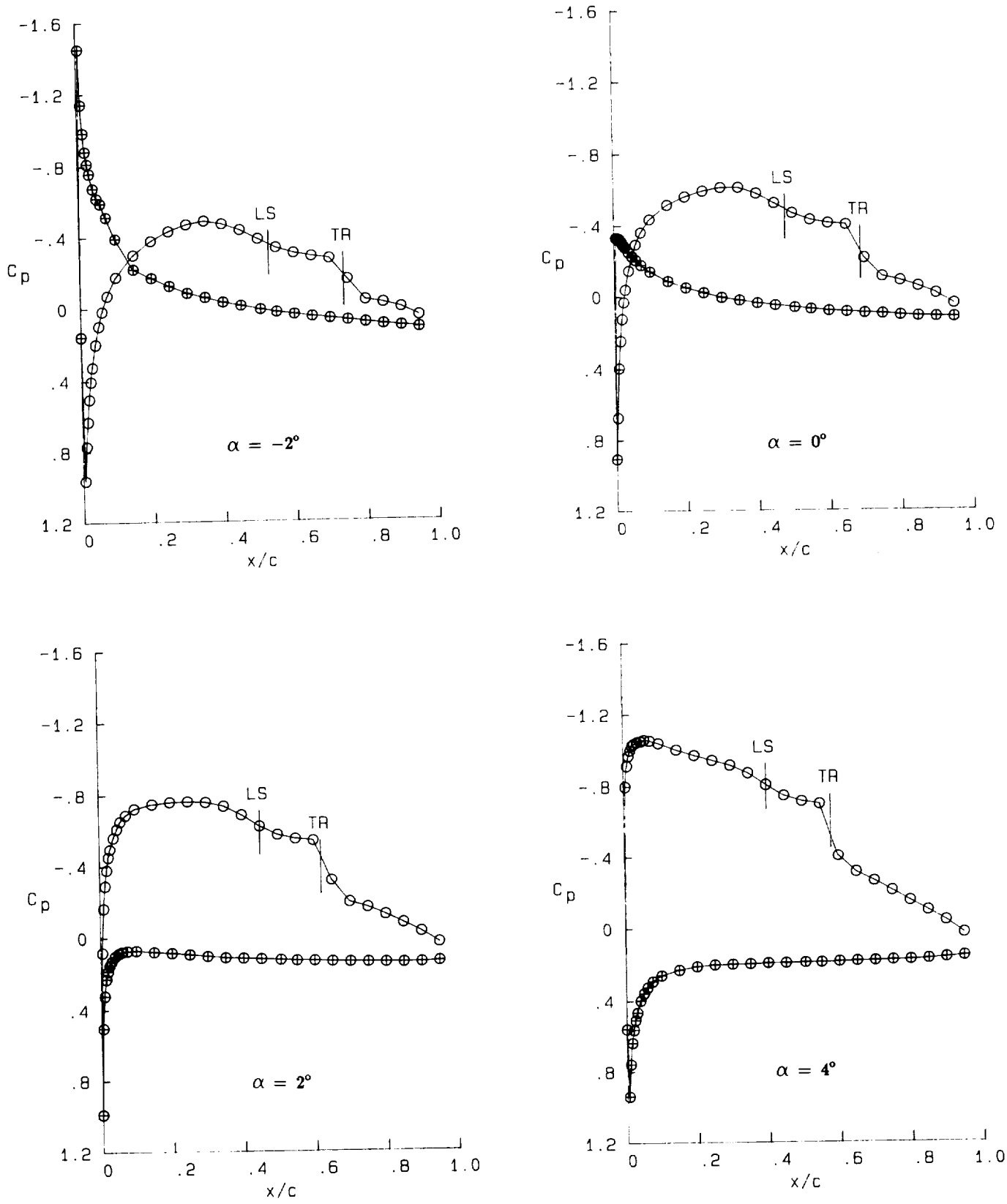
(b) $R = 200\,000$.

Figure 22. Continued.



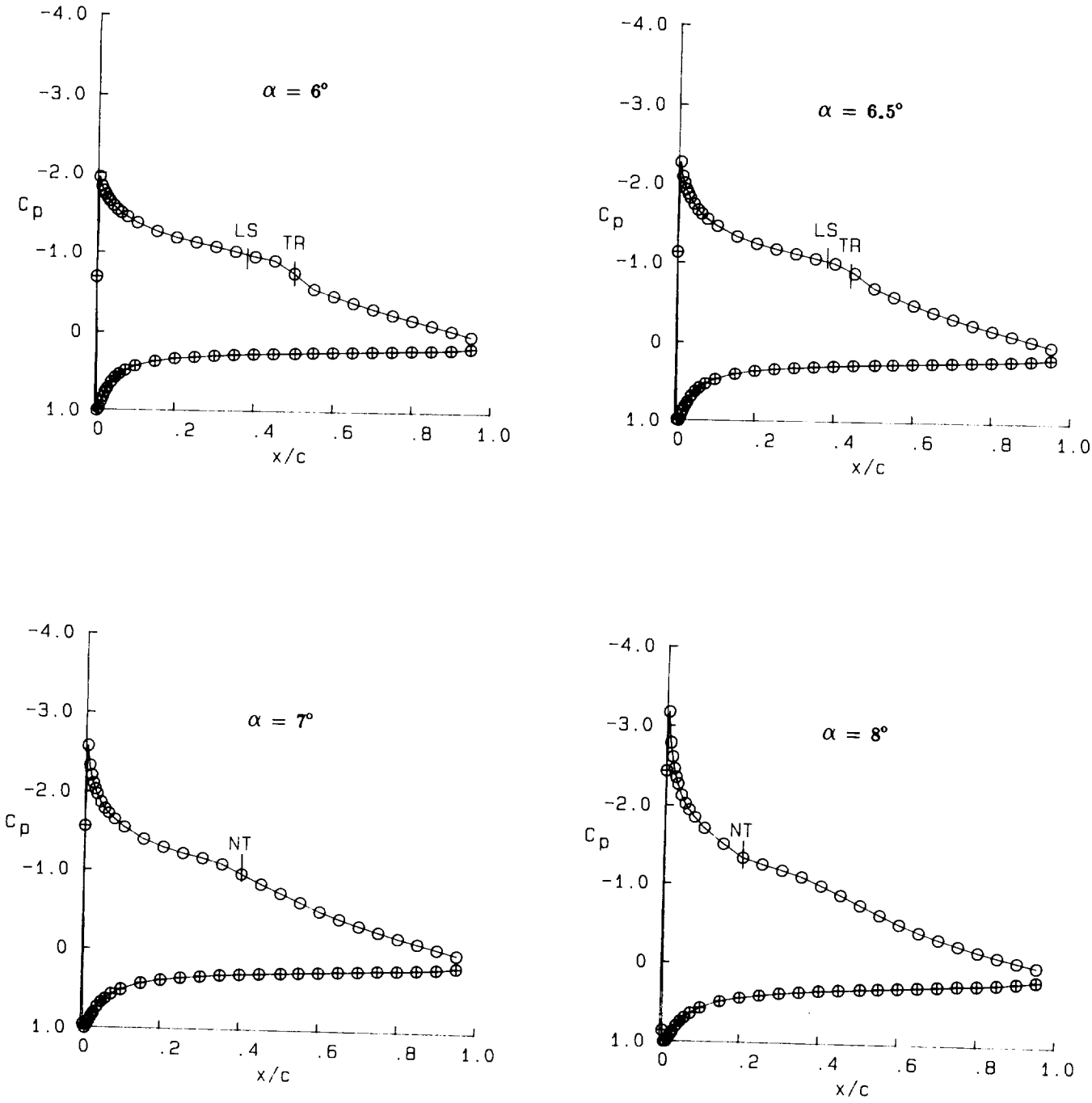
(b) $R = 200\,000$. Concluded.

Figure 22. Continued.



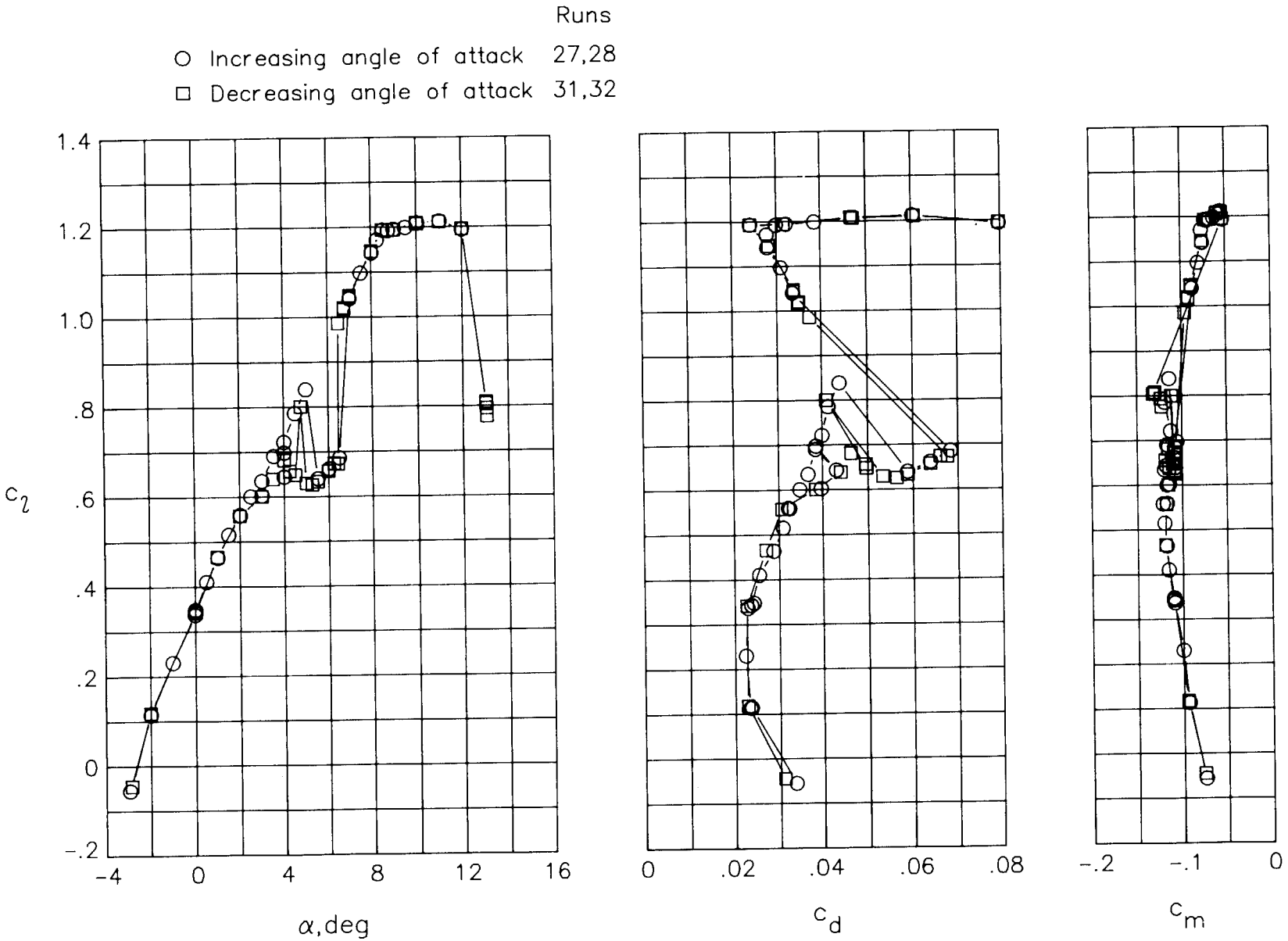
(c) $R = 300\,000$.

Figure 22. Continued.



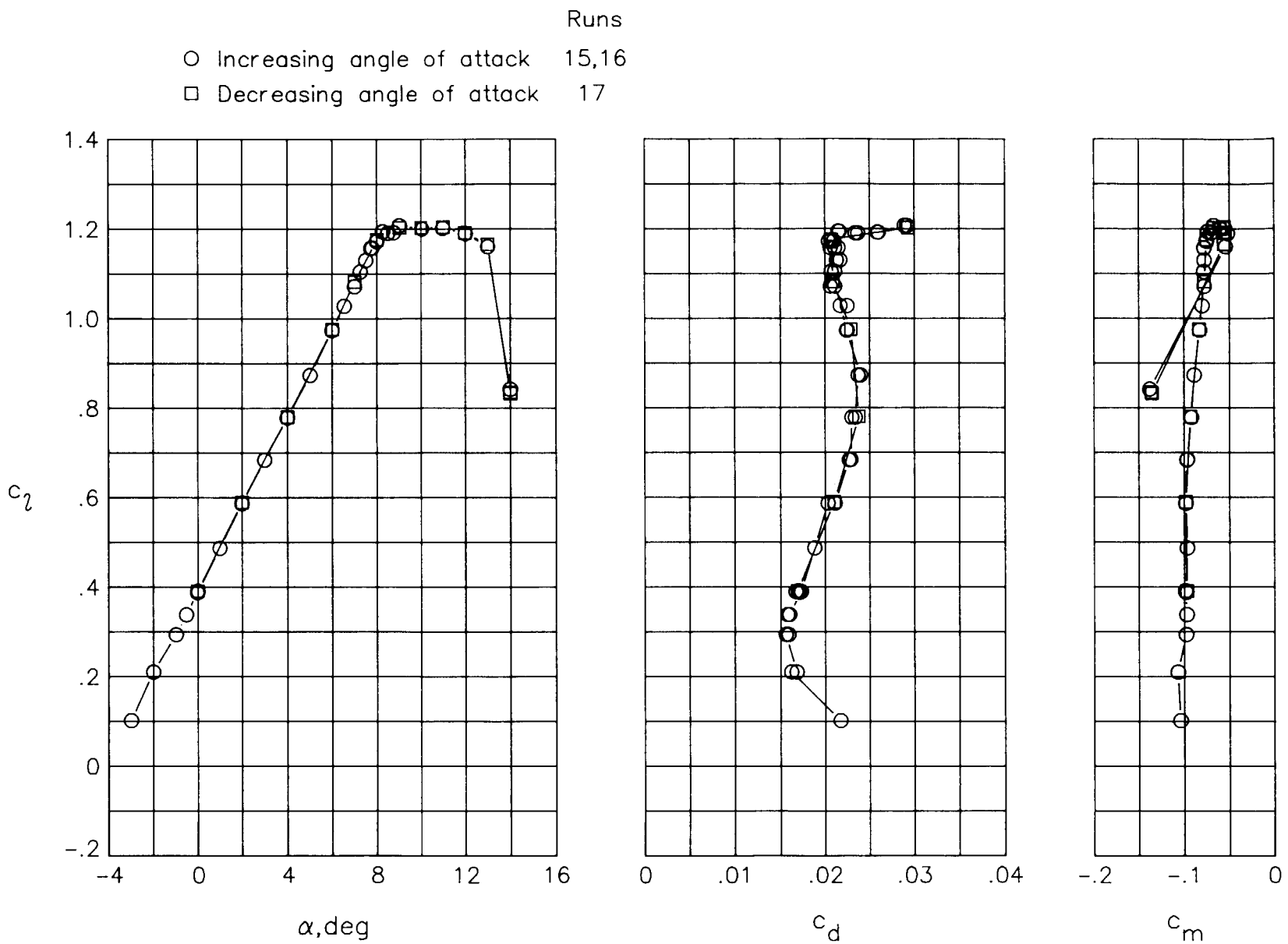
(c) $R = 300\,000$. Concluded.

Figure 22. Concluded.



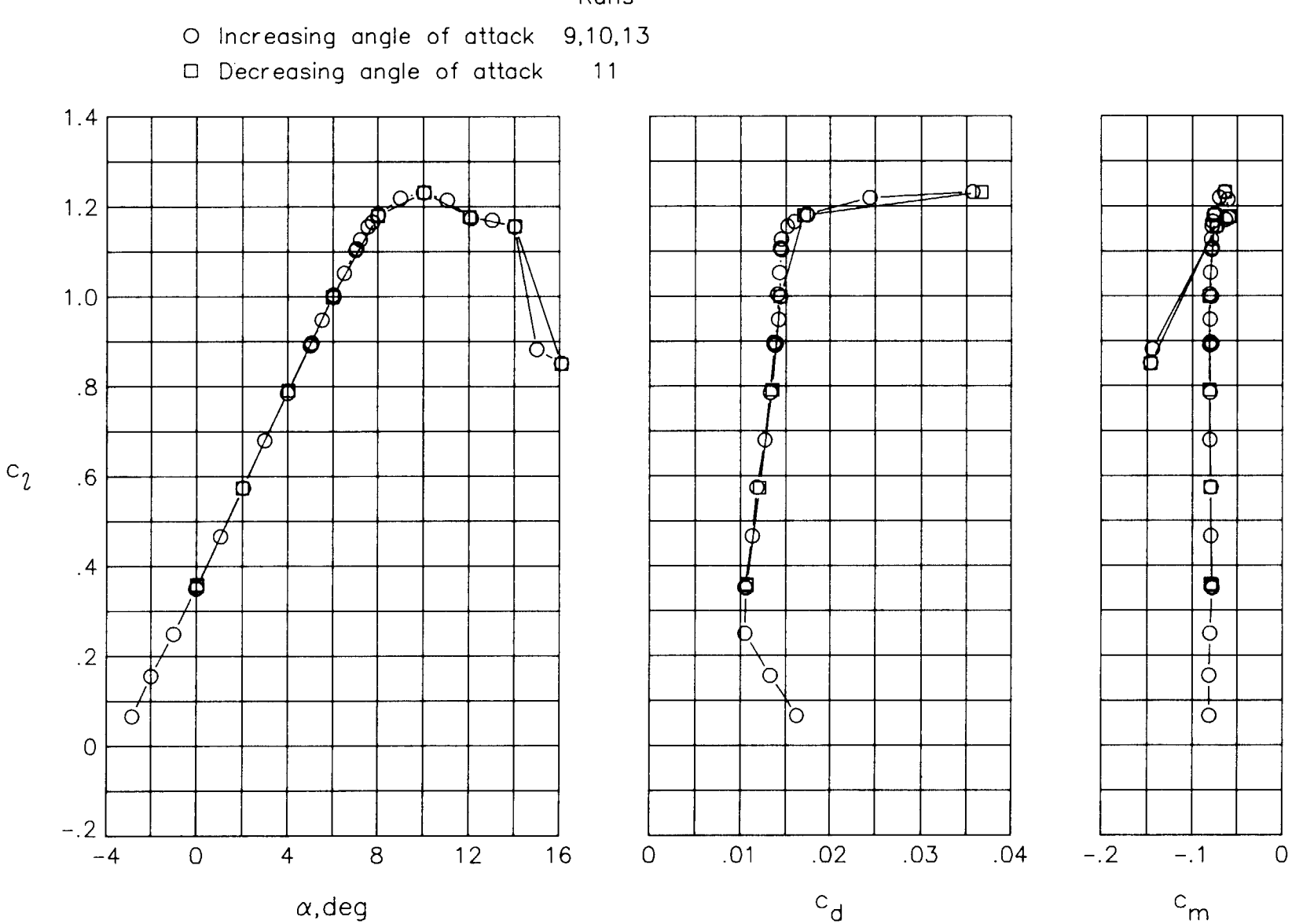
(a) $R = 60\,000$.

Figure 23. Hysteresis effects on section data.



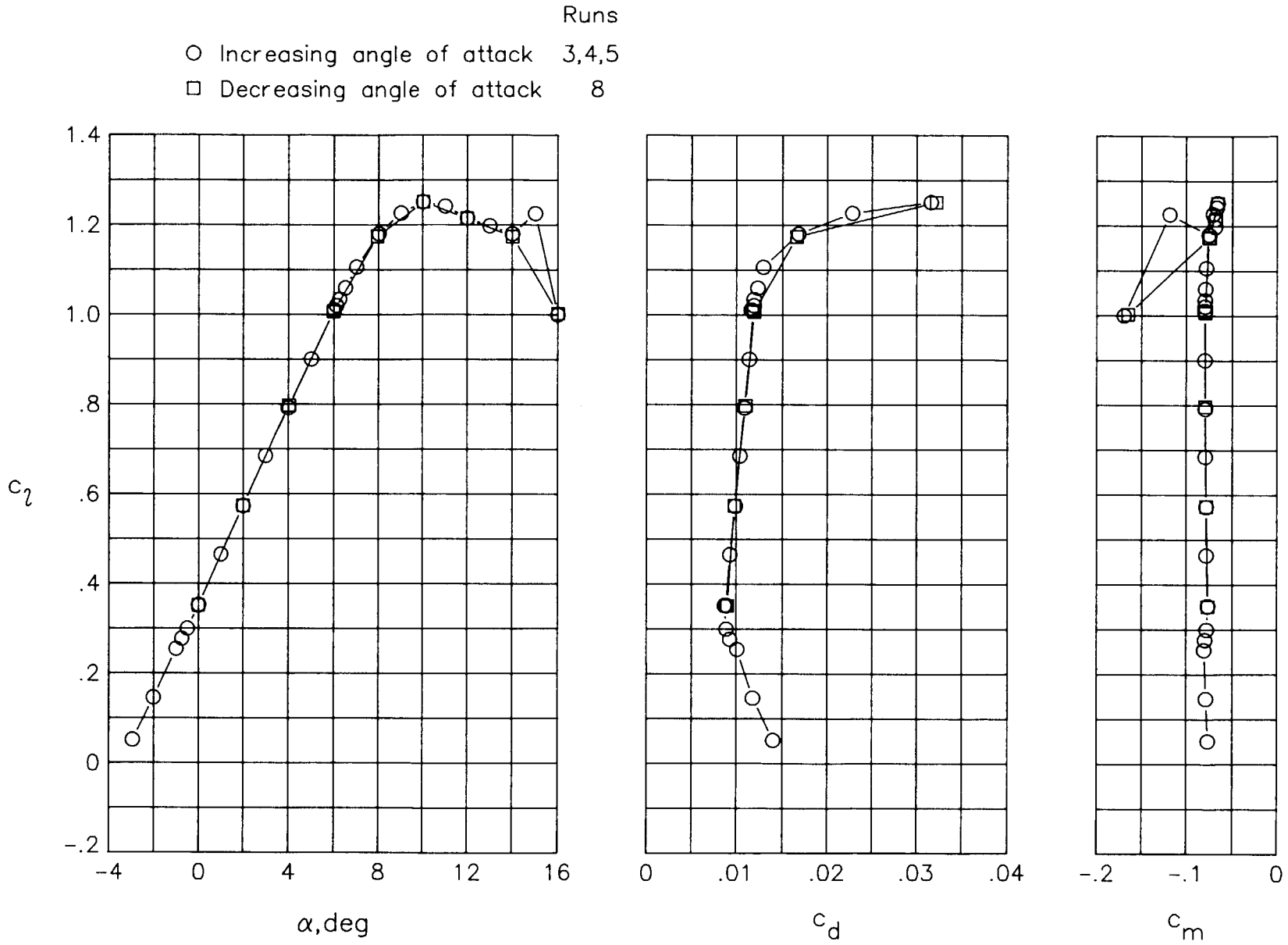
(b) $R = 100\,000$.

Figure 23. Continued.



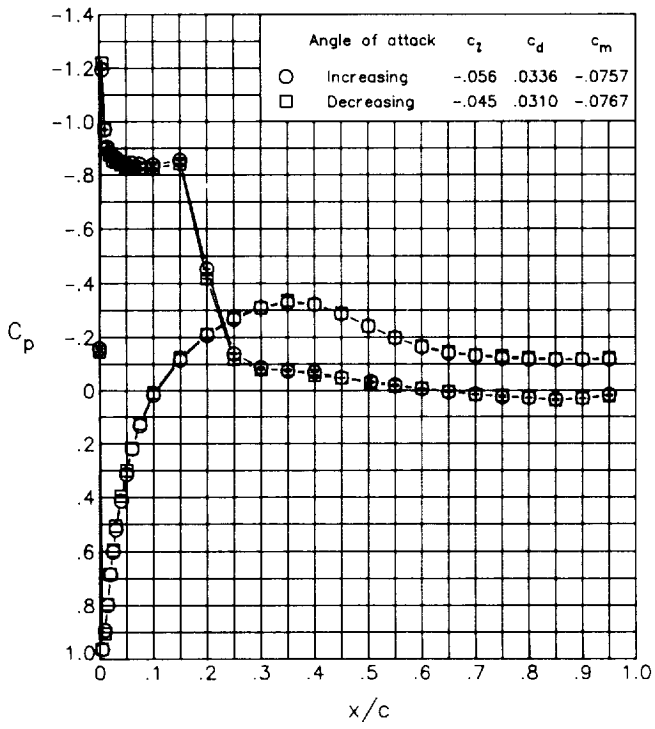
(c) $R = 200\,000$.

Figure 23. Continued.

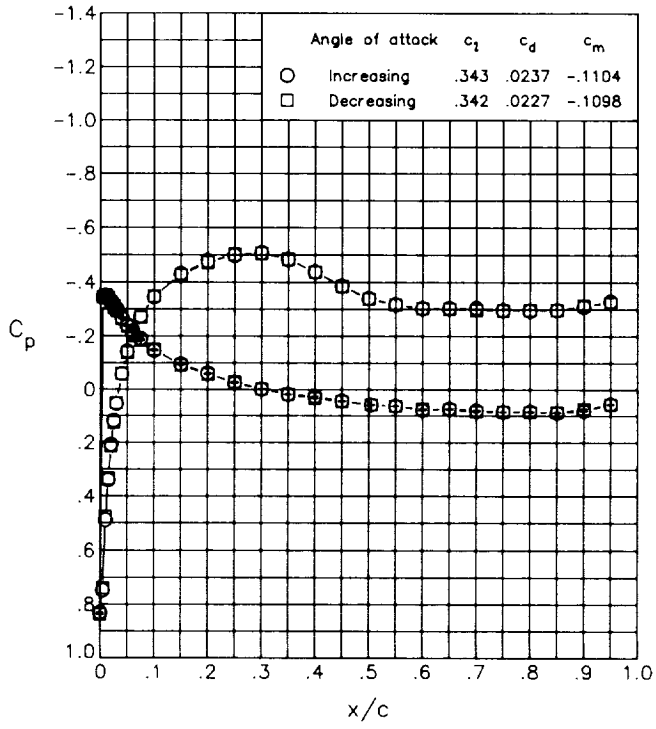


(d) $R = 300\,000$.

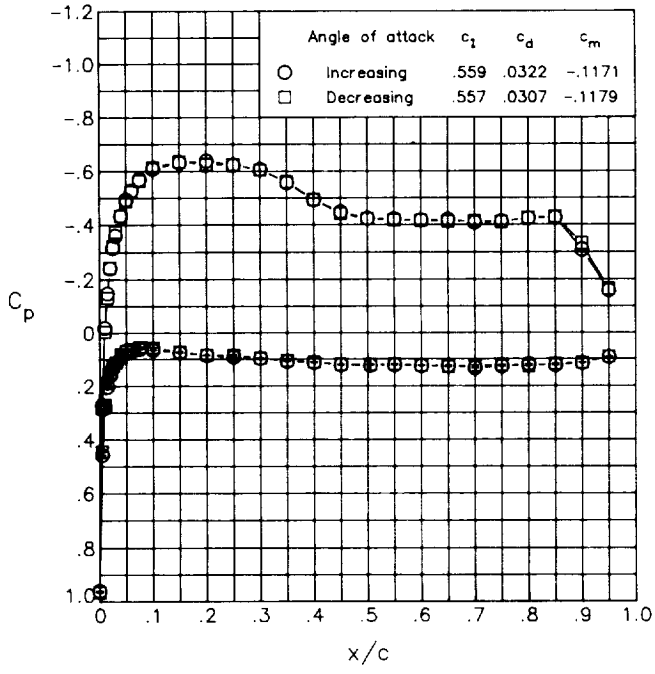
Figure 23. Concluded.



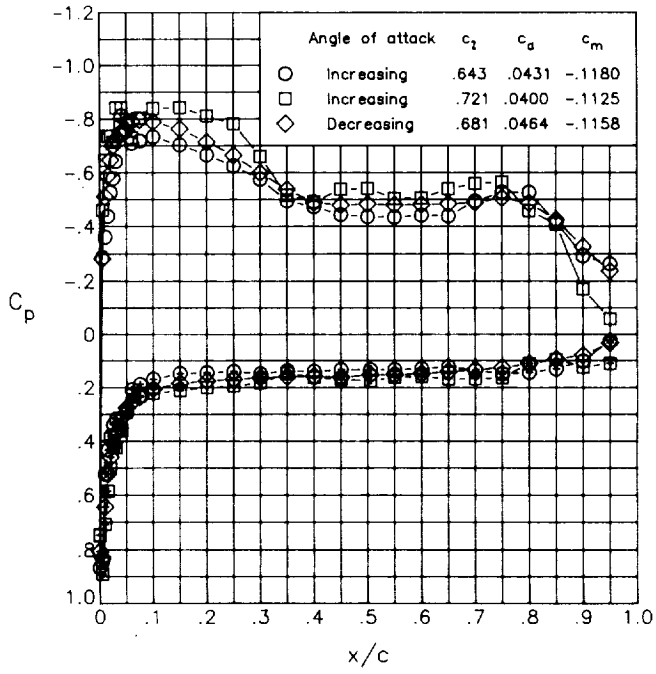
(a) $\alpha \approx -3°$.



(b) $\alpha = 0°$.

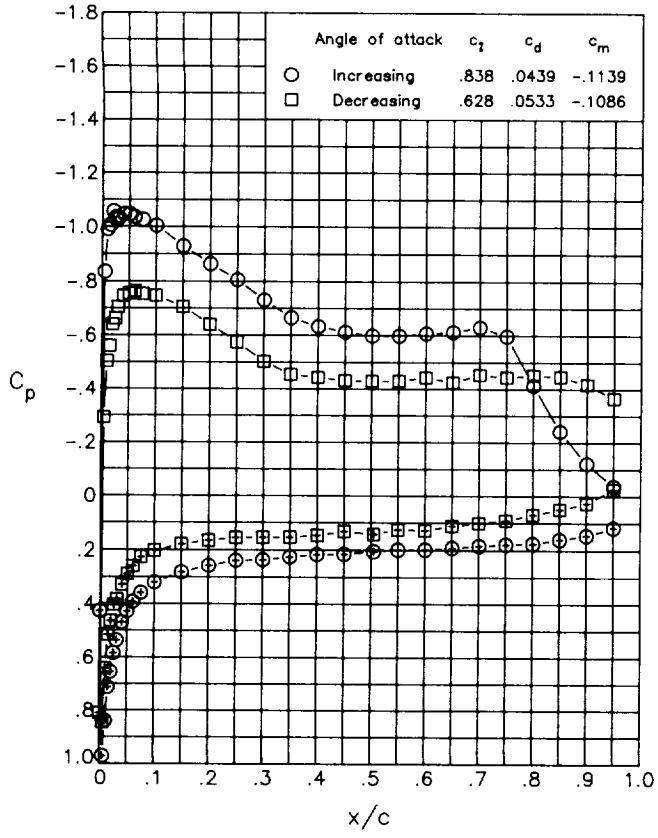


(c) $\alpha = 2°$.

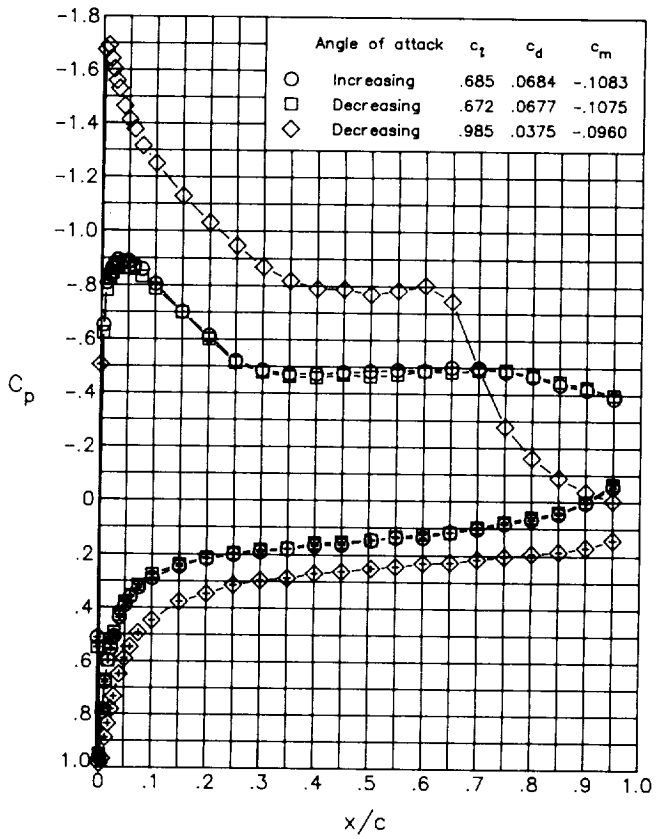


(d) $\alpha = 4°$.

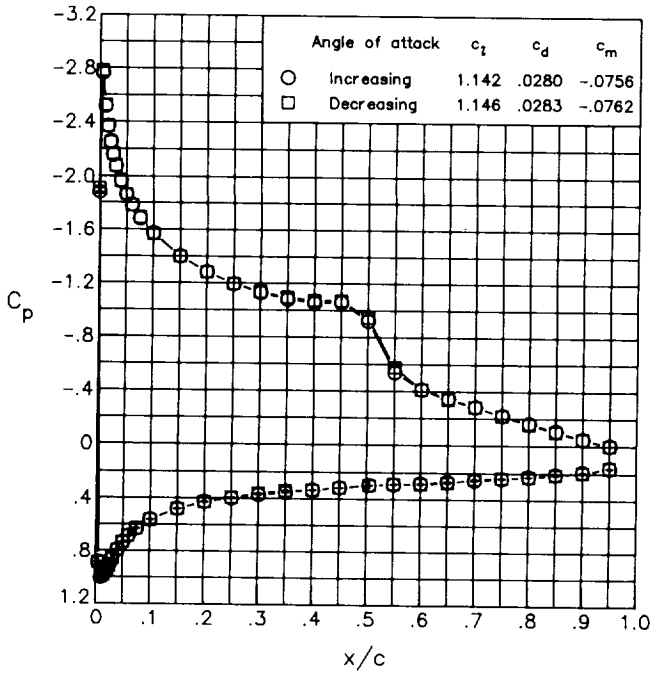
Figure 24. Hysteresis effects on chordwise pressure distributions for $R = 60\,000$. Centered symbol designates lower surface.



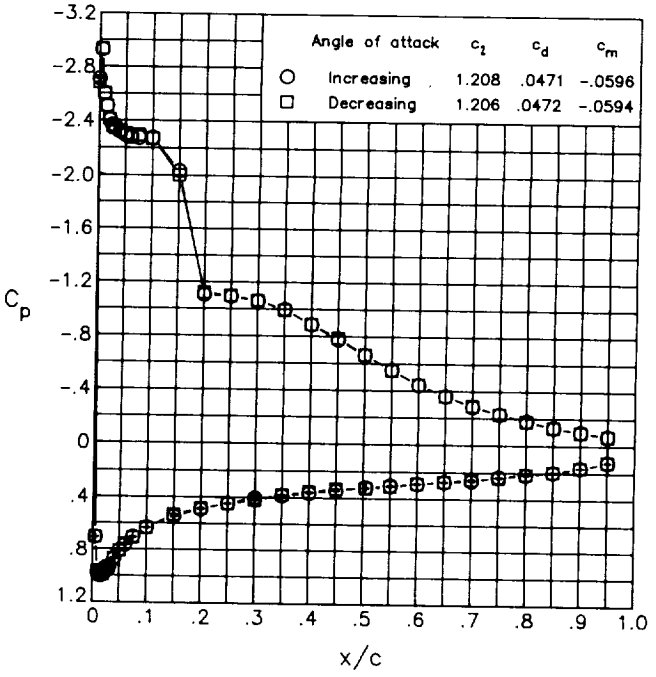
(e) $\alpha = 5°$.



(f) $\alpha = 6.5°$.

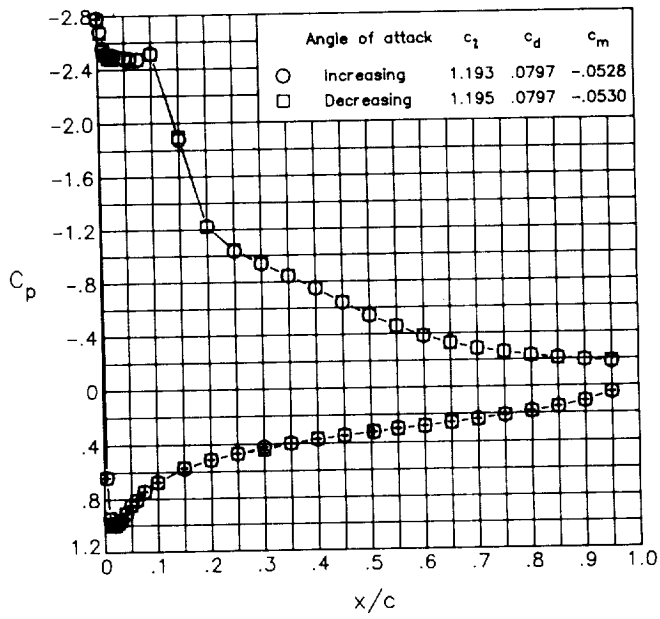


(g) $\alpha = 8°$.



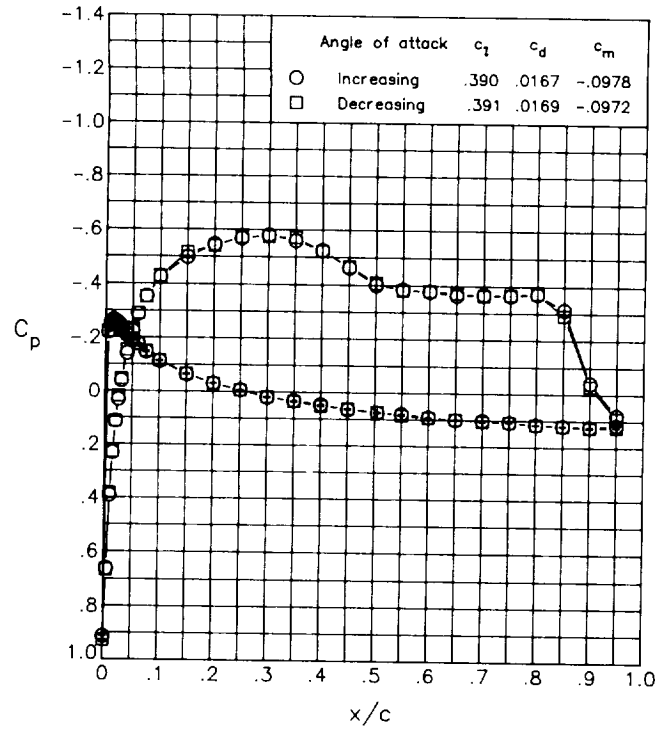
(h) $\alpha = 10°$.

Figure 24. Continued.

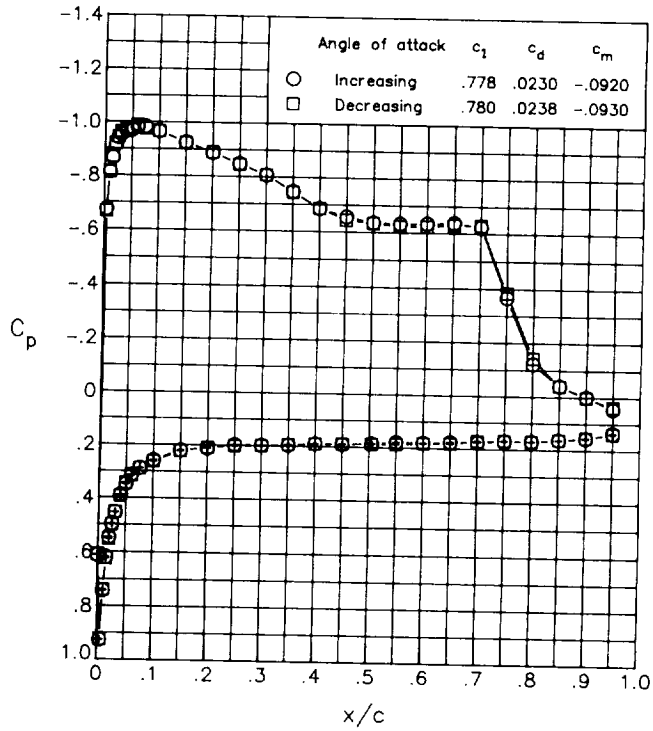


(i) $\alpha = 12°$.

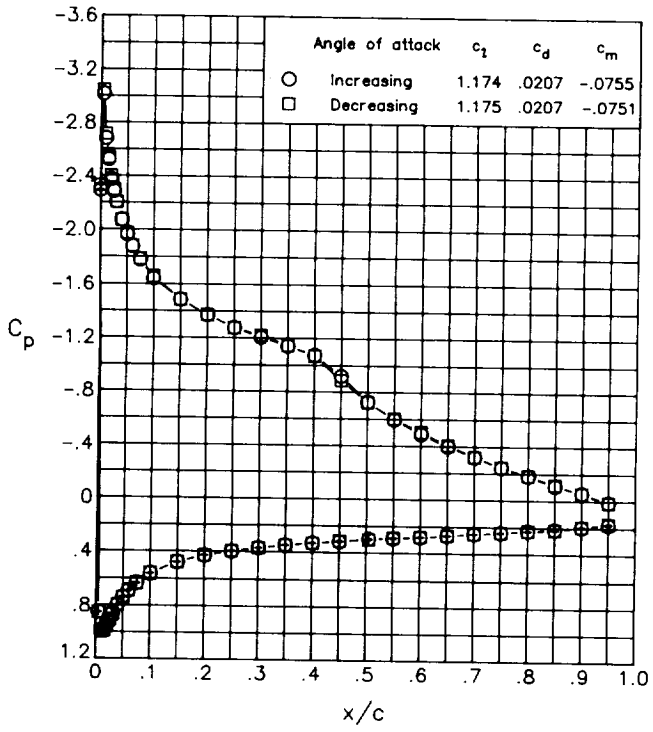
Figure 24. Concluded.



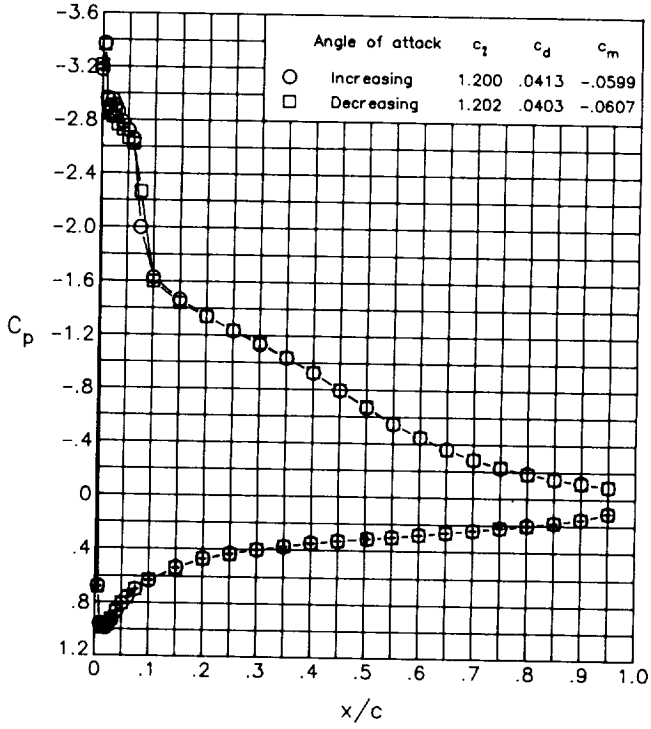
(a) $\alpha = 0°$.



(b) $\alpha = 4°$.

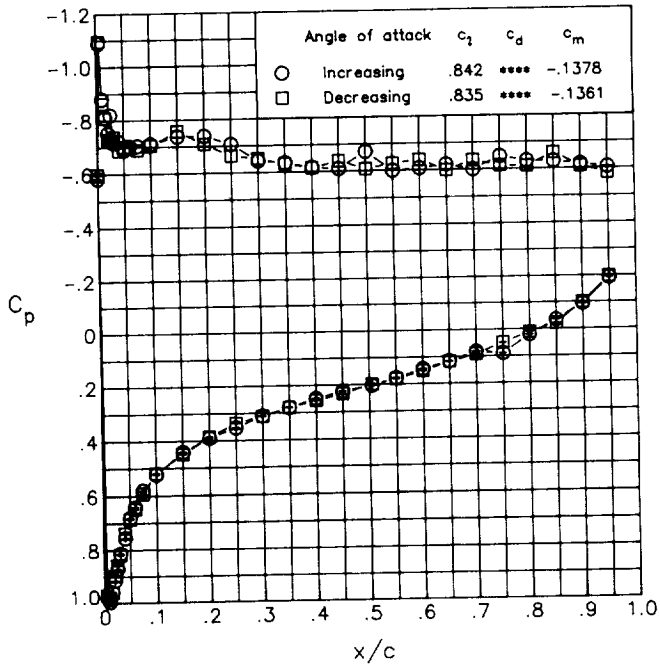


(c) $\alpha = 8°$.



(d) $\alpha = 10°$.

Figure 25. Hysteresis effects on chordwise pressure distributions for $R = 100\,000$. Centered symbol designates lower surface.



(e) $\alpha = 14°$.

Figure 25. Concluded.

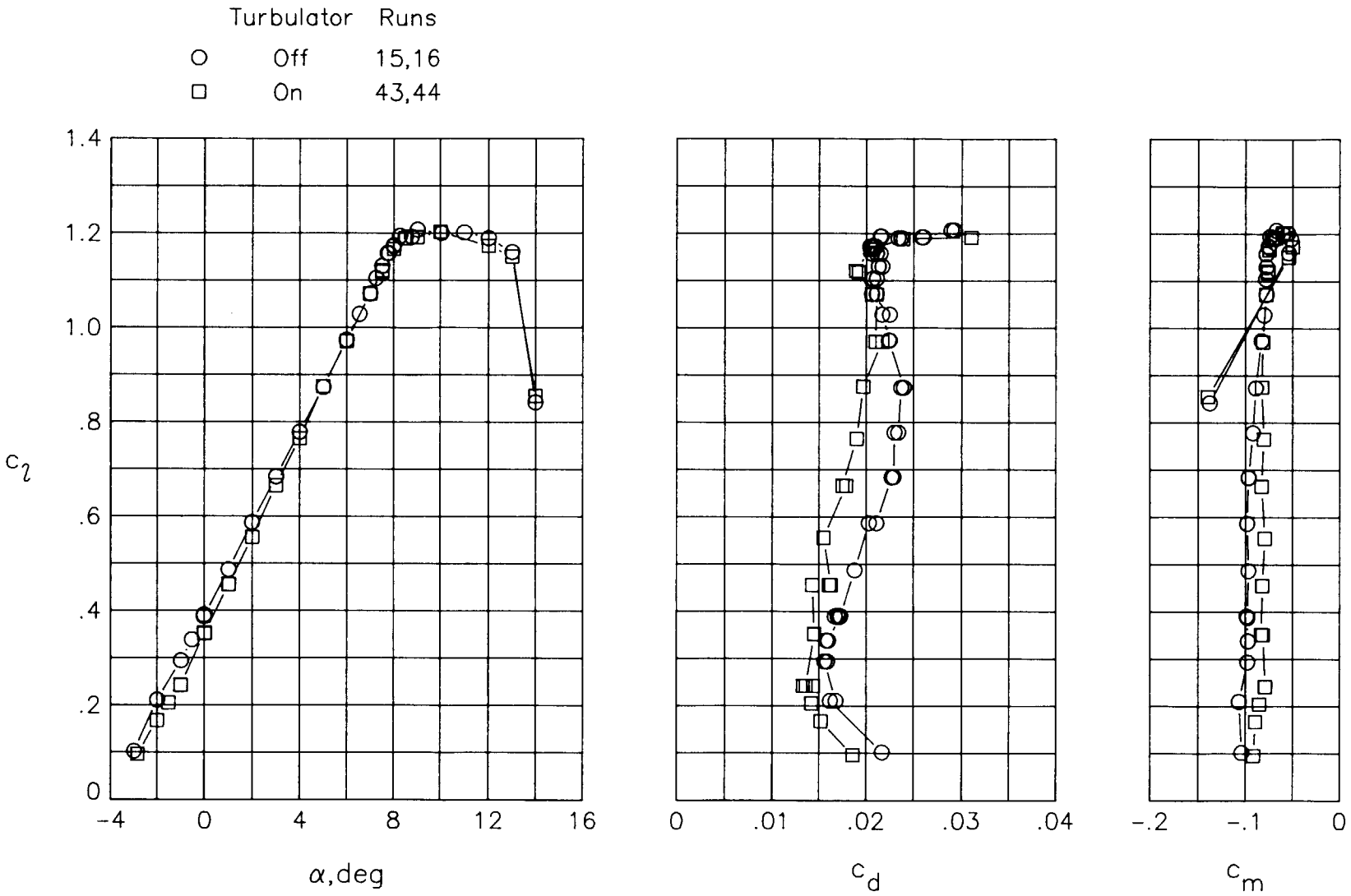
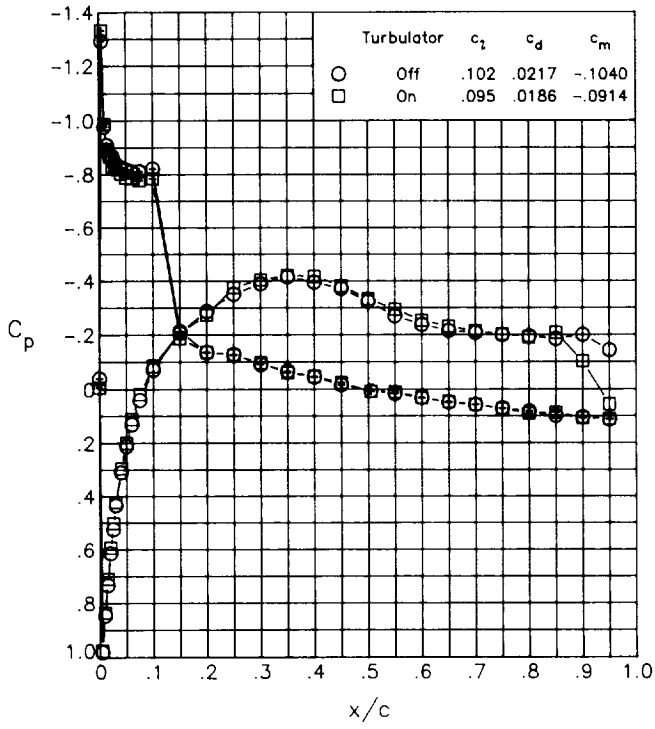
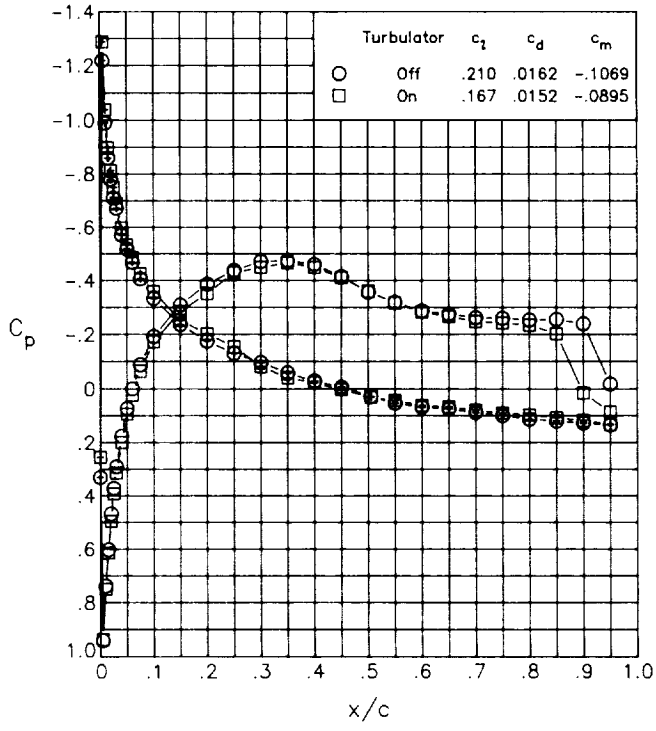


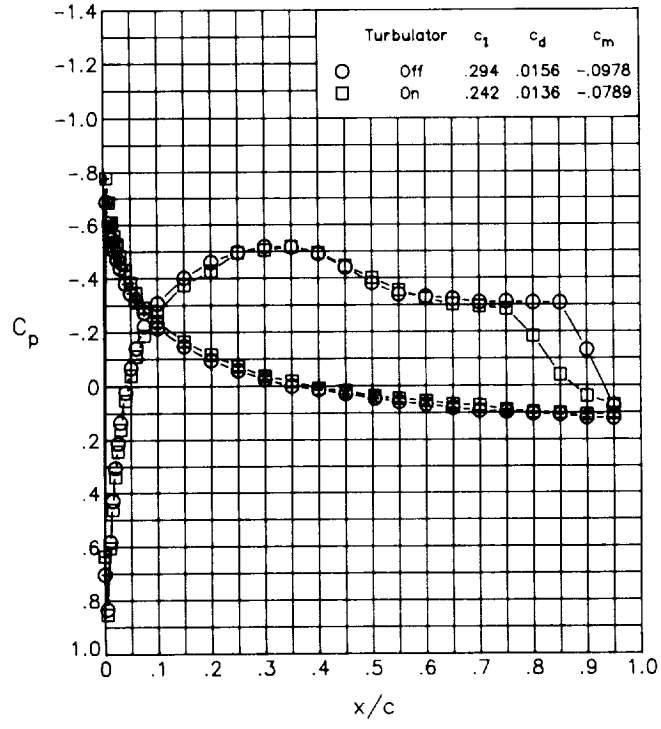
Figure 26. Effect of turbulator tape on section data. $R = 100\,000$.



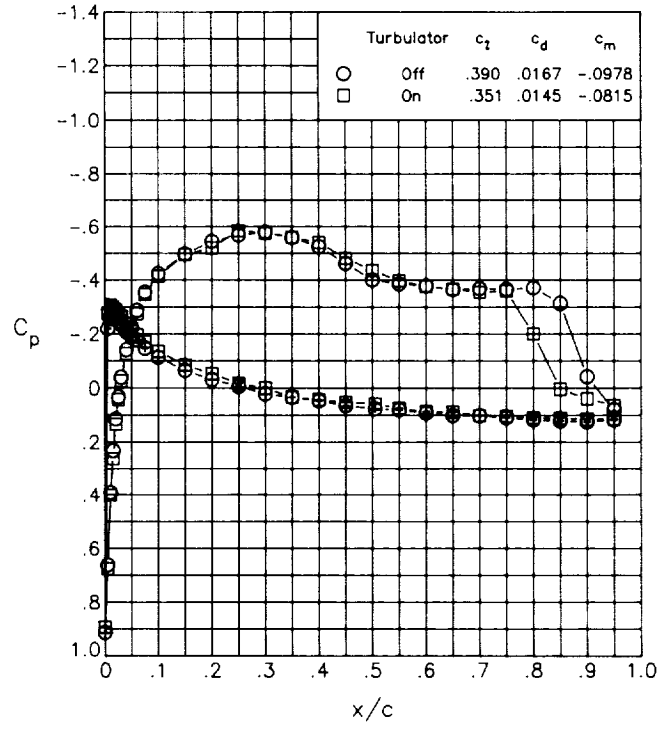
(a) $\alpha \approx -3°$.



(b) $\alpha = -2°$.

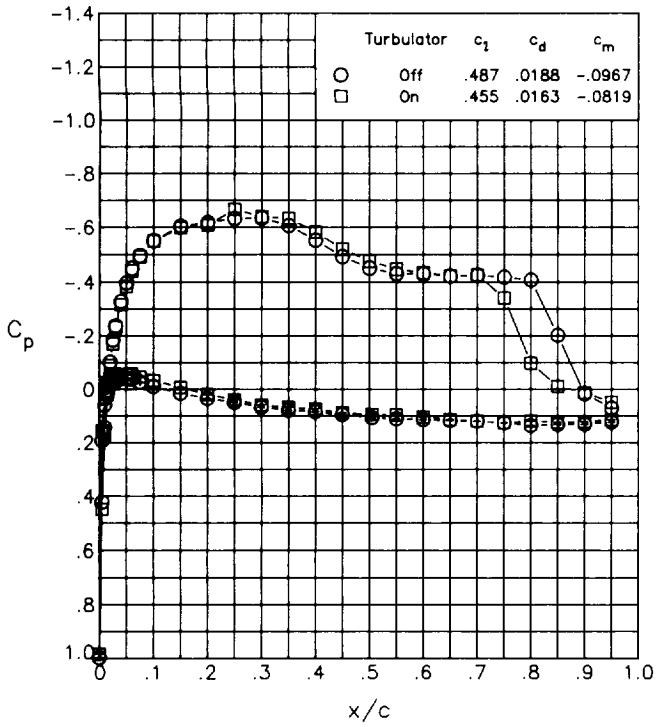


(c) $\alpha = -1°$.

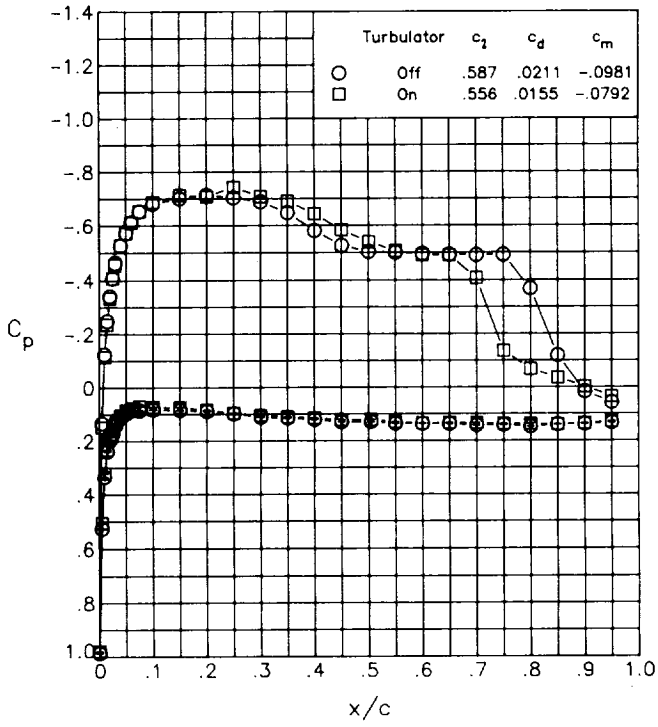


(d) $\alpha = 0°$.

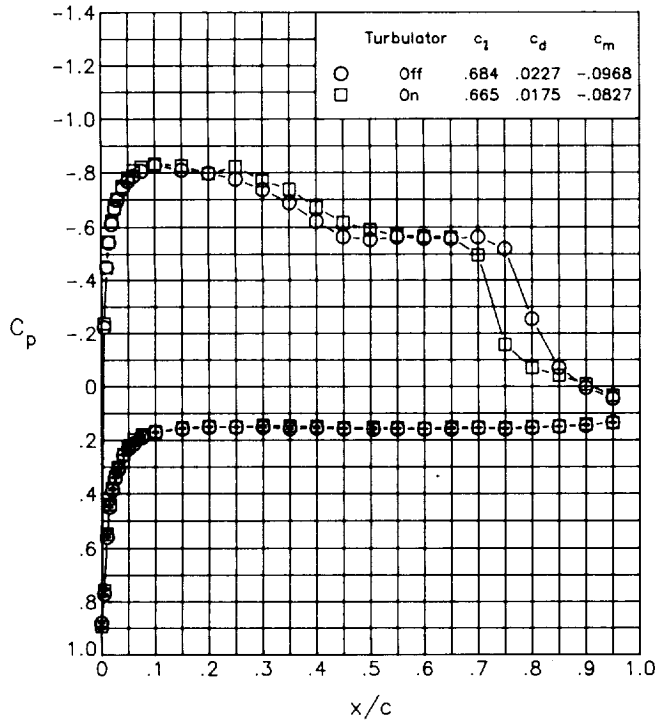
Figure 27. Effect of turbulator tape on chordwise pressure distributions. $R = 100\,000$. Centered symbol designates lower surface.



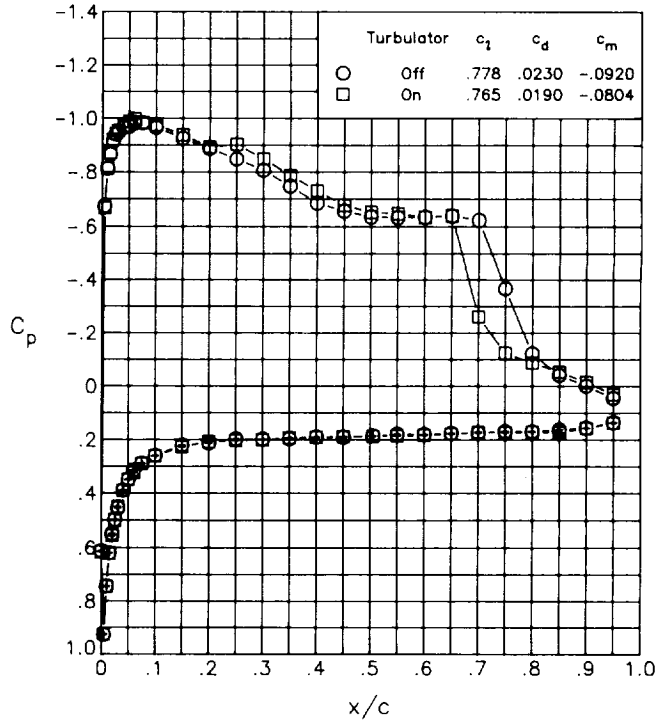
(e) $\alpha = 1°$.



(f) $\alpha = 2°$.

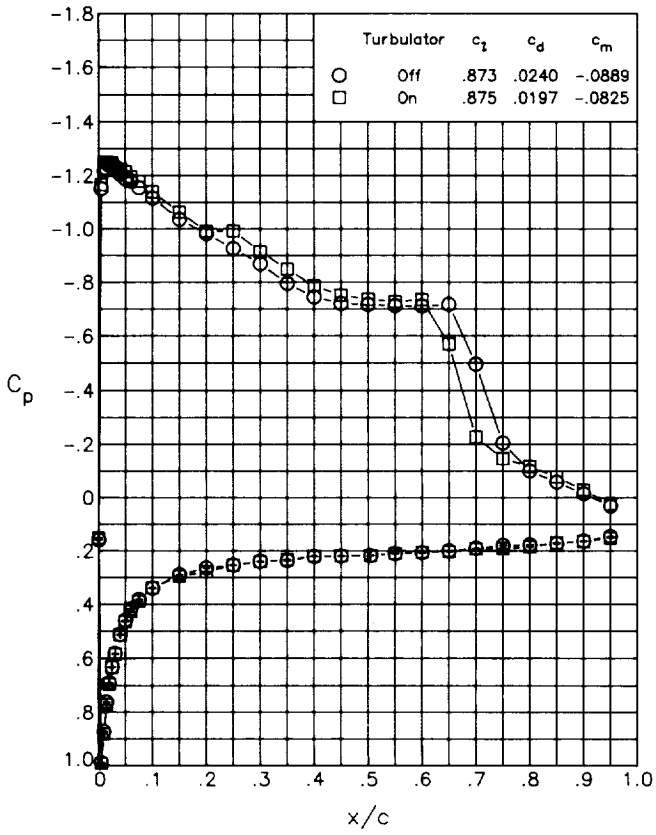


(g) $\alpha = 3°$.

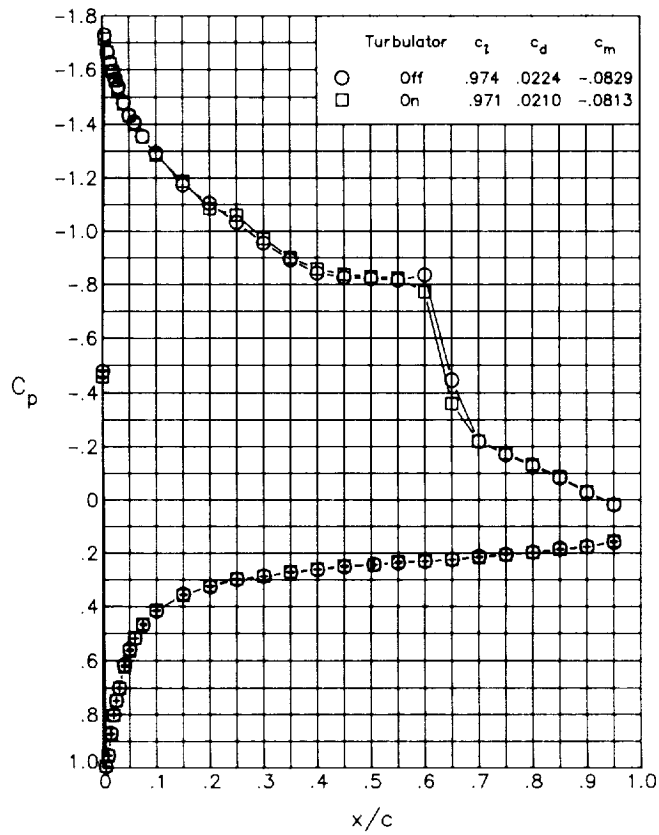


(h) $\alpha = 4°$.

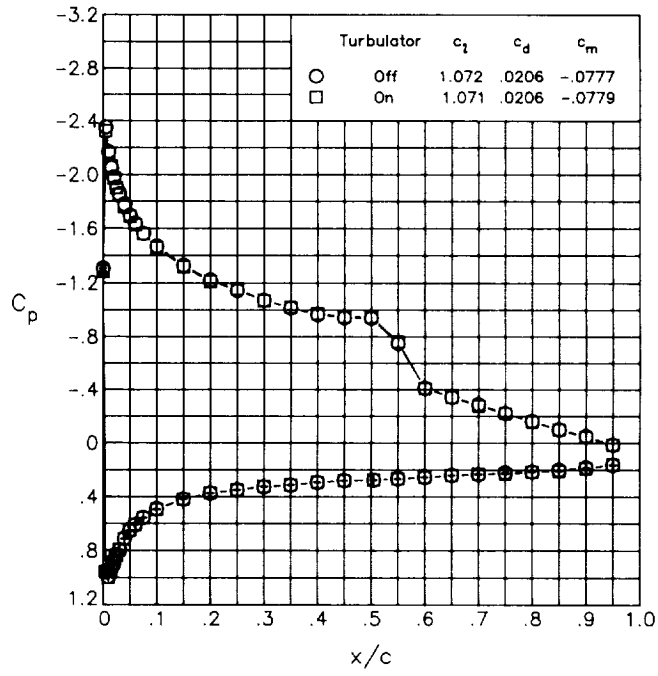
Figure 27. Continued.



(i) $\alpha = 5°$.

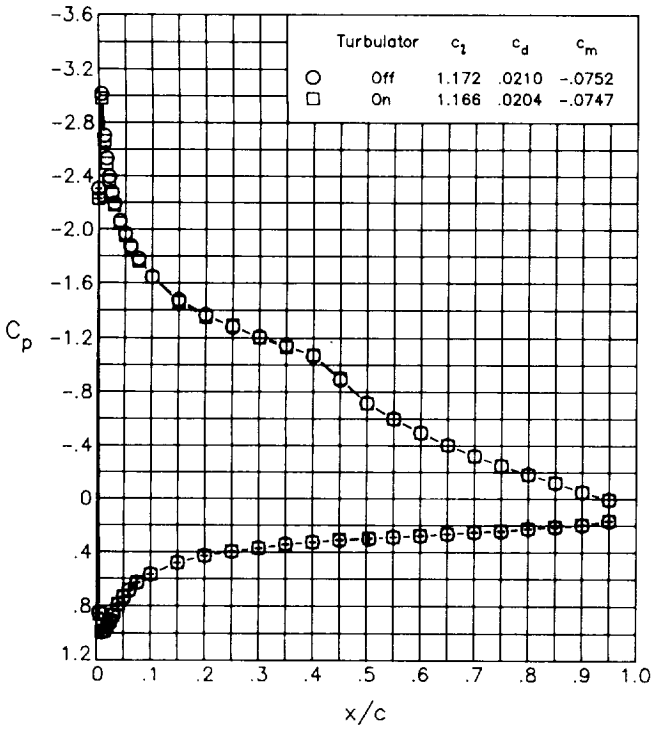


(j) $\alpha = 6°$.

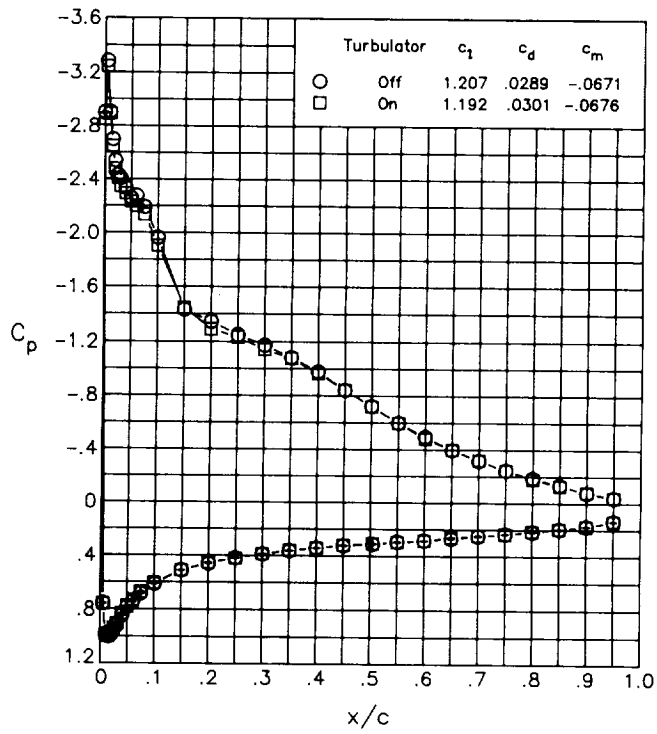


(k) $\alpha = 7°$.

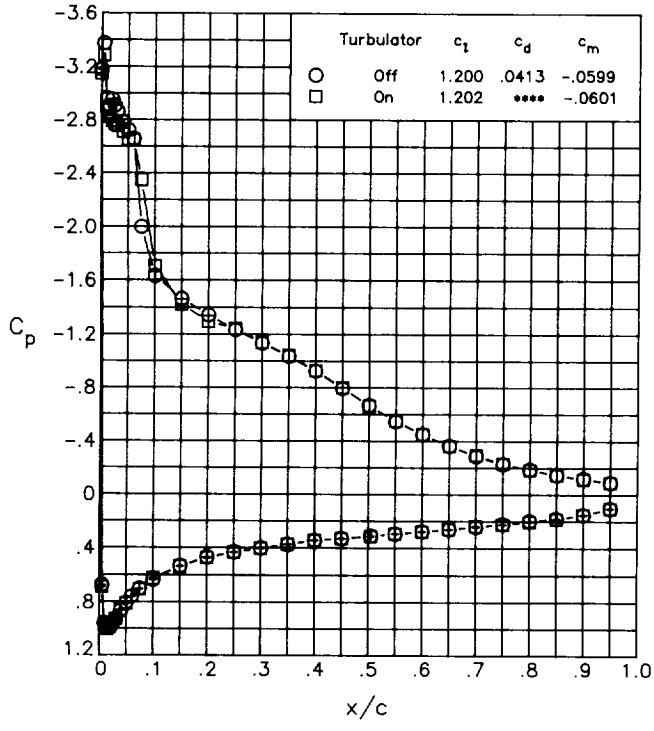
Figure 27. Continued.



(l) $\alpha = 8°$.

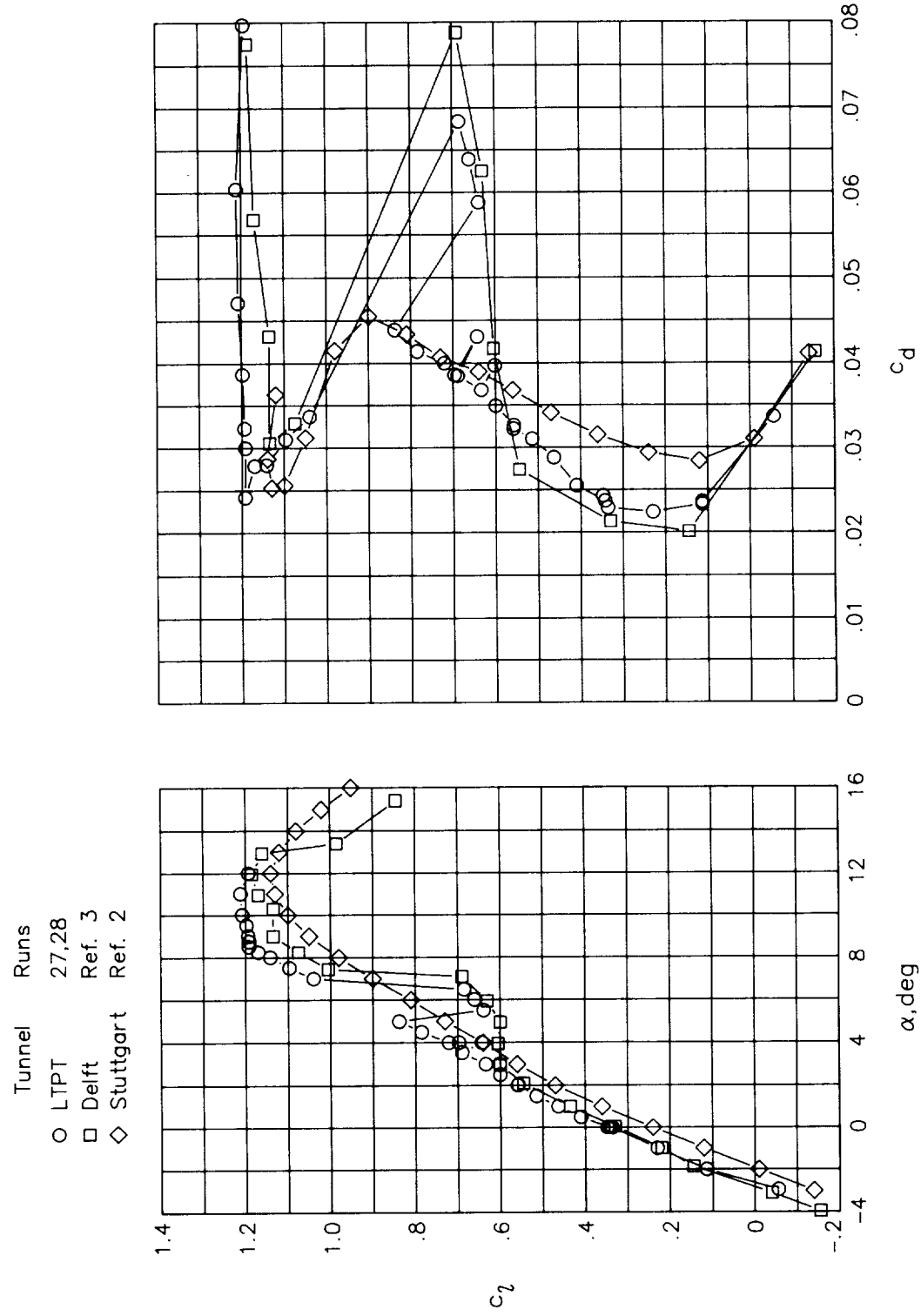


(m) $\alpha = 9°$.



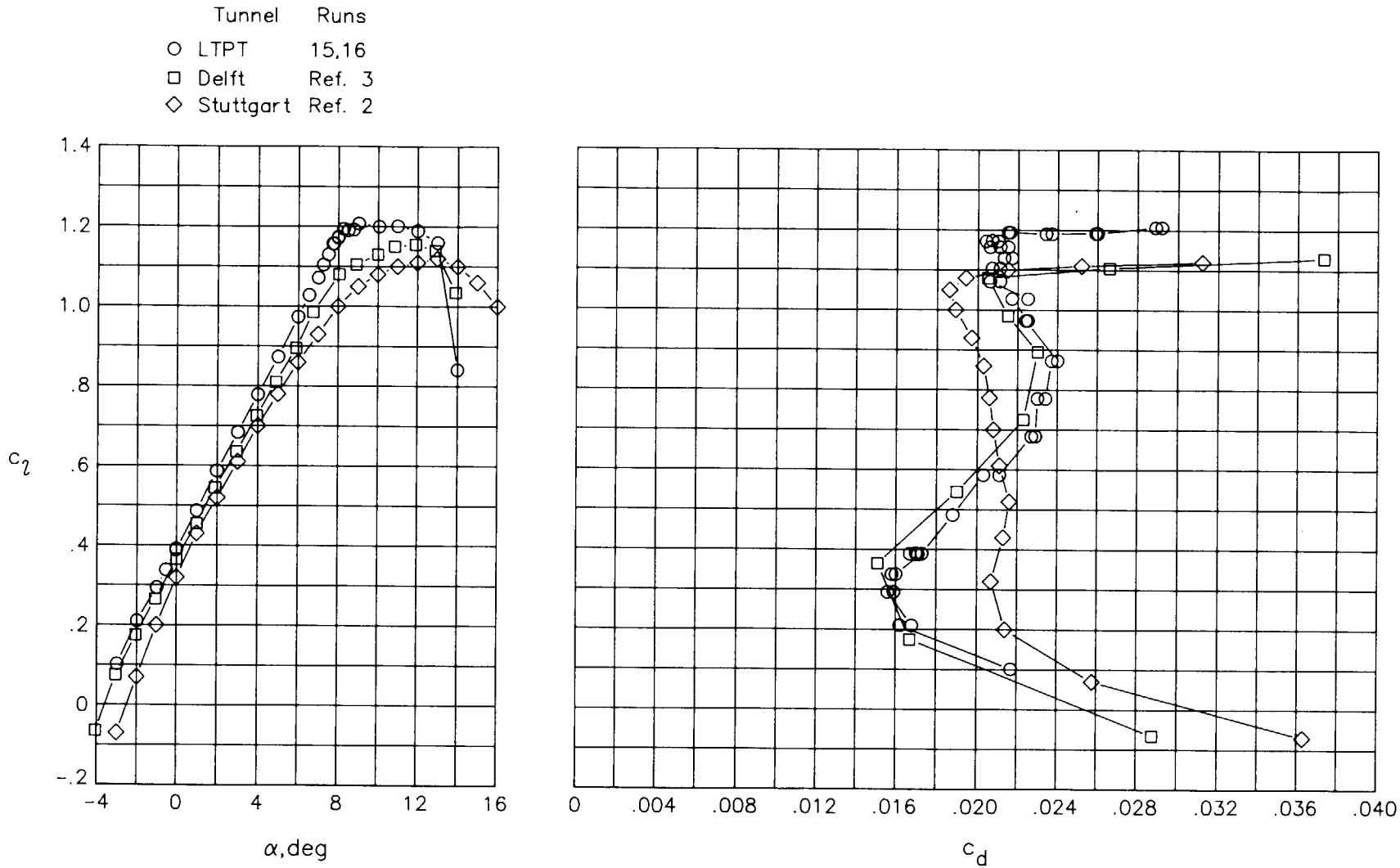
(n) $\alpha = 10°$.

Figure 27. Concluded.



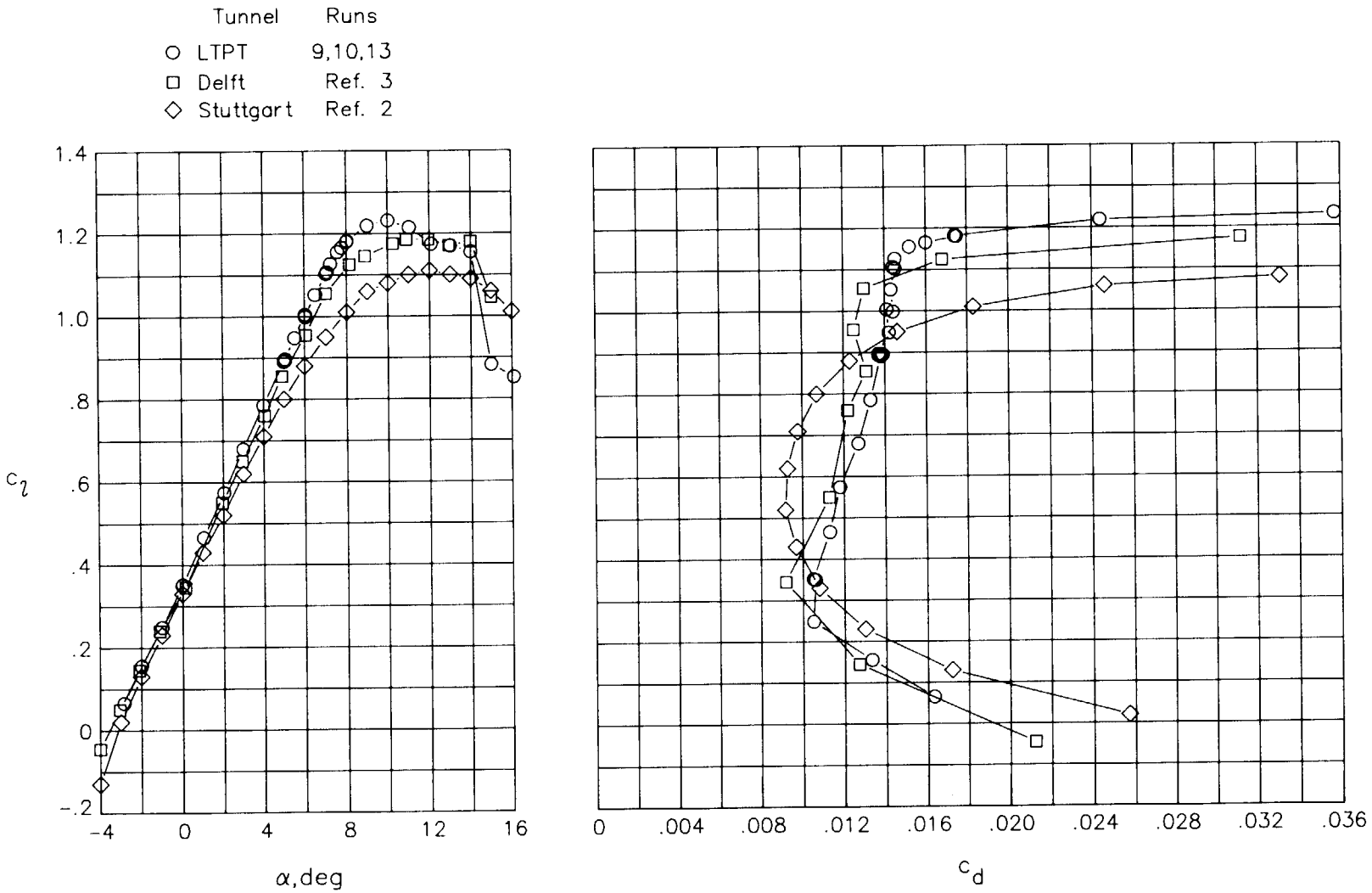
(a) $R = 60\,000$.

Figure 28. Data from LTPT and other facilities.



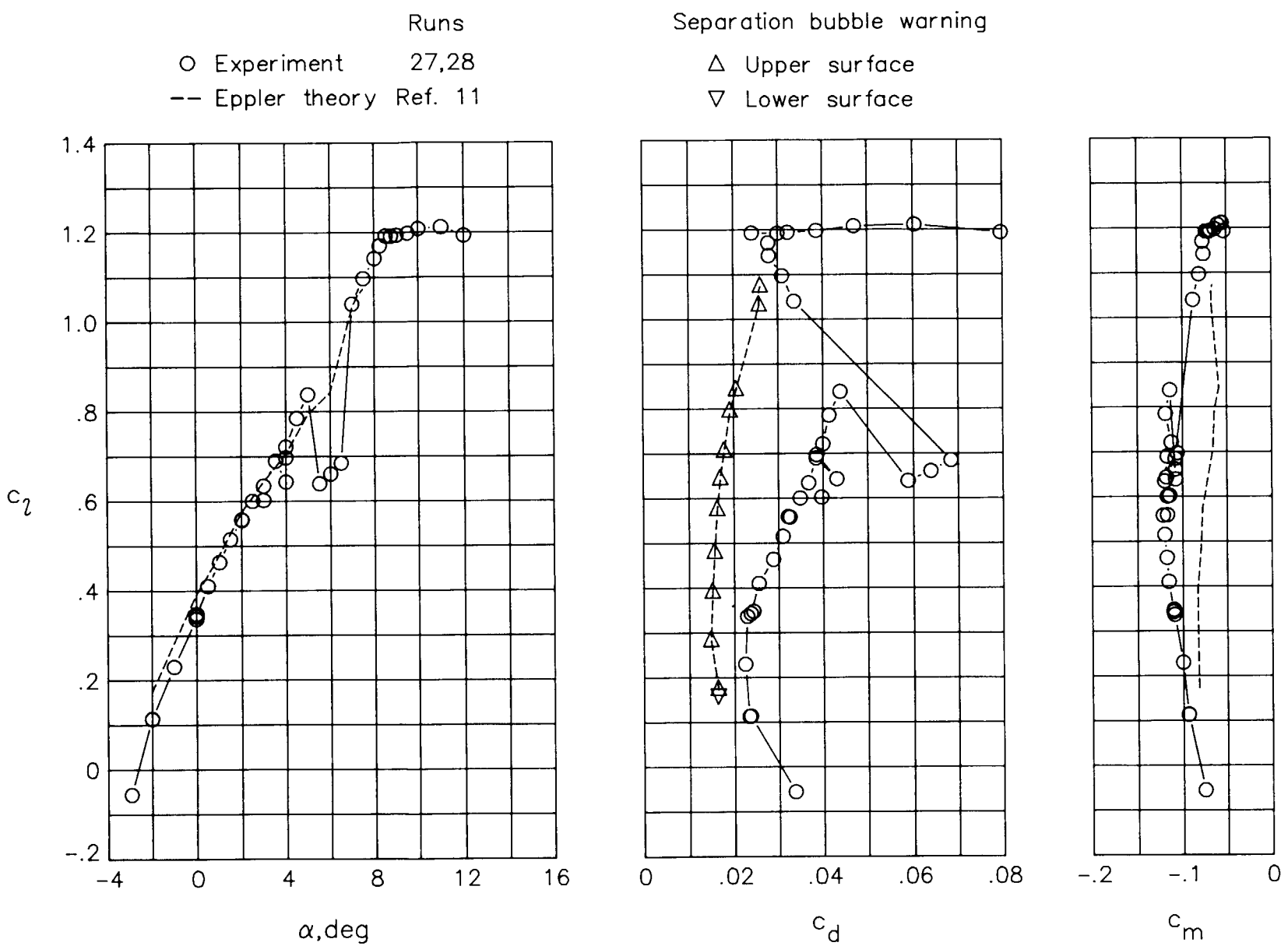
(b) $R = 100\,000$.

Figure 28. Continued.



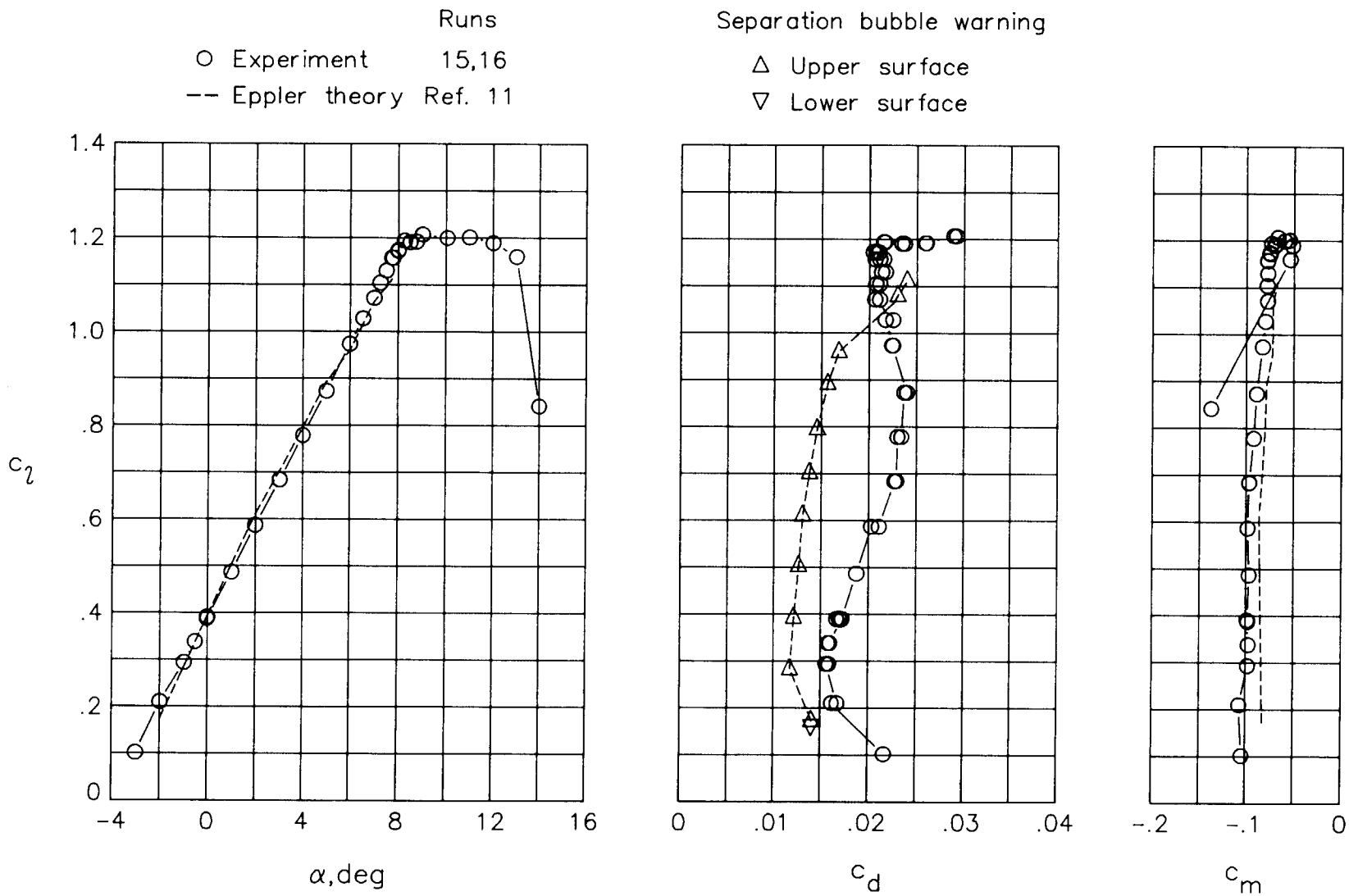
(c) $R = 200\,000$.

Figure 28. Concluded.



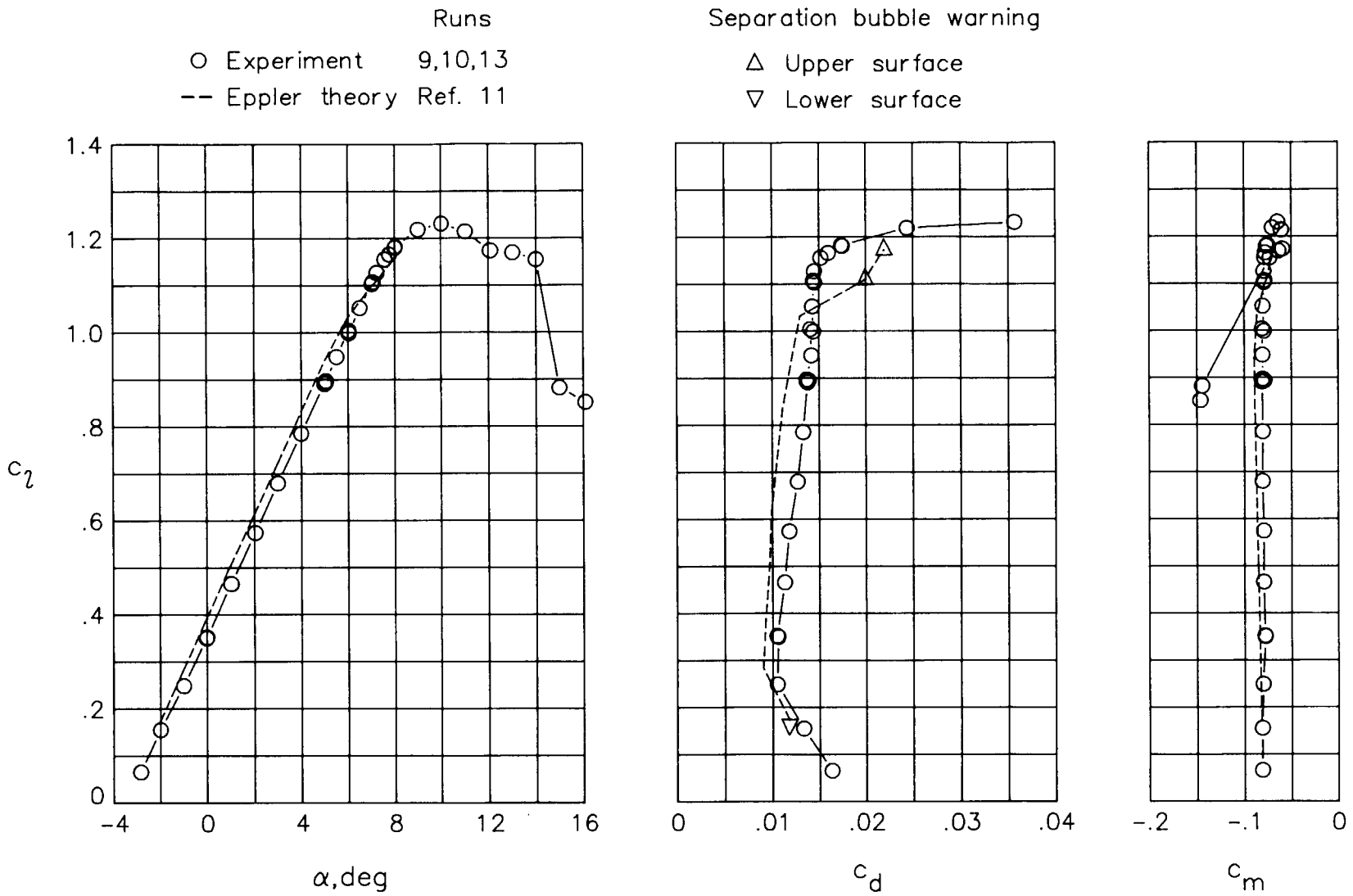
(a) $R = 60\,000$.

Figure 29. Experimental data and predictions from Eppler airfoil code.



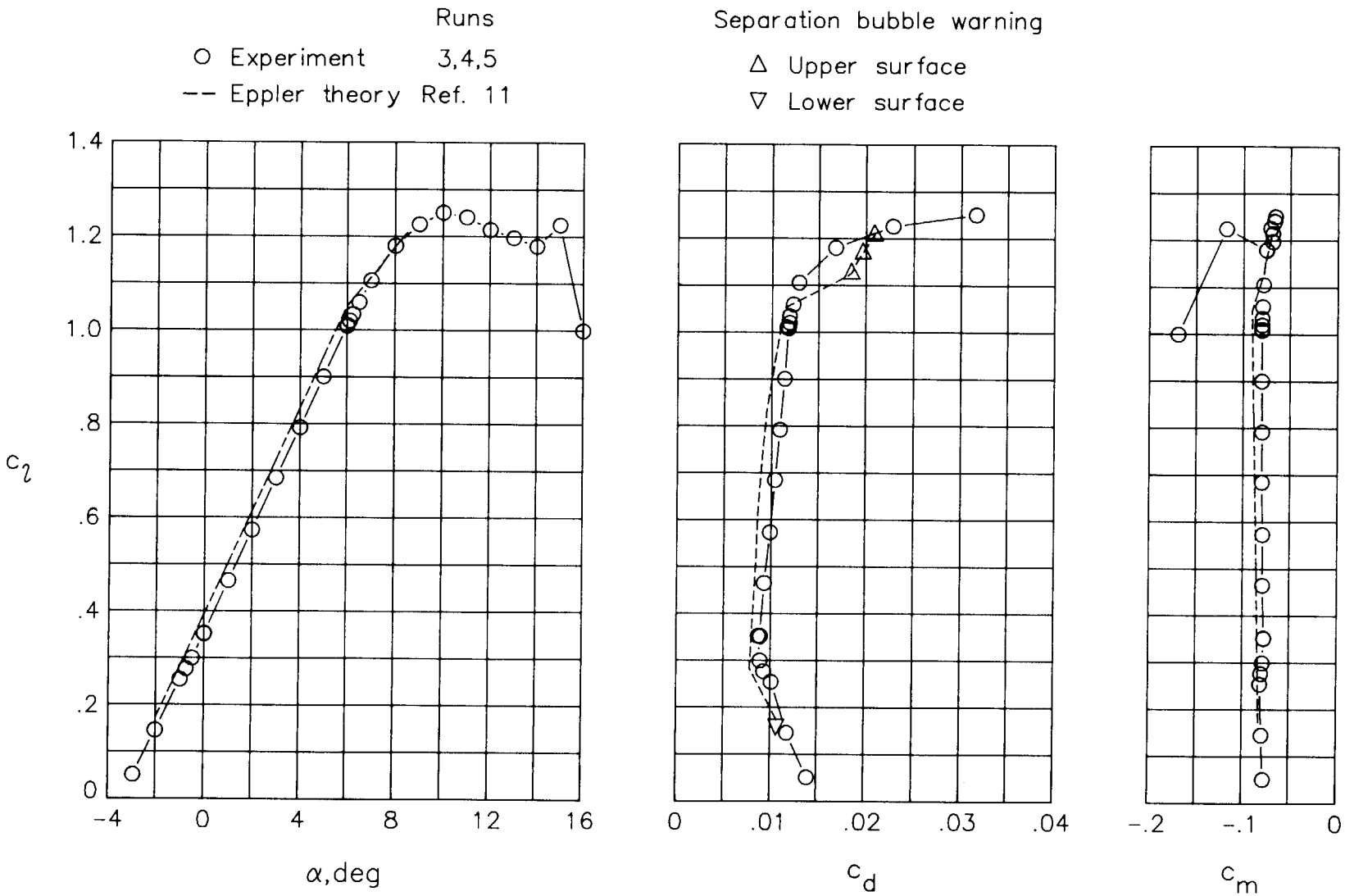
(b) $R = 100\,000$.

Figure 29. Continued.



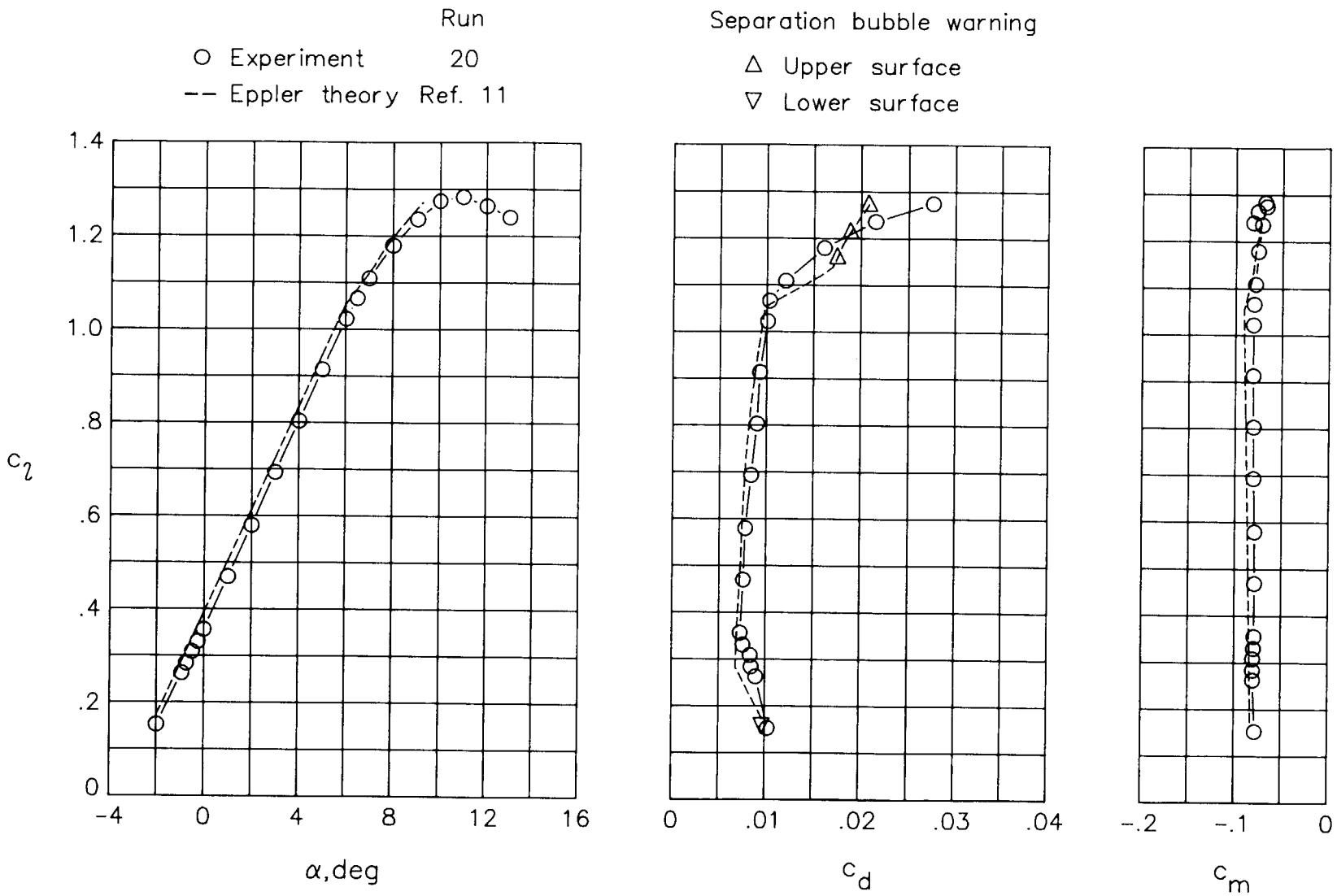
(c) $R = 200\,000$.

Figure 29. Continued.



(d) $R = 300\,000$.

Figure 29. Continued.



(e) $R = 460\,000$.

Figure 29. Concluded.

Appendix A

Uncertainty Analysis

The method used for the uncertainty analysis is that of Kline and McClintock as reported in reference 10. The basis for this method is the careful specification of the uncertainty associated with each variable used in the given calculation. This method is straightforward and more accurate than simple error combinations that determine maximum and minimum deviations from the nominal result of a computation.

The uncertainty involved in determining the drag coefficient c_d from wake surveys is as follows:

$$c_d = \int_{\text{wake}} c'_d \, d\left(\frac{h}{c}\right) = \sum_{i=1}^{n} c'_{d_i} \left(\frac{\Delta h}{c}\right) i$$

where

$$c'_d = 2\left(\frac{\Delta p_s - \Delta p_t}{\Delta p_\infty}\right)^{1/2}\left[1 - \left(1 - \frac{\Delta p_t}{\Delta p_\infty}\right)^{1/2}\right]$$

Thus, c_d is a function of Δp_s, Δp_t, Δp_∞, Δh, and c. The uncertainty associated with each variable is

$$W\Delta p_s = 0.25 \text{ percent of reading}$$
$$W\Delta p_t = 0.25 \text{ percent of reading}$$
$$W\Delta p_\infty = 0.25 \text{ percent of reading}$$
$$W\Delta h = 0.005 \text{ in.}$$
$$Wc = 0.001 \text{ in.}$$

The uncertainty of c'_d is

$$(Wc'_d)^2 = \left(\frac{\partial c'_d}{\partial \Delta p_s} W\Delta p_s\right)^2 + \left(\frac{\partial c'_d}{\partial \Delta p_t} W\Delta p_t\right)^2 + \left(\frac{\partial c'_d}{\partial \Delta p_\infty} W\Delta p_\infty\right)^2$$

where

$$\frac{\partial c'_d}{\partial \Delta p_s} = \frac{1}{\Delta p_\infty}\left[\left(\frac{\Delta p_\infty}{\Delta p_s - \Delta p_t}\right)^{1/2} - \left(\frac{\Delta p_\infty - \Delta p_t}{\Delta p_s - \Delta p_t}\right)^{1/2}\right]$$

$$\frac{\partial c'_d}{\partial \Delta p_t} = \frac{1}{\Delta p_\infty}\left(\frac{\Delta p_s - \Delta p_t}{\Delta p_\infty - \Delta p_t}\right)^{1/2} - \frac{1}{\Delta p_\infty}\left[\left(\frac{\Delta p_\infty}{\Delta p_s - \Delta p_t}\right)^{1/2} - \left(\frac{\Delta p_\infty - \Delta p_t}{\Delta p_s - \Delta p_t}\right)^{1/2}\right]$$

$$\frac{\partial c'_d}{\partial \Delta p_\infty} = \left(\frac{\Delta p_s - \Delta p_t}{\Delta p_\infty - \Delta p_t}\right)^{1/2}\left(\frac{-\Delta p_t}{\Delta p_\infty^2}\right) + \left(\frac{-1}{\Delta p_\infty}\right)\left(\frac{\Delta p_s - \Delta p_t}{\Delta p_\infty}\right)^{1/2}\left[1 - \left(\frac{\Delta p_\infty - \Delta p_t}{\Delta p_\infty}\right)^{1/2}\right]$$

The uncertainty of $\frac{\Delta h}{c}$ is

$$\left(W\,\frac{\Delta h}{c}\right)^2 = \left(\frac{\partial \frac{\Delta h}{c}}{\partial \Delta h} W\Delta h\right)^2 + \left(\frac{\partial \frac{\Delta h}{c}}{\partial c} Wc\right)^2$$

where

$$\frac{\partial \frac{\Delta h}{c}}{\partial \Delta h} = \frac{1}{c} \quad \text{and} \quad \frac{\partial \frac{\Delta h}{c}}{\partial c} = \frac{-\Delta h}{c^2}$$

Thus, the total uncertainty associated with c_d is

$$(Wc_d)^2 = \left(\frac{\partial c_d}{\partial c'_d} Wc'_d\right)^2 + \left(\frac{\partial c_d}{\partial \frac{\Delta h}{c}} W \frac{\Delta h}{c}\right)^2$$

$$\frac{\partial c_d}{\partial c'_d} = \frac{\Delta h}{c}$$

$$\frac{\partial c_d}{\partial \frac{\Delta h}{c}} = c'_d$$

$$(Wc_d)^2 = \left(\frac{\Delta h}{c} Wc'_d\right)^2 + \left(c'_d W \frac{\Delta h}{c}\right)^2$$

Since at least two tubes on the rake independently measure the same wake,

$$Wc_d = \sqrt{\frac{(Wc_d)^2}{2}}$$

The uncertainties in normal-force coefficient c_n and pitching-moment coefficient c_m were calculated in a similar manner and the results are shown in table A1. The main contributions to the uncertainty of drag coefficient are the $\frac{\Delta h}{c}$ and Δp_∞ terms, as illustrated by table A2. The uncertainty in drag coefficient is plotted against dynamic pressure for various Reynolds numbers in figure A1. The uncertainty in c_d is reduced to about ± 2 drag counts for dynamic pressures greater than about 0.08 psi.

The symbols used in appendix A are defined as follows:

c_d	section profile-drag coefficient
c'_d	point-drag coefficient
c	airfoil chord
h	vertical distance in wake profile
Δh	incremental distance moved by rake
i	step number
n	total number of steps
p_s	static pressure in wake
p_t	total pressure in wake
p_∞	free-stream static pressure
p_{t_∞}	free-stream total pressure
Δp_s	$= p_s - p_{t_\infty}$
Δp_t	$= p_t - p_{t_\infty}$
Δp_∞	$= p_\infty - p_{t_\infty}$
W	uncertainty in measurement

Table A1. Uncertainty in c_d, c_n, and c_m

$[\alpha = 4°]$

	p_t, psi	q, psi	R	M	c_d	c_n	c_m	Wc_d	Wc_n	Wc_m
1	3	0.015	60 000	0.09	0.0478	0.6014	−0.1111	0.00059	0.001	0.0003
2	5	.009	60 000	.05	.0401	.7236	−.1128	.00041	.001	.0004
3	5	.022	100 000	.08	.0250	.7885	−.0973	.00030	.001	.0004
4	10	.013	100 000	.04	.0241	.7872	−.0945	.00035	.001	.0004
5	15	.008	100 000	.03	.0230	.7796	−.0923	.00045	.001	.0004
6	15	.033	200 000	.06	.0133	.7854	−.0806	.00026	.001	.0004
7	15	.077	300 000	.08	.0109	.7918	−.0796	.00022	.001	.0004
8	15	.178	460 000	.13	.0090	.8032	−.0803	.00019	.001	.0004

Table A2. Calculations for Uncertainty in c_d

	$\left(\frac{\partial c_d'}{\partial \Delta p_t} W\Delta p_t\right)^2$	$\left(\frac{\partial c_d'}{\partial \Delta p_s} W\Delta p_s\right)^2$	$\left(\frac{\partial c_d'}{\partial \Delta p_\infty} W\Delta p_\infty\right)^2$	$(Wc_d')^2$	$\left(W\frac{\Delta h}{c}\right)^2$	$\left(\frac{\Delta h}{c} Wc_d'\right)^2$	$\left(c_d' W\frac{\Delta h}{c}\right)^2$	$(Wc_d)^2$	Wc_d
1	5.3979×10^{-6}	2.5642×10^{-6}	1.5376×10^{-5}	2.3338×10^{-5}	2.8472×10^{-5}	1.6689×10^{-9}	7.0199×10^{-7}	7.0366×10^{-7}	0.00059
2	2.6621×10^{-6}	1.0230×10^{-6}	6.9807×10^{-6}	1.0666×10^{-5}	2.9861×10^{-5}	1.4346×10^{-9}	3.4141×10^{-7}	3.4285×10^{-7}	.00041
3	1.5365×10^{-6}	5.5259×10^{-7}	3.9294×10^{-6}	6.0185×10^{-6}	2.5695×10^{-5}	8.7105×10^{-10}	1.8114×10^{-7}	1.8201×10^{-7}	.00030
4	2.8519×10^{-6}	9.6003×10^{-7}	7.1123×10^{-6}	1.0924×10^{-5}	2.8472×10^{-5}	9.8756×10^{-10}	2.3830×10^{-7}	2.3929×10^{-7}	.00035
5	3.4040×10^{-6}	1.2541×10^{-6}	8.7865×10^{-6}	1.3445×10^{-5}	3.4722×10^{-5}	3.8119×10^{-10}	4.0920×10^{-7}	4.0958×10^{-7}	.00045
6	5.3445×10^{-8}	1.4410×10^{-8}	1.2334×10^{-7}	1.9120×10^{-7}	2.7778×10^{-5}	1.4378×10^{-11}	1.3041×10^{-7}	1.3042×10^{-7}	.00026
7	8.1885×10^{-7}	2.8005×10^{-7}	2.0558×10^{-6}	3.1547×10^{-6}	1.7361×10^{-5}	2.1816×10^{-10}	9.6070×10^{-8}	9.6288×10^{-8}	.00022
8	6.2770×10^{-7}	2.1133×10^{-7}	1.5670×10^{-6}	2.4060×10^{-6}	1.3889×10^{-5}	1.7856×10^{-10}	7.3616×10^{-8}	7.3795×10^{-8}	.00019

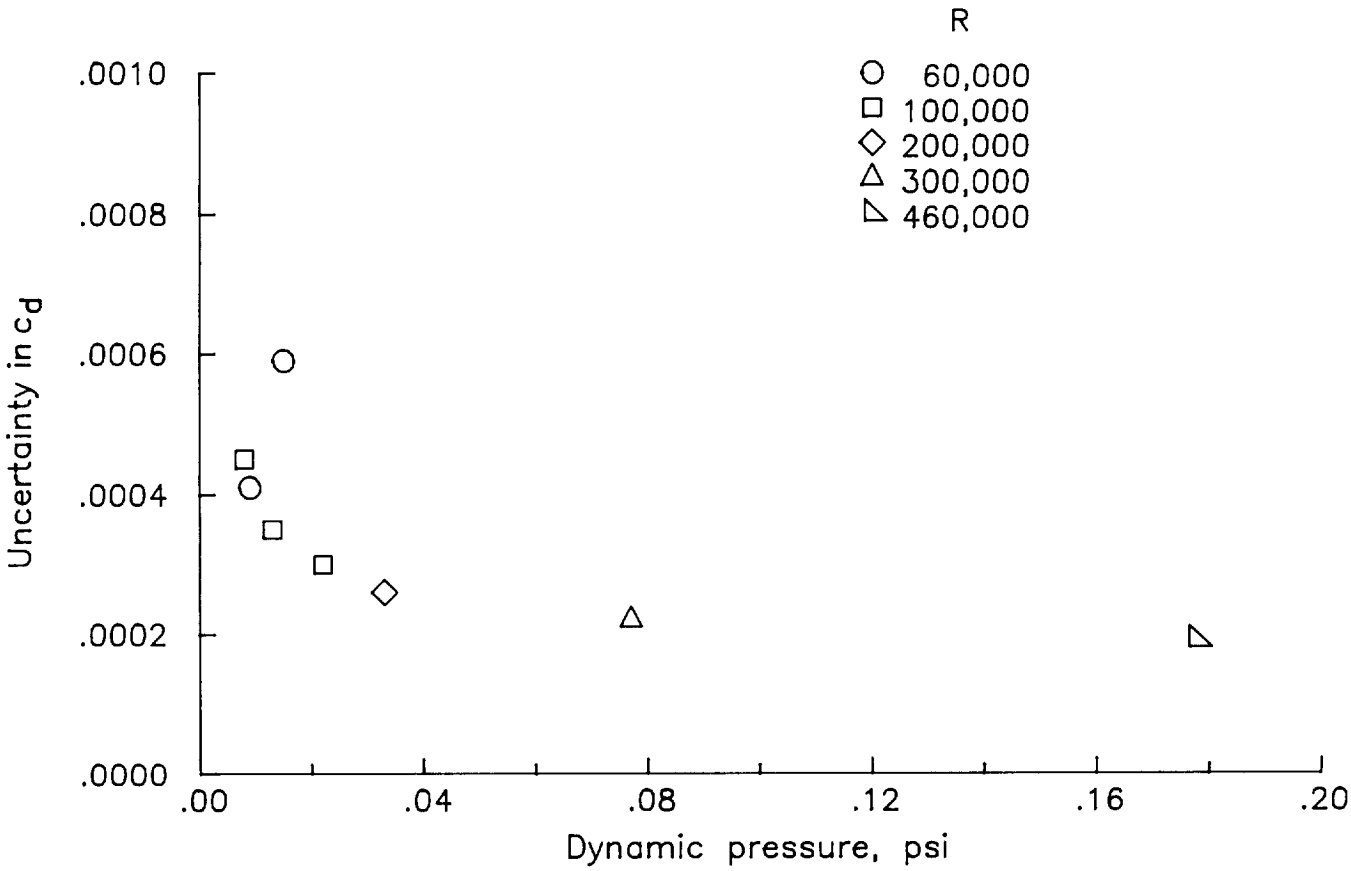


Figure A1. Uncertainty in drag coefficient for $\alpha = 4°$.

Appendix B

Section Characteristics

This appendix contains a computer listing of the section characteristics for the Eppler 387 airfoil section as measured in the Langley Low-Turbulence Pressure Tunnel (table B1). Standard low-speed wind-tunnel boundary corrections have been applied to the data. Also included are the theoretical results from the Eppler airfoil code (table B2) and experimental results from the Model Wind Tunnel at Stuttgart (table B3) and the Low-Turbulence Tunnel at Delft (table B4).

Table B1. Experimental Results From Langley Low-Turbulence Pressure Tunnel

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

ALPHA, DEG	CL	CD	CM
-2.93	.051	.0140	-.0768
-2.01	.146	.0118	-.0788
-1.00	.254	.0101	-.0807
-.75	.277	.0093	-.0798
-.50	.300	.0089	-.0781
.00	.352	.0087	-.0768
.00	.351	.0089	-.0768
.01	.352	.0089	-.0767
1.01	.465	.0093	-.0784
2.00	.573	.0099	-.0785
3.00	.685	.0104	-.0795
4.00	.792	.0109	-.0794
5.01	.901	.0114	-.0799
6.01	1.009	.0118	-.0799
6.01	1.009	.0117	-.0799
6.02	1.010	.0116	-.0799
6.12	1.020	.0119	-.0799
6.26	1.034	.0119	-.0797
6.52	1.059	.0123	-.0793
7.02	1.106	.0129	-.0785
8.02	1.180	.0168	-.0756
9.01	1.226	.0228	-.0711
10.02	1.251	.0316	-.0661
11.02	1.241	.0621	-.0670
12.01	1.215	****	-.0690
13.01	1.197	****	-.0689
14.01	1.179	****	-.0751
15.01	1.225	****	-.1184
16.00	.999	****	-.1693

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

ALPHA, DEG	CL	CD	CM
16.01	1.002	****	-.1649
14.02	1.173	****	-.0747
12.00	1.214	****	-.0681
10.04	1.251	.0322	-.0659
7.95	1.174	.0166	-.0755
5.99	1.006	.0119	-.0797
4.03	.797	.0110	-.0796
2.00	.574	.0098	-.0784
-.01	.351	.0090	-.0767

Table B1. Continued

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

ALPHA, DEG	CL	CD	CM
-2.84	.066	.0163	-.0813
-1.99	.156	.0133	-.0814
-.99	.249	.0105	-.0804
-.01	.350	.0106	-.0780
.01	.352	.0105	-.0782
1.04	.466	.0113	-.0796
2.04	.574	.0118	-.0794
2.99	.680	.0127	-.0807
3.99	.785	.0133	-.0803
5.00	.891	.0138	-.0809
5.03	.895	.0139	-.0803
5.06	.894	.0137	-.0785
5.06	.897	.0137	-.0802
5.52	.948	.0142	-.0805
6.03	1.004	.0141	-.0809
6.04	.999	.0144	-.0790
6.51	1.052	.0143	-.0802
7.02	1.103	.0145	-.0789
7.06	1.107	.0144	-.0782
7.23	1.127	.0145	-.0791
7.57	1.155	.0152	-.0783
7.77	1.166	.0160	-.0777
8.01	1.180	.0175	-.0763
8.03	1.182	.0174	-.0751
9.01	1.219	.0244	-.0701
10.02	1.231	.0357	-.0643
11.04	1.214	.0570	-.0606
12.09	1.174	****	-.0593
13.02	1.170	****	-.0633
14.01	1.155	****	-.0727
14.99	.882	****	-.1444
16.09	.851	****	-.1463

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

ALPHA, DEG	CL	CD	CM
16.09	.849	****	-.1463
14.04	1.156	****	-.0735
12.03	1.177	****	-.0589
10.05	1.231	.0367	-.0636
8.02	1.179	.0171	-.0754
5.98	.999	.0144	-.0815
4.03	.791	.0135	-.0811
2.01	.574	.0121	-.0802
.03	.359	.0107	-.0797
.03	.356	.0107	-.0781

Table B1. Continued

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

ALPHA, DEG	CL	CD	CM
-2.98	.102	.0217	-.1040
-1.99	.210	.0162	-.1069
-1.99	.210	.0168	-.1069
-.98	.294	.0156	-.0976
-.98	.294	.0159	-.0978
-.52	.338	.0158	-.0972
-.52	.338	.0160	-.0972
-.02	.390	.0173	-.0984
-.02	.388	.0171	-.0978
-.01	.391	.0170	-.0987
.00	.390	.0167	-.0978
.00	.390	.0173	-.0978
1.00	.487	.0188	-.0967
1.99	.587	.0203	-.0981
1.99	.587	.0211	-.0981
3.01	.684	.0227	-.0968
3.01	.684	.0229	-.0965
4.00	.778	.0230	-.0920
4.00	.778	.0234	-.0920
5.01	.873	.0237	-.0889
5.01	.873	.0240	-.0889
6.00	.974	.0224	-.0829
6.00	.974	.0225	-.0829
6.55	1.028	.0217	-.0800
6.55	1.028	.0225	-.0800
7.01	1.072	.0206	-.0777
7.01	1.072	.0211	-.0777
7.26	1.104	.0207	-.0783
7.26	1.104	.0211	-.0783
7.51	1.130	.0213	-.0777
7.51	1.130	.0217	-.0777
7.74	1.157	.0206	-.0779
7.74	1.157	.0215	-.0779
7.79	1.157	.0211	-.0777
8.00	1.172	.0204	-.0752
8.00	1.174	.0207	-.0755
8.00	1.172	.0210	-.0752
8.27	1.194	.0215	-.0738
8.27	1.194	.0216	-.0738
8.50	1.190	.0234	-.0704
8.50	1.190	.0237	-.0704
8.77	1.192	.0259	-.0692
8.77	1.192	.0260	-.0692
9.02	1.207	.0289	-.0671
9.02	1.207	.0292	-.0671
10.06	1.200	.0413	-.0599
11.00	1.201	.0525	-.0550
12.01	1.189	****	-.0517
13.01	1.160	****	-.0541
14.00	.842	****	-.1378

Table B1. Continued

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

ALPHA, DEG	CL	CD	CM
14.00	.832	****	-.1353
14.00	.835	****	-.1361
13.01	1.165	****	-.0560
11.99	1.191	****	-.0545
11.02	1.204	.0538	-.0556
10.00	1.202	.0403	-.0607
9.02	1.202	.0293	-.0674
8.01	1.175	.0207	-.0751
7.01	1.082	.0209	-.0778
6.02	.976	.0229	-.0834
4.01	.780	.0238	-.0930
2.00	.589	.0210	-.0982
-.01	.391	.0169	-.0972

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

ALPHA, DEG	CL	CD	CM
-1.99	.153	.0103	-.0774
-.94	.263	.0090	-.0797
-.75	.284	.0085	-.0799
-.50	.309	.0084	-.0799
-.26	.331	.0076	-.0790
-.01	.356	.0073	-.0785
1.01	.470	.0076	-.0783
2.00	.580	.0078	-.0786
3.00	.693	.0084	-.0799
4.01	.803	.0090	-.0801
5.02	.914	.0093	-.0807
6.03	1.022	.0101	-.0807
6.51	1.066	.0103	-.0801
7.01	1.109	.0120	-.0788
8.01	1.179	.0161	-.0759
9.03	1.236	.0215	-.0719
10.00	1.275	.0276	-.0671
11.00	1.284	.0603	-.0685
12.02	1.264	****	-.0766
13.00	1.240	****	-.0813

Table B1. Continued

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

ALPHA, DEG	CL	CD	CM
-2.88	.111	.0203	-.1012
-2.00	.204	.0162	-.1026
-2.00	.204	.0166	-.1026
-1.50	.242	.0152	-.0985
-1.50	.242	.0154	-.0985
-1.01	.287	.0143	-.0954
-1.01	.287	.0145	-.0954
-.49	.338	.0160	-.0938
-.49	.338	.0164	-.0938
-.01	.388	.0163	-.0937
-.01	.388	.0167	-.0937
.00	.391	.0156	-.0965
.00	.391	.0158	-.0965
.50	.444	.0175	-.0978
.50	.444	.0179	-.0978
1.01	.492	.0183	-.0963
1.01	.492	.0193	-.0963
2.00	.591	.0221	-.1003
2.01	.594	.0218	-.0999
2.01	.594	.0220	-.0999
3.01	.692	.0236	-.0994
3.01	.692	.0242	-.0994
3.01	.692	.0245	-.0994
4.00	.783	.0255	-.0977
4.00	.787	.0250	-.0970
4.00	.787	.0252	-.0970
4.00	.783	.0259	-.0977
5.00	.881	.0243	-.0904
5.01	.881	.0248	-.0904
5.01	.881	.0252	-.0904
5.02	.884	.0245	-.0897
6.01	.984	.0236	-.0846
6.02	.983	.0242	-.0847
7.01	1.083	.0213	-.0799
7.02	1.084	.0208	-.0797
7.02	1.084	.0212	-.0797
7.52	1.138	.0214	-.0783
8.01	1.186	.0215	-.0767
8.03	1.190	.0212	-.0763
8.51	1.200	.0244	-.0724
8.51	1.200	.0246	-.0724
8.51	1.198	.0246	-.0727
9.01	1.208	.0297	-.0685
10.01	1.214	.0402	-.0612
11.01	1.210	.0516	-.0551
12.01	1.191	.0688	-.0518
13.02	1.163	****	-.0527
13.50	1.146	****	-.0585
13.75	.861	****	-.1378
14.04	.814	****	-.1308

C-2

Table B1. Continued

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

ALPHA, DEG	CL	CD	CM
-2.94	-.056	.0336	-.0757
-2.00	.114	.0236	-.0941
-2.00	.113	.0233	-.0941
-1.00	.230	.0224	-.1002
-.01	.337	.0229	-.1094
.00	.348	.0243	-.1102
.00	.343	.0237	-.1104
.50	.410	.0255	-.1158
1.01	.464	.0288	-.1178
1.50	.515	.0310	-.1201
2.01	.559	.0322	-.1171
2.03	.558	.0326	-.1217
2.50	.600	.0349	-.1171
3.00	.602	.0397	-.1146
3.00	.634	.0368	-.1199
3.54	.690	.0385	-.1170
4.00	.643	.0431	-.1180
4.00	.697	.0386	-.1059
4.00	.721	.0400	-.1125
4.49	.785	.0414	-.1189
4.99	.838	.0439	-.1139
5.51	.639	.0588	-.1078
6.01	.661	.0639	-.1080
6.49	.685	.0684	-.1083
7.01	1.040	.0337	-.0876
7.52	1.097	.0310	-.0808
8.02	1.142	.0280	-.0756
8.26	1.170	.0279	-.0767
8.52	1.192	.0242	-.0728
8.76	1.192	.0300	-.0700
9.01	1.194	.0323	-.0679
9.52	1.198	.0387	-.0628
10.02	1.208	.0471	-.0596
11.02	1.211	.0604	-.0548
12.01	1.193	.0797	-.0528

Table B1. Continued

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

ALPHA, DEG	CL	CD	CM
13.04	.793	****	-.1233
13.04	.776	****	-.1227
13.01	.804	****	-.1319
13.01	.808	****	-.1298
12.01	1.195	.0797	-.0530
11.00	1.210	.0607	-.0541
10.01	1.206	.0472	-.0594
10.00	1.208	.0468	-.0590
9.01	1.193	.0317	-.0676
8.51	1.193	.0242	-.0724
8.01	1.146	.0283	-.0762
7.01	1.043	.0339	-.0886
7.01	1.047	.0340	-.0888
6.76	1.017	.0349	-.0920
6.75	1.020	.0351	-.0917
6.48	.985	.0375	-.0960
6.44	.672	.0677	-.1075
6.25	.673	.0661	-.1084
6.25	.673	.0661	-.1091
5.99	.656	.0639	-.1080
5.50	.633	.0588	-.1073
5.25	.625	.0564	-.1076
4.99	.628	.0533	-.1086
4.75	.799	.0410	-.1116
4.50	.647	.0497	-.1104
4.25	.656	.0496	-.1187
4.00	.681	.0464	-.1158
3.50	.639	.0441	-.1145
2.99	.600	.0385	-.1155
2.00	.557	.0307	-.1179
.99	.466	.0271	-.1190
.01	.342	.0227	-.1098
-2.00	.118	.0228	-.0951
-2.85	-.045	.0310	-.0767

Table B1. Continued

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

ALPHA, DEG	CL	CD	CM
-2.97	.098	.0201	-.1002
-2.97	.101	.0201	-.1005
-2.01	.199	.0168	-.0994
-1.00	.289	.0164	-.0955
-1.00	.289	.0155	-.0955
.00	.392	.0173	-.0971
1.00	.491	.0189	-.0972
2.00	.589	.0218	-.0983
2.00	.589	.0216	-.0983
3.00	.686	.0238	-.0983
4.02	.786	.0241	-.0943
5.00	.880	.0241	-.0879
5.00	.880	.0234	-.0879
5.00	.880	.0237	-.0879
6.01	.978	.0230	-.0835
6.01	.978	.0232	-.0835
6.52	1.029	.0225	-.0814
6.52	1.029	.0219	-.0814
7.01	1.077	.0214	-.0786
7.01	1.077	.0212	-.0786
8.02	1.179	.0212	-.0752
8.02	1.179	.0207	-.0752
8.52	1.190	.0246	-.0717
9.02	1.199	.0285	-.0674
11.02	1.205	.0505	-.0549
12.04	1.194	****	-.0509
13.05	1.164	****	-.0548
13.50	.886	****	-.1390

Table B1. Concluded

RUNS 43,44 PTINF =15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

ALPHA, DEG	CL	CD	CM
-2.83	.095	.0186	-.0914
-2.00	.167	.0152	-.0895
-1.51	.205	.0142	-.0852
-1.00	.242	.0133	-.0789
-.99	.242	.0144	-.0789
-.99	.242	.0136	-.0789
.00	.351	.0145	-.0815
.01	.352	.0145	-.0830
1.00	.455	.0143	-.0819
1.00	.455	.0161	-.0819
1.01	.455	.0163	-.0819
2.00	.556	.0155	-.0792
3.00	.665	.0179	-.0827
3.00	.665	.0175	-.0827
4.00	.765	.0190	-.0804
5.01	.875	.0197	-.0825
6.00	.971	.0217	-.0813
6.01	.971	.0210	-.0813
6.99	1.071	.0211	-.0779
7.01	1.071	.0206	-.0779
7.51	1.118	.0192	-.0758
7.52	1.121	.0189	-.0760
8.01	1.166	.0204	-.0747
8.51	1.189	.0239	-.0715
9.02	1.192	.0301	-.0676
10.01	1.202	****	-.0601
12.01	1.173	****	-.0498
13.01	1.151	****	-.0541
14.00	.855	****	-.1398

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

ALPHA, DEG	CL	CD	CM
-2.01	.136	.0209	-.0993
.01	.351	.0263	-.1117
2.00	.582	.0316	-.1248
3.03	.628	.0368	-.1205
3.50	.617	.0412	-.1180
4.00	.608	.0477	-.1132
4.01	.598	.0477	-.1107
4.50	.603	.0513	-.1104
5.00	.623	.0547	-.1099
5.51	.643	.0589	-.1095
6.00	.665	.0637	-.1092
6.50	.686	.0689	-.1101
7.01	.707	.0756	-.1099
7.39	1.097	.0319	-.0845
8.01	1.158	.0287	-.0783
8.51	1.205	.0268	-.0741
10.01	1.217	.0472	-.0614
10.01	1.217	.0472	-.0613

Table B2. Theoretical Results From Eppler Airfoil Code

R = 60,000

ALPHA, DEG	CL	CD	CM
-2.00	.173	.0164*	-.0822
-1.00	.282	.0148*	-.0830
.00	.390	.0152*	-.0834
1.00	.479	.0157*	-.0798
2.00	.574	.0163*	-.0776
3.00	.643	.0170*	-.0713
4.00	.705	.0179*	-.0656
5.00	.794	.0192*	-.0639
6.00	.842	.0206*	-.0587
7.00	1.031	.0258*	-.0671
7.25	1.058	.0256*	-.0672
7.50	1.073	.0261*	-.0658

R = 100,000

ALPHA, DEG	CL	CD	CM
-2.00	.173	.0141*	-.0822
-1.00	.283	.0118*	-.0832
.00	.393	.0122*	-.0842
1.00	.503	.0127*	-.0852
2.00	.611	.0131*	-.0859
3.00	.702	.0138*	-.0827
4.00	.795	.0146*	-.0800
5.00	.892	.0157*	-.0786
6.00	.960	.0169*	-.0722
7.00	1.063	.0225	-.0720
7.25	1.060	.0230*	-.0706
7.50	1.095	.0235*	-.0689
7.75	1.063	.0240*	-.0676

R = 200,000

ALPHA, DEG	CL	CD	CM
-2.00	.173	.0118*	-.0822
-1.00	.283	.0090	-.0832
.00	.393	.0093	-.0842
1.00	.503	.0097	-.0853
2.00	.613	.0099	-.0864
3.00	.723	.0105	-.0875
4.00	.832	.0111	-.0885
5.00	.940	.0121	-.0892
6.00	1.032	.0130	-.0863
7.00	1.098	.0190	-.0783
7.25	1.110	.0200*	-.0757
7.50	1.127	.0205*	-.0740
7.75	1.143	.0210*	-.0724
7.87	1.151	.0213*	-.0717
8.00	1.159	.0215*	-.0707
8.12	1.165	.0218*	-.0698
8.25	1.173	.0220*	-.0690

Table B2. Concluded

R = 300,000

ALPHA, DEG	CL	CD	CM
-2.00	.173	.0107*	-.0822
-1.00	.283	.0078	-.0832
.00	.393	.0081	-.0842
1.00	.503	.0084	-.0853
2.00	.613	.0086	-.0864
3.00	.723	.0090	-.0876
4.00	.833	.0095	-.0887
5.00	.943	.0104	-.0898
6.00	1.051	.0113	-.0907
7.00	1.112	.0173	-.0810
7.25	1.126	.0185*	-.0785
7.50	1.144	.0189*	-.0771
7.75	1.161	.0194*	-.0754
7.87	1.169	.0197*	-.0746
8.00	1.177	.0199*	-.0737
8.12	1.185	.0202*	-.0729
8.25	1.193	.0204*	-.0721
8.50	1.208	.0209*	-.0703

R = 460,000

ALPHA, DEG	CL	CD	CM
-2.00	.173	.0097*	-.0822
-1.00	.283	.0068	-.0832
.00	.393	.0070	-.0842
1.00	.503	.0073	-.0853
2.00	.613	.0075	-.0864
3.00	.723	.0078	-.0876
4.00	.833	.0083	-.0887
5.00	.943	.0090	-.0900
6.00	1.053	.0098	-.0911
7.00	1.120	.0157	-.0826
7.25	1.138	.0170	-.0810
7.50	1.159	.0175*	-.0799
7.75	1.178	.0179*	-.0786
7.87	1.187	.0181*	-.0779
8.00	1.196	.0184*	-.0771
8.12	1.204	.0186*	-.0763
8.25	1.213	.0189*	-.0754
8.50	1.228	.0194*	-.0736
8.75	1.244	.0199*	-.0720
9.00	1.258	.0204*	-.0701
9.25	1.272	.0208*	-.0683

* SEPARATION BUBBLE WARNING

Table B3. Experimental Results From Model Wind Tunnel at Stuttgart

R = 60,000

ALPHA, DEG	CL	CD
-3.00	-.140	.0411
-2.00	-.010	.0310
-1.00	.120	.0284
.00	.240	.0294
1.00	.360	.0315
2.00	.470	.0341
3.00	.560	.0368
4.00	.640	.0390
5.00	.730	.0407
6.00	.810	.0434
7.00	.900	.0455
8.00	.980	.0415
9.00	1.050	.0312
10.00	1.100	.0256
11.00	1.130	.0253
12.00	1.140	.0287
13.00	1.120	.0363
14.00	1.080	****
15.00	1.020	****
16.00	.950	****

R = 100,000

ALPHA, DEG	CL	CD
-3.00	-.070	.0363
-2.00	.070	.0258
-1.00	.200	.0214
.00	.320	.0207
1.00	.430	.0213
2.00	.520	.0216
3.00	.610	.0211
4.00	.700	.0208
5.00	.780	.0206
6.00	.860	.0203
7.00	.930	.0197
8.00	1.000	.0189
9.00	1.050	.0186
10.00	1.080	.0194
11.00	1.100	.0215
12.00	1.110	.0252
13.00	1.120	.0312
14.00	1.100	.0408
15.00	1.060	****
16.00	1.000	****

Table B3. Concluded

R = 200,000

ALPHA, DEG	CL	CD
-4.00	-.130	.0434
-3.00	.020	.0257
-2.00	.130	.0172
-1.00	.230	.0130
.00	.330	.0108
1.00	.430	.0097
2.00	.520	.0092
3.00	.620	.0093
4.00	.710	.0098
5.00	.800	.0107
6.00	.880	.0123
7.00	.950	.0146
8.00	1.010	.0183
9.00	1.060	.0246
10.00	1.080	.0331
11.00	1.100	.0402
12.00	1.110	.0448
13.00	1.100	****
14.00	1.090	****
15.00	1.060	****
16.00	1.010	****

Table B4. Experimental Results From Low-Turbulence Tunnel at Delft

R = 60,000

ALPHA, DEG	CL	CD
-3.95	-.155	.0413
-3.10	-.040	****
-1.85	.145	.0201
-1.00	.220	****
.05	.330	.0213
1.00	.435	****
2.10	.545	.0274
2.95	.600	****
3.95	.605	.0417
4.95	.600	****
5.95	.630	.0625
7.10	.690	.0788
7.45	1.005	****
8.25	1.075	.0329
9.00	1.135	.0306
10.30	1.135	.0432
10.95	1.170	.0568
11.95	1.185	.0775
12.95	1.160	****
13.40	.985	****
15.40	.845	****

R = 100,000

ALPHA, DEG	CL	CD
-4.05	-.065	.0288
-3.05	.075	****
-2.05	.175	.0167
-1.05	.265	****
.00	.365	.0151
1.00	.455	****
1.90	.545	.0190
2.95	.635	****
3.95	.725	.0223
4.90	.810	****
5.90	.895	.0230
6.75	.985	.0215
8.05	1.080	.0205
8.90	1.105	.0266
10.00	1.130	.0373
10.85	1.150	****
11.90	1.155	****
12.90	1.140	****
13.90	1.035	****

Table B4. Concluded

R = 200,000

ALPHA, DEG	CL	CD
-4.00	-.045	.0212
-3.05	.050	****
-2.10	.145	.0127
-1.10	.240	****
.15	.345	.0092
1.95	.550	.0113
2.95	.650	****
4.05	.760	.0122
4.90	.855	.0131
6.05	.955	.0125
7.00	1.055	.0130
8.15	1.125	.0168
8.90	1.145	****
10.25	1.175	.0312
10.90	1.185	****
11.95	1.185	****
12.95	1.170	****
14.00	1.180	****
15.00	1.045	****

Appendix C

Spanwise Drag Coefficients

This appendix contains a computer listing of the spanwise drag coefficients for the Eppler 387 airfoil section as measured in the Langley Low-Turbulence Pressure Tunnel.

Table C1. Spanwise Drag Coefficients

RUNS 5,6 PTINF = 15 PSI M = 0.08 R = 300,000

ALPHA = 0.0 DEG.

SPAN, IN.	CD
0.1522	0.0089
1.9948	0.0091
3.0210	0.0085
3.9805	0.0089
6.0123	0.0085
8.0051	0.0089
9.9957	0.0089
12.0023	0.0092
11.0038	0.0092
9.0170	0.0087
7.0118	0.0091
5.0047	0.0088
1.0035	0.0087
-1.9828	0.0089
-3.9921	0.0088
-6.0444	0.0088
-8.0145	0.0089
-10.0029	0.0089
-12.0037	0.0089
-11.0091	0.0087
-10.9986	0.0085
-9.0087	0.0087
-7.0220	0.0089
-4.9936	0.0091
-3.0093	0.0088
-0.9914	0.0089
0.0791	0.0087

ALPHA = 5.0 DEG.

SPAN, IN.	CD
0.0791	0.0114
1.0035	0.0114
2.0428	0.0114
3.0210	0.0113
3.9805	0.0119
5.0271	0.0114
5.9908	0.0120
6.9916	0.0114
8.0051	0.0124
9.0170	0.0114
10.0242	0.0118
11.0038	0.0111
12.0058	0.0126
8.0051	0.0122
8.0237	0.0121
-1.0157	0.0112
-2.0068	0.0112
-2.9856	0.0112
-4.0152	0.0114
-5.0160	0.0117
-6.0230	0.0110
-7.0220	0.0116
-8.0145	0.0115
-8.9919	0.0115
-11.0196	0.0113
-12.0018	0.0114
-10.0171	0.0112
-6.0016	0.0111
-5.0383	0.0116

Table C1. Continued

RUNS 12,14 PTINF = 15 PSI M = 0.06 R = 200,000

ALPHA = 0.0 DEG.		ALPHA = 5.0 DEG.	
SPAN, IN.	CD	SPAN, IN.	CD
0.0304	0.0109	-0.0183	0.0138
-0.9914	0.0108	1.0278	0.0142
-1.9828	0.0109	2.0188	0.0139
-3.0329	0.0107	3.0210	0.0135
-4.0152	0.0106	3.9805	0.0140
-5.0160	0.0107	5.0047	0.0139
-6.0016	0.0107	5.9694	0.0136
-7.0220	0.0106	7.0118	0.0147
-7.9957	0.0107	8.0051	0.0141
-9.0087	0.0109	9.0170	0.0139
-9.9743	0.0106	10.0100	0.0143
-10.9986	0.0107	10.9932	0.0141
-12.0007	0.0109	11.9906	0.0145
-7.0220	0.0106	11.9906	0.0140
-2.0309	0.0109	11.9906	0.0147
-2.0068	0.0098	6.9916	0.0140
-2.0068	0.0105	2.9737	0.0134
-2.0068	0.0104	3.4918	0.0142
-2.0309	0.0103	2.4742	0.0137
-2.0309	0.0106	-0.0183	0.0141
0.1035	0.0107	-0.9914	0.0143
1.0035	0.0108	-2.0068	0.0139
2.0188	0.0107	-3.0329	0.0141
2.9974	0.0103	-4.0152	0.0141
4.0267	0.0105	-4.9936	0.0144
5.0047	0.0118	-6.0016	0.0138
5.0271	0.0109	-7.0018	0.0143
5.9908	0.0106	-8.0145	0.0142
6.9916	0.0110	-8.9919	0.0143
8.0237	0.0107	-10.0171	0.0139
9.0002	0.0106	-11.0196	0.0141
9.0002	0.0107	-11.9609	0.0144
10.0100	0.0108	0.0791	0.0140
11.0248	0.0111	-1.0400	0.0141
11.9990	0.0107		

Table C1. Continued

RUNS 21,41,37 PTINF = 15 PSI M = 0.03 R = 100,000

ALPHA = 0.0 DEG.

SPAN, IN.	CD
0.0304	0.0169
0.0304	0.0164
1.0035	0.0169
1.0278	0.0171
2.0188	0.0167
2.0188	0.0169
3.0210	0.0161
3.0210	0.0164
4.0267	0.0152
4.0036	0.0154
5.0047	0.0165
5.0047	0.0163
5.9908	0.0164
6.0123	0.0159
5.9908	0.0165
6.0123	0.0163
6.9916	0.0169
6.9916	0.0167
8.0051	0.0173
8.0051	0.0172
9.0002	0.0174
9.0002	0.0174
10.0242	0.0161
10.0242	0.0169
10.0242	0.0166
10.0242	0.0166
11.0038	0.0172
11.0038	0.0173
12.0001	0.0181
11.9990	0.0173
12.0001	0.0180
12.0001	0.0180
3.0210	0.0161
3.5152	0.0160
3.5152	0.0160
3.4918	0.0167
4.0036	0.0156
4.0267	0.0158
4.4855	0.0161
-0.0183	0.0163
-0.0183	0.0168
-0.9914	0.0172
-0.9914	0.0168
-1.0157	0.0169
-1.9828	0.0170
-1.9828	0.0168

ALPHA = 0.0 DEG.

SPAN, IN.	CD
-3.0329	0.0173
-3.0093	0.0165
-3.0329	0.0170
-3.9921	0.0164
-4.0152	0.0165
-4.9936	0.0171
-4.9936	0.0168
-6.0016	0.0171
-6.0016	0.0171
-7.0018	0.0167
-6.9815	0.0172
-6.9815	0.0170
-6.9815	0.0172
-8.0145	0.0169
-8.0145	0.0169
-9.0087	0.0172
-9.0087	0.0171
-9.8584	0.0176
-10.0171	0.0179
-11.0507	0.0182
-11.0507	0.0178
-11.9996	0.0198
-11.9983	0.0198
-3.0329	0.0164
-3.0093	0.0161
0.1012	0.0173
0.0769	0.0170
-1.0178	0.0170
-1.0178	0.0168
-2.0328	0.0172
-2.0328	0.0170
-3.0111	0.0171
-4.0169	0.0164
-5.0621	0.0171
-5.9815	0.0177
-7.0231	0.0168
-8.0340	0.0171

ALPHA = 5.0 DEG.

-0.0171	0.0243
-2.0056	0.0249
-2.0537	0.0244
-4.0139	0.0242
-6.0003	0.0243

Table C1. Continued

RUN 35 PTINF = 5 PSI M = 0.09 R = 100,000

ALPHA = 0.0 DEG.

SPAN, IN.	CD
0.0559	0.0162
-0.9902	0.0163
-2.0056	0.0180
-2.0056	0.0178
-3.0080	0.0175
-4.0370	0.0176
-5.0146	0.0183
-6.0003	0.0192
-6.0003	0.0193
-7.0207	0.0182
-8.0132	0.0188
-9.0075	0.0188
-10.0585	0.0195
-11.0188	0.0205
-12.0054	0.0223
-12.0054	0.0223
-11.5013	0.0217
-11.0807	0.0205
-10.0019	0.0195
-9.0410	0.0192
-8.0319	0.0185
-7.0005	0.0179
-6.0003	0.0192
-5.0370	0.0186
-4.0139	0.0173
-3.0317	0.0172
-2.0056	0.0178
-1.0145	0.0160
-0.0415	0.0161
1.0531	0.0155
2.0199	0.0168
3.0220	0.0144
3.4927	0.0160
4.0276	0.0147
5.0055	0.0175

ALPHA = 0.0 DEG.

SPAN, IN.	CD
5.9916	0.0173
7.0327	0.0183
8.0056	0.0186
9.0174	0.0183
10.0245	0.0161
11.0663	0.0168
12.0050	0.0181
12.0050	0.0181
11.0250	0.0174
9.0174	0.0187
4.4863	0.0153
4.0507	0.0148
3.5162	0.0161
3.0693	0.0146
2.4991	0.0152

Table C1. Continued

RUN 36 PTINF = 5 PSI M = 0.09 R = 100,000

ALPHA = 5.0 DEG.

SPAN, IN.	CD
0.0803	0.0251
1.0046	0.0250
2.0199	0.0254
2.4991	0.0247
2.9984	0.0238
3.4927	0.0240
4.0276	0.0246
4.5091	0.0254
5.0055	0.0254
6.0558	0.0248
6.9923	0.0253
8.0802	0.0260
8.9839	0.0257
10.0103	0.0264
11.0354	0.0253
11.9990	0.0262
11.9990	0.0263
11.0145	0.0251
10.0809	0.0264
9.0174	0.0254
8.0056	0.0259
7.0528	0.0255
6.0130	0.0248
5.0502	0.0251
4.5091	0.0250
4.0276	0.0243
3.4224	0.0241
3.0220	0.0236
2.4991	0.0246
2.0199	0.0251
0.9803	0.0248
0.0072	0.0247
-0.0171	0.0247
-1.0387	0.0251
-2.0056	0.0253
-3.0553	0.0258
-4.0139	0.0249
-4.9923	0.0255
-5.0146	0.0257

ALPHA = 5.0 DEG.

SPAN, IN.	CD
-6.0217	0.0250
-7.0005	0.0265
-8.0132	0.0264
-9.0075	0.0268
-10.0303	0.0268
-10.9978	0.0277
-12.0027	0.0291
-12.0027	0.0294
-11.0396	0.0279
-10.0019	0.0266
-9.0410	0.0264
-8.0132	0.0259
-7.0207	0.0261
-6.0431	0.0249
-5.0146	0.0255
-4.0139	0.0248
-3.9908	0.0248
-3.0317	0.0257
-3.0317	0.0255
-2.0296	0.0248
-1.0387	0.0249
0.0316	0.0246

Table C1. Concluded

RUN 40 PTINF = 10 PSI M = 0.04 R = 100,000

ALPHA = 0.0 DEG.		ALPHA = 5.0 DEG.	
SPAN, IN.	CD	SPAN, IN.	CD
0.0278	0.0179	0.0034	0.0241
0.0278	0.0175	-1.0182	0.0246
-1.0182	0.0175	-2.0333	0.0247
-0.9940	0.0173	-3.0116	0.0258
-2.0574	0.0178	-4.0174	0.0241
-2.0574	0.0176	-5.0404	0.0245
-3.0116	0.0176	-6.0249	0.0239
-3.0116	0.0172	-7.0035	0.0249
-4.0405	0.0174	-7.9786	0.0252
-4.0636	0.0174	-8.9932	0.0256
-5.0180	0.0178	-8.9764	0.0260
-5.0180	0.0178	-8.0160	0.0243
-6.0249	0.0182	-7.0035	0.0249
-6.0249	0.0183	-6.0035	0.0232
-7.0035	0.0176	-5.0180	0.0246
-7.0035	0.0177	-3.9712	0.0243
-7.0237	0.0176	-3.9712	0.0242
-8.0533	0.0179		
-8.0533	0.0177		
-8.9932	0.0181		
-9.0100	0.0183		
-10.0040	0.0186		
-10.0040	0.0188		
-11.0203	0.0195		
-11.0203	0.0193		
-12.0047	0.0214		
-3.0353	0.0174		
0.0034	0.0180		

Appendix D

Chordwise Pressure Coefficients

This appendix contains a computer listing of the pressure coefficient data for the Eppler 387 airfoil section as measured in the Langley Low-Turbulence Pressure Tunnel. No wind-tunnel blockage corrections have been applied to the data.

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	-2.93	-2.01	-1.00	-.75	-.50	.00	.00	.01
.000	-.3406	.1589	.6222	.7090	.7787	.9060	.9046	.9072
.005	.9964	.9633	.8556	.8162	.7733	.6763	.6797	.6730
.010	.8726	.7696	.6043	.5589	.5132	.3985	.3999	.3951
.015	.7515	.6297	.4537	.4070	.3551	.2461	.2452	.2457
.020	.6375	.5030	.3284	.2810	.2335	.1243	.1235	.1248
.025	.5423	.4045	.2264	.1824	.1343	.0273	.0299	.0307
.030	.4623	.3236	.1511	.1070	.0586	-.0414	-.0394	-.0396
.040	.3343	.1985	.0325	-.0083	-.0542	-.1463	-.1434	-.1453
.050	.2323	.0987	-.0569	-.0961	-.1378	-.2259	-.2249	-.2253
.060	.1452	.0181	-.1321	-.1696	-.2075	-.2944	-.2922	-.2926
.075	.0510	-.0707	-.2105	-.2472	-.2816	-.3586	-.3587	-.3610
.100	-.0649	-.1750	-.3028	-.3327	-.3650	-.4353	-.4332	-.4348
.150	-.2052	-.2981	-.4046	-.4310	-.4580	-.5154	-.5143	-.5152
.200	-.2952	-.3771	-.4673	-.4903	-.5146	-.5624	-.5591	-.5608
.250	-.3587	-.4313	-.5107	-.5286	-.5498	-.5943	-.5906	-.5921
.300	-.4053	-.4691	-.5402	-.5571	-.5755	-.6112	-.6088	-.6109
.350	-.4319	-.4882	-.5513	-.5633	-.5789	-.6103	-.6091	-.6108
.400	-.4242	-.4703	-.5264	-.5345	-.5499	-.5779	-.5778	-.5771
.450	-.3925	-.4352	-.4787	-.4879	-.5005	-.5241	-.5212	-.5224
.500	-.3480	-.3836	-.4237	-.4324	-.4445	-.4666	-.4656	-.4658
.550	-.2996	-.3330	-.3778	-.3891	-.4016	-.4300	-.4271	-.4278
.600	-.2609	-.3018	-.3523	-.3652	-.3789	-.4099	-.4091	-.4083
.650	-.2360	-.2826	-.3382	-.3517	-.3650	-.3961	-.3984	-.3987
.700	-.2191	-.2689	-.3210	-.3136	-.2837	-.2052	-.2118	-.2093
.750	-.2062	-.1510	-.0825	-.0822	-.0874	-.1034	-.1011	-.1044
.800	-.0466	-.0348	-.0616	-.0647	-.0704	-.0829	-.0836	-.0809
.850	-.0016	-.0182	-.0364	-.0357	-.0414	-.0496	-.0480	-.0485
.900	.0212	.0083	.0006	.0002	-.0017	-.0080	-.0071	-.0084
.950	.0622	.0562	.0509	.0507	.0526	.0476	.0467	.0489

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	-2.93	-2.01	-1.00	-.75	-.50	.00	.00	.01
.000	-.3406	.1589	.6222	.7090	.7787	.9060	.9046	.9072
.005	-1.5869	-1.4494	-.8706	-.7339	-.6070	-.3379	-.3414	-.3317
.010	-1.4836	-1.1399	-.7233	-.6270	-.5301	-.3365	-.3391	-.3299
.015	-1.4211	-.9822	-.6466	-.5628	-.4859	-.3265	-.3286	-.3248
.020	-1.3948	-.8802	-.5890	-.5172	-.4552	-.3108	-.3115	-.3088
.025	-1.4171	-.8123	-.5419	-.4822	-.4221	-.2957	-.2964	-.2911
.031	-1.4201	-.7574	-.5027	-.4458	-.3928	-.2766	-.2793	-.2771
.040	-.9364	-.6747	-.4428	-.3943	-.3493	-.2530	-.2519	-.2484
.050	-.5492	-.6187	-.3950	-.3535	-.3142	-.2272	-.2292	-.2258
.060	-.5065	-.5892	-.3547	-.3178	-.2834	-.2070	-.2070	-.2051
.075	-.5137	-.5133	-.3073	-.2772	-.2450	-.1764	-.1768	-.1758
.100	-.4401	-.3906	-.2511	-.2219	-.1949	-.1419	-.1384	-.1381
.150	-.3208	-.2172	-.1685	-.1485	-.1281	-.0842	-.0858	-.0840
.200	-.2422	-.1674	-.1162	-.0999	-.0829	-.0500	-.0467	-.0475
.250	-.1800	-.1213	-.0763	-.0609	-.0497	-.0200	-.0198	-.0191
.300	-.1342	-.0805	-.0452	-.0340	-.0233	.0043	.0057	.0078
.350	-.0976	-.0560	-.0236	-.0084	.0017	.0251	.0255	.0241
.400	-.0691	-.0283	-.0048	.0122	.0192	.0391	.0395	.0402
.450	-.0415	-.0084	.0194	.0254	.0347	.0522	.0520	.0526
.505	-.0178	.0132	.0408	.0403	.0485	.0666	.0668	.0658
.550	-.0001	.0292	.0628	.0491	.0600	.0728	.0750	.0752
.600	.0180	.0422	.0763	.0632	.0711	.0827	.0841	.0859
.650	.0334	.0554	.0833	.0736	.0800	.0922	.0923	.0915
.700	.0473	.0668	.0919	.0900	.0856	.1013	.0982	.0992
.750	.0601	.0775	.1012	.1003	.0938	.1051	.1058	.1036
.800	.0754	.0905	.1101	.1169	.1049	.1134	.1119	.1126
.850	.0864	.1023	.1180	.1270	.1150	.1177	.1176	.1179
.900	.0989	.1115	.1262	.1321	.1277	.1228	.1219	.1218
.950	.1105	.1217	.1336	.1388	.1388	.1230	.1234	.1243

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	1.01	2.00	3.00	4.00	5.00	6.00	6.00	6.01
.000	.9926	.9887	.8765	.5583	.0300	-.6921	-.6842	-.7015
.005	.4122	.0835	-.3260	-.7986	-1.3411	-1.9498	-1.9508	-1.9616
.010	.1370	-.1639	-.5154	-.9109	-1.3483	-1.8329	-1.8316	-1.8382
.015	-.0041	-.2891	-.6112	-.9660	-1.3505	-1.7733	-1.7792	-1.7808
.020	-.1134	-.3792	-.6743	-.9975	-1.3468	-1.7265	-1.7261	-1.7303
.025	-.2008	-.4500	-.7277	-1.0240	-1.3435	-1.6840	-1.6850	-1.6908
.030	-.2587	-.4958	-.7562	-1.0325	-1.3302	-1.6469	-1.6524	-1.6524
.040	-.3498	-.5623	-.7990	-1.0435	-1.3082	-1.5872	-1.5854	-1.5907
.050	-.4129	-.6115	-.8255	-1.0479	-1.2852	-1.5352	-1.5339	-1.5360
.060	-.4685	-.6534	-.8524	-1.0560	-1.2710	-1.4963	-1.4975	-1.5020
.075	-.5208	-.6879	-.8672	-1.0517	-1.2436	-1.4458	-1.4444	-1.4484
.100	-.5765	-.7238	-.8772	-1.0366	-1.2026	-1.3700	-1.3721	-1.3753
.150	-.6297	-.7488	-.8731	-.9988	-1.1276	-1.2621	-1.2615	-1.2648
.200	-.6610	-.7601	-.8650	-.9671	-1.0736	-1.1848	-1.1841	-1.1868
.250	-.6769	-.7631	-.8516	-.9386	-1.0319	-1.1272	-1.1277	-1.1264
.300	-.6850	-.7585	-.8342	-.9112	-.9888	-1.0739	-1.0737	-1.0746
.350	-.6739	-.7364	-.8036	-.8676	-.9371	-1.0170	-1.0185	-1.0188
.400	-.6305	-.6863	-.7417	-.8039	-.8716	-.9535	-.9528	-.9540
.450	-.5704	-.6217	-.6765	-.7448	-.8187	-.9070	-.9073	-.9096
.500	-.5176	-.5738	-.6401	-.7128	-.7932	-.7539	-.7579	-.7500
.550	-.4864	-.5507	-.6224	-.6978	-.6220	-.5607	-.5599	-.5610
.600	-.4714	-.5402	-.5652	-.4018	-.4121	-.4737	-.4715	-.4740
.650	-.4470	-.3136	-.2615	-.3128	-.3548	-.3912	-.3912	-.3914
.700	-.1539	-.1915	-.2291	-.2611	-.2900	-.3157	-.3155	-.3165
.750	-.1372	-.1624	-.1849	-.2070	-.2262	-.2421	-.2440	-.2427
.800	-.1021	-.1203	-.1383	-.1504	-.1666	-.1781	-.1756	-.1773
.850	-.0628	-.0737	-.0855	-.0961	-.1042	-.1136	-.1141	-.1127
.900	-.0164	-.0243	-.0314	-.0396	-.0447	-.0481	-.0484	-.0489
.950	.0422	.0367	.0329	.0306	.0269	.0215	.0228	.0225

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	1.01	2.00	3.00	4.00	5.00	6.00	6.00	6.01
.000	.9926	.9887	.8765	.5583	.0300	-.6921	-.6842	-.7015
.005	.1342	.5027	.7784	.9398	1.0007	1.0030	1.0018	1.0038
.010	.0200	.3211	.5670	.7579	.8906	.9744	.9754	.9747
.015	-.0279	.2300	.4495	.6359	.7793	.8935	.8930	.8928
.020	-.0446	.1866	.3897	.5626	.7090	.8302	.8246	.8275
.025	-.0557	.1533	.3421	.5076	.6519	.7638	.7668	.7664
.031	-.0614	.1318	.3089	.4653	.5980	.7175	.7186	.7188
.040	-.0662	.1042	.2579	.3979	.5248	.6372	.6374	.6375
.050	-.0626	.0886	.2299	.3573	.4721	.5782	.5783	.5785
.060	-.0573	.0794	.2092	.3272	.4352	.5348	.5353	.5376
.075	-.0474	.0744	.1892	.2939	.3942	.4865	.4870	.4862
.100	-.0298	.0725	.1704	.2614	.3484	.4294	.4321	.4329
.150	.0003	.0810	.1574	.2318	.3015	.3669	.3683	.3695
.200	.0197	.0873	.1529	.2132	.2739	.3296	.3318	.3325
.250	.0394	.0959	.1504	.2040	.2580	.3103	.3099	.3080
.300	.0572	.1064	.1544	.2008	.2468	.2923	.2914	.2925
.350	.0676	.1152	.1587	.1990	.2384	.2774	.2802	.2797
.400	.0806	.1189	.1550	.1944	.2311	.2670	.2685	.2685
.450	.0893	.1232	.1596	.1938	.2266	.2598	.2576	.2600
.505	.0973	.1280	.1602	.1915	.2212	.2520	.2496	.2505
.550	.1046	.1327	.1589	.1909	.2171	.2425	.2453	.2427
.600	.1105	.1345	.1593	.1869	.2104	.2353	.2374	.2380
.650	.1136	.1382	.1641	.1841	.2080	.2300	.2302	.2299
.700	.1227	.1412	.1627	.1824	.2026	.2210	.2210	.2214
.750	.1203	.1428	.1601	.1793	.1956	.2151	.2136	.2159
.800	.1296	.1446	.1585	.1775	.1892	.2056	.2095	.2074
.850	.1318	.1462	.1593	.1728	.1876	.2003	.1992	.2011
.900	.1349	.1448	.1566	.1655	.1769	.1911	.1906	.1887
.950	.1321	.1397	.1497	.1575	.1677	.1719	.1732	.1750

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	6.11	6.25	6.51	7.01	8.01	9.00	10.01	11.01
.000	-.7818	-.8999	-1.1285	-1.5525	-2.4327	-3.2713	-4.0522	-4.4332
.005	-2.0130	-2.1067	-2.2678	-2.5787	-3.1688	-3.6517	-3.9828	-4.2744
.010	-1.8860	-1.9565	-2.0842	-2.3292	-2.7851	-3.1377	-3.6992	-4.0931
.015	-1.8238	-1.8843	-1.9995	-2.2049	-2.6094	-2.9182	-3.5049	-3.9786
.020	-1.7666	-1.8182	-1.9171	-2.1061	-2.4592	-2.8262	-3.5256	-3.0017
.025	-1.7233	-1.7757	-1.8607	-2.0298	-2.3507	-2.7322	-2.8730	-2.8311
.030	-1.6801	-1.7287	-1.8084	-1.9685	-2.2661	-2.6494	-2.4845	-2.4390
.040	-1.6143	-1.6573	-1.7322	-1.8644	-2.1246	-2.5492	-2.2205	-2.3139
.050	-1.5601	-1.5944	-1.6589	-1.7826	-2.0195	-2.0931	-2.1726	-2.2925
.060	-1.5208	-1.5526	-1.6111	-1.7250	-1.9421	-1.9725	-2.1355	-2.1853
.075	-1.4667	-1.4938	-1.5433	-1.6450	-1.8421	-1.8917	-2.0108	-2.0467
.100	-1.3910	-1.4149	-1.4587	-1.5407	-1.7013	-1.7487	-1.8420	-1.8498
.150	-1.2748	-1.2944	-1.3268	-1.3944	-1.5071	-1.5427	-1.5991	-1.5883
.200	-1.1970	-1.2120	-1.2400	-1.2977	-1.3349	-1.4042	-1.4419	-1.4171
.250	-1.1345	-1.1498	-1.1744	-1.2233	-1.2557	-1.3038	-1.3202	-1.2812
.300	-1.0829	-1.0963	-1.1173	-1.1652	-1.1835	-1.2167	-1.2170	-1.1604
.350	-1.0257	-1.0386	-1.0599	-1.0930	-1.1050	-1.1234	-1.1127	-1.0385
.400	-.9619	-.9754	-1.0019	-.9697	-.9963	-1.0016	-.9843	-.8962
.450	-.9146	-.9155	-.8840	-.8462	-.8791	-.8770	-.8499	-.7620
.500	-.7324	-.7074	-.7025	-.7335	-.7559	-.7479	-.7107	-.6176
.550	-.5672	-.5781	-.5942	-.6217	-.6367	-.6233	-.5820	-.4907
.600	-.4799	-.4852	-.4942	-.5116	-.5216	-.5083	-.4676	-.4037
.650	-.3952	-.3986	-.4044	-.4185	-.4224	-.4091	-.3725	-.3383
.700	-.3177	-.3204	-.3248	-.3326	-.3370	-.3213	-.2984	-.3019
.750	-.2444	-.2460	-.2478	-.2589	-.2594	-.2473	-.2348	-.2750
.800	-.1788	-.1790	-.1803	-.1847	-.1846	-.1829	-.1875	-.2604
.850	-.1124	-.1151	-.1159	-.1196	-.1205	-.1262	-.1500	-.2480
.900	-.0492	-.0487	-.0497	-.0524	-.0624	-.0811	-.1223	-.2371
.950	.0222	.0215	.0203	.0158	-.0054	-.0416	-.1022	-.2095

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	6.11	6.25	6.51	7.01	8.01	9.00	10.01	11.01
.000	-.7818	-.8999	-1.1285	-1.5525	-2.4327	-3.2713	-4.0522	-4.4332
.005	.9989	.9960	.9878	.9569	.8608	.7434	.6157	.5284
.010	.9813	.9883	.9990	1.0041	1.0007	.9874	.9566	.9327
.015	.9035	.9138	.9352	.9612	.9957	1.0025	1.0051	.9997
.020	.8380	.8492	.8702	.9080	.9595	.9888	1.0005	1.0058
.025	.7779	.7927	.8148	.8552	.9156	.9531	.9772	.9894
.031	.7284	.7442	.7679	.8099	.8729	.9196	.9485	.9638
.040	.6479	.6647	.6874	.7291	.7966	.8480	.8857	.9042
.050	.5878	.5986	.6256	.6663	.7404	.7898	.8258	.8501
.060	.5450	.5589	.5801	.6237	.6914	.7428	.7821	.8041
.075	.4949	.5078	.5271	.5649	.6337	.6860	.7198	.7447
.100	.4394	.4488	.4692	.5060	.5638	.6101	.6481	.6657
.150	.3735	.3836	.3989	.4273	.4772	.5176	.5491	.5672
.200	.3373	.3431	.3574	.3838	.4266	.4588	.4877	.5043
.250	.3124	.3194	.3318	.3543	.3951	.4232	.4448	.4567
.300	.2990	.3008	.3131	.3331	.3644	.3918	.4118	.4188
.350	.2842	.2884	.2997	.3134	.3467	.3651	.3819	.3901
.400	.2725	.2778	.2858	.3003	.3265	.3487	.3617	.3653
.450	.2622	.2653	.2742	.2875	.3129	.3273	.3387	.3405
.505	.2553	.2589	.2649	.2778	.2975	.3122	.3199	.3146
.550	.2462	.2510	.2576	.2677	.2871	.2973	.3036	.2990
.600	.2392	.2427	.2480	.2591	.2748	.2831	.2875	.2758
.650	.2308	.2353	.2410	.2481	.2631	.2696	.2707	.2595
.700	.2252	.2264	.2318	.2396	.2500	.2560	.2512	.2364
.750	.2164	.2182	.2229	.2259	.2350	.2369	.2323	.2133
.800	.2091	.2130	.2151	.2216	.2274	.2211	.2138	.1904
.850	.2035	.2026	.2051	.2100	.2126	.2063	.1916	.1601
.900	.1906	.1920	.1942	.1970	.1911	.1813	.1608	.1239
.950	.1752	.1764	.1777	.1750	.1671	.1473	.1176	.0693

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	12.00	13.00	14.00	15.00	16.00
.000	-4.7337	-5.0229	-5.2110	-5.1629	-.9188
.005	-4.5280	-4.8007	-4.9811	-4.9109	-.8497
.010	-4.3776	-4.6479	-4.8652	-4.8300	-.8549
.015	-4.1425	-4.2618	-4.2506	-4.3937	-1.1619
.020	-2.7698	-2.7835	-2.8430	-2.9405	-1.1360
.025	-2.8215	-2.8437	-2.8417	-2.7678	-1.0158
.030	-2.4918	-2.5575	-2.5849	-2.5188	-.8636
.040	-2.3663	-2.4046	-2.4023	-2.3180	-.8947
.050	-2.3230	-2.3127	-2.2887	-2.1812	-1.2138
.060	-2.1980	-2.1986	-2.1664	-2.0543	-.9942
.075	-2.0419	-2.0273	-1.9885	-1.8923	-1.0555
.100	-1.8330	-1.8113	-1.7625	-1.6392	-.8038
.150	-1.5484	-1.5083	-1.4424	-.8266	-.9265
.200	-1.3566	-1.2987	-1.2013	-1.1186	-.7554
.250	-1.2007	-1.1322	-1.0252	-.9990	-.7368
.300	-1.0664	-.9754	-.8463	-.8525	-.8171
.350	-.9187	-.8241	-.6669	-.8133	-.7716
.400	-.7524	-.6448	-.5417	-.7834	-.7570
.450	-.6194	-.5216	-.4725	-.7637	-.7637
.500	-.4838	-.4413	-.4378	-.7380	-.8042
.550	-.4057	-.3976	-.4285	-.7924	-.7522
.600	-.3650	-.3840	-.4310	-.7410	-.7656
.650	-.3567	-.3813	-.4325	-.6352	-.7944
.700	-.3487	-.3788	-.4288	-.6638	-.7967
.750	-.3476	-.3767	-.4374	-.6472	-.7913
.800	-.3452	-.3791	-.4453	-.5296	-.7574
.850	-.3363	-.3800	-.4417	-.5242	-.7506
.900	-.3311	-.3826	-.4457	-.6410	-.7185
.950	-.3216	-.3914	-.4483	-.5501	-.6863

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	12.00	13.00	14.00	15.00	16.00
.000	-4.7337	-5.0229	-5.2110	-5.1629	-.9188
.005	.4581	.3963	.3345	.3263	.8542
.010	.9145	.8885	.8652	.8579	.9977
.015	1.0011	.9906	.9832	.9821	1.0003
.020	1.0038	1.0039	1.0027	1.0030	.9763
.025	.9955	1.0021	1.0035	1.0052	.9479
.031	.9698	.9821	.9915	.9953	.9004
.040	.9192	.9335	.9452	.9505	.8437
.050	.8660	.8801	.8924	.8980	.7999
.060	.8178	.8346	.8490	.8552	.7494
.075	.7638	.7744	.7900	.7905	.6922
.100	.6816	.6993	.7140	.6720	.6115
.150	.5761	.5917	.6007	.5382	.5246
.200	.5094	.5212	.5316	.5008	.4411
.250	.4642	.4673	.4796	.4406	.3808
.300	.4208	.4302	.4367	.3911	.3621
.350	.3872	.3986	.4005	.3625	.3239
.400	.3627	.3625	.3657	.3276	.2910
.450	.3347	.3366	.3336	.2965	.2595
.505	.3111	.3051	.3066	.2636	.2301
.550	.2903	.2856	.2802	.2401	.1941
.600	.2634	.2589	.2513	.2109	.1656
.650	.2451	.2334	.2227	.1840	.1452
.700	.2183	.2052	.1931	.1529	.1094
.750	.1914	.1718	.1595	.1204	.0743
.800	.1646	.1431	.1236	.0916	.0277
.850	.1305	.1016	.0782	.0440	-.0276
.900	.0812	.0499	.0199	-.0374	-.0980
.950	.0158	-.0287	-.0653	-.1185	-.1953

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	16.01	14.01	11.99	10.03	7.94	5.98	4.03	2.00
.000	-.9679	-5.2117	-4.7542	-4.0760	-2.3904	-.6850	.5363	.9925
.005	-1.0215	-4.9639	-4.5297	-4.0008	-3.1279	-1.9421	-.8236	.0772
.010	-.9121	-4.8486	-4.3780	-3.7216	-2.7542	-1.8272	-.9285	-.1682
.015	-1.1349	-4.3021	-4.1018	-3.5125	-2.5787	-1.7693	-.9827	-.2955
.020	-1.2037	-2.8527	-2.7743	-3.5286	-2.4341	-1.7171	-1.0135	-.3873
.025	-.8828	-2.8259	-2.8248	-2.8787	-2.3326	-1.6822	-1.0381	-.4562
.030	-1.1199	-2.5737	-2.4998	-2.4894	-2.2421	-1.6434	-1.0474	-.5025
.040	-.8538	-2.3921	-2.3625	-2.2211	-2.1073	-1.5812	-1.0563	-.5691
.050	-1.2320	-2.2801	-2.3163	-2.1759	-1.9960	-1.5295	-1.0603	-.6165
.060	-1.1952	-2.1565	-2.1920	-2.1415	-1.9211	-1.4934	-1.0653	-.6556
.075	-.9780	-1.9836	-2.0390	-2.0124	-1.8227	-1.4426	-1.0621	-.6922
.100	-.8846	-1.7517	-1.8330	-1.8390	-1.6957	-1.3695	-1.0436	-.7272
.150	-.7651	-1.4343	-1.5471	-1.6012	-1.5088	-1.2609	-1.0045	-.7494
.200	-.8504	-1.1927	-1.3582	-1.4416	-1.3375	-1.1815	-.9730	-.7610
.250	-.8304	-.9327	-1.2049	-1.3185	-1.2456	-1.1247	-.9424	-.7616
.300	-.7845	-.8447	-1.0695	-1.2169	-1.1781	-1.0717	-.9142	-.7586
.350	-.7853	-.6787	-.9091	-1.1111	-1.0996	-1.0134	-.8721	-.7384
.400	-.8215	-.5466	-.7475	-.9798	-.9917	-.9508	-.8067	-.6861
.450	-.7975	-.4701	-.6212	-.8473	-.8758	-.9047	-.7498	-.6237
.500	-.7221	-.4373	-.4890	-.7101	-.7545	-.7602	-.7198	-.5741
.550	-.7498	-.4309	-.4016	-.5790	-.6337	-.5587	-.7032	-.5543
.600	-.7679	-.4236	-.3596	-.4668	-.5222	-.4690	-.3992	-.5423
.650	-.7719	-.4321	-.3494	-.3729	-.4239	-.3899	-.3140	-.3139
.700	-.7879	-.4314	-.3400	-.2959	-.3362	-.3145	-.2664	-.1917
.750	-.7646	-.4359	-.3429	-.2361	-.2568	-.2428	-.2086	-.1644
.800	-.7336	-.4377	-.3398	-.1895	-.1843	-.1762	-.1531	-.1193
.850	-.7370	-.4389	-.3336	-.1552	-.1211	-.1120	-.0979	-.0738
.900	-.7073	-.4404	-.3314	-.1277	-.0617	-.0504	-.0417	-.0238
.950	-.6498	-.4403	-.3158	-.1012	-.0038	.0229	.0262	.0377

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	16.01	14.01	11.99	10.03	7.94	5.98	4.03	2.00
.000	-.9679	-5.2117	-4.7542	-4.0760	-2.3904	-.6850	.5363	.9925
.005	.8667	.3368	.4596	.6165	.8676	1.0024	.9455	.5056
.010	1.0021	.8638	.9137	.9600	1.0009	.9750	.7600	.3240
.015	.9988	.9837	.9983	1.0022	.9927	.8897	.6424	.2323
.020	.9720	1.0017	1.0038	1.0023	.9594	.8220	.5728	.1854
.025	.9444	1.0030	.9953	.9805	.9154	.7650	.5125	.1586
.031	.9101	.9879	.9705	.9489	.8698	.7166	.4691	.1357
.040	.8044	.9407	.9166	.8839	.7942	.6361	.4037	.1042
.050	.8005	.8920	.8667	.8280	.7320	.5786	.3618	.0870
.060	.7554	.8498	.8175	.7817	.6869	.5341	.3319	.0815
.075	.6909	.7871	.7596	.7209	.6257	.4857	.2987	.0766
.100	.6159	.7102	.6811	.6446	.5596	.4303	.2670	.0714
.150	.5053	.6012	.5782	.5490	.4771	.3664	.2309	.0780
.200	.4452	.5299	.5090	.4880	.4223	.3308	.2143	.0882
.250	.3938	.4789	.4602	.4443	.3881	.3066	.2070	.0967
.300	.3610	.4317	.4249	.4113	.3646	.2917	.2018	.1048
.350	.3199	.3973	.3910	.3844	.3433	.2771	.1967	.1111
.400	.3045	.3652	.3604	.3580	.3238	.2646	.1959	.1167
.450	.2681	.3345	.3352	.3429	.3105	.2596	.1910	.1243
.505	.2207	.3063	.3125	.3200	.2964	.2508	.1914	.1277
.550	.1969	.2787	.2895	.3026	.2823	.2423	.1887	.1311
.600	.1668	.2535	.2662	.2864	.2739	.2352	.1873	.1351
.650	.1387	.2224	.2451	.2686	.2584	.2284	.1866	.1399
.700	.1030	.1919	.2194	.2493	.2480	.2223	.1807	.1399
.750	.0680	.1622	.1909	.2307	.2361	.2145	.1780	.1405
.800	.0358	.1238	.1637	.2128	.2279	.2072	.1767	.1426
.850	-.0199	.0784	.1274	.1886	.2109	.1997	.1718	.1450
.900	-.0976	.0211	.0815	.1583	.1912	.1883	.1635	.1448
.950	-.1842	-.0636	.0163	.1172	.1686	.1731	.1572	.1422

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	-.01
.000	.9058
.005	.6739
.010	.4007
.015	.2432
.020	.1246
.025	.0304
.030	-.0373
.040	-.1454
.050	-.2239
.060	-.2892
.075	-.3566
.100	-.4328
.150	-.5116
.200	-.5581
.250	-.5916
.300	-.6106
.350	-.6093
.400	-.5750
.450	-.5223
.500	-.4647
.550	-.4252
.600	-.4073
.650	-.3969
.700	-.2144
.750	-.1014
.800	-.0842
.850	-.0445
.900	-.0068
.950	.0477

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	-.01
.000	.9058
.005	-.3374
.010	-.3339
.015	-.3275
.020	-.3123
.025	-.2956
.031	-.2795
.040	-.2521
.050	-.2281
.060	-.2062
.075	-.1767
.100	-.1387
.150	-.0839
.200	-.0490
.250	-.0168
.300	.0045
.350	.0251
.400	.0402
.450	.0523
.505	.0654
.550	.0756
.600	.0852
.650	.0911
.700	.0990
.750	.1049
.800	.1107
.850	.1228
.900	.1227
.950	.1223

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	-2.84	-1.99	-.99	-.01	.01	1.04	2.04	2.99
.000	-.1705	.2007	.6220	.8997	.9045	.9925	.9905	.8870
.005	.9942	.9578	.8588	.6831	.6762	.4187	.0922	-.2852
.010	.8551	.7570	.6064	.4054	.4013	.1409	-.1676	-.4931
.015	.7339	.6198	.4617	.2539	.2516	-.0049	-.2841	-.5880
.020	.6155	.4984	.3311	.1300	.1258	-.1128	-.3778	-.6558
.025	.5183	.3986	.2339	.0377	.0340	-.1961	-.4545	-.7058
.030	.4384	.3186	.1548	-.0336	-.0345	-.2593	-.4935	-.7409
.040	.3177	.1981	.0412	-.1363	-.1416	-.3451	-.5610	-.7817
.050	.2115	.0974	-.0510	-.2165	-.2180	-.4110	-.6109	-.8100
.060	.1273	.0156	-.1236	-.2855	-.2884	-.4648	-.6495	-.8311
.075	.0319	-.0719	-.2053	-.3509	-.3549	-.5167	-.6847	-.8499
.100	-.0784	-.1754	-.2936	-.4252	-.4299	-.5682	-.7169	-.8658
.150	-.2162	-.3007	-.3975	-.5008	-.5089	-.6265	-.7451	-.8603
.200	-.3037	-.3735	-.4609	-.5490	-.5540	-.6504	-.7527	-.8514
.250	-.3667	-.4274	-.4988	-.5803	-.5825	-.6697	-.7524	-.8357
.300	-.4128	-.4657	-.5270	-.6018	-.5990	-.6708	-.7460	-.8153
.350	-.4356	-.4852	-.5381	-.5944	-.6009	-.6596	-.7201	-.7769
.400	-.4236	-.4679	-.5090	-.5598	-.5607	-.6094	-.6603	-.7084
.450	-.3927	-.4234	-.4626	-.5016	-.5038	-.5522	-.5986	-.6535
.500	-.3476	-.3751	-.4080	-.4454	-.4494	-.4996	-.5595	-.6168
.550	-.2951	-.3211	-.3635	-.4102	-.4121	-.4754	-.5414	-.6036
.600	-.2600	-.2974	-.3406	-.3970	-.3985	-.4653	-.5340	-.6019
.650	-.2343	-.2791	-.3325	-.3907	-.3867	-.4561	-.5295	-.5643
.700	-.2246	-.2691	-.3229	-.3860	-.3858	-.4226	-.2535	-.1698
.750	-.2101	-.2608	-.2923	-.1675	-.1792	-.0819	-.1064	-.1404
.800	-.1895	-.1344	-.0373	-.0337	-.0320	-.0602	-.0905	-.1114
.850	-.0264	.0108	.0002	-.0233	-.0248	-.0361	-.0579	-.0714
.900	.0391	.0361	.0220	.0010	.0089	-.0069	-.0169	-.0251
.950	.0728	.0643	.0614	.0505	.0538	.0410	.0420	.0317

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	-2.84	-1.99	-.99	-.01	.01	1.04	2.04	2.99
.000	-.1705	.2007	.6220	.8997	.9045	.9925	.9905	.8870
.005	-1.3243	-1.3677	-.8513	-.3206	-.3218	.1554	.5146	.7695
.010	-1.2630	-1.0777	-.7143	-.3314	-.3232	.0342	.3306	.5590
.015	-1.1726	-.9310	-.6375	-.3218	-.3178	-.0154	.2411	.4434
.020	-1.1480	-.8429	-.5843	-.3088	-.3025	-.0365	.1951	.3836
.025	-1.1734	-.7586	-.5392	-.2923	-.2895	-.0482	.1609	.3395
.031	-1.1874	-.6972	-.4996	-.2751	-.2747	-.0568	.1396	.3067
.040	-1.1750	-.6189	-.4396	-.2470	-.2484	-.0592	.1111	.2562
.050	-1.1410	-.5699	-.3940	-.2257	-.2264	-.0536	.0960	.2240
.060	-1.0794	-.5323	-.3548	-.2038	-.2057	-.0514	.0834	.2054
.075	-.4230	-.4956	-.3076	-.1763	-.1779	-.0418	.0802	.1837
.100	-.3757	-.4584	-.2489	-.1395	-.1375	-.0267	.0761	.1699
.150	-.2908	-.2140	-.1674	-.0812	-.0858	.0014	.0788	.1539
.200	-.2200	-.1477	-.1159	-.0458	-.0475	.0255	.0901	.1524
.250	-.1676	-.1087	-.0768	-.0191	-.0179	.0401	.0973	.1509
.300	-.1234	-.0758	-.0452	.0046	.0040	.0582	.1064	.1531
.350	-.0906	-.0482	-.0191	.0231	.0213	.0684	.1168	.1536
.400	-.0590	-.0245	.0000	.0422	.0391	.0809	.1215	.1577
.450	-.0368	-.0036	.0174	.0531	.0508	.0863	.1232	.1547
.505	-.0124	.0175	.0337	.0683	.0657	.0961	.1294	.1574
.550	.0051	.0308	.0450	.0755	.0744	.1036	.1316	.1599
.600	.0240	.0427	.0578	.0839	.0825	.1094	.1355	.1593
.650	.0405	.0559	.0639	.0940	.0935	.1129	.1387	.1594
.700	.0511	.0697	.0770	.0964	.0979	.1185	.1394	.1491
.750	.0628	.0797	.0892	.1033	.1064	.1234	.1412	.1572
.800	.0794	.0930	.1054	.1119	.1113	.1283	.1426	.1570
.850	.0910	.1006	.1167	.1144	.1159	.1318	.1446	.1595
.900	.0998	.1122	.1300	.1161	.1226	.1324	.1426	.1527
.950	.1114	.1231	.1383	.1176	.1206	.1287	.1339	.1448

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	3.99	4.99	5.02	5.05	5.05	5.51	6.02	6.03
.000	.5845	.0757	.0588	.0428	.0380	-.2635	-.6467	-.6542
.005	-.7529	-1.2770	-1.2968	-1.3113	-1.3153	-1.5768	-1.8972	-1.8974
.010	-.8777	-1.3078	-1.3197	-1.3354	-1.3326	-1.5487	-1.7937	-1.8033
.015	-.9312	-1.3141	-1.3261	-1.3388	-1.3434	-1.5224	-1.7436	-1.7448
.020	-.9714	-1.3136	-1.3251	-1.3358	-1.3372	-1.5058	-1.7013	-1.6928
.025	-.9982	-1.3078	-1.3237	-1.3357	-1.3329	-1.4874	-1.6565	-1.6597
.030	-1.0116	-1.2999	-1.3099	-1.3181	-1.3202	-1.4629	-1.6225	-1.6217
.040	-1.0233	-1.2800	-1.2890	-1.2962	-1.2931	-1.4217	-1.5649	-1.5643
.050	-1.0257	-1.2592	-1.2615	-1.2778	-1.2736	-1.3880	-1.5168	-1.5127
.060	-1.0361	-1.2478	-1.2540	-1.2628	-1.2605	-1.3662	-1.4810	-1.4772
.075	-1.0354	-1.2214	-1.2302	-1.2366	-1.2308	-1.3263	-1.4279	-1.4204
.100	-1.0199	-1.1770	-1.1858	-1.1882	-1.1872	-1.2688	-1.3563	-1.3529
.150	-.9821	-1.1046	-1.1133	-1.1160	-1.1124	-1.1787	-1.2453	-1.2422
.200	-.9496	-1.0477	-1.0560	-1.0610	-1.0645	-1.1127	-1.1700	-1.1622
.250	-.9197	-1.0048	-1.0125	-1.0129	-1.0095	-1.0586	-1.1029	-1.1029
.300	-.8856	-.9570	-.9657	-.9646	-.9659	-1.0018	-1.0441	-1.0421
.350	-.8416	-.8994	-.9037	-.9099	-.9065	-.9441	-.9800	-.9748
.400	-.7670	-.8312	-.8353	-.8407	-.8379	-.8789	-.9224	-.9186
.450	-.7210	-.7938	-.7973	-.7977	-.7962	-.8378	-.8851	-.8838
.500	-.6975	-.7732	-.7773	-.7779	-.7813	-.8230	-.8708	-.8681
.550	-.6834	-.7663	-.7683	-.7730	-.7766	-.8173	-.7618	-.7505
.600	-.6841	-.5848	-.5634	-.5617	-.5644	-.4302	-.4011	-.3987
.650	-.3328	-.2815	-.2866	-.2864	-.2872	-.3173	-.3531	-.3522
.700	-.2001	-.2504	-.2509	-.2549	-.2555	-.2767	-.2972	-.2926
.750	-.1751	-.2003	-.2042	-.2070	-.2077	-.2191	-.2310	-.2312
.800	-.1322	-.1513	-.1521	-.1534	-.1517	-.1634	-.1674	-.1666
.850	-.0888	-.0962	-.0972	-.0983	-.0964	-.1062	-.1104	-.1073
.900	-.0328	-.0391	-.0438	-.0423	-.0405	-.0455	-.0500	-.0493
.950	.0287	.0266	.0256	.0242	.0248	.0217	.0215	.0195

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	3.99	4.99	5.02	5.05	5.05	5.51	6.02	6.03
.000	.5845	.0757	.0588	.0428	.0380	-.2635	-.6467	-.6542
.005	.9327	.9998	.9979	1.0031	1.0058	1.0033	1.0042	1.0012
.010	.7515	.8860	.8883	.8914	.8944	.9383	.9716	.9734
.015	.6274	.7728	.7814	.7832	.7840	.8357	.8854	.8902
.020	.5569	.7016	.7058	.7123	.7103	.7685	.8273	.8206
.025	.5013	.6399	.6492	.6516	.6500	.7043	.7639	.7637
.031	.4606	.5927	.5971	.6006	.6012	.6548	.7120	.7154
.040	.3937	.5191	.5260	.5276	.5255	.5789	.6346	.6371
.050	.3519	.4675	.4698	.4755	.4761	.5270	.5772	.5795
.060	.3221	.4330	.4366	.4376	.4293	.4821	.5342	.5364
.075	.2898	.3898	.3948	.3979	.3961	.4369	.4835	.4837
.100	.2580	.3430	.3495	.3485	.3476	.3888	.4288	.4308
.150	.2229	.2969	.3010	.2982	.3016	.3311	.3642	.3675
.200	.2133	.2690	.2725	.2730	.2734	.2989	.3305	.3334
.250	.2047	.2552	.2579	.2582	.2597	.2820	.3052	.3082
.300	.1983	.2469	.2455	.2484	.2468	.2641	.2885	.2877
.350	.1979	.2346	.2374	.2372	.2399	.2569	.2772	.2750
.400	.1912	.2314	.2318	.2323	.2310	.2459	.2650	.2656
.450	.1902	.2223	.2259	.2261	.2252	.2421	.2576	.2590
.505	.1865	.2160	.2194	.2205	.2218	.2331	.2466	.2490
.550	.1848	.2142	.2157	.2124	.2175	.2271	.2398	.2393
.600	.1846	.2083	.2099	.2093	.2104	.2205	.2340	.2382
.650	.1827	.2037	.2075	.2039	.2020	.2141	.2275	.2291
.700	.1946	.2359	.2105	.1227	.1942	.2311	.2501	.1774
.750	.1763	.1958	.1956	.1930	.1967	.2014	.2117	.2135
.800	.1724	.1894	.1909	.1903	.1892	.1968	.2062	.2073
.850	.1671	.1837	.1837	.1846	.1839	.1873	.1976	.1981
.900	.1623	.1744	.1715	.1730	.1750	.1779	.1837	.1839
.950	.1495	.1597	.1591	.1613	.1612	.1624	.1665	.1663

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	6.50	7.01	7.05	7.22	7.56	7.76	8.00	8.02
.000	-1.0508	-1.5331	-1.5717	-1.7379	-2.0469	-2.2080	-2.4141	-2.4243
.005	-2.1980	-2.5389	-2.5653	-2.6814	-2.8884	-2.9910	-3.1227	-3.1383
.010	-2.0355	-2.3060	-2.3250	-2.4162	-2.5849	-2.6580	-2.7605	-2.7698
.015	-1.9533	-2.1858	-2.2085	-2.2800	-2.4236	-2.4946	-2.5821	-2.5904
.020	-1.8805	-2.0900	-2.1032	-2.1772	-2.2933	-2.3637	-2.4369	-2.4390
.025	-1.8219	-2.0137	-2.0284	-2.0940	-2.1998	-2.2541	-2.3332	-2.3370
.030	-1.7771	-1.9447	-1.9628	-2.0170	-2.1233	-2.1770	-2.2380	-2.2457
.040	-1.6962	-1.8496	-1.8641	-1.9126	-2.0047	-2.0484	-2.0976	-2.1120
.050	-1.6322	-1.7634	-1.7795	-1.8231	-1.9118	-1.9439	-1.9982	-1.9943
.060	-1.5860	-1.7103	-1.7145	-1.7548	-1.8306	-1.8670	-1.9162	-1.9131
.075	-1.5207	-1.6262	-1.6382	-1.6728	-1.7366	-1.7696	-1.8121	-1.8095
.100	-1.4352	-1.5234	-1.5337	-1.5637	-1.6194	-1.6404	-1.6848	-1.6945
.150	-1.3066	-1.3785	-1.3855	-1.4130	-1.4623	-1.4739	-1.5118	-1.5181
.200	-1.2189	-1.2772	-1.2839	-1.3089	-1.3428	-1.3645	-1.3936	-1.4043
.250	-1.1485	-1.2009	-1.2076	-1.2211	-1.2612	-1.2781	-1.3033	-1.3086
.300	-1.0856	-1.1344	-1.1363	-1.1616	-1.2012	-1.2176	-1.1698	-1.1716
.350	-1.0237	-1.0727	-1.0783	-1.0986	-1.1406	-1.1046	-1.0803	-1.0857
.400	-.9645	-1.0158	-1.0202	-1.0426	-1.0263	-.9781	-.9813	-.9874
.450	-.9338	-.9759	-.9829	-.9485	-.8608	-.8575	-.8706	-.8673
.500	-.9184	-.7483	-.7465	-.7192	-.7383	-.7419	-.7523	-.7499
.550	-.5651	-.5721	-.5807	-.5976	-.6234	-.6235	-.6332	-.6329
.600	-.4430	-.4864	-.4900	-.5040	-.5147	-.5190	-.5194	-.5198
.650	-.3809	-.4028	-.4078	-.4103	-.4195	-.4223	-.4224	-.4264
.700	-.3099	-.3233	-.3247	-.3299	-.3321	-.3396	-.3361	-.3392
.750	-.2417	-.2507	-.2512	-.2553	-.2589	-.2563	-.2576	-.2597
.800	-.1770	-.1820	-.1839	-.1867	-.1869	-.1882	-.1869	-.1832
.850	-.1112	-.1186	-.1164	-.1167	-.1209	-.1188	-.1213	-.1182
.900	-.0515	-.0537	-.0513	-.0508	-.0552	-.0577	-.0612	-.0607
.950	.0202	.0169	.0153	.0151	.0094	.0062	.0010	.0034

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	6.50	7.01	7.05	7.22	7.56	7.76	8.00	8.02
.000	-1.0508	-1.5331	-1.5717	-1.7379	-2.0469	-2.2080	-2.4141	-2.4243
.005	.9872	.9554	.9498	.9419	.9080	.8860	.8583	.8581
.010	.9910	1.0041	1.0021	1.0034	1.0076	.9982	.9997	1.0026
.015	.9267	.9593	.9643	.9700	.9853	.9859	.9935	.9951
.020	.8671	.9059	.9113	.9250	.9367	.9497	.9561	.9605
.025	.8101	.8542	.8615	.8733	.8933	.9014	.9193	.9197
.031	.7620	.8033	.8145	.8267	.8466	.8576	.8732	.8785
.040	.6814	.7301	.7331	.7456	.7688	.7804	.7947	.7999
.050	.6232	.6694	.6730	.6841	.7096	.7228	.7359	.7346
.060	.5782	.6269	.6287	.6414	.6639	.6762	.6918	.6900
.075	.5275	.5655	.5719	.5833	.6060	.6184	.6300	.6310
.100	.4679	.5055	.5096	.5199	.5363	.5445	.5623	.5687
.150	.3964	.4293	.4332	.4439	.4572	.4690	.4786	.4800
.200	.3574	.3850	.3841	.3961	.4099	.4198	.4269	.4323
.250	.3310	.3558	.3584	.3618	.3770	.3831	.3908	.3935
.300	.3129	.3334	.3342	.3424	.3509	.3586	.3673	.3651
.350	.2964	.3170	.3176	.3249	.3344	.3370	.3435	.3450
.400	.2823	.3025	.3026	.3084	.3184	.3221	.3298	.3326
.450	.2717	.2892	.2915	.2946	.3021	.3070	.3110	.3125
.505	.2633	.2793	.2800	.2838	.2914	.2922	.2971	.2986
.550	.2525	.2689	.2689	.2716	.2783	.2824	.2842	.2885
.600	.2443	.2593	.2587	.2610	.2679	.2696	.2740	.2773
.650	.2360	.2490	.2496	.2549	.2563	.2608	.2606	.2643
.700	.2613	.2468	.2053	.2623	.2858	.3079	.2998	.2498
.750	.2190	.2285	.2294	.2318	.2327	.2376	.2368	.2377
.800	.2135	.2213	.2215	.2222	.2264	.2249	.2252	.2254
.850	.2057	.2104	.2120	.2141	.2116	.2140	.2116	.2133
.900	.1890	.1943	.1974	.1995	.1963	.1948	.1915	.1928
.950	.1733	.1752	.1766	.1779	.1744	.1707	.1697	.1688

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	9.00	10.01	11.03	12.08	13.01	14.00	14.99	16.09
.000	-3.0891	-3.7039	-4.0666	-4.2648	-4.3162	-4.1653	-.6537	-.5476
.005	-3.5862	-3.9722	-3.9243	-4.0883	-4.1808	-3.9541	-1.0199	-.8362
.010	-3.0427	-3.4658	-3.6979	-3.9184	-4.0648	-3.9054	-1.4929	-.7382
.015	-2.8718	-3.2371	-3.6570	-4.0145	-4.1178	-3.9728	-.7588	-.7281
.020	-2.7656	-3.2536	-3.7368	-4.0300	-4.1775	-3.9971	-1.0760	-.7314
.025	-2.5913	-3.1364	-3.2919	-3.3139	-3.6014	-3.9205	-.7776	-.7428
.030	-2.5741	-2.9106	-3.2756	-2.9595	-3.1233	-3.6628	-.7846	-.7300
.040	-2.4965	-2.7171	-2.1762	-2.1308	-2.2548	-2.7549	-.7829	-.7225
.050	-2.3308	-1.9043	-2.0501	-2.1181	-2.0836	-2.1276	-.8518	-.7244
.060	-2.1650	-1.9936	-2.0780	-2.0898	-2.0417	-1.9662	-.8666	-.7309
.075	-1.9214	-1.9529	-1.9704	-1.9535	-1.9112	-1.7979	-.7300	-.7379
.100	-1.7327	-1.7888	-1.7987	-1.7701	-1.7414	-1.6407	-.7736	-.7262
.150	-1.5183	-1.5637	-1.5555	-1.5052	-1.4580	-1.3667	-.7247	-.6950
.200	-1.3842	-1.4077	-1.3810	-1.3058	-1.2577	-1.1243	-.7142	-.6801
.250	-1.2861	-1.2874	-1.2506	-1.1638	-1.0857	-.9554	-.6718	-.6681
.300	-1.1959	-1.1908	-1.1383	-1.0088	-.9358	-.7951	-.6245	-.6531
.350	-1.1034	-1.0869	-1.0110	-.8512	-.7921	-.6532	-.7424	-.6496
.400	-.9888	-.9610	-.8712	-.7140	-.6298	-.5561	-.6256	-.6474
.450	-.8634	-.8217	-.7260	-.5328	-.4961	-.4571	-.6686	-.6558
.500	-.7362	-.6916	-.5949	-.4565	-.4210	-.4406	-.6619	-.6504
.550	-.6149	-.5727	-.4759	-.3615	-.3791	-.4289	-.7225	-.6460
.600	-.5009	-.4593	-.3792	-.3330	-.3694	-.4305	-.6686	-.6552
.650	-.4038	-.3697	-.3208	-.3232	-.3631	-.4259	-.6177	-.6664
.700	-.3204	-.2949	-.2782	-.3202	-.3623	-.4199	-.6569	-.6772
.750	-.2522	-.2372	-.2528	-.3189	-.3633	-.4253	-.6458	-.6800
.800	-.1867	-.1897	-.2365	-.3098	-.3599	-.4343	-.6373	-.6809
.850	-.1275	-.1606	-.2231	-.3019	-.3557	-.4343	-.6500	-.6897
.900	-.0803	-.1321	-.2159	-.3085	-.3557	-.4261	-.6372	-.6850
.950	-.0430	-.1013	-.1988	-.3020	-.3560	-.4136	-.6249	-.6649

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	9.00	10.01	11.03	12.08	13.01	14.00	14.99	16.09
.000	-3.0891	-3.7039	-4.0666	-4.2648	-4.3162	-4.1653	-.6537	-.5476
.005	.7523	.6473	.5677	.5039	.4590	.4362	.9621	.9682
.010	.9863	.9637	.9443	.9239	.9036	.8910	.9990	1.0017
.015	1.0001	1.0025	1.0007	1.0035	.9958	.9933	.9689	.9669
.020	.9850	1.0001	1.0037	.9988	1.0046	1.0034	.9322	.9255
.025	.9558	.9726	.9835	.9924	.9951	.9986	.8716	.8819
.031	.9143	.9413	.9556	.9698	.9764	.9865	.8346	.8457
.040	.8407	.8800	.8983	.9086	.9236	.9374	.7712	.7715
.050	.7836	.8215	.8490	.8603	.8718	.8797	.7206	.7181
.060	.7365	.7719	.7987	.8157	.8241	.8378	.6730	.6749
.075	.6786	.7152	.7314	.7533	.7654	.7739	.6114	.6181
.100	.6063	.6406	.6594	.6747	.6903	.7002	.5518	.5537
.150	.5152	.5420	.5615	.5741	.5836	.5926	.4647	.4679
.200	.4594	.4833	.4963	.5029	.5205	.5226	.4115	.4066
.250	.4231	.4380	.4522	.4596	.4680	.4731	.3663	.3604
.300	.3914	.4065	.4151	.4204	.4242	.4308	.3252	.3226
.350	.3663	.3759	.3839	.3875	.3928	.3929	.3100	.2886
.400	.3472	.3564	.3578	.3579	.3622	.3618	.2624	.2587
.450	.3291	.3379	.3359	.3335	.3348	.3254	.2426	.2289
.505	.3108	.3118	.3148	.3063	.3050	.3021	.2209	.1972
.550	.2991	.2986	.2905	.2846	.2806	.2762	.1916	.1650
.600	.2831	.2791	.2718	.2651	.2587	.2514	.1576	.1406
.650	.2695	.2603	.2534	.2413	.2293	.2235	.1198	.1039
.700	.2640	.2607	.2616	.2446	.2335	.2344	.1516	.1385
.750	.2334	.2242	.2055	.1841	.1717	.1569	.0506	.0309
.800	.2213	.2045	.1864	.1570	.1420	.1219	.0150	-.0103
.850	.2024	.1803	.1559	.1212	.1011	.0788	-.0337	-.0608
.900	.1766	.1522	.1157	.0697	.0472	.0242	-.0825	-.1301
.950	.1433	.1109	.0582	.0004	-.0293	-.0613	-.1987	-.2329

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	16.09	14.03	12.02	10.04	8.01	5.97	4.03	2.01
.000	-.5276	-4.1614	-4.2921	-3.7221	-2.4322	-.6142	.5608	.9952
.005	-.8115	-3.9514	-4.0937	-4.0108	-3.1288	-1.8639	-.7698	.0987
.010	-.7378	-3.8996	-3.9335	-3.4876	-2.7611	-1.7764	-.8945	-.1544
.015	-.7247	-3.9509	-3.9978	-3.2600	-2.5898	-1.7198	-.9482	-.2770
.020	-.7283	-3.9597	-4.0683	-3.2846	-2.4436	-1.6734	-.9868	-.3695
.025	-.7245	-3.9286	-3.2818	-3.1586	-2.3334	-1.6417	-1.0136	-.4410
.030	-.7197	-3.6738	-2.8947	-2.9157	-2.2466	-1.6084	-1.0168	-.4925
.040	-.7173	-2.7789	-2.1208	-2.6881	-2.1058	-1.5512	-1.0385	-.5608
.050	-.7201	-2.1271	-2.1119	-1.8868	-1.9975	-1.5062	-1.0389	-.6033
.060	-.7299	-1.9608	-2.0911	-2.0002	-1.9125	-1.4651	-1.0453	-.6442
.075	-.7244	-1.8004	-1.9659	-1.9524	-1.8123	-1.4226	-1.0377	-.6807
.100	-.7128	-1.6258	-1.7881	-1.7937	-1.6847	-1.3435	-1.0225	-.7162
.150	-.6937	-1.3578	-1.5105	-1.5672	-1.5114	-1.2386	-.9844	-.7444
.200	-.6824	-1.1229	-1.3274	-1.4114	-1.3922	-1.1623	-.9567	-.7492
.250	-.6668	-.9525	-1.1846	-1.2918	-1.2968	-1.0954	-.9247	-.7506
.300	-.6441	-.7923	-1.0296	-1.1850	-1.1724	-1.0376	-.8922	-.7474
.350	-.6464	-.6534	-.8342	-1.0865	-1.0841	-.9770	-.8432	-.7223
.400	-.6447	-.5494	-.7254	-.9573	-.9785	-.9158	-.7724	-.6628
.450	-.6479	-.4592	-.5393	-.8225	-.8660	-.8829	-.7178	-.5984
.500	-.6442	-.4430	-.4318	-.6896	-.7494	-.8683	-.6957	-.5541
.550	-.6422	-.4256	-.3798	-.5628	-.6326	-.7727	-.6914	-.5400
.600	-.6548	-.4286	-.3430	-.4575	-.5180	-.3974	-.6919	-.5325
.650	-.6627	-.4312	-.3273	-.3671	-.4192	-.3493	-.3205	-.5326
.700	-.6714	-.4345	-.3118	-.2928	-.3369	-.2980	-.2029	-.2594
.750	-.6723	-.4334	-.3036	-.2392	-.2567	-.2290	-.1702	-.1063
.800	-.6807	-.4259	-.3067	-.1901	-.1845	-.1714	-.1327	-.0877
.850	-.6872	-.4344	-.3049	-.1588	-.1199	-.1099	-.0860	-.0604
.900	-.6878	-.4200	-.2913	-.1266	-.0586	-.0509	-.0311	-.0177
.950	-.6508	-.4227	-.2999	-.1114	.0072	.0166	.0273	.0362

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	16.09	14.03	12.02	10.04	8.01	5.97	4.03	2.01
.000	-.5276	-4.1614	-4.2921	-3.7221	-2.4322	-.6142	.5608	.9952
.005	.9693	.4372	.5028	.6512	.8569	1.0014	.9393	.5052
.010	1.0036	.8942	.9235	.9679	.9967	.9720	.7586	.3216
.015	.9694	.9913	.9963	1.0025	.9944	.8846	.6375	.2306
.020	.9275	.9987	1.0051	1.0005	.9592	.8165	.5625	.1860
.025	.8839	1.0040	.9889	.9755	.9144	.7582	.5086	.1540
.031	.8406	.9778	.9644	.9406	.8741	.7082	.4666	.1345
.040	.7698	.9302	.9089	.8799	.7997	.6243	.4005	.1034
.050	.7186	.8820	.8548	.8211	.7400	.5701	.3571	.0908
.060	.6760	.8347	.8101	.7773	.6951	.5293	.3280	.0822
.075	.6189	.7767	.7502	.7123	.6302	.4841	.2945	.0770
.100	.5541	.7017	.6739	.6431	.5660	.4230	.2615	.0719
.150	.4655	.5975	.5717	.5427	.4791	.3607	.2310	.0804
.200	.4068	.5262	.5032	.4838	.4267	.3251	.2138	.0881
.250	.3597	.4719	.4573	.4419	.3930	.2997	.2037	.0958
.300	.3221	.4314	.4176	.4046	.3661	.2849	.2011	.1053
.350	.2903	.3946	.3844	.3804	.3485	.2775	.1985	.1107
.400	.2577	.3614	.3586	.3565	.3296	.2649	.1927	.1182
.450	.2306	.3341	.3326	.3333	.3133	.2545	.1901	.1206
.505	.1990	.3075	.3061	.3156	.2991	.2478	.1865	.1293
.550	.1686	.2771	.2851	.2965	.2871	.2396	.1909	.1309
.600	.1425	.2494	.2651	.2787	.2747	.2322	.1848	.1354
.650	.1093	.2238	.2411	.2634	.2643	.2260	.1843	.1377
.700	.1501	.2383	.2528	.2473	.2764	.2559	.2182	.1609
.750	.0331	.1589	.1871	.2235	.2403	.2093	.1786	.1403
.800	-.0050	.1219	.1558	.2043	.2256	.2028	.1746	.1447
.850	-.0602	.0775	.1222	.1825	.2131	.1976	.1684	.1421
.900	-.1288	.0225	.0722	.1530	.1952	.1829	.1660	.1413
.950	-.2250	-.0630	.0024	.1044	.1691	.1673	.1551	.1323

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	.03	.03
.000	.9066	.9106
.005	.6707	.6740
.010	.3991	.3958
.015	.2461	.2448
.020	.1230	.1208
.025	.0286	.0275
.030	-.0419	-.0425
.040	-.1485	-.1488
.050	-.2296	-.2271
.060	-.2949	-.2909
.075	-.3593	-.3589
.100	-.4313	-.4263
.150	-.5088	-.5120
.200	-.5603	-.5576
.250	-.5859	-.5872
.300	-.6053	-.5995
.350	-.6032	-.6023
.400	-.5653	-.5629
.450	-.5015	-.5105
.500	-.4465	-.4517
.550	-.4184	-.4178
.600	-.3997	-.4025
.650	-.3908	-.3941
.700	-.3914	-.3935
.750	-.1690	-.1724
.800	-.0354	-.0356
.850	-.0225	-.0214
.900	.0023	.0041
.950	.0522	.0564

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	.03	.03
.000	.9066	.9106
.005	-.3082	-.3018
.010	-.3155	-.3151
.015	-.3105	-.3092
.020	-.2984	-.2977
.025	-.2837	-.2835
.031	-.2712	-.2677
.040	-.2445	-.2428
.050	-.2223	-.2181
.060	-.1991	-.1967
.075	-.1745	-.1695
.100	-.1348	-.1316
.150	-.0806	-.0810
.200	-.0443	-.0440
.250	-.0171	-.0182
.300	.0098	.0051
.350	.0237	.0257
.400	.0407	.0395
.450	.0545	.0531
.505	.0683	.0671
.550	.0761	.0783
.600	.0862	.0834
.650	.0929	.0903
.700	.1496	.0921
.750	.1060	.1026
.800	.1112	.1112
.850	.1172	.1201
.900	.1197	.1190
.950	.1215	.1195

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	-2.98	-1.99	-.98	-.52	-.02	-.02	-.01	.00
.000	-.0409	.3302	.7032	.8294	.9231	.9124	.9182	.9136
.005	.9805	.9412	.8339	.7614	.6658	.6675	.6615	.6617
.010	.8462	.7378	.5822	.4895	.3907	.3854	.3877	.3915
.015	.7324	.6021	.4289	.3450	.2376	.2388	.2417	.2323
.020	.6131	.4674	.3045	.2155	.1158	.1199	.1193	.1132
.025	.5239	.3710	.2118	.1212	.0264	.0237	.0292	.0317
.030	.4334	.2898	.1337	.0462	-.0469	-.0390	-.0374	-.0394
.040	.3090	.1757	.0224	-.0578	-.1448	-.1440	-.1411	-.1410
.050	.2110	.0724	-.0669	-.1467	-.2196	-.2236	-.2226	-.2234
.060	.1298	-.0008	-.1401	-.2138	-.2753	-.2847	-.2829	-.2877
.075	.0391	-.0886	-.2225	-.2794	-.3568	-.3443	-.3486	-.3546
.100	-.0726	-.1925	-.3068	-.3607	-.4282	-.4188	-.4217	-.4247
.150	-.2083	-.3097	-.4017	-.4482	-.5039	-.4956	-.4912	-.4974
.200	-.2879	-.3867	-.4604	-.4968	-.5426	-.5422	-.5454	-.5448
.250	-.3513	-.4386	-.4969	-.5322	-.5663	-.5662	-.5677	-.5678
.300	-.3899	-.4714	-.5184	-.5466	-.5780	-.5742	-.5764	-.5799
.350	-.4157	-.4743	-.5156	-.5482	-.5627	-.5689	-.5691	-.5591
.400	-.3955	-.4606	-.4907	-.5063	-.5241	-.5240	-.5193	-.5248
.450	-.3719	-.4145	-.4399	-.4525	-.4629	-.4615	-.4595	-.4622
.500	-.3236	-.3569	-.3809	-.3948	-.4162	-.4138	-.4022	-.4004
.550	-.2697	-.3188	-.3391	-.3689	-.3912	-.3917	-.3862	-.3852
.600	-.2378	-.2866	-.3308	-.3553	-.3780	-.3799	-.3731	-.3780
.650	-.2149	-.2754	-.3219	-.3487	-.3627	-.3656	-.3691	-.3642
.700	-.2078	-.2619	-.3093	-.3394	-.3706	-.3634	-.3656	-.3684
.750	-.1999	-.2595	-.3117	-.3350	-.3726	-.3603	-.3642	-.3653
.800	-.1943	-.2531	-.3078	-.3382	-.3727	-.3721	-.3671	-.3710
.850	-.1847	-.2555	-.3067	-.2794	-.3045	-.2994	-.3087	-.3134
.900	-.2003	-.2393	-.1313	-.0741	-.0443	-.0410	-.0449	-.0419
.950	-.1433	-.0185	.0759	.0689	.0732	.0827	.0817	.0790

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	-2.98	-1.99	-.98	-.52	-.02	-.02	-.01	.00
.000	-.0409	.3302	.7032	.8294	.9231	.9124	.9182	.9136
.005	-1.2925	-1.2182	-.6876	-.4625	-.2297	-.2297	-.2194	-.2195
.010	-.9782	-.9894	-.6074	-.4386	-.2642	-.2642	-.2563	-.2553
.015	-.9095	-.8593	-.5476	-.4131	-.2664	-.2666	-.2602	-.2651
.020	-.8740	-.7793	-.5043	-.3827	-.2599	-.2582	-.2499	-.2573
.025	-.8671	-.7102	-.4710	-.3562	-.2465	-.2519	-.2416	-.2462
.031	-.8411	-.6711	-.4378	-.3397	-.2362	-.2365	-.2326	-.2346
.040	-.8258	-.5708	-.3802	-.3014	-.2136	-.2131	-.2067	-.2078
.050	-.8186	-.5179	-.3439	-.2738	-.1894	-.1962	-.1892	-.1883
.060	-.8113	-.4682	-.3143	-.2446	-.1746	-.1777	-.1729	-.1767
.075	-.8119	-.4058	-.2738	-.2166	-.1456	-.1480	-.1460	-.1459
.100	-.8218	-.3334	-.2142	-.1683	-.1168	-.1144	-.1147	-.1125
.150	-.2132	-.2361	-.1467	-.1118	-.0676	-.0720	-.0657	-.0641
.200	-.1353	-.1750	-.0945	-.0609	-.0359	-.0366	-.0310	-.0311
.250	-.1281	-.1297	-.0572	-.0304	-.0090	-.0064	.0000	-.0064
.300	-.0918	-.0960	-.0243	-.0074	.0105	.0168	.0228	.0208
.350	-.0669	-.0582	.0000	.0096	.0362	.0364	.0326	.0328
.400	-.0459	-.0290	.0127	.0309	.0483	.0477	.0506	.0462
.450	-.0170	-.0070	.0283	.0459	.0636	.0592	.0632	.0641
.505	.0057	.0280	.0457	.0582	.0680	.0761	.0784	.0757
.550	.0156	.0530	.0590	.0669	.0781	.0826	.0820	.0793
.600	.0312	.0676	.0681	.0799	.0896	.0919	.0935	.0913
.650	.0488	.0740	.0809	.0846	.1014	.0949	.1040	.1007
.700	.0573	.0886	.0918	.0948	.1059	.1084	.1086	.1017
.750	.0701	.1005	.0958	.1066	.1113	.1086	.1128	.1084
.800	.0812	.1130	.1029	.1071	.1167	.1145	.1216	.1166
.850	.0987	.1202	.1063	.1144	.1150	.1190	.1240	.1209
.900	.1037	.1273	.1186	.1190	.1207	.1253	.1241	.1241
.950	.1124	.1345	.1202	.1189	.1194	.1221	.1250	.1168

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	1.00	1.99	3.01	3.01	4.00	5.01	5.99	6.54
.000	.9961	.9857	.8918	.8801	.6121	.1592	-.4766	-.9036
.005	.4224	.1335	-.2332	-.2230	-.6744	-1.1511	-1.7282	-2.0550
.010	.1430	-.1245	-.4423	-.4507	-.8129	-1.2163	-1.6644	-1.9372
.015	.0115	-.2491	-.5369	-.5433	-.8654	-1.2220	-1.6248	-1.8538
.020	-.1027	-.3416	-.6168	-.6116	-.9137	-1.2386	-1.5930	-1.7979
.025	-.1846	-.4080	-.6602	-.6685	-.9409	-1.2302	-1.5624	-1.7495
.030	-.2375	-.4641	-.6931	-.6987	-.9529	-1.2213	-1.5369	-1.7076
.040	-.3286	-.5262	-.7430	-.7395	-.9659	-1.2050	-1.4807	-1.6362
.050	-.3976	-.5732	-.7712	-.7683	-.9700	-1.1864	-1.4321	-1.5706
.060	-.4507	-.6118	-.7962	-.7870	-.9826	-1.1798	-1.4070	-1.5355
.075	-.4965	-.6526	-.8137	-.8055	-.9831	-1.1543	-1.3544	-1.4673
.100	-.5506	-.6810	-.8225	-.8272	-.9656	-1.1159	-1.2923	-1.3820
.150	-.6047	-.7005	-.8130	-.8094	-.9254	-1.0360	-1.1737	-1.2601
.200	-.6182	-.7135	-.7968	-.7980	-.8876	-.9816	-1.1046	-1.1671
.250	-.6329	-.7037	-.7719	-.7752	-.8481	-.9261	-1.0327	-1.0904
.300	-.6347	-.6883	-.7451	-.7368	-.8061	-.8689	-.9547	-1.0126
.350	-.6064	-.6478	-.6874	-.6882	-.7470	-.7952	-.8917	-.9536
.400	-.5522	-.5812	-.6243	-.6209	-.6849	-.7447	-.8425	-.9050
.450	-.4925	-.5263	-.5793	-.5650	-.6557	-.7214	-.8263	-.8882
.500	-.4513	-.5033	-.5632	-.5544	-.6351	-.7172	-.8216	-.8689
.550	-.4310	-.5001	-.5538	-.5643	-.6327	-.7124	-.8161	-.8927
.600	-.4306	-.4954	-.5563	-.5587	-.6343	-.7117	-.8358	-.6243
.650	-.4218	-.4921	-.5531	-.5578	-.6383	-.7177	-.4463	-.3015
.700	-.4251	-.4903	-.5620	-.5642	-.6230	-.4959	-.2199	-.2433
.750	-.4185	-.4916	-.5257	-.5206	-.3670	-.2057	-.1696	-.1988
.800	-.4082	-.3687	-.2536	-.2551	-.1223	-.1012	-.1270	-.1524
.850	-.2021	-.1188	-.0557	-.0713	-.0410	-.0591	-.0826	-.0882
.900	.0176	.0171	.0105	.0041	-.0008	-.0154	-.0272	-.0426
.950	.0708	.0578	.0438	.0451	.0451	.0313	.0182	.0143

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	1.00	1.99	3.01	3.01	4.00	5.01	5.99	6.54
.000	.9961	.9857	.8918	.8801	.6121	.1592	-.4766	-.9036
.005	.1911	.5259	.7626	.7695	.9269	.9880	.9957	.9850
.010	.0589	.3340	.5608	.5570	.7428	.8722	.9529	.9862
.015	.0054	.2393	.4534	.4489	.6190	.7602	.8701	.9140
.020	-.0140	.1966	.3872	.3863	.5466	.6889	.8017	.8541
.025	-.0271	.1721	.3421	.3408	.4966	.6305	.7472	.8024
.031	-.0298	.1410	.3079	.3094	.4545	.5824	.6985	.7534
.040	-.0419	.1116	.2608	.2551	.3891	.5126	.6160	.6749
.050	-.0413	.0964	.2262	.2307	.3489	.4597	.5584	.6109
.060	-.0384	.0853	.2049	.2132	.3143	.4177	.5186	.5764
.075	-.0271	.0858	.1883	.1891	.2879	.3816	.4696	.5213
.100	-.0103	.0828	.1750	.1710	.2585	.3400	.4168	.4638
.150	.0151	.0850	.1584	.1573	.2204	.2890	.3538	.3954
.200	.0346	.0891	.1553	.1515	.2121	.2641	.3263	.3544
.250	.0491	.0982	.1513	.1515	.1970	.2531	.2989	.3242
.300	.0669	.1117	.1495	.1520	.1978	.2392	.2863	.3082
.350	.0787	.1150	.1556	.1575	.1963	.2364	.2736	.2967
.400	.0842	.1207	.1568	.1552	.1894	.2212	.2624	.2831
.450	.0947	.1304	.1617	.1586	.1902	.2195	.2523	.2728
.505	.1067	.1296	.1614	.1592	.1851	.2177	.2428	.2582
.550	.1109	.1360	.1593	.1586	.1787	.2105	.2374	.2496
.600	.1144	.1368	.1610	.1587	.1795	.2073	.2312	.2406
.650	.1175	.1376	.1614	.1588	.1755	.1992	.2236	.2319
.700	.1200	.1431	.1572	.1545	.1743	.1905	.2128	.2234
.750	.1256	.1416	.1530	.1579	.1688	.1794	.2056	.2091
.800	.1361	.1481	.1562	.1538	.1692	.1773	.1971	.2110
.850	.1321	.1401	.1536	.1490	.1623	.1732	.1829	.2043
.900	.1313	.1385	.1465	.1459	.1558	.1627	.1760	.1794
.950	.1234	.1336	.1329	.1336	.1352	.1459	.1605	.1598

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	7.00	7.25	7.50	7.73	7.78	7.99	7.99	8.26
.000	-1.3047	-1.5596	-1.8135	-2.0629	-2.0759	-2.3039	-2.2929	-2.5289
.005	-2.3534	-2.5338	-2.7143	-2.8807	-2.8804	-3.0135	-3.0154	-3.1577
.010	-2.1695	-2.3172	-2.4467	-2.5751	-2.5974	-2.7022	-2.6799	-2.8124
.015	-2.0509	-2.1805	-2.3016	-2.4224	-2.4316	-2.5317	-2.5217	-2.6088
.020	-1.9798	-2.0918	-2.1982	-2.2923	-2.3106	-2.3944	-2.3730	-2.4969
.025	-1.9052	-2.0186	-2.1146	-2.1951	-2.2070	-2.2759	-2.2836	-2.3684
.030	-1.8529	-1.9537	-2.0332	-2.1196	-2.1380	-2.1918	-2.2047	-2.2601
.040	-1.7788	-1.8449	-1.9218	-1.9952	-2.0075	-2.0631	-2.0731	-2.1319
.050	-1.6972	-1.7653	-1.8258	-1.9003	-1.9088	-1.9684	-1.9625	-2.0201
.060	-1.6374	-1.7059	-1.7749	-1.8131	-1.8257	-1.8759	-1.8759	-1.9425
.075	-1.5603	-1.6208	-1.6758	-1.7256	-1.7391	-1.7803	-1.7774	-1.8306
.100	-1.4669	-1.5143	-1.5609	-1.6123	-1.6084	-1.6455	-1.6403	-1.7116
.150	-1.3251	-1.3642	-1.4049	-1.4444	-1.4409	-1.4763	-1.4831	-1.5369
.200	-1.2191	-1.2579	-1.2808	-1.3262	-1.3307	-1.3658	-1.3687	-1.4178
.250	-1.1431	-1.1787	-1.2092	-1.2443	-1.2331	-1.2775	-1.2754	-1.3369
.300	-1.0714	-1.1036	-1.1341	-1.1637	-1.1724	-1.2075	-1.2051	-1.2401
.350	-1.0135	-1.0435	-1.0761	-1.1113	-1.1146	-1.1480	-1.1414	-1.1302
.400	-.9623	-.9989	-1.0267	-1.0727	-1.0687	-1.0647	-1.0752	-.9787
.450	-.9409	-.9752	-1.0132	-1.0255	-1.0201	-.8873	-.9204	-.8509
.500	-.9379	-.9778	-.9255	-.7525	-.7581	-.7168	-.7269	-.7360
.550	-.7494	-.6501	-.5592	-.5864	-.5866	-.6000	-.5947	-.6234
.600	-.4111	-.4203	-.4572	-.4914	-.4777	-.4968	-.4881	-.5058
.650	-.3434	-.3692	-.3935	-.4006	-.4140	-.4029	-.3982	-.4136
.700	-.2890	-.3103	-.3122	-.3249	-.3181	-.3222	-.3195	-.3267
.750	-.2222	-.2352	-.2360	-.2493	-.2466	-.2461	-.2433	-.2561
.800	-.1629	-.1766	-.1767	-.1812	-.1758	-.1839	-.1805	-.1815
.850	-.1000	-.1058	-.1091	-.1199	-.1143	-.1176	-.1096	-.1235
.900	-.0516	-.0522	-.0479	-.0539	-.0543	-.0493	-.0564	-.0589
.950	.0131	.0088	.0120	.0121	.0016	.0087	.0099	.0025

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	7.00	7.25	7.50	7.73	7.78	7.99	7.99	8.26
.000	-1.3047	-1.5596	-1.8135	-2.0629	-2.0759	-2.3039	-2.2929	-2.5289
.005	.9568	.9377	.9116	.8828	.8792	.8507	.8501	.8167
.010	.9928	.9921	.9961	.9956	.9937	.9929	.9902	.9982
.015	.9406	.9563	.9731	.9824	.9825	.9833	.9877	.9828
.020	.8919	.9124	.9343	.9422	.9382	.9512	.9510	.9729
.025	.8353	.8613	.8856	.9062	.8970	.9099	.9121	.9277
.031	.7973	.8189	.8301	.8567	.8609	.8721	.8622	.8823
.040	.7117	.7394	.7607	.7786	.7823	.7921	.7980	.8079
.050	.6546	.6863	.6917	.7217	.7210	.7370	.7371	.7482
.060	.6119	.6334	.6597	.6691	.6730	.6885	.6884	.7070
.075	.5575	.5797	.6028	.6104	.6150	.6298	.6328	.6487
.100	.4921	.5145	.5332	.5501	.5463	.5669	.5635	.5814
.150	.4203	.4382	.4581	.4682	.4669	.4805	.4798	.4908
.200	.3756	.3927	.3995	.4206	.4146	.4292	.4300	.4341
.250	.3501	.3631	.3684	.3882	.3895	.3983	.3972	.4080
.300	.3279	.3399	.3521	.3607	.3645	.3693	.3706	.3737
.350	.3148	.3183	.3269	.3413	.3394	.3397	.3476	.3578
.400	.2941	.3055	.3163	.3274	.3274	.3253	.3294	.3406
.450	.2791	.2867	.2995	.3116	.3081	.3141	.3195	.3184
.505	.2759	.2827	.2891	.2964	.2977	.3027	.2952	.3042
.550	.2664	.2697	.2784	.2831	.2814	.2881	.2917	.2897
.600	.2544	.2565	.2630	.2719	.2707	.2799	.2812	.2810
.650	.2405	.2498	.2512	.2590	.2564	.2654	.2674	.2690
.700	.2347	.2389	.2458	.2517	.2502	.2526	.2524	.2528
.750	.2198	.2266	.2337	.2381	.2424	.2469	.2409	.2375
.800	.2135	.2133	.2206	.2233	.2274	.2263	.2276	.2265
.850	.2008	.2036	.2105	.2135	.2136	.2146	.2151	.2170
.900	.1814	.1866	.1996	.1963	.1918	.1995	.1971	.1954
.950	.1639	.1648	.1671	.1729	.1718	.1691	.1761	.1628

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	8.49	8.76	9.01	10.05	10.99	12.00	13.00	14.00
.000	-2.6422	-2.7528	-2.9010	-3.1781	-3.2330	-3.3828	-3.2889	-.5842
.005	-3.2250	-3.2388	-3.2850	-3.3739	-3.2518	-3.2289	-3.0628	-1.0884
.010	-2.8385	-2.8471	-2.9036	-2.9629	-3.0718	-3.1176	-3.0093	-.8799
.015	-2.6451	-2.6517	-2.6985	-2.9039	-3.0342	-3.1386	-3.0123	-.8103
.020	-2.5006	-2.4716	-2.5399	-2.9517	-3.0257	-3.0967	-3.0140	-.7515
.025	-2.3755	-2.3698	-2.4314	-2.9062	-3.0104	-3.1038	-3.0064	-.8203
.030	-2.2750	-2.2689	-2.4079	-2.8607	-3.0103	-3.0998	-3.0166	-.7168
.040	-2.1413	-2.2116	-2.3329	-2.7821	-2.9922	-3.0949	-3.0243	-.7209
.050	-2.0418	-2.1141	-2.2582	-2.7219	-2.9757	-3.1497	-3.0459	-.6884
.060	-1.9620	-2.0523	-2.2764	-2.6557	-3.0634	-3.1216	-3.0318	-.7025
.075	-1.8643	-1.9937	-2.1903	-1.9982	-2.1841	-2.4325	-2.6006	-.7040
.100	-1.7410	-1.9247	-1.9612	-1.6292	-1.5663	-1.6558	-1.7870	-.7103
.150	-1.6071	-1.5349	-1.4302	-1.4648	-1.4346	-1.3856	-1.3310	-.7371
.200	-1.4668	-1.3331	-1.3435	-1.3424	-1.3198	-1.2726	-1.1773	-.7382
.250	-1.2892	-1.2266	-1.2486	-1.2320	-1.2153	-1.1553	-1.0445	-.7064
.300	-1.1245	-1.1535	-1.1737	-1.1327	-1.1112	-1.0343	-.9116	-.6424
.350	-1.0666	-1.0690	-1.0827	-1.0345	-.9932	-.9152	-.7885	-.6341
.400	-.9672	-.9610	-.9771	-.9231	-.8681	-.7658	-.6584	-.6149
.450	-.8484	-.8432	-.8395	-.7923	-.7291	-.6455	-.5479	-.6090
.500	-.7314	-.7277	-.7220	-.6663	-.6120	-.5305	-.4759	-.6710
.550	-.6073	-.6084	-.5976	-.5452	-.4947	-.4425	-.3959	-.5993
.600	-.5055	-.4966	-.4953	-.4477	-.4096	-.3698	-.3628	-.6066
.650	-.4024	-.4096	-.3948	-.3632	-.3285	-.3123	-.3330	-.6194
.700	-.3235	-.3158	-.3157	-.2851	-.2763	-.2755	-.3235	-.5998
.750	-.2495	-.2452	-.2437	-.2259	-.2287	-.2597	-.3147	-.6476
.800	-.1836	-.1748	-.1870	-.1874	-.2052	-.2415	-.2983	-.6298
.850	-.1162	-.1227	-.1326	-.1454	-.1768	-.2276	-.3069	-.6271
.900	-.0544	-.0735	-.0747	-.1211	-.1660	-.2312	-.2979	-.6157
.950	.0024	-.0275	-.0386	-.0896	-.1513	-.2232	-.2997	-.6046

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	8.49	8.76	9.01	10.05	10.99	12.00	13.00	14.00
.000	-2.6422	-2.7528	-2.9010	-3.1781	-3.2330	-3.3828	-3.2889	-.5842
.005	.8013	.7817	.7577	.6735	.6170	.5682	.5591	.9780
.010	.9906	.9921	.9858	.9580	.9482	.9283	.9210	.9957
.015	.9921	.9927	1.0012	.9884	.9921	.9946	.9882	.9586
.020	.9739	.9725	.9887	.9915	.9962	.9904	.9961	.9151
.025	.9311	.9370	.9478	.9578	.9693	.9833	.9814	.8708
.031	.8873	.9009	.9155	.9299	.9485	.9572	.9645	.8128
.040	.8185	.8298	.8454	.8634	.8857	.8996	.9032	.7549
.050	.7650	.7711	.7836	.8077	.8302	.8498	.8515	.6812
.060	.7147	.7235	.7478	.7600	.7905	.8080	.8153	.6412
.075	.6579	.6603	.6862	.6988	.7242	.7476	.7561	.5812
.100	.5836	.5939	.6146	.6335	.6535	.6731	.6795	.5228
.150	.5004	.5070	.5127	.5354	.5584	.5642	.5781	.4416
.200	.4464	.4511	.4615	.4697	.4931	.4963	.5065	.3896
.250	.4080	.4089	.4194	.4322	.4452	.4550	.4617	.3536
.300	.3796	.3813	.3902	.4032	.4162	.4220	.4221	.3110
.350	.3606	.3666	.3647	.3762	.3865	.3846	.3861	.2811
.400	.3370	.3460	.3430	.3462	.3593	.3609	.3577	.2492
.450	.3216	.3234	.3248	.3303	.3365	.3386	.3309	.2240
.505	.3074	.3115	.3123	.3118	.3148	.3102	.3038	.2036
.550	.2940	.2919	.2938	.2964	.2939	.2861	.2836	.1766
.600	.2779	.2796	.2838	.2779	.2747	.2699	.2626	.1443
.650	.2659	.2673	.2698	.2608	.2546	.2440	.2284	.1165
.700	.2552	.2484	.2502	.2439	.2357	.2249	.2101	.0821
.750	.2381	.2337	.2339	.2226	.2131	.1989	.1765	.0897
.800	.2204	.2195	.2179	.1987	.1905	.1689	.1452	.0213
.850	.2114	.2065	.1956	.1804	.1628	.1412	.1059	-.0348
.900	.1949	.1802	.1751	.1528	.1226	.0946	.0621	-.0934
.950	.1598	.1430	.1357	.1044	.0695	.0330	-.0125	-.1925

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	14.00	14.00	13.00	11.98	11.01	9.99	9.01	8.00
.000	-.6111	-.5968	-3.2919	-3.3375	-3.2654	-3.2105	-2.8677	-2.3277
.005	-1.0753	-1.0966	-3.0613	-3.1798	-3.3018	-3.3628	-3.2919	-3.0429
.010	-.8473	-.8631	-3.0255	-3.1160	-3.1440	-2.9476	-2.8979	-2.7135
.015	-.7797	-.8096	-3.0080	-3.0774	-3.0512	-2.8516	-2.6926	-2.5367
.020	-.7285	-.7280	-3.0133	-3.1034	-3.0857	-2.8210	-2.5203	-2.3992
.025	-.7195	-.7216	-3.0291	-3.0894	-3.0647	-2.8253	-2.4254	-2.2991
.030	-.7663	-.7380	-3.0144	-3.1303	-3.0291	-2.7603	-2.3921	-2.2028
.040	-.6998	-.6867	-3.0228	-3.1113	-3.0139	-2.7248	-2.3321	-2.0694
.050	-.6761	-.7005	-3.0635	-3.0884	-3.0641	-2.6643	-2.2545	-1.9749
.060	-.7229	-.6981	-3.0449	-3.1240	-3.0638	-2.6223	-2.2321	-1.8798
.075	-.6998	-.6883	-2.5674	-2.4640	-2.0867	-2.2643	-2.2047	-1.7852
.100	-.7299	-.7042	-1.7808	-1.6464	-1.5563	-1.5994	-1.9431	-1.6573
.150	-.7439	-.7566	-1.3507	-1.3816	-1.4257	-1.4392	-1.4373	-1.4827
.200	-.7096	-.7078	-1.1872	-1.2499	-1.3394	-1.3362	-1.3272	-1.3698
.250	-.6802	-.6626	-1.0414	-1.1462	-1.2150	-1.2370	-1.2431	-1.2738
.300	-.6226	-.6509	-.9019	-1.0264	-1.0943	-1.1462	-1.1618	-1.2191
.350	-.6195	-.6300	-.7917	-.8913	-1.0017	-1.0375	-1.0822	-1.1439
.400	-.6187	-.6138	-.6638	-.7657	-.8709	-.9269	-.9676	-1.0692
.450	-.5809	-.6380	-.5618	-.6469	-.7305	-.7959	-.8479	-.8871
.500	-.6330	-.6068	-.4782	-.5468	-.6013	-.6751	-.7191	-.7232
.550	-.6590	-.6262	-.4006	-.4368	-.4955	-.5496	-.6000	-.6021
.600	-.5915	-.6380	-.3742	-.3696	-.4021	-.4460	-.4879	-.5037
.650	-.5882	-.5983	-.3460	-.3176	-.3365	-.3576	-.3974	-.4068
.700	-.6590	-.6341	-.3392	-.2935	-.2702	-.2879	-.3139	-.3215
.750	-.6155	-.6129	-.3175	-.2734	-.2425	-.2317	-.2467	-.2457
.800	-.6267	-.6103	-.3160	-.2726	-.2132	-.1819	-.1819	-.1843
.850	-.6127	-.6583	-.3107	-.2472	-.1994	-.1463	-.1223	-.1169
.900	-.6085	-.6079	-.3024	-.2456	-.1824	-.1132	-.0869	-.0531
.950	-.5920	-.5826	-.2954	-.2322	-.1655	-.0911	-.0352	.0134

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	14.00	14.00	13.00	11.98	11.01	9.99	9.01	8.00
.000	-.6111	-.5968	-3.2919	-3.3375	-3.2654	-3.2105	-2.8677	-2.3277
.005	.9711	.9713	.5627	.5717	.6168	.6849	.7551	.8519
.010	.9848	.9870	.9240	.9317	.9580	.9686	.9796	.9985
.015	.9407	.9604	.9908	.9912	.9952	.9923	.9912	.9926
.020	.9070	.8974	.9976	.9908	1.0058	.9774	.9767	.9592
.025	.8431	.8567	.9812	.9765	.9844	.9648	.9438	.9124
.031	.8235	.8175	.9626	.9604	.9478	.9234	.9039	.8688
.040	.7339	.7381	.9067	.9050	.8964	.8674	.8362	.7973
.050	.6819	.6860	.8507	.8427	.8475	.8051	.7809	.7382
.060	.6425	.6484	.8121	.8030	.7956	.7623	.7298	.6904
.075	.5868	.5923	.7533	.7460	.7273	.6997	.6793	.6329
.100	.5327	.5193	.6745	.6696	.6663	.6256	.6037	.5633
.150	.4415	.4491	.5796	.5731	.5564	.5401	.5141	.4794
.200	.3790	.3864	.5072	.4982	.4915	.4725	.4524	.4285
.250	.3453	.3369	.4614	.4586	.4508	.4369	.4194	.3942
.300	.3077	.3120	.4201	.4183	.4163	.4009	.3875	.3709
.350	.2815	.2806	.3888	.3904	.3903	.3753	.3701	.3486
.400	.2483	.2570	.3556	.3588	.3605	.3527	.3428	.3321
.450	.2254	.2328	.3259	.3369	.3330	.3312	.3269	.3137
.505	.2034	.1984	.3044	.3111	.3142	.3117	.3067	.3029
.550	.1839	.1801	.2842	.2904	.2929	.3012	.2921	.2854
.600	.1538	.1520	.2624	.2661	.2733	.2813	.2771	.2789
.650	.1180	.1180	.2338	.2469	.2544	.2620	.2686	.2669
.700	.1033	.0916	.2057	.2211	.2329	.2415	.2499	.2520
.750	.0516	.0499	.1793	.1990	.2085	.2221	.2319	.2417
.800	.0140	.0108	.1467	.1709	.1843	.2078	.2163	.2264
.850	-.0400	-.0208	.1117	.1375	.1517	.1811	.2014	.2196
.900	-.1021	-.1002	.0597	.0884	.1208	.1528	.1746	.1929
.950	-.1960	-.1975	-.0094	.0267	.0585	.1073	.1415	.1698

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	7.00	6.01	4.01	2.00	-.01
.000	-1.3351	-.4799	.6099	.9789	.9278
.005	-2.3973	-1.7361	-.6663	.1334	.6660
.010	-2.2246	-1.6727	-.8117	-.1382	.3826
.015	-2.0837	-1.6281	-.8717	-.2563	.2281
.020	-2.0177	-1.5875	-.9193	-.3557	.1127
.025	-1.9397	-1.5661	-.9426	-.4235	.0187
.030	-1.8675	-1.5371	-.9634	-.4717	-.0466
.040	-1.8014	-1.4866	-.9745	-.5311	-.1532
.050	-1.7122	-1.4329	-.9759	-.5813	-.2326
.060	-1.6559	-1.4003	-.9893	-.6176	-.2899
.075	-1.5825	-1.3564	-.9751	-.6527	-.3518
.100	-1.4939	-1.2816	-.9663	-.6831	-.4281
.150	-1.3347	-1.1775	-.9235	-.7162	-.5147
.200	-1.2294	-1.0963	-.8898	-.7075	-.5391
.250	-1.1463	-1.0298	-.8447	-.6952	-.5722
.300	-1.0751	-.9619	-.8068	-.6886	-.5737
.350	-1.0021	-.8884	-.7441	-.6567	-.5715
.400	-.9668	-.8360	-.6855	-.5801	-.5210
.450	-.9596	-.8311	-.6431	-.5286	-.4664
.500	-.9474	-.8260	-.6333	-.5032	-.4082
.550	-.8180	-.8165	-.6225	-.4861	-.3817
.600	-.4066	-.8108	-.6229	-.4895	-.3803
.650	-.3258	-.4914	-.6294	-.4929	-.3739
.700	-.2708	-.2315	-.6298	-.4881	-.3637
.750	-.2291	-.1628	-.3847	-.5010	-.3676
.800	-.1630	-.1318	-.1429	-.3852	-.3741
.850	-.1111	-.0810	-.0406	-.1129	-.2913
.900	-.0519	-.0395	.0024	.0206	-.0292
.950	.0185	.0207	.0365	.0597	.0905

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	7.00	6.01	4.01	2.00	-.01
.000	-1.3351	-.4799	.6099	.9789	.9278
.005	.9685	.9985	.9253	.5279	-.2212
.010	1.0096	.9607	.7395	.3363	-.2580
.015	.9585	.8729	.6230	.2475	-.2573
.020	.9062	.8057	.5528	.2021	-.2540
.025	.8452	.7485	.5001	.1720	-.2435
.031	.7976	.6990	.4538	.1495	-.2281
.040	.7270	.6213	.3938	.1164	-.2112
.050	.6584	.5635	.3445	.1043	-.1929
.060	.6171	.5245	.3168	.0913	-.1757
.075	.5680	.4745	.2893	.0831	-.1502
.100	.5004	.4253	.2630	.0821	-.1149
.150	.4235	.3619	.2235	.0873	-.0663
.200	.3779	.3232	.2092	.0927	-.0304
.250	.3524	.3031	.2018	.1035	-.0055
.300	.3266	.2862	.1997	.1069	.0188
.350	.3102	.2740	.1937	.1160	.0363
.400	.2959	.2602	.1900	.1271	.0524
.450	.2896	.2505	.1885	.1326	.0615
.505	.2789	.2484	.1871	.1325	.0735
.550	.2684	.2385	.1868	.1333	.0860
.600	.2521	.2310	.1824	.1406	.0938
.650	.2449	.2206	.1813	.1430	.0983
.700	.2395	.2111	.1700	.1422	.1067
.750	.2209	.2062	.1678	.1414	.1080
.800	.2165	.1977	.1690	.1472	.1168
.850	.2033	.1858	.1623	.1415	.1215
.900	.1852	.1737	.1531	.1391	.1279
.950	.1583	.1549	.1390	.1358	.1254

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	-2.88	-1.99	-.94	-.75	-.50	-.26	-.01	.00
.000	-.3770	.1641	.6495	.7187	.7930	.8522	.9059	.0002
.005	1.0011	.9618	.8436	.8119	.7672	.7250	.6708	-5.5491
.010	.8769	.7689	.5922	.5557	.5019	.4548	.3966	-4.0280
.015	.7536	.6284	.4359	.3984	.3453	.2961	.2408	-3.2083
.020	.6392	.5001	.3129	.2733	.2207	.1750	.1200	-3.0940
.025	.5414	.4020	.2127	.1741	.1248	.0805	.0280	-3.0285
.030	.4610	.3201	.1339	.0999	.0505	.0071	-.0444	-2.8297
.040	.3309	.1959	.0188	-.0145	-.0618	-.1003	-.1489	-2.5943
.050	.2278	.0949	-.0719	-.1039	-.1465	-.1850	-.2304	-2.3678
.060	.1412	.0144	-.1481	-.1781	-.2171	-.2528	-.2959	-2.2295
.075	.0453	-.0752	-.2256	-.2534	-.2907	-.3222	-.3634	-2.0466
.100	-.0688	-.1806	-.3143	-.3399	-.3721	-.4040	-.4376	-1.8118
.150	-.2108	-.3042	-.4169	-.4390	-.4637	-.4891	-.5189	-1.4916
.200	-.3002	-.3818	-.4792	-.4964	-.5207	-.5419	-.5648	-1.2286
.250	-.3640	-.4359	-.5219	-.5391	-.5582	-.5769	-.5974	-1.0487
.300	-.4119	-.4765	-.5524	-.5673	-.5835	-.6005	-.6175	-.8887
.350	-.4387	-.4961	-.5626	-.5772	-.5903	-.6049	-.6199	-.7448
.400	-.4294	-.4803	-.5391	-.5500	-.5615	-.5741	-.5880	-.6170
.450	-.4001	-.4427	-.4940	-.5039	-.5129	-.5240	-.5350	-.5200
.500	-.3579	-.3952	-.4395	-.4486	-.4588	-.4692	-.4799	-.4993
.550	-.3086	-.3460	-.3930	-.4038	-.4146	-.4255	-.4384	-.4928
.600	-.2693	-.3116	-.3644	-.3741	-.3870	-.4001	-.4140	-.4918
.650	-.2442	-.2861	-.3227	-.3193	-.3051	-.2894	-.2698	-.4890
.700	-.2157	-.1841	-.1473	-.1517	-.1559	-.1613	-.1692	-.5130
.750	-.0817	-.0935	-.1173	-.1223	-.1287	-.1319	-.1386	-.5130
.800	-.0464	-.0641	-.0853	-.0865	-.0910	-.0921	-.0961	-.4926
.850	-.0215	-.0355	-.0463	-.0484	-.0525	-.0541	-.0557	-.4915
.900	.0123	.0043	-.0046	-.0071	-.0075	-.0085	-.0112	-.4909
.950	.0601	.0557	.0503	.0488	.0493	.0488	.0486	-.5107

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	-2.88	-1.99	-.94	-.75	-.50	-.26	-.01	.00
.000	-.3770	.1641	.6495	.7187	.7930	.8522	.9059	.0002
.005	-1.4193	-1.2691	-.8428	-.7382	-.6049	-.4861	-.3502	.3269
.010	-1.3318	-1.0964	-.7012	-.6204	-.5224	-.4356	-.3427	.8501
.015	-1.3030	-.9732	-.6266	-.5602	-.4826	-.4112	-.3313	.9624
.020	-1.2958	-.8853	-.5725	-.5148	-.4463	-.3842	-.3149	.9823
.025	-1.2882	-.8048	-.5285	-.4795	-.4121	-.3591	-.2982	.9807
.031	-.9416	-.7684	-.4896	-.4438	-.3850	-.3358	-.2825	.9700
.040	-.6554	-.6894	-.4303	-.3918	-.3427	-.3002	-.2515	.9287
.050	-.6146	-.6254	-.3850	-.3506	-.3094	-.2731	-.2293	.8840
.060	-.5828	-.5666	-.3469	-.3174	-.2766	-.2439	-.2055	.8445
.075	-.5458	-.3870	-.2999	-.2723	-.2386	-.2097	-.1771	.7876
.100	-.4477	-.3185	-.2392	-.2161	-.1906	-.1659	-.1388	.7138
.150	-.3185	-.2310	-.1621	-.1441	-.1209	-.1036	-.0842	.6088
.200	-.2380	-.1707	-.1124	-.0952	-.0785	-.0625	-.0450	.5361
.250	-.1788	-.1216	-.0747	-.0597	-.0442	-.0312	-.0165	.4828
.300	-.1315	-.0840	-.0422	-.0318	-.0158	-.0028	.0084	.4424
.350	-.0957	-.0556	-.0054	-.0111	.0046	.0143	.0272	.4033
.400	-.0625	-.0269	.0205	.0171	.0213	.0329	.0426	.3727
.450	-.0396	-.0038	.0372	.0404	.0361	.0458	.0559	.3394
.505	-.0170	.0133	.0534	.0603	.0518	.0593	.0692	.3139
.550	.0025	.0286	.0628	.0684	.0712	.0673	.0786	.2857
.600	.0217	.0421	.0735	.0813	.0864	.0791	.0849	.2563
.650	.0347	.0596	.0836	.0917	.0956	.0933	.0911	.2274
.700	.0520	.0695	.0940	.0969	.1064	.1032	.1013	.1979
.750	.0647	.0791	.1011	.1047	.1104	.1111	.1043	.1643
.800	.0799	.0951	.1099	.1160	.1210	.1243	.1221	.1266
.850	.0918	.1031	.1213	.1246	.1281	.1297	.1316	.0810
.900	.1053	.1166	.1287	.1304	.1355	.1373	.1391	.0208
.950	.1169	.1268	.1372	.1372	.1438	.1463	.1520	-.0697

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	1.01	2.00	3.00	4.01	5.01	6.02	6.50	7.00
.000	.9981	.9971	.8719	.5313	-.0079	-.7644	-1.1766	-1.6185
.005	.4010	.0584	-.3607	-.8520	-1.4056	-2.0300	-2.3304	-2.6364
.010	.1339	-.1764	-.5352	-.9421	-1.3871	-1.8830	-2.1250	-2.3617
.015	-.0184	-.3069	-.6342	-.9984	-1.3933	-1.8244	-2.0292	-2.2337
.020	-.1260	-.3952	-.6988	-1.0282	-1.3813	-1.7670	-1.9507	-2.1300
.025	-.2091	-.4636	-.7452	-1.0502	-1.3740	-1.7275	-1.8917	-2.0528
.030	-.2688	-.5104	-.7745	-1.0597	-1.3607	-1.6859	-1.8374	-1.9878
.040	-.3563	-.5782	-.8155	-1.0691	-1.3370	-1.6217	-1.7531	-1.8840
.050	-.4227	-.6262	-.8422	-1.0709	-1.3110	-1.5658	-1.6819	-1.8023
.060	-.4756	-.6652	-.8659	-1.0781	-1.2965	-1.5269	-1.6345	-1.7408
.075	-.5300	-.7013	-.8812	-1.0709	-1.2652	-1.4729	-1.5672	-1.6625
.100	-.5849	-.7345	-.8917	-1.0549	-1.2233	-1.3942	-1.4769	-1.5581
.150	-.6388	-.7599	-.8847	-1.0133	-1.1453	-1.2788	-1.3418	-1.4059
.200	-.6673	-.7697	-.8752	-.9824	-1.0919	-1.2016	-1.2551	-1.3005
.250	-.6858	-.7740	-.8639	-.9548	-1.0485	-1.1422	-1.1829	-1.2014
.300	-.6962	-.7722	-.8500	-.9285	-1.0101	-1.0943	-1.1126	-1.1383
.350	-.6887	-.7540	-.8207	-.8895	-.9615	-1.0440	-1.0522	-1.0671
.400	-.6458	-.7039	-.7637	-.8269	-.8970	-.9784	-.9536	-.9661
.450	-.5880	-.6406	-.6994	-.7657	-.8432	-.8414	-.8411	-.8576
.500	-.5336	-.5918	-.6564	-.7278	-.7289	-.7037	-.7291	-.7425
.550	-.4984	-.5630	-.6273	-.5436	-.5393	-.5950	-.6140	-.6242
.600	-.4691	-.3994	-.3675	-.4064	-.4548	-.4926	-.5069	-.5149
.650	-.2457	-.2714	-.3111	-.3432	-.3758	-.4025	-.4125	-.4179
.700	-.2013	-.2322	-.2569	-.2797	-.3034	-.3213	-.3292	-.3330
.750	-.1605	-.1795	-.1983	-.2147	-.2336	-.2466	-.2516	-.2544
.800	-.1146	-.1285	-.1430	-.1566	-.1686	-.1780	-.1812	-.1832
.850	-.0685	-.0778	-.0893	-.0987	-.1075	-.1131	-.1159	-.1168
.900	-.0188	-.0270	-.0324	-.0403	-.0426	-.0478	-.0502	-.0518
.950	.0431	.0386	.0344	.0314	.0277	.0243	.0192	.0118

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	1.01	2.00	3.00	4.01	5.01	6.02	6.50	7.00
.000	.9981	.9971	.8719	.5313	-.0079	-.7644	-1.1766	-1.6185
.005	.1306	.5068	.7754	.9333	.9858	.9830	.9692	.9440
.010	.0242	.3260	.5734	.7587	.8850	.9595	.9766	.9826
.015	-.0248	.2358	.4586	.6443	.7853	.8868	.9190	.9448
.020	-.0436	.1915	.3962	.5738	.7133	.8226	.8647	.8965
.025	-.0552	.1591	.3515	.5167	.6530	.7675	.8121	.8480
.031	-.0584	.1364	.3143	.4731	.6075	.7199	.7632	.8032
.040	-.0631	.1081	.2652	.4085	.5343	.6434	.6867	.7271
.050	-.0618	.0926	.2346	.3637	.4802	.5842	.6265	.6691
.060	-.0541	.0846	.2137	.3363	.4437	.5434	.5865	.6227
.075	-.0448	.0766	.1934	.3040	.4027	.4935	.5324	.5684
.100	-.0262	.0756	.1758	.2675	.3559	.4390	.4724	.5049
.150	.0021	.0830	.1610	.2366	.3051	.3737	.4043	.4331
.200	.0241	.0909	.1555	.2193	.2798	.3382	.3626	.3869
.250	.0438	.1005	.1564	.2113	.2616	.3130	.3359	.3574
.300	.0586	.1085	.1594	.2058	.2514	.2986	.3176	.3361
.350	.0699	.1161	.1599	.2050	.2447	.2856	.3021	.3194
.400	.0839	.1207	.1591	.1979	.2363	.2745	.2897	.3041
.450	.0912	.1285	.1637	.1997	.2308	.2653	.2775	.2933
.505	.0999	.1314	.1634	.1965	.2253	.2554	.2683	.2780
.550	.1072	.1332	.1648	.1919	.2221	.2482	.2596	.2714
.600	.1124	.1405	.1656	.1911	.2151	.2412	.2516	.2608
.650	.1190	.1422	.1662	.1903	.2124	.2334	.2424	.2523
.700	.1243	.1430	.1646	.1865	.2043	.2275	.2334	.2419
.750	.1271	.1456	.1646	.1847	.1991	.2187	.2268	.2305
.800	.1321	.1504	.1661	.1810	.1973	.2137	.2195	.2229
.850	.1365	.1523	.1645	.1789	.1916	.2048	.2086	.2113
.900	.1397	.1501	.1635	.1716	.1861	.1943	.1976	.1982
.950	.1395	.1482	.1569	.1655	.1730	.1804	.1824	.1775

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	8.00	9.02	9.99	10.99	12.01	12.99	13.99	13.99
.000	-2.5329	-3.4873	-4.2988	-4.8693	-5.2008	-5.4750	-5.6262	-5.6369
.005	-3.2123	-3.7418	-4.2211	-4.8013	-5.1382	-5.3838	-5.5624	-5.5491
.010	-2.8276	-3.2643	-3.9000	-4.4365	-4.3389	-4.2053	-4.0139	-4.0280
.015	-2.6365	-3.0581	-3.6486	-3.1526	-3.1624	-3.1903	-3.2008	-3.2083
.020	-2.4905	-2.9402	-2.8869	-2.9866	-3.0595	-3.0890	-3.0876	-3.0940
.025	-2.3851	-2.7902	-2.8077	-2.9402	-3.0008	-3.0239	-3.0247	-3.0285
.030	-2.2884	-2.6519	-2.6118	-2.7633	-2.8118	-2.8281	-2.8276	-2.8297
.040	-2.1454	-2.1698	-2.4431	-2.5634	-2.5941	-2.5851	-2.5964	-2.5943
.050	-2.0379	-2.0508	-2.3068	-2.4041	-2.4153	-2.4019	-2.3698	-2.3678
.060	-1.9535	-2.0294	-2.2058	-2.2797	-2.2847	-2.2573	-2.2229	-2.2295
.075	-1.8194	-1.9306	-2.0627	-2.1176	-2.1093	-2.0882	-2.0442	-2.0466
.100	-1.6700	-1.7879	-1.8820	-1.9161	-1.8906	-1.8554	-1.8136	-1.8118
.150	-1.4539	-1.5684	-1.6319	-1.6388	-1.5974	-1.5271	-1.4886	-1.4916
.200	-1.3457	-1.4231	-1.4697	-1.4629	-1.4018	-1.3256	-1.2336	-1.2286
.250	-1.2633	-1.3148	-1.3430	-1.3215	-1.2402	-1.1605	-1.0519	-1.0487
.300	-1.1877	-1.2255	-1.2400	-1.2044	-1.1038	-1.0179	-.8832	-.8887
.350	-1.1088	-1.1315	-1.1344	-1.0843	-.9548	-.8295	-.7408	-.7448
.400	-.9996	-1.0120	-1.0035	-.9419	-.7926	-.6430	-.6171	-.6170
.450	-.8811	-.8836	-.8686	-.8069	-.6731	-.5679	-.5183	-.5200
.500	-.7583	-.7542	-.7292	-.6685	-.5302	-.4733	-.5021	-.4993
.550	-.6346	-.6260	-.5969	-.5393	-.4392	-.4302	-.5002	-.4928
.600	-.5198	-.5088	-.4776	-.4349	-.4006	-.4313	-.4955	-.4918
.650	-.4201	-.4074	-.3776	-.3573	-.3927	-.4293	-.4886	-.4890
.700	-.3322	-.3189	-.2981	-.3082	-.3680	-.4202	-.5140	-.5130
.750	-.2541	-.2431	-.2317	-.2684	-.3676	-.4198	-.5088	-.5130
.800	-.1804	-.1781	-.1816	-.2426	-.3587	-.4266	-.4944	-.4926
.850	-.1187	-.1237	-.1436	-.2237	-.3457	-.4296	-.4925	-.4915
.900	-.0596	-.0779	-.1158	-.2085	-.3489	-.4283	-.4916	-.4909
.950	-.0072	-.0419	-.0909	-.1834	-.3262	-.4121	-.5096	-.5107

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	8.00	9.02	9.99	10.99	12.01	12.99	13.99	13.99
.000	-2.5329	-3.4873	-4.2988	-4.8693	-5.2008	-5.4750	-5.6262	-5.6369
.005	.8524	.7276	.5914	.4833	.4051	.3432	.3232	.3269
.010	.9836	.9661	.9363	.9061	.8817	.8632	.8516	.8501
.015	.9740	.9827	.9825	.9780	.9698	.9661	.9597	.9624
.020	.9425	.9700	.9816	.9825	.9807	.9841	.9817	.9823
.025	.9055	.9417	.9632	.9727	.9767	.9803	.9803	.9807
.031	.8645	.9118	.9360	.9528	.9595	.9666	.9694	.9700
.040	.7922	.8433	.8814	.8999	.9136	.9230	.9294	.9287
.050	.7351	.7889	.8273	.8504	.8634	.8773	.8849	.8840
.060	.6914	.7455	.7840	.8084	.8248	.8363	.8428	.8445
.075	.6320	.6834	.7266	.7521	.7657	.7799	.7876	.7876
.100	.5641	.6167	.6525	.6771	.6924	.7032	.7109	.7138
.150	.4803	.5242	.5577	.5783	.5897	.6007	.6076	.6088
.200	.4296	.4641	.4964	.5147	.5220	.5304	.5371	.5361
.250	.3973	.4285	.4540	.4664	.4740	.4796	.4816	.4828
.300	.3676	.3975	.4184	.4317	.4373	.4398	.4387	.4424
.350	.3486	.3726	.3920	.4001	.4021	.4040	.4023	.4033
.400	.3304	.3533	.3673	.3757	.3745	.3727	.3722	.3727
.450	.3143	.3337	.3475	.3527	.3481	.3455	.3428	.3394
.505	.3020	.3169	.3284	.3296	.3241	.3185	.3109	.3139
.550	.2863	.3005	.3112	.3079	.3009	.2935	.2866	.2857
.600	.2770	.2879	.2952	.2900	.2803	.2690	.2574	.2563
.650	.2651	.2724	.2790	.2717	.2560	.2421	.2300	.2274
.700	.2529	.2599	.2584	.2470	.2301	.2134	.1984	.1979
.750	.2372	.2425	.2405	.2276	.2043	.1835	.1634	.1643
.800	.2294	.2274	.2212	.2028	.1767	.1506	.1267	.1266
.850	.2127	.2102	.1998	.1775	.1463	.1118	.0804	.0810
.900	.1942	.1869	.1708	.1421	.0973	.0589	.0203	.0208
.950	.1683	.1511	.1292	.0897	.0309	-.0153	-.0677	-.0697

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	-2.88	-2.00	-1.50	-1.01	-.49	-.01	.00	.50
.000	-.0105	.3179	.5185	.6830	.8095	.8974	.8855	.9609
.005	.9626	.9230	.8873	.8498	.7639	.6710	.6698	.5582
.010	.8351	.7579	.6737	.5878	.4933	.3878	.3949	.2667
.015	.7268	.6094	.5327	.4376	.3506	.2518	.2520	.1266
.020	.6039	.4726	.4027	.3295	.2137	.1194	.1174	.0139
.025	.5076	.3818	.3033	.2225	.1234	.0287	.0305	-.0806
.030	.4263	.2957	.2315	.1447	.0490	-.0400	-.0369	-.1408
.040	.3107	.1836	.1088	.0330	-.0547	-.1459	-.1438	-.2351
.050	.2109	.0843	.0169	-.0628	-.1429	-.2232	-.2158	-.3113
.060	.1228	-.0015	-.0571	-.1304	-.2135	-.2863	-.2870	-.3691
.075	.0266	-.0801	-.1434	-.2090	-.2826	-.3503	-.3539	-.4264
.100	-.0827	-.1872	-.2350	-.2998	-.3555	-.4235	-.4221	-.4923
.150	-.2115	-.3025	-.3529	-.3941	-.4500	-.5039	-.5044	-.5570
.200	-.2989	-.3777	-.4209	-.4568	-.5016	-.5476	-.5409	-.5868
.250	-.3586	-.4288	-.4557	-.4969	-.5358	-.5703	-.5658	-.6071
.300	-.3987	-.4617	-.4820	-.5210	-.5502	-.5898	-.5847	-.6094
.350	-.4290	-.4682	-.4974	-.5161	-.5510	-.5757	-.5700	-.5908
.400	-.4120	-.4538	-.4683	-.4943	-.5162	-.5348	-.5227	-.5483
.450	-.3773	-.4094	-.4181	-.4397	-.4598	-.4761	-.4737	-.4804
.500	-.3397	-.3577	-.3663	-.3867	-.4122	-.4338	-.4249	-.4402
.550	-.2801	-.3226	-.3288	-.3489	-.3737	-.3942	-.3941	-.4112
.600	-.2489	-.2827	-.3068	-.3235	-.3539	-.3856	-.3821	-.4027
.650	-.2249	-.2696	-.2915	-.3167	-.3403	-.3755	-.3790	-.4083
.700	-.2125	-.2592	-.2806	-.3139	-.3383	-.3688	-.3699	-.4011
.750	-.2057	-.2515	-.2809	-.3068	-.3448	-.3766	-.3672	-.3971
.800	-.1993	-.2508	-.2758	-.3120	-.3454	-.3660	-.3792	-.4001
.850	-.1960	-.2534	-.2786	-.2892	-.2304	-.1610	-.2252	-.2244
.900	-.1888	-.1591	-.1062	-.0355	.0196	.0385	.0095	.0118
.950	-.0374	.0363	.0697	.0787	.0776	.0813	.0770	.0706

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	-2.88	-2.00	-1.50	-1.01	-.49	-.01	.00	.50
.000	-.0105	.3179	.5185	.6830	.8095	.8974	.8855	.9609
.005	-1.3227	-1.2149	-.9609	-.7020	-.4406	-.2187	-.2186	.0086
.010	-.9999	-.9779	-.8063	-.6240	-.4248	-.2600	-.2544	-.0863
.015	-.9010	-.8533	-.7155	-.5685	-.3966	-.2528	-.2513	-.1191
.020	-.8685	-.7795	-.6551	-.5125	-.3777	-.2528	-.2556	-.1170
.025	-.8365	-.7112	-.5972	-.4810	-.3517	-.2397	-.2402	-.1287
.031	-.8241	-.6584	-.5499	-.4503	-.3319	-.2275	-.2248	-.1190
.040	-.8010	-.5697	-.4845	-.3919	-.2939	-.2125	-.2097	-.1139
.050	-.7925	-.5086	-.4328	-.3571	-.2684	-.1900	-.1847	-.1132
.060	-.7903	-.4642	-.3863	-.3140	-.2426	-.1710	-.1717	-.1011
.075	-.7856	-.3971	-.3408	-.2774	-.2070	-.1404	-.1490	-.0840
.100	-.7922	-.3343	-.2703	-.2249	-.1570	-.1117	-.1124	-.0608
.150	-.1775	-.2340	-.1940	-.1438	-.1010	-.0655	-.0700	-.0332
.200	-.1360	-.1706	-.1371	-.1010	-.0630	-.0300	-.0230	.0026
.250	-.1175	-.1272	-.0788	-.0608	-.0337	.0028	-.0014	.0258
.300	-.0896	-.0927	-.0497	-.0235	.0008	.0165	.0156	.0475
.350	-.0701	-.0431	-.0312	.0029	.0163	.0319	.0435	.0619
.400	-.0313	-.0180	.0002	.0105	.0381	.0564	.0614	.0662
.450	-.0190	.0119	.0174	.0320	.0515	.0667	.0637	.0927
.505	.0022	.0308	.0262	.0499	.0592	.0678	.0720	.0902
.550	.0297	.0461	.0477	.0538	.0667	.0915	.0852	.1072
.600	.0393	.0792	.0507	.0778	.0885	.0916	.0943	.1127
.650	.0554	.0848	.0727	.0791	.1019	.1027	.0954	.1045
.700	.0663	.0935	.0852	.0829	.1002	.1135	.1113	.1137
.750	.0778	.1092	.0968	.1006	.0957	.1040	.1125	.1348
.800	.0916	.1172	.1146	.0983	.1101	.1182	.1139	.1342
.850	.1046	.1228	.1246	.1075	.1185	.1263	.1240	.1226
.900	.1151	.1265	.1344	.1137	.1290	.1430	.1420	.1218
.950	.1216	.1454	.1476	.1373	.1195	.1280	.1273	.1241

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	1.01	2.00	2.01	3.01	4.00	4.00	5.01	5.02
.000	.9581	.9545	.9736	.8674	.6171	.6219	.1860	.1597
.005	.4404	.1676	.1484	-.2039	-.6273	-.6071	-1.1022	-1.1288
.010	.1495	-.1153	-.1282	-.4431	-.8000	-.7872	-1.2068	-1.2190
.015	.0112	-.2464	-.2519	-.5416	-.8519	-.8489	-1.2253	-1.2346
.020	-.0993	-.3373	-.3397	-.6106	-.8990	-.8974	-1.2310	-1.2383
.025	-.1875	-.4080	-.4154	-.6635	-.9387	-.9219	-1.2284	-1.2397
.030	-.2524	-.4595	-.4637	-.6982	-.9453	-.9383	-1.2262	-1.2318
.040	-.3282	-.5294	-.5235	-.7379	-.9625	-.9535	-1.2145	-1.2150
.050	-.4006	-.5731	-.5771	-.7716	-.9681	-.9644	-1.1978	-1.2007
.060	-.4497	-.6160	-.6179	-.7968	-.9827	-.9727	-1.1765	-1.1865
.075	-.5019	-.6503	-.6528	-.8187	-.9813	-.9710	-1.1619	-1.1632
.100	-.5557	-.6801	-.6838	-.8208	-.9565	-.9581	-1.1224	-1.1242
.150	-.6123	-.7057	-.7118	-.8211	-.9185	-.9183	-1.0469	-1.0515
.200	-.6299	-.7146	-.7089	-.8010	-.8962	-.8814	-.9882	-.9912
.250	-.6384	-.7025	-.7065	-.7800	-.8469	-.8426	-.9301	-.9353
.300	-.6374	-.6861	-.6874	-.7452	-.8034	-.7980	-.8678	-.8738
.350	-.6071	-.6473	-.6489	-.6902	-.7292	-.7273	-.8070	-.8052
.400	-.5579	-.5815	-.5919	-.6173	-.6742	-.6664	-.7500	-.7541
.450	-.4934	-.5323	-.5264	-.5834	-.6453	-.6381	-.7306	-.7287
.500	-.4573	-.5051	-.5068	-.5700	-.6294	-.6244	-.7198	-.7170
.550	-.4398	-.4954	-.4949	-.5558	-.6287	-.6307	-.7178	-.7193
.600	-.4346	-.4934	-.4881	-.5566	-.6250	-.6261	-.7167	-.7162
.650	-.4352	-.4894	-.4843	-.5525	-.6303	-.6277	-.7169	-.7201
.700	-.4294	-.4876	-.4947	-.5648	-.6317	-.6309	-.4873	-.4698
.750	-.4340	-.4921	-.4972	-.5229	-.4211	-.4294	-.2077	-.1863
.800	-.4103	-.3906	-.3760	-.2854	-.1682	-.1901	-.0992	-.0967
.850	-.1239	-.1393	-.1243	-.0919	-.0583	-.0666	-.0529	-.0500
.900	.0338	.0106	.0062	-.0052	-.0073	-.0088	-.0167	-.0124
.950	.0698	.0555	.0510	.0390	.0359	.0310	.0238	.0327

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	1.01	2.00	2.01	3.01	4.00	4.00	5.01	5.02
.000	.9581	.9545	.9736	.8674	.6171	.6219	.1860	.1597
.005	.2051	.5236	.5216	.7740	.9199	.9156	.9957	.9899
.010	.0728	.3388	.3388	.5634	.7378	.7508	.8702	.8976
.015	.0186	.2401	.2466	.4522	.6328	.6092	.7623	.7793
.020	-.0014	.2026	.2124	.4002	.5533	.5521	.6915	.6926
.025	-.0192	.1710	.1689	.3442	.4985	.5025	.6445	.6395
.031	-.0350	.1454	.1479	.3110	.4624	.4463	.5858	.5872
.040	-.0295	.1110	.1230	.2661	.4009	.3911	.5034	.5204
.050	-.0347	.0987	.1076	.2311	.3474	.3503	.4711	.4692
.060	-.0305	.0893	.0900	.2111	.3260	.3187	.4283	.4275
.075	-.0244	.0856	.0927	.1911	.2967	.2895	.3866	.3979
.100	-.0066	.0827	.0819	.1813	.2622	.2501	.3437	.3456
.150	.0115	.0818	.0780	.1557	.2353	.2260	.3015	.2960
.200	.0419	.0969	.1026	.1519	.2072	.2147	.2730	.2813
.250	.0557	.1016	.1067	.1568	.1993	.1980	.2574	.2550
.300	.0741	.1133	.1197	.1647	.2079	.1961	.2467	.2480
.350	.0841	.1127	.1159	.1513	.2017	.1940	.2295	.2414
.400	.0906	.1276	.1234	.1667	.1841	.1999	.2295	.2262
.450	.1052	.1209	.1356	.1507	.1998	.1943	.2231	.2331
.505	.1094	.1311	.1367	.1616	.1988	.1890	.2190	.2202
.550	.1162	.1341	.1406	.1629	.1872	.1789	.2139	.2256
.600	.1225	.1366	.1497	.1642	.1833	.1874	.2084	.2075
.650	.1208	.1403	.1459	.1660	.1833	.1813	.2070	.2015
.700	.1302	.1517	.1356	.1558	.1865	.1676	.1952	.1958
.750	.1309	.1477	.1475	.1578	.1737	.1844	.1969	.2055
.800	.1292	.1455	.1443	.1613	.1787	.1750	.1879	.1872
.850	.1372	.1377	.1515	.1488	.1610	.1624	.1787	.1839
.900	.1415	.1520	.1442	.1417	.1541	.1541	.1631	.1699
.950	.1301	.1383	.1311	.1352	.1456	.1395	.1466	.1543

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	6.00	6.01	7.00	7.01	7.51	8.00	8.02	8.50
.000	-.4613	-.4551	-1.2604	-1.2889	-1.7507	-2.2185	-2.2689	-2.5347
.005	-1.7016	-1.6976	-2.3272	-2.3432	-2.6916	-3.0259	-3.0430	-3.2170
.010	-1.6856	-1.6784	-2.1865	-2.2036	-2.4564	-2.7102	-2.7408	-2.8616
.015	-1.6400	-1.6359	-2.0704	-2.0870	-2.3107	-2.5505	-2.5505	-2.6444
.020	-1.6084	-1.5995	-1.9963	-2.0011	-2.2139	-2.3939	-2.4231	-2.4749
.025	-1.5684	-1.5873	-1.9309	-1.9314	-2.1202	-2.3072	-2.3043	-2.3542
.030	-1.5389	-1.5256	-1.8649	-1.8705	-2.0487	-2.2181	-2.2291	-2.2875
.040	-1.4941	-1.4860	-1.7728	-1.7754	-1.9372	-2.0754	-2.1027	-2.1619
.050	-1.4339	-1.4529	-1.7078	-1.7095	-1.8513	-1.9792	-1.9870	-2.0319
.060	-1.4097	-1.4199	-1.6441	-1.6419	-1.7682	-1.9030	-1.9164	-1.9601
.075	-1.3606	-1.3618	-1.5707	-1.5705	-1.6852	-1.7861	-1.8075	-1.8620
.100	-1.2968	-1.2921	-1.4724	-1.4716	-1.5774	-1.6630	-1.6711	-1.7778
.150	-1.1903	-1.1882	-1.3253	-1.3310	-1.4016	-1.4963	-1.5037	-1.6596
.200	-1.1029	-1.1068	-1.2291	-1.2272	-1.2956	-1.3760	-1.3742	-1.4380
.250	-1.0233	-1.0300	-1.1428	-1.1391	-1.2118	-1.2842	-1.2990	-1.2151
.300	-.9598	-.9602	-1.0756	-1.0720	-1.1415	-1.2235	-1.2293	-1.1407
.350	-.8946	-.8970	-1.0077	-1.0137	-1.0788	-1.1541	-1.1568	-1.0741
.400	-.8525	-.8503	-.9706	-.9675	-1.0383	-1.0778	-1.0730	-.9715
.450	-.8310	-.8312	-.9455	-.9471	-1.0144	-.9059	-.8872	-.8589
.500	-.8271	-.8290	-.9449	-.9424	-.9360	-.7241	-.7260	-.7373
.550	-.8209	-.8207	-.8245	-.8385	-.5688	-.6060	-.6062	-.6193
.600	-.8314	-.8274	-.4266	-.4166	-.4455	-.4966	-.5020	-.5071
.650	-.4929	-.5100	-.3354	-.3313	-.3766	-.4029	-.4072	-.4110
.700	-.2286	-.2347	-.2792	-.2823	-.3103	-.3251	-.3239	-.3251
.750	-.1656	-.1694	-.2229	-.2251	-.2454	-.2466	-.2527	-.2474
.800	-.1237	-.1262	-.1602	-.1597	-.1751	-.1785	-.1785	-.1779
.850	-.0789	-.0781	-.1062	-.0968	-.1108	-.1179	-.1127	-.1213
.900	-.0298	-.0329	-.0428	-.0447	-.0455	-.0514	-.0494	-.0578
.950	.0217	.0182	.0171	.0090	.0121	.0088	.0075	-.0096

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	6.00	6.01	7.00	7.01	7.51	8.00	8.02	8.50
.000	-.4613	-.4551	-1.2604	-1.2889	-1.7507	-2.2185	-2.2689	-2.5347
.005	1.0011	1.0019	.9599	.9567	.9199	.8605	.8605	.8157
.010	.9676	.9630	.9918	1.0057	1.0020	1.0001	1.0085	1.0064
.015	.8836	.8761	.9424	.9662	.9744	.9948	.9899	1.0113
.020	.8194	.8028	.9044	.8992	.9302	.9575	.9668	.9741
.025	.7616	.7648	.8491	.8546	.8898	.9242	.9134	.9282
.031	.7028	.6974	.8043	.8073	.8469	.8743	.8892	.8998
.040	.6327	.6216	.7232	.7151	.7689	.8036	.8121	.8474
.050	.5715	.5654	.6571	.6670	.7148	.7389	.7471	.7699
.060	.5269	.5254	.6233	.6194	.6572	.7087	.7092	.7284
.075	.4784	.4814	.5570	.5672	.6009	.6424	.6501	.6660
.100	.4247	.4296	.4988	.5027	.5454	.5653	.5732	.5959
.150	.3643	.3594	.4328	.4260	.4632	.4909	.4924	.5084
.200	.3337	.3181	.3788	.3905	.4173	.4400	.4284	.4464
.250	.3065	.3027	.3622	.3530	.3685	.3942	.4030	.4205
.300	.2931	.2887	.3328	.3340	.3550	.3734	.3761	.3853
.350	.2753	.2710	.3106	.3117	.3352	.3577	.3585	.3655
.400	.2701	.2633	.2998	.3054	.3155	.3382	.3377	.3429
.450	.2531	.2622	.2956	.2945	.3036	.3311	.3255	.3406
.505	.2567	.2446	.2726	.2759	.2867	.3073	.3069	.3134
.550	.2434	.2448	.2731	.2642	.2877	.2837	.2947	.2946
.600	.2445	.2226	.2581	.2632	.2759	.2894	.2850	.2875
.650	.2203	.2238	.2441	.2541	.2577	.2785	.2756	.2697
.700	.2165	.2223	.2380	.2319	.2477	.2572	.2568	.2635
.750	.2093	.2043	.2247	.2259	.2265	.2462	.2423	.2436
.800	.2054	.1978	.2218	.2196	.2253	.2341	.2378	.2326
.850	.1910	.1926	.2021	.2146	.2164	.2137	.2228	.2058
.900	.1818	.1765	.1915	.1917	.2021	.2033	.2025	.1982
.950	.1596	.1587	.1763	.1623	.1725	.1780	.1742	.1617

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	8.50	9.00	10.00	11.00	12.00	13.01	13.49	13.75
.000	-2.5298	-2.7259	-3.0874	-3.2683	-3.3530	-3.3192	-3.0951	-.6554
.005	-3.1819	-3.2417	-3.3326	-3.3992	-3.2846	-3.1720	-2.9752	-1.1155
.010	-2.8406	-2.8808	-2.9418	-3.1598	-3.2103	-3.0939	-2.9295	-.9178
.015	-2.6305	-2.7079	-2.8663	-3.1272	-3.2049	-3.0994	-2.9403	-.8360
.020	-2.4736	-2.4947	-2.8535	-3.1317	-3.1878	-3.1024	-2.9308	-.7882
.025	-2.3488	-2.4516	-2.8276	-3.1545	-3.1761	-3.1086	-2.9012	-.7897
.030	-2.2633	-2.3737	-2.8004	-3.1229	-3.1799	-3.1386	-2.9294	-.8554
.040	-2.1468	-2.3116	-2.7432	-3.0726	-3.1583	-3.1204	-2.9575	-.7489
.050	-2.0372	-2.2585	-2.6663	-3.0449	-3.1776	-3.1769	-2.9936	-.7866
.060	-1.9395	-2.2314	-2.6356	-2.9495	-3.0592	-3.0695	-2.9375	-.6913
.075	-1.8569	-2.1768	-2.3520	-1.9981	-2.1989	-2.4458	-2.5579	-.8133
.100	-1.7706	-1.9656	-1.6758	-1.6113	-1.5980	-1.6899	-1.8556	-.7019
.150	-1.6551	-1.4431	-1.4275	-1.4635	-1.4200	-1.3549	-1.3199	-.7568
.200	-1.4535	-1.3314	-1.3406	-1.3376	-1.2873	-1.1889	-1.1318	-.7570
.250	-1.2121	-1.2422	-1.2437	-1.2239	-1.1535	-1.0504	-.9791	-.7041
.300	-1.1550	-1.1662	-1.1468	-1.1059	-1.0344	-.9212	-.8379	-.7011
.350	-1.0772	-1.0822	-1.0488	-.9966	-.9085	-.7841	-.7183	-.6489
.400	-.9690	-.9648	-.9333	-.8699	-.7698	-.6593	-.5979	-.6311
.450	-.8589	-.8491	-.7997	-.7323	-.6381	-.5408	-.4965	-.6206
.500	-.7370	-.7211	-.6702	-.6073	-.5209	-.4463	-.4476	-.6371
.550	-.6150	-.6024	-.5520	-.4931	-.4304	-.3912	-.3990	-.6382
.600	-.5023	-.4896	-.4516	-.3970	-.3579	-.3496	-.3768	-.6258
.650	-.4090	-.3964	-.3537	-.3270	-.3124	-.3254	-.3592	-.6742
.700	-.3262	-.3112	-.2901	-.2747	-.2771	-.3205	-.3566	-.6259
.750	-.2499	-.2436	-.2256	-.2319	-.2561	-.3057	-.3469	-.6335
.800	-.1780	-.1821	-.1838	-.1985	-.2458	-.2983	-.3488	-.6120
.850	-.1168	-.1226	-.1468	-.1857	-.2213	-.2981	-.3443	-.6224
.900	-.0627	-.0761	-.1163	-.1622	-.2223	-.2991	-.3440	-.5888
.950	-.0075	-.0423	-.0895	-.1603	-.2166	-.2906	-.3322	-.5837

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	8.50	9.00	10.00	11.00	12.00	13.01	13.49	13.75
.000	-2.5298	-2.7259	-3.0874	-3.2683	-3.3530	-3.3192	-3.0951	-.6554
.005	.8072	.7729	.6912	.6114	.5507	.5472	.5596	.9954
.010	.9867	.9858	.9763	.9476	.9299	.9315	.9297	.9920
.015	.9995	1.0103	1.0093	1.0077	1.0040	.9984	.9978	.9667
.020	.9740	.9620	.9966	.9946	1.0045	1.0022	1.0061	.9052
.025	.9386	.9618	.9684	.9857	.9853	.9952	.9879	.8587
.031	.8994	.9114	.9497	.9540	.9699	.9667	.9653	.8317
.040	.8348	.8298	.8761	.8871	.9076	.9175	.9108	.7416
.050	.7695	.7845	.8076	.8355	.8446	.8695	.8633	.7024
.060	.7232	.7467	.7643	.7937	.8090	.8260	.8244	.6424
.075	.6534	.6867	.7153	.7340	.7601	.7602	.7728	.6112
.100	.5940	.6071	.6374	.6593	.6785	.6812	.6858	.5266
.150	.5016	.5245	.5385	.5696	.5794	.5958	.5738	.4523
.200	.4541	.4659	.4786	.4935	.5157	.5243	.5157	.3920
.250	.4178	.4272	.4393	.4619	.4653	.4549	.4693	.3648
.300	.3824	.3865	.4071	.4073	.4219	.4360	.4182	.3245
.350	.3585	.3674	.3857	.3859	.3985	.3984	.3996	.2794
.400	.3473	.3469	.3619	.3726	.3701	.3584	.3535	.2632
.450	.3259	.3348	.3427	.3493	.3489	.3410	.3316	.2327
.505	.3129	.3136	.3160	.3183	.3229	.3105	.3049	.2094
.550	.3067	.2933	.2982	.2988	.2947	.2989	.2820	.1898
.600	.2903	.2911	.2838	.2851	.2740	.2602	.2537	.1590
.650	.2673	.2704	.2777	.2588	.2465	.2454	.2367	.1287
.700	.2564	.2578	.2476	.2355	.2279	.2041	.2011	.0981
.750	.2420	.2373	.2352	.2181	.2009	.1848	.1753	.0714
.800	.2322	.2169	.2063	.2029	.1666	.1527	.1333	.0194
.850	.2126	.2101	.1858	.1576	.1535	.1052	.0934	-.0283
.900	.1901	.1823	.1530	.1343	.0968	.0590	.0430	-.0840
.950	.1684	.1415	.1126	.0594	.0368	-.0094	-.0305	-.1869

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	14.04
.000	-.5466
.005	-1.0907
.010	-.8718
.015	-.7740
.020	-.7374
.025	-.7102
.030	-.6917
.040	-.6788
.050	-.6954
.060	-.6797
.075	-.6829
.100	-.6881
.150	-.6967
.200	-.7027
.250	-.6742
.300	-.6505
.350	-.6201
.400	-.6112
.450	-.5923
.500	-.5910
.550	-.5977
.600	-.5953
.650	-.5811
.700	-.5996
.750	-.5975
.800	-.6106
.850	-.6129
.900	-.6027
.950	-.5894

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	14.04
.000	-.5466
.005	.9787
.010	.9972
.015	.9581
.020	.8916
.025	.8501
.031	.8101
.040	.7470
.050	.6787
.060	.6423
.075	.5863
.100	.5248
.150	.4384
.200	.3763
.250	.3459
.300	.3016
.350	.2842
.400	.2466
.450	.2263
.505	.2030
.550	.1716
.600	.1481
.650	.1203
.700	.0807
.750	.0448
.800	.0036
.850	-.0392
.900	-.1054
.950	-.1951

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	-2.94	-2.00	-2.00	-1.00	-.01	.00	.00	.50
.000	-.1589	.1394	.1362	.5615	.8287	.8342	.8314	.9093
.005	.9634	.9524	.9495	.8790	.7627	.7478	.7476	.6505
.010	.8924	.8030	.8073	.6702	.4980	.4763	.4893	.3682
.015	.7990	.6872	.6829	.5244	.3466	.3317	.3400	.2214
.020	.6842	.5638	.5645	.3982	.2248	.2036	.2074	.0930
.025	.6006	.4714	.4670	.3031	.1293	.1158	.1180	.0124
.030	.5203	.3915	.3871	.2215	.0586	.0415	.0540	-.0569
.040	.4140	.2734	.2639	.1098	-.0504	-.0597	-.0587	-.1511
.050	.3150	.1699	.1734	.0208	-.1329	-.1430	-.1438	-.2278
.060	.2190	.0937	.0930	-.0567	-.1974	-.2101	-.2085	-.2929
.075	.1324	-.0020	-.0002	-.1395	-.2644	-.2750	-.2751	-.3554
.100	.0168	-.1022	-.1011	-.2264	-.3386	-.3537	-.3449	-.4169
.150	-.1154	-.2250	-.2296	-.3338	-.4225	-.4322	-.4321	-.4842
.200	-.2077	-.3649	-.3065	-.3910	-.4684	-.4776	-.4783	-.5182
.250	-.2666	-.3513	-.3529	-.4334	-.4875	-.4982	-.4985	-.5417
.300	-.3101	-.3900	-.3898	-.4485	-.4953	-.5064	-.5075	-.5390
.350	-.3273	-.3947	-.4005	-.4488	-.4886	-.4946	-.4839	-.5173
.400	-.3228	-.3792	-.3779	-.4164	-.4360	-.4485	-.4390	-.4597
.450	-.2872	-.3381	-.3459	-.3673	-.3779	-.3876	-.3861	-.4048
.500	-.2421	-.2917	-.2932	-.3160	-.3353	-.3427	-.3402	-.3718
.550	-.1981	-.2461	-.2456	-.2807	-.3141	-.3238	-.3175	-.3457
.600	-.1633	-.2160	-.2183	-.2568	-.2981	-.3077	-.3028	-.3343
.650	-.1400	-.1964	-.2007	-.2548	-.2923	-.3048	-.3037	-.3296
.700	-.1314	-.1871	-.1916	-.2453	-.3002	-.2977	-.3049	-.3271
.750	-.1211	-.1843	-.1924	-.2392	-.2970	-.2994	-.2967	-.3327
.800	-.1171	-.1788	-.1845	-.2430	-.2928	-.2967	-.2947	-.3274
.850	-.1154	-.1842	-.1840	-.2362	-.2939	-.3042	-.2973	-.3363
.900	-.1165	-.1811	-.1804	-.2459	-.3091	-.3122	-.3096	-.3591
.950	-.1170	-.1827	-.1801	-.2394	-.3207	-.2951	-.3298	-.2646

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	-2.94	-2.00	-2.00	-1.00	-.01	.00	.00	.50
.000	-.1589	.1394	.1362	.5615	.8287	.8342	.8314	.9093
.005	-1.1941	-1.3421	-1.3465	-.8451	-.3606	-.3359	-.3430	-.0941
.010	-.9693	-1.0824	-1.0947	-.7309	-.3686	-.3495	-.3502	-.1629
.015	-.9041	-.9372	-.9450	-.6544	-.3611	-.3370	-.3438	-.1876
.020	-.8841	-.8557	-.8594	-.6000	-.3356	-.3186	-.3272	-.1888
.025	-.8700	-.7663	-.7868	-.5523	-.3182	-.3027	-.3175	-.1818
.031	-.8636	-.7045	-.7044	-.5148	-.2993	-.2892	-.2970	-.1801
.040	-.8482	-.6293	-.6437	-.4546	-.2662	-.2590	-.2669	-.1612
.050	-.8385	-.5822	-.5764	-.4018	-.2485	-.2341	-.2391	-.1489
.060	-.8447	-.5384	-.5278	-.3670	-.2161	-.2105	-.2163	-.1366
.075	-.8407	-.4756	-.4805	-.3195	-.1925	-.1812	-.1895	-.1182
.100	-.8378	-.4381	-.4453	-.2561	-.1504	-.1440	-.1458	-.0893
.150	-.8551	-.3942	-.3728	-.1781	-.0952	-.0861	-.0953	-.0450
.200	-.4536	-.2895	-.2833	-.1242	-.0570	-.0521	-.0621	-.0136
.250	-.1381	-.1344	-.1242	-.0842	-.0241	-.0217	-.0241	.0025
.300	-.0873	-.0640	-.0654	-.0498	-.0059	.0041	-.0017	.0283
.350	-.0734	-.0317	-.0374	-.0257	.0157	.0171	.0180	.0431
.400	-.0701	-.0281	-.0212	-.0069	.0321	.0341	.0258	.0581
.450	-.0493	-.0026	-.0093	.0070	.0470	.0436	.0424	.0660
.505	-.0345	.0109	.0133	.0260	.0569	.0630	.0580	.0717
.550	-.0222	.0263	.0258	.0347	.0615	.0656	.0623	.0917
.600	-.0068	.0387	.0345	.0536	.0748	.0743	.0787	.0889
.650	.0057	.0524	.0500	.0576	.0841	.0832	.0723	.1030
.700	.0135	.0579	.0530	.0652	.0840	.0893	.0788	.1036
.750	.0248	.0660	.0636	.0757	.0812	.0870	.0847	.1035
.800	.0270	.0747	.0685	.0794	.0816	.0914	.0834	.1037
.850	.0328	.0756	.0777	.0828	.0850	.0894	.0881	.1029
.900	.0289	.0794	.0780	.0767	.0807	.0842	.0812	.1016
.950	.0156	.0644	.0631	.0607	.0511	.0605	.0549	.0851

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	1.01	1.50	2.01	2.03	2.50	3.00	3.00	3.51
.000	.9536	.9628	.9601	.9556	.9443	.9293	.9138	.8874
.005	.5223	.4088	.2713	.2807	.1247	.0213	-.0186	-.0819
.010	.2374	.1144	-.0187	.0044	-.1570	-.2097	-.2387	-.2959
.015	.1042	-.0109	-.1488	-.1248	-.2639	-.3100	-.3437	-.4000
.020	.0071	-.1219	-.2416	-.2270	-.3563	-.4270	-.4159	-.5136
.025	-.0874	-.2007	-.3174	-.2967	-.4187	-.4683	-.4647	-.5538
.030	-.1552	-.2609	-.3598	-.3582	-.4614	-.5163	-.5589	-.5932
.040	-.2448	-.3379	-.4338	-.4352	-.5286	-.5911	-.6144	-.6466
.050	-.3144	-.4008	-.4937	-.4886	-.5779	-.6074	-.6231	-.6585
.060	-.3732	-.4547	-.5277	-.5347	-.6106	-.6276	-.6665	-.7001
.075	-.4258	-.4969	-.5705	-.5688	-.6418	-.6535	-.6902	-.7132
.100	-.4781	-.5451	-.6092	-.6033	-.6631	-.6800	-.7236	-.7221
.150	-.5345	-.5852	-.6327	-.6275	-.6812	-.6642	-.7185	-.6987
.200	-.5602	-.5975	-.6391	-.6296	-.6724	-.6573	-.6779	-.6814
.250	-.5673	-.5981	-.6231	-.6151	-.6527	-.6588	-.6664	-.6470
.300	-.5641	-.5827	-.6072	-.5932	-.6243	-.6190	-.6041	-.5890
.350	-.5354	-.5497	-.5567	-.5493	-.5693	-.5528	-.5499	-.4904
.400	-.4724	-.4944	-.4934	-.4852	-.5081	-.4802	-.5057	-.4793
.450	-.4225	-.4315	-.4477	-.4411	-.4525	-.4379	-.4807	-.4585
.500	-.3891	-.4138	-.4234	-.4224	-.4460	-.4405	-.4831	-.4563
.550	-.3683	-.3998	-.4209	-.4097	-.4457	-.4274	-.4703	-.4549
.600	-.3608	-.3908	-.4165	-.4046	-.4438	-.4234	-.4629	-.4530
.650	-.3620	-.3857	-.4188	-.4010	-.4376	-.4297	-.4666	-.4462
.700	-.3572	-.3801	-.4079	-.4076	-.4350	-.4342	-.4612	-.4349
.750	-.3566	-.3785	-.4122	-.4105	-.4370	-.4361	-.4709	-.4591
.800	-.3586	-.3902	-.4233	-.4127	-.4501	-.4607	-.4763	-.4673
.850	-.3703	-.4052	-.4257	-.4297	-.4436	-.4349	-.4217	-.4308
.900	-.3938	-.3881	-.3089	-.3931	-.2987	-.3535	-.3312	-.3804
.950	-.2242	-.2241	-.1589	-.2333	-.1636	-.2121	-.1825	-.3071

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	1.01	1.50	2.01	2.03	2.50	3.00	3.00	3.51
.000	.9536	.9628	.9601	.9556	.9443	.9293	.9138	.8874
.005	.1283	.2897	.4573	.4501	.5903	.6621	.6949	.7377
.010	.0042	.1422	.2819	.2716	.3870	.4482	.4725	.5110
.015	-.0360	.0778	.2031	.1777	.3027	.3373	.3571	.4020
.020	-.0512	.0473	.1599	.1515	.2512	.3022	.2927	.3651
.025	-.0750	.0292	.1296	.1248	.2079	.2518	.2491	.3157
.031	-.0798	.0151	.1149	.1103	.1804	.2256	.2485	.2860
.040	-.0764	.0048	.0920	.0806	.1476	.1962	.2156	.2432
.050	-.0730	-.0039	.0665	.0696	.1329	.1657	.1696	.2072
.060	-.0735	-.0020	.0696	.0734	.1199	.1427	.1618	.1964
.075	-.0526	.0055	.0615	.0554	.1140	.1298	.1498	.1768
.100	-.0335	.0130	.0654	.0561	.1066	.1242	.1418	.1574
.150	-.0069	.0343	.0754	.0669	.1048	.1133	.1348	.1406
.200	.0206	.0488	.0859	.0799	.1089	.1112	.1212	.1379
.250	.0366	.0612	.0922	.0896	.1114	.1223	.1311	.1423
.300	.0538	.0757	.0968	.0952	.1192	.1293	.1253	.1407
.350	.0655	.0842	.1087	.1036	.1272	.1379	.1332	.1312
.400	.0752	.0886	.1127	.1090	.1296	.1329	.1344	.1353
.450	.0840	.1063	.1220	.1161	.1333	.1282	.1392	.1407
.505	.0944	.1095	.1234	.1157	.1282	.1313	.1427	.1378
.550	.1021	.1094	.1225	.1183	.1290	.1257	.1497	.1368
.600	.1051	.1131	.1254	.1233	.1317	.1233	.1428	.1342
.650	.1042	.1197	.1247	.1280	.1280	.1239	.1426	.1277
.700	.1133	.1240	.1338	.1321	.1339	.1254	.1403	.1180
.750	.1122	.1193	.1273	.1263	.1313	.1160	.1374	.1115
.800	.1139	.1169	.1196	.1205	.1232	.1109	.1275	.1082
.850	.1116	.1140	.1233	.1143	.1185	.0994	.1180	.0789
.900	.0960	.1052	.1156	.1100	.1039	.0765	.0905	.0555
.950	.0918	.0854	.0934	.0821	.0797	.0515	.0683	.0089

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	3.54	4.00	4.00	4.00	4.02	4.49	4.99	5.51
.000	.8334	.7413	.7474	.8665	.8300	.6015	.4274	.7383
.005	-.2028	-.4517	-.4591	-.2876	-.2300	-.6026	-.8359	-.3830
.010	-.4480	-.6273	-.6464	-.3607	-.4578	-.7595	-.9906	-.5784
.015	-.5457	-.7139	-.7353	-.4378	-.5708	-.7944	-1.0064	-.6476
.020	-.6163	-.7862	-.7350	-.5257	-.6112	-.8740	-1.0571	-.7060
.025	-.6647	-.8200	-.7133	-.5781	-.6562	-.9126	-1.0353	-.7286
.030	-.6917	-.8468	-.8409	-.6425	-.6801	-.9528	-1.0311	-.7516
.040	-.7257	-.8317	-.8420	-.8116	-.7387	-.9348	-1.0469	-.7724
.050	-.7517	-.7924	-.7968	-.7842	-.7666	-.9394	-1.0463	-.7790
.060	-.7707	-.8849	-.7292	-.7094	-.7701	-.9357	-1.0360	-.7870
.075	-.7849	-.8978	-.8023	-.7176	-.7646	-.9474	-1.0262	-.7885
.100	-.7873	-.8630	-.8393	-.7330	-.7641	-.9339	-1.0042	-.7644
.150	-.7646	-.8069	-.8420	-.7030	-.7372	-.8708	-.9291	-.6996
.200	-.7461	-.7732	-.8109	-.6660	-.7092	-.7911	-.8648	-.6299
.250	-.7055	-.7463	-.7811	-.6259	-.6578	-.7508	-.8065	-.5544
.300	-.6523	-.6192	-.6601	-.5750	-.5793	-.6767	-.7310	-.4813
.350	-.5762	-.5015	-.5156	-.4947	-.5085	-.6180	-.6652	-.4487
.400	-.5369	-.5035	-.4914	-.4722	-.4881	-.5895	-.6330	-.4399
.450	-.5044	-.4797	-.5376	-.4429	-.4465	-.5725	-.6124	-.4342
.500	-.5037	-.4421	-.5407	-.4355	-.4577	-.5564	-.5990	-.4310
.550	-.4994	-.4266	-.5035	-.4336	-.4633	-.5579	-.5985	-.4331
.600	-.4954	-.4272	-.5054	-.4409	-.4719	-.5612	-.6075	-.4466
.650	-.4939	-.5071	-.5395	-.4380	-.4812	-.5606	-.6126	-.4470
.700	-.4992	-.5507	-.5590	-.4940	-.4881	-.5636	-.6307	-.4557
.750	-.5079	-.5504	-.5648	-.5270	-.4937	-.5834	-.5977	-.4665
.800	-.4717	-.4728	-.4574	-.5263	-.4778	-.4964	-.4137	-.4635
.850	-.3977	-.3638	-.4079	-.4146	-.4338	-.3427	-.2418	-.4482
.900	-.2356	-.2029	-.1704	-.2934	-.3505	-.1968	-.1214	-.4202
.950	-.1740	-.0687	-.0589	-.2637	-.2614	-.0987	-.0370	-.3829

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	3.54	4.00	4.00	4.00	4.02	4.49	4.99	5.51
.000	.8334	.7413	.7474	.8665	.8300	.6015	.4274	.7383
.005	.8025	.8956	.8915	.8446	.8118	.9333	.9710	.8802
.010	.6029	.6991	.7077	.5219	.6124	.7577	.8403	.6930
.015	.4873	.5842	.5861	.4322	.5081	.6278	.7133	.5729
.020	.4255	.5197	.5007	.3808	.4377	.5734	.6551	.5101
.025	.3794	.4670	.4165	.3379	.3868	.5171	.5845	.4537
.031	.3423	.4290	.4242	.3162	.3485	.4853	.5370	.4097
.040	.2936	.3553	.3615	.3500	.3042	.4198	.4701	.3566
.050	.2594	.2878	.2917	.2879	.2693	.3696	.4291	.3094
.060	.2397	.2982	.2251	.2071	.2556	.3398	.3932	.2886
.075	.2138	.2734	.2318	.1876	.2201	.3025	.3595	.2604
.100	.1960	.2354	.2222	.1680	.1945	.2776	.3200	.2293
.150	.1723	.2003	.2115	.1476	.1714	.2465	.2817	.2013
.200	.1616	.1897	.2002	.1448	.1703	.2154	.2570	.1745
.250	.1673	.1893	.1945	.1402	.1634	.2096	.2380	.1678
.300	.1624	.1658	.1819	.1489	.1644	.1986	.2354	.1633
.350	.1637	.1420	.1470	.1376	.1528	.1961	.2243	.1597
.400	.1610	.1562	.1623	.1400	.1549	.1945	.2156	.1490
.450	.1589	.1542	.1691	.1338	.1495	.1924	.2144	.1412
.505	.1568	.1395	.1744	.1343	.1422	.1876	.2044	.1410
.550	.1602	.1285	.1613	.1336	.1444	.1817	.1983	.1286
.600	.1574	.1231	.1588	.1302	.1415	.1822	.1977	.1180
.650	.1571	.1494	.1674	.1232	.1344	.1777	.1912	.1076
.700	.1498	.1653	.1669	.1362	.1343	.1737	.1837	.1045
.750	.1461	.1576	.1628	.1485	.1246	.1635	.1786	.0914
.800	.1120	.1552	.1111	.1436	.1076	.1585	.1754	.0650
.850	.1191	.1238	.0958	.1307	.0879	.1431	.1603	.0513
.900	.1106	.1162	.1244	.1023	.0641	.1284	.1461	.0185
.950	.0712	.1057	.1110	.0243	.0214	.1032	.1178	-.0443

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	6.01	6.49	7.00	7.51	8.01	8.25	8.51	8.75
.000	.6208	.5126	-.9162	-1.4297	-1.8797	-2.1242	-2.3780	-2.4717
.005	-.5163	-.6511	-2.0387	-2.4274	-2.7624	-2.9402	-3.0812	-3.1374
.010	-.7017	-.8084	-1.9502	-2.2556	-2.5160	-2.6474	-2.7490	-2.7636
.015	-.7520	-.8383	-1.8676	-2.1417	-2.3666	-2.4743	-2.5978	-2.5940
.020	-.7942	-.8634	-1.8032	-2.0402	-2.2534	-2.3424	-2.4419	-2.4262
.025	-.8222	-.8789	-1.7521	-1.9694	-2.1556	-2.2517	-2.3227	-2.3148
.030	-.8195	-.8922	-1.7079	-1.9039	-2.0755	-2.1517	-2.2227	-2.2212
.040	-.8272	-.8844	-1.6417	-1.8002	-1.9693	-2.0188	-2.0949	-2.0739
.050	-.8319	-.8875	-1.5660	-1.7268	-1.8624	-1.9367	-1.9982	-2.0019
.060	-.8205	-.8723	-1.5120	-1.6550	-1.7841	-1.8465	-1.8938	-1.9040
.075	-.8157	-.8596	-1.4413	-1.5713	-1.6804	-1.7452	-1.7980	-1.8392
.100	-.7875	-.8053	-1.3512	-1.4662	-1.5719	-1.6166	-1.6723	-1.7538
.150	-.7055	-.7012	-1.2328	-1.3153	-1.3999	-1.4409	-1.5264	-1.6517
.200	-.6181	-.6128	-1.1010	-1.1959	-1.2825	-1.3279	-1.4318	-1.5147
.250	-.5388	-.5208	-1.0129	-1.1066	-1.1922	-1.2504	-1.3558	-1.3298
.300	-.4807	-.4855	-.9519	-1.0363	-1.1288	-1.1843	-1.2777	-1.1110
.350	-.4625	-.4727	-.9078	-.9906	-1.0797	-1.1451	-1.1786	-1.0194
.400	-.4451	-.4725	-.8277	-.9682	-1.0537	-1.1204	-.9363	-.9283
.450	-.4468	-.4792	-.8719	-.9565	-1.0586	-1.0103	-.8084	-.8222
.500	-.4499	-.4827	-.8703	-.9706	-.9212	-.6875	-.7120	-.7119
.550	-.4511	-.4885	-.8807	-.9357	-.5379	-.5348	-.6018	-.5914
.600	-.4600	-.4862	-.8488	-.5695	-.4121	-.4586	-.4904	-.4871
.650	-.4647	-.4991	-.5530	-.3400	-.3491	-.3868	-.3919	-.3900
.700	-.4805	-.4972	-.2852	-.2501	-.2848	-.3143	-.3102	-.3101
.750	-.4810	-.4828	-.1825	-.1940	-.2207	-.2483	-.2394	-.2349
.800	-.4672	-.4656	-.1184	-.1339	-.1632	-.1860	-.1735	-.1651
.850	-.4477	-.4359	-.0839	-.0928	-.1086	-.1172	-.1116	-.1057
.900	-.4203	-.4173	-.0331	-.0410	-.0485	-.0610	-.0541	-.0647
.950	-.3866	-.3849	.0095	.0045	-.0022	-.0074	.0024	-.0089

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	6.01	6.49	7.00	7.51	8.01	8.25	8.51	8.75
.000	.6208	.5126	-.9162	-1.4297	-1.8797	-2.1242	-2.3780	-2.4717
.005	.9215	.9637	.9770	.9367	.8862	.8532	.8171	.7999
.010	.7483	.7933	.9981	1.0018	1.0018	.9994	.9892	.9895
.015	.6354	.6808	.9334	.9649	.9850	.9896	1.0006	1.0015
.020	.5567	.5975	.8797	.9211	.9573	.9620	.9743	.9787
.025	.5085	.5524	.8259	.8723	.9122	.9276	.9361	.9524
.031	.4720	.5085	.7736	.8264	.8628	.8838	.8956	.9043
.040	.4001	.4374	.7017	.7490	.7913	.8059	.8269	.8297
.050	.3596	.3913	.6476	.6917	.7344	.7454	.7707	.7718
.060	.3281	.3603	.6001	.6465	.6882	.7082	.7183	.7292
.075	.2881	.3252	.5436	.5862	.6322	.6456	.6682	.6742
.100	.2569	.2901	.4836	.5233	.5621	.5825	.5930	.6041
.150	.2197	.2455	.4150	.4459	.4800	.4887	.5045	.5154
.200	.1970	.2159	.3781	.4091	.4264	.4382	.4537	.4623
.250	.1819	.2004	.3482	.3810	.3990	.4099	.4164	.4208
.300	.1740	.1893	.3192	.3517	.3712	.3816	.3864	.3981
.350	.1707	.1793	.3114	.3301	.3544	.3546	.3716	.3699
.400	.1667	.1669	.2968	.3124	.3337	.3424	.3501	.3550
.450	.1510	.1628	.2788	.2936	.3152	.3249	.3340	.3328
.505	.1462	.1464	.2713	.2893	.2948	.3052	.3137	.3087
.550	.1348	.1365	.2661	.2726	.2897	.3004	.2998	.3090
.600	.1246	.1363	.2594	.2678	.2800	.2805	.2944	.2943
.650	.1152	.1163	.2394	.2581	.2657	.2725	.2773	.2748
.700	.0958	.1043	.2246	.2429	.2551	.2602	.2631	.2618
.750	.0828	.0842	.2209	.2272	.2420	.2382	.2457	.2522
.800	.0700	.0684	.2171	.2187	.2272	.2288	.2319	.2327
.850	.0473	.0472	.1936	.1972	.2090	.2222	.2168	.2165
.900	.0106	.0054	.1792	.1874	.1908	.1949	.1914	.1869
.950	-.0469	-.0543	.1534	.1540	.1609	.1608	.1675	.1606

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	9.00	9.51	10.01	11.01	12.00
.000	-2.5467	-2.6248	-2.7098	-2.8428	-2.7832
.005	-3.1244	-2.9986	-2.9276	-2.8223	-2.6858
.010	-2.7880	-2.6168	-2.5993	-2.6224	-2.5561
.015	-2.5985	-2.5673	-2.5065	-2.5745	-2.5140
.020	-2.4265	-2.3919	-2.4030	-2.5384	-2.5015
.025	-2.2959	-2.2942	-2.3645	-2.5308	-2.4894
.030	-2.2043	-2.2432	-2.3415	-2.5110	-2.5035
.040	-2.1163	-2.1850	-2.3163	-2.5127	-2.4868
.050	-2.0457	-2.1938	-2.2906	-2.5066	-2.4800
.060	-1.9967	-2.1565	-2.2818	-2.4938	-2.4789
.075	-1.9338	-2.1221	-2.2734	-2.4915	-2.4723
.100	-1.8818	-2.1017	-2.2724	-2.5090	-2.5164
.150	-1.7475	-2.0163	-2.0345	-1.7797	-1.8780
.200	-1.4255	-1.1442	-1.1041	-1.1520	-1.2275
.250	-1.1933	-1.1084	-1.0920	-1.0879	-1.0332
.300	-1.1066	-1.0760	-1.0589	-1.0237	-.9380
.350	-1.0337	-1.0110	-.9984	-.9474	-.8439
.400	-.9325	-.9071	-.8855	-.8389	-.7493
.450	-.8248	-.7961	-.7742	-.7274	-.6395
.500	-.7081	-.6823	-.6614	-.6178	-.5405
.550	-.5857	-.5674	-.5540	-.5084	-.4596
.600	-.4801	-.4591	-.4428	-.4127	-.3820
.650	-.3895	-.3733	-.3612	-.3423	-.3322
.700	-.3051	-.2985	-.2836	-.2721	-.2854
.750	-.2335	-.2279	-.2290	-.2281	-.2586
.800	-.1749	-.1688	-.1796	-.1896	-.2294
.850	-.1163	-.1227	-.1317	-.1565	-.2125
.900	-.0686	-.0895	-.1006	-.1350	-.1942
.950	-.0303	-.0513	-.0698	-.1162	-.1785

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	9.00	9.51	10.01	11.01	12.00
.000	-2.5467	-2.6248	-2.7098	-2.8428	-2.7832
.005	.7785	.7416	.7080	.6445	.6372
.010	.9922	.9856	.9735	.9580	.9482
.015	1.0064	1.0028	1.0013	.9989	.9975
.020	.9837	.9856	.9937	.9962	.9992
.025	.9502	.9543	.9647	.9801	.9762
.031	.9042	.9218	.9326	.9444	.9592
.040	.8317	.8573	.8732	.8895	.9081
.050	.7810	.7943	.8097	.8339	.8438
.060	.7399	.7589	.7682	.7882	.8103
.075	.6823	.6924	.7045	.7374	.7428
.100	.6137	.6266	.6324	.6579	.6728
.150	.5160	.5347	.5489	.5655	.5765
.200	.4613	.4752	.4932	.5039	.5140
.250	.4240	.4348	.4472	.4644	.4704
.300	.3981	.4010	.4045	.4181	.4231
.350	.3705	.3783	.3861	.3883	.3962
.400	.3553	.3594	.3645	.3748	.3697
.450	.3360	.3349	.3444	.3505	.3446
.505	.3183	.3170	.3184	.3184	.3223
.550	.2997	.3027	.3019	.3075	.2978
.600	.2846	.2917	.2894	.2890	.2846
.650	.2699	.2616	.2735	.2680	.2590
.700	.2607	.2538	.2629	.2587	.2364
.750	.2412	.2428	.2322	.2361	.2125
.800	.2210	.2237	.2158	.2067	.1823
.850	.2083	.2016	.1953	.1780	.1533
.900	.1863	.1732	.1612	.1418	.1131
.950	.1455	.1284	.1197	.0915	.0505

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	13.04	13.04	13.01	13.01	12.00	10.99	10.00	9.99
.000	-.5819	-.4978	-.4485	-.6001	-2.7765	-2.8522	-2.6812	-2.7200
.005	-1.1629	-1.1381	-1.1288	-1.1570	-2.6715	-2.8318	-2.9334	-2.9444
.010	-1.0023	-1.0088	-1.0301	-1.0097	-2.5406	-2.6202	-2.6013	-2.6035
.015	-.8818	-.8949	-.9000	-.9037	-2.5109	-2.5748	-2.5047	-2.5239
.020	-.7890	-.7915	-.8163	-.8214	-2.4815	-2.5461	-2.4063	-2.4171
.025	-.7332	-.7181	-.7586	-.7827	-2.4775	-2.5262	-2.3549	-2.3663
.030	-.6855	-.6771	-.7410	-.7521	-2.4986	-2.5099	-2.3425	-2.3333
.040	-.6403	-.6404	-.6501	-.6892	-2.4777	-2.5078	-2.3219	-2.3170
.050	-.6124	-.6464	-.6193	-.6651	-2.4881	-2.5081	-2.3015	-2.2995
.060	-.5986	-.6500	-.6646	-.7053	-2.4650	-2.4953	-2.2748	-2.3004
.075	-.6022	-.6166	-.7310	-.6143	-2.4733	-2.5052	-2.2926	-2.2738
.100	-.6578	-.5907	-.6306	-.6669	-2.5103	-2.5153	-2.2666	-2.2729
.150	-.5904	-.5915	-.6102	-.5970	-1.8986	-1.7602	-2.0021	-2.0418
.200	-.7096	-.6643	-.6541	-.5993	-1.2216	-1.1523	-1.1199	-1.1046
.250	-.7174	-.6214	-.6206	-.7219	-1.0433	-1.0820	-1.0972	-1.0953
.300	-.6585	-.6052	-.6369	-.6538	-.9427	-1.0236	-1.0617	-1.0578
.350	-.5899	-.5960	-.6145	-.6631	-.8460	-.9422	-.9912	-.9869
.400	-.5862	-.5822	-.6215	-.6549	-.7497	-.8390	-.8878	-.8942
.450	-.5735	-.5792	-.5953	-.5753	-.6423	-.7223	-.7865	-.7814
.500	-.5923	-.5572	-.5602	-.5760	-.5433	-.6092	-.6646	-.6607
.550	-.6138	-.5789	-.6220	-.5540	-.4576	-.5103	-.5485	-.5471
.600	-.5440	-.5423	-.5531	-.6159	-.3857	-.4121	-.4448	-.4457
.650	-.6169	-.5995	-.6062	-.6346	-.3258	-.3339	-.3605	-.3613
.700	-.5455	-.5453	-.5950	-.5542	-.2849	-.2791	-.2903	-.2876
.750	-.5423	-.5453	-.5522	-.5689	-.2569	-.2272	-.2278	-.2272
.800	-.5395	-.5620	-.6034	-.5792	-.2294	-.1923	-.1761	-.1705
.850	-.5680	-.5521	-.6008	-.5778	-.2087	-.1612	-.1313	-.1290
.900	-.5439	-.5510	-.5903	-.5929	-.1951	-.1265	-.0961	-.0957
.950	-.5291	-.5356	-.5591	-.5459	-.1859	-.1136	-.0680	-.0668

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	13.04	13.04	13.01	13.01	12.00	10.99	10.00	9.99
.000	-.5819	-.4978	-.4485	-.6001	-2.7765	-2.8522	-2.6812	-2.7200
.005	.9927	.9921	.9910	.9772	.6386	.6565	.7064	.7182
.010	.9951	.9900	.9903	.9902	.9421	.9551	.9685	.9762
.015	.9347	.9397	.9364	.9309	1.0031	1.0001	.9955	1.0104
.020	.8796	.8767	.8936	.9002	1.0012	.9992	.9927	1.0004
.025	.8346	.8253	.8336	.8486	.9809	.9788	.9526	.9694
.031	.7922	.7827	.7970	.8100	.9598	.9497	.9365	.9252
.040	.7166	.7137	.7144	.7199	.9053	.8850	.8702	.8683
.050	.6548	.6765	.6471	.6704	.8472	.8382	.8132	.8086
.060	.6145	.6341	.6348	.6349	.8069	.7874	.7573	.7735
.075	.5569	.5628	.5725	.5668	.7450	.7335	.7105	.7083
.100	.5213	.4950	.5086	.5129	.6775	.6635	.6358	.6350
.150	.4203	.4247	.4236	.4149	.5707	.5665	.5335	.5418
.200	.3915	.3790	.3785	.3641	.5135	.5122	.4855	.4869
.250	.3531	.3347	.3301	.3447	.4697	.4591	.4499	.4416
.300	.3171	.2983	.2936	.3064	.4436	.4249	.4226	.4139
.350	.2608	.2692	.2666	.2806	.3982	.3973	.3795	.3849
.400	.2445	.2443	.2503	.2600	.3655	.3738	.3561	.3581
.450	.2260	.2207	.2259	.2132	.3469	.3489	.3325	.3484
.505	.2128	.1895	.1937	.1949	.3193	.3250	.3235	.3212
.550	.1861	.1737	.1830	.1664	.3019	.2980	.3107	.3054
.600	.1431	.1502	.1456	.1606	.2832	.2937	.2874	.2918
.650	.1377	.1314	.1275	.1378	.2603	.2723	.2719	.2722
.700	.0869	.0885	.1051	.0877	.2402	.2509	.2520	.2550
.750	.0508	.0539	.0548	.0589	.2108	.2333	.2391	.2364
.800	.0153	.0176	.0251	.0250	.1865	.2004	.2125	.2174
.850	-.0212	-.0288	-.0189	-.0219	.1524	.1722	.1936	.1943
.900	-.0913	-.0865	-.0759	-.0765	.1125	.1486	.1621	.1629
.950	-.1860	-.1840	-.1689	-.1844	.0455	.0914	.1184	.1191

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	9.00	8.50	8.00	7.00	7.00	6.75	6.74	6.47
.000	-2.5510	-2.3777	-1.9103	-.9463	-.9560	-.7321	-.7305	-.5042
.005	-3.1284	-3.0808	-2.7797	-2.0680	-2.0571	-1.8866	-1.8863	-1.6751
.010	-2.7618	-2.7472	-2.5240	-1.9685	-1.9850	-1.8296	-1.8420	-1.6913
.015	-2.5964	-2.5891	-2.3681	-1.8922	-1.8901	-1.7665	-1.7713	-1.6417
.020	-2.4219	-2.4378	-2.2449	-1.8115	-1.8292	-1.7067	-1.7230	-1.6029
.025	-2.3159	-2.3046	-2.1633	-1.7641	-1.7684	-1.6537	-1.6745	-1.5589
.030	-2.2201	-2.2199	-2.0794	-1.7124	-1.7190	-1.6290	-1.6289	-1.5290
.040	-2.1116	-2.0862	-1.9633	-1.6271	-1.6491	-1.5486	-1.5694	-1.4644
.050	-2.0502	-2.0009	-1.8655	-1.5622	-1.5757	-1.4950	-1.5054	-1.4126
.060	-1.9884	-1.9070	-1.7800	-1.5158	-1.5211	-1.4531	-1.4601	-1.3775
.075	-1.9412	-1.7948	-1.6914	-1.4447	-1.4571	-1.3900	-1.3953	-1.3154
.100	-1.8825	-1.6730	-1.5657	-1.3528	-1.3627	-1.3039	-1.3183	-1.2493
.150	-1.7535	-1.5389	-1.3975	-1.2196	-1.2196	-1.1678	-1.1799	-1.1279
.200	-1.4045	-1.4306	-1.2791	-1.1038	-1.1158	-1.0720	-1.0701	-1.0298
.250	-1.1948	-1.3594	-1.1936	-1.0161	-1.0344	-.9817	-.9839	-.9462
.300	-1.1011	-1.2809	-1.1353	-.9510	-.9517	-.9091	-.9153	-.8693
.350	-1.0341	-1.1711	-1.0959	-.9007	-.9107	-.8653	-.8684	-.8189
.400	-.9321	-.9342	-1.0729	-.8801	-.8876	-.8417	-.8484	-.7899
.450	-.8251	-.8062	-1.0712	-.8700	-.8813	-.8342	-.8366	-.7883
.500	-.7033	-.7032	-.9454	-.8695	-.8745	-.8284	-.8325	-.7694
.550	-.5860	-.5958	-.5761	-.8781	-.8866	-.8321	-.8389	-.7841
.600	-.4737	-.4878	-.4124	-.8516	-.8495	-.8418	-.8518	-.8038
.650	-.3828	-.3947	-.3378	-.5622	-.5403	-.6717	-.6695	-.7446
.700	-.3035	-.3058	-.2847	-.3036	-.2934	-.3767	-.3762	-.4927
.750	-.2325	-.2350	-.2182	-.1858	-.1871	-.2192	-.2075	-.2769
.800	-.1721	-.1714	-.1562	-.1266	-.1257	-.1333	-.1324	-.1607
.850	-.1150	-.1065	-.0995	-.0823	-.0814	-.0788	-.0785	-.0876
.900	-.0681	-.0478	-.0464	-.0364	-.0346	-.0326	-.0309	-.0360
.950	-.0293	.0048	.0000	.0019	.0046	.0027	.0054	-.0025

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	9.00	8.50	8.00	7.00	7.00	6.75	6.74	6.47
.000	-2.5510	-2.3777	-1.9103	-.9463	-.9560	-.7321	-.7305	-.5042
.005	.7854	.8165	.8899	.9795	.9670	.9887	.9901	.9855
.010	.9865	.9911	.9961	.9990	.9958	.9889	.9858	.9674
.015	1.0039	.9996	.9830	.9476	.9328	.9174	.9158	.8889
.020	.9886	.9797	.9472	.8797	.8861	.8652	.8570	.8362
.025	.9524	.9248	.9142	.8276	.8227	.7923	.8066	.7822
.031	.9158	.8922	.8627	.7842	.7757	.7583	.7573	.7339
.040	.8417	.8379	.7957	.7031	.7118	.6772	.6804	.6496
.050	.7818	.7719	.7342	.6380	.6456	.6180	.6240	.5897
.060	.7364	.7257	.6851	.6031	.5984	.5736	.5764	.5465
.075	.6759	.6649	.6300	.5468	.5497	.5268	.5182	.4938
.100	.6179	.5998	.5650	.4872	.4947	.4710	.4652	.4474
.150	.5231	.5096	.4823	.4129	.4193	.3982	.4052	.3767
.200	.4641	.4511	.4294	.3757	.3703	.3600	.3576	.3470
.250	.4286	.4268	.3947	.3402	.3419	.3280	.3328	.3137
.300	.3993	.3903	.3625	.3263	.3286	.3081	.3137	.2957
.350	.3747	.3655	.3407	.3092	.3086	.3008	.2877	.2873
.400	.3523	.3505	.3352	.2956	.2910	.2793	.2837	.2696
.450	.3320	.3344	.3169	.2809	.2880	.2782	.2762	.2621
.505	.3203	.3139	.2978	.2712	.2726	.2677	.2668	.2500
.550	.2998	.3019	.2861	.2554	.2602	.2521	.2514	.2430
.600	.2853	.2887	.2870	.2578	.2489	.2453	.2432	.2297
.650	.2760	.2763	.2765	.2414	.2422	.2377	.2386	.2267
.700	.2573	.2640	.2459	.2297	.2363	.2254	.2247	.2145
.750	.2458	.2513	.2381	.2217	.2191	.2115	.2149	.2041
.800	.2261	.2352	.2285	.2080	.2071	.2062	.1996	.1929
.850	.2096	.2195	.2136	.1922	.1902	.1915	.1907	.1850
.900	.1830	.2041	.1952	.1747	.1798	.1729	.1785	.1697
.950	.1473	.1685	.1608	.1501	.1494	.1442	.1467	.1421

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	6.44	6.44	6.25	6.25	5.99	5.50	5.25	5.00
.000	-.4818	.5495	.5956	.5890	.6488	.7358	.7799	.5076
.005	-1.6677	-.6212	-.5548	-.5604	-.4869	-.3597	-.3492	-.7905
.010	-1.6442	-.7802	-.7472	-.7377	-.6805	-.5738	-.5164	-.9494
.015	-1.6121	-.8242	-.7935	-.7893	-.7324	-.6358	-.5955	-.9854
.020	-1.5624	-.8449	-.8270	-.8107	-.7804	-.6906	-.6475	-.9344
.025	-1.5322	-.8697	-.8404	-.8347	-.7996	-.7302	-.6923	-1.0185
.030	-1.5118	-.8699	-.8533	-.8578	-.8126	-.7463	-.7066	-.9443
.040	-1.4513	-.8640	-.8519	-.8589	-.8151	-.7636	-.7373	-1.0224
.050	-1.4027	-.8638	-.8447	-.8589	-.8262	-.7703	-.7433	-.9869
.060	-1.3580	-.8607	-.8482	-.8450	-.8209	-.7848	-.7604	-.9704
.075	-1.3084	-.8328	-.8340	-.8273	-.8060	-.7725	-.7552	-.9323
.100	-1.2242	-.7875	-.7899	-.7879	-.7787	-.7567	-.7511	-.9301
.150	-1.1149	-.6998	-.7133	-.7097	-.7047	-.6929	-.6964	-.8532
.200	-1.0065	-.6006	-.6110	-.6108	-.6108	-.6229	-.6257	-.8051
.250	-.9190	-.5132	-.5389	-.5308	-.5356	-.5433	-.5587	-.7279
.300	-.8636	-.4776	-.4867	-.4791	-.4788	-.4745	-.4891	-.6777
.350	-.8070	-.4622	-.4668	-.4690	-.4521	-.4434	-.4458	-.6154
.400	-.7652	-.4586	-.4647	-.4621	-.4452	-.4287	-.4299	-.5779
.450	-.4813	-.4696	-.4606	-.4710	-.4420	-.4281	-.4315	-.5939
.500	-.4746	-.4639	-.4612	-.4608	-.4454	-.4346	-.4268	-.5931
.550	-.4746	-.4713	-.4749	-.4711	-.4515	-.4277	-.4232	-.5692
.600	-.4839	-.4850	-.4788	-.4813	-.4544	-.4333	-.4305	-.5929
.650	-.4952	-.4812	-.4782	-.4872	-.4707	-.4439	-.4409	-.5670
.700	-.4956	-.4889	-.4888	-.4933	-.4791	-.4458	-.4453	-.5890
.750	-.4825	-.4901	-.4818	-.4841	-.4751	-.4566	-.4523	-.5684
.800	-.4681	-.4703	-.4639	-.4699	-.4696	-.4639	-.4527	-.4584
.850	-.4448	-.4477	-.4466	-.4415	-.4478	-.4485	-.4408	-.3248
.900	-.4206	-.4265	-.4137	-.4184	-.4192	-.4285	-.4196	-.1865
.950	-.3954	-.3974	-.3893	-.3868	-.3906	-.3904	-.3882	-.1281

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	6.44	6.44	6.25	6.25	5.99	5.50	5.25	5.00
.000	-.4818	.5495	.5956	.5890	.6488	.7358	.7799	.5076
.005	1.0073	.9518	.9407	.9362	.9144	.8719	.8569	.9688
.010	.9656	.7825	.7703	.7604	.7575	.6837	.6655	.8221
.015	.8941	.6721	.6525	.6659	.6237	.5741	.5423	.7110
.020	.8177	.5991	.5761	.5839	.5555	.5072	.4716	.6116
.025	.7663	.5383	.5317	.5181	.4982	.4576	.4234	.5776
.031	.7191	.4934	.4827	.4820	.4595	.4084	.3864	.5029
.040	.6461	.4289	.4155	.4187	.3987	.3527	.3319	.4615
.050	.5853	.3800	.3676	.3770	.3514	.3095	.2839	.4063
.060	.5446	.3553	.3407	.3430	.3247	.2833	.2659	.3647
.075	.4935	.3157	.3076	.3084	.2917	.2515	.2457	.3208
.100	.4401	.2757	.2695	.2650	.2516	.2286	.2141	.2907
.150	.3748	.2375	.2293	.2293	.2141	.1999	.1830	.2514
.200	.3339	.2128	.2124	.1989	.1944	.1775	.1675	.2324
.250	.3117	.1953	.1962	.1976	.1878	.1694	.1577	.2173
.300	.2945	.1832	.1830	.1833	.1727	.1606	.1556	.2138
.350	.2831	.1784	.1689	.1755	.1649	.1502	.1540	.2115
.400	.2662	.1579	.1568	.1639	.1574	.1508	.1465	.2022
.450	.1486	.1544	.1618	.1518	.1521	.1455	.1345	.2015
.505	.1400	.1459	.1477	.1482	.1392	.1360	.1249	.2005
.550	.1355	.1335	.1346	.1436	.1434	.1335	.1357	.1909
.600	.1248	.1239	.1302	.1237	.1327	.1168	.1220	.1911
.650	.1130	.1175	.1148	.1164	.1104	.1062	.1040	.1750
.700	.1021	.0976	.0988	.1065	.0953	.1104	.0966	.1696
.750	.0840	.0774	.0914	.0893	.0864	.0869	.0847	.1506
.800	.0590	.0593	.0691	.0684	.0676	.0595	.0697	.1592
.850	.0382	.0404	.0452	.0492	.0433	.0437	.0570	.1433
.900	.0061	.0011	.0079	.0101	.0150	.0148	.0173	.1248
.950	-.0626	-.0651	-.0528	-.0549	-.0529	-.0449	-.0398	.0859

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	5.00	4.99	4.99	4.75	4.75	4.50	4.50	4.25
.000	.5267	.8115	.4361	.4440	.7451	.8057	.7541	.8948
.005	-.6738	-.2924	-.7956	-.7825	-.4504	-.1584	-.1289	-.0669
.010	-.7714	-.5034	-.9799	-.9280	-.5555	-.4714	-.3627	-.3218
.015	-.8069	-.5602	-.9996	-.9719	-.6892	-.4770	-.4838	-.4394
.020	-.8902	-.6397	-.9980	-1.0067	-.8565	-.5656	-.5400	-.4910
.025	-.9266	-.6614	-1.0012	-1.0247	-.8537	-.5860	-.5767	-.7125
.030	-.9356	-.7046	-.9839	-1.0299	-.8686	-.6189	-.7214	-.7556
.040	-.9476	-.7456	-1.0066	-1.0305	-.8586	-.7590	-.6572	-.7949
.050	-.9409	-.7549	-1.0706	-1.0269	-.8265	-.7595	-.6699	-.8101
.060	-.8107	-.7639	-1.0305	-1.0287	-.8387	-.6920	-.6956	-.8164
.075	-.8793	-.7537	-1.0187	-1.0133	-.8916	-.7240	-.7141	-.8195
.100	-.7771	-.7468	-.9641	-.9780	-.8391	-.8412	-.8121	-.7282
.150	-.8264	-.7049	-.9103	-.9125	-.7544	-.7571	-.6880	-.6915
.200	-.8062	-.6398	-.8486	-.8621	-.7794	-.7218	-.6325	-.6360
.250	-.7150	-.5750	-.7929	-.8010	-.7101	-.6025	-.5643	-.5733
.300	-.5625	-.5031	-.7000	-.7312	-.6319	-.4987	-.4979	-.5037
.350	-.5239	-.4541	-.6673	-.6711	-.5175	-.4598	-.5037	-.5211
.400	-.5131	-.4428	-.6008	-.5711	-.5140	-.5003	-.4574	-.5011
.450	-.5639	-.4314	-.5900	-.5786	-.4988	-.4615	-.4135	-.4913
.500	-.5702	-.4294	-.5851	-.4931	-.5199	-.4557	-.4126	-.4902
.550	-.5052	-.4300	-.6063	-.4629	-.5343	-.4741	-.4089	-.4940
.600	-.5195	-.4428	-.5881	-.5210	-.5142	-.4521	-.4068	-.4889
.650	-.5540	-.4249	-.5758	-.4609	-.5242	-.4597	-.4056	-.4977
.700	-.5696	-.4534	-.5871	-.5061	-.5741	-.4586	-.4233	-.5048
.750	-.5559	-.4442	-.6013	-.5625	-.5508	-.4862	-.4387	-.5185
.800	-.4888	-.4522	-.4373	-.4499	-.4997	-.4476	-.4318	-.4856
.850	-.3701	-.4471	-.2823	-.3039	-.3987	-.4389	-.4410	-.4185
.900	-.2832	-.4174	-.1642	-.3731	-.2988	-.3616	-.4229	-.3182
.950	-.1382	-.3657	-.1000	-.3443	-.2631	-.2011	-.3647	-.2403

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	5.00	4.99	4.99	4.75	4.75	4.50	4.50	4.25
.000	.5267	.8115	.4361	.4440	.7451	.8057	.7541	.8948
.005	.9499	.8464	.9652	.9681	.8970	.7842	.7719	.7349
.010	.7656	.6420	.8282	.8122	.6734	.6296	.5672	.5335
.015	.6401	.5160	.7156	.7058	.5866	.4603	.4650	.4384
.020	.5889	.4649	.6329	.6290	.5672	.4138	.3927	.3665
.025	.5368	.4048	.5686	.5784	.4979	.3547	.3494	.4309
.031	.4921	.3839	.5154	.5298	.4574	.3164	.3740	.3920
.040	.4291	.3289	.4551	.4702	.3822	.3264	.2689	.3406
.050	.3813	.2895	.4162	.4112	.3191	.2810	.2284	.3022
.060	.2870	.2596	.3951	.3855	.2965	.2119	.2069	.2776
.075	.2919	.2257	.3545	.3471	.2914	.1999	.1984	.2460
.100	.2158	.2023	.3064	.3108	.2475	.2359	.2261	.1637
.150	.2325	.1794	.2687	.2643	.1965	.1932	.1532	.1516
.200	.2257	.1657	.2459	.2465	.2122	.1809	.1412	.1363
.250	.2161	.1556	.2367	.2429	.2009	.1533	.1415	.1302
.300	.1760	.1545	.2251	.2267	.1979	.1392	.1267	.1315
.350	.1785	.1540	.2204	.2132	.1688	.1359	.1513	.1651
.400	.1742	.1469	.2101	.1879	.1703	.1614	.1452	.1694
.450	.1890	.1324	.2000	.1955	.1673	.1499	.1264	.1590
.505	.1864	.1425	.1945	.1597	.1672	.1463	.1239	.1559
.550	.1635	.1258	.1955	.1472	.1755	.1504	.1177	.1540
.600	.1603	.1286	.1925	.1588	.1613	.1319	.1108	.1525
.650	.1629	.1121	.1775	.1226	.1555	.1305	.1027	.1432
.700	.1577	.1012	.1662	.1323	.1652	.1177	.0963	.1338
.750	.1446	.0911	.1689	.1762	.1475	.1143	.0858	.1274
.800	.1412	.0699	.1700	.0939	.1270	.0797	.0768	.1140
.850	.1225	.0502	.1549	.1355	.1148	.0852	.0545	.0988
.900	.0921	.0272	.1343	.0482	.0896	.0616	.0246	.0737
.950	.0837	-.0249	.0960	-.0159	.0261	.0565	-.0252	.0286

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	4.00	3.50	2.99	2.00	.99	.01	-2.00	-2.85
.000	.8058	.8859	.9303	.9658	.9567	.8376	.1557	-.1474
.005	-.2826	-.1289	.0558	.2836	.5345	.7392	.9445	.9629
.010	-.5102	-.3252	-.2353	-.0043	.2400	.4775	.8055	.9049
.015	-.5877	-.4462	-.3741	-.1325	.1127	.3342	.6822	.7953
.020	-.6477	-.5262	-.3718	-.2440	-.0080	.2143	.5601	.6830
.025	-.6996	-.6071	-.4394	-.3205	-.0956	.1265	.4633	.5946
.030	-.7231	-.6380	-.5391	-.3741	-.1606	.0510	.3912	.5069
.040	-.7506	-.6877	-.5599	-.4333	-.2470	-.0591	.2635	.3958
.050	-.7573	-.6668	-.5765	-.4883	-.3180	-.1381	.1690	.3002
.060	-.7908	-.7082	-.6197	-.5233	-.3718	-.2019	.0836	.2174
.075	-.7957	-.7244	-.6439	-.5640	-.4244	-.2687	-.0081	.1237
.100	-.7883	-.7306	-.6900	-.6154	-.4815	-.3483	-.1168	.0074
.150	-.7628	-.7180	-.6707	-.6366	-.5362	-.4269	-.2303	-.1242
.200	-.7137	-.6812	-.6764	-.6267	-.5625	-.4728	-.3124	-.2115
.250	-.6647	-.6552	-.6530	-.6256	-.5704	-.5016	-.3603	-.2753
.300	-.5989	-.5948	-.5991	-.6043	-.5651	-.5054	-.3874	-.3093
.350	-.5373	-.5339	-.5107	-.5604	-.5380	-.4838	-.4014	-.3370
.400	-.4889	-.4919	-.4748	-.4937	-.4758	-.4381	-.3827	-.3208
.450	-.4788	-.4700	-.4412	-.4407	-.4190	-.3846	-.3502	-.2895
.500	-.4826	-.4583	-.4415	-.4213	-.3859	-.3376	-.2920	-.2412
.550	-.4795	-.4434	-.4273	-.4176	-.3666	-.3161	-.2480	-.1976
.600	-.4808	-.4511	-.4363	-.4156	-.3623	-.3026	-.2277	-.1662
.650	-.4837	-.4509	-.4209	-.4117	-.3598	-.3006	-.2074	-.1464
.700	-.4884	-.4459	-.4367	-.4131	-.3641	-.2960	-.1901	-.1331
.750	-.5054	-.4628	-.4420	-.4097	-.3570	-.2951	-.1926	-.1302
.800	-.4866	-.4685	-.4379	-.4254	-.3614	-.2973	-.1879	-.1240
.850	-.4241	-.4396	-.4344	-.4291	-.3703	-.2964	-.1840	-.1179
.900	-.3253	-.3412	-.3422	-.3313	-.3939	-.3137	-.1821	-.1173
.950	-.2369	-.2381	-.2510	-.1651	-.2497	-.3225	-.1881	-.1229

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	4.00	3.50	2.99	2.00	.99	.01	-2.00	-2.85
.000	.8058	.8859	.9303	.9658	.9567	.8376	.1557	-.1474
.005	.8296	.7597	.6448	.4454	.1116	-.3437	-1.3248	-1.2190
.010	.6438	.5338	.4633	.2711	-.0067	-.3515	-1.0955	-.9702
.015	.5228	.4318	.3385	.1894	-.0394	-.3420	-.9408	-.8982
.020	.4598	.3747	.2710	.1519	-.0588	-.3243	-.8386	-.8750
.025	.4073	.3447	.2299	.1263	-.0701	-.3047	-.7849	-.8540
.031	.3689	.3081	.2385	.1129	-.0729	-.2938	-.6952	-.8482
.040	.3142	.2712	.1847	.0824	-.0772	-.2640	-.6331	-.8390
.050	.2758	.2170	.1509	.0699	-.0790	-.2365	-.5760	-.8279
.060	.2554	.2010	.1375	.0614	-.0608	-.2131	-.5346	-.8280
.075	.2347	.1796	.1224	.0541	-.0528	-.1834	-.4738	-.8261
.100	.2055	.1605	.1257	.0562	-.0365	-.1503	-.4307	-.8257
.150	.1837	.1492	.1155	.0716	-.0047	-.0918	-.3551	-.8414
.200	.1746	.1424	.1179	.0843	.0159	-.0569	-.3010	-.4176
.250	.1685	.1436	.1249	.0849	.0367	-.0291	-.1522	-.1188
.300	.1629	.1447	.1288	.0962	.0503	-.0018	-.0532	-.0791
.350	.1596	.1446	.1244	.1052	.0610	.0180	-.0353	-.0798
.400	.1583	.1478	.1255	.1114	.0767	.0331	-.0252	-.0574
.450	.1613	.1446	.1273	.1197	.0866	.0455	-.0110	-.0471
.505	.1521	.1491	.1296	.1203	.0929	.0575	.0153	-.0295
.550	.1518	.1398	.1305	.1193	.1013	.0624	.0232	-.0160
.600	.1482	.1330	.1258	.1240	.1041	.0733	.0382	-.0085
.650	.1403	.1306	.1281	.1288	.1078	.0761	.0500	.0026
.700	.1332	.1242	.1243	.1249	.1141	.0847	.0613	.0151
.750	.1264	.1176	.1216	.1231	.1136	.0849	.0622	.0185
.800	.1113	.1053	.1061	.1268	.1091	.0860	.0720	.0272
.850	.0944	.0940	.0930	.1184	.1092	.0863	.0770	.0373
.900	.0791	.0734	.0846	.1142	.1064	.0732	.0755	.0297
.950	.0331	.0381	.0441	.0914	.0814	.0563	.0684	.0210

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	-2.97	-2.97	-2.01	-1.00	.00	1.00	2.00	3.00
.000	-.0388	-.0386	.3241	.6945	.9295	.9819	.9801	.8884
.005	.9800	.9833	.9366	.8301	.6630	.4187	.1254	-.2297
.010	.8415	.8384	.7460	.5867	.3814	.1416	-.1347	-.4460
.015	.7289	.7275	.5961	.4419	.2381	.0043	-.2501	-.5389
.020	.6110	.6089	.4712	.3095	.1127	-.1088	-.3468	-.6144
.025	.5169	.5094	.3708	.2126	.0228	-.1880	-.4186	-.6638
.030	.4390	.4317	.2983	.1382	-.0477	-.2496	-.4609	-.6944
.040	.3131	.3113	.1772	.0229	-.1508	-.3330	-.5272	-.7374
.050	.2126	.2157	.0819	-.0680	-.2282	-.3957	-.5755	-.7643
.060	.1356	.1279	.0024	-.1377	-.2890	-.4503	-.6204	-.7935
.075	.0389	.0351	-.0869	-.2113	-.3544	-.5032	-.6503	-.8060
.100	-.0721	-.0760	-.1794	-.3027	-.4267	-.5571	-.6826	-.8146
.150	-.2048	-.2107	-.3033	-.4005	-.4985	-.6037	-.7036	-.8097
.200	-.2897	-.3003	-.3795	-.4596	-.5384	-.6282	-.7092	-.7955
.250	-.3563	-.3536	-.4276	-.4987	-.5673	-.6397	-.7027	-.7746
.300	-.3962	-.3962	-.4600	-.5207	-.5763	-.6392	-.6821	-.7410
.350	-.4168	-.4212	-.4752	-.5193	-.5659	-.6104	-.6460	-.6851
.400	-.4033	-.4045	-.4515	-.4878	-.5228	-.5518	-.5813	-.6165
.450	-.3708	-.3759	-.4112	-.4364	-.4587	-.4893	-.5261	-.5705
.500	-.3271	-.3309	-.3587	-.3818	-.4111	-.4555	-.5013	-.5588
.550	-.2753	-.2845	-.3124	-.3409	-.3870	-.4389	-.4936	-.5539
.600	-.2489	-.2524	-.2845	-.3236	-.3750	-.4323	-.4879	-.5515
.650	-.2191	-.2228	-.2681	-.3179	-.3678	-.4311	-.4832	-.5533
.700	-.2076	-.2083	-.2591	-.3141	-.3709	-.4305	-.4879	-.5543
.750	-.2015	-.2011	-.2546	-.3096	-.3679	-.4266	-.4929	-.5301
.800	-.1938	-.2002	-.2515	-.3082	-.3688	-.4141	-.3920	-.2901
.850	-.1890	-.1899	-.2519	-.2788	-.2848	-.1836	-.1190	-.0771
.900	-.1918	-.1921	-.1498	-.0846	-.0080	.0215	.0185	.0027
.950	-.0379	-.0471	.0724	.0807	.0782	.0785	.0604	.0458

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	-2.97	-2.97	-2.01	-1.00	.00	1.00	2.00	3.00
.000	-.0388	-.0386	.3241	.6945	.9295	.9819	.9801	.8884
.005	-1.3076	-1.3058	-1.2158	-.6962	-.2074	.1952	.5276	.7658
.010	-.9861	-.9877	-.9809	-.6004	-.2476	.0713	.3340	.5607
.015	-.9100	-.9099	-.8523	-.5431	-.2458	.0178	.2544	.4533
.020	-.8801	-.8789	-.7800	-.5066	-.2456	-.0085	.2055	.3884
.025	-.8625	-.8502	-.7160	-.4704	-.2341	-.0215	.1668	.3405
.031	-.8447	-.8396	-.6554	-.4384	-.2244	-.0294	.1528	.3071
.040	-.8360	-.8273	-.5764	-.3872	-.2051	-.0358	.1210	.2602
.050	-.8282	-.8182	-.5126	-.3479	-.1867	-.0287	.1022	.2301
.060	-.8204	-.8141	-.4622	-.3125	-.1676	-.0356	.0891	.2111
.075	-.8199	-.8164	-.4060	-.2668	-.1455	-.0239	.0816	.1911
.100	-.8306	-.8218	-.3264	-.2189	-.1119	-.0139	.0866	.1773
.150	-.2053	-.2013	-.2367	-.1451	-.0588	.0141	.0902	.1589
.200	-.1327	-.1418	-.1782	-.0931	-.0200	.0387	.1014	.1525
.250	-.1263	-.1167	-.1304	-.0604	-.0033	.0508	.1033	.1468
.300	-.0878	-.0938	-.0860	-.0331	.0242	.0637	.1101	.1563
.350	-.0697	-.0681	-.0398	-.0040	.0364	.0770	.1190	.1544
.400	-.0399	-.0414	-.0084	.0147	.0512	.0890	.1196	.1615
.450	-.0234	-.0250	.0124	.0315	.0708	.1015	.1295	.1598
.505	.0021	.0022	.0286	.0474	.0785	.1066	.1348	.1590
.550	.0251	.0165	.0562	.0663	.0851	.1109	.1299	.1599
.600	.0308	.0280	.0744	.0743	.0969	.1173	.1408	.1583
.650	.0523	.0590	.0857	.0803	.1064	.1142	.1452	.1601
.700	.0636	.0651	.0884	.0861	.1021	.1235	.1426	.1654
.750	.0712	.0760	.0989	.0967	.1126	.1320	.1441	.1517
.800	.0894	.0809	.1061	.1063	.1223	.1350	.1454	.1552
.850	.1017	.1014	.1219	.1100	.1218	.1321	.1404	.1564
.900	.1101	.1086	.1356	.1248	.1248	.1335	.1429	.1492
.950	.1196	.1144	.1323	.1152	.1255	.1349	.1358	.1346

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	4.02	5.00	6.00	6.51	7.00	8.01	8.51	9.01
.000	.6091	.1507	-.4912	-.8785	-1.3184	-2.3274	-2.6228	-2.8372
.005	-.6684	-1.1578	-1.7379	-2.0337	-2.3760	-3.0504	-3.1941	-3.2616
.010	-.8254	-1.2297	-1.6832	-1.9315	-2.1822	-2.7245	-2.8226	-2.8808
.015	-.8803	-1.2358	-1.6320	-1.8462	-2.0711	-2.5524	-2.6201	-2.6707
.020	-.9171	-1.2489	-1.5988	-1.7881	-1.9866	-2.3933	-2.4601	-2.5107
.025	-.9492	-1.2478	-1.5663	-1.7491	-1.9220	-2.2986	-2.3461	-2.4135
.030	-.9558	-1.2378	-1.5323	-1.6927	-1.8635	-2.2081	-2.2574	-2.3866
.040	-.9741	-1.2242	-1.4860	-1.6282	-1.7718	-2.0723	-2.1349	-2.3297
.050	-.9818	-1.2039	-1.4328	-1.5582	-1.6981	-1.9780	-2.0166	-2.2660
.060	-.9816	-1.1911	-1.4025	-1.5225	-1.6391	-1.8830	-1.9327	-2.2184
.075	-.9751	-1.1656	-1.3540	-1.4621	-1.5635	-1.7866	-1.8520	-2.1770
.100	-.9603	-1.1214	-1.2846	-1.3743	-1.4669	-1.6630	-1.7732	-1.9195
.150	-.9344	-1.0553	-1.1803	-1.2530	-1.3165	-1.4848	-1.6568	-1.4350
.200	-.8912	-.9956	-1.0954	-1.1592	-1.2199	-1.3679	-1.4198	-1.3233
.250	-.8535	-.9416	-1.0252	-1.0779	-1.1372	-1.2785	-1.2018	-1.2376
.300	-.8039	-.8810	-.9549	-1.0079	-1.0662	-1.2106	-1.1395	-1.1566
.350	-.7348	-.8002	-.8864	-.9395	-1.0109	-1.1481	-1.0724	-1.0695
.400	-.6712	-.7541	-.8467	-.9037	-.9635	-1.0694	-.9638	-.9590
.450	-.6451	-.7355	-.8228	-.8865	-.9415	-.8944	-.8473	-.8368
.500	-.6318	-.7171	-.8187	-.8721	-.9310	-.7208	-.7261	-.7153
.550	-.6332	-.7205	-.8126	-.8867	-.8322	-.6000	-.6098	-.5937
.600	-.6294	-.7156	-.8254	-.6822	-.4105	-.4943	-.5021	-.4903
.650	-.6327	-.7342	-.4964	-.3135	-.3239	-.4012	-.4044	-.3927
.700	-.6402	-.4632	-.2220	-.2402	-.2715	-.3216	-.3251	-.3119
.750	-.3846	-.1684	-.1598	-.1953	-.2147	-.2505	-.2439	-.2424
.800	-.1266	-.0900	-.1233	-.1457	-.1585	-.1750	-.1738	-.1777
.850	-.0416	-.0539	-.0803	-.0901	-.1058	-.1144	-.1193	-.1267
.900	.0046	-.0138	-.0298	-.0334	-.0437	-.0518	-.0586	-.0795
.950	.0415	.0308	.0269	.0174	.0142	.0107	-.0074	-.0381

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	4.02	5.00	6.00	6.51	7.00	8.01	8.51	9.01
.000	.6091	.1507	-.4912	-.8785	-1.3184	-2.3274	-2.6228	-2.8372
.005	.9293	.9926	1.0019	.9848	.9646	.8490	.8009	.7675
.010	.7453	.8771	.9627	.9851	1.0005	1.0024	.9904	.9839
.015	.6322	.7709	.8791	.9145	.9499	.9979	.9947	.9988
.020	.5637	.6903	.8135	.8556	.8956	.9578	.9705	.9781
.025	.5024	.6351	.7490	.8052	.8459	.9198	.9328	.9484
.031	.4627	.5958	.7017	.7594	.8030	.8744	.8997	.9131
.040	.3977	.5231	.6353	.6783	.7247	.8009	.8258	.8384
.050	.3609	.4638	.5701	.6170	.6598	.7486	.7717	.7865
.060	.3373	.4305	.5279	.5719	.6154	.6915	.7193	.7402
.075	.2966	.3943	.4767	.5213	.5621	.6346	.6569	.6808
.100	.2608	.3400	.4255	.4626	.5065	.5694	.5940	.6053
.150	.2211	.2949	.3607	.3942	.4218	.4866	.5041	.5156
.200	.2243	.2688	.3295	.3523	.3742	.4383	.4510	.4550
.250	.2091	.2596	.3025	.3357	.3572	.4056	.4094	.4206
.300	.1991	.2462	.2953	.3131	.3277	.3801	.3745	.3890
.350	.1967	.2419	.2781	.2957	.3111	.3516	.3620	.3677
.400	.1996	.2234	.2618	.2780	.3004	.3306	.3475	.3505
.450	.2000	.2239	.2573	.2778	.2918	.3177	.3307	.3301
.505	.1899	.2166	.2505	.2619	.2775	.3008	.3137	.3087
.550	.1881	.2150	.2401	.2557	.2670	.2933	.2988	.2970
.600	.1866	.2066	.2336	.2428	.2630	.2791	.2825	.2800
.650	.1820	.2005	.2259	.2365	.2542	.2708	.2698	.2663
.700	.1817	.2008	.2171	.2289	.2406	.2585	.2515	.2550
.750	.1788	.1870	.2103	.2197	.2283	.2399	.2452	.2333
.800	.1744	.1827	.2005	.2108	.2160	.2356	.2316	.2239
.850	.1660	.1747	.1897	.2011	.1992	.2146	.2086	.1988
.900	.1615	.1649	.1799	.1897	.1893	.1981	.1934	.1765
.950	.1467	.1467	.1594	.1596	.1651	.1732	.1656	.1391

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	11.01	12.03	13.04	13.50
.000	-3.2077	-3.3373	-3.1924	-.7890
.005	-3.2017	-3.1603	-2.9689	-1.3532
.010	-3.0612	-3.0967	-2.9222	-.9387
.015	-3.0234	-3.0860	-2.9523	-.8260
.020	-2.9976	-3.0759	-2.9383	-.7882
.025	-2.9988	-3.0600	-2.9420	-.7993
.030	-3.0090	-3.0594	-2.9493	-.7854
.040	-2.9977	-3.0547	-2.9477	-.7968
.050	-2.9712	-3.1181	-2.9822	-.8523
.060	-3.0408	-3.1316	-2.9570	-.8752
.075	-2.3429	-2.6531	-2.6848	-.8815
.100	-1.5691	-1.7152	-1.9479	-.7303
.150	-1.4248	-1.3716	-1.3536	-.7763
.200	-1.3150	-1.2574	-1.1567	-.7604
.250	-1.2107	-1.1432	-1.0391	-.7751
.300	-1.0977	-1.0282	-.8971	-.8102
.350	-.9929	-.9067	-.7728	-.6776
.400	-.8619	-.7742	-.6529	-.6392
.450	-.7350	-.6481	-.5401	-.6568
.500	-.6038	-.5247	-.4634	-.6558
.550	-.4907	-.4352	-.4011	-.6681
.600	-.4007	-.3652	-.3667	-.6355
.650	-.3307	-.3154	-.3472	-.6307
.700	-.2742	-.2770	-.3222	-.5616
.750	-.2295	-.2546	-.3198	-.6286
.800	-.1975	-.2383	-.3080	-.6402
.850	-.1802	-.2290	-.2976	-.6178
.900	-.1633	-.2188	-.2914	-.5970
.950	-.1455	-.2114	-.2916	-.5798

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	11.01	12.03	13.04	13.50
.000	-3.2077	-3.3373	-3.1924	-.7890
.005	.6134	.5629	.5660	.9359
.010	.9467	.9333	.9205	.9972
.015	1.0029	.9995	.9935	.9500
.020	.9989	1.0035	1.0006	.9122
.025	.9731	.9912	.9868	.8608
.031	.9444	.9582	.9702	.8226
.040	.8966	.8958	.9122	.7520
.050	.8367	.8549	.8598	.7013
.060	.7912	.8136	.8175	.6606
.075	.7256	.7578	.7592	.6039
.100	.6575	.6764	.6808	.5167
.150	.5636	.5755	.5884	.4426
.200	.5058	.5145	.5197	.4020
.250	.4567	.4585	.4581	.3671
.300	.4195	.4275	.4244	.3455
.350	.3902	.3897	.3911	.2888
.400	.3592	.3596	.3653	.2643
.450	.3384	.3369	.3343	.2313
.505	.3200	.3238	.3082	.2096
.550	.3010	.2992	.2932	.1964
.600	.2814	.2723	.2570	.1662
.650	.2581	.2514	.2363	.1297
.700	.2371	.2303	.2159	.0900
.750	.2212	.2062	.1761	.0710
.800	.1943	.1732	.1530	.0362
.850	.1640	.1397	.1160	.0027
.900	.1243	.0969	.0725	-.0887
.950	.0759	.0381	-.0059	-.1690

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	-2.83	-2.00	-1.51	-1.00	.00	.01	1.01	2.00
.000	-.0062	.2546	.4614	.6358	.8941	.9000	.9834	.9796
.005	.9760	.9373	.9083	.8535	.6756	.6853	.4489	.1490
.010	.8357	.7501	.6978	.6045	.4010	.4127	.1671	-.1145
.015	.7095	.6145	.5456	.4618	.2625	.2593	.0199	-.2359
.020	.5931	.4957	.4190	.3400	.1334	.1367	-.0902	-.3333
.025	.5018	.3922	.3102	.2418	.0418	.0467	-.1700	-.4083
.030	.4220	.3132	.2440	.1605	-.0262	-.0270	-.2319	-.4560
.040	.2948	.1996	.1260	.0519	-.1263	-.1204	-.3160	-.5272
.050	.1996	.0939	.0366	-.0395	-.2101	-.2015	-.3839	-.5717
.060	.1107	.0230	-.0428	-.1100	-.2746	-.2698	-.4407	-.6112
.075	.0176	-.0649	-.1284	-.1864	-.3460	-.3378	-.4918	-.6527
.100	-.0860	-.1726	-.2241	-.2763	-.4142	-.4084	-.5496	-.6870
.150	-.2080	-.2850	-.3370	-.3740	-.4948	-.4956	-.5977	-.7130
.200	-.2737	-.3514	-.3845	-.4269	-.5204	-.5135	-.6077	-.7076
.250	-.3757	-.4293	-.4651	-.4954	-.5850	-.5804	-.6667	-.7430
.300	-.4045	-.4496	-.4778	-.5047	-.5760	-.5770	-.6397	-.7075
.350	-.4211	-.4661	-.4886	-.5180	-.5604	-.5728	-.6329	-.6905
.400	-.4170	-.4488	-.4670	-.4962	-.5404	-.5389	-.5822	-.6436
.450	-.3813	-.4105	-.4269	-.4456	-.4812	-.4843	-.5199	-.5836
.500	-.3337	-.3598	-.3783	-.4011	-.4358	-.4289	-.4762	-.5388
.550	-.2943	-.3170	-.3346	-.3543	-.3976	-.3969	-.4470	-.5056
.600	-.2533	-.2825	-.2962	-.3227	-.3755	-.3751	-.4345	-.4907
.650	-.2310	-.2658	-.2795	-.3026	-.3658	-.3649	-.4225	-.4895
.700	-.2135	-.2474	-.2651	-.2942	-.3541	-.3619	-.4261	-.4074
.750	-.2023	-.2419	-.2523	-.2849	-.3588	-.3649	-.3409	-.1358
.800	-.1906	-.2342	-.2508	-.1831	-.2005	-.2314	-.0974	-.0679
.850	-.2074	-.2022	-.0734	-.0397	.0035	.0044	-.0106	-.0355
.900	-.1024	.0150	.0433	.0377	.0386	.0333	.0125	-.0018
.950	.0558	.0857	.0663	.0702	.0627	.0485	.0491	.0357

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	-2.83	-2.00	-1.51	-1.00	.00	.01	1.01	2.00
.000	-.0062	.2546	.4614	.6358	.8941	.9000	.9834	.9796
.005	-1.3320	-1.2876	-1.0384	-.7775	-.2764	-.2805	.1570	.5062
.010	-.9879	-1.0385	-.8652	-.6854	-.3066	-.3062	.0322	.3205
.015	-.8947	-.8977	-.7652	-.6098	-.2978	-.3051	-.0245	.2323
.020	-.8668	-.8125	-.6876	-.5575	-.2892	-.2878	-.0420	.1823
.025	-.8291	-.7501	-.6328	-.5276	-.2772	-.2850	-.0552	.1545
.031	-.8204	-.6896	-.5903	-.4833	-.2650	-.2674	-.0573	.1323
.040	-.8027	-.5978	-.5099	-.4310	-.2386	-.2357	-.0568	.1037
.050	-.7876	-.5334	-.4556	-.3828	-.2181	-.2129	-.0561	.0861
.060	-.7863	-.4865	-.4132	-.3450	-.1970	-.1953	-.0576	.0776
.075	-.7782	-.4257	-.3590	-.2914	-.1713	-.1644	-.0462	.0710
.100	-.7844	-.3591	-.2985	-.2413	-.1351	-.1331	-.0331	.0736
.150	-.1869	-.2519	-.2105	-.1640	-.0841	-.0881	-.0070	.0749
.200	-.1360	-.2022	-.1439	-.1153	-.0527	-.0553	.0194	.0844
.250	-.1253	-.1539	-.1009	-.0728	-.0166	-.0194	.0391	.0955
.300	-.0968	-.0816	-.0654	-.0366	.0000	.0062	.0590	.1049
.350	-.0614	-.0411	-.0442	-.0182	.0329	.0241	.0679	.1104
.400	-.0477	-.0230	-.0197	.0078	.0418	.0366	.0742	.1154
.450	-.0249	.0026	-.0043	.0180	.0514	.0465	.0881	.1215
.505	.0081	.0301	.0281	.0364	.0572	.0661	.0947	.1214
.550	.0098	.0424	.0292	.0459	.0736	.0745	.0962	.1304
.600	.0311	.0614	.0759	.0551	.0860	.0815	.1041	.1349
.650	.0462	.0667	.0709	.0671	.0877	.0932	.1135	.1340
.700	.0568	.0790	.0847	.0718	.1007	.0983	.1198	.1341
.750	.0723	.0901	.0966	.0878	.1026	.0985	.1261	.1376
.800	.0910	.0974	.0997	.0968	.1090	.1046	.1197	.1375
.850	.0869	.1077	.1260	.1007	.1104	.1078	.1244	.1401
.900	.1076	.1183	.1309	.1062	.1140	.1095	.1224	.1358
.950	.1107	.1325	.1242	.1035	.1139	.1094	.1144	.1287

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	3.00	4.00	5.00	6.00	7.00	7.50	7.51	8.00
.000	.8929	.6151	.1524	-.4593	-1.2834	-1.7644	-1.7448	-2.2279
.005	-.2378	-.6670	-1.1661	-1.7139	-2.3242	-2.6829	-2.6678	-2.9799
.010	-.4474	-.8128	-1.2249	-1.6642	-2.1556	-2.4148	-2.4211	-2.6614
.015	-.5468	-.8723	-1.2500	-1.6213	-2.0635	-2.2782	-2.2703	-2.4931
.020	-.6216	-.9202	-1.2433	-1.5927	-1.9726	-2.1880	-2.1755	-2.3654
.025	-.6685	-.9427	-1.2475	-1.5604	-1.9006	-2.0934	-2.0810	-2.2611
.030	-.7014	-.9533	-1.2301	-1.5283	-1.8518	-2.0097	-2.0074	-2.1785
.040	-.7492	-.9708	-1.2232	-1.4747	-1.7586	-1.9055	-1.9119	-2.0454
.050	-.7805	-.9884	-1.2149	-1.4320	-1.6881	-1.8060	-1.8125	-1.9499
.060	-.8077	-.9989	-1.1950	-1.3994	-1.6255	-1.7426	-1.7491	-1.8587
.075	-.8210	-.9838	-1.1779	-1.3524	-1.5590	-1.6479	-1.6726	-1.7604
.100	-.8324	-.9755	-1.1394	-1.2847	-1.4550	-1.5524	-1.5543	-1.6401
.150	-.8261	-.9382	-1.0632	-1.1877	-1.3156	-1.3846	-1.3937	-1.4587
.200	-.7959	-.8929	-.9916	-1.0852	-1.2097	-1.2709	-1.2789	-1.3494
.250	-.8230	-.9031	-.9925	-1.0608	-1.1570	-1.2073	-1.2127	-1.2883
.300	-.7698	-.8488	-.9147	-.9719	-1.0682	-1.1250	-1.1298	-1.2012
.350	-.7377	-.7870	-.8490	-.9013	-1.0183	-1.0677	-1.0715	-1.1310
.400	-.6713	-.7300	-.7865	-.8578	-.9725	-1.0290	-1.0365	-1.0740
.450	-.6165	-.6764	-.7517	-.8379	-.9481	-1.0019	-1.0150	-.9005
.500	-.5903	-.6518	-.7366	-.8296	-.9466	-.8777	-.8921	-.7122
.550	-.5702	-.6464	-.7277	-.8235	-.7613	-.5369	-.5364	-.5959
.600	-.5665	-.6333	-.7355	-.7724	-.4074	-.4419	-.4484	-.4923
.650	-.5635	-.6391	-.5699	-.3599	-.3426	-.3737	-.3750	-.4015
.700	-.4965	-.2612	-.2275	-.2194	-.2776	-.3038	-.3085	-.3175
.750	-.1577	-.1244	-.1470	-.1761	-.2209	-.2400	-.2375	-.2486
.800	-.0701	-.0873	-.1177	-.1331	-.1582	-.1660	-.1720	-.1806
.850	-.0415	-.0535	-.0785	-.0879	-.0989	-.1102	-.1129	-.1205
.900	-.0089	-.0150	-.0300	-.0322	-.0424	-.0504	-.0485	-.0499
.950	.0339	.0311	.0241	.0168	.0131	.0161	.0141	.0078

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	3.00	4.00	5.00	6.00	7.00	7.50	7.51	8.00
.000	.8929	.6151	.1524	-.4593	-1.2834	-1.7644	-1.7448	-2.2279
.005	.7570	.9248	.9922	.9937	.9558	.9185	.9109	.8593
.010	.5468	.7445	.8815	.9541	.9986	1.0026	1.0024	.9925
.015	.4397	.6199	.7695	.8741	.9455	.9650	.9656	.9853
.020	.3796	.5537	.6939	.8034	.8914	.9250	.9237	.9507
.025	.3378	.4989	.6320	.7474	.8372	.8863	.8724	.9135
.031	.3020	.4498	.5845	.7011	.7957	.8342	.8308	.8683
.040	.2521	.3899	.5140	.6213	.7159	.7639	.7554	.7879
.050	.2214	.3488	.4647	.5643	.6521	.6916	.6980	.7337
.060	.1975	.3227	.4265	.5173	.6116	.6556	.6534	.6834
.075	.1799	.2891	.3888	.4650	.5593	.5938	.5994	.6288
.100	.1682	.2601	.3386	.4135	.4975	.5389	.5299	.5691
.150	.1540	.2263	.2955	.3577	.4199	.4473	.4531	.4827
.200	.1479	.2077	.2787	.3221	.3737	.4036	.4022	.4282
.250	.1500	.2028	.2537	.2970	.3499	.3736	.3715	.3941
.300	.1447	.2001	.2410	.2875	.3226	.3479	.3440	.3727
.350	.1474	.1925	.2335	.2699	.3120	.3237	.3237	.3455
.400	.1481	.1903	.2196	.2594	.2925	.3170	.3136	.3274
.450	.1535	.1882	.2190	.2477	.2812	.3044	.2966	.3060
.505	.1527	.1870	.2172	.2446	.2752	.2923	.2832	.2960
.550	.1538	.1852	.2098	.2327	.2664	.2693	.2743	.2883
.600	.1564	.1831	.2054	.2300	.2544	.2676	.2664	.2769
.650	.1517	.1790	.2032	.2249	.2405	.2562	.2524	.2648
.700	.1526	.1713	.1929	.2168	.2289	.2437	.2384	.2504
.750	.1542	.1735	.1908	.2068	.2287	.2293	.2340	.2401
.800	.1516	.1711	.1848	.1979	.2140	.2155	.2206	.2253
.850	.1490	.1726	.1702	.1873	.2089	.2066	.2056	.2102
.900	.1411	.1570	.1649	.1769	.1886	.1906	.1896	.1951
.950	.1367	.1376	.1518	.1552	.1602	.1715	.1640	.1645

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	8.50	9.01	10.00	12.00	13.00	14.00
.000	-2.6188	-2.8472	-3.1462	-3.3478	-3.2562	-.5905
.005	-3.1998	-3.2429	-3.2829	-3.1790	-3.0427	-1.1016
.010	-2.8280	-2.8905	-2.8915	-3.0804	-2.9845	-.8465
.015	-2.6582	-2.6498	-2.8212	-3.0810	-2.9668	-.7925
.020	-2.4876	-2.4781	-2.7889	-3.0671	-2.9768	-.7665
.025	-2.3802	-2.4080	-2.7636	-3.0868	-2.9813	-.8422
.030	-2.2893	-2.3460	-2.7543	-3.0918	-3.0021	-.7178
.040	-2.1547	-2.2915	-2.7076	-3.0722	-3.0157	-.8161
.050	-2.0223	-2.2314	-2.6502	-3.0876	-3.0272	-.7525
.060	-1.9510	-2.1981	-2.6460	-3.0893	-2.9925	-.6846
.075	-1.8458	-2.1339	-2.3476	-2.4195	-2.5252	-.7118
.100	-1.7292	-1.9023	-1.7013	-1.6227	-1.8014	-.7146
.150	-1.5869	-1.4420	-1.4197	-1.3741	-1.3375	-.7821
.200	-1.4693	-1.2892	-1.2935	-1.2402	-1.1434	-.7095
.250	-1.2920	-1.2315	-1.2425	-1.1240	-1.0287	-.7066
.300	-1.1379	-1.1417	-1.1382	-1.0091	-.8757	-.6786
.350	-1.0542	-1.0756	-1.0418	-.8837	-.7705	-.6264
.400	-.9102	-.9632	-.9262	-.7415	-.6347	-.6776
.450	-.8410	-.8412	-.7992	-.6149	-.5160	-.6189
.500	-.7375	-.7177	-.6616	-.5011	-.4438	-.6410
.550	-.6218	-.5965	-.5487	-.4085	-.3892	-.6340
.600	-.5095	-.4810	-.4493	-.3468	-.3614	-.6149
.650	-.4074	-.3980	-.3605	-.3006	-.3431	-.5938
.700	-.3258	-.3190	-.2931	-.2745	-.3339	-.6731
.750	-.2504	-.2419	-.2305	-.2582	-.3243	-.6096
.800	-.1797	-.1776	-.1829	-.2378	-.3112	-.6557
.850	-.1154	-.1264	-.1458	-.2315	-.3068	-.6406
.900	-.0545	-.0801	-.1135	-.2270	-.3138	-.6153
.950	-.0070	-.0401	-.0894	-.2220	-.2918	-.5835

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	8.50	9.01	10.00	12.00	13.00	14.00
.000	-2.6188	-2.8472	-3.1462	-3.3478	-3.2562	-.5905
.005	.7982	.7606	.6873	.5765	.5583	.9640
.010	.9876	.9857	.9725	.9230	.9228	.9933
.015	.9927	1.0000	1.0057	.9931	.9881	.9638
.020	.9651	.9723	.9901	.9928	.9934	.9180
.025	.9304	.9412	.9581	.9854	.9782	.8788
.031	.8960	.9078	.9280	.9546	.9624	.8110
.040	.8285	.8322	.8593	.9055	.9050	.7611
.050	.7596	.7796	.8133	.8516	.8620	.6994
.060	.7210	.7336	.7599	.8017	.8126	.6401
.075	.6588	.6740	.7041	.7464	.7518	.5819
.100	.5902	.6073	.6232	.6750	.6820	.5237
.150	.5044	.5128	.5383	.5718	.5779	.4458
.200	.4445	.4557	.4759	.5069	.5161	.3870
.250	.4049	.4216	.4336	.4588	.4623	.3508
.300	.3787	.3882	.4039	.4228	.4234	.3199
.350	.3637	.3603	.3741	.3872	.3915	.2829
.400	.3339	.3427	.3449	.3608	.3638	.2666
.450	.3262	.3198	.3330	.3423	.3313	.2259
.505	.3044	.3076	.3153	.3176	.3009	.2143
.550	.2928	.2978	.2954	.2985	.2805	.1829
.600	.2796	.2863	.2797	.2708	.2508	.1576
.650	.2699	.2595	.2629	.2418	.2334	.1173
.700	.2574	.2463	.2389	.2243	.2087	.0968
.750	.2406	.2349	.2261	.1971	.1780	.0529
.800	.2306	.2142	.2060	.1707	.1490	.0316
.850	.2105	.1965	.1845	.1394	.1096	-.0150
.900	.1940	.1768	.1511	.0912	.0552	-.0961
.950	.1622	.1376	.1046	.0249	-.0183	-.1838

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	-2.01	.01	2.00	3.03	3.50	4.00	4.01	4.50
.000	.1597	.7609	.8674	.8383	.8369	.8102	.8185	.7887
.005	.8753	.7374	.3192	.1357	.0830	.0273	.0154	-.0523
.010	.8072	.5025	-.0033	-.2012	-.2832	-.2998	-.2836	-.3596
.015	.6824	.3452	-.1381	-.3567	-.3722	-.4193	-.4018	-.4627
.020	.5658	.2156	-.2537	-.4277	-.4431	-.4842	-.4804	-.5335
.025	.4575	.1218	-.3271	-.4956	-.5129	-.5402	-.5379	-.5840
.030	.3767	.0469	-.3813	-.5187	-.5419	-.5897	-.5747	-.6205
.040	.2628	-.0539	-.4516	-.5832	-.5963	-.6283	-.6257	-.6578
.050	.1616	-.1350	-.4966	-.6343	-.6353	-.6615	-.6545	-.6825
.060	.0798	-.2114	-.5456	-.6587	-.6662	-.6840	-.6743	-.7081
.075	-.0046	-.2768	-.5806	-.6746	-.6807	-.6946	-.6927	-.7131
.100	-.1092	-.3509	-.6195	-.7006	-.6934	-.7035	-.7048	-.7156
.150	-.2320	-.4299	-.6461	-.7083	-.7007	-.7154	-.6841	-.6861
.200	-.3136	-.4779	-.6543	-.6892	-.6710	-.6523	-.6449	-.6408
.250	-.3648	-.5028	-.6479	-.6640	-.6325	-.6094	-.6022	-.5842
.300	-.3988	-.5077	-.6217	-.6327	-.5838	-.5434	-.5409	-.5166
.350	-.4163	-.4986	-.5802	-.5590	-.5140	-.4836	-.4775	-.4538
.400	-.3977	-.4553	-.5169	-.4932	-.4651	-.4471	-.4404	-.4286
.450	-.3576	-.4004	-.4683	-.4578	-.4447	-.4330	-.4254	-.4170
.500	-.3106	-.3529	-.4430	-.4486	-.4309	-.4365	-.4175	-.4119
.550	-.2663	-.3246	-.4306	-.4506	-.4499	-.4174	-.4179	-.4142
.600	-.2374	-.3156	-.4245	-.4546	-.4352	-.4215	-.4170	-.4159
.650	-.2177	-.3106	-.4298	-.4523	-.4565	-.4248	-.4145	-.4203
.700	-.2055	-.3045	-.4275	-.4616	-.4541	-.4349	-.4308	-.4265
.750	-.1997	-.3027	-.4253	-.4545	-.4538	-.4415	-.4320	-.4356
.800	-.1979	-.3059	-.4356	-.4740	-.4694	-.4569	-.4439	-.4425
.850	-.1908	-.3068	-.4630	-.4332	-.4400	-.4355	-.4391	-.4427
.900	-.1954	-.3223	-.3685	-.3350	-.3628	-.3947	-.3720	-.4278
.950	-.1943	-.2985	-.1857	-.2041	-.2714	-.3403	-.3240	-.3784

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	-2.01	.01	2.00	3.03	3.50	4.00	4.01	4.50
.000	.1597	.7609	.8674	.8383	.8369	.8102	.8185	.7887
.005	-1.2995	-.3160	.4536	.6203	.6578	.7011	.7171	.7436
.010	-1.1008	-.3397	.2986	.4739	.5409	.5394	.5276	.5797
.015	-.9565	-.3322	.2165	.3894	.3880	.4319	.4235	.4654
.020	-.8617	-.3246	.1683	.3089	.3299	.3652	.3617	.4048
.025	-.7959	-.2986	.1397	.2696	.2976	.3203	.3178	.3564
.031	-.7327	-.2824	.1195	.2277	.2505	.2869	.2835	.3191
.040	-.6425	-.2540	.0982	.2043	.2144	.2405	.2351	.2683
.050	-.5781	-.2324	.0799	.1772	.1865	.2118	.2125	.2345
.060	-.5319	-.2159	.0720	.1660	.1735	.1988	.1936	.2190
.075	-.4693	-.1807	.0711	.1377	.1597	.1717	.1688	.1965
.100	-.3962	-.1419	.0674	.1320	.1406	.1575	.1551	.1720
.150	-.3013	-.0956	.0772	.1313	.1404	.1514	.1435	.1566
.200	-.2259	-.0589	.0816	.1201	.1268	.1365	.1389	.1422
.250	-.1398	-.0205	.0943	.1318	.1228	.1329	.1385	.1372
.300	-.0794	.0043	.1062	.1271	.1331	.1326	.1292	.1354
.350	-.0617	.0173	.1099	.1384	.1298	.1317	.1297	.1347
.400	-.0350	.0345	.1149	.1324	.1287	.1247	.1279	.1298
.450	-.0100	.0443	.1208	.1301	.1307	.1270	.1291	.1294
.505	.0226	.0599	.1292	.1361	.1294	.1294	.1261	.1242
.550	.0329	.0690	.1282	.1376	.1470	.1279	.1178	.1249
.600	.0416	.0696	.1310	.1389	.1304	.1236	.1175	.1184
.650	.0549	.0772	.1302	.1434	.1406	.1093	.1156	.1044
.700	.0608	.0909	.1323	.1399	.1233	.1085	.1175	.1010
.750	.0730	.0879	.1347	.1221	.1165	.0984	.0955	.0937
.800	.0741	.0913	.1318	.1310	.1188	.0937	.0780	.0821
.850	.0919	.0899	.1305	.1300	.0893	.0773	.0720	.0584
.900	.0957	.0767	.1173	.0977	.0662	.0507	.0686	.0230
.950	.0746	.0625	.0950	.0728	.0400	.0048	.0047	-.0133

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	5.00	5.51	6.00	6.50	7.01	7.38	8.00	8.50
.000	.7407	.6685	.5902	.4895	.3854	-1.1731	-1.7158	-2.1512
.005	-.1530	-.2737	-.3981	-.5268	-.6516	-2.2272	-2.6848	-3.0119
.010	-.4476	-.5486	-.6634	-.7614	-.8947	-2.2065	-2.5358	-2.7801
.015	-.5446	-.6368	-.7347	-.8313	-.9407	-2.1015	-2.4203	-2.6102
.020	-.6151	-.6960	-.7810	-.8586	-.9461	-2.0005	-2.2779	-2.4670
.025	-.6529	-.7353	-.8142	-.8809	-.9437	-1.9343	-2.1824	-2.3430
.030	-.6879	-.7553	-.8223	-.8883	-.9535	-1.8767	-2.0902	-2.2604
.040	-.7153	-.7749	-.8301	-.8778	-.9314	-1.7850	-1.9869	-2.1003
.050	-.7281	-.7831	-.8281	-.8756	-.9191	-1.7018	-1.8911	-2.0204
.060	-.7449	-.7831	-.8340	-.8665	-.8995	-1.6480	-1.8037	-1.9296
.075	-.7461	-.7855	-.8166	-.8477	-.8707	-1.5575	-1.7134	-1.8224
.100	-.7389	-.7692	-.7968	-.8072	-.8132	-1.4608	-1.5827	-1.7091
.150	-.6997	-.7126	-.7173	-.7159	-.7008	-1.3101	-1.4219	-1.5615
.200	-.6440	-.6399	-.6303	-.6163	-.5918	-1.1912	-1.3011	-1.4442
.250	-.5734	-.5622	-.5461	-.5338	-.5292	-1.1039	-1.2182	-1.3639
.300	-.5064	-.4932	-.4879	-.4969	-.5035	-1.0314	-1.1494	-1.2769
.350	-.4533	-.4569	-.4626	-.4799	-.4908	-.9845	-1.1021	-1.1737
.400	-.4299	-.4405	-.4548	-.4696	-.4959	-.9576	-1.0704	-.9599
.450	-.4274	-.4361	-.4554	-.4710	-.4977	-.9443	-1.0716	-.8254
.500	-.4274	-.4391	-.4535	-.4738	-.5001	-.9487	-.9012	-.7161
.550	-.4233	-.4415	-.4569	-.4860	-.5070	-.9619	-.5812	-.6048
.600	-.4249	-.4428	-.4679	-.4931	-.5230	-.6603	-.4298	-.4961
.650	-.4308	-.4518	-.4729	-.4956	-.5184	-.3623	-.3602	-.3964
.700	-.4402	-.4583	-.4754	-.4972	-.5057	-.2492	-.2945	-.3114
.750	-.4506	-.4701	-.4800	-.4889	-.4831	-.1889	-.2308	-.2384
.800	-.4568	-.4658	-.4706	-.4713	-.4640	-.1402	-.1694	-.1736
.850	-.4534	-.4536	-.4537	-.4540	-.4437	-.0915	-.1126	-.1119
.900	-.4294	-.4279	-.4265	-.4272	-.4256	-.0449	-.0563	-.0534
.950	-.3859	-.3899	-.3925	-.3981	-.4006	-.0016	-.0061	-.0054

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	5.00	5.51	6.00	6.50	7.01	7.38	8.00	8.50
.000	.7407	.6685	.5902	.4895	.3854	-1.1731	-1.7158	-2.1512
.005	.8034	.8510	.8968	.9272	.9437	.9175	.8645	.7955
.010	.6411	.7018	.7479	.8026	.8311	1.0063	.9841	.9924
.015	.5225	.5776	.6361	.6834	.7374	.9672	.9968	.9977
.020	.4692	.5014	.5558	.6071	.6594	.9133	.9582	.9772
.025	.3996	.4582	.5018	.5528	.5920	.8649	.9156	.9336
.031	.3578	.4096	.4679	.5036	.5515	.8209	.8607	.9090
.040	.3101	.3580	.4019	.4380	.4811	.7444	.7942	.8258
.050	.2752	.3227	.3532	.3920	.4342	.6837	.7441	.7676
.060	.2580	.2896	.3283	.3595	.3899	.6422	.6889	.7268
.075	.2288	.2580	.2890	.3203	.3577	.5836	.6388	.6696
.100	.2016	.2280	.2569	.2839	.3147	.5196	.5646	.5981
.150	.1715	.2014	.2239	.2383	.2656	.4531	.4819	.5144
.200	.1622	.1758	.1947	.2152	.2351	.4058	.4287	.4538
.250	.1542	.1743	.1872	.1970	.2196	.3613	.3943	.4238
.300	.1488	.1616	.1787	.1878	.2076	.3525	.3771	.3947
.350	.1507	.1505	.1689	.1750	.1946	.3238	.3543	.3672
.400	.1407	.1514	.1551	.1716	.1782	.3125	.3357	.3498
.450	.1406	.1453	.1549	.1583	.1678	.2970	.3222	.3319
.505	.1292	.1351	.1466	.1473	.1599	.2861	.2985	.3142
.550	.1249	.1267	.1359	.1362	.1426	.2797	.2982	.3046
.600	.1230	.1230	.1238	.1249	.1324	.2630	.2806	.2960
.650	.1122	.1115	.1142	.1204	.1228	.2517	.2622	.2793
.700	.1048	.0989	.1049	.1056	.1018	.2450	.2552	.2714
.750	.0929	.0807	.0876	.0887	.0859	.2327	.2451	.2529
.800	.0695	.0688	.0642	.0643	.0717	.2190	.2287	.2349
.850	.0449	.0511	.0433	.0368	.0421	.2052	.2110	.2238
.900	.0217	.0181	.0125	.0056	-.0009	.1860	.1923	.2028
.950	-.0274	-.0352	-.0494	-.0523	-.0648	.1613	.1653	.1668

UPPER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	10.00	10.00
.000	-2.4217	-2.4711
.005	-2.9345	-2.9413
.010	-2.6530	-2.6709
.015	-2.5729	-2.5689
.020	-2.4642	-2.4484
.025	-2.3865	-2.4009
.030	-2.3782	-2.3680
.040	-2.3384	-2.3397
.050	-2.3200	-2.3307
.060	-2.3305	-2.3130
.075	-2.2977	-2.2944
.100	-2.2908	-2.3017
.150	-1.8871	-1.8931
.200	-1.2058	-1.1896
.250	-1.1266	-1.1203
.300	-1.0794	-1.0772
.350	-1.0052	-1.0051
.400	-.9061	-.9047
.450	-.7935	-.7929
.500	-.6753	-.6759
.550	-.5621	-.5578
.600	-.4561	-.4570
.650	-.3669	-.3676
.700	-.2966	-.2952
.750	-.2370	-.2368
.800	-.1835	-.1756
.850	-.1399	-.1351
.900	-.1019	-.1001
.950	-.0763	-.0730

LOWER SURFACE PRESSURE COEFFICIENTS FOR VARIOUS ALPHAS

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	10.00	10.00
.000	-2.4217	-2.4711
.005	.6949	.6924
.010	.9476	.9677
.015	1.0043	1.0028
.020	1.0018	.9885
.025	.9586	.9695
.031	.9346	.9363
.040	.8682	.8674
.050	.8077	.8161
.060	.7766	.7674
.075	.7141	.7044
.100	.6367	.6440
.150	.5439	.5493
.200	.4875	.4930
.250	.4447	.4499
.300	.4047	.4103
.350	.3925	.3851
.400	.3677	.3613
.450	.3400	.3407
.505	.3209	.3230
.550	.3104	.3065
.600	.2909	.2882
.650	.2695	.2706
.700	.2534	.2503
.750	.2298	.2337
.800	.2134	.2224
.850	.1897	.1961
.900	.1647	.1670
.950	.1188	.1247

Appendix E

Spanwise Pressure Coefficients

This appendix contains a computer listing of the upper surface spanwise pressure coefficient data for various angles of attack for the Eppler 387 airfoil section as measured in the Langley Low-Turbulence Pressure Tunnel. No wind-tunnel blockage corrections have been applied to the data.

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	Y/(B/2)	-2.93	-2.01	-1.00	-.75	-.50	.00	.00	.01
.05	.156	.2323	.0987	-.0569	-.0961	-.1378	-.2259	-.2249	-.2253
.05	.222	.2216	.0916	-.0657	-.1026	-.1434	-.2330	-.2321	-.2335
.05	.333	.2181	.0876	-.0703	-.1109	-.1536	-.2409	-.2383	-.2416
.05	.444	.2205	.0926	-.0660	-.1056	-.1463	-.2346	-.2363	-.2368
.05	.556	.2313	.1046	-.0544	-.0923	-.1348	-.2215	-.2213	-.2225
.05	.667	.2245	.0957	-.0578	-.0960	-.1384	-.2237	-.2245	-.2260
.05	.778	.2323	.1056	-.0475	-.0859	-.1258	-.2117	-.2106	-.2106
.05	.889	.2242	.1008	-.0486	-.0844	-.1253	-.2051	-.2077	-.2101
.05	.945	.2058	.0836	-.0652	-.0970	-.1327	-.2325	-.2173	-.2252
.90	.178	.0212	.0083	.0006	.0002	-.0017	-.0080	-.0071	-.0084
.90	.222	.0245	.0107	.0010	.0000	-.0028	-.0079	-.0082	-.0075
.90	.333	.0324	.0171	.0080	.0074	.0045	-.0042	-.0023	-.0018
.90	.444	.0270	.0138	.0025	.0001	-.0010	-.0058	-.0055	-.0063
.90	.556	.0253	.0103	-.0012	.0004	-.0008	-.0110	-.0059	-.0070
.90	.667	.0239	.0123	.0002	-.0012	-.0018	-.0061	-.0072	-.0073
.90	.778	.0231	.0102	.0011	-.0009	-.0010	-.0084	-.0052	-.0069
.90	.945	-.0042	-.0073	-.0177	-.0223	-.0243	-.0278	-.0249	-.0236

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	Y/(B/2)	1.01	2.00	3.00	4.00	5.00	6.00	6.00	6.01
.05	.156	-.4129	-.6115	-.8255	-1.0479	-1.2852	-1.5352	-1.5339	-1.5360
.05	.222	-.4218	-.6208	-.8330	-1.0548	-1.2888	-1.5364	-1.5360	-1.5384
.05	.333	-.4288	-.6255	-.8393	-1.0591	-1.2921	-1.5375	-1.5402	-1.5433
.05	.444	-.4238	-.6208	-.8335	-1.0542	-1.2872	-1.5346	-1.5346	-1.5370
.05	.556	-.4082	-.6077	-.8202	-1.0419	-1.2747	-1.5214	-1.5246	-1.5257
.05	.667	-.4085	-.6041	-.8135	-1.0329	-1.2621	-1.5018	-1.5032	-1.5051
.05	.778	-.3910	-.5857	-.7909	-1.0047	-1.2287	-1.4626	-1.4652	-1.4693
.05	.889	-.3843	-.5725	-.7723	-.9787	-1.2023	-1.4277	-1.4310	-1.4334
.05	.945	-.3890	-.5849	-.7851	-.9840	-1.2054	-1.4268	-1.4435	-1.4363
.90	.178	-.0164	-.0243	-.0314	-.0396	-.0447	-.0481	-.0484	-.0489
.90	.222	-.0162	-.0236	-.0310	-.0395	-.0460	-.0482	-.0485	-.0496
.90	.333	-.0114	-.0193	-.0272	-.0328	-.0391	-.0426	-.0425	-.0417
.90	.444	-.0154	-.0226	-.0306	-.0387	-.0433	-.0468	-.0468	-.0480
.90	.556	-.0164	-.0241	-.0314	-.0394	-.0448	-.0484	-.0477	-.0477
.90	.667	-.0143	-.0216	-.0301	-.0363	-.0423	-.0481	-.0464	-.0473
.90	.778	-.0160	-.0232	-.0292	-.0376	-.0426	-.0486	-.0469	-.0477
.90	.945	-.0331	-.0409	-.0476	-.0552	-.0624	-.0704	-.0703	-.0699

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	Y/(B/2)	6.11	6.25	6.51	7.01	8.01	9.00	10.01	11.01
.05	.156	-1.5601	-1.5944	-1.6589	-1.7826	-2.0195	-2.0931	-2.1726	-2.2925
.05	.222	-1.5639	-1.5972	-1.6662	-1.7823	-2.0063	-1.9642	-2.1333	-2.2135
.05	.333	-1.5617	-1.5989	-1.6609	-1.7808	-2.0136	-2.0964	-2.2217	-2.2481
.05	.444	-1.5600	-1.5966	-1.6586	-1.7798	-2.0031	-2.4156	-1.9981	-2.2099
.05	.556	-1.5488	-1.5865	-1.6504	-1.7680	-2.0014	-2.4478	-2.1313	-2.2753
.05	.667	-1.5270	-1.5624	-1.6237	-1.7435	-1.9643	-2.0859	-2.1354	-2.2266
.05	.778	-1.4906	-1.5267	-1.5870	-1.7038	-1.9225	-2.3077	-1.9159	-2.2119
.05	.889	-1.4559	-1.4903	-1.5523	-1.6707	-1.8752	-2.1063	-2.0101	-2.1702
.05	.945	-1.4531	-1.4903	-1.5508	-1.6739	-1.8908	-2.0857	-2.1182	-2.1623
.90	.178	-.0492	-.0487	-.0497	-.0524	-.0624	-.0811	-.1223	-.2371
.90	.222	-.0494	-.0514	-.0505	-.0565	-.0611	-.0835	-.1303	-.2567
.90	.333	-.0429	-.0426	-.0453	-.0479	-.0575	-.0824	-.1346	-.2694
.90	.444	-.0482	-.0472	-.0493	-.0549	-.0589	-.0800	-.1221	-.2083
.90	.556	-.0486	-.0511	-.0498	-.0501	-.0588	-.0790	-.1139	-.2112
.90	.667	-.0483	-.0480	-.0490	-.0522	-.0585	-.0753	-.1165	-.2196
.90	.778	-.0473	-.0502	-.0510	-.0511	-.0579	-.0740	-.1041	-.1603
.90	.945	-.0692	-.0758	-.0768	-.0849	-.1071	-.1397	-.1873	-.2348

RUNS 3,4,5 PTINF = 15 PSI M = 0.09 R = 300,000

X/C	Y/(B/2)	12.00	13.00	14.00	15.00	16.00
.05	.156	-2.3230	-2.3127	-2.2887	-2.1812	-1.2138
.05	.222	-2.2300	-2.2530	-2.2416	-2.1760	-.8900
.05	.333	-2.2324	-2.2103	-2.1694	-2.2915	-.7099
.05	.444	-2.2439	-2.2340	-2.2022	-2.1000	-.7311
.05	.556	-2.2975	-2.2746	-2.2079	-2.0741	-.8421
.05	.667	-2.2709	-2.2691	-2.1888	-2.0407	-1.0338
.05	.778	-2.2724	-2.3208	-2.3145	-2.2283	-1.2796
.05	.889	-2.2442	-2.3006	-2.3638	-2.3231	-1.5971
.05	.945	-2.2026	-2.2588	-2.3643	-2.4865	-1.6881
.90	.178	-.3311	-.3826	-.4457	-.6410	-.7185
.90	.222	-.3352	-.3865	-.4427	-.5127	-.6868
.90	.333	-.3235	-.3762	-.4396	-.5017	-.6548
.90	.444	-.2982	-.3697	-.4368	-.4875	-.6568
.90	.556	-.2928	-.3679	-.4188	-.4744	-.6669
.90	.667	-.2778	-.3816	-.4333	-.6113	-.6736
.90	.778	-.2404	-.3324	-.4590	-.5210	-.6474
.90	.945	-.2744	-.3062	-.3323	-.4536	-.6126

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	16.01	14.01	11.99	10.03	7.94	5.98	4.03	2.00
.05	.156	-1.2320	-2.2801	-2.3163	-2.1759	-1.9960	-1.5295	-1.0603	-.6165
.05	.222	-1.0395	-2.2333	-2.2342	-2.1349	-1.9926	-1.5320	-1.0648	-.6218
.05	.333	-.8254	-2.1784	-2.2137	-2.1612	-1.9915	-1.5344	-1.0718	-.6299
.05	.444	-.7573	-2.1976	-2.2411	-2.0107	-1.9873	-1.5323	-1.0652	-.6241
.05	.556	-.8190	-2.1958	-2.2901	-2.1403	-1.9825	-1.5185	-1.0510	-.6108
.05	.667	-1.0379	-2.1809	-2.2676	-2.1374	-1.9466	-1.4979	-1.0409	-.6074
.05	.778	-1.2721	-2.3044	-2.2740	-1.9130	-1.9098	-1.4622	-1.0135	-.5847
.05	.889	-1.4869	-2.3510	-2.2426	-2.0052	-1.8659	-1.4317	-.9928	-.5750
.05	.945	-1.7439	-2.3761	-2.2057	-2.1267	-1.8693	-1.4383	-1.0017	-.5820
.90	.178	-.7073	-.4404	-.3314	-.1277	-.0617	-.0504	-.0417	-.0238
.90	.222	-.6702	-.4428	-.3270	-.1337	-.0611	-.0479	-.0404	-.0270
.90	.333	-.6812	-.4344	-.3138	-.1427	-.0555	-.0422	-.0340	-.0188
.90	.444	-.6435	-.4337	-.2990	-.1246	-.0587	-.0468	-.0406	-.0231
.90	.556	-.6603	-.4193	-.2922	-.1157	-.0580	-.0483	-.0384	-.0259
.90	.667	-.6875	-.4307	-.2775	-.1173	-.0558	-.0480	-.0397	-.0246
.90	.778	-.6432	-.4522	-.2448	-.1067	-.0574	-.0472	-.0403	-.0228
.90	.945	-.5850	-.3405	-.2684	-.1972	-.1019	-.0695	-.0571	-.0417

RUN 8 PTINF = 15 PSI M = 0.09 R = 300,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	-.01
.05	.156	-.2239
.05	.222	-.2305
.05	.333	-.2404
.05	.444	-.2320
.05	.556	-.2203
.05	.667	-.2226
.05	.778	-.2085
.05	.889	-.2051
.05	.945	-.2162
.90	.178	-.0068
.90	.222	-.0075
.90	.333	-.0019
.90	.444	-.0051
.90	.556	-.0063
.90	.667	-.0064
.90	.778	-.0063
.90	.945	-.0273

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	Y/(B/2)	-2.84	-1.99	-.99	-.01	.01	1.04	2.04	2.99
.05	.156	.2115	.0974	-.0510	-.2165	-.2180	-.4110	-.6109	-.8100
.05	.222	.2037	.0882	-.0603	-.2743	-.2259	-.4180	-.6158	-.8129
.05	.333	.2018	.0839	-.0647	-.2341	-.2358	-.4253	-.6195	-.8197
.05	.444	.2032	.0863	-.0603	-.2279	-.2303	-.4210	-.6193	-.8178
.05	.556	.2155	.0980	-.0461	-.2116	-.2153	-.4051	-.6047	-.8022
.05	.667	.2071	.0947	-.0513	-.2167	-.2176	-.4052	-.6014	-.7964
.05	.778	.2137	.1020	-.0427	-.2025	-.2065	-.3895	-.5844	-.7747
.05	.889	.2070	.0977	-.0437	-.2029	-.2061	-.3878	-.5729	-.7577
.05	.945	.1890	.0773	-.0576	-.2124	-.2256	-.4027	-.5817	-.7709
.90	.178	.0391	.0361	.0220	.0010	.0089	-.0069	-.0169	-.0251
.90	.222	.0585	.0403	.0265	.0080	.0058	-.0055	-.0150	-.0263
.90	.333	.0728	.0491	.0304	.0104	.0119	.0000	-.0110	-.0188
.90	.444	.0611	.0418	.0263	.0090	.0073	-.0038	-.0131	-.0225
.90	.556	.0577	.0414	.0263	.0074	.0054	-.0046	-.0126	-.0229
.90	.667	.0604	.0419	.0259	.0114	.0073	-.0068	-.0175	-.0238
.90	.778	.0593	.0409	.0252	.0105	.0085	-.0022	-.0129	-.0220
.90	.945	-.0025	-.0064	-.0122	-.0221	-.0220	-.0266	-.0357	-.0439

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	Y/(B/2)	3.99	4.99	5.02	5.05	5.05	5.51	6.02	6.03
.05	.156	-1.0257	-1.2592	-1.2615	-1.2778	-1.2736	-1.3880	-1.5168	-1.5127
.05	.222	-1.0362	-1.2646	-1.2736	-1.2834	-1.2815	-1.3942	-1.5181	-1.5135
.05	.333	-1.0403	-1.2686	-1.2742	-1.2844	-1.2869	-1.3928	-1.5235	-1.5212
.05	.444	-1.0338	-1.2641	-1.2715	-1.2788	-1.2791	-1.3921	-1.5137	-1.5209
.05	.556	-1.0195	-1.2532	-1.2597	-1.2681	-1.2732	-1.3775	-1.5054	-1.5066
.05	.667	-1.0148	-1.2393	-1.2474	-1.2552	-1.2570	-1.3655	-1.4927	-1.4830
.05	.778	-.9891	-1.2176	-1.2151	-1.2306	-1.2271	-1.3414	-1.4592	-1.4541
.05	.889	-.9726	-1.1879	-1.1966	-1.2137	-1.2082	-1.3096	-1.4324	-1.4295
.05	.945	-.9736	-1.1924	-1.1903	-1.2182	-1.2157	-1.3154	-1.4305	-1.4356
.90	.178	-.0328	-.0391	-.0438	-.0423	-.0405	-.0455	-.0500	-.0493
.90	.222	-.0336	-.0430	-.0397	-.0426	-.0407	-.0429	-.0472	-.0472
.90	.333	-.0285	-.0342	-.0343	-.0362	-.0352	-.0411	-.0422	-.0423
.90	.444	-.0333	-.0392	-.0384	-.0393	-.0391	-.0434	-.0484	-.0455
.90	.556	-.0322	-.0392	-.0395	-.0434	-.0399	-.0441	-.0487	-.0459
.90	.667	-.0346	-.0376	-.0378	-.0422	-.0363	-.0447	-.0474	-.0443
.90	.778	-.0286	-.0386	-.0385	-.0417	-.0392	-.0451	-.0456	-.0439
.90	.945	-.0517	-.0551	-.0595	-.0568	-.0589	-.0663	-.0697	-.0696

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	Y/(B/2)	6.50	7.01	7.05	7.22	7.56	7.76	8.00	8.02
.05	.156	-1.6322	-1.7634	-1.7795	-1.8231	-1.9118	-1.9439	-1.9982	-1.9943
.05	.222	-1.6367	-1.7757	-1.7826	-1.8218	-1.9050	-1.9382	-1.9924	-1.9954
.05	.333	-1.6354	-1.7733	-1.7788	-1.8277	-1.9023	-1.9396	-1.9950	-2.0051
.05	.444	-1.6343	-1.7694	-1.7793	-1.8247	-1.9057	-1.9397	-1.9926	-1.9991
.05	.556	-1.6257	-1.7591	-1.7698	-1.8112	-1.8946	-1.9365	-1.9886	-1.9982
.05	.667	-1.6007	-1.7361	-1.7433	-1.7880	-1.8619	-1.9075	-1.9550	-1.9584
.05	.778	-1.5686	-1.7005	-1.7061	-1.7526	-1.8247	-1.8619	-1.9208	-1.9291
.05	.889	-1.5325	-1.6627	-1.6761	-1.7129	-1.7886	-1.8249	-1.8749	-1.8875
.05	.945	-1.5381	-1.6626	-1.6836	-1.7163	-1.7887	-1.8282	-1.8762	-1.8968
.90	.178	-.0515	-.0537	-.0513	-.0508	-.0552	-.0577	-.0612	-.0607
.90	.222	-.0485	-.0494	-.0513	-.0547	-.0588	-.0578	-.0610	-.0601
.90	.333	-.0438	-.0443	-.0432	-.0481	-.0515	-.0522	-.0553	-.0577
.90	.444	-.0472	-.0515	-.0504	-.0533	-.0544	-.0551	-.0585	-.0589
.90	.556	-.0482	-.0481	-.0514	-.0521	-.0569	-.0573	-.0586	-.0560
.90	.667	-.0473	-.0495	-.0499	-.0510	-.0550	-.0531	-.0554	-.0564
.90	.778	-.0477	-.0504	-.0545	-.0523	-.0546	-.0523	-.0550	-.0524
.90	.945	-.0679	-.0791	-.0839	-.0832	-.0946	-.0968	-.0990	-.1052

RUNS 9,10,13 PTINF = 15 PSI M = 0.06 R = 200,000

X/C	Y/(B/2)	9.00	10.01	11.03	12.08	13.01	14.00	14.99	16.09
.05	.156	-2.3308	-1.9043	-2.0501	-2.1181	-2.0836	-2.1276	-.8518	-.7244
.05	.222	-2.3618	-2.0203	-1.9095	-1.9679	-2.0452	-2.2987	-.8793	-.7408
.05	.333	-1.8753	-1.8750	-1.9446	-2.0400	-2.2078	-2.5463	-1.1206	-.7280
.05	.444	-2.4547	-2.9008	-1.9742	-1.9650	-2.0457	-2.2769	-.9750	-.6949
.05	.556	-2.4464	-2.2211	-1.9461	-2.0004	-2.0575	-2.2230	-.9353	-.7081
.05	.667	-2.2765	-1.8558	-1.9216	-1.9967	-2.0766	-2.3378	-1.3743	-.7794
.05	.778	-2.2563	-2.7412	-1.9094	-1.9726	-2.0286	-2.1321	-1.6745	-.8862
.05	.889	-2.1128	-2.2077	-1.9180	-1.9550	-2.0131	-2.1216	-1.8103	-1.1568
.05	.945	-2.0823	-2.1692	-2.0151	-1.9737	-2.0814	-2.2613	-2.0413	-1.2681
.90	.178	-.0803	-.1321	-.2159	-.3085	-.3557	-.4261	-.6372	-.6850
.90	.222	-.0839	-.1332	-.2273	-.2957	-.3467	-.4095	-.6396	-.6835
.90	.333	-.0812	-.1392	-.2288	-.2756	-.3355	-.4081	-.6252	-.6853
.90	.444	-.0832	-.1270	-.1951	-.2821	-.3391	-.4009	-.6428	-.6798
.90	.556	-.0809	-.1213	-.1968	-.2762	-.3379	-.3769	-.6488	-.6846
.90	.667	-.0771	-.1215	-.2026	-.2640	-.3308	-.3788	-.6318	-.6860
.90	.778	-.0737	-.1080	-.1663	-.2466	-.3186	-.3811	-.5500	-.7314
.90	.945	-.1264	-.1561	-.2065	-.2823	-.3239	-.3556	-.5136	-.7220

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	16.09	14.03	12.02	10.04	8.01	5.97	4.03	2.01
.05	.156	-.7201	-2.1271	-2.1119	-1.8868	-1.9975	-1.5062	-1.0389	-.6033
.05	.222	-.7270	-2.3075	-1.9734	-1.9761	-2.0024	-1.5050	-1.0464	-.6107
.05	.333	-.7129	-2.5413	-2.0300	-1.8865	-1.9982	-1.5069	-1.0484	-.6193
.05	.444	-.6965	-2.3026	-1.9602	-2.8845	-1.9959	-1.5073	-1.0439	-.6142
.05	.556	-.7114	-2.2673	-1.9995	-2.1022	-1.9947	-1.4942	-1.0336	-.6003
.05	.667	-.7676	-2.3727	-2.0027	-1.8610	-1.9604	-1.4740	-1.0258	-.5965
.05	.778	-.8576	-2.1569	-1.9829	-2.6959	-1.9258	-1.4442	-.9997	-.5821
.05	.889	-1.0738	-2.1302	-1.9556	-2.1838	-1.8883	-1.4214	-.9807	-.5696
.05	.945	-1.2263	-2.2575	-1.9944	-2.1564	-1.8868	-1.4212	-.9916	-.5893
.90	.178	-.6878	-.4200	-.2913	-.1266	-.0586	-.0509	-.0311	-.0177
.90	.222	-.6818	-.4198	-.2951	-.1382	-.0583	-.0505	-.0349	-.0147
.90	.333	-.6877	-.4147	-.2753	-.1367	-.0504	-.0415	-.0272	-.0091
.90	.444	-.6782	-.3965	-.2765	-.1316	-.0598	-.0435	-.0325	-.0129
.90	.556	-.6760	-.3819	-.2787	-.1246	-.0550	-.0480	-.0323	-.0166
.90	.667	-.7001	-.3766	-.2634	-.1254	-.0553	-.0470	-.0303	-.0148
.90	.778	-.7110	-.3807	-.2390	-.1128	-.0552	-.0468	-.0318	-.0119
.90	.945	-.7049	-.3562	-.2743	-.1604	-.1022	-.0687	-.0515	-.0346

RUN 11 PTINF = 15 PSI M = 0.06 R = 200,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	.03	.03
.05	.156	-.2296	-.2271
.05	.222	-.2361	-.2321
.05	.333	-.2423	-.2402
.05	.444	-.2376	-.2360
.05	.556	-.2230	-.2226
.05	.667	-.2272	-.2260
.05	.778	-.2133	-.2139
.05	.889	-.2143	-.2117
.05	.945	-.2267	-.2295
.90	.178	.0023	.0041
.90	.222	.0037	.0068
.90	.333	.0112	.0123
.90	.444	.0068	.0079
.90	.556	.0085	.0101
.90	.667	.0087	.0086
.90	.778	.0080	.0087
.90	.945	-.0191	-.0219

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	Y/(B/2)	-2.98	-1.99	-.98	-.52	-.02	-.02	-.01	.00
.05	.156	.2110	.0724	-.0669	-.1467	-.2196	-.2236	-.2226	-.2234
.05	.222	.2090	.0701	-.0716	-.1507	-.2340	-.2279	-.2318	-.2312
.05	.333	.2075	.0612	-.0782	-.1580	-.2361	-.2362	-.2347	-.2387
.05	.444	.2111	.0685	-.0755	-.1520	-.2318	-.2327	-.2315	-.2286
.05	.556	.2239	.0823	-.0641	-.1369	-.2208	-.2151	-.2192	-.2171
.05	.667	.2193	.0739	-.0614	-.1369	-.2178	-.2199	-.2131	-.2138
.05	.778	.2244	.0829	-.0580	-.1319	-.2137	-.2110	-.2035	-.2098
.05	.889	.2143	.0692	-.0680	-.1410	-.2174	-.2138	-.2166	-.2157
.05	.945	.2015	.0575	-.0801	-.1613	-.2341	-.2271	-.2318	-.2296
.90	.178	-.2003	-.2393	-.1313	-.0741	-.0443	-.0410	-.0449	-.0419
.90	.222	-.1903	-.2618	-.1496	-.0945	-.0271	-.0340	-.0408	-.0514
.90	.333	-.1863	-.2609	-.1936	-.1207	-.0378	-.0592	-.0742	-.0665
.90	.444	-.1859	-.2690	-.2029	-.1280	-.0585	-.0720	-.0837	-.0799
.90	.556	-.1834	-.2649	-.2086	-.1385	-.0680	-.0897	-.0932	-.0962
.90	.667	-.1853	-.2689	-.2070	-.0954	-.0894	-.0834	-.0867	-.0809
.90	.778	-.1894	-.2498	-.1597	-.0657	-.0619	-.0553	-.0595	-.0526
.90	.945	-.0765	-.0152	.0113	.0098	.0089	.0056	.0082	.0064

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	Y/(B/2)	1.00	1.99	3.01	3.01	4.00	5.01	5.99	6.54
.05	.156	-.3976	-.5732	-.7712	-.7683	-.9700	-1.1864	-1.4321	-1.5706
.05	.222	-.4034	-.5824	-.7778	-.7826	-.9931	-1.2107	-1.4432	-1.5731
.05	.333	-.4129	-.5878	-.7780	-.7840	-.9945	-1.2020	-1.4467	-1.5840
.05	.444	-.4075	-.5879	-.7796	-.7799	-.9904	-1.2035	-1.4364	-1.5845
.05	.556	-.3921	-.5712	-.7683	-.7673	-.9757	-1.1860	-1.4347	-1.5698
.05	.667	-.3857	-.5645	-.7584	-.7580	-.9604	-1.1831	-1.4117	-1.5507
.05	.778	-.3827	-.5547	-.7462	-.7512	-.9562	-1.1574	-1.3984	-1.5271
.05	.889	-.3849	-.5655	-.7527	-.7549	-.9553	-1.1607	-1.3937	-1.5229
.05	.945	-.4010	-.5800	-.7736	-.7677	-.9691	-1.1703	-1.4079	-1.5245
.90	.178	.0176	.0171	.0105	.0041	-.0008	-.0154	-.0272	-.0426
.90	.222	.0154	.0170	.0081	.0097	-.0024	-.0131	-.0360	-.0429
.90	.333	.0080	.0177	.0032	.0137	-.0024	-.0161	-.0334	-.0366
.90	.444	-.0008	.0138	.0024	.0016	-.0040	-.0144	-.0344	-.0418
.90	.556	-.0016	.0025	.0064	.0000	-.0064	-.0115	-.0338	-.0370
.90	.667	-.0064	.0049	.0040	.0000	-.0048	-.0145	-.0314	-.0370
.90	.778	-.0047	-.0016	-.0016	-.0041	-.0096	-.0167	-.0320	-.0384
.90	.945	.0016	-.0113	-.0269	-.0296	-.0356	-.0440	-.0574	-.0637

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	Y/(B/2)	7.00	7.25	7.50	7.73	7.78	7.99	7.99	8.26
.05	.156	-1.6972	-1.7653	-1.8258	-1.9003	-1.9088	-1.9684	-1.9625	-2.0201
.05	.222	-1.6870	-1.7635	-1.8359	-1.8985	-1.9038	-1.9641	-1.9605	-2.0238
.05	.333	-1.6949	-1.7730	-1.8391	-1.9015	-1.9055	-1.9565	-1.9559	-2.0050
.05	.444	-1.6959	-1.7719	-1.8380	-1.9017	-1.9112	-1.9683	-1.9571	-2.0300
.05	.556	-1.6760	-1.7583	-1.8277	-1.9000	-1.9055	-1.9657	-1.9554	-2.0074
.05	.667	-1.6657	-1.7376	-1.8102	-1.8711	-1.8724	-1.9303	-1.9202	-2.0109
.05	.778	-1.6365	-1.7139	-1.7792	-1.8383	-1.8441	-1.8921	-1.8954	-1.9638
.05	.889	-1.6164	-1.6994	-1.7517	-1.8177	-1.8242	-1.8680	-1.8731	-1.9207
.05	.945	-1.6444	-1.6968	-1.7597	-1.8153	-1.8320	-1.8665	-1.8772	-1.9315
.90	.178	-.0516	-.0522	-.0479	-.0539	-.0543	-.0493	-.0564	-.0589
.90	.222	-.0498	-.0528	-.0563	-.0572	-.0513	-.0526	-.0506	-.0606
.90	.333	-.0403	-.0432	-.0459	-.0440	-.0469	-.0480	-.0463	-.0566
.90	.444	-.0509	-.0504	-.0502	-.0533	-.0530	-.0529	-.0499	-.0577
.90	.556	-.0503	-.0474	-.0510	-.0498	-.0518	-.0512	-.0518	-.0564
.90	.667	-.0474	-.0488	-.0453	-.0493	-.0532	-.0537	-.0523	-.0546
.90	.778	-.0454	-.0488	-.0470	-.0547	-.0545	-.0506	-.0528	-.0603
.90	.945	-.0711	-.0736	-.0770	-.0864	-.0872	-.0935	-.0908	-.1039

RUNS 15,16 PTINF = 15 PSI M = 0.03 R = 100,000

X/C	Y/(B/2)	8.49	8.76	9.01	10.05	10.99	12.00	13.00	14.00
.05	.156	-2.0418	-2.1141	-2.2582	-2.7219	-2.9757	-3.1497	-3.0459	-.6884
.05	.222	-2.0256	-2.1284	-2.3374	-2.6723	-2.9553	-3.0733	-3.0802	-.6973
.05	.333	-2.2764	-2.4052	-2.5371	-2.8204	-3.1010	-3.1733	-3.0331	-.7466
.05	.444	-2.0361	-2.1353	-2.2746	-2.6074	-2.9272	-3.0929	-3.0183	-.8079
.05	.556	-2.0344	-2.1041	-2.2567	-2.6239	-2.9391	-3.1546	-3.0519	-1.1555
.05	.667	-2.0255	-2.0581	-2.2513	-2.7720	-3.0207	-3.1283	-3.1185	-1.9667
.05	.778	-1.9848	-2.0082	-2.1246	-2.4752	-2.8316	-3.0928	-3.2228	-2.9476
.05	.889	-1.9544	-1.9764	-2.0500	-2.5263	-2.8671	-3.1061	-3.1675	-2.9434
.05	.945	-1.9659	-2.0047	-2.0500	-2.4353	-2.8896	-3.0783	-3.0329	-3.0435
.90	.178	-.0544	-.0735	-.0747	-.1211	-.1660	-.2312	-.2979	-.6157
.90	.222	-.0607	-.0739	-.0813	-.1220	-.1738	-.2304	-.3016	-.6157
.90	.333	-.0671	-.0743	-.0847	-.1244	-.1738	-.2326	-.2918	-.6346
.90	.444	-.0611	-.0707	-.0841	-.1162	-.1683	-.2353	-.2999	-.6267
.90	.556	-.0610	-.0687	-.0800	-.1128	-.1683	-.2302	-.2866	-.6271
.90	.667	-.0578	-.0695	-.0793	-.1160	-.1674	-.2257	-.2980	-.5997
.90	.778	-.0535	-.0618	-.0708	-.1069	-.1513	-.2141	-.2898	-.4571
.90	.945	-.1042	-.1050	-.1122	-.1503	-.1881	-.2403	-.3036	-.3386

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	14.00	14.00	13.00	11.98	11.01	9.99	9.01	8.00
.05	.156	-.6761	-.7005	-3.0635	-3.0884	-3.0641	-2.6643	-2.2545	-1.9749
.05	.222	-.7225	-.7044	-3.0515	-3.0992	-3.0272	-2.6784	-2.2992	-1.9704
.05	.333	-.7527	-.7346	-3.0034	-3.0957	-3.0434	-2.8453	-2.5556	-1.9677
.05	.444	-.7559	-.7664	-2.9754	-3.0637	-2.9582	-2.6019	-2.2680	-1.9765
.05	.556	-1.1453	-1.4582	-3.0875	-3.1216	-2.9580	-2.6159	-2.2734	-1.9685
.05	.667	-1.5504	-1.5175	-3.1026	-3.1391	-3.0286	-2.6652	-2.2400	-1.9428
.05	.778	-1.6812	-2.3614	-3.1797	-3.1002	-2.8800	-2.4909	-2.1164	-1.9052
.05	.889	-3.0661	-2.4936	-3.1873	-3.1186	-2.8627	-2.4715	-2.0497	-1.8742
.05	.945	-2.9544	-2.8222	-3.1540	-3.0827	-2.9303	-2.4425	-2.0362	-1.8748
.90	.178	-.6085	-.6079	-.3024	-.2456	-.1824	-.1132	-.0869	-.0531
.90	.222	-.6066	-.6168	-.3074	-.2539	-.1836	-.1204	-.0810	-.0550
.90	.333	-.6071	-.6143	-.3012	-.2450	-.1757	-.1213	-.0853	-.0485
.90	.444	-.6441	-.6297	-.3138	-.2315	-.1638	-.1120	-.0818	-.0519
.90	.556	-.5626	-.6407	-.3000	-.2280	-.1725	-.1135	-.0820	-.0556
.90	.667	-.5749	-.5117	-.2890	-.2116	-.1747	-.1067	-.0818	-.0500
.90	.778	-.5009	-.4662	-.2732	-.2026	-.1582	-.1025	-.0762	-.0539
.90	.945	-.3397	-.3318	-.2749	-.2378	-.1836	-.1407	-.1089	-.0905

RUN 17 PTINF = 15 PSI M = 0.03 R = 100,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	7.00	6.01	4.01	2.00	-.01
.05	.156	-1.7122	-1.4329	-.9759	-.5813	-.2326
.05	.222	-1.7075	-1.4456	-.9828	-.5869	-.2362
.05	.333	-1.7207	-1.4455	-.9858	-.5917	-.2475
.05	.444	-1.7372	-1.4414	-.9852	-.5904	-.2390
.05	.556	-1.7073	-1.4317	-.9704	-.5762	-.2234
.05	.667	-1.6943	-1.4086	-.9691	-.5723	-.2255
.05	.778	-1.6601	-1.3899	-.9506	-.5593	-.2138
.05	.889	-1.6258	-1.3824	-.9514	-.5545	-.2076
.05	.945	-1.6448	-1.3890	-.9497	-.5667	-.2223
.90	.178	-.0519	-.0395	.0024	.0206	-.0292
.90	.222	-.0477	-.0301	-.0039	.0157	-.0302
.90	.333	-.0469	-.0260	.0016	.0137	-.0439
.90	.444	-.0471	-.0335	-.0047	.0041	-.0659
.90	.556	-.0485	-.0285	-.0039	.0041	-.0835
.90	.667	-.0442	-.0268	-.0078	.0073	-.0816
.90	.778	-.0455	-.0319	-.0078	-.0041	-.0445
.90	.945	-.0695	-.0525	-.0352	-.0113	.0055

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	Y/(B/2)	-2.88	-1.99	-.94	-.75	-.50	-.26	-.01	.00
.05	.156	.2278	.0949	-.0719	-.1039	-.1465	-.1850	-.2304	-2.3678
.05	.222	.2213	.0909	-.0789	-.1089	-.1514	-.1901	-.2358	.0002
.05	.333	.2147	.0824	-.0849	-.1182	-.1601	-.1986	-.2436	-1.4011
.05	.444	.2195	.0892	-.0792	-.1108	-.1547	-.1931	-.2386	-1.4054
.05	.556	.2322	.1030	-.0671	-.0983	-.1416	-.1804	-.2241	-1.4108
.05	.667	.2258	.0937	-.0698	-.1023	-.1456	-.1832	-.2276	-1.4070
.05	.778	.2315	.1049	-.0592	-.0922	-.1299	-.1685	-.2132	-1.4056
.05	.889	.2284	.0984	-.0605	-.0899	-.1284	-.1665	-.2120	-1.4070
.05	.945	.2051	.0778	-.0786	-.1122	-.1445	-.1824	-.2246	-1.4041
.90	.178	.0123	.0043	-.0046	-.0071	-.0075	-.0085	-.0112	-.4909
.90	.222	.0124	.0027	-.0051	-.0061	-.0087	-.0090	-.0117	-.4673
.90	.333	.0182	.0104	-.0010	-.0024	-.0022	-.0022	-.0056	-.4703
.90	.444	.0138	.0041	-.0049	-.0050	-.0074	-.0062	-.0099	-.4666
.90	.556	.0138	.0030	-.0044	-.0052	-.0084	-.0091	-.0110	-.4553
.90	.667	.0122	.0027	-.0063	-.0076	-.0071	-.0080	-.0119	-.4787
.90	.778	.0127	.0035	-.0066	-.0053	-.0088	-.0088	-.0091	-.4923
.90	.945	-.0029	-.0125	-.0191	-.0213	-.0221	-.0220	-.0252	-.3307

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	Y/(B/2)	1.01	2.00	3.00	4.01	5.01	6.02	6.50	7.00
.05	.156	-.4227	-.6262	-.8422	-1.0709	-1.3110	-1.5658	-1.6819	-1.8023
.05	.222	-.4277	-.6302	-.8468	-1.0758	-1.3136	-1.4151	-1.4104	-1.4135
.05	.333	-.4352	-.6378	-.8537	-1.0816	-1.3180	-1.4140	-1.4099	-1.4194
.05	.444	-.4279	-.6312	-.8468	-1.0752	-1.3116	-1.4121	-1.4091	-1.4155
.05	.556	-.4158	-.6174	-.8336	-1.0622	-1.3005	-1.4119	-1.4166	-1.4112
.05	.667	-.4167	-.6154	-.8295	-1.0535	-1.2875	-1.4166	-1.4126	-1.4082
.05	.778	-.3997	-.5940	-.8029	-1.0262	-1.2551	-1.4068	-1.4088	-1.4197
.05	.889	-.3902	-.5845	-.7878	-1.0033	-1.2292	-1.4076	-1.4099	-1.4145
.05	.945	-.4045	-.5938	-.7950	-1.0153	-1.2308	-1.4096	-1.4099	-1.4136
.90	.178	-.0188	-.0270	-.0324	-.0403	-.0426	-.0478	-.0502	-.0518
.90	.222	-.0198	-.0269	-.0331	-.0406	-.0457	-.0490	-.0516	-.0522
.90	.333	-.0129	-.0205	-.0279	-.0335	-.0390	-.0416	-.0426	-.0468
.90	.444	-.0188	-.0261	-.0326	-.0376	-.0421	-.0477	-.0493	-.0517
.90	.556	-.0183	-.0266	-.0326	-.0405	-.0450	-.0478	-.0502	-.0518
.90	.667	-.0194	-.0260	-.0325	-.0379	-.0454	-.0484	-.0488	-.0490
.90	.778	-.0184	-.0258	-.0328	-.0382	-.0439	-.0471	-.0490	-.0501
.90	.945	-.0340	-.0418	-.0467	-.0544	-.0600	-.0661	-.0712	-.0778

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 20 PTINF = 15 PSI M = 0.13 R = 460,000

X/C	Y/(B/2)	8.00	9.02	9.99	10.99	12.01	12.99	13.99	13.99
.05	.156	-2.0379	-2.0508	-2.3068	-2.4041	-2.4153	-2.4019	-2.3698	-2.3678
.05	.222	-1.4175	-1.4049	-1.4116	-1.4079	-1.4040	-1.4106	-1.4011	-1.4070
.05	.333	-1.4084	-1.4068	-1.4008	-1.4040	-1.3932	-1.4097	-1.3976	-1.4011
.05	.444	-1.4173	-1.4107	-1.4155	-1.4066	-1.3968	-1.4052	-1.3955	-1.4054
.05	.556	-1.4106	-1.4181	-1.4141	-1.4049	-1.3970	-1.4066	-1.3933	-1.4108
.05	.667	-1.4093	-1.4154	-1.4080	-1.4111	-1.3929	-1.4105	-1.3940	-1.4070
.05	.778	-1.4164	-1.4110	-1.4107	-1.4069	-1.3974	-1.4083	-1.3970	-1.4056
.05	.889	-1.4146	-1.4169	-1.4046	-1.4142	-1.3944	-1.4115	-1.4016	-1.4070
.05	.945	-1.4118	-1.4118	-1.4127	-1.4027	-1.3990	-1.4088	-1.4032	-1.4041
.90	.178	-.0596	-.0779	-.1158	-.2085	-.3489	-.4283	-.4916	-.4909
.90	.222	-.0606	-.0813	-.1228	-.2434	-.3790	-.4400	-.4666	-.4673
.90	.333	-.0549	-.0804	-.1295	-.2719	-.3592	-.4254	-.4699	-.4703
.90	.444	-.0589	-.0786	-.1127	-.2137	-.3223	-.3995	-.4736	-.4666
.90	.556	-.0585	-.0735	-.1098	-.2024	-.3014	-.3948	-.4608	-.4553
.90	.667	-.0572	-.0730	-.1133	-.2076	-.2839	-.4033	-.4748	-.4787
.90	.778	-.0563	-.0733	-.0975	-.1551	-.2395	-.3343	-.4931	-.4923
.90	.945	-.0960	-.1283	-.1866	-.2311	-.2620	-.3036	-.3246	-.3307

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	Y/(B/2)	-2.88	-2.00	-1.50	-1.01	-.49	-.01	.00	.50
.05	.156	.2109	.0843	.0169	-.0628	-.1429	-.2232	-.2158	-.3113
.05	.222	.1924	.0704	.0134	-.0623	-.1502	-.2296	-.2331	-.3091
.05	.333	.1982	.0649	.0002	-.0664	-.1536	-.2399	-.2401	-.3223
.05	.444	.1900	.0831	.0062	-.0726	-.1518	-.2368	-.2327	-.3219
.05	.556	.2113	.0905	.0195	-.0654	-.1338	-.2124	-.2113	-.3080
.05	.667	.2023	.0731	.0138	-.0491	-.1434	-.2219	-.2248	-.2997
.05	.778	.2100	.0939	.0230	-.0475	-.1272	-.2058	-.2058	-.2955
.05	.889	.2103	.0875	.0335	-.0485	-.1252	-.2006	-.2020	-.2833
.05	.945	.2028	.0781	.0117	-.0631	-.1380	-.2287	-.2235	-.2979
.90	.178	-.1888	-.1591	-.1062	-.0355	.0196	.0385	.0095	.0118
.90	.222	-.1836	-.2572	-.1914	-.0607	.0476	.0542	.0442	.0138
.90	.333	-.1906	-.2557	-.2598	-.1859	-.0684	-.0020	-.0550	-.0369
.90	.444	-.2007	-.2523	-.2457	-.1286	-.0967	-.0297	-.0915	-.0599
.90	.556	-.1935	-.2423	-.2373	-.1737	-.0726	-.0259	-.0702	-.0579
.90	.667	-.1897	-.2533	-.2356	-.1466	-.0624	-.0145	-.0932	-.0222
.90	.778	-.2000	-.2412	-.1892	-.1412	-.0785	-.0340	-.0644	-.0371
.90	.945	-.0716	-.0314	.0026	.0261	.0296	.0197	.0180	.0244

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	Y/(B/2)	1.01	2.00	2.01	3.01	4.00	4.00	5.01	5.02
.05	.156	-.4006	-.5731	-.5771	-.7716	-.9681	-.9644	-1.1978	-1.2007
.05	.222	-.3993	-.5696	-.5697	-.7568	-.9525	-.9363	-1.1686	-1.1726
.05	.333	-.4134	-.5829	-.5889	-.7871	-.9896	-.9809	-1.2013	-1.2099
.05	.444	-.4084	-.5785	-.5881	-.7785	-.9805	-.9734	-1.2017	-1.2034
.05	.556	-.3917	-.5747	-.5759	-.7681	-.9574	-.9634	-1.1959	-1.1971
.05	.667	-.3904	-.5633	-.5649	-.7571	-.9568	-.9546	-1.1810	-1.1890
.05	.778	-.3819	-.5508	-.5621	-.7495	-.9478	-.9320	-1.1507	-1.1657
.05	.889	-.3889	-.5575	-.5593	-.7516	-.9407	-.9470	-1.1587	-1.1646
.05	.945	-.3920	-.5737	-.5687	-.7591	-.9511	-.9490	-1.1833	-1.1731
.90	.178	.0338	.0106	.0062	-.0052	-.0073	-.0088	-.0167	-.0124
.90	.222	.0369	-.0001	.0069	-.0111	-.0211	-.0269	-.0388	-.0366
.90	.333	-.0023	-.0036	.0028	-.0015	.0033	-.0049	-.0064	-.0100
.90	.444	-.0202	-.0144	-.0059	-.0093	-.0019	-.0075	-.0124	-.0062
.90	.556	-.0123	-.0132	-.0138	-.0012	-.0005	-.0155	-.0121	-.0120
.90	.667	-.0143	-.0228	-.0164	-.0140	.0010	-.0056	-.0029	-.0116
.90	.778	-.0103	-.0108	-.0037	-.0126	-.0122	-.0045	-.0087	-.0038
.90	.945	.0223	.0015	.0036	-.0091	-.0205	-.0329	-.0351	-.0353

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	Y/(B/2)	6.00	6.01	7.00	7.01	7.51	8.00	8.02	8.50
.05	.156	-1.4339	-1.4529	-1.7078	-1.7095	-1.8513	-1.9792	-1.9870	-2.0319
.05	.222	-1.4186	-1.4111	-1.6555	-1.6693	-1.8009	-1.9171	-1.9379	-1.9862
.05	.333	-1.4509	-1.4556	-1.6985	-1.7026	-1.8419	-1.9737	-1.9778	-2.3122
.05	.444	-1.4546	-1.4485	-1.7053	-1.7149	-1.8386	-1.9661	-1.9867	-2.0813
.05	.556	-1.4411	-1.4408	-1.6950	-1.6981	-1.8346	-1.9741	-1.9805	-2.0483
.05	.667	-1.4295	-1.4283	-1.6731	-1.6856	-1.8221	-1.9325	-1.9562	-2.0339
.05	.778	-1.3951	-1.4044	-1.6516	-1.6484	-1.7839	-1.9122	-1.9244	-2.0085
.05	.889	-1.3949	-1.3868	-1.6293	-1.6309	-1.7618	-1.8968	-1.9013	-1.9778
.05	.945	-1.3975	-1.3998	-1.6313	-1.6434	-1.7656	-1.8848	-1.8996	-1.9685
.90	.178	-.0298	-.0329	-.0428	-.0447	-.0455	-.0514	-.0494	-.0578
.90	.222	-.0540	-.0722	-.0904	-.0806	-.0906	-.1031	-.0918	-.1016
.90	.333	-.0268	-.0313	-.0354	-.0387	-.0458	-.0423	-.0467	-.0637
.90	.444	-.0308	-.0275	-.0476	-.0402	-.0508	-.0462	-.0474	-.0585
.90	.556	-.0313	-.0245	-.0437	-.0425	-.0437	-.0535	-.0503	-.0582
.90	.667	-.0284	-.0315	-.0347	-.0437	-.0409	-.0451	-.0478	-.0527
.90	.778	-.0223	-.0368	-.0455	-.0337	-.0391	-.0443	-.0569	-.0574
.90	.945	-.0442	-.0478	-.0584	-.0592	-.0669	-.0799	-.0828	-.0877

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	Y/(B/2)	8.50	9.00	10.00	11.00	12.00	13.01	13.49	13.75
.05	.156	-2.0372	-2.2585	-2.6663	-3.0449	-3.1776	-3.1769	-2.9936	-.7866
.05	.222	-2.0047	-2.7268	-2.6285	-2.9678	-3.1040	-3.0638	-2.8564	-.9541
.05	.333	-2.2859	-2.5519	-2.7966	-3.0868	-3.1821	-3.0912	-2.9018	-.8267
.05	.444	-2.0634	-2.2704	-2.5944	-2.9377	-3.1288	-3.0762	-2.9290	-1.0125
.05	.556	-2.0422	-2.2570	-2.6090	-2.9804	-3.1995	-3.1611	-2.9831	-1.9335
.05	.667	-2.0255	-2.2234	-2.7196	-3.0552	-3.2291	-3.2068	-3.0474	-1.4710
.05	.778	-1.9949	-2.1461	-2.5021	-2.8954	-3.1392	-3.2084	-3.1157	-2.7541
.05	.889	-1.9698	-2.0657	-2.5273	-2.9018	-3.1063	-3.1916	-3.1483	-3.2415
.05	.945	-1.9664	-2.0778	-2.5431	-2.9597	-3.0787	-3.0918	-3.0809	-2.7155
.90	.178	-.0627	-.0761	-.1163	-.1622	-.2223	-.2991	-.3440	-.5888
.90	.222	-.1109	-.1329	-.1706	-.2283	-.2894	-.3547	-.3928	-.6611
.90	.333	-.0615	-.0756	-.1192	-.1669	-.2352	-.2896	-.3277	-.5991
.90	.444	-.0671	-.0741	-.1076	-.1596	-.2169	-.2909	-.3305	-.5086
.90	.556	-.0563	-.0780	-.1077	-.1597	-.2156	-.2893	-.3291	-.6013
.90	.667	-.0554	-.0650	-.1095	-.1486	-.2151	-.2718	-.3297	-.4412
.90	.778	-.0470	-.0649	-.1035	-.1529	-.2014	-.2614	-.3098	-.4110
.90	.945	-.0905	-.1073	-.1441	-.2129	-.2594	-.2878	-.3138	-.3202

RUNS 25,26 PTINF = 5 PSI M = 0.08 R = 100,000

X/C	Y/(B/2)	14.04
.05	.156	-.6954
.05	.222	-.6762
.05	.333	-.7451
.05	.444	-.7431
.05	.556	-.8368
.05	.667	-1.1167
.05	.778	-1.5054
.05	.889	-2.2807
.05	.945	-2.3699
.90	.178	-.6027
.90	.222	-.6511
.90	.333	-.6134
.90	.444	-.6096
.90	.556	-.6266
.90	.667	-.6322
.90	.778	-.5911
.90	.945	-.4314

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	Y/(B/2)	-2.94	-2.00	-2.00	-1.00	-.01	.00	.00	.50
.05	.156	.3150	.1699	.1734	.0208	-.1329	-.1430	-.1438	-.2278
.05	.222	.2936	.1608	.1502	.0019	-.1344	-.1484	-.1445	-.2287
.05	.333	.2972	.1581	.1607	.0023	-.1401	-.1527	-.1527	-.2444
.05	.444	.2920	.1504	.1563	.0075	-.1375	-.1546	-.1471	-.2362
.05	.556	.3078	.1719	.1630	.0127	-.1308	-.1439	-.1356	-.2259
.05	.667	.2909	.1614	.1622	.0146	-.1275	-.1484	-.1479	-.2292
.05	.778	.2935	.1707	.1667	.0240	-.1272	-.1312	-.1356	-.2154
.05	.889	.2894	.1634	.1635	.0125	-.1377	-.1396	-.1427	-.2275
.05	.945	.2973	.1473	.1394	.0018	-.1532	-.1496	-.1726	-.2258
.90	.178	-.1165	-.1811	-.1804	-.2459	-.3091	-.3122	-.3096	-.3591
.90	.222	-.0959	-.1742	-.1701	-.2428	-.3101	-.3114	-.3178	-.3660
.90	.333	-.1172	-.1760	-.1780	-.2446	-.3180	-.3304	-.3254	-.3695
.90	.444	-.1153	-.1829	-.1817	-.2514	-.3060	-.3163	-.3163	-.3664
.90	.556	-.1123	-.1771	-.1790	-.2454	-.3025	-.3151	-.3042	-.3493
.90	.667	-.1073	-.1774	-.1786	-.2459	-.2984	-.3030	-.3081	-.3442
.90	.778	-.1134	-.1768	-.1791	-.2459	-.3042	-.3026	-.3098	-.3208
.90	.945	-.0940	-.1586	-.1591	-.1920	-.2024	-.1935	-.1739	-.1806

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	Y/(B/2)	1.01	1.50	2.01	2.03	2.50	3.00	3.00	3.51
.05	.156	-.3144	-.4008	-.4937	-.4886	-.5779	-.6074	-.6231	-.6585
.05	.222	-.3251	-.4017	-.4821	-.4792	-.5758	-.6038	-.6379	-.6762
.05	.333	-.3388	-.4153	-.5088	-.4991	-.5989	-.6520	-.6694	-.7071
.05	.444	-.3350	-.4140	-.5105	-.4929	-.6039	-.6307	-.6363	-.6855
.05	.556	-.3133	-.3931	-.5010	-.4812	-.5868	-.6189	-.6263	-.6878
.05	.667	-.2952	-.3960	-.4903	-.4820	-.5840	-.6454	-.6165	-.7177
.05	.778	-.2958	-.3829	-.4779	-.4741	-.5644	-.6126	-.6048	-.6950
.05	.889	-.3017	-.3961	-.4630	-.4887	-.5622	-.6272	-.6613	-.6951
.05	.945	-.3133	-.3896	-.4671	-.5021	-.5725	-.6426	-.6579	-.7127
.90	.178	-.3938	-.3881	-.3089	-.3931	-.2987	-.3535	-.3312	-.3804
.90	.222	-.3976	-.4055	-.3135	-.4006	-.2860	-.3445	-.2987	-.3530
.90	.333	-.4021	-.3869	-.2889	-.3916	-.2627	-.3337	-.2724	-.2995
.90	.444	-.3969	-.3976	-.2764	-.3915	-.2301	-.3077	-.2751	-.2743
.90	.556	-.3872	-.4022	-.2809	-.3908	-.2274	-.2925	-.2473	-.2583
.90	.667	-.3821	-.3860	-.2789	-.3643	-.2240	-.3080	-.2445	-.2637
.90	.778	-.3322	-.3411	-.2634	-.3083	-.2128	-.2677	-.2581	-.2006
.90	.945	-.1419	-.1201	-.0984	-.1107	-.0469	-.0482	-.1304	-.0464

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	Y/(B/2)	3.54	4.00	4.00	4.00	4.02	4.49	4.99	5.51
.05	.156	-.7517	-.7924	-.7968	-.7842	-.7666	-.9394	-1.0463	-.7790
.05	.222	-.7421	-.8061	-.8029	-.6812	-.7426	-.9160	-1.0070	-.7683
.05	.333	-.7635	-.8922	-.8980	-.7997	-.7783	-.9542	-1.0592	-.8002
.05	.444	-.7616	-.8658	-.8809	-.6895	-.7853	-.9326	-1.0580	-.7977
.05	.556	-.7579	-.8633	-.8836	-.6690	-.8135	-.9078	-1.0409	-.8032
.05	.667	-.7561	-.8778	-.8296	-.6903	-.7931	-.9257	-1.0515	-.8209
.05	.778	-.7440	-.8620	-.7869	-.6926	-.7855	-.9317	-1.0167	-.8333
.05	.889	-.7488	-.8729	-.8734	-.7619	-.7812	-.9520	-1.0091	-.8762
.05	.945	-.7503	-.8421	-.8474	-.8173	-.8000	-.9319	-1.0452	-.8760
.90	.178	-.2356	-.2029	-.1704	-.2934	-.3505	-.1968	-.1214	-.4202
.90	.222	-.2603	-.2639	-.2446	-.2999	-.3218	-.1959	-.1516	-.4369
.90	.333	-.2349	-.1201	-.3161	-.3665	-.2777	-.1857	-.1282	-.4158
.90	.444	-.2459	-.1097	-.2522	-.3709	-.2646	-.1618	-.1278	-.4133
.90	.556	-.2554	-.1602	-.1980	-.3664	-.2388	-.1622	-.1164	-.3977
.90	.667	-.2633	-.1956	-.1294	-.3552	-.2181	-.1738	-.1163	-.3731
.90	.778	-.2433	-.1477	-.0912	-.3104	-.1479	-.1984	-.1039	-.3508
.90	.945	-.0802	-.0651	-.0360	-.1087	-.0225	-.0512	-.0225	-.1521

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	Y/(B/2)	6.01	6.49	7.00	7.51	8.01	8.25	8.51	8.75
.05	.156	-.8319	-.8875	-1.5660	-1.7268	-1.8624	-1.9367	-1.9982	-2.0019
.05	.222	-.8200	-.8699	-1.5222	-1.6850	-1.8091	-1.8732	-1.9188	-1.9183
.05	.333	-.8482	-.9043	-1.5660	-1.7228	-1.8556	-1.9314	-1.9493	-2.1016
.05	.444	-.8643	-.9164	-1.5637	-1.7223	-1.8574	-1.9282	-1.9641	-2.0131
.05	.556	-.8645	-.9199	-1.5508	-1.7225	-1.8515	-1.9144	-1.9684	-2.0105
.05	.667	-.8993	-.9591	-1.5352	-1.6879	-1.8262	-1.8911	-1.9579	-1.9806
.05	.778	-.9316	-.9846	-1.5149	-1.6657	-1.7947	-1.8651	-1.9201	-1.9530
.05	.889	-.9414	-1.0477	-1.5263	-1.6508	-1.7778	-1.8262	-1.9006	-1.9273
.05	.945	-.9587	-1.0449	-1.5163	-1.6381	-1.7624	-1.8159	-1.8853	-1.9103
.90	.178	-.4203	-.4173	-.0331	-.0410	-.0485	-.0610	-.0541	-.0647
.90	.222	-.4290	-.4324	-.0674	-.0811	-.0936	-.1040	-.0971	-.1118
.90	.333	-.4190	-.4106	-.0312	-.0365	-.0480	-.0391	-.0530	-.0651
.90	.444	-.4100	-.3987	-.0356	-.0475	-.0449	-.0608	-.0532	-.0593
.90	.556	-.3951	-.3783	-.0349	-.0450	-.0525	-.0578	-.0519	-.0540
.90	.667	-.3720	-.3540	-.0313	-.0402	-.0471	-.0554	-.0482	-.0504
.90	.778	-.3359	-.2957	-.0253	-.0311	-.0480	-.0611	-.0525	-.0424
.90	.945	-.1294	-.1123	-.0492	-.0471	-.0555	-.0619	-.0765	-.0685

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 27,28 PTINF = 5 PSI M = 0.05 R = 60,000

X/C	Y/(B/2)	9.00	9.51	10.01	11.01	12.00
.05	.156	-2.0457	-2.1938	-2.2906	-2.5066	-2.4800
.05	.222	-1.9988	-2.1098	-2.2632	-2.4529	-2.4302
.05	.333	-2.2138	-2.3358	-2.3691	-2.5266	-2.4936
.05	.444	-2.0568	-2.1218	-2.2804	-2.4824	-2.4738
.05	.556	-2.0549	-2.1098	-2.2663	-2.4856	-2.4999
.05	.667	-2.0087	-2.2187	-2.2718	-2.5053	-2.5495
.05	.778	-1.9649	-2.0950	-2.1861	-2.4284	-2.5034
.05	.889	-1.9402	-2.0538	-2.1739	-2.4215	-2.5019
.05	.945	-1.9446	-2.0456	-2.2248	-2.4671	-2.5454
.90	.178	-.0686	-.0895	-.1006	-.1350	-.1942
.90	.222	-.1175	-.1360	-.1478	-.1958	-.2560
.90	.333	-.0702	-.0835	-.0974	-.1362	-.1942
.90	.444	-.0696	-.0838	-.0942	-.1323	-.1957
.90	.556	-.0623	-.0776	-.0958	-.1316	-.1882
.90	.667	-.0617	-.0730	-.0842	-.1272	-.1821
.90	.778	-.0573	-.0716	-.0737	-.1158	-.1693
.90	.945	-.0805	-.0964	-.1177	-.1471	-.1835

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	13.04	13.04	13.01	13.01	12.00	10.99	10.00	9.99
.05	.156	-.6124	-.6464	-.6193	-.6651	-2.4881	-2.5081	-2.3015	-2.2995
.05	.222	-.7550	-.6768	-.6432	-.7709	-2.4118	-2.4621	-2.2398	-2.2675
.05	.333	-.8787	-.6376	-.6233	-.8022	-2.4628	-2.5354	-2.3554	-2.3824
.05	.444	-1.1695	-.9730	-1.7550	-1.7019	-2.4475	-2.4778	-2.2591	-2.2780
.05	.556	-1.0024	-.9176	-1.2826	-1.1945	-2.4802	-2.4768	-2.2541	-2.2647
.05	.667	-1.2287	-1.4155	-2.1802	-2.2644	-2.5367	-2.4867	-2.2472	-2.2554
.05	.778	-1.9586	-1.7856	-2.1107	-2.3384	-2.4847	-2.4097	-2.1709	-2.1673
.05	.889	-1.9906	-1.9817	-2.3251	-2.4074	-2.4945	-2.3966	-2.1763	-2.1715
.05	.945	-2.2112	-2.0212	-2.2412	-2.2553	-2.5385	-2.4518	-2.2845	-2.1900
.90	.178	-.5439	-.5510	-.5903	-.5929	-.1951	-.1265	-.0961	-.0957
.90	.222	-.5858	-.6176	-.6122	-.6420	-.2567	-.1891	-.1647	-.1492
.90	.333	-.5672	-.5466	-.5237	-.5583	-.1984	-.1391	-.1033	-.0955
.90	.444	-.5787	-.5487	-.4462	-.5670	-.1918	-.1310	-.0930	-.0905
.90	.556	-.3959	-.5757	-.5205	-.3834	-.1842	-.1248	-.0884	-.0907
.90	.667	-.5459	-.5216	-.4743	-.4938	-.1840	-.1246	-.0982	-.0905
.90	.778	-.2057	-.2516	-.2591	-.3713	-.1565	-.1093	-.0824	-.0796
.90	.945	-.1979	-.2219	-.2334	-.2388	-.1574	-.1305	-.1273	-.1048

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	9.00	8.50	8.00	7.00	7.00	6.75	6.74	6.47
.05	.156	-2.0502	-2.0009	-1.8655	-1.5622	-1.5757	-1.4950	-1.5054	-1.4126
.05	.222	-1.9965	-1.9164	-1.8198	-1.5393	-1.5222	-1.4660	-1.4554	-1.3802
.05	.333	-2.2177	-1.9498	-1.8613	-1.5751	-1.5716	-1.4966	-1.5012	-1.4121
.05	.444	-2.0683	-1.9563	-1.8575	-1.5734	-1.5826	-1.5023	-1.5034	-1.4349
.05	.556	-2.0600	-1.9640	-1.8514	-1.5653	-1.5679	-1.4964	-1.5024	-1.4335
.05	.667	-2.0092	-1.9477	-1.8198	-1.5394	-1.5538	-1.4726	-1.4925	-1.4183
.05	.778	-1.9578	-1.9105	-1.7856	-1.5164	-1.5303	-1.4508	-1.4668	-1.3897
.05	.889	-1.9324	-1.8899	-1.7667	-1.4998	-1.5394	-1.4383	-1.4740	-1.3966
.05	.945	-1.9213	-1.8550	-1.7390	-1.4903	-1.5440	-1.4269	-1.4876	-1.4072
.90	.178	-.0681	-.0478	-.0464	-.0364	-.0346	-.0326	-.0309	-.0360
.90	.222	-.1134	-.0947	-.0835	-.0685	-.0791	-.0643	-.0732	-.0803
.90	.333	-.0733	-.0548	-.0437	-.0315	-.0339	-.0324	-.0291	-.0388
.90	.444	-.0689	-.0552	-.0481	-.0322	-.0312	-.0324	-.0358	-.0434
.90	.556	-.0567	-.0466	-.0422	-.0328	-.0246	-.0282	-.0332	-.0302
.90	.667	-.0594	-.0456	-.0413	-.0321	-.0272	-.0302	-.0203	-.0327
.90	.778	-.0535	-.0520	-.0439	-.0288	-.0358	-.0315	-.0301	-.0275
.90	.945	-.0765	-.0710	-.0641	-.0388	-.0475	-.0420	-.0480	-.0445

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	6.44	6.44	6.25	6.25	5.99	5.50	5.25	5.00
.05	.156	-1.4027	-.8638	-.8447	-.8589	-.8262	-.7703	-.7433	-.9869
.05	.222	-1.3796	-.8573	-.8316	-.8304	-.8030	-.7585	-.7290	-.9553
.05	.333	-1.4114	-.8834	-.8614	-.8681	-.8347	-.7891	-.7614	-1.0301
.05	.444	-1.4061	-.8927	-.8803	-.8749	-.8467	-.7980	-.7625	-1.0377
.05	.556	-1.4079	-.9143	-.8969	-.8833	-.8521	-.7936	-.7645	-1.0233
.05	.667	-1.3911	-.9332	-.9256	-.9077	-.8850	-.8157	-.7810	-.9604
.05	.778	-1.3656	-.9827	-.9517	-.9513	-.9118	-.8319	-.8060	-1.0028
.05	.889	-1.3625	-1.0074	-1.0046	-1.0073	-.9562	-.8838	-.8349	-.9605
.05	.945	-1.3471	-1.0014	-1.0163	-1.0246	-.9548	-.8850	-.8531	-1.0257
.90	.178	-.4206	-.4265	-.4137	-.4184	-.4192	-.4285	-.4196	-.1865
.90	.222	-.0736	-.4395	-.4440	-.4381	-.4392	-.4394	-.4443	-.2345
.90	.333	-.0376	-.4188	-.4183	-.4156	-.4173	-.4241	-.4207	-.2200
.90	.444	-.0391	-.4093	-.4013	-.4050	-.4059	-.4135	-.4081	-.2665
.90	.556	-.0378	-.3994	-.3938	-.3953	-.3998	-.3962	-.3985	-.2241
.90	.667	-.0331	-.3728	-.3637	-.3672	-.3752	-.3802	-.3860	-.2510
.90	.778	-.0383	-.3249	-.3102	-.3148	-.3342	-.3486	-.3485	-.2046
.90	.945	-.0381	-.1256	-.1080	-.1142	-.1317	-.1459	-.1436	-.0552

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	5.00	4.99	4.99	4.75	4.75	4.50	4.50	4.25
.05	.156	-.9409	-.7549	-1.0706	-1.0269	-.8265	-.7595	-.6699	-.8101
.05	.222	-.9474	-.7174	-1.0008	-1.0009	-.7870	-.7511	-.8009	-.6524
.05	.333	-.9719	-.7695	-1.0347	-1.0378	-.8596	-.7067	-.6916	-.6669
.05	.444	-.9193	-.7647	-1.0533	-1.0268	-.7986	-.7529	-.6926	-.6711
.05	.556	-.9039	-.7510	-1.0289	-1.0185	-.8437	-.7033	-.7237	-.6817
.05	.667	-.9308	-.7737	-1.0079	-1.0163	-.9153	-.7327	-.7113	-.6718
.05	.778	-.9373	-.7777	-.9856	-1.0048	-.8803	-.7221	-.7040	-.8456
.05	.889	-.9576	-.8169	-.9857	-1.0132	-.8977	-.7517	-.8157	-.8624
.05	.945	-.9571	-.8415	-1.0045	-1.0114	-.8640	-.8307	-.7332	-.8649
.90	.178	-.2832	-.4174	-.1642	-.3731	-.2988	-.3616	-.4229	-.3182
.90	.222	-.2785	-.4152	-.1735	-.1357	-.3480	-.3786	-.4377	-.3078
.90	.333	-.3745	-.4057	-.1472	-.0978	-.3319	-.4183	-.4208	-.2554
.90	.444	-.3152	-.4090	-.1465	-.1038	-.2750	-.3943	-.4023	-.2199
.90	.556	-.3788	-.3922	-.1828	-.1071	-.3052	-.2919	-.2198	-.3663
.90	.667	-.2853	-.3706	-.1658	-.1285	-.3344	-.3164	-.3709	-.3625
.90	.778	-.1971	-.3346	-.1376	-.1038	-.2326	-.2702	-.3533	-.3400
.90	.945	-.1275	-.1499	-.0373	-.0252	-.0802	-.1696	-.1782	-.2014

RUNS 31,32 PTINF = 5 PSI M = 0.05 R = 60,000

HYSTERESIS (DECREASING ANGLE OF ATTACK)

X/C	Y/(B/2)	4.00	3.50	2.99	2.00	.99	.01	-2.00	-2.85
.05	.156	-.7573	-.6668	-.5765	-.4883	-.3180	-.1381	.1690	.3002
.05	.222	-.7578	-.6822	-.6020	-.4818	-.3183	-.1495	.1551	.2831
.05	.333	-.8088	-.7330	-.6291	-.5026	-.3315	-.1564	.1477	.2870
.05	.444	-.8216	-.7054	-.6520	-.4967	-.3327	-.1502	.1526	.2942
.05	.556	-.8193	-.7277	-.6242	-.4868	-.3057	-.1406	.1654	.2987
.05	.667	-.8229	-.7306	-.5961	-.4982	-.3073	-.1378	.1620	.2933
.05	.778	-.8224	-.7371	-.6013	-.4867	-.3004	-.1230	.1670	.2955
.05	.889	-.8193	-.7462	-.6485	-.4810	-.3041	-.1386	.1624	.2778
.05	.945	-.8228	-.7401	-.6120	-.4796	-.3181	-.1556	.1423	.2799
.90	.178	-.3253	-.3412	-.3422	-.3313	-.3939	-.3137	-.1821	-.1173
.90	.222	-.3254	-.3441	-.3671	-.3289	-.4040	-.3075	-.1722	-.1069
.90	.333	-.2496	-.2853	-.3452	-.3197	-.3894	-.3158	-.1827	-.1154
.90	.444	-.2184	-.2669	-.3382	-.3127	-.3773	-.3067	-.1857	-.1155
.90	.556	-.1980	-.2466	-.2894	-.3137	-.3880	-.3091	-.1903	-.1222
.90	.667	-.1688	-.2151	-.3020	-.3086	-.3805	-.3017	-.1790	-.1152
.90	.778	-.1282	-.1896	-.2319	-.3095	-.3481	-.3059	-.1831	-.1146
.90	.945	-.0193	-.0336	-.0949	-.1604	-.1518	-.1961	-.1456	-.0920

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	Y/(B/2)	-2.97	-2.97	-2.01	-1.00	.00	1.00	2.00	3.00
.05	.156	.2126	.2157	.0819	-.0680	-.2282	-.3957	-.5755	-.7643
.05	.222	.2046	.2000	.0744	-.0742	-.2305	-.4073	-.5809	-.7638
.05	.333	.1969	.2000	.0630	-.0850	-.2384	-.4123	-.5871	-.7786
.05	.444	.2002	.1985	.0771	-.0681	-.2360	-.4052	-.5855	-.7725
.05	.556	.2181	.2181	.0833	-.0533	-.2182	-.3903	-.5694	-.7579
.05	.667	.2116	.2108	.0768	-.0641	-.2235	-.3941	-.5680	-.7584
.05	.778	.2189	.2140	.0857	-.0521	-.2069	-.3770	-.5607	-.7397
.05	.889	.2171	.2118	.0919	-.0525	-.2124	-.3789	-.5488	-.7376
.05	.945	.2068	.2054	.0748	-.0657	-.2225	-.3900	-.5616	-.7477
.90	.178	-.1918	-.1921	-.1498	-.0846	-.0080	.0215	.0185	.0027
.90	.222	-.1909	-.1841	-.1961	-.1270	-.0306	.0281	.0122	.0046
.90	.333	-.1857	-.1877	-.2463	-.1860	-.0568	.0043	.0072	.0058
.90	.444	-.1908	-.1952	-.2511	-.1392	-.0903	-.0110	.0008	-.0032
.90	.556	-.1890	-.1877	-.2216	-.2238	-.0920	-.0118	.0016	-.0019
.90	.667	-.1851	-.1859	-.2426	-.1733	-.0958	-.0152	-.0021	-.0096
.90	.778	-.1907	-.1971	-.2324	-.1574	-.0612	-.0043	.0000	-.0095
.90	.945	-.0802	-.0842	-.0157	.0065	.0158	.0021	-.0090	-.0198

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	Y/(B/2)	4.02	5.00	6.00	6.51	7.00	8.01	8.51	9.01
.05	.156	-.9818	-1.2039	-1.4328	-1.5582	-1.6981	-1.9780	-2.0166	-2.2660
.05	.222	-.9789	-1.2069	-1.4356	-1.5577	-1.6907	-1.9612	-2.0202	-2.2971
.05	.333	-.9851	-1.2025	-1.4458	-1.5634	-1.7003	-1.9660	-2.2724	-2.5587
.05	.444	-.9902	-1.2071	-1.4449	-1.5740	-1.6968	-1.9747	-2.0468	-2.2458
.05	.556	-.9782	-1.1932	-1.4323	-1.5600	-1.6898	-1.9683	-2.0345	-2.2287
.05	.667	-.9634	-1.1931	-1.4198	-1.5425	-1.6681	-1.9268	-2.0210	-2.2195
.05	.778	-.9526	-1.1671	-1.3946	-1.5167	-1.6366	-1.9036	-1.9968	-2.1192
.05	.889	-.9448	-1.1556	-1.3820	-1.4982	-1.6210	-1.8776	-1.9610	-2.0431
.05	.945	-.9550	-1.1606	-1.3834	-1.5029	-1.6245	-1.8707	-1.9672	-2.0450
.90	.178	.0046	-.0138	-.0298	-.0334	-.0437	-.0518	-.0586	-.0795
.90	.222	.0043	-.0208	-.0339	-.0414	-.0506	-.0529	-.0642	-.0864
.90	.333	.0137	-.0104	-.0263	-.0366	-.0405	-.0496	-.0638	-.0734
.90	.444	.0025	-.0104	-.0304	-.0387	-.0437	-.0533	-.0637	-.0794
.90	.556	-.0053	-.0145	-.0290	-.0379	-.0392	-.0529	-.0579	-.0796
.90	.667	-.0077	-.0141	-.0317	-.0374	-.0460	-.0466	-.0543	-.0750
.90	.778	.0062	-.0163	-.0276	-.0402	-.0507	-.0448	-.0508	-.0736
.90	.945	-.0343	-.0404	-.0443	-.0523	-.0684	-.0745	-.1025	-.1037

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUN 39 PTINF = 10 PSI M = 0.04 R = 100,000

X/C	Y/(B/2)	11.01	12.03	13.04	13.50
.05	.156	-2.9712	-3.1181	-2.9822	-.8523
.05	.222	-2.9676	-3.0674	-2.9401	-.9834
.05	.333	-3.0274	-3.0925	-2.9432	-1.7935
.05	.444	-2.9451	-3.0526	-2.9311	-1.9133
.05	.556	-2.9570	-3.1076	-3.0154	-2.2015
.05	.667	-2.9872	-3.1325	-3.0563	-2.7821
.05	.778	-2.8553	-3.0835	-3.0757	-3.0674
.05	.889	-2.8956	-3.0564	-3.0935	-3.0943
.05	.945	-2.9176	-3.0841	-3.0940	-3.1523
.90	.178	-.1633	-.2188	-.2914	-.5970
.90	.222	-.1691	-.2329	-.2980	-.6054
.90	.333	-.1630	-.2182	-.2808	-.5509
.90	.444	-.1616	-.2104	-.2945	-.4581
.90	.556	-.1551	-.2071	-.2873	-.5594
.90	.667	-.1525	-.2082	-.2768	-.3895
.90	.778	-.1377	-.1929	-.2634	-.4823
.90	.945	-.1834	-.2379	-.2839	-.2962

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	Y/(B/2)	-2.83	-2.00	-1.51	-1.00	.00	.01	1.01	2.00
.05	.156	.1996	.0939	.0366	-.0395	-.2101	-.2015	-.3839	-.5717
.05	.222	.1889	.0858	.0267	-.0503	-.2149	-.2042	-.3854	-.5765
.05	.333	.1834	.0818	.0210	-.0582	-.2267	-.2139	-.3960	-.5820
.05	.444	.1900	.0840	.0264	-.0587	-.2261	-.2104	-.3896	-.5779
.05	.556	.2022	.0955	.0287	-.0411	-.2091	-.1949	-.3812	-.5593
.05	.667	.1965	.0912	.0213	-.0450	-.2152	-.1969	-.3797	-.5593
.05	.778	.1965	.0983	.0332	-.0396	-.2005	-.1900	-.3619	-.5415
.05	.889	.1992	.0948	.0313	-.0448	-.2153	-.1932	-.3713	-.5450
.05	.945	.1755	.0627	.0150	-.0663	-.2255	-.2195	-.3977	-.5835
.90	.178	-.1024	.0150	.0433	.0377	.0386	.0333	.0125	-.0018
.90	.222	-.1086	.0132	.0383	.0386	.0336	.0368	.0199	-.0036
.90	.333	-.1334	.0291	.0530	.0453	.0340	.0453	.0180	-.0071
.90	.444	-.1149	.0142	.0406	.0395	.0318	.0447	.0062	-.0105
.90	.556	-.1299	.0113	.0402	.0385	.0364	.0337	.0063	-.0061
.90	.667	-.1246	.0244	.0381	.0408	.0367	.0229	.0009	-.0070
.90	.778	-.1422	-.0018	.0471	.0456	.0333	.0353	.0079	-.0061
.90	.945	-.0305	-.0017	.0113	.0052	-.0121	-.0009	-.0152	-.0232

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	Y/(B/2)	3.00	4.00	5.00	6.00	7.00	7.50	7.51	8.00
.05	.156	-.7805	-.9884	-1.2149	-1.4320	-1.6881	-1.8060	-1.8125	-1.9499
.05	.222	-.7793	-.9813	-1.2106	-1.4297	-1.6814	-1.8103	-1.8036	-1.9336
.05	.333	-.7907	-.9914	-1.2102	-1.4325	-1.6733	-1.8217	-1.8045	-1.9316
.05	.444	-.7785	-.9845	-1.2059	-1.4334	-1.6785	-1.8126	-1.8130	-1.9362
.05	.556	-.7705	-.9777	-1.2048	-1.4233	-1.6766	-1.8112	-1.8006	-1.9299
.05	.667	-.7627	-.9699	-1.1846	-1.4119	-1.6479	-1.8012	-1.7847	-1.9031
.05	.778	-.7417	-.9524	-1.1631	-1.3887	-1.6238	-1.7593	-1.7518	-1.8687
.05	.889	-.7452	-.9463	-1.1647	-1.3872	-1.6204	-1.7310	-1.7416	-1.8525
.05	.945	-.7616	-.9665	-1.1828	-1.3994	-1.6359	-1.7418	-1.7605	-1.8727
.90	.178	-.0089	-.0150	-.0300	-.0322	-.0424	-.0504	-.0485	-.0499
.90	.222	-.0079	-.0193	-.0270	-.0379	-.0522	-.0484	-.0466	-.0527
.90	.333	-.0063	-.0194	-.0287	-.0311	-.0410	-.0462	-.0472	-.0549
.90	.444	-.0132	-.0193	-.0256	-.0373	-.0489	-.0431	-.0528	-.0520
.90	.556	-.0079	-.0186	-.0318	-.0370	-.0450	-.0479	-.0549	-.0494
.90	.667	-.0130	-.0222	-.0302	-.0391	-.0475	-.0506	-.0516	-.0510
.90	.778	-.0121	-.0249	-.0270	-.0417	-.0498	-.0503	-.0531	-.0594
.90	.945	-.0426	-.0420	-.0558	-.0617	-.0735	-.0795	-.0873	-.0983

RUNS 43,44 PTINF = 15 PSI M = 0.03 R = 100,000

TURBULATOR TAPE, ON

X/C	Y/(B/2)	8.50	9.01	10.00	12.00	13.00	14.00
.05	.156	-2.0223	-2.2314	-2.6502	-3.0876	-3.0272	-.7525
.05	.222	-2.0311	-2.2478	-2.6489	-3.0860	-2.9945	-.6999
.05	.333	-2.1782	-2.4902	-2.7359	-3.0532	-2.9761	-1.3122
.05	.444	-2.0310	-2.2156	-2.5233	-2.9663	-2.9325	-.8009
.05	.556	-2.0417	-2.1895	-2.5412	-3.0784	-3.0199	-1.3486
.05	.667	-2.0064	-2.1573	-2.6294	-3.0725	-3.0623	-1.5381
.05	.778	-1.9916	-2.0768	-2.4604	-3.0406	-3.0757	-2.5258
.05	.889	-1.9619	-2.0240	-2.4949	-3.0229	-3.0770	-2.3441
.05	.945	-1.9750	-2.0554	-2.5042	-3.0311	-3.0216	-2.5962
.90	.178	-.0545	-.0801	-.1135	-.2270	-.3138	-.6153
.90	.222	-.0626	-.0857	-.1185	-.2238	-.3081	-.6175
.90	.333	-.0580	-.0807	-.1192	-.2240	-.2858	-.6051
.90	.444	-.0599	-.0795	-.1137	-.2134	-.2838	-.6247
.90	.556	-.0600	-.0761	-.1122	-.2224	-.2902	-.6355
.90	.667	-.0533	-.0693	-.1092	-.2115	-.2903	-.5129
.90	.778	-.0591	-.0710	-.1051	-.2038	-.2691	-.5263
.90	.945	-.1175	-.1209	-.1639	-.2547	-.2805	-.3688

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	Y/(B/2)	-2.01	.01	2.00	3.03	3.50	4.00	4.01	4.50
.05	.156	.1616	-.1350	-.4966	-.6343	-.6353	-.6615	-.6545	-.6825
.05	.222	.1302	-.1394	-.4577	-.5574	-.5648	-.6015	-.5915	-.6206
.05	.333	.1359	-.1634	-.5080	-.6149	-.6353	-.6594	-.6656	-.6911
.05	.444	.1433	-.1586	-.5120	-.6286	-.6730	-.6758	-.6648	-.6993
.05	.556	.1521	-.1462	-.4937	-.6406	-.6458	-.6763	-.6623	-.6950
.05	.667	.1543	-.1486	-.5012	-.6190	-.6367	-.6670	-.6603	-.6950
.05	.778	.1512	-.1346	-.4858	-.6145	-.6370	-.6632	-.6616	-.6987
.05	.889	.1504	-.1370	-.4855	-.5918	-.6271	-.6802	-.6662	-.7120
.05	.945	.1462	-.1447	-.4791	-.5923	-.6229	-.6739	-.6820	-.7130
.90	.178	-.1954	-.3223	-.3685	-.3350	-.3628	-.3947	-.3720	-.4278
.90	.222	-.1644	-.2976	-.3704	-.3362	-.3662	-.4131	-.4229	-.4503
.90	.333	-.1899	-.3262	-.3663	-.3120	-.3471	-.3884	-.3902	-.4209
.90	.444	-.1935	-.3179	-.3579	-.3414	-.3542	-.3852	-.3946	-.4111
.90	.556	-.1896	-.3128	-.3693	-.3319	-.3454	-.3828	-.3798	-.4031
.90	.667	-.1889	-.3071	-.3575	-.3015	-.3320	-.3544	-.3708	-.3852
.90	.778	-.1903	-.3059	-.2962	-.3059	-.3285	-.3477	-.3460	-.3697
.90	.945	-.1436	-.1639	-.0633	-.1540	-.1891	-.2053	-.2100	-.2249

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	Y/(B/2)	5.00	5.51	6.00	6.50	7.01	7.38	8.00	8.50
.05	.156	-.7281	-.7831	-.8281	-.8756	-.9191	-1.7018	-1.8911	-2.0204
.05	.222	-.6607	-.7129	-.7531	-.7959	-.8232	-1.5269	-1.6872	-1.7676
.05	.333	-.7364	-.7848	-.8352	-.8813	-.9202	-1.6679	-1.8502	-1.9442
.05	.444	-.7424	-.7898	-.8452	-.8842	-.9718	-1.6883	-1.8555	-1.9510
.05	.556	-.7391	-.7915	-.8469	-.9050	-.9946	-1.6799	-1.8659	-1.9632
.05	.667	-.7443	-.8109	-.8732	-.9313	-1.0268	-1.6490	-1.8256	-1.9544
.05	.778	-.7593	-.8216	-.9001	-.9639	-1.0663	-1.6213	-1.7904	-1.9175
.05	.889	-.7841	-.8505	-.9164	-1.0024	-1.1076	-1.6008	-1.7651	-1.8785
.05	.945	-.7689	-.8408	-.9182	-.9901	-1.1005	-1.5926	-1.7390	-1.8557
.90	.178	-.4294	-.4279	-.4265	-.4272	-.4256	-.0449	-.0563	-.0534
.90	.222	-.4596	-.4662	-.4707	-.4800	-.4845	-.1916	-.2125	-.2300
.90	.333	-.4237	-.4213	-.4232	-.4228	-.4195	-.0455	-.0570	-.0649
.90	.444	-.4098	-.4165	-.4109	-.4107	-.3979	-.0377	-.0433	-.0522
.90	.556	-.4056	-.4048	-.4013	-.3965	-.3857	-.0392	-.0455	-.0522
.90	.667	-.3932	-.3861	-.3799	-.3760	-.3506	-.0284	-.0464	-.0423
.90	.778	-.3672	-.3663	-.3515	-.3357	-.2930	-.0303	-.0484	-.0515
.90	.945	-.2023	-.1882	-.1567	-.1386	-.1087	-.0378	-.0527	-.0662

Upper Surface Spanwise Pressure Coefficients for Various Angles of Attack

RUNS 46,47 PTINF = 3 PSI M = 0.09 R = 60,000

X/C	Y/(B/2)	10.00	10.00
.05	.156	-2.3200	-2.3307
.05	.222	-2.0776	-2.1087
.05	.333	-2.3783	-2.3878
.05	.444	-2.2749	-2.2935
.05	.556	-2.2726	-2.2798
.05	.667	-2.2724	-2.2741
.05	.778	-2.1760	-2.1846
.05	.889	-2.1756	-2.1708
.05	.945	-2.1682	-2.1548
.90	.178	-.1019	-.1001
.90	.222	-.3234	-.3017
.90	.333	-.1195	-.1166
.90	.444	-.0951	-.1000
.90	.556	-.0958	-.0908
.90	.667	-.0949	-.0929
.90	.778	-.0846	-.0801
.90	.945	-.1168	-.1086

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16. Abstract

Experimental results have been obtained for an Eppler 387 airfoil in the Langley Low-Turbulence Pressure Tunnel. The tests were conducted over a Mach number range from 0.03 to 0.13 and a chord Reynolds number range from 60 000 to 460 000. Lift and pitching-moment data were obtained from airfoil surface pressure measurements and drag data from wake surveys. Oil flow visualization was used to determine laminar-separation and turbulent-reattachment locations. Comparisons of these results with data on the Eppler 387 airfoil from two other facilities, as well as with predictions from the Eppler airfoil code, are included.

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