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Longitudinal Aerodynamic Characteristics of a Generic Fighter Model With a Wing Designed for Sustained Transonic Maneuver Conditions

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Summary

A wind-tunnel investigation was made to determine the longitudinal aerodynamic characteristics of a fixed-wing generic fighter model with a wing designed for sustained transonic maneuver conditions. The airfoil sections on the wing were designed with a two-dimensional nonlinear computer code, and the root and tip sections were modified with a three-dimensional code. The wing geometric characteristics were as follows: a leading-edge sweep of 45°, a taper ratio of 0.2142, an aspect ratio of 3.30, and a thickness ratio of 0.044. The model was investigated at Mach numbers from 0.600 to 1.200, at Reynolds numbers, based on the model reference length, from 2.56×10^6 to 3.97×10^6, and through a model angle-of-attack range from -5° to 18°.

The results indicate that the lift coefficients at buffet onset increased approximately 38 percent over the Mach number range from 0.600 to 0.975. The leading-edge suction was approximately 100 percent over the Mach number range from 0.600 to 0.850 over the lift coefficient range from 0.40 to 0.80.

Introduction

In the early 1970's, thin low-aspect-ratio wings were investigated with variable camber to improve the sustained maneuver capability of fighter aircraft. The wings described in references 1 to 4 had smooth upper and lower surfaces for the configurations without camber because the basic airfoils were symmetrical. For these experimental models, many camber and twist configurations were investigated to determine the optimum for the various conditions of lift coefficient and Mach number. Subsequent to these studies, an effort was initiated at the Langley Research Center to study the use of advanced transonic theoretical methods to improve transonic maneuver performance. A low-aspect-ratio fighter wing was designed to reduce the shock-induced flow separation at transonic maneuver conditions.

The theoretical code of reference 5, which is a two-dimensional nonlinear-airfoil design-and-analysis code that can accommodate the mixed-flow conditions of transonic speeds, was used to design the basic airfoil. The code was used in the analysis mode in an iterative fashion to design the airfoil (SD19). This code has been validated by the design of the supercritical airfoils of reference 6. The relatively thick airfoils of reference 6 were designed for transport aircraft with high aspect ratios and moderate wing sweep. Therefore, the code had not been validated for low-aspect-ratio planforms with the high leading-edge sweep and thin airfoil sections of fighter aircraft. For low-aspect-ratio configurations at high lift conditions, the wing flow field becomes highly three dimensional. Therefore, modifications to the wing root and tip airfoils were made with the FLO-22 three-dimensional code as described in reference 7.

The fighter wing of the current study was designated SMF-1 for being the first in a series of supercritical maneuver fighters and was designed for sustained transonic maneuver conditions with a lift coefficient of 0.90, a Mach number of 0.900, a thickness ratio of 0.044, and a wing leading-edge sweep of 45°. In contrast to the experimental wings of references 1 to 4, the airfoils on this wing were designed to have smooth upper and lower surfaces with extensive camber and twist. On an actual aircraft, a variable camber and twist mechanism would be used to optimize the wing for lower lift coefficients for cruise and supersonic speeds.

The wing planform of the supercritical maneuver fighter (SMF-1), although similar to the wing planform in reference 1, had 5° more leading-edge sweep and the airfoil thickness ratio was increased from 0.004 to 0.044. The geometric characteristics of the wing, body, vertical tail, and horizontal tail are presented in table I.

Some of the data from this investigation were presented at the Advanced Technology Airfoil Research Conference at the Langley Research Center in March 1978 and also in reference 7. The purpose of this paper is to present the force and moment data and the basic aerodynamic performance characteristics over the Mach number range from 0.600 to 1.200.

Symbols

Longitudinal aerodynamic results are referred to the stability axis system. The origin of this system is the moment reference center that is located at 25 percent of the mean geometric chord and located vertically on the fuselage reference line. (See fig. 1(a).) All data presented herein are based on the theoretical dimensions of the trapezoidal wing extended to the model centerline ℄. The symbols used herein are defined as follows:

A	aspect ratio
b	reference span, 67.69 cm
C_A	axial-force coefficient, Axial force/9.5
C_D	drag coefficient, Drag/qS
$C_{D,i}$	internal drag coefficient
$C_{D,\min}$	minimum drag coefficient
$C_{D,o}$	drag coefficient at zero lift with camber removed (from unpublished data)

C_L	lift coefficient, Lift/qS
$C_{L,B}$	lift coefficient at buffet onset
C_{L_α}	lift-curve slope, $\partial C_L/\partial \alpha$, per degree
C_m	pitching-moment coefficient
$C_{m,o}$	pitching-moment coefficient at zero lift
$C_{m_{C_L}}$	longitudinal stability derivative, $\partial C_m/\partial C_L$
$C_{m_{\delta_h}}$	longitudinal control parameter, $\Delta C_m/\Delta\delta_h$, per degree
CWBRMS	wing root-mean-square bending-moment coefficient, $2\frac{\text{rms Bending moment}}{qS(b/2)}$
c	local chord
$\bar{c}$	wing-model reference length (mean geometric chord), 23.518 cm
i_s	incidence of airfoil section, deg
L/D	lift-drag ratio
M	free-stream Mach number
$\dot{m}/\dot{m}_\infty$	mass-flow ratio
q	free-stream dynamic pressure
R	Reynolds number per foot
$R\bar{c}$	Reynolds number based on wing-model reference length
S	reference wing area, 1390 cm^2
t	maximum thickness
x	local chordwise distance from wing leading edge, parallel to plane of symmetry
y	local spanwise distance from center-line of model
z	local vertical ordinate for airfoil sections
α	angle of attack, referred to fuselage reference line, deg
δ_h	horizontal-tail deflection angle, referred to horizontal-tail plane (positive when trailing edge is down), deg
η	semispan location, $y/(b/2)$
λ	taper ratio

Subscript:

max	maximum

Abbreviations:

F.P.B.	forced pressure buffet
Fwd.	forward
H.T.	horizontal tail
rms	root mean square
V.T.	vertical tail

Apparatus and Procedures

Model Description

A schematic drawing of the basic generic fighter model SMF-1 is shown in Figure 1(a) with 45° leading-edge sweep. Drawings of the wing airfoil sections at various semispan stations are presented in figures 1(b) to 1(j) and show the extensive camber and twist characteristics of the wing design. The variation across the semispan of the camber (the maximum distance between the mean line and chord line expressed in percent chord) and the airfoil incidence (twist) are shown in figure 1(k). The forebody of the fuselage was modified to accommodate the instrumentation for this investigation, and a sketch of the canopy compared with the configuration in reference 1 is shown in figure 1(l). Photographs of the model with camber and twist in the wing are presented in figure 2, and geometric characteristics of the model are given in table I. The basic model is a single-engine configuration with a fixed-inlet, single vertical tail and a conventional all-movable horizontal tail (stabilator) mounted below the wing plane. In this investigation the wing geometry was as follows: a leading-edge sweep of 45°, a trailing-edge sweep of 11.9°, a taper ratio of 0.2142, an aspect ratio of 3.30, and a thickness ratio that varied from approximately 0.060 at the wing root to 0.044 at the tip. As shown in the airfoil drawings in figures 1(c) to 1(j), considerable twist existed in the wing spar box (the middle part of the wing from approximately 20 to 80 percent chord). This spar box twist would not be removed with a variable-camber system.

Tunnel Description

The investigation was conducted in the Langley 8-Foot Transonic Pressure Tunnel, which is a single-return tunnel having a rectangular slotted test section to permit continuous operation through the transonic speed range. This facility has the capability of independent variation of Mach number, density, temperature, and humidity. The stagnation temperature and dew point were maintained at values sufficient to avoid significant condensation effects. Further description of the facility can be found in reference 8.

Tests

All tests were made with fixed transition on the model as recommended by reference 9. Boundary-layer strips of No. 120 carborundum grains were applied to the upper and lower surfaces of the wing and horizontal tail and to both sides of the vertical tail 1.02 cm streamwise aft of the leading edge. The forebody of the fuselage had No. 100 carborundum grains located 2.8 cm aft of the forebody apex. All transition strips were approximately 0.25 cm wide.

The model was tested at Mach numbers from 0.600 to 1.200 through an angle-of- attack range from -5° to 18°. The Reynolds number, based on the mean geometric chord, was held constant at 2.56×10^6 except where this parameter was varied to determine its effect.

Measurements and Corrections

Six-component force and moment data were obtained by use of an electrical strain-gauge balance housed within the fuselage. Strain gauges were mounted inboard in the wing upper and lower surfaces, and the root-mean-square output from these instruments was integrated for 45 sec. Coefficients were computed to determine the buffet characteristics of the wing.

Measurements of the duct internal flow were made with a rake composed of total and static pressures located at the duct exit. The pressures measured at the exit were used to compute the internal drag coefficient ($C_{D,i}$) variation with α (fig. 3(a)), and this correction was applied to the final data. The corresponding mass-flow variations are shown in figure 3(b). Base pressures and balance cavity pressures were also measured and used to adjust the drag data to the condition of free-stream static pressure acting over the fuselage cavity and base areas.

The angle of attack was measured with an accelerometer mounted in the forebody of the fuselage. No corrections for flow angularity have been made since the inverted runs indicated that flow angularity was 0 at the design lift coefficient and was only 0.05 downflow at $\alpha = 0°$.

Accuracy

The accuracy of the individual measured quantities, based on calibrations and repeatability of the data, is estimated to be within the following limits:

C_L	±0.0090
C_D	±0.0005
C_m	±0.0026
α, deg	±0.05
M	±0.002

Presentation of Results

The tabulated data of this investigation are presented in the appendix. (See tables AI to AIII.) Graphical results are presented in the following figures:

Discussion of Results

The effect of Reynolds number on the longitudinal aerodynamic characteristics at Mach numbers of 0.850 and 0.900 is presented in figure 4. As would be expected, the drag coefficient is a few counts lower (one drag count is equal to 0.0001) for the higher Reynolds number at both Mach numbers presented.

The effect of transition location on the upper surface of the wing is presented in figure 5 at Mach numbers of 0.800 and 0.900. For airfoils with typical supercritical pressure distributions, the transition strip (used to trip the flow) is usually located at 25 to 45 percent chord so that the upper-surface shock location (see ref. 10) and the total boundary-layer growth on the model from the leading edge of the wing will be equal to the full-scale thickness of the boundary layer at the trailing edge of the wing. This effect assumes that laminar flow exists with a thin boundary layer up to the trip and that the upper-surface shock is located in the correct position to simulate the full-scale flow conditions on the wing.

The airfoil for this model, unlike the typical supercritical airfoils, has an unfavorable pressure gradient on the upper surface that would not be expected to support laminar flow. Two locations, forward and aft, of the upper-surface transition strip were investigated, and these locations were at approximately 5 and 25 percent chord, respectively. The lower level of the drag coefficient (fig. 5(b)) for the aft location at the design Mach number over most of the drag polar would indicate laminar flow back to the trip; the increment, however, is of the same order of accuracy as the drag data. The drag polars cross at the design lift coefficient ($C_L = 0.90$), indicating no effect of transition location. At this lift coefficient there is an adverse pressure gradient on the upper surface that disturbs the laminar boundary layer forward of the transition strip. The higher value of $C_{L,\max}$ for the forward trip location is typical of a fully turbulent boundary layer established near the leading edge. Since the theoretical pressure distribution had an unfavorable gradient over the upper surface, the forward location appeared to give a more realistic representation of the full-scale flow conditions for the design C_L, and the transition strip was located forward for the rest of the investigation.

The basic longitudinal data over the Mach number range of the investigation with the horizontal tail off, and with the horizontal tail at selected angles to trim the configuration, are presented in figure 6. The requirements for a stable configuration (center-of-gravity location selected for this study) give an excessive trim lift and drag penalty. An unstable configuration with positive angles on the horizontal tail would be considered for reduced trim drag penalties.

The theoretical zero-suction and full-suction (ideal polar for elliptic lift distribution) drag coefficient polars are shown with the experimental datain figure 6 at Mach numbers from 0.600 to 0.975. The equations for the calculations are also shown in figure 6. The drag coefficients at zero lift $C_{D,o}$ were taken from unpublished data with the camber removed from the wing. The value of α at zero lift (approximately 1.9°) was removed from the term $C_L \tan \alpha$ in the zero-suction data. The theoretical curves for $M = 0.850$ are shown with the drag coefficient polar in figure 4(a). Over the Mach number range from 0.600 to 0.850, the tail-off configuration (the only polar to which the theoretical polars apply) is very near the full-suction polars in the range of C_L from 0.40 to 0.80. The extensive camber and twist make it practical to operate at these Mach numbers and lift conditions with attached flow on the wing. (See fig. 1(k).)

The variation (at the design C_L) of the leading-edge suction parameter with Mach number is shown in figure 11. The maximum leading-edge suction occurs at a Mach number of 0.850 and then declines as Mach number is increased. As would be expected from the thin wing and reduced camber near the leading edge, the suction is reduced at the low Mach number of 0.600.

The variation of drag coefficient with Mach number at various lift coefficients is presented in figure 12. There appears to be about 70 counts of wave drag at the design Mach number that cause the drag coefficient to be somewhat higher than expected at the design lift coefficient. In the low Mach number range from 0.600° to 0.800°, the wing appears to have some leading-edge flow separation at high values of C_L and is optimized at $M = 0.850$. Increased leading-edge camber from a variable camber mechanism would reduce the leading-edge flow separation at the low Mach numbers, and reduced camber in the leading edge may also lower the drag at the design Mach number. The trends of $(L/D)_{\max}$ and C_L at $(L/D)_{\max}$ are shown as a function of Mach number in figure 13 and are typical for this type of model.

The lift curves were generally linear through an angle-of-attack range from 0° to 10° and at Mach numbers from 0.600 to 0.800, and the linearity extended to higher angles of attack at the higher Mach numbers from 0.850 to 0.975. (See figs. 4 and 6.) The lift-curve slope C_{L_α} is shown as a function of Mach number at $C_L = 0.800$ in figure 9. The buffet indicators of axial-force coefficient C_A and wing root-mean-square bending-moment coefficient CWBRMS are presented in figures 7 and 8 as a function of lift coefficient. Buffet onset is established where the curve of CWBRMS plotted against C_L becomes tangent to a line drawn 45° to the axes. Buffet onset has also been established by the break in the axial-force coefficient plotted against C_L or α. These values of C_L are somewhat higher than those determined from the wing bending-moment gauge. The variation of lift coefficient at buffet onset $C_{L,B}$ with Mach number is shown in figure 10. The value of $C_{L,B}$ at the design Mach number was 6 percent higher than the C_L that the wing was designed for and increases as the Mach number is increased. This increase in $C_{L,B}$ over the Mach number range from 0.600 to 0.975 appears to be a result of the use of the supercritical airfoil sections and the twist distribution of the wing. The increase is approximately 38 percent, and the trend is in contrast to the general buffet characteristics at transonic Mach numbers.

The basic pitching-moment data with the horizontal tail off, at 0°, and at two negative angles is shown in figure 6. The model is generally stable with the tail on or off; however, some of the curves appear to have two slopes and are unstable at various high lift coefficients. The variation of the longitudinal stability derivative $C_{m_{C_L}}$ with Mach number for the horizontal tail on and off is shown in figure 14 at $C_L = 0.80$. The model was 8-percent unstable at $M = 0.600$ with the tail off, probably the result of leading-edge separation at high C_L's for this Mach number. In this case ($C_L = 0.80$) the aerodynamic center moves rearward approximately 28 percent of $\bar{c}$ over the Mach number range.

The variation of $C_{m_{C_L}}$ with Mach number at $C_L = 0.50$ with the tail off is shown in figure 15. At this C_L, where the pitching-moment curves have a stable trend, the aerodynamic center moves rearward only approximately 17 percent over the Mach number range from 0.600 to 1.200.

The variation of pitching-moment coefficient at zero lift $C_{m,o}$ with Mach number is shown in figure 16. The horizontal tail reduces $C_{m,o}$ approximately 50 percent compared with the tail-off configuration. The variation of the longitudinal control parameter $C_{m_{\delta_h}}$ with Mach number is shown in figure 17 at $C_L = 0.50$. The magnitude of $C_{m_{\delta_h}}$ is approximately the same as that of current fighters.

Conclusions

An experimental investigation to determine the aerodynamic characteristics of the first in a series of theoretically designed supercritical maneuver fighter wings (SMF-1) at a subsonic Mach number of 0.600 and over the transonic Mach number range from 0.800 to 1.200 indicates the following conclusions:

1. Location of the transition strip on the upper surface either forward or aft had no effect on the aerodynamic characteristics at the design conditions (a lift coefficient C_L of 0.90 and a Mach number M of 0.900).
2. The lift coefficient at buffet onset at the design Mach number was 6 percent higher than the design lift coefficient.
3. The lift coefficient at buffet onset increased approximately 38 percent over the Mach number range from 0.600 to 0.975.
4. The lift curves were generally linear for angles of attack from 0° to 10° at Mach numbers from 0.600 and 0.800, and the linearity extended to higher angles of attack over the Mach number range from 0.850 to 0.975.
5. Over the Mach number range from 0.600 to 0.850 and the lift coefficient range from 0.40 to 0.80, the leading-edge suction was approximately 100 percent.
6. For the selected center-of-gravity location, the model was too stable and a relaxed stability would be considered for a fighter of this type.
7. The rearward shift of the aerodynamic center as Mach number increased from 0.600 to 1.200 was approximately 17 percent of the model reference length $\bar{c}$ for C_L=0.50 and approximately 28 percent of $\bar{c}$ for C_L=0.80.
8. The horizontal-tail control power was about the same as that of current fighter aircraft.

Appendix
Tabulated Data of Investigation

Table AI. Log of Runs for Appendix

Remarks	Run	M	Tail deflection, deg H.T.	Tail deflection, deg V.T.	Type of run	Configuration	Transition location (*a*)	R, per foot
Basic wing and fuselage, V.T.	1	0.900	Off	0	F.P.B.	1	Fwd.,#120	$3.32x10^6$
	2	.950						
	4	.900						
	5	.800						
	6	.920						
	7	.600						
	8	1.200						
	9	.975						
	10	.900						
	11	.850						
Higher Reynolds number	12	0.900	Off	0	F.P.B.	1	Fwd.,#120	5.0×10^6
	13	.850	Off	0	F.P.B.	1	Fwd.,#120	5.14×10^6
Upper-surface transition aft	14	0.900	Off	0	F.P.B.	2	Aft,#100	3.32×10^6
	15	.800	Off	0	F.P.B.	2	Aft,#100	3.32×10^6
Upper-surface transition Fwd., H.T. on, stability and control	16	1.200	0	0	Force only	3	Fwd.,#120	3.32×10^6
	17	.900						
	18	.800						
	19	.600						
	20	1.200	-8.58			4		
	21	.900						
	22	.800						
	23	.600						
Oil flow studies	24	0.900	-4.53	0	Force only	5	Fwd.,#120	3.32×10^6
	25	.950	-4.53	0	Force only	5	Fwd., #120	3.32×10^6
Stability and control	26	0.900	-4.53	0	Force only	5	Fwd.,#120	3.32×10^6
	27	.800	-4.53	0	Force only	5	Fwd.,#120	3.32×10^6
	28	.600	-4.53	0	Force only	5	Fwd.,#120	3.32×10^6
Inverted for tunnel flow angularity	29	0.900	-4.53	0	Force only	5	Fwd., #120	3.32×10^6
	30	.800	-4.53	0	Force only	5	Fwd., #120	3.32×10^6

[a]Fwd., #120: No. 120 carborundum located forward on upper surface at 5-percent chord.
Aft, #100: No. 100 carborundum located aft on upper surface at 25-percent chord.

Table AII. Symbols Used in Table AIII

MINF	freestream Mach number
Q	dynamic pressure
BETA	sideslip angle
ALPHA	angle of attack
CN	normal-force coefficient, Normal force/qS
CA	axial-force coefficient, Axial force/qS
CM	pitching-moment coefficient, Pitching moment/$qS\bar{c}$
CROLL	body axis rolling-moment coefficient, $\frac{\text{Rolling moment}}{qSb}$
CYAW	body axis yawing-moment coefficient, $\frac{\text{Yawing moment}}{qSb}$
CSIDE	side-force coefficient, Side force/qS
CL	lift coefficient, Lift/qS
CD	drag coefficient, Drag/qS
L/D	C_L/C_D
CROLLS	stability axis rolling-moment coefficient
CYAWS	stability axis yawing-moment coefficient
CDB1	balance chamber drag coefficient
CDB	total base drag coefficient
CDI	internal duct drag coefficient
CMWSG1	wing root-mean-square bending-moment coefficient, $2\frac{\text{rms Bending moment}}{qS(b/2)}$
R/FT	Reynolds number per foot

Table AIII. Tabulated Data for Test 785

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 1 MACH NO .900 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	.900	593.55	0.00	-5.01	-.2769	.05747	-.0576	.0026	.0015	.0094	-.2709	.07892	-3.43
18	.900	593.42	0.00	-.02	.1253	.03854	-.1099	.0014	.0012	.0002	.1253	.03604	3.48
19	.900	593.70	0.00	2.00	.2987	.02744	-.1332	.0016	.0011	-.0027	.2975	.03537	8.41
20	.900	593.43	0.00	4.03	.4595	.01525	-.1517	.0023	.0011	-.0053	.4573	.04502	10.16
21	.900	593.25	0.00	5.02	.5315	.00935	-.1585	.0024	.0010	-.0060	.5286	.05331	9.92
22	.900	593.50	0.00	6.03	.6029	.00262	-.1648	.0025	.0010	-.0070	.5993	.06333	9.46
23	.900	593.37	0.00	7.00	.6723	-.00468	-.1706	.0024	.0010	-.0079	.6679	.07467	8.95
24	.900	593.48	0.00	8.01	.7466	-.01261	-.1769	.0024	.0008	-.0088	.7410	.08891	8.33
25	.900	593.56	0.00	9.02	.8221	-.02018	-.1812	.0019	.0007	-.0101	.8151	.10621	7.67
26	.900	593.26	0.00	10.02	.8952	-.02691	-.1871	.0018	.0008	-.0113	.8862	.12641	7.01
27	.900	593.31	0.00	12.00	1.0141	-.03631	-.1886	.0012	.0011	-.0139	.9995	.17241	5.80
28	.900	593.26	0.00	14.02	1.0115	-.03084	-.1542	.0004	.0016	-.0147	.9889	.21194	4.67
29	.900	593.68	0.00	14.02	1.0115	-.03078	-.1544	.0003	.0016	-.0148	.9888	.21204	4.66
30	.900	593.43	0.00	16.00	1.0814	-.03200	-.1555	.0027	.0023	-.0163	1.0483	.26399	3.97
31	.900	593.36	0.00	.02	.1206	.03860	-.1087	.0013	.0012	-.0003	.1205	.03617	3.33
32	.900	593.48	0.00	11.05	.9583	-.03230	-.1896	.0015	.0009	-.0127	.9467	.14907	6.35
33	.900	593.12	0.00	12.31	1.0268	-.03757	-.1875	.0003	.0010	-.0142	1.0111	.17928	5.64

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	-5.01	.0024	.0017	-.00022	-.00014	-.00036	.00250	.00403	3.32
18	-.02	.0014	.0012	-.00024	-.00018	-.00042	.00247	.00346	3.32
19	2.00	.0017	.0010	-.00025	-.00018	-.00043	.00248	.00337	3.33
20	4.03	.0024	.0009	-.00025	-.00018	-.00043	.00252	.00272	3.32
21	5.02	.0025	.0008	-.00024	-.00017	-.00041	.00255	.00275	3.32
22	6.03	.0026	.0007	-.00024	-.00017	-.00041	.00258	.00271	3.33
23	7.00	.0025	.0007	-.00024	-.00016	-.00040	.00262	.00276	3.32
24	8.01	.0025	.0005	-.00023	-.00016	-.00039	.00267	.00291	3.32
25	9.02	.0020	.0004	-.00022	-.00015	-.00038	.00273	.00305	3.33
26	10.02	.0019	.0005	-.00022	-.00016	-.00037	.00279	.00318	3.32
27	12.00	.0014	.0008	-.00019	-.00015	-.00034	.00295	.00750	3.32
28	14.02	.0008	.0015	-.00020	-.00015	-.00035	.00315	.01169	3.32
29	14.02	.0007	.0015	-.00020	-.00015	-.00035	.00315	.01216	3.33
30	16.00	.0033	.0015	-.00015	-.00008	-.00023	.00339	.00939	3.33
31	.02	.0013	.0012	-.00023	-.00016	-.00039	.00247	.00352	3.32
32	11.05	.0016	.0006	-.00021	-.00015	-.00036	.00287	.00499	3.32
33	12.31	.0005	.0009	-.00019	-.00014	-.00033	.00298	.00838	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 2 MACH NO .950 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
18	.950	613.87	0.00	-5.15	-.3336	.06310	-.0326	.0020	.0012	.0104	-.3266	.09043	-3.61
19	.950	613.92	0.00	.01	.1008	.04686	-.1103	.0017	.0013	.0000	.1008	.04456	2.26
20	.950	613.97	0.00	2.03	.2754	.03740	-.1373	.0020	.0012	-.0031	.2739	.04480	6.11
21	.950	613.92	0.00	4.01	.4428	.02672	-.1633	.0026	.0011	-.0055	.4398	.05530	7.95
22	.951	614.03	0.00	5.05	.5239	.02100	-.1743	.0029	.0011	-.0065	.5200	.06466	8.04
23	.951	614.03	0.00	6.01	.5971	.01526	-.1843	.0030	.0010	-.0074	.5922	.07529	7.87
24	.951	614.20	0.00	7.03	.6720	.00856	-.1948	.0031	.0009	-.0085	.6659	.08826	7.54
25	.950	613.97	0.00	8.03	.7487	.00076	-.2045	.0031	.0008	-.0098	.7413	.10282	7.21
26	.951	614.03	0.00	9.00	.8275	-.00653	-.2163	.0030	.0008	-.0111	.8183	.12039	6.80
27	.951	614.13	0.00	10.01	.9074	-.01333	-.2291	.0027	.0008	-.0125	.8959	.14198	6.31
28	.949	613.06	0.00	11.00	.9826	-.01989	-.2395	.0025	.0008	-.0140	.9683	.16520	5.86
30	.950	614.04	0.00	12.03	1.0590	-.02530	-.2520	.0021	.0008	-.0157	1.0410	.19315	5.39
31	.950	613.92	0.00	12.51	1.0943	-.02781	-.2572	.0013	.0011	-.0166	1.0743	.20715	5.19
32	.951	614.03	0.00	12.99	1.1252	-.02994	-.2610	.0004	.0009	-.0174	1.1032	.22093	4.99

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
18	-5.15	.0019	.0014	-.00040	-.00032	-.00072	.00237	.00332	3.32
19	.01	.0017	.0013	-.00038	-.00031	-.00070	.00232	.00272	3.32
20	2.03	.0021	.0011	-.00038	-.00031	-.00069	.00233	.00259	3.32
21	4.01	.0027	.0009	-.00038	-.00032	-.00070	.00236	.00239	3.33
22	5.05	.0029	.0008	-.00038	-.00033	-.00071	.00238	.00223	3.32
23	6.01	.0031	.0007	-.00038	-.00034	-.00072	.00241	.00238	3.32
24	7.03	.0032	.0005	-.00039	-.00035	-.00074	.00245	.00233	3.32
25	8.03	.0032	.0004	-.00040	-.00035	-.00076	.00249	.00244	3.32
26	9.00	.0031	.0003	-.00041	-.00036	-.00078	.00255	.00249	3.33
27	10.01	.0028	.0003	-.00043	-.00037	-.00080	.00261	.00244	3.32
28	11.00	.0026	.0003	-.00042	-.00037	-.00079	.00269	.00247	3.32
30	12.03	.0022	.0003	-.00043	-.00038	-.00081	.00278	.00250	3.32
31	12.51	.0015	.0008	-.00043	-.00038	-.00081	.00282	.00265	3.32
32	12.99	.0006	.0008	-.00042	-.00037	-.00080	.00287	.00323	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 4 MACH NO .900 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	.900	593.36	0.00	-5.00	-.2779	.05734	-.0571	.0025	.0015	.0091	-.2718	.07882	-3.45
18	.900	593.42	0.00	-.03	.1220	.03846	-.1093	.0014	.0013	-.0004	.1220	.03592	3.40
19	.900	593.31	0.00	.99	.2098	.03308	-.1206	.0016	.0012	-.0018	.2092	.03423	6.11
20	.900	593.31	0.00	1.99	.2973	.02729	-.1331	.0017	.0011	-.0033	.2962	.03512	8.43
21	.900	593.31	0.00	3.00	.3806	.02110	-.1444	.0021	.0012	-.0048	.3790	.03847	9.85
22	.900	593.36	0.00	3.99	.4576	.01540	-.1524	.0023	.0012	-.0059	.4554	.04472	10.18
23	.900	593.37	0.00	5.01	.5312	.00945	-.1594	.0024	.0012	-.0067	.5283	.05328	9.92
24	.900	593.31	0.00	6.03	.6044	.00256	-.1659	.0026	.0011	-.0075	.6008	.06347	9.47
25	.900	593.49	0.00	6.98	.6731	-.00448	-.1718	.0025	.0011	-.0085	.6686	.07474	8.95
26	.900	593.43	0.00	7.98	.7450	-.01221	-.1779	.0025	.0009	-.0093	.7395	.08861	8.35
27	.900	593.36	0.00	8.99	.8212	-.01987	-.1826	.0017	.0008	-.0104	.8142	.10598	7.68
28	.900	593.25	0.00	10.01	.8985	-.02665	-.1895	.0021	.0010	-.0117	.8895	.12710	7.00
29	.900	593.42	0.00	10.97	.9655	-.03180	-.1944	.0032	.0012	-.0130	.9539	.14966	6.37
30	.900	593.43	0.00	11.50	.9957	-.03411	-.1942	.0015	.0011	-.0137	.9825	.16222	6.06
31	.900	593.31	0.00	12.00	1.0210	-.03597	-.1925	-.0004	.0010	-.0143	1.0061	.17418	5.78
32	.900	593.36	0.00	12.51	.9912	-.03175	-.1692	.0124	.0028	-.0156	.9745	.18068	5.39
33	.900	593.49	0.00	12.96	.9759	-.02867	-.1569	.0066	.0021	-.0146	.9575	.18785	5.10
34	.900	593.37	0.00	14.00	1.0055	-.02909	-.1543	.0032	.0019	-.0151	.9827	.21182	4.64

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	-5.00	.0024	.0017	-.00021	-.00013	-.00034	.00250	.00427	3.33
18	-.03	.0014	.0013	-.00024	-.00016	-.00040	.00247	.00341	3.32
19	.99	.0016	.0012	-.00024	-.00017	-.00041	.00247	.00322	3.33
20	1.99	.0017	.0011	-.00024	-.00017	-.00041	.00248	.00323	3.32
21	3.00	.0021	.0011	-.00025	-.00017	-.00041	.00250	.00319	3.32
22	3.99	.0024	.0010	-.00025	-.00017	-.00041	.00252	.00259	3.33
23	5.01	.0025	.0009	-.00024	-.00016	-.00040	.00255	.00264	3.32
24	6.03	.0027	.0008	-.00024	-.00016	-.00040	.00258	.00252	3.32
25	6.98	.0026	.0008	-.00024	-.00016	-.00040	.00262	.00260	3.33
26	7.98	.0026	.0006	-.00024	-.00015	-.00039	.00267	.00270	3.32
27	8.99	.0019	.0005	-.00023	-.00016	-.00039	.00273	.00304	3.32
28	10.01	.0022	.0006	-.00022	-.00016	-.00038	.00279	.00308	3.33
29	10.97	.0034	.0006	-.00022	-.00016	-.00038	.00286	.00384	3.32
30	11.50	.0016	.0008	-.00021	-.00016	-.00037	.00291	.00618	3.32
31	12.00	-.0002	.0010	-.00020	-.00015	-.00035	.00295	.00785	3.32
32	12.51	.0127	.0000	-.00020	-.00016	-.00036	.00300	.00872	3.33
33	12.96	.0069	.0005	-.00022	-.00016	-.00038	.00304	.01157	3.32
34	14.00	.0036	.0011	-.00022	-.00015	-.00037	.00315	.01017	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 4 MACH NO .900 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
35	.900	593.36	0.00	16.02	1.0782	-.03046	-.1553	.0043	.0024	-.0163	1.0447	.26492	3.94
36	.900	593.36	0.00	18.00	1.1301	-.02900	-.1576	.0020	.0030	-.0170	1.0837	.31793	3.41
37	.900	593.43	0.00	-.00	.1190	.03856	-.1087	.0013	.0013	-.0009	.1190	.03609	3.30

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
35	16.02	.0048	.0012	-.00016	-.00008	-.00024	.00339	.00747	3.32
36	18.00	.0028	.0023	-.00006	.00002	-.00004	.00368	.00840	3.33
37	-.00	.0013	.0013	-.00024	-.00016	-.00040	.00247	.00350	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 5 MACH NO .800 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
38	.800	548.02	0.00	-4.80	-.2345	.05030	-.0630	.0023	.0013	.0080	-.2294	.06720	-3.41
39	.800	547.80	0.00	.01	.1264	.03283	-.0972	.0020	.0012	-.0010	.1264	.03033	4.17
40	.800	547.95	0.00	1.99	.2835	.02210	-.1155	.0025	.0010	-.0035	.2826	.02937	9.62
41	.800	547.95	0.00	3.98	.4295	.00965	-.1274	.0029	.0010	-.0057	.4278	.03686	11.60
42	.800	547.87	0.00	6.00	.5701	-.00591	-.1359	.0034	.0010	-.0074	.5676	.05104	11.12
43	.800	547.95	0.00	7.98	.7074	-.02607	-.1420	.0038	.0009	-.0090	.7042	.06962	10.12
44	.800	547.95	0.00	9.99	.8637	-.04856	-.1495	.0041	.0009	-.0116	.8590	.09920	8.66
45	.800	547.95	0.00	11.96	.9349	-.04834	-.1335	.0023	.0009	-.0129	.9246	.14353	6.44
46	.800	547.87	0.00	12.97	.9594	-.04494	-.1269	.0032	.0011	-.0137	.9450	.16850	5.61
47	.800	547.95	0.00	13.97	.9873	-.04344	-.1230	.0039	.0013	-.0150	.9686	.19299	5.02
48	.800	547.80	0.00	15.01	1.0068	-.03944	-.1218	.0035	.0013	-.0156	.9827	.21932	4.48
49	.800	547.87	0.00	16.01	1.0266	-.03640	-.1218	.0027	.0014	-.0159	.9968	.24465	4.07
50	.800	547.95	0.00	17.99	1.0826	-.03399	-.1274	.0007	.0021	-.0178	1.0401	.29833	3.49
51	.800	547.87	0.00	-.00	.1240	.03297	-.0969	.0021	.0012	-.0010	.1240	.03043	4.08

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
38	-4.80	.0022	.0015	-.00013	-.00005	-.00018	.00255	.00473	3.32
39	.01	.0020	.0012	-.00016	-.00009	-.00025	.00253	.00401	3.32
40	1.99	.0025	.0009	-.00017	-.00010	-.00027	.00254	.00401	3.33
41	3.98	.0030	.0008	-.00018	-.00011	-.00029	.00258	.00449	3.32
42	6.00	.0035	.0006	-.00018	-.00011	-.00029	.00264	.00523	3.33
43	7.98	.0039	.0003	-.00017	-.00010	-.00028	.00273	.00600	3.32
44	9.99	.0042	.0002	-.00016	-.00009	-.00025	.00285	.00755	3.33
45	11.96	.0025	.0004	-.00012	-.00006	-.00018	.00300	.00935	3.32
46	12.97	.0034	.0003	-.00011	-.00005	-.00017	.00308	.00866	3.32
47	13.97	.0041	.0003	-.00011	-.00004	-.00015	.00318	.00906	3.32
48	15.01	.0037	.0003	-.00011	-.00005	-.00016	.00329	.00937	3.32
49	16.01	.0030	.0006	-.00011	-.00006	-.00017	.00341	.00901	3.32
50	17.99	.0013	.0018	-.00008	-.00004	-.00012	.00357	.01044	3.32
51	-.00	.0021	.0012	-.00016	-.00009	-.00025	.00253	.00422	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 6 MACH NO .920 CONFIG. 1 03/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	.920	601.46	0.00	-5.07	-.2996	.05956	-.0485	.0023	.0014	.0093	-.2932	.08340	-3.52
18	.920	601.38	0.00	.01	.1198	.04089	-.1107	.0014	.0013	-.0006	.1197	.03852	3.11
19	.920	601.39	0.00	1.99	.2892	.03072	-.1345	.0017	.0011	-.0035	.2879	.03831	7.52
20	.920	601.32	0.00	4.02	.4521	.01927	-.1556	.0023	.0012	-.0058	.4497	.04845	9.28
21	.920	601.39	0.00	4.99	.5244	.01371	-.1633	.0023	.0012	-.0068	.5212	.05679	9.18
22	.920	601.32	0.00	5.99	.5979	.00726	-.1711	.0025	.0012	-.0077	.5939	.06707	8.85
23	.920	601.45	0.00	6.99	.6710	.00048	-.1783	.0025	.0011	-.0087	.6660	.07958	8.37
24	.920	601.32	0.00	8.04	.7473	-.00748	-.1859	.0022	.0012	-.0096	.7410	.09448	7.84
25	.920	601.33	0.00	8.99	.8190	-.01432	-.1911	.0019	.0011	-.0107	.8112	.11117	7.30
26	.920	601.46	0.00	9.98	.8949	-.02072	-.1994	.0014	.0012	-.0120	.8849	.13189	6.71
27	.920	601.09	0.00	10.48	.9319	-.02370	-.2031	.0022	.0013	-.0127	.9207	.14350	6.42
28	.920	601.45	0.00	11.01	.9689	-.02636	-.2078	.0023	.0014	-.0134	.9561	.15640	6.11
29	.920	601.26	0.00	11.99	1.0310	-.03118	-.2112	.0002	.0016	-.0145	1.0150	.18074	5.62
30	.920	601.26	0.00	12.48	1.0528	-.03277	-.2078	.0009	.0018	-.0150	1.0350	.19255	5.38
31	.920	601.39	0.00	13.01	1.0299	-.03001	-.1856	.0136	.0032	-.0160	1.0103	.19957	5.06
32	.920	601.38	0.00	14.01	1.0245	-.02798	-.1659	-.0001	.0024	-.0156	1.0008	.21785	4.59
33	.920	601.32	0.00	16.05	1.1024	-.03031	-.1663	.0023	.0031	-.0171	1.0677	.27240	3.92
34	.920	601.51	0.00	18.00	1.1540	-.02905	-.1654	.0018	.0041	-.0181	1.1065	.32528	3.40

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	-5.07	.0022	.0016	-.00027	-.00018	-.00044	.00238	.00329	3.33
18	.01	.0014	.0013	-.00029	-.00021	-.00049	.00240	.00287	3.32
19	1.99	.0017	.0011	-.00028	-.00020	-.00049	.00242	.00260	3.32
20	4.02	.0024	.0010	-.00028	-.00020	-.00049	.00246	.00242	3.32
21	4.99	.0024	.0010	-.00028	-.00020	-.00048	.00249	.00234	3.32
22	5.99	.0026	.0009	-.00028	-.00021	-.00049	.00252	.00229	3.32
23	6.99	.0026	.0008	-.00028	-.00022	-.00050	.00256	.00219	3.32
24	8.04	.0024	.0008	-.00028	-.00023	-.00051	.00261	.00240	3.32
25	8.99	.0020	.0008	-.00028	-.00023	-.00051	.00266	.00256	3.32
26	9.98	.0016	.0009	-.00028	-.00023	-.00051	.00272	.00278	3.32
27	10.48	.0024	.0009	-.00027	-.00023	-.00051	.00276	.00313	3.32
28	11.01	.0025	.0010	-.00027	-.00023	-.00051	.00280	.00341	3.32
29	11.99	.0005	.0015	-.00027	-.00023	-.00050	.00288	.00548	3.32
30	12.48	.0013	.0016	-.00026	-.00022	-.00049	.00292	.00929	3.32
31	13.01	.0140	.0000	-.00026	-.00022	-.00048	.00297	.01192	3.32
32	14.01	.0005	.0023	-.00027	-.00022	-.00049	.00308	.01041	3.32
33	16.05	.0031	.0023	-.00019	-.00014	-.00033	.00332	.01023	3.32
34	18.00	.0029	.0033	-.00010	-.00006	-.00016	.00361	.00963	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 6 MACH NO .920 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
35	.920	601.39	0.00	-.02	.1120	.04113	-.1095	.0015	.0013	-.0013	.1120	.03869	2.90

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
35	-.02	.0015	.0013	-.00028	-.00020	-.00048	.00240	.00270	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 7 MACH NO .600 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
36	.601	439.11	0.00	-4.40	-.1955	.04471	-.0592	.0023	.0013	.0069	-.1915	.05717	-3.35
37	.601	439.28	0.00	.01	.1202	.02961	-.0840	.0018	.0009	-.0008	.1202	.02721	4.42
38	.601	438.95	0.00	1.98	.2647	.01970	-.0982	.0022	.0007	-.0031	.2639	.02643	9.99
39	.601	439.28	0.00	3.99	.3977	.00790	-.1067	.0026	.0006	-.0050	.3962	.03312	11.96
40	.601	439.11	0.00	6.01	.5258	-.00772	-.1133	.0029	.0006	-.0063	.5237	.04488	11.67
41	.601	439.20	0.00	8.01	.6509	-.02808	-.1183	.0034	.0007	-.0081	.6484	.06030	10.75
42	.601	439.20	0.00	10.03	.7737	-.05152	-.1197	.0037	.0007	-.0101	.7708	.08129	9.48
43	.601	439.11	0.00	12.02	.8784	-.05508	-.1114	.0020	.0001	-.0104	.8706	.12626	6.90
44	.601	439.20	0.00	13.01	.9175	-.05412	-.1066	.0017	.0001	-.0114	.9061	.15091	6.00
45	.601	439.20	0.00	13.98	.9481	-.05360	-.1000	.0016	.0003	-.0126	.9330	.17405	5.36
46	.601	439.11	0.00	15.00	.9790	-.05192	-.0980	.0004	.0004	-.0137	.9591	.20008	4.79
47	.601	439.03	0.00	16.00	1.0162	-.05064	-.0983	.0005	.0008	-.0149	.9903	.22817	4.34
48	.601	439.20	0.00	16.98	1.0497	-.04931	-.0998	.0013	.0013	-.0167	1.0183	.25594	3.98
49	.601	439.28	0.00	17.99	1.0794	-.04752	-.1015	.0018	.0015	-.0177	1.0413	.28446	3.66
50	.601	439.11	0.00	-.01	.1176	.02971	-.0836	.0018	.0010	-.0011	.1176	.02727	4.31

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
36	-4.40	.0022	.0015	.00001	0.00000	.00001	.00241	.00367	3.33
37	.01	.0018	.0009	-.00002	.00005	.00004	.00242	.00303	3.33
38	1.98	.0023	.0007	-.00003	.00004	.00001	.00243	.00283	3.32
39	3.99	.0026	.0005	-.00004	.00002	-.00001	.00246	.00285	3.33
40	6.01	.0030	.0003	-.00004	.00002	-.00002	.00251	.00293	3.32
41	8.01	.0034	.0002	-.00004	.00002	-.00002	.00259	.00314	3.33
42	10.03	.0038	.0001	-.00003	.00003	-.00001	.00271	.00335	3.32
43	12.02	.0020	-.0003	.00000	.00005	.00005	.00286	.00739	3.33
44	13.01	.0017	-.0003	.00002	.00006	.00009	.00296	.00883	3.33
45	13.98	.0016	-.0001	.00005	.00008	.00013	.00307	.00925	3.32
46	15.00	.0005	.0003	.00005	.00009	.00014	.00320	.00940	3.33
47	16.00	.0007	.0006	.00005	.00009	.00013	.00333	.01015	3.32
48	16.98	.0016	.0008	.00004	.00008	.00011	.00349	.01128	3.33
49	17.99	.0022	.0009	.00003	.00007	.00010	.00366	.01171	3.33
50	-.01	.0018	.0010	-.00001	.00005	.00004	.00242	.00308	3.33

OF POOR QUALITY

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 8 MACH NO 1.200 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
54	1.202	692.77	0.00	-5.45	-.3900	.07071	.0442	.0026	.0007	.0109	-.3816	.10507	-3.63
55	1.200	692.41	0.00	-.01	-.0138	.05896	-.0472	.0023	.0007	.0022	-.0137	.05692	-.24
56	1.200	692.20	0.00	2.00	.1392	.05129	-.0857	.0024	.0007	-.0002	.1373	.05407	2.54
57	1.200	692.26	0.00	3.98	.2955	.04180	-.1219	.0028	.0009	-.0023	.2918	.06012	4.85
58	1.201	692.62	0.00	6.00	.4539	.03150	-.1573	.0029	.0010	-.0043	.4481	.07662	5.85
59	1.200	692.30	0.00	8.01	.6087	.02107	-.1902	.0027	.0009	-.0063	.5998	.10342	5.80
60	1.200	692.20	0.00	10.01	.7570	.01087	-.2177	.0023	.0007	-.0086	.7436	.13990	5.32
61	1.199	692.00	0.00	10.54	.7957	.00807	-.2241	.0022	.0007	-.0093	.7808	.15110	5.17
62	1.199	692.05	0.00	11.03	.8273	.00586	-.2288	.0020	.0006	-.0099	.8109	.16156	5.02
63	1.199	692.03	0.00	12.05	.8945	.00109	-.2383	.0017	.0004	-.0110	.8746	.18527	4.72
64	1.198	691.79	0.00	12.49	.9235	-.00101	-.2421	.0016	.0004	-.0116	.9019	.19621	4.60
65	1.200	692.33	0.00	-.00	-.0158	.05909	-.0462	.0023	.0007	.0024	-.0158	.05704	-.28

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
54	-5.45	.0026	.0010	.00131	.00153	.00284	.00234	.00239	3.32
55	-.01	.0023	.0007	.00116	.00129	.00246	.00205	.00268	3.32
56	2.00	.0024	.0007	.00113	.00124	.00237	.00205	.00266	3.32
57	3.98	.0028	.0007	.00112	.00122	.00234	.00208	.00256	3.31
58	6.00	.0030	.0007	.00114	.00124	.00238	.00216	.00232	3.30
59	8.01	.0028	.0006	.00115	.00125	.00240	.00225	.00258	3.30
60	10.01	.0024	.0003	.00115	.00125	.00241	.00236	.00225	3.29
61	10.54	.0022	.0002	.00114	.00123	.00237	.00239	.00219	3.29
62	11.03	.0021	.0002	.00113	.00122	.00235	.00242	.00222	3.29
63	12.05	.0018	.0001	.00108	.00117	.00225	.00248	.00216	3.30
64	12.49	.0016	-.0000	.00105	.00113	.00218	.00251	.00218	3.29
65	-.00	.0023	.0007	.00117	.00129	.00246	.00205	.00264	3.30

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 9 MACH NO .975 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
66	.975	623.33	0.00	-5.29	-.3853	.06871	-.0110	.0018	.0012	.0099	-.3773	.10127	-3.73
67	.975	623.28	0.00	-.00	.0628	.05196	-.0992	.0017	.0013	-.0002	.0628	.04967	1.26
68	.975	623.24	0.00	2.03	.2506	.04185	-.1329	.0021	.0012	-.0033	.2490	.04846	5.14
69	.975	623.28	0.00	4.01	.4218	.03059	-.1608	.0026	.0011	-.0058	.4186	.05774	7.25
70	.975	623.28	0.00	6.02	.5791	.01887	-.1821	.0031	.0007	-.0080	.5739	.07715	7.44
71	.975	623.33	0.00	8.03	.7308	.00480	-.2019	.0040	-.0004	-.0114	.7230	.10443	6.92
72	.975	623.17	0.00	10.02	.8907	-.00859	-.2278	.0049	-.0019	-.0143	.8786	.14387	6.11
73	.975	623.28	0.00	10.52	.9293	-.01144	-.2344	.0047	-.0020	-.0148	.9158	.15582	5.88
74	.975	623.24	0.00	11.03	.9688	-.01433	-.2411	.0047	-.0020	-.0154	.9536	.16865	5.65
76	.975	623.28	0.00	12.03	1.0432	-.01956	-.2529	.0045	-.0023	-.0167	1.0244	.19564	5.24
77	.975	623.28	0.00	13.02	1.1121	-.02439	-.2635	.0035	-.0011	-.0178	1.0890	.22393	4.86

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
66	-5.29	.0017	.0014	-.00056	-.00048	-.00104	.00266	.00289	3.33
67	-.00	.0017	.0013	-.00054	-.00046	-.00101	.00228	.00292	3.32
68	2.03	.0021	.0011	-.00055	-.00047	-.00102	.00226	.00273	3.32
69	4.01	.0027	.0009	-.00057	-.00049	-.00106	.00228	.00235	3.32
70	6.02	.0032	.0004	-.00059	-.00053	-.00111	.00235	.00240	3.32
71	8.03	.0039	-.0010	-.00058	-.00051	-.00108	.00245	.00228	3.32
72	10.02	.0045	-.0027	-.00052	-.00044	-.00095	.00259	.00244	3.32
73	10.52	.0043	-.0028	-.00049	-.00040	-.00090	.00263	.00233	3.32
74	11.03	.0042	-.0029	-.00046	-.00037	-.00083	.00267	.00233	3.32
76	12.03	.0039	-.0032	-.00039	-.00030	-.00069	.00275	.00230	3.32
77	13.02	.0032	-.0019	-.00031	-.00022	-.00053	.00283	.00288	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 10 MACH NO .900 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	.900	593.84	0.00	.01	.1225	.03840	-.1094	.0015	.0013	-.0009	.1225	.03594	3.41
18	.900	593.43	0.00	9.51	.8622	-.02356	-.1869	.0019	.0009	-.0115	.8543	.11651	7.33
19	.900	593.25	0.00	10.50	.9374	-.02976	-.1948	.0022	.0011	-.0127	.9271	.13872	6.68
20	.900	593.42	0.00	11.01	.9724	-.03224	-.1976	.0022	.0012	-.0135	.9607	.15118	6.35
21	.900	593.31	0.00	.01	.1216	.03836	-.1088	.0015	.0012	-.0007	.1216	.03591	3.39

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	.01	.0015	.0013	-.00024	-.00016	-.00040	.00247	.00329	3.33
18	9.51	.0021	.0006	-.00022	-.00016	-.00038	.00276	.00290	3.33
19	10.50	.0024	.0007	-.00022	-.00016	-.00037	.00283	.00340	3.32
20	11.01	.0024	.0008	-.00021	-.00016	-.00037	.00287	.00389	3.32
21	.01	.0015	.0012	-.00023	-.00016	-.00039	.00247	.00344	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 11 MACH NO .850 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
22	.850	571.50	0.00	-4.86	-.2509	.05316	-.0622	.0029	.0015	.0080	-.2455	.07155	-3.43
23	.850	571.50	0.00	.01	.1303	.03465	-.1045	.0021	.0013	-.0011	.1303	.03209	4.06
24	.851	571.57	0.00	2.01	.2949	.02357	-.1245	.0023	.0011	-.0041	.2939	.03134	9.38
25	.850	571.39	0.00	4.02	.4499	.01067	-.1387	.0029	.0011	-.0063	.4480	.03957	11.32
26	.850	571.51	0.00	6.04	.5977	-.00489	-.1500	.0035	.0011	-.0081	.5949	.05535	10.75
27	.850	571.51	0.00	8.05	.7497	-.02405	-.1627	.0035	.0010	-.0098	.7457	.07840	9.51
28	.850	571.44	0.00	10.01	.9128	-.04221	-.1778	.0002	.0003	-.0116	.9062	.11420	7.94
29	.850	571.44	0.00	10.52	.9446	-.04453	-.1759	.0025	.0010	-.0130	.9369	.12575	7.45
30	.850	571.38	0.00	11.03	.9725	-.04695	-.1730	.0023	.0011	-.0136	.9635	.13711	7.03
31	.850	571.44	0.00	12.01	.9423	-.03892	-.1435	.0043	.0019	-.0142	.9298	.15498	6.00
32	.850	571.38	0.00	13.02	.9781	-.03948	-.1401	.0025	.0017	-.0145	.9619	.17874	5.38
33	.850	571.38	0.00	14.01	1.0092	-.03880	-.1385	.0019	.0019	-.0155	.9886	.20341	4.86
34	.850	571.45	0.00	15.04	1.0352	-.03768	-.1360	.0019	.0021	-.0161	1.0095	.22889	4.41
35	.850	571.44	0.00	16.03	1.0579	-.03533	-.1369	.0011	.0024	-.0167	1.0265	.25477	4.03
36	.851	571.97	0.00	23.05	1.2041	-.02644	-.1592	.0049	-.0002	-.0127	1.1183	.44276	2.53
37	.851	571.90	0.00	-.00	.1246	.03489	-.1037	.0020	.0013	-.0013	.1246	.03229	3.86

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
22	-4.86	.0028	.0018	-.00016	-.00007	-.00023	.00267	.00474	3.32
23	.01	.0021	.0013	-.00018	-.00011	-.00029	.00258	.00428	3.32
24	2.01	.0024	.0010	-.00019	-.00012	-.00031	.00259	.00419	3.32
25	4.02	.0029	.0009	-.00020	-.00012	-.00032	.00262	.00515	3.32
26	6.04	.0036	.0008	-.00019	-.00012	-.00032	.00267	.00514	3.32
27	8.05	.0036	.0005	-.00019	-.00011	-.00031	.00276	.00453	3.32
28	10.01	.0003	.0003	-.00017	-.00010	-.00027	.00287	.00443	3.32
29	10.52	.0026	.0005	-.00016	-.00009	-.00025	.00290	.00499	3.32
30	11.03	.0025	.0006	-.00015	-.00008	-.00023	.00294	.00716	3.32
31	12.01	.0046	.0009	-.00014	-.00007	-.00022	.00302	.01285	3.32
32	13.02	.0028	.0011	-.00014	-.00007	-.00020	.00310	.00990	3.32
33	14.01	.0023	.0014	-.00013	-.00007	-.00020	.00319	.01010	3.32
34	15.04	.0024	.0015	-.00013	-.00006	-.00019	.00330	.00983	3.32
35	16.03	.0017	.0020	-.00011	-.00005	-.00017	.00341	.00900	3.32
36	23.05	.0044	-.0021	.00047	.00051	.00098	.00445	.01381	3.33
37	-.00	.0020	.0013	-.00018	-.00010	-.00028	.00258	.00415	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 12 MACH NO .900 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
38	.900	893.37	0.00	-.02	.1162	.03796	-.1083	.0014	.0013	-.0013	.1162	.03546	3.28
39	.900	893.11	0.00	2.01	.2911	.02664	-.1315	.0017	.0012	-.0042	.2900	.03435	8.44
40	.900	893.13	0.00	4.02	.4530	.01430	-.1516	.0024	.0013	-.0067	.4509	.04346	10.37
41	.900	893.26	0.00	6.07	.5992	.00136	-.1656	.0025	.0012	-.0087	.5957	.06210	9.59
42	.900	893.32	0.00	8.03	.7424	-.01398	-.1785	.0024	.0012	-.0104	.7371	.08722	8.45
43	.900	893.19	0.00	8.67	.7906	-.01909	-.1820	.0017	.0010	-.0110	.7844	.09766	8.03
44	.900	892.97	0.00	-.03	.1142	.03802	-.1078	.0014	.0013	-.0013	.1143	.03549	3.22

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
38	-.02	.0014	.0013	-.00026	-.00018	-.00044	.00247	.00351	5.01
39	2.01	.0017	.0011	-.00026	-.00019	-.00045	.00248	.00312	5.00
40	4.02	.0025	.0011	-.00026	-.00019	-.00045	.00252	.00263	5.00
41	6.07	.0026	.0010	-.00025	-.00020	-.00045	.00258	.00244	5.00
42	8.03	.0026	.0008	-.00025	-.00020	-.00045	.00267	.00265	5.00
43	8.67	.0018	.0007	-.00025	-.00020	-.00045	.00271	.00266	5.00
44	-.03	.0014	.0013	-.00025	-.00018	-.00044	.00247	.00325	5.00

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 13 MACH NO .800 CONFIG. 1 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
45	.849	883.72	0.00	.02	.1273	.03391	-.1044	.0021	.0013	-.0016	.1273	.03143	4.05
46	.849	883.44	0.00	1.98	.2887	.02294	-.1243	.0027	.0013	-.0045	.2877	.03037	9.47
47	.849	883.80	0.00	4.02	.4452	.00966	-.1384	.0028	.0012	-.0068	.4434	.03827	11.59
48	.849	883.80	0.00	6.06	.5938	-.00616	-.1500	.0034	.0013	-.0088	.5912	.05391	10.97
49	.849	883.80	0.00	8.02	.7434	-.02531	-.1627	.0036	.0012	-.0106	.7396	.07594	9.74
50	.849	883.80	0.00	9.09	.8275	-.03619	-.1698	.0031	.0011	-.0117	.8228	.09217	8.93
51	.849	883.60	0.00	9.54	.8659	-.04046	-.1735	.0028	.0010	-.0123	.8606	.10071	8.55
52	.849	883.66	0.00	.00	.1250	.03408	-.1041	.0021	.0013	-.0017	.1250	.03156	3.96

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
45	.02	.0021	.0013	-.00020	-.00013	-.00033	.00253	.00362	5.14
46	1.98	.0027	.0012	-.00021	-.00013	-.00034	.00254	.00391	5.14
47	4.02	.0029	.0010	-.00021	-.00012	-.00033	.00258	.00473	5.14
48	6.06	.0035	.0009	-.00021	-.00011	-.00033	.00265	.00472	5.14
49	8.02	.0038	.0007	-.00021	-.00010	-.00032	.00273	.00411	5.14
50	9.09	.0032	.0006	-.00021	-.00010	-.00031	.00279	.00421	5.14
51	9.54	.0029	.0006	-.00020	-.00010	-.00030	.00282	.00427	5.14
52	.00	.0021	.0013	-.00020	-.00012	-.00033	.00253	.00367	5.14

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 14 MACH NO .900 CONFIG. 2 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
18	.899	593.08	0.00	.00	.1256	.03809	-.1102	.0015	.0013	-.0006	.1256	.03562	3.52
19	.899	593.01	0.00	2.01	.2990	.02696	-.1342	.0018	.0012	-.0037	.2978	.03496	8.52
20	.899	593.14	0.00	3.99	.4587	.01502	-.1539	.0025	.0012	-.0061	.4565	.04435	10.29
21	.899	593.02	0.00	6.01	.6068	.00212	-.1691	.0026	.0011	-.0080	.6033	.06305	9.57
22	.899	593.01	0.00	8.00	.7539	-.01338	-.1823	.0020	.0009	-.0097	.7484	.08902	8.41
23	.899	593.08	0.00	9.03	.8339	-.02114	-.1891	.0021	.0009	-.0109	.8268	.10727	7.71
25	.899	593.07	0.00	9.51	.8707	-.02444	-.1930	.0022	.0009	-.0115	.8627	.11694	7.38
27	.899	592.95	0.00	10.01	.9033	-.02731	-.1931	.0020	.0009	-.0122	.8943	.12726	7.03
30	.899	593.01	0.00	10.51	.9306	-.02964	-.1910	.0018	.0010	-.0125	.9204	.13778	6.68
31	.899	593.01	0.00	11.02	.9571	-.03168	-.1890	.0019	.0012	-.0133	.9455	.14894	6.35
32	.899	593.02	0.00	11.52	.9792	-.03308	-.1857	.0021	.0013	-.0138	.9661	.16023	6.03
33	.899	593.01	0.00	11.79	.9878	-.03344	-.1823	.0035	.0015	-.0144	.9738	.16611	5.86
34	.899	592.77	0.00	12.92	.9687	-.02879	-.1552	.0006	.0014	-.0141	.9506	.18558	5.12
35	.899	593.08	0.00	13.99	1.0089	-.02987	-.1553	-.0026	.0015	-.0151	.9862	.21176	4.66
36	.899	593.07	0.00	-.00	.1195	.03834	-.1094	.0015	.0013	-.0010	.1195	.03586	3.33

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
18	.00	.0015	.0013	-.00024	-.00016	-.00040	.00247	.00356	3.32
19	2.01	.0018	.0011	-.00025	-.00017	-.00042	.00248	.00314	3.33
20	3.99	.0025	.0010	-.00025	-.00017	-.00042	.00252	.00281	3.32
21	6.01	.0027	.0008	-.00025	-.00016	-.00041	.00258	.00270	3.33
22	8.00	.0021	.0006	-.00024	-.00016	-.00039	.00267	.00266	3.32
23	9.03	.0022	.0005	-.00023	-.00016	-.00039	.00273	.00287	3.32
25	9.51	.0023	.0005	-.00023	-.00016	-.00039	.00276	.00303	3.32
27	10.01	.0021	.0006	-.00023	-.00016	-.00039	.00279	.00379	3.32
30	10.51	.0019	.0007	-.00022	-.00016	-.00038	.00283	.00775	3.32
31	11.02	.0021	.0008	-.00022	-.00016	-.00037	.00287	.00970	3.32
32	11.52	.0023	.0008	-.00021	-.00015	-.00036	.00291	.01014	3.32
33	11.79	.0037	.0007	-.00021	-.00015	-.00036	.00293	.01078	3.32
34	12.92	.0009	.0012	-.00022	-.00016	-.00038	.00304	.01031	3.32
35	13.99	-.0021	.0021	-.00022	-.00015	-.00036	.00315	.00938	3.32
36	-.00	.0015	.0013	-.00024	-.00016	-.00040	.00247	.00372	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 15 MACH NO .800 CONFIG. 2 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
20	.801	548.58	0.00	-.03	.1241	.03279	-.0975	.0022	.0012	-.0004	.1242	.03020	4.11
21	.801	548.58	0.00	1.97	.2846	.02188	-.1167	.0026	.0011	-.0031	.2837	.02909	9.75
22	.801	548.51	0.00	3.97	.4320	.00931	-.1294	.0031	.0010	-.0054	.4304	.03660	11.76
23	.801	548.65	0.00	5.98	.5755	-.00651	-.1393	.0035	.0010	-.0072	.5730	.05079	11.28
24	.801	548.58	0.00	7.97	.7119	-.02642	-.1445	.0040	.0009	-.0088	.7087	.06978	10.16
25	.801	548.65	0.00	8.97	.7829	-.03752	-.1458	.0040	.0009	-.0099	.7791	.08226	9.47
26	.801	548.64	0.00	9.46	.8208	-.04286	-.1469	.0039	.0009	-.0106	.8167	.08983	9.09
27	.801	548.65	0.00	9.97	.8579	-.04756	-.1478	.0038	.0008	-.0111	.8532	.09889	8.63
28	.801	548.64	0.00	10.48	.8938	-.05142	-.1480	.0038	.0009	-.0121	.8882	.10906	8.14
29	.801	548.58	0.00	11.01	.9231	-.05344	-.1455	.0029	.0008	-.0126	.9163	.12088	7.58
30	.801	548.51	0.00	11.47	.9242	-.04945	-.1368	.0021	.0007	-.0125	.9155	.13241	6.91
31	.801	548.58	0.00	11.97	.9335	-.04715	-.1323	.0016	.0006	-.0125	.9230	.14455	6.39
32	.801	548.51	0.00	12.47	.9420	-.04454	-.1278	.0028	.0010	-.0132	.9294	.15692	5.92
33	.801	548.58	0.00	13.01	.9562	-.04380	-.1255	.0020	.0008	-.0133	.9415	.16943	5.56
34	.801	548.65	0.00	13.98	.9872	-.04366	-.1211	.0021	.0010	-.0142	.9685	.19304	5.02
35	.801	548.58	0.00	-.02	.1244	.03280	-.0977	.0021	.0012	-.0008	.1244	.03023	4.11

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
20	-.03	.0022	.0012	-.00016	-.00009	-.00026	.00253	.00409	3.33
21	1.97	.0026	.0010	-.00018	-.00011	-.00028	.00254	.00403	3.32
22	3.97	.0031	.0008	-.00018	-.00012	-.00030	.00258	.00432	3.33
23	5.98	.0036	.0006	-.00018	-.00011	-.00030	.00264	.00533	3.33
24	7.97	.0041	.0004	-.00018	-.00011	-.00028	.00273	.00640	3.32
25	8.97	.0041	.0003	-.00017	-.00010	-.00027	.00278	.00708	3.33
26	9.46	.0040	.0002	-.00017	-.00010	-.00026	.00281	.00734	3.32
27	9.97	.0039	.0002	-.00016	-.00009	-.00025	.00285	.00765	3.33
28	10.48	.0039	.0002	-.00015	-.00008	-.00024	.00288	.00862	3.32
29	11.01	.0030	.0002	-.00014	-.00007	-.00022	.00292	.00873	3.33
30	11.47	.0022	.0003	-.00013	-.00007	-.00020	.00296	.00972	3.32
31	11.97	.0017	.0003	-.00013	-.00007	-.00019	.00300	.00859	3.33
32	12.47	.0029	.0003	-.00012	-.00006	-.00018	.00304	.00924	3.32
33	13.01	.0022	.0003	-.00012	-.00006	-.00017	.00309	.00848	3.33
34	13.98	.0023	.0005	-.00011	-.00005	-.00016	.00318	.00827	3.32
35	-.02	.0021	.0012	-.00016	-.00009	-.00025	.00253	.00379	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 16 MACH NO 1.200 CONFIG. 3 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	1.201	692.50	0.00	-5.42	-.4394	.07462	.1169	.0022	-.0004	.0143	-.4304	.11346	-3.79
18	1.200	692.30	0.00	-2.00	-.1913	.07024	.0256	.0022	.0002	.0072	-.1887	.07476	-2.52
19	1.200	692.67	0.00	-.07	-.0227	.06478	-.0396	.0021	.0004	.0036	-.0226	.06276	-.36
20	1.201	692.47	0.00	1.05	.0726	.06087	-.0767	.0023	.0007	.0014	.0715	.06014	1.19
21	1.199	691.98	0.00	2.00	.1574	.05702	-.1094	.0024	.0008	.0006	.1553	.06043	2.57
22	1.201	692.64	0.00	2.94	.2429	.05279	-.1408	.0025	.0008	-.0002	.2399	.06313	3.80
23	1.200	692.30	0.00	4.01	.3368	.04775	-.1754	.0028	.0012	-.0021	.3327	.06909	4.82
24	1.199	692.23	0.00	5.04	.4344	.04230	-.2109	.0027	.0011	-.0032	.4290	.07821	5.48
25	1.200	692.28	0.00	6.02	.5219	.03725	-.2436	.0026	.0013	-.0044	.5152	.08960	5.75
26	1.200	692.20	0.00	6.98	.6098	.03202	-.2758	.0025	.0014	-.0056	.6014	.10374	5.80
27	1.199	692.07	0.00	.03	-.0237	.06472	-.0395	.0021	.0005	.0038	-.0237	.06266	-.38

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	-5.42	.0023	-.0002	.00134	.00149	.00283	.00234	0.00000	3.32
18	-2.00	.0022	.0003	.00135	.00151	.00286	.00210	0.00000	3.33
19	-.07	.0021	.0004	.00131	.00146	.00277	.00205	0.00000	3.33
20	1.05	.0023	.0007	.00132	.00146	.00277	.00204	0.00000	3.33
21	2.00	.0024	.0007	.00129	.00142	.00271	.00205	0.00000	3.32
22	2.94	.0025	.0007	.00128	.00140	.00268	.00206	0.00000	3.32
23	4.01	.0029	.0010	.00125	.00136	.00261	.00208	0.00000	3.32
24	5.04	.0028	.0009	.00122	.00132	.00253	.00212	0.00000	3.32
25	6.02	.0027	.0010	.00120	.00129	.00249	.00216	0.00000	3.32
26	6.98	.0027	.0011	.00118	.00124	.00243	.00220	0.00000	3.32
27	.03	.0021	.0005	.00132	.00147	.00279	.00205	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 17 MACH NO .900 CONFIG. 3 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
28	.900	593.65	0.00	-4.92	-.3184	.05857	-.0078	.0024	.0003	.0119	-.3122	.08317	-3.75
29	.900	593.50	0.00	-2.04	-.0861	.04892	-.0444	.0015	.0007	.0047	-.0843	.04947	-1.70
30	.900	593.43	0.00	-.00	.0912	.03990	-.0735	.0012	.0006	.0014	.0912	.03743	2.44
31	.900	593.65	0.00	1.02	.1835	.03462	-.0911	.0013	.0005	-.0003	.1828	.03541	5.16
32	.901	594.22	0.00	1.99	.2764	.02916	-.1112	.0015	.0007	-.0030	.2752	.03627	7.59
33	.900	593.76	0.00	2.97	.3667	.02314	-.1307	.0019	.0007	-.0037	.3650	.03963	9.21
34	.898	592.26	0.00	4.08	.4609	.01620	-.1478	.0020	.0006	-.0045	.4586	.04639	9.89
35	.901	594.25	0.00	5.02	.5342	.01139	-.1620	.0021	.0006	-.0055	.5311	.05555	9.56
36	.901	594.27	0.00	5.97	.6066	.00538	-.1760	.0020	.0005	-.0060	.6027	.06590	9.15
37	.901	594.21	0.00	6.98	.6887	-.00198	-.1914	.0021	.0005	-.0070	.6838	.07908	8.65
38	.901	594.16	0.00	7.99	.7704	-.00983	-.2076	.0019	.0005	-.0083	.7642	.09472	8.07
39	.901	594.24	0.00	9.00	.8549	-.01737	-.2216	.0015	.0005	-.0096	.8471	.11386	7.44
40	.900	593.41	0.00	10.02	.9368	-.02471	-.2366	.0017	.0007	-.0110	.9268	.13581	6.82
41	.899	593.21	0.00	11.00	1.0156	-.03005	-.2518	.0022	.0010	-.0125	1.0026	.16145	6.21
42	.899	593.13	0.00	11.78	1.0700	-.03383	-.2607	.0022	.0013	-.0136	1.0544	.18244	5.78
43	.900	593.12	0.00	14.00	1.1318	-.02979	-.2876	.0011	.0026	-.0171	1.1054	.24172	4.57
44	.900	593.33	0.00	.01	.0947	.03977	-.0741	.0014	.0006	.0014	.0947	.03732	2.54

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
28	-4.92	.0024	.0005	-.00034	-.00027	-.00061	.00250	0.00000	3.33
29	-2.04	.0014	.0007	-.00035	-.00029	-.00063	.00247	0.00000	3.32
30	-.00	.0012	.0006	-.00035	-.00028	-.00063	.00247	0.00000	3.32
31	1.02	.0013	.0005	-.00035	-.00028	-.00063	.00247	0.00000	3.32
32	1.99	.0015	.0006	-.00035	-.00029	-.00064	.00248	0.00000	3.32
33	2.97	.0019	.0006	-.00035	-.00028	-.00063	.00250	0.00000	3.33
34	4.08	.0020	.0005	-.00034	-.00027	-.00061	.00252	0.00000	3.32
35	5.02	.0021	.0004	-.00035	-.00028	-.00062	.00255	0.00000	3.33
36	5.97	.0021	.0003	-.00035	-.00028	-.00063	.00258	0.00000	3.33
37	6.98	.0021	.0003	-.00034	-.00028	-.00063	.00262	0.00000	3.33
38	7.99	.0019	.0003	-.00033	-.00029	-.00062	.00267	0.00000	3.33
39	9.00	.0015	.0002	-.00033	-.00029	-.00062	.00273	0.00000	3.33
40	10.02	.0018	.0004	-.00031	-.00027	-.00058	.00279	0.00000	3.32
41	11.00	.0023	.0005	-.00029	-.00026	-.00056	.00287	0.00000	3.32
42	11.78	.0024	.0008	-.00028	-.00025	-.00052	.00293	0.00000	3.32
43	14.00	.0017	.0023	-.00021	-.00019	-.00040	.00315	0.00000	3.33
44	.01	.0014	.0006	-.00035	-.00028	-.00063	.00247	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 18 MACH NO .800 CONFIG. 3 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
45	.800	547.38	0.00	-4.69	-.2801	.05116	-.0075	.0019	.0003	.0106	-.2750	.07136	-3.85
46	.800	547.19	0.00	-1.98	-.0729	.04314	-.0340	.0021	.0007	.0049	-.0713	.04310	-1.66
47	.800	547.11	0.00	.02	.0971	.03437	-.0630	.0018	.0005	.0015	.0971	.03188	3.05
48	.800	547.46	0.00	.98	.1750	.02993	-.0781	.0018	.0005	-.0004	.1745	.03037	5.74
49	.800	547.04	0.00	1.97	.2599	.02432	-.0949	.0018	.0004	-.0017	.2589	.03070	8.43
50	.800	546.91	0.00	3.01	.3468	.01789	-.1104	.0023	.0004	-.0030	.3454	.03354	10.30
51	.799	546.78	0.00	3.98	.4213	.01188	-.1229	.0026	.0005	-.0041	.4194	.03854	10.88
52	.800	547.25	0.00	5.03	.5043	.00436	-.1359	.0028	.0006	-.0056	.5020	.04598	10.92
53	.799	546.78	0.00	6.00	.5806	-.00407	-.1482	.0029	.0004	-.0059	.5778	.05403	10.70
54	.800	547.25	0.00	7.00	.6549	-.01341	-.1607	.0032	.0005	-.0073	.6517	.06377	10.22
55	.800	547.25	0.00	7.99	.7334	-.02433	-.1731	.0032	.0006	-.0083	.7297	.07512	9.71
56	.800	547.81	0.00	9.03	.8217	-.03637	-.1860	.0034	.0007	-.0097	.8173	.09029	9.05
57	.800	547.53	0.00	9.99	.9080	-.04691	-.1979	.0039	.0007	-.0110	.9024	.10842	8.32
58	.800	547.65	0.00	11.02	.9811	-.05279	-.2066	.0030	.0009	-.0129	.9731	.13285	7.33
59	.799	546.21	0.00	12.00	1.0000	-.04764	-.2040	.0005	.0006	-.0131	.9881	.15826	6.24
60	.799	546.55	0.00	13.99	1.0860	-.04397	-.2251	.0015	.0014	-.0156	1.0644	.21672	4.91
61	.799	546.77	0.00	.02	.0941	.03463	-.0625	.0015	.0005	.0014	.0941	.03213	2.93

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
45	-4.69	.0019	.0005	-.00023	-.00018	-.00041	.00255	0.00000	3.32
46	-1.98	.0021	.0008	-.00023	-.00018	-.00042	.00253	0.00000	3.32
47	.02	.0018	.0005	-.00024	-.00018	-.00042	.00253	0.00000	3.32
48	.98	.0018	.0004	-.00024	-.00018	-.00042	.00253	0.00000	3.32
49	1.97	.0018	.0004	-.00024	-.00018	-.00042	.00254	0.00000	3.32
50	3.01	.0023	.0003	-.00024	-.00018	-.00042	.00256	0.00000	3.32
51	3.98	.0026	.0003	-.00024	-.00018	-.00042	.00258	0.00000	3.32
52	5.03	.0028	.0004	-.00024	-.00018	-.00042	.00261	0.00000	3.32
53	6.00	.0030	.0001	-.00024	-.00017	-.00041	.00264	0.00000	3.32
54	7.00	.0032	.0002	-.00023	-.00017	-.00041	.00268	0.00000	3.32
55	7.99	.0033	.0001	-.00023	-.00016	-.00039	.00273	0.00000	3.32
56	9.03	.0035	.0001	-.00022	-.00016	-.00038	.00279	0.00000	3.32
57	9.99	.0040	.0000	-.00021	-.00015	-.00036	.00285	0.00000	3.32
58	11.02	.0031	.0003	-.00018	-.00013	-.00031	.00292	0.00000	3.32
59	12.00	.0006	.0005	-.00016	-.00012	-.00028	.00300	0.00000	3.32
60	13.99	.0017	.0010	-.00011	-.00007	-.00018	.00318	0.00000	3.32
61	.02	.0015	.0005	-.00024	-.00018	-.00042	.00253	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 19 MACH NO .600 CONFIG. 3 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
62	.602	440.03	0.00	-4.38	-.2518	.04589	-.0004	.0020	.0004	.0098	-.2476	.06259	-3.96
63	.601	439.86	0.00	-2.02	-.0730	.03939	-.0237	.0016	.0007	.0042	-.0715	.03952	-1.81
64	.601	439.62	0.00	-.01	.0839	.03178	-.0501	.0015	.0003	.0020	.0839	.02935	2.86
65	.601	439.61	0.00	.98	.1666	.02714	-.0656	.0018	.0004	-.0003	.1661	.02758	6.02
66	.601	439.19	0.00	2.02	.2502	.02151	-.0805	.0019	.0002	-.0005	.2493	.02788	8.94
67	.601	439.44	0.00	3.00	.3248	.01586	-.0922	.0023	.0003	-.0024	.3235	.03041	10.64
68	.601	438.94	0.00	3.99	.3908	.01022	-.1028	.0024	.0004	-.0038	.3892	.03496	11.13
69	.601	439.28	0.00	4.98	.4600	.00333	-.1134	.0024	.0002	-.0035	.4579	.04080	11.22
70	.601	439.36	0.00	5.99	.5349	-.00527	-.1258	.0026	.0003	-.0049	.5325	.04804	11.09
71	.601	439.36	0.00	7.01	.6099	-.01552	-.1383	.0029	.0004	-.0060	.6072	.05644	10.76
72	.601	439.03	0.00	8.03	.6809	-.02649	-.1502	.0029	.0004	-.0064	.6780	.06627	10.23
73	.601	439.19	0.00	9.02	.7540	-.03884	-.1613	.0029	.0003	-.0071	.7508	.07728	9.72
74	.601	439.70	0.00	10.01	.8201	-.04995	-.1706	.0028	.0005	-.0090	.8163	.09063	9.01
75	.601	438.94	0.00	10.97	.8817	-.05628	-.1766	.0027	.0007	-.0106	.8763	.10970	7.99
76	.601	439.28	0.00	12.01	.9443	-.05416	-.1829	.0019	.0005	-.0117	.9349	.14065	6.65
77	.601	439.19	0.00	13.99	1.0370	-.05230	-.1950	.0006	.0009	-.0144	1.0189	.19688	5.18
78	.601	439.36	0.00	.03	.0904	.03135	-.0511	.0019	.0003	.0018	.0904	.02898	3.12

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
62	-4.38	.0020	.0005	-.00007	-.00003	-.00010	.00241	0.00000	3.33
63	-2.02	.0016	.0008	-.00007	-.00004	-.00010	.00241	0.00000	3.33
64	-.01	.0015	.0003	-.00007	-.00003	-.00009	.00242	0.00000	3.32
65	.98	.0018	.0003	-.00007	-.00002	-.00010	.00242	0.00000	3.32
66	2.02	.0019	.0001	-.00007	-.00002	-.00009	.00243	0.00000	3.33
67	3.00	.0023	.0001	-.00007	-.00002	-.00009	.00244	0.00000	3.33
68	3.99	.0024	.0002	-.00008	-.00002	-.00009	.00246	0.00000	3.33
69	4.98	.0024	.0000	-.00007	-.00001	-.00008	.00248	0.00000	3.33
70	5.99	.0026	.0000	-.00008	-.00001	-.00009	.00251	0.00000	3.33
71	7.01	.0029	.0001	-.00007	-.00000	-.00007	.00254	0.00000	3.32
72	8.03	.0030	-.0000	-.00007	.00001	-.00006	.00259	0.00000	3.32
73	9.02	.0029	-.0001	-.00006	.00002	-.00005	.00264	0.00000	3.32
74	10.01	.0028	.0000	-.00005	.00002	-.00003	.00270	0.00000	3.33
75	10.97	.0028	.0002	-.00003	.00003	-.00000	.00277	0.00000	3.33
76	12.01	.0020	.0001	-.00001	.00006	.00005	.00286	0.00000	3.33
77	13.99	.0008	.0008	.00005	.00011	.00016	.00307	0.00000	3.32
78	.03	.0019	.0003	-.00007	-.00003	-.00010	.00242	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 20 MACH NO 1.200 CONFIG. 4 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
17	1.200	692.66	0.00	.91	-.0822	.07791	.1162	.0018	-.0013	.0056	-.0834	.07454	-1.12
18	1.200	692.67	0.00	2.02	.0088	.07221	.0803	.0018	-.0013	.0045	.0063	.07043	.09
19	1.200	692.68	0.00	3.02	.1015	.06598	.0444	.0022	-.0010	.0029	.0979	.06917	1.42
20	1.200	692.79	0.00	4.03	.1927	.05962	.0091	.0023	-.0009	.0020	.1880	.07091	2.65
21	1.200	692.89	0.00	5.00	.2830	.05332	-.0253	.0022	-.0008	.0008	.2773	.07566	3.66
22	1.200	692.62	0.00	5.99	.3739	.04673	-.0597	.0023	-.0006	-.0006	.3669	.08336	4.40
23	1.202	692.90	0.00	7.02	.4621	.04021	-.0930	.0021	-.0004	-.0022	.4537	.09417	4.82
24	1.201	692.93	0.00	8.03	.5531	.03334	-.1264	.0020	-.0003	-.0032	.5430	.10800	5.03
25	1.199	692.42	0.00	9.00	.6403	.02689	-.1547	.0018	-.0002	-.0048	.6282	.12443	5.05
26	1.200	692.88	0.00	10.02	.7199	.02097	-.1820	.0017	-.0000	-.0066	.7053	.14349	4.91
27	1.199	692.84	0.00	11.02	.8037	.01451	-.2093	.0015	.0001	-.0082	.7861	.16546	4.75
28	1.200	692.60	0.00	12.06	.8859	.00812	-.2356	.0012	.0001	-.0095	.8646	.19050	4.54
29	1.200	692.81	0.00	1.05	-.0825	.07798	.1171	.0016	-.0014	.0057	-.0839	.07442	-1.13

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
17	.91	.0018	-.0013	.00138	.00144	.00282	.00204	0.00000	3.33
18	2.02	.0018	-.0013	.00138	.00146	.00285	.00205	0.00000	3.32
19	3.02	.0021	-.0011	.00139	.00145	.00284	.00206	0.00000	3.32
20	4.03	.0022	-.0011	.00139	.00143	.00283	.00209	0.00000	3.32
21	5.00	.0022	-.0010	.00140	.00142	.00282	.00212	0.00000	3.32
22	5.99	.0022	-.0009	.00141	.00143	.00283	.00216	0.00000	3.32
23	7.02	.0020	-.0006	.00140	.00142	.00283	.00220	0.00000	3.32
24	8.03	.0019	-.0006	.00138	.00140	.00278	.00225	0.00000	3.32
25	9.00	.0017	-.0005	.00135	.00138	.00273	.00231	0.00000	3.32
26	10.02	.0017	-.0003	.00131	.00136	.00267	.00236	0.00000	3.32
27	11.02	.0015	-.0002	.00126	.00132	.00258	.00242	0.00000	3.32
28	12.06	.0012	-.0001	.00118	.00123	.00240	.00248	0.00000	3.32
29	1.05	.0016	-.0014	.00137	.00145	.00282	.00204	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 21 MACH NO .900 CONFIG. 4 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
30	.900	593.58	0.00	-4.01	-.4000	.07904	.1601	.0022	-.0010	.0136	-.3935	.10432	-3.77
31	.899	592.87	0.00	-2.03	-.2396	.07136	.1352	.0020	-.0008	.0083	-.2370	.07734	-3.06
32	.900	593.36	0.00	-.01	-.0720	.06176	.1121	.0015	-.0010	.0047	-.0719	.05930	-1.21
33	.899	593.09	0.00	1.00	.0194	.05570	.0978	.0015	-.0011	.0031	.0184	.05356	.34
34	.899	593.00	0.00	2.00	.1045	.04944	.0834	.0016	-.0011	.0012	.1027	.05059	2.03
35	.899	592.97	0.00	3.01	.1952	.04207	.0669	.0021	-.0012	.0003	.1927	.04976	3.87
36	.900	593.33	0.00	4.01	.2744	.03549	.0550	.0021	-.0011	-.0008	.2712	.05206	5.21
37	.899	592.95	0.00	5.03	.3514	.02891	.0441	.0021	-.0013	-.0011	.3475	.05703	6.09
38	.900	593.61	0.00	6.04	.4283	.02136	.0321	.0020	-.0015	-.0018	.4236	.06375	6.65
39	.899	593.07	0.00	7.00	.5032	.01337	.0198	.0018	-.0015	-.0028	.4978	.07195	6.92
40	.900	593.71	0.00	8.03	.5837	.00495	.0052	.0018	-.0014	-.0040	.5773	.08382	6.89
41	.900	593.52	0.00	9.00	.6715	-.00392	-.0098	.0009	-.0017	-.0046	.6638	.09848	6.74
42	.900	593.88	0.00	10.07	.7605	-.01109	-.0269	.0017	-.0012	-.0069	.7507	.11930	6.29
43	.900	593.36	0.00	11.03	.8331	-.01738	-.0400	.0025	-.0008	-.0080	.8210	.13951	5.88
44	.899	593.05	0.00	12.08	.8722	-.01972	-.0389	.0085	.0001	-.0093	.8570	.16033	5.35
45	.899	593.15	0.00	14.02	.9440	-.02169	-.0773	.0018	.0002	-.0110	.9211	.20448	4.50
46	.900	593.47	0.00	-.01	-.0737	.06208	.1126	.0016	-.0010	.0048	-.0737	.05962	-1.24

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
30	-4.01	.0023	-.0009	-.00007	.00001	-.00006	.00249	0.00000	3.32
31	-2.03	.0021	-.0007	-.00007	-.00000	-.00007	.00247	0.00000	3.32
32	-.01	.0015	-.0010	-.00011	-.00003	-.00014	.00247	0.00000	3.32
33	1.00	.0014	-.0011	-.00013	-.00005	-.00018	.00247	0.00000	3.32
34	2.00	.0015	-.0012	-.00016	-.00008	-.00024	.00248	0.00000	3.32
35	3.01	.0020	-.0013	-.00019	-.00011	-.00030	.00250	0.00000	3.32
36	4.01	.0021	-.0013	-.00022	-.00014	-.00036	.00252	0.00000	3.33
37	5.03	.0020	-.0015	-.00025	-.00018	-.00043	.00255	0.00000	3.32
38	6.04	.0018	-.0017	-.00028	-.00021	-.00049	.00258	0.00000	3.33
39	7.00	.0016	-.0017	-.00029	-.00023	-.00052	.00262	0.00000	3.33
40	8.03	.0016	-.0017	-.00031	-.00025	-.00056	.00267	0.00000	3.33
41	9.00	.0006	-.0018	-.00032	-.00026	-.00058	.00273	0.00000	3.32
42	10.07	.0014	-.0015	-.00033	-.00027	-.00060	.00280	0.00000	3.33
43	11.03	.0023	-.0013	-.00033	-.00028	-.00061	.00287	0.00000	3.32
44	12.08	.0083	-.0017	-.00034	-.00029	-.00063	.00296	0.00000	3.32
45	14.02	.0018	-.0002	-.00034	-.00031	-.00065	.00315	0.00000	3.32
46	-.01	.0016	-.0010	-.00011	-.00003	-.00013	.00247	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 22 MACH NO .800 CONFIG. 4 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
47	.801	548.73	0.00	-4.00	-.3843	.07229	.1545	.0024	-.0007	.0120	-.3783	.09638	-3.93
48	.801	548.63	0.00	-2.01	-.2343	.06546	.1361	.0022	-.0008	.0086	-.2318	.07110	-3.26
49	.800	548.17	0.00	.03	-.0722	.05566	.1123	.0017	-.0010	.0050	-.0722	.05310	-1.36
50	.801	548.50	0.00	1.05	.0145	.04974	.1002	.0021	-.0010	.0034	.0136	.04747	.29
51	.801	548.51	0.00	2.04	.0939	.04376	.0879	.0020	-.0011	.0015	.0923	.04452	2.07
52	.801	548.64	0.00	3.06	.1773	.03645	.0754	.0023	-.0011	.0003	.1751	.04330	4.04
53	.801	548.79	0.00	4.03	.2496	.02975	.0649	.0024	-.0011	-.0006	.2469	.04465	5.53
54	.800	547.54	0.00	5.04	.3236	.02266	.0542	.0025	-.0012	-.0011	.3205	.04780	6.70
55	.801	548.36	0.00	6.04	.4013	.01262	.0427	.0026	-.0013	-.0017	.3977	.05215	7.63
56	.801	548.71	0.00	7.01	.4724	.00279	.0313	.0028	-.0013	-.0028	.4685	.05774	8.11
57	.801	548.64	0.00	8.05	.5542	-.00924	.0188	.0029	-.0012	-.0039	.5501	.06569	8.37
58	.800	547.95	0.00	9.03	.6345	-.02142	.0068	.0031	-.0011	-.0054	.6300	.07566	8.33
59	.801	548.39	0.00	10.01	.7176	-.03235	-.0054	.0032	-.0010	-.0069	.7123	.09005	7.91
60	.801	548.49	0.00	11.00	.7986	-.04063	-.0154	.0029	-.0008	-.0085	.7916	.10963	7.22
61	.801	549.00	0.00	12.05	.8329	-.03776	-.0156	.0019	-.0009	-.0087	.8224	.13400	6.14
62	.801	549.30	0.00	14.03	.9106	-.03405	-.0406	.0014	-.0004	-.0106	.8917	.18460	4.83
63	.802	549.33	0.00	.04	-.0727	.05582	.1123	.0018	-.0008	.0046	-.0728	.05325	-1.37

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
47	-4.00	.0025	-.0005	-.00010	-.00004	-.00014	.00254	0.00000	3.33
48	-2.01	.0022	-.0007	-.00010	-.00004	-.00014	.00253	0.00000	3.33
49	.03	.0017	-.0010	-.00012	-.00005	-.00017	.00253	0.00000	3.33
50	1.05	.0020	-.0011	-.00013	-.00007	-.00019	.00253	0.00000	3.33
51	2.04	.0020	-.0012	-.00015	-.00008	-.00023	.00255	0.00000	3.32
52	3.06	.0022	-.0012	-.00015	-.00009	-.00024	.00256	0.00000	3.32
53	4.03	.0023	-.0013	-.00016	-.00010	-.00027	.00258	0.00000	3.32
54	5.04	.0024	-.0014	-.00018	-.00012	-.00030	.00261	0.00000	3.32
55	6.04	.0024	-.0016	-.00019	-.00014	-.00033	.00265	0.00000	3.32
56	7.01	.0026	-.0016	-.00020	-.00015	-.00034	.00268	0.00000	3.32
57	8.05	.0027	-.0016	-.00021	-.00016	-.00037	.00273	0.00000	3.32
58	9.03	.0029	-.0015	-.00021	-.00016	-.00038	.00279	0.00000	3.32
59	10.01	.0030	-.0015	-.00022	-.00016	-.00038	.00285	0.00000	3.33
60	11.00	.0027	-.0013	-.00021	-.00016	-.00037	.00292	0.00000	3.33
61	12.05	.0017	-.0012	-.00021	-.00015	-.00036	.00300	0.00000	3.33
62	14.03	.0012	-.0007	-.00021	-.00017	-.00037	.00319	0.00000	3.33
63	.04	.0018	-.0008	-.00012	-.00005	-.00017	.00253	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 23 MACH NO .600 CONFIG. 4 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
64	.600	438.52	0.00	-4.00	-.3825	.06701	.1576	.0022	-.0012	.0133	-.3769	.09111	-4.14
65	.601	438.85	0.00	-2.00	-.2393	.06063	.1411	.0014	-.0009	.0081	-.2370	.06653	-3.56
66	.601	439.69	0.00	-.01	-.0820	.05165	.1159	.0014	-.0009	.0040	-.0820	.04925	-1.66
67	.601	438.86	0.00	1.02	.0030	.04604	.1026	.0015	-.0010	.0033	.0022	.04366	.05
68	.601	438.86	0.00	2.02	.0785	.04039	.0924	.0020	-.0012	.0022	.0770	.04071	1.89
69	.601	439.36	0.00	3.00	.1470	.03459	.0831	.0021	-.0012	.0011	.1450	.03980	3.64
70	.601	439.27	0.00	4.03	.2204	.02752	.0721	.0021	-.0013	.0006	.2179	.04050	5.38
71	.601	439.44	0.00	5.05	.2929	.01961	.0608	.0022	-.0013	-.0003	.2901	.04285	6.77
72	.602	440.19	0.00	6.01	.3614	.01101	.0498	.0022	-.0013	-.0011	.3583	.04626	7.75
73	.600	438.03	0.00	7.04	.4318	.00062	.0378	.0025	-.0013	-.0012	.4285	.05096	8.41
75	.602	440.02	0.00	8.05	.5051	-.01122	.0252	.0023	-.0012	-.0027	.5017	.05699	8.80
76	.600	438.29	0.00	9.01	.5748	-.02347	.0137	.0026	-.0013	-.0025	.5714	.06415	8.91
77	.601	439.02	0.00	10.01	.6431	-.03593	.0032	.0024	-.0012	-.0041	.6396	.07375	8.67
78	.600	438.61	0.00	11.02	.7180	-.04546	-.0064	.0026	-.0008	-.0071	.7134	.08989	7.94
79	.601	439.11	0.00	12.02	.7755	-.04411	-.0112	.0018	-.0012	-.0063	.7677	.11547	6.65
80	.600	437.86	0.00	14.01	.8702	-.04391	-.0234	.0007	-.0009	-.0088	.8549	.16491	5.18
81	.602	440.02	0.00	-.02	-.0840	.05187	.1161	.0014	-.0010	.0049	-.0840	.04948	-1.70

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
64	-4.00	.0023	-.0010	-.00002	.00003	.00001	.00241	0.00000	3.32
65	-2.00	.0015	-.0008	-.00002	.00003	.00001	.00241	0.00000	3.33
66	-.01	.0014	-.0009	-.00002	.00003	.00000	.00242	0.00000	3.33
67	1.02	.0015	-.0010	-.00003	.00002	-.00000	.00242	0.00000	3.33
68	2.02	.0020	-.0012	-.00003	.00002	-.00000	.00243	0.00000	3.33
69	3.00	.0021	-.0013	-.00003	.00002	-.00001	.00244	0.00000	3.33
70	4.03	.0020	-.0015	-.00003	.00002	-.00001	.00246	0.00000	3.33
71	5.05	.0021	-.0015	-.00004	.00002	-.00002	.00248	0.00000	3.33
72	6.01	.0021	-.0016	-.00004	.00001	-.00003	.00251	0.00000	3.33
73	7.04	.0023	-.0016	-.00005	.00000	-.00005	.00254	0.00000	3.32
75	8.05	.0021	-.0015	-.00006	-.00001	-.00006	.00259	0.00000	3.33
76	9.01	.0024	-.0017	-.00007	-.00001	-.00008	.00264	0.00000	3.32
77	10.01	.0021	-.0016	-.00007	-.00002	-.00010	.00270	0.00000	3.32
78	11.02	.0024	-.0013	-.00007	-.00002	-.00010	.00278	0.00000	3.32
79	12.02	.0016	-.0016	-.00005	-.00001	-.00006	.00286	0.00000	3.33
80	14.01	.0004	-.0011	-.00003	.00001	-.00002	.00307	0.00000	3.32
81	-.02	.0014	-.0010	-.00003	.00003	-.00000	.00242	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785   RUN 24   MACH NO .900   CONFIG. 5   08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
84	.899	592.88	0.00	6.00	.5175	.00740	-.0678	.0017	-.0006	-.0036	.5139	.05884	8.73
85	.900	593.20	0.00	8.02	.6846	-.00858	-.1053	.0017	-.0005	-.0056	.6791	.08440	8.05
86	.899	592.64	0.00	9.03	.7706	-.01663	-.1219	.0012	-.0006	-.0070	.7637	.10180	7.50
88	.900	593.64	0.00	10.05	.8598	-.02303	-.1422	.0019	-.0001	-.0090	.8507	.12454	6.83
89	.899	592.82	0.00	11.05	.9359	-.02898	-.1567	.0017	.0002	-.0106	.9241	.14812	6.24
90	.900	593.18	0.00	12.01	.9968	-.03316	-.1664	-.0007	.0002	-.0115	.9819	.17195	5.71
91	.899	592.94	0.00	14.04	1.0583	-.03399	-.1780	.0046	.0009	-.0123	1.0349	.22056	4.69

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
84	6.00	.0016	-.0008	-.00035	-.00029	-.00065	.00258	0.00000	3.33
85	8.02	.0016	-.0008	-.00034	-.00028	-.00062	.00267	0.00000	3.33
86	9.03	.0011	-.0008	-.00033	-.00027	-.00059	.00273	0.00000	3.32
88	10.05	.0019	-.0004	-.00032	-.00026	-.00058	.00279	0.00000	3.32
89	11.05	.0017	-.0002	-.00030	-.00025	-.00055	.00287	0.00000	3.32
90	12.01	-.0006	.0004	-.00029	-.00023	-.00052	.00295	0.00000	3.32
91	14.04	.0047	-.0002	-.00027	-.00022	-.00049	.00315	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 25 MACH NO .950 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
92	.950	613.87	0.00	9.05	.7888	-.00261	-.1660	.0019	-.0003	-.0080	.7794	.11893	6.55
93	.950	613.61	0.00	10.03	.8801	-.00979	-.1925	.0016	-.0000	-.0091	.8683	.14104	6.16
94	.951	614.09	0.00	11.00	.9702	-.01585	-.2218	.0019	-.0002	-.0114	.9554	.16684	5.73
95	.950	613.80	0.00	12.01	1.0533	-.02213	-.2451	.0021	-.0001	-.0131	1.0348	.19481	5.31
96	.951	614.30	0.00	14.00	1.1895	-.03234	-.2712	.0002	.0011	-.0164	1.1620	.25347	4.58

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
92	9.05	.0019	-.0006	-.00056	-.00050	-.00106	.00255	0.00000	3.33
93	10.03	.0015	-.0003	-.00055	-.00049	-.00104	.00261	0.00000	3.32
94	11.00	.0018	-.0006	-.00055	-.00049	-.00103	.00269	0.00000	3.32
95	12.01	.0020	-.0005	-.00054	-.00046	-.00100	.00277	0.00000	3.32
96	14.00	.0005	.0010	-.00051	-.00047	-.00098	.00298	0.00000	3.33

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 26 MACH NO .900 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
99	.898	592.41	0.00	-2.99	-.2630	.05914	.0829	.0016	-.0006	.0099	-.2595	.07027	-3.69
100	.901	594.29	0.00	-2.02	-.1842	.05568	.0732	.0015	-.0006	.0078	-.1821	.05967	-3.05
101	.899	592.45	0.00	.05	-.0046	.04522	.0445	.0011	-.0004	.0029	-.0047	.04275	-.11
102	.900	593.25	0.00	1.98	.1739	.03391	.0074	.0012	-.0007	.0003	.1727	.03741	4.62
103	.900	593.77	0.00	4.05	.3565	.02078	-.0336	.0016	-.0006	-.0026	.3542	.04338	8.16
104	.900	593.46	0.00	6.04	.5193	.00745	-.0687	.0018	-.0006	-.0038	.5156	.05950	8.67
105	.900	593.91	0.00	8.02	.6860	-.00839	-.1064	.0020	-.0005	-.0059	.6805	.08473	8.03
106	.898	591.99	0.00	9.00	.7692	-.01690	-.1217	.0010	-.0006	-.0074	.7624	.10096	7.55
107	.899	592.84	0.00	10.04	.8656	-.02380	-.1440	.0019	-.0001	-.0093	.8565	.12467	6.87
108	.900	593.38	0.00	11.05	.9423	-.02932	-.1583	.0017	.0000	-.0105	.9304	.14898	6.25
109	.900	593.25	0.00	11.83	.9733	-.03053	-.1549	.0086	.0010	-.0116	.9589	.16669	5.75
110	.900	593.72	0.00	14.05	1.0375	-.02964	-.1795	-.0001	.0015	-.0148	1.0137	.21997	4.61
111	.899	592.98	0.00	.04	-.0083	.04538	.0452	.0012	-.0004	.0030	-.0084	.04290	-.20

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
99	-2.99	.0016	-.0005	-.00034	-.00027	-.00061	.00248	0.00000	3.32
100	-2.02	.0015	-.0006	-.00036	-.00029	-.00065	.00247	0.00000	3.33
101	.05	.0011	-.0004	-.00035	-.00030	-.00065	.00247	0.00000	3.32
102	1.98	.0012	-.0007	-.00036	-.00031	-.00067	.00248	0.00000	3.33
103	4.05	.0016	-.0007	-.00037	-.00030	-.00067	.00252	0.00000	3.33
104	6.04	.0017	-.0008	-.00036	-.00030	-.00067	.00258	0.00000	3.33
105	8.02	.0019	-.0008	-.00035	-.00029	-.00064	.00267	0.00000	3.33
106	9.00	.0009	-.0008	-.00033	-.00027	-.00060	.00273	0.00000	3.32
107	10.04	.0019	-.0005	-.00032	-.00027	-.00059	.00279	0.00000	3.32
108	11.05	.0016	-.0003	-.00031	-.00025	-.00056	.00287	0.00000	3.32
109	11.83	.0086	-.0007	-.00029	-.00023	-.00052	.00293	0.00000	3.32
110	14.05	.0003	.0015	-.00029	-.00024	-.00053	.00315	0.00000	3.32
111	.04	.0012	-.0004	-.00036	-.00030	-.00066	.00247	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 27 MACH NO .800 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
112	.799	547.15	0.00	-3.01	-.2530	.05315	.0822	.0016	-.0003	.0095	-.2499	.06382	-3.92
113	.802	548.83	0.00	-2.06	-.1777	.04970	.0717	.0020	-.0003	.0075	-.1758	.05352	-3.28
114	.801	547.87	0.00	-.00	-.0049	.04026	.0418	.0017	-.0004	.0033	-.0049	.03774	-.13
115	.800	547.26	0.00	2.04	.1721	.02865	.0066	.0019	-.0004	.0001	.1710	.03220	5.31
116	.800	547.06	0.00	4.06	.3386	.01493	-.0249	.0022	-.0004	-.0022	.3367	.03629	9.28
117	.800	546.99	0.00	6.05	.4954	-.00118	-.0537	.0027	-.0004	-.0041	.4928	.04838	10.18
118	.799	546.78	0.00	8.02	.6499	-.02190	-.0816	.0028	-.0005	-.0052	.6466	.06622	9.77
119	.799	546.72	0.00	9.01	.7359	-.03403	-.0949	.0034	-.0003	-.0072	.7321	.07885	9.29
120	.799	546.64	0.00	10.07	.8255	-.04522	-.1079	.0035	-.0000	-.0092	.8207	.09696	8.46
121	.800	546.97	0.00	11.01	.8921	-.05072	-.1145	.0028	.0000	-.0105	.8854	.11761	7.53
122	.800	546.99	0.00	12.05	.9231	-.04671	-.1136	.0015	-.0000	-.0112	.9125	.14397	6.34
123	.799	546.57	0.00	14.04	.9980	-.04329	-.1291	.0015	.0004	-.0132	.9787	.19698	4.97
124	.799	546.08	0.00	.02	-.0034	.04006	.0415	.0015	-.0003	.0026	-.0034	.03753	-.09

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
112	-3.01	.0016	-.0002	-.00025	-.00021	-.00046	.00253	0.00000	3.33
113	-2.06	.0020	-.0002	-.00025	-.00021	-.00046	.00253	0.00000	3.33
114	-.00	.0017	-.0004	-.00026	-.00021	-.00047	.00253	0.00000	3.33
115	2.04	.0019	-.0005	-.00025	-.00021	-.00047	.00255	0.00000	3.33
116	4.06	.0022	-.0006	-.00026	-.00021	-.00047	.00258	0.00000	3.32
117	6.05	.0027	-.0006	-.00026	-.00021	-.00047	.00265	0.00000	3.32
118	8.02	.0027	-.0009	-.00025	-.00021	-.00046	.00273	0.00000	3.32
119	9.01	.0033	-.0008	-.00024	-.00020	-.00044	.00279	0.00000	3.32
120	10.07	.0034	-.0007	-.00023	-.00018	-.00041	.00285	0.00000	3.32
121	11.01	.0027	-.0005	-.00021	-.00016	-.00037	.00292	0.00000	3.32
122	12.05	.0014	-.0003	-.00019	-.00015	-.00034	.00300	0.00000	3.32
123	14.04	.0015	.0000	-.00016	-.00011	-.00027	.00319	0.00000	3.32
124	.02	.0015	-.0003	-.00026	-.00021	-.00046	.00253	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 28 MACH NO .600 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
125	.599	437.27	0.00	-3.03	-.2456	.04869	.0833	.0016	-.0004	.0095	-.2427	.05919	-4.10
126	.600	437.43	C.00	-2.03	-.1712	.04524	.0722	.0014	-.0002	.0070	-.1695	.04886	-3.47
127	.600	437.76	0.00	.01	-.0046	.03683	.0435	.0014	-.0005	.0033	-.0046	.03442	-.13
128	.599	437.02	0.00	2.02	.1590	.02605	.0122	.0018	-.0005	.0005	.1580	.02921	5.41
129	.600	437.93	0.00	4.05	.3090	.01359	-.0147	.0020	-.0005	-.0016	.3072	.03292	9.33
130	.600	438.10	0.00	6.03	.4558	-.00267	-.0410	.0023	-.0005	-.0030	.4536	.04273	10.62
131	.600	437.94	0.00	8.05	.6021	-.02392	-.0675	.0026	-.0004	-.0044	.5995	.05804	10.33
132	.601	439.18	0.00	9.05	.6734	-.03619	-.0792	.0026	-.0004	-.0054	.6707	.06749	9.94
133	.599	437.43	0.00	10.04	.7445	-.04829	-.0890	.0029	-.0002	-.0071	.7415	.07958	9.32
134	.599	436.68	0.00	11.02	.8044	-.05522	-.0954	.0031	.0001	-.0088	.8001	.09671	8.27
135	.599	437.10	0.00	12.03	.8724	-.05648	-.1029	.0048	.0011	-.0119	.8650	.12376	6.99
136	.599	436.43	0.00	14.04	.9726	-.05755	-.1137	.0074	.0019	-.0147	.9575	.17709	5.41
137	.599	437.10	0.00	-.00	-.0073	.03707	.0441	.0016	-.0005	.0037	-.0073	.03466	-.21

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
125	-3.03	.0016	-.0003	-.00011	-.00006	-.00016	.00241	0.00000	3.32
126	-2.03	.0014	-.0001	-.00011	-.00006	-.00017	.00241	0.00000	3.32
127	.01	.0014	-.0005	-.00011	-.00006	-.00017	.00242	0.00000	3.32
128	2.02	.0018	-.0006	-.00010	-.00006	-.00016	.00243	0.00000	3.32
129	4.05	.0020	-.0006	-.00009	-.00006	-.00014	.00246	0.00000	3.32
130	6.03	.0022	-.0008	-.00009	-.00005	-.00014	.00251	0.00000	3.33
131	8.05	.0025	-.0007	-.00009	-.00005	-.00014	.00259	0.00000	3.33
132	9.05	.0025	-.0008	-.00008	-.00005	-.00013	.00264	0.00000	3.33
133	10.04	.0028	-.0007	-.00008	-.00004	-.00012	.00271	0.00000	3.32
134	11.02	.0030	-.0005	-.00006	-.00003	-.00009	.00278	0.00000	3.32
135	12.03	.0050	.0001	-.00004	-.00000	-.00004	.00287	0.00000	3.32
136	14.04	.0076	.0001	.00000	.00004	.00005	.00308	0.00000	3.32
137	-.00	.0016	-.0005	-.00011	-.00006	-.00017	.00242	0.00000	3.32

Table AIII. Continued

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 29 MACH NO .900 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
140	.900	592.75	0.00	-3.00	-.2573	.05899	.0823	.0026	-.0016	.0116	-.2539	.06988	-3.63
141	.900	593.58	0.00	-1.99	-.1758	.05518	.0710	.0024	-.0015	.0105	-.1738	.05878	-2.96
142	.899	593.24	0.00	-.05	-.0098	.04575	.0449	.0017	-.0013	.0076	-.0097	.04329	-.22
143	.900	594.17	0.00	2.02	.1841	.03304	.0056	.0011	-.0008	.0029	.1828	.03704	4.94
144	.901	594.53	0.00	4.07	.3639	.01999	-.0355	.0013	-.0003	-.0019	.3616	.04325	8.36
145	.900	593.74	0.00	6.08	.5275	.00627	-.0711	.0014	-.0001	-.0064	.5238	.05949	8.80
146	.900	594.34	0.00	8.06	.6903	-.00939	-.1089	.0012	.0001	-.0102	.6848	.08480	8.08
147	.900	593.67	0.00	9.02	.7707	-.01707	-.1243	.0008	.0003	-.0124	.7638	.10123	7.55
148	.900	594.12	0.00	10.06	.8658	-.02412	-.1456	.0013	.0005	-.0141	.8567	.12466	6.87
149	.900	594.18	0.00	11.00	.9343	-.02904	-.1585	.0016	.0008	-.0155	.9227	.14697	6.28
150	.901	594.60	0.00	-.00	-.0099	.04618	.0458	.0018	-.0013	.0080	-.0099	.04371	-.23

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
140	-3.00	.0027	-.0014	-.00035	-.00029	-.00064	.00248	0.00000	3.33
141	-1.99	.0024	-.0015	-.00035	-.00029	-.00064	.00247	0.00000	3.33
142	-.05	.0017	-.0013	-.00035	-.00030	-.00065	.00247	0.00000	3.33
143	2.02	.0011	-.0008	-.00037	-.00032	-.00068	.00248	0.00000	3.33
144	4.07	.0013	-.0004	-.00037	-.00032	-.00069	.00252	0.00000	3.33
145	6.08	.0014	-.0002	-.00037	-.00030	-.00067	.00258	0.00000	3.33
146	8.06	.0012	-.0001	-.00036	-.00030	-.00065	.00267	0.00000	3.33
147	9.02	.0008	.0002	-.00034	-.00028	-.00063	.00273	0.00000	3.32
148	10.06	.0014	.0003	-.00033	-.00027	-.00061	.00279	0.00000	3.33
149	11.00	.0017	.0004	-.00032	-.00026	-.00058	.00287	0.00000	3.33
150	-.00	.0018	-.0013	-.00036	-.00030	-.00066	.00247	0.00000	3.33

Table AIII. Concluded

PRELIMINARY DATA
NASA LANGLEY 8FT TPT
TEST 785 RUN 30 MACH NO .800 CONFIG. 5 08/12/77

POINT	MINF	Q	BETA	ALPHA	CN	CA	CM	CROLL	CYAW	CSIDE	CL	CD	L/D
151	.800	547.48	0.00	-2.97	-.2470	.05323	.0807	.0027	-.0016	.0120	-.2439	.06344	-3.84
152	.800	547.54	0.00	-2.08	-.1733	.04973	.0716	.0027	-.0017	.0115	-.1714	.05346	-3.21
153	.800	547.49	0.00	.03	.0070	.03953	.0410	.0019	-.0012	.0079	.0069	.03701	.19
154	.801	548.68	0.00	1.99	.1715	.02856	.0067	.0019	-.0005	.0024	.1704	.03195	5.33
155	.800	547.69	0.00	4.01	.3397	.01471	-.0255	.0016	-.0002	-.0016	.3379	.03584	9.43
156	.800	547.58	0.00	6.06	.4986	-.00187	-.0552	.0021	-.0000	-.0060	.4960	.04813	10.31
158	.801	548.83	0.00	8.08	.6591	-.02356	-.0847	.0020	.0004	-.0109	.6559	.06661	9.85
159	.800	548.18	0.00	9.05	.7401	-.03471	-.0974	.0023	.0005	-.0124	.7364	.07930	9.29
160	.800	547.81	0.00	10.02	.8211	-.04491	-.1090	.0019	.0004	-.0139	.8164	.09582	8.52
161	.800	547.60	0.00	11.31	.8818	-.04981	-.1151	.0005	.0001	-.0151	.8744	.12120	7.21
162	.799	547.26	0.00	.03	.0034	.03985	.0415	.0018	-.0011	.0074	.0034	.03732	.09

POINT	ALPHA	CROLLS	CYAWS	CDB1	CDB2	CDB	CDI	CMWSG1	R/FT
151	-2.97	.0028	-.0014	-.00025	-.00020	-.00045	.00253	0.00000	3.32
152	-2.08	.0028	-.0016	-.00025	-.00020	-.00045	.00253	0.00000	3.32
153	.03	.0018	-.0012	-.00025	-.00021	-.00046	.00253	0.00000	3.32
154	1.99	.0018	-.0005	-.00026	-.00021	-.00047	.00254	0.00000	3.32
155	4.01	.0016	-.0003	-.00026	-.00022	-.00047	.00258	0.00000	3.32
156	6.06	.0021	-.0002	-.00026	-.00022	-.00048	.00265	0.00000	3.32
158	8.08	.0020	.0001	-.00026	-.00021	-.00046	.00274	0.00000	3.33
159	9.05	.0024	.0001	-.00025	-.00020	-.00045	.00279	0.00000	3.33
160	10.02	.0020	.0001	-.00024	-.00019	-.00043	.00285	0.00000	3.33
161	11.31	.0005	.0000	-.00022	-.00017	-.00039	.00294	0.00000	3.32
162	.03	.0018	-.0011	-.00026	-.00021	-.00047	.00253	0.00000	3.32

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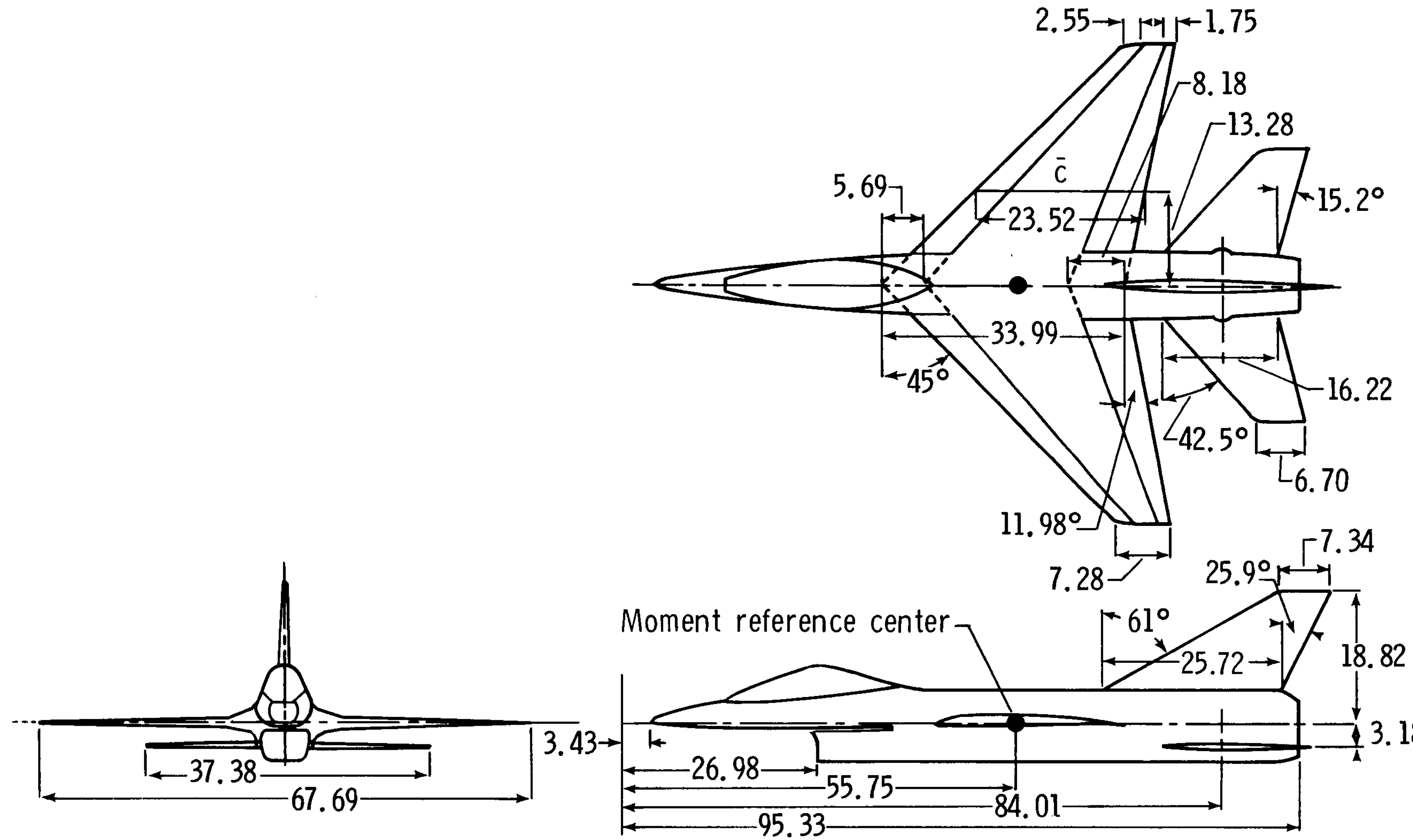
2. Lydick, L. N.; and Mann, H. W.: *Status Report on Development of a Variable Contour Wing Design for Fighter Aircraft.* ERR FW 1653, General Dynamics, Dec. 17, 1975.
3. Ferris, James C.: *Wind-Tunnel Investigation of a Variable Camber and Twist Wing.* NASA TN D-8475, 1977.
4. Waggoner, E. G.; Haney, H. P.; and Ballhaus, W. F.: *Wind Tunnel Investigation of Computationally Optimized Variable Camber Wing Configurations.* NASA TM-78479, AVRADCOM TR-78-32(AM), 1978.
5. Bauer, Frances; Garabedian, Paul; Korn, David; and Jameson, Antony: Supercritical Wing Sections II. *Volume 108 of Lecture Notes in Economics and Mathematical Systems,* M. Beckmann and H. P. Kuenzi, eds., Springer-Verlag, 1975.
6. Harris, Charles D.: *Comparison of the Experimental Aerodynamic Characteristics of Theoretically and Experimentally Designed Supercritical Airfoils.* NASA TM X-3082, 1974.
7. Mann, Michael J.; Campbell, Richard L.; and Ferris, James C.: *Aerodynamic Design for Improved Maneuverability by Use of Three-Dimensional Transonic Theory.* NASA TP-2282, 1984.
8. Schaefer, William T., Jr.: *Characteristics of Major Active Wind Tunnels at the Langley Research Center.* NASA TM X-1130, 1965.
9. Braslow, Albert L.; and Knox, Eugene C.: *Simplified Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers from 0 to 5.* NACA TN 4363, 1958.
10. Blackwell, James A., Jr.: *Preliminary Study of Effects of Reynolds Number and Boundary-Layer Transition Location on Shock-Induced Separation.* NASA TN D-5003, 1969.

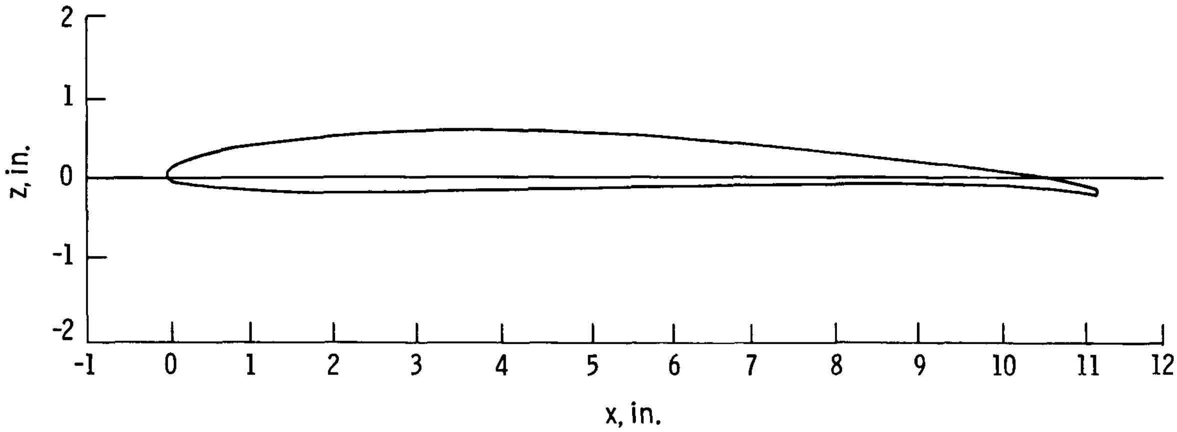
Table I. Model Geometric Characteristics

Body:	
Length, cm	91.897
Maximum width, cm	8.306
Maximum depth (excluding canopy), cm	9.83
Frontal area, cm^2	55.900
Duct inlet, cm^2	23.020
Duct exit, cm^2	18.872
Base area, cm^2	28.85
Wing SMF-1, trapezoidal to ℄:	
Airfoil section (parallel to body reference line)	SD19
Root chord, c_r, cm	33.993
Tip chord, c_t, cm	7.282
Span,b, cm	67.69
Area, S, cm^2	1390
Aspect ratio, A	3.30
Taper ratio, λ	0.2142
Mean geometric chord, c, cm	23.518
Sweepback of leading edge, Λ_{LE}, deg	45
Sweepback of trailing edge, Λ_{TE}, deg	11.9
Dihedral, deg	0
Thickness ratio, t/c	0.044
Twist (from $b/2 = 0.20$ to $b/2 = 0.96$), washout, deg	9.0
Vertical tail (exposed):	
Airfoil section	Circular arc
Thickness ratio, t/c	0.040
Root chord, c_r, cm	25.718
Tip chord, c_t, cm	7.341
Span (theoretical, exposed), cm	14.145
Total area (exposed), cm^2	233.806
Aspect ratio (exposed)	0.856
Taper ratio, λ	0.285
Mean geometric chord, cm	18.230
Sweepback of leading edge, Λ_{LE}, deg	61
Sweepback of trailing edge, Λ_{TE}, deg	25.88
Horizontal tail (exposed):	
Type, stabilator	All movable
Airfoil section	Circular arc
Thickness ratio, t/c	0.040
Root chord, c_r, cm	16.325
Tip chord, c_t, cm	6.698
Span, b, cm	29.768
Area, S, cm^2	342.667
Aspect ratio (based on exposed area and span), A	2.586
Taper ratio, λ	0.410
Mean geometric chord, c, cm	12.179
Sweepback of leading edge, Λ_{LE}, deg	42.5
Sweepback of trailing edge, Λ_{TE}, deg	15.197

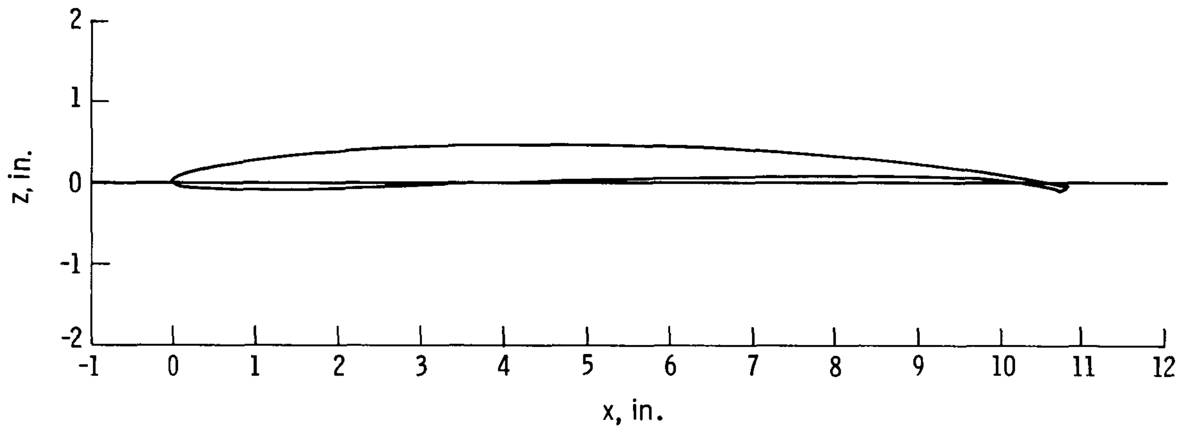


(a) General arrangement of model.

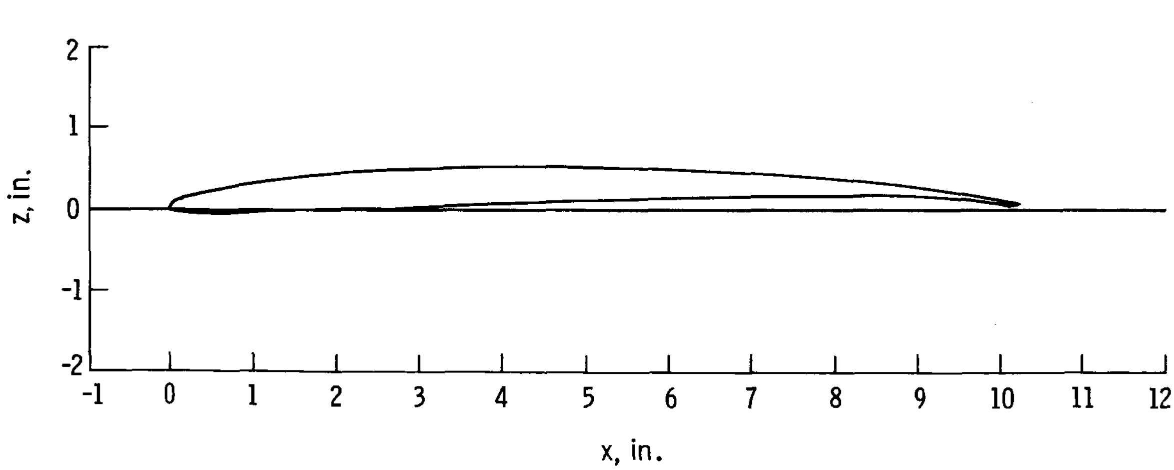
Figure 1. Drawings of wind-tunnel model. All dimensions are in centimeters unless otherwise specified.



(b) $\eta = 0.2075$.

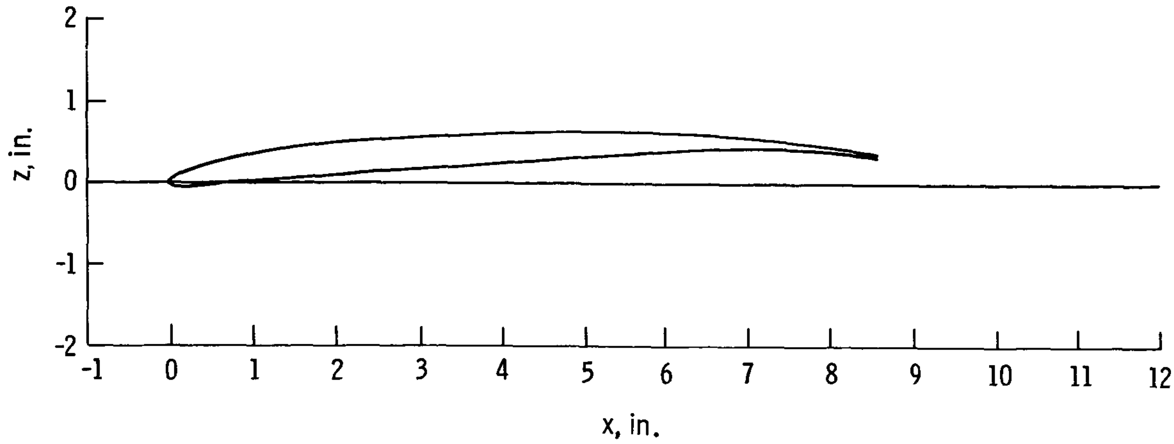


(c) $\eta = 0.25$.

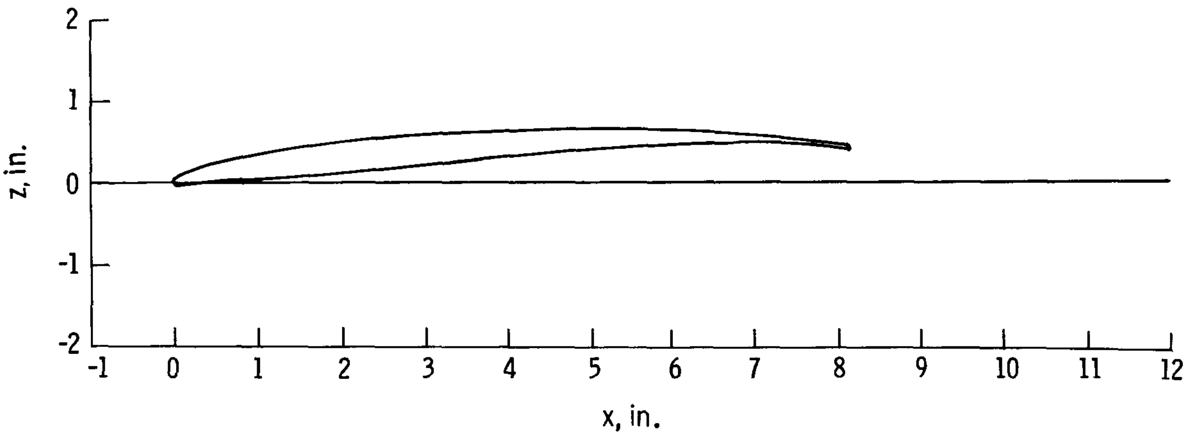


(d) $\eta = 0.31$.

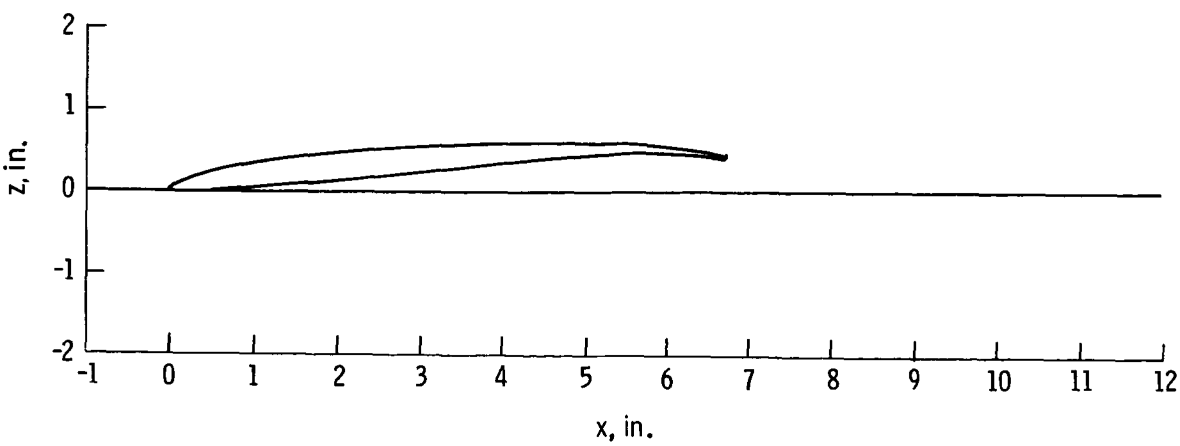
Figure 1. Continued.



(e) $\eta = 0.46$.

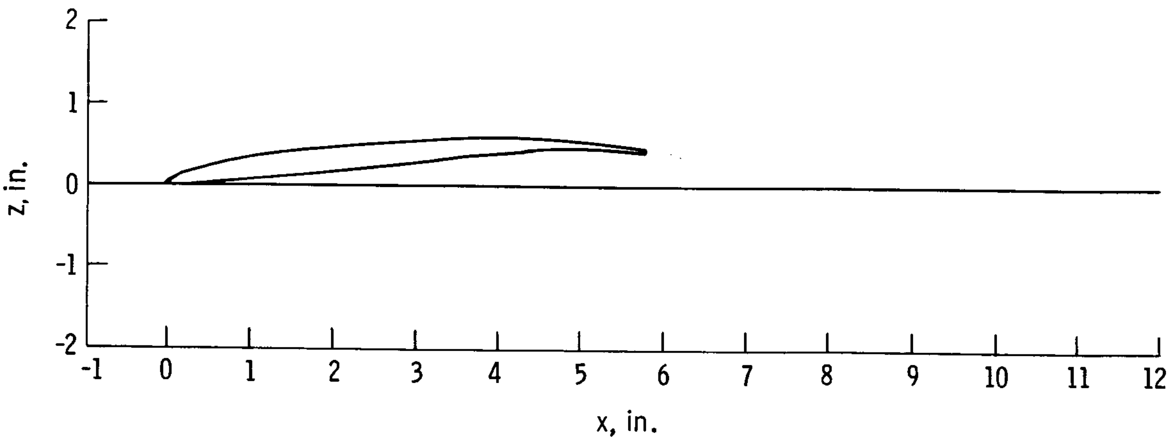


(f) $\eta = 0.50$.

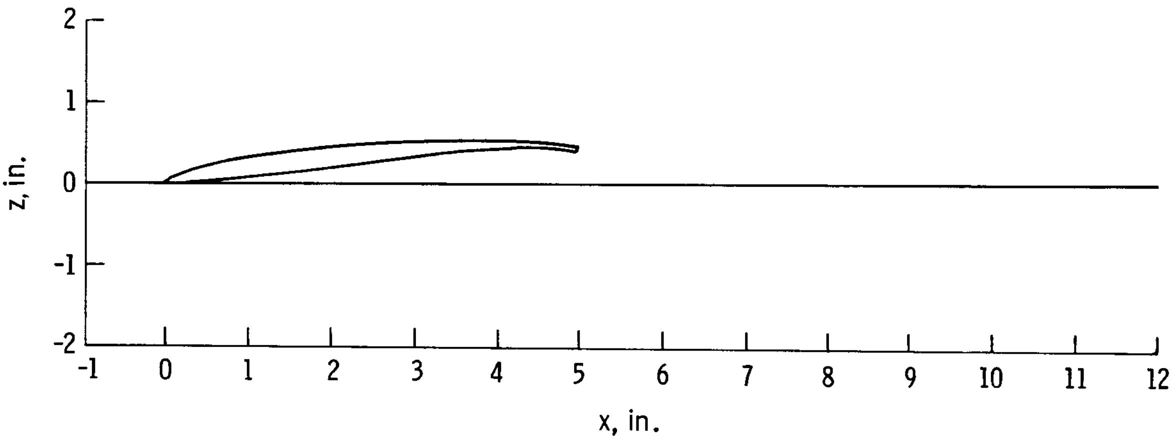


(g) $\eta = 0.63$.

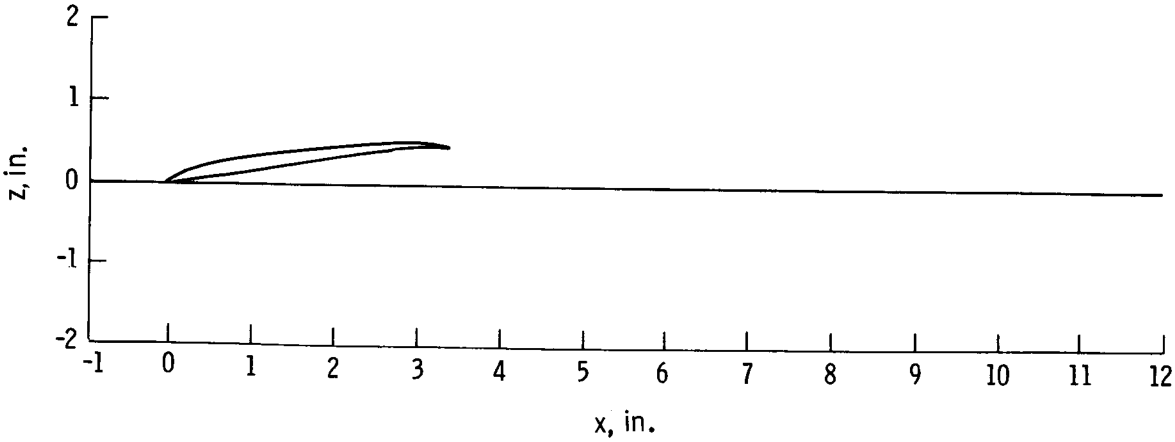
Figure 1. Continued.



(h) $\eta = 0.72$.

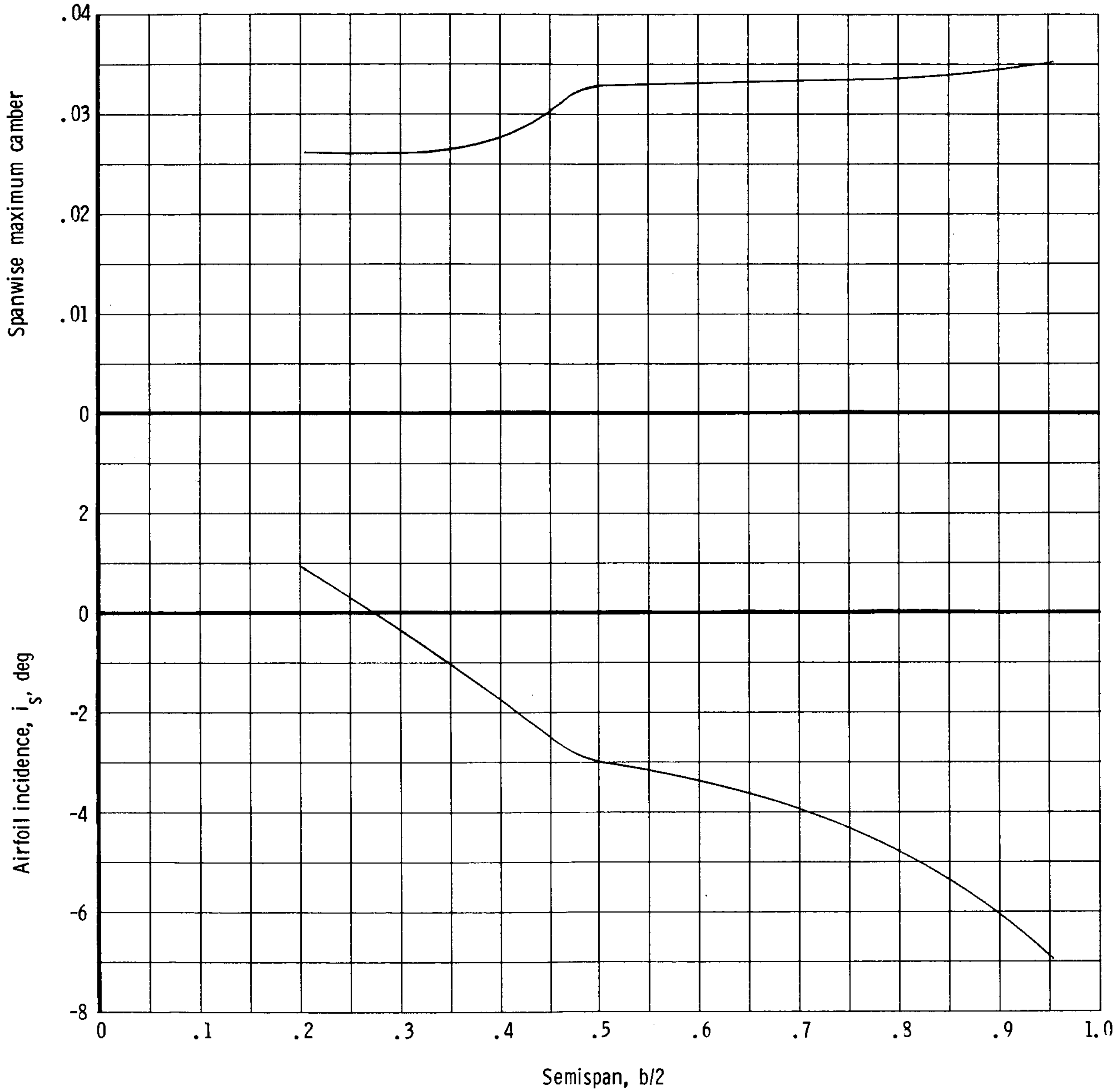


(i) $\eta = 0.80$.



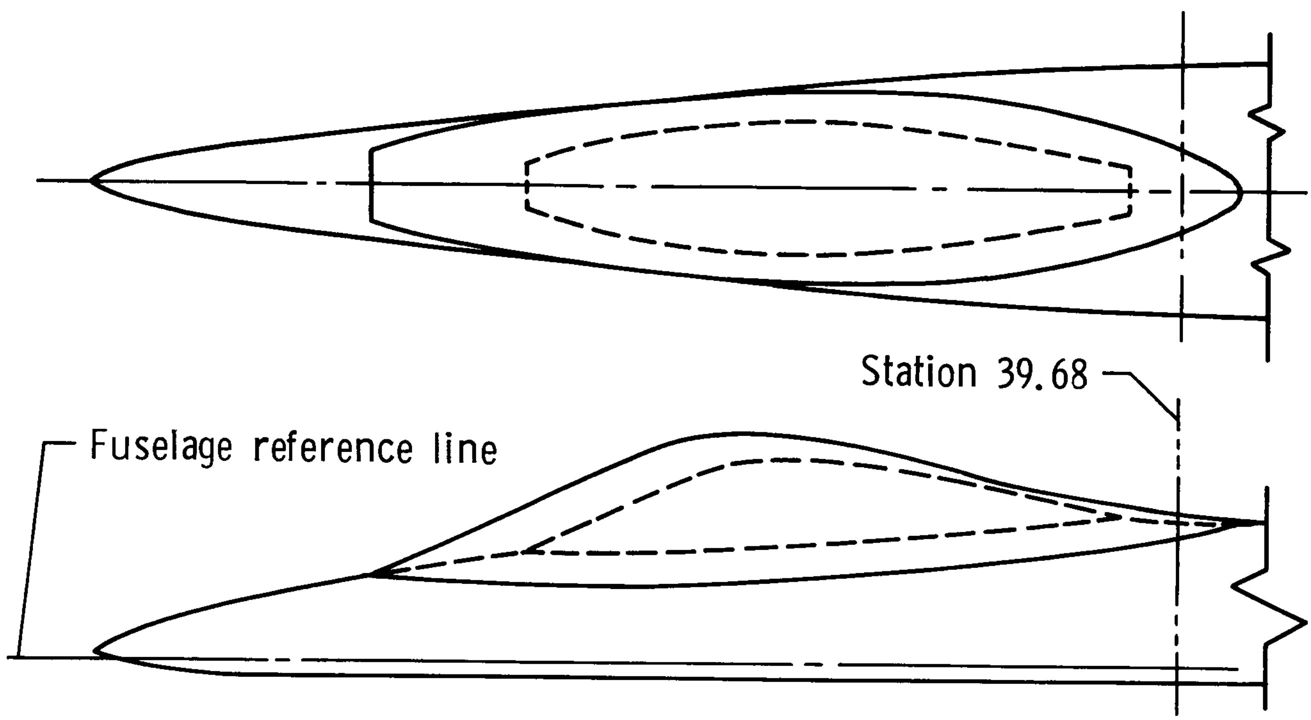
(j) $\eta = 0.92$.

Figure 1. Continued.



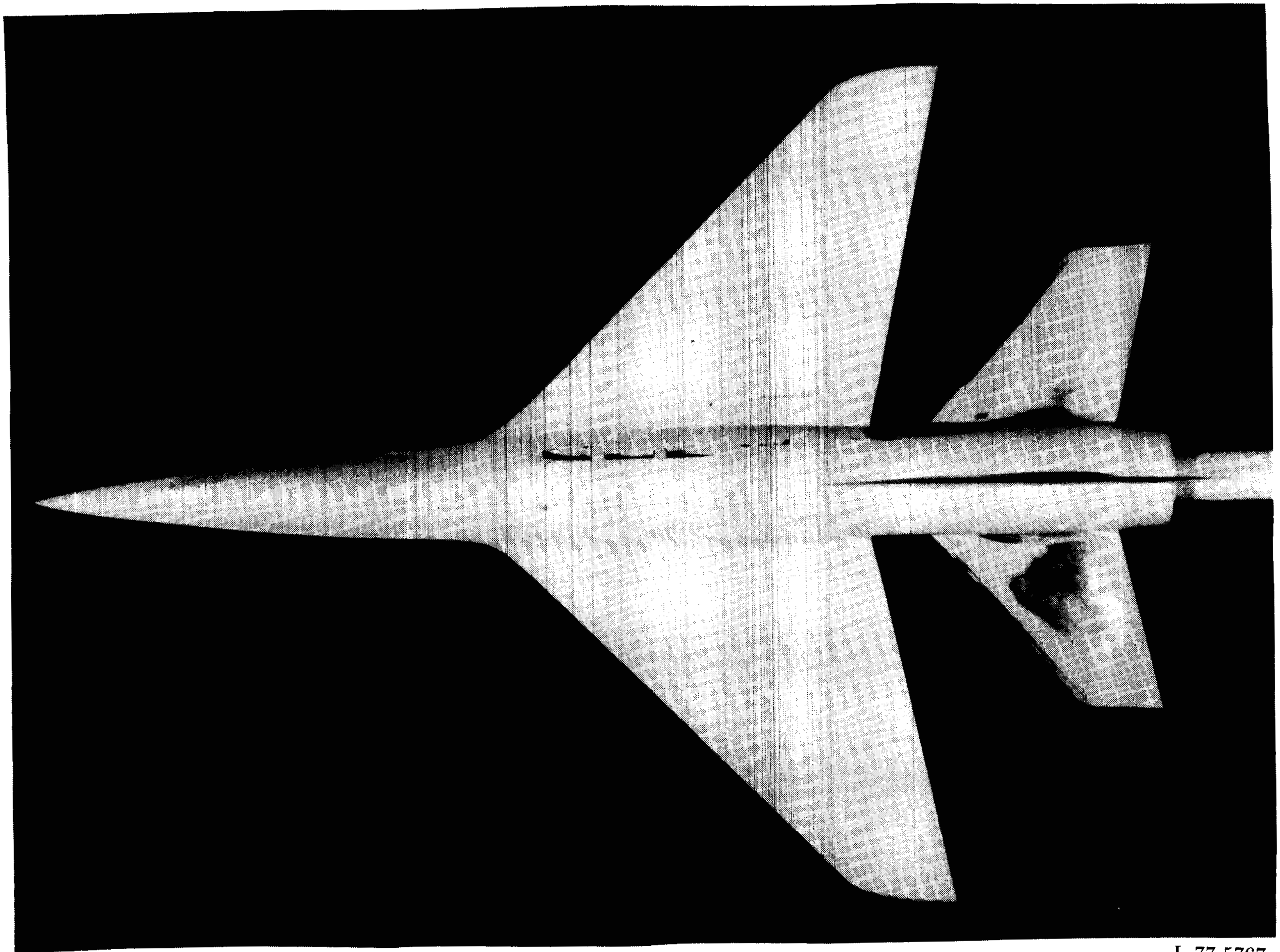
(k) Variation of spanwise camber and incidence.

Figure 1. Continued.



(l) Canopy modifications. Dashed lines indicate canopy in reference 1.

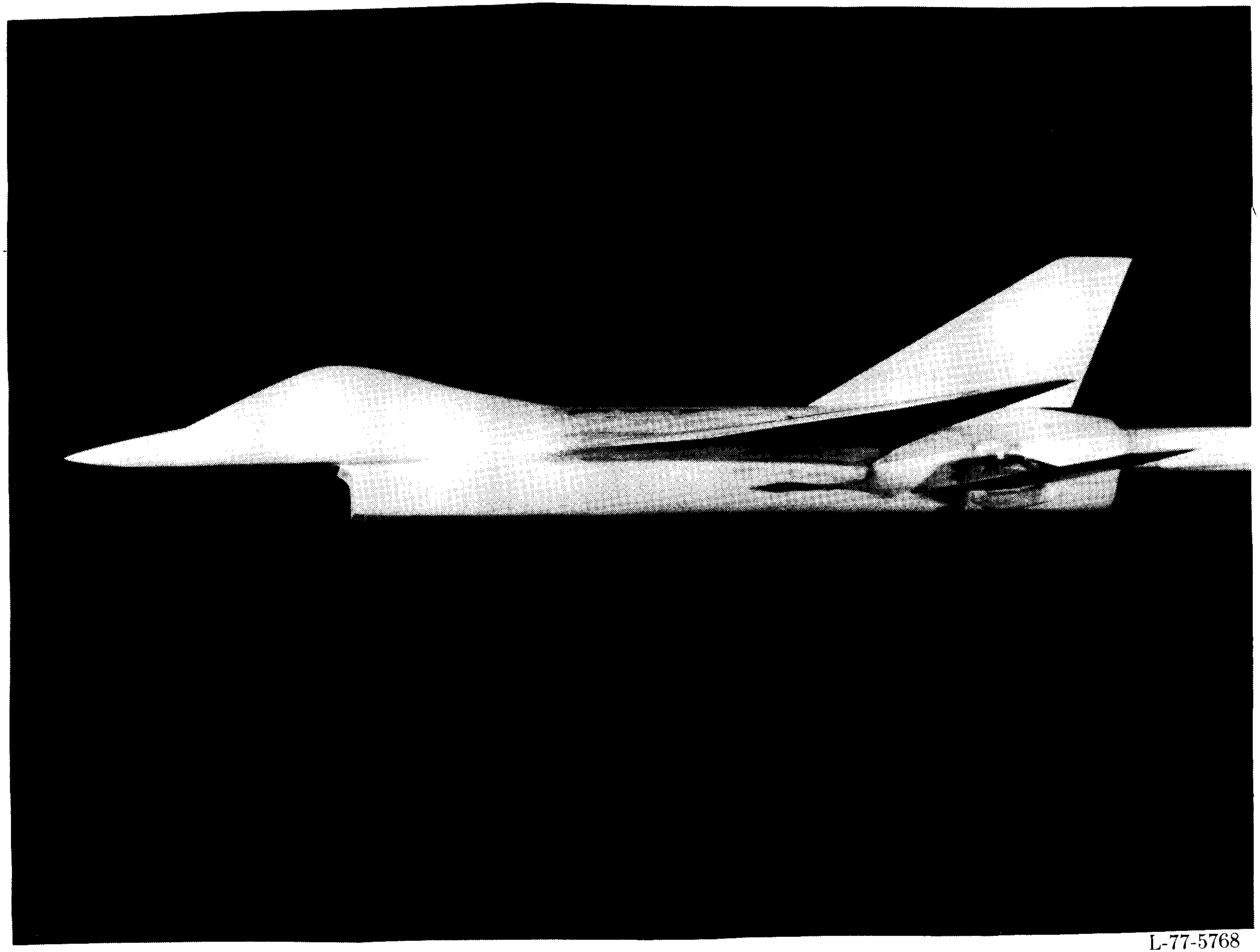
Figure 1. Concluded.



L-77-5767

(a) Plan view.

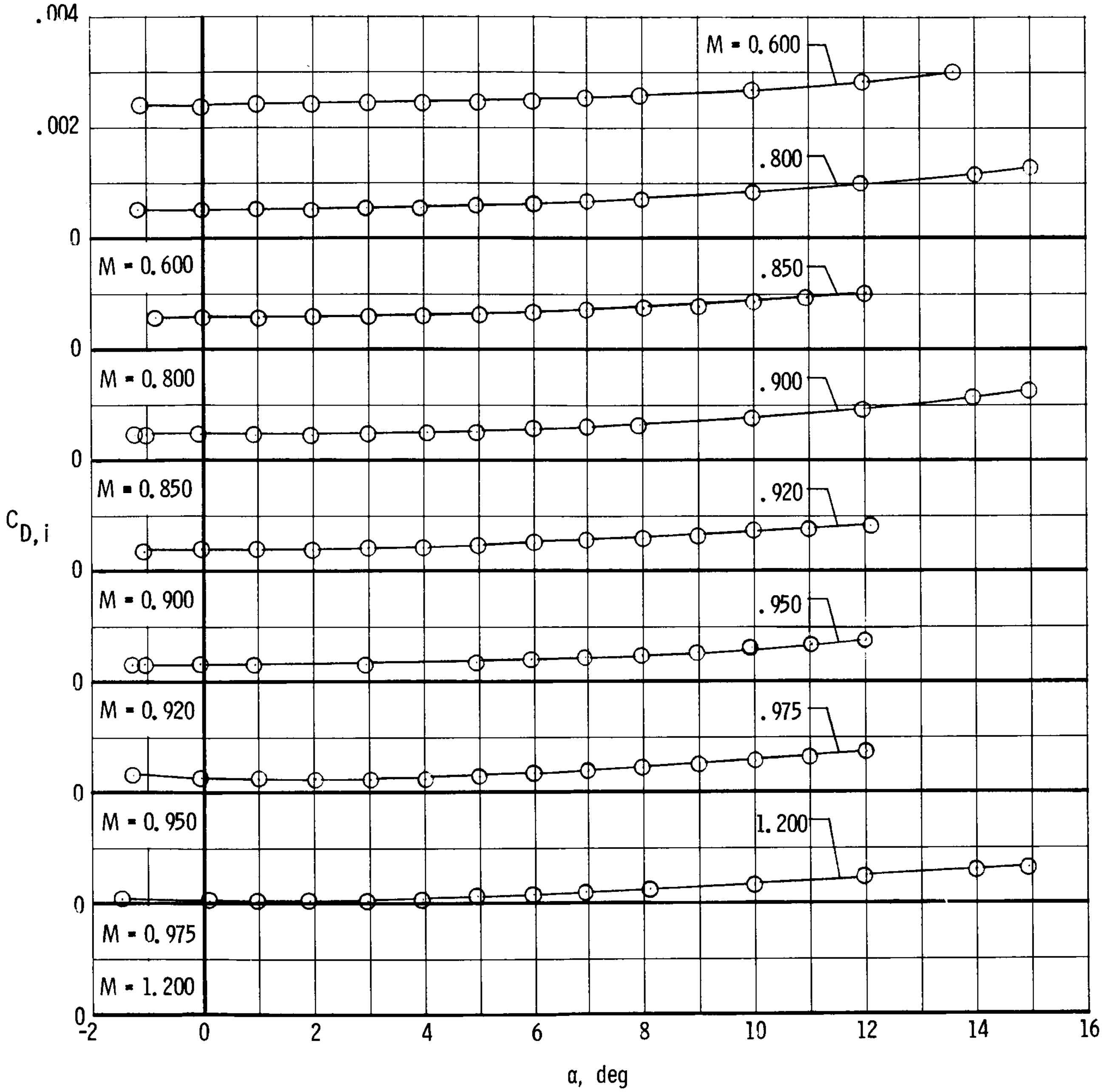
Figure 2. Photographs of model.



L-77-5768

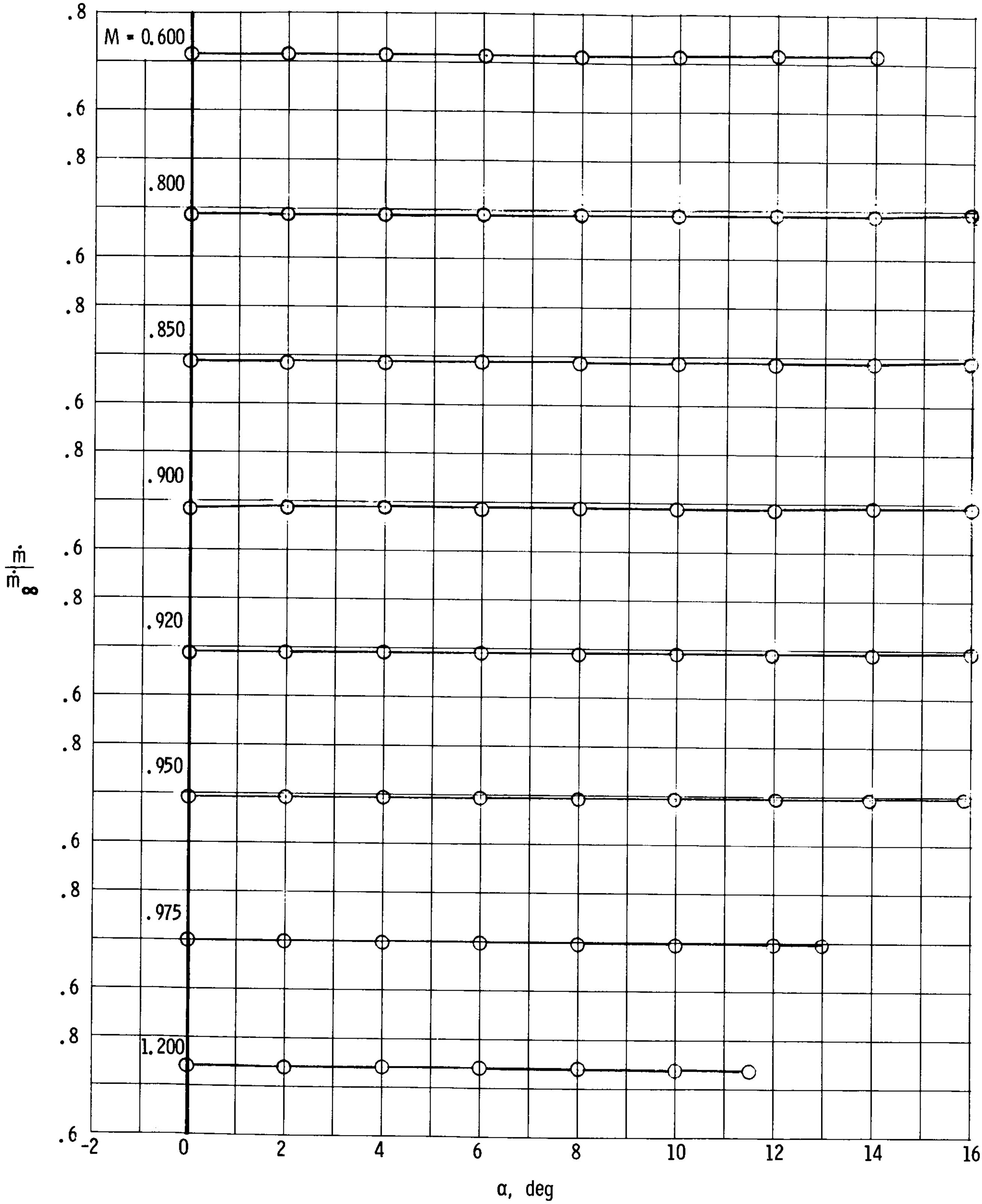
(b) Side view.

Figure 2. Concluded.



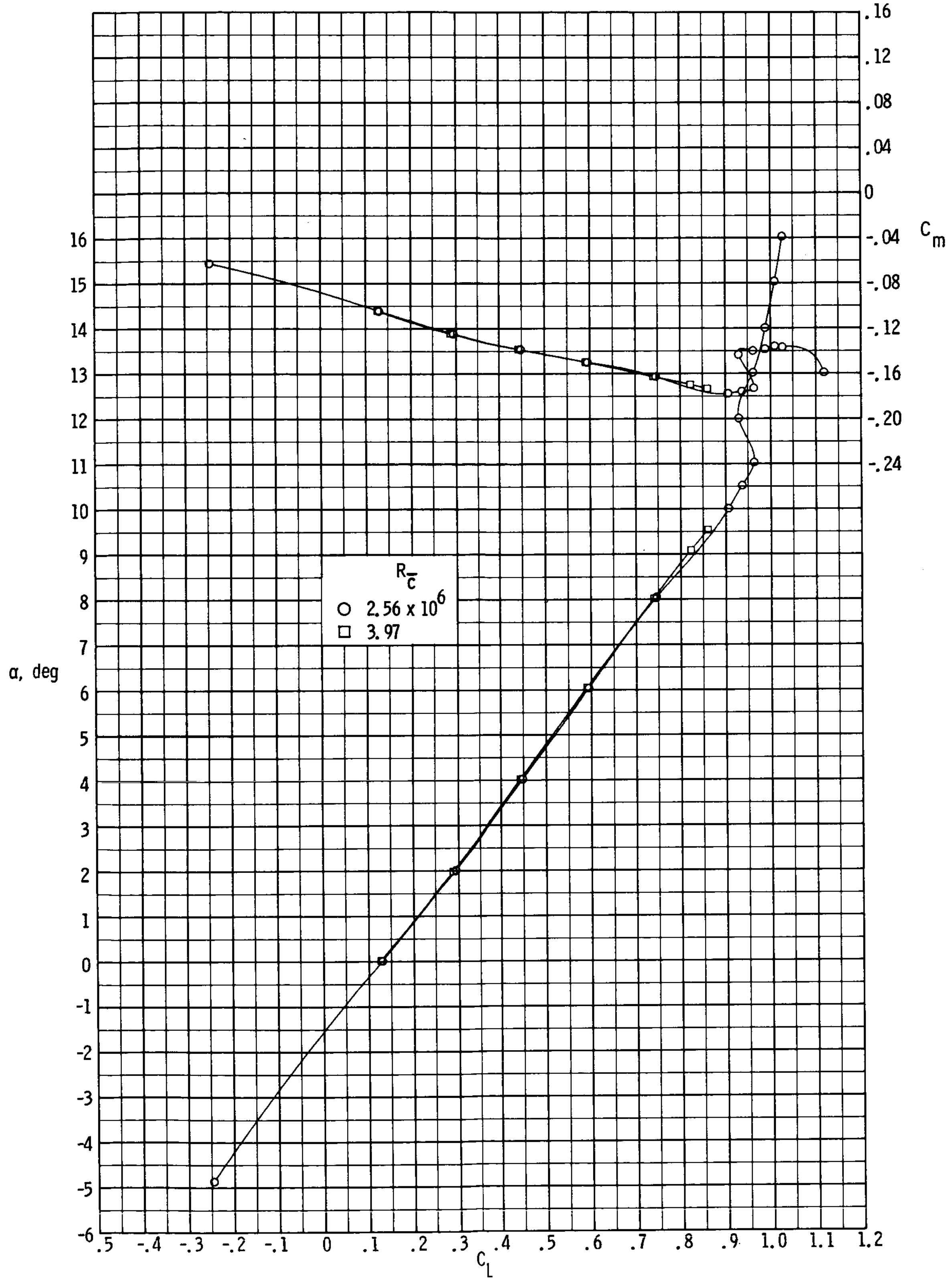
(a) Internal drag.

Figure 3. Duct internal flow characteristics.



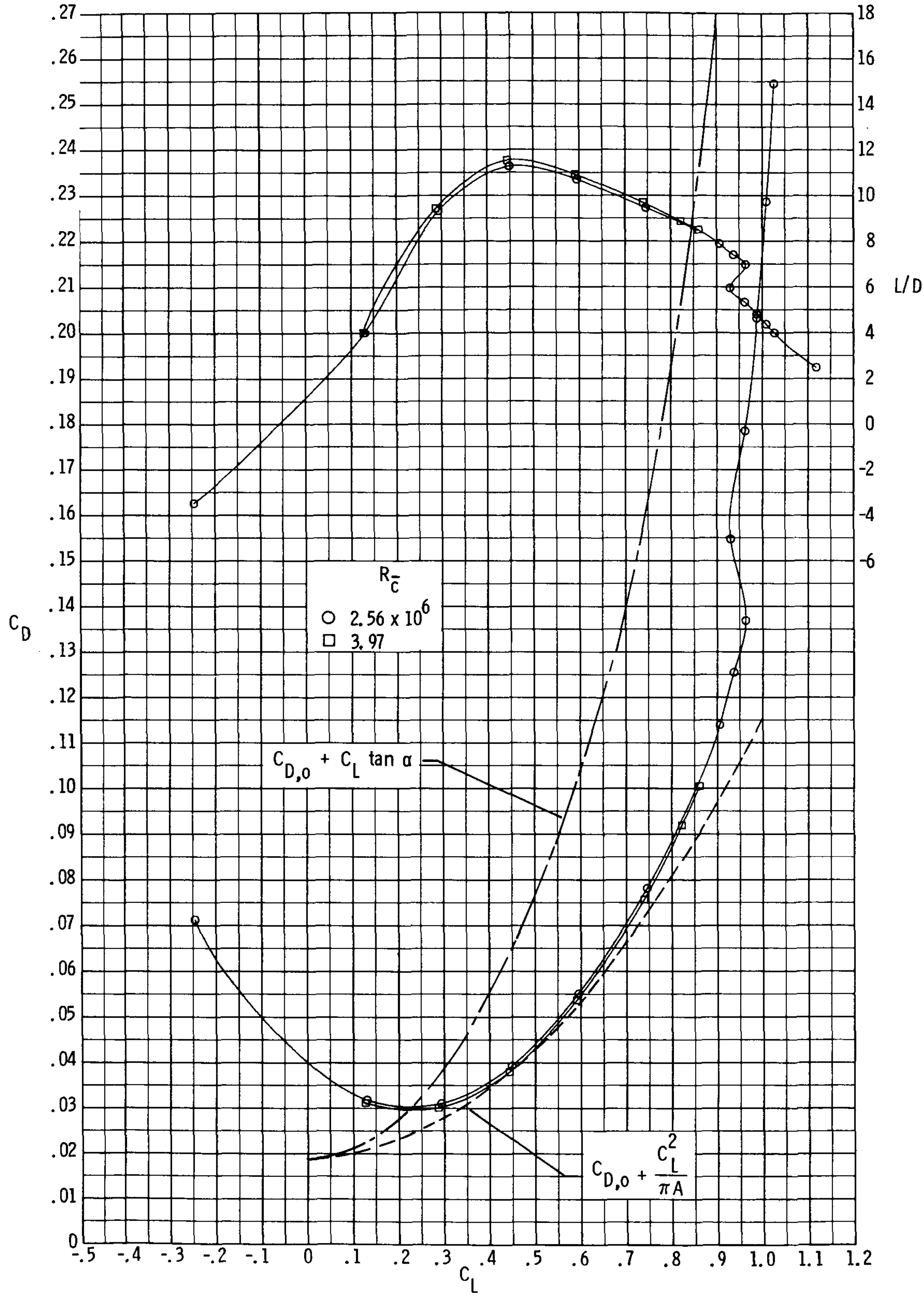
(b) Duct mass-flow ratio.

Figure 3. Concluded.



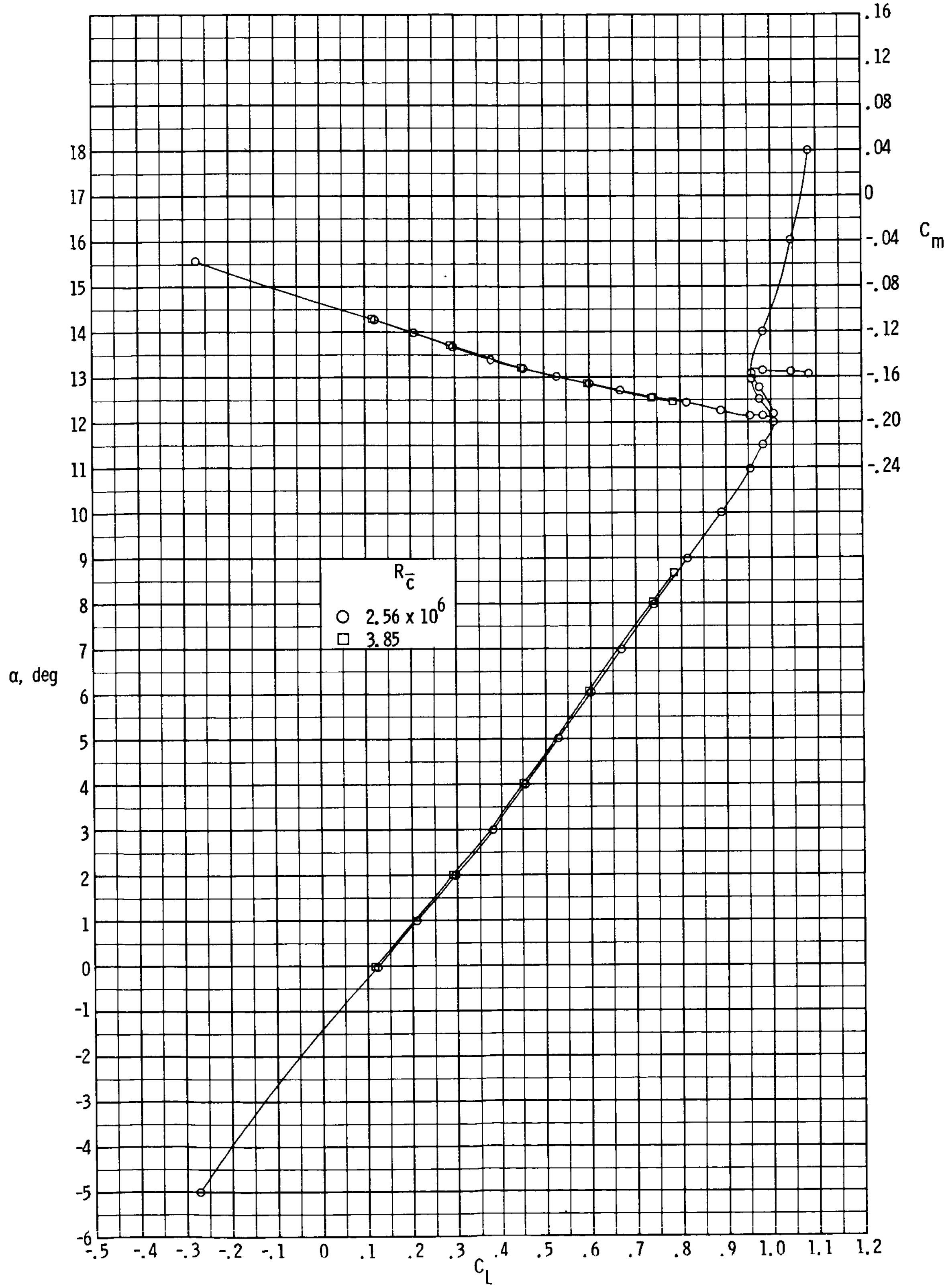
(a) $M = 0.850$

Figure 4. Effect of Reynolds number on longitudinal aerodynamic characteristics. Horizontal tail off.



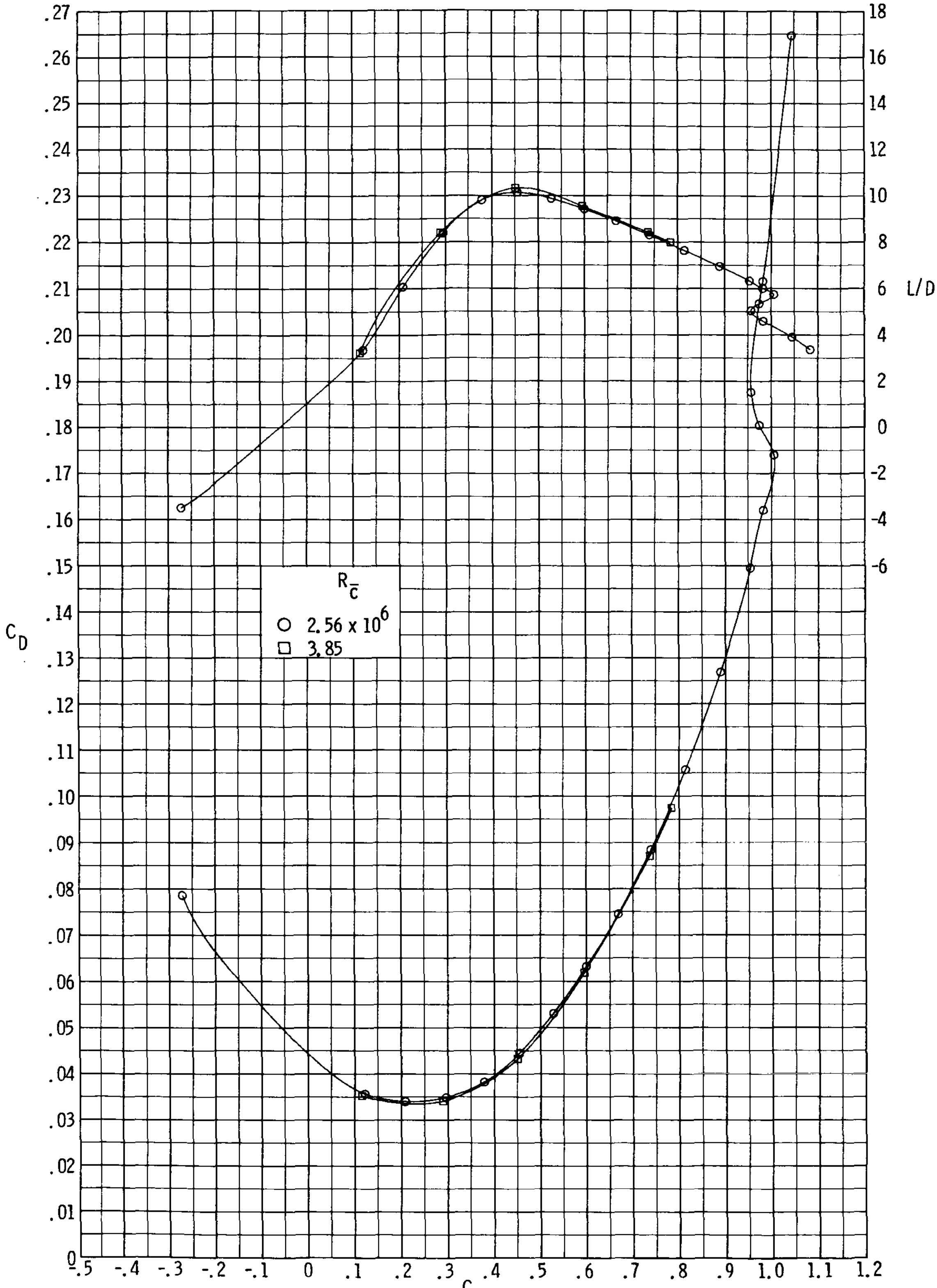
(a) Concluded.

Figure 4. Continued.



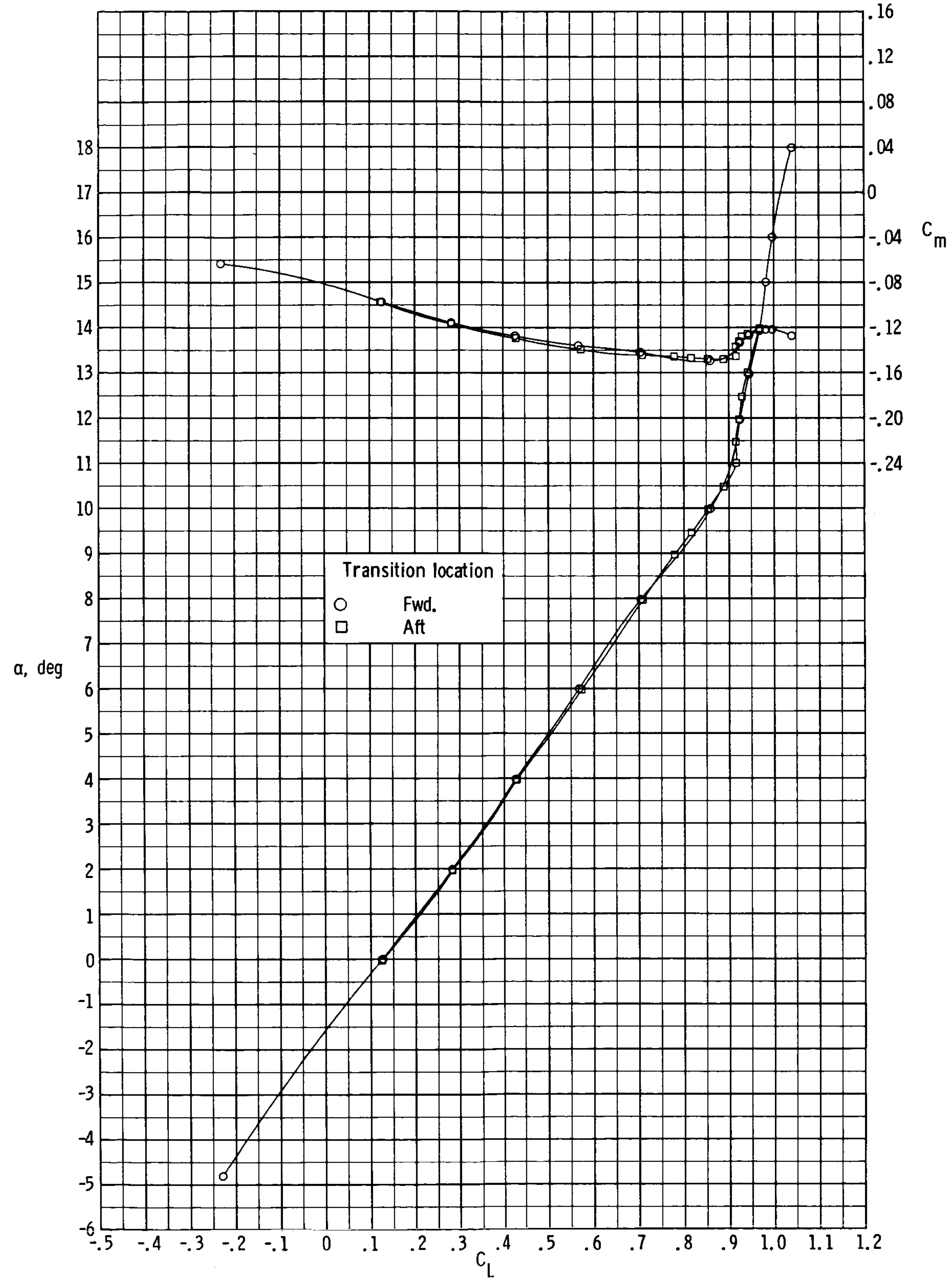
(b) $M = 0.900$

Figure 4. Continued.



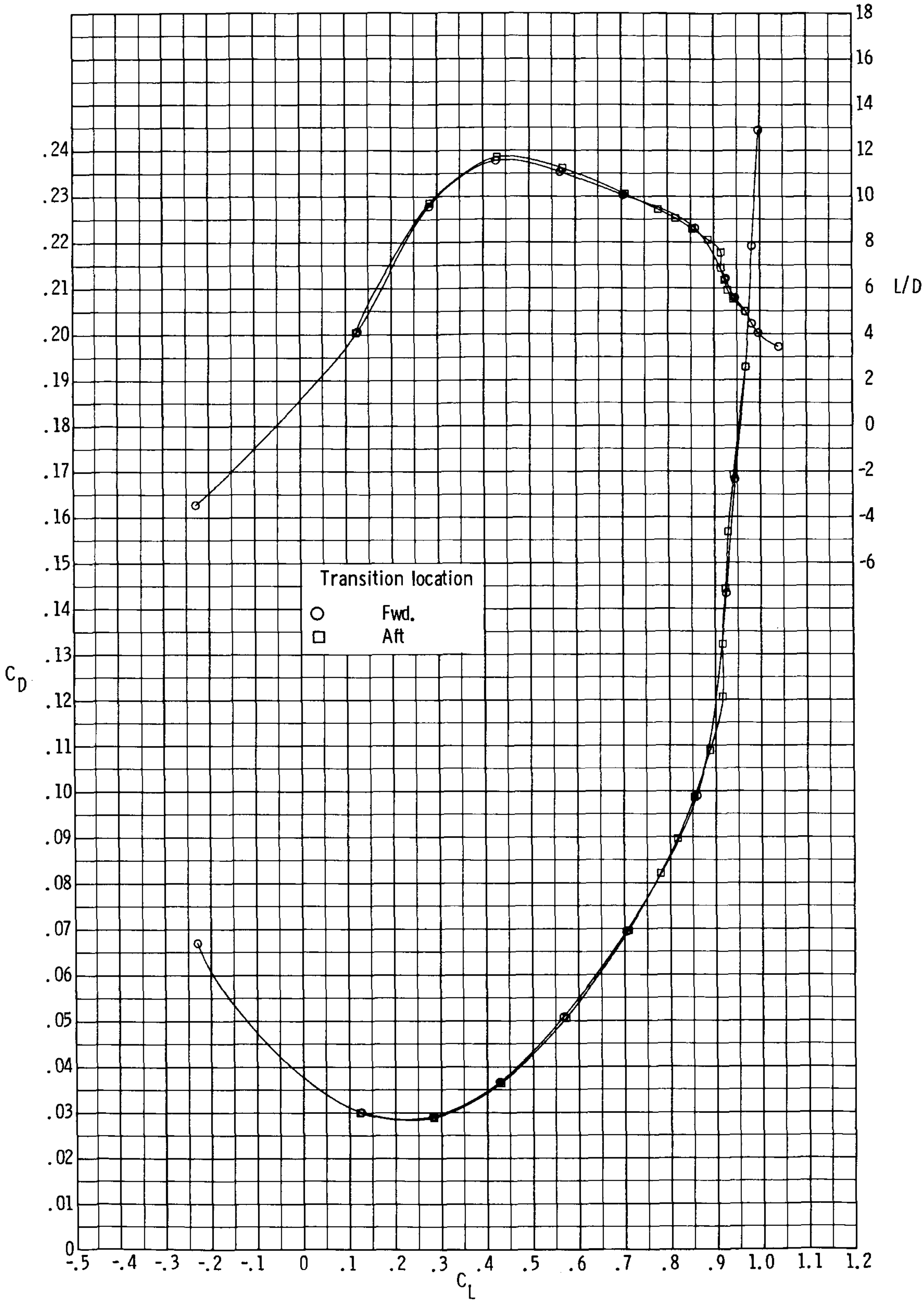
(b) Concluded.

Figure 4. Concluded.



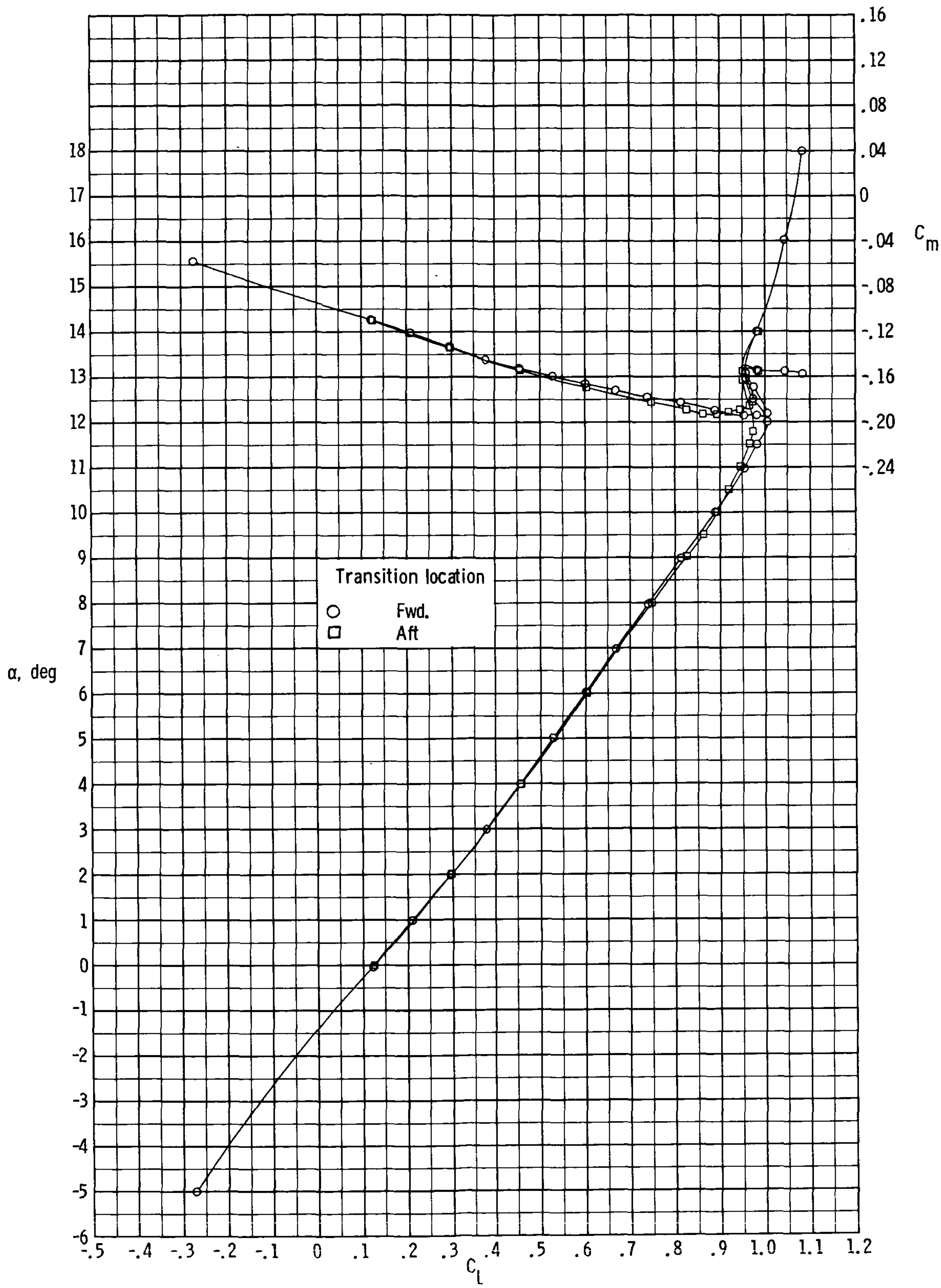
(a) $M = 0.800$

Figure 5. Effect of upper-surface transition location on longitudinal aerodynamic characteristics. Horizontal tail off.



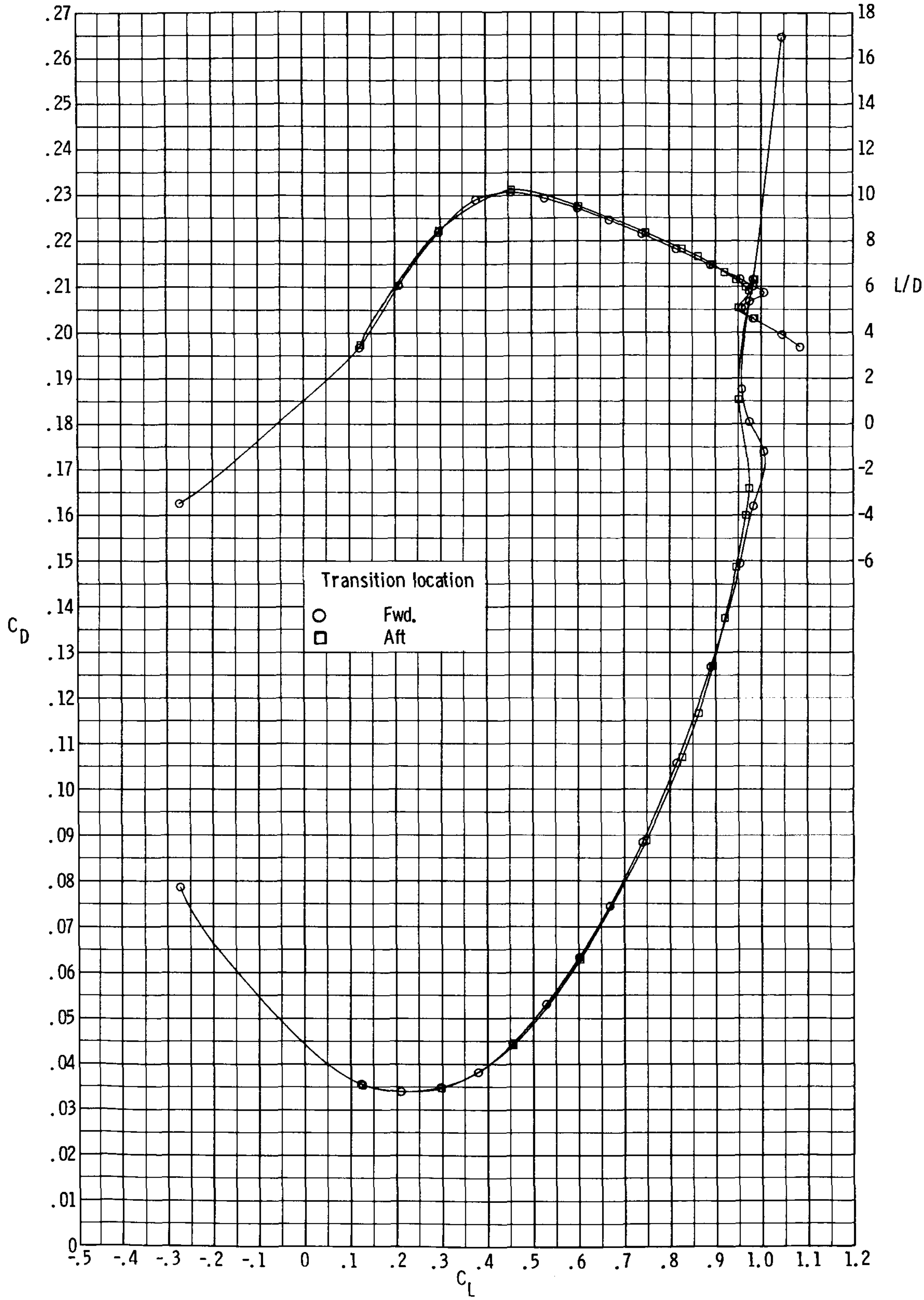
(a) Concluded.

Figure 5. Continued.



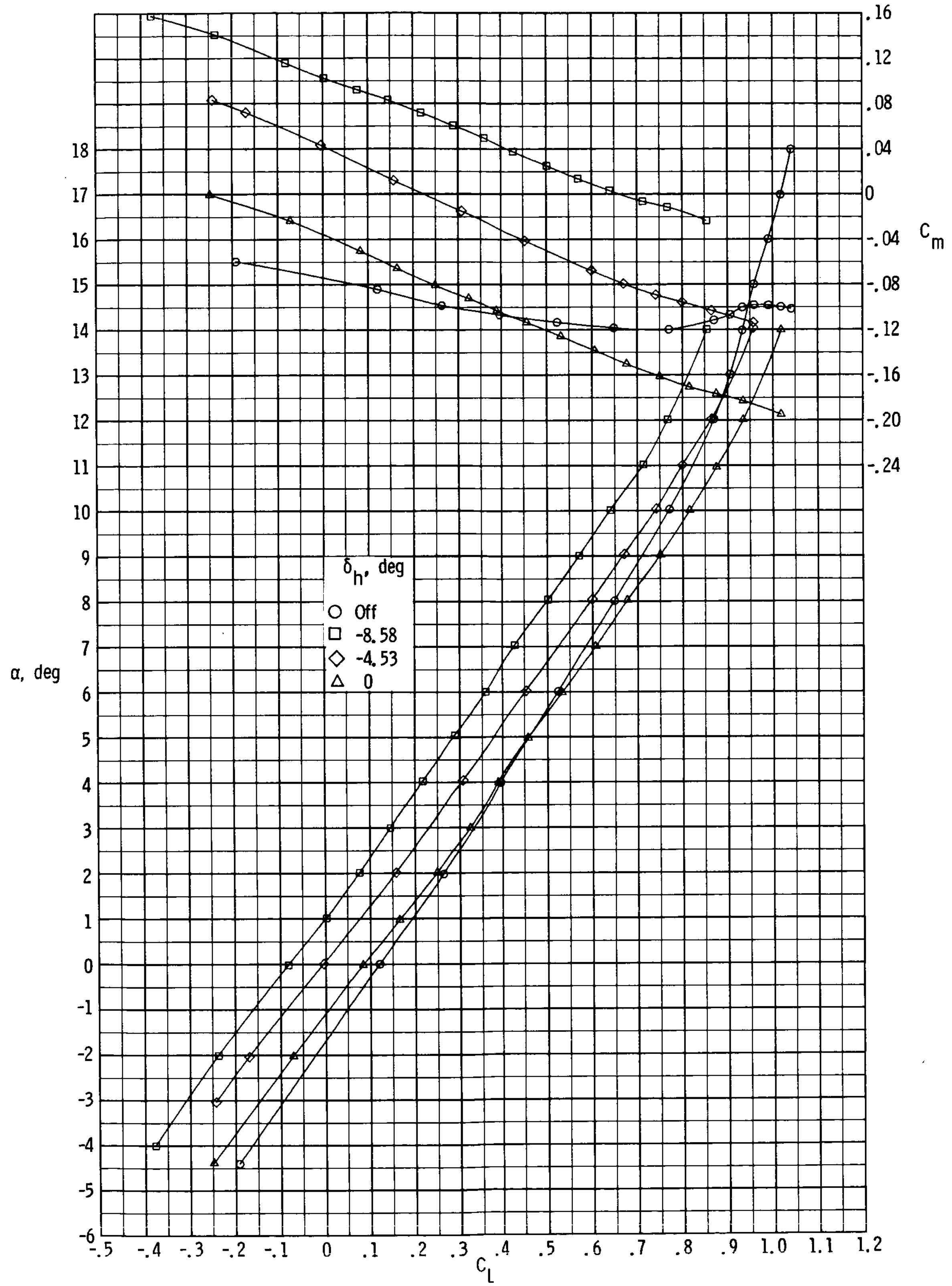
(b) $M = 0.900$.

Figure 5. Continued.



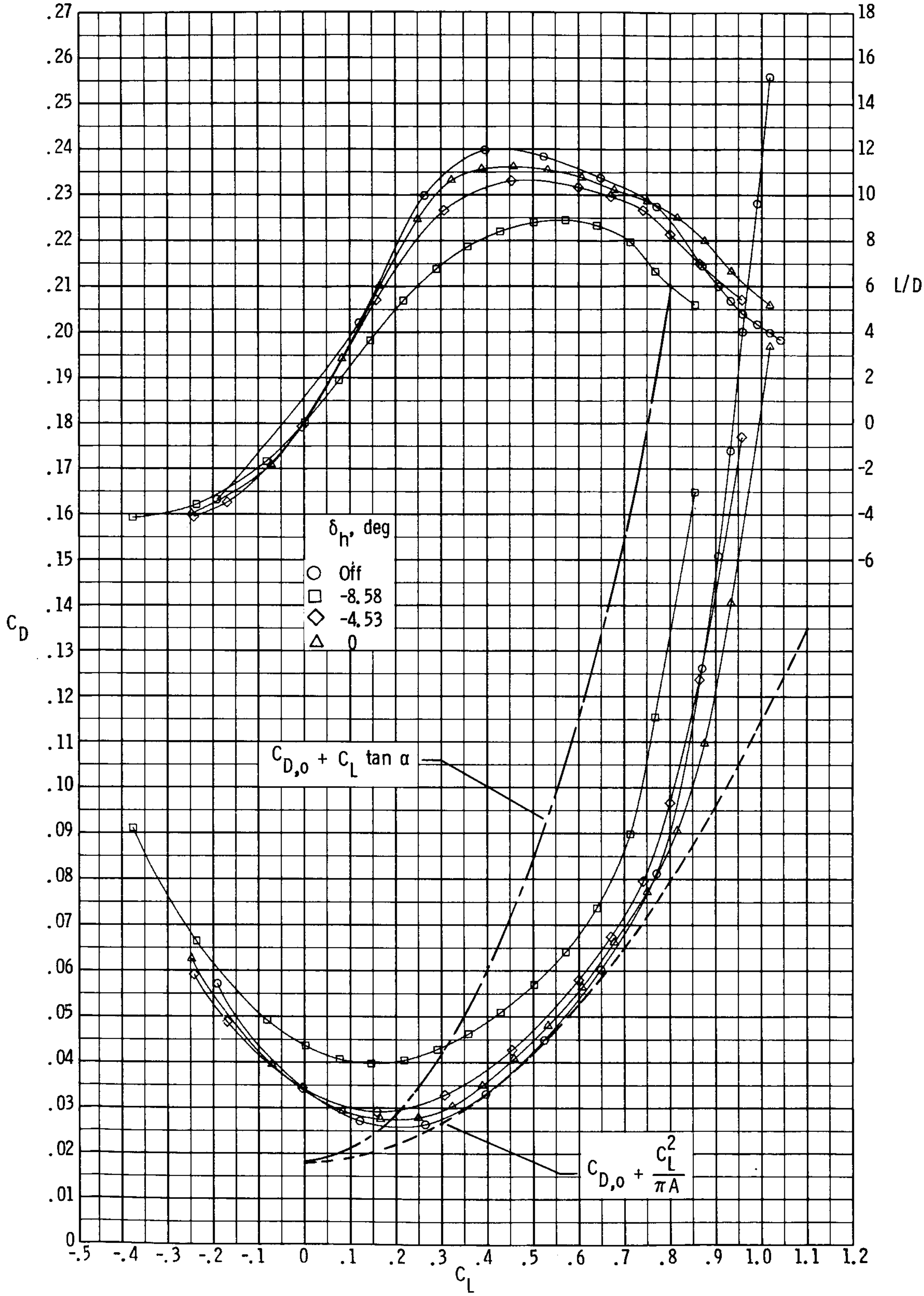
(b) Concluded.

Figure 5. Concluded.



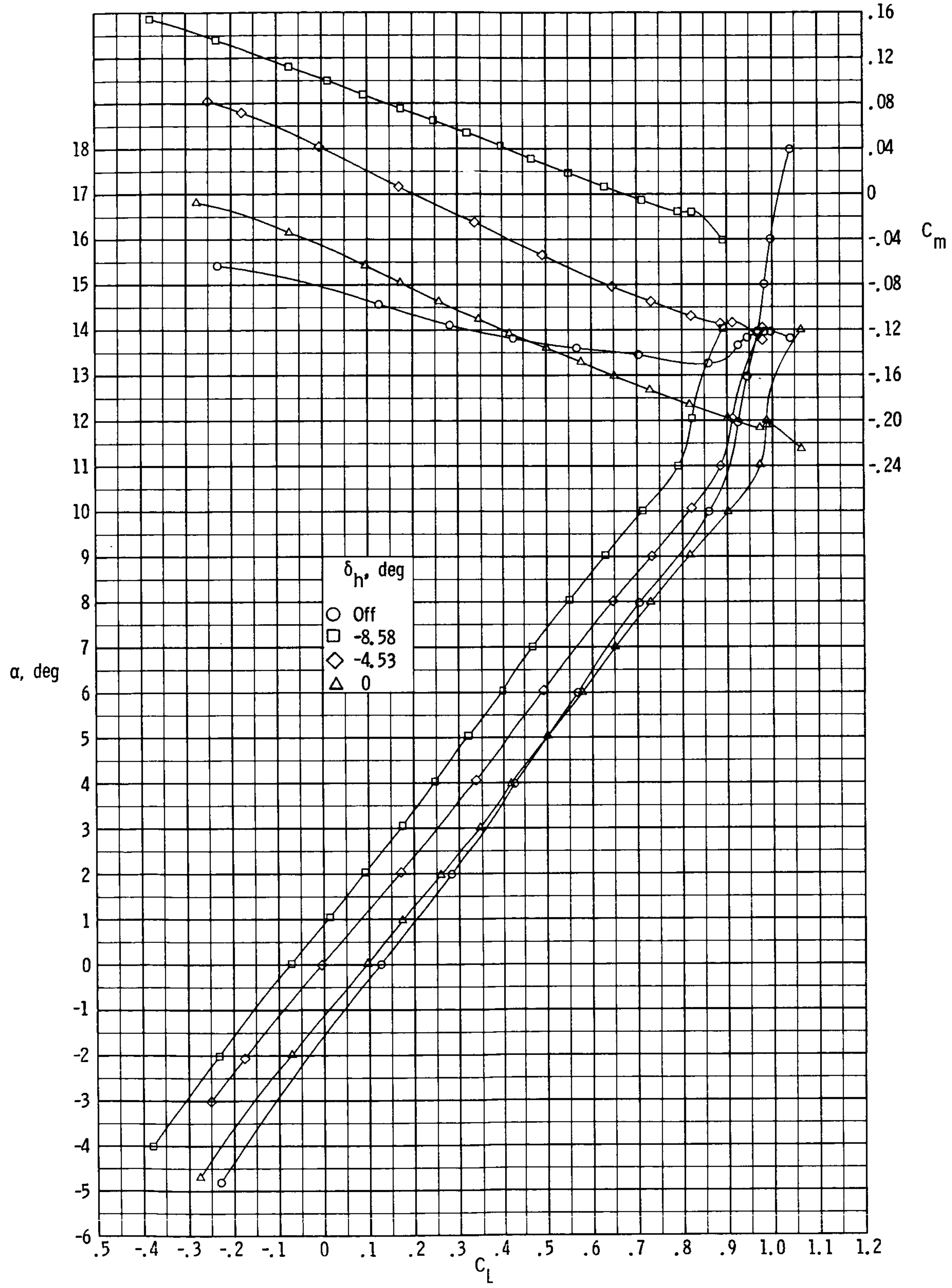
(a) $M = 0.600$

Figure 6. Effect of horizontal tail on longitudinal aerodynamic characteristics.



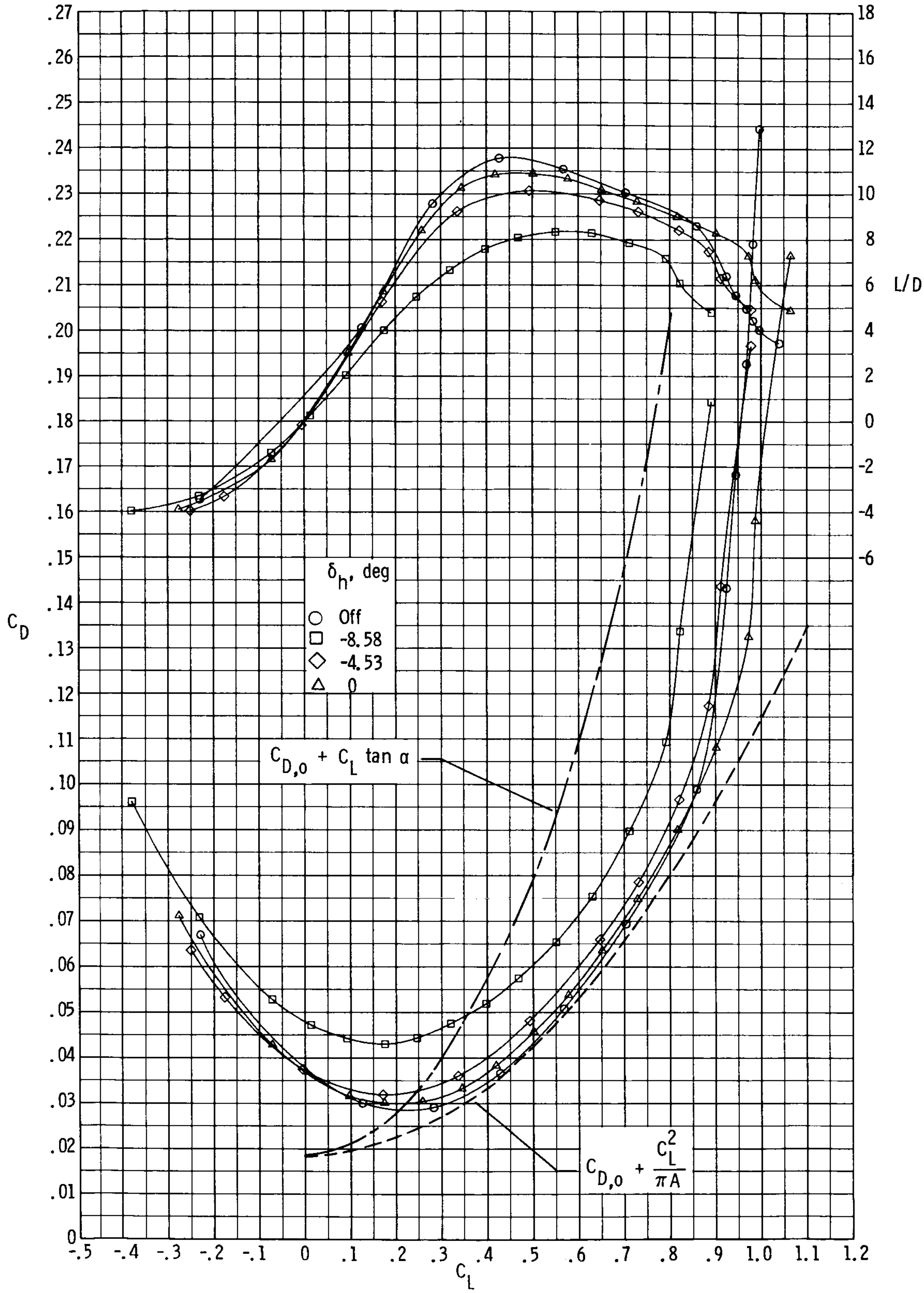
(a) Concluded.

Figure 6. Continued.



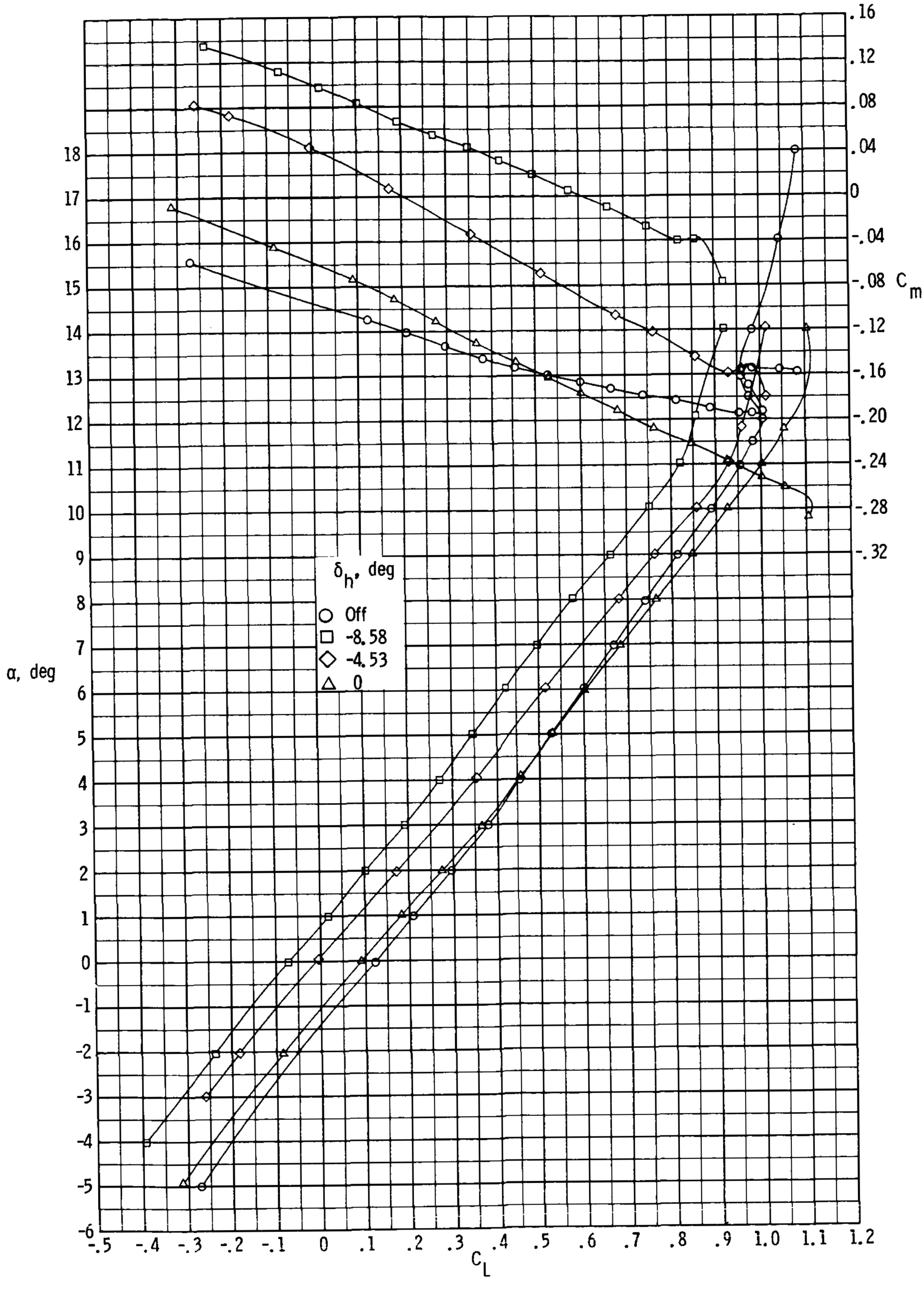
(b) $M = 0.800$

Figure 6. Continued.



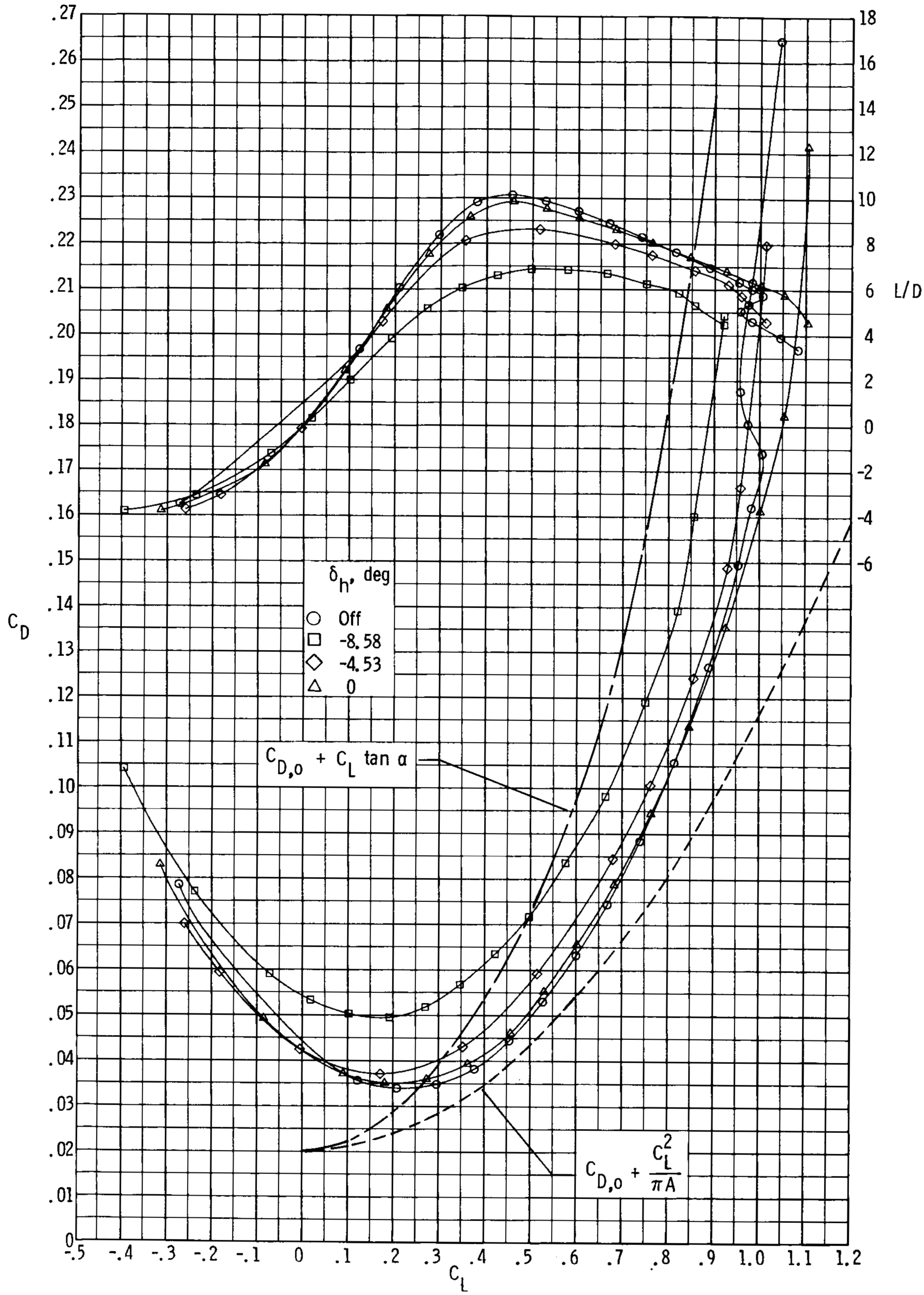
(b) Concluded.

Figure 6. Continued.



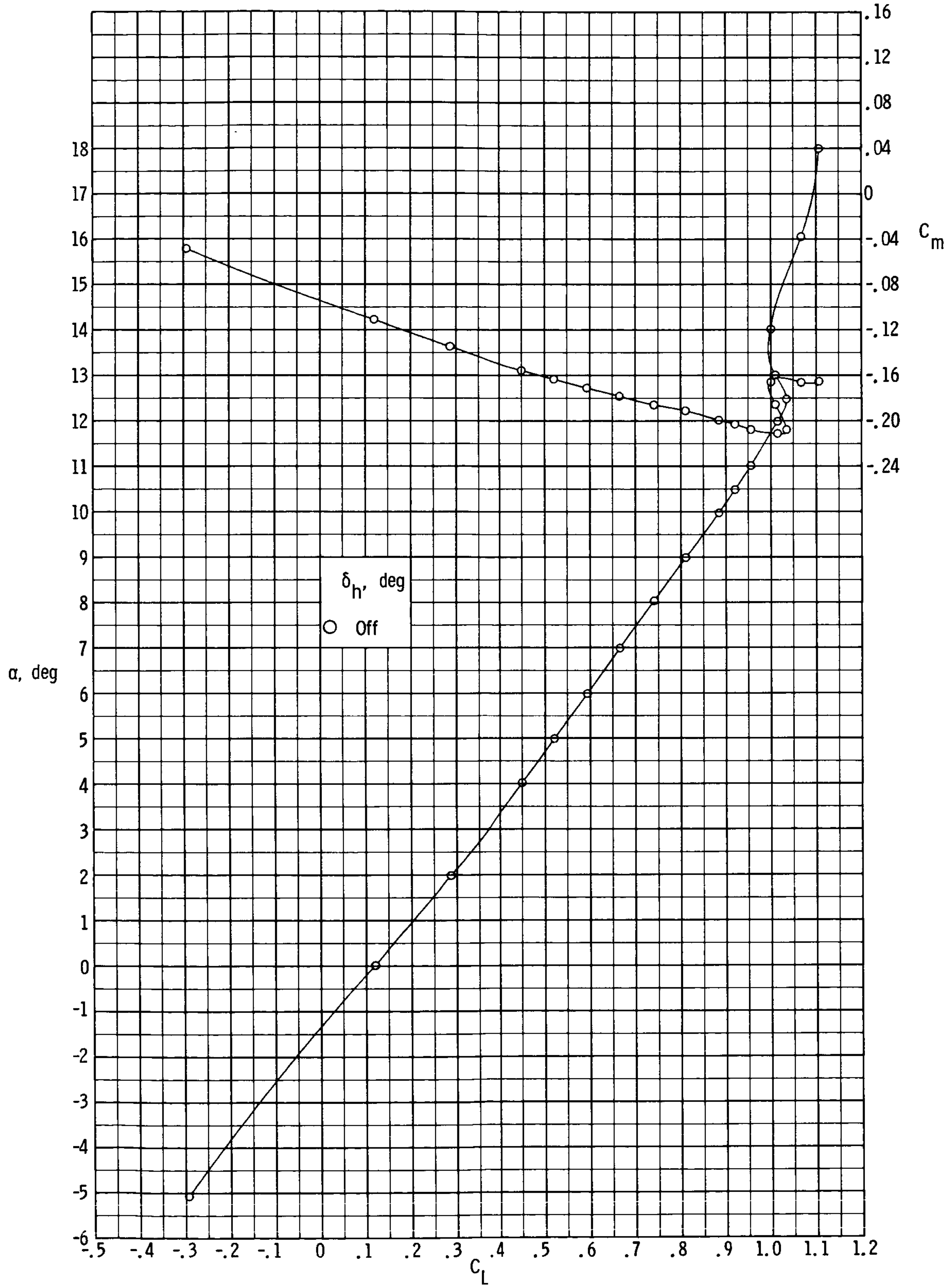
(c) $M = 0.900$.

Figure 6. Continued.



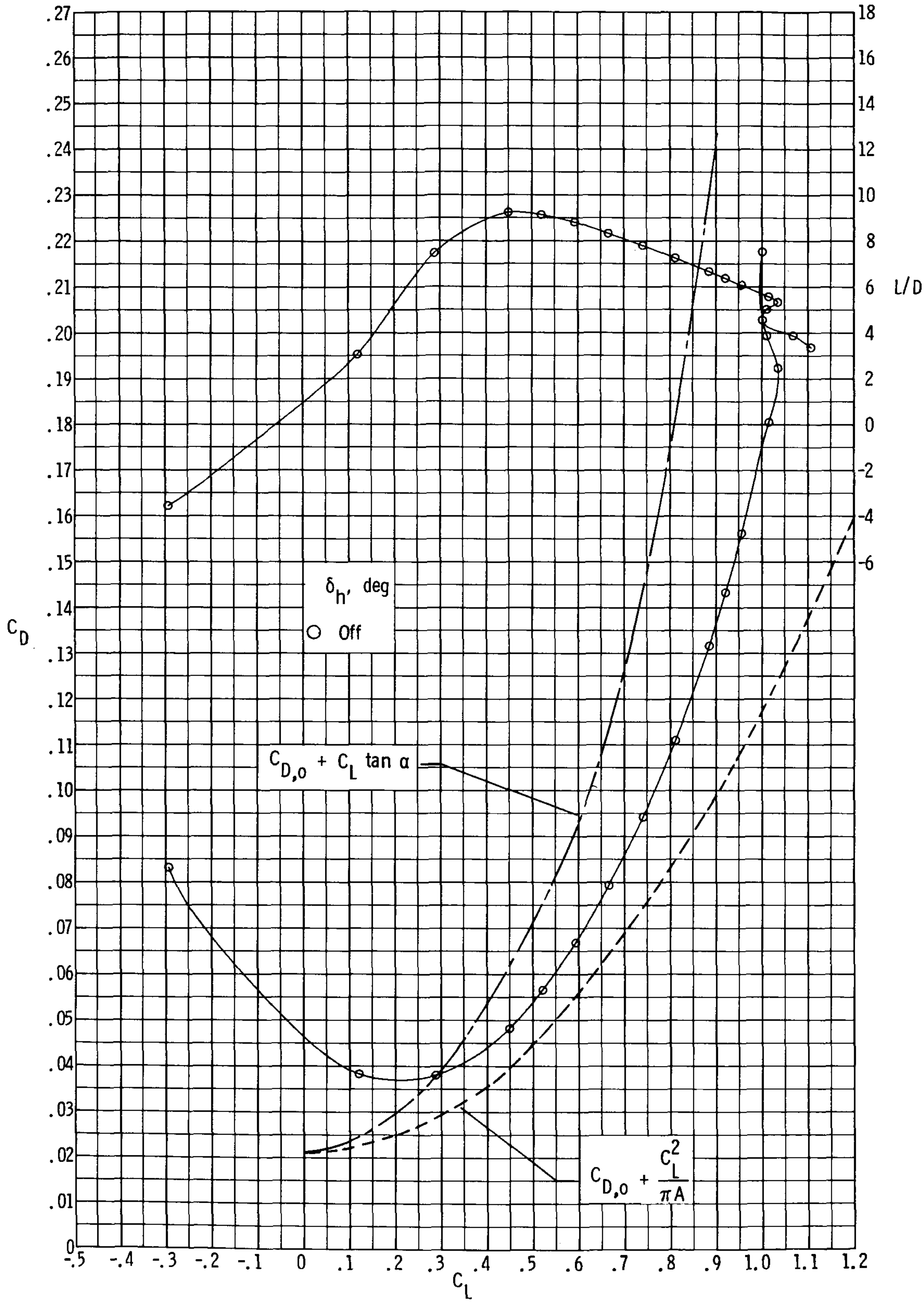
(c) Concluded.

Figure 6. Continued.



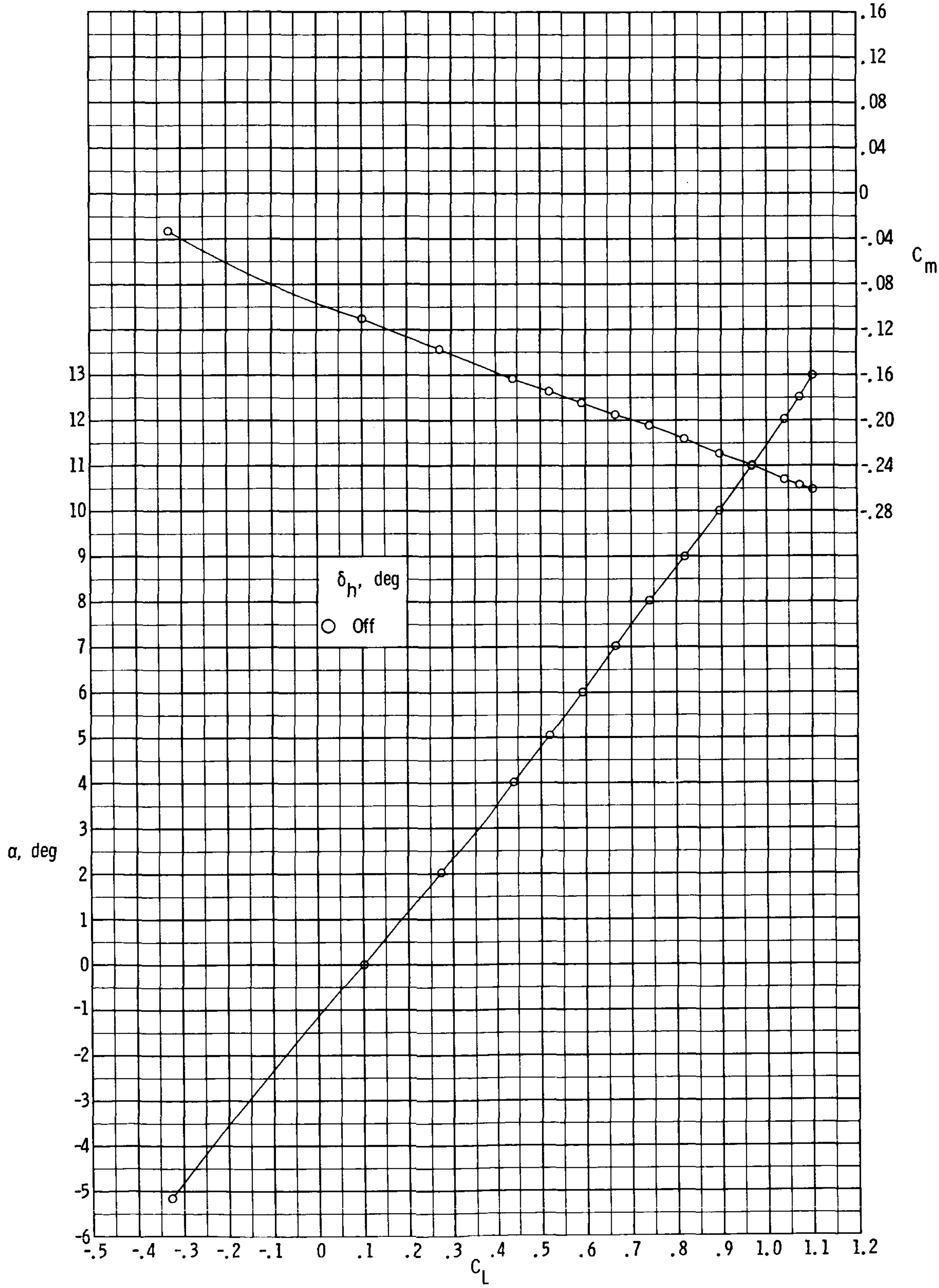
(d) $M = 0.920$.

Figure 6. Continued.



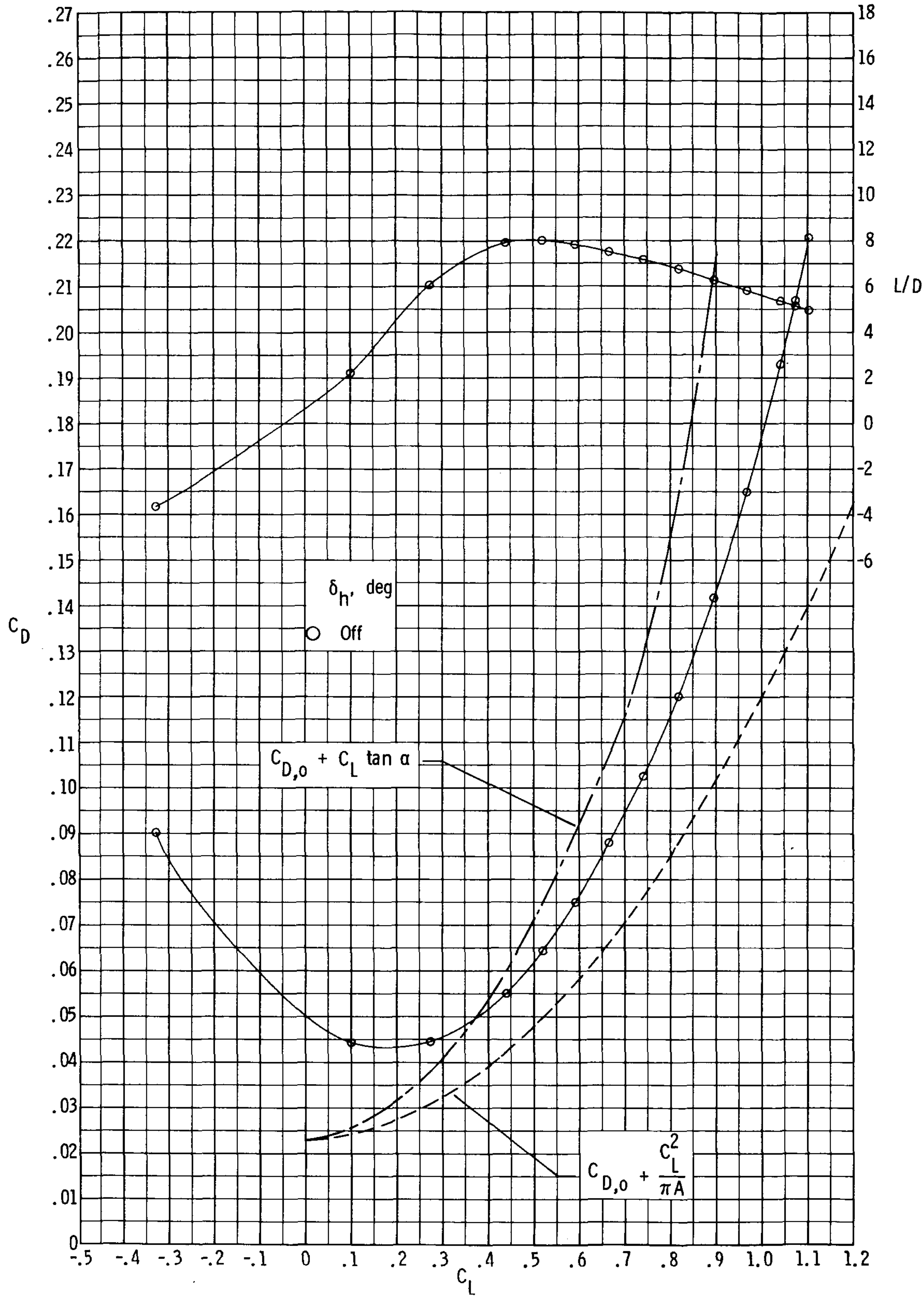
(d) Concluded.

Figure 6. Continued.



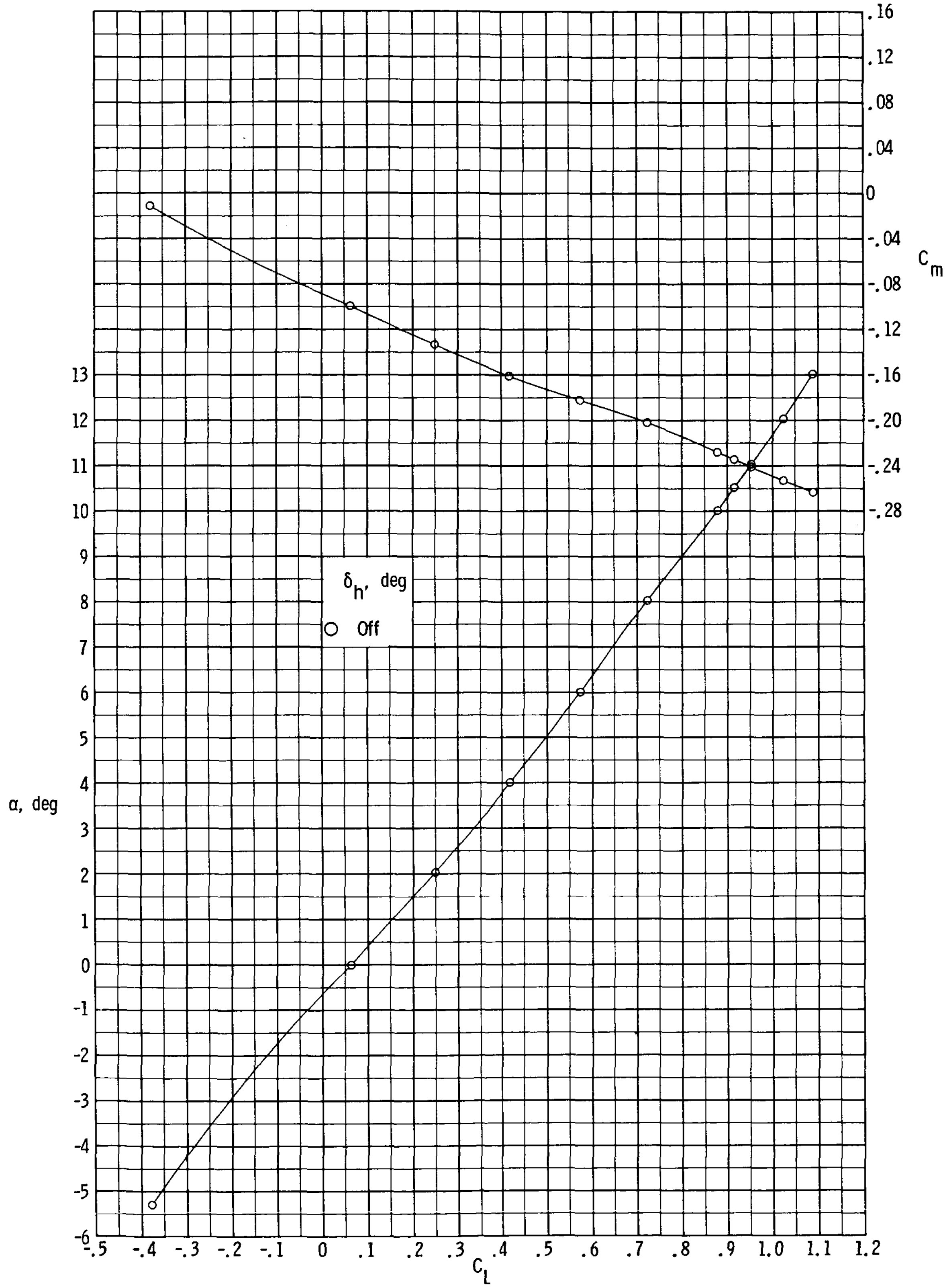
(e) $M = 0.950$.

Figure 6. Continued.



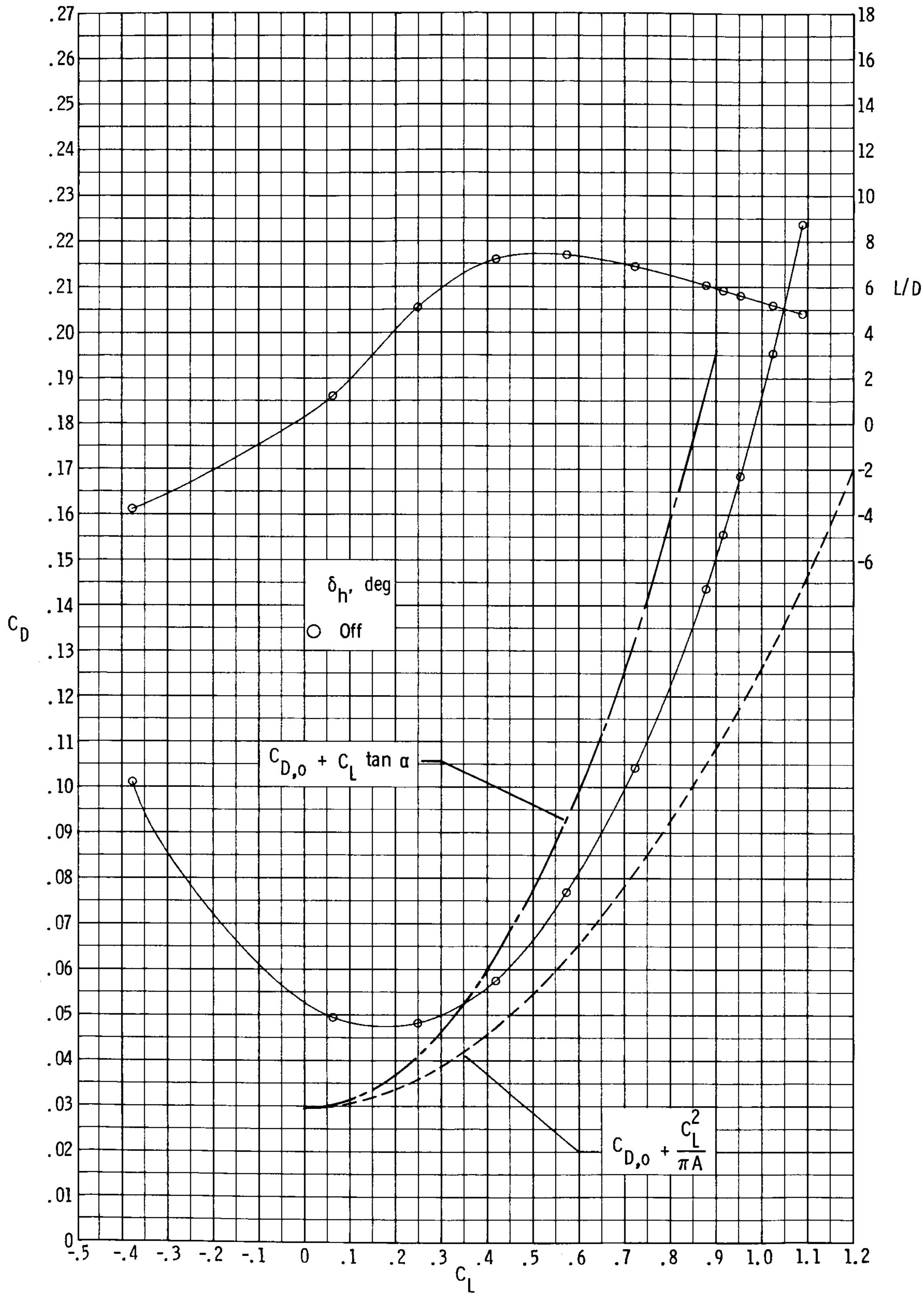
(e) Concluded.

Figure 6. Continued.



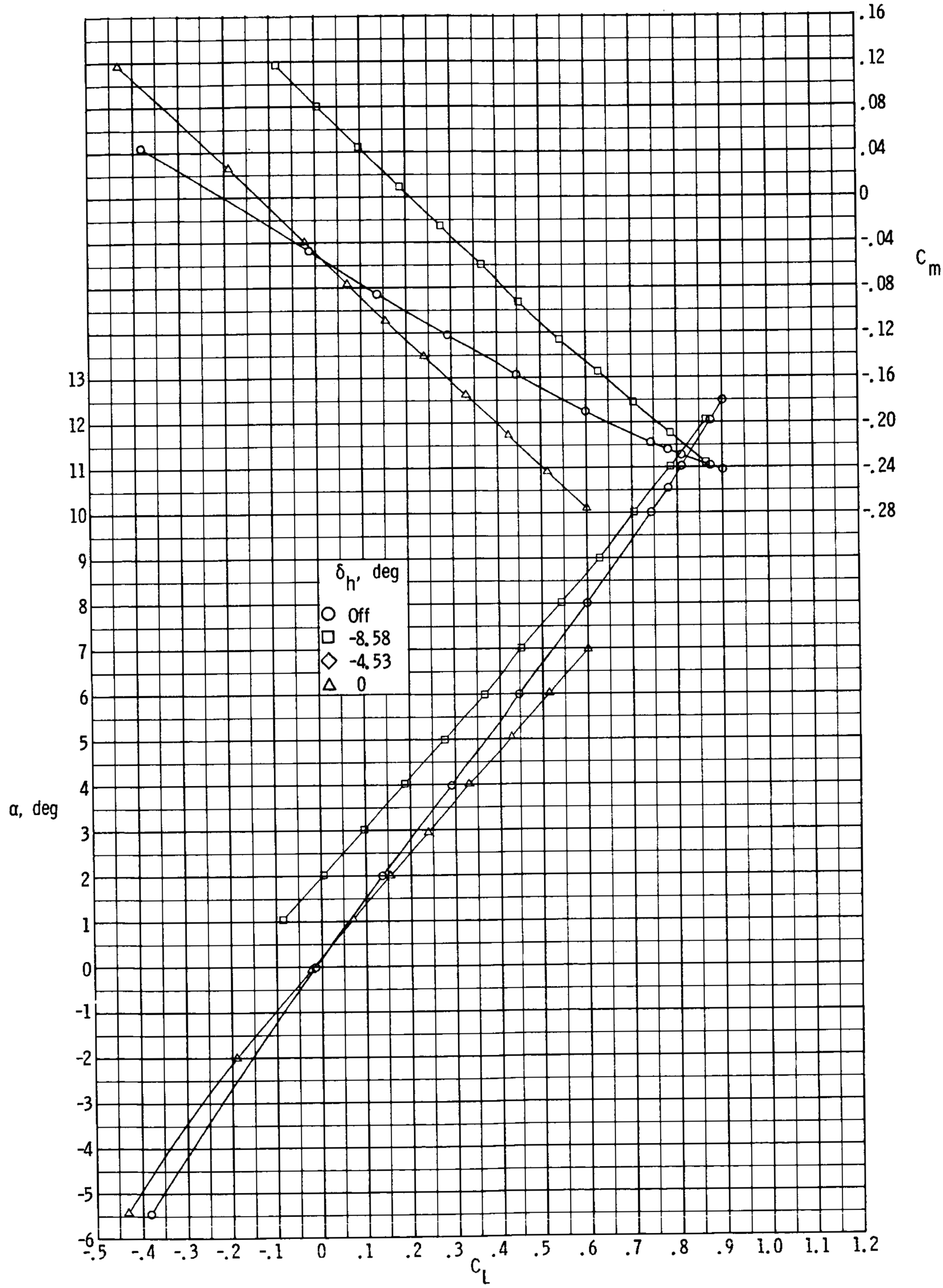
(f) $M = 0.975$.

Figure 6. Continued.



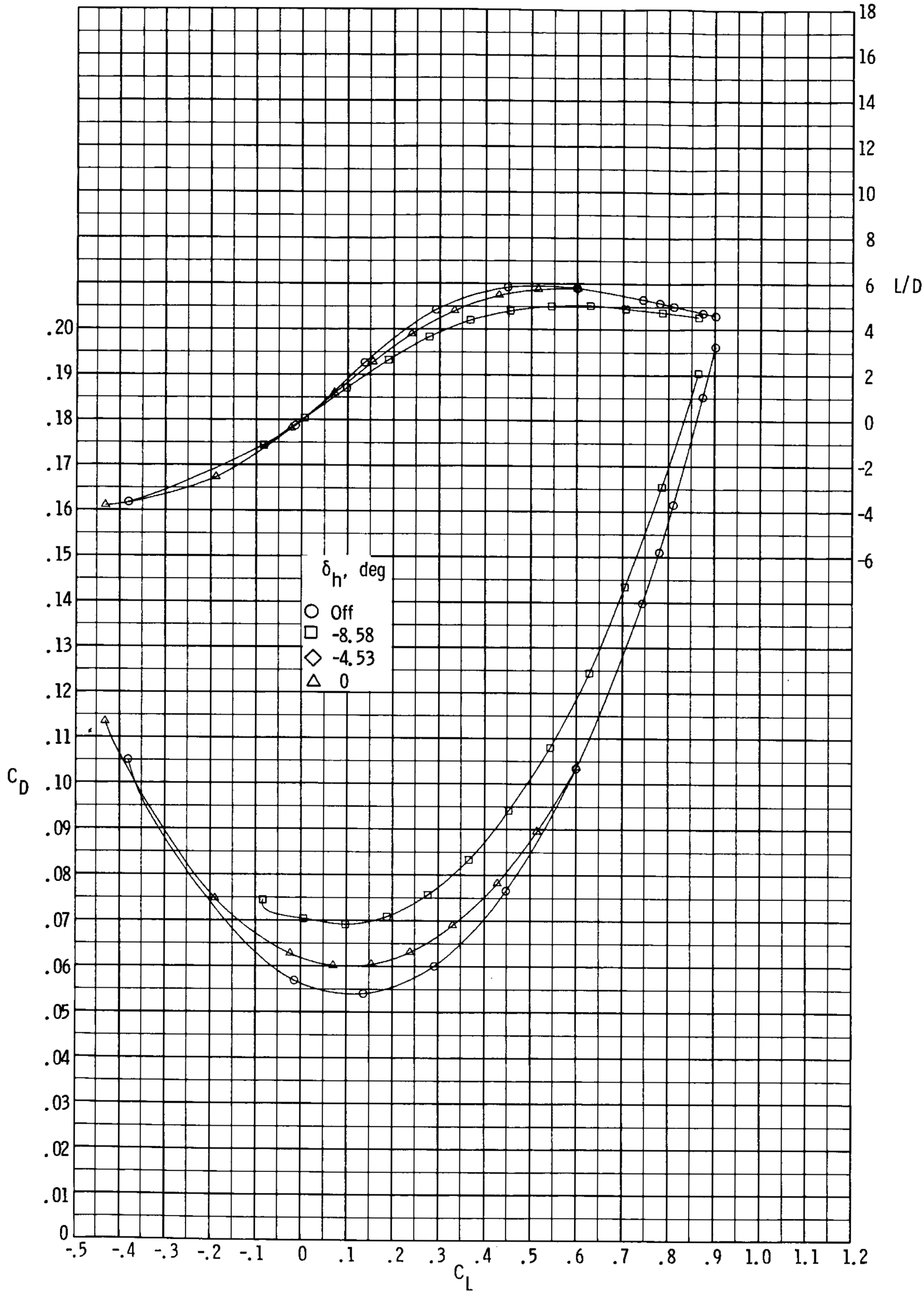
(f) Concluded.

Figure 6. Continued.



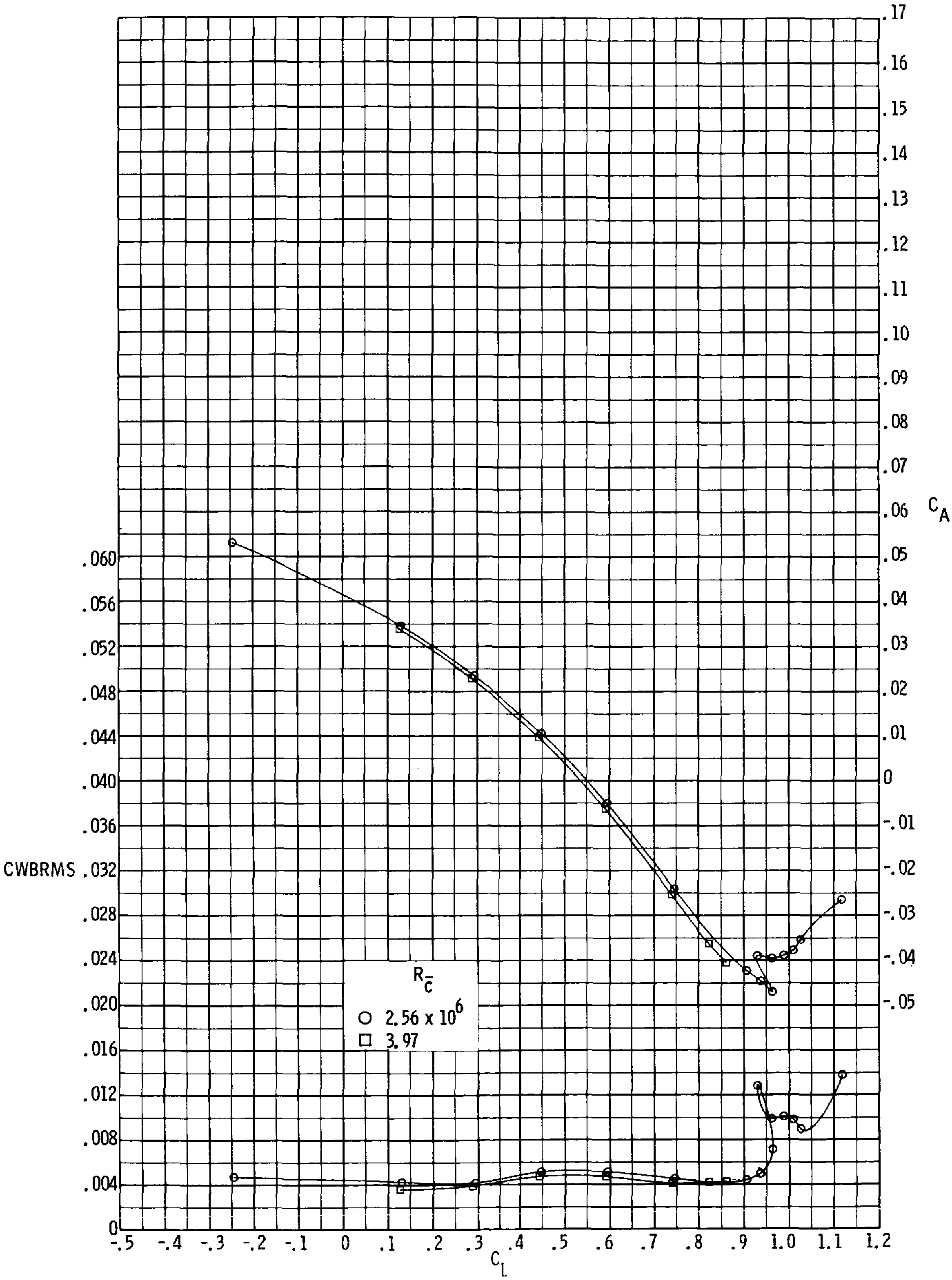
(g) $M = 1.200$.

Figure 6. Continued.



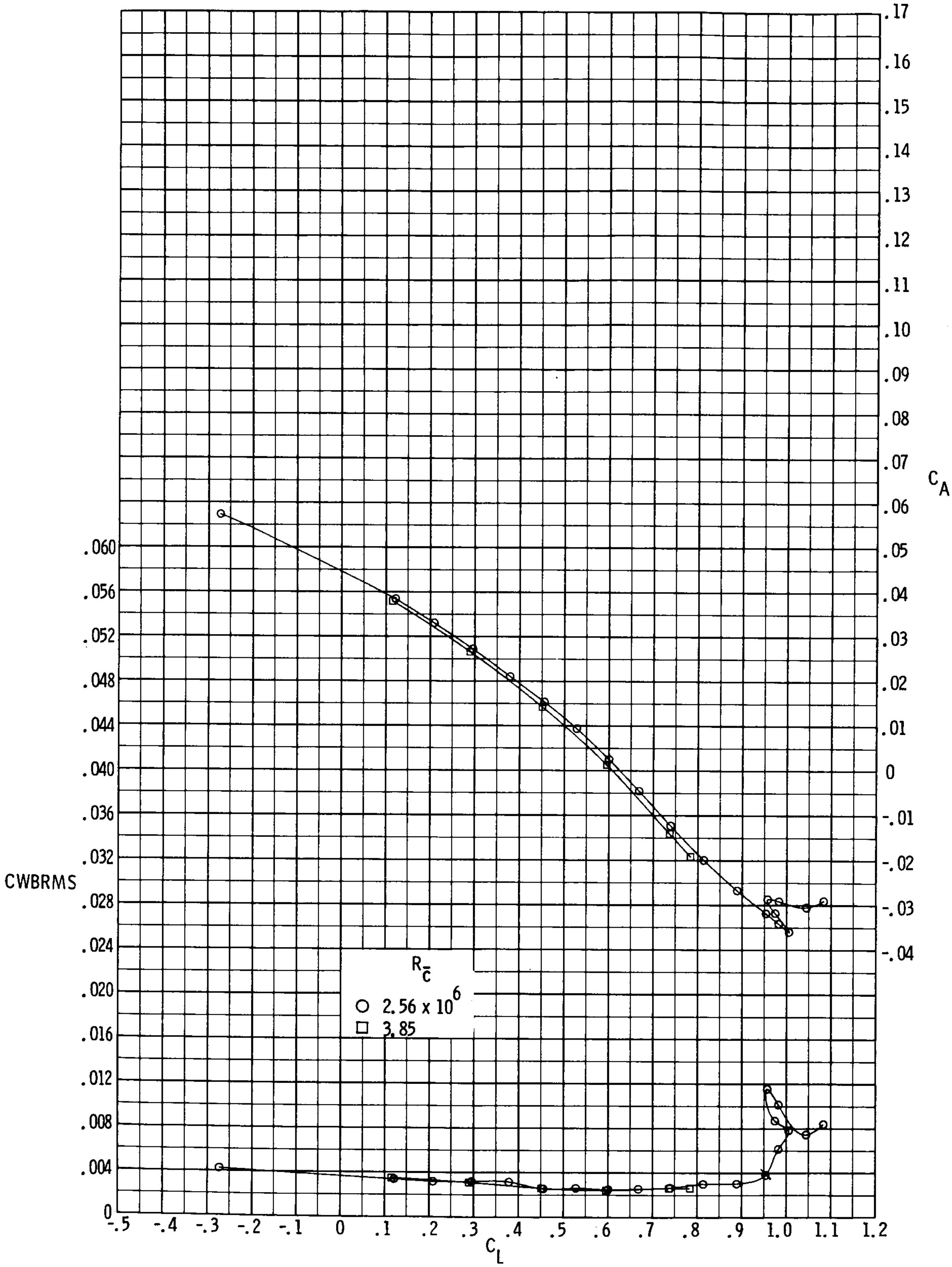
(g) Concluded.

Figure 6. Concluded.



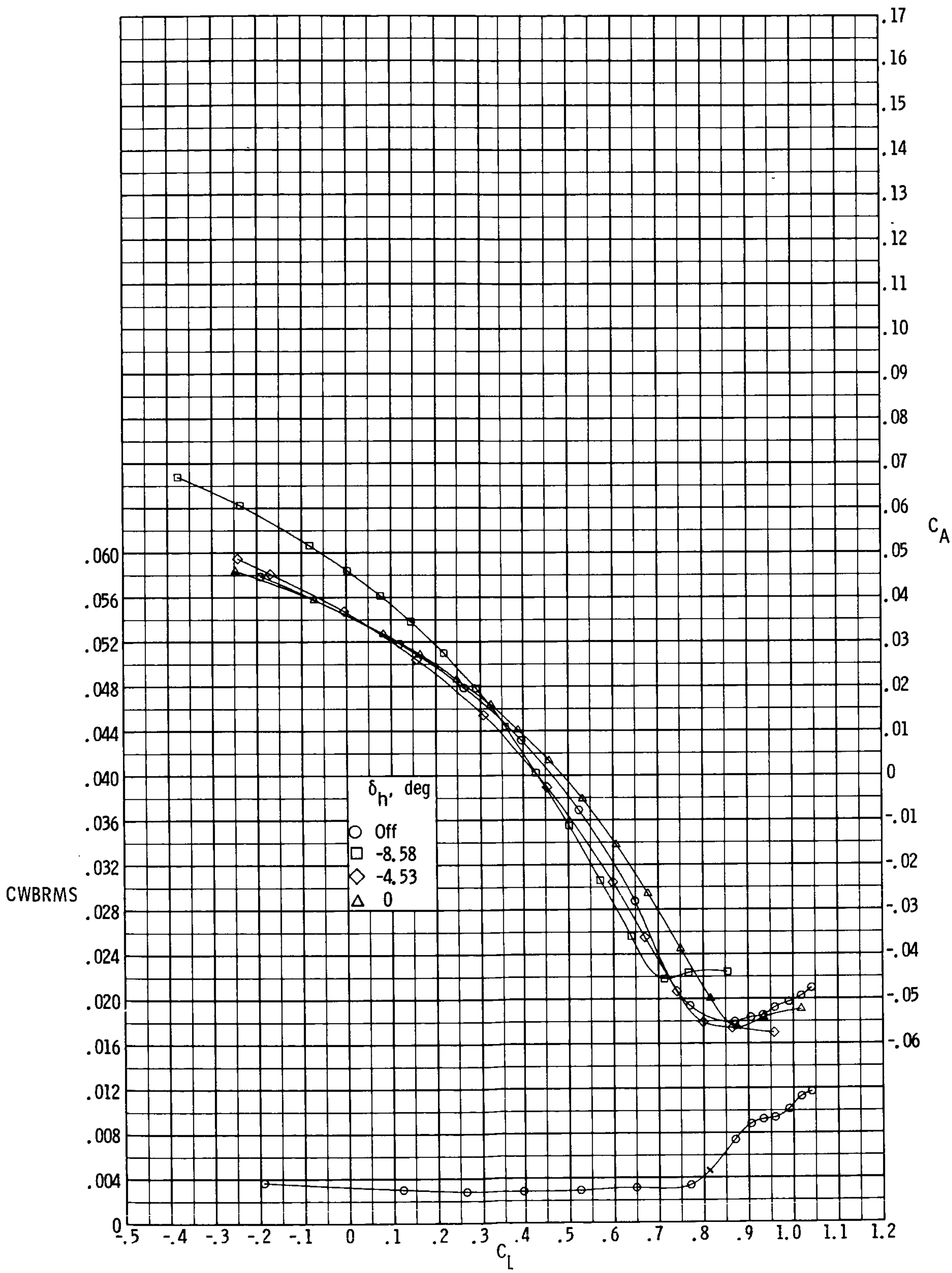
(a) $M = 0.850$.

Figure 7. Effect of Reynolds number on buffet characteristics. Horizontal tail off.



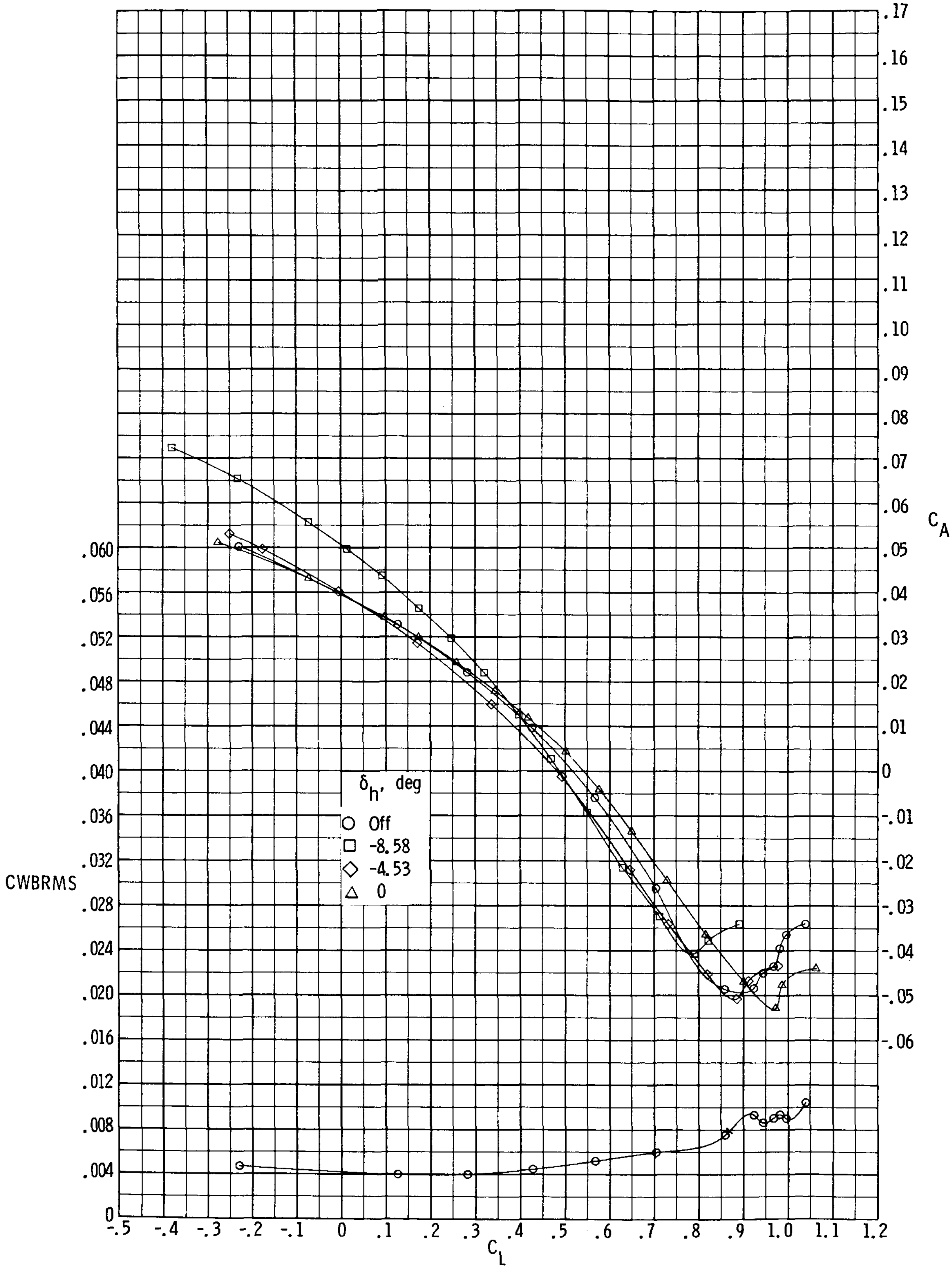
(b) $M = 0.900$.

Figure 7. Concluded.



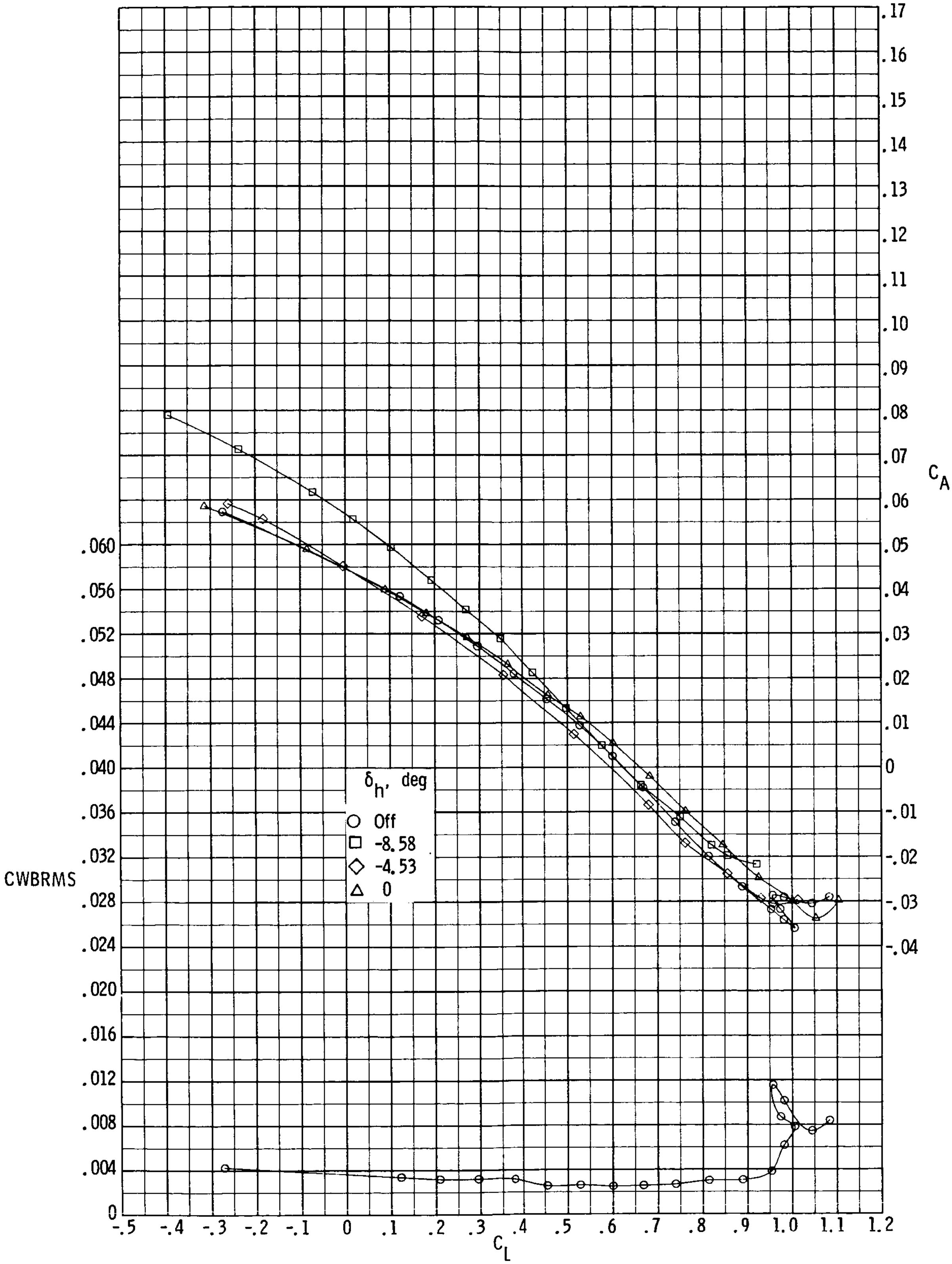
(a) $M = 0.600$.

Figure 8. Buffet characteristics over Mach number range. Horizontal tail off.



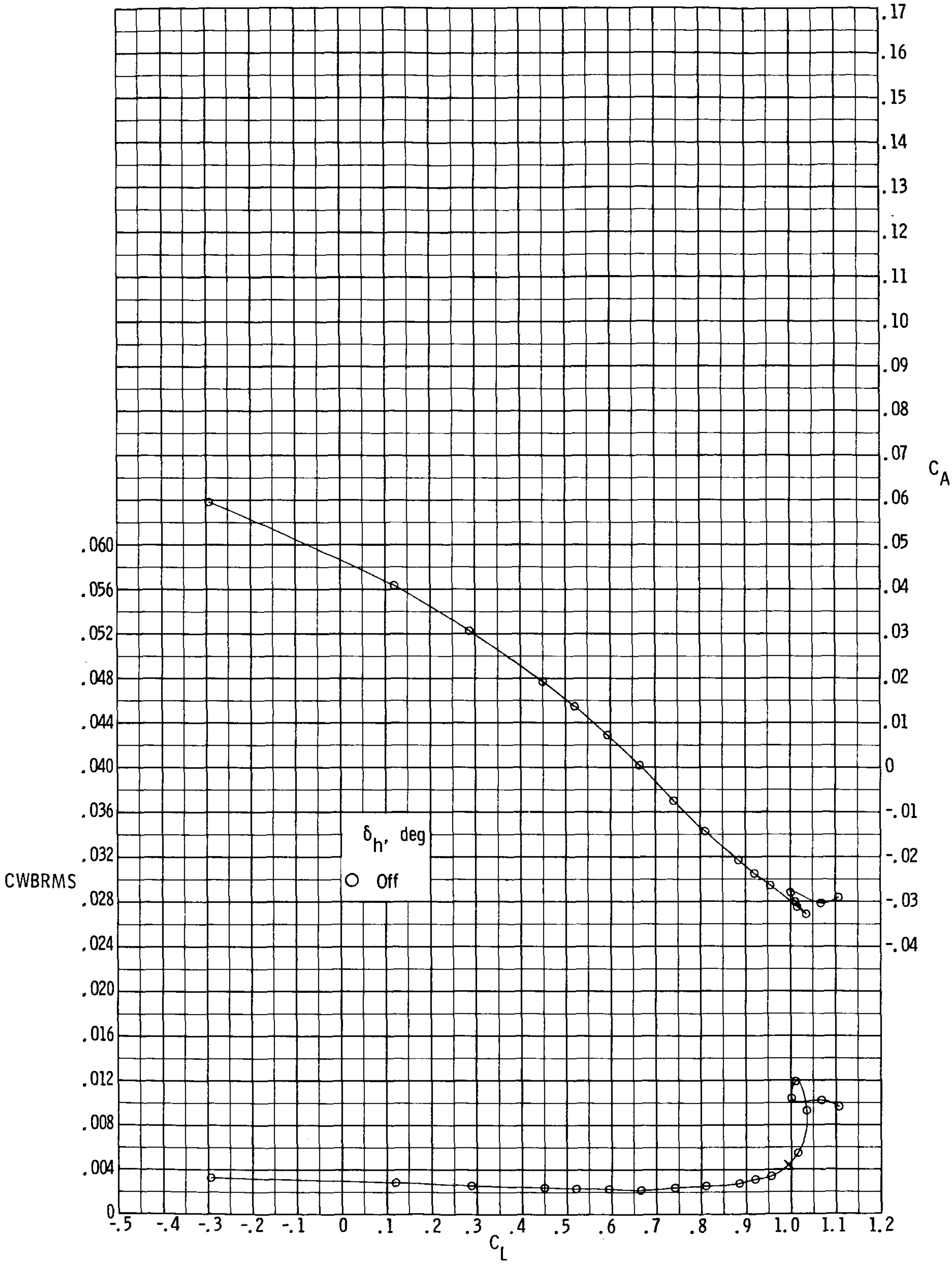
(b) $M = 0.800$.

Figure 8. Continued.



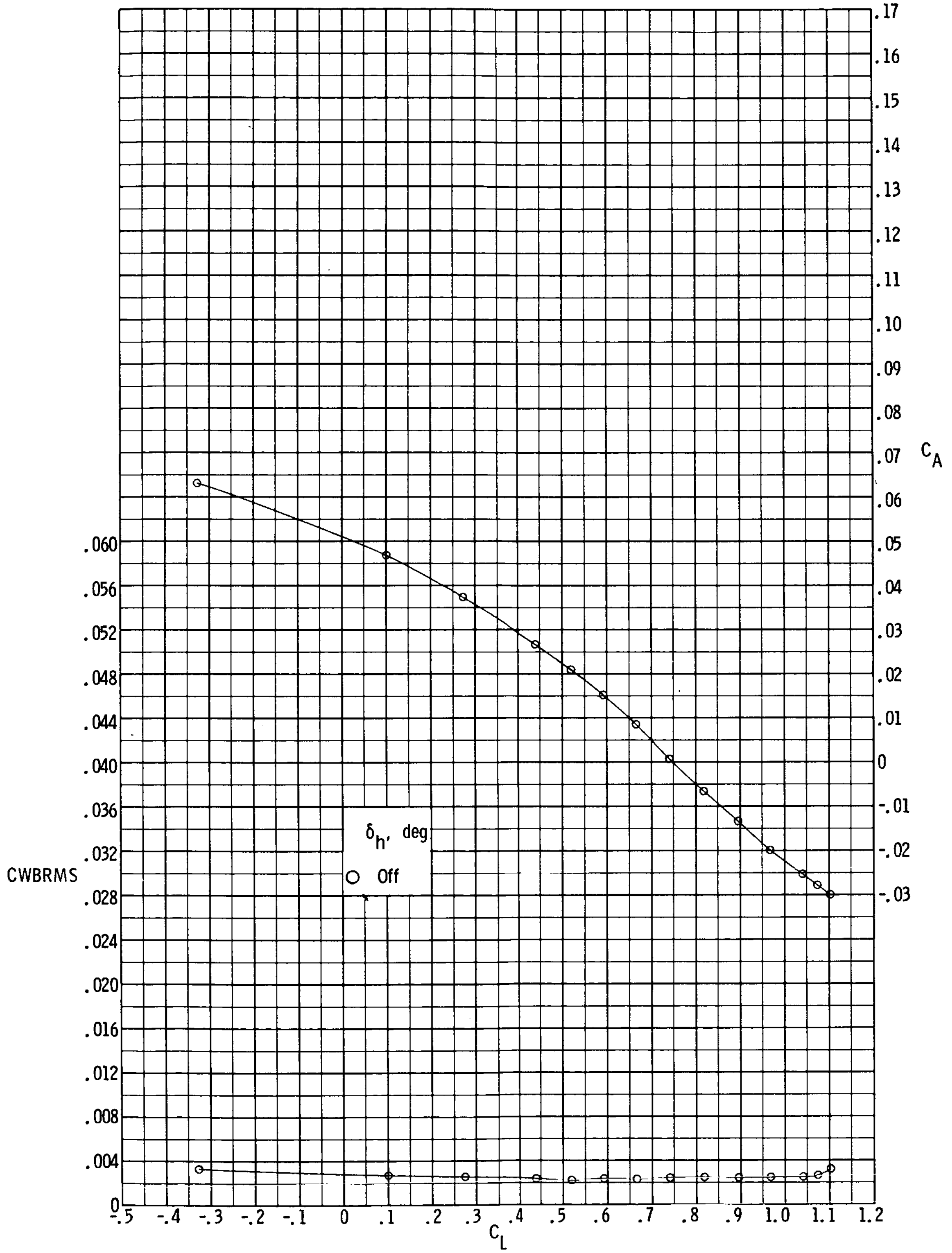
(c) $M = 0.900$.

Figure 8. Continued.



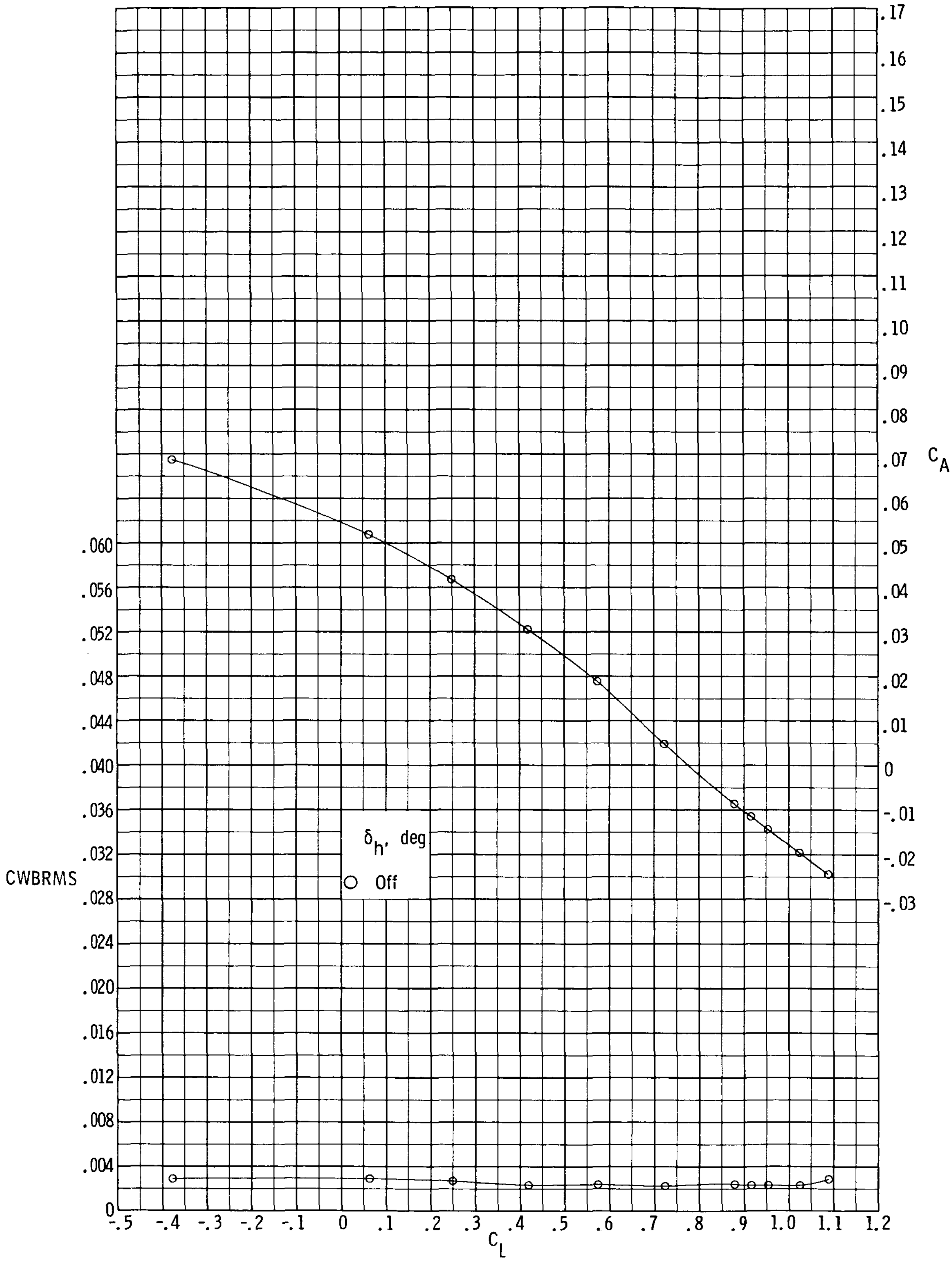
(d) $M = 0.920$.

Figure 8. Continued.



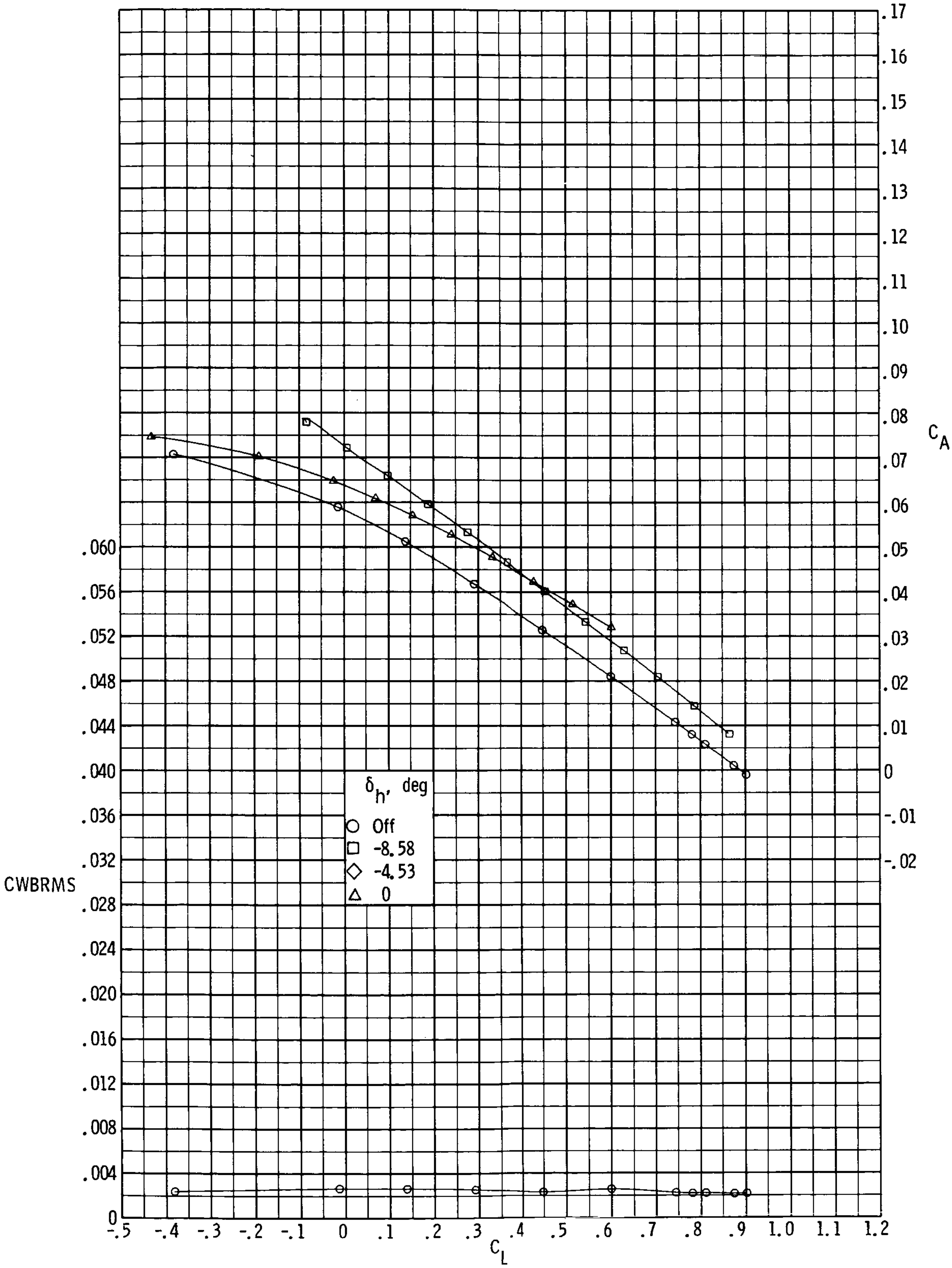
(e) $M = 0.950$.

Figure 8. Continued.



(f) $M = 0.975$.

Figure 8. Continued.



(g) $M = 1.200$.

Figure 8. Concluded.

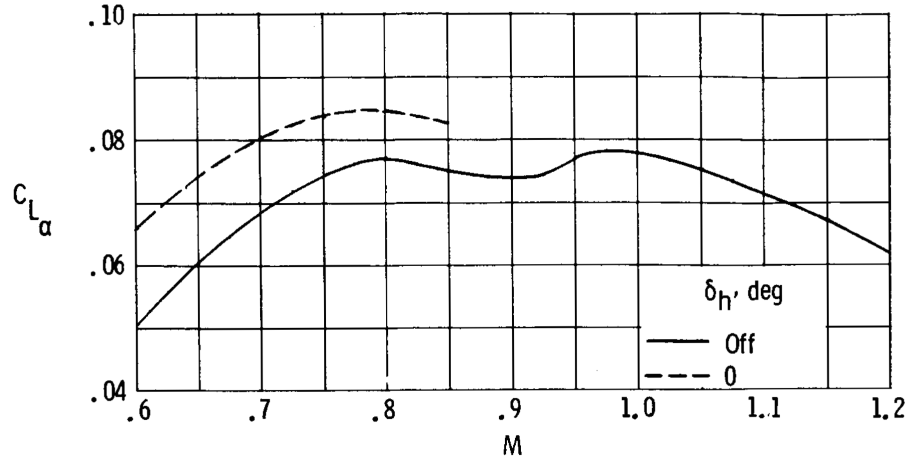


Figure 9. Variation of lift-curve slope C_{L_α} with Mach number at $C_L = 0.80$.

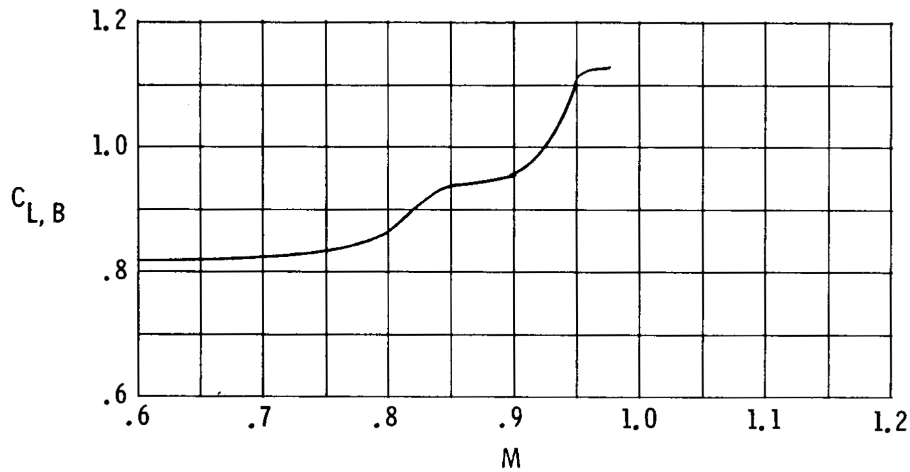


Figure 10. Variation of lift coefficient at buffet onset $C_{L,B}$ with Mach number. Horizontal tail off.

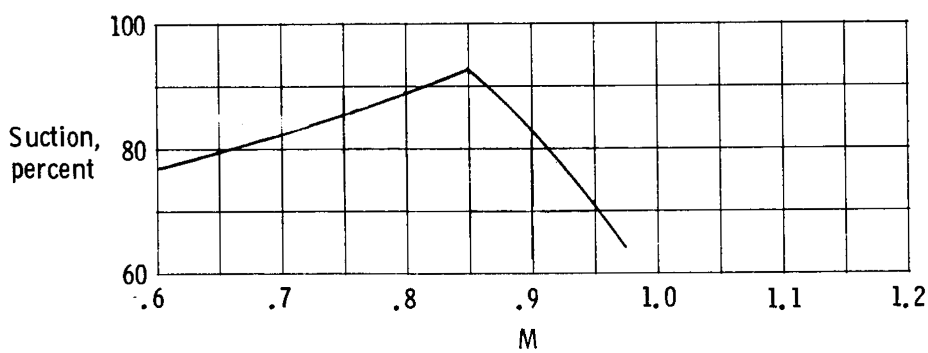


Figure 11. Variation of leading-edge suction parameter with Mach number at $C_L = 0.90$. Horizontal tail off.

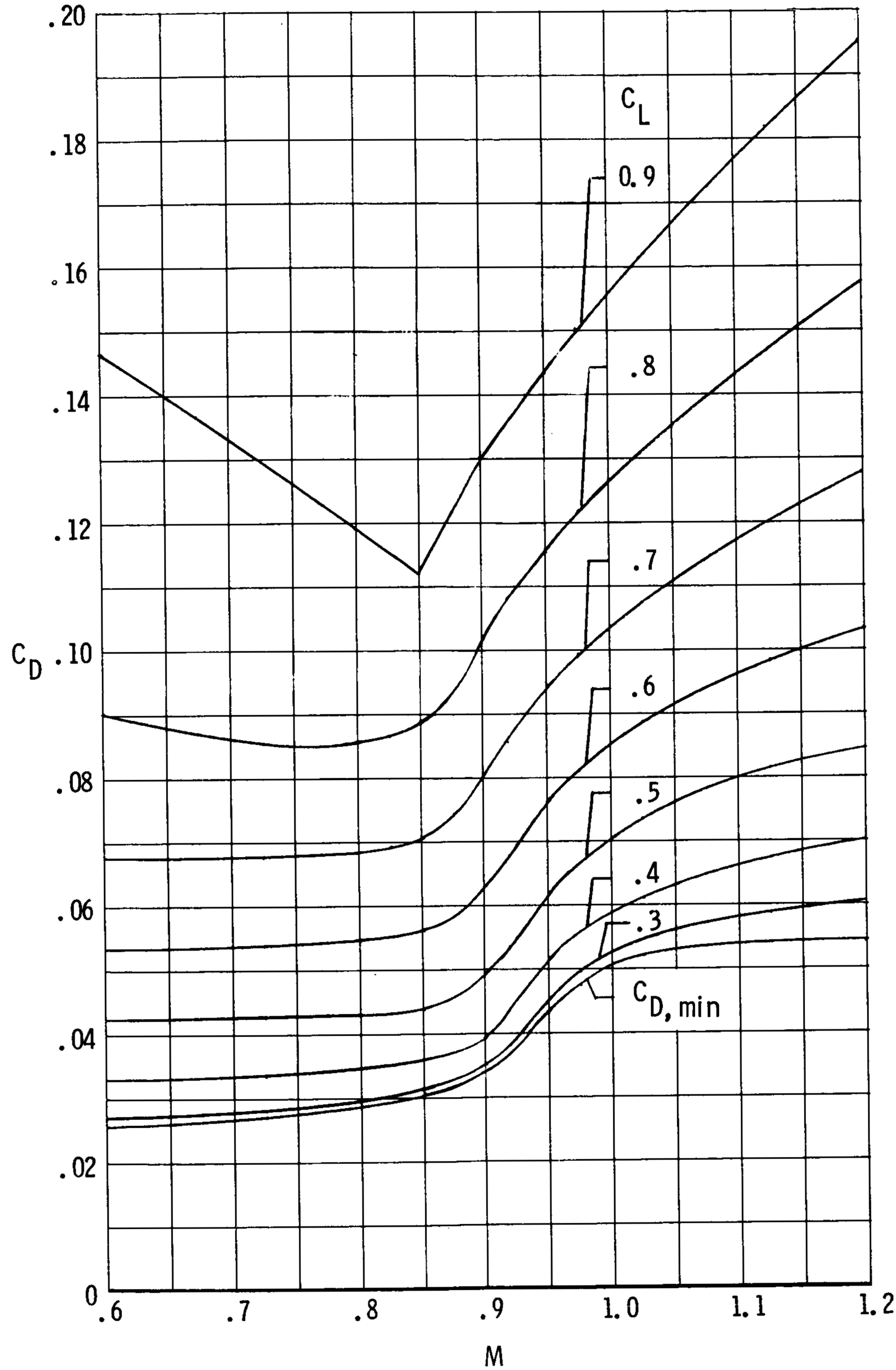


Figure 12. Variation of drag coefficient C_D with Mach number at various lift coefficients. Horizontal tail off.

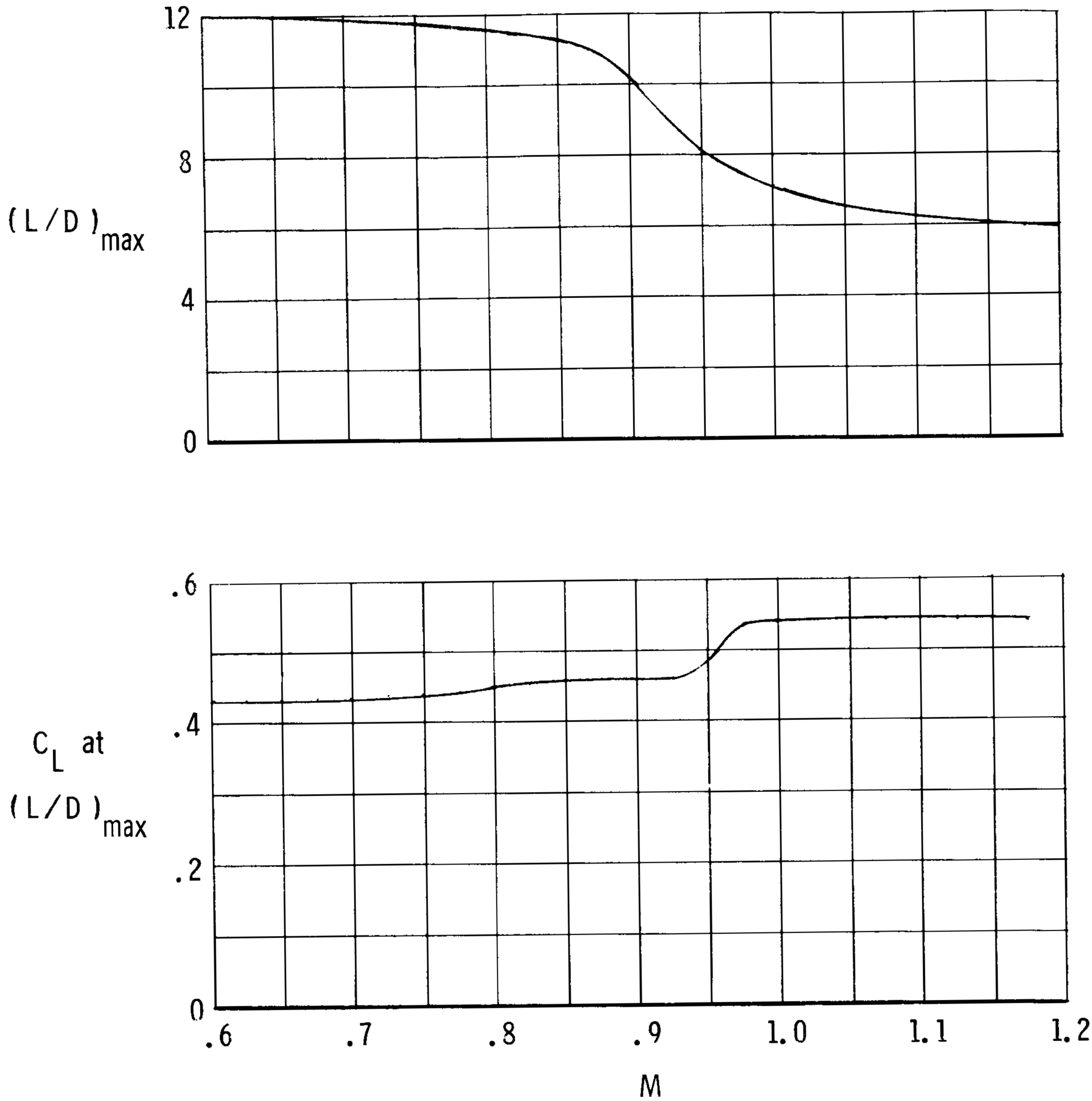


Figure 13. Variation of $(L/D)_{\max}$ and C_L at $(L/D)_{\max}$ with Mach number. Horizontal tail off.

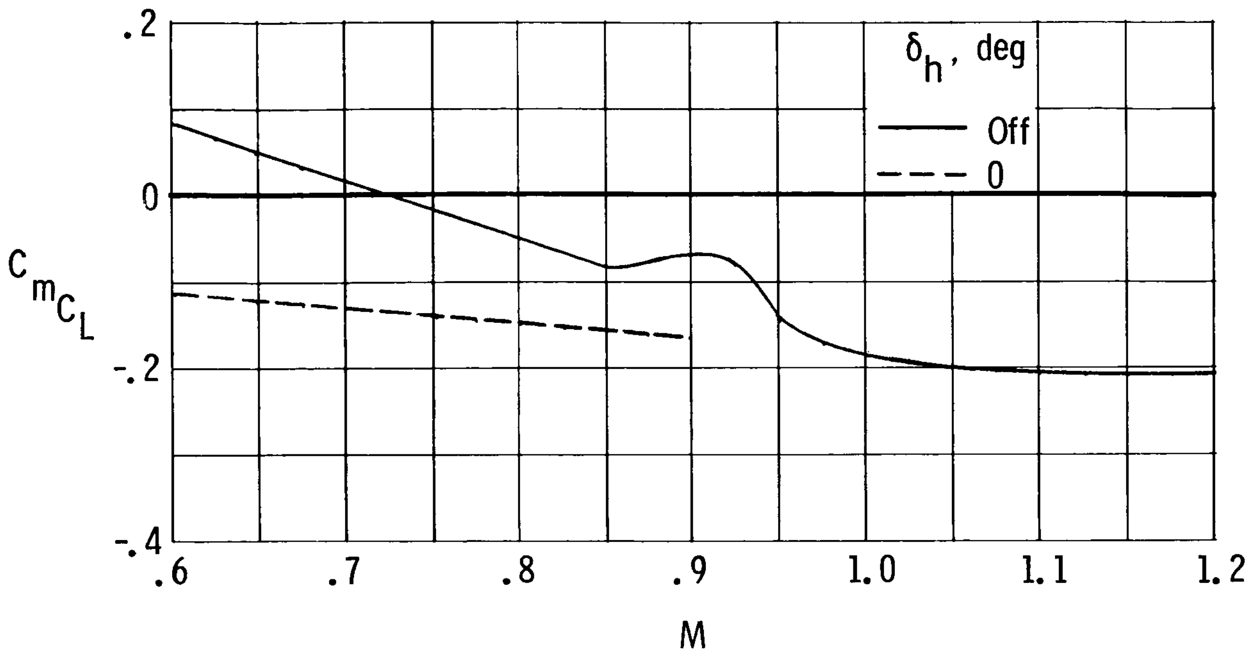


Figure 14. Variation of longitudinal stability derivative $C_{m_{C_L}}$ with Mach number at $C_L = 0.80$.

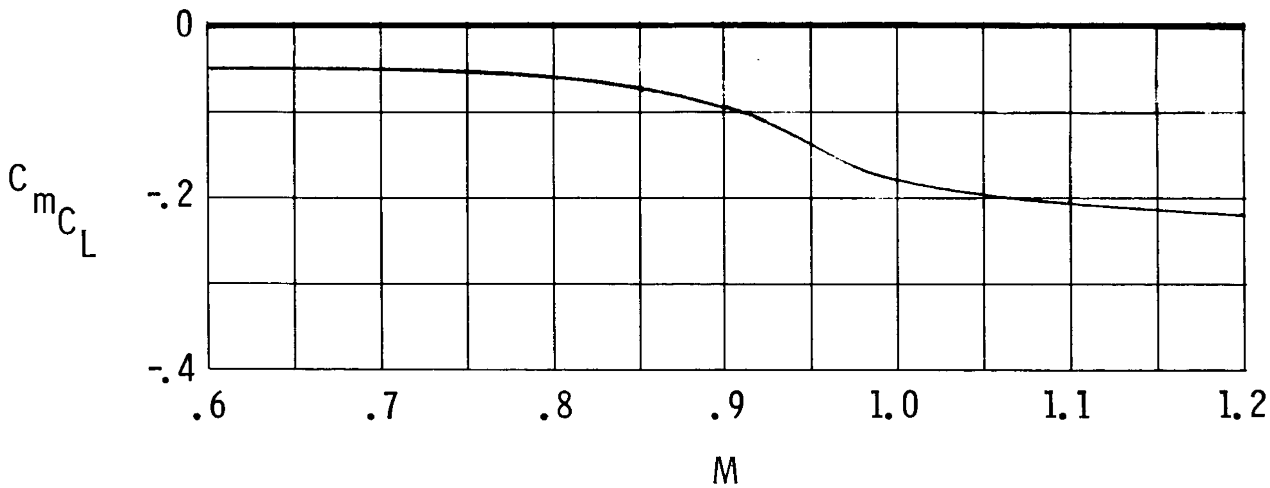


Figure 15. Variation of longitudinal stability derivative $C_{m_{C_L}}$ with Mach number at $C_L = 0.50$. Horizontal tail off.

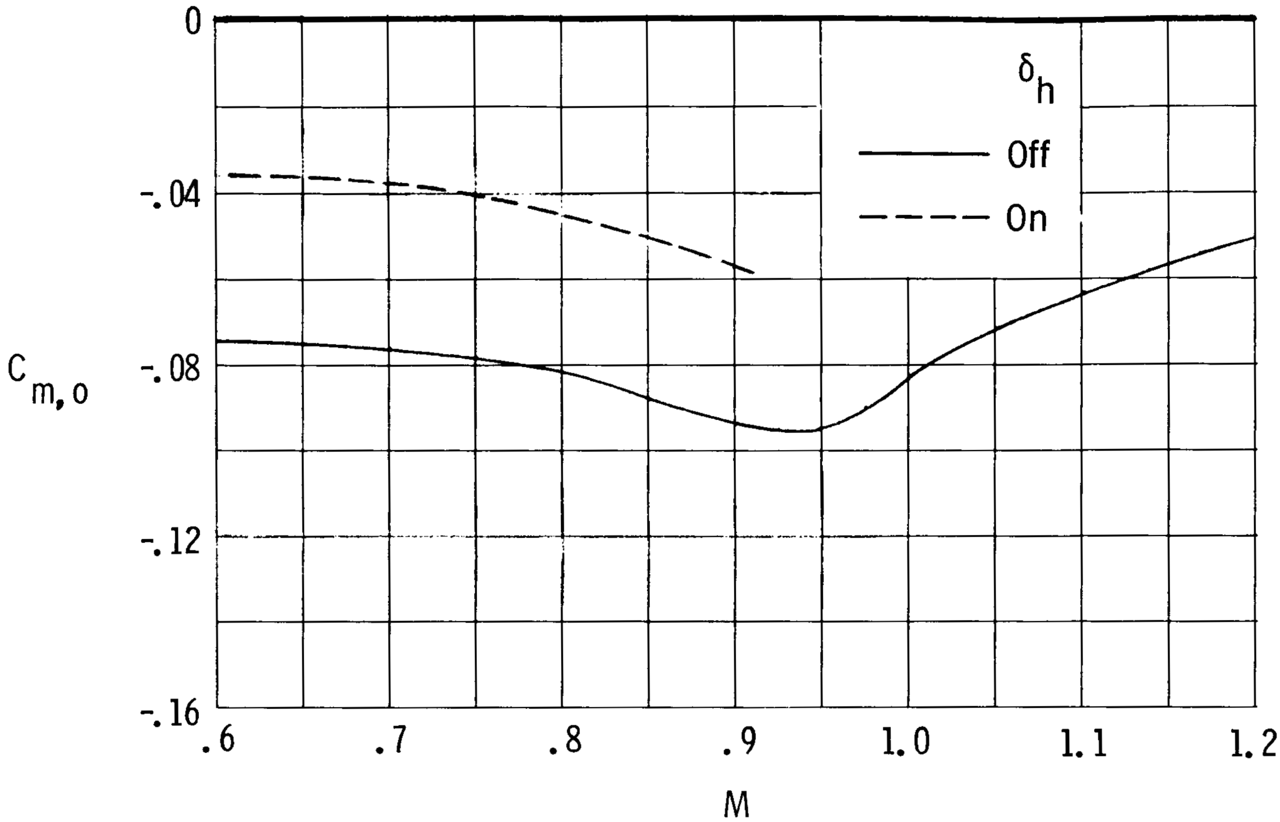


Figure 16. Variation of pitching-moment coefficient at zero lift $C_{m,o}$ with Mach number.

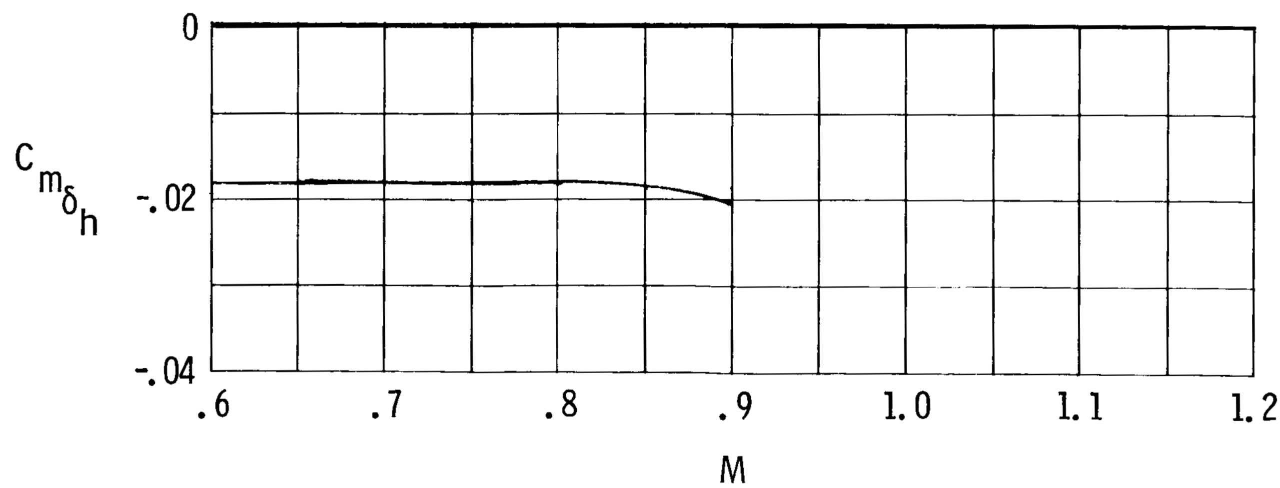


Figure 17. Variation of longitudinal control parameter $C_{m_{\delta_h}}$ with Mach number at $C_L = 0.50$.

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15. Supplementary Notes

16. Abstract

A wind-tunnel investigation was made to determine the longitudinal aerodynamic characteristics of a fixed-wing generic fighter model with a wing designed for sustained transonic maneuver conditions. The airfoil sections on the wing were designed with a two-dimensional nonlinear computer code, and the root and tip sections were modified with a three-dimensional code. The wing geometric characteristics were as follows: a leading-edge sweep of 45°, a taper ratio of 0.2142, an aspect ratio of 3.30, and a thickness ratio of 0.044. The model was investigated at Mach numbers from 0.600 to 1.200, at Reynolds numbers, based on the model reference length, from 2.56×10^6 to 3.97×10^6, and through a model angle-of-attack range from $-5°$ to 18°.

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