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STABILITY AND CONTROL CHARACTERISTICS OF A MANNED LIFTING ENTRY VEHICLE AT MACH NUMBERS FROM 1.50 TO 2.16 INCLUDING HINGE MOMENT AND PRESSURE DISTRIBUTION DATA

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STABILITY AND CONTROL CHARACTERISTICS OF A MANNED LIFTING ENTRY VEHICLE AT MACH NUMBERS FROM 1.50 TO 2.16 INCLUDING HINGE MOMENT AND PRESSURE DISTRIBUTION DATA*

By James F. Campbell and Josephine W. Grow
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SUMMARY

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An investigation has been conducted in the Langley Unitary Plan wind tunnel at Mach numbers of 1.50, 1.80, and 2.16 to determine the stability, control, and hinge-moment characteristics of the HL-10 manned lifting entry vehicle with deflected elevon and inner surface tip-fin flaps. The results of the investigation indicated that deflecting the elevon and tip-fin flaps has no effect on the longitudinal control effectiveness of the elevons, although the deflection causes an increase in trim angle of attack and a slight increase in stability level; in addition, the deflected flaps generally cause an increase in directional stability and effective dihedral. The model with deflected elevon and tip-fin flaps is longitudinally and laterally stable throughout the test angle-of-attack and Mach number ranges.

In general, the elevons, aileron, and rudder are effective control devices throughout the angle-of-attack range with the effectiveness decreasing for the largest control settings.

Conf.

Author

INTRODUCTION

A study is underway at the Langley Research Center to determine the problems associated with the lifting-body class of entry vehicle and to arrive at probable solutions to those problems. The HL-10 vehicle has been developed during the course of this study. Preliminary and basic versions of this vehicle were tested at subsonic, supersonic, and hypersonic speeds (refs 1 to 15). Subsequent tests were made (refs. 16 and 17) to improve the efficiency of a three-fin arrangement on the HL-10 and to define more completely the stability and control characteristics of this vehicle at low supersonic Mach numbers. Modifications to the HL-10 have been proposed in reference 18 to provide higher values of maximum trimmed lift-drag ratio at subsonic speeds; these changes included reduced-thickness trailing-edge sections for the fins and elevons. Deflected flaps on the inner

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surface of the tip fins and upper surface of the elevons were discussed in reference 19 as a means of eliminating the undesirable longitudinal stability characteristics in the transonic speed regime. Since these flaps gave favorable results at transonic speeds, it was desirable to determine their effects on stability and control characteristics of the HL-10 at supersonic speeds.

The purpose of the present investigation is to provide stability and control data, in conjunction with pressure and hinge-moment coefficients, at low supersonic speeds on an HL-10 model incorporating flap modifications to the elevons and tip fins. Effects of deflecting these flaps on the aerodynamic efficiency of the HL-10 are noted along with the effects of several canopy configurations, a nose-mounted pitot tube, and speed brakes. The hinge-moment- and pressure-coefficient data were determined with the reduced-thickness elevons. The tests were conducted in the Unitary Plan wind tunnel through an angle-of-attack range from about -4° to 38°, and through an angle-of-sideslip range from about -4° to 6° at Mach numbers from 1.50 to 2.16. Reynolds number based on body length was 2.13×10^{6} for these tests.

SYMBOLS

The results are presented as force, moment, pressure, and hinge-moment coefficients. Lift, drag, and pitching moment are referred to the stability-axis system and rolling moment, yawing moment, and side force are referred to the body-axis system. The reference center of moments is located at 53-percent body length aft of the nose and 1.25-percent body length below the body reference line. Elevon, elevon-flap, and tip-fin-flap hinge moments are referred to their respective hinge lines. Zero angle on all control surfaces is defined as that condition where the control surface is in line with the normal contours of elements of the model immediately upstream of the control surface.

b	body reference span
$\bar{c}$	mean geometric chord
l	body reference length
L/D	lift-drag ratio
C_L	lift coefficient, $\frac{\text{Lift}}{q_{\infty}S}$
$C_{L,o}$	lift coefficient at $\alpha = 0^{\circ}$

[redacted]

C_D drag coefficient, $\frac{\text{Drag}}{q_\infty S}$

$C_{D,c}$ body chamber drag coefficient, $\frac{\text{Chamber drag}}{q_\infty S}$

C_m pitching-moment coefficient, $\frac{\text{Pitching moment}}{q_\infty S l}$

$C_{m,o}$ pitching-moment coefficient at $\alpha = 0^o$

$C_{m\alpha}$ slope of pitching-moment coefficient plotted against angle of attack

C_l rolling-moment coefficient, $\frac{\text{Rolling moment}}{q_\infty S b}$

C_{l_β} effective dihedral parameter, $\frac{\Delta C_l}{\Delta \beta}$

C_n yawing-moment coefficient, $\frac{\text{Yawing moment}}{q_\infty S b}$

C_{n_β} directional stability parameter, $\frac{\Delta C_n}{\Delta \beta}$

C_Y side-force coefficient, $\frac{\text{Side force}}{q_\infty S}$

C_{Y_β} side-force parameter, $\frac{\Delta C_Y}{\Delta \beta}$

$C_{h,e}$ elevon hinge-moment coefficient, $\frac{\text{Elevon hinge moment}}{q_\infty S_e \bar{c}_e}$

$C_{h,ef}$ elevon-flap hinge-moment coefficient, $\frac{\text{Elevon-flap hinge moment}}{q_\infty S_{ef} \bar{c}_{ef}}$

$C_{h,if}$ inner surface tip-fin-flap hinge-moment coefficient, $\frac{\text{Tip-fin-flap hinge moment}}{q_\infty S_{if} \bar{c}_{if}}$

C_p pressure coefficient

M free-stream Mach number

p local static pressure

q dynamic pressure

S	reference planform area
X,Y,Z	body axes
x,y,z	distances along X-, Y-, and Z-axis, respectively
α	angle of attack referred to body reference line, degrees
β	angle of sideslip referred to plane of symmetry, degrees
δ_e	resultant angle of elevon (positive when trailing edge is down) $\frac{\delta_{e,right} + \delta_{e,left}}{2}$, measured relative to model aft lower surface, degrees
δ_a	resultant angle of aileron (positive when trailing edge is down on the right elevon), $\delta_{e,right} - \delta_{e,left}$, degrees
δ_r	angle of rudder deflection (positive when trailing edge is to left, looking from rear), measured relative to surface of center fin, degrees

Subscripts:

e	elevon
ef	elevon flap
if	inner surface tip-fin flap
max	maximum
trim	value at trim conditions
∞	free-stream condition

Model Component Designations (Where applicable these designations correspond to those presented in ref. 17.):

D,E,F	canopies
E,E_2	center fins

I_4 tip fin

R_1 basic rudder

R_3 modified basic rudder

V_1 basic elevon

V_2 modified (planform) basic elevon

V_3 modified (thickness) basic elevon

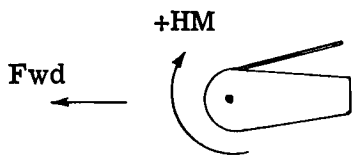
Abbreviations:

Fwd forward

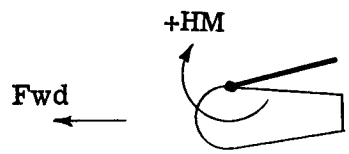
HM hinge moment

rad. radius

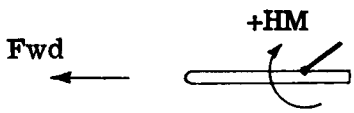
The sign convention assigned to the elevon, elevon-flap, and tip-fin-flap hinge moments is indicated in the following sketch (elevon, fin, and flap cross sections are not to scale):



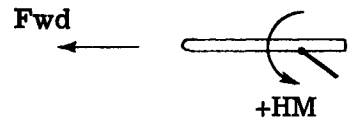
Elevon (side view)



Elevon flap (side view)



Left tip-fin flap (top view)



Right tip-fin flap (top view)

APPARATUS AND TESTS

Model

Force and moment data were obtained by using an aluminum model and pressure data were obtained by using an identical fiber-glass model. A three-view drawing of the model is shown in figure 1. Two tip fins I_4 rolled approximately 9° away from the vertical and toed-in approximately 11° with respect to the plane of symmetry were provided in conjunction with a center fin E_2 located on the body upper surface in the plane of symmetry. The cross-sectional shape of the model without a center fin is shown in figure 2 for various x/l locations, and ordinates defining the body cross-sectional shape are presented in table I. Two deflectable bulk elevons were located at the body trailing edge and were capable of deflections from 45° to -45°. Aerodynamic force and moment data were obtained by using the basic elevon V_1 and a modified-planform elevon V_2; a reduced-thickness elevon V_3 was used to obtain the hinge moment and pressure data. Elevon details are shown in figure 3. Flap deflection on the upper surface of the elevons is shown pictorially in figure 4; flap orientation on elevon V_3 is such that its external geometry is identical to that defined by elevon V_1 with flap deflected. Flap deflection on the inner surface of the tip fins is illustrated in figure 5. A rudder, located on the rearward portion of the center fin, was capable of deflections from 0° to -40°; details of the basic rudder R_1 and the boattailed rudder R_3 are seen in figure 6. Details of several canopy configurations, a nose-mounted pitot tube, and speed brakes are illustrated in figures 7, 8, and 9, respectively. Pressure-orifice locations are shown in figures 10 to 22; locations of body orifices 79 to 83 are not shown in the drawings since these orifices correspond to body orifices 17, 30, 43, 82, and 94, respectively, of reference 17. Typical model and schlieren photographs are presented in figures 23 and 24, respectively.

Tunnel

Tests were conducted in the low Mach number test section of the Langley Unitary Plan wind tunnel, which is a variable-pressure continuous-flow tunnel. The test section is approximately 4 feet (1.22 meters) square and 7 feet (2.13 meters) long. The nozzle leading to the test section is of the asymmetric sliding-block type that permits a continuous variation in Mach number from about 1.5 to 2.9.

Test Conditions

Tests were made at Mach numbers of 1.50, 1.80, and 2.16 through an angle-of-attack range from about -4° to 38° and an angle-of-sideslip range from about -4° to 6°. The test conditions are summarized in the following table:

Mach number	Stagnation temperature		Stagnation pressure		Dynamic pressure	
	°F	°K	psf	kN/m^2	psf	kN/m^2
1.50	150	339	890	42.6	382	18.3
1.80	150	339	976	46.7	385	18.4
2.16	150	339	1140	54.6	370	17.7

Reynolds number based on body length was 2.13×10^6 for these tests. The stagnation dewpoint was maintained at -30° F (239° K) to avoid condensation effects in the test section. Angles of attack and sideslip were corrected for deflection of the balance and sting support under aerodynamic load. The data have also been corrected for tunnel flow angularity. The drag data presented are gross measurements taken during the investigation and no adjustments have been made to relate drag coefficient levels to free-stream conditions at the model base. Typical chamber-drag coefficients, however, are shown in figure 25.

Measurements

Aerodynamic forces and moments were measured by means of a six-component electrical strain-gage balance housed within the model. The balance, in turn, was rigidly fastened to a sting support and thence to the tunnel support system. Static-pressure measurements were obtained on the model surfaces by means of remote, multiple pressure transducers. Hinge moments were obtained on the elevon, elevon flap, and tip-fin flap by single-component electrical strain-gage balances.

The following table lists the reference lengths and areas used to convert the force and moment data into coefficient form:

Reference parameter	Type of data			
	Aerodynamic force and moment	Hinge moment		
		Elevon	Elevon flap	Tip-fin flap
Length, in.	16.000	1.82	1.39	0.55
cm	40.640	4.62	3.53	1.40
Span, in.	10.310			
cm	26.187			
Area, ft^2	0.63440	0.03618	0.02653	0.00840
m^2	.05894	.00336	.00246	.00078

Pressure data were obtained at angles of attack from about -4° to 47° and are presented in coefficient form in tables II to IX.

Accuracy

The accuracies of the measured quantities based on calibration and repeatability of data, are estimated to be within the following limits:

C_L	±0.008
C_D	±0.002
$C_{D,c}$	±0.0001
C_m	±0.0008
C_l	±0.0002
C_n	±0.0004
C_Y	±0.002
$C_{h,e}$	±0.005
$C_{h,ef}$	±0.01
$C_{h,if}$	±0.02
p	±7 psf (335 N/m^2)
α, deg	±0.10
β, deg	±0.10
M	±0.015

FIGURE PRESENTATION

The data presented in the following figures were obtained for the model with elevon and tip-fin flaps deflected, unless otherwise noted:

	Figure
Typical chamber drag coefficients	25
Variation of longitudinal aerodynamic characteristics with angle of attack:	
Effect of elevon and tip-fin-flap deflection	26
Summary plot	27
Effect of elevon geometry	28
Effect of pitch-control deflection	29
Summary plot	30
Effect of aileron deflection for given pitch-control settings:	
$\delta_e = 0^\circ$	31
$\delta_e = 30^\circ$	32
$\delta_e = -30^\circ$	33
Effect of rudder deflection for given pitch-control and aileron deflections:	
$\delta_e = 0^\circ$, $\delta_a = 0^\circ$	34

Figure

$\delta_e = 30^\circ$, $\delta_a = 0^\circ$ 35
$\delta_e = -30^\circ$, $\delta_a = 20^\circ$ 36
Effect of canopy geometry 37
Effect of pitot tube and speed brakes 38
Variation of lateral characteristics with angle of attack:
Effect of aileron deflection for given pitch-control settings:
$\delta_e = 0^\circ$ 39
$\delta_e = 30^\circ$ 40
$\delta_e = -30^\circ$ 41
Effect of rudder deflection for given pitch-control and aileron deflections:
$\delta_e = 0^\circ$, $\delta_a = 0^\circ$ 42
$\delta_e = 30^\circ$, $\delta_a = 0^\circ$ 43
$\delta_e = -30^\circ$, $\delta_a = 20^\circ$ 44
Aerodynamic characteristics in sideslip:
Effect of rudder deflection; $\delta_e = \delta_a = 0^\circ$ 45
Effect of canopy geometry 46
Effect of pitot tube and speed brakes 47
Variation of lateral parameters with angle of attack:
Effect of elevon and tip-fin flaps 48
Effect of elevon geometry 49
Effect of pitch-control deflection 50
Effect of aileron deflection for given pitch-control settings:
$\delta_e = 0^\circ$ 51
$\delta_e = 30^\circ$ 52
$\delta_e = -30^\circ$ 53
Effect of rudder deflection for given pitch-control and aileron deflections:
$\delta_e = 0^\circ$, $\delta_a = 0^\circ$ 54
$\delta_e = 30^\circ$, $\delta_a = 0^\circ$ 55
$\delta_e = -30^\circ$, $\delta_a = 20^\circ$ 56
Effect of canopy geometry 57
Effect of pitot tube and speed brakes 58
Variation of hinge-moment coefficients with angle of attack for various pitch-control deflections:
Effect on elevon hinge moment 59
Effect on elevon-flap hinge moment 60
Effect on tip-fin-flap hinge moment 61

RESULTS AND DISCUSSION

Longitudinal Aerodynamic Characteristics

The effect of elevon deflection and tip-fin-flap deflection on the aerodynamic characteristics in pitch for the HL-10 model is shown in figure 26. At angles of attack near 0°, the flaps deflected cause a decrease in lift coefficient and a positive increment in C_m which approaches that obtained from the elevon deflection of -30°. With increase in angle of attack, however, the decrement in lift coefficient caused by the flap deflection is progressively decreased, causing an increase in stability level, primarily at the intermediate angles of attack; the pitching-moment data for the flaps deflected approach those for flaps undeflected. This, of course, is due to the flaps being effective at low angles of attack where the q-region over the aft surfaces is not seriously affected. At high angles of attack, however, the dynamic pressure is considerably reduced over the flaps, causing them to become ineffective. The effects of Mach number on the configuration with flaps deflected are similar to those with flaps undeflected. (See fig. 27.)

The remaining discussion of the pitch characteristics of the test vehicle is concerned with the elevon and tip-fin-flaps deflected. The data of figure 28 show that a change in elevon planform from V_1 to V_2 has little effect on the pitch characteristics of the model for $\delta_e = 30^{\circ}$.

The effects of elevon deflection on the pitch characteristics of the model are shown in figure 29. The data for $\delta_e = -30^{\circ}$, 0°, and 30° are for the model with the V_1 elevon and those for $\delta_e = 45^{\circ}$ for the model with the V_2 elevon. The data show effective trim capability for the model for elevon deflections between 30° and -30°, although positive elevon deflections generally lead to somewhat greater trim capability. With an increase in elevon deflection from 30° to 45° there is little change in elevon trim effectiveness. Comparison of the data of figures 26 and 29 indicates that the elevon and tip-fin flaps have little effect on the control effectiveness of the elevons but merely move the trim angles of attack to higher values for a given elevon deflection. Summary plots showing some aerodynamic effects of pitch control deflection as affected by Mach number are presented in figure 30.

The effect of aileron deflection on the longitudinal aerodynamic characteristics is shown in figures 31 to 33 for various pitch-control deflections. At Mach numbers of 1.50 and 1.80, an aileron deflection of 10° (pitch-control deflection of 0°, fig. 31) leads to an increase in lift coefficient and a corresponding decrease in $C_{m,o}$; for all other model test conditions aileron deflection has little or no effect.

Deflection of the rudder leads to a decrease in lift coefficient and an increase in $C_{m,o}$ although these effects are reduced somewhat with increase in Mach number. (See figs. 34 to 36.)

The effects of variation in canopy geometry on the pitch characteristics of the model are presented in figure 37. All the canopies generally decrease lift-curve slope and $C_{m,o}$ while increasing the minimum drag coefficient. Canopy E with the boat-tailing results in the largest effects on the configuration; little or no difference exists in the data for canopies D and F in spite of large geometric differences.

The nose-mounted pitot tube has no appreciable effect on the longitudinal characteristics of the model (fig. 38). The speed brakes, however, cause a slight decrease in $C_{L,o}$ and, as would be expected from their location, an increase in $C_{m,o}$. These effects are reduced somewhat with increase in Mach number in the test speed range. The increase in drag coefficient due to the speed brakes is noticeable at the lower test angles of attack; at high test angles of attack, however, the drag-coefficient increment is essentially erased.

Lateral Characteristics

The effect of differential deflection of the elevons on the variation of the lateral characteristics with angle of attack is shown in figures 39 to 41 for various resultant pitch-control deflections. For a resultant pitch-control deflection of 0° (fig. 39), an aileron deflection of 10° leads to significant roll effectiveness throughout the angle-of-attack range, although this effectiveness is somewhat reduced with Mach number increase in the test Mach number range. Further increase in aileron deflection to 20° results in only a small increment in rolling moment over that obtained for the 10° deflection. The roll effectiveness of the aileron for this pitch-control setting is generally accompanied by slight adverse yawing moments at the higher test angles of attack. For a 30° pitch-control setting, the roll-producing effectiveness of the aileron is greatly reduced with little or no change in yawing moment due to aileron deflection. (See fig. 40.) Aileron deflection of 20° for a pitch-control setting of -30° (fig. 41) results in roll reversal at Mach numbers 1.50 and 1.80 at angles of attack to about 30° (trim angle of attack being approximately 36°) and this reversal is accompanied by large yawing moments. At $M = 2.16$, there is essentially no roll control due to the 20° aileron deflection at $\alpha < 28^{\circ}$ with a low roll-control effectiveness at angles of attack near trim ($\alpha \approx 38^{\circ}$). Favorable yaw persists throughout the Mach number range at trim angles of attack.

Deflection of the rudder for various pitch-control and aileron settings is shown to be effective in producing yawing moment throughout the angle-of-attack and Mach number ranges (figs. 42 to 44). The effectiveness, however, is greatly reduced between deflections of 20° and 40° compared with that between deflections 0° and 20°. In general, a decrease in rudder effectiveness is noted with increase in angle of attack and/or Mach number. The effects of pitch-control and aileron settings on rudder effectiveness are relatively small. As would be expected, the positive yawing moments of the model

caused by negative rudder deflections are accompanied by negative increments of rolling moment.

Typical lateral characteristics in sideslip are presented in figures 45 to 47 to indicate the linearity of the lateral coefficients for several test configurations at various angles of attack. Since the sideslip parameters presented herein (figs. 48 to 58) were obtained from incremental differences between results of tests made through the angle-of-attack range at fixed angles of sideslip of about 0° and 3°, the linearity can affect the quantitative results. The data are relatively linear up to a sideslip angle of 3°, and it is believed that any small nonlinearities that do exist will have little effect on the comparative results of the sideslip parameters.

Lateral Parameters

Deflecting the elevon and tip-fin flaps generally increases the directional stability and the effective dihedral of the configuration (fig. 48) although at angles of attack near $(L/D)_{max}$ the effects are rather small. The configuration with or without the elevon and tip-fin flaps deflected is directionally stable with positive effective dihedral at all test Mach numbers and angles of attack. The data of figure 49 show that elevon geometry has little effect on the lateral stability characteristics of the model. Deflection of the elevons (positive or negative) leads to a decrease in directional stability at $M = 1.50$ for low angles of attack. (See fig. 50.) At the higher test angles of attack, positive elevon deflections reverse this trend and have higher directional stability values. Effective dihedral for the model with positive elevon deflections is less at low to intermediate angles of attack, although all test values of δ_e lead to increased effective dihedral at high angles of attack. At Mach numbers of 1.80 and 2.16, the general trends are similar to those at $M = 1.50$ with the exception of the directional-stability data for an elevon deflection of -30° which, at the higher angles of attack, generally displays greater values than for $\delta_e = 0^{\circ}$. There are only slight and inconsistent effects of aileron deflection on the lateral stability of the model with various pitch-control settings (figs. 51 to 53).

There is a tendency at $M = 1.50$ for a rudder deflection of -40° to increase the directional stability of the model at low to intermediate angles of attack and to decrease the directional stability at high angles of attack (figs. 54 to 56). These effects are essentially erased with increase in Mach number.

The data of figure 57 show that canopy D has a stabilizing influence on the model throughout most of the positive angle-of-attack range. As would be expected on the basis of its position on the model, canopy F is destabilizing, and this destabilizing effect occurs up to an angle of attack of about 25°, beyond which a stabilizing influence occurs.

The nose-mounted pitot tube is directionally stabilizing at angles of attack for trim conditions at $M = 1.50$; however, at the two higher test Mach numbers, it is

destabilizing at trim conditions (fig. 58). The speed brakes are directionally stabilizing up to angles of attack near 25° at Mach 1.50; however, increase in Mach number decreases the angle of attack to which the speed brakes are favorable on directional stability. There is little effect of the pitot tube or the speed brakes on effective dihedral throughout the test angle-of-attack and Mach number ranges.

Hinge-Moment Characteristics

Elevon hinge-moment-coefficient data are presented in figure 59 for several elevon deflections. As would be expected, these data show that the positive value of hinge-moment coefficient obtained with negative elevon deflections becomes less positive with increase in angle of attack. Also, the negative values of hinge-moment coefficient obtained with positive elevon deflections become more negative with increase in angle of attack. There appears to be only little effect of Mach number in the test range on the elevon hinge-moment coefficients of the configuration.

The elevon-flap hinge-moment coefficients (fig. 60), of course, are the greatest at negative elevon deflections. There is a large reduction in these coefficients with increase in angle of attack for $\delta_e = -45^\circ$ such that, at $M = 2.16$, the coefficients approach zero near the highest angle of attack. Little or no effect of angle of attack or Mach number on the elevon-flap hinge-moment coefficients is evident for an elevon setting of 45° where the coefficients may be seen to be slightly negative.

Angle of attack and Mach number have only small effects on the tip-fin-flap hinge-moment coefficients (fig. 61) and the values obtained from these tests are generally near zero.

CONCLUSIONS

Results of an investigation at Mach numbers from 1.50 to 2.16 to determine the stability, control, and hinge-moment characteristics of the HL-10 manned lifting entry vehicle with deflected elevon and tip-fin flaps indicated the following conclusions:

1. Deflecting the elevon and tip-fin flaps has no effect on the longitudinal control effectiveness of the elevons, although the deflection causes an increase in trim angle of attack and a slight increase in stability level; in addition, the deflected flaps generally cause an increase in directional stability and effective dihedral.

2. The model with deflected elevon and tip-fin flaps is longitudinally and laterally stable throughout the test angle-of-attack and Mach number ranges.

3. In general, the elevons, aileron, and rudder are effective control devices throughout the angle-of-attack range, with the effectiveness decreasing for the largest control settings.

Langley Research Center,
National Aeronautics and Space Administration,
Langley Station, Hampton, Va., August 10, 1966,
124-07-02-55-23.

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[redacted]

TABLE I. - ORDINATES DEFINING CROSS-SECTIONAL SHAPE OF HL-10 WITHOUT TIP AND CENTER FINS

z/l	y/l
x/l = 0.042	
0.0541	0
.0532	.0083
.0503	.0167
.0441	.0250
.0375	.0306
.0333	.0338
.0250	.0390
.0167	.0431
.0083	.0459
0	.0476
-.0536	0
x/l = 0.083	
0.0681	0
.0668	.0083
.0637	.0167
.0579	.0250
.0502	.0333
.0417	.0392
.0330	.0444
.0250	.0487
.0167	.0521
.0083	.0547
0	.0568
-.0083	.0585
-.0167	.0596
-.0752	0
x/l = 0.125	
0.0737	0
.0729	.0083
.0702	.0167
.0660	.0250
.0594	.0330
.0505	.0417
.0417	.0477
.0333	.0528
.0250	.0571
.0167	.0604
.0083	.0632
0	.0656
-.0083	.0675
-.0167	.0691
-.0250	.0704
-.0333	.0714
-.0904	0
x/l = 0.167	
0.0771	0
.0763	.0083
.0744	.0167
.0712	.0250
.0664	.0333
.0597	.0417
.0512	.0500
.0417	.0565
.0333	.0618
.0250	.0664
.0167	.0701
.0083	.0732
0	.0757
-.0083	.0778
-.0167	.0796
-.0250	.0811
-.0333	.0823
-.0417	.0833
-.0500	.0840
-.1026	0

z/l	y/l
x/l = 0.208	
0.0792	0
.0787	.0083
.0772	.0167
.0747	.0250
.0712	.0333
.0664	.0416
.0592	.0500
.0517	.0583
.0417	.0656
.0333	.0713
.0250	.0760
.0167	.0800
.0083	.0833
0	.0860
-.0083	.0882
-.0167	.0902
-.0250	.0919
-.0333	.0933
-.0417	.0946
-.0500	.0955
-.0583	.0962
-.1126	0
x/l = 0.250	
0.0807	0
.0803	.0083
.0792	.0167
.0773	.0250
.0748	.0333
.0712	.0417
.0666	.0500
.0606	.0583
.0527	.0667
.0458	.0721
.0417	.0754
.0333	.0811
.0250	.0862
.0167	.0902
.0083	.0937
0	.0965
-.0083	.0990
-.0167	.1011
-.0250	.1027
-.0333	.1044
-.0417	.1057
-.0500	.1067
-.0583	.1076
-.0667	.1083
-.1205	0
x/l = 0.292	
0.0817	0
.0814	.0083
.0807	.0167
.0794	.0250
.0774	.0333
.0750	.0417
.0715	.0500
.0672	.0583
.0617	.0667
.0546	.0750
.0500	.0789
.0417	.0858
.0333	.0918
.0250	.0969
.0167	.1010
.0083	.1044
0	.1072
-.0083	.1098

z/l	y/l
x/l = 0.292	
-0.0167	0.1119
-.0250	.1137
-.0333	.1156
-.0417	.1170
-.0500	.1182
-.0583	.1192
-.0667	.1198
-.0750	.1202
-.1268	0
x/l = 0.333	
0.0820	0
.0818	.0083
.0813	.0167
.0803	.0250
.0789	.0333
.0771	.0417
.0747	.0500
.0716	.0583
.0677	.0667
.0627	.0750
.0564	.0833
.0485	.0917
.0417	.0968
.0333	.1027
.0250	.1078
.0167	.1119
.0083	.1152
0	.1179
-.0083	.1204
-.0167	.1227
-.0250	.1250
-.0333	.1267
-.0417	.1282
-.0500	.1296
-.0583	.1306
-.0667	.1317
-.0750	.1321
-.1312	0
x/l = 0.375	
0.0821	0
.0820	.0083
.0816	.0167
.0809	.0250
.0799	.0333
.0783	.0417
.0766	.0500
.0744	.0583
.0714	.0667
.0679	.0750
.0633	.0833
.0576	.0917
.0503	.1000
.0415	.1083
.0333	.1136
.0250	.1187
.0167	.1229
.0083	.1262
0	.1292
-.0083	.1315
-.0167	.1337
-.0250	.1358
-.0333	.1377
-.0417	.1394
-.0500	.1408
-.0583	.1420
-.0667	.1429
-.0750	.1437
-.0833	.1442
-.1334	0

z/l	y/l
x/l = 0.417	
0.0814	0
.0813	.0083
.0811	.0167
.0805	.0250
.0797	.0333
.0786	.0417
.0772	.0500
.0755	.0583
.0733	.0667
.0706	.0750
.0674	.0833
.0633	.0917
.0582	.1000
.0517	.1083
.0437	.1167
.0375	.1211
.0333	.1241
.0250	.1296
.0167	.1339
.0083	.1375
0	.1406
-.0083	.1431
-.0167	.1453
-.0250	.1472
-.0333	.1492
-.0417	.1508
-.0500	.1523
-.0583	.1536
-.0667	.1546
-.0750	.1554
-.0833	.1559
-.1340	0
x/l = 0.458	
0.0800	0
.0799	.0083
.0797	.0167
.0794	.0250
.0788	.0333
.0780	.0417
.0768	.0500
.0755	.0583
.0739	.0667
.0720	.0750
.0694	.0833
.0664	.0917
.0629	.1000
.0581	.1083
.0526	.1167
.0453	.1250
.0363	.1333
.0292	.1379
.0250	.1407
.0167	.1454
.0083	.1491
0	.1521
-.0083	.1549
-.0167	.1571
-.0250	.1592
-.0333	.1611
-.0417	.1627
-.0500	.1642
-.0583	.1654
-.0667	.1664
-.0750	.1672
-.0833	.1677
-.1322	0

z/l	y/l
x/l = 0.500	
0.0782	0
.0782	.0167
.0780	.0250
.0776	.0333
.0770	.0417
.0762	.0500
.0751	.0583
.0738	.0667
.0723	.0750
.0705	.0833
.0682	.0917
.0655	.1000
.0620	.1083
.0579	.1167
.0529	.1250
.0467	.1333
.0390	.1417
.0333	.1458
.0250	.1521
.0167	.1571
.0083	.1612
0	.1643
-.0083	.1672
-.0167	.1694
-.0250	.1715
-.0333	.1733
-.0417	.1750
-.0500	.1763
-.0583	.1775
-.0667	.1785
-.0750	.1792
-.1285	0
x/l = 0.542	
0.0759	0
.0759	.0166
.0758	.0249
.0756	.0332
.0752	.0415
.0747	.0498
.0740	.0581
.0730	.0664
.0718	.0747
.0705	.0830
.0688	.0913
.0666	.0996
.0642	.1079
.0611	.1162
.0575	.1245
.0530	.1328
.0476	.1411
.0410	.1494
.0326	.1577
.0249	.1629
.0166	.1685
.0083	.1729
0	.1764
-.0083	.1790
-.0166	.1815
-.0249	.1834
-.0332	.1853
-.0415	.1869
-.0498	.1882
-.0581	.1893
-.0664	.1902
-.1229	0

z/l	y/l
x/l = 0.583	
0.0741	0
.0741	.0104
.0740	.0271
.0735	.0437
.0726	.0604
.0710	.0771
.0671	.0937
.0668	.1020
.0651	.1104
.0626	.1187
.0596	.1270
.0563	.1354
.0521	.1437
.0471	.1520
.0412	.1604
.0337	.1687
.0250	.1756
.0167	.1813
.0083	.1860
0	.1897
-.0083	.1926
-.0167	.1949
-.0250	.1970
-.0333	.1988
-.0417	.2003
-.0500	.2017
-.0583	.2028
-.1156	0
x/l = 0.625	
0.0716	0
.0716	.0104
.0716	.0271
.0713	.0437
.0707	.0604
.0696	.0771
.0678	.0937
.0655	.1104
.0637	.1187
.0616	.1270
.0591	.1354
.0558	.1437
.0521	.1520
.0478	.1604
.0429	.1687
.0365	.1770
.0292	.1842
.0250	.1878
.0167	.1941
.0083	.1991
0	.2028
-.0083	.2057
-.0167	.2080
-.0250	.2101
-.0333	.2118
-.0417	.2132-
-.0500	.2143
-.1073	0
x/l = 0.667	
0.0687	0
.0686	.0208
.0686	.0375
.0684	.0541
.0678	.0708
.0669	.0875
.0655	.1041
.0634	.1208
.0601	.1374
.0580	.1458

z/l	y/l
x/l = 0.667	
0.0553	0.1541
.0522	.1624
.0483	.1708
.0439	.1791
.0385	.1874
.0317	.1958
.0250	.2015
.0167	.2080
.0083	.2128
0	.2167
-.0083	.2197
-.0167	.2218
-.0250	.2237
-.0333	.2254
-.0417	.2264
-.0986	0
x/l = 0.708	
0.0654	0
.0653	.0417
.0651	.0583
.0650	.0750
.0643	.0916
.0634	.1083
.0617	.1250
.0596	.1416
.0582	.1499
.0563	.1583
.0542	.1666
.0517	.1749
.0487	.1833
.0446	.1916
.0398	.1999
.0340	.2083
.0292	.2130
.0250	.2168
.0167	.2235
.0083	.2283
0	.2317
-.0083	.2343
-.0167	.2363
-.0250	.2378
-.0333	.2390
-.0889	0
x/l = 0.750	
0.0617	0
.0616	.0625
.0615	.0791
.0611	.0958
.0606	.1125
.0596	.1291
.0581	.1458
.0561	.1624
.0533	.1791
.0488	.1958
.0458	.2041
.0421	.2124
.0372	.2207
.0333	.2256
.0292	.2307
.0250	.2347
.0167	.2409
.0083	.2447
0	.2470
-.0083	.2491
-.0167	.2504
-.0250	.2511
-.0785	0

z/l	y/l
x/l = 0.792	
0.0578	0
.0577	.0937
.0576	.1104
.0573	.1270
.0569	.1437
.0561	.1604
.0549	.1770
.0532	.1937
.0506	.2103
.0486	.2187
.0460	.2270
.0425	.2353
.0375	.2437
.0333	.2481
.0250	.2551
.0167	.2588
.0083	.2611
0	.2624
-.0083	.2631
-.0167	.2634
-.0673	0
x/l = 0.833	
0.0536	0
.0534	.1666
.0532	.1833
.0528	.1999
.0521	.2166
.0510	.2332
.0482	.2499
.0455	.2582
.0400	.2666
.0333	.2707
.0250	.2736
.0167	.2749
.0083	.2753
0	.2753
-.0563	0
x/l = 0.875	
0.0487	0
-.0452	0
x/l = 0.917	
0.0440	0
-.0341	0
x/l = 0.958	
0.0392	0
-.0227	0
x/l = 1.000	
0.0344	0
-.0125	0

[redacted]

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.311	-0.349	-0.337	-0.385	-0.379	-0.405	-0.445	-0.485	-0.491	-0.469	-0.418
2	-0.332	-0.332	-0.330	-0.337	-0.337	-0.339	-0.338	-0.341	-0.347	-0.387	-0.431
3	-0.452	-0.463	-0.432	-0.385	-0.369	-0.384	-0.397	-0.432	-0.468	-0.462	-0.414
4	-0.340	-0.363	-0.351	-0.387	-0.388	-0.417	-0.477	-0.517	-0.512	-0.488	-0.426
5	-0.357	-0.380	-0.358	-0.379	-0.375	-0.390	-0.424	-0.458	-0.485	-0.477	-0.426
6	-0.465	-0.467	-0.457	-0.396	-0.379	-0.390	-0.401	-0.443	-0.491	-0.484	-0.426
7	-0.307	-0.313	-0.330	-0.334	-0.335	-0.337	-0.338	-0.350	-0.453	-0.452	-0.424
8	-0.311	-0.313	-0.311	-0.315	-0.318	-0.320	-0.327	-0.335	-0.347	-0.404	-0.422
9	-0.401	-0.425	-0.409	-0.383	-0.367	-0.384	-0.390	-0.430	-0.483	-0.481	-0.426
Right elevon, upper surface											
10	-0.324	-0.336	-0.337	-0.345	-0.343	-0.354	-0.365	-0.382	-0.426	-0.473	-0.424
11	-0.294	-0.315	-0.330	-0.332	-0.333	-0.335	-0.335	-0.345	-0.390	-0.448	-0.424
12	-0.414	-0.453	-0.434	-0.387	-0.371	-0.388	-0.392	-0.432	-0.485	-0.481	-0.428
13	-0.336	-0.361	-0.351	-0.387	-0.386	-0.426	-0.468	-0.434	-0.481	-0.473	-0.424
14	-0.357	-0.383	-0.360	-0.381	-0.375	-0.388	-0.422	-0.455	-0.483	-0.477	-0.426
15	-0.319	-0.353	-0.339	-0.387	-0.398	-0.411	-0.300	-0.339	-0.455	-0.456	-0.418
16	0.110	0.004	-0.224	-0.313	-0.288	-0.401	-0.386	-0.417	-0.455	-0.450	-0.412
17	-0.338	-0.353	-0.381	-0.360	-0.358	-0.371	-0.376	-0.367	-0.358	-0.330	-0.277
18	-0.305	-0.304	-0.298	-0.307	-0.305	-0.310	-0.316	-0.325	-0.326	-0.320	-0.311
Right elevon, side surface											
19	-0.338	-0.342	-0.341	-0.337	-0.373	-0.411	-0.424	-0.474	-0.426	-0.334	-0.292
20	-0.351	-0.344	-0.311	-0.332	-0.360	-0.392	-0.479	-0.458	-0.426	-0.378	-0.338
Right elevon well, left surface											
21	-0.355	-0.344	-0.309	-0.322	-0.354	-0.392	-0.460	-0.445	-0.419	-0.368	-0.319
Right elevon well, right surface											
22	-0.355	-0.340	-0.309	-0.322	-0.354	-0.388	-0.426	-0.443	-0.411	-0.357	-0.304
Left elevon, lower surface											
23	-0.355	-0.336	-0.315	-0.324	-0.354	-0.377	-0.386	-0.415	-0.411	-0.355	-0.298
24	-0.380	-0.363	-0.330	-0.332	-0.362	-0.401	-0.416	-0.458	-0.456	-0.446	-0.405
25	-0.399	-0.370	-0.330	-0.337	-0.364	-0.401	-0.473	-0.483	-0.485	-0.450	-0.435
26	-0.397	-0.368	-0.326	-0.334	-0.364	-0.398	-0.500	-0.510	-0.495	-0.467	-0.450
27	-0.380	-0.359	-0.322	-0.332	-0.362	-0.388	-0.525	-0.525	-0.508	-0.481	-0.466
28	-0.422	-0.395	-0.339	-0.343	-0.369	-0.407	-0.513	-0.525	-0.510	-0.488	-0.477
29	-0.422	-0.399	-0.345	-0.347	-0.375	-0.411	-0.494	-0.504	-0.508	-0.479	-0.456
30	-0.355	-0.353	-0.337	-0.347	-0.375	-0.411	-0.454	-0.483	-0.495	-0.452	-0.435
31	-0.305	-0.298	-0.337	-0.351	-0.371	-0.379	-0.405	-0.451	-0.436	-0.404	-0.342
32	-0.338	-0.357	-0.349	-0.349	-0.375	-0.407	-0.439	-0.449	-0.438	-0.408	-0.378
33	-0.404	-0.404	-0.349	-0.345	-0.371	-0.411	-0.525	-0.523	-0.508	-0.479	-0.458
34	0.410	0.485	0.131	0.023	-0.069	-0.035	-0.154	-0.230	-0.197	-0.204	-0.401
35	0.665	0.752	0.214	0.084	-0.001	-0.031	-0.099	-0.238	-0.240	-0.257	-0.359
36	0.987	1.003	0.383	0.186	0.111	0.001	-0.057	-0.173	-0.176	-0.237	-0.359
Left elevon flap, upper surface											
37	0.936	0.875	0.448	0.209	0.124	0.003	-0.089	-0.177	-0.187	-0.248	-0.380
38	0.873	0.818	0.633	0.296	-0.012	-0.202	-0.276	-0.249	-0.273	-0.326	-0.365
39	0.814	0.812	0.575	0.275	0.039	-0.111	-0.144	0.060	0.001	-0.118	-0.254
40	0.537	0.515	0.355	0.150	0.001	0.043	0.331	0.295	0.103	0.006	-0.053
41	1.245	1.261	1.257	1.250	1.248	1.245	1.244	1.244	1.244	1.243	1.238
42	-0.631	-0.633	-0.635	-0.641	-0.641	-0.643	-0.641	-0.643	-0.645	-0.637	-0.645
43	-0.633	-0.633	-0.633	-0.643	-0.639	-0.641	-0.641	-0.643	-0.643	-0.637	-0.641
44	0.417	0.351	0.230	0.078	0.074	0.092	0.013	-0.186	-0.195	-0.281	-0.259
45	0.500	0.413	0.464	0.470	0.620	0.766	0.808	0.503	0.526	0.249	0.105
46	0.752	0.548	0.772	0.550	0.410	0.791	0.795	0.695	0.412	0.115	-0.041
47	0.843	0.576	0.862	0.566	0.360	0.610	0.368	0.219	0.245	0.069	-0.140
48	0.717	0.586	0.936	1.000	1.017	1.009	1.030	0.925	0.658	0.453	0.412
49	0.601	0.476	0.871	1.128	1.138	1.091	1.188	1.078	0.067	-0.029	0.011
50	0.473	0.419	0.689	0.747	0.673	0.487	0.212	0.288	-0.101	-0.176	-0.173

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(a) M = 1.50, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.404	-0.398	-0.386	-0.347	-0.333	-0.341	-0.375	-0.394	-0.409	-0.413	-0.378
52	-0.429	-0.423	-0.416	-0.397	-0.373	-0.387	-0.392	-0.421	-0.451	-0.450	-0.392
53	-0.427	-0.423	-0.416	-0.399	-0.377	-0.389	-0.390	-0.421	-0.451	-0.450	-0.392
54	-0.450	-0.432	-0.426	-0.393	-0.389	-0.396	-0.396	-0.419	-0.442	-0.444	-0.390
55	-0.440	-0.425	-0.422	-0.397	-0.389	-0.404	-0.402	-0.425	-0.446	-0.446	-0.390
Right tip fin inner flap, inner surface											
56	-0.415	-0.411	-0.403	-0.366	-0.347	-0.356	-0.385	-0.404	-0.415	-0.419	-0.380
57	-0.436	-0.423	-0.413	-0.395	-0.377	-0.389	-0.402	-0.427	-0.451	-0.453	-0.392
58	-0.425	-0.419	-0.411	-0.391	-0.368	-0.385	-0.396	-0.423	-0.451	-0.448	-0.392
59	-0.419	-0.417	-0.411	-0.389	-0.360	-0.377	-0.390	-0.417	-0.446	-0.446	-0.390
60	-0.448	-0.430	-0.428	-0.406	-0.396	-0.408	-0.406	-0.429	-0.455	-0.453	-0.392
Left tip fin inner flap, outer surface											
61	0.538	0.480	0.109	-0.109	-0.268	-0.286	-0.278	-0.257	-0.323	-0.358	-0.300
62	0.643	0.593	0.339	0.181	0.139	-0.190	-0.159	-0.249	-0.346	-0.375	-0.309
63	0.649	0.502	0.382	0.209	0.148	-0.179	-0.186	-0.293	-0.384	-0.394	-0.326
64	0.727	0.518	0.287	0.040	-0.106	-0.114	-0.232	-0.337	-0.390	-0.396	-0.342
65	0.431	0.364	0.154	-0.054	-0.142	-0.198	-0.314	-0.385	-0.417	-0.411	-0.353
66	0.710	0.466	0.040	-0.098	-0.114	-0.156	-0.276	-0.327	-0.352	-0.377	-0.353
67	0.517	0.326	-0.040	-0.153	-0.156	-0.272	-0.343	-0.385	-0.404	-0.413	-0.355
68	0.168	0.119	-0.152	-0.235	-0.245	-0.341	-0.366	-0.400	-0.413	-0.413	-0.355
Left tip fin outer flap, outer surface											
69	-0.072	0.049	0.063	0.062	0.037	-0.003	-0.048	-0.092	-0.120	-0.151	-0.169
70	-0.070	-0.017	0.012	0.051	0.081	0.077	0.070	0.059	0.042	0.015	-0.004
71	-0.020	0.036	0.050	0.066	0.083	0.098	0.066	0.049	0.014	-0.012	-0.039
72	-0.077	-0.021	0.019	0.045	0.062	0.064	0.053	0.049	0.042	0.029	0.044
73	-0.077	-0.032	-0.000	0.030	0.060	0.060	0.047	0.044	0.035	0.036	0.051
74	-0.093	-0.059	-0.028	0.003	0.032	0.014	-0.002	-0.016	-0.034	-0.046	-0.037
Left tip fin, inner surface											
75	0.202	0.006	-0.266	-0.334	-0.433	-0.295	-0.278	-0.225	-0.245	-0.308	-0.309
76	0.165	0.044	-0.196	-0.248	-0.293	-0.167	-0.188	-0.285	-0.356	-0.419	-0.365
Center fin, left surface											
77	0.526	0.436	0.573	0.531	0.421	0.390	0.185	0.177	-0.063	-0.233	-0.392
78	0.450	0.396	0.470	0.291	0.135	0.274	0.292	0.334	0.004	0.122	-0.238
Body											
79	0.131	0.070	-0.004	-0.094	-0.171	-0.240	-0.304	-0.348	-0.386	-0.411	-0.436
80	-0.012	-0.074	-0.122	-0.147	-0.163	-0.185	-0.218	-0.245	-0.266	-0.287	-0.284
81	0.108	0.047	-0.028	-0.084	-0.148	-0.209	-0.274	-0.341	-0.392	-0.434	-0.468
82	-0.255	-0.169	-0.087	-0.014	0.064	0.136	0.210	0.290	0.366	0.465	0.556
83	0.192	0.290	0.407	0.531	0.566	0.793	0.919	1.043	1.154	1.258	-0.742

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.277	-0.301	-0.311	-0.337	-0.345	-0.351	-0.385	-0.413	-0.459	-0.437	-0.390
2	-0.337	-0.326	-0.315	-0.339	-0.343	-0.354	-0.374	-0.409	-0.442	-0.443	-0.392
3	-0.468	-0.436	-0.372	-0.352	-0.345	-0.375	-0.396	-0.405	-0.442	-0.430	-0.359
4	-0.313	-0.320	-0.317	-0.348	-0.349	-0.358	-0.396	-0.434	-0.485	-0.458	-0.401
5	-0.362	-0.343	-0.321	-0.343	-0.345	-0.360	-0.374	-0.407	-0.459	-0.445	-0.392
6	-0.472	-0.457	-0.400	-0.354	-0.347	-0.364	-0.389	-0.407	-0.442	-0.441	-0.373
7	-0.317	-0.318	-0.317	-0.348	-0.351	-0.358	-0.389	-0.415	-0.461	-0.441	-0.386
8	-0.345	-0.335	-0.317	-0.335	-0.336	-0.349	-0.364	-0.398	-0.438	-0.437	-0.380
9	-0.282	-0.383	-0.355	-0.343	-0.341	-0.360	-0.383	-0.400	-0.438	-0.437	-0.371
Right elevon, upper surface											
10	-0.311	-0.318	-0.317	-0.348	-0.353	-0.358	-0.389	-0.430	-0.480	-0.445	-0.386
11	-0.349	-0.337	-0.317	-0.337	-0.336	-0.351	-0.366	-0.398	-0.440	-0.437	-0.380
12	-0.292	-0.398	-0.368	-0.345	-0.343	-0.360	-0.385	-0.400	-0.442	-0.437	-0.373
13	-0.306	-0.318	-0.315	-0.345	-0.347	-0.354	-0.398	-0.449	-0.506	-0.464	-0.399
14	-0.364	-0.345	-0.323	-0.343	-0.341	-0.356	-0.376	-0.407	-0.464	-0.445	-0.390
15	-0.305	-0.318	-0.326	-0.354	-0.362	-0.366	-0.400	-0.411	-0.434	-0.405	-0.392
16	0.203	-0.324	-0.186	-0.240	-0.283	-0.307	-0.400	-0.417	-0.451	-0.416	-0.356
17	-0.396	-0.373	-0.362	-0.343	-0.353	-0.368	-0.364	-0.386	-0.389	-0.340	-0.278
18	-0.334	-0.328	-0.319	-0.318	-0.319	-0.343	-0.357	-0.379	-0.394	-0.384	-0.348
Right elevon, side surface											
19	-0.337	-0.313	-0.336	-0.362	-0.347	-0.334	-0.326	-0.365	-0.364	-0.308	-0.247
20	-0.347	-0.354	-0.355	-0.377	-0.444	-0.436	-0.470	-0.465	-0.438	-0.397	-0.325
Right elevon well, left surface											
21	-0.347	-0.351	-0.357	-0.379	-0.442	-0.430	-0.453	-0.460	-0.425	-0.390	-0.321
Right elevon well, right surface											
22	-0.347	-0.345	-0.355	-0.367	-0.429	-0.430	-0.453	-0.462	-0.432	-0.378	-0.318
Left elevon, lower surface											
23	-0.370	-0.362	-0.355	-0.362	-0.398	-0.421	-0.440	-0.449	-0.428	-0.388	-0.264
24	-0.408	-0.396	-0.376	-0.364	-0.368	-0.406	-0.468	-0.438	-0.423	-0.401	-0.314
25	-0.387	-0.379	-0.379	-0.373	-0.410	-0.487	-0.508	-0.485	-0.457	-0.430	-0.394
26	-0.379	-0.375	-0.379	-0.379	-0.446	-0.514	-0.518	-0.500	-0.476	-0.449	-0.418
27	-0.373	-0.366	-0.370	-0.386	-0.459	-0.523	-0.537	-0.515	-0.495	-0.468	-0.443
28	-0.402	-0.400	-0.395	-0.396	-0.455	-0.523	-0.537	-0.517	-0.499	-0.479	-0.460
29	-0.408	-0.402	-0.395	-0.400	-0.442	-0.487	-0.514	-0.508	-0.489	-0.477	-0.426
30	-0.381	-0.375	-0.374	-0.308	-0.410	-0.451	-0.495	-0.491	-0.457	-0.460	-0.352
31	-0.341	-0.349	-0.364	-0.362	-0.379	-0.377	-0.402	-0.409	-0.419	-0.399	-0.356
32	-0.392	-0.377	-0.385	-0.390	-0.417	-0.394	-0.442	-0.424	-0.419	-0.392	-0.356
33	-0.423	-0.421	-0.412	-0.407	-0.463	-0.525	-0.527	-0.510	-0.497	-0.477	-0.464
34	0.415	0.207	0.071	-0.037	-0.006	-0.119	-0.078	-0.165	-0.188	-0.177	-0.086
35	0.586	0.326	0.211	0.060	0.007	-0.112	-0.071	-0.003	-0.102	-0.177	-0.110
36	0.787	0.512	0.376	0.246	0.064	-0.098	-0.012	0.011	-0.023	-0.199	-0.179
Left elevon flap, upper surface											
37	0.770	0.550	0.401	0.314	0.064	-0.123	-0.076	-0.149	-0.136	-0.188	-0.253
38	0.648	0.478	0.225	0.090	-0.052	-0.074	-0.169	-0.132	-0.112	-0.169	-0.253
39	0.641	0.461	0.249	0.113	0.020	0.072	-0.124	-0.147	-0.053	0.187	-0.190
40	0.501	0.328	0.138	0.027	-0.016	0.082	-0.150	-0.174	-0.083	-0.072	0.028
41	1.249	1.246	1.249	1.248	1.248	1.248	1.248	1.247	1.246	1.241	1.243
42	-0.641	-0.641	-0.643	-0.641	-0.643	-0.643	-0.646	-0.641	-0.645	-0.643	-0.643
43	-0.639	-0.643	-0.643	-0.641	-0.643	-0.641	-0.643	-0.641	-0.641	-0.645	-0.641
44	0.430	0.260	0.074	0.061	0.250	-0.093	-0.120	-0.209	-0.204	-0.227	0.146
45	0.566	0.435	0.202	0.166	0.288	0.458	0.172	-0.148	-0.185	0.048	0.190
46	0.749	0.628	0.294	0.090	0.005	-0.017	0.263	0.201	0.131	0.259	-0.176
47	0.782	0.585	0.303	0.027	-0.105	-0.206	-0.080	-0.083	-0.087	-0.207	-0.258
48	1.032	1.036	0.933	0.689	1.044	0.859	0.731	0.215	-0.235	-0.253	-0.220
49	1.020	0.998	0.883	0.870	1.172	1.193	1.011	-0.154	-0.225	-0.284	-0.124
50	0.789	0.752	0.814	0.695	0.571	0.935	-0.168	-0.182	-0.250	-0.284	0.125

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
	Right tip fin outer flap, inner surface										
51	-0.417	-0.397	-0.389	-0.343	-0.282	-0.271	-0.309	-0.309	-0.363	-0.386	-0.346
52	-0.492	-0.473	-0.454	-0.406	-0.364	-0.358	-0.353	-0.368	-0.392	-0.393	-0.367
53	-0.498	-0.473	-0.446	-0.410	-0.370	-0.362	-0.355	-0.370	-0.392	-0.393	-0.367
54	-0.482	-0.452	-0.431	-0.400	-0.372	-0.358	-0.347	-0.356	-0.390	-0.393	-0.367
55	-0.482	-0.452	-0.439	-0.406	-0.379	-0.372	-0.360	-0.368	-0.396	-0.395	-0.369
	Right tip fin inner flap, inner surface										
56	-0.438	-0.414	-0.410	-0.355	-0.295	-0.290	-0.315	-0.318	-0.367	-0.390	-0.354
57	-0.488	-0.458	-0.446	-0.397	-0.366	-0.362	-0.353	-0.370	-0.394	-0.395	-0.369
58	-0.484	-0.452	-0.442	-0.393	-0.362	-0.353	-0.349	-0.364	-0.390	-0.395	-0.369
59	-0.480	-0.446	-0.437	-0.385	-0.347	-0.341	-0.341	-0.358	-0.386	-0.393	-0.369
60	-0.505	-0.477	-0.450	-0.416	-0.381	-0.383	-0.374	-0.387	-0.407	-0.395	-0.369
	Left tip fin inner flap, outer surface										
61	0.358	-0.147	-0.336	-0.418	-0.353	-0.397	-0.416	-0.448	-0.392	-0.378	-0.227
62	0.692	0.453	0.061	-0.236	-0.238	-0.299	-0.383	-0.370	-0.363	-0.380	-0.227
63	0.568	0.460	0.271	-0.065	-0.200	-0.252	-0.368	-0.370	-0.388	-0.407	-0.248
64	0.642	0.412	0.251	0.166	-0.137	-0.196	-0.297	-0.311	-0.365	-0.397	-0.239
65	0.421	0.260	0.172	0.086	-0.160	-0.242	-0.345	-0.377	-0.405	-0.422	-0.264
66	0.461	0.174	0.017	-0.215	-0.143	-0.234	-0.292	-0.328	-0.317	-0.349	-0.231
67	0.369	0.098	-0.057	-0.227	-0.225	-0.309	-0.379	-0.416	-0.398	-0.413	-0.260
68	0.136	-0.047	-0.130	-0.259	-0.297	-0.366	-0.404	-0.435	-0.409	-0.418	-0.271
	Left tip fin outer flap, outer surface										
69	0.220	0.199	0.187	0.153	0.105	0.061	0.025	-0.011	-0.049	-0.056	-0.070
70	0.104	0.126	0.149	0.159	0.170	0.178	0.185	0.178	0.169	0.146	0.156
71	0.157	0.164	0.174	0.176	0.183	0.189	0.181	0.165	0.154	0.115	0.098
72	0.069	0.115	0.139	0.149	0.159	0.172	0.183	0.184	0.190	0.186	0.188
73	0.075	0.098	0.122	0.136	0.155	0.170	0.178	0.180	0.183	0.174	0.179
74	0.045	0.063	0.086	0.105	0.117	0.120	0.120	0.109	0.100	0.078	0.077
	Left tip fin, inner surface										
75	-0.141	-0.248	-0.362	-0.446	-0.439	-0.423	-0.427	-0.448	-0.384	-0.301	-0.185
76	0.008	-0.162	-0.257	-0.358	-0.286	-0.257	-0.271	-0.311	-0.259	-0.332	-0.252
	Center fin, left surface										
77	0.661	0.515	0.462	0.309	0.315	0.231	0.147	-0.290	-0.323	-0.374	-0.262
78	0.512	0.571	0.481	0.344	0.407	0.399	0.403	0.230	0.194	0.057	-0.254
	Body										
79	0.192	0.119	0.040	-0.025	-0.093	-0.158	-0.217	-0.269	-0.300	-0.338	-0.355
80	0.016	-0.055	-0.114	-0.158	-0.187	-0.206	-0.227	-0.245	-0.271	-0.303	-0.336
81	0.081	0.029	-0.040	-0.086	-0.147	-0.215	-0.280	-0.341	-0.382	-0.422	-0.453
82	-0.177	-0.131	-0.084	-0.042	-0.000	0.052	0.111	0.186	0.267	0.355	0.437
83	0.213	0.304	0.418	0.544	0.666	0.790	0.916	1.033	1.144	1.248	1.333

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1	-0.373	-0.392	-0.422	-0.428	-0.409	-0.433	-0.500	-0.467	-0.475	-0.461
2	-0.388	-0.390	-0.411	-0.403	-0.424	-0.426	-0.443	-0.448	-0.449	-0.444
3	-0.451	-0.468	-0.449	-0.437	-0.369	-0.378	-0.424	-0.445	-0.464	-0.454
4	-0.392	-0.426	-0.445	-0.434	-0.420	-0.456	-0.546	-0.475	-0.489	-0.477
5	-0.392	-0.401	-0.415	-0.420	-0.409	-0.416	-0.456	-0.473	-0.479	-0.465
6	-0.479	-0.496	-0.491	-0.445	-0.390	-0.395	-0.435	-0.452	-0.464	-0.450
7	-0.390	-0.409	-0.426	-0.430	-0.420	-0.429	-0.450	-0.467	-0.481	-0.475
8	-0.390	-0.392	-0.403	-0.407	-0.390	-0.399	-0.429	-0.435	-0.443	-0.442
9	-0.432	-0.437	-0.430	-0.426	-0.377	-0.382	-0.429	-0.444	-0.460	-0.444
Right elevon, upper surface										
10	-0.368	-0.409	-0.426	-0.430	-0.418	-0.431	-0.452	-0.469	-0.485	-0.475
11	-0.390	-0.394	-0.409	-0.409	-0.388	-0.399	-0.441	-0.458	-0.468	-0.456
12	-0.458	-0.464	-0.451	-0.430	-0.380	-0.384	-0.433	-0.450	-0.454	-0.448
13	-0.388	-0.437	-0.464	-0.437	-0.420	-0.452	-0.420	-0.473	-0.492	-0.482
14	-0.394	-0.405	-0.420	-0.426	-0.405	-0.412	-0.452	-0.475	-0.481	-0.469
15	-0.327	-0.339	-0.369	-0.409	-0.411	-0.374	-0.218	-0.473	-0.489	-0.479
16	0.057	-0.232	-0.327	-0.430	-0.375	-0.380	-0.429	-0.445	-0.471	-0.463
17	-0.325	-0.358	-0.369	-0.386	-0.382	-0.365	-0.370	-0.378	-0.359	-0.320
18	-0.323	-0.358	-0.367	-0.373	-0.373	-0.368	-0.355	-0.349	-0.359	-0.326
Right elevon, side surface										
19	-0.369	-0.350	-0.356	-0.361	-0.405	-0.431	-0.464	-0.505	-0.508	-0.463
20	-0.356	-0.314	-0.320	-0.346	-0.346	-0.368	-0.418	-0.463	-0.433	-0.379
Right elevon well, left surface										
21	-0.350	-0.314	-0.314	-0.337	-0.346	-0.368	-0.403	-0.427	-0.388	-0.337
Right elevon well, right surface										
22	-0.346	-0.310	-0.312	-0.331	-0.346	-0.368	-0.374	-0.400	-0.374	-0.311
Left elevon, lower surface										
23	-0.335	-0.304	-0.312	-0.335	-0.348	-0.363	-0.346	-0.362	-0.374	-0.313
24	-0.375	-0.337	-0.327	-0.342	-0.348	-0.378	-0.380	-0.404	-0.455	-0.456
25	-0.371	-0.337	-0.327	-0.339	-0.346	-0.376	-0.384	-0.465	-0.487	-0.469
26	-0.365	-0.331	-0.325	-0.337	-0.344	-0.370	-0.399	-0.495	-0.508	-0.482
27	-0.363	-0.327	-0.323	-0.337	-0.342	-0.363	-0.403	-0.524	-0.515	-0.486
28	-0.396	-0.356	-0.335	-0.348	-0.340	-0.372	-0.397	-0.511	-0.521	-0.496
29	-0.403	-0.363	-0.335	-0.339	-0.342	-0.380	-0.395	-0.481	-0.502	-0.482
30	-0.373	-0.344	-0.325	-0.337	-0.346	-0.384	-0.393	-0.425	-0.485	-0.471
31	-0.323	-0.312	-0.314	-0.331	-0.342	-0.378	-0.384	-0.439	-0.481	-0.425
32	-0.382	-0.356	-0.335	-0.333	-0.337	-0.380	-0.389	-0.475	-0.468	-0.440
33	-0.432	-0.380	-0.344	-0.335	-0.337	-0.374	-0.397	-0.498	-0.475	-0.437
34	0.444	0.283	0.197	0.099	0.017	-0.052	-0.075	-0.133	-0.216	-0.421
35	0.777	0.534	0.387	0.226	0.070	-0.012	-0.106	-0.204	-0.272	-0.395
36	1.229	0.893	0.644	0.418	0.175	0.032	-0.073	-0.168	-0.243	-0.414
Left elevon flap, upper surface										
37	1.001	0.880	0.690	0.492	0.165	-0.012	-0.075	-0.244	-0.266	-0.402
38	1.096	0.834	0.743	0.716	0.317	0.113	-0.010	-0.187	-0.323	-0.419
39	1.235	0.716	0.638	0.686	0.289	0.148	0.127	-0.099	-0.251	-0.341
40	0.667	0.408	0.368	0.446	0.279	0.300	0.405	0.076	-0.032	-0.234
41	1.241	1.239	1.241	1.241	1.241	1.237	1.237	1.236	1.239	1.239
42	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.645	-0.639
43	-0.641	-0.641	-0.641	-0.641	-0.643	-0.645	-0.641	-0.641	-0.643	-0.637
44	0.427	0.302	0.253	0.292	0.150	0.059	0.006	0.202	0.015	-0.007
45	0.466	0.445	0.458	0.812	0.726	0.714	0.474	0.983	0.941	0.582
46	0.942	0.334	0.929	1.199	1.206	1.193	1.191	0.862	0.510	0.227
47	0.967	0.909	0.936	0.925	0.913	0.881	0.848	0.516	0.352	0.054
48	0.393	0.495	0.567	0.641	0.740	0.854	0.963	0.822	0.883	0.431
49	0.452	0.571	0.869	0.827	0.955	0.980	1.040	1.129	1.101	0.653
50	0.351	0.382	0.557	0.835	0.655	0.867	0.443	1.059	0.831	0.383

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51	-0.388	-0.372	-0.377	-0.384	-0.370	-0.384	-0.401	-0.391	-0.410	-0.418
52	-0.407	-0.391	-0.400	-0.403	-0.393	-0.401	-0.420	-0.447	-0.481	-0.480
53	-0.405	-0.387	-0.392	-0.396	-0.393	-0.392	-0.416	-0.447	-0.479	-0.478
54	-0.413	-0.406	-0.405	-0.399	-0.410	-0.409	-0.426	-0.445	-0.468	-0.466
55	-0.402	-0.398	-0.400	-0.401	-0.410	-0.415	-0.432	-0.451	-0.473	-0.472
Right tip fin inner flap, inner surface										
56	-0.398	-0.385	-0.392	-0.394	-0.385	-0.403	-0.413	-0.418	-0.433	-0.432
57	-0.411	-0.393	-0.400	-0.403	-0.399	-0.413	-0.432	-0.453	-0.483	-0.483
58	-0.405	-0.389	-0.396	-0.401	-0.393	-0.407	-0.426	-0.449	-0.483	-0.483
59	-0.400	-0.383	-0.390	-0.396	-0.387	-0.399	-0.416	-0.443	-0.477	-0.478
60	-0.415	-0.410	-0.415	-0.413	-0.414	-0.420	-0.439	-0.453	-0.479	-0.478
Left tip fin inner flap, outer surface										
61	0.404	0.460	0.395	0.348	0.175	-0.074	-0.203	-0.161	-0.254	-0.330
62	0.655	0.590	0.508	0.292	0.135	-0.095	-0.100	-0.080	-0.229	-0.362
63	0.640	0.535	0.452	0.204	0.104	-0.106	-0.150	-0.153	-0.277	-0.399
64	0.747	0.545	0.473	0.020	-0.017	-0.051	-0.198	-0.224	-0.287	-0.399
65	0.452	0.374	0.258	-0.037	-0.082	-0.143	-0.309	-0.332	-0.358	-0.414
66	0.762	0.561	0.162	-0.018	-0.049	-0.108	-0.219	-0.242	-0.315	-0.403
67	0.458	0.336	0.094	-0.095	-0.134	-0.229	-0.322	-0.345	-0.375	-0.414
68	0.136	0.050	-0.070	-0.215	-0.247	-0.325	-0.349	-0.364	-0.379	-0.412
Left tip fin outer flap, outer surface										
69	-0.371	-0.244	-0.086	0.005	-0.013	-0.054	-0.090	-0.151	-0.206	-0.222
70	-0.239	-0.179	-0.105	-0.047	-0.001	0.018	0.013	-0.069	-0.089	-0.097
71	-0.201	-0.137	-0.061	-0.028	0.008	0.026	0.013	-0.080	-0.104	-0.117
72	-0.222	-0.164	-0.084	-0.047	0.004	0.009	-0.035	-0.085	-0.087	-0.117
73	-0.218	-0.160	-0.099	-0.056	-0.001	0.009	-0.044	-0.084	-0.083	-0.107
74	-0.225	-0.173	-0.116	-0.074	-0.032	-0.035	-0.092	-0.136	-0.146	-0.182
Left tip fin, inner surface										
75	0.379	0.189	-0.084	-0.194	-0.238	-0.250	-0.182	-0.163	-0.275	-0.276
76	0.320	0.067	-0.097	-0.154	-0.184	-0.129	-0.198	-0.249	-0.333	-0.424
Center fin, left surface										
77	0.222	0.184	0.257	0.490	0.415	0.444	0.251	0.235	0.002	0.012
78	0.117	-0.017	0.069	0.099	0.083	0.038	0.017	-0.098	-0.252	-0.113
Body										
79	0.087	0.037	-0.021	-0.089	-0.176	-0.286	-0.370	-0.420	-0.448	-0.474
80	0.066	-0.070	-0.132	-0.183	-0.218	-0.248	-0.267	-0.280	-0.296	-0.330
81	0.169	0.088	0.035	-0.028	-0.092	-0.155	-0.219	-0.284	-0.331	-0.376
82	-0.346	-0.246	-0.134	-0.030	0.081	0.181	0.280	0.380	0.487	0.580
83	0.196	0.694	0.410	0.534	0.671	0.798	0.923	1.044	1.151	1.252

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.261	-0.270	-0.287	-0.311	-0.310	-0.328	-0.348	-0.351	-0.357	-0.353	-0.351
2	-0.270	-0.274	-0.278	-0.281	-0.297	-0.308	-0.328	-0.342	-0.357	-0.355	-0.357
3	-0.358	-0.373	-0.338	-0.301	-0.303	-0.310	-0.328	-0.353	-0.363	-0.361	-0.359
4	-0.294	-0.299	-0.311	-0.344	-0.338	-0.365	-0.383	-0.386	-0.392	-0.388	-0.382
5	-0.288	-0.299	-0.311	-0.311	-0.310	-0.328	-0.346	-0.371	-0.377	-0.374	-0.367
6	-0.365	-0.385	-0.359	-0.307	-0.308	-0.316	-0.336	-0.361	-0.377	-0.372	-0.369
7	-0.288	-0.297	-0.303	-0.328	-0.326	-0.340	-0.344	-0.365	-0.375	-0.372	-0.369
8	-0.276	-0.278	-0.280	-0.281	-0.306	-0.322	-0.340	-0.345	-0.349	-0.345	-0.349
9	-0.309	-0.330	-0.326	-0.303	-0.303	-0.314	-0.332	-0.355	-0.369	-0.366	-0.367
Right elevon, upper surface											
10	-0.288	-0.295	-0.303	-0.328	-0.326	-0.345	-0.346	-0.365	-0.373	-0.370	-0.367
11	-0.288	-0.295	-0.299	-0.305	-0.303	-0.320	-0.338	-0.363	-0.373	-0.368	-0.365
12	-0.325	-0.338	-0.336	-0.305	-0.303	-0.314	-0.332	-0.359	-0.371	-0.368	-0.367
13	-0.288	-0.295	-0.322	-0.340	-0.338	-0.345	-0.330	-0.361	-0.369	-0.370	-0.371
14	-0.288	-0.299	-0.305	-0.313	-0.312	-0.328	-0.342	-0.367	-0.375	-0.372	-0.367
15	-0.266	-0.272	-0.274	-0.289	-0.299	-0.246	-0.287	-0.342	-0.355	-0.357	-0.371
16	-0.008	-0.123	-0.247	-0.293	-0.285	-0.312	-0.320	-0.347	-0.363	-0.363	-0.357
17	-0.247	-0.278	-0.284	-0.299	-0.299	-0.304	-0.289	-0.285	-0.271	-0.229	-0.144
18	-0.243	-0.276	-0.276	-0.281	-0.281	-0.287	-0.276	-0.258	-0.252	-0.235	-0.218
Right elevon, side surface											
19	-0.278	-0.292	-0.272	-0.324	-0.322	-0.336	-0.350	-0.353	-0.283	-0.235	-0.193
20	-0.288	-0.278	-0.266	-0.324	-0.324	-0.345	-0.355	-0.338	-0.310	-0.274	-0.240
Right elevon well, left surface											
21	-0.290	-0.278	-0.266	-0.324	-0.324	-0.328	-0.355	-0.340	-0.310	-0.272	-0.228
Right elevon well, right surface											
22	-0.290	-0.274	-0.262	-0.326	-0.326	-0.338	-0.344	-0.334	-0.310	-0.262	-0.214
Left elevon, lower surface											
23	-0.284	-0.272	-0.266	-0.328	-0.328	-0.320	-0.332	-0.326	-0.310	-0.255	-0.208
24	-0.309	-0.295	-0.278	-0.313	-0.310	-0.334	-0.348	-0.351	-0.349	-0.327	-0.302
25	-0.309	-0.297	-0.278	-0.348	-0.340	-0.363	-0.359	-0.361	-0.349	-0.325	-0.306
26	-0.305	-0.295	-0.274	-0.363	-0.361	-0.365	-0.367	-0.369	-0.357	-0.333	-0.316
27	-0.299	-0.288	-0.272	-0.363	-0.361	-0.365	-0.383	-0.371	-0.357	-0.333	-0.318
28	-0.332	-0.315	-0.280	-0.357	-0.355	-0.361	-0.381	-0.371	-0.357	-0.335	-0.322
29	-0.336	-0.319	-0.284	-0.348	-0.344	-0.363	-0.365	-0.371	-0.361	-0.341	-0.324
30	-0.305	-0.292	-0.280	-0.324	-0.324	-0.357	-0.361	-0.367	-0.357	-0.335	-0.318
31	-0.270	-0.255	-0.280	-0.309	-0.308	-0.324	-0.338	-0.336	-0.320	-0.292	-0.269
32	-0.278	-0.299	-0.287	-0.342	-0.338	-0.345	-0.330	-0.330	-0.316	-0.286	-0.263
33	-0.319	-0.336	-0.287	-0.353	-0.347	-0.365	-0.373	-0.363	-0.353	-0.331	-0.316
34	0.496	0.211	0.016	-0.110	-0.111	-0.177	-0.223	-0.107	-0.222	-0.306	-0.337
35	0.857	0.353	0.063	-0.081	-0.080	-0.164	-0.213	-0.129	-0.193	-0.270	-0.312
36	1.207	0.590	0.226	-0.017	-0.016	-0.109	-0.202	-0.119	-0.197	-0.270	-0.328
Left elevon flap, upper surface											
37	1.088	0.671	0.372	-0.007	-0.008	-0.105	-0.186	-0.109	-0.217	-0.290	-0.347
38	1.112	0.761	0.327	0.079	0.095	-0.078	-0.137	-0.168	-0.191	-0.215	-0.292
39	1.162	0.658	0.261	0.042	0.049	-0.080	0.053	0.041	-0.025	-0.076	-0.189
40	0.813	0.429	0.131	-0.057	-0.049	0.397	-0.030	-0.152	-0.158	-0.147	-0.155
41	1.415	1.413	1.410	1.407	1.403	1.402	1.412	1.407	1.404	1.395	1.396
42	-0.443	-0.449	-0.449	-0.449	-0.449	-0.449	-0.445	-0.445	-0.449	-0.445	-0.451
43	-0.445	-0.449	-0.449	-0.451	-0.451	-0.451	-0.447	-0.447	-0.451	-0.447	-0.453
44	0.501	0.281	0.080	0.118	0.088	-0.090	-0.150	-0.203	-0.209	-0.212	-0.202
45	0.426	0.361	0.284	0.482	0.460	0.778	0.565	0.621	0.480	0.294	-0.125
46	0.596	0.525	0.494	0.124	0.129	0.480	0.742	0.407	0.183	0.017	-0.162
47	0.564	0.817	0.607	0.030	0.041	-0.014	0.237	0.159	0.025	-0.084	-0.196
48	0.435	0.573	0.877	1.053	1.053	1.061	0.886	0.515	0.333	0.251	0.101
49	0.566	0.582	0.833	1.189	1.176	0.872	0.594	0.331	-0.059	-0.116	-0.160
50	0.459	0.411	0.706	0.597	0.564	0.113	0.072	-0.094	-0.158	-0.200	-0.213

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(d) M = 1.80, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.300	-0.311	-0.284	-0.283	-0.283	-0.301	-0.311	-0.324	-0.328	-0.331	-0.327
52	-0.327	-0.338	-0.311	-0.309	-0.308	-0.318	-0.328	-0.353	-0.363	-0.365	-0.345
53	-0.327	-0.340	-0.309	-0.313	-0.312	-0.318	-0.328	-0.353	-0.363	-0.367	-0.345
54	-0.350	-0.358	-0.313	-0.320	-0.320	-0.324	-0.328	-0.351	-0.359	-0.365	-0.345
55	-0.344	-0.352	-0.313	-0.322	-0.320	-0.326	-0.330	-0.351	-0.359	-0.365	-0.345
Right tip fin inner flap, inner surface											
56	-0.319	-0.325	-0.305	-0.303	-0.303	-0.312	-0.321	-0.334	-0.338	-0.343	-0.333
57	-0.329	-0.342	-0.311	-0.309	-0.308	-0.324	-0.330	-0.353	-0.363	-0.365	-0.343
58	-0.323	-0.332	-0.307	-0.305	-0.306	-0.322	-0.330	-0.353	-0.363	-0.365	-0.343
59	-0.323	-0.327	-0.305	-0.301	-0.301	-0.316	-0.325	-0.351	-0.363	-0.363	-0.343
60	-0.350	-0.358	-0.322	-0.324	-0.324	-0.328	-0.334	-0.353	-0.363	-0.367	-0.347
Left tip fin inner flap, outer surface											
61	0.616	0.213	-0.120	-0.260	-0.258	-0.281	-0.284	-0.293	-0.303	-0.310	-0.308
62	0.802	0.495	0.156	-0.172	-0.150	-0.197	-0.185	-0.244	-0.275	-0.304	-0.312
63	0.701	0.567	0.302	-0.143	-0.115	-0.162	-0.181	-0.264	-0.299	-0.325	-0.327
64	0.800	0.512	0.162	-0.155	-0.166	-0.141	-0.198	-0.279	-0.303	-0.325	-0.329
65	0.611	0.367	0.136	-0.139	-0.145	-0.189	-0.257	-0.324	-0.336	-0.343	-0.333
66	0.550	0.207	-0.046	-0.128	-0.123	-0.184	-0.235	-0.260	-0.305	-0.331	-0.333
67	0.414	0.101	-0.099	-0.180	-0.164	-0.250	-0.293	-0.320	-0.336	-0.341	-0.335
68	0.259	-0.004	-0.155	-0.242	-0.226	-0.289	-0.319	-0.332	-0.338	-0.339	-0.331
Left tip fin outer flap, outer surface											
69	0.082	0.066	0.070	0.038	0.041	0.002	-0.018	-0.024	-0.035	-0.051	-0.060
70	-0.005	0.015	0.041	0.067	0.066	0.072	0.083	0.070	0.064	0.061	0.065
71	0.022	0.038	0.059	0.083	0.082	0.091	0.081	0.066	0.058	0.055	0.050
72	-0.020	0.009	0.033	0.044	0.045	0.049	0.054	0.068	0.072	0.076	0.091
73	-0.020	0.005	0.026	0.042	0.041	0.047	0.056	0.075	0.068	0.080	0.099
74	-0.028	-0.010	0.006	0.022	0.023	0.021	0.029	0.036	0.023	0.029	0.042
Left tip fin, inner surface											
75	0.034	-0.121	-0.238	-0.320	-0.318	-0.322	-0.315	-0.270	-0.283	-0.288	-0.264
76	0.064	-0.082	-0.192	-0.272	-0.279	-0.209	-0.206	-0.219	-0.281	-0.310	-0.339
Center fin, left surface											
77	0.364	0.339	0.238	0.151	0.150	0.091	0.015	-0.127	-0.205	-0.241	-0.329
78	0.255	0.190	0.152	0.040	0.041	0.023	-0.014	-0.067	-0.104	-0.092	-0.190
Body											
79	0.121	0.060	-0.002	-0.124	-0.119	-0.170	-0.210	-0.236	-0.266	-0.282	-0.300
80	0.026	-0.043	-0.101	-0.159	-0.158	-0.170	-0.183	-0.194	-0.215	-0.233	-0.231
81	0.094	0.044	-0.009	-0.110	-0.104	-0.158	-0.206	-0.243	-0.283	-0.308	-0.327
82	-0.193	-0.125	-0.058	0.089	0.082	0.150	0.227	0.309	0.394	0.482	0.583
83	0.212	0.312	0.418	0.683	0.669	0.805	0.928	1.066	1.184	1.293	1.392

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.231	-0.263	-0.249	-0.273	-0.284	-0.306	-0.314	-0.327	-0.339	-0.343	-0.367
2	-0.273	-0.296	-0.261	-0.273	-0.286	-0.298	-0.314	-0.331	-0.357	-0.351	-0.357
3	-0.357	-0.343	-0.310	-0.292	-0.294	-0.312	-0.314	-0.335	-0.339	-0.345	-0.353
4	-0.267	-0.287	-0.270	-0.290	-0.300	-0.333	-0.349	-0.359	-0.374	-0.380	-0.392
5	-0.292	-0.296	-0.270	-0.279	-0.292	-0.302	-0.312	-0.333	-0.361	-0.354	-0.357
6	-0.359	-0.367	-0.331	-0.298	-0.294	-0.306	-0.312	-0.331	-0.341	-0.354	-0.357
7	-0.269	-0.283	-0.266	-0.288	-0.298	-0.316	-0.335	-0.345	-0.353	-0.351	-0.357
8	-0.282	-0.287	-0.263	-0.275	-0.288	-0.295	-0.306	-0.325	-0.345	-0.339	-0.343
9	-0.253	-0.312	-0.292	-0.288	-0.294	-0.304	-0.308	-0.325	-0.337	-0.351	-0.355
Right elevon, upper surface											
10	-0.265	-0.283	-0.266	-0.288	-0.298	-0.318	-0.335	-0.351	-0.370	-0.351	-0.357
11	-0.284	-0.289	-0.266	-0.275	-0.288	-0.298	-0.306	-0.325	-0.351	-0.351	-0.357
12	-0.267	-0.334	-0.300	-0.294	-0.294	-0.304	-0.312	-0.325	-0.337	-0.354	-0.357
13	-0.263	-0.283	-0.270	-0.288	-0.298	-0.326	-0.355	-0.369	-0.380	-0.347	-0.363
14	-0.294	-0.296	-0.270	-0.281	-0.290	-0.306	-0.314	-0.333	-0.361	-0.351	-0.357
15	-0.251	-0.281	-0.272	-0.292	-0.302	-0.298	-0.251	-0.310	-0.312	-0.305	-0.337
16	0.149	-0.050	-0.182	-0.177	-0.214	-0.290	-0.312	-0.337	-0.345	-0.337	-0.349
17	-0.284	-0.277	-0.282	-0.281	-0.284	-0.295	-0.300	-0.302	-0.290	-0.240	-0.178
18	-0.267	-0.263	-0.255	-0.265	-0.273	-0.288	-0.284	-0.302	-0.284	-0.250	-0.229
Right elevon, side surface											
19	-0.267	-0.257	-0.261	-0.288	-0.298	-0.275	-0.272	-0.290	-0.263	-0.213	-0.168
20	-0.302	-0.308	-0.290	-0.318	-0.339	-0.351	-0.370	-0.349	-0.321	-0.280	-0.245
Right elevon well, left surface											
21	-0.298	-0.308	-0.290	-0.320	-0.349	-0.343	-0.370	-0.351	-0.325	-0.280	-0.239
Right elevon well, right surface											
22	-0.286	-0.300	-0.290	-0.318	-0.351	-0.357	-0.361	-0.349	-0.325	-0.276	-0.231
Left elevon, lower surface											
23	-0.310	-0.298	-0.286	-0.314	-0.339	-0.347	-0.343	-0.337	-0.329	-0.284	-0.235
24	-0.361	-0.326	-0.302	-0.314	-0.335	-0.367	-0.347	-0.343	-0.333	-0.301	-0.270
25	-0.325	-0.322	-0.308	-0.322	-0.365	-0.378	-0.363	-0.355	-0.337	-0.305	-0.282
26	-0.318	-0.322	-0.310	-0.331	-0.378	-0.384	-0.378	-0.365	-0.345	-0.315	-0.296
27	-0.316	-0.318	-0.306	-0.335	-0.382	-0.398	-0.382	-0.369	-0.349	-0.323	-0.306
28	-0.329	-0.337	-0.331	-0.347	-0.380	-0.392	-0.384	-0.371	-0.351	-0.327	-0.312
29	-0.329	-0.330	-0.323	-0.339	-0.369	-0.380	-0.372	-0.369	-0.355	-0.331	-0.316
30	-0.329	-0.312	-0.302	-0.322	-0.347	-0.373	-0.365	-0.353	-0.353	-0.329	-0.310
31	-0.294	-0.304	-0.290	-0.294	-0.290	-0.306	-0.361	-0.333	-0.302	-0.270	-0.235
32	-0.318	-0.320	-0.308	-0.326	-0.322	-0.335	-0.339	-0.325	-0.298	-0.270	-0.237
33	-0.339	-0.345	-0.335	-0.355	-0.386	-0.390	-0.374	-0.363	-0.347	-0.319	-0.306
34	0.309	0.128	-0.004	-0.036	-0.104	-0.157	-0.212	-0.216	-0.231	-0.295	-0.323
35	0.507	0.298	0.153	0.021	-0.036	-0.136	-0.129	-0.077	-0.121	-0.221	-0.276
36	0.789	0.591	0.430	0.111	0.004	-0.106	-0.098	-0.033	-0.170	-0.238	-0.288
Left elevon flap, upper surface											
37	0.856	0.707	0.575	0.170	-0.016	-0.116	-0.135	-0.157	-0.227	-0.280	-0.321
38	0.527	0.314	0.191	0.091	0.045	-0.030	-0.153	-0.183	-0.011	-0.059	-0.094
39	0.470	0.296	0.216	0.074	0.070	0.003	-0.168	-0.208	0.316	0.206	0.118
40	0.335	0.204	0.102	0.007	0.039	-0.093	-0.217	-0.249	-0.078	-0.036	-0.113
41	1.397	1.397	1.397	1.397	1.396	1.395	1.395	1.393	1.390	1.391	1.391
42	-0.447	-0.451	-0.445	-0.449	-0.449	-0.451	-0.447	-0.449	-0.449	-0.445	-0.451
43	-0.449	-0.451	-0.447	-0.451	-0.449	-0.451	-0.449	-0.453	-0.451	-0.447	-0.453
44	0.279	0.151	0.019	0.062	0.252	-0.135	-0.205	-0.223	-0.193	-0.215	-0.237
45	0.391	0.198	0.072	0.037	-0.048	0.025	-0.243	-0.257	-0.032	0.229	0.327
46	0.522	0.300	0.109	-0.012	-0.123	0.051	-0.186	-0.208	0.110	0.295	0.307
47	0.549	0.318	0.109	-0.067	-0.158	-0.100	-0.027	-0.025	-0.101	-0.078	0.020
48	0.952	0.773	0.418	0.479	0.403	0.317	0.140	-0.064	-0.205	-0.209	-0.145
49	0.830	0.573	0.557	0.751	0.705	0.754	0.007	-0.078	-0.250	-0.209	-0.168
50	0.653	0.506	0.505	0.863	0.517	-0.173	-0.217	-0.231	-0.234	-0.201	-0.125

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.329	-0.300	-0.304	-0.267	-0.247	-0.271	-0.251	-0.268	-0.303	-0.317	-0.321
52	-0.382	-0.359	-0.349	-0.322	-0.304	-0.294	-0.290	-0.302	-0.319	-0.329	-0.335
53	-0.382	-0.359	-0.341	-0.326	-0.308	-0.296	-0.292	-0.304	-0.319	-0.329	-0.335
54	-0.374	-0.353	-0.333	-0.316	-0.310	-0.298	-0.288	-0.296	-0.315	-0.329	-0.335
55	-0.372	-0.351	-0.335	-0.318	-0.312	-0.304	-0.294	-0.302	-0.317	-0.331	-0.337
Right tip fin inner flap, inner surface											
56	-0.353	-0.323	-0.326	-0.288	-0.264	-0.278	-0.258	-0.272	-0.307	-0.321	-0.327
57	-0.378	-0.355	-0.341	-0.318	-0.306	-0.296	-0.288	-0.304	-0.319	-0.329	-0.335
58	-0.374	-0.353	-0.339	-0.316	-0.302	-0.292	-0.286	-0.302	-0.319	-0.329	-0.335
59	-0.370	-0.351	-0.337	-0.312	-0.294	-0.286	-0.280	-0.298	-0.317	-0.329	-0.333
60	-0.364	-0.361	-0.345	-0.331	-0.312	-0.303	-0.300	-0.310	-0.321	-0.331	-0.337
Left tip fin inner flap, outer surface											
61	-0.064	-0.174	-0.275	-0.324	-0.321	-0.324	-0.343	-0.357	-0.360	-0.337	-0.302
62	0.363	0.051	-0.179	-0.249	-0.276	-0.357	-0.376	-0.390	-0.317	-0.296	-0.302
63	0.687	0.326	-0.046	-0.104	-0.225	-0.347	-0.376	-0.384	-0.299	-0.306	-0.319
64	0.577	0.424	-0.024	-0.048	-0.262	-0.316	-0.372	-0.306	-0.258	-0.308	-0.327
65	0.489	0.367	0.207	-0.089	-0.202	-0.286	-0.339	-0.304	-0.299	-0.331	-0.333
66	0.465	0.269	0.044	-0.222	-0.139	-0.251	-0.288	-0.282	-0.307	-0.327	-0.333
67	0.365	0.204	-0.004	-0.216	-0.190	-0.265	-0.296	-0.316	-0.329	-0.337	-0.337
68	0.216	0.265	-0.093	-0.218	-0.243	-0.288	-0.313	-0.327	-0.341	-0.339	-0.333
Left tip fin outer flap, outer surface											
69	0.216	0.204	0.187	0.158	0.132	0.102	0.085	0.071	0.063	0.052	0.040
70	0.156	0.151	0.162	0.174	0.183	0.184	0.191	0.193	0.199	0.197	0.207
71	0.167	0.177	0.182	0.193	0.195	0.193	0.201	0.195	0.199	0.180	0.179
72	0.134	0.149	0.152	0.154	0.155	0.164	0.177	0.191	0.207	0.213	0.221
73	0.122	0.132	0.133	0.138	0.150	0.162	0.177	0.193	0.210	0.213	0.219
74	0.102	0.106	0.107	0.113	0.128	0.135	0.146	0.149	0.157	0.154	0.154
Left tip fin, inner surface											
75	-0.100	-0.210	-0.292	-0.355	-0.361	-0.369	-0.382	-0.372	-0.362	-0.339	-0.284
76	-0.055	-0.174	-0.300	-0.298	-0.339	-0.361	-0.394	-0.357	-0.278	-0.290	-0.315
Center fin, left surface											
77	0.367	0.385	0.230	0.158	0.179	0.084	-0.274	-0.295	-0.254	-0.278	-0.292
78	0.553	0.410	0.305	0.270	0.291	0.225	0.087	0.015	0.102	0.011	-0.245
Body											
79	0.191	0.128	0.068	0.015	-0.033	-0.088	-0.133	-0.166	-0.195	-0.221	-0.243
80	0.032	-0.033	-0.091	-0.132	-0.158	-0.177	-0.188	-0.204	-0.219	-0.241	-0.262
81	0.041	0.002	-0.048	-0.091	-0.133	-0.182	-0.231	-0.282	-0.311	-0.325	-0.347
82	-0.145	-0.102	-0.063	-0.022	0.026	0.076	0.148	0.220	0.305	0.386	0.472
83	0.218	0.318	0.418	0.540	0.670	0.801	0.928	1.054	1.173	1.283	1.383

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.294	-0.323	-0.337	-0.317	-0.325	-0.360	-0.335	-0.335	-0.331	-0.349	-0.357
2	-0.307	-0.325	-0.337	-0.315	-0.329	-0.339	-0.347	-0.359	-0.354	-0.370	-0.380
3	-0.355	-0.374	-0.339	-0.327	-0.323	-0.327	-0.339	-0.357	-0.346	-0.360	-0.372
4	-0.325	-0.364	-0.374	-0.339	-0.349	-0.392	-0.355	-0.361	-0.358	-0.370	-0.380
5	-0.315	-0.331	-0.337	-0.321	-0.331	-0.339	-0.351	-0.357	-0.356	-0.370	-0.378
6	-0.372	-0.394	-0.384	-0.331	-0.329	-0.333	-0.345	-0.357	-0.346	-0.368	-0.368
7	-0.323	-0.352	-0.357	-0.327	-0.335	-0.339	-0.353	-0.359	-0.360	-0.370	-0.374
8	-0.313	-0.327	-0.329	-0.313	-0.325	-0.333	-0.343	-0.343	-0.337	-0.368	-0.372
9	-0.339	-0.345	-0.337	-0.319	-0.325	-0.331	-0.343	-0.357	-0.343	-0.364	-0.366
Right elevon, upper surface											
10	-0.319	-0.352	-0.357	-0.329	-0.339	-0.339	-0.353	-0.359	-0.360	-0.370	-0.376
11	-0.313	-0.329	-0.331	-0.313	-0.325	-0.335	-0.347	-0.353	-0.352	-0.368	-0.372
12	-0.358	-0.366	-0.347	-0.321	-0.327	-0.333	-0.343	-0.357	-0.346	-0.364	-0.368
13	-0.325	-0.315	-0.321	-0.343	-0.351	-0.292	-0.355	-0.363	-0.362	-0.372	-0.390
14	-0.315	-0.331	-0.337	-0.323	-0.331	-0.337	-0.351	-0.359	-0.356	-0.372	-0.378
15	-0.203	-0.156	-0.176	-0.274	-0.268	-0.211	-0.349	-0.361	-0.362	-0.378	-0.378
16	-0.052	-0.150	-0.255	-0.321	-0.347	-0.351	-0.372	-0.363	-0.352	-0.362	-0.370
17	-0.268	-0.297	-0.298	-0.301	-0.298	-0.286	-0.315	-0.288	-0.256	-0.209	-0.134
18	-0.266	-0.297	-0.298	-0.294	-0.288	-0.284	-0.292	-0.265	-0.252	-0.231	-0.205
Right elevon, side surface											
19	-0.292	-0.301	-0.298	-0.305	-0.325	-0.364	-0.378	-0.370	-0.337	-0.347	-0.284
20	-0.274	-0.244	-0.259	-0.274	-0.288	-0.305	-0.353	-0.347	-0.319	-0.294	-0.254
Right elevon well, left surface											
21	-0.266	-0.240	-0.255	-0.274	-0.288	-0.303	-0.345	-0.331	-0.293	-0.256	-0.199
Right elevon well, right surface											
22	-0.264	-0.240	-0.255	-0.272	-0.292	-0.292	-0.321	-0.311	-0.272	-0.231	-0.178
Left elevon, lower surface											
23	-0.266	-0.240	-0.253	-0.272	-0.290	-0.282	-0.296	-0.304	-0.270	-0.229	-0.180
24	-0.288	-0.258	-0.264	-0.276	-0.294	-0.303	-0.317	-0.337	-0.335	-0.333	-0.307
25	-0.299	-0.260	-0.262	-0.274	-0.292	-0.303	-0.337	-0.355	-0.346	-0.337	-0.309
26	-0.292	-0.256	-0.262	-0.272	-0.288	-0.303	-0.351	-0.370	-0.356	-0.343	-0.321
27	-0.284	-0.252	-0.259	-0.272	-0.286	-0.296	-0.353	-0.380	-0.356	-0.343	-0.323
28	-0.311	-0.272	-0.266	-0.272	-0.282	-0.305	-0.353	-0.380	-0.358	-0.347	-0.329
29	-0.315	-0.276	-0.270	-0.272	-0.282	-0.307	-0.345	-0.363	-0.358	-0.347	-0.323
30	-0.278	-0.264	-0.264	-0.270	-0.282	-0.309	-0.329	-0.357	-0.350	-0.341	-0.317
31	-0.242	-0.240	-0.257	-0.266	-0.276	-0.303	-0.331	-0.372	-0.325	-0.307	-0.278
32	-0.280	-0.264	-0.268	-0.266	-0.275	-0.307	-0.347	-0.357	-0.327	-0.309	-0.284
33	-0.317	-0.297	-0.270	-0.268	-0.275	-0.307	-0.353	-0.374	-0.346	-0.327	-0.290
34	0.411	0.372	0.101	0.005	-0.030	-0.093	-0.098	-0.200	-0.212	-0.358	-0.339
35	0.664	0.611	0.271	0.078	0.009	-0.075	-0.158	-0.200	-0.240	-0.351	-0.345
36	0.999	0.882	0.531	0.214	0.080	-0.022	-0.117	-0.174	-0.240	-0.339	-0.345
Left elevon flap, upper surface											
37	1.024	0.384	0.646	0.263	0.111	0.007	-0.090	-0.162	-0.252	-0.337	-0.329
38	0.926	0.570	0.593	0.411	0.142	-0.042	-0.162	-0.235	-0.311	-0.337	-0.347
39	0.755	0.565	0.470	0.346	0.133	-0.001	-0.098	-0.205	-0.262	-0.276	-0.329
40	0.438	0.335	0.256	0.167	0.139	0.159	0.177	-0.103	-0.161	-0.197	-0.276
41	1.390	1.390	1.390	1.390	1.392	1.390	1.390	1.389	1.390	1.386	1.388
42	-0.445	-0.443	-0.449	-0.445	-0.447	-0.447	-0.449	-0.449	-0.443	-0.449	-0.449
43	-0.447	-0.445	-0.451	-0.447	-0.449	-0.447	-0.451	-0.451	-0.445	-0.451	-0.451
44	0.339	0.260	0.180	0.097	0.053	0.093	0.278	-0.005	-0.082	-0.210	-0.214
45	0.372	0.324	0.359	0.705	0.699	0.520	0.945	0.603	0.593	0.163	-0.197
46	0.727	0.526	0.826	0.954	1.065	1.105	0.894	0.795	0.121	-0.032	-0.256
47	0.929	0.814	0.948	0.399	0.878	0.801	0.632	0.424	-0.005	-0.178	-0.305
48	0.441	0.441	0.475	0.594	0.685	0.938	0.776	0.907	0.549	0.353	0.008
49	0.392	0.461	0.742	0.760	0.939	0.956	0.673	0.620	0.731	0.223	-0.000
50	0.276	0.282	0.551	0.744	0.687	0.502	0.321	0.133	0.528	-0.046	-0.153

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.305	-0.276	-0.309	-0.309	-0.307	-0.331	-0.349	-0.339	-0.319	-0.325	-0.331
52	-0.323	-0.306	-0.337	-0.333	-0.331	-0.357	-0.368	-0.370	-0.360	-0.354	-0.358
53	-0.325	-0.304	-0.333	-0.333	-0.333	-0.357	-0.370	-0.372	-0.362	-0.354	-0.360
54	-0.345	-0.318	-0.339	-0.333	-0.337	-0.357	-0.376	-0.368	-0.360	-0.352	-0.358
55	-0.339	-0.314	-0.337	-0.335	-0.337	-0.359	-0.376	-0.370	-0.360	-0.352	-0.358
Right tip fin inner flap, inner surface											
56	-0.315	-0.292	-0.327	-0.331	-0.327	-0.351	-0.368	-0.353	-0.344	-0.336	-0.341
57	-0.325	-0.310	-0.339	-0.337	-0.333	-0.361	-0.370	-0.372	-0.362	-0.356	-0.360
58	-0.319	-0.304	-0.337	-0.333	-0.333	-0.361	-0.368	-0.370	-0.362	-0.356	-0.358
59	-0.315	-0.296	-0.331	-0.331	-0.331	-0.355	-0.368	-0.368	-0.360	-0.354	-0.356
60	-0.352	-0.328	-0.347	-0.343	-0.341	-0.361	-0.376	-0.372	-0.362	-0.354	-0.360
Left tip fin inner flap, outer surface											
61	0.654	0.396	0.272	0.133	0.047	-0.121	-0.175	-0.195	-0.244	-0.273	-0.299
62	0.764	0.597	0.477	0.198	0.065	-0.091	-0.059	-0.182	-0.236	-0.291	-0.301
63	0.697	0.620	0.510	0.201	0.059	-0.082	-0.067	-0.209	-0.260	-0.311	-0.309
64	0.819	0.711	0.396	-0.011	-0.043	-0.056	-0.136	-0.233	-0.275	-0.315	-0.307
65	0.551	0.475	0.245	-0.058	-0.075	-0.131	-0.219	-0.278	-0.299	-0.319	-0.313
66	0.732	0.481	0.056	-0.054	-0.043	-0.109	-0.207	-0.223	-0.281	-0.319	-0.323
67	0.587	0.377	0.001	-0.109	-0.114	-0.197	-0.280	-0.288	-0.305	-0.321	-0.325
68	0.309	0.175	-0.089	-0.182	-0.205	-0.266	-0.299	-0.298	-0.307	-0.317	-0.323
Left tip fin outer flap, outer surface											
69	-0.187	-0.076	-0.054	-0.026	-0.018	-0.048	-0.089	-0.105	-0.108	-0.127	-0.140
70	-0.140	-0.103	-0.078	-0.023	0.006	-0.001	-0.028	-0.045	-0.048	-0.048	-0.067
71	-0.116	-0.076	-0.050	-0.007	0.014	0.009	-0.028	-0.042	-0.050	-0.046	-0.090
72	-0.144	-0.091	-0.062	-0.032	-0.012	-0.034	-0.043	-0.050	-0.033	-0.060	-0.136
73	-0.142	-0.091	-0.066	-0.038	-0.016	-0.039	-0.045	-0.048	-0.027	-0.074	-0.175
74	-0.148	-0.097	-0.078	-0.052	-0.032	-0.060	-0.071	-0.079	-0.056	-0.137	-0.175
Left tip fin, inner surface											
75	0.323	0.056	-0.129	-0.182	-0.219	-0.217	-0.219	-0.252	-0.260	-0.251	-0.283
76	0.236	0.058	-0.140	-0.174	-0.161	-0.133	-0.165	-0.264	-0.285	-0.330	-0.315
Center fin, left surface											
77	0.159	0.107	0.050	0.082	-0.032	-0.023	0.132	-0.040	-0.098	-0.149	-0.238
78	0.057	-0.006	-0.066	-0.044	-0.071	-0.115	-0.191	-0.211	-0.220	-0.287	-0.169
Body											
79	0.067	0.036	-0.040	-0.099	-0.165	-0.227	-0.268	-0.303	-0.313	-0.336	-0.354
80	0.037	-0.016	-0.089	-0.135	-0.171	-0.203	-0.215	-0.229	-0.234	-0.253	-0.291
81	0.173	-0.125	0.056	-0.001	-0.051	-0.105	-0.152	-0.199	-0.226	-0.253	-0.283
82	-0.248	-0.153	-0.078	0.013	0.108	0.201	0.303	0.398	0.494	0.586	0.688
83	0.215	0.318	0.414	0.532	0.660	0.801	0.935	1.059	1.179	1.287	1.392

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.192	-0.197	-0.213	-0.214	-0.227	-0.244	-0.246	-0.253	-0.248	-0.238	-0.246
2	-0.210	-0.207	-0.229	-0.231	-0.238	-0.259	-0.270	-0.278	-0.278	-0.261	-0.268
3	-0.270	-0.257	-0.254	-0.240	-0.233	-0.248	-0.263	-0.274	-0.272	-0.261	-0.268
4	-0.229	-0.240	-0.246	-0.244	-0.261	-0.280	-0.287	-0.293	-0.283	-0.274	-0.280
5	-0.220	-0.225	-0.233	-0.235	-0.235	-0.261	-0.272	-0.280	-0.278	-0.263	-0.270
6	-0.278	-0.265	-0.265	-0.242	-0.235	-0.257	-0.270	-0.280	-0.276	-0.263	-0.270
7	-0.225	-0.227	-0.235	-0.237	-0.240	-0.261	-0.272	-0.280	-0.278	-0.263	-0.270
8	-0.218	-0.220	-0.229	-0.231	-0.233	-0.257	-0.268	-0.278	-0.274	-0.263	-0.268
9	-0.229	-0.235	-0.241	-0.240	-0.233	-0.255	-0.268	-0.278	-0.274	-0.263	-0.268
Right elevon, upper surface											
10	-0.223	-0.227	-0.237	-0.240	-0.244	-0.263	-0.272	-0.278	-0.276	-0.263	-0.270
11	-0.218	-0.222	-0.231	-0.233	-0.233	-0.257	-0.270	-0.278	-0.274	-0.263	-0.268
12	-0.238	-0.242	-0.250	-0.240	-0.233	-0.255	-0.268	-0.278	-0.274	-0.263	-0.270
13	-0.229	-0.235	-0.250	-0.248	-0.248	-0.246	-0.268	-0.278	-0.278	-0.272	-0.285
14	-0.218	-0.222	-0.233	-0.235	-0.238	-0.257	-0.272	-0.278	-0.278	-0.263	-0.272
15	-0.175	-0.149	-0.194	-0.229	-0.195	-0.218	-0.251	-0.259	-0.272	-0.272	-0.280
16	-0.027	-0.130	-0.198	-0.229	-0.235	-0.248	-0.261	-0.274	-0.272	-0.261	-0.268
17	-0.197	-0.207	-0.218	-0.227	-0.231	-0.225	-0.221	-0.210	-0.188	-0.120	-0.053
18	-0.197	-0.210	-0.211	-0.214	-0.212	-0.212	-0.197	-0.192	-0.177	-0.148	-0.134
Right elevon, side surface											
19	-0.225	-0.210	-0.213	-0.229	-0.238	-0.268	-0.255	-0.235	-0.201	-0.159	-0.128
20	-0.225	-0.210	-0.213	-0.229	-0.246	-0.270	-0.259	-0.244	-0.225	-0.186	-0.162
Right elevon well, left surface											
21	-0.223	-0.210	-0.213	-0.229	-0.246	-0.270	-0.255	-0.248	-0.225	-0.186	-0.156
Right elevon well, right surface											
22	-0.218	-0.205	-0.213	-0.229	-0.246	-0.263	-0.257	-0.248	-0.222	-0.178	-0.139
Left elevon, lower surface											
23	-0.218	-0.205	-0.220	-0.231	-0.253	-0.263	-0.253	-0.248	-0.225	-0.176	-0.134
24	-0.233	-0.222	-0.226	-0.237	-0.253	-0.263	-0.261	-0.263	-0.253	-0.225	-0.207
25	-0.238	-0.227	-0.224	-0.233	-0.261	-0.265	-0.266	-0.265	-0.253	-0.225	-0.207
26	-0.238	-0.227	-0.218	-0.229	-0.268	-0.265	-0.274	-0.268	-0.253	-0.227	-0.214
27	-0.238	-0.225	-0.216	-0.229	-0.268	-0.270	-0.272	-0.268	-0.250	-0.225	-0.214
28	-0.248	-0.233	-0.224	-0.231	-0.265	-0.268	-0.274	-0.268	-0.250	-0.225	-0.214
29	-0.248	-0.235	-0.226	-0.231	-0.263	-0.268	-0.274	-0.268	-0.257	-0.231	-0.220
30	-0.233	-0.216	-0.220	-0.231	-0.255	-0.265	-0.270	-0.270	-0.257	-0.231	-0.220
31	-0.214	-0.207	-0.220	-0.229	-0.233	-0.257	-0.255	-0.246	-0.229	-0.195	-0.177
32	-0.227	-0.227	-0.229	-0.231	-0.255	-0.255	-0.251	-0.246	-0.229	-0.191	-0.171
33	-0.246	-0.240	-0.229	-0.231	-0.261	-0.270	-0.263	-0.259	-0.244	-0.219	-0.207
34	0.252	0.076	-0.017	-0.076	-0.100	-0.179	-0.210	-0.203	-0.237	-0.248	-0.257
35	0.447	0.170	0.056	-0.025	-0.055	-0.169	-0.186	-0.192	-0.229	-0.242	-0.259
36	0.795	0.407	0.222	0.065	0.007	-0.119	-0.167	-0.197	-0.233	-0.233	-0.263
Left elevon flap, upper surface											
37	0.966	0.617	0.358	0.179	0.029	-0.061	-0.165	-0.199	-0.235	-0.229	-0.263
38	0.947	0.387	0.158	0.048	0.046	-0.124	-0.058	-0.111	-0.128	-0.167	-0.210
39	0.765	0.304	0.136	0.025	0.003	0.012	0.008	-0.031	-0.068	-0.118	-0.164
40	0.447	0.181	0.030	-0.027	-0.040	-0.042	-0.094	-0.134	-0.149	-0.159	-0.199
41	1.623	1.628	1.633	1.623	1.621	1.622	1.622	1.622	1.622	1.622	1.622
42	-0.313	-0.308	-0.315	-0.315	-0.317	-0.315	-0.308	-0.315	-0.315	-0.306	-0.315
43	-0.315	-0.310	-0.317	-0.317	-0.319	-0.319	-0.310	-0.317	-0.317	-0.308	-0.317
44	0.292	0.141	0.004	0.022	0.194	-0.128	-0.079	-0.090	-0.129	-0.141	-0.150
45	0.429	0.286	0.133	0.095	0.430	0.619	0.446	0.336	0.265	0.078	-0.051
46	0.688	0.527	0.176	-0.001	-0.026	0.435	0.502	0.227	0.045	-0.077	-0.133
47	0.855	0.729	0.209	-0.004	-0.094	0.004	0.086	0.028	-0.047	-0.128	-0.178
48	0.474	0.675	0.896	1.020	0.924	0.791	0.474	0.257	0.120	0.011	-0.028
49	0.375	0.505	0.846	1.014	0.877	0.390	0.045	-0.032	-0.084	-0.147	-0.161
50	0.333	0.275	0.691	0.962	0.318	0.013	-0.072	-0.124	-0.146	-0.175	-0.188

[redacted]

[redacted]

TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.231	-0.233	-0.214	-0.207	-0.214	-0.238	-0.246	-0.244	-0.244	-0.244	-0.244
52	-0.248	-0.250	-0.239	-0.235	-0.238	-0.257	-0.265	-0.261	-0.259	-0.261	-0.253
53	-0.253	-0.250	-0.239	-0.238	-0.242	-0.259	-0.265	-0.263	-0.259	-0.261	-0.253
54	-0.261	-0.261	-0.242	-0.238	-0.242	-0.259	-0.268	-0.263	-0.259	-0.261	-0.255
55	-0.259	-0.257	-0.242	-0.240	-0.240	-0.261	-0.268	-0.263	-0.259	-0.263	-0.255
Right tip fin inner flap, inner surface											
56	-0.246	-0.248	-0.237	-0.235	-0.229	-0.248	-0.255	-0.253	-0.251	-0.250	-0.251
57	-0.253	-0.250	-0.242	-0.240	-0.238	-0.259	-0.265	-0.261	-0.259	-0.261	-0.251
58	-0.253	-0.246	-0.239	-0.238	-0.238	-0.257	-0.265	-0.261	-0.259	-0.261	-0.251
59	-0.253	-0.248	-0.237	-0.235	-0.236	-0.255	-0.265	-0.261	-0.257	-0.261	-0.251
60	-0.261	-0.263	-0.248	-0.242	-0.244	-0.261	-0.268	-0.263	-0.261	-0.263	-0.255
Left tip fin inner flap, outer surface											
61	0.215	-0.003	-0.140	-0.231	-0.229	-0.240	-0.250	-0.257	-0.261	-0.255	-0.238
62	0.530	0.180	-0.030	-0.186	-0.161	-0.199	-0.197	-0.221	-0.231	-0.240	-0.238
63	0.791	0.507	0.250	-0.047	-0.161	-0.158	-0.171	-0.197	-0.221	-0.240	-0.244
64	0.697	0.335	0.131	-0.053	-0.182	-0.131	-0.154	-0.178	-0.208	-0.246	-0.246
65	0.581	0.335	0.142	-0.068	-0.167	-0.131	-0.178	-0.201	-0.225	-0.255	-0.248
66	0.384	0.133	-0.061	-0.184	-0.124	-0.133	-0.169	-0.189	-0.229	-0.255	-0.248
67	0.307	0.079	-0.097	-0.184	-0.159	-0.180	-0.212	-0.223	-0.242	-0.257	-0.248
68	0.167	-0.020	-0.132	-0.190	-0.195	-0.220	-0.242	-0.244	-0.251	-0.255	-0.244
Left tip fin outer flap, outer surface											
69	0.099	0.085	0.082	0.065	0.049	0.032	0.024	0.021	0.023	0.024	0.021
70	0.041	0.053	0.062	0.069	0.079	0.084	0.082	0.092	0.096	0.099	0.105
71	0.056	0.066	0.079	0.089	0.092	0.092	0.086	0.090	0.092	0.099	0.098
72	0.015	0.030	0.045	0.050	0.060	0.069	0.076	0.090	0.105	0.112	0.115
73	0.015	0.027	0.041	0.046	0.055	0.067	0.076	0.092	0.105	0.116	0.109
74	0.011	0.014	0.026	0.035	0.040	0.047	0.054	0.068	0.073	0.078	0.068
Left tip fin, inner surface											
75	-0.004	-0.104	-0.155	-0.220	-0.246	-0.248	-0.257	-0.259	-0.261	-0.257	-0.221
76	-0.013	-0.093	-0.155	-0.220	-0.231	-0.214	-0.205	-0.223	-0.218	-0.229	-0.251
Center fin, left surface											
77	0.281	0.195	0.110	0.054	0.049	-0.013	-0.100	-0.171	-0.193	-0.229	-0.257
78	0.165	0.090	0.075	0.020	-0.011	-0.019	-0.077	-0.086	-0.116	-0.102	-0.165
Body											
79	0.105	0.057	0.008	-0.036	-0.075	-0.116	-0.143	-0.163	-0.176	-0.197	-0.206
80	0.041	-0.018	-0.067	-0.107	-0.122	-0.133	-0.143	-0.150	-0.161	-0.177	-0.178
81	0.088	0.047	0.004	-0.040	-0.073	-0.115	-0.152	-0.176	-0.197	-0.218	-0.227
82	-0.135	-0.082	-0.020	0.044	0.111	0.182	0.253	0.346	0.434	0.528	0.623
83	0.236	0.331	0.448	0.569	0.699	0.836	0.976	1.113	1.235	1.348	1.455

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.176	-0.190	-0.191	-0.205	-0.220	-0.224	-0.233	-0.237	-0.242	-0.257	-0.257
2	-0.201	-0.210	-0.201	-0.212	-0.226	-0.229	-0.244	-0.267	-0.267	-0.272	-0.267
3	-0.261	-0.265	-0.236	-0.229	-0.226	-0.240	-0.244	-0.252	-0.263	-0.272	-0.267
4	-0.216	-0.229	-0.225	-0.235	-0.252	-0.265	-0.278	-0.280	-0.285	-0.287	-0.289
5	-0.216	-0.223	-0.208	-0.216	-0.229	-0.233	-0.246	-0.267	-0.270	-0.274	-0.272
6	-0.270	-0.272	-0.251	-0.240	-0.229	-0.235	-0.244	-0.257	-0.270	-0.274	-0.272
7	-0.212	-0.223	-0.216	-0.227	-0.235	-0.237	-0.248	-0.265	-0.270	-0.274	-0.272
8	-0.212	-0.220	-0.206	-0.214	-0.226	-0.231	-0.242	-0.259	-0.267	-0.272	-0.272
9	-0.204	-0.235	-0.223	-0.225	-0.226	-0.233	-0.242	-0.252	-0.267	-0.274	-0.272
Right elevon, upper surface											
10	-0.208	-0.220	-0.218	-0.227	-0.239	-0.244	-0.255	-0.267	-0.267	-0.274	-0.272
11	-0.212	-0.220	-0.206	-0.214	-0.226	-0.231	-0.242	-0.259	-0.267	-0.272	-0.272
12	-0.208	-0.244	-0.225	-0.227	-0.226	-0.233	-0.242	-0.252	-0.267	-0.274	-0.272
13	-0.210	-0.227	-0.227	-0.238	-0.248	-0.246	-0.252	-0.265	-0.267	-0.278	-0.282
14	-0.214	-0.223	-0.206	-0.216	-0.229	-0.233	-0.246	-0.265	-0.267	-0.274	-0.272
15	-0.197	-0.208	-0.208	-0.188	-0.196	-0.154	-0.173	-0.220	-0.231	-0.274	-0.289
16	0.004	-0.043	-0.131	-0.117	-0.170	-0.212	-0.242	-0.257	-0.255	-0.272	-0.270
17	-0.199	-0.190	-0.204	-0.214	-0.222	-0.220	-0.224	-0.213	-0.188	-0.149	-0.078
18	-0.199	-0.193	-0.197	-0.210	-0.216	-0.205	-0.222	-0.196	-0.177	-0.162	-0.142
Right elevon, side surface											
19	-0.208	-0.201	-0.199	-0.216	-0.224	-0.207	-0.214	-0.207	-0.177	-0.142	-0.097
20	-0.240	-0.233	-0.227	-0.257	-0.261	-0.274	-0.265	-0.250	-0.220	-0.196	-0.162
Right elevon well, left surface											
21	-0.240	-0.233	-0.229	-0.253	-0.263	-0.270	-0.270	-0.257	-0.224	-0.198	-0.162
Right elevon well, right surface											
22	-0.240	-0.233	-0.229	-0.250	-0.263	-0.263	-0.270	-0.257	-0.224	-0.194	-0.151
Left elevon, lower surface											
23	-0.242	-0.231	-0.227	-0.250	-0.261	-0.263	-0.261	-0.257	-0.231	-0.201	-0.155
24	-0.261	-0.244	-0.236	-0.246	-0.261	-0.259	-0.255	-0.257	-0.237	-0.220	-0.192
25	-0.246	-0.242	-0.240	-0.257	-0.265	-0.261	-0.255	-0.257	-0.237	-0.220	-0.194
26	-0.246	-0.244	-0.240	-0.259	-0.265	-0.263	-0.267	-0.259	-0.239	-0.224	-0.203
27	-0.246	-0.244	-0.240	-0.259	-0.265	-0.276	-0.270	-0.259	-0.239	-0.224	-0.205
28	-0.253	-0.257	-0.246	-0.263	-0.267	-0.274	-0.272	-0.259	-0.239	-0.226	-0.205
29	-0.251	-0.257	-0.246	-0.263	-0.270	-0.267	-0.261	-0.263	-0.244	-0.233	-0.213
30	-0.272	-0.240	-0.231	-0.253	-0.267	-0.267	-0.257	-0.263	-0.246	-0.233	-0.213
31	-0.223	-0.225	-0.218	-0.229	-0.229	-0.261	-0.259	-0.237	-0.209	-0.181	-0.151
32	-0.240	-0.244	-0.238	-0.257	-0.242	-0.255	-0.250	-0.237	-0.212	-0.211	-0.160
33	-0.251	-0.248	-0.246	-0.268	-0.272	-0.274	-0.261	-0.257	-0.233	-0.220	-0.205
34	0.254	0.114	-0.020	-0.085	-0.125	-0.162	-0.097	-0.101	-0.190	-0.213	-0.155
35	0.569	0.365	0.175	0.012	-0.074	-0.128	-0.108	-0.067	-0.145	-0.181	-0.183
36	0.969	0.590	0.455	0.188	0.023	-0.063	-0.099	-0.080	-0.147	-0.183	-0.207
Left elevon flap, upper surface											
37	1.042	0.770	0.505	0.265	0.086	-0.014	-0.089	-0.105	-0.160	-0.196	-0.222
38	0.582	0.324	0.124	0.044	-0.054	-0.113	-0.078	-0.043	-0.027	-0.045	-0.134
39	0.428	0.204	0.068	0.029	-0.056	-0.130	-0.078	-0.116	0.083	-0.017	-0.134
40	0.241	0.080	0.051	-0.042	-0.082	-0.164	-0.166	-0.179	-0.029	-0.144	-0.201
41	1.621	1.621	1.623	1.621	1.628	1.629	1.630	1.630	1.630	1.630	1.630
42	-0.308	-0.313	-0.308	-0.315	-0.315	-0.310	-0.313	-0.315	-0.310	-0.315	-0.315
43	-0.310	-0.315	-0.310	-0.317	-0.317	-0.313	-0.315	-0.317	-0.313	-0.317	-0.317
44	0.176	0.067	0.003	-0.060	-0.082	-0.145	-0.149	-0.155	-0.102	-0.139	-0.155
45	0.283	0.135	0.033	-0.021	-0.042	-0.166	-0.183	-0.190	-0.070	0.046	0.015
46	0.351	0.266	0.044	-0.041	0.023	-0.132	-0.179	-0.181	0.147	0.231	0.109
47	0.343	0.264	0.026	-0.062	-0.020	-0.080	-0.153	-0.155	0.003	-0.038	-0.082
48	0.503	0.339	0.110	-0.004	0.090	0.010	-0.082	-0.093	-0.102	-0.108	-0.115
49	0.452	0.365	0.327	0.180	0.062	-0.121	-0.160	-0.183	-0.154	-0.139	-0.147
50	0.405	0.369	0.260	0.236	-0.104	-0.166	-0.177	-0.188	-0.160	-0.134	-0.149

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.240	-0.227	-0.229	-0.210	-0.212	-0.212	-0.214	-0.227	-0.235	-0.235	-0.237
52	-0.272	-0.265	-0.253	-0.240	-0.233	-0.227	-0.235	-0.246	-0.250	-0.250	-0.259
53	-0.274	-0.265	-0.253	-0.240	-0.235	-0.227	-0.235	-0.246	-0.250	-0.252	-0.261
54	-0.268	-0.265	-0.250	-0.236	-0.237	-0.229	-0.235	-0.244	-0.250	-0.252	-0.261
55	-0.268	-0.263	-0.253	-0.236	-0.239	-0.231	-0.235	-0.246	-0.250	-0.252	-0.263
Right tip fin inner flap, inner surface											
56	-0.259	-0.246	-0.244	-0.221	-0.218	-0.218	-0.220	-0.235	-0.242	-0.242	-0.244
57	-0.268	-0.265	-0.250	-0.238	-0.233	-0.227	-0.235	-0.245	-0.250	-0.252	-0.257
58	-0.268	-0.265	-0.250	-0.238	-0.233	-0.227	-0.235	-0.245	-0.250	-0.252	-0.257
59	-0.263	-0.263	-0.250	-0.233	-0.227	-0.224	-0.233	-0.246	-0.250	-0.250	-0.257
60	-0.274	-0.270	-0.257	-0.242	-0.239	-0.231	-0.237	-0.245	-0.250	-0.255	-0.263
Left tip fin inner flap, outer surface											
61	-0.041	-0.148	-0.214	-0.244	-0.261	-0.265	-0.267	-0.261	-0.250	-0.250	-0.237
62	0.096	-0.126	-0.195	-0.210	-0.255	-0.270	-0.267	-0.278	-0.268	-0.252	-0.237
63	0.358	-0.034	-0.109	-0.193	-0.250	-0.259	-0.270	-0.278	-0.265	-0.248	-0.235
64	0.570	0.032	-0.109	-0.167	-0.239	-0.270	-0.270	-0.265	-0.246	-0.237	-0.239
65	0.583	0.429	0.157	-0.098	-0.222	-0.274	-0.261	-0.255	-0.231	-0.237	-0.244
66	0.467	0.122	-0.001	-0.191	-0.227	-0.214	-0.214	-0.235	-0.237	-0.244	-0.244
67	0.443	0.249	-0.042	-0.199	-0.218	-0.222	-0.239	-0.244	-0.240	-0.246	-0.246
68	0.265	0.129	-0.085	-0.203	-0.190	-0.229	-0.248	-0.255	-0.246	-0.246	-0.246
Left tip fin outer flap, outer surface											
69	0.233	0.210	0.187	0.167	0.148	0.130	0.120	0.114	0.134	0.124	0.116
70	0.176	0.178	0.181	0.180	0.193	0.195	0.200	0.211	0.220	0.242	0.234
71	0.189	0.191	0.196	0.204	0.206	0.210	0.211	0.213	0.220	0.240	0.224
72	0.139	0.144	0.151	0.161	0.167	0.176	0.191	0.205	0.227	0.244	0.271
73	0.137	0.142	0.147	0.154	0.161	0.173	0.189	0.209	0.229	0.244	0.269
74	0.131	0.129	0.129	0.139	0.139	0.154	0.165	0.181	0.192	0.201	0.211
Left tip fin, inner surface											
75	-0.066	-0.143	-0.214	-0.242	-0.261	-0.270	-0.272	-0.270	-0.259	-0.252	-0.239
76	-0.071	-0.158	-0.229	-0.261	-0.276	-0.287	-0.291	-0.279	-0.246	-0.227	-0.233
Center fin, left surface											
77	0.401	0.260	0.166	0.096	0.014	-0.166	-0.214	-0.242	-0.201	-0.207	-0.220
78	0.431	0.330	0.241	0.197	0.165	0.096	0.064	0.010	0.096	-0.059	-0.115
Body											
79	0.197	0.142	0.093	0.045	-0.005	-0.042	-0.076	-0.104	-0.119	-0.136	-0.158
80	0.045	-0.015	-0.059	-0.096	-0.123	-0.138	-0.149	-0.160	-0.167	-0.184	-0.205
81	0.030	-0.004	-0.038	-0.073	-0.108	-0.145	-0.183	-0.214	-0.229	-0.244	-0.257
82	-0.107	-0.070	-0.038	0.009	0.053	0.120	0.189	0.267	0.351	0.435	0.519
83	0.236	0.339	0.443	0.566	0.696	0.831	0.971	1.104	1.226	1.338	1.441

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.212	-0.229	-0.242	-0.237	-0.252	-0.231	-0.231	-0.231	-0.237	-0.248	-0.248
2	-0.218	-0.244	-0.259	-0.252	-0.257	-0.259	-0.261	-0.261	-0.267	-0.274	-0.270
3	-0.255	-0.272	-0.265	-0.259	-0.259	-0.250	-0.259	-0.257	-0.261	-0.270	-0.270
4	-0.252	-0.268	-0.280	-0.276	-0.289	-0.261	-0.263	-0.261	-0.253	-0.272	-0.278
5	-0.233	-0.255	-0.267	-0.263	-0.261	-0.261	-0.263	-0.263	-0.267	-0.274	-0.272
6	-0.263	-0.278	-0.287	-0.263	-0.259	-0.259	-0.263	-0.261	-0.263	-0.270	-0.267
7	-0.242	-0.261	-0.272	-0.265	-0.261	-0.259	-0.265	-0.265	-0.267	-0.274	-0.270
8	-0.231	-0.252	-0.263	-0.259	-0.259	-0.259	-0.265	-0.263	-0.267	-0.272	-0.267
9	-0.244	-0.259	-0.263	-0.261	-0.259	-0.255	-0.265	-0.263	-0.263	-0.270	-0.267
Right elevon, upper surface											
10	-0.242	-0.259	-0.272	-0.265	-0.261	-0.259	-0.265	-0.265	-0.267	-0.274	-0.270
11	-0.231	-0.255	-0.263	-0.259	-0.259	-0.259	-0.265	-0.263	-0.267	-0.272	-0.267
12	-0.255	-0.270	-0.272	-0.261	-0.259	-0.255	-0.265	-0.263	-0.263	-0.270	-0.267
13	-0.231	-0.209	-0.218	-0.242	-0.235	-0.259	-0.265	-0.265	-0.270	-0.274	-0.285
14	-0.233	-0.250	-0.261	-0.259	-0.259	-0.261	-0.265	-0.265	-0.270	-0.274	-0.272
15	-0.100	-0.121	-0.140	-0.164	-0.173	-0.255	-0.259	-0.265	-0.272	-0.278	-0.272
16	-0.020	-0.098	-0.190	-0.233	-0.259	-0.280	-0.278	-0.267	-0.265	-0.272	-0.272
17	-0.214	-0.214	-0.235	-0.231	-0.229	-0.235	-0.229	-0.209	-0.179	-0.127	-0.028
18	-0.218	-0.214	-0.235	-0.227	-0.222	-0.220	-0.207	-0.205	-0.181	-0.160	-0.142
Right elevon, side surface											
19	-0.233	-0.222	-0.231	-0.233	-0.261	-0.280	-0.278	-0.265	-0.252	-0.233	-0.192
20	-0.214	-0.201	-0.203	-0.209	-0.220	-0.244	-0.263	-0.252	-0.233	-0.207	-0.170
Right elevon well, left surface											
21	-0.212	-0.199	-0.203	-0.209	-0.220	-0.244	-0.263	-0.250	-0.231	-0.188	-0.142
Right elevon well, right surface											
22	-0.209	-0.197	-0.203	-0.209	-0.220	-0.242	-0.250	-0.237	-0.205	-0.160	-0.114
Left elevon, lower surface											
23	-0.209	-0.197	-0.203	-0.209	-0.218	-0.233	-0.246	-0.237	-0.205	-0.160	-0.114
24	-0.220	-0.207	-0.209	-0.212	-0.224	-0.242	-0.257	-0.259	-0.254	-0.237	-0.214
25	-0.222	-0.207	-0.207	-0.209	-0.220	-0.244	-0.257	-0.259	-0.254	-0.237	-0.214
26	-0.220	-0.205	-0.205	-0.209	-0.218	-0.242	-0.261	-0.270	-0.257	-0.239	-0.220
27	-0.218	-0.203	-0.205	-0.205	-0.218	-0.242	-0.272	-0.270	-0.257	-0.237	-0.220
28	-0.229	-0.216	-0.209	-0.207	-0.216	-0.242	-0.272	-0.270	-0.257	-0.239	-0.222
29	-0.233	-0.218	-0.211	-0.207	-0.218	-0.244	-0.272	-0.272	-0.257	-0.242	-0.222
30	-0.220	-0.207	-0.207	-0.207	-0.220	-0.244	-0.267	-0.265	-0.257	-0.242	-0.220
31	-0.190	-0.186	-0.205	-0.207	-0.216	-0.233	-0.265	-0.265	-0.246	-0.218	-0.198
32	-0.212	-0.209	-0.209	-0.207	-0.216	-0.242	-0.270	-0.259	-0.242	-0.218	-0.192
33	-0.231	-0.229	-0.209	-0.207	-0.216	-0.242	-0.274	-0.263	-0.250	-0.233	-0.214
34	0.625	0.186	0.022	-0.026	-0.073	-0.074	-0.203	-0.248	-0.257	-0.259	-0.257
35	1.023	0.351	0.101	0.025	-0.045	-0.089	-0.194	-0.242	-0.252	-0.267	-0.257
36	1.219	0.550	0.267	0.135	0.028	-0.044	-0.166	-0.224	-0.229	-0.267	-0.257
Left elevon flap, upper surface											
37	1.133	0.779	0.390	0.187	0.078	-0.016	-0.129	-0.211	-0.229	-0.259	-0.254
38	0.976	0.700	0.533	0.167	0.006	-0.145	-0.207	-0.183	-0.233	-0.257	-0.259
39	0.787	0.549	0.390	0.128	0.006	-0.134	-0.173	-0.108	-0.194	-0.229	-0.259
40	0.430	0.298	0.190	0.042	-0.019	-0.029	0.011	-0.017	-0.099	-0.181	-0.224
41	1.630	1.630	1.630	1.630	1.630	1.630	1.629	1.629	1.628	1.629	1.628
42	-0.310	-0.308	-0.315	-0.310	-0.315	-0.310	-0.315	-0.315	-0.315	-0.315	-0.315
43	-0.313	-0.310	-0.317	-0.313	-0.317	-0.313	-0.317	-0.317	-0.317	-0.317	-0.317
44	0.285	0.202	0.110	0.043	0.114	0.243	0.258	-0.130	-0.183	-0.186	-0.154
45	0.351	0.288	0.426	0.643	0.543	0.866	0.681	0.349	0.153	-0.095	-0.193
46	0.657	0.620	0.741	0.848	0.865	0.711	0.524	0.214	-0.050	-0.156	-0.212
47	0.738	0.866	0.883	0.835	0.727	0.533	0.241	-0.005	-0.149	-0.214	-0.231
48	0.173	0.396	0.474	0.701	0.929	0.711	0.795	0.637	0.282	0.077	-0.092
49	0.237	0.441	0.674	0.524	0.985	0.458	0.393	0.665	0.228	-0.020	-0.139
50	0.250	0.252	0.456	0.382	0.496	0.181	0.097	0.012	0.015	-0.143	-0.190

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TABLE II.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = -35^\circ$.- Concluded

(i) M = 2.16, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.216	-0.224	-0.233	-0.244	-0.244	-0.250	-0.250	-0.250	-0.246	-0.246	-0.238
52	-0.233	-0.244	-0.254	-0.261	-0.267	-0.270	-0.265	-0.265	-0.261	-0.259	-0.248
53	-0.233	-0.244	-0.254	-0.261	-0.267	-0.270	-0.268	-0.268	-0.263	-0.263	-0.248
54	-0.237	-0.248	-0.257	-0.263	-0.267	-0.270	-0.268	-0.268	-0.265	-0.263	-0.250
55	-0.237	-0.248	-0.257	-0.263	-0.270	-0.270	-0.270	-0.268	-0.265	-0.263	-0.250
Right tip fin inner flap, inner surface											
56	-0.229	-0.239	-0.252	-0.261	-0.265	-0.265	-0.263	-0.261	-0.257	-0.252	-0.242
57	-0.237	-0.246	-0.254	-0.263	-0.267	-0.270	-0.265	-0.263	-0.263	-0.261	-0.248
58	-0.237	-0.246	-0.254	-0.263	-0.267	-0.270	-0.265	-0.268	-0.263	-0.261	-0.248
59	-0.235	-0.246	-0.252	-0.261	-0.267	-0.270	-0.265	-0.265	-0.263	-0.261	-0.246
60	-0.244	-0.257	-0.261	-0.265	-0.270	-0.272	-0.270	-0.268	-0.265	-0.263	-0.250
Left tip fin inner flap, outer surface											
61	0.751	0.433	0.086	0.060	-0.037	-0.156	-0.216	-0.210	-0.244	-0.237	-0.229
62	0.917	0.719	0.163	0.153	-0.045	-0.141	-0.147	-0.171	-0.222	-0.239	-0.231
63	0.753	0.578	0.381	0.175	-0.045	-0.104	-0.124	-0.185	-0.226	-0.244	-0.235
64	0.891	0.583	0.133	0.030	-0.047	-0.066	-0.143	-0.201	-0.237	-0.252	-0.229
65	0.620	0.450	0.090	-0.015	-0.047	-0.079	-0.184	-0.231	-0.248	-0.252	-0.238
66	0.522	0.273	-0.046	-0.041	-0.041	-0.113	-0.195	-0.215	-0.248	-0.257	-0.244
67	0.474	0.176	-0.074	-0.069	-0.088	-0.162	-0.227	-0.233	-0.252	-0.257	-0.246
68	0.285	0.064	-0.119	-0.123	-0.155	-0.207	-0.231	-0.237	-0.250	-0.252	-0.246
Left tip fin outer flap, outer surface											
69	-0.031	-0.026	-0.026	-0.013	-0.019	-0.040	-0.049	-0.057	-0.054	-0.063	-0.062
70	-0.066	-0.061	-0.041	-0.004	0.002	-0.004	-0.008	-0.008	-0.013	-0.018	-0.021
71	-0.053	-0.046	-0.024	0.007	0.009	0.001	-0.008	-0.005	-0.009	-0.020	-0.030
72	-0.083	-0.067	-0.039	-0.019	-0.022	-0.016	-0.012	-0.005	-0.009	-0.041	-0.075
73	-0.061	-0.067	-0.039	-0.024	-0.024	-0.019	-0.014	-0.008	0.005	-0.072	-0.087
74	-0.083	-0.067	-0.046	-0.034	-0.037	-0.034	-0.034	-0.020	-0.033	-0.084	-0.109
Left tip fin, inner surface											
75	0.154	-0.026	-0.130	-0.142	-0.181	-0.222	-0.227	-0.225	-0.250	-0.222	-0.214
76	0.149	-0.018	-0.138	-0.114	-0.140	-0.165	-0.147	-0.192	-0.237	-0.259	-0.240
Center fin, left surface											
77	0.115	0.047	-0.026	-0.041	-0.037	-0.055	-0.087	-0.113	-0.136	-0.173	-0.255
78	0.033	-0.024	-0.039	-0.065	-0.063	-0.128	-0.156	-0.182	-0.218	-0.199	-0.098
Body											
79	0.053	0.010	-0.039	-0.091	-0.134	-0.167	-0.192	-0.210	-0.231	-0.244	-0.244
80	0.051	-0.007	-0.054	-0.097	-0.129	-0.145	-0.162	-0.171	-0.186	-0.201	-0.214
81	0.169	0.116	0.062	0.013	-0.028	-0.064	-0.098	-0.132	-0.162	-0.183	-0.195
82	-0.162	-0.102	-0.028	0.054	0.138	0.235	0.329	0.424	0.517	0.619	0.723
83	0.240	0.336	0.446	0.567	0.692	0.829	0.975	1.112	1.232	1.345	1.448

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TABLE III.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = 0^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.360	-0.377	-0.377	-0.372	-0.387	-0.347	-0.223	-0.067	-0.095	-0.026	-0.008
2	-0.381	-0.392	-0.377	-0.372	-0.408	-0.440	-0.423	-0.427	-0.423	-0.368	-0.329
3	-0.341	-0.368	-0.366	-0.360	-0.379	-0.404	-0.410	-0.416	-0.404	-0.339	-0.295
4	-0.381	-0.398	-0.391	-0.379	-0.400	-0.423	-0.410	-0.494	-0.519	-0.456	-0.421
5	-0.368	-0.385	-0.370	-0.364	-0.393	-0.425	-0.421	-0.431	-0.429	-0.366	-0.329
6	-0.345	-0.371	-0.362	-0.355	-0.376	-0.391	-0.410	-0.421	-0.410	-0.341	-0.308
7	-0.362	-0.383	-0.379	-0.368	-0.393	-0.414	-0.421	-0.431	-0.427	-0.364	-0.331
8	-0.356	-0.377	-0.364	-0.355	-0.383	-0.412	-0.418	-0.429	-0.421	-0.358	-0.325
9	-0.341	-0.366	-0.360	-0.353	-0.376	-0.389	-0.408	-0.412	-0.393	-0.332	-0.302
Right elevon, upper surface											
10	-0.362	-0.383	-0.379	-0.368	-0.398	-0.416	-0.425	-0.435	-0.431	-0.368	-0.335
11	-0.356	-0.377	-0.364	-0.353	-0.381	-0.410	-0.418	-0.429	-0.421	-0.358	-0.323
12	-0.341	-0.368	-0.360	-0.353	-0.376	-0.389	-0.408	-0.410	-0.391	-0.334	-0.302
13	-0.387	-0.410	-0.412	-0.398	-0.419	-0.408	-0.473	-0.481	-0.488	-0.442	-0.415
14	-0.370	-0.387	-0.372	-0.366	-0.398	-0.429	-0.425	-0.431	-0.429	-0.370	-0.331
15	-0.366	-0.377	-0.377	-0.372	-0.391	-0.467	-0.471	-0.481	-0.457	-0.404	-0.379
16	-0.290	-0.350	-0.362	-0.360	-0.347	-0.324	-0.295	-0.267	-0.253	-0.192	-0.153
17	-0.429	-0.440	-0.402	-0.324	-0.066	-0.015	-0.042	0.059	0.163	0.260	0.327
18	-0.402	-0.419	-0.379	-0.261	-0.013	0.021	-0.049	0.033	0.140	0.254	0.327
Right elevon, side surface											
19	-0.318	-0.368	-0.368	-0.362	-0.328	-0.311	-0.280	-0.242	-0.229	-0.192	-0.163
20	-0.366	-0.490	-0.307	-0.215	-0.156	-0.103	-0.038	0.033	0.100	0.170	0.254
Right elevon well, left surface											
21	-0.547	-0.505	-0.293	-0.202	-0.147	-0.089	-0.028	0.046	0.115	0.197	0.290
Right elevon well, right surface											
22	-0.505	-0.469	-0.286	-0.202	-0.143	-0.084	-0.030	0.048	0.121	0.205	0.292
Left elevon, lower surface											
23	-0.429	-0.425	-0.280	-0.196	-0.145	-0.084	-0.026	0.042	0.105	0.178	0.254
24	-0.337	-0.253	-0.223	-0.181	-0.137	-0.089	-0.034	0.029	0.092	0.172	0.267
25	-0.349	-0.247	-0.223	-0.181	-0.135	-0.084	-0.026	0.044	0.105	0.174	0.267
26	-0.385	-0.293	-0.242	-0.196	-0.156	-0.112	-0.055	0.010	0.079	0.157	0.241
27	-0.370	-0.272	-0.251	-0.204	-0.158	-0.118	-0.068	-0.009	0.056	0.126	0.204
28	-0.255	-0.228	-0.202	-0.173	-0.131	-0.093	-0.040	0.025	0.084	0.142	0.210
29	-0.263	-0.234	-0.209	-0.173	-0.139	-0.108	-0.061	-0.004	0.058	0.147	0.250
30	-0.282	-0.243	-0.211	-0.187	-0.162	-0.124	-0.061	0.005	0.075	0.147	0.237
31	-0.271	-0.249	-0.217	-0.173	-0.114	-0.055	-0.002	0.054	0.111	0.166	0.233
32	-0.225	-0.207	-0.171	-0.158	-0.124	-0.078	-0.013	0.057	0.132	0.210	0.296
33	-0.227	-0.220	-0.200	-0.190	-0.173	-0.141	-0.082	-0.015	0.061	0.149	0.239
34	0.453	0.278	0.002	-0.274	-0.404	-0.358	-0.309	-0.313	-0.337	-0.320	-0.369
35	0.491	0.309	0.037	-0.240	-0.412	-0.429	-0.341	-0.355	-0.355	-0.345	-0.367
36	0.485	0.294	0.054	-0.183	-0.395	-0.444	-0.368	-0.366	-0.379	-0.351	-0.348
Left elevon flap, upper surface											
37	0.376	0.225	0.102	-0.124	-0.379	-0.414	-0.425	-0.393	-0.398	-0.351	-0.316
38	0.472	0.370	0.256	0.121	-0.055	-0.391	-0.345	-0.345	-0.355	-0.313	-0.371
39	0.619	0.485	0.365	0.237	-0.137	-0.324	-0.276	-0.313	-0.345	-0.326	-0.329
40	0.655	0.546	0.401	0.252	-0.147	-0.213	-0.330	-0.351	-0.345	-0.328	-0.312
41	1.252	1.251	1.251	1.252	1.254	1.254	1.254	1.255	1.254	1.254	1.250
42	-0.641	-0.639	-0.643	-0.643	-0.643	-0.641	-0.643	-0.643	-0.643	-0.643	-0.643
43	-0.645	-0.643	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645
44	0.568	0.497	0.355	0.218	-0.175	-0.382	-0.367	-0.339	-0.342	-0.335	-0.349
45	0.635	0.493	0.386	0.330	0.490	0.306	0.019	-0.147	-0.276	-0.327	-0.092
46	0.650	0.499	0.391	0.298	0.471	0.448	0.152	-0.029	-0.135	-0.137	-0.167
47	0.473	0.360	0.253	0.194	0.321	0.308	0.178	-0.052	-0.150	-0.156	-0.247
48	0.424	0.370	0.331	0.346	0.355	0.268	0.241	0.142	0.053	-0.065	-0.054
49	0.591	0.525	0.464	0.492	0.477	0.338	0.260	0.167	0.028	-0.044	-0.060
50	0.593	0.525	0.496	0.534	0.406	0.209	0.116	-0.031	-0.137	-0.122	-0.083

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TABLE III.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = 0^\circ$ - Continued

(a) M = 1.50, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.399	-0.403	-0.390	-0.352	-0.371	-0.373	-0.367	-0.379	-0.373	-0.266	-0.222
52	-0.460	-0.468	-0.415	-0.375	-0.403	-0.424	-0.424	-0.417	-0.394	-0.325	-0.290
53	-0.451	-0.453	-0.415	-0.373	-0.403	-0.428	-0.430	-0.428	-0.405	-0.327	-0.290
54	-0.434	-0.424	-0.445	-0.373	-0.415	-0.426	-0.430	-0.445	-0.420	-0.337	-0.306
55	-0.428	-0.419	-0.430	-0.375	-0.413	-0.430	-0.430	-0.447	-0.420	-0.339	-0.304
Right tip fin inner flap, inner surface											
56	-0.411	-0.405	-0.403	-0.353	-0.394	-0.390	-0.375	-0.384	-0.380	-0.276	-0.228
57	-0.432	-0.434	-0.424	-0.362	-0.409	-0.424	-0.420	-0.435	-0.424	-0.337	-0.300
58	-0.428	-0.426	-0.424	-0.377	-0.403	-0.422	-0.422	-0.415	-0.424	-0.339	-0.298
59	-0.422	-0.419	-0.420	-0.375	-0.396	-0.415	-0.420	-0.405	-0.413	-0.329	-0.283
60	-0.454	-0.456	-0.437	-0.382	-0.418	-0.434	-0.437	-0.451	-0.424	-0.335	-0.304
Left tip fin inner flap, outer surface											
61	-0.029	-0.164	-0.280	-0.291	-0.278	-0.356	-0.369	-0.394	-0.409	-0.323	-0.292
62	0.161	-0.149	-0.318	-0.382	-0.394	-0.456	-0.472	-0.483	-0.472	-0.380	-0.290
63	0.365	-0.037	-0.276	-0.367	-0.394	-0.458	-0.453	-0.465	-0.456	-0.354	-0.283
64	0.013	0.075	-0.234	-0.434	-0.350	-0.236	-0.339	-0.369	-0.354	-0.316	-0.250
65	0.868	0.030	0.025	-0.209	-0.263	-0.031	-0.282	-0.327	-0.342	-0.318	-0.220
66	0.490	-0.006	-0.188	0.160	0.319	-0.160	-0.173	-0.139	-0.318	-0.394	-0.300
67	0.935	0.482	0.243	0.262	-0.061	-0.236	-0.255	-0.339	-0.426	-0.399	-0.281
68	0.732	0.742	0.557	0.072	-0.255	-0.352	-0.350	-0.420	-0.439	-0.375	-0.304
Left tip fin outer flap, outer surface											
69	0.015	0.041	0.061	0.062	0.026	-0.023	-0.067	-0.105	-0.137	-0.162	-0.178
70	-0.055	-0.022	0.019	0.055	0.072	0.066	0.062	0.053	0.028	0.015	-0.001
71	-0.006	0.022	0.053	0.064	0.076	0.083	0.059	0.041	0.011	-0.019	-0.045
72	-0.057	-0.016	0.019	0.040	0.047	0.049	0.034	0.041	0.045	0.045	0.068
73	-0.053	-0.029	-0.002	0.026	0.045	0.049	0.045	0.041	0.038	0.047	0.066
74	-0.064	-0.059	-0.029	-0.002	0.019	-0.002	-0.002	-0.016	-0.038	-0.044	-0.035
Left tip fin, inner surface											
75	-0.010	-0.200	-0.335	-0.369	-0.312	-0.386	-0.447	-0.458	-0.489	-0.451	-0.340
76	-0.084	-0.203	-0.409	-0.464	-0.426	-0.447	-0.481	-0.462	-0.472	-0.437	-0.391
Center fin, left surface											
77	0.089	0.026	-0.046	-0.088	-0.137	-0.171	-0.206	-0.255	-0.346	-0.413	-0.435
78	0.034	-0.022	-0.059	-0.086	-0.120	-0.131	-0.143	-0.151	-0.181	-0.211	-0.247
Body											
79	0.129	0.062	-0.019	-0.107	-0.181	-0.251	-0.312	-0.356	-0.394	-0.418	-0.439
80	-0.012	-0.079	-0.129	-0.152	-0.169	-0.192	-0.221	-0.249	-0.272	-0.293	-0.287
81	0.108	0.043	-0.034	-0.088	-0.154	-0.213	-0.276	-0.344	-0.396	-0.434	-0.466
82	-0.253	-0.170	-0.088	-0.010	0.064	0.137	0.211	0.294	0.370	0.465	0.557
83	0.199	0.288	0.403	0.532	0.665	0.794	0.919	1.046	1.155	1.258	1.351

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TABLE III.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = 0^\circ$ - Continued

(b) M = 1.50, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1	-0.404	-0.391	-0.385	-0.399	-0.406	-0.303	-0.242	-0.109	-0.145	-0.170
2	-0.413	-0.391	-0.376	-0.399	-0.437	-0.429	-0.422	-0.401	-0.387	-0.326
3	-0.394	-0.385	-0.368	-0.385	-0.399	-0.416	-0.406	-0.376	-0.382	-0.279
4	-0.448	-0.425	-0.410	-0.414	-0.418	-0.429	-0.490	-0.439	-0.458	-0.435
5	-0.409	-0.393	-0.387	-0.385	-0.427	-0.427	-0.422	-0.401	-0.385	-0.334
6	-0.400	-0.385	-0.364	-0.376	-0.391	-0.416	-0.410	-0.391	-0.376	-0.326
7	-0.404	-0.389	-0.395	-0.395	-0.418	-0.425	-0.425	-0.408	-0.389	-0.338
8	-0.400	-0.389	-0.370	-0.374	-0.416	-0.423	-0.418	-0.397	-0.380	-0.338
9	-0.396	-0.383	-0.364	-0.374	-0.391	-0.414	-0.406	-0.385	-0.374	-0.334
Right elevon, upper surface										
10	-0.404	-0.389	-0.395	-0.395	-0.418	-0.425	-0.422	-0.408	-0.391	-0.359
11	-0.400	-0.387	-0.368	-0.374	-0.416	-0.423	-0.418	-0.397	-0.380	-0.355
12	-0.396	-0.385	-0.364	-0.374	-0.391	-0.414	-0.406	-0.385	-0.374	-0.328
13	-0.444	-0.423	-0.414	-0.437	-0.439	-0.467	-0.490	-0.465	-0.448	-0.410
14	-0.411	-0.393	-0.395	-0.389	-0.429	-0.429	-0.425	-0.401	-0.387	-0.342
15	-0.398	-0.389	-0.408	-0.387	-0.412	-0.475	-0.465	-0.437	-0.422	-0.382
16	-0.381	-0.378	-0.364	-0.374	-0.385	-0.340	-0.303	-0.263	-0.241	-0.195
17	-0.451	-0.446	-0.446	-0.380	0.078	-0.080	0.030	0.116	0.184	0.249
18	-0.430	-0.427	-0.427	-0.347	0.133	-0.057	0.015	0.106	0.173	0.249
Right elevon, side surface										
19	-0.400	-0.387	-0.368	-0.374	-0.364	-0.326	-0.292	-0.246	-0.216	-0.178
20	-0.459	-0.265	-0.214	-0.183	-0.137	-0.107	-0.071	-0.029	0.024	0.100
Right elevon well, left surface										
21	-0.436	-0.254	-0.200	-0.164	-0.132	-0.094	-0.050	0.003	0.057	0.140
Right elevon well, right surface										
22	-0.388	-0.250	-0.191	-0.164	-0.132	-0.094	-0.046	0.017	0.080	0.161
Left elevon, lower surface										
23	-0.381	-0.257	-0.193	-0.164	-0.132	-0.097	-0.048	0.011	0.072	0.150
24	-0.285	-0.221	-0.179	-0.160	-0.130	-0.099	-0.054	-0.004	0.066	0.146
25	-0.283	-0.219	-0.183	-0.160	-0.128	-0.099	-0.057	-0.008	0.049	0.125
26	-0.274	-0.229	-0.196	-0.168	-0.141	-0.107	-0.067	-0.010	0.049	0.118
27	-0.262	-0.238	-0.198	-0.170	-0.137	-0.107	-0.065	-0.014	0.047	0.118
28	-0.237	-0.210	-0.181	-0.164	-0.124	-0.082	-0.040	0.011	0.068	0.137
29	-0.222	-0.204	-0.179	-0.158	-0.126	-0.094	-0.052	0.003	0.072	0.152
30	-0.235	-0.204	-0.179	-0.160	-0.132	-0.101	-0.054	0.003	0.068	0.133
31	-0.260	-0.229	-0.219	-0.195	-0.132	-0.065	-0.014	0.034	0.097	0.161
32	-0.207	-0.181	-0.185	-0.153	-0.120	-0.073	-0.014	0.045	0.116	0.198
33	-0.214	-0.208	-0.193	-0.164	-0.139	-0.113	-0.061	0.003	0.076	0.161
34	0.509	0.334	0.309	-0.132	-0.271	-0.406	-0.425	-0.391	-0.359	-0.395
35	0.497	0.330	0.290	0.013	-0.227	-0.395	-0.380	-0.418	-0.408	-0.395
36	0.457	0.319	0.233	0.192	-0.128	-0.391	-0.446	-0.359	-0.391	-0.397
Left elevon flap, upper surface										
37	0.438	0.298	0.170	0.154	-0.048	-0.385	-0.416	-0.401	-0.416	-0.368
38	0.400	0.298	0.252	0.181	0.213	0.211	0.017	-0.092	-0.277	-0.395
39	0.526	0.418	0.370	0.297	0.248	0.238	0.097	-0.086	-0.237	-0.336
40	0.576	0.458	0.410	0.351	0.253	0.261	0.087	-0.077	-0.218	-0.248
41	1.251	1.251	1.253	1.253	1.253	1.254	1.256	1.256	1.257	1.257
42	-0.639	-0.643	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641
43	-0.641	-0.648	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645	-0.645
44	0.526	0.414	0.351	0.343	0.309	0.223	-0.098	-0.282	-0.369	-0.297
45	0.440	0.385	0.351	0.354	0.360	0.362	0.324	0.278	0.162	0.251
46	0.465	0.391	0.358	0.366	0.387	0.371	0.386	0.255	0.139	0.014
47	0.345	0.267	0.225	0.242	0.261	0.240	0.297	0.172	0.065	-0.111
48	0.219	0.174	0.180	0.193	0.161	0.178	0.168	0.124	0.122	0.170
49	0.330	0.269	0.290	0.309	0.297	0.301	0.265	0.246	0.234	0.270
50	0.362	0.307	0.355	0.311	0.337	0.303	0.231	0.272	0.234	0.242

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TABLE III.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E_2 CENTER FIN, $\delta_e = 0^\circ$ - Concluded

(b) $M = 1.50$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51	-0.355	-0.375	-0.354	-0.367	-0.388	-0.360	-0.367	-0.358	-0.347	-0.276
52	-0.445	-0.413	-0.392	-0.405	-0.415	-0.415	-0.417	-0.390	-0.409	-0.362
53	-0.437	-0.409	-0.390	-0.396	-0.409	-0.417	-0.422	-0.388	-0.413	-0.373
54	-0.401	-0.420	-0.396	-0.394	-0.415	-0.415	-0.428	-0.390	-0.415	-0.377
55	-0.395	-0.411	-0.396	-0.405	-0.417	-0.424	-0.432	-0.392	-0.417	-0.373
Right tip fin inner flap, inner surface										
56	-0.365	-0.388	-0.367	-0.381	-0.411	-0.377	-0.381	-0.369	-0.362	-0.290
57	-0.416	-0.411	-0.394	-0.415	-0.419	-0.417	-0.424	-0.405	-0.409	-0.360
58	-0.405	-0.411	-0.392	-0.413	-0.417	-0.413	-0.422	-0.398	-0.402	-0.356
59	-0.399	-0.407	-0.388	-0.409	-0.413	-0.409	-0.426	-0.388	-0.396	-0.352
60	-0.433	-0.426	-0.411	-0.409	-0.424	-0.424	-0.434	-0.402	-0.419	-0.379
Left tip fin inner flap, outer surface										
61	0.326	-0.018	-0.162	-0.308	-0.244	-0.293	-0.381	-0.426	-0.356	-0.311
62	0.714	0.364	0.032	-0.248	-0.312	-0.415	-0.318	-0.318	-0.405	-0.307
63	0.724	0.634	0.229	-0.181	-0.327	-0.434	-0.278	-0.263	-0.392	-0.290
64	0.960	0.811	0.273	-0.103	-0.354	-0.191	0.041	-0.168	-0.282	-0.187
65	0.743	0.759	0.689	0.556	-0.272	-0.111	0.151	-0.022	-0.134	-0.128
66	0.931	0.733	0.091	0.487	0.202	0.221	-0.225	-0.293	-0.398	-0.362
67	0.893	0.877	0.562	0.449	0.225	-0.138	-0.386	-0.369	-0.413	-0.383
68	0.813	0.609	0.674	0.297	-0.041	-0.324	-0.434	-0.421	-0.409	-0.390
Left tip fin outer flap, outer surface										
69	-0.258	-0.118	-0.046	-0.010	-0.027	-0.058	-0.094	-0.174	-0.223	-0.229
70	-0.201	-0.156	-0.090	-0.035	0.007	0.020	-0.012	-0.075	-0.092	-0.085
71	-0.157	-0.116	-0.056	-0.020	0.011	0.028	-0.016	-0.090	-0.107	-0.109
72	-0.203	-0.141	-0.077	-0.031	-0.005	-0.014	-0.056	-0.090	-0.079	-0.085
73	-0.201	-0.143	-0.088	-0.041	-0.008	-0.010	-0.052	-0.085	-0.071	-0.064
74	-0.211	-0.160	-0.115	-0.067	-0.037	-0.048	-0.107	-0.138	-0.138	-0.138
Left tip fin, inner surface										
75	0.111	-0.042	-0.147	-0.358	-0.299	-0.282	-0.339	-0.417	-0.453	-0.369
76	0.090	-0.118	-0.215	-0.419	-0.407	-0.424	-0.274	-0.396	-0.411	-0.352
Center fin, left surface										
77	-0.173	-0.213	-0.238	-0.257	-0.265	-0.263	-0.259	-0.248	-0.288	-0.290
78	-0.192	-0.219	-0.242	-0.261	-0.280	-0.291	-0.312	-0.339	-0.373	-0.307
Body										
79	0.084	0.039	-0.025	-0.103	-0.191	-0.295	-0.375	-0.426	-0.457	-0.483
80	0.004	-0.069	-0.132	-0.189	-0.227	-0.248	-0.269	-0.284	-0.303	-0.333
81	0.166	0.089	0.032	-0.035	-0.101	-0.162	-0.223	-0.286	-0.339	-0.381
82	-0.342	-0.240	-0.134	-0.029	0.077	0.181	0.278	0.379	0.481	0.574
83	0.197	0.294	0.410	0.540	0.668	0.795	0.916	1.039	1.149	1.249

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.374	-0.382	-0.377	-0.375	-0.388	-0.402	-0.163	-0.104	-0.116	-0.073	-0.017
2	-0.385	-0.392	-0.367	-0.367	-0.407	-0.441	-0.437	-0.429	-0.422	-0.396	-0.345
3	-0.354	-0.374	-0.362	-0.359	-0.396	-0.408	-0.445	-0.421	-0.391	-0.330	-0.305
4	-0.387	-0.396	-0.385	-0.375	-0.402	-0.418	-0.427	-0.481	-0.428	-0.361	-0.394
5	-0.377	-0.384	-0.365	-0.365	-0.394	-0.425	-0.427	-0.429	-0.426	-0.372	-0.340
6	-0.354	-0.380	-0.358	-0.357	-0.390	-0.402	-0.420	-0.450	-0.403	-0.318	-0.314
7	-0.372	-0.384	-0.375	-0.367	-0.404	-0.418	-0.420	-0.425	-0.411	-0.365	-0.336
8	-0.364	-0.378	-0.358	-0.359	-0.400	-0.410	-0.425	-0.423	-0.417	-0.349	-0.328
9	-0.352	-0.369	-0.356	-0.351	-0.372	-0.423	-0.412	-0.415	-0.354	-0.314	-0.303
Right elevon, upper surface											
10	-0.372	-0.384	-0.375	-0.367	-0.396	-0.418	-0.420	-0.427	-0.407	-0.370	-0.340
11	-0.364	-0.378	-0.358	-0.363	-0.400	-0.410	-0.431	-0.423	-0.401	-0.349	-0.328
12	-0.354	-0.380	-0.358	-0.357	-0.396	-0.410	-0.416	-0.415	-0.356	-0.314	-0.303
13	-0.401	-0.415	-0.412	-0.390	-0.413	-0.416	-0.472	-0.475	-0.483	-0.442	-0.419
14	-0.379	-0.384	-0.365	-0.359	-0.398	-0.429	-0.431	-0.431	-0.442	-0.382	-0.345
15	-0.364	-0.376	-0.375	-0.375	-0.392	-0.491	-0.468	-0.475	-0.448	-0.411	-0.390
16	-0.304	-0.347	-0.358	-0.357	-0.341	-0.334	-0.301	-0.261	-0.243	-0.201	-0.168
17	-0.418	-0.438	-0.406	-0.301	-0.063	0.019	-0.086	-0.024	0.073	0.176	0.257
18	-0.397	-0.419	-0.379	-0.223	-0.007	0.039	-0.095	-0.043	0.046	0.141	0.232
Right elevon, side surface											
19	-0.331	-0.365	-0.362	-0.365	-0.328	-0.307	-0.282	-0.242	-0.227	-0.201	-0.176
20	-0.567	-0.498	-0.299	-0.215	-0.153	-0.105	-0.037	0.035	0.106	0.172	0.255
Right elevon well, left surface											
21	-0.552	-0.513	-0.286	-0.202	-0.147	-0.091	-0.027	0.048	0.118	0.198	0.290
Right elevon well, right surface											
22	-0.503	-0.479	-0.280	-0.200	-0.139	-0.089	-0.025	0.050	0.128	0.207	0.292
Left elevon, lower surface											
23	-0.422	-0.432	-0.272	-0.196	-0.141	-0.086	-0.025	0.044	0.110	0.178	0.255
24	-0.335	-0.257	-0.220	-0.182	-0.133	-0.089	-0.033	0.033	0.100	0.172	0.269
25	-0.348	-0.251	-0.222	-0.182	-0.133	-0.089	-0.027	0.046	0.112	0.174	0.269
26	-0.385	-0.297	-0.241	-0.200	-0.155	-0.115	-0.055	0.013	0.087	0.157	0.242
27	-0.368	-0.260	-0.251	-0.210	-0.160	-0.122	-0.070	-0.008	0.059	0.122	0.203
28	-0.257	-0.228	-0.206	-0.175	-0.131	-0.097	-0.041	0.025	0.085	0.139	0.209
29	-0.261	-0.235	-0.210	-0.175	-0.139	-0.109	-0.062	-0.008	0.059	0.141	0.242
30	-0.279	-0.237	-0.206	-0.190	-0.162	-0.128	-0.066	0.005	0.077	0.141	0.234
31	-0.263	-0.235	-0.218	-0.169	-0.116	-0.058	-0.014	0.048	0.108	0.161	0.234
32	-0.211	-0.181	-0.158	-0.149	-0.125	-0.086	-0.025	0.046	0.122	0.192	0.277
33	-0.230	-0.214	-0.197	-0.192	-0.176	-0.148	-0.093	-0.024	0.055	0.137	0.234
34	0.401	0.249	-0.041	-0.270	-0.400	-0.355	-0.309	-0.308	-0.337	-0.328	-0.367
35	0.434	0.261	0.034	-0.239	-0.423	-0.435	-0.354	-0.368	-0.364	-0.365	-0.359
36	0.440	0.261	0.071	-0.188	-0.400	-0.445	-0.369	-0.368	-0.372	-0.349	-0.347
Left elevon flap, upper surface											
37	0.372	0.211	0.083	-0.142	-0.386	-0.412	-0.437	-0.407	-0.397	-0.349	-0.322
38	0.448	0.346	0.234	0.103	-0.036	-0.412	-0.348	-0.341	-0.305	-0.320	-0.355
39	0.587	0.462	0.331	0.214	-0.141	-0.336	-0.278	-0.310	-0.335	-0.330	-0.308
40	0.605	0.508	0.343	0.231	-0.168	-0.223	-0.338	-0.353	-0.339	-0.326	-0.301
41	1.236	1.242	1.233	1.230	1.234	1.233	1.231	1.230	1.228	1.227	1.229
42	-0.641	-0.641	-0.641	-0.643	-0.637	-0.641	-0.643	-0.637	-0.635	-0.641	-0.641
43	-0.643	-0.643	-0.643	-0.643	-0.639	-0.643	-0.643	-0.639	-0.637	-0.643	-0.643
44	0.531	0.465	0.302	0.206	-0.194	-0.381	-0.344	-0.337	-0.346	-0.357	-0.312
45	0.616	0.481	0.377	0.321	0.441	0.311	0.019	-0.135	-0.261	-0.348	-0.099
46	0.625	0.494	0.391	0.294	0.443	0.460	0.131	-0.315	-0.100	-0.140	-0.164
47	0.459	0.354	0.257	0.195	0.296	0.305	0.168	-0.052	-0.142	-0.157	-0.220
48	0.438	0.386	0.348	0.354	0.371	0.316	0.275	0.185	-0.085	-0.169	-0.103
49	0.610	0.529	0.468	0.495	0.509	0.386	0.300	0.181	-0.061	-0.220	-0.148
50	0.592	0.514	0.497	0.563	0.449	0.231	0.164	-0.050	-0.134	-0.210	-0.197

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(a) $M = 1.50$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.225	-0.257	-0.269	-0.284	-0.312	-0.341	-0.334	-0.327	-0.313	-0.270	-0.222
52	-0.463	-0.460	-0.403	-0.354	-0.389	-0.412	-0.410	-0.408	-0.360	-0.317	-0.271
53	-0.451	-0.444	-0.407	-0.354	-0.391	-0.416	-0.414	-0.416	-0.367	-0.319	-0.275
54	-0.426	-0.413	-0.434	-0.354	-0.401	-0.418	-0.416	-0.430	-0.375	-0.334	-0.290
55	-0.424	-0.408	-0.424	-0.354	-0.399	-0.420	-0.416	-0.435	-0.373	-0.334	-0.288
Right tip fin inner flap, inner surface											
56	-0.403	-0.392	-0.395	-0.346	-0.380	-0.383	-0.362	-0.375	-0.334	-0.268	-0.220
57	-0.438	-0.427	-0.414	-0.360	-0.397	-0.414	-0.410	-0.425	-0.375	-0.336	-0.288
58	-0.438	-0.421	-0.409	-0.360	-0.391	-0.410	-0.410	-0.410	-0.375	-0.338	-0.284
59	-0.469	-0.413	-0.403	-0.356	-0.387	-0.401	-0.406	-0.402	-0.371	-0.324	-0.269
60	-0.461	-0.446	-0.428	-0.360	-0.405	-0.426	-0.428	-0.439	-0.375	-0.334	-0.290
Left tip fin inner flap, outer surface											
61	-0.055	-0.151	-0.271	-0.288	-0.279	-0.352	-0.364	-0.385	-0.381	-0.324	-0.269
62	0.086	-0.153	-0.312	-0.379	-0.401	-0.441	-0.468	-0.478	-0.454	-0.361	-0.261
63	0.297	-0.068	-0.269	-0.360	-0.399	-0.441	-0.445	-0.457	-0.441	-0.342	-0.255
64	0.453	0.043	-0.227	-0.430	-0.345	-0.261	-0.334	-0.371	-0.350	-0.280	-0.214
65	0.850	0.548	-0.035	-0.238	-0.252	-0.104	-0.303	-0.337	-0.336	-0.303	-0.162
66	0.485	-0.011	-0.147	0.171	-0.010	-0.203	-0.166	-0.173	-0.358	-0.344	-0.247
67	0.923	0.452	0.261	0.278	-0.132	-0.242	-0.259	-0.327	-0.427	-0.334	-0.253
68	0.720	0.712	0.503	0.071	-0.289	-0.348	-0.342	-0.412	-0.449	-0.330	-0.290
Left tip fin outer flap, outer surface											
69	0.022	0.053	0.072	0.059	0.031	-0.015	-0.057	-0.098	-0.127	-0.157	-0.164
70	-0.049	-0.009	0.035	0.067	0.081	0.076	0.069	0.061	0.029	0.017	0.012
71	-0.005	0.030	0.064	0.073	0.085	0.095	0.071	0.051	0.017	-0.014	-0.031
72	-0.049	-0.007	0.031	0.049	0.054	0.059	0.046	0.049	0.052	0.052	0.078
73	-0.055	-0.018	0.010	0.032	0.052	0.057	0.055	0.053	0.046	0.056	0.078
74	-0.078	-0.047	-0.016	0.012	0.027	0.010	0.007	-0.011	-0.028	-0.035	-0.021
Left tip fin, inner surface											
75	-0.059	-0.211	-0.347	-0.371	-0.327	-0.395	-0.449	-0.455	-0.478	-0.451	-0.323
76	-0.123	-0.267	-0.414	-0.451	-0.434	-0.453	-0.482	-0.465	-0.478	-0.437	-0.341
Center fin, left surface											
77	-0.631	-0.631	-0.631	-0.631	-0.633	-0.631	-0.631	-0.633	-0.633	-0.633	-0.625
78	-0.633	-0.633	-0.633	-0.633	-0.635	-0.633	-0.633	-0.635	-0.635	-0.635	-0.627
Body											
79	0.127	0.066	-0.016	-0.104	-0.180	-0.249	-0.309	-0.354	-0.391	-0.418	-0.429
80	-0.005	-0.068	-0.120	-0.141	-0.161	-0.182	-0.212	-0.240	-0.264	-0.282	-0.273
81	0.115	0.051	-0.027	-0.081	-0.147	-0.203	-0.267	-0.333	-0.389	-0.427	-0.450
82	-0.243	-0.157	-0.074	-0.001	0.073	0.144	0.220	0.299	0.374	0.468	0.563
83	0.202	0.300	0.414	0.538	0.673	0.797	0.922	1.042	1.156	1.254	-0.707

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.320	-0.321	-0.298	-0.323	-0.344	-0.396	-0.340	-0.150	-0.169	-0.117	0.004
2	-0.313	-0.319	-0.298	-0.327	-0.354	-0.452	-0.437	-0.427	-0.420	-0.354	-0.336
3	-0.313	-0.313	-0.294	-0.315	-0.336	-0.359	-0.396	-0.391	-0.396	-0.332	-0.307
4	-0.320	-0.323	-0.301	-0.340	-0.350	-0.400	-0.429	-0.453	-0.363	-0.330	-0.348
5	-0.301	-0.309	-0.290	-0.327	-0.346	-0.396	-0.427	-0.429	-0.429	-0.361	-0.334
6	-0.295	-0.303	-0.286	-0.323	-0.334	-0.367	-0.387	-0.416	-0.439	-0.365	-0.293
7	-0.309	-0.315	-0.296	-0.327	-0.346	-0.392	-0.408	-0.424	-0.439	-0.371	-0.326
8	-0.293	-0.303	-0.284	-0.327	-0.338	-0.386	-0.412	-0.424	-0.431	-0.363	-0.324
9	-0.293	-0.301	-0.284	-0.313	-0.334	-0.363	-0.396	-0.405	-0.427	-0.363	-0.266
Right elevon, upper surface											
10	-0.309	-0.315	-0.296	-0.330	-0.346	-0.392	-0.410	-0.424	-0.443	-0.381	-0.326
11	-0.293	-0.301	-0.282	-0.332	-0.338	-0.384	-0.412	-0.424	-0.431	-0.365	-0.326
12	-0.293	-0.301	-0.284	-0.340	-0.334	-0.363	-0.389	-0.404	-0.425	-0.365	-0.260
13	-0.320	-0.323	-0.298	-0.334	-0.354	-0.410	-0.422	-0.451	-0.480	-0.437	-0.410
14	-0.303	-0.313	-0.292	-0.334	-0.346	-0.398	-0.427	-0.429	-0.431	-0.367	-0.344
15	-0.320	-0.325	-0.309	-0.336	-0.354	-0.417	-0.478	-0.470	-0.480	-0.422	-0.377
16	-0.190	-0.239	-0.270	-0.334	-0.317	-0.310	-0.282	-0.278	-0.264	-0.231	-0.171
17	-0.357	-0.323	-0.294	-0.288	-0.119	0.016	-0.026	0.055	0.033	0.151	0.266
18	-0.328	-0.292	-0.263	-0.245	-0.078	0.024	0.017	0.098	0.015	0.116	0.251
Right elevon, side surface											
19	-0.248	-0.272	-0.290	-0.315	-0.309	-0.295	-0.295	-0.292	-0.272	-0.235	-0.175
20	-0.497	-0.457	-0.437	-0.274	-0.183	-0.112	-0.045	0.042	0.132	0.228	0.317
Right elevon well, left surface											
21	-0.478	-0.449	-0.414	-0.251	-0.171	-0.101	-0.035	0.052	0.151	0.240	0.344
Right elevon well, right surface											
22	-0.443	-0.435	-0.462	-0.237	-0.169	-0.097	-0.024	0.065	0.153	0.244	0.344
Left elevon, lower surface											
23	-0.412	-0.414	-0.408	-0.231	-0.171	-0.104	-0.033	0.054	0.136	0.211	0.284
24	-0.400	-0.369	-0.249	-0.216	-0.169	-0.106	-0.033	0.044	0.125	0.203	0.297
25	-0.449	-0.439	-0.230	-0.216	-0.169	-0.108	-0.035	0.046	0.138	0.223	0.315
26	-0.526	-0.474	-0.247	-0.231	-0.177	-0.122	-0.057	0.025	0.118	0.207	0.307
27	-0.561	-0.526	-0.303	-0.247	-0.189	-0.141	-0.082	-0.010	0.072	0.166	0.268
28	-0.394	-0.313	-0.257	-0.220	-0.175	-0.120	-0.059	0.009	0.085	0.170	0.262
29	-0.377	-0.294	-0.253	-0.216	-0.169	-0.116	-0.057	0.009	0.078	0.170	0.282
30	-0.270	-0.210	-0.230	-0.216	-0.175	-0.128	-0.076	-0.012	0.076	0.176	0.284
31	-0.297	-0.276	-0.247	-0.198	-0.136	-0.087	-0.020	0.054	0.116	0.203	0.282
32	-0.225	-0.208	-0.168	-0.169	-0.171	-0.130	-0.061	0.015	0.105	0.205	0.315
33	-0.272	-0.224	-0.228	-0.212	-0.191	-0.159	-0.111	-0.065	0.004	0.104	0.214
34	0.239	-0.160	-0.201	-0.257	-0.344	-0.270	-0.253	-0.305	-0.260	-0.245	-0.175
35	0.305	-0.109	-0.160	-0.233	-0.350	-0.231	-0.315	-0.345	-0.324	-0.284	-0.206
36	0.362	-0.020	-0.148	-0.189	-0.375	-0.536	-0.354	-0.367	-0.350	-0.297	-0.212
Left elevon flap, upper surface											
37	0.346	0.054	-0.197	-0.231	-0.375	-0.392	-0.404	-0.398	-0.369	-0.336	-0.219
38	0.517	0.378	0.127	-0.319	-0.290	-0.412	-0.336	-0.299	-0.326	-0.292	-0.227
39	0.634	0.453	0.069	-0.255	-0.272	-0.324	-0.231	-0.212	-0.282	-0.218	-0.216
40	0.657	0.385	-0.024	-0.214	-0.262	-0.320	-0.218	-0.214	-0.233	-0.191	-0.184
41	1.230	1.233	1.233	1.232	1.232	1.229	1.232	1.232	1.231	1.232	1.230
42	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.641	-0.639	-0.639
43	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643
44	0.036	0.269	-0.043	-0.242	-0.232	-0.271	-0.248	-0.267	-0.286	-0.176	-0.050
45	0.616	0.544	0.424	0.378	-0.009	-0.083	-0.277	-0.434	-0.428	-0.333	-0.201
46	0.746	0.531	0.445	0.358	-0.193	-0.052	-0.269	-0.436	-0.420	-0.331	-0.232
47	0.595	0.480	0.304	0.275	-0.255	-0.224	-0.273	-0.418	-0.383	-0.337	-0.236
48	0.589	0.546	0.544	0.492	0.624	0.320	-0.006	-0.244	-0.302	-0.368	-0.232
49	0.711	0.545	0.652	0.616	0.750	0.177	-0.308	-0.424	-0.451	-0.379	-0.234
50	0.561	0.548	0.650	0.678	0.696	-0.085	-0.366	-0.484	-0.480	-0.393	-0.223

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.216	-0.248	-0.267	-0.292	-0.310	-0.323	-0.339	-0.333	-0.319	-0.292	-0.207
52	-0.460	-0.469	-0.416	-0.447	-0.348	-0.381	-0.416	-0.405	-0.362	-0.316	-0.279
53	-0.468	-0.461	-0.418	-0.434	-0.356	-0.385	-0.418	-0.412	-0.362	-0.314	-0.269
54	-0.427	-0.436	-0.426	-0.389	-0.364	-0.387	-0.405	-0.415	-0.375	-0.319	-0.283
55	-0.423	-0.430	-0.418	-0.385	-0.360	-0.393	-0.412	-0.418	-0.377	-0.319	-0.287
Right tip fin inner flap, inner surface											
56	-0.395	-0.391	-0.393	-0.343	-0.312	-0.335	-0.360	-0.345	-0.327	-0.271	-0.287
57	-0.445	-0.439	-0.422	-0.410	-0.354	-0.383	-0.412	-0.405	-0.383	-0.323	-0.283
58	-0.432	-0.449	-0.420	-0.399	-0.345	-0.381	-0.410	-0.401	-0.379	-0.319	-0.281
59	-0.417	-0.438	-0.416	-0.365	-0.339	-0.387	-0.403	-0.395	-0.364	-0.314	-0.277
60	-0.458	-0.463	-0.426	-0.430	-0.374	-0.397	-0.422	-0.424	-0.375	-0.329	-0.312
Left tip fin inner flap, outer surface											
61	-0.149	-0.314	-0.304	-0.304	-0.354	-0.372	-0.364	-0.407	-0.364	-0.281	-0.201
62	-0.190	-0.343	-0.378	-0.393	-0.453	-0.453	-0.459	-0.490	-0.416	-0.273	-0.186
63	-0.151	-0.298	-0.362	-0.391	-0.447	-0.447	-0.445	-0.472	-0.406	-0.271	-0.207
64	-0.025	-0.215	-0.424	-0.416	-0.286	-0.267	-0.230	-0.365	-0.265	-0.124	-0.072
65	0.447	-0.126	-0.574	-0.327	-0.215	-0.253	-0.279	-0.352	-0.333	-0.023	-0.077
66	-0.047	-0.192	0.015	0.091	-0.002	-0.195	-0.294	-0.376	-0.364	-0.294	0.194
67	0.406	0.147	0.269	0.130	0.006	-0.302	-0.362	-0.405	-0.360	-0.339	-0.039
68	0.821	0.420	0.079	-0.052	-0.292	-0.377	-0.403	-0.407	-0.362	-0.360	-0.215
Left tip fin outer flap, outer surface											
69	0.221	0.207	0.188	0.149	0.101	0.061	0.023	-0.013	-0.045	-0.072	-0.079
70	0.126	0.134	0.151	0.165	0.175	0.181	0.190	0.184	0.173	0.161	0.149
71	0.174	0.170	0.178	0.178	0.186	0.192	0.188	0.172	0.150	0.126	0.105
72	0.126	0.137	0.151	0.149	0.151	0.175	0.186	0.190	0.194	0.205	0.211
73	0.107	0.108	0.118	0.128	0.151	0.175	0.184	0.198	0.192	0.194	0.188
74	0.069	0.066	0.089	0.101	0.122	0.126	0.118	0.122	0.107	0.093	0.074
Left tip fin, inner surface											
75	-0.181	-0.389	-0.374	-0.370	-0.416	-0.426	-0.430	-0.478	-0.426	-0.383	-0.170
76	-0.642	-0.416	-0.445	-0.459	-0.501	-0.519	-0.509	-0.509	-0.459	-0.362	-0.097
Center fin, left surface											
77	-0.602	-0.631	-0.633	-0.633	-0.633	-0.633	-0.633	-0.633	-0.633	-0.631	-0.631
78	-0.606	-0.635	-0.635	-0.635	-0.635	-0.635	-0.635	-0.635	-0.635	-0.633	-0.633
Body											
79	0.205	0.114	0.033	-0.035	-0.099	-0.168	-0.224	-0.273	-0.310	-0.339	-0.366
80	0.036	-0.050	-0.107	-0.153	-0.180	-0.199	-0.221	-0.244	-0.271	-0.300	-0.333
81	0.097	0.029	-0.037	-0.083	-0.143	-0.205	-0.273	-0.333	-0.381	-0.416	-0.445
82	-0.155	-0.122	-0.072	-0.033	0.008	0.057	0.118	0.195	0.270	0.358	0.440
83	0.231	0.310	0.426	0.550	0.672	0.795	0.916	1.036	1.144	1.243	-0.732

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.431	-0.396	-0.394	-0.416	-0.408	-0.262	-0.140	-0.124	-0.182	-0.258	-0.052
2	-0.429	-0.394	-0.396	-0.416	-0.431	-0.431	-0.419	-0.433	-0.404	-0.269	-0.067
3	-0.396	-0.398	-0.392	-0.396	-0.398	-0.431	-0.388	-0.381	-0.390	-0.209	-0.038
4	-0.449	-0.425	-0.404	-0.410	-0.427	-0.435	-0.478	-0.429	-0.454	-0.332	-0.102
5	-0.416	-0.418	-0.396	-0.392	-0.452	-0.458	-0.423	-0.419	-0.396	-0.283	-0.046
6	-0.402	-0.404	-0.367	-0.377	-0.408	-0.427	-0.414	-0.398	-0.380	-0.291	-0.040
7	-0.423	-0.416	-0.382	-0.396	-0.443	-0.423	-0.419	-0.400	-0.388	-0.279	-0.032
8	-0.423	-0.416	-0.371	-0.377	-0.435	-0.429	-0.416	-0.400	-0.384	-0.279	-0.015
9	-0.408	-0.398	-0.367	-0.375	-0.406	-0.427	-0.410	-0.369	-0.376	-0.283	-0.019
Right elevon, upper surface											
10	-0.427	-0.410	-0.386	-0.396	-0.433	-0.437	-0.419	-0.400	-0.392	-0.281	-0.044
11	-0.427	-0.410	-0.369	-0.402	-0.443	-0.431	-0.419	-0.400	-0.378	-0.283	-0.036
12	-0.402	-0.400	-0.367	-0.404	-0.406	-0.427	-0.410	-0.373	-0.376	-0.289	-0.044
13	-0.458	-0.437	-0.412	-0.439	-0.435	-0.468	-0.478	-0.458	-0.446	-0.328	-0.067
14	-0.439	-0.402	-0.396	-0.400	-0.427	-0.437	-0.427	-0.410	-0.396	-0.287	-0.026
15	-0.416	-0.367	-0.369	-0.390	-0.402	-0.470	-0.454	-0.435	-0.427	-0.299	-0.044
16	-0.396	-0.375	-0.365	-0.375	-0.392	-0.340	-0.305	-0.258	-0.234	-0.194	-0.024
17	-0.458	-0.453	-0.443	-0.390	-0.000	-0.169	-0.060	0.037	0.118	0.199	0.230
18	-0.431	-0.427	-0.431	-0.386	0.051	-0.152	-0.083	0.012	0.096	0.195	0.232
Right elevon, side surface											
19	-0.439	-0.388	-0.369	-0.400	-0.365	-0.322	-0.278	-0.241	-0.217	-0.182	-0.038
20	-0.470	-0.264	-0.213	-0.182	-0.136	-0.105	-0.068	-0.025	0.030	0.104	0.195
Right elevon well, left surface											
21	-0.441	-0.254	-0.202	-0.163	-0.130	-0.093	-0.048	0.004	0.063	0.145	0.252
Right elevon well, right surface											
22	-0.429	-0.249	-0.192	-0.161	-0.130	-0.093	-0.041	0.022	0.087	0.168	0.250
Left elevon, lower surface											
23	-0.418	-0.256	-0.190	-0.161	-0.130	-0.093	-0.045	0.014	0.077	0.153	0.238
24	-0.301	-0.216	-0.180	-0.159	-0.128	-0.095	-0.054	-0.000	0.059	0.145	0.248
25	-0.286	-0.216	-0.182	-0.159	-0.128	-0.095	-0.054	-0.004	0.052	0.127	0.232
26	-0.278	-0.227	-0.196	-0.169	-0.140	-0.107	-0.068	-0.011	0.050	0.121	0.197
27	-0.264	-0.237	-0.198	-0.169	-0.135	-0.107	-0.066	-0.015	0.044	0.116	0.197
28	-0.239	-0.208	-0.182	-0.165	-0.124	-0.082	-0.037	0.010	0.067	0.135	0.213
29	-0.222	-0.200	-0.178	-0.155	-0.126	-0.095	-0.054	-0.000	0.069	0.147	0.230
30	-0.222	-0.198	-0.175	-0.155	-0.130	-0.097	-0.056	-0.000	0.067	0.127	0.219
31	-0.249	-0.216	-0.221	-0.196	-0.134	-0.080	-0.033	0.025	0.087	0.158	0.230
32	-0.183	-0.163	-0.169	-0.149	-0.116	-0.072	-0.019	0.037	0.106	0.184	0.271
33	-0.216	-0.206	-0.188	-0.153	-0.138	-0.115	-0.068	-0.002	0.071	0.156	0.242
34	0.491	0.326	0.267	-0.136	-0.278	-0.416	-0.414	-0.385	-0.357	-0.369	-0.038
35	0.479	0.315	0.235	0.012	-0.231	-0.410	-0.419	-0.439	-0.376	-0.363	-0.048
36	0.433	0.287	0.202	0.173	-0.109	-0.406	-0.449	-0.359	-0.406	-0.361	-0.061
Left elevon flap, upper surface											
37	0.435	0.262	0.167	0.132	-0.025	-0.390	-0.423	-0.408	-0.404	-0.308	-0.063
38	0.406	0.303	0.230	0.185	0.185	0.155	-0.010	-0.107	-0.279	-0.384	-0.050
39	0.534	0.419	0.340	0.294	0.216	0.196	0.074	-0.089	-0.236	-0.369	-0.050
40	0.571	0.441	0.350	0.344	0.230	0.219	0.076	-0.091	-0.308	-0.271	-0.032
41	1.231	1.231	1.230	1.230	1.230	1.229	1.230	1.230	1.228	1.228	1.230
42	-0.639	-0.639	-0.639	-0.641	-0.639	-0.639	-0.641	-0.639	-0.641	-0.641	-0.639
43	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.643	-0.641	-0.641
44	0.520	0.402	0.305	0.315	0.237	0.113	-0.183	-0.364	-0.392	-0.250	-0.019
45	0.465	0.396	0.352	0.373	0.387	0.402	0.361	0.332	0.209	0.161	-0.029
46	0.493	0.415	0.371	0.392	0.420	0.423	0.439	0.323	0.182	-0.023	-0.035
47	0.347	0.291	0.245	0.268	0.288	0.293	0.336	0.222	0.114	-0.134	-0.060
48	0.208	0.212	0.222	0.230	0.197	0.231	0.226	0.197	0.223	0.150	-0.043
49	0.390	0.320	0.329	0.352	0.329	0.363	0.332	0.354	0.316	0.257	-0.031
50	0.400	0.344	0.383	0.354	0.356	0.330	0.297	0.336	0.254	0.261	-0.015

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.220	-0.242	-0.269	-0.282	-0.300	-0.319	-0.323	-0.323	-0.323	-0.237	0.008
52	-0.447	-0.391	-0.381	-0.397	-0.402	-0.401	-0.397	-0.362	-0.404	-0.307	-0.013
53	-0.430	-0.391	-0.379	-0.387	-0.402	-0.406	-0.399	-0.360	-0.406	-0.318	-0.015
54	-0.399	-0.410	-0.383	-0.385	-0.404	-0.410	-0.406	-0.362	-0.408	-0.311	-0.019
55	-0.391	-0.401	-0.381	-0.395	-0.408	-0.412	-0.406	-0.368	-0.410	-0.318	-0.029
Right tip fin inner flap, inner surface											
56	-0.364	-0.379	-0.354	-0.371	-0.397	-0.372	-0.362	-0.355	-0.361	-0.212	-0.015
57	-0.426	-0.399	-0.381	-0.406	-0.410	-0.406	-0.402	-0.387	-0.408	-0.301	-0.011
58	-0.412	-0.397	-0.381	-0.406	-0.408	-0.403	-0.395	-0.381	-0.398	-0.297	-0.004
59	-0.403	-0.395	-0.377	-0.402	-0.404	-0.401	-0.393	-0.373	-0.394	-0.289	0.004
60	-0.428	-0.416	-0.397	-0.399	-0.412	-0.418	-0.412	-0.383	-0.418	-0.328	-0.019
Left tip fin inner flap, outer surface											
61	0.297	-0.044	-0.172	-0.289	-0.238	-0.279	-0.373	-0.418	-0.363	-0.291	-0.029
62	0.723	0.336	-0.013	-0.238	-0.315	-0.412	-0.335	-0.340	-0.431	-0.268	-0.011
63	0.754	0.540	0.168	-0.183	-0.319	-0.416	-0.288	-0.307	-0.429	-0.260	-0.050
64	0.987	0.628	0.253	-0.102	-0.321	-0.174	-0.021	-0.148	-0.319	-0.124	-0.017
65	0.762	0.754	0.654	0.511	-0.218	-0.104	0.239	0.127	-0.056	-0.087	-0.037
66	0.930	0.754	0.166	0.449	0.162	0.014	-0.226	-0.282	-0.383	-0.297	-0.031
67	0.905	0.867	0.610	0.493	0.210	-0.178	-0.362	-0.360	-0.383	-0.318	-0.035
68	0.628	0.599	0.631	0.340	0.009	-0.313	-0.416	-0.418	-0.373	-0.316	-0.023
Left tip fin outer flap, outer surface											
69	-0.240	-0.110	-0.036	-0.001	-0.017	-0.056	-0.085	-0.166	-0.212	-0.215	-0.029
70	-0.197	-0.147	-0.062	-0.026	0.016	0.028	-0.003	-0.069	-0.082	-0.056	0.037
71	-0.153	-0.108	-0.049	-0.013	0.018	0.039	-0.007	-0.081	-0.099	-0.091	0.033
72	-0.193	-0.133	-0.067	-0.024	0.003	-0.005	-0.048	-0.081	-0.072	-0.070	0.029
73	-0.195	-0.133	-0.079	-0.034	0.001	-0.001	-0.044	-0.077	-0.064	-0.060	0.051
74	-0.263	-0.151	-0.106	-0.059	-0.026	-0.040	-0.096	-0.129	-0.130	-0.122	0.025
Left tip fin, inner surface											
75	0.082	-0.069	-0.160	-0.348	-0.309	-0.279	-0.327	-0.428	-0.437	-0.313	-0.039
76	0.045	-0.149	-0.224	-0.410	-0.418	-0.406	-0.278	-0.383	-0.389	-0.245	-0.029
Center fin, left surface											
77	-0.631	-0.631	-0.631	-0.631	-0.631	-0.631	-0.631	-0.631	-0.631	-0.629	-0.633
78	-0.633	-0.633	-0.633	-0.633	-0.633	-0.635	-0.633	-0.633	-0.635	-0.633	-0.637
Body											
79	0.066	0.041	-0.024	-0.096	-0.183	-0.292	-0.373	-0.422	-0.451	-0.478	-0.091
80	0.012	-0.061	-0.123	-0.178	-0.215	-0.242	-0.261	-0.273	-0.295	-0.324	-0.130
81	0.173	0.099	0.042	-0.024	-0.090	-0.151	-0.214	-0.276	-0.328	-0.369	-0.085
82	-0.331	-0.230	-0.123	-0.022	0.086	0.190	0.286	0.387	0.493	0.589	0.663
83	0.206	0.301	0.416	0.542	0.674	0.801	0.922	1.044	1.155	1.255	-0.730

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.322	-0.316	-0.300	-0.301	-0.309	-0.224	-0.103	0.002	0.041	0.111	0.074
2	-0.324	-0.327	-0.302	-0.325	-0.331	-0.332	-0.332	-0.338	-0.342	-0.322	-0.309
3	-0.320	-0.316	-0.300	-0.309	-0.323	-0.311	-0.319	-0.295	-0.330	-0.309	-0.303
4	-0.353	-0.350	-0.325	-0.323	-0.340	-0.340	-0.295	-0.355	-0.369	-0.346	-0.311
5	-0.328	-0.329	-0.309	-0.323	-0.334	-0.334	-0.332	-0.342	-0.350	-0.324	-0.311
6	-0.324	-0.318	-0.298	-0.309	-0.329	-0.334	-0.330	-0.335	-0.345	-0.309	-0.303
7	-0.330	-0.331	-0.311	-0.317	-0.334	-0.334	-0.334	-0.344	-0.350	-0.326	-0.317
8	-0.326	-0.325	-0.302	-0.317	-0.331	-0.334	-0.332	-0.340	-0.350	-0.320	-0.311
9	-0.326	-0.320	-0.300	-0.307	-0.329	-0.334	-0.326	-0.317	-0.330	-0.295	-0.289
Right elevon, upper surface											
10	-0.330	-0.331	-0.311	-0.317	-0.334	-0.334	-0.336	-0.342	-0.350	-0.326	-0.324
11	-0.326	-0.325	-0.302	-0.317	-0.331	-0.334	-0.334	-0.340	-0.350	-0.322	-0.311
12	-0.326	-0.320	-0.300	-0.307	-0.329	-0.334	-0.321	-0.317	-0.330	-0.293	-0.289
13	-0.353	-0.345	-0.327	-0.329	-0.340	-0.340	-0.365	-0.379	-0.379	-0.357	-0.361
14	-0.328	-0.329	-0.309	-0.323	-0.334	-0.334	-0.334	-0.342	-0.350	-0.324	-0.315
15	-0.320	-0.308	-0.294	-0.309	-0.369	-0.365	-0.365	-0.367	-0.373	-0.350	-0.342
16	-0.291	-0.298	-0.294	-0.303	-0.270	-0.230	-0.227	-0.187	-0.157	-0.118	-0.068
17	-0.355	-0.350	-0.302	-0.137	-0.005	-0.092	-0.119	-0.072	-0.021	0.041	0.135
18	-0.341	-0.333	-0.290	-0.082	0.007	-0.076	-0.117	-0.089	-0.035	0.037	0.129
Right elevon, side surface											
19	-0.303	-0.308	-0.298	-0.294	-0.241	-0.210	-0.183	-0.145	-0.118	-0.093	-0.062
20	-0.378	-0.368	-0.275	-0.183	-0.127	-0.078	-0.025	0.037	0.103	0.174	0.255
Right elevon well, left surface											
21	-0.378	-0.372	-0.267	-0.175	-0.123	-0.072	-0.016	0.050	0.121	0.197	0.288
Right elevon well, right surface											
22	-0.366	-0.370	-0.261	-0.173	-0.123	-0.072	-0.014	0.054	0.130	0.209	0.302
Left elevon, lower surface											
23	-0.341	-0.341	-0.265	-0.170	-0.125	-0.072	-0.014	0.054	0.125	0.205	0.288
24	-0.341	-0.227	-0.207	-0.158	-0.121	-0.072	-0.021	0.045	0.113	0.179	0.265
25	-0.353	-0.248	-0.220	-0.158	-0.123	-0.078	-0.023	0.041	0.107	0.176	0.261
26	-0.356	-0.252	-0.211	-0.166	-0.133	-0.092	-0.041	0.017	0.082	0.154	0.236
27	-0.341	-0.246	-0.209	-0.166	-0.133	-0.088	-0.041	0.019	0.082	0.150	0.224
28	-0.268	-0.260	-0.185	-0.154	-0.117	-0.074	-0.021	0.039	0.103	0.174	0.246
29	-0.241	-0.217	-0.165	-0.152	-0.117	-0.076	-0.027	0.031	0.082	0.144	0.224
30	-0.243	-0.221	-0.169	-0.154	-0.129	-0.094	-0.051	0.002	0.070	0.144	0.236
31	-0.241	-0.246	-0.178	-0.154	-0.106	-0.074	-0.021	0.045	0.115	0.193	0.267
32	-0.237	-0.231	-0.156	-0.150	-0.121	-0.082	-0.027	0.039	0.113	0.195	0.288
33	-0.243	-0.198	-0.174	-0.166	-0.144	-0.109	-0.068	-0.021	0.037	0.117	0.222
34	0.278	0.112	-0.091	-0.243	-0.247	-0.189	-0.173	-0.218	-0.258	-0.311	-0.352
35	0.278	0.132	-0.091	-0.210	-0.249	-0.247	-0.268	-0.266	-0.278	-0.303	-0.352
36	0.274	0.145	-0.112	-0.195	-0.280	-0.259	-0.266	-0.276	-0.289	-0.311	-0.340
Left elevon flap, upper surface											
37	0.274	0.128	-0.110	-0.214	-0.261	-0.299	-0.288	-0.299	-0.311	-0.336	-0.326
38	0.420	0.342	0.270	0.001	-0.282	-0.243	-0.185	-0.185	-0.239	-0.278	-0.324
39	0.499	0.390	0.297	-0.030	-0.263	-0.226	-0.222	-0.206	-0.237	-0.247	-0.299
40	0.508	0.392	0.248	-0.069	-0.241	-0.259	-0.268	-0.276	-0.278	-0.297	-0.293
41	1.444	1.439	1.430	1.427	1.428	1.426	1.424	1.424	1.423	1.421	1.424
42	-0.449	-0.445	-0.445	-0.447	-0.447	-0.447	-0.447	-0.449	-0.445	-0.453	-0.449
43	-0.449	-0.447	-0.447	-0.447	-0.447	-0.447	-0.447	-0.453	-0.447	-0.447	-0.449
44	0.445	0.349	0.170	-0.083	-0.247	-0.236	-0.247	-0.255	-0.266	-0.276	-0.268
45	0.453	0.341	0.261	0.284	0.247	-0.005	-0.111	-0.181	-0.252	-0.274	-0.241
46	0.506	0.389	0.290	0.315	0.351	0.080	-0.026	-0.070	-0.114	-0.190	-0.268
47	0.426	0.322	0.217	0.270	0.293	0.078	-0.063	-0.123	-0.167	-0.218	-0.282
48	0.349	0.310	0.311	0.353	0.305	0.230	0.180	-0.090	-0.169	-0.231	-0.247
49	0.453	0.397	0.385	0.448	0.332	0.276	0.166	-0.121	-0.225	-0.264	-0.288
50	0.424	0.351	0.360	0.340	0.212	0.179	0.029	-0.041	-0.105	-0.274	-0.321

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.203	-0.210	-0.221	-0.236	-0.259	-0.255	-0.255	-0.261	-0.264	-0.253	-0.223
52	-0.343	-0.329	-0.308	-0.311	-0.317	-0.303	-0.311	-0.301	-0.297	-0.270	-0.241
53	-0.343	-0.329	-0.306	-0.311	-0.317	-0.307	-0.315	-0.301	-0.297	-0.276	-0.258
54	-0.339	-0.329	-0.319	-0.311	-0.319	-0.313	-0.319	-0.309	-0.305	-0.278	-0.268
55	-0.335	-0.329	-0.317	-0.313	-0.323	-0.311	-0.319	-0.309	-0.307	-0.280	-0.268
Right tip fin inner flap, inner surface											
56	-0.324	-0.318	-0.302	-0.300	-0.319	-0.300	-0.286	-0.305	-0.301	-0.268	-0.251
57	-0.339	-0.329	-0.315	-0.315	-0.323	-0.309	-0.321	-0.311	-0.307	-0.282	-0.266
58	-0.339	-0.329	-0.315	-0.315	-0.321	-0.305	-0.317	-0.309	-0.307	-0.280	-0.262
59	-0.335	-0.324	-0.313	-0.311	-0.317	-0.300	-0.309	-0.307	-0.305	-0.278	-0.262
60	-0.349	-0.339	-0.319	-0.321	-0.329	-0.315	-0.319	-0.313	-0.313	-0.282	-0.268
Left tip fin inner flap, outer surface											
61	-0.016	-0.169	-0.257	-0.232	-0.263	-0.300	-0.309	-0.319	-0.320	-0.317	-0.284
62	0.034	-0.100	-0.257	-0.294	-0.327	-0.336	-0.356	-0.325	-0.313	-0.313	-0.297
63	0.143	0.037	-0.199	-0.294	-0.321	-0.331	-0.346	-0.327	-0.317	-0.311	-0.291
64	0.205	-0.006	-0.228	-0.331	-0.282	-0.249	-0.245	-0.210	-0.252	-0.297	-0.291
65	0.556	0.224	-0.072	-0.247	-0.245	-0.243	-0.247	-0.268	-0.295	-0.299	-0.276
66	0.207	-0.061	-0.242	-0.013	-0.069	-0.108	-0.144	-0.251	-0.320	-0.321	-0.284
67	0.676	0.305	-0.083	0.067	-0.104	-0.220	-0.237	-0.288	-0.315	-0.319	-0.282
68	0.866	0.495	-0.354	-0.017	-0.251	-0.278	-0.294	-0.313	-0.317	-0.305	-0.282
Left tip fin outer flap, outer surface											
69	0.066	0.081	0.091	0.084	0.047	0.009	-0.010	-0.020	-0.021	-0.043	-0.052
70	0.063	0.053	0.056	0.074	0.074	0.082	0.089	0.077	0.075	0.076	0.080
71	0.030	0.050	0.075	0.088	0.092	0.102	0.089	0.075	0.073	0.068	0.062
72	-0.011	0.021	0.043	0.051	0.053	0.057	0.062	0.073	0.084	0.093	0.111
73	-0.014	0.016	0.035	0.043	0.049	0.055	0.069	0.091	0.084	0.097	0.122
74	-0.020	-0.002	0.017	0.026	0.030	0.028	0.046	0.045	0.038	0.045	0.062
Left tip fin, inner surface											
75	-0.116	-0.225	-0.251	-0.261	-0.302	-0.313	-0.336	-0.342	-0.340	-0.346	-0.305
76	-0.149	-0.258	-0.298	-0.331	-0.356	-0.371	-0.381	-0.373	-0.361	-0.365	-0.373
Center fin, left surface											
77	-0.437	-0.437	-0.439	-0.437	-0.441	-0.441	-0.439	-0.437	-0.433	-0.437	-0.437
78	-0.439	-0.441	-0.443	-0.439	-0.439	-0.439	-0.439	-0.439	-0.435	-0.439	-0.439
Body											
79	0.118	0.060	-0.002	-0.061	-0.114	-0.164	-0.206	-0.235	-0.256	-0.276	-0.299
80	0.030	-0.035	-0.091	-0.131	-0.145	-0.156	-0.171	-0.185	-0.198	-0.218	-0.225
81	0.111	0.056	0.002	-0.048	-0.094	-0.143	-0.191	-0.237	-0.266	-0.295	-0.315
82	-0.162	-0.115	-0.046	0.024	0.094	0.164	0.240	0.316	0.407	0.494	0.589
83	0.218	0.322	0.426	0.547	0.675	0.809	0.937	1.065	1.184	1.296	1.393

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at: $\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.258	-0.268	-0.257	-0.268	-0.292	-0.280	-0.288	-0.082	-0.105	0.084	0.102
2	-0.258	-0.270	-0.255	-0.278	-0.332	-0.307	-0.342	-0.334	-0.325	-0.321	-0.309
3	-0.258	-0.272	-0.255	-0.274	-0.303	-0.288	-0.309	-0.311	-0.299	-0.300	-0.282
4	-0.270	-0.282	-0.264	-0.284	-0.319	-0.301	-0.332	-0.367	-0.270	-0.356	-0.327
5	-0.256	-0.272	-0.259	-0.278	-0.323	-0.294	-0.332	-0.340	-0.332	-0.325	-0.319
6	-0.250	-0.268	-0.259	-0.278	-0.299	-0.286	-0.305	-0.335	-0.336	-0.329	-0.331
7	-0.260	-0.274	-0.264	-0.290	-0.317	-0.309	-0.323	-0.340	-0.338	-0.329	-0.325
8	-0.250	-0.266	-0.262	-0.288	-0.313	-0.317	-0.321	-0.338	-0.332	-0.323	-0.319
9	-0.250	-0.262	-0.266	-0.290	-0.299	-0.307	-0.303	-0.332	-0.332	-0.323	-0.319
Right elevon, upper surface											
10	-0.260	-0.274	-0.270	-0.299	-0.317	-0.307	-0.323	-0.340	-0.344	-0.329	-0.327
11	-0.250	-0.264	-0.259	-0.317	-0.313	-0.309	-0.321	-0.338	-0.332	-0.323	-0.319
12	-0.250	-0.264	-0.270	-0.301	-0.299	-0.321	-0.303	-0.332	-0.332	-0.323	-0.319
13	-0.274	-0.284	-0.272	-0.294	-0.319	-0.307	-0.313	-0.355	-0.365	-0.360	-0.360
14	-0.256	-0.270	-0.297	-0.288	-0.325	-0.303	-0.338	-0.338	-0.332	-0.325	-0.319
15	-0.260	-0.274	-0.276	-0.294	-0.346	-0.323	-0.365	-0.360	-0.365	-0.356	-0.354
16	-0.160	-0.220	-0.280	-0.261	-0.259	-0.303	-0.206	-0.179	-0.154	-0.127	-0.082
17	-0.269	-0.284	-0.284	-0.210	-0.024	-0.098	0.007	-0.032	-0.053	0.011	0.113
18	-0.278	-0.268	-0.247	-0.183	-0.020	-0.076	0.032	-0.053	-0.061	0.013	0.113
Right elevon, side surface											
19	-0.192	-0.243	-0.255	-0.239	-0.208	-0.226	-0.181	-0.179	-0.154	-0.115	-0.075
20	-0.350	-0.346	-0.336	-0.235	-0.076	-0.140	-0.010	0.073	0.143	0.232	0.325
Right elevon well, left surface											
21	-0.350	-0.352	-0.340	-0.222	-0.068	-0.134	0.001	0.077	0.137	0.239	0.338
Right elevon well, right surface											
22	-0.350	-0.354	-0.330	-0.216	-0.066	-0.129	0.003	0.077	0.134	0.243	0.340
Left elevon, lower surface											
23	-0.350	-0.346	-0.319	-0.196	-0.068	-0.134	0.001	0.067	0.145	0.234	0.319
24	-0.350	-0.371	-0.216	-0.177	-0.082	-0.136	-0.014	0.061	0.137	0.222	0.309
25	-0.350	-0.371	-0.210	-0.173	-0.082	-0.134	-0.018	0.061	0.137	0.226	0.319
26	-0.352	-0.371	-0.212	-0.179	-0.090	-0.136	-0.034	0.034	0.112	0.197	0.294
27	-0.352	-0.389	-0.241	-0.187	-0.094	-0.140	-0.041	0.021	0.101	0.168	0.255
28	-0.371	-0.274	-0.212	-0.179	-0.088	-0.140	-0.030	0.038	0.110	0.187	0.270
29	-0.365	-0.276	-0.226	-0.185	-0.092	-0.142	-0.034	0.034	0.106	0.172	0.255
30	-0.340	-0.241	-0.222	-0.185	-0.099	-0.144	-0.043	0.021	0.085	0.160	0.261
31	-0.282	-0.241	-0.196	-0.169	-0.096	-0.152	-0.030	0.042	0.128	0.212	0.296
32	-0.235	-0.167	-0.167	-0.183	-0.129	-0.175	-0.063	0.013	0.097	0.191	0.294
33	-0.237	-0.210	-0.208	-0.181	-0.113	-0.152	-0.063	-0.008	0.044	0.111	0.195
34	-0.009	-0.113	-0.111	-0.214	-0.268	-0.247	-0.288	-0.296	-0.290	-0.298	-0.292
35	0.026	-0.078	-0.097	-0.204	-0.255	-0.220	-0.276	-0.290	-0.282	-0.288	-0.292
36	0.117	-0.008	-0.119	-0.187	-0.290	-0.230	-0.301	-0.303	-0.339	-0.317	-0.323
Left elevon flap, upper surface											
37	0.170	0.004	-0.183	-0.189	-0.317	-0.247	-0.321	-0.329	-0.332	-0.342	-0.340
38	0.397	0.093	-0.127	-0.198	-0.259	-0.251	-0.175	-0.175	-0.189	-0.249	-0.274
39	0.454	0.126	-0.082	-0.179	-0.179	-0.210	-0.098	-0.156	-0.150	-0.210	-0.251
40	0.442	0.103	-0.094	-0.148	-0.179	-0.191	-0.144	-0.197	-0.195	-0.236	-0.263
41	1.421	1.425	1.425	1.425	1.428	1.426	1.426	1.429	1.426	1.428	1.430
42	-0.445	-0.451	-0.451	-0.449	-0.453	-0.453	-0.459	-0.447	-0.447	-0.451	-0.457
43	-0.447	-0.451	-0.453	-0.449	-0.447	-0.468	-0.459	-0.453	-0.453	-0.453	-0.449
44	0.318	0.007	-0.109	-0.177	-0.177	-0.153	-0.202	-0.238	-0.238	-0.242	-0.247
45	0.541	0.411	0.202	-0.069	-0.208	-0.093	-0.250	-0.251	-0.276	-0.261	-0.267
46	0.609	0.488	0.172	-0.102	-0.189	-0.118	-0.274	-0.313	-0.288	-0.236	-0.240
47	0.518	0.420	0.151	-0.148	-0.181	-0.251	-0.295	-0.319	-0.298	-0.259	-0.247
48	0.530	0.451	0.547	0.612	0.022	0.477	-0.176	-0.313	-0.307	-0.309	-0.319
49	0.605	0.506	0.631	0.719	-0.177	0.138	-0.283	-0.344	-0.329	-0.350	-0.329
50	0.520	0.453	0.607	0.555	-0.265	-0.032	-0.332	-0.371	-0.344	-0.346	-0.340

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(e) M = 1.80, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.200	-0.210	-0.226	-0.239	-0.267	-0.232	-0.264	-0.274	-0.269	-0.257	-0.242
52	-0.358	-0.350	-0.323	-0.319	-0.313	-0.271	-0.307	-0.309	-0.273	-0.263	-0.263
53	-0.358	-0.340	-0.321	-0.307	-0.315	-0.275	-0.309	-0.307	-0.276	-0.263	-0.267
54	-0.344	-0.327	-0.328	-0.292	-0.309	-0.273	-0.305	-0.315	-0.284	-0.273	-0.275
55	-0.342	-0.323	-0.328	-0.288	-0.309	-0.277	-0.307	-0.315	-0.286	-0.273	-0.275
Right tip fin inner flap, inner surface											
56	-0.321	-0.309	-0.299	-0.267	-0.278	-0.251	-0.276	-0.288	-0.242	-0.228	-0.247
57	-0.352	-0.340	-0.328	-0.305	-0.309	-0.271	-0.303	-0.323	-0.282	-0.273	-0.275
58	-0.344	-0.334	-0.328	-0.301	-0.309	-0.271	-0.305	-0.319	-0.284	-0.273	-0.273
59	-0.336	-0.325	-0.323	-0.296	-0.307	-0.271	-0.303	-0.307	-0.280	-0.259	-0.263
60	-0.352	-0.344	-0.330	-0.311	-0.319	-0.281	-0.309	-0.317	-0.288	-0.276	-0.275
Left tip fin inner flap, outer surface											
61	-0.212	-0.296	-0.297	-0.303	-0.315	-0.279	-0.313	-0.319	-0.317	-0.321	-0.329
62	-0.043	-0.212	-0.301	-0.338	-0.348	-0.308	-0.350	-0.345	-0.329	-0.329	-0.317
63	0.184	0.098	-0.280	-0.329	-0.346	-0.312	-0.350	-0.344	-0.329	-0.327	-0.321
64	-0.008	-0.123	-0.297	-0.340	-0.309	-0.353	-0.256	-0.280	-0.296	-0.309	-0.294
65	0.202	0.015	-0.212	-0.317	-0.232	-0.326	-0.260	-0.321	-0.317	-0.311	-0.313
66	-0.138	-0.237	-0.286	-0.296	-0.113	-0.128	-0.268	-0.323	-0.340	-0.346	-0.366
67	0.100	-0.043	-0.121	-0.088	-0.152	-0.003	-0.295	-0.317	-0.329	-0.335	-0.379
68	0.275	0.178	0.256	0.114	-0.272	-0.013	-0.307	-0.313	-0.323	-0.323	-0.354
Left tip fin outer flap, outer surface											
69	0.223	0.211	0.200	0.166	0.108	0.150	0.094	0.078	0.068	0.059	0.043
70	0.147	0.160	0.176	0.181	0.193	0.199	0.201	0.204	0.206	0.196	0.210
71	0.176	0.187	0.192	0.197	0.205	0.214	0.211	0.205	0.205	0.192	0.192
72	0.143	0.156	0.165	0.162	0.172	0.177	0.188	0.197	0.210	0.225	0.239
73	0.130	0.143	0.145	0.145	0.170	0.166	0.190	0.208	0.223	0.227	0.237
74	0.110	0.112	0.118	0.123	0.143	0.146	0.155	0.158	0.165	0.165	0.169
Left tip fin, inner surface											
75	-0.233	-0.296	-0.295	-0.329	-0.319	-0.302	-0.315	-0.323	-0.325	-0.329	-0.335
76	-0.270	-0.329	-0.330	-0.362	-0.358	-0.335	-0.369	-0.350	-0.350	-0.356	-0.364
Center fin, left surface											
77	-0.439	-0.439	-0.435	-0.437	-0.437	-0.418	-0.429	-0.437	-0.437	-0.437	-0.439
78	-0.441	-0.439	-0.437	-0.439	-0.439	-0.420	-0.433	-0.439	-0.439	-0.439	-0.439
Body											
79	0.184	0.127	0.070	0.015	-0.086	-0.026	-0.126	-0.164	-0.195	-0.216	-0.234
80	0.035	-0.026	-0.078	-0.123	-0.164	-0.134	-0.172	-0.193	-0.209	-0.228	-0.249
81	0.046	0.009	-0.035	-0.078	-0.170	-0.110	-0.213	-0.269	-0.300	-0.311	-0.331
82	-0.158	-0.092	-0.049	-0.009	0.090	0.050	0.164	0.235	0.311	0.394	0.481
83	0.225	0.323	0.427	0.544	0.804	0.682	0.933	1.057	1.171	1.279	1.381

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.336	-0.332	-0.313	-0.340	-0.299	-0.200	-0.136	0.007	-0.102	-0.115	-0.109
2	-0.340	-0.334	-0.332	-0.350	-0.352	-0.352	-0.361	-0.350	-0.352	-0.348	-0.338
3	-0.336	-0.334	-0.313	-0.342	-0.342	-0.342	-0.344	-0.344	-0.350	-0.348	-0.338
4	-0.371	-0.367	-0.336	-0.354	-0.363	-0.338	-0.369	-0.358	-0.344	-0.311	-0.292
5	-0.344	-0.336	-0.328	-0.350	-0.356	-0.354	-0.363	-0.354	-0.354	-0.350	-0.336
6	-0.340	-0.334	-0.319	-0.346	-0.356	-0.354	-0.356	-0.350	-0.352	-0.346	-0.340
7	-0.340	-0.338	-0.323	-0.350	-0.356	-0.356	-0.361	-0.356	-0.350	-0.356	-0.350
8	-0.340	-0.334	-0.321	-0.348	-0.354	-0.356	-0.361	-0.352	-0.356	-0.350	-0.340
9	-0.340	-0.334	-0.317	-0.346	-0.354	-0.350	-0.340	-0.340	-0.344	-0.332	-0.327
Right elevon, upper surface											
10	-0.342	-0.338	-0.323	-0.350	-0.354	-0.356	-0.361	-0.356	-0.360	-0.360	-0.350
11	-0.342	-0.338	-0.321	-0.348	-0.356	-0.356	-0.361	-0.352	-0.356	-0.350	-0.340
12	-0.340	-0.336	-0.317	-0.346	-0.354	-0.350	-0.340	-0.338	-0.344	-0.332	-0.327
13	-0.334	-0.334	-0.317	-0.346	-0.358	-0.389	-0.398	-0.389	-0.385	-0.383	-0.369
14	-0.340	-0.334	-0.326	-0.348	-0.354	-0.360	-0.363	-0.356	-0.358	-0.352	-0.340
15	-0.340	-0.334	-0.303	-0.348	-0.379	-0.387	-0.383	-0.381	-0.381	-0.377	-0.365
16	-0.319	-0.330	-0.309	-0.342	-0.303	-0.241	-0.206	-0.179	-0.145	-0.102	-0.071
17	-0.356	-0.363	-0.344	-0.169	-0.197	-0.169	-0.113	-0.045	0.023	0.104	0.226
18	-0.332	-0.334	-0.319	-0.088	-0.173	-0.169	-0.119	-0.061	-0.005	0.077	0.176
Right elevon, side surface											
19	-0.330	-0.332	-0.309	-0.332	-0.270	-0.212	-0.167	-0.135	-0.102	-0.063	-0.028
20	-0.363	-0.229	-0.190	-0.159	-0.125	-0.090	-0.051	-0.010	0.046	0.114	0.195
Right elevon well, left surface											
21	-0.356	-0.229	-0.179	-0.154	-0.117	-0.082	-0.035	0.005	0.065	0.141	0.226
Right elevon well, right surface											
22	-0.352	-0.229	-0.179	-0.142	-0.115	-0.073	-0.027	0.025	0.090	0.172	0.263
Left elevon, lower surface											
23	-0.332	-0.224	-0.179	-0.140	-0.115	-0.074	-0.022	0.030	0.096	0.174	0.261
24	-0.262	-0.198	-0.167	-0.142	-0.115	-0.076	-0.035	0.009	0.069	0.139	0.234
25	-0.239	-0.198	-0.167	-0.144	-0.117	-0.080	-0.035	0.011	0.071	0.139	0.222
26	-0.237	-0.202	-0.171	-0.144	-0.123	-0.084	-0.035	0.011	0.069	0.139	0.215
27	-0.255	-0.204	-0.175	-0.148	-0.123	-0.086	-0.035	0.011	0.067	0.133	0.211
28	-0.220	-0.169	-0.167	-0.146	-0.115	-0.074	-0.029	0.023	0.085	0.154	0.226
29	-0.210	-0.167	-0.165	-0.144	-0.115	-0.076	-0.033	0.019	0.077	0.145	0.236
30	-0.200	-0.183	-0.161	-0.144	-0.119	-0.086	-0.043	0.015	0.081	0.156	0.236
31	-0.204	-0.194	-0.196	-0.159	-0.123	-0.078	-0.031	0.025	0.094	0.166	0.248
32	-0.169	-0.167	-0.163	-0.136	-0.111	-0.072	-0.027	0.032	0.105	0.189	0.277
33	-0.200	-0.167	-0.165	-0.140	-0.123	-0.090	-0.051	0.001	0.069	0.145	0.242
34	0.427	0.235	0.161	-0.175	-0.247	-0.288	-0.290	-0.294	-0.325	-0.329	-0.325
35	0.392	0.248	0.159	-0.165	-0.239	-0.305	-0.295	-0.301	-0.321	-0.329	-0.329
36	0.367	0.235	0.136	-0.093	-0.214	-0.323	-0.292	-0.296	-0.321	-0.321	-0.325
Left elevon flap, upper surface											
37	0.322	0.204	0.130	-0.002	-0.224	-0.315	-0.295	-0.309	-0.319	-0.311	-0.315
38	0.394	0.295	0.225	0.221	0.281	0.019	-0.093	-0.226	-0.274	-0.332	-0.332
39	0.474	0.359	0.284	0.283	0.244	0.025	-0.101	-0.195	-0.195	-0.309	-0.332
40	0.460	0.345	0.254	0.283	0.160	0.005	-0.113	-0.247	-0.303	-0.307	-0.323
41	1.424	1.423	1.426	1.424	1.424	1.426	1.425	1.429	1.429	1.429	1.427
42	-0.455	-0.455	-0.447	-0.466	-0.451	-0.445	-0.447	-0.447	-0.447	-0.445	-0.447
43	-0.453	-0.449	-0.447	-0.447	-0.449	-0.449	-0.447	-0.447	-0.447	-0.447	-0.447
44	0.399	0.323	0.214	0.222	0.113	-0.059	-0.236	-0.286	-0.267	-0.302	-0.269
45	0.360	0.319	0.263	0.299	0.326	0.284	0.319	0.205	0.043	-0.034	-0.259
46	0.405	0.361	0.303	0.346	0.357	0.344	0.335	0.177	-0.013	-0.143	-0.261
47	0.327	0.290	0.232	0.276	0.277	0.319	0.250	0.119	-0.015	-0.193	-0.271
48	0.215	0.191	0.166	0.175	0.171	0.181	0.197	0.177	0.098	0.053	-0.207
49	0.296	0.260	0.247	0.255	0.266	0.280	0.351	0.311	0.115	0.113	-0.236
50	0.294	0.272	0.270	0.255	0.258	0.268	0.351	0.231	0.076	0.022	-0.257

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(f) M = 1.80, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.193	-0.176	-0.216	-0.232	-0.244	-0.265	-0.234	-0.269	-0.267	-0.253	-0.240
52	-0.327	-0.293	-0.315	-0.323	-0.325	-0.321	-0.269	-0.329	-0.331	-0.329	-0.321
53	-0.329	-0.297	-0.315	-0.325	-0.325	-0.321	-0.269	-0.329	-0.333	-0.325	-0.311
54	-0.340	-0.307	-0.319	-0.323	-0.327	-0.323	-0.281	-0.331	-0.331	-0.336	-0.327
55	-0.338	-0.299	-0.317	-0.329	-0.327	-0.325	-0.283	-0.331	-0.333	-0.338	-0.329
Right tip fin inner flap, inner surface											
56	-0.327	-0.293	-0.303	-0.323	-0.321	-0.321	-0.271	-0.327	-0.309	-0.321	-0.298
57	-0.329	-0.297	-0.319	-0.329	-0.331	-0.327	-0.283	-0.331	-0.336	-0.336	-0.323
58	-0.329	-0.297	-0.319	-0.329	-0.329	-0.325	-0.281	-0.331	-0.336	-0.331	-0.325
59	-0.325	-0.297	-0.319	-0.327	-0.325	-0.323	-0.277	-0.331	-0.333	-0.329	-0.321
60	-0.340	-0.307	-0.325	-0.331	-0.327	-0.329	-0.289	-0.340	-0.336	-0.348	-0.340
Left tip fin inner flap, outer surface											
61	0.048	-0.022	-0.104	-0.189	-0.189	-0.251	-0.234	-0.288	-0.290	-0.267	-0.288
62	0.304	0.122	-0.065	-0.197	-0.269	-0.325	-0.299	-0.340	-0.298	-0.274	-0.288
63	0.611	0.248	0.055	-0.158	-0.271	-0.323	-0.291	-0.329	-0.296	-0.267	-0.284
64	0.779	0.365	0.068	-0.185	-0.290	-0.179	-0.188	-0.267	-0.257	-0.247	-0.267
65	0.952	0.775	0.439	-0.071	-0.234	0.067	-0.066	-0.220	-0.253	-0.214	-0.276
66	0.628	0.384	-0.102	0.102	0.206	-0.113	-0.129	-0.280	-0.309	-0.319	-0.329
67	0.942	0.760	0.181	0.268	0.322	-0.168	-0.188	-0.302	-0.300	-0.321	-0.321
68	0.791	0.392	-0.565	0.140	0.111	-0.268	-0.250	-0.309	-0.302	-0.317	-0.321
Left tip fin outer flap, outer surface											
69	-0.090	-0.020	-0.020	-0.001	-0.011	-0.038	-0.058	-0.095	-0.102	-0.121	-0.133
70	-0.117	-0.062	-0.051	-0.001	0.012	0.005	0.005	-0.038	-0.040	-0.034	-0.048
71	-0.094	-0.042	-0.028	0.009	0.024	0.007	0.003	-0.034	-0.040	-0.036	-0.077
72	-0.123	-0.062	-0.044	-0.015	-0.015	-0.028	-0.011	-0.040	-0.021	-0.040	-0.143
73	-0.123	-0.060	-0.049	-0.024	-0.017	-0.028	-0.005	-0.034	-0.013	-0.067	-0.152
74	-0.133	-0.068	-0.057	-0.040	-0.031	-0.046	-0.034	-0.069	-0.040	-0.141	-0.166
Left tip fin, inner surface											
75	0.054	-0.044	-0.170	-0.238	-0.211	-0.303	-0.291	-0.340	-0.309	-0.294	-0.296
76	-0.014	-0.109	-0.212	-0.292	-0.292	-0.350	-0.319	-0.362	-0.340	-0.317	-0.336
Center fin, left surface											
77	-0.435	-0.400	-0.435	-0.437	-0.439	-0.437	-0.400	-0.437	-0.439	-0.441	-0.439
78	-0.439	-0.404	-0.439	-0.439	-0.441	-0.439	-0.402	-0.439	-0.439	-0.441	-0.439
Body											
79	0.069	0.051	-0.034	-0.096	-0.166	-0.220	-0.234	-0.296	-0.311	-0.333	-0.352
80	0.042	0.005	-0.077	-0.125	-0.166	-0.189	-0.176	-0.218	-0.228	-0.247	-0.282
81	0.178	0.143	0.067	0.009	-0.046	-0.092	-0.113	-0.187	-0.222	-0.247	-0.274
82	-0.237	-0.125	-0.067	0.028	0.117	0.212	0.333	0.406	0.499	0.594	0.696
83	0.221	0.337	0.422	0.542	0.665	0.802	0.945	1.059	1.179	1.289	1.390

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.238	-0.238	-0.229	-0.227	-0.203	-0.135	-0.064	-0.006	-0.008	-0.047	0.000
2	-0.253	-0.255	-0.246	-0.251	-0.251	-0.253	-0.255	-0.255	-0.255	-0.248	-0.231
3	-0.250	-0.250	-0.244	-0.248	-0.248	-0.236	-0.229	-0.255	-0.231	-0.201	-0.225
4	-0.272	-0.268	-0.261	-0.257	-0.255	-0.255	-0.266	-0.274	-0.263	-0.233	-0.218
5	-0.257	-0.257	-0.251	-0.255	-0.255	-0.255	-0.261	-0.272	-0.261	-0.255	-0.236
6	-0.257	-0.257	-0.248	-0.253	-0.251	-0.255	-0.257	-0.261	-0.263	-0.265	-0.244
7	-0.257	-0.257	-0.248	-0.255	-0.255	-0.257	-0.259	-0.263	-0.263	-0.261	-0.242
8	-0.257	-0.257	-0.248	-0.253	-0.255	-0.257	-0.259	-0.263	-0.261	-0.257	-0.238
9	-0.257	-0.257	-0.248	-0.253	-0.253	-0.255	-0.246	-0.255	-0.261	-0.257	-0.236
Right elevon, upper surface											
10	-0.257	-0.257	-0.248	-0.255	-0.255	-0.257	-0.257	-0.263	-0.263	-0.259	-0.244
11	-0.257	-0.257	-0.248	-0.255	-0.255	-0.257	-0.257	-0.263	-0.263	-0.257	-0.244
12	-0.257	-0.257	-0.248	-0.255	-0.253	-0.251	-0.246	-0.255	-0.261	-0.257	-0.236
13	-0.250	-0.257	-0.251	-0.255	-0.255	-0.274	-0.278	-0.275	-0.276	-0.272	-0.246
14	-0.253	-0.257	-0.248	-0.253	-0.255	-0.257	-0.261	-0.265	-0.261	-0.257	-0.238
15	-0.253	-0.250	-0.242	-0.253	-0.272	-0.272	-0.272	-0.275	-0.274	-0.270	-0.257
16	-0.246	-0.248	-0.242	-0.233	-0.203	-0.148	-0.120	-0.098	-0.073	-0.032	0.013
17	-0.268	-0.263	-0.221	-0.086	-0.094	-0.137	-0.120	-0.101	-0.019	0.060	0.131
18	-0.261	-0.250	-0.208	-0.058	-0.084	-0.129	-0.111	-0.085	-0.032	0.054	0.133
Right elevon, side surface											
19	-0.253	-0.250	-0.240	-0.212	-0.161	-0.124	-0.103	-0.065	-0.028	0.009	0.032
20	-0.274	-0.263	-0.189	-0.131	-0.118	-0.047	0.002	0.064	0.120	0.191	0.276
Right elevon well, left surface											
21	-0.272	-0.268	-0.191	-0.129	-0.120	-0.043	0.013	0.075	0.135	0.205	0.300
Right elevon well, right surface											
22	-0.268	-0.265	-0.191	-0.129	-0.084	-0.041	0.013	0.077	0.144	0.225	0.321
Left elevon, lower surface											
23	-0.259	-0.257	-0.189	-0.129	-0.084	-0.041	0.013	0.077	0.144	0.227	0.319
24	-0.259	-0.180	-0.161	-0.126	-0.090	-0.049		0.062	0.127	0.202	0.287
25	-0.272	-0.184	-0.161	-0.126	-0.090	-0.055	-0.004	0.055	0.120	0.199	0.283
26	-0.280	-0.205	-0.161	-0.126	-0.092	-0.056	-0.006	0.052	0.112	0.184	0.266
27	-0.280	-0.193	-0.159	-0.126	-0.092	-0.051	-0.006	0.055	0.116	0.187	0.266
28	-0.199	-0.180	-0.152	-0.126	-0.090	-0.051		0.058	0.124	0.202	0.287
29	-0.199	-0.184	-0.150	-0.124	-0.090	-0.051		0.056	0.118	0.191	0.259
30	-0.214	-0.193	-0.150	-0.126	-0.094	-0.062	-0.013	0.039	0.094	0.172	0.264
31	-0.197	-0.201	-0.150	-0.126	-0.094	-0.060	-0.013	0.054	0.127	0.208	0.302
32	-0.203	-0.171	-0.141	-0.129	-0.101	-0.062	-0.013	0.047	0.120	0.206	0.304
33	-0.199	-0.169	-0.148	-0.129	-0.107	-0.071	-0.030	0.015	0.067	0.137	0.229
34	0.134	-0.047	-0.129	-0.178	-0.180	-0.191	-0.201	-0.227	-0.246	-0.257	-0.265
35	0.172	0.007	-0.122	-0.176	-0.169	-0.182	-0.184	-0.221	-0.240	-0.253	-0.263
36	0.189	0.067	-0.122	-0.163	-0.197	-0.197	-0.212	-0.229	-0.242	-0.261	-0.261
Left elevon flap, upper surface											
37	0.139	0.077	-0.126	-0.159	-0.201	-0.214	-0.214	-0.236	-0.248	-0.261	-0.255
38	0.372	0.253	0.004	-0.129	-0.193	-0.158	-0.152	-0.158	-0.195	-0.233	-0.238
39	0.395	0.244	-0.030	-0.144	-0.178	-0.173	-0.176	-0.185	-0.193	-0.218	-0.236
40	0.369	0.165	-0.099	-0.156	-0.184	-0.201	-0.210	-0.218	-0.229	-0.229	-0.231
41	1.633	1.631	1.630	1.631	1.631	1.632	1.632	1.632	1.633	1.633	1.632
42	-0.317	-0.313	-0.310	-0.319	-0.310	-0.310	-0.308	-0.313	-0.313	-0.313	-0.313
43	-0.315	-0.317	-0.313	-0.317	-0.315	-0.313	-0.315	-0.313	-0.315	-0.313	-0.319
44	0.301	0.058	-0.083	-0.139	-0.156	-0.163	-0.173	-0.182	-0.190	-0.182	-0.184
45	0.339	0.259	0.202	0.045	-0.028	-0.082	-0.120	-0.165	-0.180	-0.176	-0.193
46	0.399	0.313	0.246	0.067	-0.010	-0.020	-0.045	-0.094	-0.158	-0.189	-0.205
47	0.363	0.281	0.214	0.088	-0.051	-0.050	-0.088	-0.120	-0.169	-0.195	-0.212
48	0.292	0.257	0.302	0.281	0.227	0.164	-0.064	-0.169	-0.184	-0.191	-0.163
49	0.363	0.309	0.351	0.319	0.249	0.107	-0.103	-0.141	-0.205	-0.217	-0.212
50	0.318	0.259	0.272	0.259	0.167	0.092	0.022	-0.135	-0.180	-0.234	-0.238

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.152	-0.163	-0.176	-0.184	-0.186	-0.186	-0.190	-0.201	-0.195	-0.174	-0.156
52	-0.240	-0.242	-0.231	-0.238	-0.231	-0.223	-0.227	-0.227	-0.225	-0.208	-0.184
53	-0.242	-0.242	-0.233	-0.240	-0.233	-0.223	-0.227	-0.227	-0.227	-0.214	-0.193
54	-0.242	-0.242	-0.236	-0.240	-0.238	-0.227	-0.233	-0.233	-0.233	-0.221	-0.201
55	-0.242	-0.242	-0.236	-0.242	-0.238	-0.229	-0.233	-0.235	-0.238	-0.225	-0.203
Right tip fin inner flap, inner surface											
56	-0.242	-0.238	-0.231	-0.238	-0.229	-0.221	-0.227	-0.229	-0.229	-0.212	-0.186
57	-0.242	-0.244	-0.233	-0.242	-0.235	-0.225	-0.229	-0.233	-0.233	-0.219	-0.201
58	-0.242	-0.244	-0.233	-0.242	-0.233	-0.225	-0.229	-0.233	-0.233	-0.219	-0.197
59	-0.242	-0.244	-0.231	-0.240	-0.231	-0.225	-0.229	-0.233	-0.233	-0.217	-0.195
60	-0.244	-0.246	-0.240	-0.242	-0.240	-0.227	-0.233	-0.235	-0.235	-0.223	-0.203
Left tip fin inner flap, outer surface											
61	-0.030	-0.133	-0.201	-0.216	-0.214	-0.223	-0.233	-0.233	-0.233	-0.221	-0.205
62	0.040	-0.198	-0.186	-0.231	-0.233	-0.240	-0.255	-0.229	-0.229	-0.229	-0.212
63	0.318	0.184	-0.111	-0.227	-0.235	-0.238	-0.250	-0.223	-0.220	-0.227	-0.220
64	0.111	-0.004	-0.191	-0.212	-0.255	-0.210	-0.154	-0.182	-0.203	-0.204	-0.203
65	0.324	0.122	-0.049	-0.195	-0.216	-0.152	-0.122	-0.195	-0.190	-0.204	-0.212
66	0.054	-0.028	-0.206	-0.214	-0.088	-0.101	-0.212	-0.244	-0.255	-0.253	-0.263
67	0.222	0.079	-0.146	-0.100	-0.019	-0.116	-0.208	-0.245	-0.250	-0.249	-0.265
68	0.429	0.187	0.146	0.032	-0.120	-0.204	-0.225	-0.242	-0.248	-0.249	-0.255
Left tip fin outer flap, outer surface											
69	0.113	0.105	0.097	0.075	0.055	0.045	0.033	0.028	0.031	0.042	0.028
70	0.062	0.071	0.082	0.082	0.088	0.096	0.095	0.101	0.106	0.117	0.116
71	0.076	0.082	0.090	0.099	0.101	0.104	0.099	0.099	0.108	0.119	0.112
72	0.036	0.043	0.056	0.060	0.067	0.079	0.086	0.097	0.110	0.134	0.129
73	0.032	0.043	0.054	0.058	0.065	0.079	0.088	0.103	0.112	0.138	0.118
74	0.029	0.034	0.041	0.045	0.045	0.060	0.073	0.080	0.082	0.100	0.073
Left tip fin, inner surface											
75	-0.112	-0.180	-0.206	-0.223	-0.227	-0.218	-0.225	-0.235	-0.242	-0.236	-0.229
76	-0.152	-0.220	-0.225	-0.246	-0.242	-0.242	-0.250	-0.255	-0.257	-0.253	-0.259
Center fin, left surface											
77	-0.298	-0.304	-0.304	-0.304	-0.304	-0.300	-0.304	-0.304	-0.304	-0.296	-0.304
78	-0.298	-0.304	-0.304	-0.304	-0.304	-0.300	-0.304	-0.304	-0.306	-0.296	-0.304
Body											
79	0.115	0.060	0.013	-0.030	-0.077	-0.109	-0.137	-0.158	-0.171	-0.180	-0.201
80	0.055	-0.008	-0.056	-0.094	-0.113	-0.118	-0.133	-0.141	-0.152	-0.155	-0.169
81	0.102	0.058	0.015	-0.028	-0.064	-0.101	-0.139	-0.169	-0.188	-0.197	-0.218
82	-0.116	-0.066	-0.006	0.058	0.120	0.194	0.266	0.355	0.444	0.544	0.633
83	0.252	0.343	0.456	0.579	0.705	0.840	0.980	1.116	1.238	1.353	1.459

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.201	-0.203	-0.203	-0.208	-0.214	-0.214	-0.163	-0.094	0.077	0.045	-0.008
2	-0.212	-0.227	-0.227	-0.233	-0.244	-0.251	-0.255	-0.255	-0.240	-0.236	-0.225
3	-0.205	-0.223	-0.223	-0.235	-0.240	-0.244	-0.236	-0.251	-0.214	-0.208	-0.193
4	-0.223	-0.233	-0.233	-0.242	-0.244	-0.251	-0.278	-0.231	-0.251	-0.251	-0.225
5	-0.212	-0.242	-0.227	-0.235	-0.242	-0.248	-0.266	-0.257	-0.251	-0.244	-0.235
6	-0.223	-0.233	-0.238	-0.238	-0.248	-0.255	-0.259	-0.261	-0.257	-0.263	-0.265
7	-0.242	-0.233	-0.229	-0.240	-0.244	-0.246	-0.259	-0.265	-0.255	-0.248	-0.244
8	-0.229	-0.231	-0.233	-0.240	-0.244	-0.244	-0.259	-0.261	-0.251	-0.244	-0.240
9	-0.229	-0.244	-0.229	-0.244	-0.250	-0.253	-0.257	-0.261	-0.251	-0.246	-0.244
Right elevon, upper surface											
10	-0.223	-0.227	-0.229	-0.242	-0.244	-0.246	-0.259	-0.266	-0.255	-0.246	-0.244
11	-0.244	-0.233	-0.229	-0.250	-0.244	-0.244	-0.257	-0.261	-0.251	-0.244	-0.240
12	-0.248	-0.233	-0.242	-0.235	-0.236	-0.242	-0.257	-0.261	-0.251	-0.248	-0.246
13	-0.229	-0.240	-0.233	-0.244	-0.246	-0.251	-0.268	-0.278	-0.268	-0.255	-0.257
14	-0.231	-0.229	-0.233	-0.244	-0.246	-0.251	-0.259	-0.261	-0.251	-0.244	-0.238
15	-0.223	-0.227	-0.235	-0.240	-0.242	-0.272	-0.268	-0.276	-0.266	-0.257	-0.257
16	-0.178	-0.199	-0.227	-0.201	-0.195	-0.159	-0.124	-0.086	-0.062	-0.032	0.004
17	-0.231	-0.233	-0.238	-0.152	-0.062	-0.013	-0.081	-0.094	-0.047	0.032	0.109
18	-0.223	-0.225	-0.227	-0.126	-0.051	-0.009	-0.079	-0.084	-0.043	0.030	0.116
Right elevon, side surface											
19	-0.208	-0.225	-0.223	-0.178	-0.152	-0.129	-0.096	-0.086	-0.062	-0.025	0.013
20	-0.263	-0.255	-0.248	-0.175	-0.088	-0.025	0.036	0.105	0.176	0.257	0.339
Right elevon well, left surface											
21	-0.263	-0.255	-0.248	-0.175	-0.086	-0.022	0.036	0.109	0.180	0.266	0.356
Right elevon well, right surface											
22	-0.265	-0.253	-0.248	-0.163	-0.086	-0.022	0.041	0.109	0.180	0.268	0.358
Left elevon, lower surface											
23	-0.265	-0.248	-0.244	-0.156	-0.085	-0.030	0.039	0.101	0.175	0.261	0.352
24	-0.265	-0.255	-0.178	-0.148	-0.086	-0.035	0.021	0.088	0.161	0.246	0.334
25	-0.265	-0.259	-0.182	-0.163	-0.083	-0.035	0.021	0.088	0.158	0.244	0.332
26	-0.265	-0.270	-0.163	-0.154	-0.086	-0.043	0.013	0.071	0.137	0.212	0.296
27	-0.265	-0.278	-0.175	-0.150	-0.086	-0.043	0.013	0.071	0.137	0.210	0.285
28	-0.278	-0.231	-0.160	-0.212	-0.086	-0.041	0.013	0.075	0.146	0.225	0.304
29	-0.276	-0.225	-0.167	-0.152	-0.090	-0.043	0.009	0.075	0.137	0.212	0.287
30	-0.259	-0.244	-0.171	-0.148	-0.094	-0.052		0.058	0.118	0.184	0.264
31	-0.223	-0.212	-0.158	-0.148	-0.118	-0.069	-0.009	0.062	0.141	0.229	0.324
32	-0.212	-0.201	-0.158	-0.152	-0.118	-0.079	-0.034	0.030	0.114	0.210	0.307
33	-0.197	-0.171	-0.163	-0.167	-0.105	-0.064	-0.015	0.038	0.096	0.159	0.225
34	-0.028	-0.096	-0.156	-0.167	-0.191	-0.206	-0.229	-0.244	-0.244	-0.242	-0.248
35	-0.028	-0.086	-0.107	-0.156	-0.163	-0.193	-0.227	-0.240	-0.248	-0.248	-0.255
36	-0.028	-0.071	-0.070	-0.148	-0.156	-0.182	-0.218	-0.238	-0.255	-0.255	-0.259
Left elevon flap, upper surface											
37	-0.013	-0.032	-0.075	-0.158	-0.165	-0.197	-0.231	-0.251	-0.261	-0.259	-0.263
38	0.292	0.011	-0.045	-0.148	-0.206	-0.189	-0.154	-0.116	-0.178	-0.206	-0.246
39	0.317	0.071	-0.040	-0.143	-0.178	-0.127	-0.109	-0.125	-0.158	-0.191	-0.233
40	0.260	0.039	-0.070	-0.158	-0.146	-0.150	-0.161	-0.175	-0.185	-0.203	-0.265
41	1.633	1.635	1.634	1.633	1.632	1.630	1.632	1.631	1.632	1.632	1.633
42	-0.310	-0.317	-0.310	-0.310	-0.313	-0.313	-0.315	-0.310	-0.325	-0.310	-0.310
43	-0.313	-0.330	-0.315	-0.313	-0.315	-0.313	-0.313	-0.313	-0.313	-0.313	-0.315
44	0.129	-0.008	-0.081	-0.126	-0.137	-0.154	-0.169	-0.169	-0.163	-0.169	-0.178
45	0.389	0.091	0.059	-0.120	-0.070	-0.116	-0.124	-0.175	-0.144	-0.165	-0.173
46	0.481	0.133	-0.027	-0.155	-0.105	-0.161	-0.190	-0.201	-0.142	-0.133	-0.156
47	0.462	0.138	-0.049	-0.205	-0.125	-0.169	-0.201	-0.205	-0.204	-0.186	-0.205
48	0.440	0.425	0.325	0.389	-0.066	-0.161	-0.227	-0.229	-0.223	-0.225	-0.225
49	0.475	0.444	0.288	0.299	-0.163	-0.203	-0.244	-0.242	-0.242	-0.257	-0.250
50	0.389	0.421	0.387	-0.017	-0.167	-0.229	-0.255	-0.253	-0.249	-0.248	-0.244

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.154	-0.169	-0.175	-0.186	-0.201	-0.208	-0.208	-0.203	-0.187	-0.178	-0.160
52	-0.257	-0.244	-0.240	-0.233	-0.225	-0.227	-0.225	-0.220	-0.204	-0.205	-0.208
53	-0.257	-0.244	-0.240	-0.229	-0.227	-0.229	-0.225	-0.223	-0.206	-0.210	-0.212
54	-0.250	-0.244	-0.242	-0.225	-0.227	-0.229	-0.227	-0.229	-0.212	-0.214	-0.216
55	-0.248	-0.242	-0.242	-0.223	-0.229	-0.229	-0.229	-0.231	-0.212	-0.214	-0.216
Right tip fin inner flap, inner surface											
56	-0.240	-0.233	-0.233	-0.212	-0.216	-0.223	-0.216	-0.214	-0.189	-0.182	-0.188
57	-0.255	-0.244	-0.242	-0.233	-0.225	-0.227	-0.231	-0.227	-0.208	-0.212	-0.214
58	-0.253	-0.244	-0.242	-0.231	-0.225	-0.227	-0.229	-0.225	-0.208	-0.212	-0.214
59	-0.248	-0.244	-0.242	-0.229	-0.225	-0.227	-0.225	-0.223	-0.206	-0.205	-0.208
60	-0.255	-0.250	-0.244	-0.233	-0.233	-0.229	-0.229	-0.233	-0.212	-0.214	-0.214
Left tip fin inner flap, outer surface											
61	-0.139	-0.193	-0.233	-0.233	-0.227	-0.225	-0.229	-0.240	-0.223	-0.229	-0.233
62	-0.004	-0.145	-0.182	-0.235	-0.240	-0.233	-0.240	-0.248	-0.236	-0.233	-0.233
63	0.172	0.037	-0.079	-0.220	-0.240	-0.236	-0.242	-0.242	-0.227	-0.220	-0.227
64	0.028	-0.094	-0.175	-0.229	-0.248	-0.240	-0.240	-0.215	-0.212	-0.223	-0.227
65	0.183	0.037	-0.064	-0.201	-0.250	-0.240	-0.229	-0.208	-0.157	-0.188	-0.203
66	0.037	-0.175	-0.240	-0.233	-0.201	-0.240	-0.248	-0.255	-0.242	-0.246	-0.257
67	0.104	-0.025	-0.237	-0.223	-0.178	-0.236	-0.248	-0.255	-0.240	-0.242	-0.223
68	0.121	-0.049	-0.126	-0.195	-0.178	-0.233	-0.242	-0.255	-0.238	-0.242	-0.240
Left tip fin outer flap, outer surface											
69	0.239	0.217	0.196	0.174	0.157	0.139	0.131	0.125	0.149	0.131	0.127
70	0.165	0.187	0.194	0.189	0.206	0.203	0.213	0.223	0.232	0.249	0.245
71	0.196	0.202	0.209	0.213	0.217	0.216	0.221	0.225	0.232	0.251	0.241
72	0.146	0.155	0.164	0.172	0.178	0.184	0.202	0.219	0.237	0.251	0.286
73	0.146	0.153	0.157	0.156	0.172	0.182	0.202	0.225	0.249	0.253	0.286
74	0.136	0.140	0.142	0.146	0.151	0.163	0.178	0.195	0.207	0.211	0.228
Left tip fin, inner surface											
75	-0.152	-0.205	-0.235	-0.233	-0.233	-0.225	-0.227	-0.231	-0.227	-0.235	-0.240
76	-0.190	-0.233	-0.253	-0.248	-0.246	-0.242	-0.242	-0.250	-0.249	-0.255	-0.259
Center fin, left surface											
77	-0.302	-0.302	-0.304	-0.304	-0.304	-0.302	-0.302	-0.302	-0.298	-0.302	-0.302
78	-0.300	-0.304	-0.304	-0.304	-0.304	-0.304	-0.304	-0.304	-0.298	-0.304	-0.304
Body											
79	0.196	0.144	0.097	0.046	0.000	-0.041	-0.070	-0.098	-0.112	-0.133	-0.150
80	0.052	-0.002	-0.049	-0.085	-0.111	-0.128	-0.135	-0.148	-0.150	-0.171	-0.190
81	0.039	0.009	-0.025	-0.062	-0.096	-0.133	-0.169	-0.199	-0.212	-0.233	-0.242
82	-0.096	-0.057	-0.023	0.022	0.067	0.131	0.202	0.279	0.365	0.446	0.530
83	0.247	0.346	0.453	0.576	0.704	0.839	0.978	1.108	1.228	1.338	1.442

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.253	-0.253	-0.257	-0.227	-0.192	-0.068	-0.064	-0.072	-0.094	-0.069	-0.066
2	-0.268	-0.270	-0.268	-0.268	-0.259	-0.261	-0.261	-0.259	-0.255	-0.244	-0.240
3	-0.268	-0.268	-0.268	-0.265	-0.255	-0.242	-0.259	-0.261	-0.261	-0.248	-0.244
4	-0.285	-0.287	-0.276	-0.274	-0.253	-0.272	-0.274	-0.265	-0.246	-0.216	-0.184
5	-0.272	-0.272	-0.274	-0.274	-0.261	-0.270	-0.270	-0.265	-0.259	-0.248	-0.240
6	-0.270	-0.270	-0.270	-0.263	-0.261	-0.270	-0.270	-0.270	-0.268	-0.259	-0.257
7	-0.272	-0.272	-0.270	-0.265	-0.263	-0.270	-0.270	-0.270	-0.265	-0.257	-0.251
8	-0.270	-0.270	-0.270	-0.265	-0.263	-0.270	-0.270	-0.265	-0.263	-0.255	-0.244
9	-0.270	-0.270	-0.270	-0.265	-0.261	-0.265	-0.265	-0.265	-0.263	-0.255	-0.244
Right elevon, upper surface											
10	-0.272	-0.272	-0.270	-0.265	-0.263	-0.268	-0.270	-0.268	-0.265	-0.257	-0.253
11	-0.270	-0.270	-0.270	-0.265	-0.263	-0.270	-0.270	-0.268	-0.265	-0.257	-0.244
12	-0.270	-0.270	-0.270	-0.265	-0.261	-0.265	-0.265	-0.265	-0.265	-0.255	-0.244
13	-0.259	-0.261	-0.259	-0.263	-0.280	-0.278	-0.285	-0.280	-0.278	-0.270	-0.261
14	-0.270	-0.270	-0.268	-0.265	-0.263	-0.270	-0.270	-0.268	-0.263	-0.253	-0.244
15	-0.270	-0.268	-0.268	-0.276	-0.280	-0.280	-0.280	-0.278	-0.276	-0.270	-0.261
16	-0.265	-0.261	-0.263	-0.261	-0.223	-0.158	-0.111	-0.077	-0.052	-0.036	0.002
17	-0.255	-0.255	-0.240	-0.180	-0.173	-0.137	-0.096	-0.062	0.005	0.101	0.184
18	-0.263	-0.265	-0.214	-0.143	-0.165	-0.135	-0.098	-0.062	-0.008	0.077	0.165
Right elevon, side surface											
19	-0.265	-0.259	-0.253	-0.255	-0.180	-0.128	-0.075	-0.040	-0.015	0.017	0.066
20	-0.272	-0.195	-0.156	-0.154	-0.098	-0.058	-0.032	0.018	0.073	0.143	0.223
Right elevon well, left surface											
21	-0.270	-0.180	-0.145	-0.169	-0.092	-0.062	-0.021	0.028	0.088	0.151	0.244
Right elevon well, right surface											
22	-0.268	-0.182	-0.145	-0.160	-0.092	-0.057	-0.012	0.037	0.101	0.182	0.274
Left elevon, lower surface											
23	-0.244	-0.182	-0.150	-0.135	-0.092	-0.053	-0.010	0.045	0.110	0.193	0.281
24	-0.201	-0.171	-0.143	-0.120	-0.092	-0.059	-0.019	0.035	0.095	0.163	0.244
25	-0.199	-0.171	-0.143	-0.120	-0.092	-0.057	-0.017	0.037	0.099	0.167	0.246
26	-0.193	-0.171	-0.143	-0.120	-0.096	-0.059	-0.017	0.035	0.097	0.169	0.244
27	-0.190	-0.175	-0.143	-0.120	-0.096	-0.059	-0.019	0.035	0.095	0.167	0.242
28	-0.182	-0.162	-0.143	-0.120	-0.096	-0.059	-0.015	0.043	0.107	0.182	0.259
29	-0.180	-0.171	-0.141	-0.120	-0.096	-0.064	-0.015	0.035	0.095	0.165	0.248
30	-0.175	-0.160	-0.141	-0.120	-0.102	-0.070	-0.030	0.030	0.097	0.176	0.259
31	-0.178	-0.160	-0.165	-0.139	-0.113	-0.070	-0.025	0.039	0.110	0.191	0.276
32	-0.156	-0.158	-0.143	-0.143	-0.096	-0.064	-0.015	0.045	0.116	0.201	0.296
33	-0.171	-0.158	-0.141	-0.124	-0.105	-0.074	-0.030	0.024	0.086	0.163	0.253
34	0.363	0.194	-0.025	-0.163	-0.208	-0.192	-0.205	-0.235	-0.259	-0.253	-0.251
35	0.320	0.196	0.011	-0.137	-0.195	-0.229	-0.238	-0.246	-0.261	-0.253	-0.255
36	0.294	0.196	0.058	-0.133	-0.192	-0.205	-0.233	-0.250	-0.259	-0.251	-0.255
Left elevon flap, upper surface											
37	0.277	0.172	0.084	-0.137	-0.192	-0.225	-0.227	-0.263	-0.259	-0.236	-0.248
38	0.348	0.279	0.226	0.238	-0.042	-0.139	-0.195	-0.223	-0.229	-0.248	-0.246
39	0.386	0.301	0.251	0.185	-0.074	-0.128	-0.167	-0.180	-0.229	-0.240	-0.251
40	0.352	0.279	0.224	0.088	-0.057	-0.143	-0.244	-0.255	-0.257	-0.236	-0.246
41	1.632	1.633	1.633	1.633	1.633	1.634	1.634	1.634	1.633	1.632	1.632
42	-0.315	-0.313	-0.317	-0.310	-0.313	-0.313	-0.310	-0.313	-0.323	-0.310	-0.310
43	-0.315	-0.315	-0.315	-0.313	-0.315	-0.315	-0.313	-0.313	-0.313	-0.315	-0.313
44	0.321	0.254	0.183	0.091	-0.063	-0.197	-0.197	-0.192	-0.201	-0.201	-0.190
45	0.285	0.230	0.224	0.249	0.259	0.196	0.076	-0.031	-0.130	-0.163	-0.205
46	0.330	0.275	0.258	0.295	0.306	0.265	0.143	-0.015	-0.098	-0.163	-0.208
47	0.281	0.228	0.221	0.252	0.285	0.241	0.121	-0.042	-0.102	-0.182	-0.212
48	0.191	0.131	0.131	0.142	0.159	0.168	0.164	0.085	-0.002	-0.148	-0.205
49	0.242	0.185	0.191	0.183	0.210	0.277	0.257	0.115	0.011	-0.175	-0.218
50	0.229	0.196	0.198	0.159	0.204	0.280	0.158	0.081	-0.079	-0.190	-0.229

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TABLE IV.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Concluded

(i) $M = 2.16$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.150	-0.163	-0.169	-0.180	-0.182	-0.197	-0.199	-0.199	-0.190	-0.175	-0.154
52	-0.240	-0.238	-0.238	-0.235	-0.223	-0.231	-0.242	-0.244	-0.235	-0.227	-0.227
53	-0.240	-0.240	-0.240	-0.238	-0.223	-0.231	-0.244	-0.244	-0.233	-0.227	-0.218
54	-0.240	-0.242	-0.242	-0.240	-0.223	-0.233	-0.246	-0.250	-0.248	-0.242	-0.242
55	-0.244	-0.242	-0.242	-0.240	-0.225	-0.238	-0.250	-0.255	-0.248	-0.246	-0.242
Right tip fin inner flap, inner surface											
56	-0.240	-0.240	-0.240	-0.235	-0.221	-0.229	-0.237	-0.244	-0.240	-0.227	-0.216
57	-0.244	-0.240	-0.240	-0.240	-0.225	-0.235	-0.246	-0.248	-0.244	-0.240	-0.238
58	-0.244	-0.240	-0.240	-0.240	-0.225	-0.235	-0.246	-0.248	-0.244	-0.235	-0.235
59	-0.242	-0.240	-0.240	-0.240	-0.225	-0.233	-0.246	-0.248	-0.242	-0.233	-0.231
60	-0.244	-0.242	-0.242	-0.242	-0.225	-0.235	-0.248	-0.255	-0.248	-0.246	-0.246
Left tip fin inner flap, outer surface											
61	0.159	0.024	-0.096	-0.135	-0.165	-0.210	-0.207	-0.229	-0.225	-0.205	-0.218
62	0.240	0.060	-0.100	-0.173	-0.182	-0.240	-0.235	-0.244	-0.231	-0.208	-0.218
63	0.478	0.301	0.164	-0.169	-0.197	-0.240	-0.229	-0.244	-0.231	-0.205	-0.214
64	0.580	0.275	-0.072	-0.156	-0.187	-0.207	-0.220	-0.216	-0.214	-0.173	-0.205
65	0.777	0.442	0.183	-0.150	-0.153	-0.173	-0.222	-0.203	-0.197	-0.169	-0.205
66	0.287	0.095	-0.147	-0.053	-0.114	-0.120	-0.222	-0.255	-0.242	-0.233	-0.225
67	0.810	0.468	-0.068	0.086	-0.031	-0.169	-0.237	-0.248	-0.233	-0.229	-0.201
68	0.675	0.539	0.316	0.106	-0.069	-0.201	-0.235	-0.248	-0.242	-0.229	-0.220
Left tip fin outer flap, outer surface											
69	-0.017	0.000	0.009	0.009	0.001	-0.036	-0.048	-0.050	-0.042	-0.049	-0.053
70	-0.051	-0.034	-0.019	0.009	0.022	0.001	-0.003	-0.003	0.001	0.000	-0.002
71	-0.038	-0.025	0.001	0.026	0.029	0.003	-0.005	0.001	0.003	-0.002	-0.017
72	-0.071	-0.051	-0.023	-0.010	-0.003	-0.012	-0.012	0.001	0.007	-0.025	-0.066
73	-0.071	-0.049	-0.025	-0.012	-0.005	-0.012	-0.005	0.001	0.020	-0.055	-0.068
74	-0.071	-0.053	-0.034	-0.023	-0.018	-0.023	-0.023	-0.012	-0.004	-0.079	-0.085
Left tip fin, inner surface											
75	-0.017	-0.113	-0.171	-0.158	-0.195	-0.229	-0.235	-0.248	-0.231	-0.218	-0.227
76	-0.060	-0.156	-0.180	-0.214	-0.232	-0.265	-0.265	-0.257	-0.253	-0.244	-0.248
Center fin, left surface											
77	-0.309	-0.302	-0.302	-0.302	-0.291	-0.304	-0.304	-0.305	-0.302	-0.302	-0.302
78	-0.302	-0.304	-0.304	-0.304	-0.293	-0.304	-0.308	-0.305	-0.304	-0.304	-0.304
Body											
79	0.060	0.018	-0.030	-0.083	-0.116	-0.165	-0.192	-0.207	-0.218	-0.233	-0.242
80	0.062	0.007	-0.042	-0.085	-0.106	-0.139	-0.156	-0.164	-0.159	-0.184	-0.205
81	0.178	0.123	0.073	0.026	-0.007	-0.057	-0.096	-0.128	-0.147	-0.169	-0.184
82	-0.152	-0.087	-0.014	0.067	0.161	0.243	0.334	0.433	0.528	0.631	0.733
83	0.249	0.344	0.453	0.573	0.705	0.833	0.974	1.114	1.234	1.351	1.452

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1	-0.354	-0.335	-0.331	-0.334	-0.355	-0.368	-0.374	-0.403	-0.386	-0.362
2	-0.387	-0.358	-0.346	-0.355	-0.374	-0.386	-0.399	-0.432	-0.417	-0.378
3	-0.377	-0.350	-0.242	0.096	0.159	0.101	-0.088	-0.210	-0.237	-0.142
4	-0.354	-0.339	-0.337	-0.344	-0.365	-0.388	-0.399	-0.428	-0.399	-0.366
5	-0.356	-0.339	-0.339	-0.350	-0.367	-0.388	-0.399	-0.428	-0.417	-0.376
6	-0.339	-0.323	-0.348	-0.367	-0.384	-0.417	-0.471	-0.376	-0.368	-0.405
7	-0.356	-0.335	-0.344	-0.350	-0.370	-0.388	-0.401	-0.422	-0.397	-0.366
8	-0.333	-0.325	-0.339	-0.350	-0.370	-0.388	-0.399	-0.430	-0.411	-0.366
9	-0.333	-0.323	-0.341	-0.361	-0.370	-0.392	-0.417	-0.467	-0.440	-0.380
Right elevon, upper surface										
10	-0.356	-0.337	-0.341	-0.350	-0.370	-0.388	-0.401	-0.428	-0.401	-0.366
11	-0.333	-0.325	-0.339	-0.353	-0.370	-0.388	-0.399	-0.430	-0.415	-0.368
12	-0.335	-0.325	-0.344	-0.357	-0.370	-0.397	-0.419	-0.469	-0.451	-0.384
13	-0.368	-0.346	-0.348	-0.357	-0.382	-0.405	-0.409	-0.430	-0.405	-0.370
14	-0.362	-0.341	-0.346	-0.355	-0.374	-0.388	-0.399	-0.432	-0.413	-0.372
15	-0.391	-0.360	-0.350	-0.357	-0.382	-0.401	-0.413	-0.434	-0.407	-0.376
16	-0.356	-0.339	-0.221	-0.064	-0.019	0.001	0.020	0.042	0.055	0.028
17	-0.348	-0.339	-0.341	-0.348	-0.365	-0.392	-0.415	-0.451	-0.430	-0.401
18	-0.335	-0.327	-0.329	-0.336	-0.355	-0.378	-0.401	-0.428	-0.397	-0.359
Right elevon, side surface										
19	-0.418	-0.427	-0.425	-0.421	-0.438	-0.428	-0.417	-0.415	-0.376	-0.337
20	-0.383	-0.191	0.300	0.823	0.777	0.932	0.996	1.030	1.117	1.208
Right elevon well, left surface										
21	-0.343	-0.348	0.510	0.669	0.802	0.918	1.004	1.105	1.146	1.128
Right elevon well, right surface										
22	-0.266	0.090	0.501	0.569	0.669	0.754	0.838	0.910	0.952	0.947
Left elevon, lower surface										
23	-0.262	0.108	0.433	0.480	0.528	0.584	0.641	0.589	0.720	0.728
24	0.106	0.525	0.568	0.607	0.667	0.725	0.786	0.832	0.863	0.865
25		0.554	0.685	0.758	0.856	0.936	1.021	1.093	1.134	1.123
26	-0.175	0.387	0.672	0.771	0.893	0.971	1.043	1.159	1.217	1.281
27	-0.075	0.352	0.316	0.418	0.431	0.549	0.635	0.788	0.923	1.177
28	0.597	0.464	0.418	0.463	0.480	0.611	0.726	0.890	1.062	1.215
29	0.677	0.723	0.705	0.769	0.818	0.907	0.996	1.086	1.151	1.167
30	0.552	0.581	0.587	0.625	0.686	0.737	0.799	0.850	0.879	0.877
31	0.512	0.481	0.435	0.486	0.487	0.580	0.662	0.738	0.798	0.813
32	0.614	0.500	0.372	0.457	0.427	0.557	0.691	0.854	0.972	1.082
33	0.135	0.142	0.102	0.173	0.194	0.300	0.424	0.589	0.780	1.016
34	-0.346	-0.443	-0.471	-0.452	-0.492	-0.482	-0.419	-0.407	-0.397	-0.366
35	-0.458	-0.443	-0.454	-0.425	-0.477	-0.496	-0.415	-0.409	-0.399	-0.370
36	-0.425	-0.427	-0.418	-0.404	-0.455	-0.438	-0.407	-0.407	-0.397	-0.362
Left elevon flap, upper surface										
37	-0.398	-0.404	-0.412	-0.404	-0.411	-0.421	-0.407	-0.407	-0.397	-0.355
38	-0.291	-0.323	-0.337	-0.350	-0.413	-0.430	-0.432	-0.420	-0.417	-0.372
39	-0.269	-0.308	-0.304	-0.326	-0.517	-0.479	-0.438	-0.428	-0.420	-0.376
40	-0.294	-0.331	-0.366	-0.413	-0.531	-0.504	-0.451	-0.432	-0.420	-0.380
41	1.249	1.249	1.246	1.244	1.241	1.241	1.240	1.240	1.240	1.239
42	-0.639	-0.639	-0.641	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639
43	-0.639	-0.639	-0.641	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639
44	-0.347	-0.409	-0.443	-0.451	-0.504	-0.475	-0.423	-0.400	-0.381	-0.344
45	-0.269	-0.307	-0.345	-0.408	-0.412	-0.498	-0.450	-0.441	-0.415	-0.375
46	-0.242	-0.277	-0.322	-0.364	-0.395	-0.443	-0.434	-0.427	-0.410	-0.358
47	-0.257	-0.296	-0.334	-0.364	-0.393	-0.398	-0.403	-0.410	-0.391	-0.346
48	-0.238	-0.275	-0.324	-0.343	-0.325	-0.321	-0.361	-0.425	-0.385	-0.315
49	-0.249	-0.300	-0.328	-0.349	-0.356	-0.389	-0.425	-0.435	-0.418	-0.369
50	-0.284	-0.292	-0.330	-0.353	-0.362	-0.425	-0.448	-0.441	-0.416	-0.371

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(a) $M = 1.50$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51	-0.269	-0.271	-0.267	-0.272	-0.273	-0.273	-0.262	-0.295	-0.261	-0.243
52	-0.428	-0.409	-0.445	-0.433	-0.441	-0.458	-0.440	-0.433	-0.344	-0.331
53	-0.430	-0.417	-0.449	-0.439	-0.447	-0.473	-0.446	-0.433	-0.344	-0.329
54	-0.418	-0.403	-0.449	-0.445	-0.431	-0.468	-0.457	-0.454	-0.362	-0.329
55	-0.430	-0.411	-0.447	-0.445	-0.437	-0.468	-0.467	-0.466	-0.364	-0.344
Right tip fin inner flap, inner surface										
56	-0.380	-0.355	-0.418	-0.393	-0.365	-0.414	-0.382	-0.412	-0.345	-0.329
57	-0.403	-0.403	-0.449	-0.441	-0.443	-0.464	-0.454	-0.448	-0.360	-0.331
58	-0.401	-0.401	-0.449	-0.435	-0.439	-0.458	-0.450	-0.444	-0.356	-0.342
59	-0.395	-0.397	-0.447	-0.426	-0.433	-0.448	-0.425	-0.425	-0.350	-0.334
60	-0.441	-0.420	-0.453	-0.445	-0.445	-0.473	-0.461	-0.454	-0.358	-0.338
Left tip fin inner flap, outer surface										
61	-0.077	-0.221	-0.395	-0.426	-0.389	-0.369	-0.411	-0.429	-0.418	-0.365
62	0.017	-0.108	-0.230	-0.428	-0.443	-0.468	-0.463	-0.512	-0.428	-0.365
63	0.146	0.026	-0.052	-0.324	-0.402	-0.468	-0.454	-0.498	-0.414	-0.352
64	0.265	0.076	-0.165	-0.435	-0.485	-0.462	-0.419	-0.277	-0.251	-0.272
65	0.445	0.239	0.115	-0.358	-0.437	-0.414	-0.320	-0.294	-0.350	-0.189
66	0.299	-0.001	-0.401	-0.449	-0.229	-0.300	-0.147	-0.096	-0.267	-0.329
67	0.370	0.189	-0.157	-0.397	-0.300	-0.137	-0.079	-0.134	-0.309	-0.317
68	0.198	0.112	-0.038	-0.301	-0.391	-0.004	-0.257	-0.315	-0.371	-0.309
Left tip fin outer flap, outer surface										
69	0.015	0.045	0.067	0.064	0.040	0.006	-0.052	-0.115	-0.137	-0.158
70	-0.048	-0.010	0.033	0.070	0.100	0.123	0.116	0.070	0.036	0.003
71	-0.008	0.028	0.060	0.080	0.109	0.142	0.097	0.035	-0.005	-0.036
72	-0.048	-0.005	0.029	0.060	0.084	0.115	0.118	0.087	0.063	0.036
73	-0.050	-0.016	0.012	0.049	0.092	0.115	0.112	0.075	0.050	0.028
74	-0.075	-0.049	-0.021	0.026	0.069	0.065	0.029	-0.023	-0.040	-0.063
Left tip fin, inner surface										
75	-0.215	-0.332	-0.424	-0.456	-0.510	-0.487	-0.492	-0.491	-0.488	-0.383
76	-0.215	-0.344	-0.443	-0.504	-0.545	-0.556	-0.527	-0.518	-0.505	-0.400
Center fin, left surface										
77	-0.629	-0.633	-0.633	-0.633	-0.633	-0.633	-0.627	-0.633	-0.618	-0.616
78	-0.631	-0.633	-0.635	-0.635	-0.635	-0.635	-0.629	-0.635	-0.620	-0.620
Body										
79	0.127	0.064	-0.017	-0.105	-0.179	-0.245	-0.303	-0.352	-0.377	-0.402
80	-0.006	-0.070	-0.119	-0.141	-0.158	-0.181	-0.208	-0.240	-0.249	-0.270
81	0.115	0.051	-0.027	-0.080	-0.143	-0.202	-0.262	-0.329	-0.373	-0.412
82	-0.242	-0.158	-0.077	0.001	0.073	0.144	0.224	0.299	0.383	0.478
83	0.201	0.296	0.413	0.543	0.669	0.795	0.923	1.044	1.157	1.254

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1	-0.346	-0.321	-0.327	-0.324	-0.337	-0.370	-0.384	-0.388	-0.409	-0.324
2	-0.369	-0.332	-0.338	-0.338	-0.349	-0.374	-0.397	-0.409	-0.413	-0.334
3	-0.348	-0.300	-0.155	-0.193	-0.206	-0.162	-0.169	-0.225	-0.241	-0.218
4	-0.361	-0.334	-0.340	-0.338	-0.347	-0.376	-0.399	-0.417	-0.428	-0.328
5	-0.361	-0.328	-0.340	-0.338	-0.347	-0.376	-0.397	-0.407	-0.409	-0.313
6	-0.352	-0.334	-0.352	-0.353	-0.357	-0.382	-0.405	-0.417	-0.428	-0.309
7	-0.358	-0.332	-0.340	-0.338	-0.347	-0.376	-0.397	-0.407	-0.413	-0.315
8	-0.354	-0.328	-0.338	-0.336	-0.345	-0.370	-0.388	-0.397	-0.401	-0.299
9	-0.352	-0.332	-0.342	-0.338	-0.345	-0.372	-0.390	-0.399	-0.405	-0.295
Right elevon, upper surface										
10	-0.358	-0.332	-0.340	-0.336	-0.345	-0.374	-0.393	-0.407	-0.409	-0.318
11	-0.354	-0.328	-0.338	-0.336	-0.345	-0.370	-0.388	-0.397	-0.403	-0.299
12	-0.352	-0.332	-0.342	-0.341	-0.347	-0.376	-0.393	-0.401	-0.407	-0.295
13	-0.361	-0.336	-0.346	-0.341	-0.349	-0.378	-0.401	-0.419	-0.428	-0.332
14	-0.361	-0.332	-0.340	-0.338	-0.347	-0.376	-0.397	-0.405	-0.409	-0.313
15	-0.381	-0.332	-0.344	-0.365	-0.378	-0.417	-0.434	-0.440	-0.430	-0.334
16	-0.352	-0.282	-0.117	-0.133	-0.161	-0.208	-0.276	-0.349	-0.386	-0.342
17	-0.361	-0.342	-0.354	-0.353	-0.362	-0.395	-0.424	-0.432	-0.442	-0.359
18	-0.342	-0.328	-0.335	-0.334	-0.345	-0.368	-0.388	-0.405	-0.417	-0.313
Right elevon, side surface										
19	-0.257	-0.346	-0.375	-0.392	-0.397	-0.438	-0.415	-0.405	-0.403	-0.315
20	-0.381	-0.286	-0.152	0.348	0.831	0.967	1.110	1.253	1.284	1.272
Right elevon well, left surface										
21	-0.340	-0.210	-0.011	0.553	0.696	0.828	0.965	1.064	1.108	1.122
Right elevon well, right surface										
22	-0.288	-0.127	0.151	0.532	0.609	0.720	0.817	0.890	0.934	0.962
Left elevon, lower surface										
23	-0.267	-0.148	0.160	0.447	0.512	0.586	0.652	0.702	0.735	0.761
24	-0.302	-0.033	0.274	0.514	0.603	0.677	0.743	0.793	0.822	0.846
25	-0.319	-0.054	0.311	0.650	0.732	0.847	0.954	1.025	1.056	1.081
26	-0.361	-0.175	0.147	0.675	0.885	1.041	1.153	1.228	1.255	1.259
27	-0.317	-0.229	0.010	0.613	0.787	0.772	0.795	1.015	1.222	-0.728
28	-0.240	0.402	0.505	0.663	0.800	0.990	0.971	1.114	1.222	1.280
29	-0.126	0.356	0.546	0.748	0.872	0.954	1.033	1.083	1.097	1.097
30	-0.074	0.350	0.451	0.555	0.626	0.687	0.743	0.787	0.805	0.821
31	0.369	0.386	0.444	0.538	0.582	0.631	0.666	0.693	0.700	0.707
32	0.537	0.367	0.515	0.673	0.829	0.948	0.942	0.988	1.004	1.008
33	0.215	0.043	0.170	0.246	0.295	0.351	0.521	0.720	0.942	1.145
34	-0.400	-0.407	-0.427	-0.438	-0.467	-0.434	-0.411	-0.370	-0.330	-0.201
35	-0.400	-0.407	-0.421	-0.438	-0.447	-0.430	-0.411	-0.368	-0.330	-0.191
36	-0.400	-0.405	-0.408	-0.428	-0.420	-0.403	-0.405	-0.361	-0.328	-0.193
Left elevon flap, upper surface										
37	-0.390	-0.399	-0.396	-0.409	-0.413	-0.397	-0.405	-0.361	-0.328	-0.224
38	-0.307	-0.374	-0.385	-0.390	-0.420	-0.409	-0.411	-0.380	-0.339	-0.239
39	-0.290	-0.357	-0.387	-0.450	-0.455	-0.428	-0.428	-0.380	-0.343	-0.237
40	-0.315	-0.359	-0.431	-0.494	-0.498	-0.444	-0.426	-0.378	-0.345	-0.241
41	1.242	1.258	1.247	1.241	1.239	1.240	1.240	1.240	1.240	1.243
42	-0.643	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639	-0.537	-0.639	-0.639
43	-0.643	-0.639	-0.639	-0.639	-0.639	-0.639	-0.639	-0.541	-0.639	-0.639
44	-0.364	-0.389	-0.441	-0.487	-0.475	-0.425	-0.391	-0.345	-0.306	-0.231
45	-0.208	-0.265	-0.324	-0.452	-0.509	-0.443	-0.435	-0.365	-0.329	-0.246
46	-0.137	-0.234	-0.313	-0.439	-0.453	-0.452	-0.439	-0.365	-0.329	-0.239
47	-0.200	-0.206	-0.236	-0.412	-0.399	-0.366	-0.387	-0.362	-0.326	-0.237
48	-0.164	-0.190	-0.203	-0.264	-0.302	-0.356	-0.402	-0.374	-0.341	-0.237
49	-0.097	-0.158	-0.234	-0.287	-0.364	-0.366	-0.421	-0.383	-0.345	-0.233
50	-0.175	-0.196	-0.265	-0.246	-0.370	-0.369	-0.429	-0.375	-0.347	-0.237

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51	-0.262	-0.265	-0.267	-0.264	-0.266	-0.271	-0.300	-0.265	-0.244	-0.198
52	-0.445	-0.452	-0.445	-0.414	-0.393	-0.429	-0.439	-0.420	-0.376	-0.371
53	-0.454	-0.465	-0.445	-0.423	-0.403	-0.431	-0.446	-0.418	-0.374	-0.366
54	-0.460	-0.458	-0.420	-0.400	-0.384	-0.414	-0.450	-0.432	-0.384	-0.375
55	-0.456	-0.458	-0.434	-0.416	-0.395	-0.418	-0.446	-0.422	-0.372	-0.366
Right tip fin inner flap, inner surface										
56	-0.418	-0.419	-0.365	-0.339	-0.318	-0.333	-0.408	-0.422	-0.368	-0.352
57	-0.450	-0.446	-0.430	-0.405	-0.391	-0.439	-0.433	-0.430	-0.385	-0.377
58	-0.439	-0.440	-0.422	-0.400	-0.384	-0.462	-0.441	-0.422	-0.380	-0.373
59	-0.439	-0.433	-0.409	-0.391	-0.378	-0.418	-0.421	-0.414	-0.374	-0.362
60	-0.464	-0.467	-0.455	-0.441	-0.405	-0.429	-0.477	-0.449	-0.386	-0.381
Left tip fin inner flap, outer surface										
61	-0.325	-0.374	-0.411	-0.425	-0.360	-0.346	-0.394	-0.325	-0.300	-0.185
62	-0.120	-0.335	-0.443	-0.437	-0.380	-0.398	-0.466	-0.358	-0.326	-0.112
63	0.071	-0.334	-0.355	-0.443	-0.376	-0.389	-0.446	-0.348	-0.316	-0.112
64	-0.083	-0.335	-0.443	-0.445	-0.413	-0.460	-0.495	-0.335	-0.224	-0.006
65	0.152	-0.101	-0.409	-0.441	-0.395	-0.427	-0.456	-0.314	-0.158	0.037
66	-0.160	-0.410	-0.432	-0.450	-0.314	-0.418	-0.448	-0.153	-0.178	-0.069
67	0.138	-0.326	-0.420	-0.429	-0.312	-0.383	-0.385	-0.141	-0.152	-0.044
68	0.059	-0.198	-0.393	-0.427	-0.355	-0.096	-0.009	-0.079	-0.096	0.004
Left tip fin outer flap, outer surface										
69	0.198	0.201	0.186	0.144	0.108	0.075	0.033	-0.010	-0.034	-0.069
70	0.117	0.142	0.159	0.165	0.181	0.212	0.250	0.219	0.190	0.146
71	0.163	0.172	0.180	0.177	0.193	0.227	0.227	0.186	0.140	0.102
72	0.107	0.128	0.153	0.152	0.168	0.212	0.270	0.269	0.239	0.189
73	0.092	0.111	0.134	0.142	0.168	0.220	0.289	0.265	0.225	0.171
74	0.055	0.071	0.102	0.113	0.135	0.175	0.181	0.147	0.109	0.052
Left tip fin, inner surface										
75	-0.345	-0.419	-0.416	-0.427	-0.420	-0.485	-0.473	-0.379	-0.339	-0.252
76	-0.356	-0.423	-0.426	-0.487	-0.475	-0.510	-0.552	-0.379	-0.353	-0.198
Center fin, left surface										
77	-0.631	-0.633	-0.631	-0.633	-0.625	-0.633	-0.633	-0.620	-0.608	-0.631
78	-0.633	-0.633	-0.633	-0.633	-0.625	-0.633	-0.633	-0.620	-0.610	-0.633
Body										
79	0.184	0.111	0.029	-0.035	-0.097	-0.169	-0.223	-0.263	-0.287	-0.344
80	0.017	-0.047	-0.109	-0.154	-0.175	-0.198	-0.221	-0.232	-0.252	-0.302
81	0.082	0.035	-0.035	-0.081	-0.136	-0.208	-0.273	-0.323	-0.363	-0.416
82	-0.170	-0.120	-0.071	-0.031	0.017	0.064	0.118	0.200	0.282	0.358
83	0.213	0.310	0.430	0.522	0.676	0.795	0.915	1.034	1.142	1.240

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(c) M = 1.50, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1	-0.353	-0.355	-0.348	-0.334	-0.351	-0.342	-0.365	-0.359	-0.363	-0.245
2	-0.409	-0.391	-0.372	-0.355	-0.371	-0.363	-0.398	-0.386	-0.385	-0.280
3	-0.367	-0.364	-0.339	-0.000	0.166	0.004	-0.199	-0.192	-0.228	0.187
4	-0.359	-0.355	-0.358	-0.342	-0.355	-0.355	-0.380	-0.367	-0.375	-0.243
5	-0.380	-0.364	-0.360	-0.359	-0.365	-0.355	-0.394	-0.384	-0.382	-0.261
6	-0.344	-0.345	-0.366	-0.373	-0.386	-0.407	-0.483	-0.423	-0.301	-0.334
7	-0.371	-0.364	-0.364	-0.349	-0.365	-0.355	-0.380	-0.369	-0.375	-0.251
8	-0.363	-0.355	-0.360	-0.357	-0.365	-0.357	-0.388	-0.379	-0.384	-0.257
9	-0.340	-0.345	-0.366	-0.369	-0.369	-0.373	-0.415	-0.411	-0.411	-0.270
Right elevon, upper surface										
10	-0.371	-0.366	-0.364	-0.349	-0.365	-0.355	-0.380	-0.369	-0.378	-0.251
11	-0.363	-0.353	-0.360	-0.357	-0.365	-0.357	-0.382	-0.381	-0.380	-0.255
12	-0.342	-0.345	-0.366	-0.367	-0.371	-0.375	-0.419	-0.421	-0.429	-0.270
13	-0.363	-0.364	-0.366	-0.351	-0.371	-0.357	-0.380	-0.373	-0.382	-0.257
14	-0.380	-0.366	-0.366	-0.361	-0.369	-0.357	-0.390	-0.379	-0.384	-0.270
15	-0.403	-0.397	-0.385	-0.357	-0.369	-0.355	-0.376	-0.379	-0.375	-0.257
16	-0.361	-0.376	-0.331	-0.177	0.381	0.177	0.195	0.202	0.200	0.206
17	-0.288	-0.324	-0.327	-0.324	-0.357	-0.380	-0.411	-0.404	-0.407	-0.290
18	-0.326	-0.327	-0.341	-0.328	-0.346	-0.355	-0.378	-0.365	-0.365	-0.230
Right elevon, side surface										
19	-0.409	-0.399	-0.403	-0.382	-0.405	-0.396	-0.388	-0.357	-0.332	-0.203
20	-0.309	0.274	0.779	0.819	0.547	0.525	0.529	0.597	0.791	1.069
Right elevon well, left surface										
21	-0.160	0.479	0.634	0.570	0.597	0.712	0.745	0.857	1.022	1.092
Right elevon well, right surface										
22	0.008	0.485	0.481	0.549	0.527	0.704	0.784	0.886	0.941	0.916
Left elevon, lower surface										
23	0.278	0.377	0.405	0.452	0.490	0.553	0.622	0.685	0.704	0.683
24	0.568	0.532	0.570	0.614	0.604	0.650	0.730	0.828	0.870	0.860
25	0.695	0.657	0.698	0.722	0.712	0.741	0.817	0.985	1.102	1.125
26	0.641	0.441	0.806	0.583	0.527	0.548	0.608	0.798	1.036	1.248
27	0.286	0.137	0.469	0.271	0.253	0.303	0.384	0.530	0.750	1.090
28	0.479	0.491	0.264	0.222	0.270	0.357	0.452	0.670	0.932	1.219
29	0.797	0.766	0.599	0.454	0.465	0.553	0.655	0.896	1.082	1.181
30	0.579	0.588	0.597	0.477	0.465	0.544	0.651	0.811	0.882	0.891
31	0.548	0.514	0.304	0.234	0.251	0.382	0.523	0.711	0.818	0.860
32	0.550	0.464	0.242	0.220	0.232	0.351	0.494	0.734	0.957	1.117
33	0.156	0.181	0.037	0.037	0.166	0.281	0.415	0.587	0.808	1.067
34	-0.326	-0.318	-0.472	-0.471	-0.467	-0.471	-0.465	-0.469	-0.417	-0.282
35	-0.284	-0.382	-0.453	-0.448	-0.452	-0.454	-0.457	-0.456	-0.417	-0.284
36	-0.295	-0.368	-0.403	-0.405	-0.411	-0.423	-0.436	-0.423	-0.384	-0.284
Left elevon flap, upper surface										
37	-0.228	-0.387	-0.397	-0.386	-0.382	-0.400	-0.409	-0.404	-0.378	-0.284
38	-0.284	-0.318	-0.325	-0.324	-0.365	-0.373	-0.396	-0.425	-0.394	-0.288
39	-0.280	-0.293	-0.315	-0.309	-0.421	-0.452	-0.446	-0.458	-0.415	-0.290
40	-0.278	-0.293	-0.337	-0.376	-0.450	-0.479	-0.475	-0.481	-0.425	-0.299
41	1.241	1.238	1.236	1.242	1.243	1.244	1.244	1.245	1.246	1.246
42	-0.641	-0.639	-0.639	-0.639	-0.639	-0.639	-0.637	-0.639	-0.637	-0.637
43	-0.643	-0.641	-0.641	-0.641	-0.643	-0.641	-0.639	-0.641	-0.639	-0.639
44	-0.335	-0.357	-0.394	-0.421	-0.481	-0.485	-0.466	-0.462	-0.412	-0.288
45	-0.350	-0.359	-0.377	-0.375	-0.389	-0.418	-0.449	-0.478	-0.447	-0.309
46	-0.300	-0.313	-0.338	-0.350	-0.362	-0.364	-0.385	-0.428	-0.405	-0.293
47	-0.304	-0.313	-0.340	-0.337	-0.347	-0.333	-0.343	-0.351	-0.351	-0.286
48	-0.304	-0.313	-0.309	-0.298	-0.299	-0.304	-0.322	-0.349	-0.355	-0.288
49	-0.319	-0.325	-0.338	-0.325	-0.318	-0.318	-0.341	-0.368	-0.372	-0.313
50	-0.331	-0.315	-0.342	-0.339	-0.343	-0.362	-0.387	-0.403	-0.412	-0.324

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(c) M = 1.50, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51	-0.258	-0.261	-0.261	-0.258	-0.272	-0.281	-0.287	-0.293	-0.280	-0.195
52	-0.354	-0.348	-0.371	-0.412	-0.441	-0.414	-0.408	-0.385	-0.364	-0.253
53	-0.352	-0.355	-0.375	-0.418	-0.439	-0.410	-0.412	-0.393	-0.364	-0.253
54	-0.362	-0.359	-0.382	-0.416	-0.449	-0.422	-0.416	-0.403	-0.382	-0.272
55	-0.360	-0.361	-0.392	-0.429	-0.439	-0.416	-0.418	-0.403	-0.395	-0.257
Right tip fin inner flap, inner surface										
56	-0.350	-0.338	-0.330	-0.387	-0.404	-0.372	-0.337	-0.305	-0.299	-0.215
57	-0.354	-0.350	-0.398	-0.414	-0.447	-0.425	-0.418	-0.397	-0.370	-0.261
58	-0.352	-0.346	-0.371	-0.410	-0.439	-0.412	-0.405	-0.385	-0.357	-0.257
59	-0.350	-0.344	-0.359	-0.406	-0.426	-0.395	-0.389	-0.378	-0.343	-0.253
60	-0.364	-0.363	-0.394	-0.431	-0.447	-0.422	-0.428	-0.403	-0.384	-0.280
Left tip fin inner flap, outer surface										
61	0.200	0.057	-0.147	-0.310	-0.372	-0.368	-0.391	-0.437	-0.401	-0.284
62	0.375	0.136	-0.045	-0.208	-0.383	-0.404	-0.501	-0.460	-0.405	-0.286
63	0.531	0.322	0.106	-0.086	-0.304	-0.402	-0.483	-0.428	-0.387	-0.286
64	0.716	0.447	0.181	-0.058	-0.281	-0.466	-0.341	-0.365	-0.361	-0.286
65	0.681	0.603	0.362	0.170	-0.197	-0.395	-0.401	-0.407	-0.353	-0.288
66	0.656	0.406	0.154	-0.219	-0.366	-0.291	-0.301	-0.368	-0.407	-0.288
67	0.620	0.433	0.260	-0.036	-0.147	-0.329	-0.397	-0.397	-0.415	-0.288
68	0.398	0.337	0.137	0.021	-0.224	-0.391	-0.416	-0.439	-0.420	-0.288
Left tip fin outer flap, outer surface										
69	-0.202	-0.116	-0.051	-0.013	-0.010	-0.032	-0.128	-0.209	-0.232	-0.199
70	-0.204	-0.151	-0.081	-0.017	0.045	0.054	-0.007	-0.084	-0.092	-0.076
71	-0.164	-0.112	-0.049	0.006	0.061	0.046	-0.032	-0.128	-0.121	-0.082
72	-0.194	-0.130	-0.066	0.002	0.053	0.038	-0.038	-0.084	-0.086	-0.211
73	-0.192	-0.150	-0.076	-0.000	0.057	0.040	-0.049	-0.090	-0.101	-0.247
74	-0.204	-0.149	-0.103	-0.023	0.015	-0.035	-0.120	-0.153	-0.161	-0.276
Left tip fin, inner surface										
75	-0.304	-0.147	-0.301	-0.400	-0.462	-0.475	-0.520	-0.525	-0.449	-0.293
76	-0.246	-0.170	-0.326	-0.431	-0.487	-0.550	-0.478	-0.525	-0.443	-0.299
Center fin, left surface										
77	-0.633	-0.631	-0.633	-0.631	-0.633	-0.631	-0.633	-0.635	-0.633	-0.633
78	-0.633	-0.631	-0.635	-0.633	-0.635	-0.633	-0.635	-0.635	-0.635	-0.635
Body										
79	0.087	0.044	-0.024	-0.096	-0.185	-0.287	-0.372	-0.420	-0.451	-0.474
80	0.010	-0.058	-0.128	-0.179	-0.216	-0.241	-0.259	-0.274	-0.293	-0.324
81	0.173	0.100	0.038	-0.027	-0.091	-0.150	-0.216	-0.276	-0.328	-0.370
82	-0.333*	-0.230	-0.122	-0.015	0.386	0.190	0.289	0.387	0.490	0.586
83	0.204	0.302	0.418	0.547	0.674	0.800	0.923	1.043	1.152	1.252

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(d) M = 1.80, $\beta = 0^\circ$

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right elevon flap, lower surface										
1	-0.293	-0.274	-0.259	-0.262	-0.268	-0.274	-0.280	-0.279	-0.276	-0.274
2	-0.330	-0.315	-0.284	-0.282	-0.286	-0.303	-0.320	-0.320	-0.326	-0.315
3	-0.311	-0.292	-0.266	0.180	0.000	-0.134	-0.167	-0.167	-0.185	-0.206
4	-0.311	-0.288	-0.276	-0.274	-0.284	-0.301	-0.313	-0.313	-0.317	-0.309
5	-0.319	-0.288	-0.282	-0.280	-0.290	-0.301	-0.315	-0.318	-0.317	-0.309
6	-0.299	-0.274	-0.286	-0.284	-0.315	-0.369	-0.299	-0.274	-0.272	-0.245
7	-0.313	-0.294	-0.282	-0.280	-0.288	-0.307	-0.311	-0.311	-0.309	-0.299
8	-0.313	-0.288	-0.280	-0.280	-0.288	-0.301	-0.313	-0.315	-0.315	-0.307
9	-0.297	-0.286	-0.268	-0.280	-0.297	-0.313	-0.332	-0.338	-0.334	-0.330
Right elevon, upper surface										
10	-0.313	-0.292	-0.288	-0.280	-0.288	-0.307	-0.315	-0.313	-0.311	-0.305
11	-0.313	-0.284	-0.282	-0.280	-0.288	-0.301	-0.315	-0.315	-0.313	-0.307
12	-0.299	-0.274	-0.270	-0.280	-0.297	-0.313	-0.328	-0.336	-0.330	-0.326
13	-0.315	-0.290	-0.282	-0.280	-0.297	-0.309	-0.315	-0.318	-0.322	-0.313
14	-0.321	-0.297	-0.286	-0.280	-0.293	-0.301	-0.315	-0.318	-0.322	-0.311
15	-0.328	-0.307	-0.286	-0.286	-0.295	-0.313	-0.322	-0.325	-0.326	-0.321
16	-0.313	-0.274	-0.232	-0.101	-0.027	0.009	0.045	0.089	0.119	0.109
17	-0.268	-0.268	-0.261	-0.270	-0.286	-0.301	-0.326	-0.328	-0.326	-0.311
18	-0.291	-0.290	-0.266	-0.270	-0.284	-0.301	-0.313	-0.313	-0.315	-0.307
Right elevon, side surface										
19	-0.338	-0.346	-0.342	-0.348	-0.315	-0.319	-0.303	-0.307	-0.313	-0.301
20	-0.291	-0.195	0.098	0.701	0.769	0.965	1.053	1.060	1.056	1.152
Right elevon well, left surface										
21	-0.251	-0.086	0.360	0.561	0.682	0.813	0.969	1.099	1.204	1.290
Right elevon well, right surface										
22	-0.171	0.034	0.391	0.489	0.592	0.705	0.837	0.959	1.058	1.121
Left elevon, lower surface										
23	-0.138	0.046	0.358	0.468	0.546	0.637	0.718	0.795	0.856	0.903
24	-0.070	0.289	0.525	0.592	0.684	0.786	0.872	0.947	1.006	1.051
25	-0.117	0.217	0.583	0.668	0.773	0.922	1.039	1.148	1.231	1.305
26	-0.245	0.017	0.564	0.743	0.923	0.961	1.030	1.080	1.130	1.272
27	-0.052	-0.032	0.325	0.505	0.493	0.503	0.576	0.634	0.712	0.870
28	0.488	0.310	0.354	0.394	0.408	0.479	0.611	0.704	0.827	1.051
29	0.451	0.556	0.636	0.728	0.800	0.866	0.975	1.064	1.155	1.276
30	0.451	0.523	0.581	0.652	0.738	0.792	0.860	0.932	1.000	1.055
31	0.445	0.469	0.399	0.429	0.435	0.545	0.660	0.751	0.850	0.938
32	0.470	0.331	0.244	0.308	0.336	0.444	0.584	0.712	0.840	1.039
33	0.031	-0.008	0.003	0.064	0.122	0.208	0.320	0.431	0.560	0.759
34	-0.272	-0.340	-0.369	-0.367	-0.363	-0.338	-0.315	-0.311	-0.317	-0.323
35	-0.350	-0.340	-0.367	-0.358	-0.354	-0.321	-0.311	-0.311	-0.326	-0.328
36	-0.342	-0.338	-0.348	-0.336	-0.336	-0.313	-0.307	-0.311	-0.322	-0.323
Left elevon flap, upper surface										
37	-0.330	-0.327	-0.327	-0.307	-0.336	-0.313	-0.305	-0.309	-0.319	-0.338
38	-0.220	-0.253	-0.266	-0.315	-0.330	-0.340	-0.324	-0.322	-0.338	-0.338
39	-0.214	-0.237	-0.266	-0.367	-0.361	-0.340	-0.322	-0.322	-0.338	-0.342
40	-0.235	-0.255	-0.319	-0.373	-0.381	-0.350	-0.324	-0.318	-0.332	-0.340
41	1.422	1.424	1.425	1.427	1.424	1.425	1.423	1.422	1.424	1.424
42	-0.445	-0.447	-0.445	-0.443	-0.443	-0.445	-0.443	-0.443	-0.445	-0.445
43	-0.447	-0.447	-0.449	-0.447	-0.445	-0.447	-0.445	-0.445	-0.445	-0.447
44	-0.260	-0.300	-0.327	-0.350	-0.348	-0.317	-0.296	-0.292	-0.300	-0.296
45	-0.223	-0.257	-0.286	-0.331	-0.371	-0.346	-0.329	-0.325	-0.340	-0.338
46	-0.169	-0.213	-0.244	-0.281	-0.331	-0.353	-0.325	-0.323	-0.327	-0.317
47	-0.167	-0.207	-0.252	-0.271	-0.300	-0.302	-0.311	-0.315	-0.323	-0.319
48	-0.177	-0.205	-0.217	-0.226	-0.232	-0.263	-0.288	-0.292	-0.315	-0.307
49	-0.186	-0.224	-0.250	-0.265	-0.279	-0.313	-0.323	-0.313	-0.313	-0.304
50	-0.241	-0.240	-0.246	-0.265	-0.294	-0.329	-0.327	-0.321	-0.319	-0.307

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(d) M = 1.80, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right tip fin outer flap, inner surface										
51	-0.210	-0.222	-0.211	-0.209	-0.211	-0.213	-0.218	-0.211	-0.195	-0.166
52	-0.324	-0.327	-0.339	-0.348	-0.348	-0.342	-0.323	-0.307	-0.298	-0.244
53	-0.326	-0.329	-0.342	-0.350	-0.348	-0.342	-0.321	-0.315	-0.296	-0.244
54	-0.317	-0.321	-0.337	-0.342	-0.354	-0.354	-0.342	-0.333	-0.319	-0.259
55	-0.319	-0.325	-0.344	-0.348	-0.354	-0.360	-0.350	-0.338	-0.323	-0.261
Right tip fin inner flap, inner surface										
56	-0.303	-0.294	-0.313	-0.310	-0.327	-0.329	-0.302	-0.313	-0.306	-0.259
57	-0.313	-0.325	-0.342	-0.350	-0.350	-0.354	-0.338	-0.325	-0.309	-0.259
58	-0.311	-0.323	-0.342	-0.350	-0.350	-0.346	-0.327	-0.319	-0.306	-0.255
59	-0.307	-0.321	-0.337	-0.348	-0.344	-0.337	-0.311	-0.313	-0.298	-0.251
60	-0.350	-0.331	-0.348	-0.352	-0.352	-0.358	-0.342	-0.338	-0.313	-0.259
Left tip fin inner flap, outer surface										
61	0.014	-0.197	-0.294	-0.335	-0.325	-0.309	-0.327	-0.338	-0.354	-0.309
62	0.062	-0.089	-0.224	-0.337	-0.348	-0.348	-0.364	-0.381	-0.389	-0.323
63	0.252	0.077	-0.043	-0.267	-0.335	-0.348	-0.362	-0.381	-0.381	-0.307
64	0.193	0.012	-0.147	-0.317	-0.381	-0.369	-0.342	-0.344	-0.352	-0.329
65	0.421	0.203	-0.019	-0.300	-0.366	-0.354	-0.273	-0.228	-0.257	-0.309
66	0.162	-0.170	-0.286	-0.354	-0.186	-0.253	-0.286	-0.327	-0.344	-0.329
67	0.255	0.066	-0.126	-0.342	-0.238	-0.151	-0.160	-0.273	-0.317	-0.329
68	0.177	0.048	-0.076	-0.323	-0.265	-0.044	-0.003	-0.092	-0.253	-0.327
Left tip fin outer flap, outer surface										
69	0.069	0.074	0.085	0.081	0.050	0.018	0.008	0.004	-0.031	-0.058
70	0.010	0.029	0.056	0.073	0.072	0.087	0.107	0.117	0.095	0.080
71	0.039	0.050	0.077	0.087	0.091	0.111	0.107	0.107	0.072	0.045
72	-0.000	0.021	0.044	0.050	0.052	0.070	0.096	0.130	0.117	0.109
73	-0.000	0.014	0.037	0.042	0.050	0.070	0.101	0.140	0.109	0.105
74	-0.011	-0.004	0.017	0.023	0.031	0.045	0.074	0.063	0.037	0.033
Left tip fin, inner surface										
75	-0.140	-0.242	-0.313	-0.344	-0.368	-0.354	-0.350	-0.350	-0.360	-0.329
76	-0.164	-0.282	-0.348	-0.364	-0.383	-0.377	-0.389	-0.371	-0.366	-0.350
Center fin, left surface										
77	-0.429	-0.439	-0.441	-0.441	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439
78	-0.431	-0.441	-0.441	-0.441	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439
Body										
79	0.127	0.060	-0.004	-0.058	-0.114	-0.164	-0.205	-0.238	-0.259	-0.275
80	0.039	-0.037	-0.093	-0.130	-0.147	-0.155	-0.170	-0.183	-0.203	-0.218
81	0.111	0.054	0.002	-0.045	-0.091	-0.143	-0.191	-0.234	-0.269	-0.294
82	-0.175	-0.116	-0.045	0.023	0.093	0.163	0.243	0.318	0.407	0.498
83	0.228	0.321	0.431	0.547	0.677	0.813	0.942	1.063	1.187	1.298

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.278	-0.256	-0.256	-0.256	-0.266	-0.276	-0.286	-0.275	-0.278	-0.268	-0.274
2	-0.303	-0.274	-0.272	-0.266	-0.278	-0.286	-0.307	-0.317	-0.326	-0.305	-0.299
3	-0.286	-0.270	-0.163	-0.169	-0.157	-0.045	-0.107	-0.202	-0.260	-0.212	-0.204
4	-0.288	-0.268	-0.270	-0.270	-0.274	-0.291	-0.303	-0.309	-0.324	-0.305	-0.307
5	-0.290	-0.268	-0.270	-0.266	-0.272	-0.286	-0.303	-0.311	-0.326	-0.305	-0.305
6	-0.286	-0.260	-0.270	-0.270	-0.278	-0.295	-0.307	-0.317	-0.328	-0.317	-0.328
7	-0.290	-0.266	-0.270	-0.268	-0.274	-0.286	-0.297	-0.303	-0.305	-0.287	-0.295
8	-0.286	-0.264	-0.268	-0.266	-0.268	-0.282	-0.292	-0.301	-0.307	-0.291	-0.292
9	-0.286	-0.260	-0.268	-0.266	-0.272	-0.284	-0.292	-0.301	-0.313	-0.293	-0.297
Right elevon, upper surface											
10	-0.290	-0.266	-0.268	-0.268	-0.272	-0.286	-0.297	-0.301	-0.307	-0.287	-0.295
11	-0.286	-0.266	-0.258	-0.266	-0.270	-0.282	-0.294	-0.301	-0.309	-0.287	-0.295
12	-0.280	-0.262	-0.268	-0.266	-0.272	-0.286	-0.299	-0.307	-0.315	-0.297	-0.299
13	-0.297	-0.266	-0.276	-0.274	-0.276	-0.293	-0.303	-0.307	-0.326	-0.307	-0.309
14	-0.293	-0.266	-0.270	-0.266	-0.272	-0.284	-0.303	-0.315	-0.325	-0.305	-0.301
15	-0.307	-0.276	-0.276	-0.284	-0.303	-0.321	-0.338	-0.342	-0.344	-0.317	-0.315
16	-0.307	-0.276	-0.151	-0.140	-0.134	-0.130	-0.169	-0.225	-0.252	-0.243	-0.249
17	-0.276	-0.274	-0.276	-0.282	-0.295	-0.313	-0.327	-0.332	-0.328	-0.307	-0.299
18	-0.276	-0.266	-0.268	-0.270	-0.276	-0.291	-0.307	-0.317	-0.326	-0.297	-0.307
Right elevon, side surface											
19	-0.276	-0.307	-0.326	-0.338	-0.340	-0.317	-0.309	-0.311	-0.317	-0.301	-0.303
20	-0.305	-0.251	-0.151	0.194	0.620	0.799	0.966	1.183	1.367	1.459	1.495
Right elevon well, left surface											
21	-0.272	-0.192	-0.039	0.416	0.506	0.758	0.904	1.055	1.199	1.296	1.328
Right elevon well, right surface											
22	-0.224	-0.109	0.121	0.435	0.562	0.704	0.825	0.939	1.040	1.119	1.155
Left elevon, lower surface											
23	-0.210	-0.103	0.167	0.418	0.536	0.634	0.724	0.801	0.868	0.924	0.951
24	-0.227	-0.052	0.256	0.519	0.626	0.719	0.817	0.912	0.979	1.029	1.050
25	-0.241	-0.062	0.249	0.589	0.682	0.814	0.953	1.093	1.195	1.265	1.289
26	-0.284	-0.163	0.086	0.531	0.781	0.933	1.102	1.306	1.392	1.455	1.479
27	-0.266	-0.204	-0.033	0.416	0.729	1.133	1.069	0.905	1.047	1.204	1.439
28	-0.286	0.002	0.354	0.529	0.913	1.184	1.199	1.100	1.178	1.288	1.429
29	-0.189	0.055	0.391	0.688	0.816	0.900	1.061	1.194	1.267	1.311	1.322
30	-0.154	0.113	0.373	0.375	0.655	0.717	0.821	0.912	0.970	1.014	1.027
31	0.235	0.377	0.455	0.573	0.635	0.649	0.753	0.842	0.890	0.916	0.918
32	0.336	0.309	0.404	0.587	0.826	0.956	1.122	1.129	1.158	1.198	1.229
33	0.301	0.006	0.070	0.146	0.206	0.286	0.372	0.513	0.668	0.875	1.126
34	-0.321	-0.324	-0.350	-0.336	-0.350	-0.321	-0.311	-0.319	-0.336	-0.326	-0.321
35	-0.321	-0.324	-0.342	-0.334	-0.344	-0.321	-0.321	-0.326	-0.336	-0.332	-0.342
36	-0.321	-0.324	-0.330	-0.324	-0.328	-0.315	-0.319	-0.326	-0.342	-0.332	-0.338
Left elevon flap, upper surface											
37	-0.319	-0.324	-0.315	-0.321	-0.311	-0.313	-0.317	-0.321	-0.340	-0.326	-0.334
38	-0.286	-0.311	-0.315	-0.326	-0.336	-0.321	-0.327	-0.319	-0.330	-0.332	-0.338
39	-0.270	-0.307	-0.356	-0.336	-0.346	-0.332	-0.327	-0.328	-0.332	-0.332	-0.342
40	-0.270	-0.319	-0.377	-0.367	-0.359	-0.336	-0.327	-0.336	-0.355	-0.336	-0.340
41	1.422	1.421	1.423	1.423	1.424	1.423	1.426	1.425	1.423	1.424	1.423
42	-0.445	-0.445	-0.443	-0.443	-0.443	-0.443	-0.447	-0.443	-0.443	-0.443	-0.445
43	-0.447	-0.447	-0.449	-0.449	-0.445	-0.445	-0.447	-0.445	-0.445	-0.445	-0.449
44	-0.280	-0.307	-0.348	-0.346	-0.331	-0.304	-0.292	-0.300	-0.302	-0.307	-0.307
45	-0.176	-0.240	-0.336	-0.379	-0.354	-0.335	-0.331	-0.323	-0.327	-0.329	-0.338
46	-0.135	-0.193	-0.305	-0.354	-0.338	-0.313	-0.340	-0.323	-0.327	-0.327	-0.327
47	-0.143	-0.162	-0.305	-0.317	-0.309	-0.308	-0.329	-0.327	-0.329	-0.327	-0.327
48	-0.104	-0.131	-0.178	-0.222	-0.269	-0.311	-0.300	-0.331	-0.336	-0.334	-0.333
49	-0.139	-0.170	-0.220	-0.288	-0.300	-0.317	-0.344	-0.329	-0.331	-0.327	-0.327
50	-0.178	-0.199	-0.271	-0.296	-0.296	-0.323	-0.344	-0.329	-0.329	-0.327	-0.327

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.220	-0.222	-0.218	-0.220	-0.224	-0.236	-0.234	-0.217	-0.195	-0.162	-0.133
52	-0.327	-0.346	-0.340	-0.342	-0.323	-0.319	-0.308	-0.311	-0.296	-0.278	-0.286
53	-0.327	-0.350	-0.340	-0.342	-0.321	-0.323	-0.308	-0.311	-0.296	-0.278	-0.282
54	-0.317	-0.344	-0.333	-0.331	-0.315	-0.333	-0.323	-0.325	-0.305	-0.286	-0.290
55	-0.323	-0.348	-0.338	-0.335	-0.317	-0.331	-0.325	-0.323	-0.300	-0.284	-0.280
Right tip fin inner flap, inner surface											
56	-0.282	-0.327	-0.307	-0.286	-0.290	-0.300	-0.300	-0.304	-0.284	-0.274	-0.288
57	-0.325	-0.338	-0.338	-0.342	-0.321	-0.325	-0.317	-0.321	-0.302	-0.286	-0.292
58	-0.325	-0.336	-0.338	-0.342	-0.321	-0.317	-0.308	-0.317	-0.298	-0.282	-0.290
59	-0.321	-0.329	-0.333	-0.340	-0.319	-0.313	-0.302	-0.309	-0.292	-0.278	-0.286
60	-0.331	-0.350	-0.344	-0.340	-0.321	-0.335	-0.325	-0.323	-0.302	-0.286	-0.292
Left tip fin inner flap, outer surface											
61	-0.209	-0.286	-0.321	-0.352	-0.329	-0.317	-0.317	-0.327	-0.336	-0.338	-0.333
62	-0.044	-0.238	-0.325	-0.366	-0.348	-0.323	-0.331	-0.344	-0.344	-0.348	-0.348
63	0.200	0.074	-0.065	-0.290	-0.348	-0.323	-0.333	-0.344	-0.346	-0.350	-0.348
64	-0.013	-0.152	-0.319	-0.362	-0.358	-0.346	-0.371	-0.373	-0.346	-0.352	-0.362
65	0.200	0.024	-0.166	-0.306	-0.340	-0.346	-0.356	-0.375	-0.346	-0.350	-0.350
66	-0.141	-0.288	-0.342	-0.366	-0.354	-0.350	-0.352	-0.373	-0.350	-0.356	-0.369
67	0.084	-0.158	-0.333	-0.364	-0.348	-0.333	-0.337	-0.358	-0.352	-0.360	-0.371
68	-0.002	-0.081	-0.315	-0.338	-0.350	-0.217	-0.290	-0.249	-0.344	-0.344	-0.344
Left tip fin outer flap, outer surface											
69	0.223	0.210	0.196	0.163	0.136	0.109	0.099	0.101	0.069	0.051	0.030
70	0.146	0.158	0.179	0.180	0.187	0.188	0.207	0.242	0.247	0.222	0.210
71	0.180	0.185	0.191	0.198	0.200	0.203	0.219	0.248	0.235	0.193	0.171
72	0.144	0.154	0.162	0.161	0.161	0.169	0.201	0.246	0.289	0.272	0.255
73	0.136	0.142	0.144	0.145	0.154	0.169	0.207	0.271	0.286	0.267	0.251
74	0.111	0.111	0.115	0.120	0.132	0.145	0.176	0.209	0.191	0.168	0.154
Left tip fin, inner surface											
75	-0.232	-0.292	-0.331	-0.352	-0.342	-0.346	-0.329	-0.340	-0.340	-0.342	-0.340
76	-0.267	-0.313	-0.340	-0.346	-0.356	-0.334	-0.364	-0.369	-0.350	-0.356	-0.356
Center fin, left surface											
77	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439	-0.439	-0.437	-0.437
78	-0.439	-0.439	-0.439	-0.441	-0.439	-0.441	-0.441	-0.441	-0.441	-0.439	-0.439
Body											
79	0.188	0.127	0.069	0.016	-0.034	-0.085	-0.133	-0.164	-0.195	-0.214	-0.232
80	0.039	-0.026	-0.079	-0.122	-0.149	-0.166	-0.180	-0.193	-0.212	-0.226	-0.247
81	0.049	0.012	-0.038	-0.077	-0.123	-0.170	-0.222	-0.269	-0.302	-0.311	-0.331
82	-0.137	-0.094	-0.052	-0.011	0.037	0.089	0.159	0.233	0.311	0.398	0.483
83	0.229	0.326	0.431	0.546	0.677	0.807	0.935	1.061	1.175	1.281	1.384

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right elevon flap, lower surface											
1	-0.301	-0.280	-0.286	-0.268	-0.268	-0.288	-0.291	-0.280	-0.266	-0.264	-0.258
2	-0.342	-0.332	-0.317	-0.313	-0.291	-0.317	-0.328	-0.317	-0.307	-0.313	-0.311
3	-0.319	-0.309	-0.270	0.060	-0.120	-0.202	-0.190	-0.196	-0.182	-0.169	-0.171
4	-0.313	-0.299	-0.305	-0.282	-0.284	-0.307	-0.311	-0.303	-0.295	-0.295	-0.293
5	-0.323	-0.307	-0.311	-0.311	-0.291	-0.313	-0.317	-0.307	-0.297	-0.299	-0.299
6	-0.319	-0.295	-0.317	-0.311	-0.350	-0.369	-0.286	-0.299	-0.274	-0.266	-0.264
7	-0.321	-0.313	-0.311	-0.288	-0.286	-0.307	-0.307	-0.297	-0.285	-0.287	-0.291
8	-0.323	-0.305	-0.309	-0.307	-0.288	-0.313	-0.319	-0.307	-0.299	-0.301	-0.299
9	-0.301	-0.293	-0.315	-0.313	-0.305	-0.336	-0.354	-0.344	-0.330	-0.328	-0.322
Right elevon, upper surface											
10	-0.321	-0.313	-0.309	-0.288	-0.285	-0.307	-0.328	-0.299	-0.287	-0.287	-0.293
11	-0.319	-0.305	-0.309	-0.307	-0.286	-0.313	-0.313	-0.307	-0.299	-0.301	-0.299
12	-0.346	-0.293	-0.315	-0.313	-0.309	-0.346	-0.361	-0.344	-0.336	-0.326	-0.318
13	-0.321	-0.307	-0.311	-0.290	-0.288	-0.313	-0.315	-0.313	-0.301	-0.301	-0.295
14	-0.323	-0.313	-0.311	-0.313	-0.288	-0.313	-0.319	-0.309	-0.301	-0.305	-0.299
15	-0.340	-0.330	-0.315	-0.295	-0.286	-0.309	-0.307	-0.309	-0.303	-0.305	-0.305
16	-0.315	-0.309	-0.278	-0.136	0.060	0.117	0.175	0.231	0.279	0.314	0.339
17	-0.194	-0.247	-0.266	-0.262	-0.291	-0.321	-0.326	-0.321	-0.315	-0.307	-0.299
18	-0.266	-0.276	-0.290	-0.276	-0.286	-0.307	-0.311	-0.299	-0.287	-0.287	-0.291
Right elevon, side surface											
19	-0.338	-0.313	-0.342	-0.280	-0.315	-0.321	-0.305	-0.332	-0.330	-0.334	-0.330
20	-0.321	0.490	0.578	0.685	0.537	0.463	0.490	0.549	0.635	0.800	1.028
Right elevon well, left surface											
21	-0.177	0.474	0.510	0.567	0.645	0.708	0.768	0.827	0.921	1.088	1.246
Right elevon well, right surface											
22	-0.039	0.402	0.409	0.493	0.516	0.719	0.807	0.897	0.999	1.090	1.133
Left elevon, lower surface											
23	0.078	0.346	0.374	0.460	0.548	0.614	0.682	0.755	0.831	0.884	0.896
24	0.494	0.495	0.537	0.627	0.620	0.698	0.768	0.858	0.955	1.034	1.071
25	0.531	0.600	0.582	0.625	0.624	0.727	0.813	0.922	1.059	1.218	1.326
26	0.540	0.612	0.635	0.396	0.379	0.467	0.562	0.587	0.829	1.041	1.318
27	0.235	0.307	0.281	0.109	0.140	0.214	0.305	0.433	0.557	0.744	1.034
28	0.457	0.321	0.064	0.105	0.175	0.272	0.375	0.497	0.564	0.897	1.165
29	0.630	0.579	0.380	0.318	0.369	0.492	0.601	0.724	0.903	1.131	1.314
30	0.509	0.563	0.514	0.382	0.420	0.537	0.628	0.738	0.890	1.018	1.089
31	0.410	0.297	0.207	0.178	0.218	0.340	0.453	0.563	0.734	0.913	1.026
32	0.319	0.198	0.114	0.132	0.173	0.260	0.389	0.493	0.689	0.954	1.168
33	0.150	-0.010	-0.051	0.015	0.091	0.196	0.313	0.442	0.588	0.783	0.993
34	-0.276	-0.293	-0.340	-0.354	-0.348	-0.346	-0.340	-0.345	-0.336	-0.328	-0.342
35	-0.255	-0.319	-0.360	-0.354	-0.348	-0.348	-0.336	-0.348	-0.336	-0.320	-0.330
36	-0.255	-0.311	-0.330	-0.338	-0.326	-0.324	-0.326	-0.328	-0.338	-0.301	-0.315
Left elevon flap, upper surface											
37	-0.237	-0.313	-0.321	-0.309	-0.295	-0.305	-0.321	-0.319	-0.328	-0.287	-0.289
38	-0.218	-0.245	-0.259	-0.276	-0.295	-0.299	-0.319	-0.342	-0.346	-0.303	-0.307
39	-0.204	-0.227	-0.255	-0.311	-0.340	-0.340	-0.336	-0.348	-0.361	-0.336	-0.328
40	-0.198	-0.235	-0.276	-0.321	-0.365	-0.367	-0.352	-0.352	-0.355	-0.346	-0.359
41	1.422	1.422	1.423	1.423	1.423	1.423	1.423	1.423	1.421	1.421	1.421
42	-0.445	-0.445	-0.445	-0.445	-0.443	-0.447	-0.443	-0.445	-0.443	-0.443	-0.443
43	-0.449	-0.449	-0.449	-0.449	-0.445	-0.445	-0.445	-0.447	-0.445	-0.447	-0.445
44	-0.247	-0.278	-0.302	-0.323	-0.350	-0.342	-0.323	-0.321	-0.323	-0.315	-0.321
45	-0.278	-0.292	-0.302	-0.305	-0.315	-0.333	-0.346	-0.348	-0.354	-0.323	-0.344
46	-0.247	-0.249	-0.263	-0.259	-0.257	-0.290	-0.313	-0.319	-0.321	-0.292	-0.309
47	-0.220	-0.240	-0.253	-0.255	-0.246	-0.249	-0.253	-0.257	-0.277	-0.274	-0.294
48	-0.224	-0.234	-0.236	-0.226	-0.230	-0.238	-0.249	-0.257	-0.280	-0.276	-0.311
49	-0.234	-0.253	-0.259	-0.251	-0.242	-0.246	-0.263	-0.277	-0.306	-0.290	-0.307
50	-0.271	-0.247	-0.253	-0.259	-0.267	-0.277	-0.296	-0.319	-0.323	-0.296	-0.313

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(f) M = 1.80, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$
Right tip fin outer flap, inner surface											
51	-0.214	-0.207	-0.207	-0.205	-0.220	-0.228	-0.228	-0.215	-0.195	-0.166	-0.143
52	-0.298	-0.284	-0.323	-0.340	-0.331	-0.331	-0.311	-0.317	-0.309	-0.338	-0.325
53	-0.298	-0.286	-0.327	-0.344	-0.335	-0.335	-0.311	-0.311	-0.298	-0.317	-0.313
54	-0.302	-0.288	-0.325	-0.350	-0.346	-0.348	-0.329	-0.329	-0.317	-0.344	-0.336
55	-0.302	-0.288	-0.331	-0.350	-0.344	-0.350	-0.331	-0.329	-0.319	-0.350	-0.342
Right tip fin inner flap, inner surface											
56	-0.298	-0.276	-0.298	-0.327	-0.290	-0.296	-0.306	-0.298	-0.284	-0.309	-0.313
57	-0.298	-0.286	-0.325	-0.344	-0.340	-0.346	-0.315	-0.315	-0.309	-0.342	-0.336
58	-0.298	-0.264	-0.323	-0.344	-0.335	-0.337	-0.313	-0.313	-0.304	-0.340	-0.333
59	-0.298	-0.284	-0.319	-0.340	-0.323	-0.319	-0.309	-0.309	-0.298	-0.329	-0.325
60	-0.304	-0.288	-0.337	-0.350	-0.346	-0.344	-0.329	-0.319	-0.311	-0.344	-0.336
Left tip fin inner flap, outer surface											
61	0.355	0.039	-0.116	-0.267	-0.298	-0.311	-0.309	-0.329	-0.319	-0.323	-0.319
62	0.266	0.095	-0.062	-0.238	-0.288	-0.335	-0.340	-0.345	-0.327	-0.321	-0.315
63	0.489	0.332	0.118	0.003	-0.234	-0.337	-0.340	-0.340	-0.317	-0.323	-0.315
64	0.785	0.434	0.068	-0.176	-0.296	-0.300	-0.313	-0.267	-0.255	-0.321	-0.319
65	0.626	0.477	0.296	0.113	-0.296	-0.211	-0.220	-0.225	-0.288	-0.323	-0.313
66	0.504	0.301	0.056	-0.286	-0.236	-0.157	-0.255	-0.302	-0.321	-0.325	-0.333
67	0.477	0.351	0.149	-0.224	-0.228	-0.271	-0.261	-0.309	-0.325	-0.327	-0.333
68	0.340	0.223	0.097	-0.156	-0.234	-0.275	-0.296	-0.325	-0.329	-0.329	-0.323
Left tip fin outer flap, outer surface											
69	-0.096	-0.061	-0.029	-0.003	-0.009	-0.037	-0.083	-0.122	-0.126	-0.129	-0.112
70	-0.118	-0.094	-0.052	0.001	0.023	0.016	-0.013	-0.033	-0.040	-0.032	-0.055
71	-0.098	-0.071	-0.029	0.014	0.037	0.025	-0.019	-0.060	-0.066	-0.046	-0.073
72	-0.125	-0.089	-0.046	-0.011	0.002	-0.009	-0.025	-0.033	-0.031	-0.061	-0.172
73	-0.125	-0.089	-0.050	-0.015	0.002	-0.006	-0.025	-0.040	-0.029	-0.075	-0.195
74	-0.133	-0.098	-0.069	-0.030	-0.019	-0.040	-0.075	-0.085	-0.071	-0.112	-0.212
Left tip fin, inner surface											
75	0.004	-0.145	-0.220	-0.294	-0.331	-0.346	-0.352	-0.362	-0.342	-0.317	-0.321
76	-0.069	-0.197	-0.261	-0.325	-0.371	-0.393	-0.385	-0.379	-0.364	-0.325	-0.336
Center fin, left surface											
77	-0.439	-0.439	-0.439	-0.439	-0.439	-0.441	-0.439	-0.439	-0.439	-0.439	-0.439
78	-0.439	-0.439	-0.439	-0.439	-0.441	-0.441	-0.441	-0.441	-0.441	-0.439	-0.441
Body											
79	0.070	0.026	-0.031	-0.094	-0.164	-0.222	-0.267	-0.296	-0.311	-0.333	-0.352
80	0.045	-0.021	-0.079	-0.123	-0.164	-0.191	-0.207	-0.217	-0.228	-0.247	-0.280
81	0.164	0.121	0.056	0.012	-0.044	-0.093	-0.143	-0.184	-0.220	-0.247	-0.272
82	-0.242	-0.158	-0.066	0.024	0.120	0.213	0.312	0.409	0.503	0.595	0.697
83	0.223	0.318	0.426	0.545	0.570	0.811	0.937	1.067	1.183	1.291	1.394

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
	Right elevon flap, lower surface										
1	-0.223	-0.212	-0.205	-0.199	-0.199	-0.199	-0.199	-0.195	-0.184	-0.169	-0.156
2	-0.259	-0.251	-0.233	-0.233	-0.229	-0.235	-0.242	-0.244	-0.242	-0.236	-0.227
3	-0.253	-0.238	-0.235	-0.042	-0.137	-0.141	-0.139	-0.126	-0.105	-0.105	-0.124
4	-0.253	-0.238	-0.235	-0.220	-0.220	-0.231	-0.236	-0.238	-0.233	-0.231	-0.225
5	-0.255	-0.240	-0.240	-0.233	-0.229	-0.231	-0.238	-0.242	-0.236	-0.231	-0.223
6	-0.244	-0.233	-0.231	-0.248	-0.274	-0.268	-0.263	-0.240	-0.204	-0.182	-0.169
7	-0.253	-0.242	-0.238	-0.225	-0.229	-0.233	-0.240	-0.233	-0.229	-0.223	-0.214
8	-0.253	-0.240	-0.238	-0.231	-0.229	-0.229	-0.233	-0.233	-0.229	-0.221	-0.210
9	-0.244	-0.240	-0.242	-0.233	-0.244	-0.253	-0.251	-0.242	-0.236	-0.229	-0.221
	Right elevon, upper surface										
10	-0.253	-0.242	-0.235	-0.225	-0.229	-0.233	-0.236	-0.233	-0.231	-0.225	-0.216
11	-0.253	-0.242	-0.238	-0.227	-0.229	-0.229	-0.236	-0.235	-0.231	-0.221	-0.210
12	-0.244	-0.236	-0.235	-0.233	-0.246	-0.257	-0.246	-0.238	-0.231	-0.225	-0.214
13	-0.253	-0.244	-0.231	-0.227	-0.229	-0.235	-0.240	-0.238	-0.238	-0.233	-0.231
14	-0.255	-0.240	-0.253	-0.233	-0.229	-0.231	-0.238	-0.240	-0.236	-0.229	-0.221
15	-0.259	-0.246	-0.240	-0.231	-0.231	-0.235	-0.246	-0.242	-0.248	-0.246	-0.242
16	-0.244	-0.238	-0.246	-0.092	-0.030	0.004	0.041	0.090	0.141	0.152	0.135
17	-0.242	-0.229	-0.220	-0.212	-0.218	-0.233	-0.244	-0.240	-0.223	-0.212	-0.199
18	-0.242	-0.251	-0.220	-0.216	-0.220	-0.233	-0.240	-0.238	-0.236	-0.231	-0.223
	Right elevon, side surface										
19	-0.261	-0.261	-0.244	-0.235	-0.235	-0.240	-0.242	-0.246	-0.251	-0.248	-0.242
20	-0.242	-0.203	-0.068	0.726	0.726	0.844	1.013	1.104	1.084	1.167	1.251
	Right elevon well, left surface										
21	-0.210	-0.107	0.273	0.530	0.658	0.763	0.901	1.111	1.251	1.364	1.446
	Right elevon well, right surface										
22	-0.137	0.030	0.367	0.475	0.587	0.701	0.820	0.991	1.138	1.239	1.324
	Left elevon, lower surface										
23	-0.094	0.086	0.367	0.457	0.557	0.664	0.764	0.880	0.973	1.042	1.107
24	-0.122	0.193	0.511	0.554	0.669	0.789	0.923	1.047	1.133	1.199	1.249
25	-0.145	0.114	0.553	0.629	0.711	0.842	1.034	1.194	1.309	1.408	1.484
26	-0.218	-0.049	0.547	0.732	0.823	0.977	1.060	1.029	1.108	1.233	1.364
27	-0.124	-0.128	0.225	0.432	0.386	0.341	0.495	0.561	0.648	0.777	0.940
28	0.370	0.347	0.354	0.288	0.285	0.392	0.497	0.619	0.750	0.908	1.101
29	0.350	0.456	0.598	0.732	0.849	0.883	0.874	1.002	1.138	1.271	1.405
30	0.380	0.443	0.511	0.623	0.750	0.872	0.895	0.980	1.082	1.164	1.227
31	0.325	0.420	0.500	0.382	0.409	0.478	0.574	0.723	0.859	0.974	1.080
32	0.445	0.488	0.187	0.183	0.262	0.358	0.475	0.627	0.782	0.925	1.105
33	-0.062	-0.116	-0.073	-0.014	0.049	0.135	0.242	0.355	0.483	0.627	0.820
34	-0.259	-0.255	-0.246	-0.259	-0.253	-0.238	-0.236	-0.240	-0.246	-0.248	-0.246
35	-0.259	-0.255	-0.263	-0.257	-0.253	-0.242	-0.236	-0.246	-0.253	-0.257	-0.257
36	-0.259	-0.253	-0.255	-0.253	-0.240	-0.240	-0.238	-0.244	-0.251	-0.255	-0.255
	Left elevon flap, upper surface										
37	-0.259	-0.248	-0.250	-0.253	-0.235	-0.240	-0.238	-0.244	-0.246	-0.253	-0.244
38	-0.180	-0.208	-0.242	-0.255	-0.253	-0.242	-0.242	-0.253	-0.255	-0.253	-0.246
39	-0.180	-0.201	-0.261	-0.263	-0.255	-0.242	-0.242	-0.255	-0.263	-0.266	-0.261
40	-0.195	-0.221	-0.280	-0.274	-0.261	-0.250	-0.242	-0.253	-0.263	-0.268	-0.265
41	1.634	1.632	1.632	1.633	1.633	1.635	1.629	1.629	1.627	1.629	1.630
42	-0.310	-0.308	-0.310	-0.310	-0.308	-0.308	-0.310	-0.310	-0.310	-0.310	-0.310
43	-0.313	-0.310	-0.313	-0.313	-0.310	-0.310	-0.313	-0.313	-0.313	-0.313	-0.313
44	-0.196	-0.218	-0.231	-0.231	-0.216	-0.209	-0.207	-0.208	-0.214	-0.220	-0.218
45	-0.186	-0.201	-0.225	-0.259	-0.252	-0.242	-0.237	-0.246	-0.257	-0.263	-0.259
46	-0.164	-0.190	-0.210	-0.250	-0.252	-0.237	-0.240	-0.242	-0.240	-0.237	-0.231
47	-0.149	-0.181	-0.210	-0.229	-0.229	-0.235	-0.235	-0.233	-0.238	-0.235	-0.225
48	-0.155	-0.164	-0.173	-0.179	-0.199	-0.216	-0.214	-0.229	-0.248	-0.250	-0.242
49	-0.155	-0.171	-0.190	-0.207	-0.231	-0.242	-0.227	-0.229	-0.238	-0.242	-0.238
50	-0.196	-0.205	-0.194	-0.211	-0.242	-0.242	-0.233	-0.233	-0.240	-0.242	-0.240

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.175	-0.175	-0.171	-0.168	-0.162	-0.168	-0.162	-0.139	-0.113	-0.083	-0.046
52	-0.246	-0.244	-0.252	-0.250	-0.248	-0.239	-0.233	-0.231	-0.233	-0.229	-0.207
53	-0.248	-0.246	-0.255	-0.252	-0.248	-0.242	-0.235	-0.225	-0.233	-0.231	-0.210
54	-0.248	-0.246	-0.252	-0.257	-0.257	-0.248	-0.246	-0.242	-0.248	-0.248	-0.227
55	-0.248	-0.243	-0.255	-0.255	-0.240	-0.248	-0.248	-0.244	-0.250	-0.250	-0.227
Right tip fin inner flap, inner surface											
56	-0.239	-0.235	-0.235	-0.242	-0.235	-0.229	-0.231	-0.227	-0.233	-0.237	-0.231
57	-0.246	-0.246	-0.255	-0.255	-0.257	-0.244	-0.235	-0.233	-0.242	-0.242	-0.225
58	-0.246	-0.244	-0.252	-0.255	-0.252	-0.244	-0.235	-0.231	-0.240	-0.242	-0.222
59	-0.246	-0.242	-0.252	-0.248	-0.240	-0.242	-0.233	-0.227	-0.235	-0.240	-0.222
60	-0.250	-0.250	-0.259	-0.257	-0.259	-0.257	-0.246	-0.238	-0.246	-0.246	-0.227
Left tip fin inner flap, outer surface											
61	-0.033	-0.132	-0.205	-0.239	-0.231	-0.233	-0.235	-0.240	-0.246	-0.240	-0.231
62	0.038	-0.100	-0.175	-0.239	-0.244	-0.239	-0.242	-0.244	-0.246	-0.244	-0.242
63	0.320	0.189	-0.025	-0.205	-0.242	-0.244	-0.242	-0.246	-0.248	-0.244	-0.244
64	0.090	-0.014	-0.173	-0.246	-0.252	-0.257	-0.257	-0.253	-0.250	-0.248	-0.246
65	0.310	0.122	-0.055	-0.196	-0.252	-0.259	-0.259	-0.253	-0.255	-0.250	-0.248
66	0.015	-0.065	-0.225	-0.257	-0.229	-0.246	-0.257	-0.253	-0.255	-0.255	-0.248
67	0.187	0.053	-0.098	-0.255	-0.205	-0.239	-0.255	-0.255	-0.255	-0.255	-0.250
68	0.118	-0.016	-0.104	-0.248	-0.177	-0.171	-0.212	-0.246	-0.255	-0.255	-0.253
Left tip fin outer flap, outer surface											
69	0.103	0.100	0.091	0.073	0.057	0.040	0.035	0.035	0.046	0.025	0.020
70	0.051	0.066	0.081	0.081	0.087	0.090	0.100	0.112	0.125	0.126	0.125
71	0.068	0.079	0.091	0.098	0.100	0.101	0.100	0.112	0.119	0.102	0.100
72	0.028	0.040	0.055	0.060	0.066	0.075	0.096	0.121	0.147	0.149	0.142
73	0.028	0.040	0.053	0.055	0.064	0.075	0.096	0.125	0.147	0.149	0.145
74	0.021	0.032	0.040	0.040	0.046	0.060	0.078	0.097	0.089	0.095	0.089
Left tip fin, inner surface											
75	-0.119	-0.181	-0.231	-0.257	-0.246	-0.239	-0.240	-0.240	-0.240	-0.240	-0.235
76	-0.156	-0.222	-0.259	-0.263	-0.257	-0.259	-0.257	-0.253	-0.255	-0.252	-0.246
Center fin, left surface											
77	-0.304	-0.304	-0.302	-0.304	-0.302	-0.304	-0.304	-0.302	-0.304	-0.304	-0.304
78	-0.306	-0.306	-0.304	-0.306	-0.304	-0.306	-0.306	-0.304	-0.306	-0.306	-0.304
Body											
79	0.109	0.062	0.014	-0.033	-0.070	-0.112	-0.136	-0.158	-0.173	-0.190	-0.199
80	0.049	-0.007	-0.055	-0.095	-0.113	-0.123	-0.132	-0.141	-0.154	-0.154	-0.167
81	0.099	0.057	0.016	-0.026	-0.061	-0.104	-0.139	-0.167	-0.188	-0.205	-0.216
82	-0.128	-0.070	-0.005	0.053	0.122	0.191	0.265	0.357	0.443	0.536	0.632
83	0.247	0.341	0.461	0.580	0.706	0.845	0.983	1.113	1.237	1.350	1.456

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.210	-0.197	-0.192	-0.190	-0.201	-0.203	-0.199	-0.186	-0.176	-0.167	-0.154
2	-0.242	-0.227	-0.214	-0.212	-0.220	-0.231	-0.240	-0.246	-0.244	-0.240	-0.216
3	-0.255	-0.218	-0.135	-0.190	-0.092	-0.027	-0.105	-0.167	-0.193	-0.188	-0.180
4	-0.233	-0.221	-0.210	-0.210	-0.218	-0.225	-0.233	-0.240	-0.240	-0.233	-0.216
5	-0.233	-0.225	-0.212	-0.210	-0.216	-0.225	-0.233	-0.240	-0.240	-0.233	-0.216
6	-0.231	-0.221	-0.212	-0.210	-0.218	-0.227	-0.231	-0.236	-0.229	-0.225	-0.214
7	-0.233	-0.229	-0.212	-0.210	-0.218	-0.225	-0.229	-0.231	-0.227	-0.220	-0.197
8	-0.235	-0.227	-0.212	-0.210	-0.212	-0.216	-0.220	-0.227	-0.221	-0.216	-0.199
9	-0.242	-0.231	-0.212	-0.208	-0.216	-0.220	-0.223	-0.227	-0.223	-0.216	-0.201
Right elevon, upper surface											
10	-0.238	-0.225	-0.212	-0.210	-0.218	-0.225	-0.227	-0.231	-0.225	-0.218	-0.199
11	-0.242	-0.233	-0.212	-0.210	-0.214	-0.216	-0.220	-0.225	-0.223	-0.216	-0.199
12	-0.231	-0.240	-0.212	-0.208	-0.216	-0.220	-0.223	-0.227	-0.223	-0.216	-0.201
13	-0.231	-0.225	-0.214	-0.212	-0.222	-0.231	-0.238	-0.248	-0.242	-0.242	-0.223
14	-0.235	-0.221	-0.214	-0.212	-0.214	-0.225	-0.233	-0.242	-0.240	-0.235	-0.218
15	-0.235	-0.223	-0.216	-0.216	-0.238	-0.246	-0.255	-0.257	-0.248	-0.253	-0.229
16	-0.233	-0.223	-0.145	-0.126	-0.117	-0.102	-0.113	-0.139	-0.152	-0.150	-0.139
17	-0.229	-0.223	-0.212	-0.214	-0.231	-0.242	-0.244	-0.238	-0.225	-0.212	-0.195
18	-0.231	-0.214	-0.210	-0.210	-0.220	-0.231	-0.238	-0.244	-0.238	-0.231	-0.208
Right elevon, side surface											
19	-0.233	-0.251	-0.261	-0.248	-0.255	-0.231	-0.235	-0.238	-0.242	-0.238	-0.225
20	-0.233	-0.201	-0.126	0.162	0.512	0.769	0.965	1.140	1.343	1.569	1.637
Right elevon well, left surface											
21	-0.225	-0.158	-0.002	0.395	0.595	0.749	0.916	1.082	1.226	1.387	1.513
Right elevon well, right surface											
22	-0.171	-0.036	0.159	0.436	0.582	0.713	0.854	1.000	1.119	1.237	1.340
Left elevon, lower surface											
23	-0.130	0.017	0.217	0.443	0.561	0.679	0.796	0.902	0.990	1.074	1.141
24	-0.160	-0.011	0.312	0.535	0.532	0.764	0.892	1.009	1.112	1.196	1.250
25	-0.188	-0.047	0.254	0.580	0.577	0.812	0.976	1.135	1.286	1.414	1.494
26	-0.220	-0.143	0.078	0.561	0.724	0.887	1.070	1.287	1.493	1.599	1.646
27	-0.225	-0.182	-0.034	0.460	0.818	0.983	1.420	1.137	1.035	1.082	1.248
28	-0.201	-0.111	0.348	0.546	1.005	1.151	1.336	1.377	1.146	1.189	1.340
29	-0.193	-0.013	0.350	0.685	0.750	0.887	1.062	1.240	1.401	1.483	1.530
30	-0.167	0.345	0.357	0.580	0.564	0.764	0.884	0.998	1.108	1.181	1.226
31	0.172	0.347	0.445	0.571	0.610	0.674	0.768	0.883	1.027	1.095	1.119
32	0.249	0.266	0.288	0.706	0.823	0.904	1.070	1.262	1.283	1.273	1.357
33	-0.029	0.052	0.016	0.005	0.044	0.187	0.393	0.495	0.575	0.714	0.899
34	-0.265	-0.268	-0.270	-0.259	-0.253	-0.242	-0.242	-0.242	-0.242	-0.248	-0.246
35	-0.265	-0.272	-0.268	-0.255	-0.253	-0.246	-0.250	-0.253	-0.253	-0.257	-0.259
36	-0.265	-0.268	-0.265	-0.244	-0.242	-0.246	-0.250	-0.253	-0.251	-0.255	-0.253
Left elevon flap, upper surface											
37	-0.265	-0.255	-0.253	-0.238	-0.231	-0.246	-0.248	-0.248	-0.248	-0.253	-0.251
38	-0.238	-0.251	-0.244	-0.246	-0.242	-0.255	-0.253	-0.253	-0.251	-0.253	-0.251
39	-0.233	-0.257	-0.263	-0.255	-0.253	-0.255	-0.255	-0.255	-0.253	-0.259	-0.259
40	-0.244	-0.259	-0.274	-0.268	-0.259	-0.253	-0.255	-0.255	-0.253	-0.263	-0.263
41	1.633	1.632	1.633	1.633	1.634	1.633	1.632	1.630	1.630	1.631	1.631
42	-0.310	-0.308	-0.310	-0.310	-0.310	-0.310	-0.310	-0.310	-0.308	-0.310	-0.308
43	-0.313	-0.310	-0.313	-0.313	-0.313	-0.313	-0.313	-0.313	-0.310	-0.313	-0.310
44	-0.216	-0.222	-0.208	-0.222	-0.216	-0.197	-0.212	-0.212	-0.214	-0.218	-0.216
45	-0.179	-0.233	-0.240	-0.259	-0.246	-0.233	-0.242	-0.246	-0.246	-0.257	-0.257
46	-0.119	-0.216	-0.234	-0.252	-0.229	-0.236	-0.239	-0.244	-0.248	-0.244	-0.238
47	-0.117	-0.201	-0.208	-0.227	-0.216	-0.223	-0.246	-0.244	-0.252	-0.252	-0.244
48	-0.121	-0.143	-0.153	-0.209	-0.222	-0.215	-0.237	-0.243	-0.250	-0.250	-0.250
49	-0.121	-0.156	-0.189	-0.233	-0.224	-0.231	-0.237	-0.242	-0.242	-0.242	-0.242
50	-0.134	-0.173	-0.217	-0.222	-0.231	-0.233	-0.239	-0.240	-0.248	-0.248	-0.246

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.177	-0.177	-0.155	-0.171	-0.179	-0.167	-0.162	-0.139	-0.111	-0.078	-0.038
52	-0.248	-0.257	-0.234	-0.252	-0.242	-0.214	-0.222	-0.222	-0.212	-0.209	-0.197
53	-0.250	-0.261	-0.234	-0.252	-0.244	-0.216	-0.224	-0.225	-0.214	-0.209	-0.197
54	-0.248	-0.259	-0.234	-0.248	-0.246	-0.229	-0.235	-0.233	-0.220	-0.220	-0.208
55	-0.250	-0.261	-0.234	-0.250	-0.240	-0.225	-0.235	-0.233	-0.218	-0.214	-0.197
Right tip fin inner flap, inner surface											
56	-0.233	-0.255	-0.219	-0.231	-0.231	-0.208	-0.214	-0.222	-0.205	-0.212	-0.201
57	-0.248	-0.259	-0.234	-0.252	-0.246	-0.223	-0.231	-0.229	-0.216	-0.218	-0.205
58	-0.248	-0.259	-0.234	-0.252	-0.244	-0.216	-0.229	-0.229	-0.214	-0.214	-0.201
59	-0.244	-0.257	-0.232	-0.252	-0.244	-0.212	-0.222	-0.227	-0.212	-0.207	-0.197
60	-0.252	-0.261	-0.236	-0.255	-0.246	-0.229	-0.233	-0.233	-0.220	-0.220	-0.205
Left tip fin inner flap, outer surface											
61	-0.136	-0.192	-0.213	-0.240	-0.233	-0.231	-0.233	-0.235	-0.237	-0.242	-0.238
62	-0.014	-0.145	-0.161	-0.242	-0.246	-0.231	-0.235	-0.235	-0.240	-0.244	-0.242
63	0.167	0.036	-0.063	-0.181	-0.246	-0.233	-0.235	-0.237	-0.242	-0.246	-0.242
64	0.030	-0.098	-0.164	-0.248	-0.248	-0.233	-0.235	-0.244	-0.246	-0.248	-0.244
65	0.162	0.040	-0.049	-0.188	-0.246	-0.233	-0.237	-0.244	-0.246	-0.250	-0.248
66	0.030	-0.179	-0.208	-0.250	-0.248	-0.236	-0.242	-0.248	-0.248	-0.255	-0.253
67	0.109	-0.031	-0.095	-0.252	-0.248	-0.236	-0.242	-0.248	-0.250	-0.257	-0.253
68	0.025	-0.065	-0.106	-0.252	-0.248	-0.236	-0.242	-0.248	-0.250	-0.259	-0.255
Left tip fin outer flap, outer surface											
69	0.234	0.219	0.213	0.178	0.156	0.146	0.131	0.130	0.167	0.143	0.123
70	0.182	0.186	0.207	0.185	0.201	0.210	0.210	0.229	0.255	0.294	0.271
71	0.195	0.199	0.222	0.214	0.214	0.223	0.219	0.231	0.265	0.274	0.241
72	0.146	0.152	0.177	0.169	0.176	0.190	0.199	0.229	0.268	0.309	0.327
73	0.146	0.152	0.171	0.165	0.169	0.188	0.202	0.233	0.283	0.311	0.320
74	0.133	0.137	0.156	0.145	0.150	0.169	0.180	0.210	0.242	0.229	0.232
Left tip fin, inner surface											
75	-0.164	-0.209	-0.219	-0.245	-0.233	-0.227	-0.233	-0.235	-0.237	-0.242	-0.235
76	-0.192	-0.233	-0.240	-0.252	-0.244	-0.240	-0.246	-0.243	-0.255	-0.255	-0.250
Center fin, left surface											
77	-0.304	-0.306	-0.283	-0.304	-0.302	-0.295	-0.304	-0.304	-0.304	-0.304	-0.300
78	-0.306	-0.306	-0.285	-0.304	-0.304	-0.295	-0.306	-0.305	-0.306	-0.306	-0.302
Body											
79	0.195	0.146	0.113	0.049	-0.001	-0.032	-0.070	-0.093	-0.117	-0.132	-0.145
80	0.053	-0.003	-0.032	-0.087	-0.110	-0.118	-0.138	-0.149	-0.158	-0.175	-0.186
81	0.040	0.008	-0.008	-0.059	-0.095	-0.124	-0.171	-0.201	-0.218	-0.235	-0.240
82	-0.100	-0.063	-0.008	0.018	0.066	0.135	0.197	0.278	0.358	0.444	0.530
83	0.245	0.346	0.469	0.575	0.707	0.841	0.976	1.108	1.226	1.338	1.442

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right elevon flap, lower surface											
1	-0.240	-0.233	-0.212	-0.203	-0.208	-0.212	-0.203	-0.197	-0.189	-0.171	-0.150
2	-0.265	-0.261	-0.240	-0.244	-0.238	-0.248	-0.242	-0.238	-0.229	-0.221	-0.210
3	-0.257	-0.242	-0.188	0.133	-0.105	-0.139	-0.109	-0.099	-0.088	-0.060	-0.045
4	-0.257	-0.248	-0.231	-0.218	-0.229	-0.233	-0.227	-0.223	-0.218	-0.203	-0.193
5	-0.261	-0.259	-0.240	-0.242	-0.231	-0.242	-0.233	-0.229	-0.218	-0.208	-0.197
6	-0.255	-0.253	-0.242	-0.246	-0.278	-0.263	-0.246	-0.210	-0.182	-0.154	-0.135
7	-0.261	-0.255	-0.238	-0.229	-0.229	-0.235	-0.223	-0.215	-0.214	-0.201	-0.189
8	-0.259	-0.259	-0.238	-0.240	-0.231	-0.242	-0.233	-0.229	-0.218	-0.208	-0.193
9	-0.253	-0.255	-0.240	-0.242	-0.244	-0.257	-0.253	-0.246	-0.240	-0.227	-0.214
Right elevon, upper surface											
10	-0.261	-0.255	-0.238	-0.229	-0.235	-0.235	-0.225	-0.218	-0.215	-0.206	-0.191
11	-0.259	-0.263	-0.238	-0.240	-0.235	-0.242	-0.235	-0.229	-0.221	-0.208	-0.195
12	-0.253	-0.253	-0.240	-0.242	-0.246	-0.261	-0.246	-0.236	-0.227	-0.214	-0.201
13	-0.259	-0.255	-0.238	-0.229	-0.233	-0.240	-0.233	-0.229	-0.223	-0.208	-0.193
14	-0.261	-0.259	-0.238	-0.242	-0.233	-0.242	-0.235	-0.229	-0.221	-0.208	-0.197
15	-0.270	-0.263	-0.240	-0.229	-0.229	-0.238	-0.235	-0.238	-0.236	-0.221	-0.208
16	-0.253	-0.242	-0.201	-0.071	0.047	0.099	0.159	0.220	0.282	0.346	0.413
17	-0.137	-0.188	-0.216	-0.218	-0.229	-0.242	-0.242	-0.236	-0.229	-0.214	-0.195
18	-0.193	-0.223	-0.225	-0.223	-0.229	-0.238	-0.227	-0.223	-0.218	-0.203	-0.191
Right elevon, side surface											
19	-0.261	-0.263	-0.257	-0.244	-0.250	-0.246	-0.255	-0.255	-0.255	-0.246	-0.240
20	-0.233	0.260	0.588	0.647	0.525	0.396	0.455	0.550	0.639	0.729	0.922
Right elevon well, left surface											
21	-0.169	0.483	0.486	0.508	0.665	0.670	0.751	0.865	0.952	1.042	1.228
Right elevon well, right surface											
22	-0.051	0.397	0.374	0.469	0.598	0.720	0.835	0.948	1.046	1.155	1.264
Left elevon, lower surface											
23	0.058	0.341	0.344	0.457	0.564	0.664	0.756	0.841	0.917	1.001	1.059
24	0.420	0.418	0.496	0.639	0.560	0.720	0.824	0.923	1.016	1.121	1.211
25	0.418	0.495	0.511	0.715	0.602	0.679	0.807	0.929	1.054	1.209	1.380
26	0.365	0.549	0.517	0.270	0.305	0.391	0.509	0.540	0.778	0.948	1.183
27	0.131	0.245	0.148	-0.071	0.043	0.147	0.247	0.366	0.498	0.652	0.866
28	0.412	0.032	-0.038	0.024	0.092	0.194	0.301	0.428	0.573	0.757	0.992
29	0.500	0.348	0.200	0.277	0.305	0.415	0.539	0.679	0.830	1.020	1.253
30	0.405	0.498	0.522	0.422	0.414	0.511	0.627	0.747	0.870	1.016	1.159
31	0.255	0.174	0.181	0.174	0.210	0.312	0.425	0.531	0.641	0.808	1.018
32	0.092	0.071	0.056	0.090	0.133	0.224	0.318	0.420	0.552	0.761	1.031
33	0.011	-0.073	-0.075	-0.026	0.025	0.106	0.200	0.330	0.483	0.663	0.868
34	-0.231	-0.246	-0.259	-0.255	-0.261	-0.246	-0.244	-0.248	-0.246	-0.244	-0.242
35	-0.208	-0.255	-0.263	-0.255	-0.263	-0.246	-0.246	-0.251	-0.244	-0.248	-0.251
36	-0.218	-0.257	-0.263	-0.253	-0.253	-0.244	-0.242	-0.245	-0.236	-0.236	-0.236
Left elevon flap, upper surface											
37	-0.223	-0.255	-0.248	-0.238	-0.227	-0.240	-0.244	-0.245	-0.231	-0.223	-0.223
38	-0.169	-0.190	-0.201	-0.231	-0.235	-0.246	-0.265	-0.261	-0.244	-0.227	-0.231
39	-0.160	-0.162	-0.210	-0.257	-0.259	-0.255	-0.263	-0.263	-0.261	-0.257	-0.246
40	-0.173	-0.203	-0.233	-0.268	-0.272	-0.259	-0.259	-0.268	-0.268	-0.261	-0.261
41	1.632	1.531	1.632	1.633	1.633	1.634	1.633	1.631	1.630	1.630	1.630
42	-0.310	-0.310	-0.317	-0.308	-0.308	-0.310	-0.310	-0.308	-0.308	-0.308	-0.308
43	-0.313	-0.313	-0.317	-0.310	-0.310	-0.313	-0.313	-0.310	-0.310	-0.310	-0.310
44	-0.192	-0.203	-0.208	-0.227	-0.227	-0.218	-0.216	-0.220	-0.222	-0.218	-0.218
45	-0.199	-0.212	-0.218	-0.233	-0.242	-0.246	-0.248	-0.259	-0.248	-0.257	-0.257
46	-0.190	-0.199	-0.199	-0.209	-0.218	-0.235	-0.242	-0.240	-0.227	-0.207	-0.212
47	-0.181	-0.190	-0.193	-0.196	-0.196	-0.207	-0.196	-0.201	-0.212	-0.203	-0.212
48	-0.175	-0.179	-0.175	-0.177	-0.173	-0.181	-0.181	-0.214	-0.242	-0.231	-0.235
49	-0.175	-0.184	-0.184	-0.190	-0.190	-0.194	-0.211	-0.222	-0.231	-0.222	-0.231
50	-0.224	-0.212	-0.195	-0.205	-0.211	-0.227	-0.235	-0.235	-0.235	-0.222	-0.233

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TABLE V.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH UNSEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Concluded

(i) M = 2.16, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:										
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$
Right tip fin outer flap, inner surface											
51	-0.175	-0.169	-0.160	-0.164	-0.168	-0.173	-0.162	-0.141	-0.115	-0.081	-0.048
52	-0.244	-0.246	-0.244	-0.244	-0.237	-0.239	-0.244	-0.252	-0.255	-0.248	-0.242
53	-0.246	-0.248	-0.248	-0.246	-0.239	-0.244	-0.244	-0.248	-0.250	-0.244	-0.235
54	-0.246	-0.248	-0.246	-0.246	-0.244	-0.244	-0.250	-0.259	-0.265	-0.265	-0.263
55	-0.246	-0.250	-0.248	-0.246	-0.239	-0.246	-0.250	-0.261	-0.268	-0.268	-0.265
Right tip fin inner flap, inner surface											
56	-0.246	-0.240	-0.235	-0.233	-0.231	-0.233	-0.235	-0.240	-0.250	-0.246	-0.242
57	-0.246	-0.248	-0.246	-0.246	-0.242	-0.242	-0.246	-0.255	-0.261	-0.250	-0.252
58	-0.246	-0.248	-0.246	-0.246	-0.239	-0.242	-0.246	-0.255	-0.261	-0.257	-0.252
59	-0.244	-0.246	-0.244	-0.244	-0.237	-0.242	-0.246	-0.248	-0.259	-0.255	-0.248
60	-0.248	-0.252	-0.250	-0.248	-0.242	-0.244	-0.250	-0.257	-0.265	-0.263	-0.259
Left tip fin inner flap, outer surface											
61	0.204	0.025	-0.094	-0.201	-0.224	-0.218	-0.227	-0.240	-0.242	-0.233	-0.227
62	0.221	0.072	-0.083	-0.194	-0.227	-0.237	-0.246	-0.244	-0.242	-0.235	-0.233
63	0.561	0.350	0.230	-0.102	-0.199	-0.239	-0.242	-0.244	-0.244	-0.240	-0.233
64	0.550	0.188	-0.098	-0.194	-0.244	-0.257	-0.233	-0.244	-0.244	-0.240	-0.240
65	0.537	0.332	0.146	-0.061	-0.248	-0.255	-0.224	-0.244	-0.244	-0.240	-0.240
66	0.290	0.102	-0.128	-0.227	-0.147	-0.207	-0.222	-0.250	-0.244	-0.242	-0.246
67	0.371	0.236	0.086	-0.222	-0.112	-0.147	-0.218	-0.250	-0.244	-0.242	-0.246
68	0.309	0.156	0.058	-0.207	-0.091	-0.143	-0.227	-0.250	-0.246	-0.244	-0.246
Left tip fin outer flap, outer surface											
69	-0.029	-0.009	0.009	0.004	-0.007	-0.033	-0.039	-0.055	-0.061	-0.059	-0.050
70	-0.057	-0.037	-0.015	0.004	0.012	0.004	0.008	0.001	0.001	-0.003	-0.010
71	-0.042	-0.027	0.005	0.025	0.023	0.010	0.008	-0.007	-0.014	-0.018	-0.018
72	-0.074	-0.055	-0.019	-0.011	-0.009	-0.005	0.002	0.003	-0.001	-0.018	-0.061
73	-0.074	-0.050	-0.019	-0.014	-0.011	-0.007	0.004	0.006	0.001	-0.018	-0.091
74	-0.074	-0.057	-0.030	-0.024	-0.024	-0.024	-0.026	-0.031	-0.027	-0.046	-0.130
Left tip fin, inner surface											
75	-0.035	-0.119	-0.182	-0.227	-0.248	-0.244	-0.248	-0.240	-0.237	-0.233	-0.237
76	-0.085	-0.169	-0.220	-0.235	-0.257	-0.265	-0.259	-0.250	-0.246	-0.242	-0.246
Center fin, left surface											
77	-0.304	-0.304	-0.298	-0.304	-0.304	-0.304	-0.304	-0.304	-0.304	-0.304	-0.304
78	-0.304	-0.306	-0.300	-0.306	-0.306	-0.306	-0.304	-0.305	-0.306	-0.306	-0.304
Body											
79	0.057	0.016	-0.027	-0.089	-0.125	-0.166	-0.190	-0.205	-0.218	-0.233	-0.242
80	0.059	0.003	-0.038	-0.085	-0.115	-0.138	-0.156	-0.164	-0.171	-0.186	-0.205
81	0.176	0.122	0.078	0.025	-0.018	-0.056	-0.093	-0.125	-0.147	-0.169	-0.186
82	-0.160	-0.095	-0.012	0.062	0.146	0.234	0.331	0.429	0.525	0.626	0.730
83	0.247	0.343	0.459	0.576	0.699	0.833	0.975	1.115	1.234	1.346	1.452

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right elevon flap, lower surface							
1	-0.424	-0.452	-0.475	-0.475	-0.419		
2	-0.405	-0.448	-0.491	-0.496	-0.429		
3	-0.394	-0.423	-0.448	-0.462	-0.406		
4	-0.461	-0.485	-0.504	-0.502	-0.433		
5	-0.401	-0.440	-0.483	-0.502	-0.433		
6	-0.388	-0.429	-0.464	-0.471	-0.406		
7	-0.399	-0.436	-0.471	-0.481	-0.412		
8	-0.384	-0.427	-0.471	-0.481	-0.412		
9	-0.380	-0.421	-0.460	-0.466	-0.398		
Right elevon, upper surface							
10	-0.401	-0.436	-0.471	-0.481	-0.412		
11	-0.384	-0.427	-0.471	-0.481	-0.414		
12	-0.380	-0.423	-0.469	-0.466	-0.398		
13	-0.475	-0.517	-0.523	-0.510	-0.435		
14	-0.397	-0.438	-0.483	-0.493	-0.429		
16	-0.424	-0.454	-0.477	-0.485	-0.423		
Right elevon, side surface							
19	-0.392	-0.411	-0.437	-0.462	-0.400		
20	-0.378	-0.365	-0.371	-0.387	-0.321		
Right elevon well, left surface							
21	-0.378	-0.369	-0.377	-0.387	-0.335		
Right elevon well, right surface							
22	-0.401	-0.429	-0.402	-0.377	-0.321		
Left elevon, lower surface							
23	-0.467	-0.460	-0.429	-0.394	-0.346		
24	-0.465	-0.450	-0.421	-0.369	-0.294		
25	-0.434	-0.440	-0.421	-0.387	-0.319		
26	-0.390	-0.388	-0.392	-0.333	-0.269		
27	-0.419	-0.454	-0.469	-0.448	-0.387		
28	-0.459	-0.473	-0.471	-0.448	-0.404		
29	-0.475	-0.479	-0.481	-0.454	-0.408		
30	-0.473	-0.502	-0.498	-0.479	-0.431		
31	-0.482	-0.481	-0.498	-0.479	-0.421		
32	-0.469	-0.473	-0.479	-0.460	-0.406		
33	-0.440	-0.473	-0.477	-0.458	-0.406		
34	-0.394	-0.367	-0.385	-0.371	-0.323		
35	-0.450	-0.419	-0.431	-0.419	-0.379		
36	-0.633	-0.633	-0.633	-0.633	-0.633		
Left elevon flap, upper surface							
37	-0.320	-0.321	-0.331	-0.327	-0.281		
38	-0.067	-0.232	-0.252	-0.283	-0.358		
39	-0.061	-0.199	-0.211	-0.275	-0.356		
40	-0.115	-0.207	-0.229	-0.298	-0.358		
41	-0.272	-0.163	-0.238	-0.294	-0.338		
42	-0.104	0.140	-0.065	-0.119	-0.211		
43	0.267	-0.001	-0.119	-0.181	-0.265		
44	-0.182	-0.280	-0.247	-0.286	-0.346		
45	0.465	-0.006	-0.049	-0.009	-0.022		
46	0.838	0.609	0.533	0.267	0.019		
47	0.299	0.145	0.149	-0.022	-0.208		
48	1.072	0.853	0.731	0.465	0.279		
49	0.842	1.080	0.707	0.391	0.234		
50	0.225	-0.028	-0.096	-0.201	-0.179		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(a) $M = 1.50$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right tip fin outer flap, inner surface							
51	-0.312	-0.317	-0.329	-0.327	-0.280		
52	-0.378	-0.402	-0.443	-0.455	-0.383		
53	-0.374	-0.402	-0.445	-0.462	-0.385		
54	-0.380	-0.402	-0.439	-0.453	-0.381		
55	-0.386	-0.406	-0.441	-0.455	-0.383		
Right tip fin inner flap, inner surface							
56	-0.376	-0.389	-0.408	-0.426	-0.375		
57	-0.386	-0.408	-0.445	-0.462	-0.387		
58	-0.382	-0.404	-0.445	-0.457	-0.385		
59	-0.376	-0.400	-0.441	-0.453	-0.383		
60	-0.392	-0.412	-0.447	-0.459	-0.387		
Left tip fin inner flap, outer surface							
61	-0.285	-0.286	-0.338	-0.358	-0.301		
62	-0.147	-0.257	-0.338	-0.373	-0.317		
63	-0.172	-0.303	-0.379	-0.400	-0.336		
64	-0.230	-0.323	-0.375	-0.400	-0.344		
65	-0.331	-0.387	-0.426	-0.420	-0.358		
66	-0.287	-0.328	-0.352	-0.377	-0.356		
67	-0.368	-0.379	-0.402	-0.402	-0.354		
68	-0.388	-0.396	-0.410	-0.383	-0.354		
Left tip fin outer flap, outer surface							
69	-0.057	-0.101	-0.129	-0.154	-0.177		
70	0.068	0.050	0.034	0.011	-0.006		
71	0.071	0.044	0.011	-0.016	-0.043		
72	0.054	0.046	0.040	0.034	0.048		
73	0.050	0.046	0.036	0.032	0.052		
74	0.003	-0.016	-0.036	-0.049	-0.037		
Left tip fin, inner surface							
75	-0.298	-0.299	-0.313	-0.309	-0.317		
76	-0.189	-0.299	-0.348	-0.389	-0.369		
88	-0.298	-0.369	-0.422	-0.443	-0.371		
Body							
79	-0.304	-0.350	-0.387	-0.410	-0.431		
80	-0.215	-0.243	-0.263	-0.282	-0.278		
81	-0.267	-0.334	-0.387	-0.426	-0.457		
82	0.219	0.296	0.374	0.467	0.560		
83	0.922	1.038	1.150	1.252	-0.770		
85	-0.242	-0.290	-0.358	-0.414	-0.439		
86	-0.041	-0.132	-0.206	-0.338	-0.323		
87	-0.291	-0.346	-0.414	-0.457	-0.427		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right elevon flap, lower surface							
1	-0.405	-0.414	-0.462	-0.439	-0.361		
2	-0.360	-0.378	-0.437	-0.437	-0.374		
3	-0.376	-0.389	-0.422	-0.404	-0.341		
4	-0.424	-0.424	-0.499	-0.475	-0.376		
5	-0.360	-0.382	-0.431	-0.437	-0.376		
6	-0.368	-0.378	-0.414	-0.425	-0.343		
7	-0.366	-0.384	-0.429	-0.427	-0.361		
8	-0.349	-0.370	-0.418	-0.431	-0.361		
9	-0.360	-0.370	-0.408	-0.422	-0.332		
Right elevon, upper surface							
10	-0.366	-0.389	-0.431	-0.427	-0.361		
11	-0.351	-0.370	-0.418	-0.425	-0.361		
12	-0.362	-0.372	-0.410	-0.416	-0.334		
13	-0.391	-0.418	-0.449	-0.491	-0.380		
14	-0.362	-0.387	-0.433	-0.433	-0.378		
16	-0.422	-0.428	-0.464	-0.464	-0.378		
Right elevon, side surface							
19	-0.391	-0.397	-0.427	-0.400	-0.324		
20	-0.380	-0.389	-0.393	-0.345	-0.284		
Right elevon well, left surface							
21	-0.370	-0.399	-0.393	-0.347	-0.288		
Right elevon well, right surface							
22	-0.345	-0.355	-0.345	-0.322	-0.263		
Left elevon, lower surface							
23	-0.470	-0.466	-0.433	-0.385	-0.334		
24	-0.468	-0.460	-0.429	-0.381	-0.307		
25	-0.483	-0.462	-0.433	-0.383	-0.295		
26	-0.451	-0.458	-0.424	-0.368	-0.272		
27	-0.453	-0.472	-0.447	-0.412	-0.318		
28	-0.483	-0.483	-0.458	-0.422	-0.364		
29	-0.491	-0.495	-0.468	-0.437	-0.370		
30	-0.506	-0.508	-0.485	-0.460	-0.374		
31	-0.493	-0.512	-0.491	-0.462	-0.372		
32	-0.491	-0.493	-0.483	-0.439	-0.376		
33	-0.483	-0.487	-0.472	-0.433	-0.366		
34	-0.357	-0.397	-0.433	-0.397	-0.334		
35	-0.462	-0.468	-0.472	-0.427	-0.376		
36	-0.633	-0.633	-0.633	-0.631	-0.633		
Left elevon flap, upper surface							
37	-0.314	-0.334	-0.341	-0.291	-0.222		
38	-0.076	0.131	-0.095	-0.229	-0.161		
39	-0.009	0.052	0.053	-0.197	-0.178		
40	-0.076	-0.163	-0.139	-0.191	-0.245		
41	-0.147	-0.117	-0.079	-0.058	-0.205		
42	-0.128	-0.080	-0.029	0.202	-0.005		
43	-0.178	-0.176	-0.097	-0.160	0.102		
44	-0.161	-0.239	-0.135	-0.287	-0.112		
45	-0.057	-0.190	-0.155	0.031	0.449		
46	0.222	0.009	0.012	0.203	0.100		
47	0.017	-0.132	-0.093	0.021	-0.178		
48	0.640	0.322	-0.178	-0.207	-0.188		
49	0.928	-0.295	-0.350	-0.327	-0.049		
50	-0.192	-0.335	-0.364	-0.360	0.058		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(b) M = 1.50, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right tip fin outer flap, inner surface							
51	-0.310	-0.333	-0.341	-0.296	-0.217		
52	-0.331	-0.347	-0.374	-0.378	-0.343		
53	-0.331	-0.347	-0.374	-0.378	-0.343		
54	-0.329	-0.339	-0.370	-0.378	-0.343		
55	-0.337	-0.349	-0.376	-0.380	-0.345		
Right tip fin inner flap, inner surface							
56	-0.316	-0.312	-0.358	-0.378	-0.329		
57	-0.333	-0.347	-0.374	-0.380	-0.347		
58	-0.331	-0.345	-0.374	-0.380	-0.347		
59	-0.324	-0.339	-0.370	-0.378	-0.345		
60	-0.343	-0.360	-0.381	-0.380	-0.345		
Left tip fin inner flap, outer surface							
61	-0.422	-0.463	-0.399	-0.370	-0.234		
62	-0.418	-0.372	-0.362	-0.378	-0.254		
63	-0.407	-0.370	-0.410	-0.397	-0.275		
64	-0.322	-0.331	-0.403	-0.389	-0.277		
65	-0.353	-0.407	-0.457	-0.414	-0.294		
66	-0.310	-0.320	-0.310	-0.327	-0.283		
67	-0.391	-0.440	-0.447	-0.399	-0.291		
68	-0.407	-0.440	-0.447	-0.397	-0.294		
Left tip fin outer flap, outer surface							
69	0.017	-0.014	-0.052	-0.060	-0.074		
70	0.185	0.179	0.163	0.153	0.157		
71	0.185	0.169	0.149	0.112	0.104		
72	0.183	0.189	0.186	0.185	0.184		
73	0.187	0.187	0.182	0.176	0.168		
74	0.123	0.115	0.097	0.083	0.064		
Left tip fin, inner surface							
75	-0.451	-0.469	-0.399	-0.312	-0.211		
76	-0.333	-0.331	-0.275	-0.327	-0.291		
88	-0.368	-0.372	-0.391	-0.401	-0.298		
Body							
79	-0.223	-0.270	-0.306	-0.337	-0.358		
80	-0.223	-0.241	-0.271	-0.302	-0.327		
81	-0.275	-0.333	-0.374	-0.416	-0.443		
82	0.117	0.193	0.273	0.358	0.445		
83	0.909	1.034	1.141	1.240	-0.736		
85	-0.275	-0.326	-0.393	-0.442	-0.443		
86	0.152	0.102	-0.031	-0.155	-0.196		
87	-0.248	-0.345	-0.389	-0.378	-0.335		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right elevon flap, lower surface							
1	-0.466	-0.462	-0.481	-0.187	0.042		
2	-0.453	-0.483	-0.503	-0.193	0.090		
3	-0.418	-0.455	-0.481	-0.203	0.078		
4	-0.501	-0.481	-0.501	-0.195	0.069		
5	-0.443	-0.481	-0.501	-0.195	0.099		
6	-0.426	-0.462	-0.485	-0.193	0.082		
7	-0.441	-0.476	-0.499	-0.187	0.092		
8	-0.443	-0.470	-0.501	-0.178	0.109		
9	-0.420	-0.455	-0.481	-0.197	0.086		
Right elevon, upper surface							
10	-0.445	-0.476	-0.499	-0.199	0.090		
11	-0.445	-0.476	-0.501	-0.193	0.105		
12	-0.424	-0.458	-0.483	-0.201	0.082		
13	-0.514	-0.481	-0.499	-0.199	0.061		
14	-0.443	-0.481	-0.501	-0.199	0.099		
16	-0.439	-0.481	-0.499	-0.203	0.026		
Right elevon, side surface							
19	-0.420	-0.455	-0.474	-0.209	0.086		
20	-0.341	-0.397	-0.414	-0.182	0.036		
Right elevon well, left surface							
21	-0.378	-0.405	-0.414	-0.249	0.013		
Right elevon well, right surface							
22	-0.455	-0.508	-0.481	-0.228	-0.001		
Left elevon, lower surface							
23	-0.357	-0.370	-0.430	-0.387	0.124		
24	-0.357	-0.370	-0.428	-0.337	0.120		
25	-0.359	-0.370	-0.408	-0.316	0.111		
26	-0.349	-0.362	-0.351	-0.257	0.095		
27	-0.370	-0.391	-0.428	-0.360	0.084		
28	-0.366	-0.380	-0.430	-0.397	0.101		
29	-0.362	-0.372	-0.428	-0.397	0.113		
30	-0.357	-0.368	-0.428	-0.395	0.113		
31	-0.370	-0.372	-0.428	-0.399	0.109		
32	-0.374	-0.382	-0.430	-0.401	0.099		
33	-0.378	-0.395	-0.435	-0.408	0.082		
34	-0.366	-0.389	-0.395	-0.257	0.092		
35	-0.370	-0.382	-0.435	-0.364	0.103		
36	-0.633	-0.633	-0.633	-0.631	-0.631		
Left elevon flap, upper surface							
37	-0.316	-0.341	-0.339	-0.170	0.111		
38	-0.073	-0.147	-0.239	-0.260	-0.026		
39	-0.073	-0.149	-0.251	-0.326	-0.026		
40	-0.071	-0.149	-0.245	-0.310	-0.026		
41	-0.023	-0.195	-0.318	-0.278	-0.020		
42	0.196	-0.047	-0.193	-0.182	-0.024		
43	0.348	0.022	-0.072	-0.022	-0.024		
44	-0.059	-0.016	-0.194	0.007	-0.001		
45	0.338	0.555	0.632	0.461	-0.022		
46	1.024	0.903	0.469	0.243	-0.026		
47	0.893	0.663	0.288	0.132	-0.020		
48	0.918	0.916	0.959	0.500	-0.024		
49	0.707	1.139	0.889	0.616	-0.026		
50	0.311	0.719	0.578	0.480	-0.020		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$	$\alpha = 38.8^\circ$		
Right tip fin outer flap, inner surface							
51	-0.306	-0.326	-0.326	-0.163	0.110		
52	-0.413	-0.463	-0.492	-0.214	0.038		
53	-0.413	-0.465	-0.492	-0.214	0.044		
54	-0.411	-0.461	-0.482	-0.212	0.048		
55	-0.417	-0.467	-0.486	-0.214	0.042		
Right tip fin inner flap, inner surface							
56	-0.401	-0.440	-0.449	-0.210	0.044		
57	-0.424	-0.467	-0.500	-0.227	0.036		
58	-0.422	-0.465	-0.498	-0.219	0.036		
59	-0.415	-0.457	-0.492	-0.212	0.040		
60	-0.424	-0.473	-0.494	-0.221	0.042		
Left tip fin inner flap, outer surface							
61	-0.188	-0.167	-0.254	-0.225	0.034		
62	-0.115	-0.082	-0.217	-0.227	0.054		
63	-0.169	-0.159	-0.277	-0.258	0.034		
64	-0.198	-0.231	-0.297	-0.262	0.063		
65	-0.312	-0.353	-0.364	-0.295	0.046		
66	-0.217	-0.254	-0.326	-0.268	0.071		
67	-0.322	-0.343	-0.360	-0.281	0.069		
68	-0.343	-0.343	-0.339	-0.283	0.061		
Left tip fin outer flap, outer surface							
69	-0.090	-0.153	-0.213	-0.194	0.077		
70	0.009	-0.066	-0.082	-0.074	0.083		
71	0.007	-0.068	-0.101	-0.086	0.086		
72	-0.028	-0.076	-0.088	-0.088	0.067		
73	-0.032	-0.068	-0.086	-0.092	0.098		
74	-0.080	-0.130	-0.140	-0.119	0.083		
Left tip fin, inner surface							
75	-0.190	-0.128	-0.256	-0.190	0.050		
76	-0.212	-0.271	-0.345	-0.281	0.057		
88	-0.295	-0.341	-0.399	-0.299	0.052		
Body							
79	-0.366	-0.413	-0.444	-0.471	0.015		
80	-0.262	-0.275	-0.289	-0.322	-0.053		
81	-0.215	-0.277	-0.329	-0.368	-0.001		
82	0.289	0.388	0.491	0.587	0.659		
83	0.924	1.042	1.154	1.252	1.330		
85	-0.337	-0.403	-0.411	-0.274	0.038		
86	-0.287	-0.364	-0.376	-0.200	0.007		
87	-0.076	-0.233	-0.407	-0.380	0.013		

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right elevon flap, lower surface							
1	-0.342	-0.348	-0.347	-0.343	-0.339	-0.333	-0.324
2	-0.334	-0.362	-0.365	-0.367	-0.367	-0.359	-0.345
3	-0.320	-0.342	-0.355	-0.353	-0.353	-0.349	-0.337
4	-0.375	-0.379	-0.382	-0.369	-0.365	-0.357	-0.347
5	-0.338	-0.362	-0.365	-0.371	-0.365	-0.357	-0.347
6	-0.328	-0.354	-0.367	-0.363	-0.353	-0.347	-0.337
7	-0.332	-0.358	-0.365	-0.363	-0.363	-0.353	-0.341
8	-0.326	-0.356	-0.369	-0.363	-0.363	-0.353	-0.339
9	-0.324	-0.352	-0.365	-0.363	-0.353	-0.341	-0.333
Right elevon, upper surface							
10	-0.334	-0.358	-0.365	-0.363	-0.363	-0.353	-0.341
11	-0.324	-0.354	-0.367	-0.363	-0.361	-0.353	-0.339
12	-0.324	-0.352	-0.365	-0.363	-0.357	-0.349	-0.333
13	-0.342	-0.381	-0.384	-0.373	-0.365	-0.359	-0.347
14	-0.332	-0.362	-0.363	-0.367	-0.367	-0.359	-0.345
16	-0.348	-0.350	-0.365	-0.363	-0.365	-0.353	-0.343
Right elevon, side surface							
19	-0.311	-0.327	-0.341	-0.347	-0.353	-0.347	-0.341
20	-0.285	-0.280	-0.294	-0.285	-0.267	-0.245	-0.239
Right elevon well, left surface							
21	-0.285	-0.306	-0.296	-0.285	-0.265	-0.243	-0.235
Right elevon well, right surface							
22	-0.332	-0.323	-0.296	-0.263	-0.226	-0.169	-0.110
Left elevon, lower surface							
23	-0.354	-0.348	-0.318	-0.281	-0.245	-0.196	-0.132
24	-0.352	-0.346	-0.314	-0.279	-0.210	-0.142	-0.071
25	-0.344	-0.340	-0.314	-0.275	-0.230	-0.181	-0.104
26	-0.322	-0.329	-0.314	-0.258	-0.195	-0.118	-0.053
27	-0.348	-0.360	-0.345	-0.322	-0.294	-0.259	-0.220
28	-0.352	-0.362	-0.343	-0.316	-0.290	-0.255	-0.222
29	-0.352	-0.369	-0.347	-0.322	-0.296	-0.263	-0.228
30	-0.359	-0.375	-0.355	-0.332	-0.310	-0.281	-0.255
31	-0.354	-0.375	-0.355	-0.332	-0.310	-0.281	-0.257
32	-0.352	-0.360	-0.349	-0.332	-0.308	-0.277	-0.251
33	-0.352	-0.360	-0.351	-0.332	-0.310	-0.279	-0.251
34	-0.291	-0.327	-0.320	-0.312	-0.296	-0.271	-0.243
35	-0.322	-0.327	-0.328	-0.308	-0.285	-0.257	-0.235
36	-0.441	-0.447	-0.443	-0.441	-0.441	-0.441	-0.445
Left elevon flap, upper surface							
37	-0.264	-0.271	-0.271	-0.256	-0.242	-0.218	-0.194
38	-0.208	-0.143	-0.201	-0.234	-0.267	-0.302	-0.351
39	-0.184	-0.124	-0.193	-0.261	-0.302	-0.326	-0.353
40	-0.190	-0.145	-0.212	-0.283	-0.326	-0.343	-0.351
41	-0.052	-0.108	-0.144	-0.189	-0.267	-0.312	-0.339
42	0.127	-0.027	-0.048	-0.086	-0.195	-0.271	-0.316
43	0.004	-0.118	-0.146	-0.164	-0.202	-0.275	-0.324
44	-0.161	-0.183	-0.197	-0.209	-0.212	-0.276	-0.306
45	0.044	0.034	0.129	0.048	-0.028	-0.218	-0.283
46	0.538	0.394	0.375	0.128	-0.131	-0.201	-0.256
47	0.189	0.119	0.030	-0.093	-0.203	-0.263	-0.304
48	1.002	0.759	0.304	0.155	0.061	-0.040	-0.177
49	0.328	0.288	-0.078	-0.153	-0.197	-0.137	-0.150
50	-0.061	-0.108	-0.187	-0.242	-0.269	-0.298	-0.275

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right tip fin outer flap, inner surface							
51	-0.258	-0.268	-0.272	-0.263	-0.247	-0.224	-0.191
52	-0.314	-0.347	-0.352	-0.354	-0.342	-0.336	-0.324
53	-0.316	-0.351	-0.354	-0.356	-0.342	-0.338	-0.324
54	-0.321	-0.347	-0.352	-0.354	-0.342	-0.338	-0.328
55	-0.325	-0.347	-0.352	-0.354	-0.344	-0.340	-0.330
Right tip fin inner flap, inner surface							
56	-0.308	-0.326	-0.331	-0.331	-0.331	-0.325	-0.312
57	-0.321	-0.351	-0.354	-0.354	-0.342	-0.336	-0.316
58	-0.319	-0.351	-0.354	-0.354	-0.342	-0.336	-0.318
59	-0.314	-0.347	-0.352	-0.354	-0.342	-0.336	-0.318
60	-0.327	-0.351	-0.354	-0.356	-0.344	-0.340	-0.330
Left tip fin inner flap, outer surface							
61	-0.308	-0.310	-0.309	-0.315	-0.317	-0.315	-0.310
62	-0.209	-0.256	-0.290	-0.313	-0.321	-0.319	-0.310
63	-0.173	-0.268	-0.313	-0.333	-0.333	-0.325	-0.312
64	-0.188	-0.270	-0.311	-0.331	-0.336	-0.327	-0.322
65	-0.244	-0.318	-0.344	-0.346	-0.338	-0.325	-0.312
66	-0.234	-0.264	-0.296	-0.323	-0.340	-0.338	-0.334
67	-0.287	-0.316	-0.325	-0.323	-0.338	-0.334	-0.334
68	-0.319	-0.328	-0.323	-0.319	-0.333	-0.329	-0.328
Left tip fin outer flap, outer surface							
69	-0.018	-0.029	-0.038	-0.045	-0.067	-0.071	-0.070
70	0.082	0.069	0.061	0.064	0.059	0.059	0.047
71	0.084	0.065	0.053	0.054	0.045	0.032	0.002
72	0.055	0.067	0.071	0.077	0.092	0.067	-0.027
73	0.057	0.076	0.067	0.077	0.096	0.034	-0.027
74	0.032	0.038	0.020	0.027	0.043	-0.032	-0.080
Left tip fin, inner surface							
75	-0.337	-0.306	-0.292	-0.277	-0.274	-0.300	-0.306
76	-0.244	-0.241	-0.274	-0.319	-0.354	-0.352	-0.330
88	-0.265	-0.291	-0.323	-0.352	-0.364	-0.354	-0.334
Body							
79	-0.211	-0.241	-0.270	-0.284	-0.309	-0.321	-0.328
80	-0.178	-0.193	-0.214	-0.228	-0.234	-0.226	-0.220
81	-0.198	-0.247	-0.282	-0.304	-0.327	-0.342	-0.347
82	0.231	0.315	0.391	0.493	0.580	0.687	0.776
83	0.930	1.073	1.174	1.298	1.383	1.486	-0.509
85	-0.256	-0.299	-0.319	-0.331	-0.333	-0.342	-0.345
86	-0.086	-0.249	-0.294	-0.315	-0.331	-0.346	-0.334
87	-0.248	-0.301	-0.346	-0.368	-0.381	-0.369	-0.373

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right elevon flap, lower surface							
1	-0.299	-0.339	-0.345	-0.351	-0.357	-0.339	-0.331
2	-0.281	-0.327	-0.351	-0.349	-0.357	-0.357	-0.351
3	-0.285	-0.313	-0.329	-0.341	-0.351	-0.337	-0.331
4	-0.319	-0.372	-0.367	-0.382	-0.394	-0.376	-0.353
5	-0.279	-0.331	-0.355	-0.351	-0.359	-0.369	-0.355
6	-0.279	-0.319	-0.331	-0.363	-0.357	-0.343	-0.333
7	-0.281	-0.323	-0.343	-0.353	-0.359	-0.349	-0.349
8	-0.270	-0.315	-0.337	-0.353	-0.357	-0.357	-0.353
9	-0.275	-0.307	-0.333	-0.351	-0.357	-0.341	-0.327
Right elevon, upper surface							
10	-0.281	-0.323	-0.343	-0.351	-0.359	-0.351	-0.349
11	-0.270	-0.315	-0.337	-0.351	-0.357	-0.351	-0.351
12	-0.277	-0.309	-0.335	-0.351	-0.357	-0.367	-0.329
13	-0.289	-0.333	-0.345	-0.365	-0.378	-0.373	-0.351
14	-0.279	-0.323	-0.345	-0.353	-0.357	-0.365	-0.351
16	-0.291	-0.323	-0.337	-0.369	-0.341	-0.359	-0.347
Right elevon, side surface							
19	-0.287	-0.315	-0.325	-0.339	-0.343	-0.328	-0.341
20	-0.277	-0.292	-0.286	-0.269	-0.269	-0.251	-0.245
Right elevon well, left surface							
21	-0.273	-0.292	-0.288	-0.271	-0.269	-0.249	-0.239
Right elevon well, right surface							
22	-0.254	-0.260	-0.267	-0.236	-0.187	-0.136	-0.073
Left elevon, lower surface							
23	-0.360	-0.343	-0.314	-0.279	-0.234	-0.183	-0.124
24	-0.362	-0.343	-0.314	-0.277	-0.228	-0.165	-0.094
25	-0.352	-0.345	-0.325	-0.296	-0.251	-0.204	-0.132
26	-0.337	-0.339	-0.323	-0.286	-0.230	-0.155	-0.077
27	-0.339	-0.341	-0.331	-0.308	-0.275	-0.249	-0.184
28	-0.348	-0.347	-0.331	-0.306	-0.275	-0.245	-0.210
29	-0.354	-0.357	-0.337	-0.314	-0.286	-0.251	-0.214
30	-0.368	-0.362	-0.345	-0.324	-0.300	-0.275	-0.245
31	-0.366	-0.366	-0.349	-0.326	-0.306	-0.279	-0.249
32	-0.352	-0.355	-0.347	-0.326	-0.302	-0.273	-0.241
33	-0.352	-0.343	-0.347	-0.326	-0.302	-0.273	-0.241
34	-0.337	-0.343	-0.331	-0.310	-0.286	-0.259	-0.228
35	-0.358	-0.351	-0.335	-0.316	-0.290	-0.249	-0.216
36	-0.435	-0.441	-0.443	-0.443	-0.445	-0.443	-0.445
Left elevon flap, upper surface							
37	-0.260	-0.274	-0.265	-0.245	-0.245	-0.206	-0.181
38	-0.066	-0.042	-0.045	-0.118	-0.177	-0.241	-0.292
39	-0.074	-0.068	-0.116	-0.194	-0.236	-0.251	-0.308
40	-0.110	-0.154	-0.165	-0.241	-0.279	-0.296	-0.337
41	0.003	-0.005	0.024	-0.053	-0.104	-0.194	-0.255
42	-0.039	-0.103	0.298	0.042	0.017	-0.057	-0.143
43	-0.161	-0.201	-0.018	-0.132	-0.167	-0.192	-0.139
44	-0.213	-0.233	-0.203	-0.220	-0.237	-0.256	-0.251
45	-0.250	-0.274	-0.112	0.137	0.070	0.235	0.109
46	-0.083	-0.177	0.167	0.374	0.258	0.172	-0.016
47	0.085	0.014	0.118	0.011	-0.037	-0.067	-0.175
48	-0.141	-0.295	-0.258	-0.167	-0.113	-0.112	-0.148
49	-0.264	-0.274	-0.295	-0.251	-0.204	-0.186	-0.222
50	-0.270	-0.303	-0.291	-0.276	-0.171	-0.207	-0.253

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(e) M = 1.80, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right tip fin outer flap, inner surface							
51	-0.270	-0.282	-0.266	-0.251	-0.231	-0.205	-0.185
52	-0.279	-0.295	-0.307	-0.319	-0.336	-0.330	-0.340
53	-0.279	-0.295	-0.307	-0.321	-0.340	-0.334	-0.344
54	-0.276	-0.288	-0.307	-0.321	-0.338	-0.332	-0.344
55	-0.281	-0.295	-0.307	-0.321	-0.340	-0.334	-0.344
Right tip fin inner flap, inner surface							
56	-0.260	-0.266	-0.295	-0.313	-0.328	-0.318	-0.305
57	-0.279	-0.297	-0.307	-0.321	-0.338	-0.334	-0.344
58	-0.276	-0.295	-0.307	-0.321	-0.338	-0.334	-0.344
59	-0.272	-0.291	-0.307	-0.321	-0.338	-0.332	-0.342
60	-0.289	-0.303	-0.314	-0.321	-0.342	-0.336	-0.348
Left tip fin inner flap, outer surface							
61	-0.359	-0.363	-0.363	-0.348	-0.313	-0.313	-0.323
62	-0.385	-0.394	-0.322	-0.307	-0.313	-0.322	-0.330
63	-0.383	-0.391	-0.307	-0.319	-0.332	-0.334	-0.332
64	-0.373	-0.334	-0.281	-0.323	-0.334	-0.334	-0.336
65	-0.336	-0.315	-0.318	-0.350	-0.346	-0.334	-0.332
66	-0.274	-0.291	-0.305	-0.327	-0.336	-0.338	-0.346
67	-0.303	-0.340	-0.340	-0.344	-0.340	-0.336	-0.344
68	-0.332	-0.350	-0.342	-0.319	-0.338	-0.326	-0.336
Left tip fin outer flap, outer surface							
69	0.079	0.068	0.064	0.050	0.041	0.024	0.006
70	0.186	0.192	0.200	0.203	0.202	0.196	0.202
71	0.198	0.198	0.198	0.184	0.177	0.167	0.153
72	0.180	0.190	0.206	0.215	0.233	0.250	0.260
73	0.180	0.192	0.208	0.213	0.225	0.246	0.258
74	0.143	0.148	0.157	0.149	0.146	0.159	0.146
Left tip fin, inner surface							
75	-0.385	-0.387	-0.363	-0.350	-0.305	-0.276	-0.293
76	-0.402	-0.373	-0.270	-0.280	-0.299	-0.330	-0.361
88	-0.400	-0.359	-0.301	-0.323	-0.342	-0.357	-0.367
Body							
79	-0.143	-0.175	-0.199	-0.224	-0.239	-0.260	-0.280
80	-0.188	-0.206	-0.217	-0.241	-0.260	-0.279	-0.313
81	-0.235	-0.282	-0.307	-0.325	-0.342	-0.350	-0.373
82	0.147	0.225	0.309	0.388	0.474	0.566	0.653
83	0.928	1.053	1.168	1.279	1.378	1.464	-0.519
85	-0.237	-0.262	-0.318	-0.342	-0.361	-0.359	-0.340
86	0.102	-0.140	-0.110	-0.235	-0.344	-0.353	-0.348
87	-0.279	-0.303	-0.283	-0.307	-0.326	-0.348	-0.371

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right elevon flap, lower surface							
1	-0.349	-0.349	-0.353	-0.355	-0.355	-0.351	-0.343
2	-0.363	-0.370	-0.382	-0.382	-0.388	-0.377	-0.373
3	-0.349	-0.359	-0.369	-0.371	-0.365	-0.359	-0.359
4	-0.365	-0.372	-0.380	-0.379	-0.381	-0.373	-0.369
5	-0.365	-0.372	-0.380	-0.382	-0.381	-0.375	-0.369
6	-0.355	-0.366	-0.369	-0.369	-0.365	-0.357	-0.355
7	-0.363	-0.372	-0.378	-0.379	-0.379	-0.371	-0.367
8	-0.361	-0.370	-0.373	-0.375	-0.375	-0.369	-0.363
9	-0.355	-0.364	-0.367	-0.369	-0.363	-0.355	-0.357
Right elevon, upper surface							
10	-0.363	-0.372	-0.378	-0.379	-0.379	-0.371	-0.365
11	-0.361	-0.370	-0.373	-0.375	-0.375	-0.369	-0.363
12	-0.353	-0.364	-0.367	-0.369	-0.363	-0.355	-0.353
13	-0.365	-0.372	-0.375	-0.379	-0.379	-0.373	-0.365
14	-0.365	-0.372	-0.378	-0.379	-0.381	-0.375	-0.369
16	-0.359	-0.370	-0.380	-0.384	-0.381	-0.373	-0.365
Right elevon, side surface							
19	-0.363	-0.364	-0.369	-0.365	-0.361	-0.359	-0.361
20	-0.316	-0.327	-0.326	-0.312	-0.289	-0.265	-0.242
Right elevon well, left surface							
21	-0.319	-0.325	-0.324	-0.310	-0.285	-0.258	-0.240
Right elevon well, right surface							
22	-0.382	-0.364	-0.345	-0.308	-0.252	-0.195	-0.133
Left elevon, lower surface							
23	-0.298	-0.333	-0.333	-0.300	-0.259	-0.207	-0.129
24	-0.298	-0.329	-0.300	-0.269	-0.207	-0.137	-0.047
25	-0.298	-0.329	-0.300	-0.252	-0.203	-0.144	-0.066
26	-0.288	-0.307	-0.277	-0.236	-0.150	-0.084	-0.031
27	-0.304	-0.327	-0.339	-0.328	-0.302	-0.271	-0.234
28	-0.300	-0.329	-0.345	-0.326	-0.300	-0.267	-0.232
29	-0.298	-0.329	-0.355	-0.332	-0.306	-0.275	-0.238
30	-0.294	-0.329	-0.363	-0.345	-0.320	-0.295	-0.265
31	-0.298	-0.325	-0.361	-0.343	-0.320	-0.293	-0.269
32	-0.300	-0.325	-0.353	-0.338	-0.314	-0.287	-0.256
33	-0.304	-0.329	-0.349	-0.338	-0.314	-0.287	-0.254
34	-0.298	-0.300	-0.320	-0.308	-0.297	-0.281	-0.252
35	-0.298	-0.327	-0.335	-0.318	-0.293	-0.277	-0.248
36	-0.447	-0.445	-0.447	-0.447	-0.447	-0.447	-0.447
Left elevon flap, upper surface							
37	-0.274	-0.276	-0.277	-0.259	-0.244	-0.226	-0.205
38	-0.145	-0.203	-0.298	-0.347	-0.349	-0.349	-0.318
39	-0.092	-0.174	-0.281	-0.338	-0.349	-0.349	-0.324
40	-0.074	-0.166	-0.292	-0.336	-0.338	-0.340	-0.326
41	-0.178	-0.268	-0.263	-0.287	-0.347	-0.351	-0.332
42	-0.114	-0.229	-0.104	-0.205	-0.318	-0.338	-0.328
43	0.061	-0.052	-0.042	-0.224	-0.277	-0.297	-0.306
44	0.070	-0.088	-0.202	-0.276	-0.273	-0.259	-0.273
45	0.794	0.515	0.169	-0.134	-0.216	-0.259	-0.197
46	0.882	0.394	0.462	-0.054	-0.255	-0.286	-0.226
47	0.603	0.191	0.095	-0.221	-0.315	-0.315	-0.265
48	0.730	0.881	0.664	0.244	-0.083	-0.069	0.010
49	0.607	0.710	0.313	0.460	0.026	-0.125	-0.025
50	0.388	0.407	-0.016	-0.128	-0.224	-0.259	-0.174

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(f) M = 1.80, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$	$\alpha = 38.8^\circ$	$\alpha = 43.0^\circ$	$\alpha = 47.4^\circ$
Right tip fin outer flap, inner surface							
51	-0.258	-0.264	-0.268	-0.252	-0.247	-0.228	-0.211
52	-0.361	-0.365	-0.367	-0.354	-0.358	-0.338	-0.362
53	-0.365	-0.369	-0.371	-0.359	-0.362	-0.340	-0.360
54	-0.371	-0.369	-0.371	-0.357	-0.362	-0.342	-0.366
55	-0.371	-0.369	-0.371	-0.357	-0.362	-0.342	-0.369
Right tip fin inner flap, inner surface							
56	-0.363	-0.361	-0.358	-0.340	-0.344	-0.338	-0.356
57	-0.367	-0.369	-0.369	-0.359	-0.362	-0.342	-0.362
58	-0.365	-0.369	-0.369	-0.359	-0.360	-0.340	-0.366
59	-0.363	-0.369	-0.369	-0.357	-0.356	-0.338	-0.364
60	-0.371	-0.369	-0.373	-0.359	-0.362	-0.344	-0.366
Left tip fin inner flap, outer surface							
61	-0.176	-0.215	-0.247	-0.280	-0.300	-0.315	-0.302
62	-0.057	-0.197	-0.266	-0.293	-0.300	-0.319	-0.311
63	-0.070	-0.211	-0.299	-0.305	-0.307	-0.321	-0.317
64	-0.127	-0.230	-0.299	-0.307	-0.317	-0.323	-0.317
65	-0.226	-0.279	-0.319	-0.309	-0.321	-0.332	-0.315
66	-0.201	-0.209	-0.303	-0.311	-0.321	-0.340	-0.321
67	-0.271	-0.275	-0.309	-0.309	-0.321	-0.340	-0.321
68	-0.291	-0.283	-0.297	-0.307	-0.321	-0.338	-0.319
Left tip fin outer flap, outer surface							
69	-0.084	-0.100	-0.126	-0.128	-0.147	-0.160	-0.176
70	-0.031	-0.049	-0.047	-0.048	-0.077	-0.096	-0.108
71	-0.033	-0.047	-0.041	-0.056	-0.096	-0.111	-0.135
72	-0.043	-0.051	-0.043	-0.060	-0.139	-0.204	-0.220
73	-0.045	-0.049	-0.039	-0.056	-0.182	-0.208	-0.222
74	-0.072	-0.082	-0.068	-0.155	-0.189	-0.222	-0.242
Left tip fin, inner surface							
75	-0.207	-0.238	-0.200	-0.266	-0.290	-0.317	-0.302
76	-0.160	-0.254	-0.317	-0.328	-0.327	-0.323	-0.315
88	-0.219	-0.289	-0.332	-0.334	-0.329	-0.325	-0.319
Body							
79	-0.269	-0.299	-0.319	-0.336	-0.360	-0.367	-0.379
80	-0.215	-0.225	-0.239	-0.252	-0.294	-0.342	-0.385
81	-0.152	-0.197	-0.235	-0.254	-0.286	-0.301	-0.325
82	0.308	0.403	0.493	0.590	0.692	0.795	0.891
83	0.938	1.061	1.179	1.290	1.391	1.477	-0.522
85	-0.289	-0.283	-0.299	-0.291	-0.311	-0.321	-0.346
86	-0.271	-0.301	-0.348	-0.307	-0.307	-0.323	-0.366
87	-0.230	-0.299	-0.328	-0.359	-0.391	-0.375	-0.352

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right elevon flap, lower surface							
1	-0.242	-0.242	-0.238	-0.236	-0.236	-0.230	-0.227
2	-0.261	-0.272	-0.266	-0.264	-0.264	-0.257	-0.266
3	-0.253	-0.293	-0.264	-0.259	-0.279	-0.253	-0.253
4	-0.278	-0.276	-0.274	-0.270	-0.270	-0.264	-0.259
5	-0.263	-0.279	-0.266	-0.291	-0.270	-0.262	-0.257
6	-0.259	-0.270	-0.274	-0.268	-0.264	-0.257	-0.257
7	-0.259	-0.268	-0.274	-0.266	-0.266	-0.262	-0.257
8	-0.259	-0.270	-0.287	-0.276	-0.285	-0.264	-0.255
9	-0.268	-0.283	-0.276	-0.270	-0.266	-0.262	-0.255
Right elevon, upper surface							
10	-0.285	-0.287	-0.272	-0.266	-0.272	-0.264	-0.257
11	-0.266	-0.268	-0.276	-0.264	-0.264	-0.262	-0.255
12	-0.272	-0.274	-0.272	-0.266	-0.268	-0.255	-0.255
13	-0.270	-0.274	-0.300	-0.300	-0.283	-0.264	-0.257
14	-0.276	-0.272	-0.274	-0.283	-0.279	-0.262	-0.257
16	-0.272	-0.279	-0.268	-0.266	-0.279	-0.262	-0.257
Right elevon, side surface							
19	-0.268	-0.264	-0.274	-0.281	-0.264	-0.281	-0.257
20	-0.214	-0.221	-0.219	-0.213	-0.181	-0.155	-0.127
Right elevon well, left surface							
21	-0.221	-0.221	-0.219	-0.206	-0.178	-0.151	-0.123
Right elevon well, right surface							
22	-0.244	-0.236	-0.212	-0.178	-0.142	-0.100	-0.029
Left elevon, lower surface							
23	-0.259	-0.244	-0.225	-0.200	-0.163	-0.119	-0.065
24	-0.259	-0.244	-0.225	-0.193	-0.146	-0.081	-0.008
25	-0.246	-0.244	-0.230	-0.193	-0.149	-0.098	-0.036
26	-0.246	-0.244	-0.225	-0.187	-0.136	-0.066	0.007
27	-0.257	-0.259	-0.264	-0.227	-0.200	-0.166	-0.129
28	-0.261	-0.259	-0.244	-0.223	-0.198	-0.162	-0.125
29	-0.268	-0.264	-0.247	-0.227	-0.202	-0.170	-0.134
30	-0.274	-0.264	-0.249	-0.232	-0.210	-0.181	-0.151
31	-0.272	-0.264	-0.251	-0.232	-0.210	-0.181	-0.151
32	-0.263	-0.259	-0.249	-0.232	-0.210	-0.179	-0.149
33	-0.266	-0.261	-0.251	-0.234	-0.210	-0.181	-0.149
34	-0.234	-0.242	-0.236	-0.225	-0.202	-0.172	-0.142
35	-0.242	-0.244	-0.238	-0.221	-0.193	-0.159	-0.129
36	-0.313	-0.313	-0.313	-0.313	-0.313	-0.310	-0.313
Left elevon flap, upper surface							
37	-0.206	-0.210	-0.193	-0.178	-0.157	-0.130	-0.104
38	-0.152	-0.164	-0.200	-0.210	-0.225	-0.242	-0.242
39	-0.146	-0.168	-0.202	-0.213	-0.236	-0.247	-0.244
40	-0.159	-0.187	-0.212	-0.221	-0.244	-0.251	-0.251
41	-0.018	-0.057	-0.106	-0.159	-0.202	-0.230	-0.221
42	-0.039	-0.066	-0.104	-0.136	-0.178	-0.219	-0.172
43	-0.076	-0.104	-0.138	-0.166	-0.187	-0.221	-0.159
44	-0.102	-0.104	-0.125	-0.148	-0.171	-0.197	-0.188
45	0.057	0.014	-0.027	-0.109	-0.075	-0.201	-0.137
46	0.520	0.353	0.152	0.036	-0.064	-0.167	-0.079
47	0.055	0.024	-0.040	-0.116	-0.160	-0.207	-0.149
48	0.598	0.243	0.086	-0.007	-0.025	-0.128	-0.087
49	0.080	-0.027	-0.078	-0.135	-0.165	-0.195	-0.137
50	-0.068	-0.141	-0.170	-0.199	-0.214	-0.242	-0.201

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right tip fin outer flap, inner surface							
51	-0.197	-0.201	-0.183	-0.174	-0.158	-0.137	-0.109
52	-0.250	-0.255	-0.238	-0.246	-0.248	-0.257	-0.265
53	-0.255	-0.259	-0.242	-0.248	-0.250	-0.259	-0.265
54	-0.255	-0.259	-0.242	-0.248	-0.253	-0.261	-0.272
55	-0.255	-0.259	-0.242	-0.248	-0.253	-0.261	-0.272
Right tip fin inner flap, inner surface							
56	-0.242	-0.248	-0.234	-0.238	-0.244	-0.237	-0.233
57	-0.255	-0.259	-0.242	-0.248	-0.250	-0.253	-0.240
58	-0.253	-0.259	-0.242	-0.248	-0.248	-0.255	-0.259
59	-0.250	-0.257	-0.240	-0.248	-0.248	-0.250	-0.255
60	-0.255	-0.259	-0.242	-0.251	-0.253	-0.261	-0.268
Left tip fin inner flap, outer surface							
61	-0.248	-0.261	-0.251	-0.244	-0.240	-0.237	-0.225
62	-0.229	-0.246	-0.236	-0.236	-0.242	-0.237	-0.233
63	-0.201	-0.223	-0.225	-0.240	-0.248	-0.237	-0.231
64	-0.160	-0.188	-0.214	-0.246	-0.250	-0.246	-0.237
65	-0.169	-0.205	-0.229	-0.251	-0.250	-0.242	-0.233
66	-0.167	-0.207	-0.232	-0.248	-0.250	-0.250	-0.244
67	-0.203	-0.238	-0.238	-0.248	-0.248	-0.250	-0.244
68	-0.233	-0.248	-0.232	-0.246	-0.246	-0.240	-0.244
Left tip fin outer flap, outer surface							
69	0.029	0.014	0.014	0.023	0.018	0.014	-0.012
70	0.089	0.089	0.105	0.107	0.105	0.106	0.091
71	0.093	0.089	0.103	0.102	0.099	0.082	0.065
72	0.082	0.091	0.114	0.122	0.116	0.080	0.050
73	0.082	0.093	0.112	0.122	0.108	0.069	0.042
74	0.065	0.067	0.082	0.083	0.060	0.031	-0.003
Left tip fin, inner surface							
75	-0.250	-0.261	-0.251	-0.246	-0.223	-0.222	-0.227
76	-0.222	-0.220	-0.204	-0.231	-0.253	-0.255	-0.250
88	-0.220	-0.225	-0.221	-0.251	-0.261	-0.257	-0.255
Body							
79	-0.141	-0.169	-0.170	-0.191	-0.210	-0.222	-0.227
80	-0.134	-0.152	-0.148	-0.167	-0.178	-0.173	-0.173
81	-0.143	-0.175	-0.185	-0.210	-0.227	-0.240	-0.246
82	0.263	0.348	0.447	0.534	0.629	0.729	0.830
83	0.980	1.112	1.238	1.349	1.454	1.546	1.633
85	-0.201	-0.218	-0.210	-0.221	-0.229	-0.233	-0.237
86	-0.192	-0.216	-0.212	-0.231	-0.246	-0.250	-0.265
87	-0.222	-0.250	-0.249	-0.263	-0.268	-0.268	-0.272

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right elevon flap, lower surface							
1	-0.234	-0.238	-0.266	-0.281	-0.298	-0.242	-0.229
2	-0.234	-0.253	-0.268	-0.264	-0.270	-0.261	-0.255
3	-0.234	-0.242	-0.298	-0.264	-0.270	-0.264	-0.249
4	-0.268	-0.287	-0.285	-0.281	-0.285	-0.272	-0.259
5	-0.236	-0.291	-0.266	-0.266	-0.268	-0.264	-0.261
6	-0.234	-0.242	-0.270	-0.264	-0.268	-0.259	-0.253
7	-0.238	-0.263	-0.270	-0.264	-0.264	-0.264	-0.255
8	-0.232	-0.263	-0.266	-0.264	-0.266	-0.272	-0.255
9	-0.232	-0.238	-0.263	-0.266	-0.268	-0.276	-0.251
Right elevon, upper surface							
10	-0.238	-0.251	-0.263	-0.266	-0.268	-0.264	-0.255
11	-0.232	-0.246	-0.285	-0.272	-0.264	-0.257	-0.255
12	-0.232	-0.238	-0.272	-0.266	-0.266	-0.264	-0.251
13	-0.242	-0.276	-0.253	-0.272	-0.270	-0.266	-0.257
14	-0.236	-0.261	-0.266	-0.266	-0.264	-0.257	-0.257
16	-0.215	-0.236	-0.274	-0.270	-0.264	-0.257	-0.253
Right elevon, side surface							
19	-0.232	-0.242	-0.274	-0.264	-0.261	-0.251	-0.251
20	-0.215	-0.216	-0.204	-0.202	-0.180	-0.159	-0.136
Right elevon well, left surface							
21	-0.219	-0.214	-0.206	-0.221	-0.180	-0.157	-0.129
Right elevon well, right surface							
22	-0.206	-0.206	-0.193	-0.157	-0.110	-0.055	0.003
Left elevon, lower surface							
23	-0.264	-0.246	-0.219	-0.189	-0.153	-0.106	-0.050
24	-0.268	-0.249	-0.221	-0.189	-0.148	-0.097	-0.025
25	-0.266	-0.263	-0.234	-0.204	-0.163	-0.114	-0.061
26	-0.259	-0.266	-0.234	-0.202	-0.157	-0.099	-0.018
27	-0.255	-0.268	-0.238	-0.217	-0.191	-0.157	-0.114
28	-0.264	-0.261	-0.238	-0.214	-0.187	-0.153	-0.114
29	-0.268	-0.261	-0.240	-0.221	-0.193	-0.161	-0.121
30	-0.270	-0.263	-0.242	-0.223	-0.202	-0.174	-0.144
31	-0.272	-0.263	-0.244	-0.223	-0.202	-0.174	-0.144
32	-0.264	-0.263	-0.244	-0.223	-0.202	-0.174	-0.140
33	-0.266	-0.268	-0.246	-0.227	-0.204	-0.174	-0.142
34	-0.259	-0.274	-0.238	-0.214	-0.191	-0.163	-0.131
35	-0.264	-0.253	-0.236	-0.214	-0.193	-0.163	-0.114
36	-0.313	-0.313	-0.313	-0.313	-0.313	-0.313	-0.313
Left elevon flap, upper surface							
37	-0.204	-0.210	-0.187	-0.170	-0.148	-0.121	-0.101
38	-0.072	-0.037	-0.129	-0.121	-0.159	-0.195	-0.240
39	-0.074	-0.071	-0.116	-0.163	-0.202	-0.229	-0.251
40	-0.080	-0.088	-0.137	-0.187	-0.221	-0.244	-0.253
41	-0.078	0.048	0.031	-0.035	-0.099	-0.159	-0.212
42	-0.029	-0.037	0.082	-0.044	-0.099	-0.116	-0.195
43	-0.125	-0.131	-0.091	-0.155	-0.174	-0.168	-0.197
44	-0.137	-0.143	-0.124	-0.150	-0.167	-0.167	-0.176
45	-0.195	-0.188	-0.067	-0.002	-0.001	-0.100	-0.131
46	-0.109	-0.092	0.190	0.270	0.117	0.001	-0.090
47	0.033	0.003	0.083	-0.021	-0.072	-0.111	-0.163
48	-0.207	-0.203	-0.146	-0.101	-0.119	-0.107	-0.150
49	-0.216	-0.218	-0.199	-0.169	-0.175	-0.169	-0.193
50	-0.207	-0.220	-0.191	-0.176	-0.182	-0.190	-0.216

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right tip fin outer flap, inner surface							
51	-0.205	-0.199	-0.178	-0.165	-0.147	-0.122	-0.086
52	-0.227	-0.231	-0.229	-0.236	-0.244	-0.244	-0.246
53	-0.229	-0.231	-0.231	-0.238	-0.248	-0.253	-0.253
54	-0.227	-0.231	-0.229	-0.238	-0.250	-0.253	-0.251
55	-0.227	-0.231	-0.229	-0.238	-0.250	-0.257	-0.251
Right tip fin inner flap, inner surface							
56	-0.210	-0.220	-0.223	-0.231	-0.237	-0.235	-0.206
57	-0.227	-0.231	-0.231	-0.238	-0.246	-0.248	-0.251
58	-0.227	-0.231	-0.231	-0.238	-0.246	-0.248	-0.248
59	-0.225	-0.231	-0.231	-0.238	-0.246	-0.246	-0.244
60	-0.233	-0.233	-0.231	-0.238	-0.253	-0.257	-0.253
Left tip fin inner flap, outer surface							
61	-0.270	-0.259	-0.246	-0.251	-0.244	-0.242	-0.229
62	-0.274	-0.274	-0.263	-0.255	-0.242	-0.242	-0.229
63	-0.274	-0.274	-0.263	-0.248	-0.248	-0.246	-0.229
64	-0.280	-0.268	-0.246	-0.238	-0.250	-0.248	-0.238
65	-0.255	-0.246	-0.227	-0.244	-0.253	-0.246	-0.236
66	-0.177	-0.225	-0.234	-0.244	-0.253	-0.253	-0.244
67	-0.203	-0.238	-0.242	-0.244	-0.253	-0.250	-0.244
68	-0.240	-0.248	-0.248	-0.251	-0.246	-0.248	-0.242
Left tip fin outer flap, outer surface							
69	0.123	0.123	0.134	0.131	0.119	0.115	0.109
70	0.203	0.217	0.228	0.233	0.246	0.250	0.263
71	0.213	0.224	0.230	0.236	0.231	0.226	0.225
72	0.194	0.217	0.239	0.253	0.265	0.286	0.278
73	0.194	0.220	0.239	0.253	0.265	0.278	0.267
74	0.171	0.189	0.203	0.208	0.216	0.213	0.199
Left tip fin, inner surface							
75	-0.274	-0.268	-0.255	-0.253	-0.248	-0.225	-0.216
76	-0.287	-0.280	-0.253	-0.221	-0.242	-0.253	-0.251
88	-0.287	-0.276	-0.246	-0.238	-0.253	-0.261	-0.251
Body							
79	-0.081	-0.102	-0.114	-0.133	-0.158	-0.169	-0.176
80	-0.147	-0.152	-0.157	-0.176	-0.199	-0.218	-0.236
81	-0.179	-0.203	-0.214	-0.236	-0.253	-0.259	-0.259
82	0.192	0.275	0.359	0.443	0.527	0.615	0.713
83	0.969	1.104	1.225	1.336	1.442	1.534	1.616
85	-0.182	-0.203	-0.219	-0.231	-0.242	-0.242	-0.229
86	-0.115	-0.147	-0.159	-0.238	-0.244	-0.255	-0.216
87	-0.218	-0.220	-0.221	-0.229	-0.250	-0.263	-0.261

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right elevon flap, lower surface							
1	-0.238	-0.238	-0.244	-0.242	-0.238	-0.242	-0.238
2	-0.270	-0.268	-0.272	-0.274	-0.270	-0.266	-0.259
3	-0.261	-0.264	-0.266	-0.261	-0.257	-0.257	-0.257
4	-0.270	-0.272	-0.274	-0.270	-0.268	-0.266	-0.261
5	-0.272	-0.272	-0.272	-0.272	-0.268	-0.266	-0.264
6	-0.264	-0.266	-0.266	-0.264	-0.257	-0.253	-0.261
7	-0.266	-0.270	-0.272	-0.268	-0.263	-0.264	-0.264
8	-0.266	-0.270	-0.270	-0.266	-0.263	-0.264	-0.259
9	-0.261	-0.266	-0.266	-0.264	-0.259	-0.255	-0.259
Right elevon, upper surface							
10	-0.266	-0.270	-0.272	-0.268	-0.263	-0.264	-0.261
11	-0.266	-0.270	-0.270	-0.266	-0.263	-0.264	-0.259
12	-0.266	-0.266	-0.266	-0.264	-0.257	-0.255	-0.264
13	-0.270	-0.270	-0.272	-0.268	-0.268	-0.266	-0.264
14	-0.270	-0.270	-0.272	-0.270	-0.268	-0.266	-0.264
16	-0.264	-0.270	-0.274	-0.270	-0.263	-0.264	-0.264
Right elevon, side surface							
19	-0.266	-0.266	-0.266	-0.264	-0.255	-0.257	-0.264
20	-0.223	-0.234	-0.225	-0.210	-0.202	-0.172	-0.142
Right elevon well, left surface							
21	-0.232	-0.234	-0.223	-0.214	-0.193	-0.170	-0.138
Right elevon well, right surface							
22	-0.266	-0.264	-0.240	-0.210	-0.161	-0.114	-0.057
Left elevon, lower surface							
23	-0.242	-0.255	-0.234	-0.208	-0.172	-0.129	-0.074
24	-0.242	-0.261	-0.223	-0.189	-0.148	-0.080	0.009
25	-0.240	-0.242	-0.223	-0.178	-0.125	-0.071	-0.006
26	-0.232	-0.234	-0.212	-0.163	-0.106	-0.025	0.052
27	-0.240	-0.257	-0.249	-0.231	-0.204	-0.174	-0.138
28	-0.240	-0.257	-0.249	-0.227	-0.199	-0.170	-0.134
29	-0.240	-0.264	-0.251	-0.231	-0.206	-0.176	-0.138
30	-0.240	-0.266	-0.253	-0.236	-0.214	-0.189	-0.159
31	-0.236	-0.266	-0.253	-0.236	-0.214	-0.189	-0.159
32	-0.238	-0.264	-0.253	-0.236	-0.212	-0.187	-0.153
33	-0.238	-0.259	-0.253	-0.236	-0.214	-0.187	-0.153
34	-0.232	-0.236	-0.242	-0.229	-0.212	-0.185	-0.151
35	-0.234	-0.249	-0.242	-0.225	-0.202	-0.174	-0.144
36	-0.313	-0.313	-0.313	-0.313	-0.313	-0.313	-0.313
Left elevon flap, upper surface							
37	-0.208	-0.206	-0.193	-0.178	-0.159	-0.136	-0.114
38	-0.146	-0.221	-0.244	-0.257	-0.253	-0.242	-0.229
39	-0.129	-0.202	-0.242	-0.257	-0.255	-0.249	-0.232
40	-0.114	-0.180	-0.242	-0.253	-0.249	-0.249	-0.225
41	-0.214	-0.193	-0.193	-0.223	-0.255	-0.253	-0.227
42	-0.193	-0.131	-0.116	-0.197	-0.242	-0.246	-0.227
43	-0.080	-0.018	-0.135	-0.231	-0.206	-0.223	-0.198
44	-0.021	-0.110	-0.176	-0.214	-0.184	-0.150	-0.105
45	0.308	0.313	-0.061	-0.167	-0.203	-0.180	0.013
46	0.276	0.186	0.046	-0.132	-0.212	-0.195	-0.094
47	0.091	-0.035	-0.125	-0.216	-0.231	-0.214	-0.100
48	0.735	0.692	0.296	0.027	-0.121	-0.002	-0.040
49	0.385	0.328	0.296	0.081	-0.119	-0.092	0.045
50	0.196	0.092	-0.101	-0.177	-0.231	-0.210	-0.015

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TABLE VI.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = -33^\circ$ - Concluded

(i) $M = 2.16$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:						
	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$	$\alpha = 39.5^\circ$	$\alpha = 43.4^\circ$	$\alpha = 47.1^\circ$
Right tip fin outer flap, inner surface							
51	-0.195	-0.201	-0.182	-0.179	-0.164	-0.135	-0.107
52	-0.268	-0.267	-0.246	-0.250	-0.244	-0.242	-0.263
53	-0.272	-0.270	-0.251	-0.252	-0.248	-0.244	-0.261
54	-0.272	-0.270	-0.253	-0.255	-0.248	-0.246	-0.270
55	-0.274	-0.270	-0.253	-0.255	-0.248	-0.248	-0.272
Right tip fin inner flap, inner surface							
56	-0.268	-0.265	-0.246	-0.248	-0.240	-0.240	-0.259
57	-0.272	-0.270	-0.251	-0.252	-0.248	-0.244	-0.261
58	-0.272	-0.270	-0.251	-0.252	-0.248	-0.246	-0.268
59	-0.272	-0.270	-0.249	-0.252	-0.248	-0.244	-0.263
60	-0.274	-0.270	-0.253	-0.257	-0.250	-0.246	-0.263
Left tip fin inner flap, outer surface							
61	-0.231	-0.205	-0.219	-0.220	-0.237	-0.229	-0.195
62	-0.182	-0.190	-0.208	-0.227	-0.235	-0.231	-0.201
63	-0.171	-0.207	-0.216	-0.235	-0.237	-0.233	-0.201
64	-0.149	-0.216	-0.225	-0.240	-0.244	-0.238	-0.208
65	-0.177	-0.237	-0.234	-0.240	-0.242	-0.233	-0.201
66	-0.152	-0.220	-0.227	-0.242	-0.250	-0.242	-0.218
67	-0.199	-0.233	-0.225	-0.242	-0.250	-0.240	-0.218
68	-0.220	-0.235	-0.225	-0.240	-0.240	-0.235	-0.218
Left tip fin outer flap, outer surface							
69	-0.053	-0.059	-0.039	-0.057	-0.072	-0.079	-0.090
70	-0.010	-0.009	0.001	-0.008	-0.029	-0.028	-0.032
71	-0.010	-0.005	0.004	-0.010	-0.031	-0.038	-0.049
72	-0.016	-0.009	0.010	-0.035	-0.082	-0.094	-0.109
73	-0.018	-0.007	0.023	-0.061	-0.089	-0.103	-0.115
74	-0.038	-0.022	-0.007	-0.087	-0.119	-0.124	-0.135
Left tip fin, inner surface							
75	-0.235	-0.196	-0.221	-0.216	-0.220	-0.218	-0.205
76	-0.192	-0.199	-0.216	-0.246	-0.240	-0.231	-0.220
88	-0.203	-0.231	-0.234	-0.250	-0.244	-0.235	-0.225
Body							
79	-0.195	-0.212	-0.214	-0.240	-0.250	-0.248	-0.255
80	-0.160	-0.173	-0.169	-0.192	-0.216	-0.238	-0.263
81	-0.102	-0.132	-0.146	-0.177	-0.196	-0.201	-0.214
82	0.329	0.427	0.529	0.626	0.729	0.845	0.947
83	0.976	1.111	1.236	1.348	1.451	1.545	1.629
85	-0.199	-0.212	-0.204	-0.214	-0.218	-0.216	-0.227
86	-0.220	-0.220	-0.219	-0.220	-0.231	-0.240	-0.265
87	-0.210	-0.240	-0.246	-0.274	-0.283	-0.268	-0.265

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1		-0.337		-0.322		-0.364	-0.377	-0.411	-0.398	-0.377
2		-0.348		-0.354		-0.402	-0.404	-0.427	-0.413	-0.381
3		-0.337		-0.333		-0.377	-0.396	-0.413	-0.402	-0.358
4		-0.354		-0.337		-0.383	-0.396	-0.427	-0.419	-0.400
5		-0.354		-0.339		-0.391	-0.398	-0.423	-0.406	-0.369
6		-0.344		-0.335		-0.375	-0.396	-0.413	-0.396	-0.352
7		-0.352		-0.337		-0.383	-0.396	-0.427	-0.411	-0.379
8		-0.344		-0.339		-0.383	-0.396	-0.415	-0.398	-0.346
9		-0.344		-0.333		-0.375	-0.396	-0.411	-0.392	-0.341
Right elevon, upper surface										
10		-0.352		-0.337		-0.383	-0.396	-0.427	-0.413	-0.379
11		-0.346		-0.339		-0.383	-0.396	-0.415	-0.398	-0.348
12		-0.344		-0.333		-0.375	-0.396	-0.411	-0.392	-0.343
13		-0.354		-0.337		-0.383	-0.396	-0.432	-0.421	-0.404
14		-0.346		-0.347		-0.394	-0.398	-0.423	-0.409	-0.373
16		-0.354		-0.339		-0.383	-0.396	-0.432	-0.421	-0.400
Right elevon, side surface										
19		-0.327		-0.324		-0.364	-0.388	-0.404	-0.385	-0.333
20		-0.333		-0.322		-0.366	-0.385	-0.406	-0.396	-0.367
Right elevon well, left surface										
21		-0.333		-0.322		-0.366	-0.383	-0.406	-0.396	-0.367
Right elevon well, right surface										
22		-0.413		-0.333		-0.389	-0.396	-0.423	-0.398	-0.350
Left elevon, lower surface										
23		-0.486		-0.209		-0.077	-0.004	0.078	0.164	0.248
24		-0.501		-0.192		-0.062	0.013	0.093	0.170	0.265
25		-0.503		-0.192		-0.056	0.017	0.088	0.176	0.275
26		-0.490		-0.192		-0.074	-0.010	0.061	0.141	0.225
27		-0.266		-0.169		-0.068	0.000	0.072	0.153	0.241
28		-0.270		-0.175		-0.054	0.015	0.093	0.178	0.271
29		-0.291		-0.190		-0.058	0.011	0.093	0.178	0.267
30		-0.291		-0.201		-0.064	0.002	0.082	0.168	0.254
31		-0.251		-0.167		-0.060	0.007	0.088	0.174	0.265
32		-0.239		-0.165		-0.060	0.009	0.086	0.174	0.265
33		-0.237		-0.171		-0.070	-0.012	0.057	0.139	0.223
34		-0.241		-0.196		-0.104	-0.048	0.019	0.097	0.179
35		-0.222		-0.161		-0.062	0.000	0.076	0.164	0.254
36		-0.715		-0.715		-0.715	-0.715	-0.633	-0.635	-0.631
Left elevon flap, upper surface										
37		0.312		-0.282		-0.280	-0.207	-0.232	-0.283	-0.222
38		0.273		-0.282		-0.366	-0.354	-0.369	-0.362	-0.337
39		0.247		-0.201		-0.400	-0.323	-0.358	-0.365	-0.379
40		0.185		-0.066		-0.419	-0.396	-0.392	-0.402	-0.379
41		0.329		0.129		-0.406	-0.358	-0.364	-0.367	-0.287
42		0.419		0.223		-0.356	-0.304	-0.300	-0.293	-0.264
43		0.424		0.202		-0.337	-0.274	-0.327	-0.316	-0.306
44		0.327		0.102		-0.371	-0.347	-0.346	-0.348	-0.378
45		0.264		0.211		0.187	-0.021	-0.129	-0.169	-0.254
46		0.331		0.251		0.428	0.067	-0.085	-0.169	-0.244
47		0.254		0.167		0.298	0.048	-0.129	-0.240	-0.229
48		-0.708		-0.710		-0.706	-0.704	-0.639	-0.639	-0.639
49		0.331		0.538		0.348	0.289	0.126	-0.014	-0.124
50		0.266		0.408		0.133	0.130	0.045	-0.012	-0.120

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(a) $M = 1.50$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51		-0.246		-0.222		-0.269	-0.301	-0.317	-0.313	-0.277
52		-0.480		-0.354		-0.396	-0.405	-0.419	-0.396	-0.334
53		-0.468		-0.354		-0.401	-0.409	-0.432	-0.401	-0.342
54		-0.438		-0.354		-0.419	-0.416	-0.449	-0.422	-0.367
55		-0.436		-0.359		-0.413	-0.416	-0.449	-0.424	-0.367
Right tip fin inner flap, inner surface										
56		-0.415		-0.346		-0.382	-0.361	-0.386	-0.365	-0.313
57		-0.459		-0.363		-0.401	-0.413	-0.442	-0.436	-0.367
58		-0.451		-0.356		-0.396	-0.409	-0.430	-0.417	-0.357
59		-0.440		-0.352		-0.390	-0.399	-0.415	-0.399	-0.338
60		-0.472		-0.369		-0.422	-0.420	-0.453	-0.426	-0.363
Left tip fin inner flap, outer surface										
61		-0.162		-0.304		-0.390	-0.353	-0.405	-0.434	-0.403
62		-0.125		-0.405		-0.461	-0.472	-0.461	-0.472	-0.432
63		0.007		-0.379		-0.455	-0.451	-0.447	-0.466	-0.396
64		0.137		-0.438		-0.248	-0.294	-0.361	-0.334	-0.258
65		0.699		-0.214		0.003	-0.311	-0.382	-0.371	-0.292
66		0.208		0.134		-0.210	-0.102	-0.060	-0.143	-0.286
67		0.726		0.211		-0.281	-0.288	-0.336	-0.340	-0.350
68		0.643		0.023		-0.392	-0.338	-0.361	-0.386	-0.388
Left tip fin outer flap, outer surface										
69		0.047		0.058		-0.022	-0.064	-0.106	-0.133	-0.158
70		-0.022		0.056		0.068	0.061	0.047	0.036	0.024
71		0.020		0.064		0.093	0.067	0.041	0.009	-0.020
72		-0.014		0.041		0.049	0.046	0.043	0.051	0.051
73		-0.022		0.035		0.070	0.044	0.043	0.043	0.051
74		-0.058		0.002		0.007	-0.006	-0.020	-0.028	-0.041
Left tip fin, inner surface										
75		-0.179		-0.396		-0.407	-0.464	-0.495	-0.512	-0.480
76		-0.258		-0.488		-0.493	-0.520	-0.524	-0.530	-0.493
88		-0.202		-0.486		-0.363	-0.436	-0.430	-0.457	-0.470
Body										
79		0.059		-0.111		-0.254	-0.313	-0.363	-0.396	-0.422
80		-0.077		-0.149		-0.189	-0.219	-0.252	-0.271	-0.292
81		0.045		-0.088		-0.210	-0.273	-0.344	-0.396	-0.434
82		-0.169		-0.011		0.139	0.216	0.294	0.373	0.468
83		0.289		0.533		0.798	0.922	1.045	1.157	1.258
85		-0.189		-0.386		-0.422	-0.445	-0.461	-0.470	-0.484
86		0.022		-0.091		-0.164	-0.290	-0.378	-0.419	-0.447
87		-0.095		-0.195		-0.507	-0.491	-0.514	-0.532	-0.547

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1		-0.282		-0.286		-0.351	-0.365	-0.380	-0.411	-0.361
2		-0.288		-0.302		-0.355	-0.396	-0.405	-0.428	-0.380
3		-0.286		-0.292		-0.355	-0.378	-0.390	-0.411	-0.365
4		-0.292		-0.300		-0.365	-0.382	-0.399	-0.434	-0.388
5		-0.288		-0.298		-0.351	-0.390	-0.401	-0.419	-0.374
6		-0.286		-0.288		-0.340	-0.376	-0.388	-0.405	-0.355
7		-0.292		-0.300		-0.365	-0.382	-0.399	-0.428	-0.378
8		-0.286		-0.294		-0.344	-0.382	-0.396	-0.403	-0.347
9		-0.286		-0.288		-0.338	-0.376	-0.386	-0.396	-0.340
Right elevon, upper surface										
10		-0.292		-0.300		-0.365	-0.382	-0.399	-0.428	-0.378
11		-0.286		-0.294		-0.344	-0.382	-0.396	-0.403	-0.347
12		-0.286		-0.288		-0.338	-0.376	-0.386	-0.396	-0.340
13		-0.292		-0.300		-0.367	-0.382	-0.399	-0.440	-0.392
14		-0.292		-0.298		-0.353	-0.390	-0.401	-0.426	-0.376
16		-0.292		-0.298		-0.365	-0.384	-0.399	-0.438	-0.388
Right elevon, side surface										
19		-0.183		-0.284		-0.334	-0.369	-0.380	-0.390	-0.330
20		-0.284		-0.284		-0.355	-0.373	-0.382	-0.401	-0.355
Right elevon well, left surface										
21		-0.286		-0.282		-0.355	-0.373	-0.382	-0.399	-0.351
Right elevon well, right surface										
22		-0.409		-0.348		-0.347	-0.376	-0.390	-0.409	-0.342
Left elevon, lower surface										
23		-0.495		-0.263		-0.100	-0.005	0.085	0.187	0.285
24		-0.495		-0.236		-0.079	0.011	0.110	0.214	0.312
25		-0.480		-0.217		-0.077	0.007	0.112	0.216	0.312
26		-0.413		-0.213		-0.085	-0.001	0.091	0.185	0.262
27		-0.459		-0.200		-0.073	-0.001	0.091	0.189	0.276
28		-0.482		-0.202		-0.075	0.009	0.103	0.204	0.301
29		-0.495		-0.217		-0.079	0.003	0.099	0.202	0.301
30		-0.505		-0.229		-0.081	-0.001	0.093	0.195	0.297
31		-0.298		-0.202		-0.071	0.005	0.091	0.189	0.293
32		-0.286		-0.200		-0.071	0.007	0.089	0.187	0.283
33		-0.273		-0.196		-0.083	-0.012	0.080	0.175	0.262
34		-0.273		-0.208		-0.104	-0.035	0.041	0.118	0.199
35		-0.254		-0.183		-0.067	0.001	0.085	0.179	0.278
36		-0.629		-0.631		-0.631	-0.631	-0.631	-0.633	-0.629
Left elevon flap, upper surface										
37		0.047		-0.240		-0.188	-0.208	-0.267	-0.244	-0.238
38		0.015		-0.200		-0.286	-0.294	-0.309	-0.298	-0.234
39		-0.039		-0.171		-0.338	-0.367	-0.346	-0.350	-0.288
40		-0.129		-0.223		-0.361	-0.405	-0.386	-0.403	-0.324
41		0.226		-0.236		-0.388	-0.298	-0.290	-0.309	-0.286
42		0.260		-0.158		-0.273	-0.231	-0.238	-0.233	-0.219
43		0.197		-0.167		-0.265	-0.231	-0.219	-0.227	-0.181
44		0.082		-0.230		-0.263	-0.261	-0.261	-0.282	-0.187
45		0.391		0.304		-0.086	-0.157	-0.405	-0.388	-0.355
46		0.536		0.256		-0.109	-0.180	-0.430	-0.452	-0.345
47		0.428		0.210		-0.244	-0.199	-0.399	-0.413	-0.337
48		-0.629		-0.639		-0.631	-0.641	-0.641	-0.631	-0.639
49		0.595		0.761		0.115	-0.282	-0.460	-0.484	-0.383
50		0.543		0.905		0.055	-0.355	-0.506	-0.513	-0.387

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TABLE VII.– COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51		-0.240		-0.230		-0.282	-0.318	-0.314	-0.291	-0.243
52		-0.479		-0.439		-0.371	-0.407	-0.407	-0.399	-0.339
53		-0.469		-0.428		-0.373	-0.414	-0.420	-0.397	-0.343
54		-0.448		-0.385		-0.375	-0.403	-0.416	-0.426	-0.358
55		-0.450		-0.380		-0.377	-0.407	-0.426	-0.421	-0.360
Right tip fin inner flap, inner surface										
56		-0.417		-0.337		-0.327	-0.357	-0.357	-0.361	-0.308
57		-0.469		-0.408		-0.373	-0.399	-0.401	-0.419	-0.343
58		-0.458		-0.397		-0.371	-0.395	-0.399	-0.405	-0.339
59		-0.454		-0.380		-0.367	-0.391	-0.393	-0.392	-0.335
60		-0.473		-0.428		-0.379	-0.426	-0.439	-0.430	-0.364
Left tip fin inner flap, outer surface										
61		-0.251		-0.301		-0.348	-0.387	-0.407	-0.450	-0.249
62		-0.344		-0.383		-0.454	-0.491	-0.491	-0.457	-0.260
63		-0.317		-0.383		-0.444	-0.476	-0.474	-0.450	-0.245
64		-0.172		-0.416		-0.294	-0.263	-0.345	-0.289	-0.093
65		0.422		-0.357		-0.238	-0.211	-0.332	-0.336	-0.028
66		0.449		0.083		-0.250	-0.349	-0.362	-0.367	-0.020
67		0.570		0.147		-0.298	-0.393	-0.401	-0.399	-0.210
68		0.235		-0.189		-0.369	-0.420	-0.399	-0.390	-0.299
Left tip fin outer flap, outer surface										
69		0.206		0.145		0.061	0.008	-0.026	-0.054	-0.064
70		0.140		0.162		0.180	0.175	0.173	0.169	0.155
71		0.173		0.172		0.196	0.175	0.166	0.153	0.110
72		0.129		0.139		0.178	0.177	0.187	0.201	0.201
73		0.109		0.137		0.180	0.194	0.183	0.194	0.191
74		0.067		0.104		0.130	0.116	0.108	0.109	0.095
Left tip fin, inner surface										
75		-0.334		-0.372		-0.429	-0.453	-0.466	-0.452	-0.376
76		-0.394		-0.447		-0.527	-0.524	-0.522	-0.496	-0.395
88		-0.357		-0.460		-0.454	-0.445	-0.462	-0.477	-0.364
Body										
79		0.115		-0.040		-0.165	-0.232	-0.282	-0.309	-0.345
80		-0.047		-0.159		-0.201	-0.232	-0.253	-0.272	-0.310
81		0.034		-0.088		-0.209	-0.280	-0.345	-0.378	-0.424
82		-0.122		-0.038		0.059	0.110	0.187	0.271	0.354
83		0.310		0.546		0.797	0.913	1.033	1.144	1.242
85		-0.105		-0.276		-0.429	-0.441	-0.464	-0.477	-0.495
86		0.011		-0.059		-0.109	-0.176	-0.261	-0.316	-0.408
87		-0.107		-0.383		-0.469	-0.478	-0.485	-0.488	-0.506

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right elevon flap, lower surface										
1		-0.376		-0.340		-0.400	-0.382	-0.378	-0.351	-0.190
2		-0.405		-0.384		-0.402	-0.417	-0.409	-0.376	-0.207
3		-0.382		-0.354		-0.396	-0.403	-0.399	-0.393	-0.196
4		-0.397		-0.359		-0.421	-0.403	-0.399	-0.370	-0.202
5		-0.401		-0.369		-0.392	-0.407	-0.403	-0.370	-0.202
6		-0.388		-0.354		-0.384	-0.396	-0.392	-0.378	-0.198
7		-0.401		-0.361		-0.417	-0.403	-0.397	-0.367	-0.198
8		-0.399		-0.361		-0.384	-0.403	-0.397	-0.365	-0.194
9		-0.386		-0.352		-0.377	-0.396	-0.388	-0.370	-0.192
Right elevon, upper surface										
10		-0.399		-0.361		-0.417	-0.400	-0.397	-0.367	-0.202
11		-0.397		-0.361		-0.381	-0.403	-0.397	-0.365	-0.200
12		-0.392		-0.352		-0.377	-0.396	-0.390	-0.372	-0.200
13		-0.399		-0.359		-0.425	-0.403	-0.397	-0.370	-0.207
14		-0.401		-0.371		-0.398	-0.409	-0.403	-0.370	-0.200
16		-0.399		-0.359		-0.413	-0.400	-0.397	-0.370	-0.204
Right elevon, side surface										
19		-0.361		-0.340		-0.373	-0.390	-0.384	-0.370	-0.188
20		-0.367		-0.336		-0.386	-0.386	-0.380	-0.357	-0.194
Right elevon well, left surface										
21		-0.365		-0.333		-0.381	-0.382	-0.378	-0.357	-0.194
Right elevon well, right surface										
22		-0.397		-0.365		-0.384	-0.388	-0.378	-0.393	-0.204
Left elevon, lower surface										
23		-0.267		-0.181		-0.074	-0.020	0.036	0.103	0.193
24		-0.250		-0.164		-0.063	-0.007	0.055	0.119	0.209
25		-0.250		-0.156		-0.061	-0.001	0.068	0.136	0.228
26		-0.257		-0.158		-0.086	-0.034	0.028	0.094	0.180
27		-0.217		-0.145		-0.082	-0.032	0.036	0.111	0.201
28		-0.219		-0.145		-0.061	-0.007	0.064	0.142	0.234
29		-0.232		-0.156		-0.063	-0.007	0.062	0.142	0.234
30		-0.242		-0.160		-0.069	-0.009	0.057	0.136	0.230
31		-0.215		-0.156		-0.067	-0.007	0.066	0.151	0.251
32		-0.211		-0.153		-0.072	-0.009	0.064	0.149	0.245
33		-0.209		-0.156		-0.107	-0.047	0.026	0.107	0.197
34		-0.223		-0.200		-0.132	-0.068	0.003	0.084	0.170
35		-0.204		-0.166		-0.082	-0.015	0.059	0.146	0.245
36		-0.631		-0.633		-0.629	-0.631	-0.631	-0.631	-0.631
Left elevon flap, upper surface										
37		0.264		-0.130		-0.321	-0.396	-0.369	-0.355	-0.259
38		0.291		0.016		-0.365	-0.336	-0.399	-0.355	-0.286
39		0.280		0.163		-0.377	-0.407	-0.380	-0.403	-0.292
40		0.216		0.133		-0.377	-0.424	-0.392	-0.418	-0.278
41		0.299		0.194		0.157	-0.005	-0.160	-0.309	-0.271
42		0.395		0.290		0.197	0.079	-0.131	-0.273	-0.248
43		0.362		0.307		0.215	-0.011	-0.148	-0.240	-0.148
44		0.260		0.192		-0.006	-0.220	-0.324	-0.398	-0.109
45		0.270		0.257		0.301	0.252	0.225	0.137	0.126
46		0.345		0.380		0.414	0.372	0.275	0.128	-0.034
47		0.256		0.282		0.301	0.320	0.181	0.054	-0.120
48		-0.639		-0.641		-0.639	-0.629	-0.643	-0.637	-0.641
49		0.233		0.290		0.264	0.279	0.277	0.276	0.109
50		0.226		0.198		0.165	0.194	0.225	0.162	0.178

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(c) M = 1.50, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$	$\alpha = 21.7^\circ$	$\alpha = 26.0^\circ$	$\alpha = 30.4^\circ$	$\alpha = 34.5^\circ$
Right tip fin outer flap, inner surface										
51		-0.222		-0.221		-0.280	-0.293	-0.303	-0.283	-0.143
52		-0.431		-0.388		-0.403	-0.397	-0.385	-0.421	-0.232
53		-0.420		-0.386		-0.409	-0.397	-0.385	-0.425	-0.245
54		-0.418		-0.386		-0.413	-0.392	-0.395	-0.417	-0.243
55		-0.414		-0.401		-0.420	-0.392	-0.397	-0.419	-0.249
Right tip fin inner flap, inner surface										
56		-0.387		-0.380		-0.378	-0.368	-0.372	-0.335	-0.160
57		-0.433		-0.403		-0.407	-0.405	-0.407	-0.414	-0.222
58		-0.431		-0.399		-0.405	-0.399	-0.405	-0.414	-0.218
59		-0.424		-0.391		-0.405	-0.395	-0.393	-0.417	-0.212
60		-0.435		-0.407		-0.422	-0.405	-0.401	-0.427	-0.266
Left tip fin inner flap, outer surface										
61		0.047		-0.324		-0.315	-0.415	-0.441	-0.365	-0.270
62		0.481		-0.234		-0.415	-0.388	-0.378	-0.446	-0.272
63		0.729		-0.186		-0.409	-0.390	-0.349	-0.446	-0.266
64		0.877		-0.102		-0.219	0.078	-0.309	-0.325	-0.197
65		0.721		0.541		-0.196	0.325	-0.013	-0.092	-0.149
66		0.814		0.482		-0.096	-0.210	-0.226	-0.296	-0.009
67		0.800		0.359		-0.148	-0.339	-0.332	-0.335	-0.087
68		0.527		0.269		-0.336	-0.409	-0.433	-0.396	-0.212
Left tip fin outer flap, outer surface										
69		-0.118		-0.006		-0.052	-0.082	-0.178	-0.219	-0.203
70		-0.157		-0.038		0.021	-0.009	-0.080	-0.086	-0.064
71		-0.118		-0.025		0.028	-0.019	-0.080	-0.109	-0.089
72		-0.141		-0.033		-0.016	-0.046	-0.084	-0.084	-0.087
73		-0.141		-0.040		-0.018	-0.050	-0.082	-0.069	-0.089
74		-0.162		-0.067		-0.060	-0.096	-0.142	-0.127	-0.120
Left tip fin, inner surface										
75		-0.095		-0.362		-0.307	-0.388	-0.470	-0.475	-0.274
76		-0.143		-0.420		-0.434	-0.345	-0.460	-0.475	-0.241
88		0.003		-0.407		-0.336	-0.326	-0.328	-0.412	-0.224
Body										
79		0.039		-0.107		-0.301	-0.368	-0.428	-0.456	-0.474
80		-0.070		-0.188		-0.252	-0.260	-0.282	-0.296	-0.337
81		0.091		-0.035		-0.163	-0.214	-0.286	-0.335	-0.378
82		-0.239		-0.031		0.184	0.289	0.385	0.484	0.585
83		0.299		0.541		0.801	0.924	1.045	1.152	1.252
85		-0.251		-0.388		-0.441	-0.448	-0.466	-0.464	-0.226
86		0.047		-0.146		-0.365	-0.415	-0.503	-0.485	-0.203
87		-0.066		-0.165		-0.290	-0.368	-0.495	-0.525	-0.376

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right elevon flap, lower surface										
1		-0.281		-0.265		-0.277	-0.289	-0.295	-0.297	-0.297
2		-0.308		-0.296		-0.308	-0.314	-0.324	-0.329	-0.331
3		-0.296		-0.286		-0.308	-0.312	-0.320	-0.318	-0.320
4		-0.310		-0.288		-0.306	-0.314	-0.320	-0.331	-0.331
5		-0.316		-0.292		-0.308	-0.314	-0.322	-0.329	-0.331
6		-0.312		-0.286		-0.306	-0.314	-0.320	-0.318	-0.320
7		-0.308		-0.288		-0.306	-0.316	-0.320	-0.333	-0.333
8		-0.306		-0.288		-0.306	-0.314	-0.320	-0.320	-0.329
9		-0.312		-0.286		-0.314	-0.310	-0.318	-0.314	-0.316
Right elevon, upper surface										
10		-0.308		-0.288		-0.306	-0.312	-0.320	-0.331	-0.333
11		-0.306		-0.288		-0.306	-0.314	-0.320	-0.320	-0.326
12		-0.306		-0.286		-0.306	-0.312	-0.318	-0.312	-0.320
13		-0.310		-0.288		-0.308	-0.314	-0.322	-0.333	-0.333
14		-0.310		-0.292		-0.308	-0.314	-0.322	-0.326	-0.331
16		-0.308		-0.290		-0.308	-0.314	-0.322	-0.333	-0.331
Right elevon, side surface										
19		-0.292		-0.278		-0.304	-0.331	-0.314	-0.308	-0.308
20		-0.287		-0.271		-0.304	-0.302	-0.314	-0.312	-0.308
Right elevon well, left surface										
21		-0.285		-0.269		-0.281	-0.299	-0.306	-0.312	-0.308
Right elevon well, right surface										
22		-0.327		-0.288		-0.304	-0.316	-0.318	-0.316	-0.308
Left elevon, lower surface										
23		-0.370		-0.182		-0.053	0.010	0.081	0.161	0.240
24		-0.370		-0.160		-0.046	0.019	0.092	0.173	0.252
25		-0.372		-0.156		-0.040	0.021	0.096	0.175	0.263
26		-0.350		-0.156		-0.057	0.006	0.075	0.152	0.229
27		-0.219		-0.143		-0.050	0.010	0.079	0.156	0.236
28		-0.223		-0.143		-0.042	0.019	0.092	0.173	0.256
29		-0.223		-0.153		-0.046	0.017	0.090	0.169	0.254
30		-0.225		-0.160		-0.050	0.010	0.081	0.163	0.250
31		-0.213		-0.141		-0.046	0.015	0.088	0.167	0.256
32		-0.211		-0.137		-0.046	0.015	0.088	0.167	0.254
33		-0.217		-0.143		-0.053		0.067	0.140	0.225
34		-0.206		-0.153		-0.077	-0.025	0.040	0.111	0.194
35		-0.192		-0.133		-0.048	0.010	0.081	0.161	0.250
36		-0.437		-0.437		-0.437	-0.437	-0.439	-0.435	-0.437
Left elevon flap, upper surface										
37		0.126		-0.238		-0.119	-0.139	-0.183	-0.245	-0.318
38		0.165		-0.226		-0.223	-0.212	-0.214	-0.245	-0.295
39		0.171		-0.216		-0.246	-0.254	-0.258	-0.266	-0.293
40		0.126		-0.218		-0.275	-0.264	-0.270	-0.285	-0.316
41		0.335		0.008		-0.237	-0.235	-0.197	-0.220	-0.272
42		0.374		-0.023		-0.204	-0.202	-0.181	-0.172	-0.202
43		0.356		-0.058		-0.227	-0.239	-0.237	-0.256	-0.276
44		0.262		-0.121		-0.234	-0.248	-0.267	-0.279	-0.286
45		0.208		0.223		-0.029	-0.102	-0.145	-0.217	-0.292
46		0.289		0.313		0.033	-0.069	-0.118	-0.159	-0.219
47		0.264		0.262		0.062	-0.104	-0.178	-0.277	-0.267
48		-0.449		-0.449		-0.443	-0.447	-0.443	-0.443	-0.441
49		0.258		0.427		0.233	0.112	-0.058	-0.136	-0.199
50		0.208		0.243		0.142	0.078	0.011	-0.060	-0.145

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right tip fin outer flap, inner surface										
51		-0.209		-0.187		-0.201	-0.252	-0.252	-0.250	-0.236
52		-0.356		-0.297		-0.307	-0.322	-0.321	-0.319	-0.302
53		-0.354		-0.297		-0.309	-0.322	-0.323	-0.323	-0.311
54		-0.346		-0.303		-0.317	-0.331	-0.329	-0.325	-0.315
55		-0.346		-0.303		-0.315	-0.331	-0.327	-0.325	-0.315
Right tip fin inner flap, inner surface										
56		-0.331		-0.297		-0.302	-0.295	-0.292	-0.292	-0.298
57		-0.352		-0.305		-0.313	-0.335	-0.331	-0.327	-0.315
58		-0.348		-0.303		-0.309	-0.331	-0.331	-0.329	-0.315
59		-0.346		-0.301		-0.307	-0.320	-0.323	-0.327	-0.313
60		-0.358		-0.315		-0.317	-0.331	-0.327	-0.327	-0.315
Left tip fin inner flap, outer surface										
61		-0.165		-0.241		-0.313	-0.312	-0.333	-0.341	-0.346
62		-0.136		-0.297		-0.340	-0.354	-0.371	-0.350	-0.364
63		-0.014		-0.293		-0.338	-0.352	-0.366	-0.344	-0.352
64		-0.041		-0.350		-0.267	-0.241	-0.250	-0.277	-0.313
65		0.272		-0.247		-0.228	-0.227	-0.248	-0.252	-0.290
66		-0.149		0.000		-0.218	-0.196	-0.232	-0.310	-0.331
67		0.175		0.068		-0.244	-0.214	-0.228	-0.310	-0.331
68		0.500		-0.049		-0.286	-0.293	-0.296	-0.319	-0.327
Left tip fin outer flap, outer surface										
69		0.071		0.072		-0.003	-0.019	-0.029	-0.033	-0.043
70		0.021		0.066		0.070	0.076	0.071	0.067	0.075
71		0.040		0.078		0.090	0.089	0.065	0.060	0.062
72		0.011		0.041		0.047	0.051	0.071	0.077	0.091
73		0.007		0.039		0.055	0.054	0.077	0.075	0.091
74		-0.012		0.017		0.026	0.031	0.038	0.029	0.041
Left tip fin, inner surface										
75		-0.207		-0.278		-0.333	-0.345	-0.362	-0.368	-0.373
76		-0.238		-0.342		-0.389	-0.404	-0.406	-0.408	-0.400
88		-0.234		-0.350		-0.356	-0.381	-0.391	-0.402	-0.400
Body										
79		0.052		-0.068		-0.172	-0.231	-0.242	-0.267	-0.282
80		-0.043		-0.140		-0.164	-0.181	-0.197	-0.223	-0.228
81		0.046		-0.056		-0.151	-0.204	-0.246	-0.277	-0.302
82		-0.128		0.012		0.157	0.230	0.311	0.400	0.493
83		0.311		0.538		0.806	0.937	1.065	1.183	1.296
85		-0.180		-0.282		-0.317	-0.327	-0.333	-0.344	-0.350
86		-0.004		-0.082		-0.222	-0.283	-0.315	-0.331	-0.344
87		-0.093		-0.212		-0.350	-0.370	-0.377	-0.385	-0.391

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(e) M = 1.80, $\beta = -6^\circ$

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right elevon flap, lower surface										
1		-0.225		-0.231		-0.268	-0.277	-0.291	-0.297	-0.287
2		-0.239		-0.254		-0.293	-0.302	-0.314	-0.320	-0.314
3		-0.235		-0.243		-0.285	-0.295	-0.306	-0.312	-0.304
4		-0.243		-0.250		-0.289	-0.297	-0.320	-0.327	-0.322
5		-0.241		-0.250		-0.293	-0.300	-0.322	-0.329	-0.314
6		-0.235		-0.237		-0.281	-0.300	-0.304	-0.312	-0.295
7		-0.243		-0.252		-0.289	-0.306	-0.320	-0.322	-0.320
8		-0.237		-0.245		-0.289	-0.304	-0.306	-0.308	-0.306
9		-0.235		-0.237		-0.279	-0.300	-0.300	-0.306	-0.285
Right elevon, upper surface										
10		-0.243		-0.250		-0.289	-0.297	-0.320	-0.322	-0.320
11		-0.237		-0.245		-0.289	-0.297	-0.304	-0.308	-0.297
12		-0.235		-0.237		-0.279	-0.306	-0.300	-0.306	-0.285
13		-0.243		-0.250		-0.289	-0.297	-0.324	-0.329	-0.327
14		-0.243		-0.250		-0.291	-0.300	-0.316	-0.322	-0.310
16		-0.243		-0.250		-0.289	-0.297	-0.322	-0.327	-0.320
Right elevon, side surface										
19		-0.189		-0.233		-0.275	-0.297	-0.295	-0.302	-0.275
20		-0.231		-0.237		-0.283	-0.295	-0.306	-0.306	-0.291
Right elevon well, left surface										
21		-0.231		-0.237		-0.283	-0.295	-0.306	-0.302	-0.289
Right elevon well, right surface										
22		-0.312		-0.266		-0.289	-0.300	-0.308	-0.302	-0.279
Left elevon, lower surface										
23		-0.349		-0.250		-0.052	0.025	0.108	0.197	0.285
24		-0.351		-0.237		-0.042	0.035	0.123	0.206	0.304
25		-0.351		-0.212		-0.042	0.033	0.123	0.206	0.306
26		-0.341		-0.196		-0.048	0.031	0.102	0.185	0.277
27		-0.343		-0.160		-0.048	0.016	0.098	0.185	0.277
28		-0.368		-0.156		-0.046	0.025	0.108	0.197	0.295
29		-0.374		-0.160		-0.046	0.023	0.106	0.195	0.291
30		-0.374		-0.164		-0.046	0.021	0.098	0.185	0.285
31		-0.235		-0.162		-0.050	0.019	0.093	0.179	0.283
32		-0.235		-0.160		-0.050	0.019	0.093	0.181	0.279
33		-0.237		-0.160		-0.056	0.004	0.087	0.175	0.264
34		-0.229		-0.166		-0.077	-0.015	0.058	0.131	0.218
35		-0.218		-0.154		-0.054	0.010	0.087	0.168	0.272
36		-0.437		-0.437		-0.437	-0.437	-0.439	-0.437	-0.437
Left elevon flap, upper surface										
37		0.025		-0.171		-0.254	-0.256	-0.264	-0.277	-0.295
38		0.031		-0.146		-0.277	-0.256	-0.252	-0.266	-0.272
39		0.017		-0.152		-0.300	-0.285	-0.279	-0.289	-0.295
40		-0.056		-0.175		-0.318	-0.320	-0.314	-0.314	-0.320
41		0.027		-0.139		-0.196	-0.196	-0.221	-0.223	-0.264
42		0.075		-0.112		-0.142	-0.150	-0.160	-0.183	-0.216
43		0.038		-0.119		-0.156	-0.162	-0.177	-0.198	-0.204
44		-0.026		-0.155		-0.184	-0.203	-0.246	-0.252	-0.240
45		0.245		0.146		-0.162	-0.232	-0.236	-0.246	-0.302
46		0.376		-0.076		-0.182	-0.281	-0.337	-0.267	-0.225
47		0.366		-0.142		-0.211	-0.292	-0.321	-0.316	-0.267
48		-0.445		-0.445		-0.445	-0.447	-0.447	-0.447	-0.449
49		0.496		0.674		-0.139	-0.288	-0.368	-0.379	-0.397
50		0.459		0.529		-0.211	-0.348	-0.383	-0.375	-0.339

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(e) M = 1.80, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right tip fin outer flap, inner surface										
51		-0.188		-0.196		-0.244	-0.263	-0.271	-0.252	-0.231
52		-0.360		-0.308		-0.311	-0.312	-0.315	-0.304	-0.275
53		-0.354		-0.302		-0.317	-0.317	-0.317	-0.304	-0.275
54		-0.348		-0.290		-0.309	-0.315	-0.331	-0.316	-0.296
55		-0.346		-0.290		-0.311	-0.315	-0.331	-0.314	-0.294
Right tip fin inner flap, inner surface										
56		-0.327		-0.265		-0.275	-0.279	-0.294	-0.273	-0.248
57		-0.358		-0.298		-0.306	-0.306	-0.325	-0.325	-0.296
58		-0.356		-0.294		-0.304	-0.306	-0.315	-0.319	-0.292
59		-0.346		-0.292		-0.302	-0.306	-0.308	-0.306	-0.271
60		-0.358		-0.306		-0.321	-0.323	-0.335	-0.319	-0.296
Left tip fin inner flap, outer surface										
61		-0.271		-0.317		-0.317	-0.337	-0.362	-0.372	-0.372
62		-0.244		-0.341		-0.352	-0.375	-0.395	-0.399	-0.377
63		-0.140		-0.339		-0.350	-0.375	-0.389	-0.391	-0.366
64		-0.217		-0.350		-0.327	-0.329	-0.319	-0.341	-0.345
65		-0.008		-0.331		-0.292	-0.306	-0.300	-0.296	-0.310
66		-0.244		-0.327		-0.253	-0.331	-0.348	-0.356	-0.364
67		0.021		-0.203		-0.246	-0.333	-0.348	-0.358	-0.358
68		0.333		0.200		-0.298	-0.331	-0.352	-0.360	-0.352
Left tip fin outer flap, outer surface										
69		0.206		0.164		0.101	0.085	0.067	0.063	0.051
70		0.156		0.177		0.184	0.183	0.191	0.200	0.204
71		0.179		0.191		0.200	0.206	0.208	0.200	0.188
72		0.140		0.162		0.169	0.172	0.191	0.213	0.223
73		0.138		0.158		0.169	0.191	0.195	0.210	0.219
74		0.111		0.123		0.138	0.143	0.150	0.157	0.153
Left tip fin, inner surface										
75		-0.267		-0.337		-0.319	-0.341	-0.362	-0.377	-0.375
76		-0.294		-0.364		-0.373	-0.395	-0.404	-0.412	-0.410
88		-0.292		-0.364		-0.373	-0.377	-0.383	-0.393	-0.395
Body										
79		0.121		0.007		-0.095	-0.143	-0.172	-0.202	-0.235
80		-0.034		-0.130		-0.174	-0.188	-0.203	-0.221	-0.240
81		0.003		-0.087		-0.176	-0.232	-0.279	-0.308	-0.325
82		-0.103		-0.020		0.083	0.148	0.226	0.308	0.387
83		0.316		0.537		0.805	0.931	1.055	1.171	1.277
85		-0.105		-0.256		-0.309	-0.327	-0.341	-0.358	-0.356
86		-0.014		-0.068		-0.133	-0.190	-0.242	-0.294	-0.345
87		-0.169		-0.304		-0.335	-0.348	-0.358	-0.368	-0.377

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right elevon flap, lower surface										
1		-0.293		-0.297		-0.306	-0.308	-0.316	-0.320	-0.306
2		-0.322		-0.331		-0.343	-0.351	-0.349	-0.351	-0.341
3		-0.312		-0.329		-0.329	-0.347	-0.347	-0.349	-0.339
4		-0.322		-0.326		-0.333	-0.347	-0.349	-0.349	-0.339
5		-0.322		-0.329		-0.337	-0.347	-0.349	-0.351	-0.341
6		-0.320		-0.329		-0.326	-0.341	-0.347	-0.349	-0.337
7		-0.324		-0.326		-0.335	-0.347	-0.347	-0.351	-0.339
8		-0.322		-0.326		-0.335	-0.345	-0.347	-0.351	-0.339
9		-0.320		-0.326		-0.333	-0.339	-0.345	-0.349	-0.337
Right elevon, upper surface										
10		-0.322		-0.326		-0.333	-0.345	-0.349	-0.351	-0.339
11		-0.322		-0.326		-0.333	-0.345	-0.349	-0.351	-0.339
12		-0.320		-0.331		-0.337	-0.341	-0.347	-0.349	-0.337
13		-0.322		-0.329		-0.337	-0.349	-0.349	-0.351	-0.339
14		-0.322		-0.329		-0.337	-0.347	-0.349	-0.351	-0.343
16		-0.322		-0.326		-0.333	-0.345	-0.349	-0.351	-0.339
Right elevon, side surface										
19		-0.297		-0.316		-0.316	-0.329	-0.356	-0.345	-0.331
20		-0.297		-0.293		-0.314	-0.326	-0.358	-0.331	-0.316
Right elevon well, left surface										
21		-0.295		-0.287		-0.310	-0.322	-0.326	-0.322	-0.312
Right elevon well, right surface										
22		-0.329		-0.316		-0.312	-0.322	-0.347	-0.356	-0.341
Left elevon, lower surface										
23		-0.208		-0.145		-0.058	-0.008	0.046	0.112	0.195
24		-0.204		-0.135		-0.048	0.004	0.059	0.125	0.205
25		-0.202		-0.129		-0.041	0.011	0.069	0.139	0.226
26		-0.212		-0.129		-0.060	-0.010	0.044	0.110	0.193
27		-0.185		-0.129		-0.056	-0.014	0.048	0.123	0.212
28		-0.185		-0.123		-0.046	0.007	0.069	0.144	0.235
29		-0.193		-0.123		-0.048	0.007	0.069	0.144	0.235
30		-0.198		-0.129		-0.052	0.007	0.065	0.139	0.228
31		-0.183		-0.129		-0.050	0.007	0.071	0.150	0.243
32		-0.179		-0.129		-0.056	0.004	0.069	0.150	0.241
33		-0.175		-0.131		-0.083	-0.027	0.042	0.121	0.210
34		-0.183		-0.164		-0.098	-0.039	0.027	0.102	0.187
35		-0.179		-0.139		-0.060	-0.002	0.069	0.150	0.241
36		-0.437		-0.437		-0.435	-0.439	-0.437	-0.435	-0.437
Left elevon flap, upper surface										
37		0.235		-0.187		-0.272	-0.291	-0.274	-0.262	-0.364
38		0.254		-0.156		-0.270	-0.264	-0.316	-0.320	-0.358
39		0.245		-0.087		-0.272	-0.281	-0.272	-0.287	-0.352
40		0.225		0.006		-0.299	-0.289	-0.301	-0.320	-0.347
41		0.316		0.231		0.011	-0.116	-0.237	-0.306	-0.333
42		0.360		0.287		0.034	-0.120	-0.214	-0.264	-0.325
43		0.306		0.275		-0.054	-0.143	-0.220	-0.235	-0.333
44		0.214		0.151		-0.140	-0.263	-0.321	-0.325	-0.327
45		0.216		0.225		0.232	0.222	0.148	-0.039	-0.080
46		0.288		0.339		0.309	0.278	0.121	-0.049	-0.184
47		0.235		0.285		0.292	0.197	0.069	-0.093	-0.196
48		-0.439		-0.441		-0.445	-0.441	-0.445	-0.443	-0.447
49		0.187		0.203		0.228	0.249	0.217	0.109	-0.030
50		0.179		0.143		0.182	0.251	0.196	0.123	-0.022

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(f) M = 1.80, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$	$\alpha = 21.9^\circ$	$\alpha = 26.1^\circ$	$\alpha = 30.5^\circ$	$\alpha = 34.6^\circ$
Right tip fin outer flap, inner surface										
51		-0.179		-0.178		-0.244	-0.250	-0.252	-0.244	-0.240
52		-0.327		-0.321		-0.325	-0.321	-0.354	-0.360	-0.350
53		-0.331		-0.323		-0.327	-0.323	-0.356	-0.360	-0.348
54		-0.340		-0.323		-0.327	-0.333	-0.364	-0.370	-0.358
55		-0.333		-0.325		-0.327	-0.335	-0.364	-0.370	-0.360
Right tip fin inner flap, inner surface										
56		-0.327		-0.319		-0.318	-0.323	-0.356	-0.362	-0.341
57		-0.331		-0.325		-0.333	-0.333	-0.364	-0.366	-0.358
58		-0.331		-0.325		-0.333	-0.333	-0.362	-0.366	-0.358
59		-0.329		-0.325		-0.327	-0.329	-0.360	-0.362	-0.354
60		-0.342		-0.329		-0.329	-0.335	-0.368	-0.375	-0.366
Left tip fin inner flap, outer surface										
61		-0.059		-0.193		-0.283	-0.290	-0.310	-0.314	-0.339
62		0.109		-0.195		-0.343	-0.339	-0.364	-0.348	-0.348
63		0.247		-0.153		-0.341	-0.339	-0.352	-0.339	-0.350
64		0.379		-0.193		-0.148	-0.234	-0.277	-0.290	-0.343
65		0.803		-0.013		0.068	-0.151	-0.273	-0.298	-0.319
66		0.392		0.145		-0.109	-0.155	-0.233	-0.298	-0.335
67		0.739		0.219		-0.181	-0.190	-0.260	-0.312	-0.329
68		0.670		0.072		-0.279	-0.281	-0.287	-0.317	-0.319
Left tip fin outer flap, outer surface										
69		-0.053		-0.008		-0.046	-0.082	-0.101	-0.120	-0.130
70		-0.098		-0.008		-0.013	-0.033	-0.049	-0.041	-0.037
71		-0.077		0.002		-0.001	-0.033	-0.045	-0.035	-0.053
72		-0.094		-0.023		-0.038	-0.043	-0.047	-0.032	-0.053
73		-0.094		-0.025		-0.040	-0.043	-0.045	-0.024	-0.051
74		-0.102		-0.044		-0.065	-0.072	-0.078	-0.051	-0.142
Left tip fin, inner surface										
75		-0.069		-0.248		-0.325	-0.364	-0.379	-0.356	-0.341
76		-0.129		-0.302		-0.377	-0.391	-0.401	-0.385	-0.360
88		-0.125		-0.302		-0.318	-0.339	-0.364	-0.372	-0.362
Body										
79		0.022		-0.102		-0.235	-0.273	-0.306	-0.319	-0.341
80		-0.026		-0.131		-0.200	-0.213	-0.233	-0.236	-0.256
81		0.115		0.002		-0.102	-0.149	-0.198	-0.232	-0.256
82		-0.164		0.016		0.207	0.307	0.401	0.496	0.588
83		0.315		0.540		0.805	0.939	1.063	1.182	1.291
85		-0.220		-0.290		-0.325	-0.327	-0.335	-0.335	-0.341
86		0.003		-0.253		-0.337	-0.389	-0.397	-0.368	-0.343
87		-0.061		-0.139		-0.291	-0.350	-0.385	-0.389	-0.381

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right elevon flap, lower surface										
1		-0.198		-0.199		-0.203	-0.203	-0.205	-0.209	-0.211
2		-0.231		-0.235		-0.235	-0.242	-0.246	-0.248	-0.248
3		-0.222		-0.233		-0.237	-0.239	-0.239	-0.242	-0.246
4		-0.231		-0.233		-0.237	-0.242	-0.246	-0.248	-0.248
5		-0.233		-0.233		-0.239	-0.242	-0.246	-0.248	-0.250
6		-0.224		-0.231		-0.235	-0.239	-0.239	-0.244	-0.246
7		-0.231		-0.233		-0.235	-0.239	-0.244	-0.248	-0.248
8		-0.231		-0.233		-0.235	-0.239	-0.244	-0.246	-0.248
9		-0.226		-0.231		-0.235	-0.235	-0.237	-0.235	-0.250
Right elevon, upper surface										
10		-0.231		-0.233		-0.235	-0.239	-0.244	-0.246	-0.255
11		-0.231		-0.233		-0.235	-0.239	-0.244	-0.246	-0.252
12		-0.226		-0.231		-0.235	-0.235	-0.237	-0.235	-0.246
13		-0.231		-0.233		-0.237	-0.239	-0.244	-0.248	-0.252
14		-0.231		-0.233		-0.237	-0.242	-0.246	-0.248	-0.250
16		-0.231		-0.233		-0.237	-0.242	-0.246	-0.248	-0.250
Right elevon, side surface										
19		-0.220		-0.227		-0.231	-0.233	-0.231	-0.231	-0.235
20		-0.220		-0.214		-0.216	-0.231	-0.231	-0.231	-0.222
Right elevon well, left surface										
21		-0.220		-0.212		-0.211	-0.227	-0.231	-0.227	-0.220
Right elevon well, right surface										
22		-0.239		-0.231		-0.224	-0.231	-0.231	-0.231	-0.231
Left elevon, lower surface										
23		-0.265		-0.130		-0.017	0.040	0.109	0.176	0.254
24		-0.265		-0.119		-0.013	0.049	0.118	0.187	0.264
25		-0.263		-0.106		-0.009	0.049	0.120	0.191	0.279
26		-0.257		-0.104		-0.020	0.034	0.101	0.170	0.254
27		-0.170		-0.104		-0.022	0.032	0.101	0.170	0.256
28		-0.166		-0.104		-0.017	0.040	0.111	0.185	0.273
29		-0.166		-0.104		-0.017	0.040	0.109	0.185	0.271
30		-0.166		-0.104		-0.017	0.038	0.105	0.178	0.269
31		-0.162		-0.104		-0.020	0.036	0.105	0.178	0.271
32		-0.162		-0.102		-0.020	0.036	0.105	0.178	0.271
33		-0.173		-0.108		-0.028	0.021	0.085	0.157	0.245
34		-0.166		-0.117		-0.045	0.002	0.062	0.133	0.219
35		-0.155		-0.102		-0.026	0.027	0.096	0.172	0.264
36		-0.302		-0.302		-0.302	-0.302	-0.302	-0.302	-0.302
Left elevon flap, upper surface										
37		-0.013		-0.175		-0.168	-0.188	-0.209	-0.242	-0.270
38		0.017		-0.169		-0.162	-0.173	-0.199	-0.220	-0.265
39		0.021		-0.162		-0.177	-0.175	-0.199	-0.218	-0.259
40		-0.000		-0.151		-0.192	-0.199	-0.212	-0.231	-0.252
41		0.222		-0.121		-0.136	-0.117	-0.130	-0.179	-0.220
42		0.211		-0.117		-0.142	-0.140	-0.156	-0.177	-0.209
43		0.142		-0.100		-0.173	-0.181	-0.194	-0.211	-0.216
44		0.066		-0.152		-0.167	-0.184	-0.182	-0.197	-0.201
45		0.175		0.039		-0.096	-0.126	-0.172	-0.203	-0.227
46		0.274		0.089		-0.049	-0.076	-0.108	-0.148	-0.158
47		0.268		0.123		-0.081	-0.124	-0.150	-0.182	-0.175
48		-0.313		-0.310		-0.306	-0.313	-0.300	-0.306	-0.313
49		0.253		0.265		0.082	-0.102	-0.052	-0.116	-0.188
50		0.188		0.153		0.088	0.052	-0.050	-0.154	-0.188

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right tip fin outer flap, inner surface										
51		-0.166		-0.152		-0.152	-0.192	-0.180	-0.182	-0.167
52		-0.255		-0.240		-0.225	-0.237	-0.232	-0.236	-0.235
53		-0.259		-0.242		-0.227	-0.240	-0.234	-0.238	-0.242
54		-0.259		-0.242		-0.231	-0.242	-0.234	-0.240	-0.244
55		-0.259		-0.242		-0.231	-0.242	-0.234	-0.240	-0.244
Right tip fin inner flap, inner surface										
56		-0.250		-0.238		-0.227	-0.233	-0.225	-0.231	-0.231
57		-0.259		-0.244		-0.231	-0.244	-0.236	-0.240	-0.242
58		-0.259		-0.244		-0.231	-0.244	-0.236	-0.240	-0.244
59		-0.257		-0.244		-0.227	-0.242	-0.234	-0.240	-0.244
60		-0.263		-0.246		-0.231	-0.246	-0.240	-0.240	-0.244
Left tip fin inner flap, outer surface										
61		-0.139		-0.231		-0.223	-0.252	-0.242	-0.246	-0.259
62		-0.102		-0.240		-0.253	-0.274	-0.257	-0.263	-0.270
63		0.141		-0.240		-0.253	-0.270	-0.253	-0.257	-0.274
64		-0.010		-0.240		-0.210	-0.199	-0.219	-0.248	-0.270
65		0.225		-0.216		-0.160	-0.145	-0.187	-0.231	-0.244
66		-0.123		-0.233		-0.216	-0.244	-0.244	-0.255	-0.265
67		0.057		-0.182		-0.225	-0.246	-0.246	-0.255	-0.263
68		0.330		0.117		-0.231	-0.248	-0.242	-0.253	-0.255
Left tip fin outer flap, outer surface										
69		0.098		0.069		0.035	0.027	0.031	0.028	0.027
70		0.057		0.069		0.088	0.087	0.099	0.101	0.106
71		0.070		0.091		0.097	0.095	0.099	0.101	0.102
72		0.033		0.050		0.071	0.078	0.101	0.111	0.121
73		0.033		0.048		0.071	0.078	0.105	0.109	0.123
74		0.023		0.035		0.054	0.061	0.080	0.077	0.083
Left tip fin, inner surface										
75		-0.188		-0.235		-0.227	-0.242	-0.242	-0.255	-0.252
76		-0.209		-0.265		-0.257	-0.270	-0.266	-0.272	-0.270
88		-0.190		-0.261		-0.259	-0.274	-0.268	-0.274	-0.274
Body										
79		0.055		-0.040		-0.118	-0.147	-0.157	-0.176	-0.199
80		-0.016		-0.102		-0.126	-0.141	-0.140	-0.156	-0.173
81		0.053		-0.036		-0.107	-0.147	-0.165	-0.193	-0.216
82		-0.080		0.046		0.189	0.259	0.357	0.441	0.532
83		0.332		0.569		0.840	0.978	1.119	1.237	1.350
85		-0.145		-0.207		-0.223	-0.235	-0.225	-0.236	-0.242
86		-0.016		-0.081		-0.203	-0.235	-0.234	-0.248	-0.259
87		-0.085		-0.227		-0.253	-0.268	-0.261	-0.274	-0.283

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right elevon flap, lower surface										
1		-0.175		-0.177		-0.194	-0.201	-0.199	-0.203	-0.198
2		-0.194		-0.207		-0.220	-0.231	-0.233	-0.244	-0.261
3		-0.190		-0.205		-0.216	-0.229	-0.229	-0.233	-0.237
4		-0.196		-0.205		-0.222	-0.231	-0.240	-0.246	-0.254
5		-0.199		-0.207		-0.222	-0.233	-0.242	-0.242	-0.252
6		-0.188		-0.220		-0.214	-0.226	-0.224	-0.231	-0.263
7		-0.203		-0.203		-0.222	-0.231	-0.240	-0.242	-0.254
8		-0.196		-0.203		-0.220	-0.231	-0.231	-0.239	-0.259
9		-0.190		-0.209		-0.211	-0.224	-0.218	-0.226	-0.254
Right elevon, upper surface										
10		-0.194		-0.205		-0.222	-0.231	-0.240	-0.242	-0.252
11		-0.209		-0.209		-0.220	-0.231	-0.231	-0.242	-0.252
12		-0.194		-0.201		-0.211	-0.224	-0.218	-0.226	-0.267
13		-0.209		-0.216		-0.222	-0.231	-0.242	-0.244	-0.254
14		-0.192		-0.207		-0.220	-0.231	-0.233	-0.246	-0.254
16		-0.205		-0.209		-0.220	-0.231	-0.240	-0.248	-0.263
Right elevon, side surface										
19		-0.158		-0.205		-0.209	-0.222	-0.214	-0.220	-0.220
20		-0.168		-0.201		-0.220	-0.222	-0.222	-0.220	-0.220
Right elevon well, left surface										
21		-0.168		-0.199		-0.220	-0.222	-0.222	-0.220	-0.209
Right elevon well, right surface										
22		-0.229		-0.214		-0.220	-0.224	-0.222	-0.222	-0.216
Left elevon, lower surface										
23		-0.261		-0.166		-0.007	0.067	0.143	0.222	0.310
24		-0.261		-0.164		0.002	0.077	0.152	0.230	0.323
25		-0.255		-0.162		0.004	0.075	0.152	0.230	0.323
26		-0.244		-0.151		-0.003	0.062	0.135	0.211	0.302
27		-0.255		-0.104		-0.005	0.054	0.126	0.202	0.295
28		-0.265		-0.102		-0.000	0.060	0.137	0.215	0.308
29		-0.267		-0.104		-0.003	0.060	0.135	0.215	0.304
30		-0.270		-0.106		-0.005	0.058	0.130	0.211	0.297
31		-0.171		-0.106		-0.009	0.049	0.124	0.200	0.295
32		-0.171		-0.106		-0.011	0.047	0.120	0.200	0.293
33		-0.171		-0.108		-0.020	0.036	0.109	0.185	0.274
34		-0.175		-0.121		-0.039	0.017	0.083	0.155	0.239
35		-0.162		-0.110		-0.022	0.039	0.111	0.189	0.284
36		-0.302		-0.302		-0.302	-0.302	-0.298	-0.302	-0.302
Left elevon flap, upper surface										
37		0.002		-0.112		-0.211	-0.224	-0.231	-0.239	-0.254
38		-0.022		-0.102		-0.214	-0.222	-0.220	-0.231	-0.252
39		-0.005		-0.087		-0.214	-0.237	-0.224	-0.229	-0.233
40		0.004		-0.087		-0.224	-0.252	-0.252	-0.252	-0.242
41		0.004		-0.151		-0.147	-0.145	-0.143	-0.170	-0.198
42		0.049		-0.151		-0.102	-0.112	-0.134	-0.149	-0.168
43		0.017		-0.127		-0.123	-0.138	-0.162	-0.168	-0.175
44		-0.033		-0.116		-0.162	-0.181	-0.190	-0.186	-0.190
45		0.061		-0.054		-0.065	-0.089	-0.119	-0.162	-0.182
46		0.096		-0.090		-0.167	-0.154	-0.136	-0.122	-0.139
47		0.106		-0.169		-0.175	-0.188	-0.201	-0.186	-0.175
48		-0.310		-0.302		-0.313	-0.313	-0.313	-0.308	-0.310
49		0.444		0.205		-0.218	-0.259	-0.274	-0.278	-0.265
50		0.424		-0.001		-0.240	-0.267	-0.274	-0.218	-0.242

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right tip fin outer flap, inner surface										
51		-0.145		-0.157		-0.205	-0.203	-0.194	-0.173	-0.154
52		-0.255		-0.221		-0.231	-0.237	-0.233	-0.223	-0.214
53		-0.257		-0.221		-0.231	-0.237	-0.235	-0.227	-0.218
54		-0.257		-0.221		-0.233	-0.240	-0.237	-0.231	-0.225
55		-0.257		-0.216		-0.233	-0.237	-0.237	-0.231	-0.225
Right tip fin inner flap, inner surface										
56		-0.244		-0.206		-0.227	-0.222	-0.216	-0.197	-0.212
57		-0.259		-0.223		-0.231	-0.246	-0.240	-0.231	-0.222
58		-0.259		-0.223		-0.231	-0.242	-0.242	-0.233	-0.222
59		-0.257		-0.221		-0.227	-0.233	-0.235	-0.227	-0.220
60		-0.270		-0.227		-0.233	-0.242	-0.240	-0.231	-0.225
Left tip fin inner flap, outer surface										
61		-0.203		-0.238		-0.242	-0.255	-0.261	-0.255	-0.257
62		-0.156		-0.238		-0.252	-0.261	-0.276	-0.263	-0.265
63		0.020		-0.223		-0.252	-0.265	-0.280	-0.257	-0.265
64		-0.074		-0.238		-0.252	-0.267	-0.268	-0.263	-0.250
65		0.027		-0.221		-0.222	-0.233	-0.225	-0.246	-0.199
66		-0.179		-0.240		-0.255	-0.265	-0.270	-0.265	-0.265
67		-0.008		-0.231		-0.255	-0.265	-0.270	-0.265	-0.265
68		0.085		-0.180		-0.252	-0.263	-0.270	-0.263	-0.261
Left tip fin outer flap, outer surface										
69		0.212		0.179		0.132	0.124	0.117	0.134	0.130
70		0.182		0.185		0.197	0.201	0.212	0.224	0.233
71		0.194		0.215		0.212	0.216	0.229	0.228	0.237
72		0.147		0.172		0.177	0.190	0.212	0.234	0.252
73		0.149		0.166		0.177	0.203	0.214	0.239	0.252
74		0.130		0.147		0.156	0.178	0.186	0.200	0.205
Left tip fin, inner surface										
75		-0.214		-0.231		-0.240	-0.248	-0.255	-0.250	-0.252
76		-0.242		-0.251		-0.255	-0.270	-0.280	-0.274	-0.272
88		-0.220		-0.246		-0.255	-0.270	-0.278	-0.276	-0.274
Body										
79		0.136		0.049		-0.046	-0.076	-0.102	-0.122	-0.139
80		-0.010		-0.086		-0.134	-0.145	-0.156	-0.162	-0.179
81		0.001		-0.058		-0.141	-0.177	-0.210	-0.223	-0.242
82		-0.068		0.019		0.119	0.190	0.270	0.352	0.437
83		0.338		0.570		0.831	0.971	1.103	1.223	1.337
85		-0.096		-0.174		-0.231	-0.237	-0.244	-0.238	-0.235
86		-0.023		-0.063		-0.134	-0.177	-0.214	-0.244	-0.263
87		-0.171		-0.221		-0.248	-0.255	-0.261	-0.265	-0.272

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Continued

(i) M = 2.16, $\beta = 6^\circ$

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right elevon flap, lower surface										
1		-0.209		-0.209		-0.211	-0.211	-0.224	-0.222	-0.212
2		-0.244		-0.252		-0.280	-0.272	-0.259	-0.257	-0.244
3		-0.242		-0.248		-0.272	-0.263	-0.257	-0.254	-0.244
4		-0.261		-0.257		-0.270	-0.259	-0.259	-0.254	-0.244
5		-0.252		-0.263		-0.257	-0.265	-0.261	-0.257	-0.265
6		-0.246		-0.244		-0.263	-0.263	-0.254	-0.254	-0.272
7		-0.252		-0.257		-0.261	-0.263	-0.259	-0.257	-0.267
8		-0.252		-0.263		-0.285	-0.263	-0.259	-0.257	-0.270
9		-0.252		-0.259		-0.278	-0.263	-0.254	-0.254	-0.252
Right elevon, upper surface										
10		-0.255		-0.274		-0.257	-0.274	-0.259	-0.257	-0.255
11		-0.255		-0.263		-0.252	-0.263	-0.259	-0.257	-0.265
12		-0.276		-0.263		-0.276	-0.278	-0.254	-0.254	-0.263
13		-0.261		-0.285		-0.261	-0.282	-0.259	-0.257	-0.259
14		-0.259		-0.265		-0.285	-0.270	-0.261	-0.257	-0.255
16		-0.263		-0.272		-0.274	-0.272	-0.261	-0.257	-0.272
Right elevon, side surface										
19		-0.237		-0.235		-0.270	-0.254	-0.248	-0.261	-0.255
20		-0.224		-0.216		-0.237	-0.280	-0.244	-0.242	-0.220
Right elevon well, left surface										
21		-0.220		-0.211		-0.235	-0.261	-0.252	-0.233	-0.216
Right elevon well, right surface										
22		-0.257		-0.233		-0.235	-0.257	-0.252	-0.254	-0.233
Left elevon, lower surface										
23		-0.158		-0.106		-0.030	0.013	0.069	0.136	0.223
24		-0.145		-0.102		-0.026	0.019	0.073	0.144	0.231
25		-0.158		-0.102		-0.022	0.026	0.082	0.155	0.244
26		-0.164		-0.104		-0.035	0.008	0.060	0.131	0.216
27		-0.149		-0.102		-0.037	0.008	0.069	0.140	0.231
28		-0.147		-0.095		-0.026	0.023	0.086	0.157	0.251
29		-0.147		-0.095		-0.028	0.023	0.086	0.159	0.251
30		-0.147		-0.097		-0.028	0.021	0.086	0.157	0.244
31		-0.143		-0.106		-0.028	0.023	0.088	0.164	0.255
32		-0.143		-0.106		-0.033	0.021	0.086	0.164	0.255
33		-0.143		-0.108		-0.056	-0.002	0.062	0.138	0.227
34		-0.147		-0.132		-0.065	-0.011	0.049	0.125	0.210
35		-0.145		-0.112		-0.039	0.017	0.084	0.164	0.255
36		-0.300		-0.302		-0.302	-0.302	-0.302	-0.300	-0.298
Left elevon flap, upper surface										
37		0.132		-0.151		-0.166	-0.183	-0.209	-0.263	-0.265
38		0.199		-0.130		-0.209	-0.237	-0.231	-0.259	-0.261
39		0.201		-0.128		-0.183	-0.220	-0.233	-0.252	-0.257
40		0.178		-0.130		-0.201	-0.214	-0.233	-0.248	-0.255
41		0.309		0.223		-0.134	-0.188	-0.214	-0.229	-0.259
42		0.322		0.165		-0.123	-0.173	-0.175	-0.220	-0.255
43		0.283		0.090		-0.125	-0.194	-0.220	-0.265	-0.272
44		0.208		0.048		-0.201	-0.206	-0.212	-0.206	-0.221
45		0.180		0.190		0.147	0.002	-0.037	-0.099	-0.163
46		0.255		0.285		0.254	0.130	-0.026	-0.108	-0.180
47		0.218		0.252		0.230	0.100	-0.060	-0.133	-0.176
48		-0.319		-0.315		-0.300	-0.302	-0.302	-0.300	-0.302
49		0.158		0.130		0.230	0.207	0.089	0.004	-0.171
50		0.139		0.096		0.168	0.093	0.091	-0.014	-0.127

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TABLE VII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 0^\circ$ - Concluded

(i) M = 2.16, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:									
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$	$\alpha = 22.8^\circ$	$\alpha = 26.9^\circ$	$\alpha = 31.2^\circ$	$\alpha = 35.4^\circ$
Right tip fin outer flap, inner surface										
51		-0.147		-0.147		-0.182	-0.189	-0.180	-0.169	-0.156
52		-0.255		-0.242		-0.236	-0.246	-0.253	-0.249	-0.238
53		-0.263		-0.248		-0.236	-0.248	-0.255	-0.251	-0.242
54		-0.261		-0.248		-0.238	-0.251	-0.255	-0.251	-0.242
55		-0.259		-0.248		-0.238	-0.253	-0.255	-0.251	-0.244
Right tip fin inner flap, inner surface										
56		-0.263		-0.244		-0.236	-0.251	-0.251	-0.246	-0.233
57		-0.259		-0.248		-0.238	-0.251	-0.257	-0.251	-0.242
58		-0.257		-0.246		-0.238	-0.251	-0.257	-0.251	-0.242
59		-0.257		-0.246		-0.238	-0.251	-0.257	-0.251	-0.242
60		-0.263		-0.250		-0.238	-0.253	-0.257	-0.251	-0.244
Left tip fin inner flap, outer surface										
61		0.023		-0.145		-0.219	-0.221	-0.223	-0.236	-0.244
62		0.068		-0.173		-0.248	-0.246	-0.248	-0.246	-0.251
63		0.345		-0.164		-0.248	-0.244	-0.244	-0.246	-0.253
64		0.341		-0.175		-0.221	-0.229	-0.229	-0.242	-0.255
65		0.575		-0.188		-0.152	-0.223	-0.229	-0.227	-0.248
66		-0.031		-0.031		-0.142	-0.208	-0.238	-0.242	-0.248
67		0.442		0.104		-0.157	-0.225	-0.238	-0.242	-0.244
68		0.543		0.089		-0.180	-0.225	-0.229	-0.236	-0.236
Left tip fin outer flap, outer surface										
69		-0.012		0.005		-0.030	-0.045	-0.050	-0.039	-0.050
70		-0.046		0.003		-0.001	-0.003	-0.000	0.004	0.004
71		-0.037		0.016		0.004	-0.003	0.006	0.008	0.002
72		-0.059		-0.016		-0.009	-0.007	-0.000	0.010	-0.028
73		-0.059		-0.016		-0.011	-0.009	0.002	0.027	-0.054
74		-0.066		-0.027		-0.028	-0.028	-0.009	-0.011	-0.077
Left tip fin, inner surface										
75		-0.115		-0.173		-0.248	-0.248	-0.251	-0.236	-0.242
76		-0.128		-0.205		-0.263	-0.270	-0.268	-0.249	-0.257
88		-0.126		-0.205		-0.263	-0.261	-0.266	-0.253	-0.263
Body										
79		0.010		-0.089		-0.165	-0.189	-0.206	-0.216	-0.231
80		-0.003		-0.091		-0.137	-0.154	-0.163	-0.169	-0.184
81		0.115		0.014		-0.056	-0.092	-0.122	-0.146	-0.169
82		-0.104		0.057		0.241	0.333	0.431	0.529	0.631
83		0.337		0.568		0.835	0.978	1.113	1.236	1.351
85		-0.184		-0.220		-0.221	-0.223	-0.231	-0.225	-0.227
86		-0.020		-0.218		-0.263	-0.268	-0.266	-0.242	-0.238
87		-0.059		-0.136		-0.251	-0.263	-0.270	-0.263	-0.270

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right elevon flap, lower surface						
1	-0.329	-0.310	-0.300	-0.307	-0.309	-0.332
2	-0.356	-0.339	-0.323	-0.336	-0.349	-0.378
3	-0.343	-0.322	-0.269	-0.095	0.056	0.014
4	-0.351	-0.326	-0.315	-0.328	-0.326	-0.357
5	-0.337	-0.320	-0.319	-0.334	-0.346	-0.378
6	-0.314	-0.301	-0.321	-0.349	-0.376	-0.419
7	-0.335	-0.316	-0.313	-0.324	-0.326	-0.355
8	-0.322	-0.306	-0.313	-0.330	-0.340	-0.372
9	-0.312	-0.299	-0.313	-0.347	-0.357	-0.407
Right elevon, upper surface						
10	-0.335	-0.316	-0.313	-0.326	-0.326	-0.355
11	-0.322	-0.306	-0.313	-0.330	-0.342	-0.374
12	-0.312	-0.299	-0.313	-0.342	-0.351	-0.397
13	-0.353	-0.333	-0.319	-0.336	-0.334	-0.366
14	-0.339	-0.322	-0.319	-0.334	-0.349	-0.378
16	-0.366	-0.339	-0.321	-0.334	-0.336	-0.361
Right elevon, side surface						
19	-0.341	-0.322	-0.232	-0.158	-0.046	-0.024
20	-0.341	-0.333	-0.317	-0.330	-0.326	-0.345
Right elevon well, left surface						
21	-0.314	-0.301	-0.300	-0.307	-0.307	-0.330
Right elevon well, right surface						
22	-0.709	-0.712	-0.712	-0.712	-0.712	-0.712
Left elevon, lower surface						
23	-0.349	-0.153	0.592	0.488	0.610	0.733
24	-0.316	-0.068	0.587	0.589	0.795	0.896
25	-0.273	0.057	0.498	0.579	0.687	0.784
26	-0.273	0.070	0.417	0.477	0.542	0.602
27	0.135	0.520	0.552	0.577	0.677	0.733
28	0.023	0.520	0.654	0.703	0.834	0.907
29	-0.099	0.389	0.540	0.593	0.716	0.787
30	0.149	0.274	0.209	0.297	0.349	0.438
31	0.317	0.276	0.294	0.328	0.357	0.465
32	0.652	0.576	0.552	0.629	0.633	0.737
33	0.559	0.553	0.533	0.606	0.637	0.704
34	0.462	0.387	0.325	0.388	0.336	0.430
35	0.414	0.378	0.276	0.357	0.318	0.420
36	0.054	0.134	0.107	0.170	0.195	0.283
Left elevon flap, upper surface						
37	-0.447	-0.485	-0.469	-0.473	-0.525	-0.480
38	-0.416	-0.474	-0.471	-0.475	-0.521	-0.480
39	-0.360	-0.441	-0.462	-0.461	-0.494	-0.459
40	-0.356	-0.404	-0.431	-0.423	-0.392	-0.417
41	-0.296	-0.324	-0.342	-0.349	-0.417	-0.442
42	-0.285	-0.322	-0.340	-0.351	-0.512	-0.490
43	-0.291	-0.341	-0.367	-0.398	-0.537	-0.500
44	-0.376	-0.462	-0.451	-0.457	-0.524	-0.480
45	-0.276	-0.338	-0.378	-0.457	-0.468	-0.514
46	-0.224	-0.271	-0.302	-0.357	-0.394	-0.457
47	-0.244	-0.290	-0.315	-0.323	-0.369	-0.391
48	-0.234	-0.273	-0.277	-0.294	-0.302	-0.334
49	-0.228	-0.288	-0.311	-0.336	-0.340	-0.359
50	-0.374	-0.364	-0.342	-0.367	-0.386	-0.418

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(a) M = 1.50, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right tip fin outer flap, inner surface						
51	-0.263	-0.269	-0.256	-0.250	-0.246	-0.255
52	-0.441	-0.420	-0.449	-0.509	-0.455	-0.480
53	-0.443	-0.427	-0.451	-0.445	-0.463	-0.489
54	-0.424	-0.412	-0.438	-0.455	-0.453	-0.474
55	-0.441	-0.425	-0.451	-0.459	-0.459	-0.474
Right tip fin inner flap, inner surface						
56	-0.380	-0.359	-0.375	-0.401	-0.382	-0.384
57	-0.420	-0.429	-0.447	-0.445	-0.459	-0.487
58	-0.418	-0.418	-0.444	-0.436	-0.459	-0.470
59	-0.409	-0.410	-0.440	-0.430	-0.447	-0.462
60	-0.460	-0.431	-0.457	-0.459	-0.457	-0.485
Left tip fin inner flap, outer surface						
61	-0.075	-0.221	-0.388	-0.438	-0.459	-0.407
62	0.019	-0.107	-0.241	-0.399	-0.474	-0.489
63	0.146	0.028	-0.055	-0.148	-0.459	-0.474
64	0.275	0.076	-0.177	-0.461	-0.478	-0.541
65	0.445	0.236	0.083	-0.325	-0.417	-0.516
66	0.338	-0.006	-0.359	-0.491	-0.476	-0.211
67	0.357	0.188	-0.018	-0.489	-0.509	-0.117
68	0.186	0.095	-0.003	-0.461	-0.491	-0.173
Left tip fin outer flap, outer surface						
69	0.006	0.036	0.060	0.053	0.034	-0.006
70	-0.063	-0.023	0.024	0.059	0.095	0.115
71	-0.019	0.015	0.054	0.074	0.108	0.125
72	-0.059	-0.014	0.026	0.055	0.087	0.117
73	-0.063	-0.025	0.016	0.053	0.091	0.127
74	-0.088	-0.056	-0.020	0.022	0.062	0.050
Left tip fin, inner surface						
75	-0.219	-0.340	-0.432	-0.480	-0.501	-0.541
76	-0.221	-0.351	-0.470	-0.486	-0.530	-0.566
88	-0.219	-0.349	-0.459	-0.486	-0.537	-0.564
Body						
79	0.123	0.059	-0.018	-0.114	-0.185	-0.255
80	-0.013	-0.078	-0.124	-0.150	-0.166	-0.188
81	0.106	0.044	-0.028	-0.087	-0.150	-0.209
82	-0.257	-0.172	-0.087	-0.010	0.066	0.140
83	0.190	0.289	0.411	0.536	0.668	0.796
85	-0.100	-0.189	-0.296	-0.392	-0.405	-0.424
86	0.073	0.011	-0.041	-0.095	-0.106	-0.169
87	-0.042	-0.099	-0.141	-0.202	-0.346	-0.503

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right elevon flap, lower surface						
1	-0.323	-0.307	-0.287		-0.284	-0.317
2	-0.344	-0.325	-0.303		-0.307	-0.338
3	-0.309	-0.323	-0.086		-0.170	-0.171
4	-0.354	-0.325	-0.301		-0.318	-0.354
5	-0.340	-0.319	-0.307		-0.307	-0.340
6	-0.334	-0.319	-0.359		-0.359	-0.385
7	-0.342	-0.321	-0.303		-0.316	-0.348
8	-0.338	-0.317	-0.305		-0.301	-0.327
9	-0.334	-0.317	-0.334		-0.318	-0.340
Right elevon, upper surface						
10	-0.342	-0.323	-0.305		-0.316	-0.346
11	-0.338	-0.317	-0.305		-0.301	-0.329
12	-0.334	-0.319	-0.326		-0.318	-0.342
13	-0.357	-0.334	-0.314		-0.334	-0.369
14	-0.344	-0.321	-0.307		-0.307	-0.338
16	-0.357	-0.334	-0.307		-0.347	-0.390
Right elevon, side surface						
19	-0.342	-0.329	-0.144		-0.179	-0.267
20	-0.348	-0.336	-0.318		-0.309	-0.308
Right elevon well, left surface						
21	-0.327	-0.313	-0.293		-0.295	-0.327
Right elevon well, right surface						
22	-0.714	1.264	1.109		0.925	0.845
Left elevon, lower surface						
23	-0.338	-0.255	-0.117		0.713	0.775
24	-0.317	-0.190	-0.015		0.705	0.881
25	-0.253	-0.122	0.105		0.651	0.771
26	-0.211	-0.153	0.103		0.549	0.613
27	-0.305	-0.039	0.213		0.630	0.700
28	-0.296	-0.053	0.225		0.784	0.900
29	-0.357	-0.153	0.099		0.730	0.935
30	-0.284	-0.153	0.029		0.354	0.504
31	0.017	0.392	0.478		0.510	0.633
32	-0.120	0.354	0.516		0.819	0.951
33	-0.076	0.354	0.447		0.655	0.725
34	0.385	0.350	0.402		0.574	0.667
35	0.437	0.333	0.418		0.603	0.714
36	0.049	0.065	0.153		0.261	0.342
Left elevon flap, upper surface						
37	-0.404	-0.406	-0.421		-0.428	-0.437
38	-0.408	-0.413	-0.430		-0.413	-0.417
39	-0.408	-0.410	-0.426		-0.396	-0.375
40	-0.388	-0.398	-0.419		-0.396	-0.369
41	-0.296	-0.365	-0.370		-0.411	-0.390
42	-0.286	-0.363	-0.417		-0.450	-0.417
43	-0.300	-0.336	-0.399		-0.469	-0.444
44	-0.367	-0.373	-0.393		-0.466	-0.440
45	-0.180	-0.236	-0.258		-0.476	-0.469
46	-0.176	-0.207	-0.204		-0.472	-0.461
47	-0.188	-0.198	-0.225		-0.420	-0.419
48	-0.130	-0.137	-0.183		-0.328	-0.346
49	-0.098	-0.161	-0.210		-0.305	-0.409
50	-0.312	-0.373	-0.398		-0.459	-0.467

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(b) M = 1.50, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right tip fin outer flap, inner surface						
51	-0.268	-0.266	-0.246		-0.250	-0.254
52	-0.461	-0.461	-0.458		-0.415	-0.425
53	-0.474	-0.475	-0.454		-0.428	-0.430
54	-0.471	-0.461	-0.433		-0.422	-0.400
55	-0.469	-0.463	-0.448		-0.420	-0.409
Right tip fin inner flap, inner surface						
56	-0.411	-0.417	-0.373		-0.346	-0.335
57	-0.463	-0.467	-0.437		-0.418	-0.438
58	-0.450	-0.448	-0.435		-0.407	-0.421
59	-0.440	-0.440	-0.425		-0.399	-0.415
60	-0.478	-0.471	-0.464		-0.424	-0.427
Left tip fin inner flap, outer surface						
61	-0.314	-0.366	-0.404		-0.413	-0.396
62	-0.134	-0.352	-0.435		-0.436	-0.425
63	0.061	-0.056	-0.337		-0.443	-0.419
64	-0.033	-0.297	-0.395		-0.476	-0.530
65	0.170	-0.079	-0.331		-0.459	-0.440
66	-0.096	-0.400	-0.429		-0.484	-0.440
67	0.128	-0.307	-0.389		-0.451	-0.407
68	0.057	-0.226	-0.356		-0.369	-0.348
Left tip fin outer flap, outer surface						
69	0.193	0.194	0.186		0.097	0.067
70	0.109	0.133	0.156		0.174	0.203
71	0.157	0.165	0.177		0.189	0.218
72	0.103	0.125	0.148		0.168	0.212
73	0.084	0.102	0.136		0.170	0.220
74	0.046	0.062	0.102		0.132	0.170
Left tip fin, inner surface						
75	-0.362	-0.429	-0.460		-0.457	-0.440
76	-0.369	-0.431	-0.495		-0.505	-0.476
88	-0.365	-0.433	-0.491		-0.507	-0.476
Body						
79	0.187	0.112	0.036		-0.112	-0.176
80	0.013	-0.054	-0.110		-0.190	-0.207
81	0.076	0.028	-0.037		-0.152	-0.218
82	-0.184	-0.129	-0.077		0.005	0.052
83	0.212	0.305	0.423		0.667	0.788
85	-0.048	-0.112	-0.185		-0.372	-0.442
86	0.055	0.001	-0.033		-0.091	-0.122
87	-0.077	-0.133	-0.185		-0.457	-0.474

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right elevon flap, lower surface						
1	-0.339	-0.345	-0.333	-0.302	-0.327	-0.323
2	-0.381	-0.393	-0.356	-0.322	-0.373	-0.375
3	-0.352	-0.335	-0.312	-0.141	0.133	0.240
4	-0.343	-0.354	-0.350	-0.316	-0.344	-0.329
5	-0.356	-0.360	-0.345	-0.318	-0.369	-0.365
6	-0.318	-0.325	-0.345	-0.333	-0.369	-0.390
7	-0.343	-0.345	-0.343	-0.316	-0.344	-0.333
8	-0.343	-0.341	-0.343	-0.316	-0.358	-0.350
9	-0.312	-0.325	-0.354	-0.339	-0.383	-0.396
Right elevon, upper surface						
10	-0.343	-0.345	-0.345	-0.316	-0.346	-0.336
11	-0.341	-0.341	-0.343	-0.318	-0.360	-0.352
12	-0.312	-0.327	-0.354	-0.337	-0.379	-0.390
13	-0.366	-0.368	-0.358	-0.322	-0.354	-0.338
14	-0.364	-0.364	-0.345	-0.318	-0.369	-0.365
16	-0.368	-0.383	-0.368	-0.325	-0.356	-0.333
Right elevon, side surface						
19	-0.354	-0.333	-0.306	-0.198	-0.050	0.080
20	-0.335	-0.343	-0.341	-0.312	-0.339	-0.336
Right elevon well, left surface						
21	-0.281	-0.306	-0.318	-0.308	-0.327	-0.317
Right elevon well, right surface						
22	0.676	0.621	0.558	0.494	0.445	0.396
Left elevon, lower surface						
23	-0.077	0.252	0.650	0.665	0.447	0.402
24	-0.145	0.594	0.644	0.659	0.624	0.621
25	0.046	0.550	0.515	0.577	0.630	0.685
26	0.323	0.398	0.423	0.467	0.499	0.552
27	0.565	0.544	0.586	0.581	0.566	0.610
28	0.673	0.694	0.688	0.629	0.609	0.664
29	0.421	0.594	0.590	0.421	0.401	0.471
30	0.065	0.202	0.217	0.190	0.216	0.296
31	0.207	0.342	0.156	0.177	0.235	0.330
32	0.596	0.679	0.375	0.363	0.389	0.481
33	0.598	0.606	0.450	0.402	0.405	0.490
34	0.434	0.311	0.194	0.204	0.189	0.313
35	0.321	0.215	0.156	0.184	0.214	0.334
36	0.036	0.061	0.054	0.094	0.191	0.301
Left elevon flap, upper surface						
37	-0.347	-0.420	-0.466	-0.510	-0.489	-0.494
38	-0.256	-0.366	-0.429	-0.489	-0.441	-0.475
39	-0.239	-0.314	-0.406	-0.447	-0.398	-0.419
40	-0.229	-0.304	-0.362	-0.381	-0.333	-0.352
41	-0.283	-0.333	-0.350	-0.308	-0.339	-0.340
42	-0.281	-0.333	-0.370	-0.385	-0.396	-0.425
43	-0.272	-0.329	-0.370	-0.402	-0.456	-0.489
44	-0.379	-0.402	-0.448	-0.452	-0.480	-0.494
45	-0.404	-0.454	-0.473	-0.433	-0.440	-0.457
46	-0.303	-0.335	-0.356	-0.358	-0.354	-0.381
47	-0.301	-0.320	-0.326	-0.328	-0.327	-0.329
48	-0.299	-0.295	-0.289	-0.282	-0.285	-0.301
49	-0.314	-0.328	-0.337	-0.339	-0.338	-0.333
50	-0.398	-0.387	-0.438	-0.433	-0.405	-0.392

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$	$\alpha = 17.5^\circ$
Right tip fin outer flap, inner surface						
51	-0.265	-0.268	-0.257	-0.250	-0.250	-0.255
52	-0.372	-0.387	-0.408	-0.431	-0.440	-0.436
53	-0.377	-0.360	-0.396	-0.425	-0.444	-0.436
54	-0.377	-0.362	-0.398	-0.431	-0.434	-0.452
55	-0.377	-0.368	-0.400	-0.444	-0.434	-0.452
Right tip fin inner flap, inner surface						
56	-0.368	-0.337	-0.335	-0.379	-0.386	-0.390
57	-0.370	-0.356	-0.391	-0.423	-0.459	-0.465
58	-0.370	-0.356	-0.387	-0.418	-0.444	-0.436
59	-0.370	-0.349	-0.370	-0.410	-0.436	-0.421
60	-0.404	-0.370	-0.402	-0.442	-0.446	-0.442
Left tip fin inner flap, outer surface						
61	0.178	-0.022	-0.152	-0.328	-0.405	-0.400
62	0.398	0.150	-0.047	-0.181	-0.396	-0.482
63	0.572	0.381	0.110	-0.044	-0.306	-0.400
64	0.740	0.465	0.182	-0.013	-0.323	-0.467
65	0.658	0.580	0.354	0.164	-0.201	-0.431
66	0.482	0.436	0.175	-0.259	-0.430	-0.375
67	0.581	0.415	0.242	0.006	-0.438	-0.366
68	0.381	0.310	0.121	0.008	-0.381	-0.385
Left tip fin outer flap, outer surface						
69	-0.217	-0.131	-0.058	-0.015	-0.021	-0.073
70	-0.215	-0.165	-0.089	-0.021	0.037	0.032
71	-0.177	-0.125	-0.058	-0.000	0.052	0.030
72	-0.204	-0.142	-0.070	-0.002	0.052	0.013
73	-0.202	-0.140	-0.079	-0.000	0.056	0.013
74	-0.217	-0.158	-0.104	-0.025	0.002	-0.060
Left tip fin, inner surface						
75	-0.005	-0.165	-0.305	-0.423	-0.472	-0.507
76	-0.024	-0.177	-0.331	-0.456	-0.507	-0.520
88	-0.011	-0.173	-0.326	-0.444	-0.507	-0.528
Body						
79	0.085	0.037	-0.028	-0.107	-0.193	-0.299
80	0.005	-0.066	-0.131	-0.189	-0.222	-0.253
81	0.169	0.093	0.035	-0.036	-0.097	-0.163
82	-0.343	-0.242	-0.135	-0.030	0.077	0.181
83	0.201	0.297	0.412	0.544	0.674	0.800
85	-0.190	-0.312	-0.425	-0.395	-0.428	-0.478
86	0.096	0.031	-0.054	-0.156	-0.306	-0.366
87	-0.013	-0.066	-0.116	-0.168	-0.214	-0.297

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right elevon flap, lower surface						
1	-0.275	-0.256	-0.236	-0.232	-0.236	-0.240
2	-0.308	-0.300	-0.265	-0.259	-0.271	-0.279
3	-0.288	-0.271	-0.252	-0.089	0.126	0.046
4	-0.277	-0.271	-0.259	-0.259	-0.261	-0.275
5	-0.296	-0.281	-0.265	-0.259	-0.273	-0.286
6	-0.275	-0.260	-0.257	-0.284	-0.302	-0.337
7	-0.288	-0.273	-0.259	-0.259	-0.265	-0.279
8	-0.288	-0.271	-0.261	-0.259	-0.273	-0.286
9	-0.275	-0.260	-0.255	-0.277	-0.290	-0.323
Right elevon, upper surface						
10	-0.288	-0.273	-0.259	-0.259	-0.273	-0.279
11	-0.288	-0.271	-0.261	-0.259	-0.275	-0.286
12	-0.275	-0.260	-0.255	-0.277	-0.286	-0.321
13	-0.296	-0.279	-0.265	-0.267	-0.273	-0.286
14	-0.296	-0.281	-0.265	-0.259	-0.273	-0.286
16	-0.313	-0.291	-0.267	-0.267	-0.271	-0.286
Right elevon, side surface						
19	-0.282	-0.260	-0.230	-0.141	-0.052	-0.006
20	-0.275	-0.264	-0.255	-0.252	-0.257	-0.263
Right elevon well, left surface						
21	-0.265	-0.264	-0.255	-0.250	-0.255	-0.265
Right elevon well, right surface						
22	0.398	0.346	0.236	0.189	0.155	0.116
Left elevon, lower surface						
23	-0.300	-0.167	0.135	0.406	0.679	0.764
24	-0.224	-0.059	0.348	0.543	0.750	0.880
25	-0.145	0.041	0.396	0.537	0.661	0.768
26	-0.120	0.047	0.371	0.485	0.578	0.669
27	-0.025	0.315	0.568	0.630	0.737	0.814
28	-0.095	0.243	0.609	0.700	0.835	0.918
29	-0.230	0.078	0.491	0.617	0.729	0.739
30	-0.004	0.149	0.209	0.294	0.313	0.365
31	0.277	0.232	0.257	0.294	0.300	0.358
32	0.495	0.508	0.549	0.632	0.582	0.646
33	0.493	0.544	0.574	0.665	0.667	0.713
34	0.362	0.411	0.325	0.398	0.315	0.387
35	0.273	0.319	0.228	0.300	0.271	0.344
36	-0.021	0.020	0.052	0.108	0.147	0.220
Left elevon flap, upper surface						
37	-0.337	-0.318	-0.344	-0.373	-0.352	-0.331
38	-0.329	-0.323	-0.350	-0.373	-0.352	-0.323
39	-0.323	-0.323	-0.362	-0.342	-0.337	-0.315
40	-0.321	-0.318	-0.339	-0.300	-0.327	-0.300
41	-0.219	-0.244	-0.267	-0.319	-0.337	-0.319
42	-0.217	-0.233	-0.246	-0.358	-0.364	-0.329
43	-0.232	-0.248	-0.271	-0.373	-0.368	-0.339
44	-0.285	-0.299	-0.316	-0.360	-0.343	-0.337
45	-0.255	-0.280	-0.312	-0.341	-0.380	-0.355
46	-0.185	-0.215	-0.247	-0.299	-0.343	-0.362
47	-0.172	-0.200	-0.249	-0.274	-0.305	-0.330
48	-0.191	-0.211	-0.218	-0.235	-0.245	-0.266
49	-0.207	-0.226	-0.241	-0.253	-0.266	-0.280
50	-0.299	-0.303	-0.297	-0.299	-0.322	-0.334

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right tip fin outer flap, inner surface						
51	-0.224	-0.221	-0.218	-0.205	-0.205	-0.209
52	-0.343	-0.318	-0.343	-0.349	-0.349	-0.345
53	-0.347	-0.322	-0.347	-0.355	-0.353	-0.347
54	-0.341	-0.318	-0.341	-0.347	-0.355	-0.353
55	-0.345	-0.324	-0.349	-0.355	-0.353	-0.355
Right tip fin inner flap, inner surface						
56	-0.326	-0.292	-0.301	-0.293	-0.339	-0.309
57	-0.337	-0.318	-0.345	-0.351	-0.355	-0.357
58	-0.335	-0.315	-0.345	-0.347	-0.353	-0.351
59	-0.330	-0.315	-0.341	-0.343	-0.349	-0.337
60	-0.351	-0.326	-0.353	-0.364	-0.355	-0.355
Left tip fin inner flap, outer surface						
61	-0.003	-0.209	-0.303	-0.345	-0.357	-0.293
62	0.059	-0.094	-0.222	-0.351	-0.370	-0.343
63	0.203	0.076	-0.030	-0.224	-0.360	-0.334
64	0.201	0.071	-0.122	-0.345	-0.378	-0.372
65	0.422	0.187	-0.039	-0.220	-0.343	-0.360
66	0.153	-0.171	-0.289	-0.378	-0.374	-0.255
67	0.249	0.057	-0.151	-0.378	-0.380	-0.261
68	0.174	0.038	-0.141	-0.364	-0.378	-0.184
Left tip fin outer flap, outer surface						
69	0.055	0.065	0.076	0.072	0.037	0.010
70	-0.005	0.021	0.045	0.066	0.064	0.081
71	0.020	0.040	0.066	0.078	0.083	0.104
72	-0.018	0.011	0.037	0.043	0.045	0.066
73	-0.018	0.009	0.032	0.039	0.045	0.073
74	-0.028	-0.010	0.012	0.018	0.027	0.045
Left tip fin, inner surface						
75	-0.153	-0.242	-0.316	-0.362	-0.368	-0.364
76	-0.193	-0.290	-0.362	-0.385	-0.385	-0.385
88	-0.170	-0.261	-0.341	-0.380	-0.385	-0.387
Body						
79	0.111	0.053	-0.011	-0.068	-0.126	-0.172
80	0.024	-0.041	-0.101	-0.139	-0.157	-0.165
81	0.095	0.046	-0.007	-0.055	-0.103	-0.151
82	-0.195	-0.127	-0.055	0.014	0.083	0.154
83	0.211	0.312	0.422	0.541	0.669	0.805
85	-0.097	-0.177	-0.264	-0.280	-0.301	-0.318
86	0.049	-0.004	-0.045	-0.082	-0.126	-0.216
87	-0.041	-0.092	-0.134	-0.226	-0.343	-0.351

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right elevon flap, lower surface						
1	-0.251	-0.234	-0.214	-0.208	-0.212	-0.220
2	-0.275	-0.261	-0.240	-0.230	-0.234	-0.253
3	-0.259	-0.251	-0.164	-0.129	-0.144	-0.119
4	-0.269	-0.253	-0.232	-0.232	-0.245	-0.257
5	-0.271	-0.251	-0.245	-0.232	-0.234	-0.251
6	-0.273	-0.244	-0.253	-0.265	-0.270	-0.280
7	-0.273	-0.251	-0.234	-0.232	-0.245	-0.257
8	-0.273	-0.247	-0.238	-0.232	-0.228	-0.241
9	-0.275	-0.244	-0.236	-0.241	-0.234	-0.247
Right elevon, upper surface						
10	-0.273	-0.251	-0.234	-0.232	-0.245	-0.255
11	-0.273	-0.247	-0.238	-0.232	-0.228	-0.241
12	-0.273	-0.244	-0.234	-0.234	-0.234	-0.245
13	-0.278	-0.255	-0.236	-0.241	-0.255	-0.270
14	-0.275	-0.253	-0.247	-0.234	-0.232	-0.251
16	-0.284	-0.259	-0.236	-0.239	-0.274	-0.292
Right elevon, side surface						
19	-0.296	-0.259	-0.162	-0.141	-0.142	-0.166
20	-0.273	-0.259	-0.236	-0.234	-0.224	-0.206
Right elevon well, left surface						
21	-0.267	-0.247	-0.228	-0.224	-0.228	-0.239
Right elevon well, right surface						
22	0.068	0.043	0.022	0.003	-0.014	-0.030
Left elevon, lower surface						
23	-0.292	-0.230	-0.108	0.139	0.686	0.699
24	-0.265	-0.162	-0.007	0.346	0.637	0.814
25	-0.216	-0.096	0.113	0.437	0.600	0.763
26	-0.195	-0.102	0.140	0.422	0.573	0.682
27	-0.213	-0.050	0.249	0.528	0.707	0.800
28	-0.230	-0.065	0.245	0.561	0.781	0.934
29	-0.275	-0.137	0.117	0.427	0.730	0.874
30	-0.236	-0.153	0.032	0.259	0.329	0.418
31	-0.191	0.167	0.435	0.420	0.544	0.608
32	-0.211	0.084	0.431	0.660	0.847	0.996
33	-0.110	0.136	0.404	0.594	0.742	0.810
34	0.318	0.324	0.369	0.540	0.670	0.760
35	0.401	0.231	0.247	0.443	0.705	0.806
36	0.043	0.010	0.047	0.146	0.201	0.288
Left elevon flap, upper surface						
37	-0.315	-0.315	-0.358	-0.348	-0.348	-0.334
38	-0.319	-0.319	-0.358	-0.342	-0.344	-0.338
39	-0.319	-0.321	-0.325	-0.319	-0.329	-0.315
40	-0.317	-0.321	-0.313	-0.305	-0.280	-0.288
41	-0.263	-0.317	-0.311	-0.323	-0.317	-0.311
42	-0.263	-0.309	-0.358	-0.334	-0.334	-0.338
43	-0.278	-0.304	-0.364	-0.350	-0.350	-0.344
44	-0.287	-0.295	-0.347	-0.331	-0.329	-0.326
45	-0.154	-0.206	-0.339	-0.368	-0.360	-0.354
46	-0.125	-0.143	-0.280	-0.370	-0.356	-0.324
47	-0.139	-0.154	-0.272	-0.322	-0.294	-0.326
48	-0.071	-0.110	-0.195	-0.262	-0.269	-0.324
49	-0.146	-0.177	-0.220	-0.235	-0.260	-0.318
50	-0.266	-0.297	-0.318	-0.351	-0.335	-0.333

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right tip fin outer flap, inner surface						
51	-0.223	-0.222	-0.209	-0.208	-0.200	-0.210
52	-0.327	-0.347	-0.353	-0.341	-0.329	-0.324
53	-0.333	-0.353	-0.355	-0.345	-0.331	-0.324
54	-0.331	-0.347	-0.347	-0.333	-0.321	-0.339
55	-0.335	-0.349	-0.353	-0.339	-0.321	-0.324
Right tip fin inner flap, inner surface						
56	-0.297	-0.337	-0.318	-0.289	-0.290	-0.312
57	-0.322	-0.345	-0.353	-0.343	-0.327	-0.331
58	-0.322	-0.343	-0.353	-0.341	-0.327	-0.326
59	-0.322	-0.341	-0.349	-0.339	-0.325	-0.320
60	-0.339	-0.353	-0.362	-0.347	-0.329	-0.341
Left tip fin inner flap, outer surface						
61	-0.223	-0.289	-0.332	-0.351	-0.348	-0.335
62	-0.090	-0.249	-0.332	-0.370	-0.377	-0.351
63	0.216	0.063	-0.130	-0.295	-0.370	-0.345
64	0.010	-0.164	-0.332	-0.374	-0.381	-0.370
65	0.191	0.005	-0.241	-0.333	-0.370	-0.364
66	-0.135	-0.270	-0.366	-0.376	-0.383	-0.362
67	0.079	-0.104	-0.207	-0.376	-0.383	-0.354
68	-0.006	-0.089	-0.207	-0.370	-0.379	-0.337
Left tip fin outer flap, outer surface						
69	0.214	0.204	0.187	0.156	0.131	0.104
70	0.152	0.163	0.176	0.179	0.183	0.185
71	0.179	0.184	0.187	0.194	0.198	0.202
72	0.127	0.142	0.149	0.163	0.173	0.175
73	0.129	0.140	0.147	0.163	0.165	0.173
74	0.114	0.111	0.122	0.127	0.136	0.146
Left tip fin, inner surface						
75	-0.233	-0.295	-0.337	-0.358	-0.356	-0.351
76	-0.270	-0.324	-0.364	-0.374	-0.379	-0.368
88	-0.243	-0.312	-0.360	-0.374	-0.379	-0.372
Body						
79	0.189	0.125	0.064	0.009	-0.039	-0.098
80	0.037	-0.031	-0.089	-0.127	-0.153	-0.175
81	0.046	0.003	-0.043	-0.083	-0.128	-0.177
82	-0.146	-0.104	-0.061	-0.020	0.034	0.079
83	0.220	0.315	0.420	0.542	0.675	0.803
85	-0.038	-0.102	-0.172	-0.227	-0.279	-0.310
86	0.033	-0.012	-0.041	-0.068	-0.093	-0.133
87	-0.079	-0.181	-0.266	-0.304	-0.310	-0.335

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right elevon flap, lower surface						
1	-0.278	-0.272	-0.263	-0.257	-0.247	-0.257
2	-0.317	-0.307	-0.292	-0.284	-0.280	-0.313
3	-0.290	-0.278	-0.263	-0.032	0.194	0.155
4	-0.284	-0.280	-0.260	-0.280	-0.265	-0.271
5	-0.300	-0.298	-0.280	-0.284	-0.282	-0.302
6	-0.276	-0.272	-0.280	-0.296	-0.286	-0.247
7	-0.292	-0.288	-0.280	-0.282	-0.271	-0.276
8	-0.290	-0.288	-0.280	-0.282	-0.280	-0.294
9	-0.272	-0.272	-0.286	-0.302	-0.311	-0.333
Right elevon, upper surface						
10	-0.292	-0.288	-0.282	-0.282	-0.273	-0.280
11	-0.290	-0.286	-0.280	-0.282	-0.280	-0.296
12	-0.274	-0.272	-0.288	-0.302	-0.311	-0.329
13	-0.309	-0.298	-0.286	-0.286	-0.282	-0.286
14	-0.305	-0.300	-0.280	-0.286	-0.286	-0.304
16	-0.319	-0.300	-0.296	-0.288	-0.275	-0.276
Right elevon, side surface						
19	-0.288	-0.280	-0.253	-0.154	-0.007	0.086
20	-0.261	-0.272	-0.265	-0.261	-0.265	-0.259
Right elevon well, left surface						
21	-0.230	-0.245	-0.265	-0.265	-0.265	-0.265
Right elevon well, right surface						
22	-0.067	-0.086	-0.100	-0.110	-0.120	-0.131
Left elevon, lower surface						
23	-0.205	0.394	0.576	0.625	0.368	0.330
24	-0.172	0.516	0.559	0.605	0.552	0.576
25	-0.013	0.451	0.468	0.541	0.603	0.688
26	0.102	0.390	0.412	0.495	0.539	0.611
27	0.518	0.522	0.592	0.551	0.527	0.624
28	0.547	0.594	0.617	0.516	0.496	0.601
29	0.416	0.522	0.460	0.303	0.293	0.374
30	0.123	0.179	0.146	0.101	0.140	0.214
31	0.278	0.158	0.063	0.101	0.153	0.239
32	0.559	0.449	0.272	0.260	0.283	0.386
33	0.534	0.584	0.381	0.326	0.330	0.438
34	0.443	0.191	0.156	0.140	0.113	0.221
35	0.342	0.098	0.092	0.111	0.132	0.245
36	0.005	-0.024	0.001	0.047	0.132	0.231
Left elevon flap, upper surface						
37	-0.296	-0.323	-0.350	-0.362	-0.354	-0.354
38	-0.253	-0.298	-0.348	-0.350	-0.362	-0.350
39	-0.220	-0.288	-0.338	-0.331	-0.321	-0.329
40	-0.218	-0.265	-0.305	-0.300	-0.238	-0.309
41	-0.218	-0.247	-0.272	-0.267	-0.255	-0.273
42	-0.203	-0.245	-0.272	-0.292	-0.307	-0.327
43	-0.197	-0.247	-0.286	-0.321	-0.371	-0.358
44	-0.258	-0.297	-0.308	-0.322	-0.345	-0.335
45	-0.306	-0.322	-0.326	-0.328	-0.330	-0.341
46	-0.262	-0.283	-0.291	-0.278	-0.274	-0.287
47	-0.231	-0.255	-0.257	-0.253	-0.249	-0.236
48	-0.238	-0.243	-0.226	-0.212	-0.216	-0.224
49	-0.242	-0.247	-0.251	-0.255	-0.257	-0.255
50	-0.306	-0.308	-0.322	-0.318	-0.312	-0.282

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(f) M = 1.80, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$	$\alpha = 17.6^\circ$
Right tip fin outer flap, inner surface						
51	-0.219	-0.224	-0.218	-0.209	-0.207	-0.209
52	-0.298	-0.299	-0.333	-0.343	-0.332	-0.335
53	-0.300	-0.299	-0.339	-0.353	-0.339	-0.343
54	-0.304	-0.299	-0.337	-0.360	-0.355	-0.349
55	-0.304	-0.303	-0.345	-0.368	-0.355	-0.347
Right tip fin inner flap, inner surface						
56	-0.296	-0.278	-0.289	-0.332	-0.309	-0.303
57	-0.300	-0.301	-0.335	-0.347	-0.335	-0.345
58	-0.298	-0.299	-0.333	-0.345	-0.332	-0.347
59	-0.298	-0.295	-0.328	-0.343	-0.364	-0.332
60	-0.304	-0.305	-0.351	-0.366	-0.353	-0.347
Left tip fin inner flap, outer surface						
61	0.234	0.034	-0.132	-0.285	-0.322	-0.339
62	0.273	0.074	-0.089	-0.247	-0.330	-0.335
63	0.549	0.316	0.103	-0.022	-0.307	-0.318
64	0.817	0.434	0.053	-0.074	-0.305	-0.378
65	0.624	0.466	0.280	0.064	-0.255	-0.347
66	0.559	0.347	-0.001	-0.312	-0.287	-0.074
67	0.472	0.332	0.124	-0.207	-0.307	-0.130
68	0.339	0.216	0.093	-0.111	-0.347	-0.243
Left tip fin outer flap, outer surface						
69	-0.099	-0.068	-0.037	-0.013	-0.022	-0.047
70	-0.123	-0.103	-0.062	-0.009	0.018	0.012
71	-0.103	-0.082	-0.041	0.003	0.035	0.020
72	-0.128	-0.101	-0.055	-0.020	-0.001	-0.022
73	-0.128	-0.097	-0.057	-0.020	-0.003	-0.013
74	-0.138	-0.107	-0.076	-0.036	-0.022	-0.051
Left tip fin, inner surface						
75	-0.005	-0.145	-0.228	-0.310	-0.345	-0.374
76	-0.063	-0.203	-0.272	-0.345	-0.364	-0.391
88	-0.034	-0.166	-0.260	-0.339	-0.364	-0.389
Body						
79	0.070	0.018	-0.041	-0.107	-0.174	-0.239
80	0.043	-0.030	-0.087	-0.134	-0.172	-0.205
81	0.182	0.113	0.057	0.001	-0.053	-0.103
82	-0.244	-0.170	-0.080	0.014	0.108	0.204
83	0.219	0.311	0.420	0.539	0.669	0.806
85	-0.169	-0.270	-0.301	-0.295	-0.312	-0.324
86	0.057	-0.005	-0.093	-0.260	-0.297	-0.337
87	-0.013	-0.064	-0.103	-0.145	-0.201	-0.293

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right elevon flap, lower surface						
1	-0.209	-0.194	-0.177	-0.184	-0.181	-0.171
2	-0.235	-0.224	-0.205	-0.209	-0.205	-0.209
3	-0.235	-0.214	-0.201	-0.007	0.098	0.015
4	-0.235	-0.220	-0.201	-0.203	-0.201	-0.211
5	-0.235	-0.222	-0.205	-0.205	-0.216	-0.218
6	-0.224	-0.211	-0.205	-0.218	-0.237	-0.218
7	-0.231	-0.220	-0.205	-0.207	-0.205	-0.220
8	-0.231	-0.220	-0.205	-0.207	-0.214	-0.237
9	-0.224	-0.214	-0.205	-0.218	-0.227	-0.222
Right elevon, upper surface						
10	-0.231	-0.220	-0.205	-0.207	-0.220	-0.216
11	-0.231	-0.220	-0.205	-0.207	-0.214	-0.216
12	-0.224	-0.214	-0.205	-0.218	-0.227	-0.224
13	-0.239	-0.222	-0.205	-0.212	-0.218	-0.216
14	-0.237	-0.224	-0.205	-0.209	-0.220	-0.218
16	-0.248	-0.231	-0.214	-0.212	-0.220	-0.218
Right elevon, side surface						
19	-0.224	-0.242	-0.177	-0.098	-0.050	-0.009
20	-0.209	-0.220	-0.194	-0.192	-0.192	-0.188
Right elevon well, left surface						
21	-0.211	-0.216	-0.199	-0.199	-0.199	-0.205
Right elevon well, right surface						
22	-0.019	-0.037	-0.048	-0.057	-0.067	-0.078
Left elevon, lower surface						
23	-0.209	-0.151	0.012	0.511	0.756	0.936
24	-0.187	-0.071	0.258	0.593	0.741	0.854
25	-0.110	0.037	0.376	0.522	0.636	0.744
26	-0.069	0.069	0.372	0.492	0.588	0.704
27	-0.101	0.200	0.520	0.617	0.724	0.872
28	-0.127	0.114	0.524	0.677	0.808	0.930
29	-0.209	-0.032	0.434	0.668	0.795	0.747
30	-0.086	-0.052	0.393	0.272	0.262	0.301
31	0.177	0.211	0.230	0.238	0.229	0.299
32	0.406	0.481	0.567	0.610	0.530	0.581
33	0.413	0.481	0.567	0.679	0.690	0.701
34	0.396	0.448	0.298	0.328	0.290	0.355
35	0.346	0.194	0.133	0.210	0.219	0.295
36	-0.058	-0.065	-0.016	0.057	0.105	0.178
Left elevon flap, upper surface						
37	-0.248	-0.237	-0.259	-0.250	-0.242	-0.233
38	-0.250	-0.242	-0.257	-0.250	-0.242	-0.239
39	-0.250	-0.242	-0.246	-0.242	-0.227	-0.237
40	-0.244	-0.237	-0.231	-0.237	-0.222	-0.233
41	-0.177	-0.211	-0.227	-0.244	-0.242	-0.244
42	-0.174	-0.209	-0.248	-0.255	-0.248	-0.244
43	-0.187	-0.194	-0.259	-0.255	-0.252	-0.246
44	-0.202	-0.213	-0.228	-0.222	-0.222	-0.199
45	-0.197	-0.213	-0.241	-0.263	-0.261	-0.242
46	-0.171	-0.191	-0.224	-0.263	-0.267	-0.242
47	-0.158	-0.180	-0.211	-0.237	-0.245	-0.239
48	-0.158	-0.165	-0.174	-0.180	-0.200	-0.143
49	-0.169	-0.178	-0.185	-0.196	-0.206	-0.242
50	-0.215	-0.228	-0.226	-0.237	-0.254	-0.248

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right tip fin outer flap, inner surface						
51	-0.173	-0.174	-0.170	-0.163	-0.165	-0.155
52	-0.252	-0.241	-0.252	-0.256	-0.252	-0.233
53	-0.254	-0.243	-0.254	-0.259	-0.254	-0.239
54	-0.254	-0.243	-0.254	-0.263	-0.261	-0.244
55	-0.254	-0.245	-0.259	-0.263	-0.254	-0.242
Right tip fin inner flap, inner surface						
56	-0.247	-0.235	-0.235	-0.243	-0.241	-0.222
57	-0.252	-0.241	-0.254	-0.261	-0.261	-0.244
58	-0.252	-0.241	-0.254	-0.259	-0.256	-0.242
59	-0.252	-0.241	-0.250	-0.256	-0.245	-0.235
60	-0.256	-0.248	-0.261	-0.263	-0.261	-0.248
Left tip fin inner flap, outer surface						
61	-0.032	-0.135	-0.213	-0.248	-0.256	-0.235
62	0.018	-0.104	-0.183	-0.245	-0.261	-0.242
63	0.288	0.152	-0.055	-0.215	-0.261	-0.244
64	0.140	0.048	-0.174	-0.230	-0.269	-0.257
65	0.307	0.126	-0.066	-0.193	-0.263	-0.261
66	0.009	-0.113	-0.226	-0.272	-0.276	-0.233
67	0.177	0.009	-0.096	-0.269	-0.276	-0.201
68	0.120	-0.022	-0.129	-0.265	-0.265	-0.123
Left tip fin outer flap, outer surface						
69	0.096	0.083	0.086	0.067	0.041	0.047
70	0.046	0.059	0.075	0.071	0.078	0.101
71	0.062	0.070	0.084	0.095	0.093	0.109
72	0.020	0.035	0.049	0.054	0.058	0.088
73	0.020	0.035	0.049	0.051	0.056	0.086
74	0.012	0.022	0.034	0.036	0.039	0.066
Left tip fin, inner surface						
75	-0.126	-0.185	-0.235	-0.263	-0.256	-0.235
76	-0.160	-0.226	-0.265	-0.274	-0.274	-0.252
88	-0.139	-0.198	-0.250	-0.274	-0.274	-0.255
Body						
79	0.103	0.048	0.004	-0.044	-0.083	-0.106
80	0.044	-0.013	-0.061	-0.100	-0.124	-0.117
81	0.092	0.054	0.012	-0.033	-0.087	-0.102
82	-0.134	-0.080	-0.014	0.047	0.108	0.193
83	0.236	0.332	0.454	0.572	0.698	0.839
85	-0.097	-0.165	-0.196	-0.204	-0.222	-0.211
86	0.022	-0.017	-0.048	-0.076	-0.156	-0.194
87	-0.041	-0.085	-0.135	-0.222	-0.243	-0.242

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right elevon flap, lower surface						
1	-0.201	-0.179	-0.179	-0.166	-0.162	-0.155
2	-0.220	-0.211	-0.183	-0.175	-0.181	-0.198
3	-0.226	-0.198	-0.173	-0.104	-0.093	-0.078
4	-0.218	-0.198	-0.181	-0.175	-0.186	-0.188
5	-0.214	-0.205	-0.188	-0.175	-0.179	-0.190
6	-0.214	-0.194	-0.190	-0.194	-0.198	-0.209
7	-0.214	-0.201	-0.183	-0.177	-0.190	-0.198
8	-0.211	-0.207	-0.183	-0.177	-0.173	-0.181
9	-0.211	-0.205	-0.179	-0.177	-0.179	-0.188
Right elevon, upper surface						
10	-0.216	-0.218	-0.181	-0.177	-0.188	-0.196
11	-0.214	-0.209	-0.183	-0.177	-0.173	-0.181
12	-0.211	-0.211	-0.179	-0.177	-0.177	-0.188
13	-0.216	-0.209	-0.183	-0.181	-0.192	-0.203
14	-0.216	-0.207	-0.188	-0.177	-0.179	-0.192
16	-0.222	-0.209	-0.186	-0.181	-0.209	-0.220
Right elevon, side surface						
19	-0.220	-0.214	-0.166	-0.123	-0.112	-0.114
20	-0.216	-0.207	-0.181	-0.175	-0.164	-0.140
Right elevon well, left surface						
21	-0.218	-0.209	-0.179	-0.173	-0.181	-0.188
Right elevon well, right surface						
22	-0.053	-0.104	-0.112	-0.117	-0.123	-0.127
Left elevon, lower surface						
23	-0.222	-0.175	-0.084	0.075	0.668	0.774
24	-0.211	-0.125	0.006	0.293	0.629	0.815
25	-0.158	-0.015	0.146	0.422	0.599	0.754
26	-0.112	0.021	0.207	0.431	0.584	0.726
27	-0.138	0.006	0.258	0.573	0.698	0.851
28	-0.168	-0.018	0.204	0.543	0.771	0.940
29	-0.209	-0.121	0.082	0.338	0.808	0.881
30	-0.218	-0.160	0.013	0.164	0.347	0.429
31	-0.166	-0.030	0.275	0.465	0.508	0.550
32	-0.198	-0.002	0.273	0.657	0.870	1.000
33	-0.147	0.049	0.295	0.616	0.784	0.899
34	0.250	0.357	0.362	0.607	0.726	0.787
35	0.250	0.250	0.187	0.523	0.765	0.791
36	-0.028	0.006	0.013	0.067	0.127	0.246
Left elevon flap, upper surface						
37	-0.252	-0.259	-0.263	-0.250	-0.244	-0.244
38	-0.254	-0.263	-0.263	-0.250	-0.239	-0.250
39	-0.254	-0.259	-0.246	-0.233	-0.237	-0.248
40	-0.254	-0.244	-0.231	-0.224	-0.231	-0.250
41	-0.233	-0.233	-0.224	-0.233	-0.239	-0.244
42	-0.231	-0.237	-0.246	-0.242	-0.248	-0.252
43	-0.233	-0.239	-0.261	-0.259	-0.254	-0.252
44	-0.211	-0.222	-0.224	-0.228	-0.226	-0.217
45	-0.165	-0.228	-0.263	-0.269	-0.265	-0.256
46	-0.113	-0.204	-0.254	-0.269	-0.243	-0.239
47	-0.115	-0.182	-0.226	-0.237	-0.232	-0.241
48	-0.108	-0.139	-0.194	-0.224	-0.228	-0.248
49	-0.128	-0.156	-0.194	-0.208	-0.237	-0.243
50	-0.206	-0.222	-0.248	-0.250	-0.234	-0.245

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right tip fin outer flap, inner surface						
51	-0.180	-0.176	-0.163	-0.169	-0.165	-0.159
52	-0.258	-0.265	-0.256	-0.261	-0.245	-0.228
53	-0.258	-0.267	-0.259	-0.263	-0.250	-0.232
54	-0.258	-0.267	-0.259	-0.258	-0.245	-0.237
55	-0.258	-0.267	-0.259	-0.261	-0.243	-0.232
Right tip fin inner flap, inner surface						
56	-0.239	-0.263	-0.243	-0.237	-0.226	-0.211
57	-0.258	-0.265	-0.261	-0.263	-0.247	-0.235
58	-0.256	-0.265	-0.259	-0.263	-0.245	-0.232
59	-0.254	-0.263	-0.259	-0.261	-0.243	-0.226
60	-0.263	-0.267	-0.263	-0.263	-0.250	-0.239
Left tip fin inner flap, outer surface						
61	-0.143	-0.202	-0.228	-0.248	-0.256	-0.254
62	-0.026	-0.150	-0.194	-0.252	-0.267	-0.261
63	0.181	0.030	-0.079	-0.206	-0.267	-0.261
64	0.072	-0.070	-0.181	-0.250	-0.271	-0.267
65	0.176	0.028	-0.072	-0.208	-0.261	-0.265
66	-0.006	-0.187	-0.230	-0.267	-0.271	-0.271
67	0.085	-0.048	-0.148	-0.267	-0.271	-0.271
68	0.013	-0.074	-0.135	-0.263	-0.271	-0.271
Left tip fin outer flap, outer surface						
69	0.231	0.217	0.198	0.169	0.150	0.136
70	0.176	0.184	0.189	0.182	0.189	0.202
71	0.189	0.197	0.207	0.208	0.207	0.215
72	0.142	0.150	0.161	0.165	0.172	0.184
73	0.137	0.150	0.161	0.161	0.168	0.180
74	0.126	0.132	0.140	0.141	0.146	0.158
Left tip fin, inner surface						
75	-0.167	-0.213	-0.235	-0.243	-0.250	-0.248
76	-0.198	-0.239	-0.261	-0.271	-0.267	-0.267
88	-0.171	-0.222	-0.252	-0.267	-0.269	-0.269
Body						
79	0.187	0.139	0.094	0.039	-0.006	-0.052
80	0.046	-0.007	-0.051	-0.100	-0.121	-0.133
81	0.033	0.002	-0.027	-0.067	-0.106	-0.137
82	-0.108	-0.070	-0.027	0.007	0.052	0.126
83	0.233	0.334	0.453	0.565	0.696	0.833
85	-0.045	-0.096	-0.142	-0.185	-0.215	-0.226
86	0.007	-0.024	-0.042	-0.076	-0.102	-0.133
87	-0.128	-0.185	-0.207	-0.230	-0.241	-0.243

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right elevon flap, lower surface						
1	-0.207	-0.198	-0.201	-0.209	-0.199	-0.188
2	-0.239	-0.224	-0.211	-0.209	-0.220	-0.227
3	-0.231	-0.216	-0.203	0.030	0.176	0.107
4	-0.211	-0.216	-0.211	-0.205	-0.201	-0.209
5	-0.237	-0.224	-0.213	-0.211	-0.220	-0.220
6	-0.231	-0.222	-0.218	-0.216	-0.177	-0.145
7	-0.237	-0.224	-0.211	-0.209	-0.209	-0.214
8	-0.235	-0.224	-0.211	-0.209	-0.218	-0.220
9	-0.226	-0.224	-0.213	-0.224	-0.233	-0.233
Right elevon, upper surface						
10	-0.237	-0.224	-0.211	-0.209	-0.211	-0.218
11	-0.235	-0.224	-0.213	-0.209	-0.218	-0.220
12	-0.226	-0.224	-0.216	-0.224	-0.231	-0.227
13	-0.244	-0.231	-0.213	-0.214	-0.214	-0.220
14	-0.239	-0.226	-0.213	-0.211	-0.218	-0.220
16	-0.244	-0.231	-0.218	-0.211	-0.209	-0.220
Right elevon, side surface						
19	-0.233	-0.224	-0.216	-0.089	0.032	0.090
20	-0.207	-0.211	-0.209	-0.194	-0.199	-0.181
Right elevon well, left surface						
21	-0.198	-0.198	-0.209	-0.209	-0.205	-0.209
Right elevon well, right surface						
22	-0.140	-0.168	-0.162	-0.155	-0.168	-0.168
Left elevon, lower surface						
23	-0.190	0.250	0.619	0.592	0.253	0.271
24	-0.157	0.532	0.513	0.585	0.477	0.521
25	-0.037	0.429	0.416	0.514	0.594	0.684
26	0.078	0.362	0.379	0.490	0.574	0.658
27	0.449	0.459	0.569	0.570	0.510	0.622
28	0.449	0.509	0.575	0.471	0.419	0.542
29	0.390	0.461	0.308	0.200	0.213	0.307
30	0.078	0.168	0.017	0.006	0.088	0.163
31	0.263	0.037	-0.019	0.036	0.098	0.180
32	0.479	0.252	0.153	0.189	0.219	0.327
33	0.459	0.494	0.334	0.286	0.292	0.413
34	0.287	0.151	0.123	0.077	0.107	0.183
35	0.078	0.043	0.039	0.034	0.068	0.161
36	-0.047	-0.054	-0.026	0.021	0.086	0.174
Left elevon flap, upper surface						
37	-0.216	-0.239	-0.254	-0.246	-0.246	-0.235
38	-0.207	-0.235	-0.254	-0.252	-0.250	-0.242
39	-0.201	-0.231	-0.252	-0.248	-0.235	-0.231
40	-0.201	-0.218	-0.242	-0.220	-0.199	-0.231
41	-0.162	-0.190	-0.224	-0.216	-0.211	-0.246
42	-0.157	-0.188	-0.213	-0.244	-0.248	-0.252
43	-0.179	-0.211	-0.224	-0.261	-0.252	-0.252
44	-0.191	-0.206	-0.213	-0.228	-0.222	-0.215
45	-0.221	-0.232	-0.237	-0.241	-0.241	-0.258
46	-0.206	-0.221	-0.228	-0.219	-0.215	-0.228
47	-0.200	-0.210	-0.208	-0.213	-0.206	-0.185
48	-0.189	-0.193	-0.180	-0.156	-0.157	-0.159
49	-0.195	-0.189	-0.187	-0.189	-0.183	-0.191
50	-0.228	-0.237	-0.241	-0.230	-0.224	-0.213

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TABLE VIII.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 35^\circ$ - Concluded

(i) $M = 2.16$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:					
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$	$\alpha = 18.4^\circ$
Right tip fin outer flap, inner surface						
51	-0.180	-0.182	-0.171	-0.165	-0.161	-0.161
52	-0.243	-0.247	-0.252	-0.245	-0.248	-0.250
53	-0.245	-0.252	-0.256	-0.254	-0.250	-0.254
54	-0.248	-0.252	-0.254	-0.256	-0.254	-0.256
55	-0.245	-0.254	-0.256	-0.258	-0.256	-0.256
Right tip fin inner flap, inner surface						
56	-0.245	-0.239	-0.234	-0.221	-0.241	-0.248
57	-0.245	-0.250	-0.254	-0.248	-0.252	-0.254
58	-0.245	-0.250	-0.252	-0.245	-0.252	-0.254
59	-0.245	-0.247	-0.250	-0.239	-0.250	-0.252
60	-0.250	-0.256	-0.258	-0.261	-0.252	-0.256
Left tip fin inner flap, outer surface						
61	0.198	0.029	-0.104	-0.206	-0.228	-0.226
62	0.233	0.044	-0.111	-0.193	-0.248	-0.250
63	0.572	0.372	0.222	-0.015	-0.230	-0.250
64	0.605	0.227	-0.093	-0.198	-0.245	-0.269
65	0.546	0.333	0.137	-0.054	-0.237	-0.265
66	0.331	0.109	-0.150	-0.243	-0.206	-0.148
67	0.394	0.235	0.052	-0.243	-0.165	-0.115
68	0.298	0.175	0.044	-0.243	-0.146	-0.139
Left tip fin outer flap, outer surface						
69	-0.034	-0.019	-0.004	-0.004	-0.011	-0.033
70	-0.063	-0.047	-0.026	-0.002	-0.005	-0.002
71	-0.050	-0.039	-0.009	0.009	0.021	0.004
72	-0.078	-0.060	-0.028	-0.015	-0.009	-0.009
73	-0.078	-0.060	-0.030	-0.017	-0.011	-0.005
74	-0.082	-0.067	-0.043	-0.026	-0.026	-0.024
Left tip fin, inner surface						
75	-0.041	-0.128	-0.193	-0.248	-0.258	-0.263
76	-0.087	-0.169	-0.237	-0.258	-0.269	-0.276
88	-0.056	-0.152	-0.211	-0.254	-0.269	-0.276
Body						
79	0.052	0.005	-0.039	-0.106	-0.135	-0.174
80	0.055	-0.004	-0.050	-0.095	-0.126	-0.148
81	0.172	0.116	0.067	0.007	-0.024	-0.072
82	-0.161	-0.104	-0.022	0.059	0.141	0.232
83	0.242	0.340	0.452	0.571	0.700	0.831
85	-0.141	-0.193	-0.213	-0.221	-0.226	-0.228
86	0.031	-0.028	-0.154	-0.221	-0.226	-0.274
87	-0.024	-0.058	-0.095	-0.137	-0.213	-0.258

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$

(a) $M = 1.50$, $\beta = 0^\circ$

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right elevon flap, lower surface					
1		-0.235	-0.266	-0.269	-0.244
2		-0.359	-0.373	-0.391	-0.405
3		-0.288	-0.077	-0.069	-0.030
4		-0.366	-0.349	-0.359	-0.373
5		-0.361	-0.379	-0.393	-0.411
6		-0.368	-0.398	-0.391	-0.417
7		-0.357	-0.343	-0.349	-0.369
8		-0.357	-0.375	-0.389	-0.405
9		-0.363	-0.383	-0.403	-0.407
Right elevon, upper surface					
10		-0.355	-0.343	-0.351	-0.367
11		-0.357	-0.377	-0.391	-0.405
12		-0.363	-0.385	-0.405	-0.409
13		-0.387	-0.358	-0.361	-0.390
14		-0.361	-0.379	-0.393	-0.413
16		-0.370	-0.347	-0.349	-0.392
Right elevon, side surface					
19		-0.347	-0.228	-0.201	-0.149
20		-0.166	-0.161	-0.189	-0.134
Right elevon well, left surface					
21		-0.391	-0.375	-0.391	-0.386
Right elevon well, right surface					
22		-0.389	-0.402	-0.420	-0.405
Left elevon, lower surface					
23		-0.094	0.469	0.215	0.350
24		-0.054	0.939	0.493	1.009
25		0.060	1.000	0.857	1.257
26		0.150	0.815	0.862	0.937
27		0.441	0.891	0.921	1.037
28		0.325	0.964	0.918	1.147
29		0.171	0.480	0.462	0.534
30		0.072	0.421	0.396	0.542
31		0.401	0.259	0.285	0.360
32		0.925	0.538	0.479	0.574
33		0.900	0.750	0.641	0.868
34		0.361	0.337	0.272	0.403
35		0.205	0.207	0.207	0.267
36		0.171	0.238	0.215	0.322
Left elevon flap, upper surface					
37		-0.378	-0.396	-0.412	-0.407
38		-0.382	-0.402	-0.424	-0.417
39		-0.378	-0.400	-0.405	-0.417
40		-0.378	-0.389	-0.382	-0.426
41		-0.363	-0.402	-0.389	-0.443
42		-0.378	-0.402	-0.399	-0.436
43		-0.382	-0.406	-0.418	-0.436
44		-0.352	-0.368	-0.394	-0.400
45		-0.365	-0.395	-0.396	-0.431
46		-0.363	-0.389	-0.392	-0.431
47		-0.354	-0.370	-0.363	-0.406
48		-0.340	-0.376	-0.365	-0.404
49		-0.359	-0.364	-0.357	-0.387
50		-0.369	-0.416	-0.413	-0.456

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(a) $M = 1.50$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right tip fin outer flap, inner surface					
51		-0.271	-0.278	-0.283	-0.295
52		-0.430	-0.410	-0.411	-0.408
53		-0.438	-0.416	-0.415	-0.415
54		-0.430	-0.414	-0.417	-0.415
55		-0.432	-0.414	-0.421	-0.410
Right tip fin inner flap, inner surface					
56		-0.409	-0.370	-0.377	-0.356
57		-0.434	-0.412	-0.417	-0.417
58		-0.432	-0.407	-0.415	-0.406
59		-0.430	-0.401	-0.407	-0.394
60		-0.436	-0.416	-0.417	-0.425
Left tip fin inner flap, outer surface					
61		-0.214	-0.380	-0.409	-0.364
62		-0.101	-0.270	-0.413	-0.412
63		0.033	-0.111	-0.400	-0.410
64		0.081	-0.188	-0.421	-0.465
65		0.248	0.031	-0.409	-0.320
66		-0.017	-0.374	-0.424	-0.326
67		0.213	-0.165	-0.415	-0.345
68		0.129	-0.021	-0.396	-0.381
Left tip fin outer flap, outer surface					
69		0.056	0.077	0.077	0.047
70		0.016	0.050	0.096	0.125
71		0.060	0.079	0.106	0.133
72		0.039	0.062	0.102	0.121
73		0.029	0.052	0.096	0.133
74		-0.009	0.018	0.054	0.077
Left tip fin, inner surface					
75		-0.331	-0.420	-0.417	-0.442
76		-0.342	-0.443	-0.426	-0.538
88		-0.338	-0.443	-0.424	-0.509
Body					
79		0.068	-0.017	-0.107	-0.181
80		-0.070	-0.124	-0.145	-0.160
81		0.050	-0.030	-0.084	-0.146
82		-0.164	-0.078	-0.003	0.075
83		0.299	0.419	0.541	0.671
85		-0.187	-0.297	-0.388	-0.400
86		0.020	-0.036	-0.087	-0.098
87		-0.087	-0.136	-0.195	-0.341

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right elevon flap, lower surface					
1	-0.214	-0.238	-0.234	-0.104	-0.012
2	-0.370	-0.359	-0.373	-0.360	-0.381
3	-0.363	-0.322	-0.259	-0.328	-0.364
4	-0.363	-0.357	-0.350	-0.339	-0.381
5	-0.357	-0.357	-0.377	-0.360	-0.377
6	-0.361	-0.366	-0.407	-0.379	-0.374
7	-0.357	-0.351	-0.341	-0.324	-0.357
8	-0.342	-0.353	-0.367	-0.341	-0.347
9	-0.348	-0.357	-0.367	-0.339	-0.345
Right elevon, upper surface					
10	-0.355	-0.349	-0.341	-0.324	-0.353
11	-0.346	-0.353	-0.367	-0.341	-0.347
12	-0.348	-0.359	-0.367	-0.341	-0.345
13	-0.372	-0.370	-0.362	-0.343	-0.387
14	-0.357	-0.359	-0.377	-0.360	-0.372
16	-0.378	-0.359	-0.360	-0.371	-0.417
Right elevon, side surface					
19	-0.401	-0.303	-0.204	-0.263	-0.347
20	-0.203	-0.196	-0.157	0.050	0.206
Right elevon well, left surface					
21	-0.359	-0.366	-0.367	-0.362	-0.379
Right elevon well, right surface					
22	-0.359	-0.364	-0.360	-0.341	-0.360
Left elevon, lower surface					
23	-0.287	-0.168	-0.058	0.077	0.464
24	-0.222	-0.143	-0.005	0.270	1.248
25	-0.172	-0.103	0.181	0.671	1.172
26	-0.140	-0.071	0.337	0.754	0.899
27	-0.250	-0.004	0.345	0.821	0.924
28	-0.231	-0.013	0.274	0.788	1.189
29	-0.220	-0.046	0.147	0.430	0.990
30	-0.275	-0.095	0.094	0.346	0.719
31	-0.153	0.063	0.223	0.282	0.547
32	0.071	0.305	0.506	0.879	1.081
33	-0.085	0.294	0.565	0.893	0.937
34	0.633	0.303	0.504	0.809	0.846
35	0.216	0.151	0.347	0.564	0.581
36	-0.003	0.063	0.204	0.384	0.522
Left elevon flap, upper surface					
37	-0.389	-0.391	-0.400	-0.402	-0.398
38	-0.395	-0.397	-0.405	-0.407	-0.415
39	-0.399	-0.397	-0.386	-0.411	-0.413
40	-0.422	-0.408	-0.392	-0.434	-0.415
41	-0.380	-0.362	-0.352	-0.434	-0.438
42	-0.393	-0.385	-0.396	-0.424	-0.423
43	-0.399	-0.387	-0.409	-0.424	-0.423
44	-0.378	-0.360	-0.384	-0.391	-0.388
45	-0.384	-0.376	-0.403	-0.435	-0.422
46	-0.361	-0.353	-0.382	-0.428	-0.422
47	-0.359	-0.337	-0.357	-0.403	-0.386
48	-0.323	-0.316	-0.357	-0.378	-0.386
49	-0.361	-0.332	-0.342	-0.380	-0.397
50	-0.407	-0.403	-0.439	-0.435	-0.426

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(b) $M = 1.50$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right tip fin outer flap, inner surface					
51	-0.265	-0.264	-0.277	-0.292	-0.300
52	-0.457	-0.435	-0.441	-0.439	-0.365
53	-0.461	-0.447	-0.439	-0.407	-0.367
54	-0.459	-0.441	-0.416	-0.386	-0.372
55	-0.457	-0.441	-0.450	-0.386	-0.372
Right tip fin inner flap, inner surface					
56	-0.405	-0.389	-0.378	-0.346	-0.313
57	-0.455	-0.426	-0.433	-0.405	-0.386
58	-0.447	-0.424	-0.426	-0.401	-0.391
59	-0.434	-0.420	-0.416	-0.393	-0.355
60	-0.465	-0.451	-0.448	-0.456	-0.372
Left tip fin inner flap, outer surface					
61	-0.302	-0.389	-0.393	-0.407	-0.357
62	-0.120	-0.376	-0.401	-0.435	-0.429
63	0.068	0.026	-0.384	-0.428	-0.431
64	-0.026	-0.337	-0.403	-0.462	-0.498
65	0.179	-0.024	-0.395	-0.420	-0.456
66	-0.104	-0.393	-0.408	-0.473	-0.287
67	0.147	-0.243	-0.405	-0.367	-0.176
68	0.081	-0.084	-0.389	-0.157	0.064
Left tip fin outer flap, outer surface					
69	0.198	0.208	0.193	0.151	0.117
70	0.116	0.152	0.174	0.180	0.208
71	0.164	0.183	0.188	0.195	0.222
72	0.106	0.147	0.165	0.176	0.218
73	0.091	0.124	0.153	0.174	0.220
74	0.058	0.087	0.115	0.132	0.170
Left tip fin, inner surface					
75	-0.355	-0.416	-0.391	-0.479	-0.479
76	-0.357	-0.428	-0.401	-0.534	-0.546
88	-0.353	-0.424	-0.401	-0.532	-0.532
Body					
79	0.193	0.118	0.035	-0.035	-0.102
80	0.020	-0.047	-0.109	-0.155	-0.182
81	0.085	0.033	-0.039	-0.083	-0.146
82	-0.175	-0.120	-0.075	-0.030	0.014
83	0.219	0.312	0.424	0.551	0.675
85	-0.041	-0.105	-0.186	-0.275	-0.346
86	0.066	0.010	-0.033	-0.053	-0.079
87	-0.068	-0.124	-0.184	-0.378	-0.443

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(c) $M = 1.50$, $\beta = 6^\circ$

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right elevon flap, lower surface					
1	-0.182	-0.281	-0.309	-0.308	-0.261
2	-0.360	-0.370	-0.379	-0.380	-0.388
3	-0.313	-0.269	-0.163	0.032	0.173
4	-0.353	-0.375	-0.358	-0.321	-0.314
5	-0.343	-0.368	-0.375	-0.386	-0.396
6	-0.334	-0.379	-0.392	-0.373	-0.299
7	-0.341	-0.364	-0.356	-0.321	-0.304
8	-0.336	-0.366	-0.375	-0.384	-0.386
9	-0.332	-0.375	-0.390	-0.405	-0.413
Right elevon, upper surface					
10	-0.336	-0.366	-0.366	-0.321	-0.310
11	-0.336	-0.366	-0.375	-0.386	-0.388
12	-0.332	-0.375	-0.390	-0.405	-0.418
13	-0.387	-0.379	-0.364	-0.318	-0.310
14	-0.345	-0.370	-0.377	-0.384	-0.394
16	-0.374	-0.368	-0.373	-0.325	-0.310
Right elevon, side surface					
19	-0.328	-0.300	-0.256	-0.126	-0.021
20	-0.097	-0.199	-0.294	-0.242	-0.185
Right elevon well, left surface					
21	-0.391	-0.396	-0.415	-0.367	-0.390
Right elevon well, right surface					
22	-0.400	-0.417	-0.430	-0.418	-0.405
Left elevon, lower surface					
23	-0.156	0.405	0.425	0.163	0.182
24	-0.144	1.182	0.879	0.532	0.450
25	-0.050	0.957	1.019	0.960	0.842
26	0.092	0.733	0.848	0.910	0.876
27	0.865	0.849	0.712	0.690	0.684
28	0.788	0.993	0.541	0.517	0.538
29	0.553	0.491	0.213	0.217	0.275
30	0.132	0.377	0.236	0.272	0.325
31	0.102	0.142	0.143	0.167	0.211
32	1.089	0.288	0.213	0.253	0.272
33	0.886	0.570	0.327	0.365	0.393
34	0.827	0.184	0.103	0.129	0.156
35	0.466	0.074	0.050	0.078	0.201
36	0.327	0.165	0.097	0.110	0.209
Left elevon flap, upper surface					
37	-0.357	-0.353	-0.349	-0.342	-0.354
38	-0.364	-0.362	-0.349	-0.352	-0.363
39	-0.364	-0.364	-0.341	-0.346	-0.358
40	-0.357	-0.366	-0.332	-0.327	-0.342
41	-0.357	-0.360	-0.345	-0.352	-0.369
42	-0.366	-0.366	-0.354	-0.359	-0.371
43	-0.368	-0.370	-0.356	-0.363	-0.373
44	-0.324	-0.335	-0.324	-0.330	-0.347
45	-0.352	-0.362	-0.364	-0.366	-0.379
46	-0.354	-0.362	-0.359	-0.362	-0.374
47	-0.349	-0.353	-0.347	-0.351	-0.366
48	-0.349	-0.349	-0.345	-0.347	-0.366
49	-0.354	-0.347	-0.345	-0.347	-0.356
50	-0.354	-0.364	-0.378	-0.385	-0.395

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(c) M = 1.50, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.4^\circ$	$\alpha = -0.1^\circ$	$\alpha = 4.1^\circ$	$\alpha = 8.5^\circ$	$\alpha = 12.9^\circ$
Right tip fin outer flap, inner surface					
51	-0.261	-0.272	-0.275	-0.274	-0.288
52	-0.389	-0.372	-0.393	-0.410	-0.456
53	-0.387	-0.374	-0.397	-0.408	-0.442
54	-0.394	-0.385	-0.401	-0.406	-0.425
55	-0.379	-0.389	-0.406	-0.406	-0.423
Right tip fin inner flap, inner surface					
56	-0.379	-0.368	-0.359	-0.381	-0.393
57	-0.391	-0.377	-0.397	-0.414	-0.456
58	-0.389	-0.374	-0.397	-0.412	-0.444
59	-0.383	-0.372	-0.389	-0.404	-0.433
60	-0.398	-0.385	-0.408	-0.416	-0.448
Left tip fin inner flap, outer surface					
61	0.226	0.002	-0.145	-0.324	-0.324
62	0.398	0.167	-0.040	-0.225	-0.374
63	0.551	0.375	0.120	-0.095	-0.341
64	0.719	0.470	0.194	-0.080	-0.377
65	0.667	0.588	0.362	0.119	-0.271
66	0.520	0.403	0.129	-0.284	-0.194
67	0.612	0.424	0.290	-0.097	-0.135
68	0.404	0.344	0.166	0.035	-0.211
Left tip fin outer flap, outer surface					
69	-0.205	-0.116	-0.029	0.008	-0.036
70	-0.200	-0.152	-0.048	0.014	0.018
71	-0.163	-0.112	-0.015	0.025	0.027
72	-0.188	-0.122	-0.015	0.031	0.010
73	-0.184	-0.118	-0.017	0.027	0.010
74	-0.192	-0.131	-0.046	-0.011	-0.051
Left tip fin, inner surface					
75	0.003	-0.154	-0.296	-0.398	-0.440
76	-0.022	-0.166	-0.324	-0.433	-0.498
88	-0.018	-0.162	-0.317	-0.423	-0.490
Body					
79	0.098	0.050	-0.021	-0.097	-0.187
80	0.016	-0.055	-0.126	-0.181	-0.217
81	0.177	0.100	0.040	-0.030	-0.093
82	-0.333	-0.230	-0.126	-0.019	0.086
83	0.211	0.306	0.421	0.552	0.680
85	-0.186	-0.305	-0.406	-0.387	-0.408
86	0.110	0.041	-0.044	-0.143	-0.301
87	-0.003	-0.055	-0.109	-0.158	-0.213

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right elevon flap, lower surface					
1	-0.198	-0.193	-0.183	-0.174	-0.174
2	-0.302	-0.294	-0.286	-0.304	-0.319
3	-0.275	-0.245	-0.047	0.058	0.101
4	-0.300	-0.294	-0.269	-0.289	-0.279
5	-0.298	-0.294	-0.294	-0.308	-0.308
6	-0.298	-0.302	-0.307	-0.281	-0.277
7	-0.298	-0.292	-0.265	-0.285	-0.277
8	-0.296	-0.292	-0.288	-0.304	-0.300
9	-0.298	-0.298	-0.296	-0.317	-0.304
Right elevon, upper surface					
10	-0.298	-0.292	-0.265	-0.287	-0.279
11	-0.298	-0.294	-0.290	-0.306	-0.300
12	-0.298	-0.300	-0.296	-0.321	-0.304
13	-0.319	-0.311	-0.279	-0.302	-0.296
14	-0.298	-0.298	-0.294	-0.308	-0.308
16	-0.311	-0.304	-0.271	-0.296	-0.300
Right elevon, side surface					
19	-0.290	-0.264	-0.179	-0.134	-0.092
20	-0.187	-0.184	-0.137	-0.142	-0.117
Right elevon well, left surface					
21	-0.319	-0.306	-0.279	-0.300	-0.290
Right elevon well, right surface					
22	-0.330	-0.311	-0.323	-0.334	-0.319
Left elevon, lower surface					
23	-0.175	-0.071	0.113	0.140	0.278
24	-0.179	-0.039	0.268	0.447	0.961
25	-0.145	0.131	0.704	0.994	1.314
26	-0.137	0.377	0.857	0.975	1.029
27	0.121	0.637	0.960	1.026	1.150
28	0.008	0.436	0.910	0.988	1.077
29	0.073	0.276	0.524	0.407	0.413
30	-0.080	0.127	0.299	0.308	0.413
31	-0.026	0.099	0.176	0.203	0.270
32	0.482	0.503	0.509	0.392	0.427
33	0.648	0.778	0.736	0.622	0.713
34	0.495	0.326	0.249	0.222	0.310
35	0.199	0.129	0.159	0.148	0.207
36	0.096	0.118	0.188	0.199	0.276
Left elevon flap, upper surface					
37	-0.319	-0.300	-0.317	-0.313	-0.321
38	-0.326	-0.306	-0.323	-0.315	-0.321
39	-0.321	-0.306	-0.315	-0.317	-0.319
40	-0.326	-0.315	-0.305	-0.329	-0.321
41	-0.298	-0.296	-0.303	-0.334	-0.336
42	-0.309	-0.304	-0.315	-0.331	-0.336
43	-0.323	-0.309	-0.328	-0.331	-0.336
44	-0.291	-0.272	-0.290	-0.290	-0.297
45	-0.320	-0.305	-0.311	-0.322	-0.328
46	-0.305	-0.299	-0.307	-0.326	-0.330
47	-0.288	-0.284	-0.290	-0.305	-0.313
48	-0.288	-0.290	-0.297	-0.301	-0.311
49	-0.309	-0.290	-0.284	-0.292	-0.301
50	-0.324	-0.313	-0.326	-0.347	-0.349

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(d) $M = 1.80$, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right tip fin outer flap, inner surface					
51	-0.222	-0.219	-0.217	-0.221	-0.232
52	-0.320	-0.318	-0.320	-0.332	-0.353
53	-0.322	-0.320	-0.322	-0.336	-0.355
54	-0.326	-0.320	-0.322	-0.334	-0.353
55	-0.320	-0.322	-0.324	-0.334	-0.351
Right tip fin inner flap, inner surface					
56	-0.316	-0.307	-0.303	-0.313	-0.322
57	-0.324	-0.322	-0.322	-0.336	-0.357
58	-0.320	-0.322	-0.320	-0.334	-0.355
59	-0.318	-0.320	-0.316	-0.332	-0.347
60	-0.328	-0.326	-0.322	-0.336	-0.357
Left tip fin inner flap, outer surface					
61	0.008	-0.201	-0.288	-0.299	-0.303
62	0.069	-0.081	-0.201	-0.320	-0.341
63	0.211	0.082	-0.044	-0.292	-0.326
64	0.211	0.029	-0.077	-0.320	-0.368
65	0.430	0.201	-0.012	-0.276	-0.355
66	0.179	-0.152	-0.311	-0.336	-0.192
67	0.259	0.080	-0.297	-0.269	-0.081
68	0.169	0.063	-0.244	-0.138	-0.048
Left tip fin outer flap, outer surface					
69	0.058	0.071	0.092	0.092	0.063
70	0.002	0.029	0.071	0.092	0.094
71	0.027	0.050	0.092	0.107	0.111
72	-0.009	0.027	0.069	0.075	0.082
73	-0.009	0.027	0.063	0.071	0.080
74	-0.021	0.008	0.038	0.048	0.055
Left tip fin, inner surface					
75	-0.144	-0.236	-0.305	-0.336	-0.359
76	-0.186	-0.280	-0.322	-0.370	-0.384
88	-0.163	-0.253	-0.320	-0.364	-0.382
Body					
79	0.119	0.061	-0.004	-0.060	-0.115
80	0.029	-0.035	-0.094	-0.132	-0.148
81	0.102	0.054	-0.002	-0.048	-0.096
82	-0.186	-0.119	-0.048	0.021	0.092
83	0.219	0.320	0.429	0.548	0.677
85	-0.096	-0.173	-0.255	-0.274	-0.292
86	0.058	0.002	-0.038	-0.071	-0.115
87	-0.034	-0.086	-0.127	-0.226	-0.332

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right elevon flap, lower surface					
1	-0.188	-0.174	-0.179	-0.063	0.014
2	-0.277	-0.272	-0.288	-0.278	-0.290
3	-0.265	-0.191	-0.218	-0.247	-0.273
4	-0.265	-0.264	-0.271	-0.257	-0.288
5	-0.265	-0.266	-0.290	-0.276	-0.284
6	-0.265	-0.274	-0.321	-0.291	-0.275
7	-0.265	-0.260	-0.269	-0.251	-0.265
8	-0.254	-0.266	-0.284	-0.259	-0.255
9	-0.256	-0.272	-0.288	-0.259	-0.252
Right elevon, upper surface					
10	-0.265	-0.262	-0.269	-0.249	-0.263
11	-0.254	-0.266	-0.284	-0.261	-0.257
12	-0.258	-0.274	-0.288	-0.261	-0.252
13	-0.269	-0.272	-0.281	-0.264	-0.290
14	-0.265	-0.268	-0.292	-0.274	-0.282
16	-0.279	-0.264	-0.284	-0.289	-0.315
Right elevon, side surface					
19	-0.292	-0.235	-0.172	-0.178	-0.225
20	-0.229	-0.174	-0.149	0.004	0.160
Right elevon well, left surface					
21	-0.265	-0.274	-0.275	-0.264	-0.286
Right elevon well, right surface					
22	-0.271	-0.285	-0.284	-0.264	-0.280
Left elevon, lower surface					
23	-0.213	-0.139	-0.082	0.029	0.164
24	-0.188	-0.122	-0.025	0.171	0.541
25	-0.171	-0.102	0.199	0.624	1.080
26	-0.161	-0.052	0.438	0.820	1.027
27	-0.192	-0.066	0.375	0.734	1.019
28	-0.182	-0.070	0.226	0.548	0.902
29	-0.196	-0.102	0.059	0.212	0.409
30	-0.213	-0.120	0.042	0.192	0.395
31	-0.171	-0.056	0.151	0.196	0.349
32	-0.063	0.069	0.319	0.500	0.765
33	-0.090	0.146	0.466	0.690	0.943
34	0.181	0.213	0.524	0.768	0.826
35	0.046	0.025	0.281	0.475	0.592
36	-0.055	-0.006	0.166	0.248	0.397
Left elevon flap, upper surface					
37	-0.292	-0.306	-0.307	-0.301	-0.313
38	-0.298	-0.308	-0.313	-0.312	-0.328
39	-0.298	-0.304	-0.313	-0.309	-0.307
40	-0.310	-0.318	-0.323	-0.320	-0.301
41	-0.287	-0.287	-0.325	-0.330	-0.319
42	-0.296	-0.306	-0.330	-0.330	-0.336
43	-0.296	-0.306	-0.336	-0.330	-0.342
44	-0.284	-0.284	-0.293	-0.297	-0.303
45	-0.311	-0.305	-0.334	-0.337	-0.337
46	-0.286	-0.295	-0.332	-0.334	-0.324
47	-0.293	-0.291	-0.303	-0.299	-0.278
48	-0.242	-0.253	-0.272	-0.299	-0.295
49	-0.272	-0.257	-0.268	-0.274	-0.268
50	-0.322	-0.318	-0.337	-0.334	-0.349

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(e) $M = 1.80$, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right tip fin outer flap, inner surface					
51	-0.215	-0.216	-0.216	-0.224	-0.239
52	-0.322	-0.324	-0.332	-0.305	-0.291
53	-0.328	-0.326	-0.332	-0.307	-0.293
54	-0.326	-0.328	-0.328	-0.305	-0.289
55	-0.326	-0.324	-0.328	-0.305	-0.293
Right tip fin inner flap, inner surface					
56	-0.297	-0.314	-0.309	-0.280	-0.251
57	-0.320	-0.326	-0.332	-0.309	-0.291
58	-0.313	-0.322	-0.332	-0.305	-0.287
59	-0.307	-0.322	-0.330	-0.305	-0.282
60	-0.330	-0.332	-0.337	-0.309	-0.297
Left tip fin inner flap, outer surface					
61	-0.209	-0.291	-0.318	-0.322	-0.305
62	-0.079	-0.220	-0.320	-0.324	-0.322
63	0.217	0.095	-0.170	-0.324	-0.322
64	0.023	-0.055	-0.314	-0.339	-0.355
65	0.194	0.020	-0.234	-0.320	-0.345
66	-0.130	-0.287	-0.326	-0.337	-0.318
67	0.082	-0.147	-0.318	-0.314	-0.312
68	-0.002	-0.078	-0.293	-0.305	-0.310
Left tip fin outer flap, outer surface					
69	0.220	0.210	0.193	0.169	0.143
70	0.155	0.168	0.185	0.189	0.201
71	0.180	0.189	0.196	0.206	0.214
72	0.132	0.150	0.168	0.183	0.195
73	0.134	0.150	0.168	0.177	0.187
74	0.119	0.124	0.137	0.144	0.153
Left tip fin, inner surface					
75	-0.230	-0.293	-0.316	-0.330	-0.330
76	-0.267	-0.314	-0.328	-0.360	-0.362
88	-0.242	-0.305	-0.328	-0.360	-0.362
Body					
79	0.194	0.133	0.070	0.016	-0.034
80	0.040	-0.026	-0.080	-0.119	-0.149
81	0.048	0.012	-0.038	-0.078	-0.122
82	-0.140	-0.097	-0.053	-0.013	0.037
83	0.224	0.323	0.427	0.544	0.677
85	-0.038	-0.097	-0.165	-0.222	-0.276
86	0.036	-0.005	-0.032	-0.061	-0.086
87	-0.077	-0.174	-0.255	-0.295	-0.307

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right elevon flap, lower surface					
1	-0.124	-0.174	-0.252	-0.235	-0.142
2	-0.305	-0.272	-0.296	-0.311	-0.307
3	-0.261	-0.222	-0.078	0.042	0.144
4	-0.292	-0.266	-0.284	-0.277	-0.261
5	-0.284	-0.270	-0.303	-0.313	-0.297
6	-0.279	-0.276	-0.309	-0.242	-0.169
7	-0.286	-0.268	-0.275	-0.273	-0.255
8	-0.279	-0.270	-0.303	-0.311	-0.295
9	-0.279	-0.272	-0.315	-0.334	-0.322
Right elevon, upper surface					
10	-0.282	-0.266	-0.277	-0.277	-0.261
11	-0.279	-0.270	-0.305	-0.313	-0.297
12	-0.279	-0.272	-0.315	-0.334	-0.322
13	-0.334	-0.293	-0.277	-0.279	-0.268
14	-0.288	-0.274	-0.303	-0.313	-0.295
16	-0.317	-0.280	-0.262	-0.279	-0.255
Right elevon, side surface					
19	-0.273	-0.226	-0.196	-0.068	0.044
20	-0.053	-0.107	-0.248	-0.235	-0.184
Right elevon well, left surface					
21	-0.307	-0.299	-0.305	-0.311	-0.320
Right elevon well, right surface					
22	-0.328	-0.316	-0.309	-0.311	-0.303
Left elevon, lower surface					
23	-0.170	0.526	0.404	0.098	0.119
24	-0.133	1.129	0.869	0.407	0.303
25	0.018	0.968	1.062	0.881	0.689
26	0.188	0.760	0.903	0.962	0.886
27	0.658	0.887	0.674	0.608	0.549
28	0.404	1.070	0.419	0.388	0.353
29	0.190	0.505	0.123	0.134	0.152
30	0.018	0.297	0.146	0.180	0.198
31	0.169	0.095	0.085	0.111	0.169
32	1.048	0.282	0.138	0.182	0.148
33	0.914	0.758	0.249	0.293	0.242
34	0.614	0.195	0.112	0.069	0.136
35	0.259	0.041	0.031	0.033	0.173
36	0.188	0.151	0.079	0.067	0.173
Left elevon flap, upper surface					
37	-0.294	-0.272	-0.280	-0.271	-0.278
38	-0.296	-0.280	-0.286	-0.277	-0.288
39	-0.294	-0.280	-0.282	-0.277	-0.284
40	-0.288	-0.280	-0.269	-0.265	-0.265
41	-0.286	-0.276	-0.282	-0.284	-0.288
42	-0.294	-0.285	-0.286	-0.288	-0.295
43	-0.296	-0.287	-0.290	-0.290	-0.299
44	-0.263	-0.264	-0.257	-0.251	-0.264
45	-0.280	-0.289	-0.286	-0.284	-0.291
46	-0.284	-0.289	-0.286	-0.289	-0.284
47	-0.280	-0.278	-0.272	-0.274	-0.284
48	-0.280	-0.282	-0.263	-0.268	-0.278
49	-0.286	-0.282	-0.274	-0.266	-0.289
50	-0.264	-0.291	-0.259	-0.297	-0.297

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(f) $M = 1.80$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -4.1^\circ$	$\alpha = 0.1^\circ$	$\alpha = 4.3^\circ$	$\alpha = 8.7^\circ$	$\alpha = 13.1^\circ$
Right tip fin outer flap, inner surface					
51	-0.219	-0.220	-0.222	-0.222	-0.236
52	-0.313	-0.303	-0.295	-0.328	-0.330
53	-0.313	-0.303	-0.297	-0.330	-0.337
54	-0.315	-0.312	-0.303	-0.337	-0.343
55	-0.315	-0.314	-0.305	-0.337	-0.343
Right tip fin inner flap, inner surface					
56	-0.309	-0.299	-0.278	-0.314	-0.307
57	-0.317	-0.309	-0.301	-0.335	-0.337
58	-0.315	-0.307	-0.299	-0.330	-0.332
59	-0.311	-0.303	-0.293	-0.324	-0.326
60	-0.322	-0.316	-0.305	-0.337	-0.343
Left tip fin inner flap, outer surface					
61	0.266	0.049	-0.117	-0.249	-0.243
62	0.277	0.087	-0.079	-0.249	-0.278
63	0.567	0.331	0.109	-0.118	-0.278
64	0.812	0.463	0.071	-0.205	-0.316
65	0.609	0.467	0.290	0.022	-0.295
66	0.511	0.296	0.054	-0.262	-0.201
67	0.459	0.327	0.173	-0.197	-0.186
68	0.341	0.223	0.125	-0.088	-0.222
Left tip fin outer flap, outer surface					
69	-0.098	-0.059	-0.023	0.012	-0.013
70	-0.119	-0.092	-0.038	0.022	0.029
71	-0.098	-0.072	-0.015	0.037	0.033
72	-0.121	-0.090	-0.023	0.018	-0.013
73	-0.119	-0.088	-0.023	0.016	-0.009
74	-0.125	-0.097	-0.044	-0.005	-0.042
Left tip fin, inner surface					
75	-0.006	-0.136	-0.222	-0.278	-0.295
76	-0.064	-0.191	-0.263	-0.320	-0.347
88	-0.039	-0.157	-0.242	-0.312	-0.332
Body					
79	0.072	0.029	-0.034	-0.097	-0.163
80	0.044	-0.017	-0.077	-0.124	-0.161
81	0.182	0.122	0.065	0.008	-0.044
82	-0.244	-0.159	-0.071	0.022	0.116
83	0.224	0.321	0.428	0.546	0.678
85	-0.173	-0.261	-0.299	-0.287	-0.305
86	0.061	0.008	-0.084	-0.249	-0.284
87	-0.012	-0.053	-0.096	-0.136	-0.188

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(g) $M = 2.16$, $\beta = 0^\circ$

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right elevon flap, lower surface					
1	-0.141	-0.145	-0.126	-0.113	-0.078
2	-0.239	-0.228	-0.223	-0.230	-0.226
3	-0.217	-0.178	0.053	0.088	0.103
4	-0.237	-0.221	-0.210	-0.208	-0.200
5	-0.239	-0.223	-0.230	-0.224	-0.219
6	-0.234	-0.236	-0.239	-0.197	-0.176
7	-0.234	-0.219	-0.213	-0.208	-0.193
8	-0.234	-0.221	-0.226	-0.221	-0.213
9	-0.234	-0.228	-0.232	-0.226	-0.215
Right elevon, upper surface					
10	-0.234	-0.219	-0.213	-0.210	-0.197
11	-0.234	-0.221	-0.226	-0.221	-0.213
12	-0.234	-0.228	-0.232	-0.226	-0.217
13	-0.250	-0.232	-0.221	-0.221	-0.210
14	-0.237	-0.226	-0.230	-0.224	-0.219
16	-0.248	-0.230	-0.219	-0.226	-0.217
Right elevon, side surface					
19	-0.226	-0.199	-0.121	-0.071	-0.058
20	-0.171	-0.156	-0.156	-0.095	-0.041
Right elevon well, left surface					
21	-0.239	-0.226	-0.219	-0.213	-0.221
Right elevon well, right surface					
22	-0.252	-0.239	-0.234	-0.228	-0.226
Left elevon, lower surface					
23	-0.161	-0.121	-0.043	0.075	0.286
24	-0.139	-0.097	0.094	0.471	1.056
25	-0.093	0.116	0.514	1.128	1.363
26	-0.030	0.411	0.815	1.058	1.089
27	-0.028	0.317	0.736	1.152	1.283
28	-0.089	0.123	0.438	0.980	1.130
29	-0.104	-0.016	0.103	0.297	0.382
30	-0.130	-0.021	0.112	0.268	0.362
31	0.055	0.084	0.092	0.142	0.242
32	0.209	0.411	0.445	0.318	0.425
33	0.239	0.631	0.786	0.634	0.778
34	0.437	0.193	0.112	0.194	0.318
35	0.074	0.031	0.053	0.112	0.192
36	0.002	0.029	0.061	0.170	0.271
Left elevon flap, upper surface					
37	-0.245	-0.230	-0.226	-0.237	-0.234
38	-0.250	-0.234	-0.232	-0.243	-0.243
39	-0.250	-0.234	-0.232	-0.241	-0.237
40	-0.256	-0.232	-0.232	-0.243	-0.237
41	-0.239	-0.226	-0.241	-0.256	-0.247
42	-0.239	-0.234	-0.241	-0.250	-0.247
43	-0.248	-0.234	-0.243	-0.250	-0.247
44	-0.205	-0.191	-0.202	-0.204	-0.202
45	-0.237	-0.228	-0.230	-0.239	-0.239
46	-0.235	-0.222	-0.230	-0.241	-0.239
47	-0.222	-0.204	-0.219	-0.230	-0.226
48	-0.218	-0.215	-0.215	-0.230	-0.237
49	-0.235	-0.219	-0.206	-0.222	-0.230
50	-0.237	-0.226	-0.237	-0.252	-0.248

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(g) M = 2.16, $\beta = 0^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right tip fin outer flap, inner surface					
51	-0.168	-0.165	-0.165	-0.165	-0.176
52	-0.237	-0.228	-0.228	-0.245	-0.248
53	-0.237	-0.228	-0.230	-0.248	-0.248
54	-0.237	-0.226	-0.232	-0.252	-0.252
55	-0.237	-0.226	-0.232	-0.250	-0.252
Right tip fin inner flap, inner surface					
56	-0.235	-0.213	-0.217	-0.239	-0.237
57	-0.239	-0.228	-0.230	-0.252	-0.252
58	-0.239	-0.226	-0.230	-0.250	-0.252
59	-0.237	-0.224	-0.226	-0.245	-0.245
60	-0.239	-0.230	-0.232	-0.252	-0.252
Left tip fin inner flap, outer surface					
61	-0.021	-0.120	-0.202	-0.232	-0.232
62	0.029	-0.091	-0.174	-0.232	-0.248
63	0.299	0.156	-0.041	-0.226	-0.245
64	0.157	0.063	-0.167	-0.237	-0.248
65	0.319	0.147	-0.022	-0.189	-0.252
66	0.023	-0.098	-0.226	-0.258	-0.235
67	0.193	0.023	-0.224	-0.252	-0.174
68	0.135	-0.005	-0.217	-0.239	-0.109
Left tip fin outer flap, outer surface					
69	0.105	0.106	0.095	0.080	0.063
70	0.055	0.069	0.087	0.093	0.100
71	0.070	0.082	0.095	0.108	0.115
72	0.029	0.047	0.065	0.074	0.085
73	0.029	0.050	0.065	0.074	0.083
74	0.023	0.035	0.050	0.056	0.065
Left tip fin, inner surface					
75	-0.116	-0.174	-0.228	-0.241	-0.248
76	-0.148	-0.213	-0.235	-0.267	-0.263
88	-0.129	-0.185	-0.232	-0.263	-0.263
Body					
79	0.116	0.069	0.020	-0.028	-0.067
80	0.055	0.002	-0.050	-0.091	-0.111
81	0.105	0.067	0.022	-0.022	-0.059
82	-0.127	-0.068	-0.004	0.059	0.119
83	0.243	0.342	0.462	0.580	0.706
85	-0.086	-0.150	-0.189	-0.198	-0.213
86	0.038	-0.000	-0.039	-0.063	-0.143
87	-0.031	-0.070	-0.124	-0.215	-0.232

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(h) $M = 2.16$, $\beta = -6^\circ$

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right elevon flap, lower surface					
1	-0.158	-0.138	-0.130	-0.020	0.012
2	-0.228	-0.223	-0.223	-0.217	-0.202
3	-0.219	-0.173	-0.158	-0.188	-0.192
4	-0.225	-0.219	-0.212	-0.212	-0.213
5	-0.228	-0.223	-0.223	-0.215	-0.198
6	-0.234	-0.228	-0.239	-0.219	-0.196
7	-0.228	-0.217	-0.210	-0.201	-0.192
8	-0.225	-0.219	-0.217	-0.201	-0.183
9	-0.230	-0.225	-0.219	-0.201	-0.181
Right elevon, upper surface					
10	-0.228	-0.217	-0.210	-0.201	-0.187
11	-0.225	-0.221	-0.217	-0.201	-0.183
12	-0.230	-0.225	-0.219	-0.201	-0.181
13	-0.230	-0.225	-0.219	-0.215	-0.220
14	-0.230	-0.223	-0.223	-0.212	-0.192
16	-0.239	-0.223	-0.225	-0.228	-0.230
Right elevon, side surface					
19	-0.232	-0.188	-0.138	-0.158	-0.155
20	-0.219	-0.149	-0.125	0.043	0.191
Right elevon well, left surface					
21	-0.228	-0.223	-0.212	-0.212	-0.207
Right elevon well, right surface					
22	-0.234	-0.232	-0.223	-0.212	-0.207
Left elevon, lower surface					
23	-0.201	-0.114	-0.066	0.017	0.159
24	-0.199	-0.110	-0.003	0.257	0.559
25	-0.114	-0.071	0.274	0.892	1.210
26	0.069	0.093	0.588	0.970	1.158
27	-0.110	-0.034	0.429	0.955	1.180
28	-0.138	-0.068	0.222	0.606	0.998
29	-0.188	-0.095	0.032	0.180	0.392
30	-0.199	-0.103	0.028	0.187	0.375
31	-0.162	-0.066	0.052	0.169	0.310
32	-0.127	0.023	0.200	0.534	0.860
33	-0.099	0.119	0.390	0.854	1.104
34	-0.027	0.141	0.606	0.811	0.948
35	0.043	0.001	0.307	0.383	0.572
36	-0.082	-0.025	0.106	0.217	0.375
Left elevon flap, upper surface					
37	-0.258	-0.256	-0.236	-0.236	-0.226
38	-0.265	-0.254	-0.245	-0.245	-0.241
39	-0.265	-0.243	-0.243	-0.234	-0.222
40	-0.267	-0.249	-0.243	-0.223	-0.202
41	-0.247	-0.254	-0.254	-0.236	-0.220
42	-0.256	-0.249	-0.252	-0.245	-0.237
43	-0.263	-0.254	-0.252	-0.258	-0.248
44	-0.215	-0.211	-0.204	-0.211	-0.211
45	-0.252	-0.248	-0.245	-0.252	-0.248
46	-0.226	-0.252	-0.248	-0.232	-0.239
47	-0.208	-0.232	-0.217	-0.217	-0.215
48	-0.193	-0.198	-0.215	-0.224	-0.232
49	-0.189	-0.185	-0.208	-0.208	-0.230
50	-0.243	-0.243	-0.243	-0.258	-0.243

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(h) M = 2.16, $\beta = -6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right tip fin outer flap, inner surface					
51	-0.165	-0.167	-0.167	-0.174	-0.185
52	-0.239	-0.243	-0.248	-0.228	-0.226
53	-0.241	-0.245	-0.248	-0.230	-0.230
54	-0.241	-0.245	-0.245	-0.230	-0.224
55	-0.241	-0.245	-0.245	-0.230	-0.224
Right tip fin inner flap, inner surface					
56	-0.226	-0.241	-0.232	-0.219	-0.200
57	-0.237	-0.245	-0.248	-0.230	-0.226
58	-0.232	-0.245	-0.248	-0.230	-0.226
59	-0.230	-0.245	-0.248	-0.230	-0.222
60	-0.243	-0.248	-0.248	-0.230	-0.230
Left tip fin inner flap, outer surface					
61	-0.130	-0.191	-0.232	-0.235	-0.239
62	-0.013	-0.143	-0.182	-0.235	-0.243
63	0.195	0.037	-0.063	-0.226	-0.243
64	0.096	-0.054	-0.176	-0.235	-0.243
65	0.193	0.039	-0.052	-0.232	-0.241
66	0.024	-0.174	-0.232	-0.237	-0.243
67	0.104	-0.026	-0.237	-0.235	-0.243
68	0.026	-0.061	-0.226	-0.226	-0.243
Left tip fin outer flap, outer surface					
69	0.237	0.224	0.202	0.180	0.163
70	0.187	0.189	0.193	0.191	0.208
71	0.198	0.204	0.211	0.219	0.223
72	0.150	0.156	0.167	0.176	0.186
73	0.145	0.159	0.163	0.169	0.182
74	0.137	0.139	0.143	0.152	0.163
Left tip fin, inner surface					
75	-0.156	-0.202	-0.237	-0.228	-0.230
76	-0.185	-0.230	-0.237	-0.241	-0.241
88	-0.159	-0.211	-0.235	-0.239	-0.243
Body					
79	0.206	0.154	0.102	0.052	0.008
80	0.061	0.004	-0.043	-0.080	-0.109
81	0.048	0.015	-0.020	-0.056	-0.094
82	-0.109	-0.059	-0.020	0.022	0.067
83	0.245	0.345	0.456	0.573	0.701
85	-0.033	-0.085	-0.139	-0.174	-0.204
86	0.022	-0.011	-0.037	-0.059	-0.087
87	-0.111	-0.176	-0.202	-0.219	-0.230

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Continued

(i) $M = 2.16$, $\beta = 6^\circ$

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right elevon flap, lower surface					
1	-0.102	-0.169	-0.187	-0.162	-0.095
2	-0.228	-0.223	-0.232	-0.234	-0.226
3	-0.200	-0.151	-0.026	0.069	0.158
4	-0.226	-0.217	-0.210	-0.208	-0.202
5	-0.228	-0.223	-0.230	-0.234	-0.223
6	-0.226	-0.232	-0.208	-0.165	-0.108
7	-0.228	-0.219	-0.213	-0.208	-0.197
8	-0.226	-0.223	-0.230	-0.234	-0.223
9	-0.226	-0.226	-0.243	-0.247	-0.245
Right elevon, upper surface					
10	-0.226	-0.217	-0.215	-0.212	-0.202
11	-0.223	-0.223	-0.232	-0.236	-0.223
12	-0.226	-0.226	-0.243	-0.247	-0.245
13	-0.250	-0.236	-0.217	-0.215	-0.212
14	-0.228	-0.226	-0.230	-0.234	-0.226
16	-0.245	-0.226	-0.219	-0.212	-0.195
Right elevon, side surface					
19	-0.221	-0.180	-0.115	0.003	0.080
20	-0.069	-0.117	-0.184	-0.184	-0.160
Right elevon well, left surface					
21	-0.219	-0.217	-0.221	-0.226	-0.254
Right elevon well, right surface					
22	-0.254	-0.256	-0.230	-0.230	-0.263
Left elevon, lower surface					
23	-0.139	-0.032	0.120	0.047	0.071
24	-0.126	0.178	0.599	0.256	0.197
25	-0.054	0.690	1.049	0.703	0.557
26	0.062	0.856	0.901	0.943	0.880
27	0.515	0.949	0.725	0.459	0.468
28	0.282	1.041	0.388	0.254	0.245
29	0.018	0.568	0.079	0.082	0.080
30	-0.021	0.123	0.065	0.117	0.132
31	0.025	-0.003	0.051	0.067	0.149
32	0.480	0.136	0.085	0.114	0.117
33	0.765	0.524	0.209	0.217	0.206
34	0.652	0.132	0.114	0.006	0.139
35	0.327	0.006	0.029	0.003	0.132
36	0.062	0.034	0.068	0.036	0.125
Left elevon flap, upper surface					
37	-0.228	-0.226	-0.217	-0.215	-0.223
38	-0.232	-0.234	-0.221	-0.219	-0.223
39	-0.232	-0.234	-0.221	-0.217	-0.223
40	-0.232	-0.234	-0.215	-0.215	-0.217
41	-0.223	-0.223	-0.219	-0.226	-0.226
42	-0.232	-0.234	-0.224	-0.226	-0.230
43	-0.232	-0.236	-0.226	-0.226	-0.234
44	-0.187	-0.187	-0.187	-0.185	-0.187
45	-0.217	-0.224	-0.215	-0.215	-0.219
46	-0.219	-0.224	-0.215	-0.217	-0.217
47	-0.213	-0.215	-0.209	-0.211	-0.209
48	-0.213	-0.222	-0.204	-0.204	-0.211
49	-0.219	-0.219	-0.211	-0.209	-0.222
50	-0.219	-0.224	-0.224	-0.224	-0.224

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TABLE IX.- COEFFICIENTS FROM PRESSURE MEASUREMENTS ON BODY, FIN, AND CONTROL SURFACES OF HL-10 MODEL WITH SEALED ELEVON GAPS; E CENTER FIN, $\delta_e = 55^\circ$ - Concluded

(i) $M = 2.16$, $\beta = 6^\circ$ - Concluded

Orifice	C_p at:				
	$\alpha = -3.1^\circ$	$\alpha = 1.1^\circ$	$\alpha = 5.3^\circ$	$\alpha = 9.6^\circ$	$\alpha = 14.0^\circ$
Right tip fin outer flap, inner surface					
51	-0.172	-0.172	-0.172	-0.172	-0.183
52	-0.241	-0.230	-0.235	-0.239	-0.237
53	-0.243	-0.232	-0.237	-0.241	-0.237
54	-0.243	-0.235	-0.237	-0.241	-0.237
55	-0.245	-0.235	-0.239	-0.243	-0.239
Right tip fin inner flap, inner surface					
56	-0.243	-0.226	-0.222	-0.217	-0.215
57	-0.243	-0.235	-0.237	-0.241	-0.237
58	-0.243	-0.235	-0.235	-0.239	-0.237
59	-0.243	-0.232	-0.232	-0.237	-0.235
60	-0.245	-0.235	-0.239	-0.245	-0.239
Left tip fin inner flap, outer surface					
61	0.215	0.041	-0.100	-0.172	-0.196
62	0.258	0.065	-0.100	-0.183	-0.200
63	0.601	0.388	0.234	-0.113	-0.202
64	0.618	0.276	-0.083	-0.137	-0.243
65	0.551	0.349	0.160	-0.130	-0.239
66	0.338	0.139	-0.120	-0.143	-0.141
67	0.392	0.247	0.061	-0.104	-0.154
68	0.297	0.176	0.064	-0.128	-0.185
Left tip fin outer flap, outer surface					
69	-0.028	-0.009	0.006	0.019	0.004
70	-0.057	-0.037	-0.013	0.030	0.025
71	-0.041	-0.028	0.006	0.041	0.028
72	-0.070	-0.046	-0.007	0.013	-0.011
73	-0.070	-0.041	-0.007	0.013	-0.011
74	-0.072	-0.044	-0.020	-0.002	-0.033
Left tip fin, inner surface					
75	-0.028	-0.111	-0.182	-0.204	-0.226
76	-0.070	-0.156	-0.219	-0.226	-0.252
88	-0.041	-0.143	-0.198	-0.219	-0.252
Body					
79	0.067	0.024	-0.024	-0.078	-0.120
80	0.069	0.013	-0.037	-0.081	-0.111
81	0.186	0.130	0.078	0.030	-0.011
82	-0.156	-0.094	-0.015	0.067	0.153
83	0.247	0.349	0.458	0.575	0.706
85	-0.133	-0.185	-0.209	-0.213	-0.217
86	0.045	-0.013	-0.143	-0.209	-0.211
87	-0.011	-0.046	-0.085	-0.124	-0.198

[redacted]

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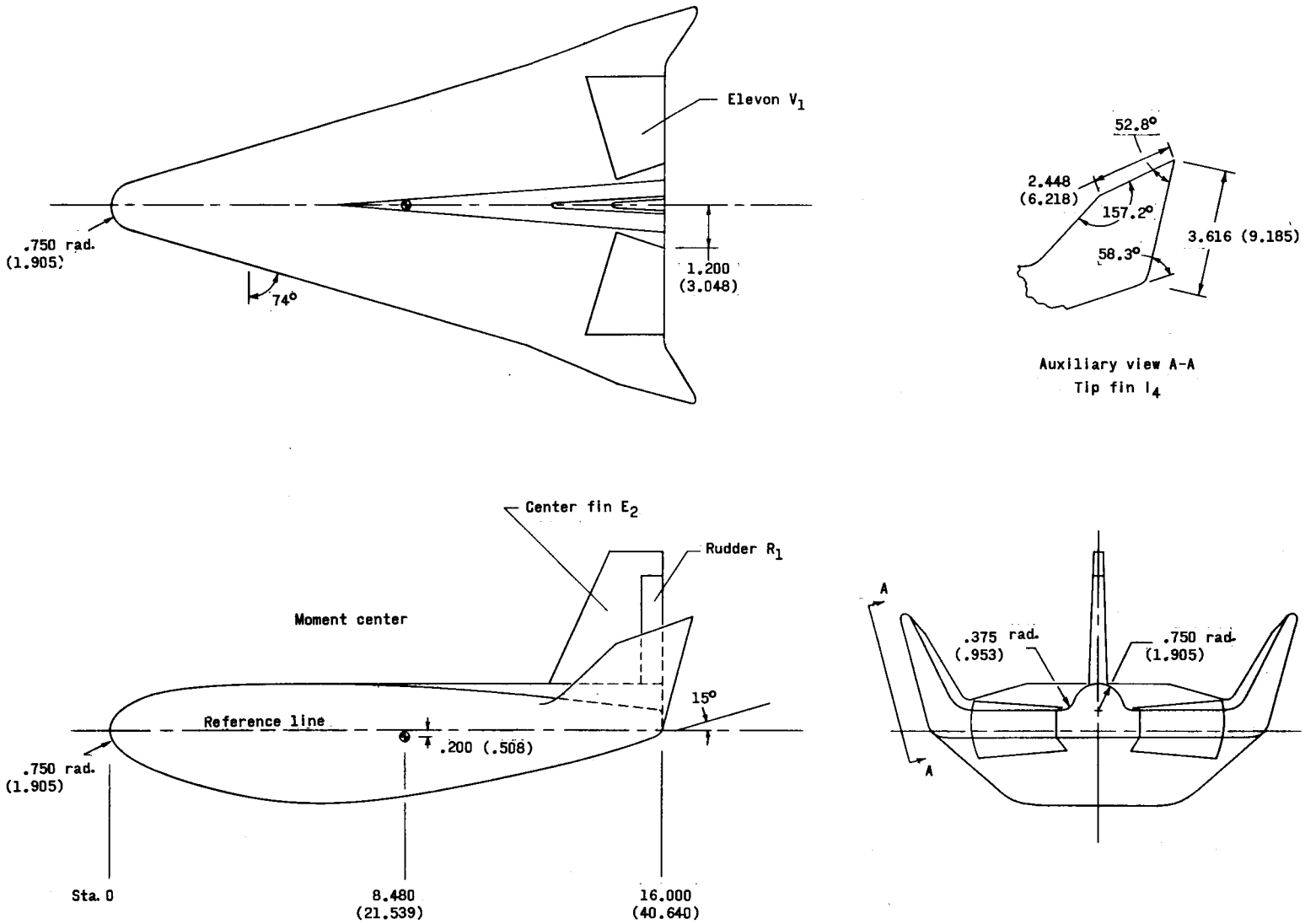


Figure 1.- Three-view drawing of model. All dimensions are in inches (centimeters) unless otherwise noted.

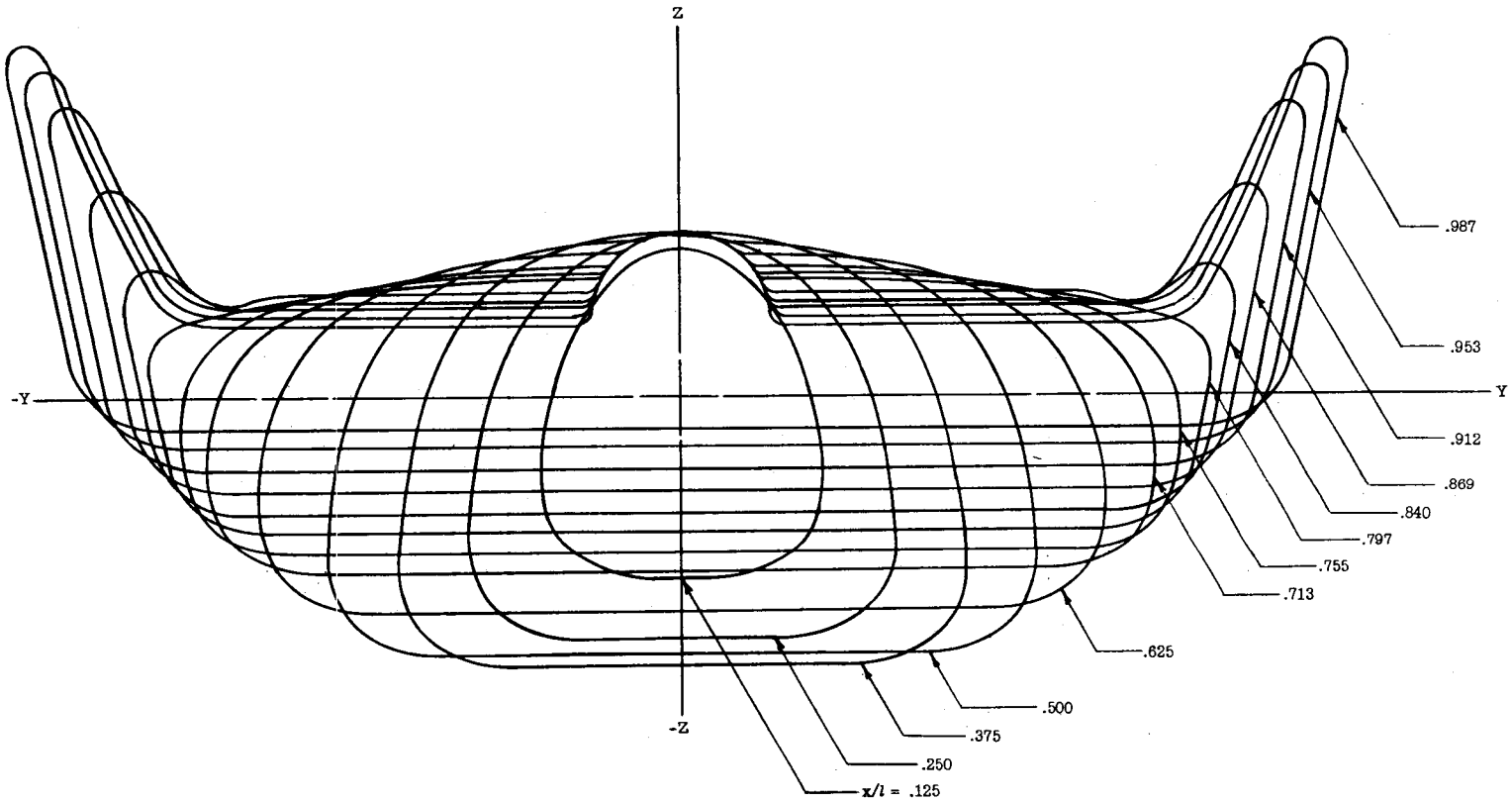
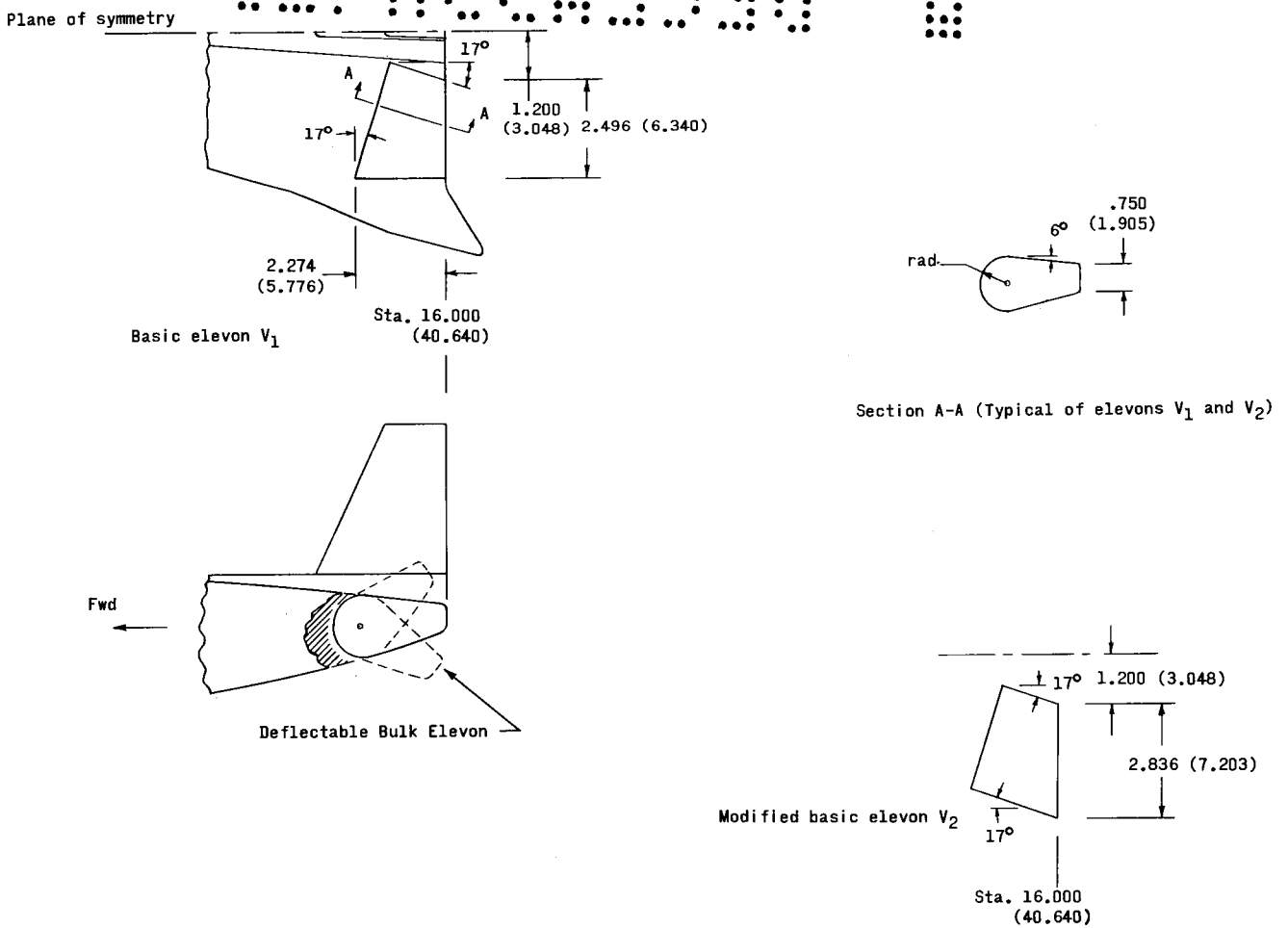


Figure 2.- Cross-sectional views at several x/l locations.

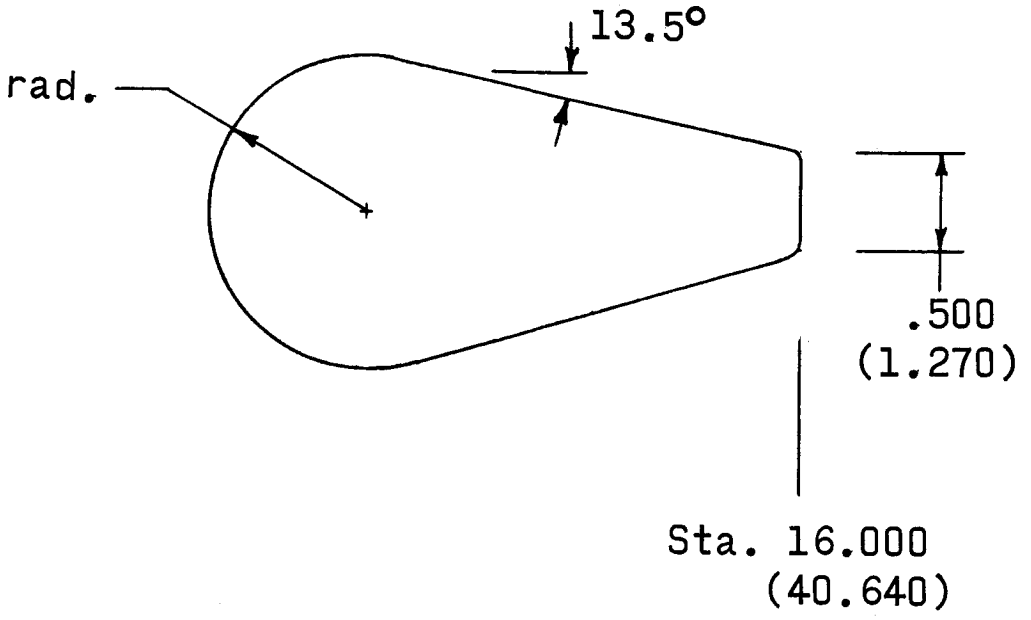
DECLASSIFIED



(a) V_1 and V_2. Planform areas of elevons V_1 and V_2 are equal.

Figure 3.- Elevon details. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]

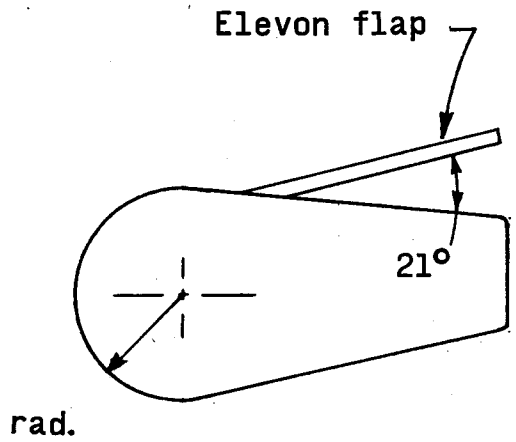


Typical section view

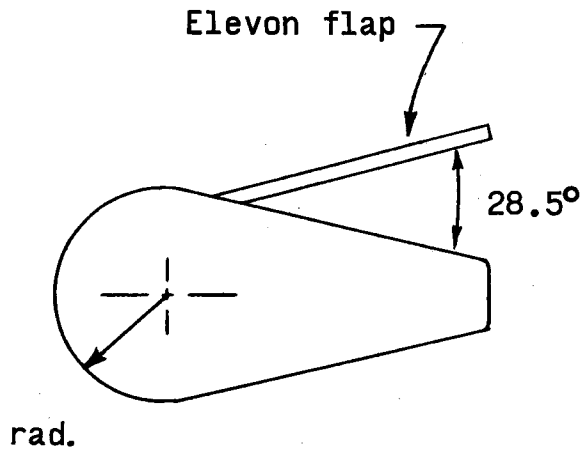
(b) V_3. Planform details are identical to those shown for elevon V_1.

Figure 3.- Concluded.

[redacted]



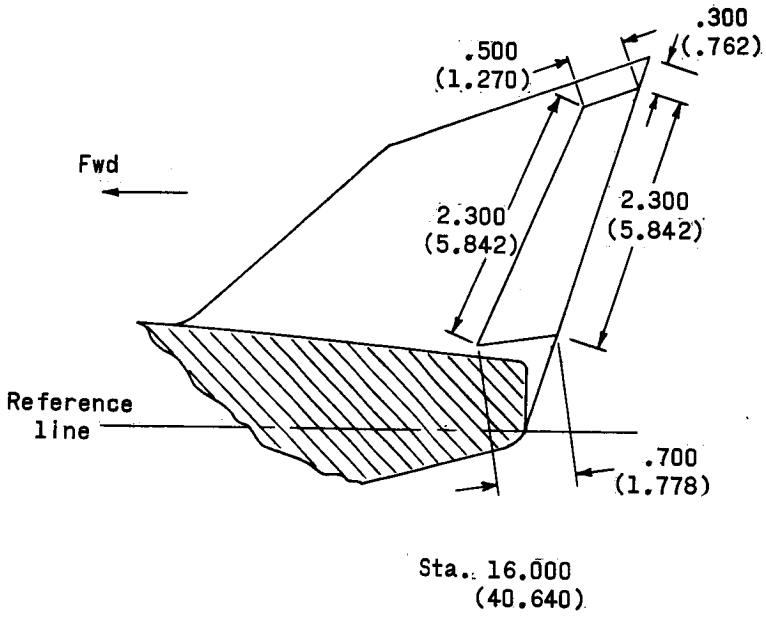
Typical section view of elevons V_1 and V_2



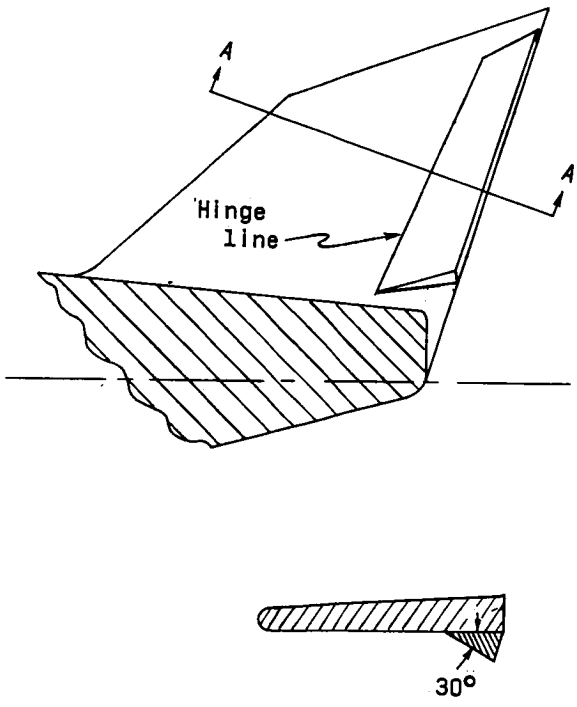
Typical section view of elevon V_3

Figure 4.- Elevon-flap details. Elevon-flap planforms correspond to respective elevon planforms in figure 3. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]



Planform view of tip fin and flap



Section A-A

Figure 5.- Inner surface tip-fin flap details. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]

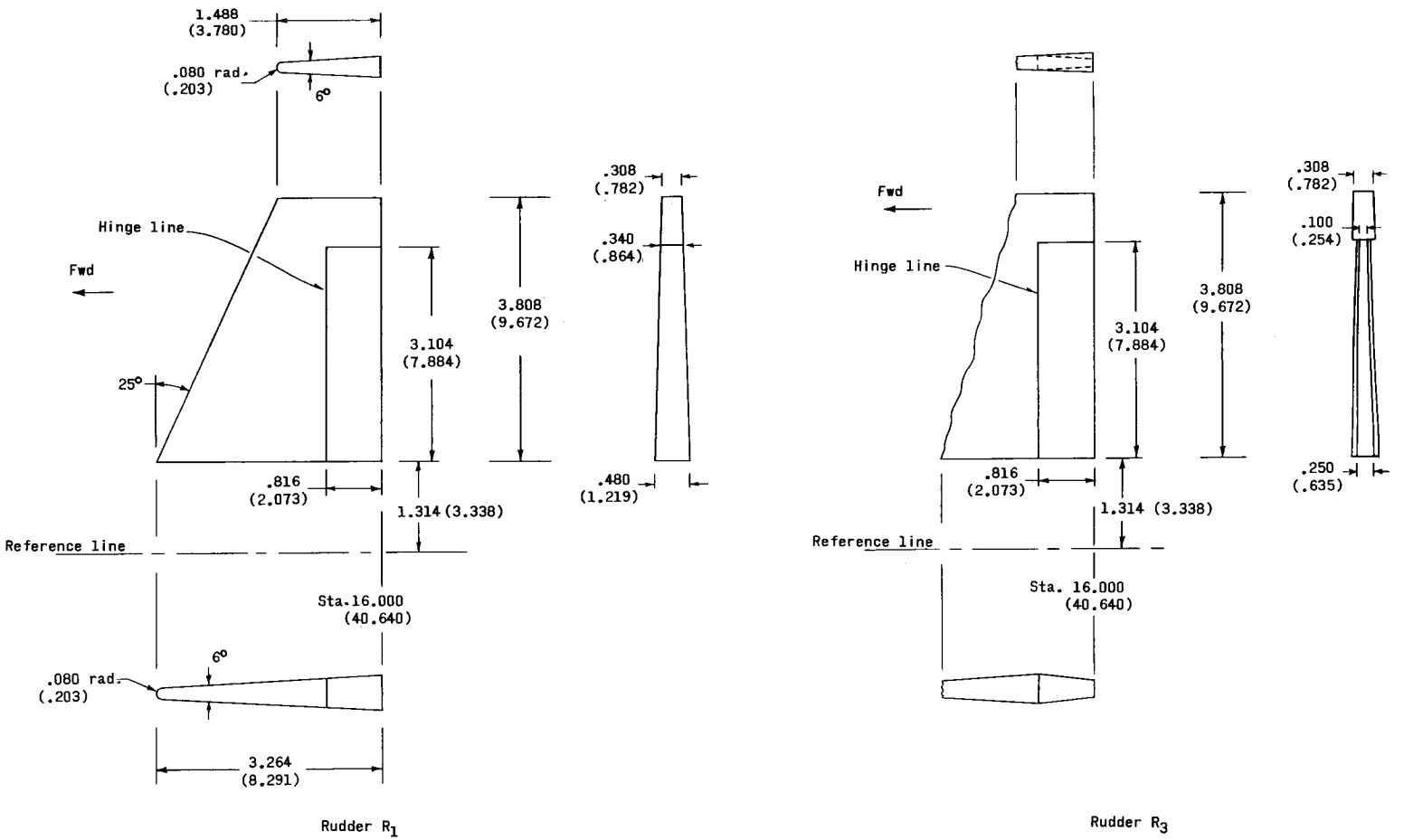
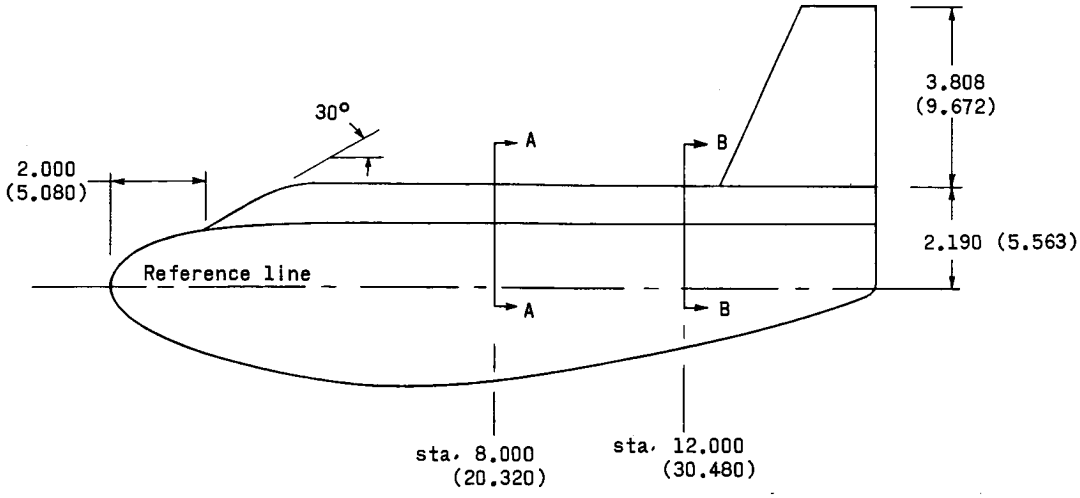
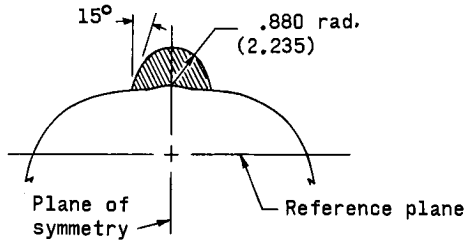


Figure 6.- Vertical tail and rudder details. All dimensions are in inches (centimeters) unless otherwise noted.

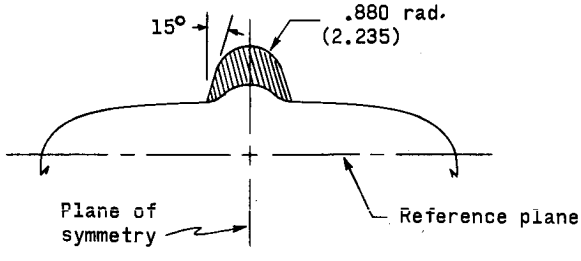
[redacted]



Note: Vertical tail is mounted on top of canopy assembly.



Section A-A



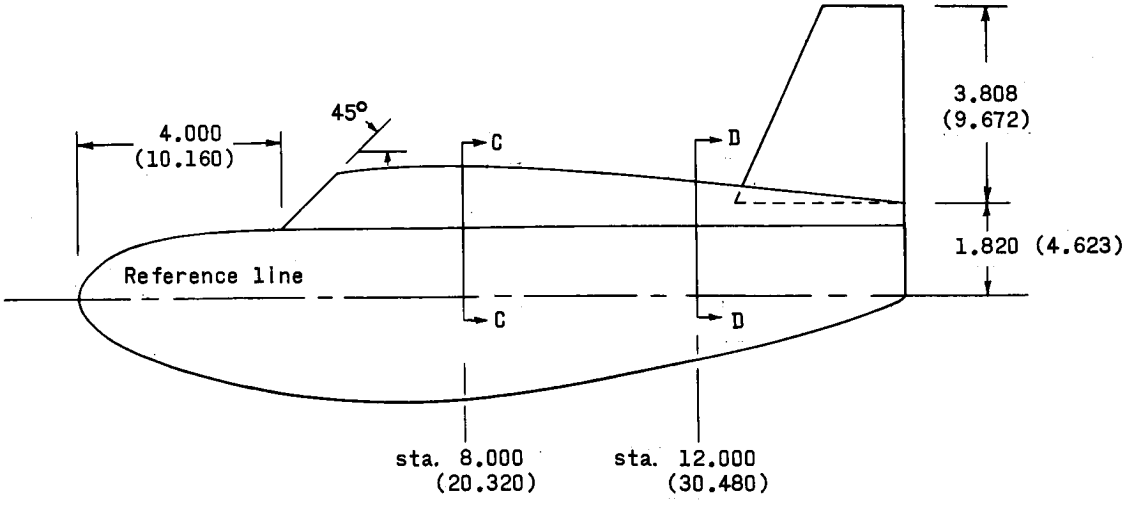
Section B-B

(a) Canopy D.

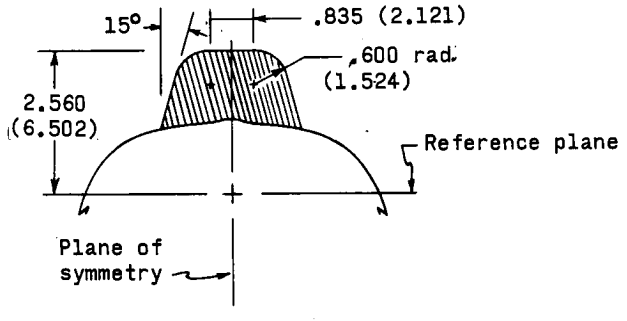
Figure 7.- Canopy details. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]

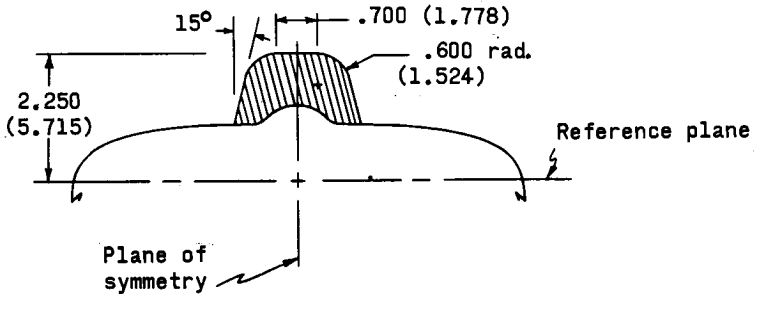
[redacted]



Note: Vertical tail is mounted on top of canopy assembly.



Section C-C



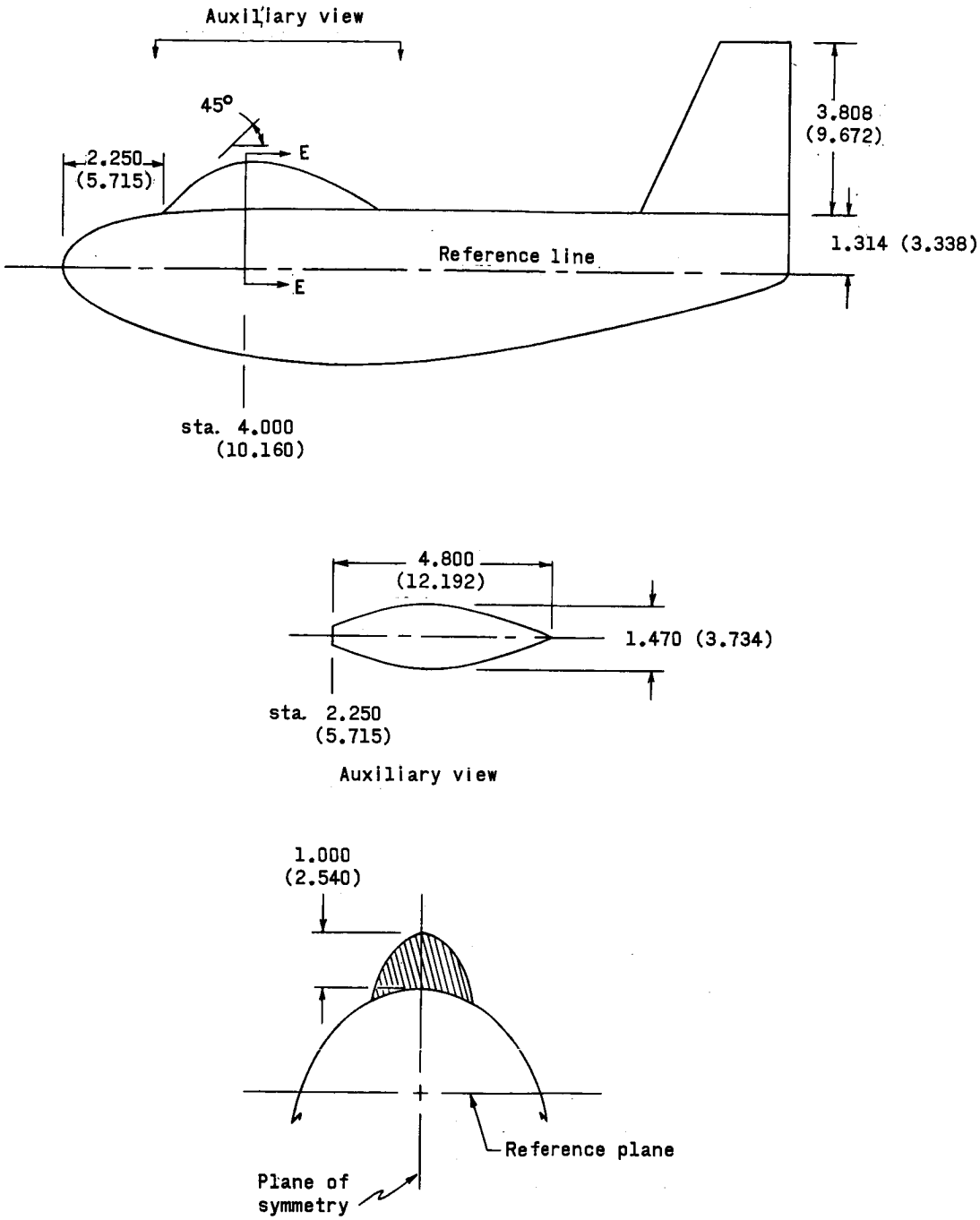
Section D-D

(b) Canopy E.

Figure 7.- Continued.

[redacted]

[redacted]

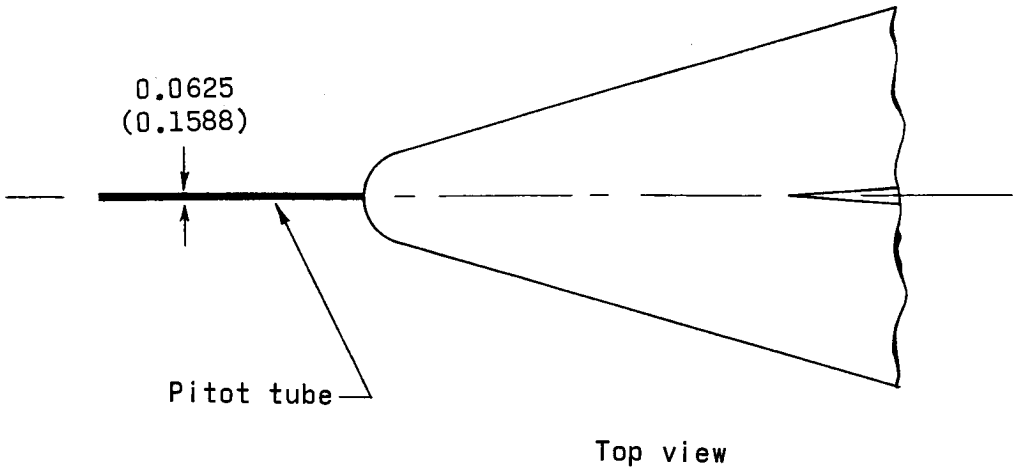


(c) Canopy F.

Figure 7.- Concluded.

[redacted]

[redacted]



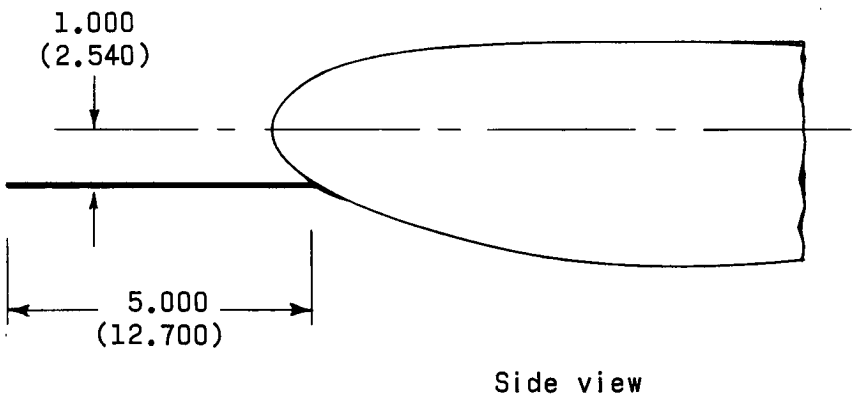


Figure 8.- Pitot-tube details. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]

[redacted]

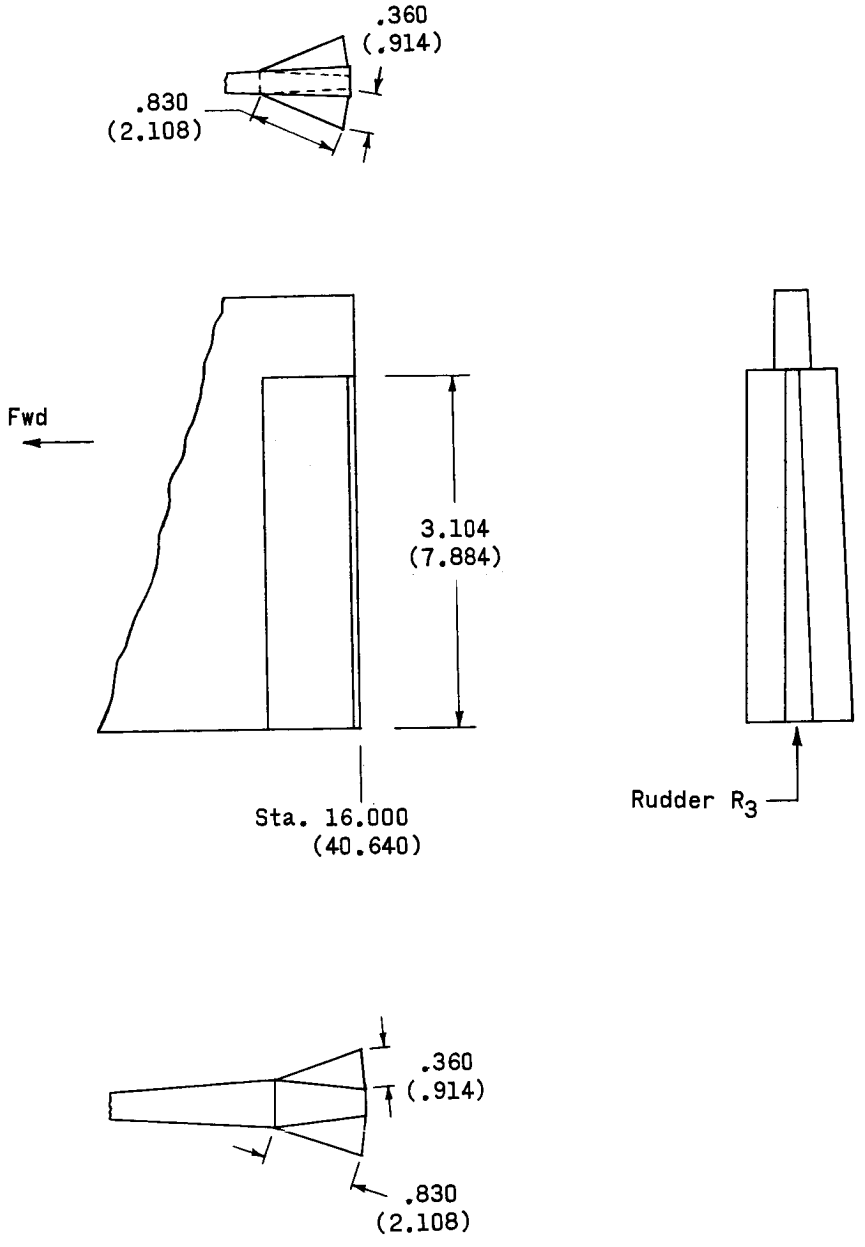
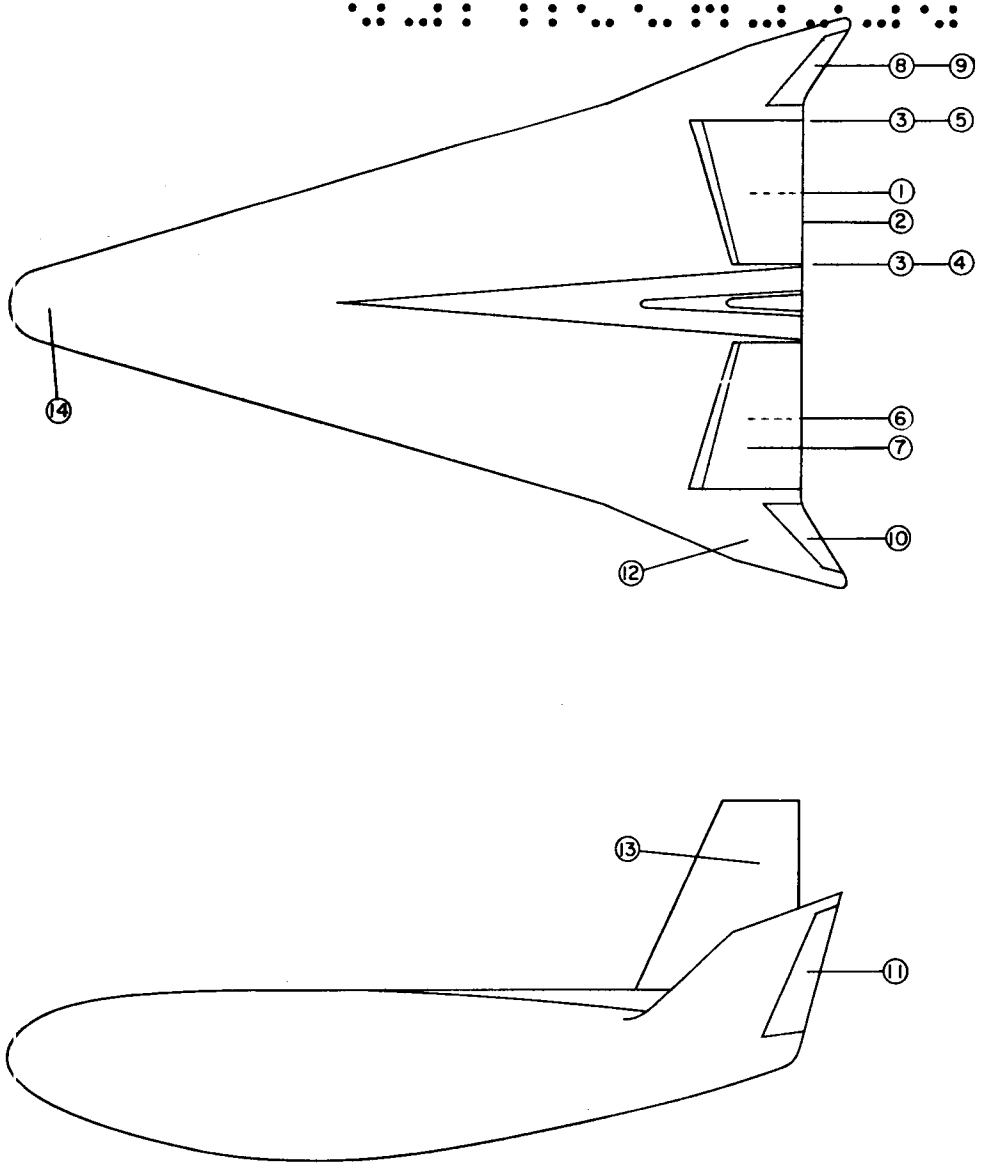


Figure 9.- Speed-brake details. Wedge, simulating speed brake, mounted on rudder R_3. All dimensions are in inches (centimeters) unless otherwise noted.

[redacted]

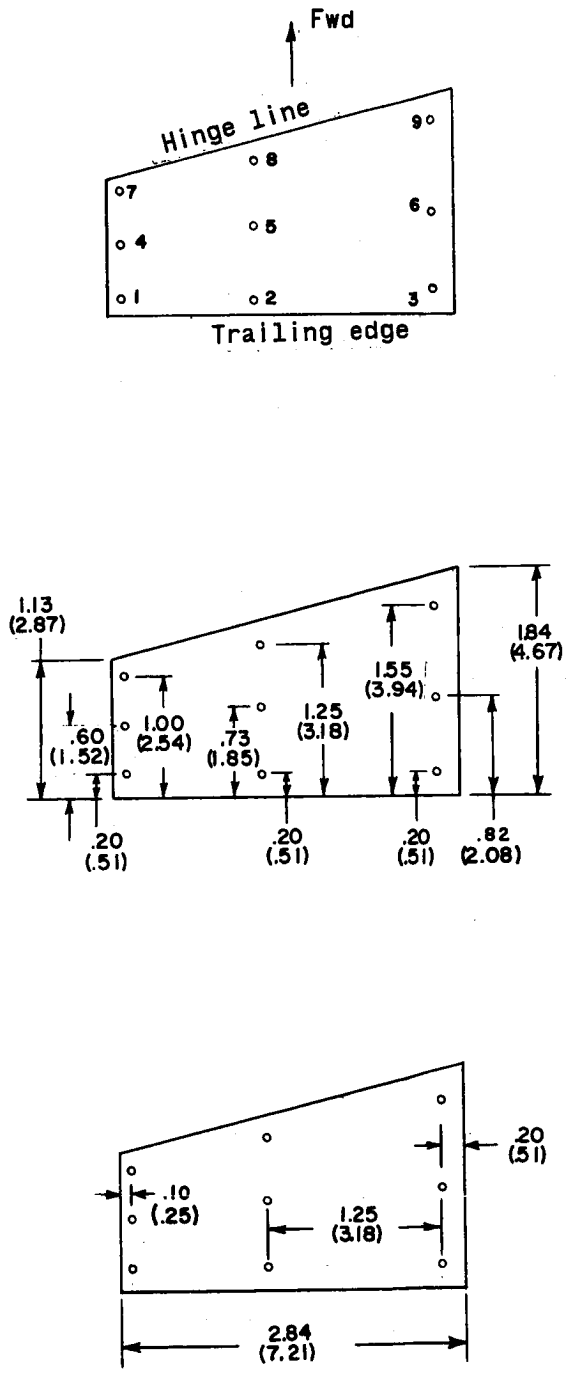


① Right elevon flap, lower surface
② Right elevon, upper surface
③ Right elevon, side surfaces
④ Right elevon well, left surface
⑤ Right elevon well, right surface
⑥ Left elevon, lower surface
⑦ Left elevon flap, upper surface
⑧ Right tip-fin outer flap (undeflected) inner surface

⑨ Right tip-fin inner flap (deflected), inner surface
⑩ Left tip-fin inner flap (deflected), outer surface
⑪ Left tip-fin outer flap (undeflected), outer surface
⑫ Left tip fin, inner surface
⑬ Center fin, left surface
⑭ Body

Figure 10.- Designation of components on which pressure orifices are located.

[redacted]

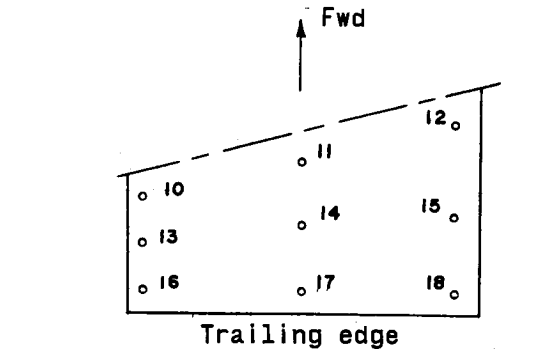


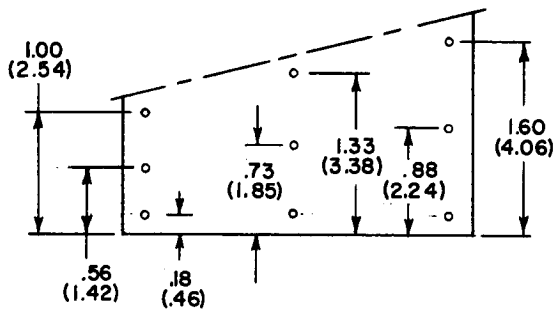
Planform of right elevon flap

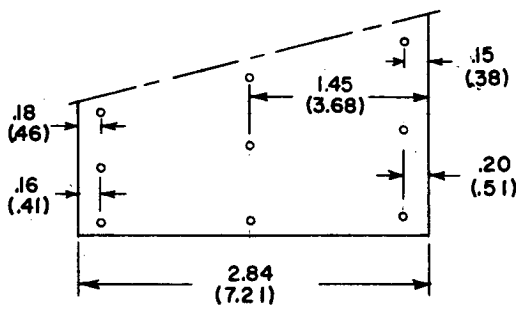
Figure 11.- Orifice locations on right elevon flap, lower surface. All dimensions are in inches (centimeters).

[redacted]

[redacted]







Planform of right elevon (no data were obtained for orifices 15, 17, and 18 because of blockage.)

Figure 12.- Orifice locations on right elevon, upper surface. All dimensions are in inches (centimeters).

[redacted]

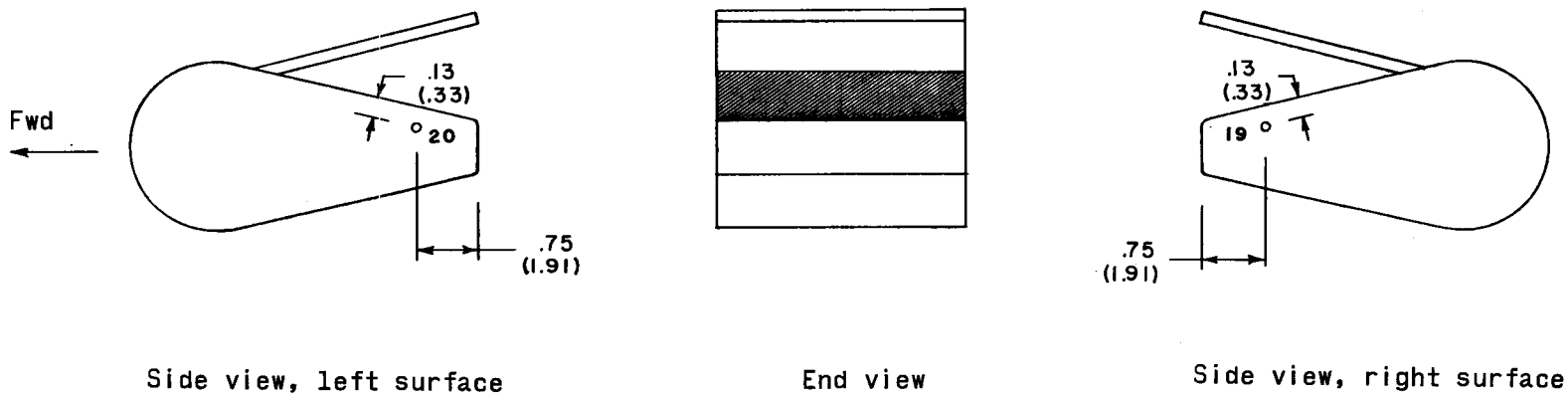


Figure 13.- Orifice locations on right elevon, side surfaces. All dimensions are in inches (centimeters).

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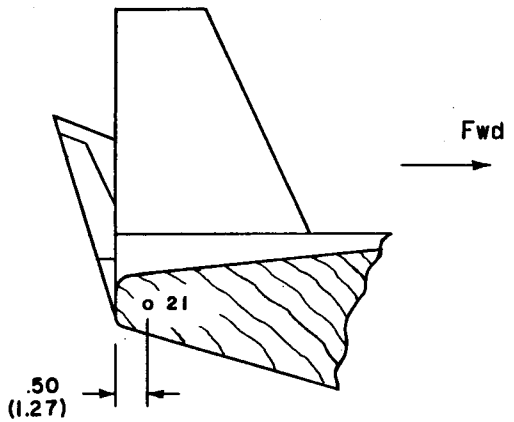
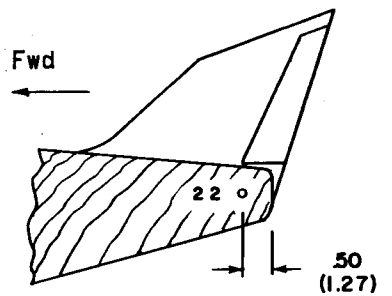


View of left surface of right elevon well



View of right surface of right elevon well

Figure 14.- Orifice locations in right elevon well, side surfaces. All dimensions are in inches (centimeters).

[redacted]

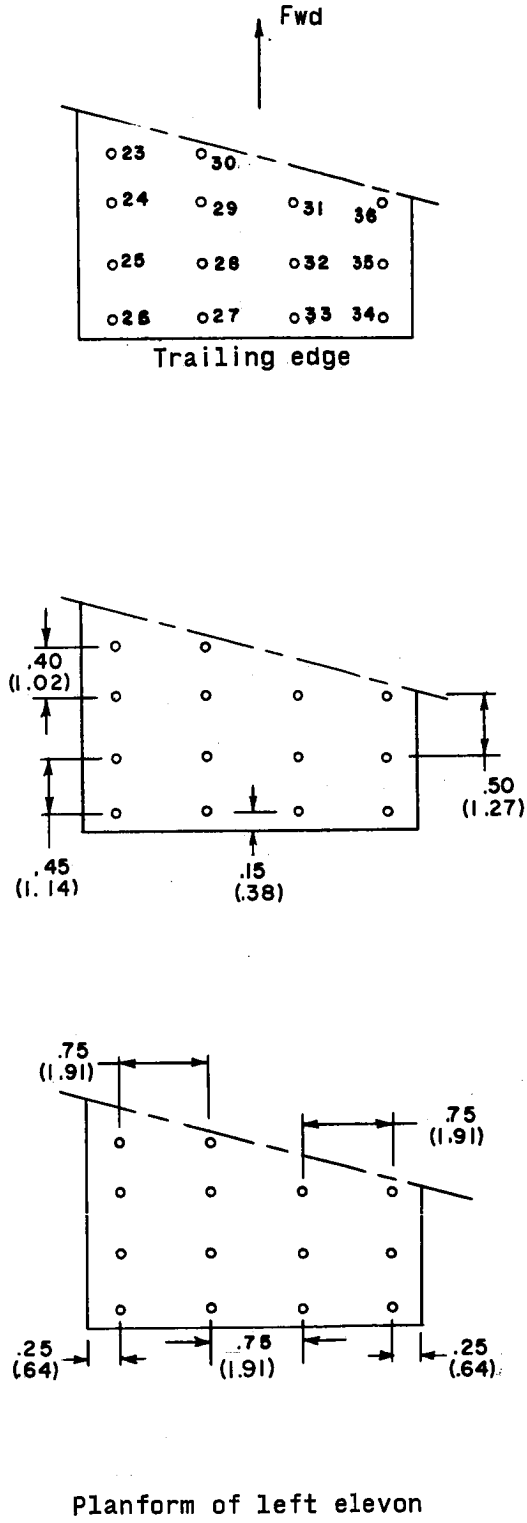
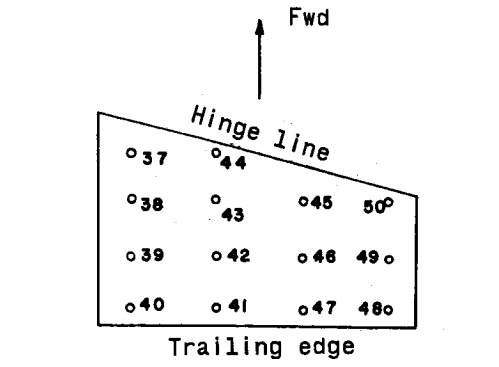
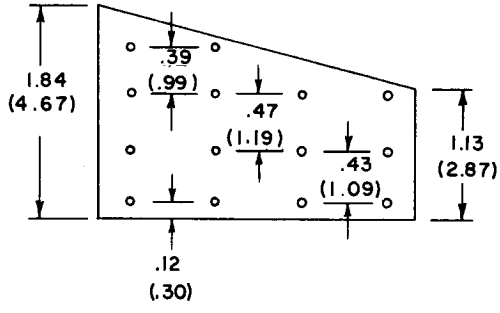


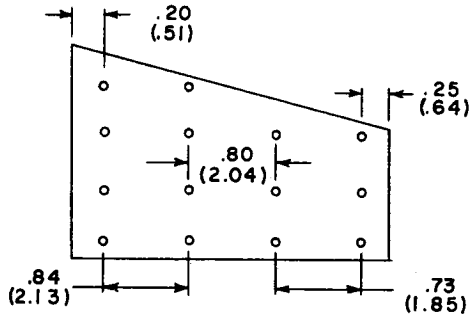
Figure 15.- Orifice locations on left elevon, lower surface. All dimensions are in inches (centimeters).

[redacted]

[redacted]





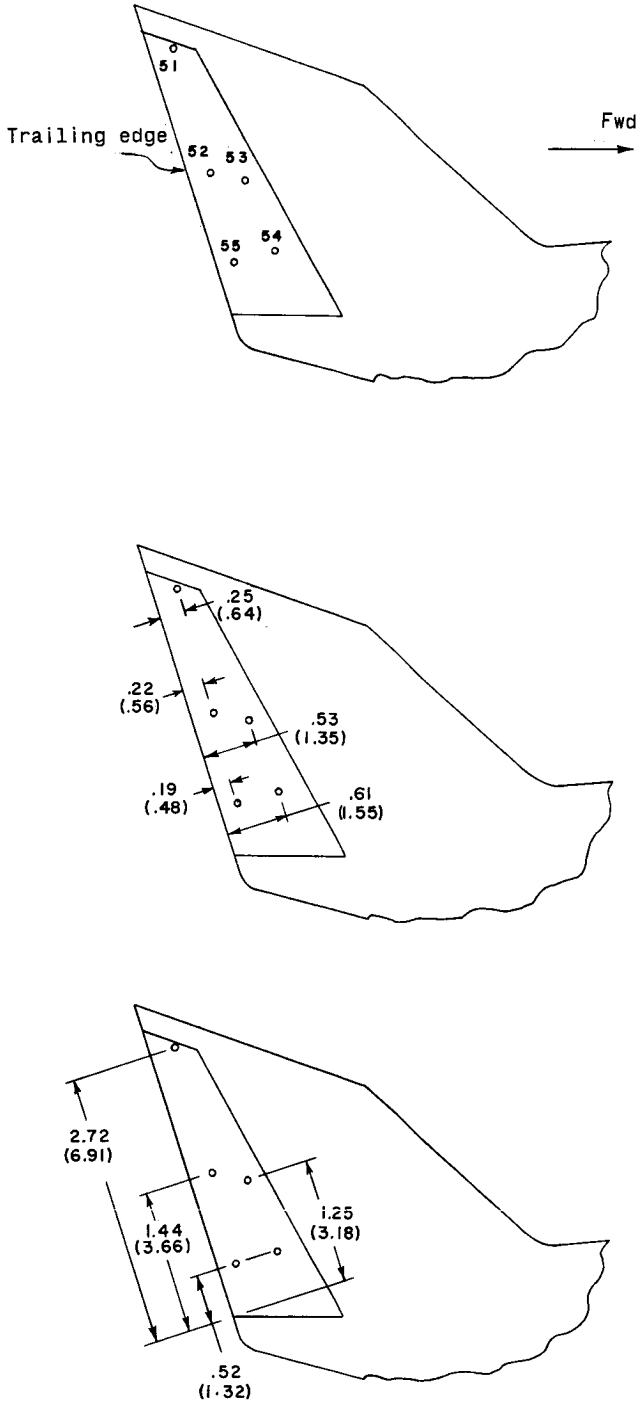


Planform of left elevon flap

Figure 16. Orifice locations on left elevon flap, upper surface. All dimensions are in inches (centimeters).

[redacted]

[redacted]

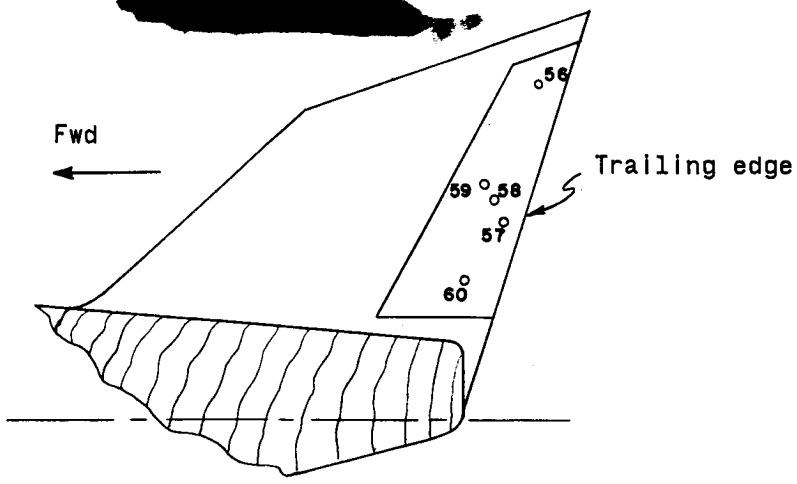


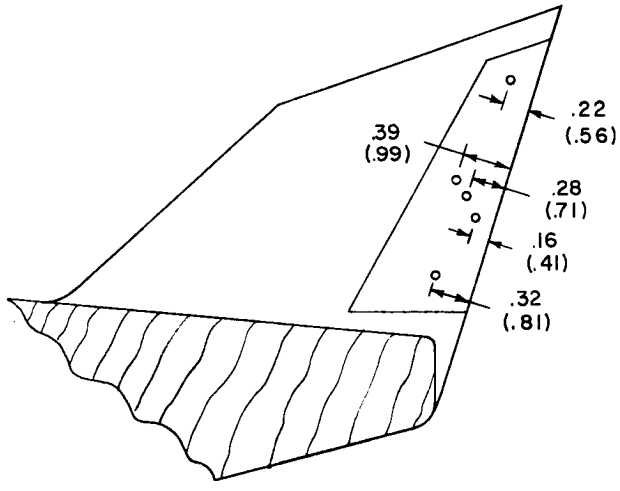
Planform of tip-fin outer flap

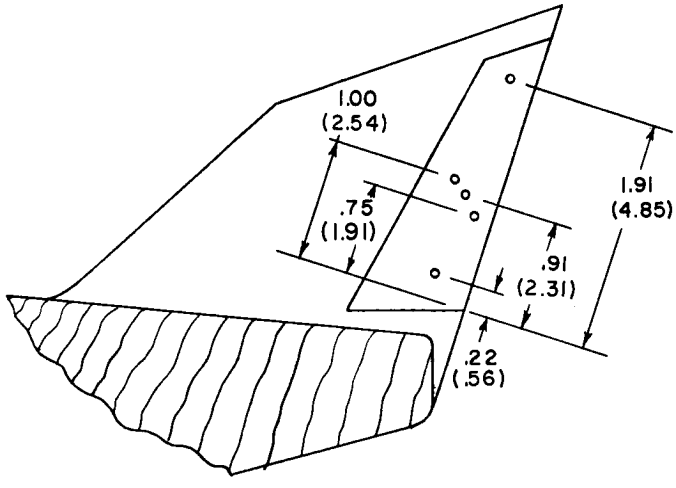
Figure 17.- Orifice locations on right tip-fin outer flap (undeflected), inner surface. Orifices are located on inner surface of this flap. Measurements are perpendicular and parallel to flap trailing edge. All dimensions are in inches (centimeters).

[redacted]

[redacted]





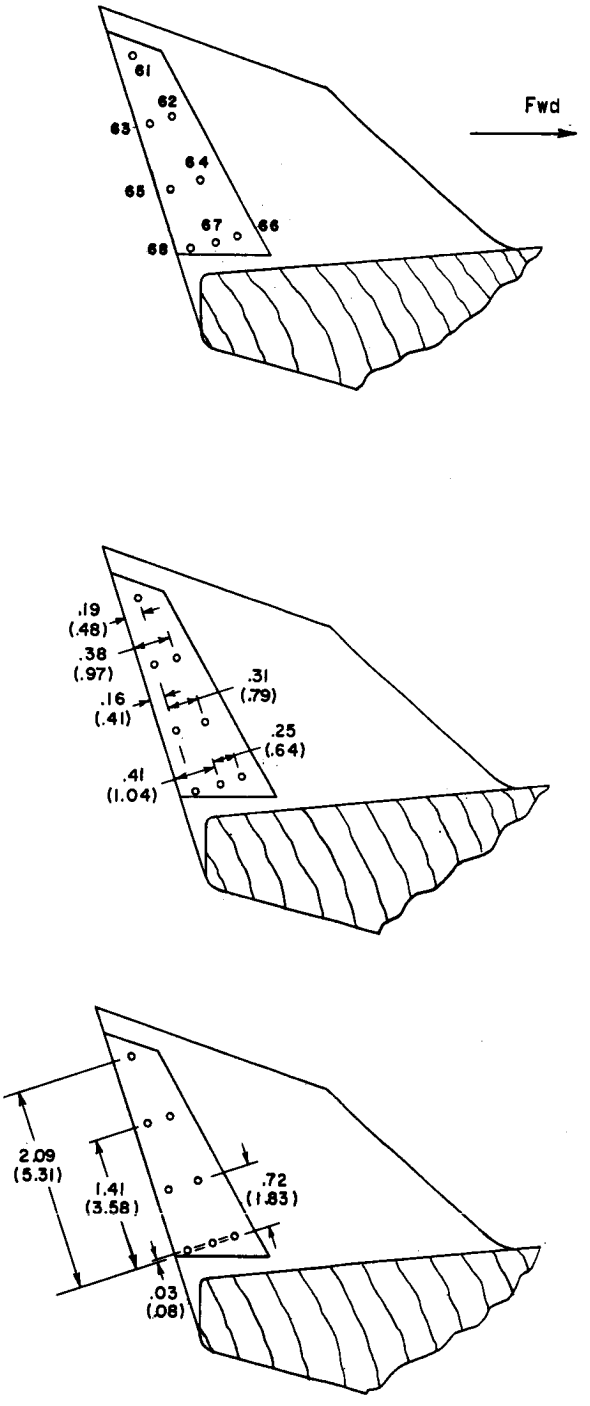


Planform of tip-fin inner flap

Figure 18.- Orifice locations on right tip-fin inner flap (deflected), inner surface. Orifices are located on inner surface of this flap. Measurements are perpendicular and parallel to flap trailing edge. All dimensions are in inches (centimeters).

[redacted]

[redacted]

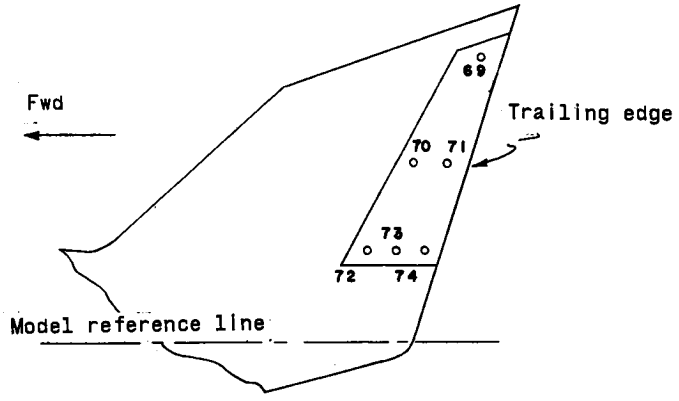


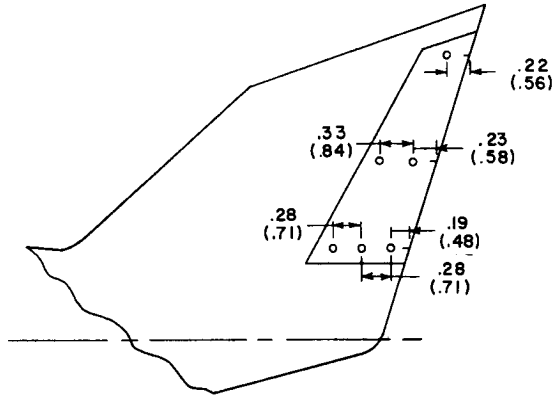
Planform of tip-fin inner flap

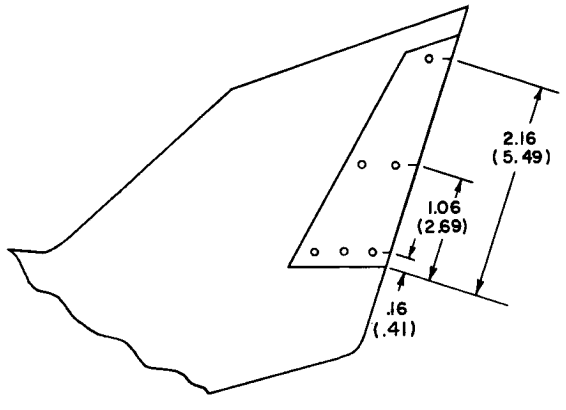
Figure 19.- Orifice locations on left tip-fin inner flap (deflected), outer surface. Orifices are located on outer surface of this flap. Measurements are perpendicular and parallel to flap trailing edge. All dimensions are in inches (centimeters).

[redacted]

[redacted]





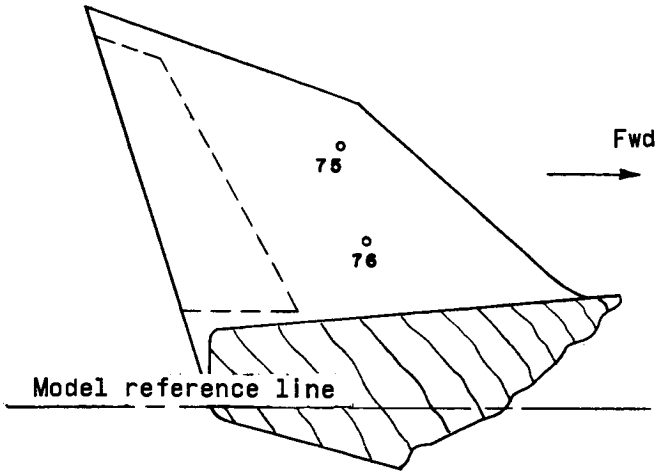


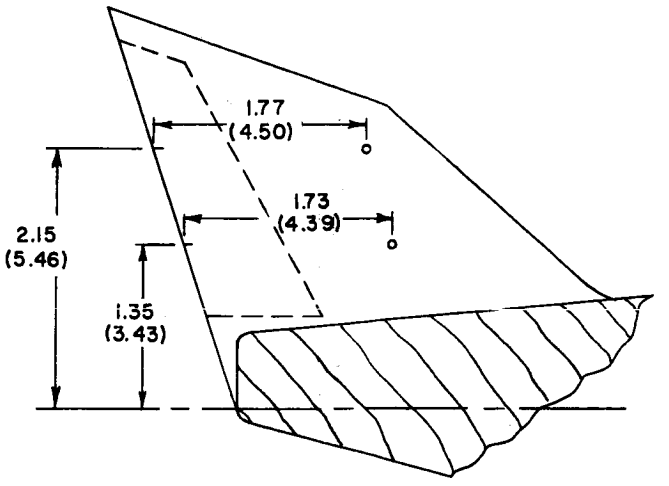
Planform of tip-fin outer flap

Figure 20.- Orifice locations on left tip-fin outer flap (undeflected), outer surface. Orifices are located on outer surface of this flap. Measurements are parallel to model reference line and to flap trailing edge. All dimensions are in inches (centimeters).

[redacted]

[redacted]





Planform of left tip fin

Figure 21.- Orifice locations on left tip fin, inner surface. Measurements are perpendicular and parallel to model reference line. All dimensions are in inches (centimeters).

[redacted]

[redacted]

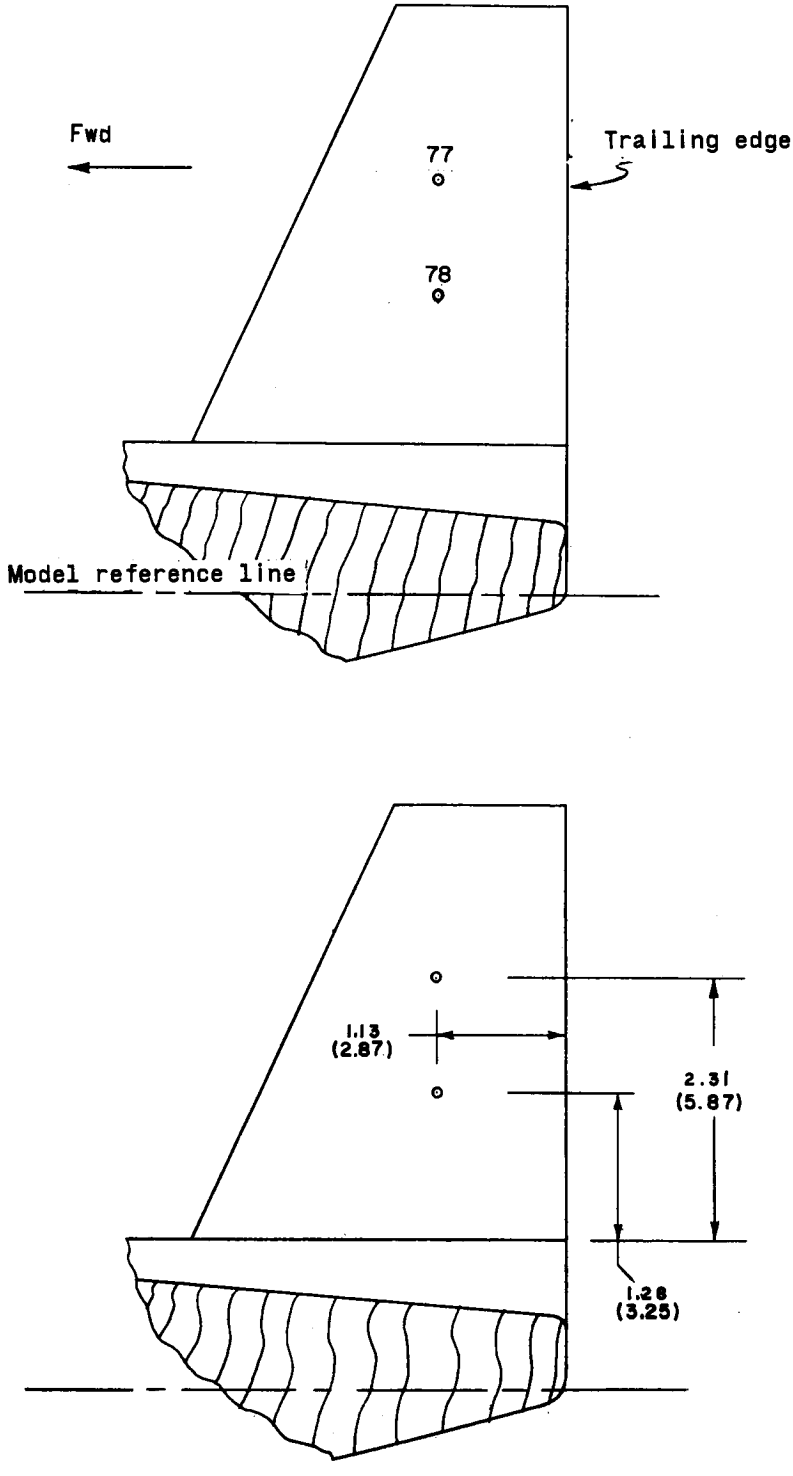
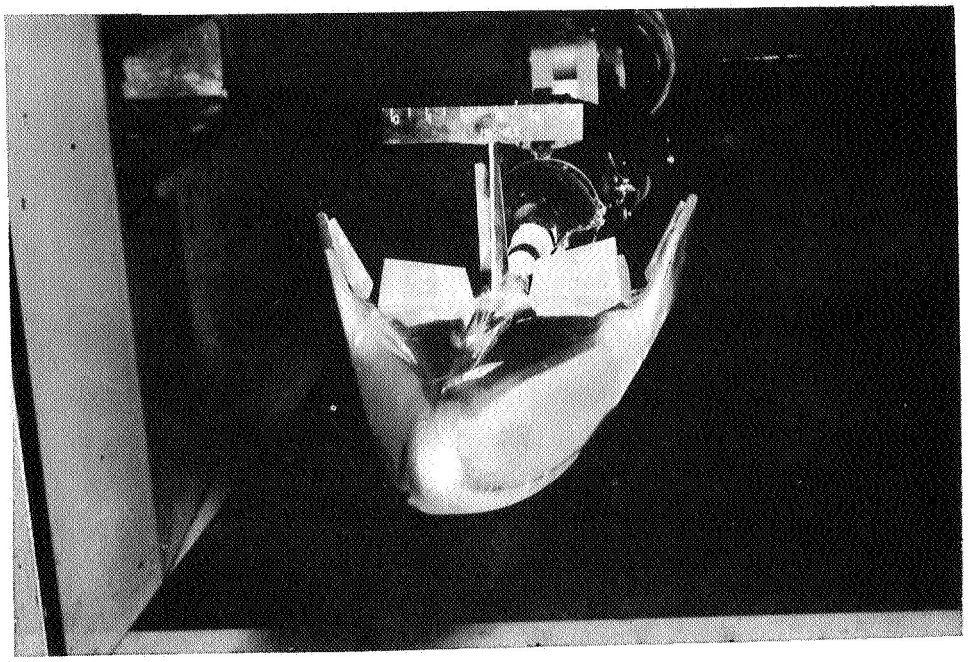


Figure 22.- Orifice locations on center fin, left surface. Measurements are perpendicular and parallel to outer fin trailing edge. All dimensions are in inches (centimeters).

[redacted]



L-65-1678

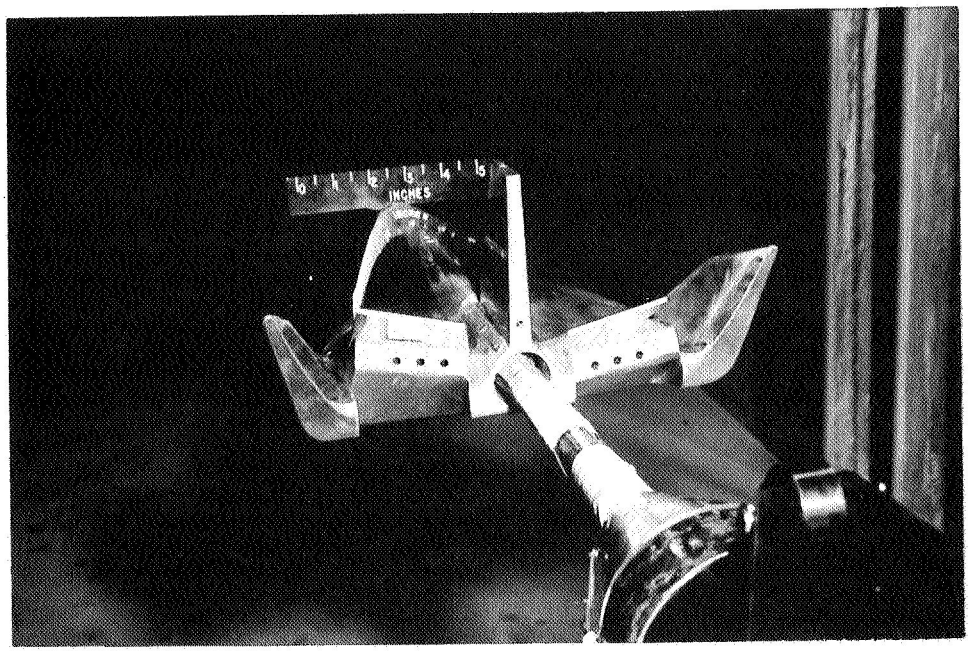
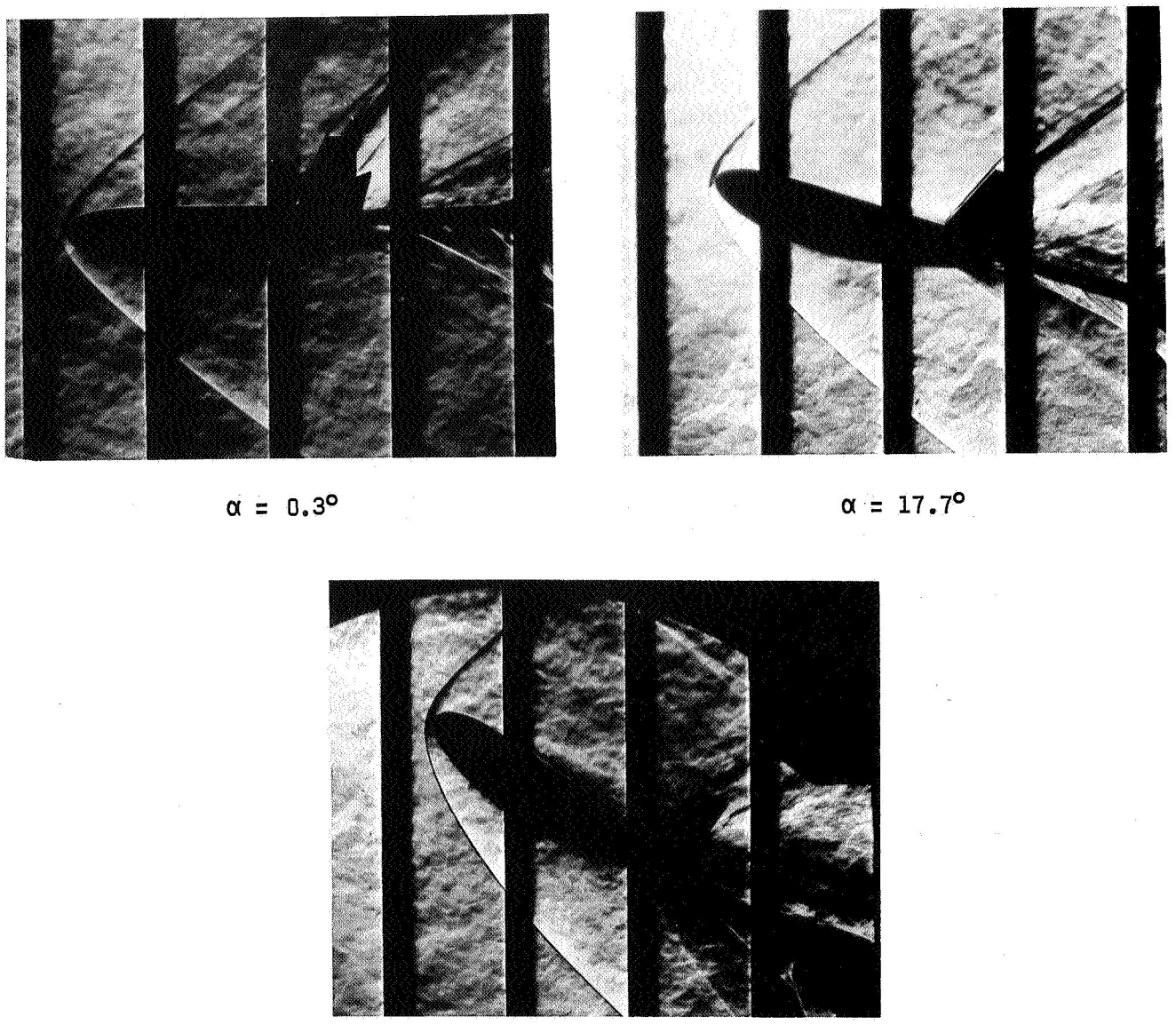


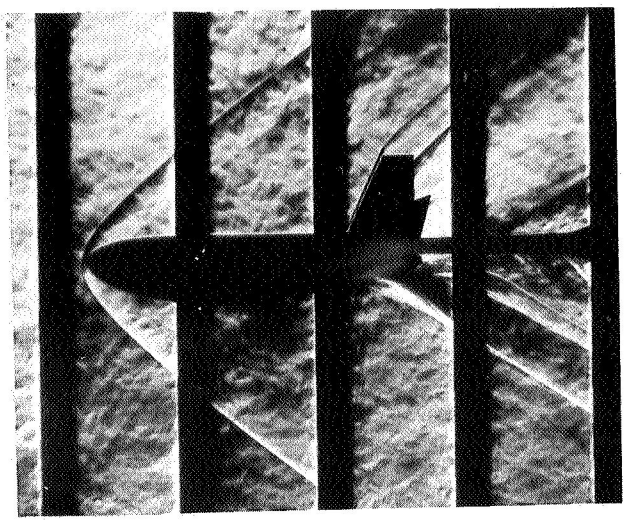
Figure 23.- Model mounted in the Unitary Plan wind tunnel. L-65-1679



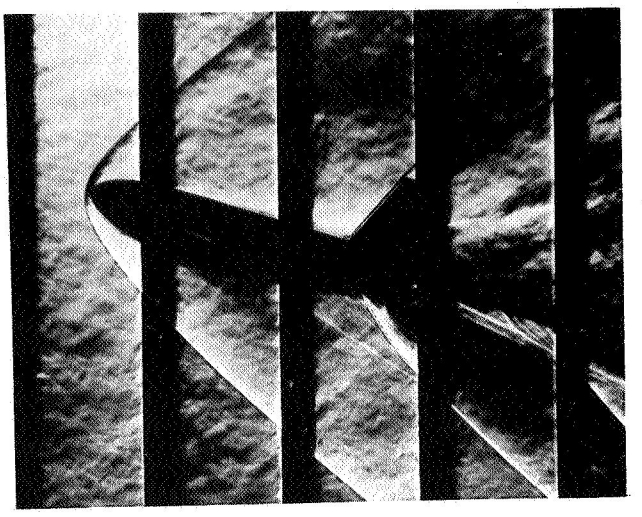
(a) $\delta_e = -30^\circ$.

L-66-4549

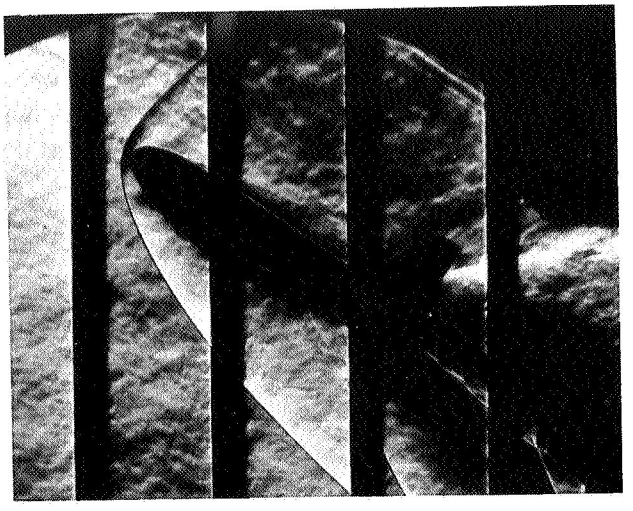
Figure 24.- Typical schlieren photographs of test model at $M = 1.80$; $\delta_a = \delta_r = 0^\circ$.



$\alpha = 0.2^{\circ}$



$\alpha = 17.5^{\circ}$



$\alpha = 35.0^{\circ}$

(b) $\delta_e = 30^{\circ}$.

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Figure 24.- Concluded.

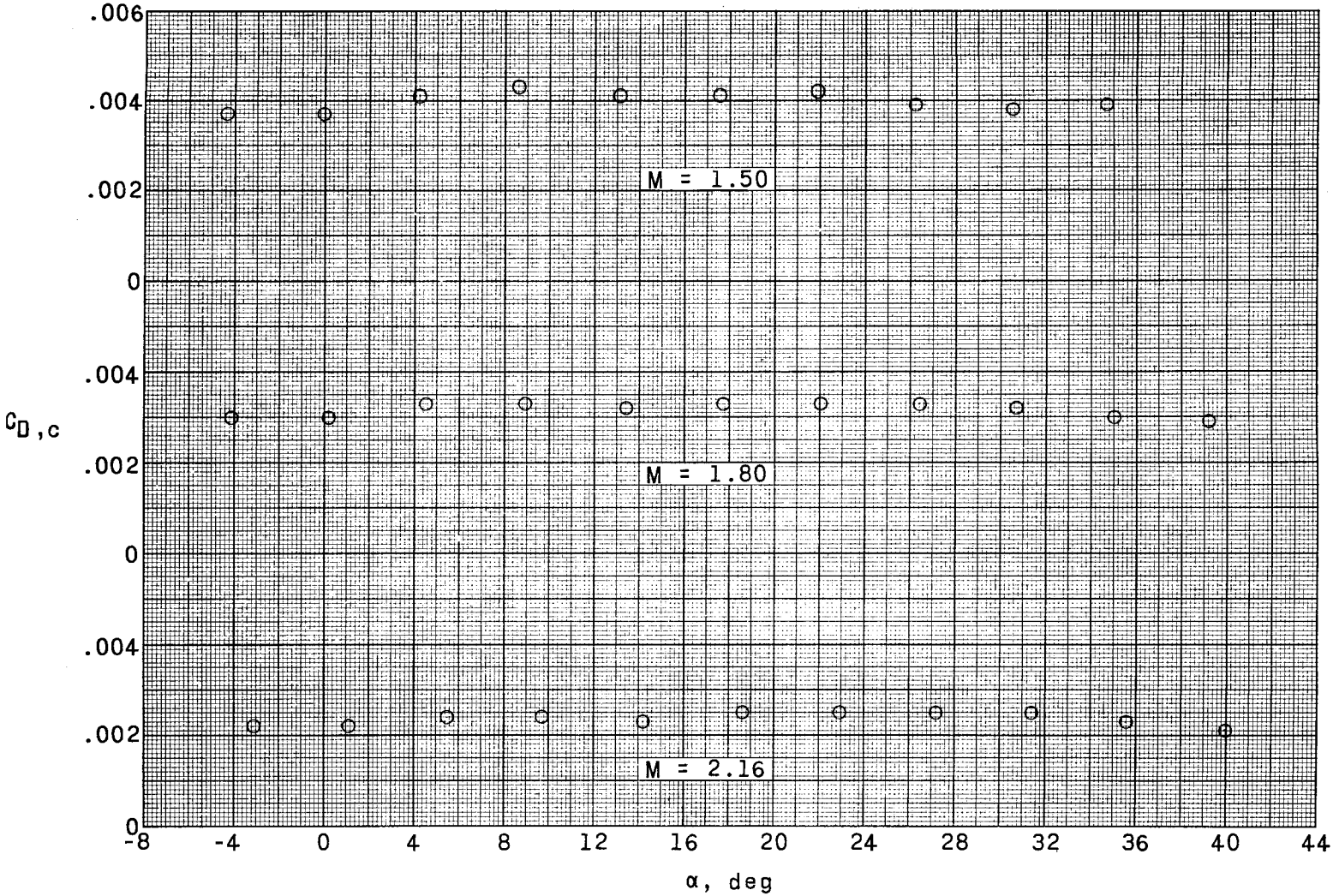
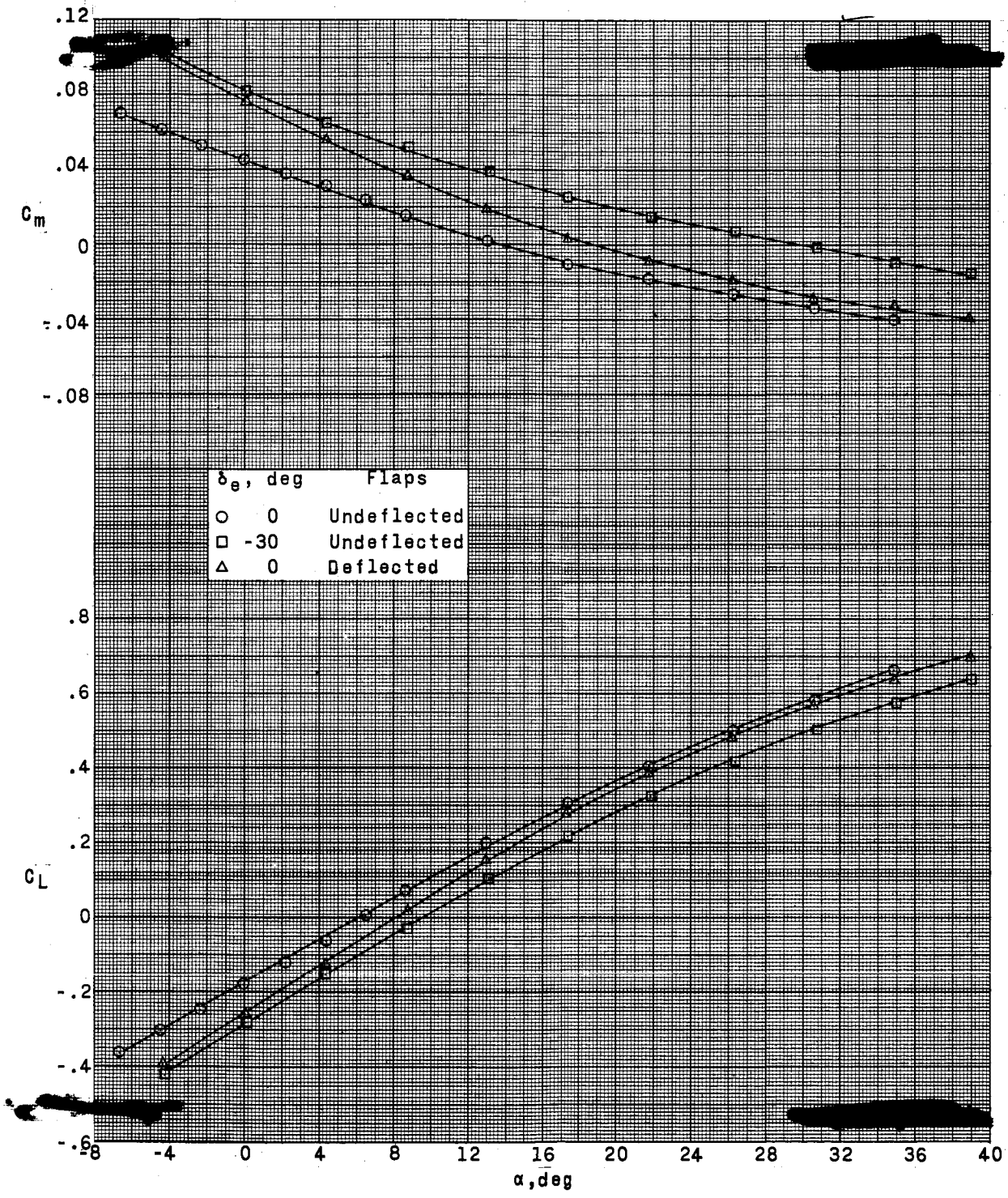
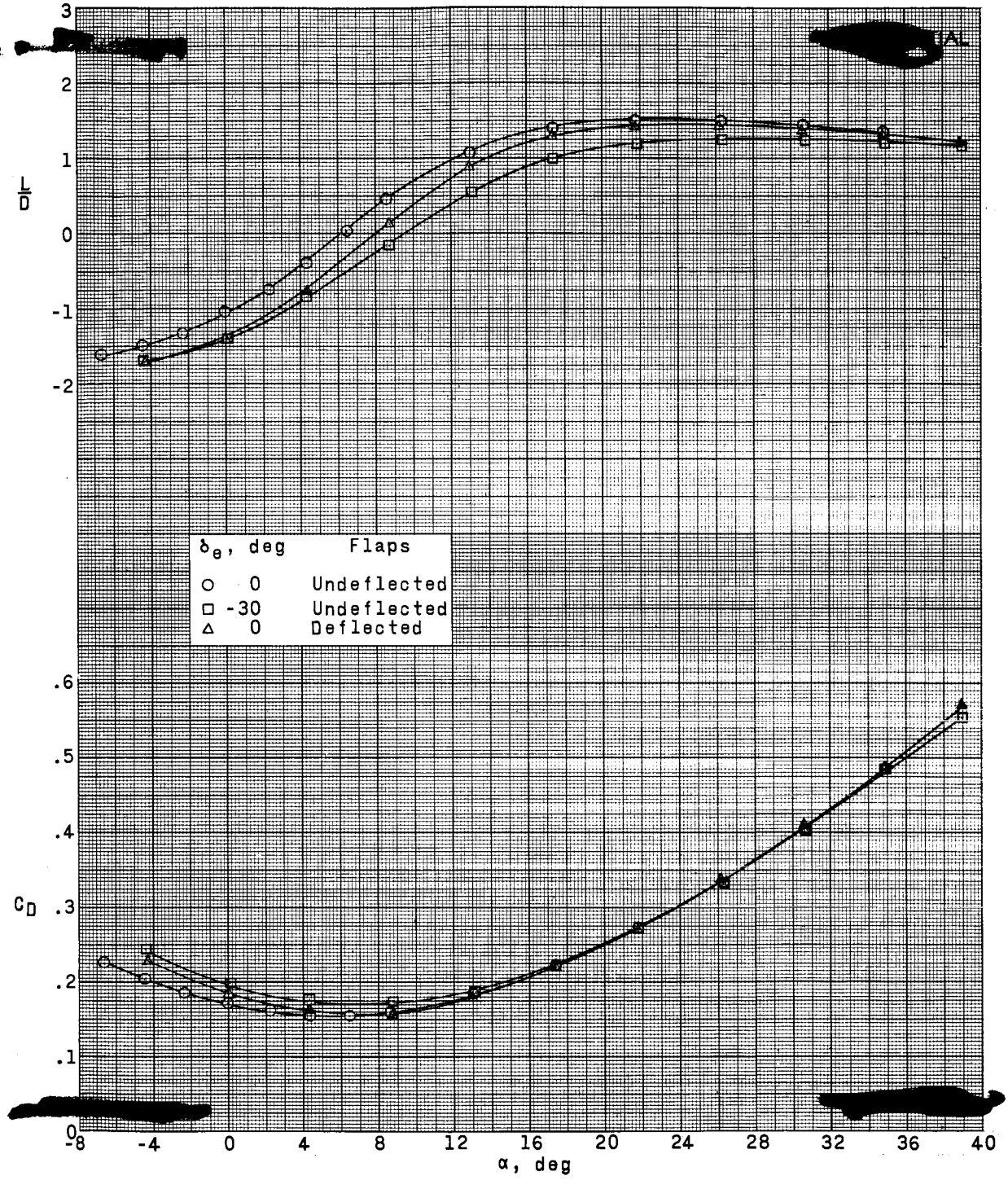


Figure 25.- Typical chamber drag coefficients.



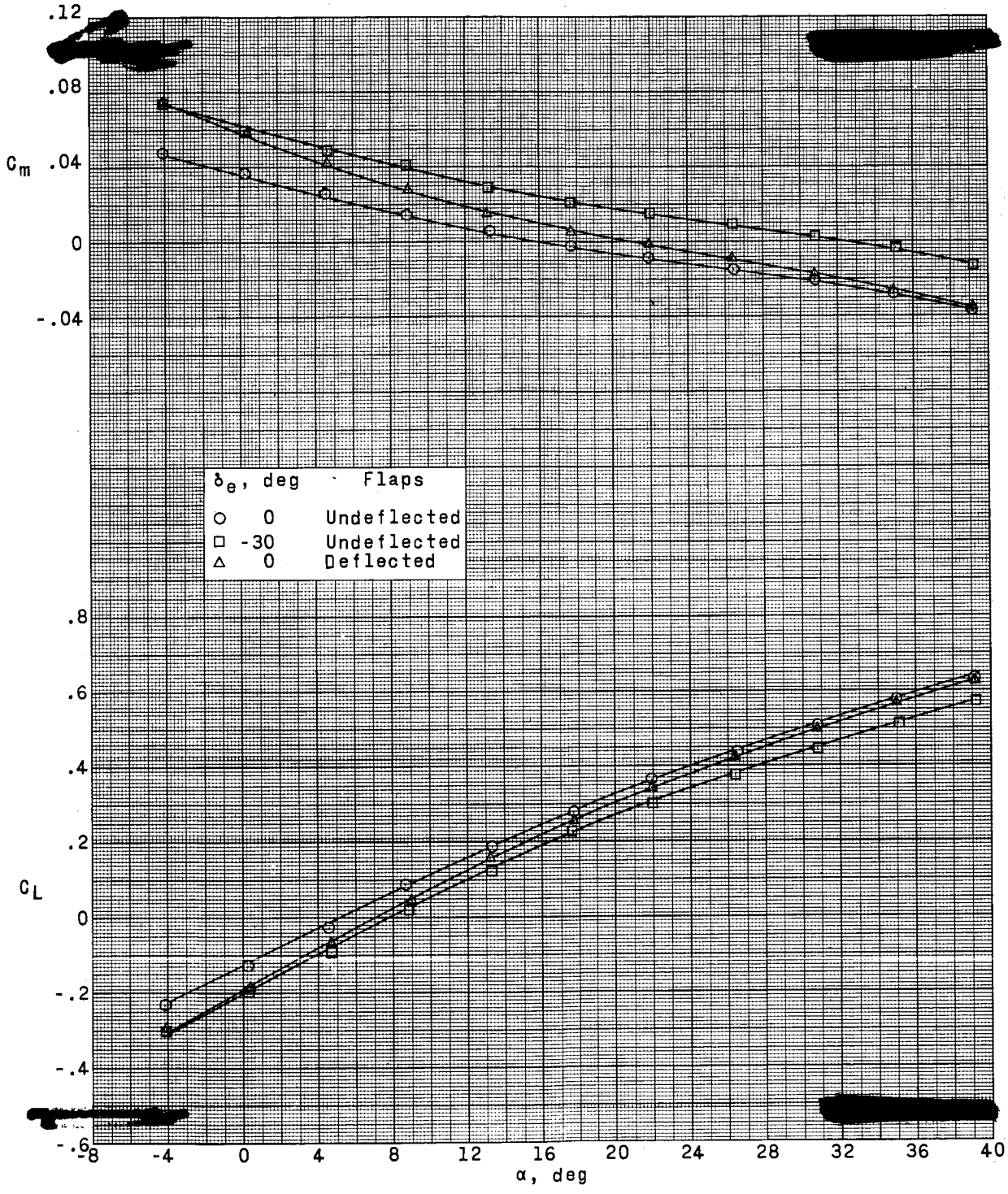
(a) M = 1.50.

Figure 26.- Effect of elevon and tip-fin-flap deflection on longitudinal aerodynamic characteristics. V_1; $\delta_a = \delta_r = 0^0$.



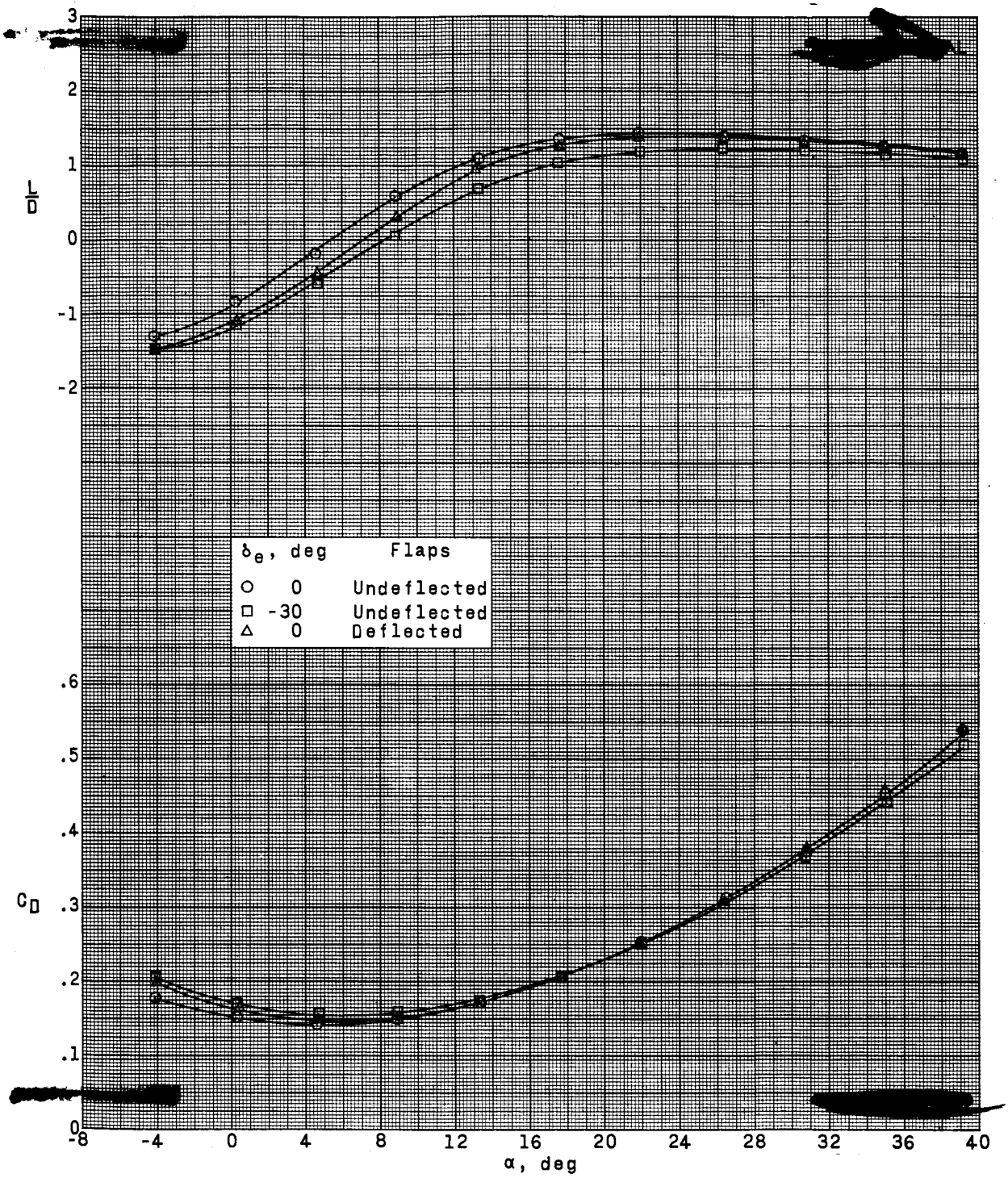
(a) Concluded.

Figure 26.- Continued.



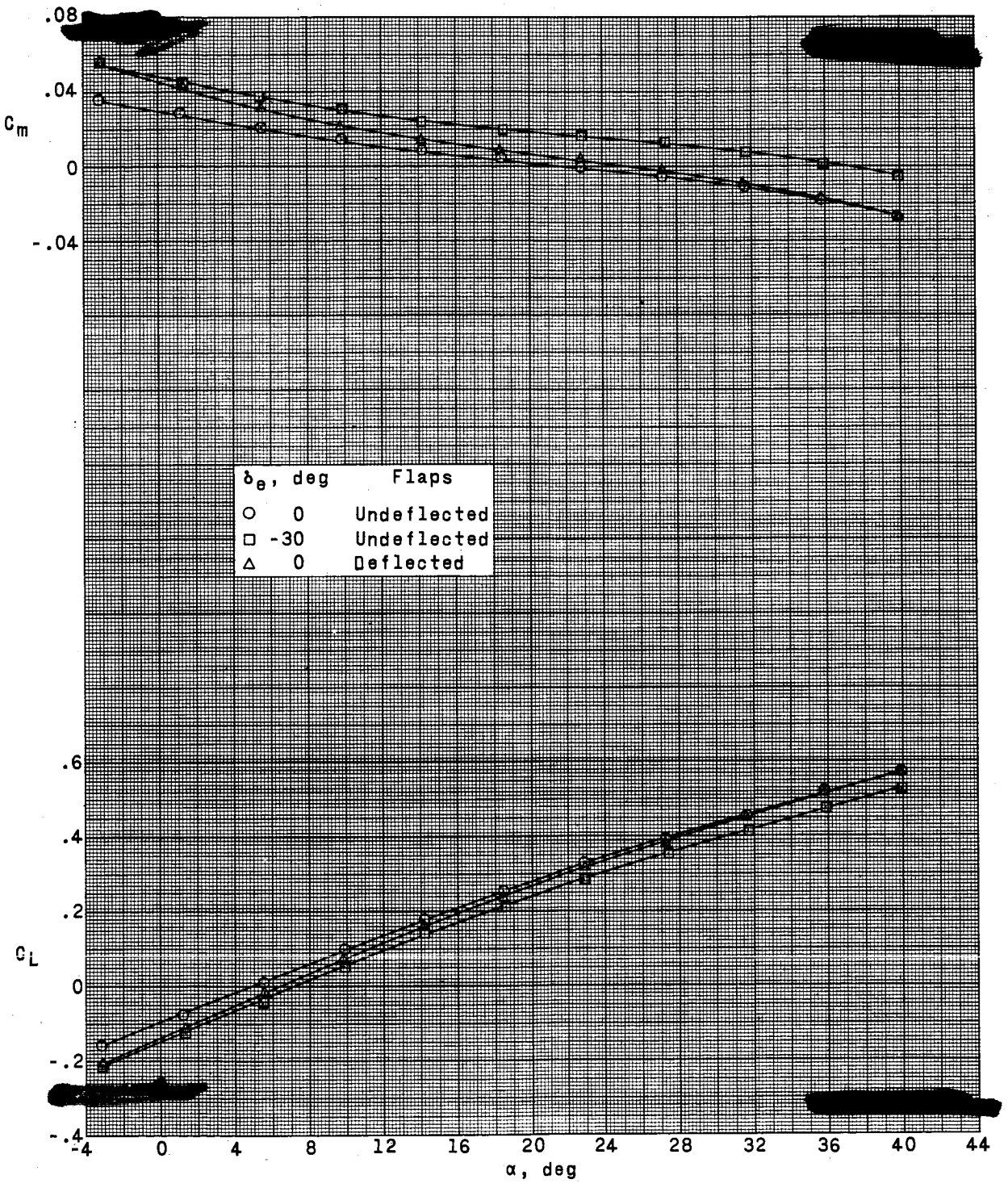
(b) M = 1.80.

Figure 26.- Continued.



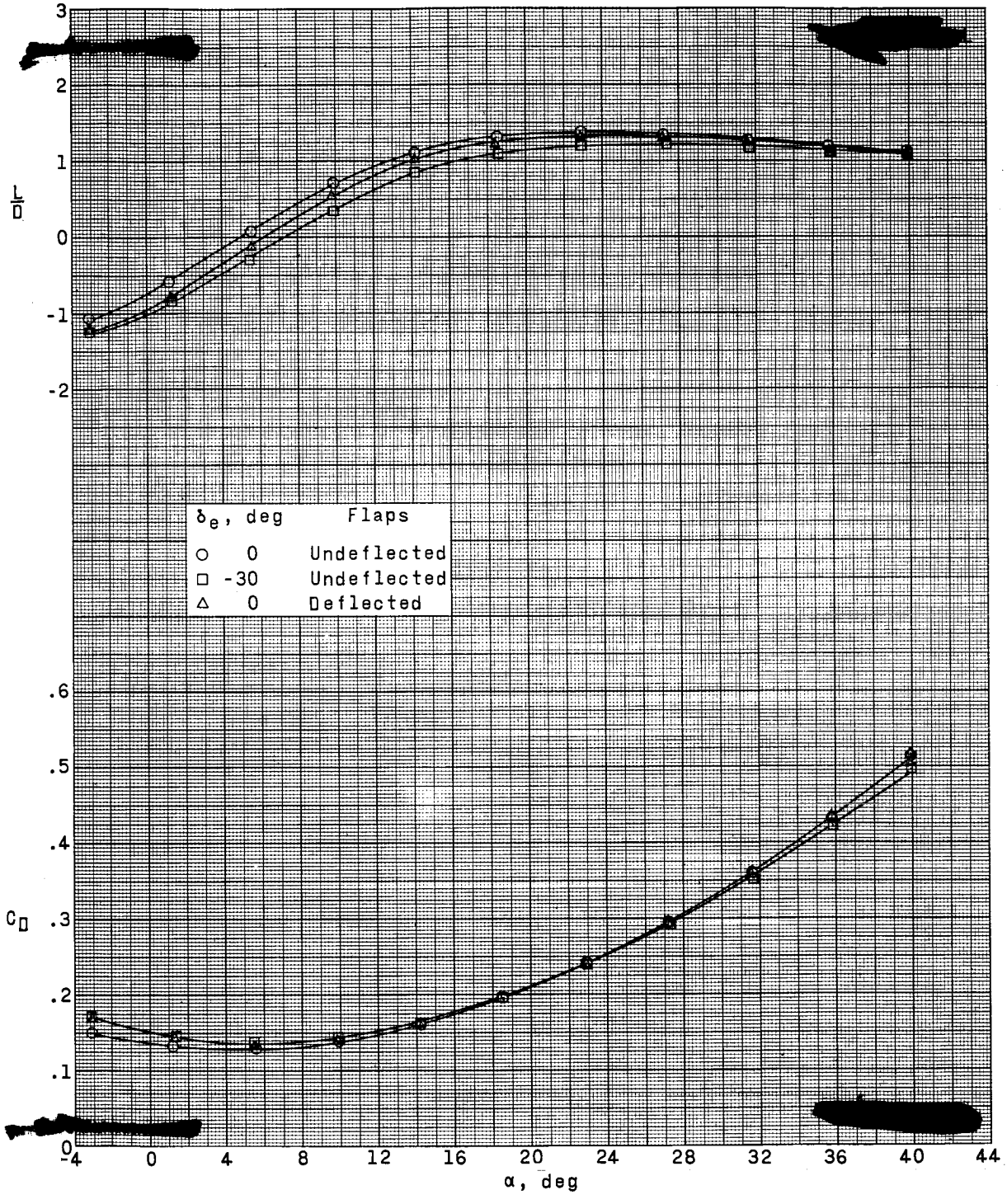
(b) Concluded.

Figure 26.- Continued.



(c) M = 2.16.

Figure 26.- Continued.



(c) Concluded.

Figure 26.- Concluded.

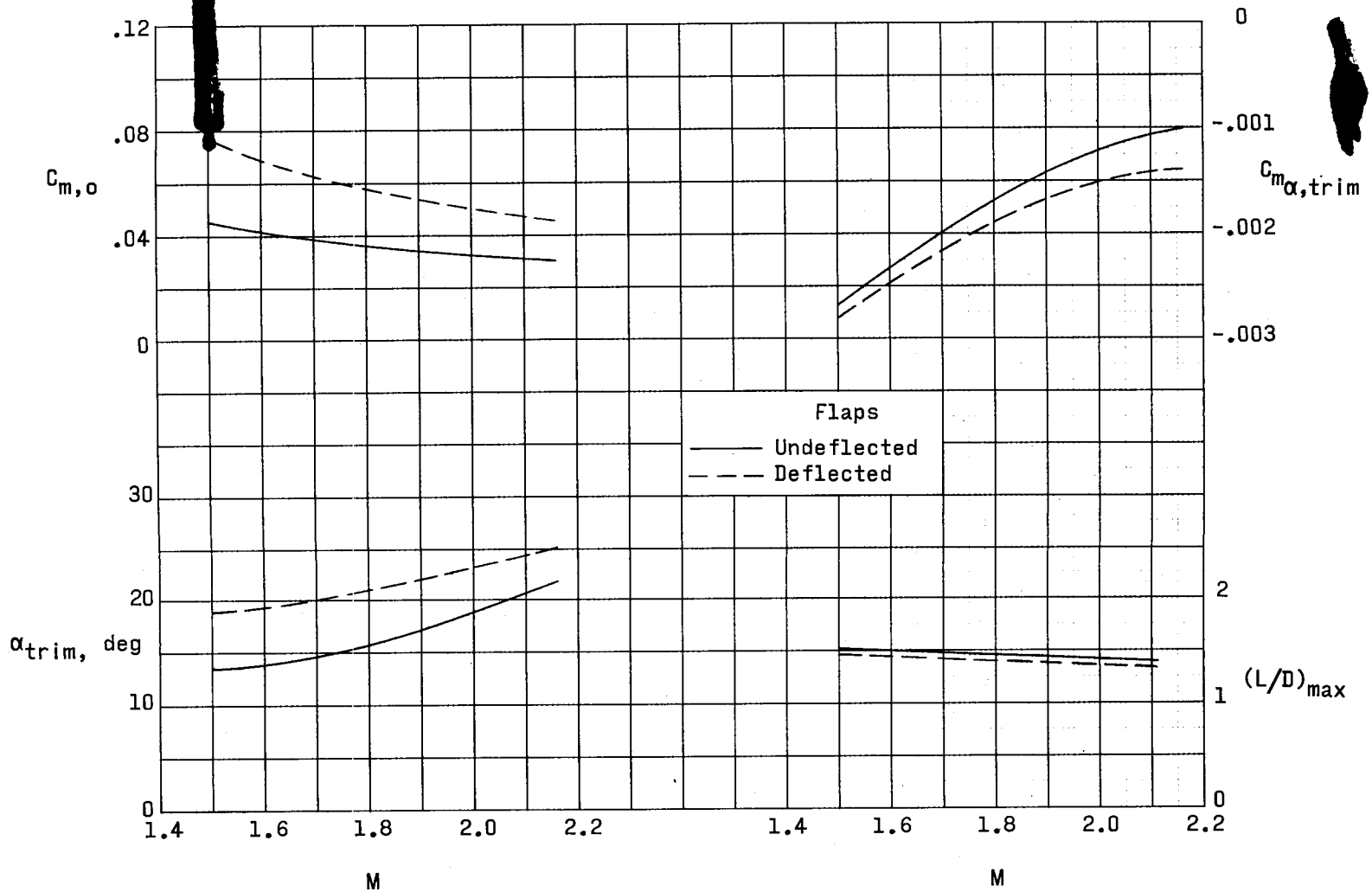


Figure 27.- Summary of effects of elevon and tip-fin-flap deflection.

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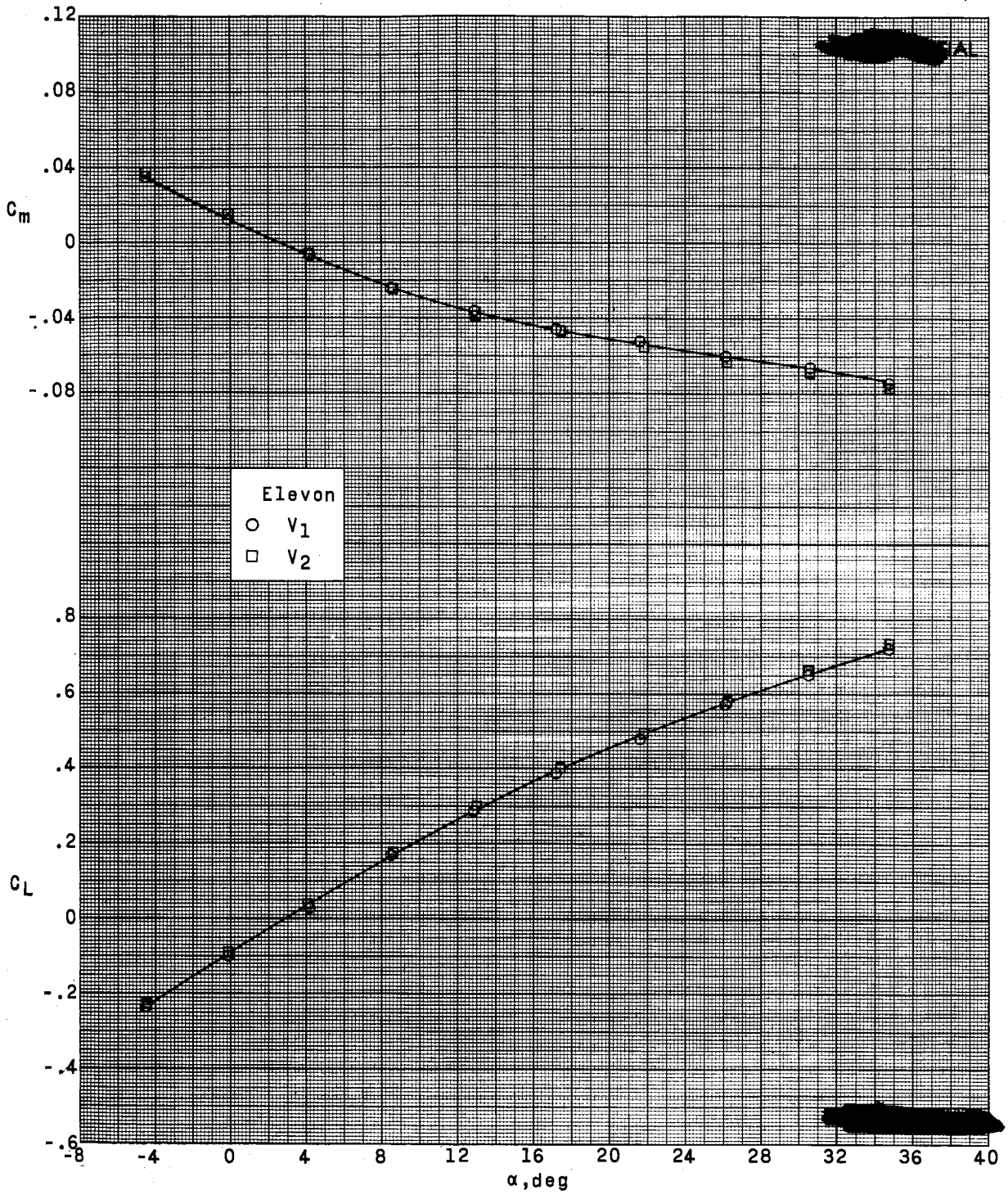
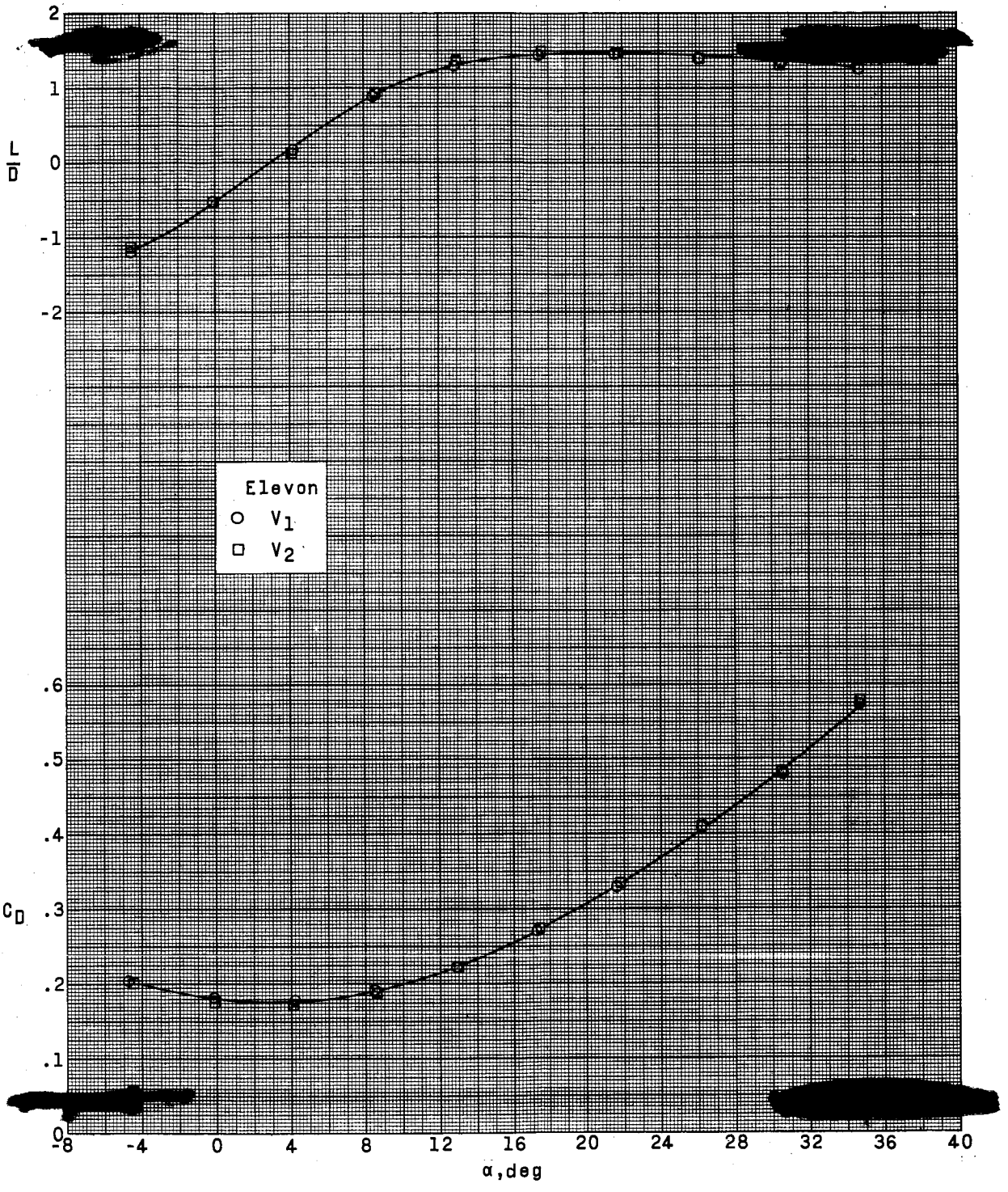
[redacted]



(a) M = 1.50.

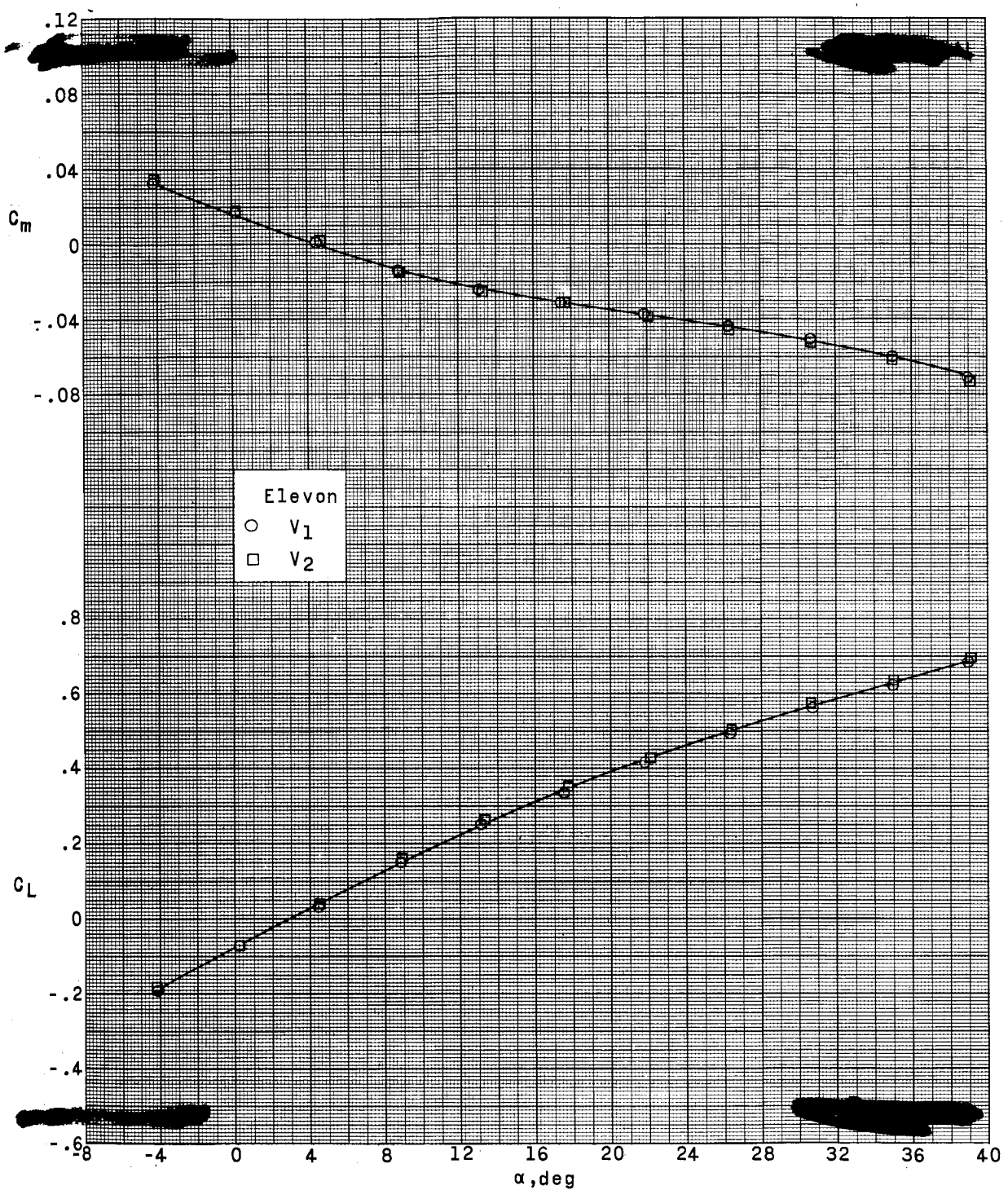
Figure 28.- Effect of elevon geometry on longitudinal aerodynamic characteristics. $\delta_e = 30^\circ$; $\delta_a = \delta_r = 0^\circ$.

[redacted]



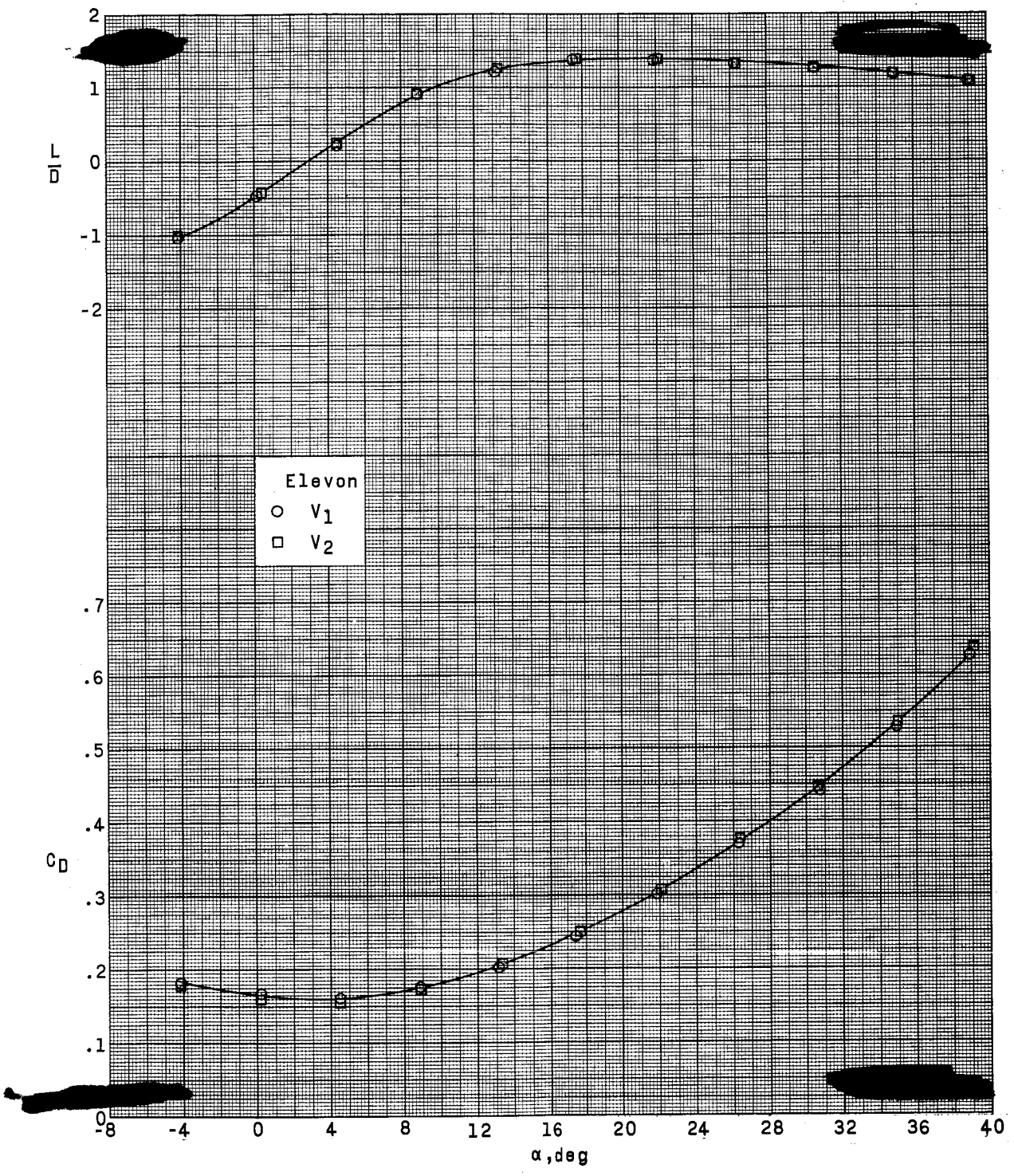
(a) Concluded.

Figure 28.- Continued.



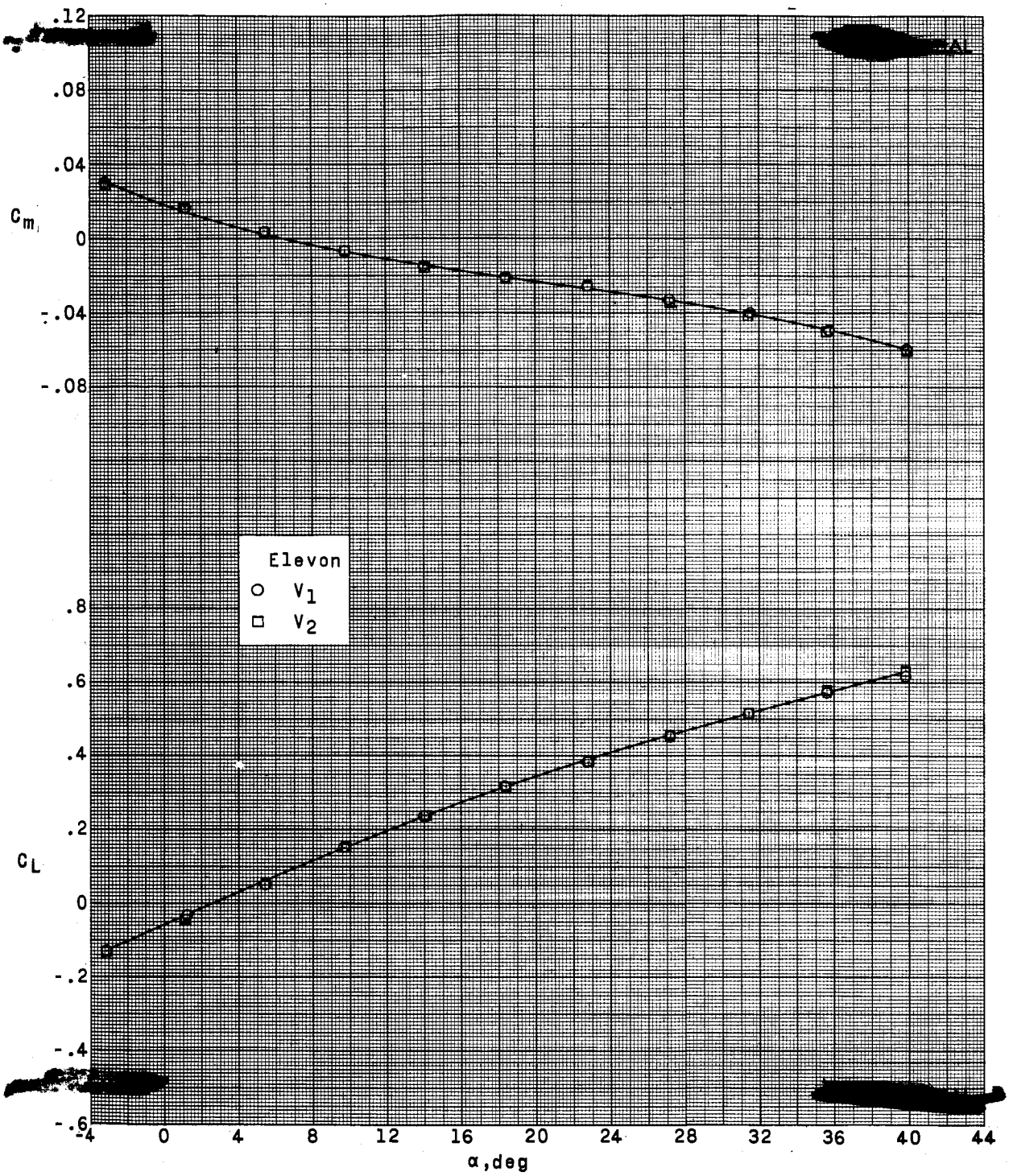
(b) M = 1.80.

Figure 28.- Continued.



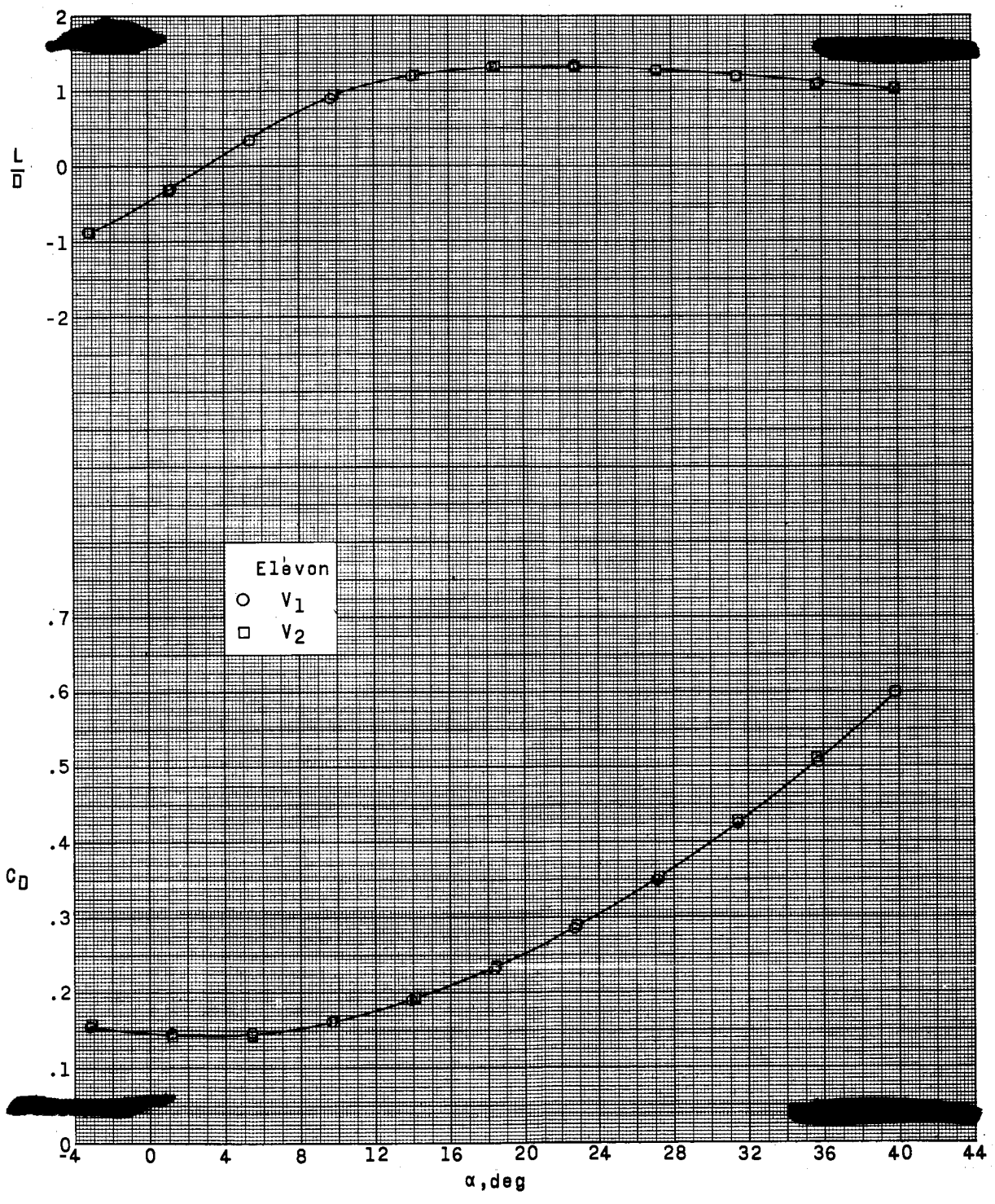
(b) Concluded.

Figure 28.- Continued.



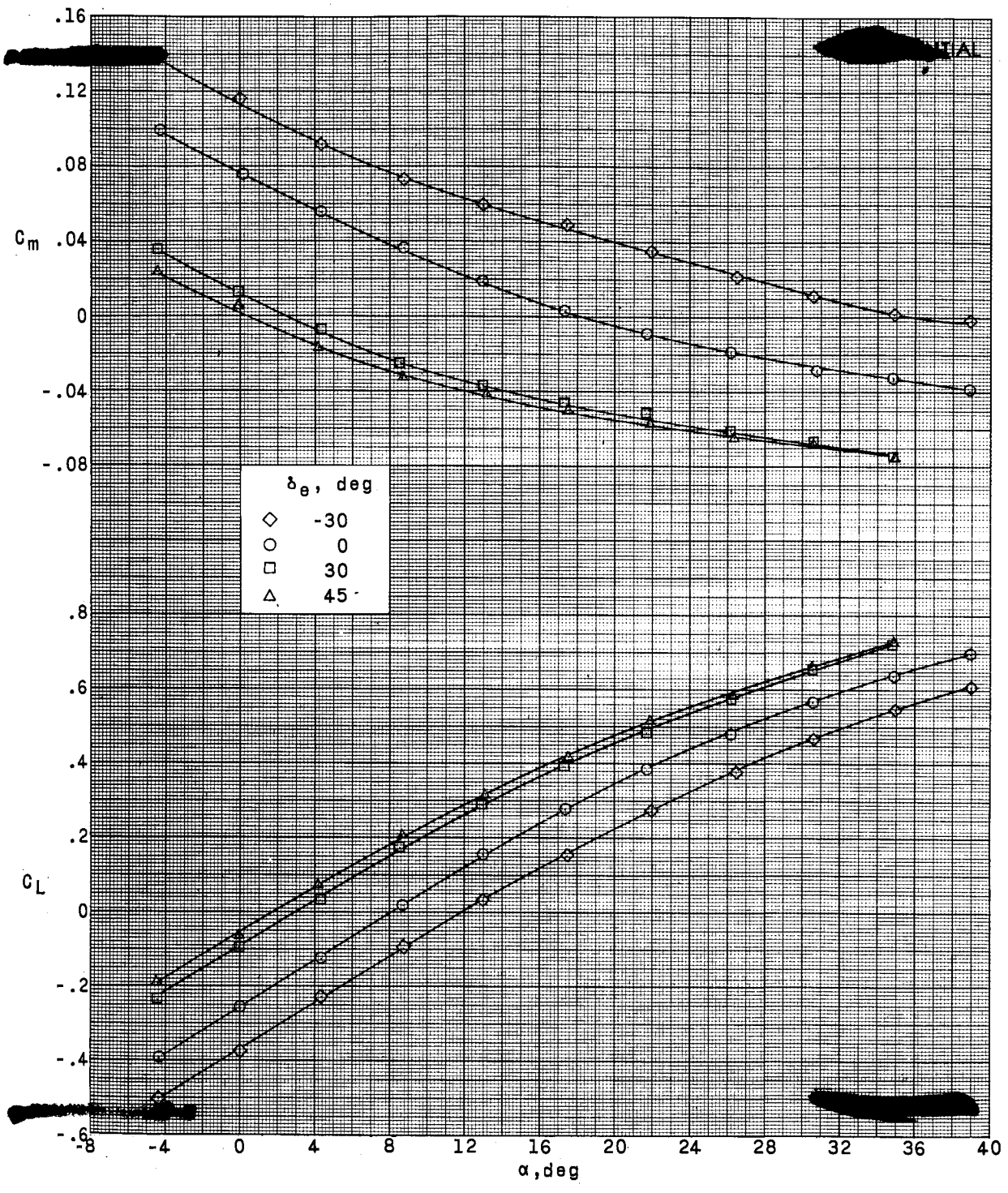
(c) M = 2.16.

Figure 28.- Continued.



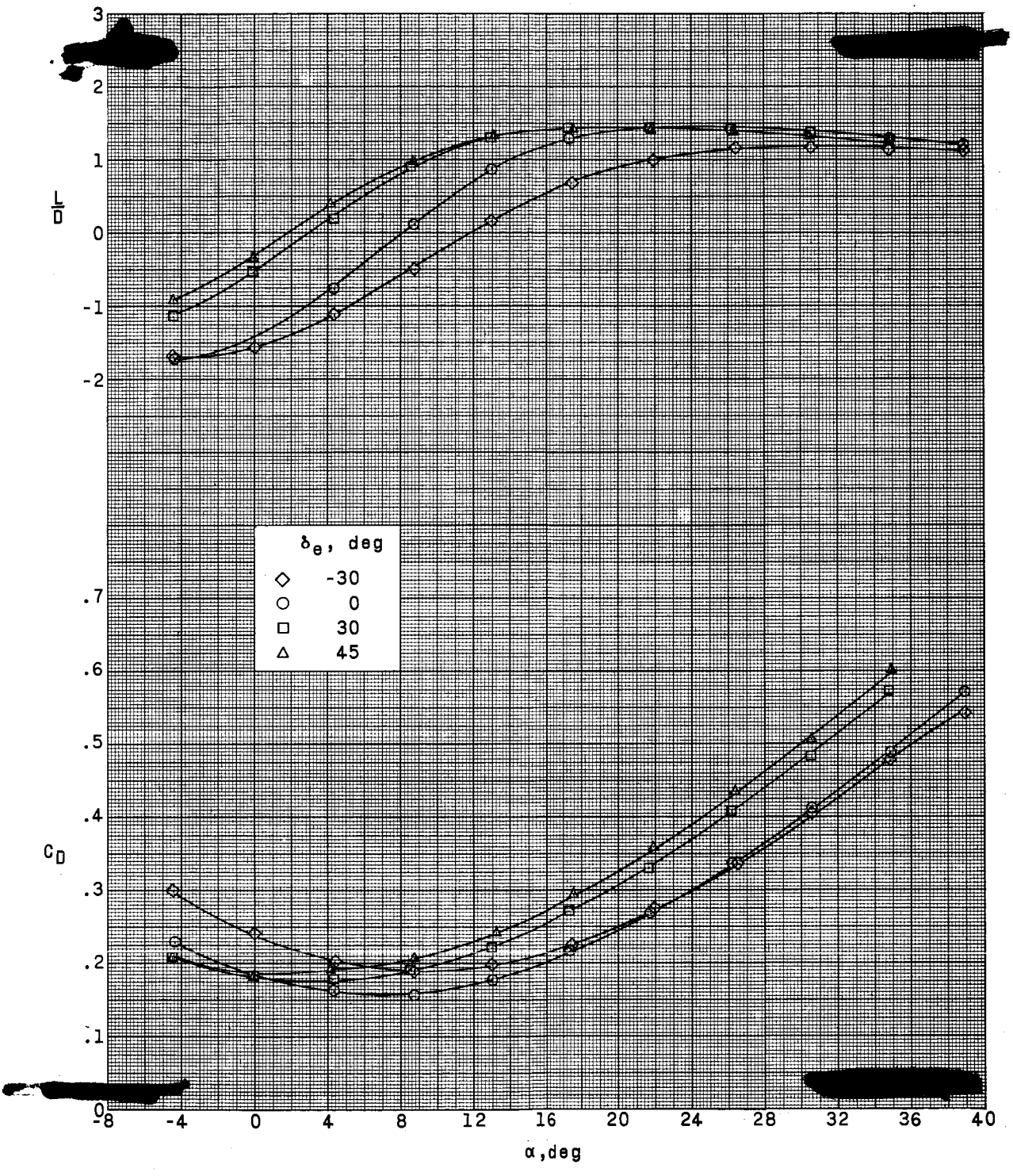
(c) Concluded.

Figure 28.- Concluded.



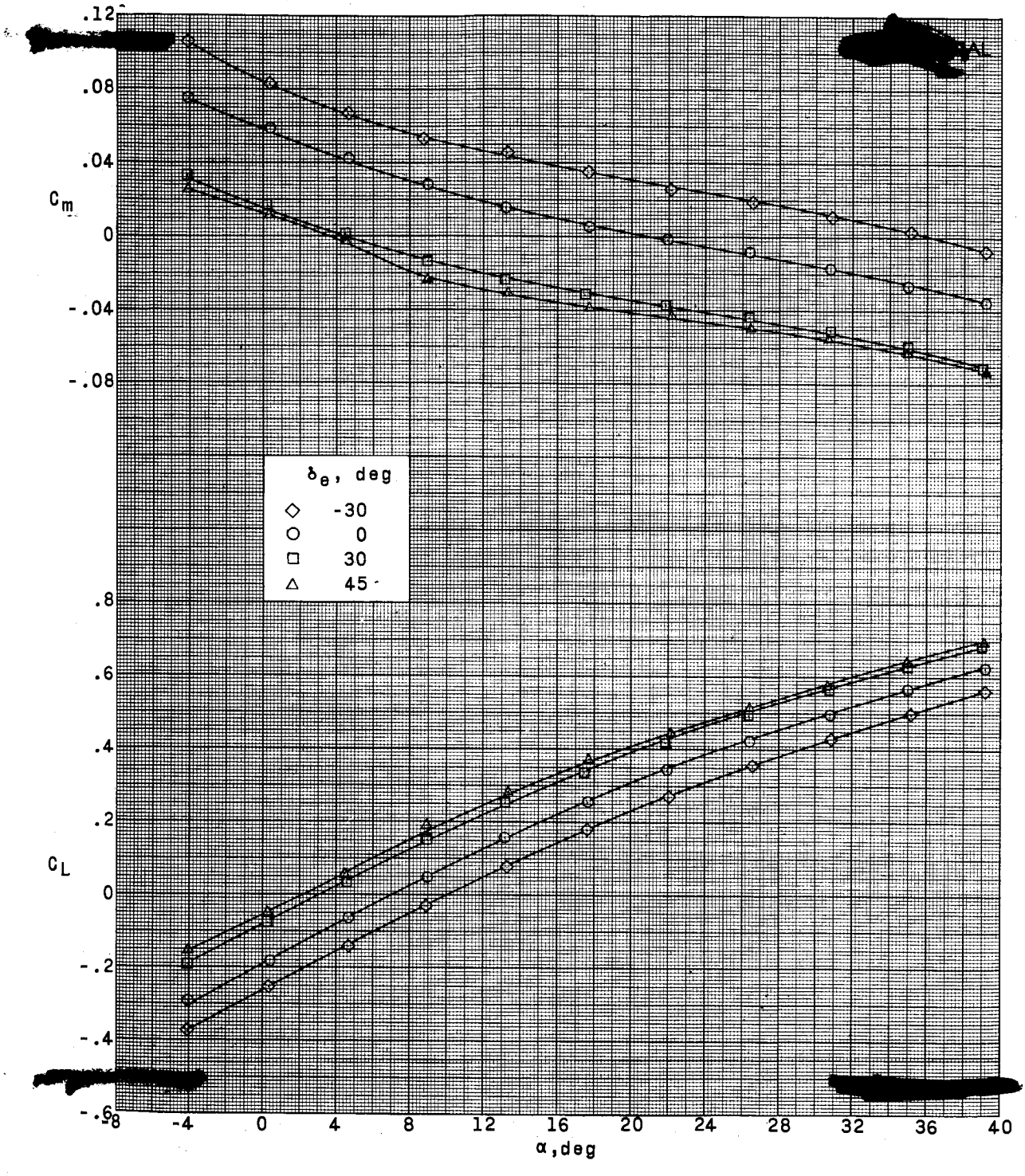
(a) M = 1.50.

Figure 29.- Pitch-control effectiveness of elevons; $\delta_a = \delta_r = 0°$.



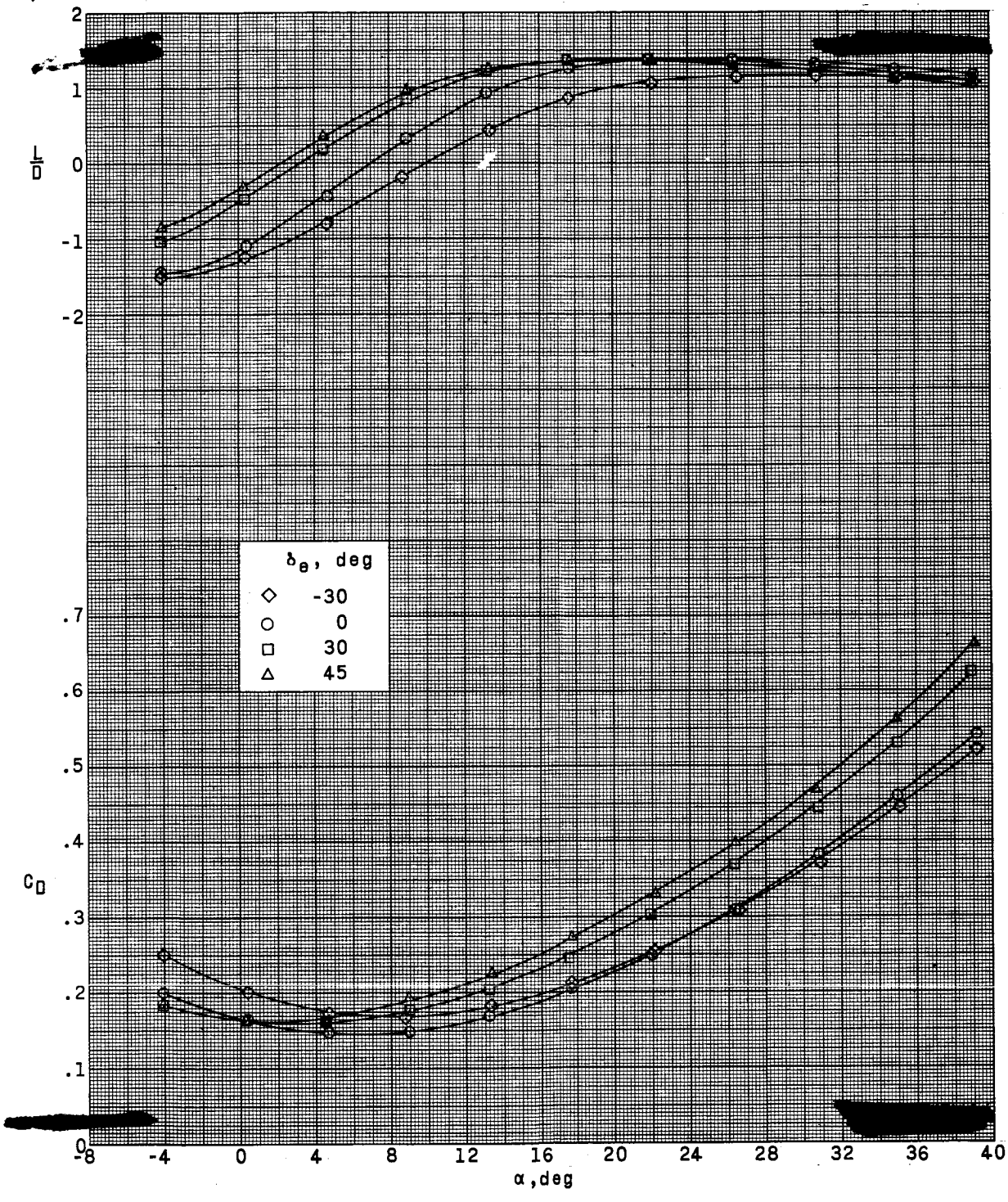
(a) Concluded.

Figure 29.- Continued.



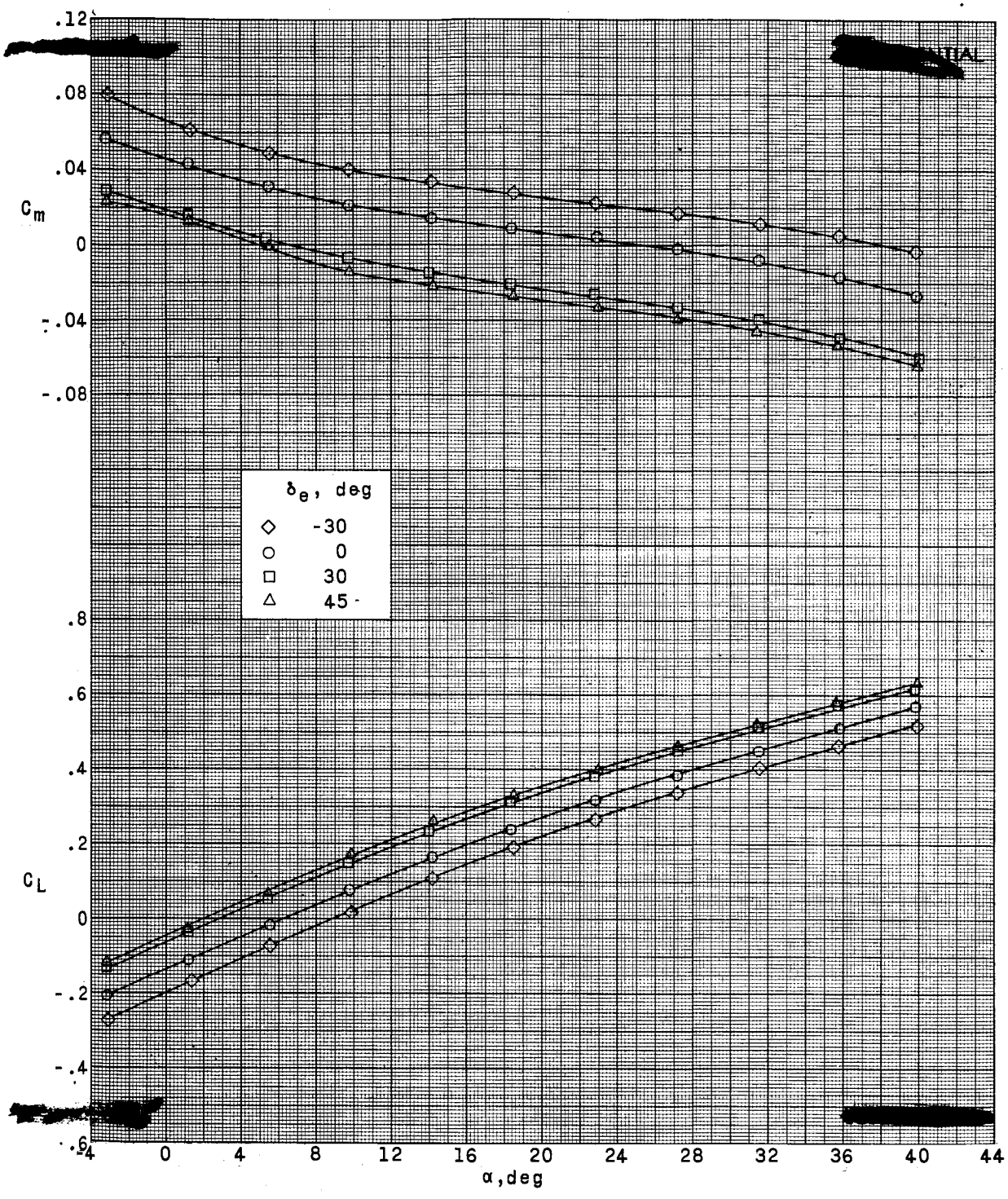
(b) M = 1.80.

Figure 29.- Continued.



(b) Concluded.

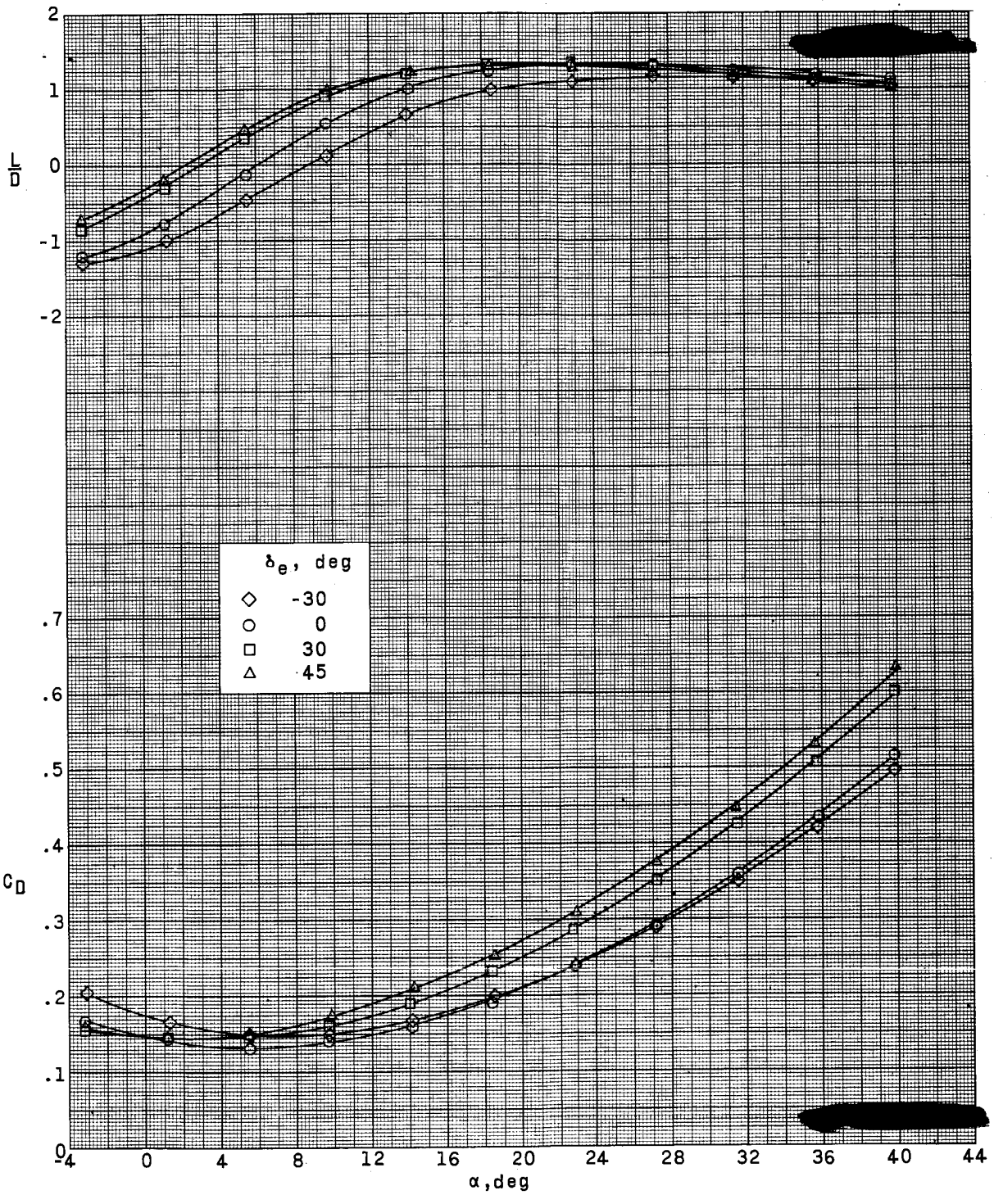
Figure 29.- Continued.



(c) M = 2.16.

Figure 29.- Continued.

[redacted]



[redacted]

(c) Concluded.

Figure 29.- Concluded.

[redacted]

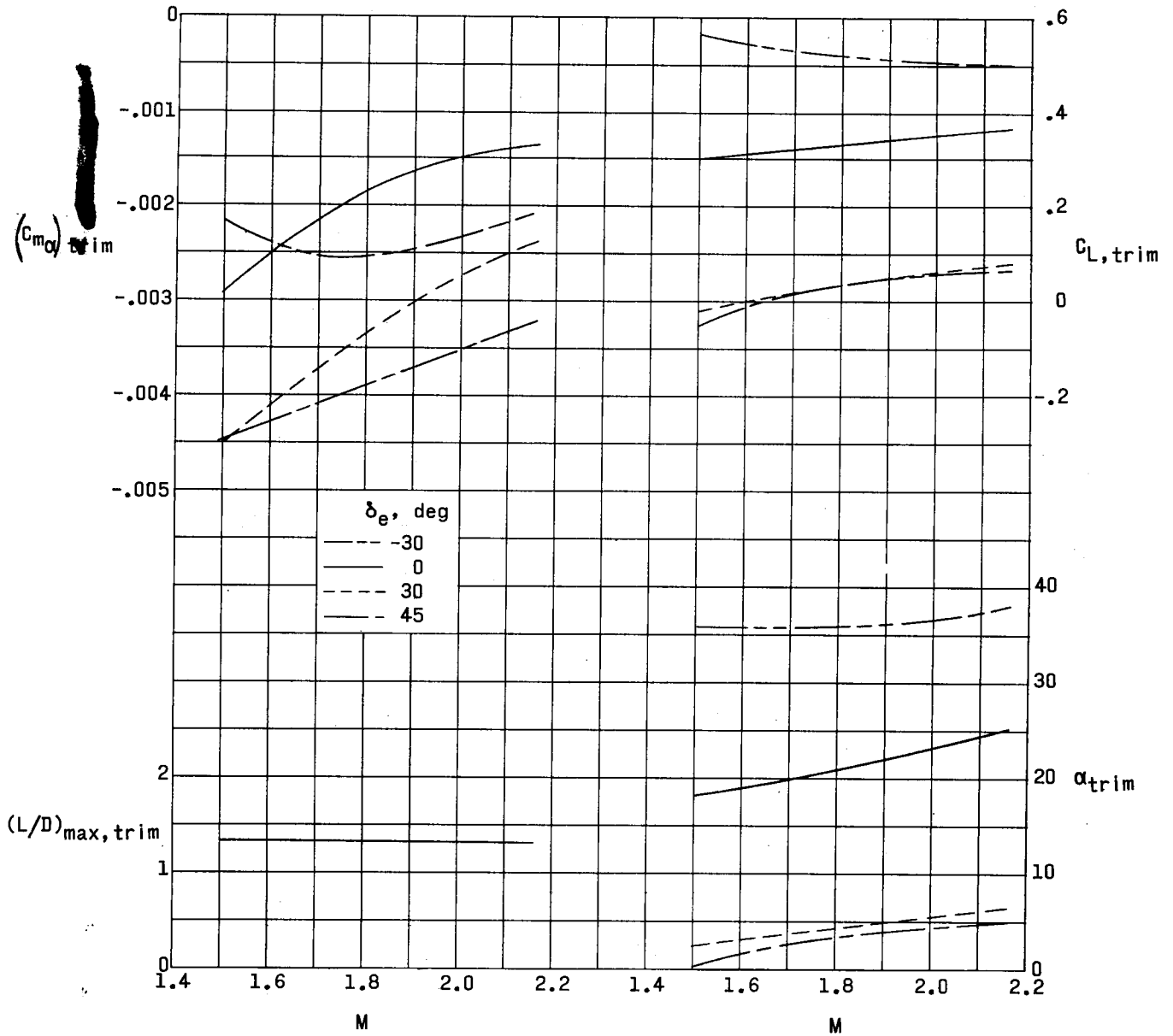
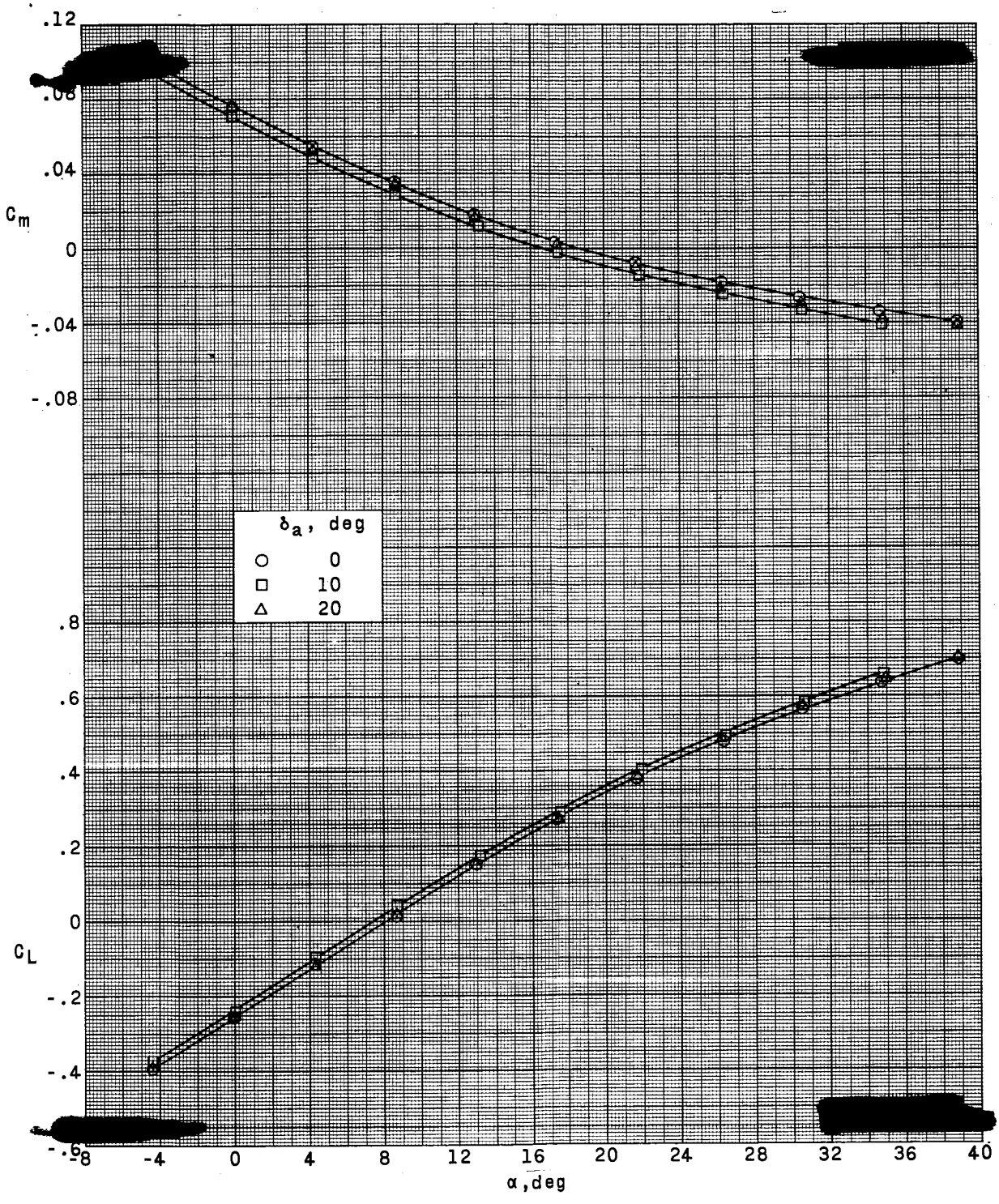
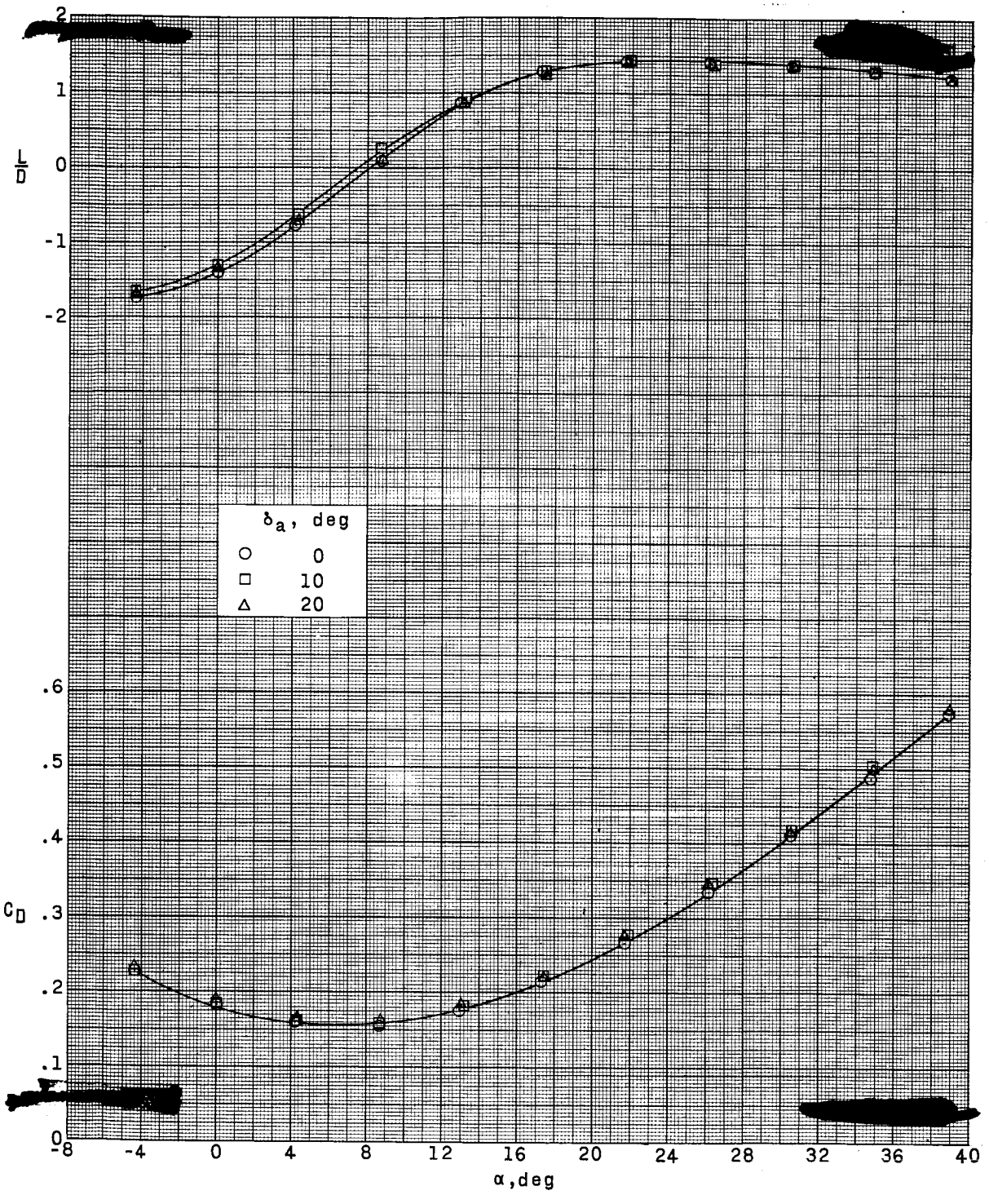


Figure 30.- Summary of pitch-control data.



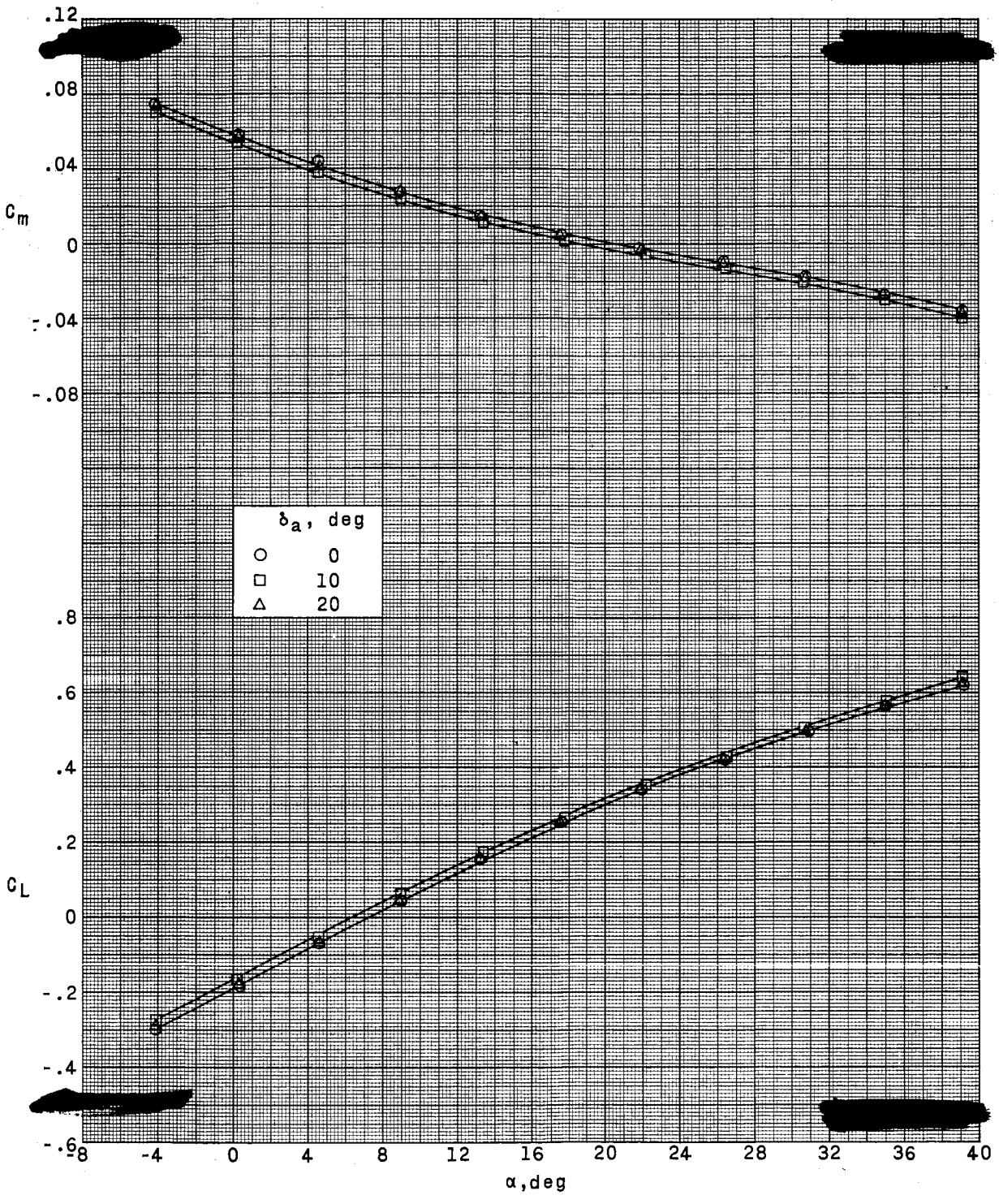
(a) M = 1.50.

Figure 31.- Effect of aileron control on longitudinal aerodynamic characteristics. V_1; $\delta_e = \delta_r = 0^o$.



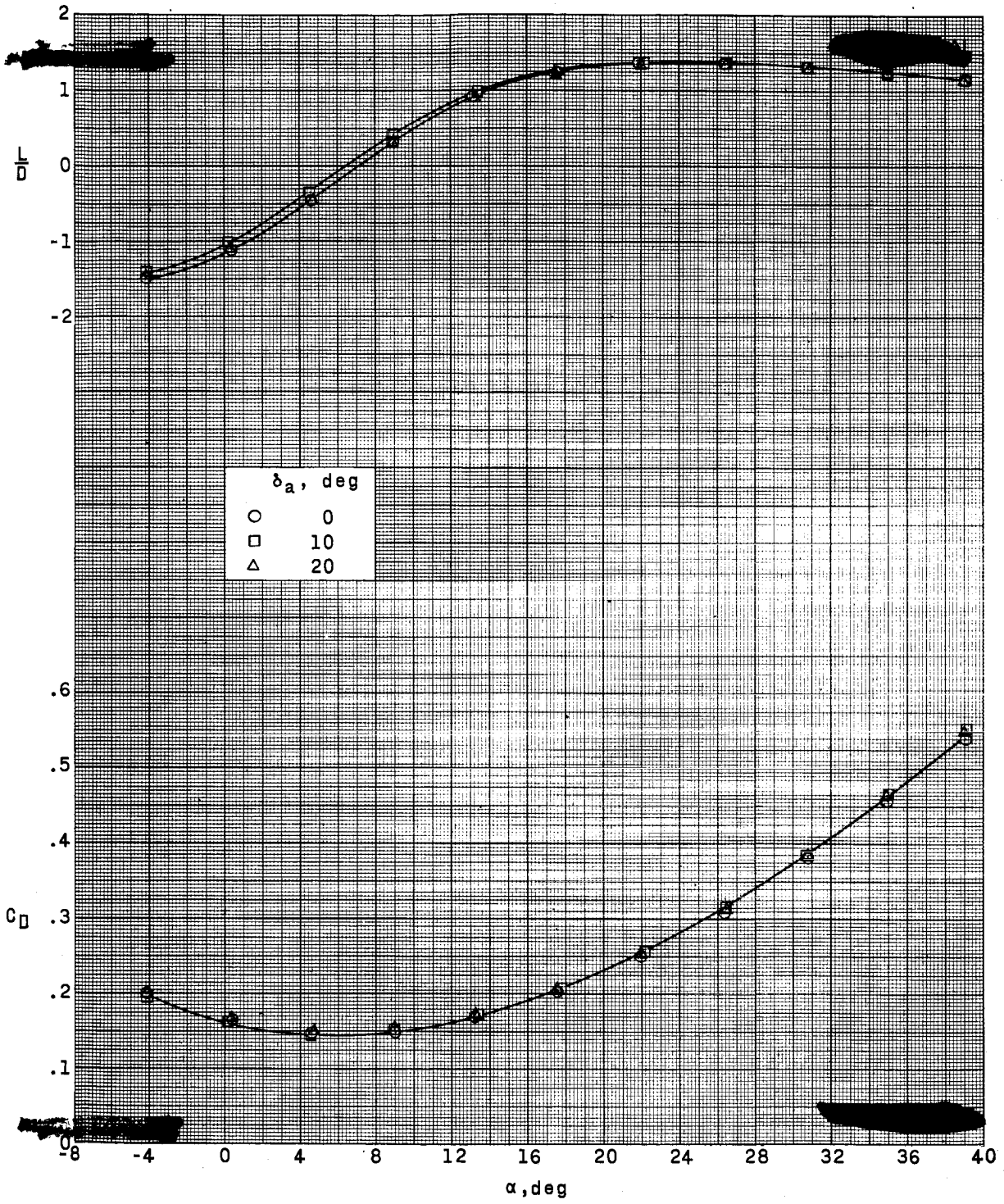
(a) Concluded.

Figure 31.- Continued.



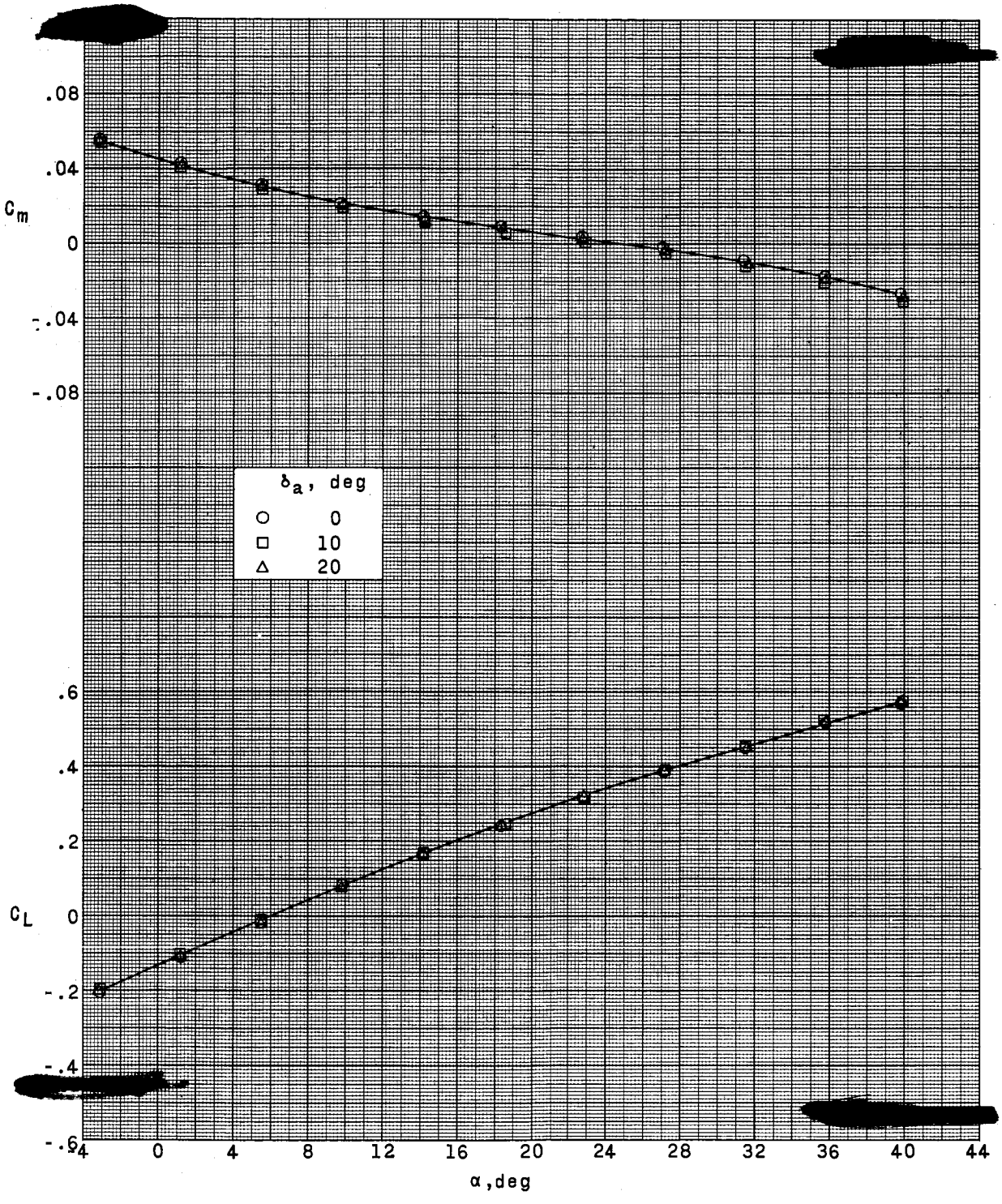
(b) M = 1.80.

Figure 31.- Continued.



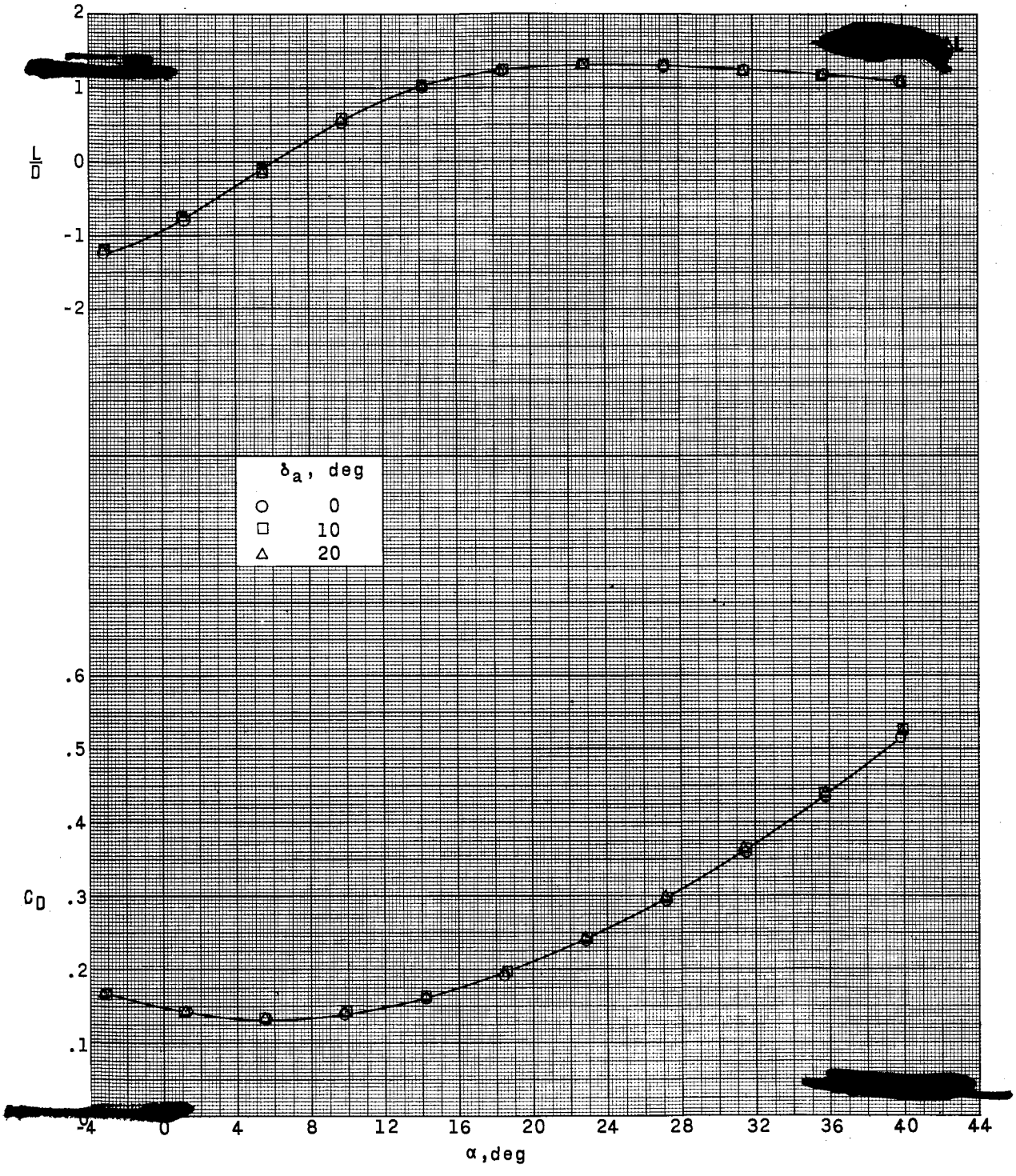
(b) Concluded.

Figure 31.- Continued.



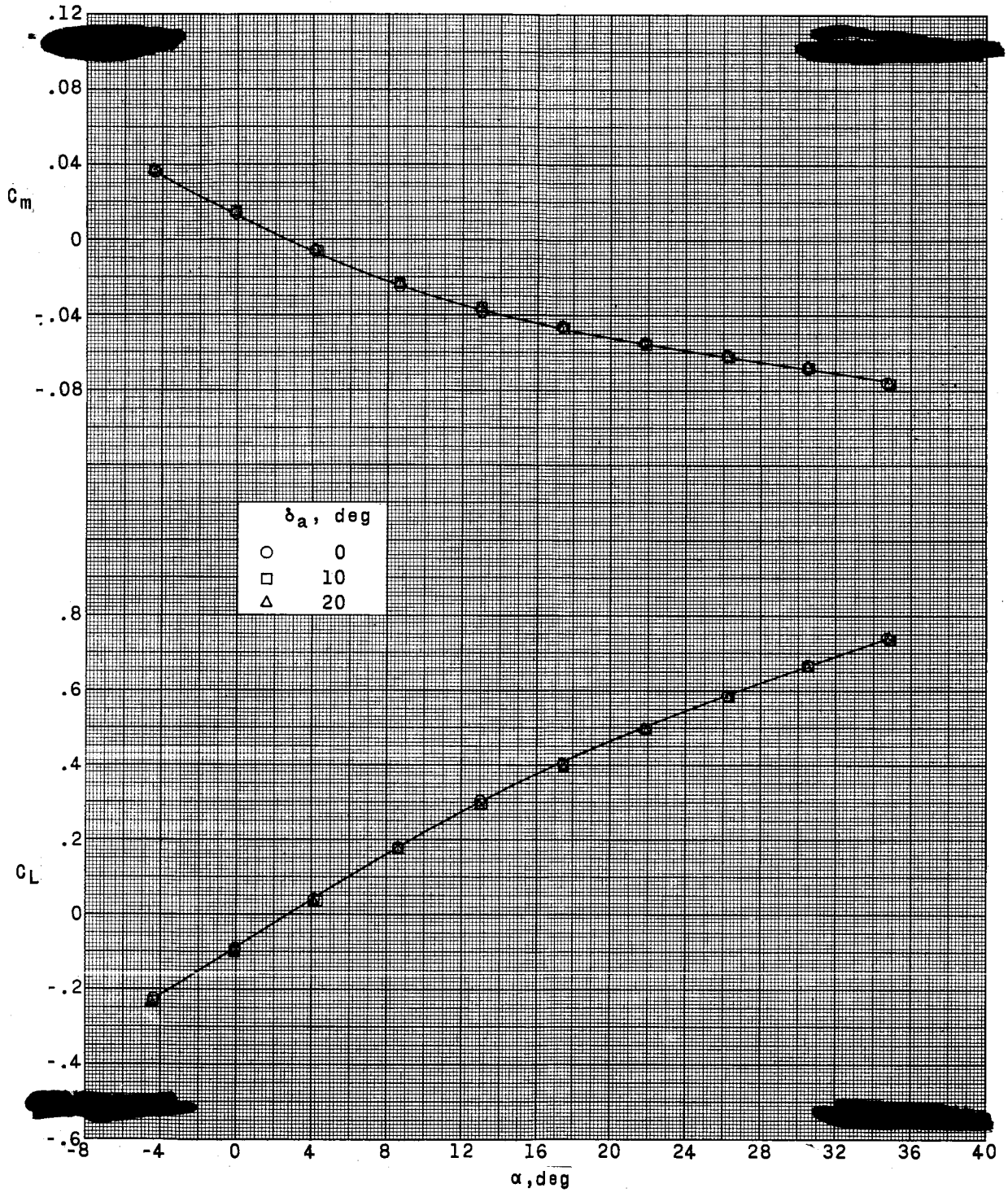
(c) M = 2.16.

Figure 31.- Continued.



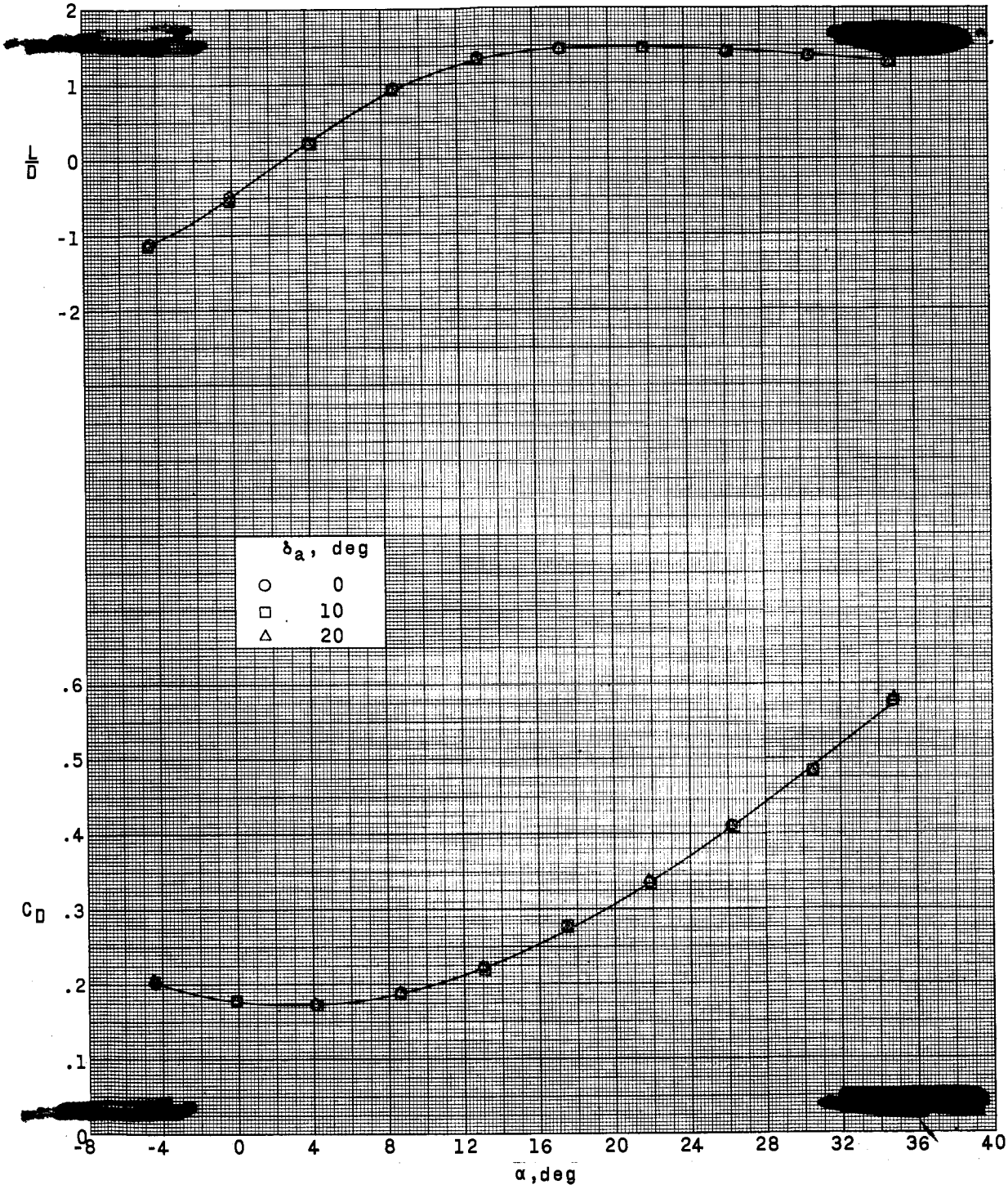
(c) Concluded.

Figure 31.- Concluded.



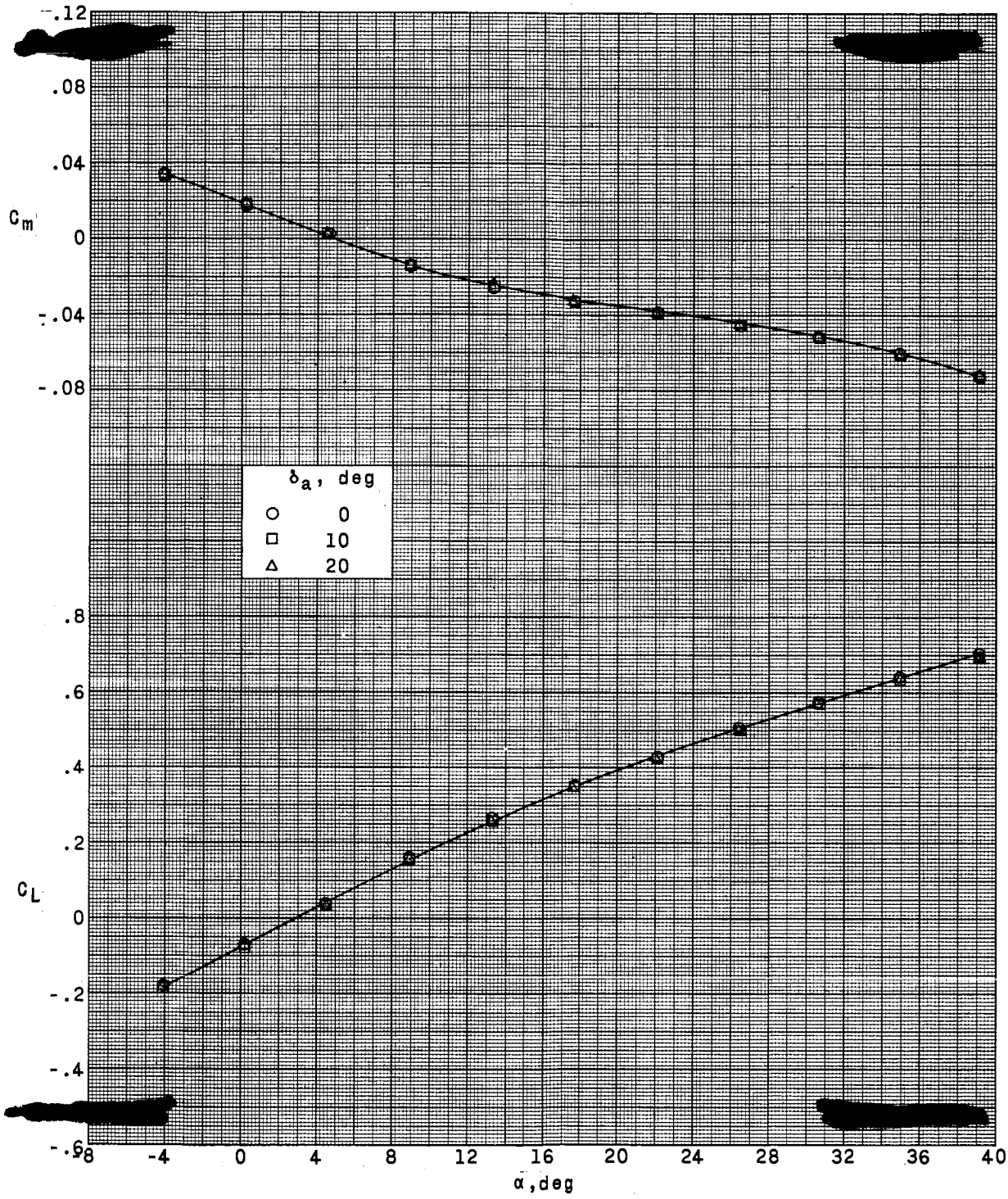
(a) M = 1.50.

Figure 32.- Effect of aileron control on longitudinal aerodynamic characteristics. V_2; $\delta_e = 30^0$; $\delta_r = 0^0$.



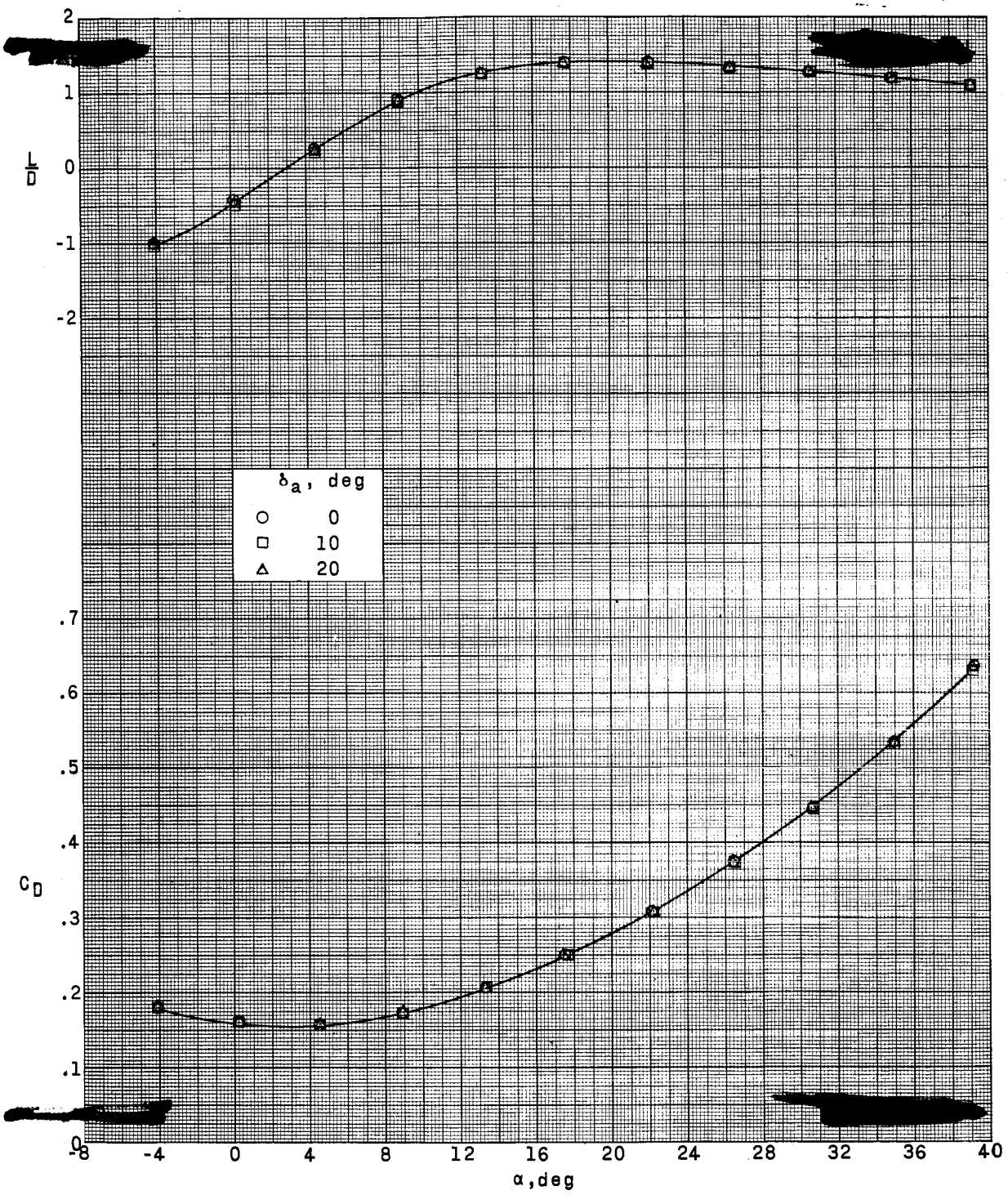
(a) Concluded.

Figure 32.- Continued.



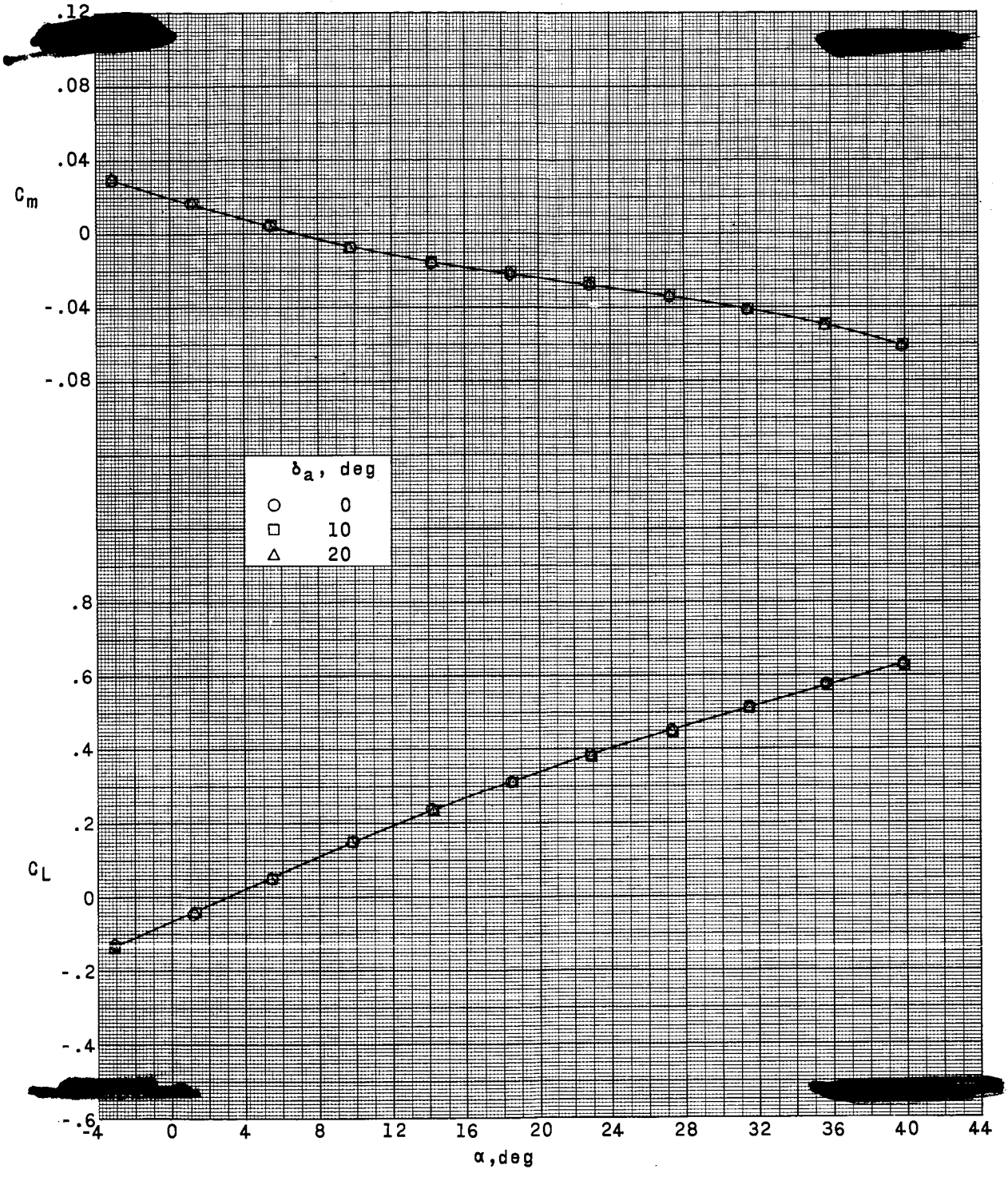
(b) M = 1.80.

Figure 32.- Continued.



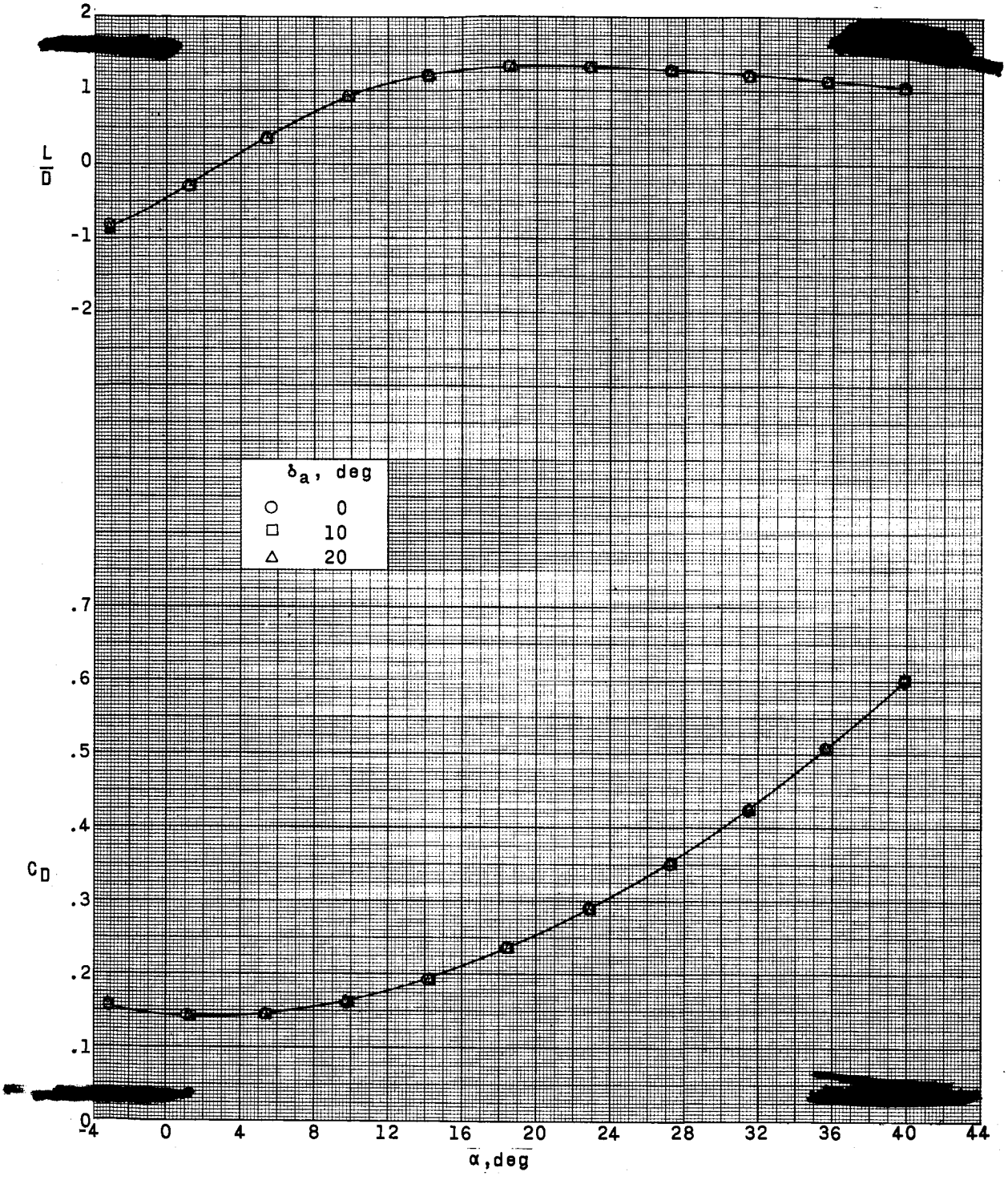
(b) Concluded.

Figure 32.- Continued.



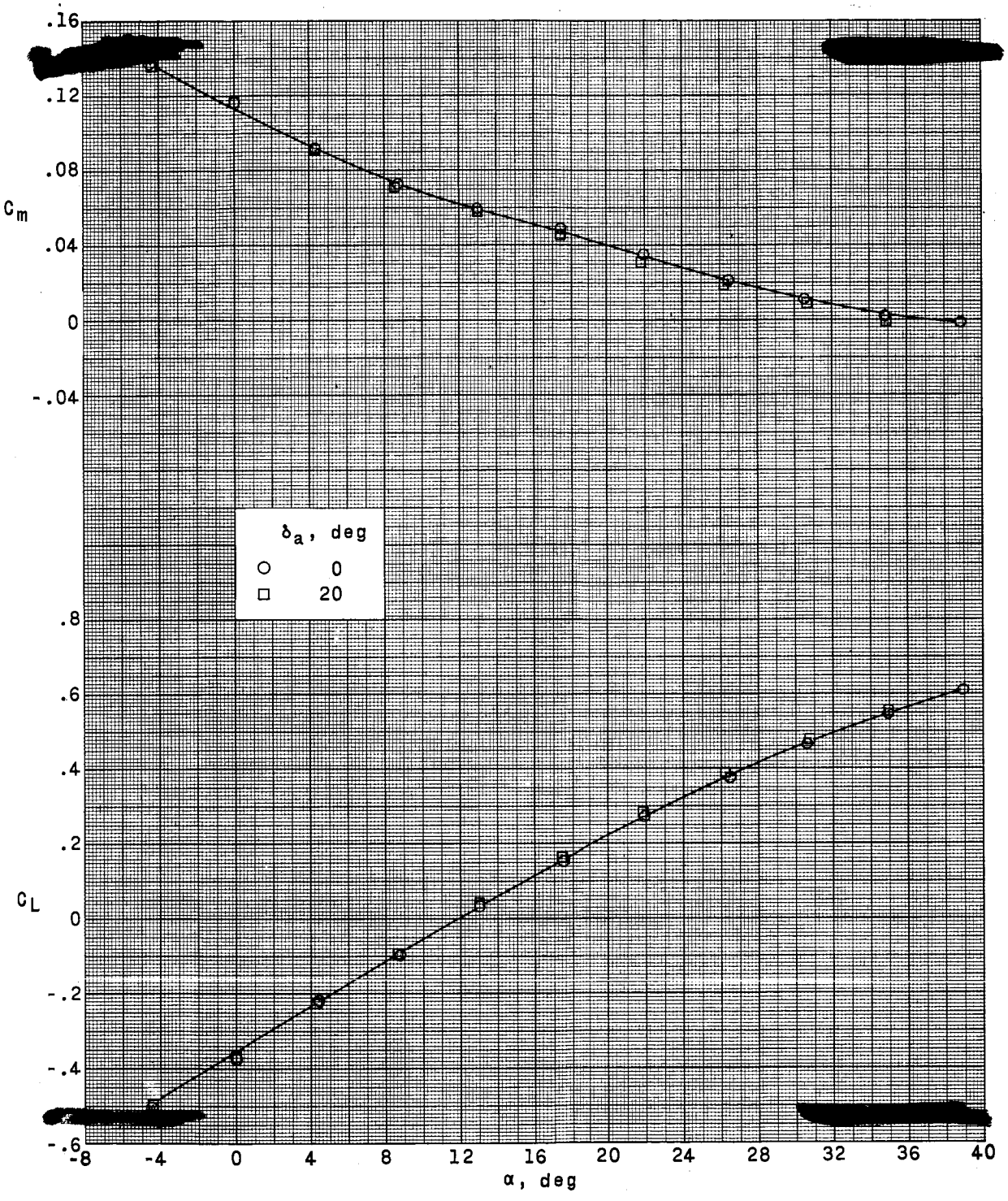
(c) M = 2.16.

Figure 32.- Continued.



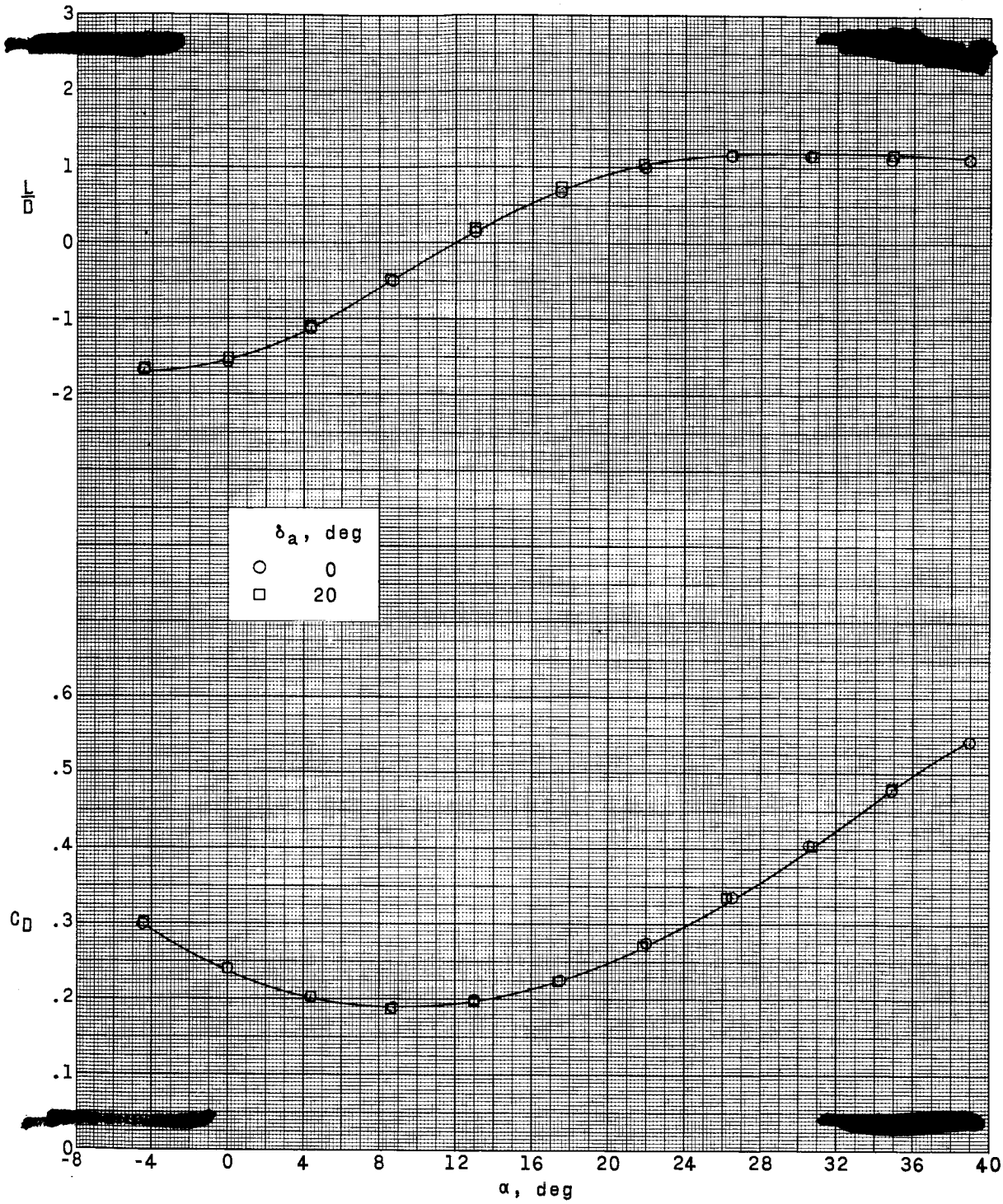
(c) Concluded.

Figure 32.- Concluded.



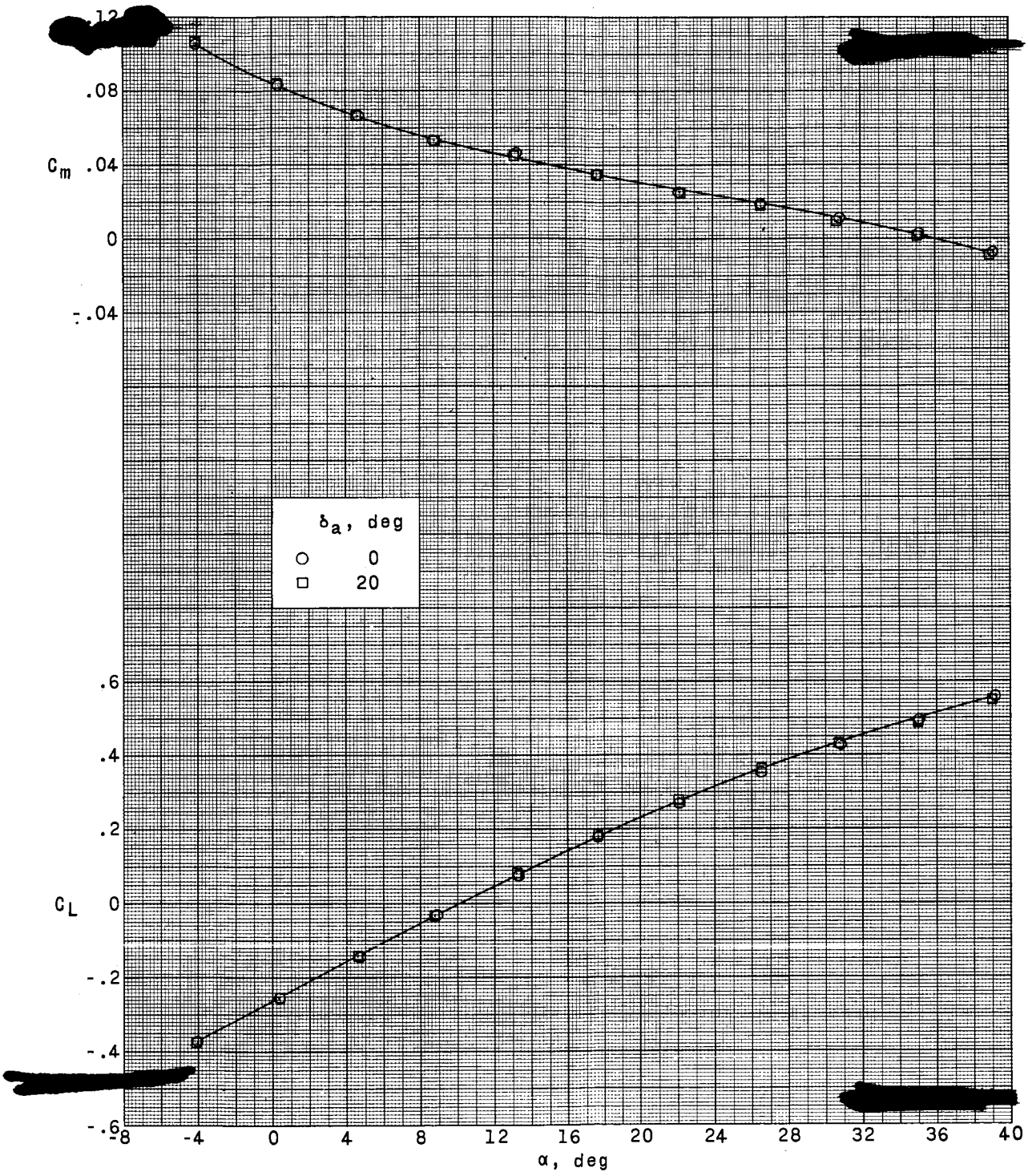
(a) M = 1.50.

Figure 33.- Effect of aileron control on longitudinal aerodynamic characteristics. V_1; $\delta_e = -30^0$; $\delta_r = 0^0$.



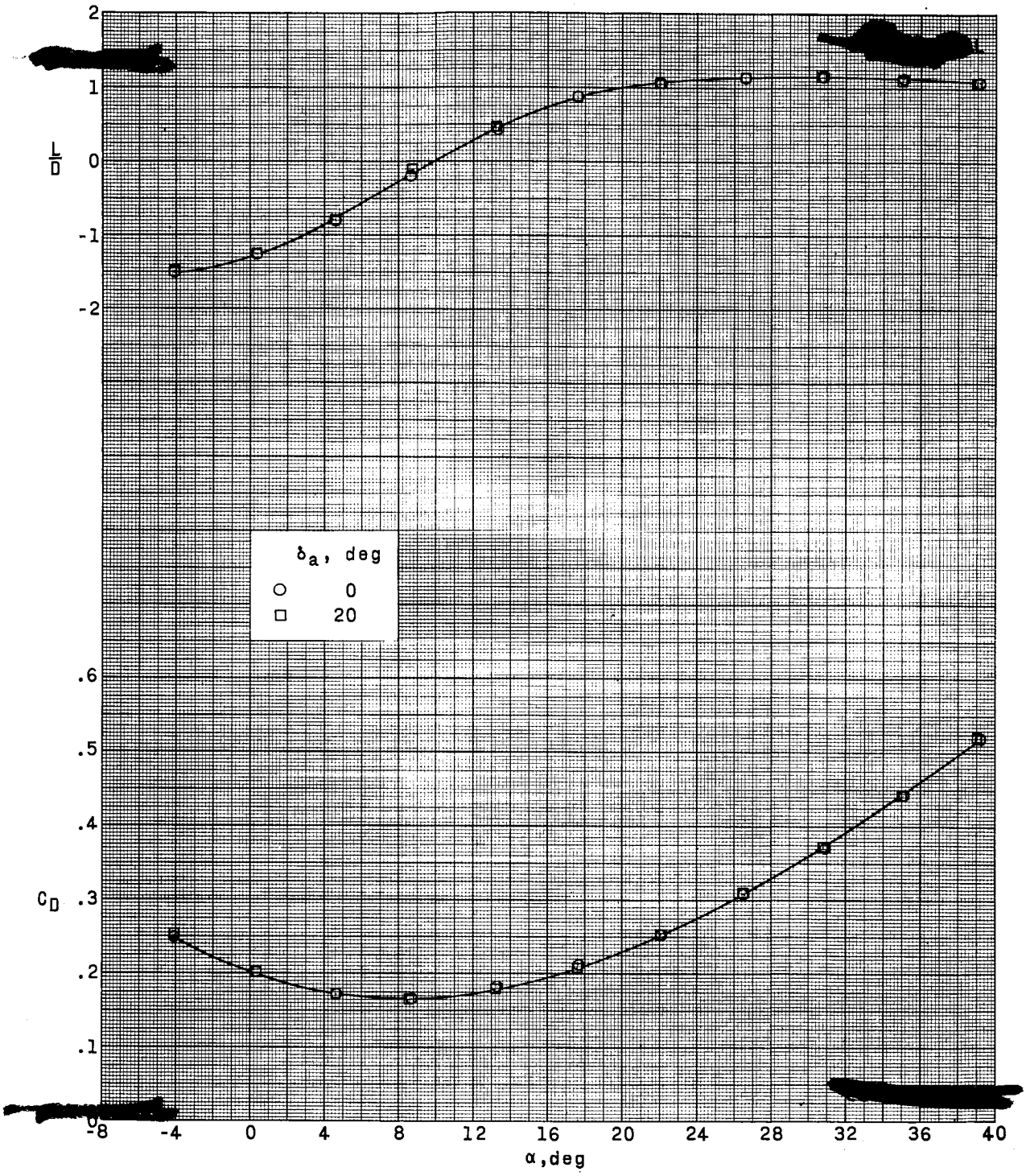
(a) Concluded.

Figure 33.- Continued.



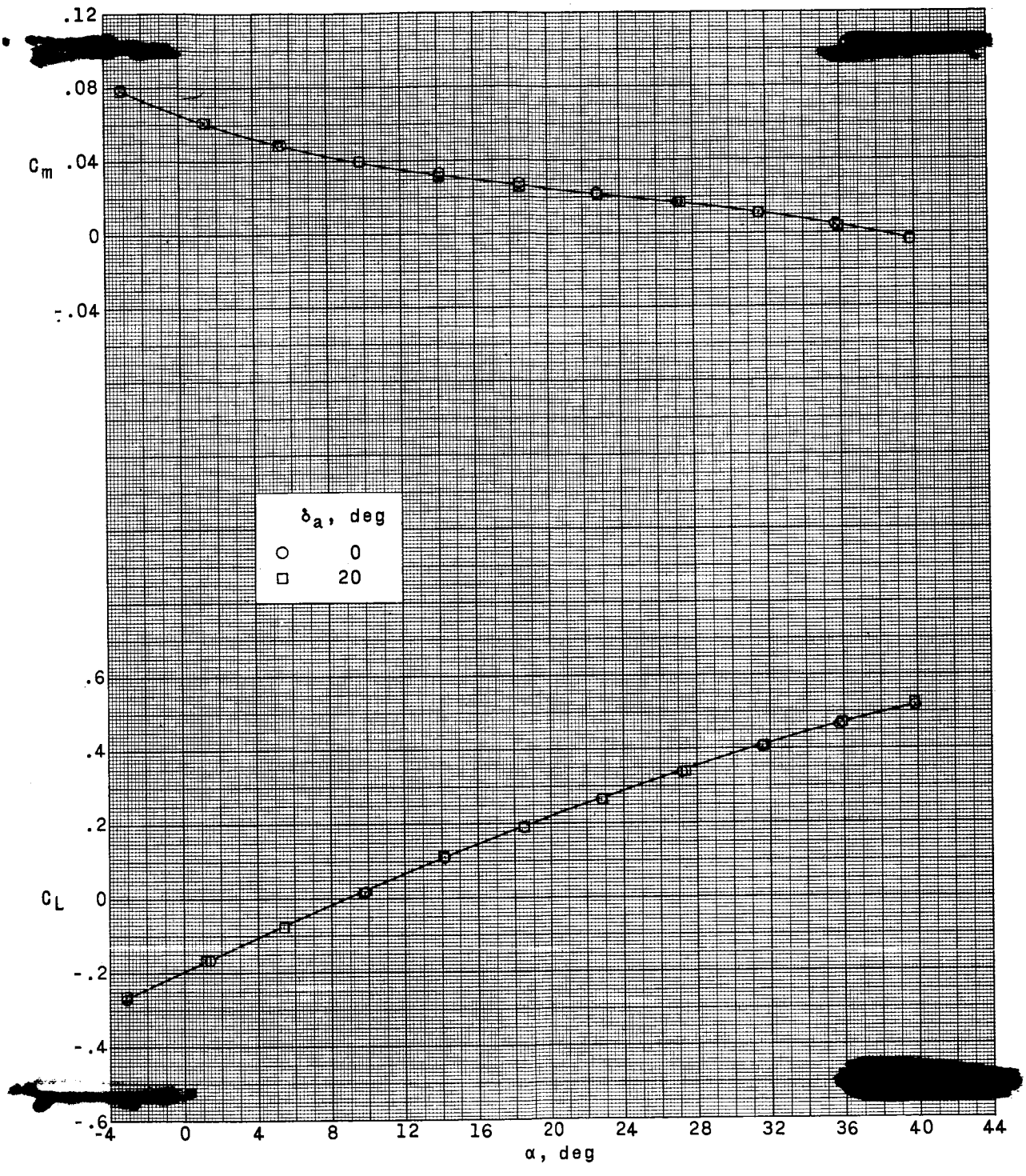
(b) M = 1.80.

Figure 33.- Continued.



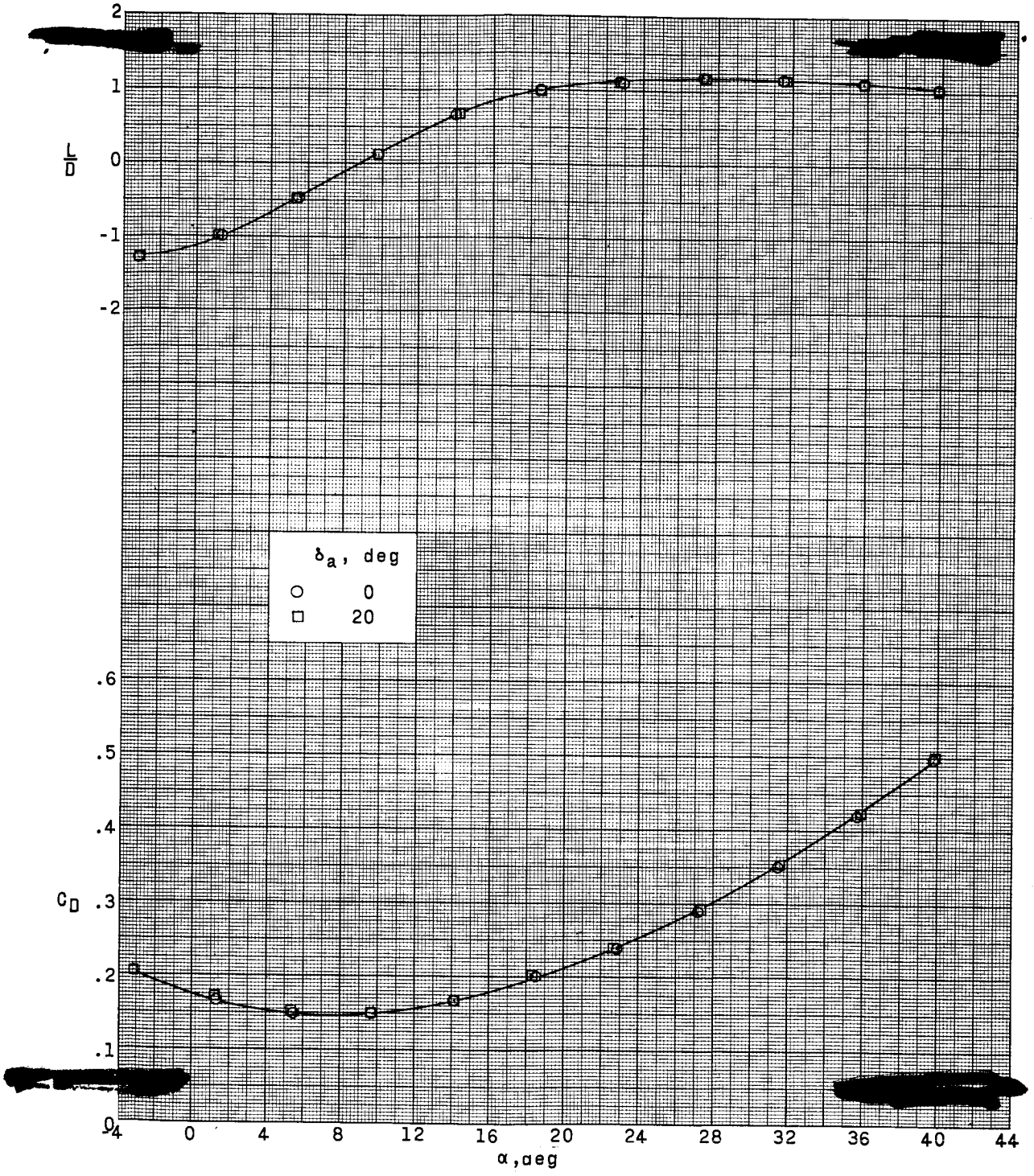
(b) Concluded.

Figure 33.- Continued.



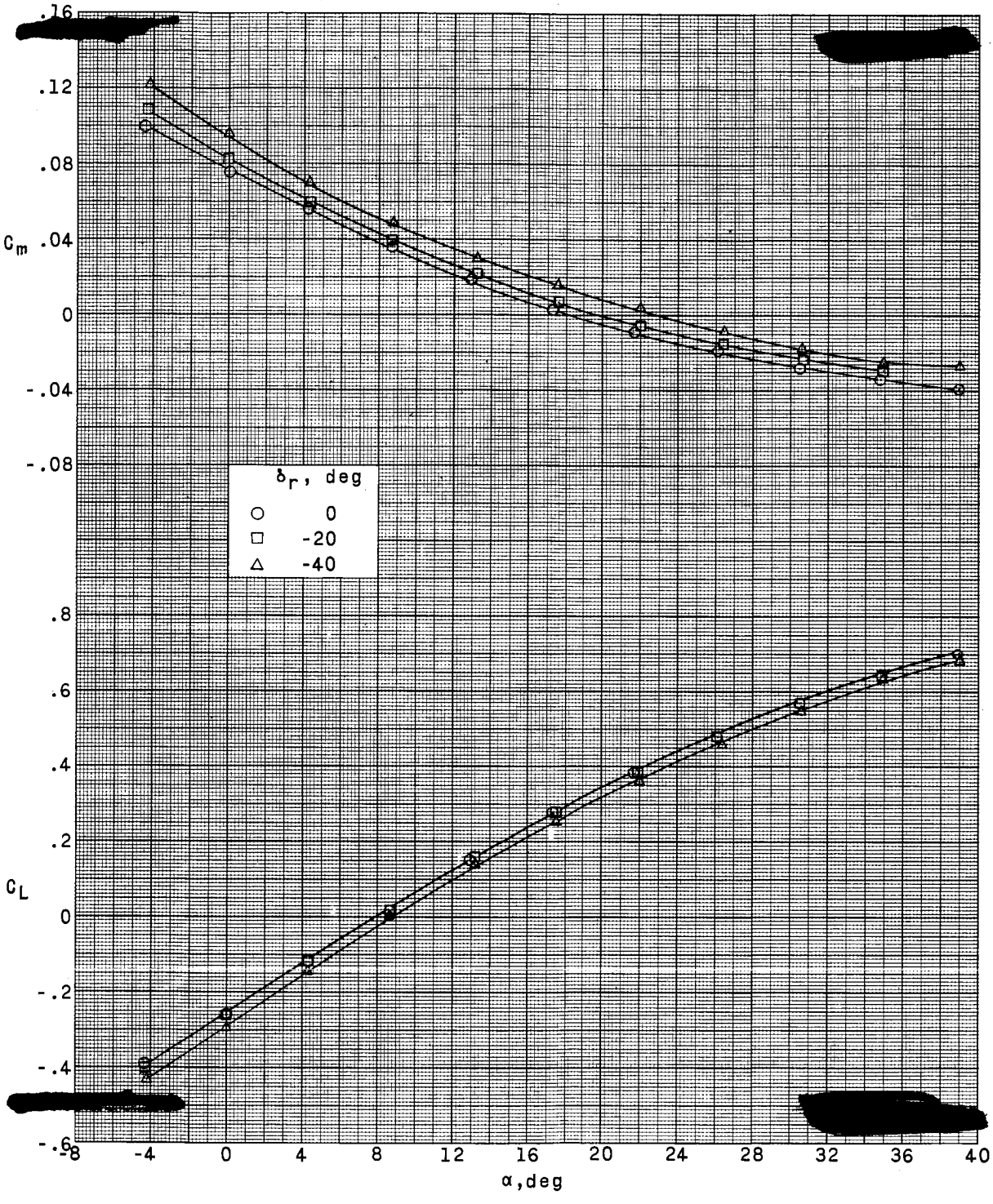
(c) M = 2.16.

Figure 33.- Continued.



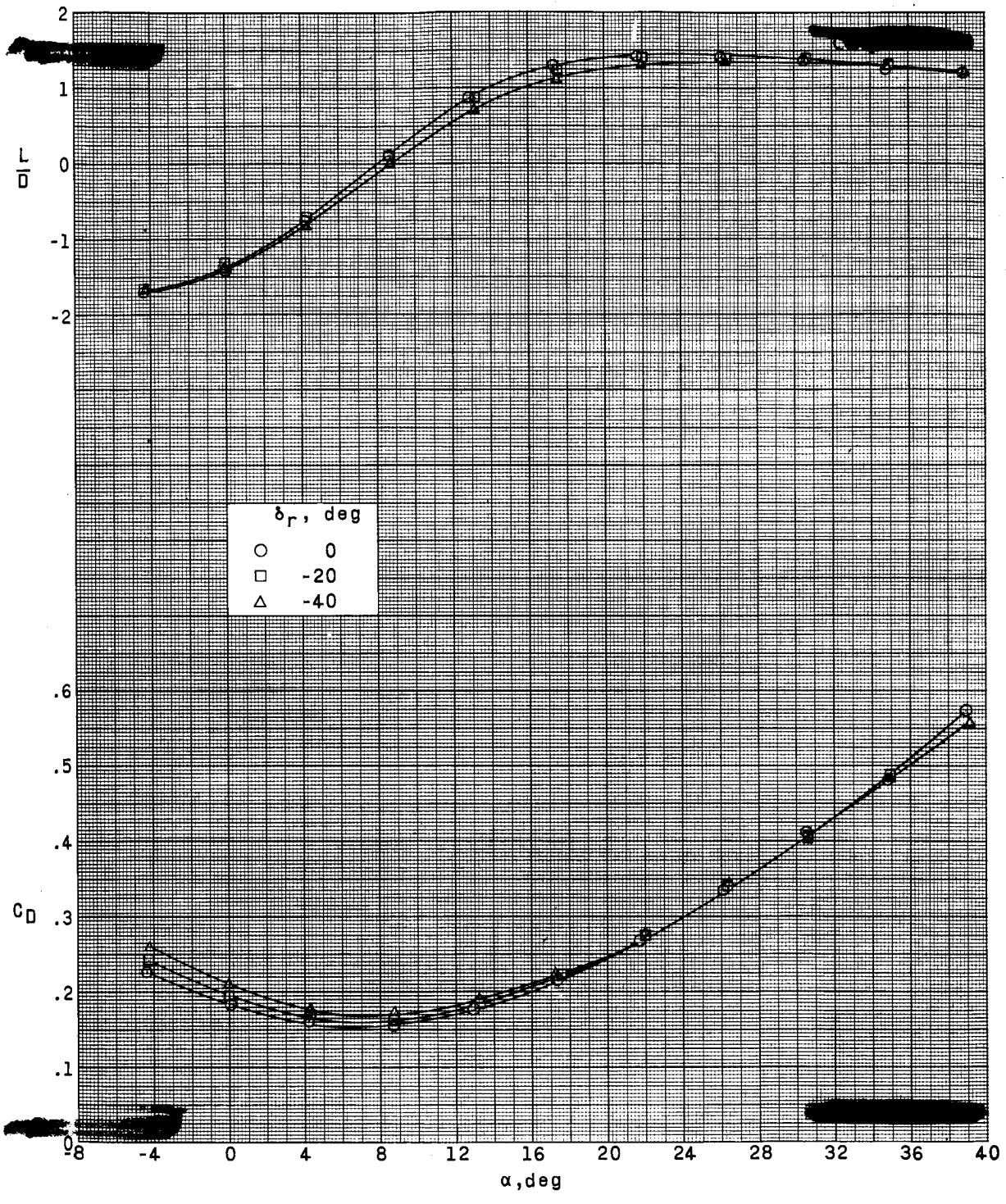
(c) Concluded.

Figure 33.- Concluded.



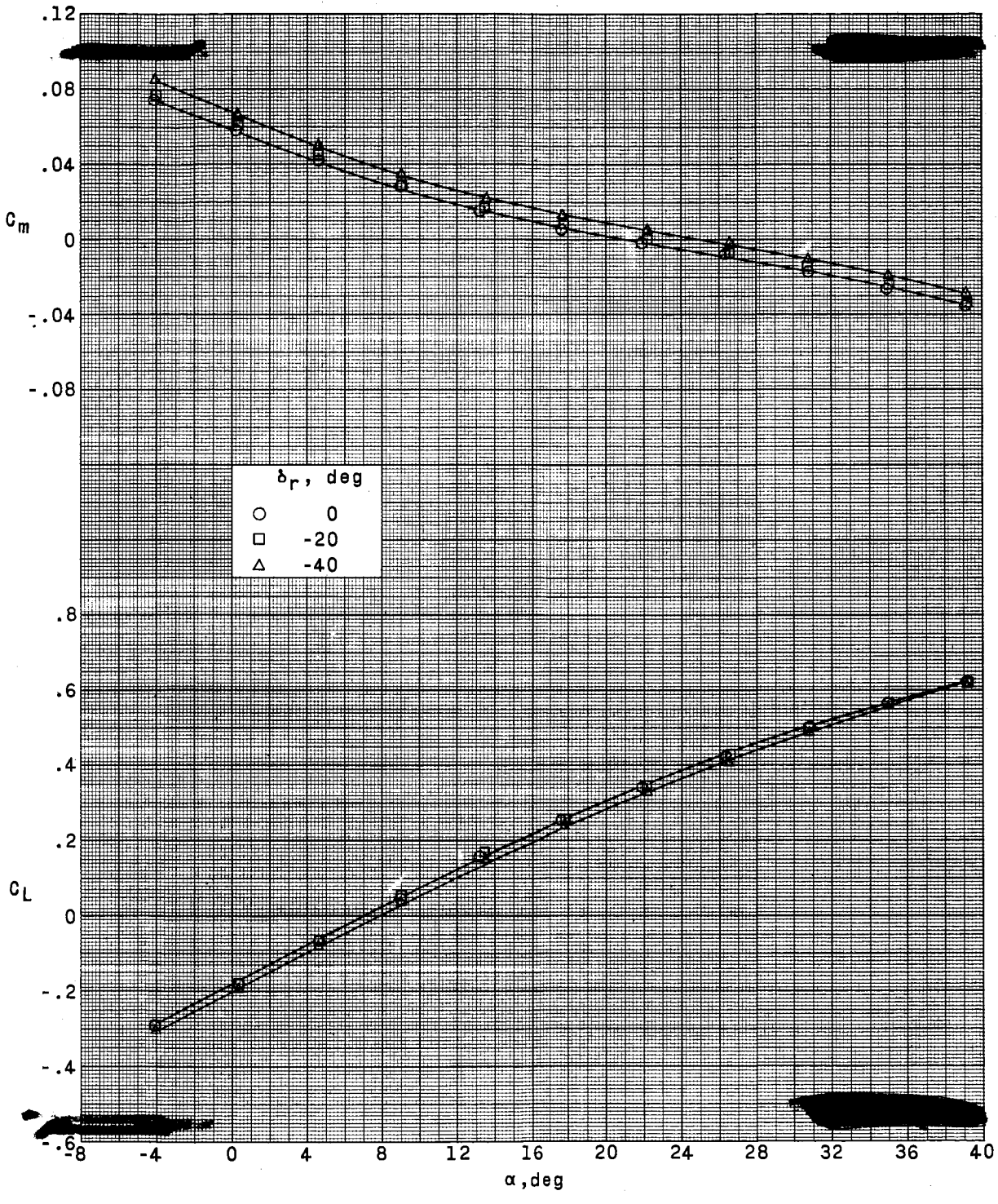
(a) M = 1.50.

Figure 34.- Effect of rudder (R_3) deflection on longitudinal aerodynamic characteristics. V_2; $\delta_e = \delta_a = 0^o$.



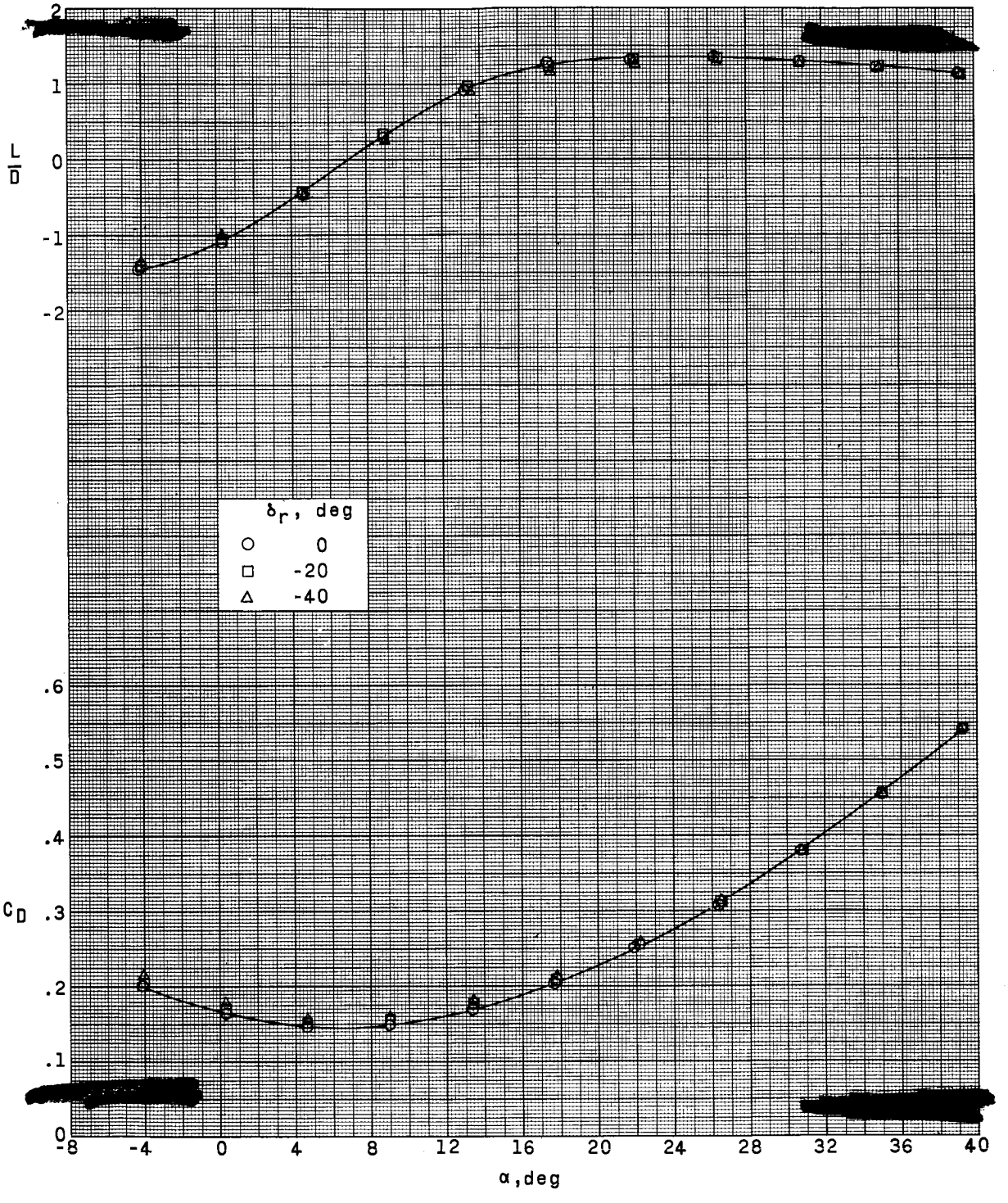
(a) Concluded.

Figure 34.- Continued.



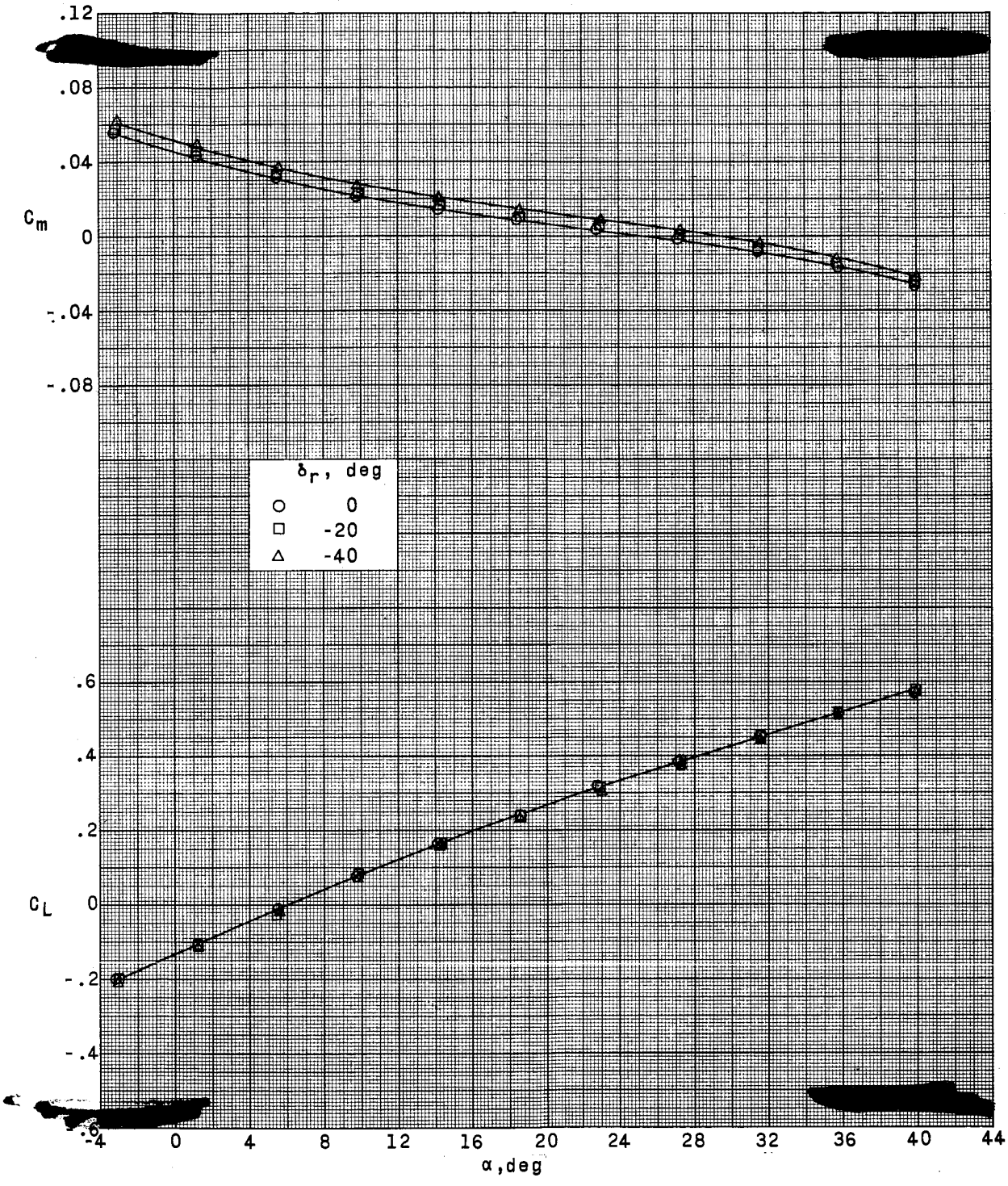
(b) M = 1.80.

Figure 34.- Continued.



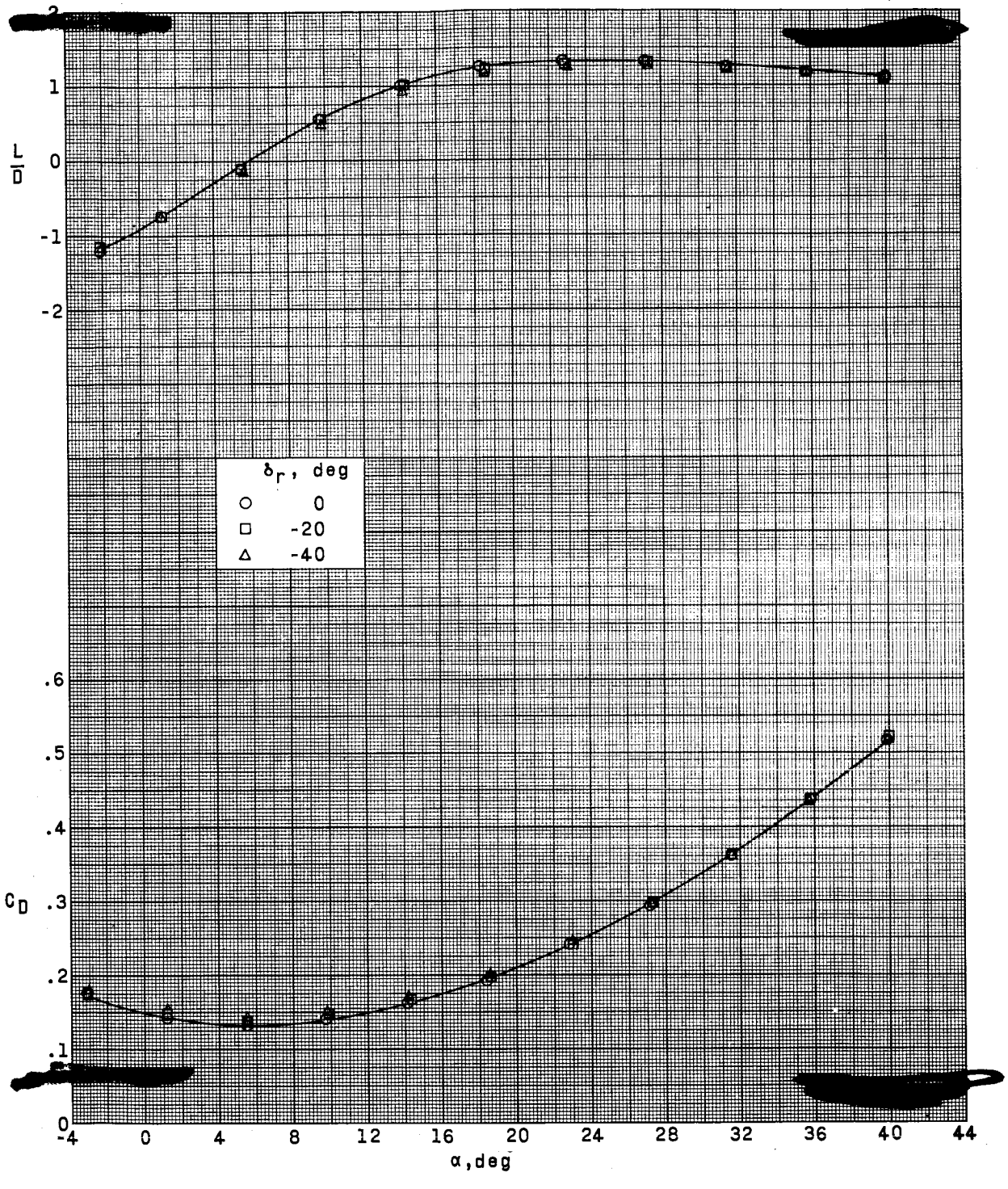
(b) Concluded.

Figure 34.- Continued.



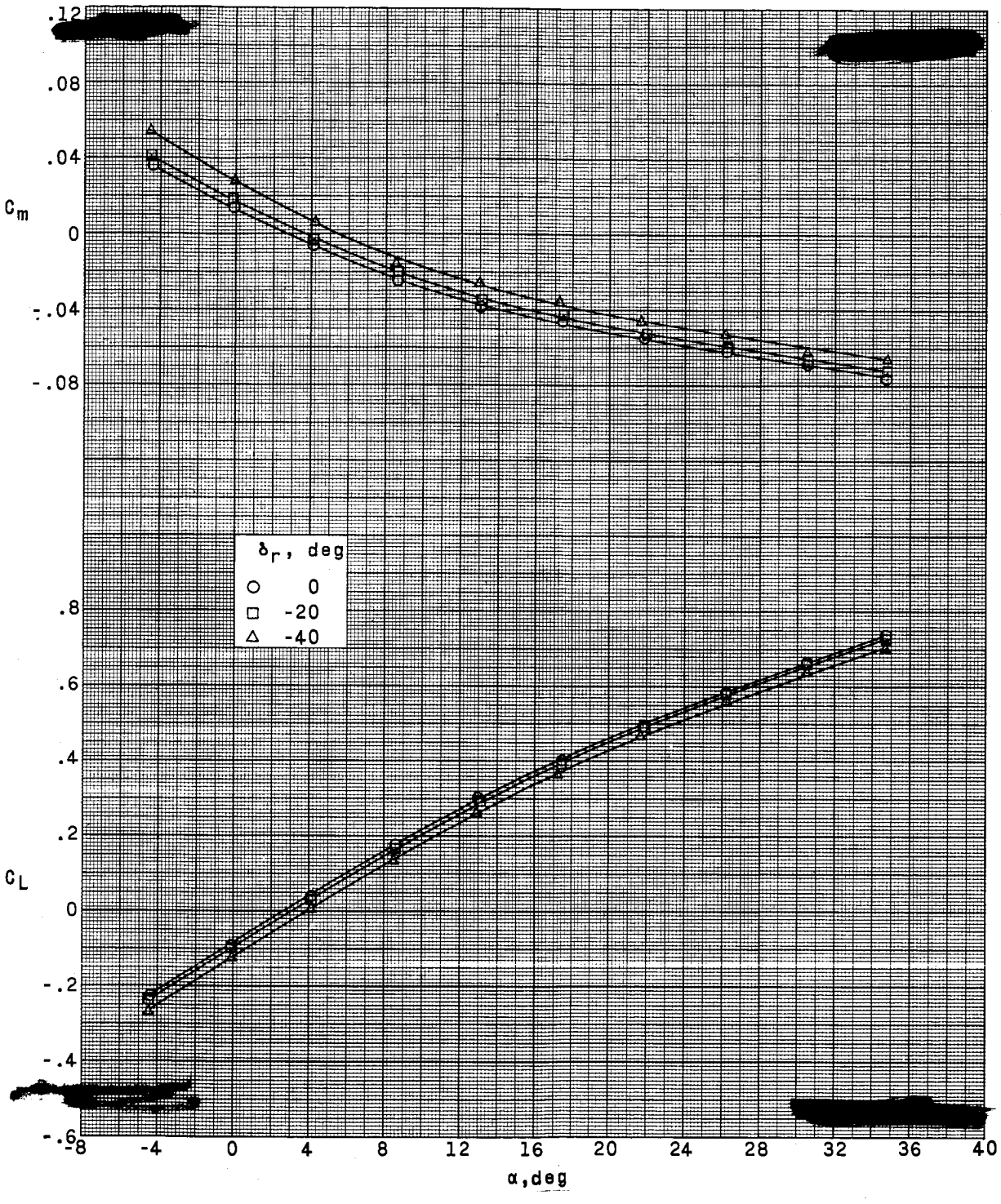
(c) M = 2.16.

Figure 34.- Continued.



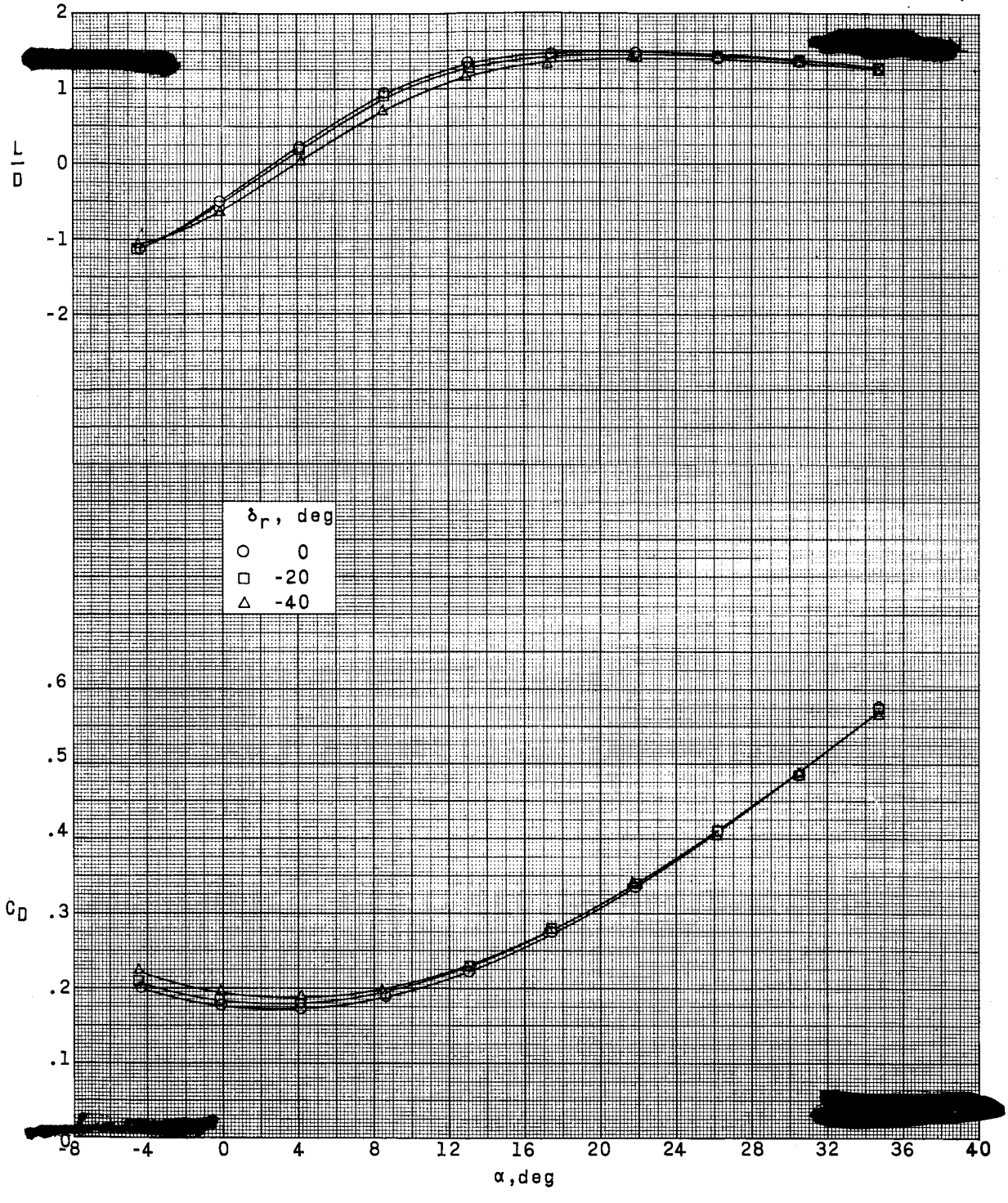
(c) Concluded.

Figure 34.- Concluded.



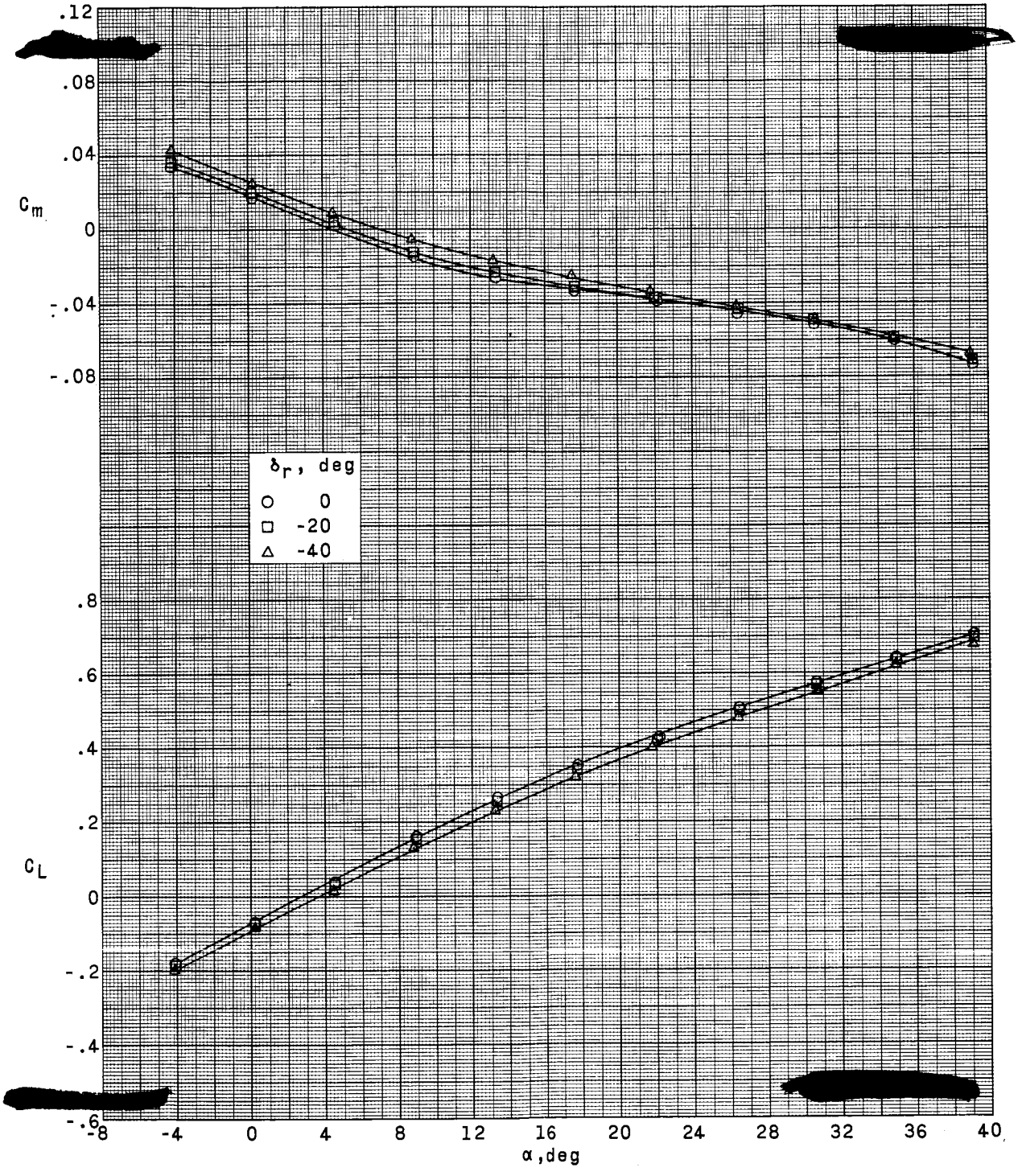
(a) M = 1.50.

Figure 35.- Effect of rudder (R_1) deflection on longitudinal aerodynamic characteristics. V_1; $\delta_e = 30^0$; $\delta_a = 0^0$.



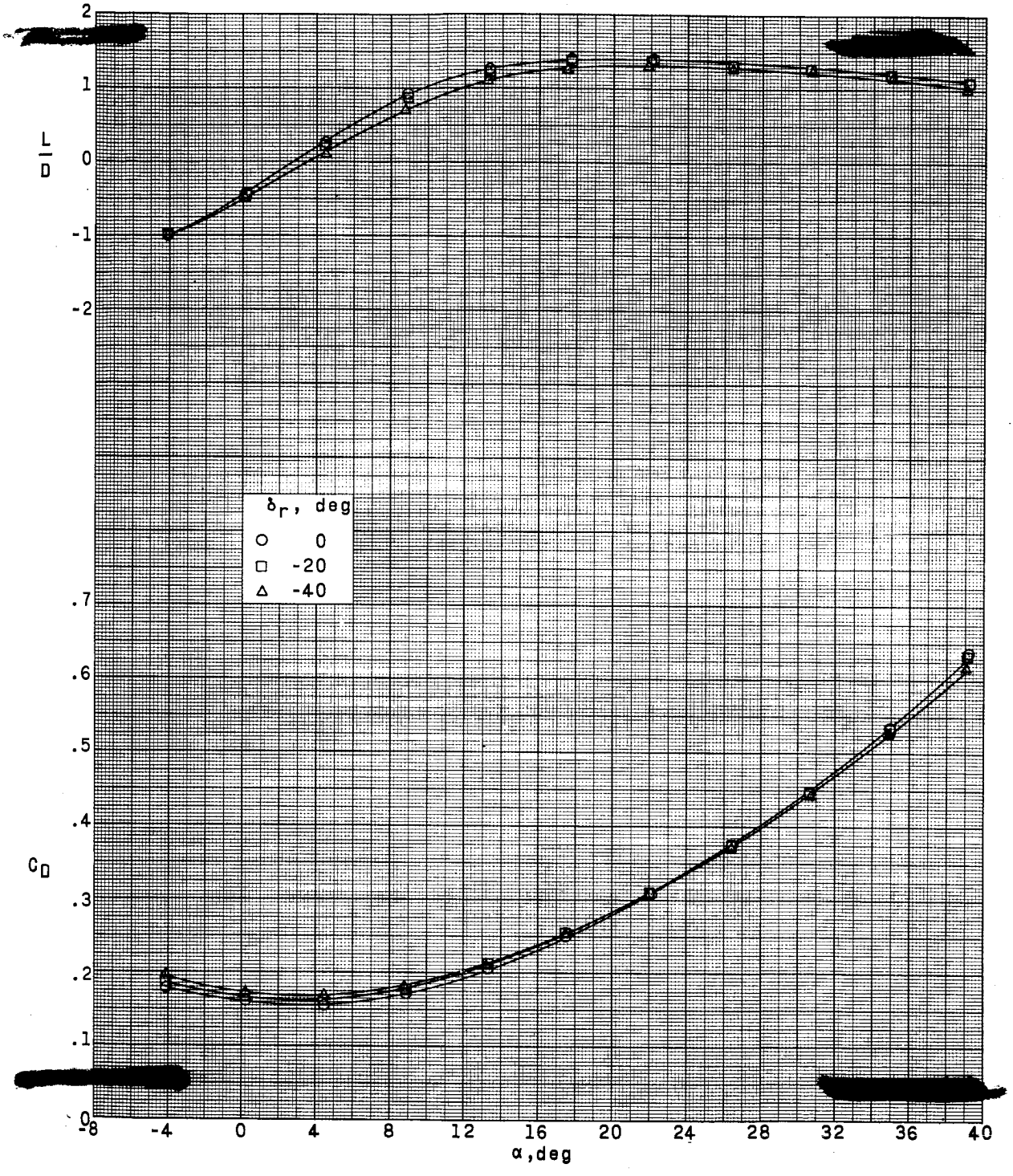
(a) Concluded.

Figure 35.- Continued.



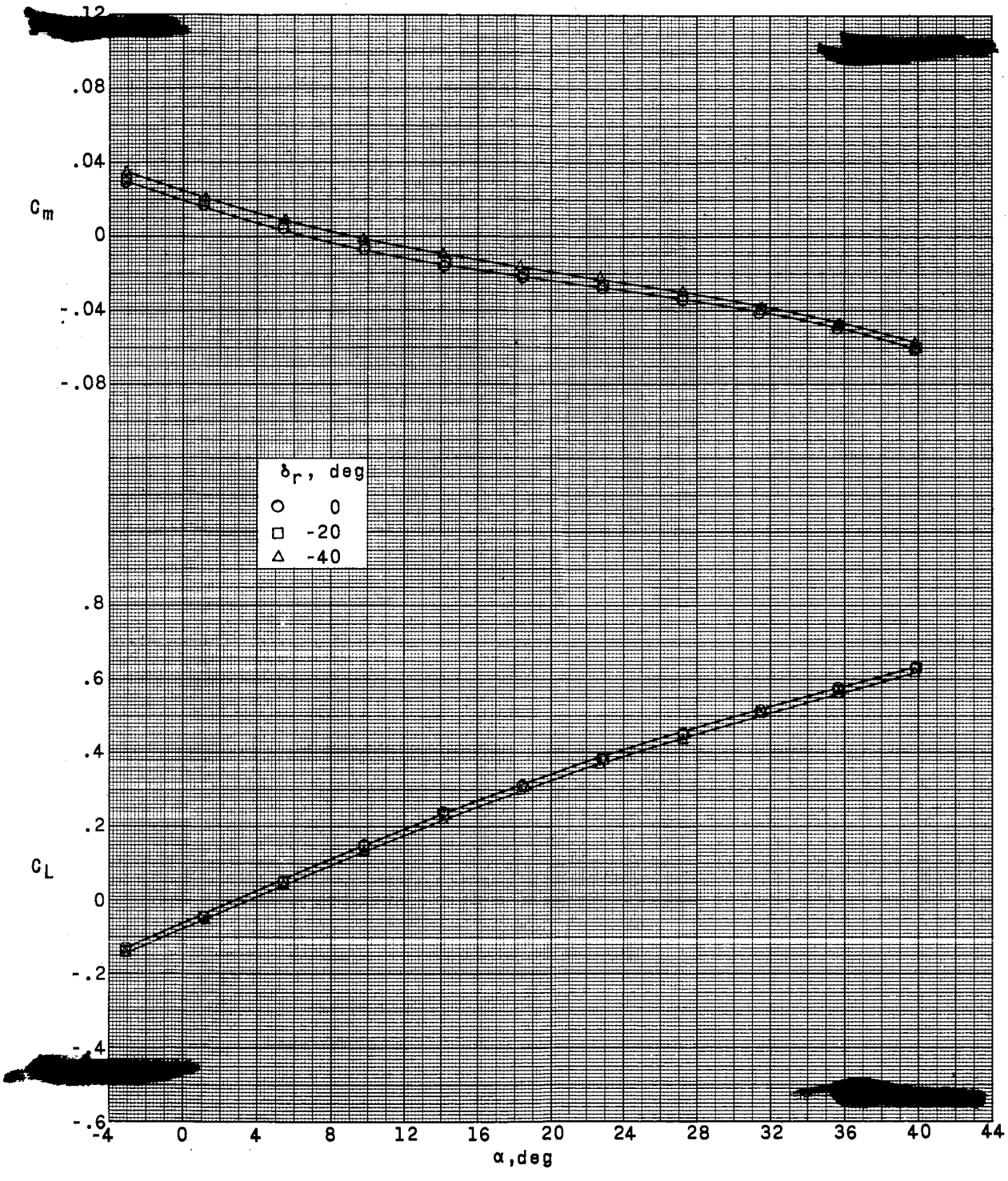
(b) M = 1.80.

Figure 35.- Continued.



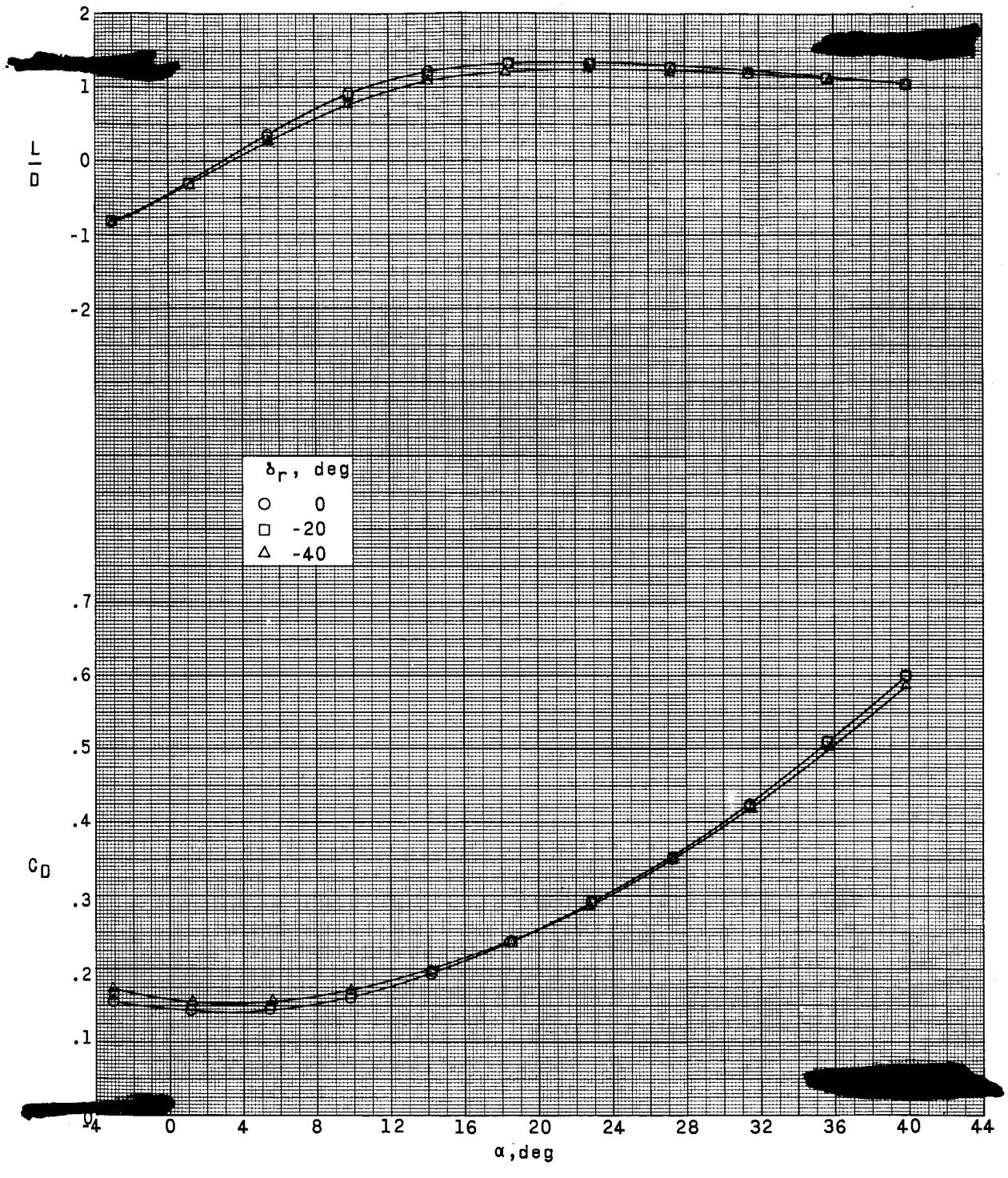
(b) Concluded.

Figure 35.- Continued.



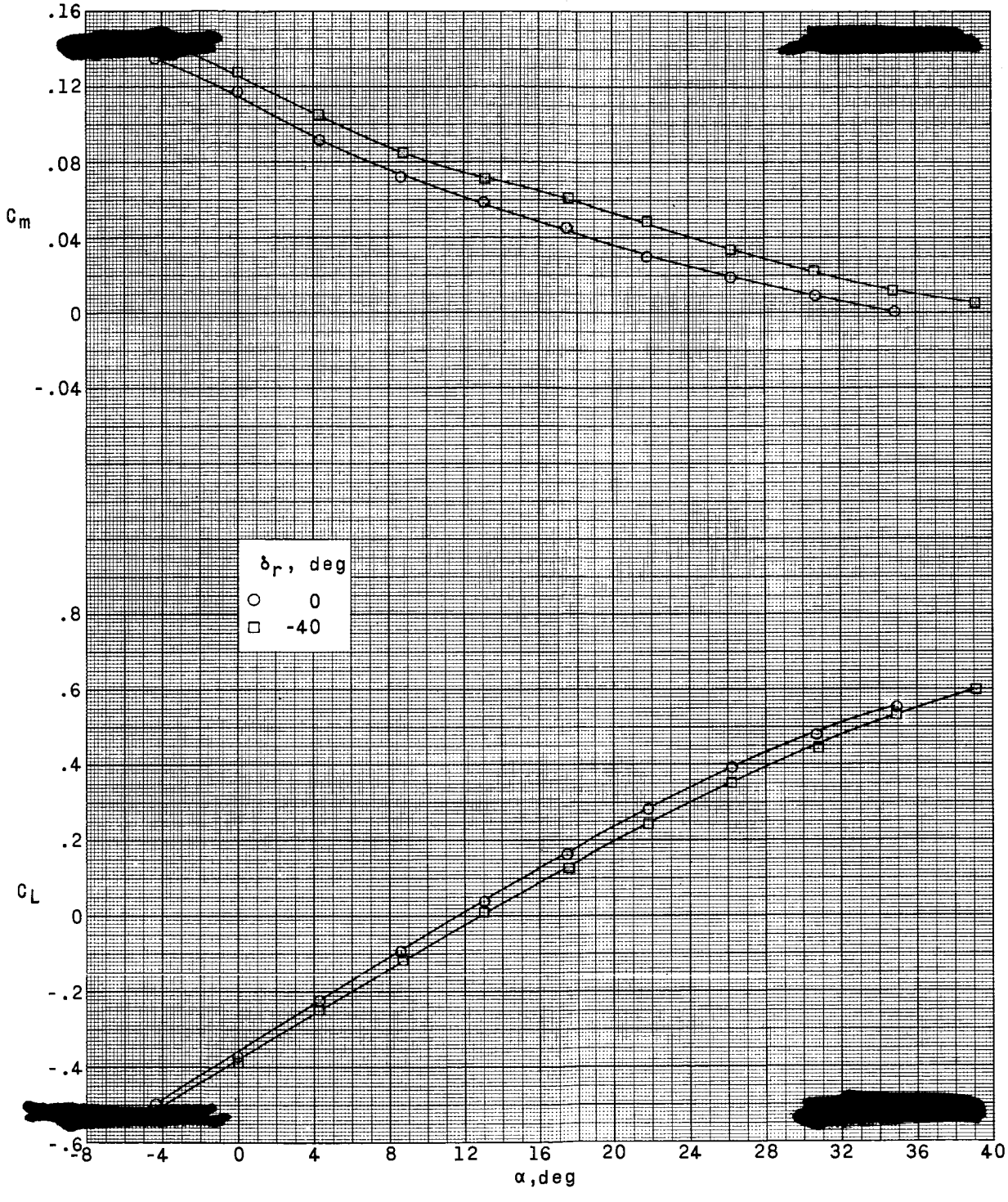
(c) M = 2.16.

Figure 35.- Continued.



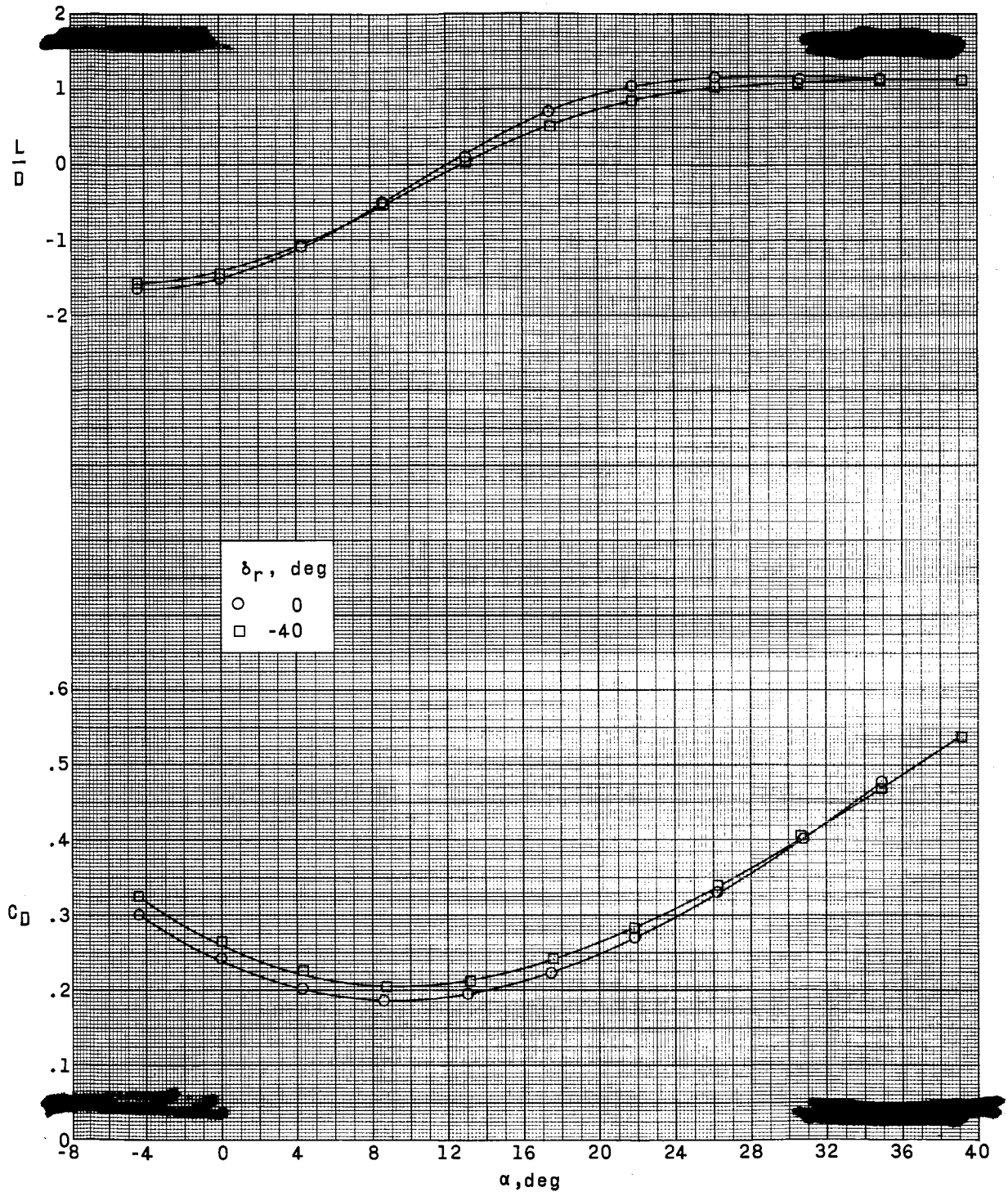
(c) Concluded.

Figure 35.- Concluded.



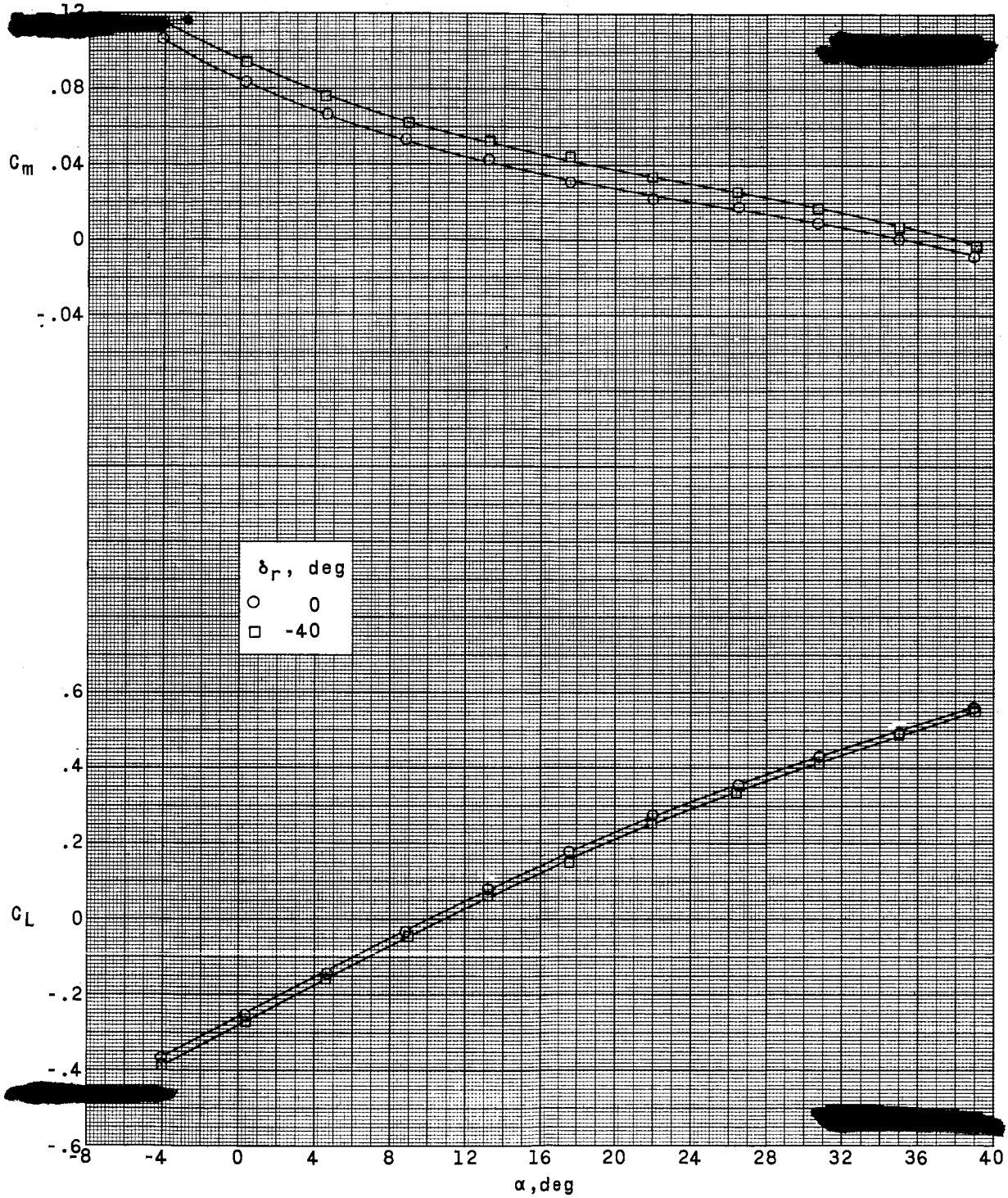
(a) M = 1.50.

Figure 36.- Effect of rudder (R_1) deflection on longitudinal aerodynamic characteristics. V_1; $\delta_e = -30^0$; $\delta_a = 20^0$.



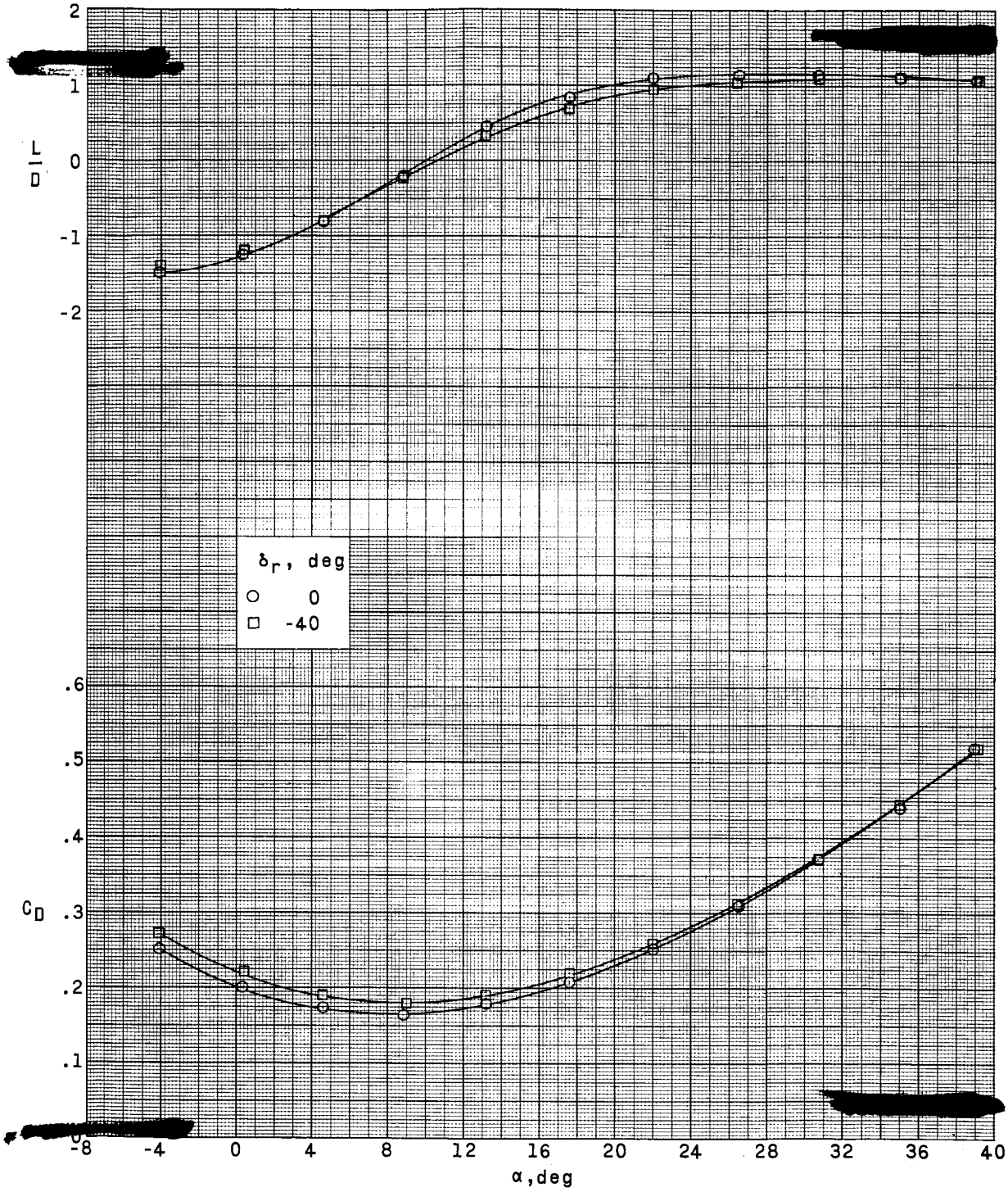
(a) Concluded.

Figure 36.- Continued.



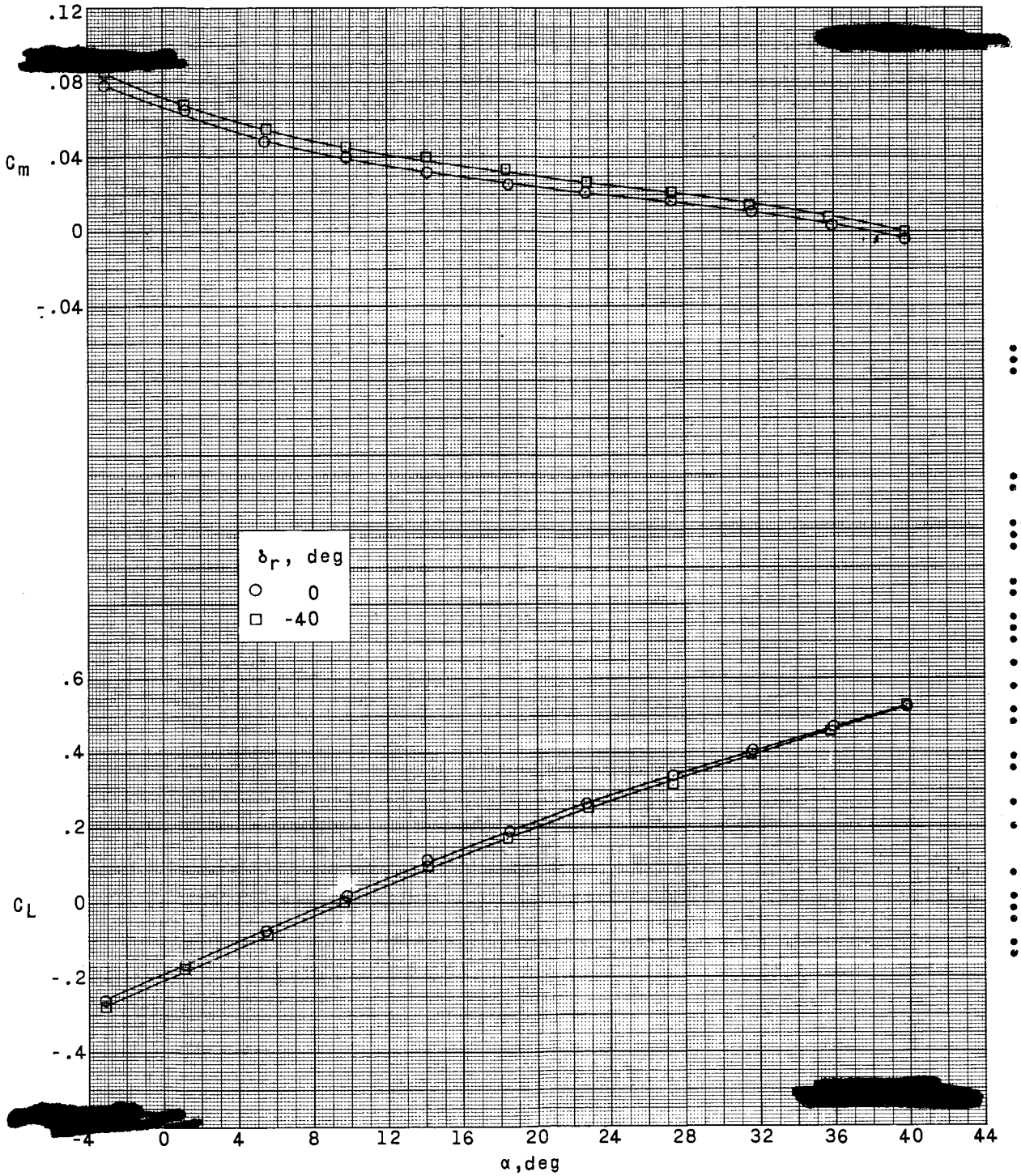
(b) M = 1.80.

Figure 36.- Continued.



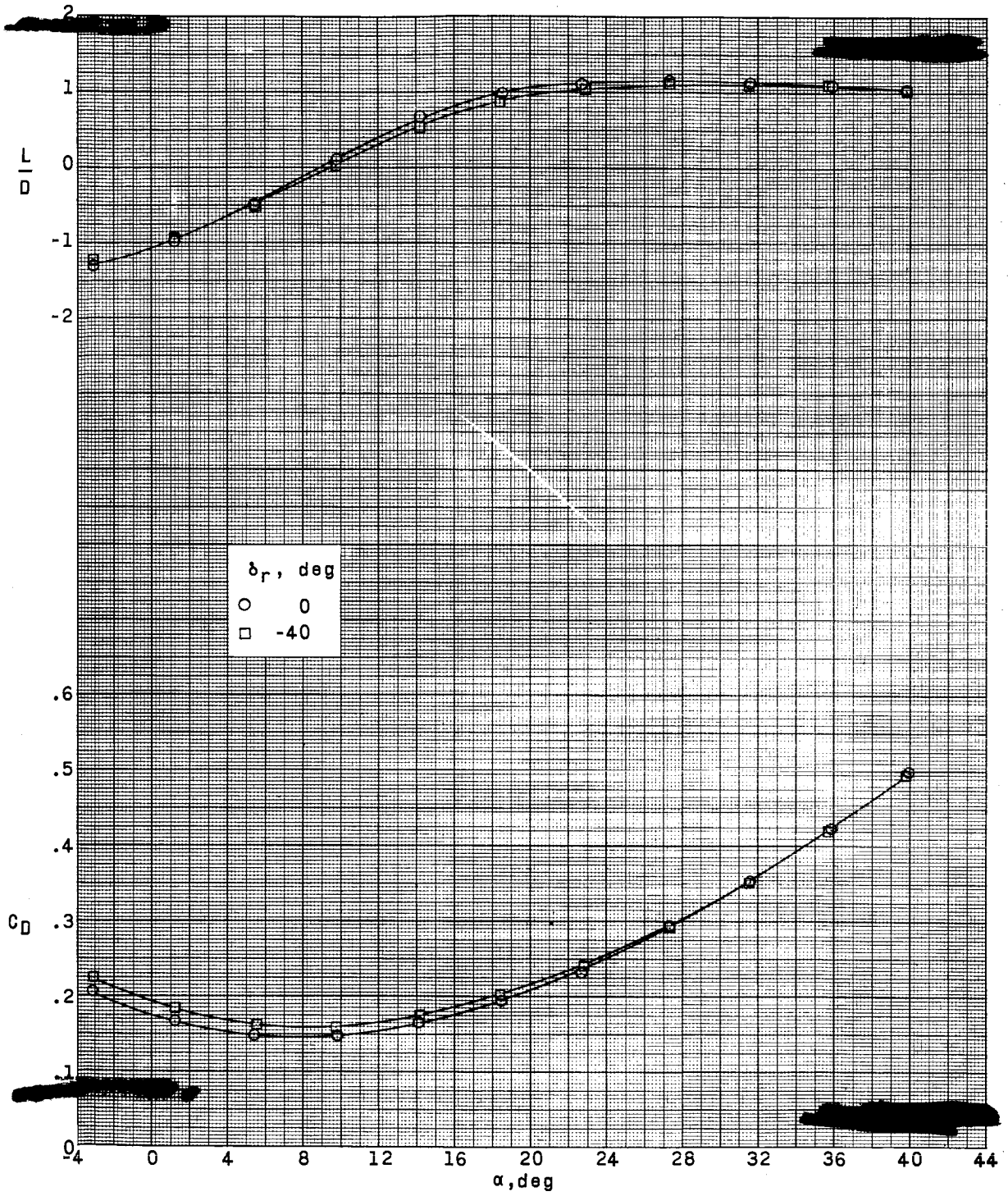
(b) Concluded.

Figure 36.- Continued.



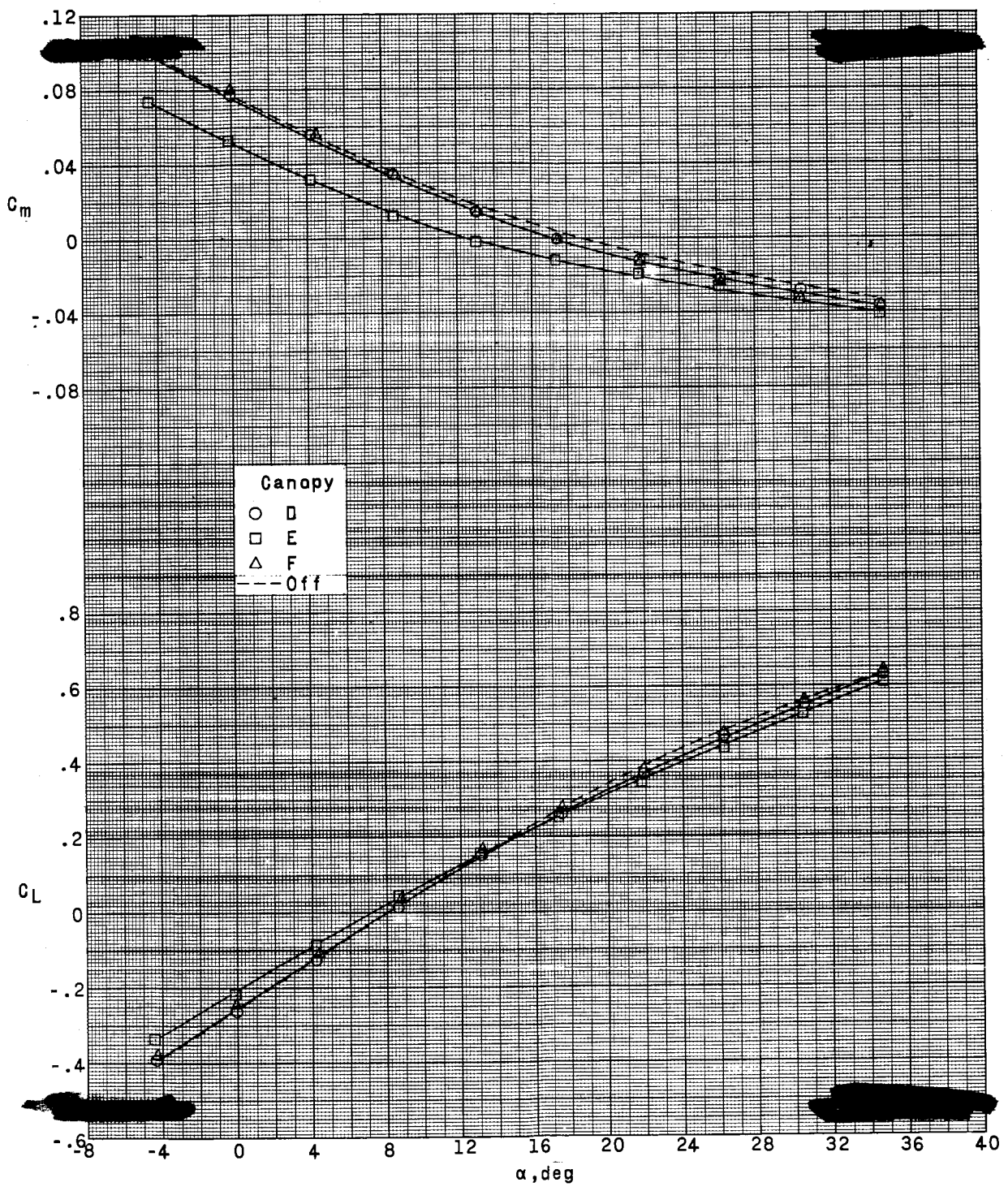
(c) M = 2.16.

Figure 36.- Continued.



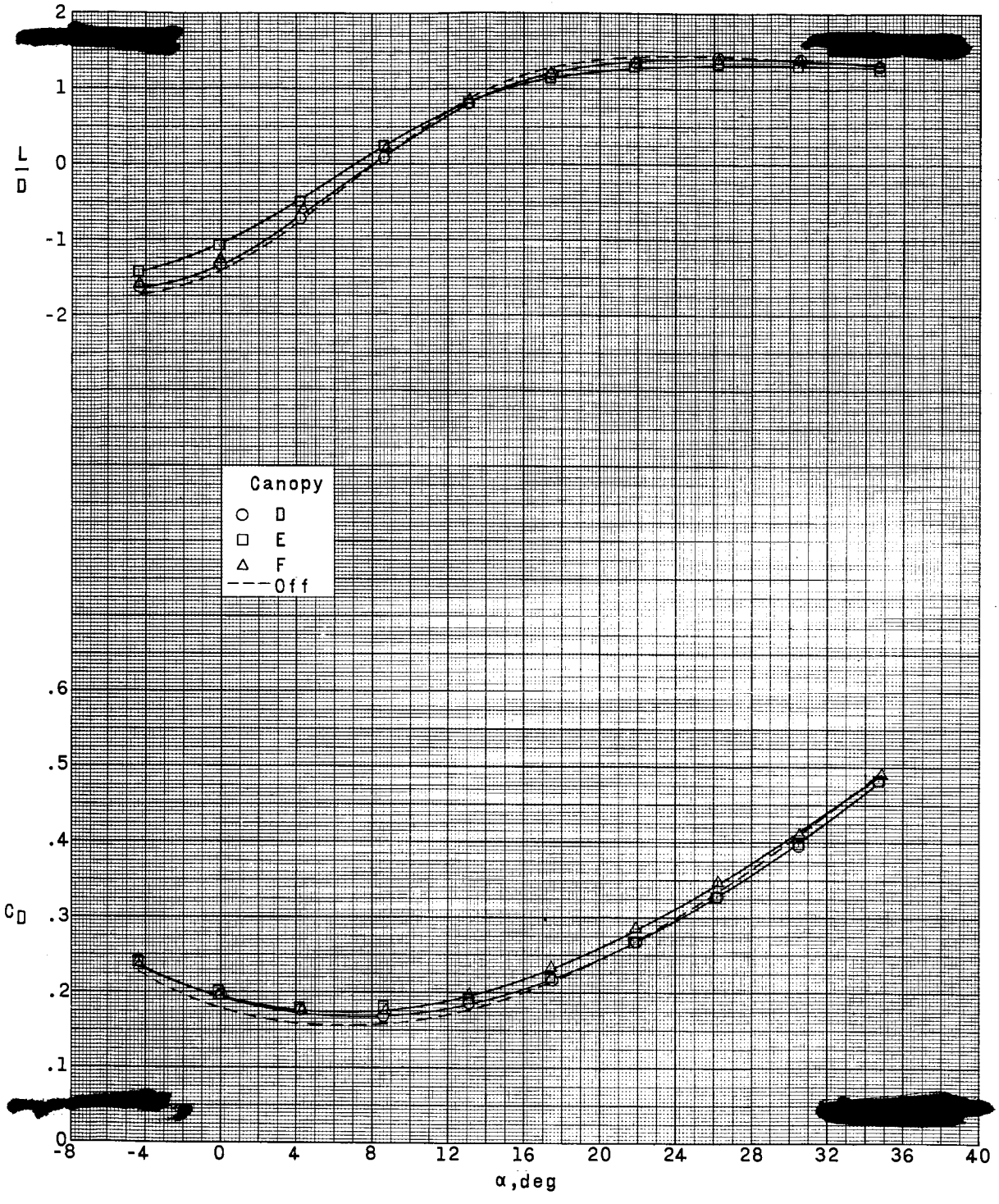
(c) Concluded.

Figure 36.- Concluded.



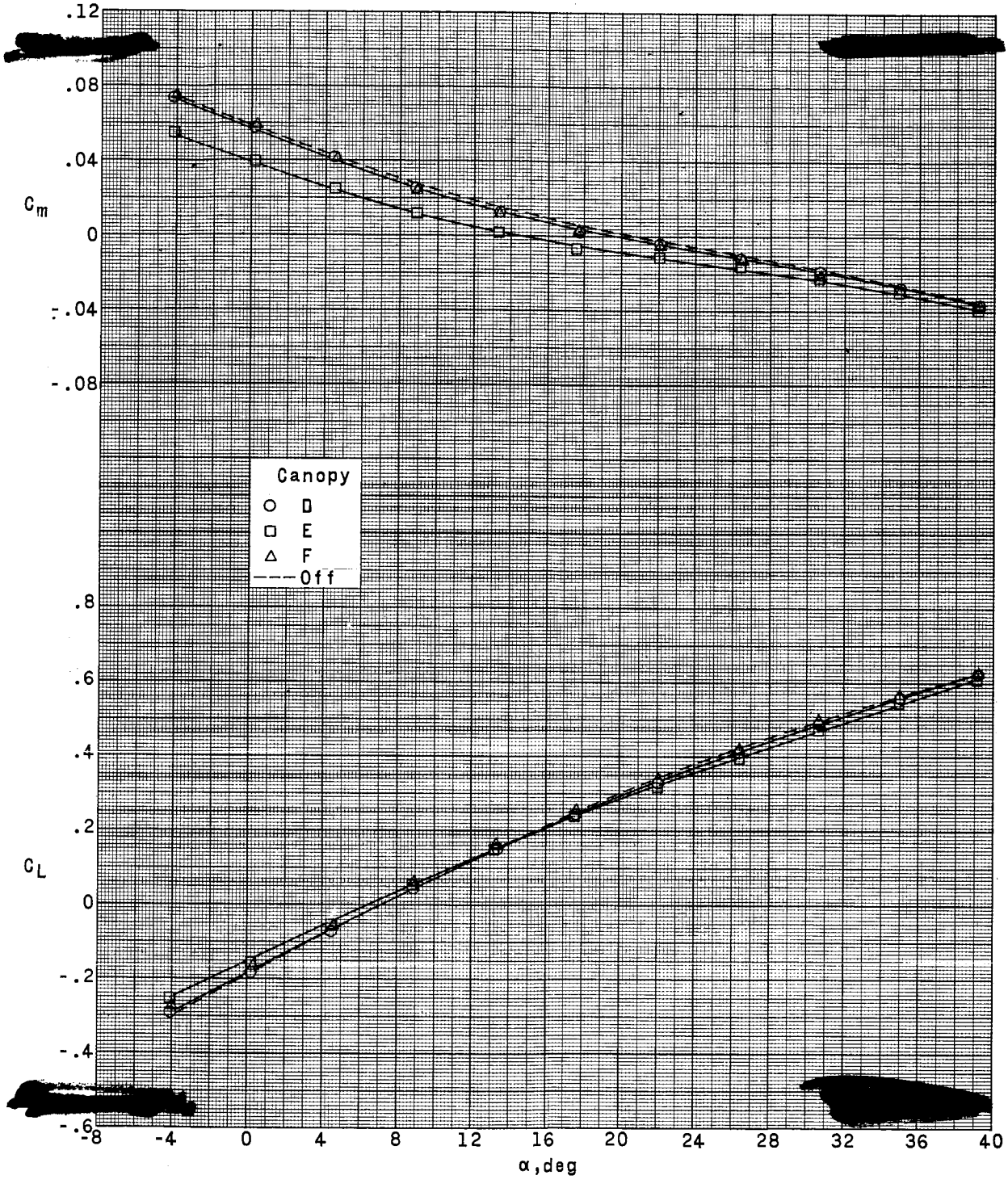
(a) M = 1.50.

Figure 37.- Effect of canopy geometry on pitch characteristics. V_2; $\delta_e = \delta_a = \delta_r = 0^0$.



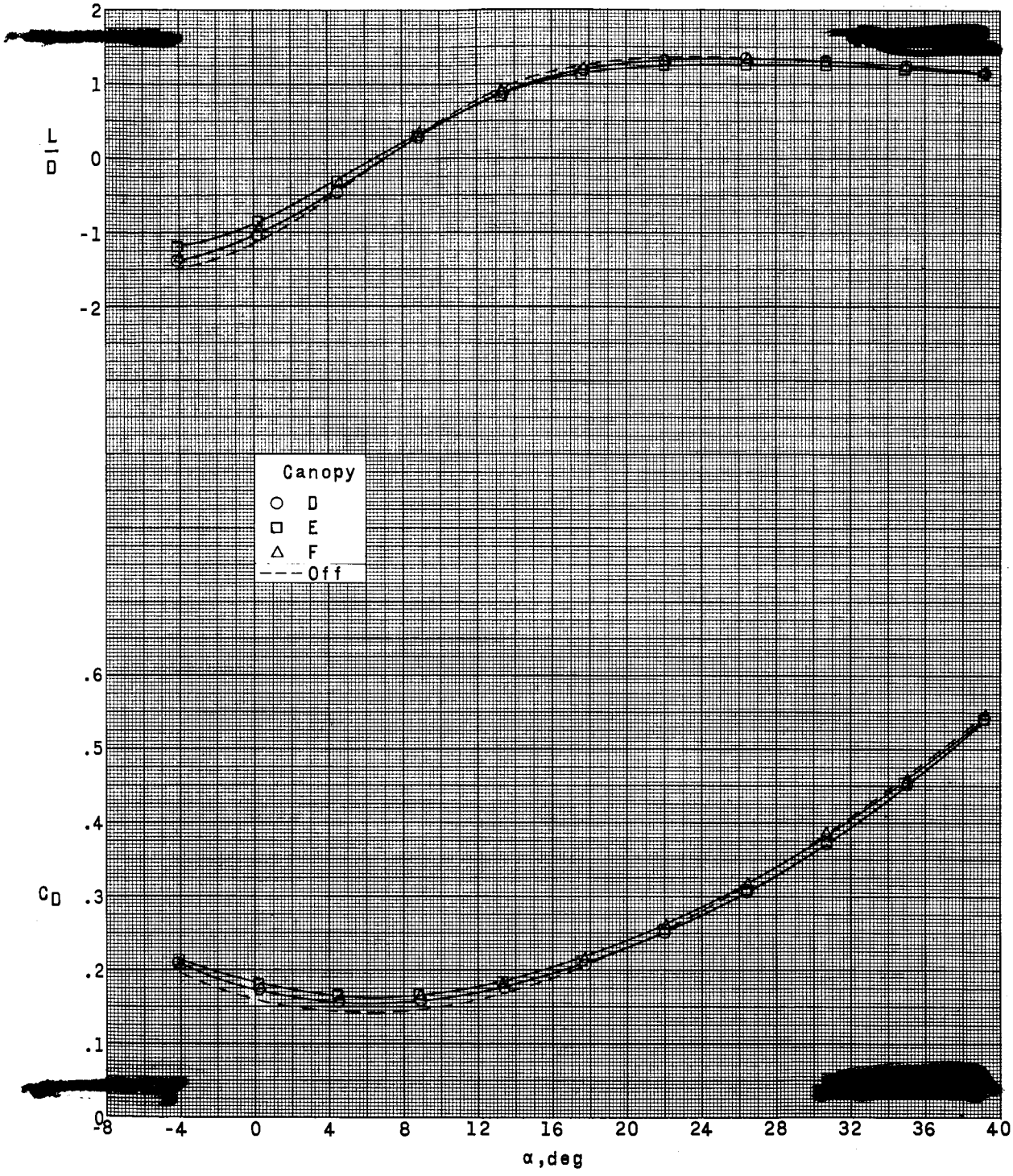
(a) Concluded.

Figure 37.- Continued.



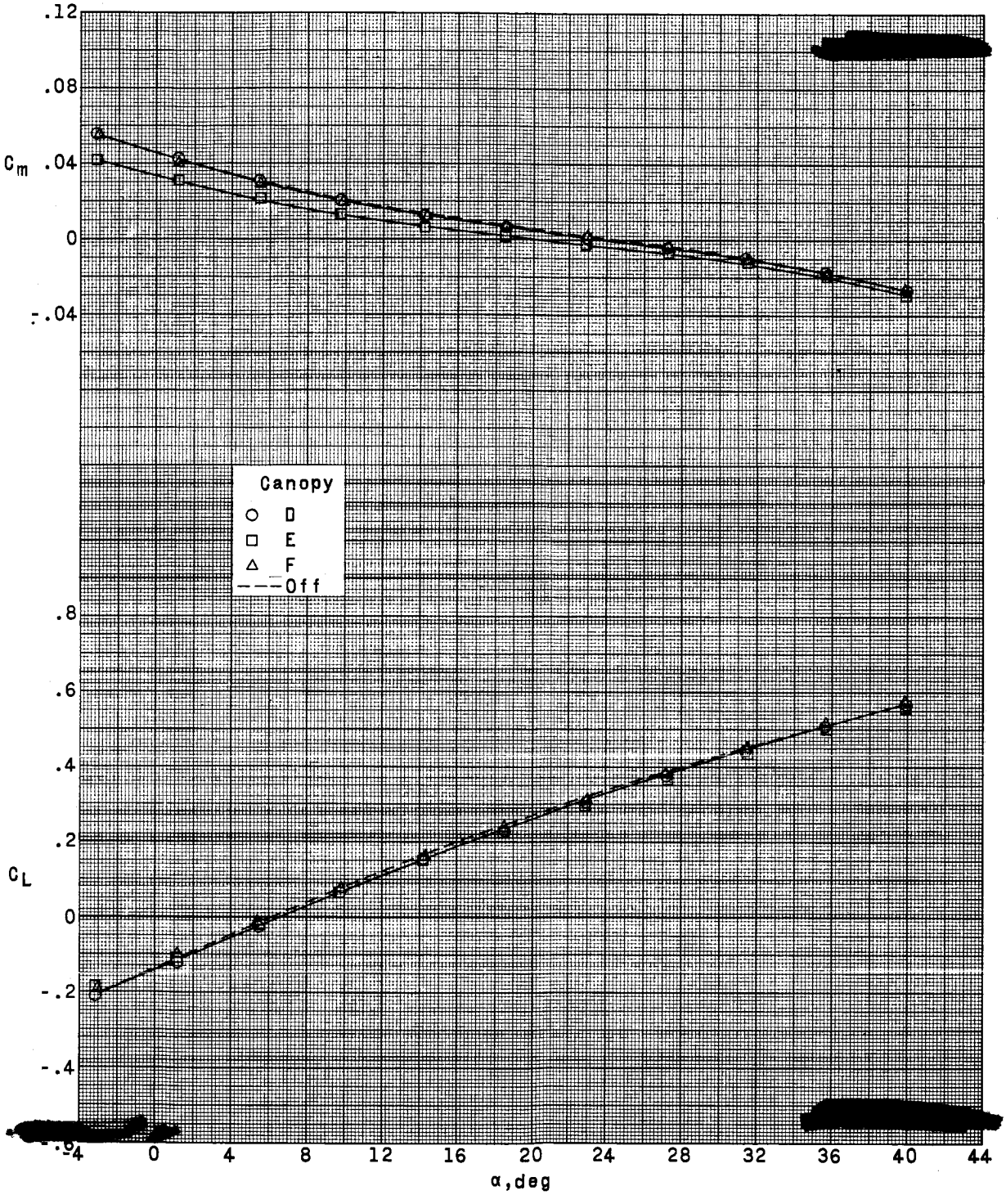
(b) M = 1.80.

Figure 37.- Continued.



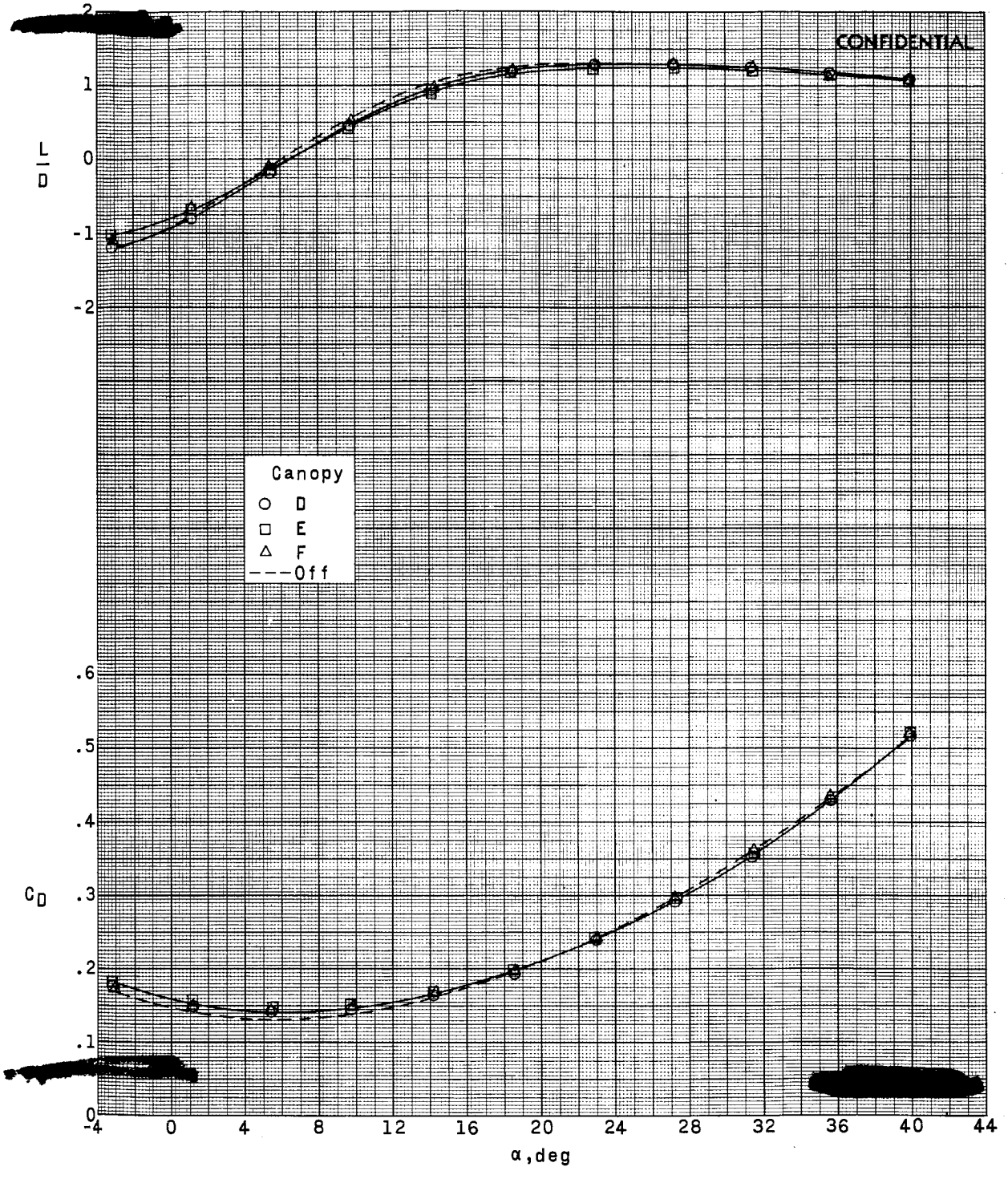
(b) Concluded.

Figure 37.- Continued.



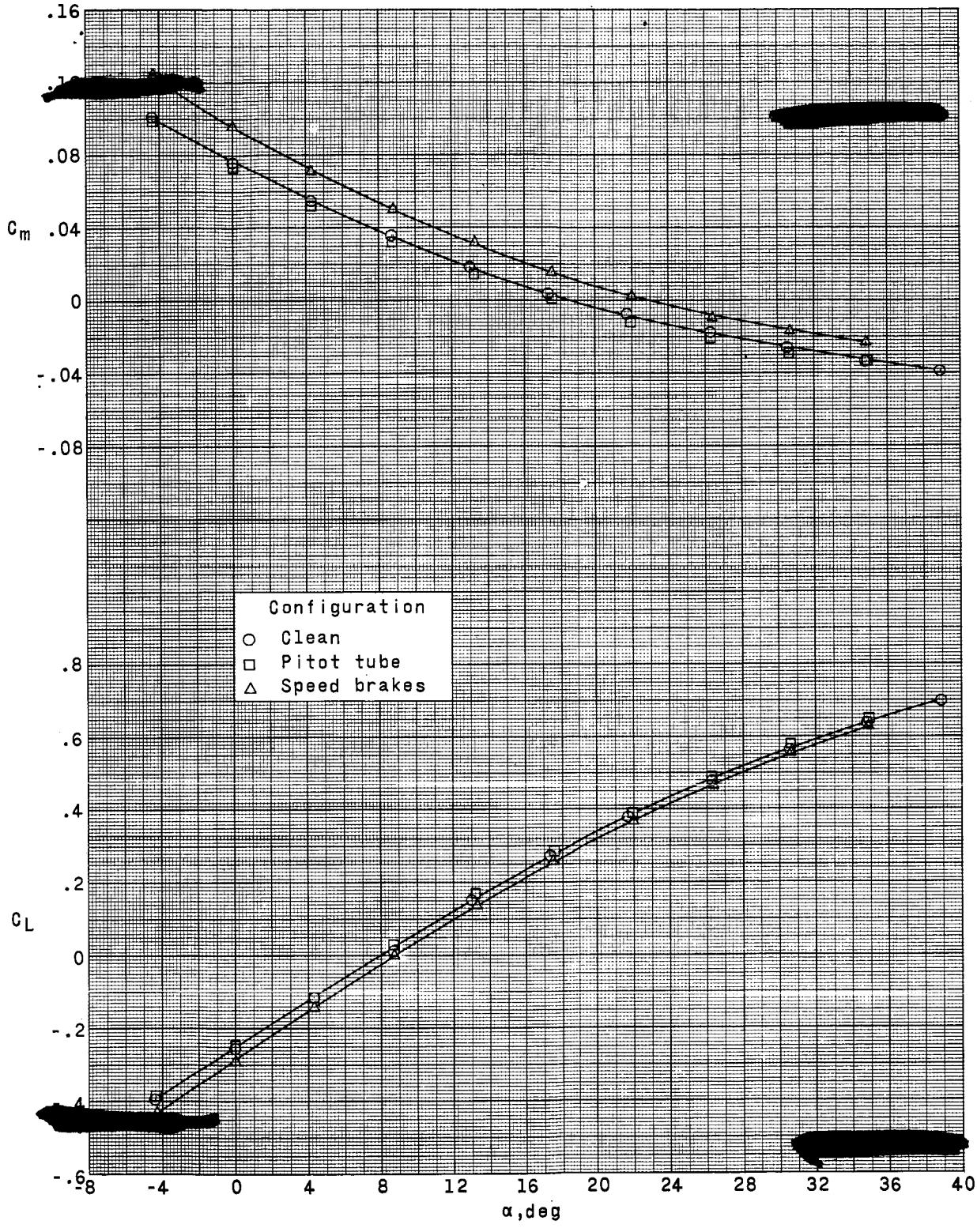
(c) M = 2.16.

Figure 37.- Continued.



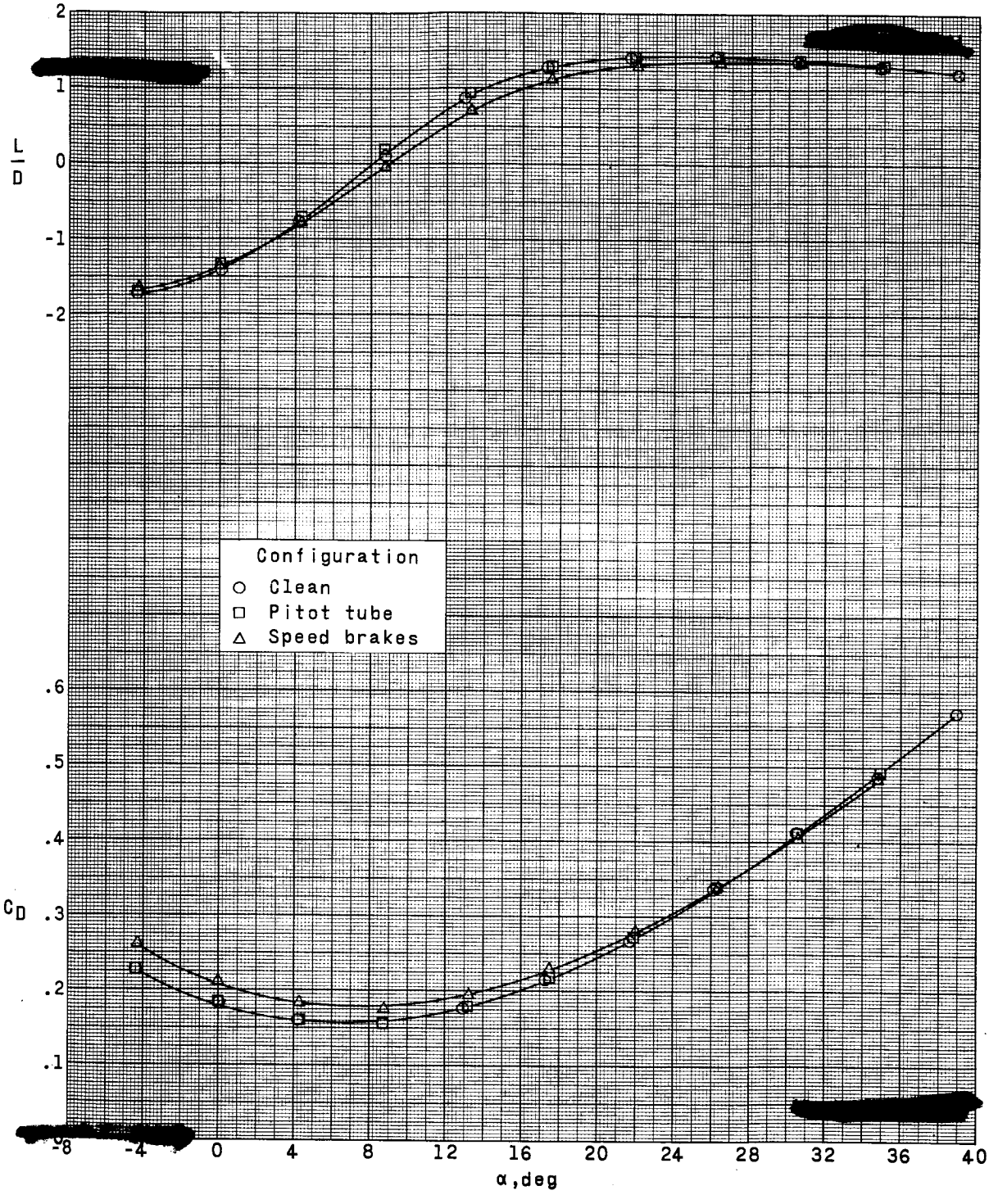
(c) Concluded.

Figure 37.- Concluded.



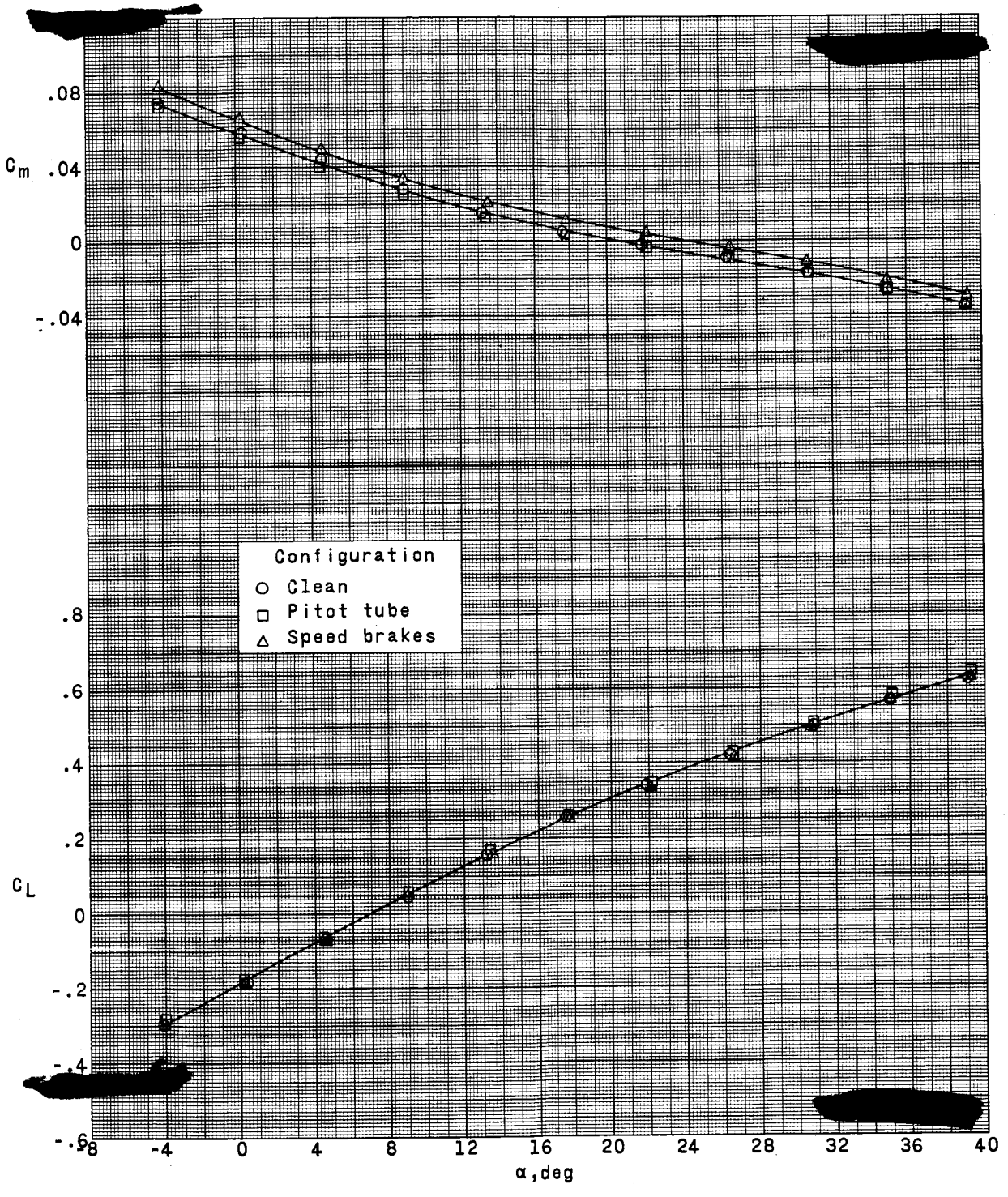
(a) M = 1.50.

Figure 38.- Effect of pitot tube and speed brakes on longitudinal aerodynamic characteristics. V_2; $\delta_e = \delta_a = \delta_r = 0^o$.



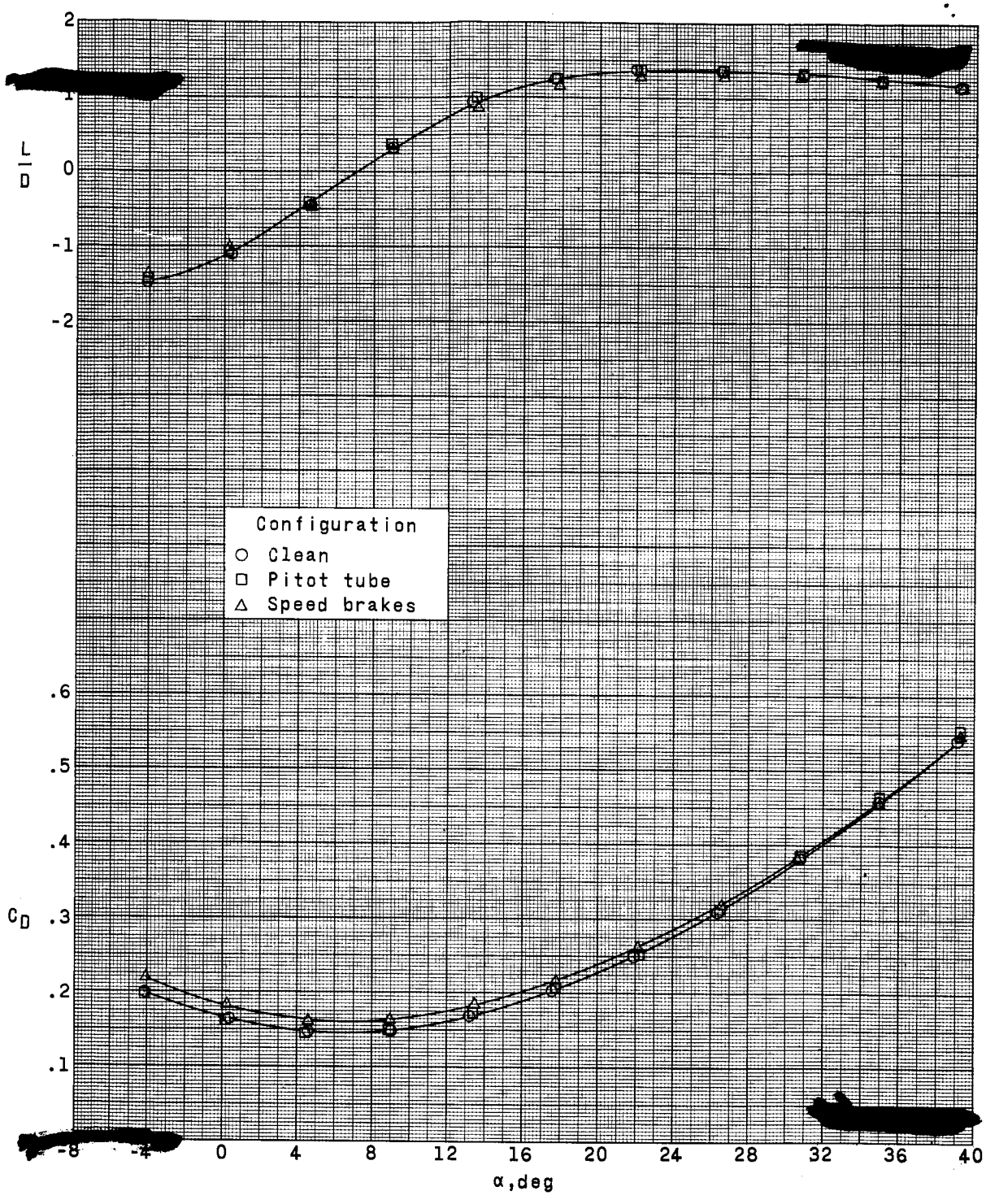
(a) Concluded.

Figure 38.- Continued.



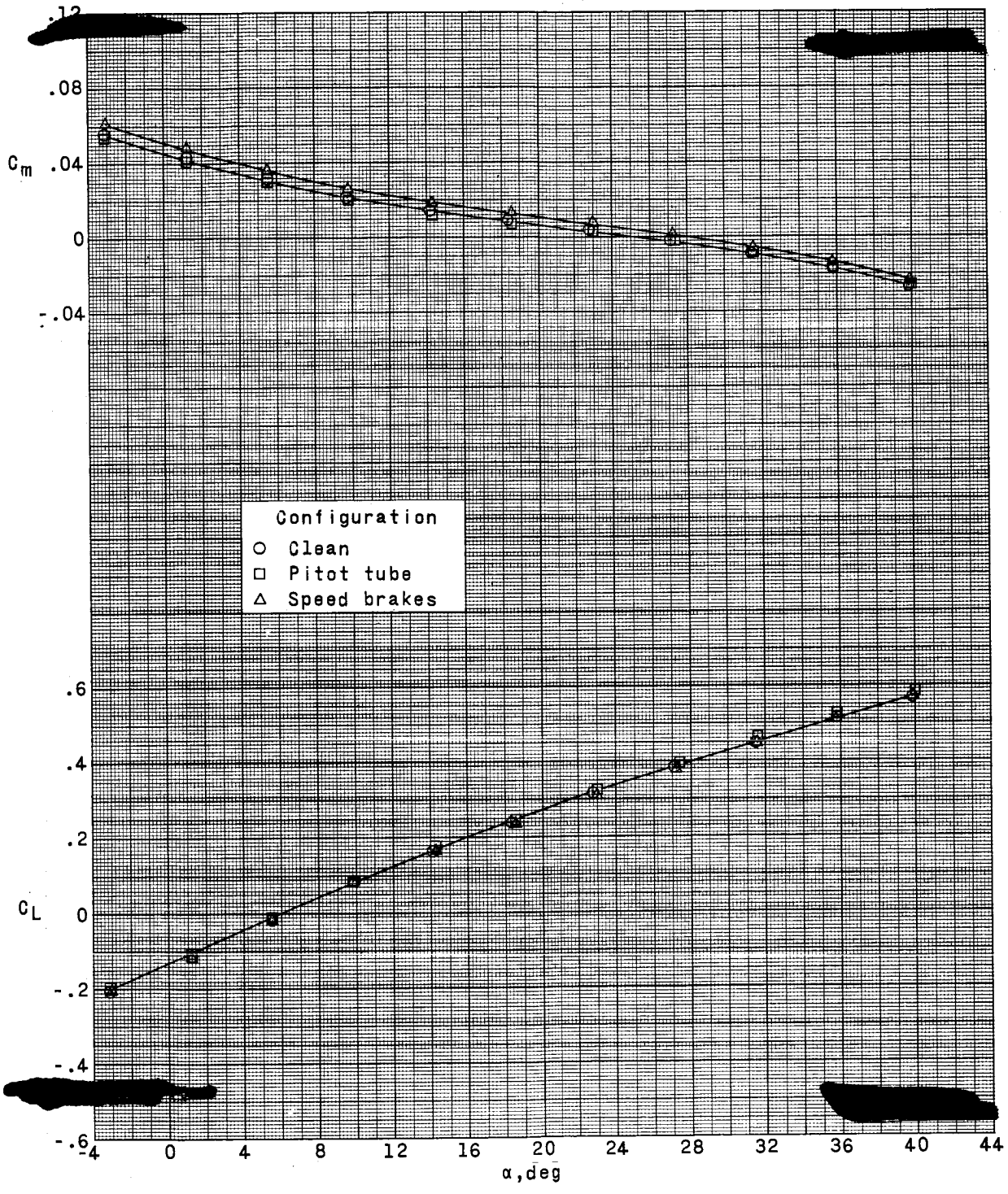
(b) M = 1.80.

Figure 38.- Continued.



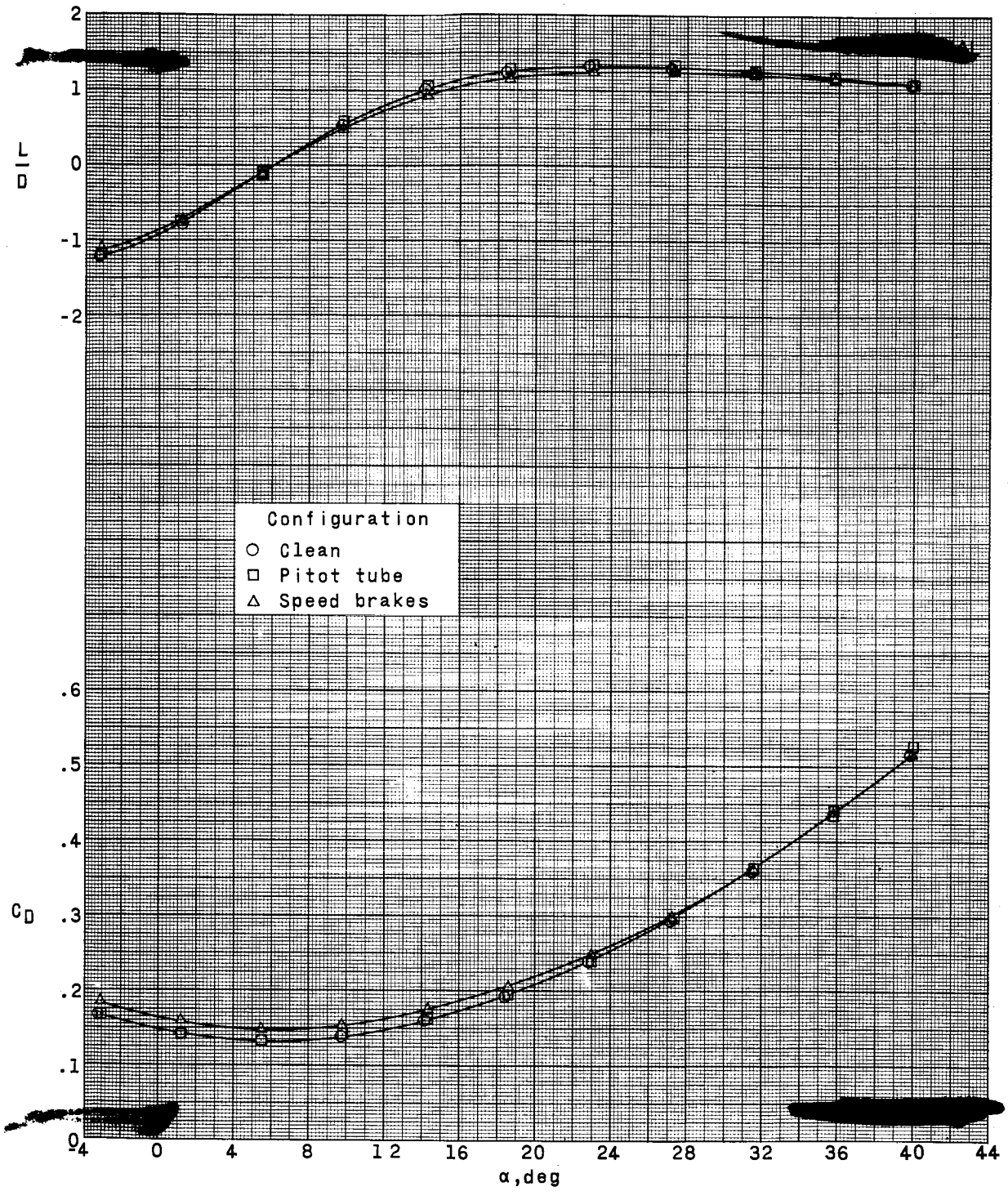
(b) Concluded.

Figure 38.- Continued.



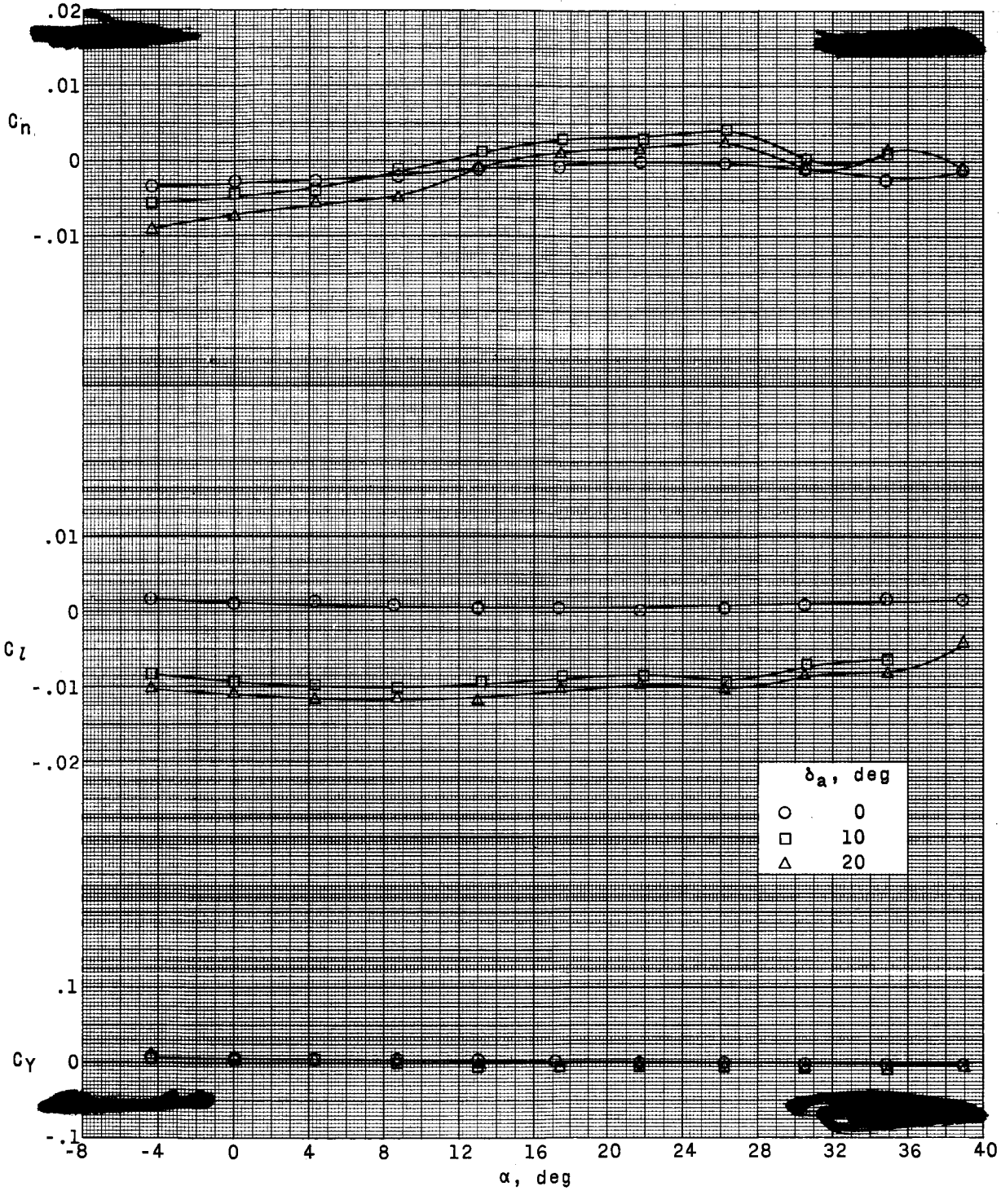
(c) M = 2.16.

Figure 38.- Continued.



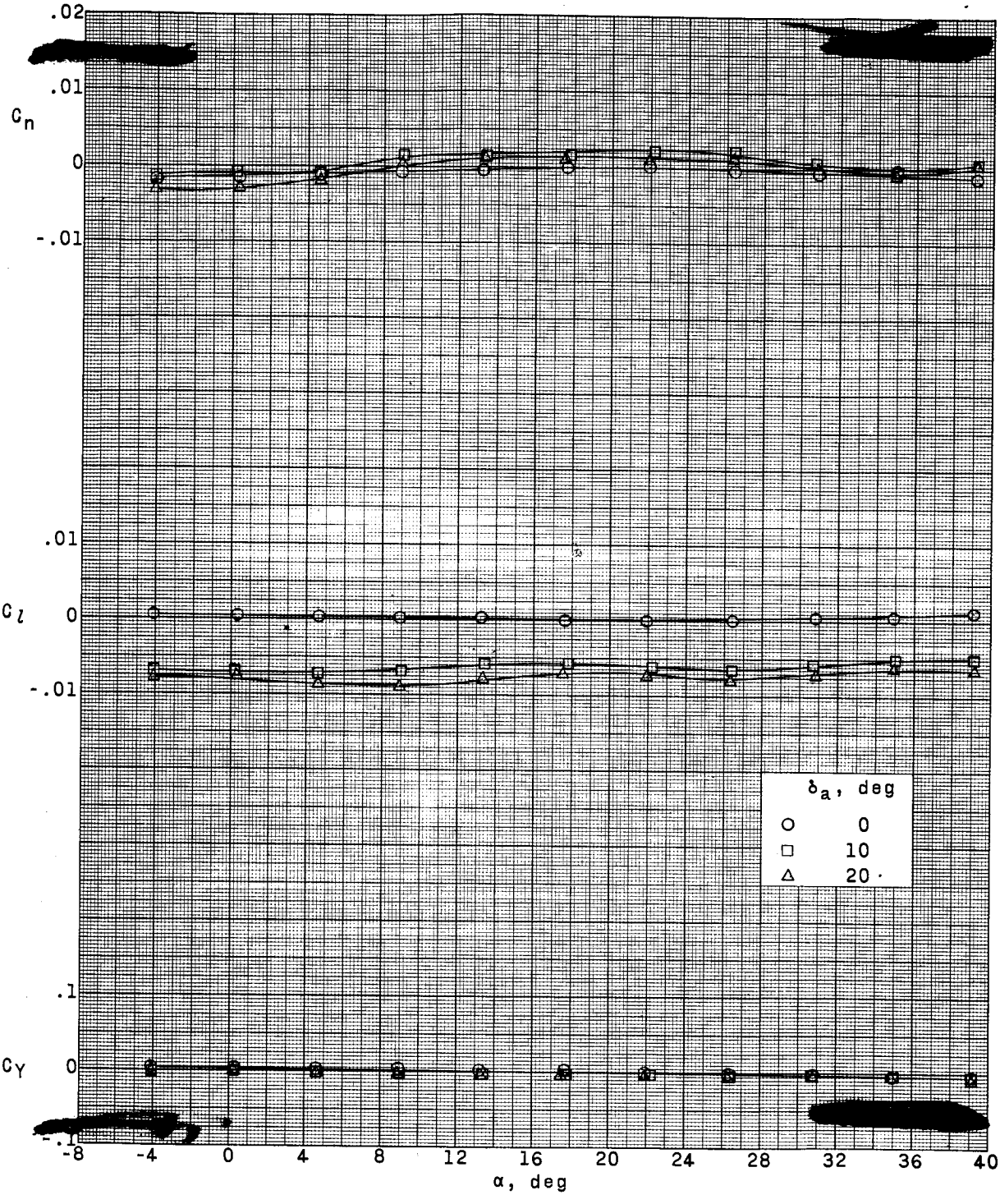
(c) Concluded.

Figure 38.- Concluded.



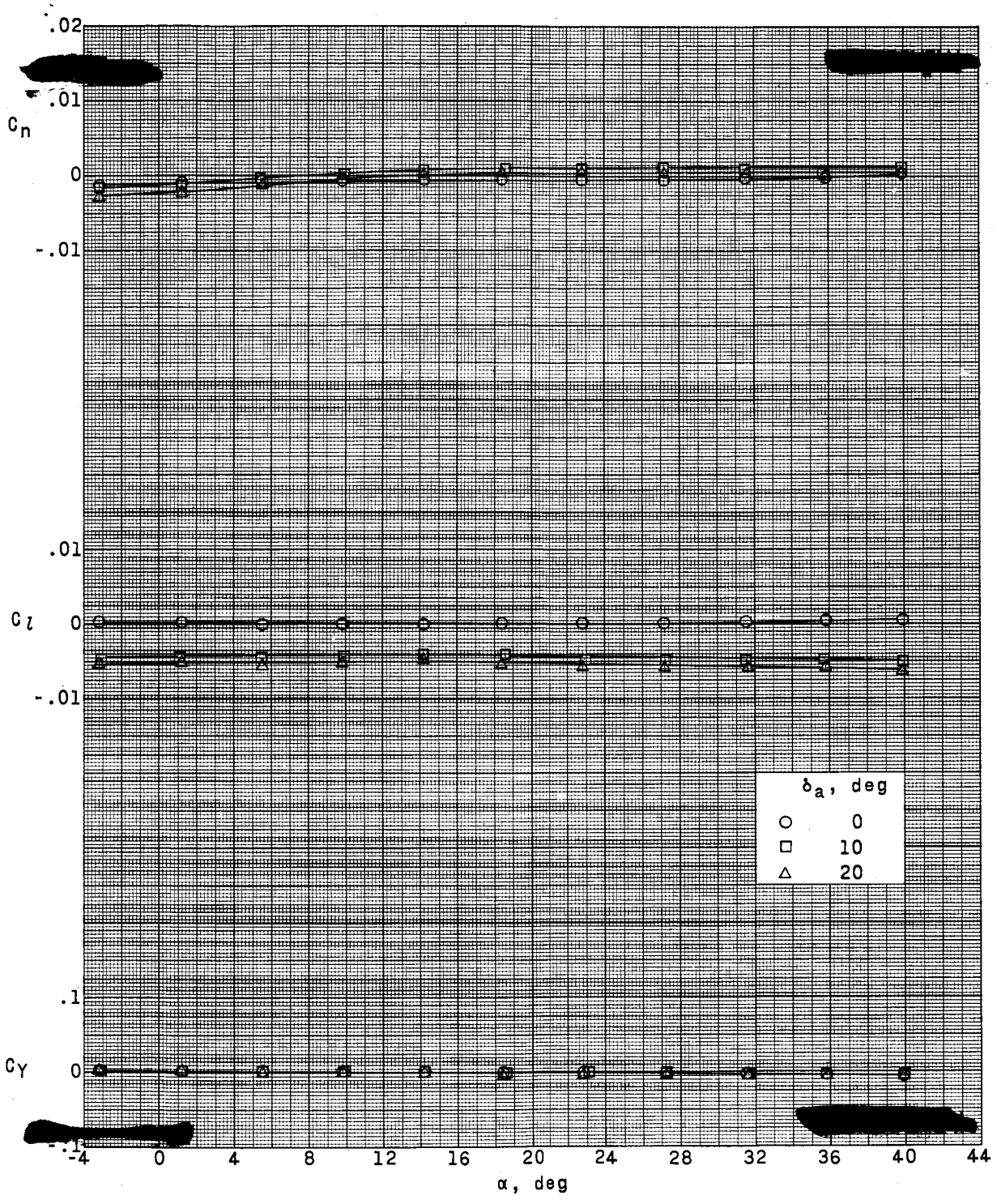
(a) M = 1.50.

Figure 39.- Effect of aileron control on lateral characteristics. V_1; $\delta_e = \delta_r = 0^o$.



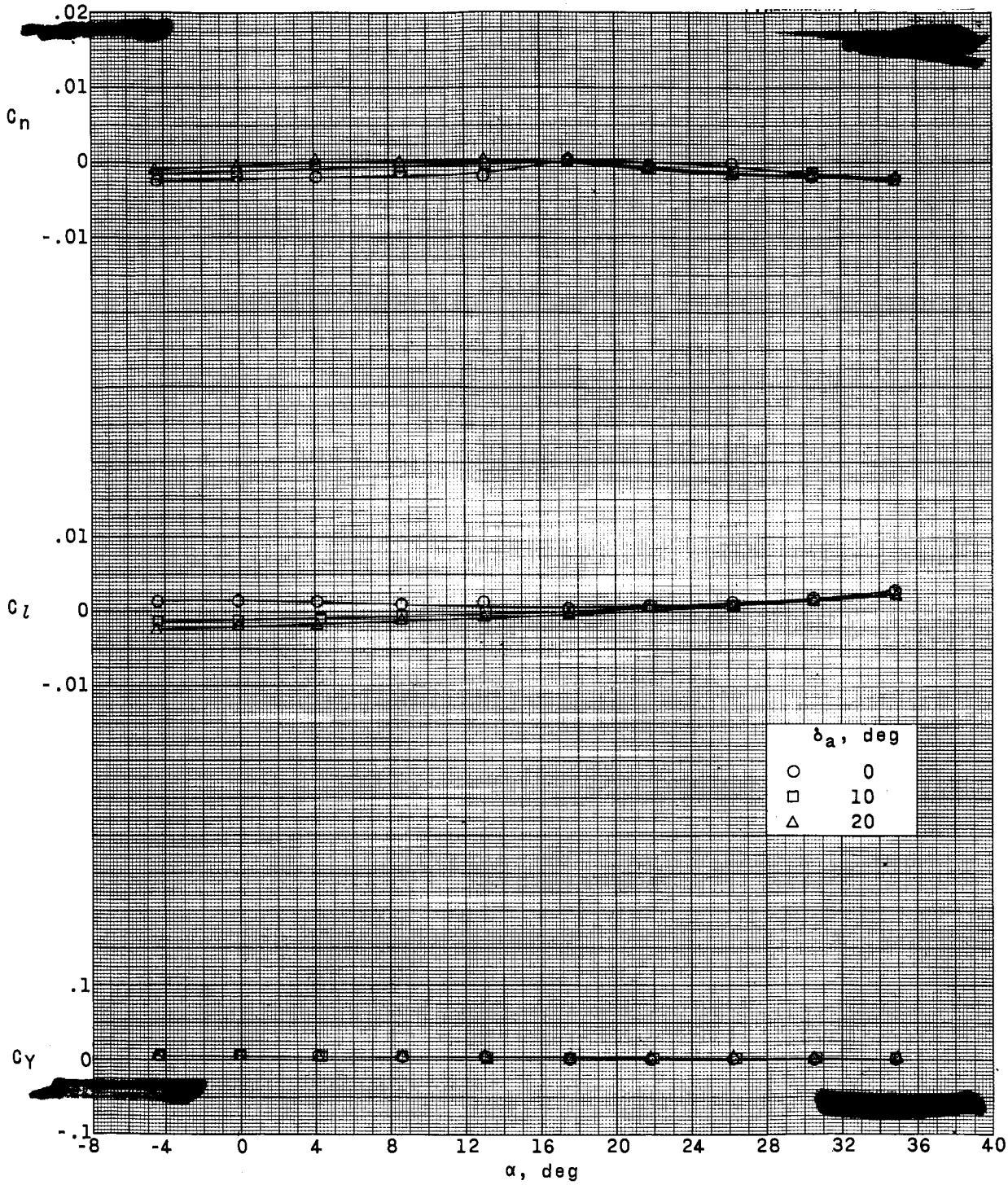
(b) M = 1.80.

Figure 39.- Continued.



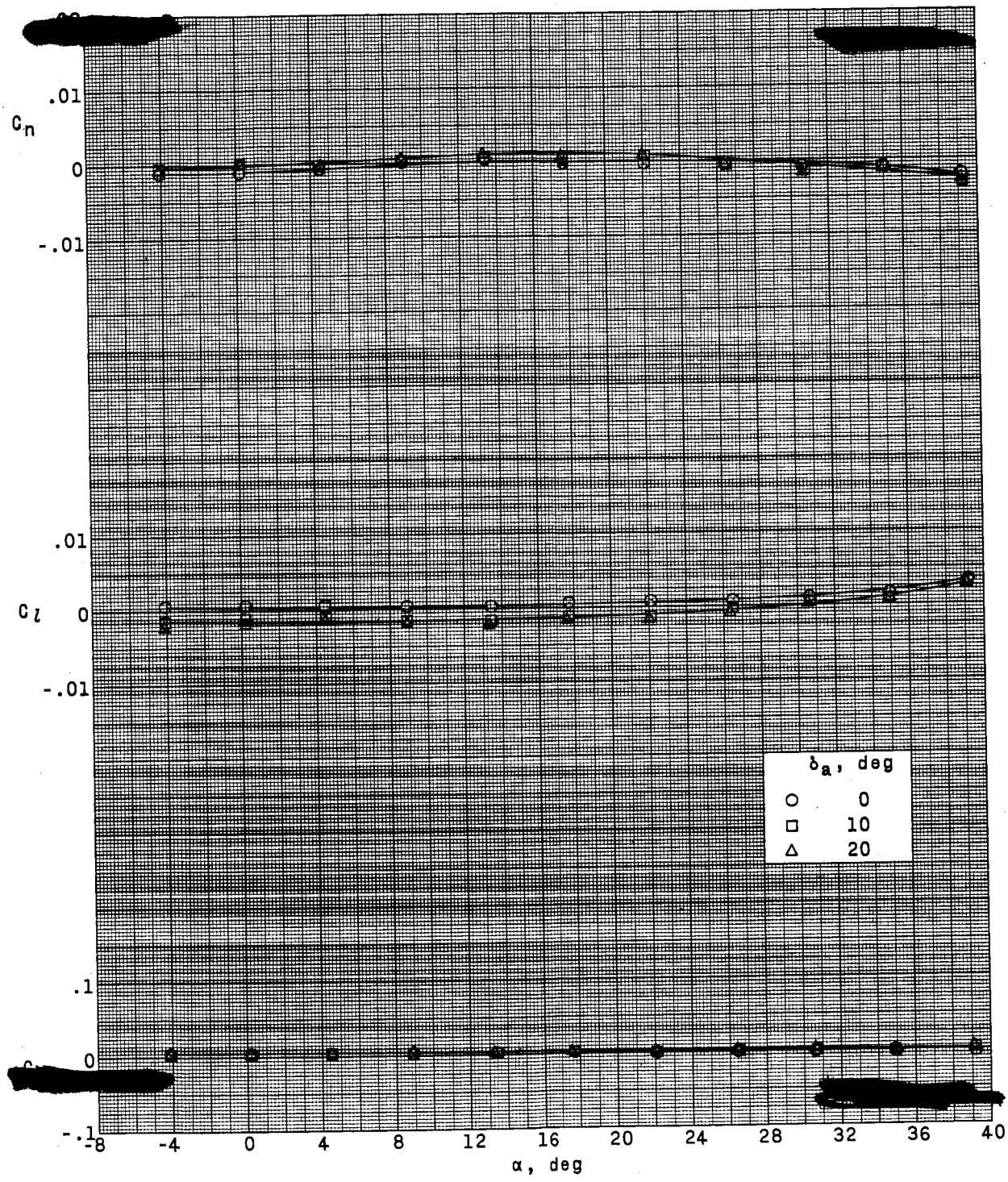
(c) M = 2.16.

Figure 39.- Concluded.



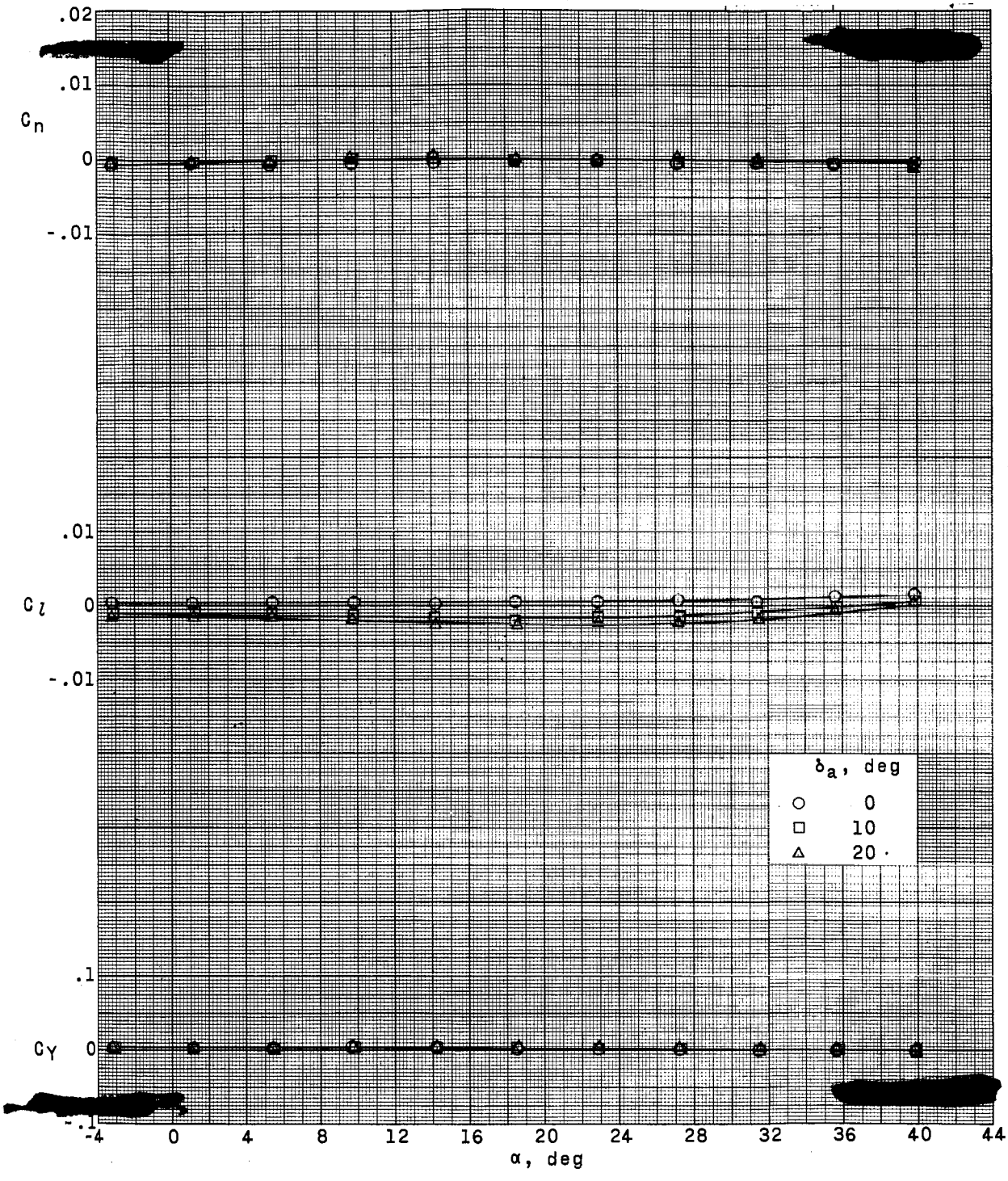
(a) M = 1.50.

Figure 40.- Effect of aileron control on lateral characteristics. V_2; $\delta_e = 30^\circ$; $\delta_r = 0^\circ$.



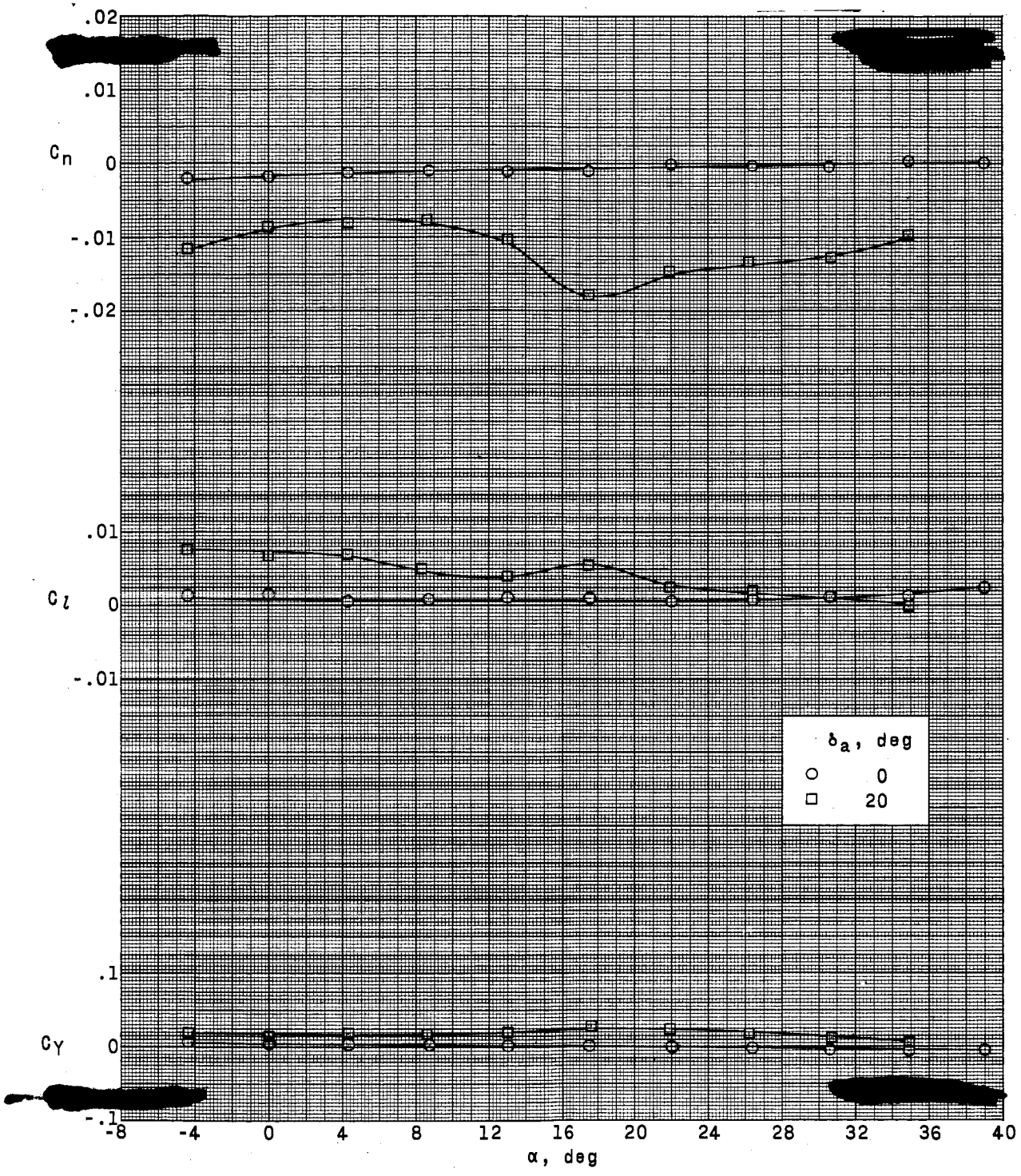
(b) M = 1.80.

Figure 40.- Continued.



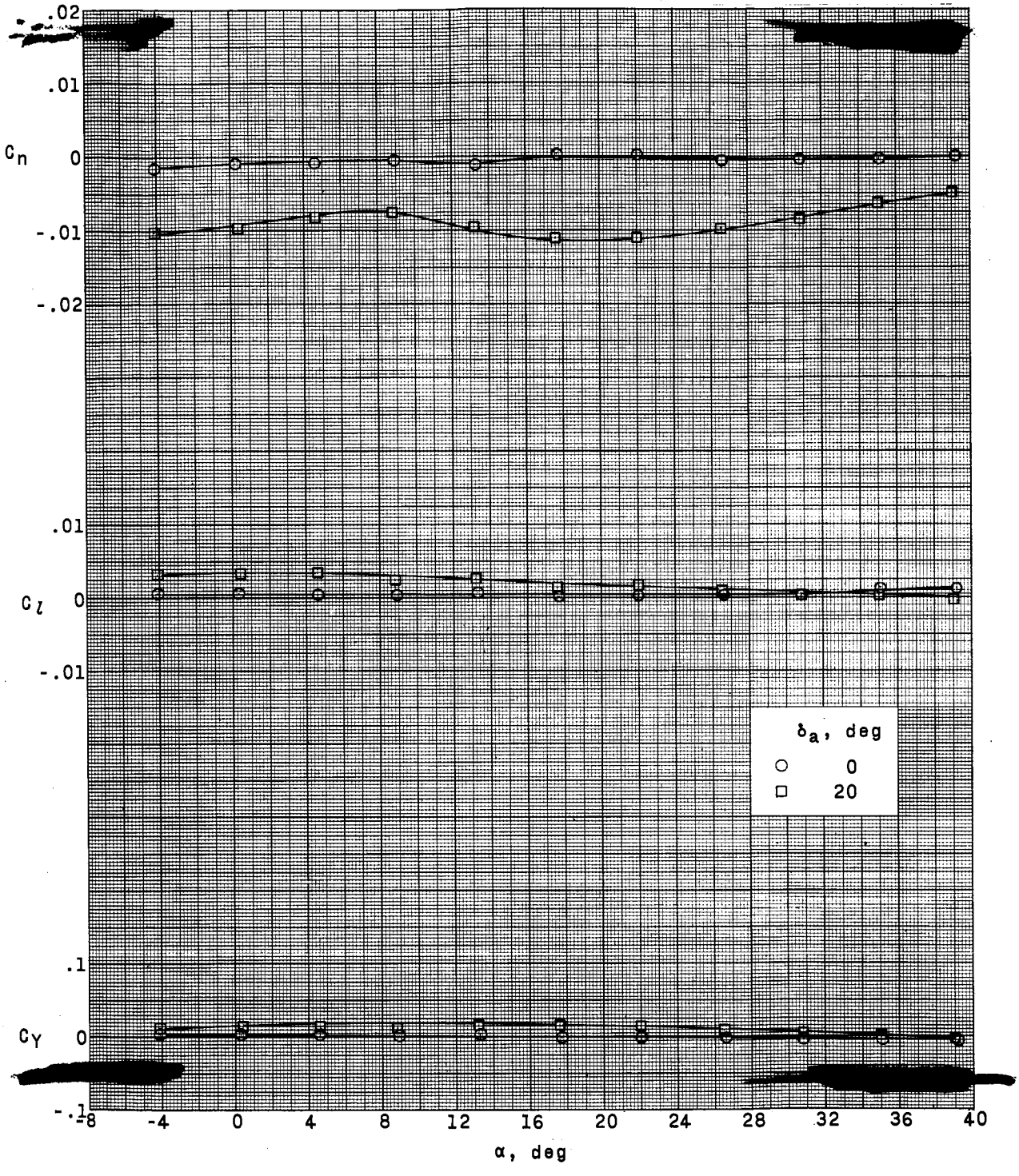
(c) M = 2.16.

Figure 40.- Concluded.



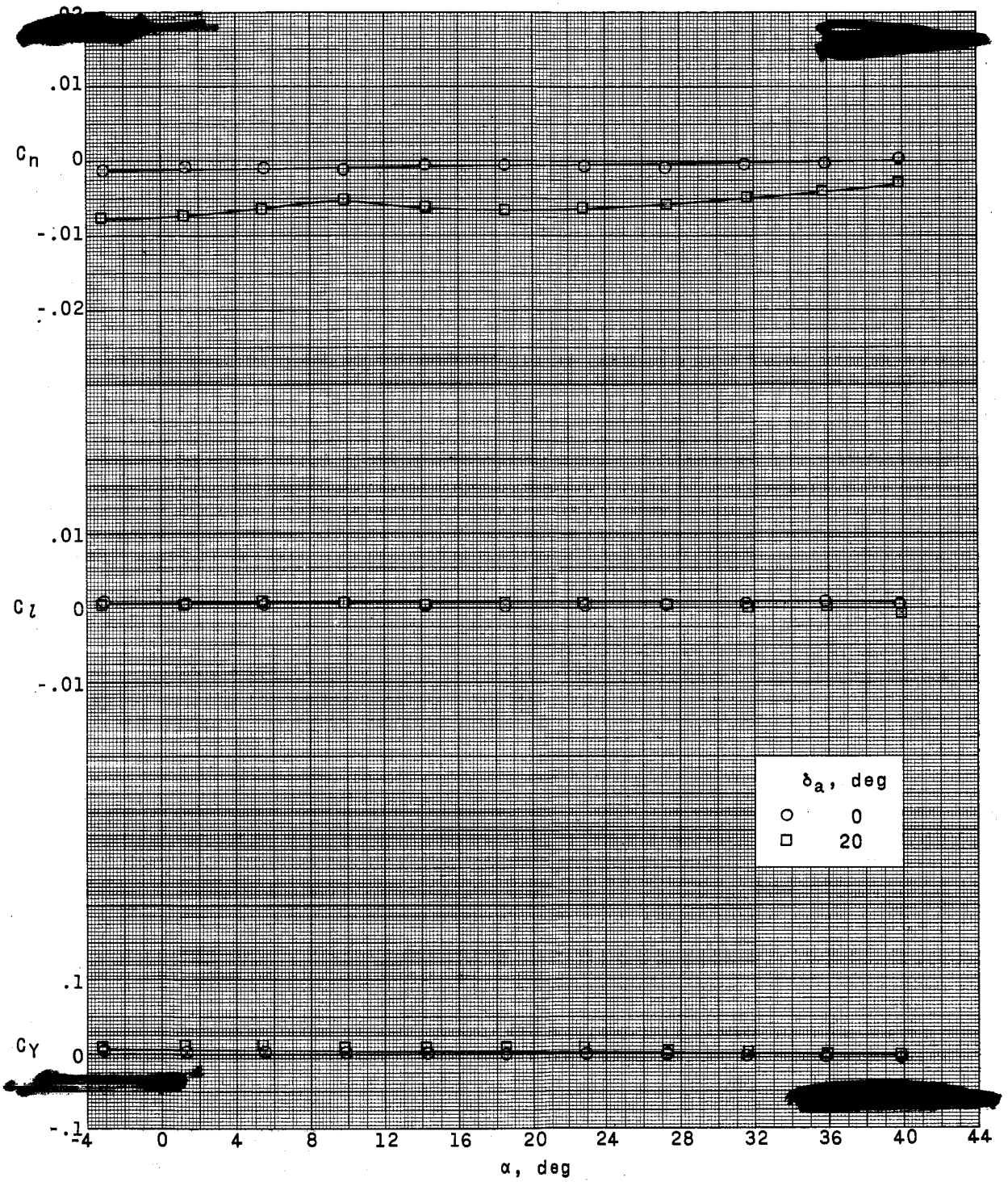
(a) M = 1.50.

Figure 41.- Effect of aileron control on lateral characteristics. V_1; $\delta_e = -30^0$; $\delta_r = 0^0$.



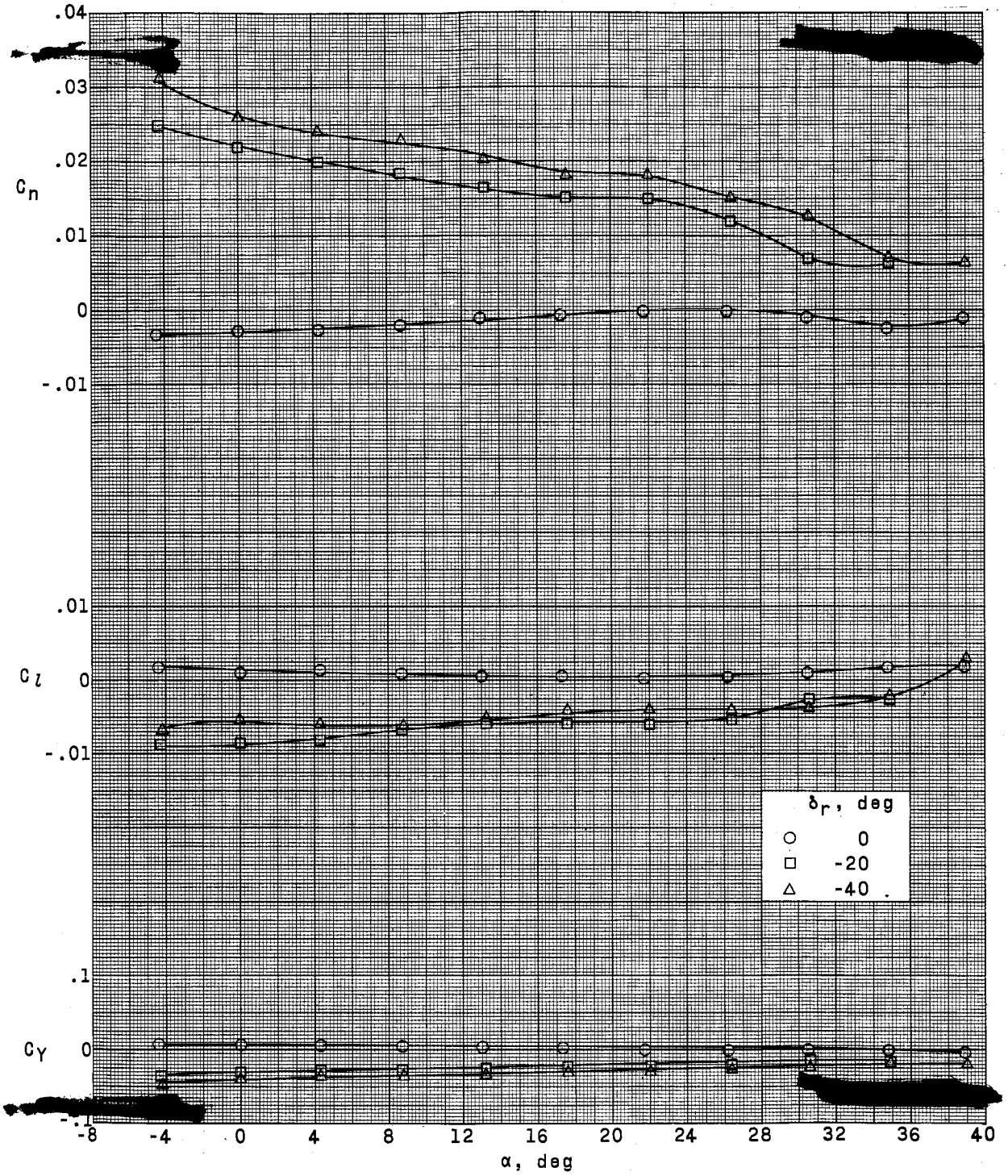
(b) M = 1.80.

Figure 41.- Continued.



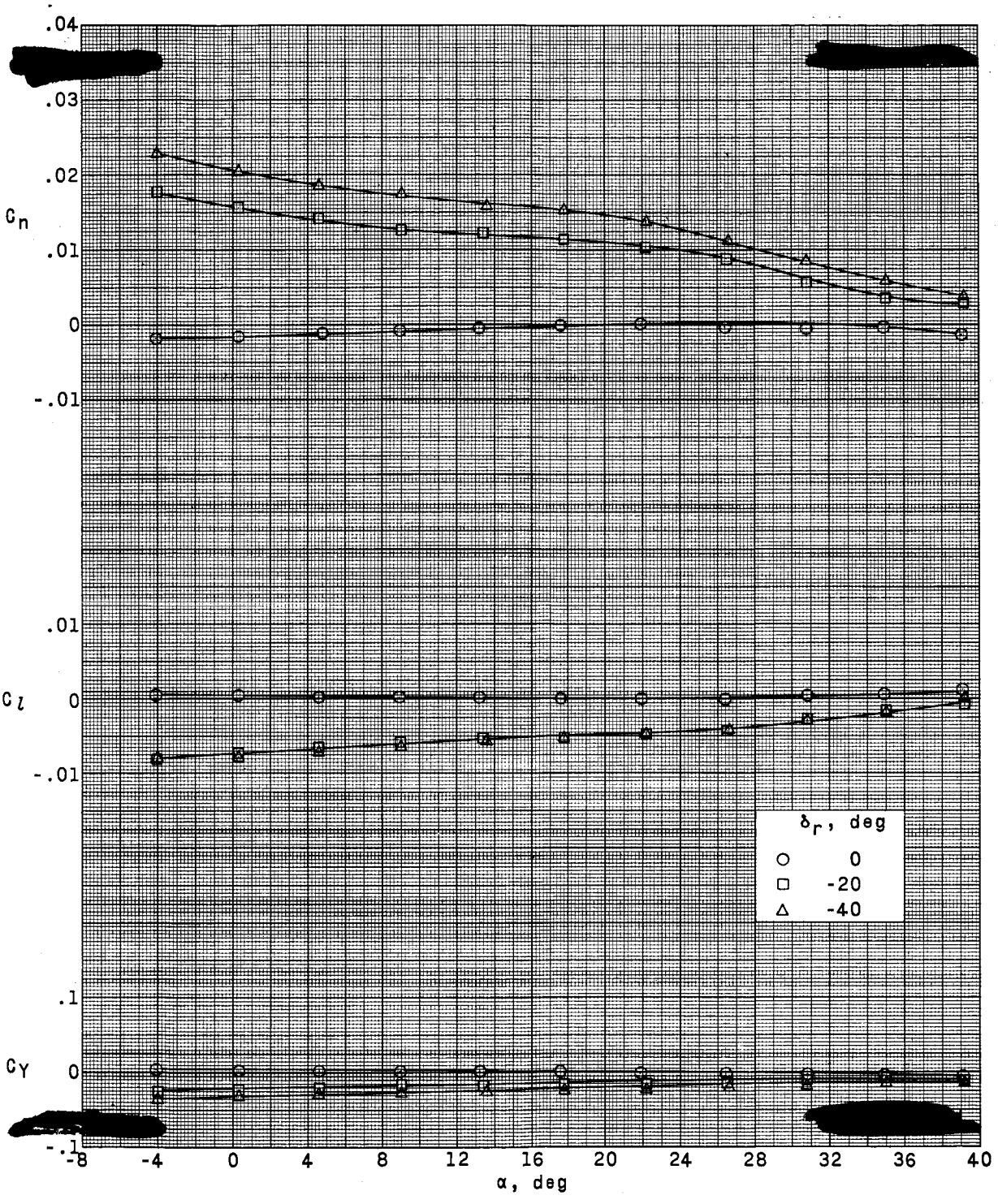
(c) M = 2.16.

Figure 41.- Concluded.



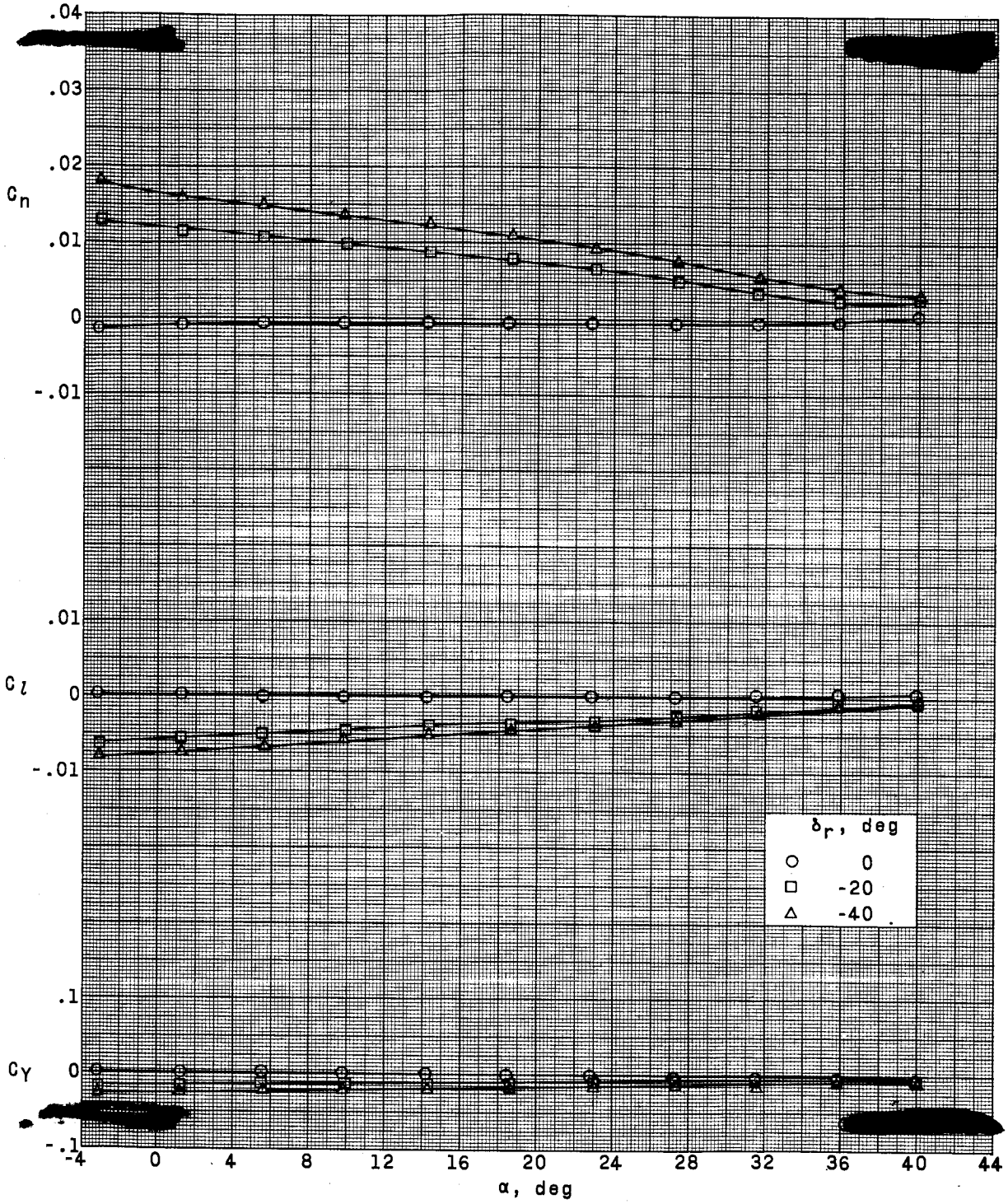
(a) M = 1.50.

Figure 42.- Effect of rudder (R_3) deflection on lateral characteristics. V_2; $\delta_e = \delta_a = 0^0$.



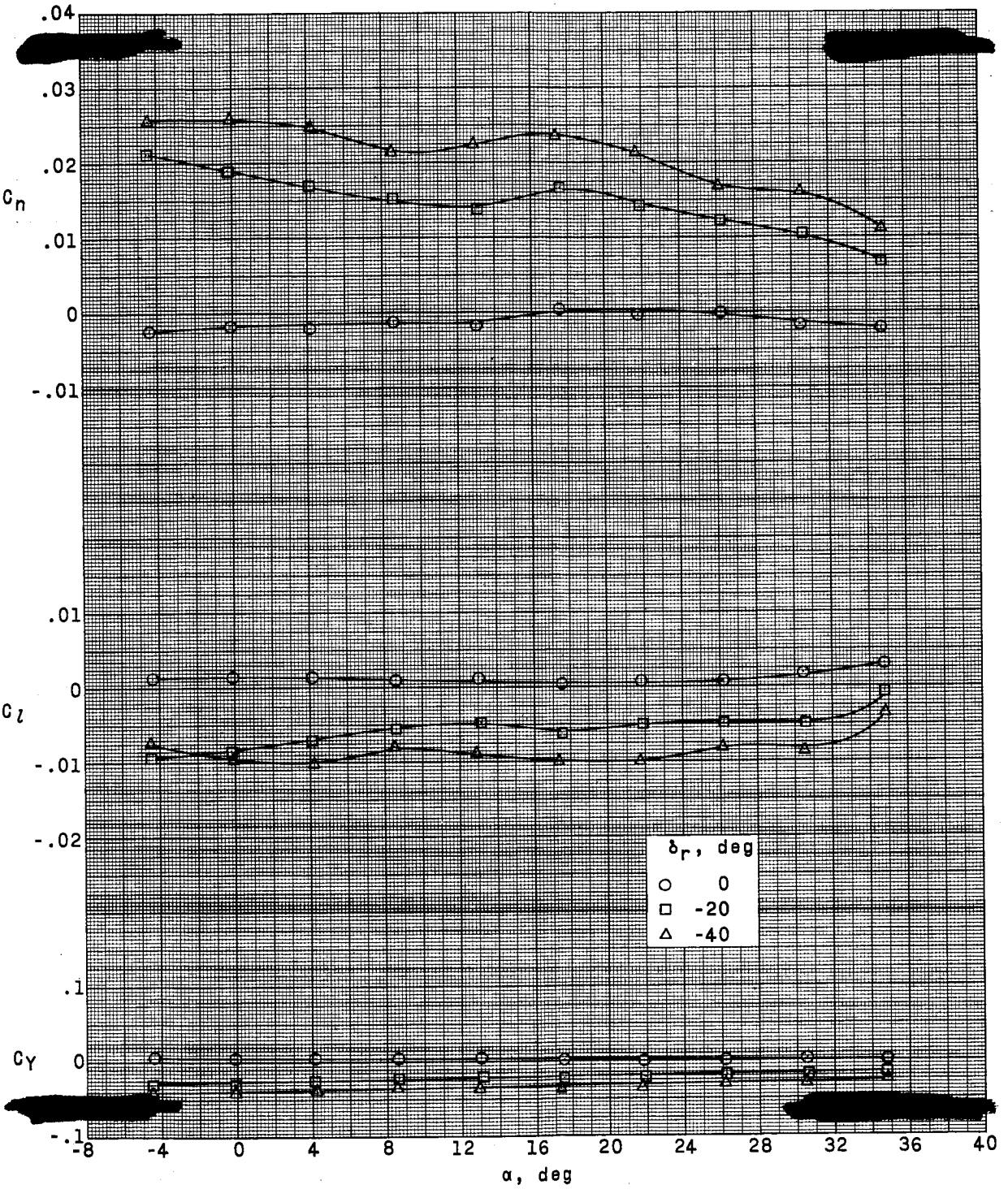
(b) M = 1.80.

Figure 42.- Continued.



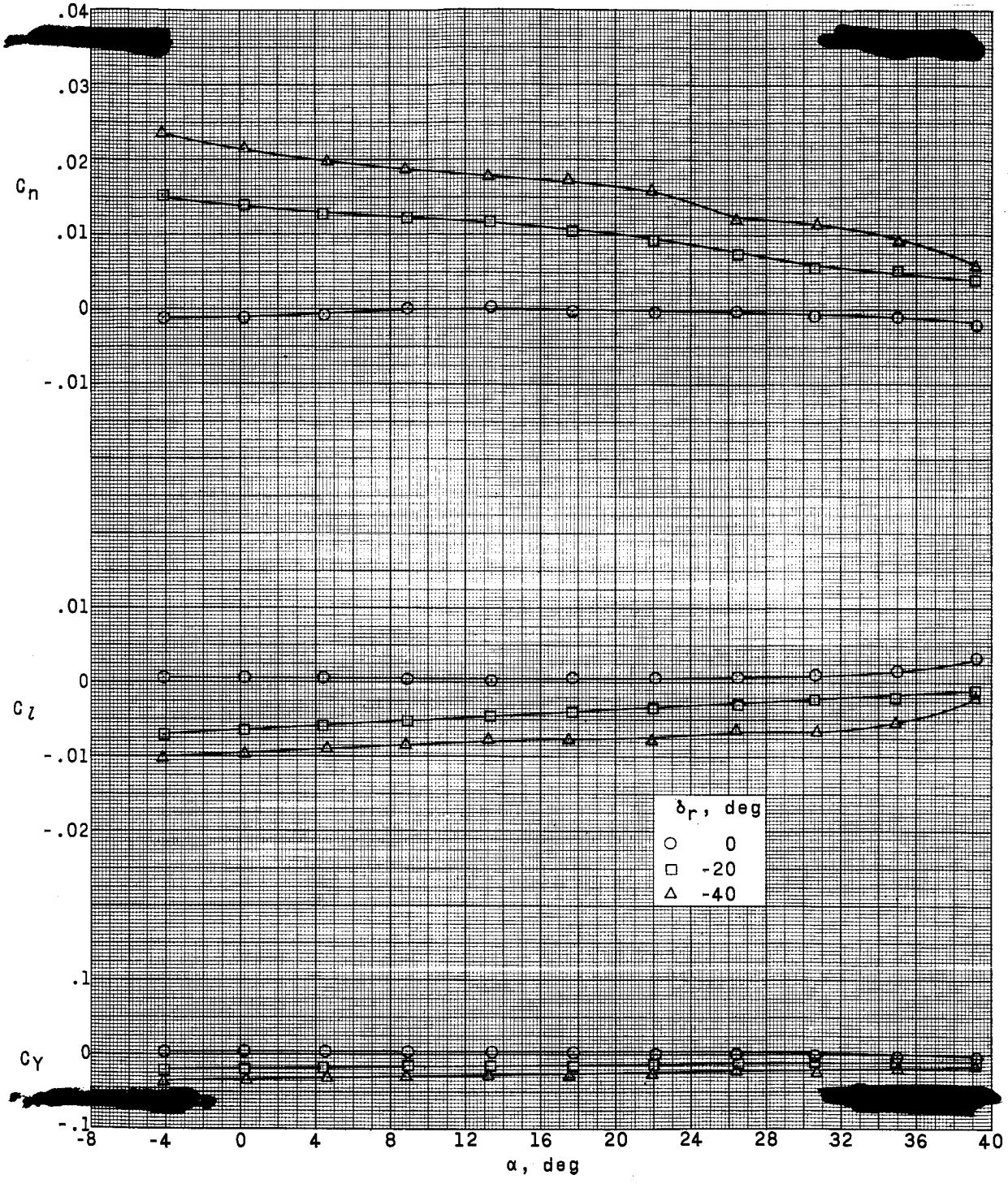
(c) M = 2.16.

Figure 42.- Concluded.



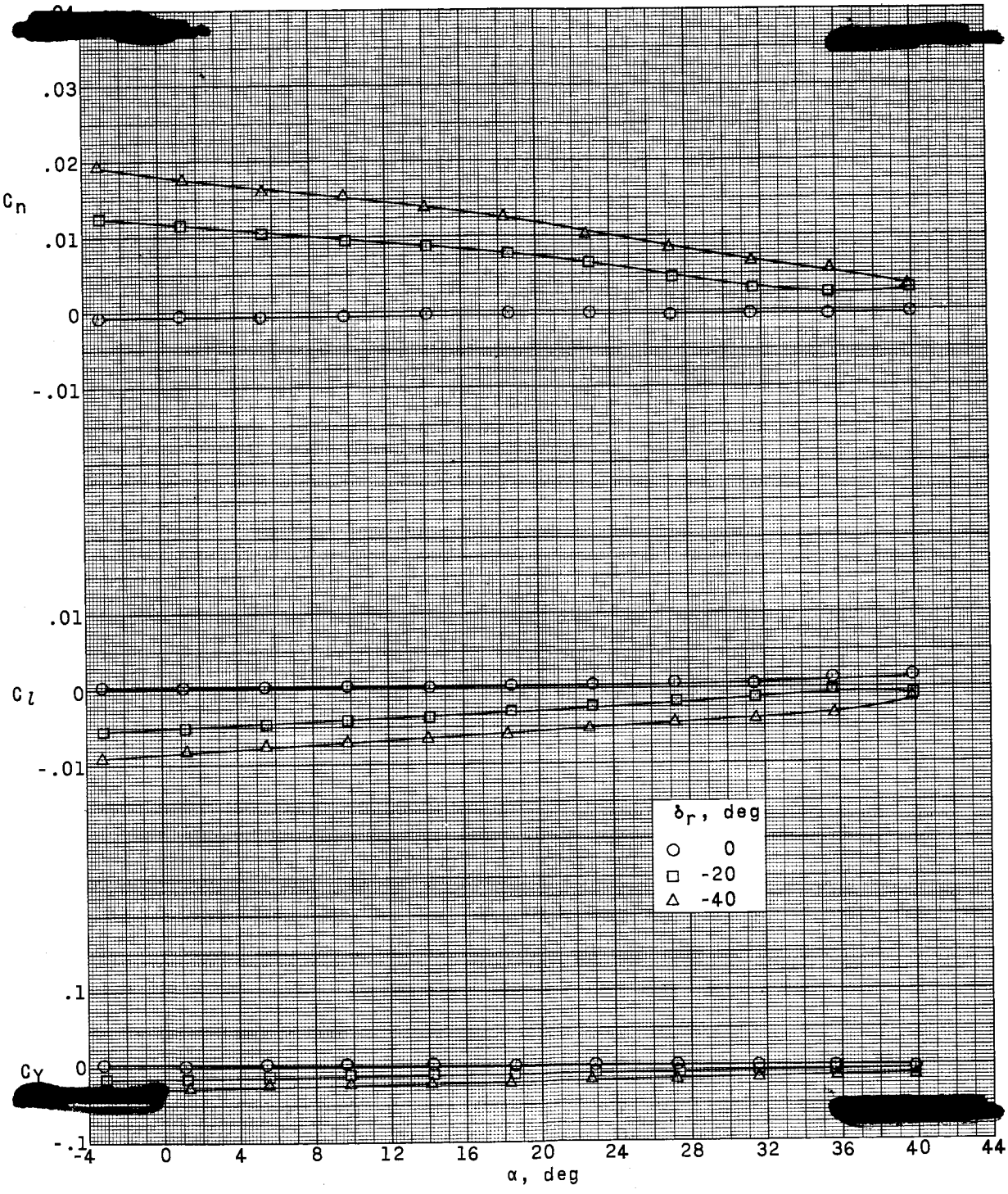
(a) M = 1.50.

Figure 43.- Effect of rudder (R_1) deflection on lateral characteristics. V_1; $\delta_e = 30^0$; $\delta_a = 0^0$.



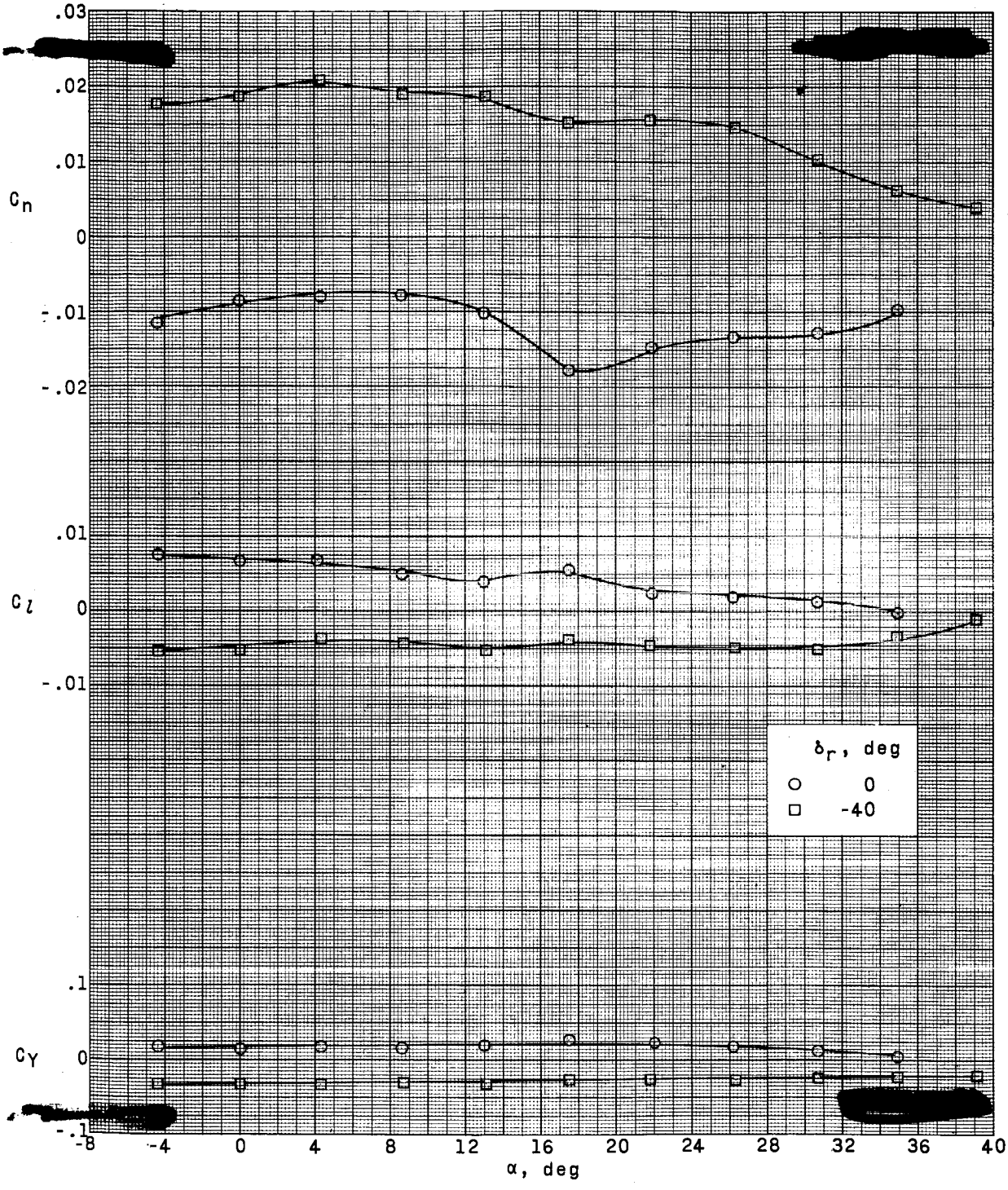
(b) M = 1.80.

Figure 43.- Continued.



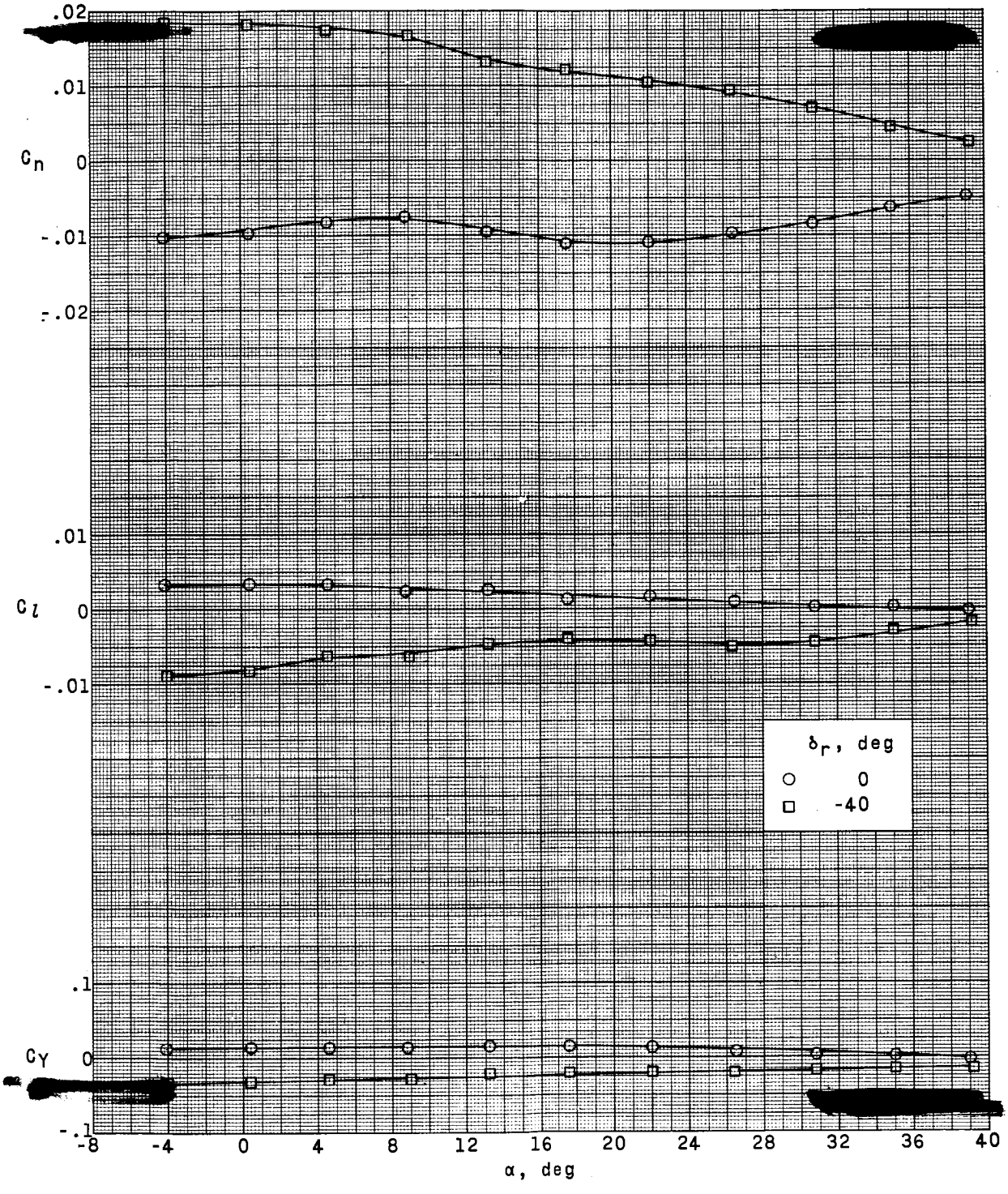
(c) M = 2.16.

Figure 43.- Concluded.



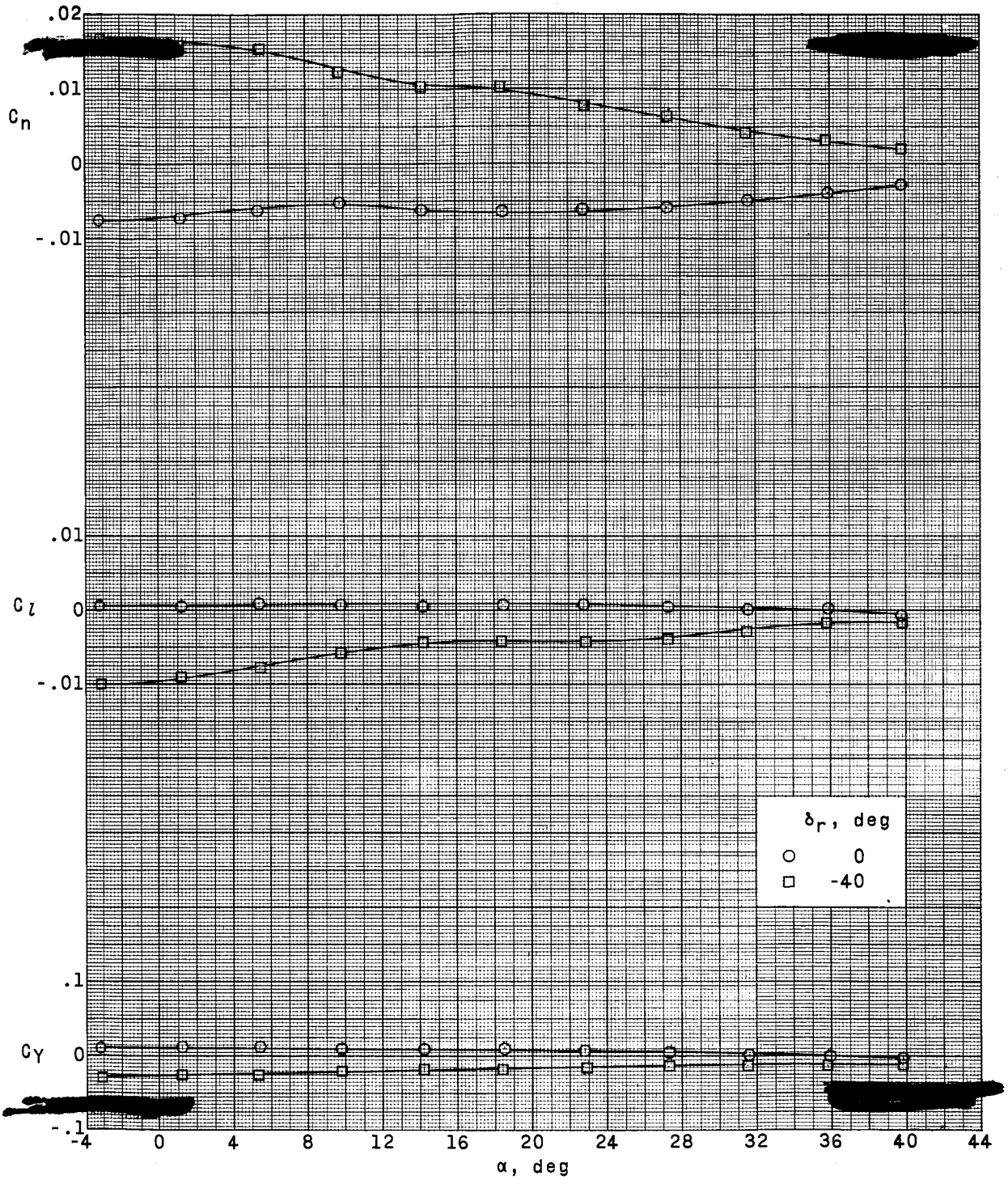
(a) M = 1.50.

Figure 44.- Effect of rudder (R_1) deflection on lateral characteristics. V_1; $\delta_e = -30^0$; $\delta_a = 20^0$.



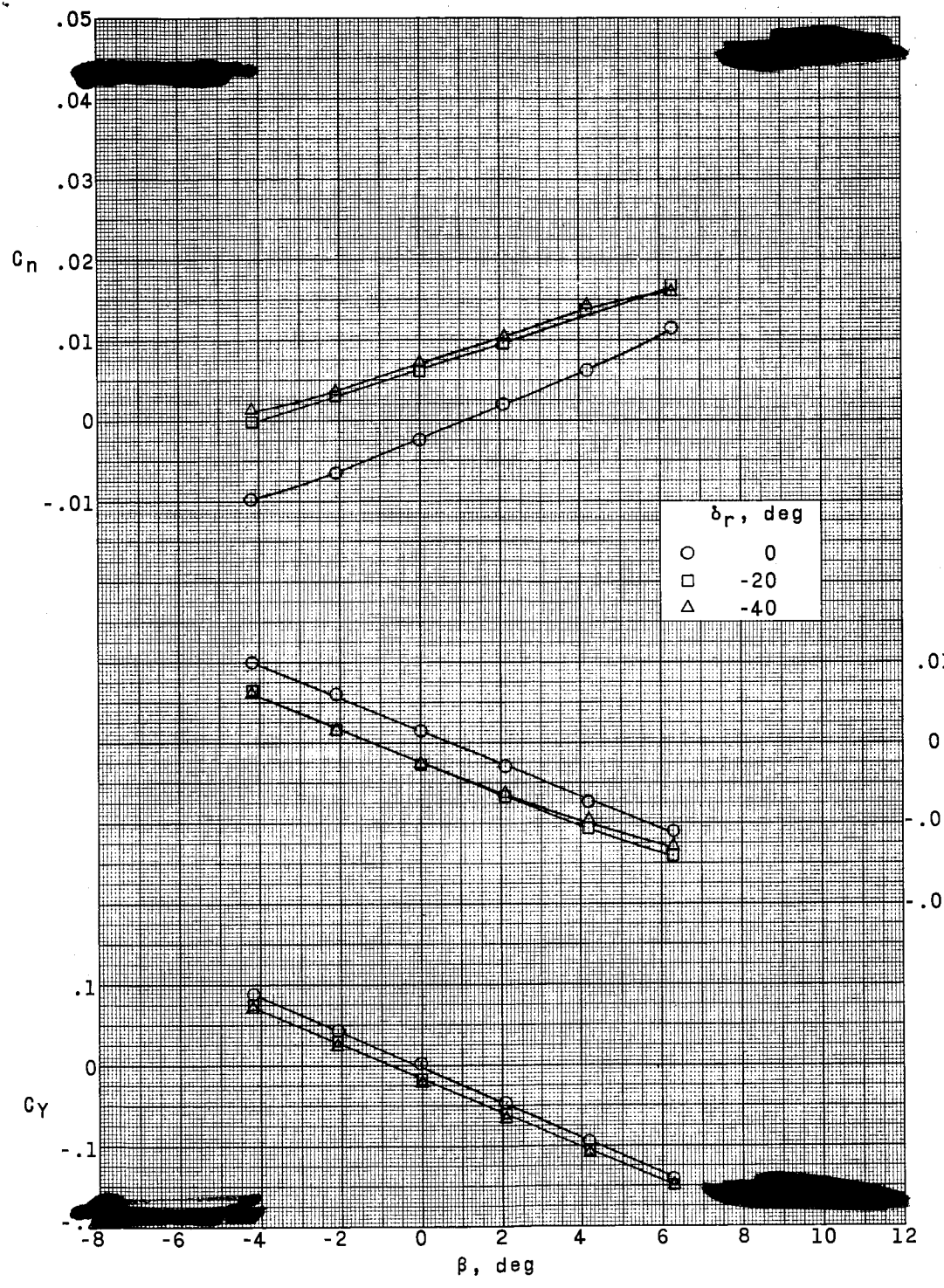
(b) M = 1.80.

Figure 44.- Continued.



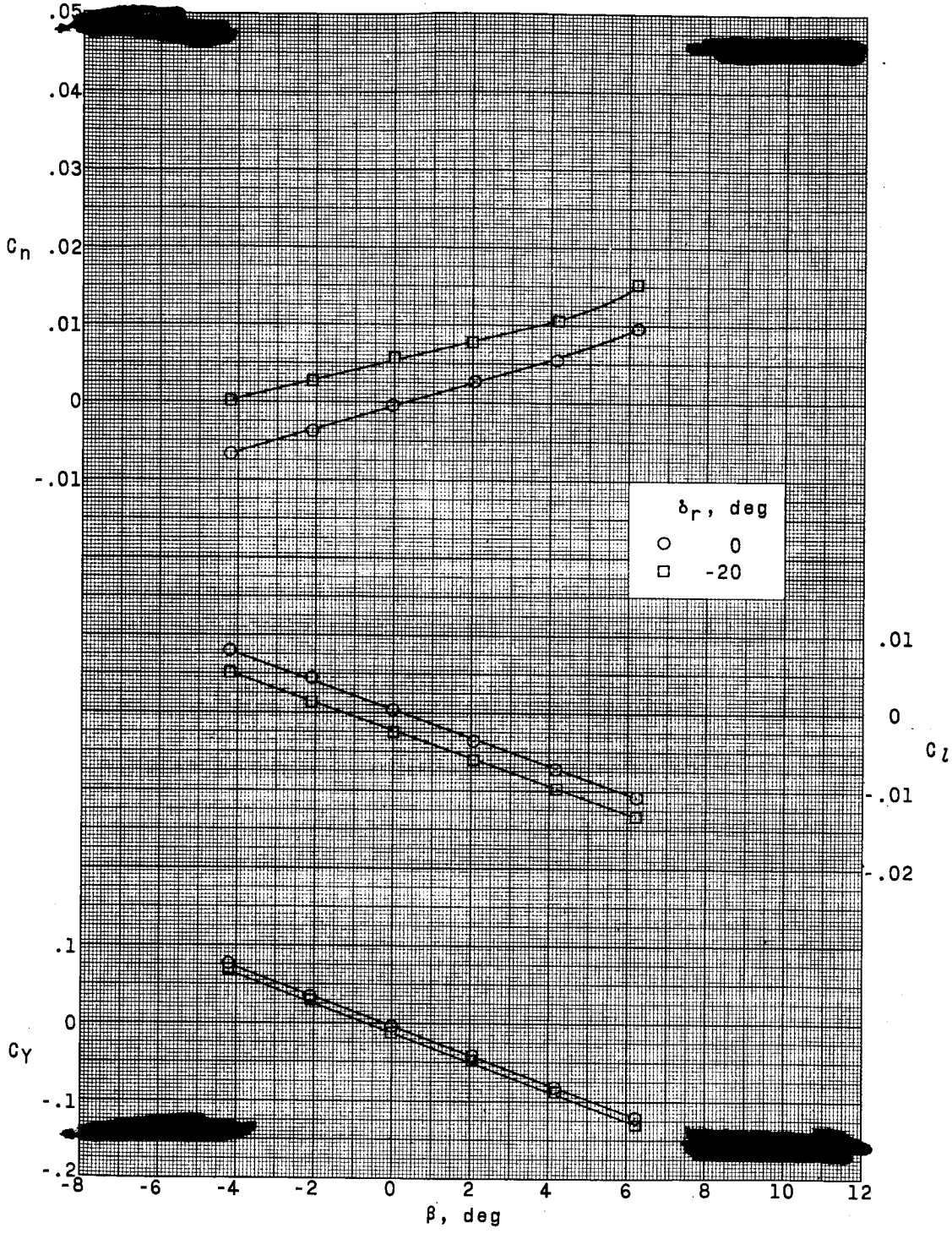
(c) M = 2.16.

Figure 44.- Concluded.



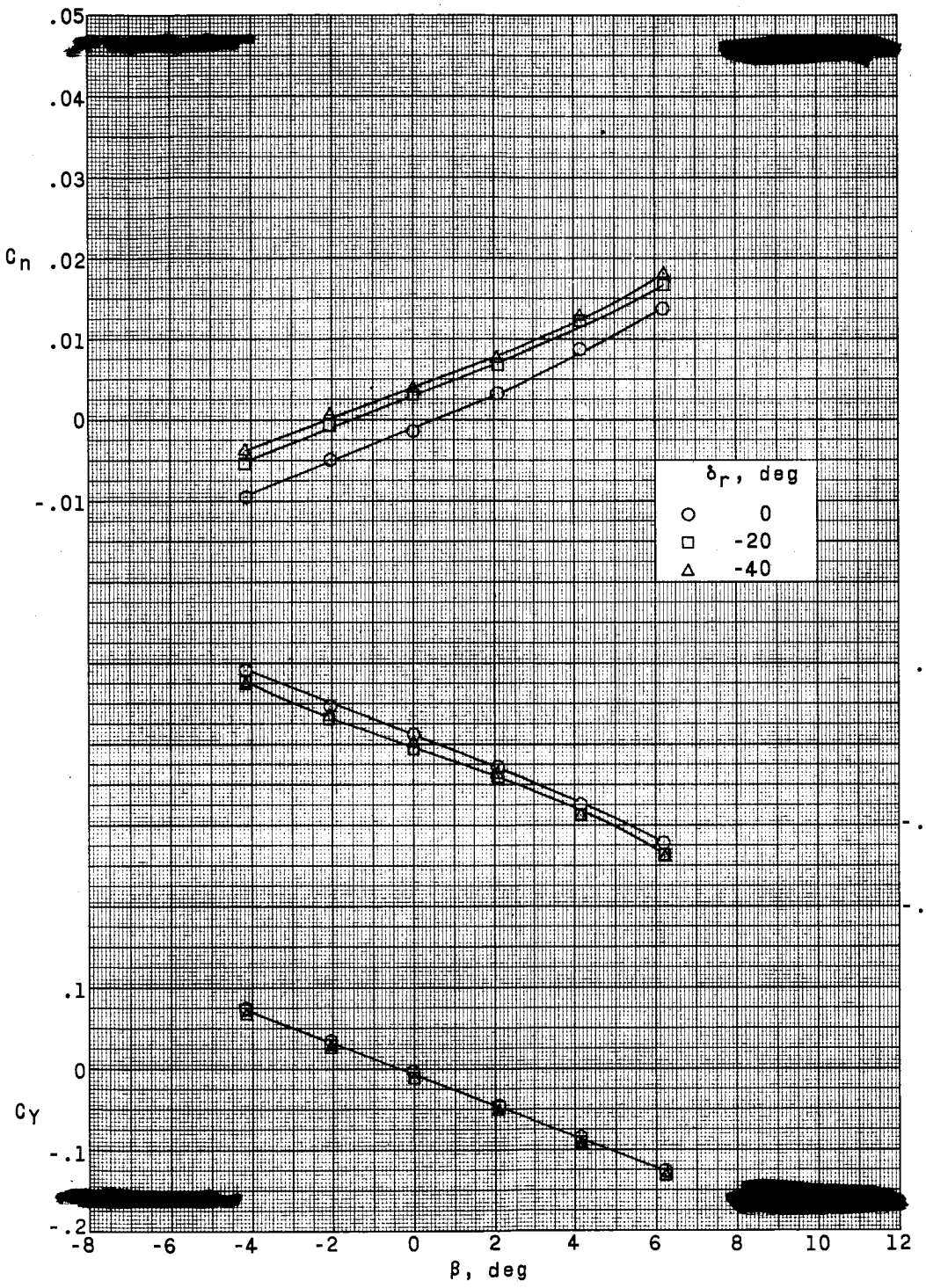
(a) M = 1.50; α = 34.9°.

Figure 45.- Effect of rudder (R_3) deflection on aerodynamic characteristics in sideslip. V_2; $\delta_e = \delta_a = 0^\circ$.



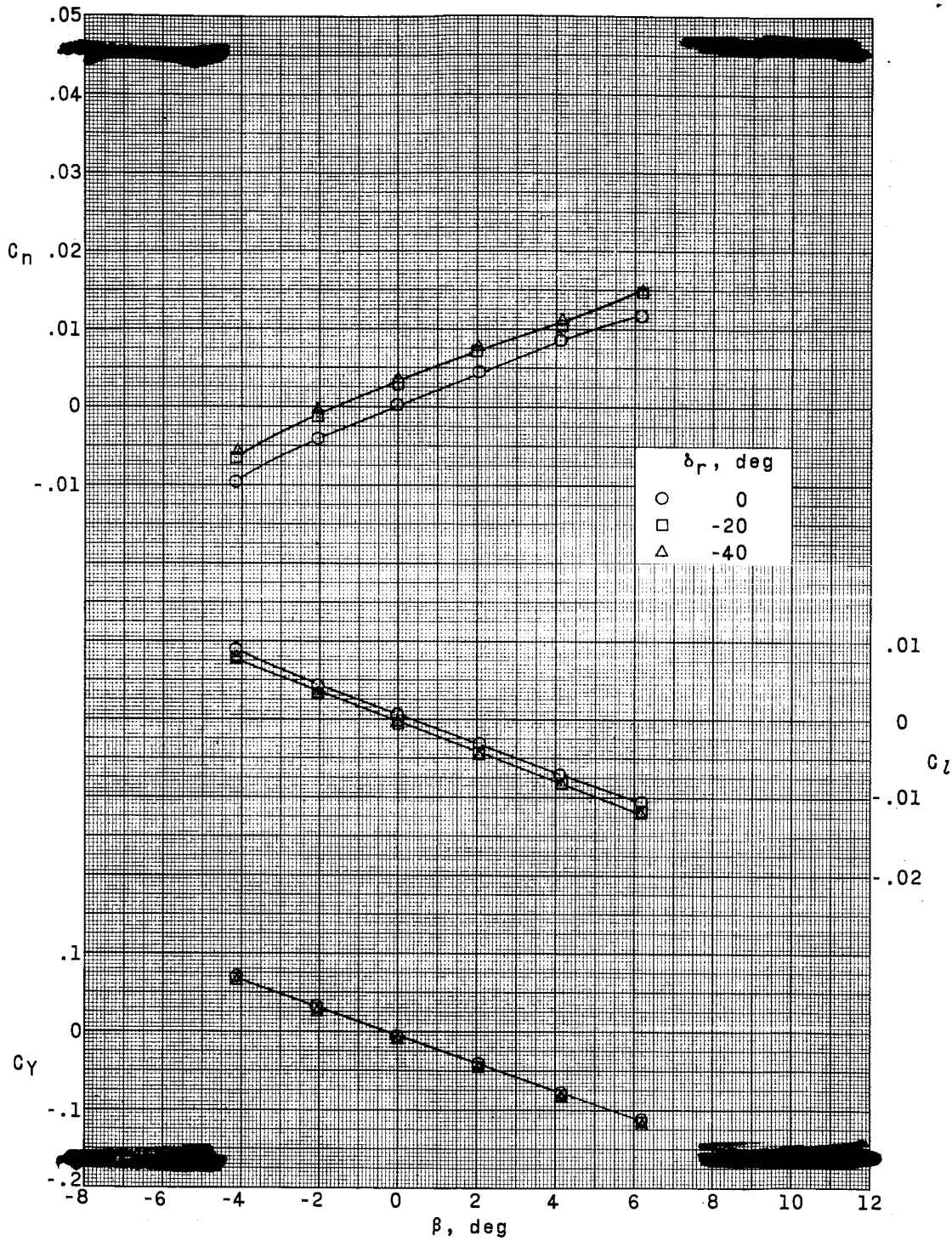
(b) M = 1.80; α = 30.8°.

Figure 45.- Continued.



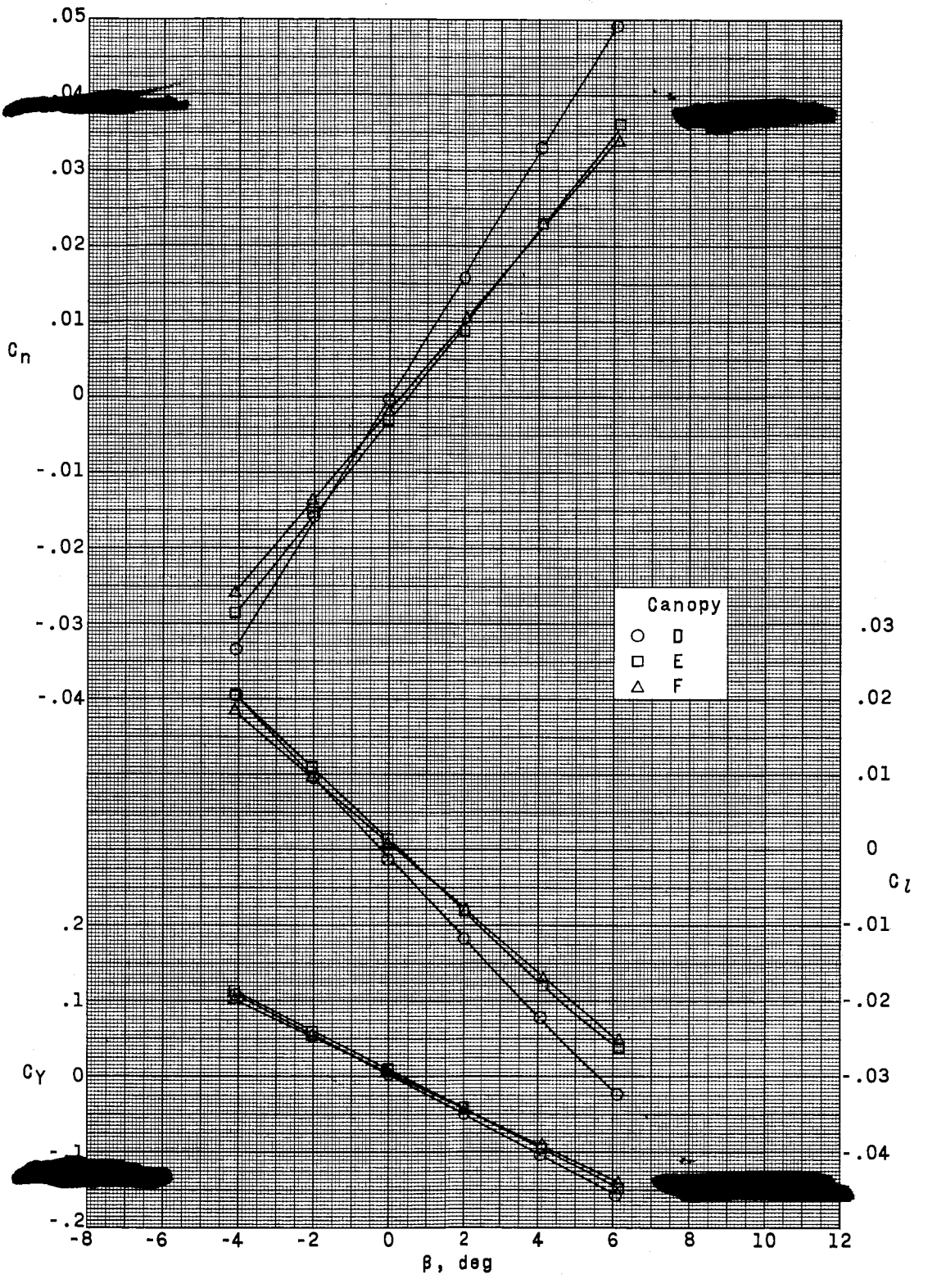
(c) M = 1.80; α = 39.2°.

Figure 45.- Continued.



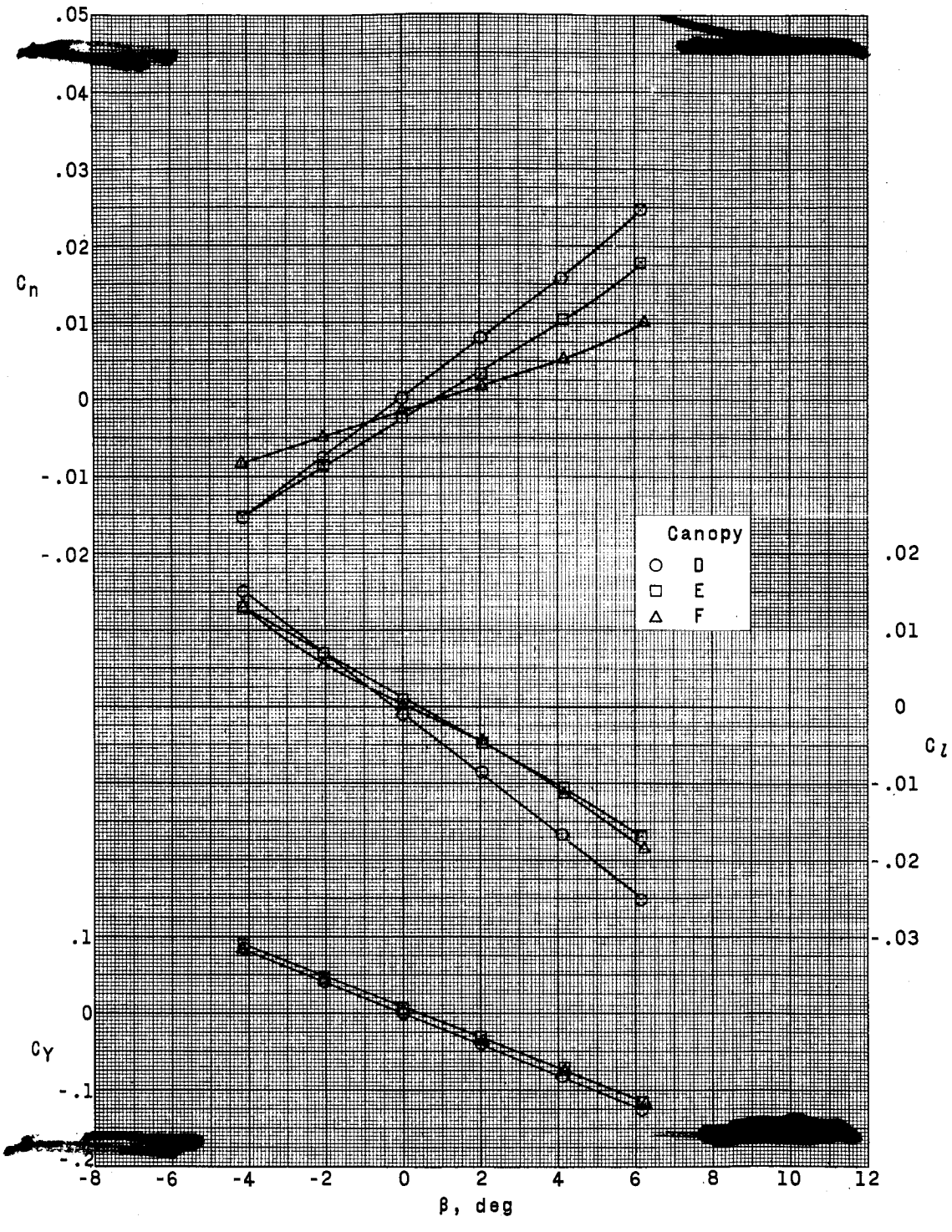
(d) M = 2.16; α = 39.9°.

Figure 45.- Concluded.



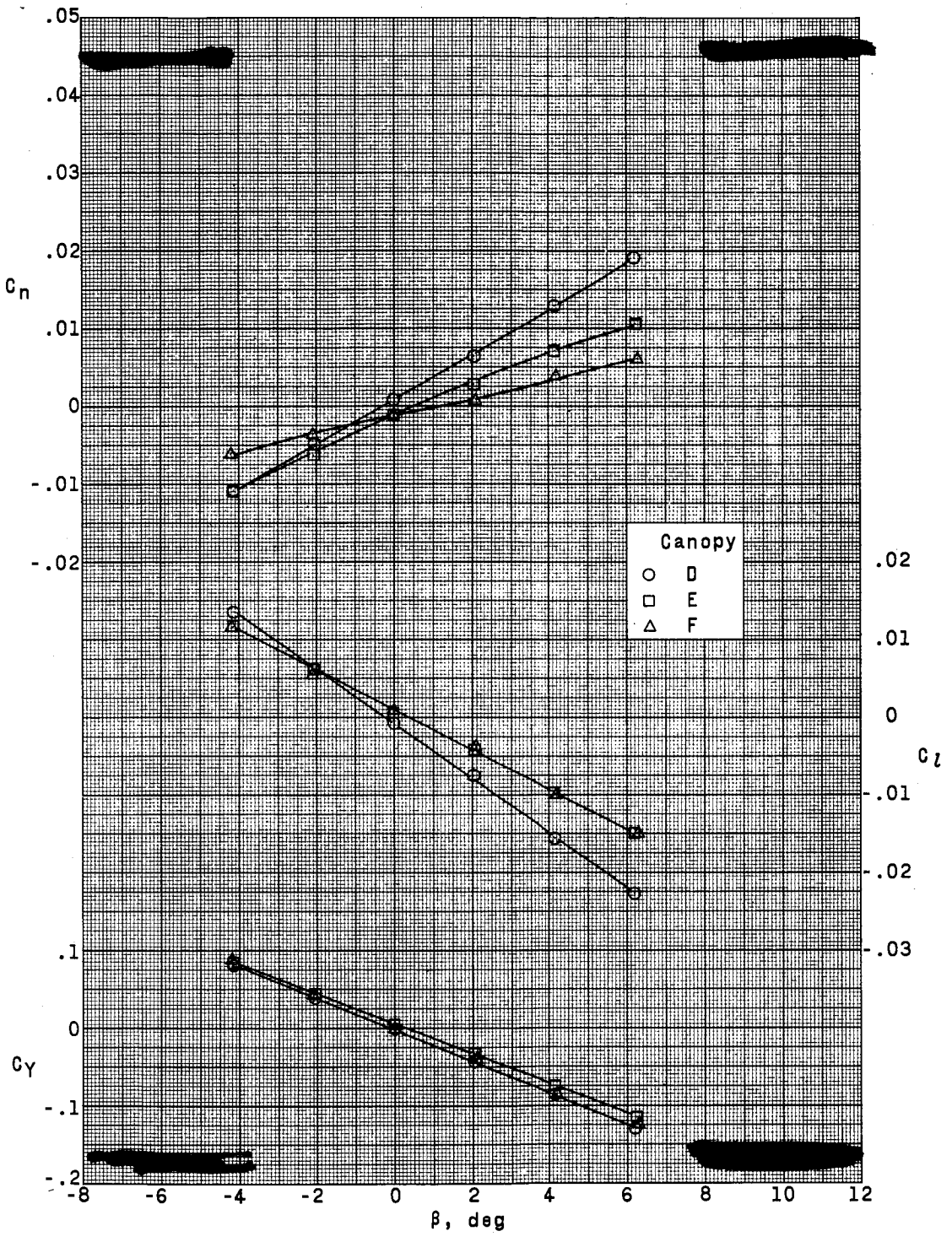
(a) M = 1.50; α = 0.1°.

Figure 46.- Effect of canopy geometry on aerodynamic characteristics in sideslip. V_2; $\delta_e = \delta_a = \delta_r = 0^\circ$.



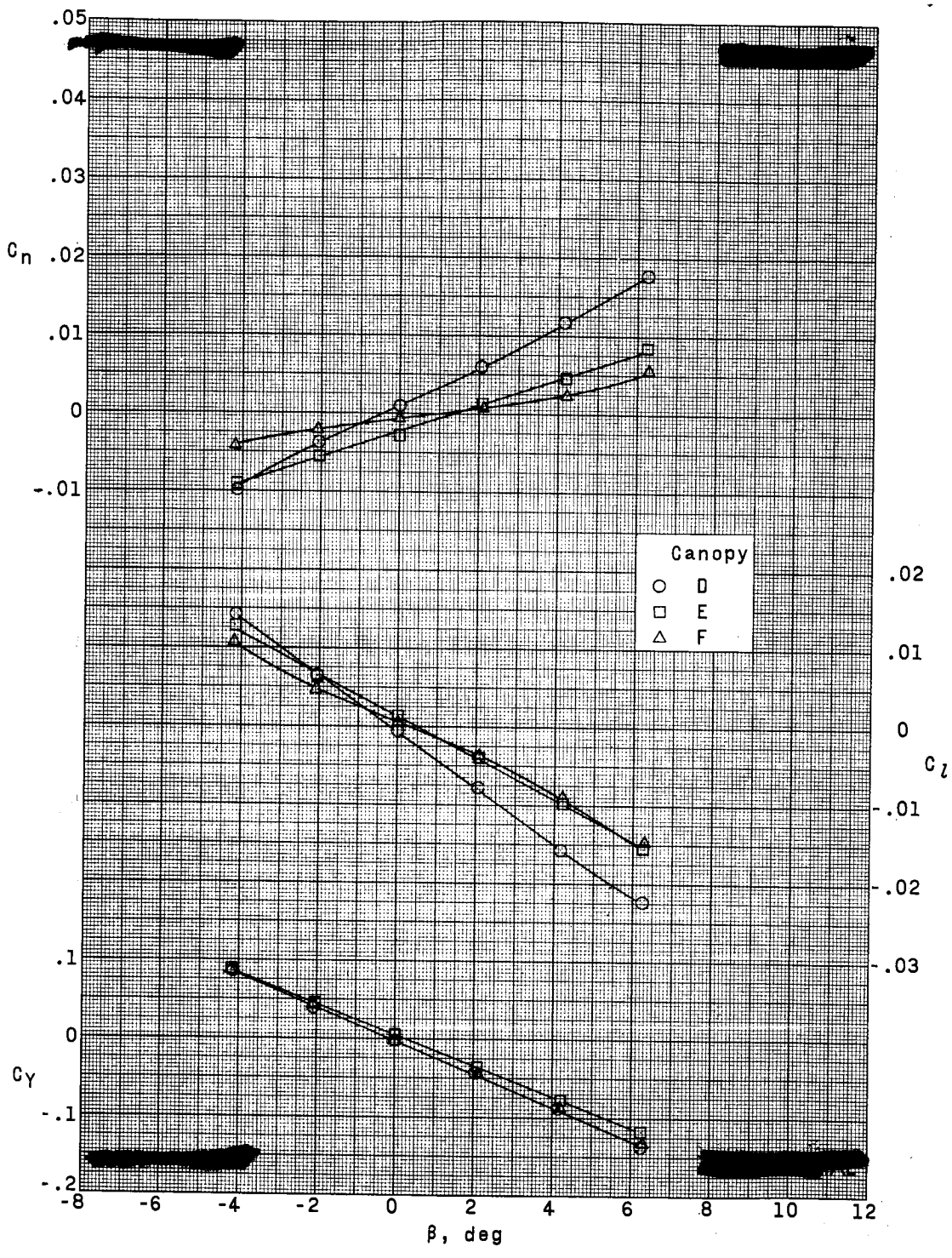
(b) M = 1.50; α = 8.6°.

Figure 46.- Continued.



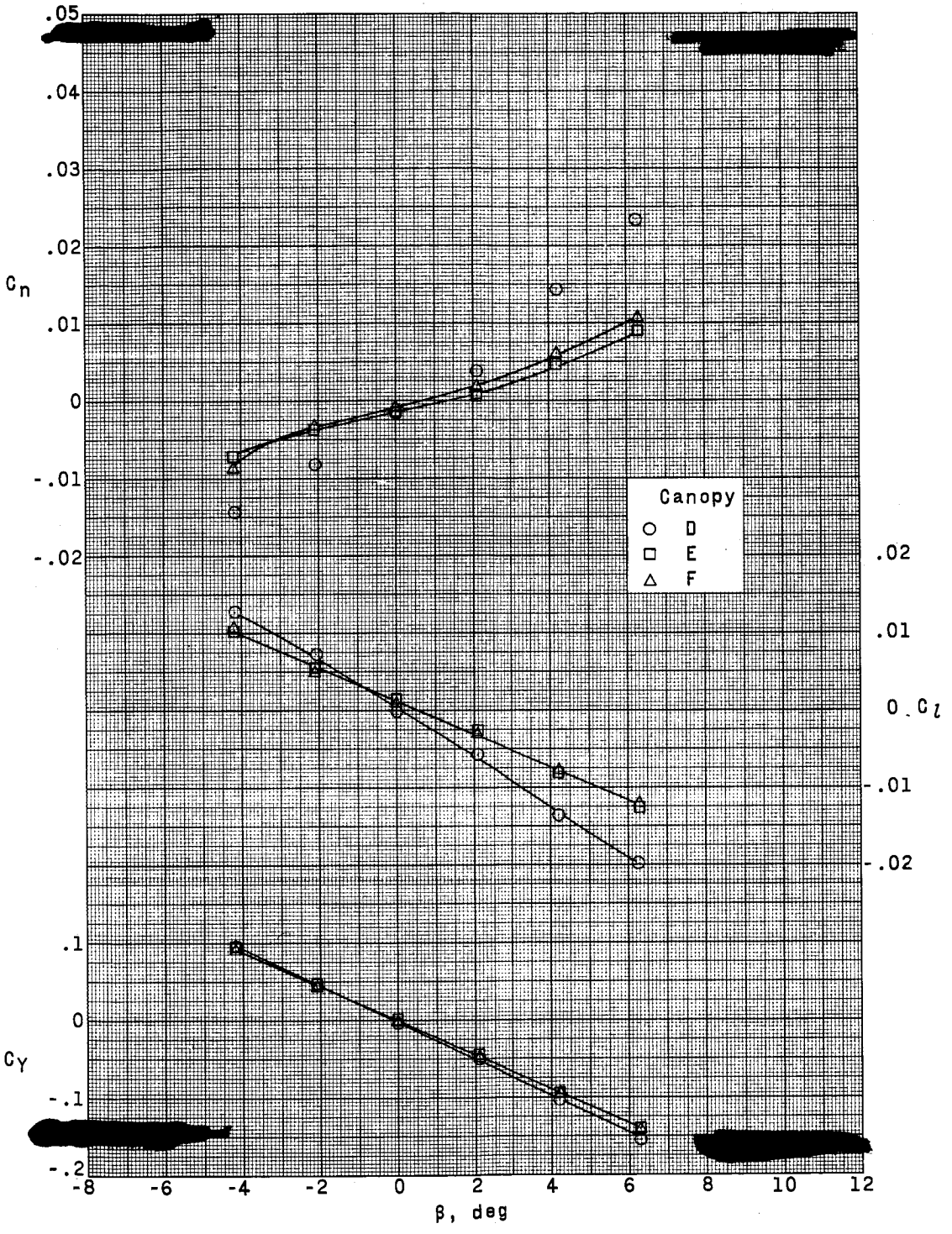
(c) M = 1.50; α = 17.5°.

Figure 46.- Continued.



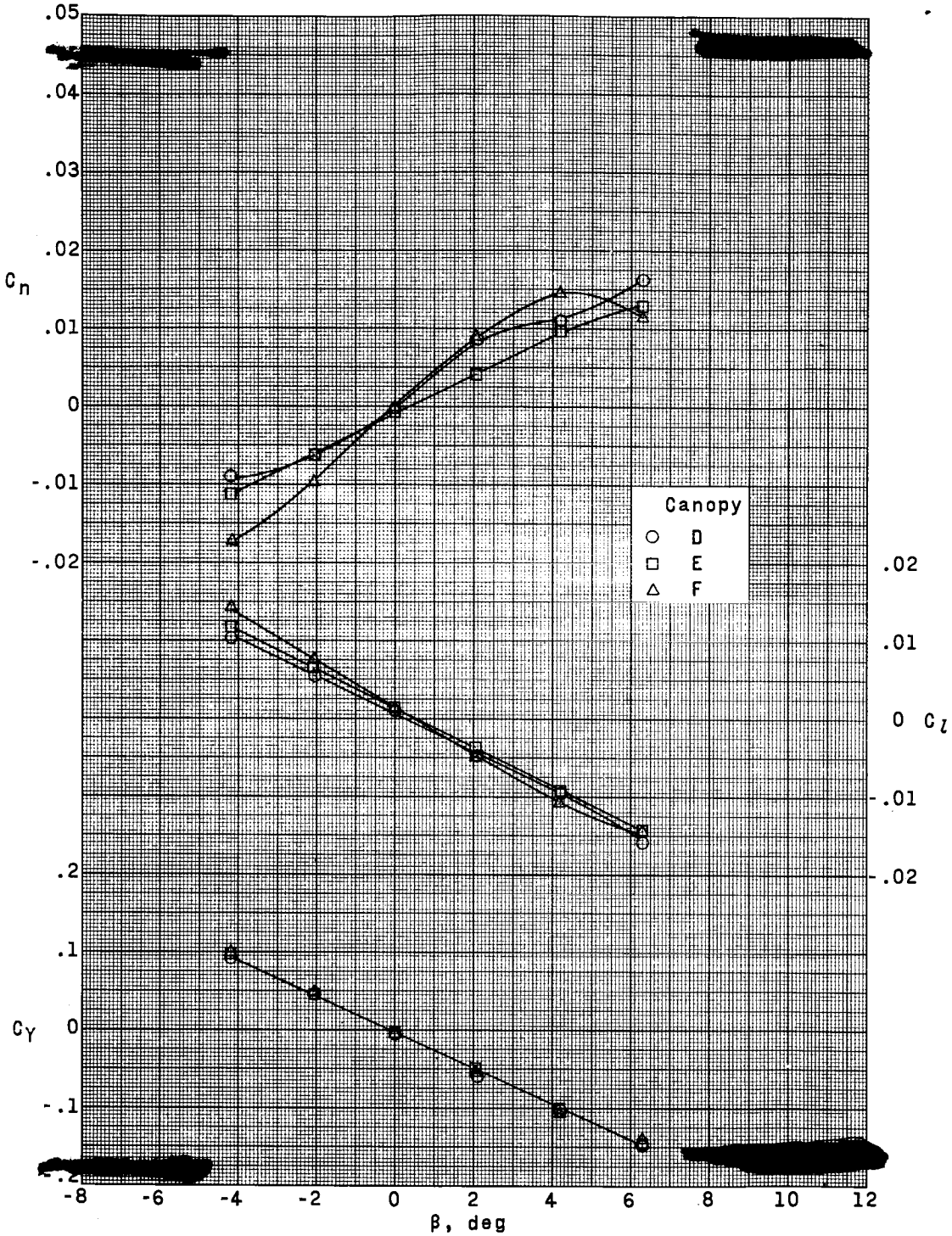
(d) M = 1.50; α = 21.9°.

Figure 46.- Continued.



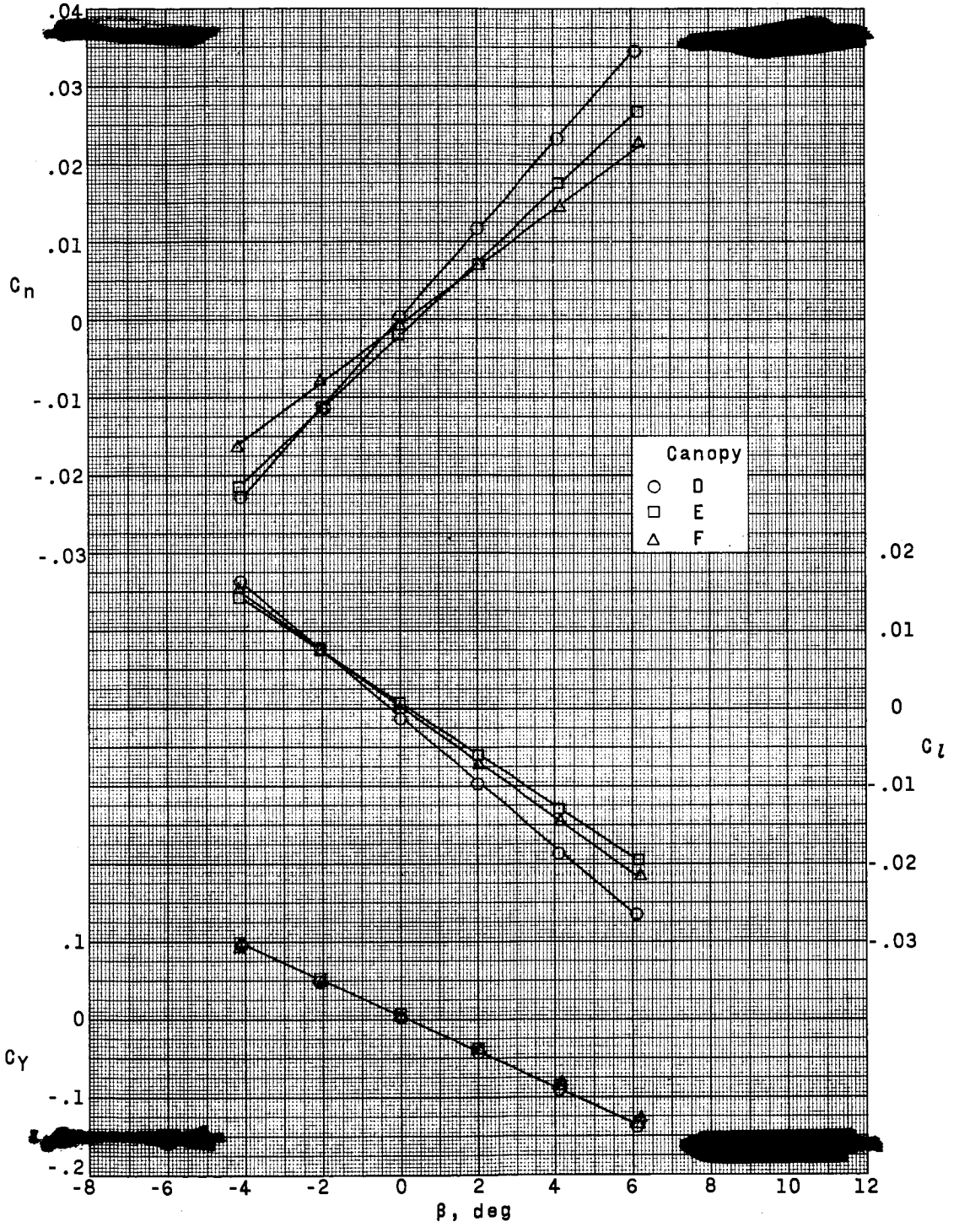
(e) M = 1.50; α = 30.5°.

Figure 46.- Continued.



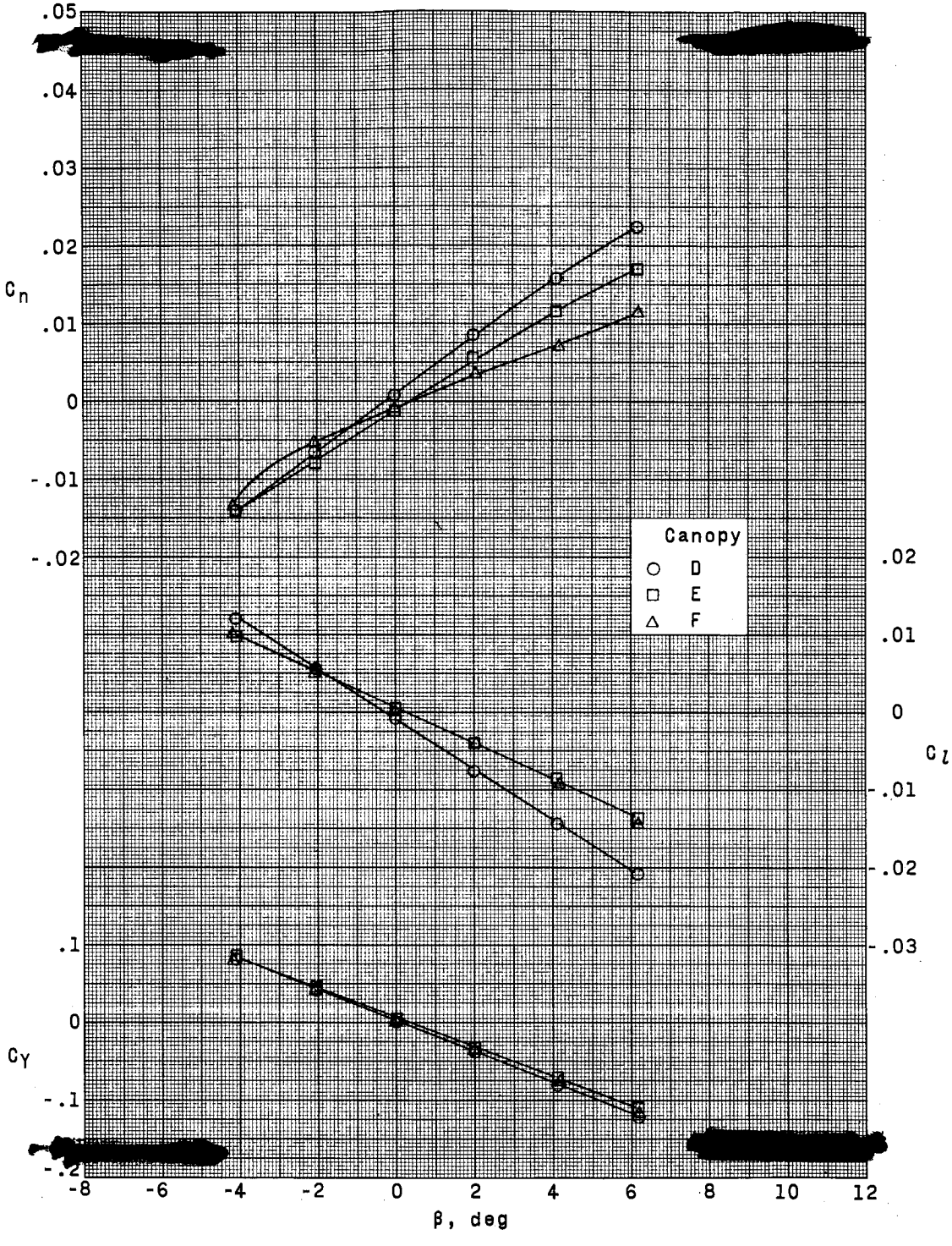
(f) M = 1.50; α = 34.8°.

Figure 46.- Continued.



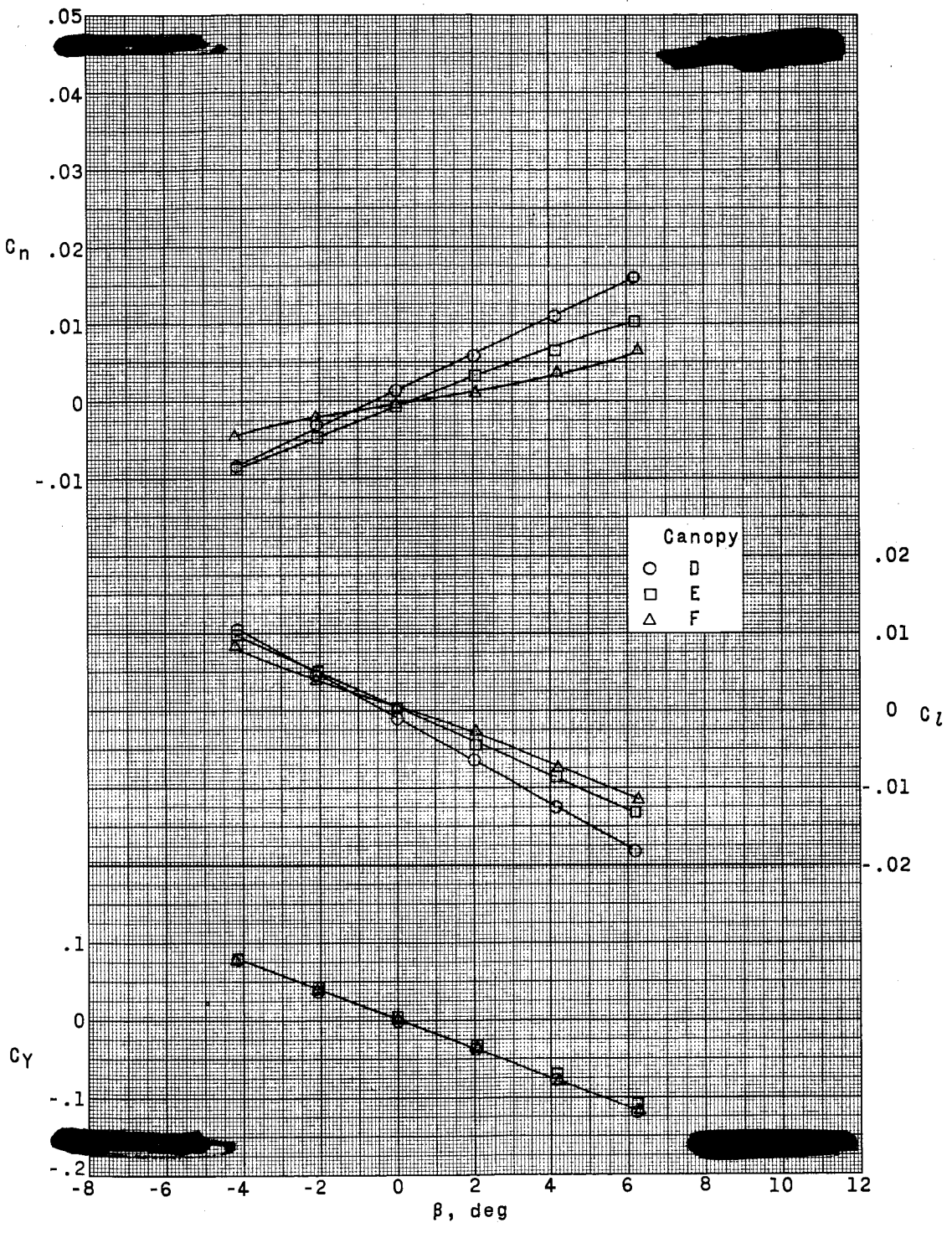
(g) M = 1.80; α = 0.2°.

Figure 46.- Continued.



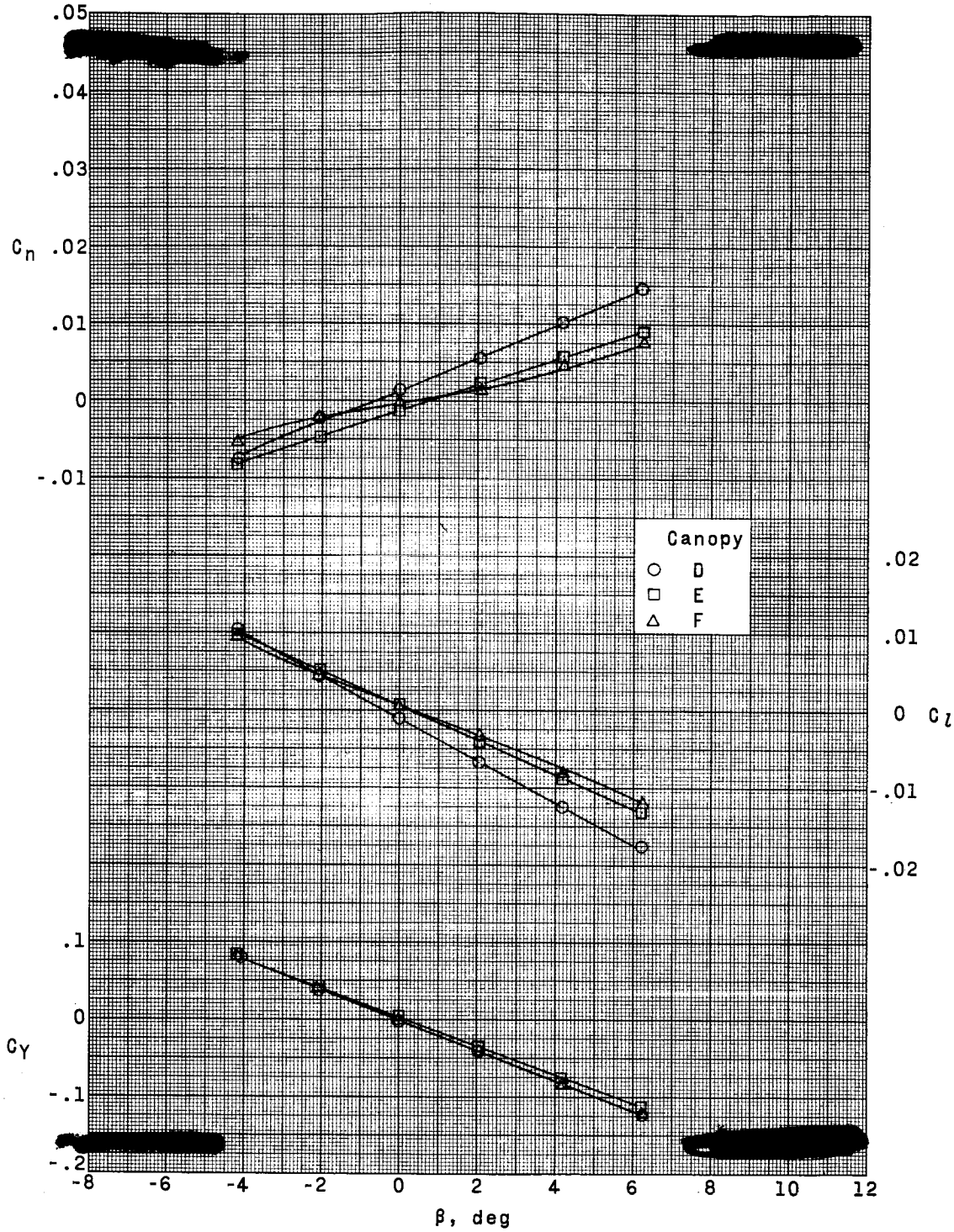
(h) M = 1.80; α = 8.9°.

Figure 46.- Continued.



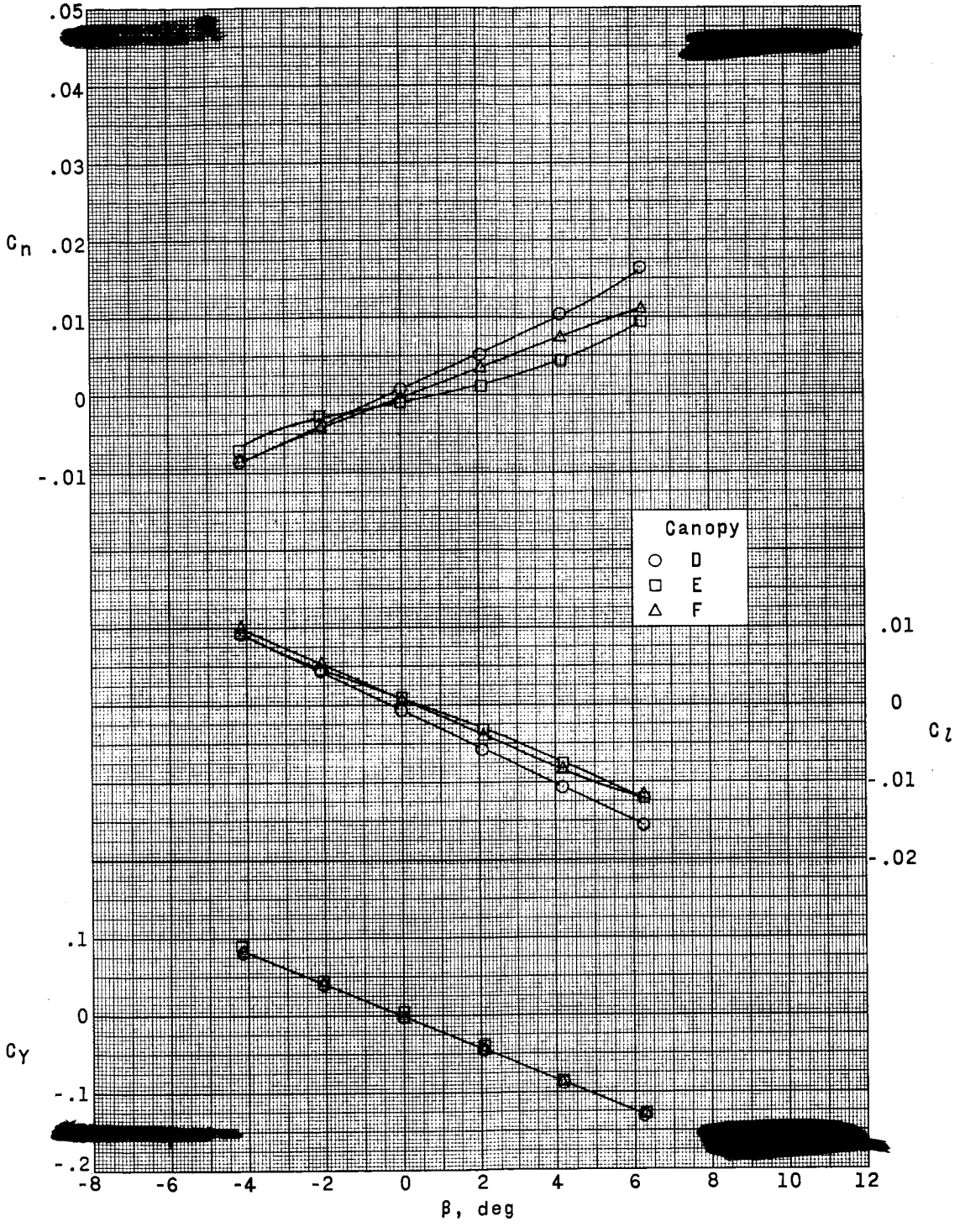
(i) M = 1.80; α = 17.6°.

Figure 46.- Continued.



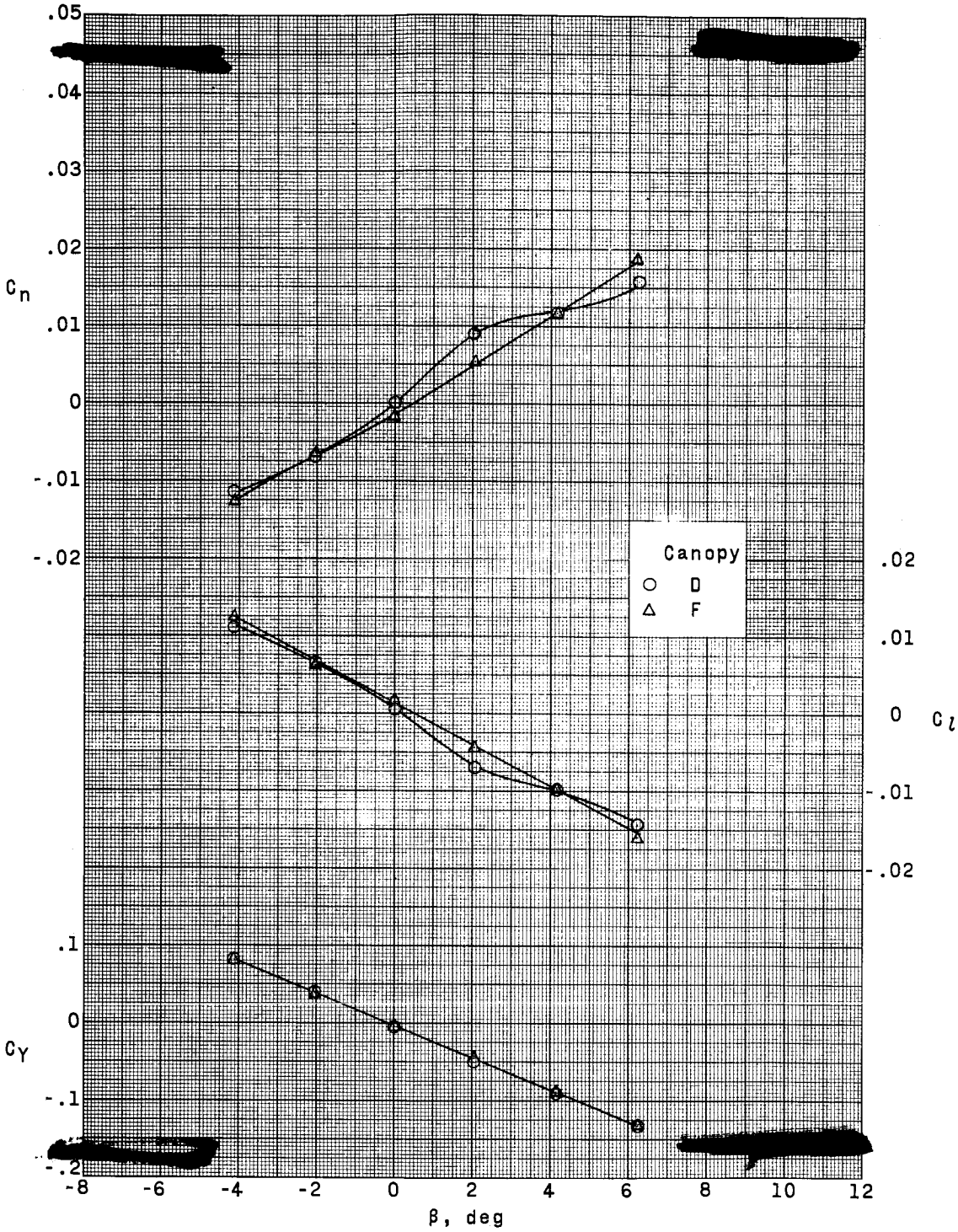
(j) M = 1.80; α = 22.1°.

Figure 46.- Continued.



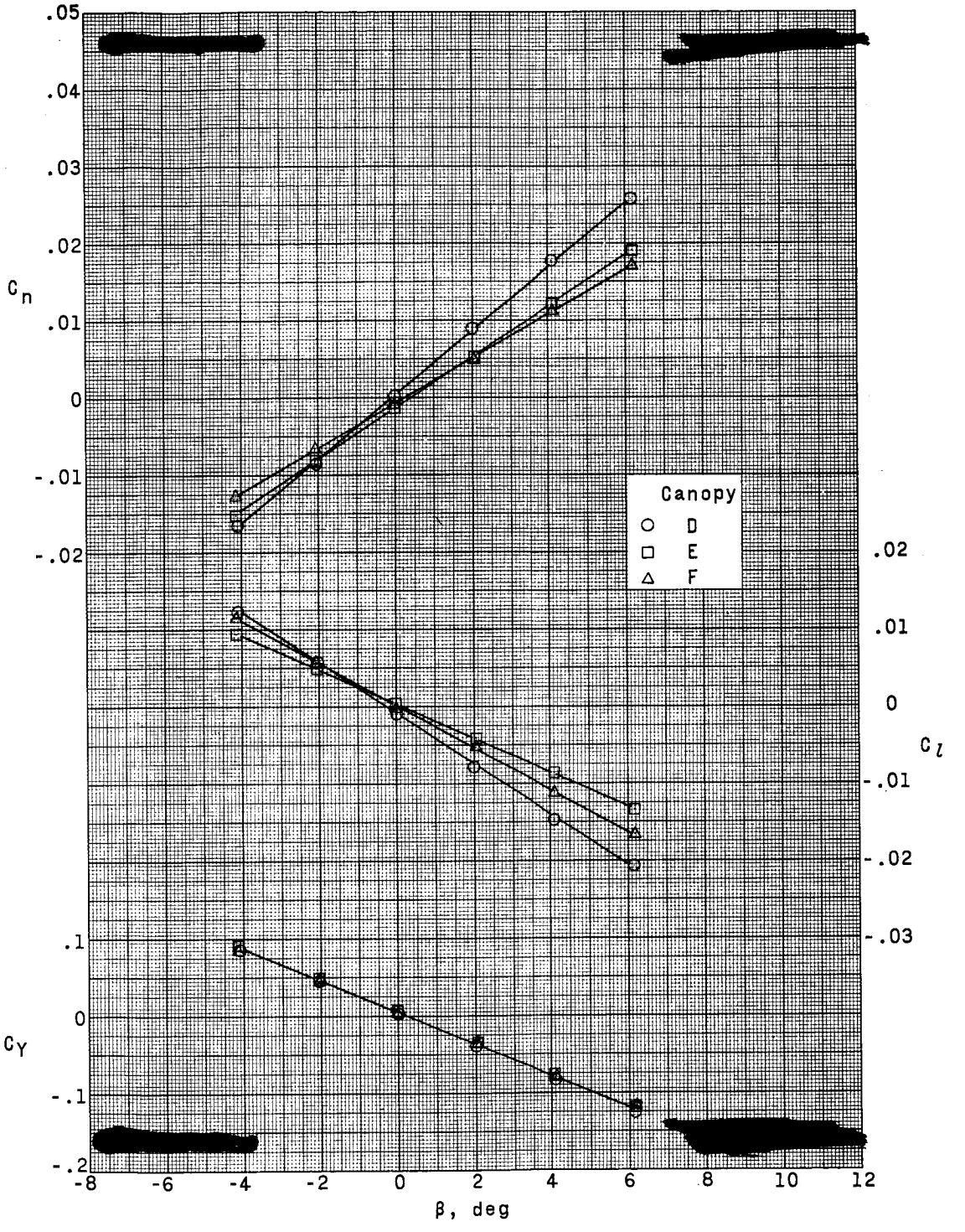
(k) M = 1.80; α = 30.7°.

Figure 46.- Continued.



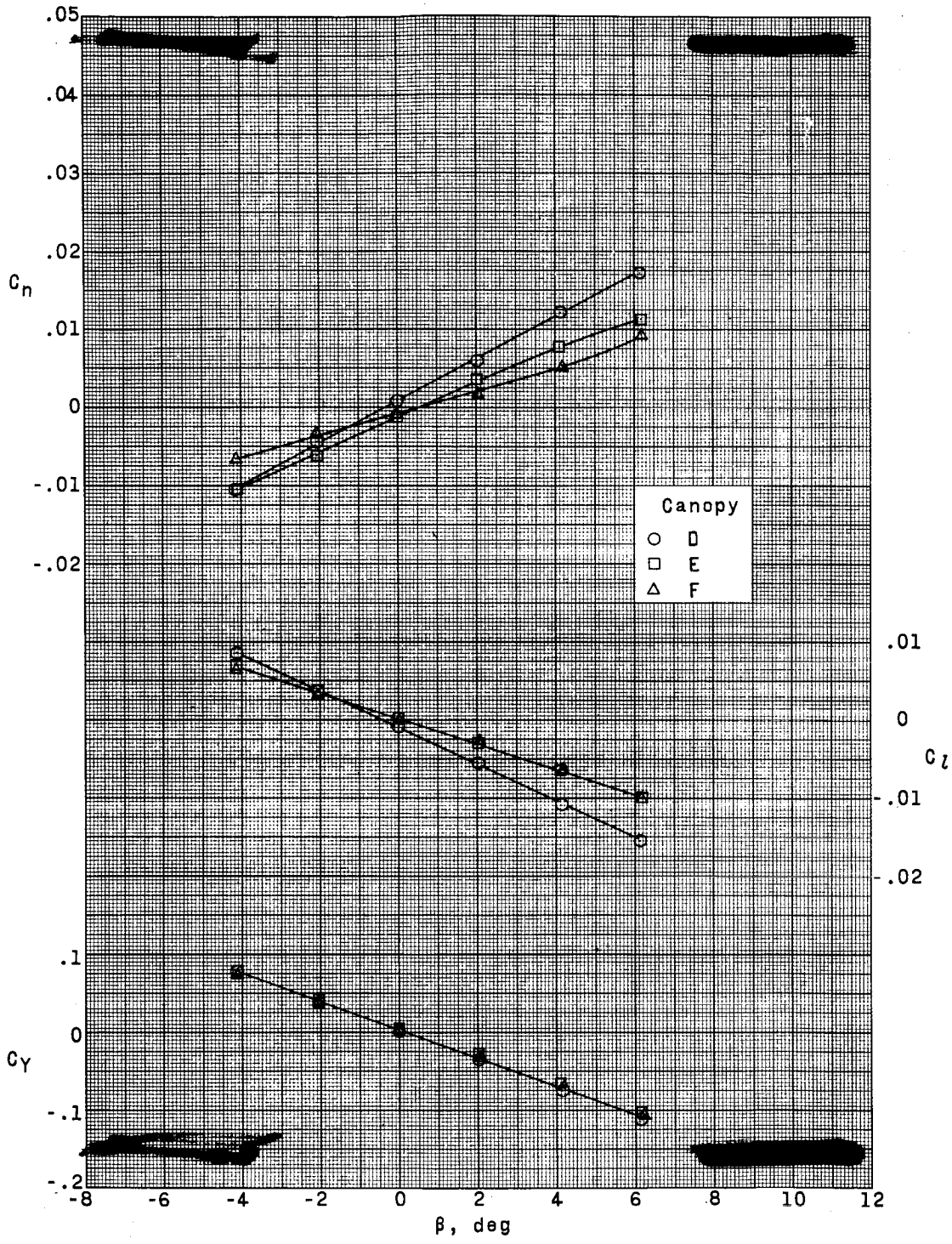
(l) M = 1.80; α = 39.1°.

Figure 46.- Continued.



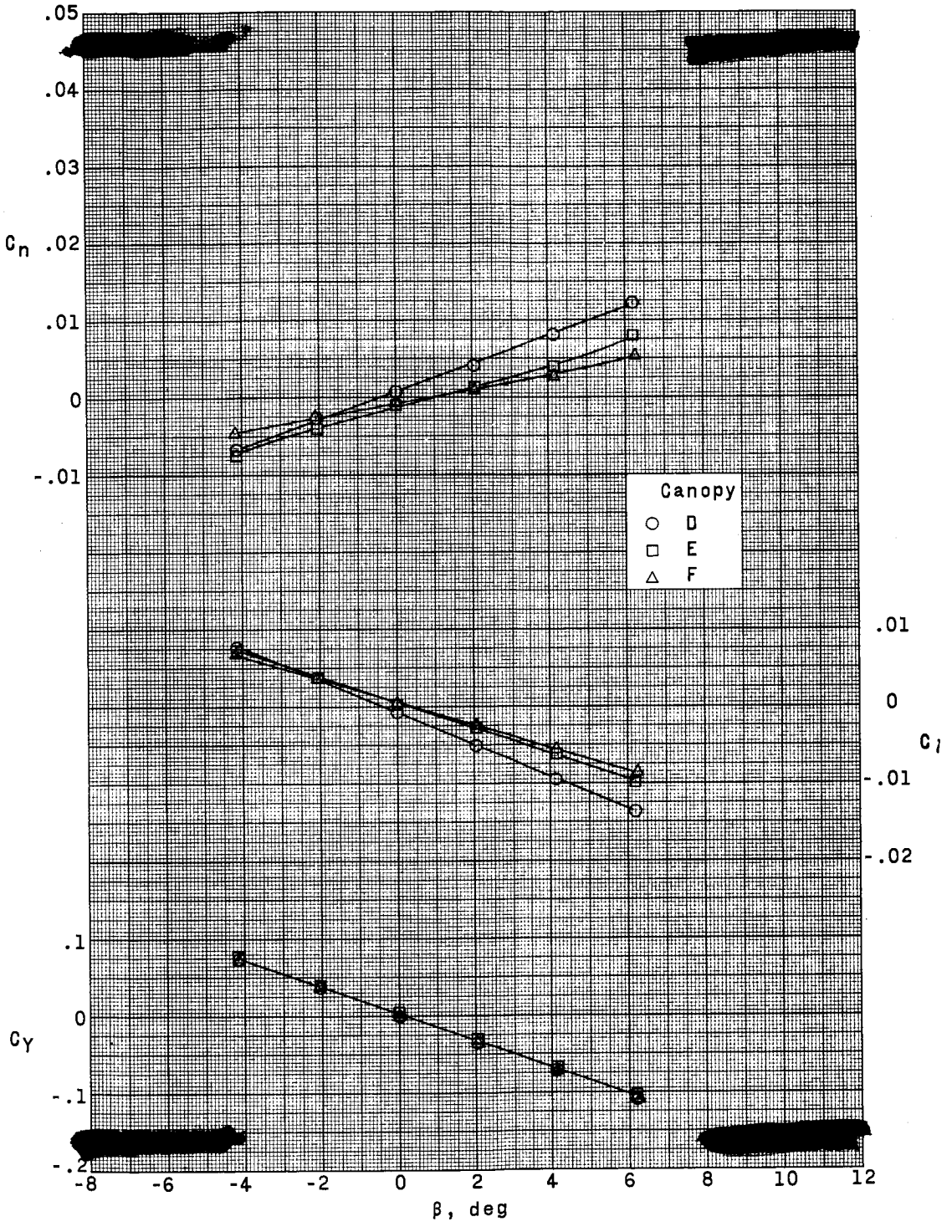
(m) M = 2.16; α = 1.2°.

Figure 46.- Continued.



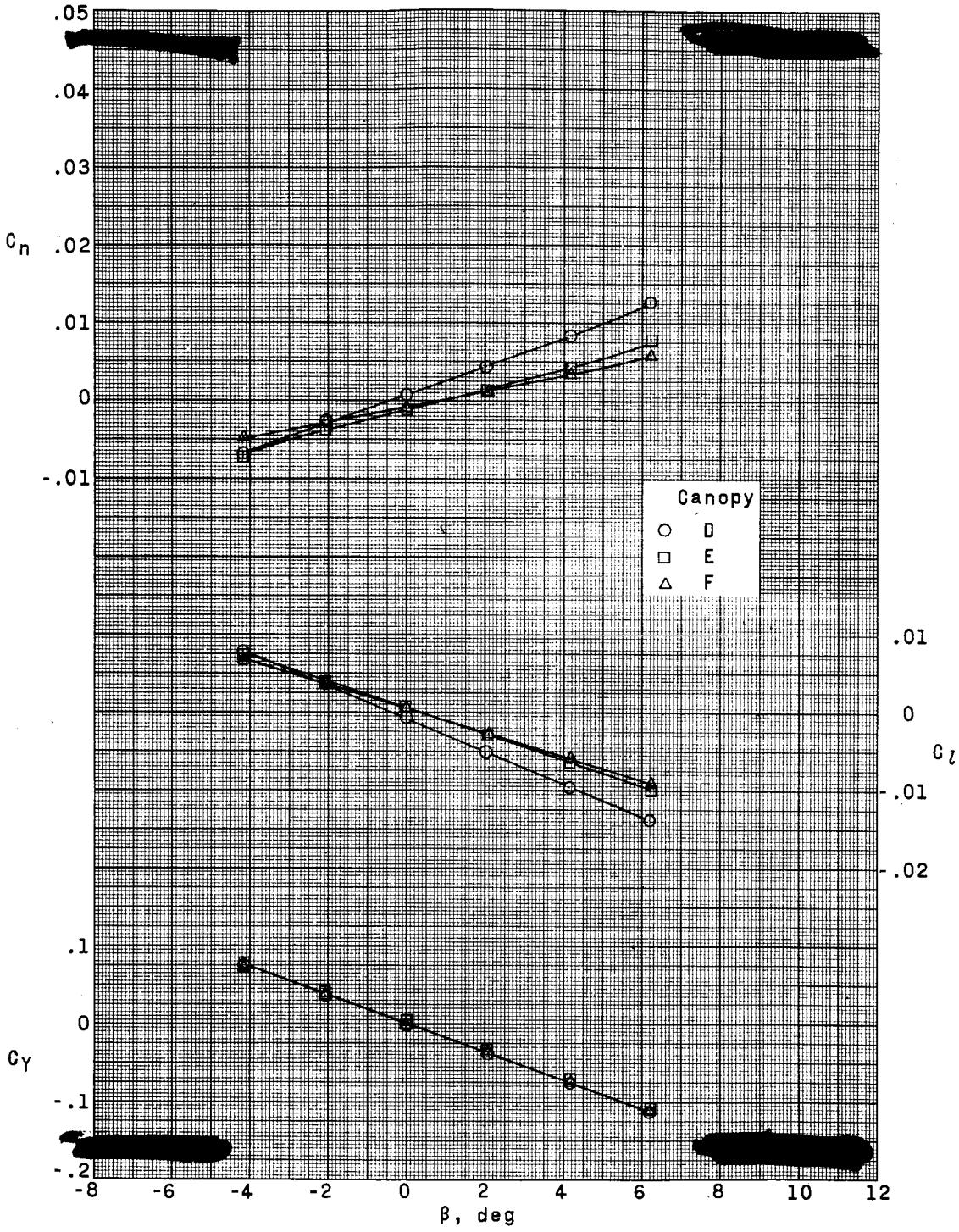
(n) M = 2.16; α = 9.8°.

Figure 46.- Continued.



(o) M = 2.16; α = 18.5°.

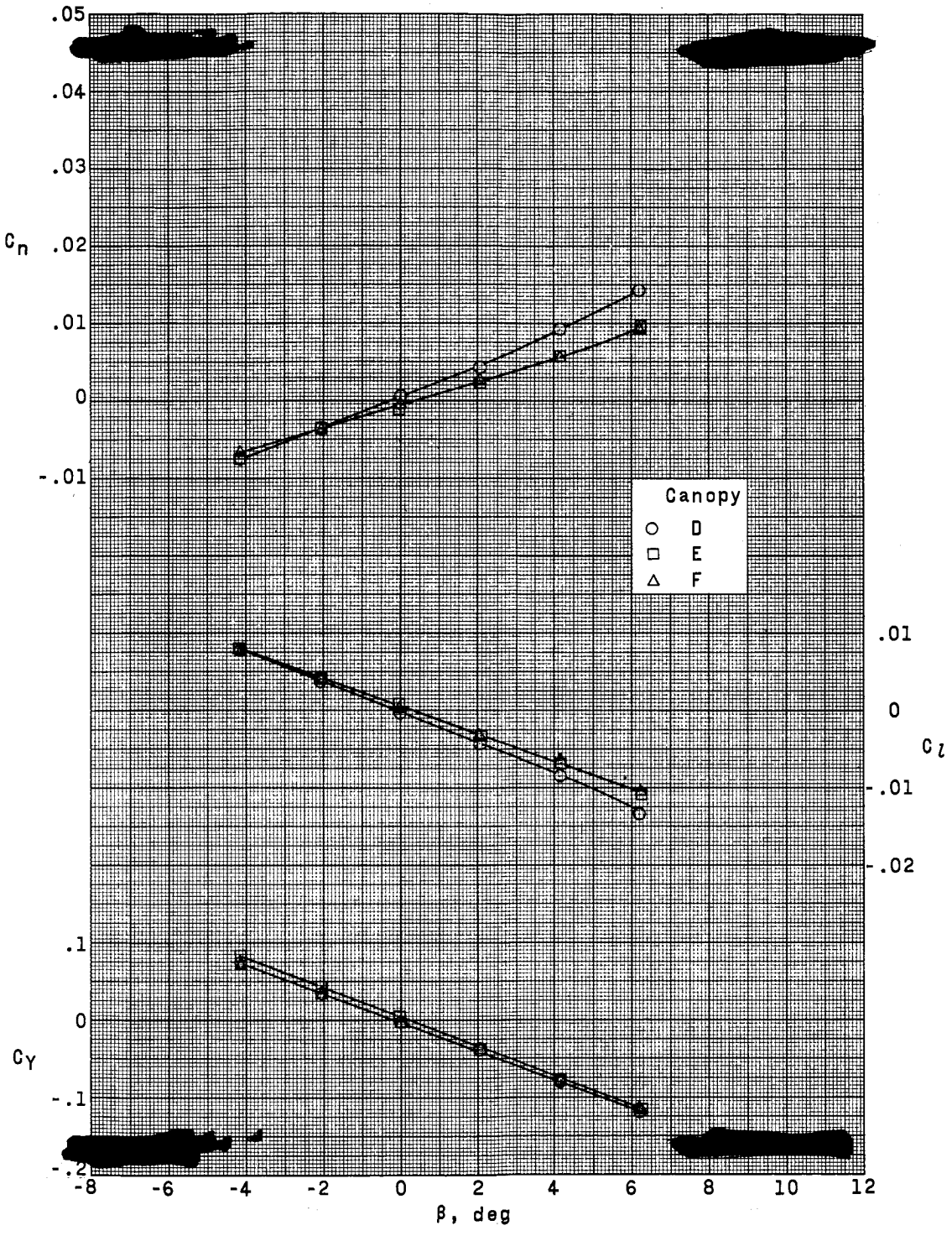
Figure 46.- Continued.



(p) M = 2.16; α = 22.9°.

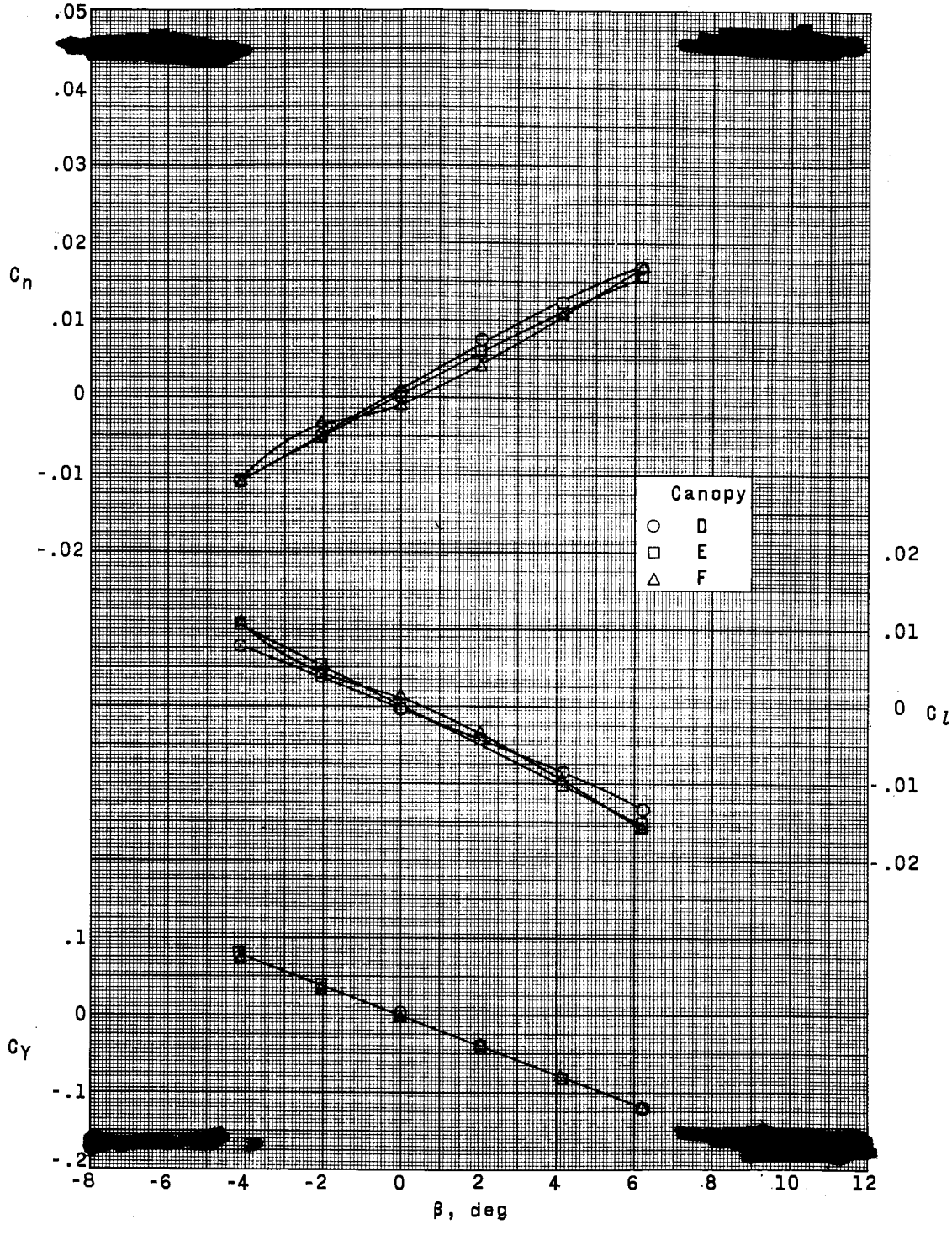
Figure 46.- Continued.

DECLASSIFIED



(q) M = 2.16; α = 31.5°.

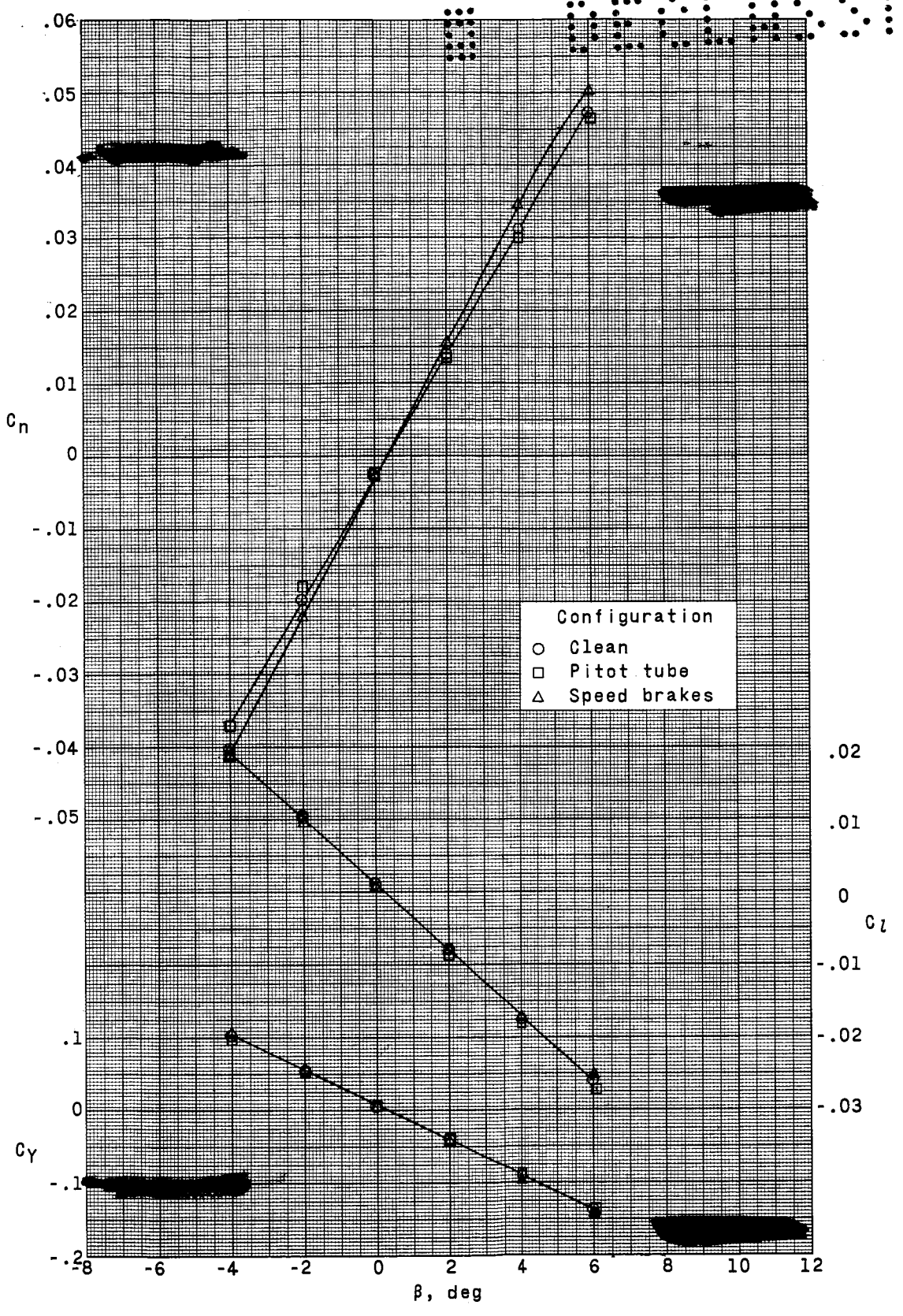
Figure 46.- Continued.



(r) M = 2.16; α = 39.9°.

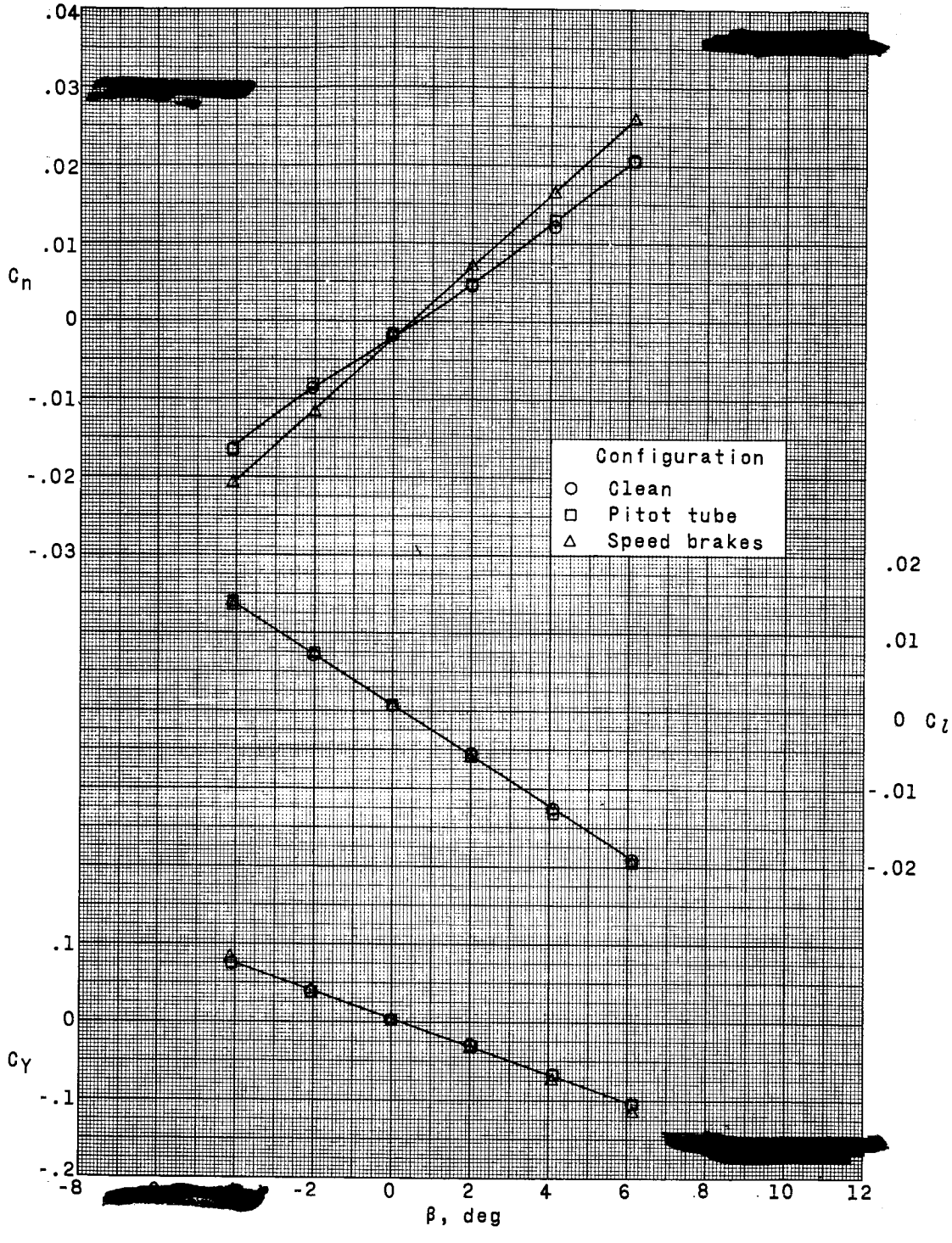
Figure 46.- Concluded.

DECLASSIFIED



(a) $M = 1.50$; $\alpha = 0^0$.

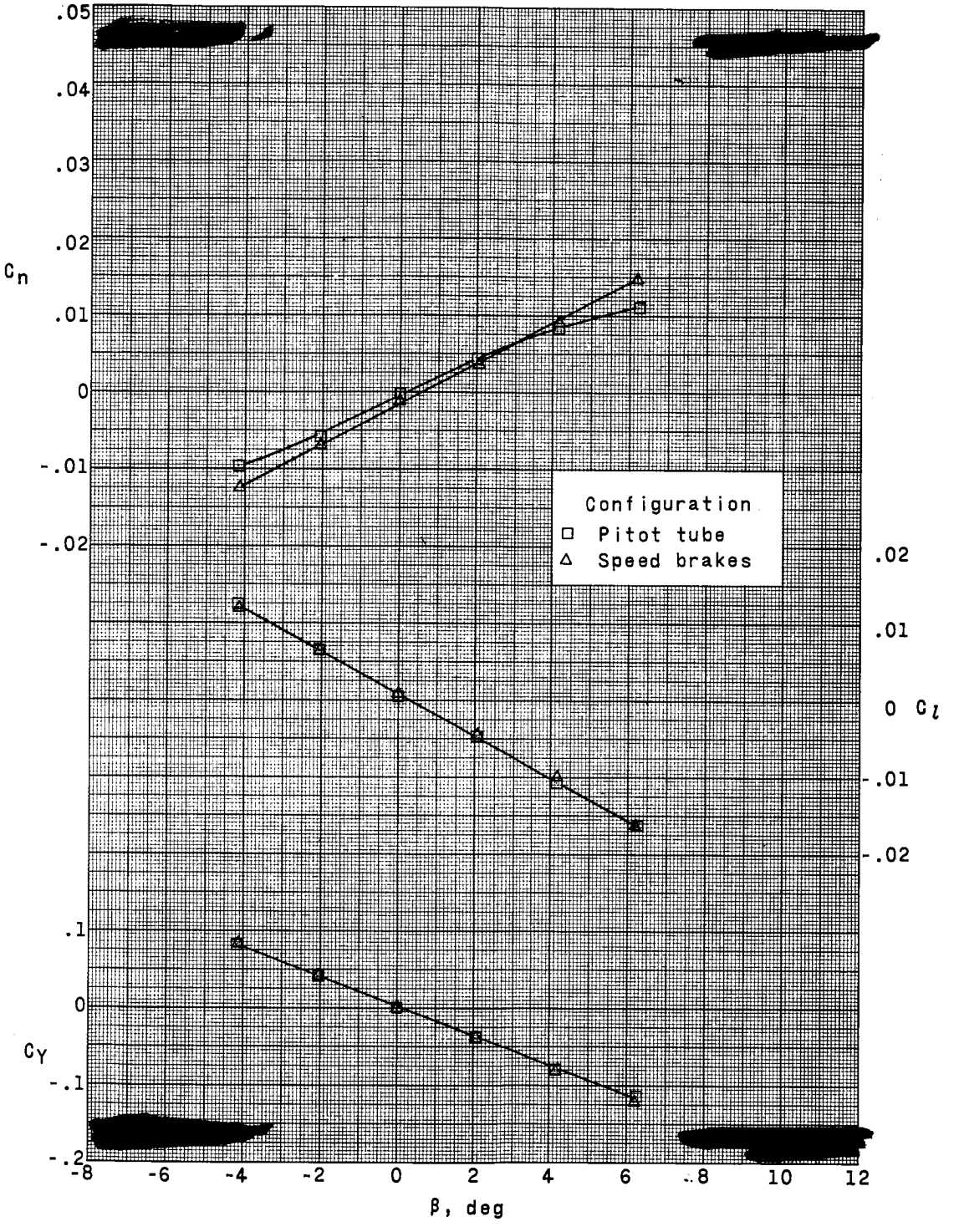
Figure 47.- Effect of pitot tube and speed brakes on aerodynamic characteristics in sideslip. V_2; $\delta_e = \delta_a = \delta_r = 0^0$.



(b) M = 1.50. α = 9.6°.

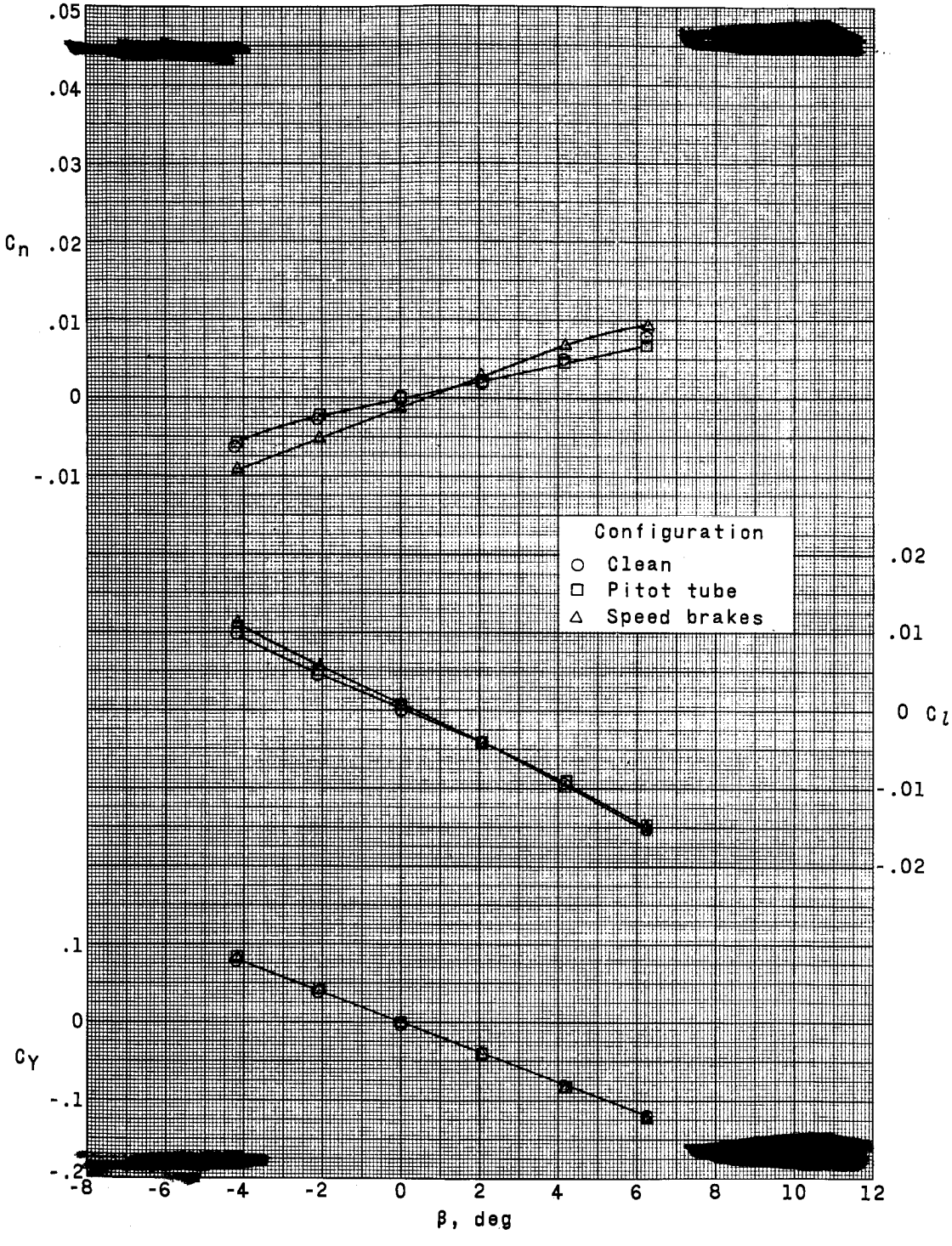
Figure 47.- Continued.

DECLASSIFIED



(c) M = 1.50; α = 17.6°.

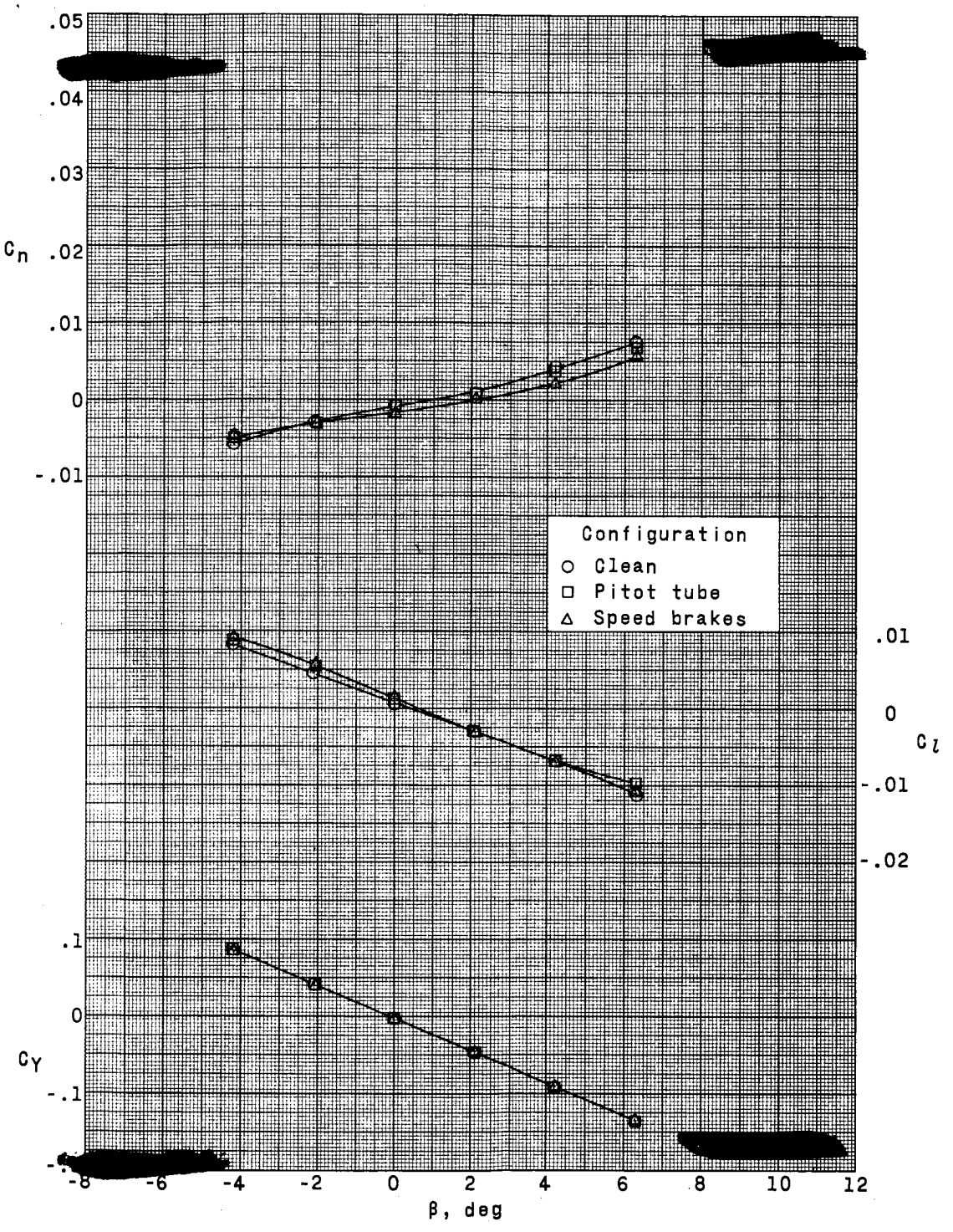
Figure 47.- Continued.



(d) M = 1.50; α = 21.9°.

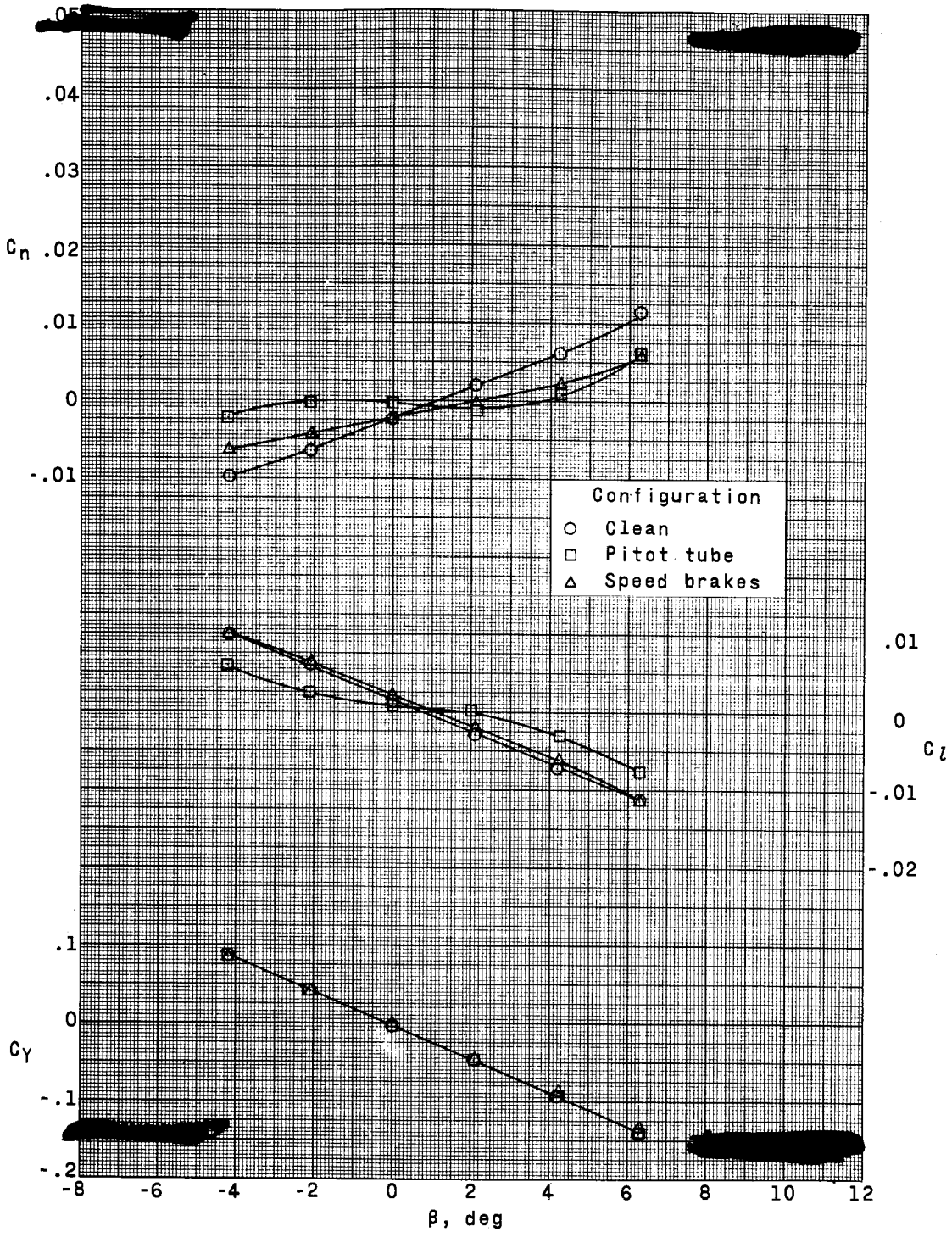
Figure 47.- Continued.

DECLASSIFIED



(e) M = 1.50; α = 30.6°.

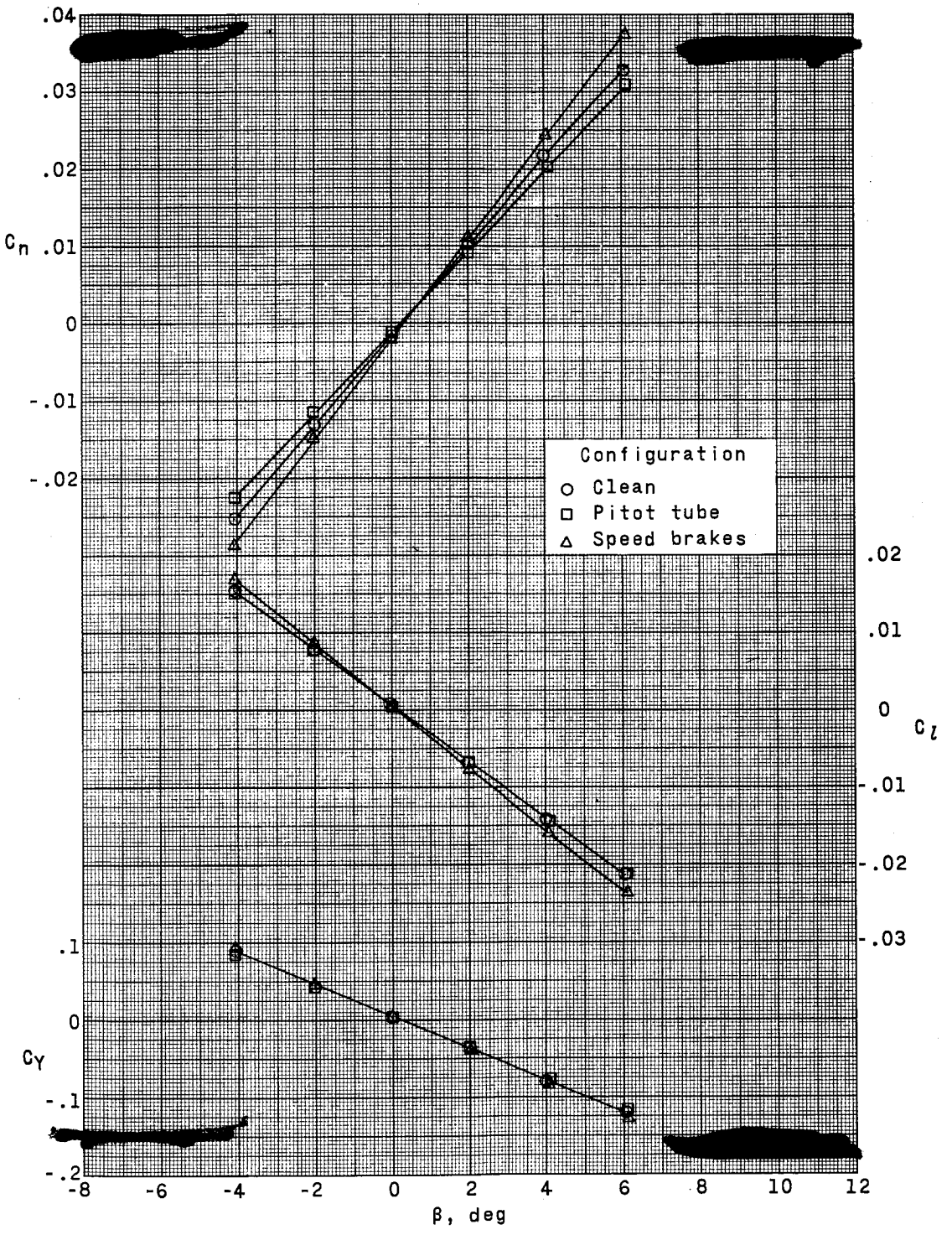
Figure 47.- Continued.



(f) M = 1.50; α = 34.9°.

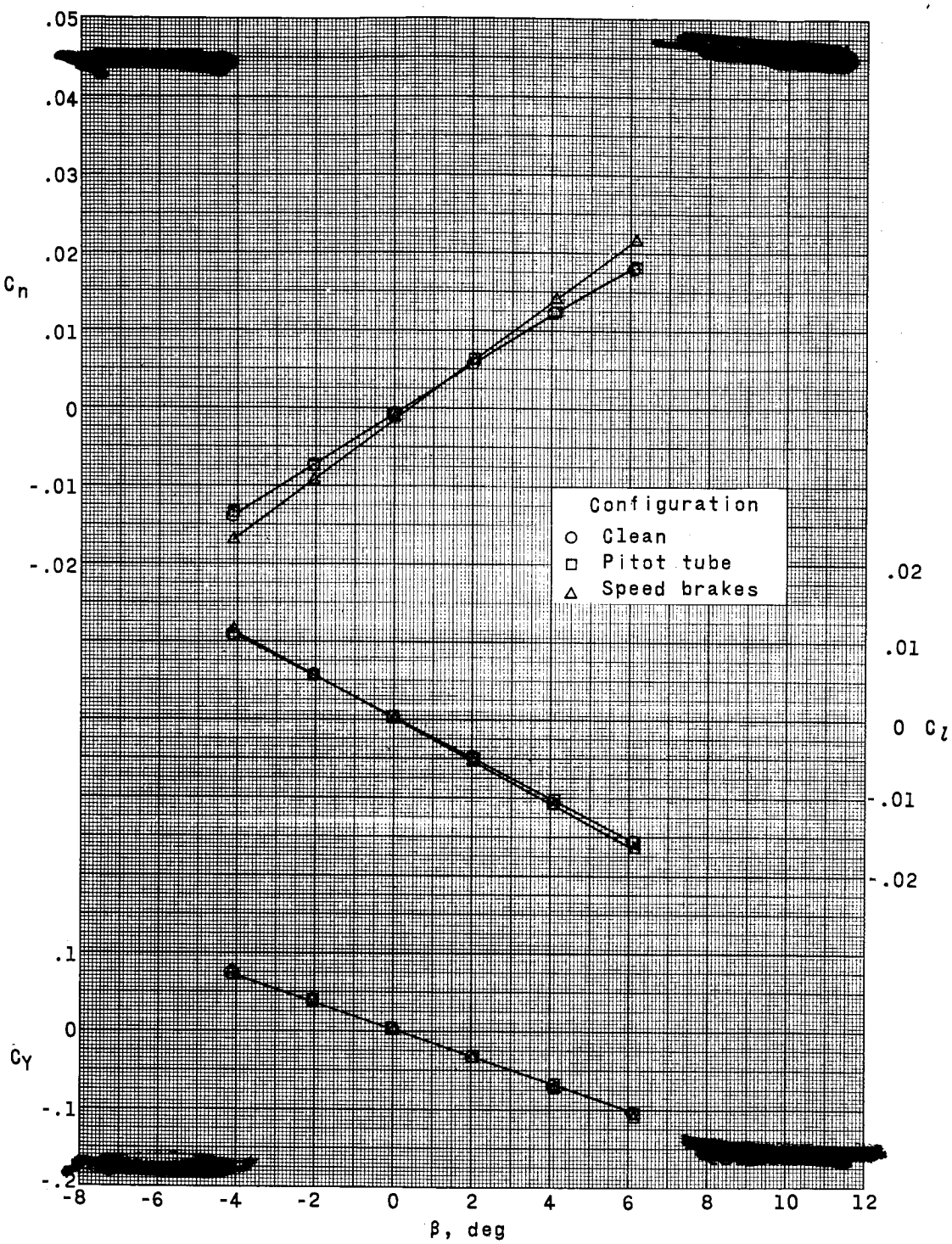
Figure 47.- Continued.

DECLASSIFIED



(g) M = 1.80; α = 0.3°.

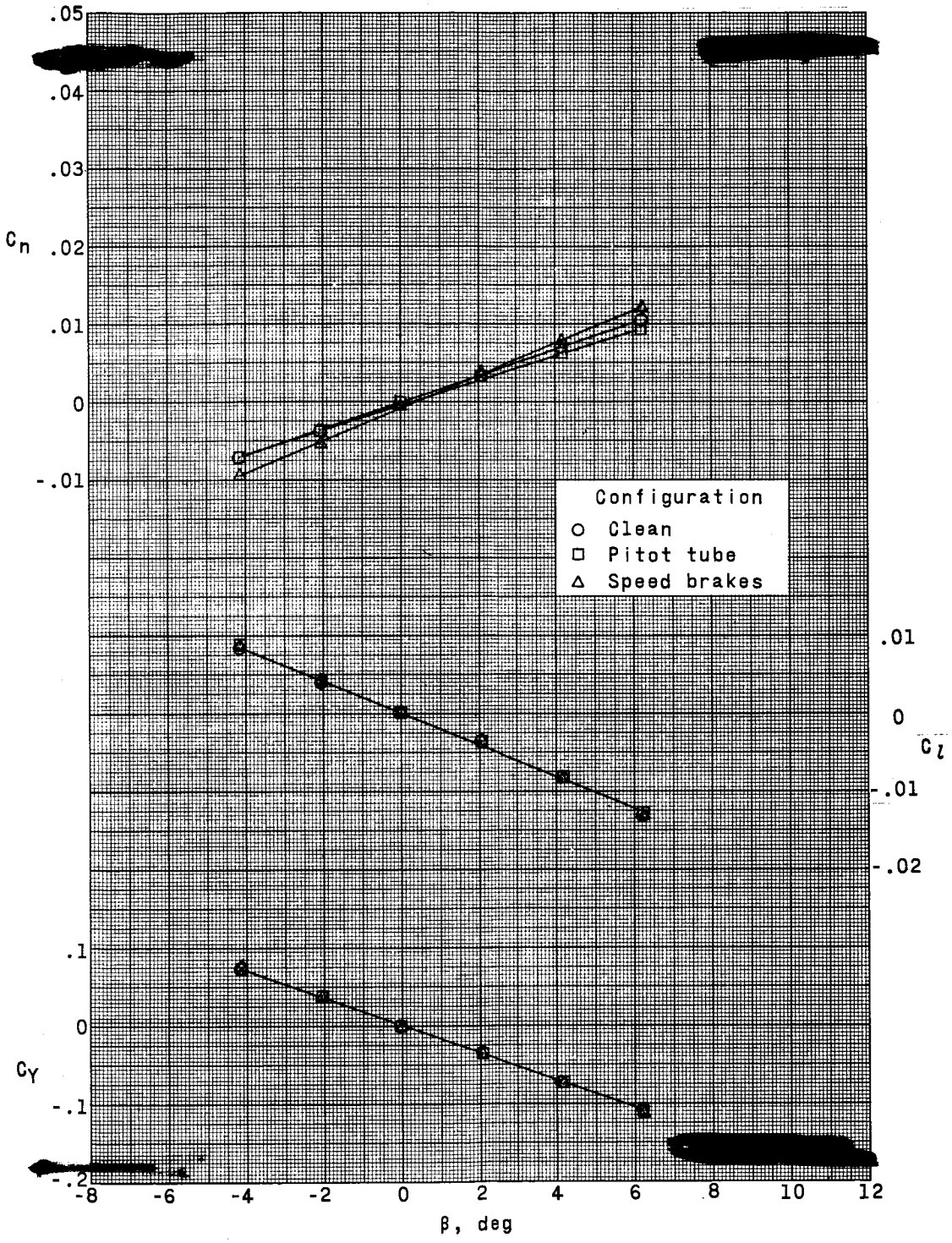
Figure 47.- Continued.



(h) M = 1.80; α = 9.0°.

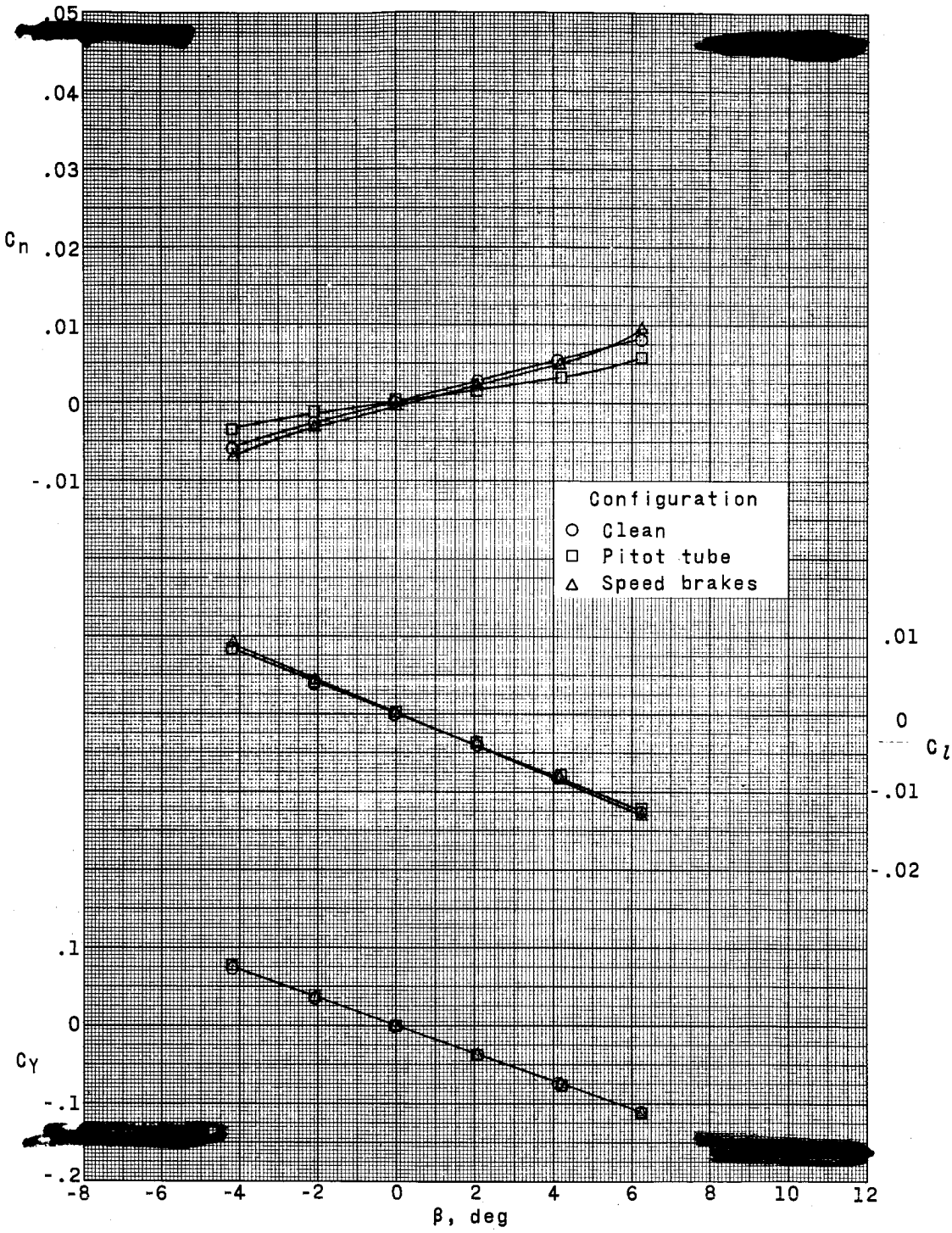
Figure 47.- Continued.

DECLASSIFIED



(i) M = 1.80; α = 17.7°.

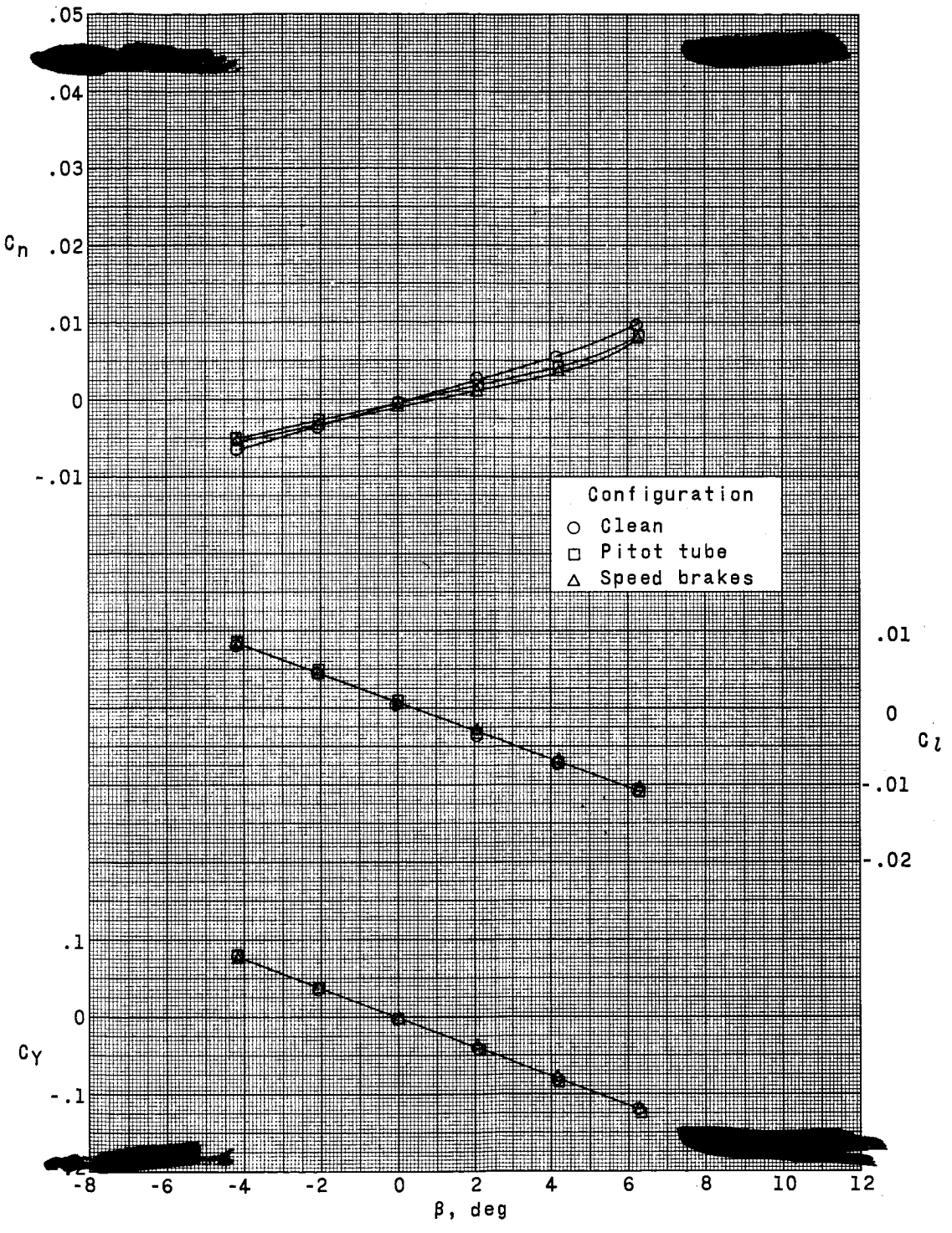
Figure 47.- Continued.



(j) M = 1.80; α = 22.1°.

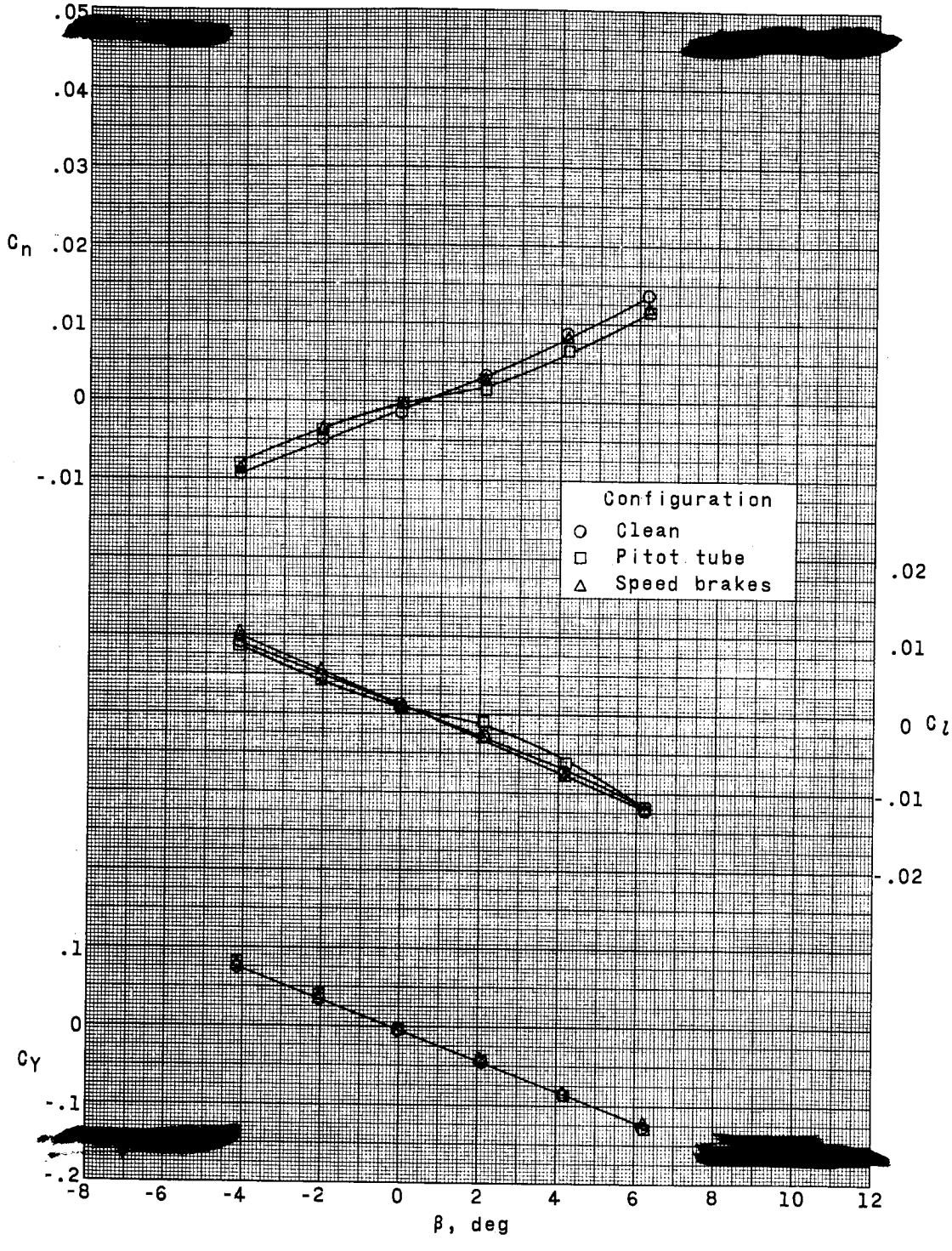
Figure 47.- Continued.

DECLASSIFIED



(k) M = 1.80; α = 30.8°.

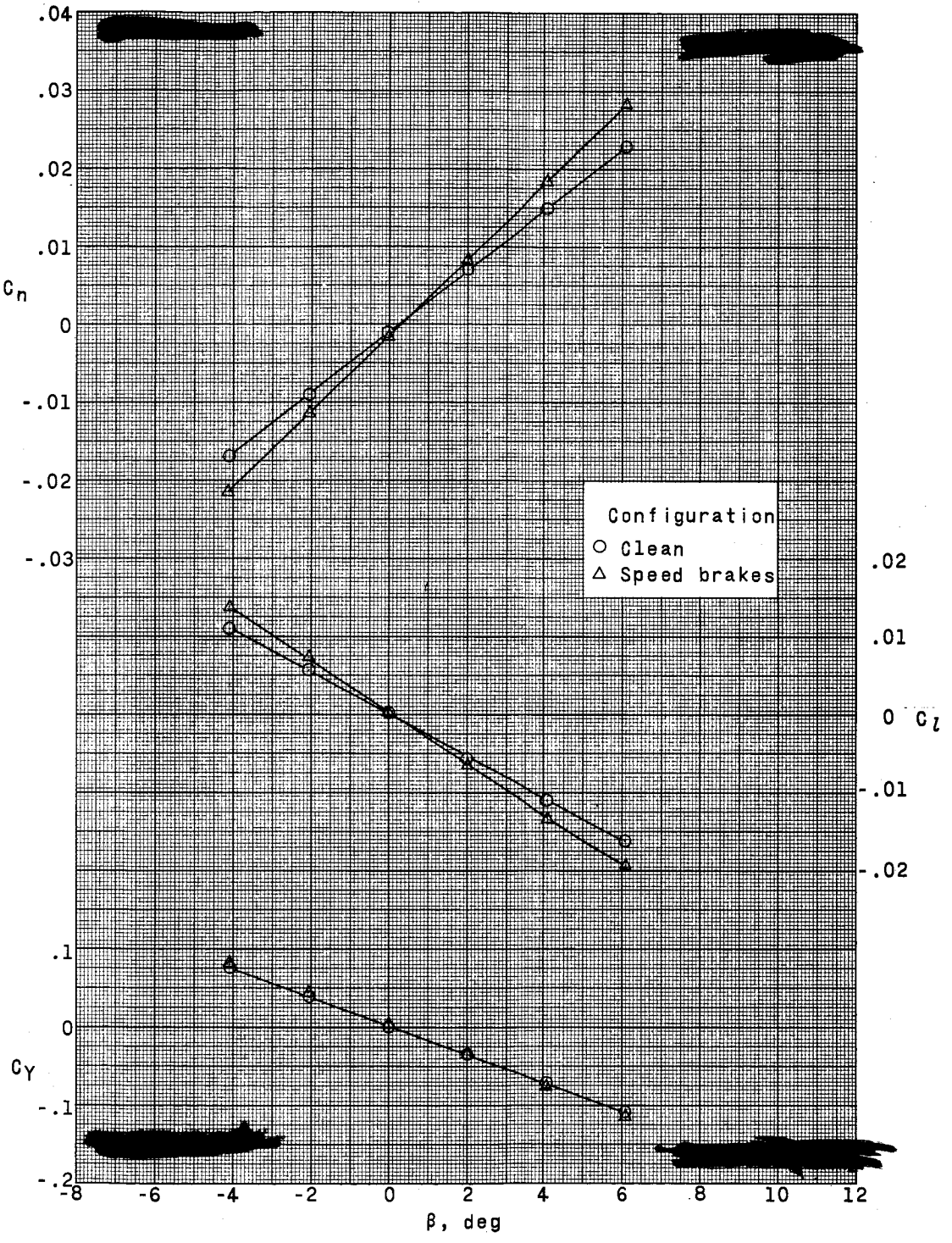
Figure 47.- Continued.



(l) M = 1.80; α = 39.2°.

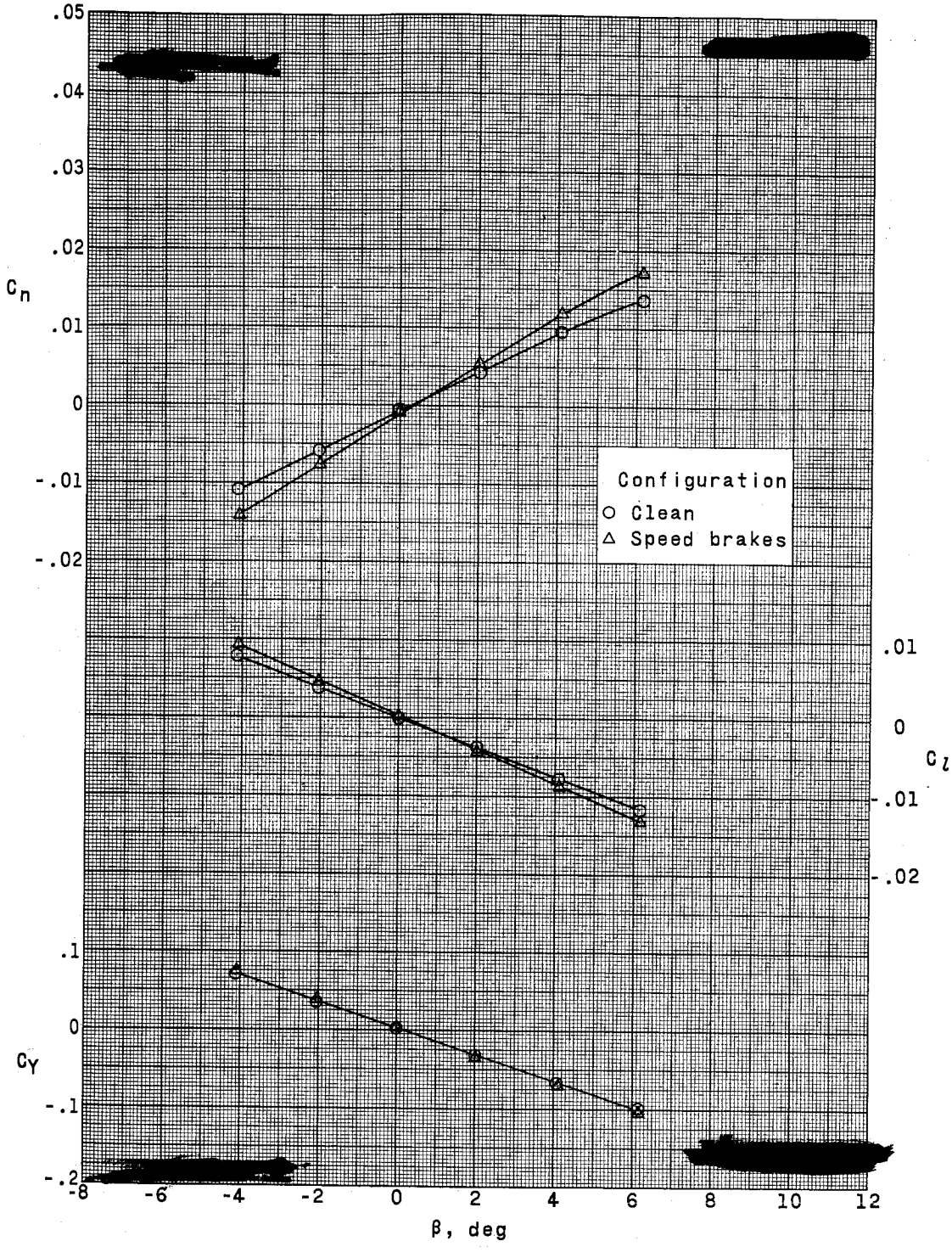
Figure 47.- Continued.

DECLASSIFIED



(m) M = 2.16; α = 1.2°.

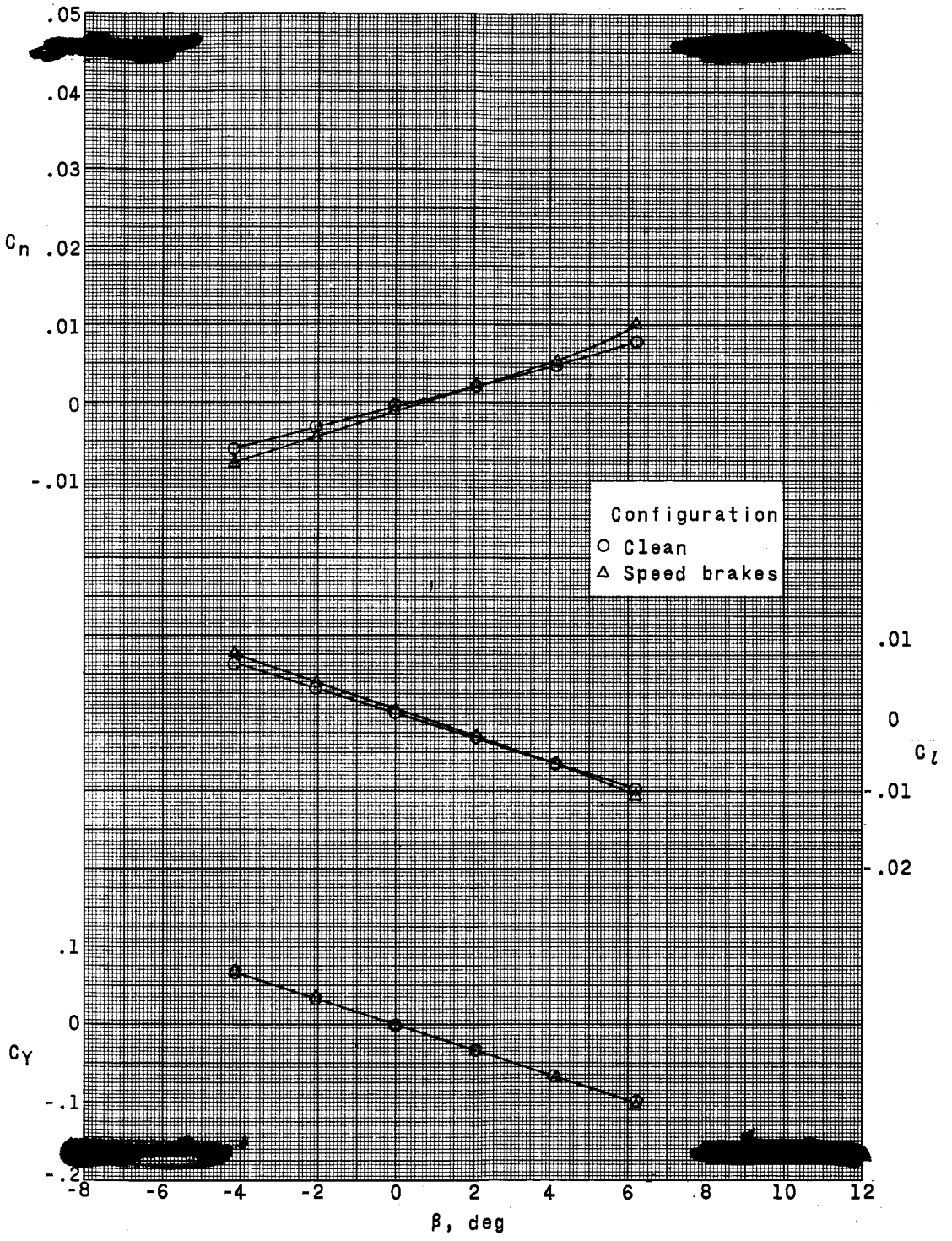
Figure 47.- Continued.



(n) M = 2.16; α = 9.8°.

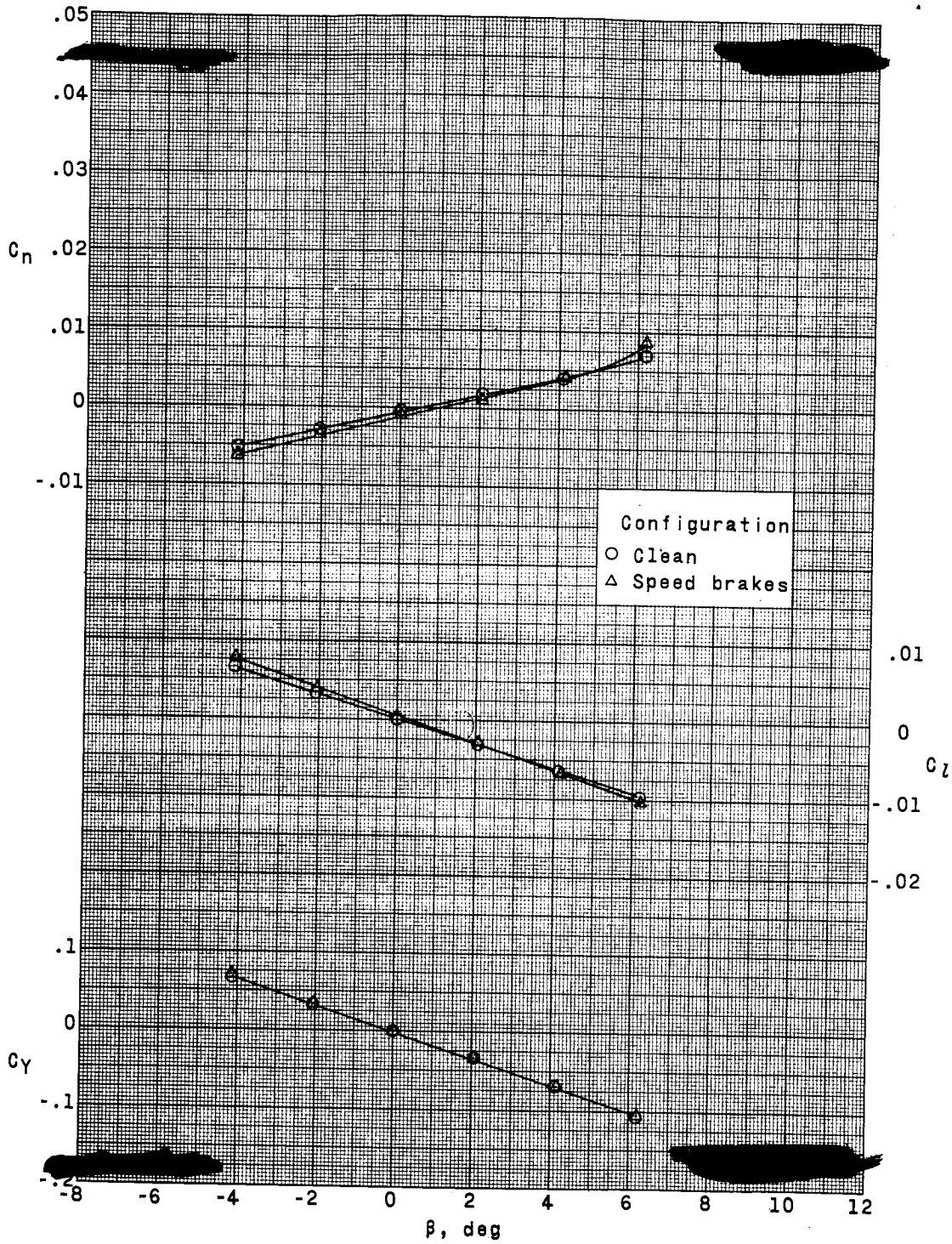
Figure 47.- Continued.

DECLASSIFIED



(o) M = 2.16; α = 18.5°.

Figure 47.- Continued.



(p) M = 2.16; α = 22.9°.

Figure 47.- Continued.

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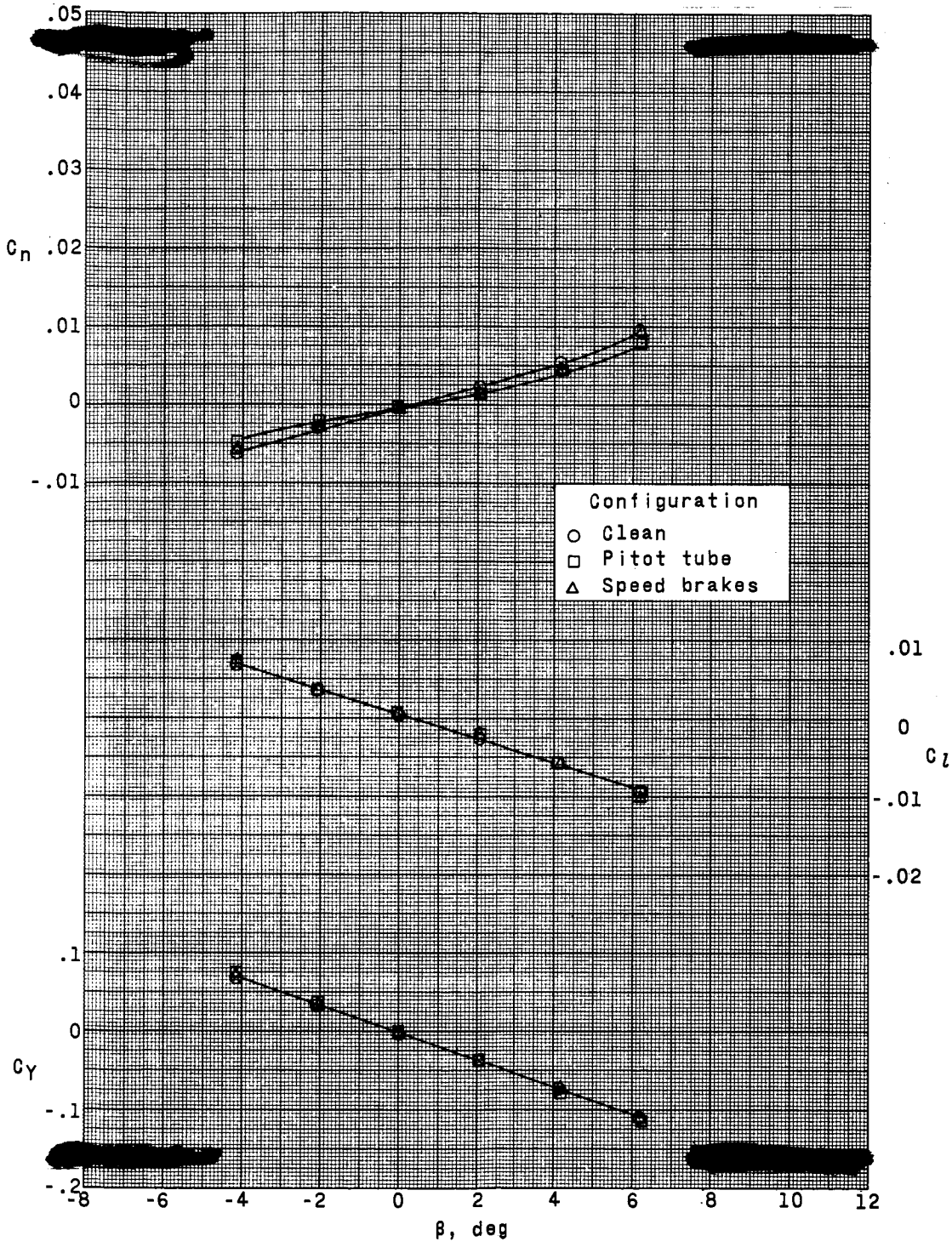
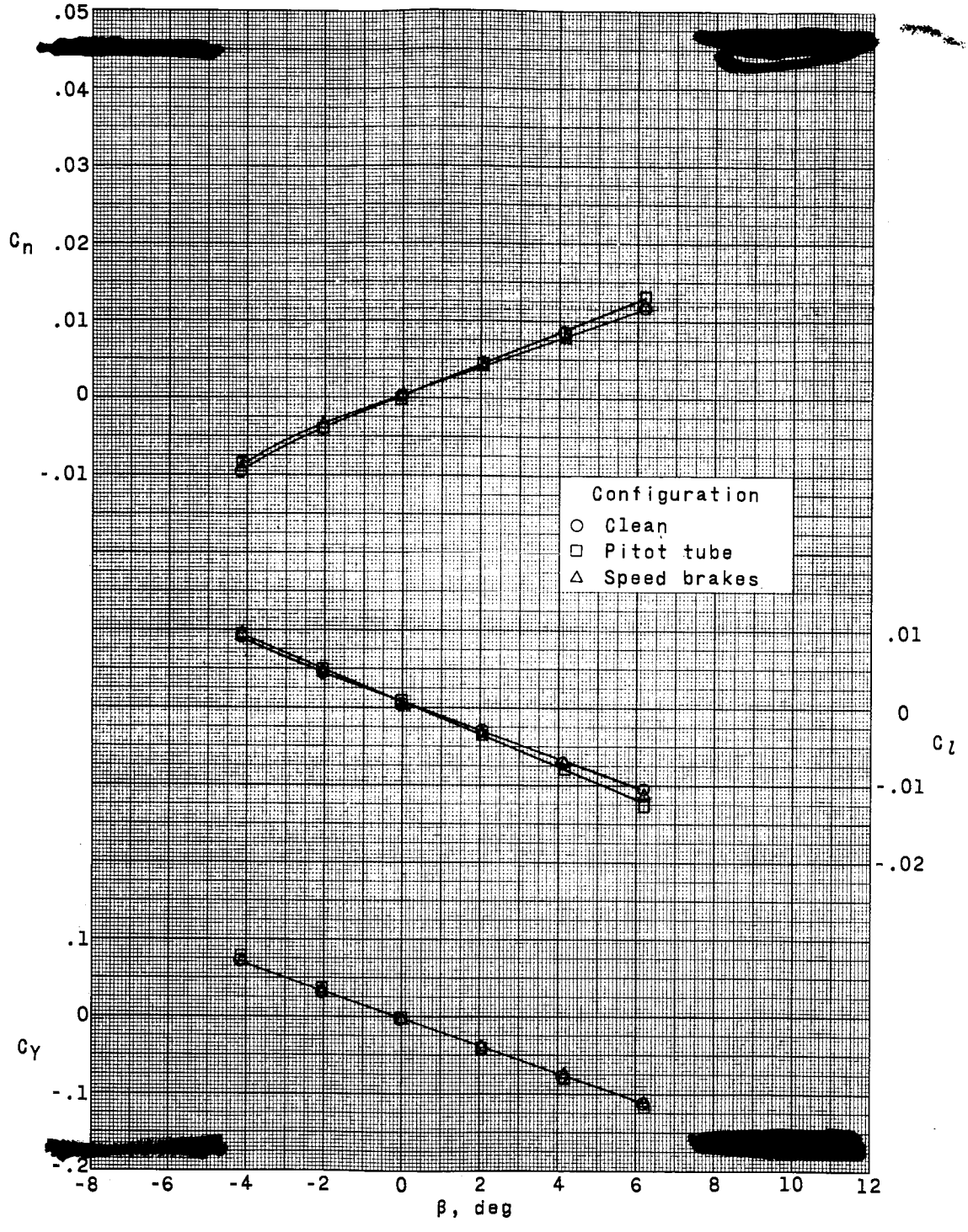


(q) M = 2.16; α = 31.6°.

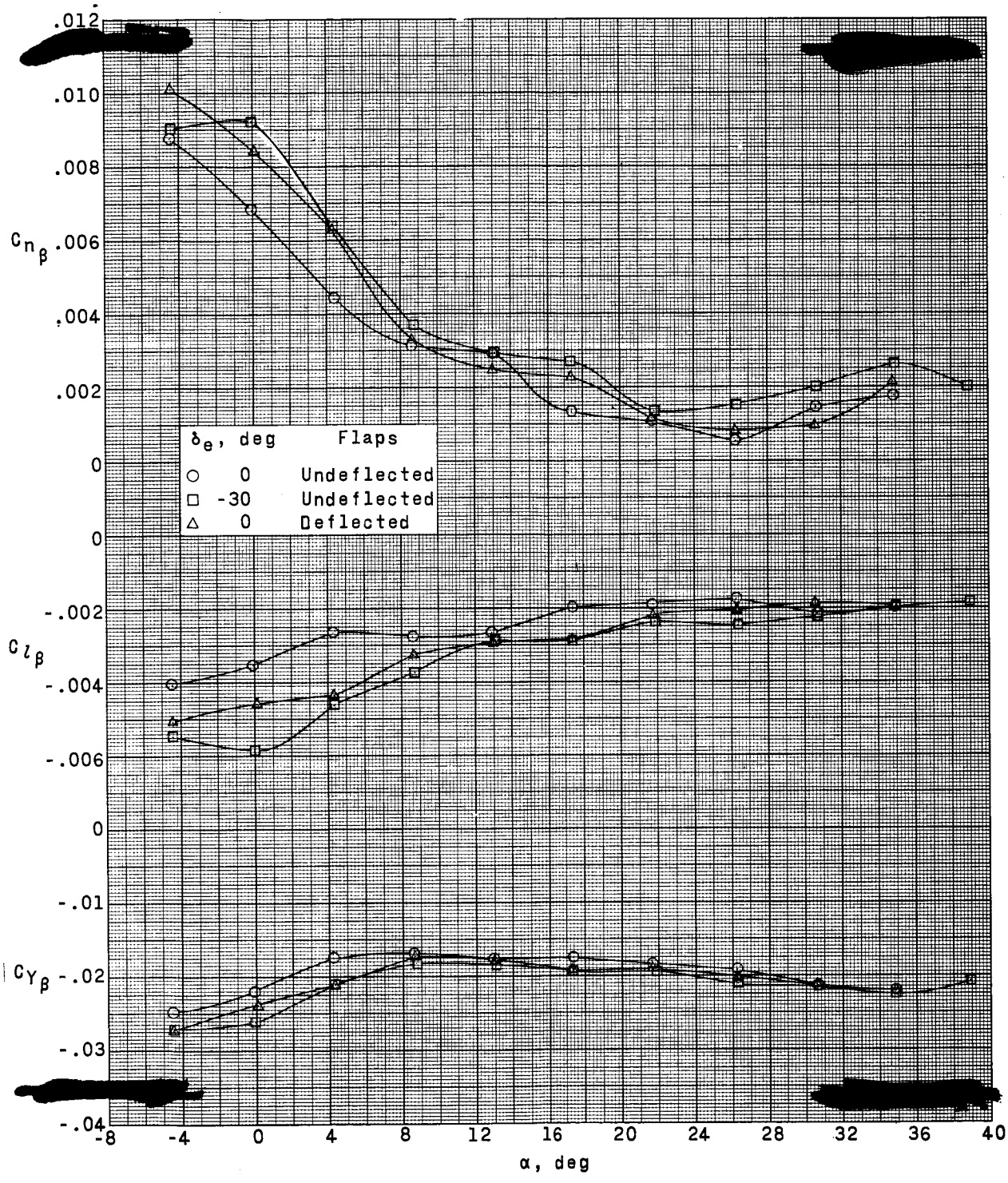
Figure 47.- Continued.



(r) M = 2.16; α = 39.9°.

Figure 47.- Concluded.

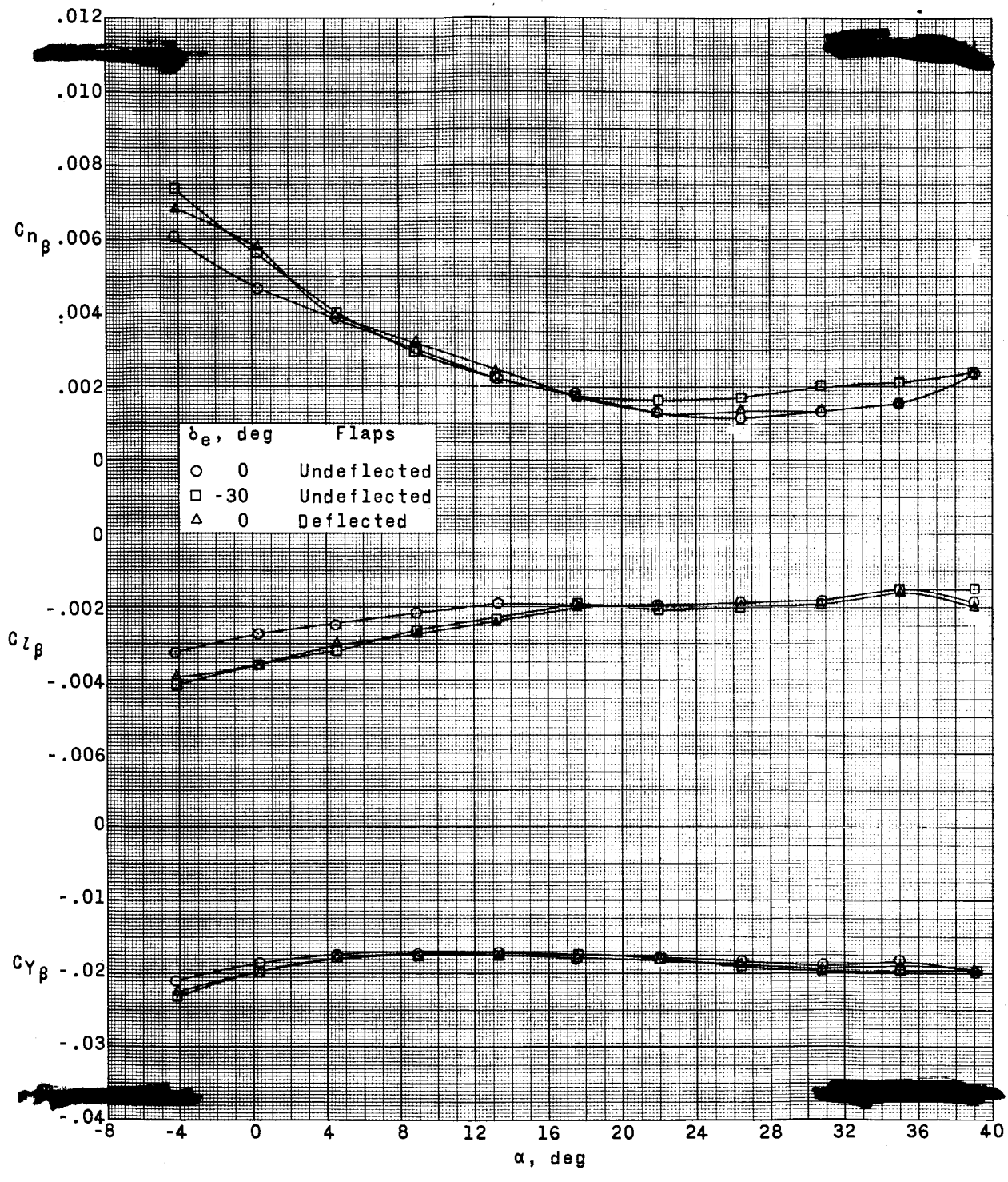
DECLASSIFIED



(a) M = 1.50.

Figure 48.- Effect of elevon and tip-fin flaps on lateral parameters. V_1; $\delta_a = \delta_r = 0^0$.

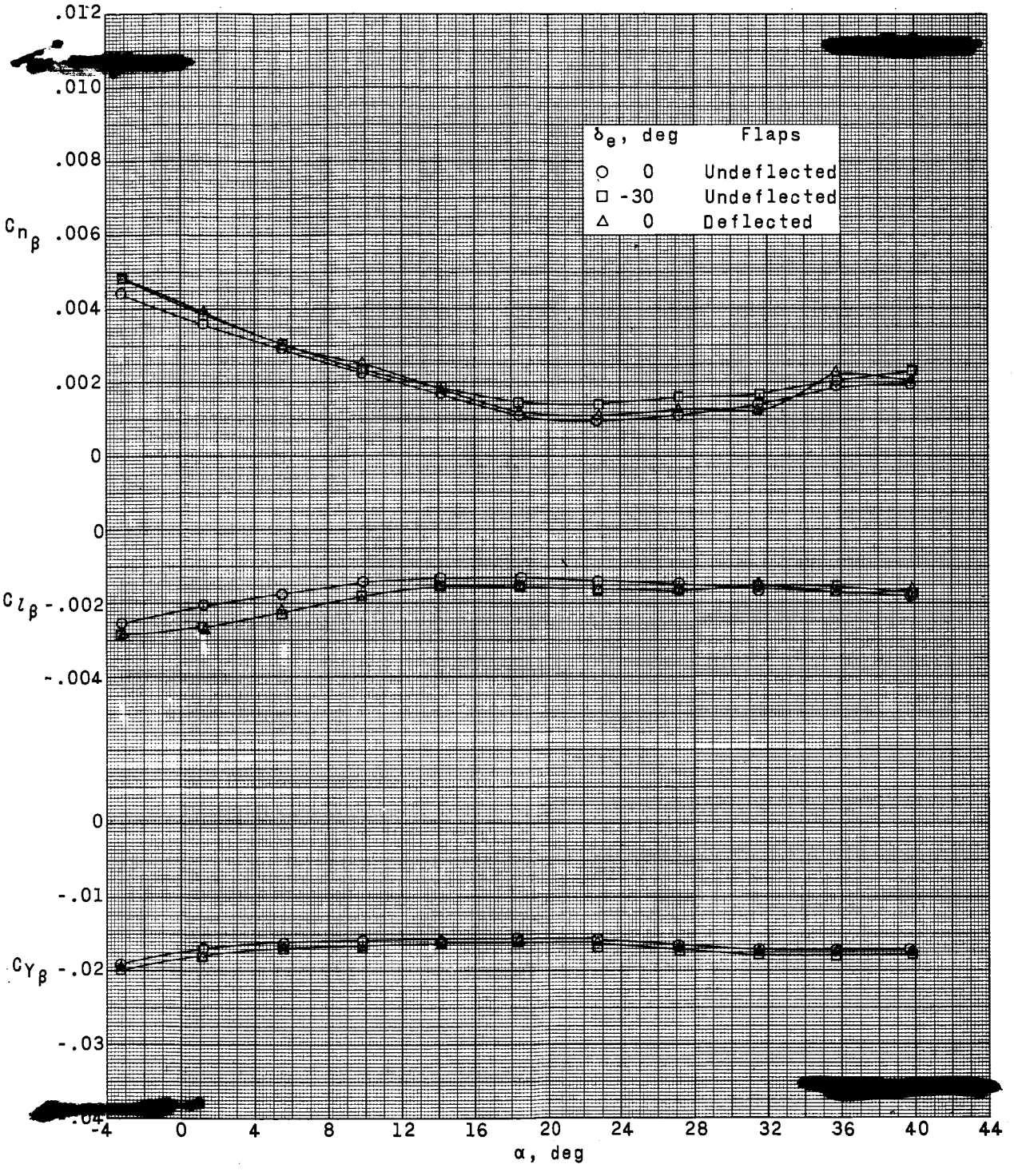
DECLASSIFIED



(b) M = 1.80.

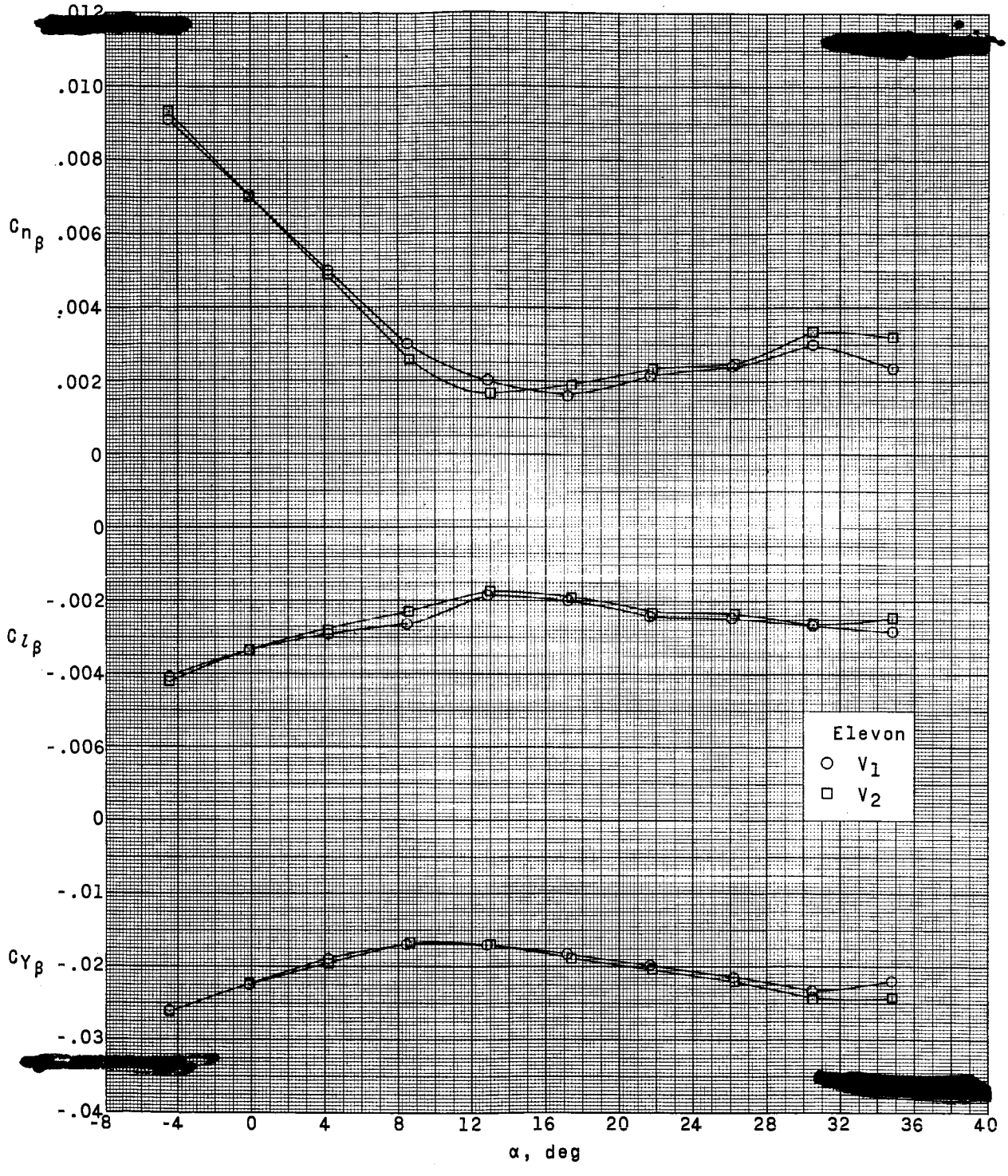
Figure 48.- Continued.

DECLASSIFIED



(c) M = 2.16.

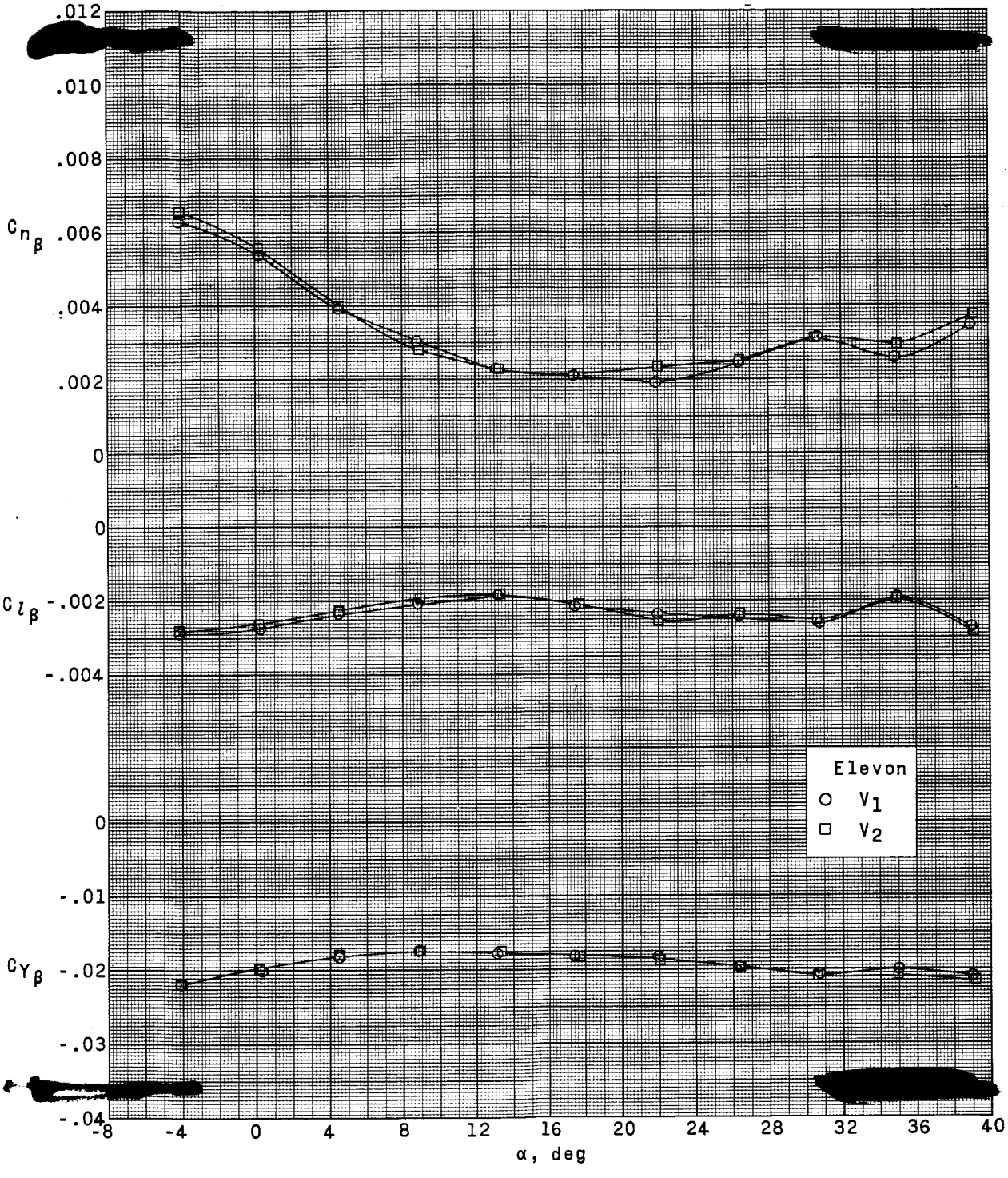
Figure 48.- Concluded.



(a) M = 1.50.

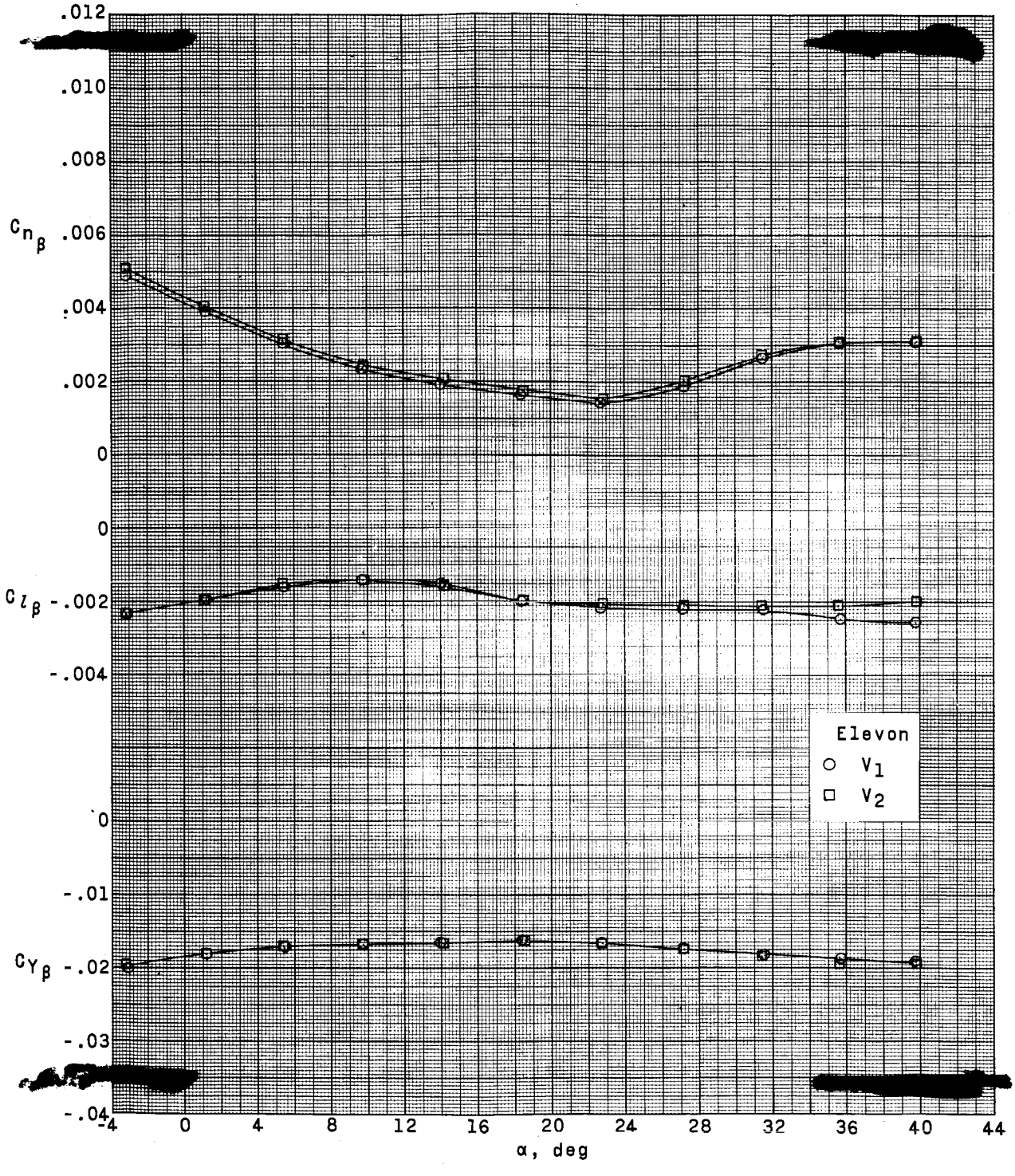
Figure 49.- Effect of elevon geometry on lateral parameters. $\delta_e = 30^\circ$; $\delta_a = \delta_r = 0^\circ$.

DECLASSIFIED



(b) M = 1.80.

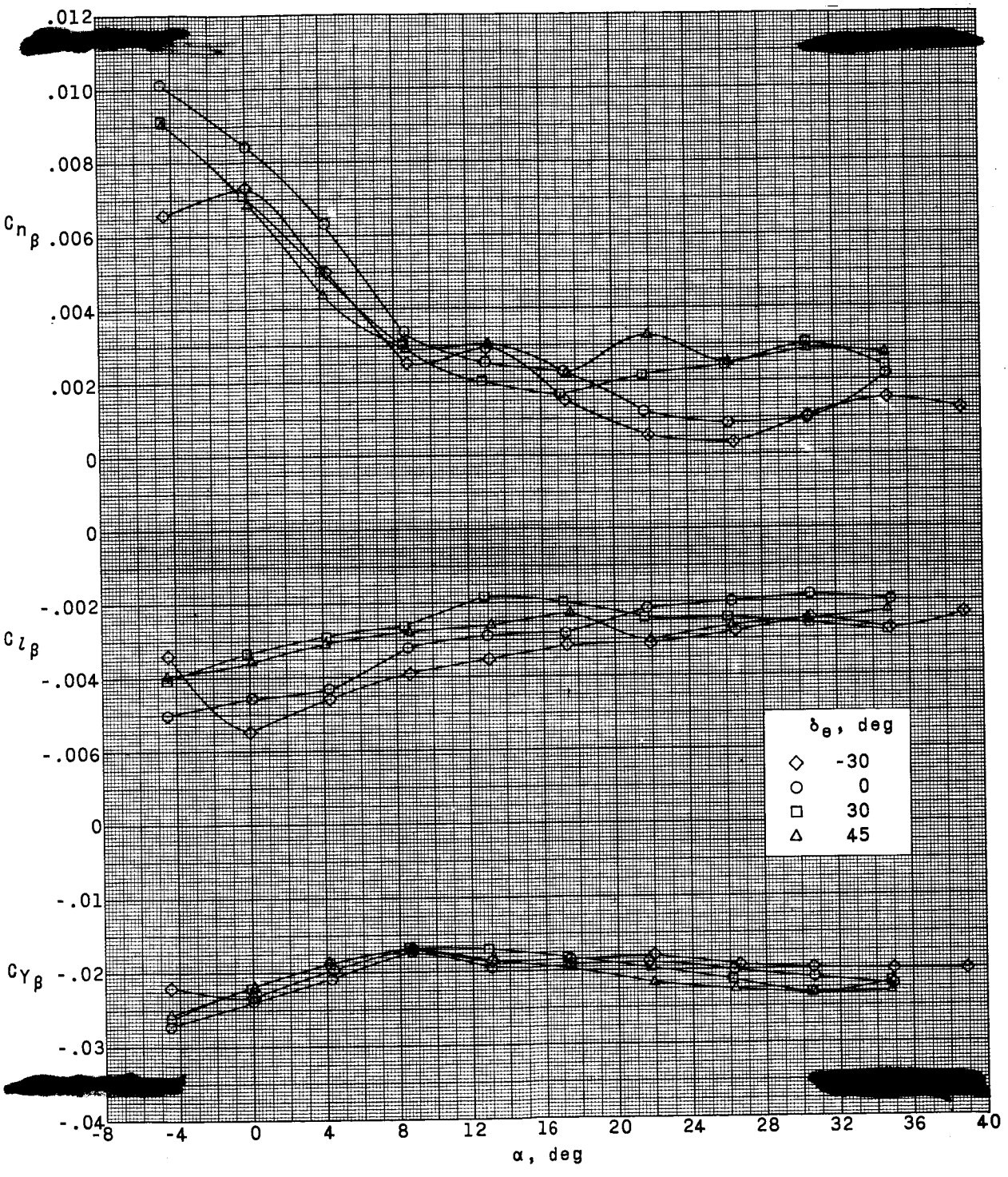
Figure 49.- Continued.



(c) M = 2.16.

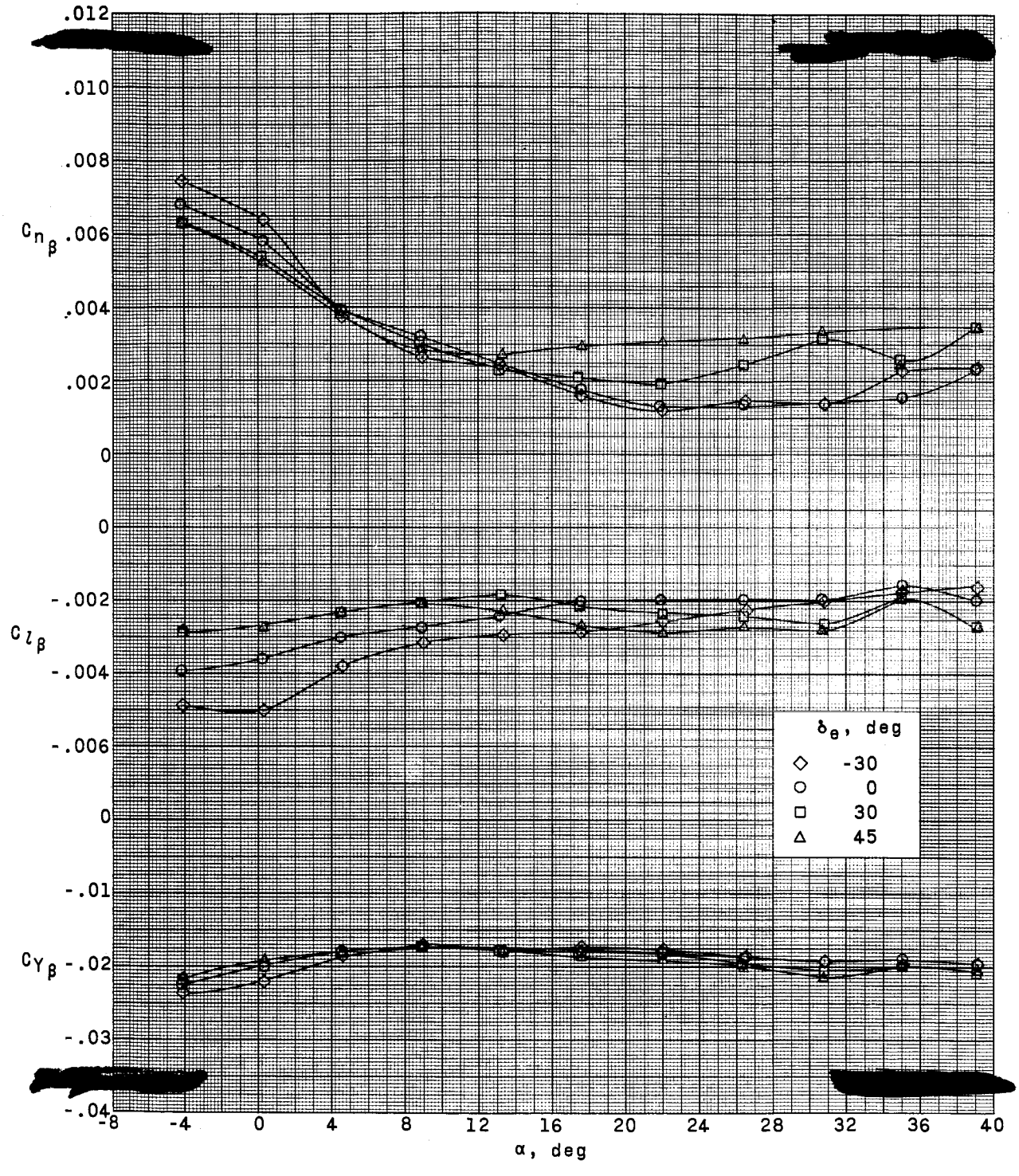
Figure 49.- Concluded.

DECLASSIFIED



(a) M = 1.50.

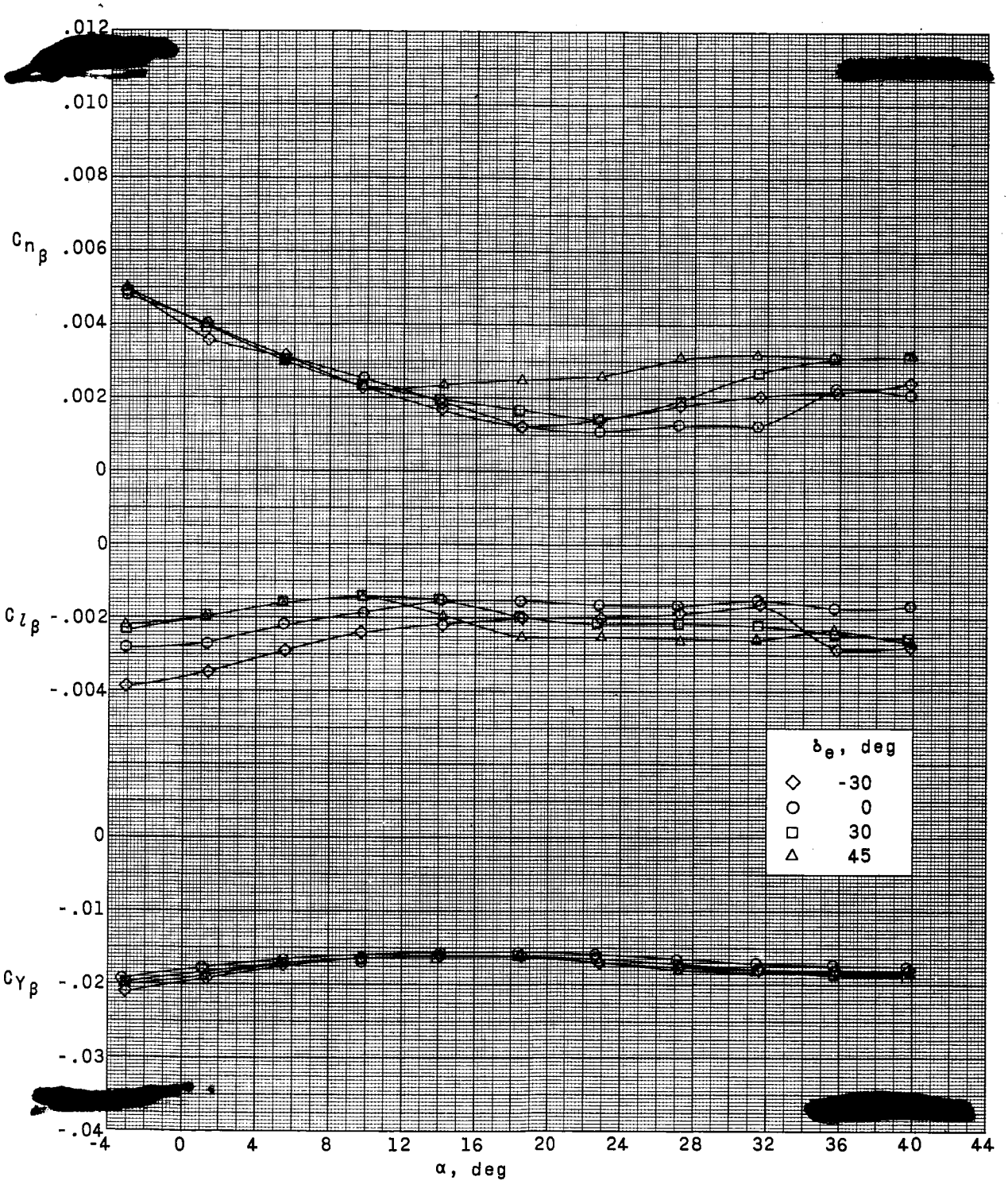
Figure 50.- Effect of pitch control on lateral parameters. $\delta_a = \delta_r = 0^0$.



(b) M = 1.80.

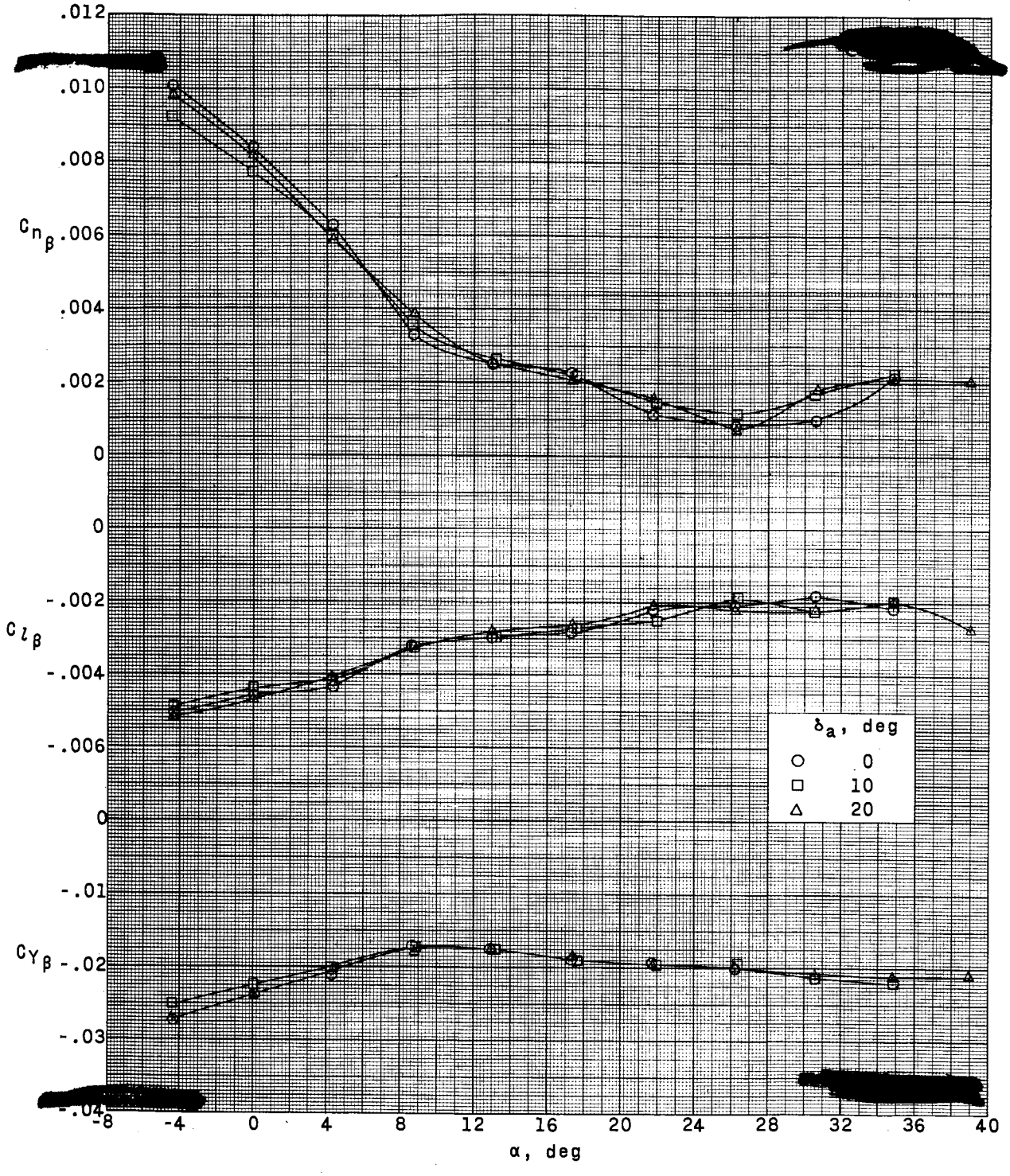
Figure 50.- Continued.

DECLASSIFIED



(c) M = 2.16.

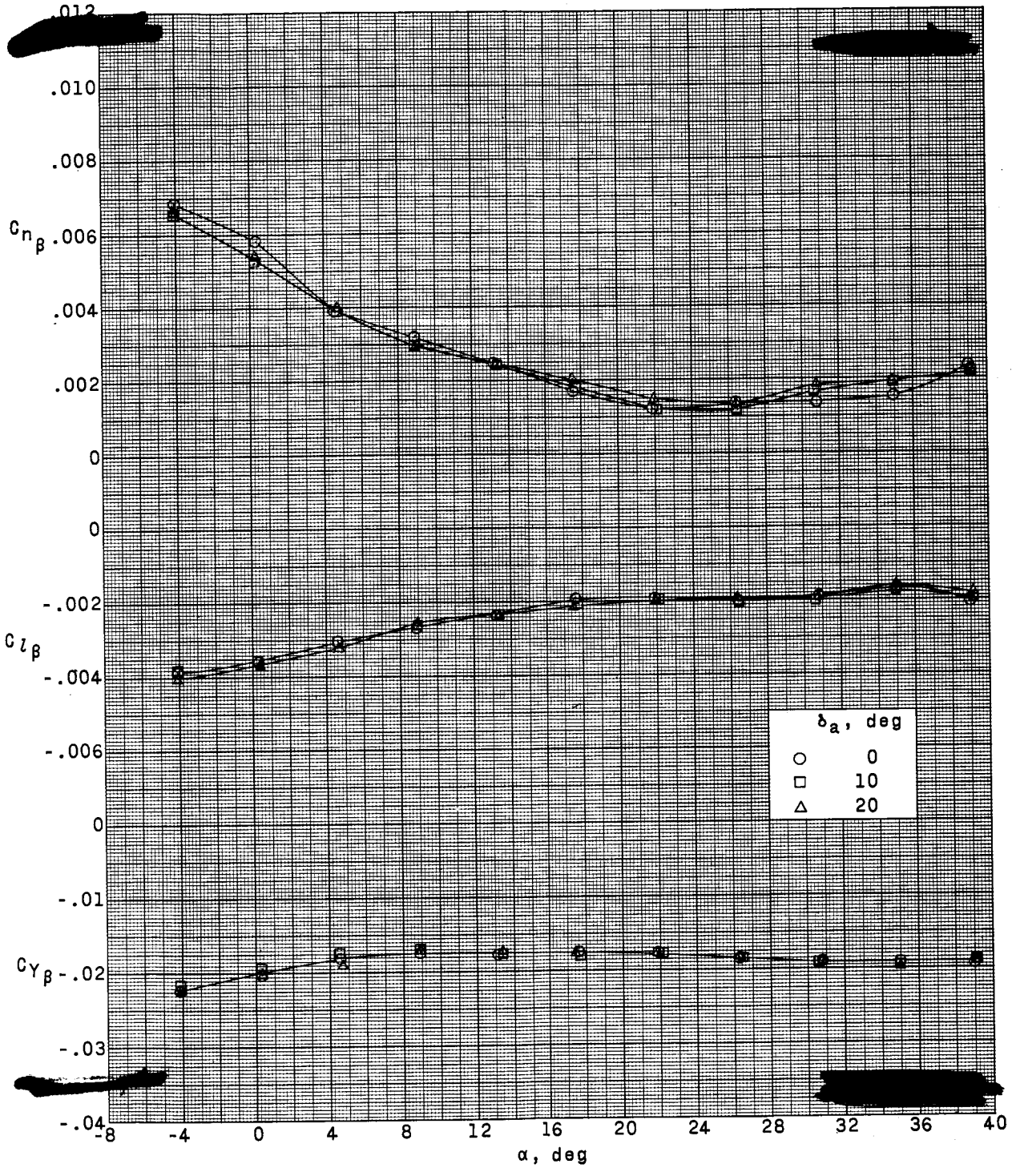
Figure 50.- Concluded.



(a) M = 1.50.

Figure 51.- Effect of aileron control on lateral characteristics. V_1; $\delta_e = \delta_r = 0^0$.

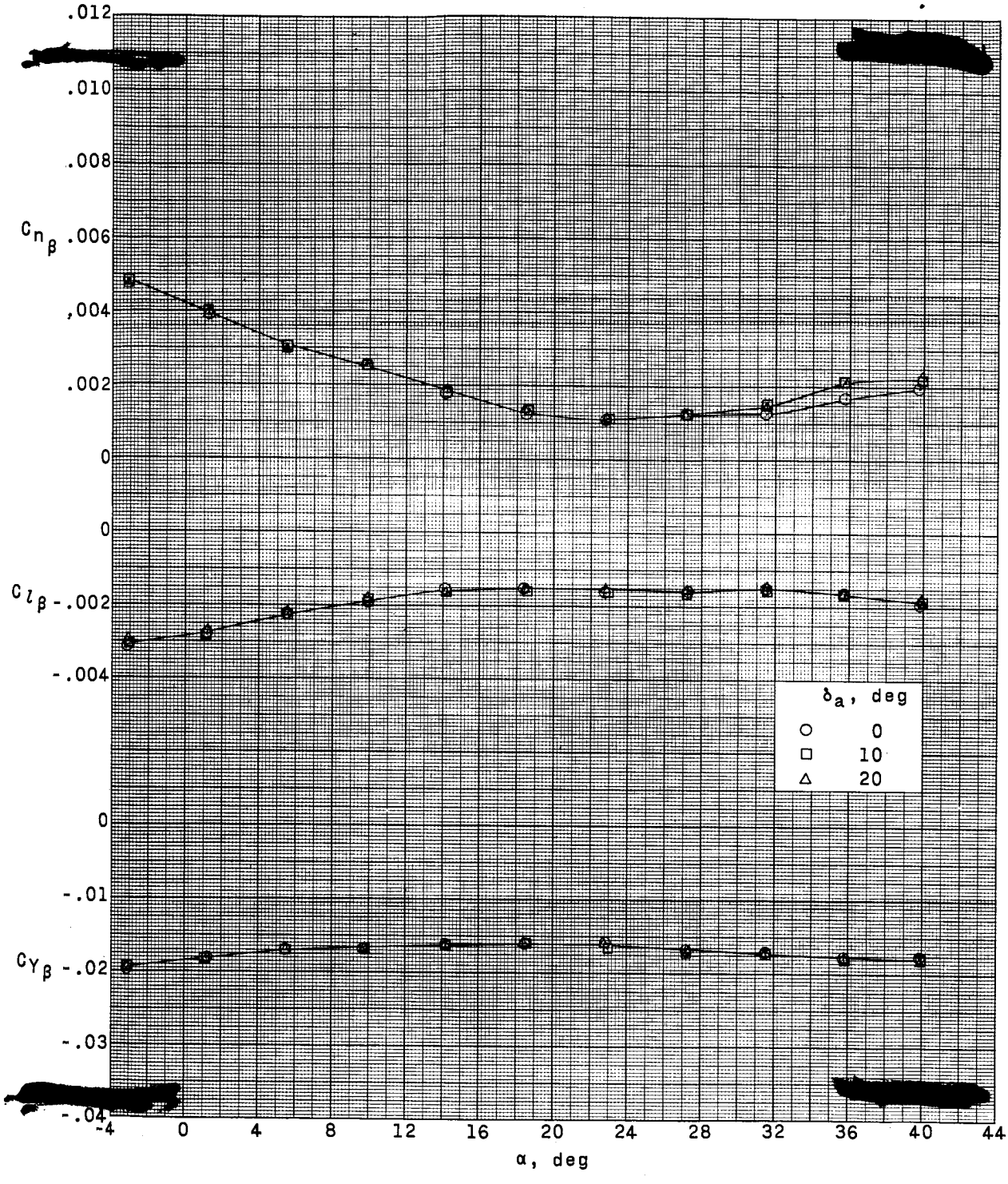
DECLASSIFIED



(b) M = 1.80.

Figure 51.- Continued.

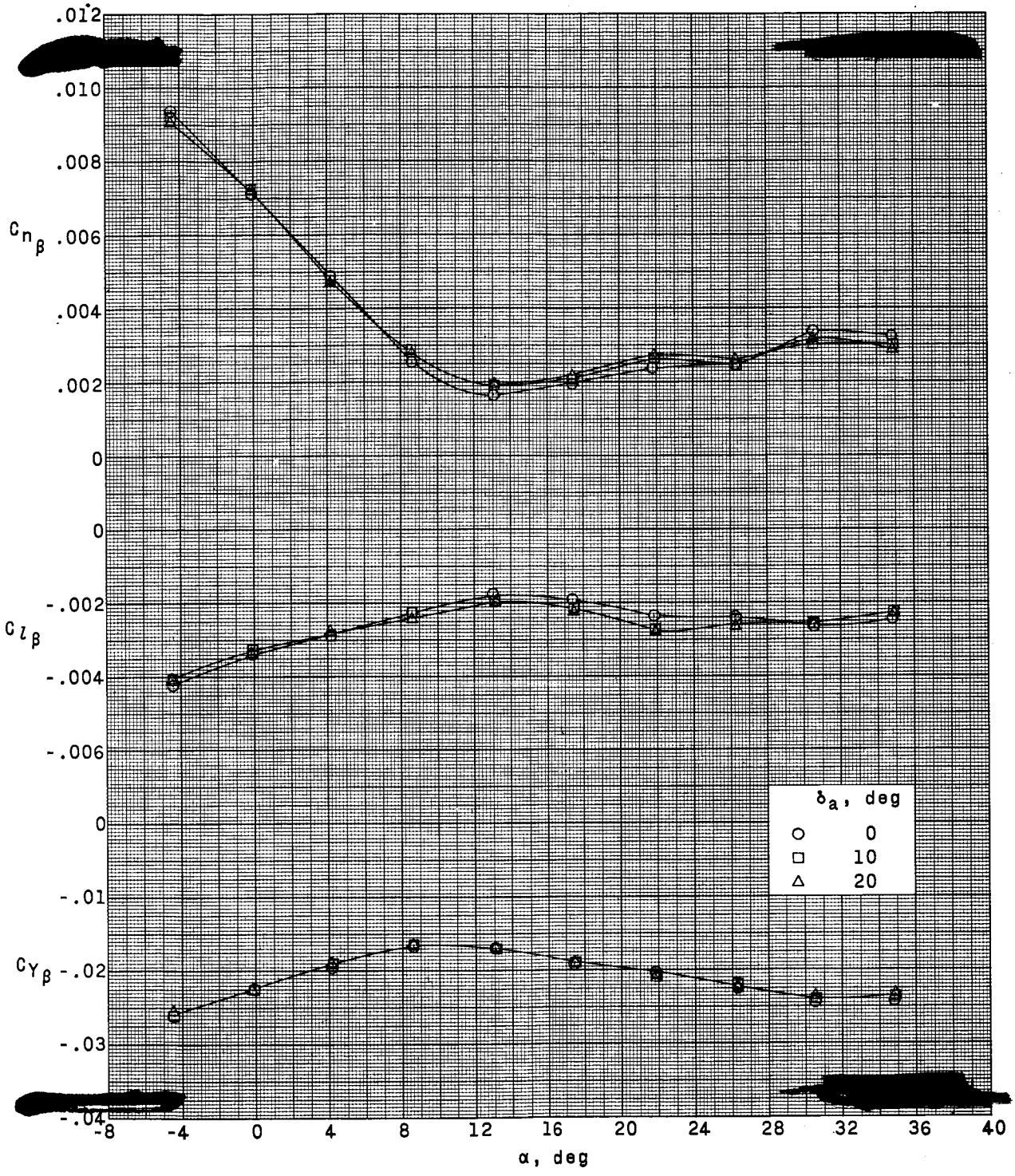
DECLASSIFIED



(c) M = 2.16.

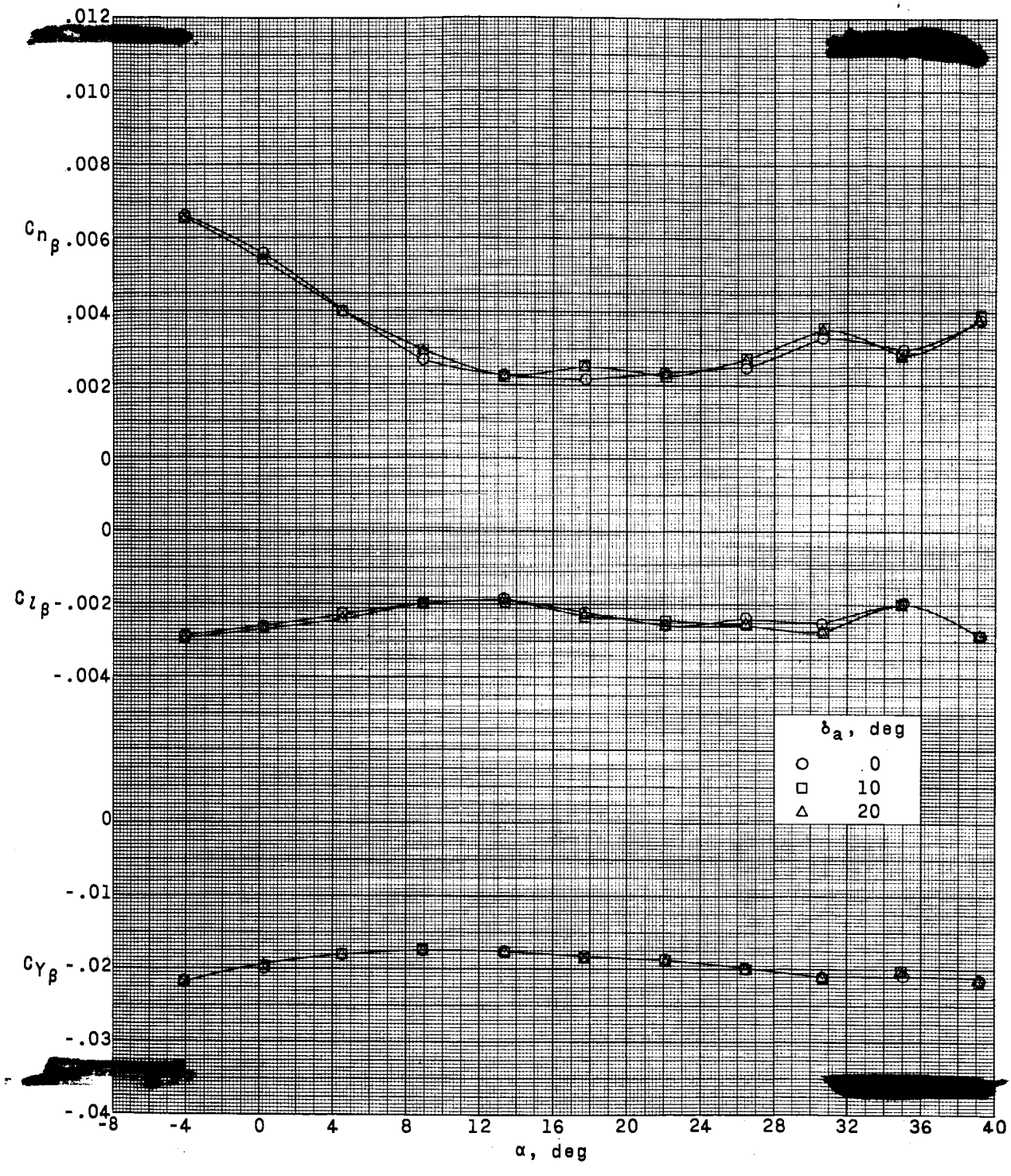
Figure 51.- Concluded.

DECLASSIFIED



(a) M = 1.50.

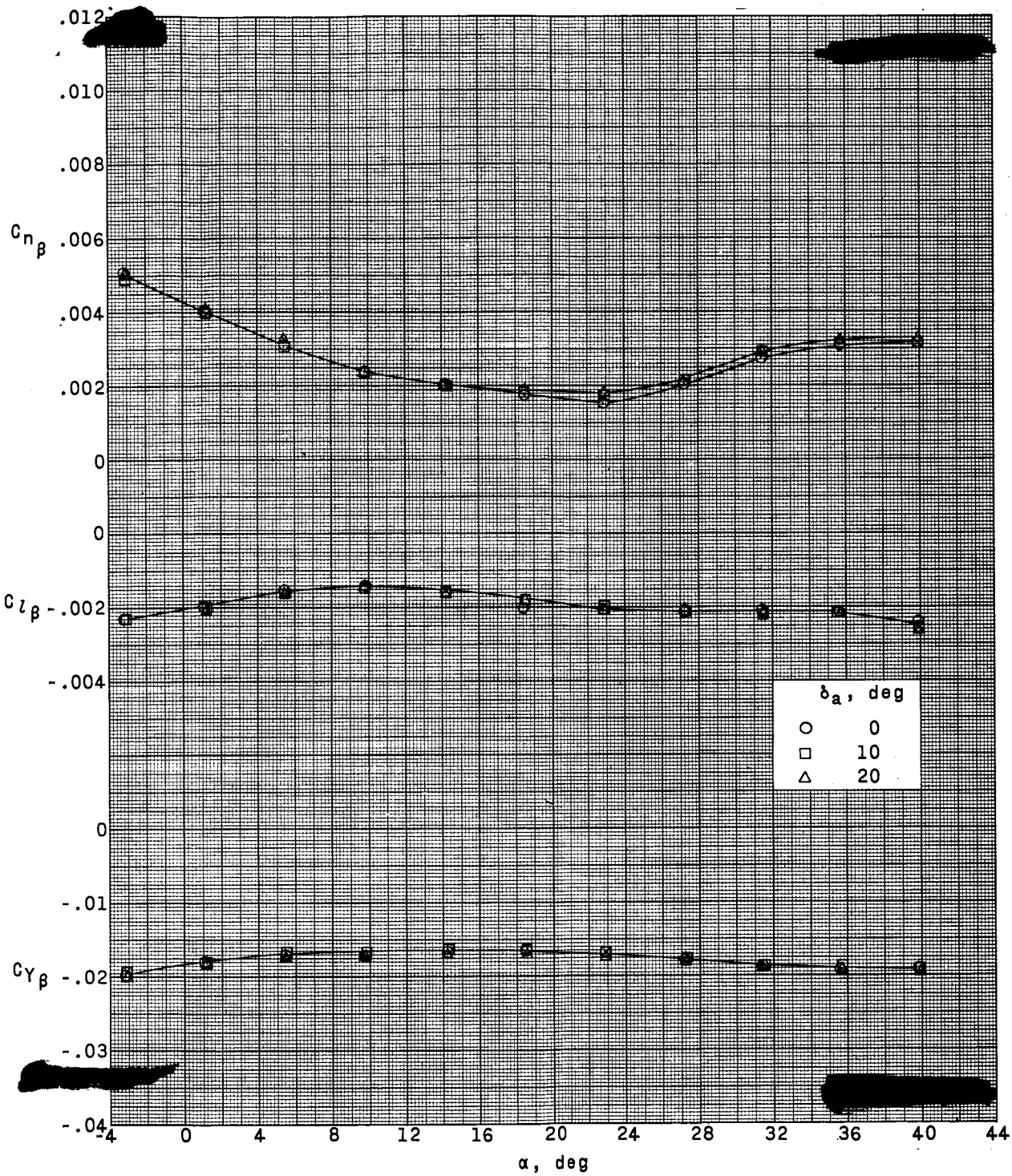
Figure 52.- Effect of aileron control on lateral parameters. V_2; $\delta_e = 30^\circ$; $\delta_r = 0^\circ$.



(b) M = 1.80.

Figure 52.- Continued.

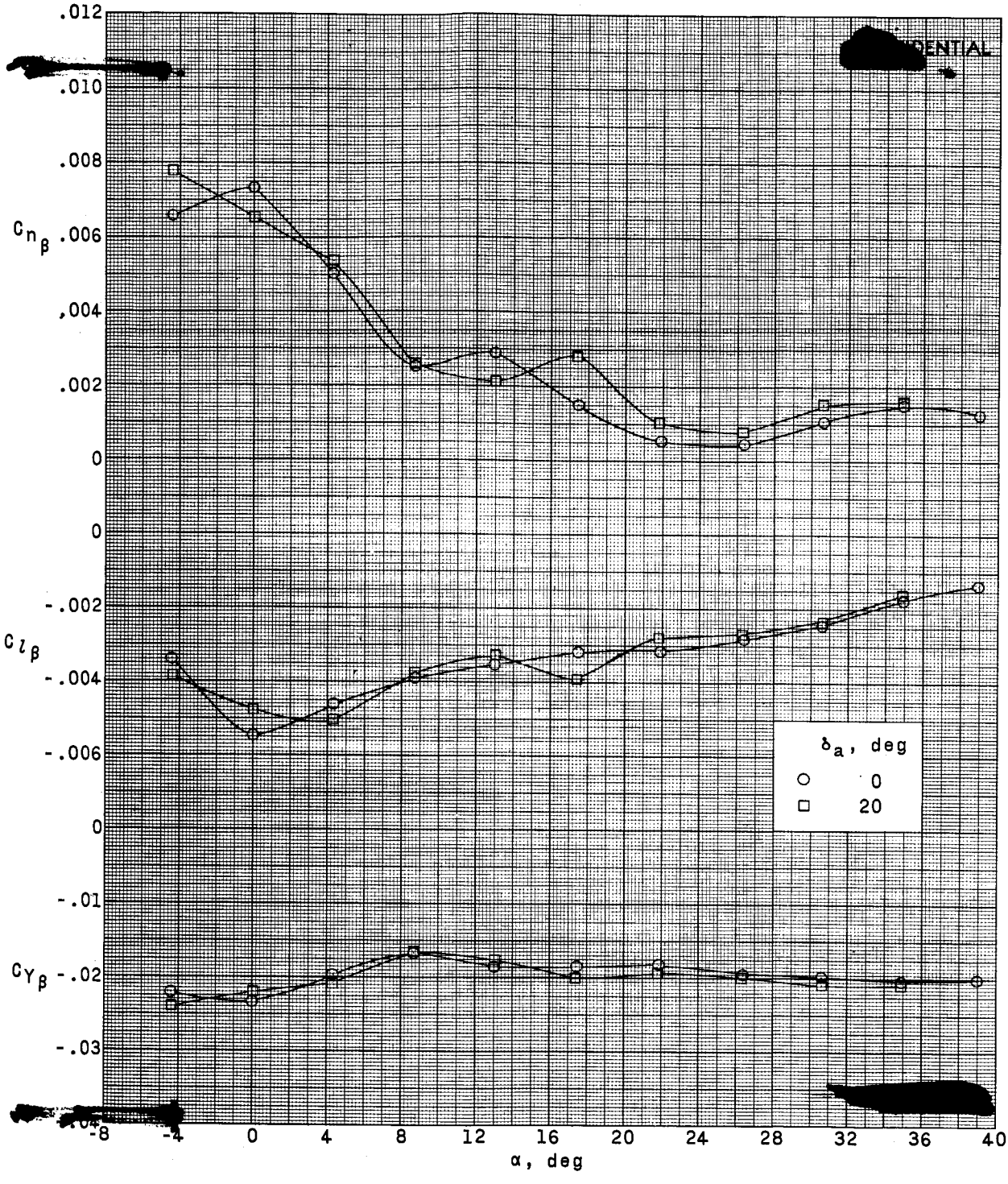
DECLASSIFIED



(c) M = 2.16.

Figure 52.- Concluded.

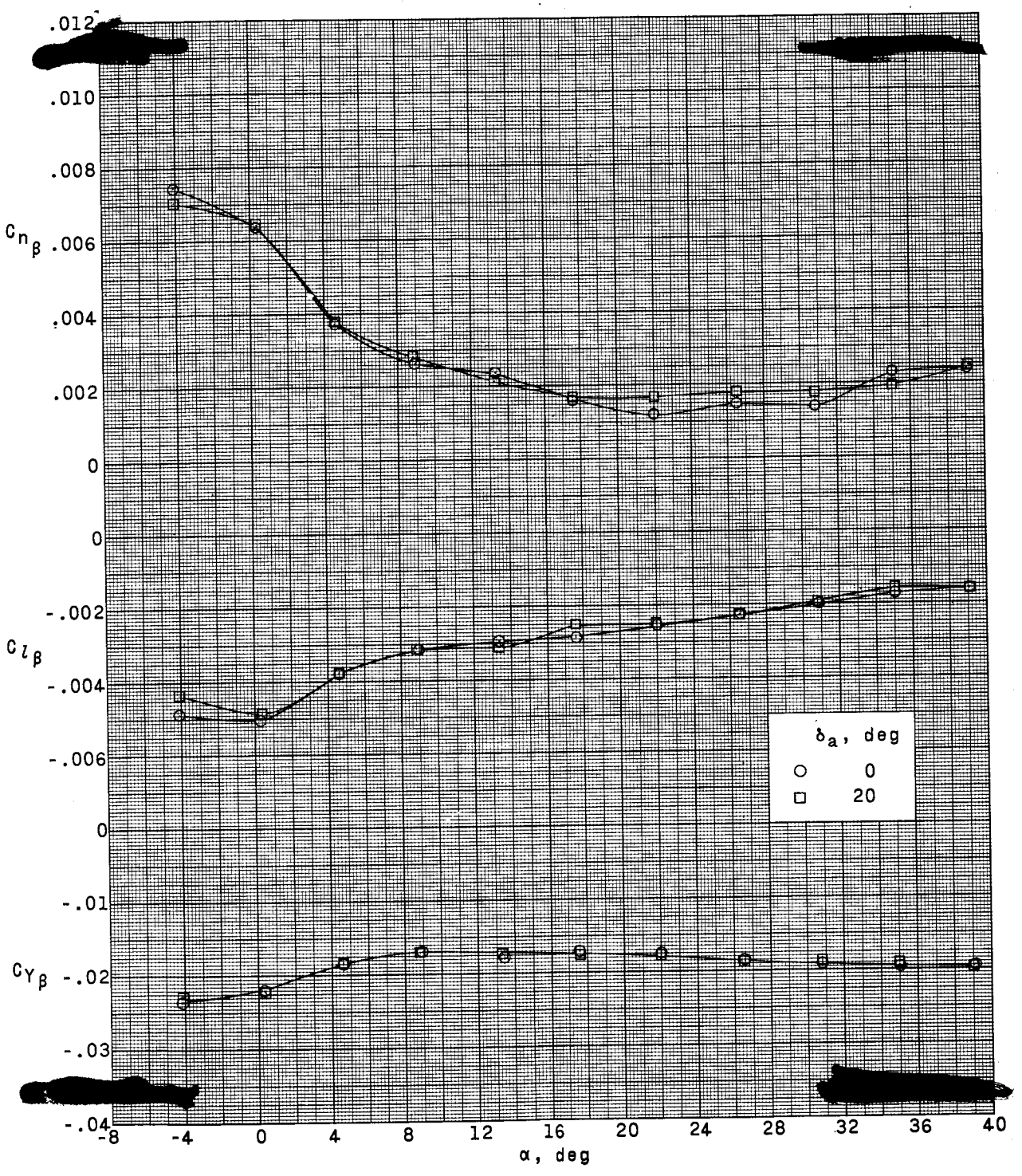
DECLASSIFIED



(a) M = 1.50.

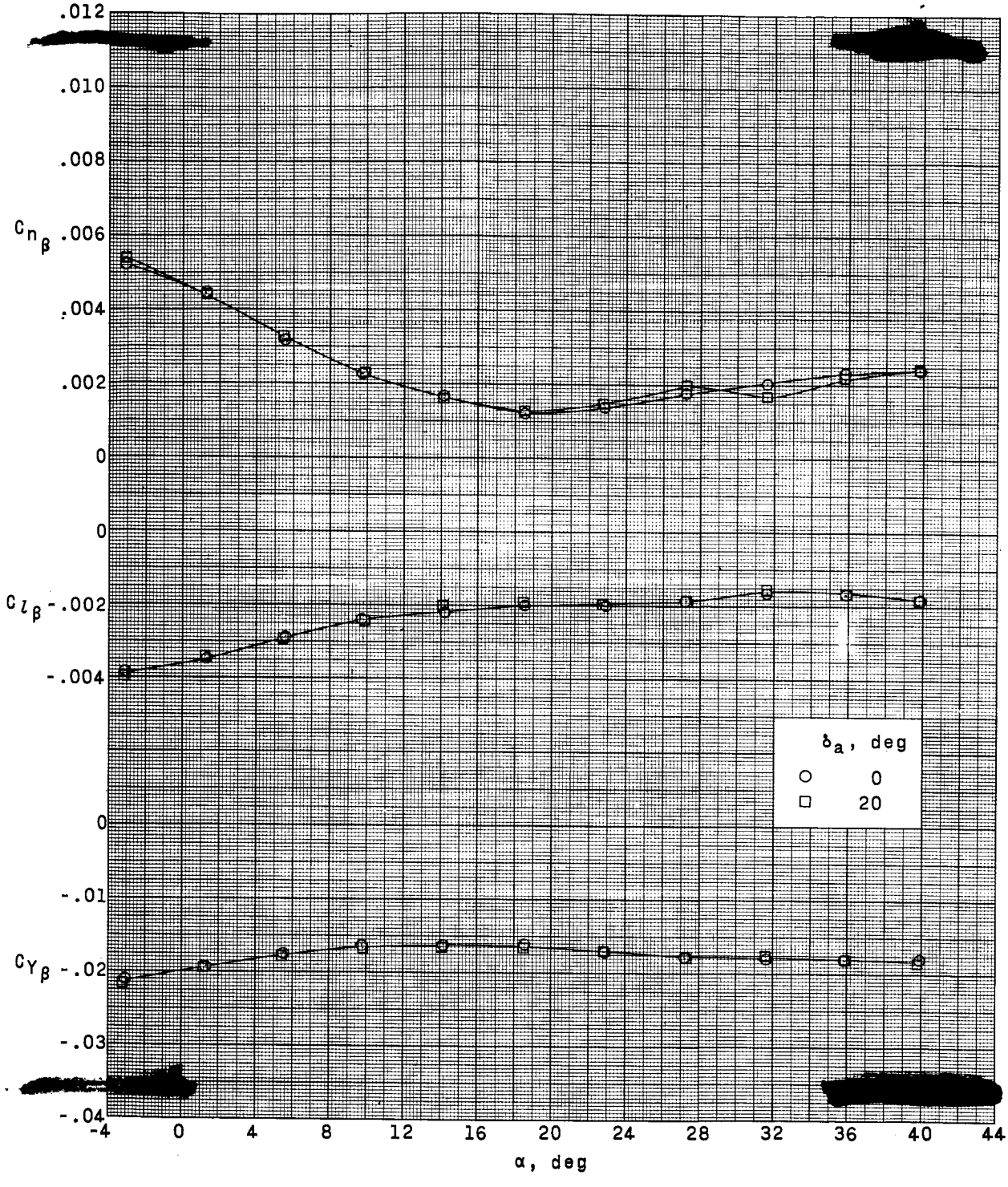
Figure 53.- Effect of aileron control on lateral characteristics. V_1; $\delta_e = -30^0$; $\delta_r = 0^0$.

DECLASSIFIED



(b) M = 1.80.

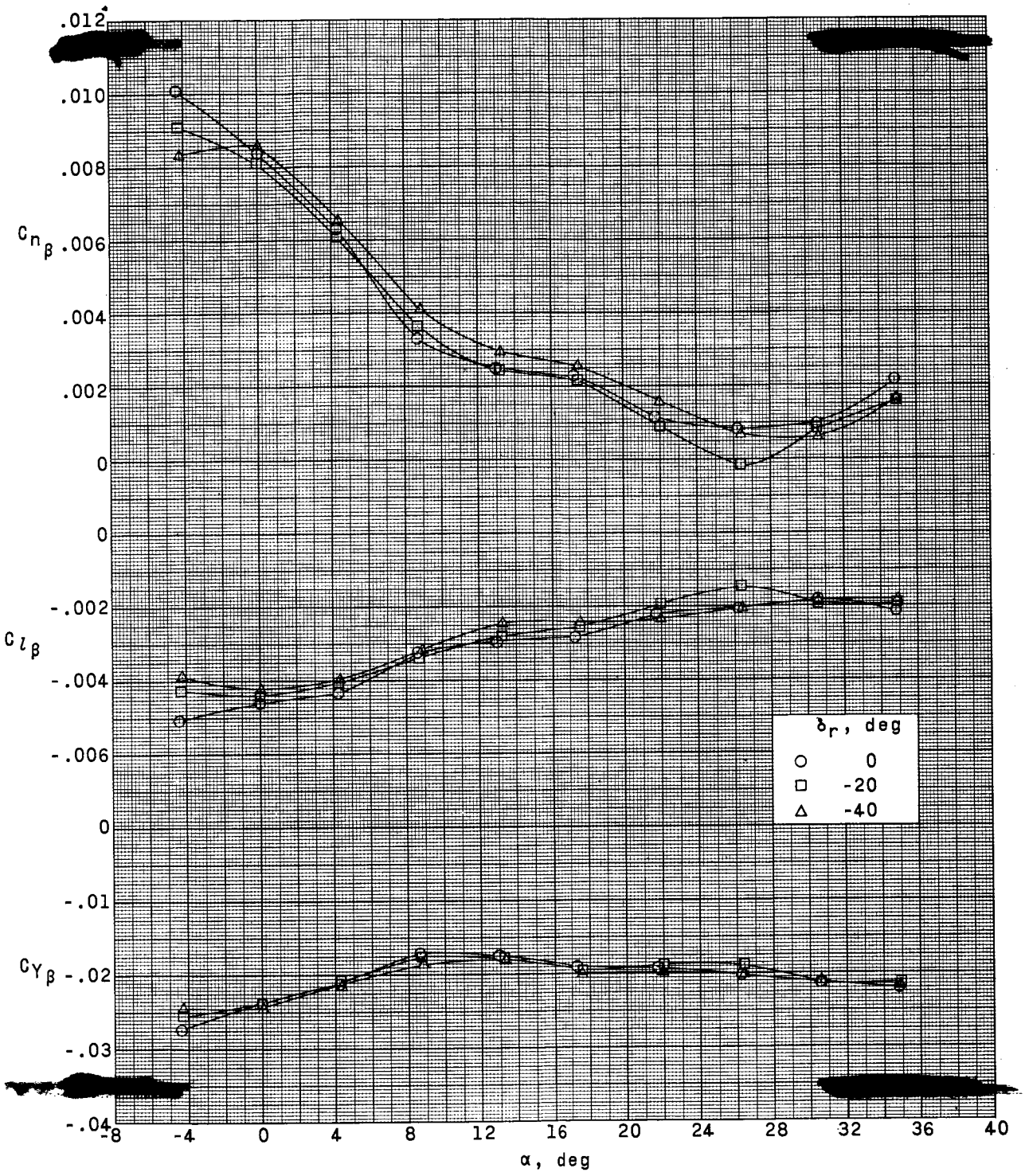
Figure 53.- Continued.



(c) M = 2.16.

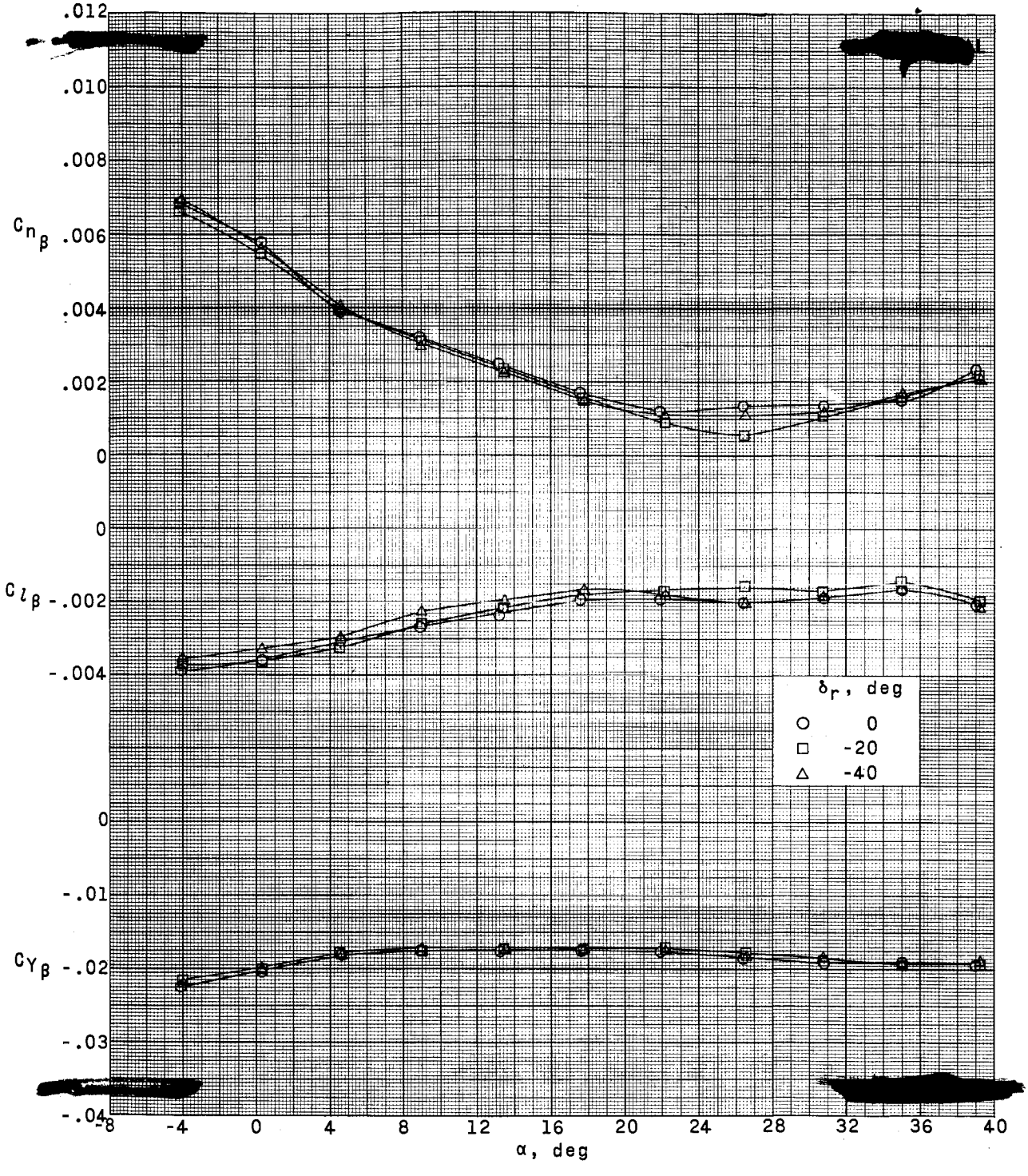
Figure 53.- Concluded.

DECLASSIFIED



(a) M = 1.50.

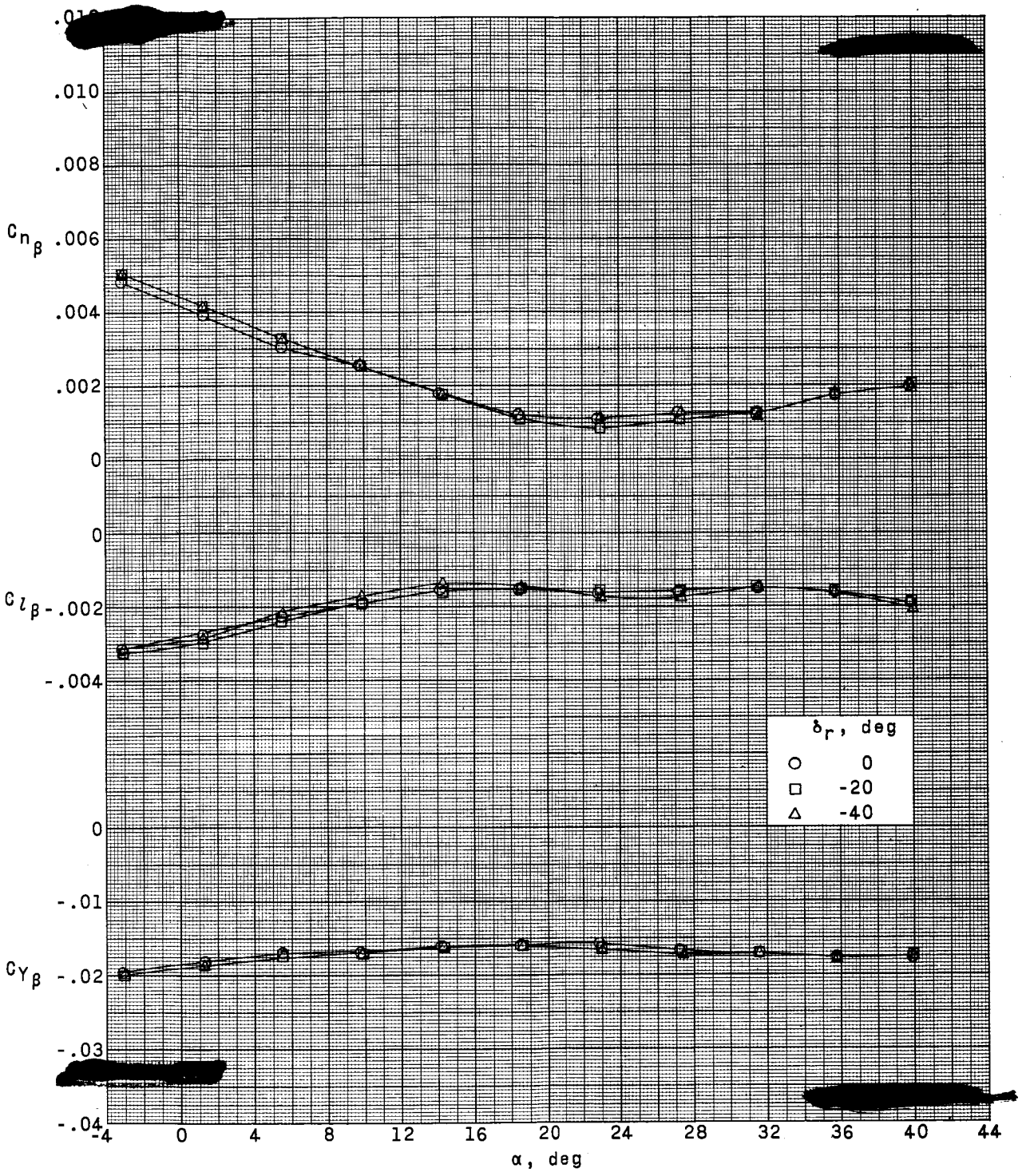
Figure 54.- Effect of rudder (R_3) deflection on lateral parameters. V_2; $\delta_e = \delta_a = 0^0$.



(b) M = 1.80.

Figure 54.- Continued.

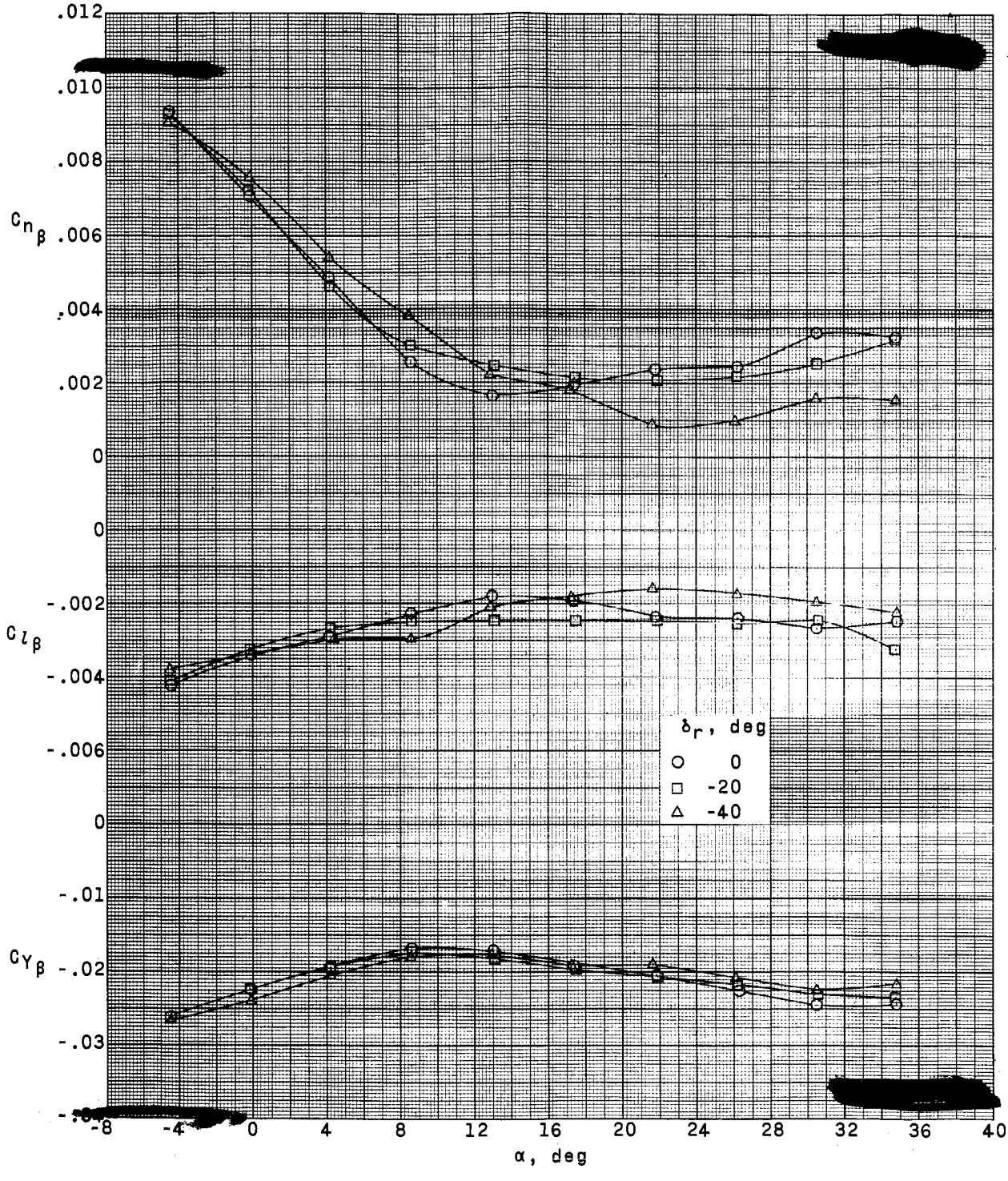
DECLASSIFIED



(c) M = 2.16.

Figure 54.- Concluded.

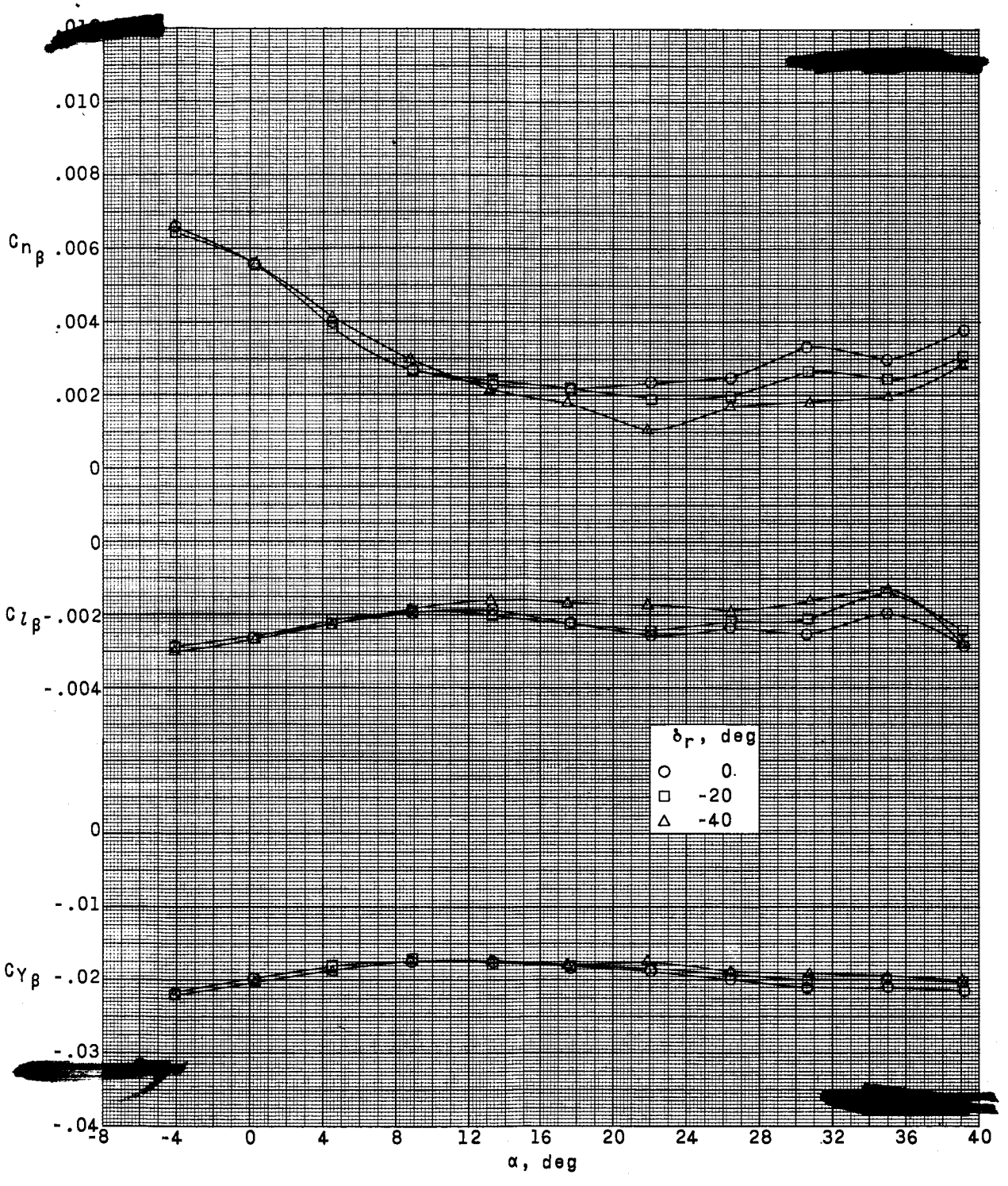
DECLASSIFIED



(a) M = 1.50.

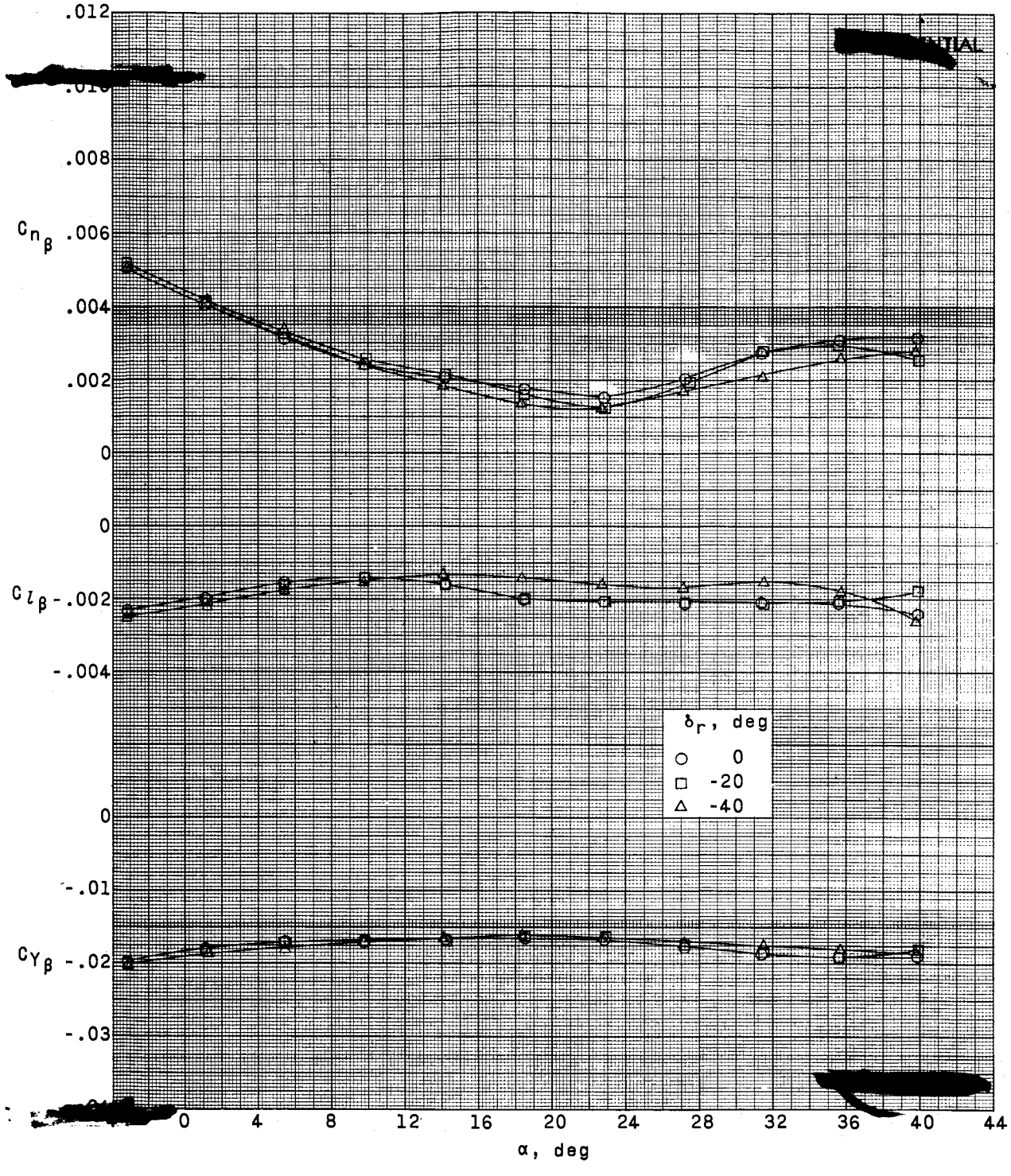
Figure 55.- Effect of rudder (R_1) deflection on lateral parameters. V_1; $\delta_e = 30^0$; $\delta_a = 0^0$.

DECLASSIFIED



(b) M = 1.80.

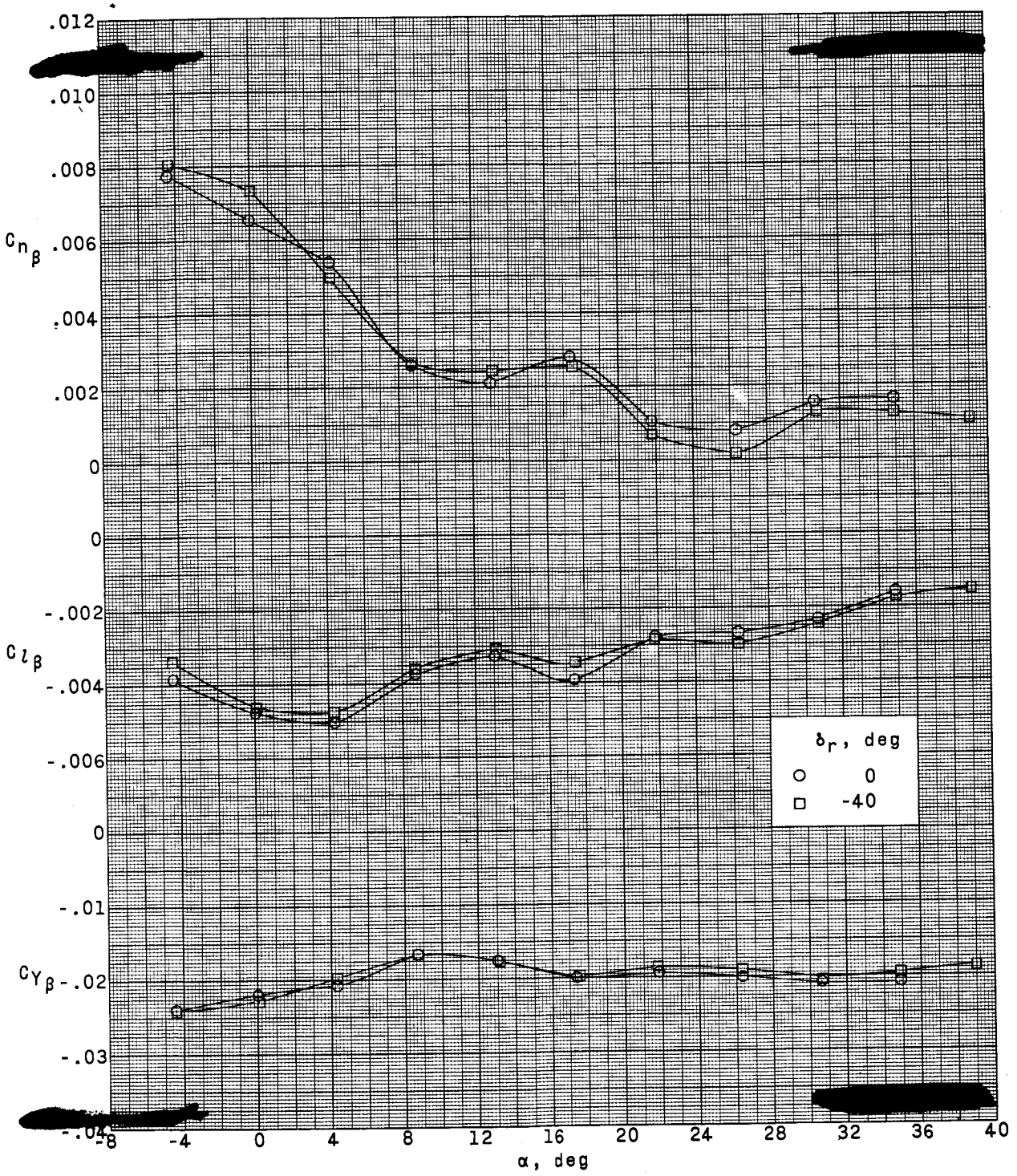
Figure 55.- Continued.



(c) M = 2.16.

Figure 55.- Concluded.

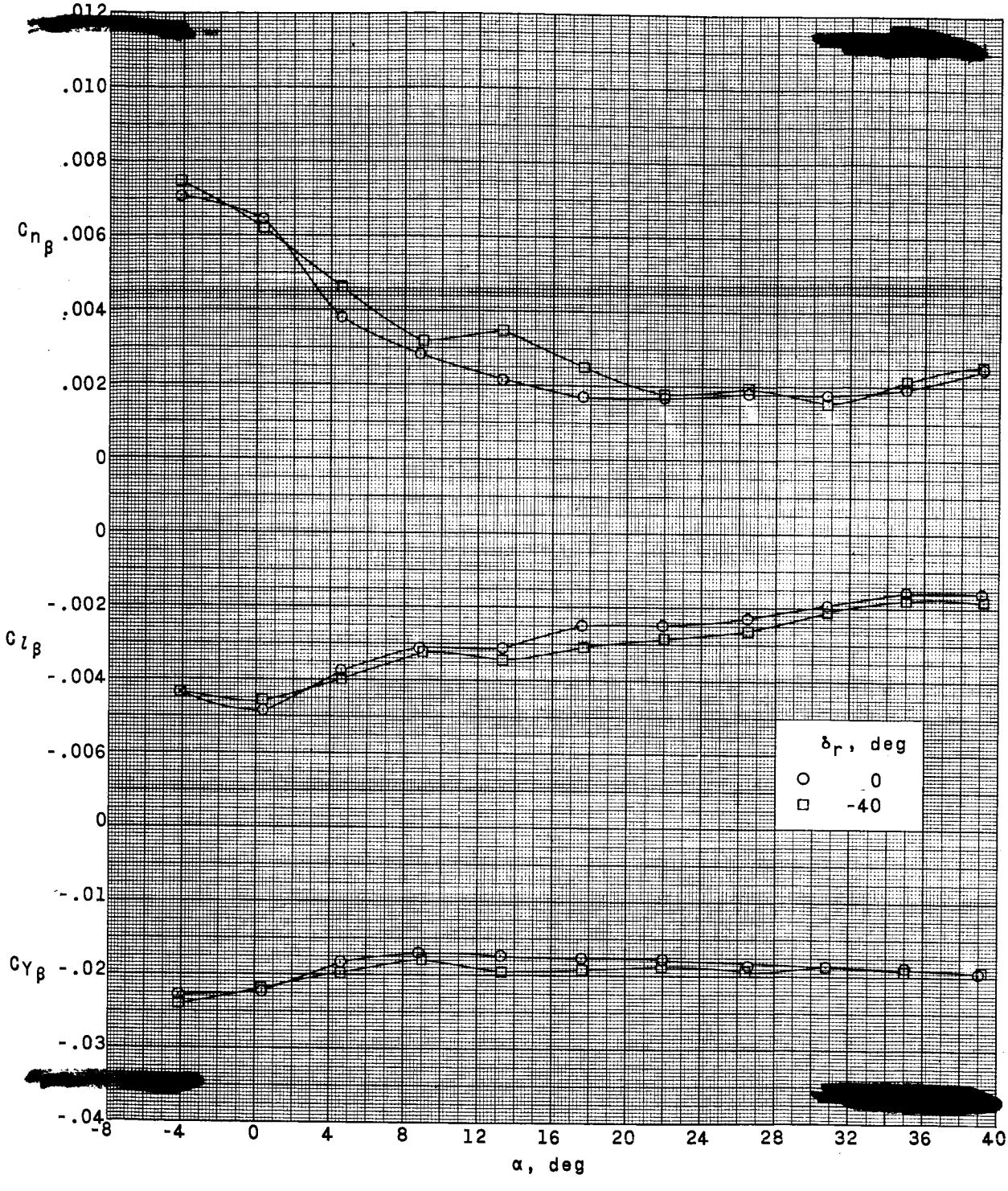
DECLASSIFIED



(a) M = 1.50.

Figure 56.- Effect of rudder (R_1) deflection on lateral parameters. V_1; $\delta_e = -30^0$; $\delta_a = 20^0$.

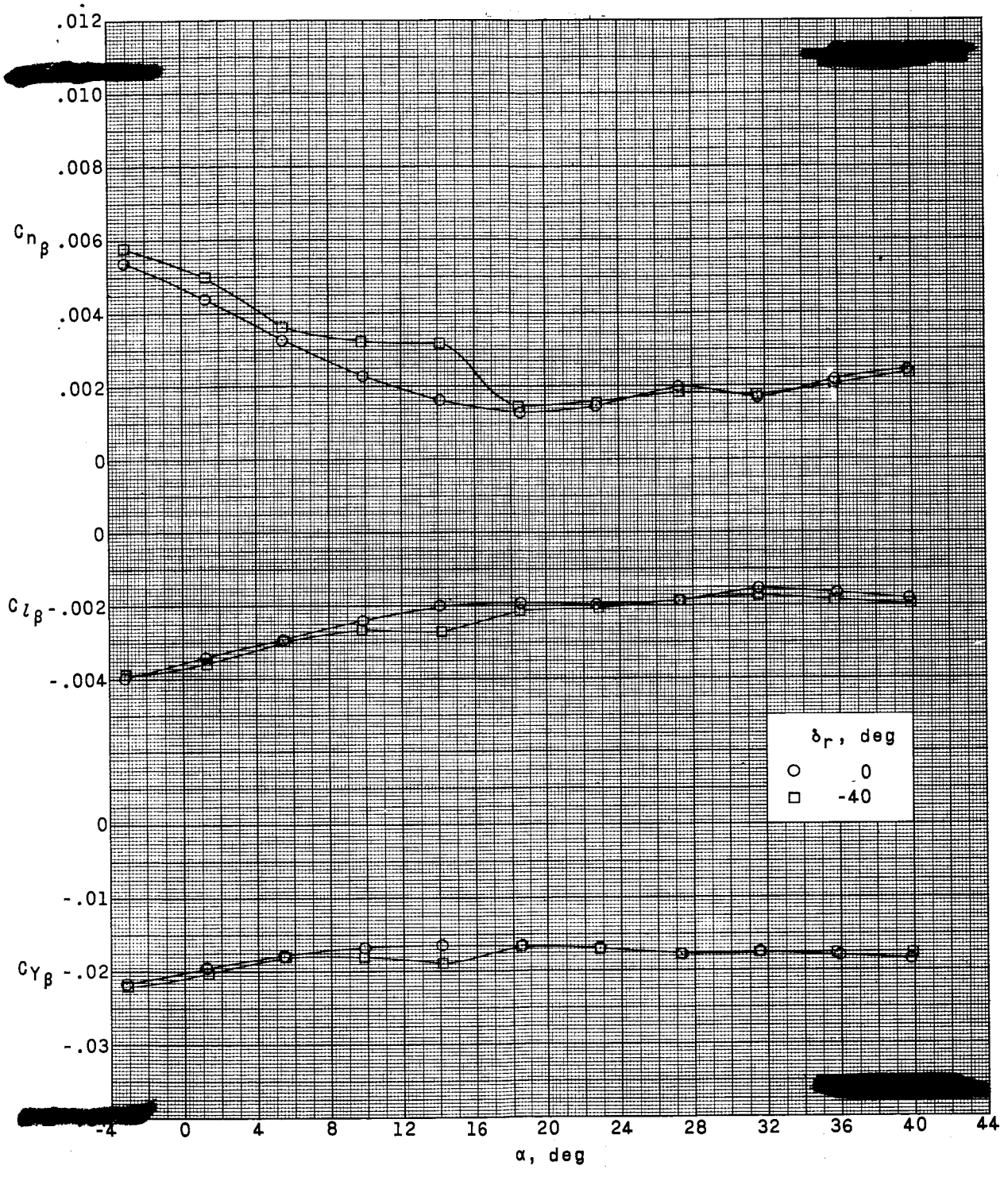
DECLASSIFIED



(b) M = 1.80.

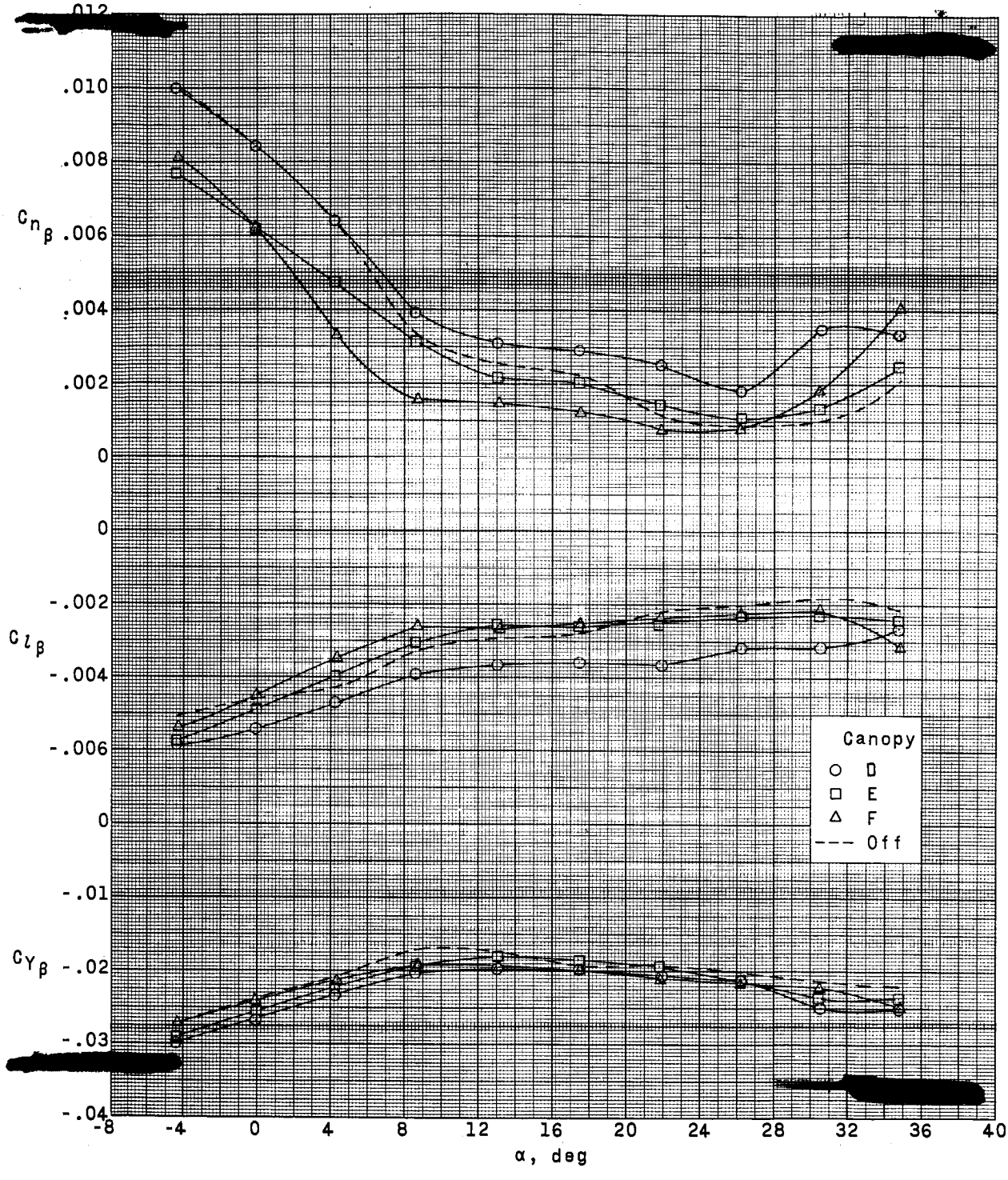
Figure 56.- Continued.

DECLASSIFIED



(c) M = 2.16.

Figure 56.- Concluded.



(a) M = 1.50.

Figure 57.- Effect of canopy geometry on lateral parameters. V_2; $\delta_e = \delta_a = \delta_r = 0^0$.

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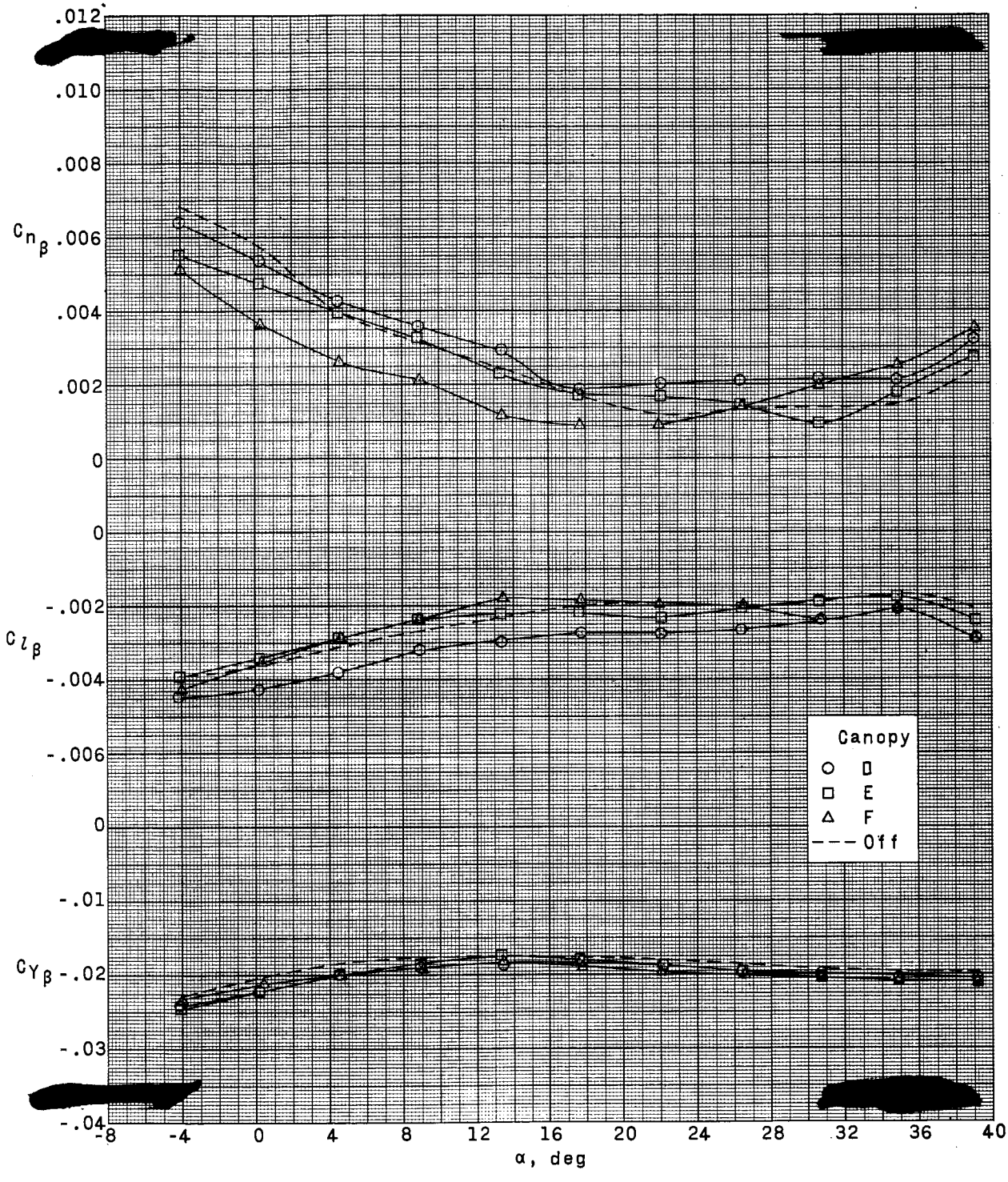
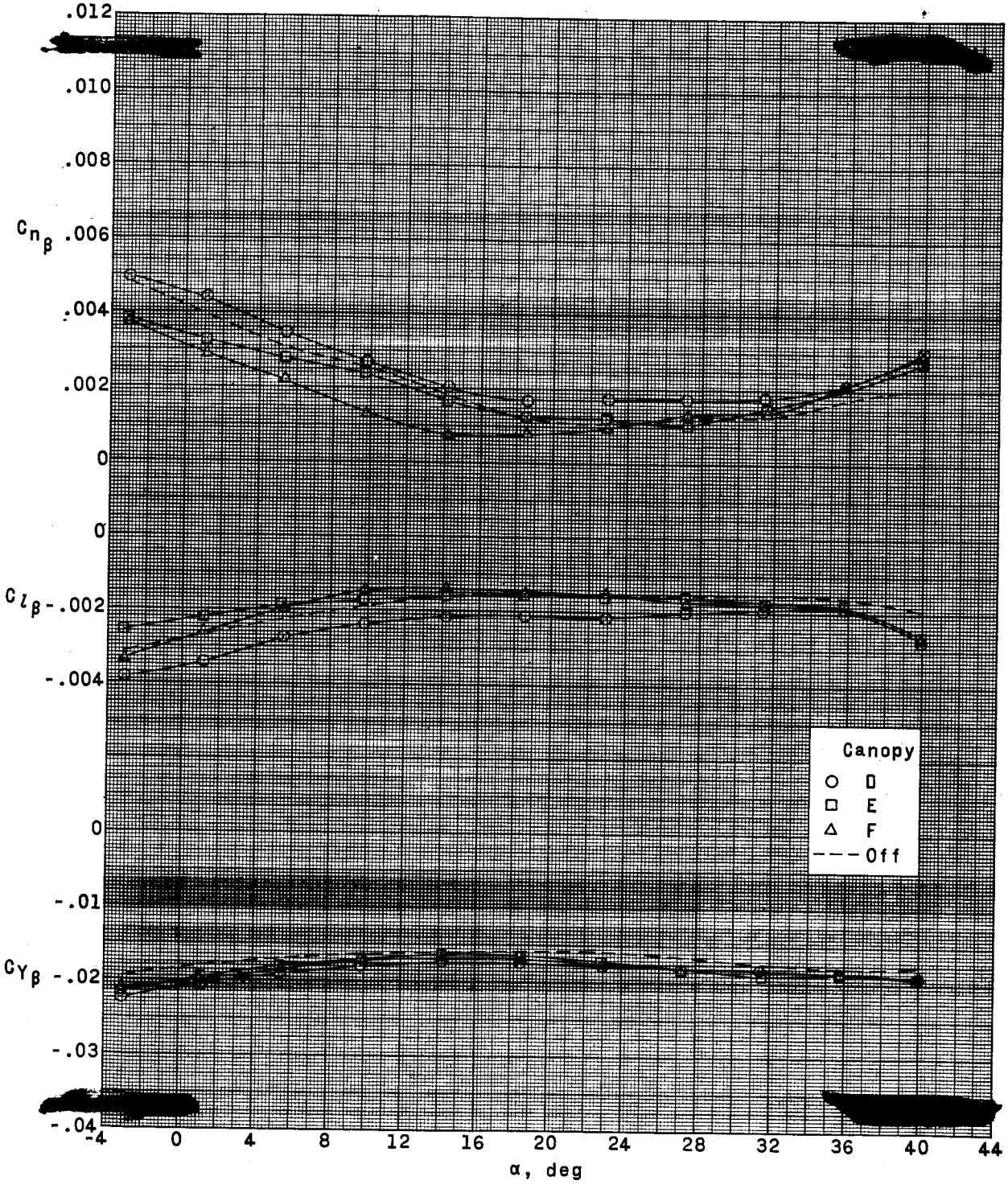


(b) M = 1.80.

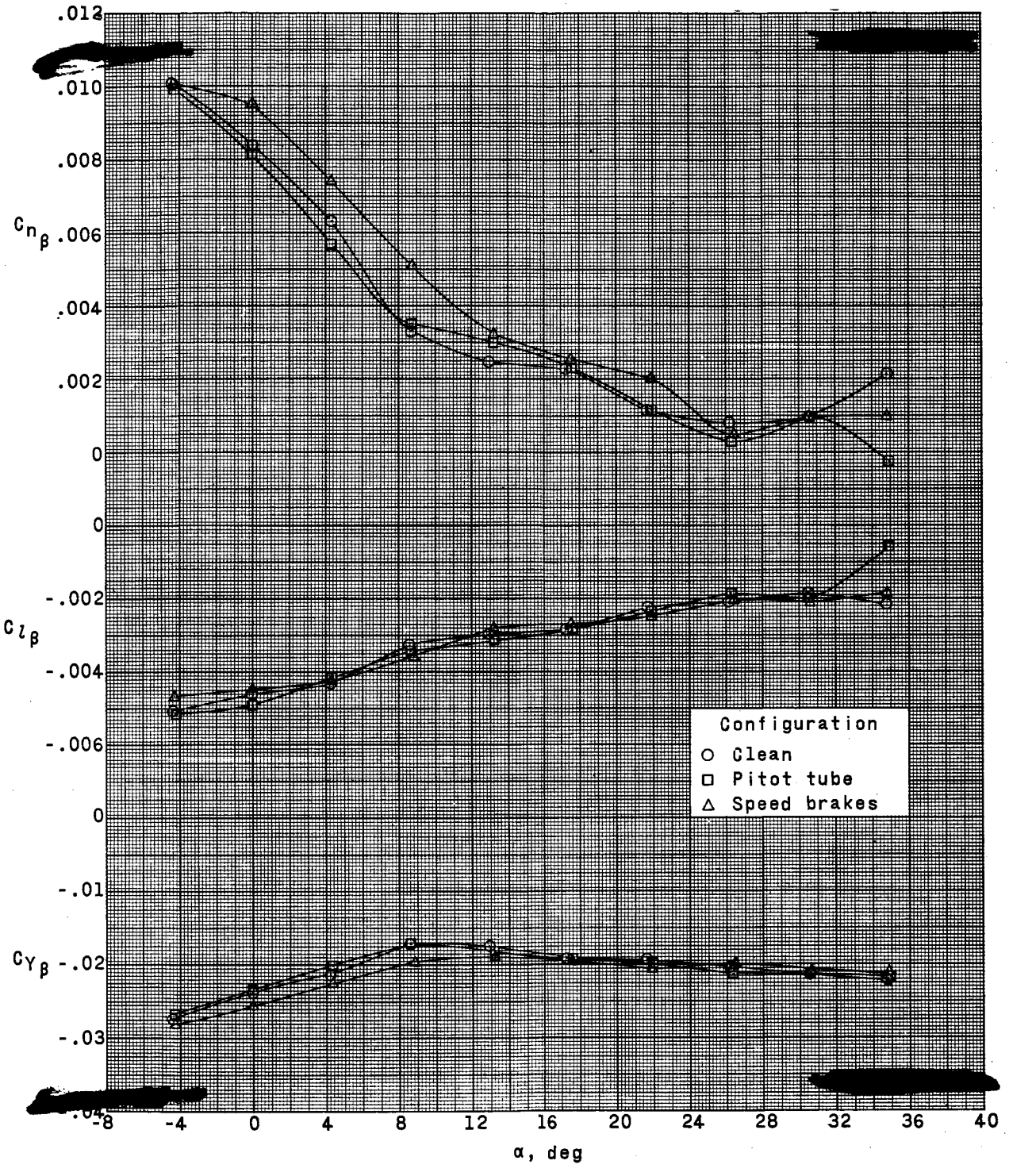
Figure 57.- Continued.



(c) M = 2.16.

Figure 57.- Concluded.

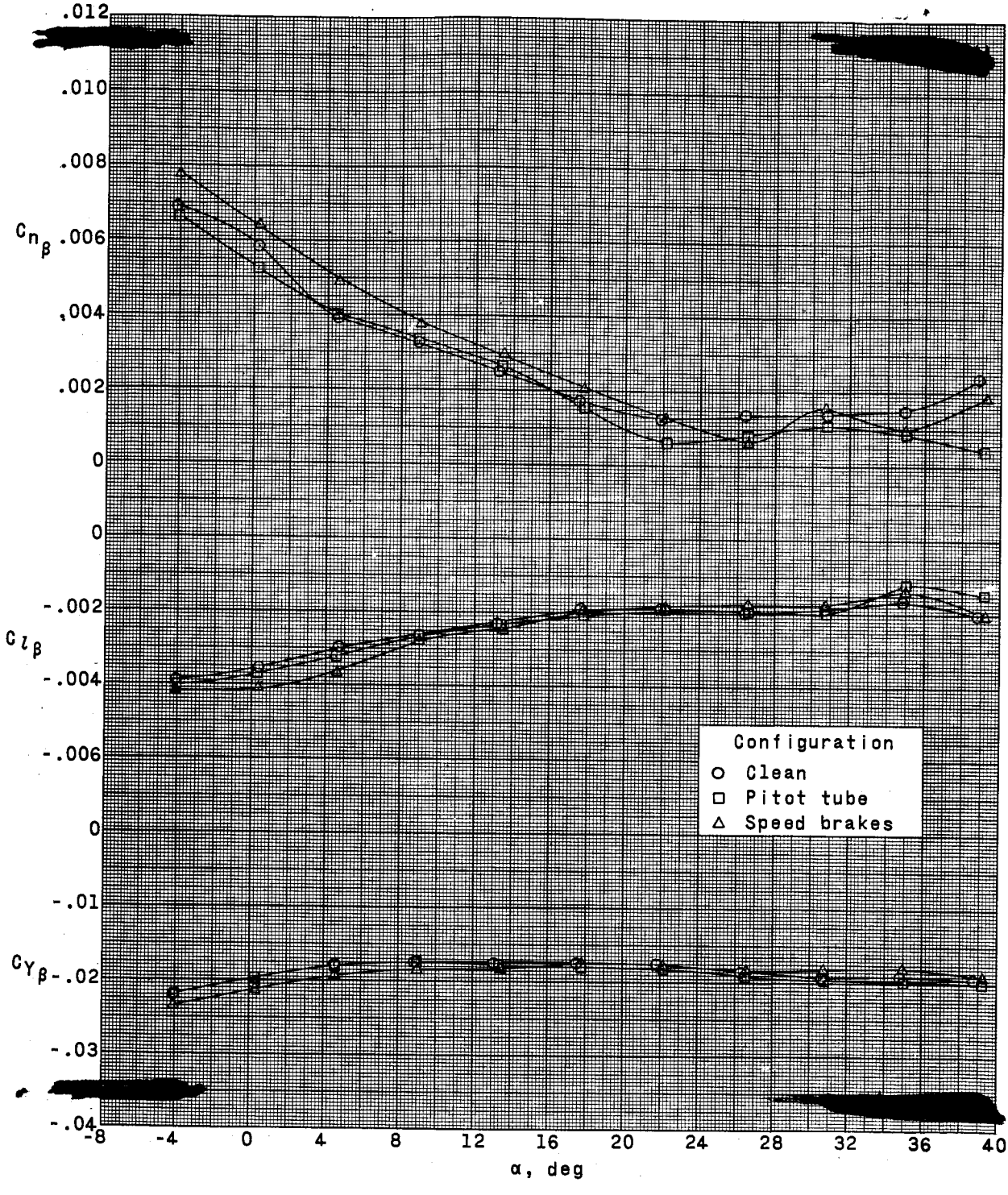
DECLASSIFIED



(a) M = 1.50.

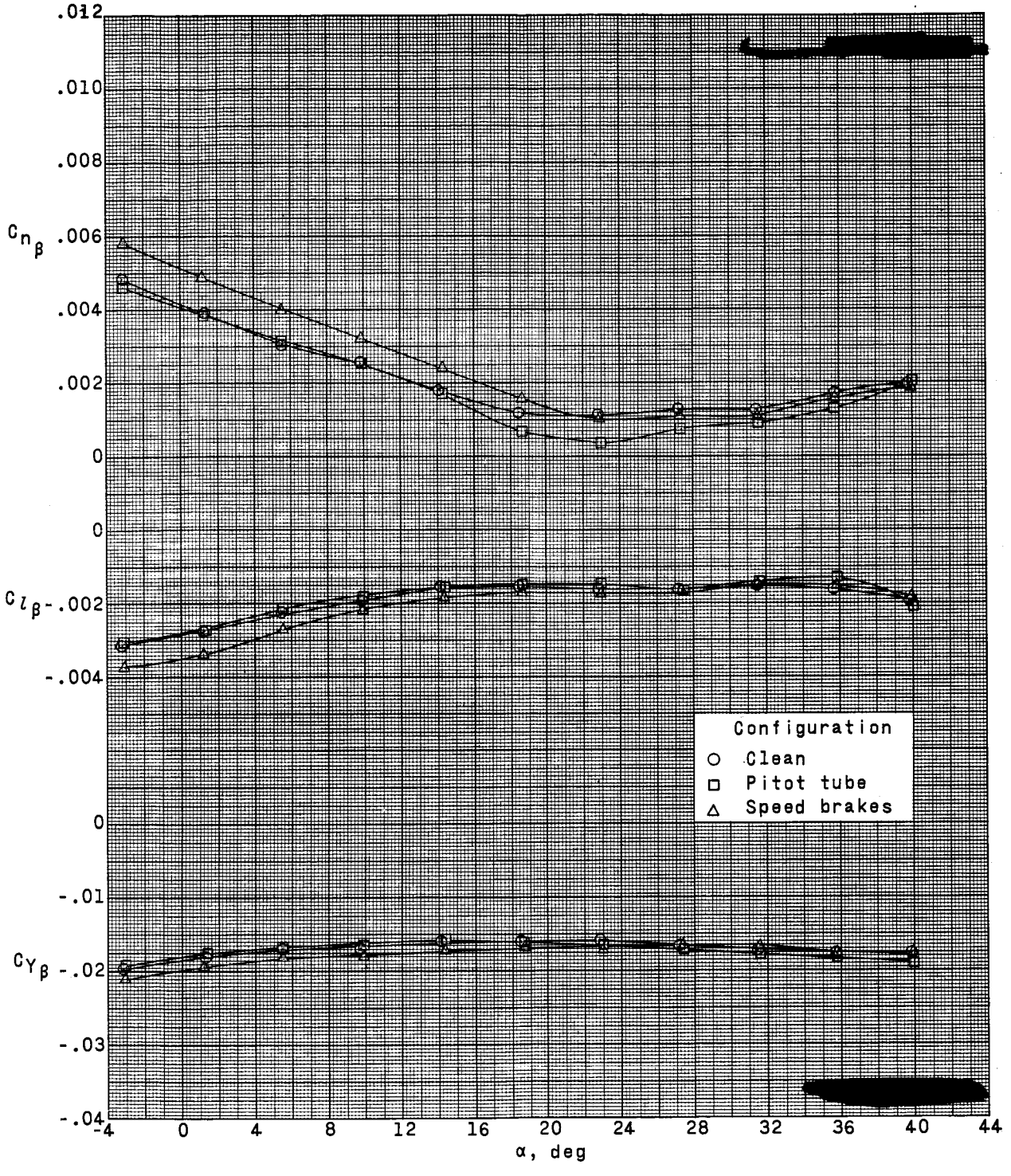
Figure 58.- Effect of pitot tube and speed brakes on lateral parameters. V_2; $\delta_e = \delta_a = \delta_r = 0^0$.

DECLASSIFIED



(b) M = 1.80.

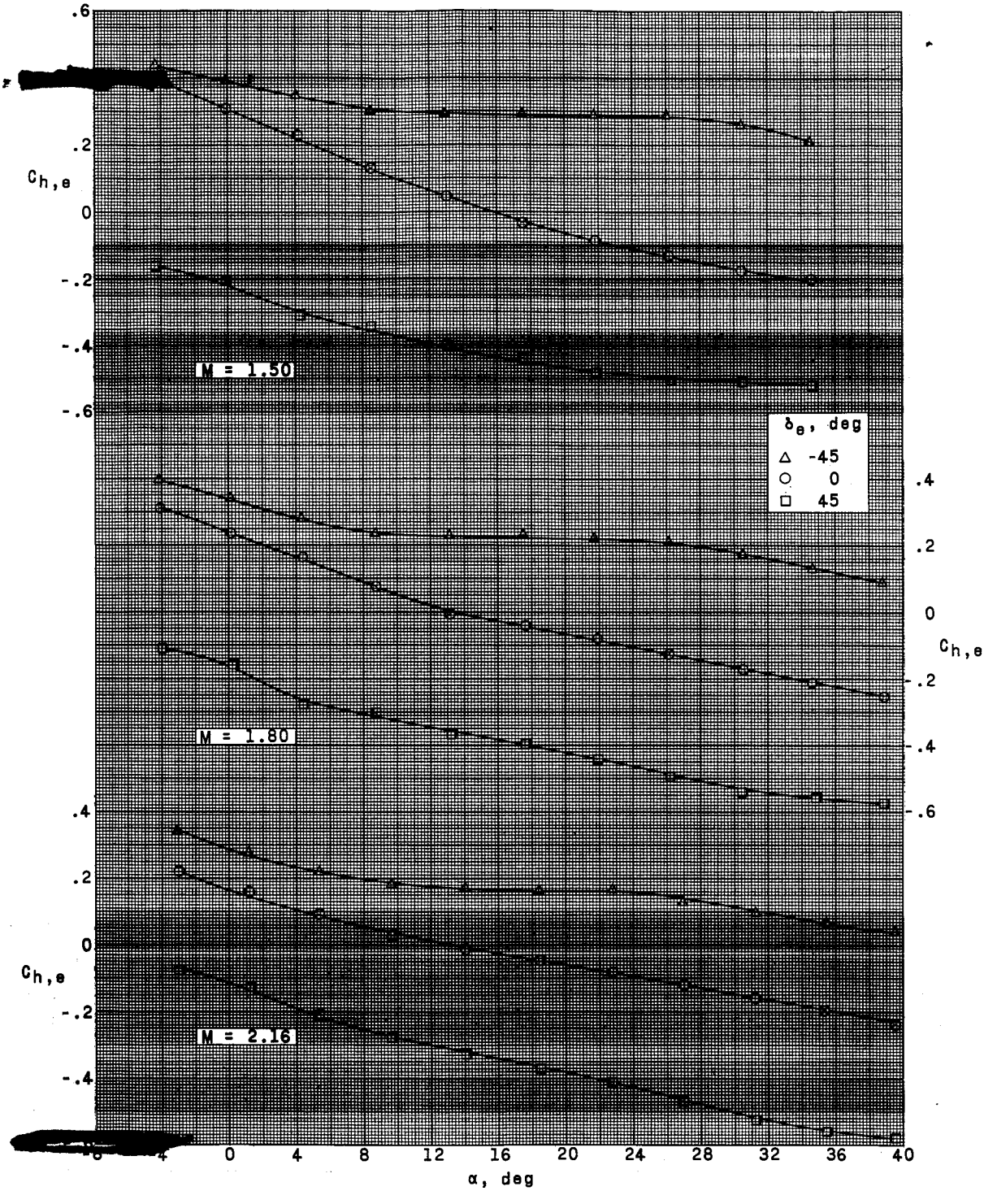
Figure 58.- Continued.



(c) M = 2.16.

Figure 58.- Concluded.

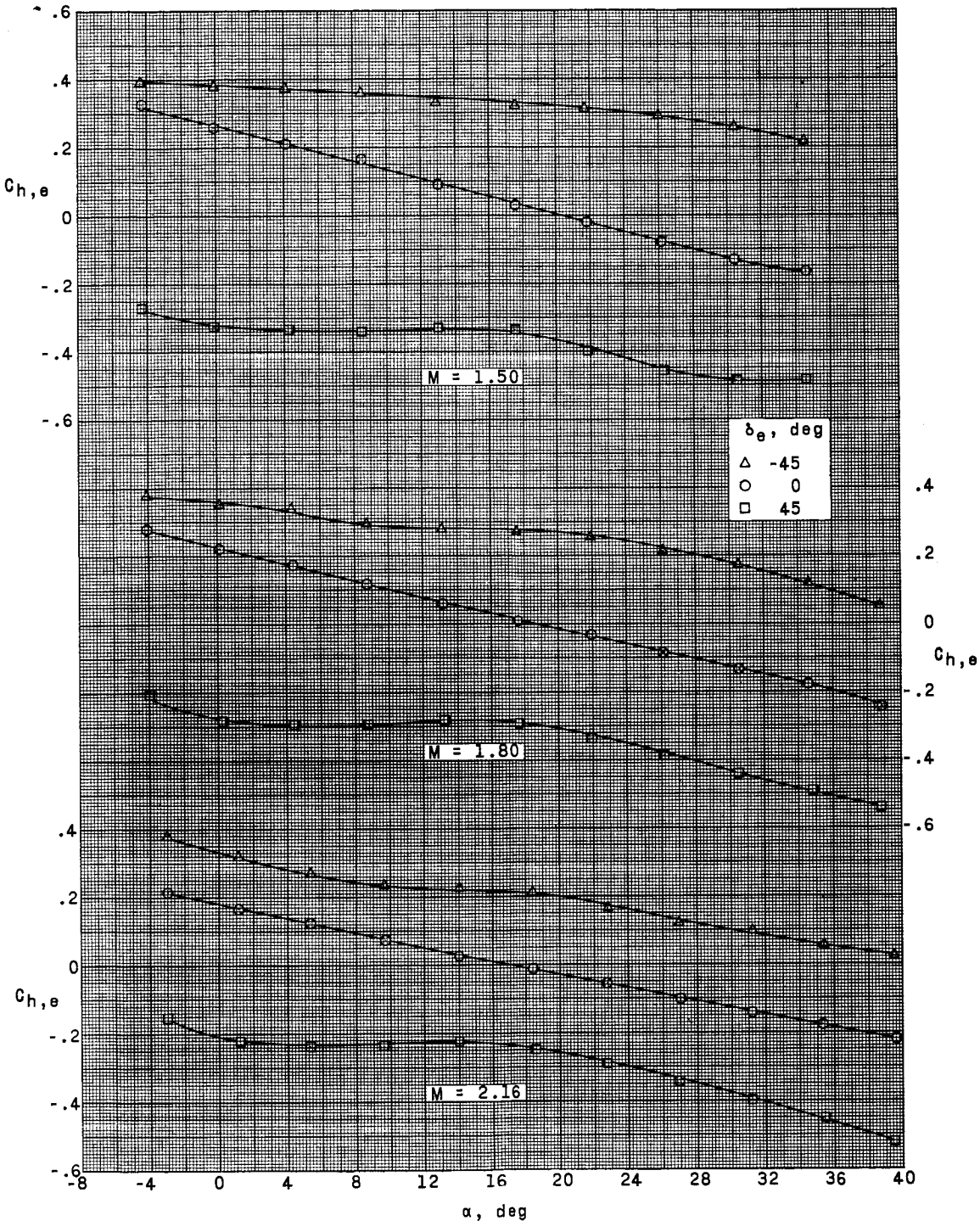
[redacted]



(a) $\beta = 0^{\circ}$.

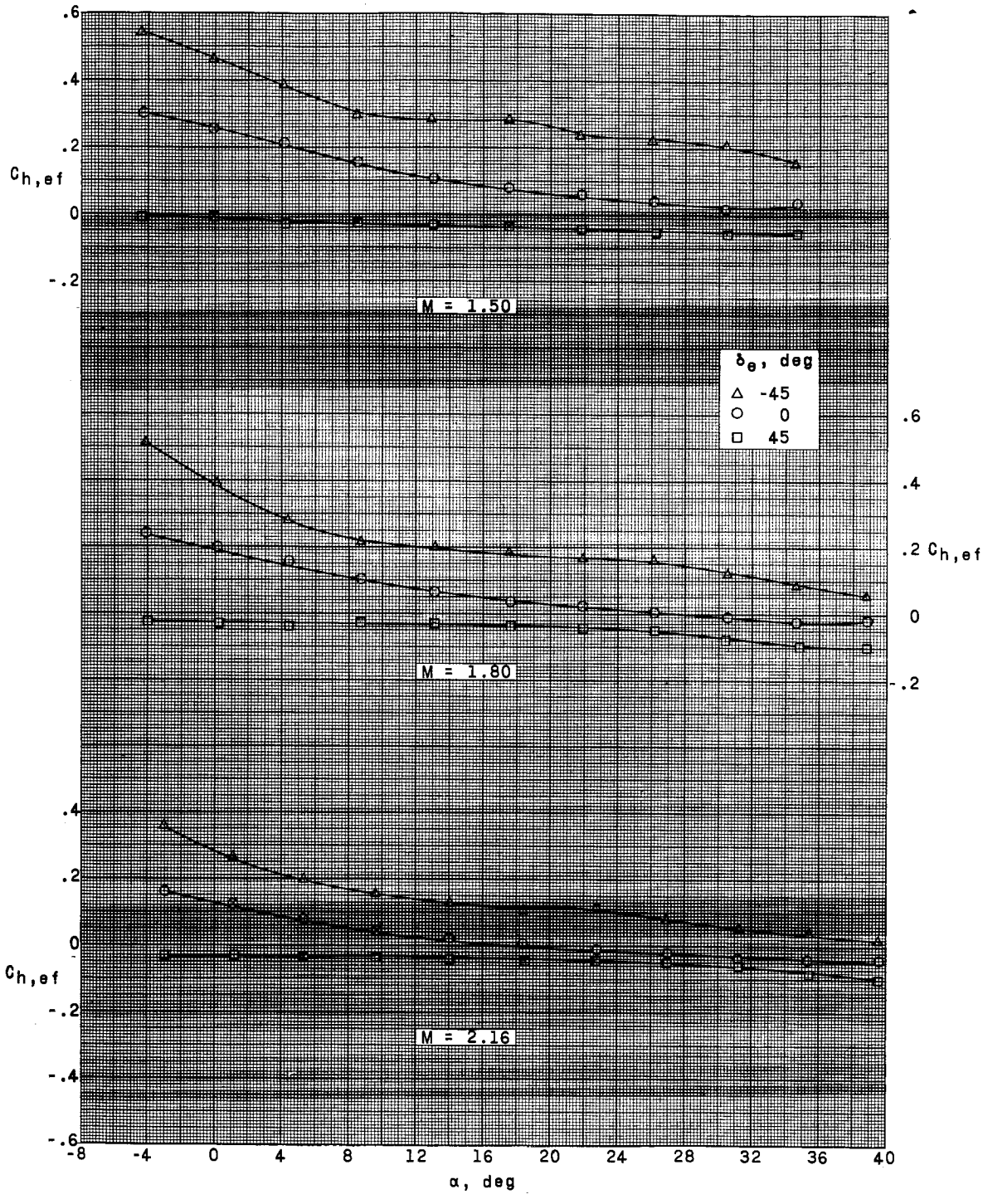
Figure 59.- Effect of pitch-control deflection on elevon hinge-moment coefficient. V_3; $\delta_a = \delta_r = 0^{\circ}$.

[redacted]



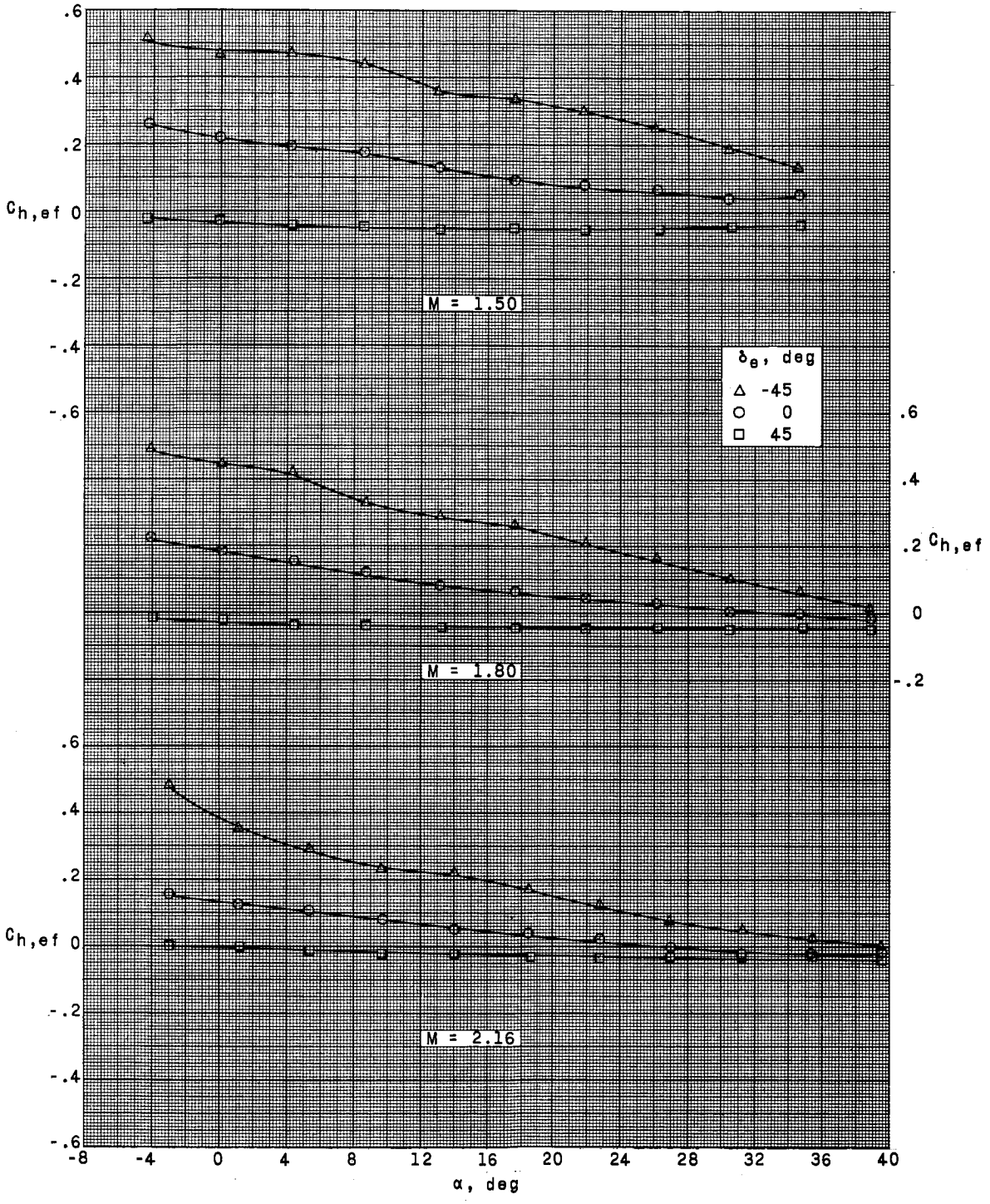
(b) $\beta = 6^0$.

Figure 59.- Concluded.



(a) $\beta = 0^{\circ}$.

Figure 60.- Effect of pitch-control deflection on elevon-flap hinge-moment coefficient. V_3; $\delta_a = \delta_r = 0^{\circ}$.



(b) $\beta = 6^0$.

Figure 60.- Concluded.

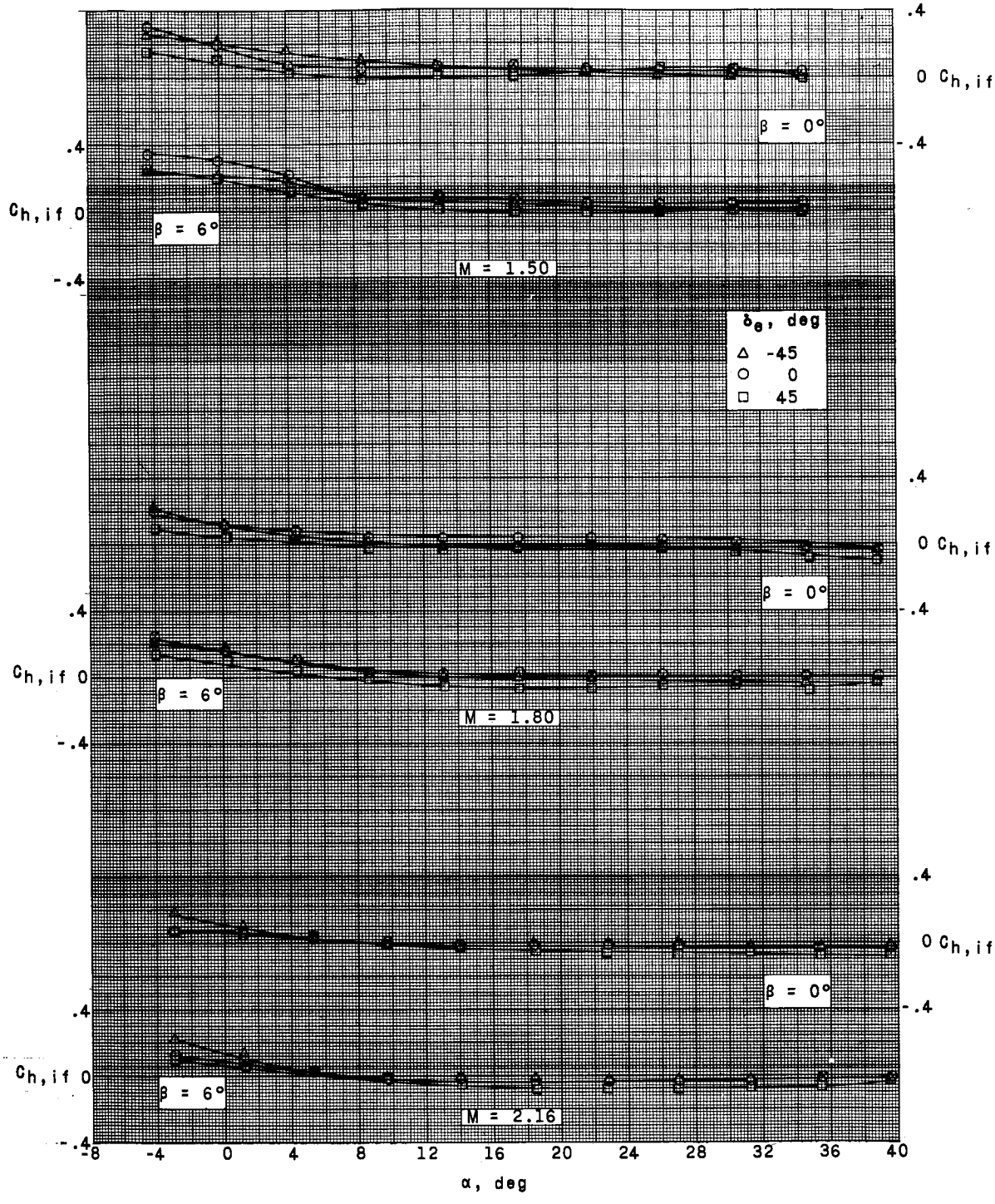


Figure 61.- Effect of pitch-control deflection on tip-fin-flap hinge-moment coefficient. V_3; $\delta_a = \delta_r = 0^0$.