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THE EFFECT OF CANARD LEADING-EDGE SWEEP AND DIHEDRAL ANGLE ON THE LONGITUDINAL AND LATERAL AERODYNAMIC CHARACTERISTICS OF A CLOSE-COUPLED CANARD-WING CONFIGURATION

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16. Abstract <p>A generalized wind-tunnel model, with canard and wing planforms typical of highly maneuverable aircraft, was tested in the Langley high-speed 7- by 10-foot tunnel at a Mach number of 0.30. The test was conducted in order to determine the effects of canard sweep and canard dihedral on canard-wing interference at high angles of attack.</p> <p>In general, the effect of canard sweep on lift is small up to an angle of attack of 16°. However, for angles of attack greater than 16°, an increase in the canard sweep results in an increase in lift developed by the canard when the canard is above or in the wing chord plane. This increased lift results in a lift increase for the total configuration for the canard above the wing chord plane. For the canard in the wing chord plane, the increased canard lift is partially lost by increased interference on the wing.</p> <p>For the configurations with the canard in the wing chord plane, increasing the canard dihedral angle from -18.6° to 18.6° increased the maximum lift coefficient of the configuration. For the configurations with the canard above the wing chord plane, the highest maximum lift coefficient was developed when the canard had no dihedral.</p> <p>In general, the configuration with the canards above the wing chord plane produced more linear pitching-moment curves throughout the angle-of-attack range than did the configuration with the canard in the wing chord plane. The theoretical data would seem to indicate that, when in the presence of each other, the canard and the wing generate vortex lift.</p> <p>For the canard in the wing chord plane, the effect of canard dihedral on the total $C_{l\beta}$ (partial derivative of rolling moment with respect to sideslip), for the configuration with the wing on, is small up to an angle of attack of approximately 8°. From 8° to approximately 20°, the effect of canard dihedral on the total $C_{l\beta}$ is as expected (the higher the dihedral angle, the more negative the $C_{l\beta}$). However, above 22°, the configuration with the highest canard dihedral becomes the most unstable. The instability could be associated with canard characteristics, wing interference characteristics, or the wing-alone characteristics. The canard-wing configuration, with a 60° swept canard, produced large unstable lateral-stability breaks.</p>					
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SUMMARY

A generalized wind-tunnel model, with canard and wing planforms typical of highly maneuverable aircraft, was tested in the Langley high-speed 7- by 10-foot tunnel at a Mach number of 0.30. The test was conducted in order to determine the effects of canard sweep and canard dihedral on canard-wing interference at high angles of attack.

In general, the effect of canard sweep on lift is small up to an angle of attack of 16° . However, for angles of attack greater than 16° , an increase in the canard sweep results in an increase in lift developed by the canard when the canard is above or in the wing chord plane. This increased lift results in a lift increase for the total configuration for the canard above the wing chord plane. For the canard in the wing chord plane, the increased canard lift is partially lost by increased interference on the wing.

For the configurations with the canard in the wing chord plane, increasing the canard dihedral angle from -18.6° to 18.6° increased the maximum lift coefficient of the configuration. For the configurations with the canard above the wing chord plane, the highest maximum lift coefficient was developed when the canard had no dihedral.

In general, the configuration with the canards above the wing chord plane produced more linear pitching-moment curves throughout the angle-of-attack range than did the configuration with the canard in the wing chord plane. The theoretical data would seem to indicate that, when in the presence of each other, the canard and the wing generate vortex lift.

For the canard in the wing chord plane, the effect of canard dihedral on the total C_{l_β} (partial derivative of rolling moment with respect to sideslip), for the configuration with the wing on, is small up to an angle of attack of approximately 8° . From 8° to approximately 20° , the effect of canard dihedral on the total C_{l_β} is as expected (the higher the dihedral angle, the more negative the C_{l_β}). However, above 22° , the configuration with the highest canard dihedral becomes the most unstable. The instability

could be associated with canard characteristics, wing interference characteristics, or the wing-alone characteristics. The canard-wing configuration, with a 60° swept canard, produced large unstable lateral-stability breaks.

INTRODUCTION

Past investigations (refs. 1 to 9) have indicated that the use of a canard on maneuvering-aircraft configurations can offer several attractive features, such as increased trimmed-lift capability (refs. 1 and 2) and reduced trimmed drag (refs. 3 and 4). In addition, the geometric characteristics of the close-coupled canard-wing configurations offer the potential for an improved longitudinal progression of cross-sectional area for operational configurations. This improved progression could result in reduced wave drag at low supersonic speeds. The canard not only is useful for longitudinal control, but it can also be used to provide direct lift and direct side-force control.

In view of these potential benefits in maneuvering-aircraft technology offered by the canard configurations, the National Aeronautics and Space Administration is conducting a study with a generalized wind-tunnel model which incorporates two balances. This model allows a separation of the canard and the wing contribution from the total forces and moments.

The present investigation was conducted in the Langley high-speed 7- by 10-foot tunnel in order to determine the effect of canard leading-edge sweep and canard dihedral angle on canard-wing interference effects at high angles of attack. The tests were conducted at a Mach number of 0.30 for a Reynolds number of 1.56×10^6 , based on a mean geometric chord \bar{c} , and at angles of attack from approximately -4° to 40° with -5° , 0° , and 5° sideslip.

SYMBOLS

The International System of Units, with the U.S. Customary Units presented in parentheses, is used for the physical quantities found in this paper. Measurements and calculations were made in U.S. Customary Units. The data presented in this report are referred to the stability-axis system, with the exception of the side-force and normal-force data, which are referred to the body-axis system. The moment reference point was taken to be at the fuselage station 59.14 cm (23.28 in.).

- A aspect ratio (2.5), b^2/s
- b wing span, 50.8 cm (20 in.)

b_C	canard span, 34.50 cm (13.58 in.)
C_D	drag coefficient, $\frac{\text{Drag}}{qS}$
C_L	lift coefficient, $\frac{\text{Lift}}{qS}$
C_Y	side-force coefficient, $\frac{\text{Side force}}{qS}$
C_l	rolling-moment coefficient, $\frac{\text{Rolling moment}}{qSb}$
C_m	pitching-moment coefficient, $\frac{\text{Pitching moment}}{qS\bar{c}}$
C_n	yawing-moment coefficient, $\frac{\text{Yawing moment}}{qSb}$
\bar{c}	wing mean geometric chord, 23.32 cm (9.18 in.)
l	longitudinal distance from model nose to canard leading edge
M	free-stream Mach number
q	free-stream dynamic pressure, N/m ² (lb/ft ²)
S	reference area of wing with leading and trailing edges extended to plane of symmetry, 1032.26 cm ² (160.00 in ²)
S_C	canard area (exposed), 288.71 cm ² (44.75 in ²)
z	vertical distance between the chord planes of the canard and wing, positive up
α	angle of attack, deg
β	angle of sideslip, deg
Λ_C	leading-edge sweep angle of canard, deg
Λ_W	leading-edge sweep angle of wing, deg
ϕ	canard dihedral angle, positive tip up, deg

Subscripts:

- C load measured on canard balance
- M load measured on main balance
- p potential
- v vortex
- β partial derivative of the quantity subscripted with respect to β , $\frac{\partial(\quad)}{\partial\beta}$,
per deg

DESCRIPTION OF MODEL

A sketch of the general research model showing the canards and the wing studied is presented in figure 1. Table I contains the pertinent geometric parameters associated with this model. A photograph of one of the model configurations mounted in the test section of the Langley high-speed 7- by 10-foot tunnel is presented as figure 2.

The untwisted wing planform used on this model had a leading-edge sweep angle Λ_w of 44.0°. The wing had an uncambered, circular-arc airfoil section with a thickness distribution which varied linearly from 6 percent of the chord at the root to 4 percent at the tip.

Five different untwisted canard planforms were tested on this model; the sweep angle and the dihedral angle for each canard planform are listed below:

Canard	Λ_C , deg	ϕ , deg
I	44.0	0.0
II	51.7	0.0
III	60.0	0.0
IV	51.7	-18.6
V	51.7	18.6

All five canards had the same exposed area, root chord, tip chord, uncambered circular-arc airfoil sections, and thickness distribution which varied linearly from 6 percent of the chord at the root to 4 percent at the tip. The exposed area of the canard was 28.0 percent of the wing reference area. Each canard was tested in the chord plane of the wing ($z/\bar{c} = 0.0$) and in a position 18.5 percent of the wing mean geometric chord above the

wing chord plane ($z/\bar{c} = 0.185$). As indicated in figure 1, the canards in the wing chord plane were located in two slightly different longitudinal locations.

The body fairings shown in figure 2 were installed to fair the canard mounting brackets into the fuselage. These fairings were removed when the canard was in the plane of the wing, making the fuselage symmetric about a horizontal plane passing through the center of the model.

APPARATUS, TESTS, AND CORRECTIONS

The present investigation was conducted in the Langley high-speed 7- by 10-foot tunnel (ref. 10). The forces and moments were measured by means of two internally mounted six-component strain-gage balances. One balance was housed within the forward segment of the fuselage and was rigidly attached to the rearward fuselage segment; a small unsealed gap was maintained between the fuselage segments in order to prevent fouling. This balance (hereafter called the canard balance) measured the loads on the canard and forward segment of the fuselage (shaded areas in fig. 1). The second balance (hereafter referred to as the main balance) was housed in the rearward segment of the fuselage and measured the total model loads.

Tests were made at a Mach number of 0.30 for a free-stream Reynolds number of 1.56×10^6 , based on the mean geometric chord \bar{c} , and at angles of attack from approximately -4° to 40° at sideslip angles of -5° , 0° , and 5° . All tests were made with a boundary-layer transition fixed on the model by means of narrow strips of carborundum (No. 90 grit) placed on the body, wings, and canards, as outlined in reference 11.

Angles of attack have been corrected for the effects of balance and sting deflection caused by the loads. All drag measurements were corrected to a condition of free-stream static pressure acting on the base of the model. Jet boundary and blockage corrections were found to be negligible, and therefore were not applied to the data.

PRESENTATION OF RESULTS

Table II defines the configuration code that is used for the results of the wind-tunnel tests which are presented in table III. In addition to the tabulated data, the data are presented in figures. An outline of the contents of these data plots follows:

	Figure
The effect of canard leading-edge sweep on the longitudinal aerodynamic characteristics for a model with	
$z/\bar{c} = 0.185$	3
$z/\bar{c} = 0.0$	4

The effect of canard dihedral on the longitudinal aerodynamic characteristics for a model with	
$z/\bar{c} = 0.185$	5
$z/\bar{c} = 0.0$	6
The comparison of the effect of canard leading-edge sweep on canard-wing interference for a model with	
Canard I and II; $z/\bar{c} = 0.185$	7
Canard II and III; $z/\bar{c} = 0.185$	8
Canard I and II; $z/\bar{c} = 0.0$	9
Canard II and III; $z/\bar{c} = 0.0$	10
The comparison of the effect of canard dihedral on canard-wing interference for a model with	
Canard II and V; $z/\bar{c} = 0.185$	11
Canard II and IV; $z/\bar{c} = 0.185$	12
Canard II and V; $z/\bar{c} = 0.0$	13
Canard II and IV; $z/\bar{c} = 0.0$	14
A comparison of theoretical and experimental characteristics for a model with	
Canard I; $z/\bar{c} = 0.185$	15
Canard II; $z/\bar{c} = 0.185$	16
Canard III; $z/\bar{c} = 0.185$	17
Canard V; $z/\bar{c} = 0.185$	18
Canard IV; $z/\bar{c} = 0.185$	19
The effect of canard leading-edge sweep on lateral-stability derivatives for a model with	
Wing on; $z/\bar{c} = 0.185$	20
Wing off; $z/\bar{c} = 0.185$	21
The effect of canard dihedral angle on lateral-stability derivatives for a model with	
Wing on; $z/\bar{c} = 0.0$	22
Wing off; $z/\bar{c} = 0.0$	23

RESULTS AND DISCUSSION

Longitudinal Aerodynamic Characteristics

The effects caused by a variation in the canard leading-edge sweep ($\Lambda_C = 44.0^\circ$, 51.7° , and 60.0°) on the longitudinal aerodynamic characteristics for canard-wing configurations at a Mach number of 0.30 are presented in figures 3 and 4. In general, there is

little difference between the lift curves ($C_{L,C}$ and C_L) for both the high ($z/\bar{c} = 0.185$) and the mid ($z/\bar{c} = 0.0$) canard configurations up to an angle of attack of approximately 16° . However, for angles of attack greater than 16° , an increase in the canard sweep for either canard position (figs. 3 and 4) results in an increase in lift developed by the canard. For the canard in the high position, this increased lift results in a lift increase for the total configuration. For the canard in the wing chord plane, the increased canard lift is partially lost by increased interference with the wing.

Since the canards and the wing have sharp leading edges, there is no leading-edge suction. Therefore, the induced drag is a function both of the lift and of the angle of attack. The configuration that produces the highest lift at a given angle of attack would, then, produce the lowest drag due to lift. (See figs. 3 and 4.)

The pitching moment for the complete configuration with the canard above the wing chord plane remains relatively linear throughout the angle-of-attack range (fig. 3(b)). The mid canard configuration, however, exhibits some nonlinearities in the pitching-moment curves at the higher angles of attack (fig. 4(b)).

The effects of the canard dihedral angle ϕ on the longitudinal aerodynamic characteristics are presented in figures 5 and 6. For the configuration with the canards above the wing chord plane (fig. 5), the canard configuration with no dihedral ($\phi = 0.0^\circ$) produced the highest maximum lift coefficient, whereas the configuration with a canard dihedral angle of $\phi = -18.6^\circ$ (anhedral) exhibited a slightly lower maximum lift coefficient. Deflecting the canard to a dihedral angle of 18.6° resulted in a large decrease in the maximum lift developed. It is interesting to note that the decrease in maximum lift is primarily the result of the canard interference on the wing, since the canard lift does not exhibit the abrupt lift loss that is exhibited by the wing.

For canard-wing configurations with the canard in the wing chord plane (fig. 6), the configuration with $\phi = 18.6^\circ$ produced the highest maximum lift coefficient. The canard-wing configuration with $\phi = -18.6^\circ$ exhibits the lowest maximum lift coefficient since the canard is effectively located below the wing and exerts a less favorable interference on the wing than do the other two mid canard configurations shown in figure 6. (The configurations for which data are presented in figure 6 had the longitudinal position of the canard at $l/\bar{c} = 1.345$ as compared with $l/\bar{c} = 1.304$ for the rest of the configurations. See fig. 1.) It is interesting to note that although the configuration with $\phi = 18.6^\circ$ ($z/\bar{c} = 0.0$) yields the maximum configuration lift coefficient (fig. 6), the maximum canard lift coefficient occurs for the $\phi = 0.0^\circ$ ($z/\bar{c} = 0.0$) configuration. This result indicates that the canard wake from the $\phi = 18.6^\circ$ ($z/\bar{c} = 0.0$) configuration interacts with the wing flow field in a more favorable manner than does that of the ($z/\bar{c} = 0.0$) configuration.

The pitching moments for the complete configuration with the canard above the wing chord plane remain relatively linear throughout the angle-of-attack range (fig. 5). The pitching moments for the canard in the wing chord plane exhibit nonlinearities at angles of attack higher than approximately 18° (fig. 6).

Figures 7 to 14 present the lift interference of the canard on the wing and of the wing on the canard for all the configurations tested. For all the configurations studied, the lift on the wing ($C_{L,M} - C_{L,C}$) not in the presence of the canard is greater than the lift on the wing ($C_{L,M} - C_{L,C}$) in the presence of the canard up to an angle of attack of approximately 18° . (The difference in $C_{L,M} - C_{L,C}$ is due to canard downwash.) Beyond an angle of attack of 18° , the wing not in the presence of the canard has stalled, and it produces a lower lift than the wing in the presence of the canard which has not stalled.

In general, the effects of canard leading-edge sweep on the lift interference effects of the canard on the wing are small until wing stall occurs. (See figs. 7 to 10.) Canards I, II, and III exhibit higher lifting capabilities in the high position ($z/\bar{c} = 0.185$) than in the mid position ($z/\bar{c} = 0.0$). (Ref. 8 confirms this result.) It should be noted again that the fuselage fairings are on for the configuration with $z/\bar{c} = 0.185$ and are off for the configuration with $z/\bar{c} = 0.0$. This difference in fuselage shape does produce some changes in maximum lift coefficient for the canard-off configurations with fairings on and off. (See figs. 7 and 9.)

The canard downwash effects on the wing between the angles of attack of 0° and 18° for the canard-wing configuration with $\phi = 18.6^\circ$ and $z/\bar{c} = 0.185$ (fig. 11) are approximately one-half that for the canard-wing configuration with $\phi = 0.0^\circ$ and $z/\bar{c} = 0.185$. This result is not surprising since the dihedral ($\phi = 18.6^\circ$) in the canard is placing the canard wake further from the wing than the canard with no dihedral ($\phi = 0.0^\circ$). For the case of the canard above the wing chord plane, there is little effect of canard dihedral on the lift interference of the wing on the canard (figs. 11 to 13).

The data in figures 13 and 14 show that for the canard (II, IV, or V) in the wing chord plane, the least favorable canard-on-wing and wing-on-canard lift interference occurred for the configuration with $\phi = -18.6^\circ$ (fig. 14). This result is expected since the canard-wing configuration with canard II below the wing chord plane ($z/\bar{c} = -0.185$), reported in reference 9, exhibited considerably lower lifting capabilities than did the configurations with canard II at $z/\bar{c} = 0.185$ or 0.0 .

Comparison of Experimental and Theoretical Lift Characteristics

A comparison of the experimental lift with theoretical lift is presented in figures 15 to 19 for the wing alone, for the wing in the presence of the canard, and for the canard alone. The lift curves for the potential flow case ($C_{L,p}$) were predicted by using the

vortex-lattice program of reference 12 and the vortex-lift case ($C_{L,(p+v)}$) by the method of reference 13. All calculations were made for the canard in the high position ($z/\bar{c} = 0.185$).

The canard potential-lift theory curves for canards I and II (figs. 15 and 16), with the wing off, predict a higher lift than the experimental data at the higher angles of attack, and indicate a flow separation on the canards. The canard potential-lift theory curve for canard III, with wing off (fig. 17), agrees with experimental data up to an angle of attack of about 16° . Beyond this point the potential theory underpredicts the experimental data and indicates that the canard leading-edge sweep and fuselage flow field may be delaying canard separation. For the configurations with the wing on, the canard potential-lift theory underpredicts the experimental data at angles of attack above 24° , 8° , and 4° for canards I, II, and III, respectively; but at no time do any of these canards develop the full theoretical vortex lift. It should be noted that the fuselage interference effects may not have been treated properly; this may account for some of the differences between the theory and the experiment.

The data in figures 15 to 17 show that for the wing alone, the wing potential-lift theory agrees with the experiment up to an angle of attack of approximately 16° . Beyond this point the potential theory overpredicts the experimental data and indicates flow separation on the wing. The vortex-lift theory ($C_{L,(p+v)}$), for the wing in the presence of canards I and II (figs. 15 and 16), predicts a lift lower than the experimental data at angles of attack below approximately 32° . The vortex-lift theory for the wing in the presence of canard III (fig. 17) agrees with the experiment at angles of attack below approximately 32° .

In general, the data in figures 18 and 19 indicate that canards IV and V in the presence of the wing generate some vortex lift whereas the canard alone does not. For the wing in the presence of canard V (fig. 18), the wing appears to produce full vortex lift up to an angle of attack of approximately 22° . At that time the vortex appears to break down and stall occurs. The vortex-lift theory underpredicts the experiment for the wing in the presence of canard IV. (See fig. 19.)

These theoretical data seem to indicate that the canard and wing generate vortex lift when in the presence of each other. In some cases the leading-edge vortex-lift theory underpredicts the experimental $C_{L,M} - C_{L,C}$ (figs. 15, 16 and 19); this result suggests the possibility that there may be tip-vortex lift effects (ref. 14). Further studies are required to understand the flow field produced by a close-coupled canard-wing configuration.

Lateral Aerodynamic Characteristics

The effect of canard sweep on the direct contribution of the canard to the lateral directional characteristics and the effect of canard sweep on the wing interference on the canard in terms of the lateral-directional characteristics are shown in figures 20 and 21; the effects are generally small. The effect of canard sweep on total $C_{l\beta}$ (fig. 20) is very small up to an angle of attack of 12° , above which there is a significant effect. There is a strong unstable $C_{l\beta}$ break for canard III ($\Lambda_C = 60^\circ$) at an angle of attack of approximately 16° . At the higher angles of attack, that is, above 26° , the configuration exhibits a strong stable break.

The effect of canard sweep on $C_{n\beta}$ (fig. 20) is generally negligible up to an angle of attack of approximately 24° ; above 24° some differences are evident. All three canard-wing configurations shown in figure 20 were strongly unstable in $C_{n\beta}$, a situation which is expected since the configurations have no vertical tail.

The effect of canard dihedral on canard $C_{n\beta}$ and $C_{Y\beta}$ is small up to an angle of attack of 32° for both the wing-on and wing-off configurations (figs. 22 and 23). However, the effect of canard dihedral on canard $C_{l\beta}$ is, as expected (the higher the dihedral the more negative the $C_{l\beta}$), up to an angle of attack of approximately 22° . At angles of attack higher than 22° , the trend reverses (the lower the dihedral the more negative $C_{l\beta}$) for wing-on configurations; whereas for the wing-off configurations the $C_{l\beta}$ curves are as expected. There is an exception in the region between the angles of attack of 18° and 26° , where the canard V configuration $C_{l\beta}$ curve shows an unstable break at approximately 18° and a stable break at 22° .

The effect of canard dihedral on the total $C_{l\beta}$ (fig. 22) for the configuration with the wing on is small up to an angle of attack of approximately 8° ; from 8° to approximately 20° the effect of canard dihedral on the total $C_{l\beta}$ is as expected (the higher the dihedral angle, the more negative the $C_{l\beta}$). Above 22° the configuration with the highest canard dihedral becomes the most unstable, which, as indicated previously, could be associated with the canard characteristics, the wing interference characteristics, or the wing-alone characteristics.

All three dihedral canard-wing configurations were strongly unstable in $C_{n\beta}$ since the configurations had no vertical tail.

CONCLUSIONS

A generalized wind-tunnel model, with canard and wing planforms typical of highly maneuverable aircraft, was tested in the Langley high-speed 7- by 10-foot tunnel at a Mach number of 0.3. The test was conducted in order to determine the effects of canard

sweep and canard dihedral on canard-wing interference to a high angle of attack. The major results of this investigation may be summarized as follows:

1. In general, the effect of canard sweep on lift is small up to an angle of attack of 16° . However, for angles of attack greater than 16° , increasing the canard sweep results in an increase in lift developed by the canard for the canard above or in the wing chord plane. This increased lift results in a lift increase for the total configuration when the canard is above the wing chord plane. For the canard in the wing chord plane, the increased canard lift is partially lost by increased interference on the wing.

2. For the configurations with the canard in the wing chord plane, increasing the canard dihedral angle from -18.6° to 18.6° increased the maximum lift coefficient of the configuration. For the configurations with the canard above the wing chord plane, the highest maximum lift coefficient was developed when the canard had no dihedral.

3. In general, the configuration with the canards above the wing chord plane produced more linear pitching-moment curves throughout the angle-of-attack range than did the configuration with the canard in the wing chord plane.

4. The theoretical data would seem to indicate that the canard and wing generate vortex lift when in the presence of each other.

5. The effect of canard dihedral, for the canard in the wing chord plane, on the total $C_{l\beta}$ (partial derivative of rolling moment with respect to sideslip) for the configuration with the wing on, is small up to an angle of attack of approximately 8° ; from 8° to approximately 20° the effect of canard dihedral on the total $C_{l\beta}$ is as expected (the higher the dihedral angle, the more negative the $C_{l\beta}$). However, above 22° , the configuration with the highest canard dihedral becomes the most unstable. The instability could be associated with the canard characteristics, wing interference characteristics, or the wing-alone characteristics.

6. The canard-wing configuration, with 60° swept canard, produced large unstable lateral-stability breaks.

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REFERENCES

1. Behrbohm, Hermann: Basic Low Speed Aerodynamics of Short-Coupled Canard Configuration of Small Aspect Ratio. SAAB TN 60, SAAB Aircraft Co. (Linköping, Sweden), July 1965.
2. Lacey, David W.; and Chorney, Stephen J.: Subsonic Aerodynamic Characteristics of Close-Coupled Canards With Varying Area and Position Relative to a 50° Swept Wing. Tech. Note AL-199, Naval Ship Res. & Develop. Center, Mar. 1971. (Available from DDC as AD 882 702L.)
3. McKinney, Linwood W.; and Dollyhigh, Samuel M.: Some Trim Drag Considerations for Maneuvering Aircraft. J. Aircraft, vol. 8, no. 8, Aug. 1971, pp. 623-629.
4. Dollyhigh, Samuel M.: Static Longitudinal Aerodynamic Characteristics of Close-Coupled Wing-Canard Configuration at Mach Numbers From 1.60 to 2.86. NASA TN D-6597, 1971.
5. Ottensoser, Jonah: Wind Tunnel Data on the Transonic Aerodynamic Characteristics of Close-Coupled Canards With Varying Planform Position and Deflection Relative to a 50° Swept Wing. Test Rep. AL-88, Naval Ship Res. & Develop. Center, May 1972.
6. Krouse, John R.: Effects of Canard Planform on the Subsonic Aerodynamic Characteristics of a 25° and a 50° Swept-Wing Research Aircraft Model. Evaluation Rep. AL-91, Naval Ship Res. & Develop. Center, May 1972.
7. Lacey, David W.: Transonic Characteristics of Close-Coupled Canard and Horizontal Tail Installed on a 50 Degree Sweep Research Aircraft Model. Evaluation Rep. AL-81, Naval Ship Res. & Develop. Center, Aug. 1972.
8. Gloss, Blair B.; and McKinney, Linwood W.: Canard-Wing Lift Interference Related to Maneuvering Aircraft at Subsonic Speeds. NASA TM X-2897, 1973.
9. Gloss, Blair B.: Effect of Canard Location and Size on Canard-Wing Interference and Aerodynamic-Center Shift Related to Maneuvering Aircraft at Transonic Speeds. NASA TN D-7505, 1974.
10. Schaefer, William T., Jr.: Characteristics of Major Active Wind Tunnels at the Langley Research Center. NASA TM X-1130, 1965.
11. Braslow, Albert L.; Hicks, Raymond M.; and Harris, Roy V., Jr.: Use of Grit-Type Boundary-Layer-Transition Trips on Wind-Tunnel Models. NASA TN D-3579, 1967.
12. Margason, Richard J.; and Lamar, John E.: Vortex-Lattice FORTRAN Program for Estimating Subsonic Aerodynamic Characteristics of Complex Planforms. NASA TN D-6142, 1971.

13. Polhamus, Edward C.: A Concept of the Vortex Lift of Sharp-Edge Delta Wings Based on a Leading-Edge-Suction Analogy. NASA TN D-3767, 1966.
14. Lamar, John E.: Extension of Leading-Edge-Suction Analogy to Wings With Separated Flow Around the Side Edges at Subsonic Speeds. NASA TR R-428, 1974.

TABLE I.- GEOMETRIC CHARACTERISTICS

Body length, cm (in.)	96.52 (38.00)
Wing:	
A	2.5
b/2, cm (in.)	25.4 (10.00)
Λ_w , deg	44
\bar{c} , cm (in.)	23.32 (9.18)
Airfoil section	Circular arc
S, cm ² (in ²)	1032.26 (160.00)
Root chord, cm (in.)	29.79 (11.73)
Tip chord, cm (in.)	6.78 (2.67)
Maximum thickness, percent chord, at -	
Root	6
Tip	4
Canards I, II, III, IV, and V:	
Λ_C of canard I, deg	44
ϕ of canard I, deg	0
Λ_C of canard II, deg	51.7
ϕ of canard II, deg	0
Λ_C of canard III, deg	60
ϕ of canard III, deg	0
Λ_C of canard IV, deg	51.7
ϕ of canard IV, deg	-18.6
Λ_C of canard V, deg	51.7
ϕ of canard V, deg	18.6
Airfoil section	Circular arc
S _C , cm ² (in ²)	288.71 (44.75)
b _C /2, cm (in.)	17.25 (6.79)
Root chord, cm (in.)	17.97 (7.05)
Tip chord, cm (in.)	3.59 (1.41)
Maximum thickness, percent chord, at -	
Root	6
Tip	4

TABLE II.- CONFIGURATIONS

Configuration as listed in table III	Wing	Canard	Λ_C , deg	ϕ , deg	z/\bar{c}	l/\bar{c}	β , deg
74010	On	On	51.7	0.0	0.185	1.304	0.0
74011	On	On	51.7	0.0	.185	1.304	5.0
74012	On	On	51.7	0.0	.185	1.304	-5.0
74015	On	Off	---	----	.185	----	0.0
74016	On	Off	---	----	.185	----	-5.0
74017	On	Off	---	----	.185	----	5.0
74032	Off	On	51.7	0.0	.185	1.304	0.0
74033	Off	On	51.7	0.0	.185	1.304	-5.0
74034	Off	On	51.7	0.0	.185	1.304	5.0
74106	On	Off	---	----	0.0	----	0.0
74107	On	Off	---	----	0.0	----	5.0
74108	On	Off	---	----	0.0	----	-5.0
78023	Off	On	51.7	0.0	0.0	1.345	0.0
78024	Off	On	51.7	0.0	0.0	1.345	5.0
78025	Off	On	51.7	0.0	0.0	1.345	-5.0
78032	On	On	51.7	0.0	0.0	1.345	0.0
78033	On	On	51.7	0.0	0.0	1.345	5.0
78034	On	On	51.7	0.0	0.0	1.345	-5.0
78044	On	On	51.7	-18.6	0.0	1.345	0.0
78045	On	On	51.7	-18.6	0.0	1.345	5.0
78046	On	On	51.7	-18.6	0.0	1.345	-5.0
78047	Off	On	51.7	-18.6	0.0	1.345	0.0
78048	Off	On	51.7	-18.6	0.0	1.345	5.0
78049	Off	On	51.7	-18.6	0.0	1.345	-5.0
78051	On	On	51.7	18.6	0.0	1.345	0.0
78052	On	On	51.7	18.6	0.0	1.345	5.0
78054	On	On	51.7	18.6	0.0	1.345	-5.0
78055	Off	On	51.7	18.6	0.0	1.345	0.0
78056	Off	On	51.7	18.6	0.0	1.345	5.0
78057	Off	On	51.0	18.6	0.0	1.345	-5.0
78114	On	On	44.0	0.0	.185	1.304	0.0
78115	On	On	44.0	0.0	.185	1.304	5.0
78116	On	On	44.0	0.0	.185	1.304	-5.0
78120	Off	On	44.0	0.0	.185	1.304	0.0
78121	Off	On	44.0	0.0	.185	1.304	5.0
78122	Off	On	44.0	0.0	.185	1.304	-5.0
78123	Off	On	60.0	0.0	.185	1.304	0.0
78124	Off	On	60.0	0.0	.185	1.304	5.0
78125	Off	On	60.0	0.0	.185	1.304	-5.0
78126	On	On	60.0	0.0	.185	1.304	0.0
78127	On	On	60.0	0.0	.185	1.304	5.0
78128	On	On	60.0	0.0	.185	1.304	-5.0
78129	On	On	51.7	-18.6	.185	1.304	0.0
78131	On	On	51.7	18.6	.185	1.304	0.0
78133	Off	On	51.7	18.6	.185	1.304	0.0
78134	Off	On	51.7	-18.6	.185	1.304	0.0
78158	On	On	51.7	0.0	0.0	1.304	0.0
78167	Off	On	51.7	0.0	0.0	1.304	0.0
78171	On	On	60.0	0.0	0.0	1.304	0.0
78172	On	On	44.0	0.0	0.0	1.304	0.0
78173	Off	On	44.0	0.0	0.0	1.304	0.0
78174	Off	On	60.0	0.0	0.0	1.304	0.0

TABLE III.- TABULATED RESULTS

The symbols used in the tabulated data are defined as follows:

CONFIG NO.	Configuration number (see table II)
ALPHA	Angle of attack, deg
BETA	Angle of sideslip, deg
CL1	Lift coefficient, main balance
CD1	Drag coefficient, main balance
CM1	Pitching-moment coefficient, main balance
CR1	Rolling-moment coefficient, main balance
CY1	Yawing-moment coefficient, main balance
CS1	Side-force coefficient, main balance
CL2	Lift coefficient, canard balance
CM2	Pitching-moment coefficient, canard balance
CR2	Rolling-moment coefficient, canard balance
CY2	Yawing-moment coefficient, canard balance
CS2	Side-force coefficient, canard balance

TABLE III.- TABULATED RESULTS -- Continued

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 74010												
-4.40	.00	-.2549	.0330	-.0425	-.0002	.0006	-.0022	-.0955	-.0936	.0004	.0004	.0001
-2.65	-.01	-.1527	.0229	-.0243	.0003	.0010	-.0024	-.0529	-.0534	.0004	.0004	.0021
-.59	-.00	-.0301	.0189	-.0023	.0003	.0010	.0013	-.0056	-.0073	.0005	.0008	.0010
2.29	.01	.1369	.0229	.0245	.0002	.0010	.0007	.0551	.0518	.0007	.0006	.0006
4.25	.02	.2621	.0338	.0471	-.0000	.0011	-.0004	.1048	.0981	.0006	.0001	-.0003
6.36	.02	.4061	.0567	.0700	.0005	.0013	-.0016	.1604	.1510	.0010	.0003	.0002
8.52	-.02	.5524	.0907	.0917	.0002	.0017	.0003	.2131	.2030	.0008	.0005	.0006
10.66	.03	.6945	.1369	.1144	.0011	.0012	-.0030	.2639	.2550	.0006	-.0000	-.0004
12.66	.03	.8214	.1888	.1313	.0002	.0014	-.0033	.3169	.3113	.0006	.0001	-.0002
14.84	.04	.9762	.2603	.1501	.0006	.0014	-.0044	.3603	.3555	.0005	.0001	-.0002
16.77	.03	1.0967	.3297	.1707	.0004	.0013	.0091	.4054	.4038	.0004	.0002	-.0004
19.05	.06	1.2340	.4230	.1885	.0001	.0019	-.0073	.4512	.4556	-.0001	-.0001	-.0011
21.19	.06	1.3605	.5235	.2048	.0004	.0020	-.0082	.4909	.5032	-.0005	.0000	-.0010
25.16	.07	1.5566	.7255	.2329	.0016	.0024	-.0076	.5579	.5870	-.0003	.0000	-.0007
29.64	.09	1.7380	.9782	.2604	.0028	.0008	-.0085	.6254	.6819	.0001	-.0007	-.0010
33.69	.10	1.8041	1.1915	.2652	.0056	-.0038	-.0057	.6532	.7403	.0017	-.0015	-.0014
37.56	.18	1.6957	1.2963	.2856	.0177	-.0374	-.0117	.6397	.7599	.0015	-.0097	-.0138
-.02	-.00	-.0075	.0176	.0011	-.0002	.0006	-.0002	.0033	.0015	.0005	.0003	-.0000

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 74011												
1.60	4.38	.0971	.0226	.0197	-.0036	-.0121	-.0318	.0437	.0411	-.0028	-.0154	-.0181
2.25	4.50	.1388	.0241	.0291	-.0044	-.0125	-.0327	.0585	.0553	-.0032	-.0166	-.0208
3.80	4.73	.2405	.0315	.0444	-.0062	-.0134	-.0353	.0970	.0917	-.0038	-.0165	-.0205
5.76	4.80	.3777	.0505	.0630	-.0076	-.0142	-.0370	.1468	.1392	-.0041	-.0171	-.0222
7.84	4.94	.5249	.0813	.0851	-.0101	-.0144	-.0388	.1985	.1892	-.0040	-.0175	-.0234
10.05	5.00	.6622	.1235	.1051	-.0081	-.0155	-.0406	.2475	.2393	-.0044	-.0181	-.0252
12.30	5.05	.8098	.1810	.1292	-.0105	-.0162	-.0409	.3014	.2938	-.0049	-.0188	-.0272
14.59	5.10	.9628	.2527	.1490	-.0095	-.0169	-.0414	.3551	.3495	-.0056	-.0192	-.0284
16.90	5.22	1.1036	.3354	.1685	-.0081	-.0185	-.0436	.4037	.4023	-.0062	-.0206	-.0313
19.52	5.23	1.2464	.4411	.1828	-.0045	-.0215	-.0390	.4487	.4540	-.0056	-.0216	-.0334
21.37	5.30	1.3559	.5286	.1947	-.0050	-.0260	-.0386	.4861	.4968	-.0061	-.0234	-.0370
26.13	5.35	1.5645	.7626	.2112	-.0033	-.0336	-.0361	.5572	.5879	-.0061	-.0264	-.0429
30.33	5.40	1.7178	.9928	.2480	-.0037	-.0457	-.0430	.6199	.6774	-.0085	-.0309	-.0523
34.77	5.47	1.7478	1.2005	.2882	-.0026	-.0596	-.0462	.6521	.7461	-.0119	-.0346	-.0611
39.21	5.72	1.6740	1.3511	.3055	-.0105	-.0603	-.0893	.6411	.7752	-.0171	-.0358	-.0677
1.86	4.97	.1076	.0207	.0247	-.0041	-.0128	-.0326	.0478	.0459	-.0031	-.0158	-.0187

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 74012												
3.09	-4.71	.1594	.0261	.0302	.0044	.0131	.0249	.0667	.0624	.0045	.0150	.0175
3.87	-4.69	.2110	.0333	.0385	.0051	.0133	.0274	.0859	.0807	.0049	.0152	.0181
5.94	-4.90	.3625	.0496	.0607	.0074	.0153	.0312	.1426	.1343	.0057	.0166	.0209
8.06	-4.95	.5097	.0808	.0809	.0079	.0160	.0316	.1962	.1869	.0052	.0166	.0217
10.23	-4.92	.6534	.1236	.1015	.0072	.0164	.0290	.2433	.2354	.0052	.0168	.0228
12.52	-4.94	.8077	.1824	.1273	.0109	.0176	.0294	.3004	.2932	.0057	.0175	.0246
14.72	-5.05	.9486	.2508	.1451	.0102	.0186	.0282	.3495	.3444	.0064	.0183	.0267
17.02	-5.09	1.0878	.3223	.1654	.0089	.0209	.0281	.3985	.3971	.0063	.0190	.0280
19.29	-5.14	1.2192	.4255	.1756	.0049	.0242	.0238	.4354	.4398	.0059	.0204	.0302
21.48	-5.13	1.3418	.5251	.1928	.0050	.0269	.0211	.4807	.4918	.0059	.0214	.0326
26.11	-5.18	1.5740	.7626	.2299	.0065	.0320	.0177	.5650	.5961	.0069	.0240	.0383
30.57	-5.31	1.7441	1.0168	.2582	.0127	.0409	.0232	.6332	.6927	.0096	.0283	.0485
35.03	-5.21	1.7786	1.2309	.2869	.0185	.0433	.0396	.6578	.7551	.0141	.0286	.0530
39.27	-5.35	1.6896	1.3646	.3046	.0162	.0584	.0696	.6451	.7811	.0200	.0338	.0660
3.56	-5.24	.1864	.0270	.0350	.0052	.0143	.0290	.0772	.0722	.0051	.0159	.0185

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 74015												
-4.29	-.04	-.2189	.0266	.0365	.0003	.0004	.0033	-.0098	-.0219	-.0001	.0004	-.0000
-.59	-.01	-.0225	.0160	.0028	.0002	-.0037	-.0006	-.0010	-.0037	.0000	.0002	-.0004
2.37	-.00	.1251	.0195	-.0193	.0005	.0005	.0014	.0066	.0106	-.0000	.0002	-.0003
4.05	.00	.2179	.0280	-.0339	.0007	.0005	.0017	.0109	.0186	-.0000	-.0001	-.0006
6.32	-.02	.3441	.0477	-.0548	.0001	-.0011	-.0037	.0178	.0346	-.0000	.0002	-.0002
8.19	-.03	.4412	.0716	-.0691	.0003	.0010	-.0049	.0236	.0409	.0000	.0003	-.0001
10.34	-.03	.5415	.1061	-.0809	-.0001	.0025	-.0063	.0308	.0525	.0000	.0003	-.0000
12.20	-.03	.6208	.1415	-.0960	-.0001	.0018	-.0084	.0364	.0619	.0001	.0004	.0001
14.46	-.04	.6993	.1877	-.1121	.0004	.0013	-.0081	.0431	.0730	.0001	.0006	.0005
16.40	-.05	.7896	.2415	-.1365	.0001	.0009	-.0062	.0492	.0838	.0001	.0006	.0006
18.48	-.05	.8300	.2944	-.1734	.0001	.0031	-.0119	.0574	.0968	.0001	.0006	.0006
20.46	-.06	.8518	.3371	-.1940	.0005	.0033	-.0122	.0632	.1073	.0002	.0008	.0011
24.43	-.06	.9526	.4484	-.2217	.0064	-.0020	-.0095	.0753	.1281	.0003	.0008	.0012
28.63	-.05	.9825	.5520	-.2244	.0131	-.0140	-.0172	.0869	.1514	.0002	.0004	.0004
32.45	-.06	.9962	.6486	-.2301	.0067	-.0088	-.0077	.0963	.1721	.0008	.0014	.0026
37.02	-.09	.9826	.7495	-.2392	.0019	-.0046	.0133	.1081	.1979	.0020	.0028	.0062
-.01	-.00	-.0011	.0145	.0007	-.0000	-.0015	-.0005	.0010	-.0004	-.0000	-.0025	-.0054

TABLE III.- TABULATED RESULTS - Continued

M A I N B A L A N C E						S E C O N D B A L A N C E						
CONFIG NO.						74016						
ALPHA DEG	BETA DEG	CL1	COL	COL	CR1	CYL	CS1	CL2	CM2	CR2	CY2	CS2
3.12	-4.85	.1412	.0226	-.0230	.0024	.0130	.0152	.0090	.0139	.0007	.0135	.0137
3.74	-4.87	.1754	.0250	-.0287	.0028	.0135	.0164	.0098	.0161	.0008	.0137	.0140
5.69	-4.99	.2937	.0394	-.0503	.0041	.0137	.0198	.0153	.0252	.0013	.0148	.0160
7.85	-5.04	.4130	.0646	-.0687	.0044	.0151	.0220	.0218	.0370	.0018	.0154	.0175
9.96	-5.12	.5131	.0960	-.0810	.0038	.0156	.0254	.0287	.0489	.0025	.0162	.0193
12.18	-5.22	.6092	.1373	-.0957	.0033	.0169	.0293	.0363	.0609	.0033	.0173	.0219
14.32	-5.17	.7073	.1868	-.1122	.0041	.0184	.0334	.0451	.0754	.0041	.0181	.0236
16.58	-5.19	.7797	.2398	-.1312	.0046	.0188	.0388	.0508	.0855	.0049	.0184	.0251
18.61	-5.17	.8028	.2858	-.1712	.0069	.0195	.0385	.0578	.0965	.0057	.0192	.0273
20.76	-5.16	.8057	.3241	-.1755	.0140	.0111	.0468	.0641	.1076	.0066	.0197	.0290
25.32	-5.29	.9073	.4417	-.2013	.0314	-.0132	.0559	.0775	.1318	.0083	.0198	.0311
29.58	-5.20	.9503	.5510	-.2197	.0225	-.0016	.0713	.0904	.1572	.0104	.0207	.0359
33.81	-5.19	.9712	.6543	-.2271	.0317	-.0039	.0716	.1076	.1798	.0133	.0223	.0416
37.97	-5.17	.9399	.7344	-.2284	.0341	.0012	.0987	.1037	.1925	.0181	.0256	.0536
40.08	-4.70	.9647	.8108	-.2331	.0304	.0075	.1056	.1093	.2061	.0197	.0257	.0567
3.67	-5.30	.1659	.0240	-.0266	.0028	.0143	.0168	.0108	.0171	.0008	.0141	.0141

M A I N B A L A N C E						S E C O N D B A L A N C E						
CONFIG NO.						74017						
ALPHA DEG	BETA DEG	CL1	COL	COL	CR1	CYL	CS1	CL2	CM2	CR2	CY2	CS2
1.61	4.32	.0857	.0195	-.0122	-.0012	-.0120	-.0207	.0077	.0104	-.0004	-.0125	-.0131
2.25	4.49	.1216	.0207	-.0195	-.0021	-.0123	-.0220	.0076	.0114	-.0006	-.0133	-.0144
3.72	4.66	.2037	.0265	-.0335	-.0028	-.0128	-.0251	.0110	.0178	-.0009	-.0138	-.0153
5.71	4.76	.3184	.0419	-.0524	-.0037	-.0131	-.0279	.0169	.0285	-.0013	-.0141	-.0160
7.73	4.86	.4251	.0649	-.0686	-.0040	-.0132	-.0325	.0224	.0385	-.0019	-.0154	-.0178
9.81	4.96	.5201	.0952	-.0897	-.0051	-.0134	-.0378	.0287	.0492	-.0024	-.0154	-.0188
12.08	5.05	.6173	.1386	-.0963	-.0034	-.0148	-.0427	.0376	.0633	-.0031	-.0160	-.0206
14.19	5.08	.7079	.1859	-.1146	-.0040	-.0158	-.0501	.0447	.0749	-.0040	-.0173	-.0234
16.39	5.18	.7888	.2398	-.1369	-.0060	-.0173	-.0559	.0503	.0856	-.0049	-.0183	-.0258
18.64	5.15	.8274	.2947	-.1761	-.0104	-.0154	-.0584	.0580	.0984	-.0056	-.0184	-.0267
20.81	5.30	.8308	.3347	-.1845	-.0112	-.0142	-.0634	.0646	.1098	-.0063	-.0185	-.0276
25.09	5.14	.9124	.4400	-.2055	-.0297	-.0158	-.0695	.0771	.1321	-.0073	-.0176	-.0276
29.36	5.25	.9543	.5476	-.2215	-.0244	-.0113	-.0763	.0885	.1554	-.0093	-.0187	-.0317
33.77	5.33	.9809	.6603	-.2277	-.0243	.0075	-.0855	.0991	.1787	-.0114	-.0193	-.0353
38.13	5.43	.9451	.7401	-.2203	-.0268	.0007	-.0908	.1062	.1974	-.0141	-.0202	-.0407
40.25	5.29	.9350	.7871	-.2218	-.0256	.0002	-.1014	.1091	.2060	-.0153	-.0203	-.0432
1.82	4.92	.0936	.0187	-.0137	-.0016	-.0125	-.0225	.0080	.0109	-.0005	-.0135	-.0144

M A I N B A L A N C E						S E C O N D B A L A N C E						
CONFIG NO.						74032						
ALPHA DEG	BETA DEG	CL1	COL	COL	CR1	CYL	CS1	CL2	CM2	CR2	CY2	CS2
.01	-.00	-.0005	.0115	.0002	.0006	.0008	.0066	.0006	-.0011	.0005	.0009	.0007
1.99	-.03	.0436	.0128	.0409	.0009	.0010	.0061	.0434	-.0410	.0008	.0012	.0012
4.06	-.06	.0905	.0171	.0844	.0010	.0010	.0074	.0887	-.0840	.0009	.0009	.0008
6.15	-.09	.1491	.0253	.1281	.0014	.0027	.0083	.1351	.1289	.0010	.0006	.0002
8.19	-.12	.1826	.0347	.1747	.0008	.0008	.0083	.1814	.1746	.0007	.0005	.0003
10.17	-.15	.2243	.0476	.2133	.0009	.0005	.0083	.2188	.2137	.0007	-.0000	-.0008
12.43	-.19	.2700	.0660	.2581	.0006	.0003	.0100	.2617	.2593	.0006	.0007	.0006
14.36	-.21	.3025	.0835	.2918	.0004	.0002	.0100	.2931	.2941	.0005	.0009	.0008
16.36	-.21	.3402	.1053	.3332	.0000	-.0001	.0111	.3302	.3362	.0004	.0012	.0012
18.61	-.27	.3736	.1301	.3699	.0002	.0003	.0118	.3603	.3739	.0007	.0014	.0016
20.55	-.31	.3901	.1506	.3924	-.0001	-.0006	.0123	.3736	.3953	.0006	.0012	.0011
24.63	-.19	.4279	.2007	.4420	-.0000	-.0011	.0143	.4022	.4404	.0006	.0003	-.0002
28.69	-.22	.4650	.2563	.4941	-.0004	-.0007	.0165	.4312	.4891	.0006	.0010	.0010
32.59	-.25	.4888	.3113	.5294	.0003	-.0001	.0205	.4457	.5251	.0013	.0011	.0015
36.76	-.26	.4991	.3671	.5536	.0020	.0008	.0217	.4445	.5487	.0023	.0009	.0023
40.65	-.29	.5075	.4246	.5695	.0015	.0003	.0228	.4414	.5716	.0023	.0012	.0032
.02	-.00	-.0004	.0113	.0005	.0005	.0007	.0064	.0024	-.0010	.0005	.0009	.0007

M A I N B A L A N C E						S E C O N D B A L A N C E						
CONFIG NO.						74033						
ALPHA DEG	BETA DEG	CL1	COL	COL	CR1	CYL	CS1	CL2	CM2	CR2	CY2	CS2
3.21	-4.84	.0510	.0148	.0594	.0047	.0158	.0317	.0611	.0582	.0047	.0159	.0187
3.75	-4.88	.0608	.0155	.0719	.0051	.0163	.0349	.0737	.0702	.0051	.0165	.0198
5.90	-5.06	.1137	.0215	.1215	.0050	.0165	.0419	.1249	.1194	.0060	.0167	.0204
7.85	-5.05	.1589	.0297	.1623	.0053	.0159	.0472	.1675	.1608	.0057	.0178	.0232
9.92	-5.10	.2036	.0428	.2045	.0045	.0155	.0512	.2082	.2036	.0054	.0183	.0248
12.04	-5.16	.2462	.0592	.2449	.0046	.0149	.0551	.2468	.2448	.0057	.0185	.0263
14.32	-5.16	.2920	.0806	.2875	.0043	.0148	.0562	.2883	.2899	.0060	.0196	.0281
16.59	-5.25	.3310	.1036	.3297	.0032	.0147	.0633	.3261	.3317	.0061	.0205	.0295
18.66	-5.27	.3601	.1267	.3569	.0020	.0153	.0616	.3465	.3582	.0049	.0219	.0316
20.78	-5.29	.3840	.1502	.3840	.0013	.0149	.0666	.3641	.3826	.0052	.0229	.0336
25.19	-5.31	.4374	.2084	.4479	.0000	.0154	.0755	.4073	.4447	.0059	.0257	.0391
29.62	-5.38	.4887	.2769	.5181	-.0014	.0152	.0912	.4486	.5084	.0079	.0292	.0463
33.84	-5.42	.5081	.3352	.5603	-.0008	.0150	.1049	.4634	.5496	.0114	.0304	.0515
38.38	-5.36	.5117	.3953	.5788	.0023	.0137	.1315	.4948	.5717	.0176	.0296	.0558
40.44	-5.46	.5065	.4170	.5775	.0026	.0125	.1422	.4441	.5736	.0195	.0287	.0564
3.07	-4.86	.0475	.0144	.0578	.0047	.0158	.0323	.0595	.0522	.0048	.0158	.0184

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE					SECOND BALANCE							
					CONFIG NO.							
					74034							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
1.82	5.02	.0324	.0131	.0404	-.0032	-.0176	-.0237	.0420	.0409	-.0030	-.0154	-.0184
2.40	4.80	.0430	.0134	.0514	-.0032	-.0154	-.0239	.0531	.0510	-.0031	-.0148	-.0179
3.70	4.66	.0740	.0160	.0817	-.0035	-.0155	-.0254	.0846	.0816	-.0036	-.0155	-.0192
5.78	4.85	.1198	.0219	.1232	-.0038	-.0155	-.0299	.1281	.1232	-.0040	-.0162	-.0215
7.76	4.89	.1887	.0338	.1655	-.0037	-.0156	-.0335	.1747	.1687	-.0041	-.0166	-.0226
9.84	4.96	.2139	.0445	.2077	-.0033	-.0156	-.0355	.2138	.2094	-.0039	-.0171	-.0238
12.17	5.03	.2633	.0635	.2514	-.0036	-.0163	-.0384	.2573	.2555	-.0045	-.0182	-.0262
14.13	5.03	.3001	.0817	.2891	-.0039	-.0168	-.0384	.2917	.2926	-.0048	-.0187	-.0276
16.45	5.13	.3386	.1050	.3309	-.0038	-.0171	-.0413	.3301	.3365	-.0052	-.0200	-.0300
18.75	5.13	.3623	.1289	.3351	-.0017	-.0174	-.0392	.3444	.3573	-.0037	-.0214	-.0318
20.79	5.22	.3909	.1540	.3842	-.0019	-.0181	-.0474	.3667	.3862	-.0043	-.0228	-.0347
25.16	5.25	.4696	.2141	.4527	-.0027	-.0202	-.0461	.4149	.4539	-.0058	-.0251	-.0399
29.51	5.23	.4921	.2783	.5151	-.0038	-.0201	-.0577	.4513	.5125	-.0097	-.0286	-.0490
33.79	5.37	.5088	.3359	.5572	-.0028	-.0181	-.0832	.4632	.5491	-.0122	-.0297	-.0526
38.14	5.41	.5200	.3981	.5813	-.0020	-.0172	-.1056	.4612	.5759	-.0154	-.0315	-.0582
40.44	5.37	.5165	.4264	.5813	-.0023	-.0160	-.1160	.4506	.5807	-.0170	-.0304	-.0582
1.74	4.97	.0365	.0129	.0382	-.0030	-.0162	-.0230	.0401	.0386	-.0030	-.0153	-.0183

MAIN BALANCE					SECOND BALANCE							
					CONFIG NO.							
					74106							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.12	-0.00	-.2261	.0272	.0382	.0003	.0000	.0056	-.0096	-.0186	-.0000	.0006	.0008
-2.54	-0.01	-.1247	.0210	.0205	.0002	.0002	.0007	-.0048	-.0097	-.0000	.0004	.0005
-.46	-0.00	-.0138	.0175	.0023	.0000	.0006	-.0004	-.0099	-.0014	-.0000	.0007	.0008
2.26	.00	.0911	.0184	-.0162	.0003	.0012	-.0013	.0036	.0076	.0000	.0008	.0007
4.13	.01	.2099	.0284	-.0367	.0003	.0012	-.0029	.0080	.0163	-.0000	.0006	.0005
6.30	.01	.3270	.0464	-.0581	.0004	.0013	-.0049	.0137	.0256	.0000	.0008	.0009
8.21	.01	.4258	.0704	-.0736	.0003	.0016	-.0046	.0175	.0342	.0001	.0013	.0017
10.46	.02	.5333	.1075	-.0894	.0001	.0018	-.0068	.0237	.0455	.0001	.0011	.0011
12.07	.02	.5887	.1340	-.1014	.0002	.0019	-.0064	.0269	.0512	.0002	.0015	.0017
14.00	-0.00	.6921	.1825	-.1251	.0002	.0022	-.0072	.0332	.0621	.0003	.0018	.0019
16.08	.01	.7697	.2348	-.1505	.0003	.0029	-.0085	.0381	.0713	.0004	.0019	.0023
18.55	.01	.7876	.2825	-.1868	.0003	.0039	-.0120	.0429	.0791	.0004	.0018	.0018
20.21	.04	.7931	.3154	-.1988	.0001	.0039	-.0105	.0469	.0865	.0005	.0020	.0021
24.38	.01	.8392	.4014	-.2172	-.0030	.0087	-.0167	.0563	.1033	.0006	.0019	.0016
28.45	-0.01	.9189	.5133	-.2448	-.0221	.0269	.0058	.0662	.1231	-.0012	.0032	.0036
32.75	-0.02	.9229	.6094	-.2555	-.0130	.0177	-.0151	.0733	.1398	-.0002	.0007	-.0024
34.60	.09	.9349	.6607	-.2556	.0034	-.0116	-.0449	.0780	.1494	-.0023	-.0023	-.0097
35.79	.09	.9447	.6995	-.2549	-.0020	-.0144	-.0476	.0822	.1590	-.0042	-.0047	-.0159
38.75	.08	.9221	.7511	-.2441	-.0093	-.0174	-.0618	.0859	.1686	-.0075	-.0082	-.0253
40.44	-1.0	.8757	.7563	-.2201	-.0121	-.0184	-.0817	.0883	.1764	-.0113	-.0120	-.0347
-.09	-0.00	-.0216	.0155	.0026	.0000	.0003	-.0003	-.0005	-.0009	-.0000	.0005	.0005

MAIN BALANCE					SECOND BALANCE							
					CONFIG NO.							
					74107							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-2.75	4.09	-.1719	.0205	.0282	.0025	-.0118	-.0187	-.0017	-.0066	.0005	-.0131	-.0148
-1.02	4.49	-.0723	.0194	.0113	.0011	-.0120	-.0197	.0038	.0029	.0002	-.0134	-.0152
.25	4.08	-.0125	.0249	.0005	-.0001	-.0108	-.0189	.0065	.0082	-.0001	-.0119	-.0131
1.36	4.18	.0615	.0227	-.0104	-.0013	-.0083	-.0176	.0032	.0058	-.0001	-.0071	-.0056
3.13	4.46	.1487	.0260	-.0254	-.0025	-.0089	-.0196	.0059	.0114	-.0003	-.0083	-.0072
5.04	4.91	.2589	.0374	-.0475	-.0033	-.0097	-.0245	.0103	.0202	-.0007	-.0103	-.0100
7.26	5.07	.3828	.0603	-.0692	-.0041	-.0097	-.0291	.0150	.0292	-.0012	-.0114	-.0121
9.30	4.92	.4829	.0897	-.0847	-.0034	-.0094	-.0317	.0190	.0374	-.0014	-.0111	-.0123
11.47	5.10	.5872	.1298	-.1047	-.0025	-.0112	-.0351	.0256	.0493	-.0021	-.0128	-.0149
13.79	5.31	.6784	.1777	-.1248	-.0032	-.0122	-.0425	.0315	.0594	-.0025	-.0129	-.0154
15.94	5.30	.7492	.2270	-.1477	-.0033	-.0138	-.0474	.0366	.0689	-.0031	-.0134	-.0170
18.14	5.13	.7807	.2770	-.1870	-.0061	-.0147	-.0443	.0424	.0788	-.0036	-.0132	-.0174
20.12	5.68	.7558	.3010	-.1874	-.0137	-.0043	-.0547	.0469	.0863	-.0043	-.0143	-.0192
24.57	5.71	.8222	.3993	-.2196	-.0211	.0135	-.0791	.0564	.1044	-.0058	-.0152	-.0227
29.11	5.22	.9070	.5255	-.2486	-.0287	.0123	-.0889	.0670	.1261	-.0086	-.0173	-.0311
33.22	5.86	.9077	.6155	-.2462	-.0167	-.0207	-.1245	.0750	.1442	-.0139	-.0235	-.0466
35.50	6.25	.9066	.6656	-.2523	-.0240	-.0216	-.1279	.0780	.1514	-.0170	-.0267	-.0546
37.93	5.31	.9130	.7276	-.2496	-.0264	-.0265	-.1359	.0835	.1652	-.0196	-.0268	-.0605
39.92	5.45	.9026	.7682	-.2531	-.0305	-.0273	-.1425	.0845	.1701	-.0229	-.0290	-.0671
.19	4.17	.0099	.0198	-.0018	-.0004	-.0083	-.0175	.0015	.0010	-.0000	-.0064	-.0044

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.						
						74108						
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-2.52	-4.04	-.1538	.0182	.0256	-.0025	.0115	.0162	-.0058	-.0127	-.0005	.0158	.0189
-.84	-4.27	-.0516	.0180	.0089	-.0009	.0119	.0155	-.0013	-.0039	-.0002	.0167	.0205
.35	-3.75	.0139	.0178	-.0021	.0000	.0111	.0119	.0015	.0015	.0001	.0162	.0201
1.42	-4.56	.0397	.0217	-.0064	.0008	.0096	.0113	.0086	.0124	.0002	.0117	.0123
3.35	-4.67	.1299	.0246	-.0275	.0020	.0103	.0104	.0111	.0179	.0005	.0114	.0115
5.27	-4.97	.2408	.0359	-.0430	.0035	.0118	.0137	.0147	.0253	.0009	.0127	.0134
7.03	-4.95	.3568	.0568	-.0645	.0049	.0127	.0150	.0157	.0297	.0013	.0139	.0149
9.85	-5.15	.4854	.0922	-.0852	.0038	.0131	.0202	.0233	.0423	.0018	.0138	.0149
12.11	-4.76	.5803	.1326	-.1013	.0031	.0130	.0176	.0283	.0515	.0023	.0138	.0158
13.95	-4.81	.6681	.1754	-.1196	.0032	.0140	.0197	.0329	.0607	.0028	.0145	.0170
16.23	-4.86	.7533	.2313	-.1452	.0027	.0164	.0201	.0386	.0702	.0035	.0157	.0192
18.39	-4.69	.7901	.2917	-.1858	.0033	.0221	.0095	.0432	.0783	.0040	.0154	.0191
20.50	-5.17	.8783	.3142	-.1930	.0108	.0164	.0210	.0487	.0878	.0050	.0170	.0219
25.28	-5.00	.8645	.4285	-.2253	.0267	-.0083	.0303	.0591	.1082	.0062	.0166	.0224
29.77	-4.82	.9118	.5386	-.2397	.0265	-.0097	.0169	.0679	.1269	.0069	.0154	.0216
33.51	-5.12	.9262	.6300	-.2490	.0231	-.0060	.0212	.0763	.1455	.0084	.0164	.0237
35.43	-5.44	.9173	.6677	-.2483	.0235	-.0048	.0271	.0806	.1547	.0093	.0170	.0253
37.77	-5.74	.9016	.7113	-.2422	.0216	-.0059	.0217	.0836	.1634	.0083	.0148	.0207
40.12	-4.36	.8773	.7502	-.2224	.0093	-.0107	-.0085	.0892	.1771	.0010	.0047	-.0009
.15	-4.38	-.0171	.0215	.0029	-.0001	.0086	.0119	.0058	.0069	.0001	.0113	.0122

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.						
						78023						
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.42	-.00	-.1001	.0171	-.0862	.0004	.0012	.0013	-.0956	-.0876	.0003	.0008	.0005
-2.39	.01	-.0505	.0128	-.0442	.0001	.0014	.0016	-.0487	-.0450	.0003	.0008	.0006
-.31	-.00	-.0024	.0114	-.0044	.0004	.0010	.0023	-.0060	-.0060	.0004	.0011	.0011
2.12	-.00	-.0455	.0127	.0398	.0006	.0018	.0010	.0412	.0380	.0005	.0006	.0002
3.81	-.00	.0832	.0152	.0737	.0005	.0016	.0012	.0774	.0709	.0005	.0013	.0016
5.89	-.00	.1373	.0219	.1167	.0006	.0016	.0005	.1260	.1151	.0006	.0012	.0015
8.18	-.01	.1921	.0336	.1657	.0006	.0011	.0013	.1773	.1629	.0008	.0015	.0019
9.97	-.01	.2282	.0449	.1987	.0006	.0013	.0008	.2102	.1960	.0008	.0017	.0024
12.16	.00	.2747	.0624	.2403	.0006	.0011	-.0000	.2525	.2379	.0007	.0014	.0019
14.11	-.00	.3112	.0808	.2743	.0006	.0015	.0011	.2846	.2714	.0008	.0017	.0025
16.14	.01	.3499	.1027	.3100	.0007	.0018	-.0004	.3179	.3027	.0007	.0016	.0025
18.16	.01	.3878	.1256	.3414	.0007	.0016	-.0010	.3458	.3378	.0009	.0017	.0029
20.25	.02	.3704	.1421	.3307	.0004	.0015	-.0001	.3267	.3253	.0005	.0020	.0034
22.16	.02	.3706	.1558	.3357	.0001	.0014	.0006	.3220	.3278	.0006	.0022	.0039
24.20	.02	.3986	.1836	.3646	.0003	.0012	.0008	.3440	.3567	.0007	.0018	.0032
26.31	.03	.4305	.2155	.3975	.0003	.0014	-.0004	.3686	.3870	.0009	.0022	.0043
28.31	.04	.4524	.2440	.4255	.0001	.0004	.0012	.3860	.4122	.0010	.0016	.0032
30.24	.05	.4682	.2706	.4490	.0003	.0004	.0023	.3963	.4323	.0011	.0012	.0027
32.36	.07	.4750	.2962	.4674	.0001	-.0013	.0004	.3992	.4477	.0010	-.0005	-.0005
34.36	.08	.4799	.3204	.4794	-.0003	-.0013	.0008	.3982	.4586	.0015	.0007	.0022
36.17	.08	.4800	.3399	.4882	-.0008	-.0004	.0005	.3961	.4668	.0007	.0013	.0029
38.25	.10	.4833	.3666	.4985	-.0009	.0013	-.0016	.3948	.4794	.0002	.0018	.0038
40.25	.09	.4924	.3988	.5090	-.0022	-.0011	-.0065	.3943	.4927	-.0008	.0001	.0007
.01	.00	-.0024	.0104	-.0022	.0002	.0012	.0016	-.0083	-.0084	.0003	.0009	.0008

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.						
						78024						
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.21	4.47	-.0790	.0148	-.0660	.0014	-.0103	-.0114	-.0767	-.0714	.0016	-.0113	-.0122
-1.94	4.64	-.0526	.0132	-.0427	.0011	-.0107	-.0123	-.0503	-.0472	.0013	-.0117	-.0126
-1.04	4.66	-.0347	.0132	-.0281	.0007	-.0111	-.0103	-.0338	-.0324	.0009	-.0116	-.0124
1.94	3.96	.0435	.0133	.0401	-.0002	-.0086	-.0181	.0368	.0339	-.0003	-.0100	-.0105
3.59	4.22	.0837	.0150	.0729	-.0007	-.0095	-.0198	.0725	.0660	-.0007	-.0103	-.0108
5.16	4.83	.1226	.0196	.1060	-.0011	-.0104	-.0227	.1090	.0990	-.0012	-.0117	-.0124
7.35	4.89	.1761	.0294	.1523	-.0011	-.0107	-.0231	.1588	.1447	-.0015	-.0117	-.0128
9.65	5.07	.2325	.0425	.1949	-.0016	-.0113	-.0244	.2027	.1885	-.0018	-.0120	-.0136
12.23	5.13	.2733	.0623	.2400	-.0015	-.0114	-.0253	.2481	.2337	-.0020	-.0124	-.0148
13.89	5.17	.3113	.0797	.2711	-.0019	-.0125	-.0250	.2795	.2661	-.0023	-.0130	-.0159
16.15	5.25	.3532	.1038	.3098	-.0026	-.0140	-.0220	.3170	.3055	-.0028	-.0137	-.0175
18.47	5.29	.3881	.1317	.3369	-.0029	-.0166	-.0089	.3414	.3343	-.0024	-.0145	-.0183
20.38	5.83	.3943	.1491	.3398	-.0016	-.0226	.0090	.3352	.3359	-.0011	-.0206	-.0266
22.71	5.48	.3933	.1685	.3448	-.0046	-.0169	-.0013	.3303	.3371	-.0042	-.0149	-.0200
24.86	5.95	.4207	.1970	.3753	-.0061	-.0162	-.0037	.3531	.3658	-.0059	-.0146	-.0197
27.49	5.42	.4538	.2353	.4156	-.0061	-.0120	-.0016	.3806	.4027	-.0061	-.0108	-.0143
29.22	5.76	.4738	.2621	.4399	-.0059	-.0108	-.0075	.3958	.4256	-.0070	-.0115	-.0159
31.37	6.13	.4843	.2897	.4617	-.0043	-.0084	-.0221	.4030	.4449	-.0082	-.0129	-.0192
33.77	5.38	.4749	.3100	.4727	-.0002	-.0060	-.0490	.3927	.4501	-.0068	-.0144	-.0231
35.92	5.66	.4810	.3373	.4875	.0029	-.0035	-.0629	.3932	.4635	-.0071	-.0155	-.0260
37.86	5.94	.4945	.3697	.5078	.0054	.0005	-.0676	.4012	.4853	-.0069	-.0134	-.0229
39.97	6.21	.5038	.4032	.5175	.0099	.0064	-.0819	.4011	.4988	-.0061	-.0104	-.0177
1.28	4.18	.0283	.0122	.0279	-.0001	-.0079	-.0200	.0217	.0197	.0000	-.0096	-.0099

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78025												
-3.18	-4.53	-.0629	.0146	-.0534	-.0008	.0132	.0121	-.0669	-.0630	-.0007	.0127	.0134
-1.91	-4.78	-.0333	.0143	-.0270	-.0006	.0136	.0123	-.0385	-.0367	-.0004	.0131	.0142
-.72	-4.75	-.0115	.0135	-.0081	-.0000	.0125	.0116	-.0181	-.0180	.0001	.0123	.0128
2.04	-4.36	.0277	.0131	.0286	.0010	.0124	.0202	.0228	.0203	.0011	.0124	.0130
3.80	-4.54	.0694	.0151	.0648	.0015	.0132	.0230	.0622	.0561	.0018	.0134	.0144
5.58	-5.02	.1167	.0200	.1034	.0022	.0148	.0235	.1036	.0934	.0027	.0149	.0163
7.38	-4.97	.1636	.0284	.1448	.0025	.0155	.0271	.1485	.1345	.0030	.0156	.0181
9.91	-5.17	.2183	.0431	.1929	.0029	.0160	.0277	.1989	.1838	.0035	.0161	.0193
12.55	-5.10	.2760	.0645	.2402	.0032	.0160	.0276	.2464	.2317	.0039	.0165	.0208
14.18	-5.00	.3106	.0809	.2702	.0034	.0165	.0273	.2765	.2622	.0041	.0167	.0216
16.55	-5.06	.3591	.1085	.3130	.0044	.0192	.0237	.3183	.3067	.0046	.0178	.0242
19.36	-4.92	.3811	.1366	.3282	.0027	.0224	-.0004	.3261	.3228	.0025	.0201	.0263
20.89	-5.30	.3942	.1519	.3379	.0031	.0251	-.0064	.3307	.3312	.0032	.0234	.0322
22.93	-5.01	.3970	.1709	.3486	.0051	.0200	.0012	.3332	.3389	.0057	.0187	.0273
25.28	-5.48	.4298	.2036	.3810	.0066	.0200	.0065	.3573	.3699	.0073	.0191	.0285
27.57	-4.75	.4599	.2383	.4182	.0061	.0152	.0042	.3817	.4025	.0073	.0158	.0242
29.38	-5.04	.4737	.2636	.4407	.0053	.0138	.0161	.3939	.4247	.0084	.0171	.0275
31.49	-5.38	.4754	.2856	.4583	.0031	.0110	.0349	.3940	.4363	.0094	.0187	.0311
33.77	-5.73	.4776	.3107	.4748	-.0000	.0059	.0580	.3934	.4492	.0106	.0188	.0322
35.91	-5.01	.4823	.3385	.4902	-.0028	.0021	.0688	.3945	.4642	.0094	.0160	.0284
38.03	-5.16	.4892	.3672	.5062	-.0050	-.0023	.0744	.3985	.4814	.0100	.0140	.0258
39.98	-5.45	.5009	.4008	.5166	-.0097	-.0090	.0965	.4008	.4971	.0103	.0115	.0221
1.40	-4.71	.0119	.0109	.0151	.0005	.0123	.0198	.0053	.0027	.0008	.0120	.0124
-1.12	-.00	.6981	.0500	3.3064	-.3703	3.5141	-.0737	-.8949	-9.5644	.1876	1.2429	.0465

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78032												
-4.28	-.00	-.2428	.0331	-.0433	-.0004	.0009	.0029	-.0990	-.0882	.0000	.0007	.0005
-2.53	-.00	-.1290	.0233	-.0255	-.0002	.0007	.0018	-.0528	-.0478	.0001	.0004	-.0000
-.67	.00	-.0146	.0202	-.0024	-.0002	.0012	.0016	-.0063	-.0054	.0001	.0009	.0008
2.25	.00	.1312	.0221	.0209	.0004	.0012	-.0004	.0507	.0471	.0002	.0009	.0009
3.89	.00	.2247	.0291	.0363	.0009	.0011	-.0006	.0881	.0798	.0003	.0010	.0011
6.17	-.00	.3762	.0509	.0561	.0008	.0015	-.0014	.1488	.1349	.0003	.0013	.0019
8.19	.00	.5204	.0816	.0730	.0010	.0016	-.0033	.2021	.1840	.0005	.0017	.0019
10.34	.00	.6656	.1253	.0884	.0010	.0016	-.0043	.2504	.2310	.0005	.0013	.0019
12.78	.00	.8073	.1827	.1066	.0019	.0015	-.0054	.3012	.2799	.0006	.0011	.0017
14.61	.01	.9448	.2460	.1242	.0017	.0020	-.0064	.3503	.3275	.0006	.0014	.0025
16.64	.01	1.0742	.3150	.1421	.0019	.0021	-.0090	.3970	.3736	.0008	.0014	.0027
18.56	.01	1.1923	.3908	.1558	.0014	.0024	-.0090	.4382	.4149	.0007	.0013	.0026
20.99	-.01	1.3346	.4982	.1720	.0016	.0024	-.0113	.4897	.4668	.0006	.0014	.0031
22.81	.01	1.4168	.5849	.1667	-.0007	.0032	-.0156	.5008	.4809	-.0005	.0041	.0068
25.11	.01	1.5245	.6997	.1892	.0024	.0023	-.0143	.5420	.5299	.0010	.0015	.0035
27.36	.01	1.5834	.8005	.2104	.0027	.0020	-.0137	.5661	.5635	.0012	.0012	.0033
29.54	.02	1.6265	.9025	.2438	.0021	.0029	-.0173	.5995	.6100	.0013	.0014	.0039
31.38	.02	1.6411	.9791	.2685	.0024	.0034	-.0162	.6185	.6416	.0018	.0017	.0046
33.29	.02	1.6510	1.0604	.2930	.0028	.0031	-.0151	.6339	.6748	.0019	.0015	.0044
35.53	.06	1.6546	1.1541	.2978	.0027	.0021	-.0169	.6281	.6914	.0011	.0010	.0036
37.92	.09	1.6386	1.2463	.2653	.0030	.0007	-.0190	.6029	.6883	.0012	.0014	.0055
39.39	.12	1.5722	1.2673	.2390	.0022	-.0059	-.0226	.5721	.6698	.0007	-.0015	.0008
41.11	.11	1.5189	1.3011	.2363	.0008	-.0072	-.0194	.5550	.6682	.0004	-.0015	.0007
-.08	-.00	-.0135	.0172	-.0025	-.0005	.0008	.0015	-.0063	-.0052	.0001	-.0009	.0008

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78033												
-3.56	4.15	-.2272	.0290	-.0399	.0055	-.0123	-.0055	-.0930	-.0831	.0014	-.0113	-.0121
-2.24	4.62	-.1398	.0245	-.0238	.0037	-.0131	-.0067	-.0554	-.0497	.0010	-.0121	-.0130
-.96	4.41	-.0780	.0211	-.0103	.0021	-.0129	-.0067	-.0294	-.0253	.0006	-.0118	-.0123
1.92	3.63	.1061	.0215	.0250	-.0029	-.0053	-.0309	.0443	.0427	-.0005	-.0098	-.0109
3.55	4.12	.2055	.0270	.0372	-.0046	-.0064	-.0288	.0830	.0763	-.0010	-.0107	-.0119
5.17	4.65	.3174	.0401	.0509	-.0065	-.0079	-.0327	.1261	.1147	-.0016	-.0125	-.0144
7.35	5.02	.4647	.0670	.0701	-.0083	-.0085	-.0316	.1845	.1688	-.0018	-.0127	-.0147
9.80	4.79	.6225	.1105	.0841	-.0087	-.0087	-.0297	.2330	.2151	-.0021	-.0121	-.0144
12.05	4.91	.7863	.1673	.1025	-.0092	-.0094	-.0314	.2893	.2685	-.0024	-.0128	-.0159
14.34	4.73	.9379	.2358	.1192	-.0090	-.0103	-.0268	.3433	.3210	-.0030	-.0126	-.0161
16.52	4.75	1.0717	.3105	.1373	-.0086	-.0112	-.0242	.3911	.3680	-.0035	-.0127	-.0169
18.70	5.30	1.2131	.4003	.1564	-.0090	-.0134	-.0221	.4436	.4202	-.0046	-.0143	-.0192
20.92	4.85	1.3246	.4956	.1596	-.0013	-.0133	-.0047	.4682	.4485	-.0010	-.0164	-.0196
23.30	5.27	1.4289	.6006	.1861	-.0032	-.0174	.0040	.5153	.4992	-.0020	-.0195	-.0251
25.94	4.89	1.5420	.7302	.2204	-.0025	-.0205	.0047	.5725	.5625	-.0026	-.0201	-.0272
28.33	5.30	1.6017	.8454	.2148	.0019	-.0341	-.0003	.5817	.5856	-.0065	-.0208	-.0335
30.78	5.70	1.6043	.9377	.2230	-.0046	-.0466	.0121	.5859	.6071	-.0088	-.0292	-.0512
32.52	5.10	1.6403	1.0252	.2541	-.0103	-.0370	-.0094	.6092	.6445	-.0082	-.0258	-.0468
34.65	5.21	1.6468	1.1135	.2658	-.0175	-.0350	-.0125	.6144	.6654	-.0095	-.0266	-.0503
36.55	5.47	1.6481	1.1935	.2760	-.0209	-.0369	-.0157	.6144	.6865	-.0104	-.0272	-.0527
38.50	5.72	1.6276	1.2639	.2782	-.0217	-.0364	-.0217	.6093	.7002	-.0107	-.0266	-.0531
40.52	5.97	1.5908	1.3271	.2788	-.0223	-.0322	-.0242	.5988	.7098	-.0104	-.0235	-.0487
1.17	3.89	.0525	.0179	.0189	-.0019	-.0049	-.0278	.0236	.0232	-.0002	-.0094	-.0110

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78034												
-3.39	-4.47	-.1790	.0254	-.0316	-.0047	.0102	.0156	-.0744	-.0682	-.0009	.0117	.0123
-1.62	-4.69	-.0713	.0204	-.0127	-.0027	.0098	.0147	-.0282	-.0250	-.0005	.0124	.0135
-.71	-4.91	-.0325	.0192	-.0052	-.0014	.0101	.0133	-.0119	-.0104	-.0001	.0120	.0128
2.02	-4.23	.0769	.0214	.0125	.0024	.0096	.0132	.0307	.0285	.0008	.0103	.0099
3.74	-4.52	.1801	.0271	.0291	.0052	.0102	.0143	.0722	.0660	.0014	.0115	.0116
5.16	-4.85	.2793	.0382	.0433	.0078	.0108	.0165	.1073	.0944	.0020	.0118	.0118
7.26	-5.09	.4159	.0621	.0633	.0101	.0125	.0168	.1642	.1482	.0025	.0134	.0144
10.15	-4.90	.6104	.1138	.0838	.0106	.0122	.0165	.2303	.2122	.0030	.0136	.0159
12.21	-5.01	.7536	.1644	.0984	.0115	.0132	.0158	.2791	.2586	.0035	.0143	.0174
14.47	-5.12	.9060	.2319	.1152	.0122	.0144	.0128	.3314	.3085	.0041	.0147	.0188
16.80	-5.12	1.0551	.3139	.1331	.0130	.0172	.0064	.3865	.3640	.0051	.0159	.0217
19.09	-4.92	1.1939	.4036	.1566	.0130	.0168	-.0022	.4356	.4123	.0056	.0151	.0214
21.48	-4.82	1.3141	.5094	.1608	.0069	.0184	-.0238	.4667	.4455	.0026	.0178	.0228
23.65	-5.27	1.4074	.6056	.1856	.0082	.0223	-.0343	.5090	.4936	.0036	.0216	.0297
25.96	-4.90	1.5102	.7204	.2182	.0079	.0243	-.0387	.5601	.5505	.0041	.0221	.0318
28.12	-5.30	1.5635	.8191	.2362	.0051	.0365	-.0398	.5883	.5878	.0062	.0264	.0415
30.42	-4.76	1.6136	.9315	.2369	.0043	.0407	-.0315	.5959	.6130	.0080	.0267	.0437
32.39	-5.02	1.6187	1.0119	.2404	.0164	.0439	-.0224	.5939	.6279	.0105	.0302	.0566
34.51	-5.33	1.6333	1.1054	.2546	.0241	.0430	-.0202	.6011	.6525	.0118	.0308	.0597
37.14	-4.62	1.6330	1.2158	.2714	.0272	.0341	-.0126	.6060	.6824	.0123	.0255	.0526
38.97	-4.81	1.6165	1.2856	.2684	.0285	.0358	-.0036	.5987	.6925	.0138	.0258	.0544
41.00	-5.06	1.5738	1.3449	.2576	.0271	.0347	-.0054	.5820	.6959	.0142	.0234	.0517
1.21	-4.41	.0294	.0189	.0044	.0013	.0086	.0168	.0105	.0096	.0005	.0107	.0095

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78044												
-4.32	-.01	-.2561	.0337	-.0378	.0005	-.0010	.0021	-.0944	-.0840	-.0002	.0004	.0004
-2.42	-.00	-.1198	.0237	-.0195	.0002	-.0007	.0014	-.0434	-.0390	-.0002	.0005	.0005
-.59	-.00	-.0084	.0204	-.0051	.0003	-.0003	.0003	-.0028	-.0017	-.0002	.0007	.0007
2.01	.00	.1336	.0230	.0126	.0006	-.0003	-.0007	.0468	.0441	-.0001	.0010	.0013
4.32	.01	.2565	.0330	.0299	.0011	-.0000	-.0025	.0953	.0873	-.0000	.0008	.0009
6.29	.01	.3675	.0509	.0440	.0008	.0001	-.0018	.1398	.1285	.0001	.0014	.0019
8.05	.01	.4659	.0743	.0571	.0009	.0002	-.0028	.1798	.1662	.0001	.0014	.0019
10.43	.01	.6011	.1163	.0661	.0017	.0005	-.0037	.2210	.2076	.0002	.0014	.0016
12.31	.02	.7289	.1635	.0744	.0015	.0008	-.0054	.2583	.2440	.0003	.0014	.0019
14.58	.03	.8526	.2231	.0832	.0011	.0013	-.0063	.2969	.2821	.0003	.0013	.0016
16.69	.03	1.0065	.3015	.0963	.0010	.0019	-.0089	.3462	.3300	.0005	.0016	.0023
18.52	.02	1.1203	.3733	.1089	.0007	.0019	-.0104	.3852	.3689	.0004	.0013	.0019
20.67	.04	1.2185	.4605	.0983	.0005	.0014	-.0119	.3950	.3821	.0003	.0010	.0013
22.91	.02	1.3154	.5548	.1224	.0014	.0017	-.0114	.4358	.4261	.0005	.0015	.0025
24.97	.03	1.3638	.6305	.1464	.0020	.0018	-.0133	.4681	.4631	.0005	.0015	.0023
27.18	.07	1.4219	.7260	.1777	.0024	.0019	-.0165	.5110	.5150	.0006	.0013	.0018
29.09	.13	1.4487	.8015	.2023	.0028	.0011	-.0183	.5381	.5521	.0007	.0009	.0013
31.07	.13	1.4635	.8781	.2297	.0023	.0017	-.0153	.5610	.5885	.0006	.0009	.0012
33.09	.13	1.4764	.9579	.2368	.0029	.0021	-.0139	.5673	.6112	.0007	.0016	.0032
35.13	.18	1.4764	1.0326	.2425	.0042	-.0001	-.0139	.5642	.6275	.0010	.0016	.0033
36.96	.19	1.4808	1.1066	.2436	.0061	-.0030	-.0080	.5599	.6387	.0032	.0034	.0089
38.87	.18	1.4745	1.1769	.2420	.0060	.0039	.0040	.5515	.6466	.0057	.0070	.0184
41.11	.18	1.4375	1.2404	.2320	.0056	.0052	.0052	.5327	.6467	.0065	.0073	.0200
.09	.00	-.0097	.0168	-.0038	.0003	-.0000	-.0020	-.0034	-.0024	-.0002	.0003	-.0002

MAIN BALANCE			SECOND BALANCE									
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
CONFIG NO. 78045												
-3.37	4.46	-.2153	.0282	-.0322	.0049	-.0121	-.0206	-.0788	-.0702	.0042	-.0139	-.0190
-1.93	4.52	-.1296	.0214	-.0218	.0039	-.0131	-.0203	-.0472	-.0416	.0037	-.0149	-.0200
-.79	4.49	-.0697	.0202	-.0131	.0022	-.0120	-.0210	-.0238	-.0202	.0028	-.0142	-.0185
1.87	3.71	.1220	.0233	.0169	-.0017	-.0100	-.0221	.0454	.0441	.0017	-.0107	-.0137
3.51	4.16	.2142	.0284	.0277	-.0036	-.0104	-.0243	.0797	.0735	.0017	-.0115	-.0146
4.95	5.00	.2975	.0379	.0393	-.0068	-.0120	-.0261	.1108	.1015	.0013	-.0142	-.0178
7.71	4.89	.4517	.0687	.0580	-.0079	-.0110	-.0275	.1731	.1596	.0005	-.0134	-.0167
10.15	4.94	.5949	.1117	.0700	-.0074	-.0112	-.0295	.2199	.2054	.0000	-.0138	-.0176
12.18	5.04	.7247	.1602	.0762	-.0056	-.0117	-.0322	.2580	.2429	-.0004	-.0146	-.0194
14.35	5.18	.8705	.2253	.0859	-.0059	-.0130	-.0353	.3038	.2877	-.0012	-.0157	-.0212
16.80	5.21	1.0232	.3086	.0980	-.0059	-.0143	-.0324	.3521	.3360	-.0021	-.0157	-.0217
18.69	5.78	1.1372	.3827	.1079	-.0059	-.0180	-.0307	.3914	.3747	-.0029	-.0181	-.0255
20.88	5.23	1.2476	.4764	.1093	-.0018	-.0209	-.0102	.4157	.4023	-.0023	-.0213	-.0317
23.76	5.81	1.3577	.5943	.1311	-.0023	-.0337	-.0002	.4628	.4534	-.0046	-.0267	-.0442
25.77	5.54	1.4173	.6793	.1488	.0004	-.0386	.0006	.4884	.4887	-.0059	-.0245	-.0423
28.02	5.92	1.4705	.7764	.1743	-.0020	-.0501	-.0021	.5174	.5261	-.0087	-.0296	-.0542
29.85	6.28	1.4889	.8474	.2001	-.0061	-.0536	-.0120	.5402	.5595	-.0106	-.0329	-.0619
32.42	5.57	1.4822	.9338	.2230	-.0120	-.0466	-.0228	.5529	.5907	-.0111	-.0307	-.0608
34.74	5.92	1.5059	1.0337	.2305	-.0178	-.0468	-.0339	.5632	.6190	-.0133	-.0330	-.0677
36.81	6.24	1.4944	1.1072	.2360	-.0214	-.0442	-.0395	.5633	.6367	-.0142	-.0323	-.0678
38.96	6.53	1.4658	1.1719	.2405	-.0247	-.0379	-.0382	.5554	.6485	-.0148	-.0280	-.0603
40.40	6.71	1.4437	1.2140	.2406	-.0266	-.0287	-.0280	.5466	.6531	-.0129	-.0216	-.0464
1.09	4.21	.0688	.0190	.0077	-.0005	-.0105	-.0209	.0250	.0248	.0019	-.0107	-.0131

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE		SECOND BALANCE										
		CONFIG NO. 78046										
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.20	-4.51	-.1849	.0263	-.0240	-.0047	.0128	.0139	-.0680	-.0600	-.0042	.0128	-.0158
-1.65	-4.54	-.0911	.0217	-.0109	-.0030	.0124	.0107	-.0318	-.0279	-.0032	.0120	-.0142
-.61	-4.81	-.0396	.0205	-.0042	-.0016	.0126	.0090	-.0143	-.0115	-.0028	.0122	-.0141
1.88	-4.18	.0697	.0213	.0076	.0017	.0117	.0242	.0234	.0227	-.0019	.0125	.0157
3.90	-4.59	.1944	.0276	.0244	.0047	.0128	.0247	.0693	.0635	-.0018	.0137	.0176
5.18	-4.92	.2734	.0365	.0352	.0072	.0136	.0279	.1006	.0926	-.0014	.0155	.0198
7.52	-4.98	.4151	.0628	.0546	.0104	.0146	.0283	.1590	.1463	-.0003	.0170	.0219
9.85	-4.95	.5423	.0982	.0682	.0107	.0134	.0278	.2017	.1874	.0004	.0155	.0198
11.98	-5.30	.6810	.1468	.0769	.0103	.0154	.0270	.2443	.2304	.0011	.0182	.0243
14.31	-5.35	.8317	.2121	.0851	.0093	.0164	.0261	.2904	.2759	.0019	.0188	.0258
16.73	-5.28	.9888	.2946	.0971	.0096	.0178	.0198	.3415	.3264	.0030	.0184	.0254
18.93	-5.08	1.1319	.3830	.1065	.0092	.0197	.0143	.3844	.3678	.0035	.0178	.0257
21.16	-5.01	1.2317	.4739	.1076	.0066	.0249	-.0124	.4071	.3947	.0034	.0227	.0337
23.33	-5.45	1.3239	.5653	.1270	.0079	.0336	.0229	.4483	.4389	.0051	.0273	.0440
25.72	-5.13	1.4092	.6700	.1394	.0047	.0396	-.0293	.4790	.4778	.0068	.0251	.0429
28.00	-5.53	1.4608	.7659	.1658	.0056	.0509	-.0260	.5057	.5127	.0092	.0285	.0514
30.44	-4.98	1.4844	.8595	.2080	.0109	.0479	-.0201	.5381	.5598	.0109	.0287	.0538
32.52	-5.24	1.4832	.9309	.2220	.0171	.0480	-.0112	.5479	.5840	.0129	.0302	.0584
34.27	-5.48	1.4999	1.0073	.2283	.0227	.0477	.0013	.5552	.6044	.0146	.0328	.0657
36.60	-5.82	1.5160	1.1980	.2336	.0290	.0460	.0104	.5644	.6356	.0172	.0335	.0687
38.85	-4.91	1.4876	1.1803	.2369	.0288	.0246	.0002	1.5344	.6450	.0139	.0223	.0471
40.85	-5.10	1.4360	1.2224	.2406	.0266	.0133	-.0051	.5386	.6476	.0112	.0155	.0328
1.43	-5.40	.0296	.0142	.0020	.0006	.0107	.0253	.0097	.0104	-.0020	.0129	.0162

MAIN BALANCE		SECOND BALANCE										
		CONFIG NO. 78047										
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.31	.00	-.0906	.0165	-.0792	-.0002	.0018	-.0026	-.0857	-.0799	-.0002	.0002	-.0000
-2.44	.00	-.0436	.0133	-.0400	-.0001	.0016	-.0024	-.0443	-.0428	-.0002	-.0004	-.0009
-.31	.00	-.0047	.0120	-.0047	-.0001	.0017	-.0006	-.0028	-.0013	-.0002	.0009	.0010
1.89	-.00	.0365	.0129	.0327	-.0002	.0016	-.0011	.0375	.0361	-.0002	.0011	.0013
3.89	-.00	.0807	.0152	.0696	.0001	.0015	-.0017	.0758	.0704	-.0001	.0007	.0006
5.80	-.00	.1248	.0213	.1075	.0001	.0016	-.0016	.1190	.1106	-.0000	.0009	.0010
7.97	-.00	.1731	.0316	.1512	.0001	.0018	-.0015	.1650	.1535	.0000	.0013	.0018
10.21	-.00	.2138	.0440	.1883	.0002	.0016	-.0013	.2018	.1901	.0001	.0010	.0012
12.22	-.00	.2515	.0594	.2279	.0002	.0017	-.0011	.2364	.2251	.0002	.0015	.0020
14.16	-.00	.2870	.0771	.2549	.0003	.0017	-.0016	.2666	.2562	.0002	.0016	.0021
16.04	-.01	.3193	.0958	.2842	.0003	.0016	-.0010	.2956	.2869	.0003	.0015	.0019
18.37	-.01	.3555	.1208	.3190	.0005	.0018	-.0019	.3284	.3229	.0005	.0019	.0028
20.15	-.01	.3638	.1393	.3224	.0008	.0012	-.0012	.3275	.3267	.0004	.0010	.0011
22.59	-.01	.3815	.1649	.3396	.0005	.0016	-.0038	.3367	.3448	.0003	.0014	.0018
24.07	-.00	.4032	.1849	.3616	.0006	.0019	-.0057	.3552	.3667	.0003	.0016	.0022
26.24	-.00	.4372	.2181	.3991	.0006	.0017	-.0048	.3837	.4024	.0003	.0014	.0019
28.27	-.00	.4653	.2494	.4337	.0008	.0010	-.0055	.4061	.4336	.0004	.0016	.0007
30.36	-.01	.4812	.2789	.4625	.0008	.0009	-.0045	.4194	.4579	.0007	.0010	.0008
32.79	-.02	.4950	.3131	.4893	.0009	.0007	-.0086	.4267	.4795	.0004	.0000	-.0014
34.31	-.01	.4977	.3320	.5021	.0008	.0013	.0028	.4269	.4904	.0013	.0020	.0033
36.48	-.02	.4993	.3577	.5072	.0025	.0062	.0288	.4188	.4970	.0038	.0084	.0190
38.45	-.00	.5040	.3850	.5189	.0041	.0084	.0253	.4177	.5097	.0047	.0092	.0220
40.37	-.02	.5044	.4105	.5293	.0033	.0062	.0065	.4153	.5203	.0031	.0060	.0148
-.05	.00	-.0061	.0109	-.0043	-.0002	.0016	.0003	-.0018	-.0008	-.0002	.0007	.0005

MAIN BALANCE		SECOND BALANCE										
		CONFIG NO. 78048										
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.45	4.64	-.0826	.0153	-.0706	.0042	-.0118	-.0216	-.0736	-.0671	.0044	-.0135	-.0182
-1.91	4.46	-.0504	.0129	-.0431	.0035	-.0120	-.0206	-.0431	-.0388	.0035	-.0138	-.0182
-.75	4.56	-.0296	.0131	-.0245	.0028	-.0121	-.0198	-.0230	-.0205	.0028	-.0134	-.0171
1.73	4.00	.0346	.0130	.0318	.0018	-.0109	-.0239	.0360	.0351	.0018	-.0115	-.0145
3.20	4.19	.0658	.0145	.0604	.0018	-.0117	-.0250	.0666	.0623	.0017	-.0123	-.0160
4.98	4.85	.1084	.0188	.0934	.0015	-.0135	-.0272	.1030	.0957	.0013	-.0141	-.0179
7.29	4.85	.1631	.0285	.1429	.0010	-.0139	-.0274	.1557	.1444	.0008	-.0142	-.0181
9.59	4.89	.2114	.0425	.1841	-.0001	-.0143	-.0268	.1982	.1861	-.0003	-.0139	-.0174
12.19	4.93	.2518	.0583	.2225	-.0003	-.0138	-.0252	.2346	.2229	-.0004	-.0134	-.0171
13.68	5.02	.2823	.0730	.2504	-.0007	-.0147	-.0261	.2636	.2529	-.0009	-.0144	-.0192
16.09	5.23	.3275	.0981	.2870	-.0019	-.0165	-.0264	.3009	.2922	-.0019	-.0155	-.0209
18.23	5.22	.3615	.1223	.3175	-.0030	-.0183	-.0234	.3290	.3235	-.0026	-.0156	-.0217
20.36	5.73	.3786	.1459	.3228	-.0034	-.0250	-.0052	.3322	.3329	-.0023	-.0208	-.0306
22.64	5.28	.3904	.1683	.3363	-.0040	-.0222	.0071	.3365	.3444	-.0033	-.0148	-.0211
24.99	5.72	.4233	.1997	.3693	-.0077	-.0235	.0098	.3608	.3753	-.0046	-.0158	-.0226
27.22	5.28	.4566	.2358	.4113	-.0202	-.0202	.0107	.3907	.4137	-.0049	-.0139	-.0200
29.18	5.56	.4812	.2668	.4407	-.0080	-.0190	.0093	.4107	.4429	-.0057	-.0137	-.0199
31.11	5.91	.5013	.2983	.4701	-.0068	-.0164	.0043	.4253	.4684	-.0064	-.0143	-.0210
33.36	5.30	.5075	.3270	.4951	-.0043	-.0117	-.0072	.4304	.4883	-.0061	-.0127	-.0196
35.96	5.55	.5035	.3546	.5106	.0003	-.0038	-.0162	.4250	.4992	-.0056	-.0101	-.0144
37.75	5.78	.1184	.0878	.1214	.0013	.0009	.0030	.0986	.1185	-.0008	-.0014	-.0014
39.95	6.09	.5289	.4252	.5406	.0146	.0149	-.0320	.4317	.5358	-.0016	-.0025	.0015
1.18	4.42	.0203	.0105	.0200	.0018	-.0109	-.0240	.0219	.0219	.0019	-.0111	-.0139

TABLE III.- TABULATED RESULTS - Continued

M A I N B A L A N C E				S E C O N D B A L A N C E								
CONFIG NO. 78049												
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.33	-4.54	-.0606	.0146	-.0550	-.0042	.0132	.0186	-.0584	-.0529	-.0043	.0136	.0174
-1.63	-4.65	-.0256	.0137	-.0232	-.0032	.0128	.0146	-.0238	-.0205	-.0032	.0131	.0164
-1.75	-4.61	-.0092	.0135	-.0085	-.0028	.0122	.0129	-.0090	-.0086	-.0027	.0129	.0159
1.98	-3.97	.0299	.0137	.0239	-.0021	.0118	.0177	.0277	.0273	-.0020	.0114	.0136
3.63	-4.25	.0647	.0155	.0544	-.0020	.0138	.0215	.0624	.0580	-.0018	.0135	.0171
5.25	-4.68	.1037	.0196	.0890	-.0014	.0155	.0242	.0981	.0908	-.0013	.0151	.0187
7.20	-4.73	.1508	.0273	.1302	-.0009	.0160	.0250	.1419	.1312	-.0006	.0158	.0200
9.34	-5.02	.1940	.0388	.1707	-.0000	.0166	.0255	.1824	.1704	.0003	.0163	.0202
11.67	-4.89	.2440	.0562	.2137	.0006	.0172	.0240	.2251	.2130	.0008	.0166	.0214
13.90	-4.87	.2842	.0751	.2493	.0012	.0180	.0252	.2614	.2507	.0015	.0173	.0232
16.06	-4.89	.3229	.0967	.2826	.0025	.0188	.0251	.2952	.2864	.0025	.0175	.0238
18.35	-4.80	.3602	.1224	.3163	.0036	.0195	.0215	.3267	.3208	.0033	.0175	.0244
20.39	-5.26	.3735	.1435	.3195	.0042	.0264	.0035	.3276	.3275	.0029	.0223	.0322
22.68	-4.97	.3918	.1684	.3365	.0044	.0250	-.0118	.3361	.3434	.0038	.0178	.0261
24.84	-5.38	.4257	.1998	.3651	.0043	.0257	-.0157	.3593	.3731	.0051	.0180	.0256
27.18	-4.72	.4582	.2355	.4080	.0084	.0212	-.0206	.3897	.4115	.0056	.0146	.0206
29.55	-5.07	.4871	.2727	.4445	.0081	.0188	-.0171	.4116	.4442	.0065	.0147	.0206
31.49	-5.37	.5033	.3027	.4685	.0071	.0156	-.0115	.4239	.4679	.0072	.0143	.0198
33.65	-4.84	.5085	.3313	.4939	.0048	.0103	-.0023	.4280	.4860	.0071	.0122	.0172
35.91	-5.00	.5071	.3570	.5097	.0005	.0041	.0086	.4266	.4995	.0068	.0109	.0148
38.05	-5.26	.5117	.3866	.5261	-.0046	-.0034	.0194	.4265	.5140	.0062	.0084	.0094
39.93	-5.46	.5193	.4166	.5394	-.0108	-.0110	.0285	.4273	.5288	.0044	.0054	.0032
1.12	-4.25	.0050	.0120	.0052	-.0021	.0115	.0170	.0069	.0070	-.0020	.0113	.0134

M A I N B A L A N C E				S E C O N D B A L A N C E								
CONFIG NO. 78051												
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.22	.01	-.2490	.0319	-.0295	.0003	.0009	.0032	-.0910	-.0834	.0005	.0017	.0026
-2.31	.00	-.1312	.0222	-.0150	.0004	.0013	.0030	-.0451	-.0422	.0006	.0018	.0027
-1.18	.00	-.0172	.0181	.0002	.0005	.0011	.0012	-.0044	-.0046	.0006	.0018	.0028
2.04	-.00	.1159	.0211	.0157	.0009	.0012	.0019	.0410	.0372	.0007	.0019	.0029
4.10	-.01	.2416	.0308	.0333	.0012	.0010	.0009	.0882	.0788	.0009	.0020	.0033
6.28	-.01	.3911	.0532	.0514	.0013	.0014	-.0002	.1434	.1282	.0010	.0018	.0032
8.49	-.02	.5470	.0874	.0721	.0011	.0017	-.0020	.2005	.1805	.0009	.0020	.0036
10.62	-.03	.6800	.1309	.0874	.0016	.0018	-.0028	.2463	.2249	.0010	.0022	.0042
12.56	-.03	.8128	.1817	.1013	.0019	.0018	-.0046	.2924	.2690	.0010	.0021	.0042
14.72	-.01	.9566	.2483	.1156	.0020	.0014	-.0053	.3408	.3160	.0012	.0022	.0047
16.73	.00	1.0852	.3196	.1321	.0020	.0019	-.0057	.3853	.3604	.0012	.0020	.0044
18.87	.00	1.2208	.4072	.1478	.0018	.0016	-.0067	.4322	.4086	.0013	.0022	.0049
21.13	.00	1.3529	.5092	.1659	.0019	.0019	-.0093	.4802	.4596	.0014	.0022	.0052
23.01	.03	1.4564	.6010	.1855	.0025	.0019	-.0116	.5224	.5043	.0015	.0021	.0053
25.15	.00	1.5611	.7113	.2100	.0023	.0021	-.0139	.5702	.5541	.0015	.0022	.0053
27.39	.00	1.6261	.8235	.1814	.0037	.0021	-.0104	.6477	.6455	.0025	.0015	.0055
29.56	.01	1.6853	.9335	.1965	.0045	.0012	-.0108	.6666	.6577	.0024	.0013	.0049
31.51	.02	1.7170	1.0279	.2155	.0055	.0005	-.0098	.6848	.6104	.0029	.0009	.0045
33.46	.04	1.7264	1.1156	.2208	.0041	.0014	-.0082	.6930	.6348	.0032	.0012	.0053
35.34	.04	1.6618	1.1709	.1734	.0004	.0096	-.0022	.6611	.6239	.0030	.0026	.0065
37.46	.03	1.5927	1.2070	.1653	-.0005	.0162	-.0035	.5362	.6155	.0032	.0061	.0128
39.14	.06	1.5414	1.2407	.1637	.0012	.0156	-.0015	.5207	.6133	.0038	.0067	.0145
41.21	.07	1.4845	1.2847	.1676	.0040	.0108	-.0024	.5061	.6157	.0039	.0050	.0117
.06	.00	-.0161	.0168	.0007	.0006	.0010	.0020	-.0050	-.0051	.0006	.0015	.0021

M A I N B A L A N C E				S E C O N D B A L A N C E								
CONFIG NO. 78052												
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.46	4.56	-.2232	.0278	-.0284	.0043	-.0124	-.0137	-.0795	-.0730	-.0019	-.0130	-.0158
-1.90	4.16	-.1395	.0212	-.0174	.0020	-.0115	-.0133	-.0479	-.0445	-.0022	-.0120	-.0147
-1.76	4.24	-.0782	.0197	-.0088	.0006	-.0112	-.0144	-.0251	-.0237	-.0024	-.0120	-.0145
1.99	3.86	.1162	.0214	.0195	-.0015	-.0097	-.0242	.0436	.0398	-.0017	-.0105	-.0130
3.66	4.25	.2266	.0289	.0330	-.0034	-.0110	-.0284	.0840	.0753	-.0028	-.0118	-.0152
5.26	4.80	.3306	.0413	.0458	-.0050	-.0121	-.0304	.1215	.1089	-.0037	-.0130	-.0171
7.52	4.95	.4890	.0712	.0640	-.0065	-.0129	-.0325	.1780	.1603	-.0041	-.0131	-.0179
9.92	5.04	.6415	.1145	.0831	-.0068	-.0129	-.0312	.2310	.2100	-.0042	-.0132	-.0183
12.36	4.95	.7976	.1744	.1098	-.0097	-.0134	-.0324	.2851	.2622	-.0052	-.0131	-.0194
14.58	4.81	.9470	.2433	.1187	-.0100	-.0131	-.0300	.3365	.3120	-.0054	-.0127	-.0194
17.01	4.88	1.1041	.3309	.1368	-.0103	-.0135	-.0296	.3915	.3669	-.0062	-.0130	-.0207
19.30	5.51	1.2371	.4224	.1511	-.0121	-.0159	-.0287	.4385	.4152	-.0075	-.0145	-.0237
21.67	5.04	1.3563	.5272	.1477	-.0026	-.0149	-.0014	.4580	.4398	-.0024	-.0141	-.0174
23.71	5.49	1.4431	.6203	.1513	.0003	-.0206	.0064	.4826	.4709	-.0023	-.0182	-.0236
26.25	5.15	1.5567	.7505	.1737	.0033	-.0222	.0010	.5327	.5282	-.0024	-.0185	-.0244
28.38	5.46	1.6204	.8554	.1894	.0022	-.0287	.0018	.5590	.5646	-.0052	-.0219	-.0316
30.47	5.89	1.5762	.9110	.1770	.0093	-.0561	-.0170	.5464	.5671	-.0059	-.0303	-.0471
32.77	5.44	1.5941	1.0088	.1831	.0066	-.0593	-.0288	.5505	.5882	-.0070	-.0299	-.0494
34.71	5.73	1.6184	1.0989	.1964	.0009	-.0585	-.0339	.5620	.6161	-.0082	-.0307	-.0520
37.01	6.06	1.6112	1.1876	.2043	-.0017	-.0606	-.0433	.5635	.6370	-.0095	-.0320	-.0550
39.15	6.34	1.5751	1.2509	.2097	-.0029	-.0586	-.0532	.5561	.6492	-.0107	-.0315	-.0563
40.73	6.58	1.5462	1.2970	.2130	-.0025	-.0531	-.0566	.5479	.6564	-.0111	-.0302	-.0556
1.18	4.14	.0617	.0183	.0133	-.0003	-.0096	-.0236	.0247	.0226	-.0013	-.0104	-.0126

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE						SECOND BALANCE						
CONFIG NO. 78054												
ALPHA DEG	BETA DEG	CL1	COL	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-2.84	-4.42	-.1663	.0234	-.0171	-.0020	.0119	.0172	-.0611	-.0578	.0032	.0142	.0181
-1.92	-4.83	-.1054	.0218	-.0085	-.0008	.0119	.0148	-.0392	-.0389	.0033	.0136	.0171
-.60	-4.72	-.0341	.0200	.0022	.0011	.0116	.0142	-.0086	-.0084	.0035	.0137	.0173
2.05	-4.57	.0757	.0206	.0125	.0024	.0112	.0245	.0275	.0240	.0030	.0136	.0174
3.91	-4.77	.1962	.0283	.0246	.0055	.0125	.0266	.0688	.0593	.0046	.0143	.0194
5.50	-4.93	.3044	.0411	.0411	.0076	.0138	.0292	.1110	.0985	.0054	.0159	.0223
7.73	-5.34	.4601	.0700	.0593	.0098	.0155	.0298	.1667	.1496	.0063	.0175	.0253
9.91	-5.31	.6088	.1099	.0784	.0101	.0157	.0297	.2183	.1972	.0063	.0174	.0260
12.16	-5.27	.7586	.1645	.0977	.0137	.0165	.0281	.2714	.2489	.0075	.0183	.0291
14.60	-5.14	.9200	.2369	.1170	.0152	.0172	.0224	.3275	.3031	.0081	.0178	.0294
16.89	-5.15	1.0634	.3160	.1344	.0157	.0170	.0199	.3741	.3484	.0088	.0176	.0303
19.57	-5.10	1.2287	.4250	.1527	.0148	.0184	.0117	.4350	.4118	.0095	.0178	.0317
21.48	-5.57	1.3118	.5043	.1444	.0086	.0205	-.0153	.4400	.4213	.0058	.0199	.0299
23.71	-5.29	1.4208	.6108	.1503	.0039	.0235	-.0264	.4739	.4617	.0047	.0219	.0328
25.82	-5.71	1.4949	.7081	.1629	.0011	.0306	-.0227	.5072	.5022	.0059	.0259	.0399
28.23	-5.04	1.6101	.8445	.1928	.0042	.0281	-.0206	.5593	.5627	.0069	.0246	.0398
30.55	-5.43	1.5773	.9132	.1857	-.0021	.0549	-.0058	.5512	.5705	.0089	.0332	.0559
32.46	-5.77	1.5645	.9766	.1870	-.0012	.0656	.0155	.5471	.5800	.0124	.0367	.0654
34.92	-5.17	1.5879	1.0874	.1966	.0068	.0604	.0267	.5499	.6028	.0134	.0343	.0647
37.06	-5.45	1.5998	1.1820	.2059	.0127	.0594	.0278	.5594	.6302	.0156	.0355	.0689
39.06	-5.70	1.5760	1.2482	.2122	.0110	.0603	.0362	.5565	.6451	.0158	.0359	.0699
41.12	-5.97	1.5353	1.3043	.2166	.0079	.0540	.0544	.5447	.6542	.0155	.0341	.0679
1.27	-4.80	.0234	.0182	.0058	.0010	.0111	.0254	.0103	.0082	.0024	.0133	.0167

MAIN BALANCE						SECOND BALANCE						
CONFIG NO. 78055												
ALPHA DEG	BETA DEG	CL1	COL	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.50	-.00	-.0880	.0164	-.0797	.0006	.0011	.0012	-.0839	-.0787	.0005	.0009	.0015
-2.41	-.00	-.0402	.0135	-.0369	.0006	.0011	.0005	-.0369	-.0353	.0005	.0009	.0014
-.36	-.00	-.0011	.0110	-.0044	.0008	.0007	.0022	-.0076	-.0104	.0006	-.0002	-.0002
1.87	.00	.0427	.0134	.0347	.0008	.0007	.0008	.0387	.0354	.0006	.0009	.0015
3.79	.00	.0847	.0155	.0696	.0009	.0006	.0019	.0762	.0686	.0008	.0006	.0013
5.94	.00	.1305	.0223	.1107	.0009	.0006	.0013	.1225	.1120	.0009	.0014	.0027
7.94	.00	.1784	.0319	.1528	.0010	.0007	.0021	.1660	.1518	.0009	.0010	.0022
9.88	-.00	.2170	.0436	.1880	.0007	.0004	.0017	.2004	.1858	.0005	.0006	.0016
12.05	.00	.2602	.0603	.2271	.0006	.0006	.0010	.2411	.2271	.0008	.0013	.0028
13.99	.00	.2977	.0775	.2621	.0006	.0004	.0012	.2743	.2608	.0007	.0010	.0025
16.57	.00	.3432	.1037	.3057	.0005	.0002	.0013	.3139	.3033	.0007	.0010	.0025
18.33	.00	.3650	.1210	.3314	.0005	.0004	.0009	.3363	.3301	.0007	.0015	.0031
20.31	.00	.3882	.1436	.3551	.0003	.0005	-.0003	.3539	.3525	.0005	.0014	.0029
22.21	-.00	.3551	.1499	.3270	-.0004	.0007	-.0021	.3134	.3207	-.0001	.0019	.0033
24.16	.00	.3598	.1659	.3379	.0002	.0003	.0015	.3140	.3290	.0007	.0018	.0038
26.11	.01	.3835	.1905	.3611	.0000	-.0001	.0033	.3282	.3486	.0007	.0014	.0032
28.00	.00	.4014	.2143	.3833	.0002	-.0004	.0053	.3420	.3696	.0009	.0011	.0031
30.43	.02	.4141	.2417	.4031	.0001	-.0008	.0094	.3494	.3885	.0012	.0011	.0035
32.44	.00	.4295	.2637	.4167	.0002	-.0011	.0139	.3534	.4043	.0018	.0014	.0044
34.36	-.01	.4232	.2824	.4287	-.0001	-.0021	.0161	.3531	.4145	.0019	.0004	.0027
36.26	.00	.4345	.3087	.4384	-.0003	-.0018	.0188	.3535	.4252	.0017	.0009	.0031
38.36	.01	.4377	.3332	.4465	-.0001	-.0008	.0181	.3514	.4353	.0021	.0020	.0052
40.06	.01	.4422	.3556	.4535	.0001	-.0003	.0211	.3509	.4450	.0026	.0027	.0067
-.12	-.00	-.0060	.0108	-.0048	.0007	.0008	.0005	-.0039	-.0044	.0006	.0004	.0004

MAIN BALANCE						SECOND BALANCE						
CONFIG NO. 78056												
ALPHA DEG	BETA DEG	CL1	COL	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.34	4.57	-.0703	.0135	-.0669	-.0013	-.0130	-.0197	-.0698	-.0663	-.0012	-.0148	-.0193
-1.61	4.40	-.0435	.0124	-.0360	-.0015	-.0123	-.0191	-.0360	-.0348	-.0015	-.0140	-.0180
-.89	4.39	-.0267	.0122	-.0241	-.0015	-.0123	-.0185	-.0228	-.0227	-.0016	-.0139	-.0178
1.84	3.75	.0377	.0130	.0359	-.0024	-.0112	-.0215	.0383	.0349	-.0026	-.0110	-.0132
3.62	3.95	.0771	.0149	.0697	-.0032	-.0114	-.0239	.0747	.0677	-.0034	-.0117	-.0150
5.24	4.54	.1128	.0192	.1017	-.0037	-.0129	-.0276	.1089	.0986	-.0043	-.0134	-.0177
7.24	4.87	.1596	.0274	.1420	-.0045	-.0133	-.0310	.1522	.1387	-.0050	-.0141	-.0190
9.70	4.74	.2126	.0417	.1862	-.0037	-.0127	-.0308	.1981	.1838	-.0045	-.0135	-.0183
11.66	4.83	.2500	.0564	.2199	-.0045	-.0128	-.0335	.2327	.2193	-.0053	-.0136	-.0195
14.07	4.85	.2954	.0774	.2616	-.0045	-.0132	-.0306	.2739	.2618	-.0053	-.0137	-.0199
16.35	5.02	.3406	.1019	.2981	-.0047	-.0148	-.0247	.3093	.2995	-.0053	-.0142	-.0208
18.66	4.88	.3737	.1267	.3306	-.0041	-.0146	-.0172	.3349	.3288	-.0046	-.0139	-.0200
20.89	5.46	.3681	.1425	.3266	-.0001	-.0192	.0100	.3189	.3241	-.0009	-.0190	-.0229
22.75	5.14	.3915	.1647	.3490	-.0009	-.0185	.0065	.3343	.3438	-.0021	-.0192	-.0245
25.22	5.67	.3904	.1860	.3562	-.0045	-.0157	-.0215	.3317	.3482	-.0068	-.0181	-.0271
27.07	5.01	.3996	.2053	.3744	-.0043	-.0109	-.0292	.3406	.3649	-.0073	-.0142	-.0277
29.27	5.39	.4171	.2326	.3988	-.0037	-.0092	-.0440	.3538	.3869	-.0091	-.0159	-.0271
31.75	5.81	.4268	.2593	.4197	-.0018	-.0066	-.0607	.3595	.4053	-.0104	-.0175	-.0311
33.71	6.14	.4358	.2837	.4344	.0008	-.0059	-.0807	.3608	.4183	-.0112	-.0208	-.0369
35.84	5.35	.4412	.3084	.4446	.0029	-.0040	-.0759	.3595	.4303	-.0091	-.0180	-.0318
37.92	5.60	.4498	.3367	.4565	.0061	-.0004	-.0920	.3611	.4450	-.0094	-.0175	-.0320
39.79	5.83	.4601	.3654	.4646	.0100	.0018	-.1115	.3620	.4575	-.0093	-.0185	-.0341
1.28	3.94	.0244	.0114	.0240	-.0020	-.0107	-.0205	.0246	.0224	-.0022	-.0107	-.0127

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE						SECOND BALANCE							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CONFIG NO.	CY1	CS1	CL2	CM2	CR2	CY2	CS2
						78057							
-3.33	-4.56	-.0624	.0145	-.0534	.0026	.0133	.0178	-.0569	-.0534	.0023	.0139	.0181	
-1.98	-4.10	-.0373	.0126	-.0303	.0024	.0117	.0151	-.0326	-.0317	.0022	.0121	.0156	
-.91	-4.35	-.0146	.0129	-.0096	.0025	.0114	.0144	-.0095	-.0094	.0024	.0128	.0168	
2.08	-3.09	.0452	.0167	.0372	.0034	.0089	.0085	.0391	.0392	.0033	.0078	.0082	
3.89	-4.26	.0667	.0150	.0619	.0047	.0130	.0230	.0670	.0614	.0049	.0124	.0163	
5.59	-4.44	.1092	.0198	.0986	.0053	.0130	.0281	.1058	.0961	.0054	.0133	.0183	
7.38	-4.65	.1489	.0269	.1345	.0058	.0135	.0326	.1446	.1321	.0062	.0145	.0207	
9.77	-4.47	.2029	.0411	.1795	.0050	.0128	.0324	.1920	.1783	.0056	.0143	.0209	
11.83	-4.55	.2472	.0563	.2175	.0056	.0127	.0363	.2275	.2131	.0062	.0143	.0220	
14.05	-4.54	.2899	.0760	.2558	.0056	.0137	.0341	.2673	.2549	.0062	.0150	.0234	
16.57	-4.54	.3405	.1032	.2947	.0055	.0147	.0270	.3046	.2973	.0061	.0152	.0238	
18.95	-4.44	.3712	.1279	.3310	.0045	.0143	.0188	.3338	.3289	.0054	.0155	.0239	
20.84	-4.87	.3644	.1398	.3220	.0006	.0177	-.0058	.3146	.3187	.0017	.0193	.0250	
22.84	-4.52	.3892	.1638	.3475	.0010	.0167	-.0002	.3317	.3400	.0026	.0194	.0269	
25.23	-4.97	.3867	.1844	.3547	.0044	.0142	.0260	.3291	.3452	.0072	.0185	.0296	
27.21	-4.49	.3984	.2060	.3751	.0046	.0099	.0373	.3406	.3654	.0088	.0162	.0284	
29.37	-4.79	.4126	.2317	.3985	.0039	.0063	.0572	.3509	.3846	.0109	.0163	.0308	
31.57	-5.16	.4228	.2554	.4166	.0027	.0040	.0764	.3556	.3992	.0124	.0174	.0344	
33.51	-5.40	.4267	.2764	.4296	.0003	.0024	.0945	.3572	.4125	.0141	.0193	.0388	
35.93	-5.74	.4373	.3061	.4447	-.0022	.0001	.1137	.3588	.4290	.0152	.0208	.0427	
37.95	-6.00	.4492	.3353	.4568	-.0050	-.0027	.1363	.3618	.4436	.0164	.0211	.0454	
40.12	-4.96	.4527	.3636	.4620	-.0082	-.0042	.1207	.3585	.4552	.0125	.0173	.0371	
1.28	-4.57	.0045	.0119	.0108	.0035	.0121	.0205	.0132	.0117	.0033	.0117	.0139	

MAIN BALANCE						SECOND BALANCE							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CONFIG NO.	CY1	CS1	CL2	CM2	CR2	CY2	CS2
						78114							
-4.20	.01	-.2462	.0323	-.0485	-.0010	.0010	.0036	-.0947	-.1004	.0001	.0013	.0017	
-2.39	.00	-.1245	.0238	-.0230	-.0008	.0011	.0026	-.0458	-.0495	.0001	.0012	.0015	
-.36	.00	-.0111	.0199	-.0003	-.0004	.0011	.0021	-.0024	-.0047	.0002	.0011	.0013	
2.25	-.00	.1419	.0239	.0322	.0001	.0015	.0008	.0567	.0569	.0005	.0013	.0014	
4.05	-.01	.2511	.0331	.0562	.0002	.0008	-.0092	.0997	.1007	.0004	.0010	.0011	
6.16	-.01	.3977	.0549	.0809	.0004	.0017	-.0013	.1528	.1551	.0004	.0013	.0016	
8.16	-.01	.5352	.0858	.0995	.0006	.0020	-.0026	.1985	.2046	.0005	.0016	.0020	
10.65	-.00	.6861	.1356	.1232	-.0000	.0018	-.0046	.2480	.2575	.0005	.0014	.0019	
12.53	-.00	.8169	.1871	.1375	.0001	.0020	-.0056	.2890	.3018	.0004	.0012	.0015	
14.92	.00	.9689	.2618	.1568	.0006	.0021	-.0059	.3380	.3557	.0004	.0015	.0019	
16.47	-.01	1.0771	.3259	.1642	.0003	.0027	-.0058	.3678	.3889	.0002	.0020	.0027	
18.75	-.00	1.1896	.4063	.1770	-.0000	.0030	-.0098	.3988	.4272	.0002	.0021	.0027	
21.11	.00	1.3104	.5067	.1985	-.0005	.0032	-.0100	.4437	.4811	-.0001	.0021	.0027	
23.11	.01	1.4068	.5994	.2174	.0002	.0032	-.0127	.4806	.5274	-.0001	.0024	.0031	
24.89	-.03	1.4906	.6891	.2348	.0012	.0026	-.0134	.5143	.5704	-.0002	.0020	.0025	
27.40	.01	1.6017	.8249	.2540	.0022	.0027	-.0136	.5581	.6297	.0000	.0024	.0034	
29.20	.02	1.6688	.9250	.2664	.0033	.0027	-.0139	.5838	.6681	.0002	.0023	.0036	
31.25	.02	1.7288	1.0399	.2742	.0029	.0021	-.0148	.6071	.7075	.0003	.0019	.0029	
33.55	.06	1.7105	1.1295	.2804	.0098	-.0102	-.0172	.6142	.7341	.0007	-.0001	.0002	
35.64	.11	1.6644	1.1882	.2973	.0159	-.0261	-.0187	.6107	.7475	.0010	-.0028	-.0037	
37.17	.11	1.6332	1.2328	.3015	.0142	-.0278	-.0196	.6053	.7549	.0006	-.0035	-.0051	
39.26	.07	1.5696	1.2799	.3070	.0056	-.0111	-.0120	.5955	.7626	.0009	-.0006	-.0005	
41.13	.08	1.5281	1.3291	.3091	.0027	.0010	-.0088	.5823	.7630	.0016	.0020	.0035	
-.10	.00	-.0159	.0187	.0011	-.0001	.0014	.0019	-.0035	-.0060	.0003	.0011	.0011	

MAIN BALANCE						SECOND BALANCE							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CONFIG NO.	CY1	CS1	CL2	CM2	CR2	CY2	CS2
						78115							
-3.33	4.82	-.2028	.0286	-.0431	.0047	-.0144	-.0204	-.0762	-.0822	-.0012	-.0173	-.0223	
-1.88	4.66	-.1257	.0230	-.0249	.0026	-.0144	-.0199	-.0443	-.0490	-.0016	-.0167	-.0217	
-.62	4.69	-.0627	.0206	-.0112	.0012	-.0147	-.0244	-.0191	-.0228	-.0020	-.0171	-.0223	
1.82	3.85	.1185	.0245	.0379	-.0076	-.0128	-.0236	.0505	.0523	-.0028	-.0130	-.0154	
3.43	4.28	.2164	.0295	.0503	-.0047	-.0136	-.0296	.0880	.0886	-.0034	-.0142	-.0177	
5.26	5.04	.3388	.0442	.0725	-.0070	-.0159	-.0352	.1329	.1355	-.0042	-.0168	-.0216	
7.29	5.31	.4845	.0717	.0920	-.0084	-.0167	-.0379	.1813	.1860	-.0044	-.0177	-.0233	
9.43	5.40	.6333	.1125	.1132	-.0080	-.0173	-.0403	.2291	.2371	-.0047	-.0180	-.0243	
12.15	5.26	.7955	.1770	.1383	-.0103	-.0171	-.0352	.2840	.2959	-.0053	-.0182	-.0257	
14.79	5.46	.9575	.2572	.1542	-.0077	-.0188	-.0389	.3323	.3491	-.0051	-.0196	-.0279	
16.84	5.50	1.0747	.3288	.1674	-.0066	-.0202	-.0394	.3723	.3960	-.0058	-.0202	-.0294	
18.93	5.44	1.1930	.4113	.1845	-.0061	-.0214	-.0404	.4103	.4390	-.0068	-.0203	-.0306	
21.03	6.02	1.3112	.5051	.2024	-.0084	-.0256	-.0458	.4526	.4886	-.0092	-.0229	-.0360	
24.17	5.74	1.4495	.6468	.2252	-.0081	-.0271	-.0470	.5055	.5560	-.0098	-.0225	-.0369	
25.82	6.11	1.4989	.7243	.2343	-.0055	-.0388	-.0553	.5340	.5937	-.0115	-.0266	-.0450	
28.14	5.61	1.5983	.8512	.2602	-.0058	-.0393	-.0558	.5741	.6487	-.0116	-.0258	-.0449	
30.62	6.04	1.6662	.9774	.2797	-.0100	-.0430	-.0601	.6029	.6943	-.0133	-.0280	-.0500	
32.41	6.37	1.6972	1.0675	.2935	-.0101	-.0506	-.0697	.6184	.7256	-.0150	-.0310	-.0563	
34.70	5.52	1.7123	1.1760	.3080	-.0098	-.0475	-.0712	.6292	.7560	-.0145	-.0281	-.0525	
37.01	5.85	1.6704	1.2487	.3169	-.0117	-.0533	-.0858	.6223	.7683	-.0171	-.0301	-.0579	
39.09	6.15	1.6212	1.3048	.3245	-.0153	-.0561	-.0998	.6121	.7757	-.0203	-.0319	-.0638	
40.93	6.40	1.5726	1.3506	.3235	-.0183	-.0537	-.1142	.5990	.7770	-.0226	-.0325	-.0668	
1.05	4.12	.0636	.0201	.0197	-.0016	-.0124	-.0229	.0302	.0301	-.0023	-.0128	-.0154	

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE				SECOND BALANCE								
				CONFIG NO. 78116								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.41	-4.84	-.1926	.0273	-.0384	-.0052	.0144	.0230	-.0721	-.0773	.0016	.0182	.0232
-1.45	-4.52	-.0775	.0217	-.0121	-.0021	.0131	.0186	-.0237	-.0272	.0018	.0160	.0205
-.46	-4.72	-.0321	.0206	-.0016	-.0007	.0137	.0193	-.0050	-.0079	.0023	.0165	.0209
1.88	-4.24	.0734	.0218	.0198	.0015	.0128	.0211	.0347	.0346	.0030	.0133	.0153
3.77	-4.34	.1989	.0295	.0458	.0043	.0141	.0224	.0822	.0834	.0040	.0143	.0169
5.08	-4.96	.2827	.0389	.0625	.0064	.0162	.0262	.1148	.1172	.0047	.0168	.0205
7.50	-4.97	.4632	.0705	.0877	.0078	.0168	.0282	.1760	.1805	.0048	.0174	.0224
9.69	-5.04	.6062	.1099	.1075	.0081	.0175	.0289	.2221	.2303	.0051	.0180	.0239
12.02	-5.06	.7505	.1652	.1326	.0101	.0180	.0279	.2713	.2827	.0054	.0185	.0252
14.33	-5.08	.8982	.2334	.1466	.0089	.0196	.0260	.3165	.3327	.0054	.0197	.0272
16.88	-5.10	1.0525	.3231	.1624	.0068	.0224	.0220	.3619	.3836	.0054	.0211	.0299
19.10	-4.96	1.1783	.4100	.1759	.0064	.0242	.0170	.4012	.4303	.0063	.0211	.0310
21.06	-5.43	1.2796	.4931	.1919	.0077	.0281	.0190	.4380	.4730	.0078	.0237	.0361
23.79	-5.08	1.4283	.6272	.2182	.0082	.0297	.0177	.4968	.5443	.0088	.0233	.0375
25.86	-5.52	1.5059	.7275	.2291	.0073	.0332	.0225	.5313	.5900	.0104	.0269	.0445
28.29	-4.81	1.6147	.8633	.2582	.0084	.0394	.0212	.5778	.6533	.0100	.0255	.0435
30.49	-5.15	1.6831	.9818	.2797	.0116	.0420	.0261	.6075	.6999	.0119	.0277	.0487
32.78	-5.52	1.7245	1.0983	.2983	.0138	.0474	.0333	.6276	.7396	.0139	.0299	.0539
34.82	-5.89	1.7183	1.1810	.3107	.0132	.0550	.0474	.6324	.7614	.0162	.0331	.0611
36.90	-5.13	1.7029	1.2650	.3151	.0116	.0488	.0515	.6311	.7795	.0151	.0293	.0554
39.11	-5.30	1.6478	1.3258	.3283	.0114	.0521	.0627	.6202	.7886	.0164	.0309	.0592
40.96	-5.47	1.5931	1.3703	.3366	.0176	.0383	.0658	.6142	.8006	.0179	.0294	.0585
1.01	-4.36	.0216	.0197	.0077	.0007	.0118	.0215	.0153	.0142	.0026	.0131	.0148

MAIN BALANCE				SECOND BALANCE								
				CONFIG NO. 78120								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.28	.01	-.0976	.0173	-.0986	-.0000	.0025	.0020	-.0923	-.0987	.0000	.0913	.0016
-2.26	.00	-.0522	.0132	-.0505	-.0001	.0022	.0021	-.0475	-.0515	.0001	.0911	.0013
-.23	.00	-.0060	.0123	-.0041	.0002	.0024	.0006	-.0031	-.0047	.0001	.0012	.0014
2.03	-.00	.0035	.0136	.0444	.0003	.0024	.0013	.0046	.0043	.0002	.0008	.0007
4.00	-.01	.0889	.0170	.0894	.0004	.0025	.0023	.0875	.0895	.0003	.0012	.0015
6.02	-.01	.1347	.0231	.1367	.0005	.0025	.0023	.1331	.1372	.0004	.0013	.0017
8.08	-.02	.1785	.0332	.1826	.0005	.0025	.0033	.1758	.1828	.0005	.0017	.0025
10.22	-.02	.2189	.0468	.2247	.0006	.0022	.0031	.2147	.2260	.0005	.0014	.0019
12.23	-.03	.2562	.0624	.2626	.0007	.0022	.0027	.2480	.2629	.0004	.0015	.0020
14.30	-.03	.2897	.0805	.3009	.0007	.0022	.0035	.2811	.3010	.0003	.0009	.0008
16.15	-.04	.3182	.0990	.3297	.0001	.0020	.0047	.3058	.3300	-.0000	.0016	.0018
18.25	-.04	.3382	.1187	.3530	.0003	.0016	.0050	.3212	.3524	.0004	.0019	.0026
20.41	-.06	.3622	.1405	.3850	-.0008	.0008	.0054	.3429	.3830	-.0004	.0021	.0027
22.28	-.06	.3876	.1637	.4167	-.0012	.0007	.0065	.3638	.4117	-.0006	.0024	.0030
24.38	-.06	.4144	.1910	.4472	-.0018	.0007	.0051	.3853	.4425	-.0010	.0025	.0027
26.33	-.06	.4384	.2184	.4769	-.0021	.0008	.0063	.4044	.4709	-.0010	.0030	.0035
28.44	-.08	.4620	.2500	.5076	-.0015	.0018	.0082	.4243	.5028	-.0007	.0035	.0045
30.60	-.06	.4744	.2775	.5286	-.0017	.0003	.0137	.4321	.5222	.0001	.0035	.0052
32.55	-.06	.4843	.3043	.5456	-.0019	-.0003	.0147	.4371	.5395	.0002	.0034	.0051
34.49	-.06	.4926	.3319	.5585	-.0019	-.0005	.0191	.4385	.5527	.0006	.0033	.0053
36.62	-.05	.4959	.3587	.5672	-.0020	-.0011	.0203	.4357	.5628	.0011	.0035	.0060
38.37	-.06	.4997	.3833	.5735	-.0025	-.0010	.0195	.4333	.5724	.0010	.0036	.0061
40.46	-.07	.5005	.4116	.5781	-.0024	-.0012	.0201	.4274	.5797	.0014	.0035	.0059
-.07	.00	-.0085	.0116	-.0058	.0002	.0017	.0022	-.0041	-.0060	.0002	.0006	.0005

MAIN BALANCE				SECOND BALANCE								
				CONFIG NO. 78121								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.46	4.84	-.0976	.0158	-.0840	-.0015	-.0168	-.0219	-.0805	-.0867	-.0014	-.0182	-.0231
-1.91	4.67	-.0543	.0141	-.0484	-.0017	-.0154	-.0210	-.0439	-.0483	-.0018	-.0169	-.0217
-.78	4.59	-.0366	.0129	-.0270	-.0019	-.0154	-.0222	-.0230	-.0264	-.0021	-.0171	-.0221
1.89	4.09	.0377	.0135	.0455	-.0027	-.0134	-.0241	.0048	.0462	-.0029	-.0136	-.0164
3.56	4.32	.0769	.0154	.0827	-.0033	-.0135	-.0277	.0797	.0820	-.0035	-.0143	-.0176
5.28	4.99	.1135	.0198	.1253	-.0040	-.0150	-.0340	.1203	.1241	-.0044	-.0164	-.0209
7.36	5.08	.1588	.0284	.1712	-.0039	-.0149	-.0378	.1641	.1706	-.0044	-.0169	-.0222
9.60	5.10	.2059	.0420	.2154	-.0038	-.0144	-.0467	.2055	.2157	-.0046	-.0171	-.0232
11.86	5.08	.2498	.0594	.2585	-.0037	-.0142	-.0411	.2443	.2588	-.0049	-.0176	-.0246
13.92	5.22	.2827	.0770	.2921	-.0033	-.0151	-.0413	.2750	.2938	-.0047	-.0185	-.0258
16.36	5.34	.3206	.1012	.3276	-.0030	-.0161	-.0434	.3052	.3304	-.0048	-.0201	-.0284
18.50	5.32	.3470	.1226	.3602	-.0039	-.0156	-.0434	.3288	.3610	-.0061	-.0198	-.0292
20.50	5.87	.3769	.1464	.3931	-.0048	-.0160	-.0561	.3556	.3935	-.0080	-.0222	-.0335
23.14	5.32	.4191	.1827	.4410	-.0052	-.0152	-.0563	.3913	.4408	-.0086	-.0213	-.0338
25.08	5.71	.4446	.2100	.4695	-.0056	-.0182	-.0620	.4128	.4688	-.0095	-.0243	-.0392
27.03	6.14	.4605	.2361	.4854	-.0060	-.0196	-.0672	.4213	.4842	-.0107	-.0264	-.0433
29.42	5.53	.4671	.2636	.5023	-.0053	-.0186	-.0772	.4238	.4982	-.0113	-.0267	-.0455
31.70	5.88	.4755	.2925	.5169	-.0054	-.0199	-.0922	.4245	.5121	-.0133	-.0298	-.0517
33.67	6.25	.4812	.3175	.5262	-.0067	-.0186	-.1060	.4243	.5218	-.0157	-.0291	-.0526
35.89	5.45	.4801	.3421	.5396	-.0070	-.0149	-.0963	.4222	.5330	-.0158	-.0239	-.0463
38.11	5.73	.4852	.3719	.5518	-.0074	-.0142	-.1107	.4218	.5479	-.0183	-.0245	-.0498
40.07	6.00	.4880	.3979	.5596	-.0075	-.0143	-.1208	.4194	.5590	-.0201	-.0256	-.0535
1.12	4.28	.0194	.0119	.0286	-.0025	-.0120	-.0234	.0270	.0275	-.0025	-.0130	-.0156

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.21	-4.91	-.0656	.0146	-.0464	.0099	.0181	.0218	-.0569	-.0539	.0012	-.0170	.0221
-1.69	-4.53	-.0345	.0135	-.0222	.0010	.0159	.0178	-.0281	-.0292	.0013	.0151	.0199
-.75	-4.75	-.0144	.0132	-.0059	.0014	.0161	.0197	-.0093	-.0122	.0017	.0155	.0204
1.97	-4.31	.0239	.0131	.0276	.0023	.0160	.0206	.0285	.0240	.0026	.0138	.0141
3.86	-4.61	.0613	.0148	.0628	.0038	.0173	.0281	.0664	.0569	.0040	.0158	.0174
5.18	-5.01	.0907	.0179	.0896	.0047	.0182	.0348	.0954	.0822	.0048	.0177	.0209
7.53	-4.95	.1465	.0272	.1373	.0050	.0177	.0430	.1491	.1296	.0054	.0183	.0229
9.58	-5.26	.1924	.0388	.1766	.0056	.0181	.0497	.1923	.1702	.0063	.0196	.0258
11.73	-5.14	.2403	.0549	.2181	.0052	.0179	.0538	.2350	.2120	.0063	.0204	.0282
13.96	-5.20	.2846	.0740	.2586	.0059	.0179	.0567	.2740	.2518	.0073	.0205	.0293
16.41	-5.18	.3294	.0988	.3026	.0063	.0186	.0576	.3139	.2967	.0079	.0213	.0317
18.60	-5.01	.3597	.1217	.3391	.0054	.0175	.0594	.3427	.3320	.0075	.0215	.0325
20.62	-5.52	.3867	.1453	.3694	.0042	.0181	.0697	.3665	.3614	.0077	.0249	.0381
22.85	-5.13	.4201	.1759	.4016	.0029	.0168	.0716	.3903	.3926	.0073	.0247	.0384
25.15	-5.59	.4496	.2081	.4361	.0028	.0178	.0877	.4151	.4253	.0091	.0282	.0451
27.51	-4.86	.4843	.2480	.4779	.0014	.0155	.0865	.4450	.4658	.0085	.0267	.0432
29.72	-5.19	.5076	.2832	.5087	.0020	.0174	.0990	.4628	.4952	.0106	.0294	.0493
31.53	-5.47	.5213	.3107	.5279	.0027	.0182	.1110	.4716	.5146	.0129	.0319	.0548
34.40	-4.94	.5328	.3516	.5519	.0016	.0147	.1118	.4770	.5382	.0133	.0297	.0526
36.19	-5.17	.5371	.3785	.5617	.0023	.0159	.1253	.4730	.5482	.0158	.0310	.0570
37.98	-5.41	.5337	.3997	.5654	.0037	.0165	.1378	.4636	.5529	.0182	.0320	.0607
39.87	-5.61	.5340	.4262	.5667	.0052	.0168	.1493	.4547	.5561	.0204	.0316	.0626
1.22	-4.40	.0029	.0129	.0133	.0021	.0164	.0221	.0123	.0079	.0023	.0141	.0145

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.25	.00	-.2489	.0323	-.0271	-.0011	.0007	.0028	-.0877	-.0775	-.0005	.0008	.0011
-2.10	.00	-.1299	.0216	-.0124	-.0006	.0006	.0011	-.0422	-.0396	-.0005	.0010	.0012
-.30	.00	-.0062	.0194	-.0028	-.0005	.0007	.0017	.0020	-.0001	-.0003	.0008	.0005
1.83	.00	.0160	.0226	.0168	-.0004	.0010	-.0002	.0453	.0390	-.0003	.0008	.0006
4.04	.00	.2491	.0334	.0349	-.0000	.0012	-.0013	.0959	.0806	-.0003	.0011	.0012
6.10	.00	.3971	.0550	.0539	.0003	.0016	-.0024	.1540	.1312	-.0001	.0012	.0013
8.28	.01	.5405	.0873	.0725	.0001	.0017	-.0034	.2086	.1784	-.0000	.0013	.0014
10.30	.01	.6615	.1255	.0925	.0005	.0017	-.0030	.2547	.2196	.0002	.0015	.0018
12.34	.02	.0607	.1800	.1088	-.0001	.0017	-.0064	.3040	.2692	.0002	.0014	.0015
14.62	.01	.9667	.2525	.1264	.0002	.0031	-.0071	.3586	.3222	.0003	.0013	.0015
16.44	.02	1.0953	.3255	.1449	.0005	.0026	-.0068	.4056	.3708	.0005	.0016	.0020
18.78	.03	1.2125	.4066	.1633	.0006	.0029	-.0087	.4494	.4150	.0008	.0017	.0021
20.99	.03	1.3711	.5176	.1904	-.0004	.0033	-.0103	.5129	.4801	.0007	.0019	.0024
23.32	.03	1.5025	.6352	.2121	-.0006	.0034	-.0113	.5623	.5359	.0005	.0020	.0025
25.13	.03	1.5948	.7329	.2279	-.0006	.0040	-.0123	.5972	.5775	.0005	.0022	.0029
27.20	.03	1.6809	.8462	.2464	-.0023	.0054	-.0114	.6325	.6241	.0003	.0023	.0030
29.43	.02	1.7460	.9662	.2617	-.0008	.0038	-.0096	.6607	.6667	.0004	.0025	.0033
31.43	.01	1.8057	1.0937	.2670	.0034	.0019	-.0116	.6831	.7038	.0004	.0021	.0025
33.34	.01	1.8416	1.1922	.2638	.0068	-.0025	-.0132	.6954	.7326	.0014	.0011	.0018
35.49	.01	1.8631	1.3089	.2633	.0063	-.0012	-.0114	.7033	.7602	.0020	-.0008	.0018
37.38	.09	1.8208	1.3732	.2708	.0065	-.0042	-.0116	.6972	.7721	.0019	-.0004	.0000
37.54	.02	1.8165	1.3770	.2708	.0079	-.0059	-.0130	.6953	.7711	.0022	-.0003	.0004
39.55	.07	1.6968	1.3845	.2783	.0159	-.0052	-.0185	.6624	.7555	.0019	-.0001	-.0118
41.31	.07	1.6145	1.4032	.2822	.0074	-.0197	-.0090	.6390	.7481	.0016	-.0045	-.0061
.00	-.00	-.0112	.0181	.0021	-.0004	.0012	.0008	-.0007	-.0028	-.0002	.0011	.0013

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.16	4.56	-.1989	.0257	-.0226	.0034	-.0144	-.0191	-.0687	-.0627	-.0019	-.0168	-.0212
-2.00	4.67	-.1306	.0219	-.0142	.0024	-.0145	-.0220	-.0426	-.0395	-.0023	-.0167	-.0212
-.71	4.62	-.0652	.0203	-.0051	.0010	-.0143	-.0216	-.0168	-.0167	-.0024	-.0163	-.0208
1.76	3.81	.0153	.0236	.0200	-.0026	-.0129	-.0247	.0452	.0392	-.0034	-.0127	-.0152
3.82	4.36	.2411	.0316	.0359	-.0049	-.0136	-.0284	.0924	.0786	-.0046	-.0134	-.0167
5.00	5.12	.3221	.0414	.0447	-.0065	-.0162	-.0354	.1224	.1049	-.0053	-.0162	-.0209
7.65	4.89	.5221	.0795	.0675	-.0091	-.0157	-.0414	.1961	.1674	-.0060	-.0165	-.0231
9.83	5.23	.6548	.1188	.0860	-.0084	-.0164	-.0428	.2428	.2103	-.0060	-.0166	-.0236
12.08	5.08	.8024	.1752	.1089	-.0113	-.0164	-.0431	.2995	.2638	-.0062	-.0169	-.0253
14.46	5.22	.9634	.2486	.1275	-.0108	-.0176	-.0456	.3551	.3182	-.0078	-.0177	-.0280
16.85	5.28	1.1095	.3339	.1486	-.0091	-.0187	-.0489	.4084	.3754	-.0076	-.0184	-.0299
18.94	5.90	1.2345	.4185	.1689	-.0090	-.0230	-.0543	.4564	.4234	-.0097	-.0209	-.0346
21.64	5.25	1.3901	.5433	.1907	-.0060	-.0221	-.0503	.5156	.4879	-.0093	-.0190	-.0329
24.02	5.78	1.4815	.6528	.1949	.0010	-.0332	-.0537	.5509	.5318	-.0090	-.0236	-.0406
25.90	6.24	1.5386	.7402	.2003	.0048	-.0449	-.0593	.5750	.5634	-.0092	-.0279	-.0477
28.34	5.63	1.6623	.8848	.2222	.0012	-.0423	-.0596	.6228	.6227	-.0093	-.0264	-.0466
30.31	5.99	1.7494	1.0065	.2390	-.0063	-.0431	-.0698	.6565	.6691	-.0120	-.0285	-.0520
32.65	6.39	1.8148	1.1414	.2585	-.0144	-.0441	-.0773	.6858	.7163	-.0150	-.0302	-.0576
35.01	5.58	1.8637	1.2822	.2760	-.0188	-.0437	-.0729	.7105	.7618	-.0146	-.0263	-.0523
37.13	5.89	1.8200	1.3541	.2845	-.0181	-.0426	-.0866	.7045	.7750	-.0171	-.0303	-.0609
39.52	5.93	1.6938	1.3802	.2848	-.0299	-.0117	-.1026	.6673	.7619	-.0208	-.0234	-.0543
40.94	6.17	1.6351	1.4006	.2819	-.0286	-.0111	-.1107	.6461	.7527	-.0223	-.0247	-.0583
1.16	4.35	.0730	.0201	.0143	-.0019	-.0126	-.0243	.9294	.0253	-.0031	-.0126	-.0152

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE			SECOND BALANCE									
			CONFIG NO.					78128				
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-3.25	-4.58	-.1838	.0260	-.0173	-.0047	.0139	.0209	-.0628	-.0576	.0009	.0166	.0204
-1.56	-4.50	-.0798	.0214	-.0036	-.0025	.0133	.0204	-.0237	-.0234	.0012	.0157	.0193
-.57	-4.44	-.0293	.0205	.0031	-.0011	.0128	.0157	-.0044	-.0059	.0016	.0152	.0186
2.00	-3.95	.0928	.0235	.0179	.0015	.0127	.0180	.0378	.0336	.0027	.0127	.0143
3.68	-4.39	.1904	.0285	.0291	.0038	.0141	.0241	.0733	.0625	.0038	.0143	.0169
5.49	-4.82	.3207	.0441	.0446	.0062	.0167	.0298	.1221	.1037	.0047	.0169	.0212
7.38	-5.04	.4485	.0677	.0595	.0076	.0177	.0312	.1703	.1455	.0054	.0175	.0229
9.80	-4.93	.6170	.1117	.0809	.0083	.0182	.0314	.2304	.1989	.0059	.0179	.0240
12.17	-4.92	.7665	.1682	.1074	.0094	.0188	.0318	.2889	.2540	.0061	.0184	.0260
14.50	-4.83	.9240	.2391	.1240	.0107	.0198	.0299	.3438	.3074	.0074	.0186	.0277
16.68	-4.87	1.0656	.3175	.1443	.0081	.0210	.0317	.3939	.3605	.0080	.0197	.0303
19.14	-4.73	1.2236	.4194	.1664	.0077	.0231	.0290	.4546	.4221	.0090	.0197	.0312
21.19	-5.15	1.3280	.5076	.1805	.0057	.0275	.0324	.4922	.4642	.0099	.0222	.0361
23.83	-4.91	1.4743	.6399	.1981	.0049	.0293	.0320	.5426	.5229	.0098	.0222	.0370
25.92	-5.33	1.5540	.7470	.1989	.0002	.0430	.0362	.5750	.5646	.0103	.0269	.0455
28.33	-4.72	1.7135	.9056	.2333	.0112	.0319	.0270	.6354	.6340	.0101	.0235	.0404
30.38	-4.98	1.7842	1.0251	.2497	.0157	.0353	.0284	.6675	.6793	.0121	.0255	.0454
32.70	-5.33	1.8293	1.1493	.2699	.0202	.0382	.0385	.6931	.7228	.0144	.0275	.0510
34.78	-5.62	1.8453	1.2554	.2851	.0234	.0426	.0495	.7068	.7563	.0170	.0299	.0573
37.10	-4.92	1.8220	1.3532	.2966	.0193	.0435	.0508	.7099	.7813	.0163	.0290	.0566
39.21	-4.96	1.7105	1.3773	.3003	.0381	-.0022	.0609	.6812	.7757	.0207	.0210	.0489
40.71	-5.14	1.6461	1.3966	.2915	.0348	-.0012	.0761	.6545	.7603	.0225	.0218	.0526
1.24	-4.38	.0390	.0199	.0092	.0004	.0126	.0208	.0173	.0139	.0022	.0128	.0146

MAIN BALANCE			SECOND BALANCE									
			CONFIG NO.					78129				
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.33	-.00	-.2573	.0327	-.0354	-.0010	.0009	.0034	-.0943	-.0926	-.0002	-.0001	-.0004
-2.23	-.00	-.1254	.0220	-.0170	-.0006	.0010	.0016	-.0458	-.0466	-.0002	-.0006	-.0013
-.41	-.00	-.0111	.0199	-.0006	-.0004	.0010	.0013	-.0039	-.0053	-.0002	-.0004	-.0009
2.20	.00	.1197	.0222	.0182	-.0003	.0014	.0011	.0427	.0401	-.0002	.0001	-.0001
4.24	.00	.2420	.0326	.0384	.0001	.0014	.0000	.0911	.0861	-.0002	-.0001	-.0005
6.24	.01	.3789	.0531	.0535	.0001	.0018	-.0010	.1389	.1323	-.0001	.0002	-.0001
8.22	.01	.4890	.0778	.0671	-.0001	.0020	-.0020	.1778	.1705	-.0001	.0001	-.0002
10.42	.02	.6421	.1232	.0840	.0007	.0023	-.0031	.2259	.2202	.0009	.0002	-.0002
12.52	.02	.7766	.1754	.0974	.0005	.0022	-.0047	.2681	.2633	-.0001	.0002	-.0002
14.56	.02	.8931	.2321	.1116	.0005	.0022	-.0072	.3067	.3035	-.0001	.0003	-.0001
16.67	.02	1.0414	.3110	.1342	.0012	.0025	-.0075	.3585	.3574	.0000	.0006	.0004
18.65	.02	1.1720	.3931	.1544	.0001	.0030	-.0099	.4070	.4092	-.0002	.0008	.0005
20.89	.03	1.2922	.4869	.1749	.0003	.0036	-.0110	.4510	.4601	-.0004	.0003	-.0005
22.92	.03	1.4095	.5887	.1952	.0004	.0036	-.0120	.4932	.5102	-.0004	.0011	.0012
25.61	.03	1.5219	.7183	.2165	.0021	.0055	-.0108	.5349	.5641	.0000	.0028	.0049
27.53	.05	1.5881	.8143	.2291	.0040	.0055	-.0089	.5589	.5981	.0006	.0026	.0050
29.26	.04	1.6578	.9130	.2455	.0048	.0041	-.0109	.5863	.6374	.0006	.0018	.0034
31.36	.00	1.7171	1.0282	.2624	.0054	.0034	-.0124	.6106	.6771	.0004	.0010	.0017
33.74	-.03	1.7546	1.1549	.2661	.0053	.0035	-.0130	.6309	.7149	.0009	.0016	.0029
35.46	.02	1.7245	1.2136	.2602	.0046	.0028	-.0131	.6262	.7253	.0007	.0010	.0015
37.70	.04	1.6654	1.2747	.2718	.0067	-.0034	-.0121	.6184	.7358	.0008	.0001	.0000
39.44	.06	1.6037	1.3079	.2837	.0066	-.0113	-.0134	.6091	.7417	-.0001	-.0017	-.0037
41.39	.05	1.5490	1.3520	.2861	.0039	-.0065	-.0094	.5954	.7433	.0002	-.0004	-.0008
.04	.00	-.0126	.0176	.0001	-.0004	.0011	.0013	-.0061	-.0076	-.0002	-.0004	-.0010

MAIN BALANCE			SECOND BALANCE									
			CONFIG NO.					78131				
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.23	-.00	-.2543	.0315	-.0390	-.0004	.0005	.0072	-.0894	-.0895	.0007	.0017	.0026
-2.31	.00	-.1216	.0200	-.0210	.0010	.0006	.0070	-.0437	-.0447	.0009	.0021	.0030
-.24	.00	.0035	.0173	-.0010	.0008	.0008	.0069	-.0009	-.0027	.0009	.0019	.0027
2.11	-.01	.1447	.0212	.0191	.0012	.0005	.0057	.0474	.0447	.0011	.0020	.0028
4.18	-.02	.2899	.0319	.0395	.0028	-.0001	.0015	.0940	.0889	.0014	.0027	.0036
6.40	-.03	.4403	.0560	.0606	.0027	.0003	.0099	.1493	.1421	.0016	.0028	.0041
8.46	-.05	.5769	.0891	.0824	.0025	.0008	.0068	.1995	.1913	.0015	.0029	.0044
10.67	-.12	.7097	.1328	.1038	.0024	.0005	.0095	.2431	.2368	.0016	.0035	.0053
12.77	-.15	.8491	.1887	.1231	.0030	.0003	.0101	.2907	.2856	.0017	.0038	.0057
14.80	-.21	.9637	.2512	.1441	.0022	.0019	.0074	.3348	.3315	.0017	.0038	.0065
17.01	-.26	1.0948	.3286	.1617	.0032	.0015	.0081	.3800	.3812	.0017	.0043	.0072
19.19	-.31	1.2188	.4158	.1725	.0025	.0011	.0053	.4182	.4264	.0016	.0040	.0063
21.52	-.39	1.3302	.5139	.1798	.0021	.0004	.0056	.4530	.4696	.0009	.0040	.0056
23.66	-.43	1.4237	.6124	.1851	.0029	-.0005	.0014	.4825	.5069	.0007	.0039	.0052
25.66	-.35	1.4043	.6714	.1965	.0174	-.0166	.0024	.4982	.5306	.0019	.0024	.0040
27.70	-.38	1.3773	.7237	.2139	.0059	-.0069	.0042	.5150	.5578	.0006	.0037	.0044
29.88	-.35	1.4264	.8183	.2260	.0073	-.0107	.0092	.5355	.5923	.0015	.0034	.0048
31.90	-.28	1.4776	.9179	.2319	.0079	-.0118	.0096	.5515	.6222	.0024	.0025	.0052
33.82	-.22	1.5165	1.0128	.2340	.0092	-.0139	.0093	.5620	.6475	.0033	.0017	.0055
35.82	-.20	1.5348	1.1022	.2346	.0092	-.0140	.0106	.5634	.6643	.0040	.0014	.0060
37.91	-.16	1.5303	1.1828	.2365	.0094	-.0154	.0115	.5624	.6809	.0047	.0010	.0064
39.97	-.16	1.5170	1.2595	.2393	.0086	-.0126	.0118	.5558	.6907	.0052	.0011	.0071
41.92	-.14	1.4861	1.3163	.2398	.0076	-.0094	.0081	.5457	.6967	.0053	.0012	.0074
-.00	.00	.0133	.0147	-.0026	.0019	.0001	.0107	-.0009	-.0024	.0010	.0025	.0031

TABLE III.- TABULATED RESULTS - Continued

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.	78133					
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.33	-0.00	-.0589	.0112	-.0833	.0037	-.0004	.0080	-.0759	-.0761	.0012	.0021	.0028
-2.52	-0.00	-.0163	.0104	-.0416	.0035	.0006	.0082	-.0345	-.0358	.0012	.0021	.0029
-.23	-0.00	.0244	.0086	-.0036	.0037	.0000	.0107	.0044	.0036	.0013	.0021	.0027
2.10	.00	.0729	.0101	.0362	.0041	-.0005	.0133	.0456	.0444	.0015	.0019	.0023
4.05	.00	.1102	.0146	.0769	.0037	.0000	.0119	.0871	.0849	.0018	.0022	.0034
6.39	.01	.1446	.0208	.1178	.0032	.0004	.0120	.1277	.1240	.0018	.0022	.0038
8.59	.01	.1950	.0338	.1696	.0027	.0004	.0113	.1775	.1727	.0017	.0021	.0040
10.50	.00	.2270	.0457	.2059	.0023	.0002	.0124	.2115	.2088	.0014	.0020	.0039
12.60	.01	.2658	.0621	.2473	.0018	.0002	.0133	.2497	.2495	.0015	.0022	.0046
14.71	.01	.3034	.0805	.2863	.0015	-.0000	.0142	.2849	.2884	.0014	.0023	.0047
16.70	.01	.3363	.1003	.3211	.0009	-.0001	.0187	.3150	.3229	.0011	.0027	.0054
18.99	.01	.3632	.1227	.3534	.0001	-.0014	.0157	.3394	.3562	.0006	.0027	.0047
20.81	.01	.3877	.1416	.3768	-.0015	-.0025	.0139	.3553	.3781	-.0003	.0023	.0033
23.27	.02	.4069	.1704	.4031	-.0019	-.0034	.0164	.3717	.4037	-.0005	.0024	.0031
25.28	.02	.4171	.1920	.4231	-.0028	-.0040	.0193	.3812	.4219	-.0006	.0024	.0030
27.39	-.01	.4424	.2198	.4429	-.0031	-.0056	.0256	.3926	.4425	-.0006	.0032	.0034
29.39	-.00	.4484	.2429	.4667	-.0032	-.0064	.0262	.4015	.4620	-.0002	.0033	.0041
31.40	-.01	.4564	.2677	.4829	-.0027	-.0029	.0265	.4066	.4784	.0005	.0037	.0054
33.42	-.00	.4614	.2914	.4951	-.0018	-.0020	.0264	.4072	.4904	.0009	.0034	.0054
35.40	-.01	.4643	.3149	.5032	-.0017	-.0014	.0256	.4046	.4995	.0010	.0034	.0054
37.52	-.01	.4629	.3383	.5095	-.0010	-.0007	.0240	.3992	.5060	.0016	.0036	.0063
39.40	.01	.4620	.3603	.5138	-.0006	.0003	.0275	.3943	.5123	.0022	.0039	.0074
41.82	.00	.4676	.3922	.5129	.0019	.0001	.0339	.3859	.5181	.0040	.0042	.0096
.90	.00	.0086	.0059	-.0023	.0020	.0011	.0059	-.0002	.0016	.0013	.0017	.0026

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.	78134					
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.35	-0.00	-.0846	.0157	-.0849	.0000	.0004	.0021	-.0850	-.0835	-.0005	.0011	.0015
-2.46	.00	-.0433	.0148	-.0426	-.0003	.0007	.0023	-.0417	-.0422	-.0004	.0010	.0011
-.36	-0.00	-.0050	.0119	-.0064	-.0000	.0006	.0008	-.0041	-.0041	-.0003	.0013	.0016
2.32	.00	.0405	.0134	.0371	-.0005	.0007	-.0030	.0394	.0385	-.0003	.0010	.0011
4.26	-0.00	.0748	.0160	.0745	-.0009	.0009	-.0018	.0769	.0747	-.0004	.0009	.0012
6.42	.00	.1269	.0209	.1148	.0001	.0006	-.0002	.1201	.1169	-.0002	.0013	.0013
8.48	-0.00	.1680	.0301	.1536	-.0000	.0005	.0001	.1595	.1558	-.0002	.0012	.0011
10.60	-0.00	.2026	.0421	.1927	-.0003	.0009	-.0005	.1951	.1930	-.0000	.0013	.0011
12.63	-0.00	.2382	.0560	.2266	.0000	.0005	-.0011	.2282	.2286	.0001	.0011	.0005
14.84	-.01	.2746	.0744	.2638	-.0002	.0004	.0008	.2621	.2663	.0000	.0015	.0012
17.13	-.01	.3137	.0972	.3022	-.0002	.0006	-.0014	.2956	.3038	-.0000	.0014	.0009
19.30	-.01	.3416	.1173	.3341	-.0003	.0000	-.0028	.3228	.3355	-.0002	.0012	.0004
21.26	-.01	.3758	.1430	.3726	-.0006	-.0005	.0006	.3559	.3757	-.0004	.0008	-.0007
23.35	-0.00	.4024	.1669	.4025	-.0008	-.0002	-.0007	.3774	.4042	-.0007	.0010	-.0005
25.75	-.01	.4162	.1953	.4317	-.0011	-.0013	-.0004	.3902	.4303	-.0007	-.0003	-.0029
27.53	-.01	.4367	.2207	.4535	-.0011	-.0008	.0025	.4014	.4500	-.0004	.0013	.0004
29.79	-0.00	.4612	.2549	.4837	-.0010	-.0008	.0036	.4177	.4781	-.0002	.0018	.0016
31.70	-.05	.4737	.2820	.5081	-.0013	-.0004	.0060	.4304	.5018	.0001	.0020	.0023
33.72	-.06	.4790	.3086	.5318	-.0024	-.0006	.0104	.4378	.5214	.0001	.0020	.0025
35.68	-.06	.4855	.3352	.5503	-.0029	-.0010	.0116	.4418	.5378	.0002	.0018	.0023
37.87	-.08	.4889	.3631	.5653	-.0033	-.0014	.0121	.4435	.5538	.0000	.0011	.0009
40.10	-.07	.4983	.3971	.5722	-.0034	-.0022	.0143	.4396	.5629	.0003	.0014	.0010
42.17	-.10	.5007	.4265	.5763	-.0032	-.0025	.0144	.4346	.5712	.0005	.0012	.0003
-.09	.00	-.0253	.0139	-.0066	-.0020	.0017	-.0040	-.0098	-.0107	-.0005	.0005	.0010

MAIN BALANCE						SECOND BALANCE						
						CONFIG NO.	78158					
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
-4.34	-0.00	-.2514	.0332	-.0495	-.0007	.0010	.0015	-.1016	-.0956	.0002	-.0009	.0008
-2.32	.00	-.1241	.0219	-.0271	-.0007	.0007	.0020	-.0505	-.0476	.0002	-.0009	.0008
-.44	.00	-.0148	.0190	-.0046	-.0007	.0007	.0017	-.0047	-.0034	.0002	.0012	.0013
1.89	-0.00	.1014	.0205	.0186	-.0002	.0009	-.0000	.0426	.0421	.0004	.0009	.0010
4.00	.00	.2334	.0307	.0412	-.0001	.0012	-.0015	.0952	.0914	.0005	.0010	.0011
6.12	.00	.3741	.0512	.0601	.0003	.0014	-.0016	.1489	.1424	.0005	.0011	.0014
8.28	.00	.5157	.0821	.0800	.0004	.0013	-.0050	.2015	.1934	.0005	.0008	.0009
10.06	.00	.6394	.1187	.0941	.0006	.0013	-.0022	.2420	.2348	.0005	.0008	.0010
12.48	.00	.7895	.1769	.1138	.0011	.0015	-.0078	.2943	.2876	.0004	.0007	.0010
14.46	.01	.9156	.2356	.1314	.0012	.0016	-.0089	.3391	.3335	.0004	.0008	.0013
16.55	.01	1.0530	.3095	.1497	.0013	.0017	-.0107	.3868	.3836	.0005	.0009	.0014
18.57	.01	1.1845	.3919	.1660	.0013	.0017	-.0133	.4324	.4323	.0005	.0006	.0012
20.90	-.01	1.3063	.4928	.1643	-.0016	.0015	-.0211	.4592	.4607	-.0014	.0022	.0012
23.02	.00	1.3958	.5856	.1701	-.0014	.0029	-.0204	.4825	.4886	-.0013	.0035	.0053
25.05	.03	1.5052	.6921	.1978	-.0017	.0036	-.0233	.5294	.5429	-.0016	.0040	.0063
27.11	.00	1.5823	.7949	.2159	-.0026	.0054	-.0222	.5580	.5826	-.0010	.0032	.0058
29.17	-.01	1.6398	.8959	.2424	-.0039	.0074	-.0269	.5875	.6252	-.0010	.0036	.0070
31.27	.01	1.6783	.9963	.2709	-.0025	.0080	-.0275	.6118	.6659	-.0009	.0037	.0077
33.24	.03	1.7095	1.0950	.2867	.0003	.0088	-.0261	.6259	.6986	-.0007	.0053	.0112
35.32	.01	1.7151	1.1913	.2731	.0025	.0056	-.0245	.6181	.7105	.0008	.0059	.0145
37.26	.03	1.6294	1.2213	.2547	.0048	-.0117	-.0305	.5882	.6982	.0003	-.0003	.0032
39.52	.05	1.5492	1.2585	.2659	.0026	-.0238	-.0357	.5688	.6989	-.0014	-.0040	-.0046
41.12	.03	1.5178	1.3049	.2744	-.0002	-.0211	-.0315	.5637	.7108	-.0012	-.0030	-.0027
-.12	-0.00	-.0171	.0178	-.0068	-.0002	.0009	-.0001	-.0091	-.0076	.0008	.0004	.0001

TABLE III.- TABULATED RESULTS - Continued

M A I N		B A L A N C E						S E C O N D						B A L A N C E	
		CONFIG NO.						78167							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2			
-4.40	.01	-.1992	.0191	-.0968	.0009	.0016	.0018	-.1017	-.0963	.0010	.0012	.0011			
-2.60	.00	-.0616	.0154	-.0532	.0010	.0014	.0009	-.0565	-.0536	.0011	.0010	.0010			
-.50	.00	-.0144	.0131	-.0099	.0008	.0014	.0011	-.0121	-.0108	.0009	.0010	.0012			
2.35	-.00	.0397	.0131	.0414	.0008	.0309	.0011	.0408	.0407	.0010	.0010	.0009			
3.89	-.00	.0802	.0154	.0747	.0012	.0009	-.0003	.0768	.0750	.0012	.0009	.0010			
5.85	-.00	.1322	.0223	.1210	.0011	.0008	.0012	.1260	.1222	.0012	.0009	.0010			
8.46	-.01	.1877	.0332	.1739	.0011	.0004	.0020	.1790	.1734	.0013	.0008	.0012			
9.99	-.00	.2229	.0439	.2080	.0009	.0007	.0021	.2107	.2063	.0011	.0010	.0018			
12.13	-.01	.2647	.0591	.2480	.0008	.0005	.0024	.2498	.2470	.0011	.0012	.0020			
14.05	-.01	.3064	.0786	.2899	.0007	.0005	.0024	.2881	.2880	.0010	.0014	.0025			
16.33	-.01	.3452	.1011	.3245	.0007	.0005	.0011	.3206	.3245	.0009	.0012	.0023			
18.21	-.02	.3731	.1213	.3555	.0007	.0007	.0007	.3470	.3551	.0010	.0012	.0024			
20.24	-.02	.3736	.1400	.3571	-.0010	.0021	-.0059	.3429	.3555	-.0006	.0030	.0040			
22.14	-.02	.3708	.1553	.3592	-.0001	.0017	-.0038	.3353	.3559	.0004	.0027	.0050			
24.10	-.02	.3955	.1799	.3872	-.0000	.0022	-.0051	.3555	.3826	.0000	.0021	.0040			
26.28	-.02	.4295	.2125	.4238	-.0003	.0031	-.0063	.3835	.4192	-.0001	.0032	.0062			
28.23	-.02	.4511	.2399	.4506	-.0001	.0043	-.0074	.3991	.4432	.0001	.0048	.0092			
30.48	-.01	.4655	.2689	.4748	-.0009	.0042	-.0052	.4086	.4670	.0008	.0068	.0136			
32.24	-.04	.4714	.2895	.4879	-.0002	.0071	.0137	.4072	.4765	.0005	.0083	.0165			
34.10	-.04	.4825	.3155	.5034	-.0001	.0082	.0223	.4098	.4911	.0016	.0106	.0218			
36.10	-.04	.4930	.3439	.5197	-.0001	.0074	.0127	.4136	.5091	.0017	.0093	.0195			
38.25	-.04	.4995	.3743	.5292	-.0005	.0050	.0061	.4109	.5205	.0013	.0071	.0153			
40.27	-.03	.5028	.4026	.5357	-.0027	.0014	.0018	.4078	.5313	.0002	.0046	.0104			
-.10	.00	-.0122	.0115	-.0092	.0008	.0014	.0019	-.0123	-.0110	.0009	.0009	.0006			

M A I N		B A L A N C E						S E C O N D						B A L A N C E	
		CONFIG NO.						78171							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2			
-4.22	.00	-.2503	.0321	-.0334	-.0003	.0016	.0052	-.0975	-.0820	-.0003	.0012	.0015			
-2.42	.00	-.1325	.0221	-.0194	-.0013	.0012	.0044	-.0506	-.0436	-.0003	.0014	.0017			
-.59	.00	-.0150	.0197	-.0023	-.0009	.0013	.0026	-.0061	-.0053	-.0002	.0010	.0012			
2.02	-.00	.1160	.0221	.0160	-.0000	.0017	.0022	.0438	.0381	-.0002	.0012	.0015			
4.22	-.00	.2415	.0323	.0314	.0004	.0017	.0013	.0942	.0796	-.0001	.0010	.0011			
6.10	-.00	.3716	.0519	.0452	.0004	.0018	.0003	.1444	.1217	-.0001	.0012	.0014			
7.97	-.00	.5102	.0812	.0612	.0005	.0019	-.0030	.1983	.1681	.0001	.0014	.0017			
10.08	.00	.6496	.1231	.0789	.0011	.0017	-.0018	.2507	.2157	.0001	.0007	.0002			
12.37	.00	.8080	.1816	.0939	.0016	.0020	-.0044	.3033	.2671	.0003	.0015	.0019			
14.51	.00	.9098	.2350	.1056	.0016	.0022	-.0053	.3396	.3016	.0004	.0013	.0015			
16.47	.00	1.0720	.3147	.1239	.0013	.0021	-.0069	.3985	.3581	.0006	.0011	.0014			
18.05	-.01	1.2231	.4066	.1433	.0011	.0024	-.0087	.4547	.4135	.0005	.0010	.0011			
20.75	.00	1.3131	.4858	.1574	.0015	.0020	-.0113	.4879	.4482	.0005	.0006	.0005			
23.10	.01	1.4911	.6213	.1956	.0012	.0011	-.0145	.5655	.5262	.0003	.0004	.0001			
24.99	.01	1.5650	.7094	.2172	.0007	.0015	-.0163	.6016	.5663	.0001	-.0003	-.0013			
27.31	.01	1.6687	.8362	.2552	.0002	.0014	-.0182	.6533	.6264	-.0002	-.0005	-.0020			
29.45	.05	1.6918	.9254	.2753	-.0019	.0022	-.0230	.6649	.6513	-.0012	-.0010	-.0041			
31.22	-.02	1.6742	.9903	.2659	-.0069	.0089	-.0315	.6468	.6485	-.0041	.0025	-.0039			
33.30	-.02	1.6730	1.0772	.2711	-.0016	.0055	-.0239	.6459	.6656	-.0023	.0018	-.0025			
35.21	.00	1.6814	1.1657	.2651	.0027	.0022	-.0259	.6428	.6832	-.0018	.0009	-.0023			
37.03	.01	1.6591	1.2326	.2569	.0039	-.0011	-.0282	.6317	.6937	-.0006	.0011	.0005			
39.23	.05	1.6084	1.2928	.2703	.0052	-.0175	-.0294	.6194	.7062	-.0000	-.0026	-.0041			
41.08	.06	1.5617	1.3394	.2727	.0026	-.0221	-.0244	.6022	.7096	.0004	-.0027	-.0030			
-.14	.00	-.0164	.0174	-.0017	-.0004	.0020	.0032	-.0061	-.0052	-.0001	-.0012	-.0014			

M A I N		B A L A N C E						S E C O N D						B A L A N C E	
		CONFIG NO.						78172							
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2			
-4.53	-.01	-.2569	.0340	-.0594	-.0002	.0004	.0033	-.1041	-.1066	-.0001	.0007	.0006			
-2.22	-.01	-.1045	.0222	-.0297	-.0005	.0001	.0006	-.0448	-.0465	-.0001	.0003	.0001			
-.35	-.00	-.0100	.0187	-.0074	-.0002	.0001	.0047	-.0048	-.0049	-.0000	.0006	.0007			
1.87	.00	.1092	.0211	.0218	.0003	.0003	-.0009	.0447	.0461	.0001	.0005	.0003			
4.01	.01	.2370	.0314	.0485	.0003	.0003	-.0014	.0970	.0992	.0002	.0006	.0004			
6.21	.01	.3841	.0534	.0711	.0007	.0003	-.0025	.1514	.1551	.0001	.0006	.0005			
8.09	.02	.5171	.0830	.0859	.0004	.0004	-.0042	.1943	.2004	.0001	.0011	.0016			
10.23	.03	.6482	.1242	.1002	.0007	-.0002	-.0045	.2357	.2449	.0002	.0007	.0007			
12.70	.03	.8095	.1881	.1188	.0011	.0006	-.0107	.2861	.2986	.0001	.0005	.0005			
14.58	.03	.9196	.2442	.1277	.0010	.0006	-.0085	.3195	.3339	.0001	.0005	.0005			
16.58	.04	1.0234	.3111	.1252	.0015	.0005	-.0101	.3407	.3566	.0001	.0003	.0001			
18.78	.04	1.1383	.3944	.1178	.0011	.0007	-.0114	.3537	.3766	.0002	.0001	-.0007			
20.61	.05	1.2268	.4673	.1240	.0011	.0007	-.0130	.3756	.4044	.0000	-.0001	-.0007			
22.71	.05	1.3459	.5664	.1403	.0010	.0005	-.0169	.4152	.4520	-.0002	-.0005	-.0014			
24.80	.06	1.4501	.6695	.1645	.0007	.0011	-.0195	.4571	.5029	-.0005	-.0003	-.0008			
27.47	.07	1.5727	.8120	.2032	-.0005	.0036	-.0214	.5128	.5737	-.0009	.0020	.0032			
29.99	.07	1.6274	.8928	.2208	-.0003	.0051	-.0214	.5372	.6087	-.0010	.0040	.0070			
31.30	.04	1.6780	1.0088	.2401	.0018	.0059	-.0215	.5598	.6499	-.0005	.0060	.0107			
33.35	.05	1.6955	1.1047	.2505	.0033	.0041	-.0207	.5724	.6810	-.0003	.0061	.0111			
35.29	.07	1.6532	1.1631	.2430	.0035	-.0043	-.0253	.5632	.6880	-.0012	.0022	.0035			
37.49	.05	1.5467	1.1819	.2542	.0052	-.0287	-.0380	.5425	.6844	-.0033	-.0056	-.0119			
39.39	.08	1.5195	1.2417	.2687	.0001	-.0251	-.0361	.5401	.6993	-.0035	-.0046	-.0103			
41.21	.02	1.4976	1.3035	.2803	-.0027	-.0192	-.0321	.5422	.7215	-.0035	-.0035	-.0080			
-.13	.00	-.0087	.0176	-.0048	-.0003	.0007	.0034	-.0042	-.0042	.0001	-.0004	-.0013			

TABLE III.- TABULATED RESULTS -- Concluded

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
					CONFIG NO.	78173						
-4.51	-0.00	-.1001	.0171	-.1000	.0003	.0007	.0013	-.0948	-.0976	-.0001	.0009	.0011
-2.22	-0.00	-.0517	.0124	-.0498	-.0001	.0011	-.0014	-.0462	-.0478	-.0001	.0008	.0009
-1.38	-0.00	-.0059	.0119	-.0065	-.0000	.0005	.0007	-.0048	-.0048	-.0000	.0009	.0012
2.15	.00	.0478	.0130	.0479	.0002	.0007	-.0002	.0462	.0503	.0001	-.0001	-.0008
3.88	.00	.0893	.0160	.0881	.0003	.0006	.0006	.0878	.0912	.0002	.0009	.0009
5.97	.00	.1385	.0239	.1370	.0003	.0010	-.0001	.1354	.1402	.0002	.0010	.0010
7.89	.01	.1827	.0334	.1792	.0004	.0004	-.0023	.1747	.1812	.0002	.0011	.0011
10.23	.00	.2263	.0481	.2232	.0006	.0014	.0002	.2158	.2267	.0003	.0010	.0012
12.42	.00	.2673	.0661	.2648	.0004	.0004	-.0004	.2537	.2680	.0002	.0010	.0012
14.63	.00	.3021	.0863	.3005	.0004	.0007	-.0010	.2850	.3031	.0004	.0011	.0013
16.18	.01	.3223	.1018	.3165	.0001	.0006	-.0028	.3006	.3195	.0002	.0009	.0009
18.06	.01	.3193	.1146	.3163	.0002	.0011	-.0028	.2945	.3145	.0001	.0012	.0014
20.35	.01	.3209	.1302	.3203	.0001	.0012	-.0014	.2881	.3232	.0002	.0018	.0028
22.23	.01	.3428	.1501	.3467	-.0000	.0005	-.0027	.3071	.3480	.0003	.0017	.0027
24.03	.02	.3696	.1732	.3772	-.0004	.0007	-.0031	.3301	.3776	-.0000	.0018	.0029
26.20	.02	.3976	.2021	.4099	-.0013	.0018	.0011	.3519	.4091	-.0003	.0039	.0066
28.11	.00	.4173	.2275	.4346	-.0025	.0047	.0127	.3651	.4322	-.0006	.0085	.0151
30.41	.00	.4376	.2583	.4618	-.0028	.0069	.0209	.3780	.4575	-.0001	.0115	.0206
32.56	-.01	.4552	.2888	.4834	-.0027	.0080	.0261	.3859	.4780	.0003	.0129	.0233
34.55	-.00	.4689	.3167	.5003	-.0026	.0081	.0281	.3922	.4969	.0005	.0129	.0232
36.18	-.00	.4826	.3449	.5143	-.0020	.0082	.0255	.3953	.5112	.0007	.0119	.0216
38.29	-.01	.4947	.3787	.5269	-.0012	.0079	.0169	.3990	.5302	.0007	.0105	.0187
40.33	-.01	.5032	.4125	.5309	-.0017	.0059	.0143	.3972	.5423	.0006	.0088	.0159
-1.11	.00	-.0058	.0109	-.0040	-.0001	.0018	-.0005	-.0047	-.0047	.0001	.0017	.0021

MAIN BALANCE				SECOND BALANCE								
ALPHA DEG	BETA DEG	CL1	CD1	CM1	CR1	CY1	CS1	CL2	CM2	CR2	CY2	CS2
					CONFIG NO.	78174						
-4.38	.18	-.0900	.0169	-.0745	-.0010	.0031	.0118	-.0833	-.0717	-.0008	.0036	.0057
-2.28	.09	-.0427	.0126	-.0356	-.0008	.0032	.0103	-.0395	-.0347	-.0006	.0037	.0057
-1.45	.01	.0059	.0113	-.0033	-.0000	.0015	.0060	-.0033	-.0029	-.0004	.0024	.0036
2.06	-.01	.0457	.0127	.0379	-.0004	.0013	.0009	.0428	.0374	-.0004	.0014	.0018
3.79	.03	.0839	.0160	.0689	-.0005	.0008	-.0019	.0794	.0685	-.0004	.0008	.0008
5.73	.12	.1300	.0224	.1062	-.0007	.0001	-.0057	.1226	.1059	-.0004	-.0002	-.0008
7.93	.26	.1819	.0334	.1491	-.0005	.0002	-.0086	.1718	.1488	-.0005	-.0008	-.0021
10.25	.55	.2339	.0489	.1938	-.0006	-.0017	-.0138	.2192	.1923	-.0006	-.0022	-.0045
12.58	.84	.2777	.0668	.2354	-.0008	-.0023	-.0161	.2595	.2346	-.0008	-.0029	-.0057
14.31	1.21	.3093	.0825	.2648	-.0008	-.0034	-.0199	.2889	.2647	-.0012	-.0041	-.0077
16.32	1.42	.3491	.1048	.3036	-.0009	-.0035	-.0209	.3255	.3027	-.0013	-.0043	-.0081
18.41	1.64	.3881	.1303	.3415	-.0008	-.0030	-.0218	.3612	.3419	-.0014	-.0041	-.0078
20.15	1.85	.4186	.1529	.3713	-.0010	-.0032	-.0294	.3870	.3712	-.0018	-.0048	-.0092
22.27	2.05	.4519	.1824	.4096	-.0013	-.0030	-.0263	.4175	.4064	-.0021	-.0047	-.0091
24.59	2.32	.4766	.2130	.4393	-.0017	-.0040	-.0283	.4344	.4328	-.0025	-.0048	-.0098
26.32	2.48	.4697	.2311	.4307	-.0034	-.0026	-.0307	.4224	.4283	-.0039	-.0029	-.0093
28.47	2.68	.4813	.2591	.4517	-.0030	-.0008	-.0292	.4307	.4481	-.0036	-.0012	-.0042
30.54	2.87	.4958	.2882	.4776	-.0034	.0000	-.0234	.4413	.4708	-.0033	.0007	-.0001
32.38	3.04	.5057	.3140	.4988	-.0035	-.0002	-.0161	.4474	.4899	-.0028	.0014	.0018
34.56	3.21	.5135	.3436	.5203	-.0032	-.0001	-.0079	.4478	.5070	-.0019	.0017	.0036
36.56	3.39	.5177	.3702	.5339	-.0020	-.0005	-.0020	.4471	.5203	-.0008	.0012	.0037
38.69	3.56	.5211	.4005	.5458	-.0005	-.0009	-.0019	.4434	.5319	.0002	.0002	.0034
40.50	3.70	.5196	.4235	.5497	-.0008	-.0015	-.0111	.4352	.5372	-.0002	-.0008	.0015
.16	.02	-.0043	.0102	-.0031	-.0001	-.0039	-.0235	-.0051	-.0048	-.0003	-.0070	-.0125

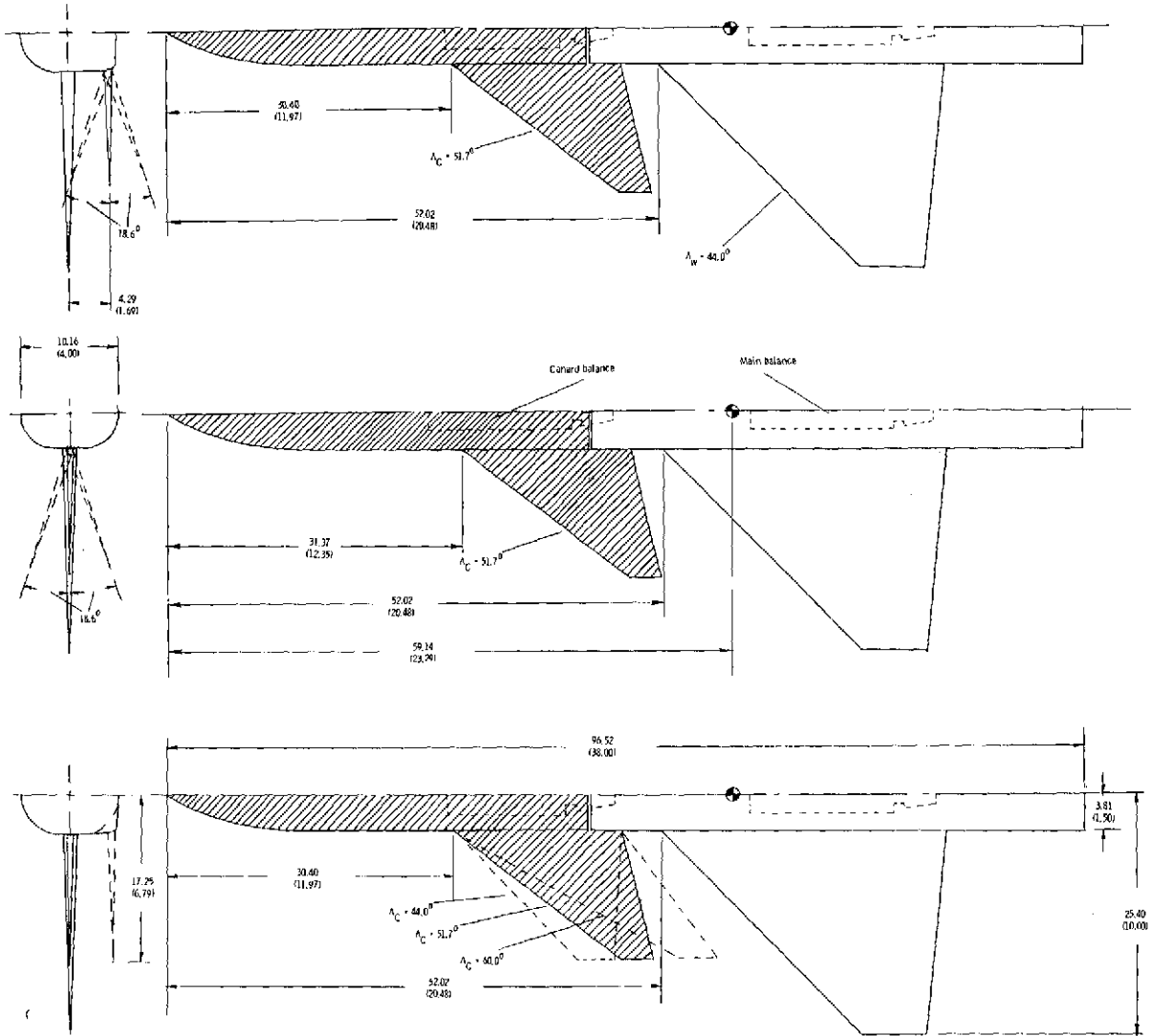
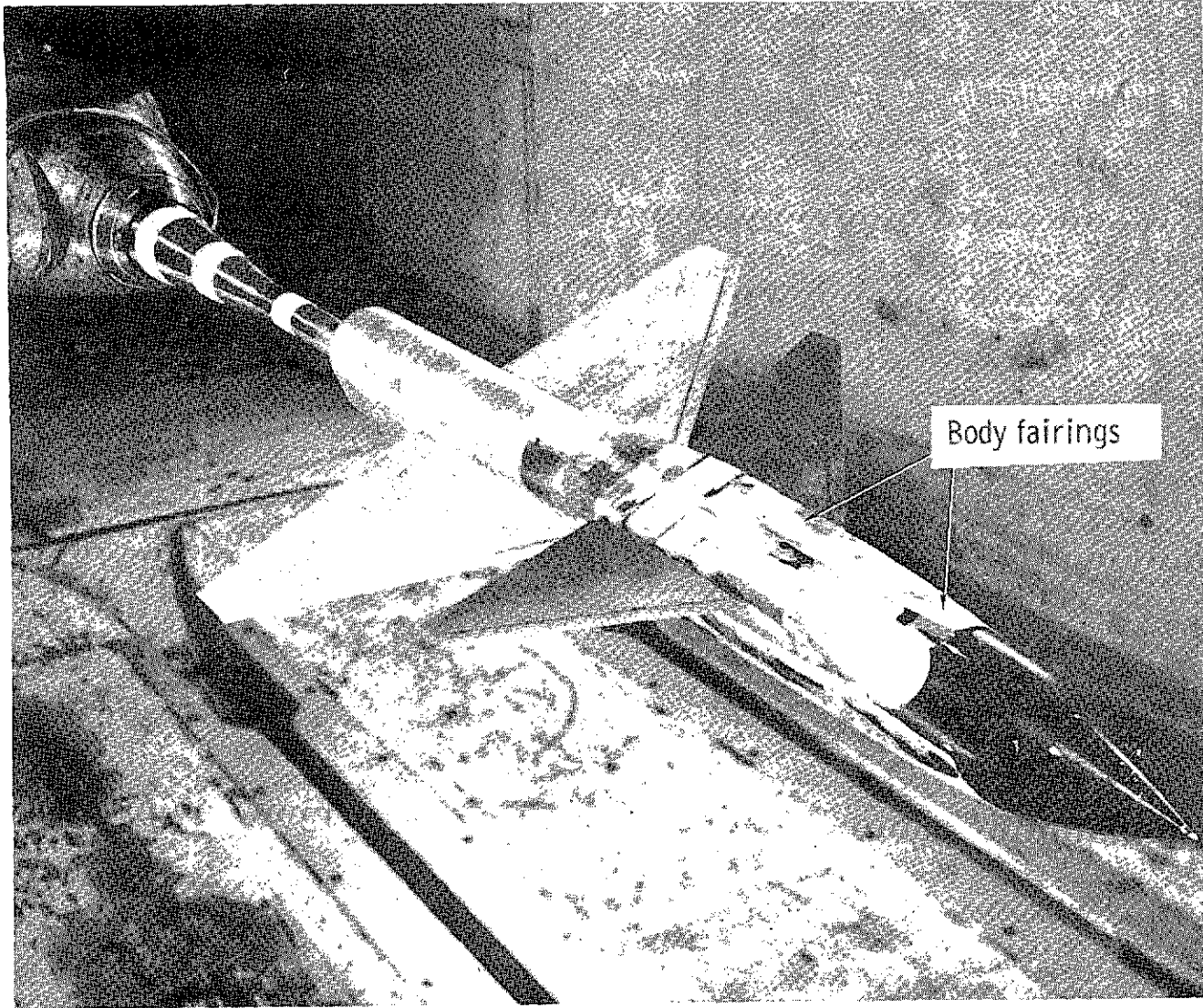


Figure 1.- Model drawings; dimensions in centimeters (inches).



L-73-8751.1

Figure 2.- Photograph of model mounted in the Langley high-speed 7- by 10-foot tunnel.

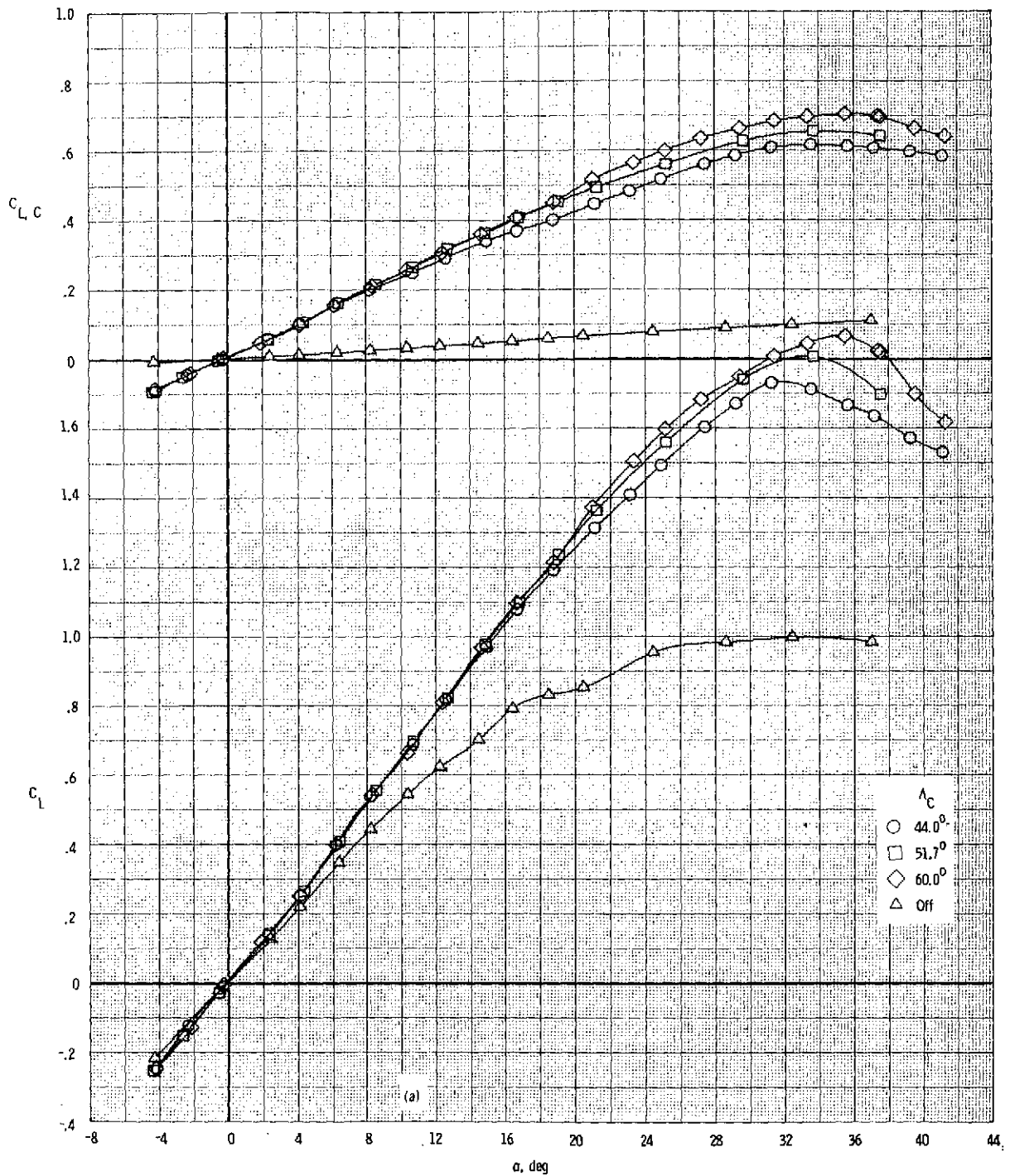


Figure 3.- The effect of canard leading-edge sweep on the longitudinal aerodynamic characteristics for the model with $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, and $l/\bar{c} = 1.304$.

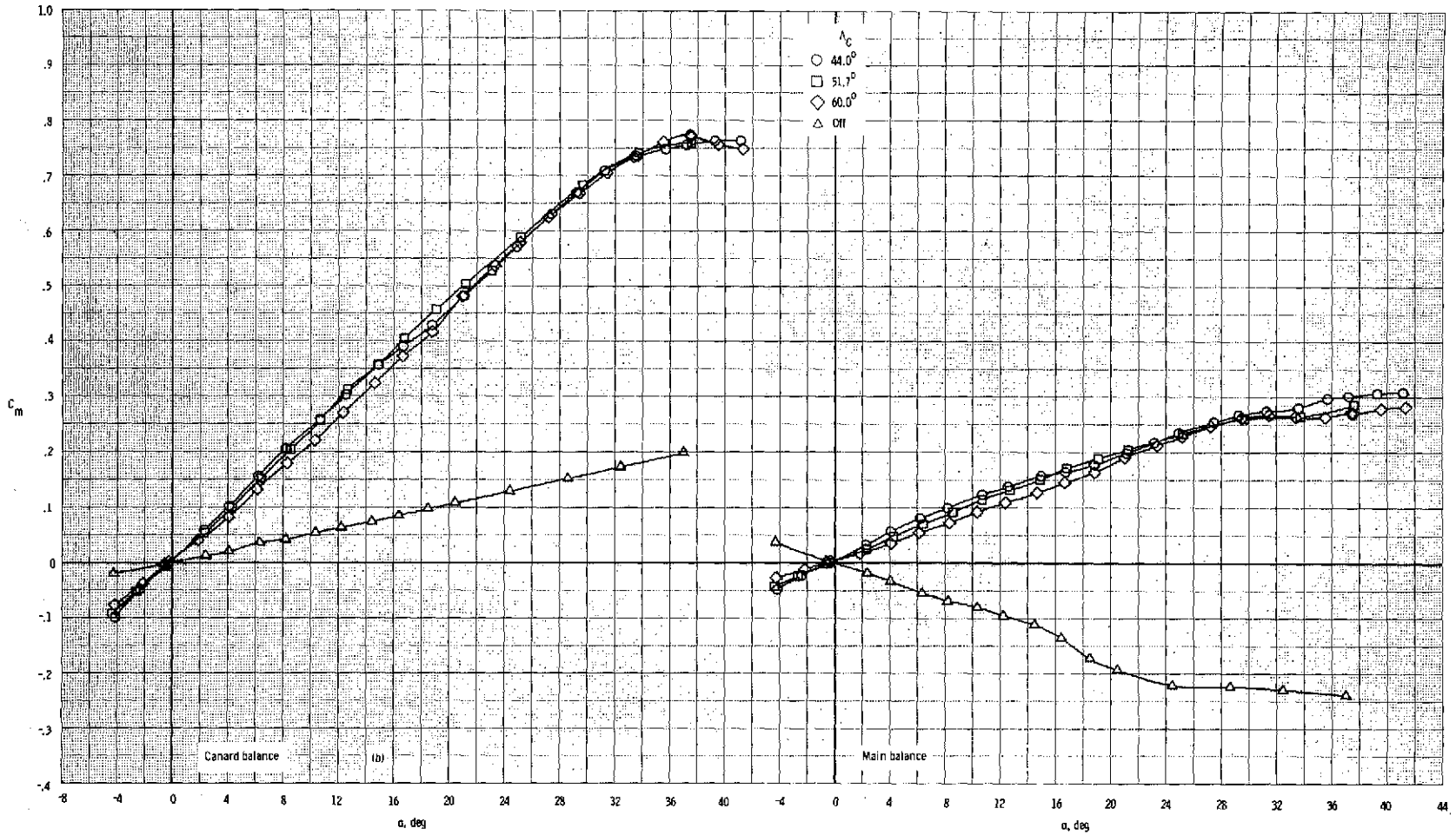


Figure 3.- Continued.

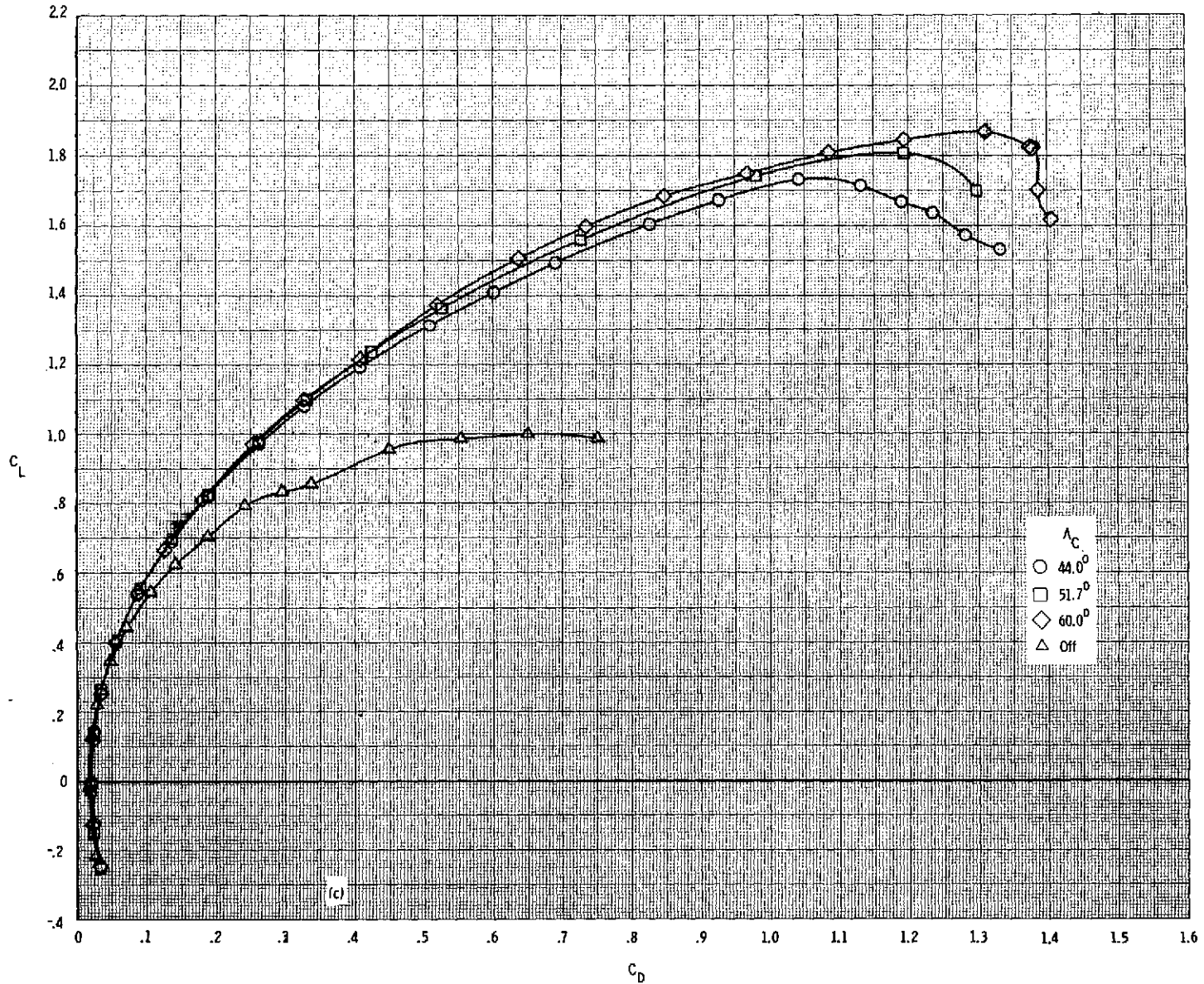


Figure 3.- Concluded.

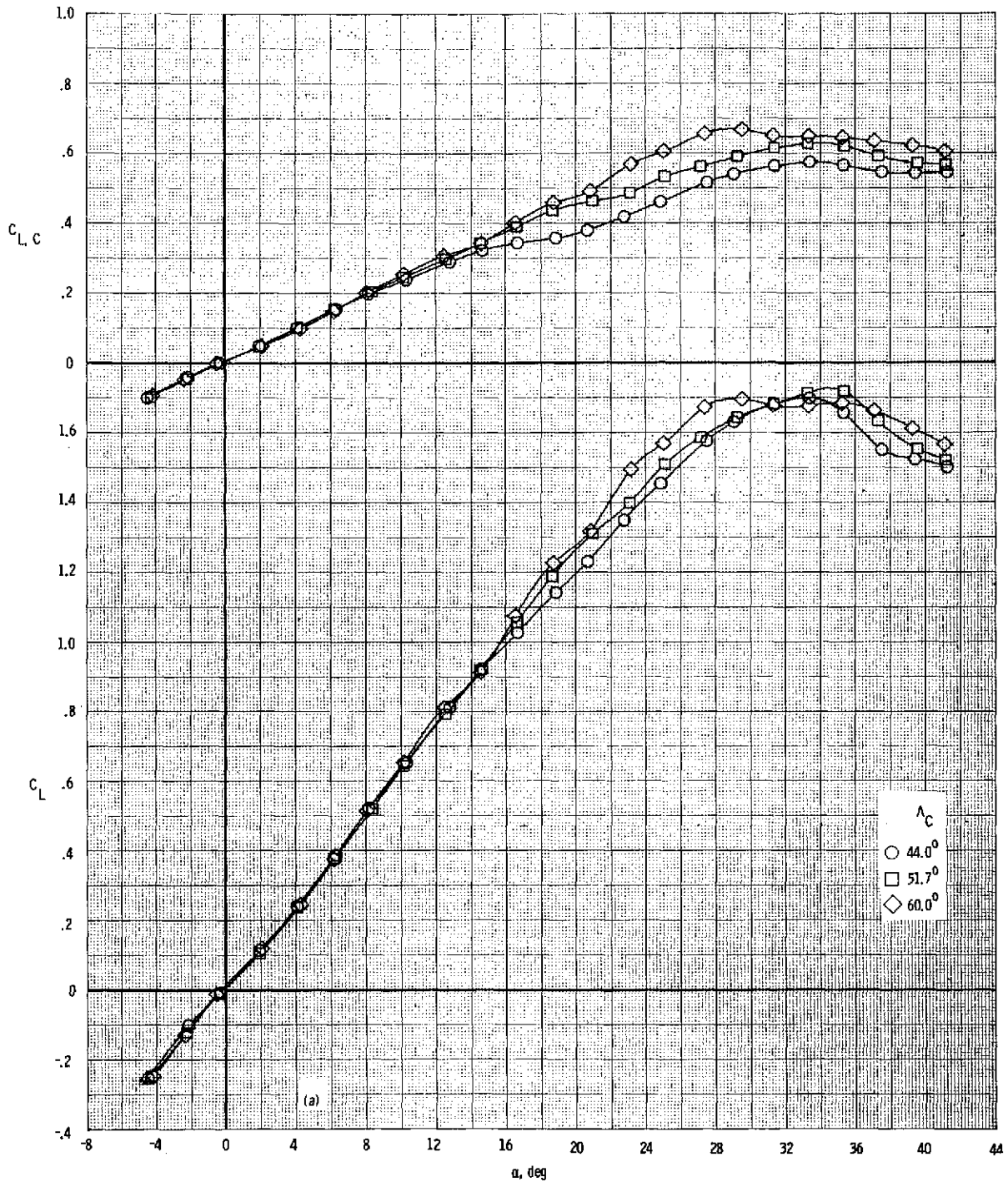


Figure 4.- The effect of canard leading-edge sweep on the longitudinal aerodynamic characteristics for the model with $z/\bar{c} = 0.0$, $\phi = 0.0^\circ$, and $l/\bar{c} = 1.304$.

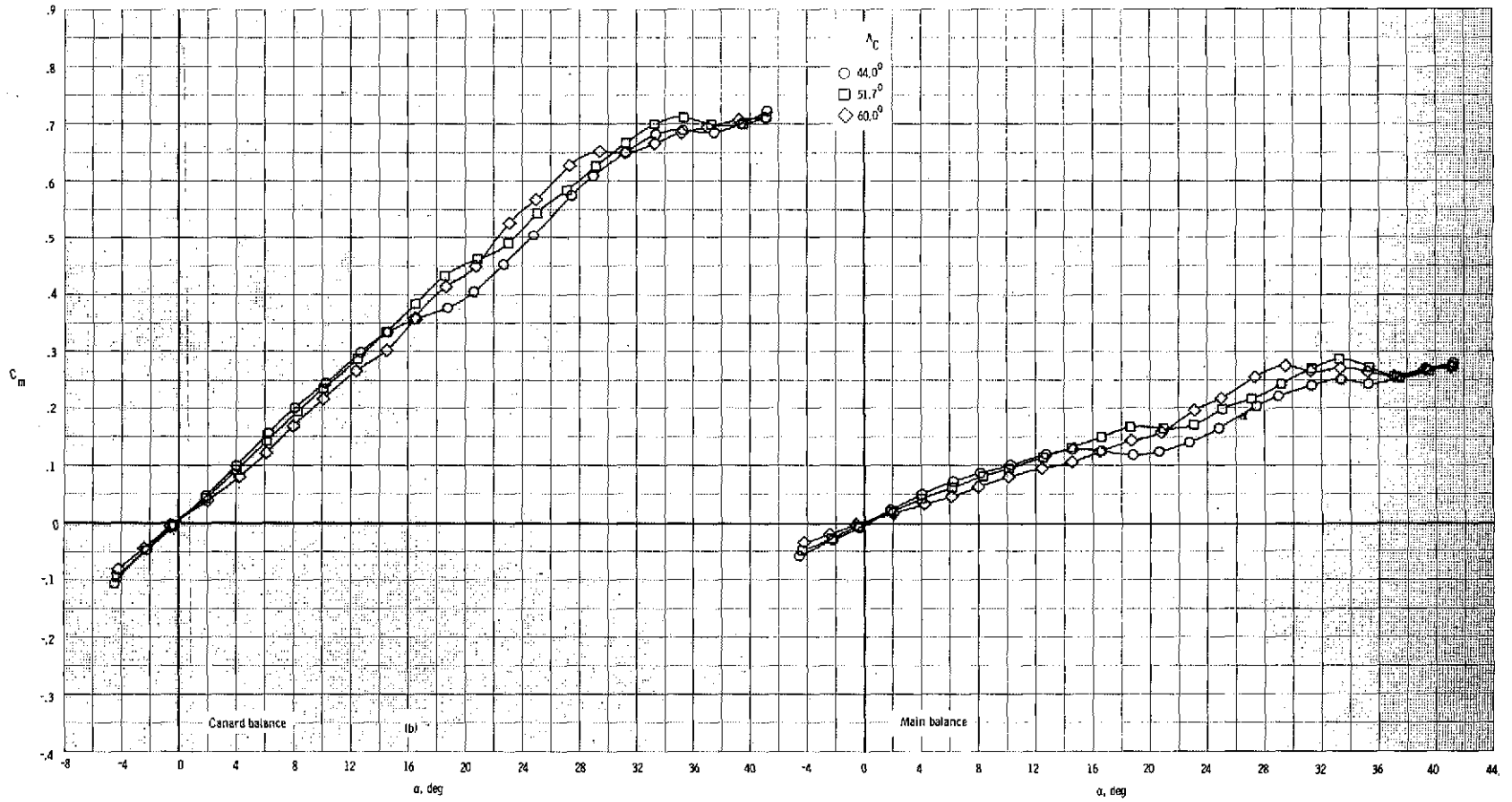


Figure 4.- Continued.

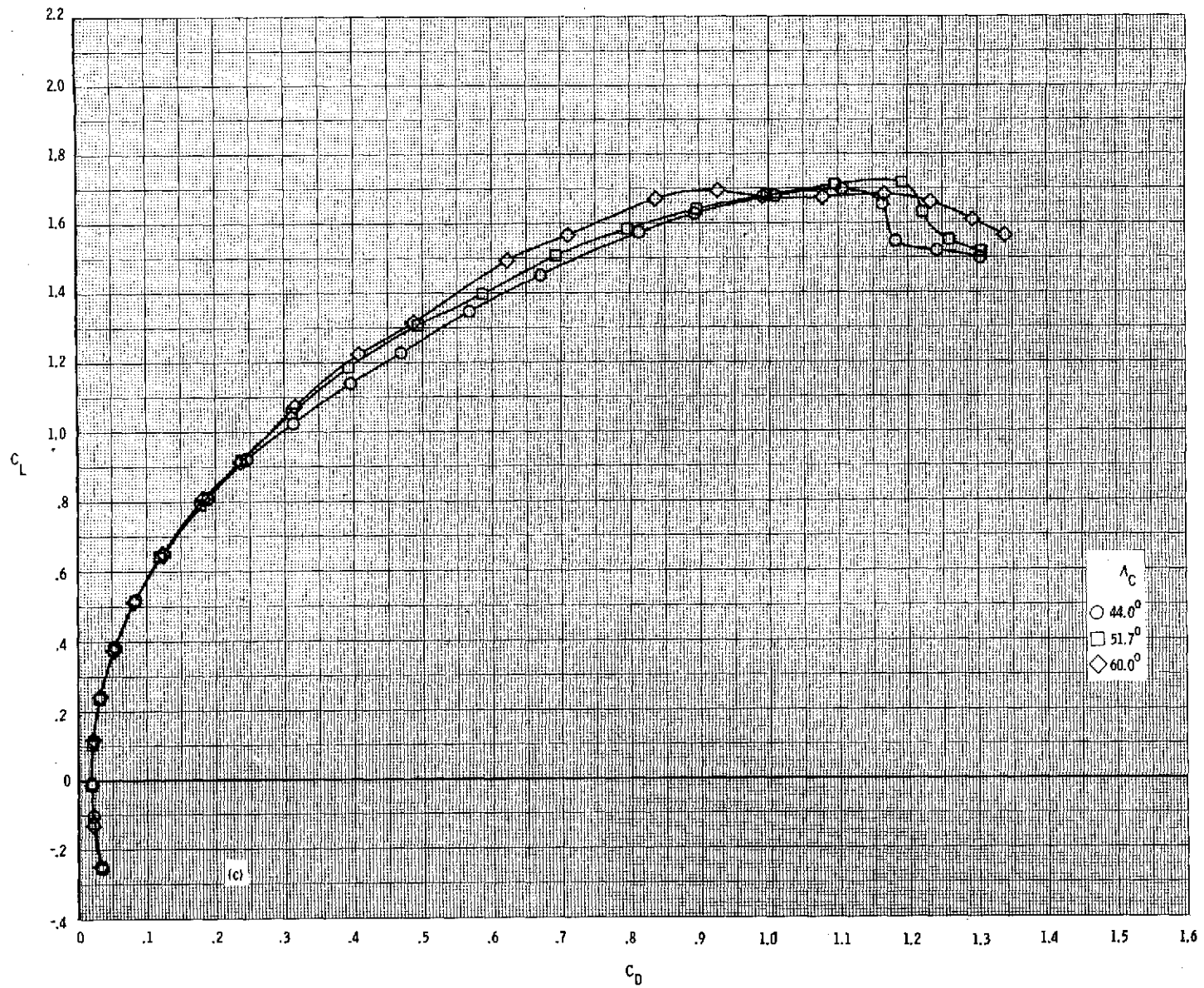


Figure 4.- Concluded.

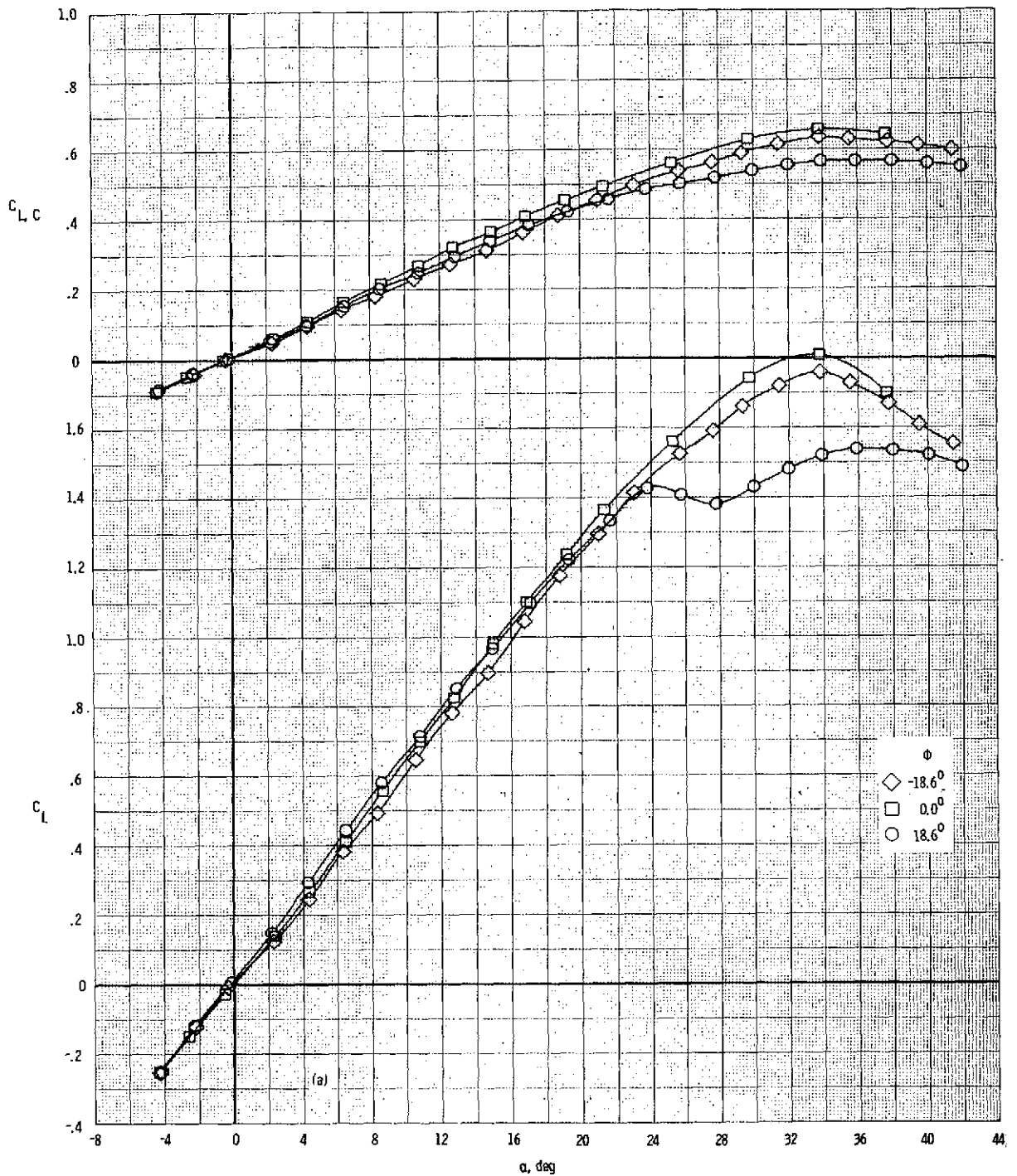


Figure 5.- The effect of canard dihedral angle on the longitudinal aerodynamic characteristics for the model with $z/\bar{c} = 0.185$, $\Lambda_C = 51.7^\circ$, and $l/\bar{c} = 1.304$.

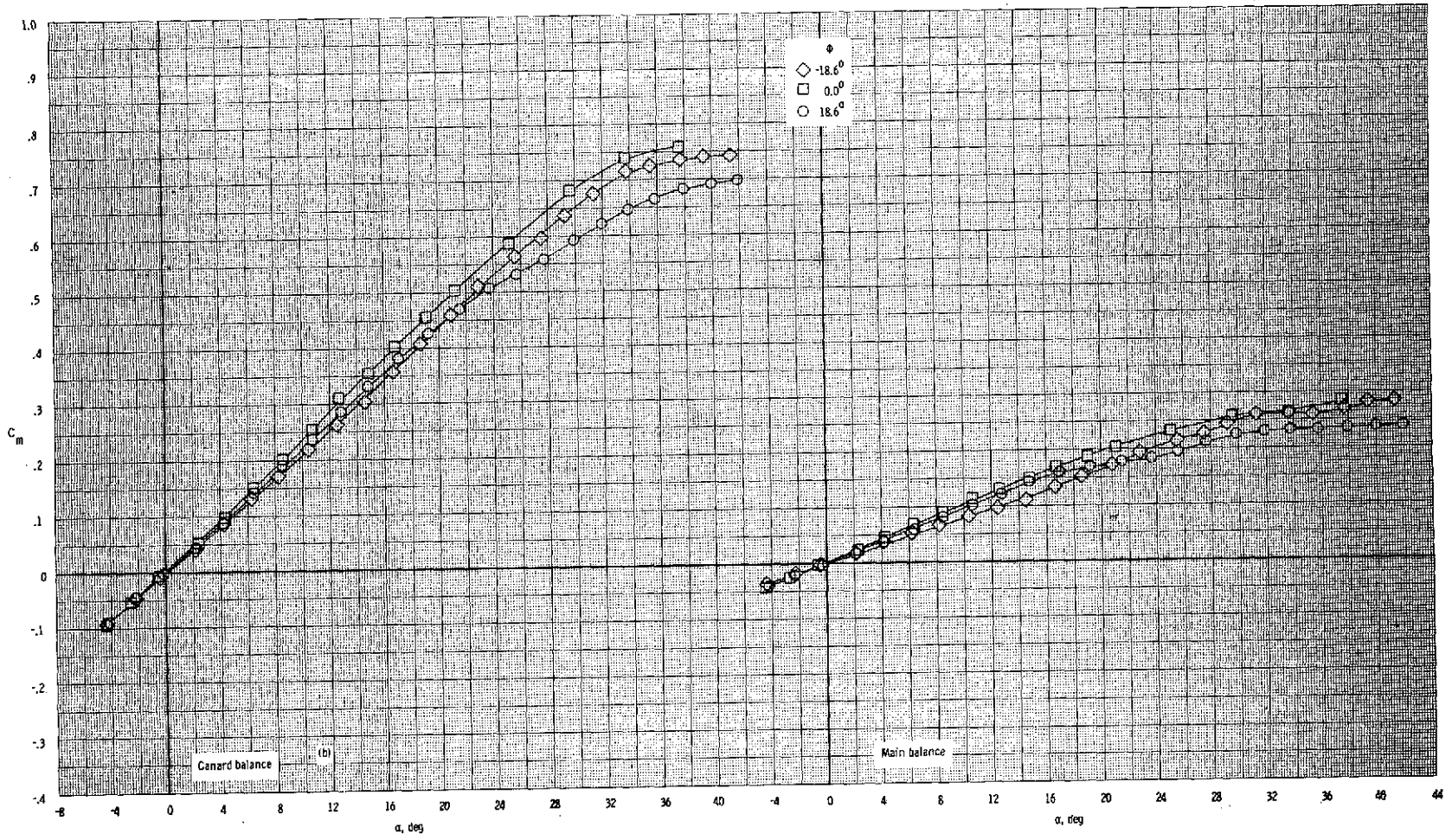


Figure 5.- Continued.

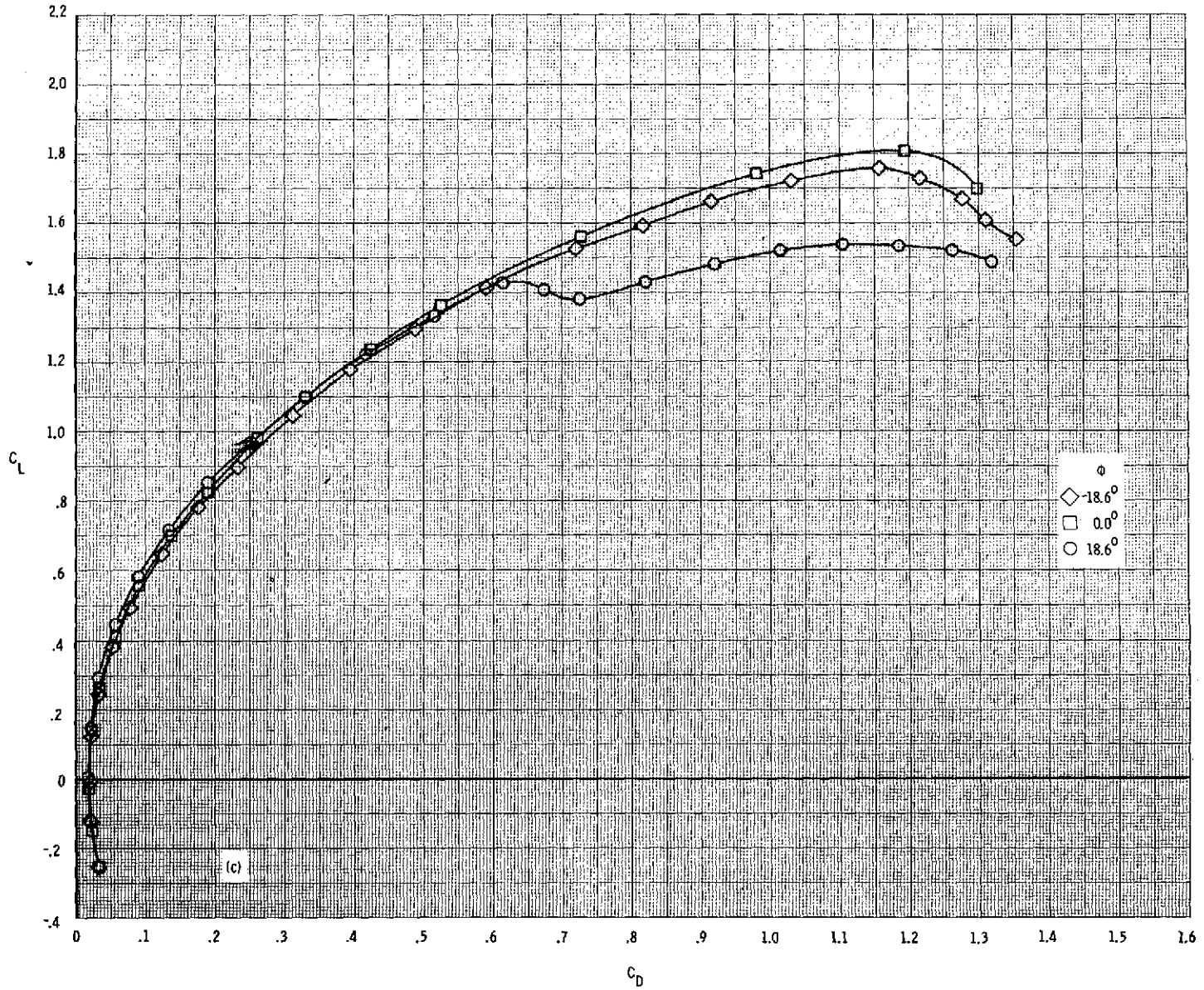


Figure 5.- Concluded.

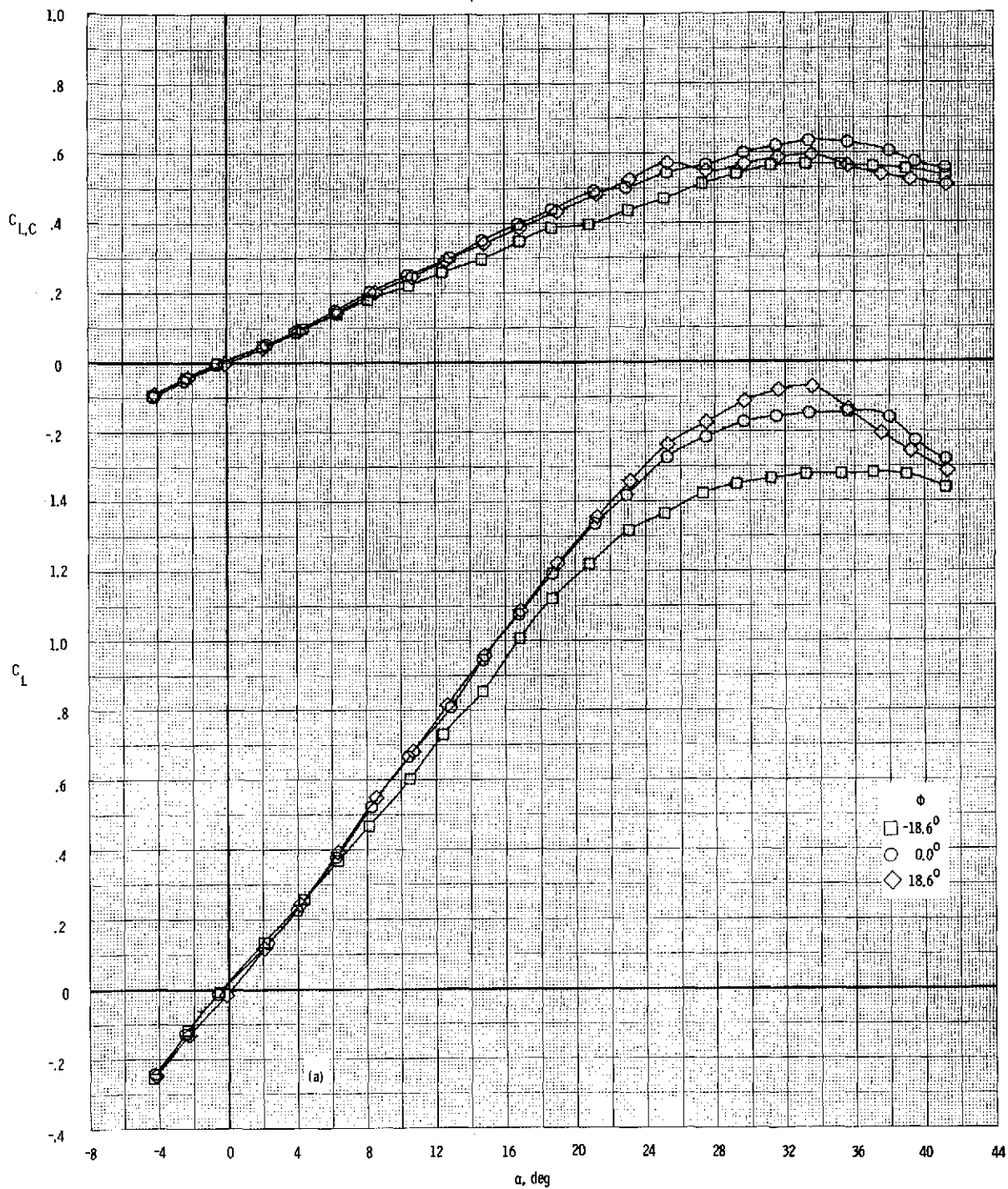


Figure 6.- The effect of canard dihedral angle on the longitudinal aerodynamic characteristics for the model with $z/\bar{c} = 0.0$, $\Lambda_C = 51.7^\circ$, and $l/\bar{c} = 1.345$.

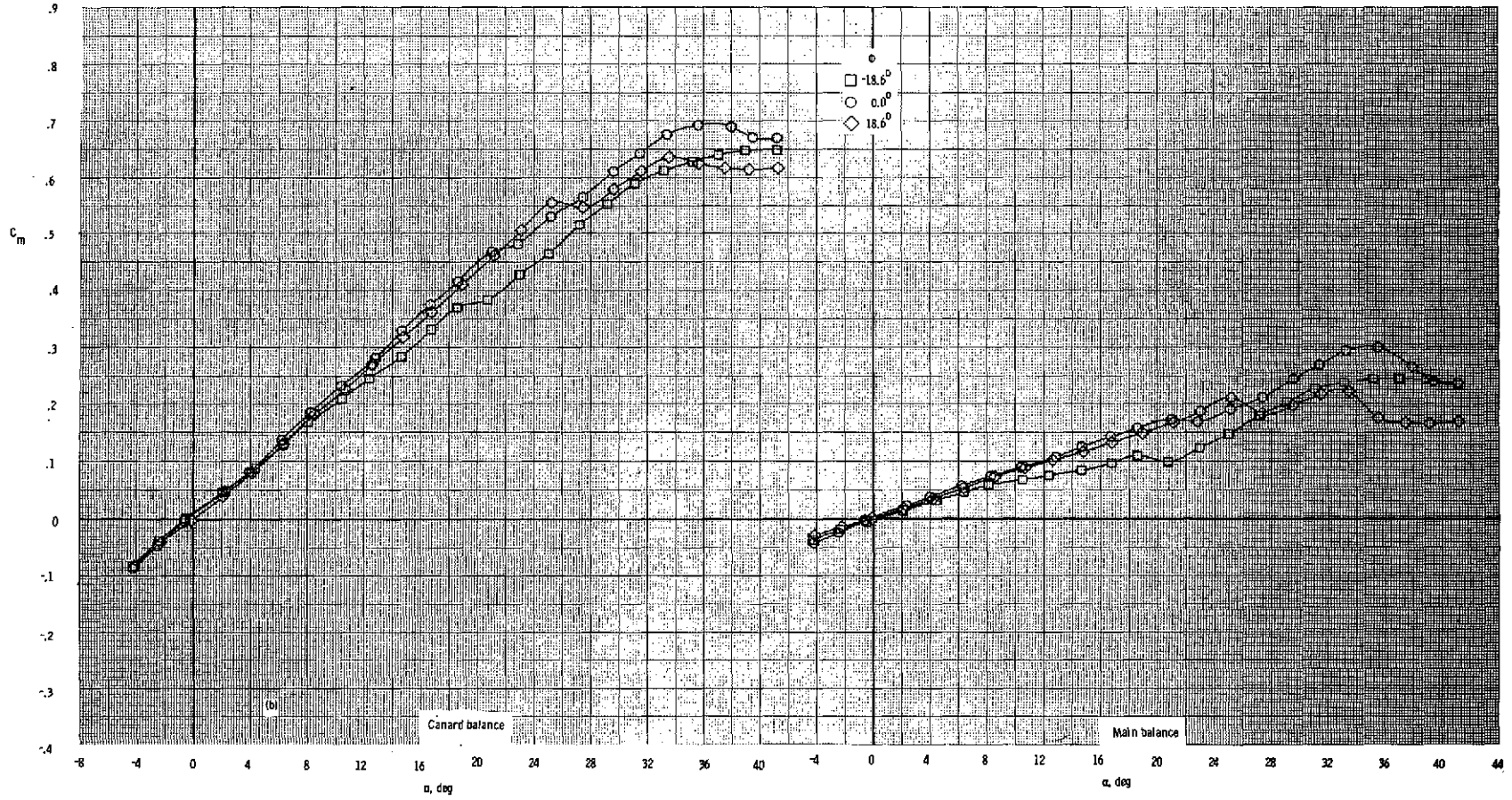


Figure 6.- Continued.

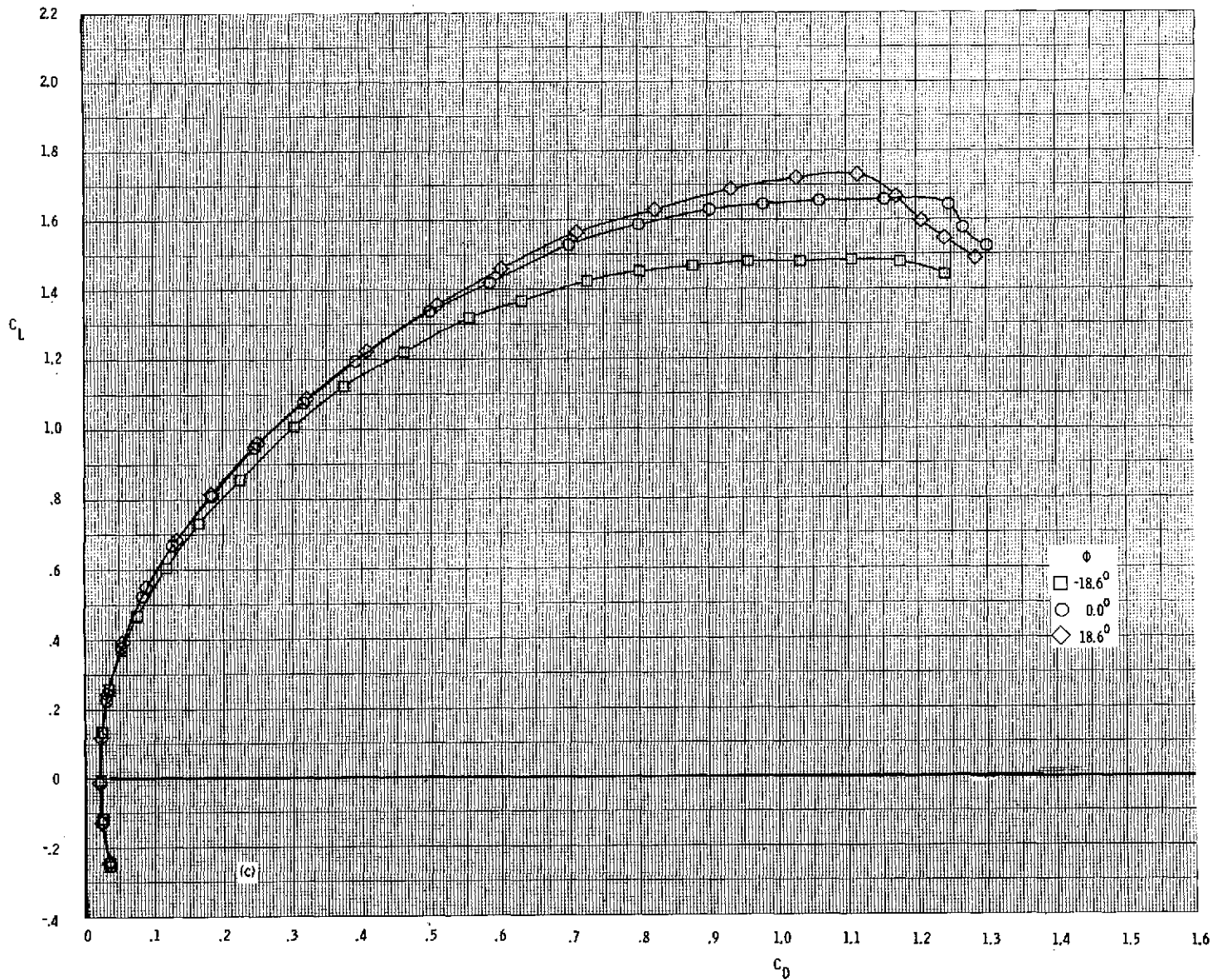


Figure 6.- Concluded.

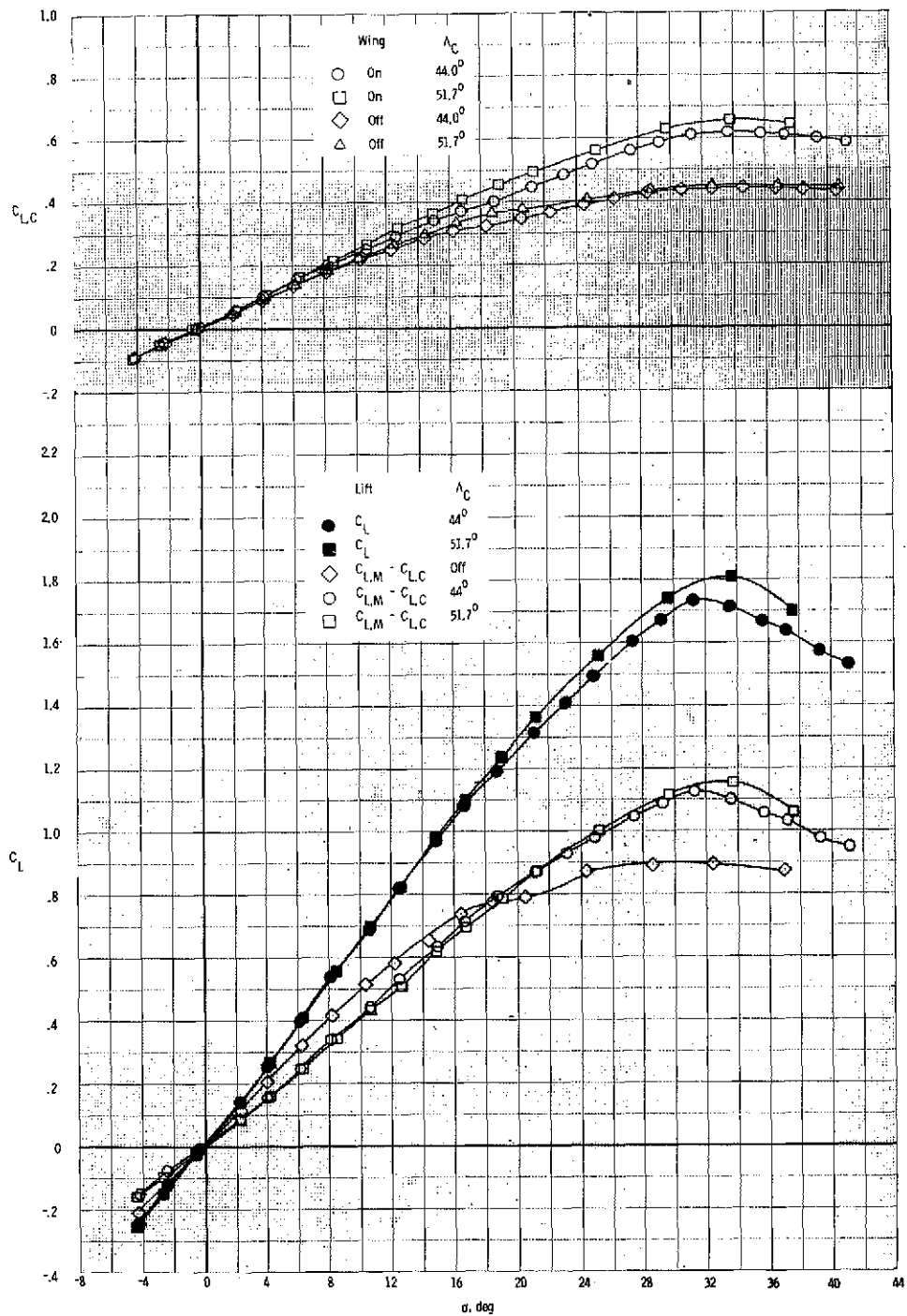


Figure 7.- Comparison of canard-wing lift interference effects for canard leading-edge sweep of 44° and 51.7° , $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, and $l/\bar{c} = 1.304$.

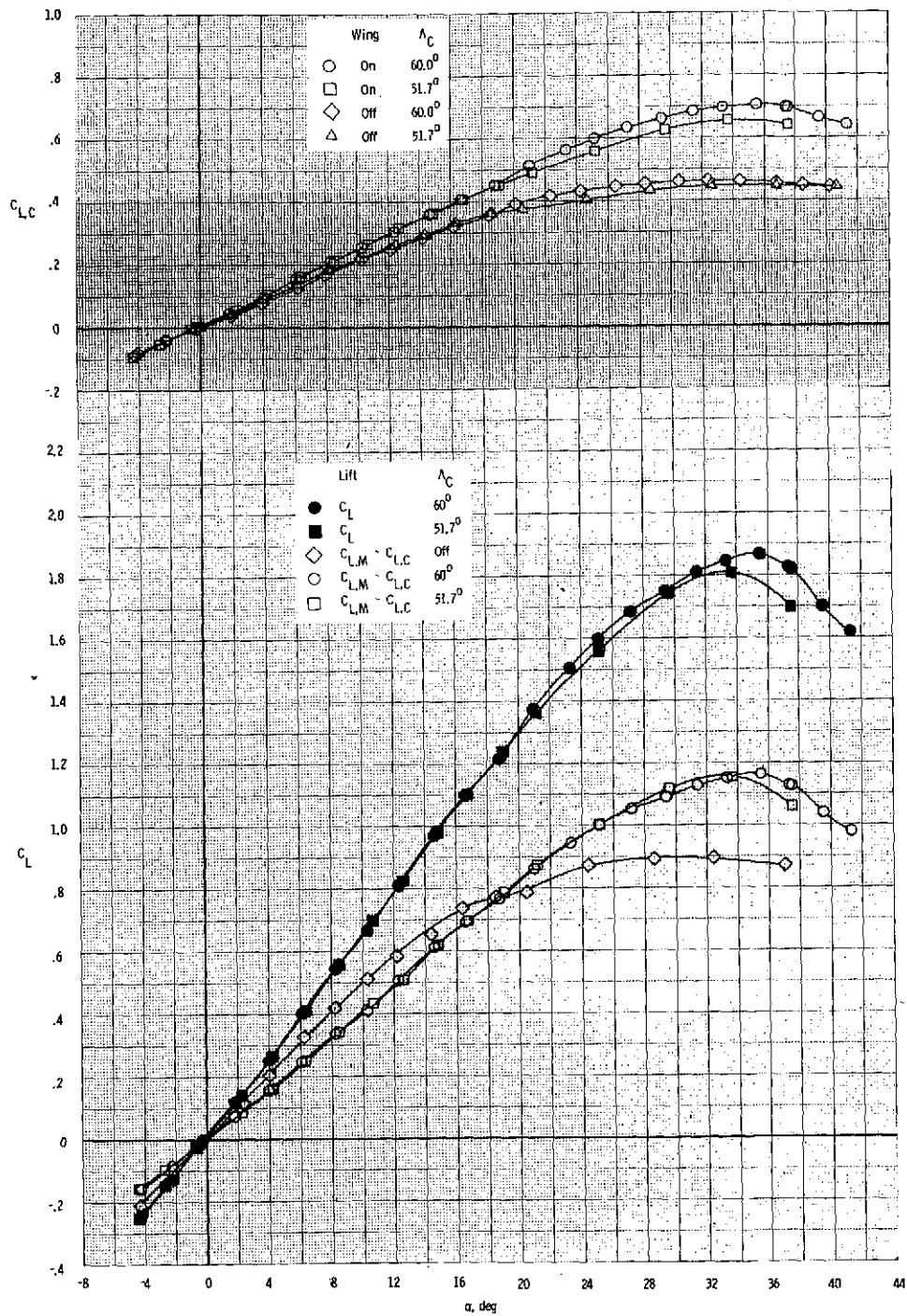


Figure 8.- Comparison of canard-wing lift interference effects for canard leading-edge sweep of 51.7° and 60° , $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, and $l/\bar{c} = 1.304$.

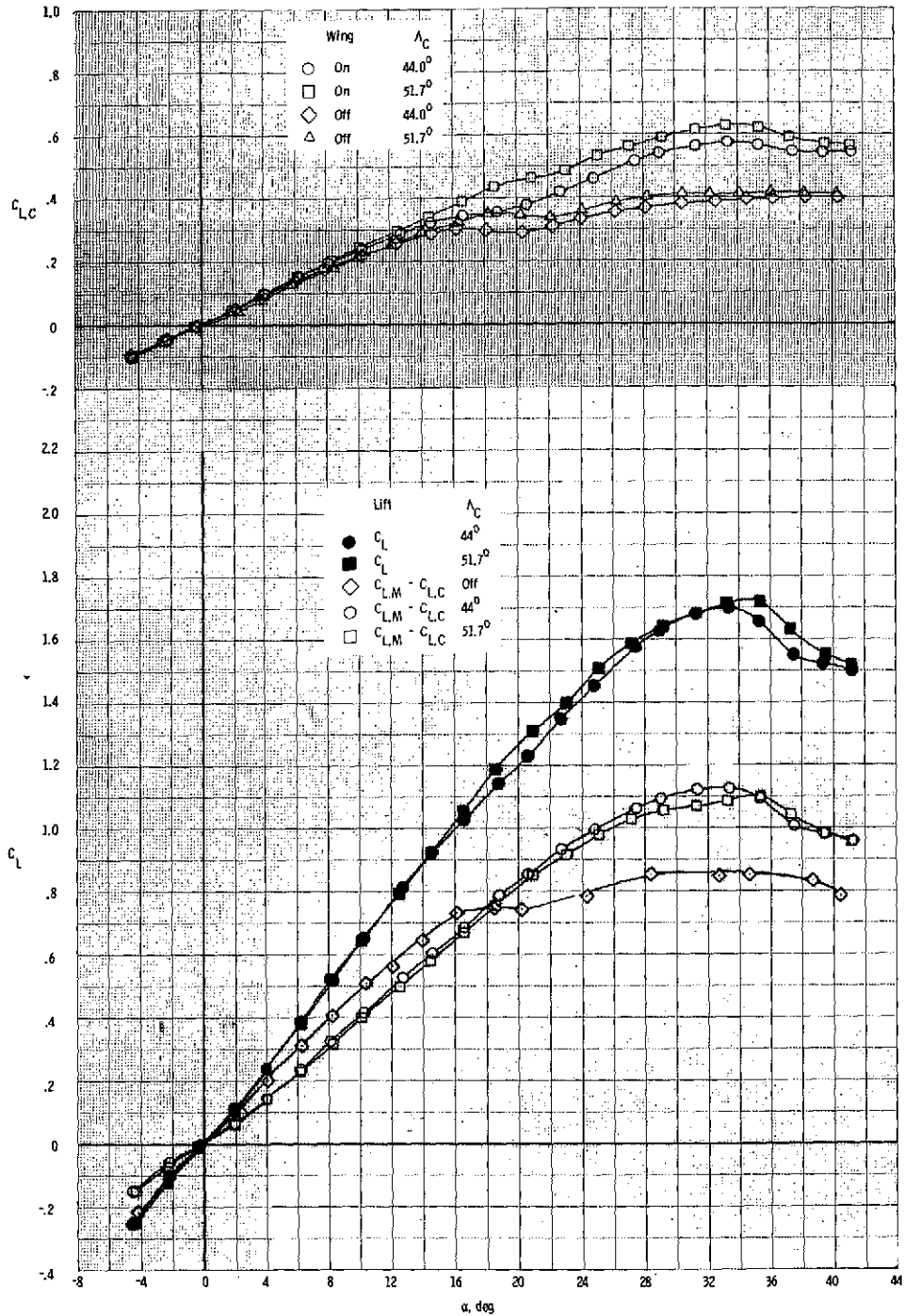


Figure 9.- Comparison of canard-wing lift interference effects for canard leading-edge sweep of 44° and 51.7° , $z/\bar{c} = 0.0$, $\phi = 0.0^\circ$, and $l/\bar{c} = 1.304$.

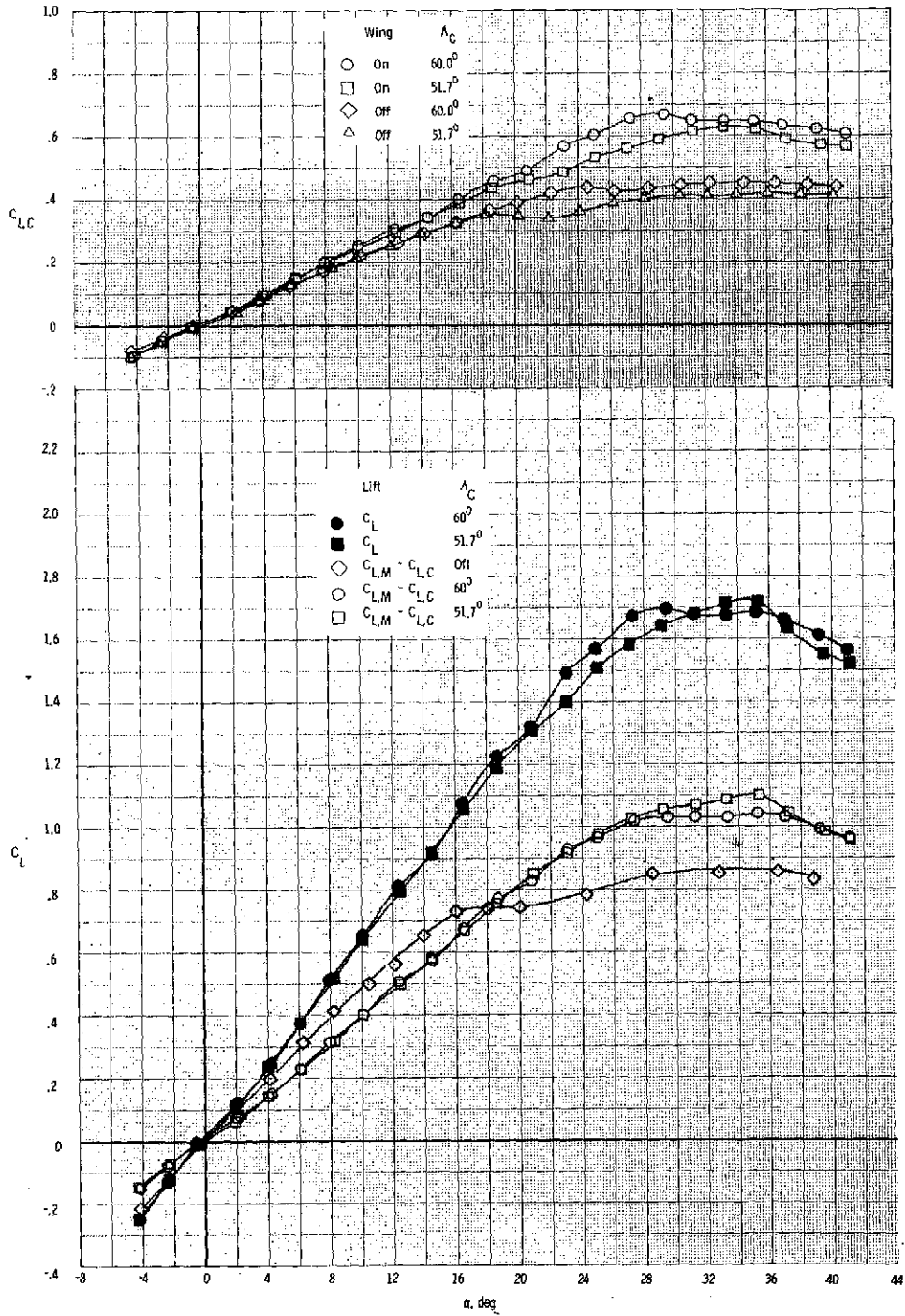


Figure 10.- Comparison of canard-wing lift interference effects for canard leading-edge sweep of 51.7° and 60° , $z/\bar{c} = 0.0$, $\phi = 0.0^\circ$, and $\ell/\bar{c} = 1.304$.

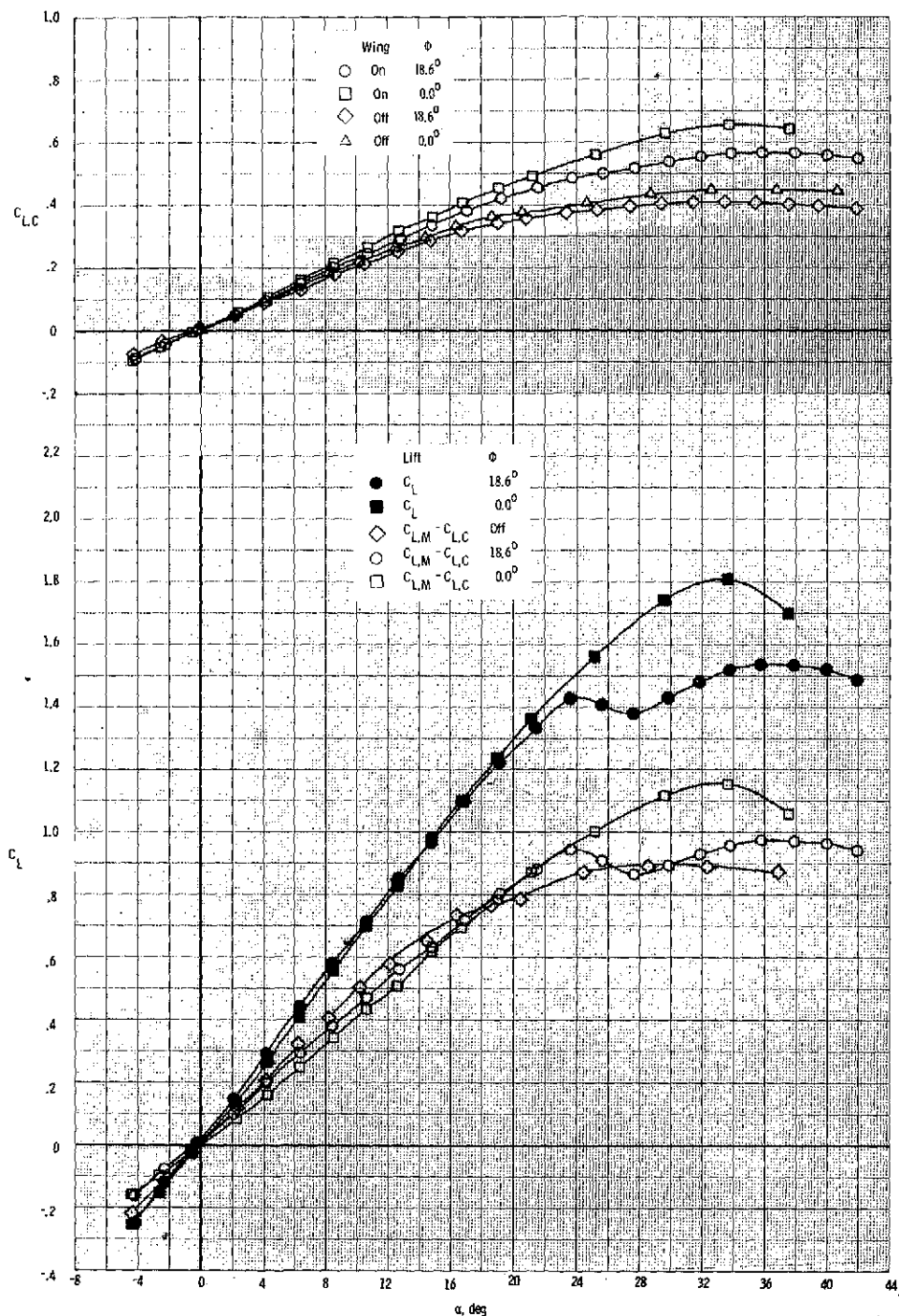


Figure 11.- Comparison of canard-wing lift interference effects for $z/\bar{c} = 0.185$, $\Lambda_C = 51.7^\circ$, $l/c = 1.304$, and $\phi = 18.6^\circ$ and 0.0° .

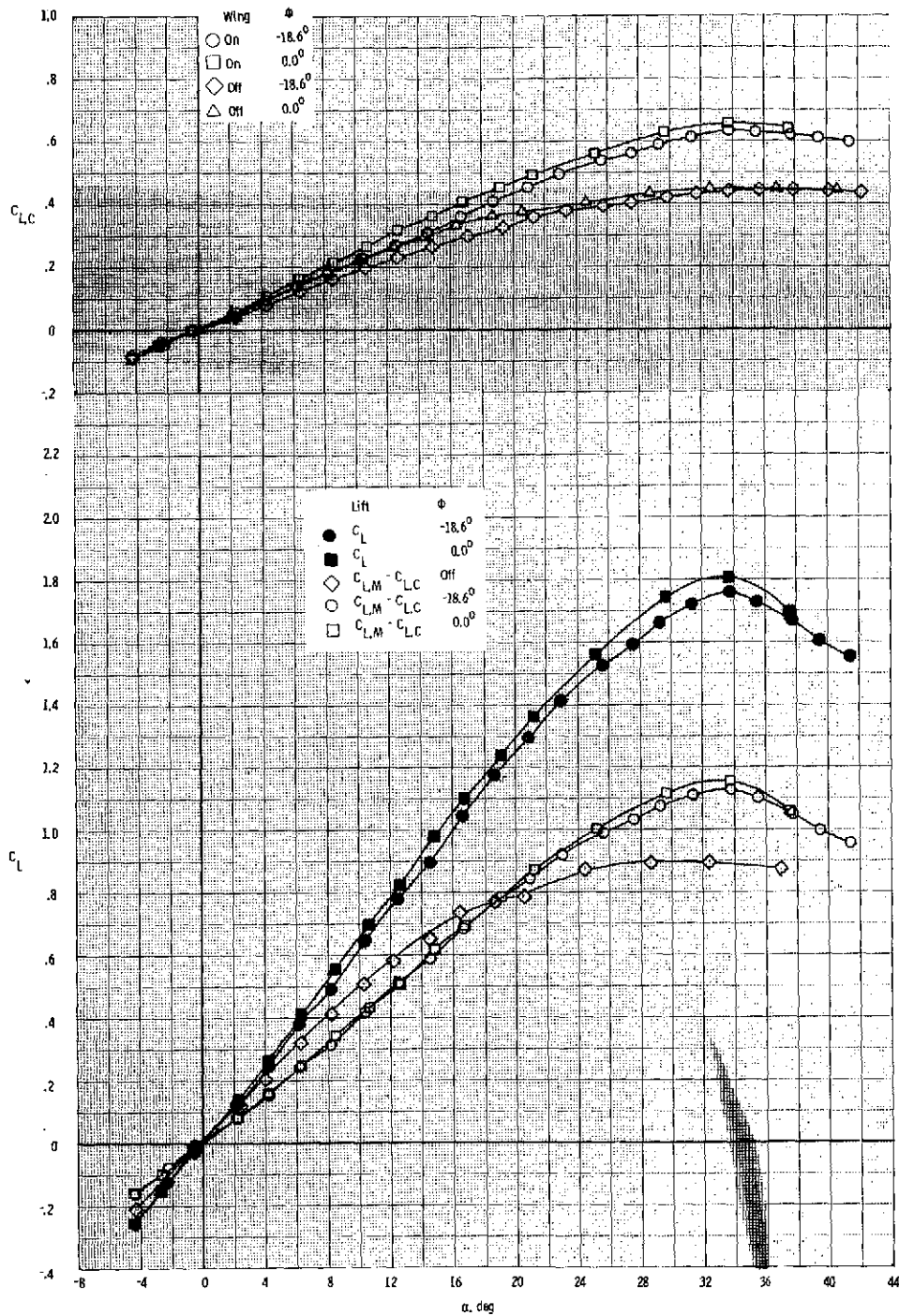


Figure 12.- Comparison of canard-wing lift interference effect for $z/\bar{c} = 0.185$, $\Lambda_C = 51.7^\circ$, $l/c = 1.304$, and $\phi = -18.6^\circ$ and 0.0° .

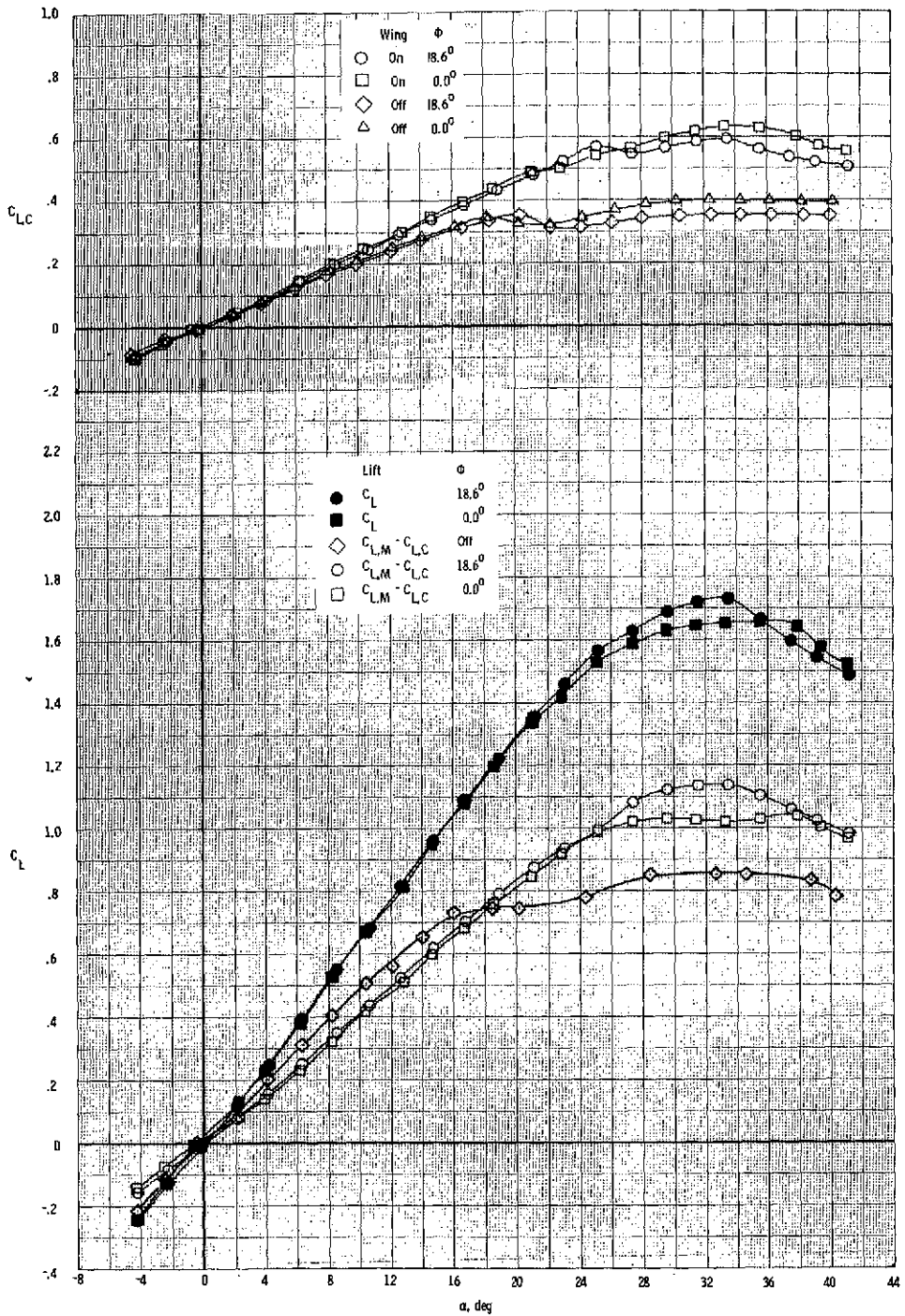


Figure 13.- Comparison of canard-wing lift interference effects for $z/\bar{c} = 0.0$, $\Lambda_C = 51.7^\circ$, $l/\bar{c} = 1.345$, $\phi = 18.6^\circ$ and 0.0° .

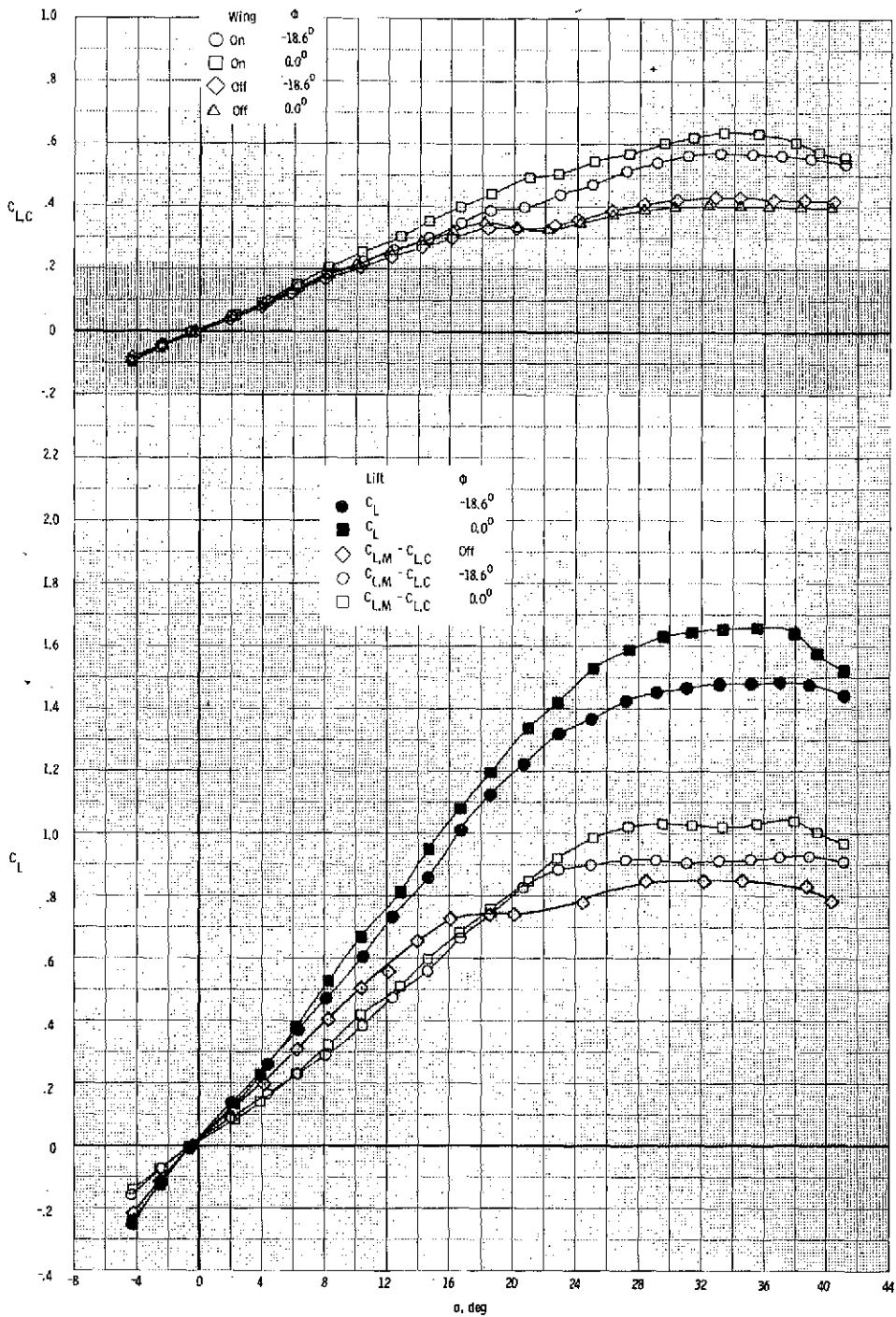


Figure 14.- Comparison of canard-wing lift interference effects for $z/\bar{c} = 0.0$, $\Lambda_C = 51.7^\circ$, $l/\bar{c} = 1.345$, and $\phi = -18.6^\circ$ and 0.0° .

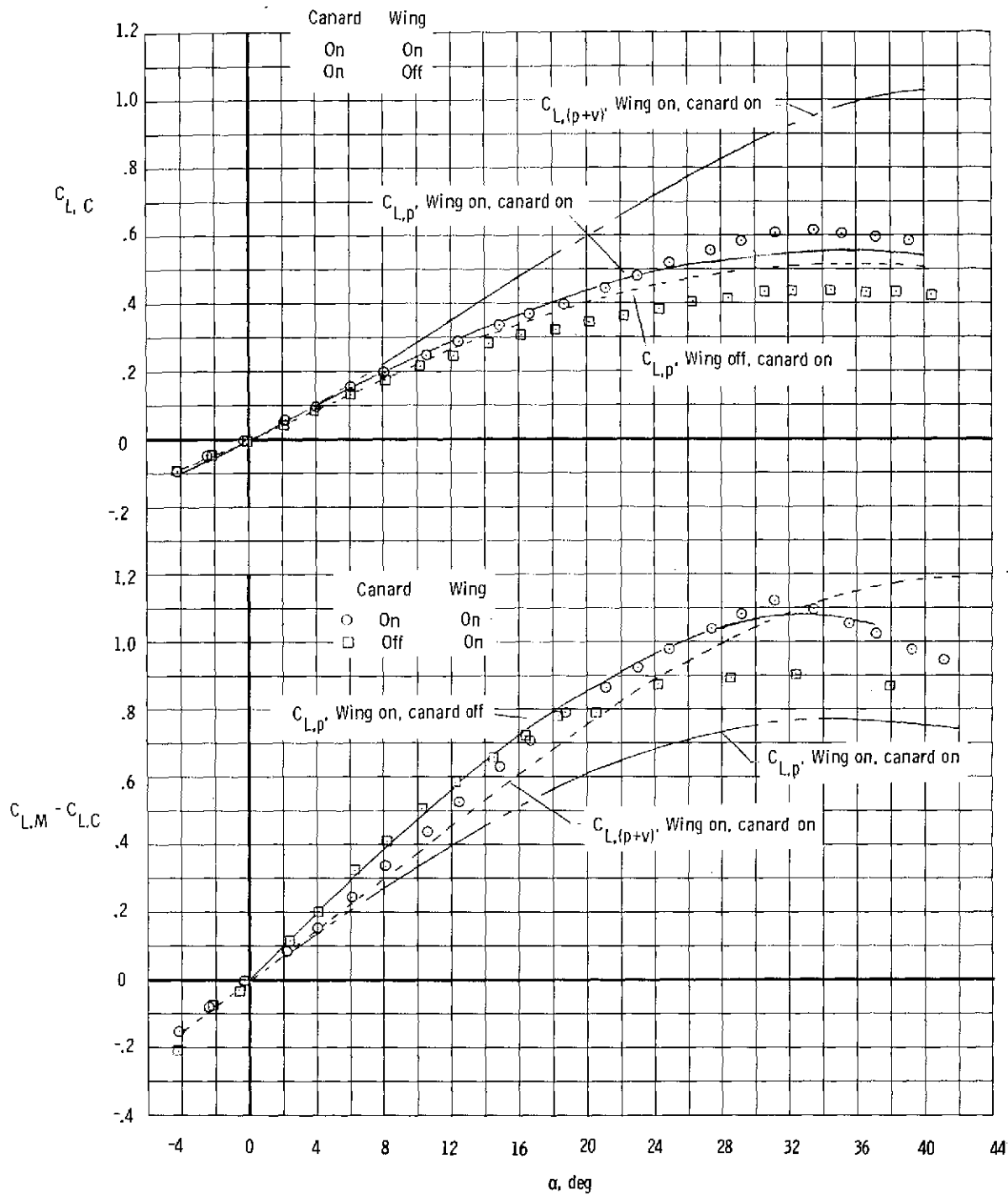


Figure 15.- Comparison of theory and experiment for $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, $\Delta_C = 44.0^\circ$, and $\ell/\bar{c} = 1.304$.

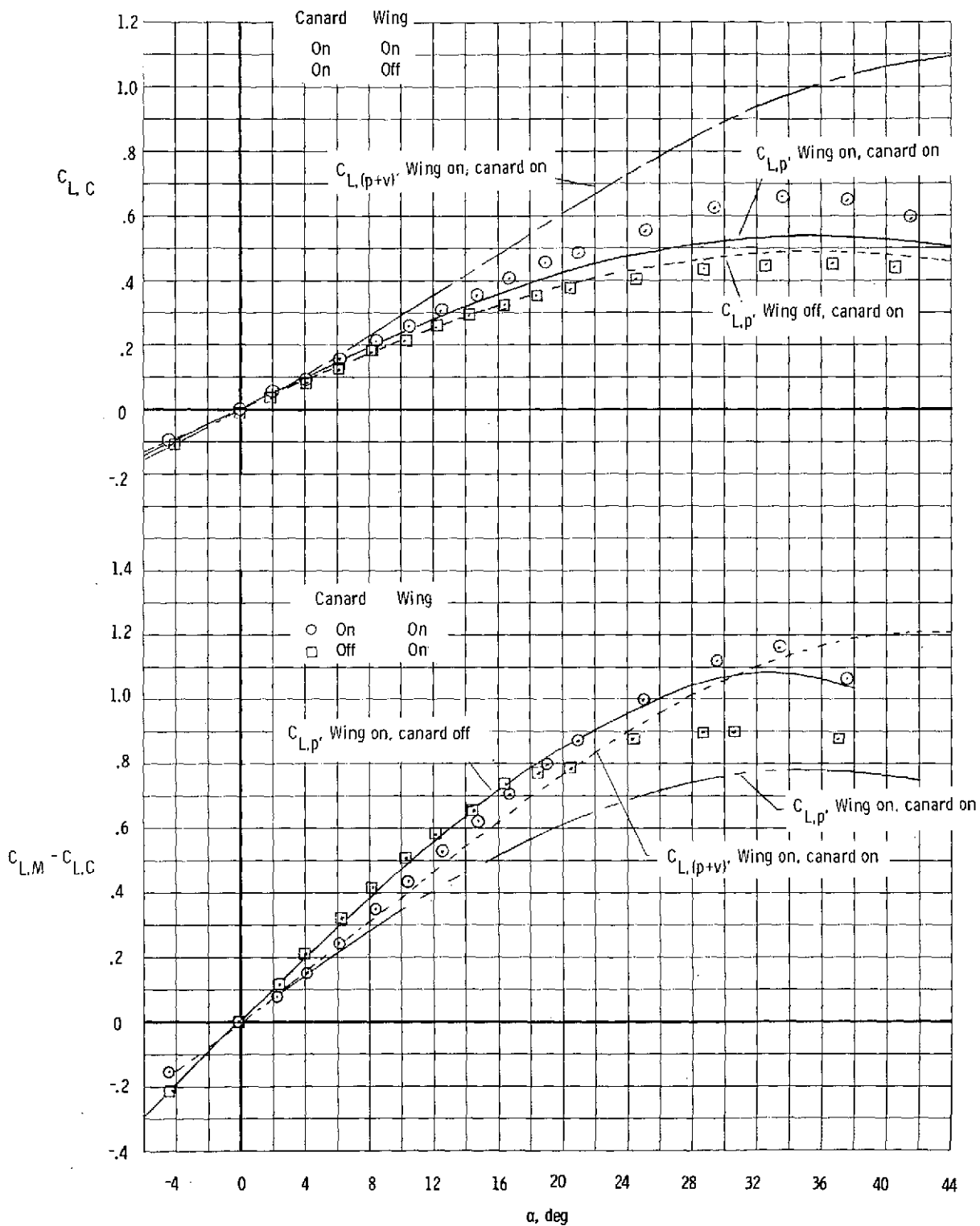


Figure 16.- Comparison of theory and experiment for $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, $\Lambda_C = 51.7^\circ$, and $\ell/\bar{c} = 1.304$.

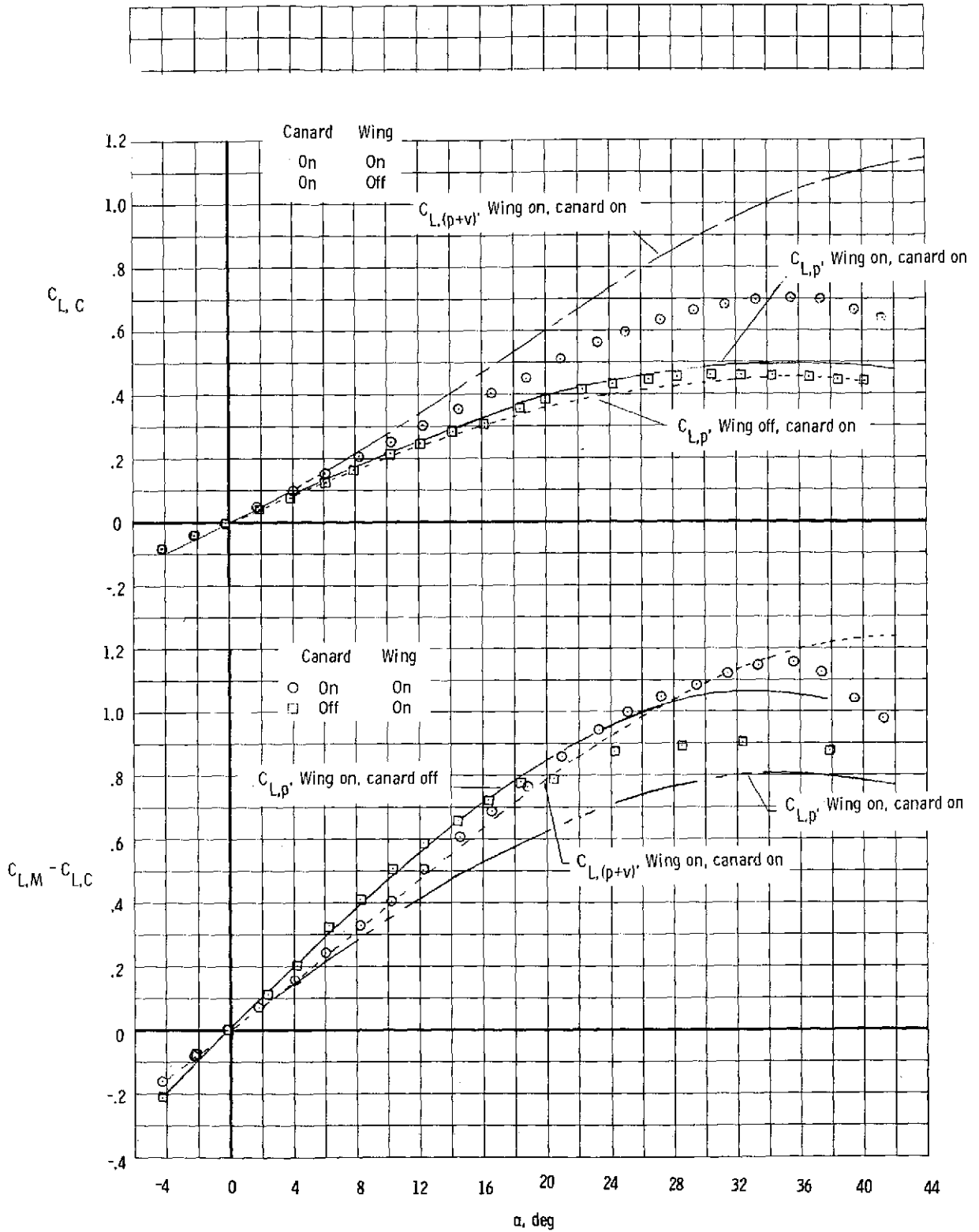


Figure 17.- Comparison of theory and experiment for $z/\bar{c} = 0.185$, $\phi = 0.0^\circ$, $\Lambda_C = 60.0^\circ$, and $l/\bar{c} = 1.304$.

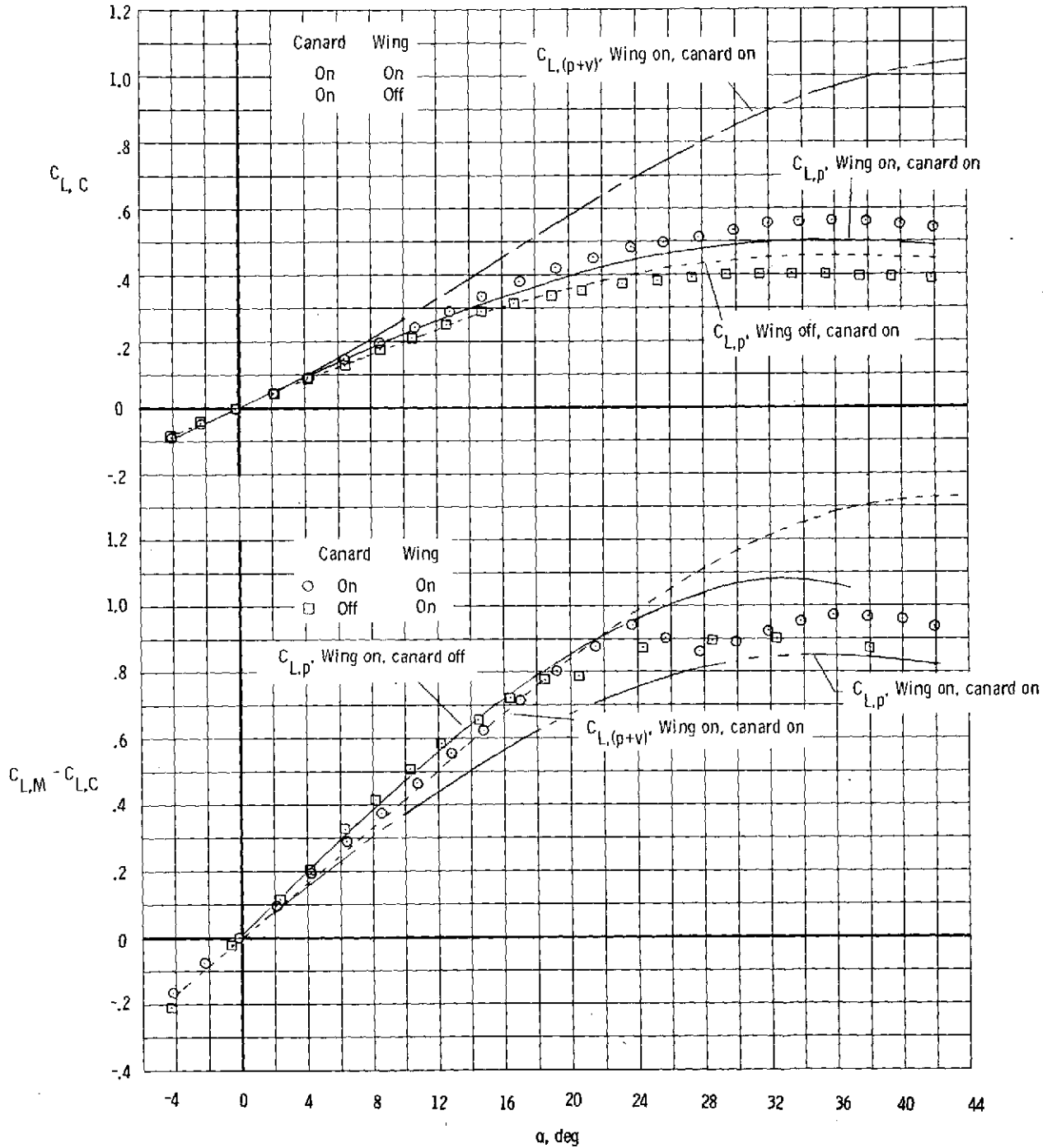


Figure 18.- Comparison of theory and experiment for $z/\bar{c} = 0.185$, $\phi = 18.6^\circ$, $\Lambda_C = 51.7^\circ$, and $l/\bar{c} = 1.304$.

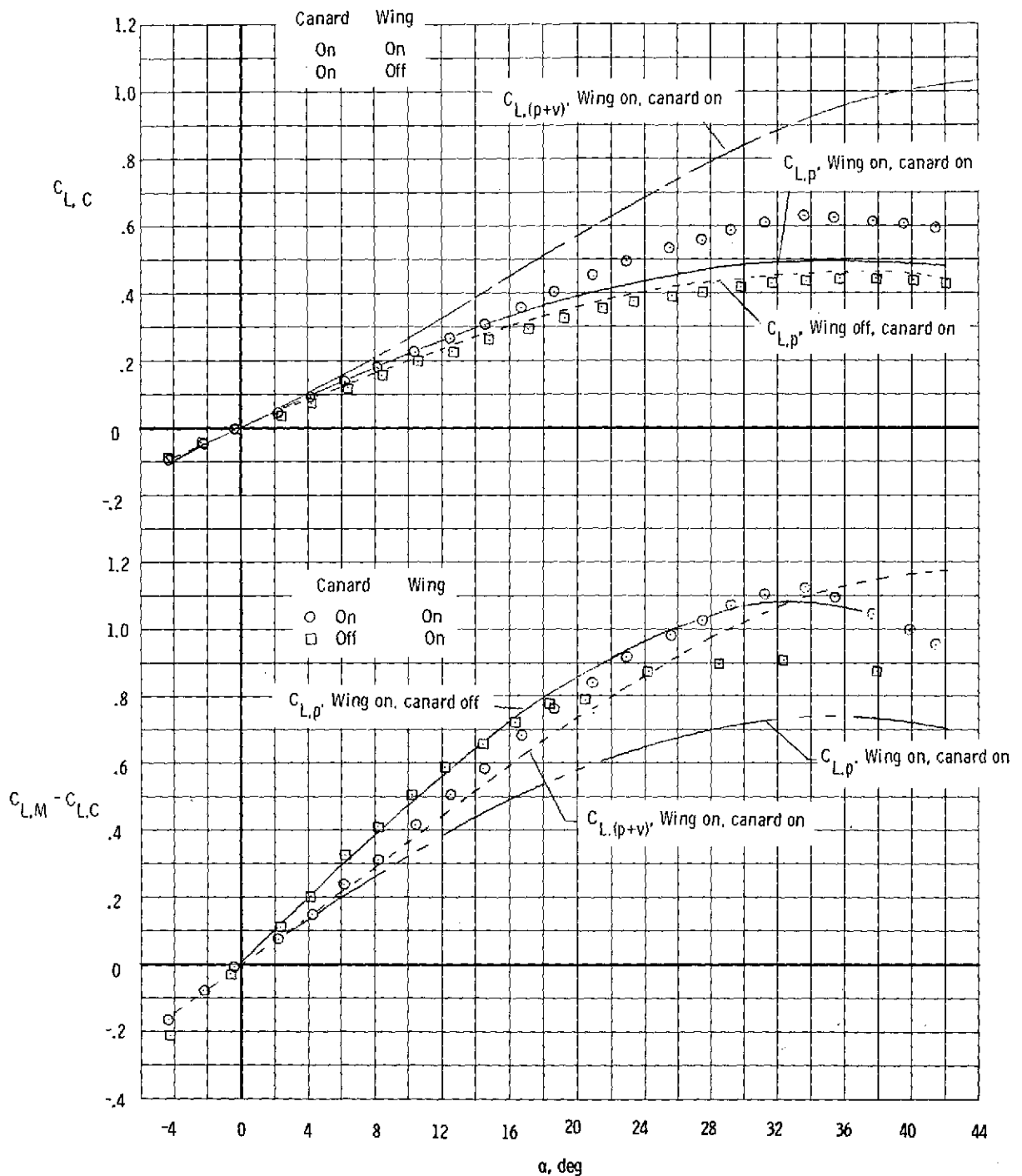


Figure 19.- Comparison of theory and experiment for $z/\bar{c} = 0.185$, $\phi = -18.6^\circ$, $\Delta_C = 51.7^\circ$, and $\ell/\bar{c} = 1.304$.

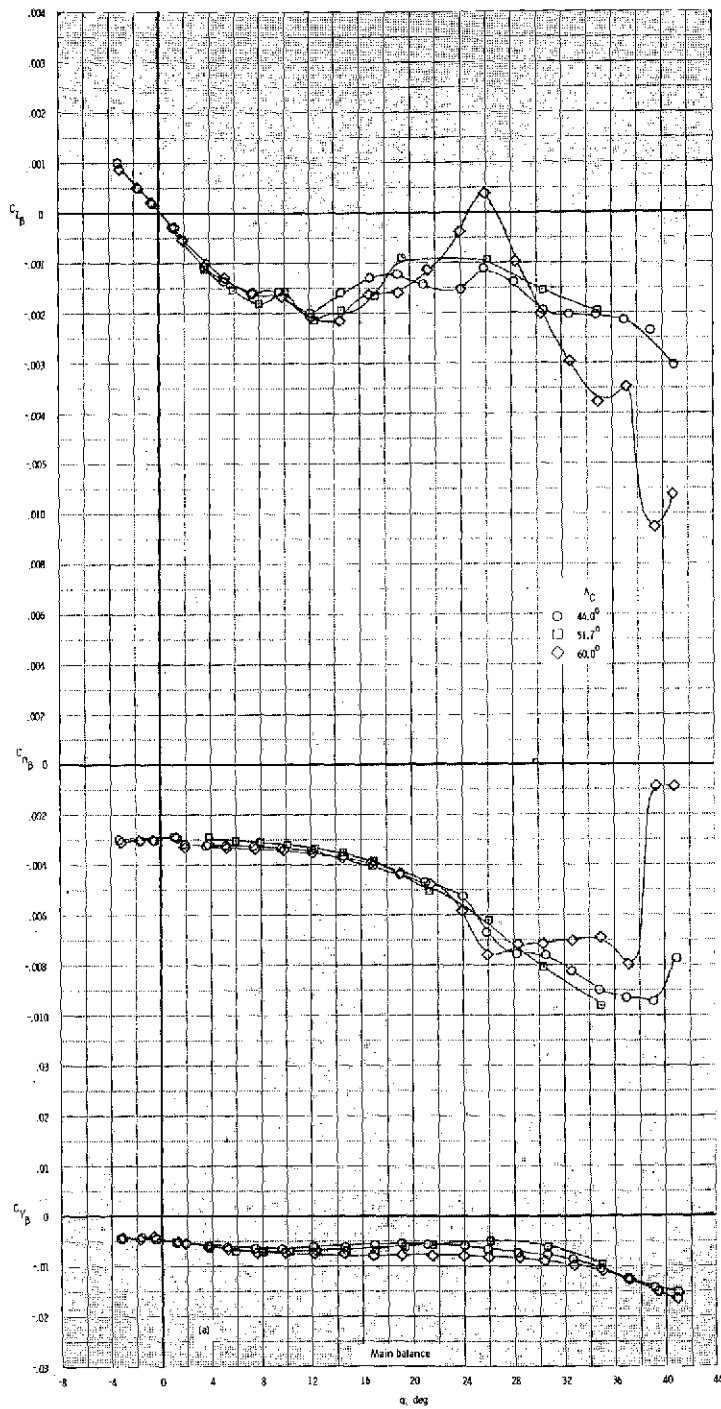


Figure 20.- Effect of canard leading-edge sweep on lateral-stability derivatives for models with $z/\bar{c} = 0.185$, $\ell/\bar{c} = 1.304$, and wing on.

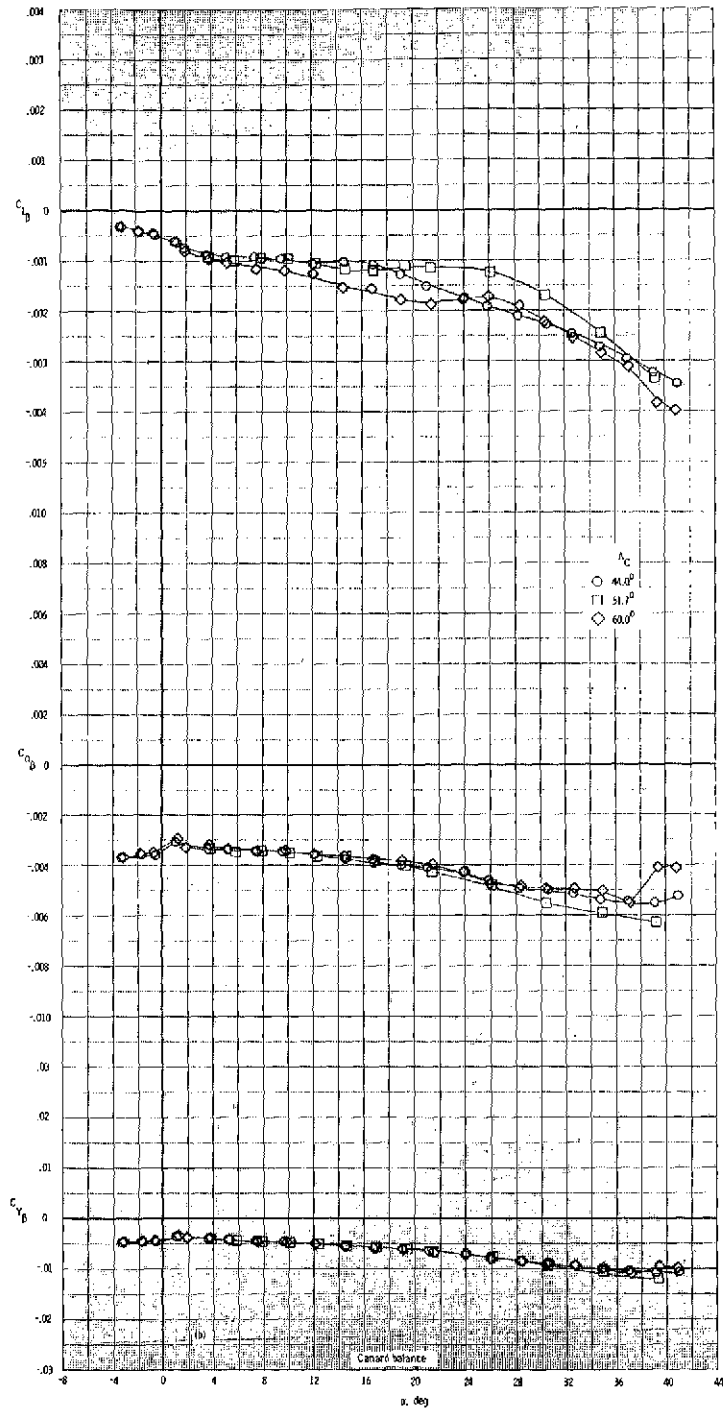


Figure 20.- Concluded.

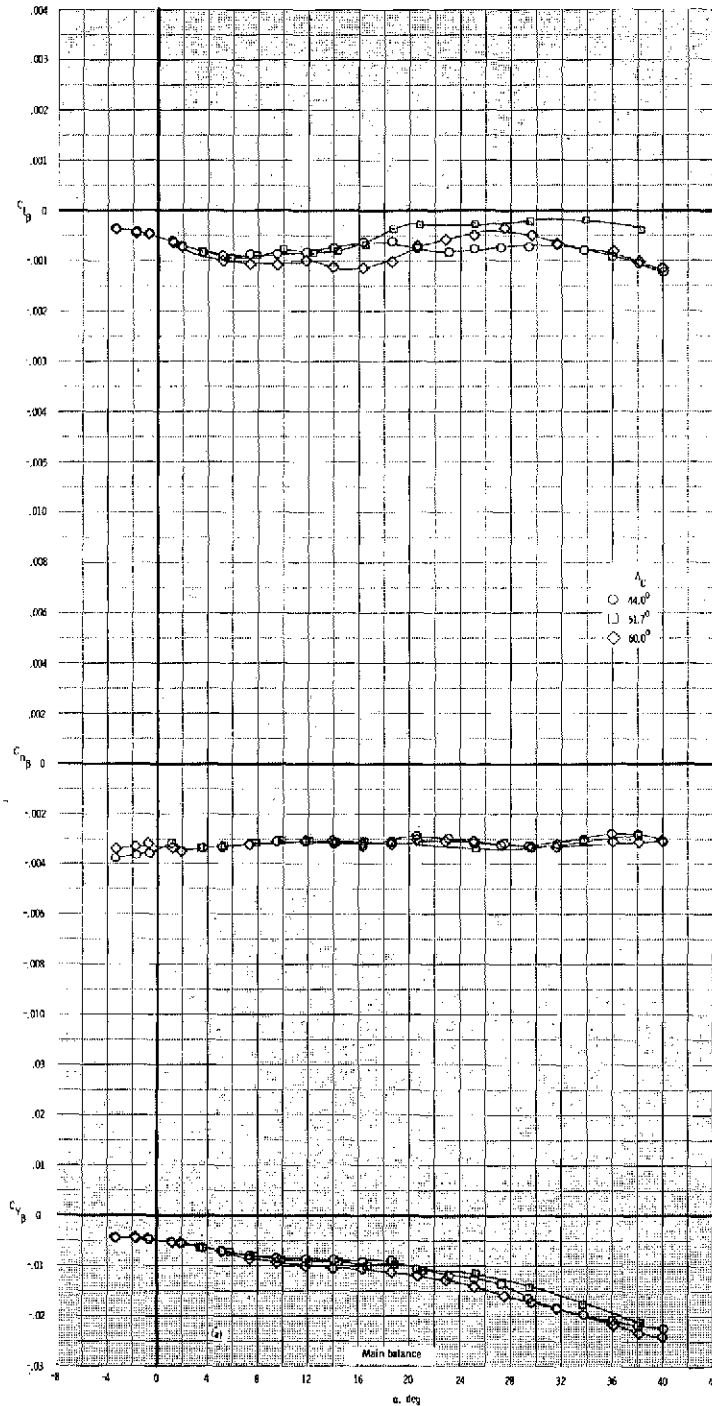


Figure 21.- Effect of canard leading-edge sweep on lateral-stability derivatives for models with $z/\bar{c} = 0.185$, $l/\bar{c} = 1.304$, and wing off.

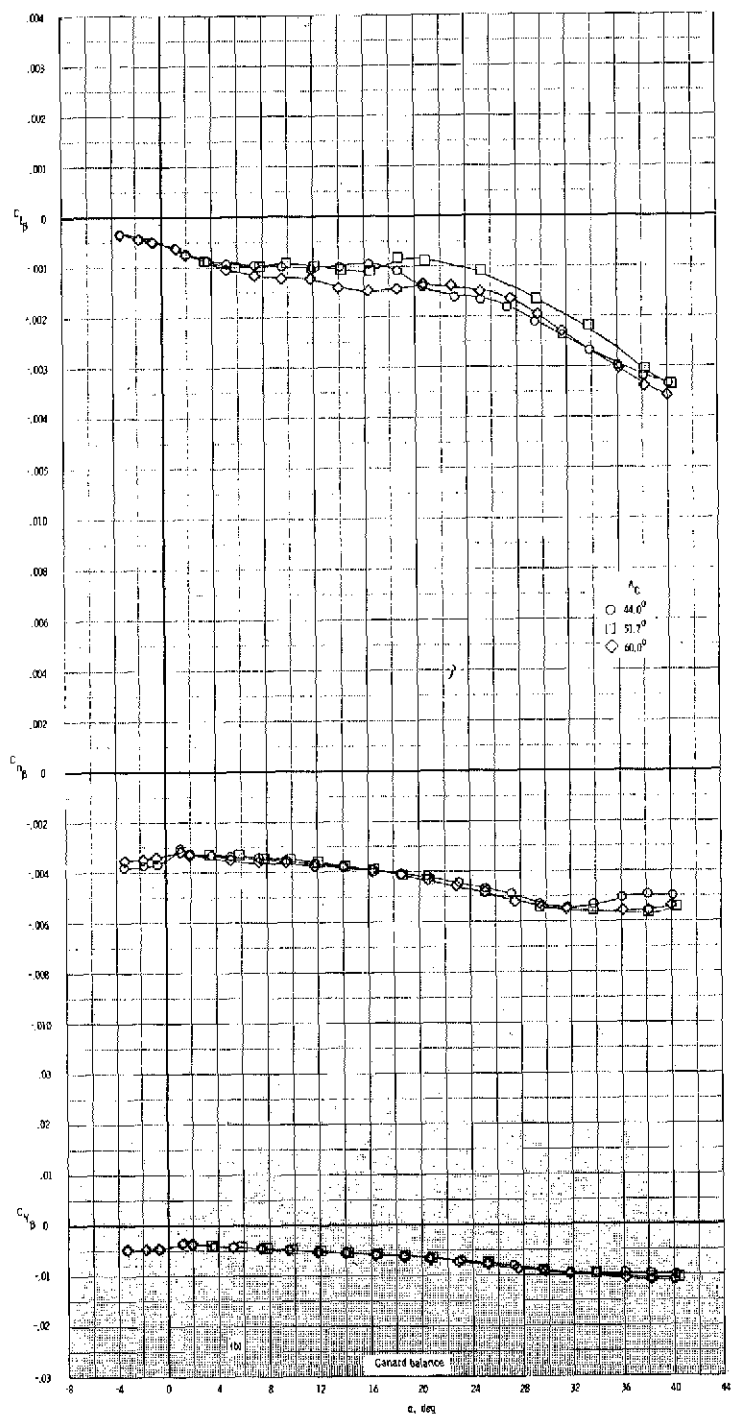


Figure 21.- Concluded.

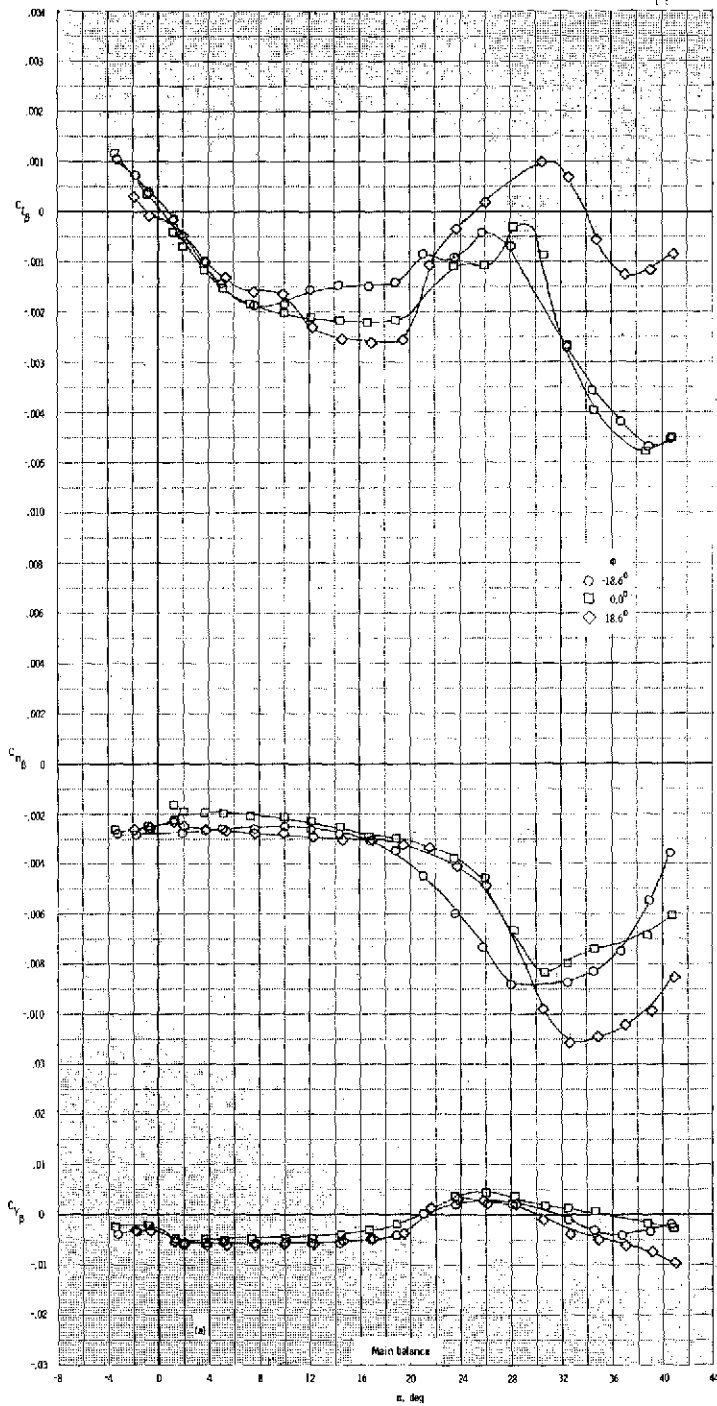


Figure 22.- Effect of canard dihedral on lateral-stability derivatives for models with $z/\bar{c} = 0.0$, $l/\bar{c} = 1.345$, and wing on.

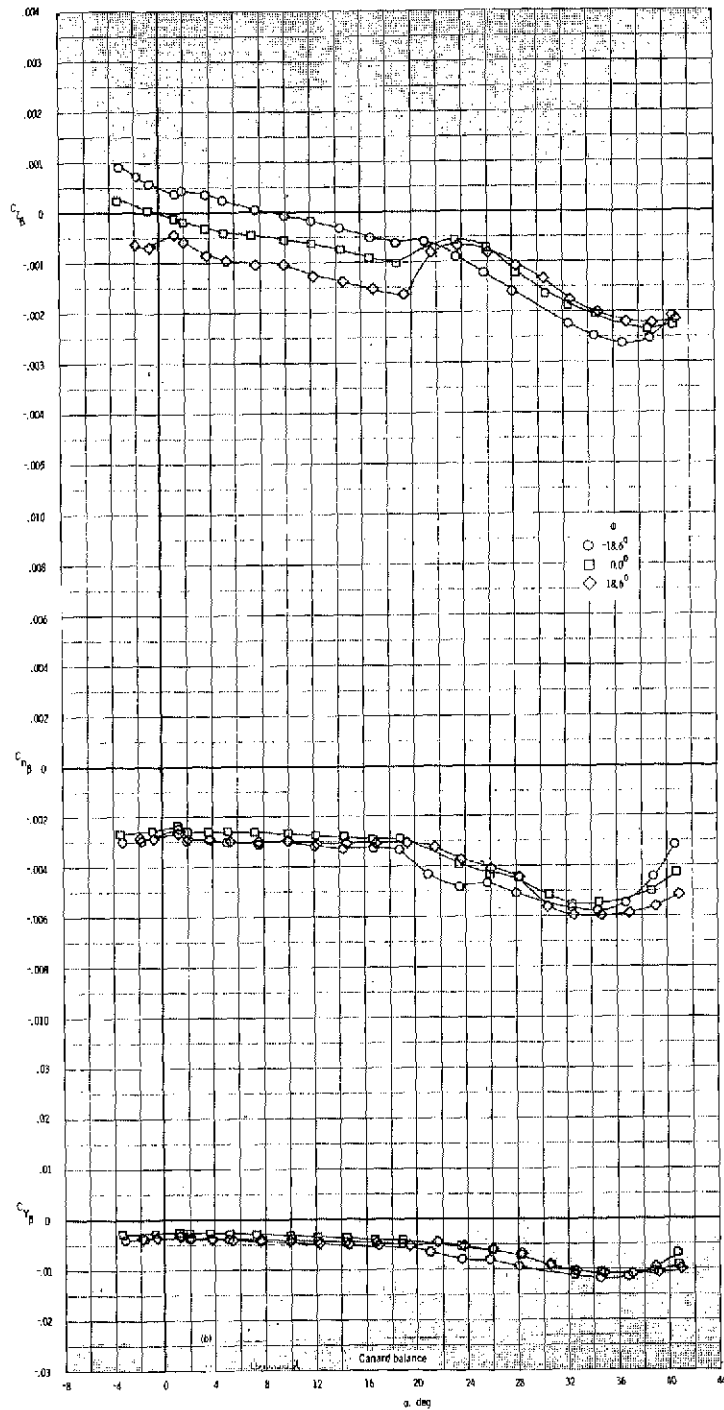


Figure 22.- Concluded.

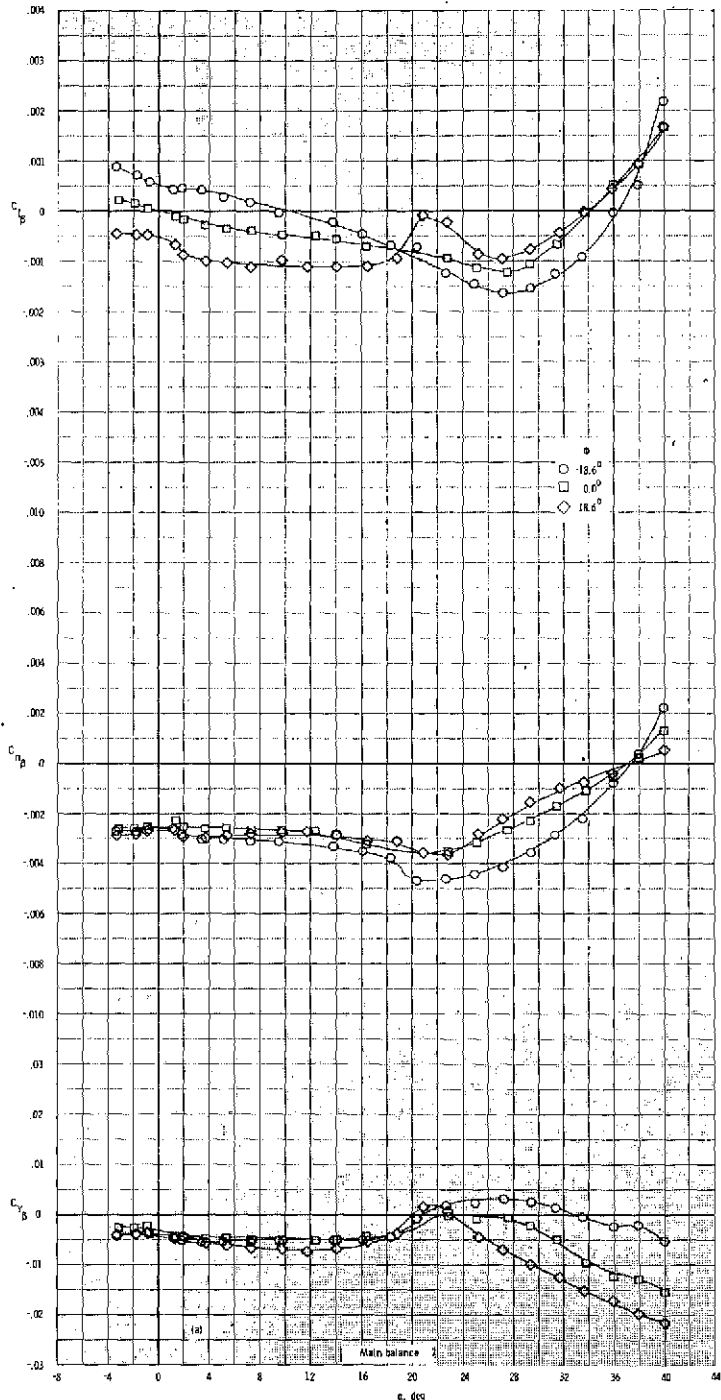


Figure 23.- Effect of canard dihedral on lateral-stability derivatives for models with $z/\bar{c} = 0.0$, $l/\bar{c} = 1.345$, and wing off.

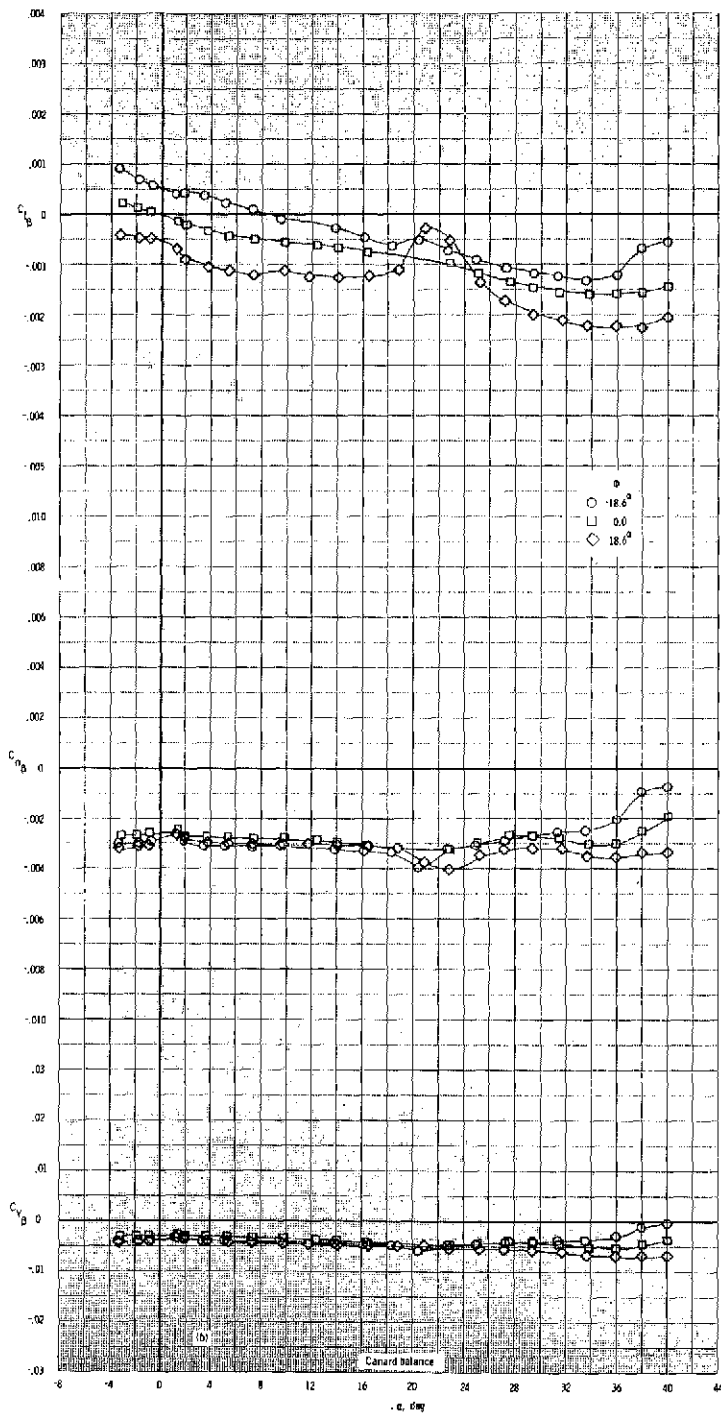


Figure 23.- Concluded.