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TECHNICAL NOTE

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INVESTIGATION AT TRANSONIC SPEEDS TO DETERMINE LATERAL CONTROL EFFECTIVENESS OF BLOWING LATERALLY OVER SURFACES OF 30° AND 45° SWEPT WINGS

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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TECHNICAL NOTE D-42

INVESTIGATION AT TRANSONIC SPEEDS TO DETERMINE LATERAL CONTROL EFFECTIVENESS OF BLOWING LATERALLY OVER SURFACES OF 30° AND 45° SWEPT WINGS

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By Alexander D. Hammond and Linwood W. McKinney

SUMMARY

A wind-tunnel investigation has been made in the Langley high-speed 7- by 10-foot tunnel through a Mach number range from 0.60 to 1.10 to determine the lateral control effectiveness of a jet of high-pressure air directed laterally over a wing surface. Two wing models were tested - one with a quarter-chord sweep angle of 30° and the other, 45°. Each wing had an aspect ratio of 4, a taper ratio of 0, and an NACA 65A004 airfoil section parallel to the plane of symmetry. Each model was equipped with a nozzle located near the trailing edge of the root chord in such a manner that a jet of high-pressure air could be directed over the wing surface at various angles relative to a line normal to the wing root chord. Tests were made at 0° angle of attack for a range of jet sweep angles and through an angle-of-attack range from -16° to 16° and -20° to 20° for the 30° and 45° swept wings, respectively, at the maximum jet sweep angle of the tests.

The results of the investigation are presented in tabular form with a limited discussion confined to the effects of the jet of high-pressure air on the rolling-moment characteristics. The results of the investigation show that the rolling-moment effectiveness increases when the jet of air is swept forward over the wing surface to the maximum angle of the investigation. The results also indicate that, for the Mach number range up to approximately 0.95, lateral blowing over the lower surface of the wing results in less loss in rolling effectiveness with increase in angle of attack above approximately 4° than does lateral blowing over the upper surface. However, in the Mach number range above 0.95, blowing over the upper surface of the wing gives a slightly more desirable variation of rolling-moment coefficient with angle of attack. For 0° angle of attack the rolling effectiveness resulting from lateral blowing is substantially greater than the effectiveness of a jet reaction control located at the wing tip for the Mach number range of the tests. However the rolling effectiveness resulting from blowing laterally over the wing is less than that obtained from jet spoilers.

INTRODUCTION

In the search for lateral control devices suitable for use on thin-wing configurations at high speed, considerable interest is being manifested in spoiler-type controls of various kinds. In the past, numerous investigations, such as references 1 to 8, have been made of plain spoilers, spoiler slot deflectors, and jet spoilers. For the jet spoilers of references 5 to 8 compressed air was exhausted normal to the wing surface from a slot or a series of holes over a portion of the wing span. In addition to the jet reaction effect, the jet spoiler has been shown to produce a change in circulation lift in a manner similar to that produced by the plain spoiler.

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In order to reduce somewhat the complexity of the duct system necessary to eject the high-pressure air normal to the wing surface to produce the jet spoiler reaction, it seems desirable to consider other methods of employing high-pressure air to produce control. One of the methods that has been suggested (ref. 9) was to eject a jet of air laterally or spanwise over the wing surface.

The present paper presents the results of an investigation made in the Langley high-speed 7- by 10-foot tunnel at transonic speeds to determine the effectiveness of blowing a jet of compressed air laterally over the surface of a wing parallel to the XY-plane at various sweep angles relative to the Y-axis as a method of obtaining lateral control. This investigation was made on two wing models having quarter-chord-line sweep angles of 30° and 45°; each wing had an aspect ratio of 4, a taper ratio of 0, and an NACA 65A004 airfoil section. Both models were tested at 0° angle of attack for a range of jet sweep angles and through an angle-of-attack range with the jet swept forward of the reference axis at Mach numbers from 0.60 to 1.10.

COEFFICIENTS AND SYMBOLS

The data are presented about the model wind axes with the origin on the wing root-chord line at a longitudinal position corresponding to the quarter chord of the mean aerodynamic chord.

C_D drag coefficient, $\dfrac{\text{Twice semispan drag}}{qS}$

C_L lift coefficient, $\dfrac{\text{Twice semispan lift}}{qS}$

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C_l rolling-moment coefficient, $\frac{\text{Semispan rolling moment}}{qSb}$

$C_{l,r}$ rolling-moment coefficient of a jet reaction control, $\frac{\left(C_\mu qS\right)\frac{b}{2}}{qSb} = \frac{1}{2} C_\mu$

C_m pitching-moment coefficient about $0.25\bar{c}$, $\frac{\text{Twice semispan pitching moment}}{qS\bar{c}}$

C_n yawing-moment coefficient, $\frac{\text{Semispan yawing moment}}{qSb}$

C_T thrust coefficient, $\frac{\text{Thrust}}{qS}$

C_μ momentum coefficient, $\frac{\text{Thrust}}{KqS}$

b twice span of semispan wing, ft

c wing chord, ft

$\bar{c}$ wing mean aerodynamic chord, $\frac{2}{S}\int_0^{b/2} c^2 dy$, ft

K experimentally determined nozzle efficiency factor, $\frac{\text{Measured thrust}}{\text{Theoretical thrust}}$, 0.94 for $\frac{3}{16}$-inch-diameter nozzle of this investigation

K_l ratio of rolling moment produced by lateral blowing to rolling moment computed for a jet reaction control at the wing tip

M free-stream Mach number

M_l local Mach number

q free-stream dynamic pressure, $\frac{1}{2}\rho V^2$, lb/sq ft

S twice area of semispan wing, sq ft

V	free-stream velocity, ft/sec
α	angle of attack, deg
$\Lambda_{c/4}$	wing sweep, measured at quarter-chord line, deg
Λ_j	sweep of jet, measured from a line normal to wing root chord at center of nozzle (angles forward of this line were designated as negative angles), deg
ρ	free-stream density, slugs/cu ft

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MODELS

The models used for this investigation consisted of two small-scale wings machined from solid steel to NACA 65A004 airfoil sections with 30° and 45° sweep of the quarter-chord lines. The models were aspect-ratio-4 semispan wings having no twist or camber and a taper ratio of 0. The geometric characteristics of the models are given in figure 1. The wing models were equipped with a 3/16-inch-diameter nozzle located at approximately the 97.5-percent-root-chord station in such a manner that the angle of a jet of high-pressure air could be varied over one surface of the wing. The sweep angles for the jet were measured relative to a line normal to the root chord of the wing. Angles forward of this line were designated as negative angles. The range of jet sweep angles was from -9.8° (parallel to the wing trailing edge) to -43.9° for the 30° swept wing and from 12.3° (parallel to the wing trailing edge) to -26.5° for the 45° swept wing.

CORRECTIONS

The data have not been corrected for jet boundary or blockage effects since the models were sufficiently small with respect to the tunnel boundaries to make these corrections negligible. The lift loading resulting from lateral blowing over the semispan models is similar to the loading that would result from symmetrically deflected controls on a complete model. The reflection-plane corrections for the data of this report cannot be evaluated since the variation of the effective span of the lateral blowing control with wing angle of attack and with the pressure ratio across the nozzle exit is unknown. The rolling- and yawing-moment coefficients for the control are therefore presented as obtained and are uncorrected for reflection-plane effects.

TESTS

The tests were made by using the transonic-bump technique in the Langley high-speed 7- by 10-foot tunnel. The aerodynamic forces and moments were obtained by use of a five-component electrical strain-gage balance attached beneath the bump surface. Tests were made over a Mach number range from 0.60 to 1.10 at corresponding Reynolds numbers from approximately 1.07×10^6 to 1.25×10^6. Typical variations of the local Mach number over the bump surface in the vicinity of the 30° swept-wing-model location for several Mach numbers are shown in figure 2. The tests were made with the models as left wings with lateral blowing over the upper surface of the wing through a positive and negative angle-of-attack range from -16° to 16° and -20° to 20° for the 30° and 45° swept wings, respectively. Since the models had symmetrical airfoil sections, these tests gave results that, with proper consideration of signs, are equivalent to the results that would have been obtained by blowing laterally over both the upper and lower wing surfaces through a positive angle-of-attack range.

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Each test was made at a given angle of attack and Mach number for a series of plenum-chamber pressures from zero to approximately 120 pounds per square inch. The pressure range corresponds to a range of thrust coefficients from 0 to approximately 0.04 computed from the relationship of the static-thrust calibration to the plenum-chamber pressure. Tests were made at 0° angle of attack through the Mach number range for all jet sweep angles and through the angle-of-attack range at each Mach number for the maximum forward jet sweep angle for both models.

RESULTS AND DISCUSSION

The results of the investigation are presented in coefficient form in tables I and II. In addition to these tables a graphical presentation of the variations with several of the test parameters of the partial derivatives of the aerodynamic forces and moments with respect to the momentum coefficient C_μ are presented in figures 3 to 6. In order to facilitate presentation of the data, staggered scales have been used in these figures and care should be taken in identifying the zero axis for each curve.

The force and moment coefficients presented in tables I and II were plotted against C_μ at a constant angle of attack and Mach number and were found to have a linear variation with C_μ; therefore, only the variations of the partial derivatives of the force and moment coefficients obtained from these plots are presented. The discussion of these results

is limited to only the effects of the various parameters investigated on the rolling-moment effectiveness.

Figures 3 and 4 show the effects of Mach number on the variation with sweep of the jet of the partial derivatives of the force and moment coefficients with respect to C_μ for the 30° and 45° swept-wing models, respectively, at 0° angle of attack. These data show that the rolling effectiveness increases when the jet is swept forward and that the optimum rolling moment occurs, throughout the Mach number range, near the highest negative jet sweep of the tests (-43.9° and -26.5° for the 30° and 45° swept wings, respectively). Apparently this occurs because more of the flow over the wing is disturbed as the jet is swept forward.

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The effects of Mach number on the variation with angle of attack of the partial derivatives of the force and moment coefficients with respect to C_μ are presented in figures 5 and 6 for the maximum negative jet sweep angles of the 30° and 45° swept wings, respectively. The trends of these data indicate that for all Mach numbers of the investigation the maximum rolling effectiveness occurs at an angle of attack of approximately 4° for blowing laterally over the upper surface of both models. In the Mach number range up to approximately 0.95, as the angle of attack is increased above 4°, there is an abrupt loss in control effectiveness for both models; however, as the angle of attack is increased in the negative direction, there is a much more gradual decrease in effectiveness. Inasmuch as the models are symmetrical, the data presented at negative angles of attack for blowing over the upper surface are equivalent to the data that would be obtained at positive angles of attack for blowing over the lower surface. Therefore, in the Mach number range up to approximately 0.95, blowing laterally over the lower surface results in less loss of rolling effectiveness with angle of attack above approximately 4° than does blowing over the upper surface. However, in the Mach number range above approximately 0.95, there is no longer an abrupt loss in effectiveness when the angle of attack is increased above 4°, and blowing laterally over the upper wing surface generally results in slightly more favorable rolling-moment characteristics for both wings.

In order to evaluate the rolling-moment effectiveness resulting from blowing laterally over the wing, it can be compared with the rolling effectiveness of a pure jet reaction control located at the wing tips. The rolling-moment coefficient of the jet reaction control $C_{l,r}$ for an angle of attack of 0° can be computed from the following equation:

$$C_{l,r} = \frac{\left(C_\mu qS\right)\frac{b}{2}}{qSb} = \frac{1}{2} C_\mu$$

The ratio of the effectiveness of the lateral blowing to the effectiveness of the jet reaction control K_l can be derived as follows:

$$K_l = \frac{C_l}{C_{l,r}} = \frac{\frac{\partial C_l}{\partial C_\mu} C_\mu}{\frac{1}{2} C_\mu} = 2 \frac{\partial C_l}{\partial C_\mu}$$

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The variation of K_l with Mach number for the maximum forward jet sweep angles of the two models is shown in figure 7 at an angle of attack of 0°. The data show that in the Mach number range from 0.60 to 0.95 the effectiveness of lateral blowing is increasingly greater than that of the reaction jet for both models. At a Mach number of 0.95 the lateral blowing is approximately $1\frac{1}{2}$ times as effective as the reaction control located at the wing tip. As the Mach number increases above 0.95, however, the lateral blowing effectiveness decreases but remains substantially greater than the reaction control throughout the Mach number range of the tests.

No data are available to determine the effectiveness of a jet spoiler on the models of this investigation. However, the data for jet spoilers on other wings show them to have magnification factors K_l of from approximately 2 for a partial-span jet spoiler on the swept wing of reference 8 to as much as 4 to 5 indicated from unpublished results for a full-span jet spoiler on an unswept wing.

CONCLUSIONS

A wind-tunnel investigation has been made to determine the lateral control effectiveness of blowing laterally over the surface of two swept wings at Mach numbers from 0.60 to 1.10. The wings were equipped with a nozzle located near the trailing edge of the root chord so that a jet of high-pressure air could be directed across the wing toward the wing tips at various sweep angles. The results of this investigation led to the following conclusions:

1. The rolling moment resulting from blowing laterally over the wing is increased when the jet of high-pressure air is swept forward over the wing surface up to the maximum angle of the tests. Apparently this occurs because more of the flow over the wing is disturbed as the jet is swept forward.

2. In the Mach number range up to approximately 0.95 lateral blowing over the lower surface of the wing results in less loss in rolling effectiveness with increase in angle of attack above approximately 4° than does blowing over the upper wing surface. However, in the Mach number range above 0.95 a slightly more desirable variation of rolling-moment coefficient with angle of attack is obtained by blowing over the upper surface of the models.

3. The rolling effectiveness resulting from blowing high-pressure air laterally over the wing surface is substantially greater than the effectiveness of a jet reaction control at the wing tips at zero angle of attack for the Mach number range of the tests. However, the rolling effectiveness resulting from blowing laterally over the wing is less than that obtained from jet spoilers.

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Langley Research Center,
National Aeronautics and Space Administration,
Langley Field, Va., June 9, 1959.

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TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0

(a) $\alpha = 0$; $\Delta_j = -9.8^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0119	.0156	.0020	.0028	.0026	.0000
.0057	-.0147	.0201	.0106	.0013	.0015	.0045
.0125	-.0358	.0265	.0148	-.0002	.0002	.0125
.0204	-.0606	.0320	.0160	-.0008	-.0010	.0193
.0272	-.0781	.0375	.0190	-.0024	-.0021	.0249
.0340	-.0983	.0421	.0197	-.0036	-.0035	.0317
.0385	-.1130	.0457	.0204	-.0045	-.0046	.0362
M = 0.80						
.0000	.0236	.0204	.0000	.0028	.0026	.0000
.0038	-.0168	.0235	.0083	.0007	.0017	.0038
.0094	-.0354	.0278	.0158	-.0003	.0007	.0085
.0132	-.0571	.0309	.0203	-.0014	-.0003	.0132
.0179	-.0819	.0340	.0233	-.0027	-.0012	.0170
.0226	-.0968	.0371	.0264	-.0036	-.0022	.0217
.0274	-.1111	.0402	.0291	-.0045	-.0030	.0255
M = 0.85						
.0000	.0279	.0203	.0008	.0033	.0027	.0000
.0009	.0052	.0209	.0039	.0020	.0022	.0009
.0045	-.0157	.0243	.0117	.0009	.0016	.0036
.0080	-.0390	.0284	.0171	-.0002	.0007	.0080
.0125	-.0564	.0313	.0234	-.0009	-.0007	.0125
.0169	-.0797	.0348	.0257	-.0026	-.0010	.0160
.0124	-.0942	.0376	.0296	-.0035	-.0020	.0205
.0258	-.1117	.0405	.0323	-.0046	-.0028	.0241
M = 0.90						
.0000	.0264	.0214	-.0022	.0034	.0028	.0000
.0008	.0193	.0219	.0037	.0031	.0026	.0008
.0042	-.0149	.0247	.0103	.0012	.0019	.0042
.0084	-.0341	.0285	.0184	-.0000	.0011	.0076
.0126	-.0589	.0324	.0236	-.0020	.0001	.0118
.0168	-.0798	.0351	.0236	-.0028	-.0008	.0151
.0210	-.0991	.0378	.0334	-.0041	-.0018	.0193
.0244	-.1112	.0389	.0369	-.0048	-.0026	.0227

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0223	.0207	.0021	.0016	.0039	.0000
.0008	.0119	.0207	.0049	.0015	.0037	.0008
.0040	-.0140	.0233	.0174	.0004	.0029	.0040
.0080	-.0374	.0258	.0271	-.0016	.0020	.0072
.0120	-.0633	.0284	.0348	-.0032	.0012	.0112
.0152	-.0815	.0310	.0396	-.0039	.0003	.0144
.0192	-.1023	.0351	.0431	-.0059	-.0006	.0184
.0232	-.1126	.0372	.0480	-.0064	-.0014	.0224
M = 1.00						
.0000	.0114	.0237	.0040	.0014	.0036	.0000
.0008	.0065	.0272	.0086	.0014	.0034	.0008
.0038	-.0084	.0297	.0153	.0010	.0029	.0038
.0075	-.0233	.0321	.0219	.0008	.0021	.0068
.0113	-.0432	.0346	.0299	-.0003	.0014	.0106
.0151	-.0606	.0361	.0366	-.0016	.0005	.0143
.0189	-.0804	.0371	.0452	-.0018	-.0004	.0174
.0226	-.0953	.0410	.0492	-.0033	-.0011	.0211
M = 1.05						
.0000	.0062	.0309	.0051	.0010	.0036	.0000
.0007	-.0033	.0309	.0090	.0010	.0036	.0007
.0036	-.0105	.0337	.0141	.0009	.0030	.0036
.0071	-.0224	.0356	.0192	.0006	.0022	.0071
.0107	-.0320	.0371	.0249	.0007	.0014	.0100
.0150	-.0439	.0390	.0301	.0001	.0005	.0135
.0178	-.0582	.0404	.0345	-.0008	-.0003	.0171
.0214	-.0797	.0428	.0403	-.0011	-.0011	.0207
M = 1.10						
.0000	.0106	.0229	.0074	.0017	.0030	.0000
.0007	.0014	.0275	.0093	.0017	.0026	.0007
.0034	-.0055	.0284	.0142	.0017	.0020	.0034
.0067	-.0147	.0312	.0179	.0017	.0013	.0067
.0108	-.0331	.0321	.0222	.0005	.0004	.0101
.0141	-.0378	.0335	.0278	.0009	-.0003	.0135
.0175	-.0562	.0344	.0317	-.0015	-.0012	.0161
.0212	-.0654	.0358	.0364	-.0007	-.0023	.0199

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(b) $\alpha = 0$; $\Lambda_j = -14.2^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0292	.0100	.0000	.0035	.0033	.0000
.0000	.0109	.0127	.0037	.0023	.0029	.0000
.0057	-.0146	.0163	.0066	.0010	.0019	.0057
.0125	-.0374	.0227	.0110	-.0006	.0008	.0114
.0194	-.0648	.0309	.0147	-.0024	-.0004	.0183
.0262	-.0894	.0381	.0183	-.0040	-.0015	.0251
.0331	-.1122	.0436	.0200	-.0053	-.0029	.0308
.0399	-.1286	.0490	.0237	-.0066	-.0041	.0376
M = 0.80						
.0000	.0412	.0153	.0003	.0043	.0033	.0000
.0010	.0135	.0159	.0033	.0029	.0026	.0010
.0038	-.0142	.0184	.0099	.0013	.0020	.0038
.0086	-.0419	.0233	.0168	-.0003	.0010	.0086
.0133	-.0665	.0276	.0223	-.0015	.0001	.0124
.0181	-.0880	.0325	.0259	-.0029	-.0008	.0171
.0228	-.1065	.0355	.0297	-.0043	-.0019	.0219
.0276	-.1280	.0398	.0330	-.0058	-.0026	.0257
M = 0.90						
.0000	.0448	.0185	-.0015	.0051	.0035	.0000
.0008	.0202	.0190	.0022	.0037	.0030	.0008
.0042	-.0098	.0212	.0102	.0022	.0023	.0034
.0076	-.0399	.0245	.0205	.0007	.0015	.0076
.0119	-.0617	.0299	.0278	-.0016	.0005	.0119
.0161	-.0863	.0326	.0329	-.0026	-.0004	.0152
.0203	-.1081	.0359	.0366	-.0044	-.0012	.0195
.0246	-.1245	.0397	.0402	-.0055	-.0021	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0374	.0196	-.0063	.0056	.0031	.0000
.0008	.0296	.0207	.0000	.0051	.0030	.0008
.0040	-.0042	.0222	.0104	.0031	.0024	.0032
.0080	-.0379	.0258	.0230	.0002	.0017	.0072
.0112	-.0587	.0284	.0313	-.0013	.0012	.0112
.0152	-.0820	.0336	.0376	-.0032	-.0001	.0144
.0192	-.1054	.0372	.0417	-.0047	-.0009	.0184
.0232	-.1235	.0388	.0452	-.0060	-.0018	.0224
M = 1.00						
.0000	.0134	.0247	-.0020	.0028	.0029	.0000
.0008	.0035	.0272	.0013	.0036	.0027	.0008
.0038	-.0065	.0321	.0100	.0034	.0023	.0038
.0075	-.0288	.0312	.0180	.0031	.0013	.0068
.0113	-.0437	.0336	.0273	.0015	.0007	.0106
.0151	-.0536	.0381	.0333	.0015	-.0002	.0143
.0189	-.0785	.0396	.0413	-.0003	-.0011	.0173
.0226	-.1008	.0420	.0459	-.0013	-.0017	.0211
M = 1.10						
.0000	.0055	.0275	.0025	.0024	.0030	.0000
.0007	.0032	.0289	.0049	.0029	.0026	.0007
.0034	-.0129	.0298	.0105	.0026	.0019	.0034
.0067	-.0267	.0321	.0163	.0012	.0016	.0067
.0108	-.0336	.0335	.0228	.0016	.0002	.0101
.0141	-.0567	.0358	.0284	.0010	-.0006	.0134
.0175	-.0705	.0381	.0340	.0005	-.0016	.0161
.0208	-.0797	.0390	.0395	-.0000	-.0023	.0195

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(c) $\alpha = 0$; $\Lambda_j = -26.4^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0182	.0154	.0002	.0028	.0029	.0000
.0000	.0073	.0172	.0034	.0024	.0026	.0000
.0057	-.0200	.0181	.0071	.0001	.0015	.0057
.0126	-.0565	.0227	.0156	-.0026	.0008	.0114
.0194	-.1002	.0281	.0205	-.0048	-.0005	.0183
.0263	-.1321	.0317	.0254	-.0070	-.0017	.0251
.0331	-.1612	.0390	.0303	-.0090	-.0028	.0308
.0400	-.1867	.0454	.0327	-.0110	-.0044	.0377
M = 0.80						
.0000	.0234	.0306	.0007	.0037	.0033	.0000
.0010	.0080	.0306	.0031	.0032	.0028	.0010
.0038	-.0228	.0337	.0106	.0011	.0020	.0038
.0086	-.0597	.0386	.0180	-.0011	.0011	.0086
.0133	-.0905	.0429	.0266	-.0033	.0002	.0124
.0181	-.1243	.0503	.0320	-.0055	-.0005	.0171
.0228	-.1428	.0552	.0381	-.0073	-.0011	.0219
.0276	-.1736	.0594	.0435	-.0098	-.0020	.0257
M = 0.90						
.0000	.0426	.0315	-.0031	.0054	.0032	.0000
.0008	.0208	.0321	.0009	.0036	.0030	.0008
.0042	-.0175	.0353	.0101	.0019	.0024	.0034
.0085	-.0502	.0408	.0218	-.0007	.0015	.0076
.0119	-.0775	.0440	.0291	-.0026	.0007	.0119
.0161	-.1092	.0484	.0342	-.0049	.0000	.0152
.0203	-.1321	.0522	.0401	-.0067	-.0013	.0195
.0246	-.1594	.0571	.0445	-.0084	-.0016	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0275	.0310	-.0078	.0047	.0032	.0000
.0008	.0260	.0326	-.0001	.0047	.0032	.0008
.0040	-.0166	.0336	.0110	.0020	.0026	.0032
.0080	-.0581	.0388	.0298	-.0012	.0018	.0072
.0120	-.0893	.0439	.0374	-.0037	.0009	.0112
.0160	-.1204	.0481	.0458	-.0062	.0000	.0144
.0200	-.1438	.0517	.0527	-.0082	-.0007	.0184
.0232	-.1697	.0543	.0548	-.0107	-.0015	.0224
M = 1.00						
.0000	.0139	.0371	-.0021	.0032	.0032	.0000
.0008	.0065	.0395	.0005	.0032	.0030	.0008
.0038	-.0134	.0420	.0098	.0030	.0028	.0038
.0075	-.0407	.0470	.0225	.0023	.0019	.0068
.0113	-.0655	.0504	.0345	-.0002	.0012	.0106
.0151	-.0829	.0539	.0418	-.0017	.0005	.0143
.0189	-.1151	.0558	.0504	-.0040	-.0003	.0174
.0226	-.1375	.0534	.0577	-.0062	-.0013	.0211
M = 1.10						
.0000	.0037	.0390	-.0001	.0028	.0029	.0000
.0007	.0014	.0380	.0023	.0026	.0029	.0007
.0034	-.0055	.0413	.0079	.0026	.0027	.0034
.0067	-.0239	.0426	.0165	.0026	.0015	.0067
.0108	-.0447	.0436	.0227	.0010	.0008	.0101
.0141	-.0608	.0458	.0295	.0008	-.0004	.0135
.0175	-.0677	.0472	.0357	-.0006	-.0008	.0161
.0209	-.0930	.0481	.0378	-.0022	-.0021	.0195

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(d) $\alpha = 0$; $\Lambda_j = -34.5^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0493	.0136	-.0017	.0059	.0000	.0000
.0000	.0311	.0136	.0020	.0055	-.0003	.0000
.0057	-.0100	.0191	.0130	.0027	-.0006	.0057
.0125	-.0694	.0309	.0215	-.0014	-.0017	.0114
.0194	-.1105	.0409	.0281	-.0047	-.0026	.0182
.0262	-.1562	.0518	.0326	-.0085	-.0038	.0251
.0330	-.1973	.0637	.0350	-.0118	-.0048	.0319
.0399	-.2292	.0746	.0374	-.0145	-.0062	.0376
M = 0.80						
.0000	.0549	.0135	-.0036	.0064	.0003	.0000
.0009	.0487	.0147	.0000	.0066	.0003	.0009
.0038	-.0006	.0166	.0088	.0037	-.0003	.0038
.0085	-.0469	.0246	.0228	.0006	-.0008	.0085
.0133	-.0900	.0338	.0319	-.0025	-.0015	.0123
.0180	-.1289	.0399	.0377	-.0055	-.0023	.0171
.0228	-.1548	.0473	.0418	-.0077	-.0029	.0218
.0275	-.1887	.0553	.0459	-.0105	-.0038	.0256
M = 0.90						
.0000	.0788	.0153	-.0069	.0089	.0006	.0000
.0008	.0651	.0158	-.0032	.0082	.0005	.0008
.0042	.0104	.0180	.0078	.0049	-.0001	.0034
.0085	-.0416	.0240	.0239	.0012	-.0007	.0076
.0118	-.0854	.0305	.0356	-.0021	-.0014	.0118
.0161	-.1154	.0376	.0437	-.0045	-.0020	.0152
.0203	-.1483	.0436	.0496	-.0068	-.0027	.0194
.0245	-.1729	.0501	.0540	-.0087	-.0034	.0228

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0697	.0155	-.0135	.0080	.0006	.0000
.0008	.0619	.0155	-.0093	.0079	.0006	.0008
.0040	.0177	.0171	.0067	.0058	.0001	.0032
.0080	-.0317	.0233	.0283	.0020	-.0005	.0072
.0120	-.0785	.0300	.0408	-.0018	-.0010	.0112
.0160	-.1097	.0373	.0520	-.0047	-.0017	.0144
.0200	-.1383	.0430	.0555	-.0064	-.0023	.0184
.0231	-.1669	.0482	.0624	-.0087	-.0030	.0216
M = 1.00						
.0000	.0443	.0213	-.0089	.0062	.0002	.0000
.0008	.0443	.0213	-.0049	.0066	.0001	.0008
.0038	.0244	.0223	.0057	.0053	-.0003	.0038
.0075	-.0179	.0272	.0184	.0040	-.0009	.0068
.0113	-.0403	.0322	.0304	.0019	-.0014	.0105
.0151	-.0900	.0372	.0457	-.0015	-.0019	.0143
.0188	-.1174	.0421	.0537	-.0034	-.0024	.0173
.0226	-.1572	.0485	.0675	-.0079	-.0026	.0211
M = 1.10						
.0000	.0365	.0230	-.0042	.0045	.0006	.0000
.0007	.0319	.0221	-.0017	.0049	.0006	.0007
.0034	.0180	.0248	.0057	.0044	.0002	.0034
.0074	-.0028	.0285	.0156	.0038	-.0006	.0067
.0107	-.0259	.0322	.0235	.0022	-.0011	.0101
.0141	-.0536	.0377	.0329	.0006	-.0013	.0134
.0174	-.0744	.0428	.0428	-.0012	-.0017	.0168
.0208	-.0975	.0455	.0503	-.0030	-.0025	.0201

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(e) $\alpha = 0$; $\Lambda_j = -43.9^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0613	.0128	-.0049	.0052	.0008	.0000
.0011	.0522	.0128	-.0020	.0044	.0006	.0000
.0057	-.0092	.0219	.0086	.0011	.0003	.0057
.0125	-.0695	.0355	.0147	-.0034	-.0005	.0114
.0193	-.1080	.0483	.0189	-.0070	-.0013	.0182
.0262	-.1492	.0592	.0201	-.0101	-.0023	.0250
.0330	-.1858	.0720	.0201	-.0132	-.0033	.0318
.0409	-.2132	.0857	.0177	-.0156	-.0043	.0375
M = 0.80						
.0000	.0723	.0129	-.0083	.0067	.0009	.0000
.0009	.0631	.0129	-.0041	.0061	.0009	.0009
.0038	.0012	.0166	.0066	.0024	.0003	.0038
.0085	-.0451	.0271	.0177	-.0010	-.0001	.0085
.0133	-.0915	.0339	.0249	-.0042	-.0008	.0123
.0180	-.1255	.0437	.0293	-.0068	-.0014	.0170
.0227	-.1595	.0517	.0323	-.0095	-.0022	.0218
.0275	-.1935	.0597	.0356	-.0124	-.0028	.0256
M = 0.90						
.0000	.0807	.0142	-.0103	.0080	.0010	.0000
.0008	.0697	.0142	-.0066	.0073	.0011	.0008
.0042	.0066	.0164	.0059	.0033	.0003	.0034
.0084	-.0346	.0240	.0191	.0003	-.0002	.0076
.0126	-.0785	.0317	.0290	-.0030	-.0007	.0118
.0160	-.1251	.0404	.0356	-.0068	-.0012	.0152
.0202	-.1526	.0481	.0390	-.0090	-.0017	.0194
.0244	-.1800	.0568	.0419	-.0112	-.0022	.0236

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0819	.0156	-.0175	.0079	.0011	.0000
.0008	.0689	.0171	-.0133	.0074	.0012	.0008
.0040	.0141	.0177	.0063	.0036	.0006	.0040
.0080	-.0355	.0229	.0210	-.0000	-.0002	.0072
.0119	-.0720	.0332	.0336	-.0038	-.0004	.0111
.0159	-.1137	.0410	.0412	-.0064	-.0008	.0151
.0199	-.1476	.0488	.0447	-.0091	-.0011	.0183
.0239	-.1763	.0592	.0489	-.0118	-.0014	.0223
M = 1.00						
.0000	.0509	.0219	-.0114	.0050	.0007	.0000
.0008	.0409	.0219	-.0067	.0054	.0007	.0008
.0038	.0259	.0283	.0040	.0045	.0007	.0038
.0075	-.0090	.0318	.0201	.0028	.0005	.0068
.0113	-.0439	.0407	.0274	.0005	.0000	.0105
.0150	-.0738	.0467	.0388	-.0023	-.0004	.0143
.0188	-.1162	.0527	.0444	-.0062	-.0009	.0180
.0225	-.1486	.0601	.0475	-.0087	-.0013	.0210
M = 1.10						
.0000	.0380	.0240	-.0087	.0040	.0011	.0000
.0007	.0356	.0226	-.0062	.0044	.0007	.0007
.0033	.0194	.0249	.0015	.0042	.0002	.0033
.0074	-.0083	.0286	.0112	.0030	-.0002	.0067
.0107	-.0338	.0341	.0211	.0016	-.0004	.0100
.0140	-.0592	.0387	.0298	-.0002	-.0008	.0134
.0174	-.0847	.0433	.0366	-.0021	-.0014	.0167
.0214	-.1125	.0479	.0440	-.0041	-.0019	.0201

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(f) $\alpha = 4$; $\Lambda_j = -43.9^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.3465	.0421	-.0190	.0296	.0003	.0000
.0000	.3327	.0421	-.0153	.0296	.0002	.0000
.0057	.2776	.0458	-.0042	.0256	-.0002	.0057
.0125	.2178	.0513	.0007	.0218	-.0007	.0125
.0192	.1627	.0604	.0020	.0170	-.0014	.0181
.0272	.1140	.0659	.0007	.0134	-.0024	.0249
.0340	.0800	.0787	.0000	.0110	-.0033	.0317
.0408	.0432	.0842	-.0042	.0078	-.0042	.0385
M = 0.80						
.0000	.3712	.0433	-.0220	.0328	-.0005	.0000
.0009	.3625	.0433	-.0195	.0322	-.0006	.0009
.0047	.3190	.0457	-.0086	.0296	-.0006	.0038
.0094	.2712	.0507	-.0003	.0260	-.0007	.0085
.0132	.2278	.0556	.0042	.0228	-.0010	.0132
.0179	.1812	.0593	.0063	.0196	-.0015	.0170
.0226	.1409	.0643	.0072	.0164	-.0020	.0217
.0273	.1005	.0680	.0080	.0136	-.0026	.0264
M = 0.90						
.0000	.4263	.0494	-.0365	.0390	-.0007	.0000
.0008	.4153	.0494	-.0335	.0384	-.0007	.0008
.0042	.3713	.0505	-.0195	.0356	-.0008	.0042
.0084	.3162	.0538	-.0069	.0310	-.0009	.0076
.0126	.2666	.0570	.0012	.0276	-.0011	.0118
.0168	.2115	.0603	.0034	.0230	-.0013	.0160
.0210	.1675	.0603	.0071	.0196	-.0018	.0193
.0252	.1399	.0658	.0100	.0172	-.0023	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.4524	.0553	-.0648	.0433	-.0011	.0000
.0008	.4367	.0573	-.0620	.0424	-.0011	.0008
.0040	.3948	.0553	-.0417	.0393	-.0011	.0040
.0079	.3477	.0573	-.0319	.0357	-.0012	.0071
.0119	.2953	.0573	-.0150	.0317	-.0014	.0111
.0159	.2482	.0615	-.0066	.0272	-.0015	.0151
.0198	.2011	.0636	-.0010	.0231	-.0017	.0182
.0238	.1665	.0678	.0053	.0204	-.0022	.0222
M = 1.00						
.0000	.4075	.0588	-.0730	.0393	-.0009	.0000
.0007	.4125	.0598	-.0676	.0401	-.0011	.0007
.0037	.3875	.0628	-.0582	.0388	-.0011	.0037
.0075	.3525	.0648	-.0443	.0367	-.0014	.0067
.0112	.3224	.0648	-.0368	.0350	-.0017	.0105
.0150	.2924	.0698	-.0301	.0320	-.0018	.0142
.0187	.2573	.0728	-.0233	.0294	-.0020	.0180
.0224	.2273	.0748	-.0166	.0264	-.0023	.0217
M = 1.10						
.0000	.3781	.0537	-.0665	.0363	-.0007	.0000
.0007	.3642	.0537	-.0640	.0355	-.0008	.0007
.0033	.3596	.0583	-.0565	.0355	-.0011	.0033
.0073	.3363	.0601	-.0491	.0339	-.0012	.0067
.0107	.3038	.0629	-.0416	.0323	-.0013	.0100
.0140	.2806	.0675	-.0349	.0307	-.0014	.0133
.0180	.2620	.0694	-.0291	.0275	-.0021	.0167
.0213	.2341	.0712	-.0242	.0267	-.0023	.0200

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(g) $\alpha = 8$; $\Lambda_j = -43.9^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.5841	.1055	-.0222	.0464	-.0061	.0000
.0000	.5657	.1055	-.0185	.0458	-.0061	.0000
.0056	.5233	.1083	-.0111	.0434	-.0061	.0056
.0124	.4828	.1147	-.0074	.0404	-.0063	.0124
.0192	.4367	.1211	-.0099	.0374	-.0066	.0181
.0271	.4127	.1284	-.0099	.0353	-.0073	.0248
.0339	.3630	.1349	-.0148	.0320	-.0079	.0316
.0407	.3446	.1449	-.0160	.0300	-.0086	.0384
M = 0.80						
.0000	.5898	.1072	-.0317	.0486	-.0065	.0000
.0009	.5823	.1084	-.0273	.0486	-.0065	.0009
.0047	.5475	.1084	-.0200	.0467	-.0065	.0038
.0094	.5151	.1115	-.0133	.0441	-.0065	.0085
.0141	.4778	.1146	-.0100	.0416	-.0068	.0132
.0188	.4579	.1208	-.0100	.0405	-.0071	.0169
.0235	.4280	.1239	-.0100	.0384	-.0074	.0216
.0282	.4081	.1289	-.0083	.0364	-.0078	.0263
M = 0.90						
.0000	.6447	.1182	-.0541	.0552	-.0073	.0000
.0008	.6336	.1182	-.0503	.0550	-.0072	.0008
.0042	.6005	.1182	-.0423	.0510	-.0072	.0034
.0084	.5674	.1198	-.0325	.0501	-.0071	.0075
.0126	.5453	.1237	-.0275	.0486	-.0078	.0117
.0168	.5232	.1292	-.0260	.0473	-.0076	.0159
.0209	.5012	.1319	-.0237	.0450	-.0078	.0193
.0251	.4791	.1363	-.0222	.0437	-.0082	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.7077	.1307	-.0817	.0610	-.0083	.0000
.0008	.6867	.1255	-.0760	.0604	-.0080	.0008
.0040	.6447	.1270	-.0675	.0590	-.0076	.0040
.0079	.6027	.1301	-.0647	.0572	-.0077	.0071
.0119	.5817	.1333	-.0535	.0552	-.0078	.0111
.0158	.5607	.1333	-.0464	.0521	-.0078	.0150
.0198	.5397	.1375	-.0450	.0503	-.0081	.0182
.0237	.5124	.1385	-.0436	.0486	-.0083	.0221
M = 1.00						
.0000	.7369	.1425	-.1340	.0702	-.0086	.0000
.0007	.7269	.1425	-.1305	.0698	-.0086	.0007
.0037	.6968	.1400	-.1157	.0688	-.0086	.0037
.0075	.6707	.1425	-.1049	.0667	-.0084	.0075
.0112	.6365	.1425	-.0942	.0638	-.0086	.0104
.0149	.6104	.1450	-.0848	.0612	-.0086	.0142
.0187	.5763	.1465	-.0807	.0583	-.0086	.0179
.0224	.5361	.1425	-.0659	.0524	-.0086	.0216
M = 1.10						
.0000	.6743	.1312	-.1223	.0638	-.0073	.0000
.0007	.6687	.1335	-.1178	.0641	-.0076	.0007
.0033	.6407	.1321	-.1083	.0624	-.0073	.0033
.0073	.6184	.1335	-.0993	.0616	-.0073	.0066
.0106	.5998	.1359	-.0914	.0584	-.0074	.0100
.0140	.5755	.1382	-.0869	.0574	-.0073	.0133
.0180	.5532	.1391	-.0814	.0552	-.0074	.0166
.0213	.5290	.1405	-.0764	.0526	-.0075	.0199

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(h) $\alpha = 12$; $\Lambda_j = -43.9^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.7359	.1882	-.0216	.0575	-.0166	.0000
.0000	.7267	.1873	-.0182	.0569	-.0164	.0000
.0057	.6900	.1900	-.0123	.0556	-.0166	.0057
.0125	.6662	.1964	-.0108	.0544	-.0168	.0113
.0193	.6441	.2056	-.0148	.0544	-.0174	.0181
.0261	.6350	.2147	-.0182	.0544	-.0181	.0249
.0340	.6166	.2239	-.0231	.0528	-.0187	.0318
.0408	.6093	.2330	-.0295	.0515	-.0193	.0386
M = 0.80						
.0000	.7381	.1911	-.0448	.0590	-.0156	.0000
.0009	.7331	.1911	-.0415	.0590	-.0155	.0009
.0047	.7207	.1942	-.0382	.0585	-.0156	.0038
.0085	.7133	.2004	-.0382	.0592	-.0162	.0085
.0132	.7207	.2115	-.0405	.0600	-.0169	.0132
.0180	.7084	.2146	-.0422	.0592	-.0170	.0170
.0227	.6836	.2189	-.0438	.0581	-.0174	.0217
.0274	.6638	.2251	-.0465	.0568	-.0177	.0265
M = 0.90						
.0000	.8155	.2107	-.0778	.0658	-.0166	.0000
.0008	.7935	.2068	-.0718	.0648	-.0165	.0008
.0042	.7759	.2079	-.0678	.0644	-.0166	.0034
.0084	.7759	.2161	-.0672	.0648	-.0170	.0076
.0126	.7759	.2244	-.0678	.0656	-.0174	.0118
.0168	.7716	.2298	-.0690	.0652	-.0179	.0151
.0202	.7430	.2326	-.0660	.0640	-.0180	.0194
.0244	.7166	.2326	-.0660	.0622	-.0181	.0236

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.8408	.2187	-.1015	.0702	-.0171	.0000
.0008	.8596	.2218	-.1020	.0727	-.0176	.0008
.0040	.8387	.2218	-.0975	.0716	-.0176	.0040
.0079	.8178	.2239	-.0936	.0691	-.0176	.0071
.0119	.7969	.2260	-.0908	.0691	-.0177	.0111
.0159	.7969	.2322	-.0908	.0709	-.0182	.0151
.0198	.7759	.2343	-.0908	.0695	-.0185	.0183
.0238	.7446	.2343	-.0880	.0666	-.0184	.0222
M = 1.00						
.0000	.9800	.2489	-.1726	.0873	-.0203	.0000
.0007	.9620	.2469	-.1646	.0867	-.0201	.0007
.0037	.9320	.2440	-.1485	.0832	-.0196	.0037
.0075	.8720	.2420	-.1351	.0805	-.0191	.0067
.0112	.8520	.2420	-.1270	.0774	-.0189	.0105
.0150	.8320	.2440	-.1251	.0764	-.0189	.0142
.0187	.8120	.2440	-.1211	.0743	-.0189	.0180
.0225	.7820	.2440	-.1142	.0709	-.0187	.0210
M = 1.10						
.0000	.9127	.2337	-.1676	.0829	-.0188	.0000
.0007	.9016	.2328	-.1626	.0823	-.0181	.0007
.0033	.8830	.2328	-.1526	.0813	-.0181	.0033
.0073	.8552	.2328	-.1427	.0797	-.0179	.0067
.0107	.8311	.2337	-.1327	.0772	-.0175	.0100
.0140	.8033	.2337	-.1233	.0737	-.0170	.0134
.0174	.7810	.2337	-.1198	.0715	-.0170	.0167
.0214	.7532	.2337	-.1173	.0693	-.0170	.0200

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(i) $\alpha = 16$; $\Lambda_j = -43.9^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.8090	.2442	-.0576	.0603	-.0205	.0000
.0000	.7943	.2415	-.0547	.0596	-.0205	.0000
.0057	.7907	.2488	-.0522	.0599	-.0209	.0057
.0125	.7943	.2624	-.0547	.0614	-.0222	.0114
.0193	.7943	.2734	-.0557	.0614	-.0229	.0182
.0262	.7760	.2807	-.0571	.0603	-.0234	.0250
.0330	.7541	.2870	-.0601	.0588	-.0238	.0318
.0409	.7175	.2916	-.0662	.0562	-.0241	.0375
M = 0.80						
.0000	.8206	.2541	-.0788	.0629	-.0198	.0000
.0009	.8206	.2554	-.0772	.0635	-.0200	.0009
.0038	.8132	.2584	-.0745	.0635	-.0204	.0038
.0085	.8132	.2677	-.0752	.0635	-.0210	.0085
.0133	.8083	.2738	-.0745	.0635	-.0216	.0123
.0180	.7959	.2800	-.0762	.0624	-.0223	.0170
.0227	.7885	.2861	-.0805	.0624	-.0226	.0218
.0275	.7836	.2923	-.0845	.0618	-.0229	.0256
M = 0.90						
.0000	.8753	.2703	-.1097	.0686	-.0208	.0000
.0008	.8753	.2709	-.1073	.0693	-.0210	.0008
.0042	.8819	.2785	-.1058	.0695	-.0215	.0034
.0084	.8819	.2840	-.1073	.0704	-.0221	.0076
.0126	.8863	.2949	-.1073	.0718	-.0230	.0118
.0160	.8929	.3004	-.1088	.0723	-.0238	.0152
.0202	.8753	.3058	-.1097	.0718	-.0240	.0194

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.9425	.2907	-.1369	.0759	-.0229	.0000
.0008	.9425	.2938	-.1369	.0768	-.0231	.0008
.0040	.9217	.2938	-.1330	.0777	-.0233	.0040
.0080	.9258	.3011	-.1313	.0768	-.0238	.0072
.0119	.9112	.3063	-.1285	.0773	-.0243	.0111
.0159	.9321	.3115	-.1313	.0768	-.0252	.0143
.0199	.9217	.3198	-.1327	.0758	-.0257	.0183
.0231	.8904	.3166	-.1299	.0750	-.0251	.0223
M = 1.00						
.0000	1.0927	.3375	-.2004	.0939	-.0278	.0000
.0008	1.0767	.3346	-.1924	.0939	-.0278	.0008
.0038	1.0528	.3326	-.1817	.0922	-.0273	.0038
.0075	1.0249	.3326	-.1737	.0905	-.0273	.0068
.0113	1.0049	.3326	-.1710	.0898	-.0273	.0105
.0150	.9850	.3326	-.1657	.0871	-.0273	.0143
.0188	.9730	.3355	-.1646	.0861	-.0273	.0180
.0225	.9531	.3375	-.1630	.0837	-.0271	.0210
M = 1.10						
.0000	1.0398	.3224	-.1959	.0906	-.0261	.0000
.0007	1.0324	.3224	-.1909	.0903	-.0259	.0007
.0033	1.0065	.3206	-.1810	.0887	-.0257	.0033
.0074	.9769	.3178	-.1711	.0868	-.0254	.0067
.0107	.9510	.3178	-.1661	.0852	-.0253	.0100
.0141	.9399	.3178	-.1636	.0840	-.0251	.0134
.0174	.9214	.3095	-.1616	.0824	-.0254	.0167
.0208	.9140	.3224	-.1612	.0805	-.0254	.0194

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(j) $\alpha = -4$; $\Lambda_j = -43.9°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.1987	.0046	.0076	-.0205	.0005	.0000
.0000	-.2134	.0055	.0108	-.0209	.0002	.0000
.0057	-.2686	.0174	.0232	-.0243	-.0011	.0057
.0124	-.3274	.0339	.0293	-.0284	-.0029	.0113
.0192	-.3642	.0495	.0330	-.0323	-.0040	.0181
.0272	-.4102	.0632	.0330	-.0348	-.0055	.0249
.0339	-.4341	.0769	.0318	-.0372	-.0067	.0317
.0407	-.4562	.0879	.0306	-.0394	-.0080	.0385
M = 0.80						
.0000	-.2223	.0111	.0115	-.0224	-.0013	.0000
.0009	-.2316	.0117	.0131	-.0225	-.0015	.0009
.0047	-.2719	.0210	.0290	-.0255	-.0022	.0038
.0085	-.3266	.0334	.0381	-.0285	-.0031	.0085
.0132	-.3638	.0445	.0423	-.0304	-.0040	.0132
.0189	-.4011	.0563	.0434	-.0342	-.0048	.0170
.0226	-.4234	.0655	.0456	-.0362	-.0057	.0217
.0273	-.4507	.0767	.0481	-.0386	-.0065	.0264
M = 0.90						
.0000	-.2623	.0170	.0189	-.0272	-.0018	.0000
.0008	-.2656	.0176	.0233	-.0272	-.0019	.0008
.0042	-.3119	.0258	.0396	-.0302	-.0025	.0034
.0084	-.3670	.0351	.0558	-.0336	-.0033	.0076
.0126	-.4000	.0450	.0647	-.0366	-.0041	.0117
.0168	-.4386	.0532	.0706	-.0385	-.0049	.0151
.0210	-.4717	.0625	.0735	-.0413	-.0059	.0193
.0252	-.5047	.0708	.0780	-.0438	-.0066	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.2861	.0230	.0364	-.0306	-.0015	.0000
.0008	-.3018	.0245	.0434	-.0316	-.0023	.0008
.0040	-.3542	.0323	.0652	-.0368	-.0029	.0040
.0079	-.4066	.0423	.0840	-.0380	-.0038	.0071
.0119	-.4485	.0516	.0980	-.0412	-.0045	.0111
.0158	-.4747	.0595	.1036	-.0430	-.0053	.0151
.0198	-.5093	.0699	.1078	-.0454	-.0061	.0182
.0238	-.5407	.0788	.1106	-.0480	-.0066	.0222
M = 1.00						
.0000	-.2685	.0344	.0427	-.0283	-.0019	.0000
.0007	-.2735	.0359	.0481	-.0290	-.0019	.0007
.0037	-.3136	.0419	.0642	-.0299	-.0019	.0037
.0075	-.3587	.0494	.0857	-.0326	-.0026	.0067
.0112	-.3938	.0584	.0964	-.0359	-.0030	.0105
.0150	-.4238	.0668	.1018	-.0390	-.0037	.0142
.0187	-.4639	.0768	.1031	-.0416	-.0046	.0179
.0224	-.4840	.0818	.1045	-.0429	-.0053	.0217
M = 1.10						
.0000	-.2351	.0287	.0412	-.0239	-.0015	.0000
.0007	-.2444	.0287	.0428	-.0243	-.0014	.0007
.0033	-.2630	.0333	.0534	-.0242	-.0018	.0033
.0067	-.2956	.0389	.0658	-.0263	-.0022	.0067
.0107	-.3281	.0444	.0795	-.0283	-.0028	.0100
.0140	-.3699	.0518	.0919	-.0314	-.0037	.0133
.0173	-.4071	.0574	.0994	-.0352	-.0047	.0167
.0213	-.4350	.0657	.1006	-.0374	-.0053	.0200

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(k) $\alpha = -8$; $\Lambda_j = -43.9^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.4591	.0448	.0207	-.0412	-.0093	.0000
.0000	-.4701	.0457	.0256	-.0418	-.0095	.0000
.0057	-.5326	.0613	.0404	-.0443	-.0105	.0057
.0125	-.5876	.0805	.0492	-.0478	-.0120	.0125
.0193	-.6354	.0960	.0536	-.0503	-.0135	.0181
.0272	-.6648	.1134	.0527	-.0535	-.0150	.0249
.0340	-.6978	.1280	.0527	-.0554	-.0164	.0317
.0408	-.7272	.1417	.0492	-.0572	-.0179	.0385
M = 0.80						
.0000	-.4907	.0555	.0282	-.0435	-.0093	.0000
.0009	-.5031	.0565	.0332	-.0439	-.0095	.0009
.0047	-.5453	.0679	.0482	-.0461	-.0101	.0038
.0085	-.5948	.0833	.0614	-.0490	-.0113	.0085
.0132	-.6320	.0944	.0704	-.0511	-.0124	.0132
.0179	-.6741	.1067	.0737	-.0539	-.0135	.0170
.0227	-.7014	.1185	.0764	-.0556	-.0144	.0217
.0274	-.7262	.1283	.0797	-.0573	-.0155	.0265
M = 0.90						
.0000	-.5369	.0646	.0454	-.0490	-.0100	.0000
.0008	-.5391	.0646	.0531	-.0300	-.0100	.0008
.0042	-.6051	.0778	.0749	-.0528	-.0110	.0034
.0084	-.6557	.0904	.0926	-.0566	-.0121	.0076
.0126	-.6997	.1030	.1061	-.0590	-.0131	.0118
.0168	-.7261	.1123	.1120	-.0608	-.0141	.0151
.0202	-.7767	.1260	.1209	-.0640	-.0153	.0193
.0244	-.7767	.1315	.1150	-.0640	-.0156	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.5856	.0729	.0813	-.0582	-.0112	.0000
.0008	-.6274	.0755	.0953	-.0592	-.0117	.0008
.0040	-.6693	.0849	.1149	-.0627	-.0120	.0040
.0079	-.7278	.1005	.1401	-.0672	-.0137	.0071
.0119	-.7739	.1119	.1541	-.0704	-.0148	.0111
.0159	-.8010	.1224	.1626	-.0725	-.0156	.0151
.0198	-.8261	.1328	.1682	-.0743	-.0164	.0183
.0238	-.8471	.1432	.1682	-.0761	-.0173	.0222
M = 1.00						
.0000	-.6058	.0821	.1088	-.0599	-.0114	.0000
.0007	-.6058	.0821	.1125	-.0596	-.0112	.0007
.0037	-.6498	.0921	.1350	-.0625	-.0118	.0037
.0075	-.6897	.1020	.1484	-.0642	-.0125	.0067
.0112	-.7257	.1120	.1581	-.0663	-.0134	.0105
.0150	-.7497	.1209	.1618	-.0676	-.0142	.0142
.0187	-.7697	.1309	.1634	-.0697	-.0149	.0180
.0225	-.7897	.1394	.1634	-.0710	-.0157	.0210
M = 1.10						
.0000	-.5498	.0835	.0999	-.0543	-.0089	.0000
.0007	-.5685	.0858	.1007	-.0551	-.0089	.0007
.0033	-.5927	.0919	.1154	-.0559	-.0093	.0033
.0073	-.6393	.1035	.1249	-.0591	-.0102	.0066
.0106	-.6617	.1104	.1334	-.0614	-.0108	.0100
.0140	-.6896	.1197	.1374	-.0630	-.0117	.0133
.0179	-.7176	.1290	.1399	-.0646	-.0127	.0166

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(l) $\alpha = -12$; $\Lambda_j = -43.9^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.6307	.1296	.0319	-.0526	-.0152	.0000
.0000	-.6545	.1342	.0369	-.0535	-.0157	.0000
.0057	-.7095	.1524	.0550	-.0559	-.0170	.0057
.0125	-.7645	.1753	.0649	-.0592	-.0188	.0125
.0193	-.8048	.1935	.0688	-.0619	-.0205	.0182
.0261	-.8378	.2118	.0703	-.0645	-.0223	.0250
.0341	-.8690	.2291	.0683	-.0667	-.0239	.0318
.0409	-.8873	.2410	.0649	-.0677	-.0253	.0386
M = 0.80						
.0000	-.6784	.1319	.0471	-.0553	-.0156	.0000
.0009	-.6858	.1350	.0531	-.0558	-.0158	.0009
.0038	-.7378	.1504	.0720	-.0585	-.0171	.0038
.0085	-.7775	.1658	.0863	-.0608	-.0183	.0085
.0132	-.8270	.1812	.0946	-.0638	-.0196	.0132
.0180	-.8517	.1954	.1002	-.0659	-.0210	.0170
.0227	-.8765	.2046	.0979	-.0678	-.0219	.0217
.0274	-.9037	.2163	.1012	-.0693	-.0230	.0265
M = 0.90						
.0000	-.7247	.1519	.0812	-.0641	-.0174	.0000
.0008	-.7379	.1552	.0871	-.0636	-.0175	.0008
.0042	-.7885	.1678	.1104	-.0660	-.0186	.0034
.0084	-.8458	.1848	.1275	-.0698	-.0200	.0076
.0126	-.8898	.1968	.1405	-.0726	-.0211	.0118
.0168	-.9229	.2133	.1476	-.0753	-.0223	.0151
.0210	-.9669	.2336	.1594	-.0777	-.0244	.0193
.0252	-.9780	.2445	.1594	-.0800	-.0253	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.8048	.1659	.1208	-.0736	-.0191	.0000
.0008	-.8341	.1711	.1320	-.0750	-.0196	.0008
.0040	-.8970	.1868	.1601	-.0779	-.0213	.0040
.0079	-.9179	.2024	.1657	-.0808	-.0215	.0071
.0119	-.9598	.2181	.1809	-.0840	-.0232	.0111
.0158	-1.0017	.2316	.1938	-.0870	-.0244	.0151
.0198	-1.0101	.2410	.1882	-.0878	-.0248	.0182
.0238	-1.0353	.2515	.1921	-.0886	-.0259	.0222
M = 1.00						
.0000	-.8783	.1877	.1655	-.0824	-.0203	.0000
.0007	-.8864	.1877	.1720	-.0838	-.0203	.0007
.0037	-.9144	.1937	.1822	-.0848	-.0213	.0037
.0075	-.9465	.2067	.1924	-.0869	-.0218	.0075
.0112	-.9706	.2207	.1989	-.0883	-.0228	.0105
.0149	-.9946	.2286	.2026	-.0893	-.0237	.0142
.0187	-1.0067	.2386	.2021	-.0903	-.0243	.0179
.0224	-1.0227	.2486	.2026	-.0910	-.0250	.0217
M = 1.10						
.0000	-.8184	.1658	.1620	-.0777	-.0178	.0000
.0007	-.8333	.1686	.1650	-.0787	-.0181	.0007
.0033	-.8594	.1750	.1785	-.0806	-.0189	.0033
.0073	-.8891	.1861	.1869	-.0812	-.0206	.0067
.0107	-.9152	.1945	.1929	-.0825	-.0206	.0100
.0140	-.9301	.2047	.1959	-.0838	-.0214	.0133
.0180	-.9635	.2158	.1969	-.0851	-.0221	.0166
.0213	-.9635	.2213	.1954	-.0851	-.0225	.0200

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Concluded

(m) $\alpha = -16$; $\Lambda_j = -43.9^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.7614	.2032	.0535	-.0596	-.0218	.0000
.0000	-.7833	.2050	.0571	-.0602	-.0221	.0000
.0057	-.8309	.2260	.0743	-.0628	-.0234	.0057
.0125	-.8858	.2506	.0841	-.0661	-.0255	.0125
.0193	-.9261	.2716	.0883	-.0690	-.0276	.0182
.0262	-.9591	.2898	.0883	-.0715	-.0294	.0250
.0330	-.9774	.3053	.0866	-.0730	-.0309	.0318
.0398	-.9847	.3189	.0834	-.0730	-.0322	.0375
M = 0.80						
.0000	-.7893	.2070	.0693	-.0614	-.0217	.0000
.0009	-.8017	.2094	.0746	-.0621	-.0219	.0009
.0038	-.8512	.2279	.0928	-.0648	-.0232	.0038
.0085	-.9006	.2488	.1071	-.0680	-.0250	.0085
.0132	-.9452	.2649	.1170	-.0714	-.0268	.0132
.0180	-.9872	.2833	.1253	-.0737	-.0283	.0170
.0227	-.9996	.2957	.1253	-.0754	-.0294	.0218
.0274	-1.0244	.3080	.1270	-.0765	-.0305	.0255
M = 0.90						
.0000	-.8542	.2296	.1053	-.0688	-.0232	.0000
.0008	-.8652	.2329	.1083	-.0696	-.0234	.0008
.0042	-.9091	.2515	.1259	-.0730	-.0245	.0034
.0084	-.9421	.2657	.1348	-.0745	-.0256	.0076
.0126	-.9860	.2821	.1460	-.0778	-.0268	.0118
.0160	-1.0299	.3039	.1560	-.0810	-.0282	.0152
.0202	-1.0519	.3171	.1589	-.0829	-.0294	.0194
.0244	-1.0628	.3258	.1577	-.0842	-.0301	.0236

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.9351	.2650	.1359	-.0797	-.0253	.0000
.0008	-.9351	.2650	.1359	-.0790	-.0234	.0008
.0040	-.9560	.2650	.1471	-.0819	-.0257	.0040
.0080	-1.0311	.2910	.1667	-.0844	-.0281	.0072
.0119	-1.0812	.3097	.1807	-.0879	-.0300	.0111
.0159	-1.1230	.3274	.1891	-.0901	-.0310	.0151
.0199	-1.1438	.3377	.1919	-.0926	-.0321	.0183
.0239	-1.1647	.3481	.1975	-.0958	-.0335	.0223
M = 1.00						
.0000	-1.0538	.2882	.1835	-.0943	-.0293	.0000
.0008	-1.0658	.2882	.1899	-.0943	-.0295	.0008
.0038	-1.0938	.2932	.1969	-.0947	-.0301	.0038
.0075	-1.1137	.3110	.2049	-.0967	-.0310	.0068
.0113	-1.1337	.3230	.2129	-.0978	-.0319	.0105
.0150	-1.1536	.3329	.2156	-.1002	-.0328	.0143
.0188	-1.1736	.3458	.2172	-.1008	-.0336	.0180
.0225	-1.1896	.3528	.2166	-.1012	-.0342	.0210
M = 1.10						
.0000	-1.0146	.2627	.1915	-.0900	-.0277	.0000
.0007	-1.0257	.2627	.1950	-.0904	-.0279	.0007
.0033	-1.0516	.2765	.2024	-.0913	-.0282	.0033
.0074	-1.0701	.2857	.2099	-.0919	-.0291	.0067
.0107	-1.0812	.2950	.2114	-.0923	-.0297	.0100
.0140	-1.0997	.3060	.2114	-.0932	-.0302	.0134
.0174	-1.1182	.3134	.2109	-.0932	-.0311	.0167
.0207	-1.1256	.3254	.2148	-.0942	-.0321	.0201

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0

(a) $\alpha = 0$; $\Lambda_j = 12.3°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.0187	.0182	.0124	-.0022	.0068	.0000
.0000	-.0204	.0209	.0148	-.0034	.0073	.0000
.0057	-.0267	.0228	.0154	-.0052	.0075	.0057
.0126	-.0427	.0228	.0140	-.0073	.0072	.0115
.0195	-.0533	.0228	.0132	-.0086	.0068	.0183
.0263	-.0738	.0200	.0119	-.0095	.0061	.0240
.0332	-.0889	.0164	.0109	-.0108	.0055	.0309
.0801	-.1022	.0137	.0103	-.0114	.0046	.0378
M = 0.80						
.0000	-.0319	.0136	.0154	-.0034	.0090	.0000
.0010	-.0379	.0123	.0160	-.0039	.0088	.0010
.0038	-.0542	.0123	.0186	-.0048	.0082	.0038
.0086	-.0693	.0093	.0204	-.0059	.0075	.0086
.0133	-.0903	.0093	.0220	-.0062	.0066	.0124
.0181	-.1024	.0080	.0221	-.0081	.0061	.0171
.0228	-.1186	.0000	.0188	-.0082	.0051	.0219
.0276	-.1265	.0000	.0163	-.0096	.0044	.0257
M = 0.85						
.0000	-.0282		.0137	-.0034	.0090	.0000
.0009	-.0338		.0112	-.0045	.0082	.0009
.0045	-.0507		.0137	-.0057	.0077	.0036
.0081	-.0704		.0193	-.0069	.0069	.0081
.0126	-.0902		.0213	-.0082	.0064	.0117
.0171	-.1042		.0222	-.0093	.0052	.0162
.0216	-.1183		.0240	-.0102	.0049	.0198
.0261	-.1324		.0257	-.0113	.0044	.0243
M = 0.90						
.0000	-.0240		.0095	-.0048	.0095	.0000
.0008	-.0320		.0128	-.0049	.0091	.0008
.0042	-.0533		.0174	-.0063	.0082	.0034
.0085	-.0773		.0239	-.0078	.0072	.0076
.0119	-.1013		.0274	-.0084	.0062	.0110
.0161	-.1172		.0318	-.0095	.0054	.0153
.0204	-.1279		.0344	-.0104	.0047	.0195
.0246	-.1466		.0354	-.0114	.0039	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.0203		.0090	-.0049	.0097	.0000
.0008	-.0304		.0108	-.0055	.0092	.0008
.0040	-.0522		.0178	-.0068	.0084	.0032
.0080	-.0811		.0241	-.0086	.0074	.0072
.0112	-.0963		.0289	-.0094	.0067	.0112
.0152	-.1140		.0328	-.0106	.0059	.0144
.0192	-.1343		.0388	-.0114	.0053	.0184
.0232	-.1495		.0418	-.0119	.0047	.0224
M = 1.00						
.0000	-.0145		.0090	-.0054	.0106	.0000
.0008	-.0218		.0124	-.0054	.0102	.0008
.0038	-.0387		.0214	-.0061	.0090	.0038
.0076	-.0678		.0300	-.0085	.0079	.0068
.0113	-.0920		.0397	-.0099	.0067	.0106
.0151	-.1162		.0441	-.0106	.0058	.0144
.0189	-.1308		.0484	-.0116	.0051	.0174
.0227	-.1405		.0528	-.0120	.0045	.0212
M = 1.05						
.0000	-.0140		.0061	-.0061	.0105	.0000
.0007	-.0186		.0076	-.0061	.0102	.0007
.0036	-.0279		.0086	-.0068	.0098	.0036
.0071	-.0512		.0160	-.0073	.0088	.0064
.0107	-.0675		.0221	-.0084	.0080	.0100
.0143	-.0791		.0294	-.0102	.0072	.0136
.0179	-.1093		.0309	-.0112	.0063	.0171
.0214	-.1186		.0364	-.0118	.0055	.0200
M = 1.10						
.0000	-.0225		.0156	-.0057	.0103	.0000
.0007	-.0292		.0175	-.0063	.0097	.0007
.0034	-.0404		.0207	-.0063	.0086	.0034
.0074	-.0561		.0279	-.0069	.0084	.0067
.0108	-.0719		.0334	-.0081	.0080	.0101
.0142	-.0898		.0345	-.0094	.0069	.0128
.0175	-.1055		.0391	-.0103	.0056	.0162
.0209	-.1145		.0420	-.0112	.0048	.0196

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(b) $\alpha = 0$; $\Lambda_j = -0.8°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.0454	.0064	.0014	-.0022	.0001	.0000
.0011	-.0632	.0082	.0034	-.0030	-.0003	.0011
.0057	-.0989	.0128	.0109	-.0050	-.0014	.0057
.0126	-.1300	.0201	.0158	-.0075	-.0029	.0126
.0194	-.1594	.0219	.0210	-.0096	-.0038	.0183
.0263	-.1879	.0265	.0256	-.0118	-.0049	.0251
.0331	-.2102	.0283	.0303	-.0135	-.0060	.0320
.0400	-.2325	.0310	.0300	-.0156	-.0070	.0377
M = 0.80						
.0000	-.0519	.0118	.0005	-.0029	-.0006	.0000
.0009	-.0670	.0130	.0041	-.0037	-.0006	.0009
.0047	-.0972	.0179	.0162	-.0058	-.0015	.0038
.0085	-.1274	.0210	.0233	-.0081	-.0022	.0085
.0133	-.1546	.0201	.0284	-.0102	-.0029	.0133
.0180	-.1757	.0266	.0326	-.0117	-.0037	.0171
.0227	-.1968	.0272	.0364	-.0133	-.0046	.0218
.0275	-.2168	.0297	.0395	-.0149	-.0054	.0256
M = 0.85						
.0000	-.0531	.0116	.0008	-.0029	-.0006	.0000
.0009	-.0683	.0133	.0059	-.0042	-.0008	.0009
.0036	-.0994	.0168	.0174	-.0063	-.0013	.0036
.0081	-.1304	.0214	.0272	-.0086	-.0023	.0081
.0126	-.1502	.0243	.0328	-.0102	-.0028	.0117
.0171	-.1756	.0266	.0365	-.0119	-.0036	.0162
.0215	-.1954	.0284	.0408	-.0134	-.0044	.0207
.0260	-.2095	.0307	.0452	-.0148	-.0050	.0242
M = 0.90						
.0000	-.0486	.0104	.0039	-.0024	-.0006	.0000
.0008	-.0620	.0115	.0078	-.0032	-.0009	.0008
.0042	-.0967	.0159	.0206	-.0063	-.0016	.0034
.0085	-.1287	.0203	.0301	-.0086	-.0019	.0076
.0127	-.1501	.0219	.0369	-.0105	-.0026	.0119
.0161	-.1741	.0241	.0427	-.0124	-.0033	.0152
.0203	-.1928	.0263	.0467	-.0136	-.0041	.0195
.0245	-.2142	.0279	.0501	-.0152	-.0048	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.0478	.0120	.0043	-.0025	-.0004	.0000
.0008	-.0666	.0125	.0094	-.0040	-.0005	.0008
.0040	-.0971	.0167	.0262	-.0067	-.0011	.0040
.0080	-.1276	.0182	.0380	-.0093	-.0022	.0072
.0120	-.1581	.0214	.0456	-.0113	-.0028	.0112
.0160	-.1835	.0229	.0535	-.0134	-.0034	.0152
.0192	-.1962	.0245	.0565	-.0143	-.0040	.0184
.0232	-.2140	.0255	.0575	-.0157	-.0048	.0224
M = 1.00						
.0000	-.0491	.0169	.0051	-.0020	-.0007	.0000
.0008	-.0588	.0144	.0095	-.0029	-.0012	.0008
.0038	-.0879	.0169	.0276	-.0054	-.0014	.0038
.0075	-.1122	.0219	.0461	-.0081	-.0019	.0075
.0113	-.1511	.0219	.0482	-.0107	-.0025	.0106
.0151	-.1705	.0244	.0543	-.0125	-.0031	.0143
.0188	-.1900	.0269	.0578	-.0135	-.0037	.0173
.0226	-.2045	.0269	.0617	-.0154	-.0044	.0211
M = 1.05						
.0000	-.0471	.0201	.0049	-.0019	-.0004	.0000
.0007	-.0565	.0196	.0091	-.0028	-.0005	.0007
.0043	-.0798	.0210	.0204	-.0042	-.0012	.0036
.0071	-.0985	.0225	.0296	-.0060	-.0019	.0071
.0107	-.1195	.0234	.0379	-.0078	-.0022	.0100
.0142	-.1498	.0244	.0484	-.0101	-.0030	.0135
.0185	-.1732	.0258	.0565	-.0126	-.0038	.0171
.0214	-.1872	.0268	.0603	-.0137	-.0041	.0206
M = 1.10						
.0000	-.0455	.0171	.0059	-.0019	-.0001	.0000
.0007	-.0590	.0175	.0096	-.0026	-.0006	.0007
.0034	-.0703	.0194	.0148	-.0029	-.0007	.0027
.0074	-.0951	.0194	.0249	-.0047	-.0015	.0067
.0101	-.1131	.0203	.0318	-.0064	-.0019	.0094
.0134	-.1311	.0226	.0406	-.0086	-.0023	.0128
.0175	-.1559	.0217	.0494	-.0108	-.0033	.0168
.0208	-.1717	.0259	.0558	-.0120	-.0035	.0202

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING

WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(c) $\alpha = 0$; $\Lambda_j = -7.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.0287	.0037	.0021	-.0003	-.0005	.0000
.0000	-.0394	.0037	.0026	-.0007	-.0013	.0000
.0057	-.0806	.0073	.0148	-.0028	-.0024	.0057
.0125	-.1129	.0129	.0236	-.0060	-.0043	.0125
.0193	-.1469	.0184	.0257	-.0087	-.0050	.0182
.0261	-.1828	.0220	.0276	-.0118	-.0066	.0250
.0341	-.2007	.0285	.0333	-.0142	-.0077	.0318
.0409	-.2312	.0340	.0367	-.0167	-.0098	.0386
M = 0.80						
.0000	-.0243	.0044	.0006	-.0002	-.0001	.0000
.0009	-.0437	.0056	.0027	-.0012	-.0002	.0009
.0047	-.0838	.0087	.0129	-.0041	-.0005	.0038
.0085	-.1117	.0131	.0209	-.0065	-.0019	.0085
.0141	-.1408	.0174	.0278	-.0089	-.0029	.0132
.0189	-.1724	.0212	.0338	-.0113	-.0047	.0170
.0226	-.1882	.0261	.0380	-.0136	-.0051	.0217
.0273	-.2052	.0280	.0437	-.0153	-.0062	.0264
M = 0.85						
.0000	-.0250	.0058	.0003	-.0005	-.0002	.0000
.0009	-.0432	.0070	.0033	-.0014	-.0006	.0009
.0045	-.0704	.0093	.0154	-.0037	-.0010	.0036
.0089	-.1124	.0157	.0233	-.0065	-.0022	.0080
.0125	-.1386	.0192	.0310	-.0089	-.0032	.0116
.0170	-.1613	.0215	.0364	-.0111	-.0041	.0161
.0214	-.1840	.0250	.0420	-.0133	-.0052	.0205
.0259	-.2033	.0291	.0473	-.0150	-.0064	.0241
M = 0.90						
.0000	-.0215	.0066	.0005	-.0001	.0003	.0000
.0008	-.0494	.0077	.0053	-.0019	.0000	.0008
.0042	-.0784	.0118	.0176	-.0044	-.0005	.0034
.0084	-.1149	.0160	.0286	-.0073	-.0016	.0076
.0118	-.1391	.0198	.0351	-.0096	-.0024	.0118
.0160	-.1633	.0237	.0432	-.0116	-.0035	.0152
.0202	-.1858	.0270	.0490	-.0137	-.0046	.0194
.0244	-.2148	.0292	.0517	-.0156	-.0057	.0236

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.0235	.0073	-.0013	-.0001	.0003	.0000
.0008	-.0480	.0084	.0063	-.0018	.0001	.0008
.0040	-.0787	.0115	.0203	-.0049	-.0008	.0040
.0079	-.1145	.0168	.0337	-.0078	-.0019	.0071
.0119	-.1401	.0194	.0432	-.0103	-.0028	.0111
.0159	-.1656	.0246	.0486	-.0121	-.0038	.0151
.0198	-.1809	.0272	.0544	-.0139	-.0047	.0183
.0230	-.2014	.0293	.0593	-.0157	-.0057	.0214
M = 1.00						
.0000	-.0303	.0145	.0008	-.0006	.0001	.0000
.0007	-.0420	.0145	.0086	-.0020	-.0004	.0007
.0037	-.0767	.0160	.0241	-.0043	-.0008	.0037
.0075	-.1084	.0195	.0366	-.0071	-.0014	.0067
.0112	-.1255	.0215	.0444	-.0093	-.0023	.0105
.0150	-.1622	.0245	.0531	-.0120	-.0031	.0142
.0187	-.1841	.0285	.0591	-.0141	-.0044	.0180
.0217	-.2022	.0295	.0627	-.0157	-.0051	.0210
M = 1.05						
.0000	-.0253	.0178	.0001	-.0010	.0005	.0000
.0007	-.0394	.0173	.0037	-.0012	.0002	.0007
.0035	-.0563	.0188	.0127	-.0023	.0000	.0035
.0071	-.0863	.0216	.0251	-.0046	-.0009	.0071
.0106	-.1098	.0240	.0370	-.0070	-.0019	.0099
.0149	-.1313	.0269	.0467	-.0092	-.0031	.0135
.0184	-.1586	.0298	.0544	-.0119	-.0039	.0170
.0220	-.1862	.0303	.0621	-.0144	-.0049	.0205
M = 1.10						
.0000	-.0394	.0195	.0048	-.0021	.0000	.0000
.0007	-.0530	.0195	.0078	-.0020	-.0003	.0007
.0033	-.0711	.0218	.0155	-.0038	-.0006	.0033
.0067	-.0847	.0237	.0236	-.0047	-.0010	.0067
.0107	-.1073	.0241	.0339	-.0068	-.0018	.0100
.0140	-.1300	.0265	.0417	-.0092	-.0025	.0134
.0174	-.1526	.0288	.0500	-.0114	-.0032	.0167
.0214	-.1707	.0306	.0573	-.0131	-.0045	.0201

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING

WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(d) $\alpha = 0$; $\Lambda_j = -17.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.0143	.0055	.0008	-.0010	-.0021	.0000
.0011	-.0233	.0055	.0049	-.0003	-.0030	.0000
.0057	-.0725	.0092	.0149	-.0024	-.0037	.0057
.0125	-.1127	.0147	.0233	-.0060	-.0046	.0114
.0193	-.1485	.0193	.0297	-.0101	-.0063	.0182
.0262	-.1798	.0284	.0328	-.0131	-.0068	.0250
.0330	-.2111	.0348	.0359	-.0160	-.0088	.0318
.0398	-.2424	.0440	.0403	-.0191	-.0111	.0375
M = 0.80						
.0000	-.0188	.0062	-.0004	-.0002	-.0013	.0000
.0009	-.0339	.0068	.0032	-.0009	-.0013	.0009
.0047	-.0703	.0106	.0134	-.0038	-.0015	.0038
.0085	-.1097	.0161	.0209	-.0067	-.0025	.0085
.0142	-.1399	.0217	.0305	-.0096	-.0033	.0132
.0179	-.1733	.0255	.0356	-.0123	-.0043	.0170
.0227	-.1975	.0317	.0399	-.0146	-.0053	.0217
.0274	-.2187	.0366	.0454	-.0166	-.0067	.0265
M = 0.85						
.0000	-.0176	.0064	-.0004	-.0002	-.0012	.0000
.0009	-.0346	.0064	.0034	-.0008	-.0018	.0009
.0045	-.0685	.0110	.0150	-.0035	-.0023	.0036
.0089	-.1082	.0168	.0245	-.0072	-.0027	.0081
.0134	-.1394	.0209	.0325	-.0094	-.0035	.0125
.0170	-.1649	.0250	.0380	-.0124	-.0043	.0161
.0215	-.1903	.0296	.0423	-.0145	-.0056	.0206
.0251	-.2130	.0343	.0471	-.0165	-.0071	.0233
M = 0.90						
.0000	-.0166	.0066	.0004	-.0002	-.0011	.0000
.0008	-.0353	.0077	.0045	-.0014	-.0012	.0008
.0042	-.0755	.0115	.0176	-.0047	-.0013	.0034
.0084	-.1129	.0170	.0288	-.0076	-.0022	.0076
.0127	-.1451	.0214	.0375	-.0110	-.0031	.0118
.0161	-.1745	.0263	.0442	-.0128	-.0042	.0152
.0203	-.1959	.0302	.0495	-.0152	-.0052	.0194
.0237	-.2146	.0335	.0527	-.0169	-.0061	.0228

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.0158	.0073	-.0017	-.0003	-.0008	.0000
.0008	-.0361	.0094	.0041	-.0014	-.0011	.0008
.0040	-.0820	.0151	.0235	-.0053	-.0017	.0040
.0080	-.1125	.0188	.0360	-.0083	-.0026	.0072
.0120	-.1481	.0240	.0444	-.0112	-.0035	.0112
.0159	-.1787	.0266	.0527	-.0139	-.0043	.0151
.0191	-.1940	.0287	.0568	-.0157	-.0051	.0183
.0239	-.2194	.0334	.0600	-.0177	-.0065	.0223
M = 1.00						
.0000	-.0248	.0155	-.0006	-.0005	-.0007	.0000
.0008	-.0443	.0155	.0036	-.0015	-.0009	.0008
.0038	-.0759	.0180	.0221	-.0038	-.0010	.0038
.0075	-.1076	.0205	.0405	-.0079	-.0022	.0068
.0113	-.1441	.0254	.0490	-.0112	-.0028	.0105
.0150	-.1684	.0289	.0561	-.0131	-.0036	.0143
.0188	-.1952	.0314	.0602	-.0152	-.0048	.0181
.0226	-.2147	.0354	.0649	-.0171	-.0058	.0211
M = 1.05						
.0000	-.0285	.0182	.0015	-.0010	-.0011	.0000
.0007	-.0332	.0196	.0044	-.0012	-.0005	.0007
.0036	-.0566	.0220	.0137	-.0021	-.0012	.0036
.0071	-.0870	.0254	.0283	-.0055	-.0020	.0071
.0114	-.1197	.0283	.0406	-.0083	-.0029	.0107
.0142	-.1501	.0316	.0500	-.0112	-.0036	.0135
.0185	-.1781	.0340	.0550	-.0133	-.0045	.0171
.0220	-.2062	.0364	.0624	-.0160	-.0055	.0206
M = 1.10						
.0000	-.0411	.0190	.0014	-.0014	-.0006	.0000
.0007	-.0456	.0190	.0041	-.0020	-.0006	.0007
.0040	-.0614	.0213	.0126	-.0031	-.0009	.0034
.0074	-.0862	.0254	.0220	-.0049	-.0018	.0067
.0107	-.1133	.0282	.0351	-.0075	-.0024	.0101
.0141	-.1404	.0319	.0435	-.0102	-.0032	.0134
.0174	-.1674	.0328	.0521	-.0126	-.0041	.0168
.0201	-.1855	.0370	.0583	-.0146	-.0049	.0195

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(e) $\alpha = 0$; $\Lambda_j = -26.5°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0000	.0083	.0015	-.0014	-.0020	.0000
.0000	-.0162	.0101	.0031	-.0004	-.0029	.0000
.0057	-.0530	.0129	.0137	-.0021	-.0036	.0057
.0125	-.1081	.0221	.0198	-.0062	-.0040	.0125
.0193	-.1427	.0276	.0252	-.0103	-.0046	.0181
.0261	-.1759	.0340	.0281	-.0132	-.0062	.0249
.0340	-.2100	.0432	.0280	-.0165	-.0076	.0317
.0408	-.2253	.0515	.0302	-.0182	-.0077	.0385
M = 0.80						
.0000	-.0073	.0087	-.0014	-.0004	-.0012	.0000
.0009	-.0170	.0087	.0019	-.0004	-.0009	.0009
.0047	-.0614	.0131	.0118	-.0035	-.0012	.0038
.0094	-.1003	.0193	.0211	-.0066	-.0017	.0085
.0141	-.1343	.0249	.0282	-.0098	-.0022	.0132
.0179	-.1617	.0318	.0356	-.0125	-.0032	.0169
.0235	-.1982	.0386	.0379	-.0155	-.0041	.0217
.0282	-.2194	.0442	.0405	-.0174	-.0050	.0260
M = 0.85						
.0000	-.0148	.0082	-.0012	-.0001	-.0010	.0000
.0009	-.0199	.0087	.0029	-.0007	-.0014	.0009
.0045	-.0620	.0131	.0131	-.0035	-.0019	.0036
.0089	-.0973	.0175	.0224	-.0065	-.0024	.0080
.0125	-.1371	.0239	.0286	-.0100	-.0028	.0125
.0169	-.1678	.0297	.0348	-.0127	-.0036	.0160
.0214	-.1985	.0373	.0407	-.0154	-.0047	.0205
.0258	-.2110	.0426	.0448	-.0171	-.0056	.0250
M = 0.90						
.0000	-.0113	.0088	-.0017	-.0001	-.0011	.0000
.0008	-.0247	.0094	.0014	-.0007	-.0010	.0008
.0042	-.0650	.0132	.0154	-.0040	-.0011	.0034
.0084	-.1054	.0193	.0274	-.0076	-.0016	.0076
.0126	-.1377	.0248	.0370	-.0109	-.0023	.0118
.0168	-.1700	.0309	.0444	-.0138	-.0030	.0151
.0202	-.1996	.0358	.0478	-.0159	-.0039	.0193
.0244	-.2184	.0408	.0519	-.0176	-.0047	.0235

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.0210	.0105	-.0037	-.0000	-.0017	.0000
.0008	-.0338	.0100	.0017	-.0012	-.0021	.0008
.0040	-.0747	.0136	.0203	-.0045	-.0023	.0040
.0079	-.1259	.0184	.0378	-.0090	-.0032	.0071
.0119	-.1643	.0247	.0476	-.0124	-.0038	.0111
.0159	-.1976	.0299	.0551	-.0149	-.0047	.0151
.0198	-.2160	.0346	.0585	-.0171	-.0058	.0182
.0238	-.2313	.0399	.0612	-.0188	-.0062	.0222
M = 1.00						
.0000	-.0254	.0120	-.0003	-.0005	-.0023	.0000
.0007	-.0303	.0120	.0052	-.0011	-.0025	.0007
.0037	-.0646	.0170	.0196	-.0039	-.0032	.0037
.0075	-.1057	.0221	.0379	-.0071	-.0039	.0067
.0112	-.1527	.0246	.0509	-.0115	-.0043	.0105
.0150	-.1722	.0301	.0574	-.0138	-.0048	.0142
.0187	-.2016	.0346	.0604	-.0159	-.0057	.0180
.0225	-.2260	.0396	.0637	-.0182	-.0063	.0210
M = 1.05						
.0000	-.0334	.0178	.0011	-.0010	-.0015	.0000
.0007	-.0357	.0183	.0037	-.0012	-.0014	.0007
.0035	-.0616	.0193	.0149	-.0023	-.0021	.0035
.0071	-.0921	.0236	.0285	-.0053	-.0021	.0071
.0106	-.1203	.0265	.0432	-.0088	-.0031	.0106
.0149	-.1466	.0313	.0496	-.0118	-.0027	.0134
.0184	-.1748	.0361	.0560	-.0142	-.0034	.0170
.0219	-.2002	.0409	.0582	-.0166	-.0048	.0205
M = 1.10						
.0000	-.0299	.0195	.0018	-.0018	-.0006	.0000
.0007	-.0344	.0204	.0049	-.0027	-.0004	.0007
.0033	-.0571	.0218	.0131	-.0034	-.0004	.0033
.0073	-.0843	.0251	.0251	-.0058	-.0008	.0067
.0107	-.1205	.0279	.0360	-.0087	-.0021	.0100
.0140	-.1432	.0311	.0457	-.0110	-.0027	.0134
.0174	-.1659	.0358	.0523	-.0137	-.0034	.0167
.0214	-.1885	.0395	.0553	-.0154	-.0042	.0200

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(f) $\alpha = 2$; $\Lambda_j = -26.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.0909	.0127	-.0137	.0119	-.0003	.0000
.0000	.0803	.0127	-.0091	.0111	-.0003	.0000
.0058	.0371	.0199	-.0058	.0073	-.0005	.0058
.0127	-.0079	.0262	.0015	.0022	-.0013	.0115
.0196	-.0388	.0344	.0100	-.0015	-.0024	.0184
.0265	-.0724	.0398	.0135	-.0048	-.0037	.0242
.0334	-.1024	.0434	.0132	-.0077	-.0050	.0311
.0404	-.1200	.0488	.0140	-.0098	-.0064	.0369
M = 0.80						
.0000	.1059	.0141	-.0172	.0130	.0001	.0000
.0010	.0951	.0147	-.0139	.0125	.0000	.0010
.0038	.0413	.0190	-.0068	.0082	-.0001	.0038
.0086	.0024	.0221	.0018	.0043	-.0006	.0086
.0134	-.0341	.0251	.0074	.0008	-.0013	.0124
.0182	-.0616	.0294	.0144	-.0018	-.0021	.0172
.0230	-.0933	.0331	.0206	-.0048	-.0032	.0220
.0277	-.1172	.0386	.0240	-.0074	-.0043	.0258
M = 0.85						
.0000	.0924	.0155	-.0166	.0132	.0003	.0000
.0009	.0885	.0161	-.0122	.0114	.0003	.0009
.0036	.0387	.0178	-.0025	.0073	.0002	.0036
.0081	-.0101	.0218	.0052	.0031	-.0005	.0081
.0127	-.0381	.0241	.0119	.0003	-.0013	.0118
.0172	-.0706	.0281	.0206	-.0025	-.0022	.0163
.0217	-.0958	.0322	.0264	-.0051	-.0031	.0199
.0253	-.1210	.0373	.0292	-.0077	-.0040	.0244
M = 0.90						
.0000	.1028	.0152	-.0223	.0132	.0005	.0000
.0009	.0965	.0158	-.0163	.0124	.0004	.0009
.0043	.0392	.0179	-.0038	.0077	.0001	.0034
.0077	-.0027	.0212	.0056	.0044	-.0005	.0077
.0119	-.0350	.0239	.0142	.0014	-.0013	.0111
.0162	-.0668	.0277	.0198	-.0017	-.0020	.0154
.0205	-.0907	.0310	.0260	-.0041	-.0029	.0196
.0247	-.1150	.0364	.0309	-.0068	-.0037	.0230

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.0950	.0145	-.0257	.0133	.0007	.0000
.0008	.0928	.0150	-.0175	.0122	.0006	.0008
.0040	.0474	.0176	-.0024	.0083	.0002	.0032
.0080	.0000	.0202	.0070	.0044	-.0004	.0072
.0113	-.0333	.0233	.0183	.0013	-.0012	.0113
.0153	-.0610	.0269	.0247	-.0014	-.0022	.0145
.0193	-.0888	.0305	.0304	-.0039	-.0030	.0185
.0233	-.1089	.0346	.0354	-.0060	-.0038	.0217
M = 1.00						
.0000	.0863	.0163	-.0317	.0122	.0003	.0000
.0008	.0839	.0153	-.0293	.0124	.0002	.0008
.0038	.0602	.0193	-.0108	.0094	.0000	.0038
.0076	.0188	.0217	.0045	.0063	-.0006	.0068
.0114	-.0125	.0237	.0161	-.0029	-.0015	.0106
.0152	-.0535	.0257	.0261	-.0008	-.0021	.0144
.0182	-.0843	.0291	.0325	-.0035	-.0026	.0175
.0220	-.1041	.0336	.0365	-.0058	-.0036	.0213
M = 1.05						
.0000	.0782	.0190	-.0264	.0107	.0001	.0000
.0007	.0704	.0204	-.0227	.0111	.0002	.0007
.0036	.0481	.0209	-.0124	.0086	-.0002	.0036
.0072	.0204	.0223	-.0002	.0061	-.0006	.0065
.0108	-.0097	.0232	.0138	.0032	-.0012	.0101
.0144	-.0398	.0256	.0256	-.0000	-.0019	.0136
.0179	-.0629	.0304	.0323	-.0021	-.0026	.0165
.0215	-.1000	.0327	.0312	-.0048	-.0034	.0201
M = 1.10						
.0000	.0778	.0188	-.0247	.0101	.0003	.0000
.0007	.0643	.0179	-.0204	.0096	.0001	.0007
.0034	.0509	.0202	-.0136	.0091	.0001	.0034
.0068	.0286	.0220	-.0010	.0072	-.0003	.0068
.0108	-.0004	.0229	.0104	.0046	-.0010	.0102
.0142	-.0295	.0234	.0212	.0010	-.0017	.0129
.0176	-.0518	.0270	.0290	-.0015	-.0024	.0163
.0210	-.0831	.0298	.0352	-.0041	-.0031	.0196

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(g) $\alpha = 4$; $\Lambda_j = -26.5°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.2278	.0235	-.0267	.0276	-.0023	.0000
.0000	.2101	.0235	-.0241	.0264	-.0023	.0000
.0058	.1572	.0281	-.0146	.0220	-.0023	.0058
.0127	.1086	.0335	-.0046	.0170	-.0027	.0115
.0196	.0600	.0389	-.0008	.0128	-.0037	.0184
.0265	.0309	.0462	.0029	.0091	-.0050	.0242
.0334	.0159	.0507	.0034	.0066	-.0061	.0311
.0403	-.0106	.0561	.0000	-.0031	-.0071	.0369
M = 0.80						
.0000	.2441	.0313	-.0327	.0279	-.0023	.0000
.0010	.2382	.0319	-.0300	.0277	-.0023	.0010
.0038	.1903	.0343	-.0198	.0244	-.0024	.0038
.0086	.1484	.0368	-.0122	.0205	-.0027	.0086
.0134	.1125	.0380	-.0042	.0174	-.0037	.0124
.0182	.0766	.0405	.0006	.0139	-.0038	.0172
.0230	.0419	.0429	.0022	.0104	-.0044	.0210
.0277	.0257	.0466	.0064	.0084	-.0056	.0258
M = 0.85						
.0000	.2395	.0292	-.0302	.0280	-.0023	.0000
.0009	.2283	.0298	-.0267	.0272	-.0023	.0009
.0036	.1919	.0338	-.0170	.0237	-.0022	.0036
.0082	.1500	.0356	-.0088	.0200	-.0025	.0082
.0127	.1052	.0384	-.0023	.0160	-.0032	.0118
.0172	.0800	.0407	.0061	.0133	-.0038	.0163
.0217	.0464	.0447	.0074	.0103	-.0045	.0199
.0254	.0157	.0470	.0094	.0072	-.0053	.0245
M = 0.90						
.0000	.2609	.0331	-.0398	.0293	-.0022	.0000
.0009	.2371	.0304	-.0282	.0283	-.0024	.0009
.0043	.2053	.0347	-.0226	.0252	-.0025	.0034
.0077	.1604	.0369	-.0115	.0215	-.0028	.0077
.0120	.1207	.0385	-.0030	.0176	-.0032	.0111
.0162	.0810	.0450	.0012	.0139	-.0036	.0154
.0205	.0519	.0439	.0042	.0111	-.0043	.0188
.0248	.0254	.0466	.0075	.0087	-.0051	.0231

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.2446	.0315	-.0494	.0294	-.0018	.0000
.0008	.2396	.0320	-.0401	.0281	-.0018	.0008
.0040	.2044	.0340	-.0253	.0249	-.0019	.0032
.0081	.1540	.0366	-.0135	.0205	-.0023	.0073
.0113	.1188	.0392	-.0030	.0168	-.0029	.0105
.0153	.0785	.0418	.0014	.0134	-.0033	.0145
.0193	.0483	.0444	.0059	.0108	-.0042	.0185
.0234	.0232	.0469	.0090	.0082	-.0048	.0218
M = 1.00						
.0000	.2241	.0350	-.0583	.0283	-.0022	.0000
.0008	.2193	.0350	-.0566	.0280	-.0022	.0008
.0038	.2001	.0419	-.0450	.0264	-.0024	.0038
.0076	.1568	.0385	-.0253	.0215	-.0023	.0069
.0114	.1231	.0399	-.0126	.0180	-.0027	.0107
.0145	.0847	.0424	-.0030	.0143	-.0033	.0137
.0183	.0510	.0444	.0035	.0110	-.0036	.0175
.0221	.0317	.0445	.0064	.0035	-.0045	.0206
M = 1.05						
.0000	.2107	.0350	-.0543	.0266	-.0021	.0000
.0007	.2061	.0360	-.0522	.0260	-.0020	.0007
.0036	.1922	.0384	-.0434	.0251	-.0022	.0036
.0072	.1599	.0398	-.0345	.0223	-.0023	.0065
.0108	.1275	.0407	-.0228	.0193	-.0026	.0101
.0144	.0998	.0431	-.0087	.0157	-.0028	.0137
.0180	.0675	.0455	.0061	.0121	-.0034	.0165
.0216	.0490	.0474	.0055	.0100	-.0041	.0201
M = 1.10						
.0000	.1900	.0325	-.0451	.0250	-.0019	.0000
.0007	.1856	.0325	-.0456	.0251	-.0020	.0007
.0034	.1767	.0338	-.0377	.0236	-.0022	.0034
.0068	.1499	.0370	-.0325	.0214	-.0022	.0068
.0102	.1276	.0393	-.0228	.0191	-.0023	.0095
.0136	.1008	.0416	-.0105	.0160	-.0026	.0129
.0176	.0785	.0439	-.0003	.0130	-.0032	.0163
.0210	.0562	.0439	.0061	.0099	-.0039	.0197

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(h) $\alpha = 8$; $\Lambda_j = -26.5^{\circ}$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.4829	.0691	.0221	.0571	-.0142	.0000
.0000	.4793	.0701	.0222	.0568	-.0141	.0000
.0057	.4509	.0710	.0224	.0538	-.0139	.0057
.0126	.4119	.0755	.0210	.0493	-.0137	.0115
.0195	.3711	.0810	.0196	.0447	-.0135	.0183
.0264	.3497	.0873	.0186	.0417	-.0135	.0241
.0332	.3267	.0919	.0148	.0383	-.0139	.0309
.0401	.3071	.1010	.0091	.0357	-.0103	.0378
M = 0.80						
.0000	.5330	.0888	-.0029	.0588	-.0133	.0000
.0010	.5258	.0869	-.0016	.0580	-.0132	.0010
.0048	.4957	.0919	.0029	.0546	-.0131	.0038
.0086	.4692	.0937	.0039	.0522	-.0131	.0086
.0133	.4416	.0968	.0036	.0494	-.0129	.0124
.0181	.4199	.1017	.0052	.0467	-.0131	.0171
.0228	.3934	.1030	.0022	.0448	-.0134	.0219
.0276	.3730	.1184	.0034	.0414	-.0134	.0257
M = 0.85						
.0000	.5425	.0871	-.0112	.0593	-.0130	.0000
.0009	.5312	.0900	-.0072	.0584	-.0130	.0009
.0036	.5143	.0934	-.0036	.0566	-.0129	.0036
.0081	.4806	.0963	-.0018	.0538	-.0128	.0081
.0126	.4581	.1015	-.0008	.0511	-.0129	.0117
.0171	.4479	.1055	-.0002	.0494	-.0131	.0162
.0216	.4175	.1090	-.0031	.0465	-.0132	.0198
.0252	.4074	.1130	-.0045	.0446	-.0134	.0234
M = 0.90						
.0000	.5427	.0960	-.0269	.0608	-.0136	.0000
.0008	.5512	.0965	-.0208	.0606	-.0135	.0008
.0042	.5363	.1014	-.0201	.0596	-.0134	.0042
.0085	.5023	.1014	-.0160	.0560	-.0131	.0076
.0119	.4906	.1069	-.0142	.0546	-.0132	.0110
.0161	.4597	.1085	-.0146	.0511	-.0131	.0153
.0204	.4416	.1123	-.0160	.0494	-.0133	.0195
.0246	.4331	.1167	-.0156	.0481	-.0137	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.2803	.0949	-.0841	.0649	-.0132	.0000
.0008	.2702	.0939	-.0725	.0624	-.0129	.0008
.0040	.2652	.0980	-.0687	.0616	-.0130	.0032
.0080	.2540	.1017	-.0641	.0586	-.0129	.0072
.0120	.2439	.1048	-.0609	.0563	-.0129	.0112
.0152	.2318	.1037	-.0550	.0539	-.0127	.0144
.0192	.2297	.1094	-.0543	.0529	-.0133	.0184
.0233	.2115	.1084	-.0513	.0503	-.0131	.0217
M = 1.00						
.0000	.5551	.0838	-.0806	.0690	-.0128	.0000
.0008	.5435	.0828	-.0747	.0685	-.0131	.0008
.0038	.5358	.0872	-.0714	.0666	-.0128	.0038
.0076	.5126	.0947	-.0642	.0640	-.0130	.0068
.0114	.5010	.0996	-.0639	.0611	-.0129	.0106
.0152	.4874	.1041	-.0631	.0588	-.0132	.0144
.0189	.4681	.1075	-.0579	.0541	-.0132	.0174
.0220	.4487	.1105	-.0528	.0502	-.0132	.0212
M = 1.05						
.0000	.5211	.0739	-.0775	.0632	-.0121	.0000
.0007	.5211	.0720	-.0770	.0631	-.0120	.0007
.0036	.5118	.0739	-.0753	.0618	-.0123	.0036
.0072	.4970	.0810	-.0685	.0600	-.0118	.0072
.0108	.4786	.0814	-.0631	.0575	-.0117	.0101
.0144	.4638	.0833	-.0593	.0555	-.0120	.0137
.0180	.4545	.0881	-.0572	.0535	-.0120	.0165
.0216	.4324	.0904	-.0572	.0513	-.0122	.0201
M = 1.10						
.0000	.5155	.0654	-.0537	.0633	-.0120	.0000
.0007	.5066	.0667	-.0715	.0626	-.0123	.0007
.0034	.4905	.0681	-.0672	.0609	-.0117	.0034
.0068	.4745	.0695	-.0607	.0588	-.0117	.0068
.0109	.4620	.0718	-.0565	.0564	-.0116	.0102
.0143	.4477	.0782	-.0569	.0539	-.0118	.0136
.0177	.4352	.0800	-.0491	.0524	-.0121	.0163
.0210	.4103	.0804	-.0481	.0496	-.0122	.0197

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(i) $\alpha = 12$; $\Lambda_{\frac{1}{4}} = -26.5°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.6393	.1429	.0468	.0670	-.0212	.0000
.0000	.6393	.1456	.0384	.0670	-.0213	.0000
.0057	.6251	.1547	.0397	.0642	-.0226	.0057
.0126	.5861	.1638	.0402	.0608	-.0242	.0115
.0195	.5683	.1729	.0407	.0591	-.0258	.0183
.0264	.5505	.1820	.0379	.0571	-.0269	.0252
.0332	.5328	.1911	.0339	.0566	-.0293	.0309
.0378	.5505	.2048	.0359	.0573	-.0313	.0355
M = 0.80						
.0000	.6788	.1727	.0047	.0660	-.0200	.0000
.0010	.6740	.1727	.0050	.0664	-.0200	.0010
.0038	.6620	.1776	.0107	.0605	-.0209	.0038
.0086	.6548	.1869	.0118	.0650	-.0212	.0086
.0133	.6379	.1912	.0145	.0627	-.0222	.0124
.0181	.6259	.1943	.0154	.0613	-.0233	.0171
.0228	.6138	.2035	.0152	.0601	-.0252	.0219
.0266	.6138	.2097	.0142	.0601	-.0269	.0247
M = 0.85						
.0000	.6798	.1730	-.0004	.0669	-.0195	.0000
.0009	.6753	.1701	.0016	.0658	-.0197	.0009
.0036	.6640	.1730	.0028	.0654	-.0207	.0036
.0081	.6640	.1788	.0092	.0652	-.0218	.0081
.0126	.6460	.1846	.0091	.0639	-.0226	.0117
.0171	.6370	.1932	.0084	.0630	-.0240	.0162
.0216	.6302	.2007	.0079	.0630	-.0252	.0198
.0261	.6122	.2047	.0062	.0612	-.0260	.0243
M = 0.90						
.0000	.7023	.1729	-.0085	.0691	-.0207	.0000
.0008	.6853	.1745	-.0078	.0687	-.0205	.0008
.0042	.6810	.1789	-.0008	.0679	-.0207	.0034
.0076	.6704	.1843	-.0026	.0674	-.0213	.0076
.0119	.6640	.1909	-.0031	.0664	-.0222	.0110
.0161	.6598	.1990	-.0053	.0662	-.0232	.0153
.0204	.6491	.2034	-.0063	.0650	-.0246	.0195
.0246	.6385	.2089	-.0072	.0639	-.0258	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.6983	.1701	-.0310	.0728	-.0197	.0000
.0008	.6882	.1686	-.0278	.0713	-.0198	.0008
.0040	.6821	.1763	-.0268	.0713	-.0204	.0032
.0080	.6821	.1815	-.0263	.0711	-.0219	.0072
.0120	.6720	.1893	-.0218	.0701	-.0231	.0112
.0152	.6680	.1971	-.0292	.0711	-.0246	.0144
.0192	.6477	.2023	-.0282	.0687	-.0254	.0184
.0233	.6477	.2075	-.0261	.0671	-.0265	.0217
M = 1.00						
.0000	.7350	.1735	-.0753	.0839	-.0207	.0000
.0008	.7350	.1759	-.0698	.0830	-.0215	.0008
.0038	.7157	.1809	-.0635	.0803	-.0216	.0038
.0076	.7002	.1883	-.0622	.0783	-.0214	.0068
.0114	.6963	.1933	-.0614	.0779	-.0221	.0106
.0152	.6770	.1958	-.0536	.0754	-.0232	.0144
.0189	.6576	.2007	-.0499	.0743	-.0244	.0174
.0220	.6422	.2007	-.0474	.0722	-.0251	.0205
M = 1.05						
.0000	.7245	.1680	-.0836	.0837	-.0221	.0000
.0007	.7189	.1714	-.0812	.0833	-.0212	.0007
.0036	.7059	.1752	-.0772	.0817	-.0216	.0036
.0072	.6873	.1761	-.0702	.0797	-.0225	.0064
.0107	.6687	.1809	-.0652	.0772	-.0245	.0100
.0143	.6557	.1880	-.0611	.0748	-.0252	.0136
.0179	.6353	.1894	-.0585	.0726	-.0267	.0172
.0215	.6223	.1904	-.0557	.0708	-.0277	.0200
M = 1.10						
.0000	.6996	.1586	-.0831	.0805	-.0230	.0000
.0007	.6907	.1577	-.0790	.0801	-.0216	.0007
.0034	.6817	.1655	-.0747	.0787	-.0231	.0034
.0068	.6494	.1632	-.0629	.0763	-.0225	.0068
.0108	.6458	.1701	-.0606	.0745	-.0241	.0101
.0142	.6315	.1793	-.0618	.0728	-.0241	.0128
.0176	.6189	.1839	-.0554	.0705	-.0255	.0162
.0209	.5920	.1774	-.0482	.0680	-.0272	.0196

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(j) $\alpha = 16$; $\Lambda_j = -26.5°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.6606	.1757	.0636	.0719	-.0256	.0000
.0000	.6731	.1784	.0562	.0717	-.0259	.0000
.0057	.6606	.1876	.0540	.0698	-.0271	.0057
.0125	.6338	.1967	.0480	.0679	-.0289	.0114
.0194	.6338	.2086	.0458	.0674	-.0310	.0182
.0262	.6017	.2178	.0409	.0653	-.0333	.0251
.0331	.5981	.2333	.0405	.0644	-.0361	.0319
.0399	.5749	.2425	.0362	.0630	-.0379	.0376
M = 0.80						
.0000	.7258	.2108	.0000	.0715	-.0242	.0000
.0009	.7137	.2108	.0022	.0712	-.0248	.0009
.0038	.7016	.2139	.0045	.0705	-.0253	.0038
.0085	.7016	.2201	.0047	.0705	-.0267	.0085
.0132	.6943	.2294	.0059	.0705	-.0286	.0132
.0180	.6895	.2325	.0081	.0703	-.0298	.0170
.0227	.6701	.2387	.0055	.0682	-.0314	.0218
.0274	.6532	.2480	.0066	.0672	-.0334	.0255
M = 0.85						
.0000	.7241	.2116	-.0140	.0711	-.0237	.0000
.0009	.7287	.2140	-.0119	.0711	-.0237	.0009
.0036	.7241	.2174	-.0091	.0704	-.0241	.0036
.0081	.7196	.2232	-.0078	.0708	-.0259	.0081
.0125	.7174	.2308	-.0072	.0715	-.0272	.0116
.0170	.7083	.2360	-.0076	.0711	-.0289	.0161
.0215	.6902	.2470	-.0068	.0695	-.0302	.0206
.0260	.6811	.2493	-.0061	.0682	-.0317	.0242
M = 0.90						
.0000	.7425	.2171	-.0182	.0736	-.0235	.0000
.0008	.7339	.2166	-.0185	.0739	-.0237	.0008
.0042	.7382	.2220	-.0164	.0728	-.0246	.0034
.0085	.7275	.2314	-.0169	.0732	-.0262	.0076
.0118	.7318	.2357	-.0182	.0739	-.0271	.0118
.0161	.7168	.2363	-.0184	.0726	-.0289	.0152
.0203	.7168	.2467	-.0178	.0724	-.0300	.0194
.0245	.6954	.2495	-.0182	.0703	-.0319	.0228

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.7428	.2159	-.0319	.0756	-.0245	.0000
.0008	.7448	.2138	-.0298	.0768	-.0242	.0008
.0040	.7367	.2180	-.0277	.0750	-.0240	.0032
.0080	.7326	.2268	-.0363	.0768	-.0262	.0072
.0120	.7428	.2320	-.0295	.0770	-.0281	.0112
.0160	.7183	.2372	-.0320	.0750	-.0290	.0152
.0199	.7021	.2409	-.0341	.0742	-.0303	.0183
.0231	.6919	.2477	-.0312	.0726	-.0317	.0223
M = 1.00						
.0000	.7973	.2237	-.0798	.0925	-.0256	.0000
.0008	.7876	.2242	-.0746	.0901	-.0260	.0008
.0038	.7778	.2242	-.0701	.0884	-.0264	.0038
.0075	.7681	.2292	-.0681	.0867	-.0265	.0068
.0113	.7584	.2322	-.0679	.0855	-.0277	.0105
.0158	.7390	.2387	-.0626	.0825	-.0289	.0143
.0188	.7253	.2417	-.0605	.0806	-.0303	.0181
.0226	.7001	.2442	-.0570	.0785	-.0315	.0211
M = 1.05						
.0000	.7809	.2130	-.0902	.0922	-.0284	.0000
.0007	.7716	.2125	-.0895	.0915	-.0280	.0007
.0036	.7660	.2125	-.0848	.0900	-.0277	.0036
.0071	.7510	.2130	-.0800	.0874	-.0287	.0071
.0107	.7435	.2221	-.0747	.0856	-.0270	.0107
.0142	.7249	.2250	-.0733	.0831	-.0284	.0135
.0185	.7137	.2274	-.0728	.0812	-.0290	.0171
.0221	.7062	.2317	-.0692	.0798	-.0291	.0206
M = 1.10						
.0000	.7485	.2052	-.0850	.0893	-.0266	.0000
.0007	.7395	.2019	-.0804	.0883	-.0268	.0007
.0034	.7340	.2010	-.0765	.0865	-.0274	.0034
.0074	.7196	.2019	-.0684	.0844	-.0266	.0067
.0107	.6998	.2056	-.0641	.0820	-.0268	.0101
.0141	.6944	.2103	-.0619	.0798	-.0266	.0134
.0175	.6871	.2126	-.0631	.0777	-.0292	.0168
.0208	.6727	.2112	-.0595	.0763	-.0289	.0195

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(k) $\alpha = 20$; $\Lambda_j = -26.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	.7407	.3117	.0641	.0710	-.0361	.0000
.0000	.7407	.3163	.0667	.0717	-.0354	.0000
.0057	.7317	.3438	.0631	.0705	-.0379	.0057
.0125	.7353	.3530	.0625	.0696	-.0382	.0114
.0193	.7317	.3594	.0612	.0673	-.0377	.0182
.0262	.7138	.3667	.0584	.0642	-.0387	.0250
.0330	.6959	.3759	.0571	.0628	-.0390	.0318
.0398	.6781	.3805	.0555	.0612	-.0405	.0375
M = 0.80						
.0000	.7503	.3273	.0209	.0717	-.0338	.0000
.0009	.7503	.3273	.0217	.0717	-.0336	.0009
.0047	.7503	.3298	.0227	.0713	-.0348	.0038
.0094	.7503	.3360	.0232	.0713	-.0353	.0085
.0141	.7430	.3360	.0222	.0701	-.0359	.0132
.0179	.7430	.3422	.0241	.0694	-.0359	.0170
.0236	.7260	.3422	.0250	.0677	-.0363	.0217
.0273	.7139	.3522	.0310	.0658	-.0371	.0260
M = 0.85						
.0000	.7473	.3201	.0148	.0722	-.0325	.0000
.0009	.7473	.3201	.0148	.0724	-.0331	.0009
.0045	.7473	.3224	.0149	.0718	-.0334	.0036
.0089	.7518	.3259	.0138	.0726	-.0339	.0080
.0125	.7700	.3294	.0156	.0726	-.0343	.0125
.0170	.7632	.3317	.0151	.0718	-.0348	.0161
.0214	.7518	.3375	.0158	.0700	-.0361	.0205
.0259	.7473	.3434	.0172	.0689	-.0363	.0241
M = 0.90						
.0000	.7710	.3225	.0042	.0760	-.0340	.0000
.0008	.7710	.3225	.0043	.0754	-.0338	.0008
.0042	.7710	.3247	.0044	.0752	-.0340	.0034
.0084	.7710	.3302	.0045	.0750	-.0343	.0076
.0126	.7817	.3357	.0042	.0758	-.0346	.0118
.0160	.7817	.3434	.0051	.0760	-.0354	.0152
.0202	.7753	.3467	.0061	.0750	-.0363	.0194
.0244	.7602	.3522	.0049	.0729	-.0368	.0236

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	.7846	.3351	-.0038	.0799	-.0336	.0000
.0008	.7948	.3403	-.0018	.0809	-.0340	.0008
.0040	.7846	.3434	-.0026	.0805	-.0340	.0040
.0079	.7785	.3434	-.0075	.0799	-.0343	.0071
.0119	.7948	.3455	-.0068	.0803	-.0348	.0111
.0159	.7846	.3455	-.0096	.0789	-.0350	.0143
.0199	.7846	.3539	-.0080	.0783	-.0360	.0183
.0238	.7744	.3591	-.0087	.0767	-.0363	.0222
M = 1.00						
.0000	.8574	.3403	-.0315	.0956	-.0363	.0000
.0008	.8477	.3403	-.0326	.0937	-.0361	.0008
.0038	.8379	.3353	-.0280	.0918	-.0356	.0038
.0075	.8223	.3373	-.0321	.0926	-.0357	.0068
.0113	.8184	.3353	-.0285	.0899	-.0356	.0105
.0143	.8086	.3353	-.0326	.0880	-.0360	.0135
.0188	.8008	.3383	-.0287	.0849	-.0362	.0173
.0225	.7949	.3403	-.0306	.0853	-.0370	.0210
M = 1.05						
.0000	.8666	.3412	-.0672	.1010	-.0386	.0000
.0007	.8572	.3412	-.0639	.0999	-.0388	.0007
.0035	.8347	.3316	-.0585	.0980	-.0389	.0035
.0071	.8235	.3307	-.0507	.0951	-.0382	.0071
.0106	.8066	.3297	-.0429	.0922	-.0377	.0099
.0149	.7972	.3287	-.0464	.0904	-.0379	.0142
.0184	.7859	.3316	-.0427	.0816	-.0386	.0170
.0220	.7672	.3336	-.0392	.0871	-.0389	.0205
M = 1.10						
.0000	.8405	.3221	-.0663	.0961	-.0417	.0000
.0007	.8296	.3203	-.0654	.0954	-.0416	.0007
.0040	.8242	.3165	-.0624	.0936	-.0410	.0033
.0067	.8115	.3175	-.0611	.0911	-.0402	.0067
.0107	.8007	.3165	-.0581	.0894	-.0392	.0100
.0140	.7898	.3203	-.0575	.0876	-.0393	.0134
.0174	.7825	.3240	-.0566	.0862	-.0395	.0160
.0214	.7680	.3249	-.0563	.0844	-.0397	.0201

TABLE II. - AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(l) $\alpha = -4$; $\Lambda_j = -26.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.2172	-.0045	.0182	-.0232	.0030	.0000
.0000	-.2349	-.0009	.0228	-.0245	.0030	.0000
.0058	-.2826	.0054	.0352	-.0269	-.0005	.0058
.0127	-.3355	.0154	.0445	-.0315	-.0067	.0115
.0196	-.3709	.0235	.0542	-.0350	-.0112	.0184
.0265	-.4062	.0317	.0556	-.0379	-.0141	.0242
.0334	-.4380	.0407	.0548	-.0408	-.0177	.0311
.0403	-.4415	.0480	.0550	-.0432	-.0195	.0369
M = 0.80						
.0000	-.2394	.0080	.0257	-.0247	-.0010	.0000
.0010	-.2573	.0086	.0313	-.0258	-.0011	.0010
.0038	-.2992	.0123	.0430	-.0285	-.0023	.0038
.0086	-.3471	.0184	.0531	-.0320	-.0035	.0086
.0134	-.3866	.0245	.0609	-.0354	-.0048	.0124
.0182	-.4129	.0325	.0665	-.0376	-.0062	.0172
.0230	-.4368	.0399	.0697	-.0404	-.0075	.0210
.0277	-.4548	.0448	.0729	-.0421	-.0083	.0258
M = 0.85						
.0000	-.2518	.0086	.0321	-.0254	-.0012	.0000
.0009	-.2663	.0086	.0151	-.0265	-.0014	.0009
.0036	-.3078	.0120	.0468	-.0294	-.0021	.0036
.0082	-.3581	.0201	.0572	-.0331	-.0050	.0082
.0127	-.3861	.0264	.0653	-.0356	-.0050	.0118
.0172	-.4197	.0333	.0719	-.0386	-.0060	.0163
.0217	-.4454	.0401	.0765	-.0408	-.0072	.0199
.0254	-.4588	.0459	.0797	-.0427	-.0082	.0245
M = 0.90						
.0000	-.2592	.0098	.0327	-.0266	-.0012	.0000
.0009	-.2730	.0098	.0372	-.0277	-.0015	.0009
.0043	-.3227	.0136	.0543	-.0311	-.0031	.0034
.0077	-.3703	.0206	.0686	-.0347	-.0038	.0077
.0120	-.4021	.0282	.0787	-.0383	-.0048	.0111
.0162	-.4317	.0352	.0860	-.0408	-.0058	.0154
.0205	-.4656	.0423	.0929	-.0434	-.0070	.0188
.0248	-.4867	.0483	.0960	-.0457	-.0081	.0231

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.2818	.0103	.0581	-.0288	-.0014	.0000
.0008	-.2920	.0124	.0677	-.0302	-.0015	.0008
.0040	-.3422	.0155	.0888	-.0345	-.0024	.0032
.0081	-.3926	.0232	.1087	-.0379	-.0039	.0073
.0113	-.4228	.0304	.1211	-.0405	-.0052	.0105
.0153	-.4490	.0377	.1309	-.0430	-.0062	.0145
.0193	-.4630	.0428	.1330	-.0448	-.0072	.0177
.0234	-.4832	.0480	.1347	-.0462	-.0083	.0218
M = 1.00						
.0000	-.2742	.0148	.0606	-.0294	-.0018	.0000
.0008	-.2934	.0158	.0667	-.0309	-.0019	.0008
.0038	-.3319	.0222	.0882	-.0344	-.0029	.0038
.0076	-.3848	.0271	.0974	-.0379	-.0040	.0069
.0114	-.4040	.0311	.1073	-.0404	-.0047	.0107
.0145	-.4233	.0370	.1122	-.0425	-.0059	.0137
.0183	-.4521	.0429	.1147	-.0444	-.0068	.0175
.0221	-.4666	.0493	.1169	-.0462	-.0079	.0213
M = 1.05						
.0000	-.2642	.0208	.0578	-.0285	-.0013	.0000
.0007	-.2735	.0204	.0621	-.0286	-.0015	.0007
.0036	-.3049	.0227	.0779	-.0317	-.0021	.0036
.0072	-.3474	.0275	.0931	-.0353	-.0031	.0065
.0108	-.3788	.0331	.1029	-.0380	-.0043	.0101
.0144	-.4065	.0383	.1078	-.0404	-.0052	.0137
.0180	-.4250	.0440	.1121	-.0429	-.0063	.0165
.0216	-.4435	.0483	.1143	-.0447	-.0072	.0201
M = 1.10						
.0000	-.2587	.0183	.0559	-.0275	-.0015	.0000
.0007	-.2720	.0187	.0587	-.0276	-.0017	.0007
.0034	-.3015	.0224	.0748	-.0307	-.0022	.0034
.0068	-.3300	.0251	.0880	-.0333	-.0031	.0068
.0102	-.3568	.0297	.0977	-.0362	-.0040	.0095
.0136	-.3835	.0343	.1050	-.0383	-.0051	.0129
.0177	-.4103	.0402	.1138	-.0408	-.0061	.0163
.0210	-.4281	.0448	.1104	-.0421	-.0068	.0197

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(m) $\alpha = -8$; $\Lambda_j = -26.5°$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.4722	.0619	.0147	-.0428	-.0077	.0000
.0000	-.4953	.0646	.0216	-.0443	-.0079	.0000
.0057	-.5255	.0746	.0297	-.0462	-.0091	.0057
.0126	-.5752	.0892	.0394	-.0497	-.0112	.0115
.0195	-.6143	.1028	.0452	-.0533	-.0135	.0183
.0264	-.6409	.1146	.0485	-.0559	-.0152	.0252
.0332	-.6764	.1256	.0474	-.0589	-.0167	.0309
.0401	-.6942	.1328	.0460	-.0611	-.0171	.0378
M = 0.80						
.0000	-.4955	.0635	.0303	-.0467	-.0071	.0000
.0010	-.5148	.0666	.0335	-.0479	-.0071	.0010
.0038	-.5437	.0697	.0396	-.0497	-.0076	.0038
.0086	-.5797	.0807	.0476	-.0523	-.0086	.0086
.0133	-.6110	.0881	.0521	-.0547	-.0099	.0124
.0181	-.6519	.1005	.0595	-.0575	-.0114	.0171
.0228	-.6760	.1091	.0637	-.0593	-.0128	.0219
.0276	-.6880	.1159	.0665	-.0603	-.0143	.0257
M = 0.85						
.0000	-.5087	.0652	.0348	-.0478	-.0071	.0000
.0009	-.5245	.0663	.0379	-.0487	-.0072	.0009
.0036	-.5605	.0709	.0453	-.0511	-.0080	.0036
.0081	-.5987	.0813	.0571	-.0536	-.0092	.0081
.0126	-.6325	.0911	.0661	-.0564	-.0106	.0117
.0171	-.6550	.0986	.0700	-.0579	-.0119	.0162
.0216	-.6775	.1055	.0739	-.0595	-.0131	.0198
.0261	-.7000	.1142	.0779	-.0612	-.0141	.0243
M = 0.90						
.0000	-.5299	.0660	.0503	-.0502	-.0071	.0000
.0008	-.5342	.0671	.0528	-.0502	-.0070	.0008
.0042	-.5874	.0742	.0652	-.0535	-.0077	.0034
.0085	-.6193	.0823	.0737	-.0556	-.0087	.0076
.0119	-.6619	.0916	.0842	-.0587	-.0100	.0110
.0161	-.6832	.0987	.0880	-.0602	-.0112	.0153
.0204	-.7045	.1052	.0958	-.0627	-.0126	.0195
.0246	-.7257	.1134	.1043	-.0647	-.0140	.0229

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.5487	.0690	.0771	-.0529	-.0074	.0000
.0008	-.5690	.0690	.0836	-.0549	-.0076	.0008
.0040	-.6054	.0742	.0968	-.0567	-.0086	.0032
.0080	-.6398	.0820	.1085	-.0592	-.0096	.0072
.0120	-.6803	.0923	.1201	-.0628	-.0110	.0112
.0152	-.7067	.0991	.1258	-.0652	-.0122	.0144
.0192	-.7310	.1069	.1301	-.0669	-.0135	.0184
.0232	-.7411	.1131	.1335	-.0685	-.0141	.0216
M = 1.00						
.0000	-.5534	.0724	.1004	-.0551	-.0073	.0000
.0008	-.5727	.0734	.1038	-.0566	-.0075	.0008
.0038	-.6018	.0793	.1224	-.0594	-.0082	.0038
.0076	-.6405	.0858	.1276	-.0621	-.0091	.0068
.0114	-.6695	.0932	.1343	-.0645	-.0101	.0106
.0151	-.6888	.0982	.1383	-.0657	-.0111	.0136
.0189	-.6985	.1056	.1421	-.0670	-.0123	.0174
.0220	-.7178	.1106	.1428	-.0685	-.0134	.0204
M = 1.05						
.0000	-.5409	.0719	.1068	-.0555	-.0070	.0000
.0007	-.5502	.0729	.1111	-.0562	-.0071	.0007
.0036	-.5837	.0753	.1222	-.0585	-.0080	.0036
.0072	-.6153	.0824	.1303	-.0607	-.0089	.0064
.0107	-.6432	.0895	.1353	-.0625	-.0099	.0100
.0143	-.6525	.0934	.1384	-.0631	-.0107	.0136
.0179	-.6710	.1015	.1416	-.0649	-.0119	.0172
.0215	-.6896	.1086	.1423	-.0662	-.0128	.0200
M = 1.10						
.0000	-.5222	.0671	.1021	-.0528	-.0067	.0000
.0007	-.5222	.0671	.1071	-.0530	-.0065	.0007
.0034	-.5581	.0740	.1170	-.0558	-.0074	.0034
.0074	-.5940	.0772	.1249	-.0581	-.0087	.0067
.0108	-.6119	.0841	.1295	-.0595	-.0094	.0101
.0142	-.6299	.0901	.1337	-.0614	-.0105	.0128
.0175	-.6478	.0947	.1353	-.0628	-.0115	.0162
.0209	-.6658	.1012	.1375	-.0639	-.0125	.0196

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(n) $\alpha = -12$; $\Lambda_j = -26.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.6533	.1482	.0200	-.0560	-.0148	.0000
.0000	-.6658	.1482	.0249	-.0566	-.0154	.0000
.0057	-.7015	.1573	.0336	-.0587	-.0167	.0057
.0125	-.7372	.1747	.0445	-.0613	-.0185	.0114
.0194	-.7818	.1893	.0488	-.0639	-.0203	.0182
.0274	-.8085	.2031	.0508	-.0660	-.0220	.0251
.0331	-.8264	.2122	.0498	-.0674	-.0233	.0319
.0399	-.8496	.2223	.0464	-.0686	-.0247	.0376
M = 0.80						
.0000	-.6895	.1382	.0425	-.0594	-.0150	.0000
.0009	-.7016	.1395	.0463	-.0599	-.0155	.0009
.0038	-.7282	.1469	.0570	-.0618	-.0165	.0038
.0085	-.7621	.1606	.0635	-.0637	-.0177	.0085
.0132	-.7935	.1717	.0693	-.0658	-.0189	.0132
.0180	-.8177	.1820	.0711	-.0670	-.0199	.0170
.0227	-.8419	.1934	.0752	-.0689	-.0210	.0218
.0274	-.8540	.1996	.0746	-.0703	-.0221	.0255
M = 0.85						
.0000	-.7015	.1374	.0504	-.0607	-.0150	.0000
.0009	-.7128	.1392	.0534	-.0611	-.0153	.0009
.0045	-.7422	.1490	.0629	-.0627	-.0162	.0036
.0081	-.7762	.1606	.0718	-.0646	-.0186	.0081
.0125	-.7988	.1722	.0757	-.0666	-.0186	.0116
.0170	-.8237	.1809	.0794	-.0688	-.0197	.0161
.0215	-.8463	.1896	.0833	-.0704	-.0205	.0206
.0260	-.8690	.1983	.0841	-.0724	-.0218	.0242
M = 0.90						
.0000	-.7339	.1382	.0682	-.0641	-.0150	.0000
.0008	-.7553	.1409	.0721	-.0649	-.0153	.0008
.0042	-.7767	.1491	.0847	-.0663	-.0168	.0034
.0085	-.8195	.1628	.0951	-.0693	-.0178	.0076
.0118	-.8409	.1711	.1018	-.0709	-.0189	.0118
.0161	-.8837	.1820	.1093	-.0734	-.0199	.0152
.0203	-.9051	.1919	.1070	-.0762	-.0211	.0194
.0245	-.9265	.1985	.1226	-.0780	-.0223	.0228

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.7596	.1445	.0927	-.0683	-.0154	.0000
.0008	-.7901	.1497	.1095	-.0703	-.0161	.0008
.0040	-.8166	.1576	.1208	-.0723	-.0171	.0040
.0080	-.8614	.1706	.1372	-.0758	-.0187	.0072
.0120	-.9021	.1837	.1544	-.0790	-.0201	.0112
.0159	-.9123	.1889	.1562	-.0804	-.0209	.0143
.0199	-.9428	.1993	.1643	-.0830	-.0222	.0183
.0239	-.9632	.2071	.1679	-.0854	-.0229	.0223
M = 1.00						
.0000	-.8212	.1581	.1547	-.0772	-.0170	.0000
.0008	-.8212	.1581	.1547	-.0776	-.0172	.0008
.0038	-.8484	.1655	.1681	-.0791	-.0182	.0038
.0075	-.8873	.1755	.1750	-.0820	-.0194	.0068
.0113	-.9068	.1855	.1836	-.0839	-.0203	.0105
.0151	-.9263	.1930	.1870	-.0854	-.0211	.0143
.0188	-.9457	.1979	.1850	-.0861	-.0221	.0173
.0226	-.9457	.2054	.1848	-.0869	-.0228	.0211
M = 1.05						
.0000	-.7905	.1532	.1587	-.0764	-.0164	.0000
.0007	-.7905	.1542	.1650	-.0769	-.0166	.0007
.0036	-.8279	.1614	.1705	-.0787	-.0175	.0036
.0071	-.8466	.1686	.1779	-.0800	-.0185	.0071
.0107	-.8653	.1781	.1790	-.0815	-.0193	.0100
.0142	-.8840	.1853	.1812	-.0825	-.0202	.0135
.0178	-.8933	.1901	.1823	-.0831	-.0208	.0171
.0220	-.9213	.1973	.1815	-.0847	-.0217	.0206
M = 1.10						
.0000	-.7613	.1419	.1536	-.0734	-.0156	.0000
.0007	-.7686	.1442	.1578	-.0739	-.0162	.0007
.0034	-.8046	.1512	.1641	-.0755	-.0168	.0034
.0074	-.8227	.1604	.1703	-.0769	-.0177	.0067
.0107	-.8407	.1673	.1734	-.0783	-.0186	.0101
.0141	-.8516	.1743	.1762	-.0795	-.0194	.0134
.0175	-.8768	.1812	.1756	-.0800	-.0200	.0168
.0208	-.8768	.1858	.1755	-.0809	-.0207	.0195

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(o) $\alpha = -16$; $\Lambda_j = -26.5^\circ$

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.8109	.2389	.0423	-.0644	-.0247	.0000
.0000	-.8144	.2398	.0443	-.0644	-.0248	.0000
.0057	-.8502	.2535	.0545	-.0665	-.0262	.0057
.0125	-.8895	.2691	.0637	-.0690	-.0278	.0114
.0194	-.9252	.2856	.0672	-.0714	-.0295	.0182
.0262	-.9430	.2966	.0687	-.0726	-.0309	.0251
.0330	-.9680	.3085	.0644	-.0737	-.0324	.0319
.0399	-.9788	.3194	.0611	-.0744	-.0337	.0376
M = 0.80						
.0000	-.8234	.2253	.0574	-.0656	-.0235	.0000
.0009	-.8379	.2289	.0720	-.0666	-.0238	.0009
.0047	-.8573	.2383	.0797	-.0675	-.0247	.0038
.0085	-.8863	.2507	.0870	-.0697	-.0261	.0085
.0142	-.9227	.2662	.0920	-.0720	-.0275	.0132
.0180	-.9420	.2755	.0965	-.0732	-.0287	.0170
.0227	-.9590	.2867	.0990	-.0749	-.0300	.0217
.0274	-.9711	.2972	.0973	-.0756	-.0310	.0265
M = 0.85						
.0000	-.8177	.2258	.0841	-.0660	-.0233	.0000
.0009	-.8245	.2275	.0778	-.0663	-.0233	.0009
.0045	-.8563	.2391	.0861	-.0683	-.0244	.0036
.0081	-.8925	.2507	.0926	-.0702	-.0258	.0081
.0125	-.9197	.2635	.0989	-.0724	-.0270	.0116
.0170	-.9423	.2722	.0906	-.0740	-.0280	.0161
.0215	-.9537	.2859	.1040	-.0755	-.0294	.0206
.0260	-.9763	.2860	.1048	-.0762	-.0303	.0242
M = 0.90						
.0000	-.8439	.2239	.0897	-.0685	-.0234	.0000
.0008	-.8546	.2294	.0945	-.0695	-.0235	.0008
.0042	-.8803	.2382	.1025	-.0712	-.0245	.0034
.0084	-.9124	.2513	.1093	-.0733	-.0259	.0076
.0118	-.9338	.2623	.1146	-.0752	-.0270	.0118
.0160	-.9660	.2755	.1183	-.0773	-.0282	.0152
.0203	-.9874	.2843	.1207	-.0787	-.0294	.0194
.0245	-1.0088	.2931	.1214	-.0800	-.0305	.0228

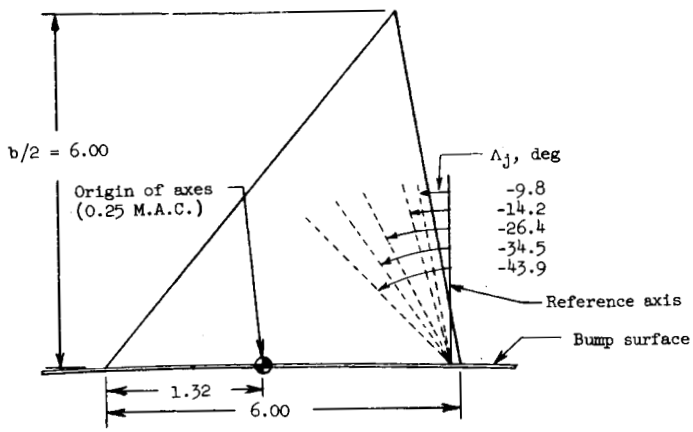
C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.8983	.2391	.1140	-.0749	-.0245	.0000
.0008	-.9085	.2391	.1215	-.0759	-.0248	.0008
.0040	-.9391	.2526	.1324	-.0781	-.0258	.0040
.0080	-.9737	.2631	.1372	-.0804	-.0270	.0072
.0120	-1.0226	.2787	.1459	-.0831	-.0292	.0112
.0159	-1.0226	.2860	.1546	-.0858	-.0299	.0143
.0199	-1.0633	.2912	.1619	-.0878	-.0314	.0183
.0239	-1.1041	.3069	.1802	-.0895	-.0336	.0223
M = 1.00						
.0000	-.9970	.2634	.1895	-.0900	-.0282	.0000
.0008	-1.0087	.2634	.1906	-.0908	-.0284	.0008
.0038	-1.0165	.2714	.1983	-.0923	-.0293	.0038
.0075	-1.0554	.2784	.2052	-.0940	-.0302	.0068
.0113	-1.0749	.2914	.2138	-.0957	-.0314	.0105
.0150	-1.0866	.2964	.2126	-.0957	-.0323	.0143
.0188	-1.0943	.3034	.2170	-.0976	-.0330	.0181
.0226	-1.1060	.3083	.2179	-.0980	-.0341	.0211
M = 1.05						
.0000	-.9762	.2530	.1927	-.0894	-.0275	.0000
.0007	-.9762	.2559	.1978	-.0897	-.0277	.0007
.0036	-1.0061	.2626	.2031	-.0912	-.0285	.0036
.0071	-1.0248	.2722	.2084	-.0930	-.0293	.0071
.0107	-1.0323	.2770	.2127	-.0934	-.0301	.0100
.0142	-1.0510	.2846	.2138	-.0941	-.0308	.0135
.0178	-1.0697	.2942	.2139	-.0956	-.0319	.0171
.0220	-1.0809	.2990	.2126	-.0956	-.0324	.0206
M = 1.10						
.0000	-.9247	.2443	.1939	-.0863	-.0261	.0000
.0007	-.9535	.2443	.1931	-.0873	-.0265	.0007
.0034	-.9788	.2536	.2005	-.0884	-.0272	.0034
.0074	-.9969	.2610	.2036	-.0891	-.0281	.0067
.0107	-1.0150	.2702	.2066	-.0902	-.0289	.0101
.0141	-1.0150	.2749	.2064	-.0909	-.0295	.0134
.0174	-1.0330	.2841	.2075	-.0923	-.0306	.0168
.0208	-1.0330	.2860	.2064	-.0923	-.0310	.0201

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Concluded

(p) $\alpha = -20$; $\Lambda_j = -26.5^\circ$

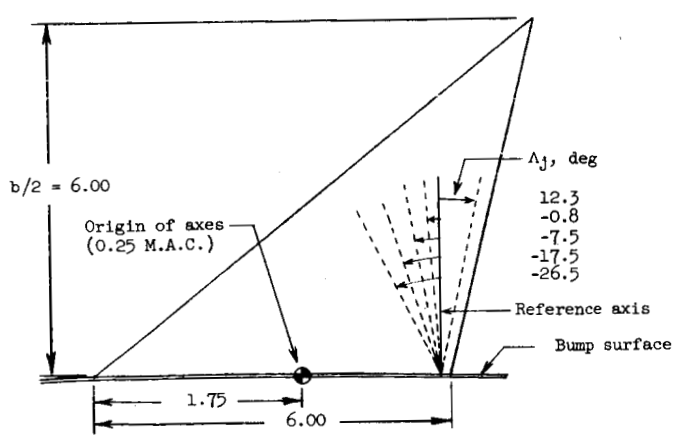
C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.60						
.0000	-.8724	.3266	.0367	-.0667	-.0299	.0000
.0011	-.8832	.3266	.0382	-.0672	-.0305	.0000
.0057	-.9083	.3404	.0469	-.0688	-.0311	.0057
.0125	-.9514	.3606	.0547	-.0711	-.0329	.0113
.0193	-.9765	.3772	.0552	-.0721	-.0345	.0181
.0261	-.9873	.3864	.0544	-.0730	-.0355	.0249
.0340	-.9909	.3937	.0518	-.0728	-.0366	.0317
.0408	-.9909	.4002	.0481	-.0725	-.0376	.0385
M = 0.80						
.0000	-.8832	.3204	.0699	-.0698	-.0304	.0000
.0009	-.8905	.3229	.0732	-.0702	-.0308	.0009
.0047	-.9222	.3367	.0812	-.0719	-.0319	.0038
.0085	-.9489	.3504	.0884	-.0735	-.0336	.0085
.0141	-.9781	.3678	.0932	-.0750	-.0347	.0132
.0188	-.9878	.3741	.0948	-.0757	-.0355	.0169
.0235	-.9951	.3828	.0945	-.0754	-.0364	.0216
.0282	-1.0000	.3903	.0925	-.0759	-.0369	.0263
M = 0.85						
.0000	-.9035	.3266	.0832	-.0723	-.0299	.0000
.0009	-.9081	.3301	.0852	-.0721	-.0306	.0009
.0036	-.9308	.3406	.0928	-.0741	-.0311	.0036
.0089	-.9650	.3557	.0998	-.0752	-.0326	.0080
.0125	-.9877	.3674	.1036	-.0768	-.0339	.0125
.0178	-1.0037	.3756	.1050	-.0772	-.0345	.0169
.0214	-1.0082	.3814	.1044	-.0770	-.0353	.0205
.0258	-1.0105	.3849	.1050	-.0770	-.0358	.0249
M = 0.90						
.0000	-.9063	.3503	.1115	-.0754	-.0315	.0000
.0008	-.9170	.3448	.1107	-.0748	-.0314	.0008
.0042	-.9449	.3557	.1196	-.0758	-.0323	.0034
.0084	-.9706	.3667	.1287	-.0777	-.0335	.0076
.0118	-1.0027	.3810	.1324	-.0798	-.0347	.0118
.0160	-1.0241	.3920	.1349	-.0809	-.0356	.0152
.0203	-1.0134	.3920	.1359	-.0798	-.0366	.0194
.0236	-1.0199	.3975	.1351	-.0800	-.0369	.0228

C_μ	C_L	C_D	C_m	C_l	C_n	C_T
M = 0.95						
.0000	-.9642	.3450	.1302	-.0803	-.0329	.0000
.0008	-.9642	.3489	.1329	-.0805	-.0329	.0008
.0040	-1.0029	.3646	.1401	-.0823	-.0338	.0040
.0080	-1.0437	.3802	.1499	-.0847	-.0352	.0072
.0119	-1.0518	.3886	.1489	-.0855	-.0363	.0111
.0159	-1.0722	.3959	.1523	-.0861	-.0373	.0143
.0199	-1.0926	.4063	.1529	-.0877	-.0381	.0183
.0231	-1.0926	.4116	.1527	-.0873	-.0386	.0215
M = 1.00						
.0000	-1.1029	.3884	.1976	-.0973	-.0379	.0000
.0008	-1.1000	.3900	.2195	-.0980	-.0391	.0008
.0038	-1.1418	.4034	.2205	-.1003	-.0388	.0038
.0075	-1.1808	.4184	.2348	-.1022	-.0411	.0068
.0113	-1.2003	.4284	.2305	-.1041	-.0413	.0105
.0150	-1.2120	.4364	.2400	-.1056	-.0418	.0143
.0188	-1.2315	.4434	.2433	-.1064	-.0441	.0180
.0226	-1.2315	.4483	.2431	-.1083	-.0449	.0211
M = 1.05						
M = 1.10						



Wing data:

Sweep of quarter-chord line, deg	30
Aspect ratio	4
Taper ratio	0
Wing area, ft	0.25
Mean aerodynamic chord, ft	0.33
Airfoil section (parallel to plane of symmetry)	NACA 65A004



Wing data:

Sweep of quarter-chord line, deg	45
Aspect ratio	4
Taper ratio	0
Wing area, sq ft	0.25
Mean aerodynamic chord, ft	0.33
Airfoil section (parallel to plane of symmetry)	NACA 65A004

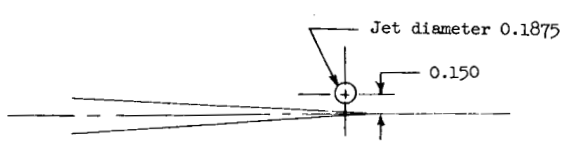


Figure 1.- Geometric characteristics of models used in investigation. All dimensions are in inches unless otherwise noted.

L-470

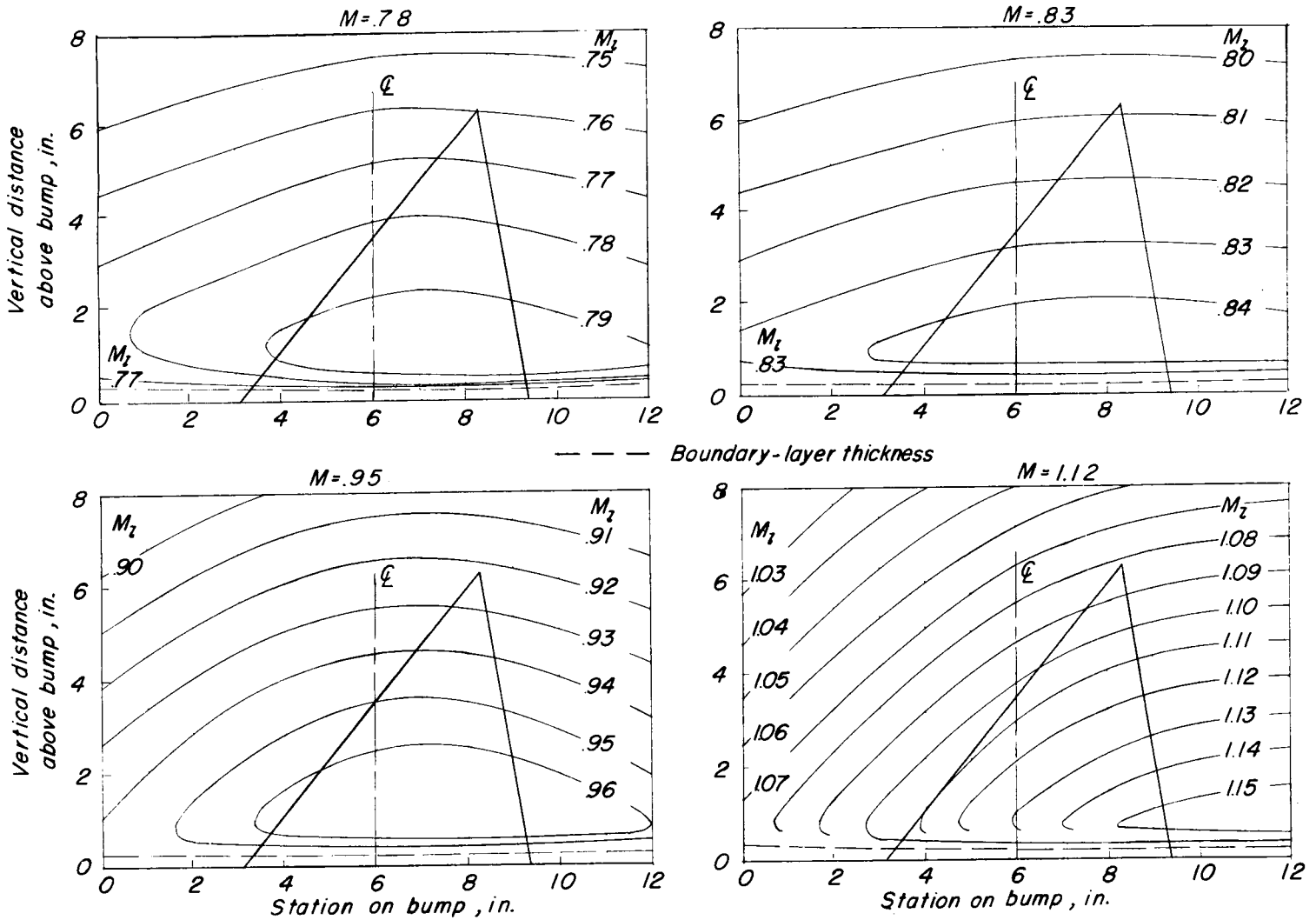


Figure 2.- Typical Mach number contours over transonic bump in region of 30° swept-wing-model location.

L-470

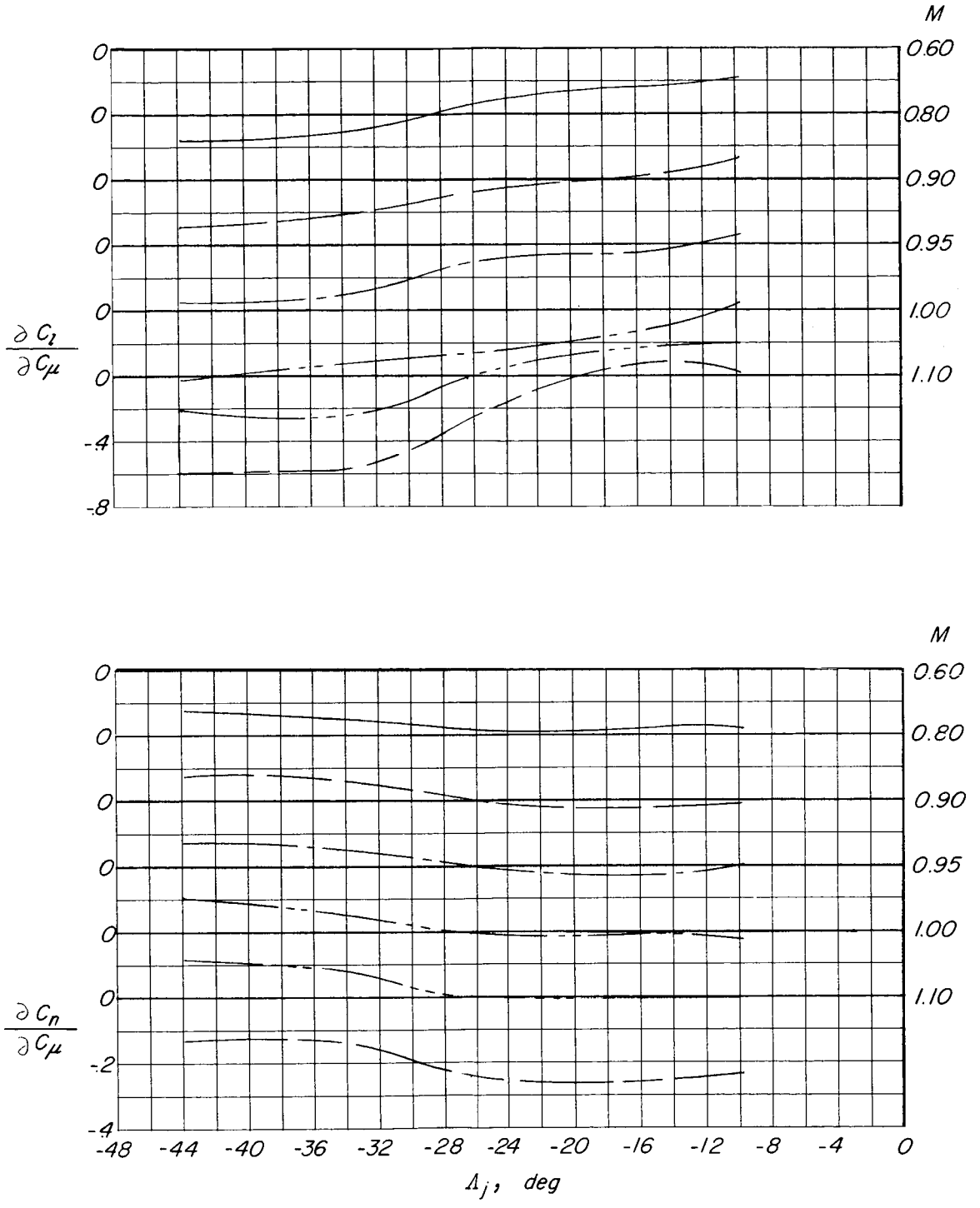


Figure 3.- Effect of Mach number and sweep of the jet on the aerodynamic characteristics of the 30° swept wing at $\alpha = 0°$.

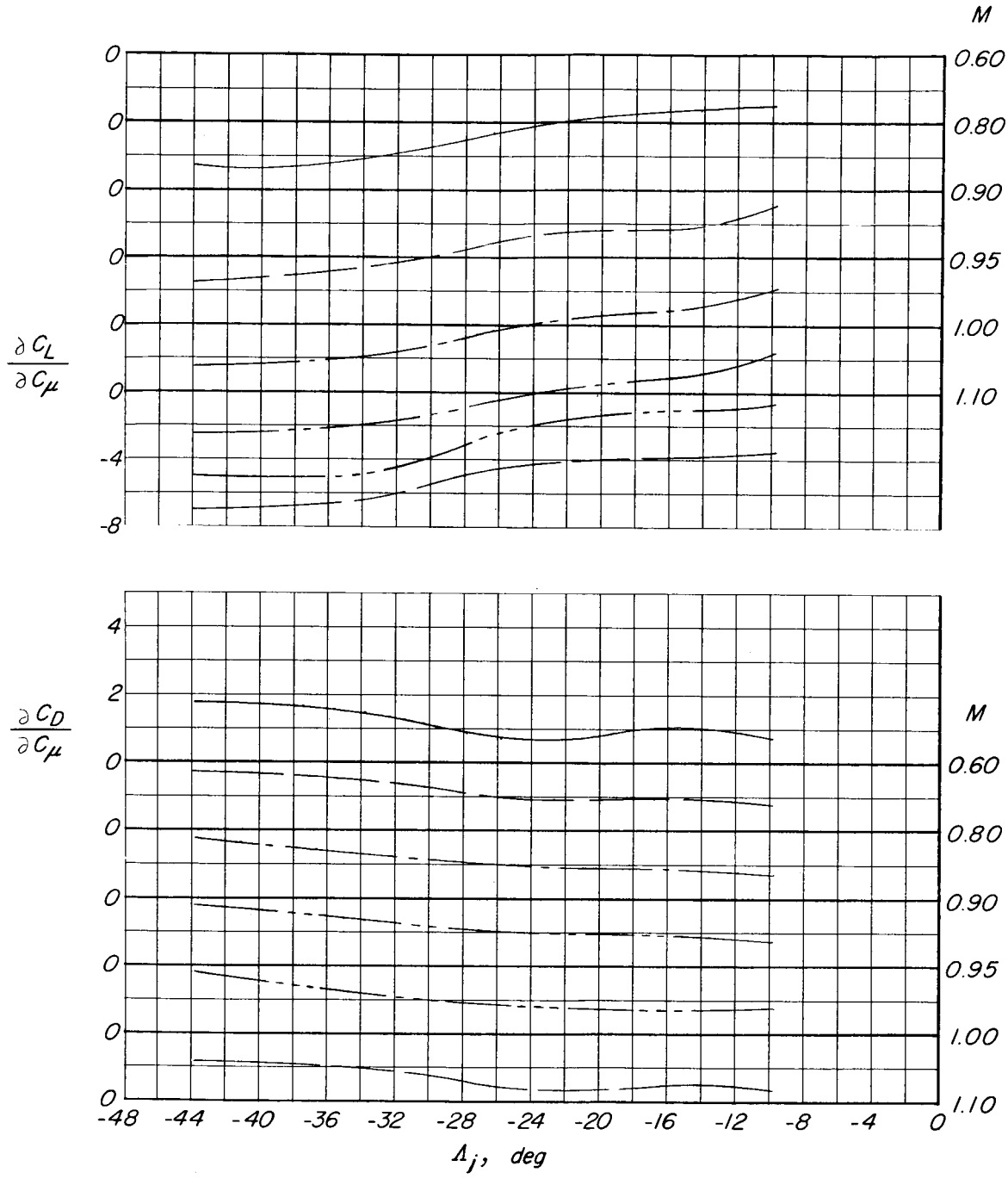


Figure 3.- Continued.

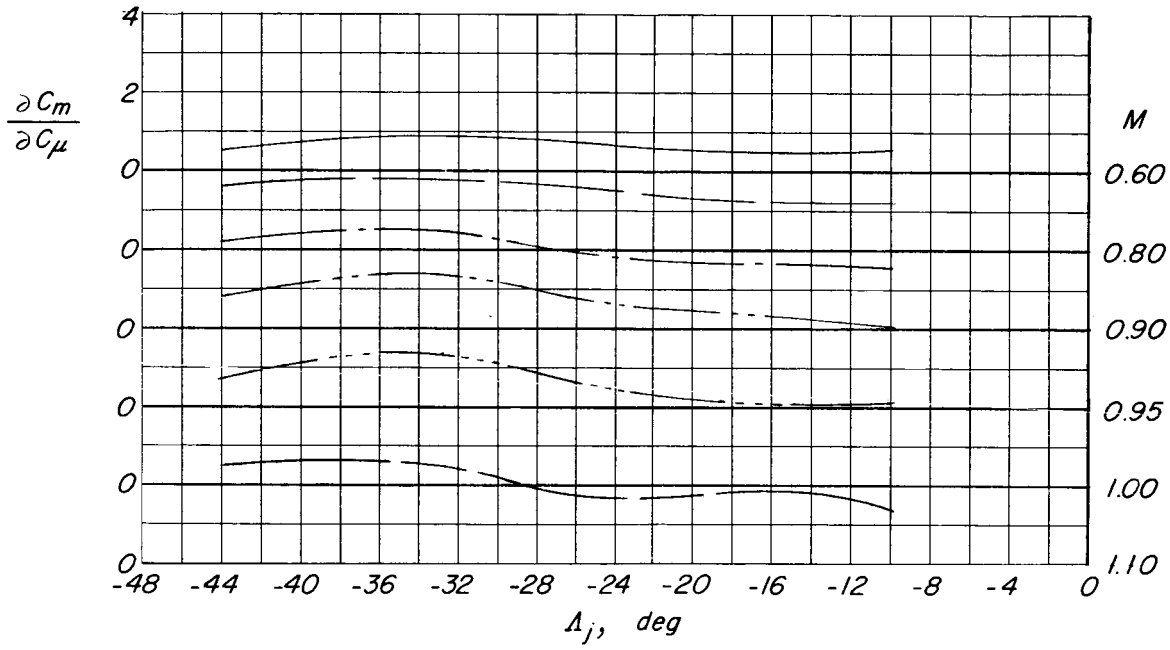


Figure 3.- Concluded.

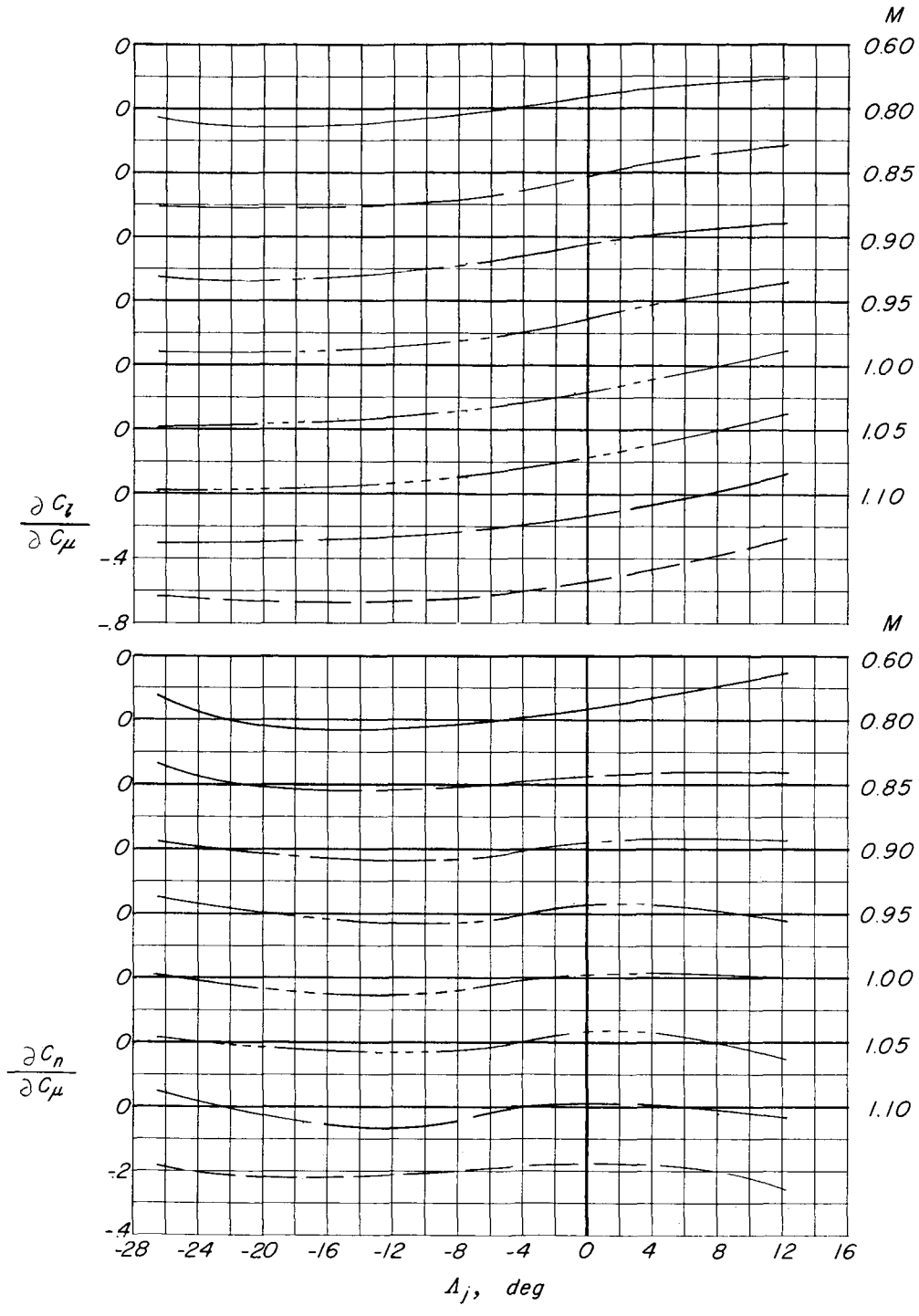


Figure 4.- Effect of Mach number and sweep of the jet on the aerodynamic characteristics of the 45° swept wing at $\alpha = 0°$.

L-470

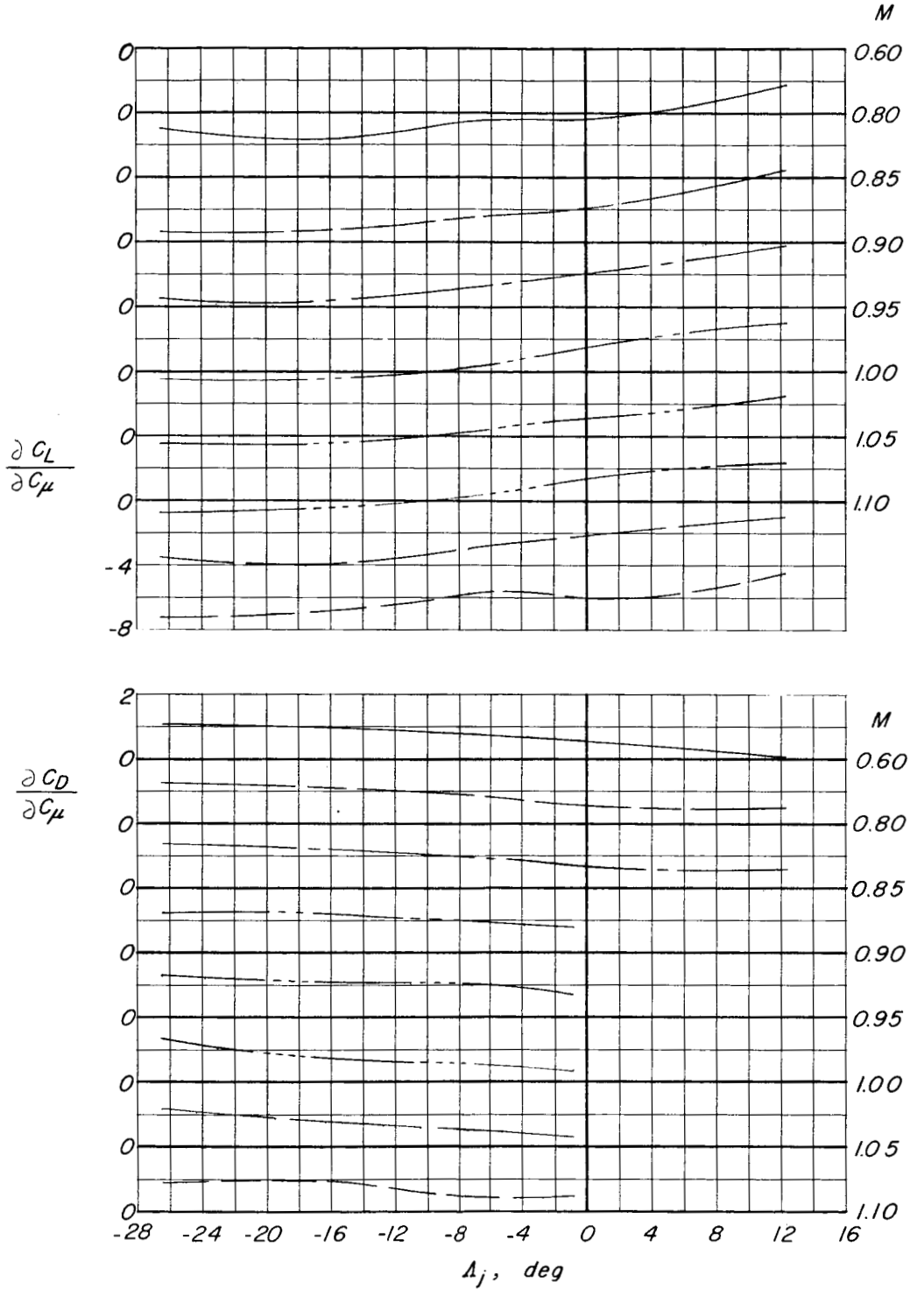


Figure 4.- Continued.

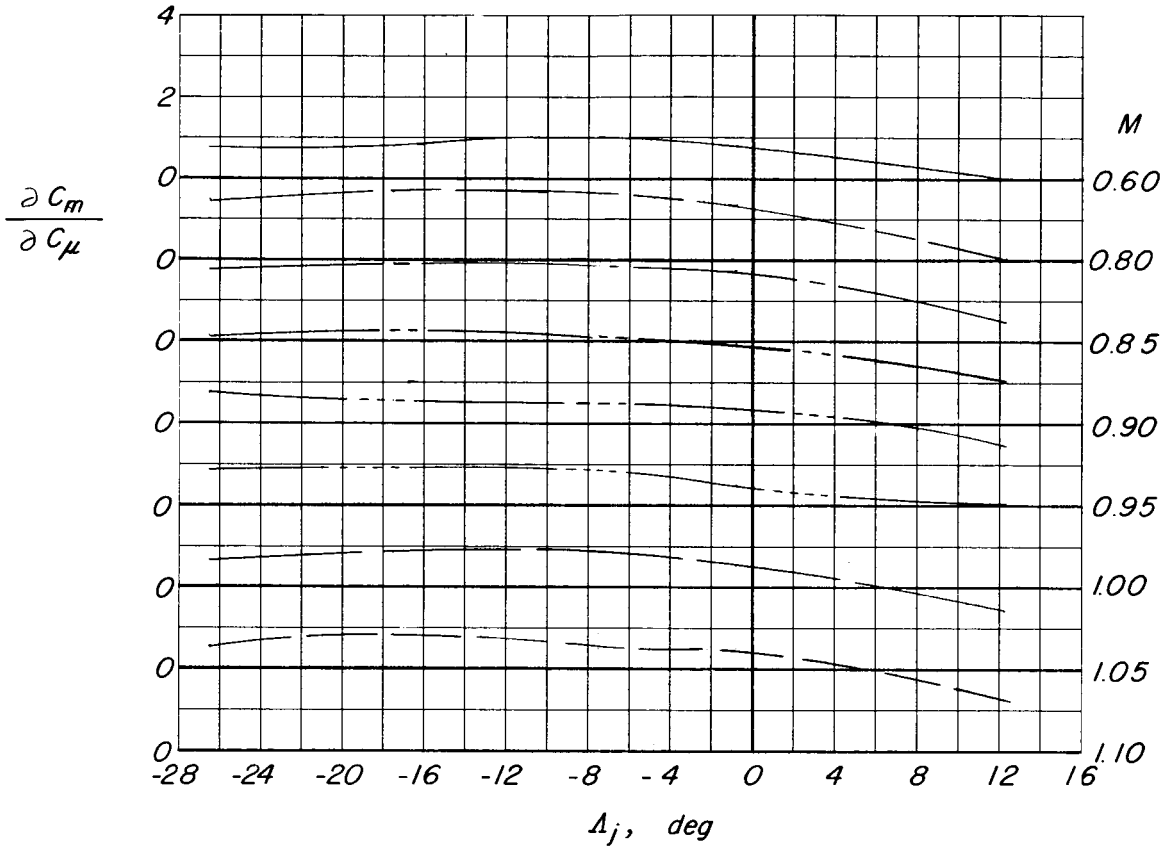


Figure 4.- Concluded.

L-470

L-470

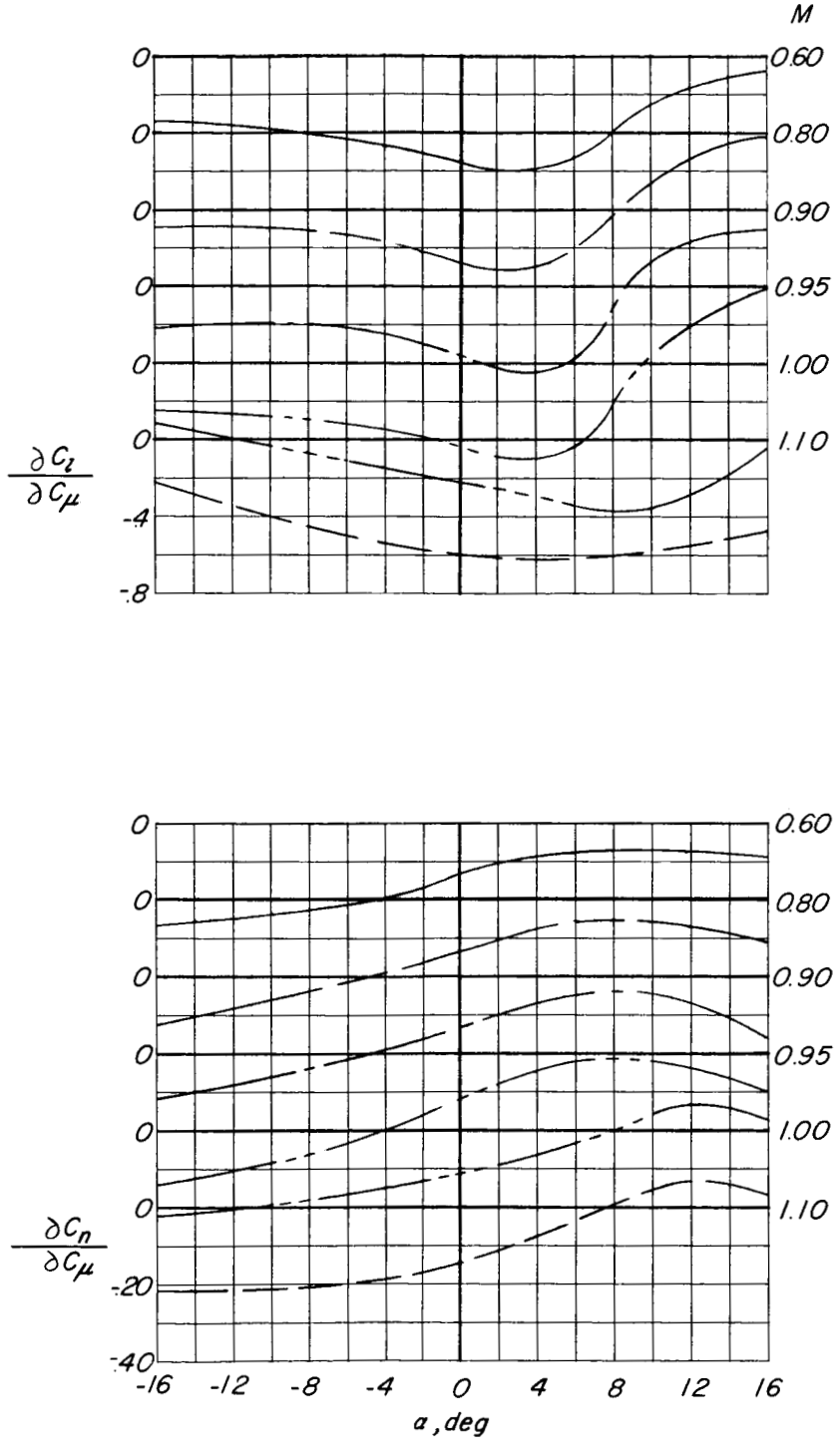


Figure 5.- Effect of Mach number and angle of attack on the aerodynamic characteristics of the 30° swept wing at a jet sweep angle of -43.9°.

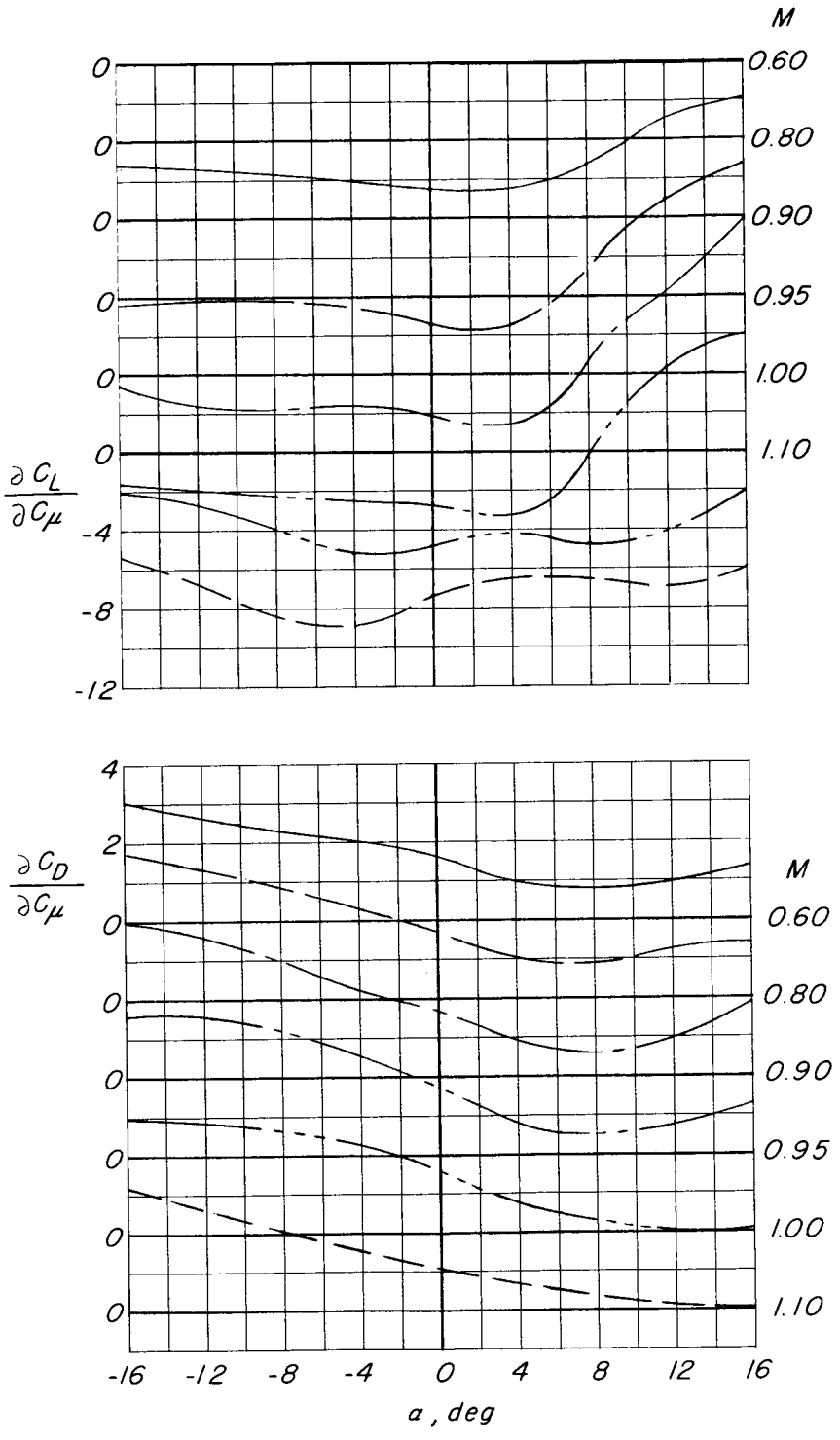


Figure 5.- Continued.

L-470

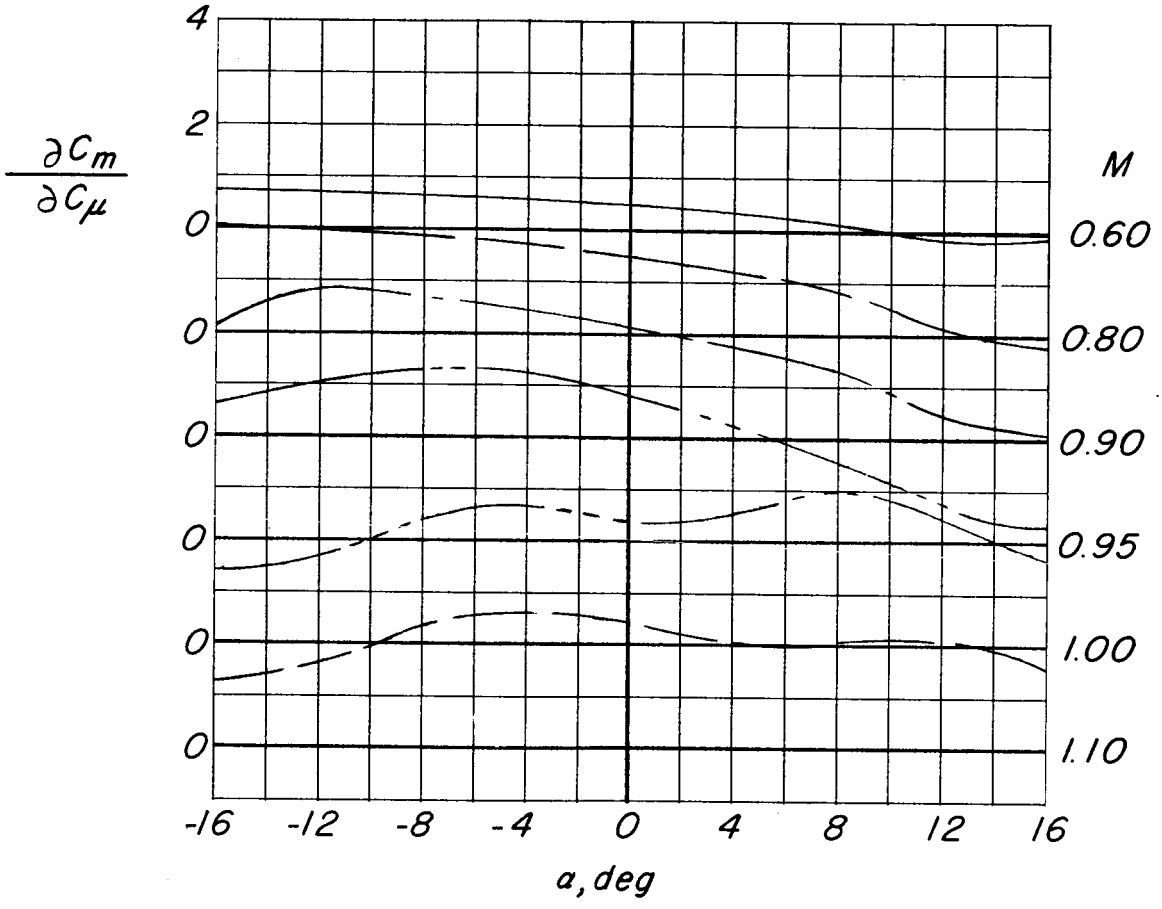


Figure 5.- Concluded.

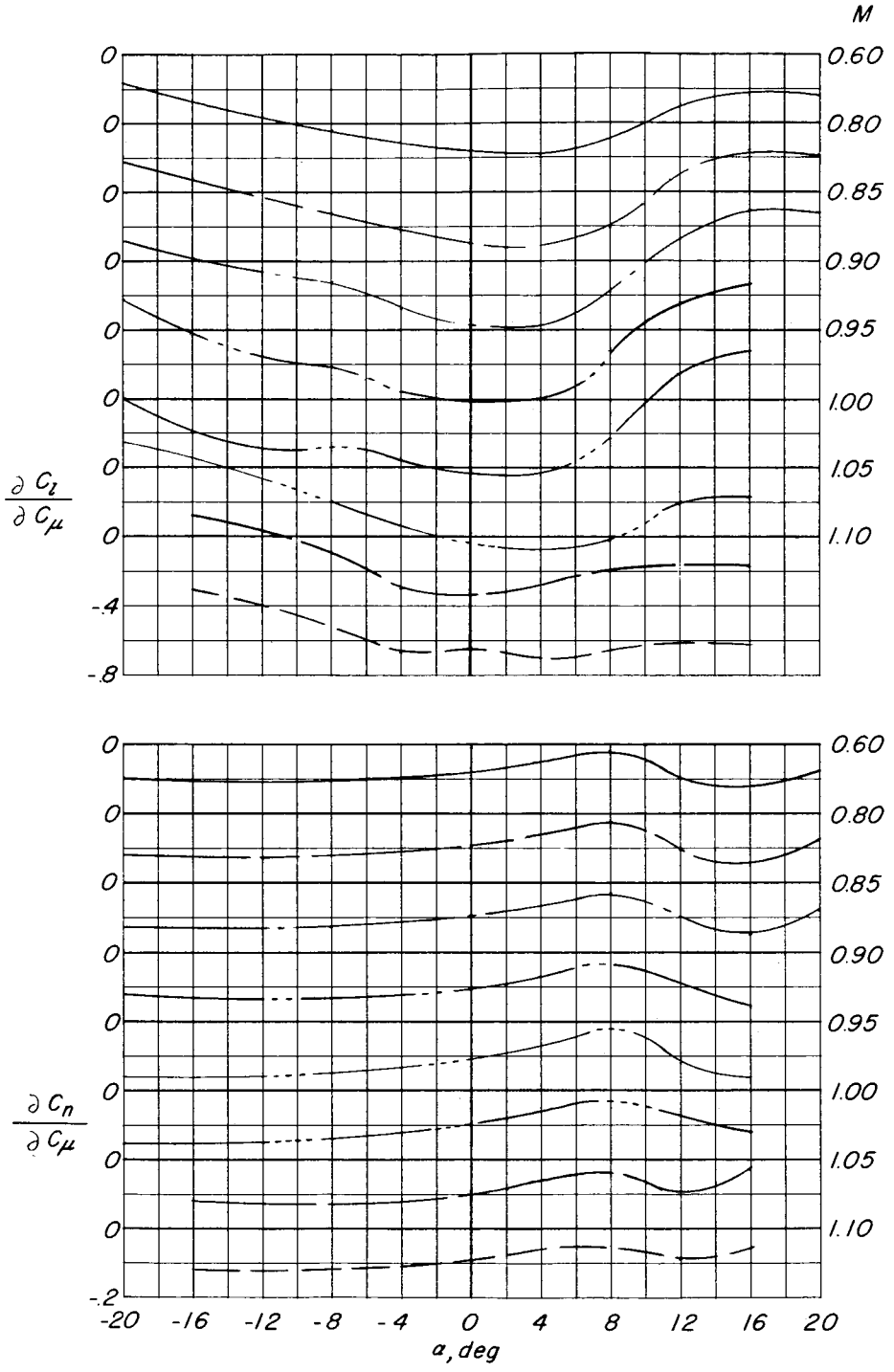


Figure 6.- Effect of Mach number and angle of attack on the aerodynamic characteristics of the 45° swept wing at a jet sweep angle of -26.5°.

L-470

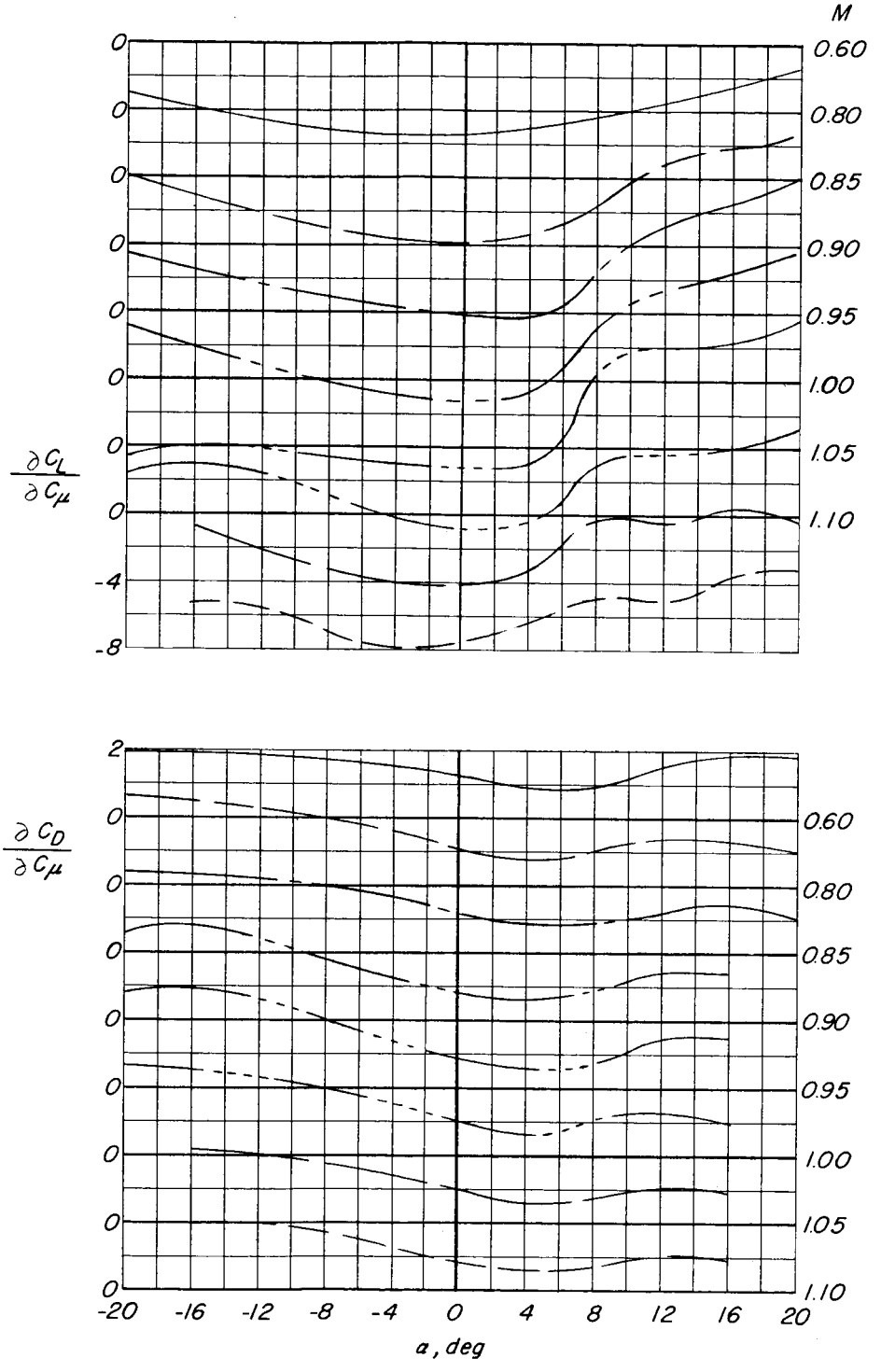


Figure 6.- Continued.

L-470

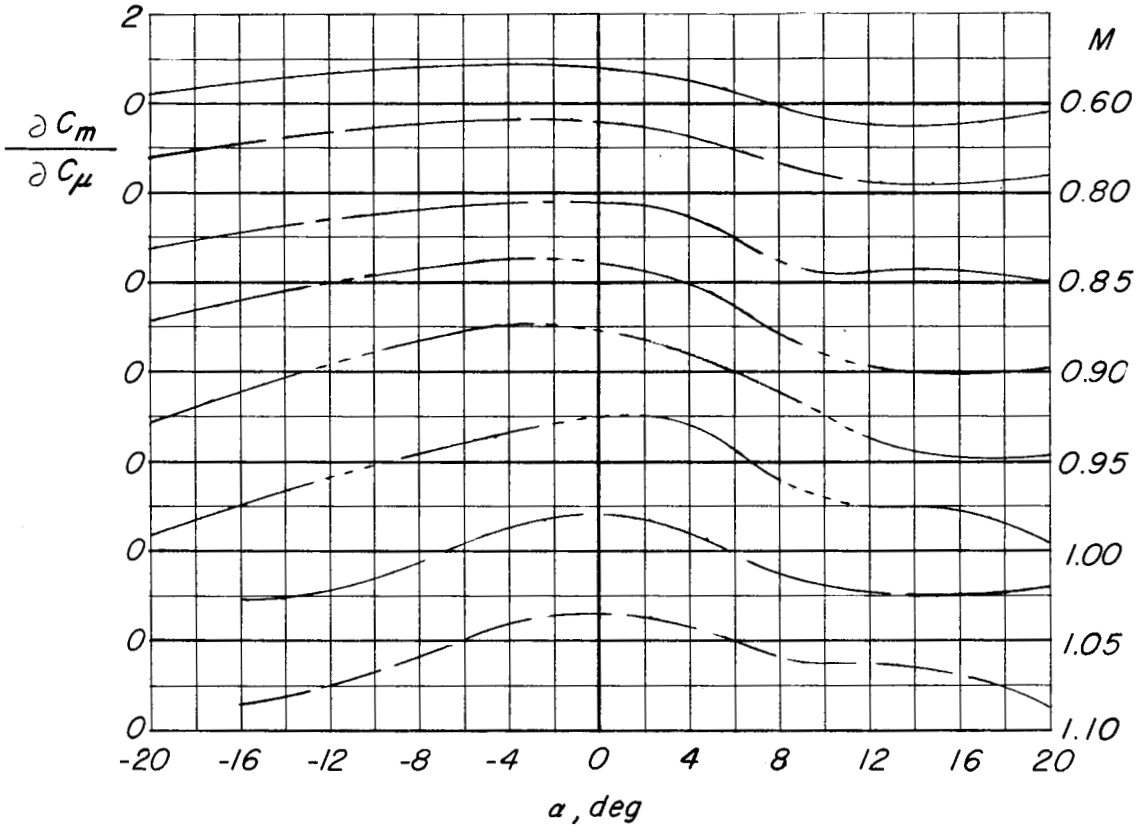


Figure 6.- Concluded.

L-470

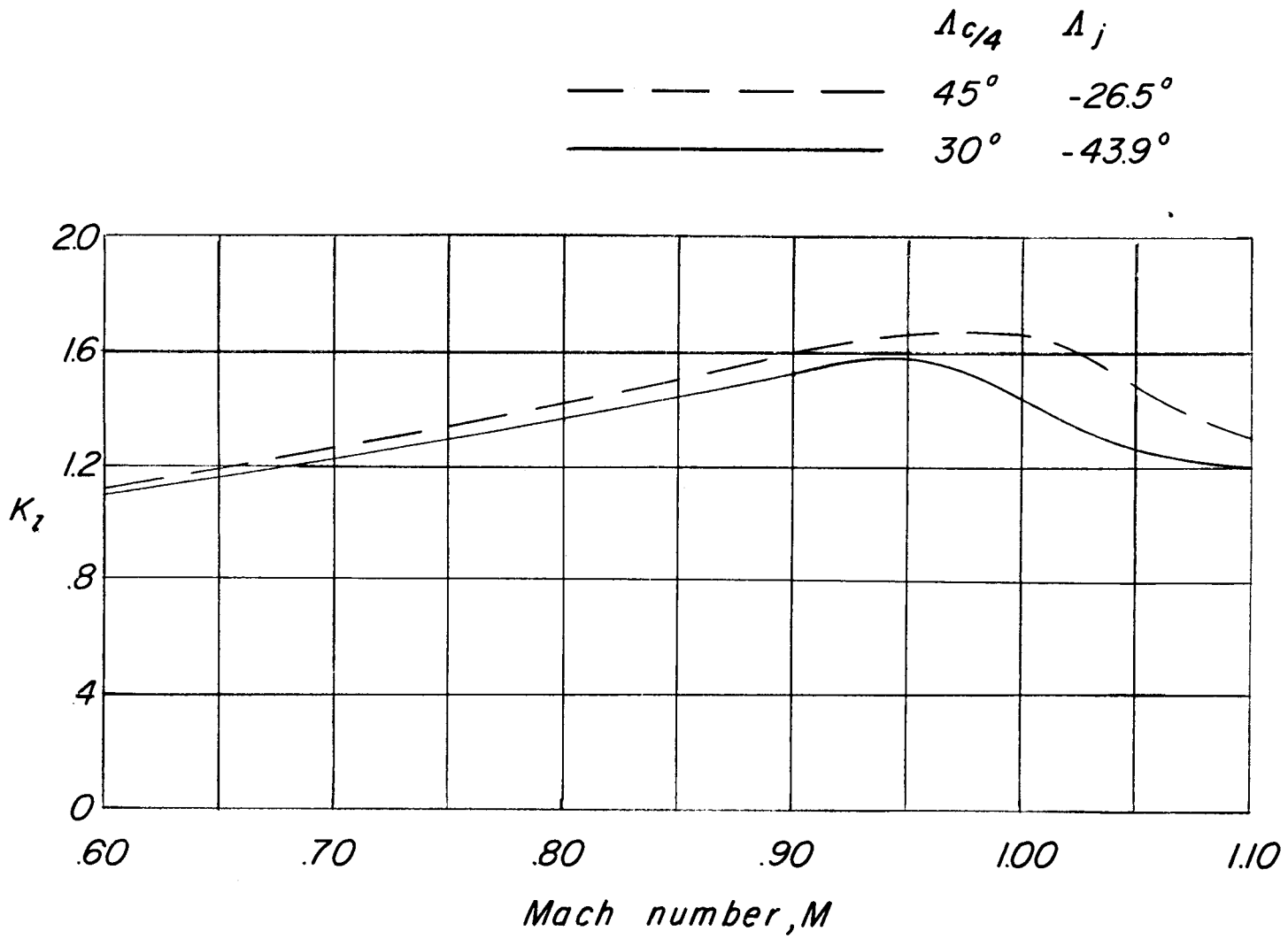


Figure 7.- Variation with Mach number of the ratio of rolling moment produced by lateral blowing to rolling moment computed for a jet reaction control at the wing tip at $\alpha = 0^{\circ}$.

NASA - Langley Field, Va. L-470