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AN EXPERIMENTAL INVESTIGATION OF AN OBLIQUE-WING AND BODY COMBINATION AT MACH NUMBERS BETWEEN 0.60 AND 1.40

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SUMMARY

An experimental investigation was conducted in the Ames 11-by 11-Foot Wind Tunnel to determine the aerodynamic characteristics of an oblique high aspect ratio wing in combination with a high fineness-ratio Sears-Haack body. Longitudinal and lateral-directional stability data were obtained at wing yaw angles from 0 to 60° over a test Mach number range from 0.6 to 1.4 for angles of attack between -6° and 9°. The effects of changes in Reynolds number, dihedral, and trailing-edge angle were studied along with the effects of a roughness strip on the upper and lower surfaces of the wing. Flow-visualization studies were made to determine the nature of the flow on the wing surfaces.

With fixed or natural boundary-layer transition on the wing-body combination exceptionally high values of maximum lift-drag ratio were obtained at all Mach numbers tested by employing the proper amount of wing yaw. At a Mach number of 0.98 with the wing at 45° the maximum lift-drag ratio was 20 to 1; at a Mach number of 1.4 with the wing at 60° the maximum lift-drag ratio was approximately 11 to 1. These values are significantly higher than those previously obtained with bilaterally symmetric swept or delta wings.

INTRODUCTION

As is well known, the most efficient form for low speed flight is a straight unswept wing of high aspect ratio. According to theory the same wing when set at varying oblique angles to the flight direction should also provide maximum aerodynamic efficiency at transonic and low supersonic speeds. This prediction has recently been tested in the NASA-Ames Research Center 11-by 11-Foot Transonic Wind Tunnel and preliminary results are presented in the following report without analysis.

Theory indicates that in order to achieve maximum efficiency the oblique angle of the wing must be varied with the Mach number in such a way that the component of velocity normal to the long axis of the wing remains subsonic and below the critical Mach number of the sections. The sections taken in planes perpendicular to the long axis of the wing thus have a "subsonic" shape with a rounded leading edge and camber to produce a high lift coefficient at a high critical Mach number. The wings of the models tested had a leading edge radius of 2%, maximum camber of 3% and the thickness-chord ratio of 10%. The planform was quasi-elliptical (see figure 2) with an axis ratio of 10 to 1, corresponding to an unswept aspect ratio of 12.7.

Calculations also indicate that the loading tends to shift toward the downstream tip as the wing is pivoted relative to the body longitudinal axis. To compensate for this effect the model wings were constructed with a certain amount of upward curvature in the unyawed position. Such a "curvilinear dihedral" has an aerodynamic effect similar to that of twist when the wing is yawed. The effect is to increase the angle of attack of the forward tip and reduce the angle of the rearward tip.

NOMENCLATURE

The axis system and sign convention are shown in figure 1. Lift and drag are presented in the stability-axis coordinate system and all other forces and moments are presented in the body-axis coordinate system. Because the data were computer plotted the corresponding plot symbol, where used, is given together with the conventional symbol

Symbol	Plot Symbol	Definition
b		wing span
c		wing chord
c_{root}		wing root-chord
C_D	CD	drag coefficient, drag/qS
C_l	CBL	rolling-moment coefficient, rolling moment/qSb
C_L	CL	lift coefficient, lift/qS
C_m	CLM	pitching-moment coefficient, pitching moment/qSc_{root}
C_n	CYN	yawing-moment coefficient, yawing moment/qSb
C_Y	CY	side-force coefficient, side force/qS

H		maximum vertical distance from wing reference plane to wing base line at 0.4c for W_1
H'		maximum vertical distance from wing reference plane to wing base line at 0.4c for W_3
L		longitudinal distance along the body from body maximum diameter
(L/D)	L/D	lift-drag ratio
M	MACH	free-stream Mach number
q		free-stream dynamic pressure
Re	RN/L	unit Reynolds number, million per foot
S		wing area
t		wing thickness
W		body width
x		longitudinal distance
Y-Up		maximum distance from wing base line to wing upper surface measured perpendicular to the wing base line
Y-Lo		maximum distance from wing base line to wing lower surface measured perpendicular to the wing base line
Z-Up		vertical distance from wing chord to wing upper surface
Z-Lo		vertical distance from wing chord to wing lower surface
z		Cartesian coordinate
α	ALPHA	angle of attack
β	BETA	angle of sideslip
δ_{TE}		trailing edge segment deflection

Λ	LAMBDA	angle between a perpendicular to the body longitudinal axis and the 0.25 chord line of the wing measured in a horizontal plane
Φ		angle between vertical plane and the intersection of the circular portion of the body with the rectangular portion of the body

Subscripts

max	maximum value
1	denotes original wing dihedral
3	denotes reshaped wing dihedral
0	zero trailing edge deflection
5	5 degree downward trailing edge deflection measured relative to zero trailing edge deflection
10	10 degree downward trailing edge deflection

Configuration Code

W	W	wing
F	F	trailing edge segment
B	B	body

TEST FACILITY

The tests were conducted in the Ames 11-by 11-Foot Transonic Wind Tunnel which is a variable density, closed return, continuous flow type. This tunnel has an adjustable nozzle (two flexible walls) and a slotted test section to permit transonic testing over a Mach number range continuously variable from 0.4 to 1.4.

MODEL DESCRIPTION

The models consisted of an elliptical planform wing mounted on top of a Sears-Haack body as shown in figure 2. Pertinent dimensions of the wings investigated and of the Sears-Haack body, which was common to all configurations, are given in tables 2 and 3 and figure 2(a) through (d). Photographs of the model are shown in figure 2(e). The wing was pivoted in the horizontal plane about the 0.4 root-chord point to obtain oblique angles of 0°, 45°, 50°, 55° and 60° relative to the body longitudinal axis as shown in figure 2(a).

All wings had elliptical planforms with a straight 25-percent chord line (figure 2(a)). The basic wing section was a NACA 3610-02,40 (figure 2(f)) perpendicular to the upswept chord line.

Modifications to the basic wing for these tests (herein referred to as wing number 1, W_1) included removing the anhedral; the resulting dihedral for the wing which will herein be referred to as wing number 3,W_3, is shown in figure 2(c). The basic wing, W_1, was also modified for these tests by adjusting the trailing edge segments 5 and 10 degrees downward as shown in figure 2(g).

TESTING AND PROCEDURE

The models were sting mounted through the base of the model body shown in figures 2(a) and 2(d), and force and moment data were obtained from an internally mounted six-component strain-gage balance. The moment center was on the body center line and longitudinally at the wing pivot point ($0.4c_{root}$). Tests were conducted principally at a Reynolds number of 6 million per foot. Limited data were obtained for the basic wing at Reynolds numbers of 4 and 8 million per foot. Angle-of-attack range, selected for each configuration to always define maximum lift-to-drag ratio, was nominally $\pm$ 8 degrees.

Data were obtained for oblique angles of 0°, 45°, 50°, 55°, and 60° for the basic wing (figure 2(a)). For the other configurations (the wing with the trailing edge deflected 5 or 10 degrees downward; the wing without anhedral, W_3, and the wing with roughness strips) data were obtained for oblique angles of 0°, 45°, and 60°. Roughness strips 1/8-inch wide were placed on the upper and lower surfaces of the wing without anhedral and around the body nose. The strips were made of 0.0045-inch diameter spheres placed approximately $\frac{1}{2}$-inch downstream of the wing leading edge and approximately $2\frac{1}{2}$-inches downstream from the body nose.

The density of the spheres within the roughness strips was determined using state-of-the-art techniques (reference 1). Individual 0.0045-inch diameter spheres were placed in a row, staggered spanwise and chordwise, on the wing surfaces and flow visualization techniques (fluorescent oil and sublimation) were used to determine the natural boundary-layer transition point on the wing. The measured balance data were adjusted to a condition corresponding to freestream static pressure on the base.

Mach number range for each oblique angle tested is shown in table 4.

RESULTS AND DISCUSSION

A complete index to the data figures is given in table 5. The experiments have shown that an oblique wing of high aspect ratio can give exceptionally high values of lift/drag-ratio at all Mach numbers from 0.60 to 1.40. At M = 0.98 and the wing at 45° $(L/D)_{max}$ was 20 to 1. At 60° yaw and M = 1.4 $(L/D)_{max}$ was approximately 11. These values are significantly higher than those previously obtained with bilaterally symmetric swept or delta wings.

Upward curvature of the wing is effective in reducing the trim changes of trim with yaw angle to very low values within the cruising range. At higher angles of attack significant trim changes occur, apparently because of stalling of the downstream tip.

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National Aeronautics and Space Administration
Moffett Field, California 94035 December 22, 1972

REFERENCES

1. Braslow, Albert L.; Hicks, Raymond M.; Harris, Roy V.: Use of Grit-Type Boundary-Layer-Transition Trips on Wind-Tunnel Models. NASA TN D-3579, Sept. 1966.

TABLE 1. - MODEL GEOMETRY

Body (Sears-Haack)	
Length	
Closed	45.25 in
Cut-off	36.00 in
Maximum diameter	3.37 in
Wing	
Planform 10:1 ellipse about c/4	
Span (reference)	60.00 in
Area (reference)	278.00 in^2
Root chord	6.00 in
Aspect ratio	12.7
Maximum t/c	0.10
Incidence	0°
0.25c sweep	0°
Section	NACA 3610-02,40
Maximum thickness, percent chord	0.40
Leading-edge nose radius, percent chord	0.02

TABLE 2. - WING DIMENSIONAL DATA*

Semi-span	Chord	Y-Up	Y-Lo	H	H'
.000	6.000	.465	.179	.000	.000
1.000	5.997	.465	.179	-.001	.000
2.000	5.987	.464	.178	-.005	.000
3.000	5.970	.463	.178	-.010	.000
4.000	5.946	.461	.177	-.017	.000
5.000	5.915	.458	.176	-.025	.000
6.000	5.879	.456	.175	-.033	.000
7.000	5.834	.452	.174	-.042	.000
8.000	5.783	.448	.172	-.052	.000
9.000	5.724	.444	.171	-.061	.000
10.000	5.657	.438	.169	-.070	.010
10.986	5.583	.433	.166	-.078	.018
11.850	5.512	.427	.164	-.085	.025
12.635	5.442	.422	.162	-.090	.030
13.356	5.373	.416	.160	-.094	.034
14.024	5.304	.411	.158	-.098	.038
14.645	5.237	.406	.156	-.101	.041
15.226	5.170	.401	.154	-.103	.043
15.772	5.104	.396	.152	-.105	.045
16.286	5.039	.390	.150	-.106	.046
16.772	4.975	.385	.148	-.106	.046
17.233	4.911	.381	.146	-.107	.047
17.671	4.849	.376	.145	-.107	.047
18.067	4.787	.371	.143	-.106	.048
18.483	4.726	.366	.141	-.105	.049
18.862	4.666	.362	.139	-.105	.049
19.224	4.606	.357	.137	-.103	.051
19.570	4.548	.352	.136	-.102	.052
19.902	4.490	.348	.134	-.101	.053
20.220	4.432	.343	.132	-.099	.055
20.977	4.289	.332	.128	-.094	.060
21.533	4.178	.324	.125	-.090	.066
22.046	4.069	.315	.121	-.085	.071
22.523	3.963	.307	.118	-.080	.076
22.956	3.860	.299	.115	-.075	.081
23.379	3.760	.291	.112	-.070	.086
23.763	3.662	.284	.109	-.065	.091
24.123	3.567	.276	.106	-.060	.096
24.459	3.474	.269	.104	-.055	.101

* All dimensions are inches

TABLE 2. - WING DIMENSIONAL DATA - Concluded.

Semi-span	Chord	Y-UP	Y-LO	H	H'
24.773	3.384	.262	.101	-.050	.106
25.068	3.296	.255	.098	-.045	.111
25.344	3.210	.249	.096	-.040	.116
25.604	3.127	.242	.093	-.035	.121
25.848	3.046	.236	.091	-.030	.126
26.077	2.966	.230	.088	-.026	.131
26.293	2.889	.224	.086	-.022	.137
26.495	2.814	.218	.084	-.017	.142
26.686	2.741	.212	.082	-.013	.146
26.866	2.670	.207	.080	-.009	.150
27.036	2.600	.197	.076	-.006	.156
27.196	2.533	.187	.072	-.002	.160
27.347	2.467	.178	.068	.002	.164
27.489	2.403	.169	.065	.005	.167
27.624	2.340	.161	.062	.008	.170
27.751	2.279	.153	.059	.011	.173
27.870	2.220	.145	.056	.014	.176
27.984	2.163	.139	.053	.017	.17[illegible]
28.091	2.106	.129	.050	.020	.1[illegible]
28.345	1.965	.116	.045	.027	.189
28.524	1.859	.105	.041	.031	.193
28.684	1.758	.096	.037	.036	.198
28.825	1.662	.088	.034	.040	.202
28.952	1.572	.081	.031	.043	.205
29.064	1.487	.075	.029	.046	.208
29.164	1.406	.069	.026	.049	.211
29.254	1.330	.064	.024	.051	.213
29.333	1.258	.059	.023	.054	.216
29.405	1.190	.055	.021	.056	.218
29.468	1.125	.051	.020	.058	.220
29.529	1.064	.047	.018	.059	.221
29.600	.977	.043	.017	.061	.223
29.700	.846	.038	.014	.064	.226
29.800	.692	.031	.012	.067	.229
29.900	.489	.022	.008	.070	.232
30.000	.000	.000	.000	.073	.235

*** All dimensions are inches**

TABLE 3. - MODEL BODY DATA *

L	x	Dia	Area	W	z	Φ
.00	22.62	3.036	8.909	3.036	.000	90.0
.10	22.52	3.036	8.909	3.036	.000	90.0
.20	22.42	3.035	8.908	3.035	.000	90.0
.30	22.32	3.035	8.907	3.035	.000	90.0
.40	22.22	3.035	8.905	3.035	.000	90.0
.50	22.12	3.034	8.903	3.034	.000	90.0
.60	22.02	3.033	8.900	3.033	.000	90.0
.70	21.92	3.032	8.896	3.032	.000	90.0
.80	21.82	3.032	8.892	3.032	.000	90.0
.90	21.72	3.030	8.888	3.030	.000	90.0
1.00	21.62	3.029	8.883	3.029	.000	90.0
1.10	21.52	3.028	8.878	3.028	.000	90.0
1.20	21.42	3.026	8.872	3.026	.000	90.0
1.30	21.32	3.025	8.865	3.025	.000	90.0
1.40	21.22	3.023	8.858	3.023	.000	90.0
1.50	21.12	3.021	8.850	3.021	.000	90.0
1.60	21.02	3.019	8.842	3.019	.000	90.0
1.70	20.92	3.017	8.834	3.017	.000	90.0
1.80	20.82	3.015	8.825	3.015	.000	90.0
1.90	20.72	3.013	8.815	3.013	.000	90.0
2.00	20.62	3.010	8.805	3.010	.000	90.0
2.10	20.52	3.008	8.794	3.008	.000	90.0
2.20	20.42	3.005	8.783	3.005	.000	90.0
2.30	20.32	3.002	8.771	3.002	.000	90.0
2.40	20.22	2.999	8.759	2.999	.000	90.0
2.50	20.12	2.996	8.746	2.996	.000	90.0
2.60	20.02	2.993	8.733	2.993	.000	90.0
2.70	19.92	2.989	8.719	2.989	.000	90.0
2.80	19.82	2.986	8.705	2.986	.000	90.0
2.90	19.72	2.982	8.690	2.982	.000	90.0
3.00	19.62	2.979	8.675	2.979	.000	90.0
3.10	19.52	2.975	8.659	2.925	.000	90.0
3.20	19.42	2.971	8.643	2.971	.000	90.0
3.30	19.32	2.967	8.626	2.967	.000	90.0
3.40	19.22	2.962	8.609	2.962	.000	90.0
3.50	19.12	2.958	8.591	2.958	.000	90.0
3.60	19.02	2.953	8.573	2.953	.000	90.0
3.70	18.92	2.949	8.554	2.949	.000	90.0

* All dimensions are inches except Area, in^2, and Φ, degrees

TABLE 3. - MODEL BODY DATA - Continued.

L	x	Dia	Area	W	z	Φ
3.80	18.82	2.944	8.535	2.944	.000	90.0
3.90	18.72	2.039	8.515	2.939	.000	90.0
4.00	18.62	2.934	8.495	2.934	.000	90.0
4.10	18.52	2.929	8.474	2.929	.000	90.0
4.20	18.42	2.924	8.452	2.924	.000	90.0
4.30	18.32	2.918	8.431	2.918	.000	90.0
4.40	18.22	2.913	8.400	2.913	.000	90.0
4.50	18.12	2.907	8.386	2.907	.000	90.0
4.60	18.02	2.902	8.362	2.900	.059	87.7
4.70	17.92	2.899	8.338	2.889	.119	85.3
4.80	17.82	2.896	8.314	2.878	.160	83.7
4.90	17.72	2.894	8.289	2.867	.199	82.1
5.00	17.62	2.891	8.264	2.854	.230	80.0
5.10	17.52	2.889	8.239	2.841	.262	79.6
5.20	17.42	2.886	8.212	2.828	.289	78.4
5.30	17.32	2.884	8.186	2.813	.318	77.3
5.40	17.22	2.882	8.158	2.798	.346	76.1
5.50	17.12	2.880	8.131	2.782	.372	75.0
5.60	17.02	2.877	8.103	2.766	.397	74.0
5.70	16.92	2.875	8.074	2.748	.423	72.9
5.80	16.82	2.873	8.045	2.730	.448	71.8
5.90	16.72	2.872	8.016	2.711	.474	70.7
6.00	16.62	2.870	7.986	2.691	.499	69.7
6.10	16.52	2.868	7.955	2.671	.523	68.6
6.20	16.42	2.866	7.924	2.649	.547	67.6
6.30	16.32	2.864	7.893	2.627	.571	66.5
6.40	16.22	2.863	7.861	2.604	.596	65.4
6.50	16.12	2.861	7.829	2.580	.619	64.4
6.60	16.02	2.859	7.796	2.554	.642	63.3
6.70	15.92	2.857	7.763	2.528	.665	62.2
6.80	15.82	2.856	7.729	2.501	.689	61.1
6.90	15.72	2.854	7.695	2.473	.712	60.1
7.00	15.62	2.853	7.660	2.444	.736	59.0
7.10	15,52	2.851	7.625	2.414	.758	57.9
7.20	15.42	2.849	7.590	2.383	.781	56.8
7.30	15.32	2.848	7.554	2.350	.804	55.6
7.40	15.22	2.846	7.518	2.317	.827	54.5
7.50	15.12	2.854	7.481	2.282	.857	53.1

* All dimensions are inches except Area, in^2, and Φ, degrees

TABLE 3. - MODEL BODY DATA - Continued.

L	x	Dia	Area	W	z	Φ
7.60	15.02	2.861	7.444	2.245	.887	51.7
7.70	14.92	2.867	7.406	2.207	.915	50.3
7.80	14.82	2.873	7.368	2.168	.943	49.0
7.90	14.72	2.878	7.330	2.127	.969	47.7
8.00	14.62	2.883	7.291	2.085	.996	46.3
8.10	14.52	2.888	7.252	2.040	1.022	44.9
8.20	14.42	2.891	7.212	1.994	1.047	43.6
8.30	14.32	2.895	7.172	1.946	1.072	42.2
8.40	14.22	2.898	7.131	1.895	1.096	40.8
8.50	14.12	2.900	7.090	1.843	1.120	39.4
8.60	14.02	2.902	7.049	1.787	1.143	38.0
8.70	13.92	2.903	7.007	1.729	1.166	36.6
8.80	13.82	2.904	6.965	1.668	1.189	35.0
8.90	13.72	2.905	6.923	1.603	1.211	33.5
9.00	13.62	2.903	6.880	1.534	1.232	31.9
9.10	13.52	2.902	6.836	1.461	1.254	30.2
9.20	13.42	2.901	6.793	1.383	1.275	28.5
9.30	13.32	2.899	6.749	1.298	1.296	26.6
9.40	13.22	2.996	6.704	1.207	1.316	24.6
9.50	13.12	2.892	6.659	1.106	1.336	22.5
9.60	13.02	2.888	6.614	.992	1.356	20.1
9.70	12.92	2.883	6.568	.863	1.376	17.4
9.80	12.82	2.877	6.522	.707	1.394	14.2
9.90	12.72	2.870	6.476	.502	1.413	10.1
10.00	12.62	2.861	6.429	.000	1.431	.0
10.10	12.52	2.851	6.382			
10.20	12.42	2.840	6.335			
10.30	12.32	2.829	6.287			
10.40	12.22	2.819	6.239			
10.50	12.12	2.808	6.191			
10.60	12.02	2.796	6.142			
10.70	11.92	2.785	6.093			
10.80	11.82	2.774	6.044			
10.90	11.72	2.763	5.994			
11.00	11.62	2.751	5.944			
11.10	11.52	2.739	5.893			
11.20	11.42	2.727	5.843			
11.30	11.32	2.716	5.792			

* All dimensions are inches except Area, in^2, and Φ, degrees

TABLE 3. - MODEL BODY DATA - Continued.

L	x	Dia	Area
11.40	11.22	2.704	5.740
11.50	11.12	2.691	5.689
11.60	11.02	2.679	5.637
11.70	10.92	2.667	5.585
11.80	10.82	2.654	5.532
11.90	10.72	2.641	5.480
12.00	10.62	2.629	5.427
12.10	10.52	2.616	5.373
12.20	10.42	2.603	5.320
12.30	10.32	2.589	5.266
12.40	10.22	2.576	5.212
12.50	10.12	2.563	5.158
12.60	10.02	2.549	5.103
12.70	9.92	2.535	5.048
12.80	9.82	2.521	4.993
12.90	9.72	2.507	4.938
13.00	9.62	2.493	4.883
13.10	9.52	2.479	4.827
13.20	9.42	2.465	4.771
13.30	9.32	2.450	4.715
13.40	9.22	2.436	4.659
13.50	9.12	2.421	4.602
13.60	9.02	2.406	4.546
13.70	8.92	2.391	4.489
13.80	8.82	2.375	4.432
13.90	8.72	2.360	4.374
14.00	8.62	2.345	4.317
14.10	8.52	2.329	4.260
14.20	8.42	2.313	4.202
14.30	8.32	2.297	4.144
14.40	8.22	2.281	4.086
14.50	8.12	2.265	4.028
14.60	8.02	2.248	3.970
14.70	7.92	2.232	3.912
14.80	7.82	2.215	3.853
14.90	7.72	2.198	3.795
15.00	7.62	2.181	3.736
15.10	7.52	2.164	3.677

* All dimensions are inches except Area, in^2

TABLE 3. - MODEL BODY DATA - Continued.

L	x	Dia	Area
15.20	7.42	2.146	3.619
15.30	7.32	2.129	3.560
15.40	7.22	2.111	3.501
15.50	7.12	2.093	3.442
15.60	7.02	2.075	3.383
15.70	6.92	2.057	3.324
15.80	6.82	2.039	3.265
15.90	6.72	2.020	3.206
16.00	6.62	2.002	3.147
16.10	6.52	1.983	3.088
16.20	6.42	1.964	3.029
16.30	6.32	1.944	2.970
16.40	6.22	1.925	2.911
16.50	6.12	1.905	2.852
16.60	6.02	1.886	2.793
16.70	5.92	1.866	2.734
16.80	5.82	1.845	2.675
16.90	5.72	1.825	2.616
17.00	5.62	1.805	2.558
17.10	5.52	1.784	2.499
17.20	5.42	1.763	2.441
17.30	5.32	1.742	2.382
17.40	5.22	1.720	2.324
17.50	5.12	1.699	2.266
17.60	5.02	1.677	2.208
17.70	4.92	1.655	2.151
17.80	4.82	1.633	2.093
17.90	4.72	1.610	2.036
18.00	4.62	1.587	1.979
18.10	4.52	1.564	1.922
18.20	4.42	1.541	1.866
18.30	4.32	1.518	1.809
18.40	4.22	1.494	1.753
18.50	4.12	1.470	1.697
18.60	4.02	1.446	1.642
18.70	3.92	1.421	1.587
18.80	3.82	1.397	1.532
18.90	3.72	1.372	1.478

* All dimensions are inches except Area, in^2

TABLE 3. - MODEL BODY DATA - Concluded.

L	x	Dia	Area
19.00	3.62	1 346	1.424
19.10	3.52	1.321	1.370
19.20	3.42	1.295	1.317
19.30	3.32	1.269	1.264
19.40	3.22	1.242	1.212
19.50	3.12	1.215	1.160
19.60	3.02	1.188	1.108
19.70	2.92	1.160	1.057
19.80	2.82	1.132	1.007
19.90	2.72	1.104	.957
20.00	2.62	1.075	.908
20.10	2.52	1.046	.860
20.20	2.42	1.017	.812
20.30	2.32	.987	.765
20.40	2.22	.956	.718
20.50	2.12	.926	.673
20.60	2.02	.894	.628
20.70	1.92	.862	.584
20.80	1.82	.830	.541
20.90	1.72	.797	.499
21.00	1.62	.763	.457
21.10	1.52	.729	.417
21.20	1.42	.694	.378
21.30	1.32	.658	.340
21.40	1.22	.621	.303
21.50	1.12	.583	.267
21.60	1.02	.545	.233
21.70	.92	.505	.200
21.80	.82	.464	.169
21.90	.72	.422	.140
22.00	.62	.378	.112
22.10	.52	.332	.086
22.20	.42	.283	.063
22.30	.32	.231	.042
22.40	.22	.175	.024
22.50	.12	.111	.010
22.60	.02	.029	.001
22.62	.00	.000	.000

* All dimensions are inches except Area, in^2

TABLE 4. - TEST CONDITIONS

CONFIGURATION	Λ, Deg.	$Re/10^6$, Per Ft.	MACH NUMBERS										
			0.60	0.70	0.80	0.95	0.98	1.05	1.10	1.15	1.20	1.30	1.40
$W_1 F_0 B$	0	4	x	x									
↑	0	5		x									
	0	6	x	x	x								
	45	4			x								
	45	6		x	x	x	x	x					
	45	8			x								
	50	6			x	x	x		x	x	x		
	55	4									x		
	55	6			x	x			x		x	x	x
	55	8									x		
	60	4			x						x		
↓	60	6			x						x		
$W_1 F_0 B$	60	8			x	x			x		x	x	x

TABLE 4. - TEST CONDITIONS - Concluded.

CONFIGURATION	Λ, Deg.	$Re/10^6$, Per Ft.	MACH NUMBERS										
			0.60	0.70	0.80	0.95	0.98	1.05	1.10	1.15	1.20	1.30	1.40
$W_1 F_5 B$	0	6	x	x									
↕	45	6		x	x	x	x	x					
$W_1 F_5 B$	60	6			x	x			x		x	x	x
$W_1 F_{10} B$	0	6	x	x									
↕	45	6		x	x	x	x	x					
$W_1 F_{10} B$	60	6			x	x			x		x	x	x
$W_3 F_0 B$	0	6	x	x	x								
↕	45	6		x	x	x	x	x					
↕	50	6			x	x	x		x	x	x		
↕	55	6			x	x			x		x	x	x
$W_3 F_0 B$	60	6			x	x			x		x	x	x

TABLE 5. - INDEX OF DATA FIGURES

Notes:
1. **Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows.**

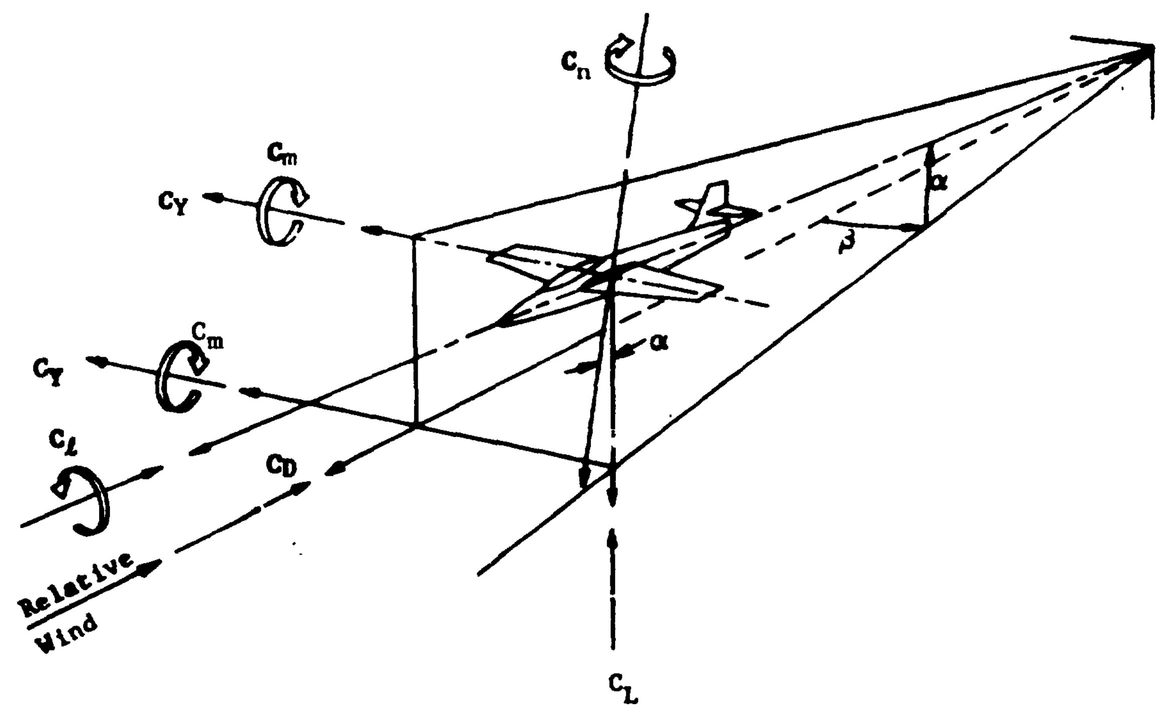
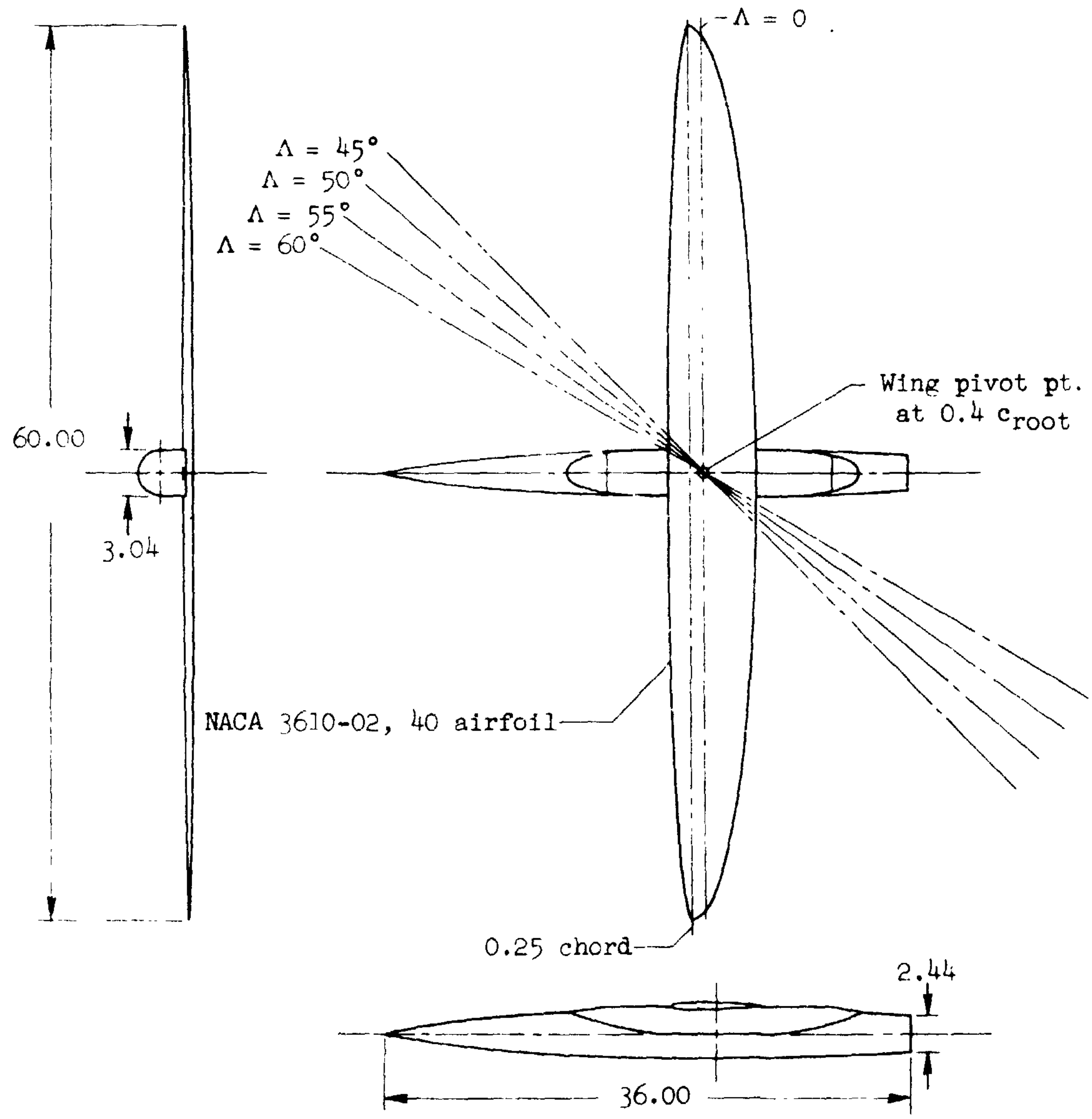
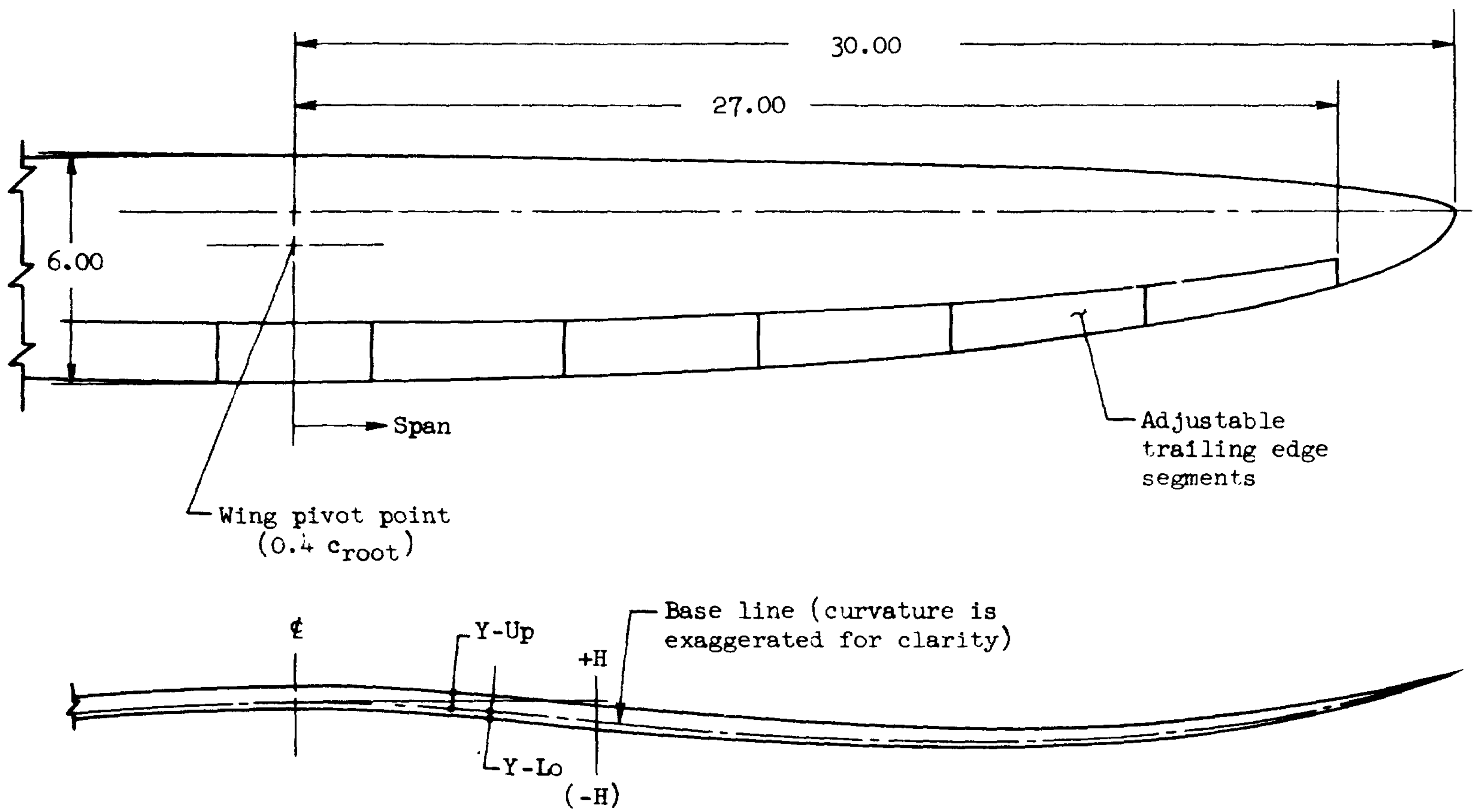


Figure 1. - **Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle**



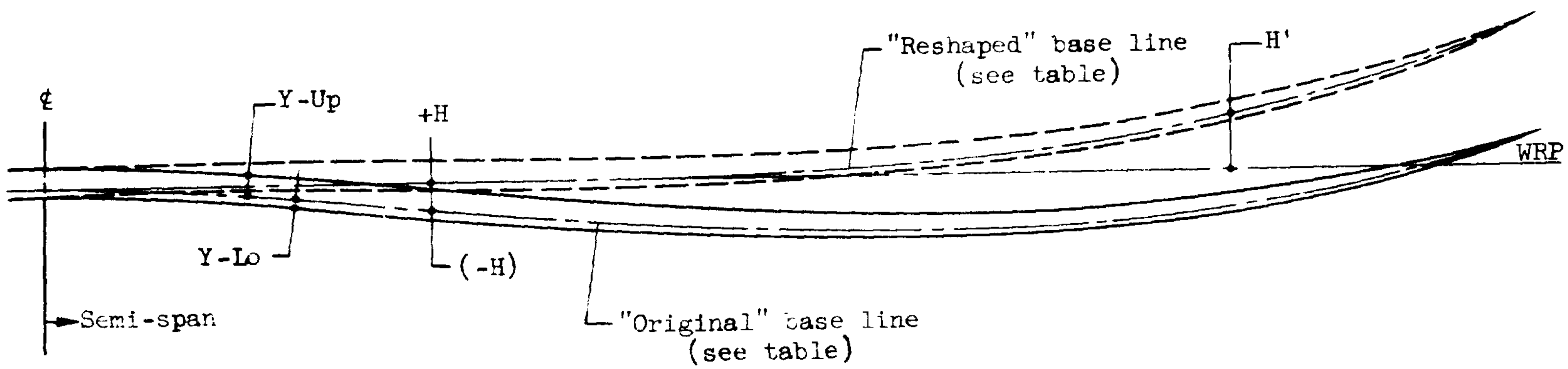
(a) Model drawing

Figure 2.- Oblique-wing/body model details and photograph



(b) Wing planform and base line curvature, wing number 1, W_1

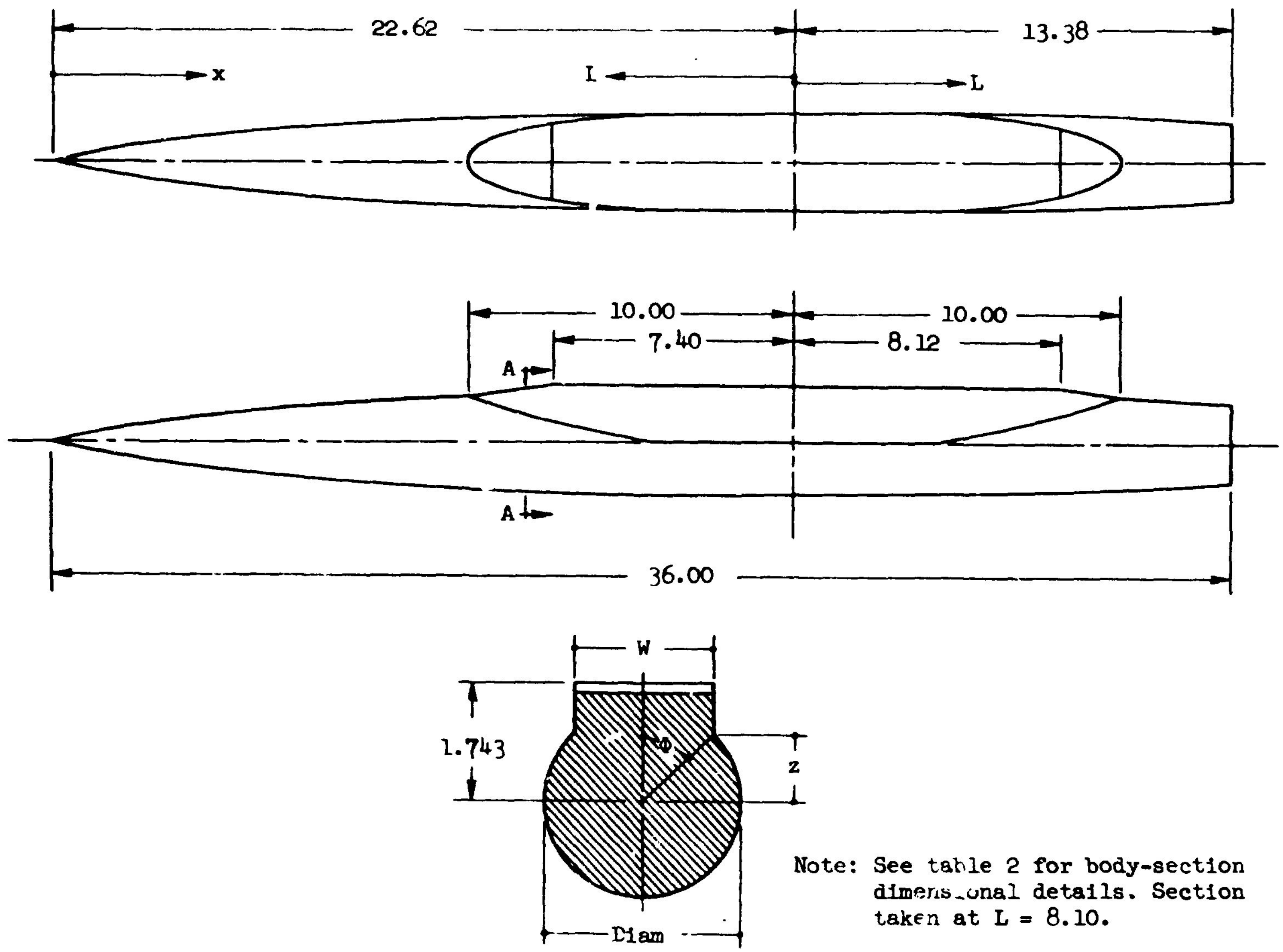
Figure 2.- Continued.



Note: Curvature exaggerated for clarity

(c) Wing curvature drawing and tabulated wing dimensional data, wing numbers 1 and 3

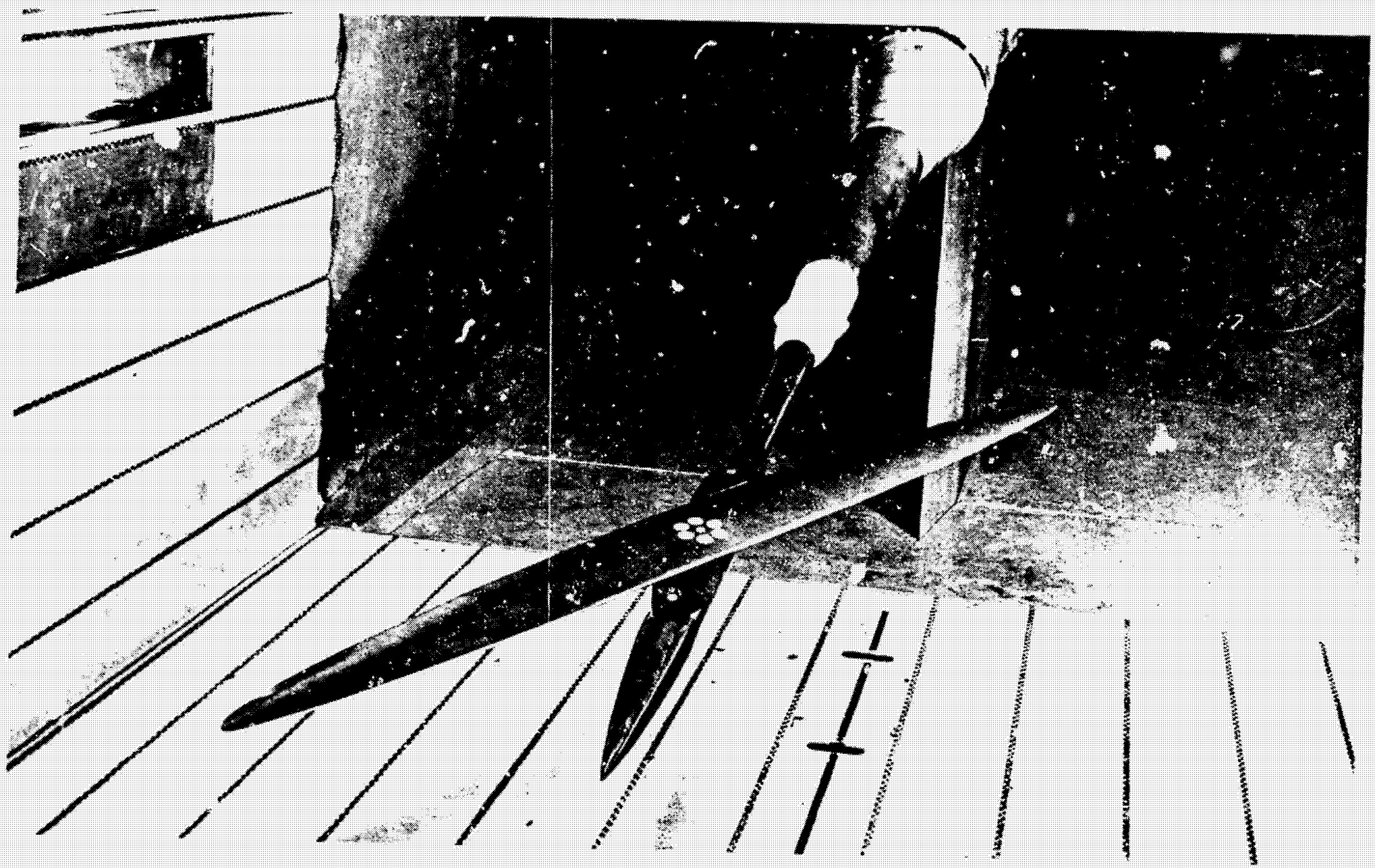
Figure 2.- Continued.



Note: See table 2 for body-section dimensional details. Section taken at L = 8.10.

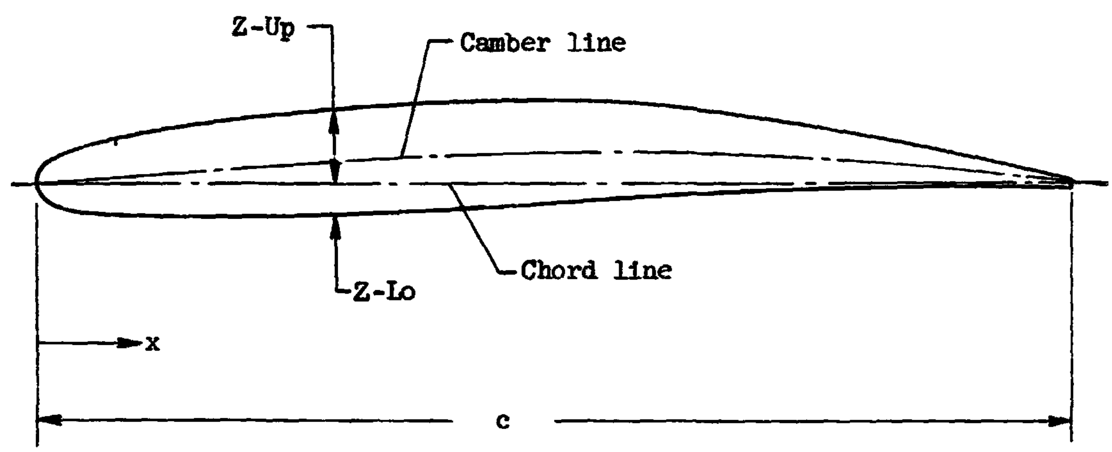
(d) Body dimensional data

Figure 2.- Continued.



(e) Photograph of the model in the Ames 11-by 11-Foot Wind Tunnel, $\Lambda = 60^\circ$

Figure 2. - Continued.

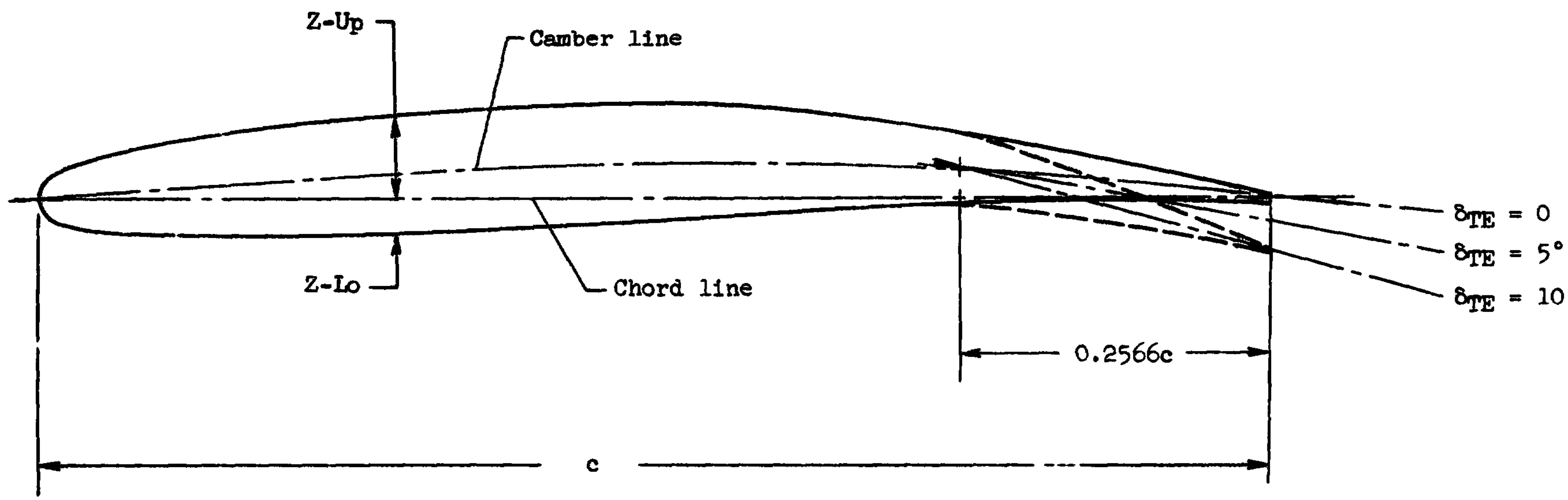


TABULATED WING-SECTION DATA

x/c	t/c	Camber/c	Z-Up/c	Z-Lo/c
.001	.01203	.00008	.00609	-.00594
.010	.03394	.00078	.01775	-.01619
.025	.04849	.00195	.02619	-.02230
.050	.06119	.00389	.03449	-.02671
.075	.06891	.00582	.04027	-.02864
.100	.07446	.00772	.04495	-.02951
.150	.08250	.01144	.05269	-.02981
.200	.08852	.01498	.05924	-.02923
.300	.09689	.02129	.06974	-.02715
.400	.10000	.02621	.07621	-.02379
.500	.09647	.02925	.07749	-.01899
.600	.08560	.02995	.07275	-.01285
.700	.06796	.02785	.06182	-.00613
.800	.04568	.02246	.04531	-.00038
.900	.02255	.01334	.02461	.00207
1.000	.00400	.00000	.00200	-.00200

(f) Wing section drawing and tabulated airfoil section data

Figure 2.- Continued.



(g) Wing section drawing with trailing edge modifications

Figure 2.- Concluded.

DATA

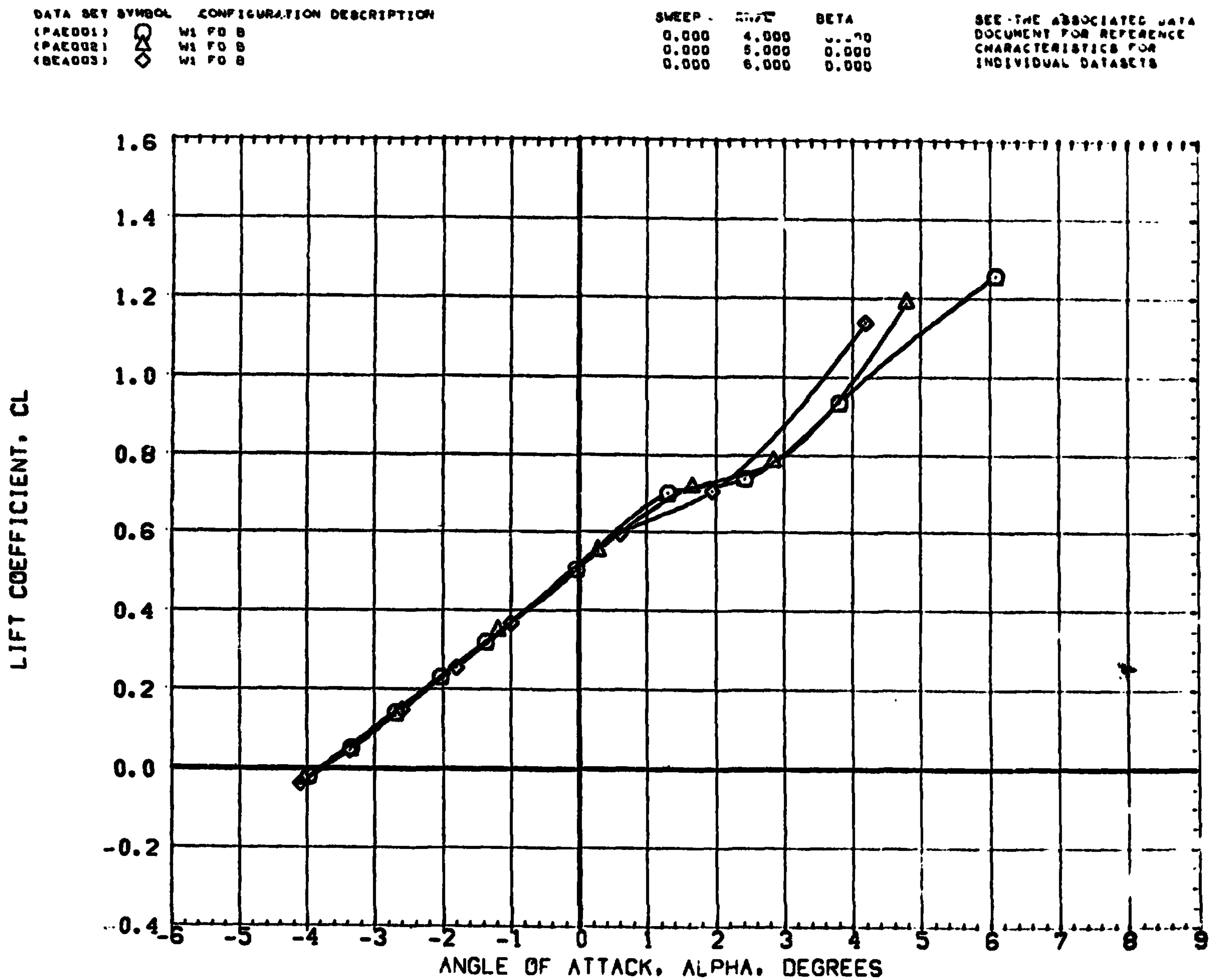


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

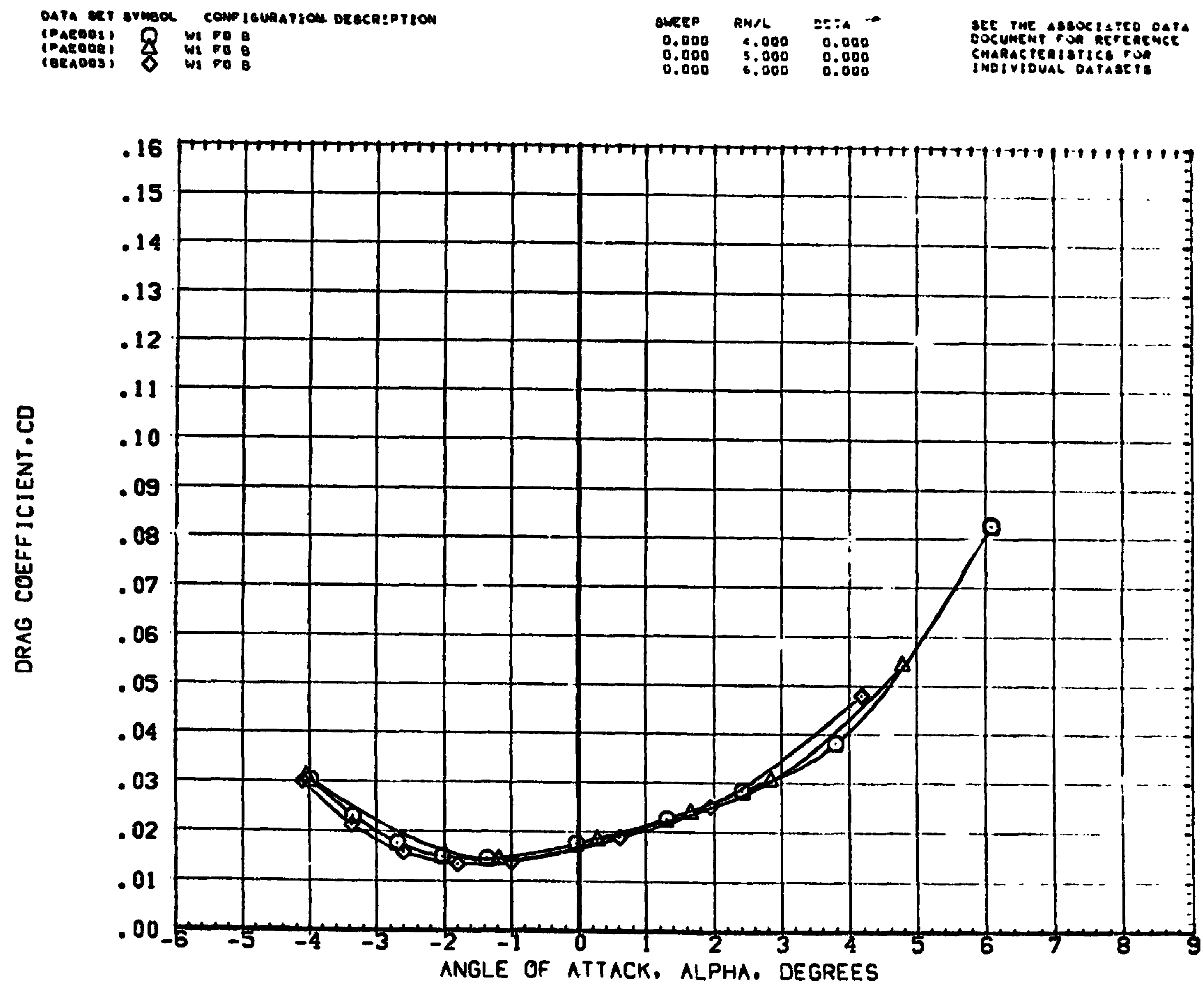


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

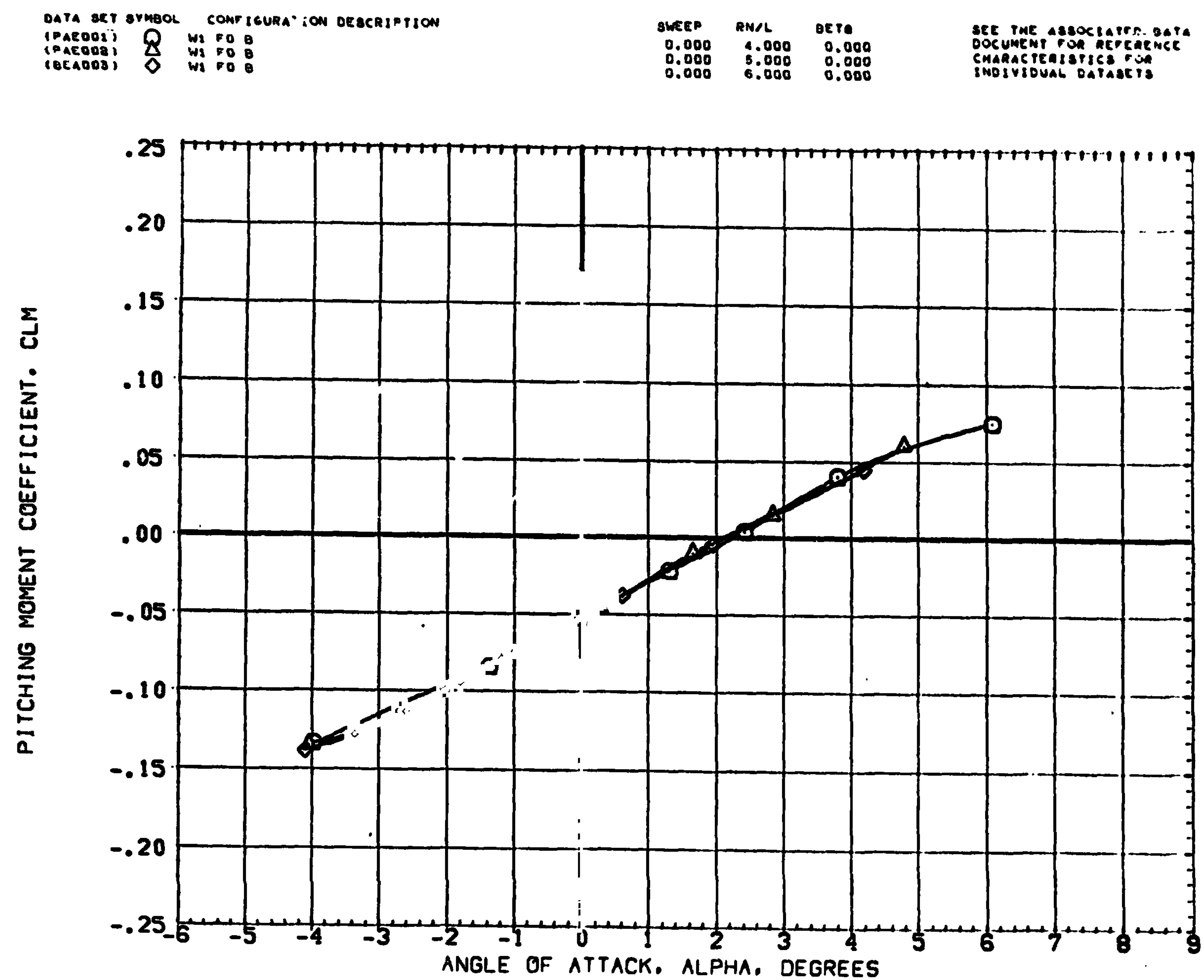


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE001)	○	W1 F0 B	0.000	4.000	0.000
(PAE002)	△	W1 F0 B	0.000	5.000	0.000
(BEA003)	◇	W1 F0 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

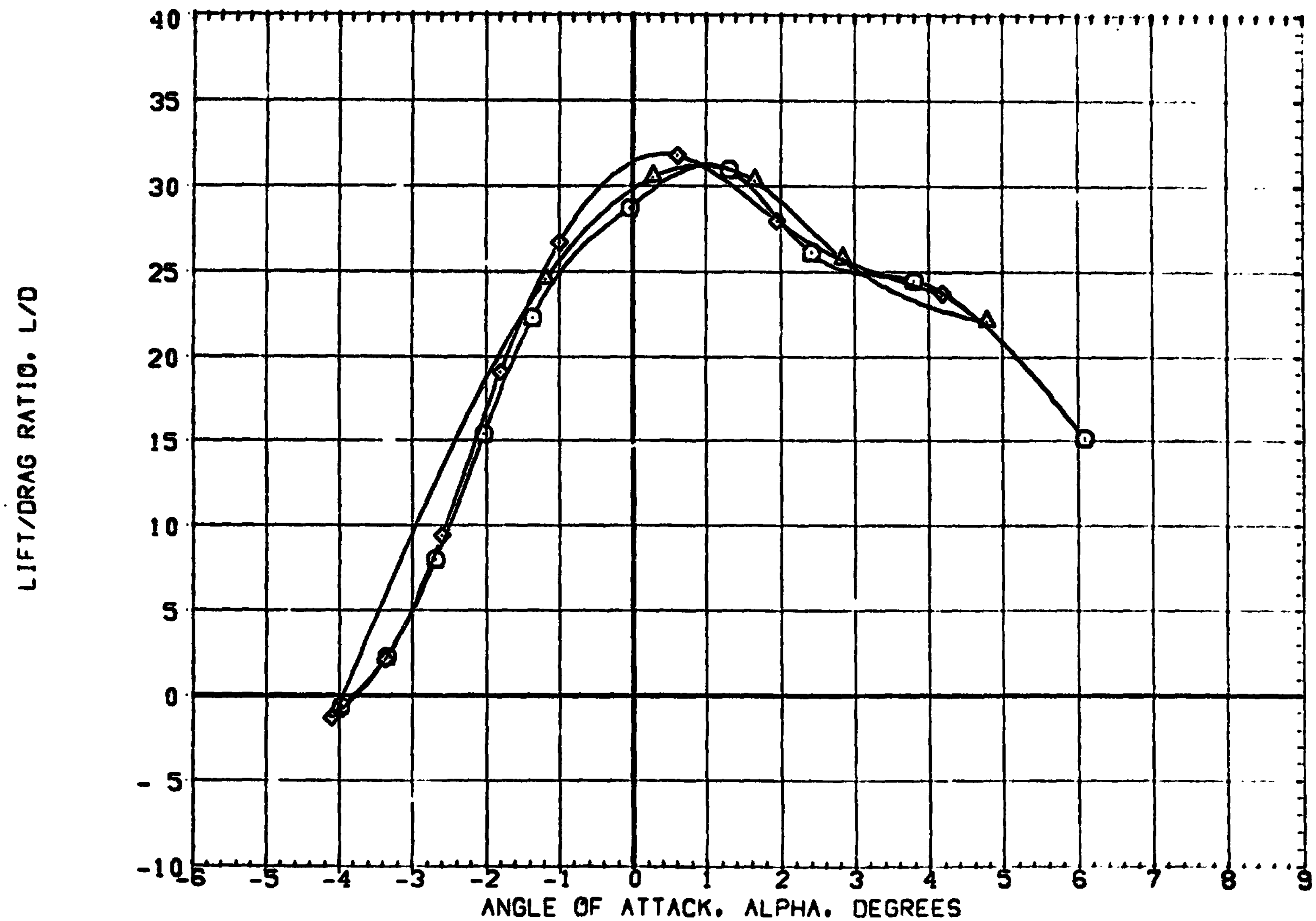


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

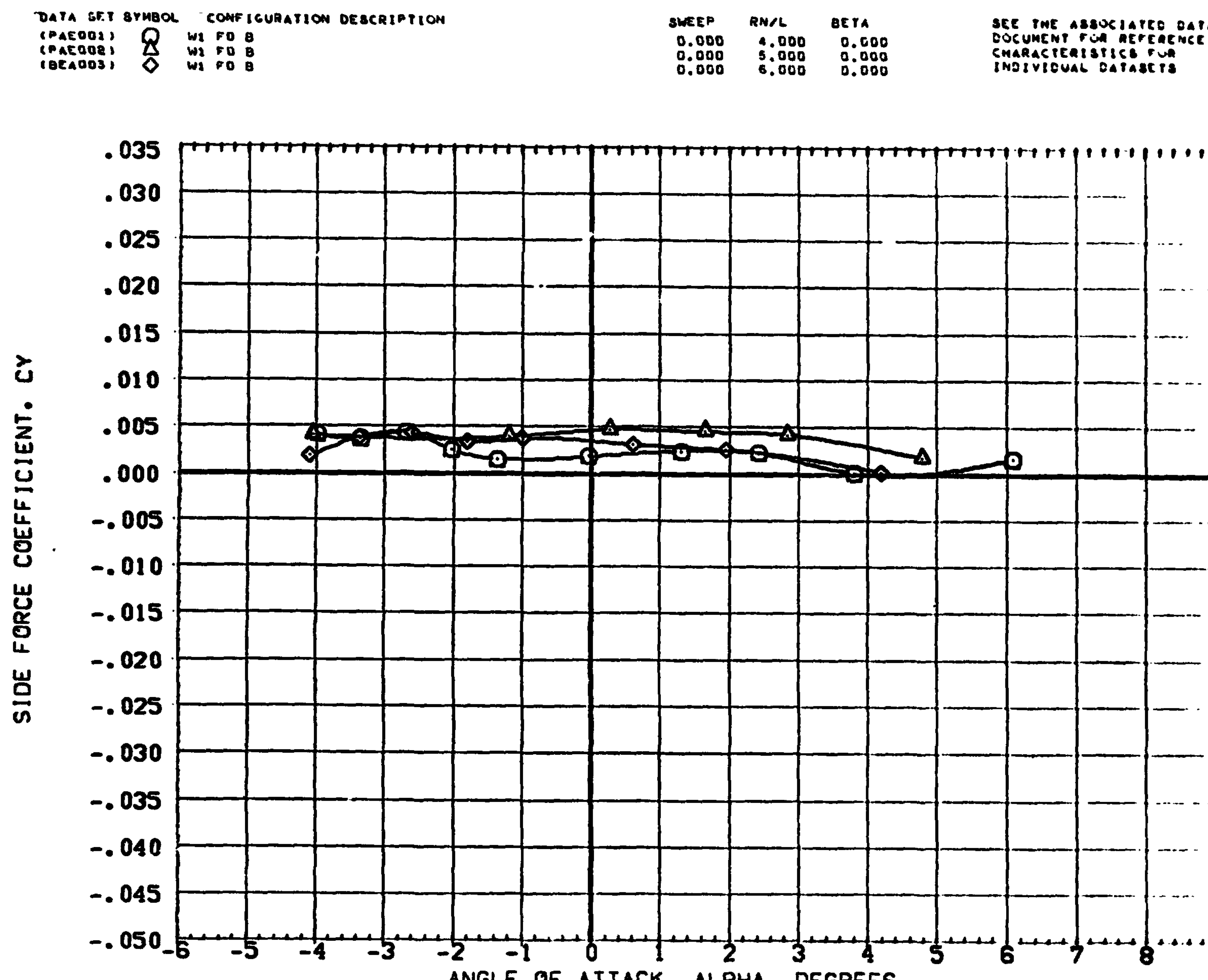


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

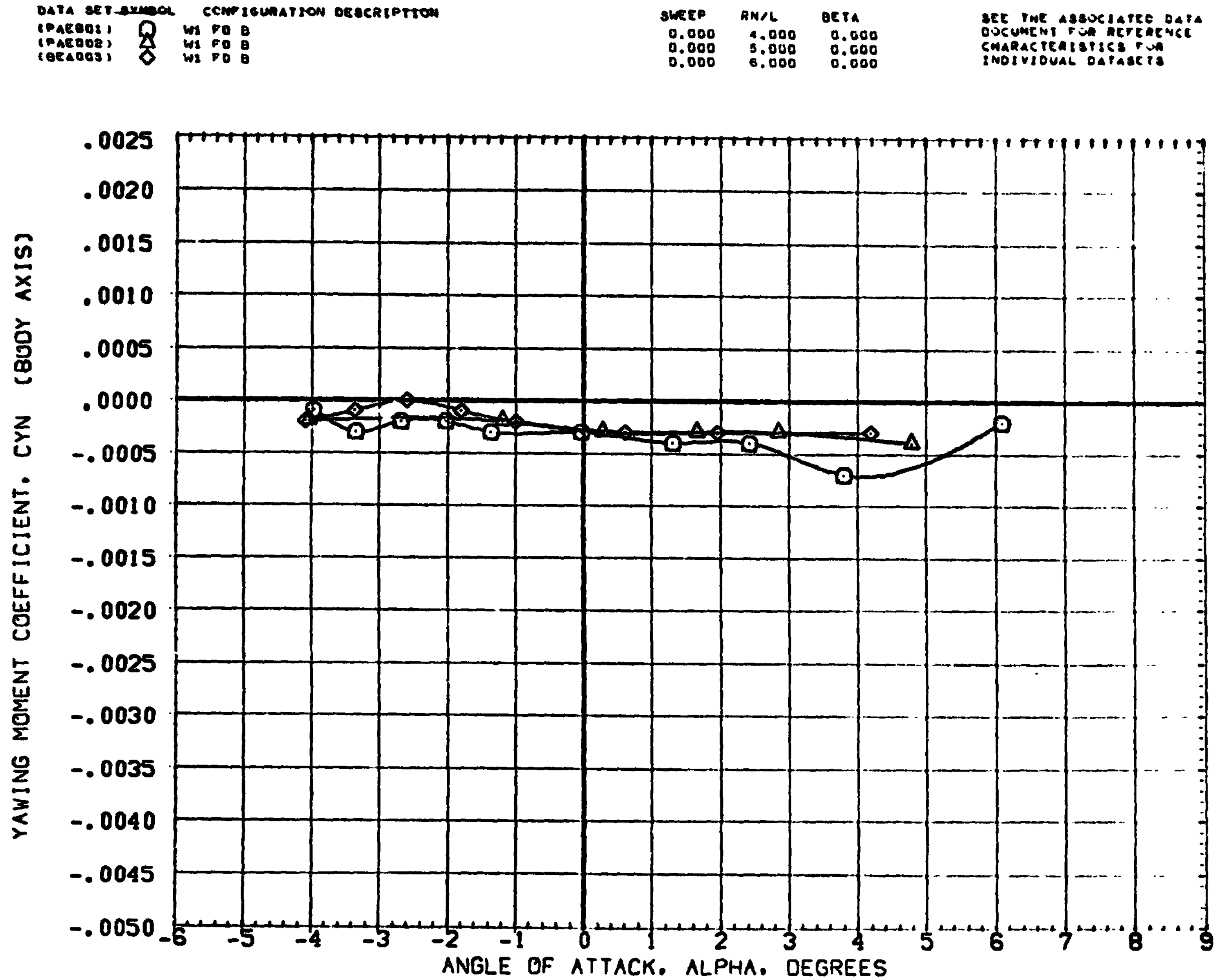


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

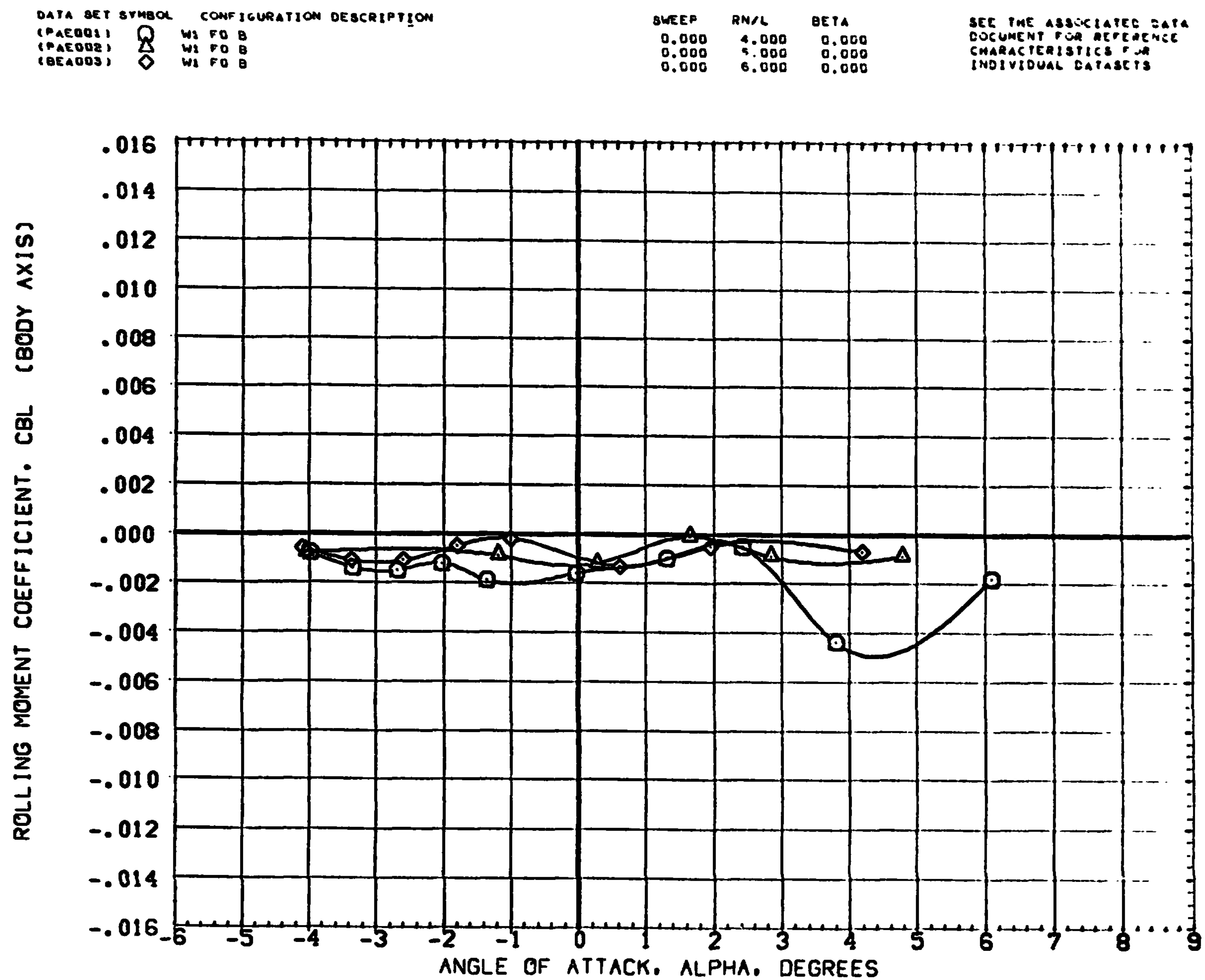


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

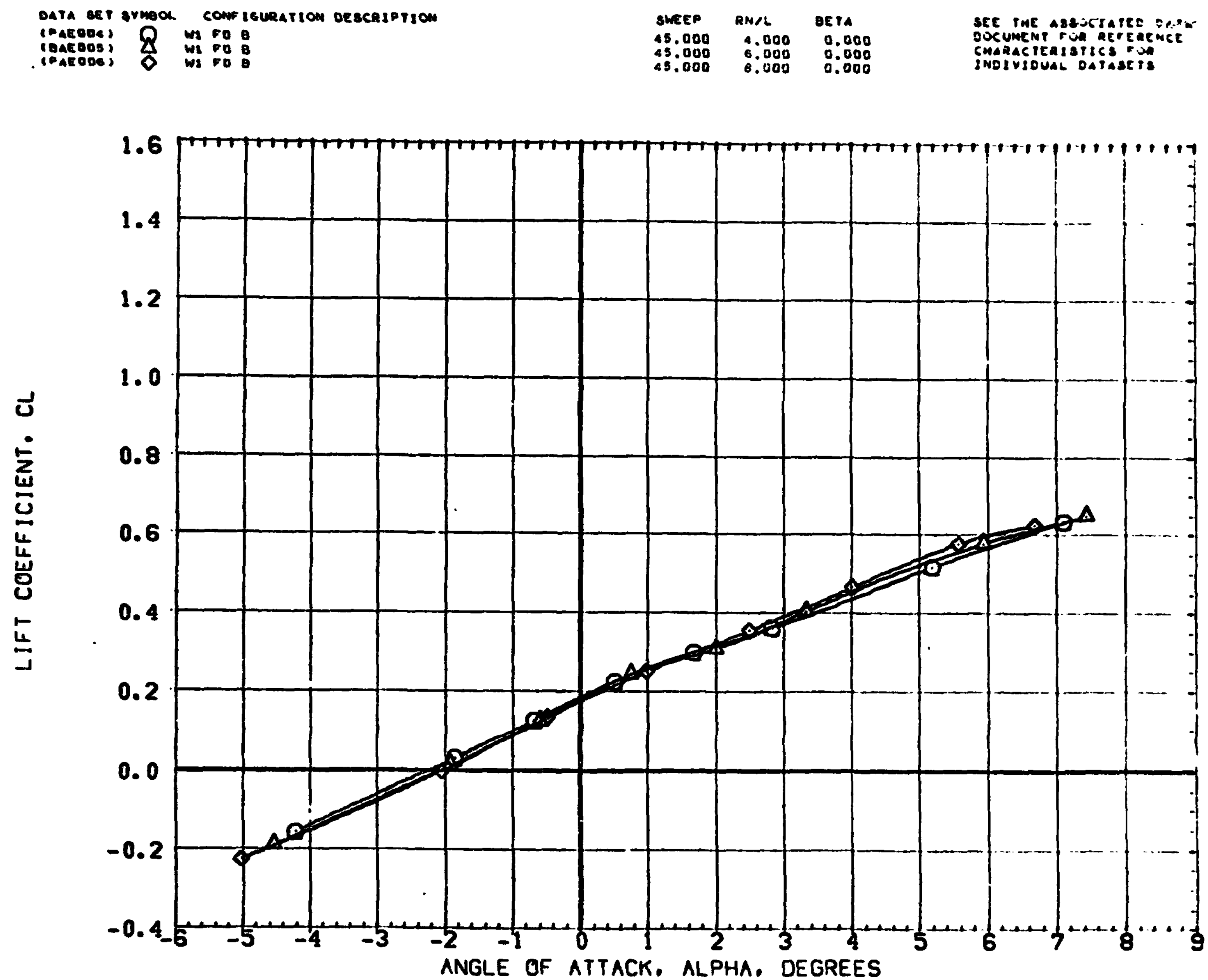


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

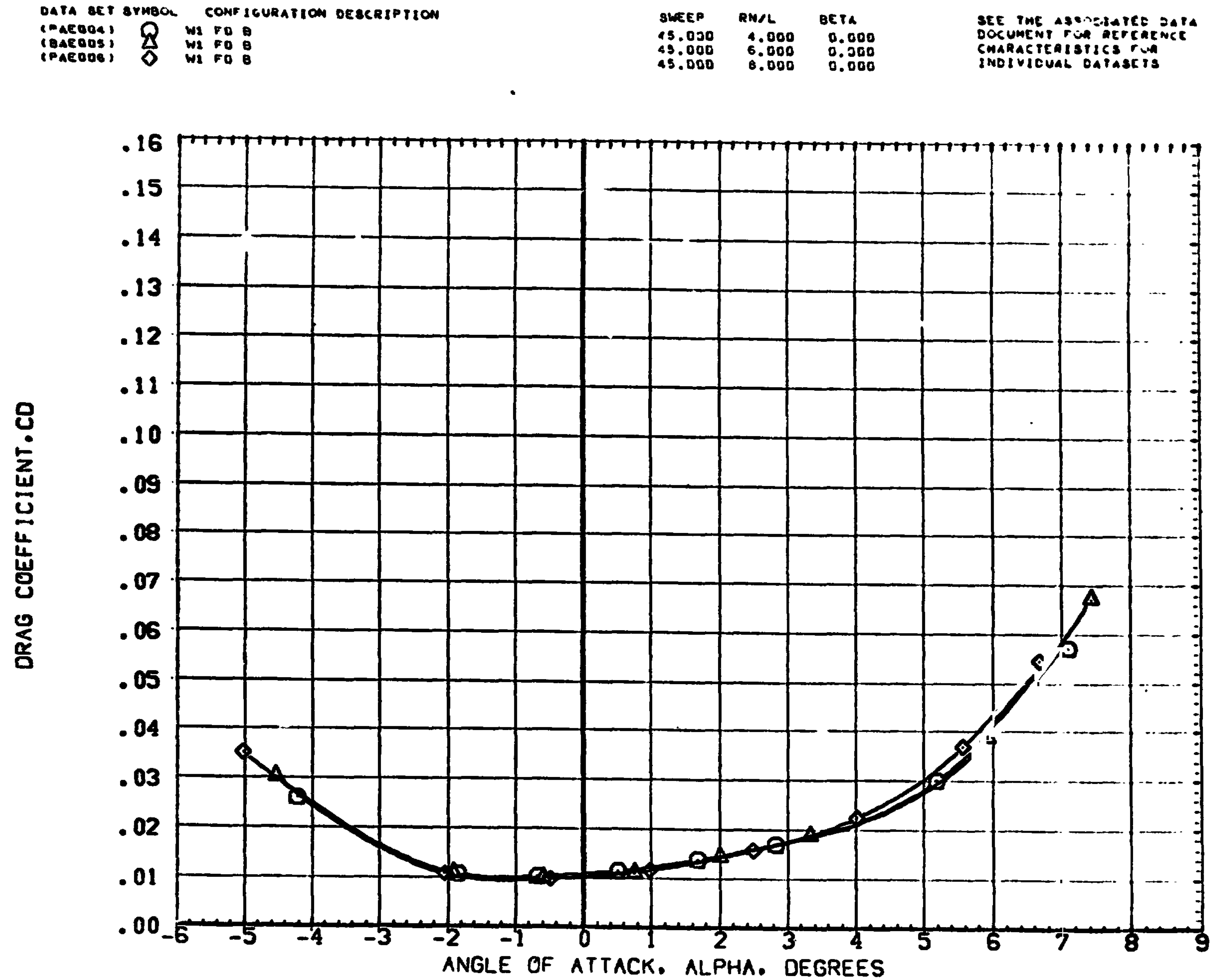


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES
(A)MACH = .80

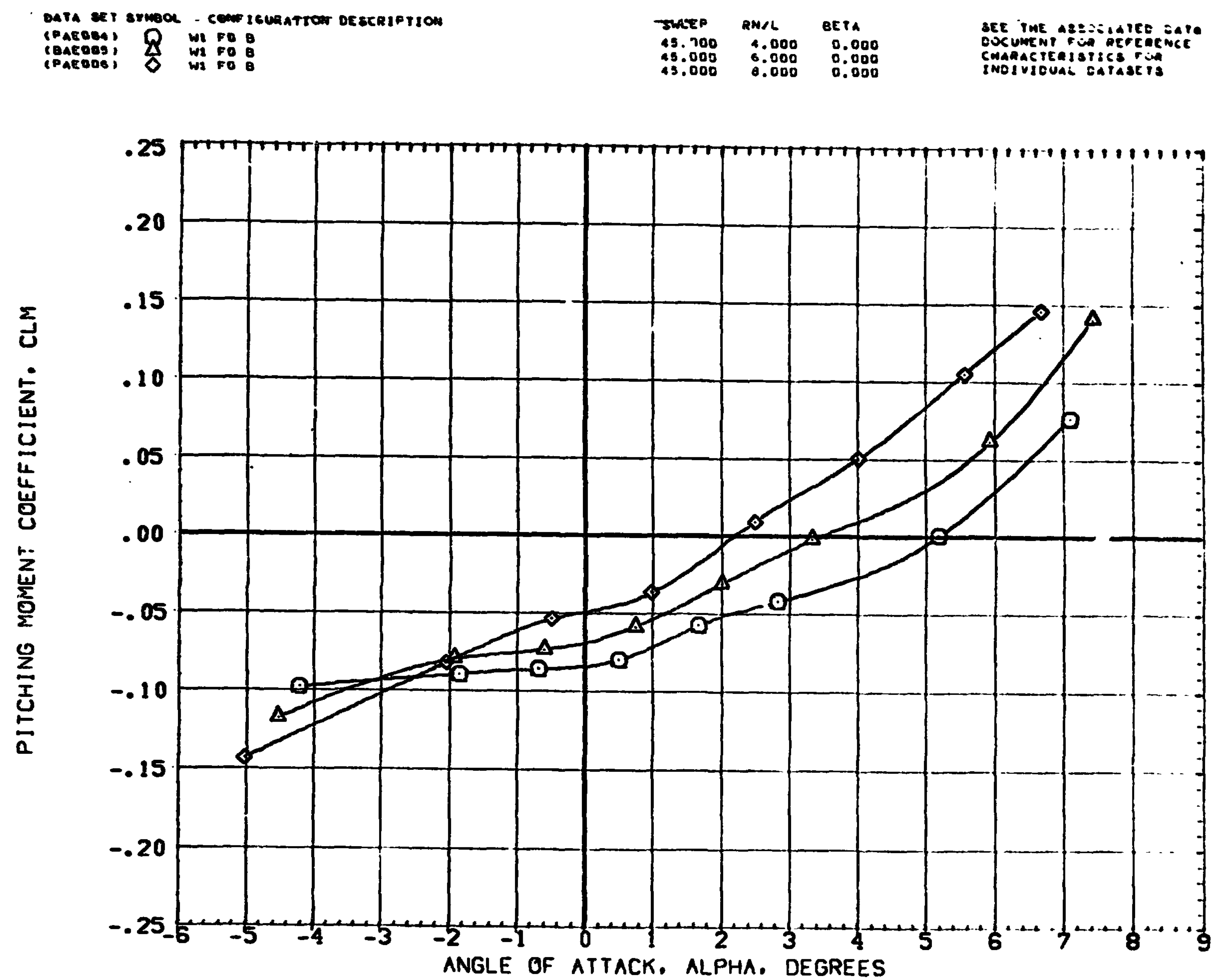


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

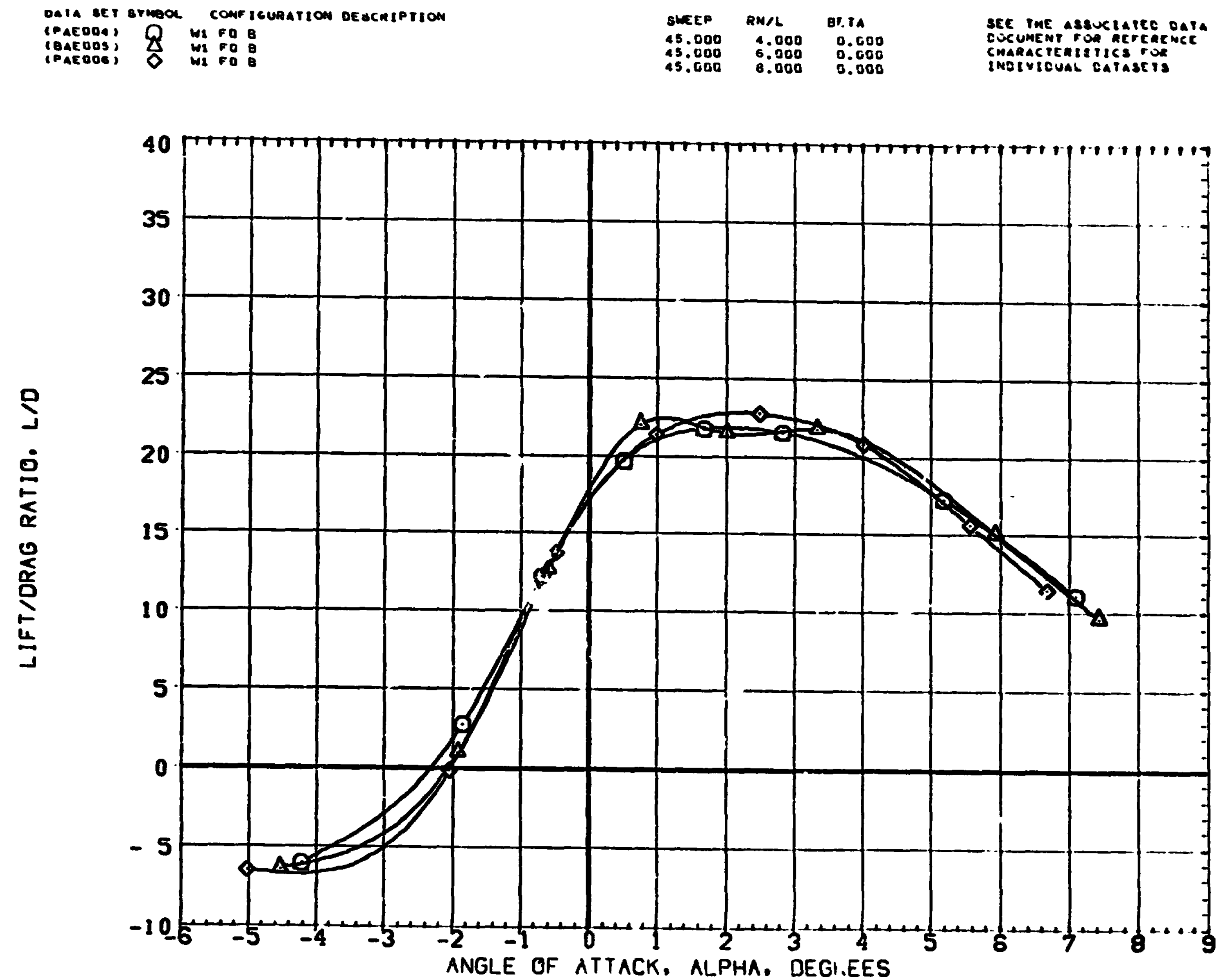


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES
(A)MACH = .80

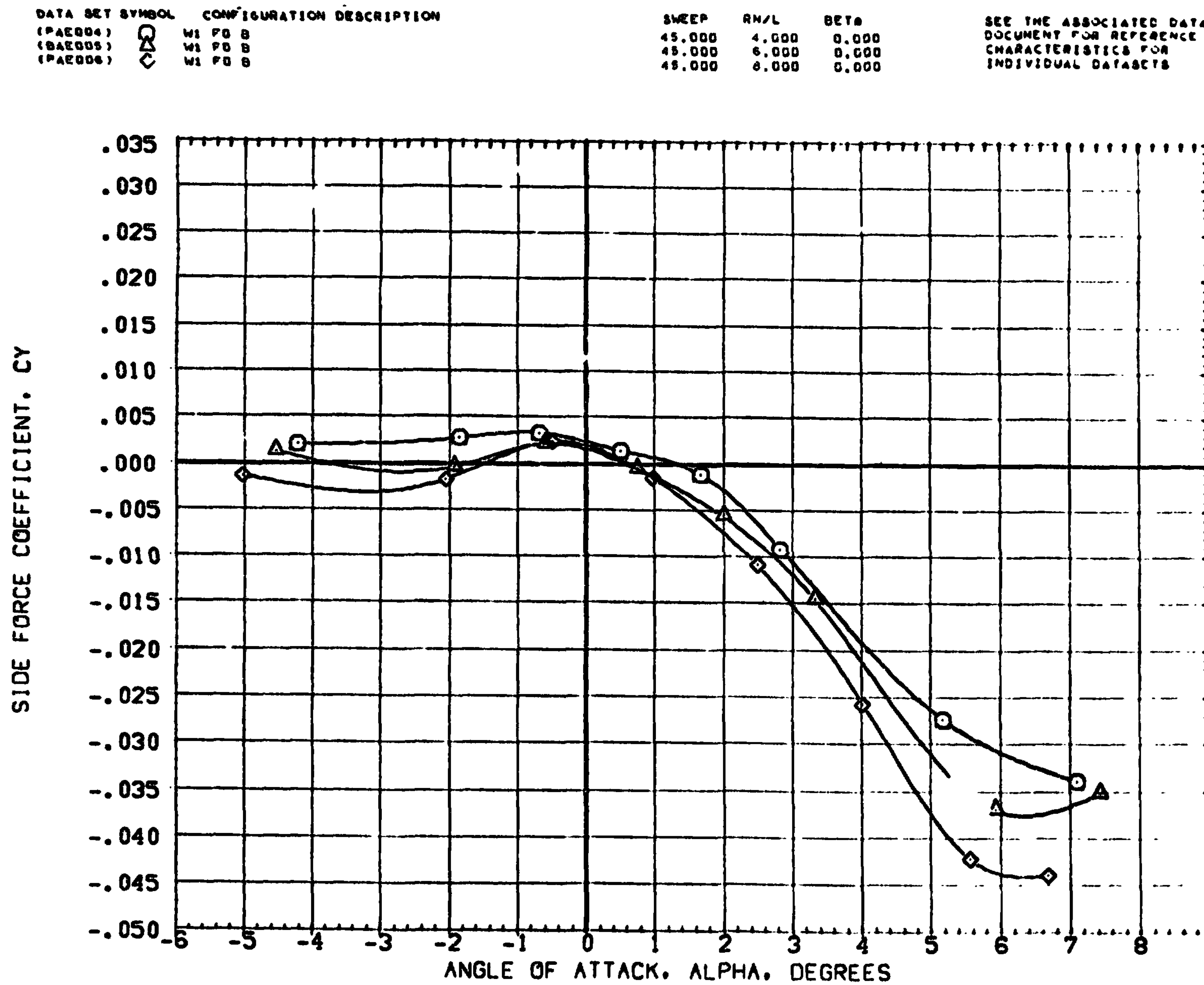


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

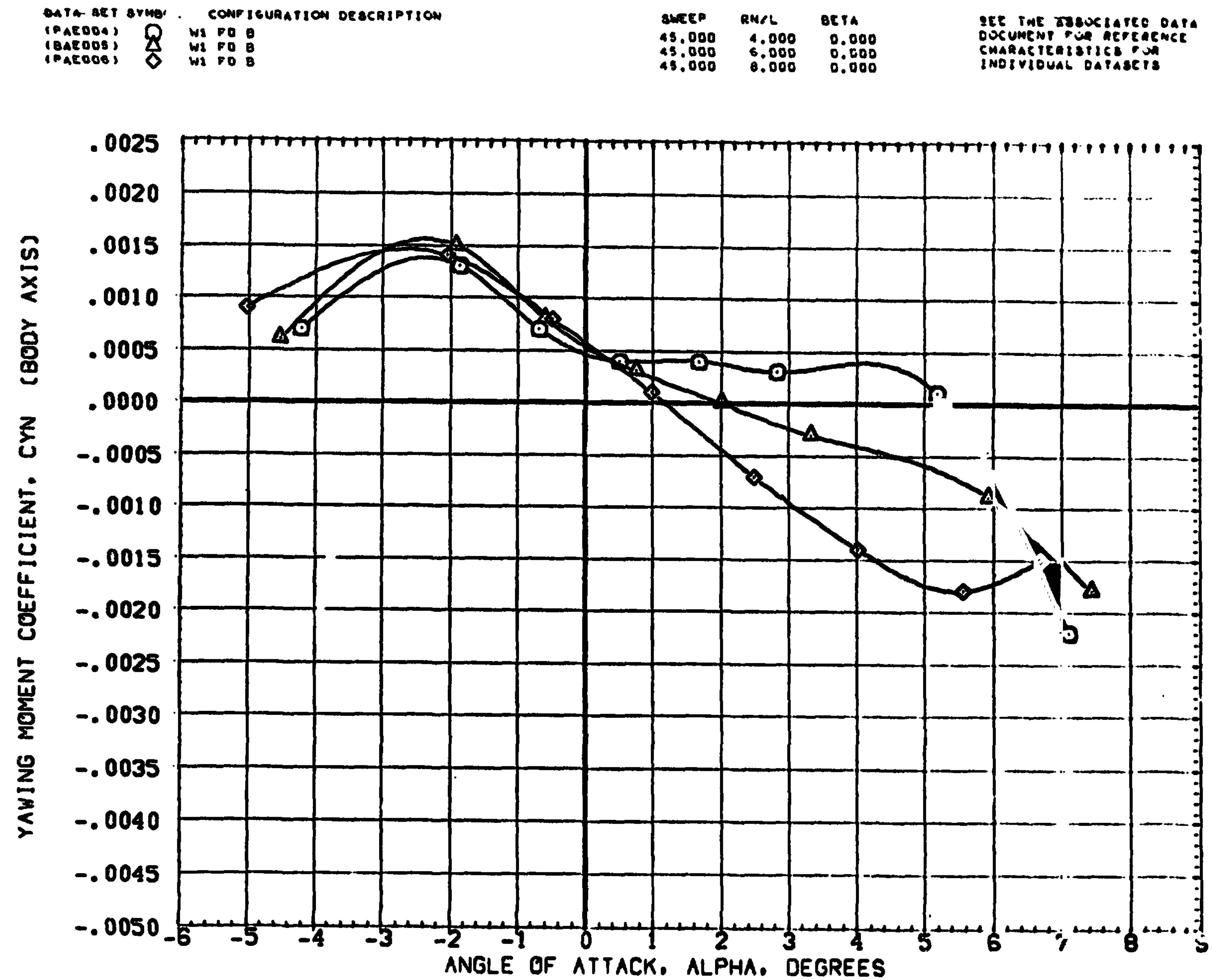


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES
(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE004)	○	W1 F0 B	45.000	4.000	0.000
(BAE005)	△	W1 F0 B	45.000	6.000	0.000
(PAE006)	◇	W1 F0 B	45.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

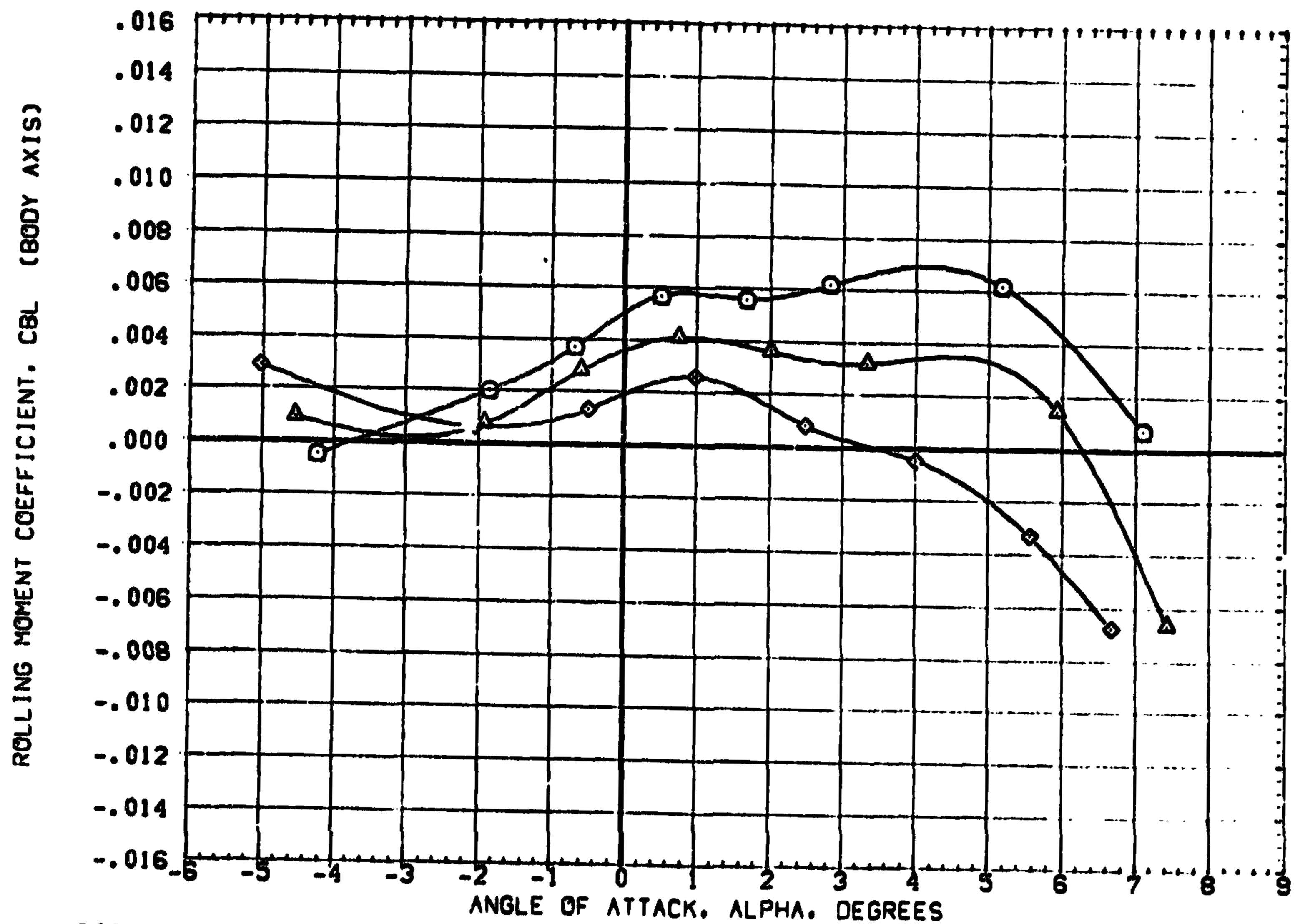


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

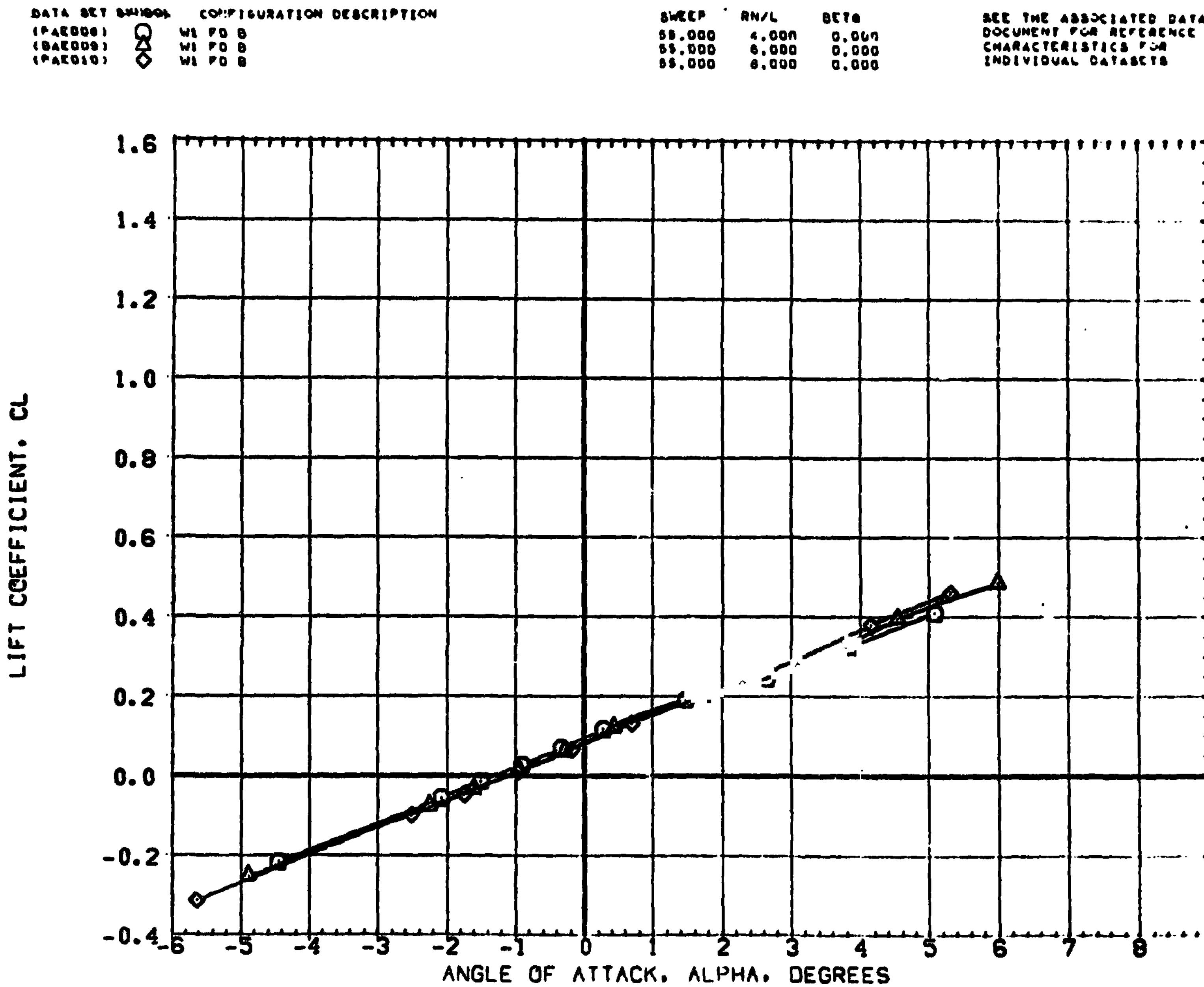


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES
(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE008)	○	W1 F0 B	55.000	4.000	0.000
(BAE009)	△	W1 F0 B	55.000	6.000	0.000
(PAE010)	◇	W1 F0 B	55.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

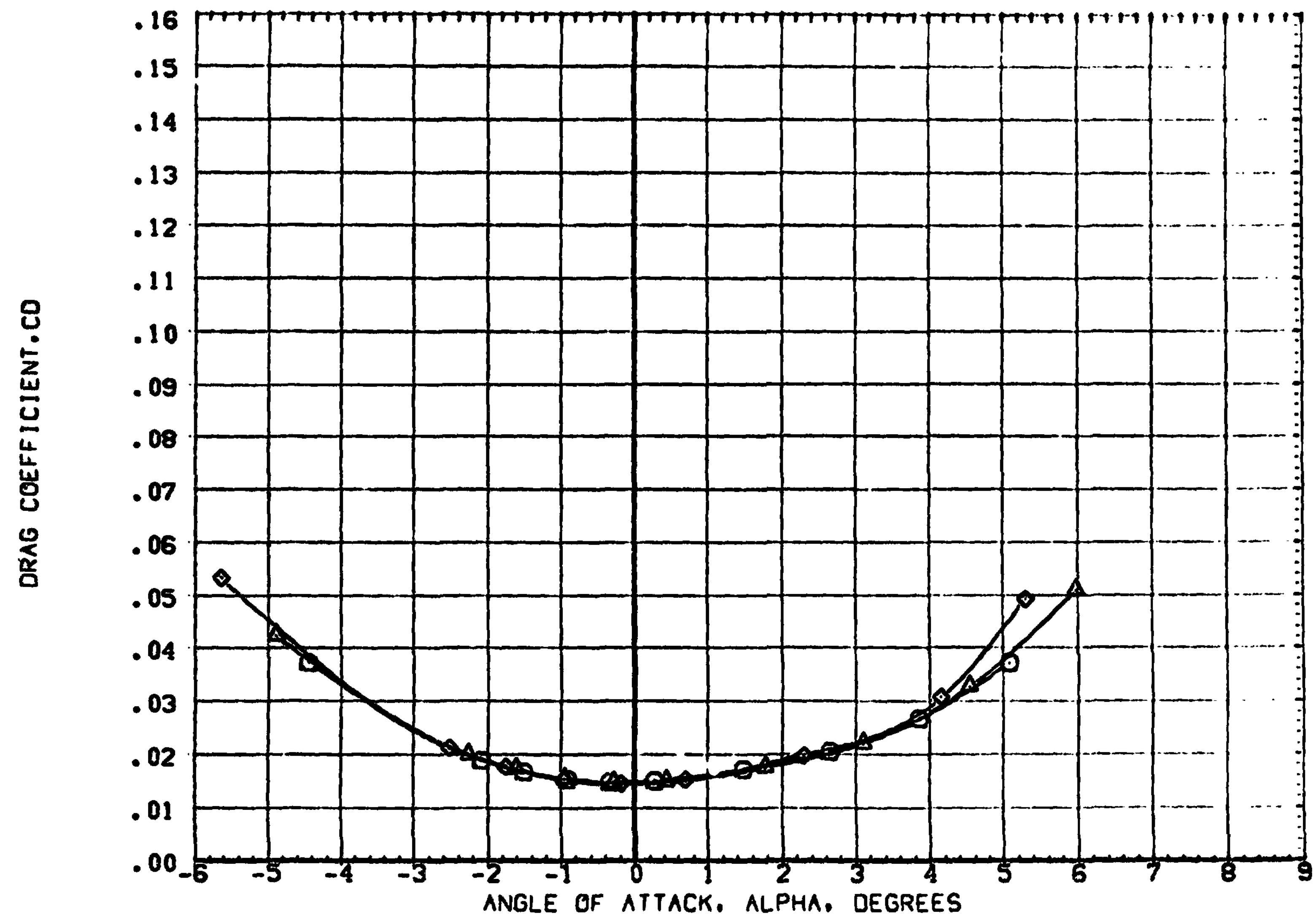


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

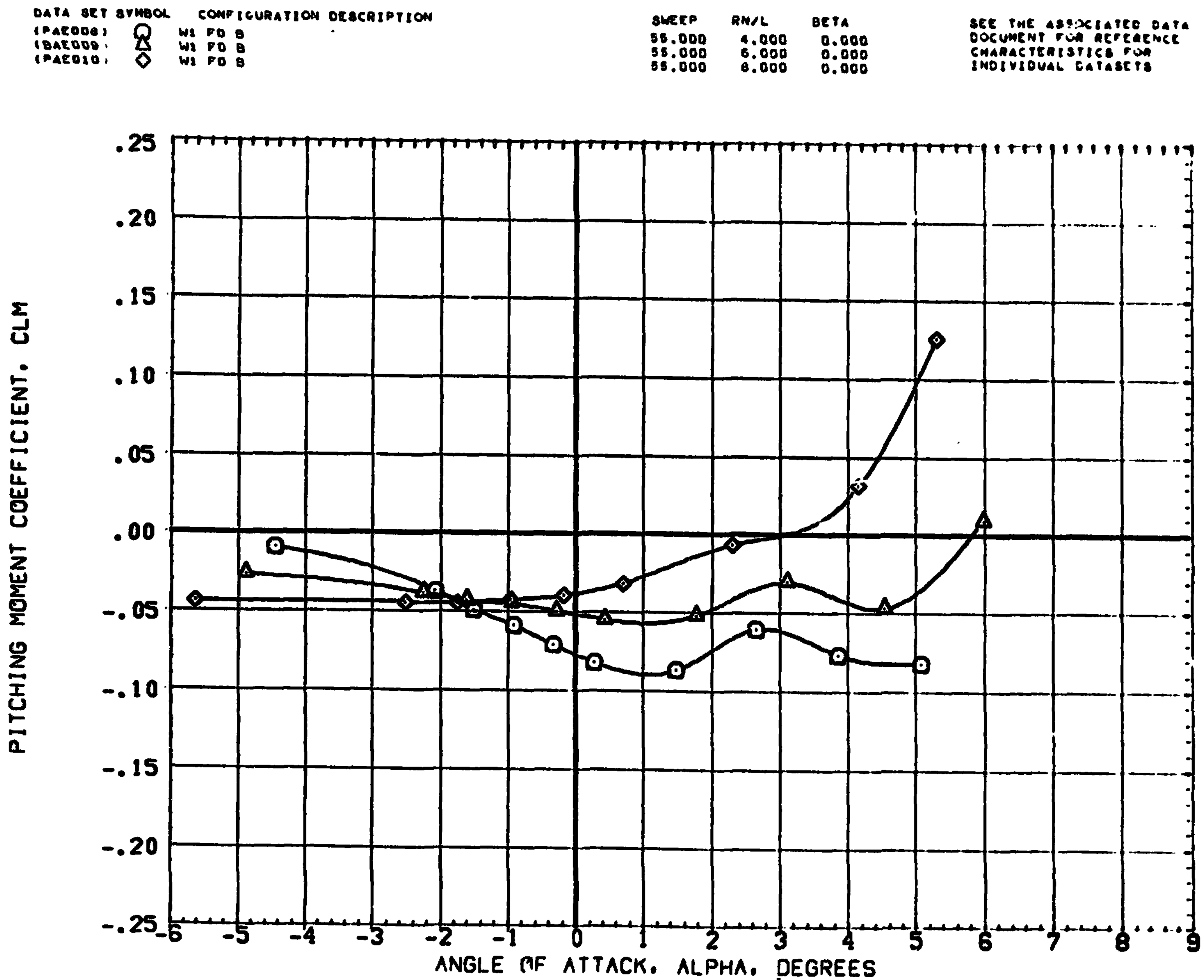


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE008)	○	W1 F0 B	55.000	4.000	0.000
(BAE009)	△	W1 F0 B	55.000	6.000	0.000
(PAE010)	◇	W1 F0 B	55.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

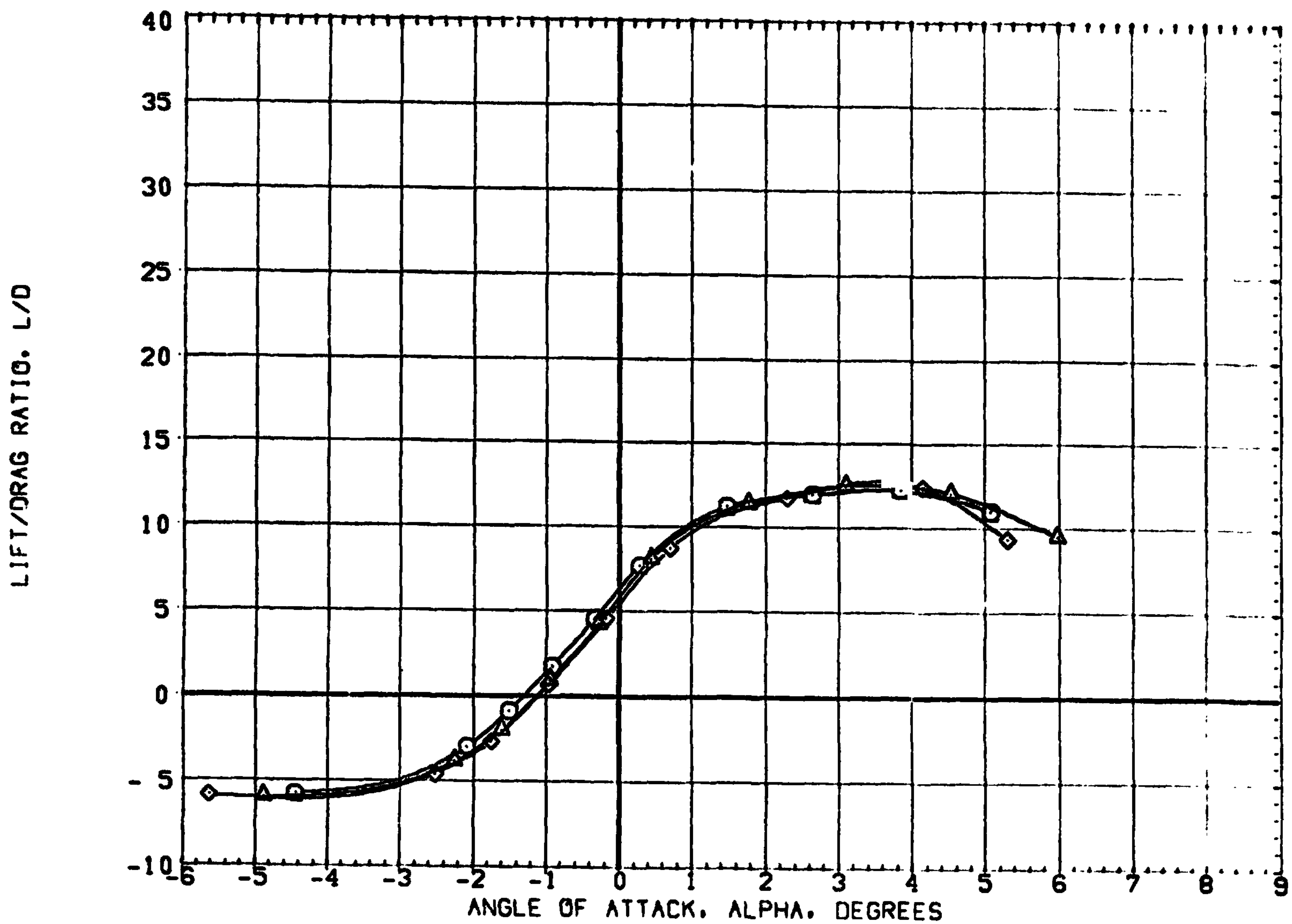


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES
(A)MACH = 1.20

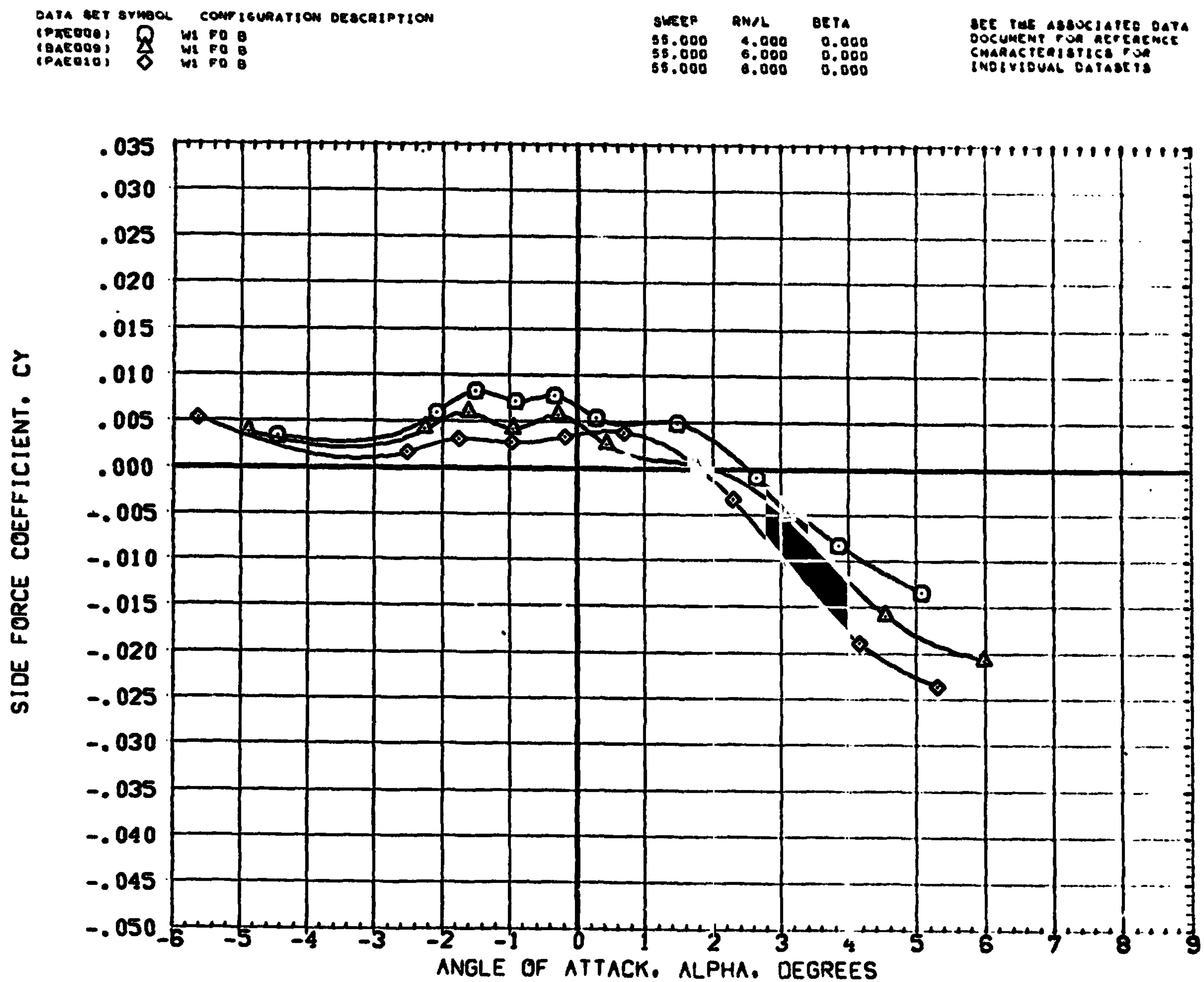


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES
(A)MACH = 1.20

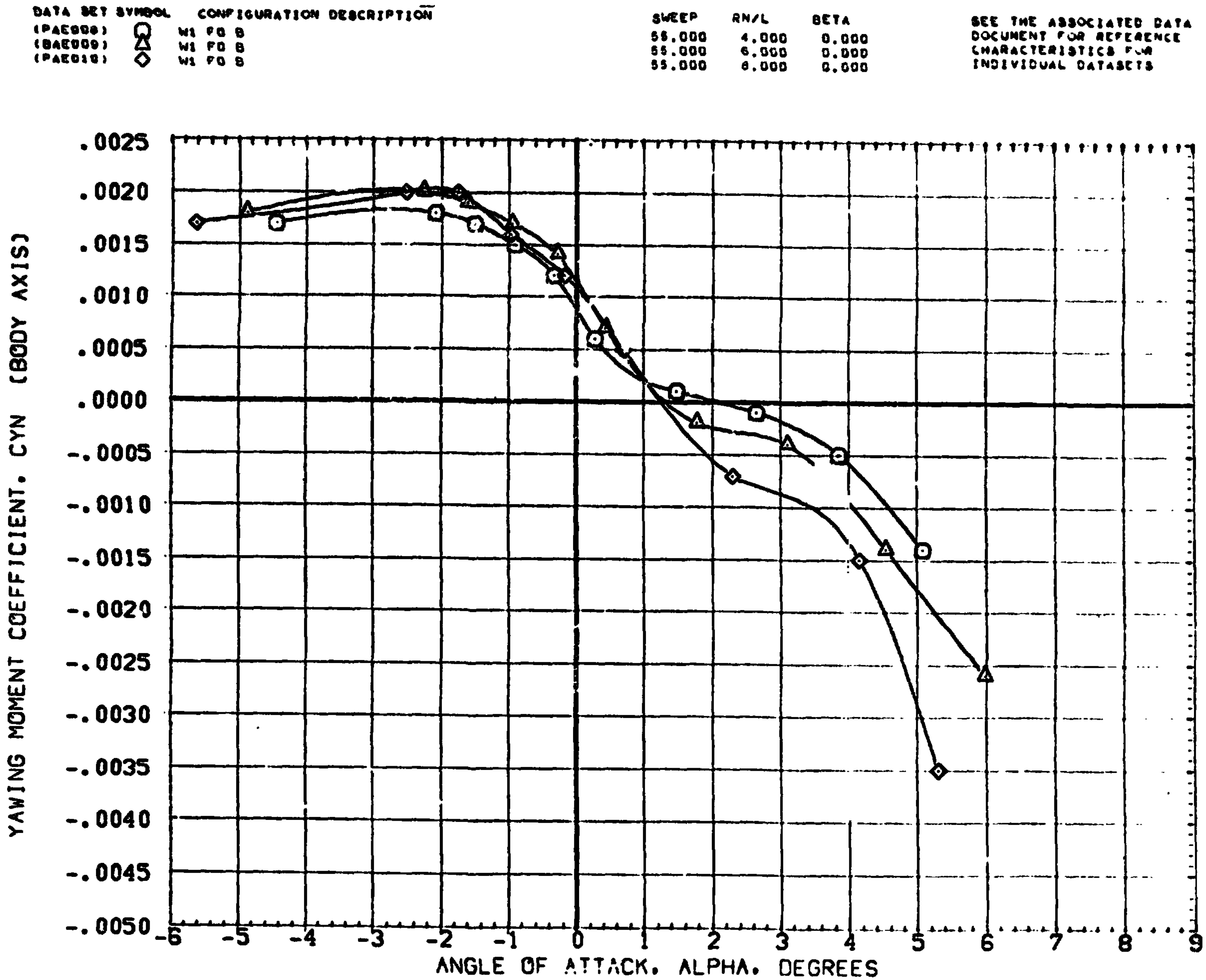


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE008)	⊙	W1 F0 B	55.000	4.000	0.000
(BAE009)	△	W1 F0 B	55.000	6.000	0.000
(PAE010)	◇	W1 F0 B	55.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

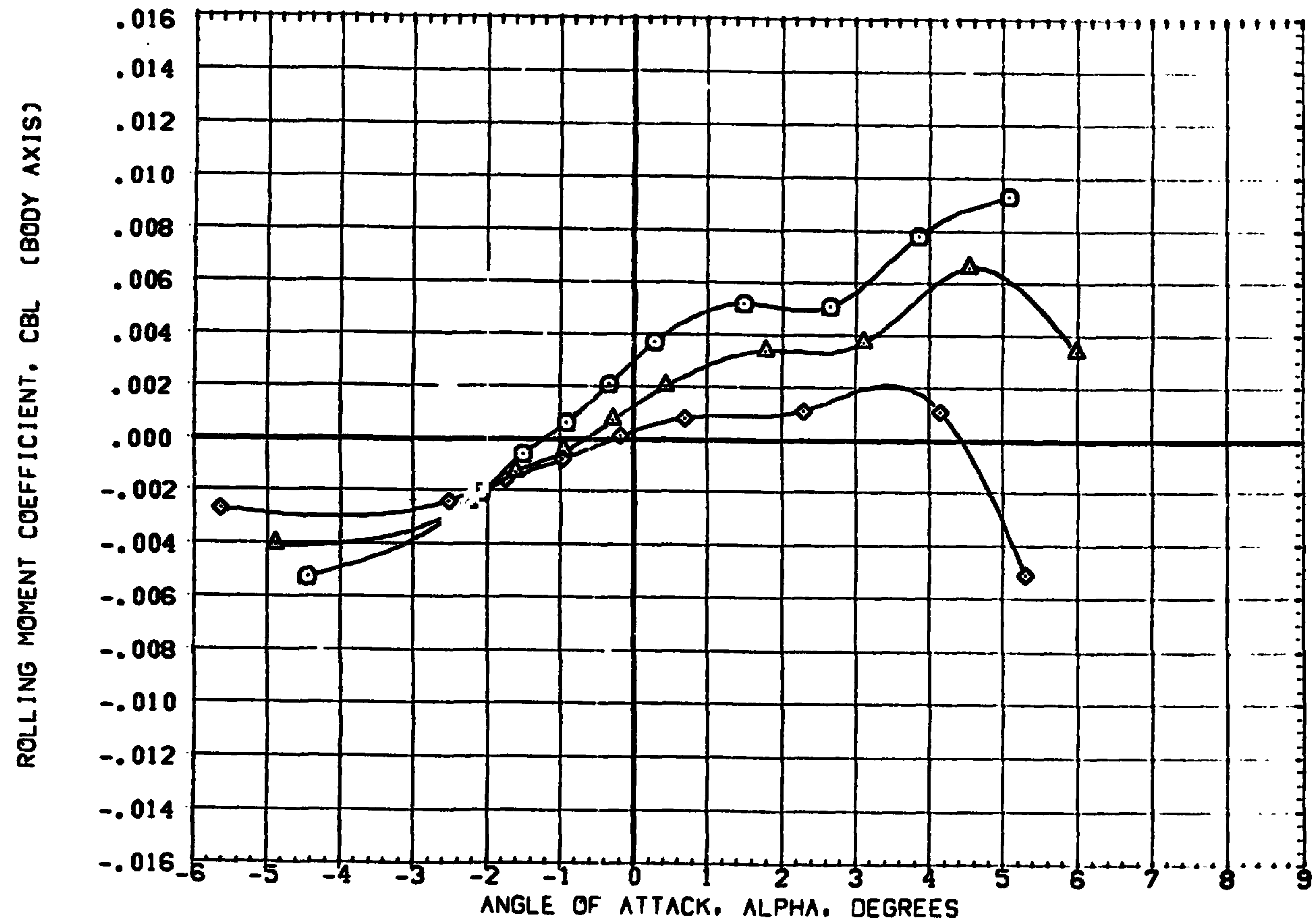


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

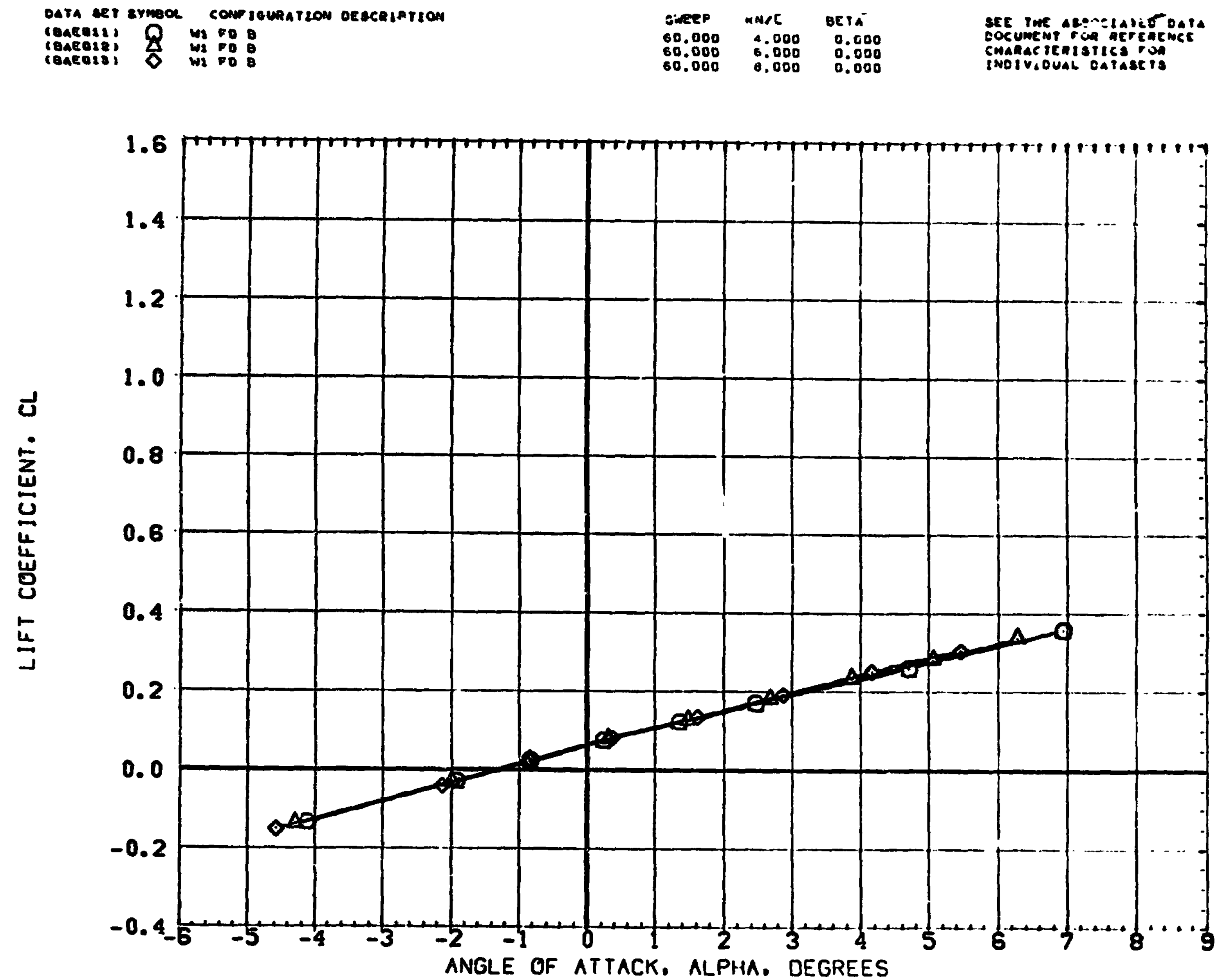


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES
(A)MACH = .80

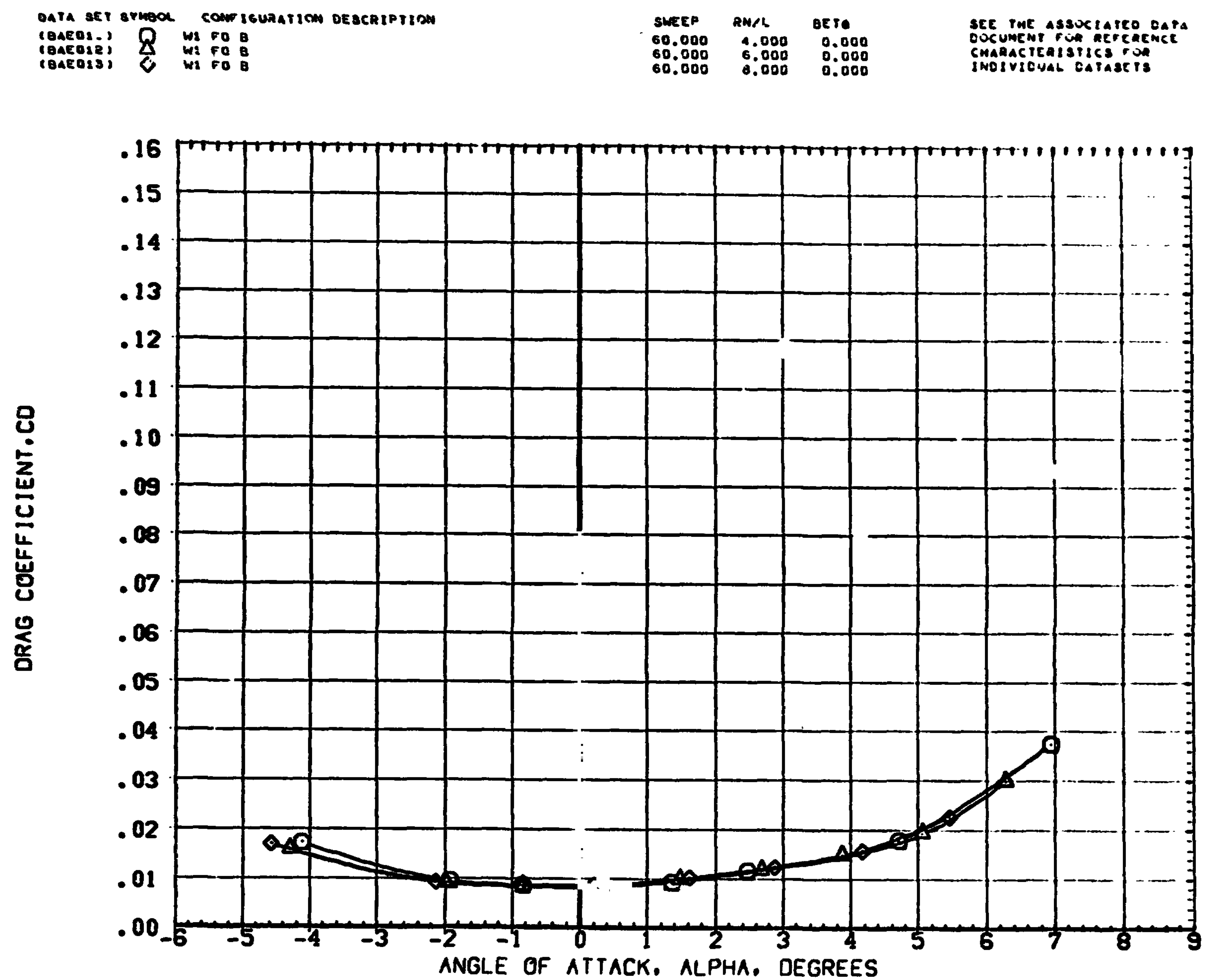


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION-DESCRIPTION	SWEEP	RN/L	BETA
(BAE011)	○	W1 F0 B	60.000	4.000	0.000
(BAE012)	△	W1 F0 B	60.000	6.000	0.000
(BAE013)	◇	W1 F0 B	60.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

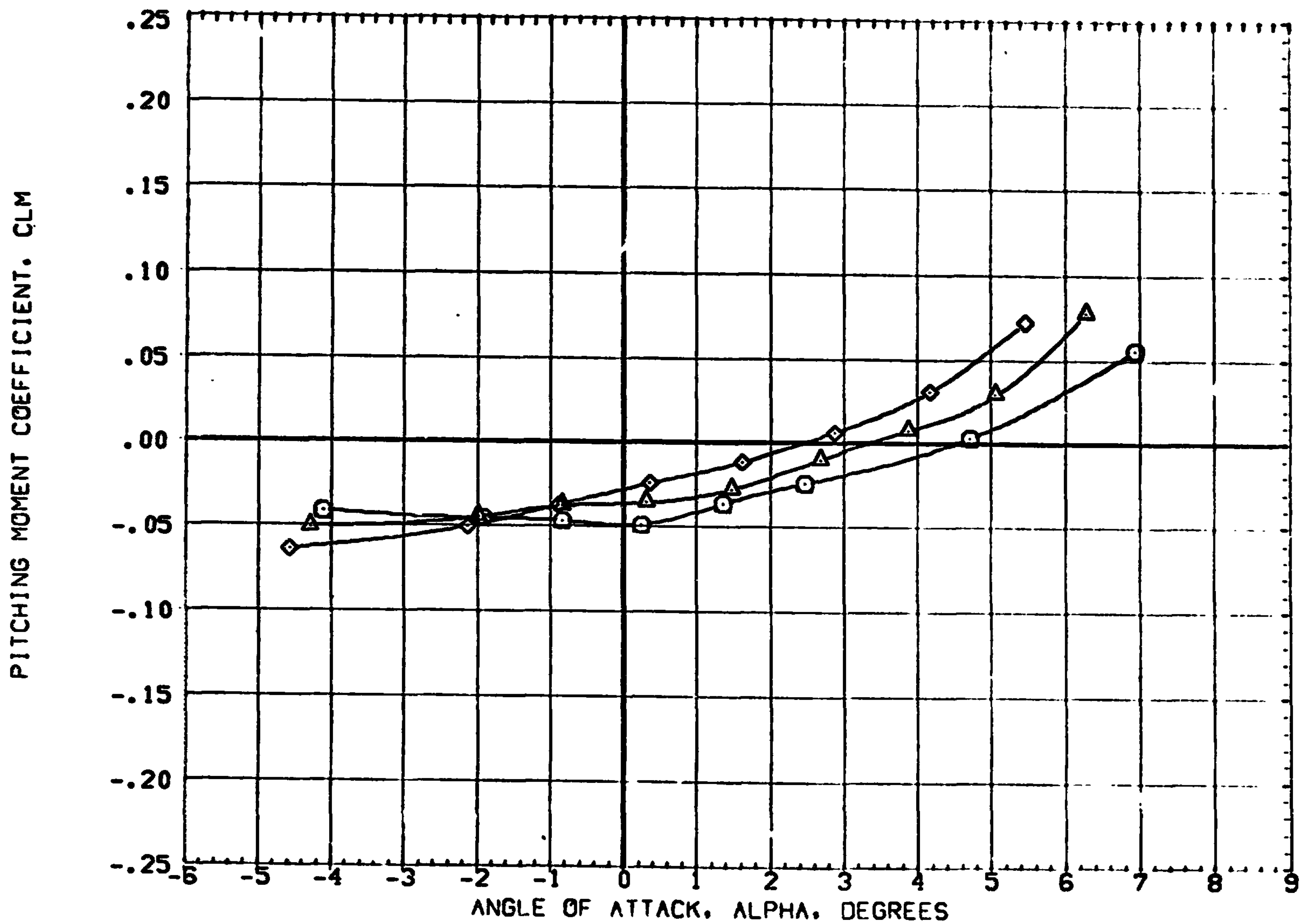


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)M/´ ˙ = .80

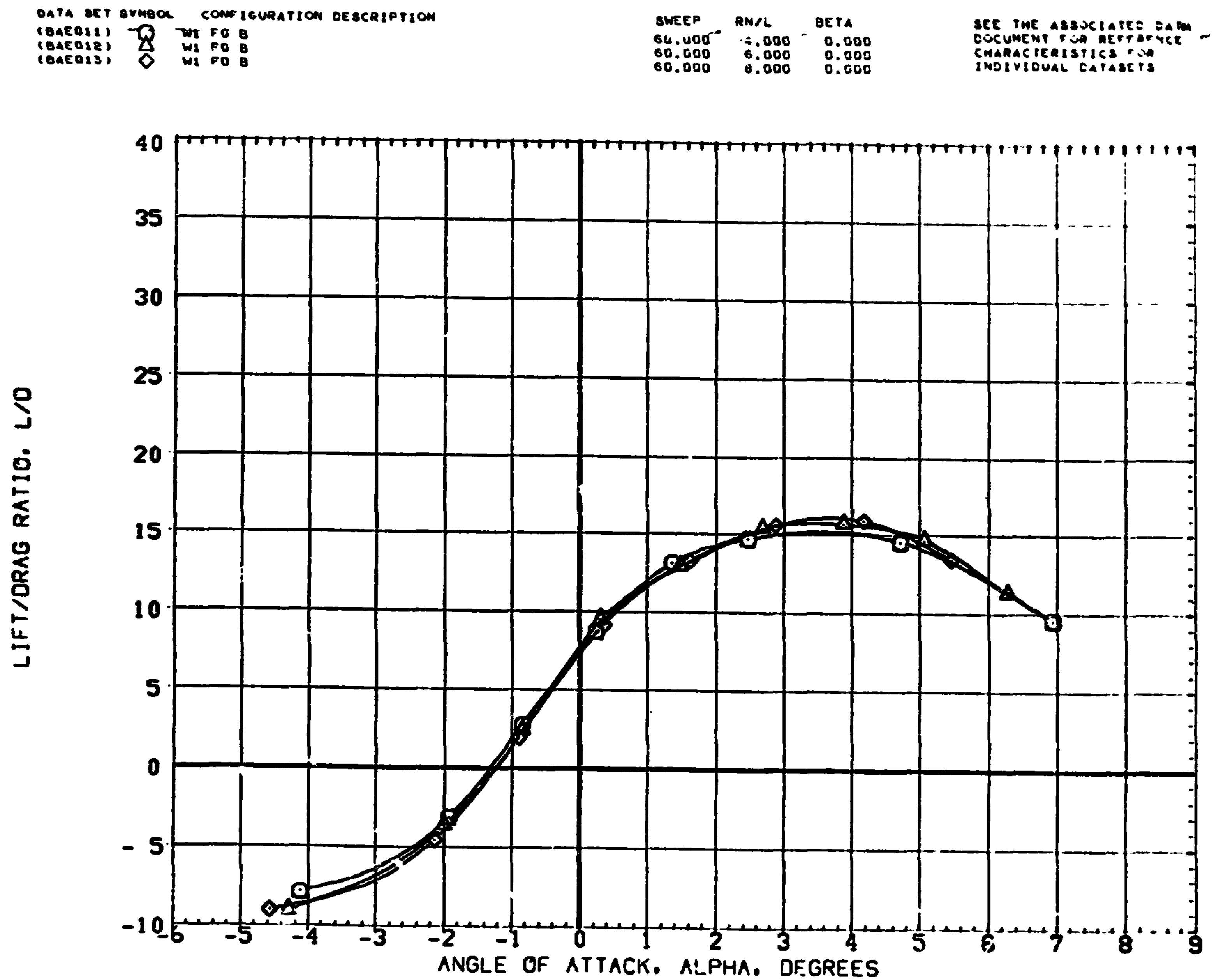


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES
(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE011)	○	W1 F0 B	60.000	4.000	0.000
(BAE012)	△	W1 F0 B	60.000	6.000	0.000
(BAF013)	◇	W1 F0 B	60.000	8.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

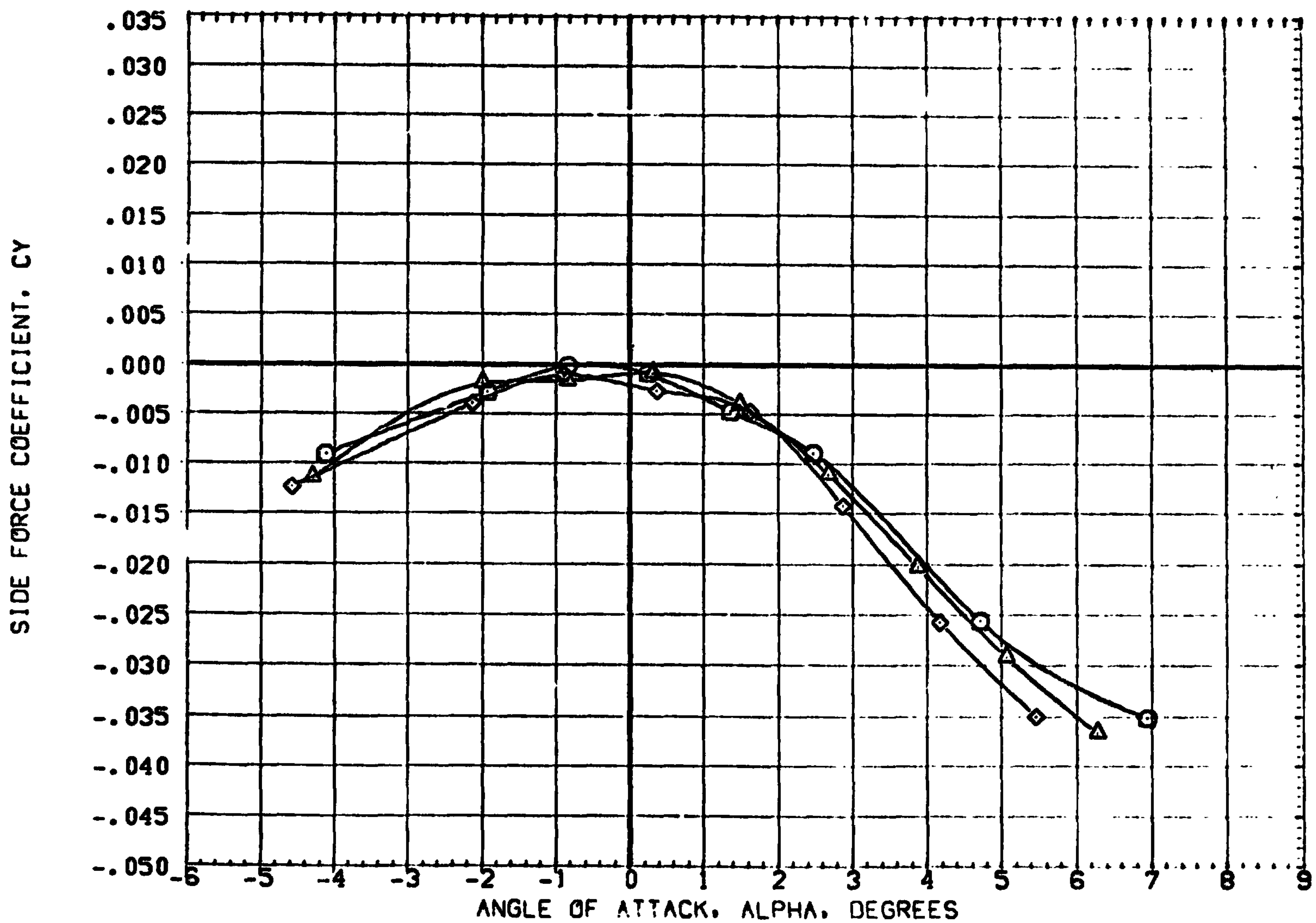


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

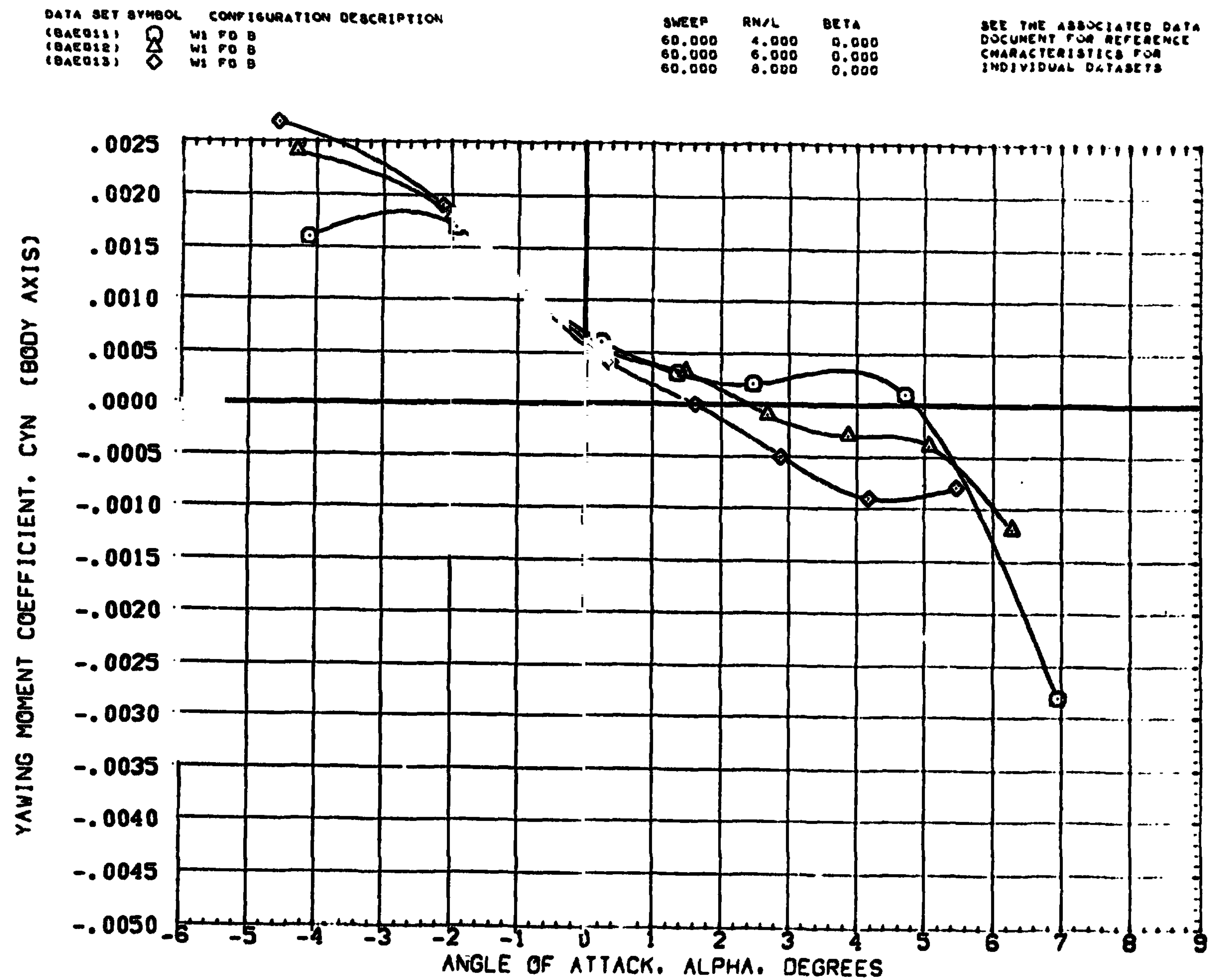


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

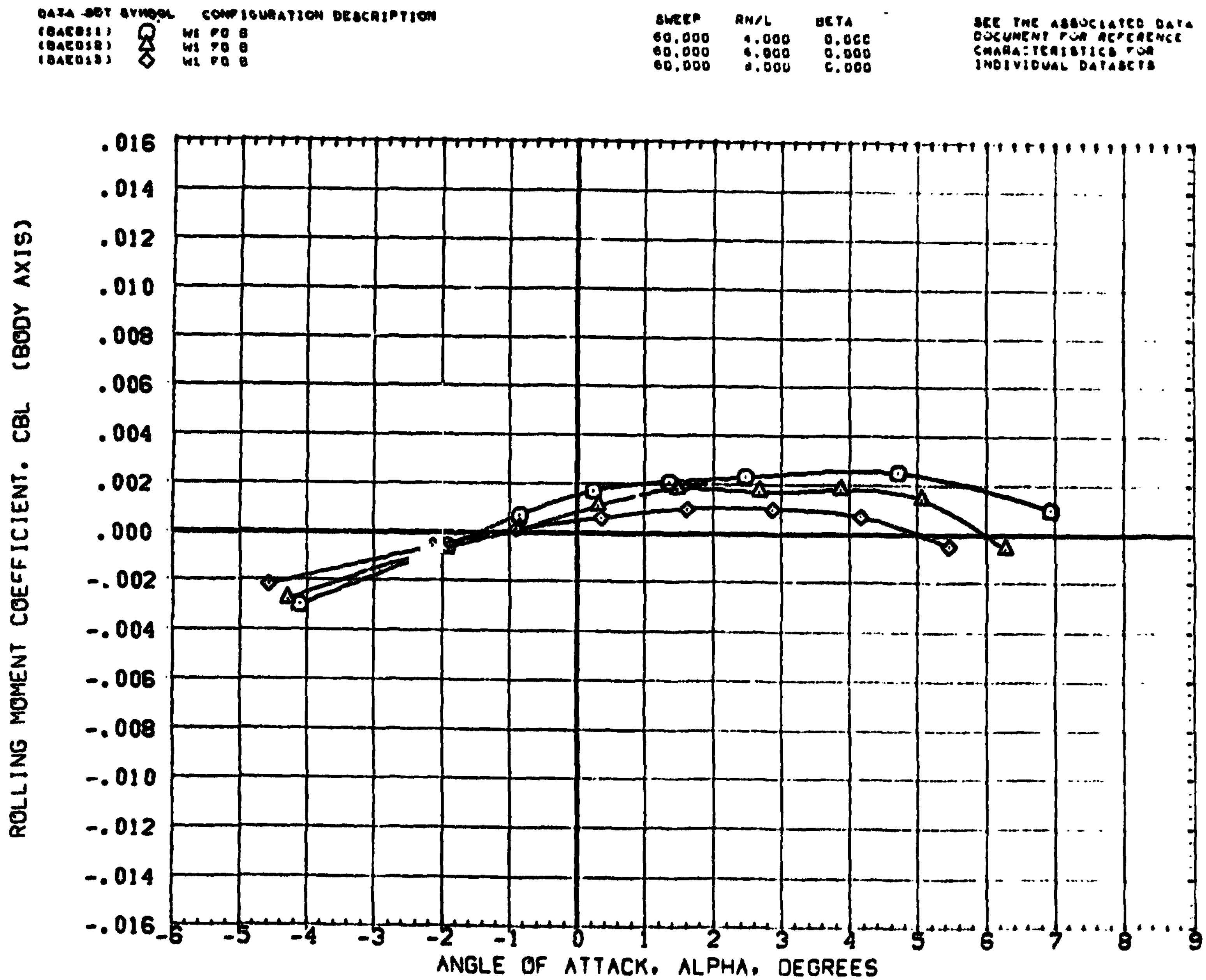


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 0.80, LAMBDA=60 DEGREES
(A)MACH = .80

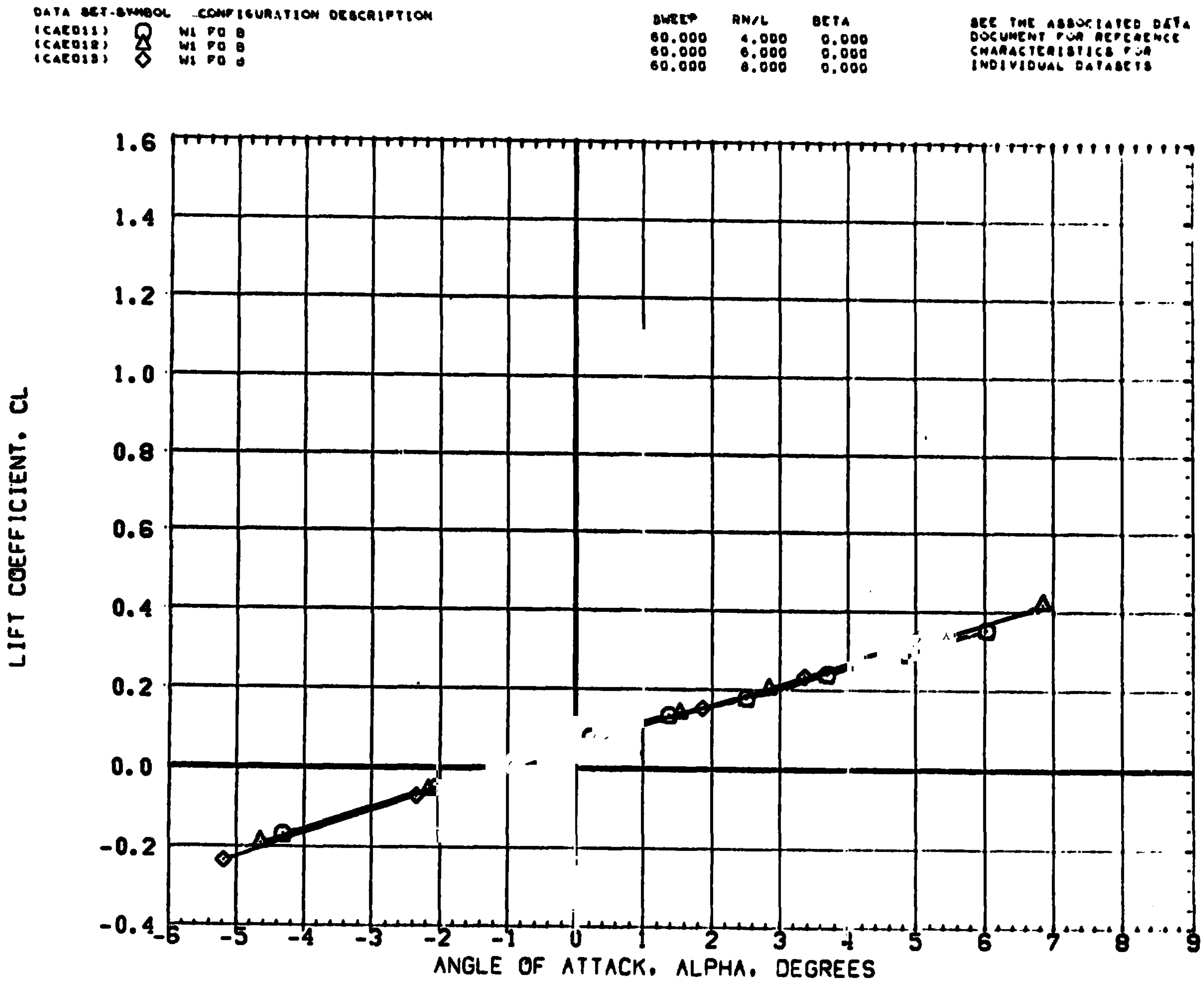


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

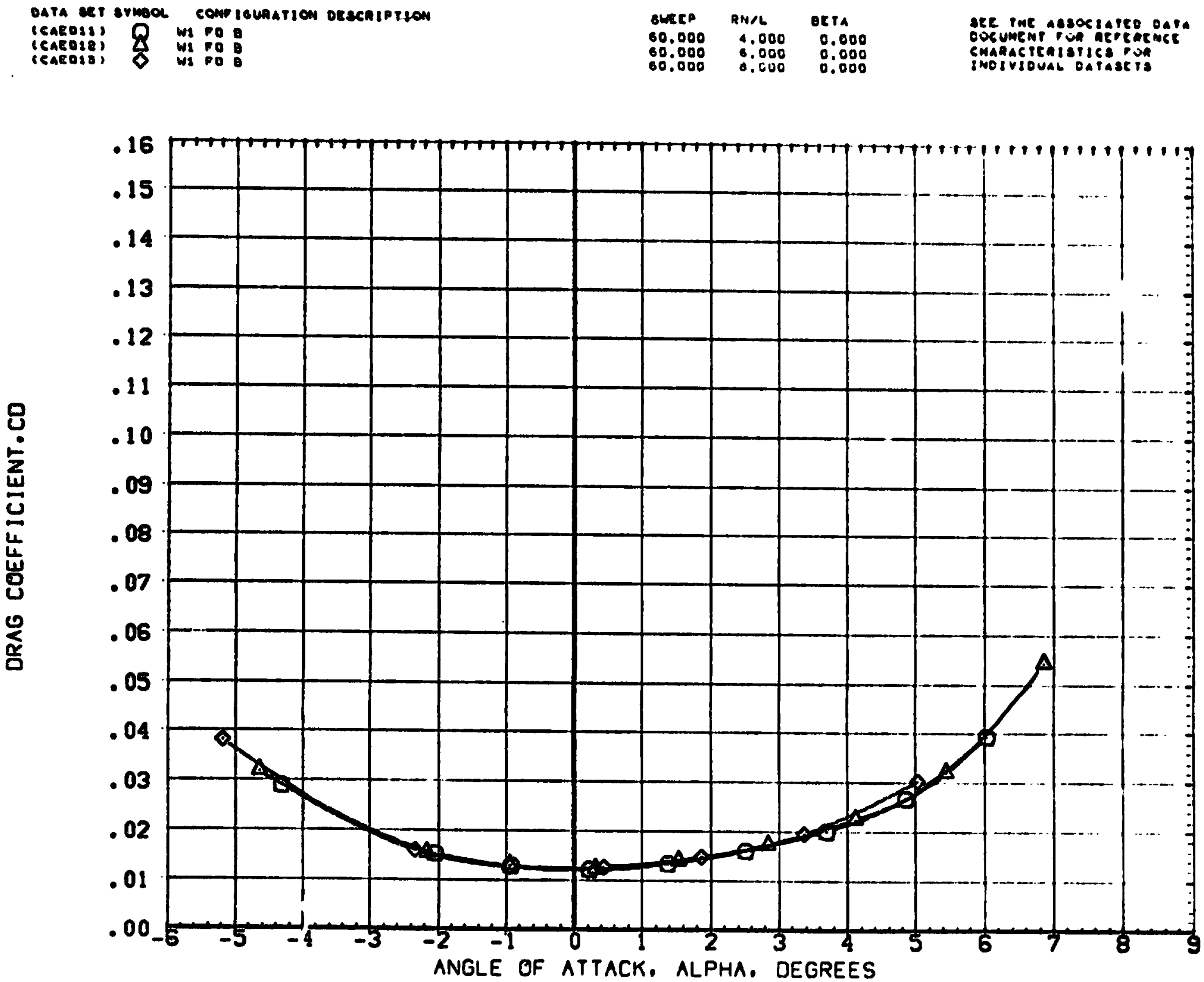


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

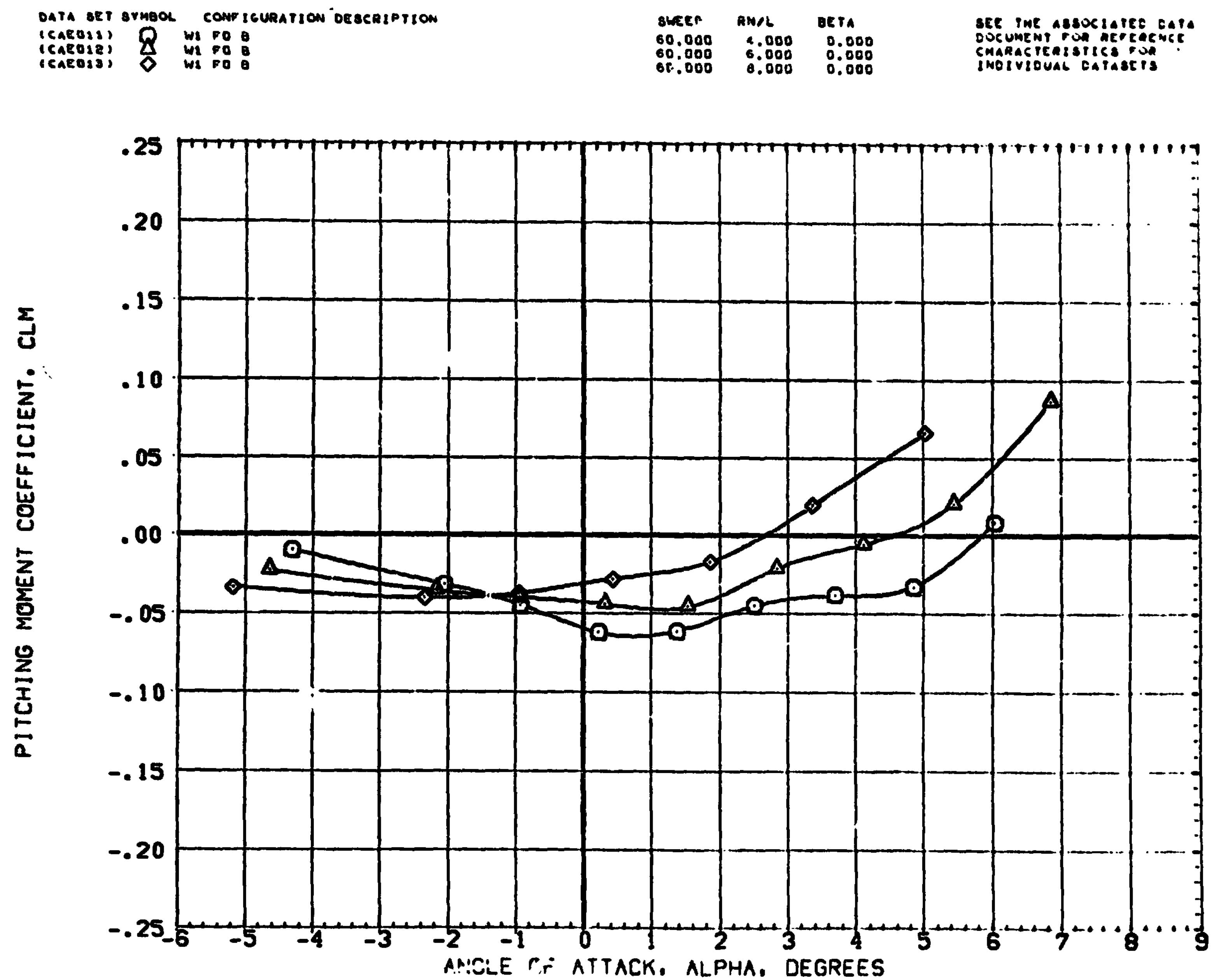


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

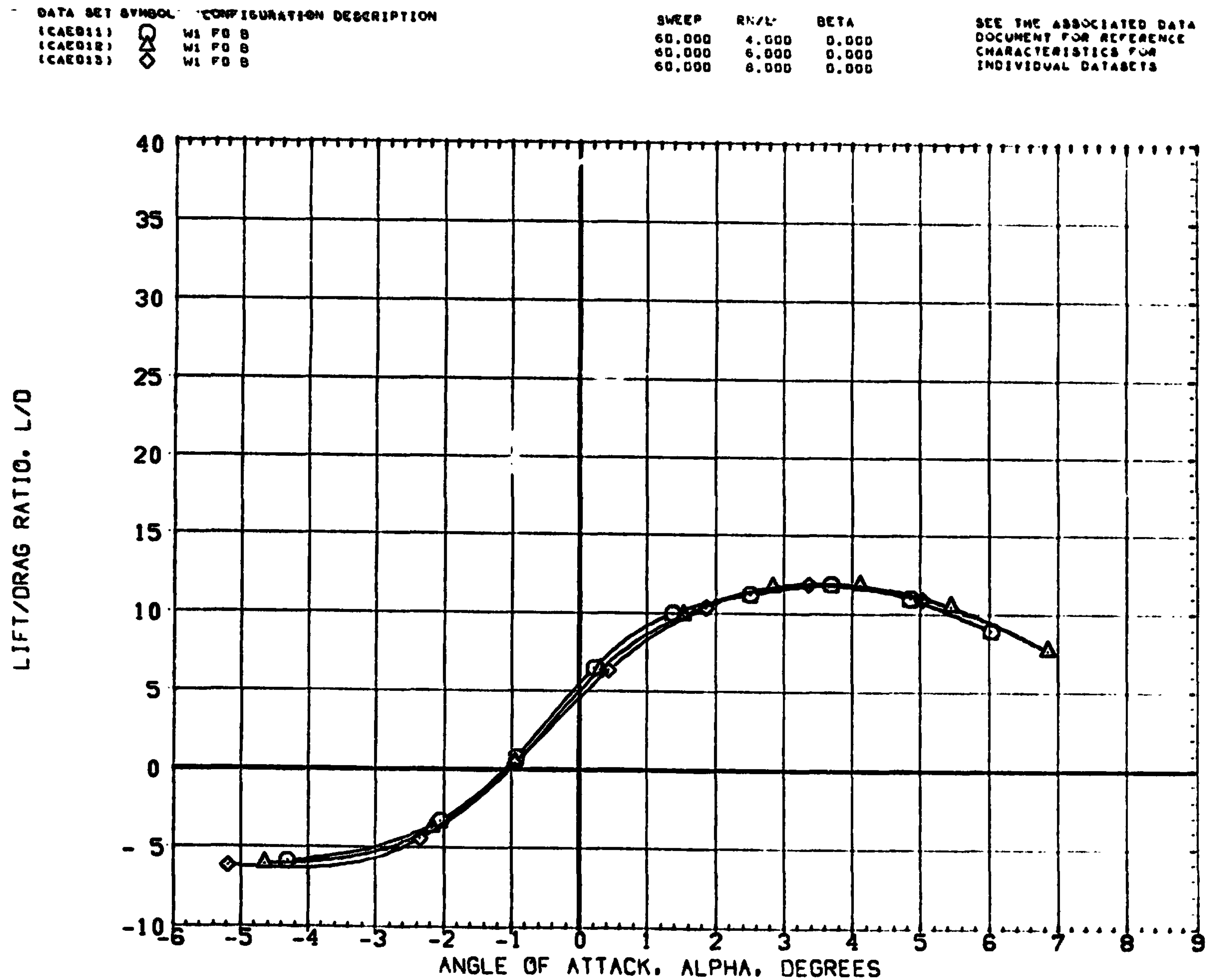


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

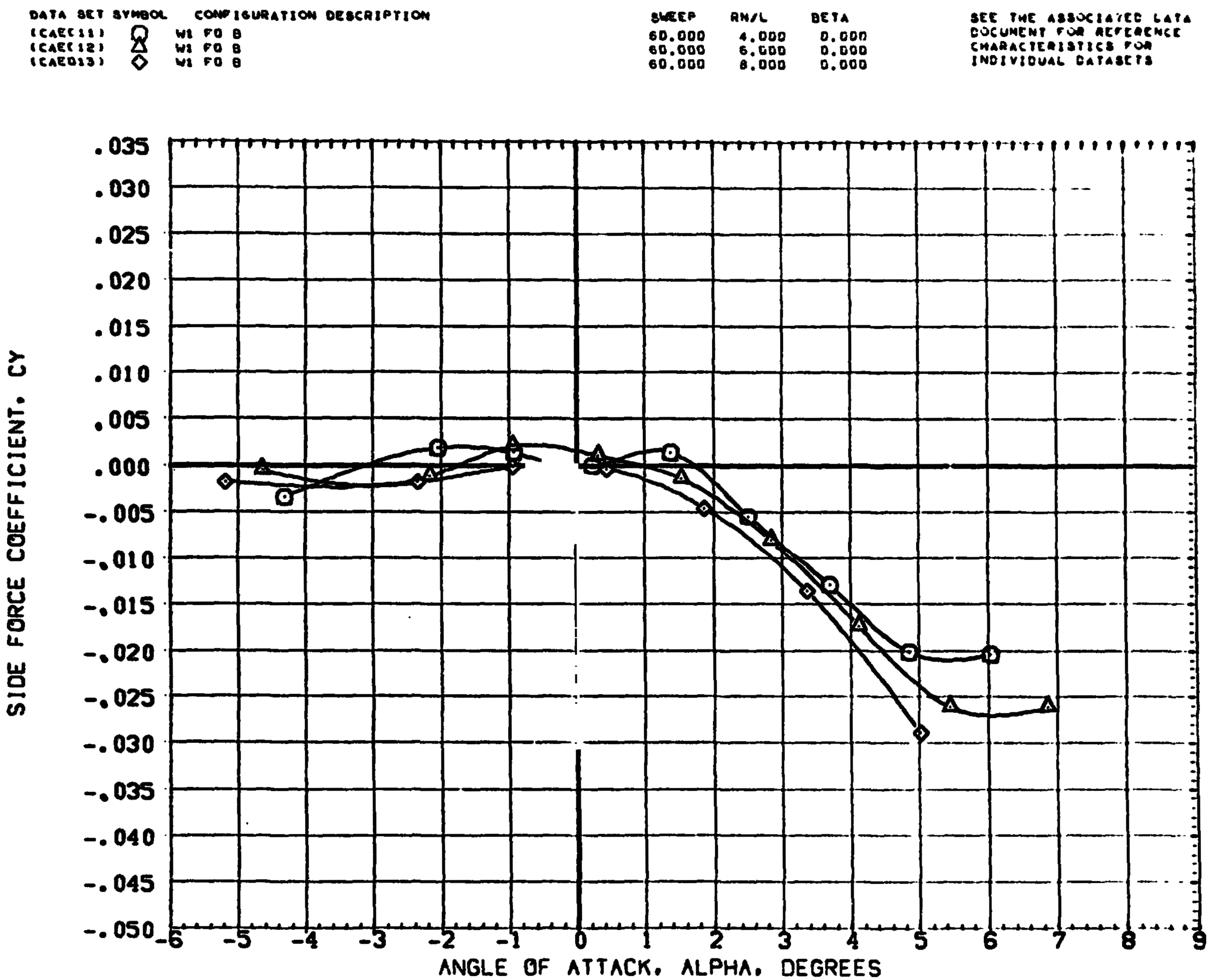


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

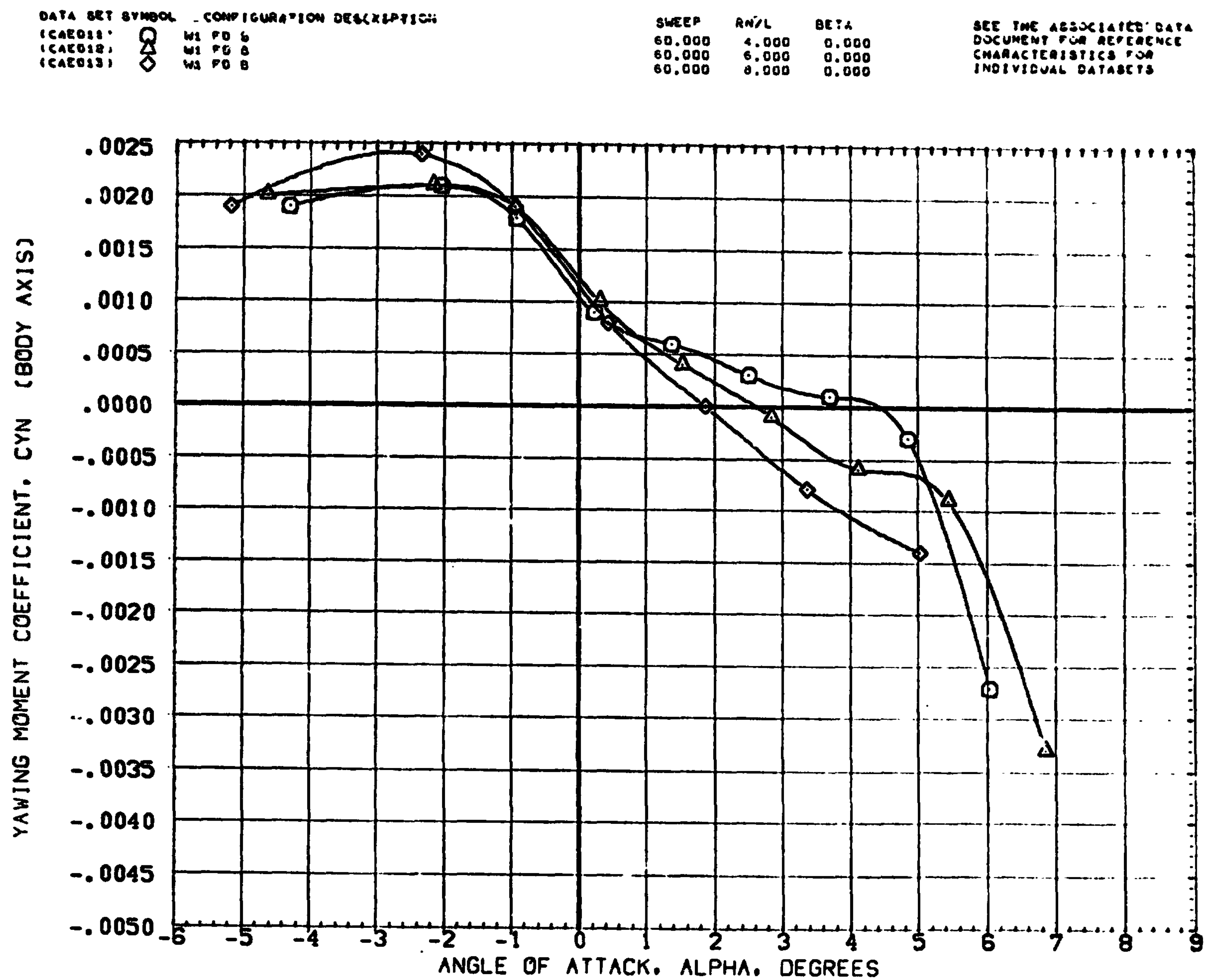


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

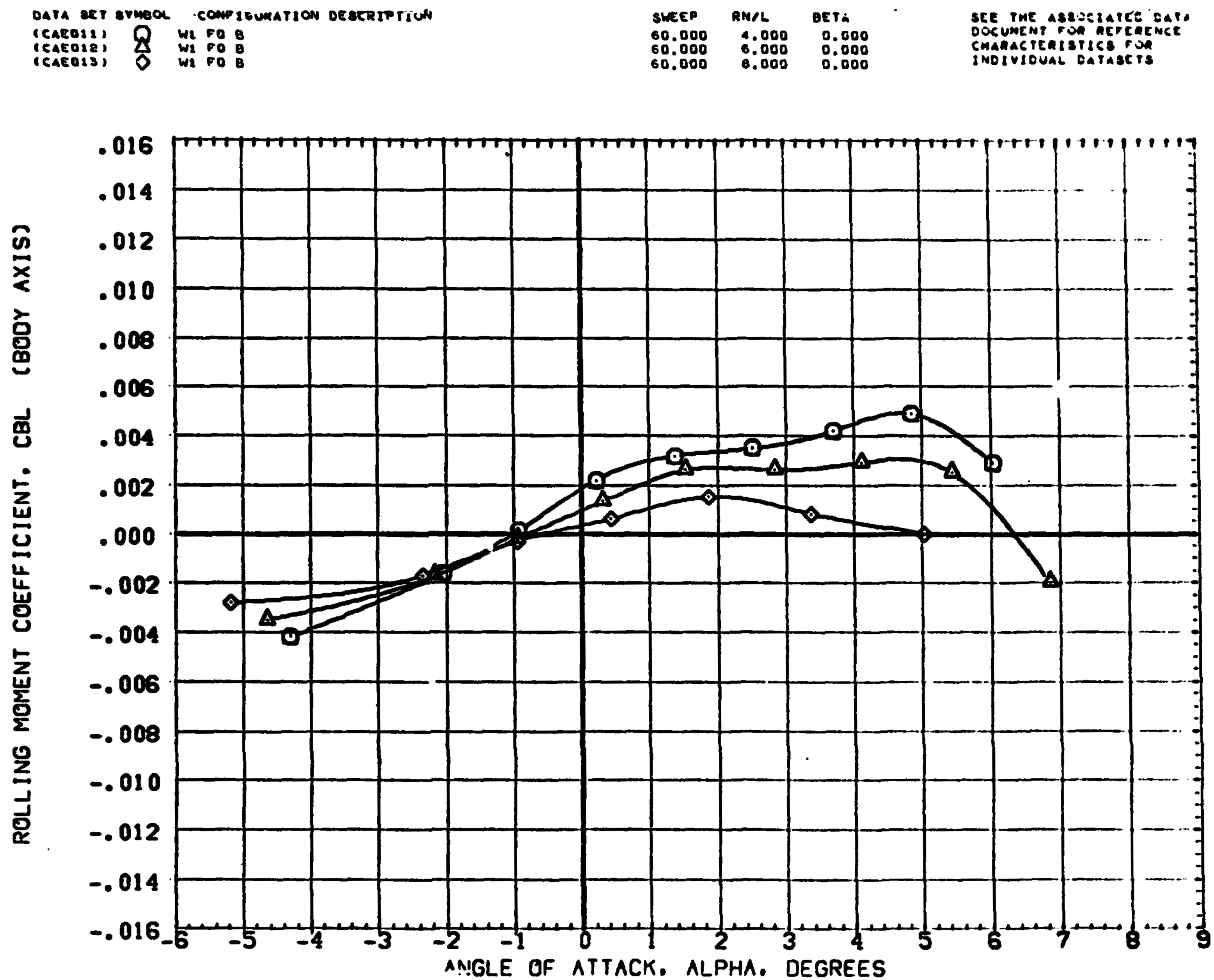


FIGURE 3 EFFECT OF REYNOLDS NUMBER, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

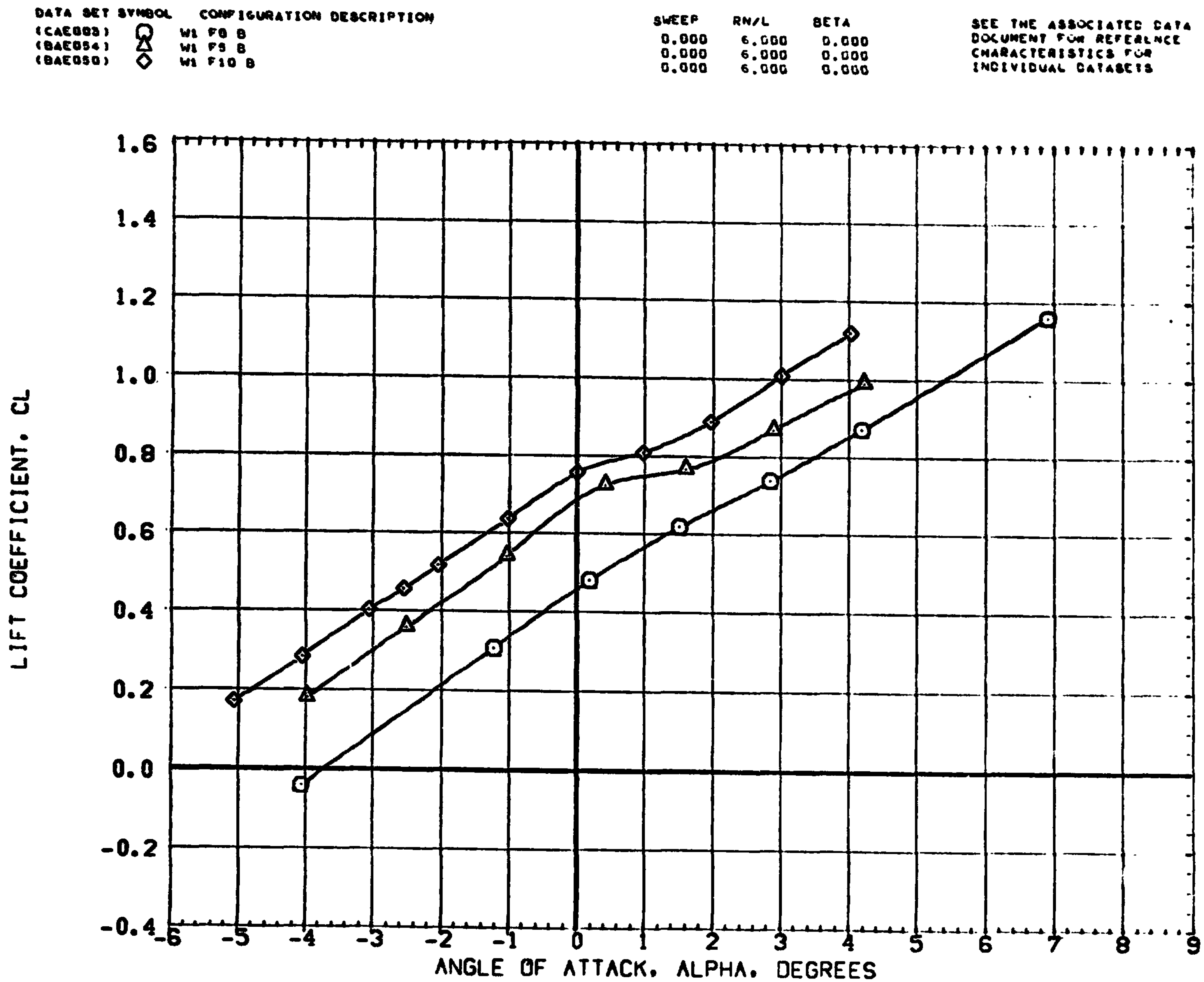


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE003)	○	W1 F0 B	0.000	6.000	0.00
(BAE054)	△	W1 F5 B	0.000	6.000	0.000
(BAE050)	◇	W1 F10 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

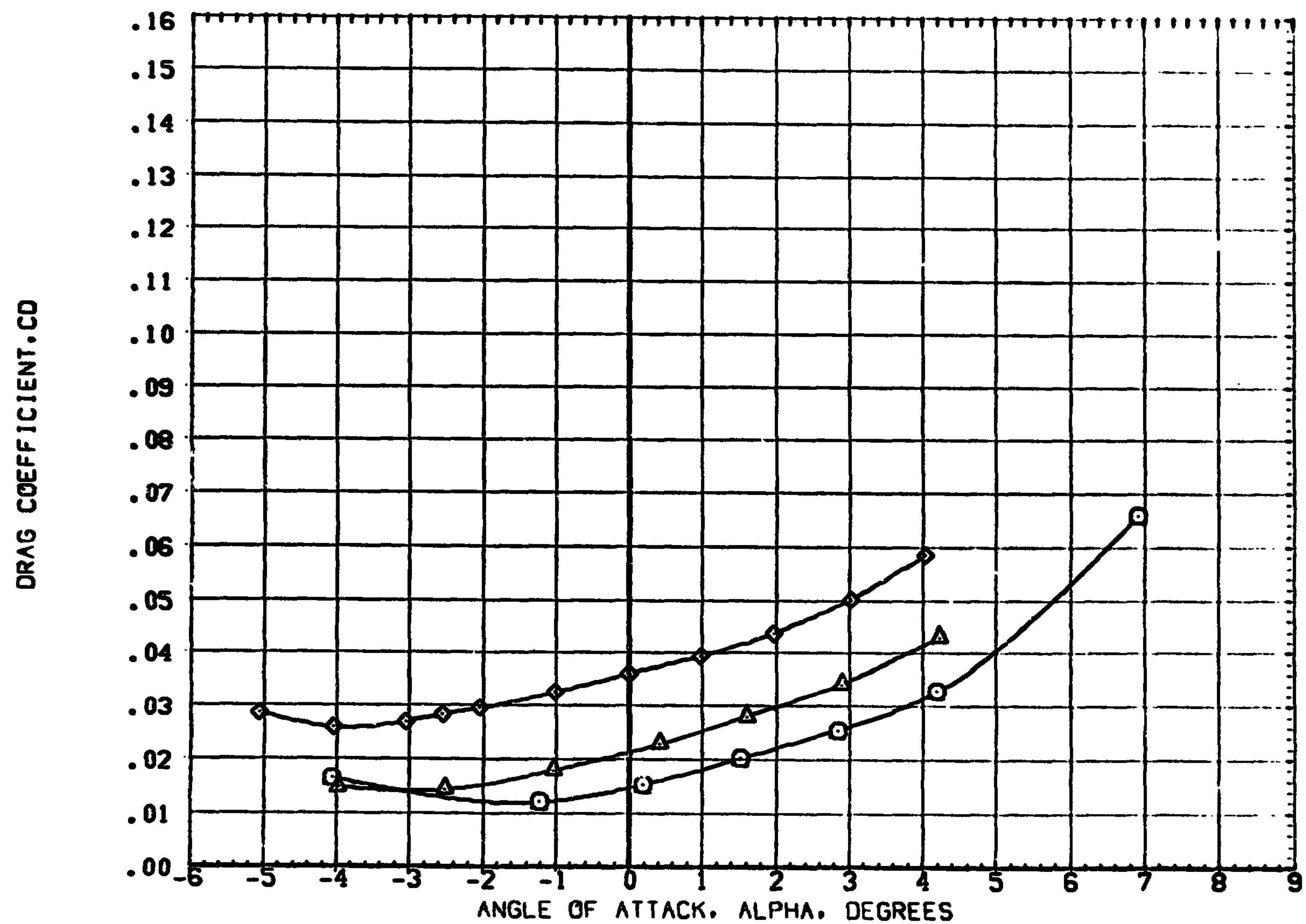


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE083)	○	W1 F0 B	0.000	6.000	0.000
(BAE054)	△	W1 F5 B	0.000	6.000	0.000
(BAE050)	◇	W1 F10 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

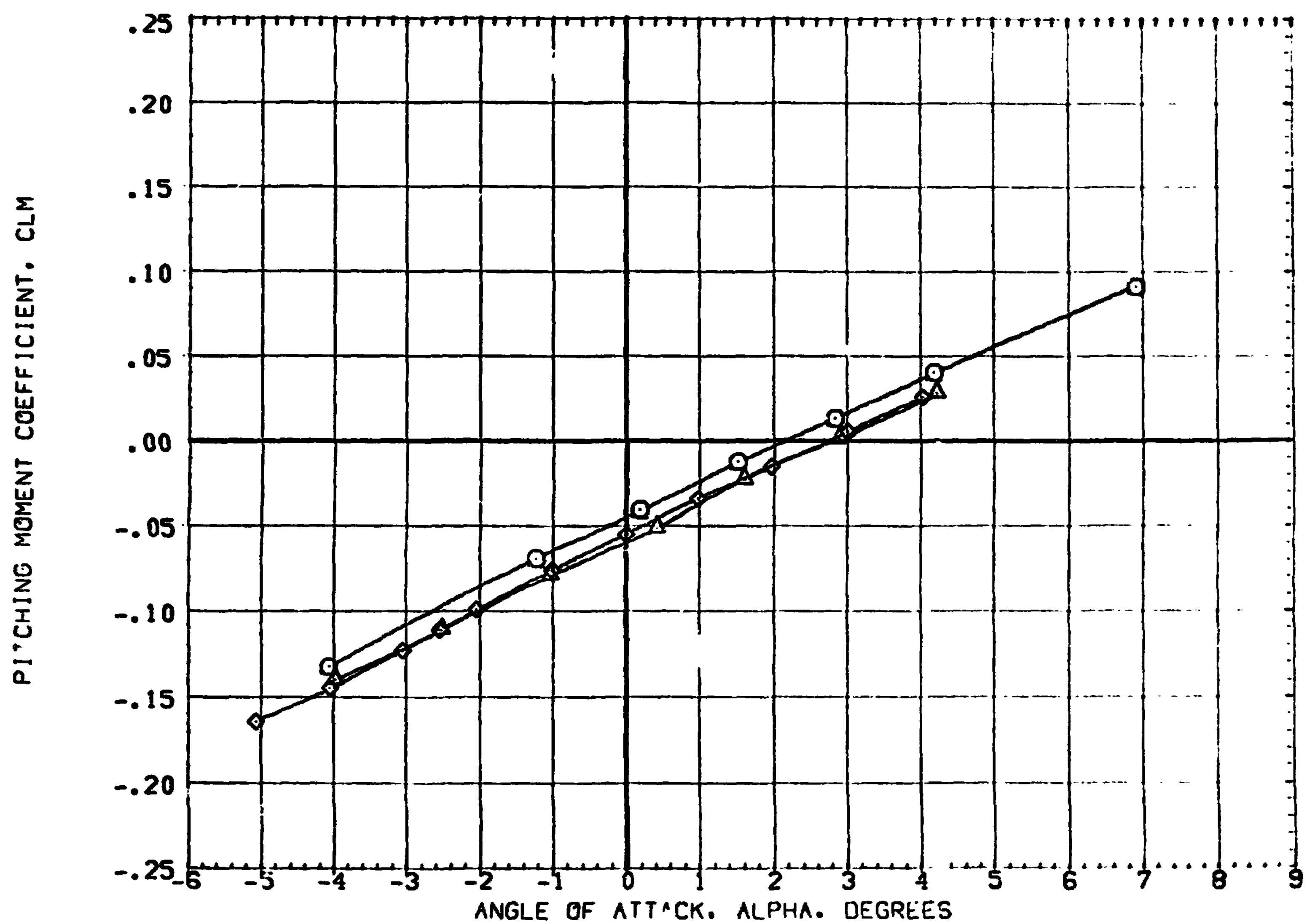


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60; LAMBDA= 0 DEGREES

(A)MACH = .60

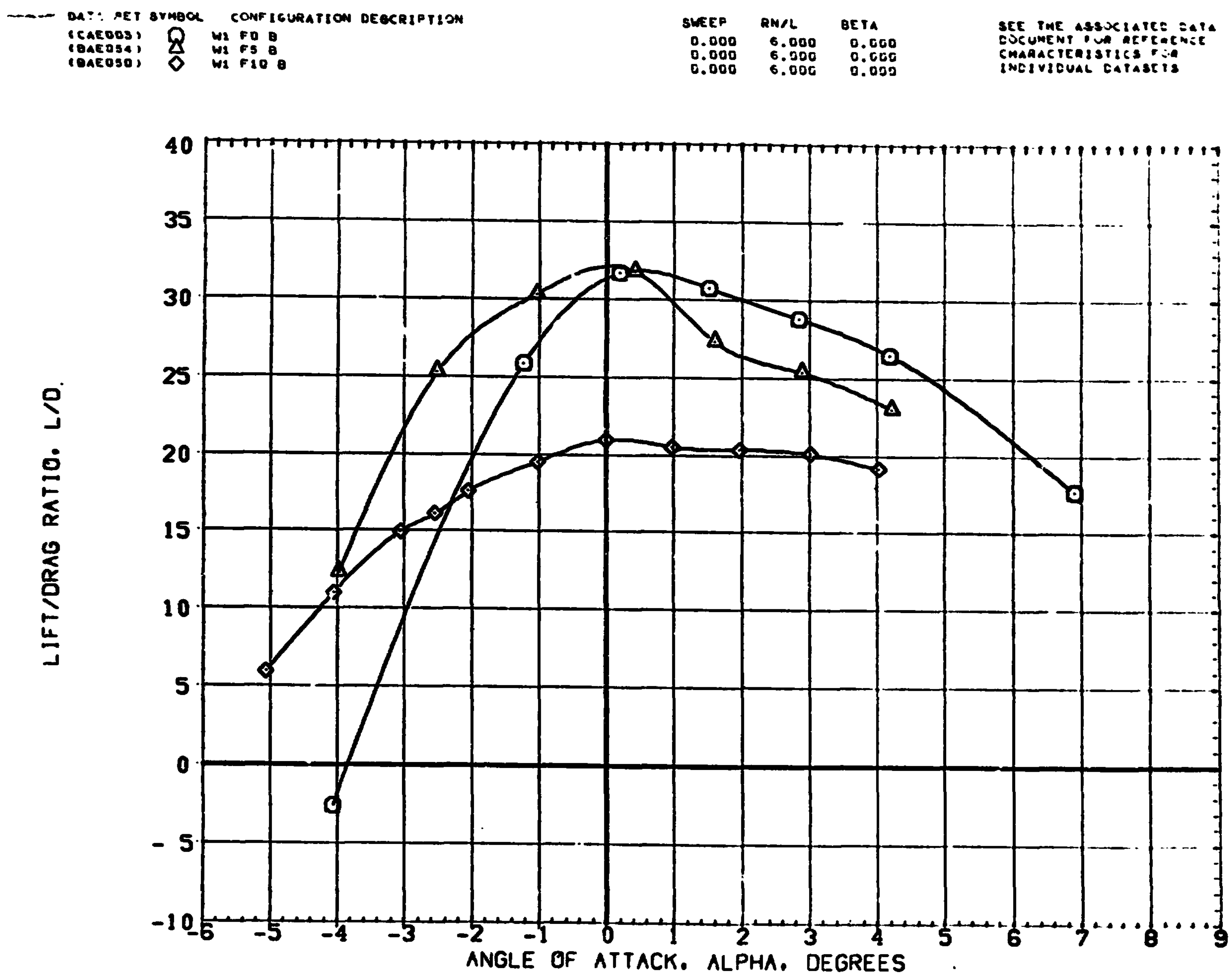


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

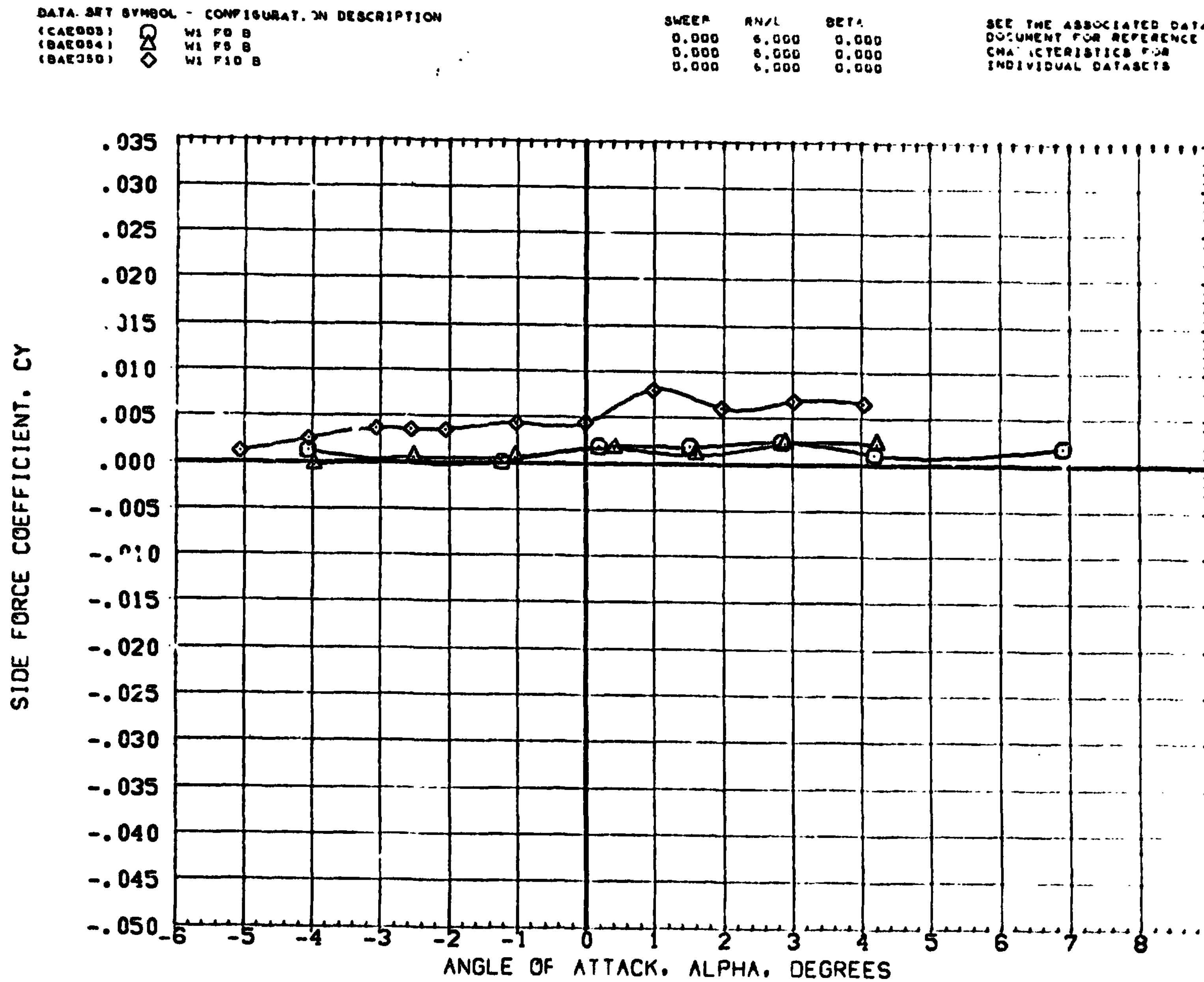


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

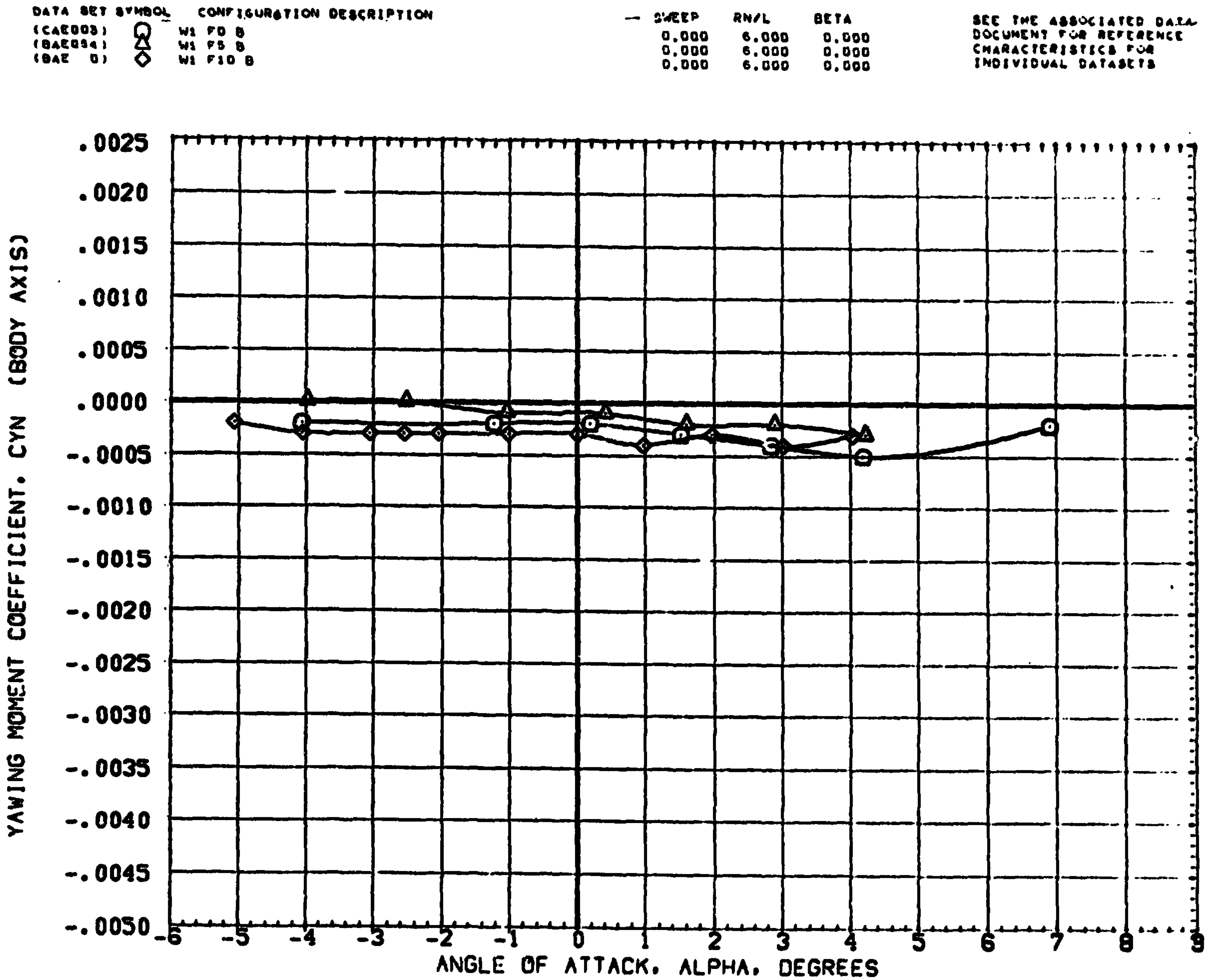


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES
(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE003)	○	W1 F0 B	0.000	6.000	0.000
(BAE004)	△	W1 F5 B	0.000	6.000	0.000
(BAE050)	◇	W1 F10 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

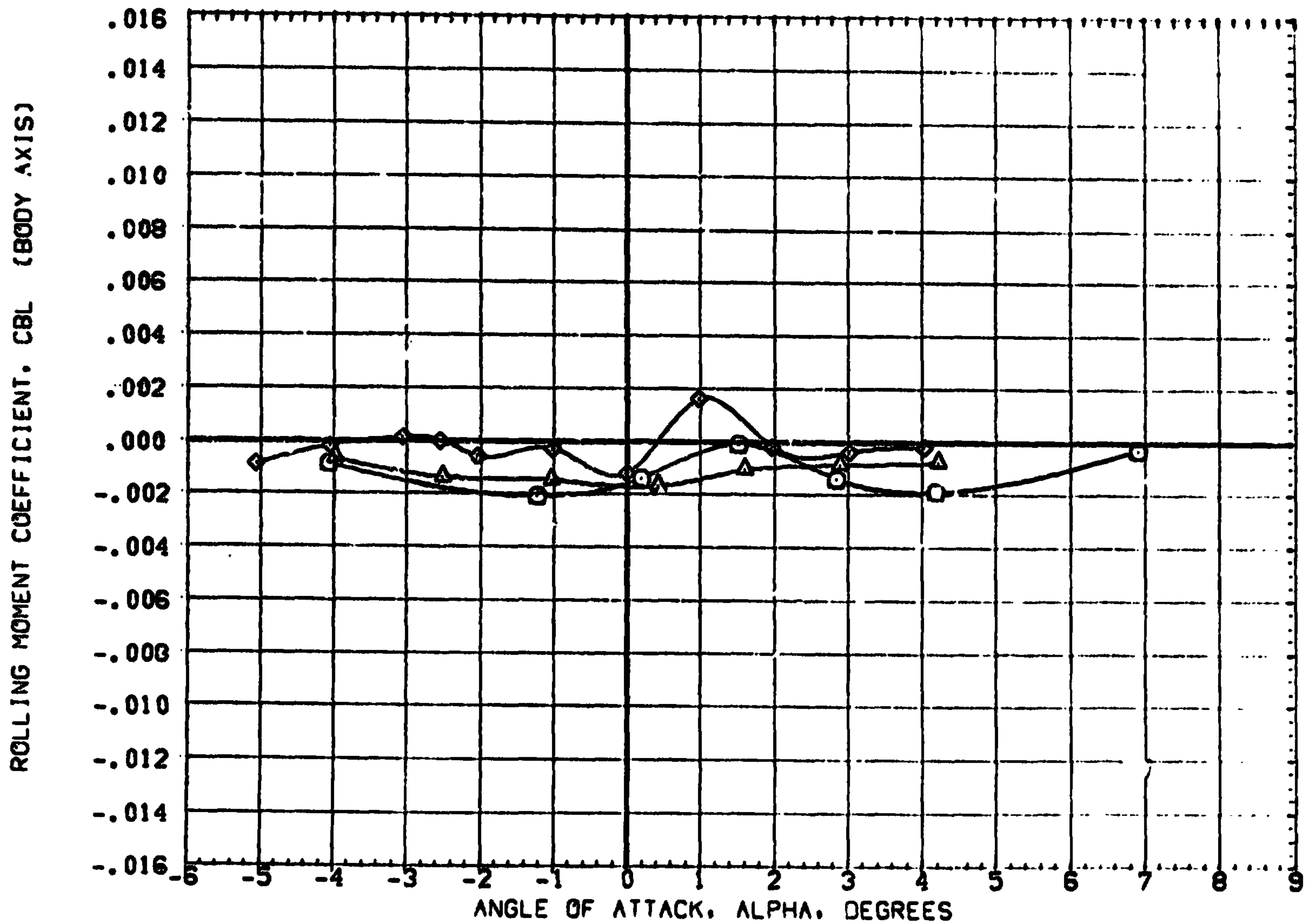


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

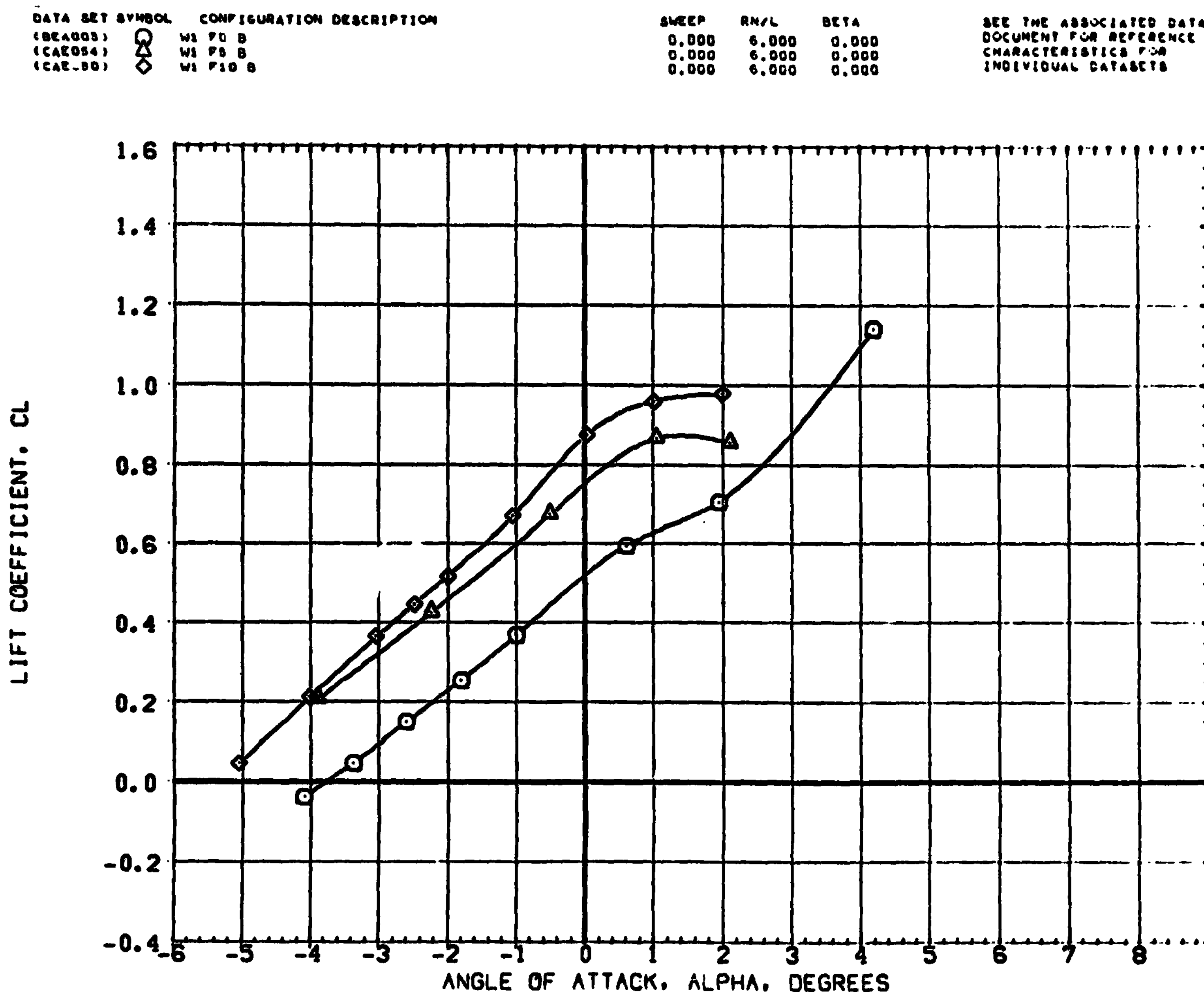


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

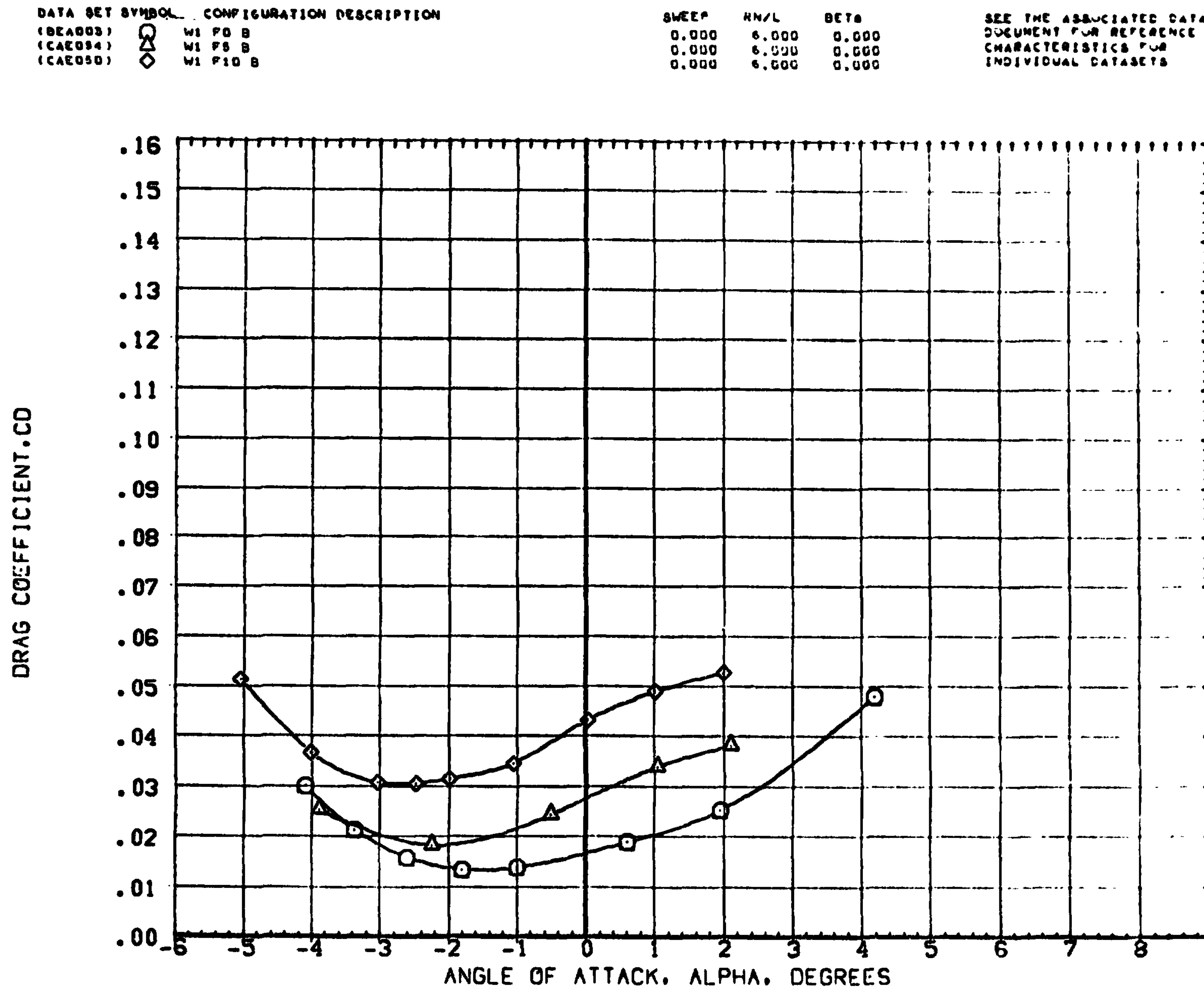


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

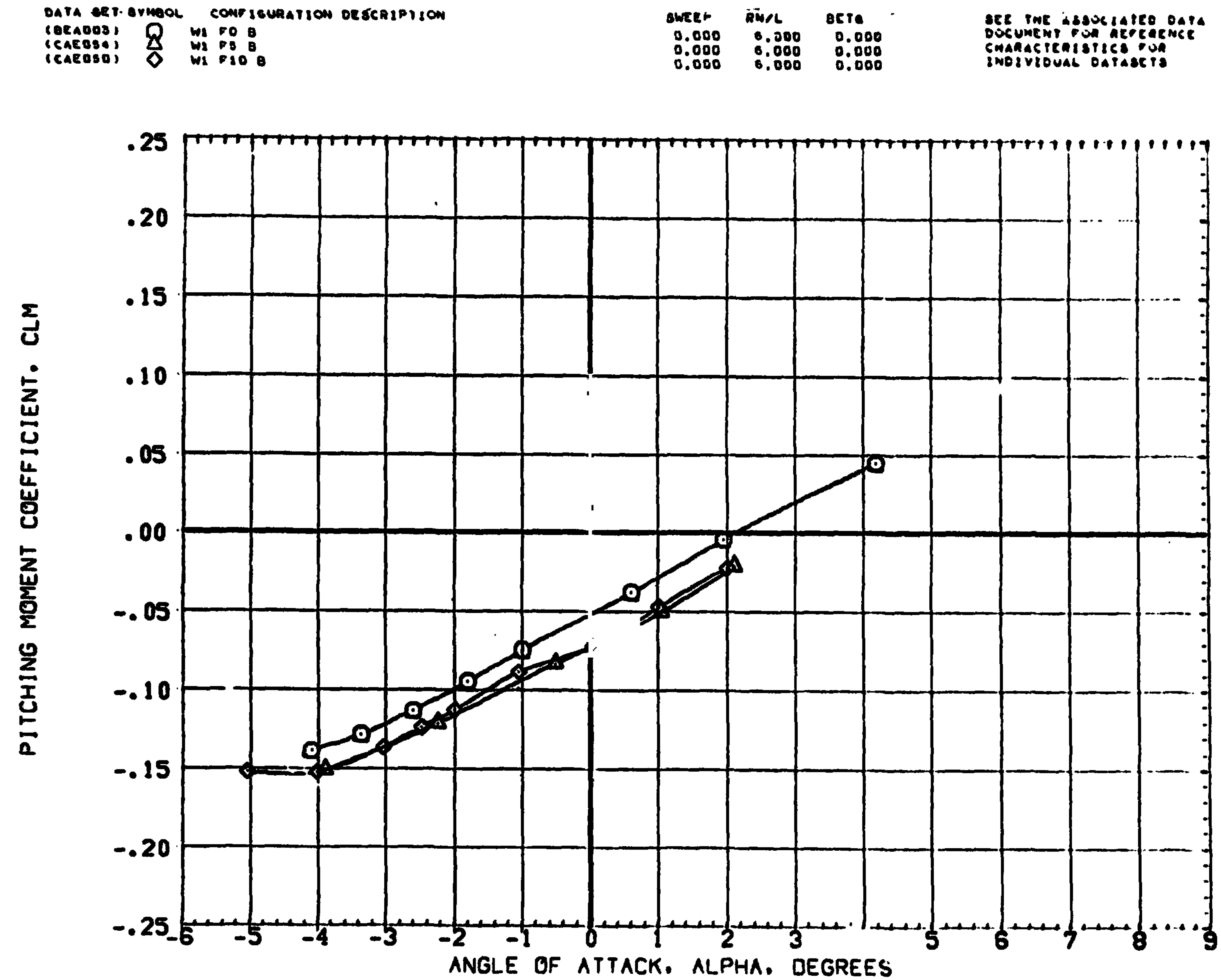


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

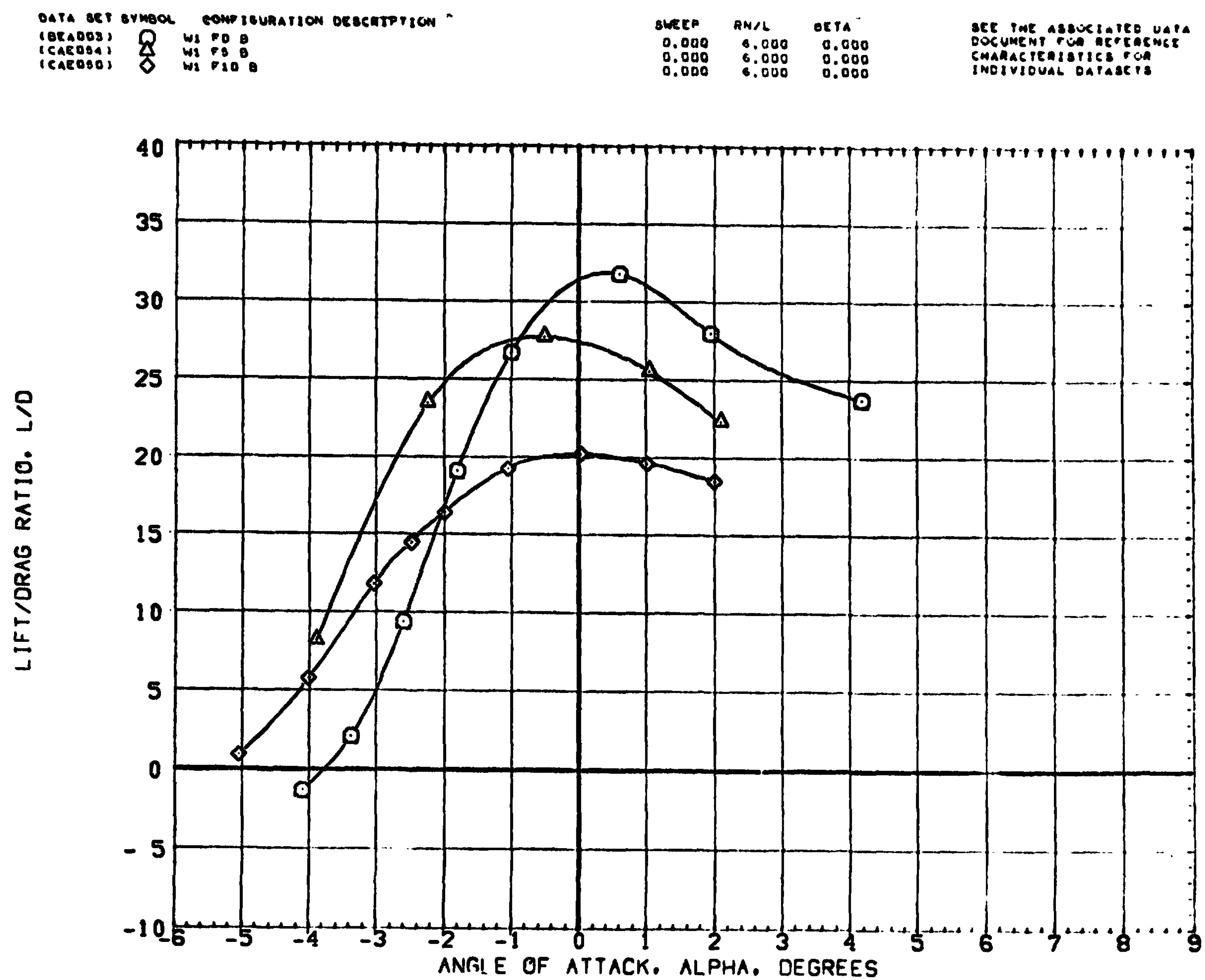


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

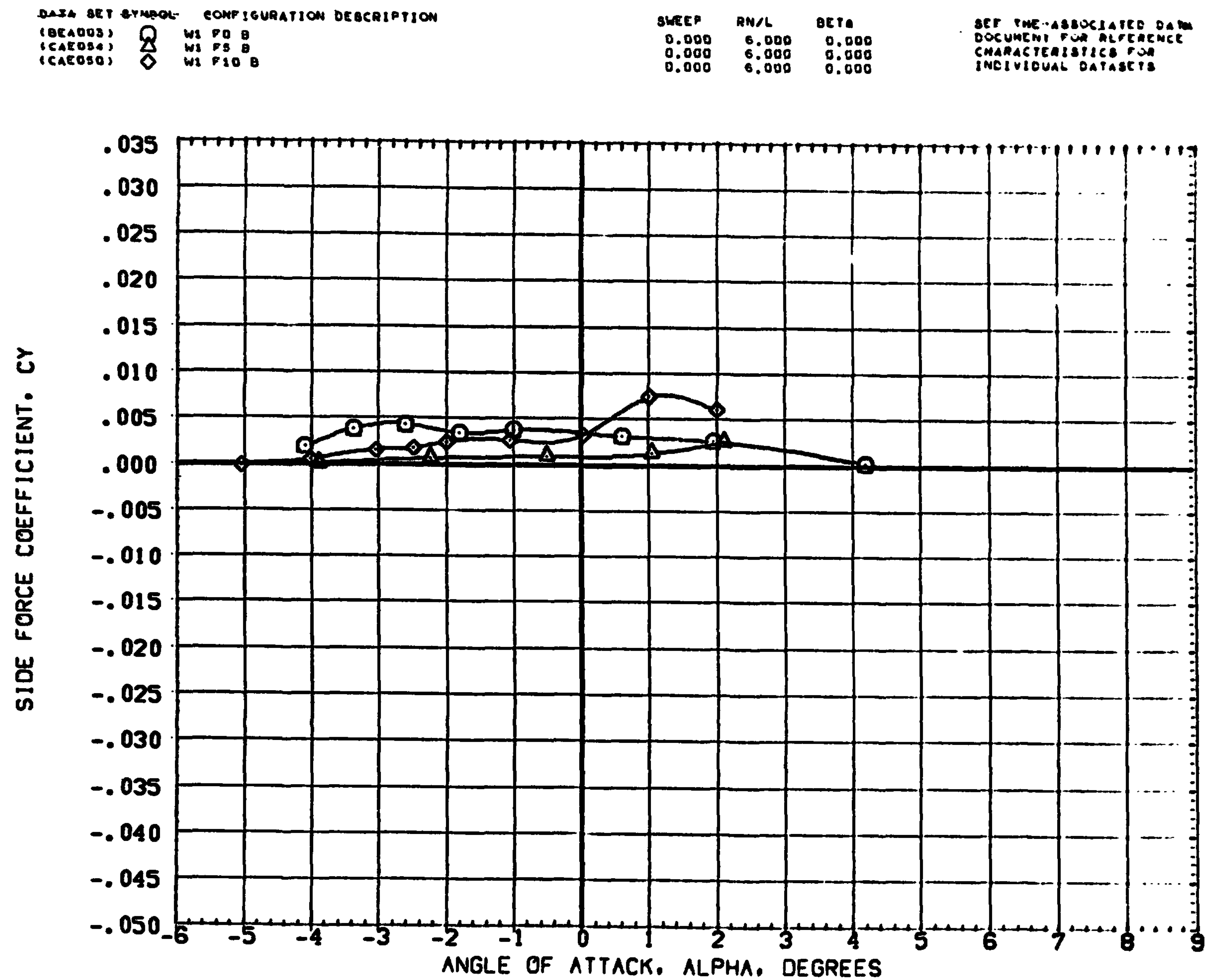


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

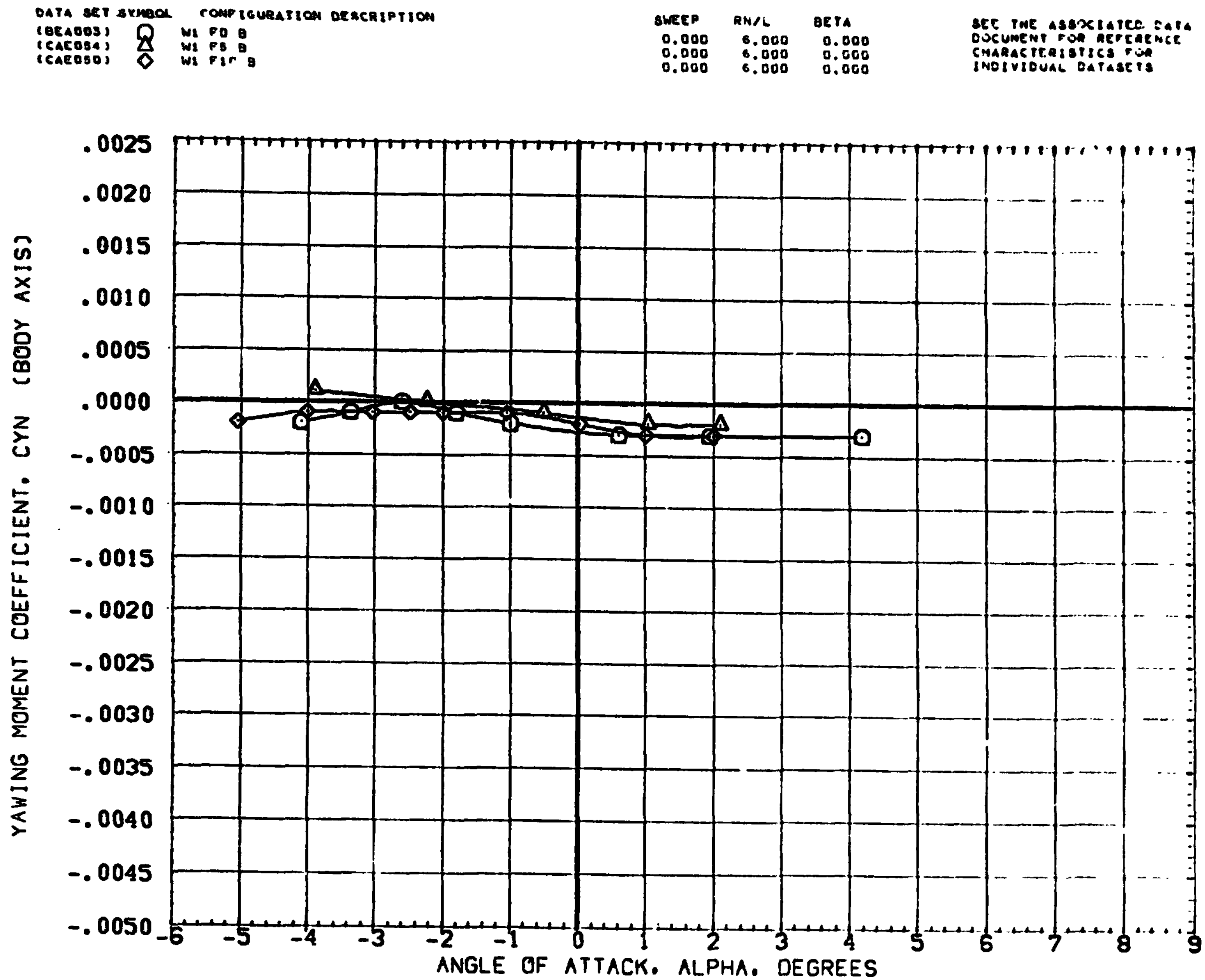


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BEA003)	◻	W1 F0 B	0.000	6.000	0.000
(CAE054)	△	W1 F5 B	0.000	6.000	0.000
(CAE050)	◇	W1 F10 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

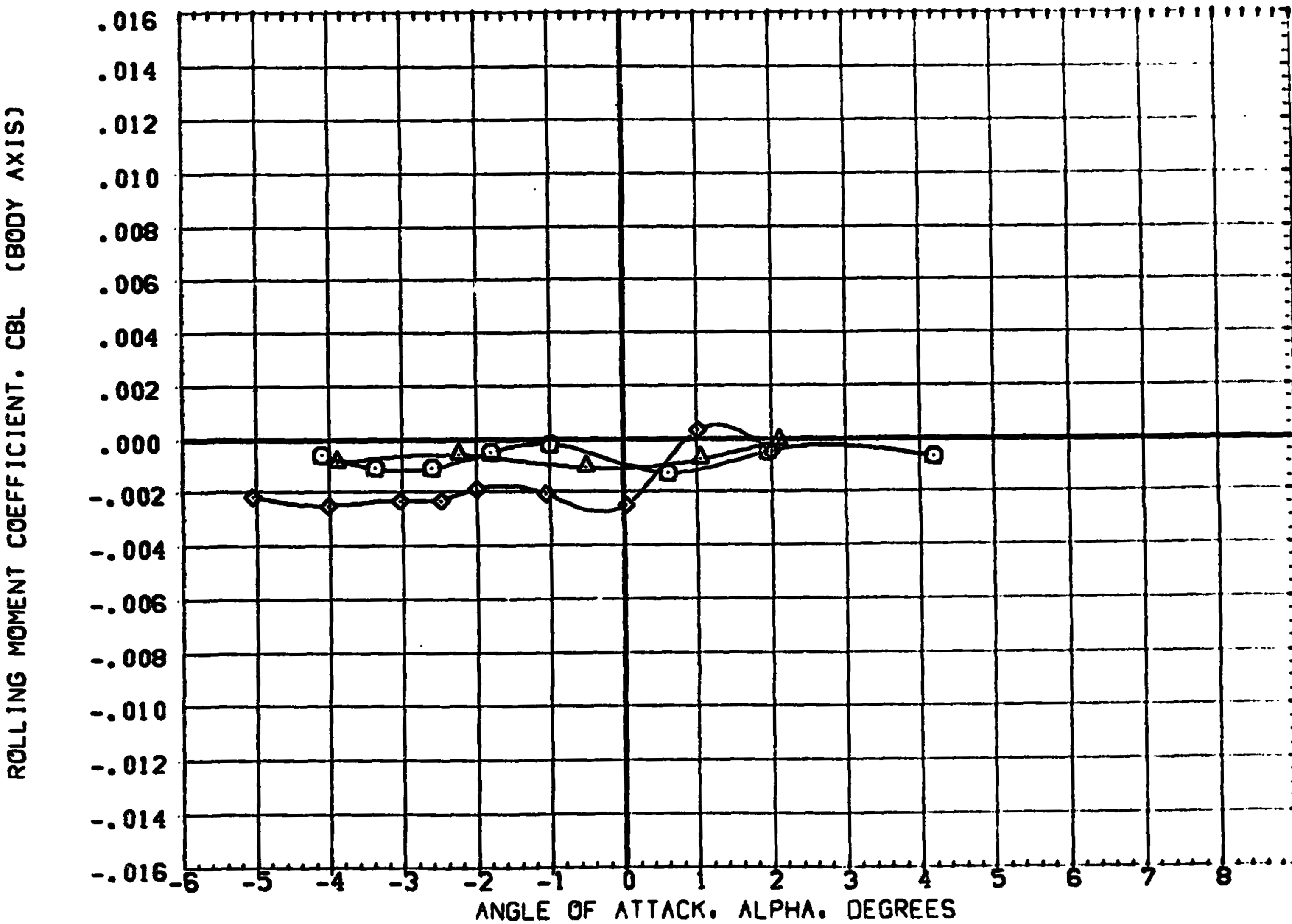


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

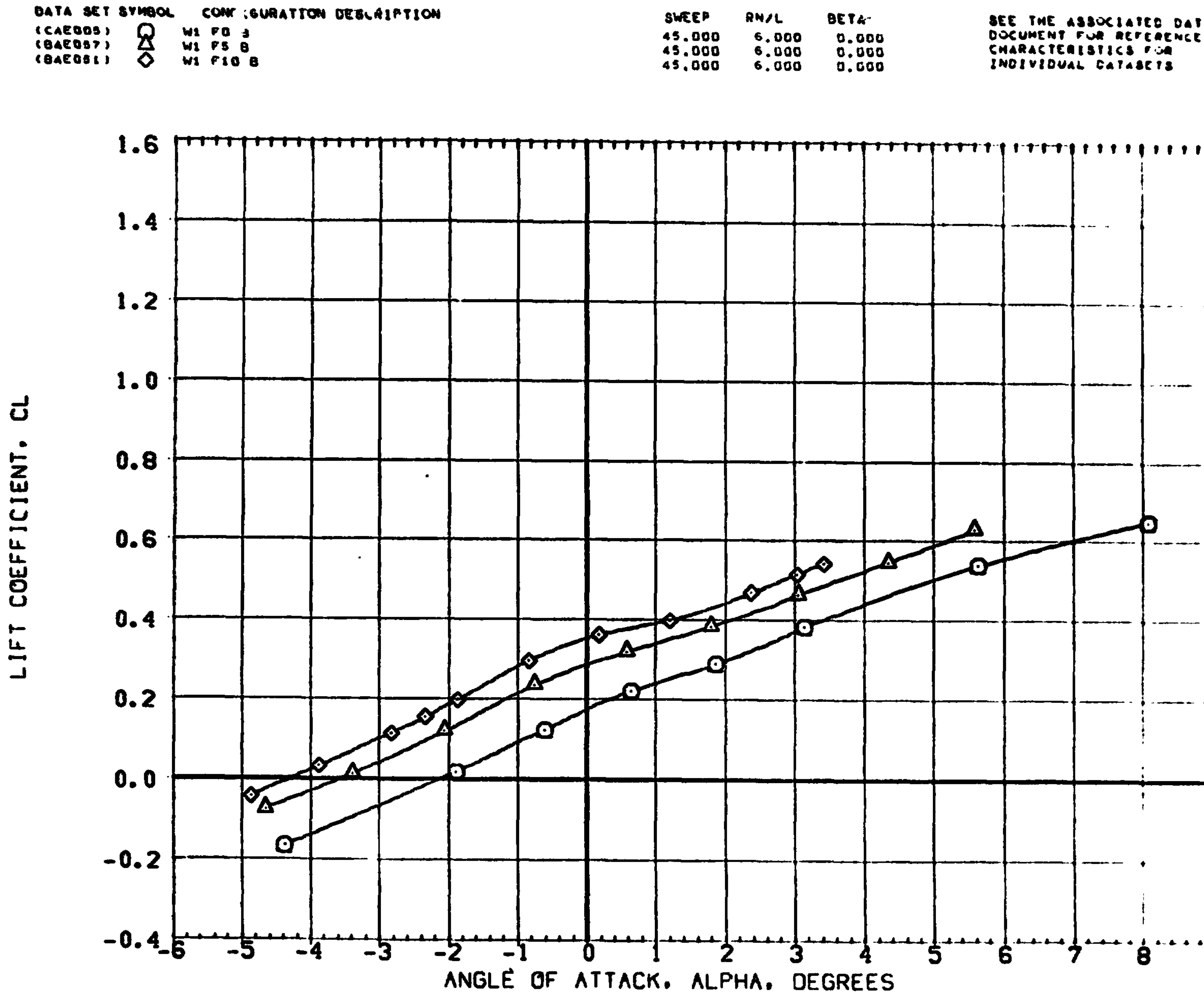


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES
(A)MACH = .70

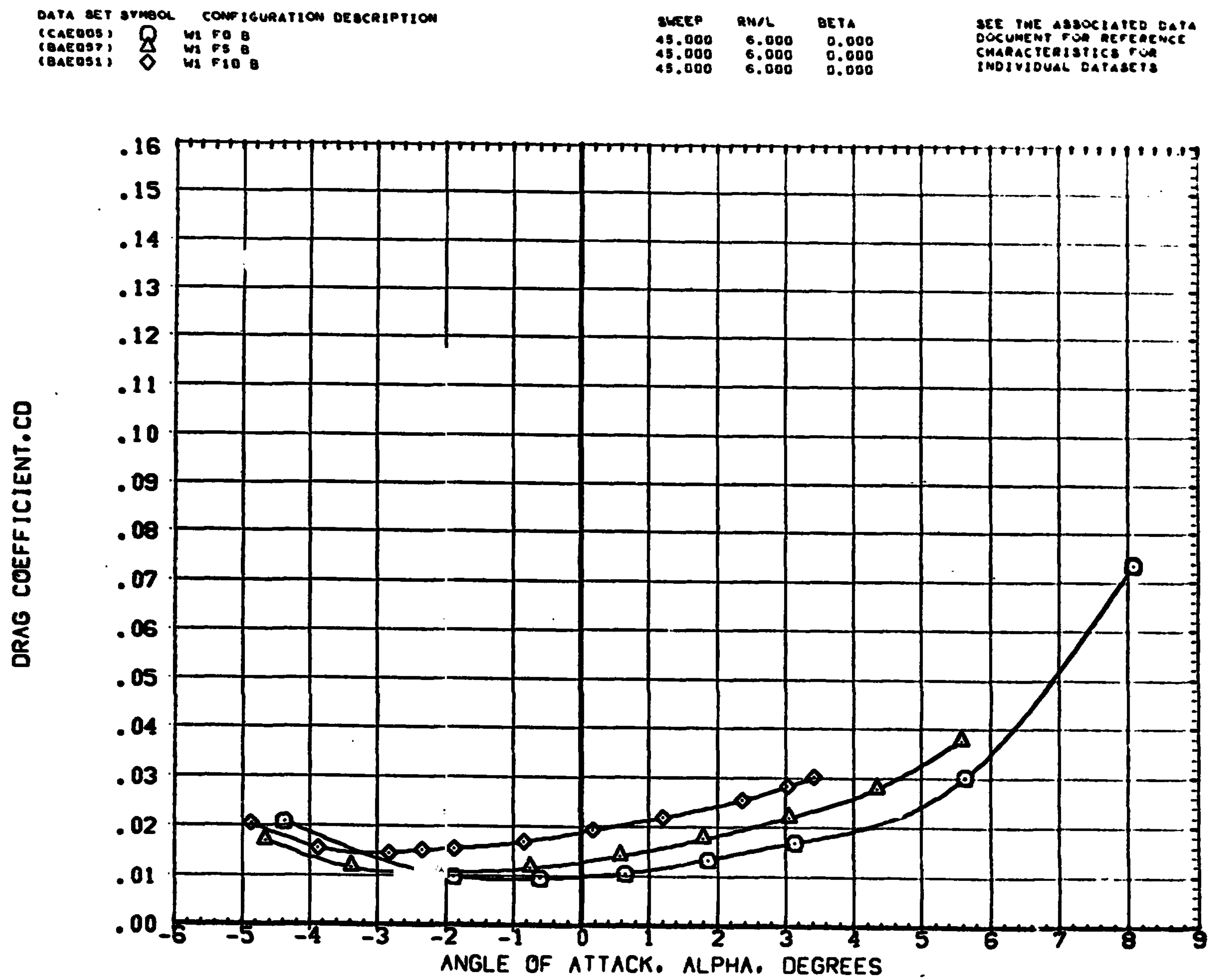


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

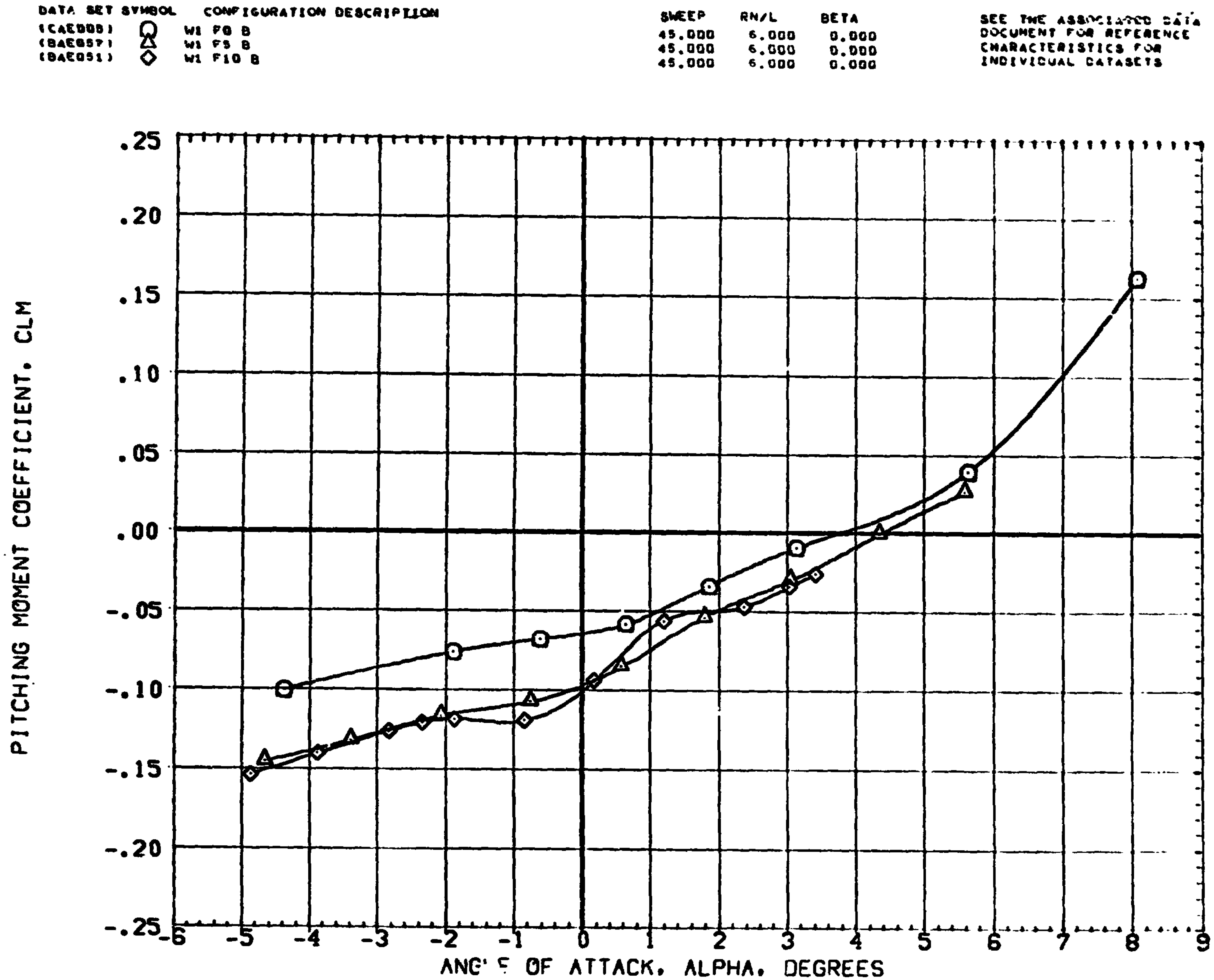


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES
(A)MACH = .70

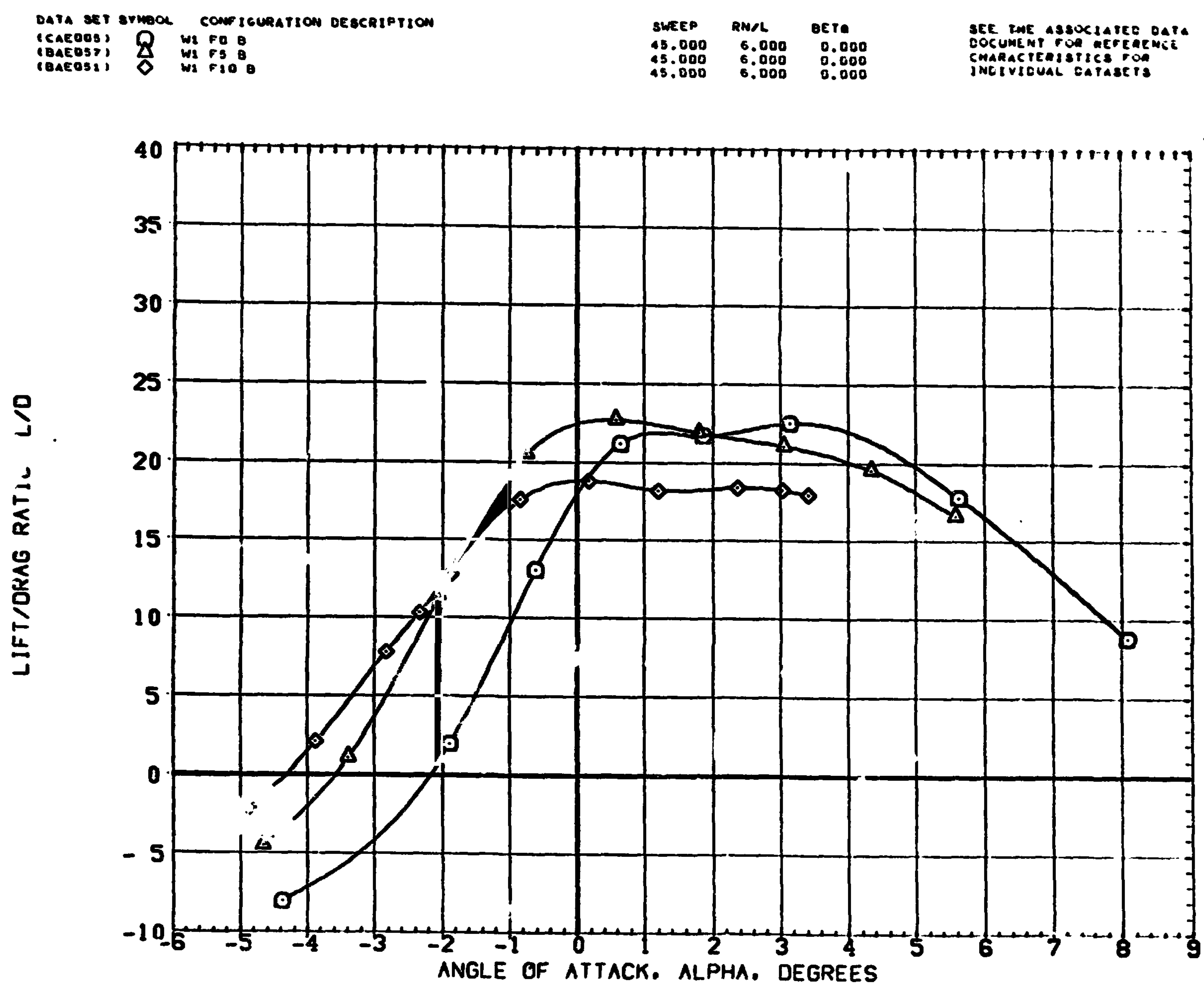


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE005)	○	W1 F8 B	45.000	6.000	0.000
(BAE057)	△	W1 F9 B	45.000	6.000	0.000
(BAE051)	◇	W1 F10 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

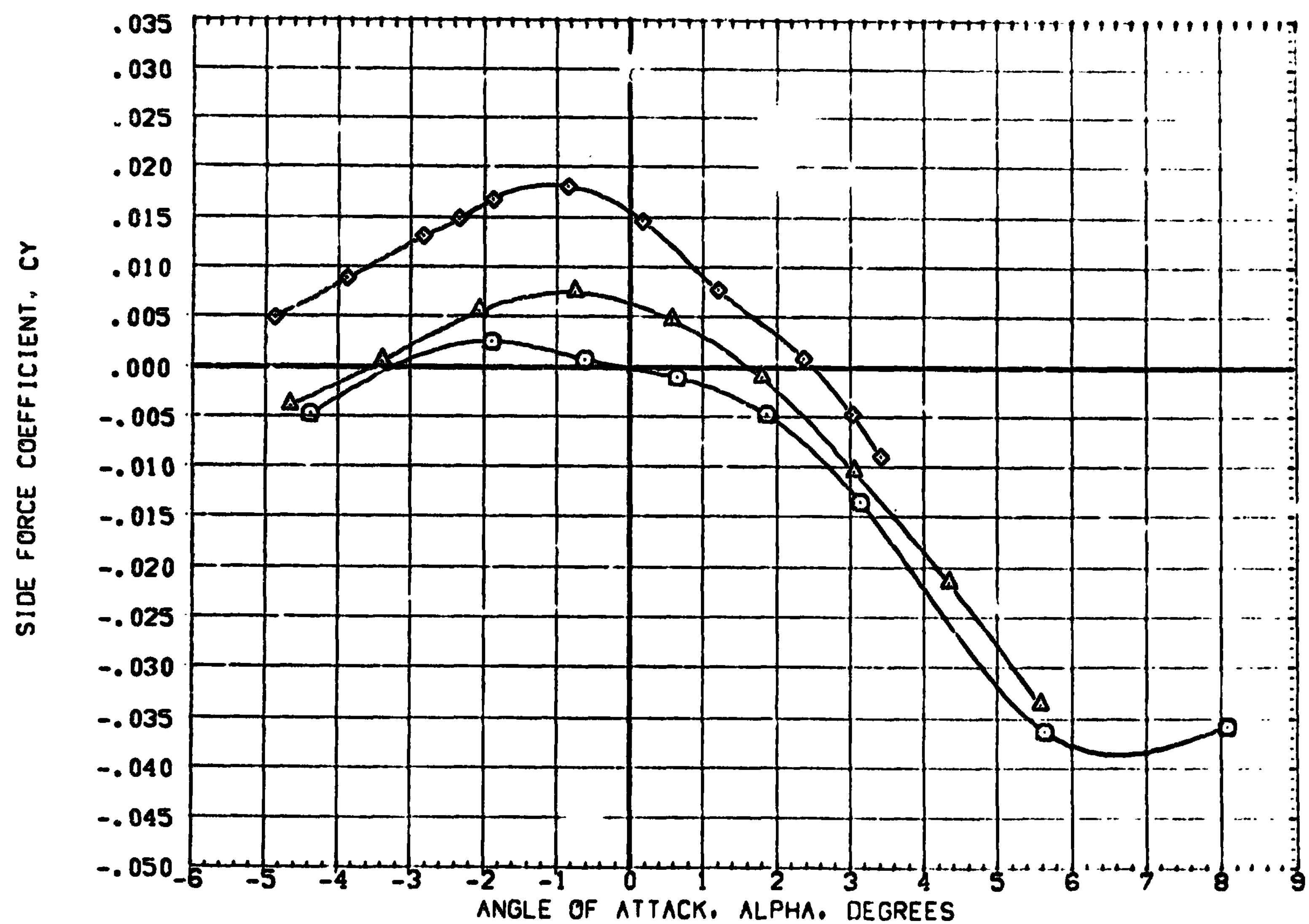


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

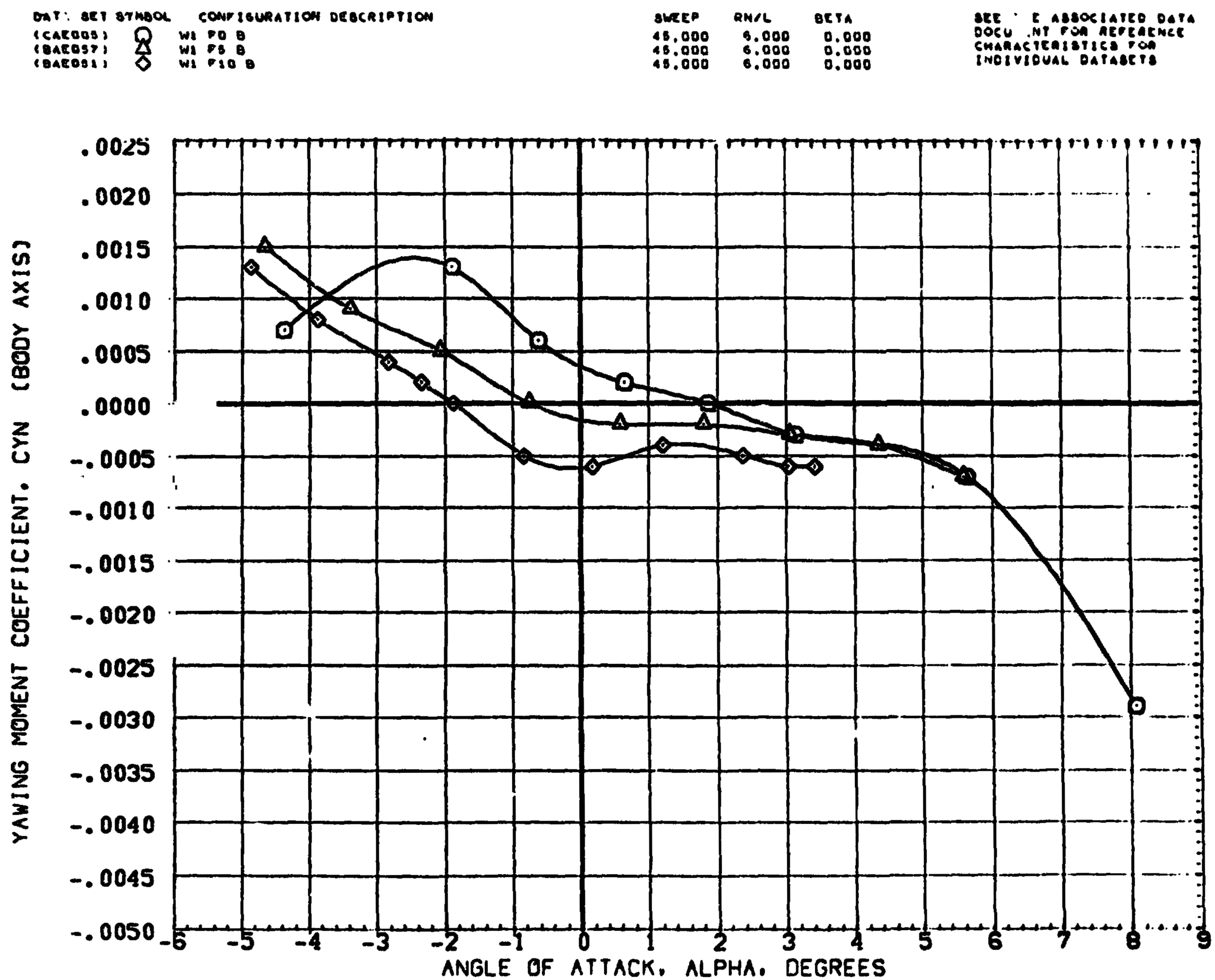


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

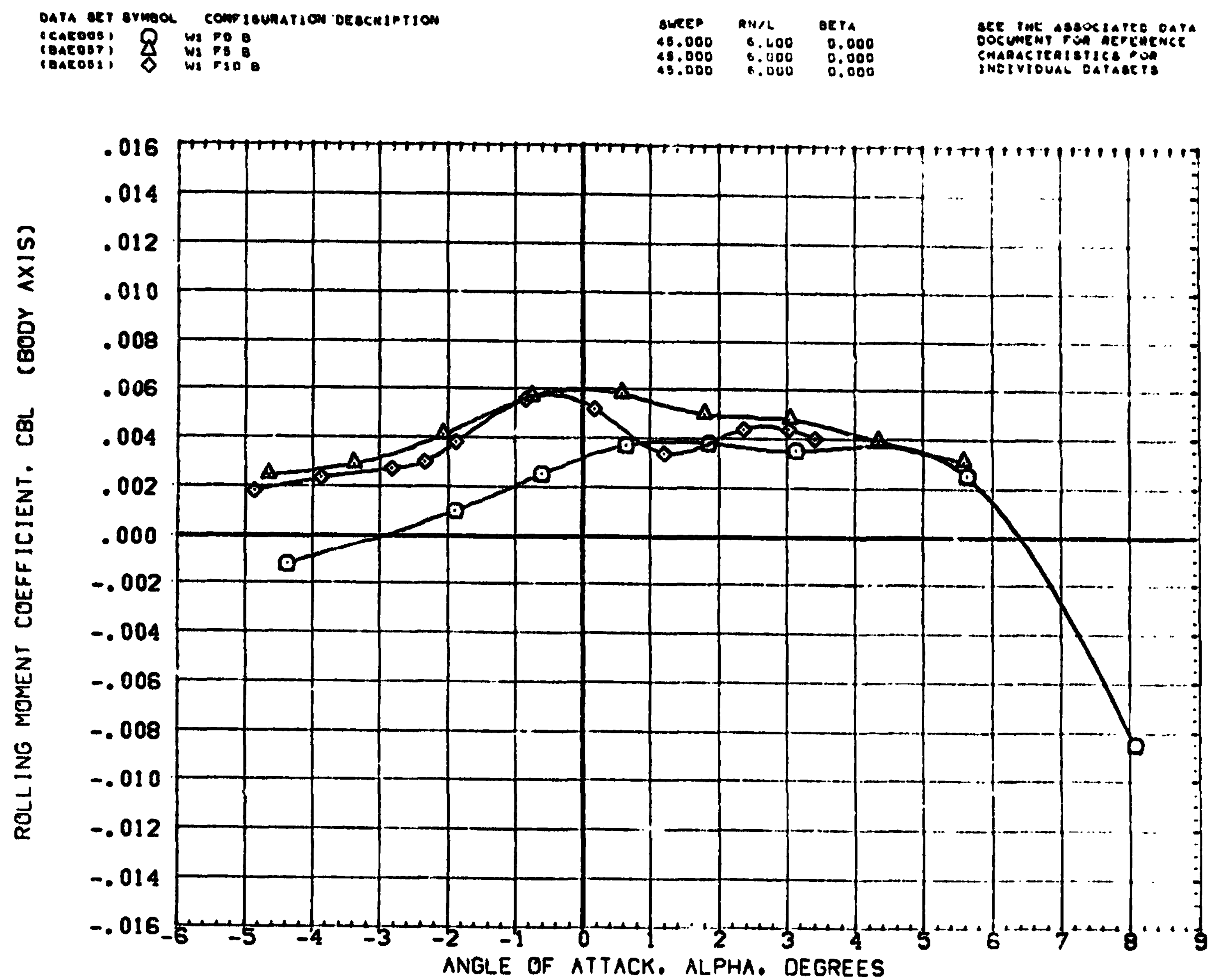


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.70, LAMBDA=45 DEGREES
(A)MACH = .70

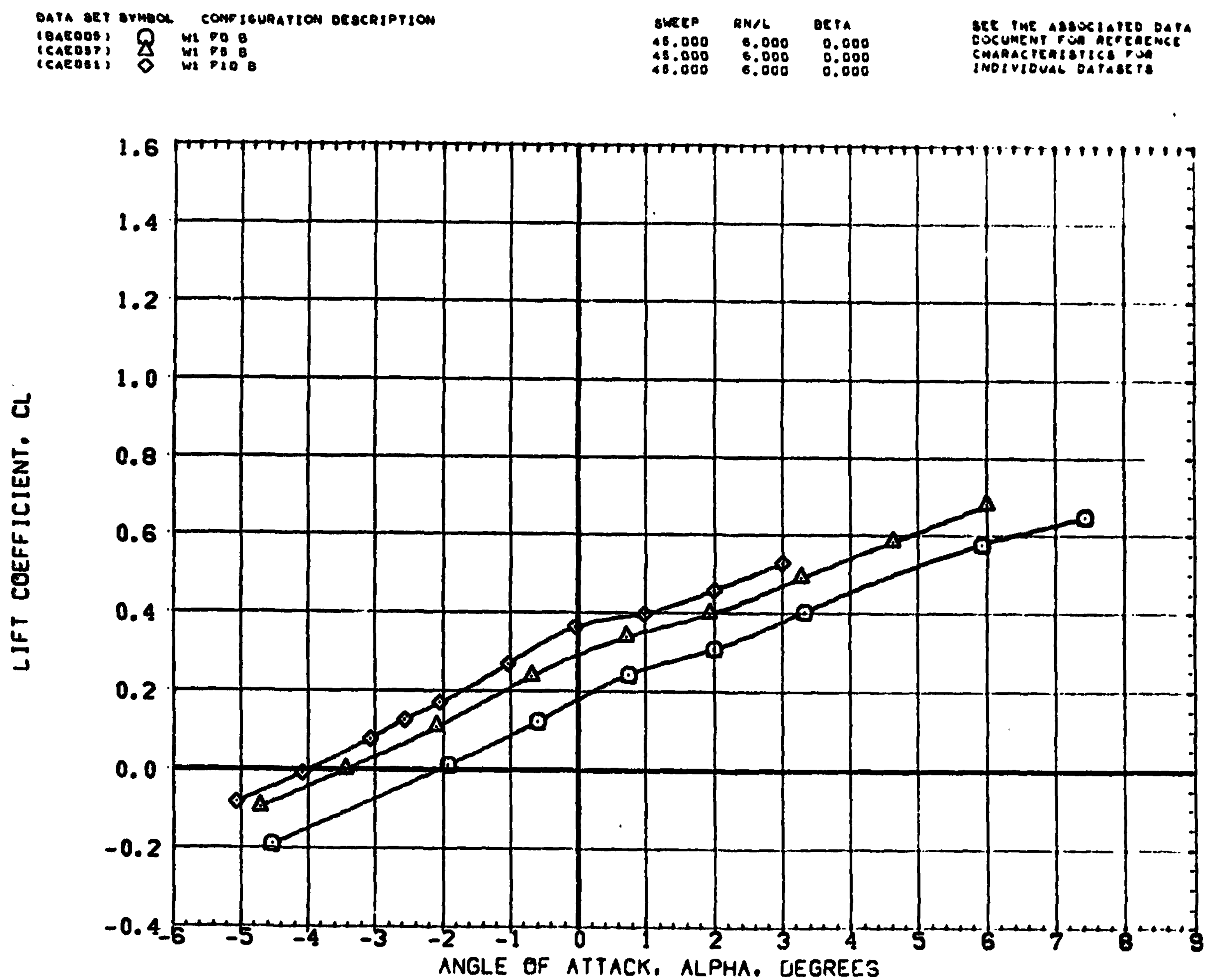


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	○	W1 F0 B	45.000	6.000	0.000
(CAE057)	△	W1 F5 B	45.000	6.000	0.000
(CAE051)	◇	W1 F10 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

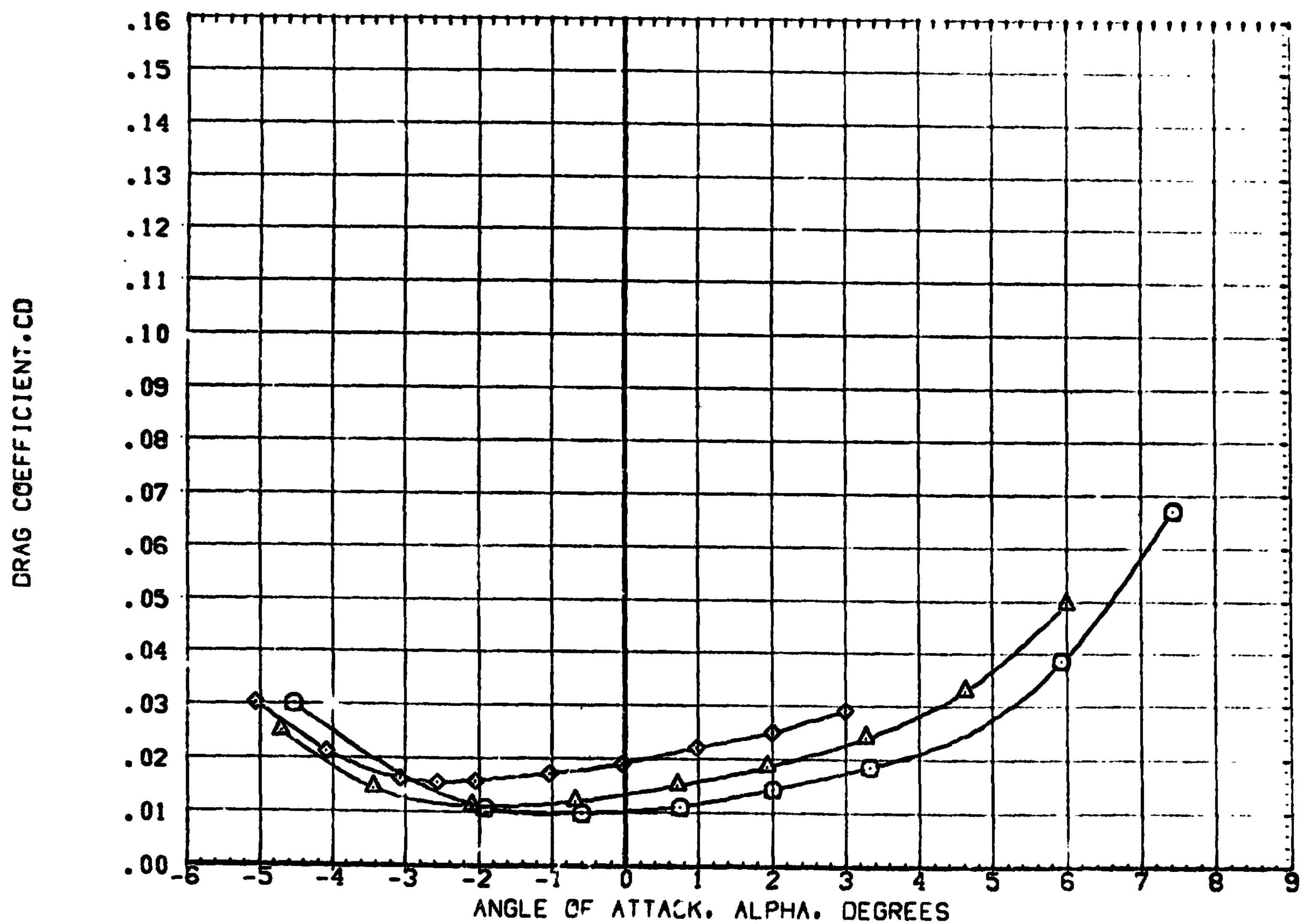


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	○	W1 F0 B	45.000	6.000	0.000
(CAE057)	△	W1 F5 B	45.000	6.000	0.000
(CAE051)	◇	W1 F10 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

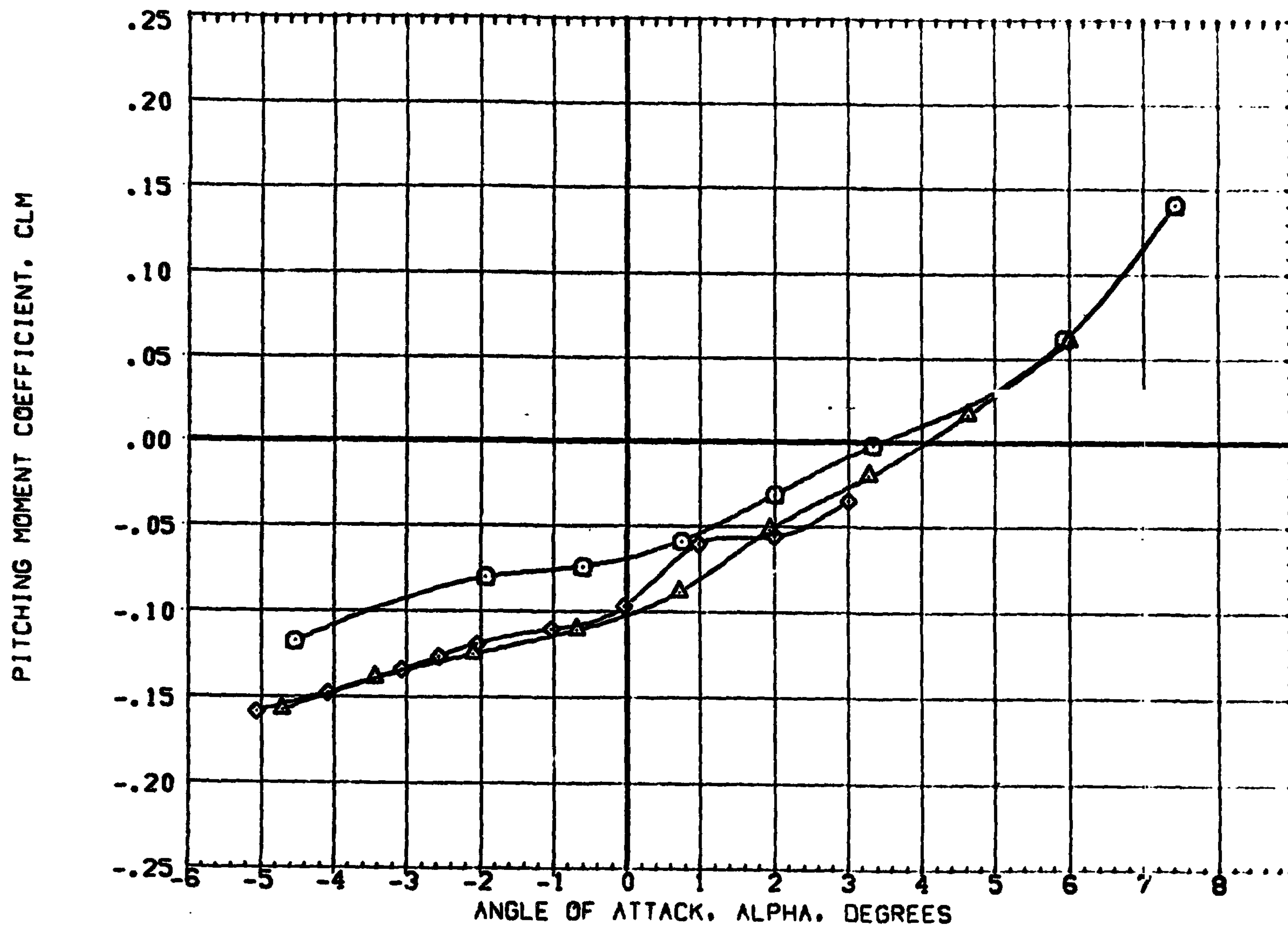


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

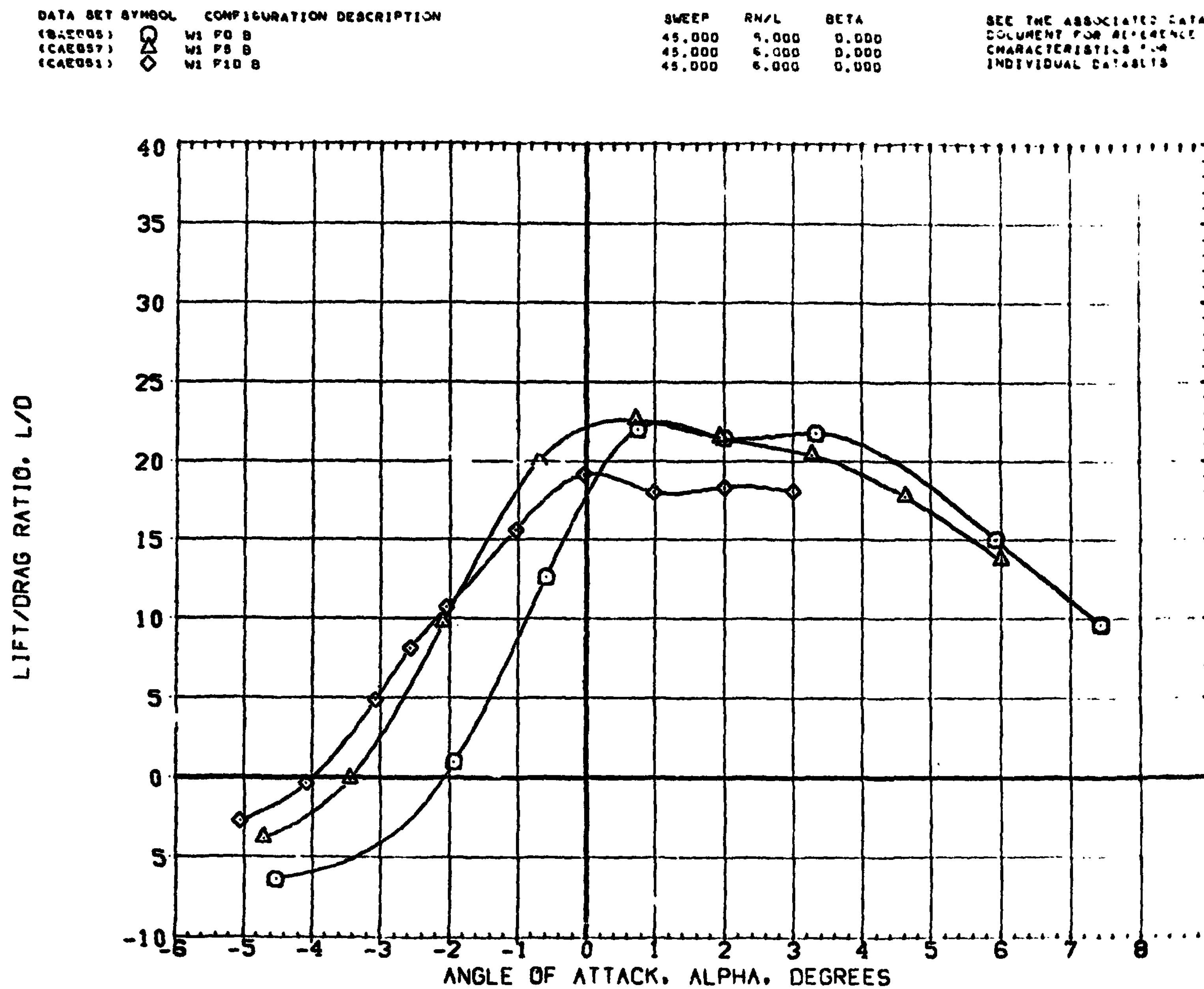


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

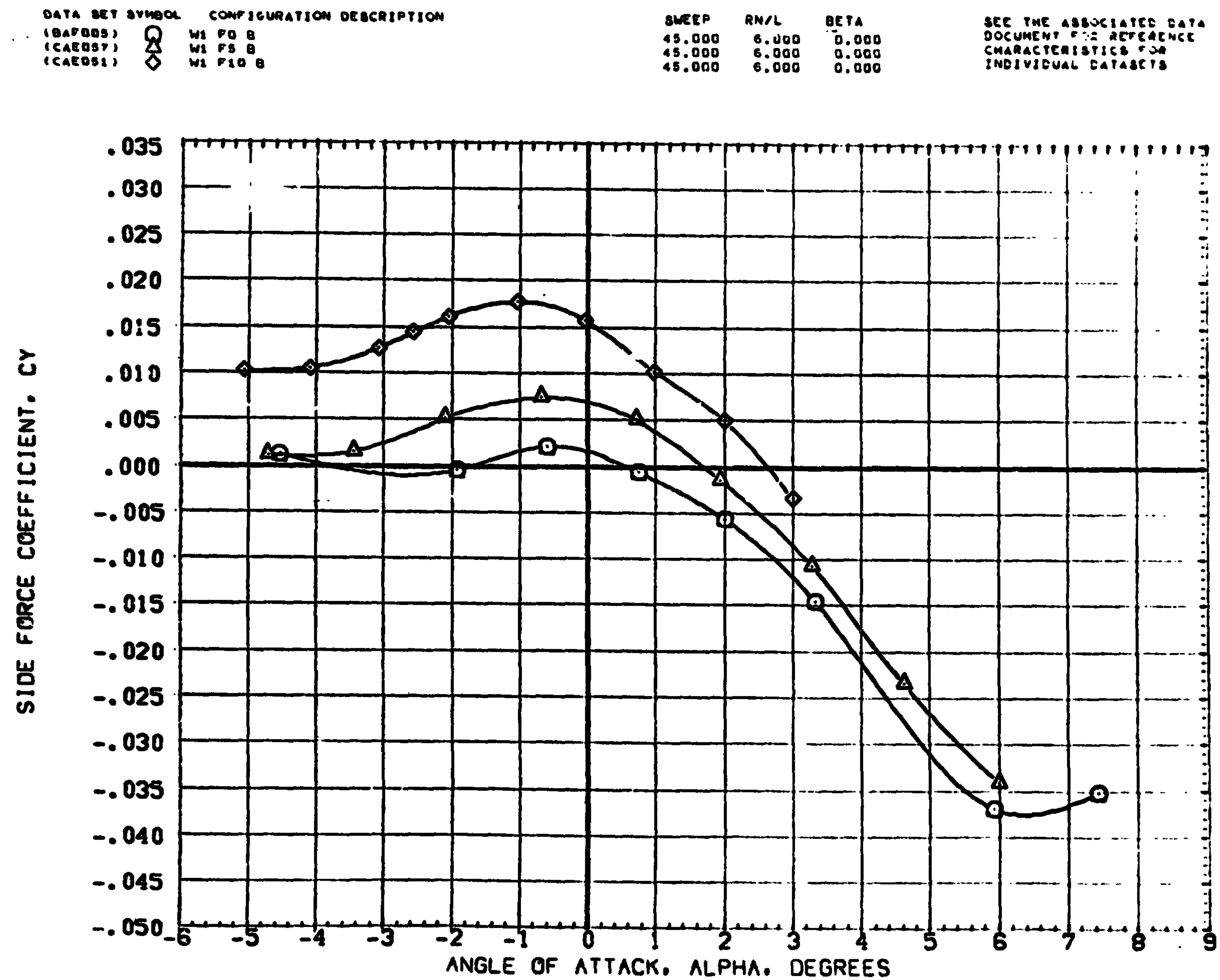


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

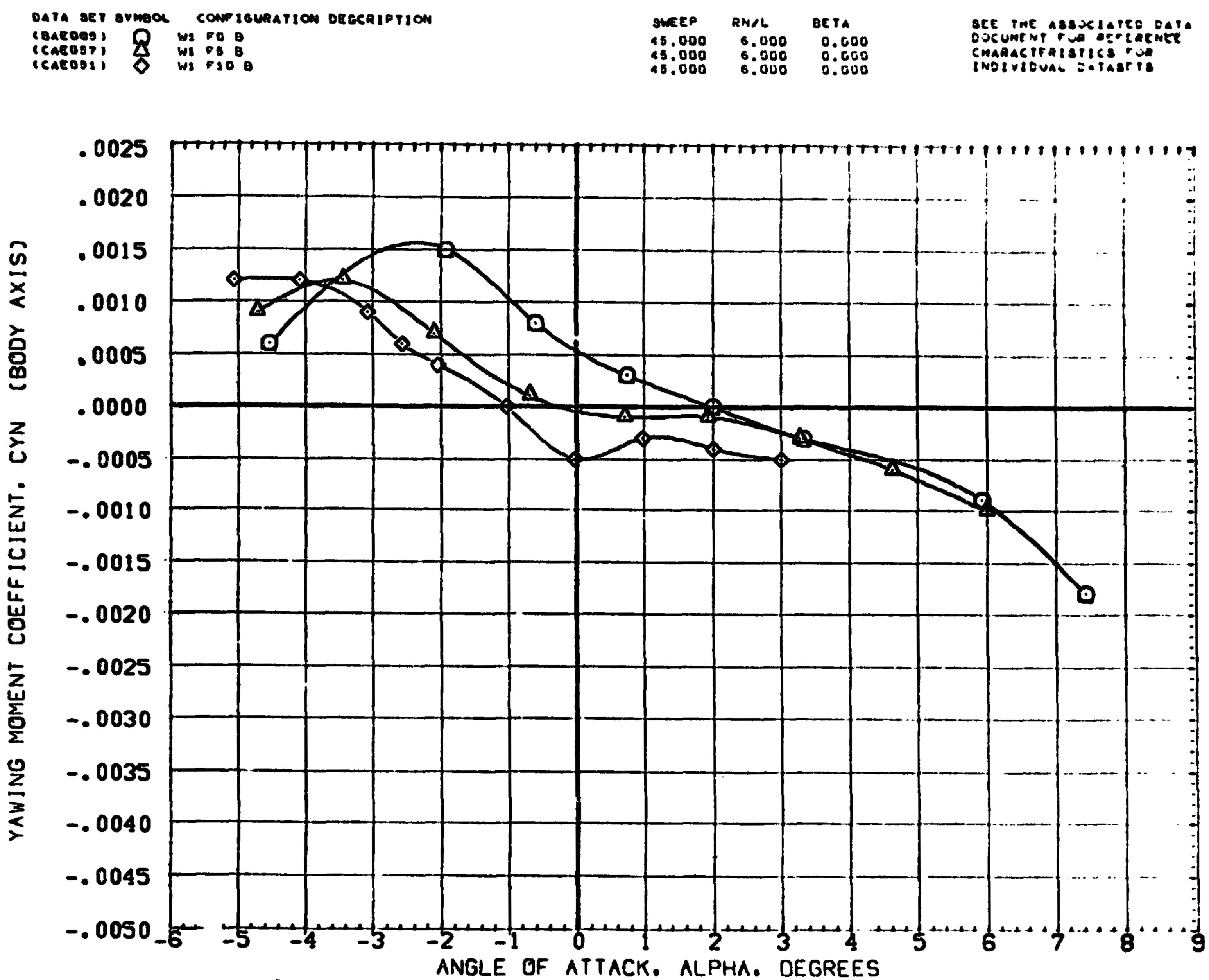


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

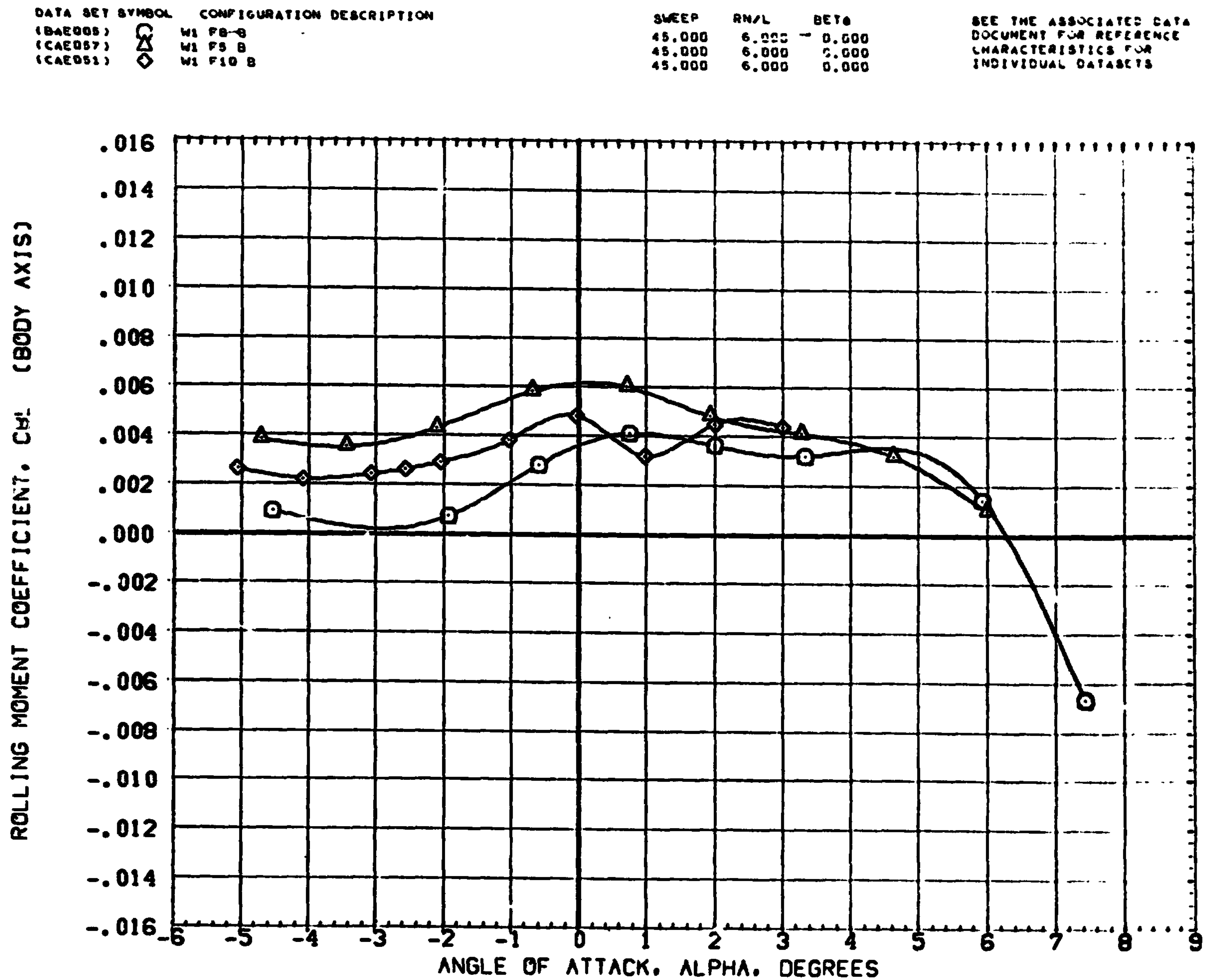


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

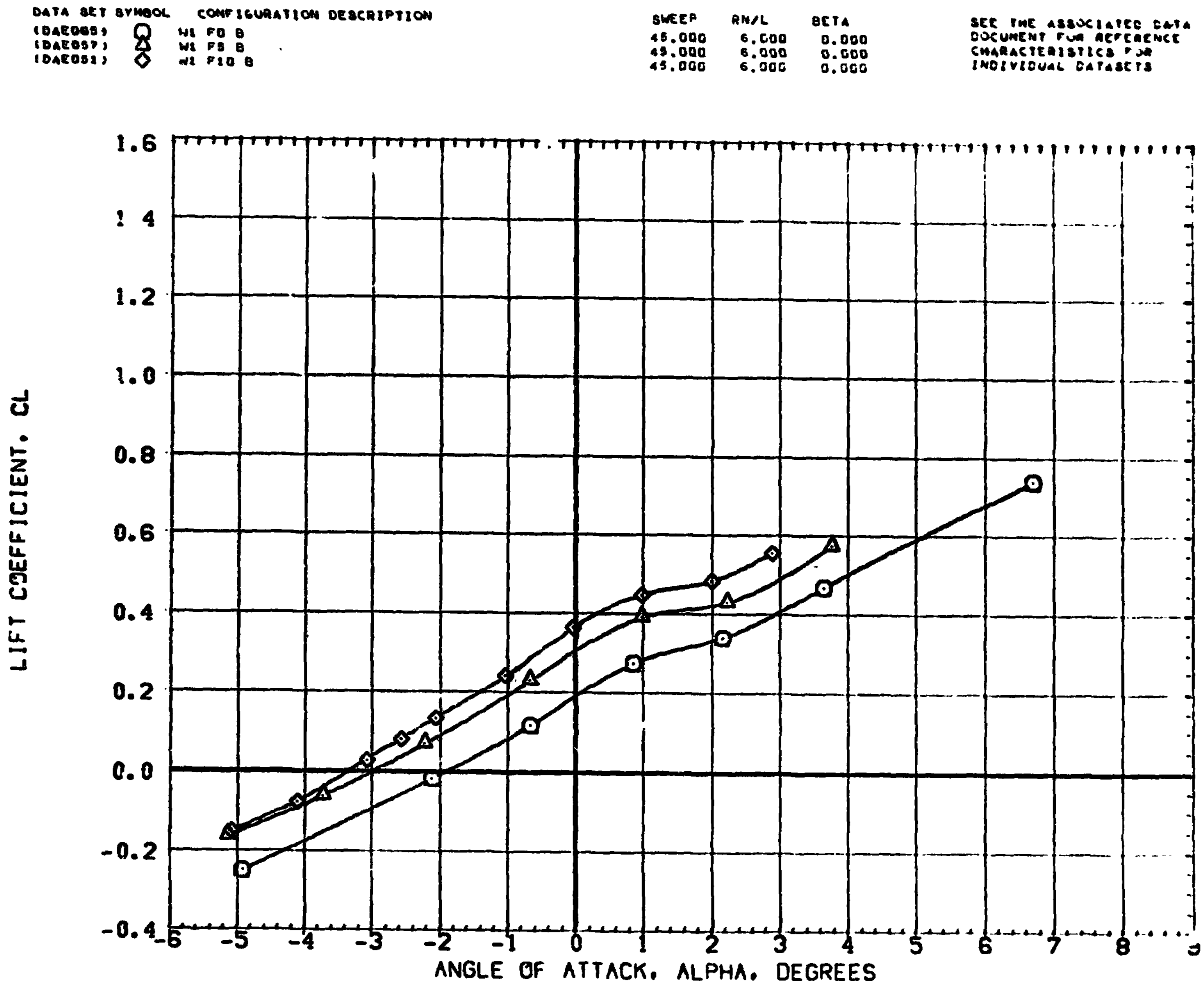


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

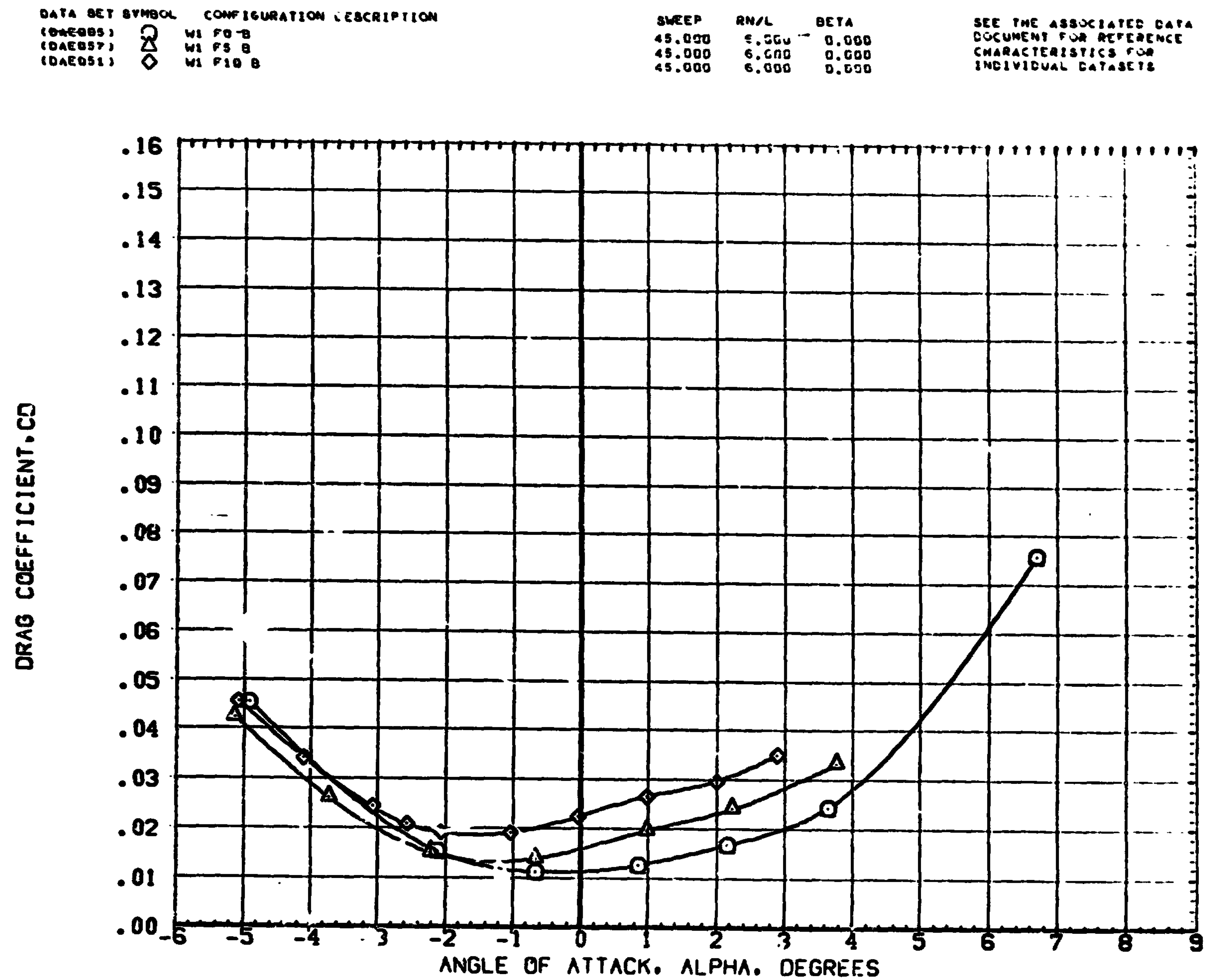


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES
(A)MACH = .95

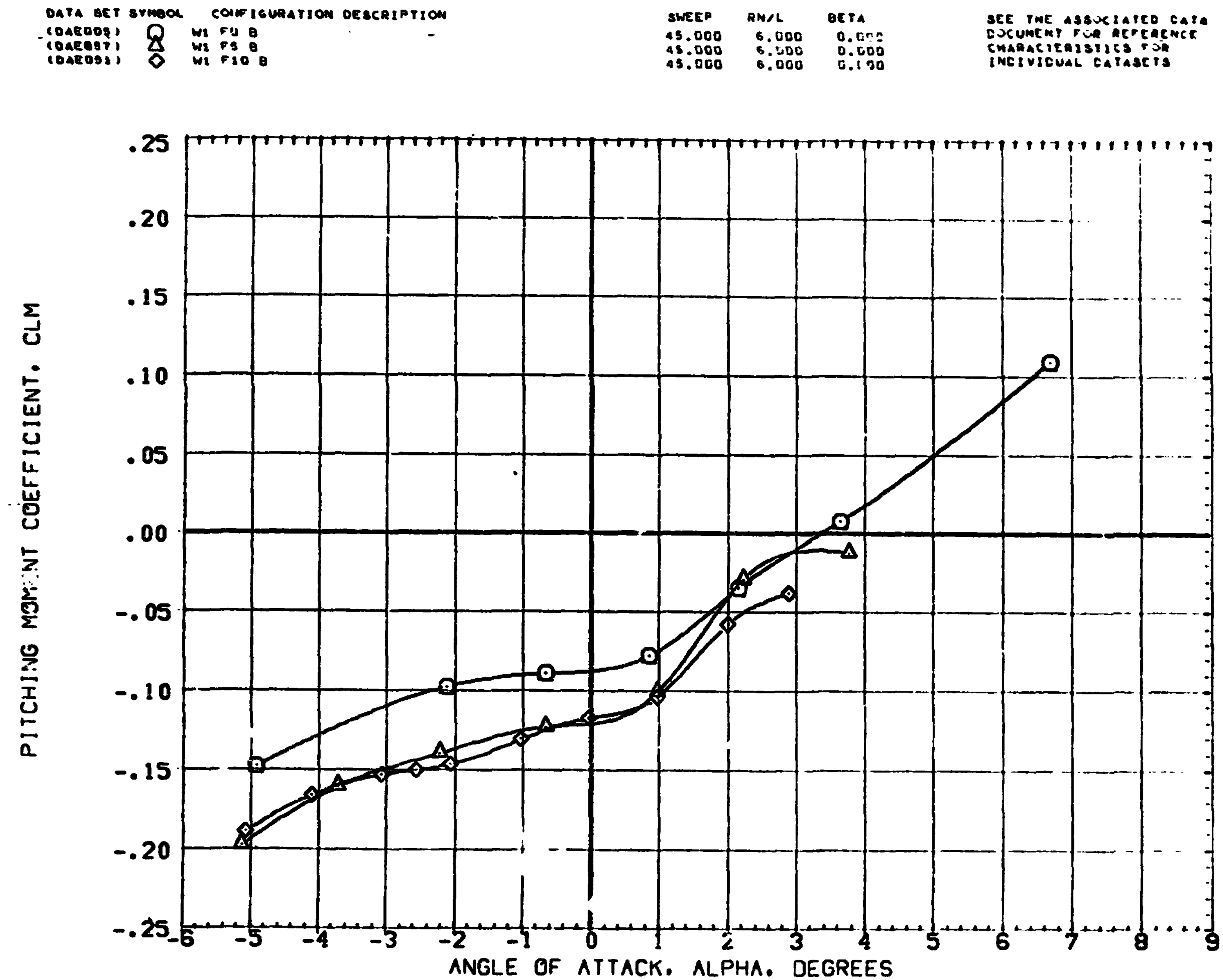


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

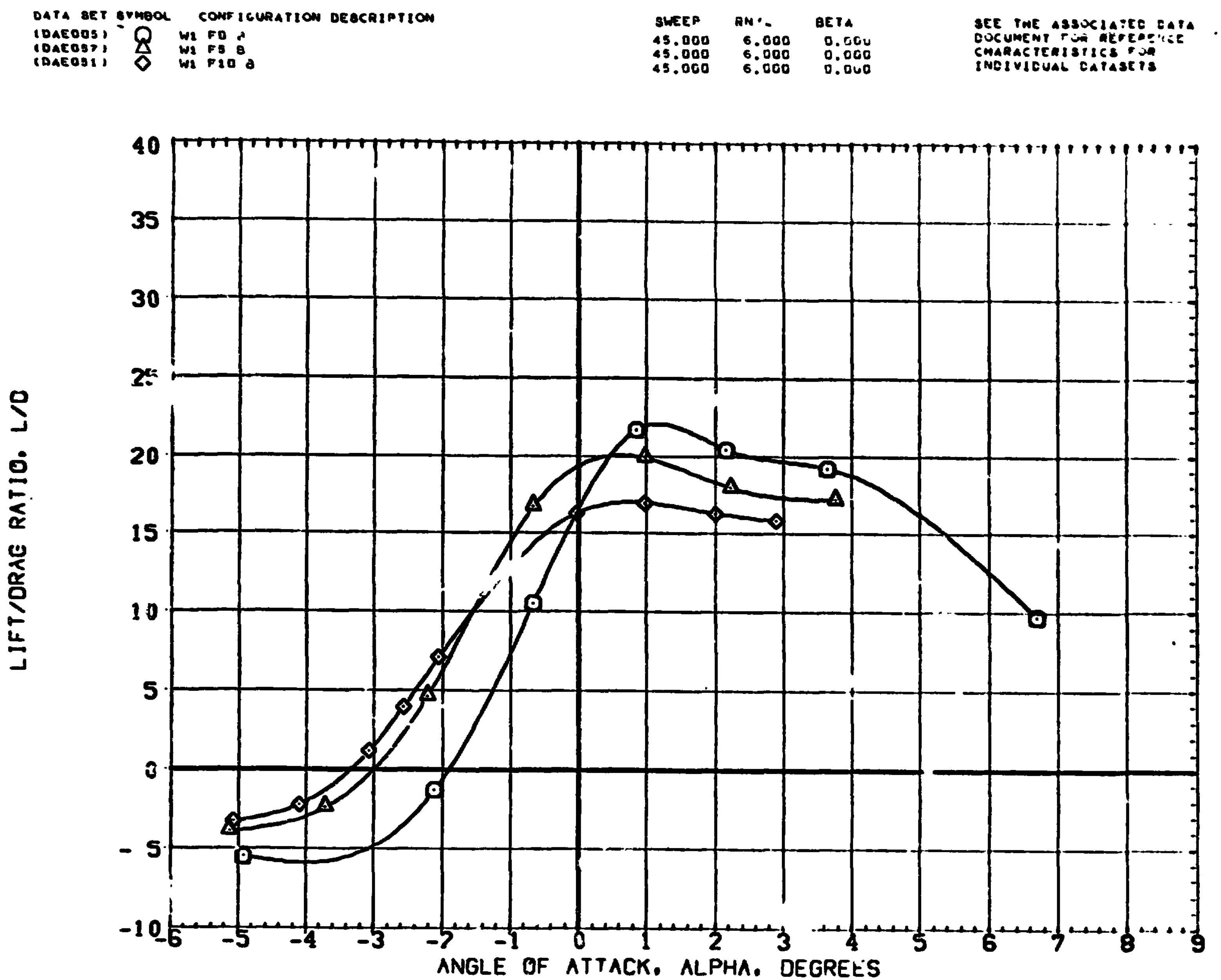


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES
(A)MACH = .95

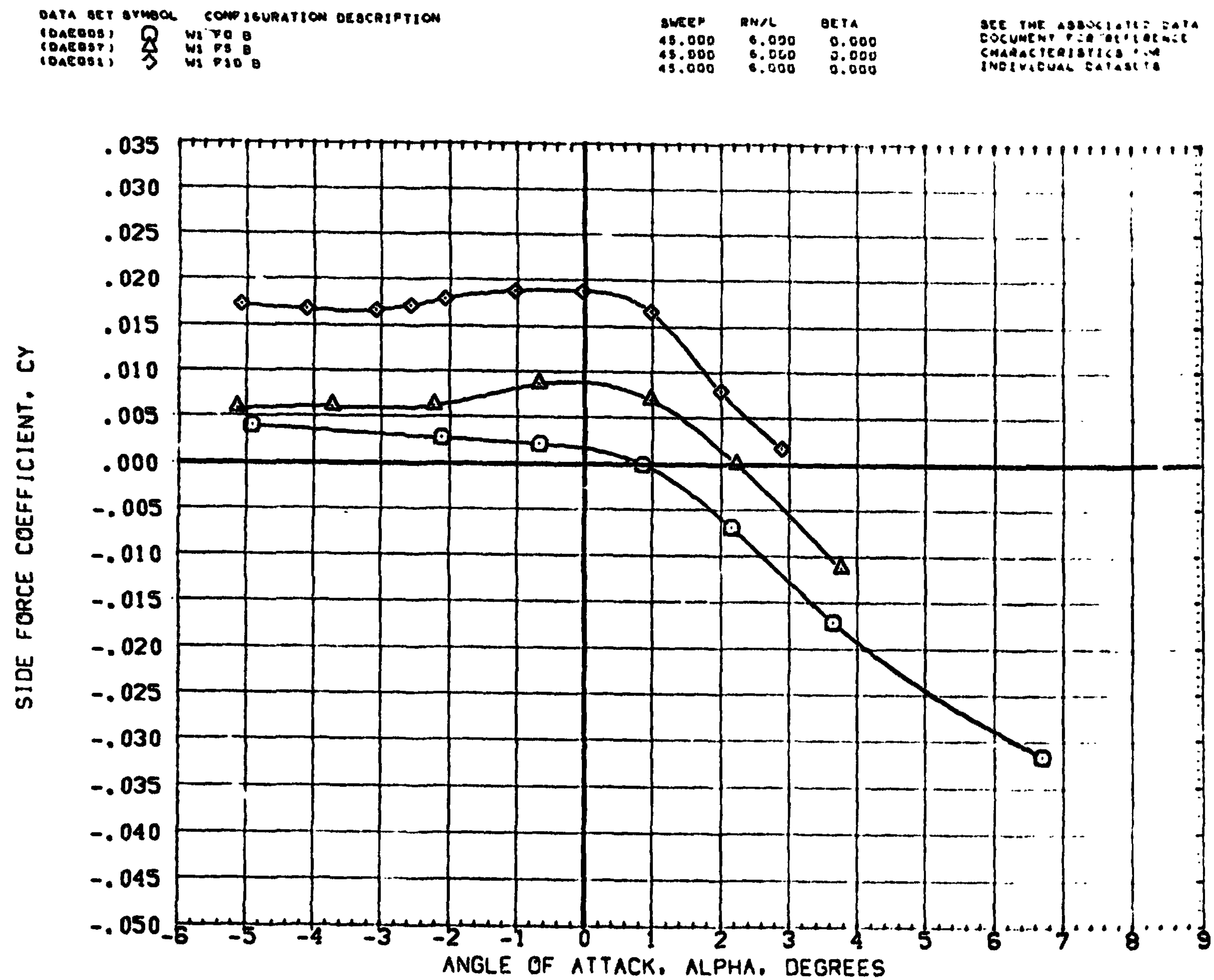


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

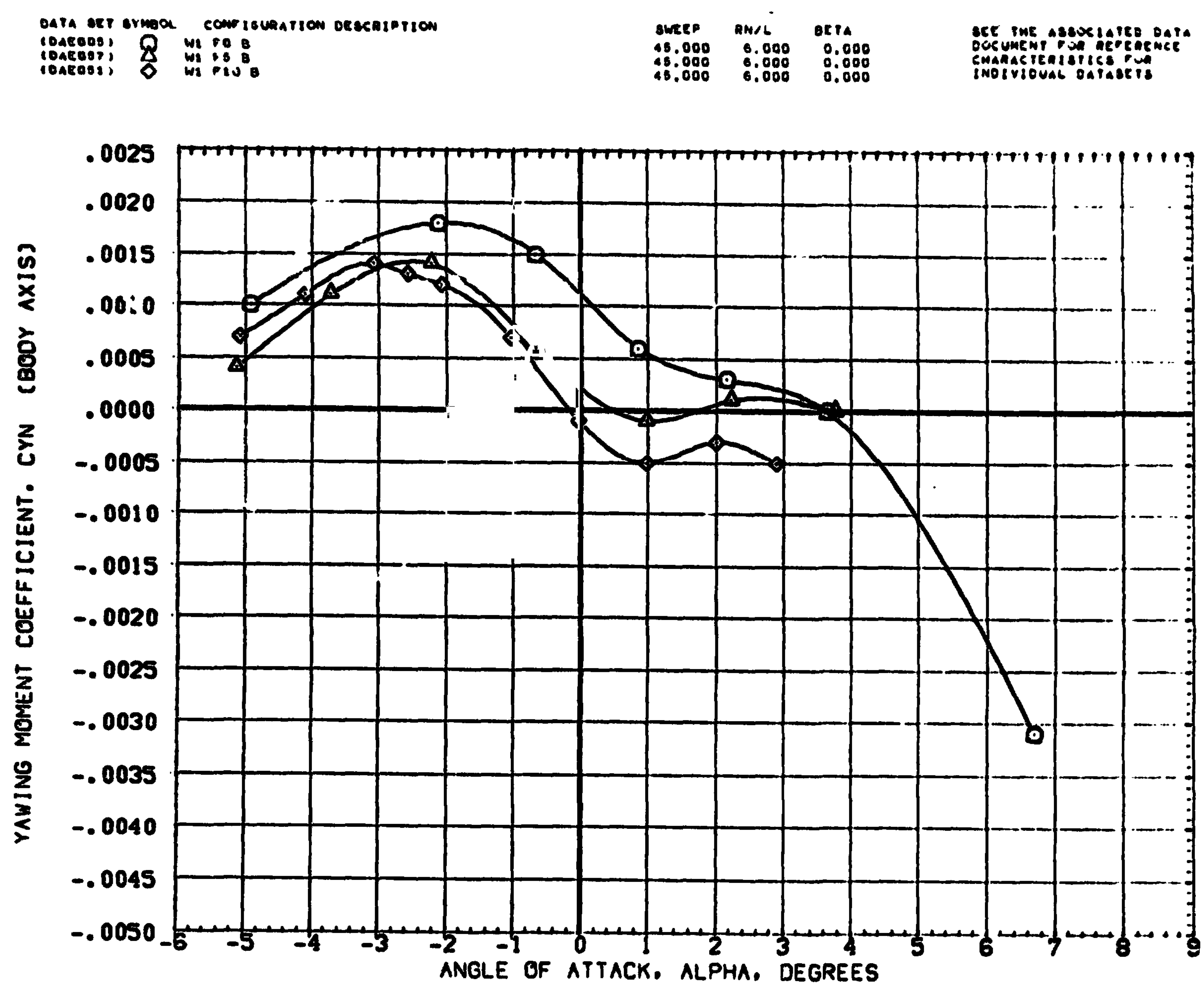


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A) MACH = .95

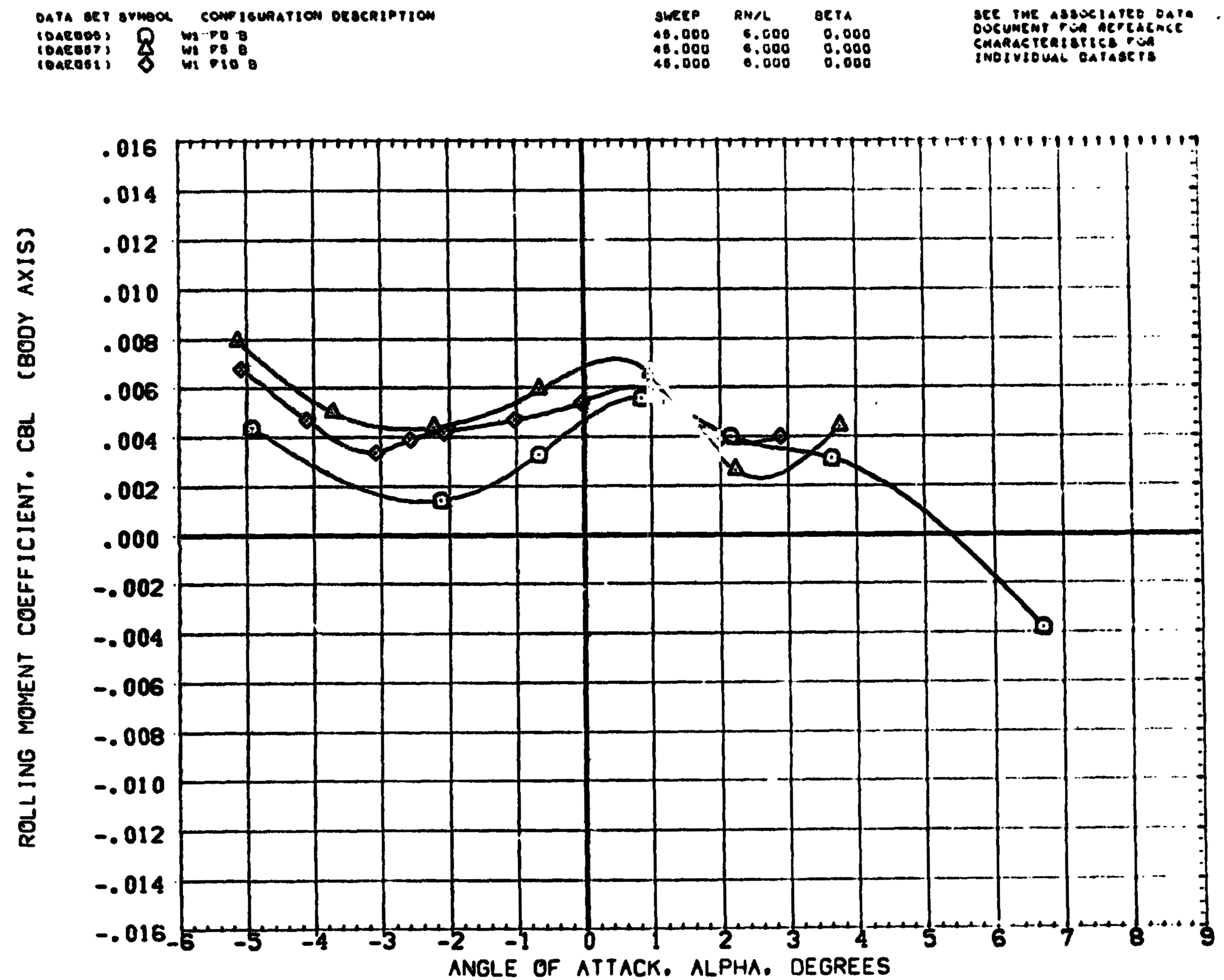


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

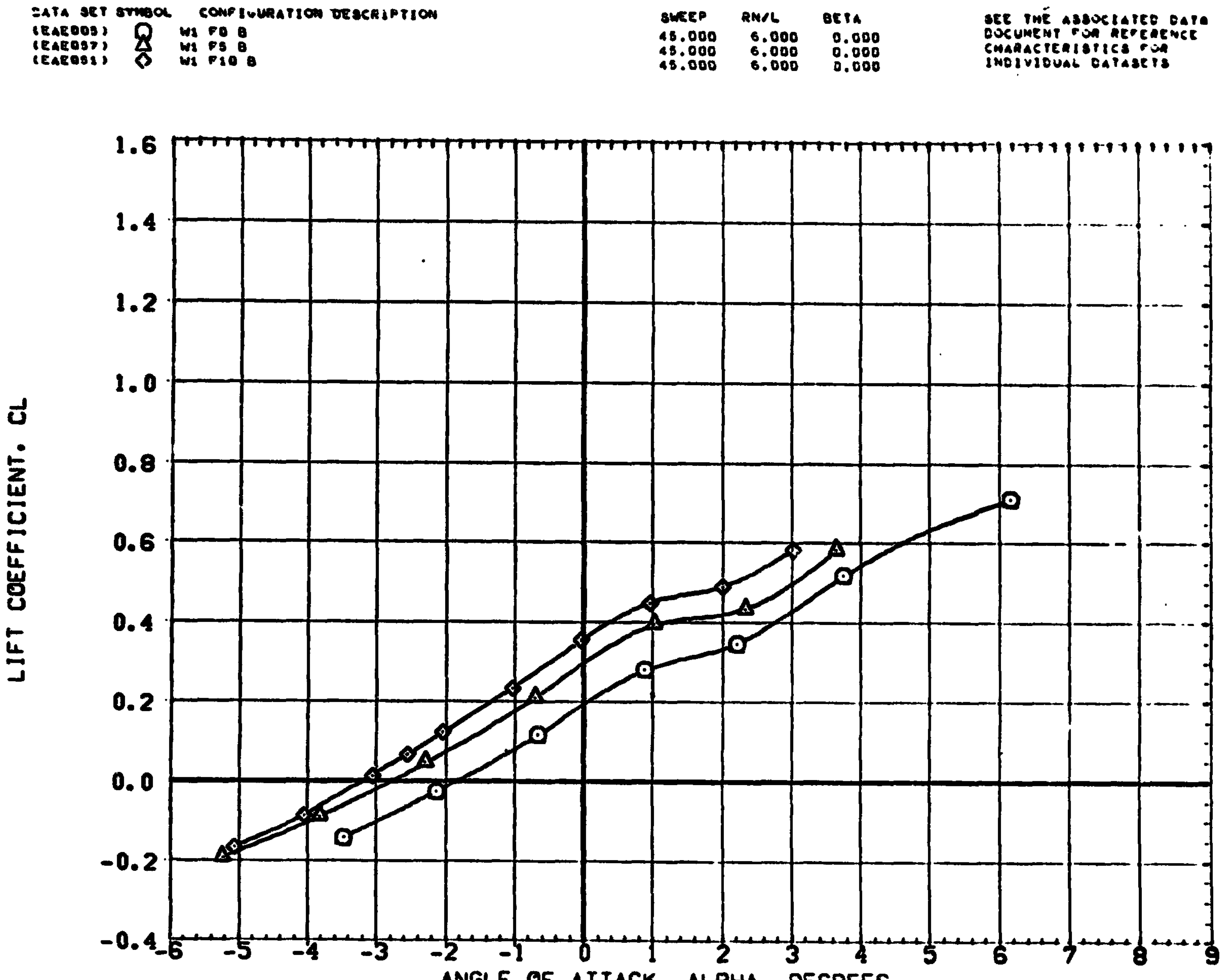


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES
(A)MACH = .98

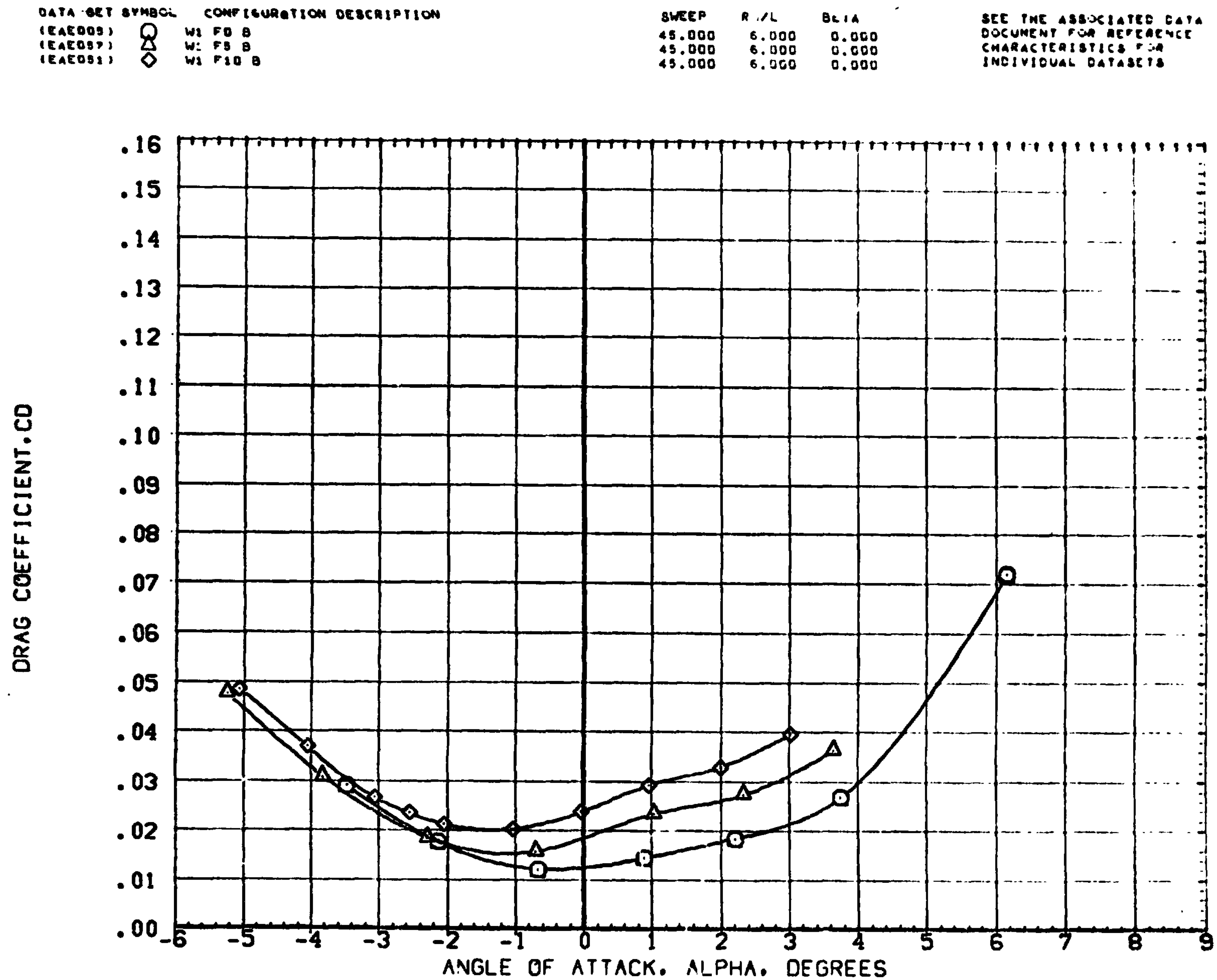


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(EAE005) ○ W1 F0 B
(EAE057) △ W1 F5 B
(EAE051) ◇ W1 F10 B

SWEEP	RN/L	BETA
45.000	6.000	0.000
45.000	6.000	0.000
45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

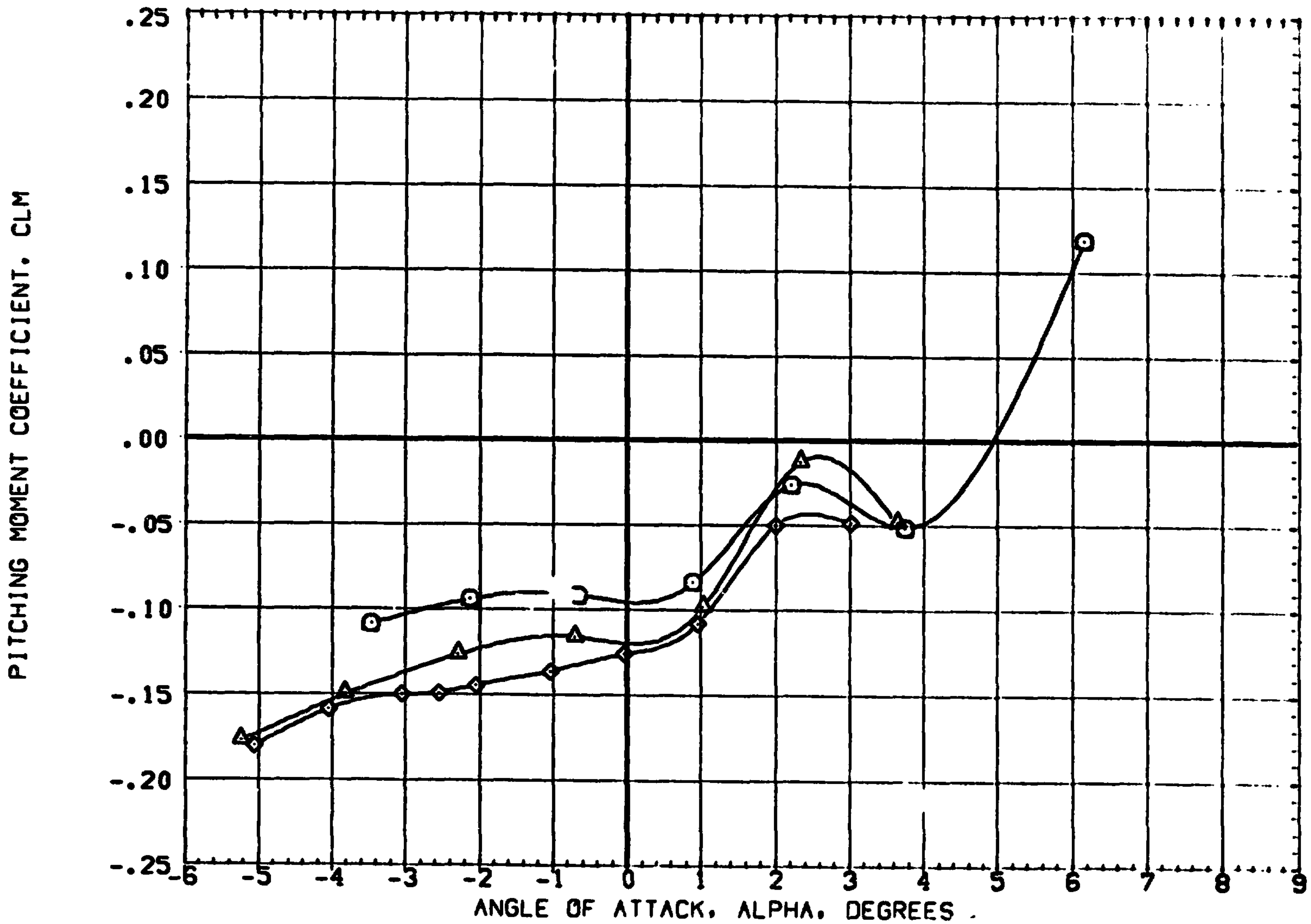


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES
(A)MACH = .98

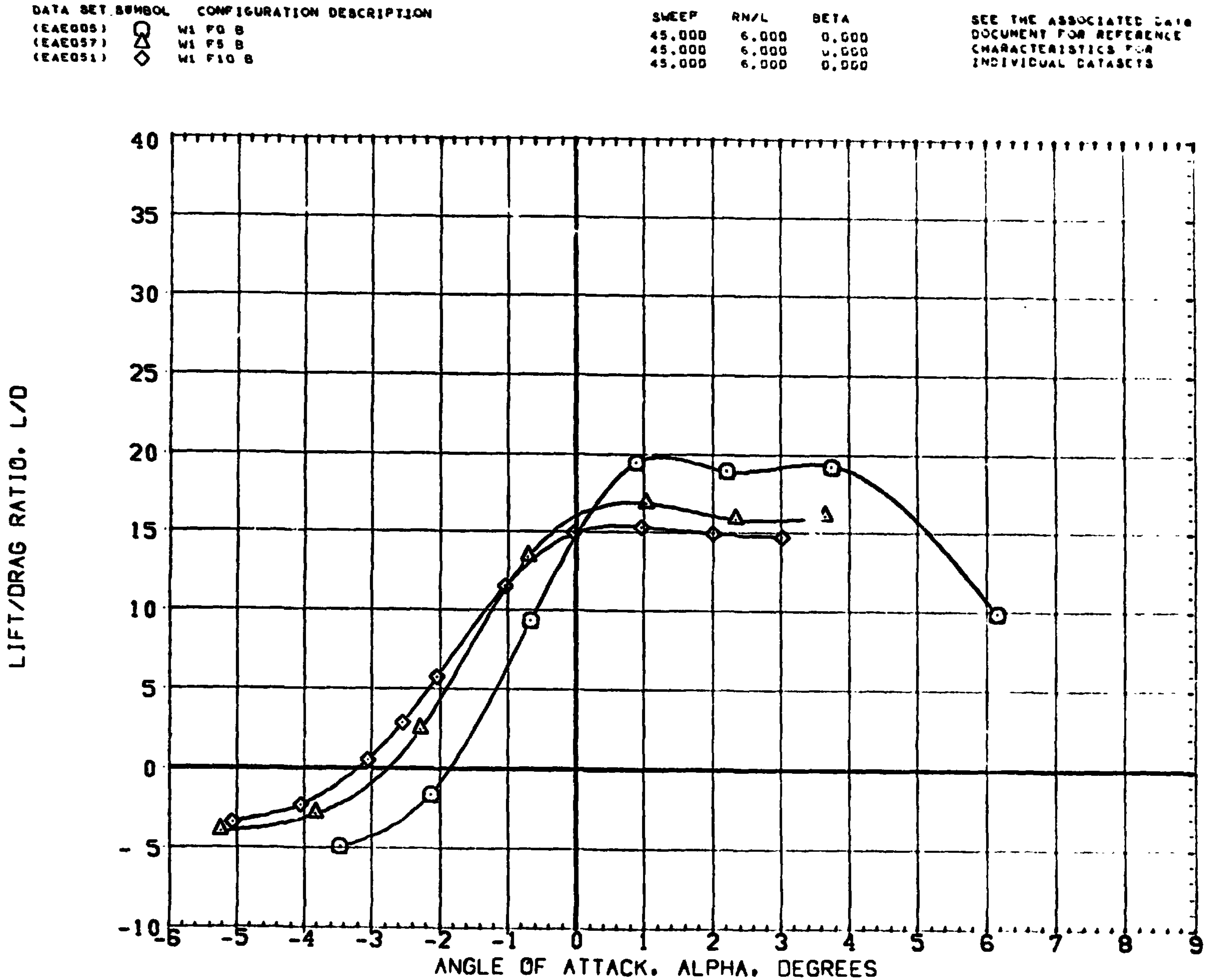


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

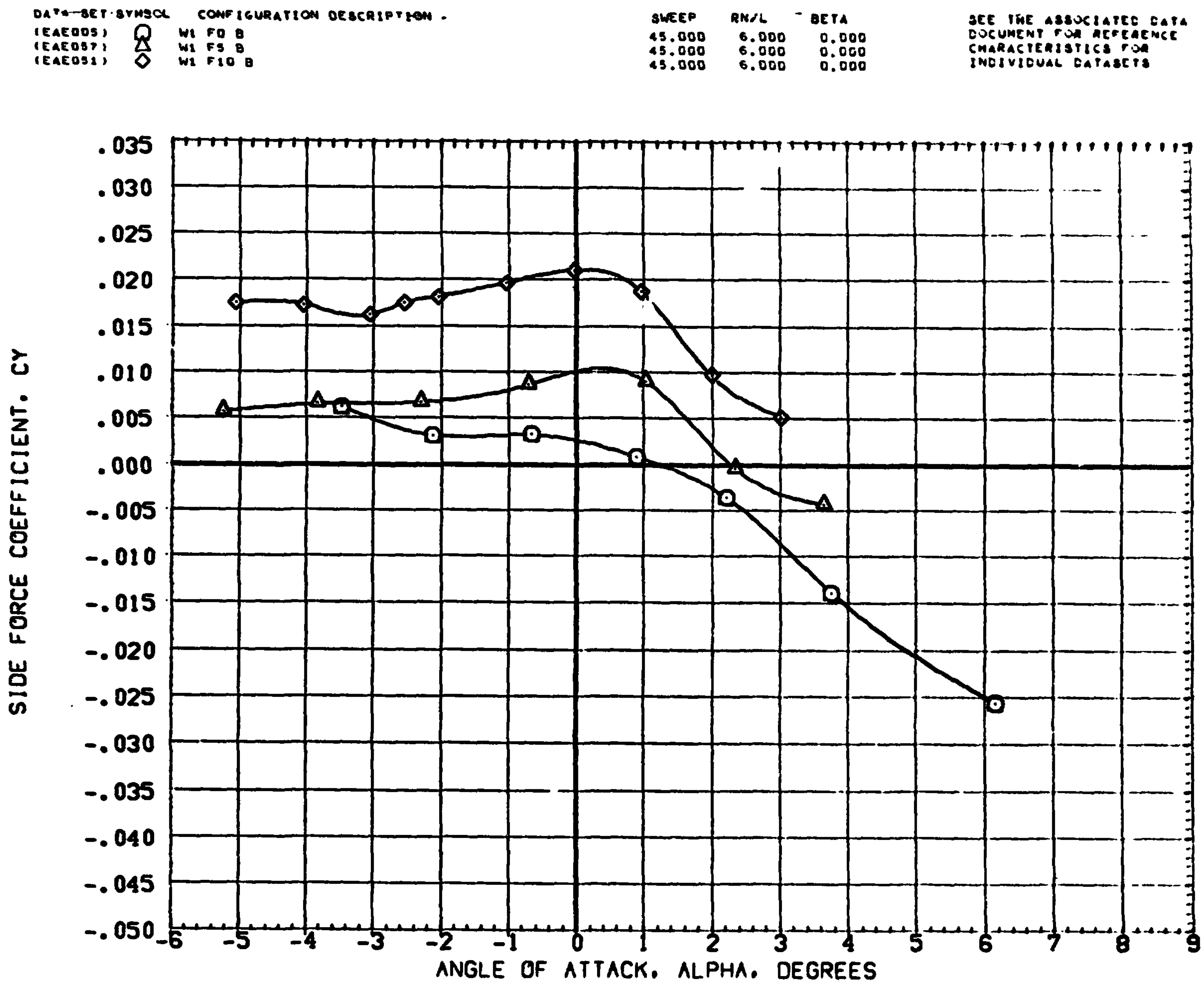


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

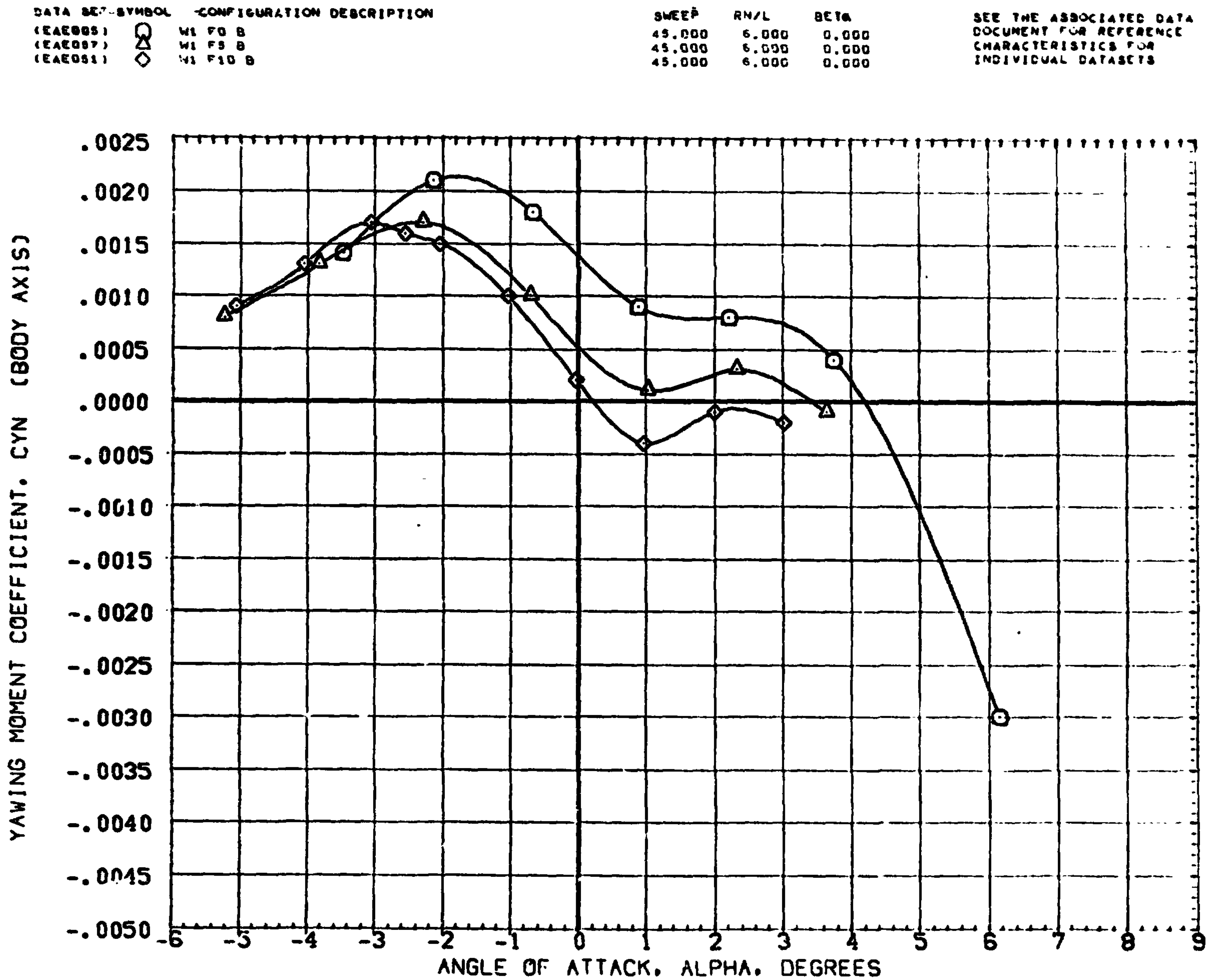


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

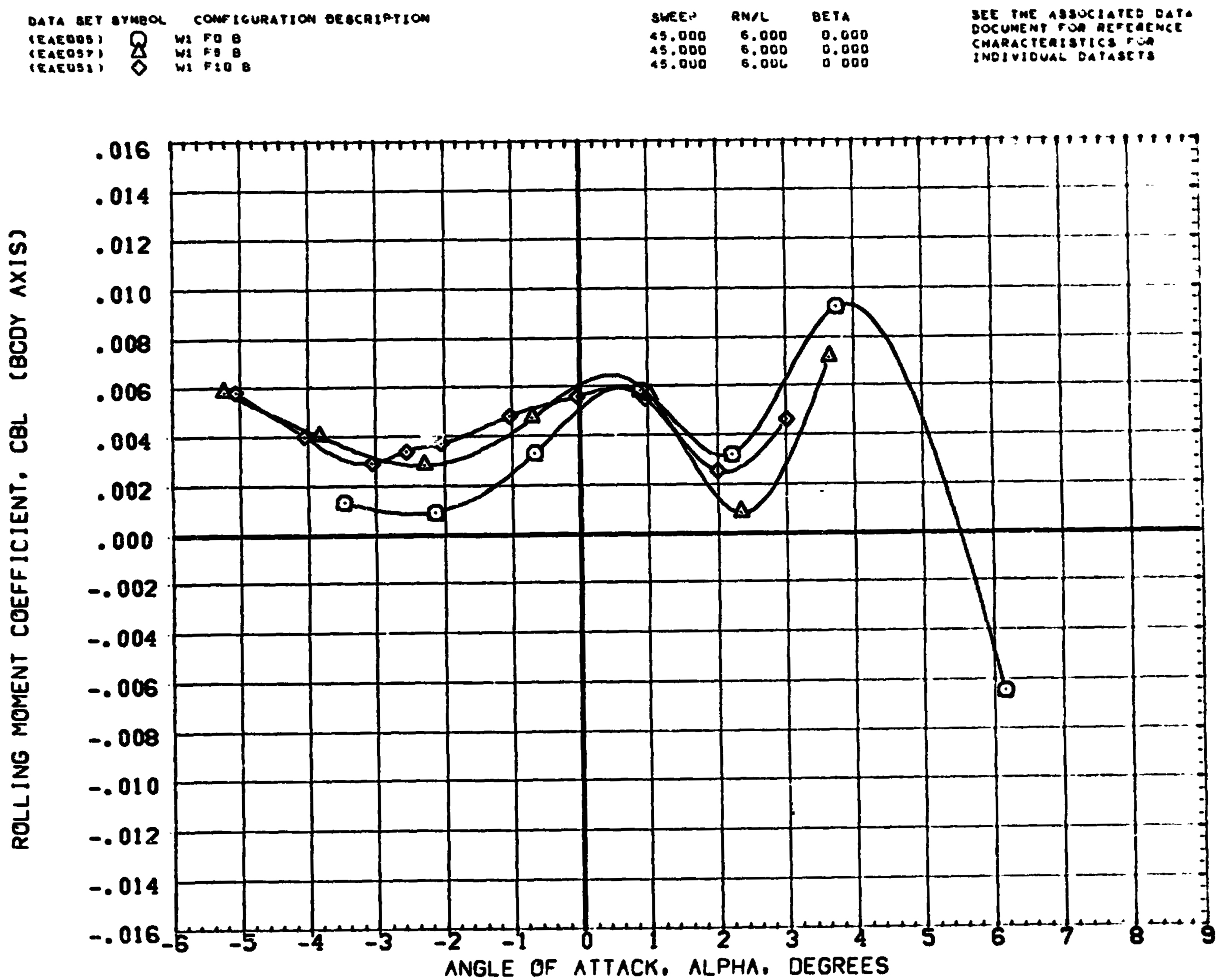


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE005)	○	W1 F0 B	45.000	6.000	0.000
(PAEL'7)	△	W1 F5 B	45.000	6.000	0.000
(PAE0\.)	◇	W1 F10 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

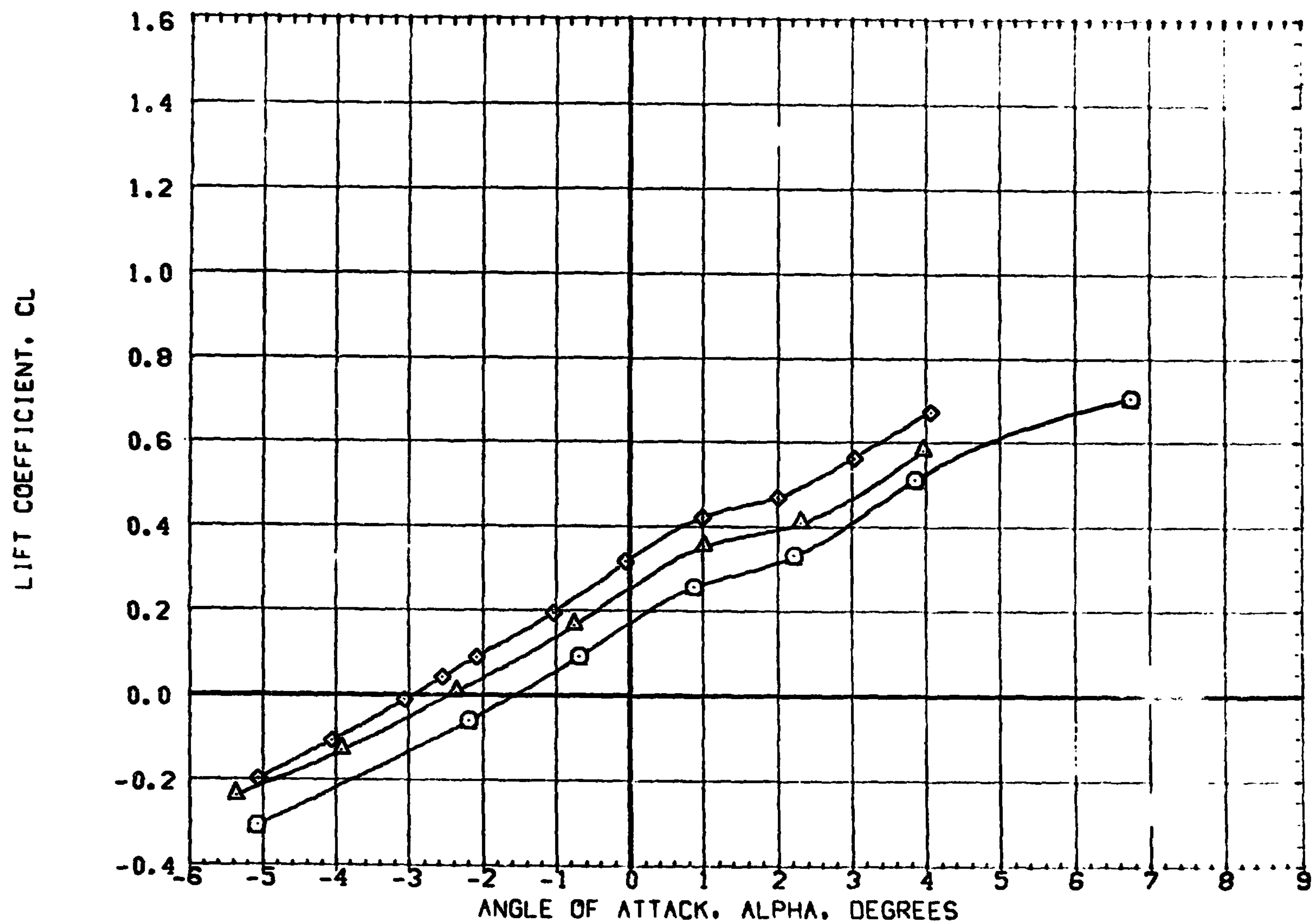


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

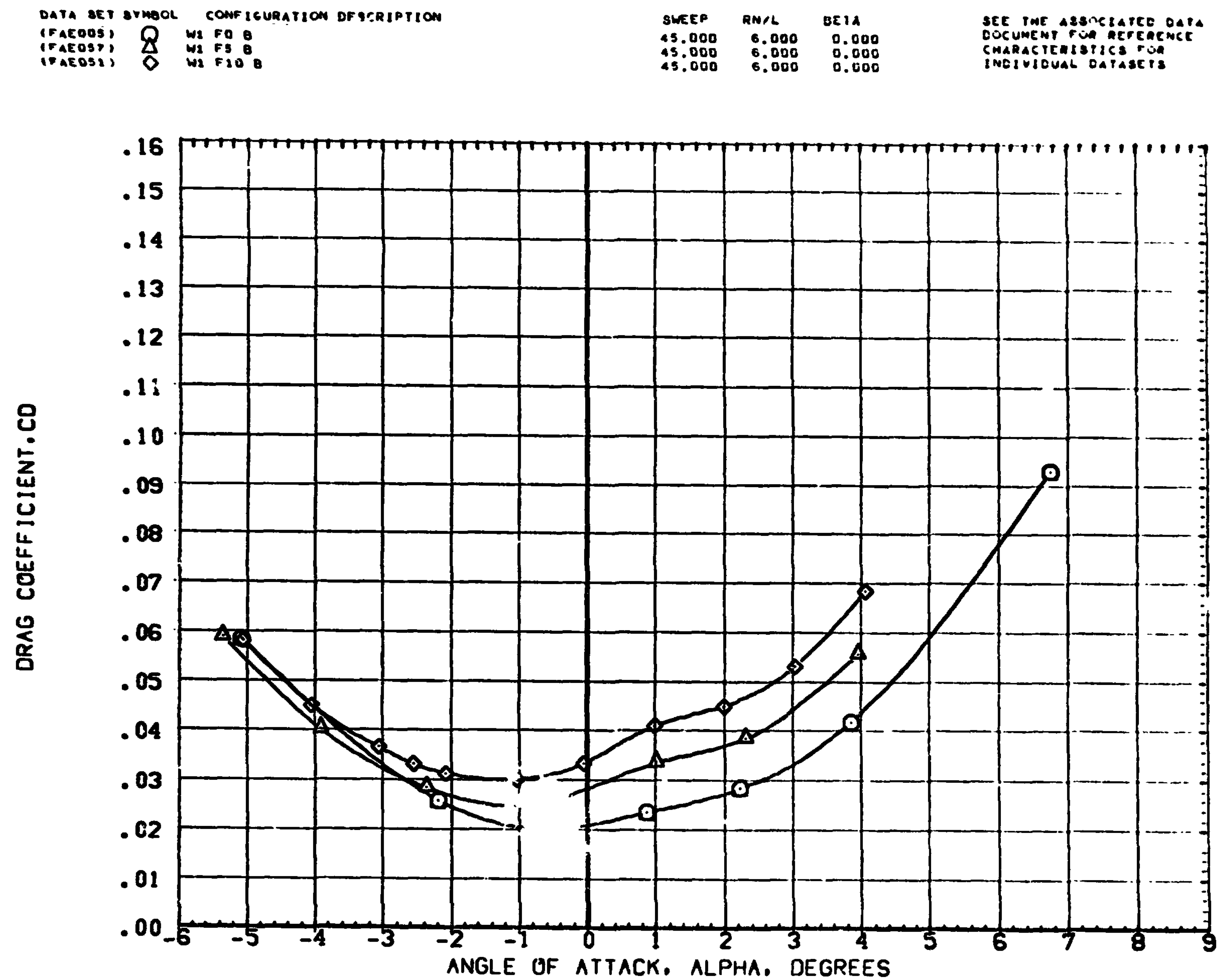


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

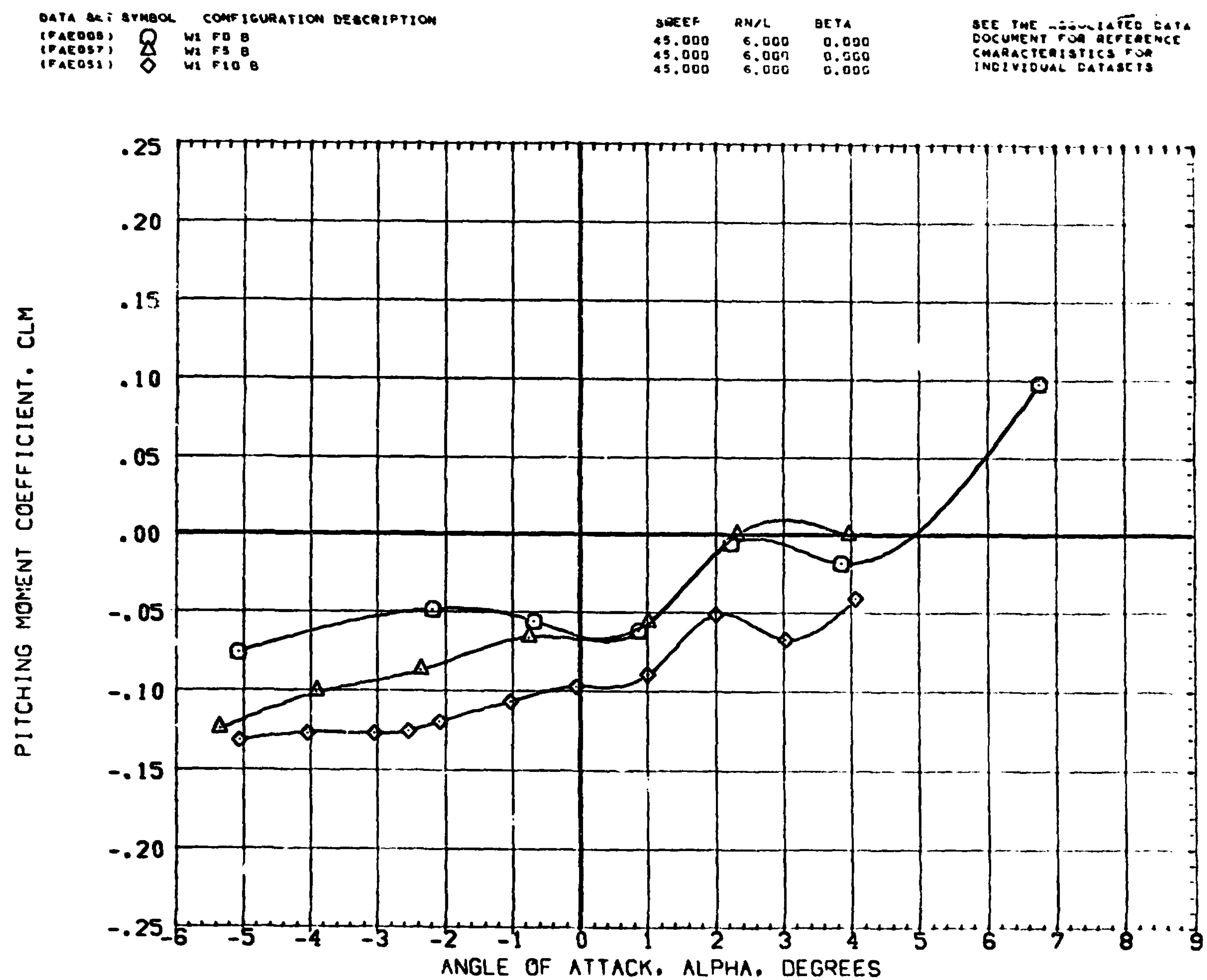


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A) MACH = 1.05

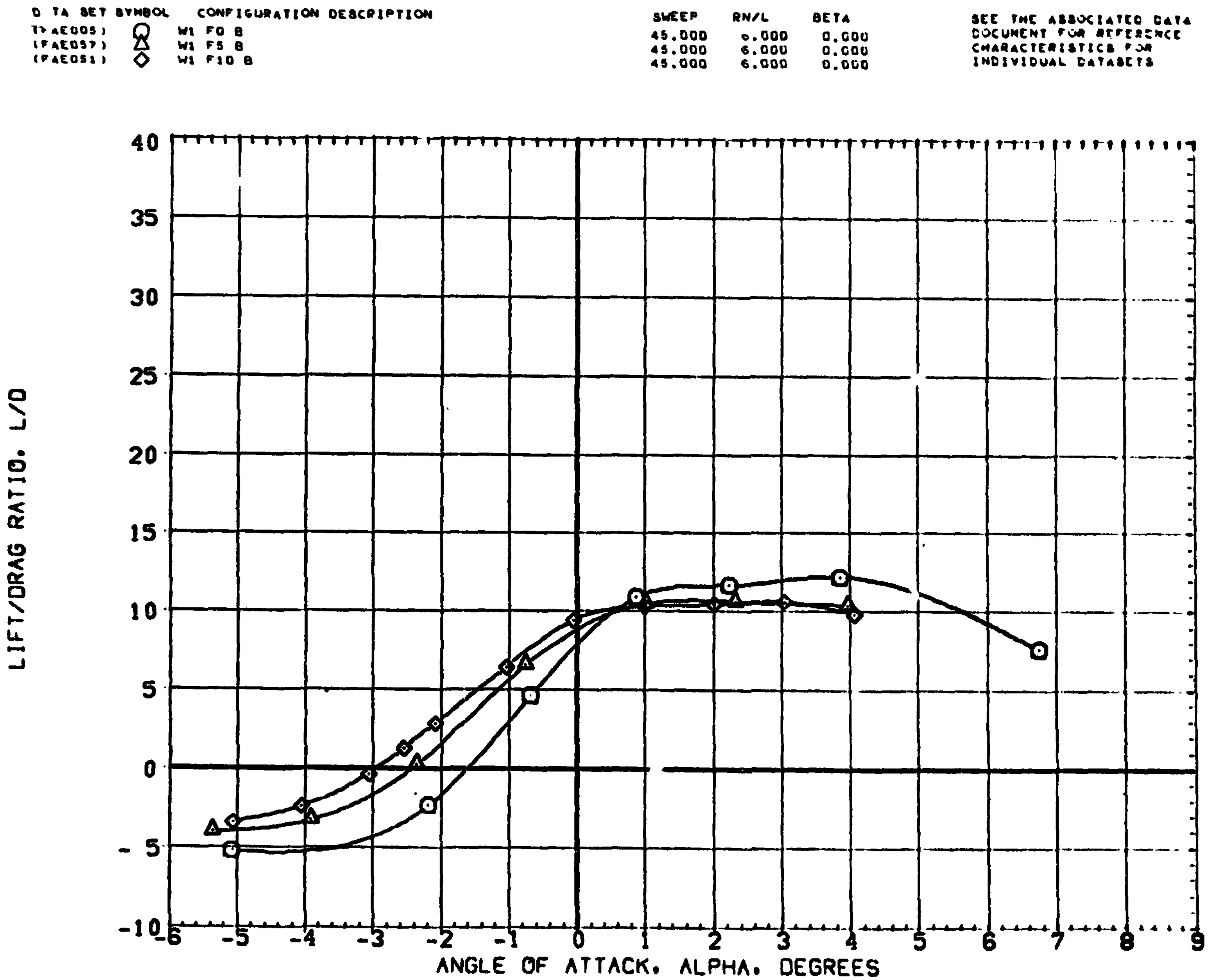


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

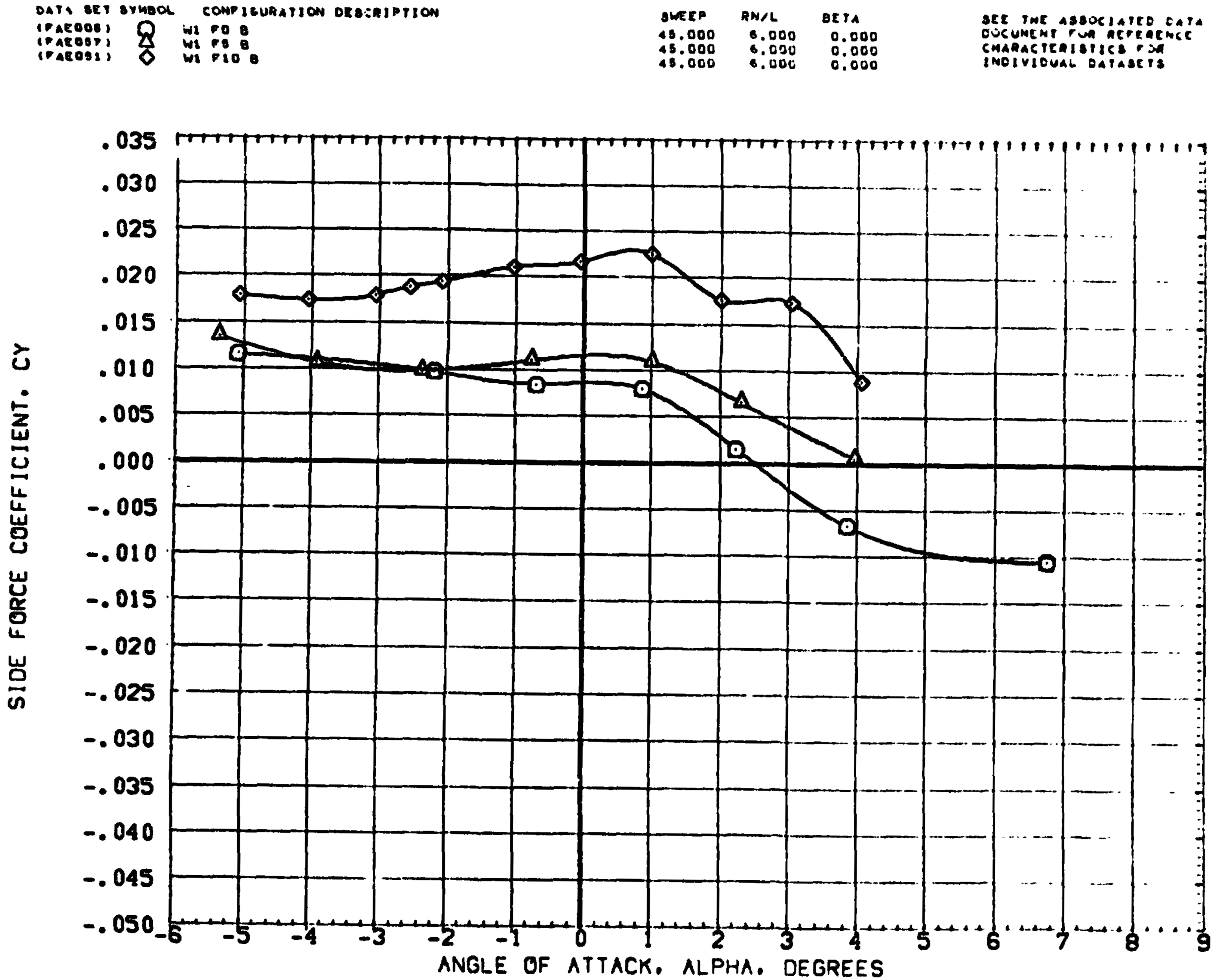


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES
(A)MACH = 1.05

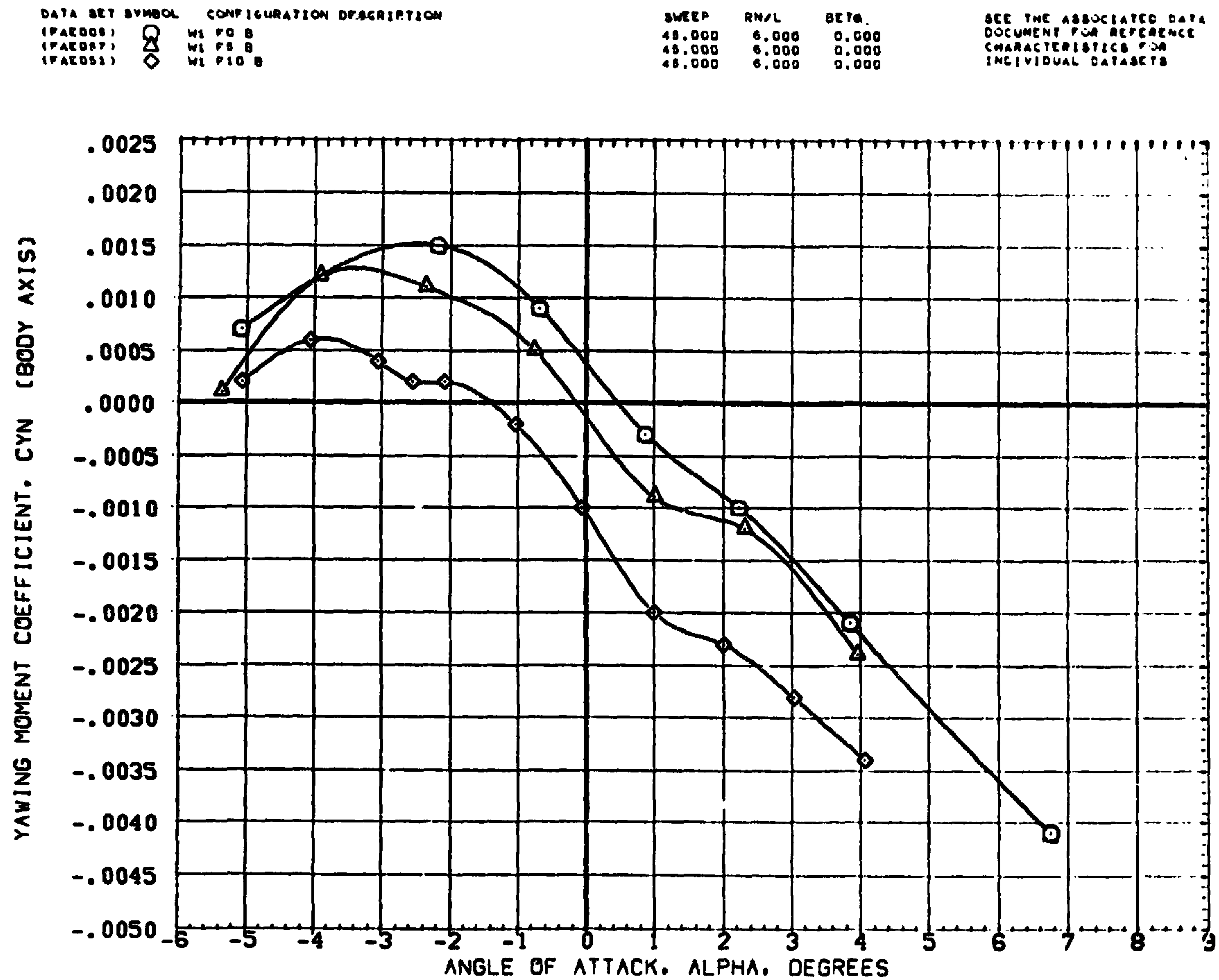


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

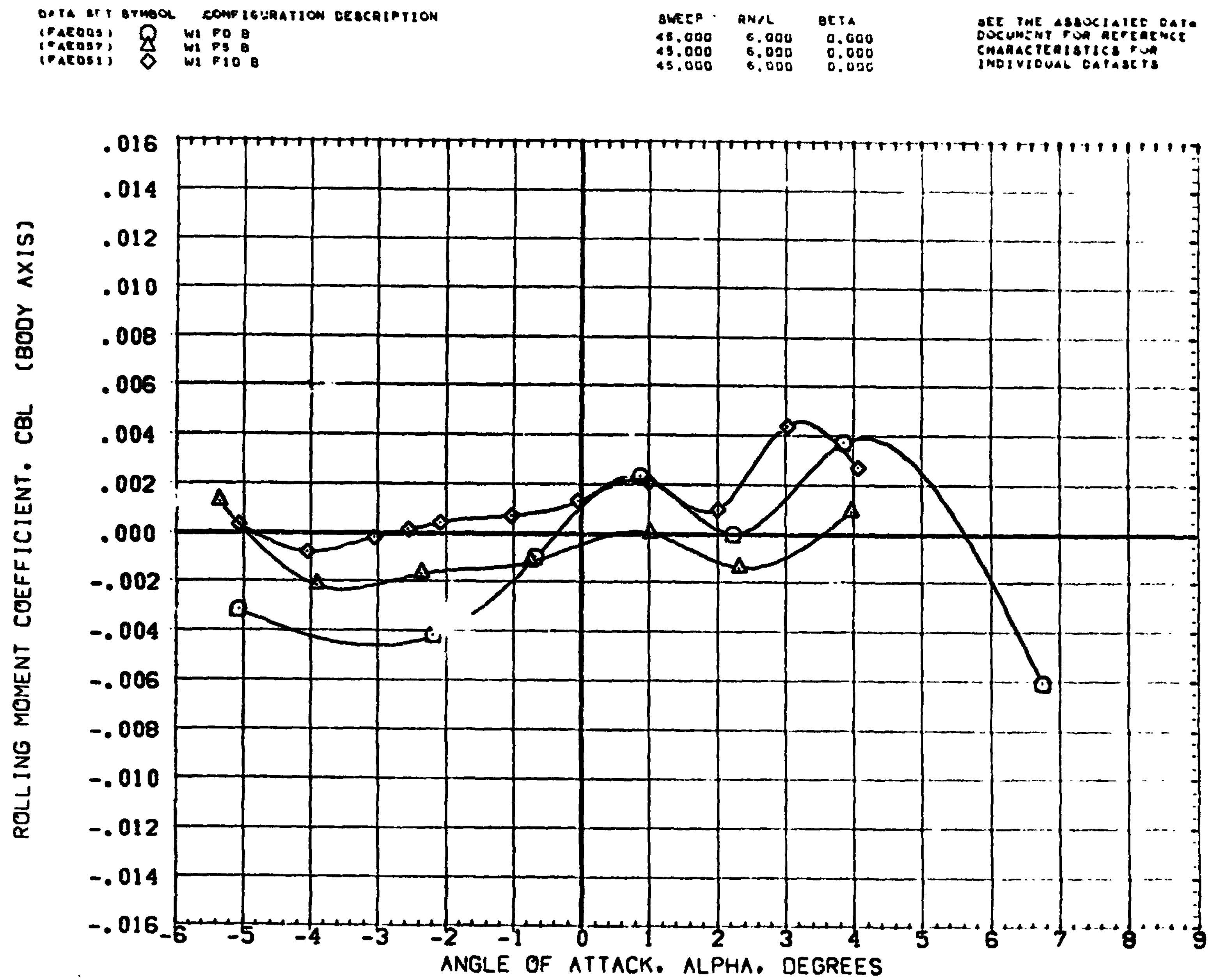


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.05, LAMBDA=45 DEGREES
(A)MACH = 1.05

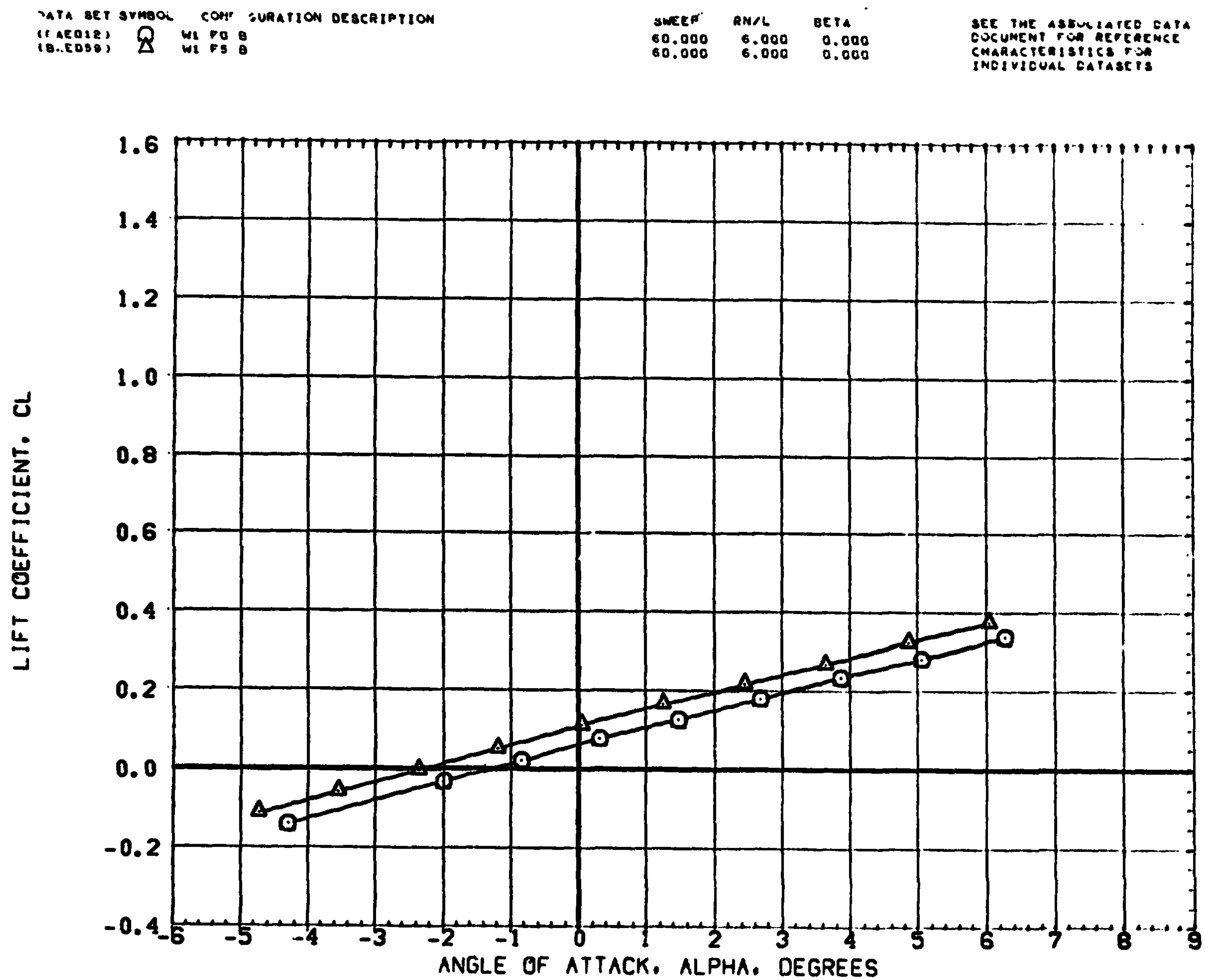


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

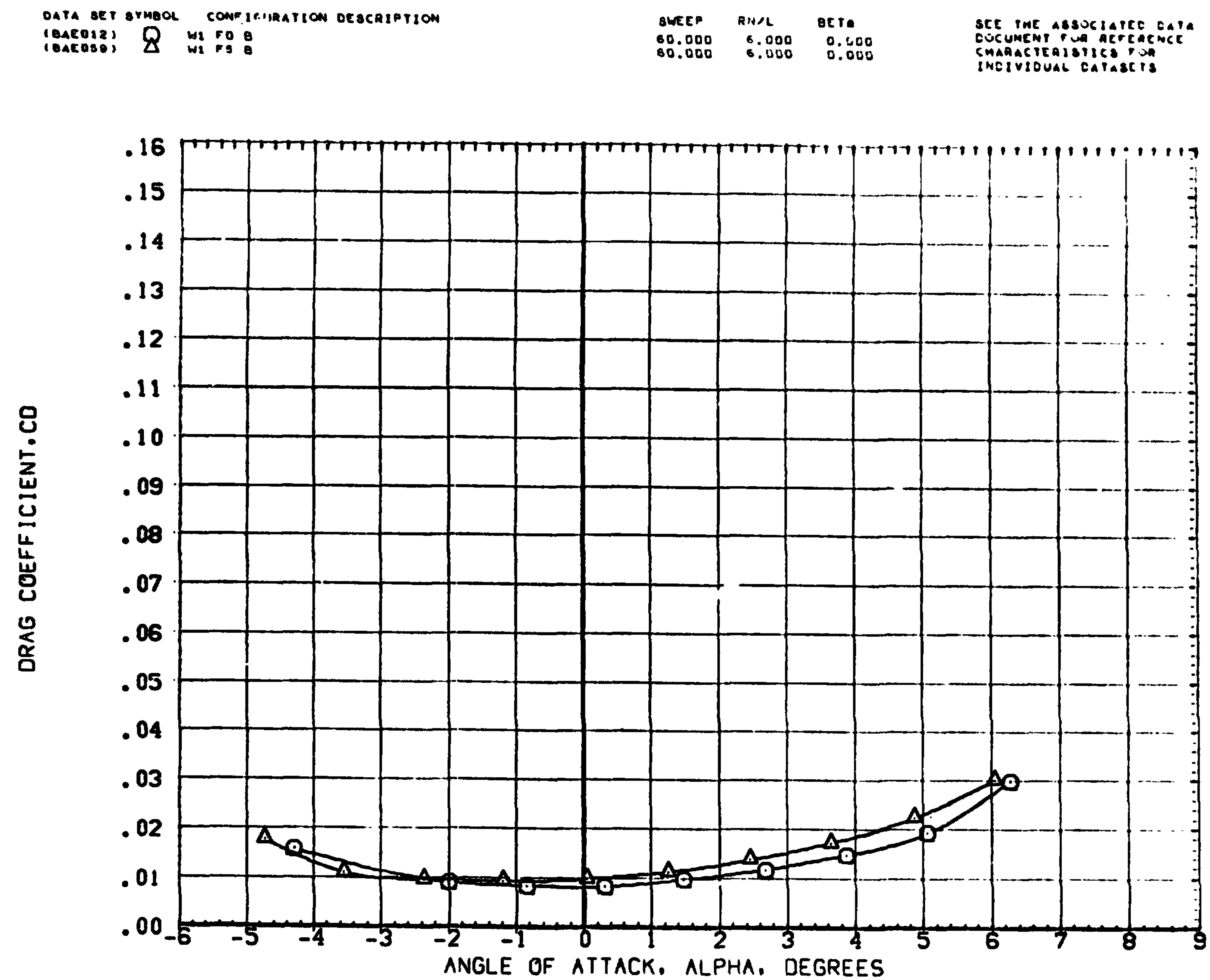


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

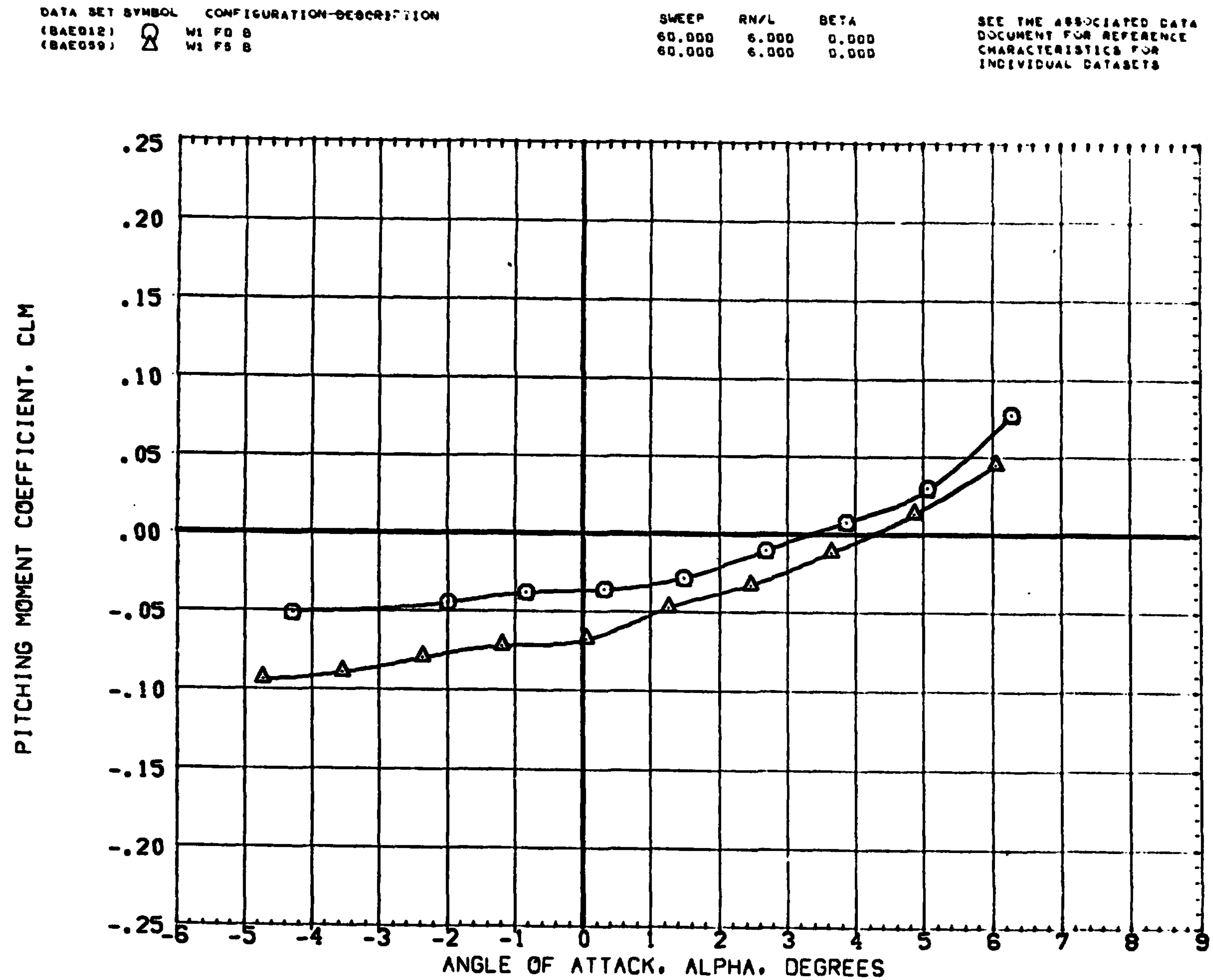


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE012)	○	W1 F0 B	60.000	6.000	0.000
(BAE059)	△	W1 F5 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

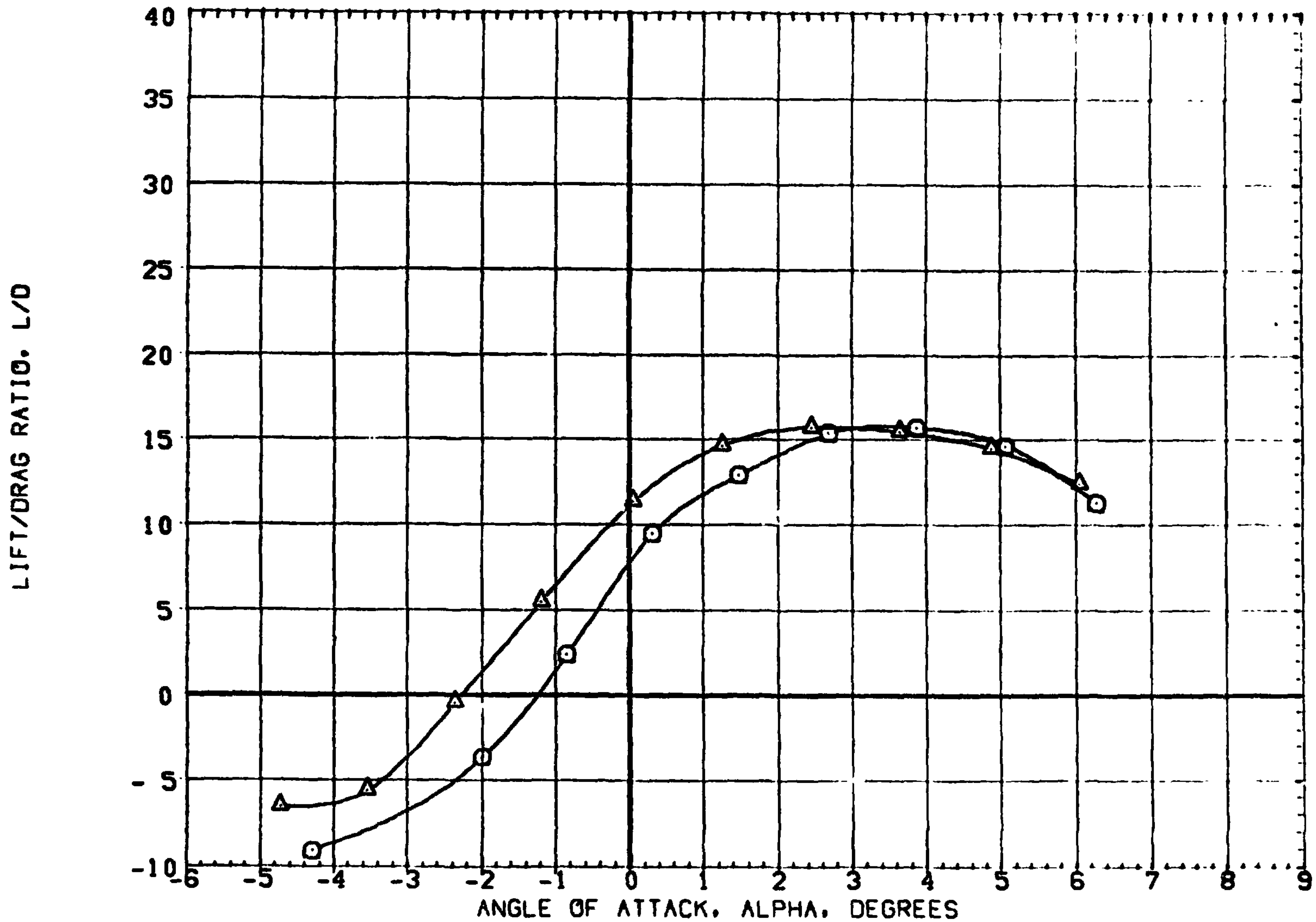


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

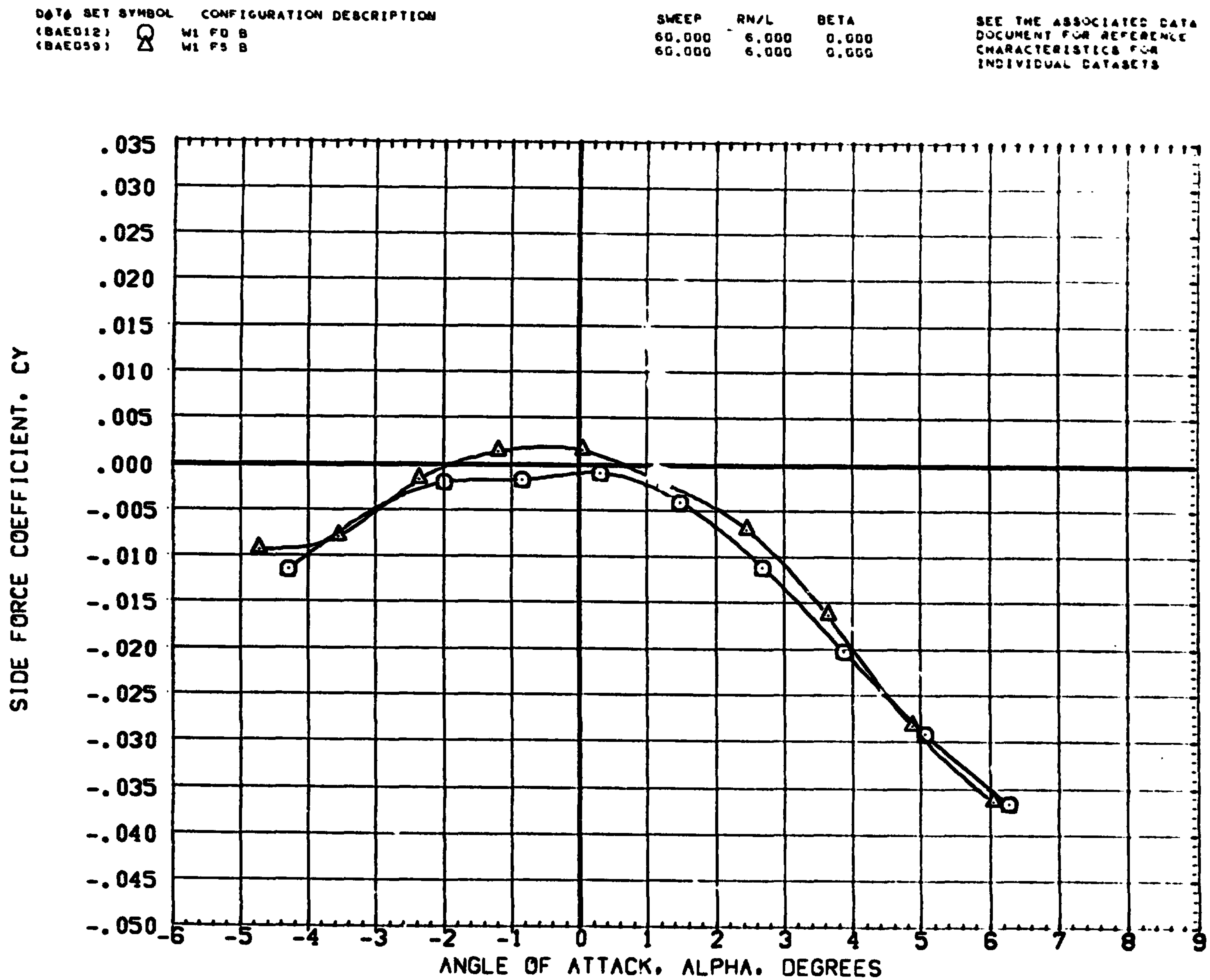


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

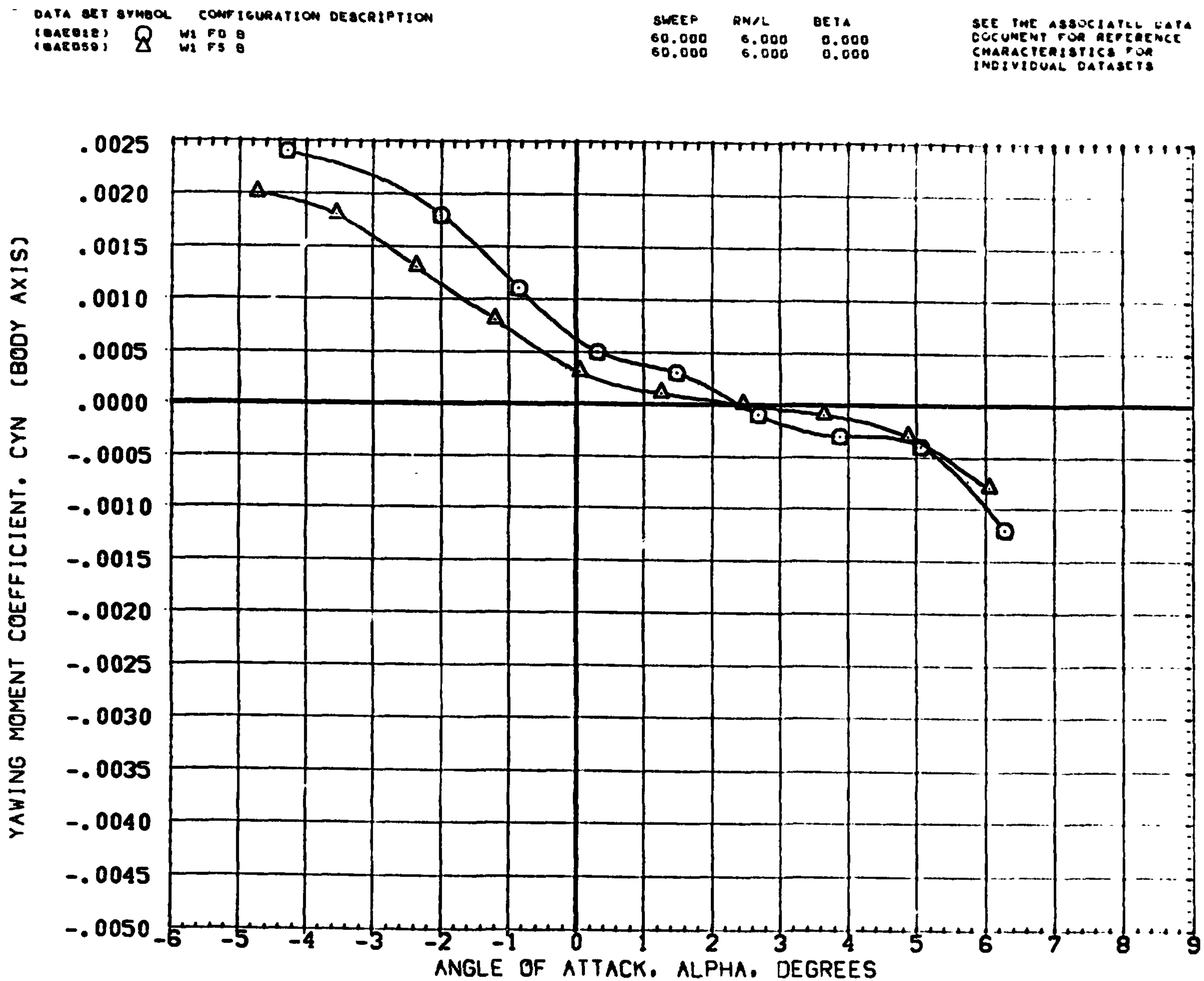


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

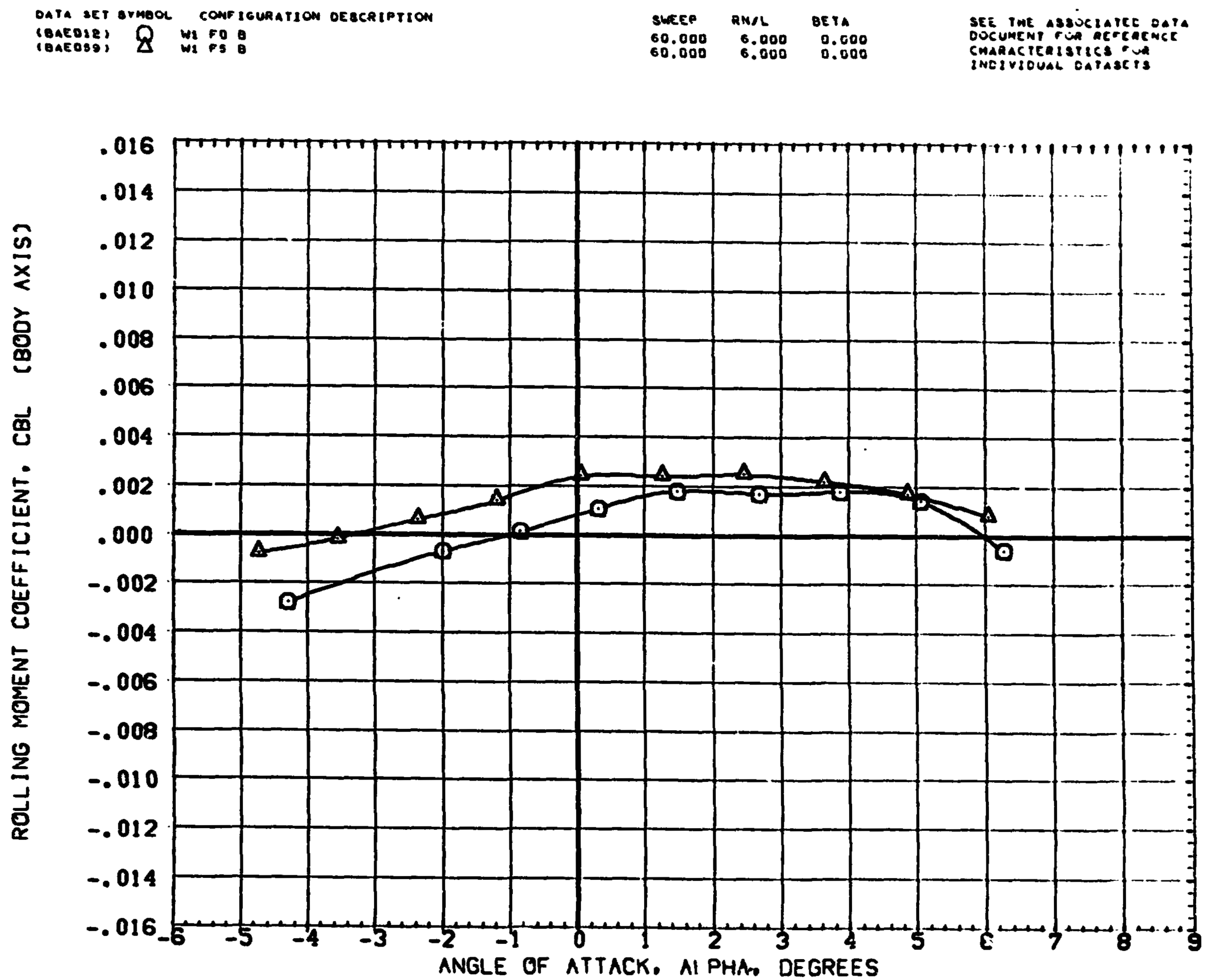


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE012)	○	W1 F0 B	60.000	6.000	0.000
(DAE059)	△	W1 FC B	60.000	6.000	0.000
(DAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

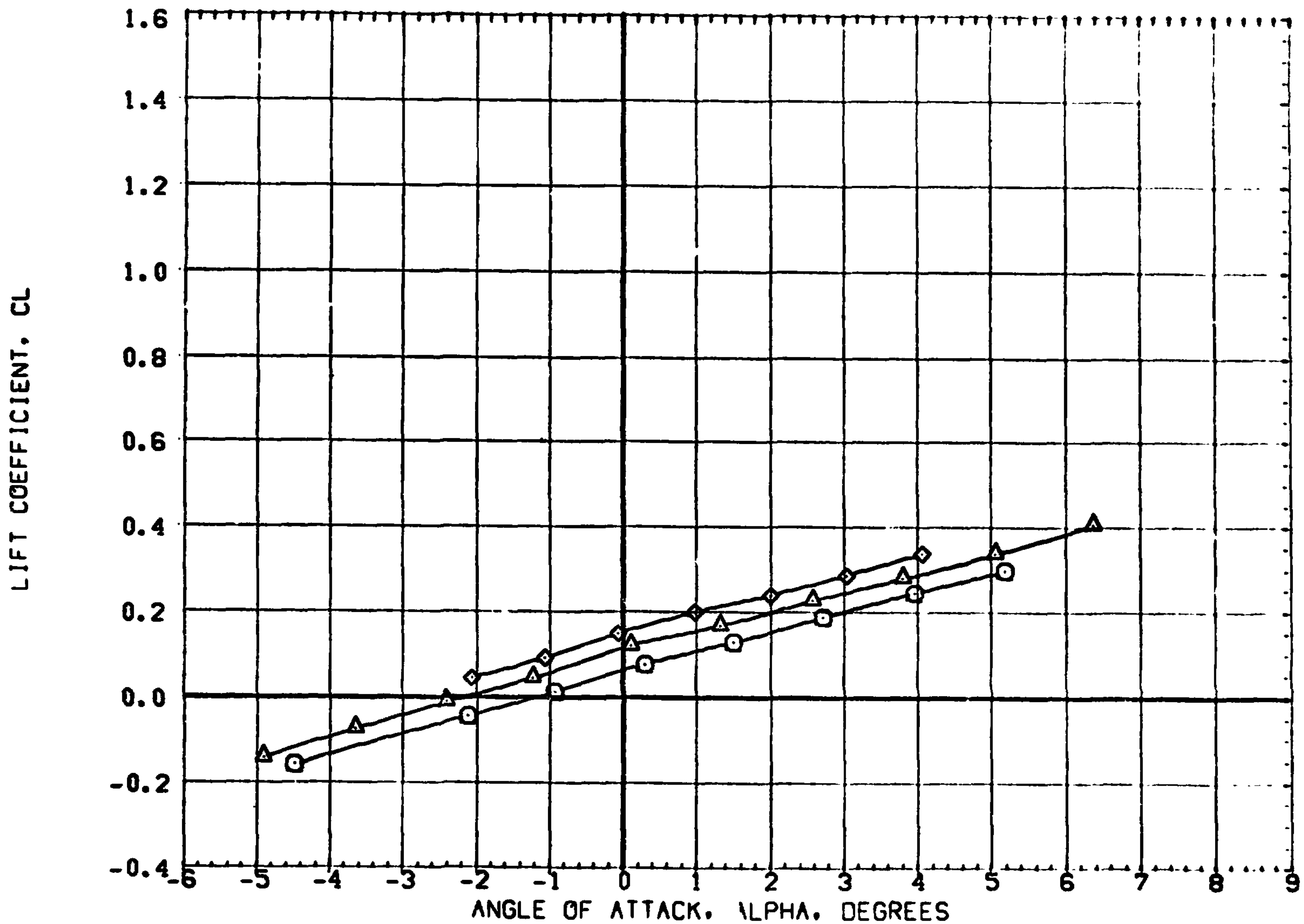


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

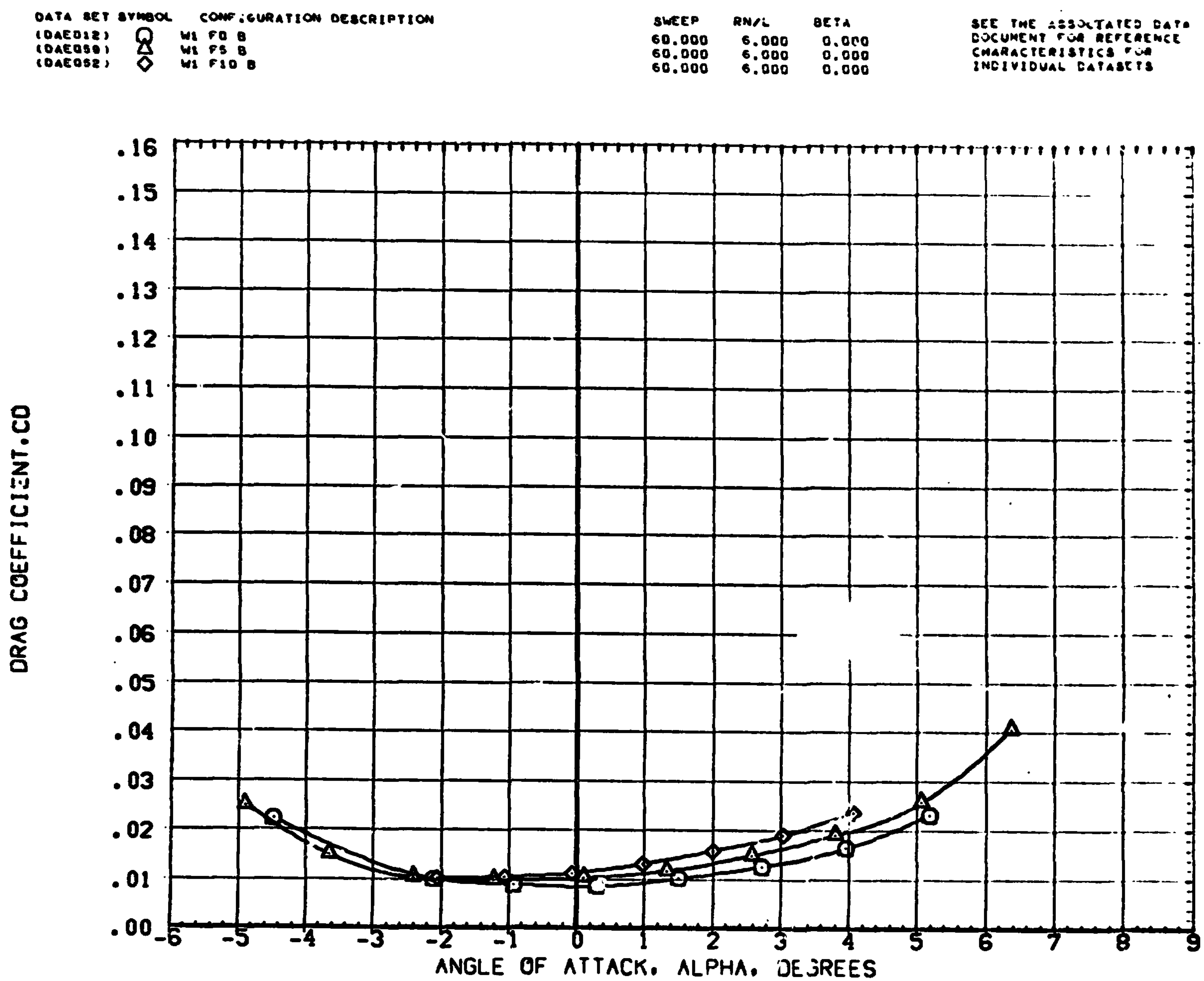


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES
(A)MACH = .95

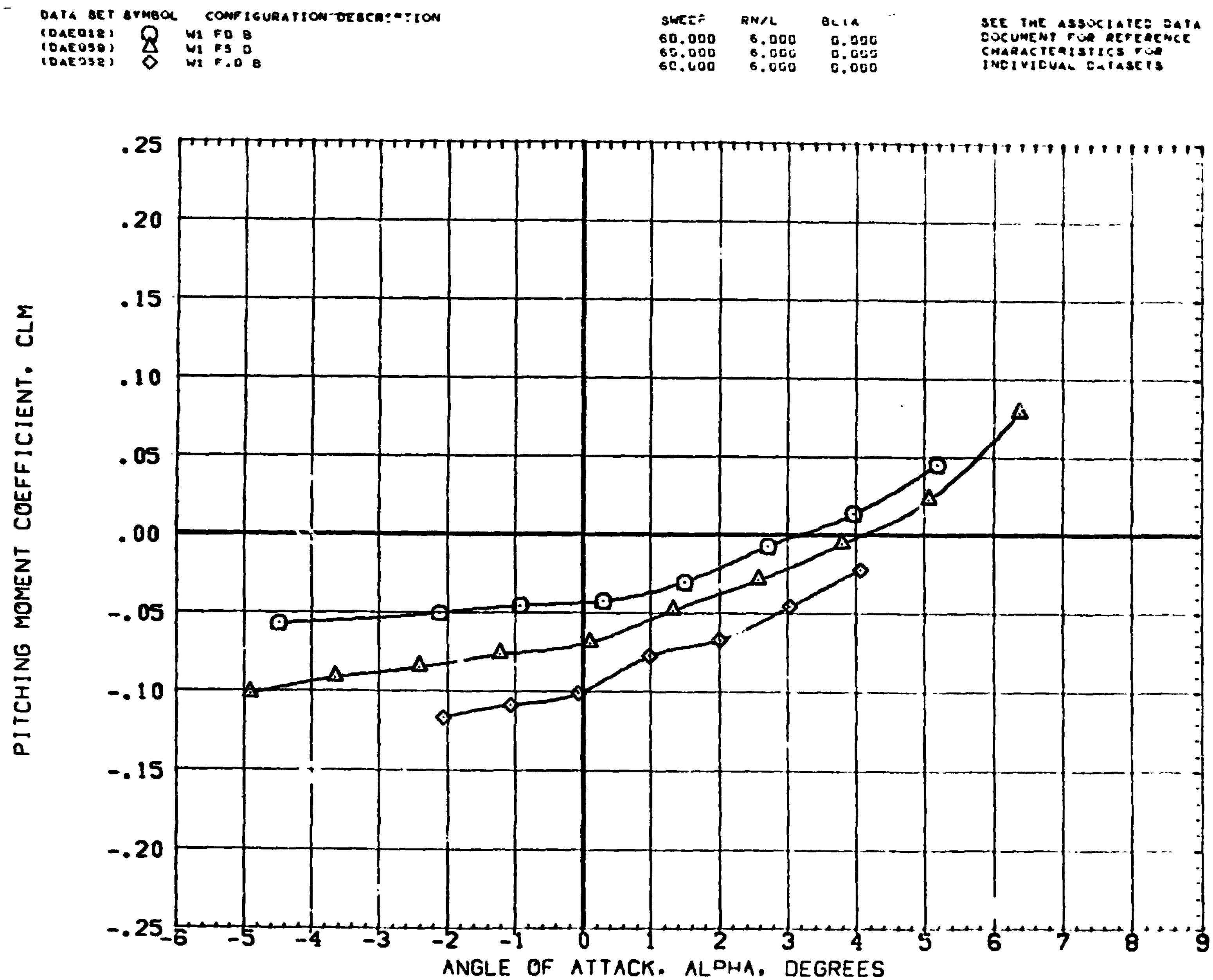


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE012)	○	W1 F0 B	60.000	6.000	0.000
(DAE059)	△	W1 F5 B	60.000	6.000	0.000
(DAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

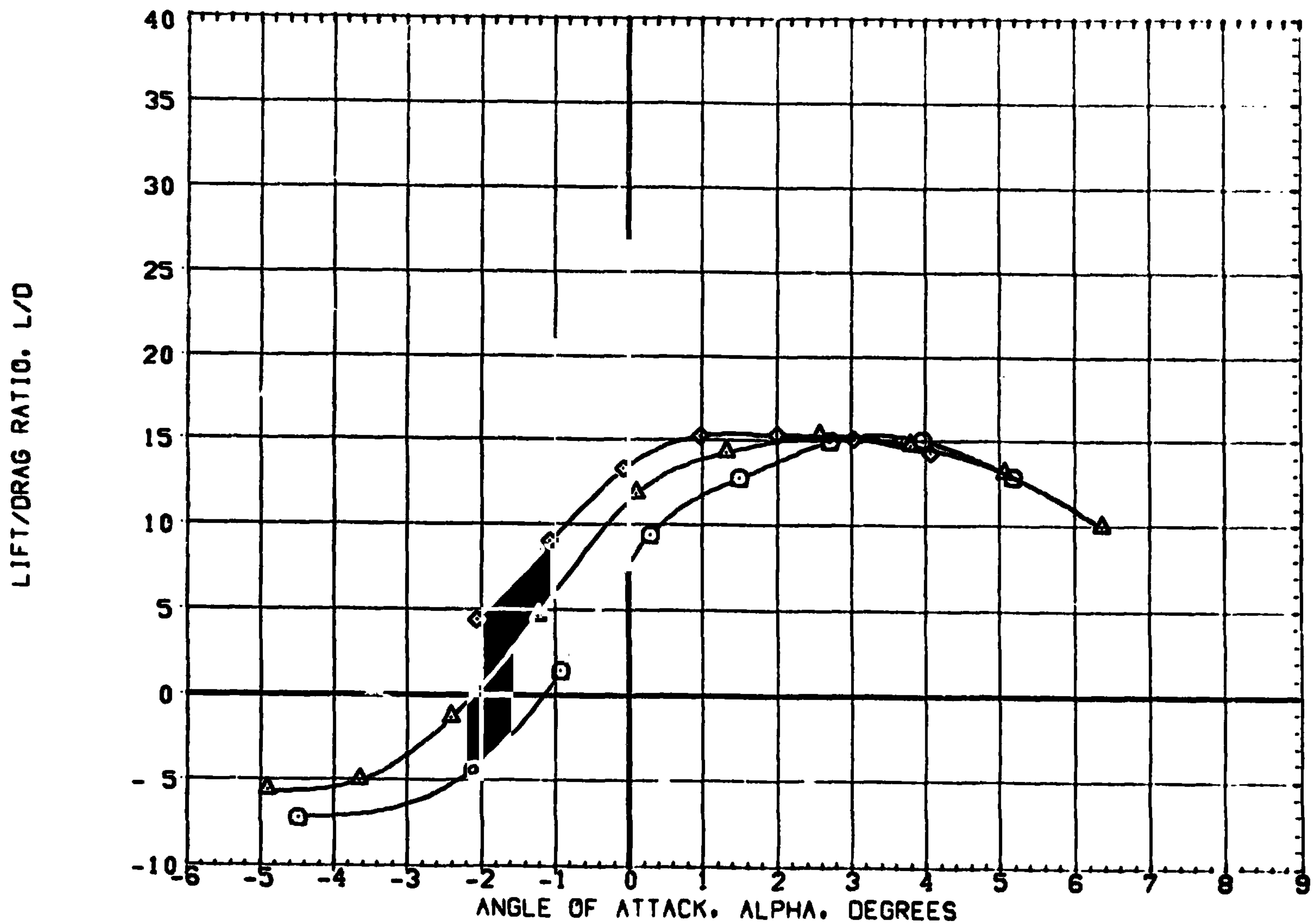


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

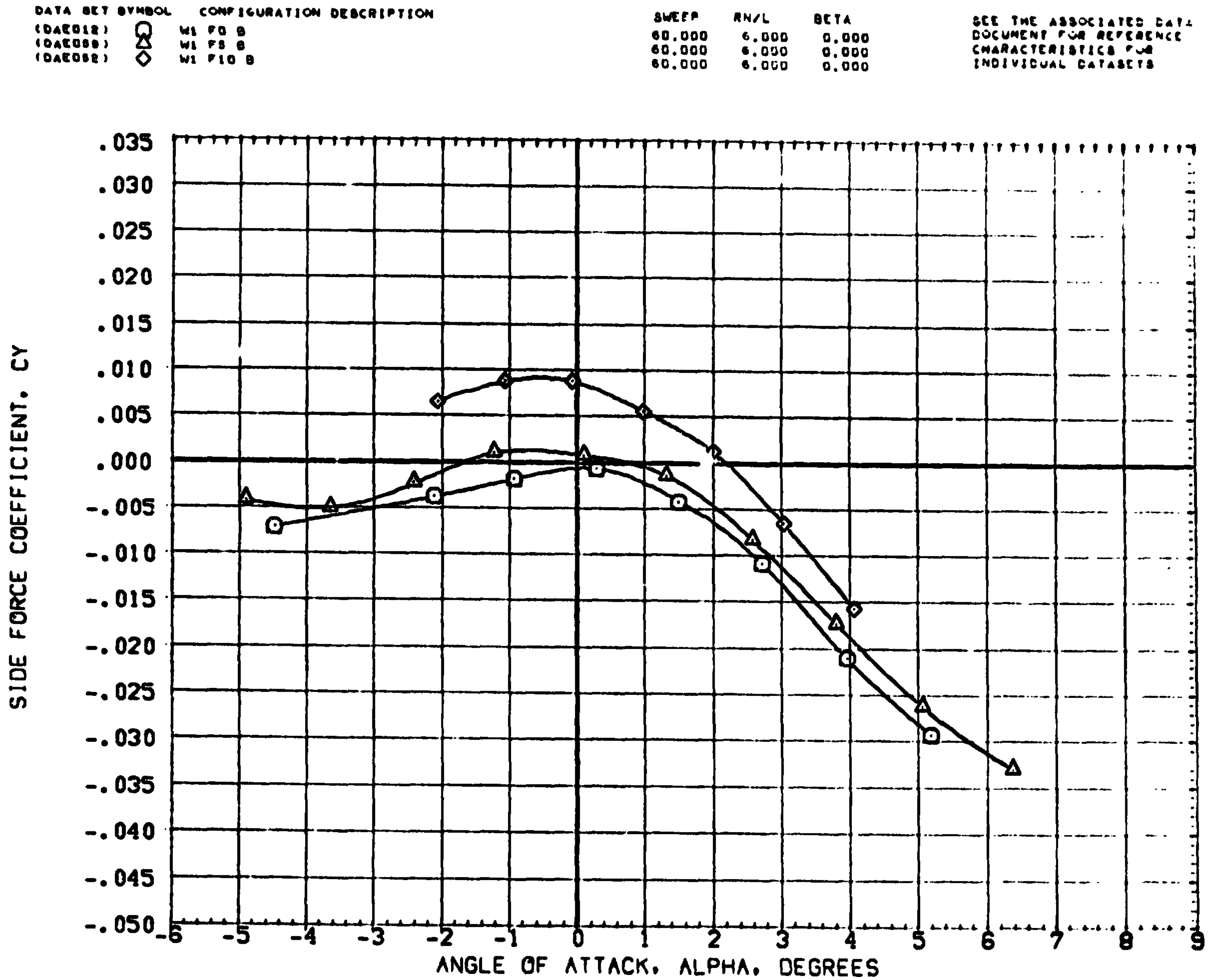


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE012)	○	W1 F0 B	60.000	6.000	0.000
(DAE059)	△	W1 F5 B	60.000	6.000	0.000
(DAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

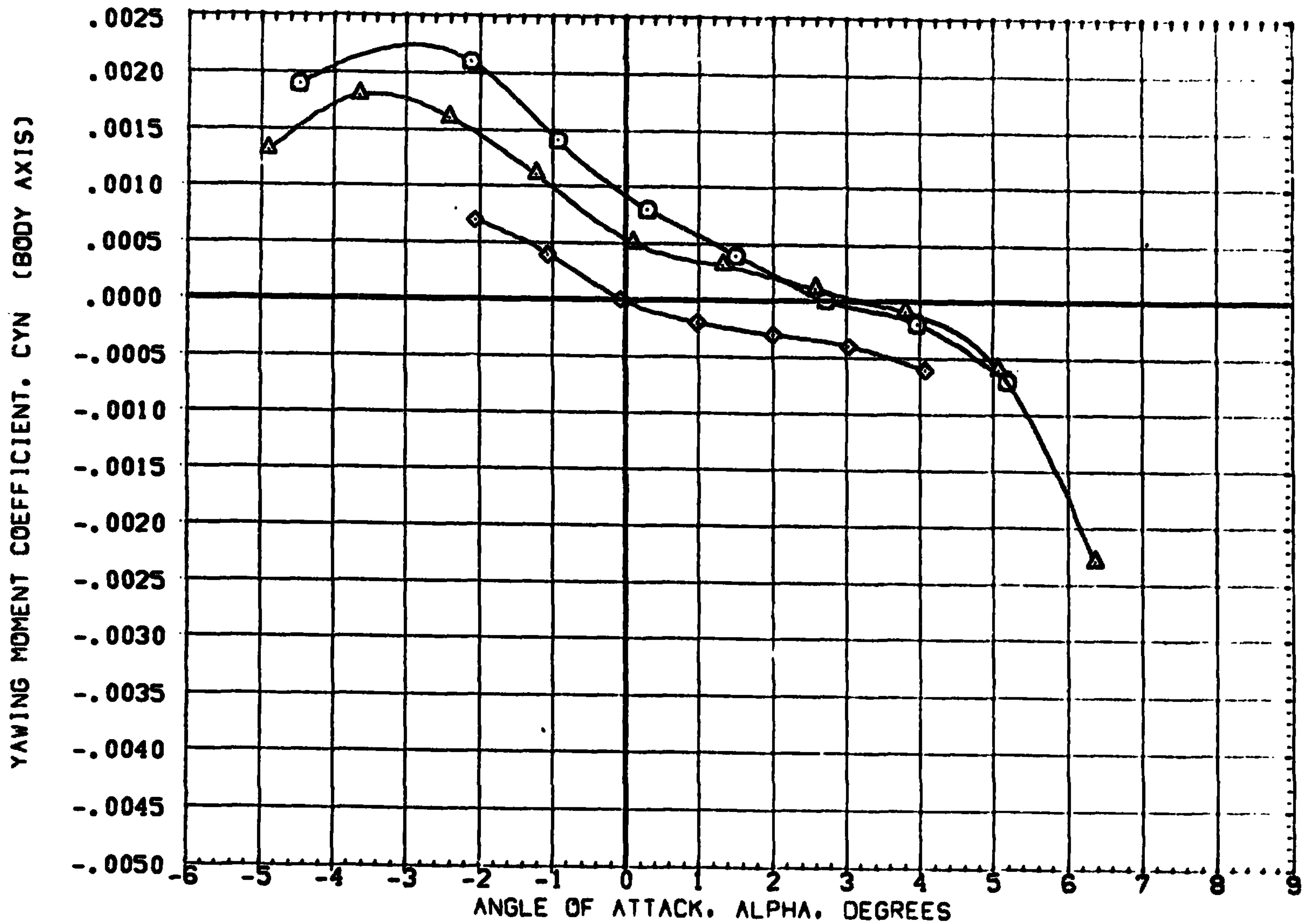


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE012)	○	W1 F0 B	60.000	6.000	0.000
(DAE059)	△	W1 F5 B	60.000	6.000	0.000
(DAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

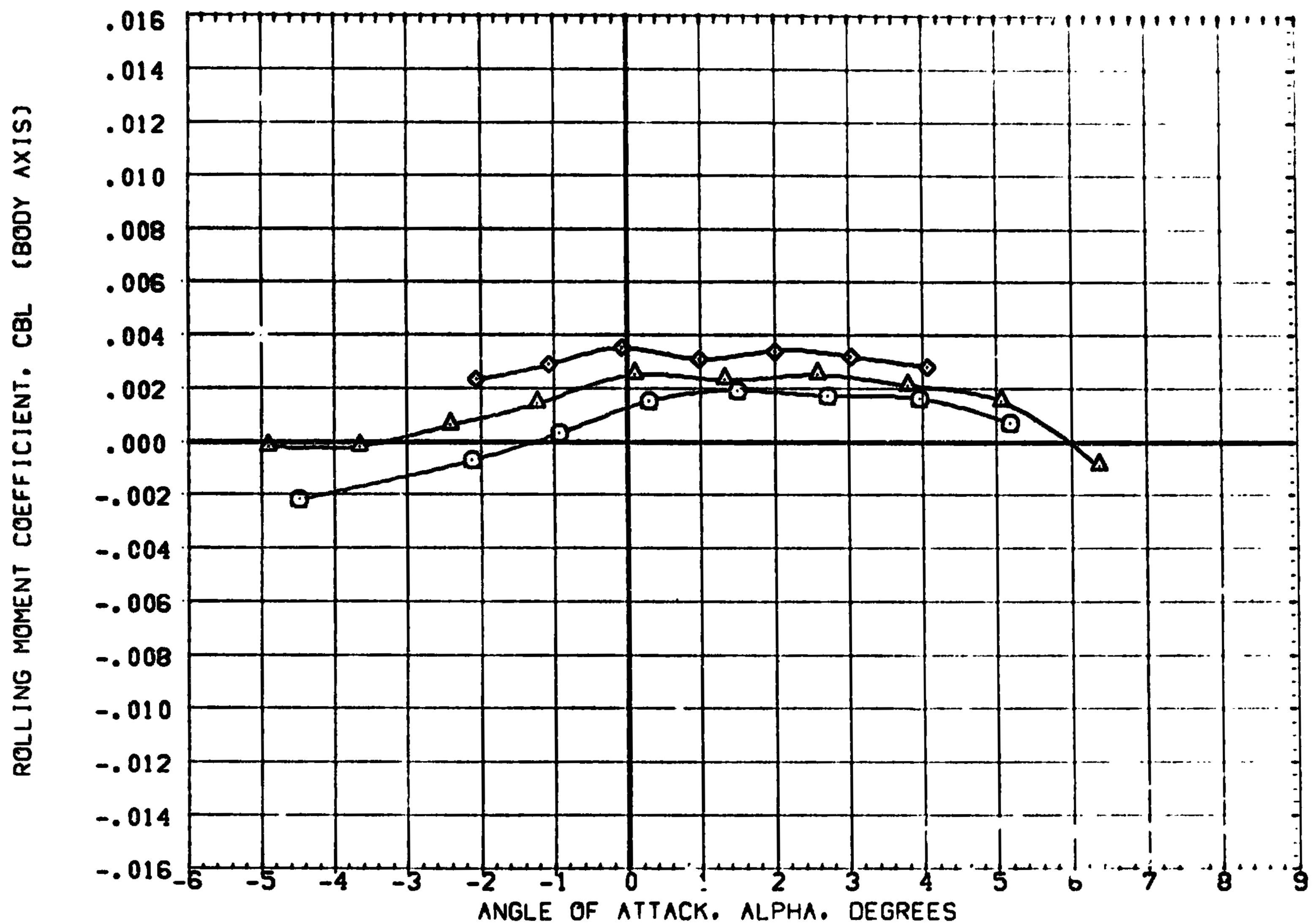


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

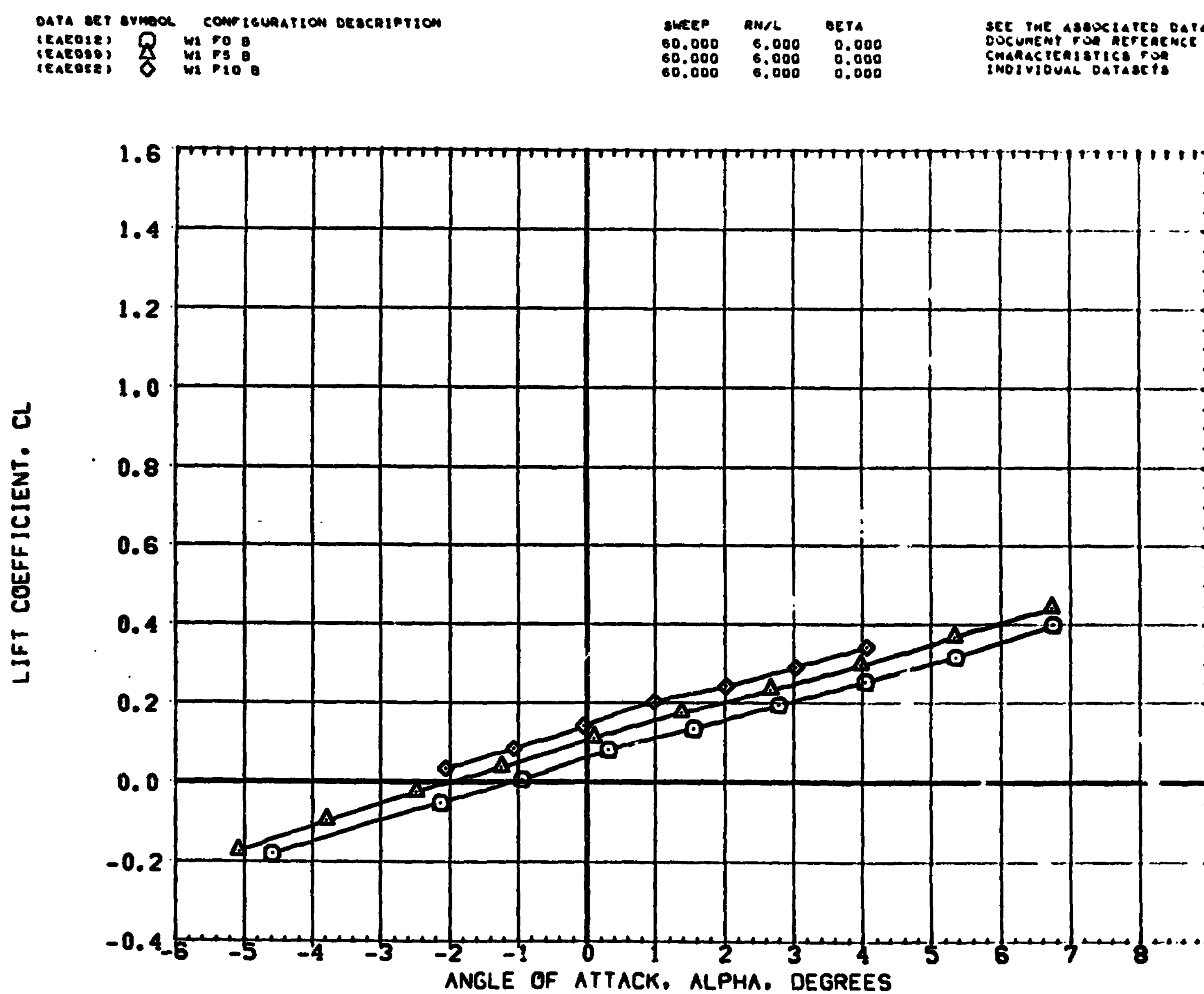


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

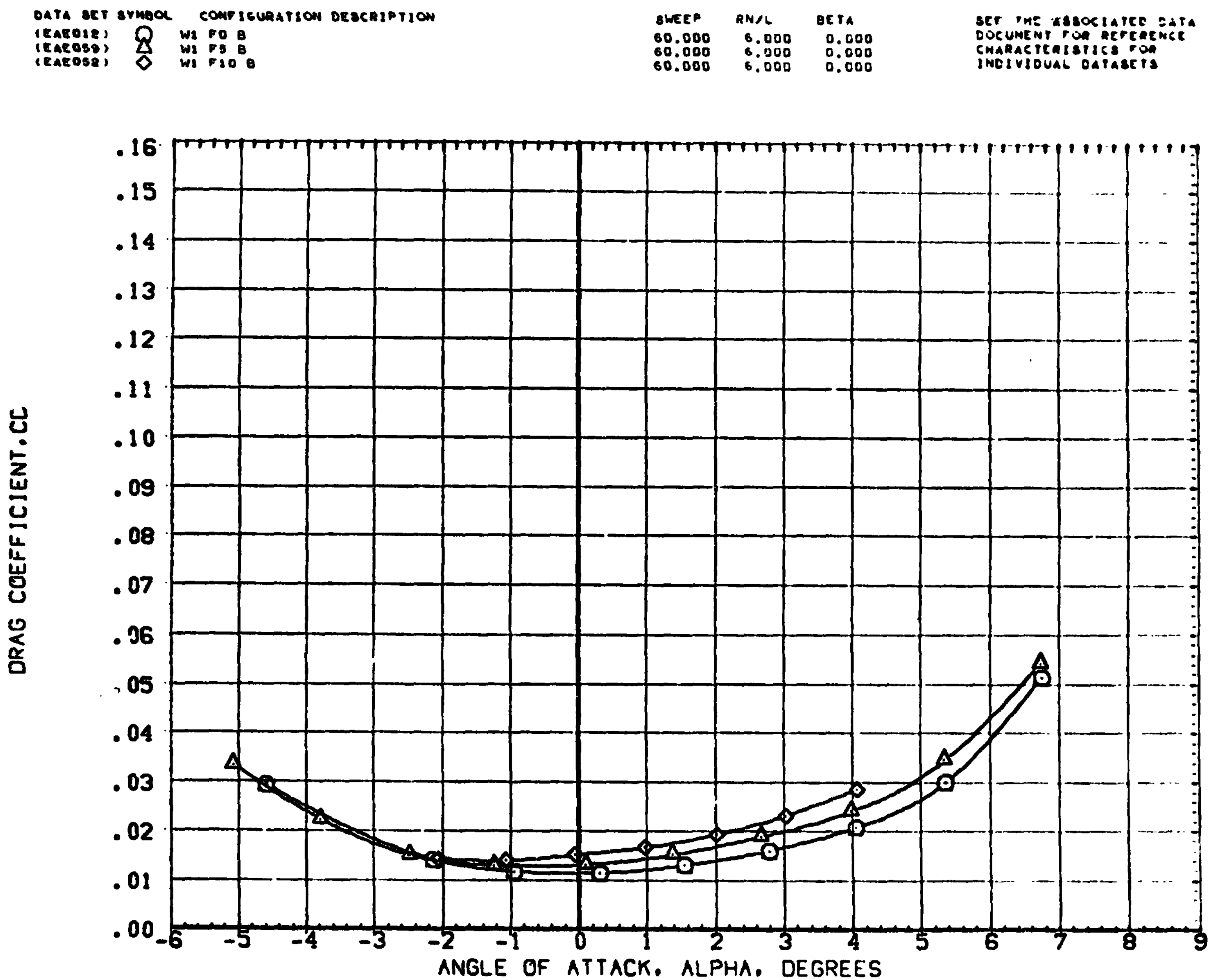


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

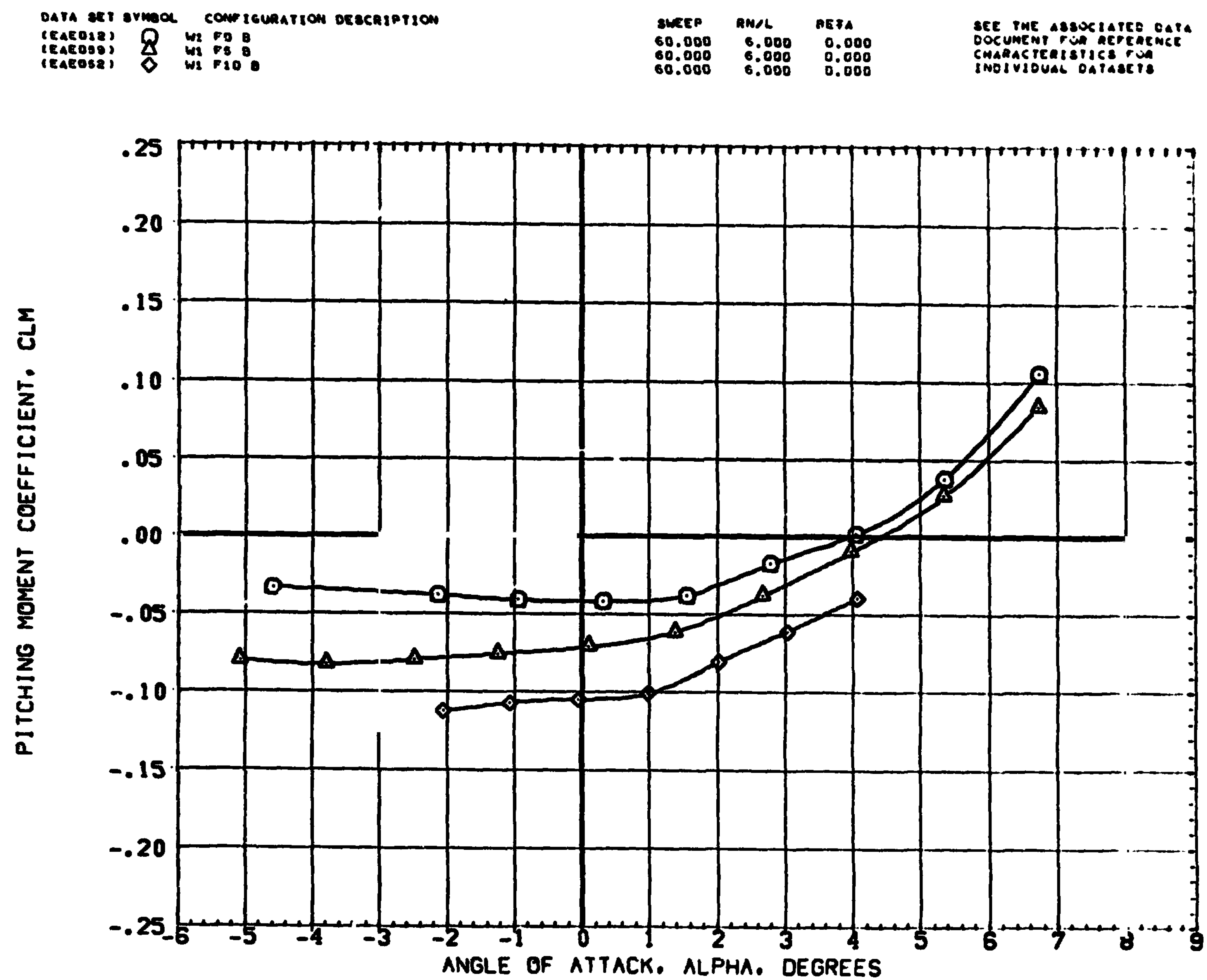


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

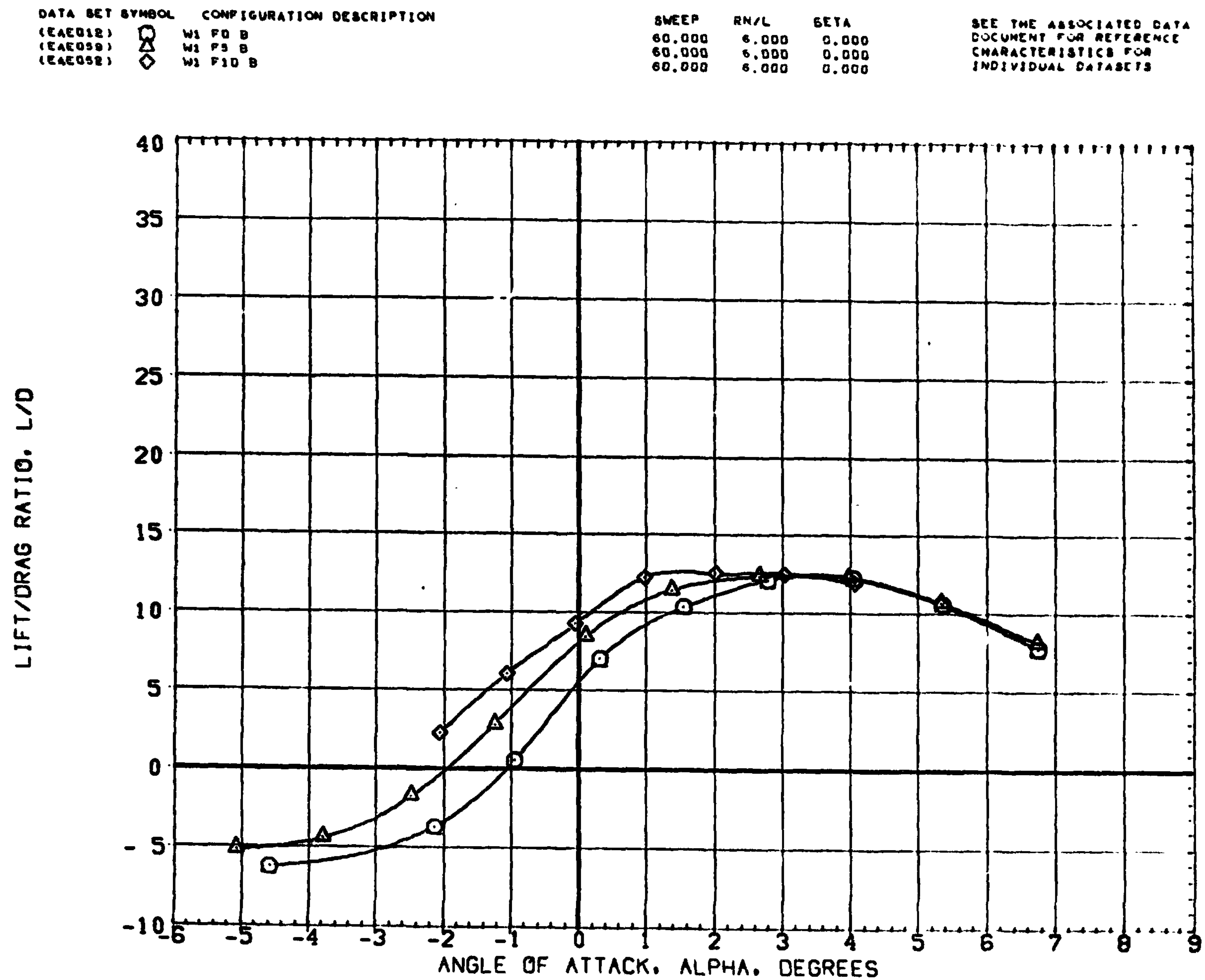


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

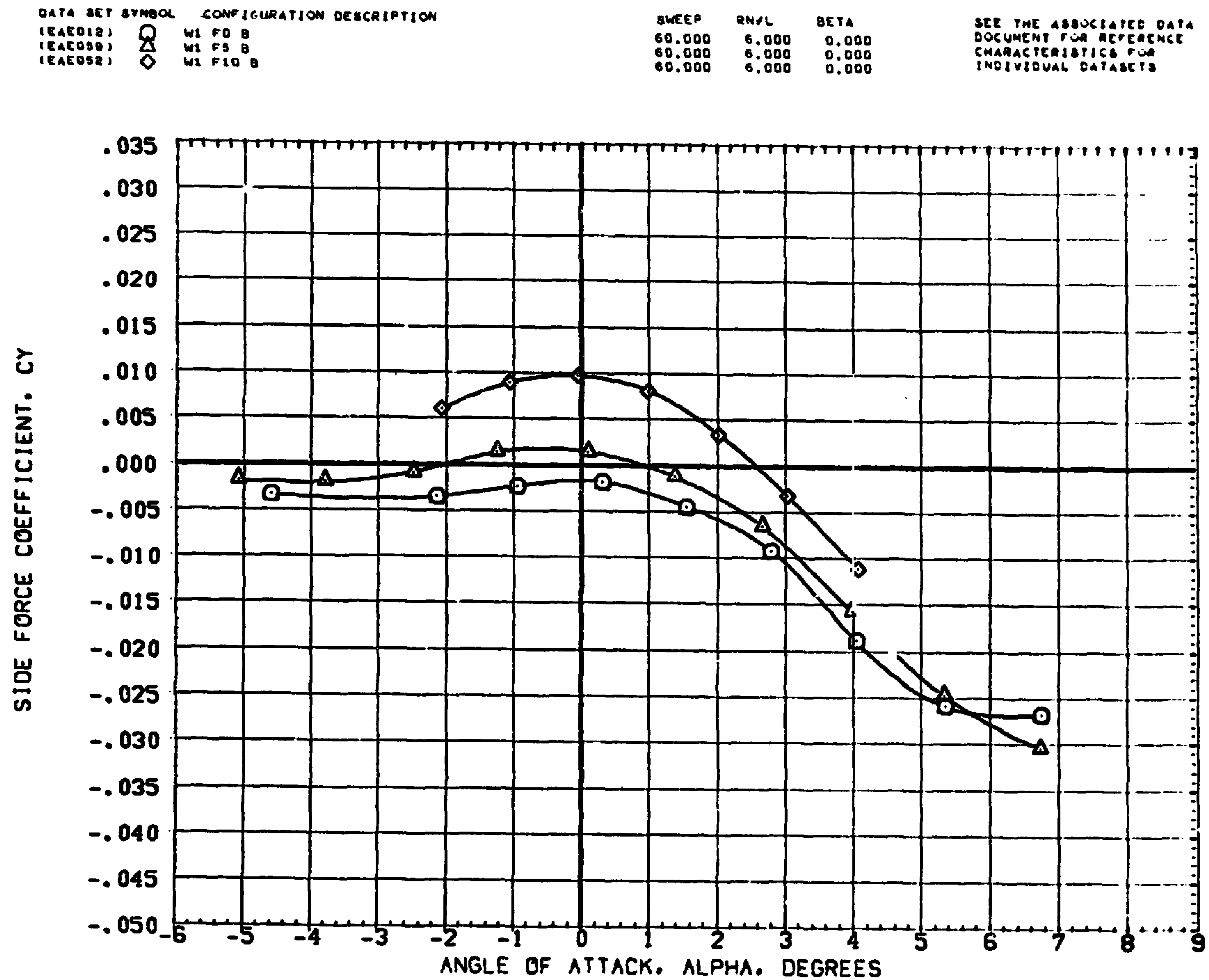


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE012)	○	W1 F0 B	60.000	6.000	0.000
(EAE059)	△	W1 F5 B	60.000	6.000	0.000
(EAE092)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

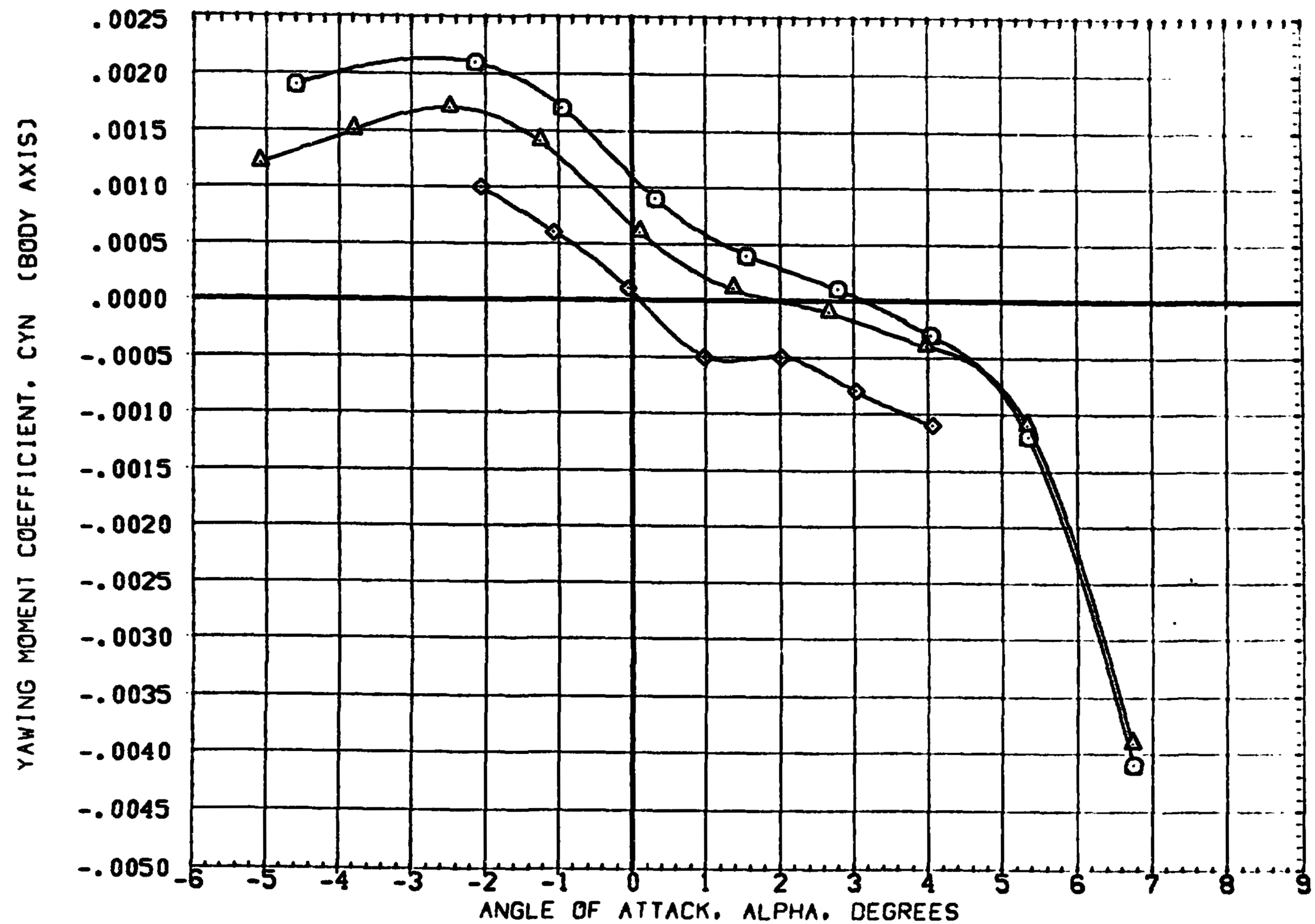


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

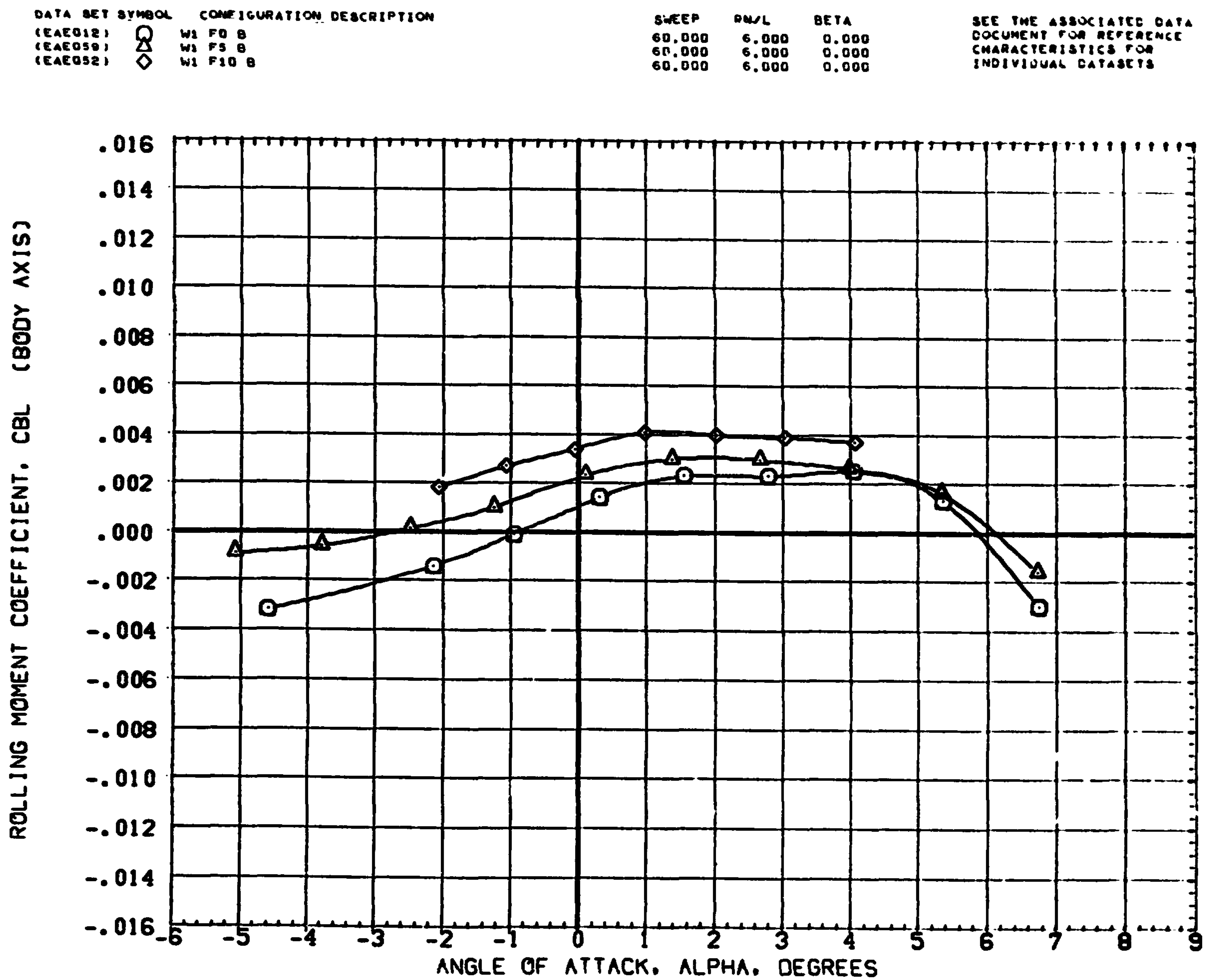


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

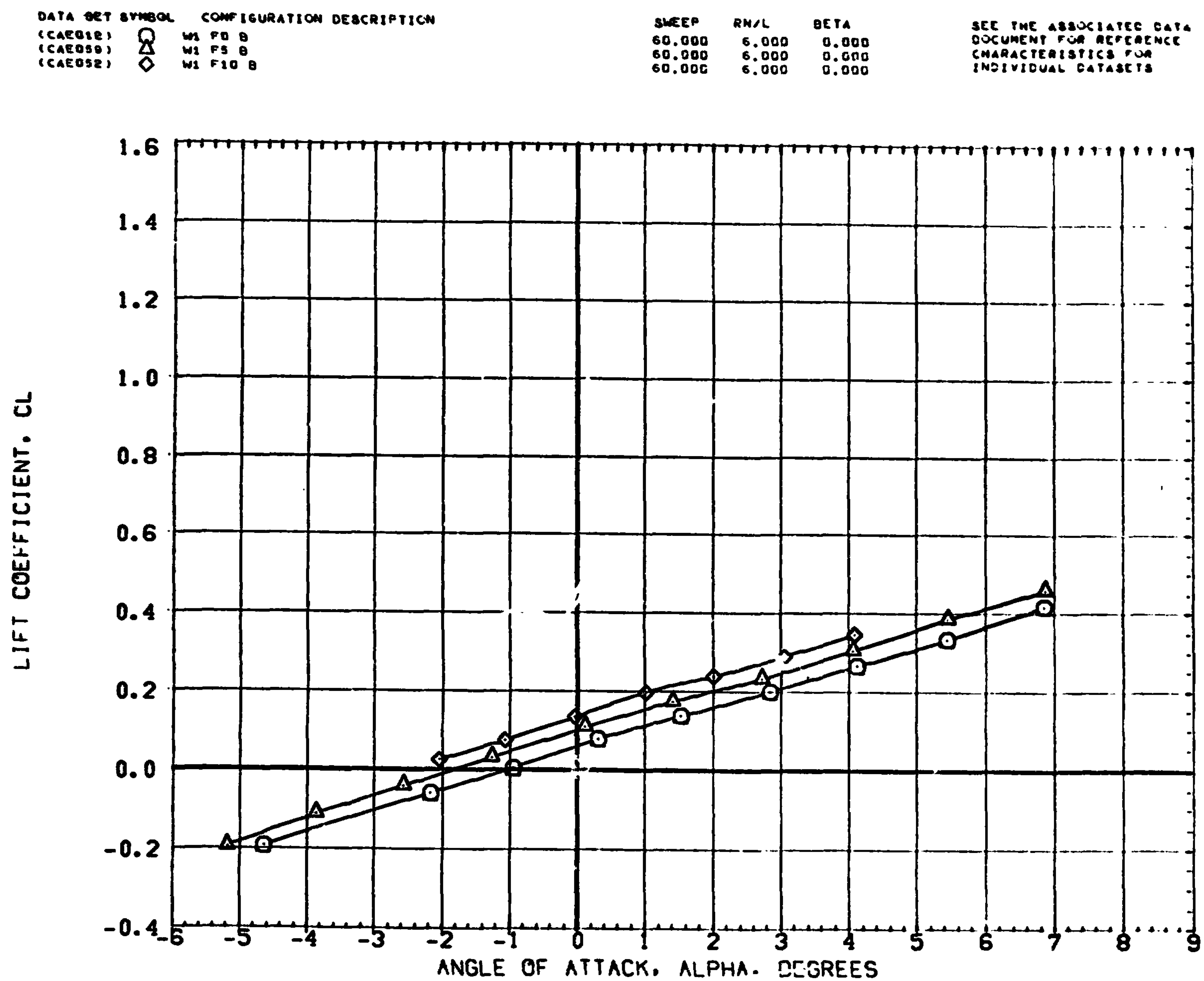


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

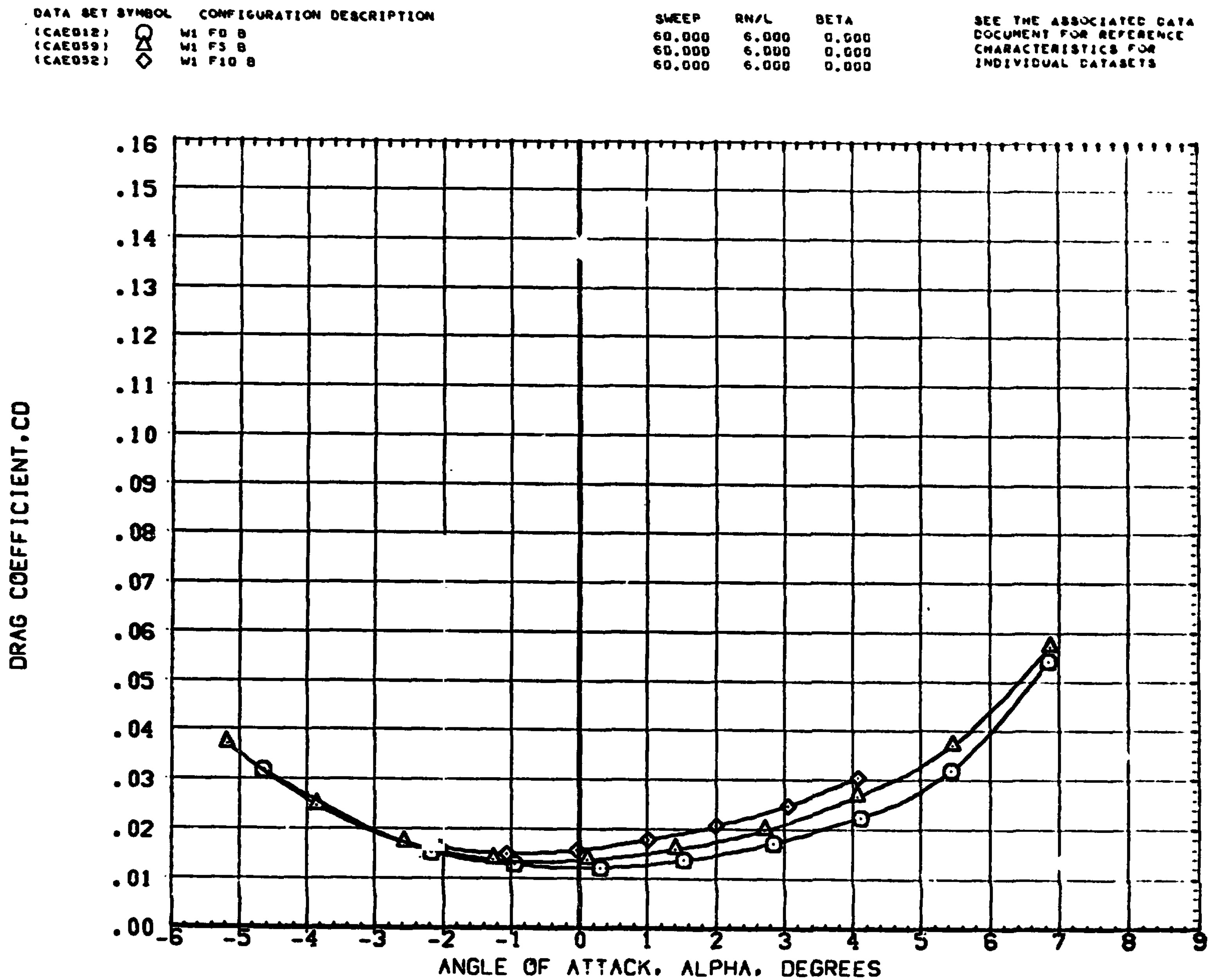


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE012)	○	W1 F0 B	60.000	6.000	0.000
(CAE059)	△	W1 F5 B	60.000	6.000	0.000
(CAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

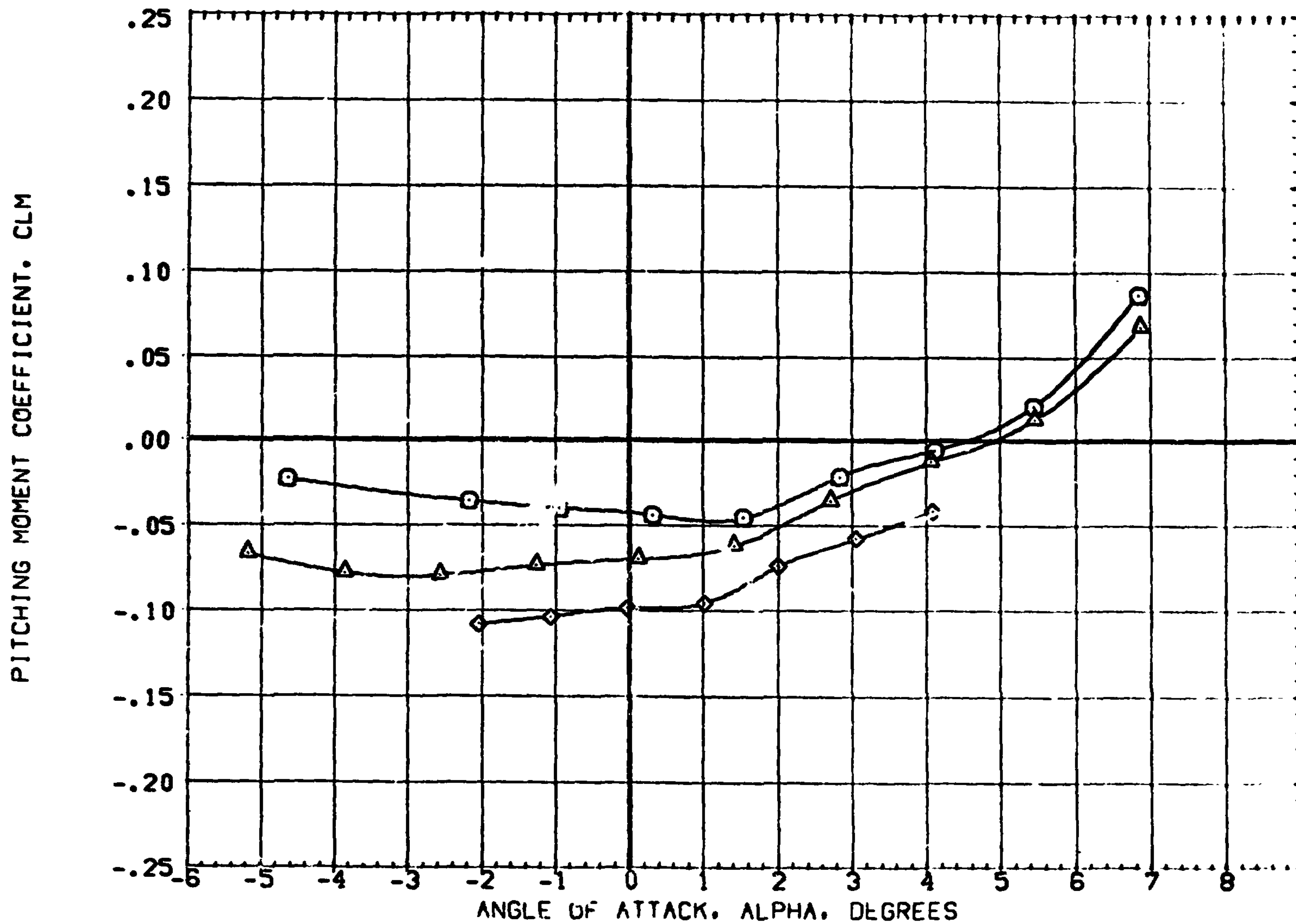


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE012)	○	W1 F0 B	60.000	6.000	0.000
(CAE059)	△	W1 F5 B	60.000	6.000	0.000
(CAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

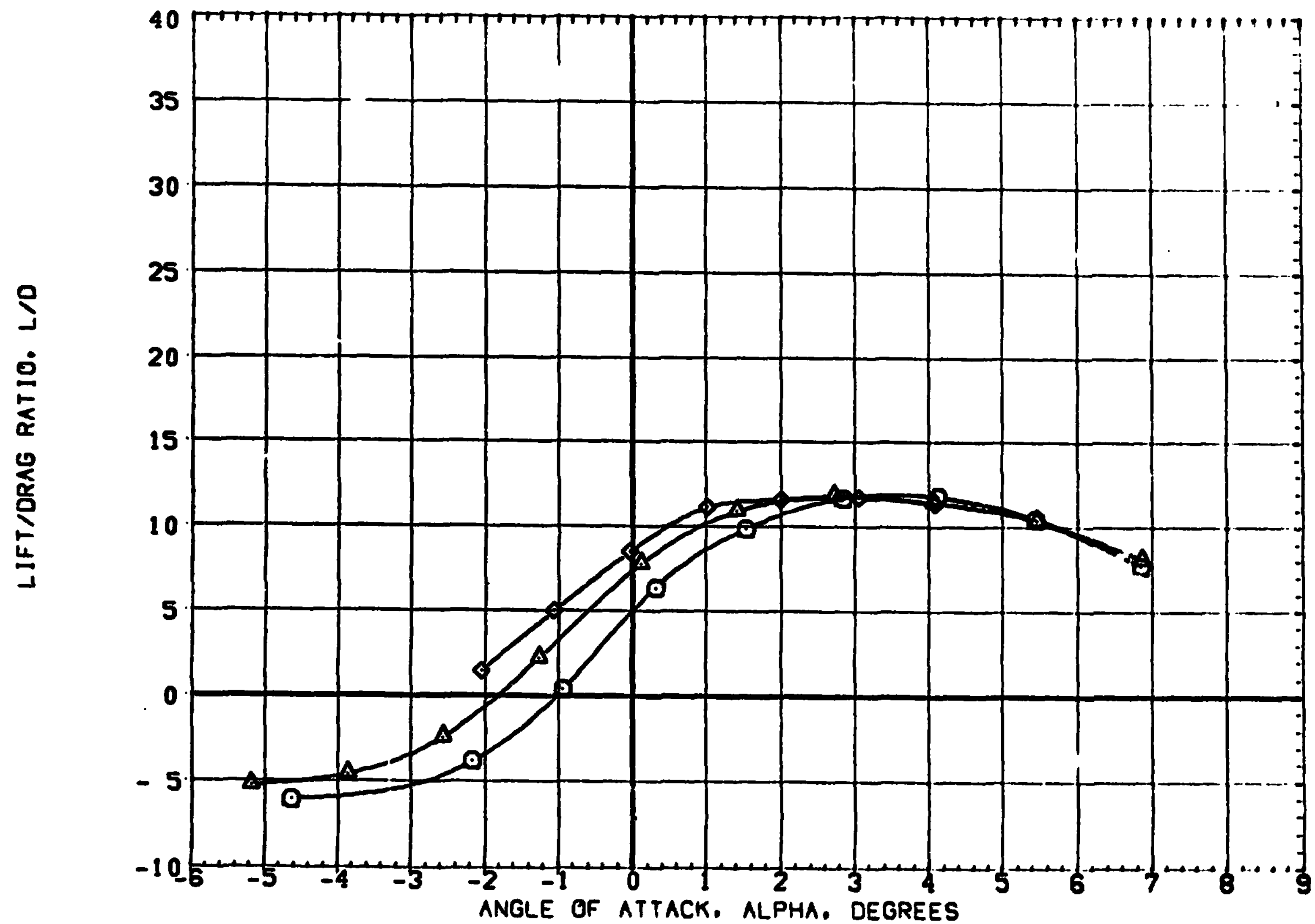


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

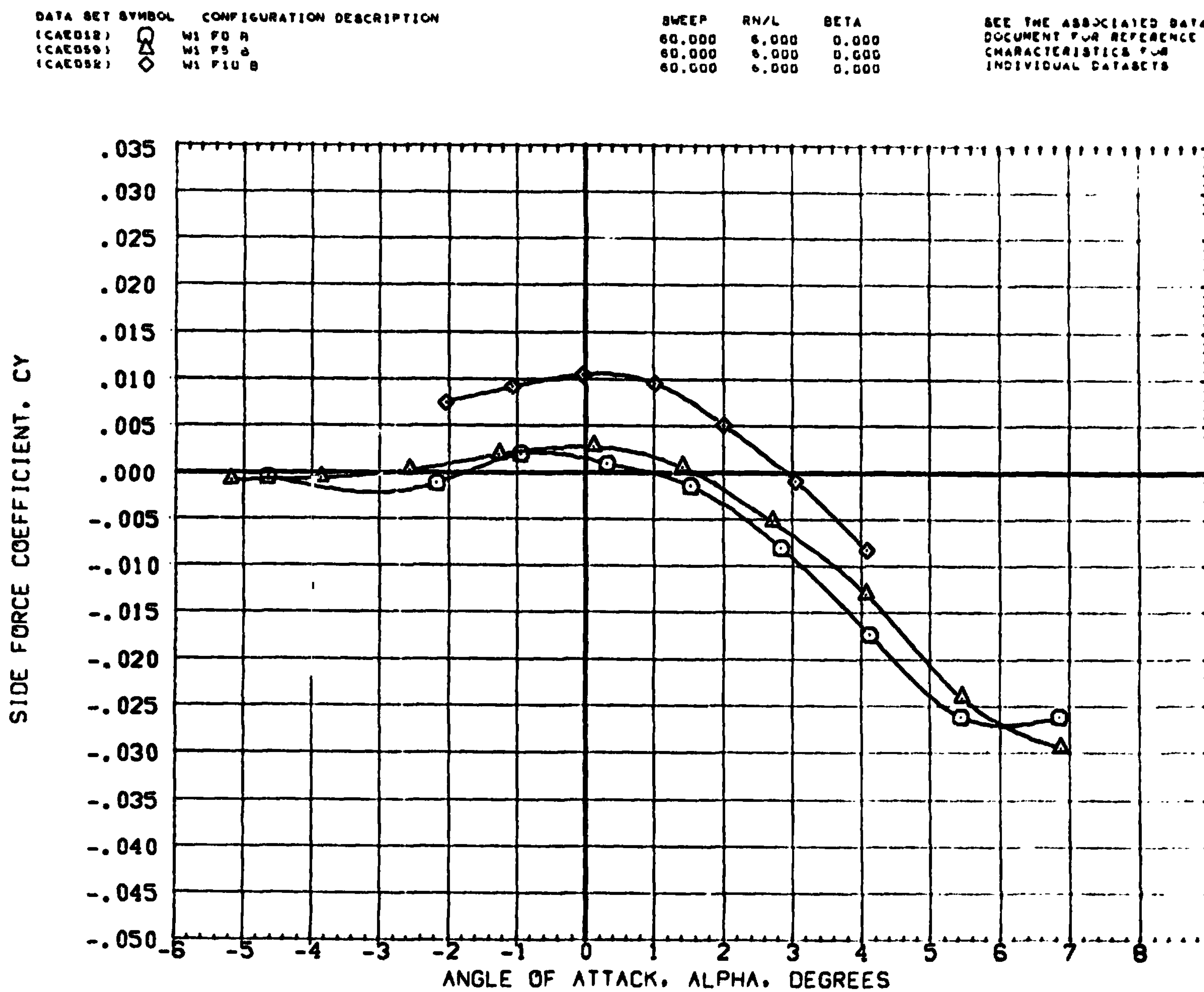


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

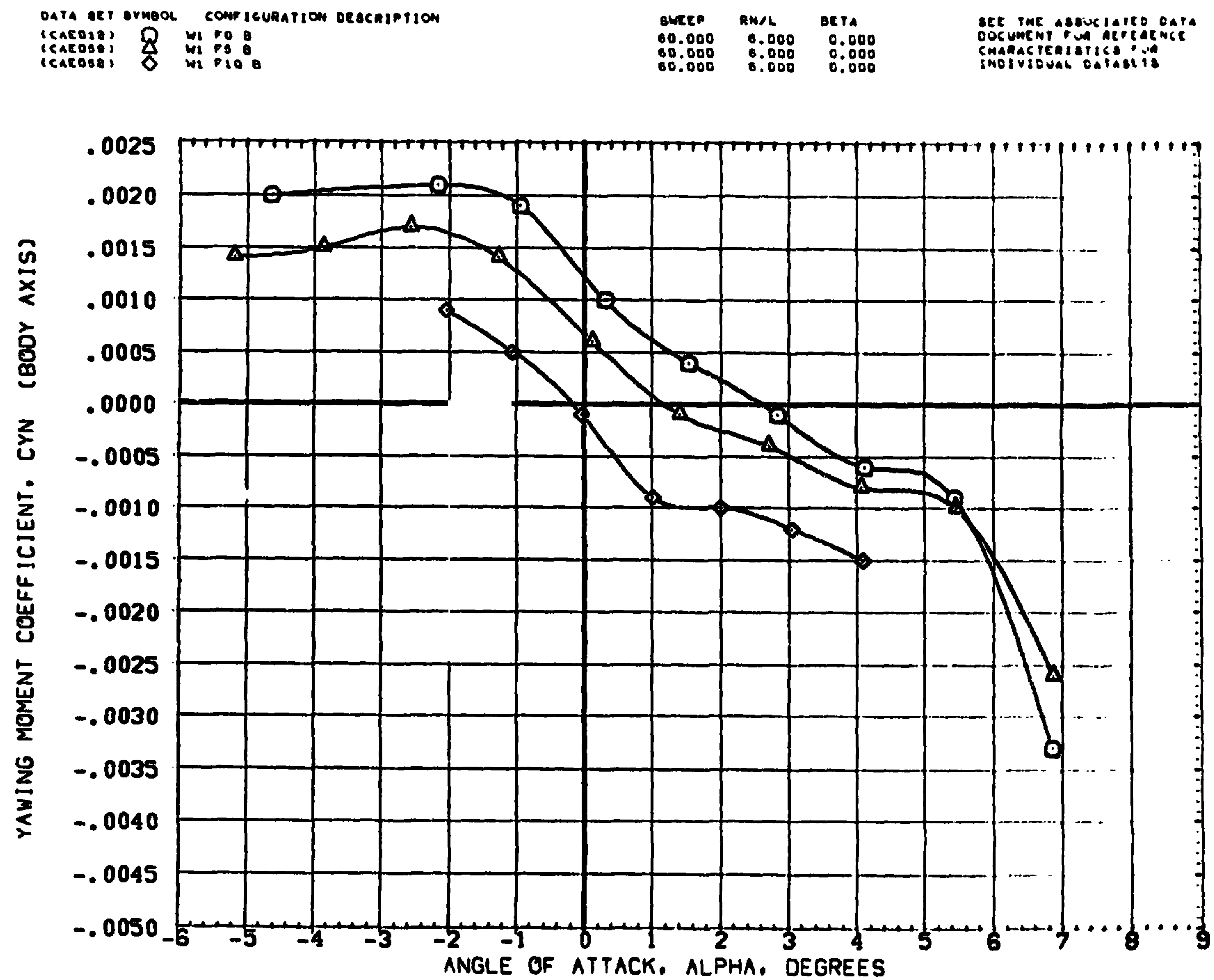


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

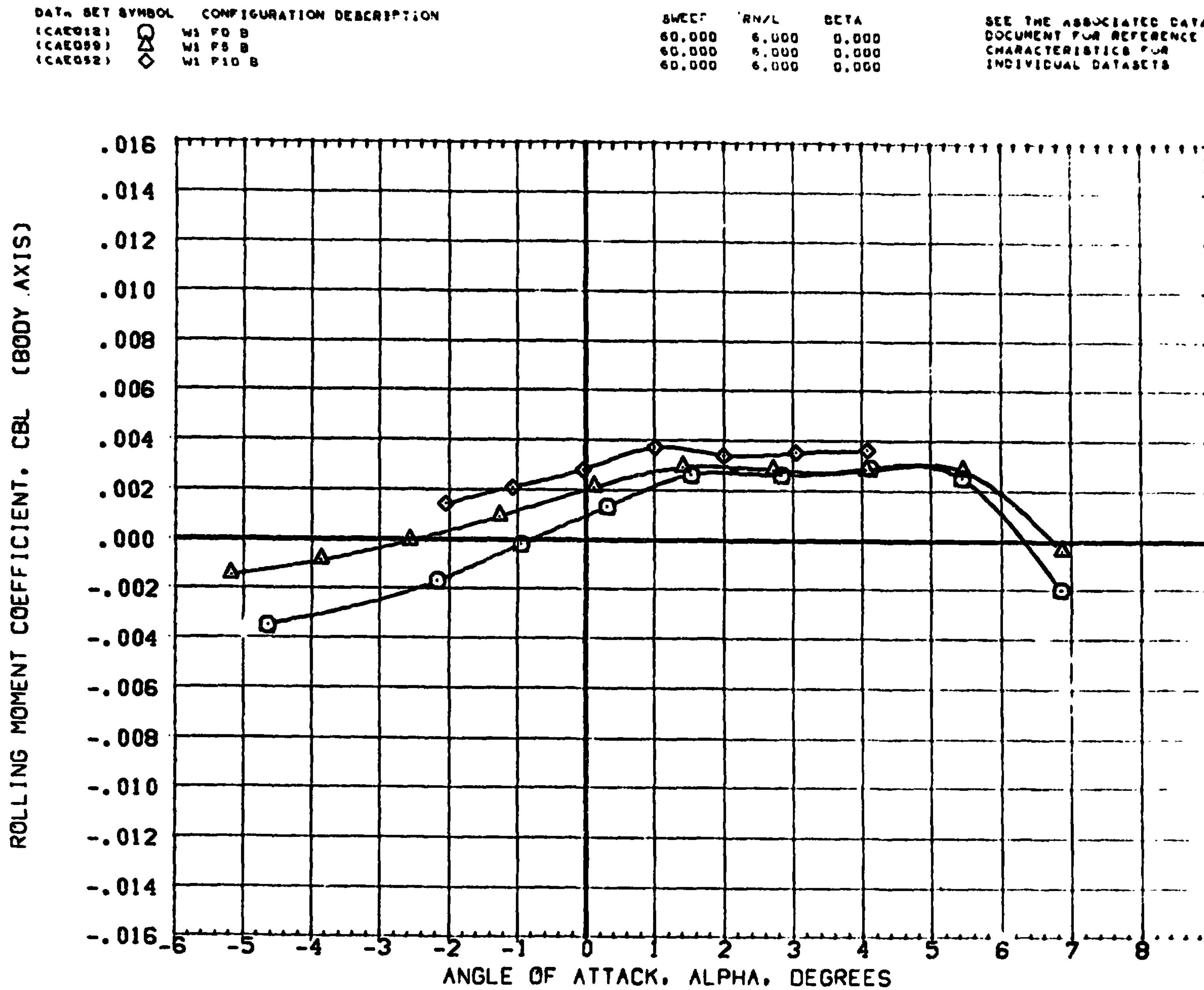


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

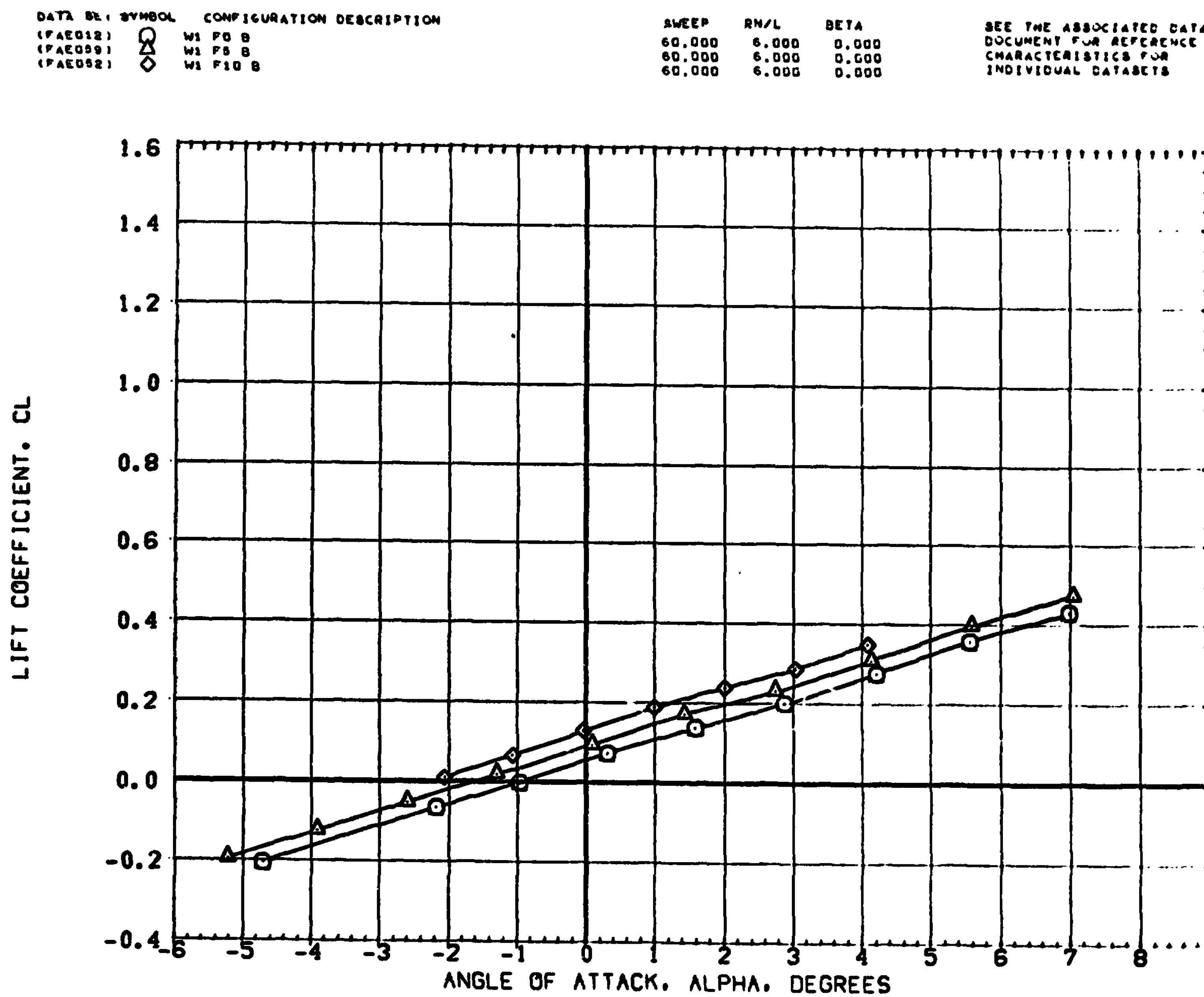


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

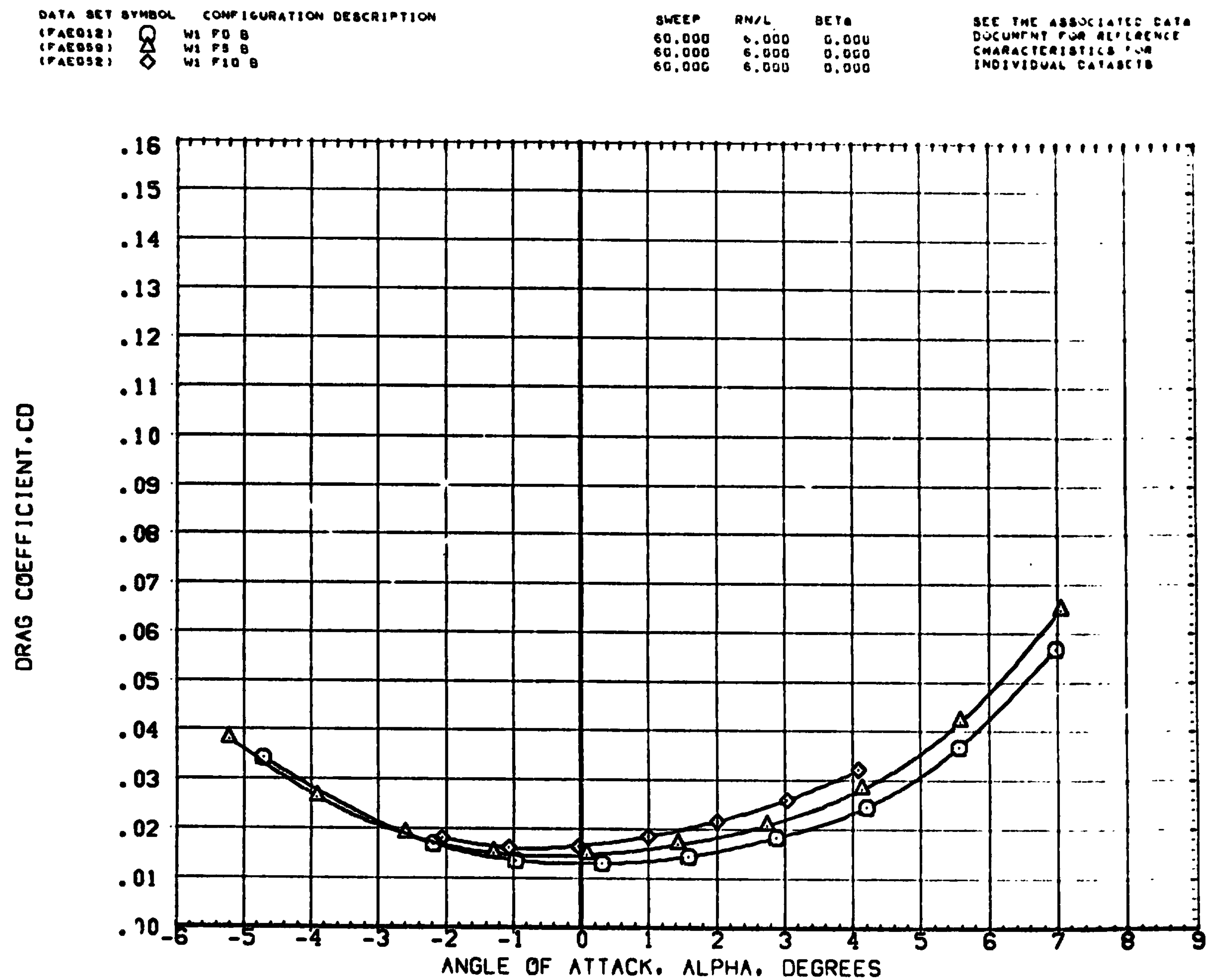


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

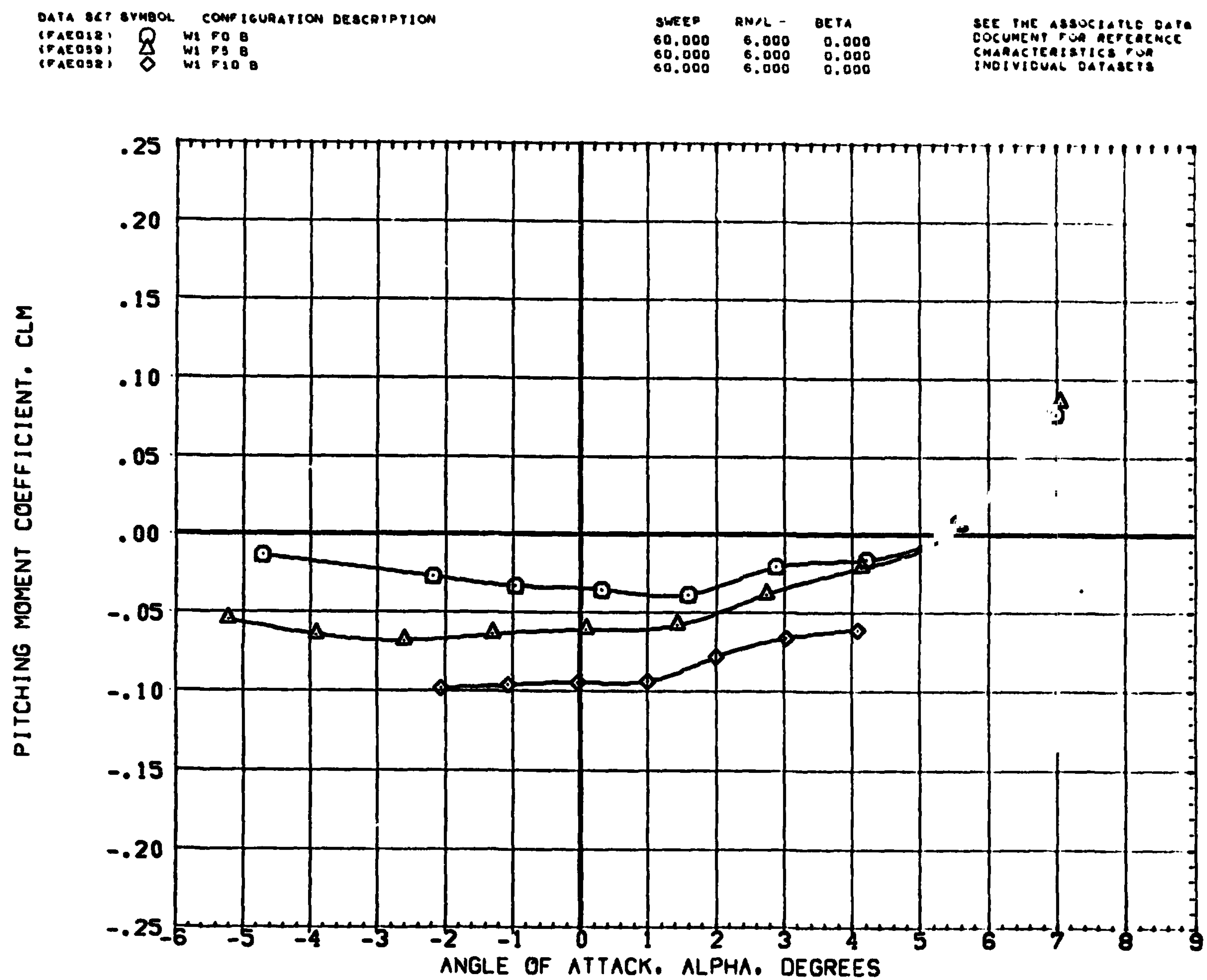


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(PAE012)	○	W1 F0 B	60.000	6.000	0.000
(PAE059)	△	W1 F5 B	60.000	6.000	0.000
(PAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

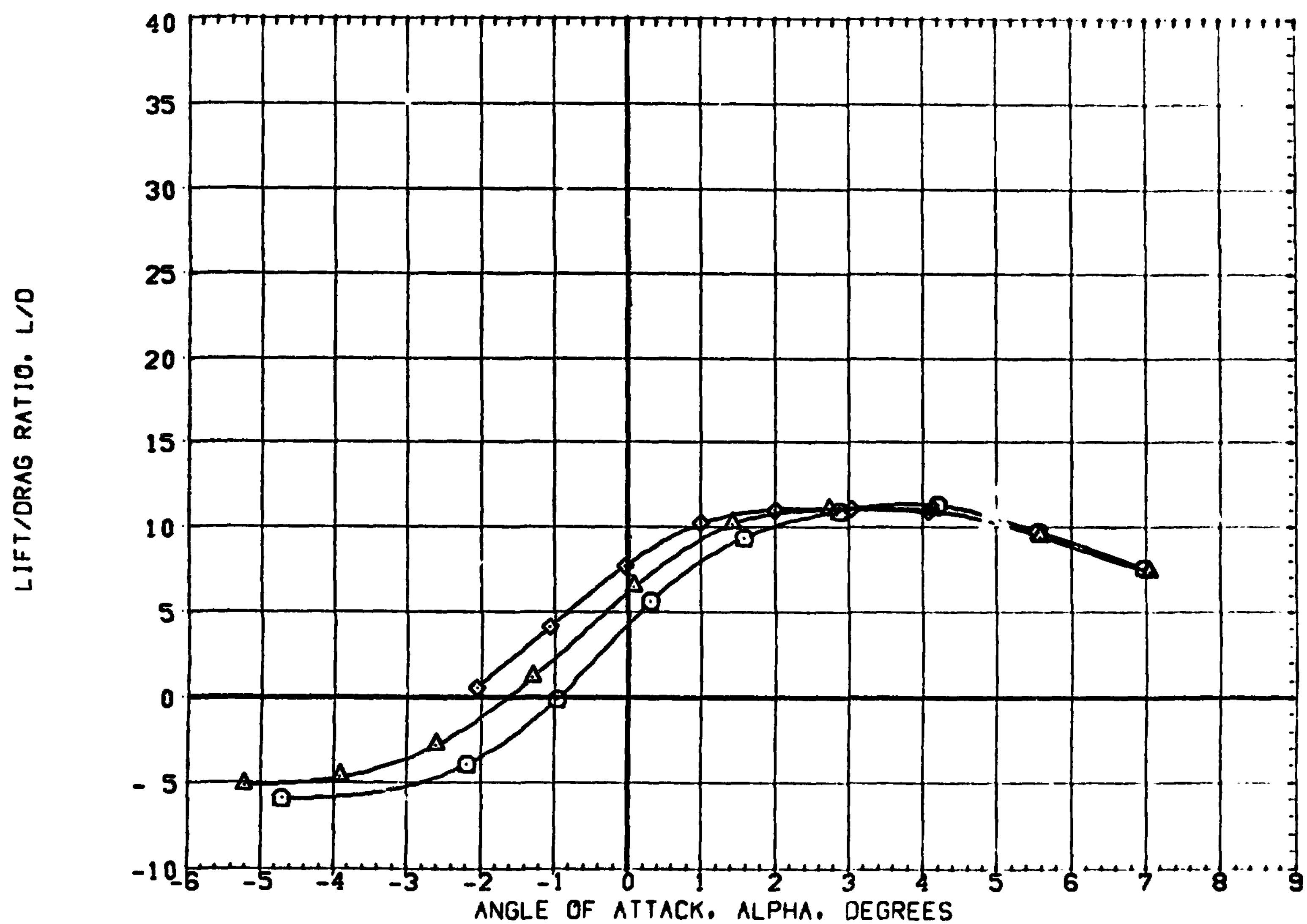


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

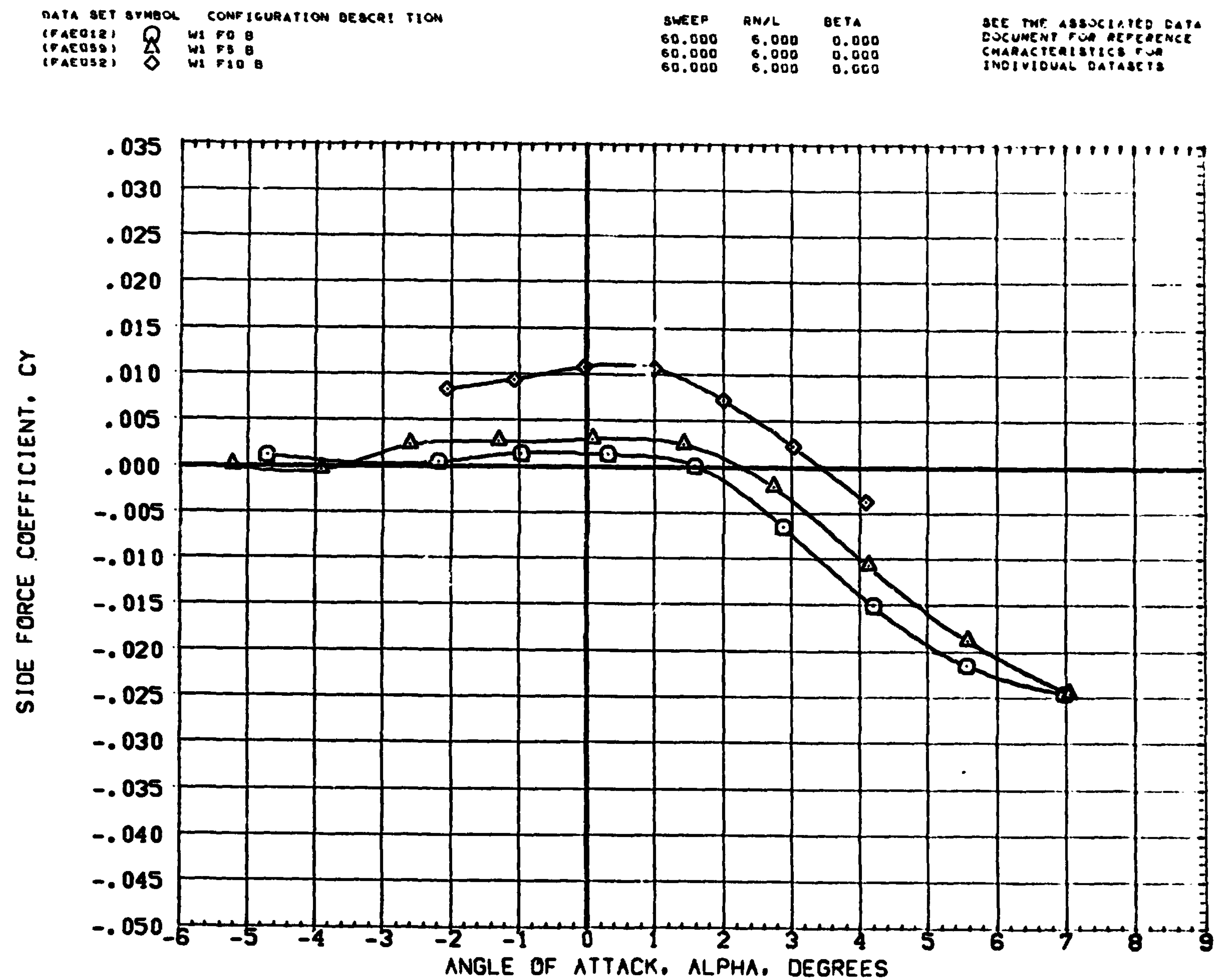


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

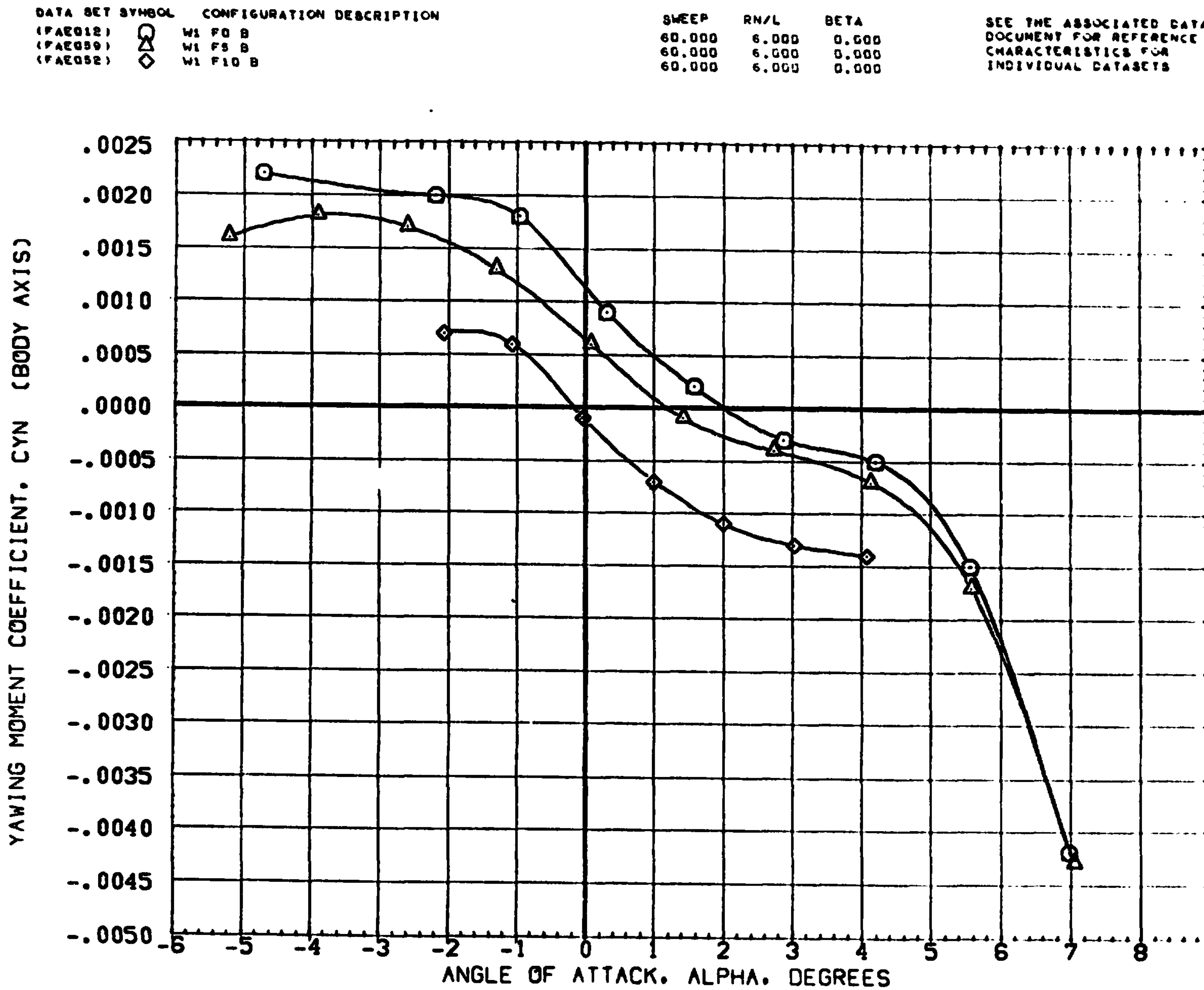


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(FAE012)	○	W1 F0 B	60.000	6.000	0.000
(FAE059)	△	W1 F5 B	60.000	6.000	0.000
(FAE052)	◇	W1 F10 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

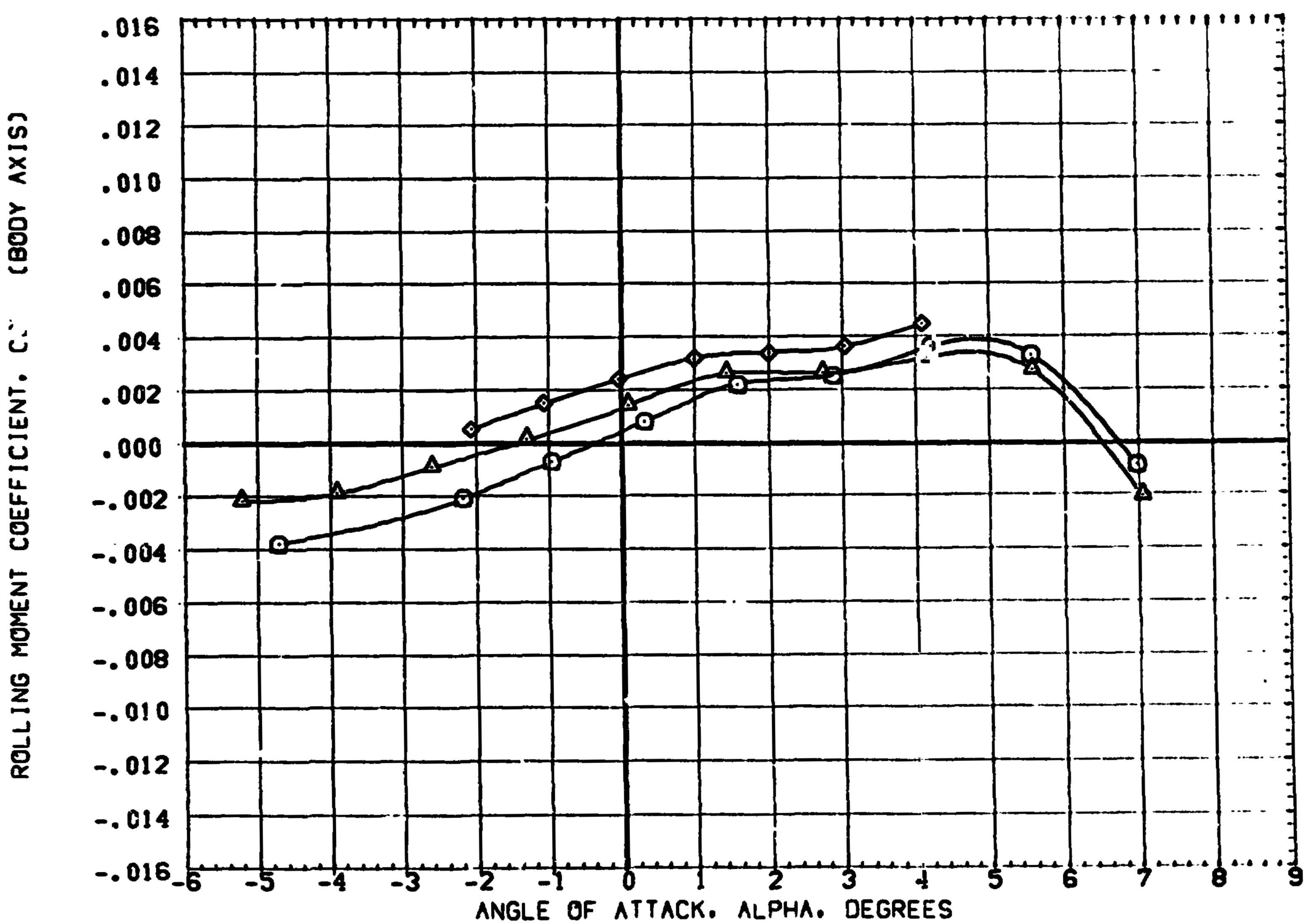


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.30, LAMBDA=60 DEGREES

(A)MACH = 1.30

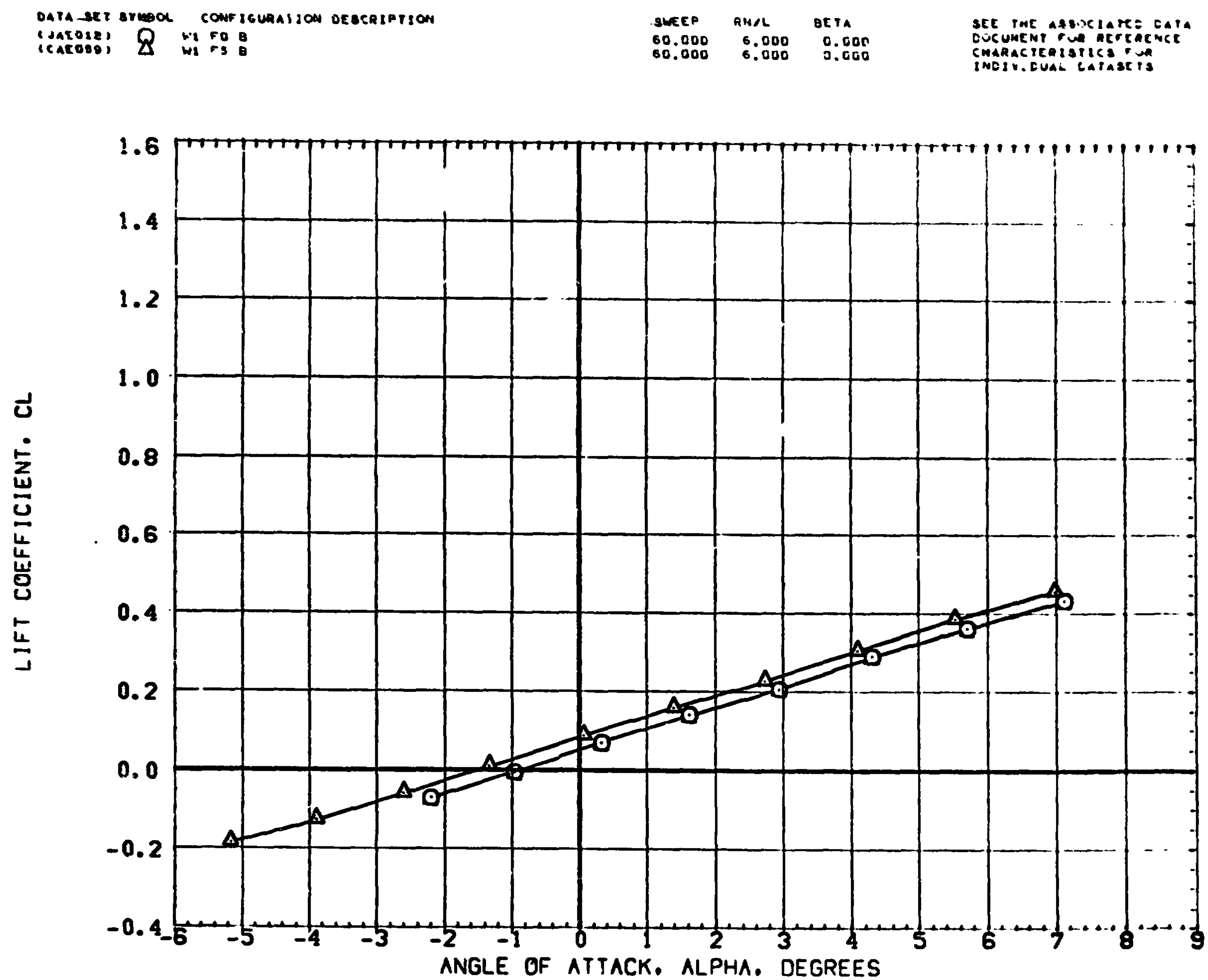


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES
(A)MACH = 1.40

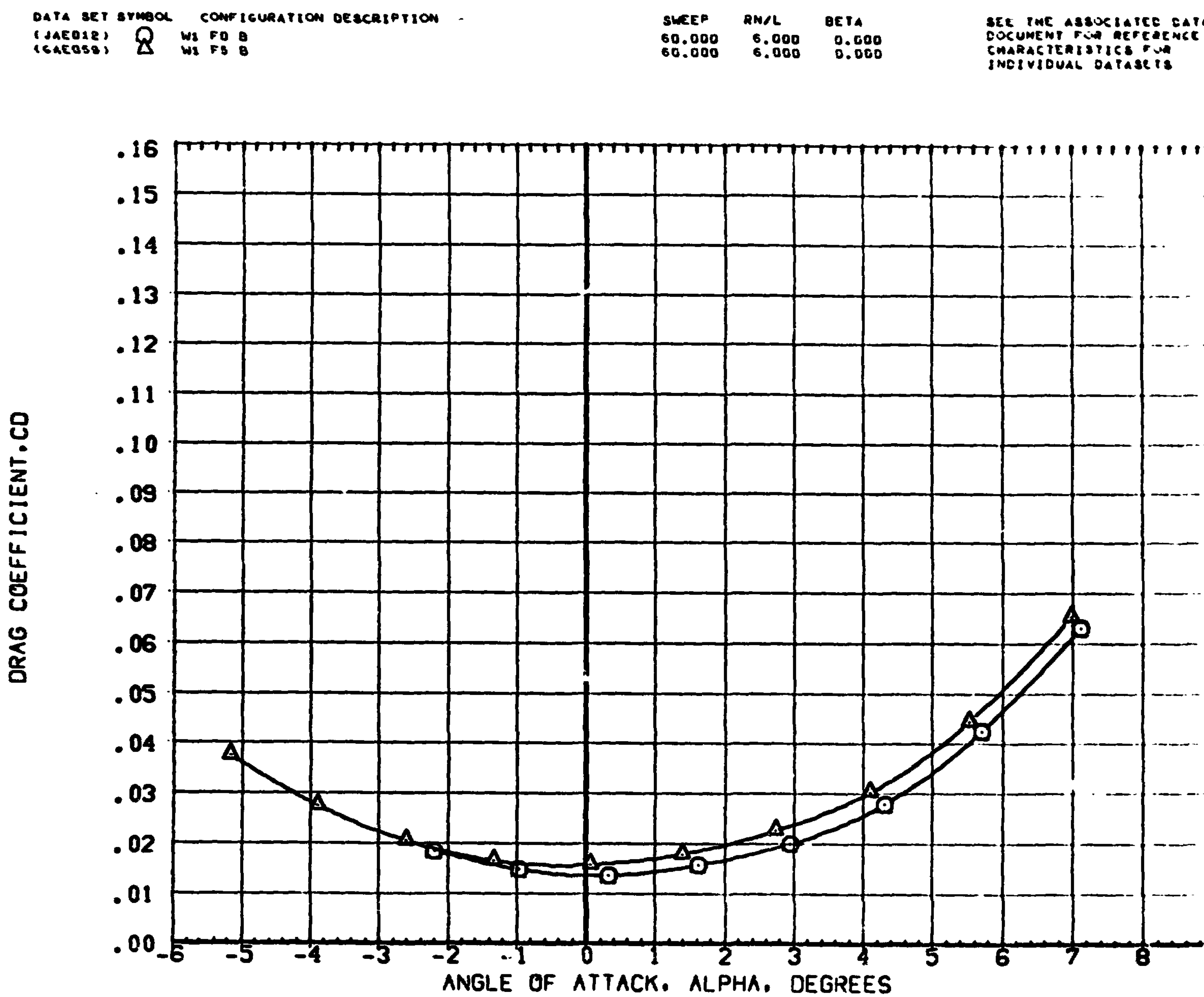


FIGURE . EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES

(A)MACH = 1.40

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	DELTA
(JAE012)	⊙	W1 FO B	60.000	6.000	0.000
(GAE059)	△	W1 FS B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

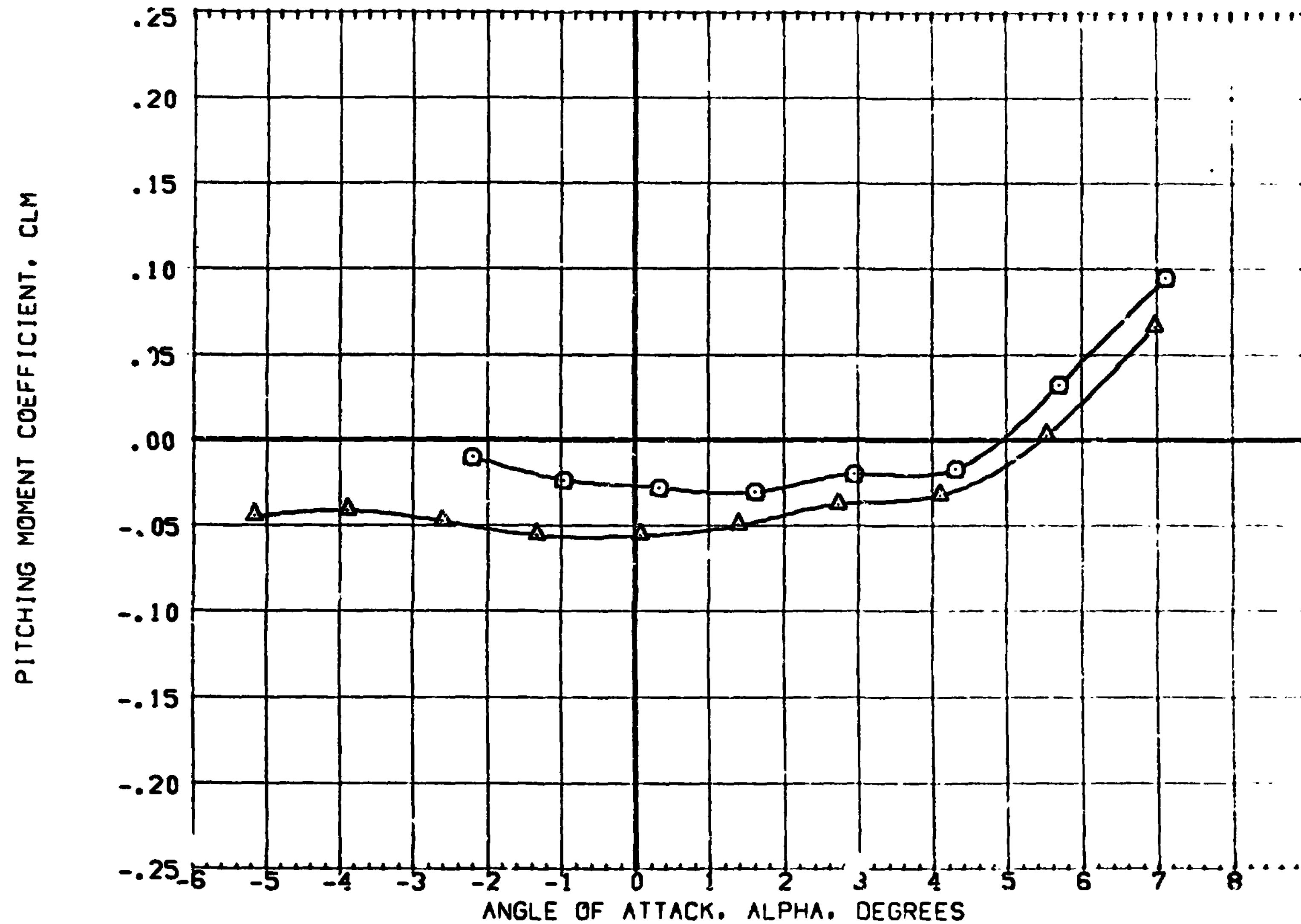


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.- 1.40, LAMBDA=60 DEGREES

(A)MACH = 1.40

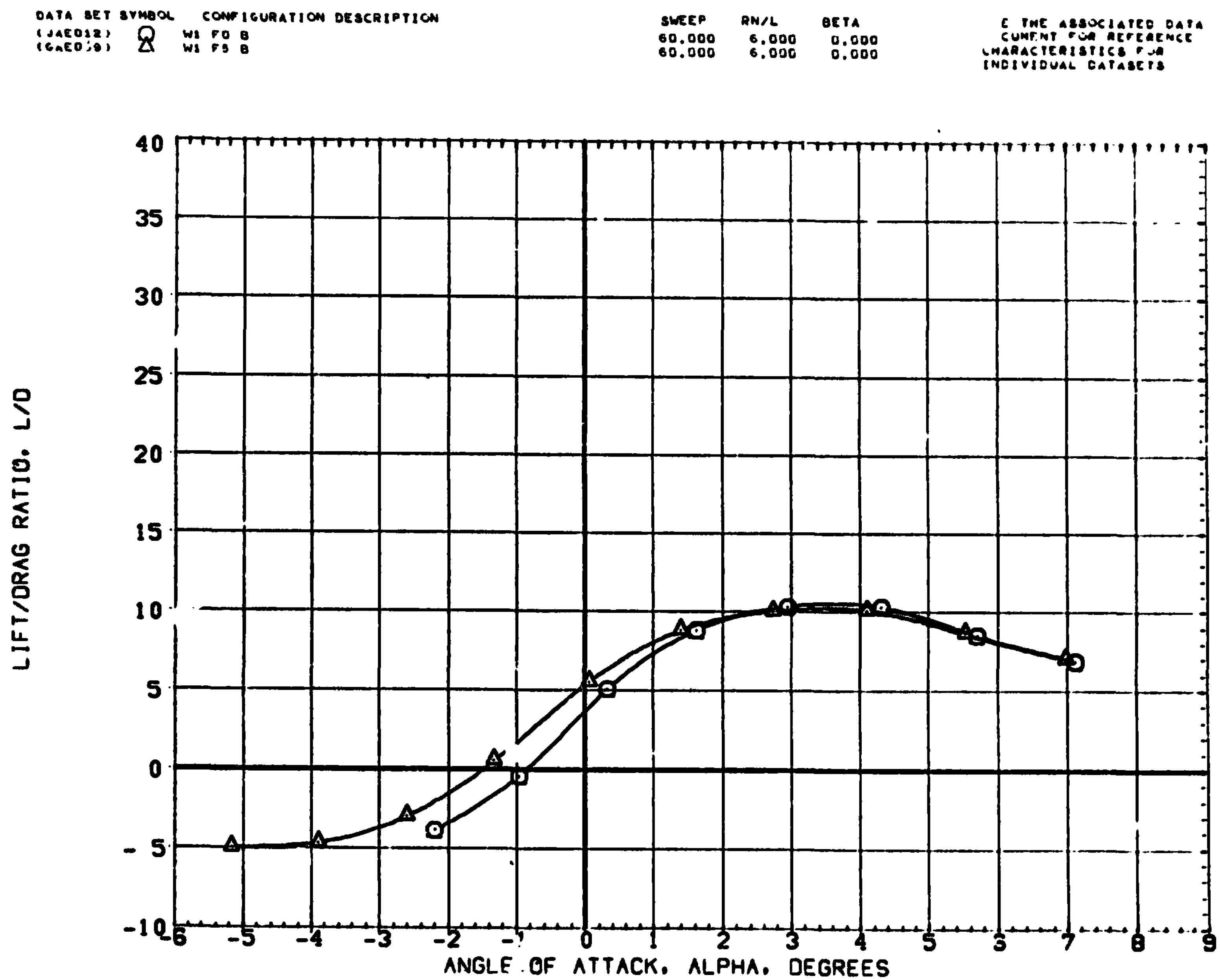


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES
(A)MACH = 1.40

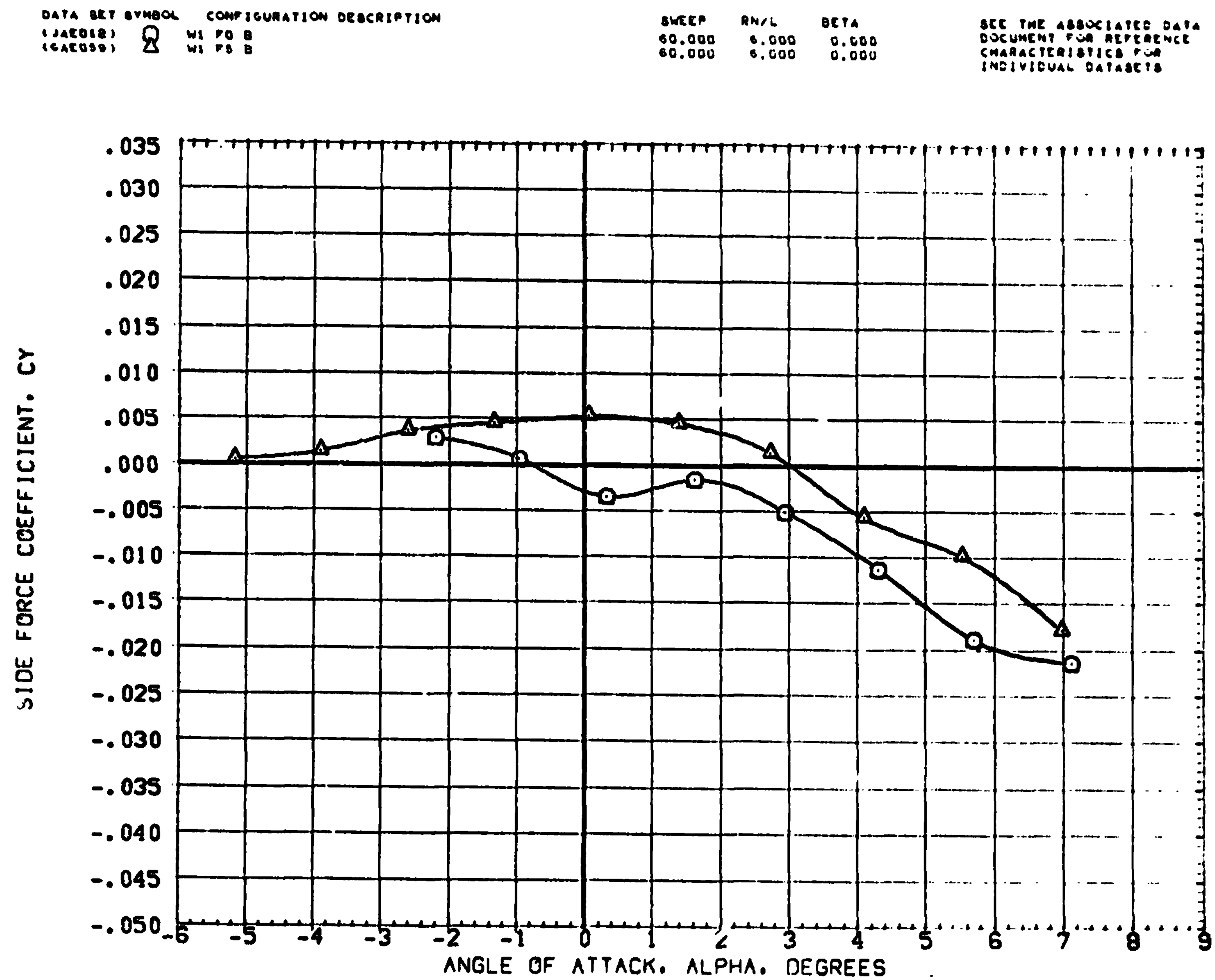


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES
(A)MACH = 1.40

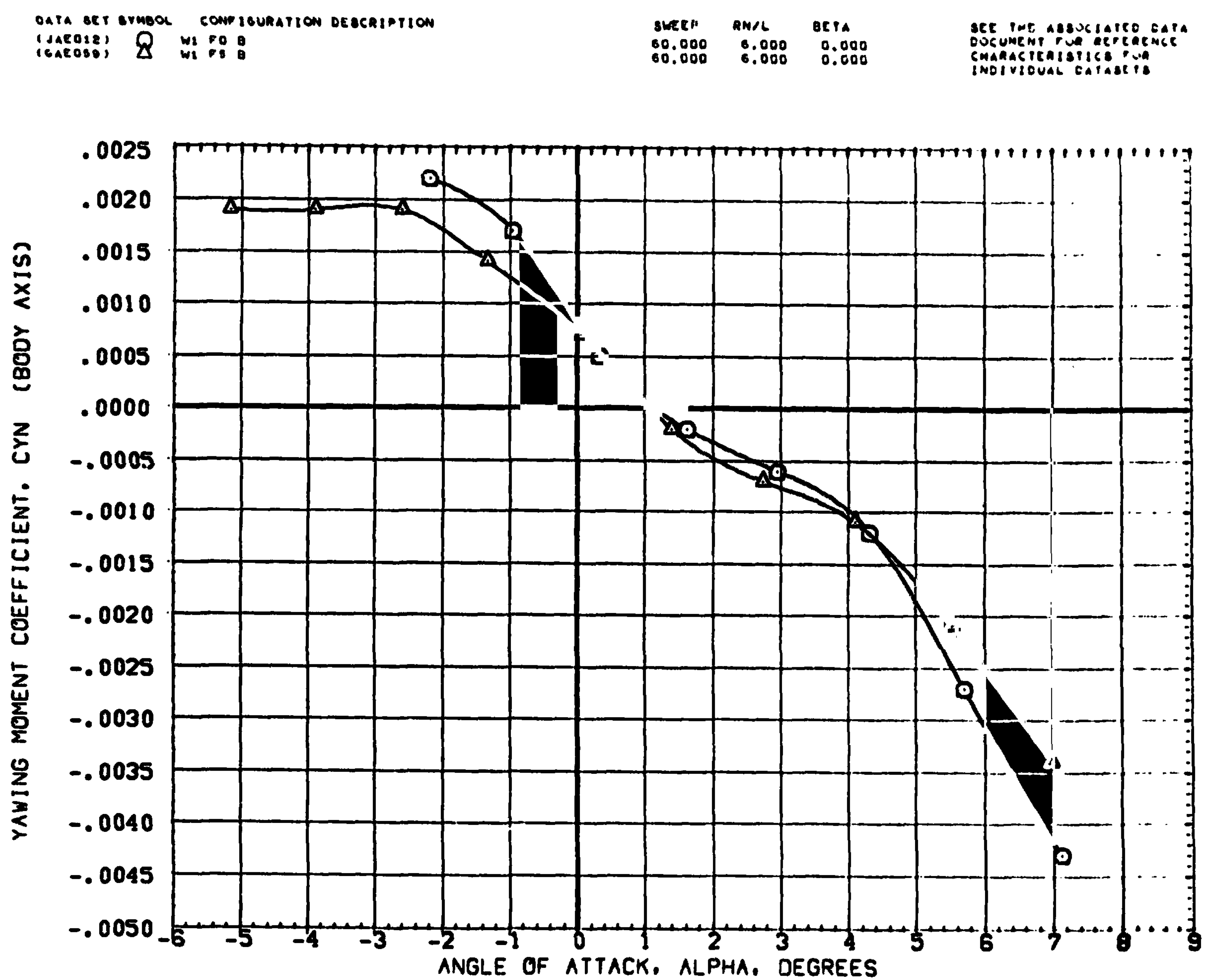


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES

(A)MACH = 1.40

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(JAE012)	○	W1 FD B	60.000	6.000	0.000
(6AE059)	△	W1 FS B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

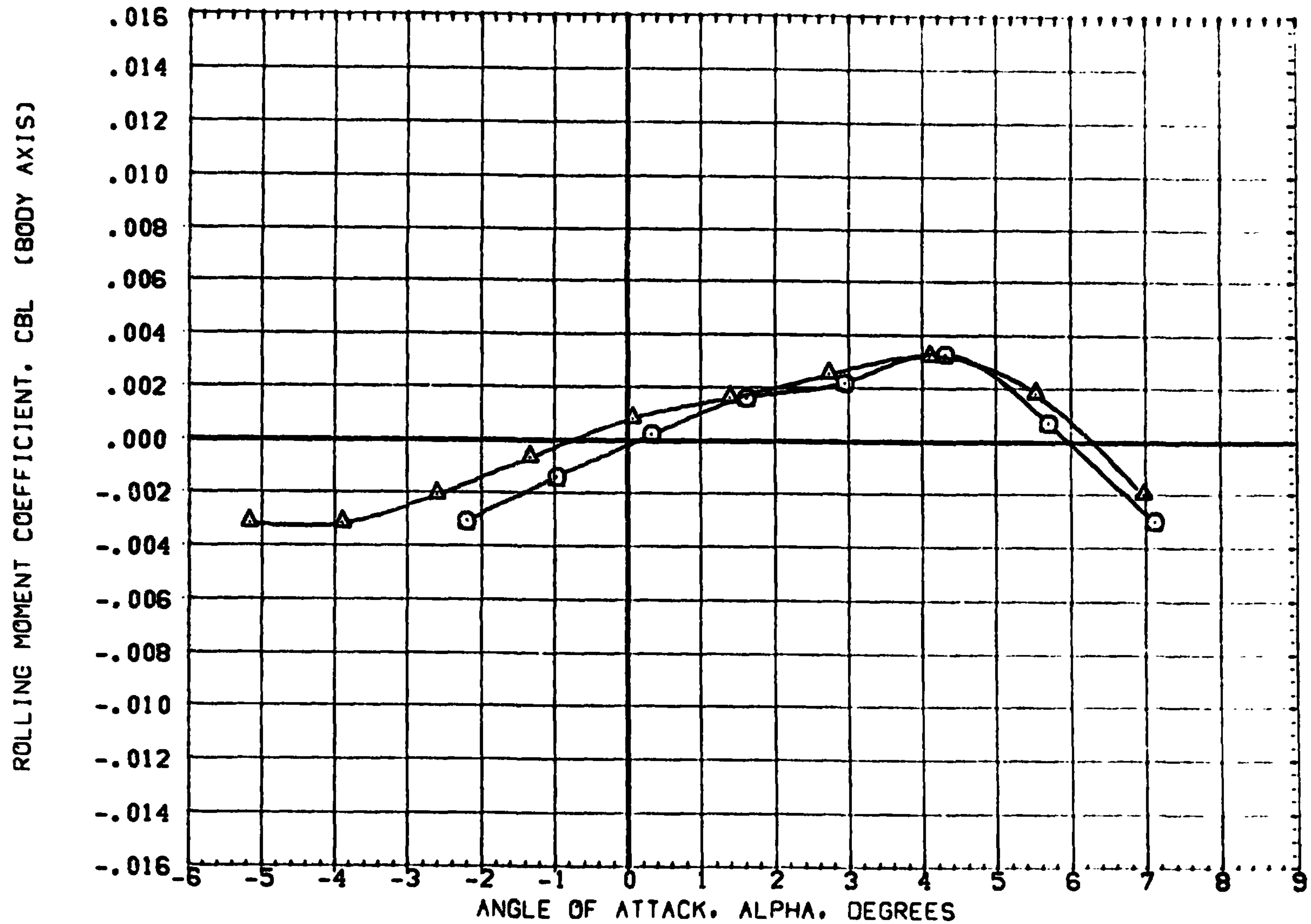


FIGURE 4 EFFECT OF TRAILING EDGE ANGLE, MACH NO.= 1.40, LAMBDA=60 DEGREES

(A)MACH = 1.40

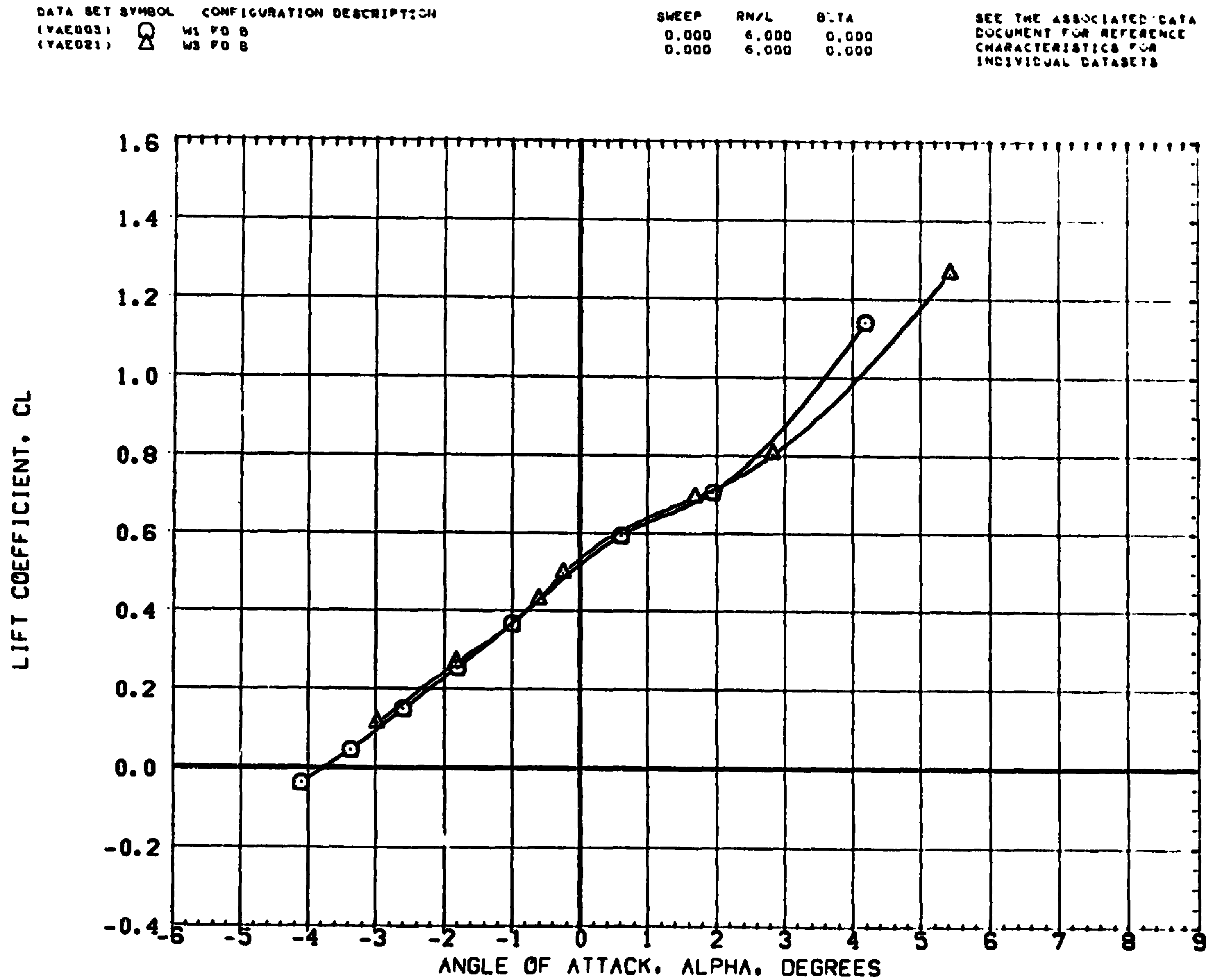


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

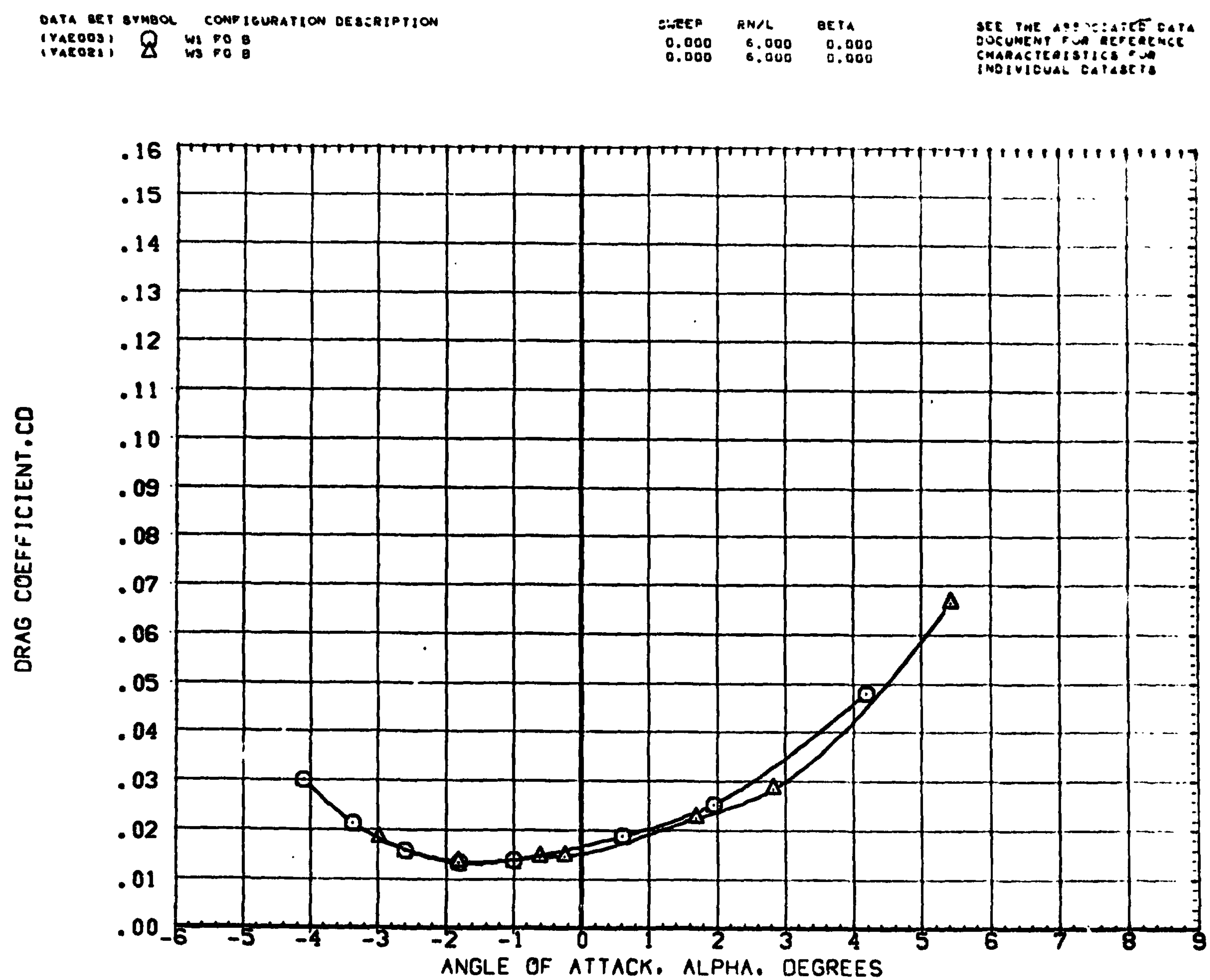


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(YAE003)	○	W1 F0 B
(YAE021)	△	W3 F0 B

SWEEP	RN/L	BETA
0.000	6.000	0.000
0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

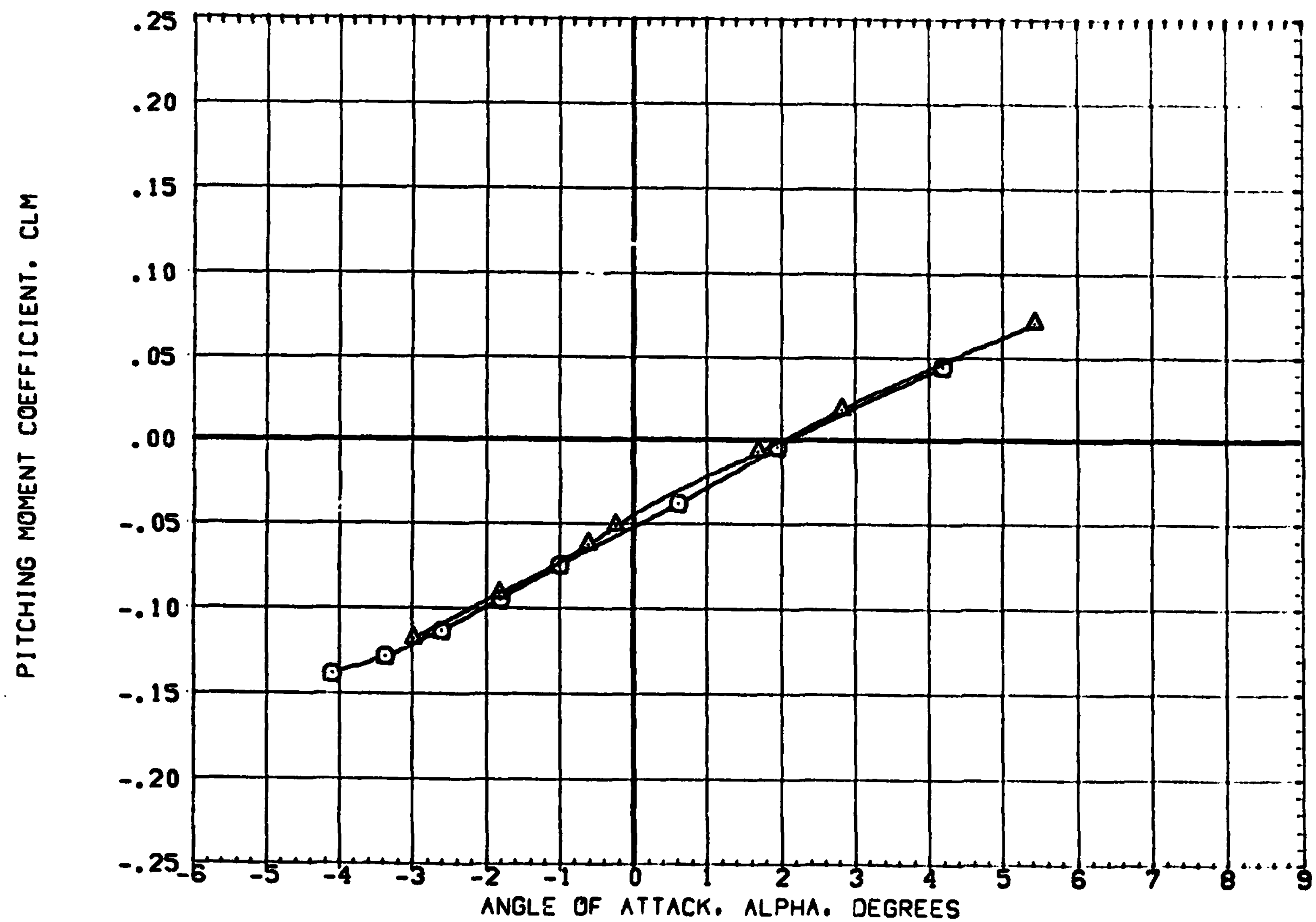


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

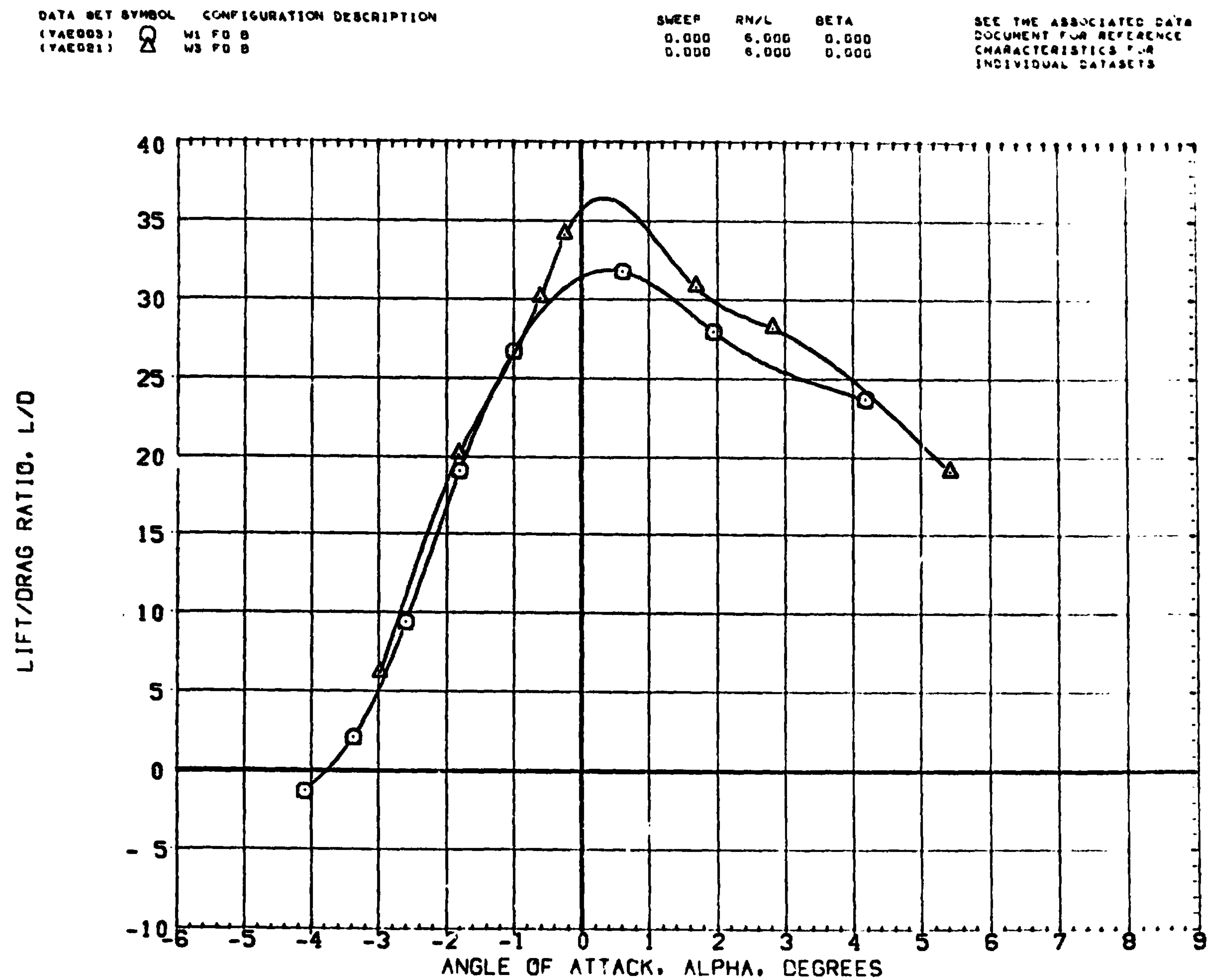


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

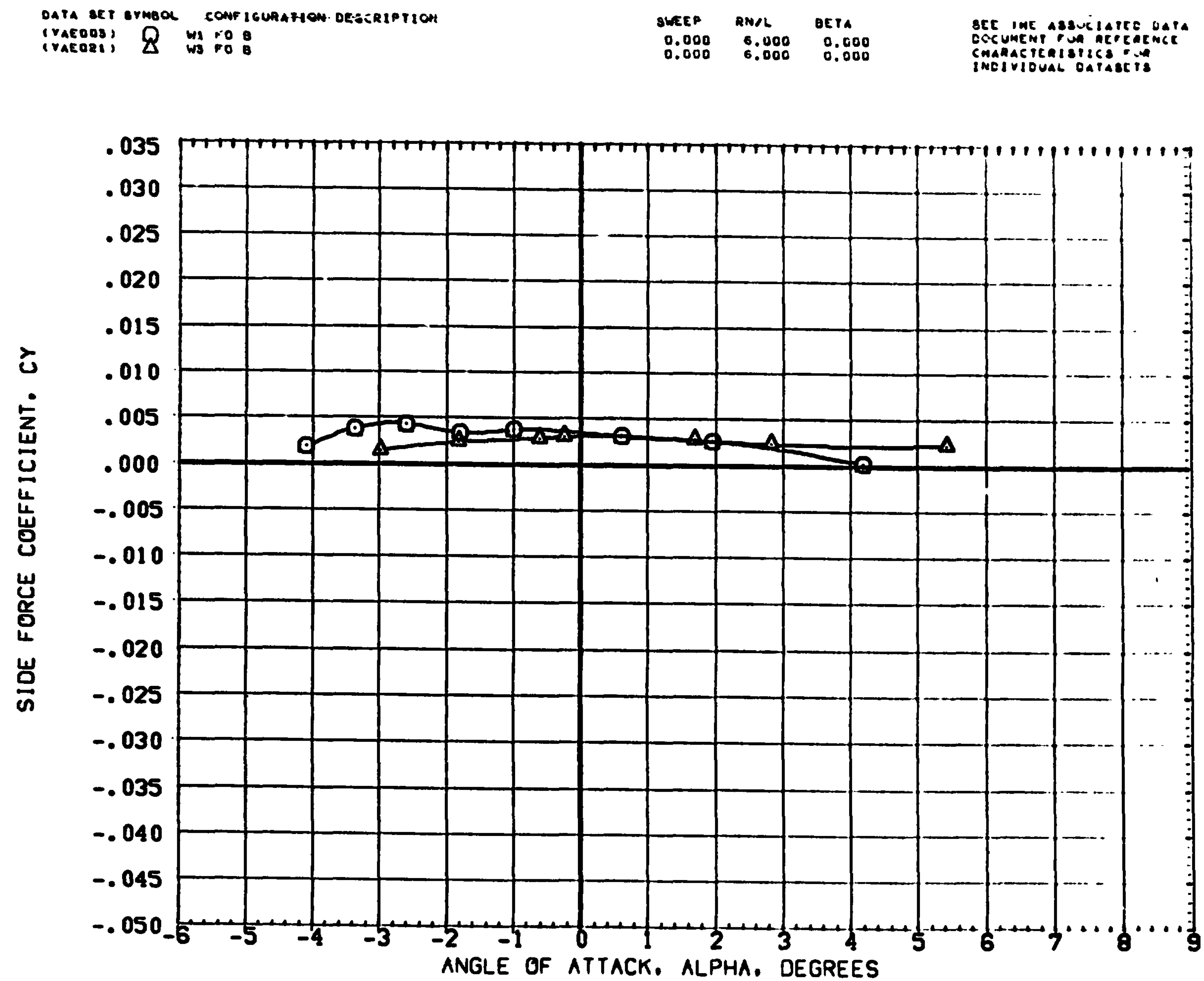


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(YAE003)	○	W1 F0 B	0.000	6.000	0.000
(YAE021)	△	W8 F0 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

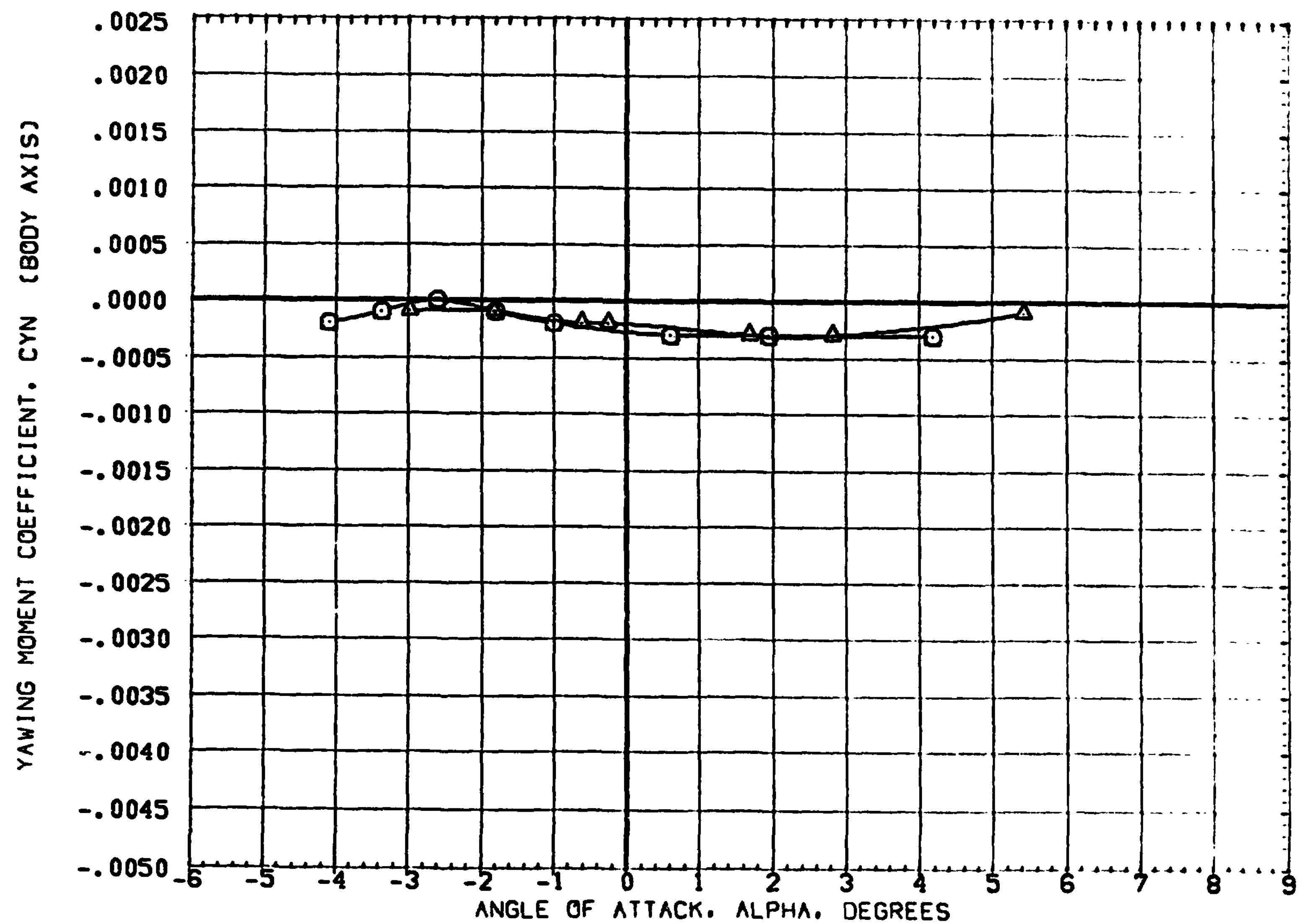


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(YAE003)	○	W1 F0 B	0.000	6.000	0.000
(YAE021)	△	W3 F0 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

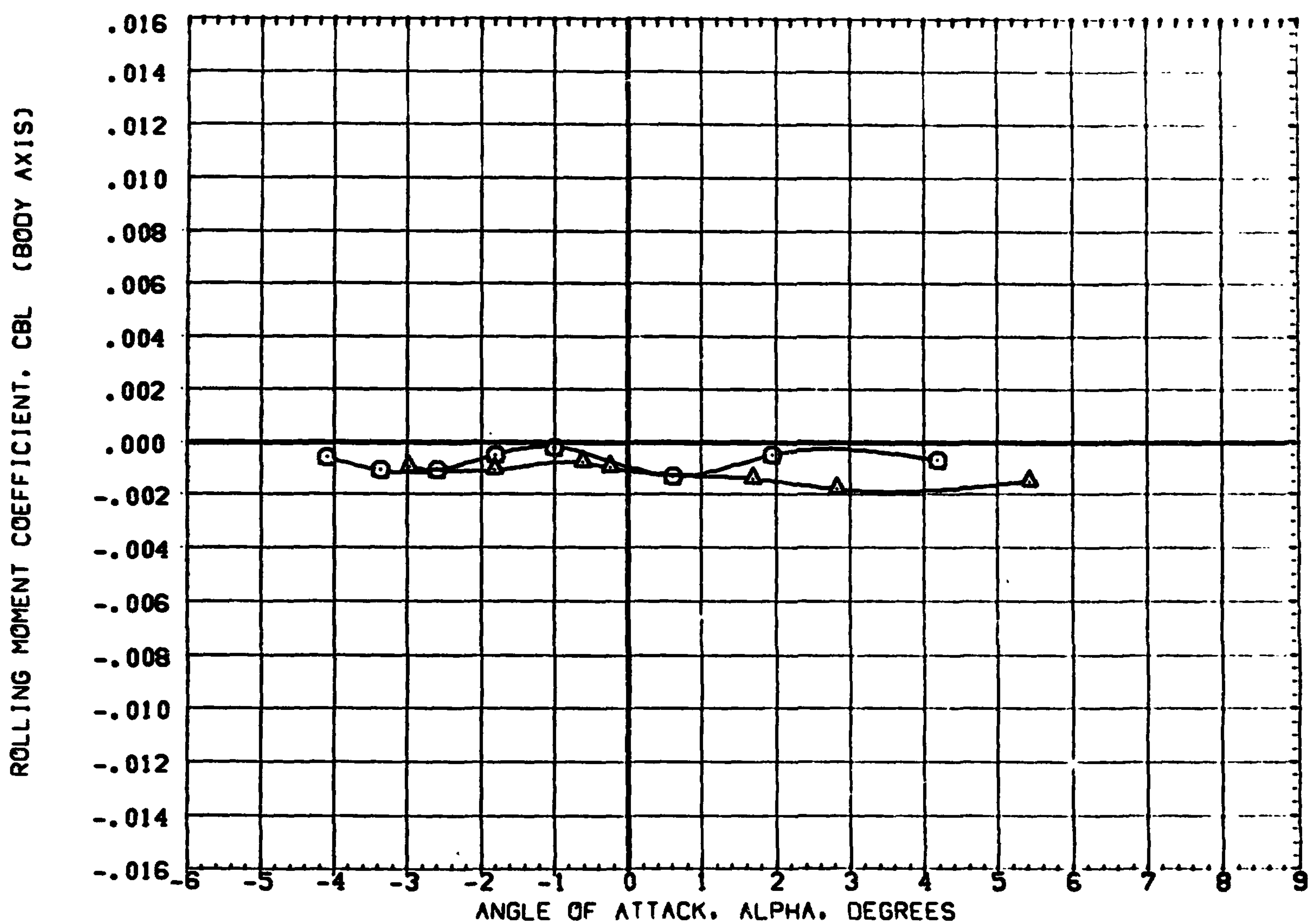


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

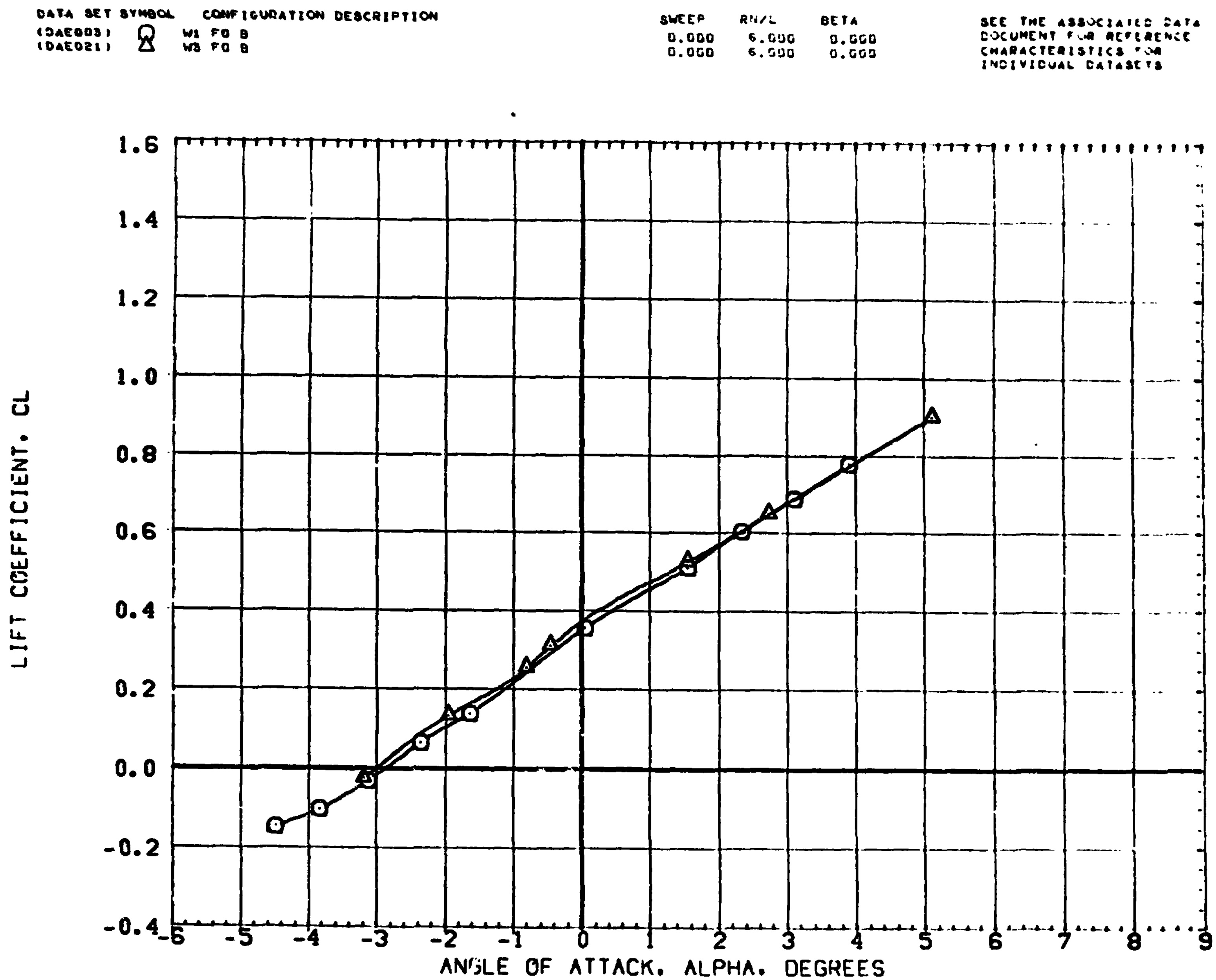


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH = .80

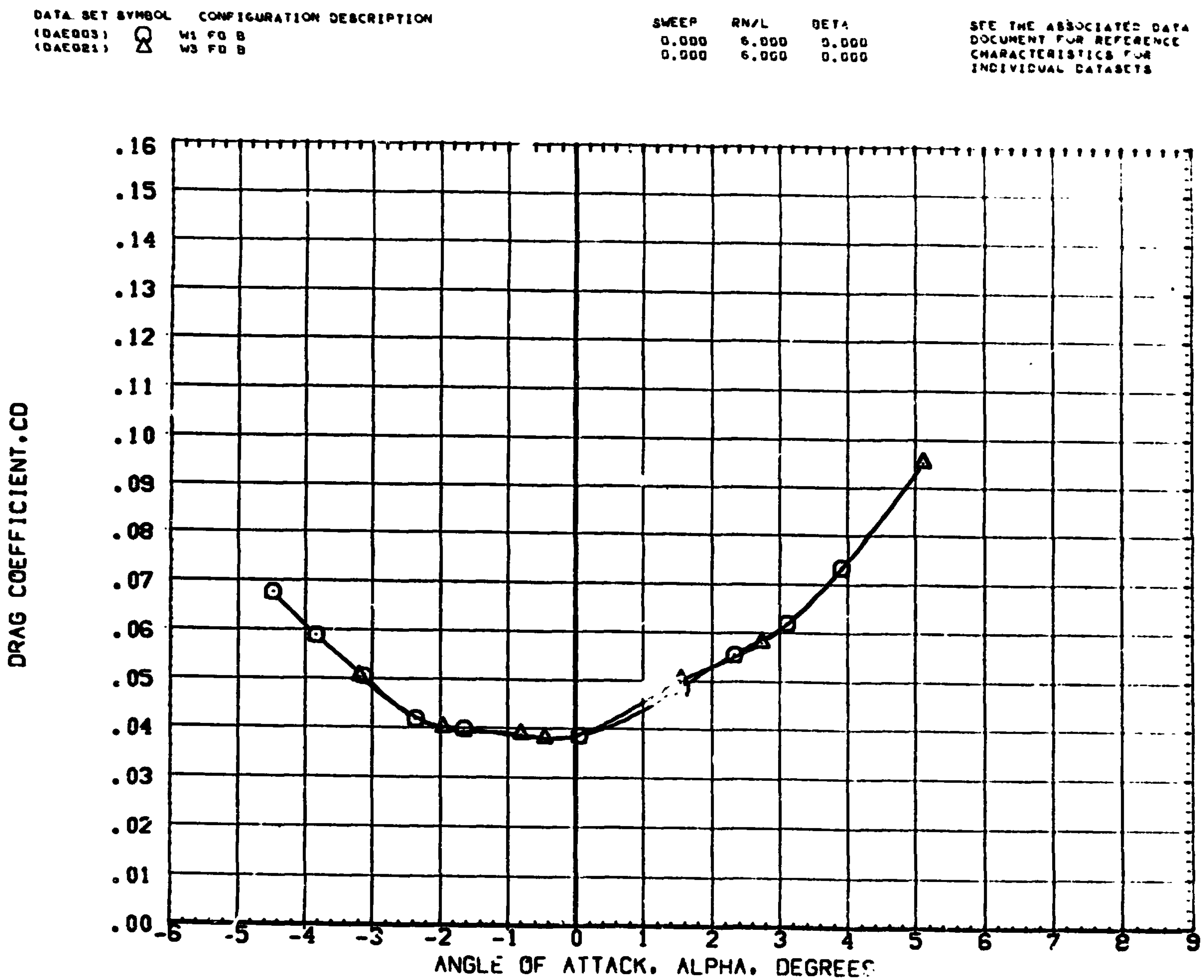


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES
(A)MACH = .80

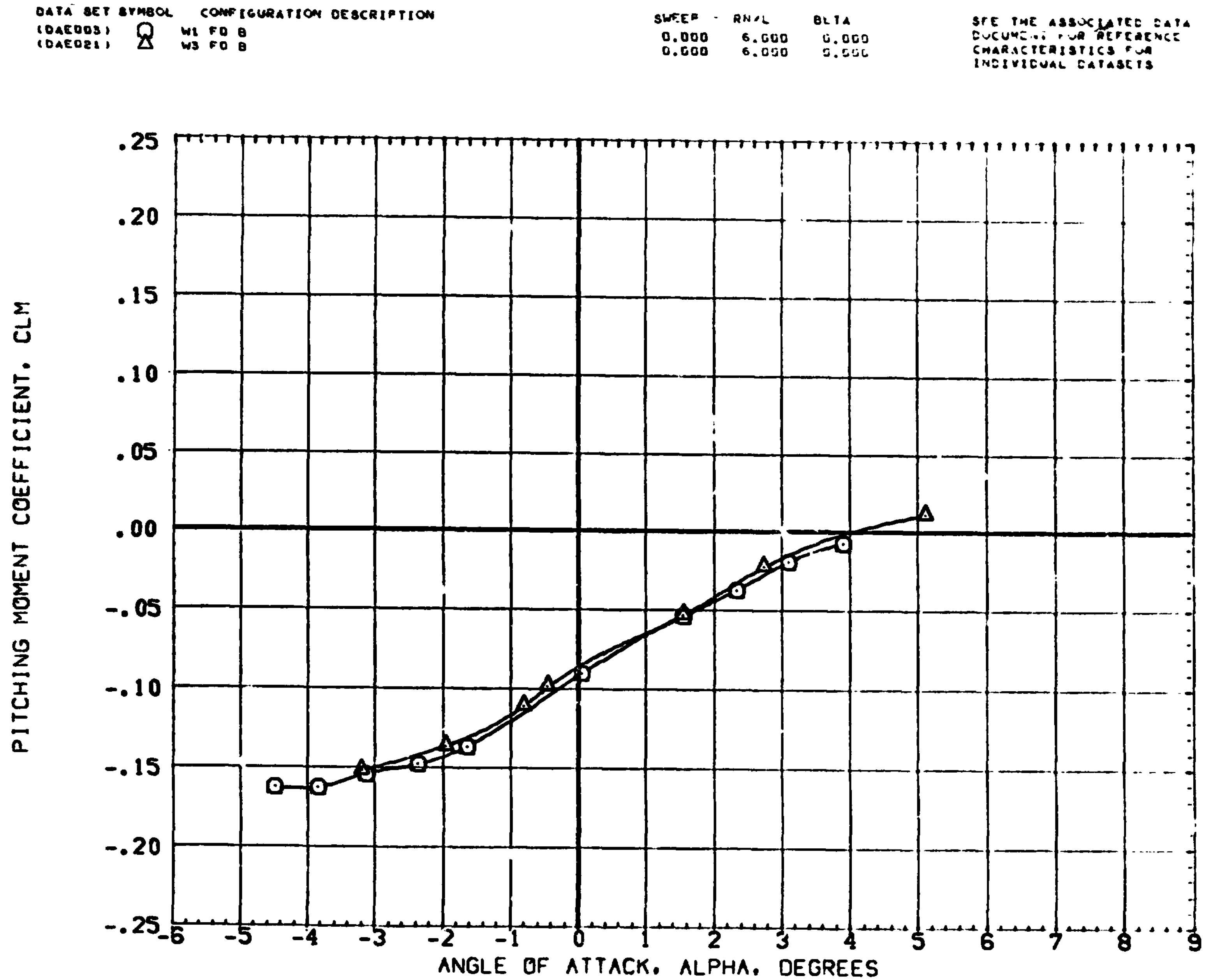


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH = .80

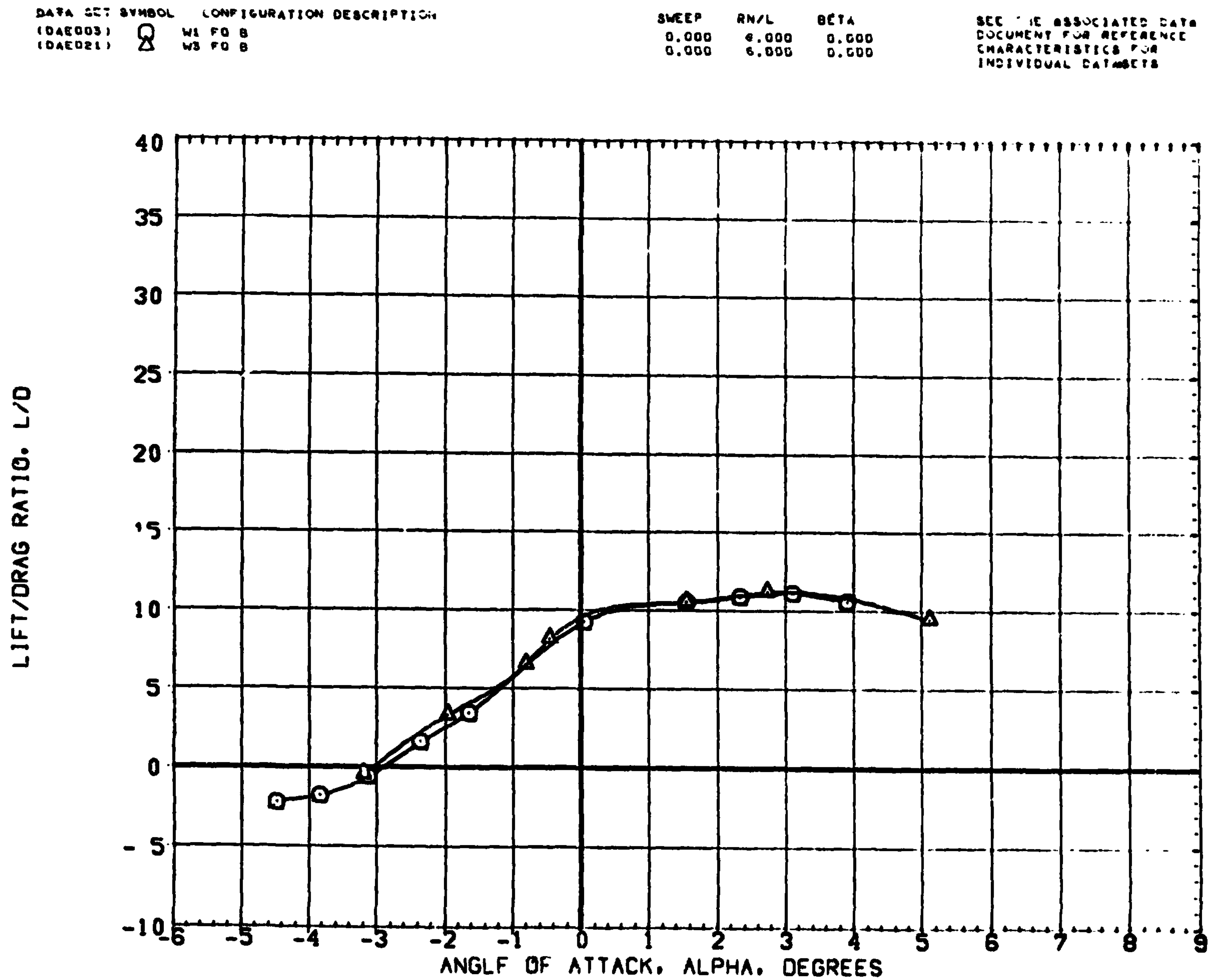


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE083)	○	W1 F0 B	0.000	6.000	0.000
(DAE081)	△	W3 F0 B	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

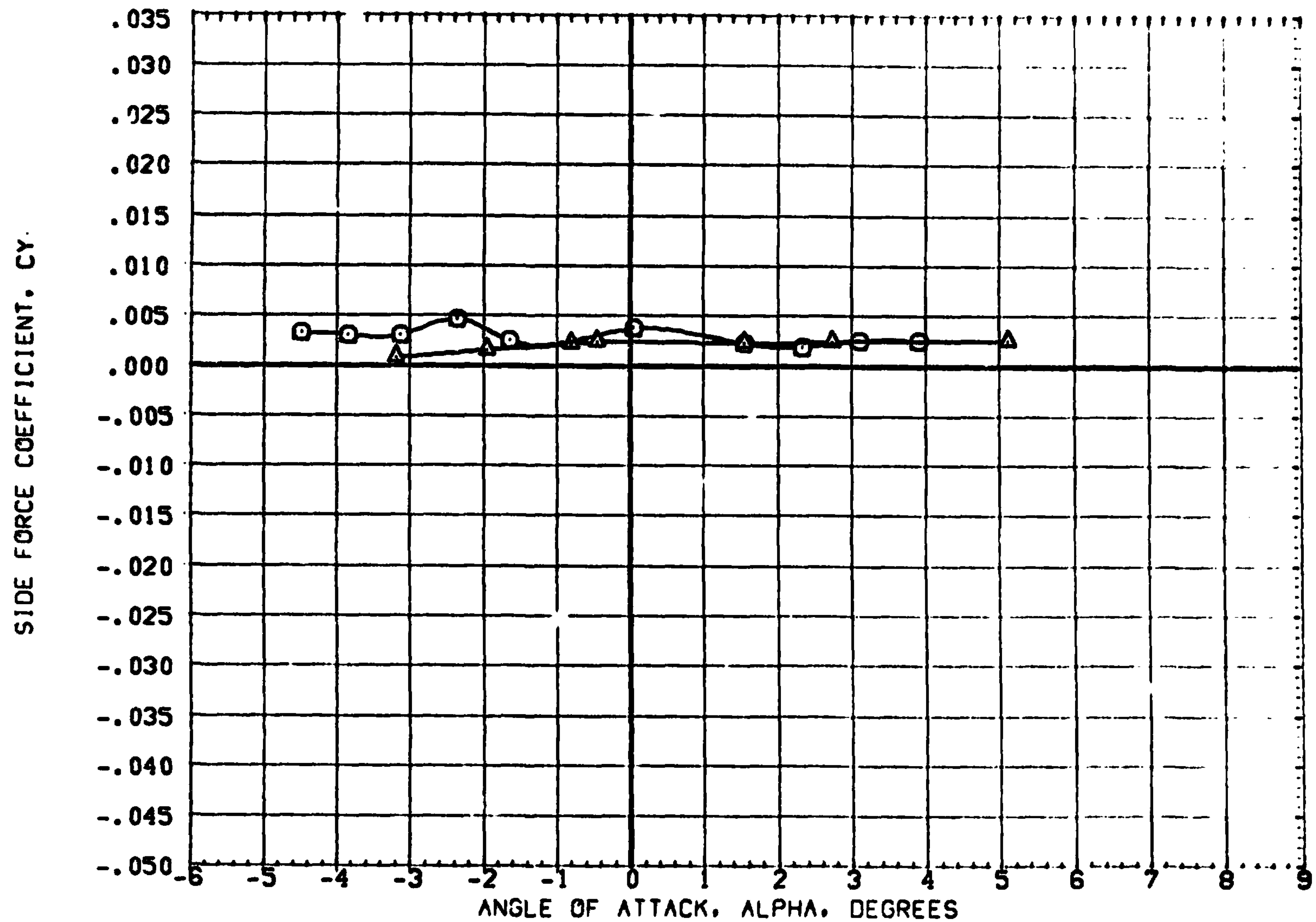


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH .80

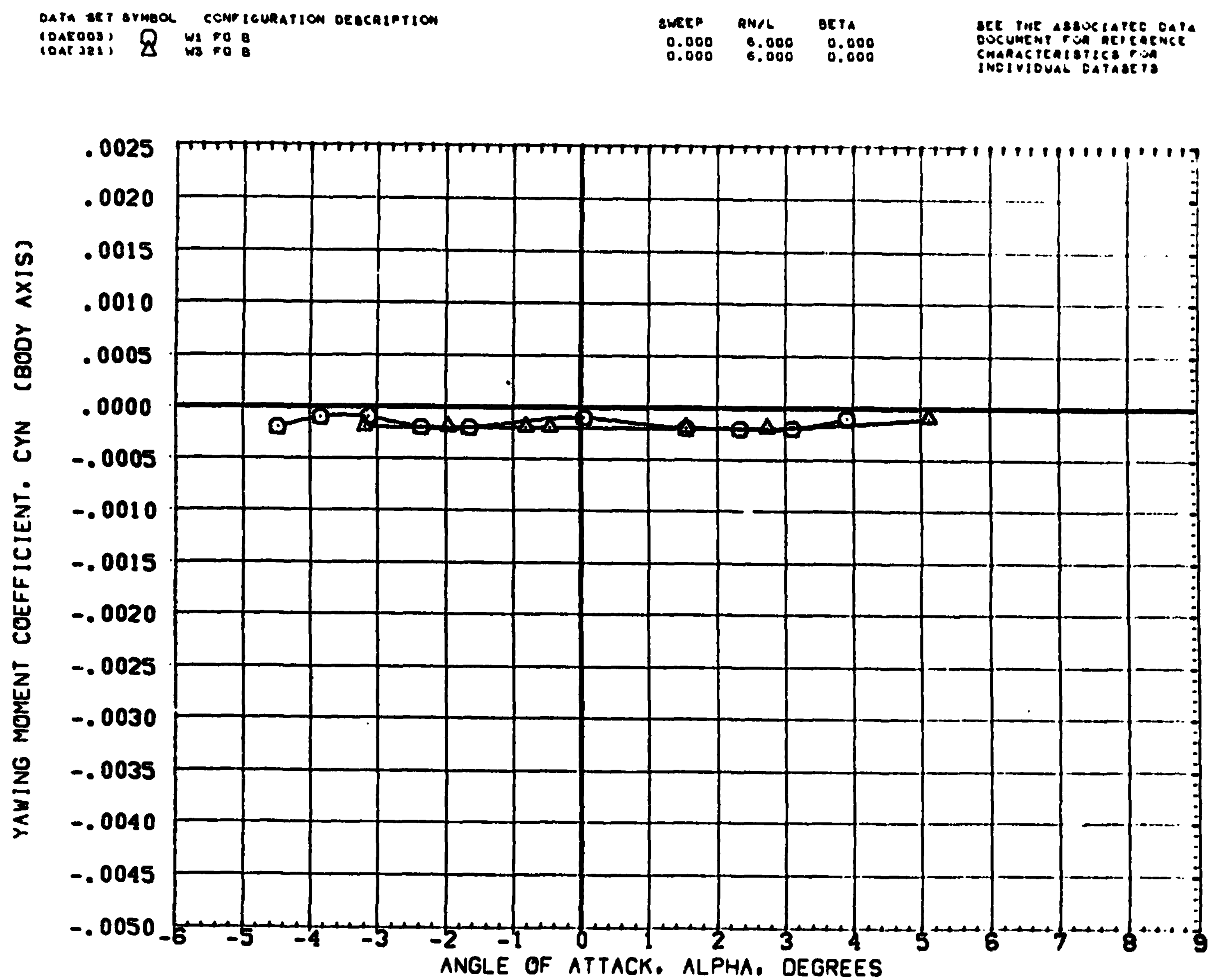


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH = .80

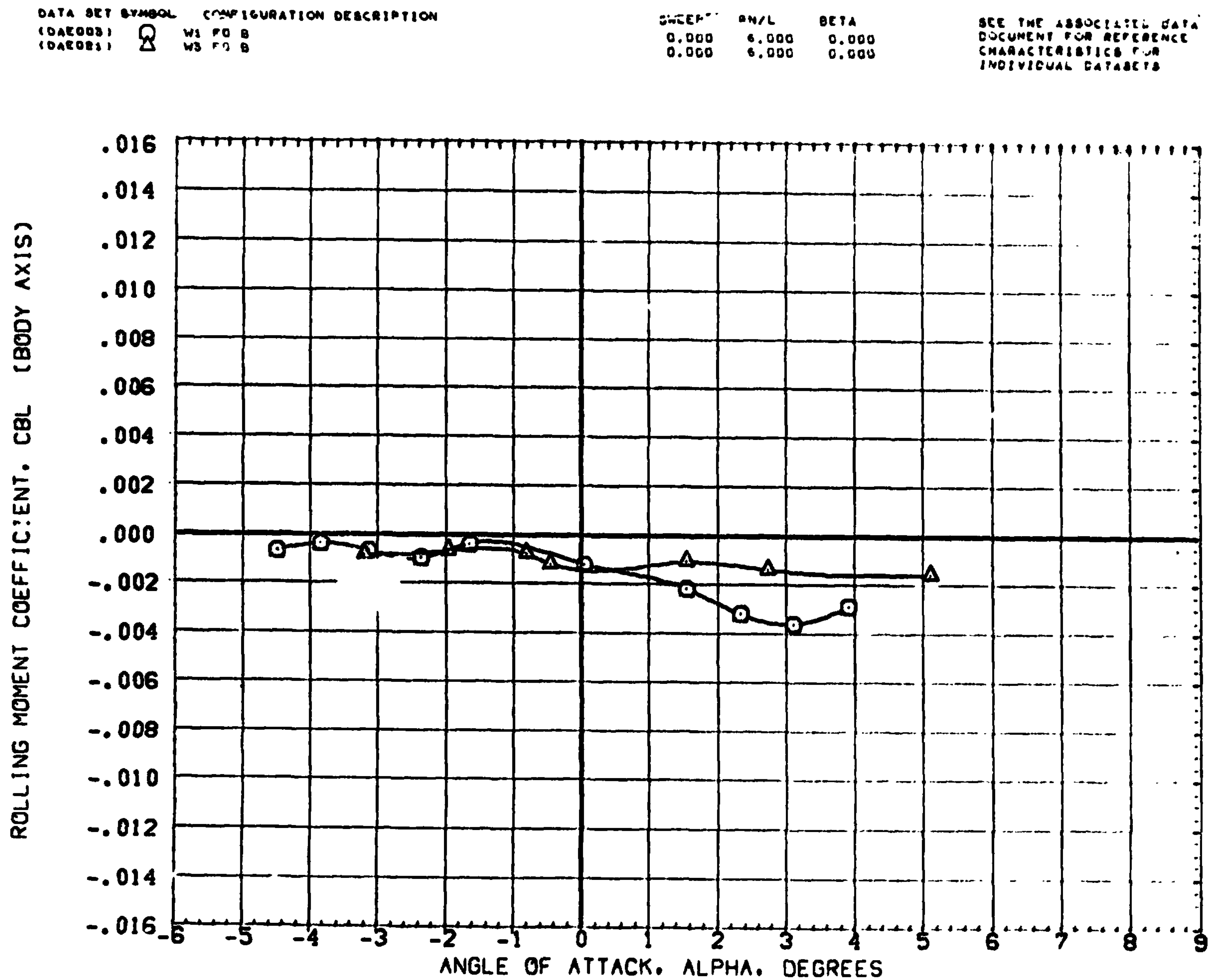


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA= 0 DEGREES

(A)MACH = .80

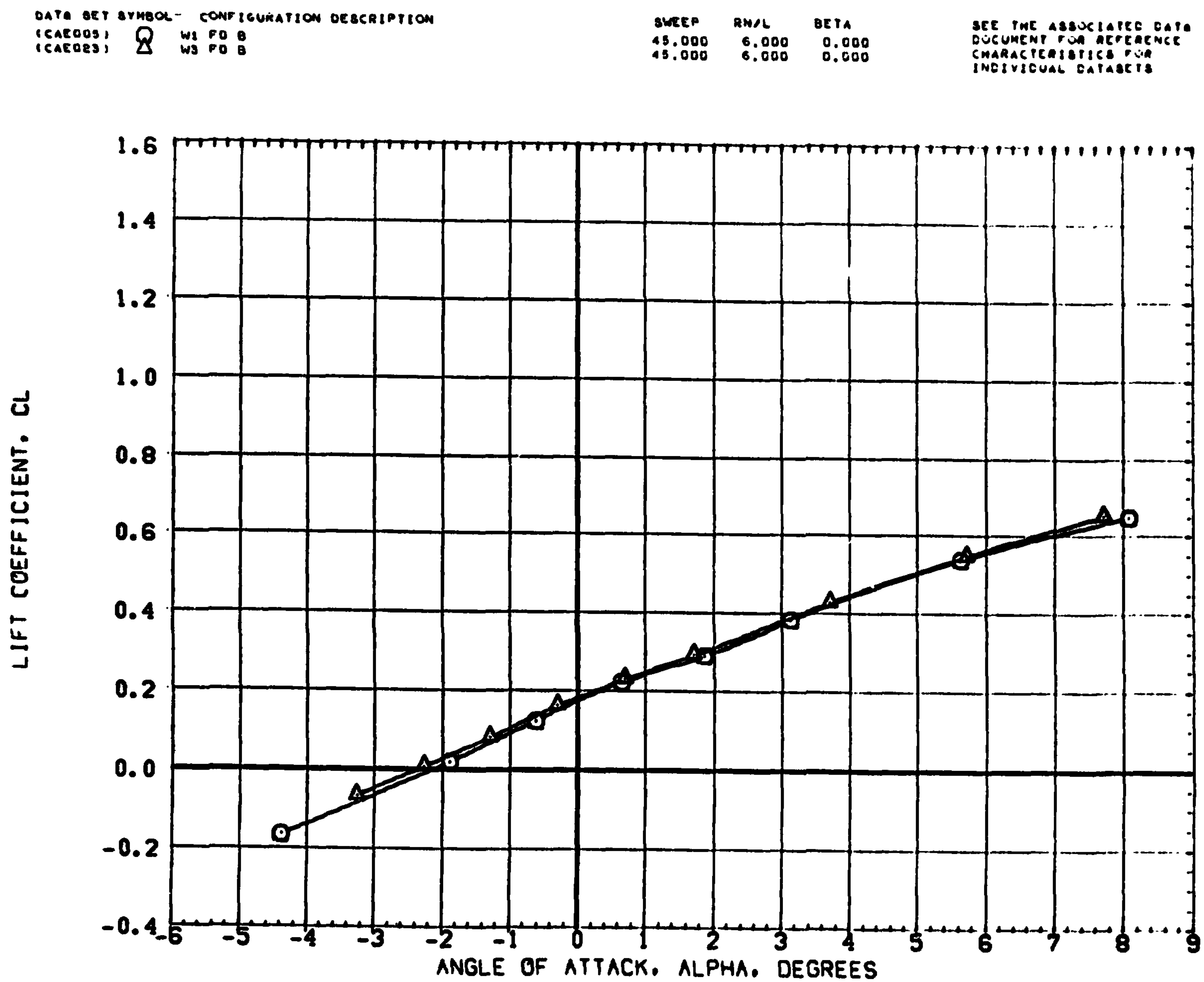


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES
(A)MACH = .70

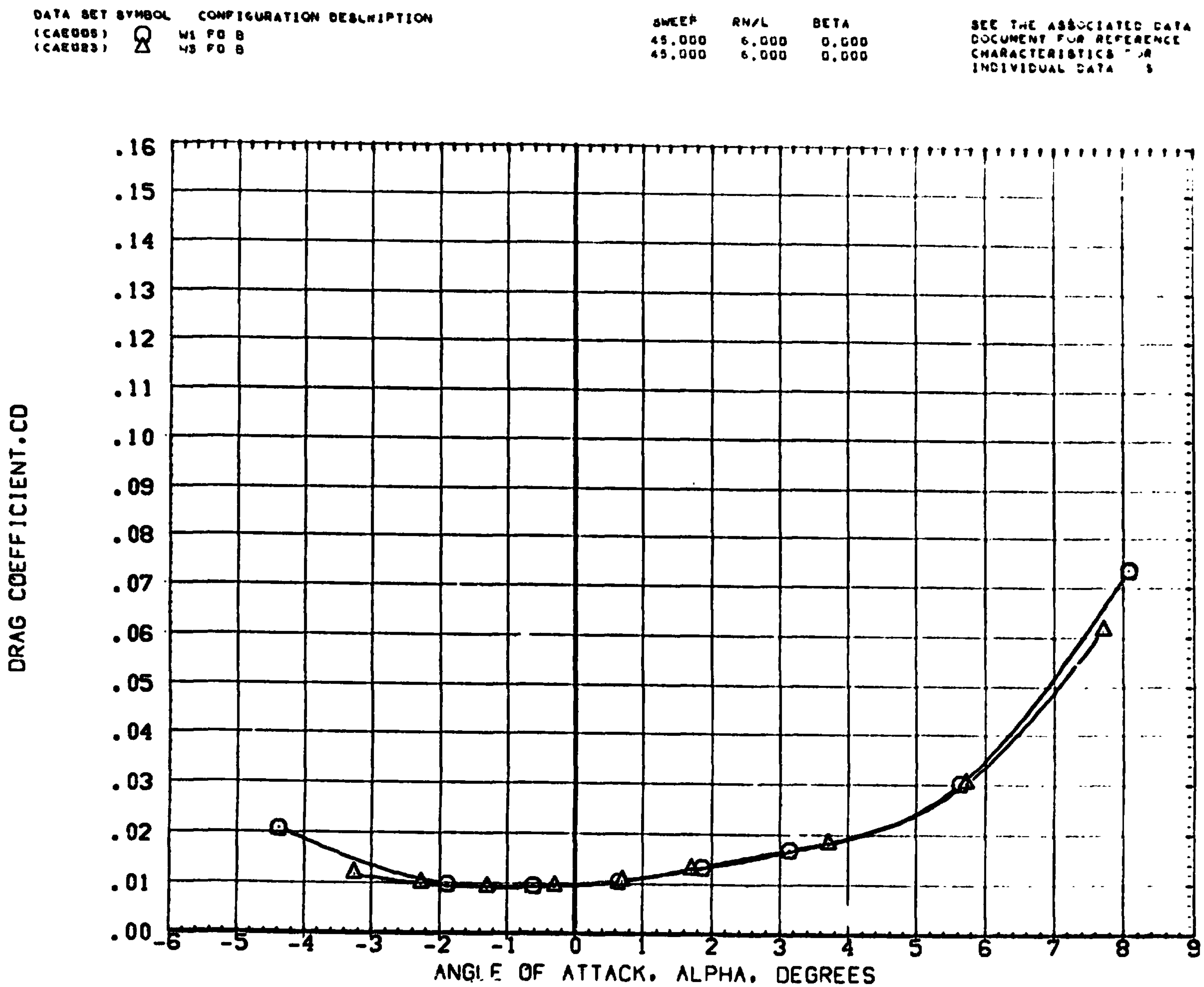


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES
(A)MACH = .70

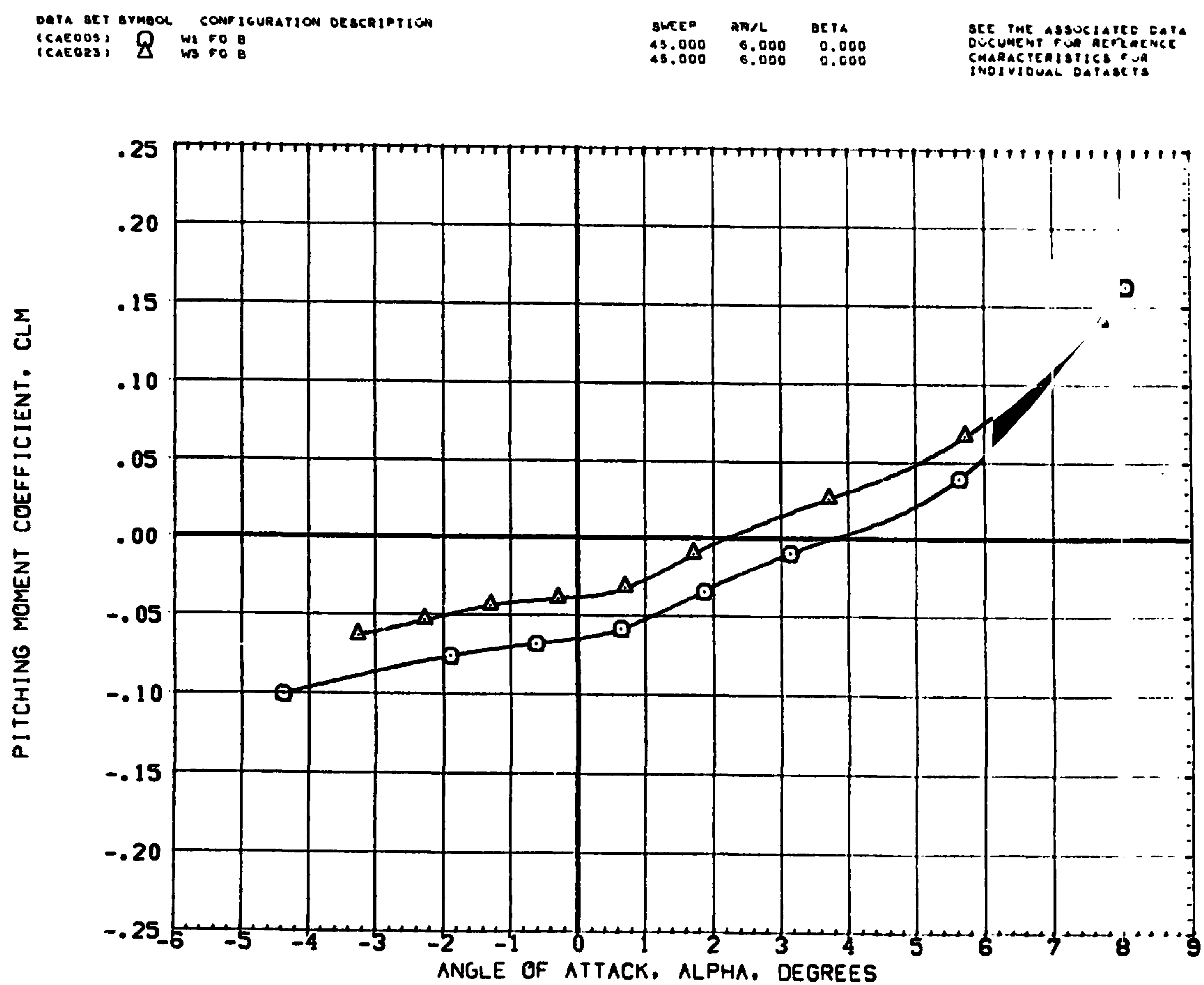


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE005)	○	W1 F0 B	45.000	6.000	0.000
(CAE023)	△	W3 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

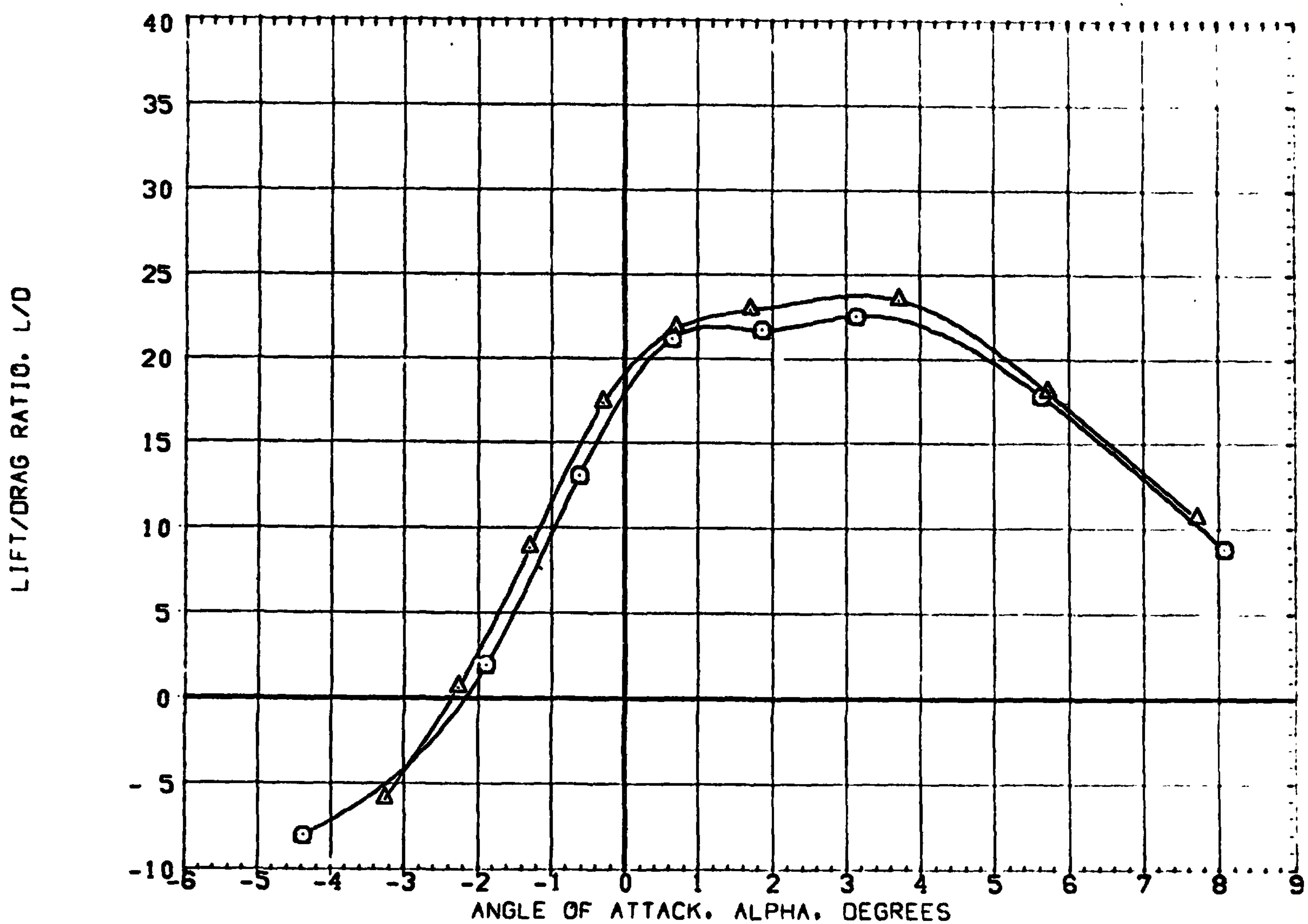


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

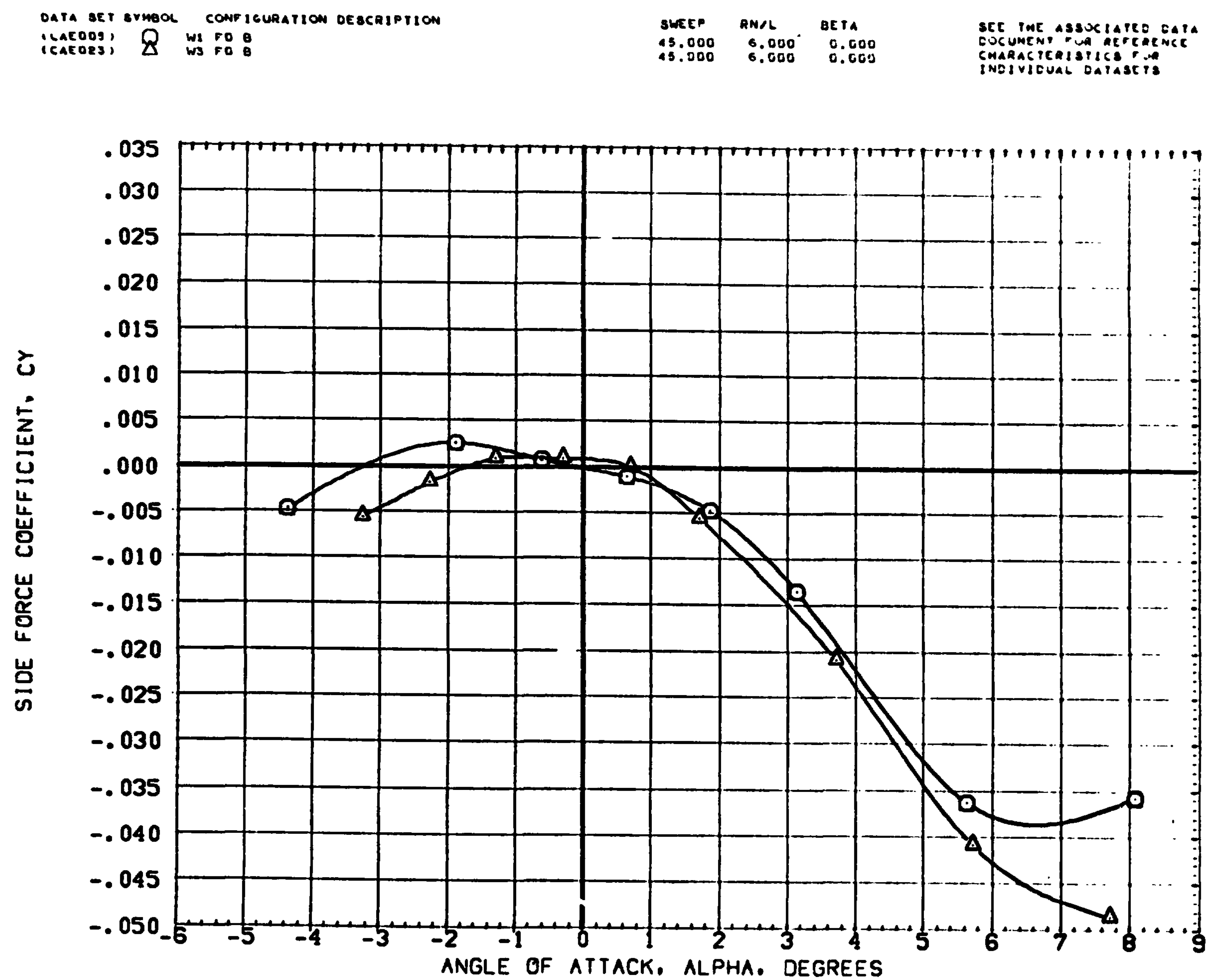


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

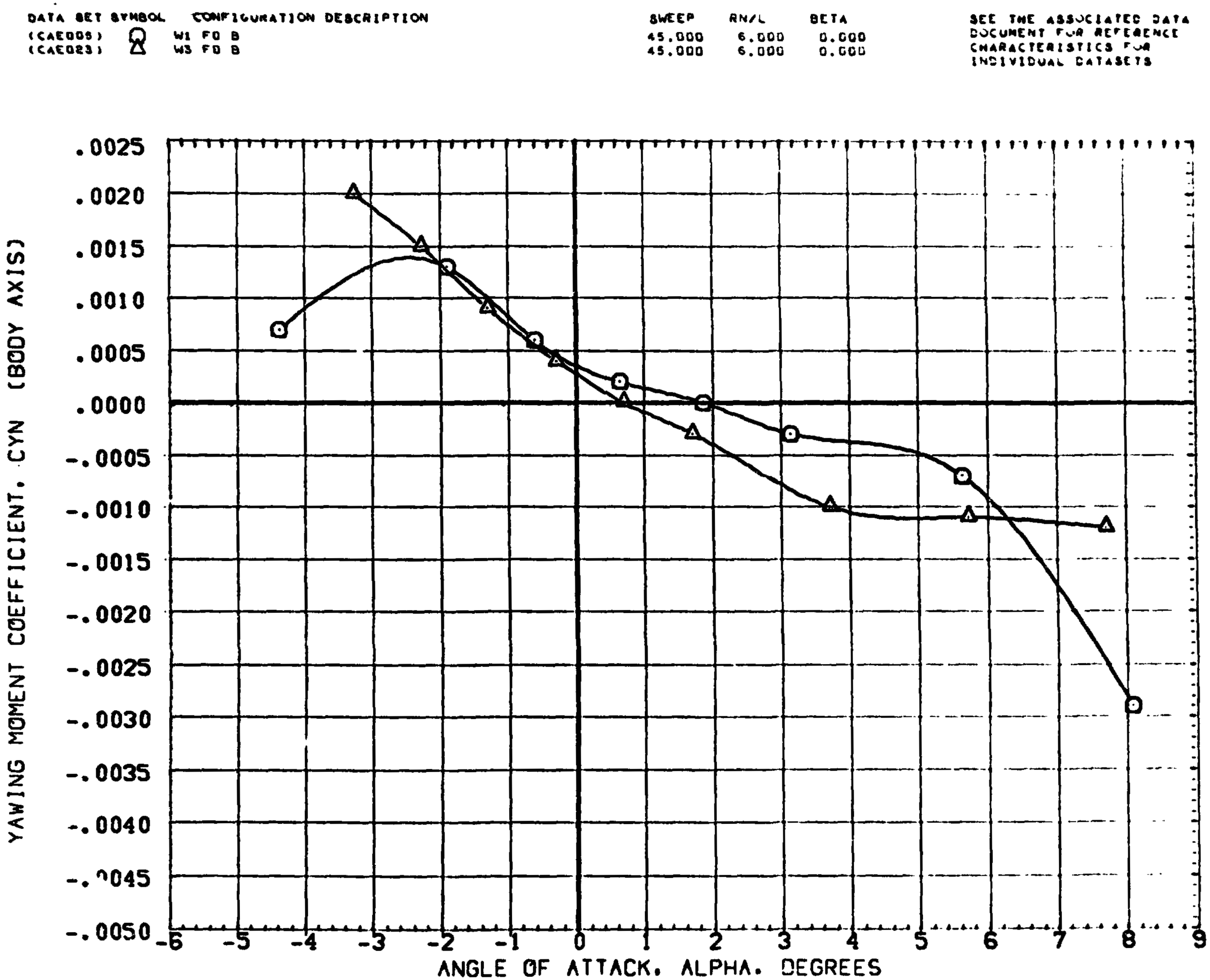


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES

)MACH - .70

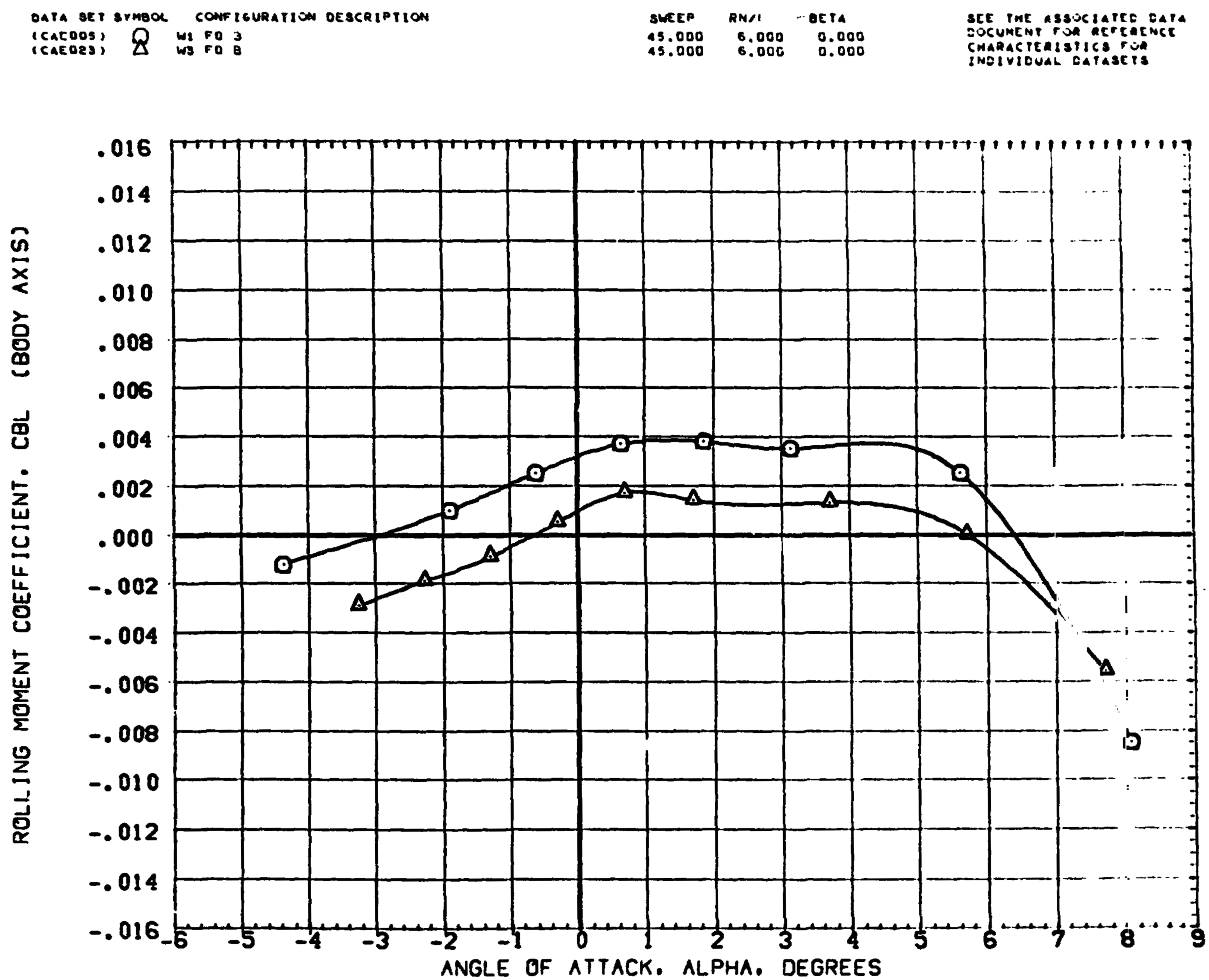


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.70, LAMBDA=45 DEGREES

(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	○	W1 F0 B	45.000	6.000	0.000
(BAE023)	△	W5 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

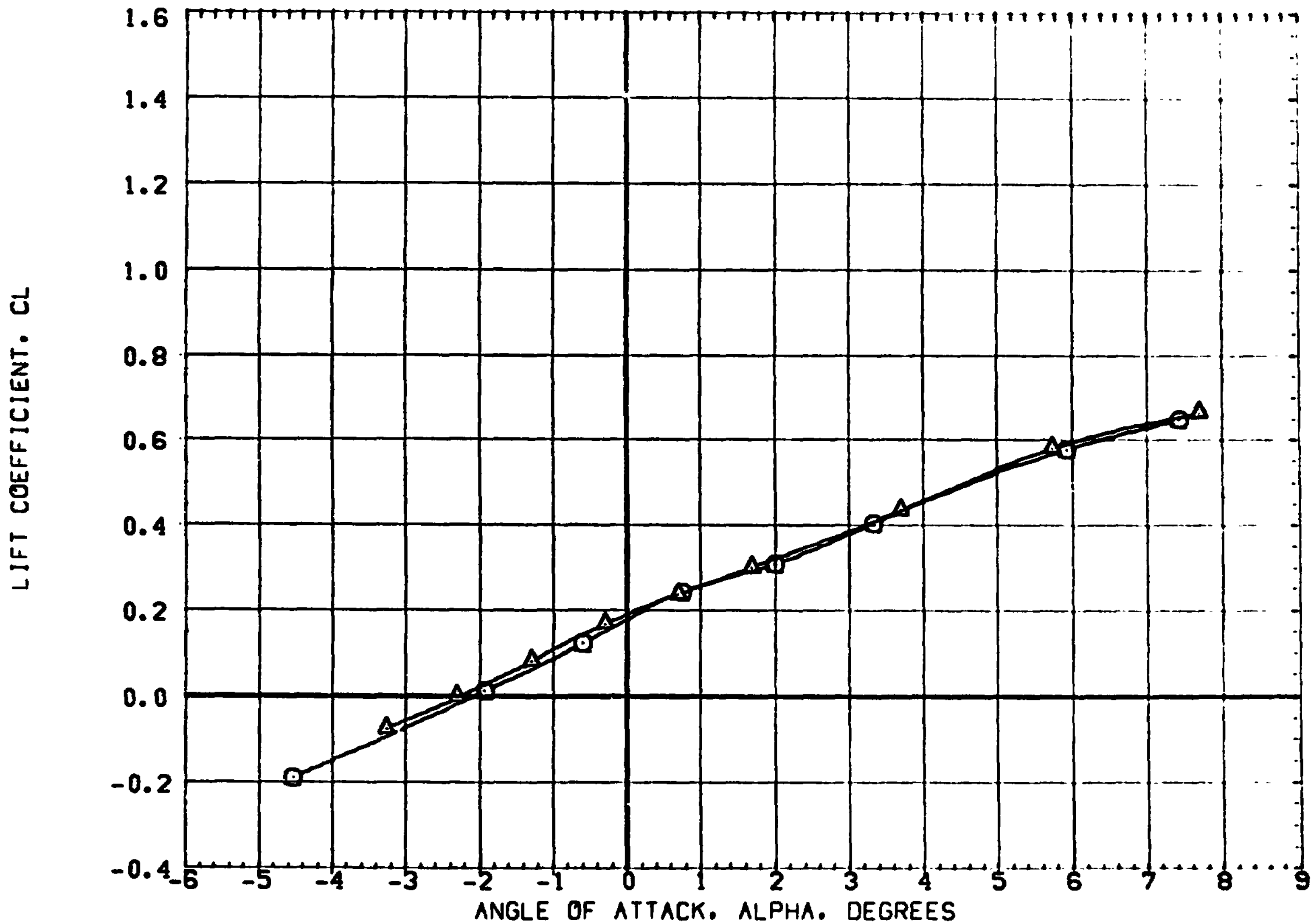


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

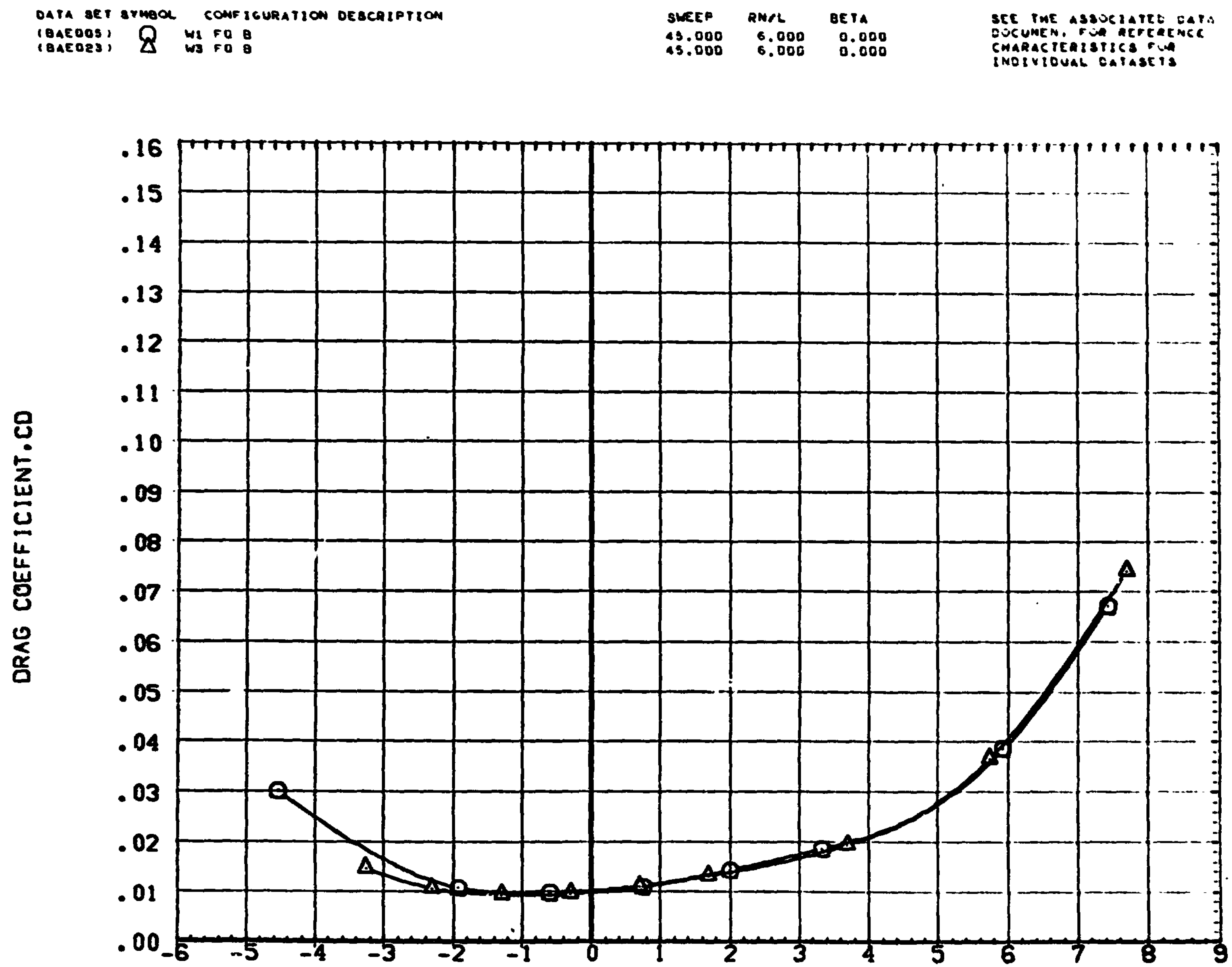


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	⊙	W1 FD B	45.000	6.000	0.000
(BAE023)	△	W3 FD B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

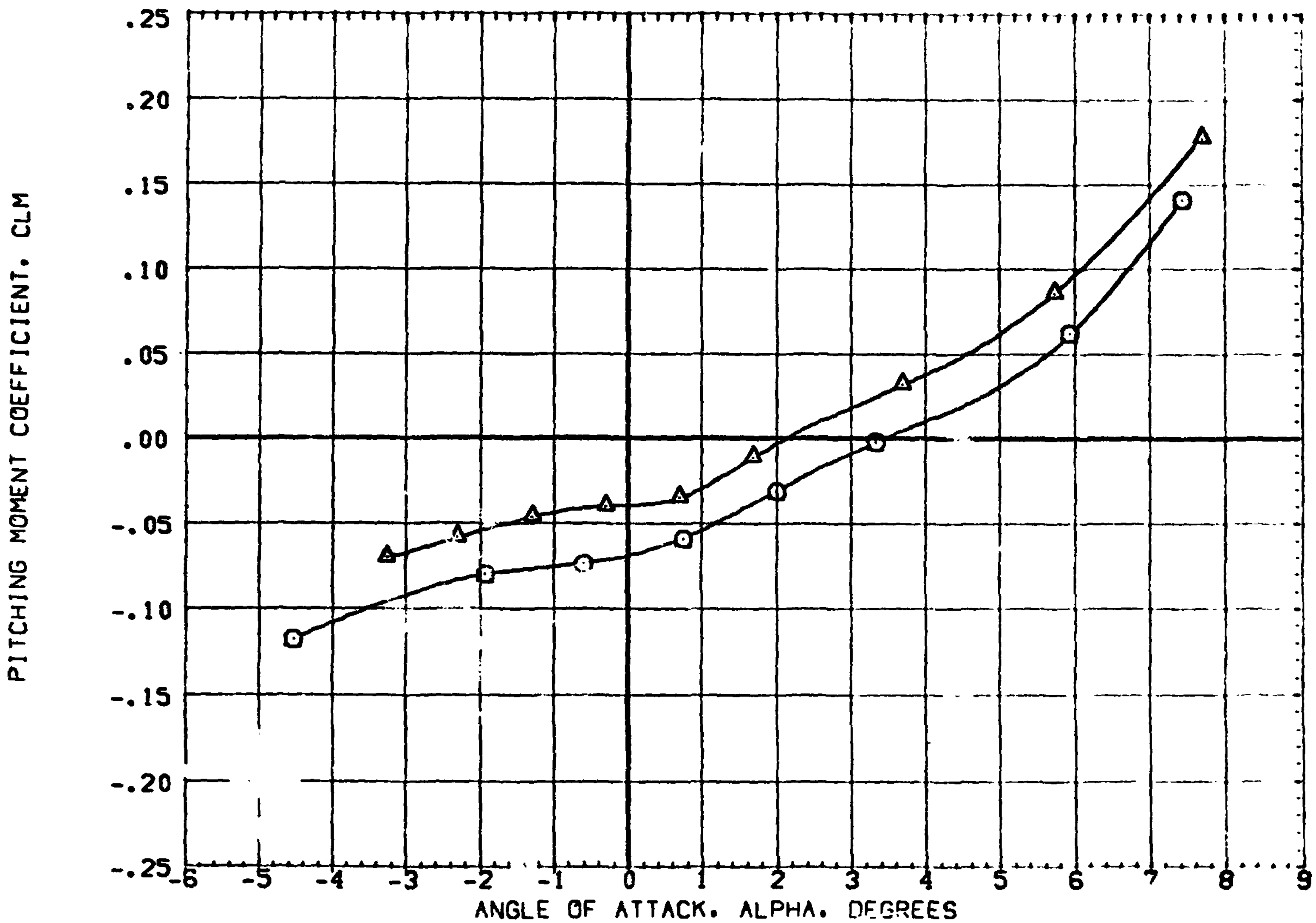


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A) MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	O	W1 FO B	45.000	6.000	0.000
(BAE023)	Δ	W3 FO B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

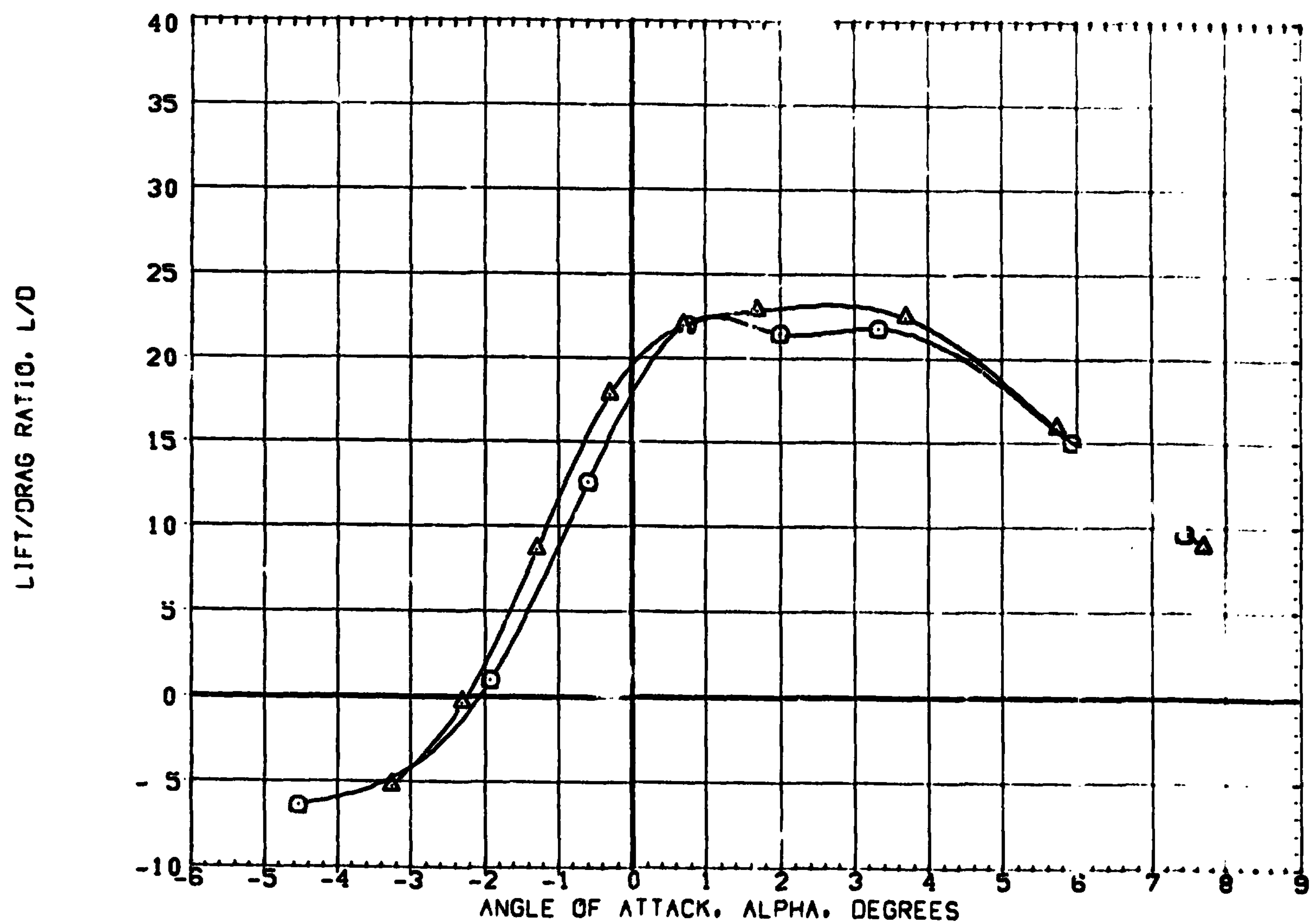


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

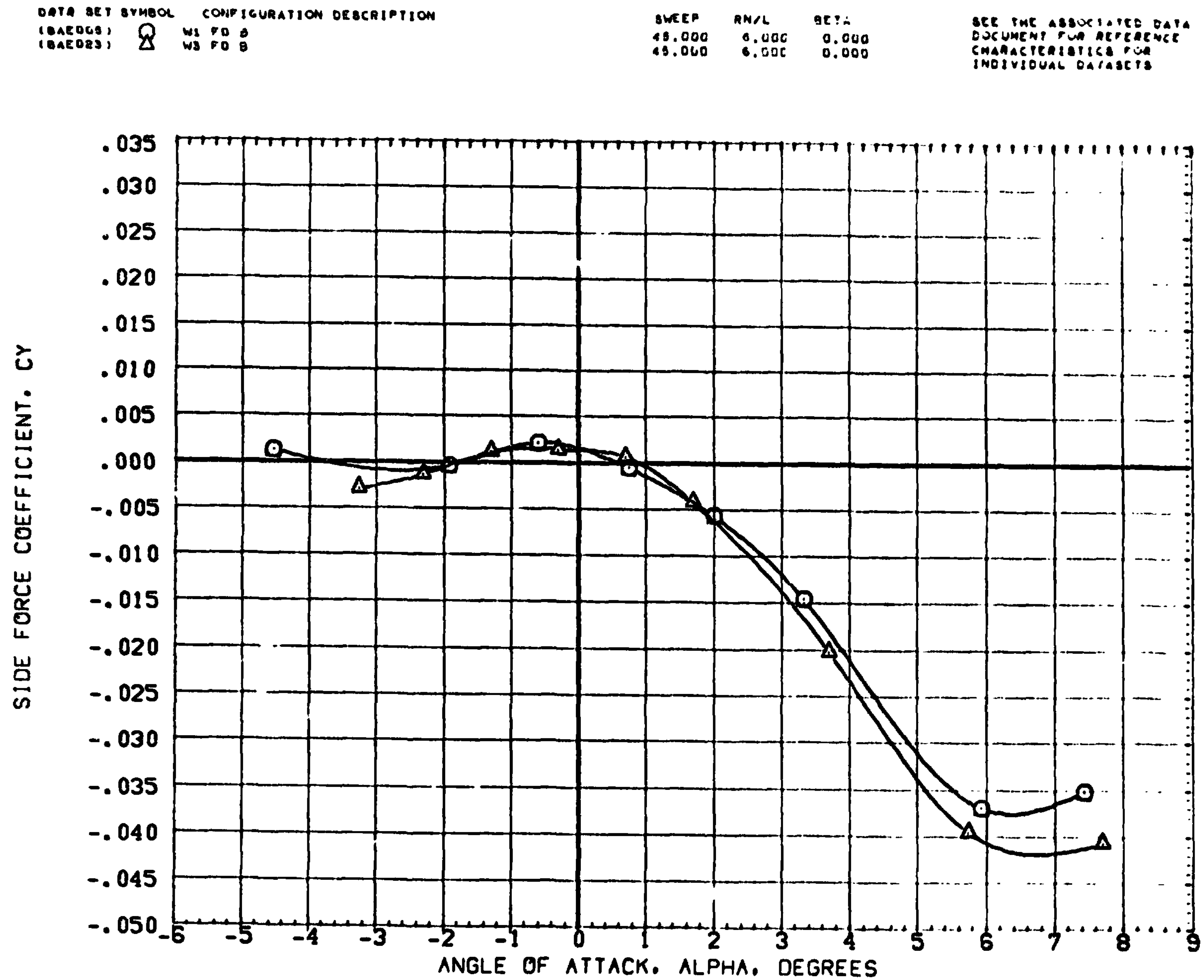


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES
(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE005)	⊙	W1 FD B	45.000	6.000	0.000
(BAE025)	△	W5 FD B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

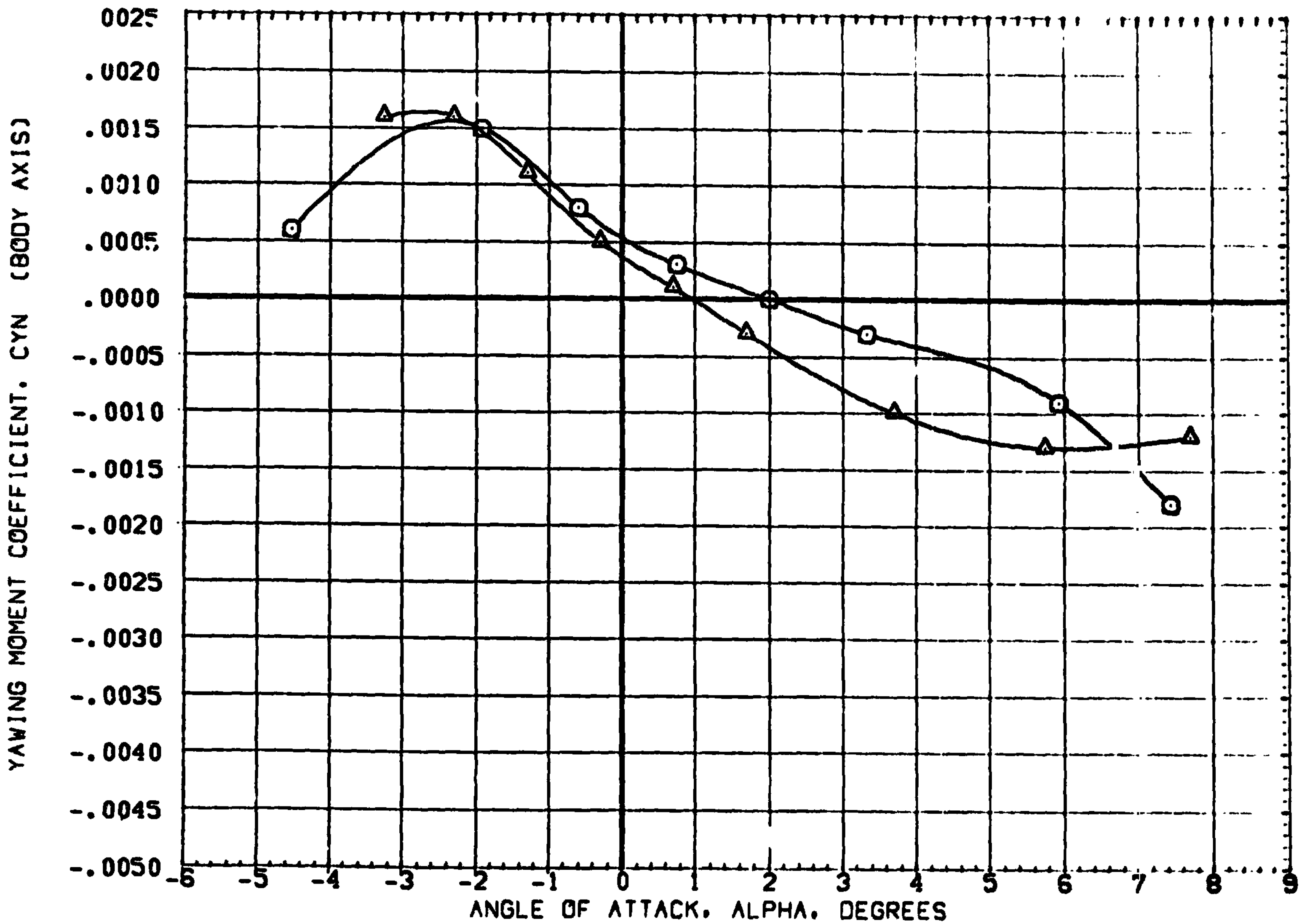


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

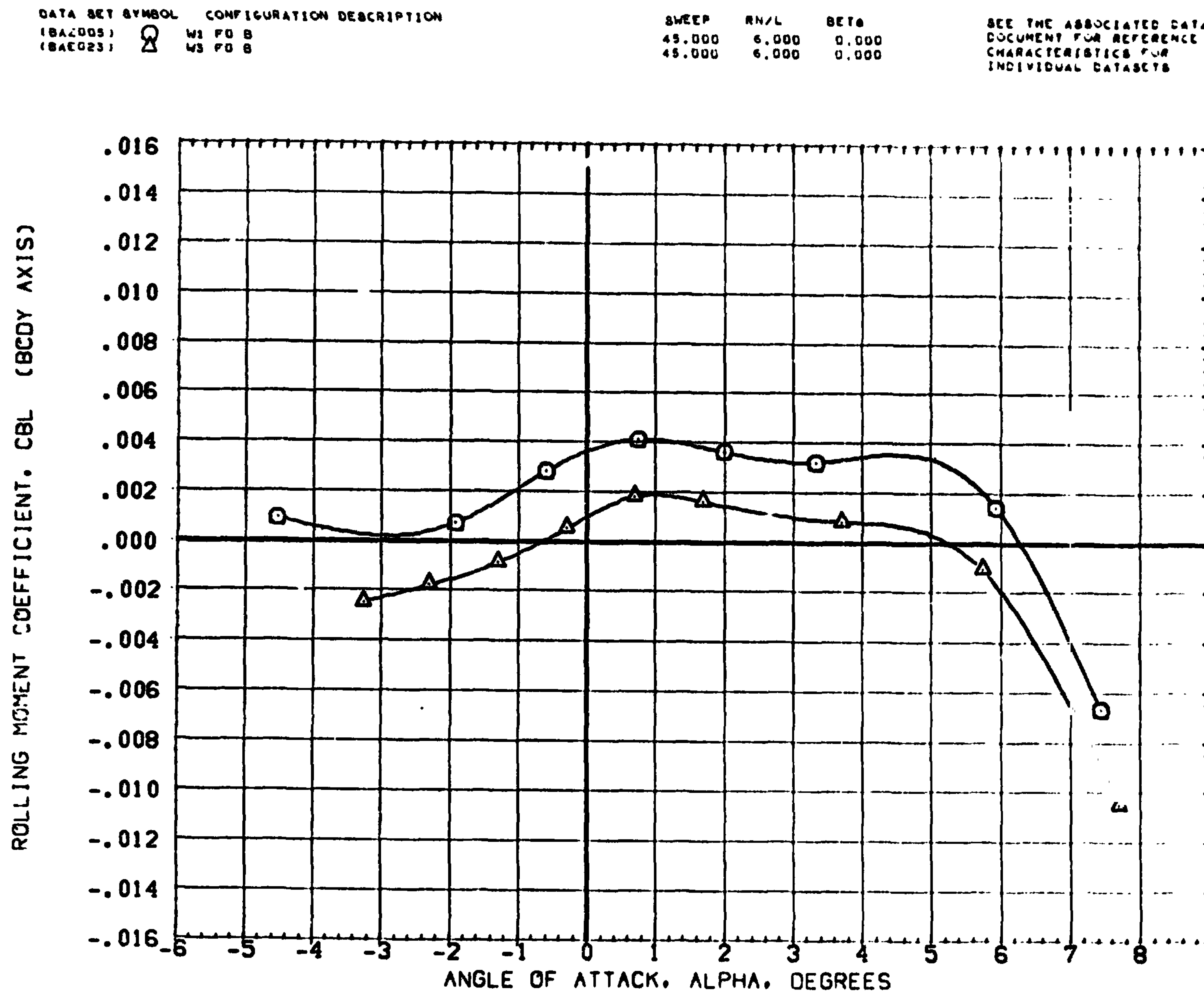


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	DN/L	BETA
(DAE005)	O	W1 F0 B	45.000	6.000	0.000
(DAE323)	Δ	W3 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

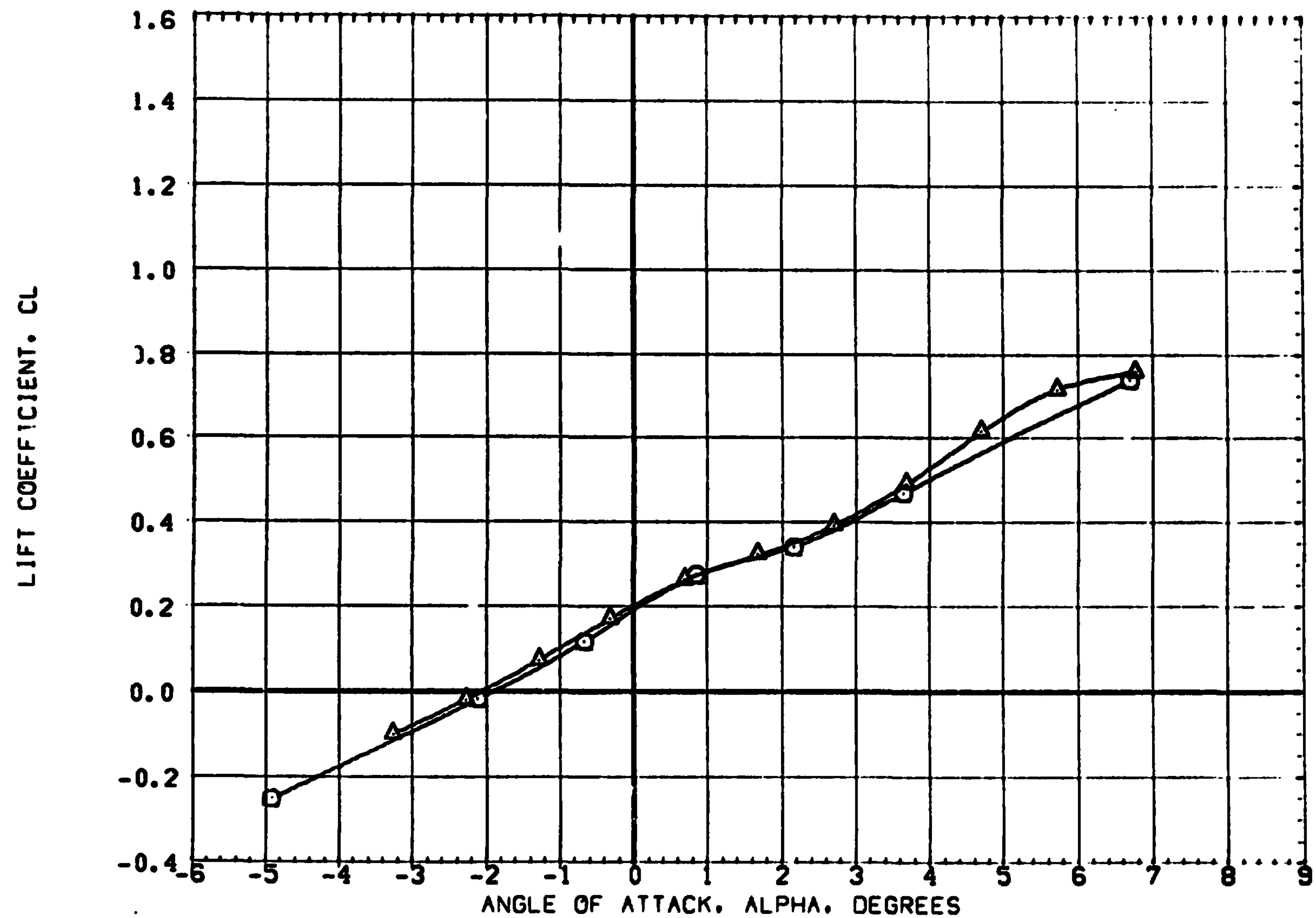


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

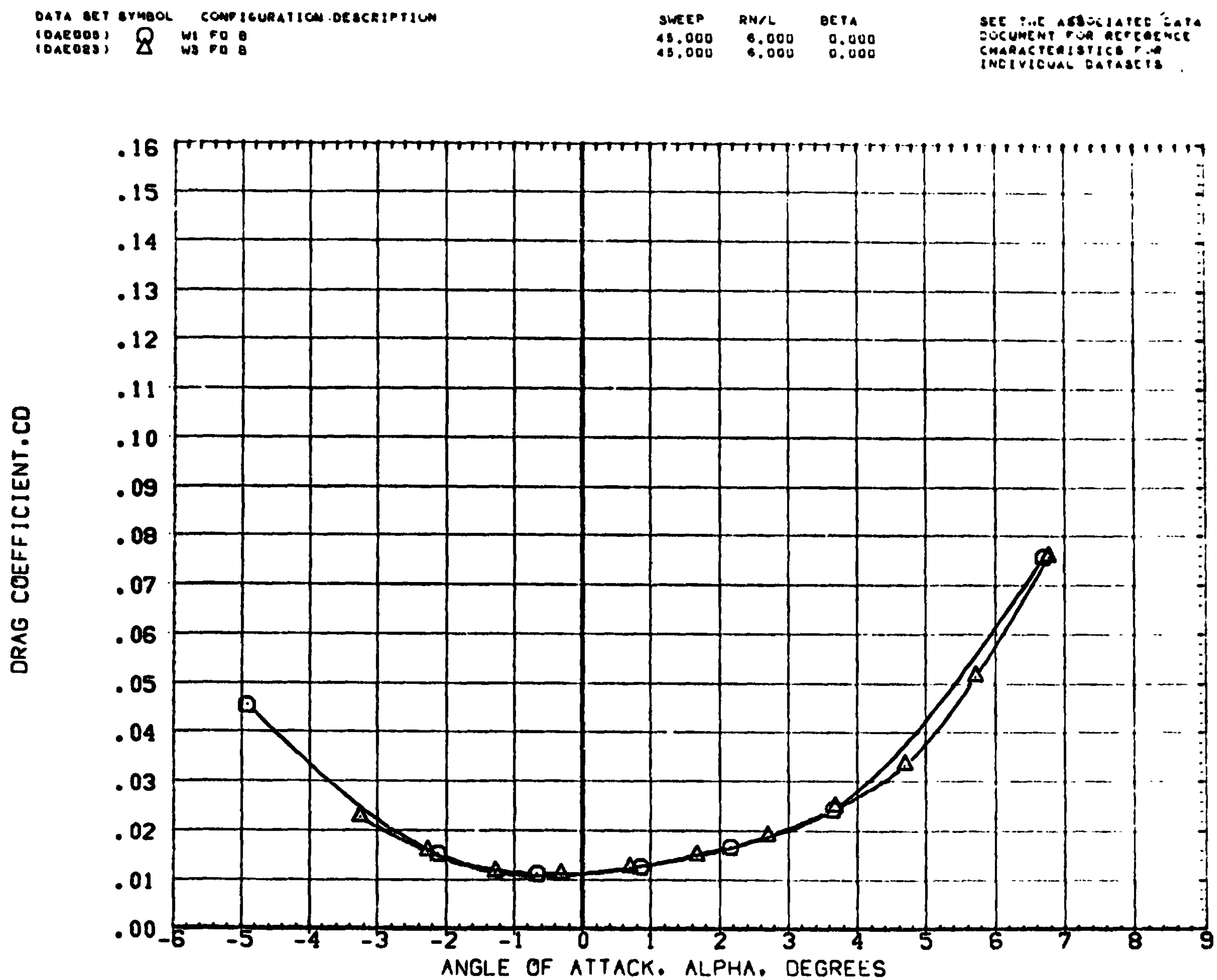


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

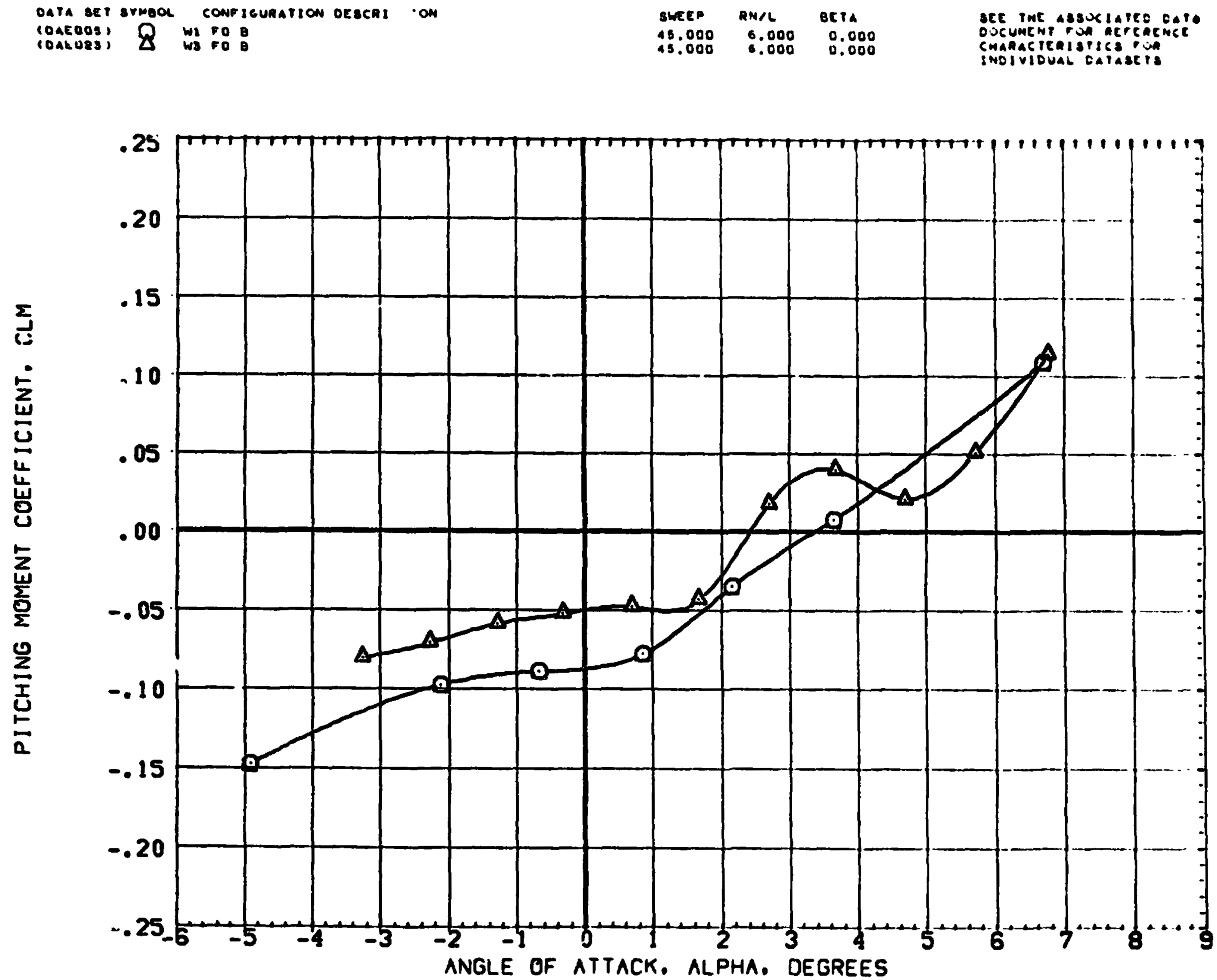


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(DAE005) ○ W1 F0 B
(DAE023) △ W3 F0 B

SWEEP	RN/L	BETA
45.000	6.000	0.000
45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

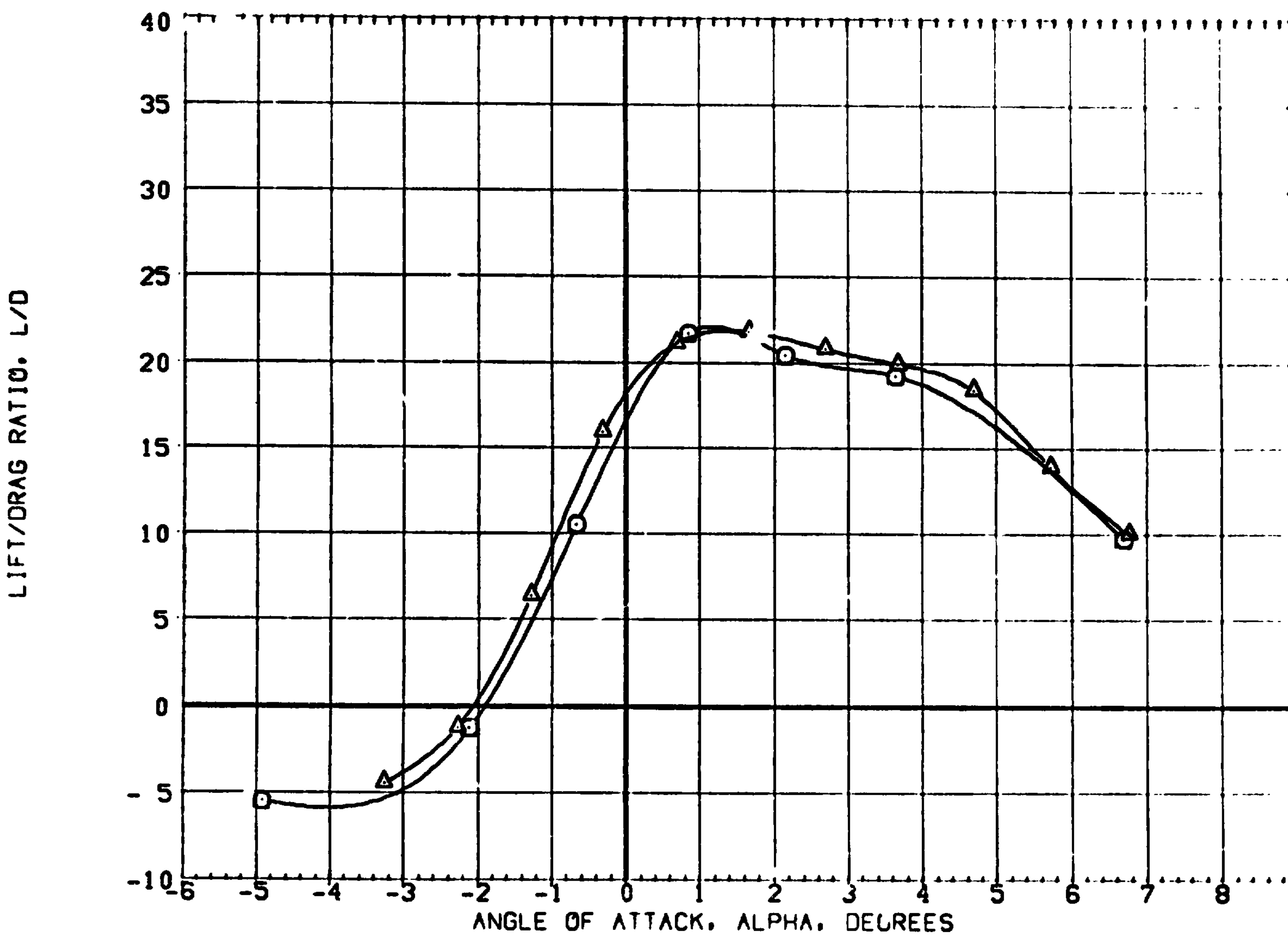


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE005)	⊙	W1 FD B	45.000	6.000	0.000
(DAE023)	△	W3 FD B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA-…
DOCUMENT FOR REFERENCE
CHARACTERISTICS FOR
INDIVIDUAL DATASETS

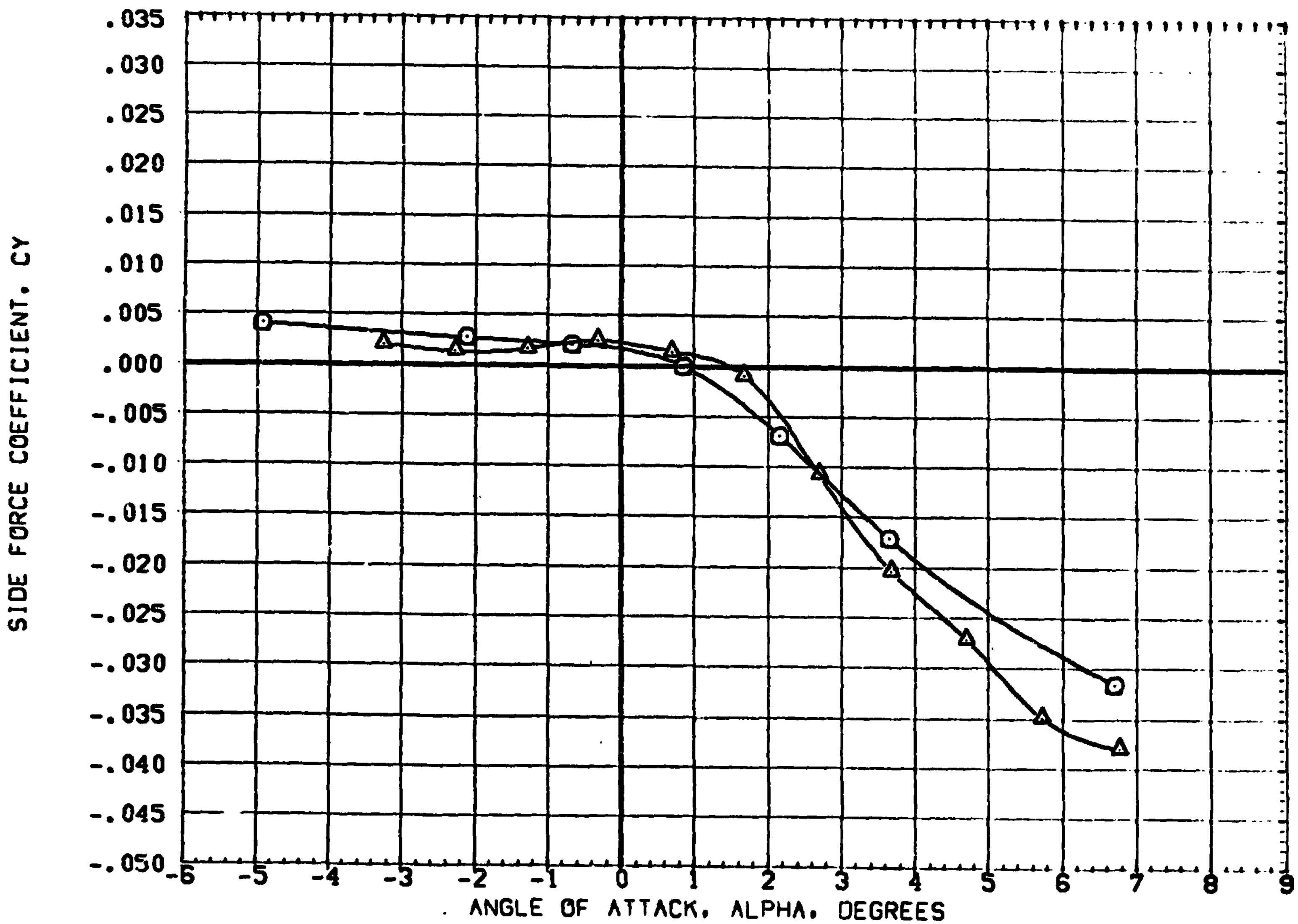


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

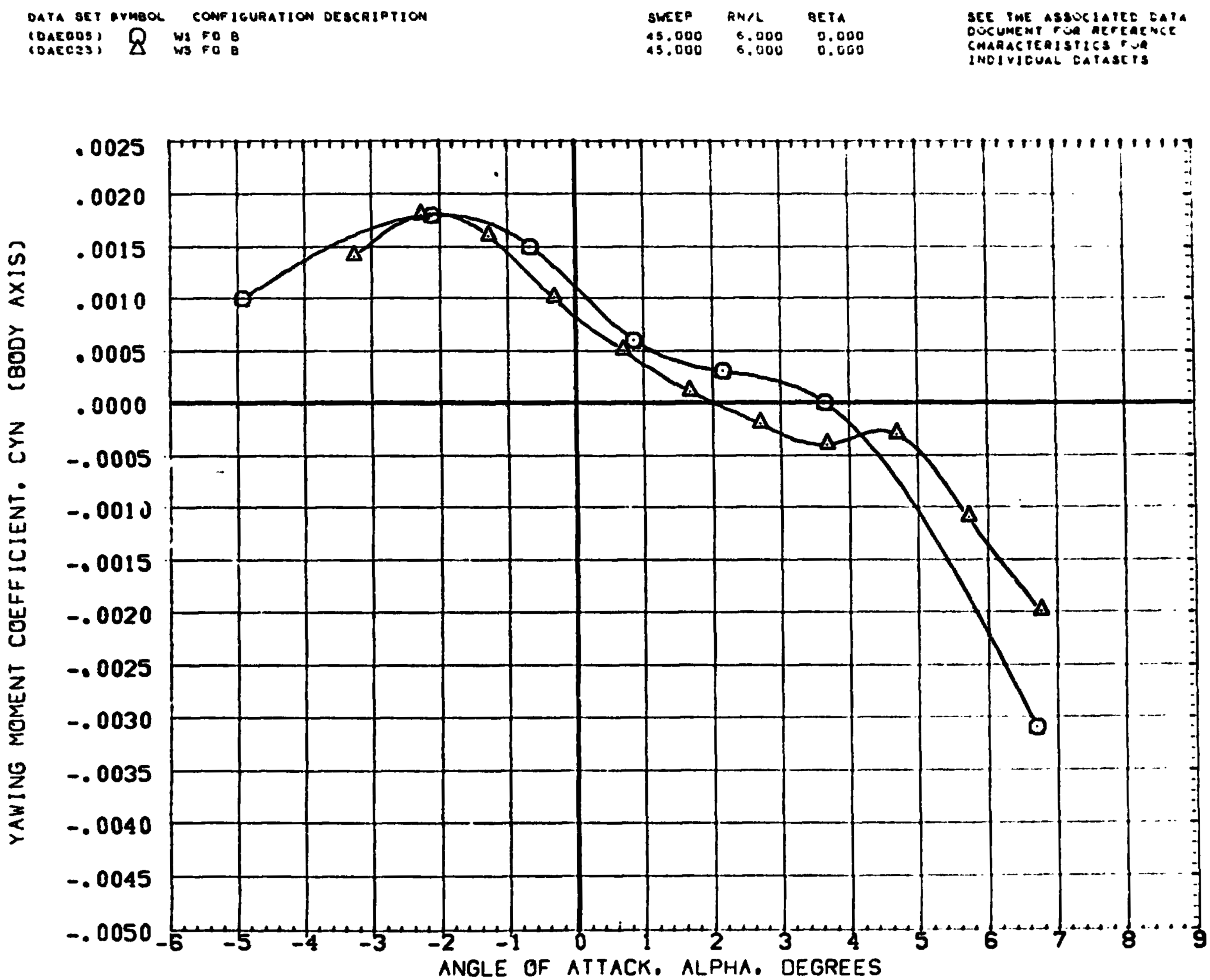


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

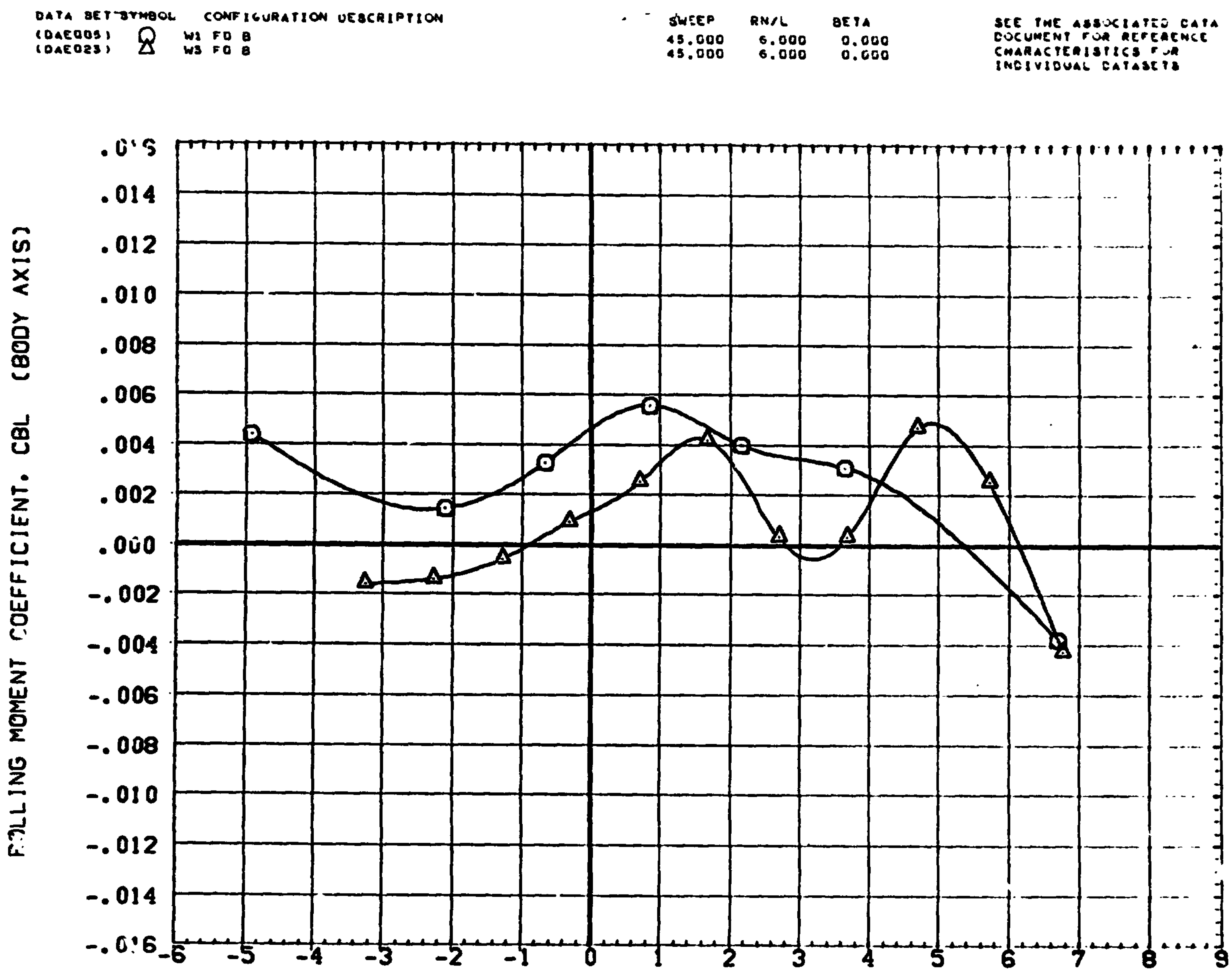


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=45 DEGREES

(A)MACH = .95

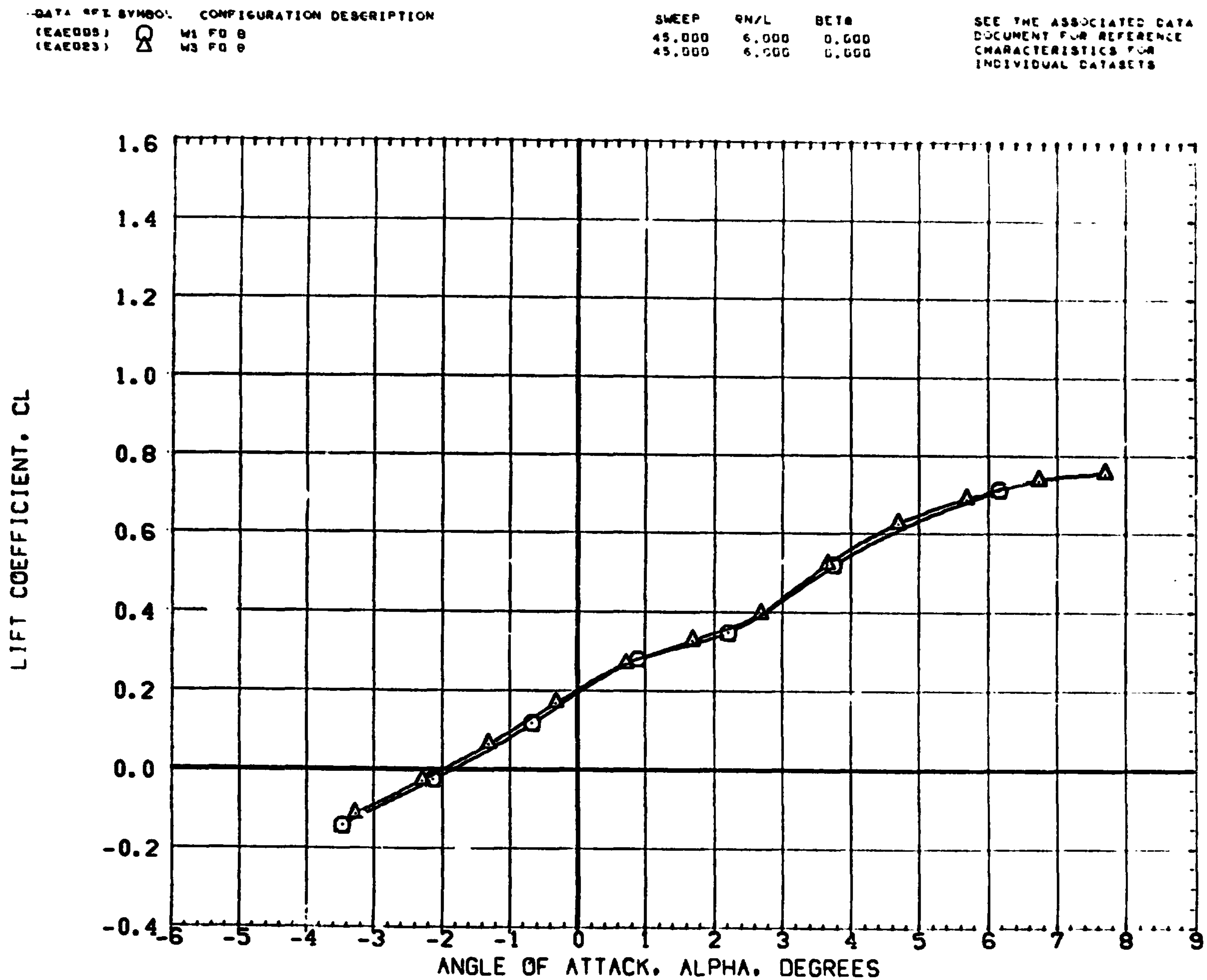


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES
(A)MACH = .98

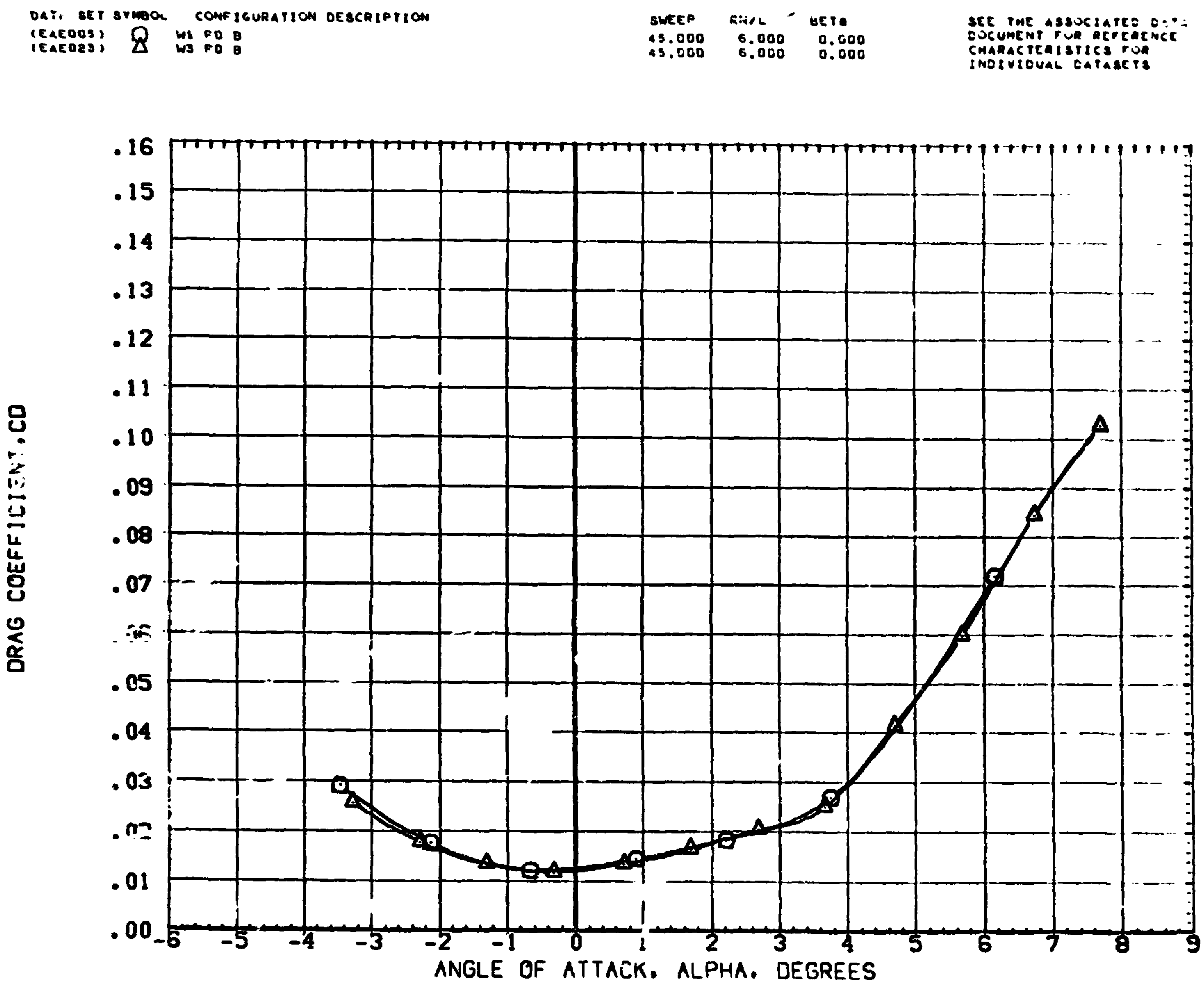


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE005)	O	W1 F0 B	45.000	6.000	0.000
(EAE023)	Δ	W3 F_ B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

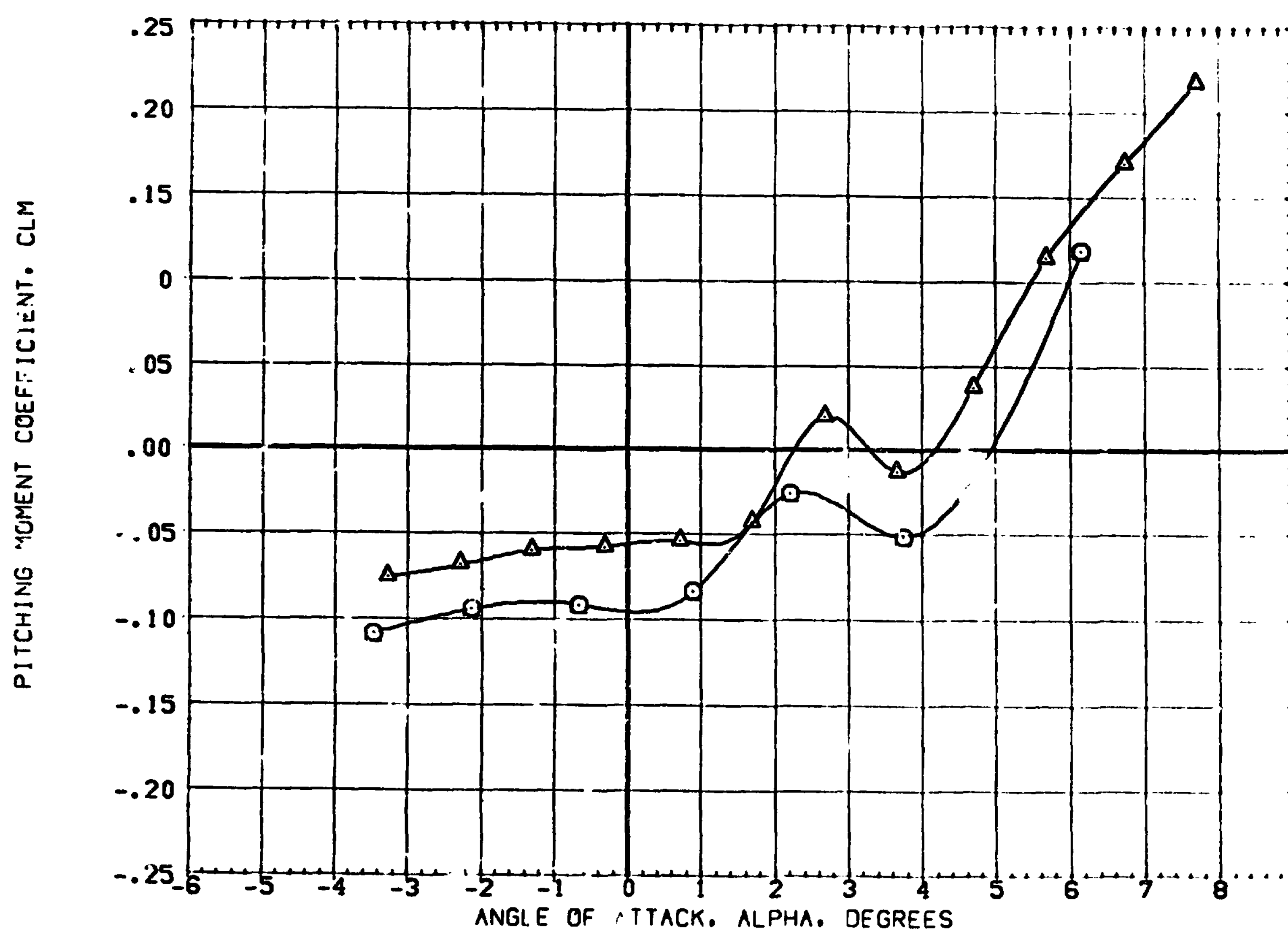


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

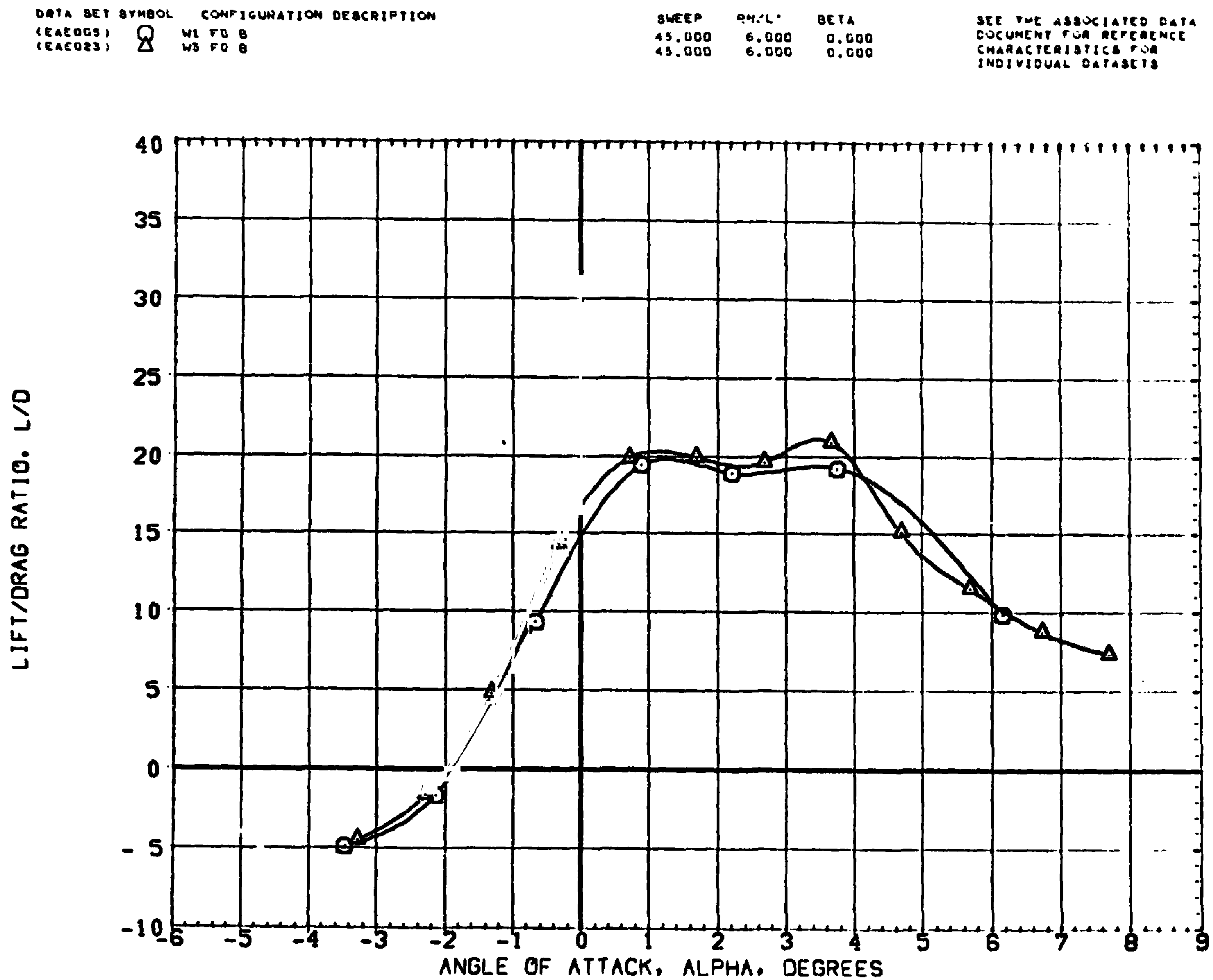


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES
(A)MACH = .98

C3

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE005)	⊙	W1 F0 B	45.000	6.000	0.000
(EAE023)	△	W3 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

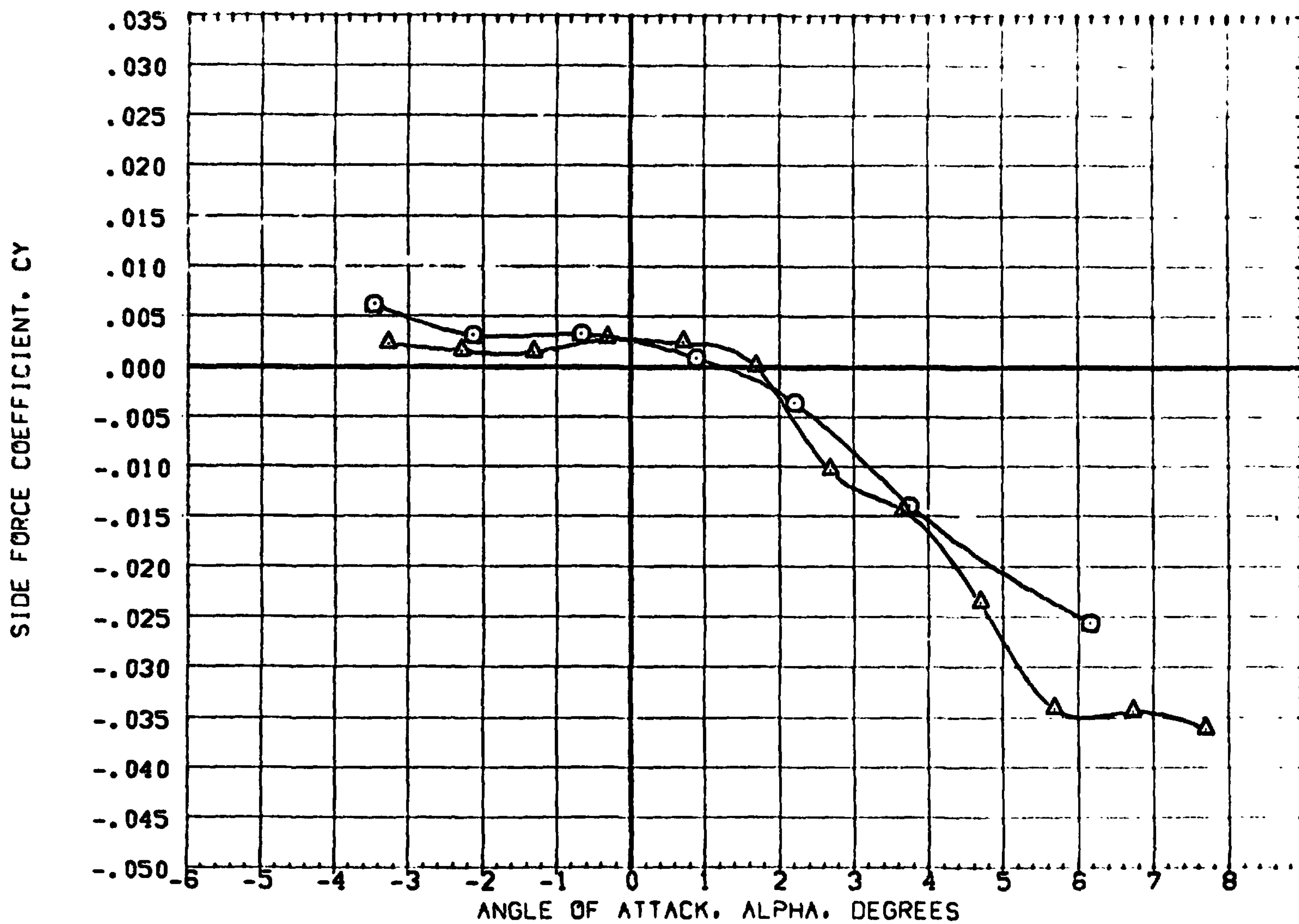


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

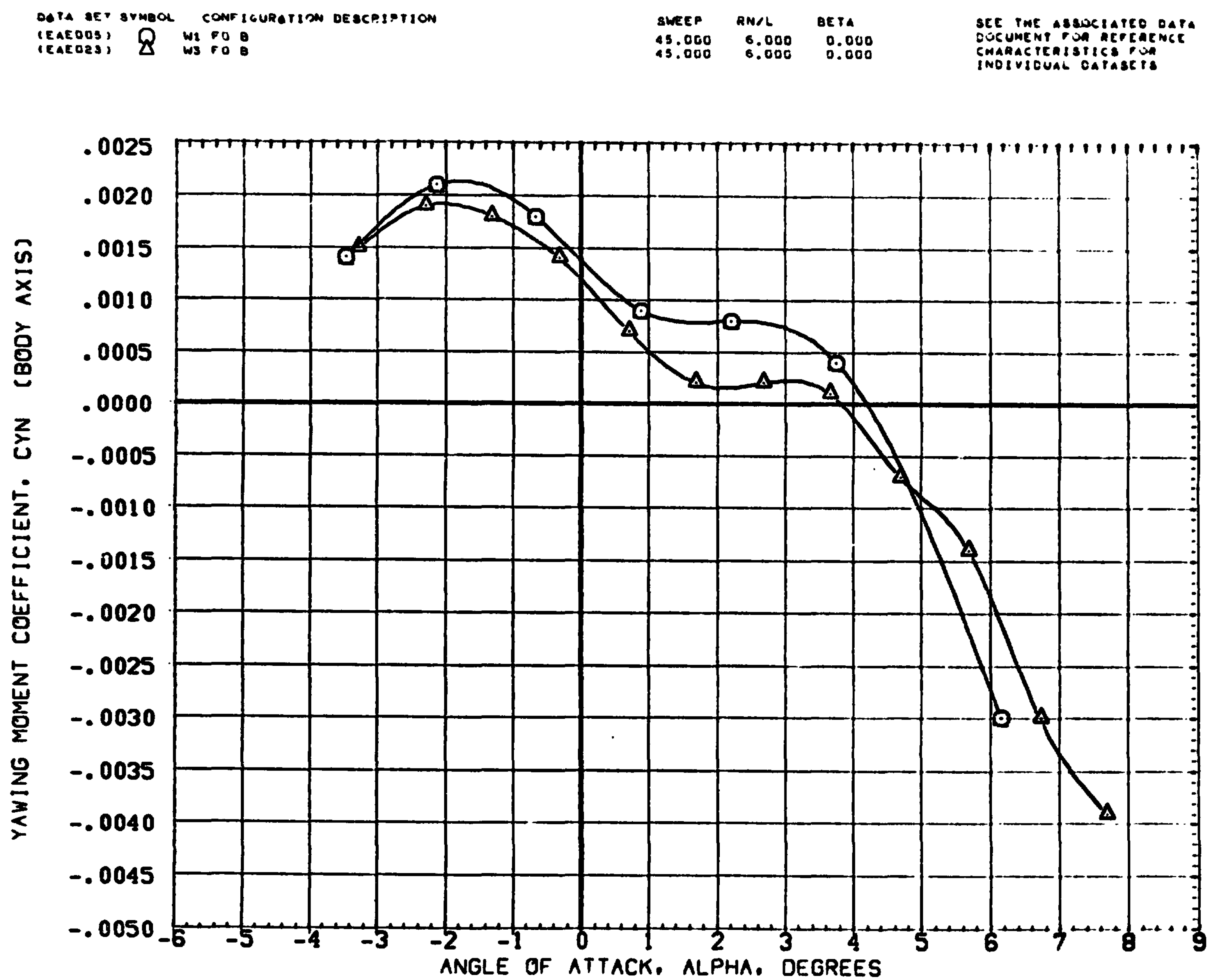


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

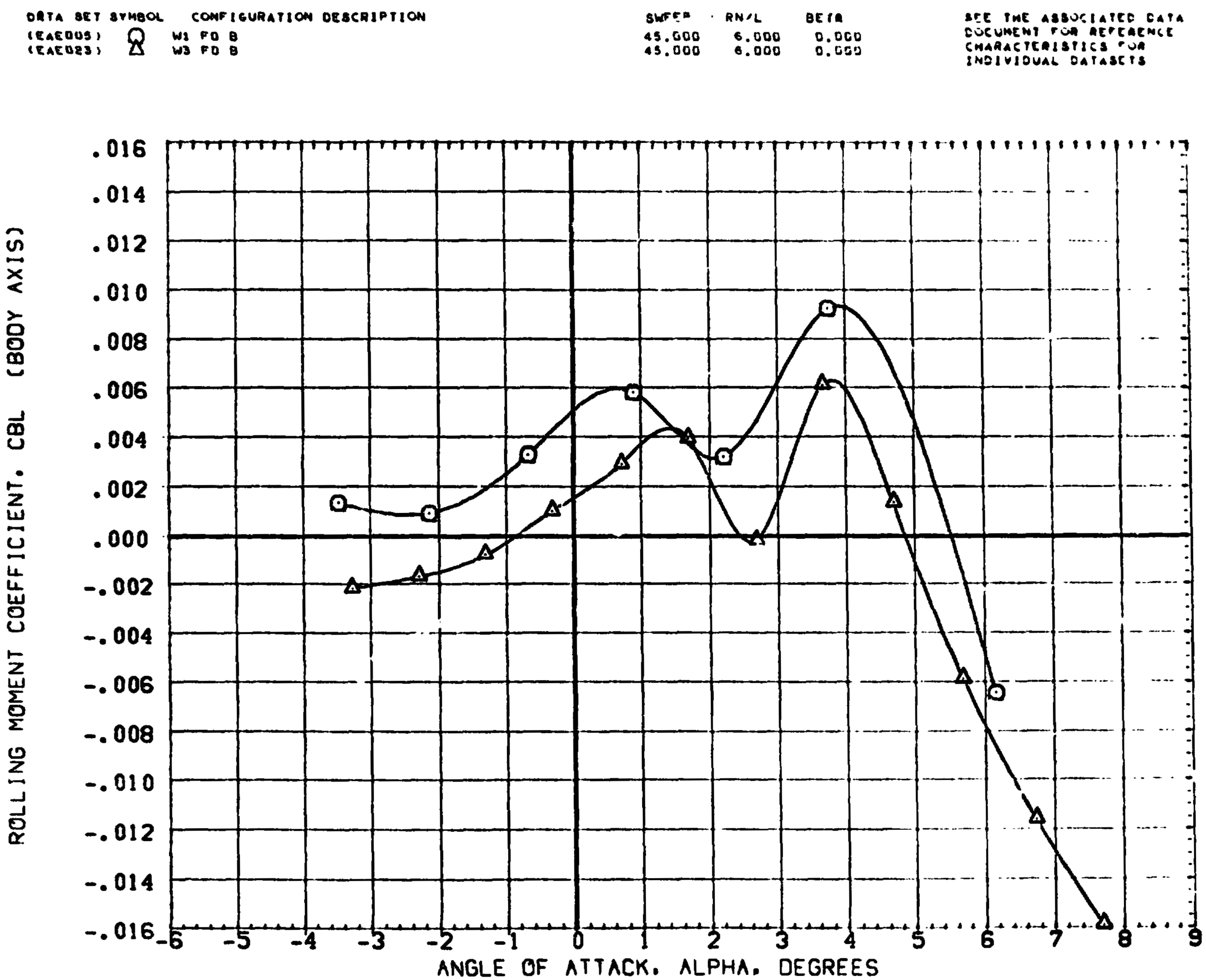


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

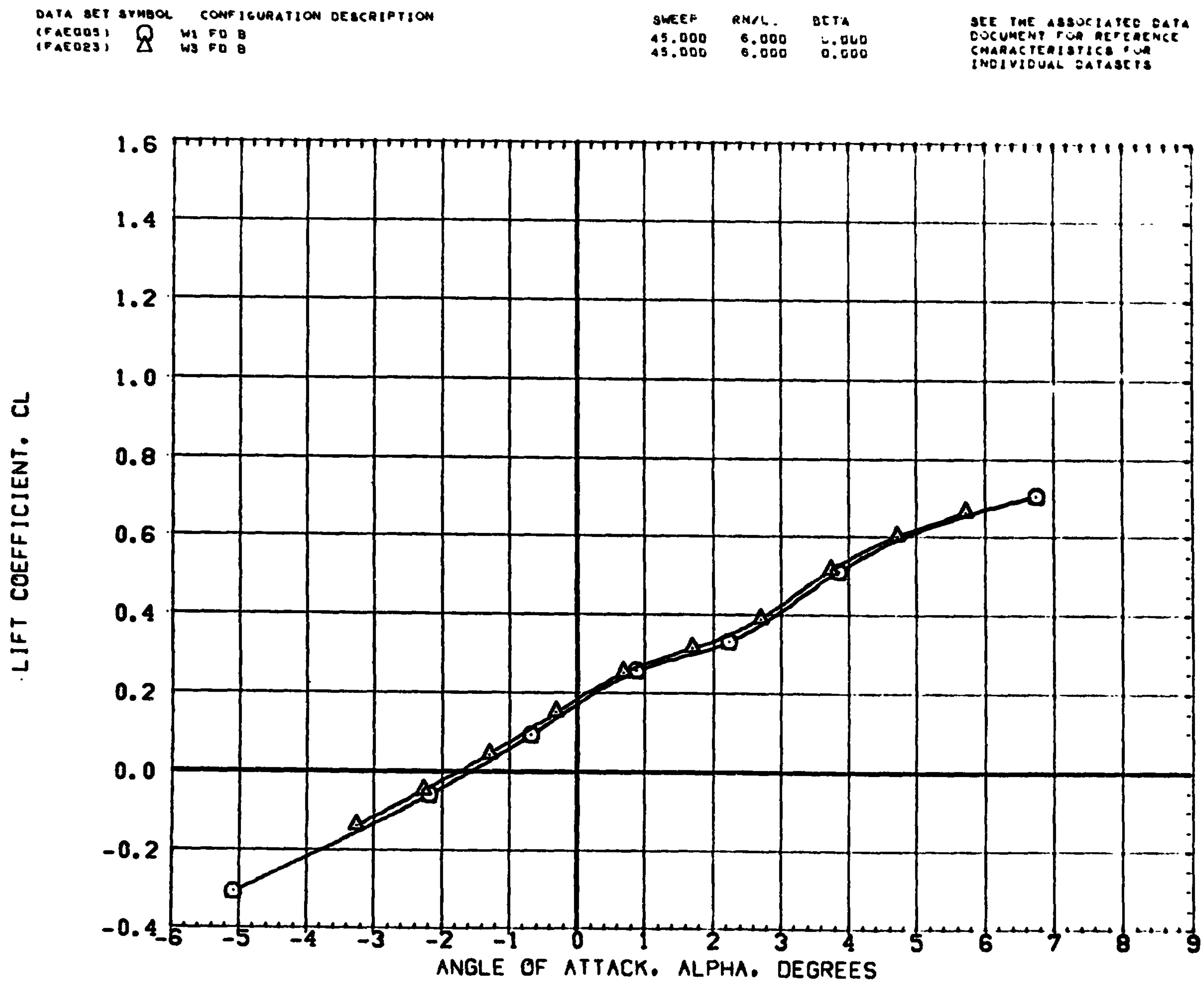


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES
(A)MACH = 1.05

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(FAE005)	○	W1 F0 B	45.000	6.000	0.000
(FAE023)	△	W3 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

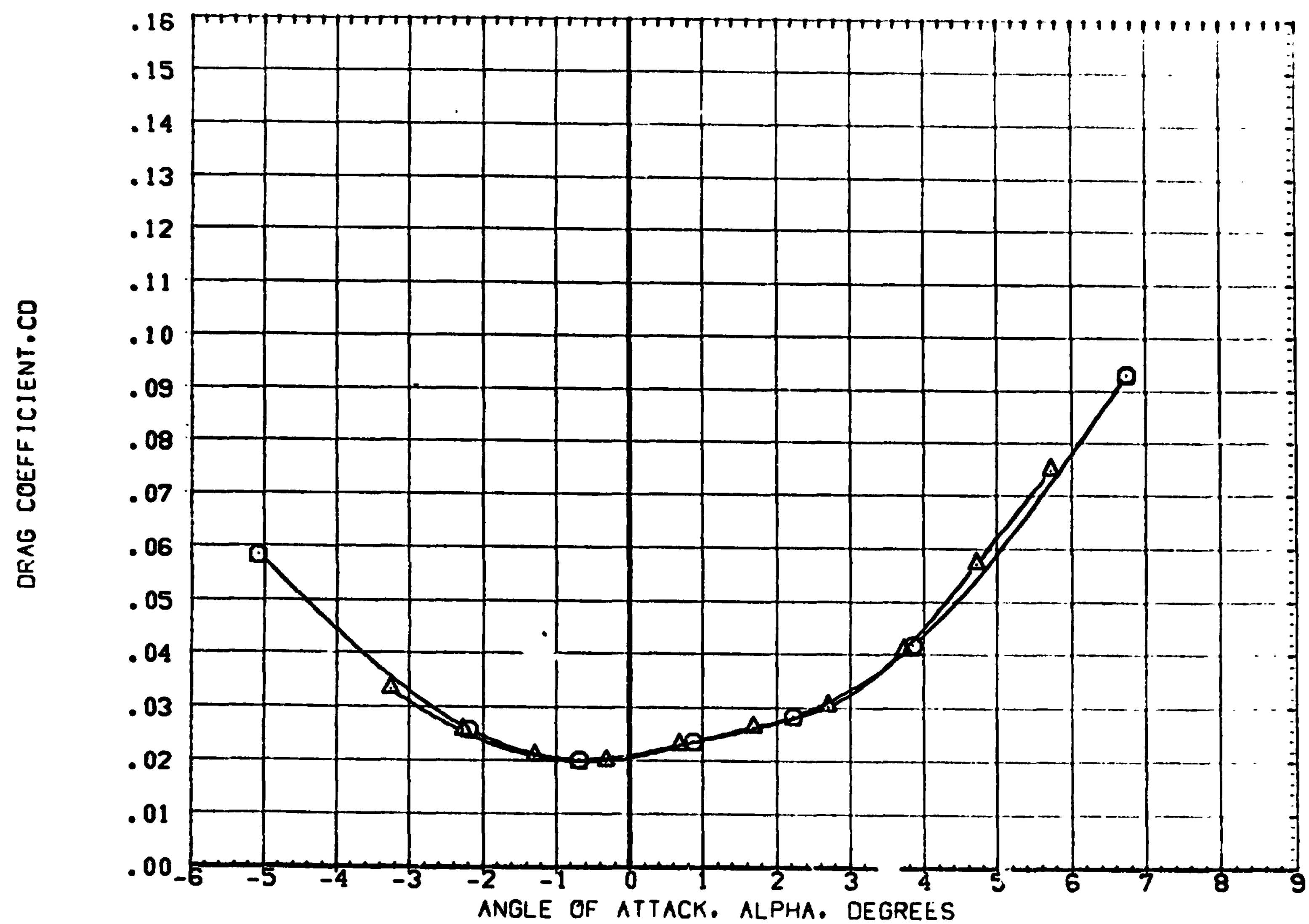


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(FAE005)	⊙	W1 F0 B	45.000	6.000	0.000
(FAE023)	△	W3 F0 B	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

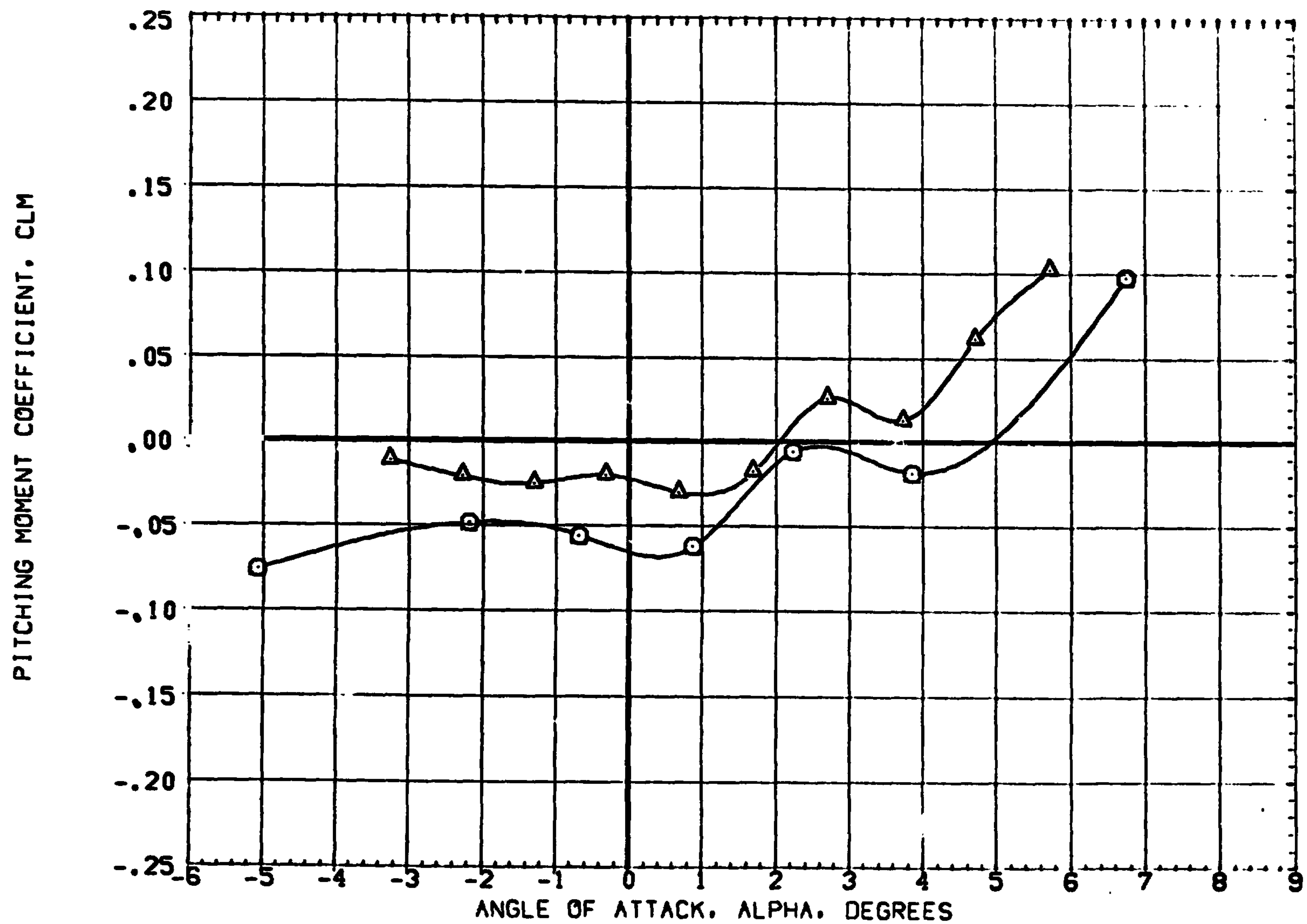


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

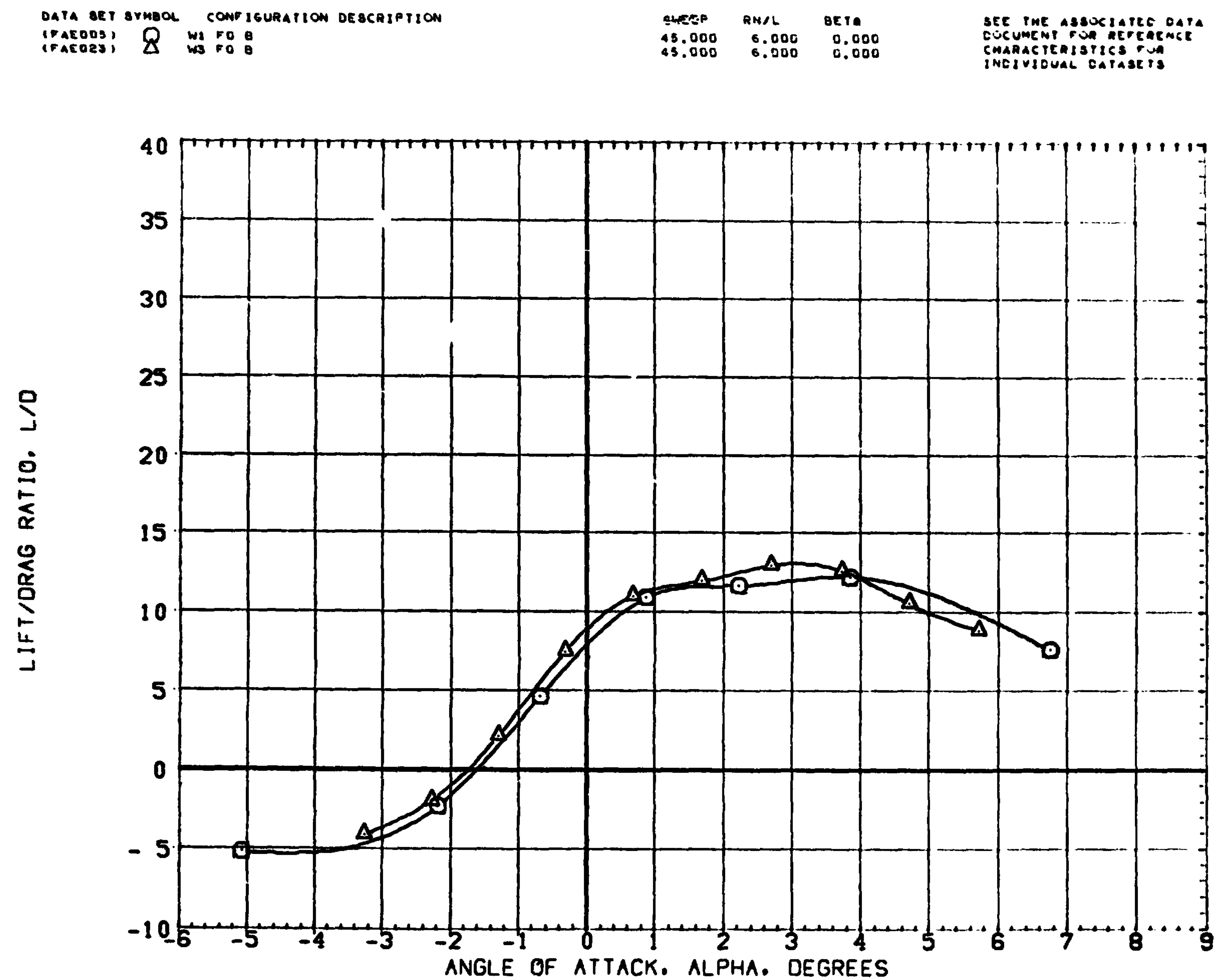


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

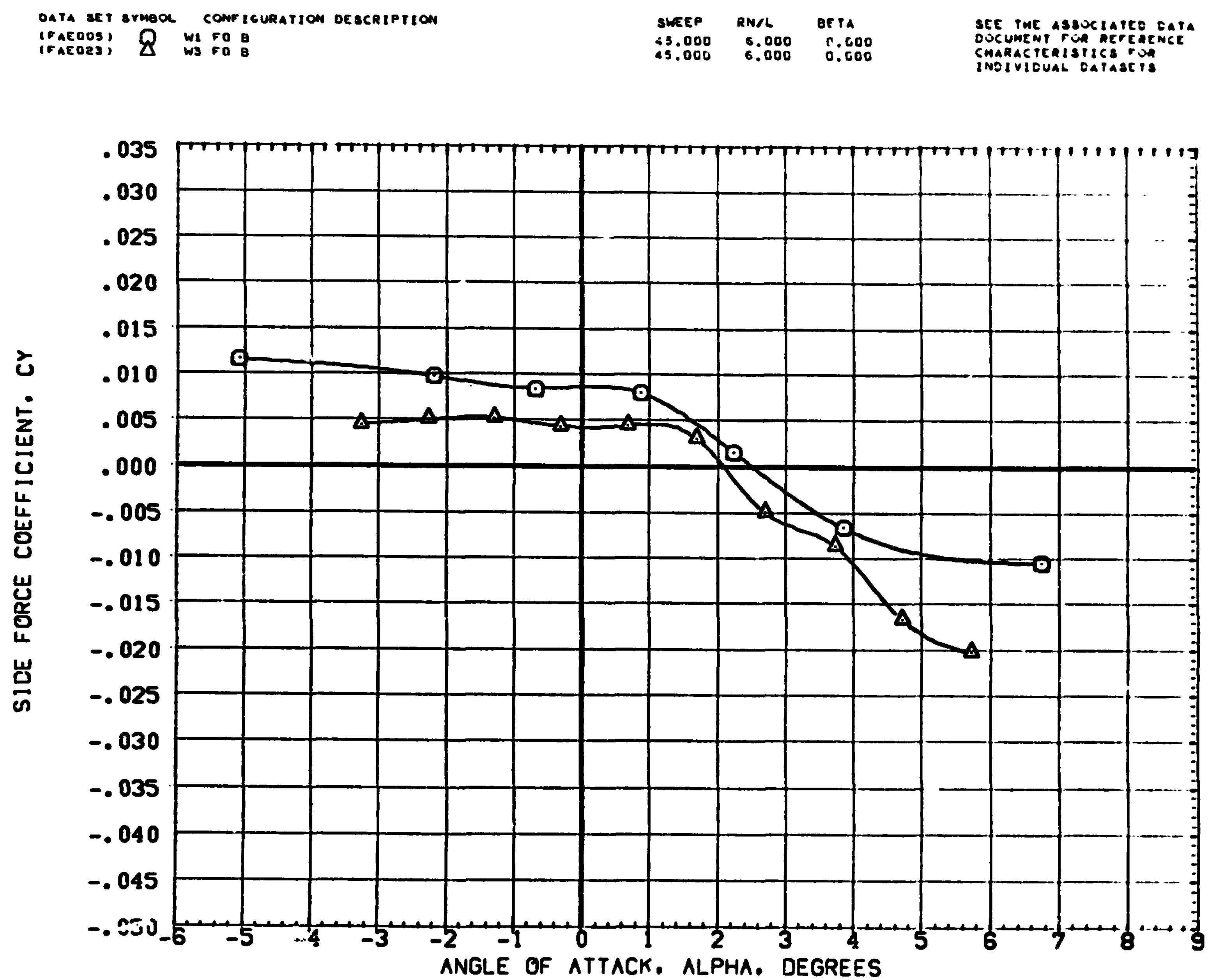


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES
(A)MACH = 1.05

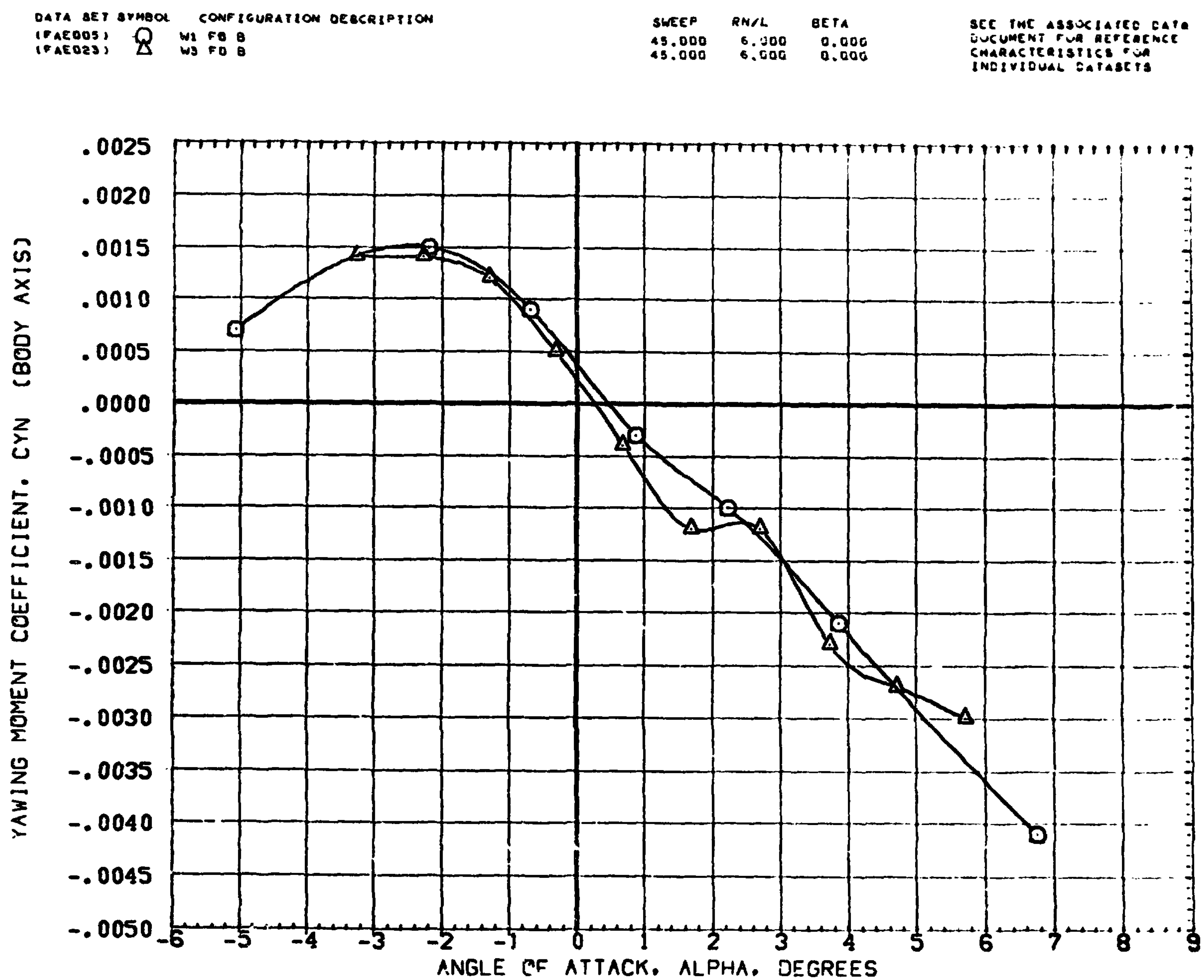


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES

(A)MACH = 1.05

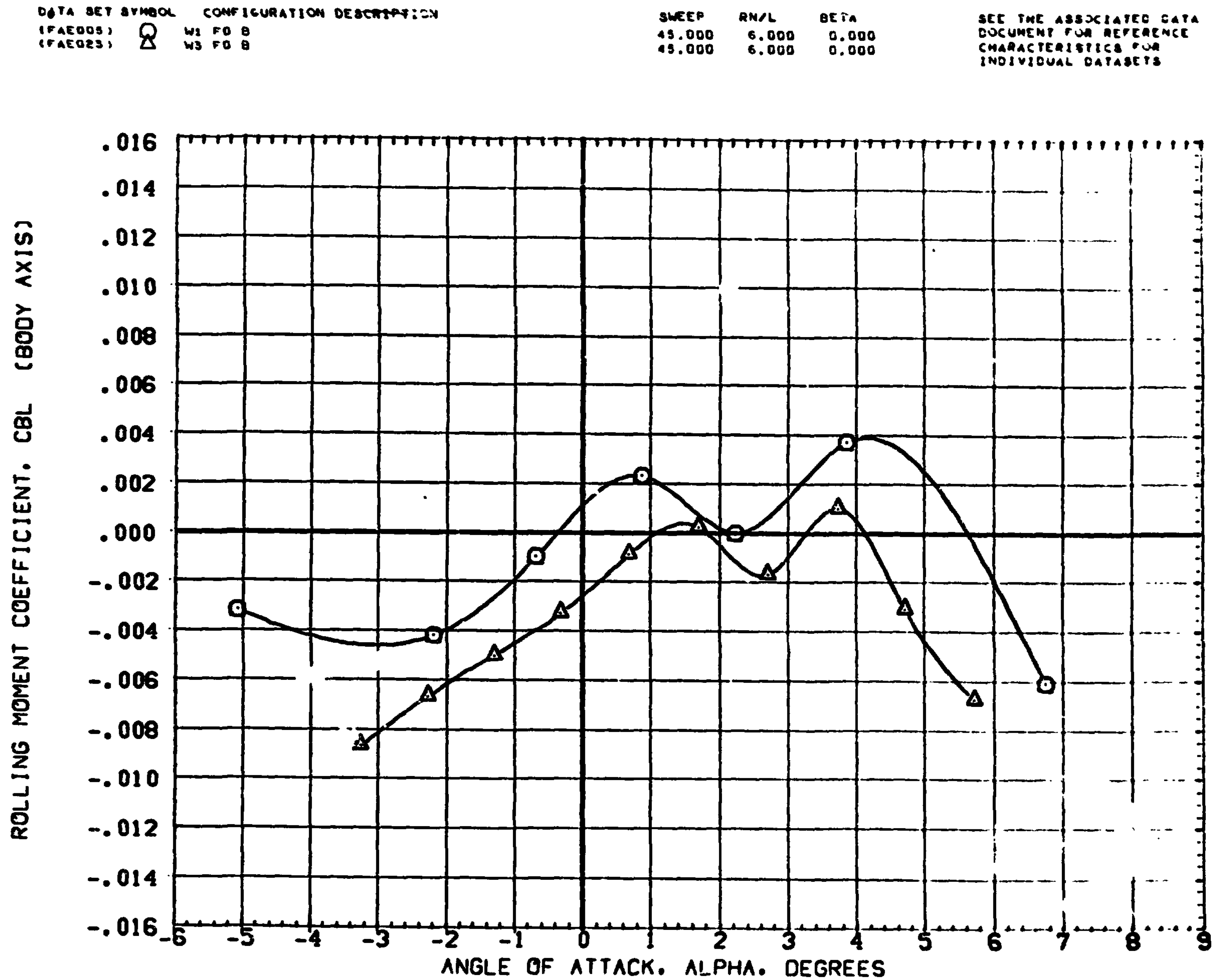


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.05, LAMBDA=45 DEGREES
(A)MACH = 1.05

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE007)	○	W1 FD B	50.000	6.000	0.000
(BAE025)	△	W3 FD B	50.000	6.005	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

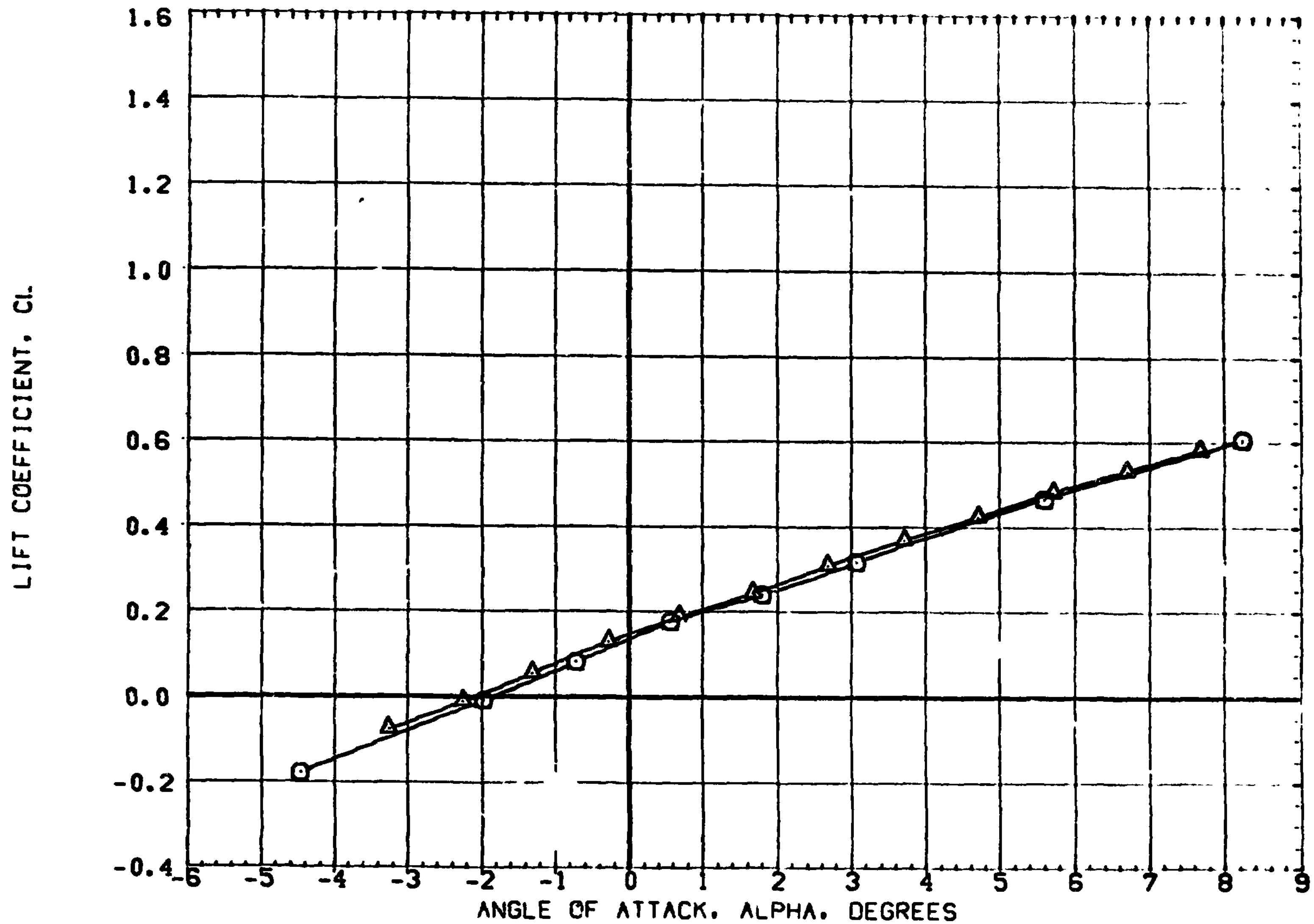


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE007)	○	W1 FD B	50.000	6.000	0.000
(BAE025)	△	W3 FD B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

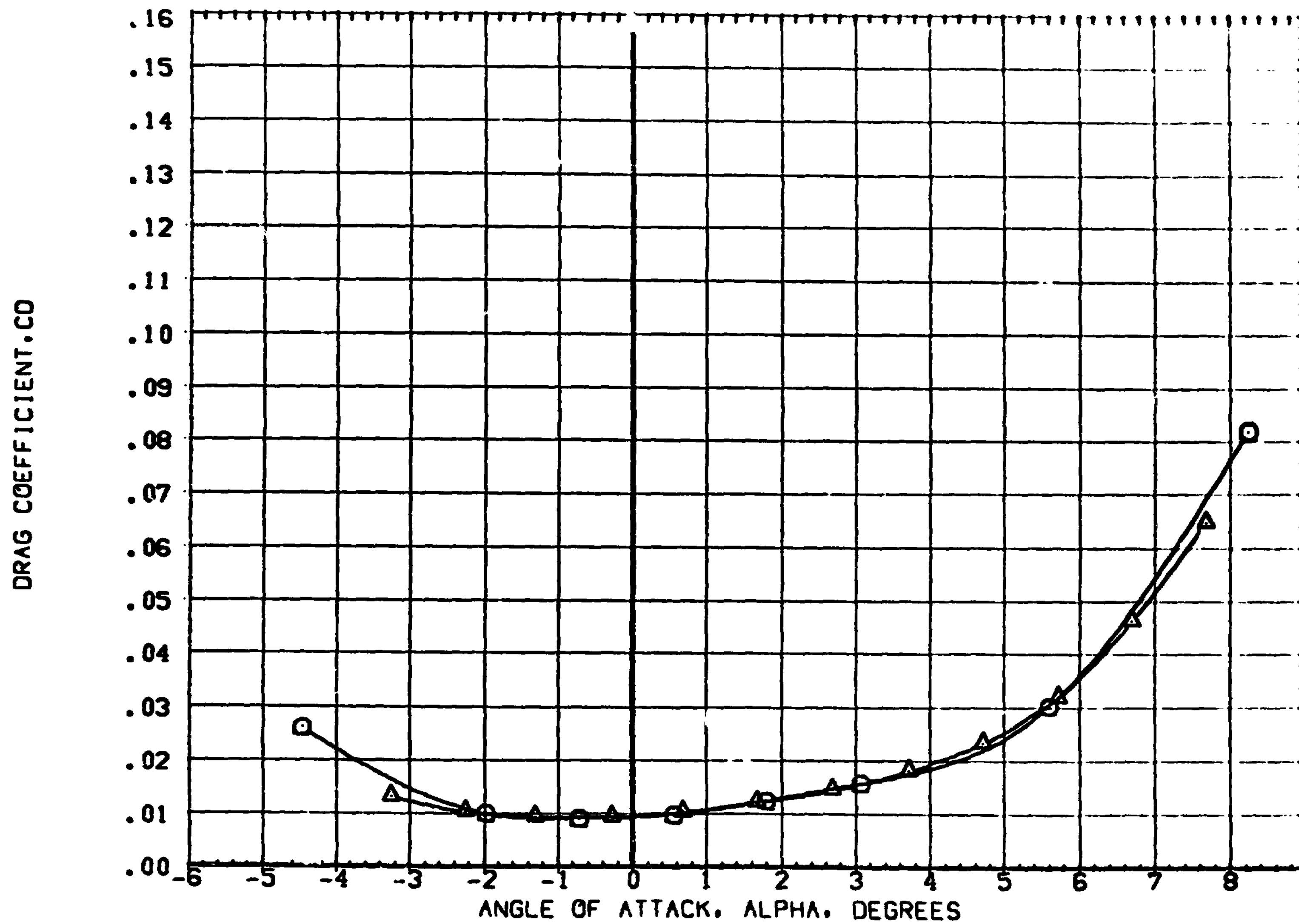


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE007)	○	W1 F0 B	50.000	6.000	0.000
(BAE028)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

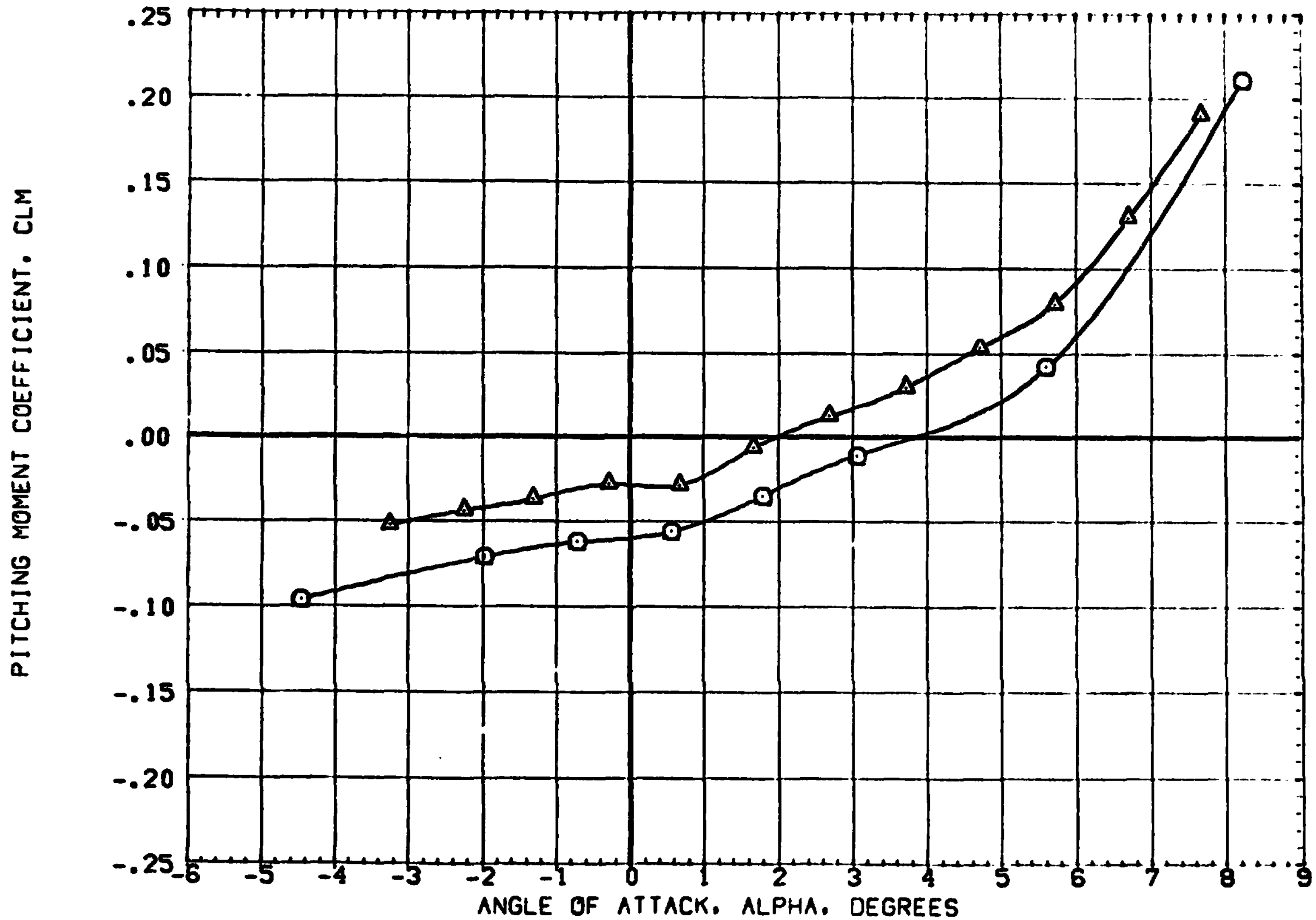


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE007)	○	W1 F0 B	50.000	6.000	0.000
(BAE025)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

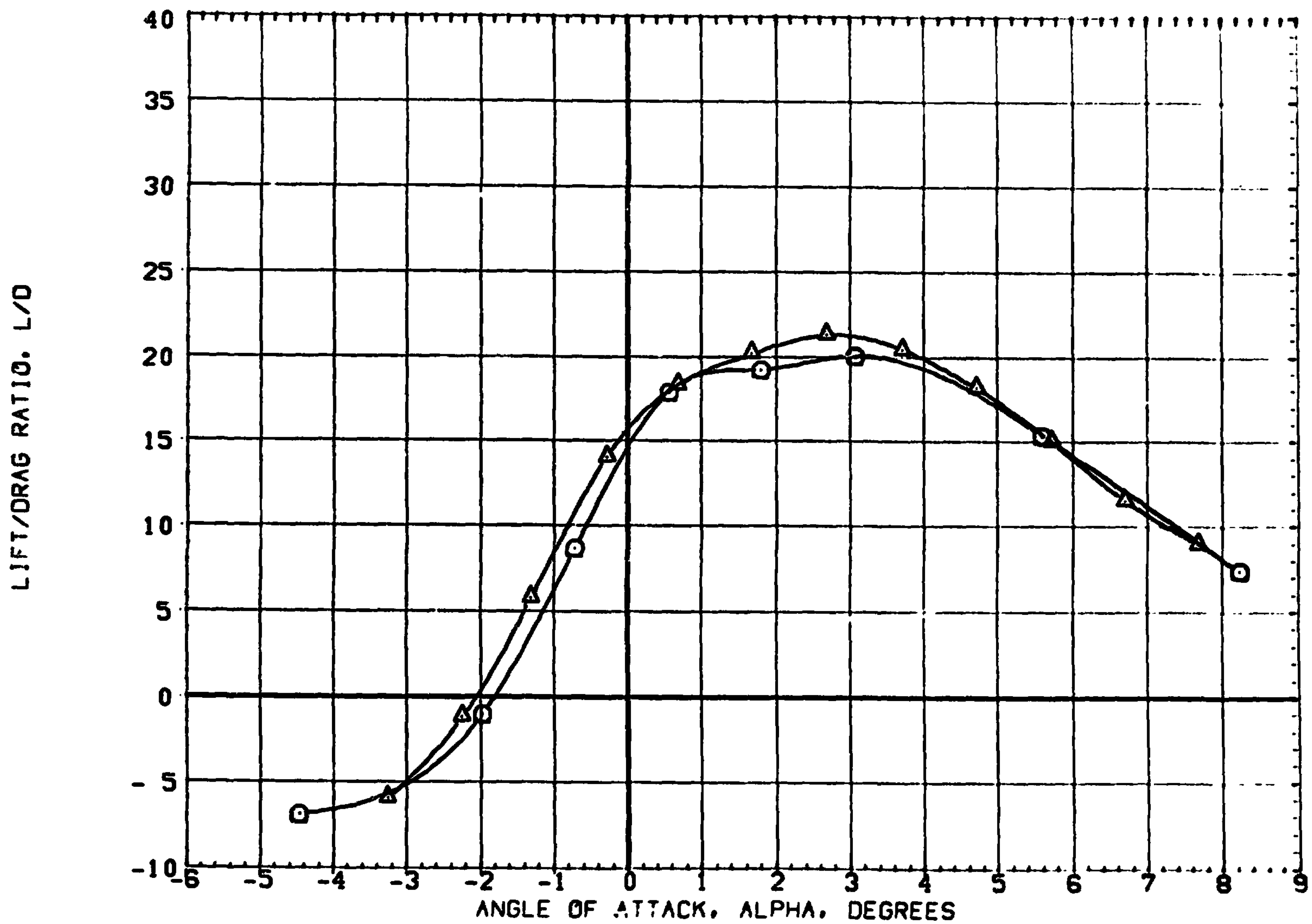


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE007)	○	W1 F0 B	50.000	6.000	0.000
(BAE025)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

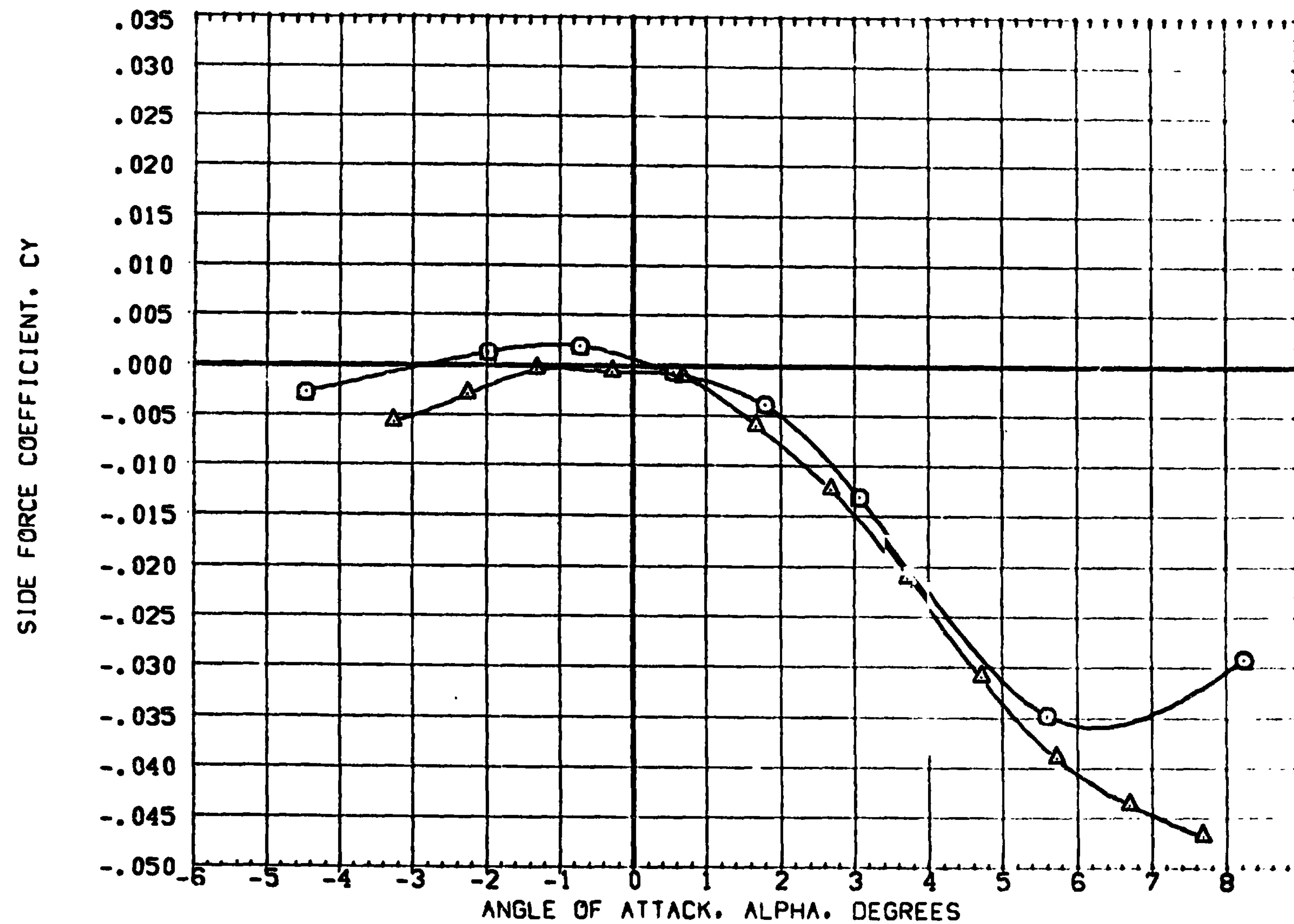


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

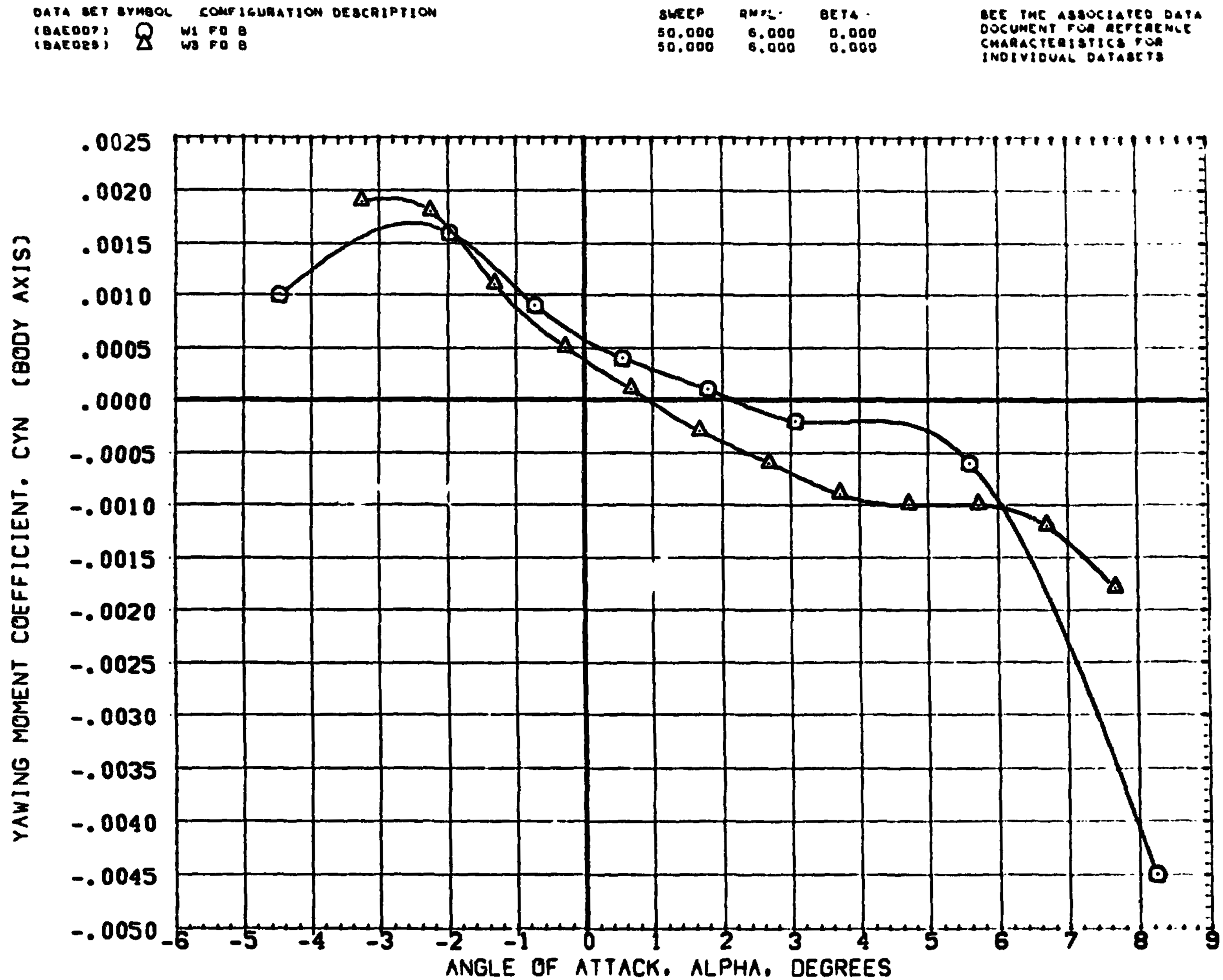


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES

(A)MACH = .80

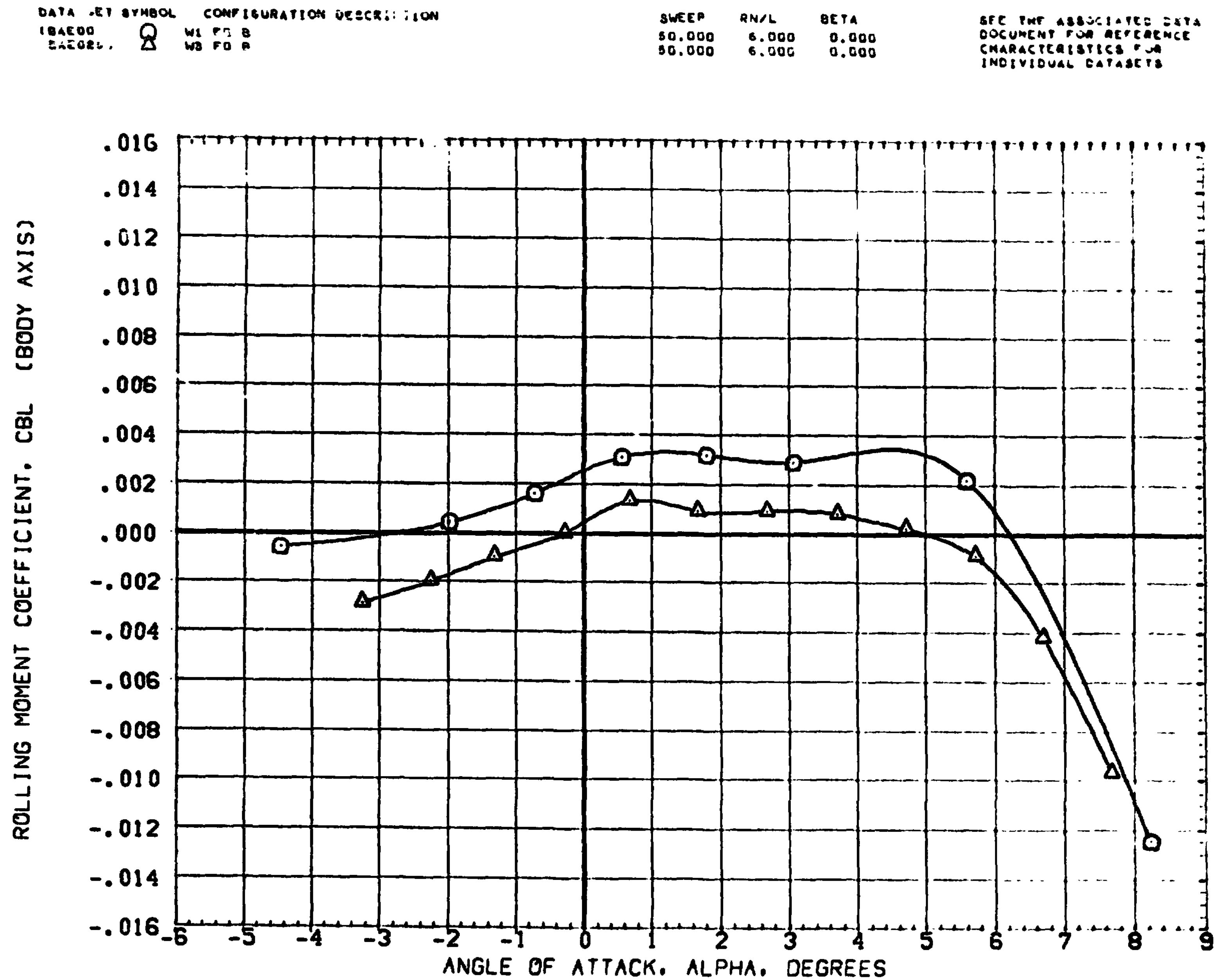


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=50 DEGREES
(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE007)	○	W1 FD B	50.000	6.000	0.000
(CAE025)	△	W3 FD B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

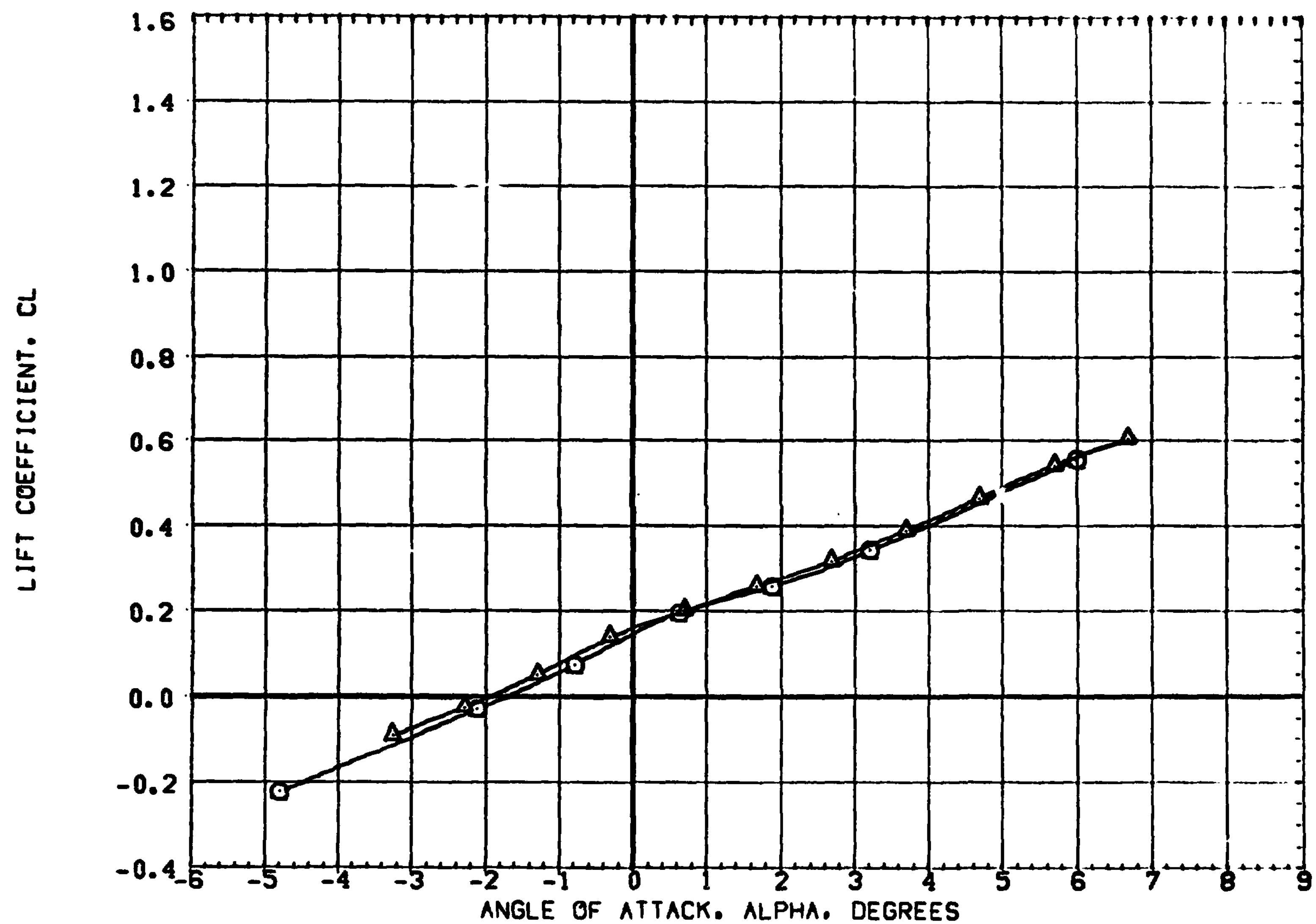


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

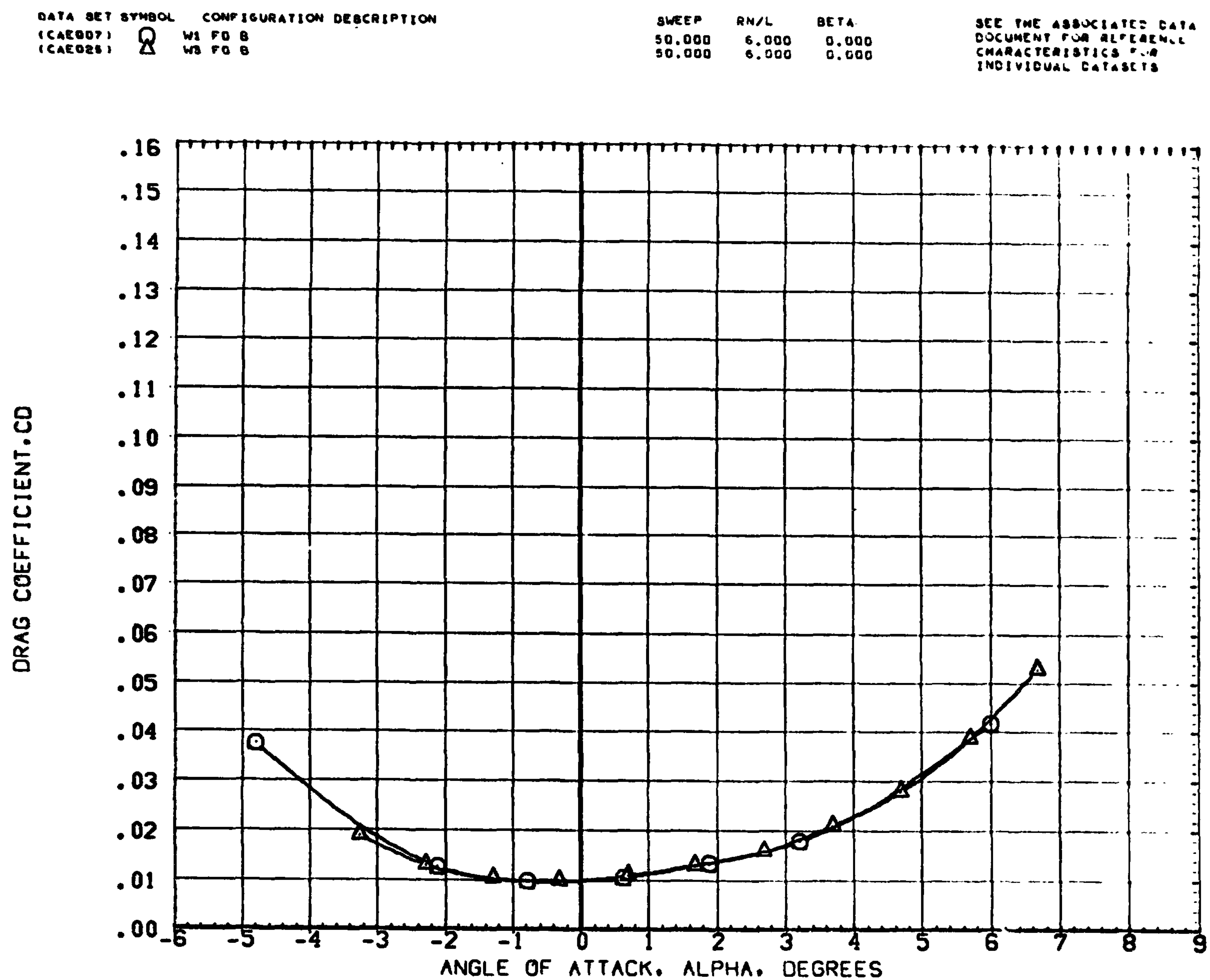


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE107)	○	W1 F0 B	50.000	6.000	0.000
(CAE125)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

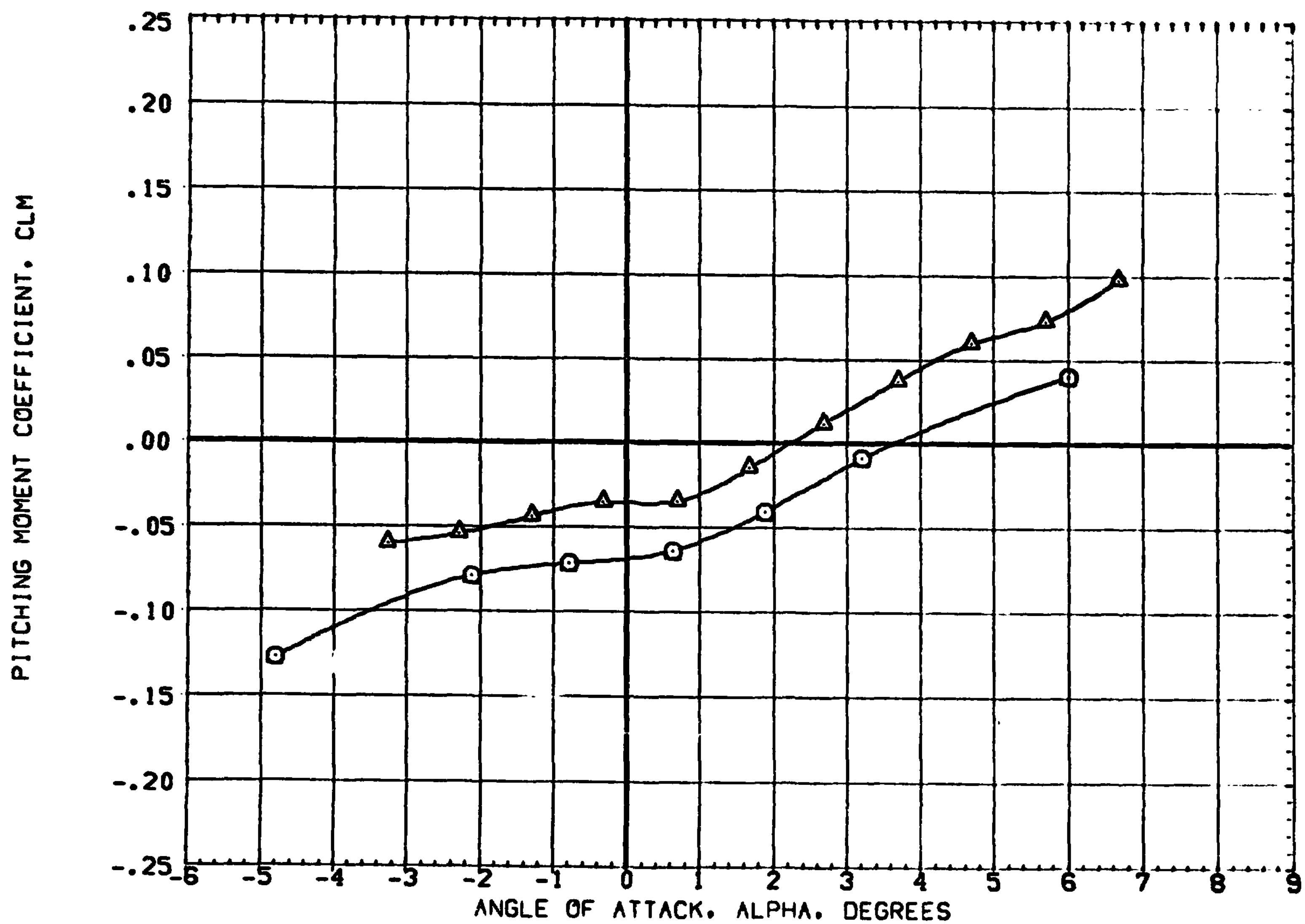


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

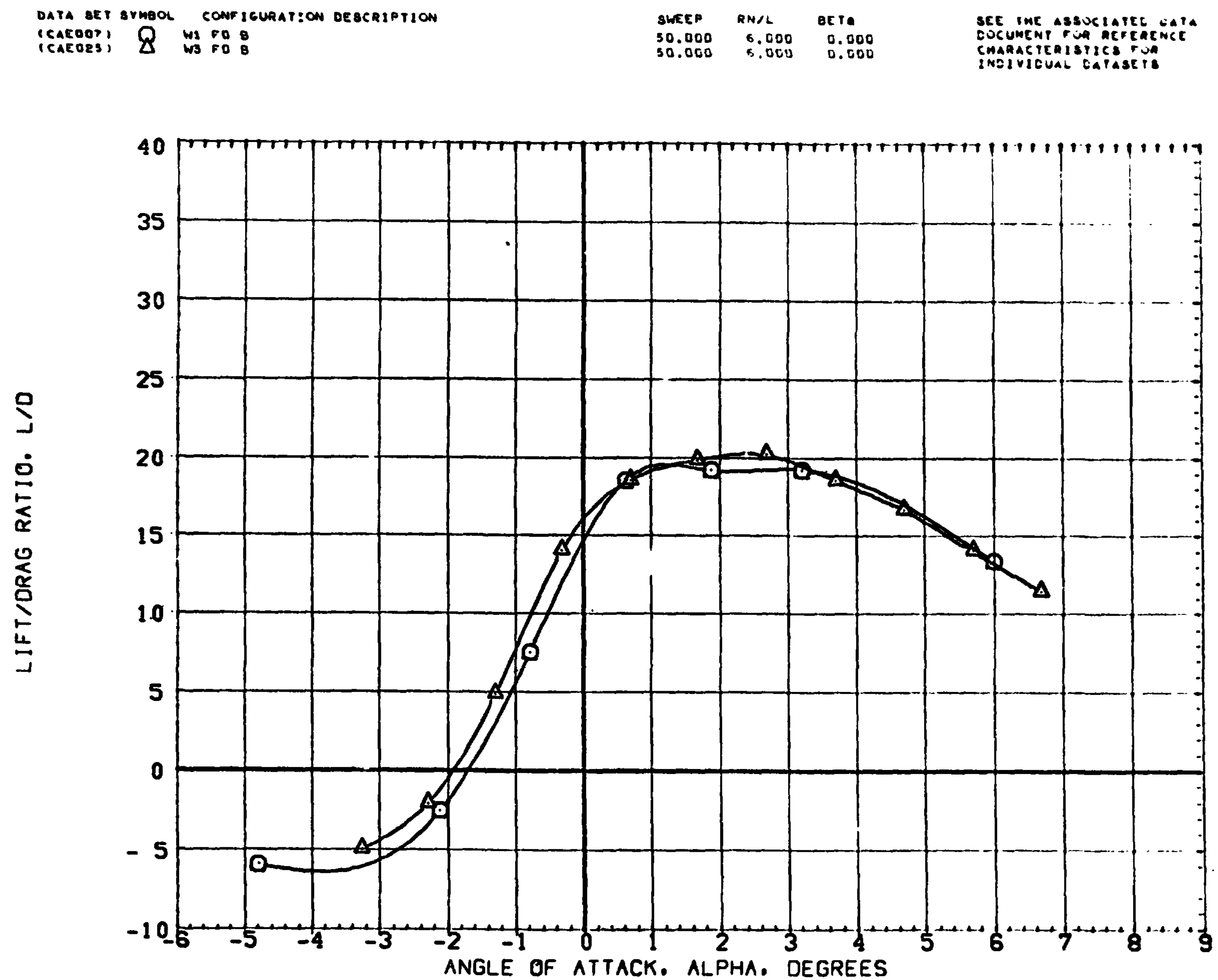


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE007)	⊙	W1 F0 B	50.000	6.000	0.000
(CAE025)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

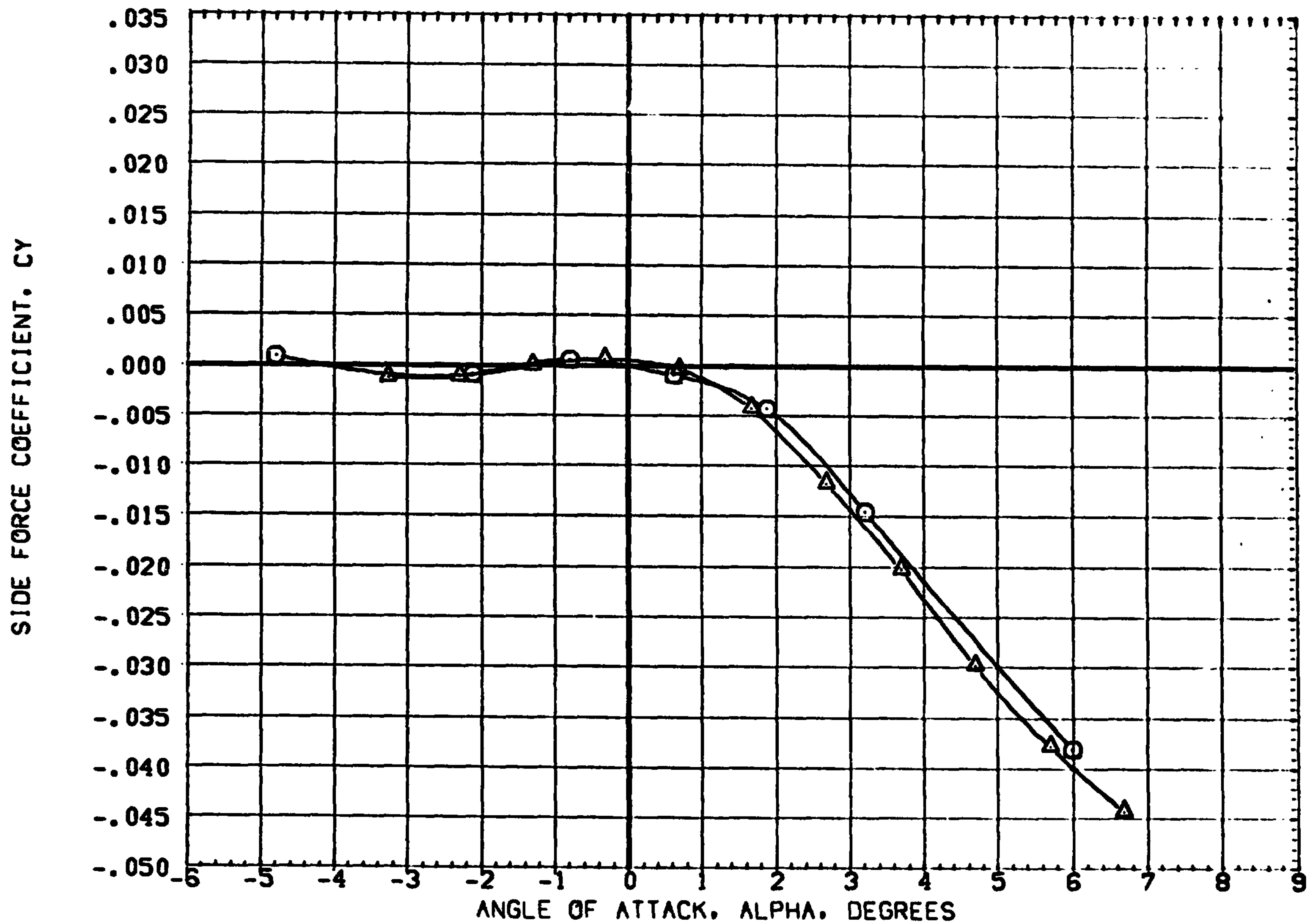


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

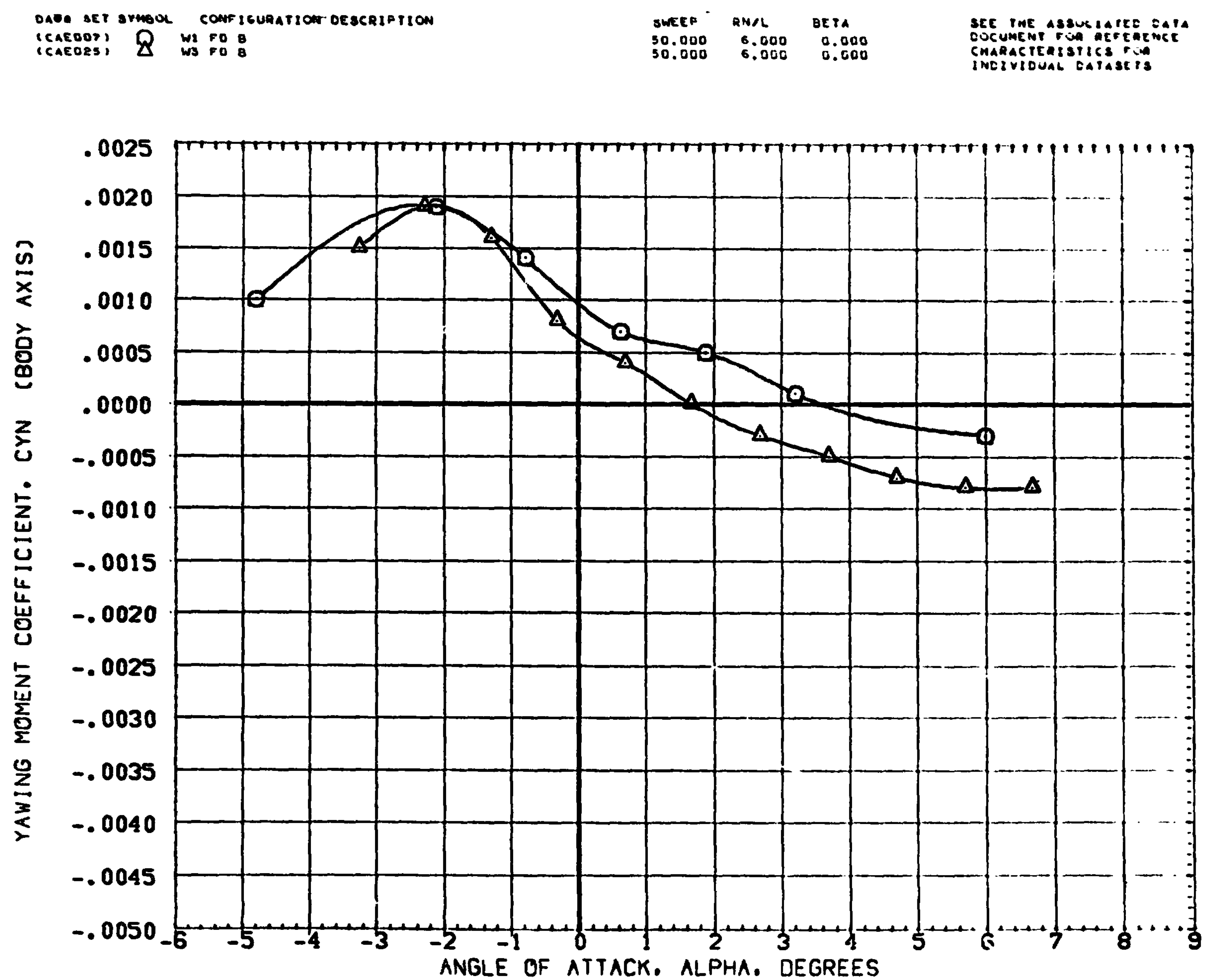


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE007)	○	W1 FO B	50.000	6.000	0.000
(CAE025)	△	W3 FO B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

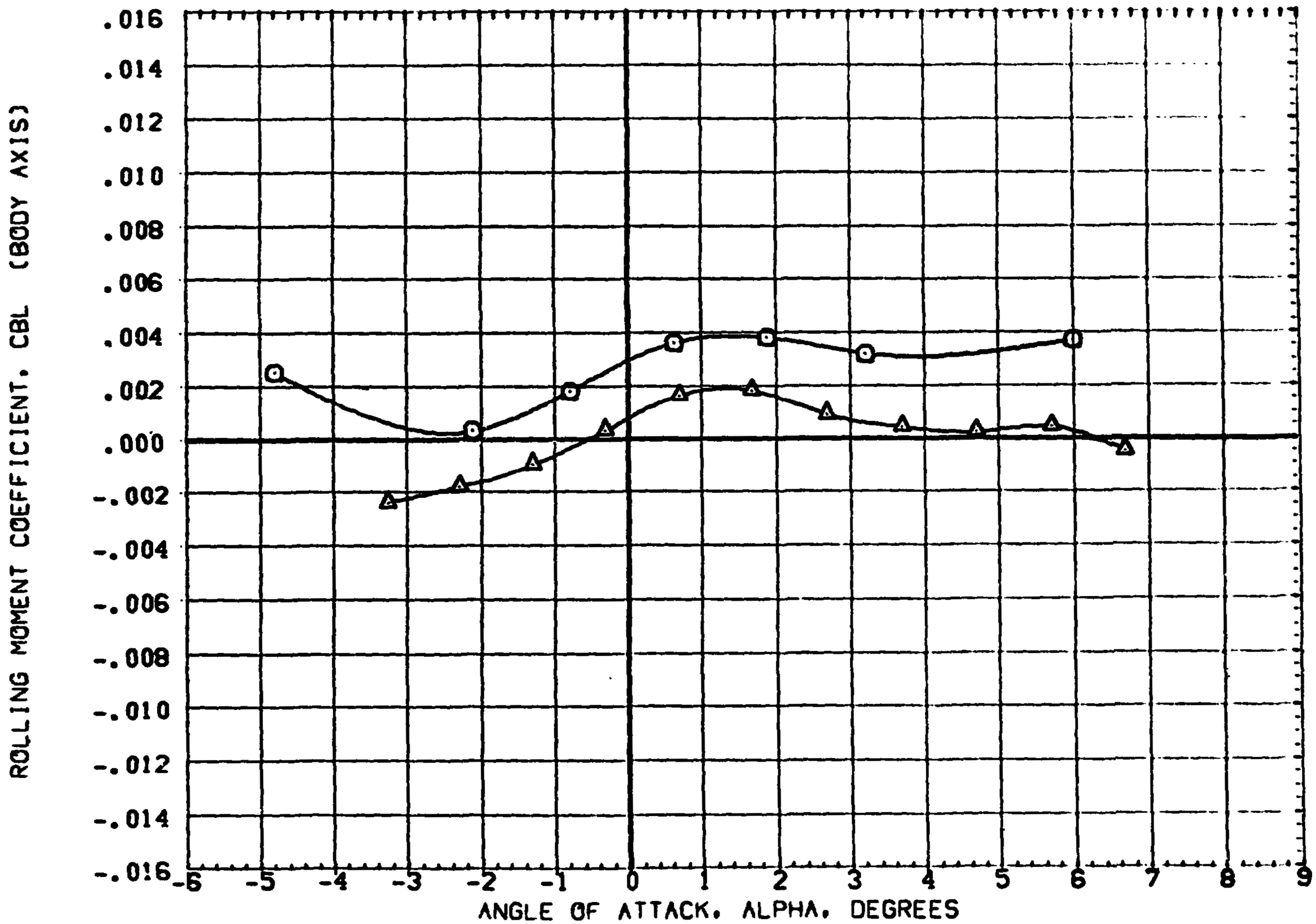


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=50 DEGREES

(A)MACH = .95

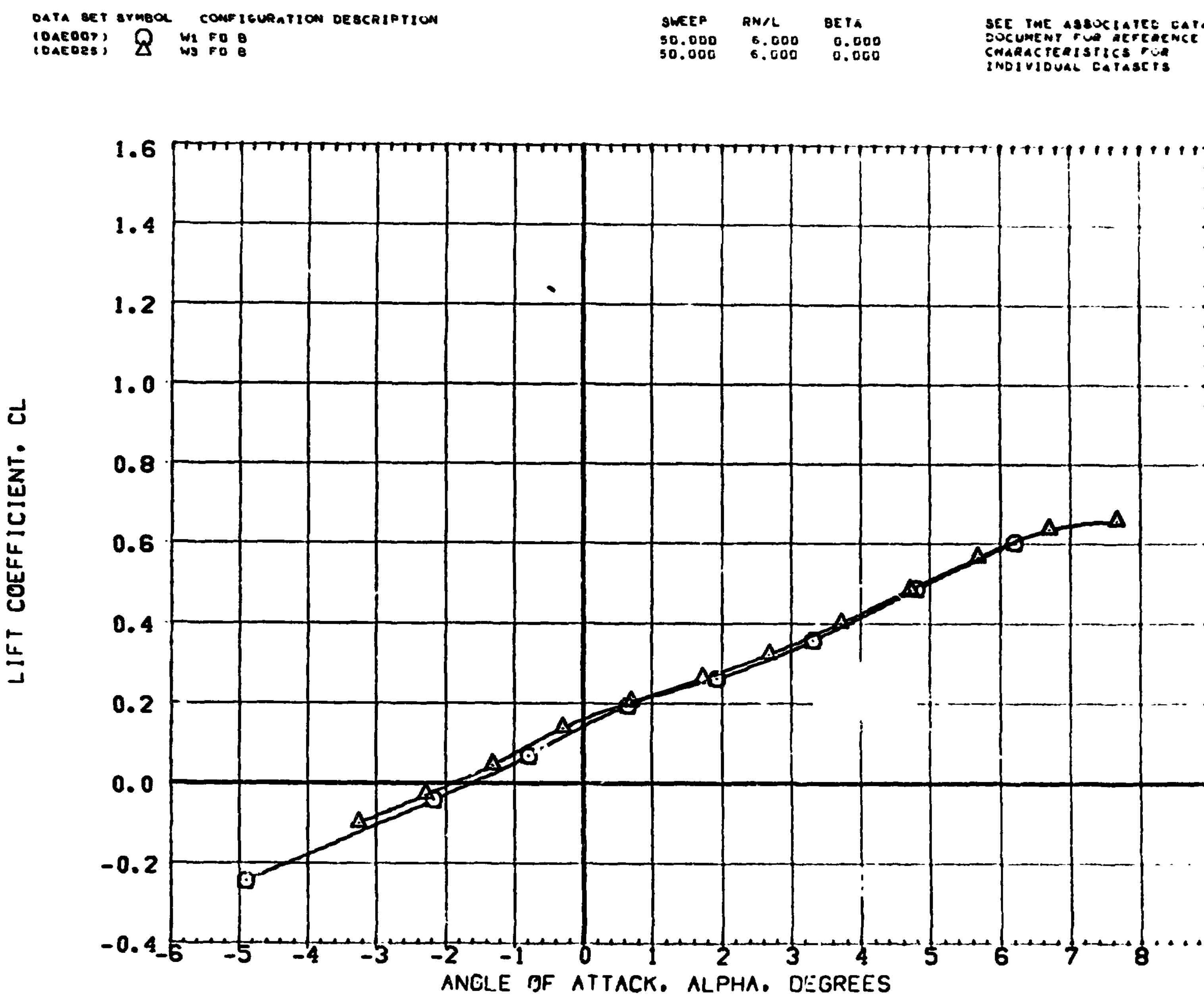


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES
(A)MACH = .98

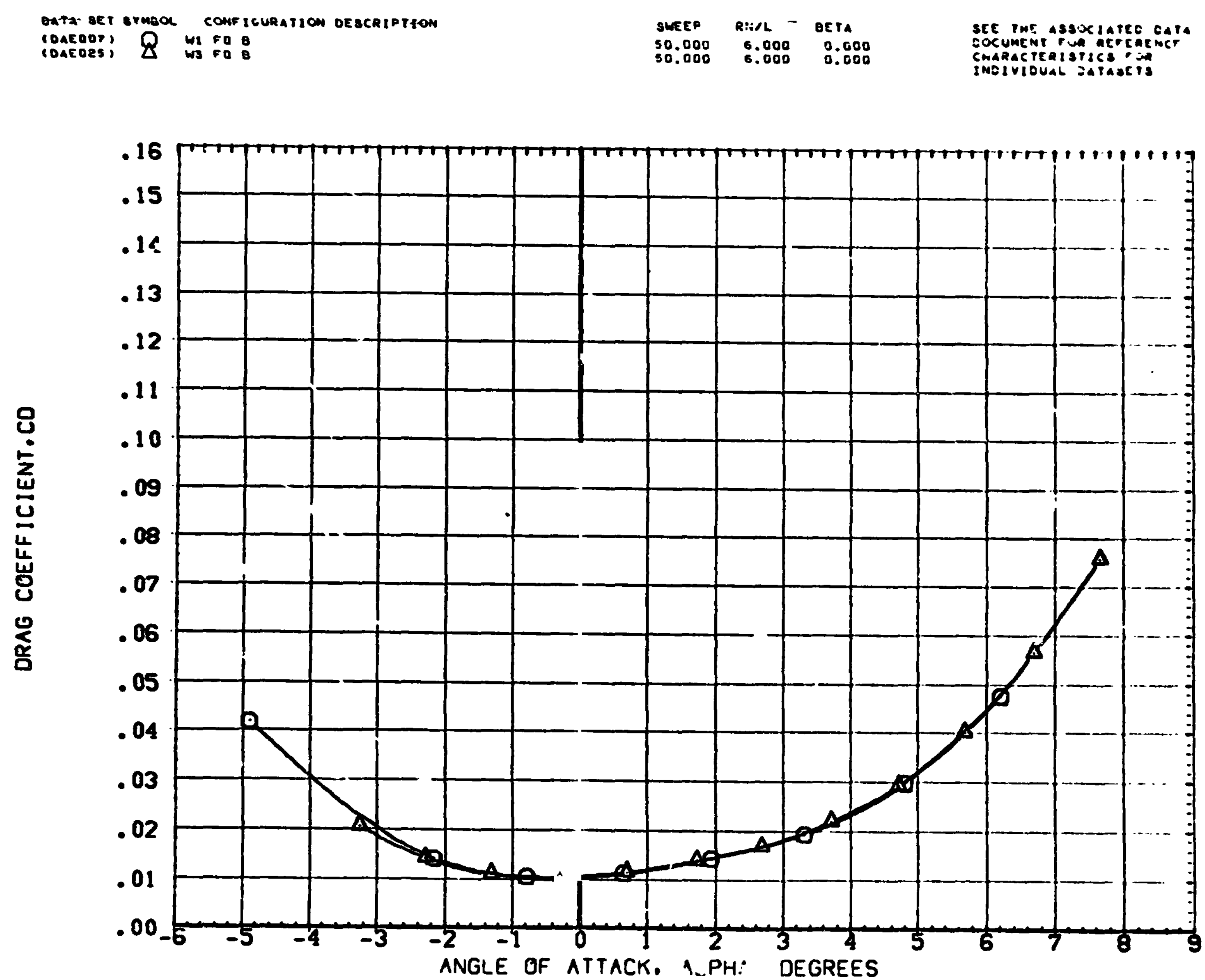


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

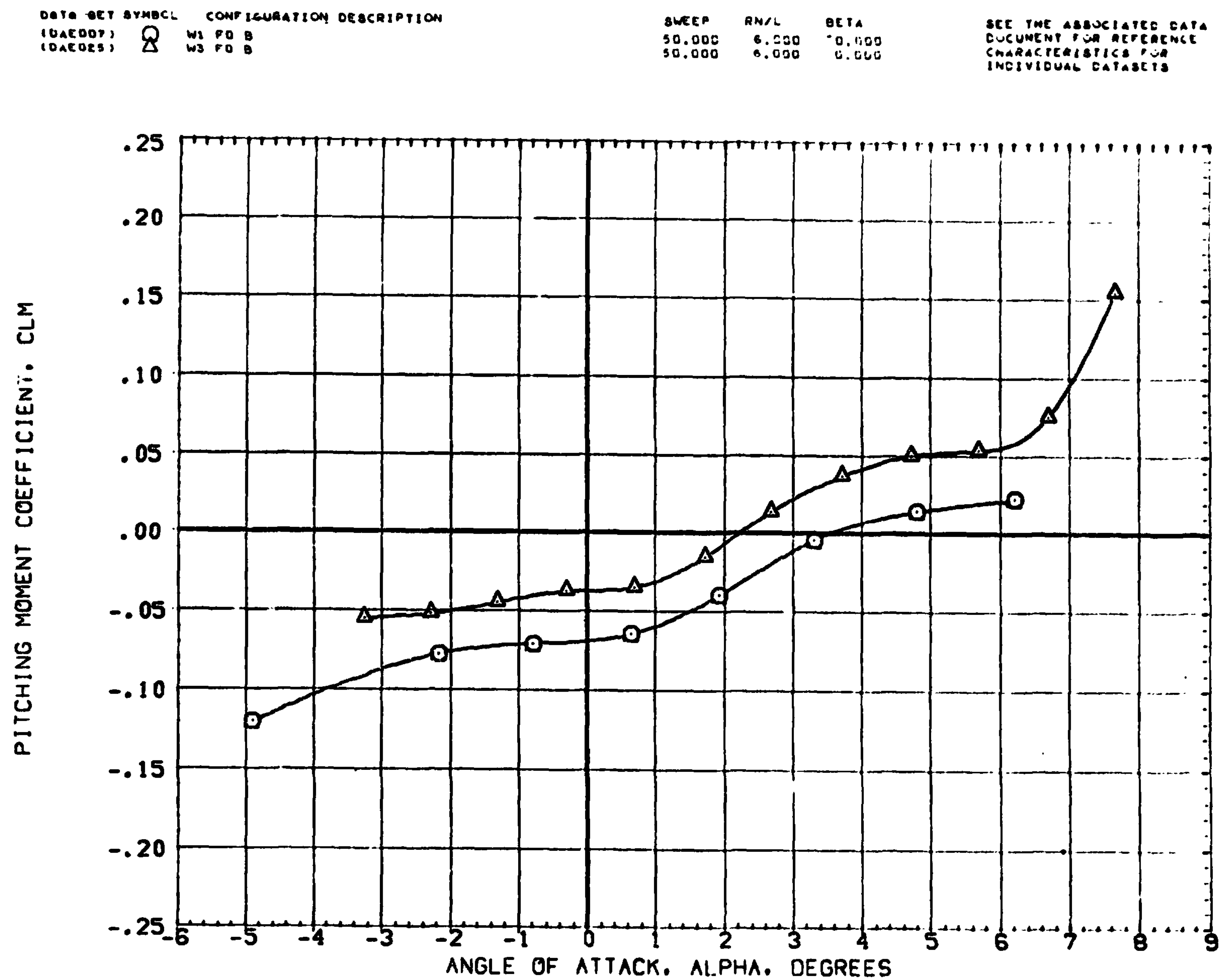


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

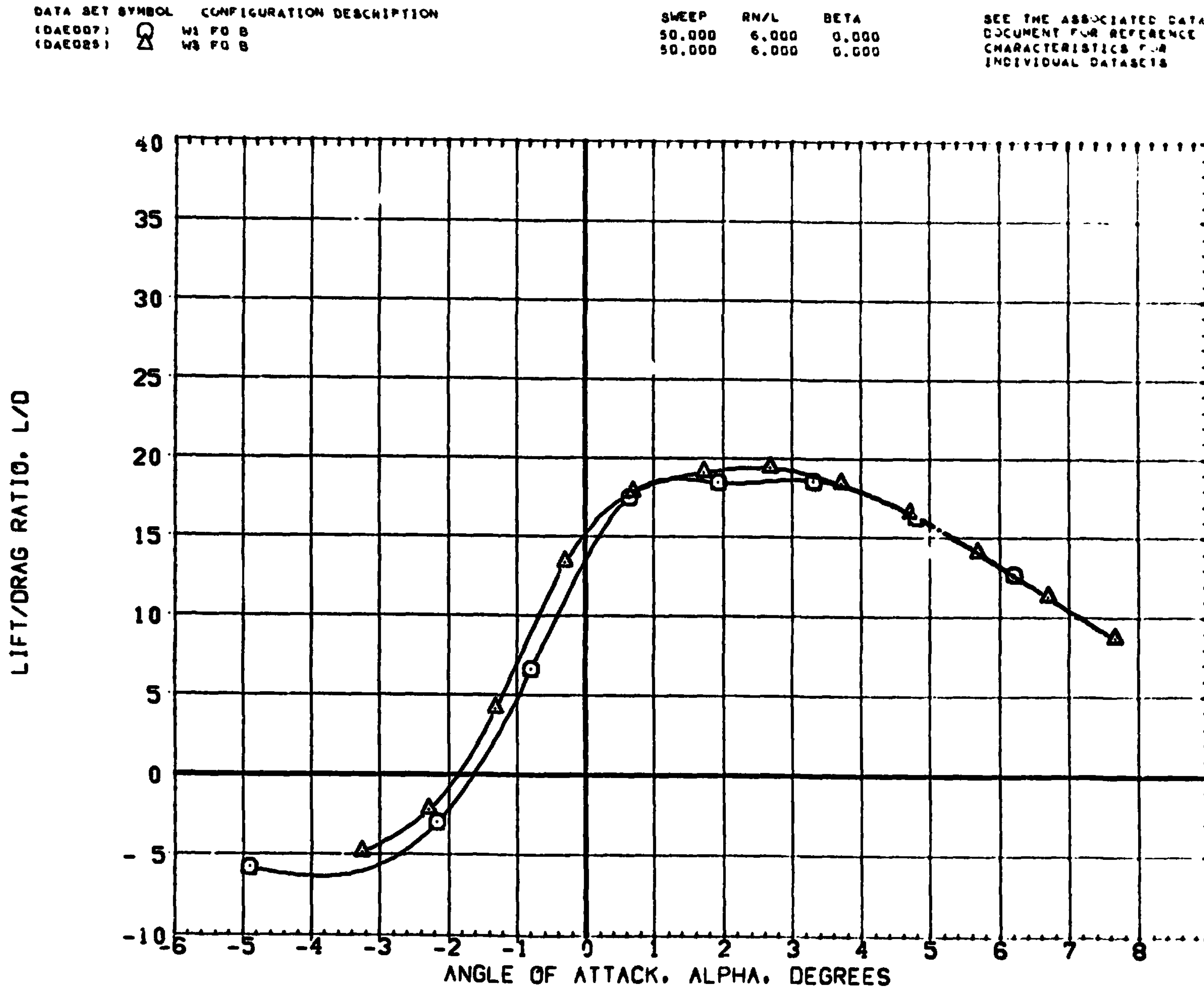


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

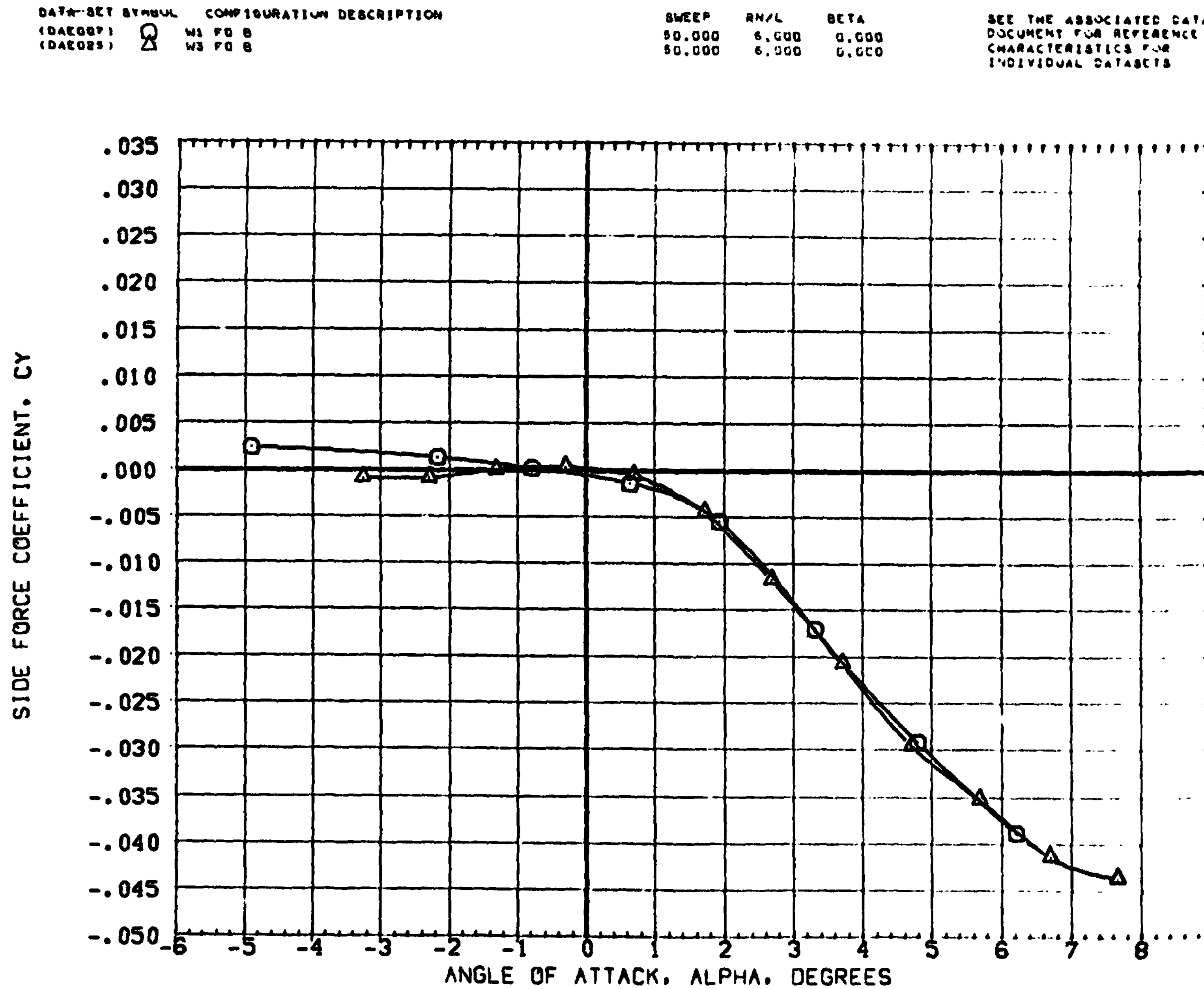


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

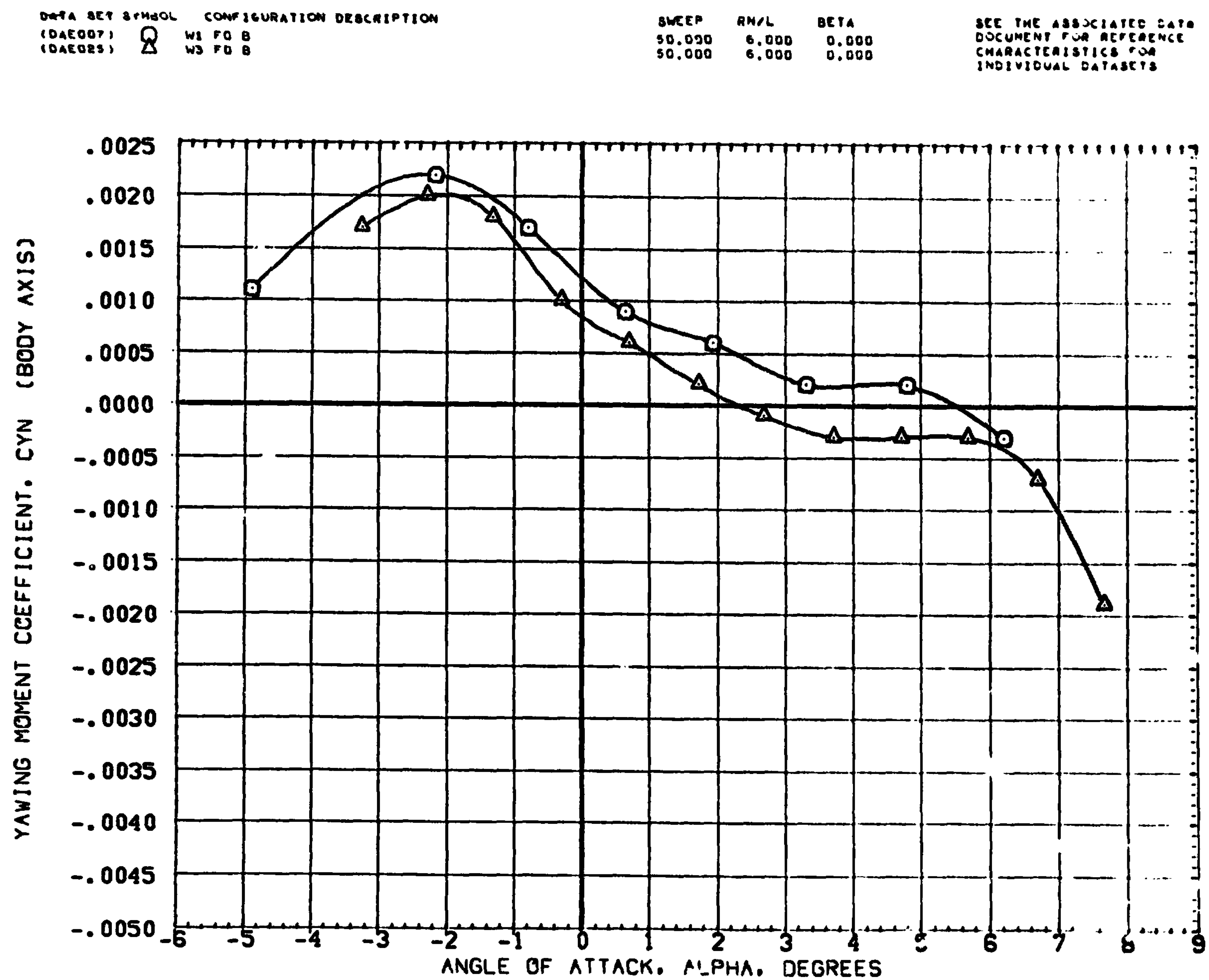


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE007)	⊙	W1 F0 B	50.000	6.000	0.000
(DAE025)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

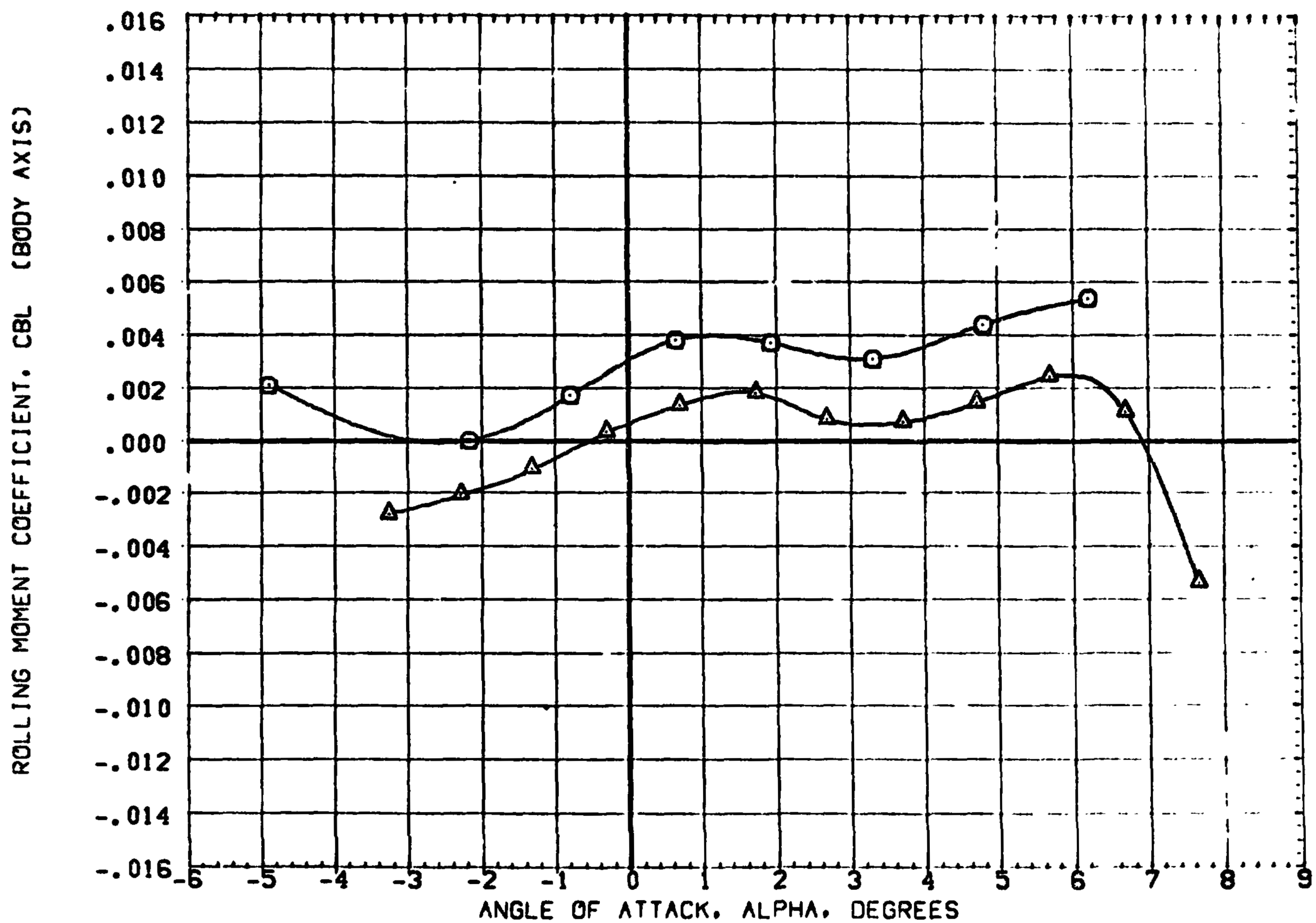


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.98, LAMBDA=50 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE007)	O	W1 F0 B	50.000	6.000	0.000
(EAE025)	Δ	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

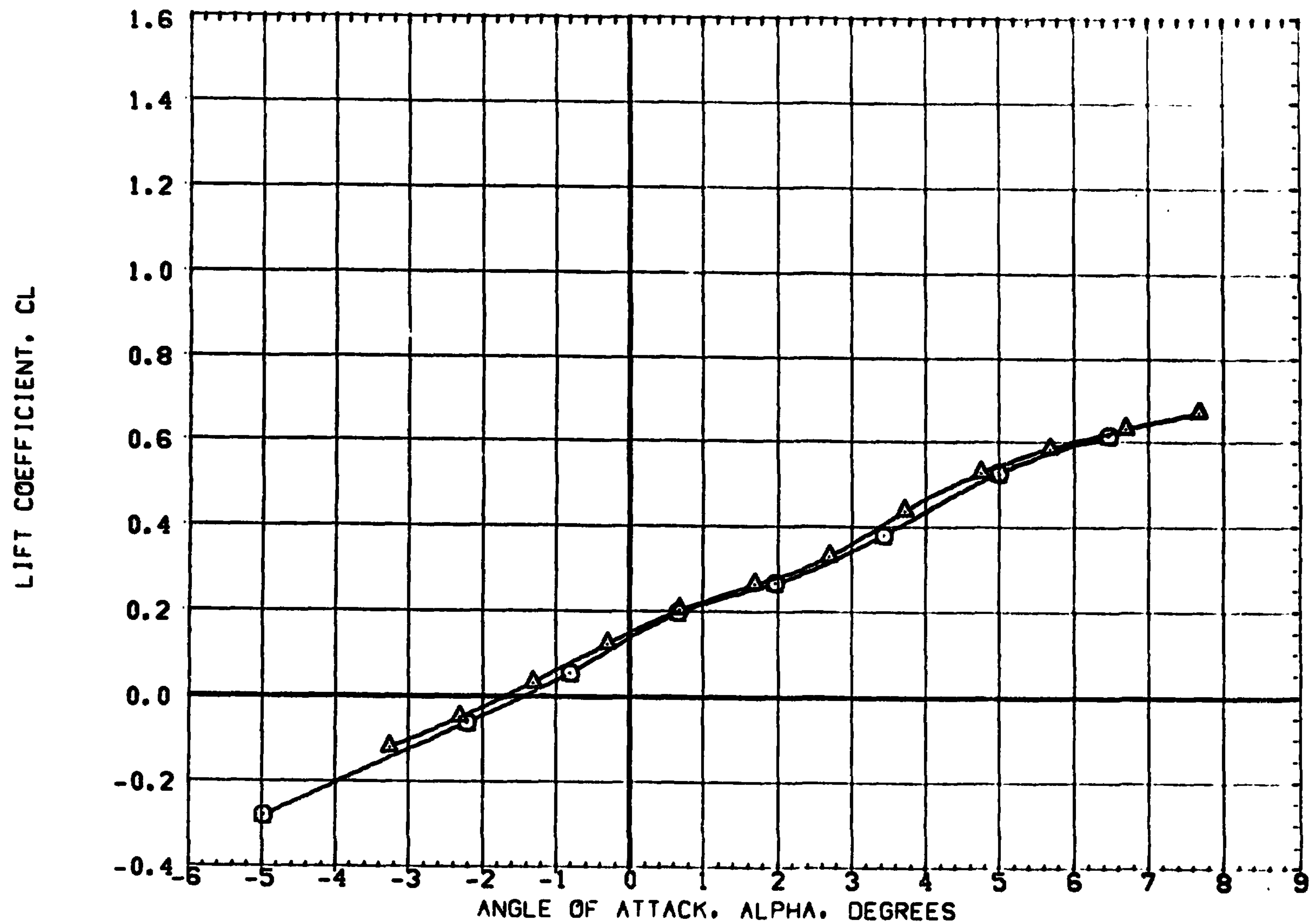


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES

(A)MACH = 1.10

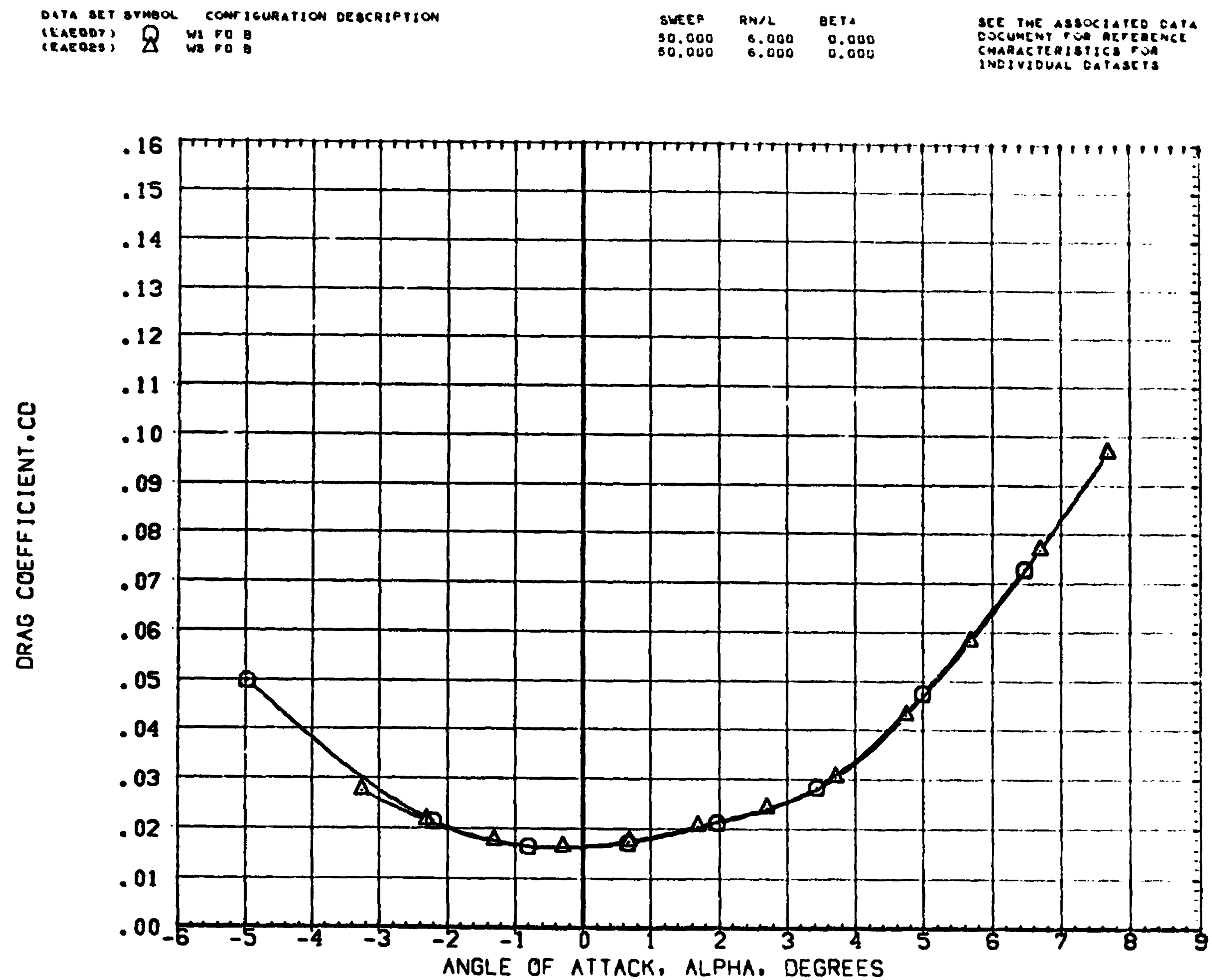


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES
(A)MACH = 1.10

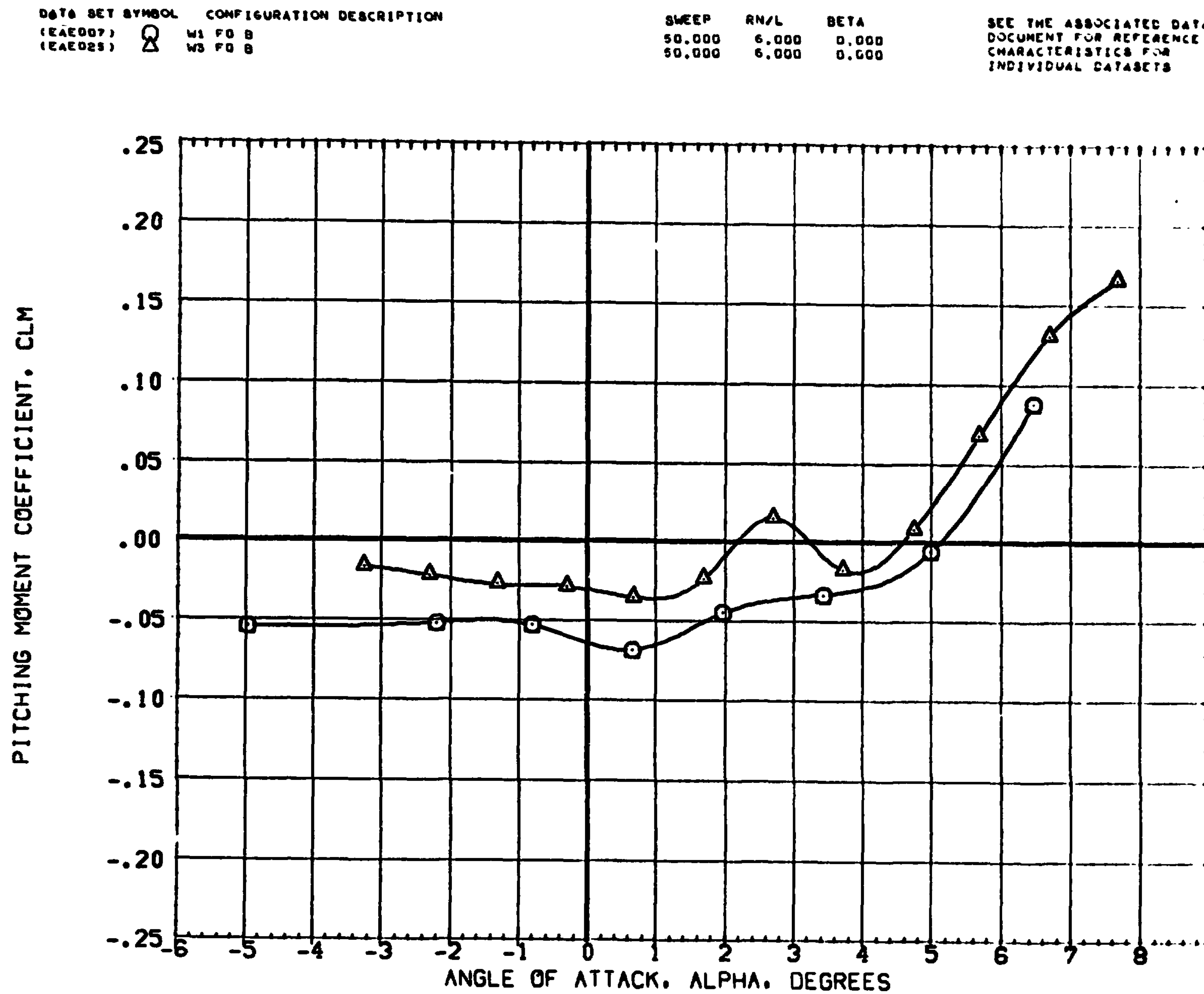


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE007)	○	W1 F0 B	50.000	6.000	0.000
(EAE029)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

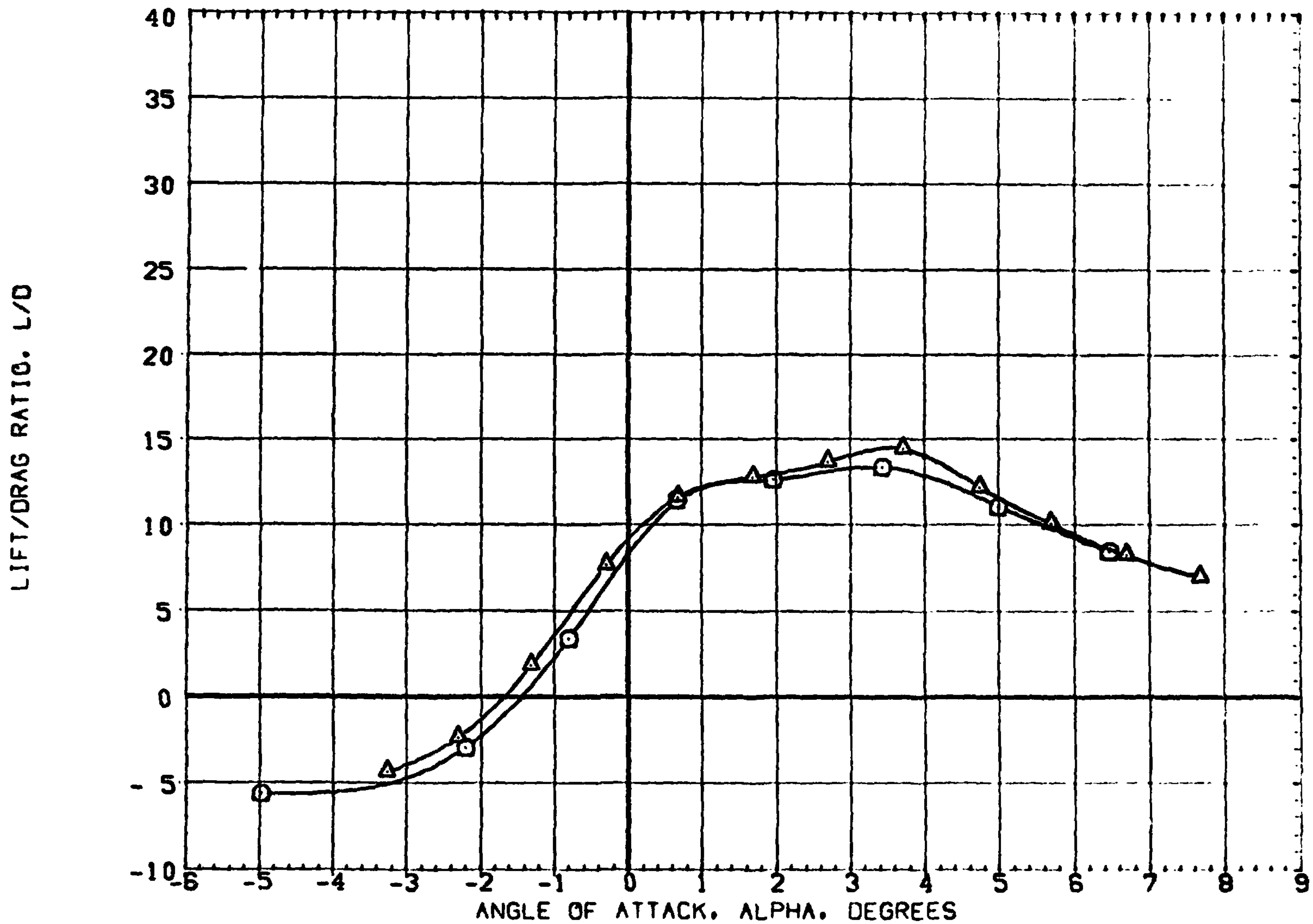


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES

(A)MACH = 1.10

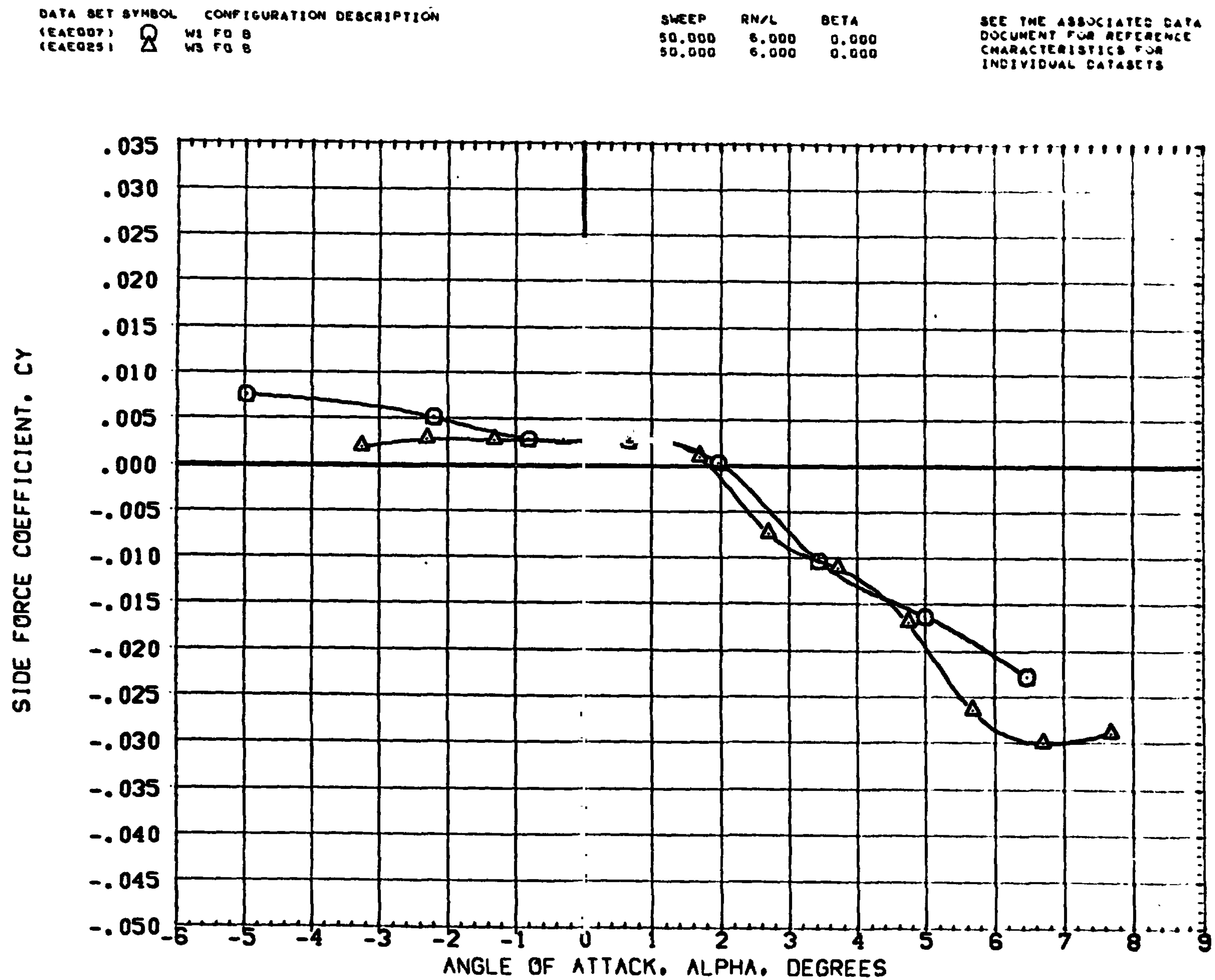


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES
(A)MACH = 1.10

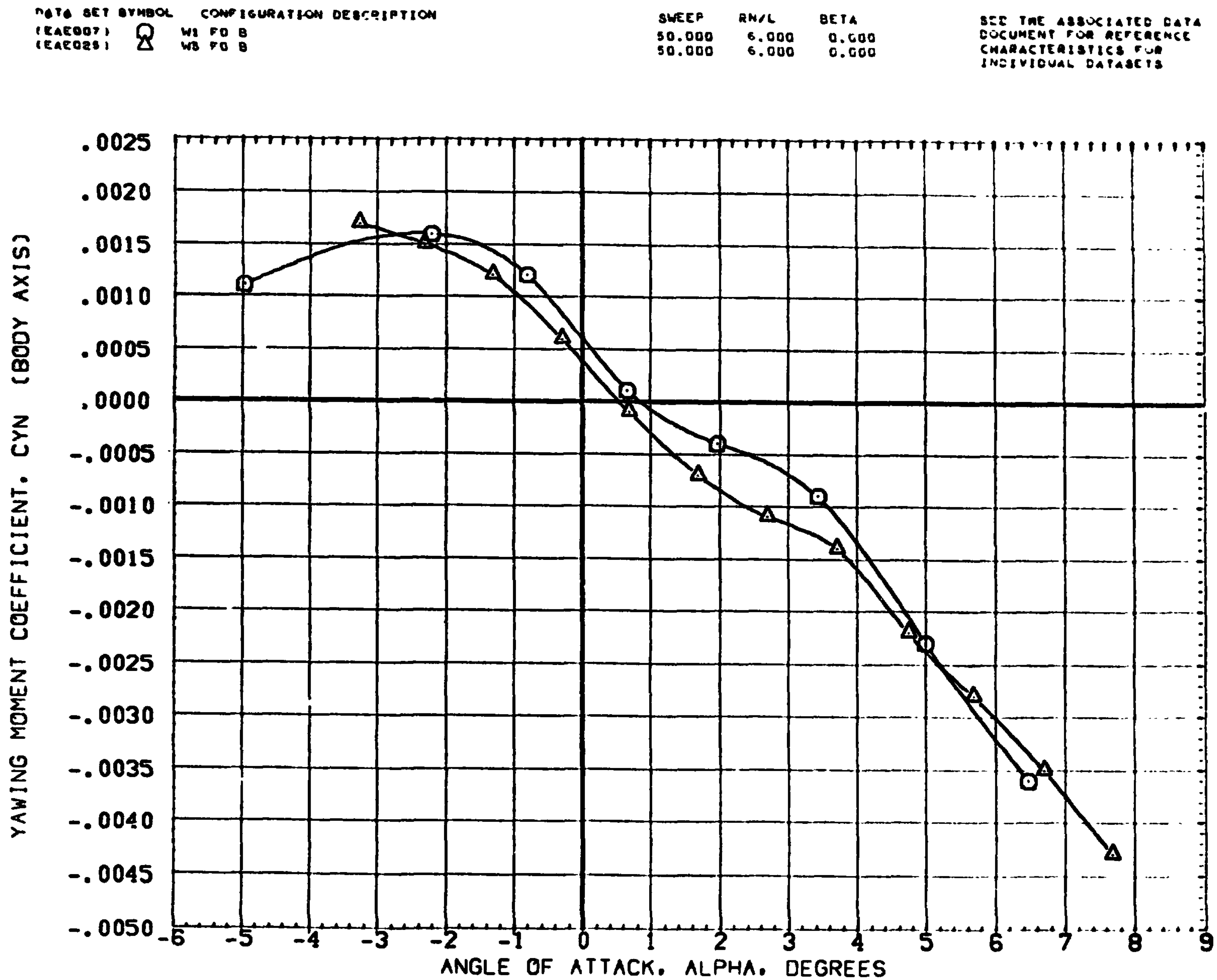


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES

(A)MACH = 1.10

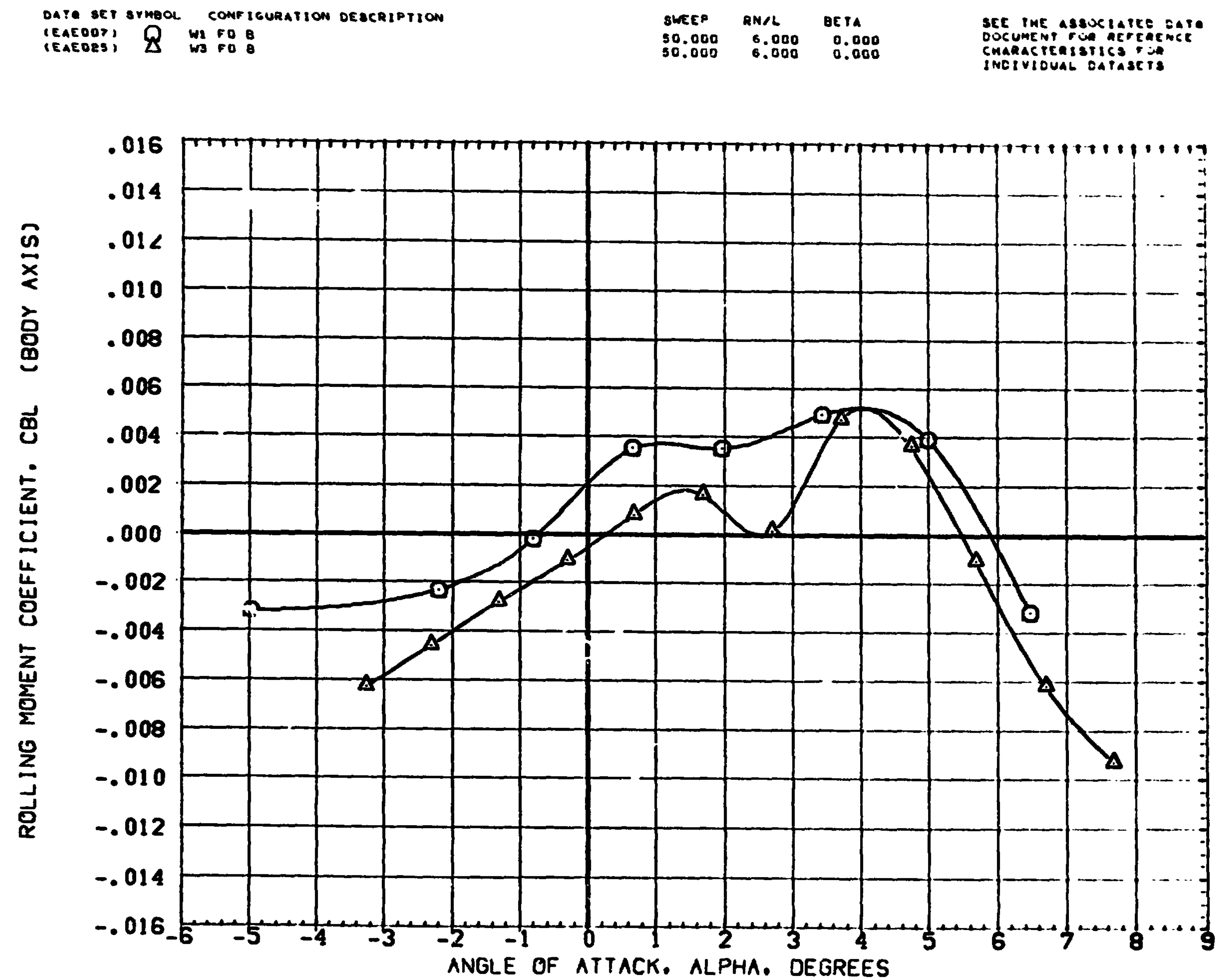


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=50 DEGREES

(A)MACH = 1.10

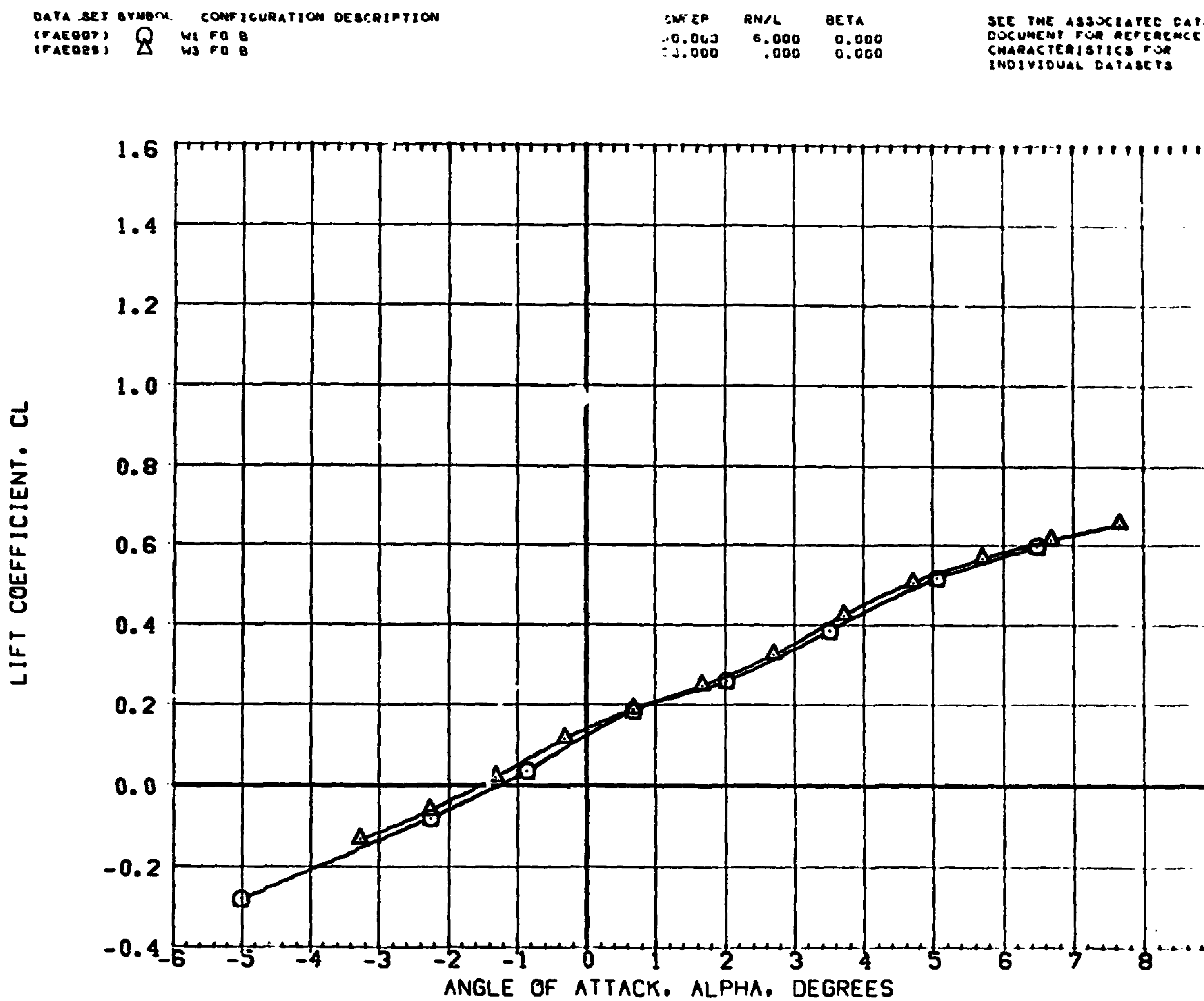


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

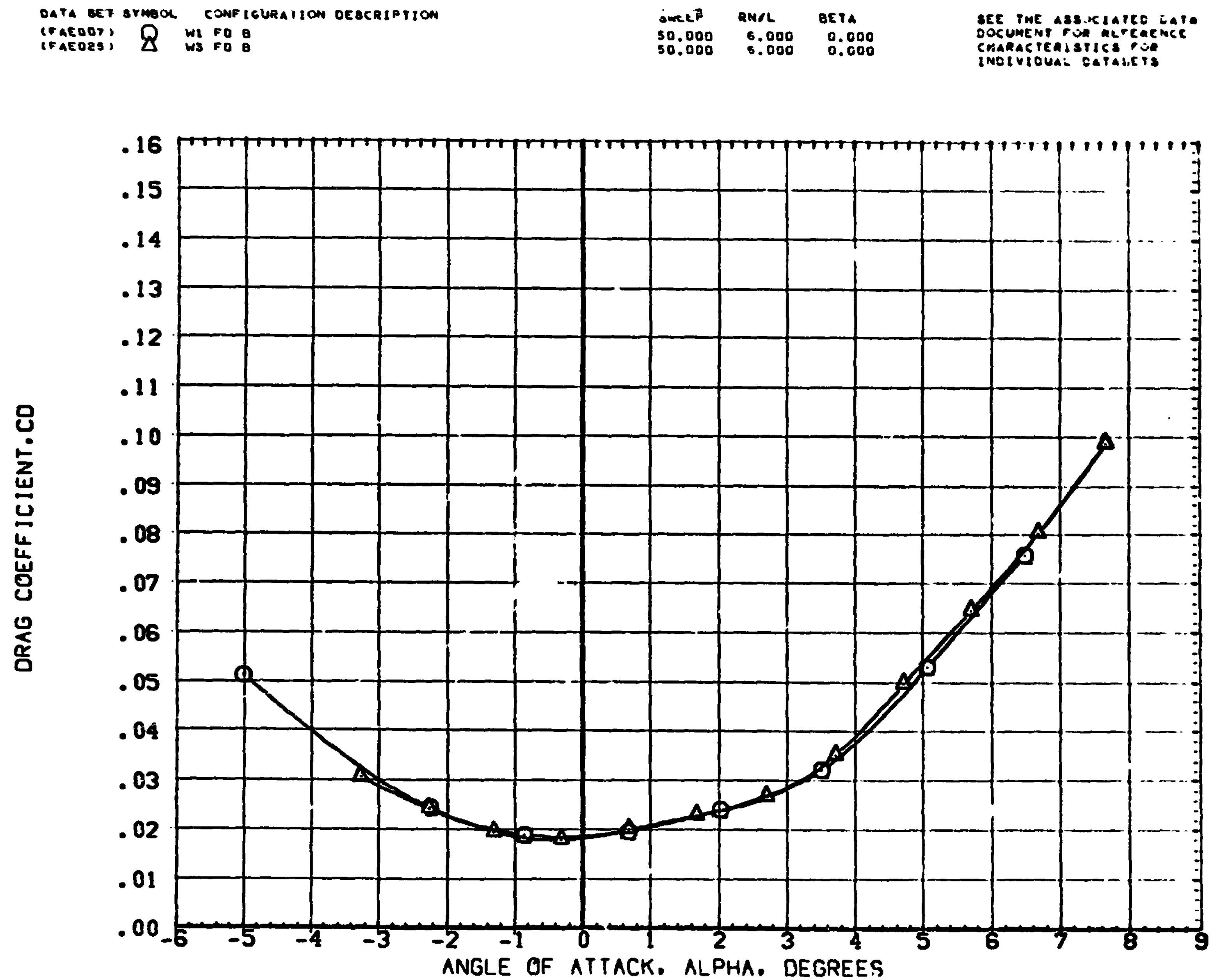


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

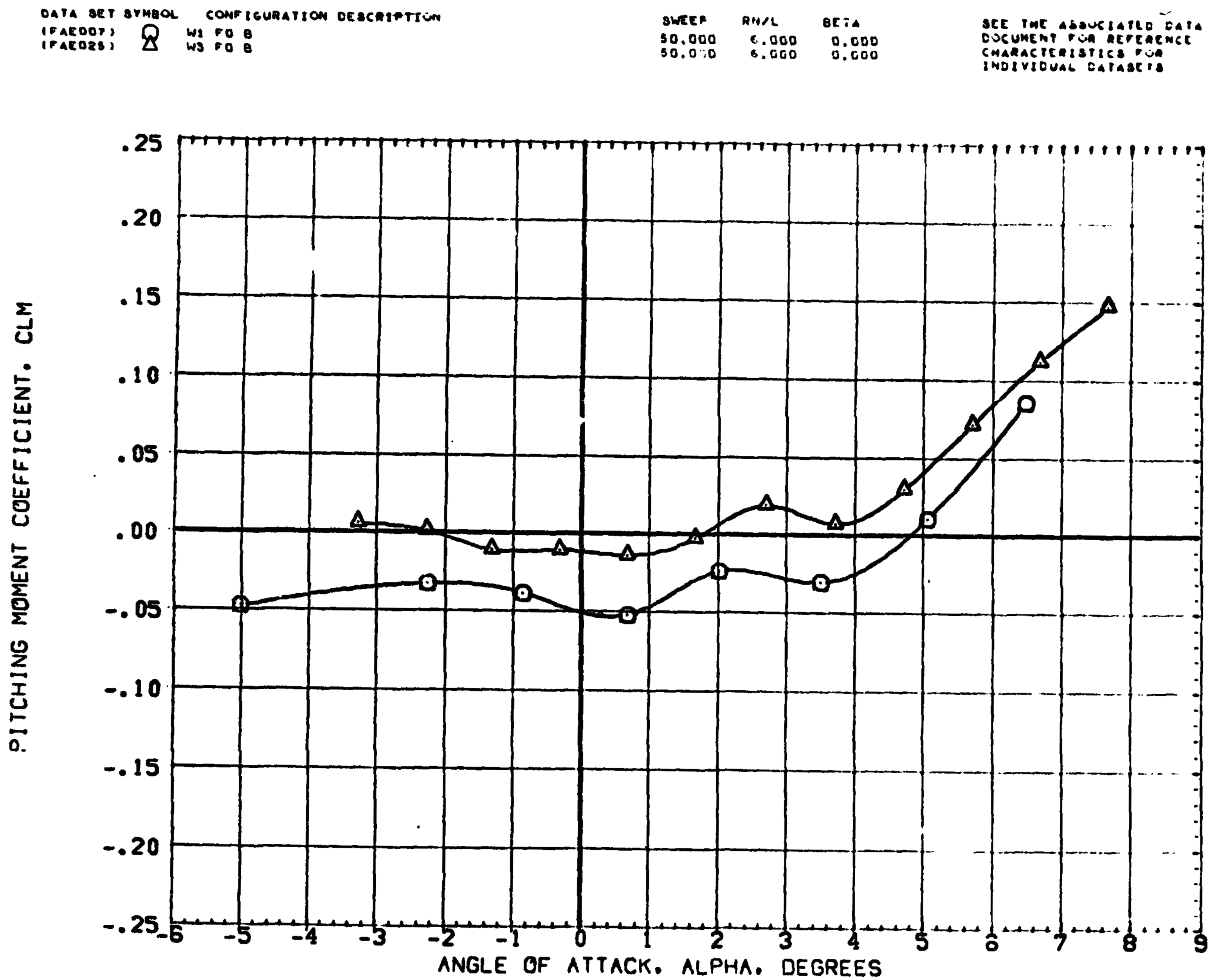


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(FAE007)	○	W1 FD B	50.000	6.000	0.000
(FAE025)	△	W3 FD B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

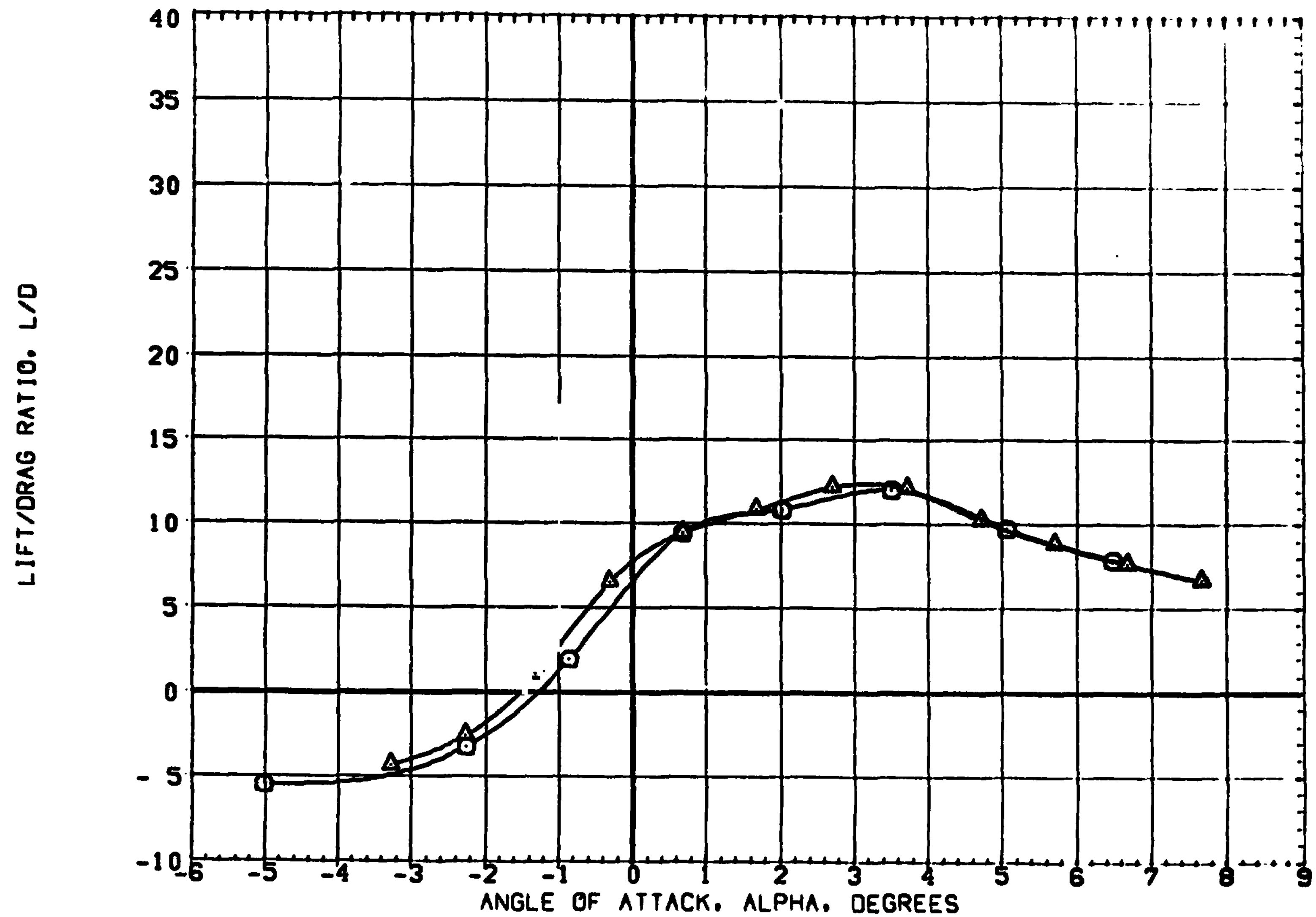


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

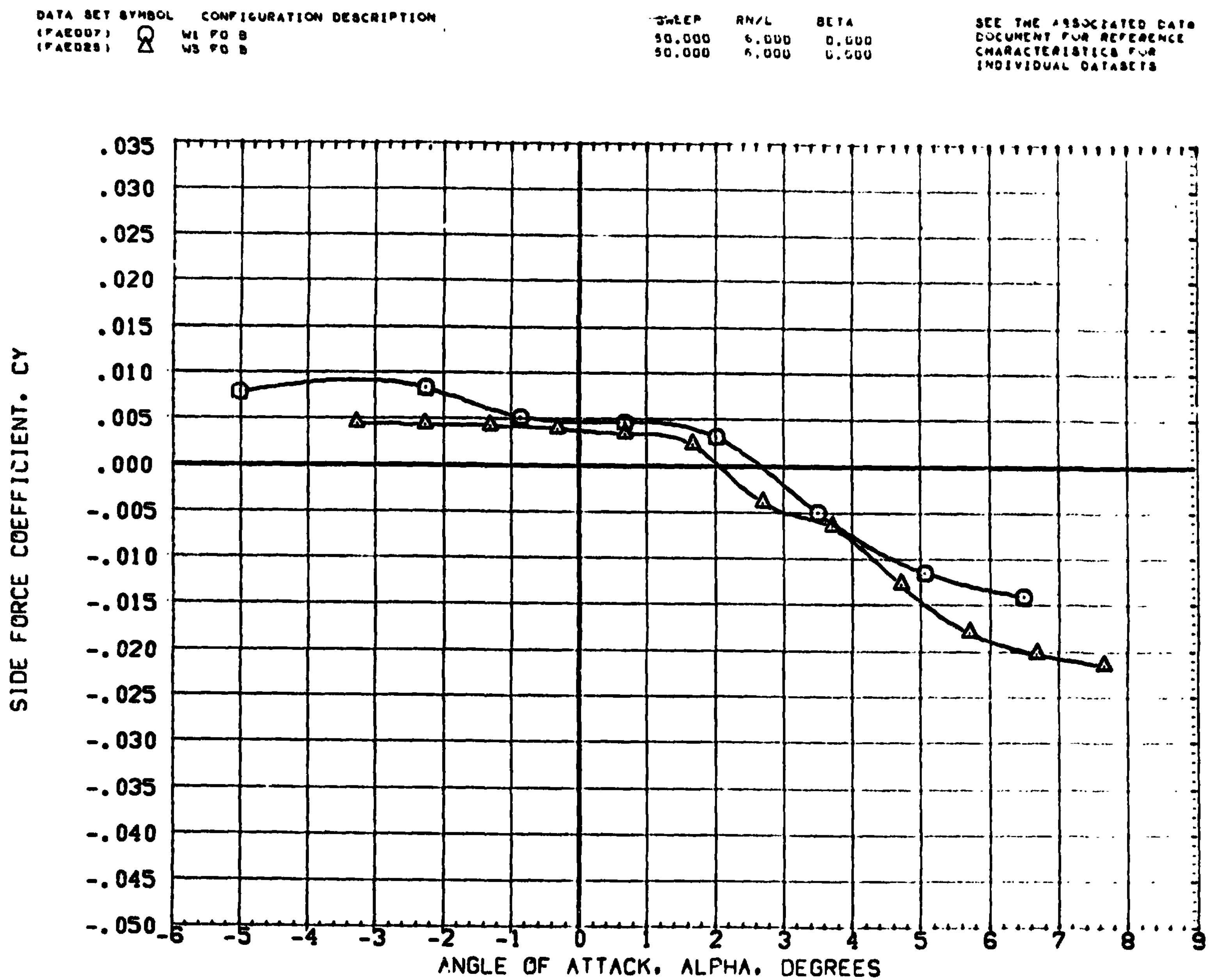


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

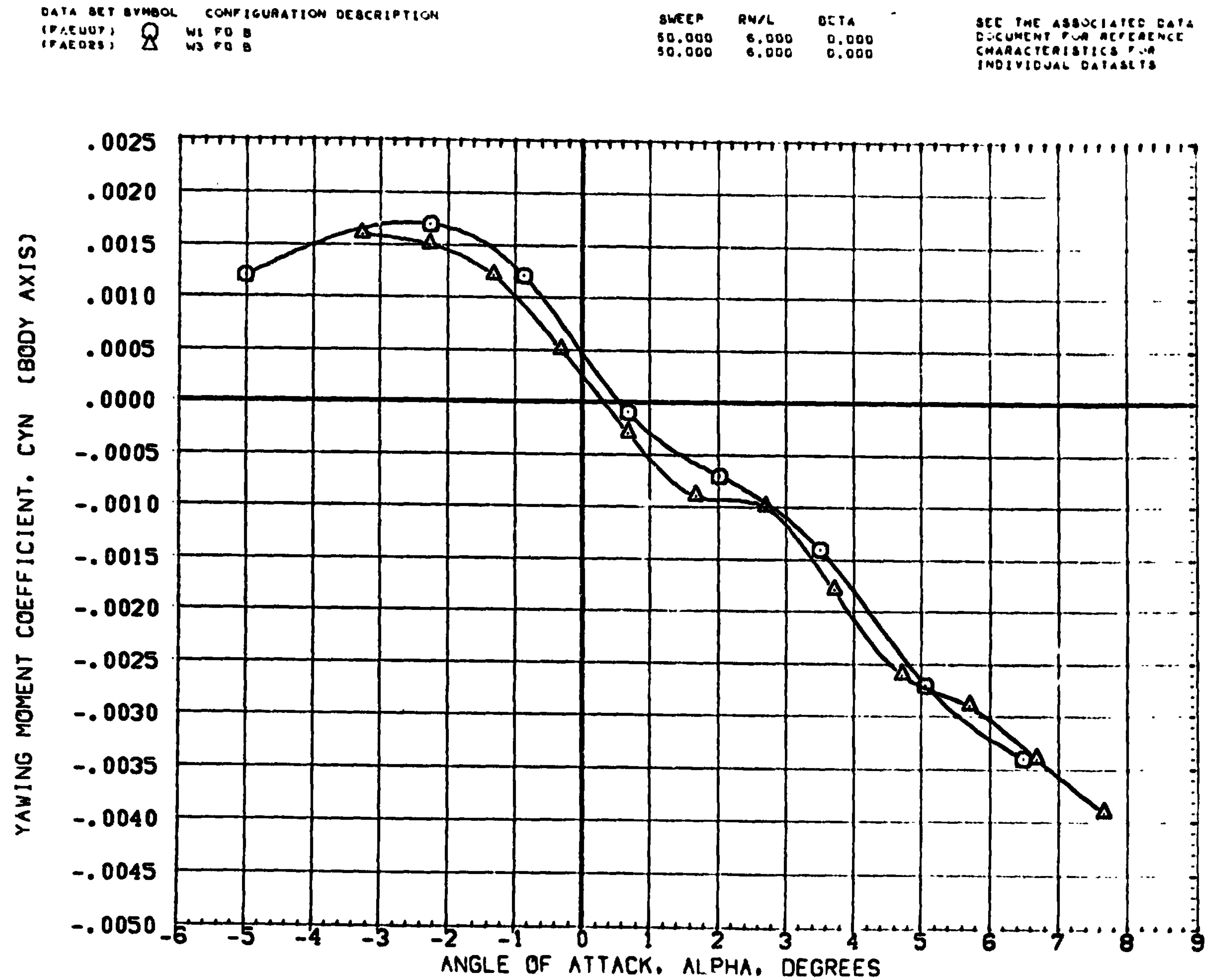


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

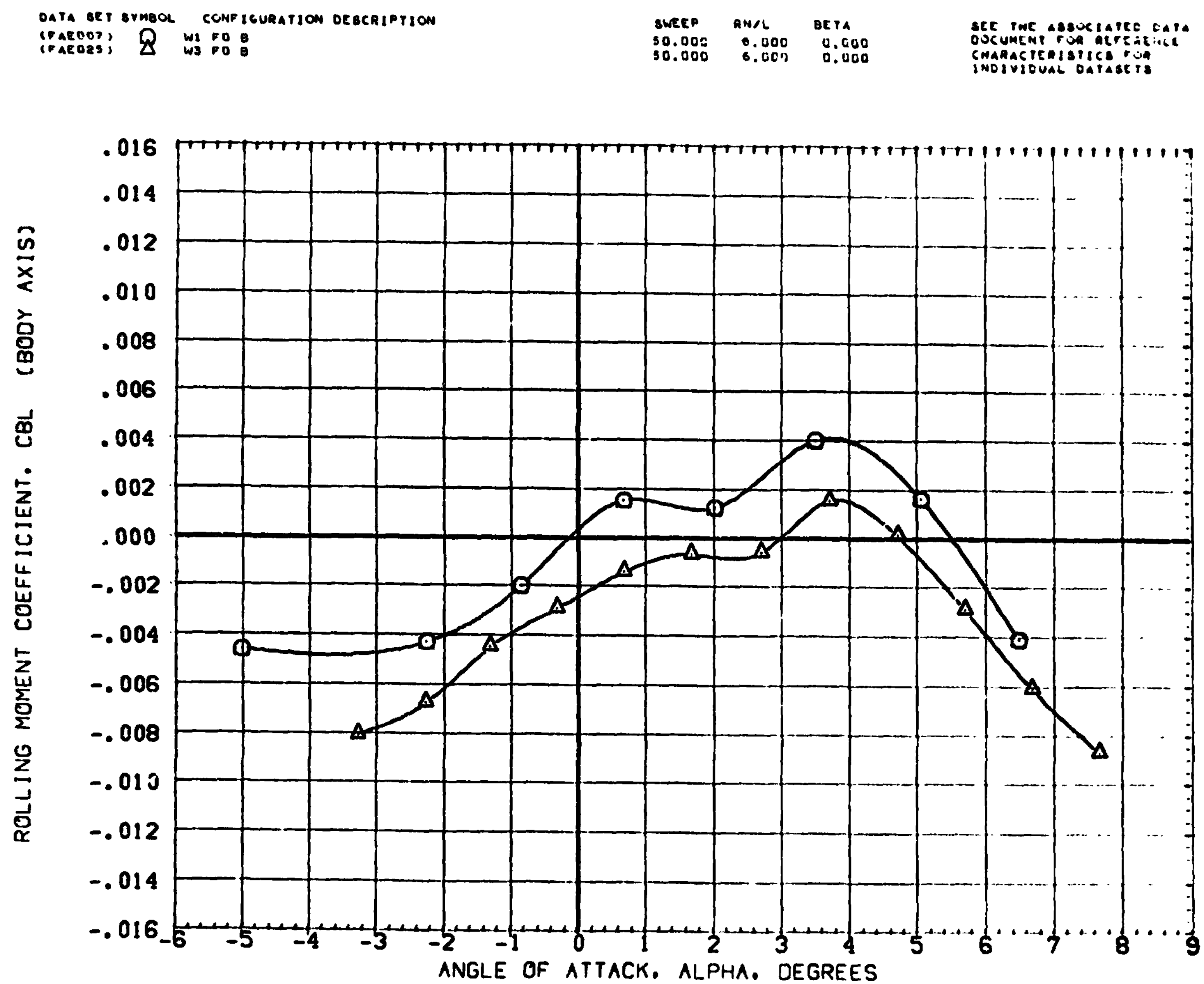


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.15, LAMBDA=50 DEGREES

(A)MACH = 1.15

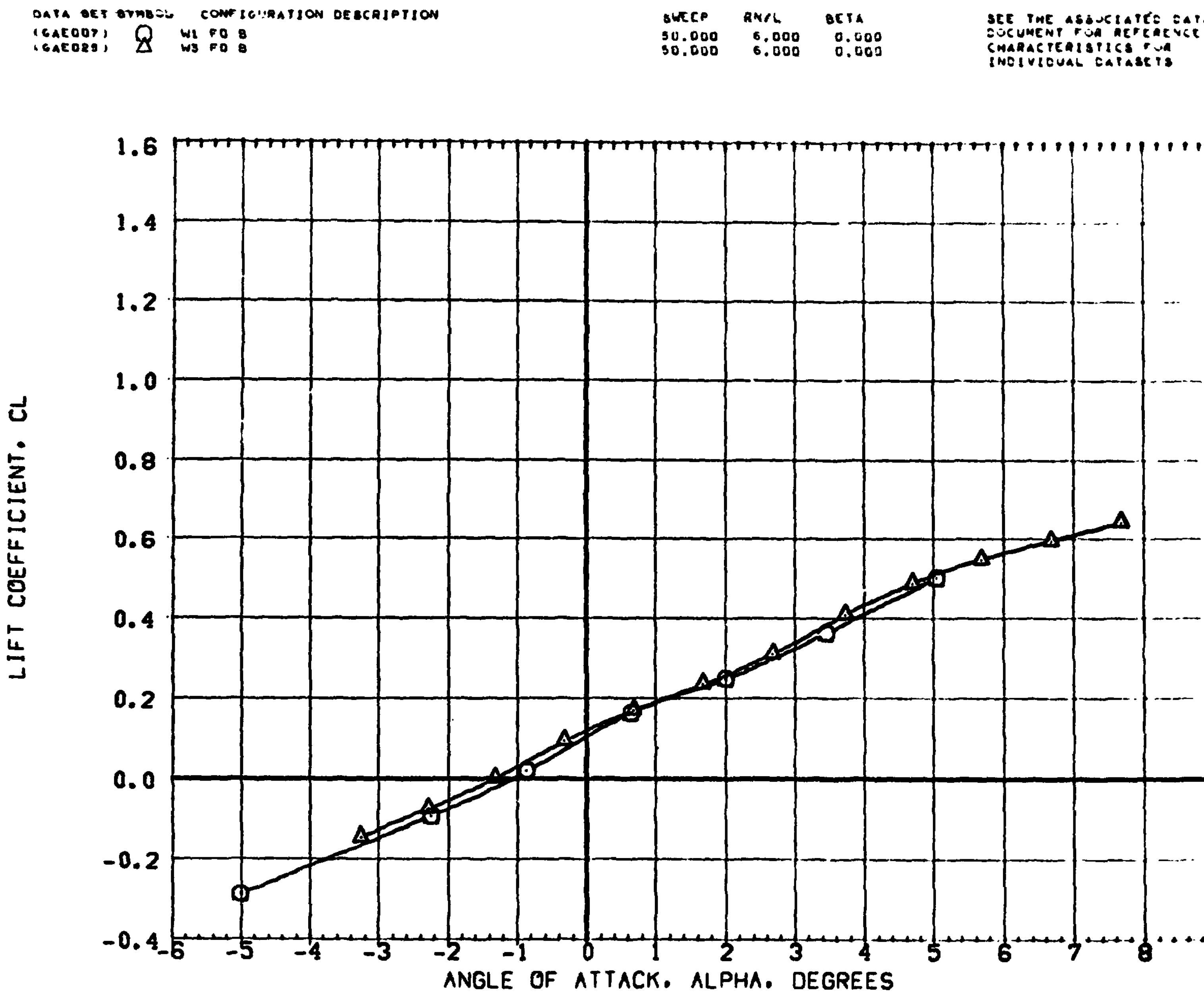


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES

(A)MACH 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(GAE007)	O	W1 F0 B	50.000	6.000	0.000
(GAE025)	Δ	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

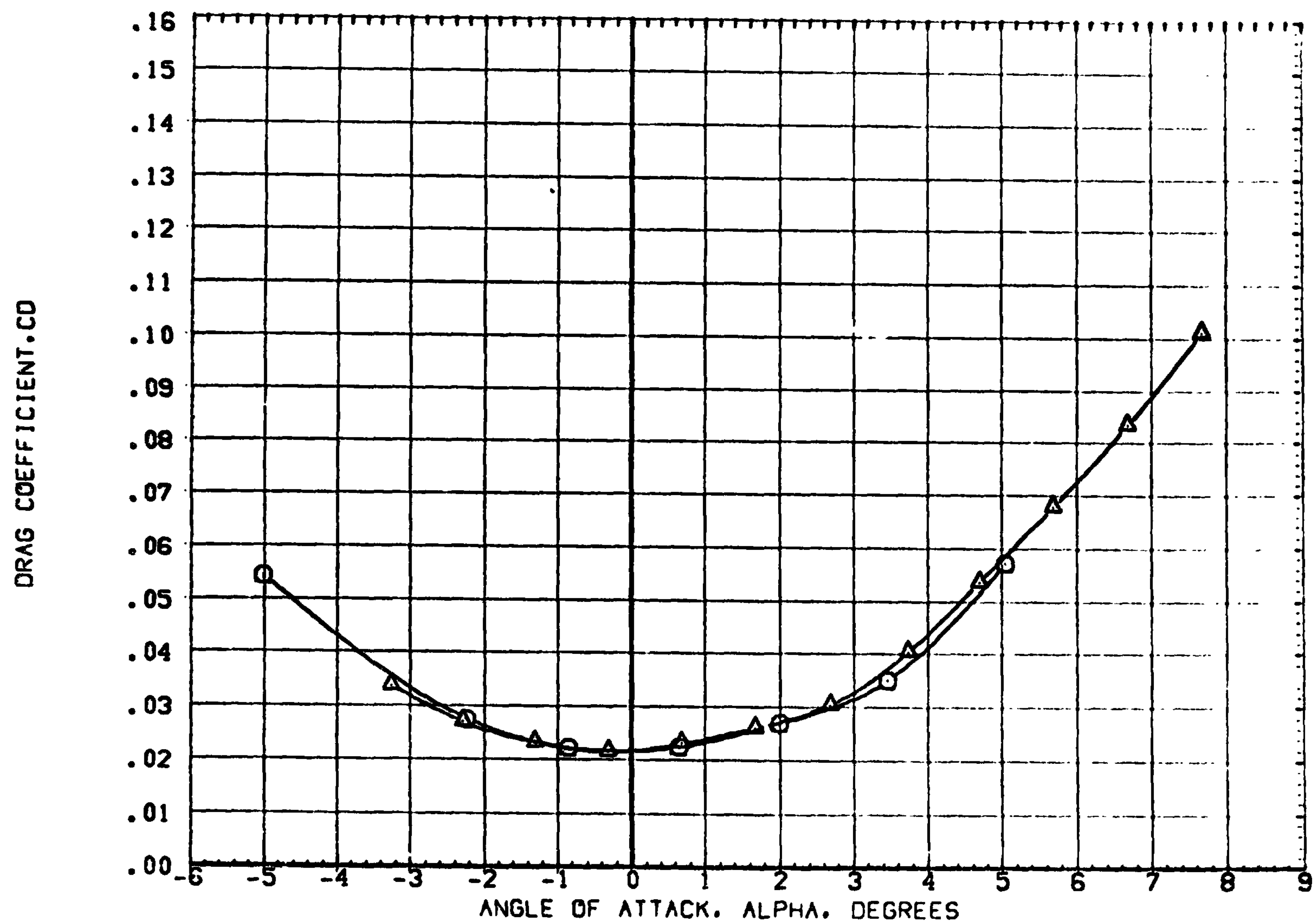


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES
(A)MACH - ... 2)

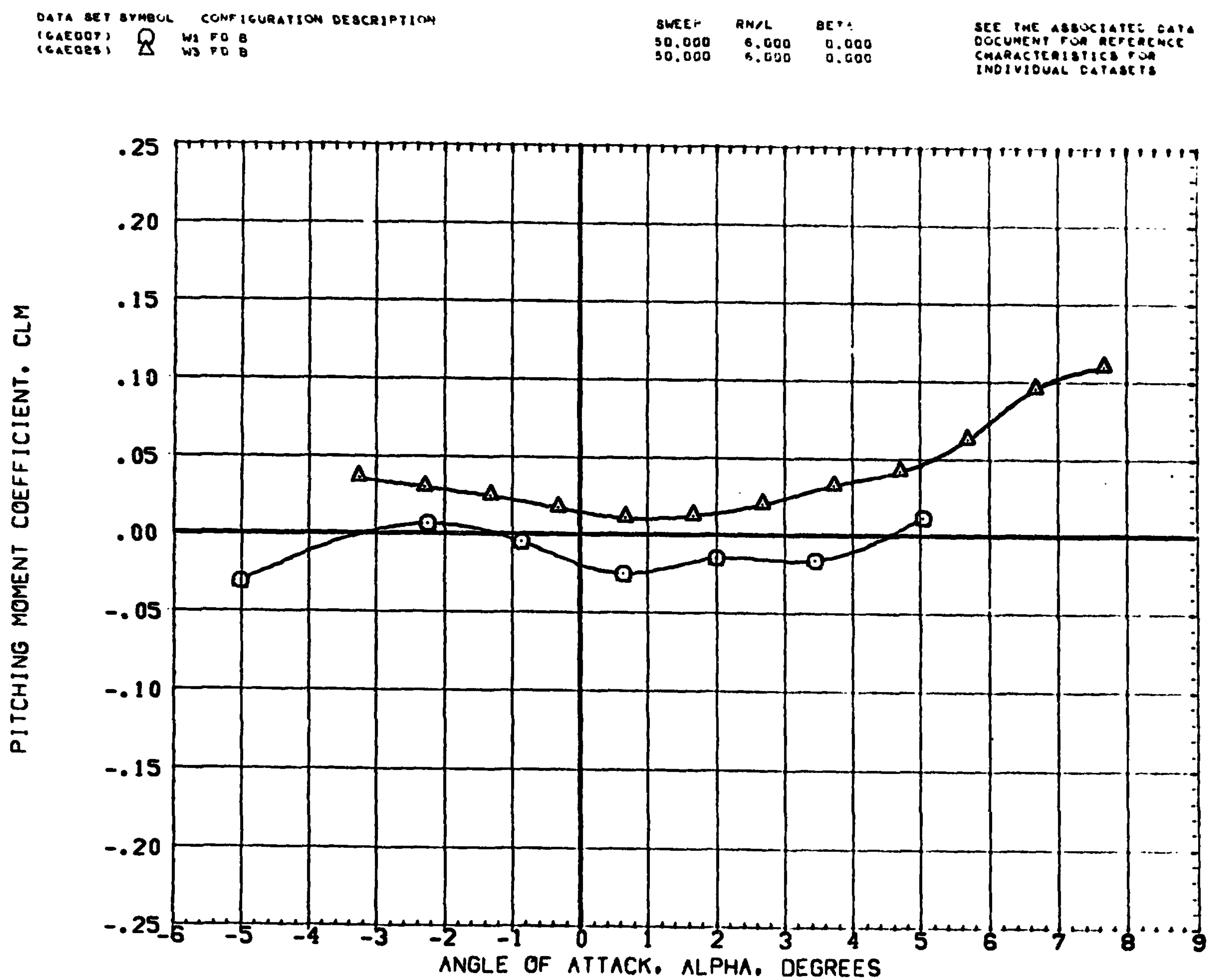


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES
(A)MACH = 1.20

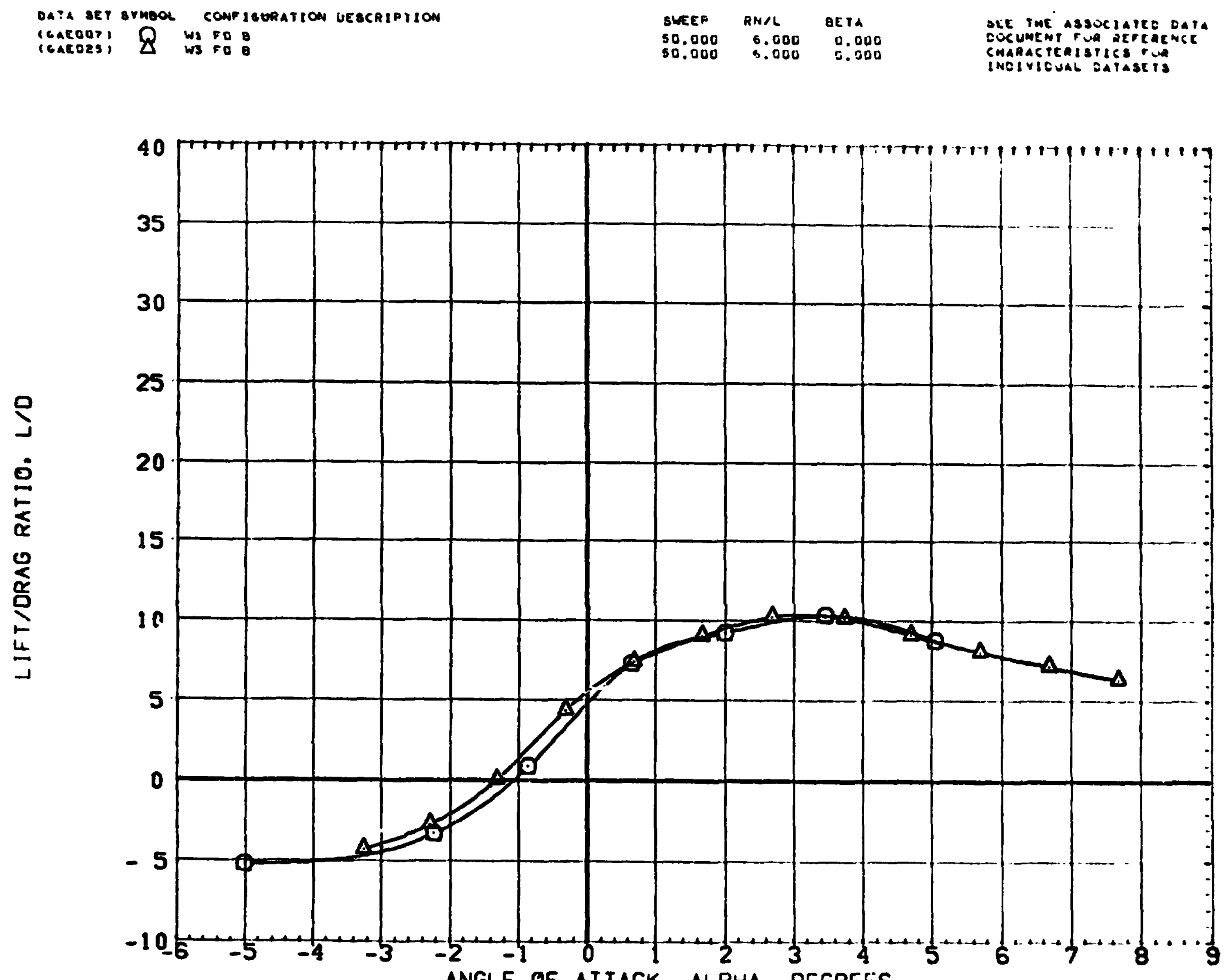


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES

(A)MACH = 1.20

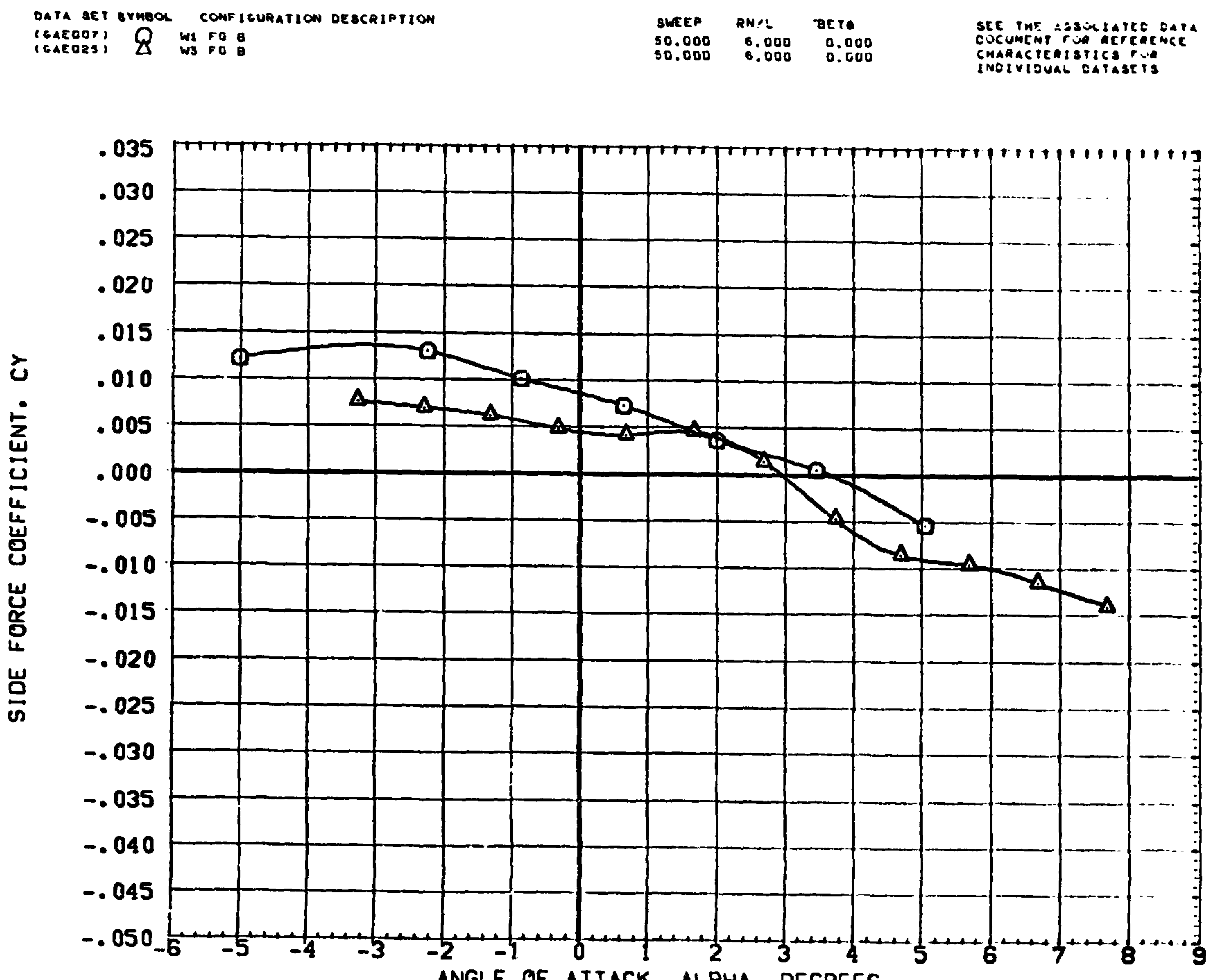


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(GAE007)	⊙	W1 F0 B	50.000	6.000	0.000
(GAE025)	△	W3 F0 B	50.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

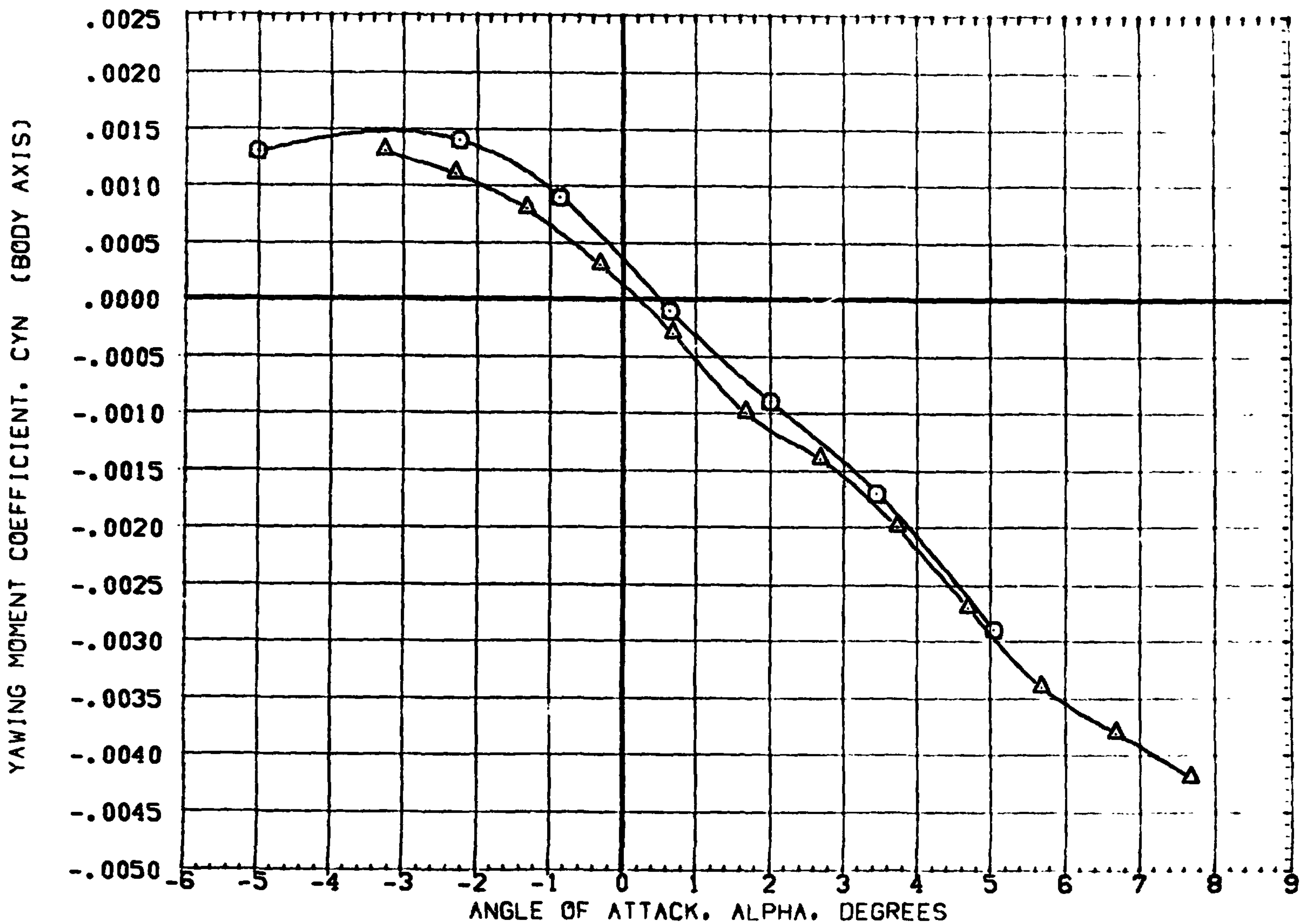


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES

(A)MACH = 1.20

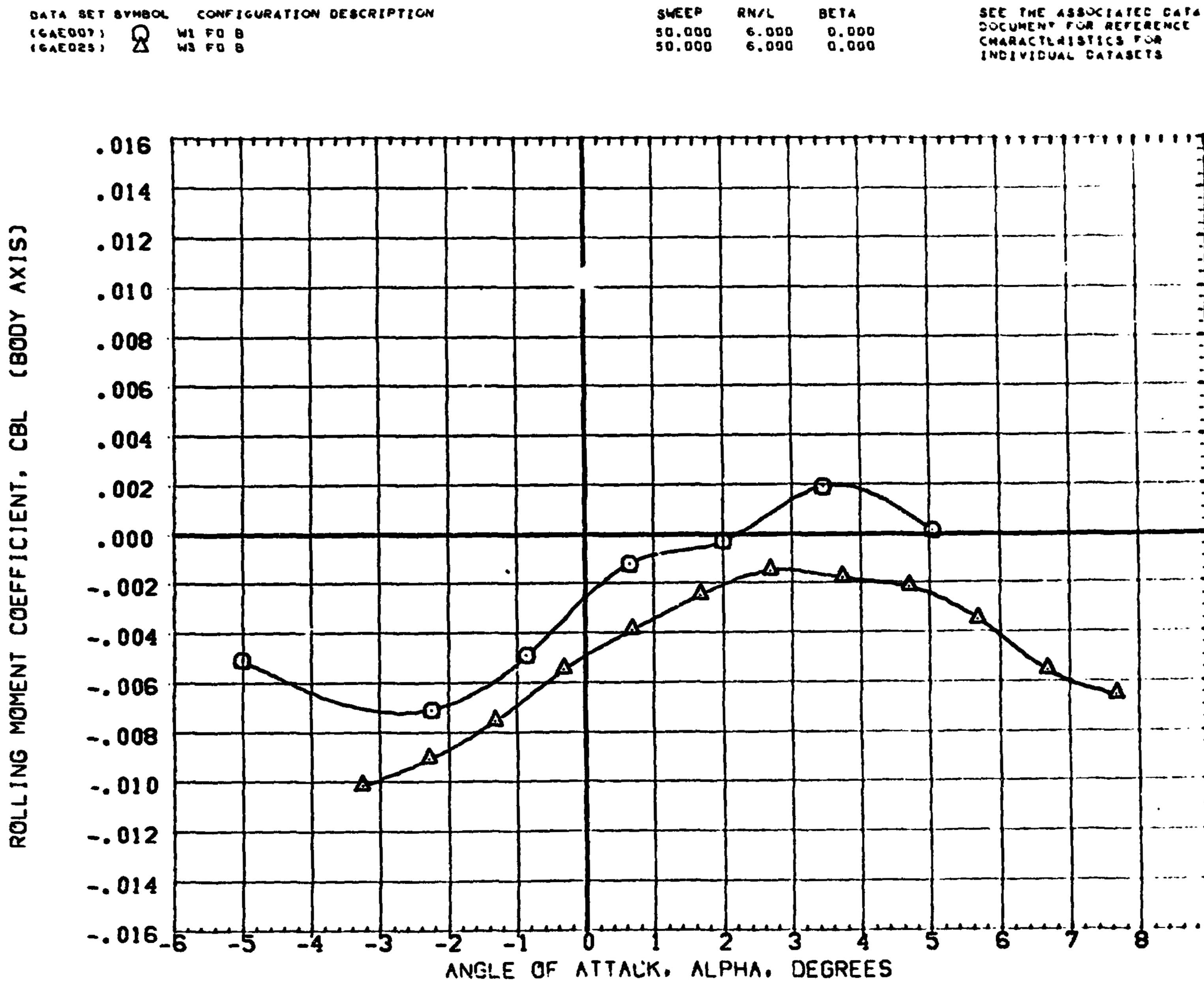


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=50 DEGREES

MACH = 1.20

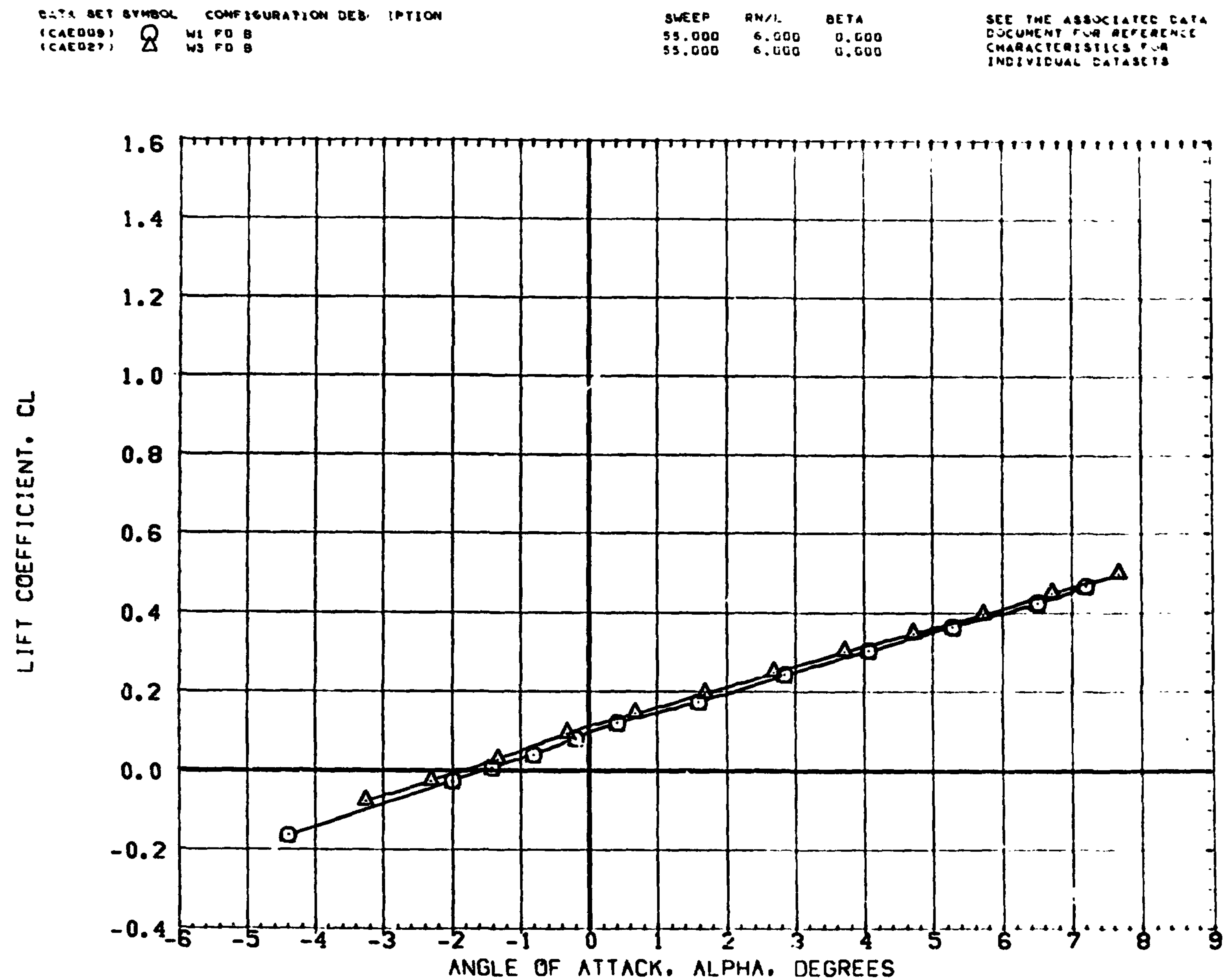


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

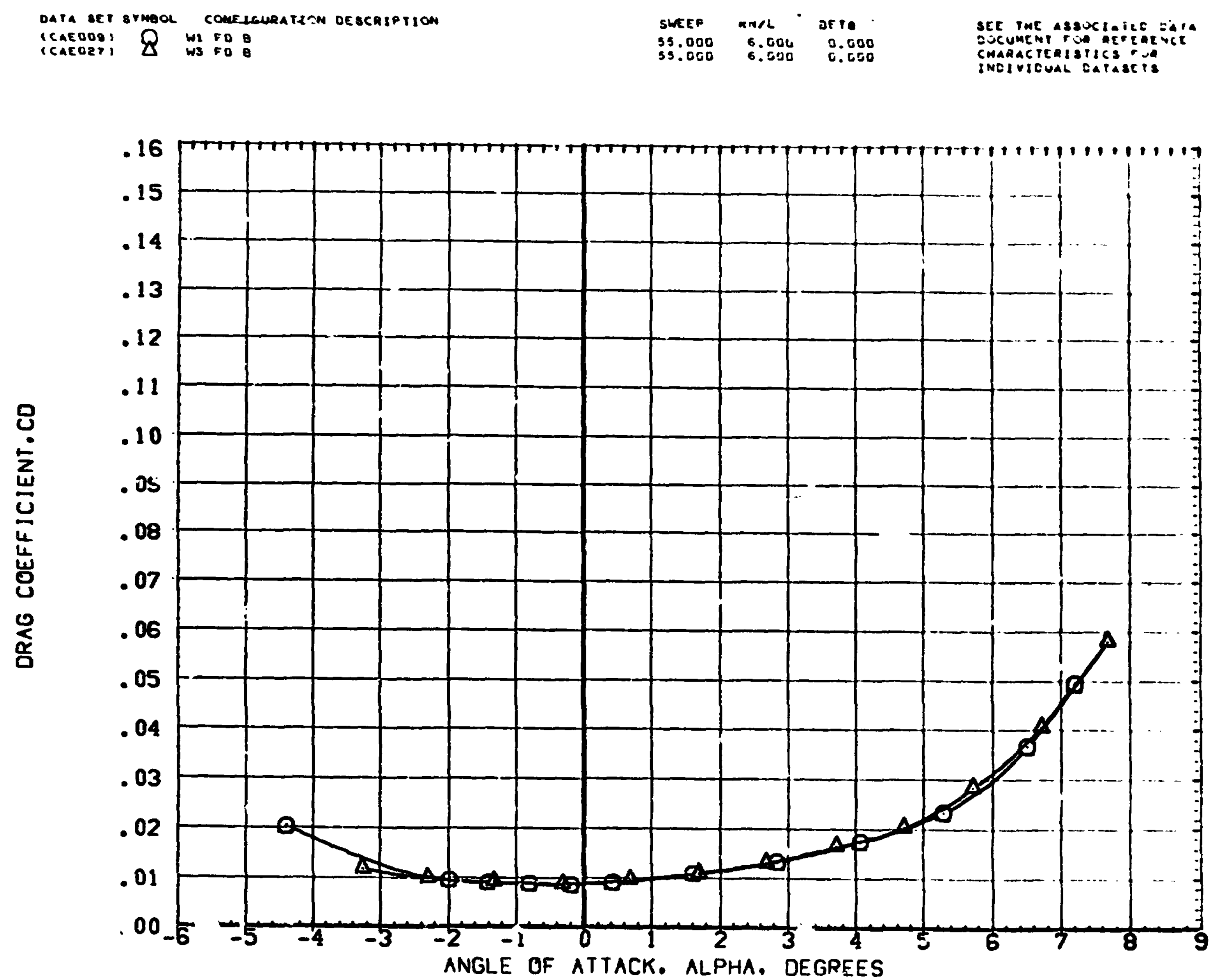


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES
(A)MACH .80

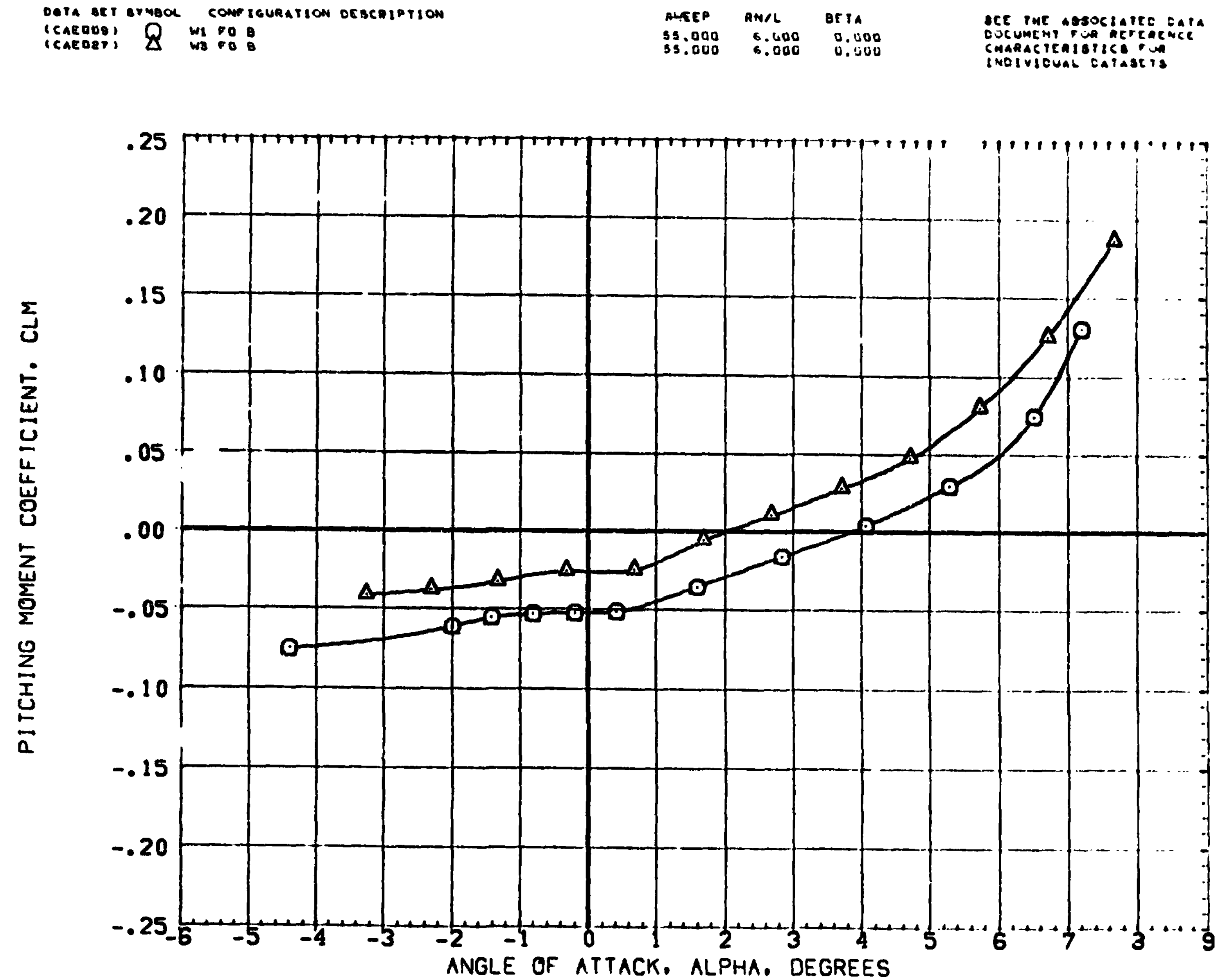


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE009)	○	W1 FD B	55.000	6.000	0.000
(CAE027)	△	W3 FD B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

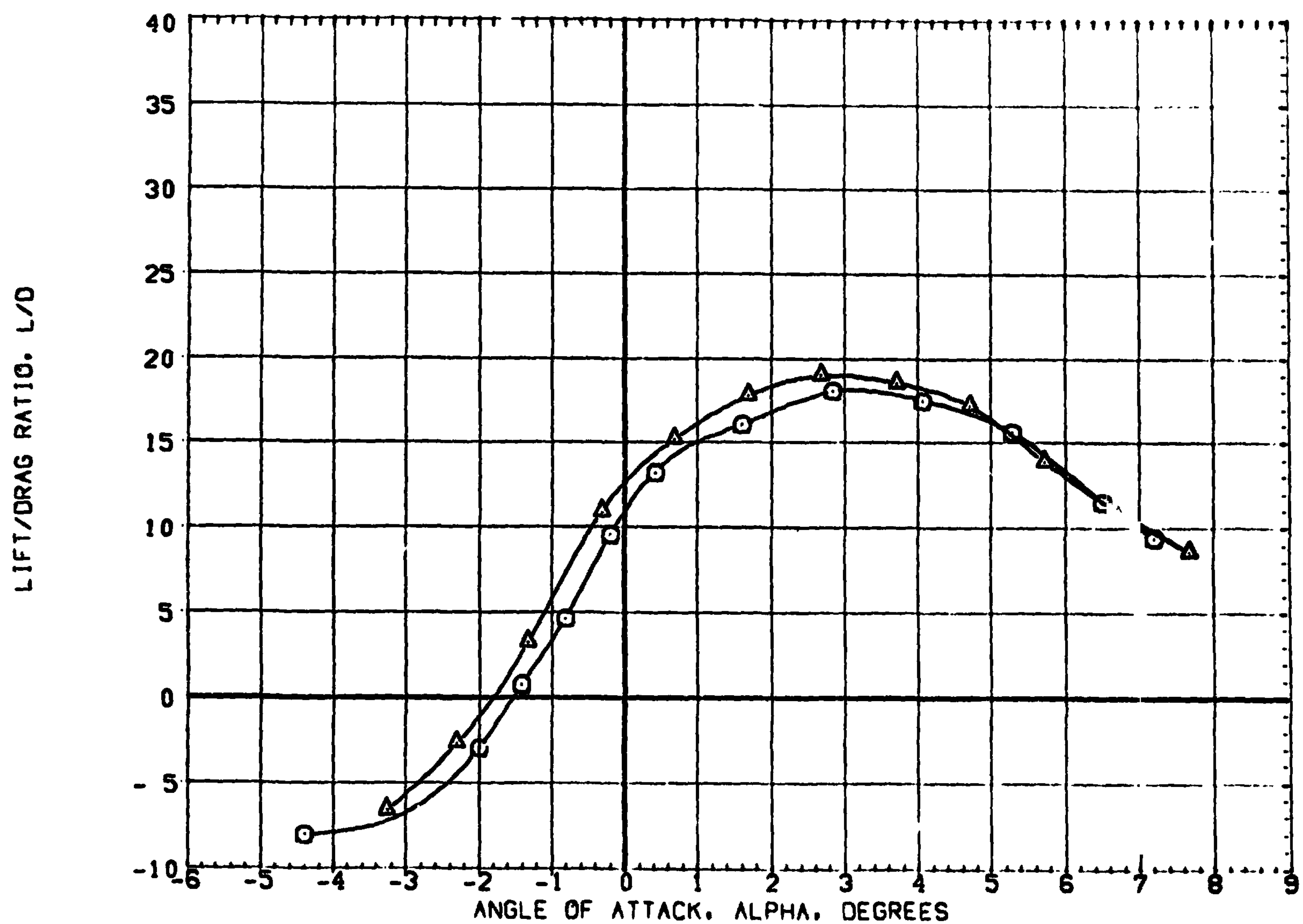


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

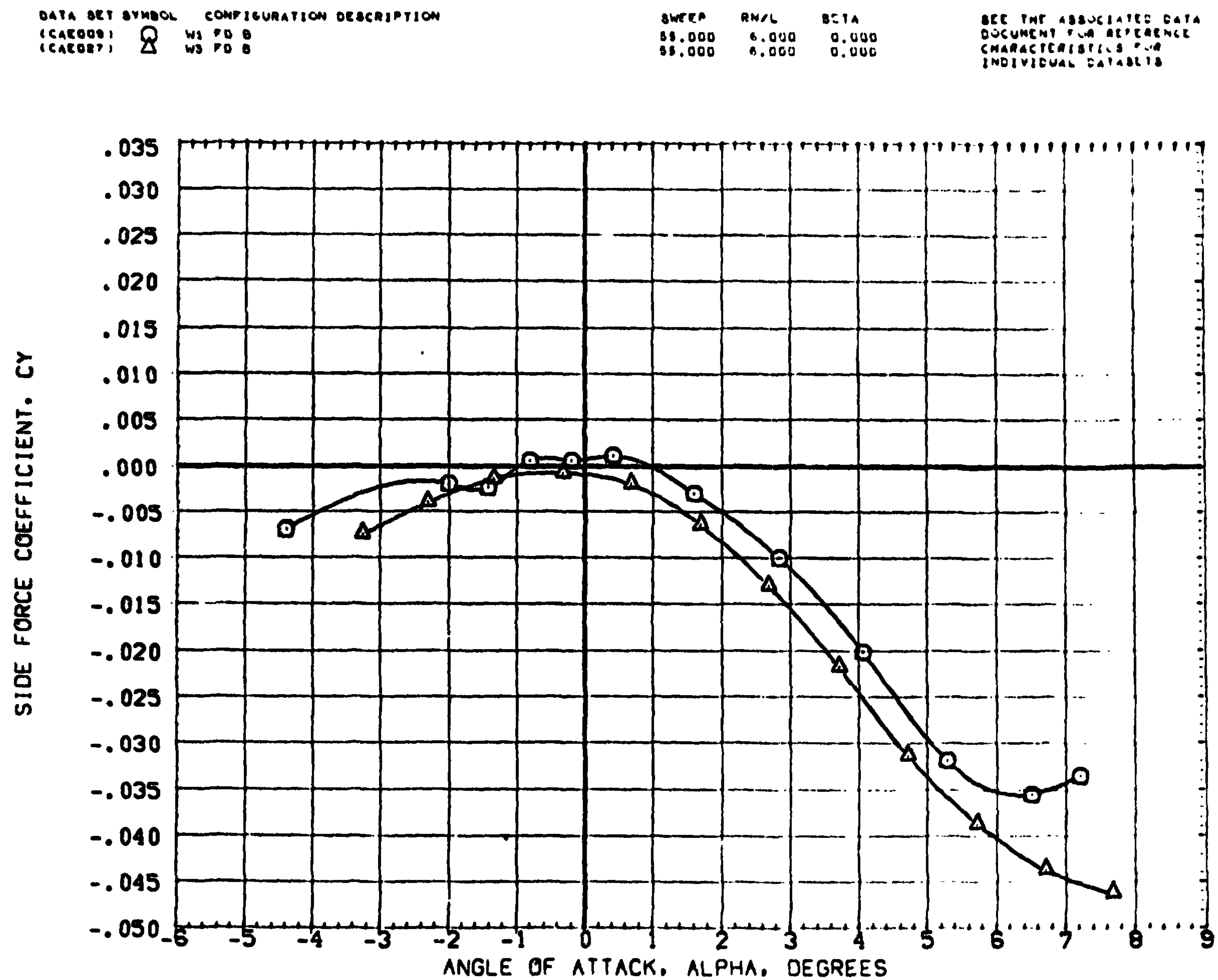


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

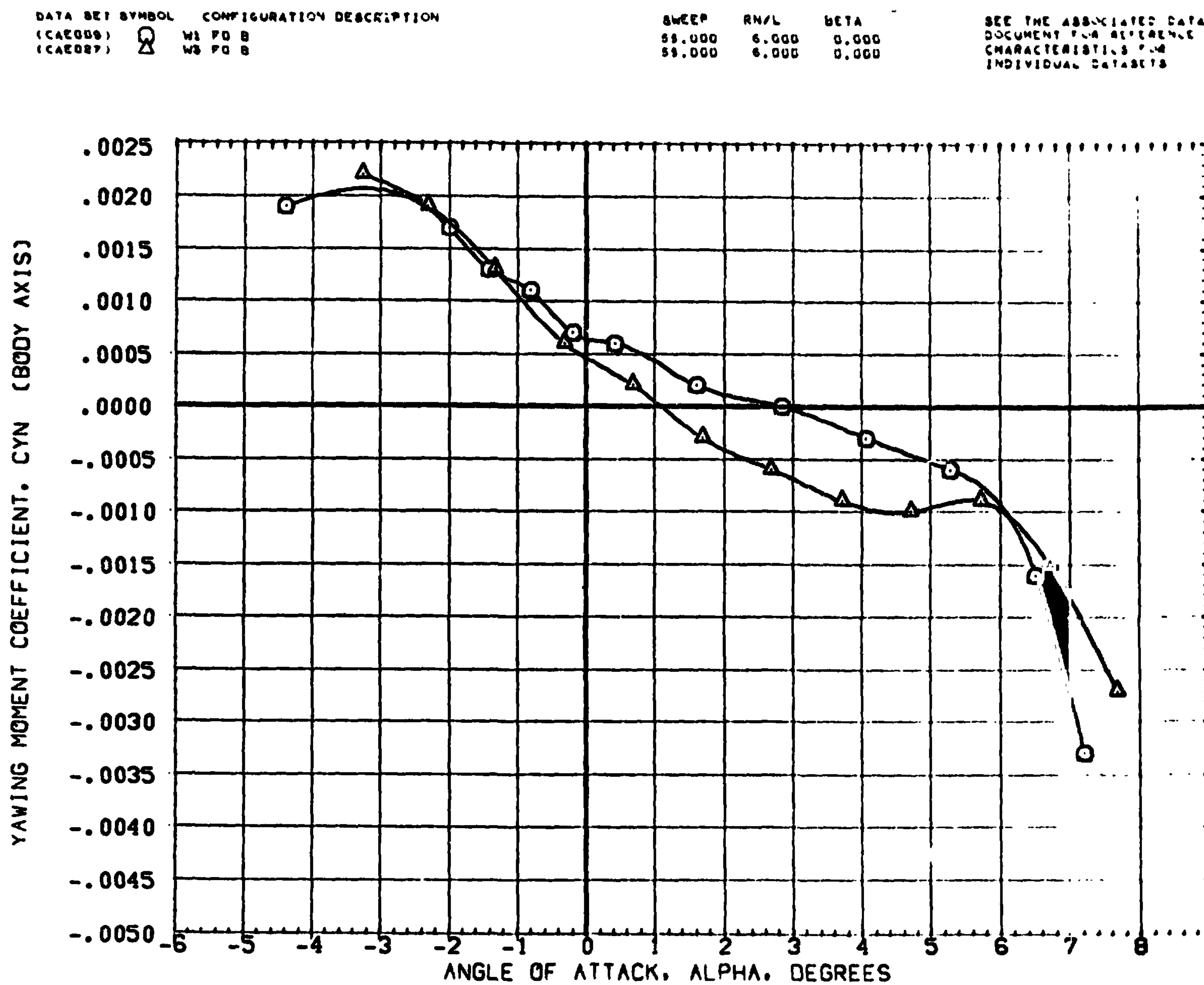


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO. 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE009)	⊡	W1 F0 B	55.000	6.000	0.000
(CAE027)	△	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

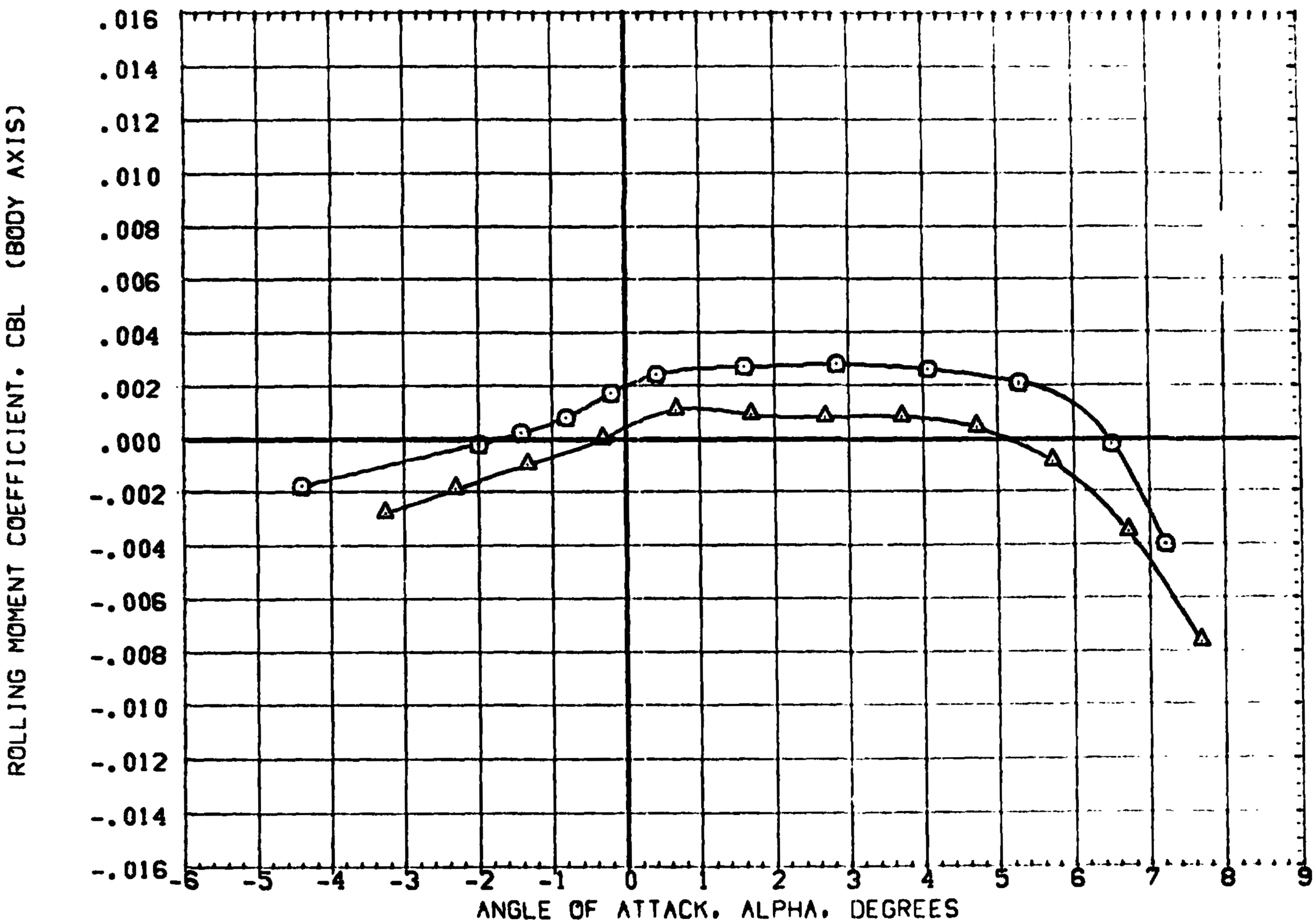


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=55 DEGREES

(A)MACH = .80

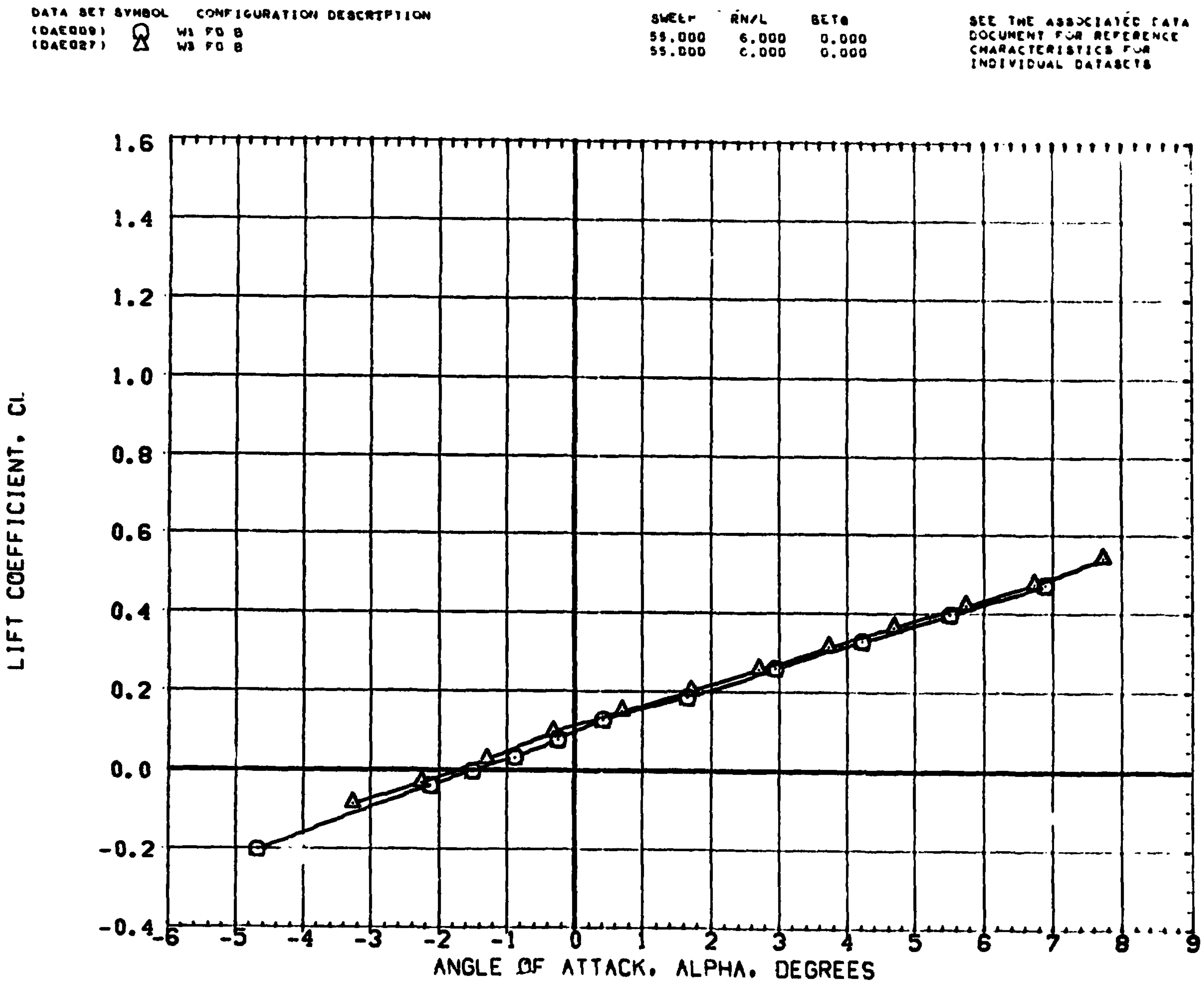


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH = .95

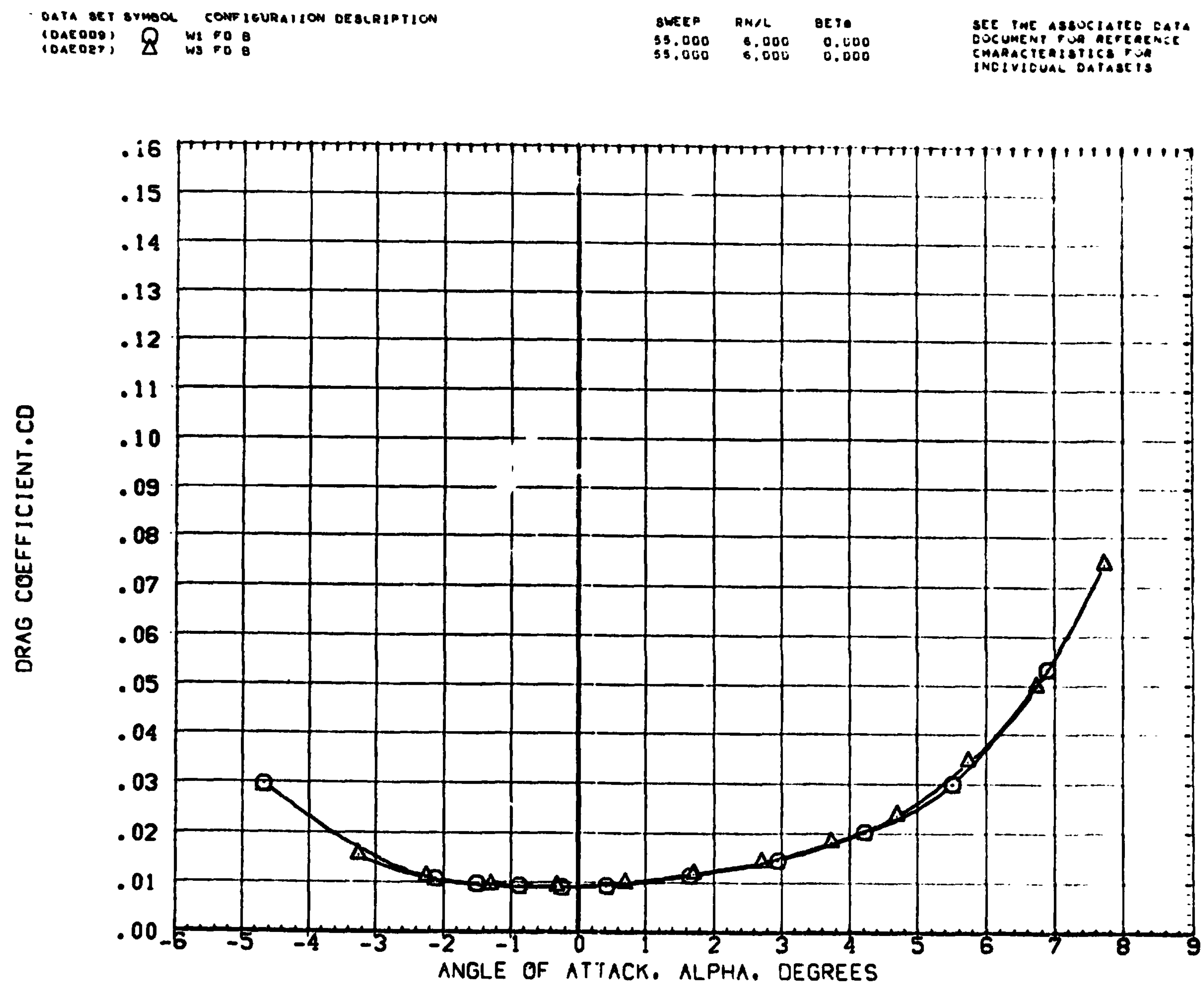


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE009)	⊙	W1 FU B	55.000	6.000	0.000
(DAE027)	△	W3 FO B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

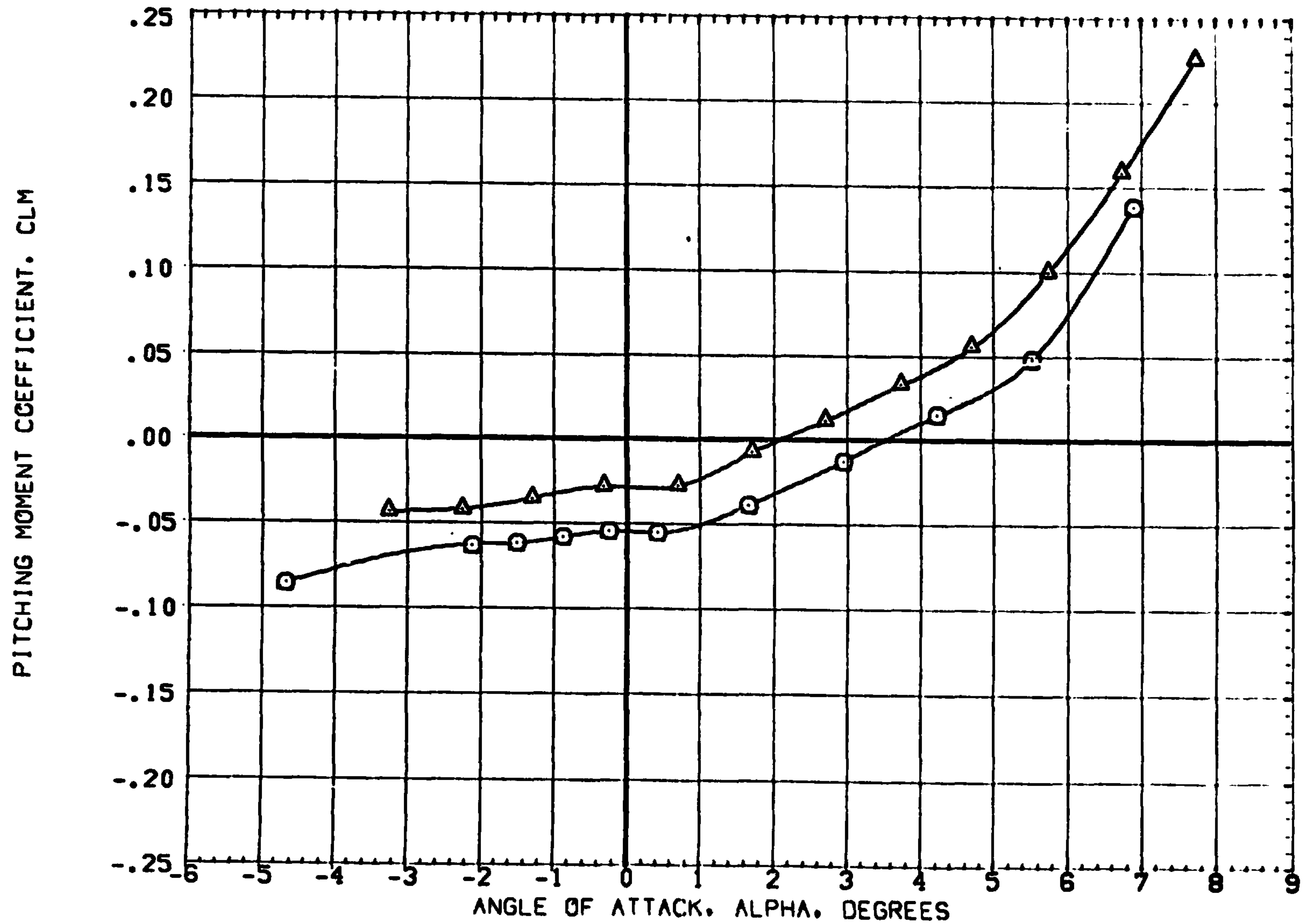


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE009)	⊙	W1 FD B	55.000	6.000	0.000
(DAE027)	△	W3 FD B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

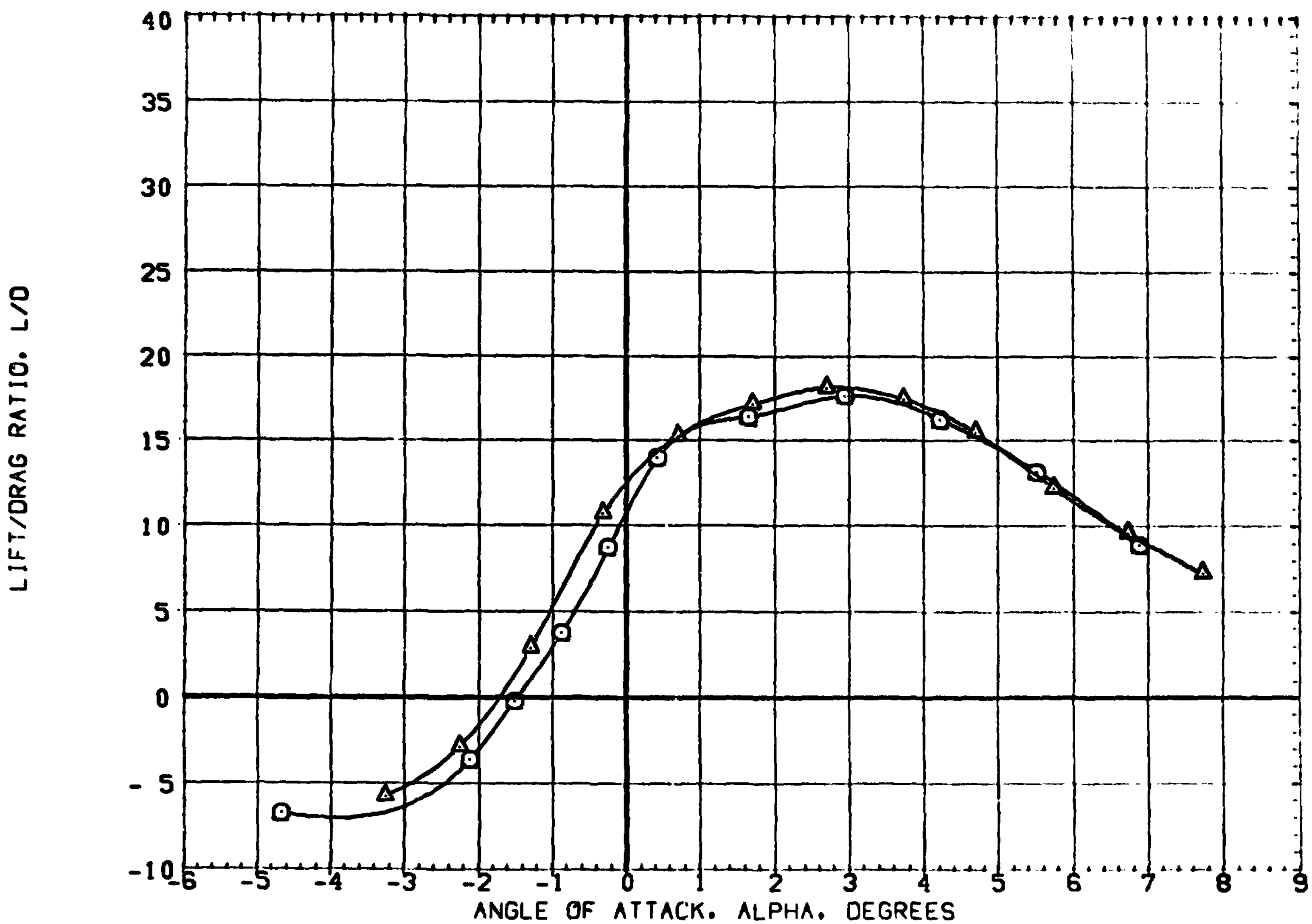


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH = .95

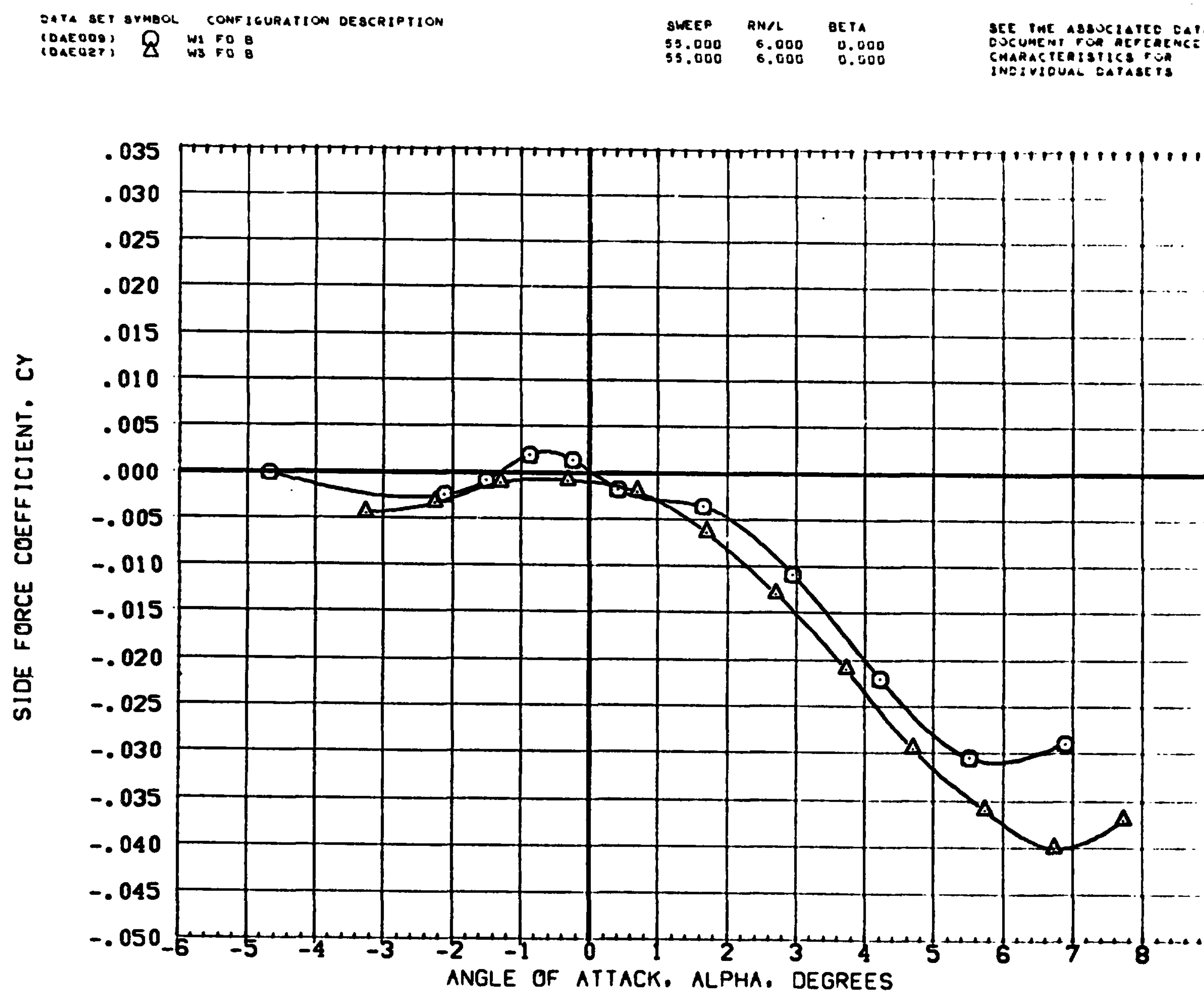


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH = .95

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(DAE009)	⊡	W1 F0 B
(DAE027)	△	W3 F0 B

SWEEP	RN/L	BETA
55.000	6.000	0.000
55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

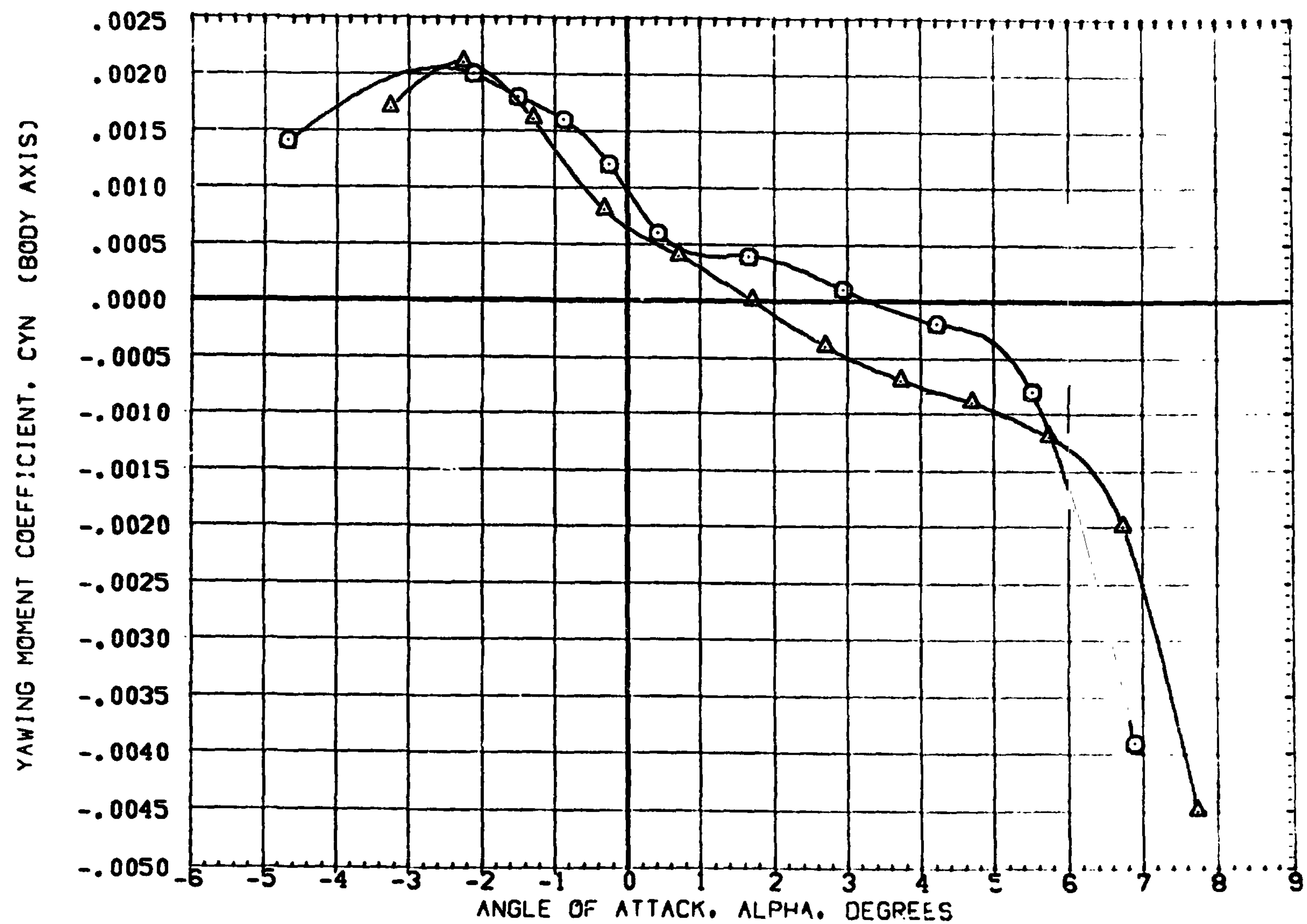


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MA' .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE009)	○	W1 F0 B	55.000	6.000	0.000
(DAE027)	△	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

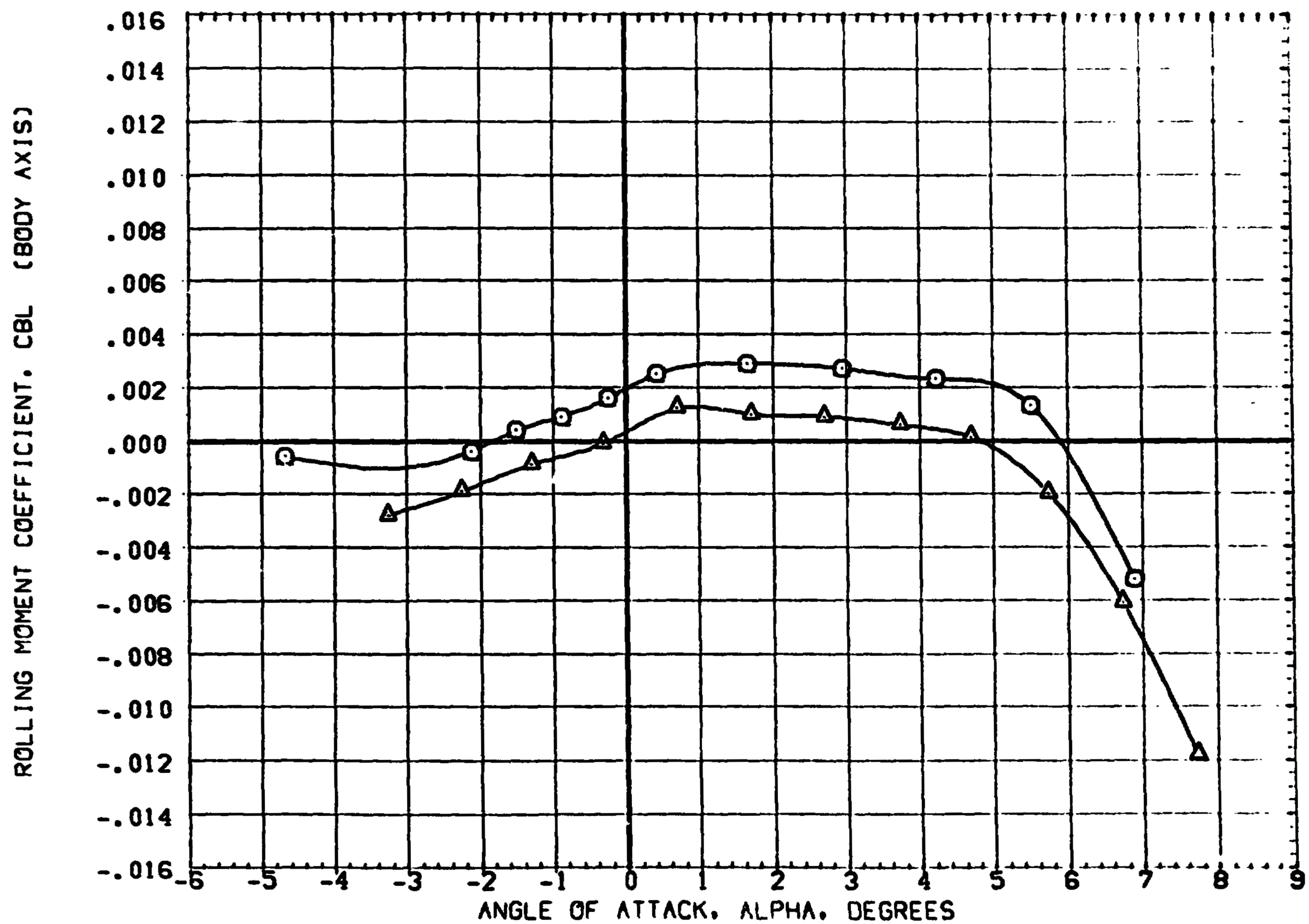


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=55 DEGREES

(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(HAE009)	⊙	W1 F0 B	55.000	6.000	0.000
(EAE027)	△	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

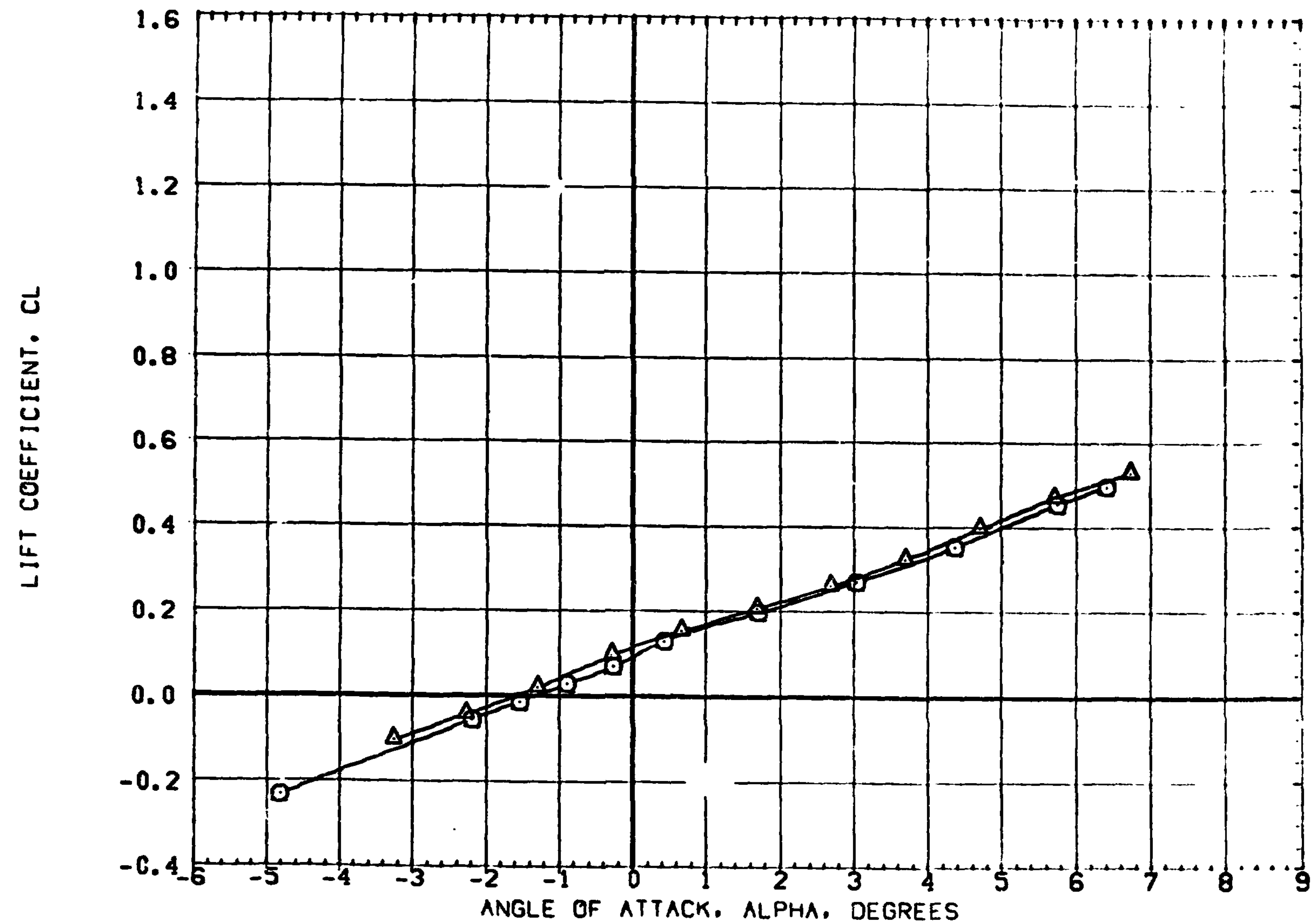


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

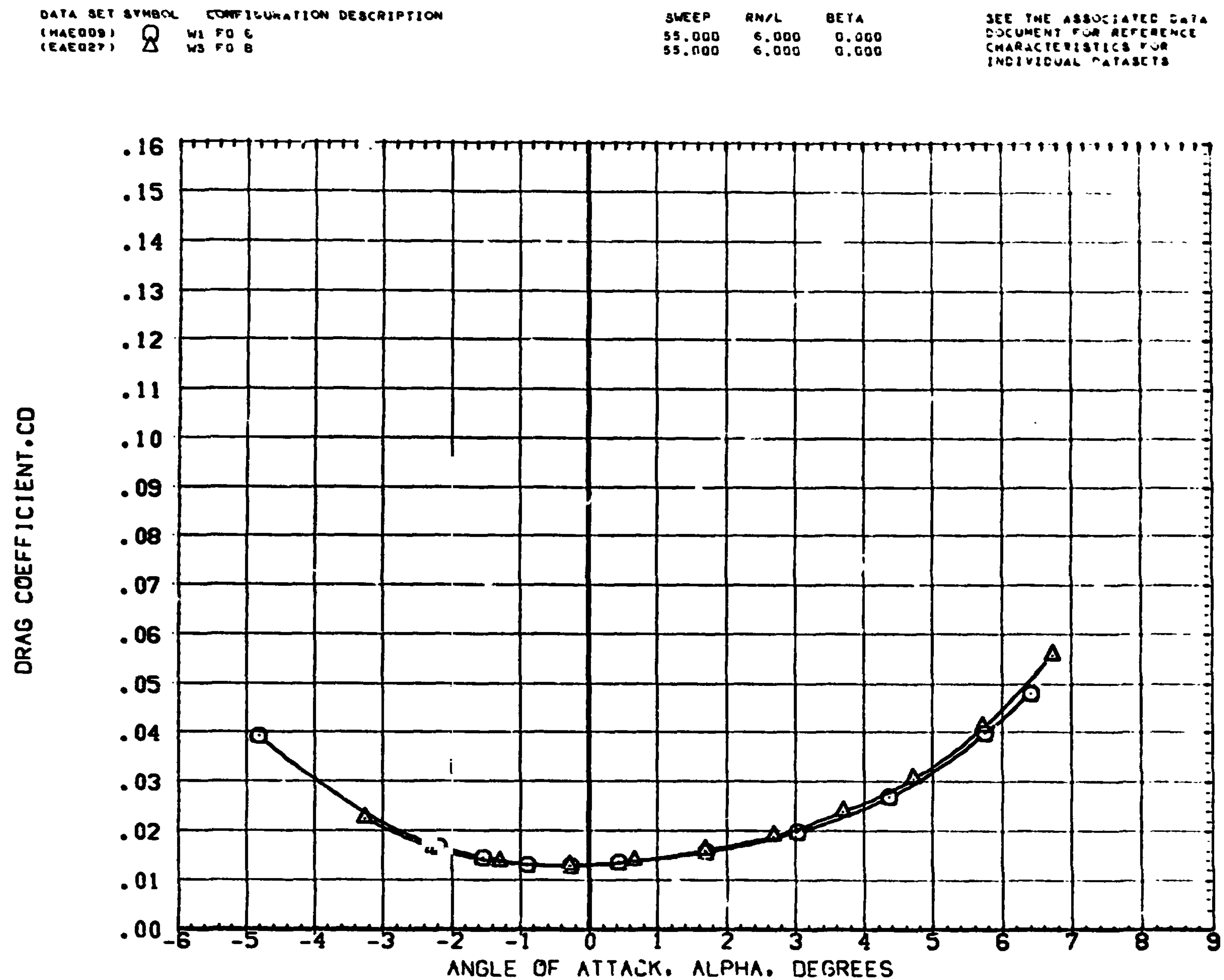


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

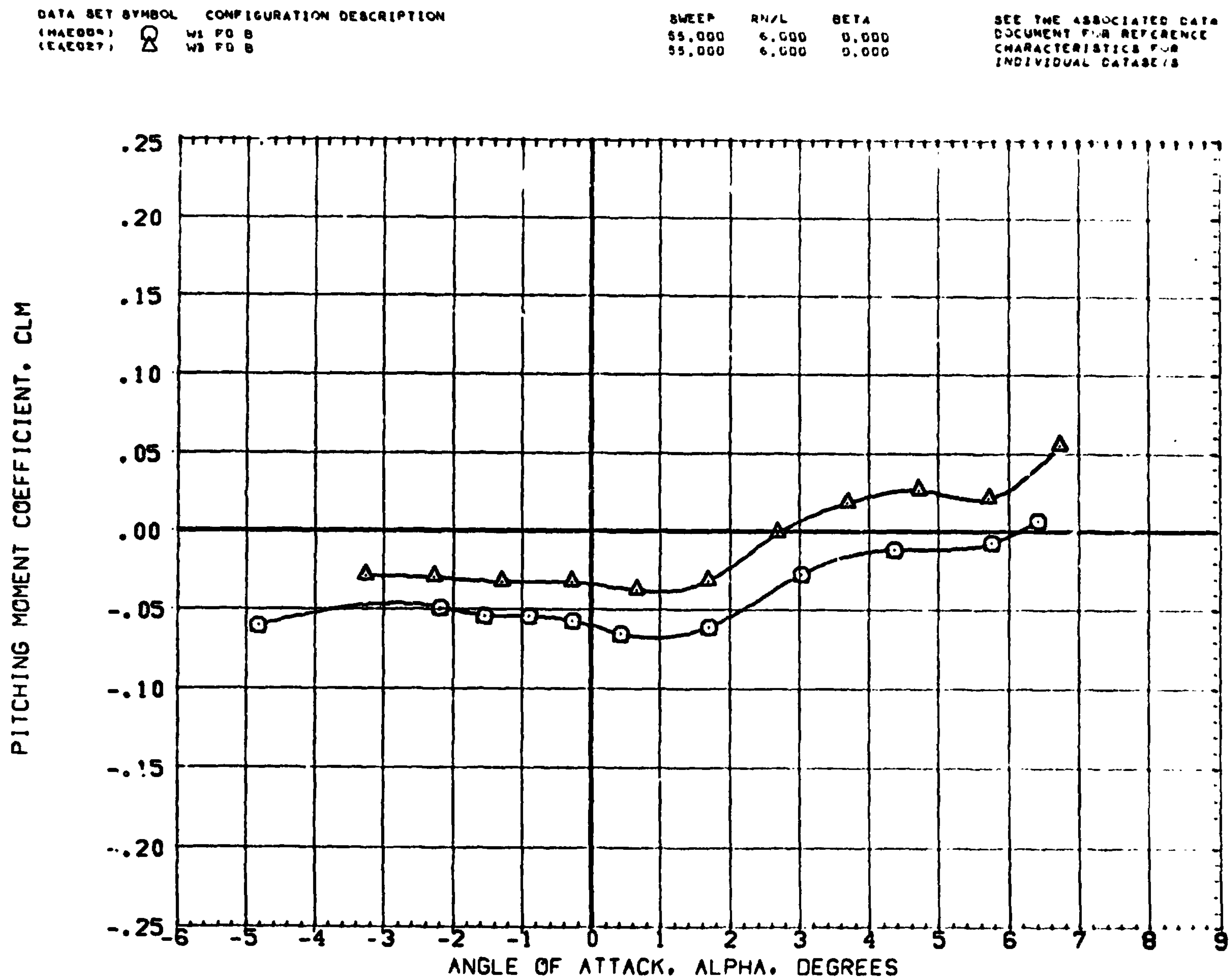


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(HAE009)	⊙	W1 F0 B	55.000	6.000	0.000
(EAE027)	△	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

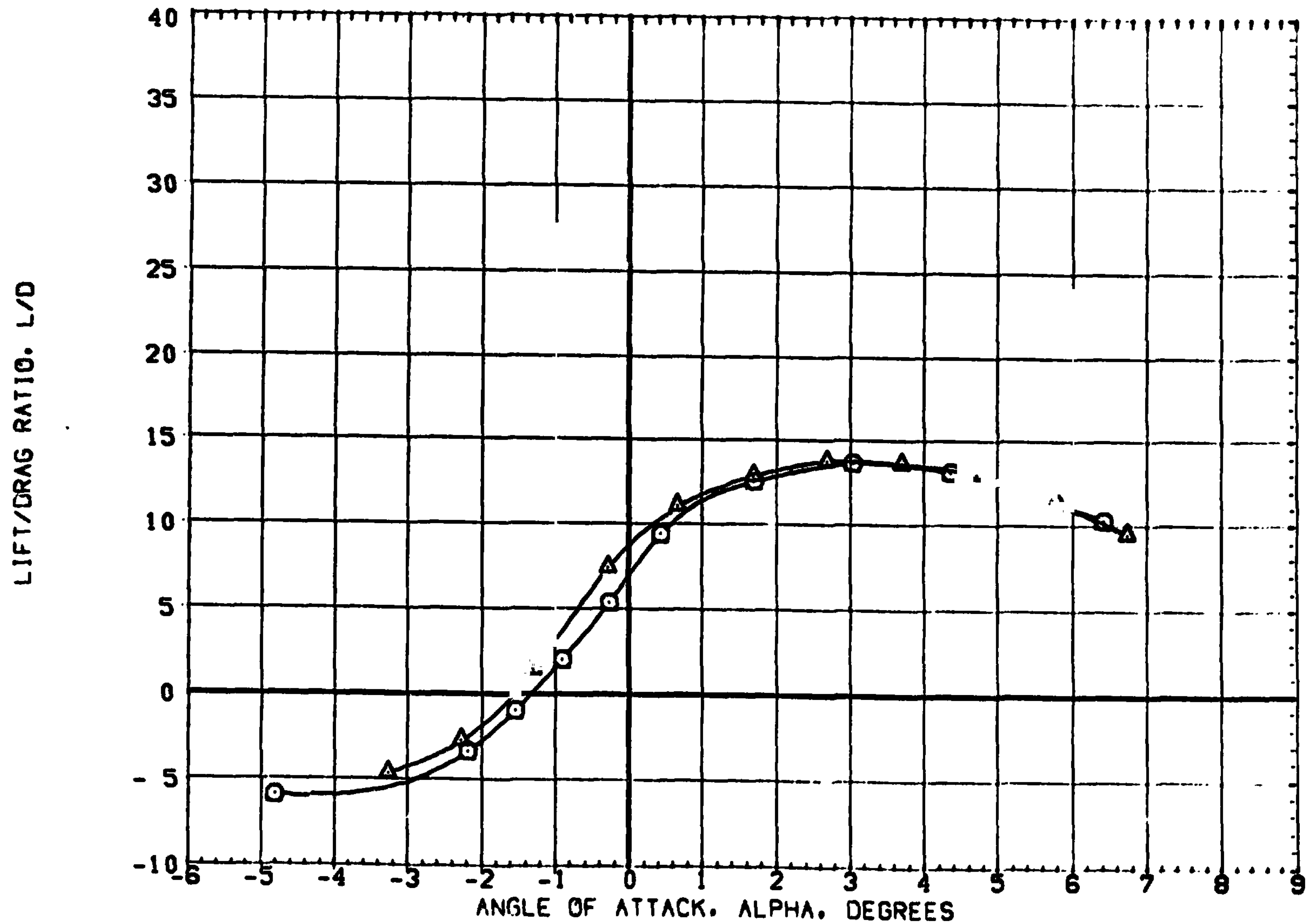


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

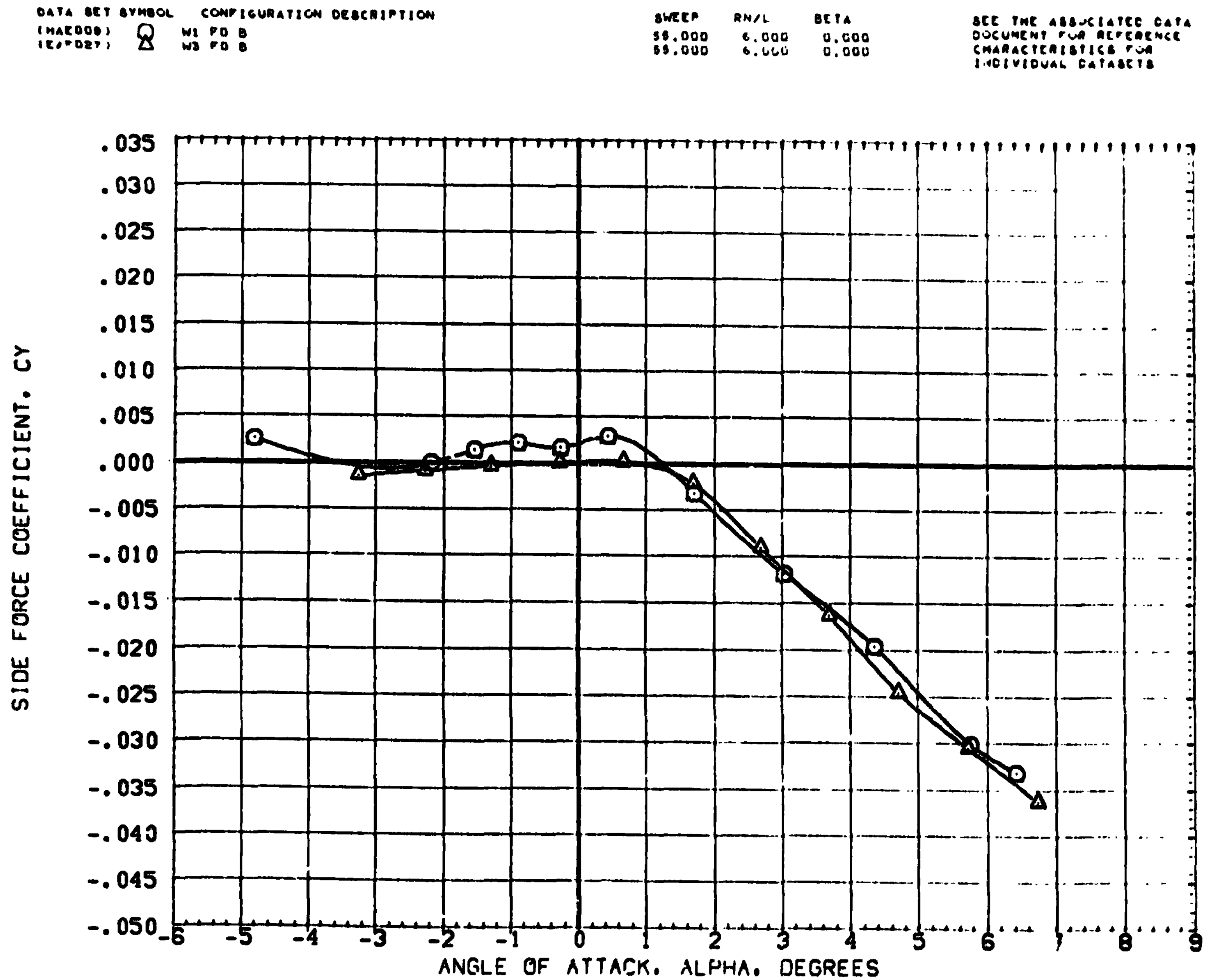


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES
(A)MACH = 1.10

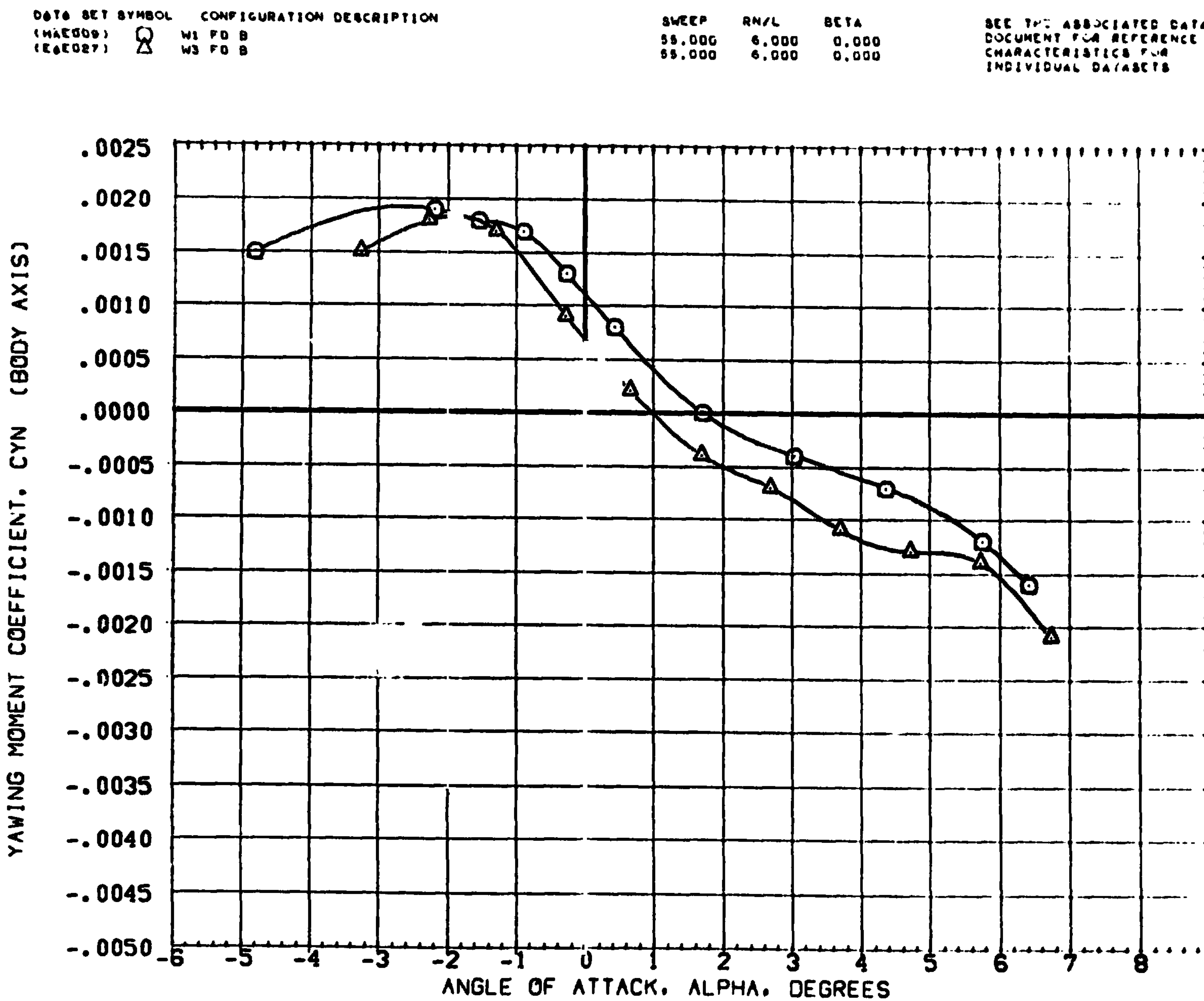


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

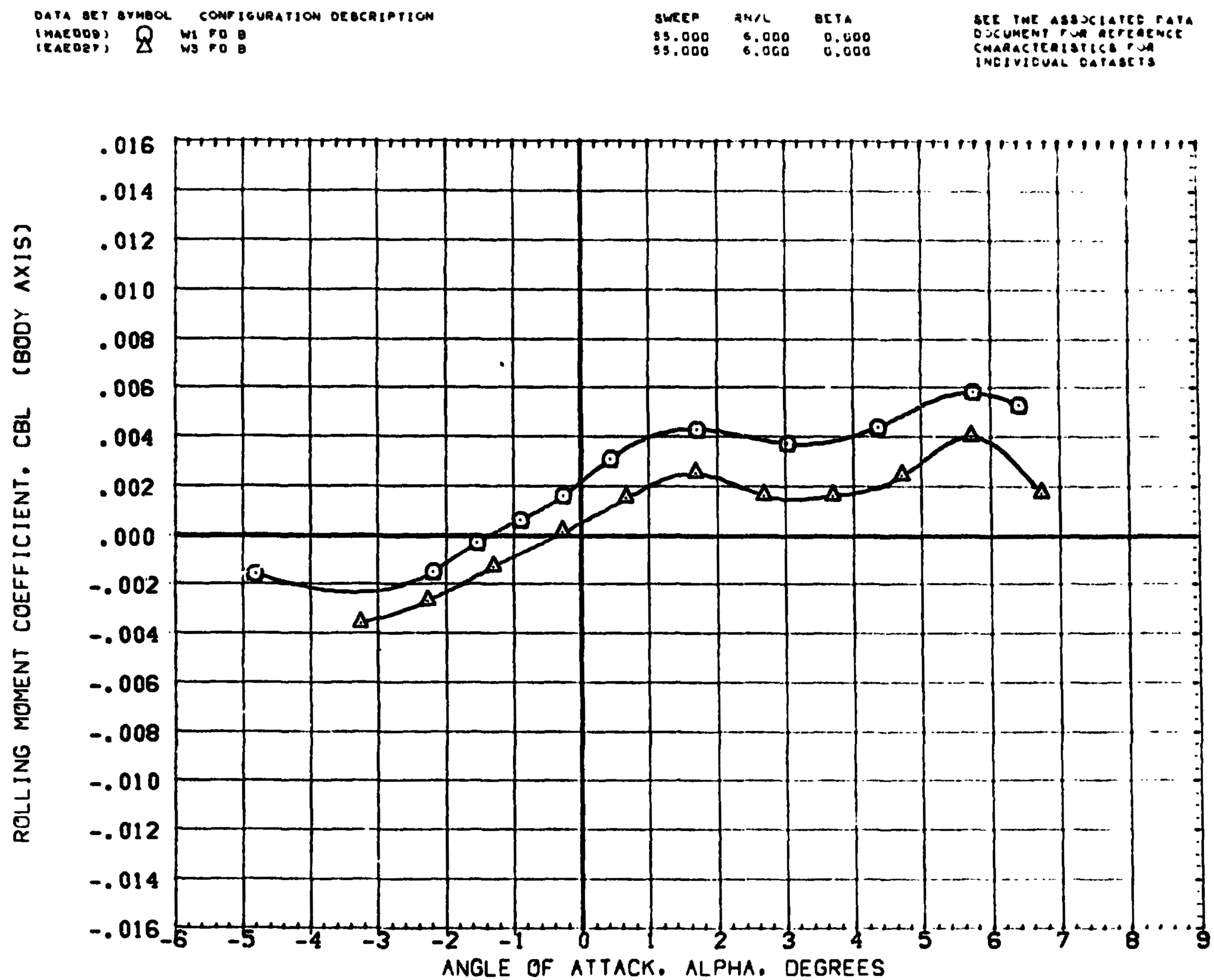


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=55 DEGREES

(A)MACH = 1.10

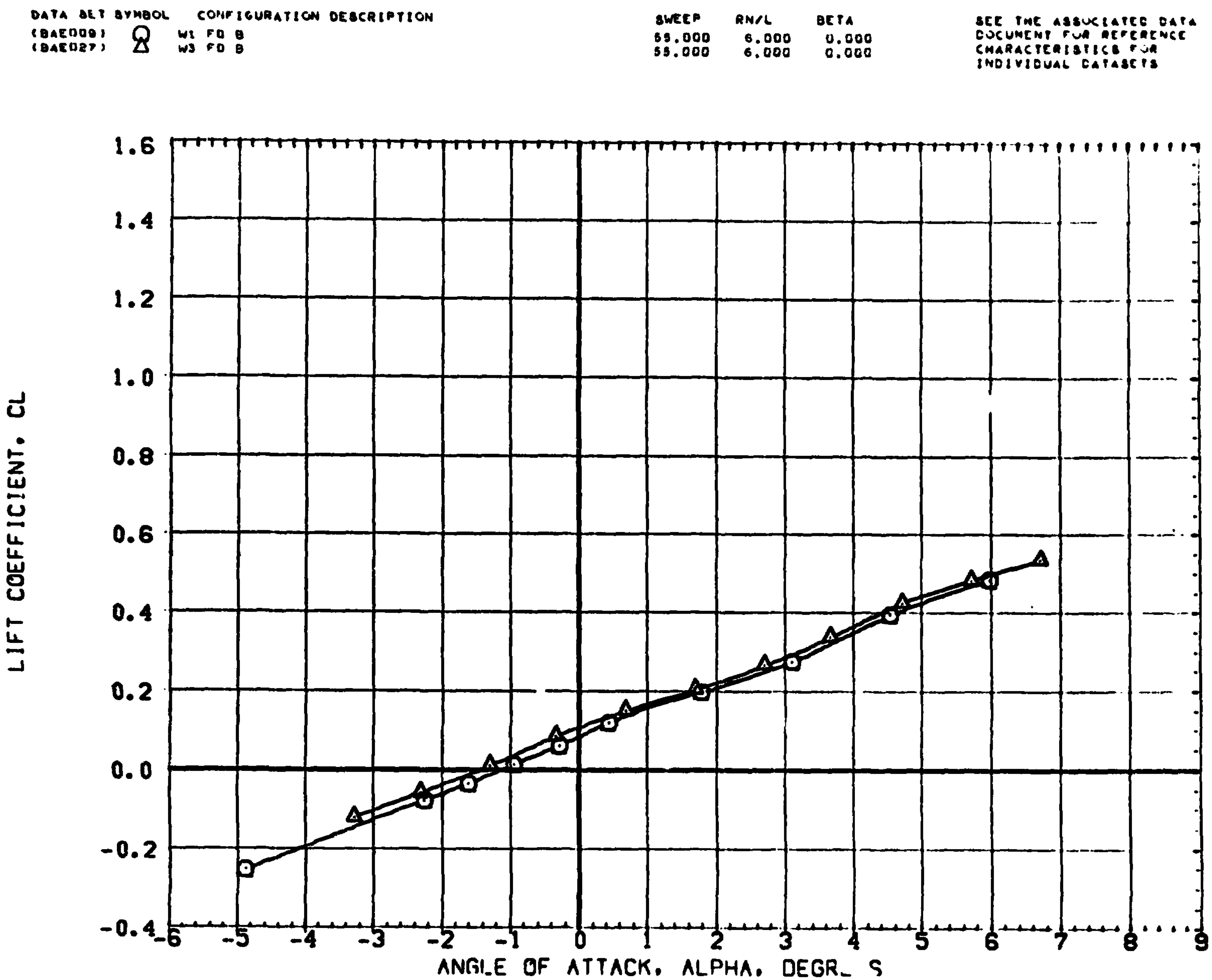


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES
(A)MACH = 1.20

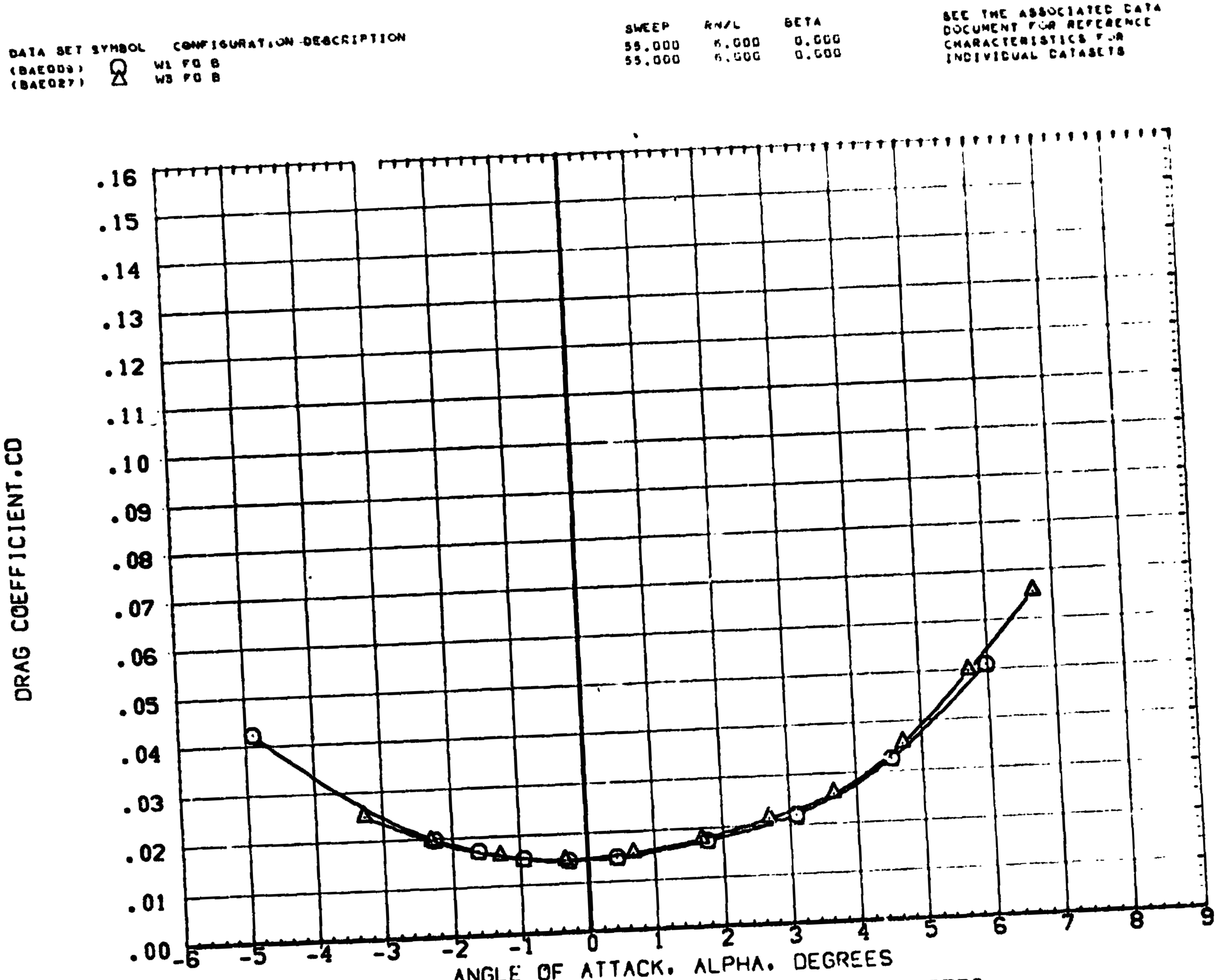


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

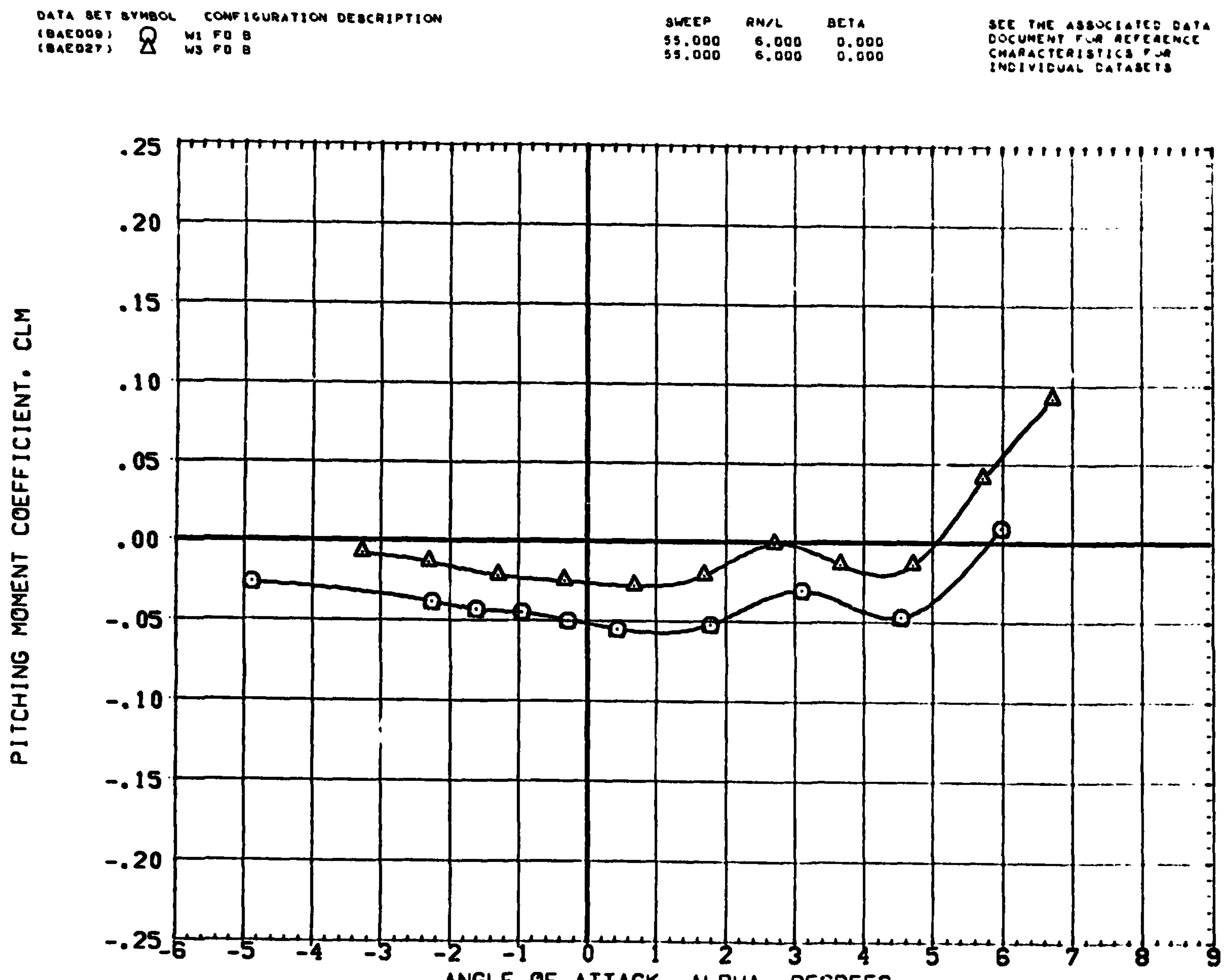


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE009)	⊙	W1 FD B	55.000	6.000	0.000
(BAE027)	△	W3 FD B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

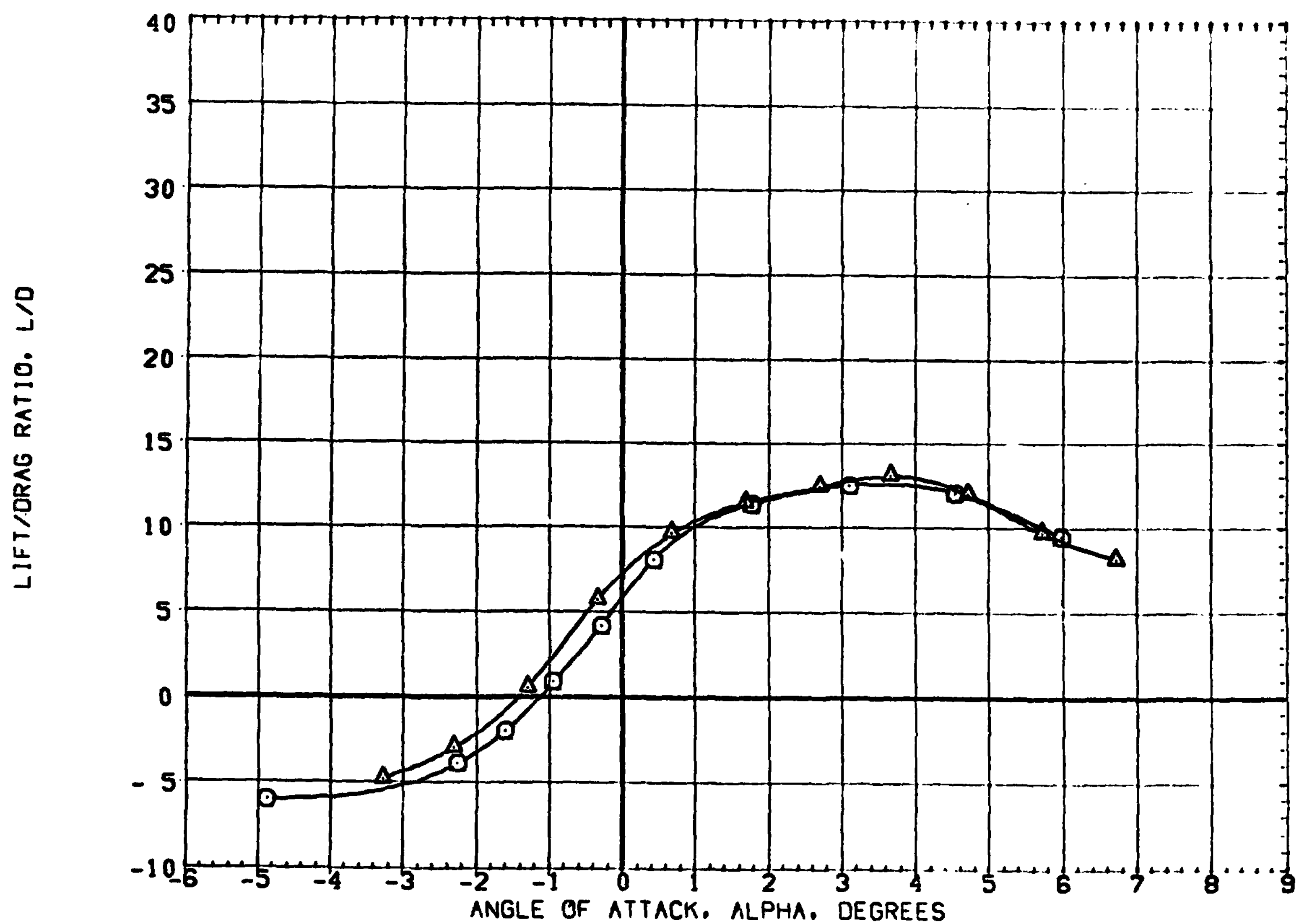


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE009)	○	W1 F0 B	55.000	6.000	0.000
(BAE027)	△	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

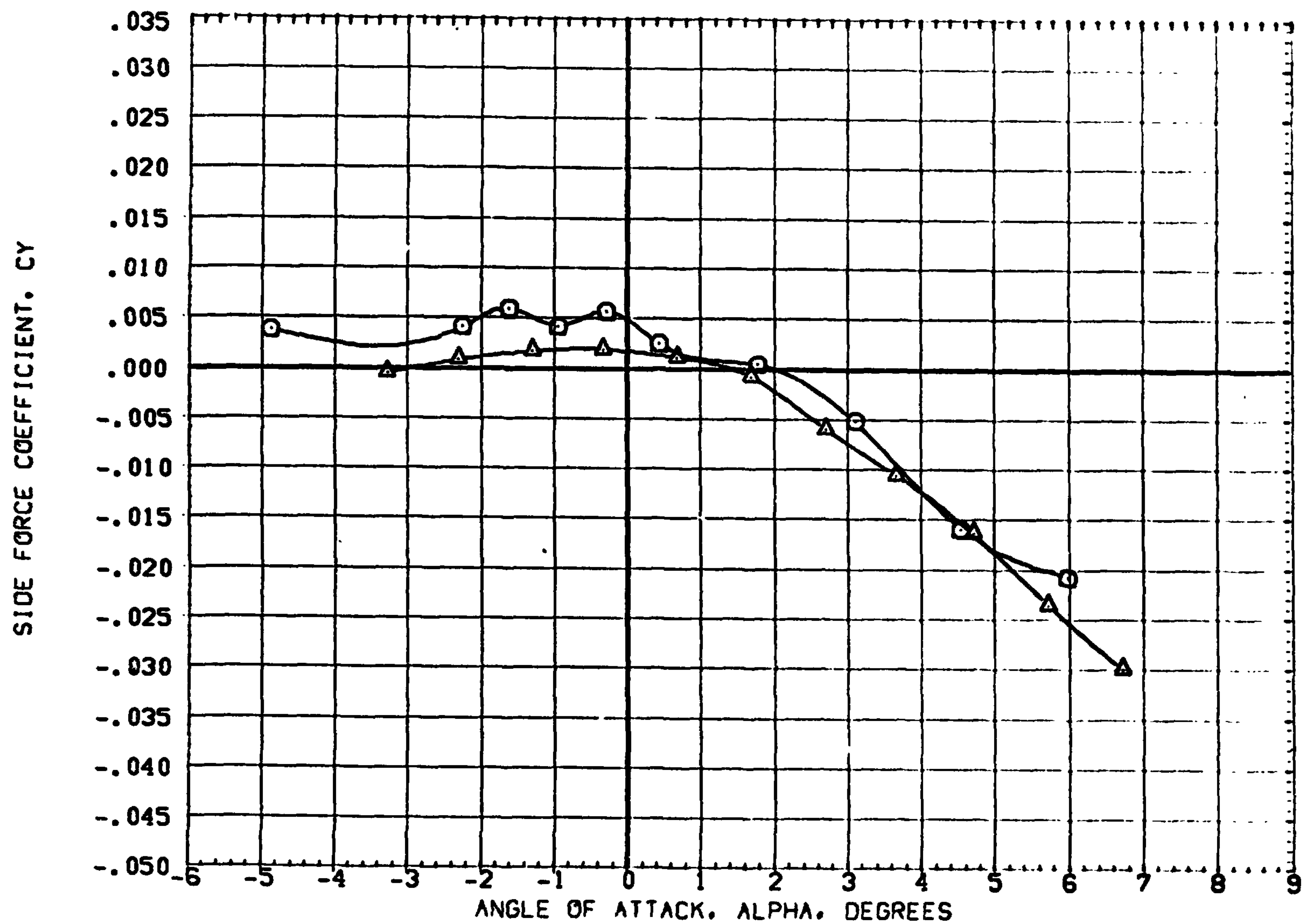


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

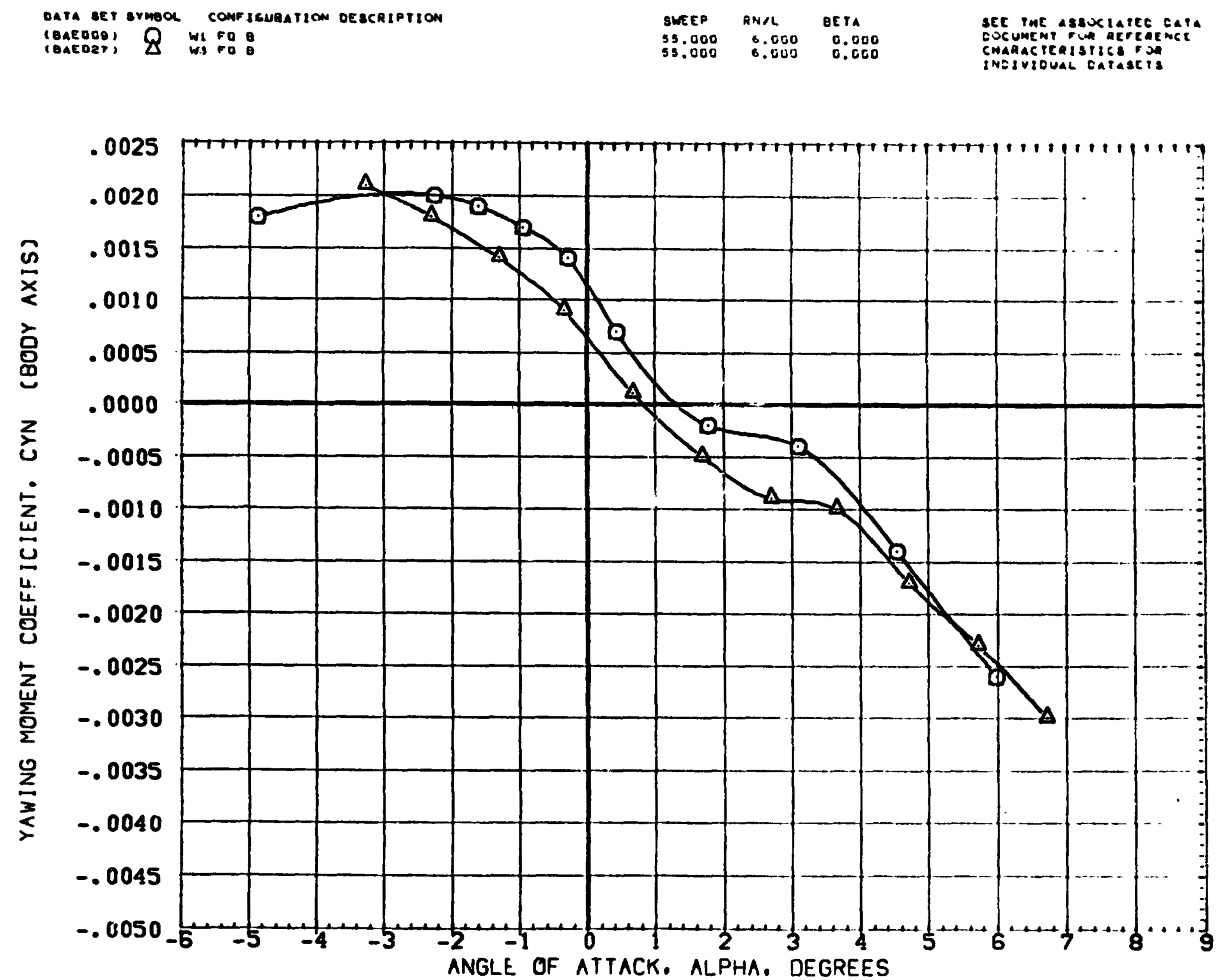


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

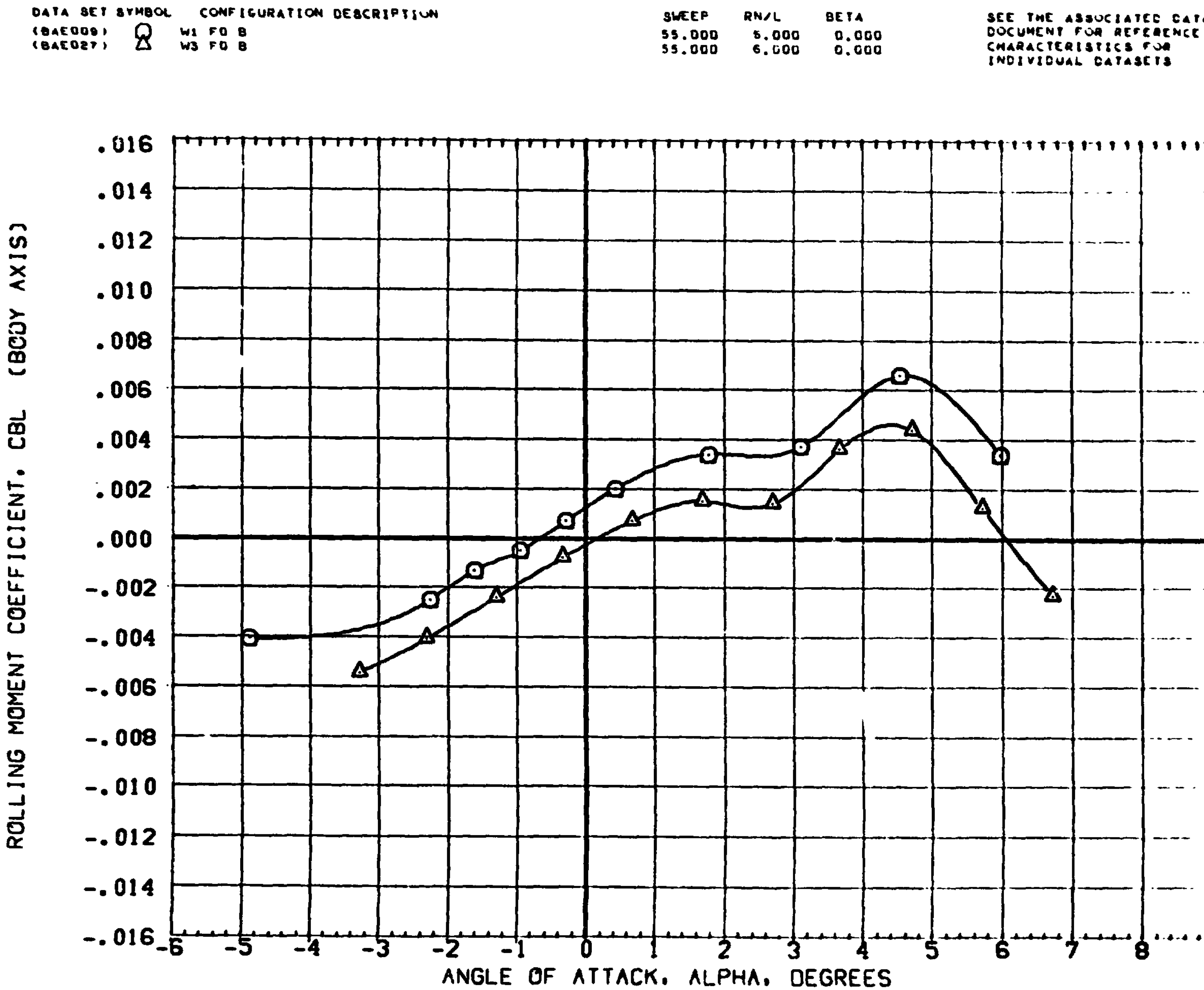


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=55 DEGREES

(A)MACH = 1.20

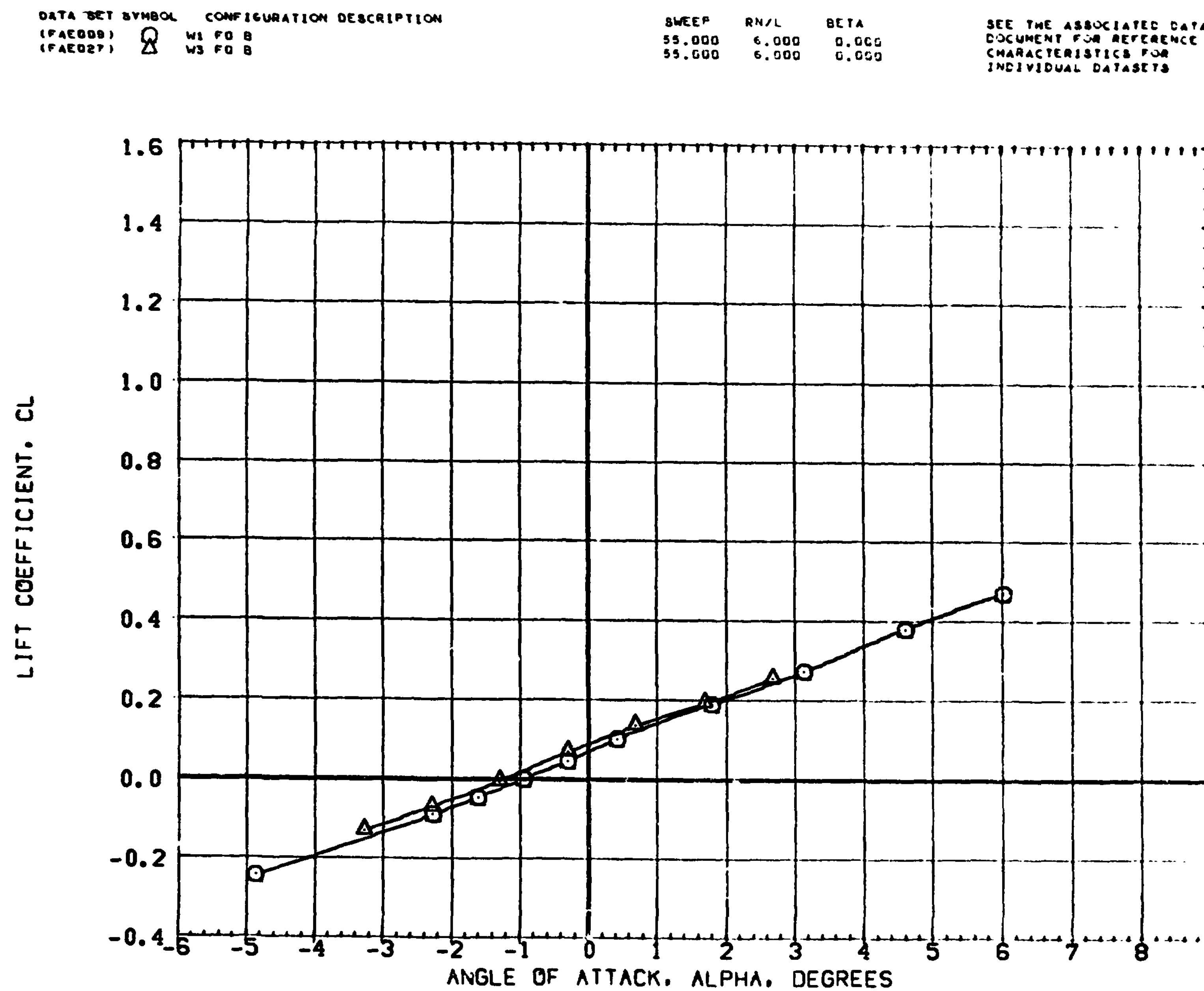


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES
(A)MACH = 1.30

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(FAE009)	O	W1 F0 B	55.000	6.000	0.000
(FAE027)	Δ	W3 F0 B	55.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

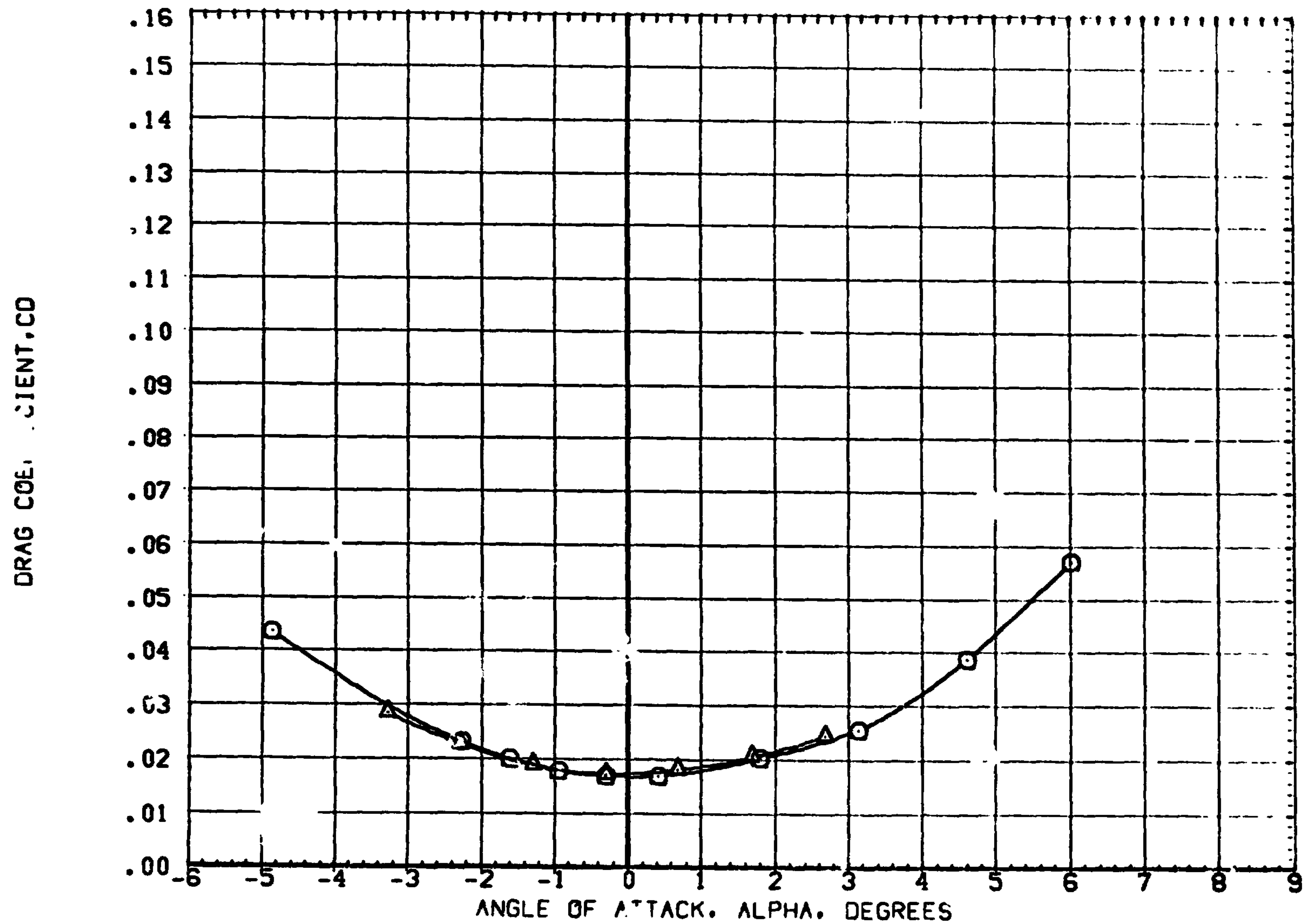


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30. LAMBDA=55 DEGREES

(A)MACH = 1.30

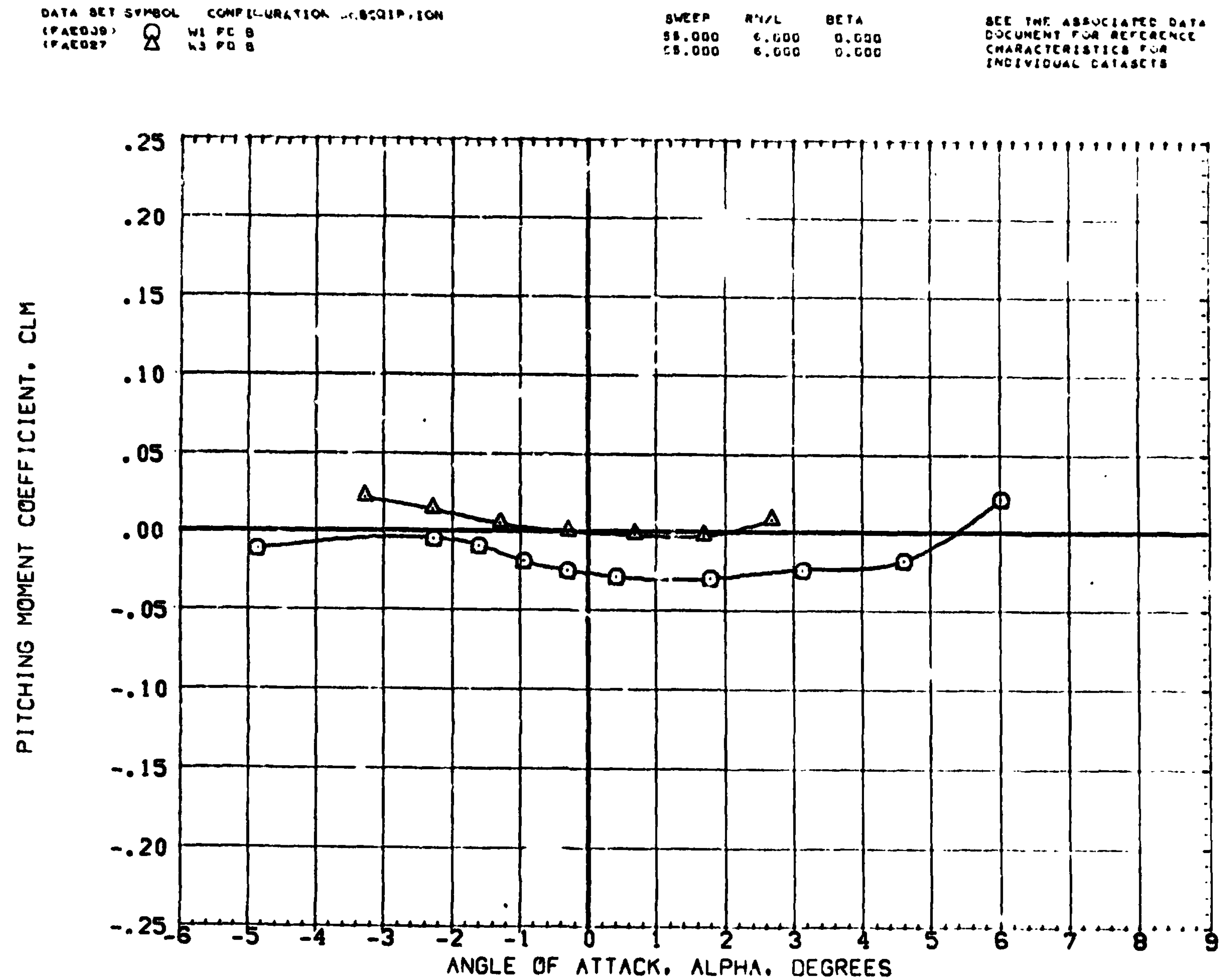


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES

(A)MACH = 1.30

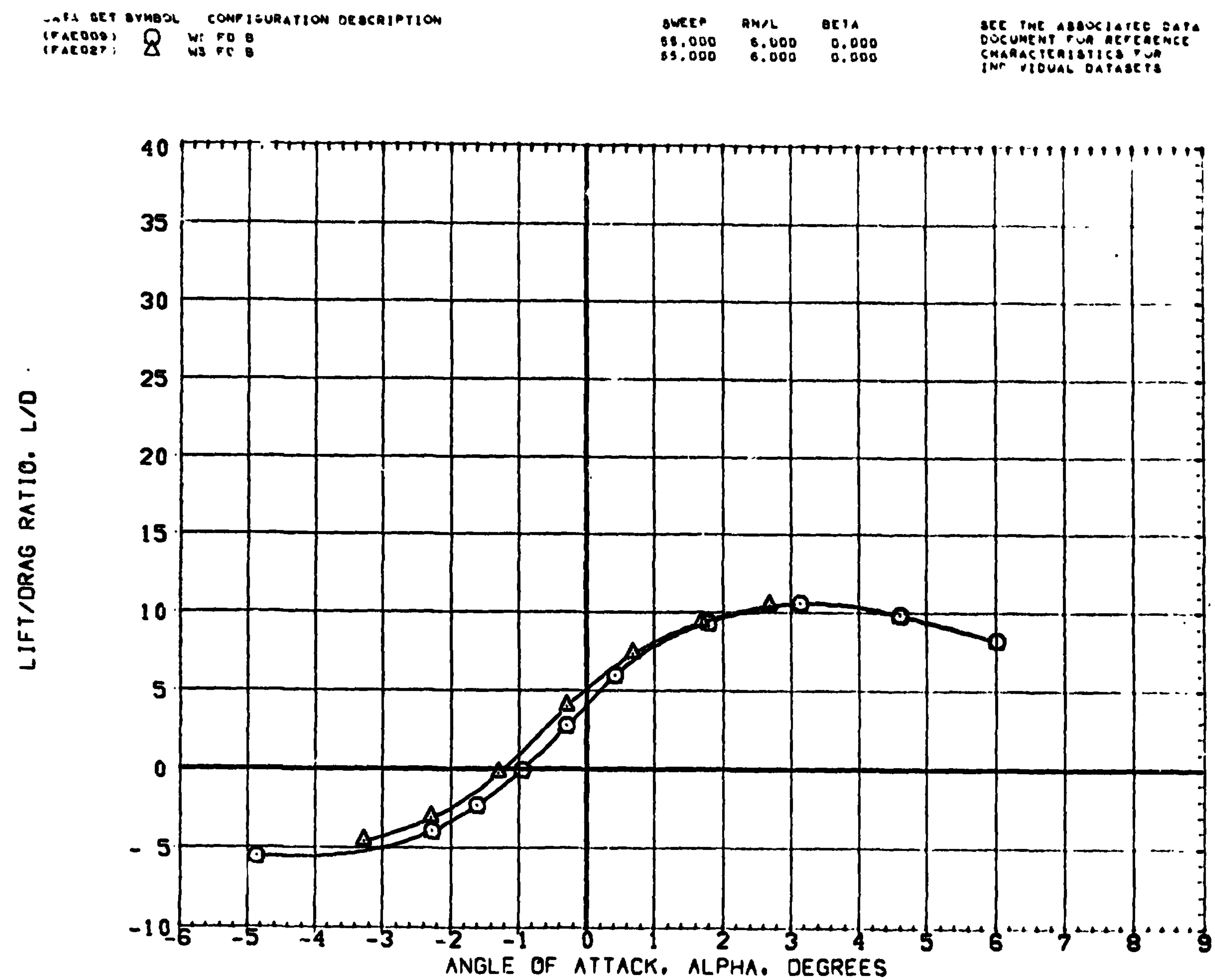


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES
(A)MACH = 1.30

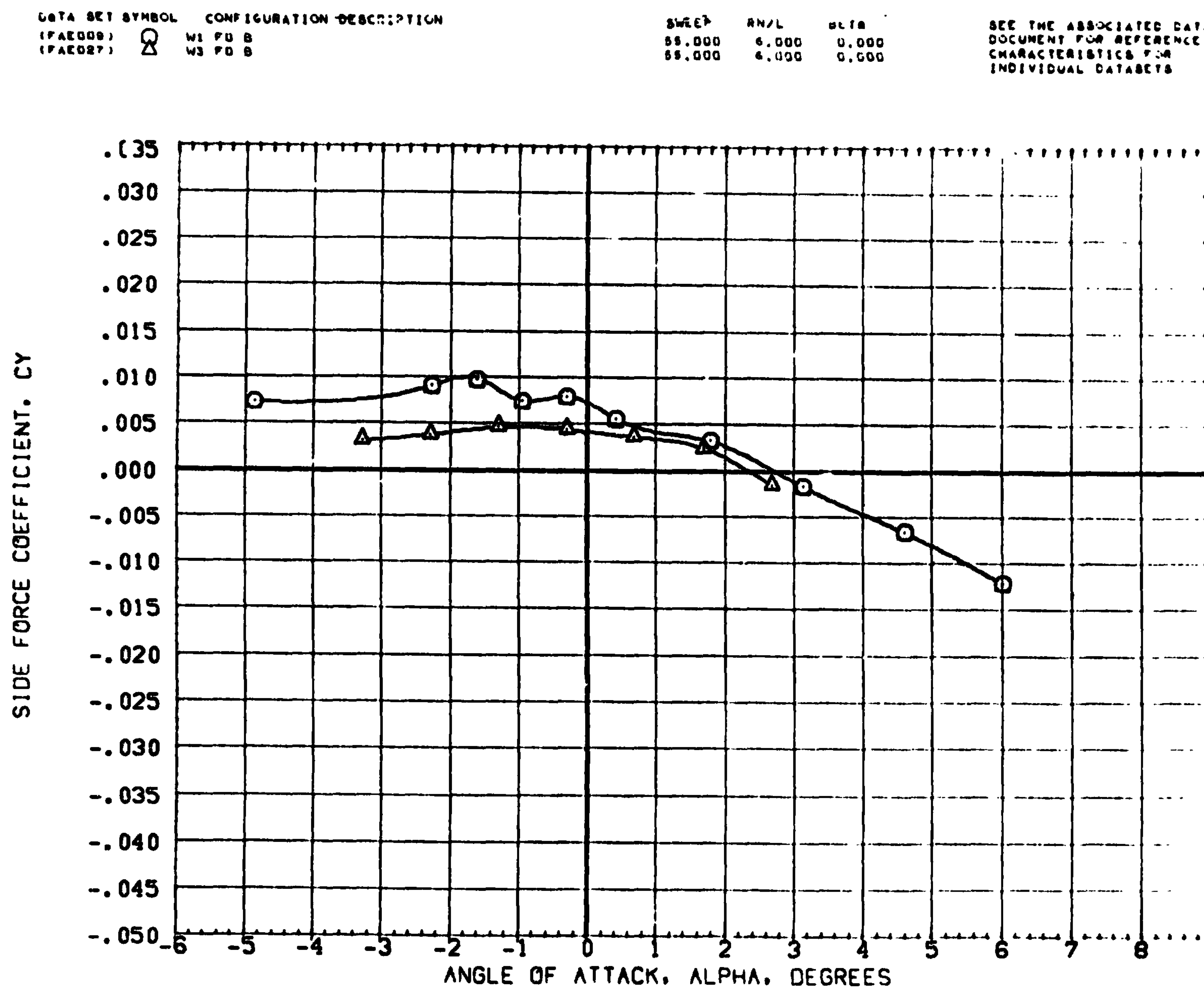


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES
(A)MACH = 1.30

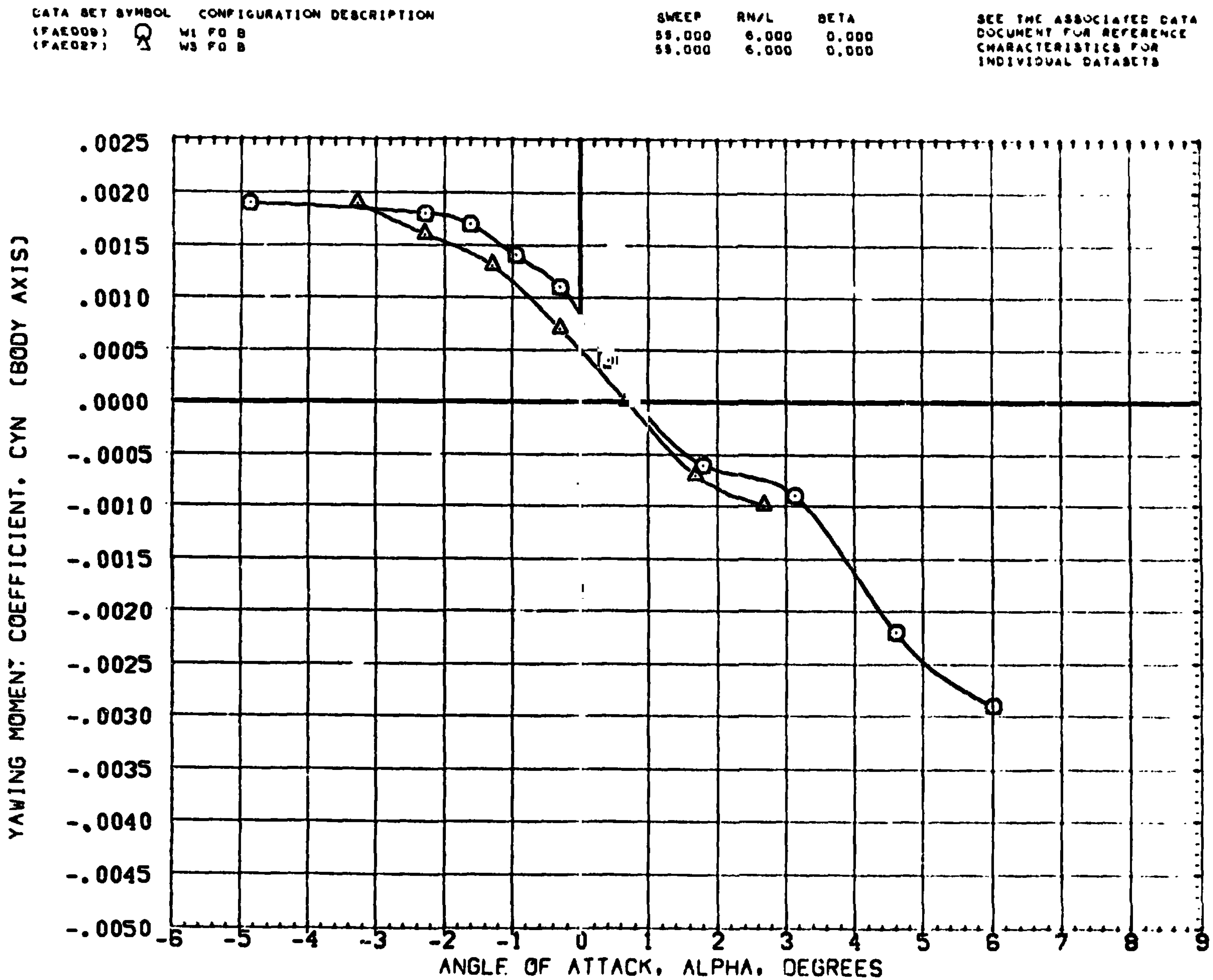


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES

(A)MACH = 1.30

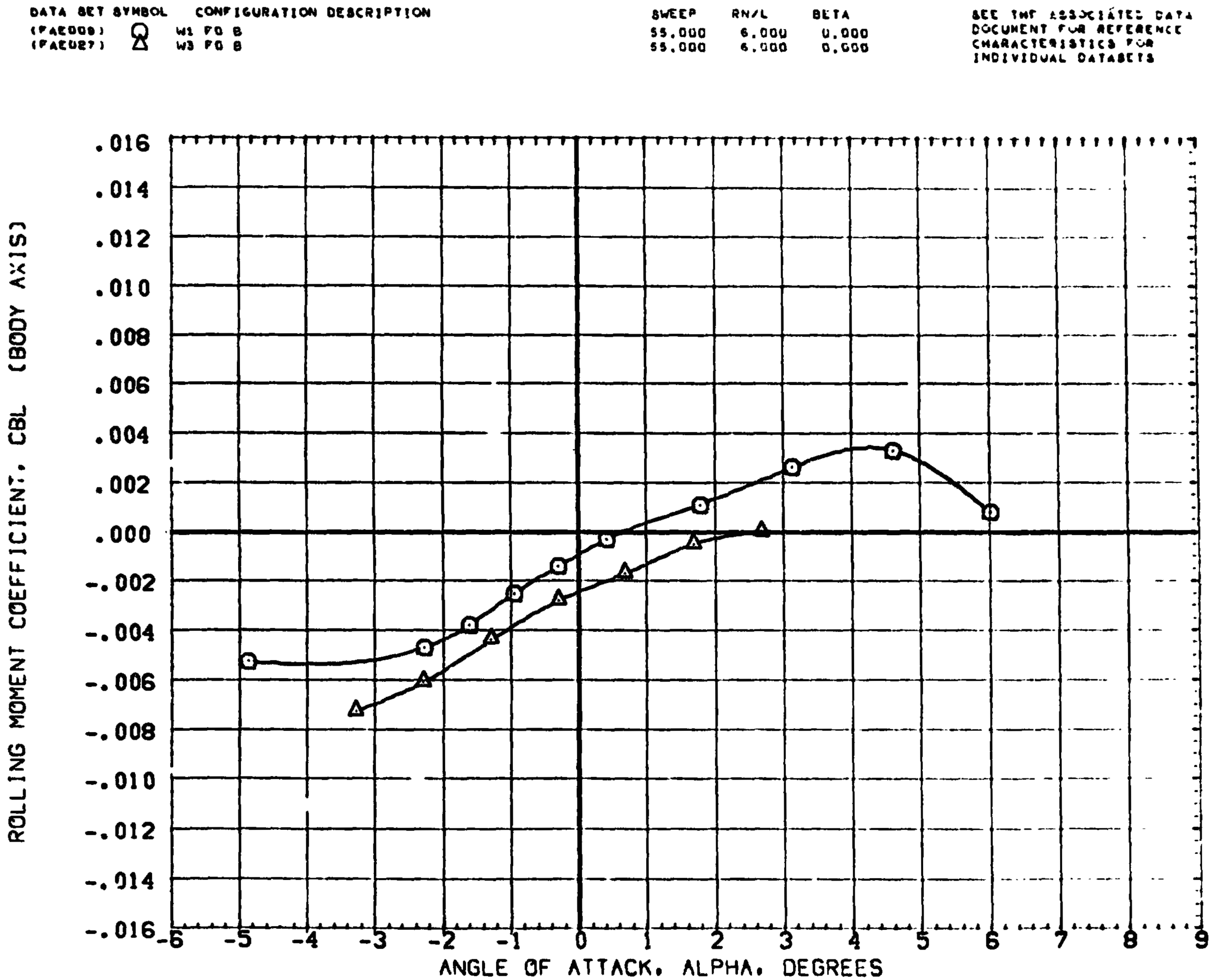


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=55 DEGREES

(A)MACH = 1.30

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAED12)	⊙	W1 F0 B	60.000	6.000	0.000
(BAED29)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

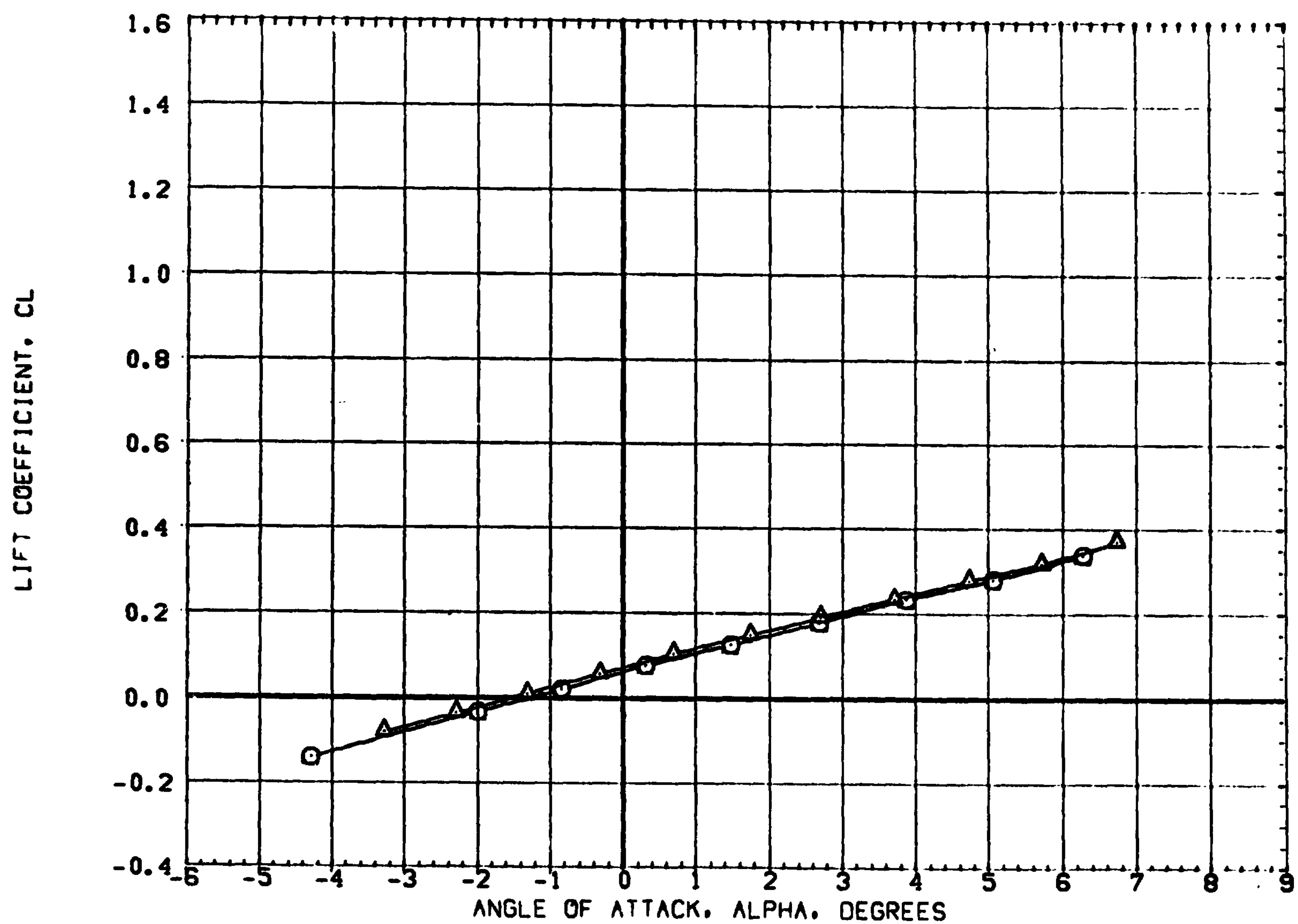


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE012)	○	W1 F0 B	60.000	6.000	0.000
(BAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

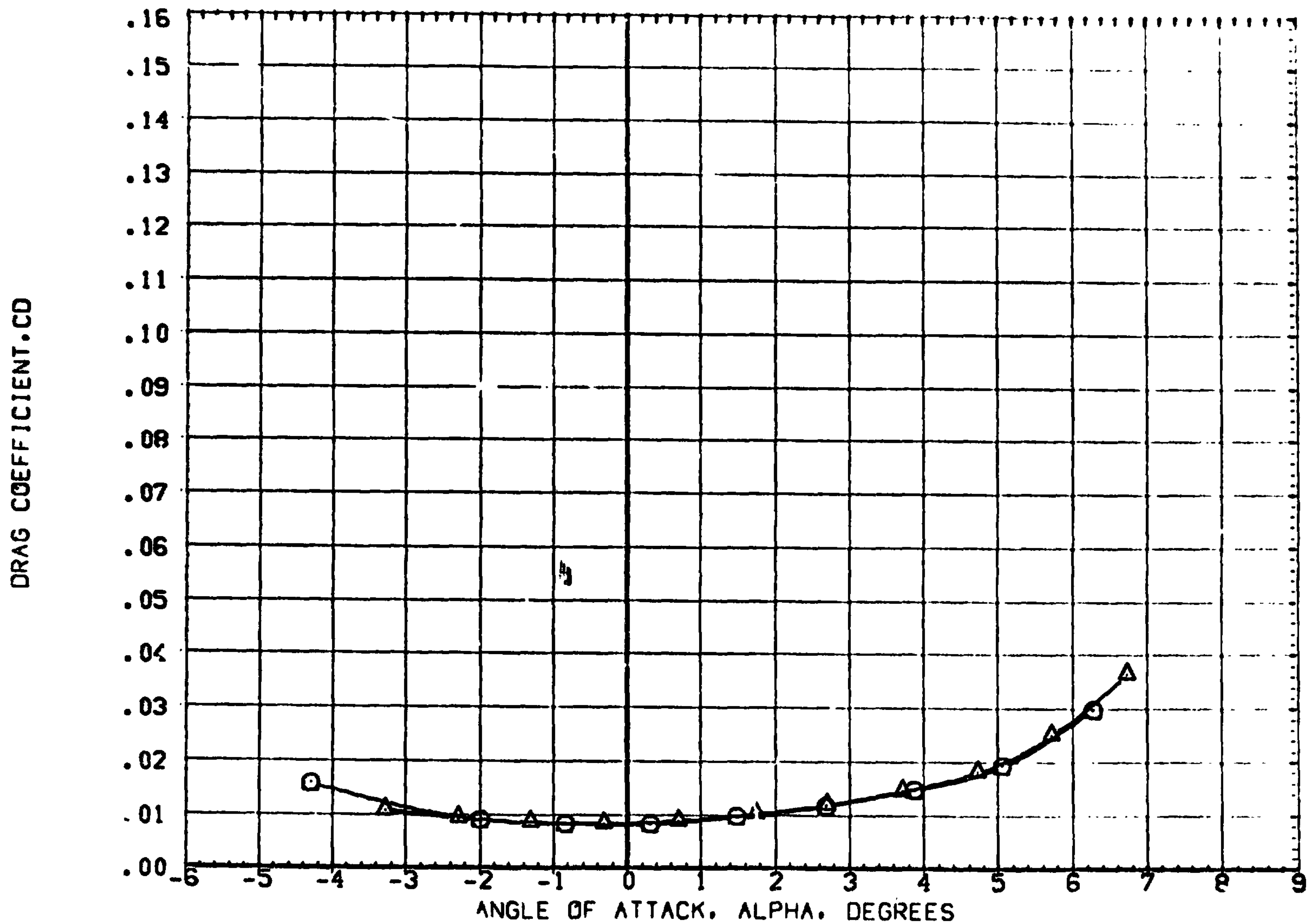


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	DETA
(BAE012)	○	W1 F0 B	60.000	6.000	0.000
(BAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

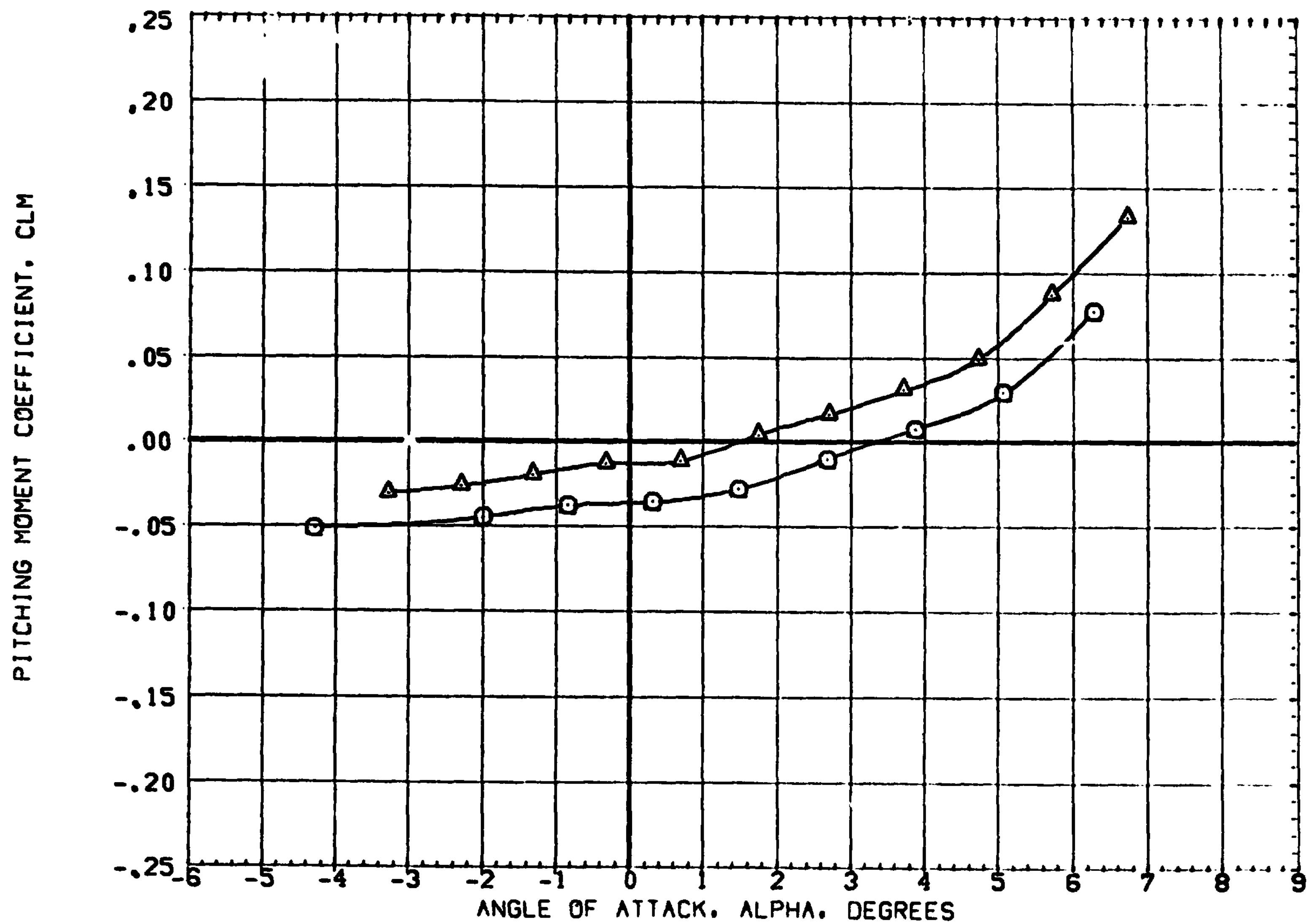


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

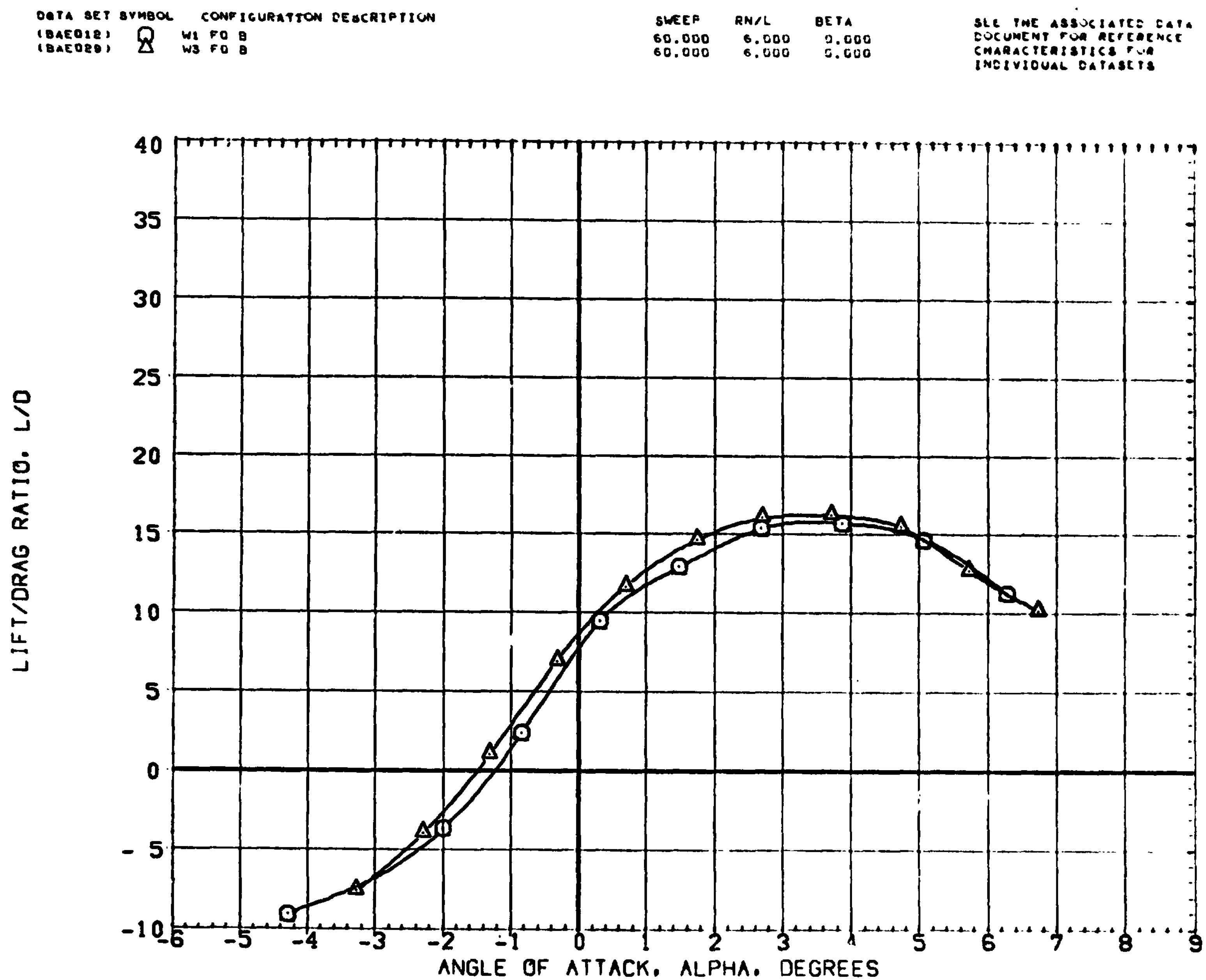


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE012)	○	W1 F0 B	60.000	6.000	0.000
(BAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

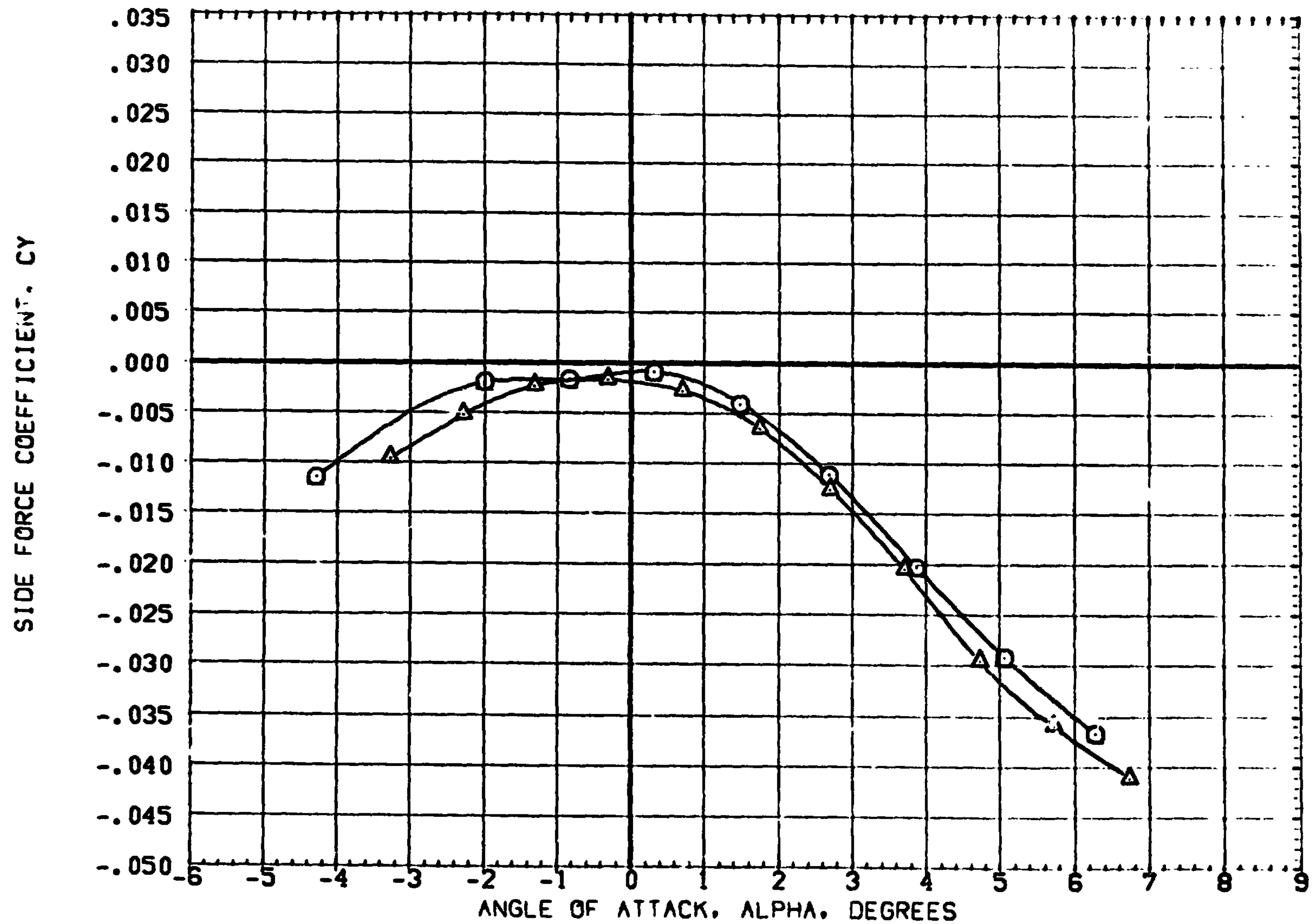


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

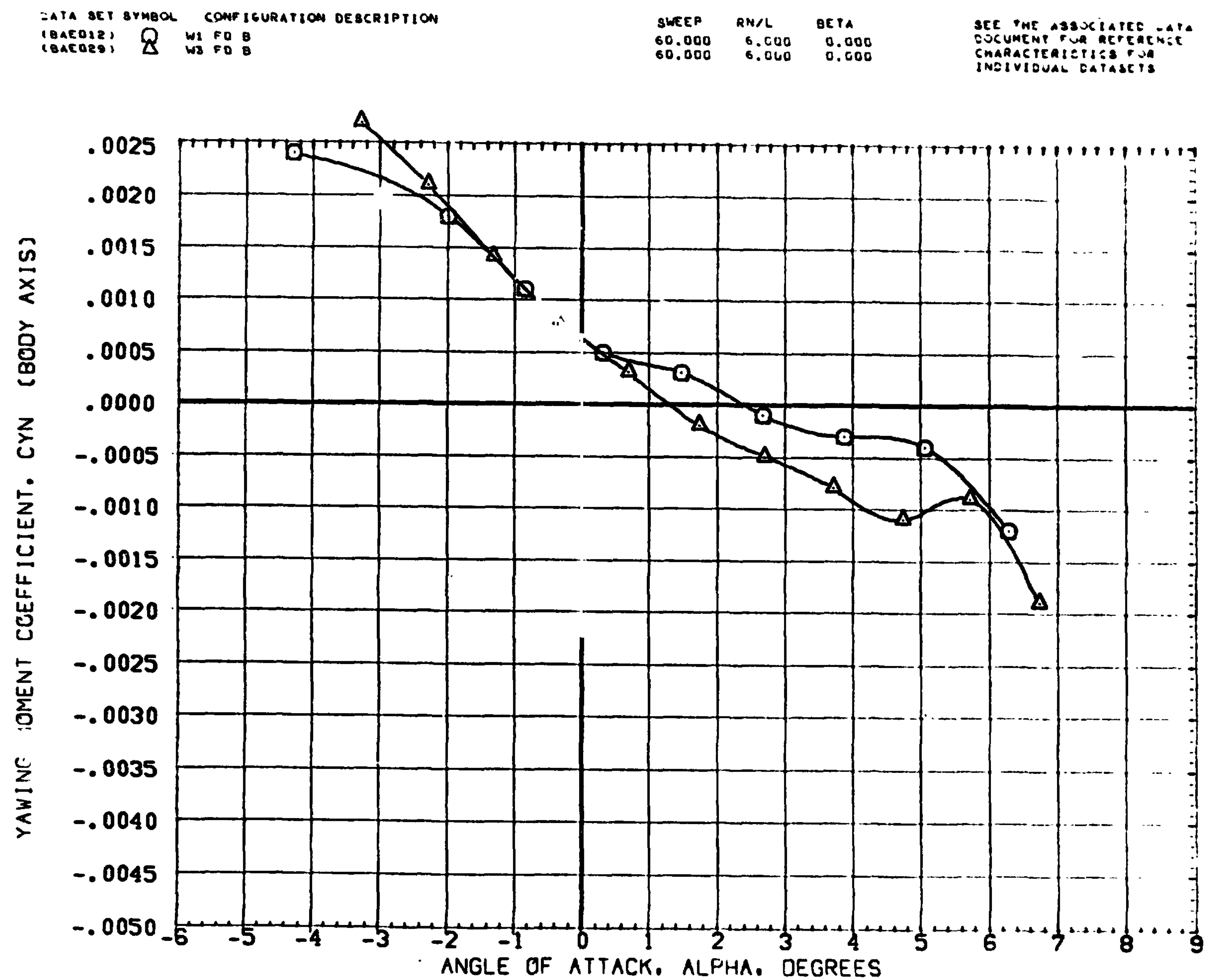


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

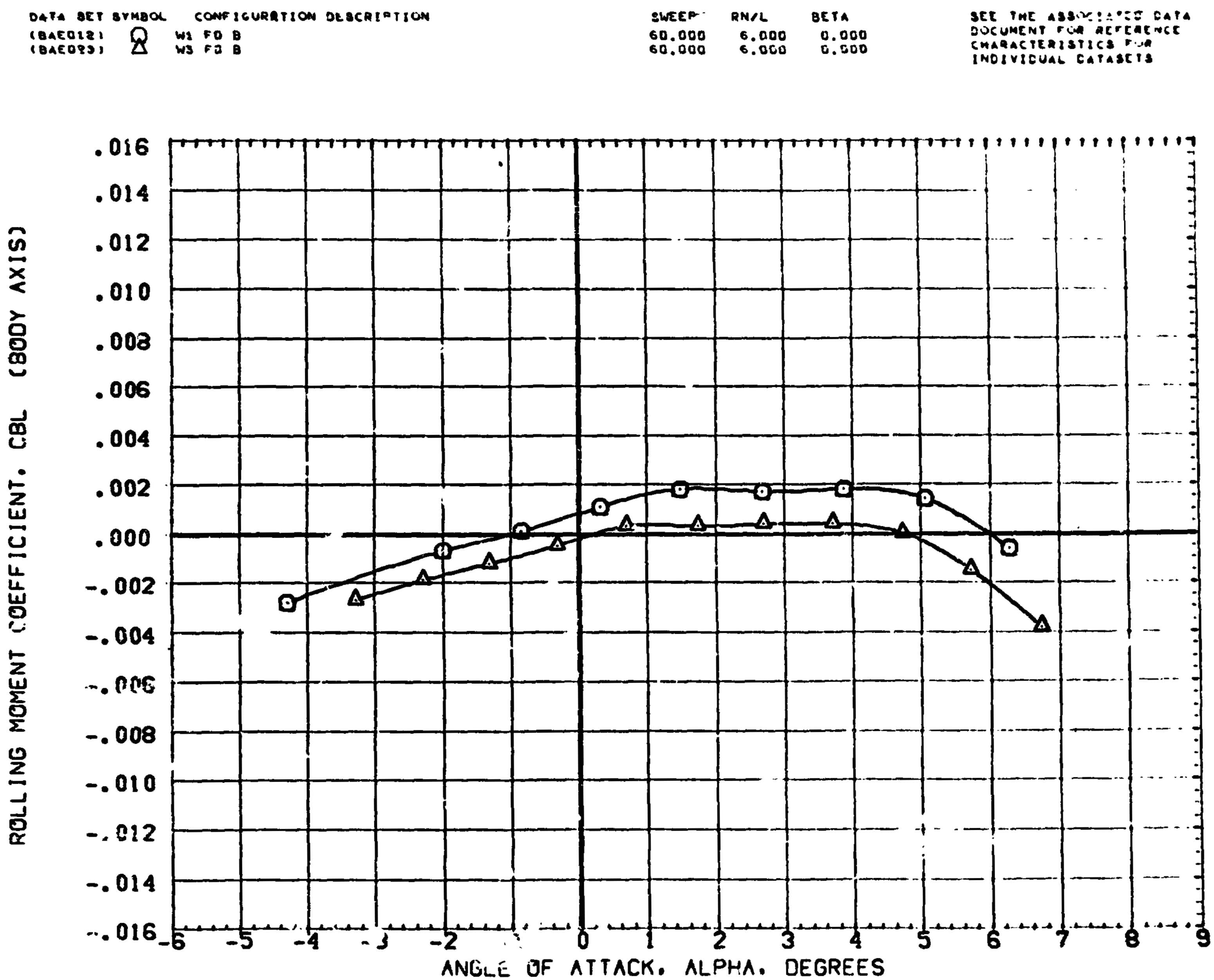


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.80, LAMBDA=60 DEGREES

(A)MACH = .80

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(DAE012) ○	W1 FO B	60.000	6.000	0.000
(DAE029) △	W3 FO B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

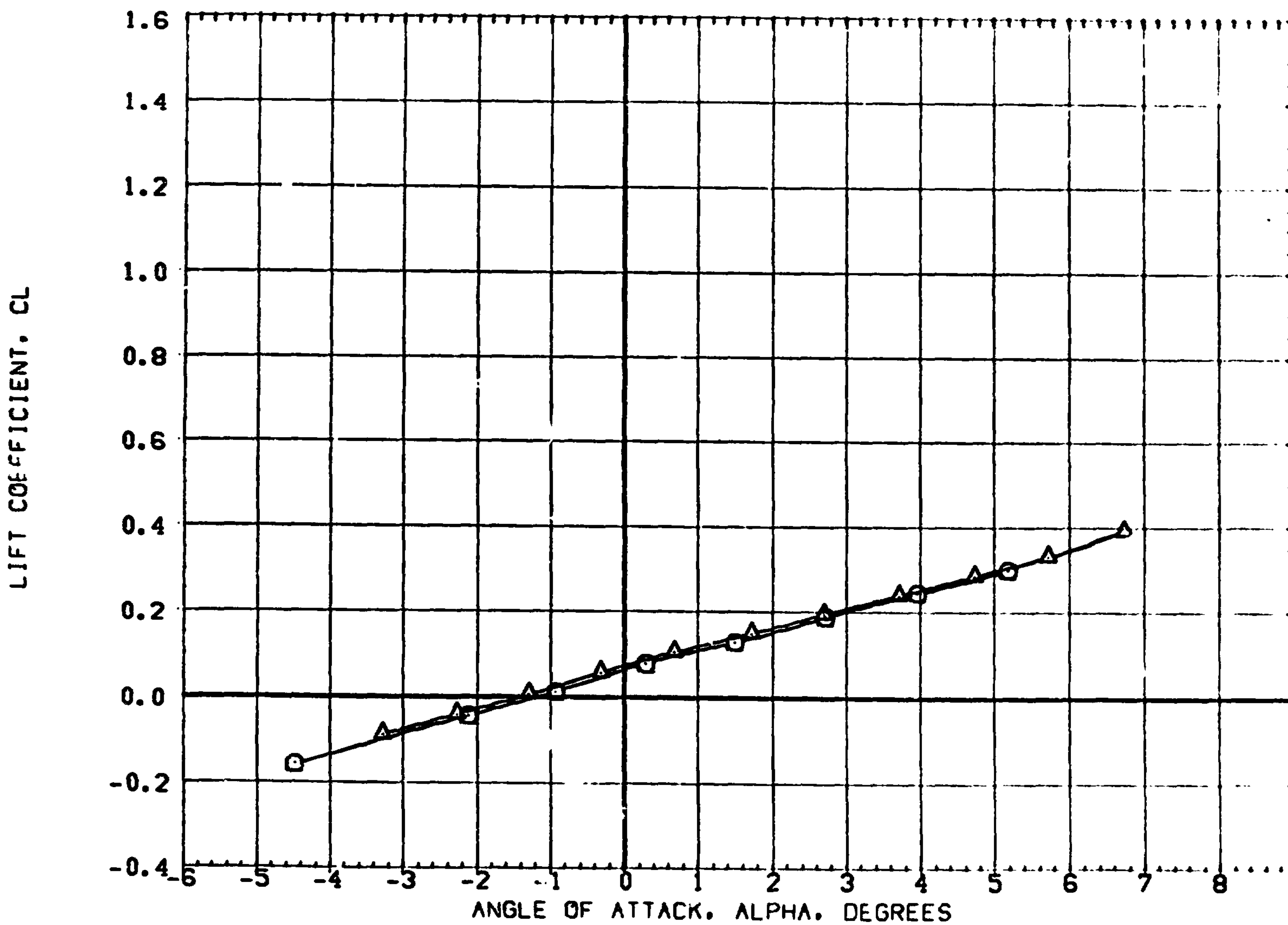


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES
(A)MACH = .95

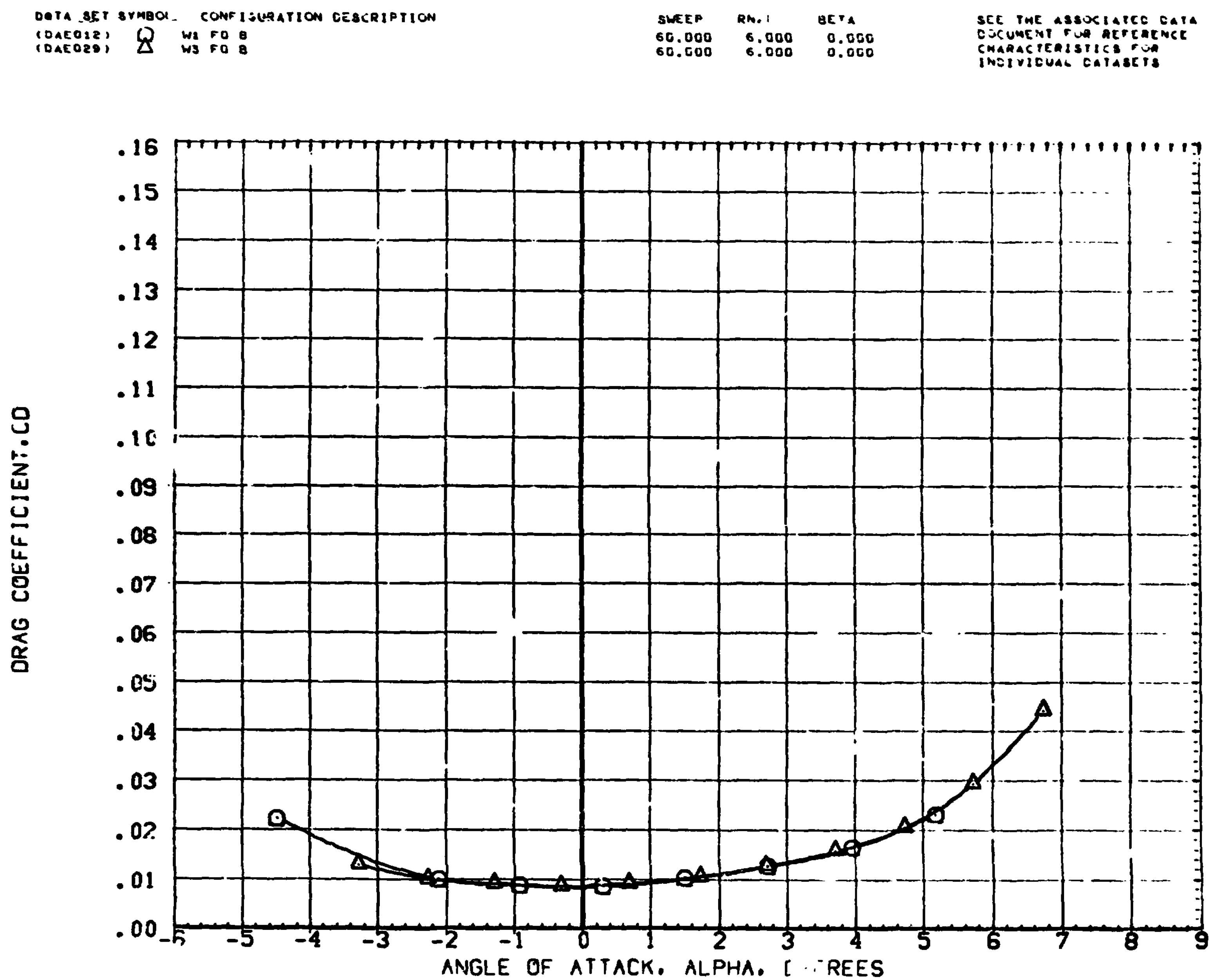


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

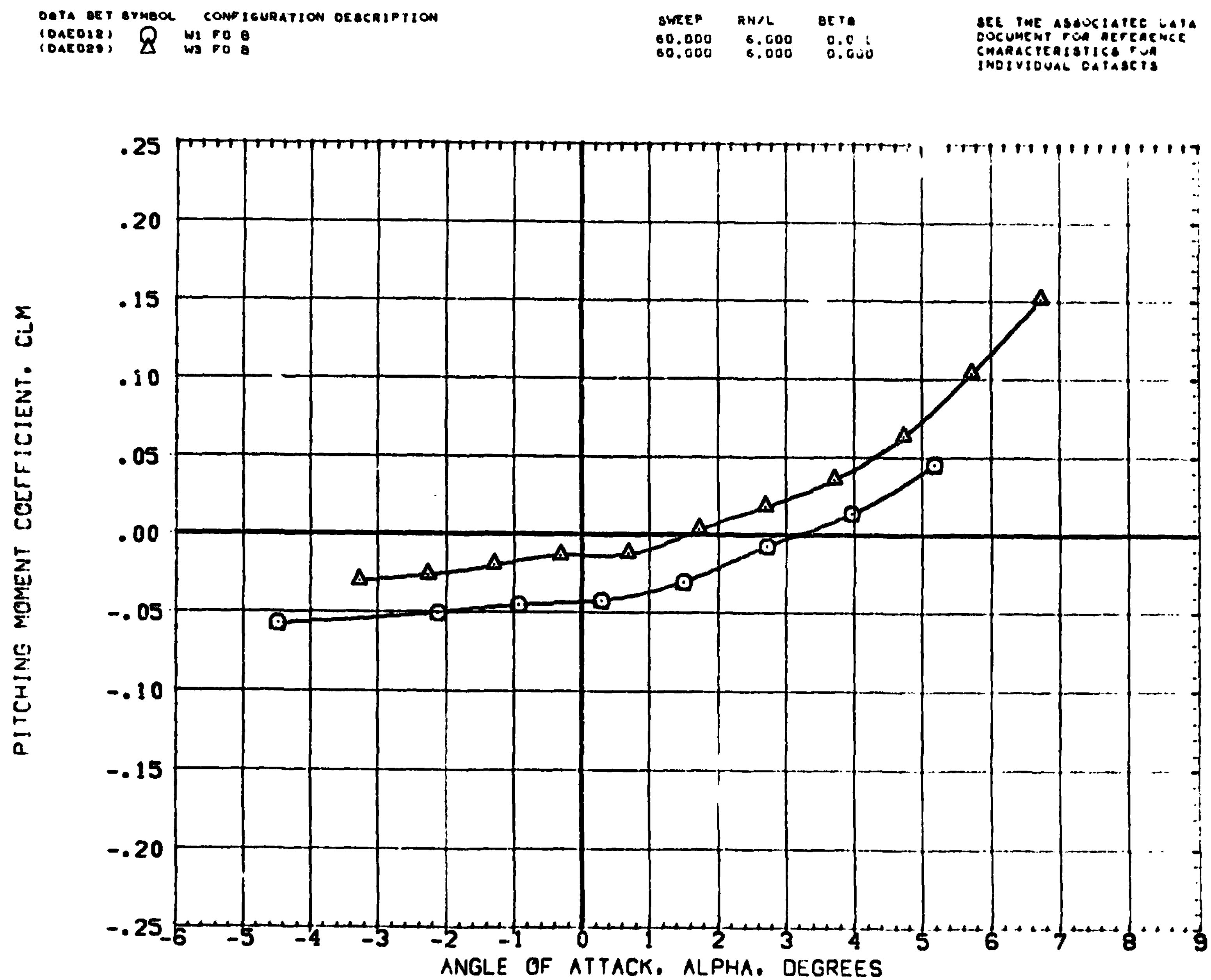


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

C4

C4

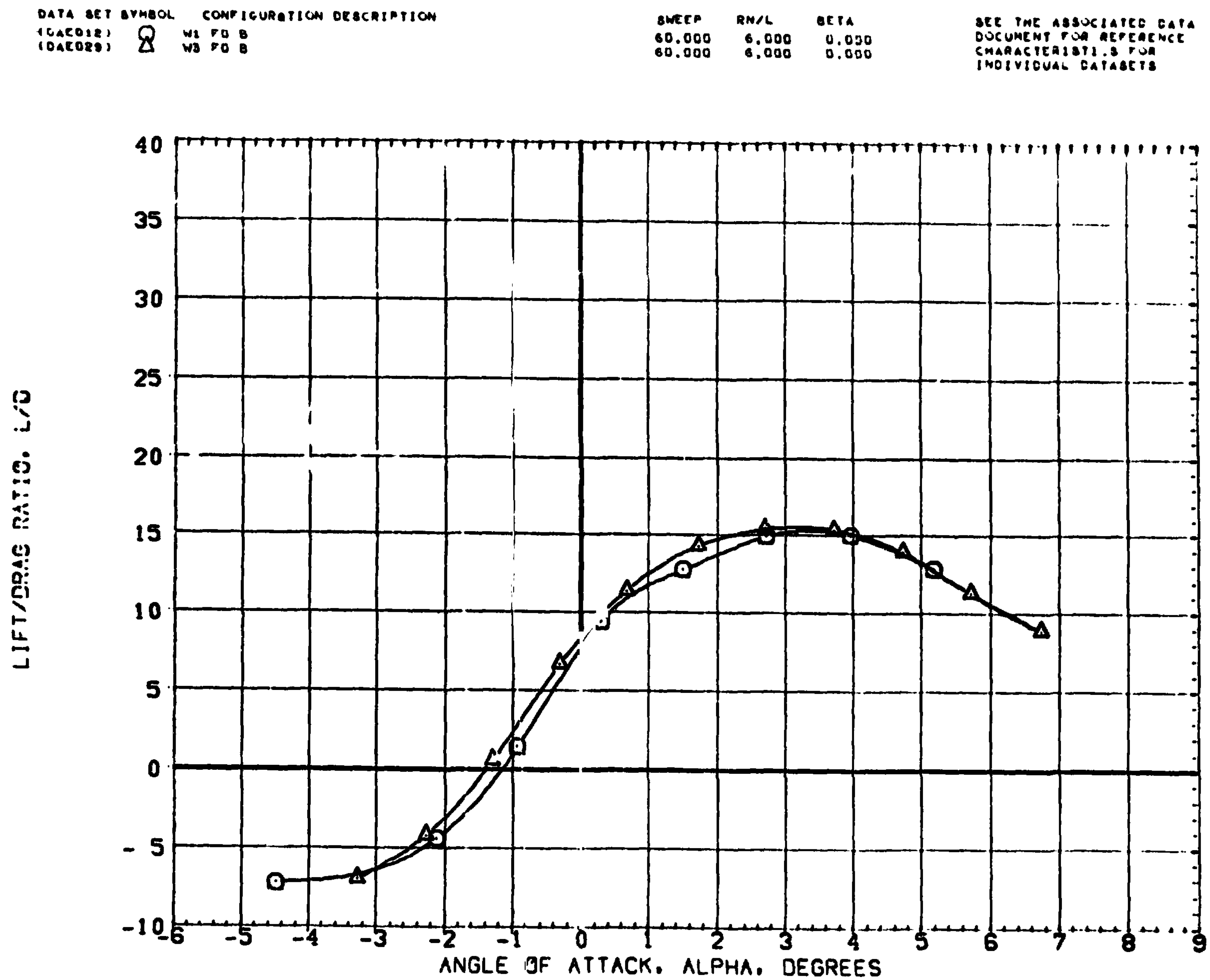


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES
(A)MACH = .95

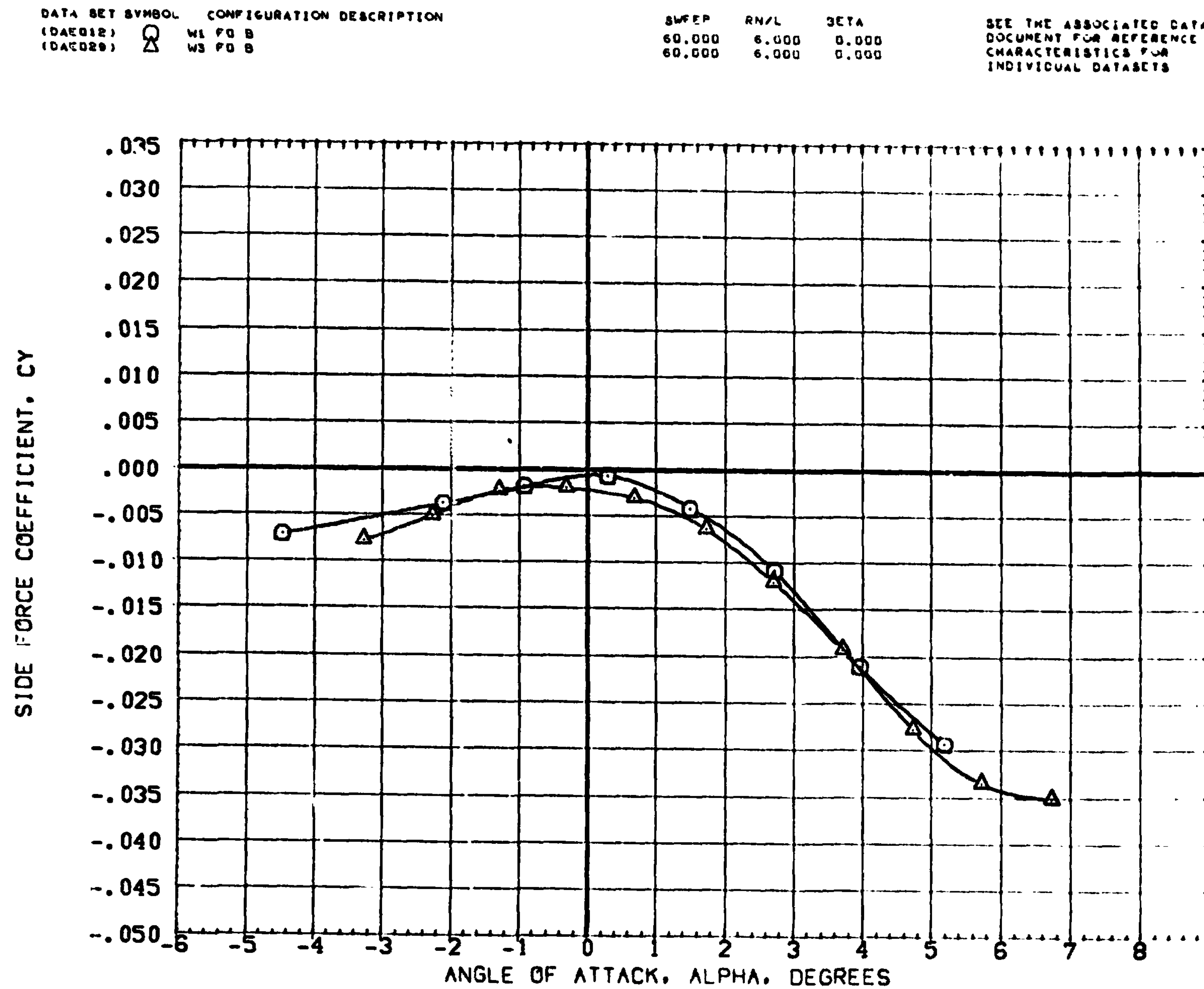


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A) MACH = .95

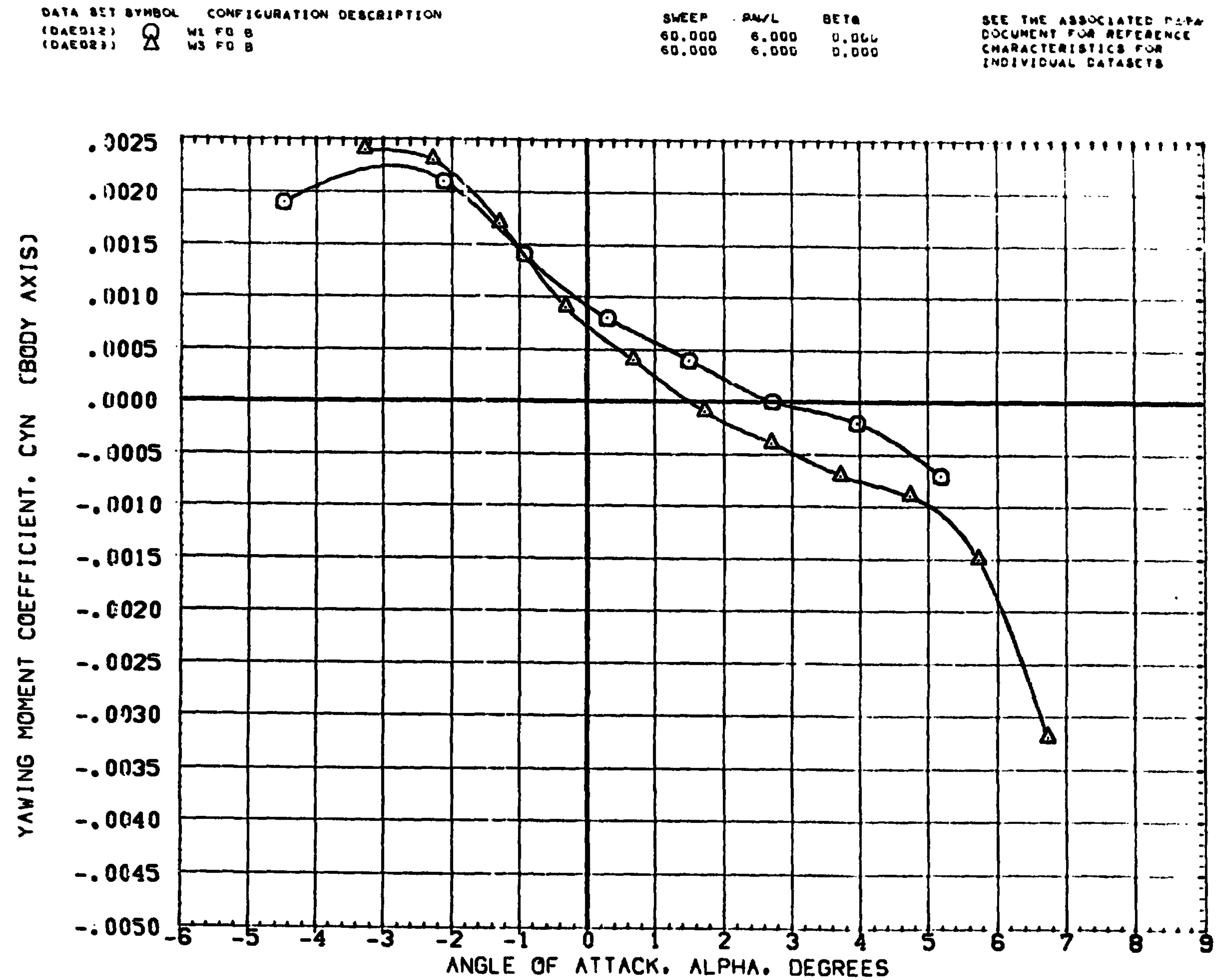


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES

(A)MACH = .95

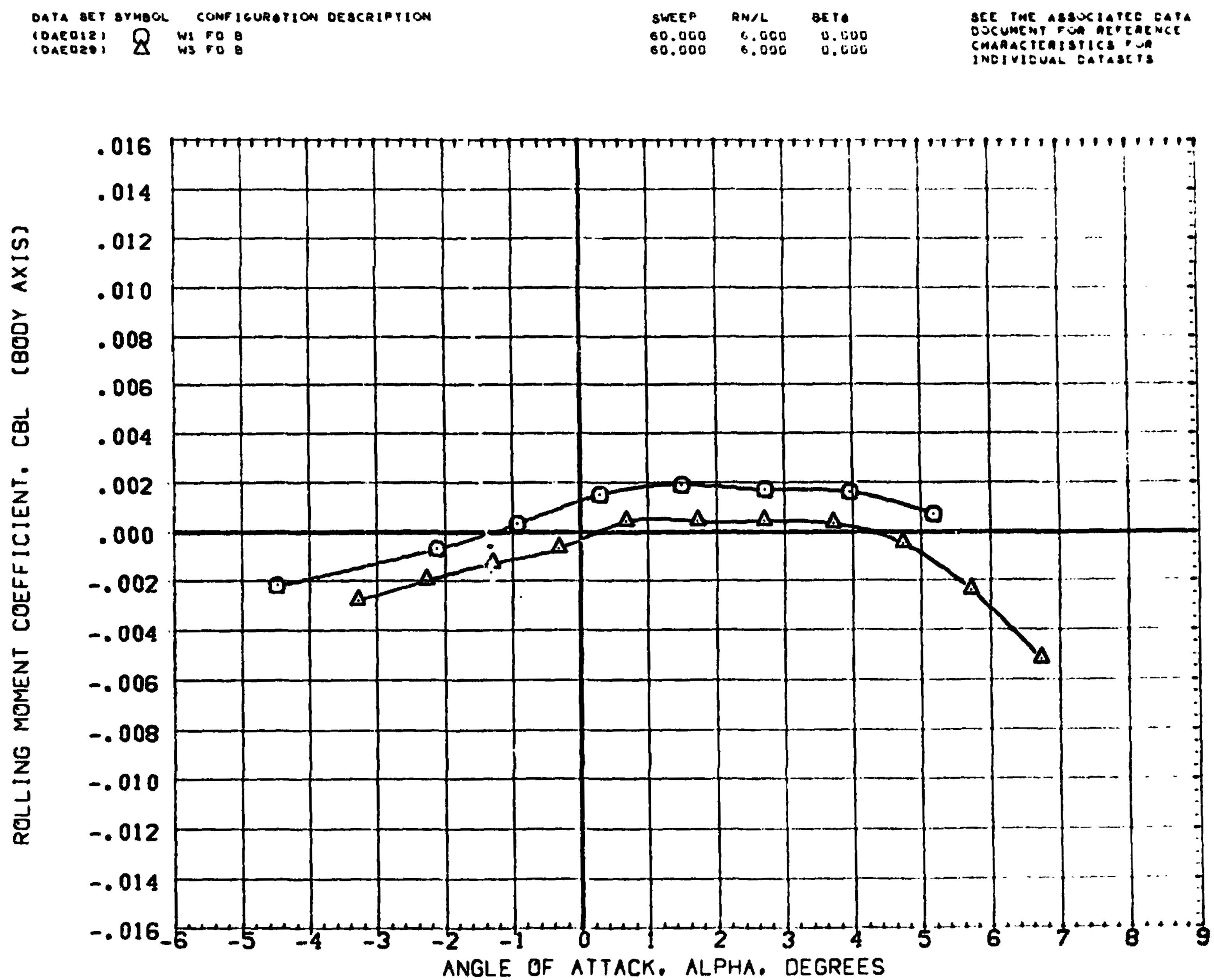


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 0.95, LAMBDA=60 DEGREES
(A)MACH = .95

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE012)	○	W1 F0 B	60.000	6.000	0.000
(EAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

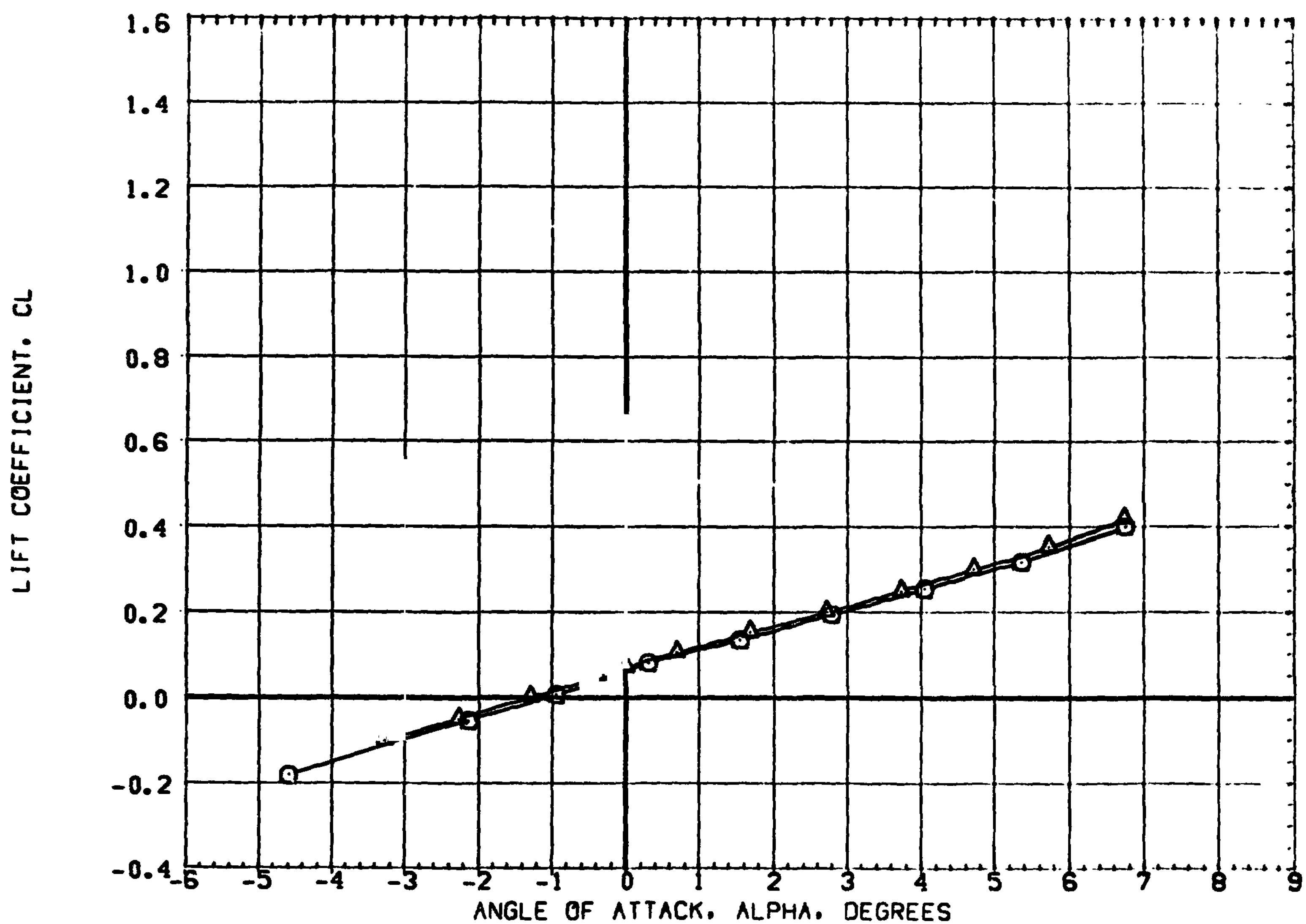


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE012)	○	W1 F0 B	60.000	6.000	0.000
(EAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

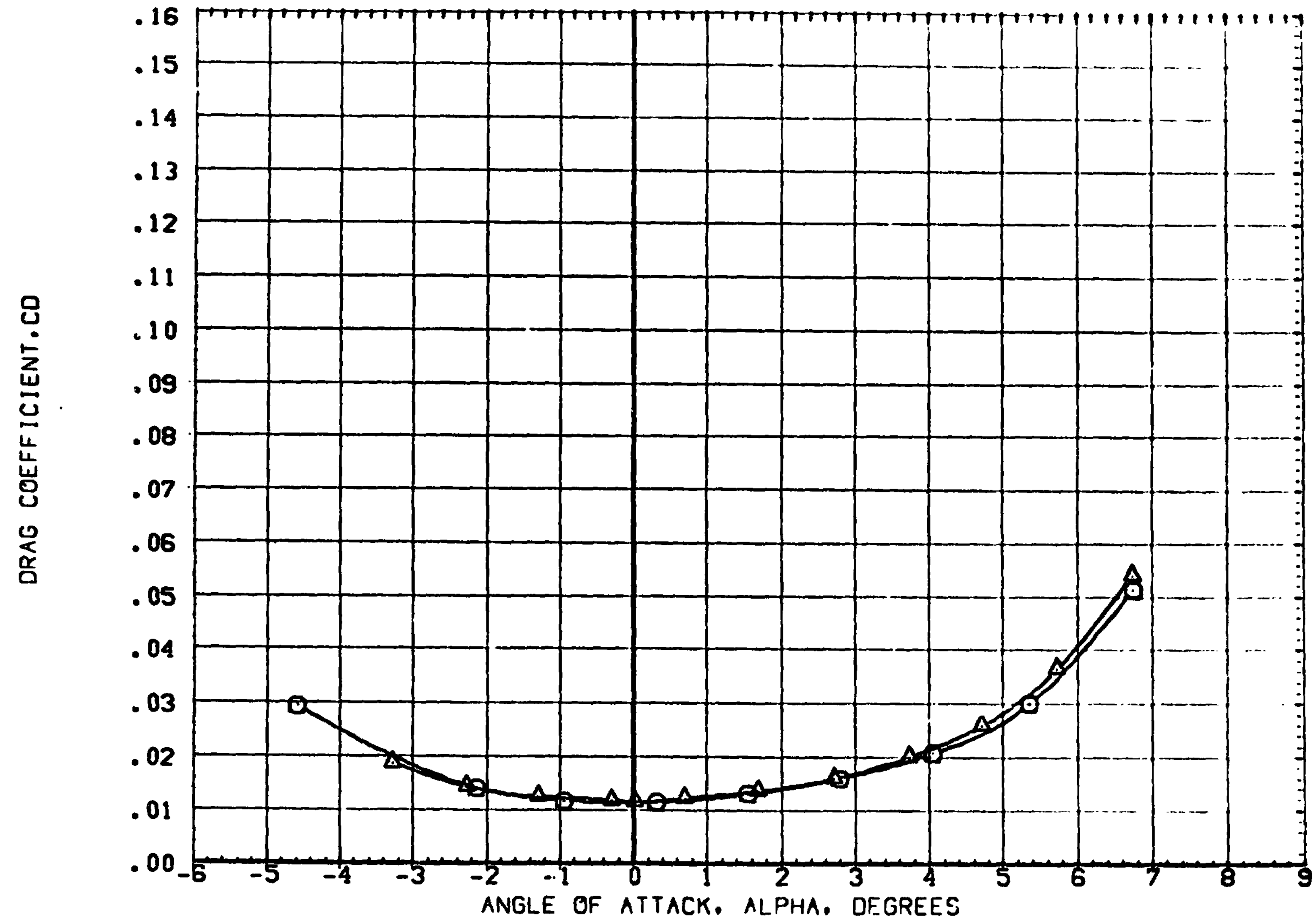


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE012)	○	W1 F0 B	60.000	6.000	0.000
(EAE029)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

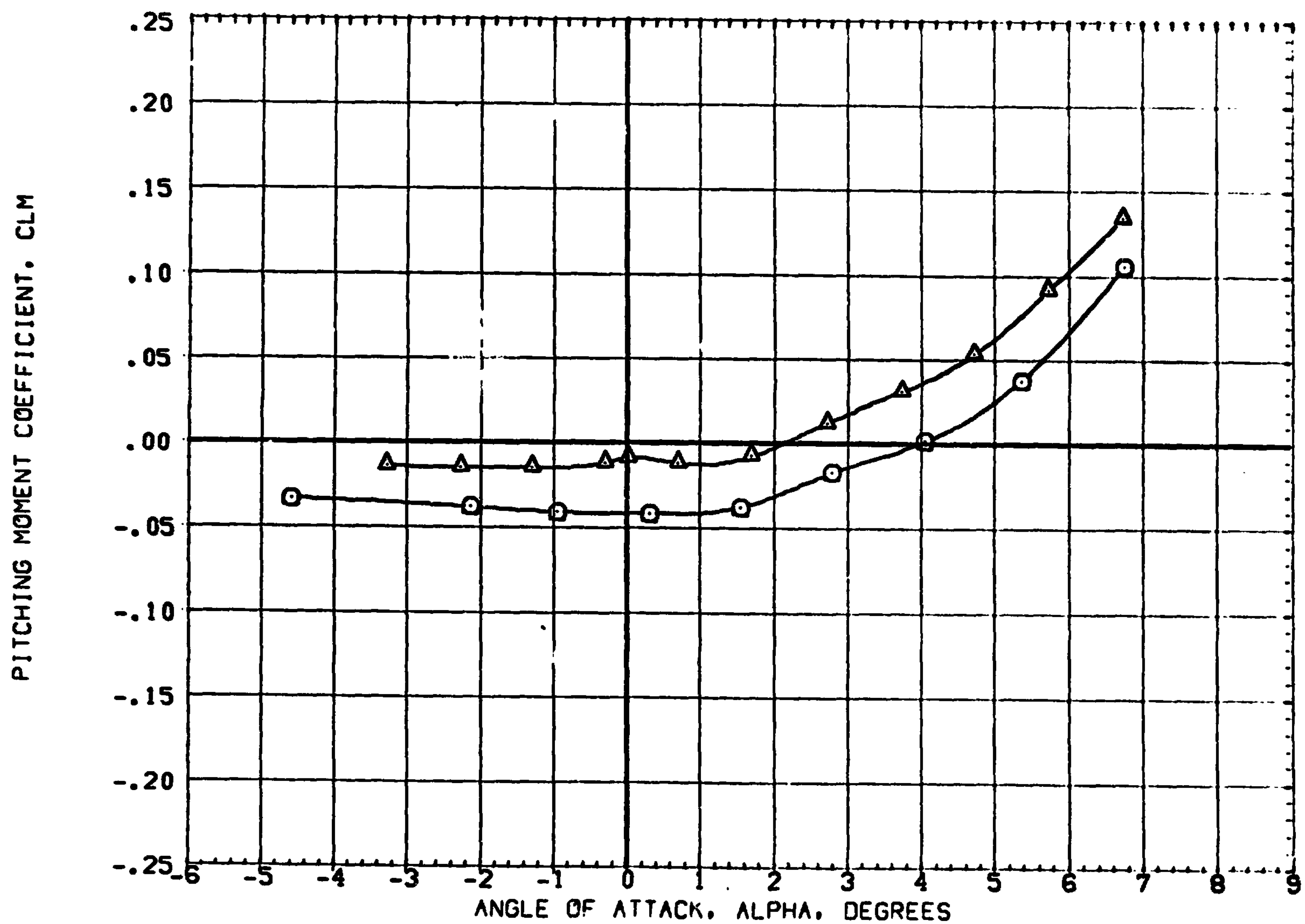


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

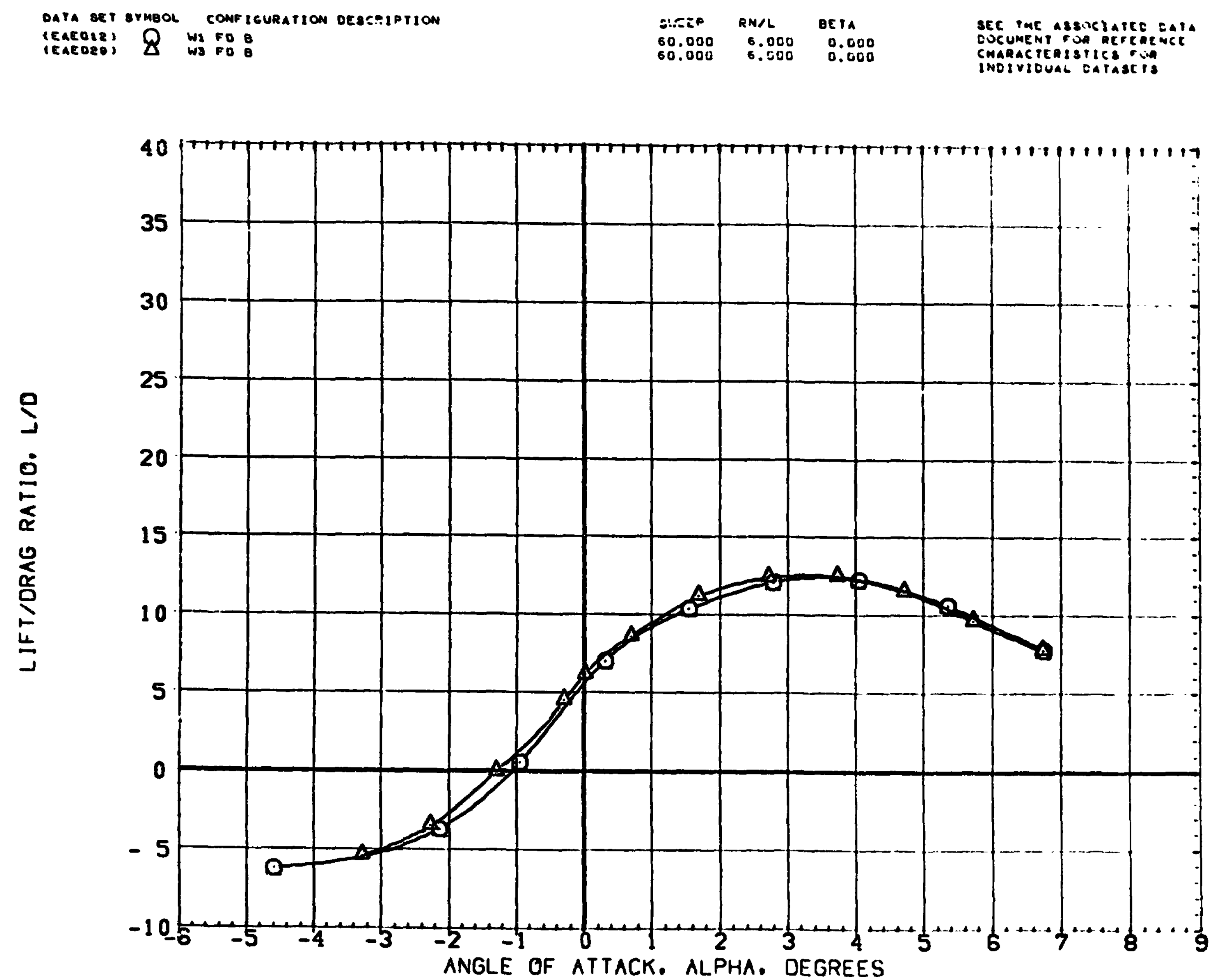


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES
(A)MACH = 1.10

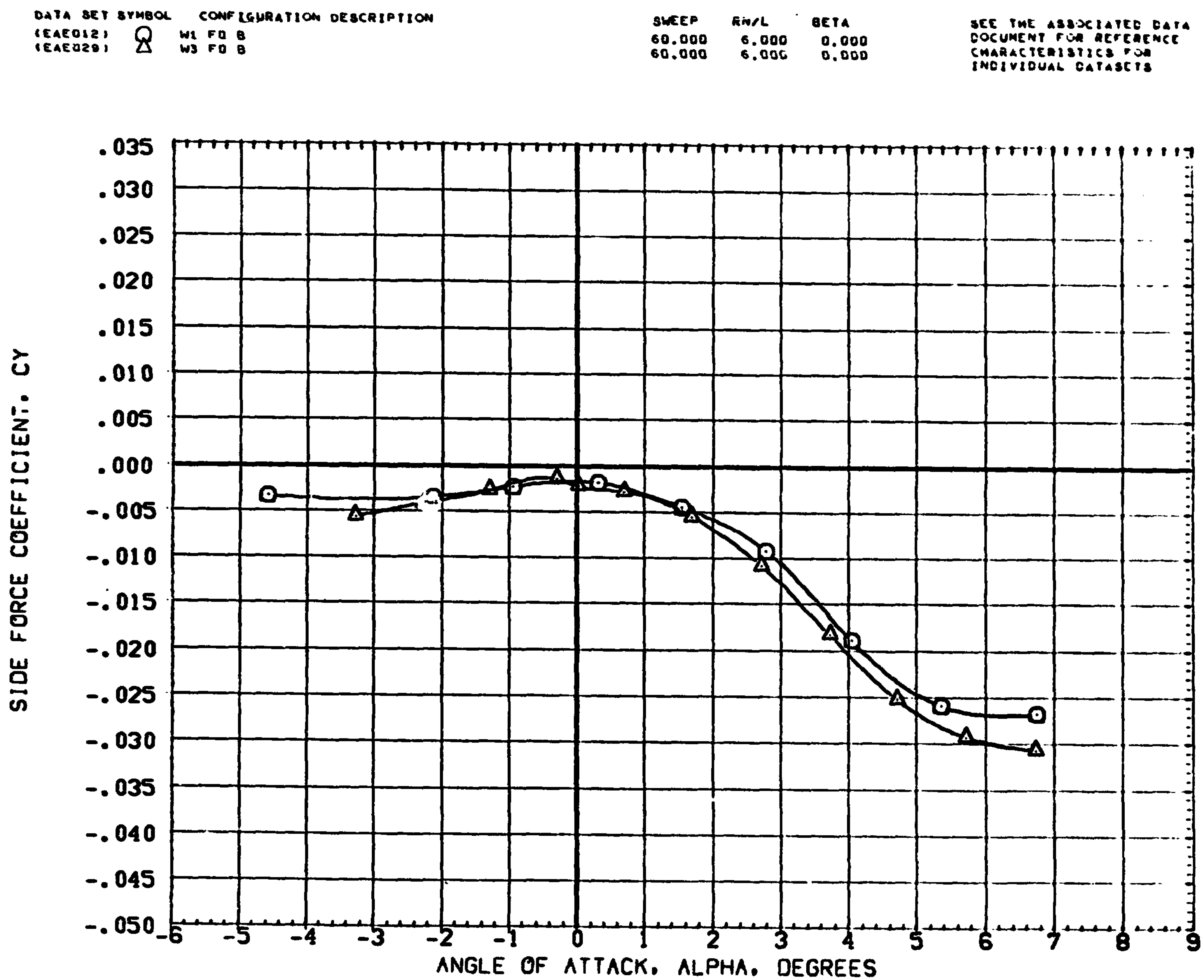


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

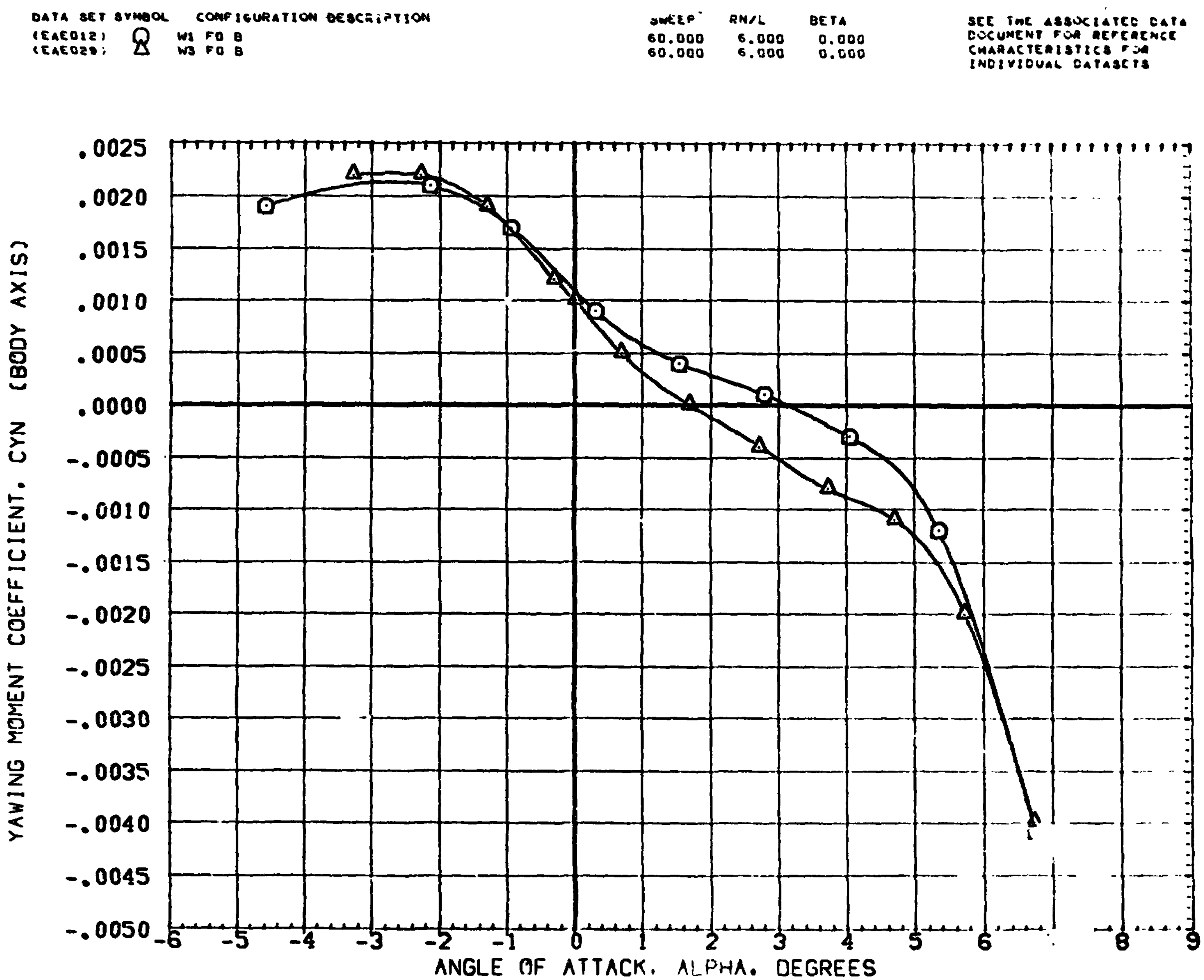


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

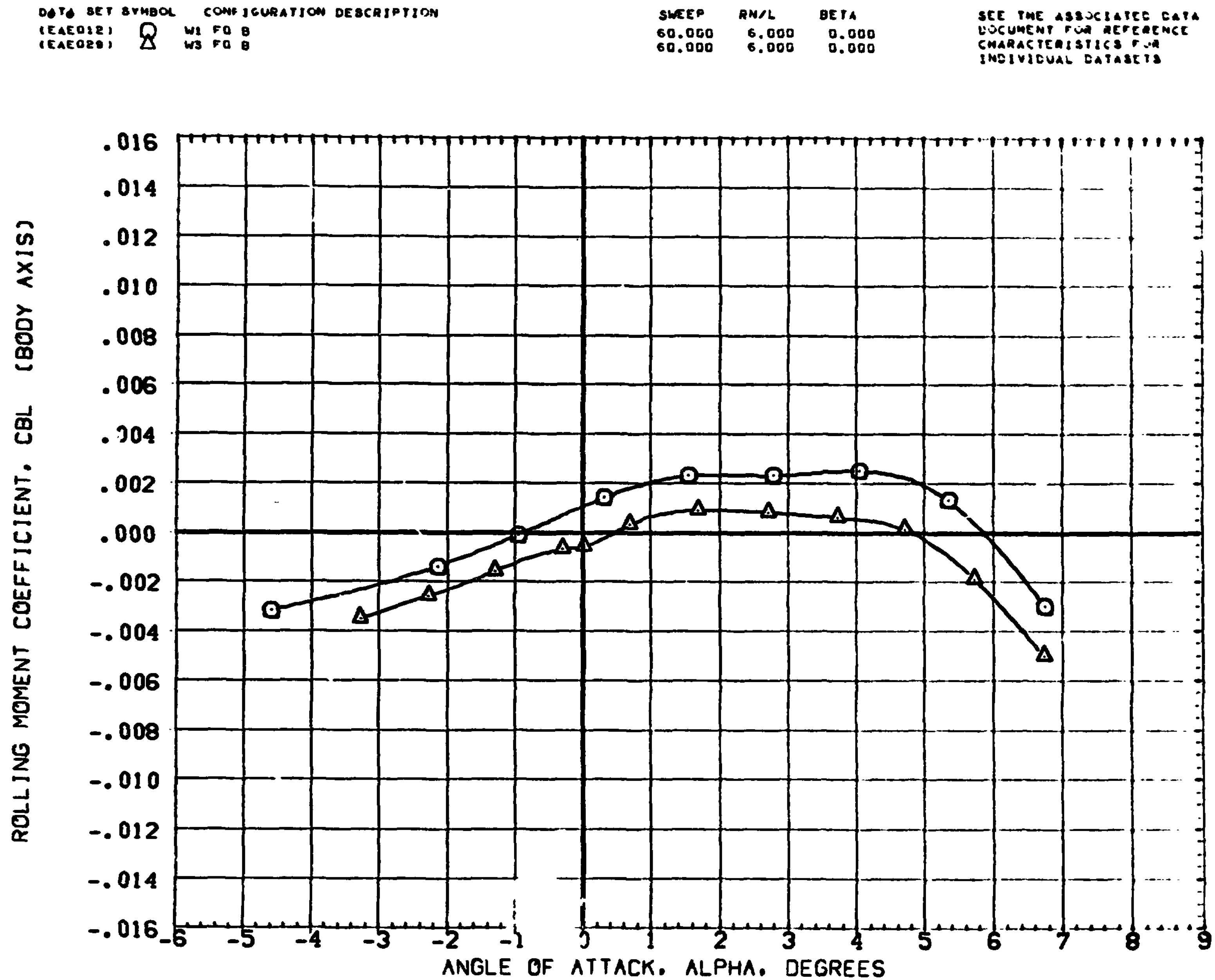


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

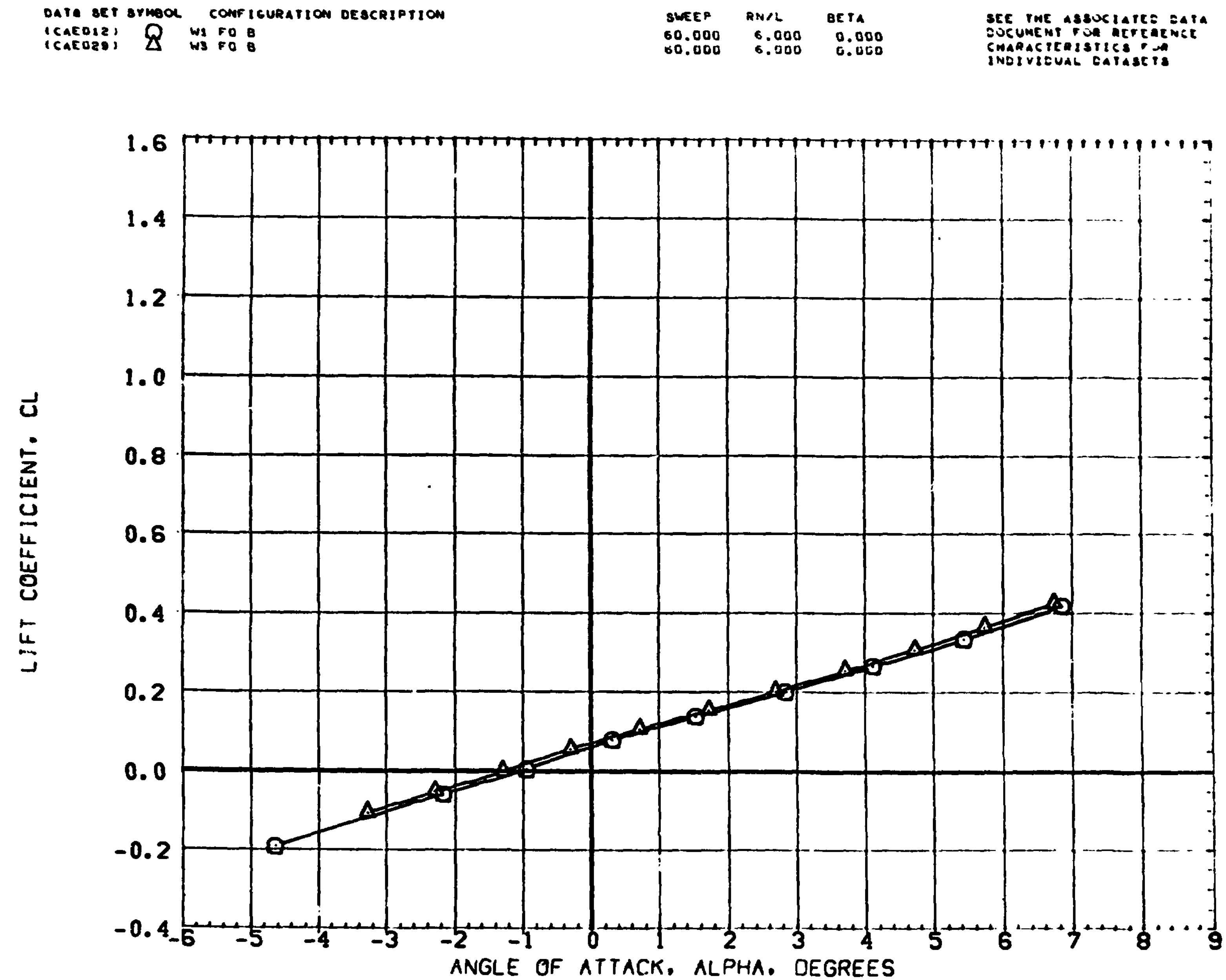


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

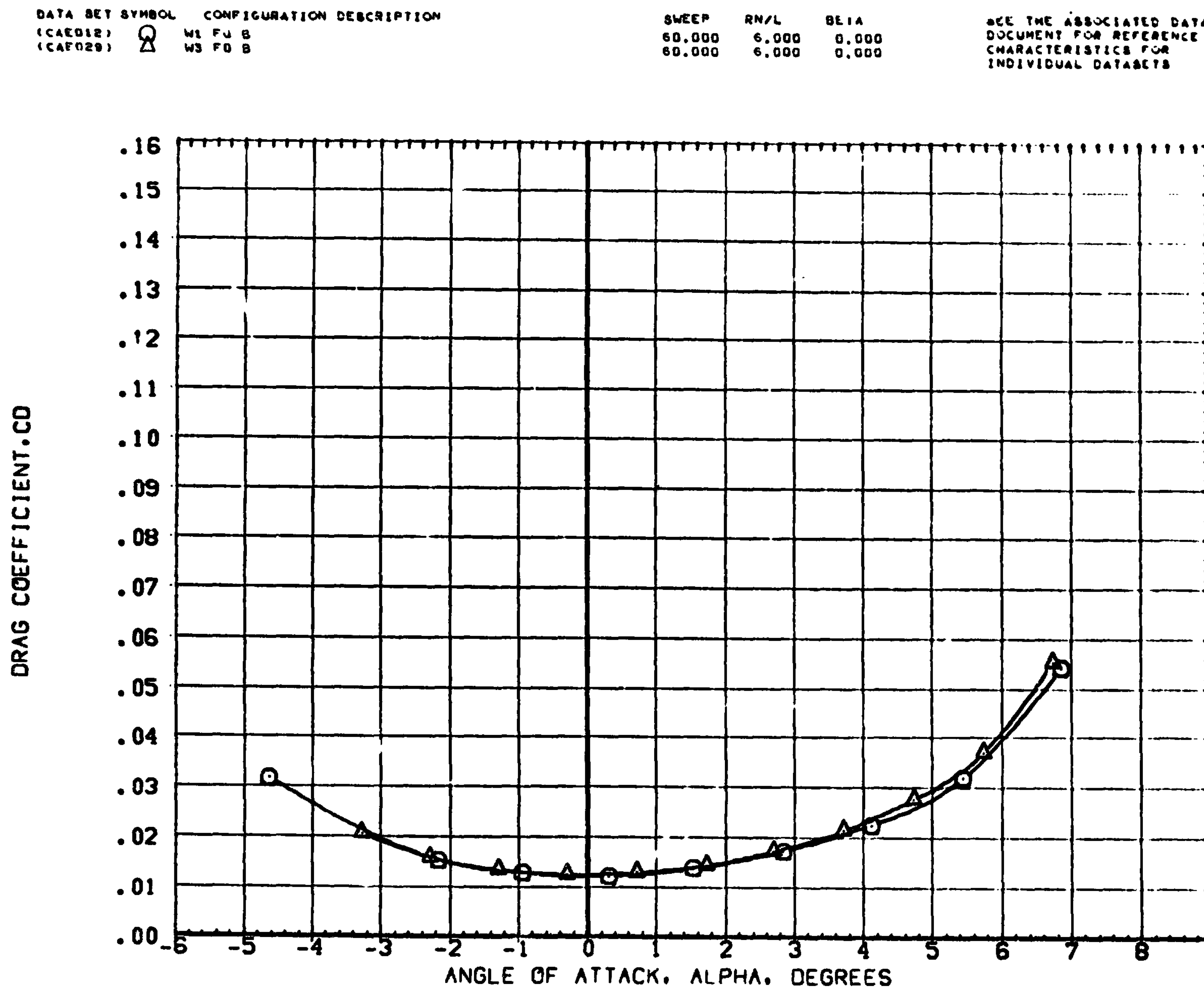


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	XR/L	BETA
(CAED12)	○	W1 FO B	60.000	6.000	0.000
(CAED29)	△	W3 FO B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

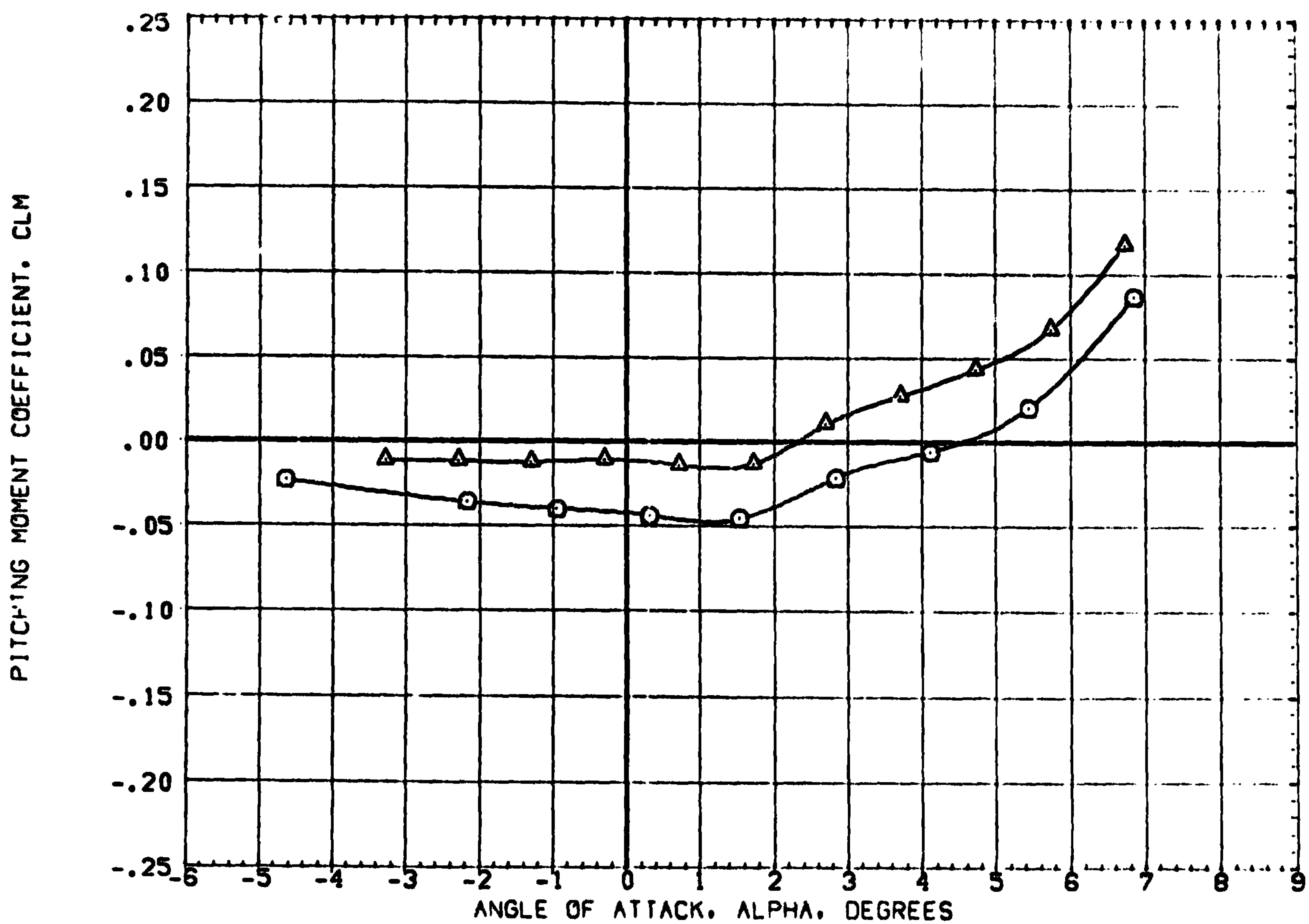


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES

( )MACH = 1.20

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE018)	○	W1 F0 B	60.000	6.000	0.000
(CAE020)	△	W3 F0 B	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

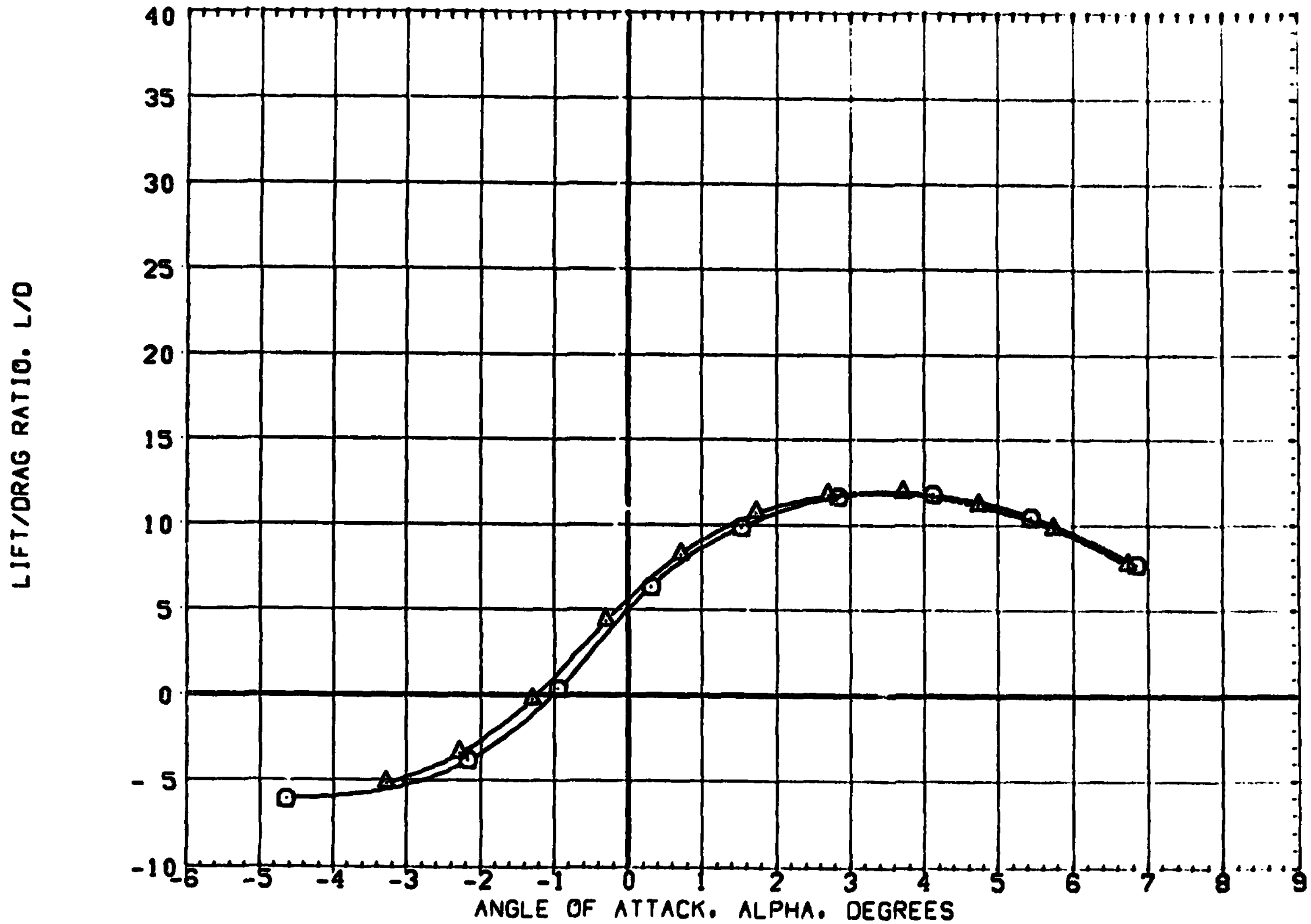


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

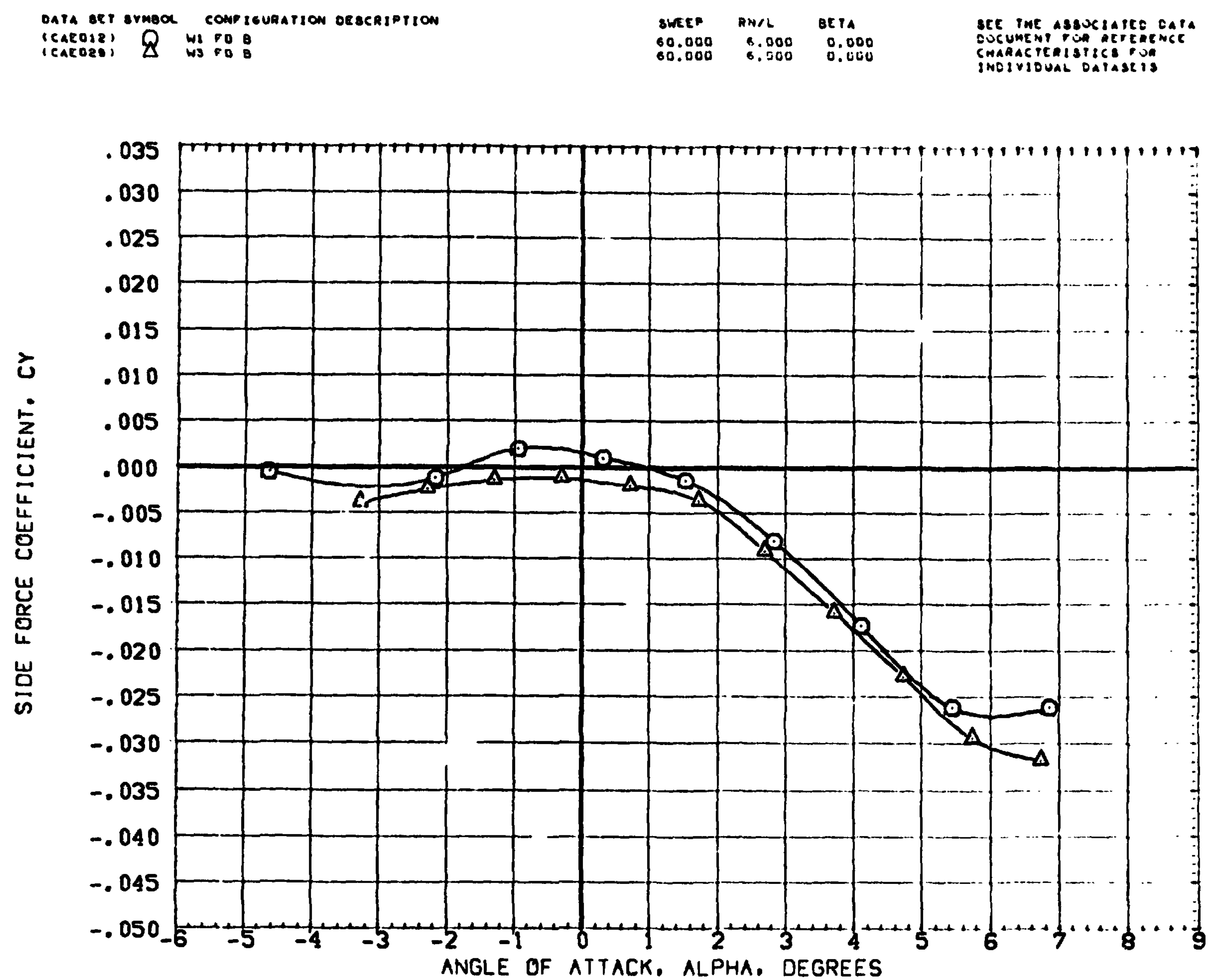


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES

MACH 1.20

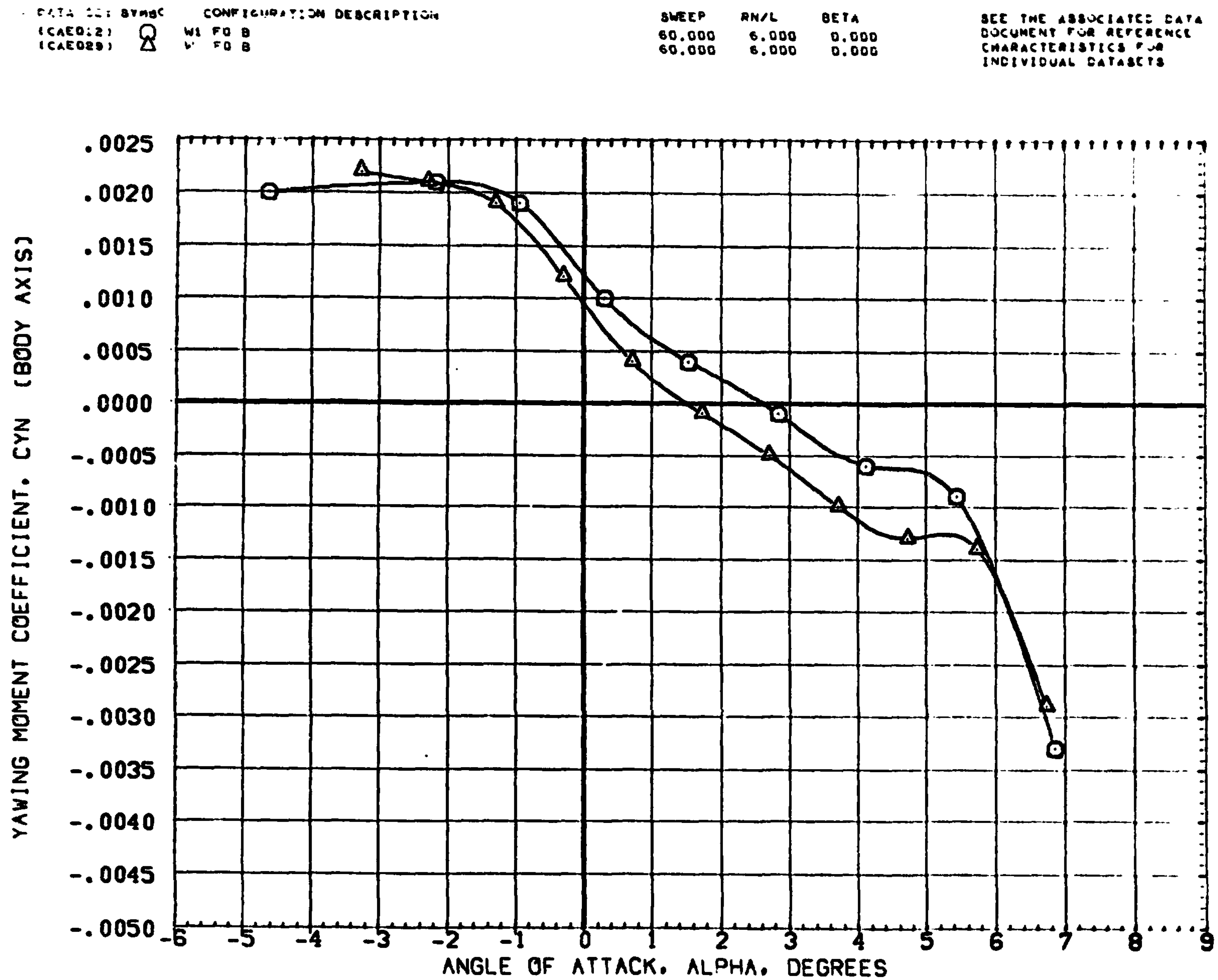


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A) MACH = 1.20

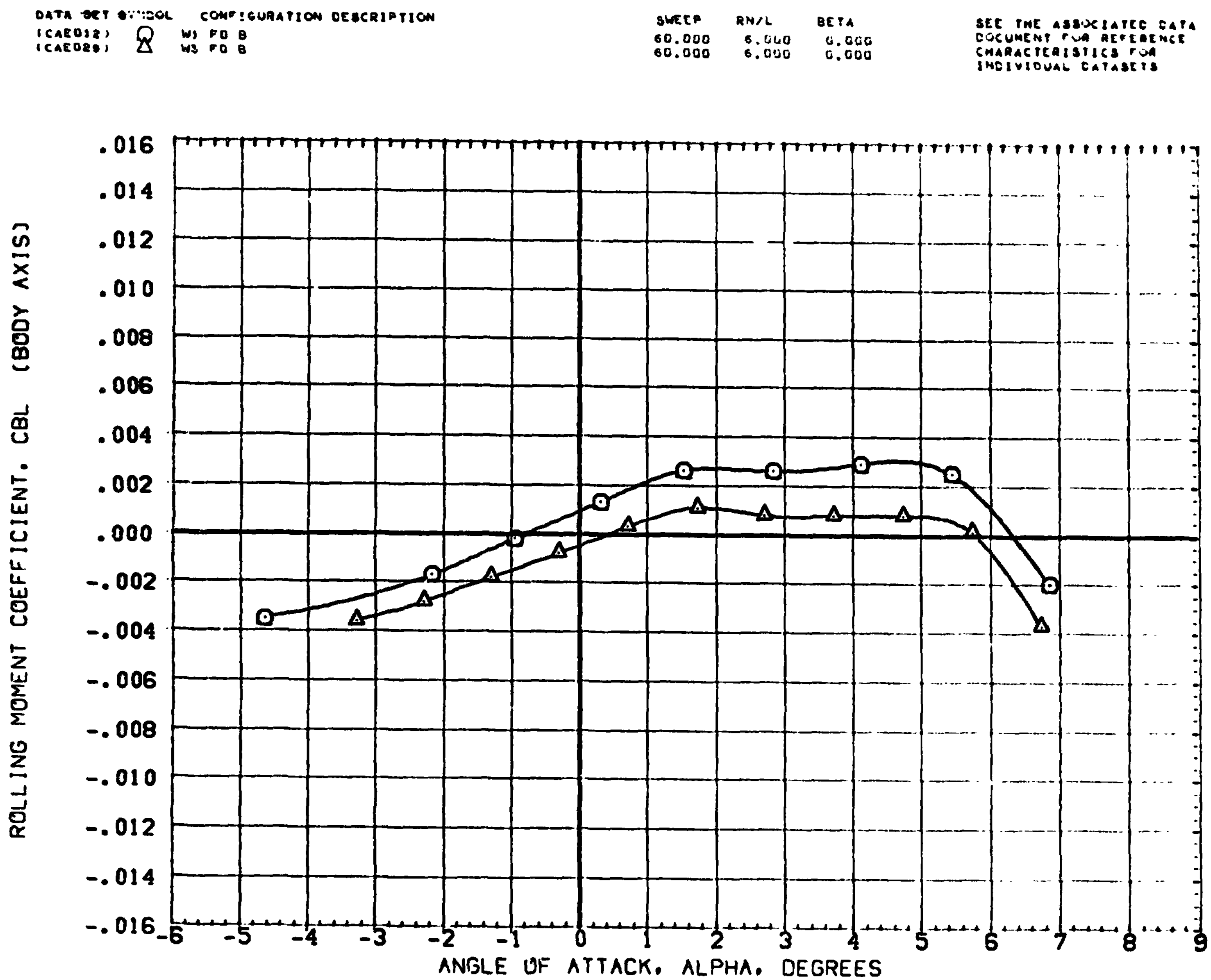


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.20, LAMBDA=60 DEGREES
(A)MACH = 1.20

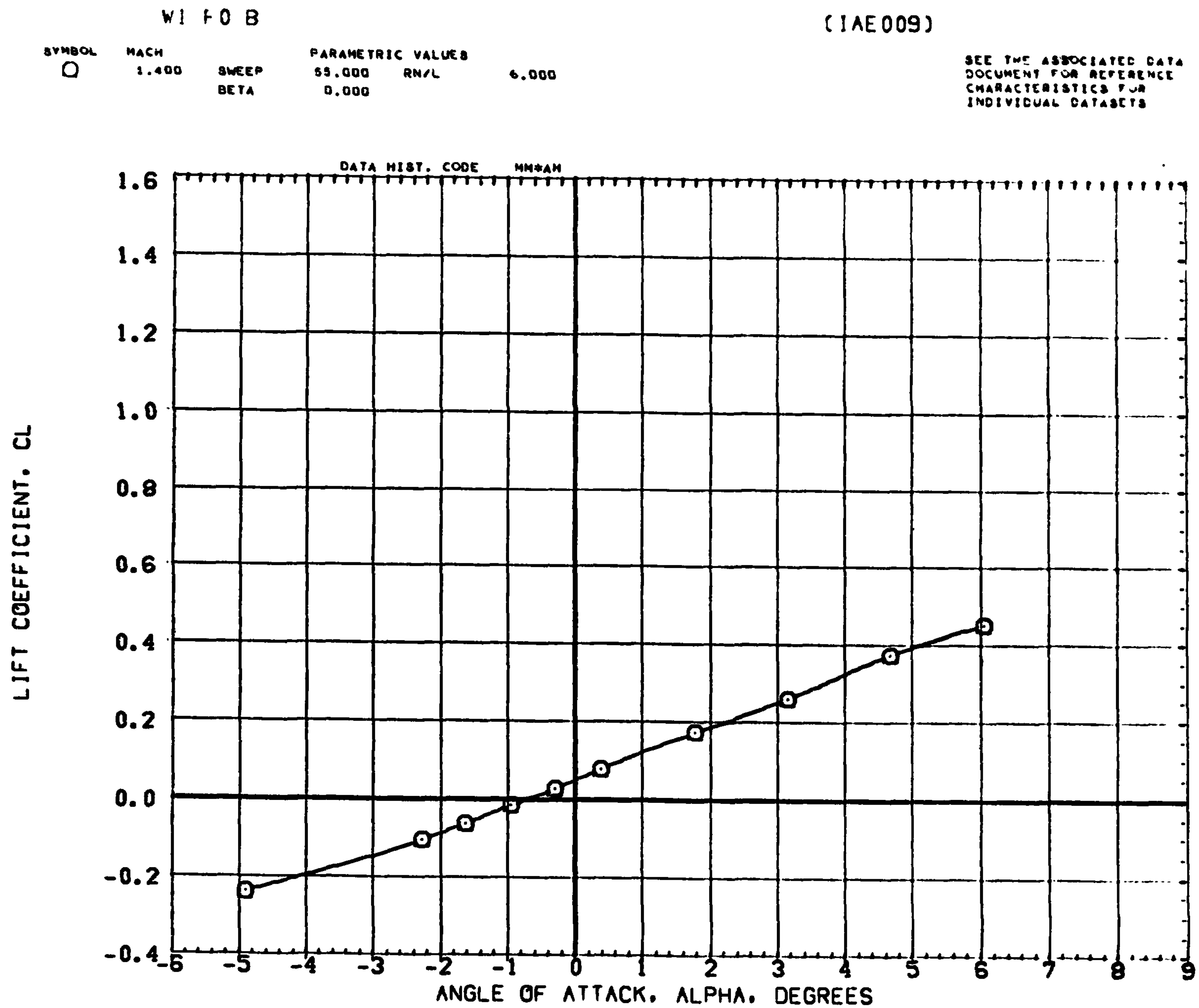


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

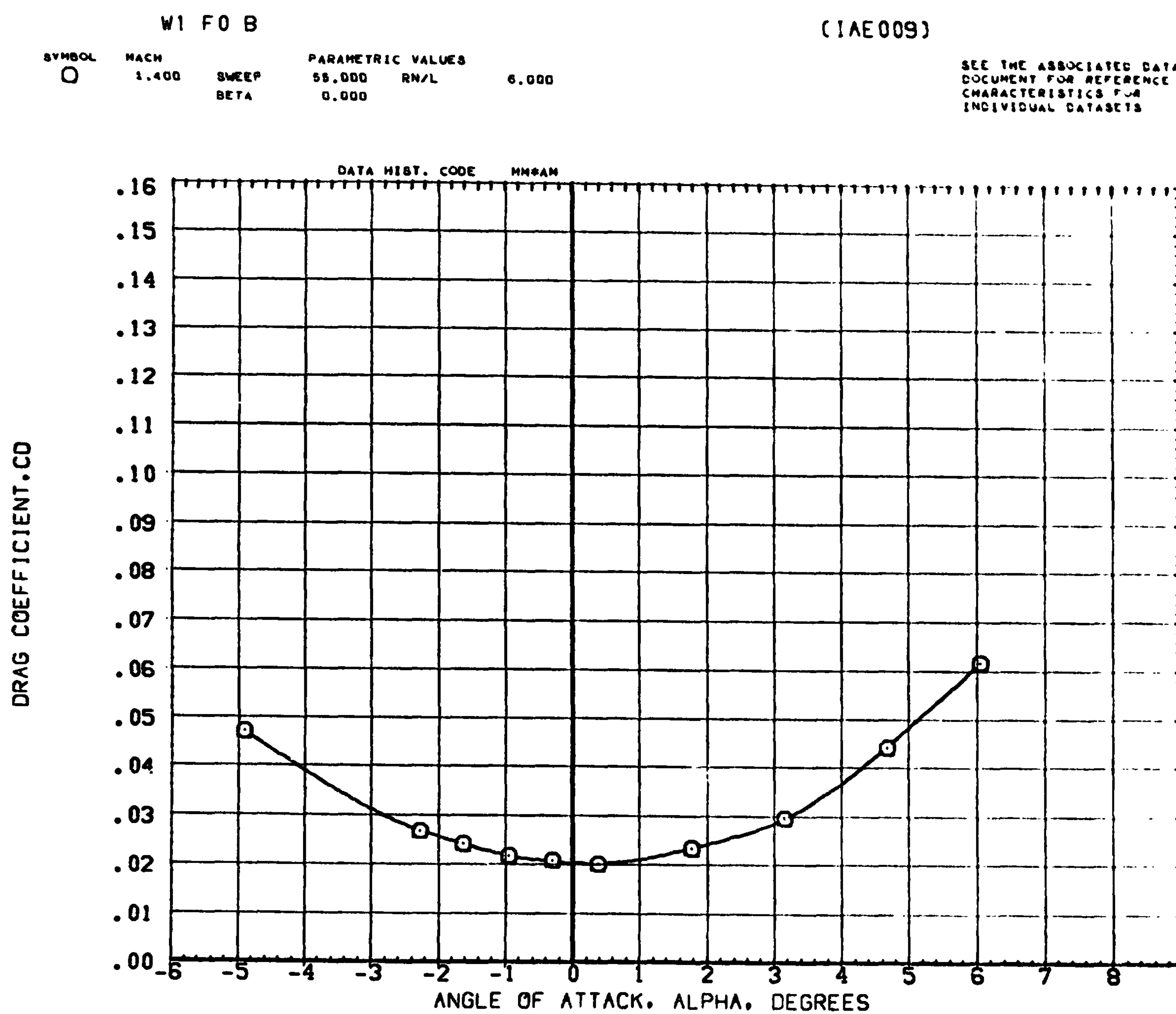


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

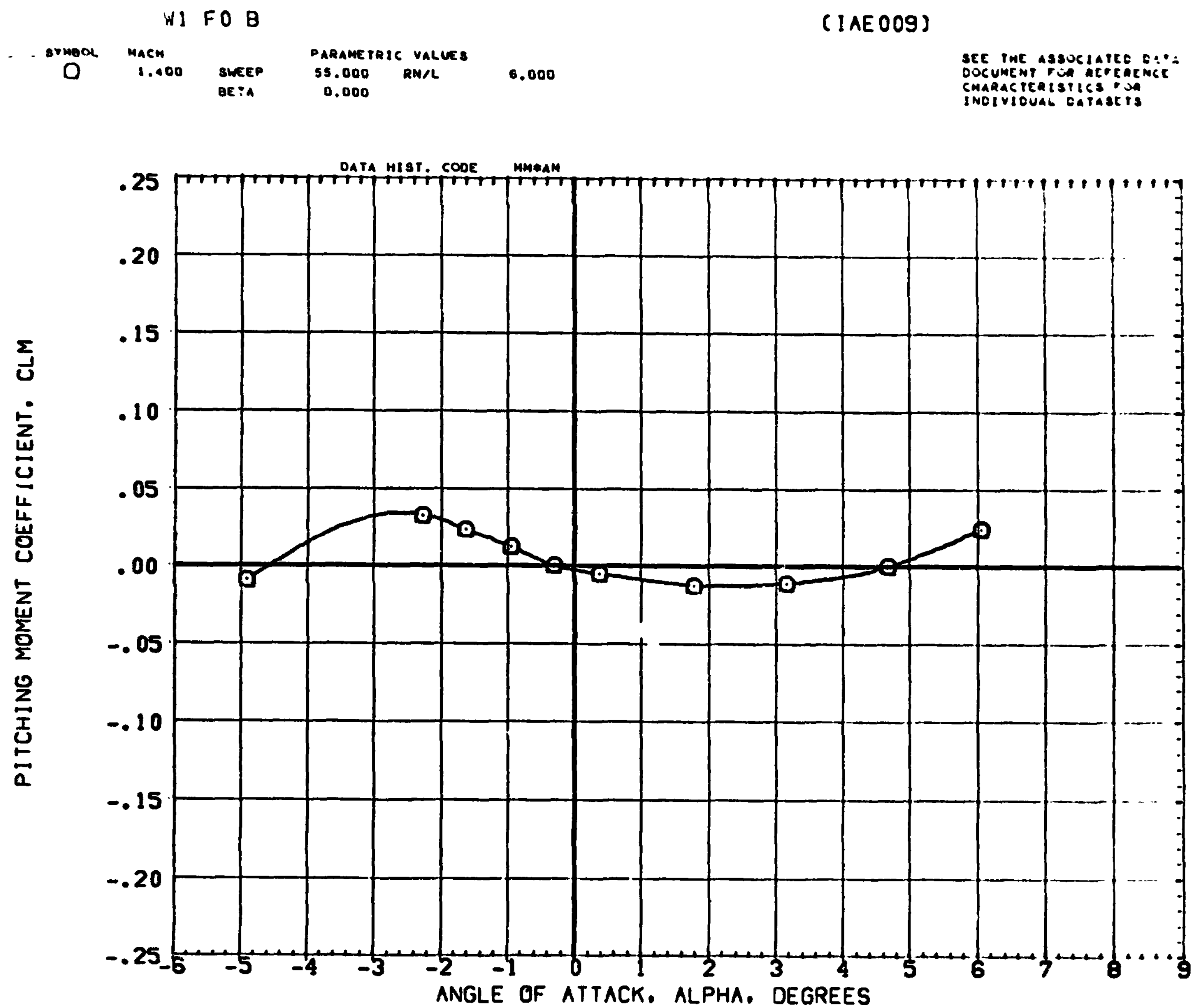


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

W1 F0 B

(IAE009)

SYMBOL	MACH		PARAMETRIC VALUES		
O	1.400	SWEEP	55.000	RN/L	6.000
		BETA	0.000		

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATA .TS

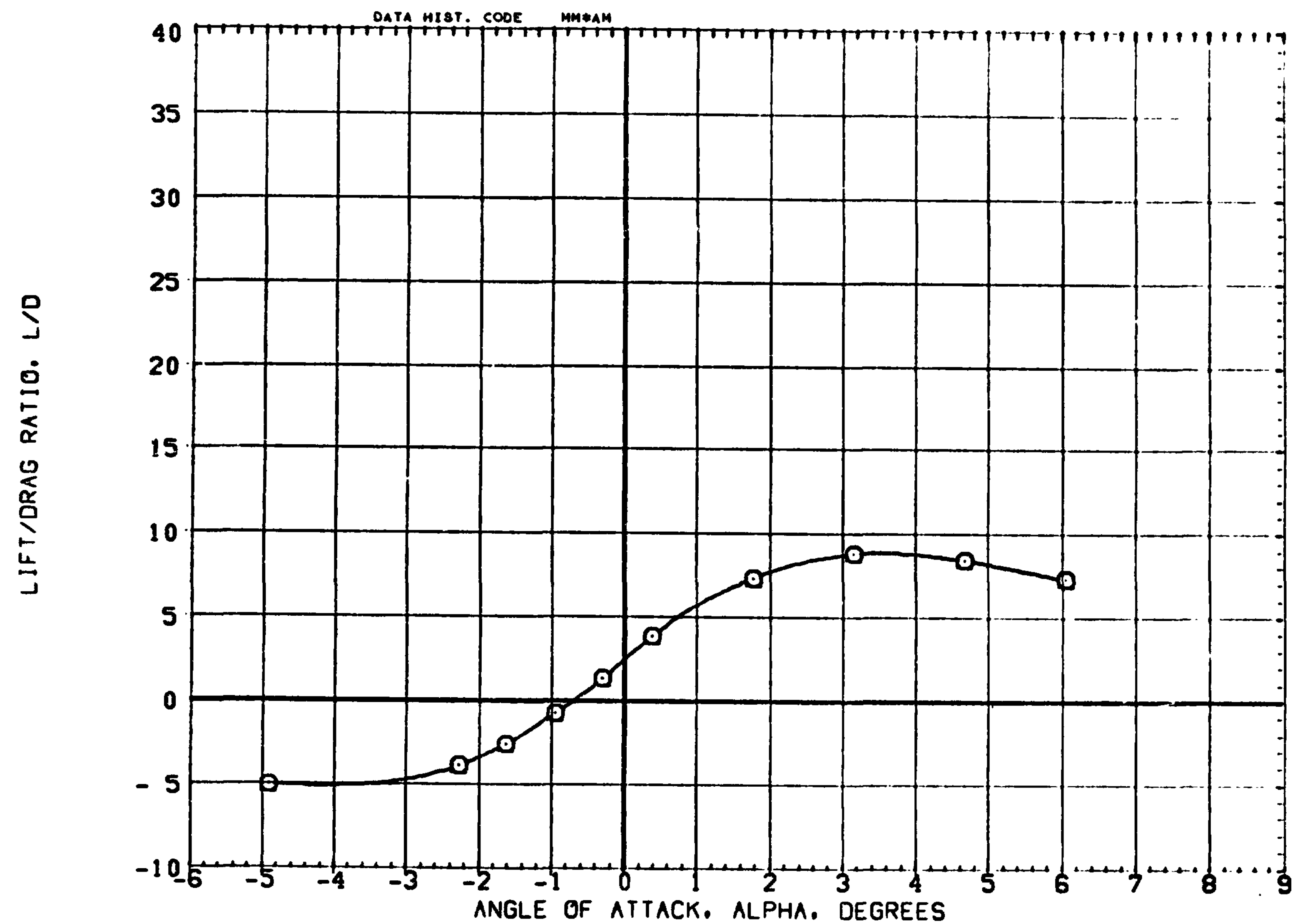


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

W1 F0 B

(IAE009)

SYMBOL	MACH		PARAMETRIC VALUES		
O	1.400	SWEEP	55.000	RN/L	6.000
		BETA	0.000		

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

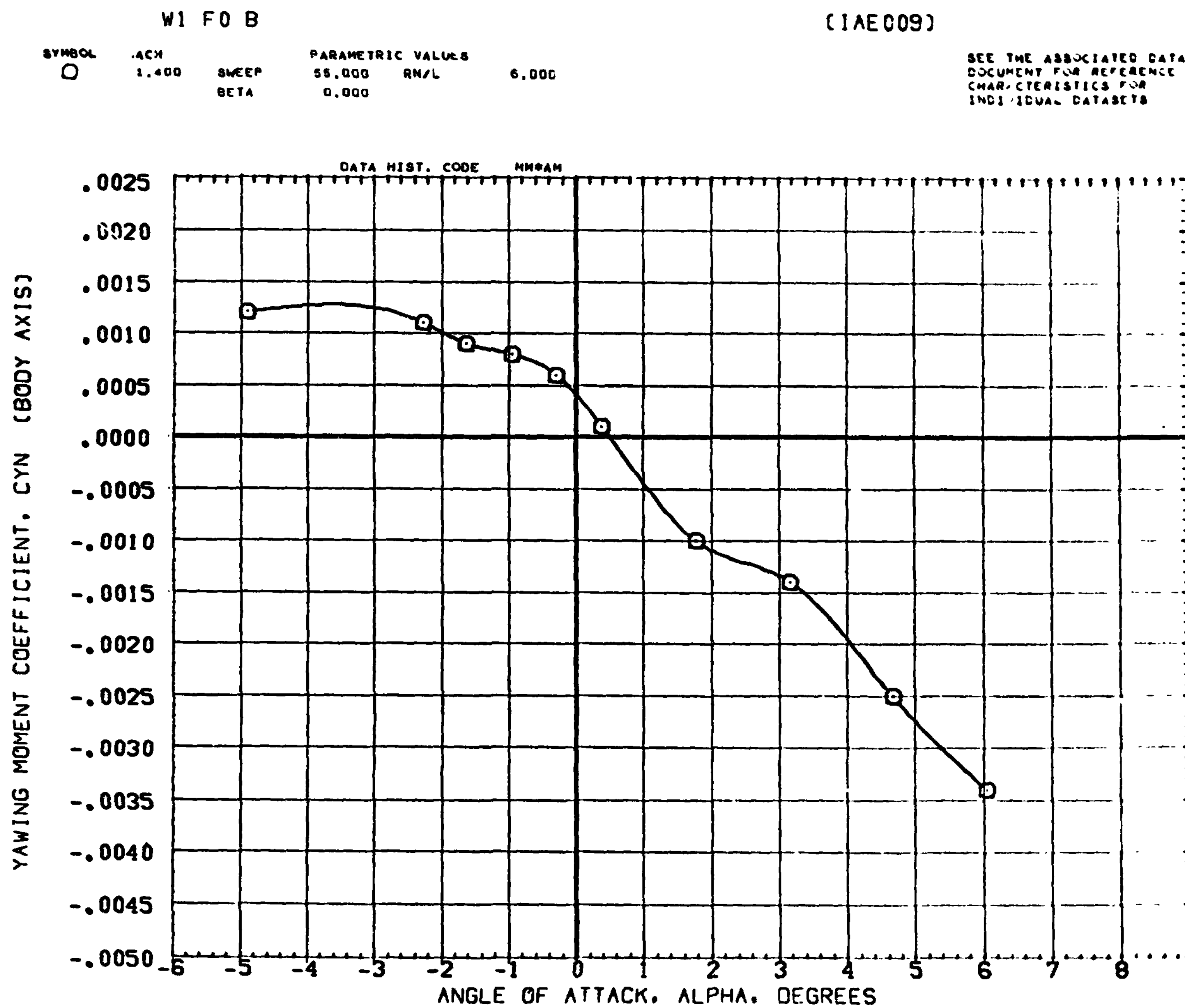


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

W1 F0 B (IAE009)

SYMBOL	MACH	PARAMETRIC VALUES			
O	1.400	SWEEP	55.000	RN/L	6.000
		BETA	0.000		

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

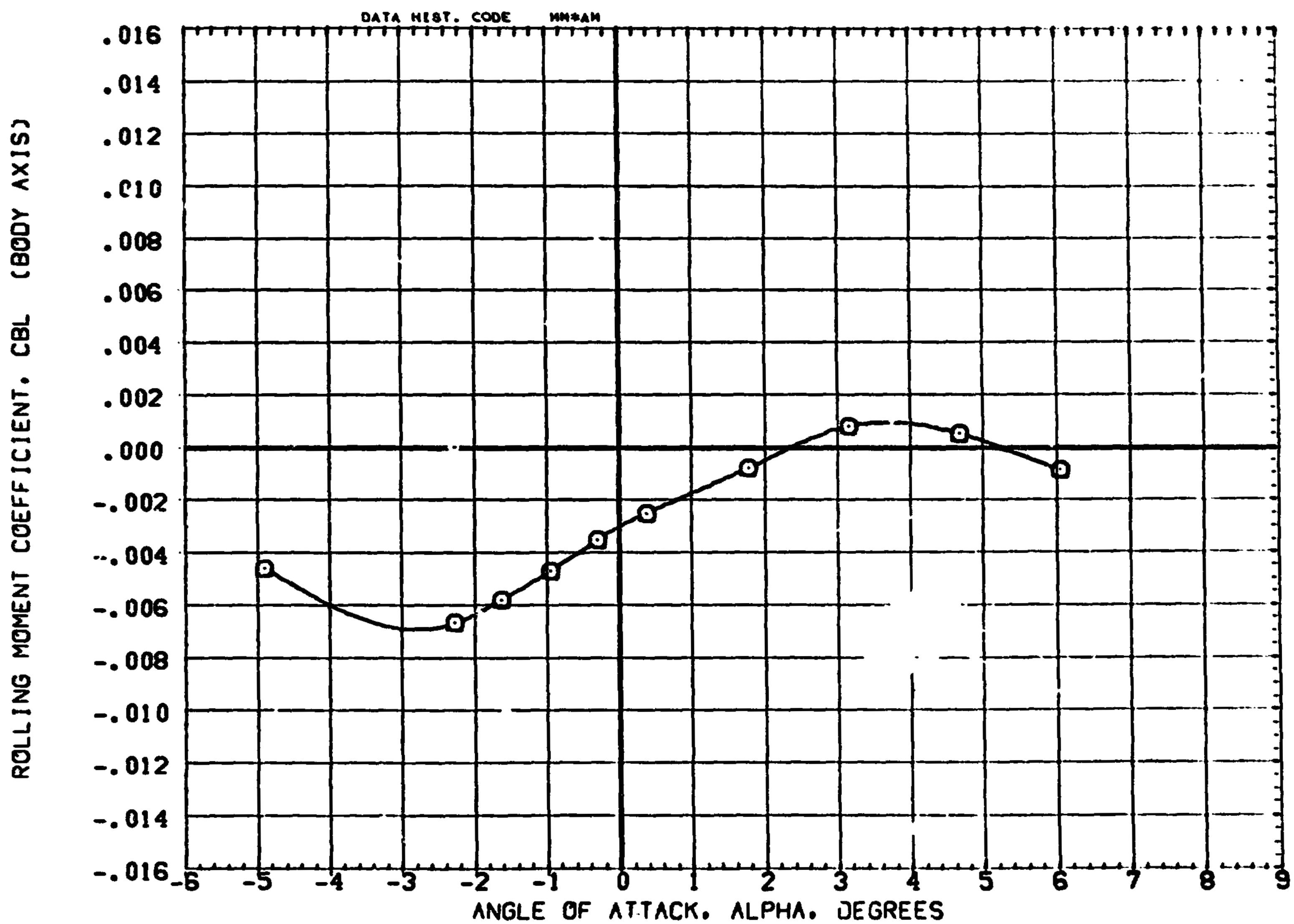


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=55 DEGREES

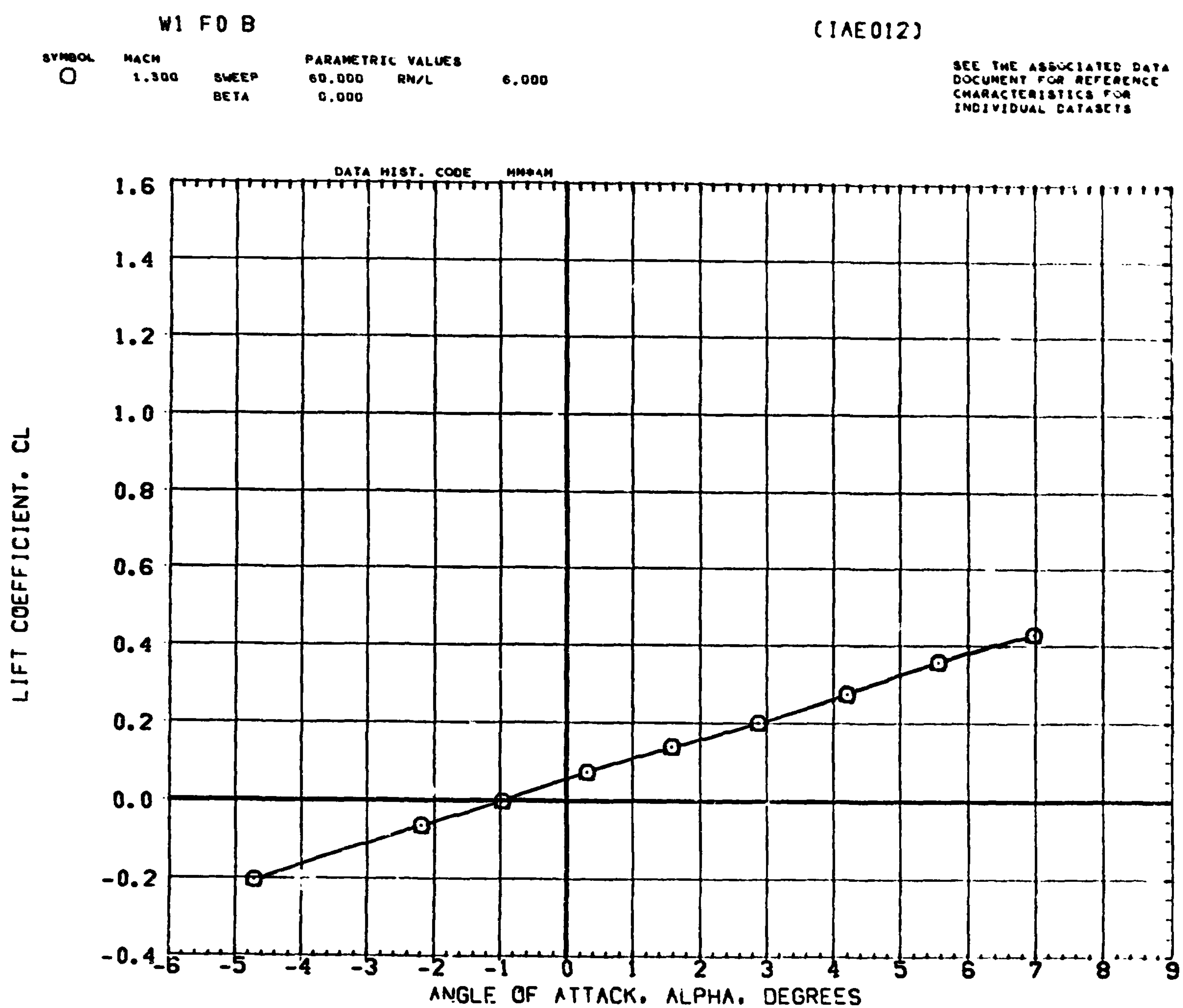


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

W1 F0 B (IAE012)

SYMBOL	MACH	PARAMETRIC VALUES			
O	1.300	SWEEP	60.000	RN/L	6.000
		BETA	8.000		

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

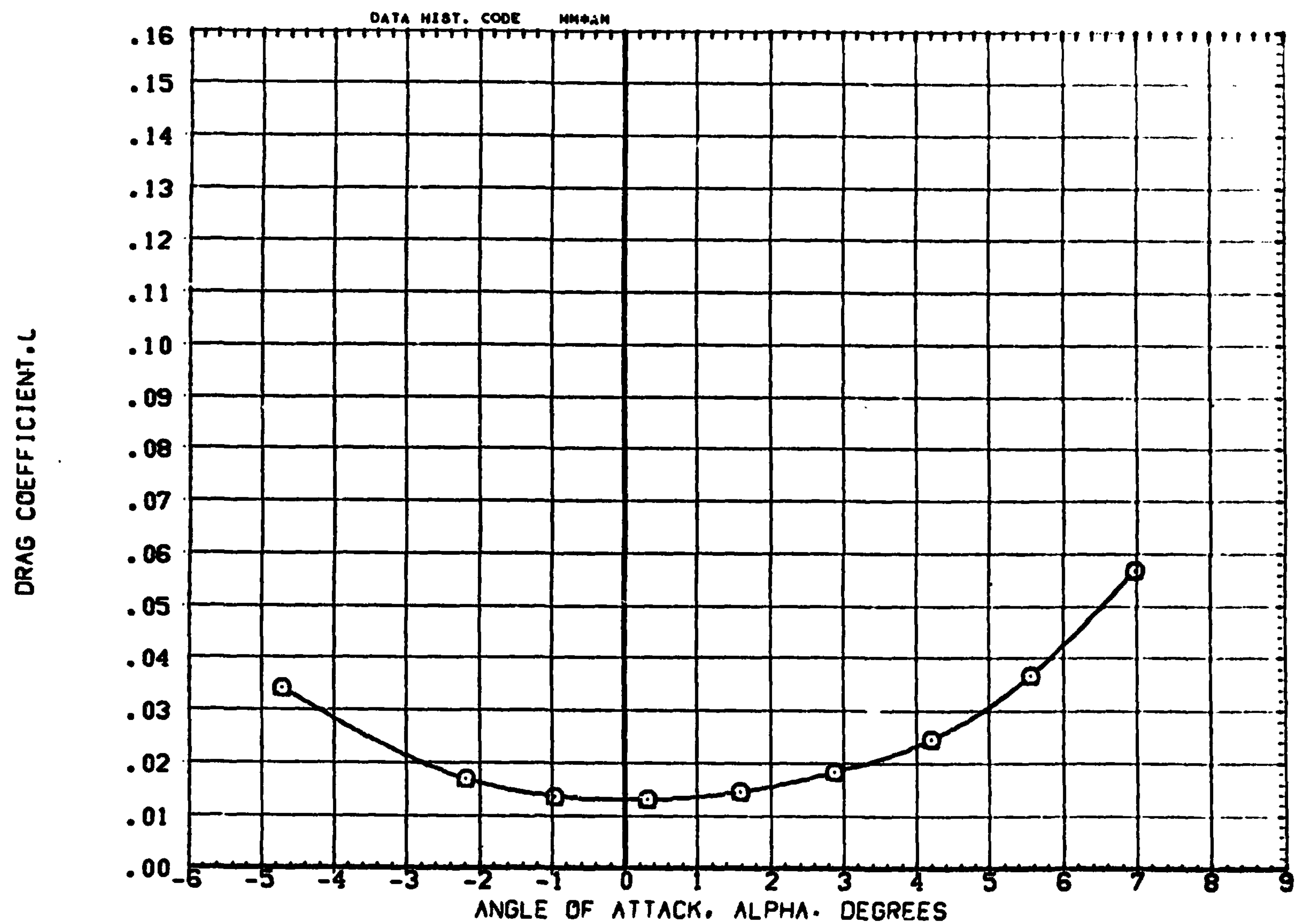


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

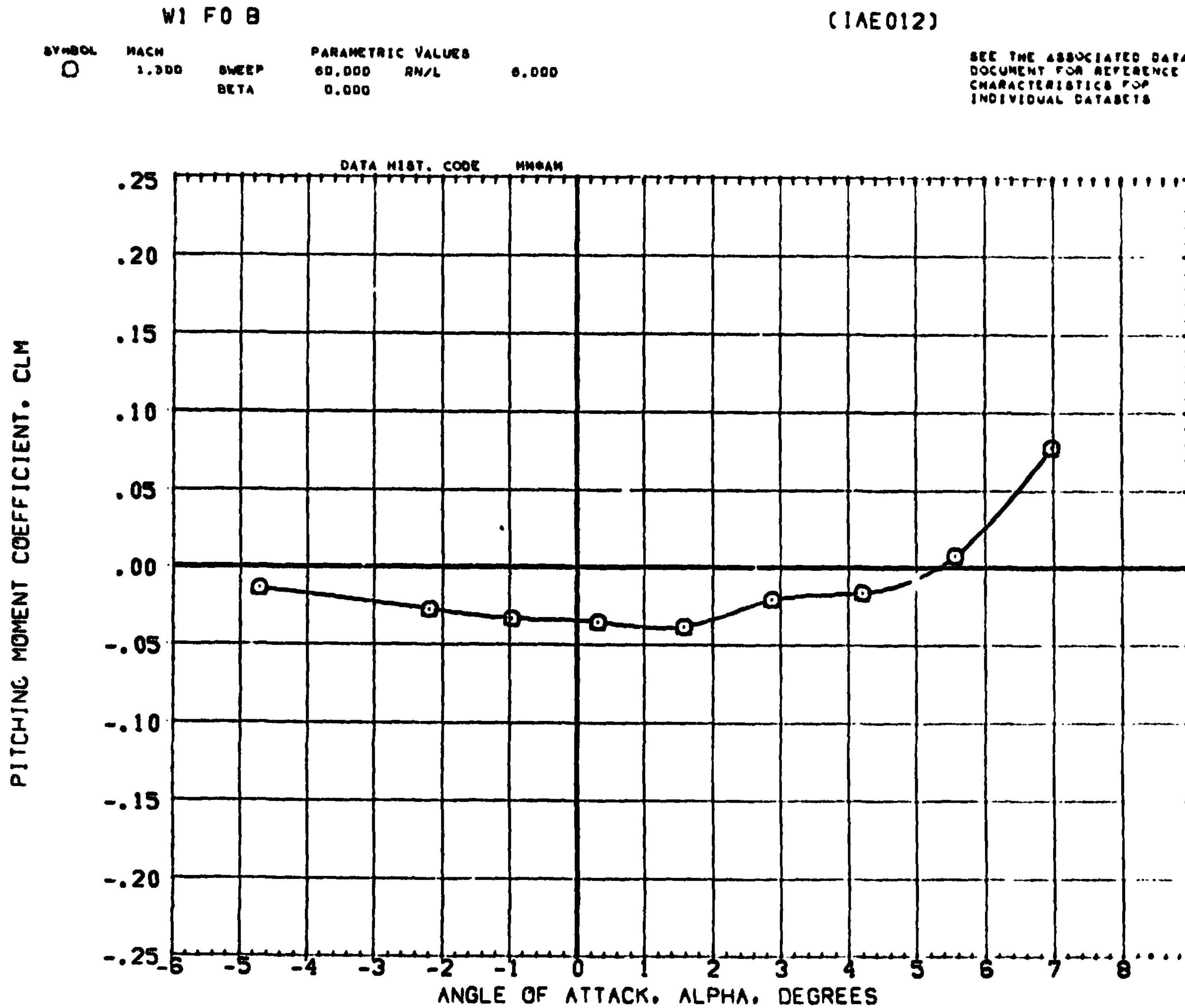


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

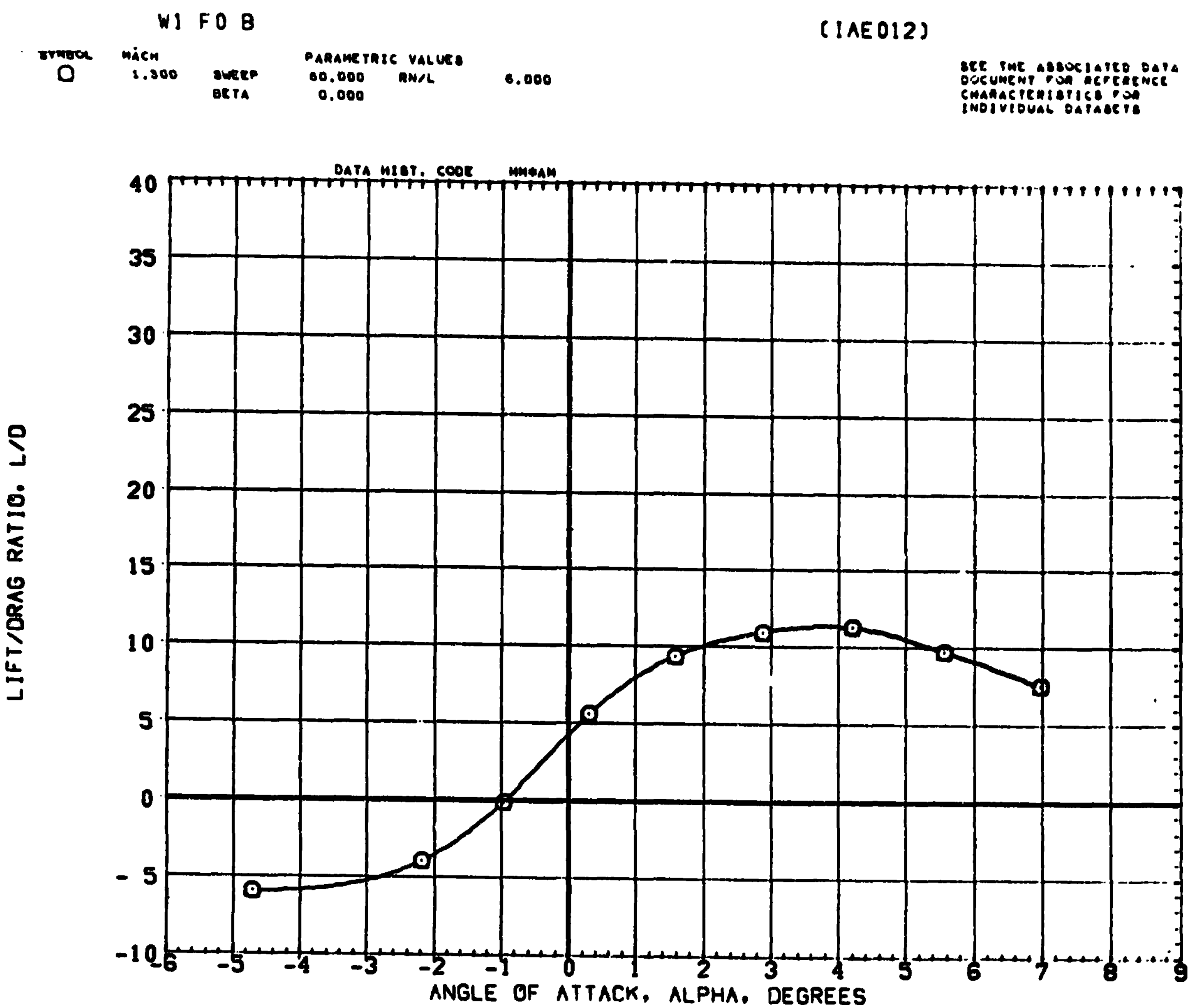


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

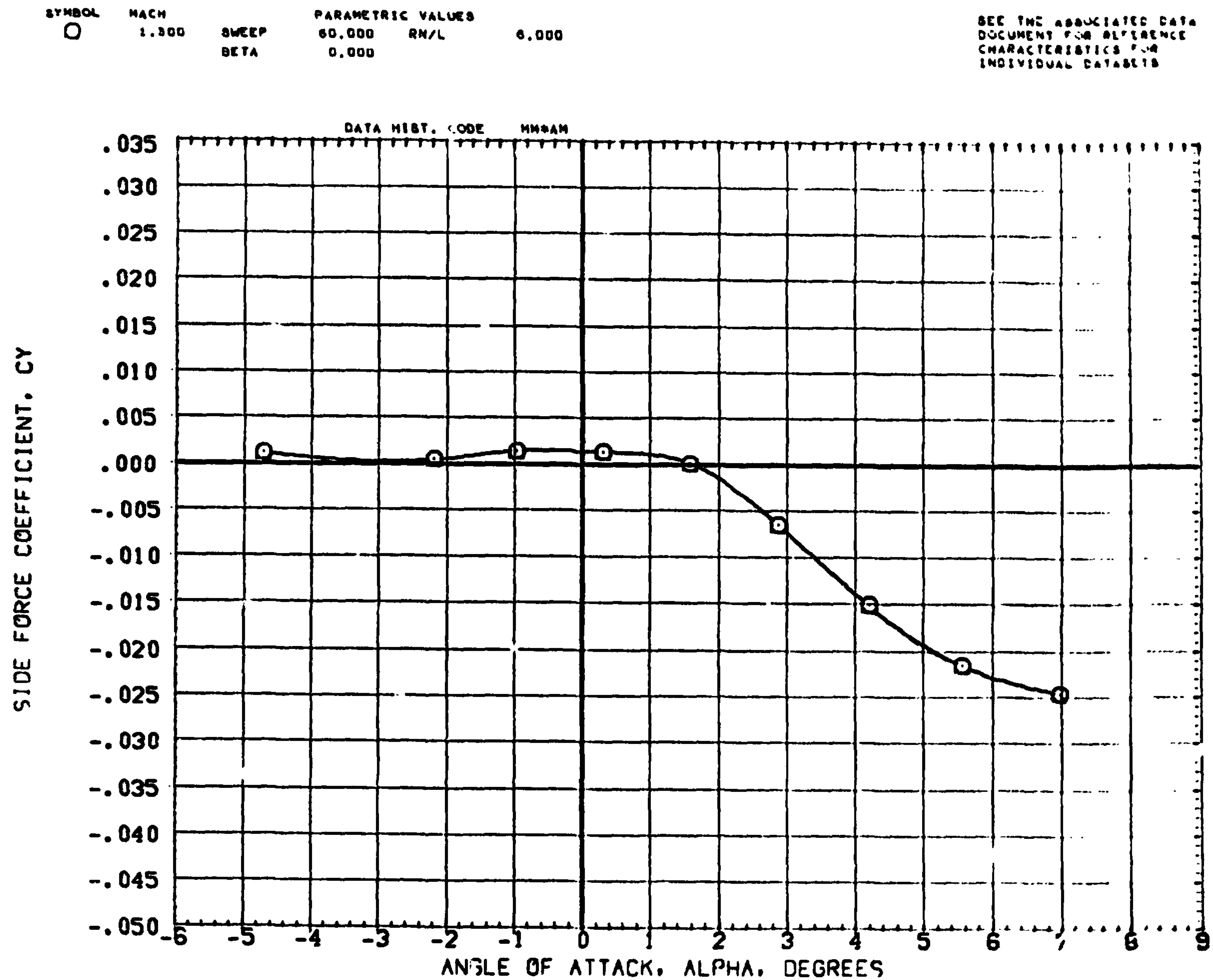
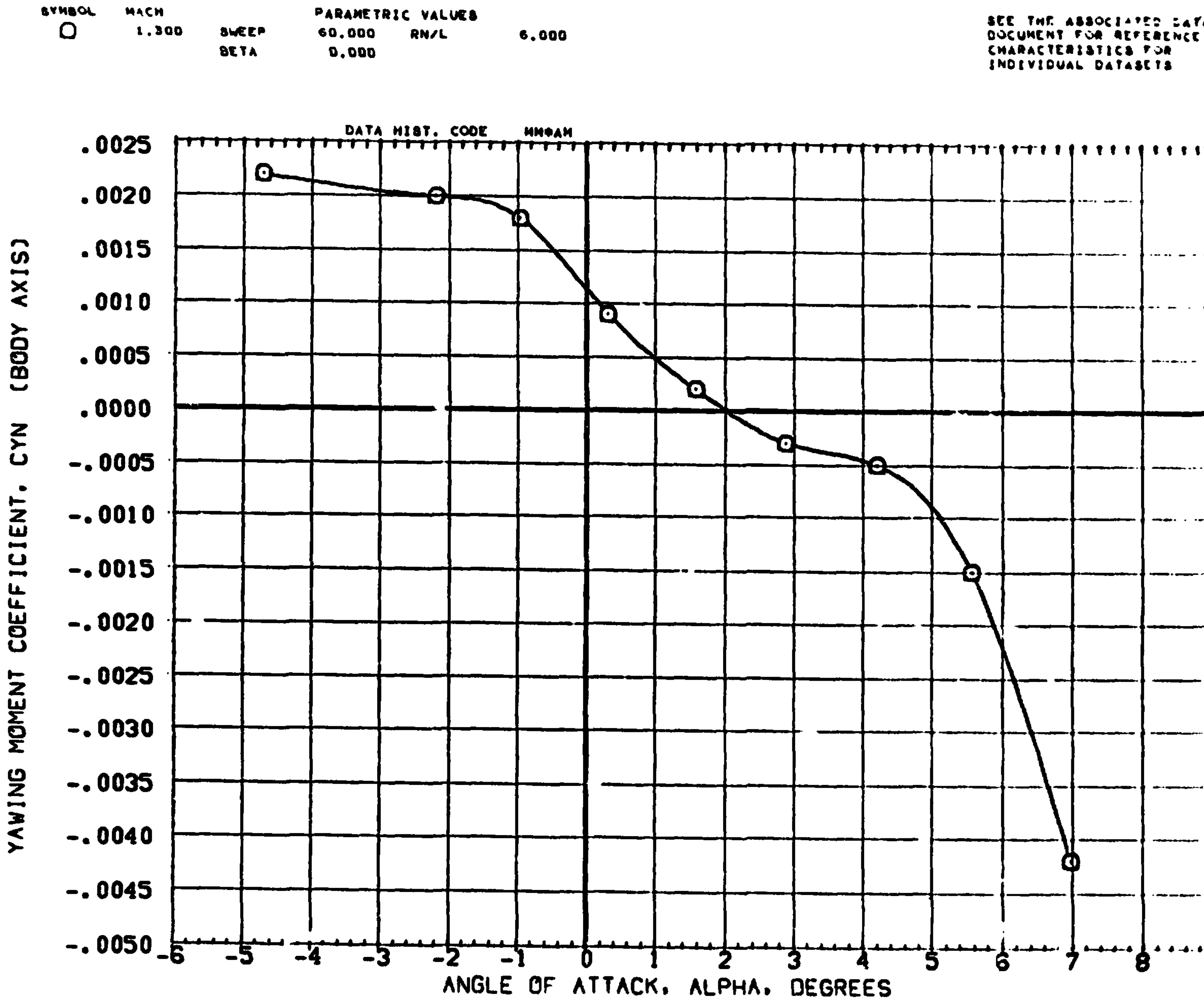


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

W1 F0 B

(:AE012)



FIGURF 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

W1 F0 B (IAE012)

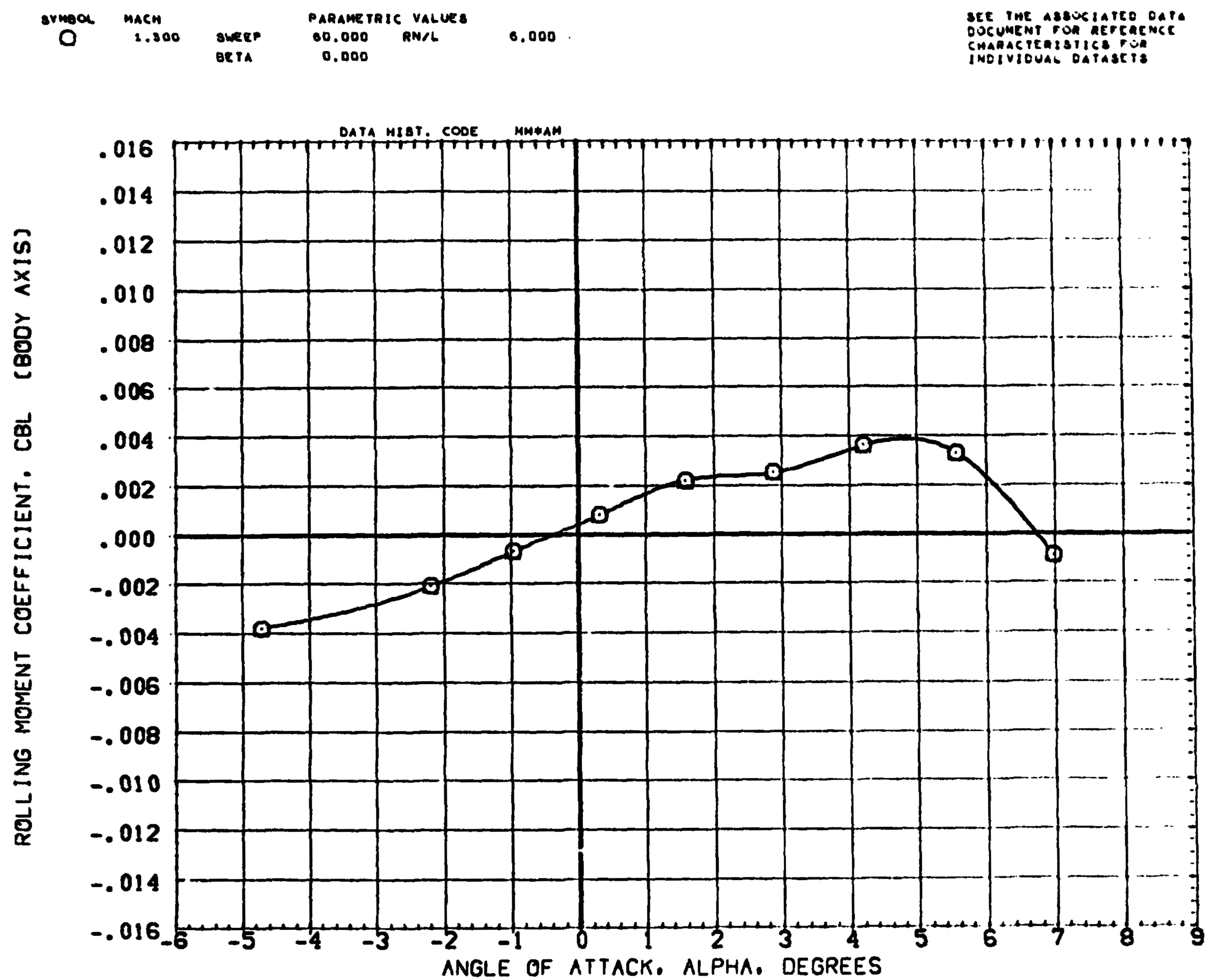


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.30, LAMBDA=60 DEGREES

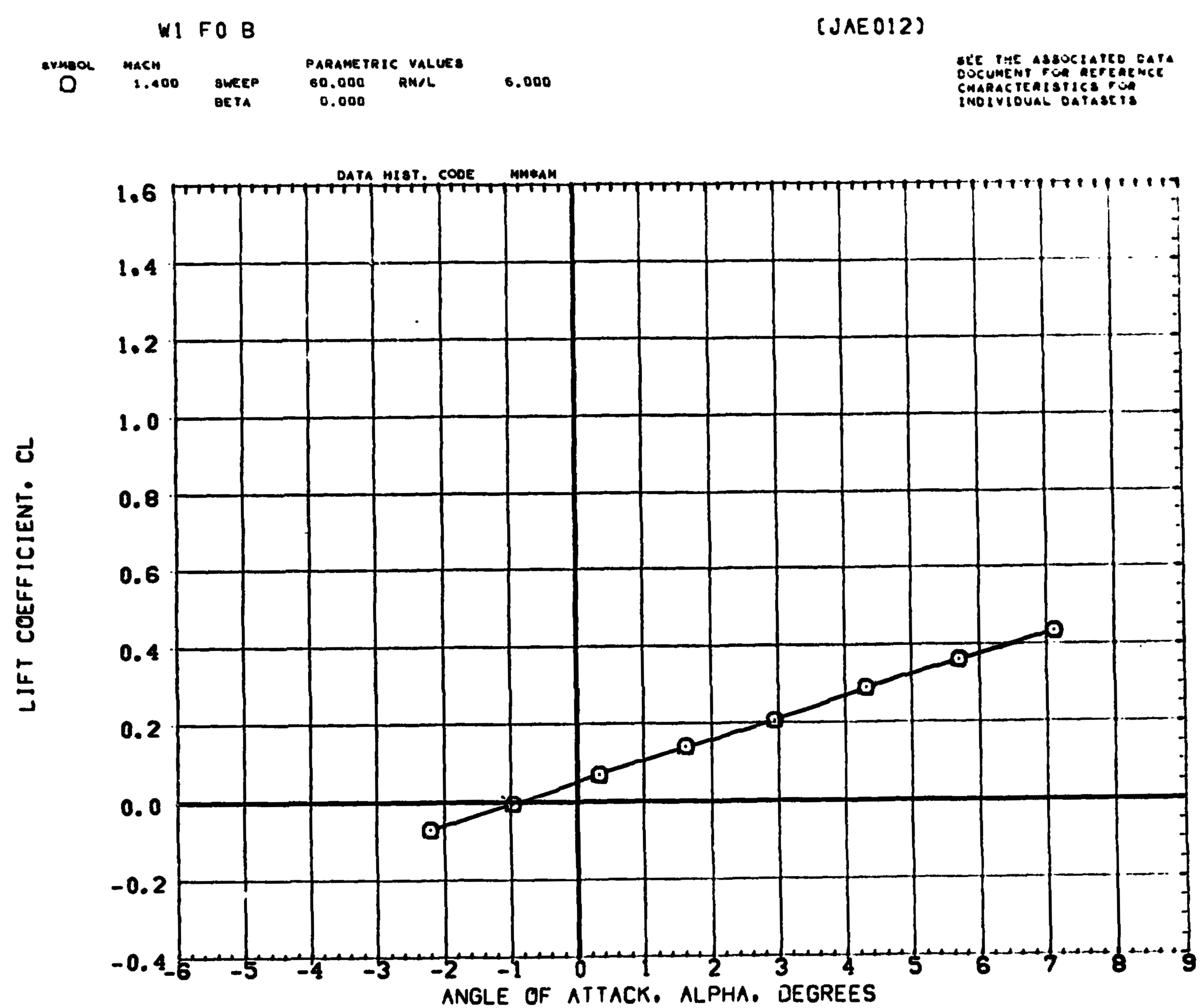


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

W1 F0 B (JAE012)

SYMBOL	MACH		PARAMETRIC VALUES		
O	1.400	SWEEP	60.000	RN/L	6.000
		BETA	0.000		

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

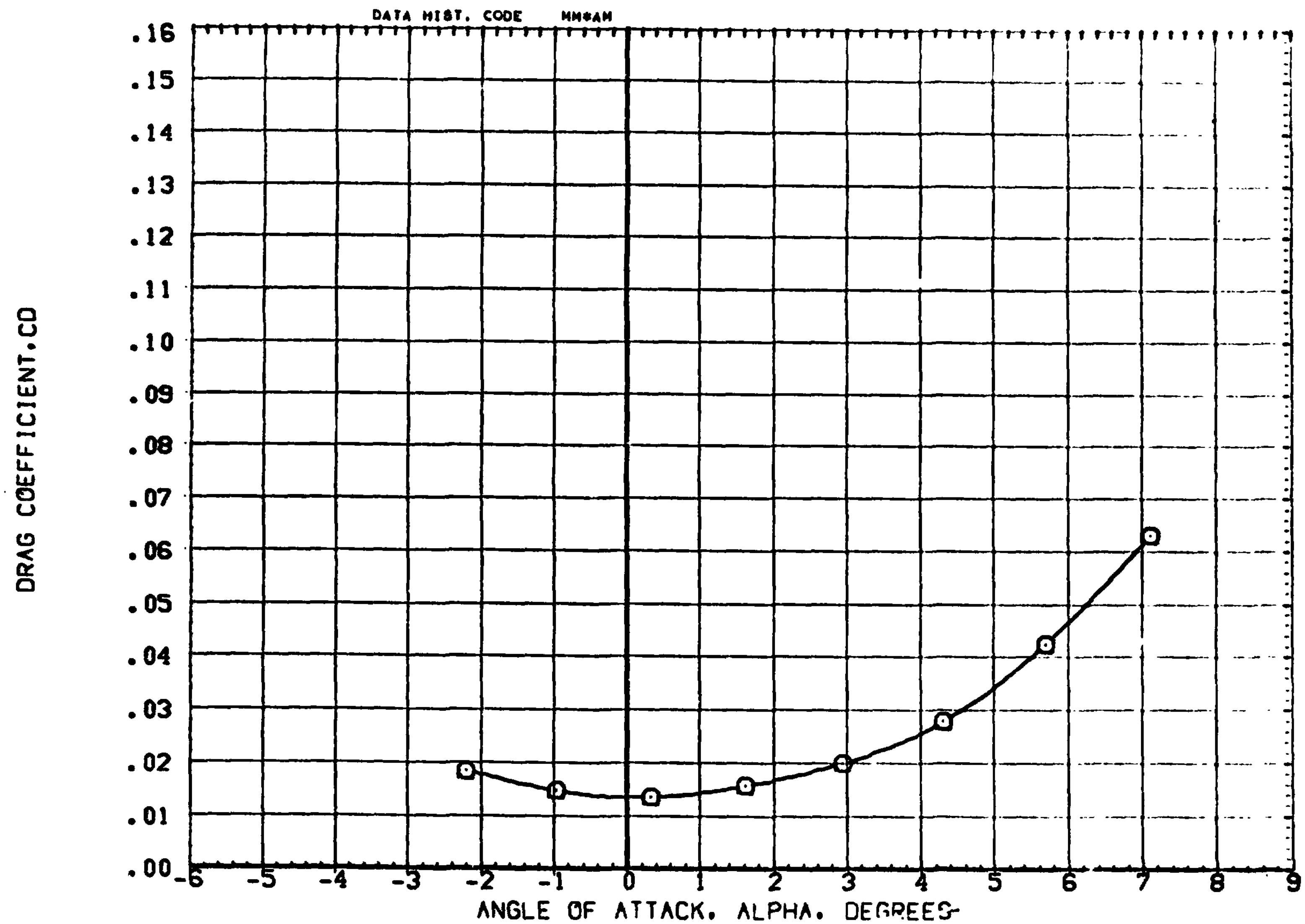


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

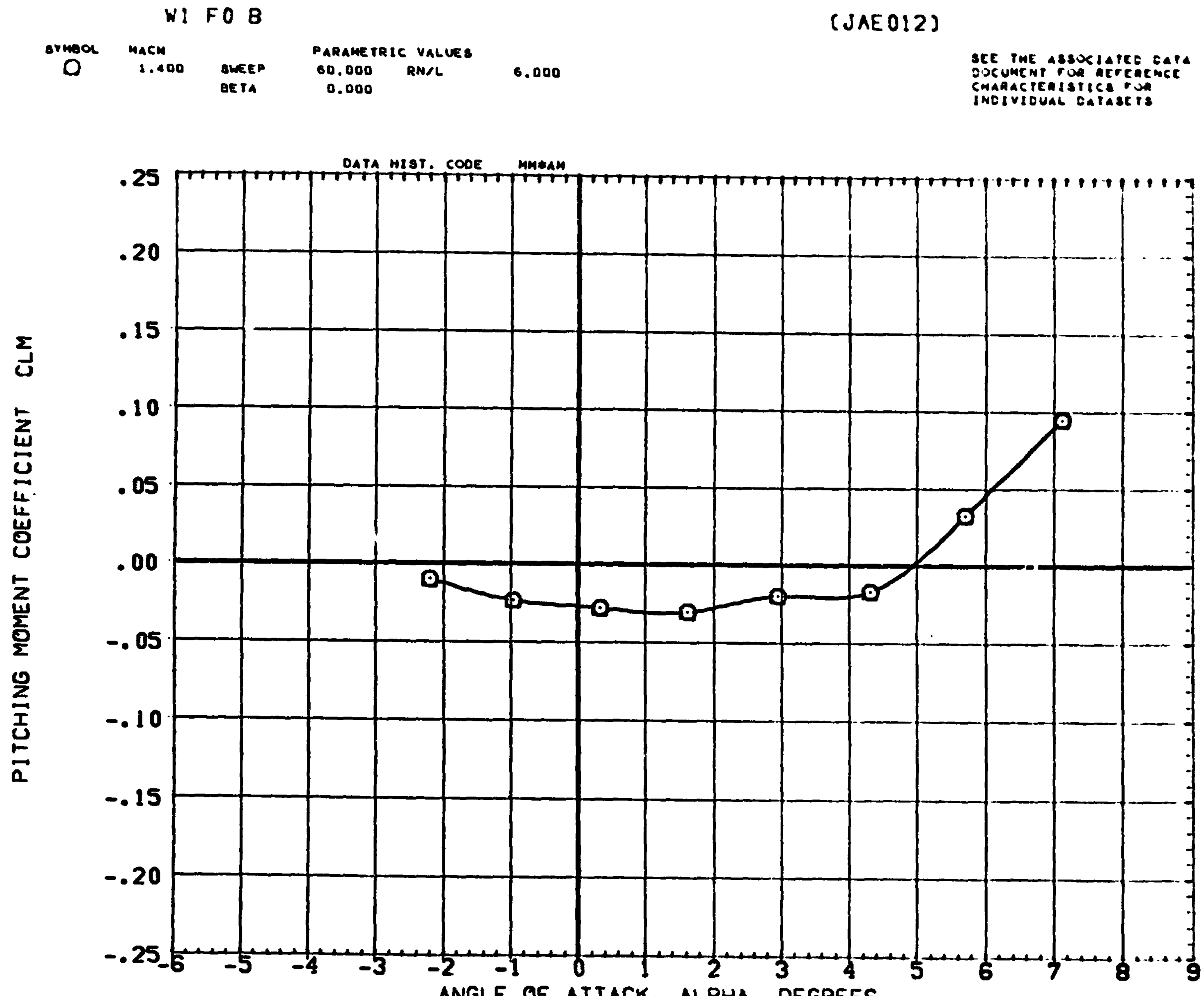


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

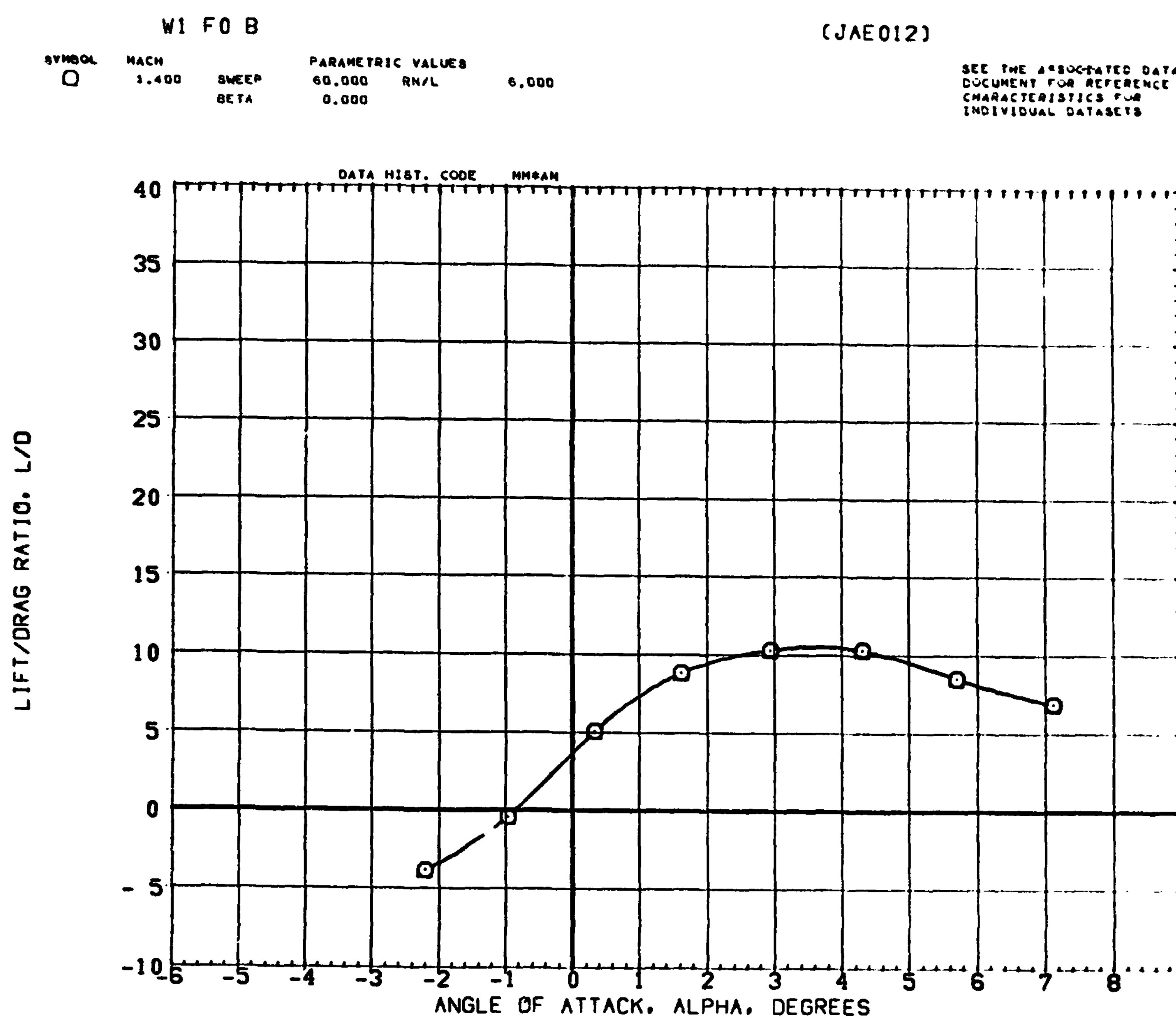


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

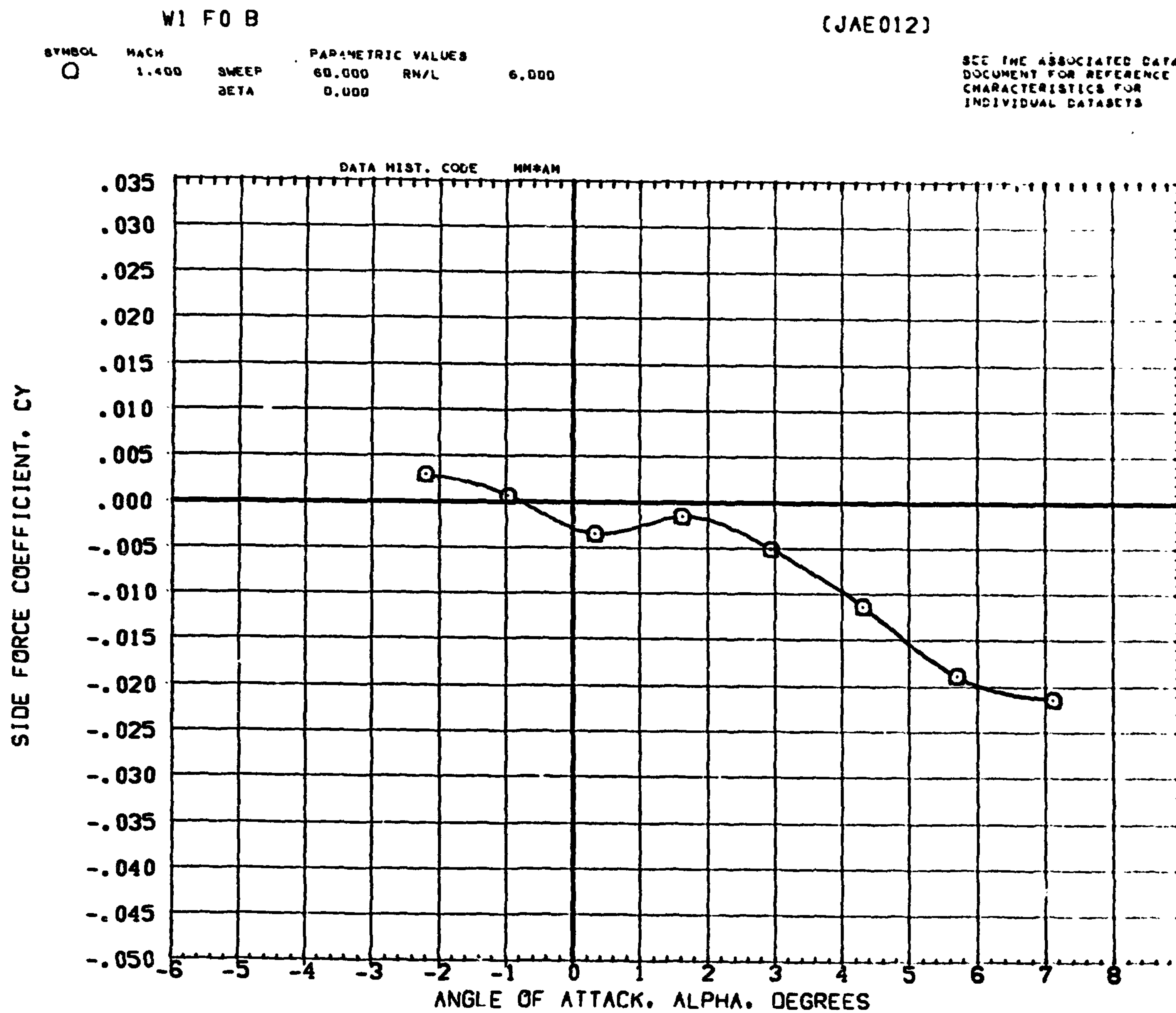


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

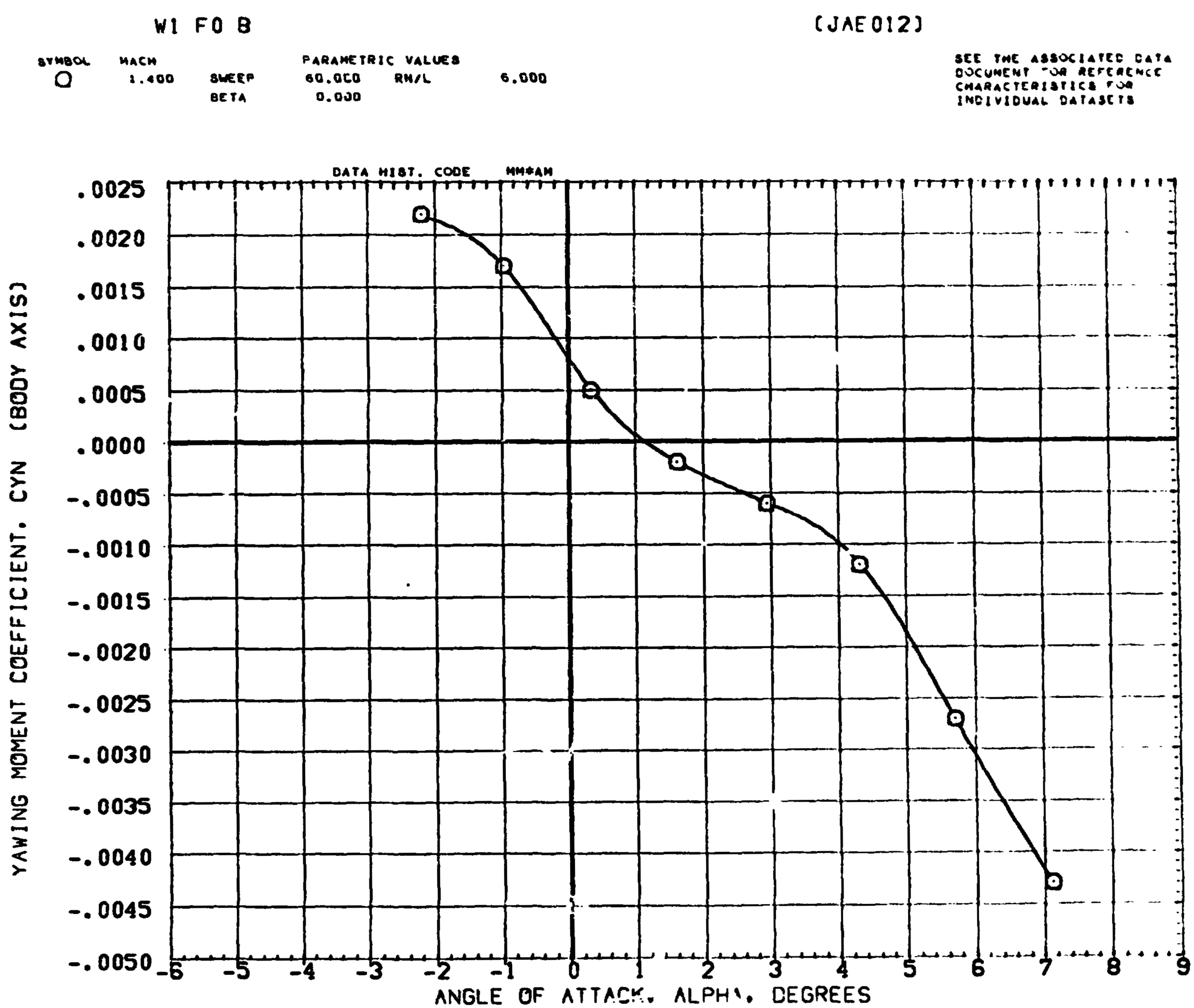


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

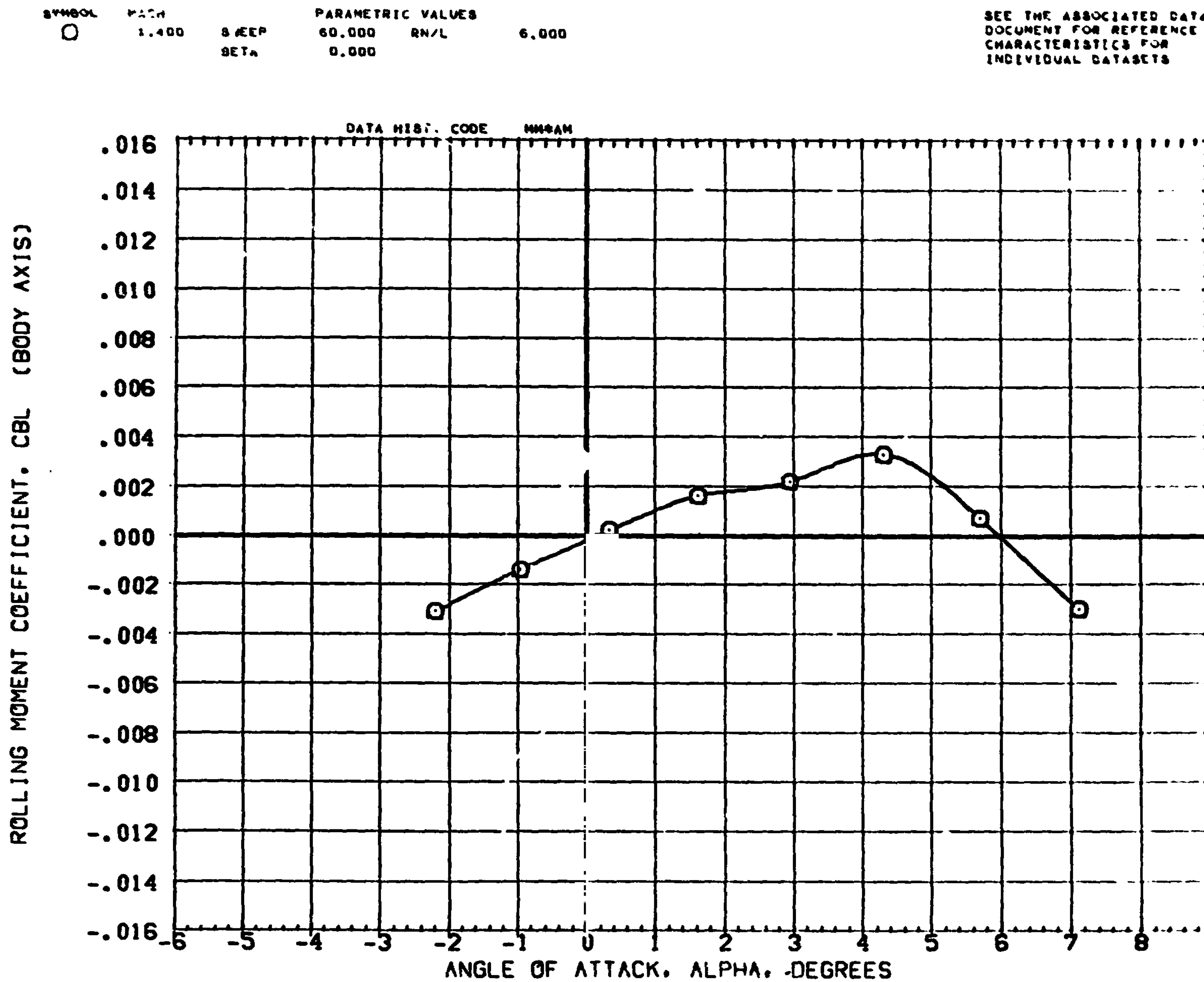


FIGURE 5 EFFECT OF DIHEDRAL, MACH NO.= 1.40, LAMBDA=60 DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(TAE003)	○	WB FO B	0.000	6.000	0.000
(CAE031)	△	WS F0 B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

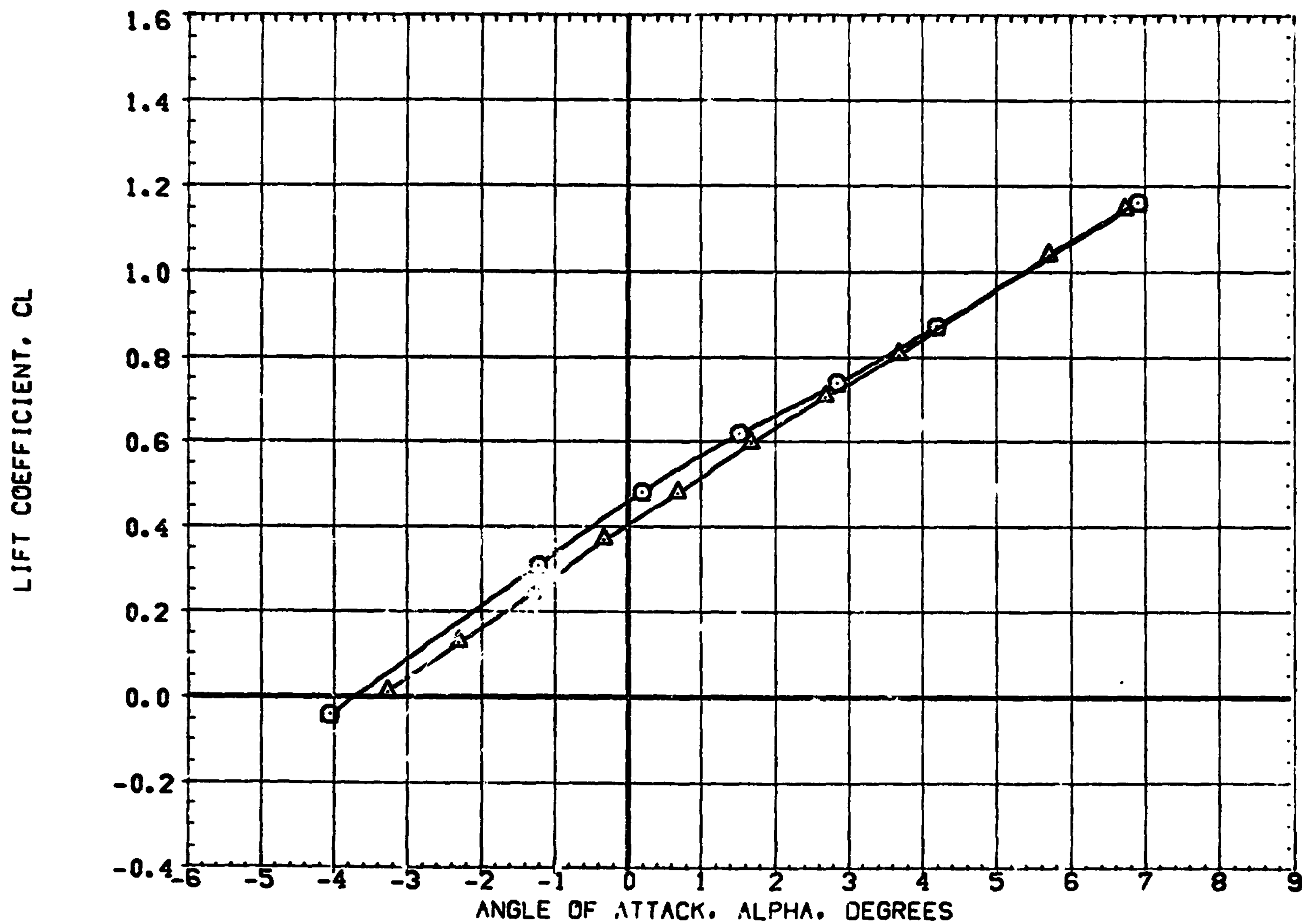


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

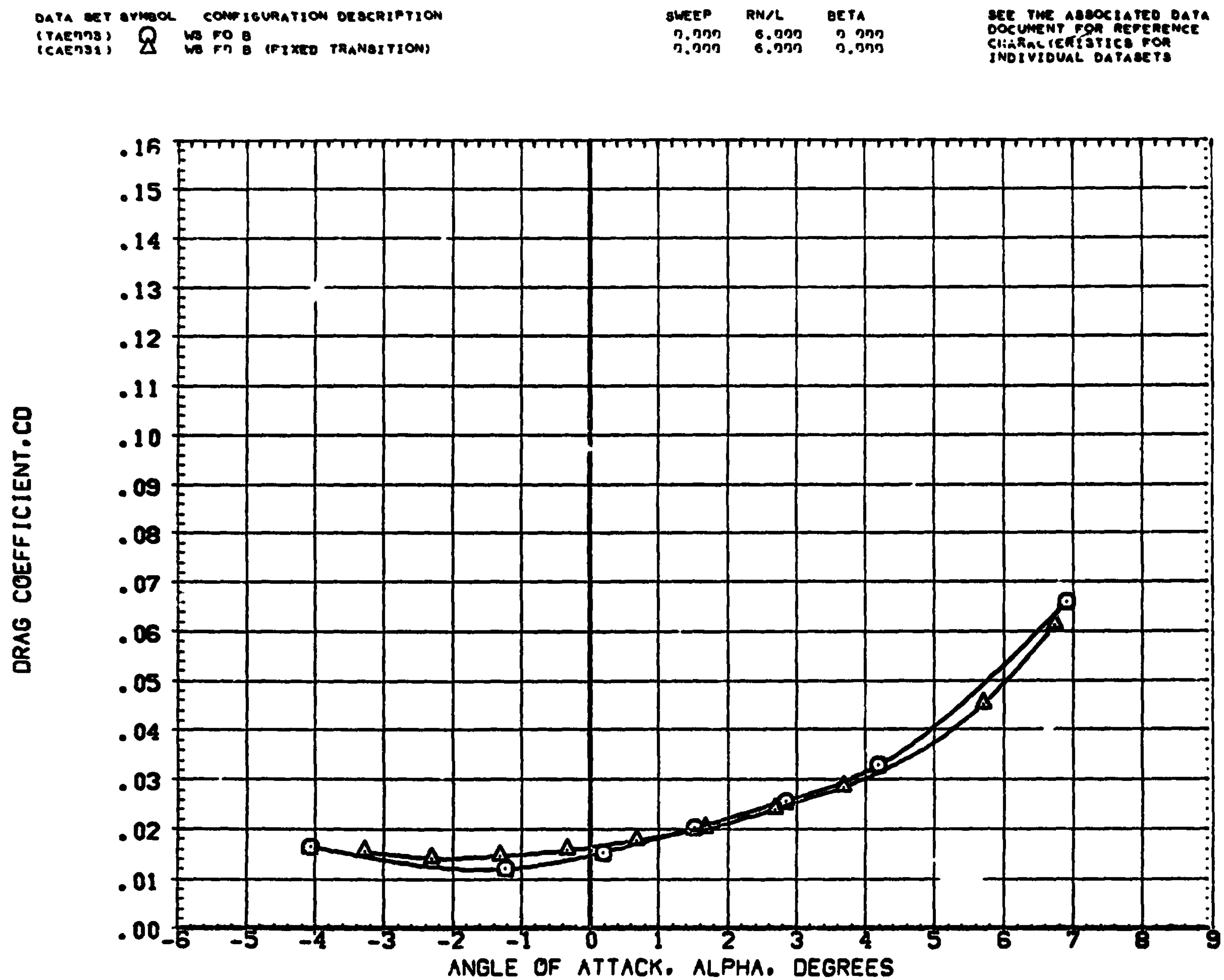


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES -
(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(TAE773)	○	W6 F0 B	0.000	6.000	0.000
(CAE731)	△	W3 F7 B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

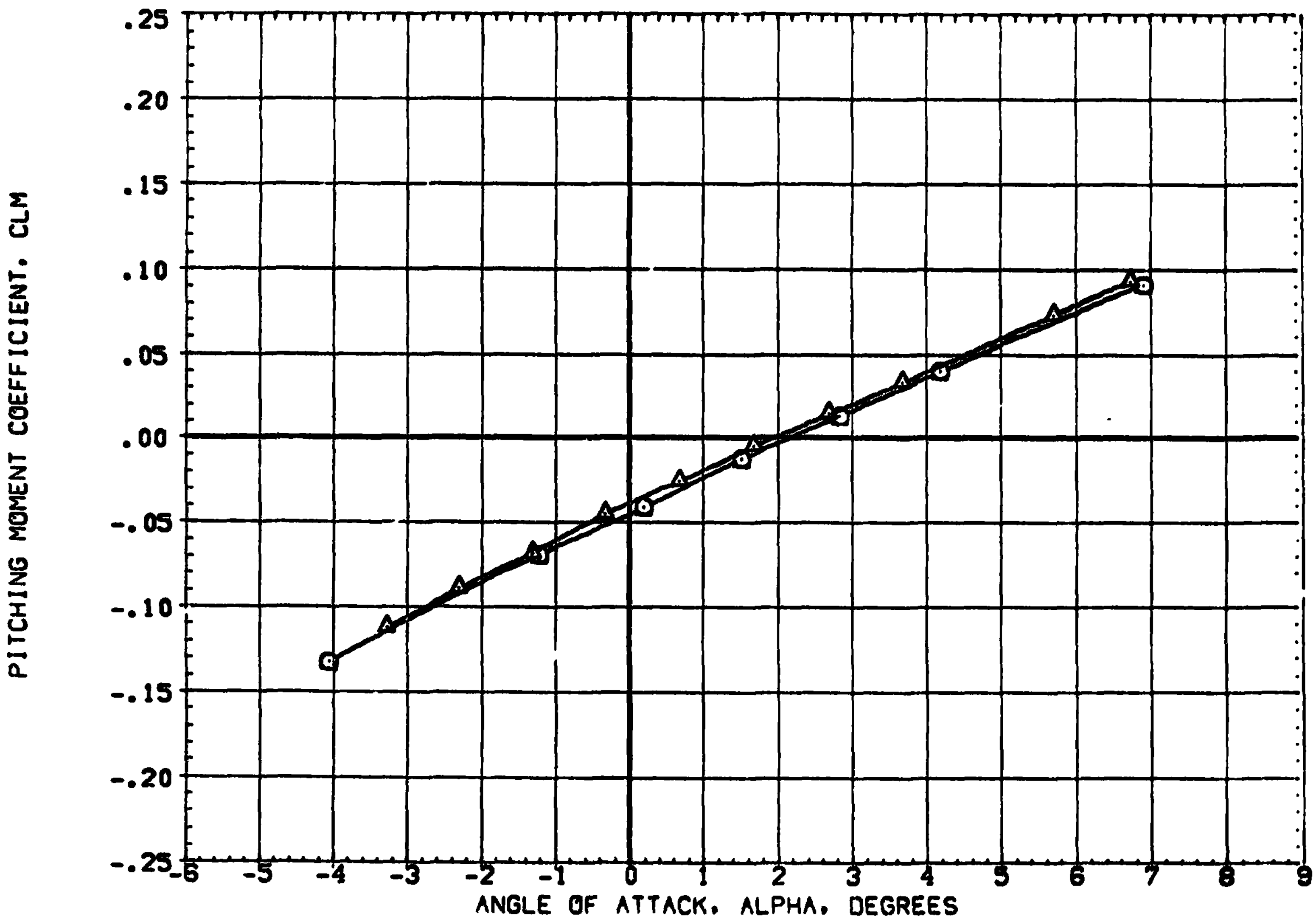


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(TAE003)	○	WB FO B	0.000	6.000	0.000
(CAE031)	△	WB FO B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

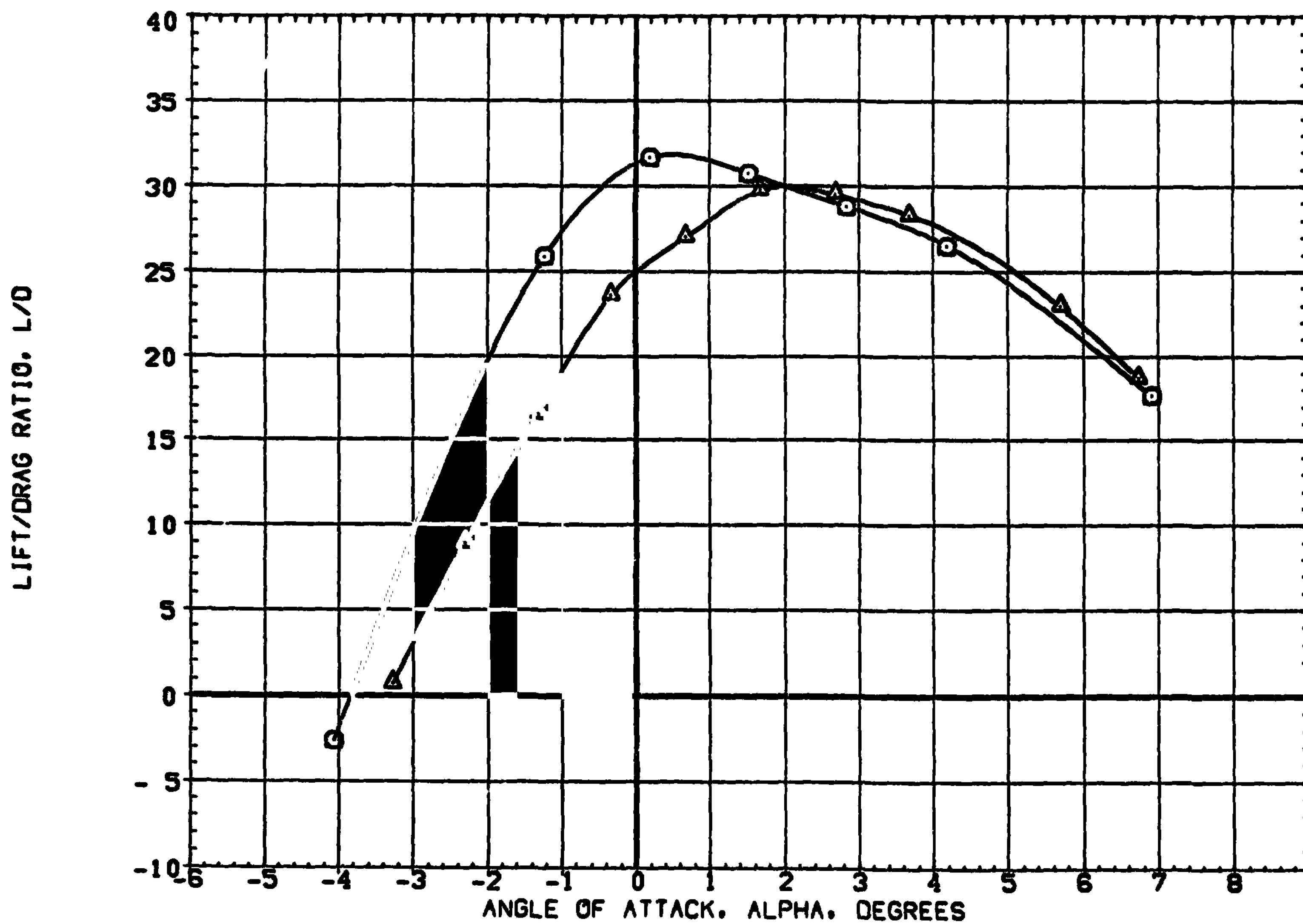


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO. = 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

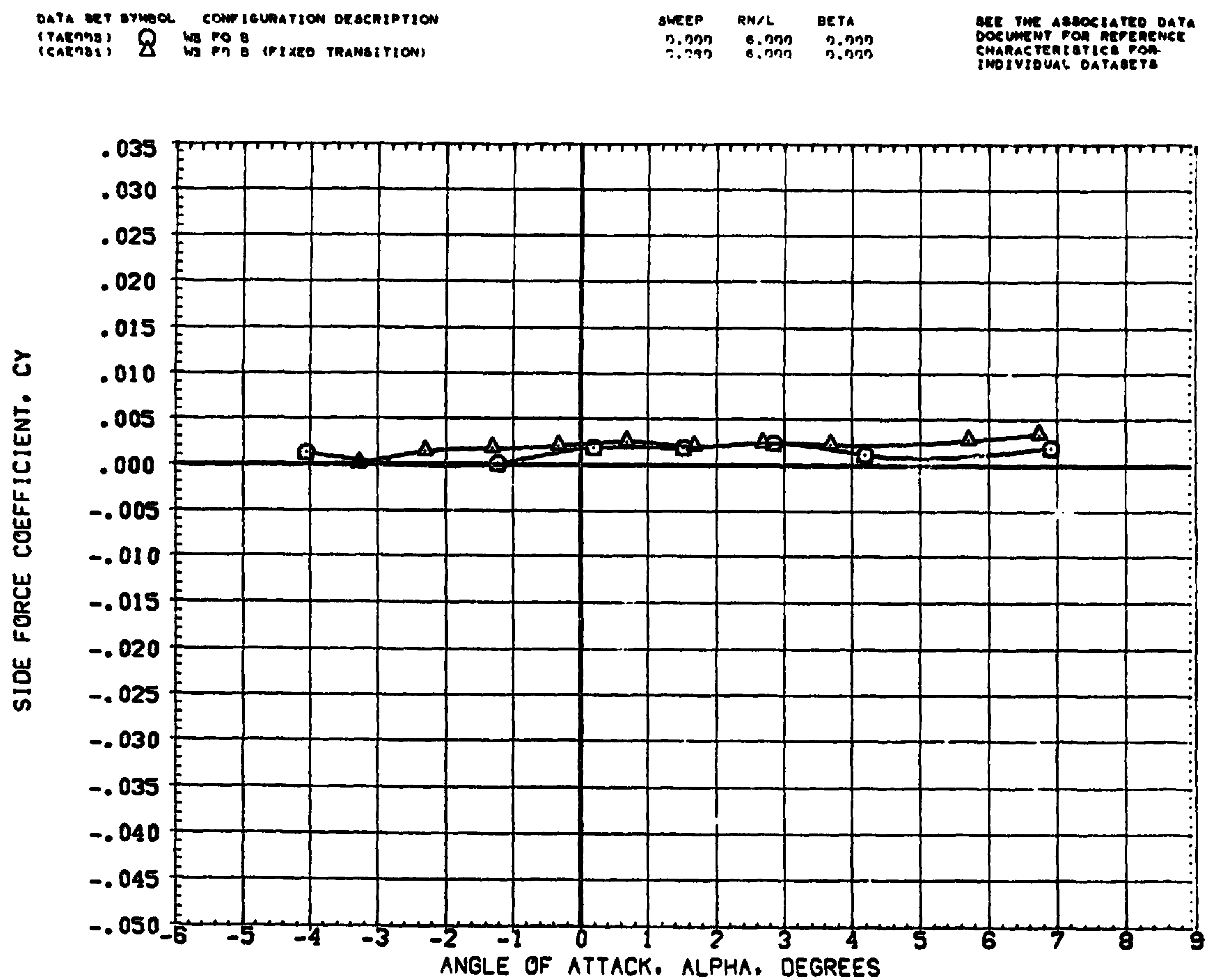


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(TAE003)	○	WB F0 B	0.000	6.000	0.000
(CAE031)	△	WB F0 B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

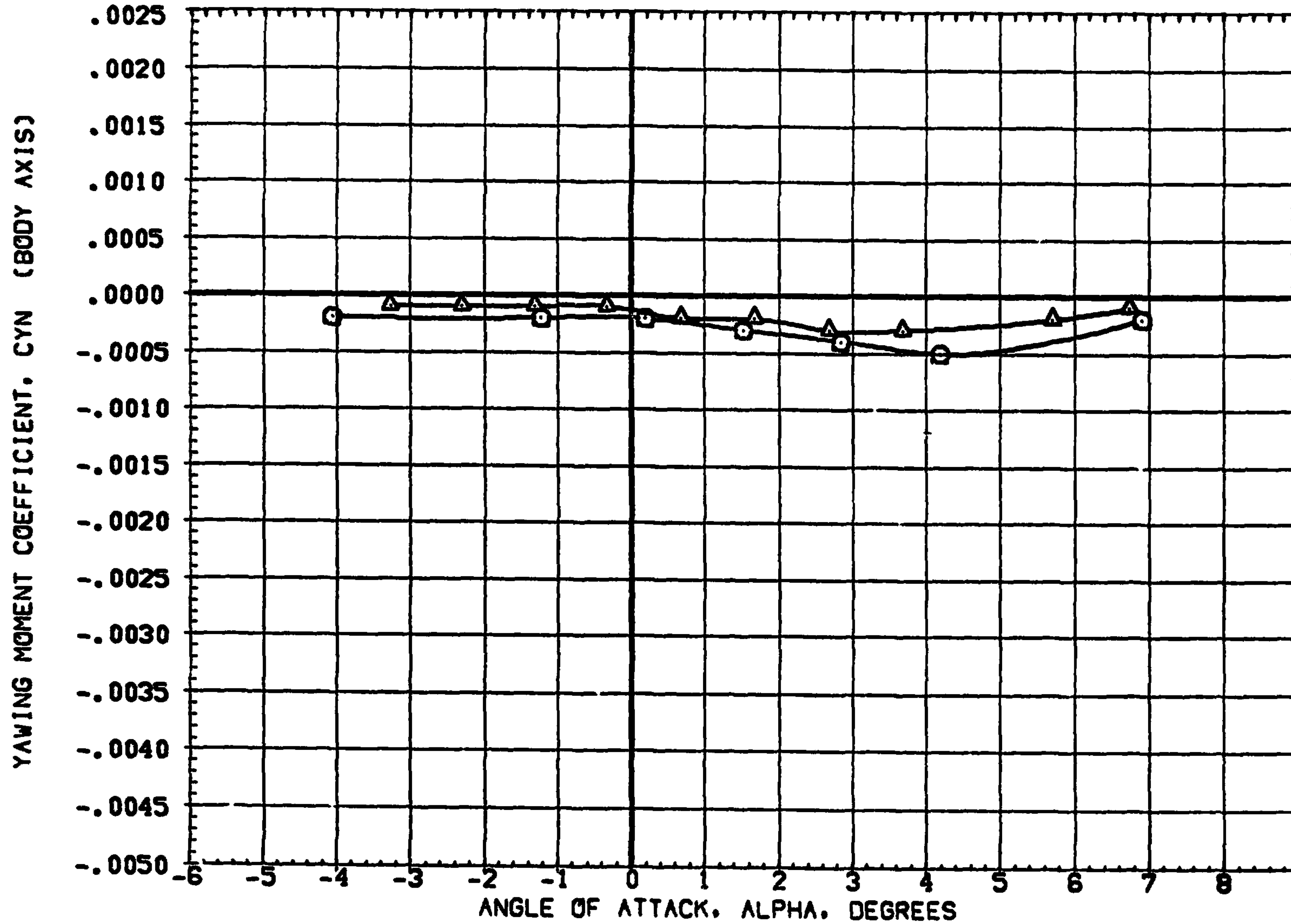


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

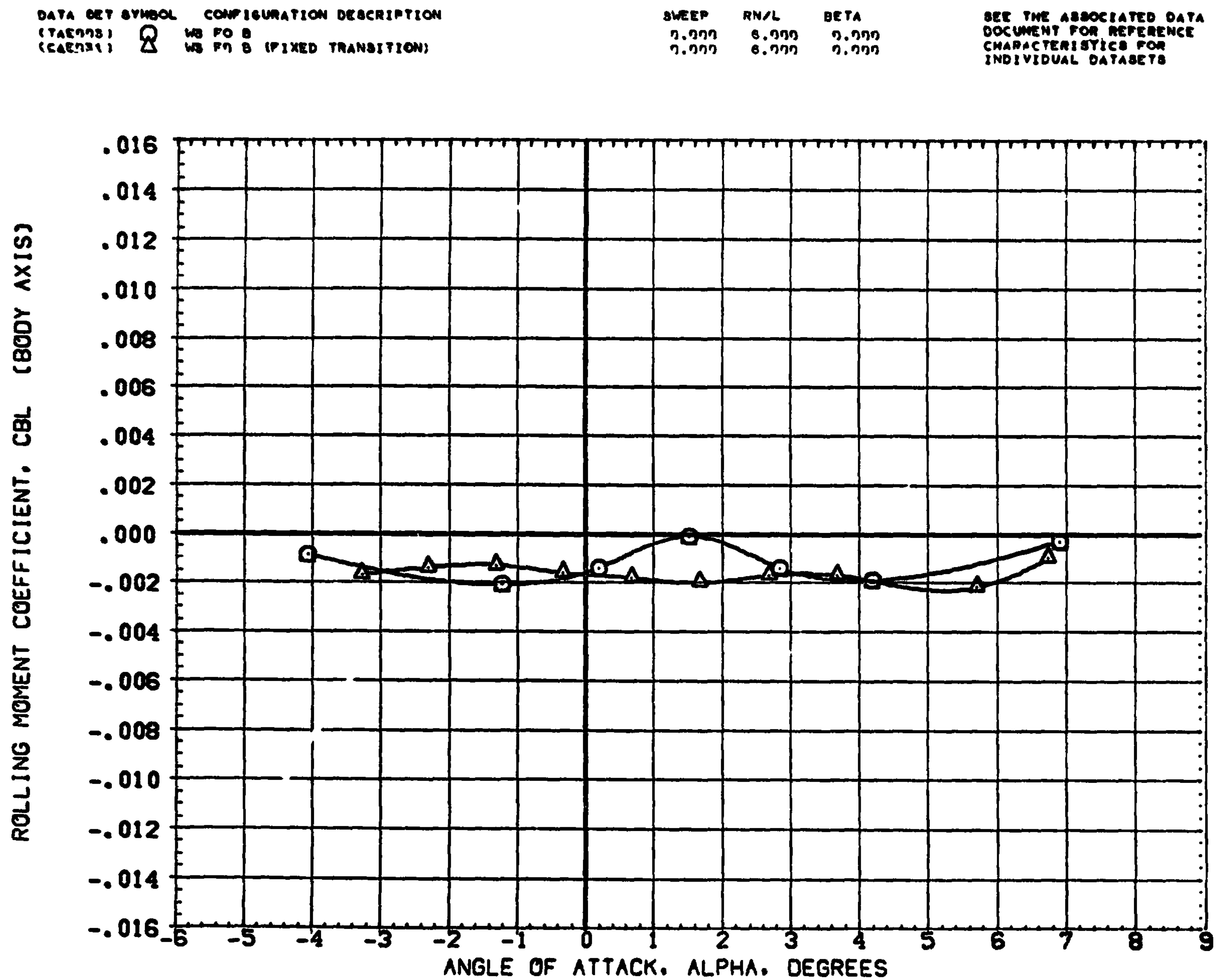


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.60, LAMBDA= 0 DEGREES

(A)MACH = .60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE021)	⊙	WB FN B	0.000	6.000	0.000
(BAE031)	△	WB FN B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

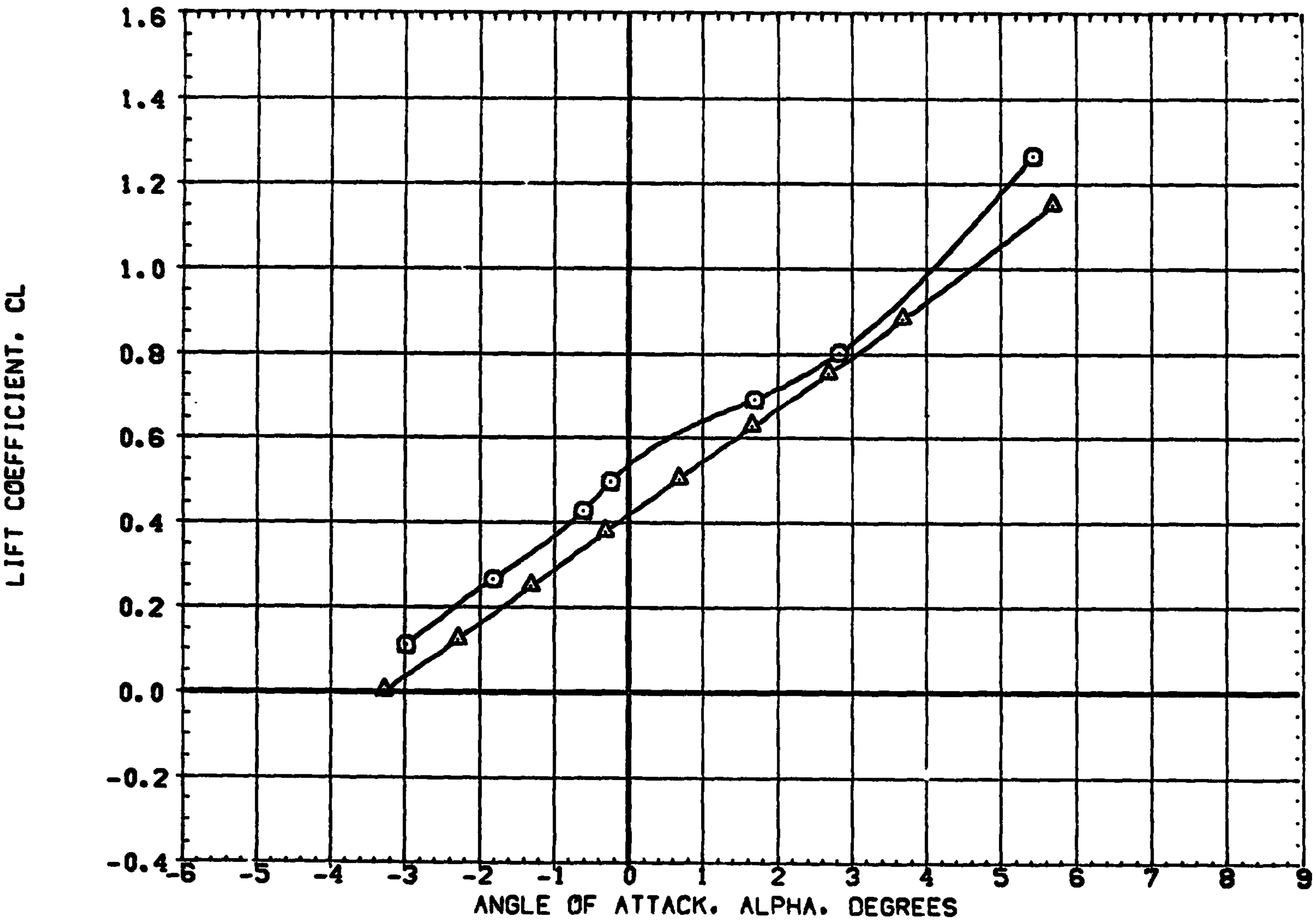


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

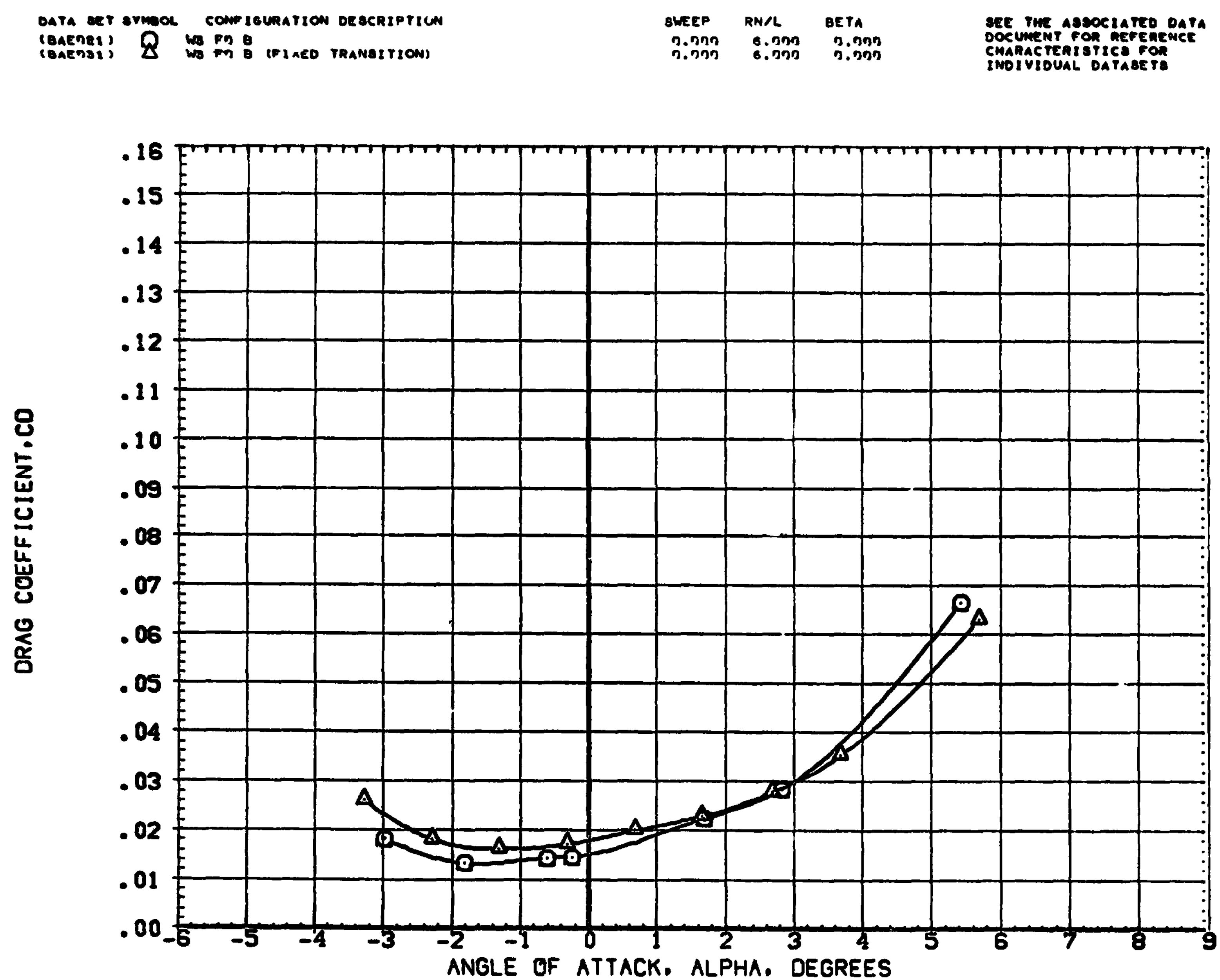


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE021)	○	WS F0 B	0.000	6.000	0.000
(BAE031)	△	WS F0 B (FIXED TRANSITION)	0.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

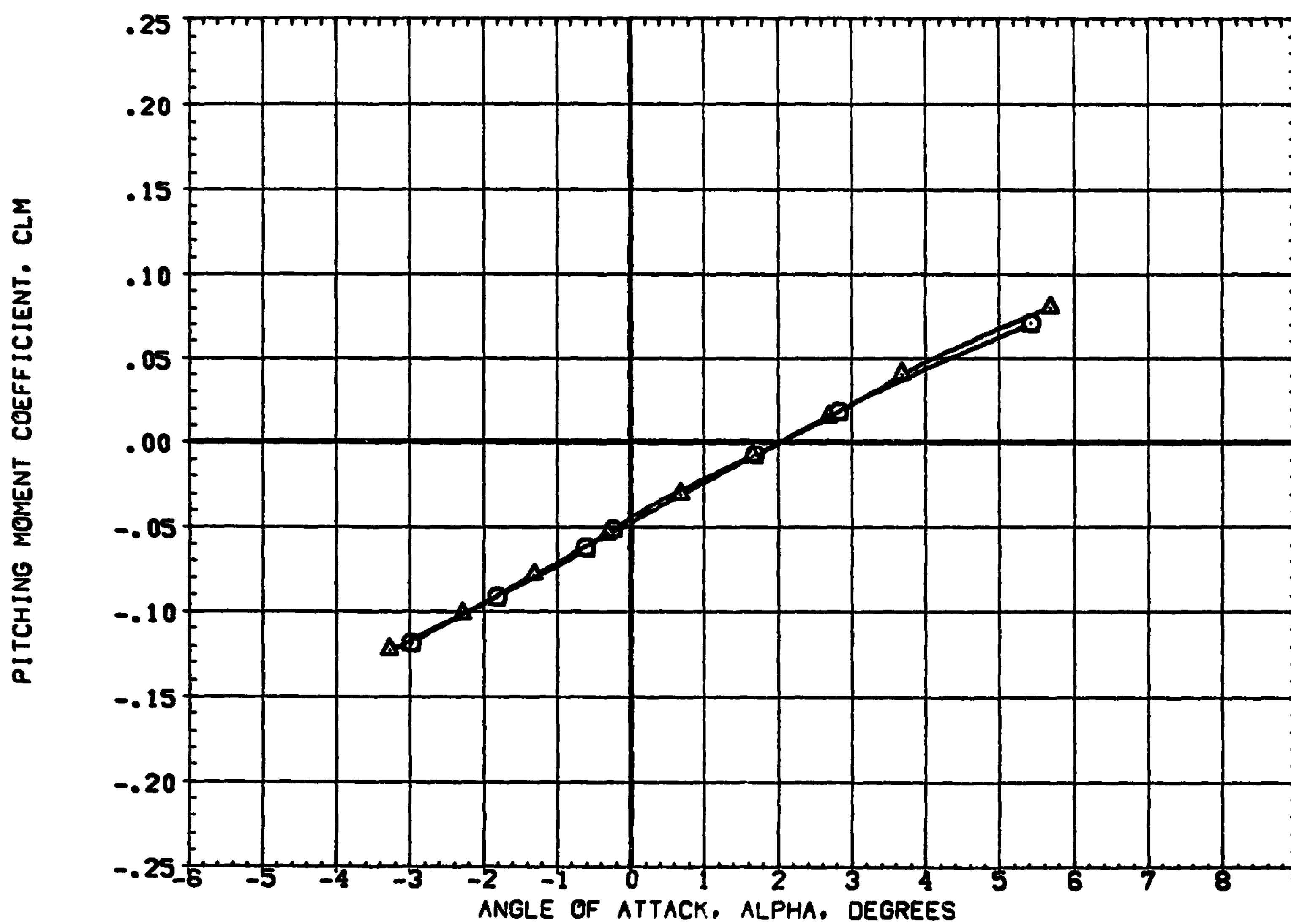


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

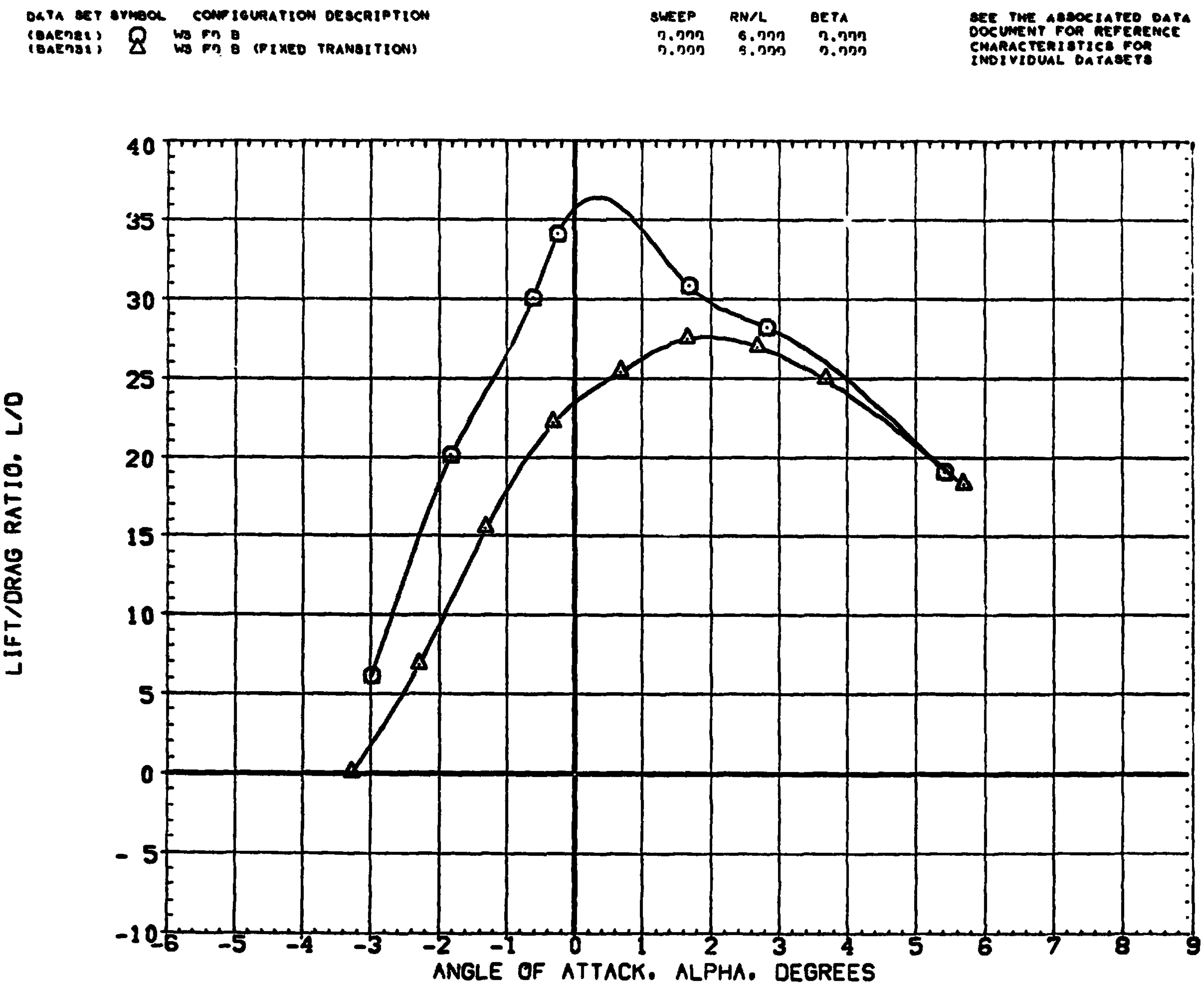


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

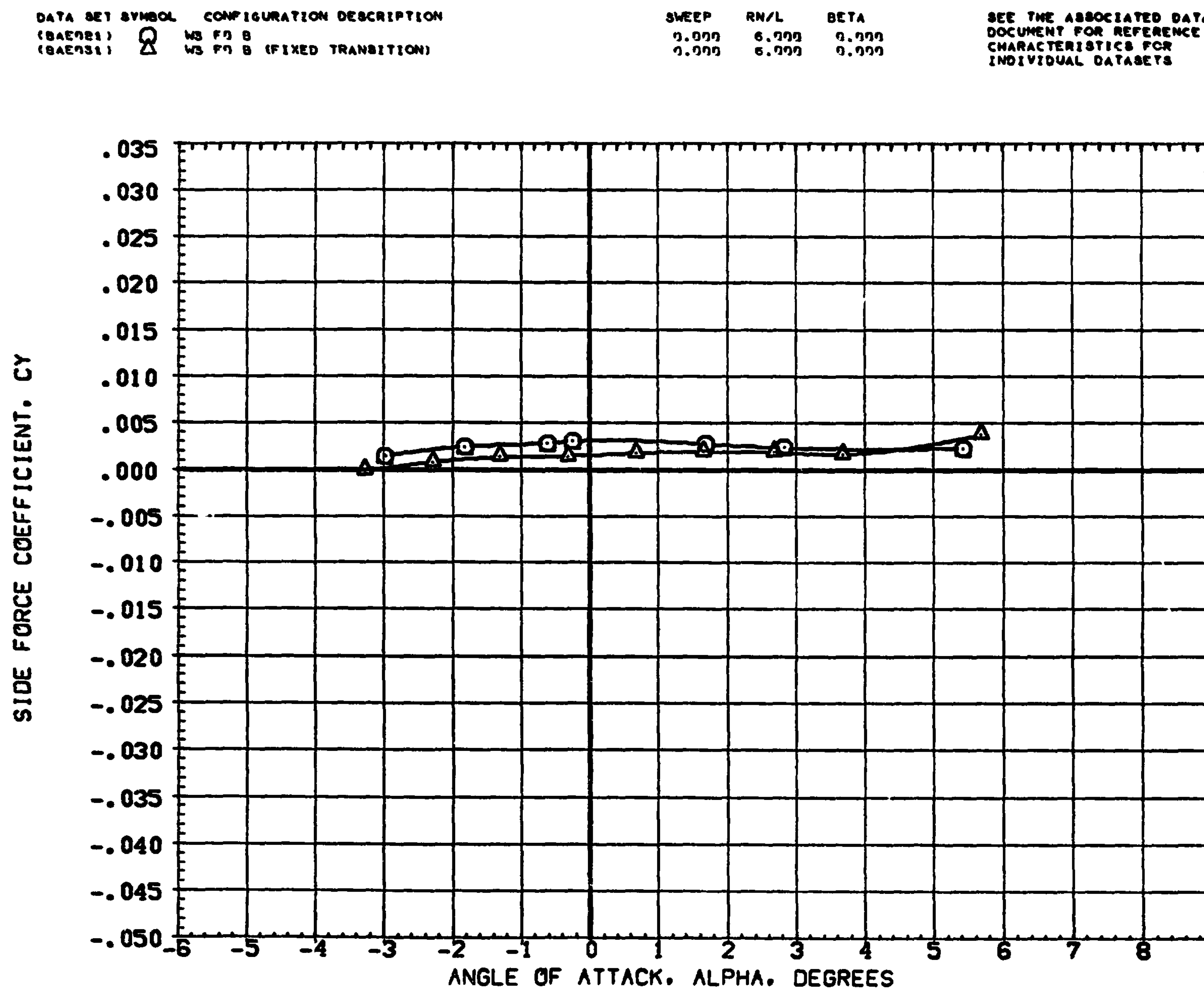


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(BAE081) ○ WB F0 B
(BAE031) △ WB F0 B (FIXED TRANSITION)

SWEEP RN/L BETA
0.000 6.000 0.000
0.000 6.000 0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

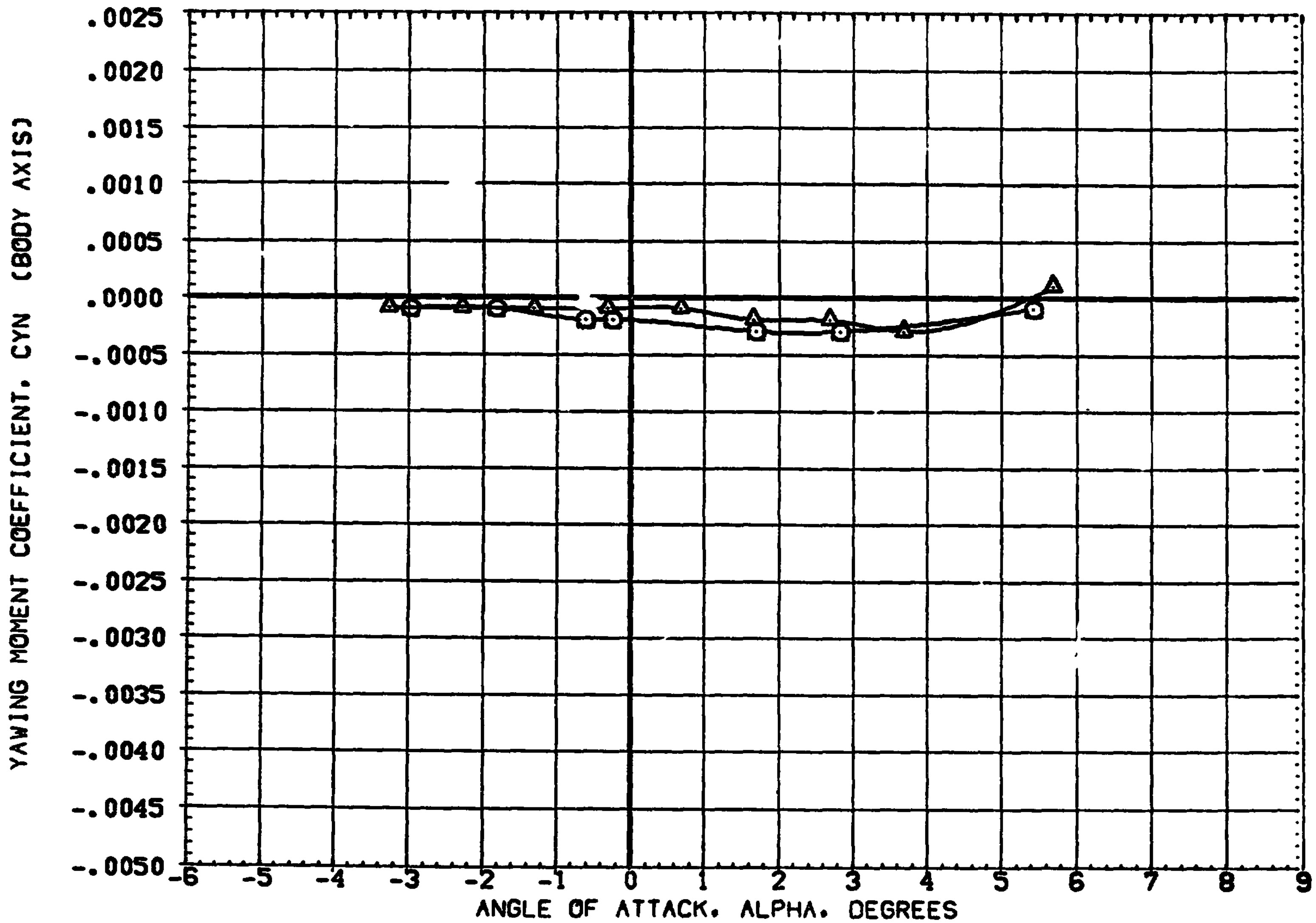


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES

(A)MACH = .70

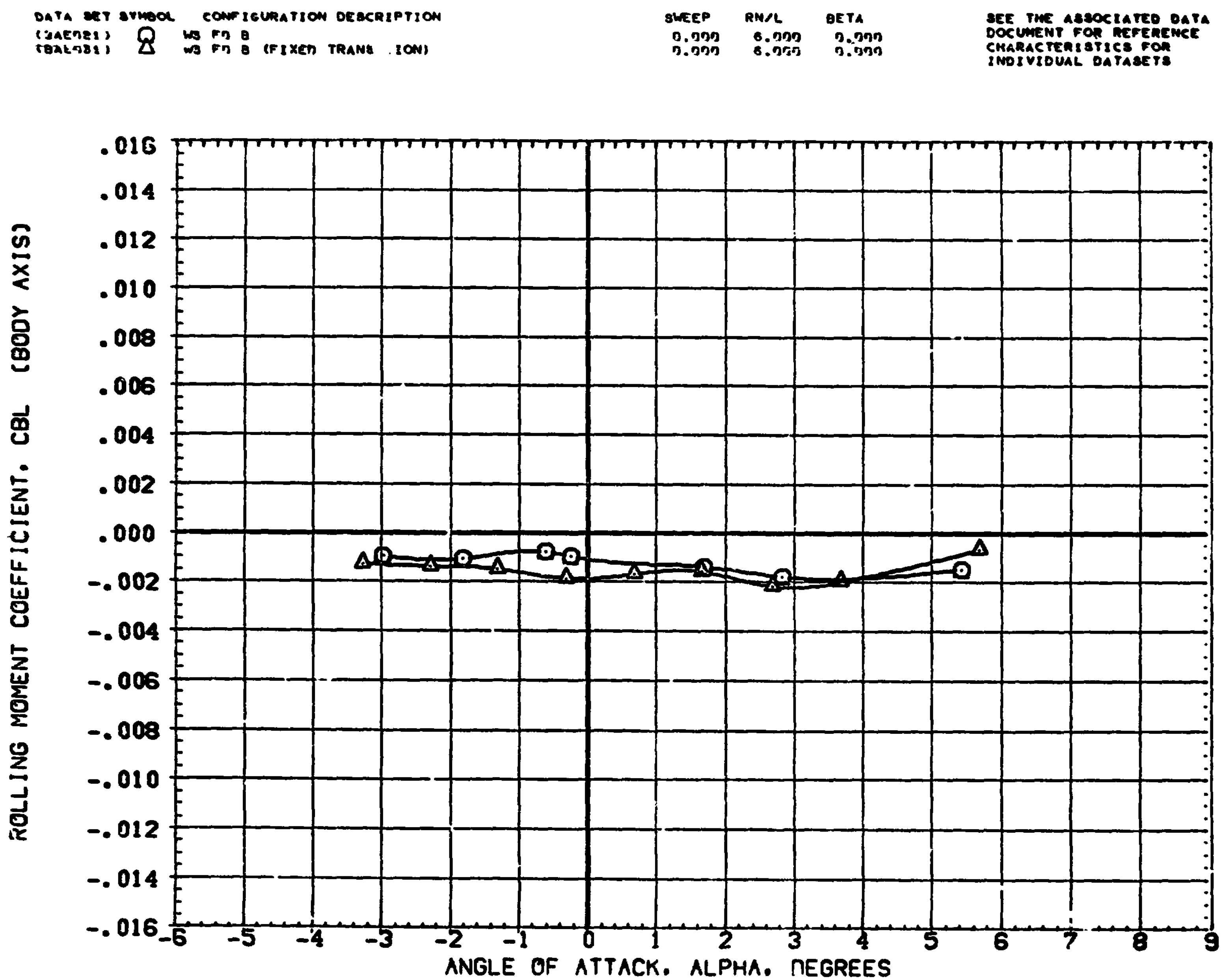


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.70, LAMBDA= 0 DEGREES
(A)MACH = .70

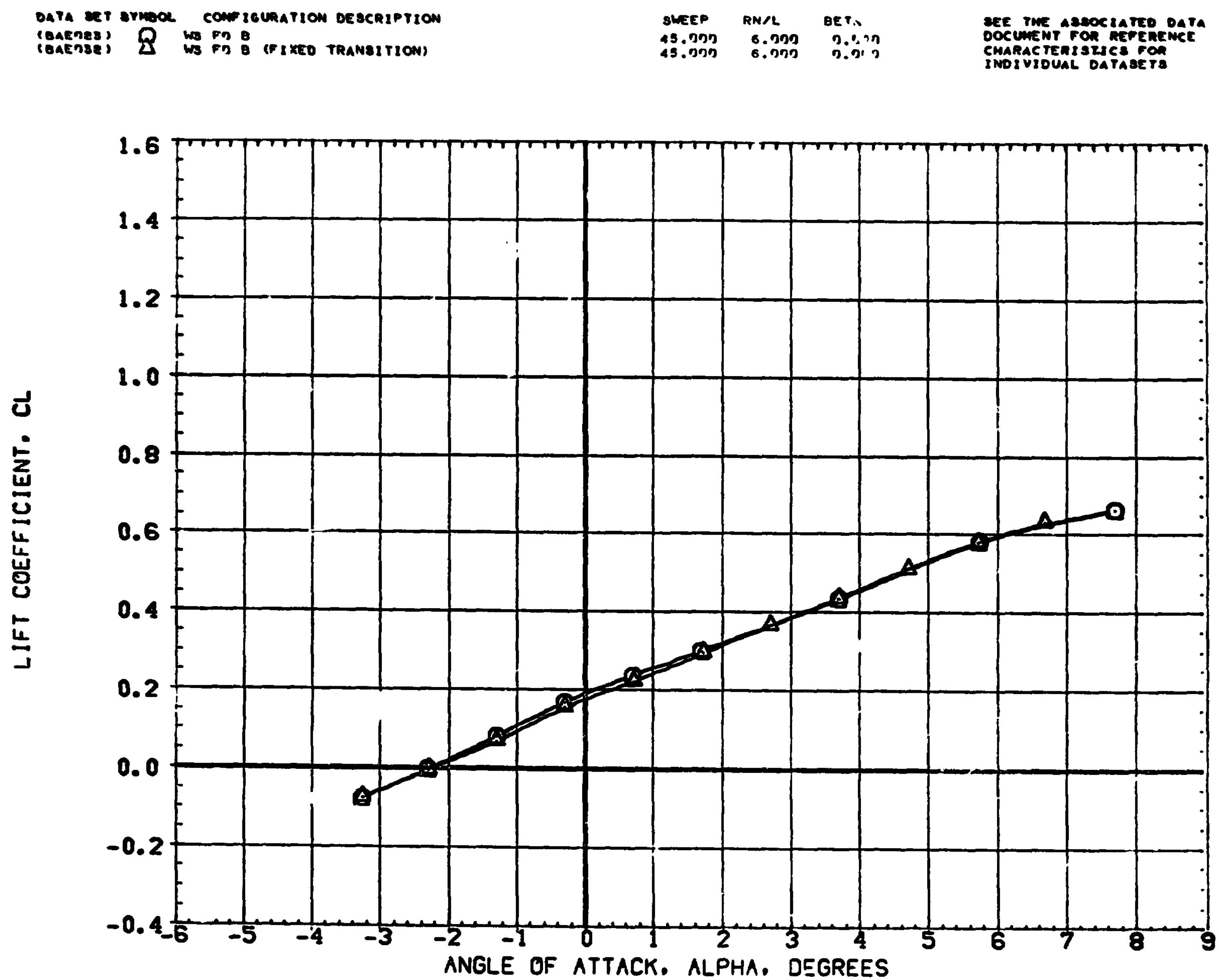


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAEDR3)	O	WB FD B	45.000	6.000	0.000
(BAED38)	Δ	W3 FD B (FIXED TRANSITION)	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

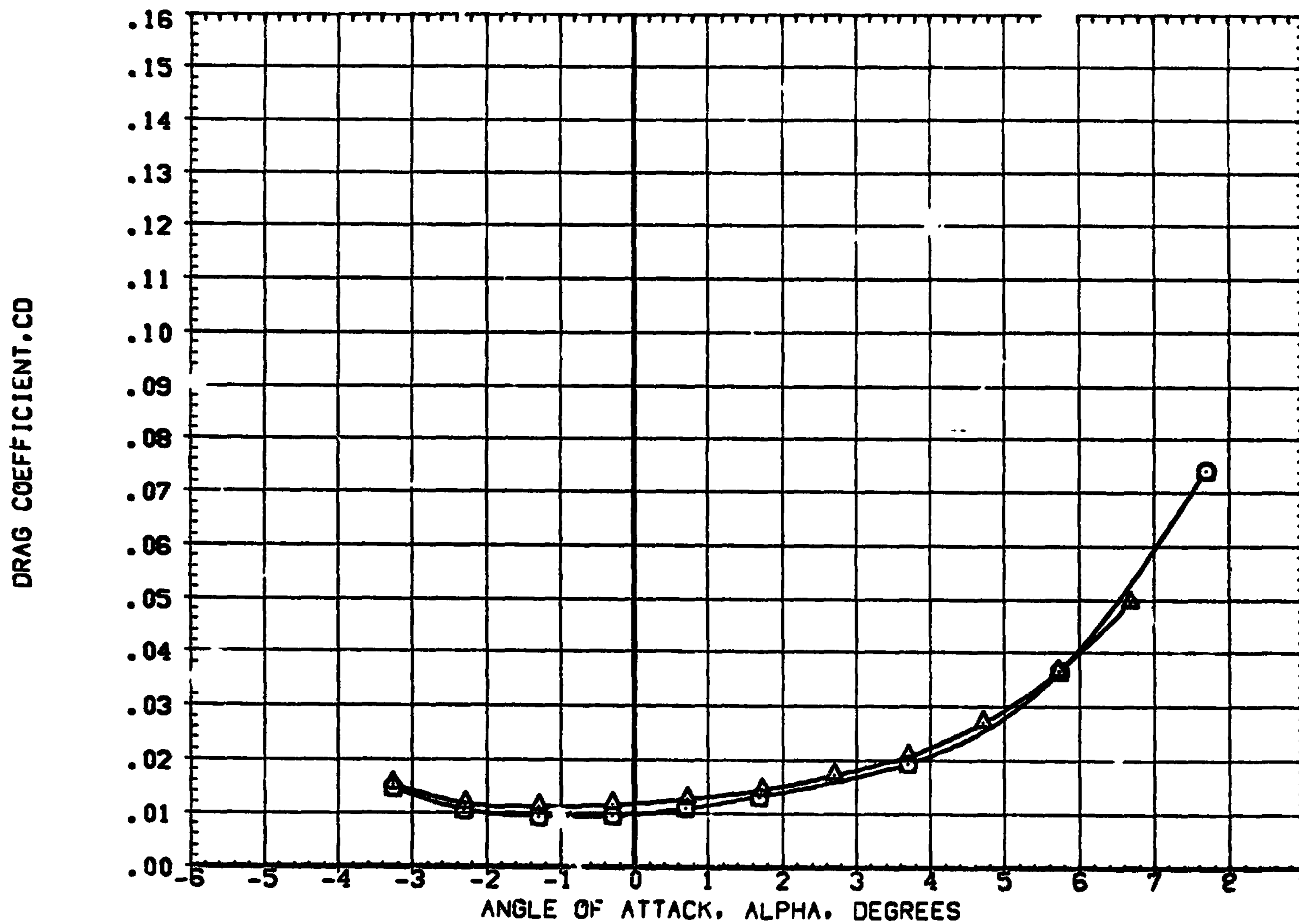


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE088)	○	WB F0 B	45.000	6.000	0.000
(BAE038)	△	WB F0 B (FIXED TRANSITION)	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

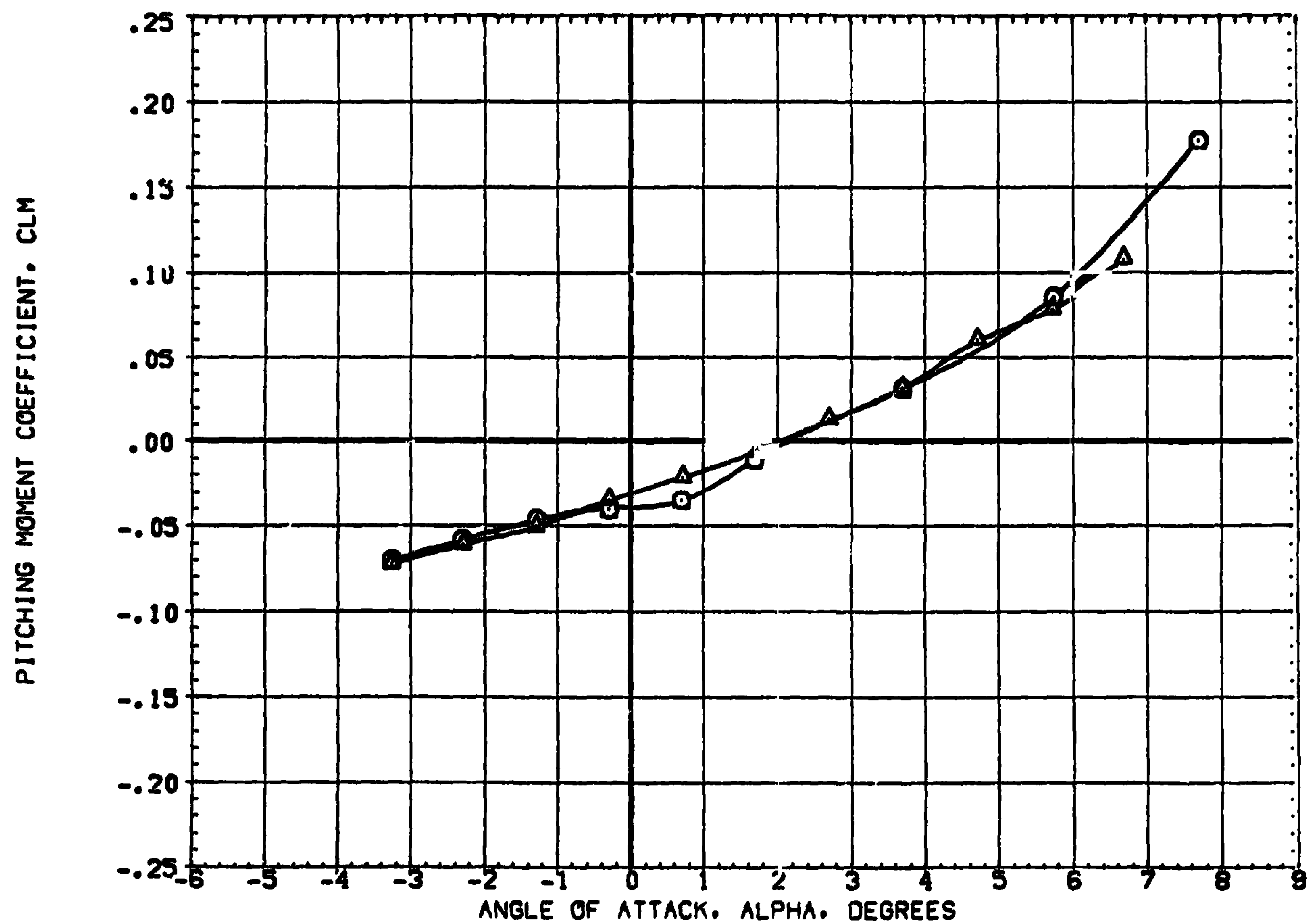


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

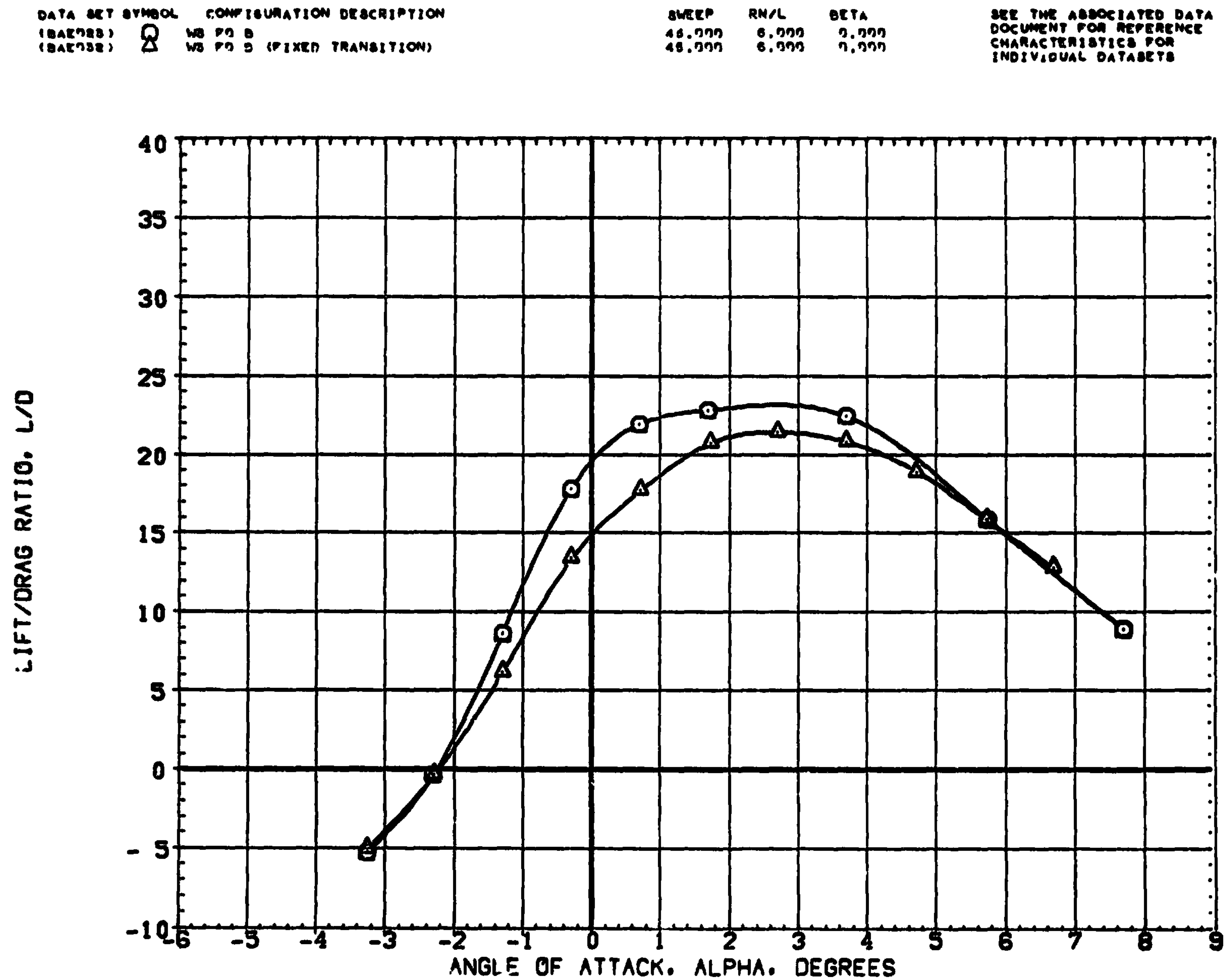


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

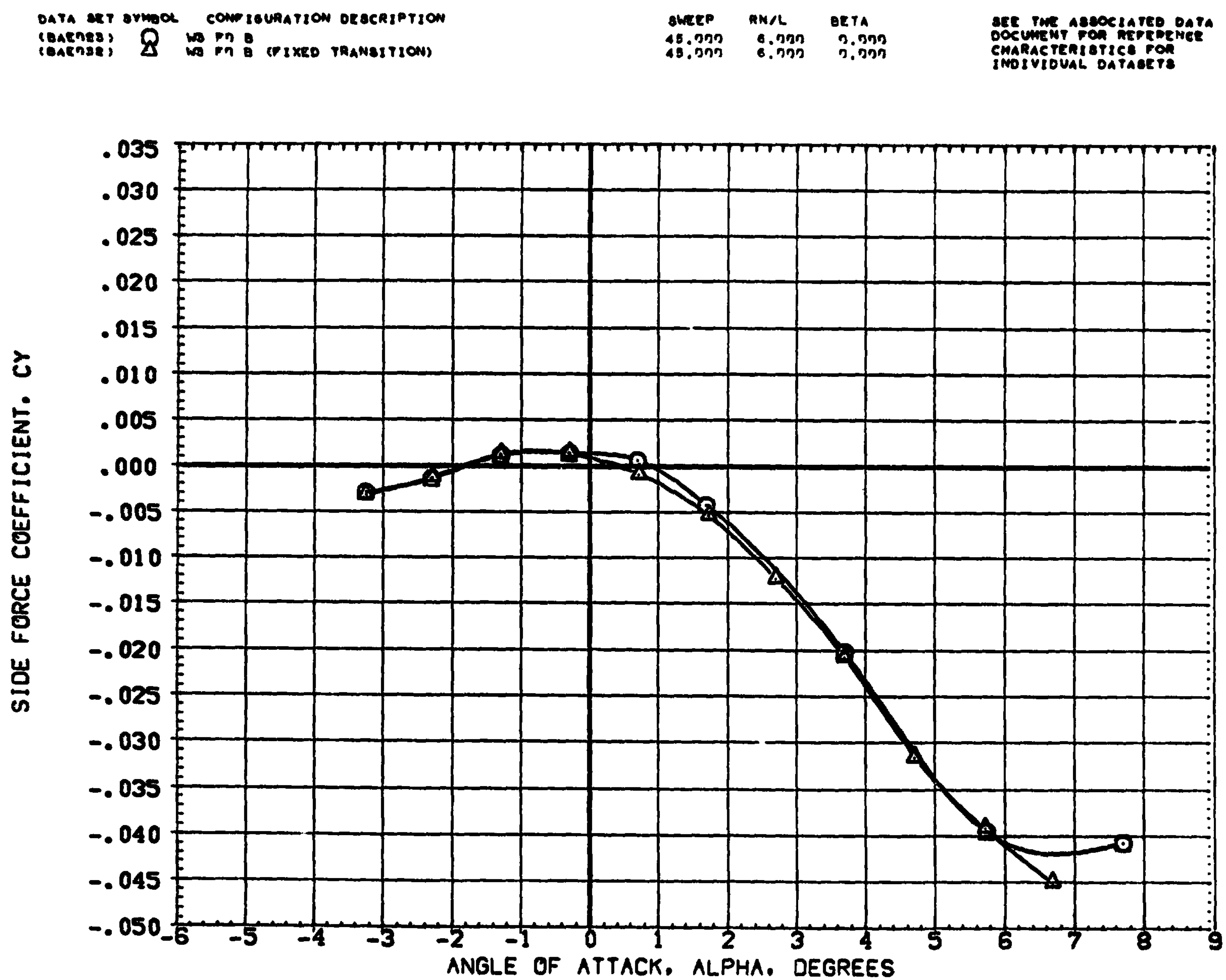


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(BAE023)	⊙	WB F0 B	45.000	6.000	0.000
(BAE032)	△	WB F0 B (FIXED TRANSITION)	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

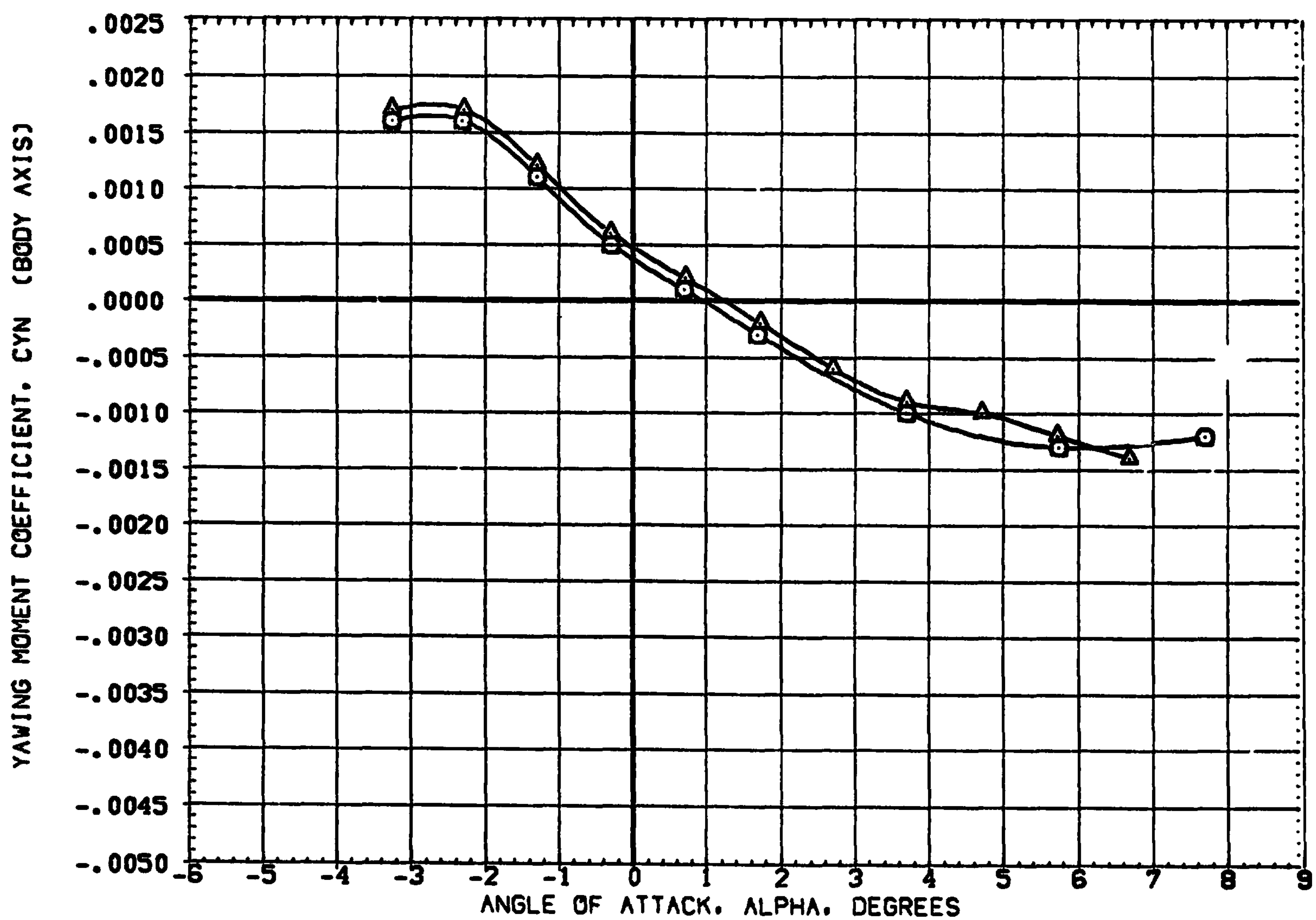


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

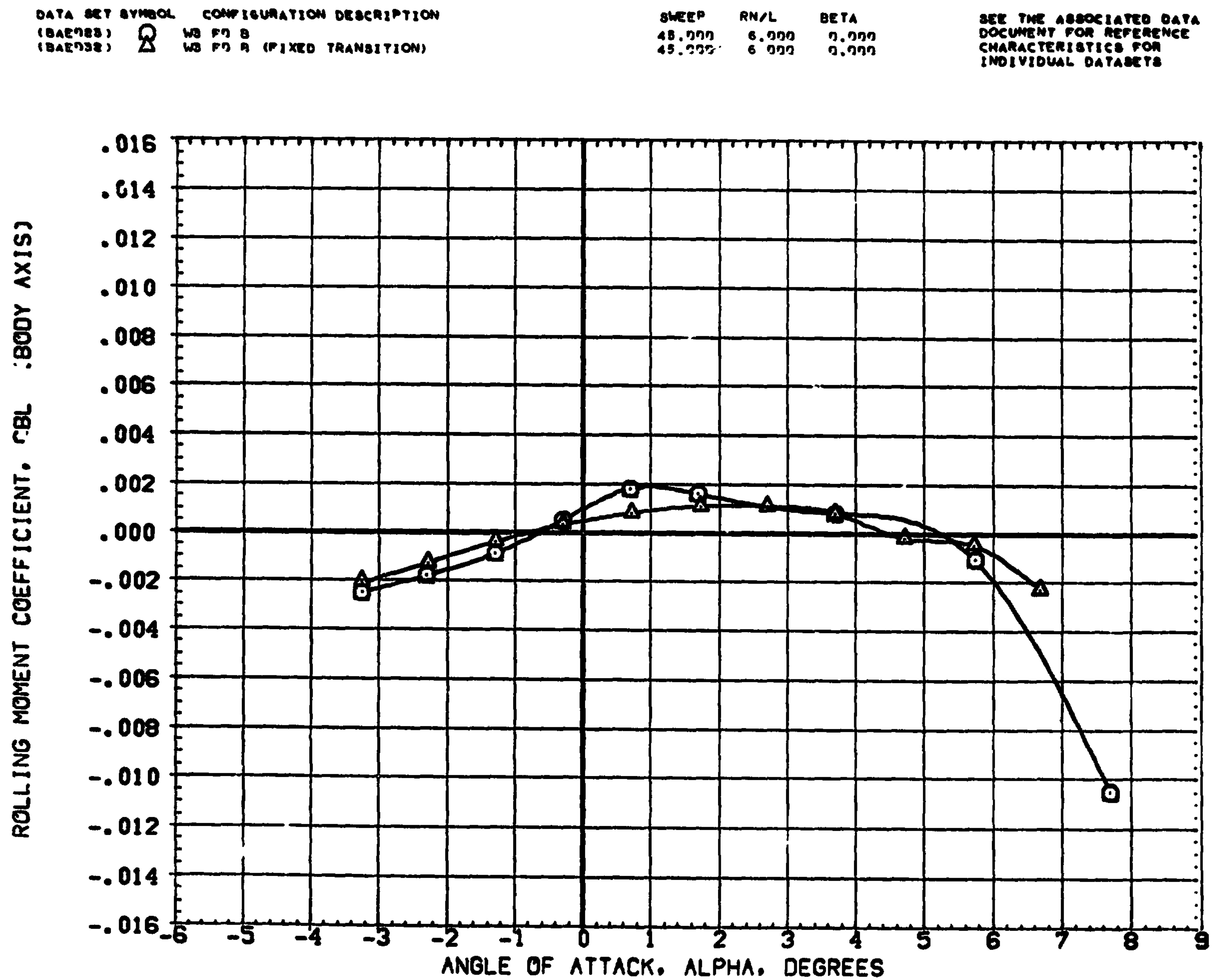


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.80, LAMBDA=45 DEGREES

(A)MACH = .80

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE023)	○	WB F0 B	45.000	6.000	0.000
(EAE032)	△	WB F0 B (FIXED TRANSITION)	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

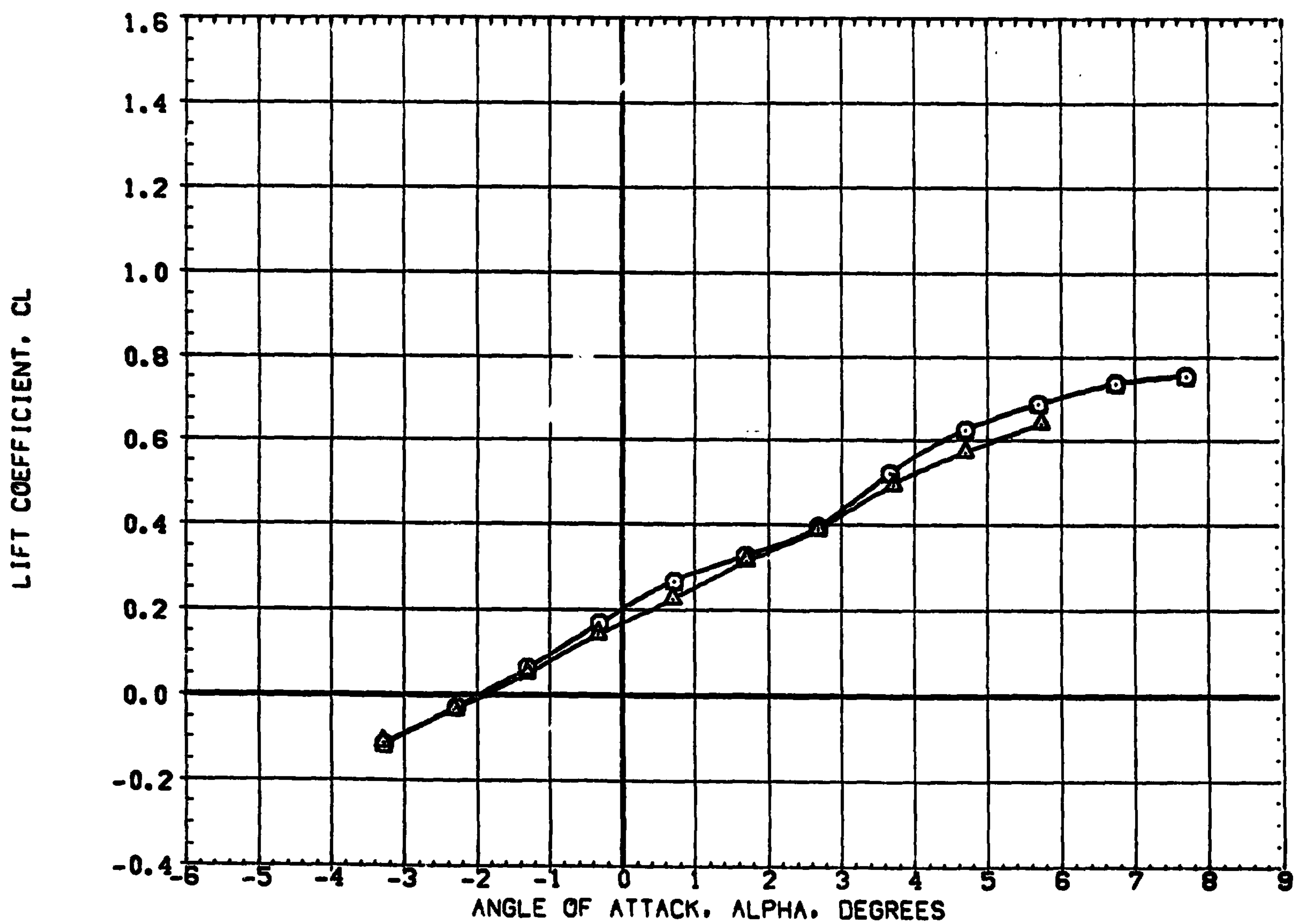


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

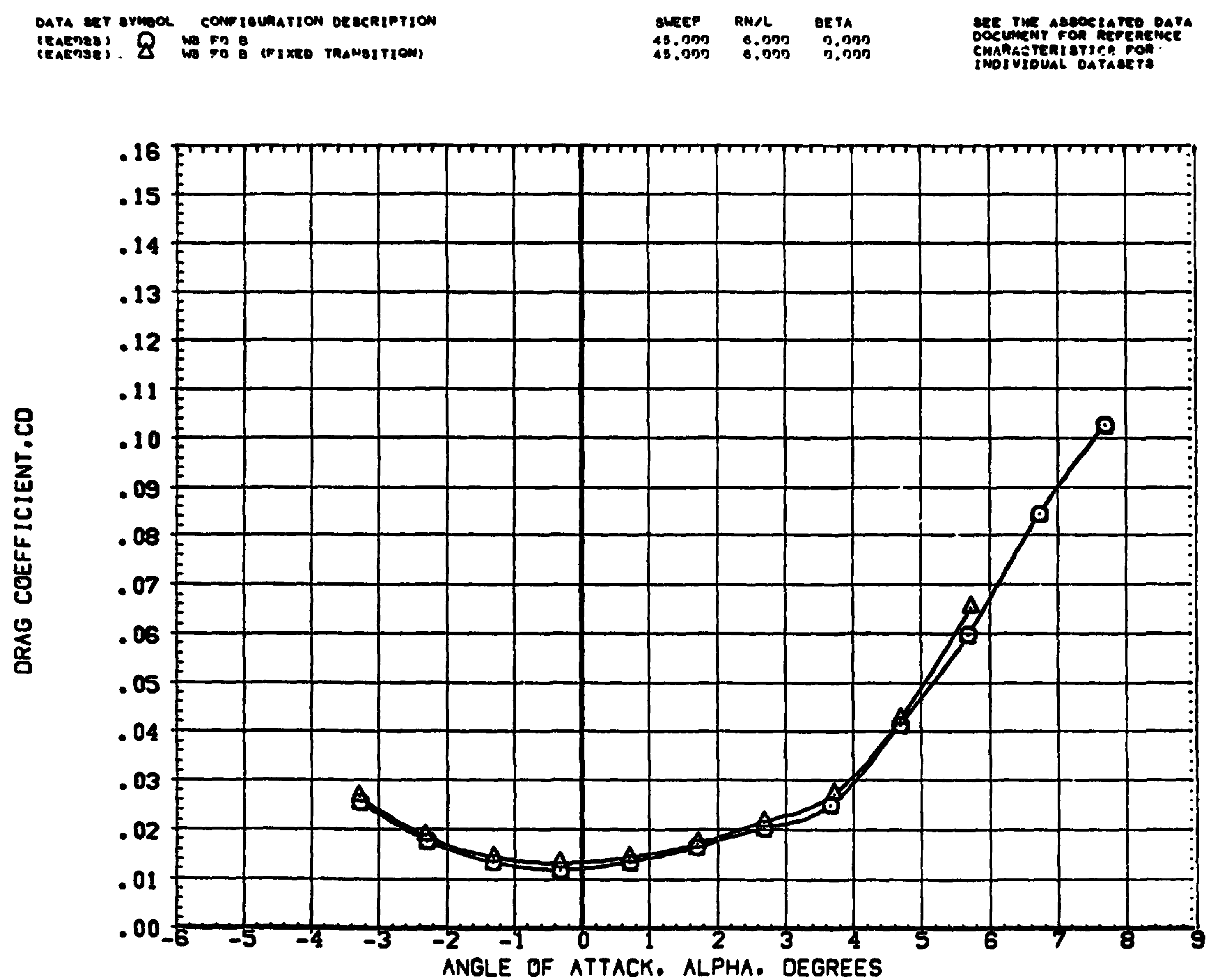


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

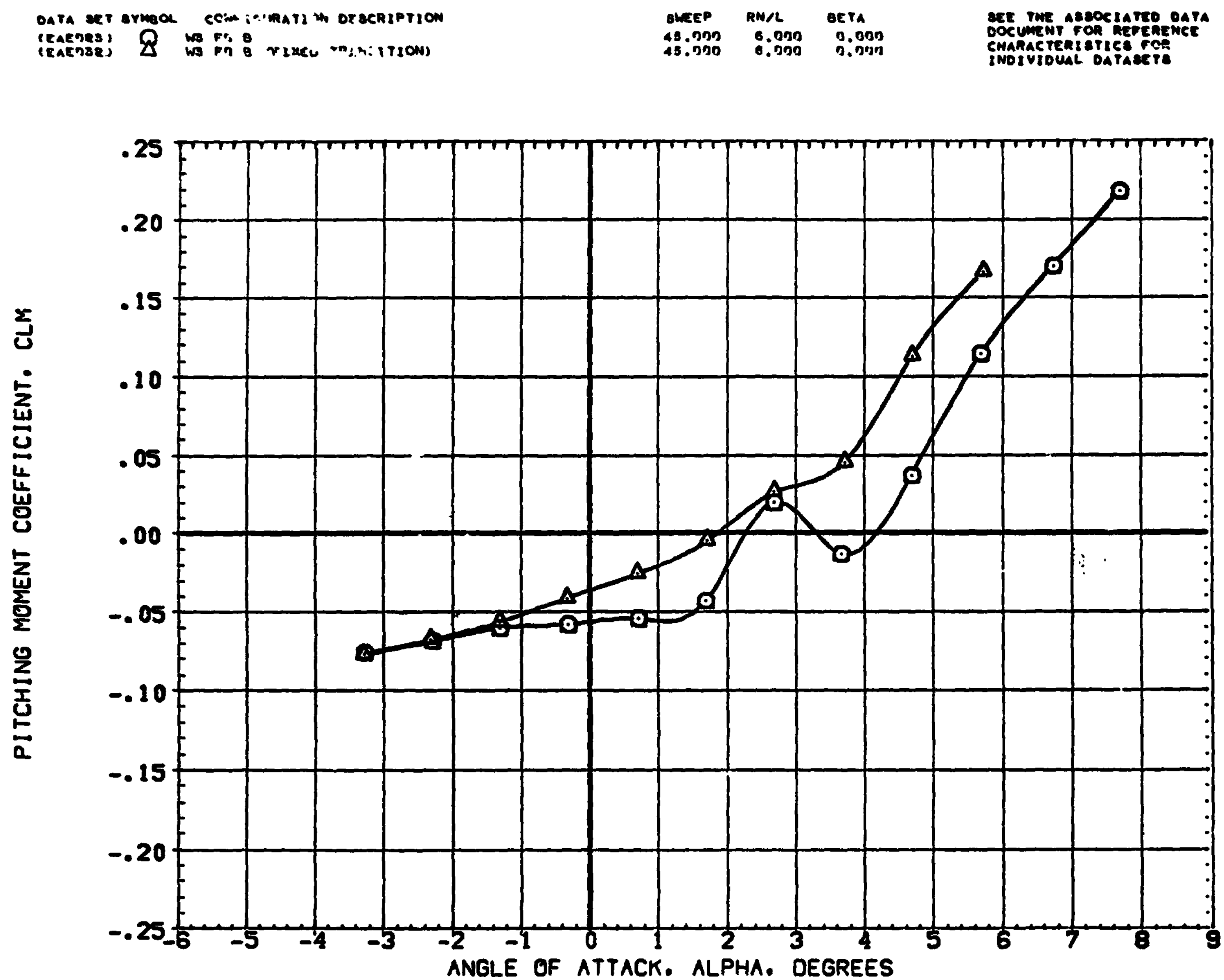


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE083)	○	WB F0 B	45.000	6.000	0.000
(EAE038)	△	WB F0-B (FIXED TRANSITION)	45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

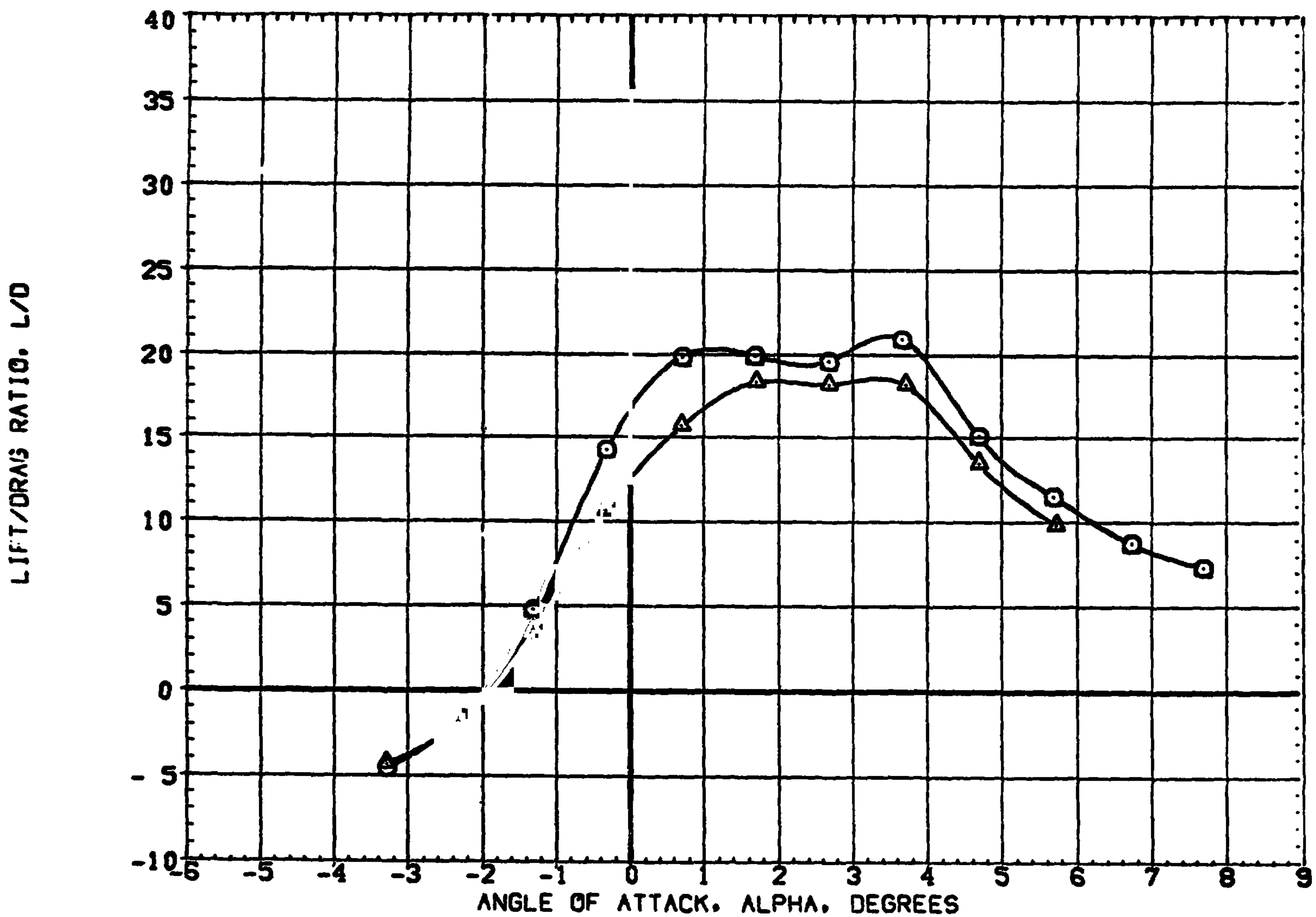


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(EAE083) WB F0 B
(EAE032) WB F0 B (FIXED TRANSITION)

SWEEP	RN/L	BETA
45.000	6.000	0.000
45.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

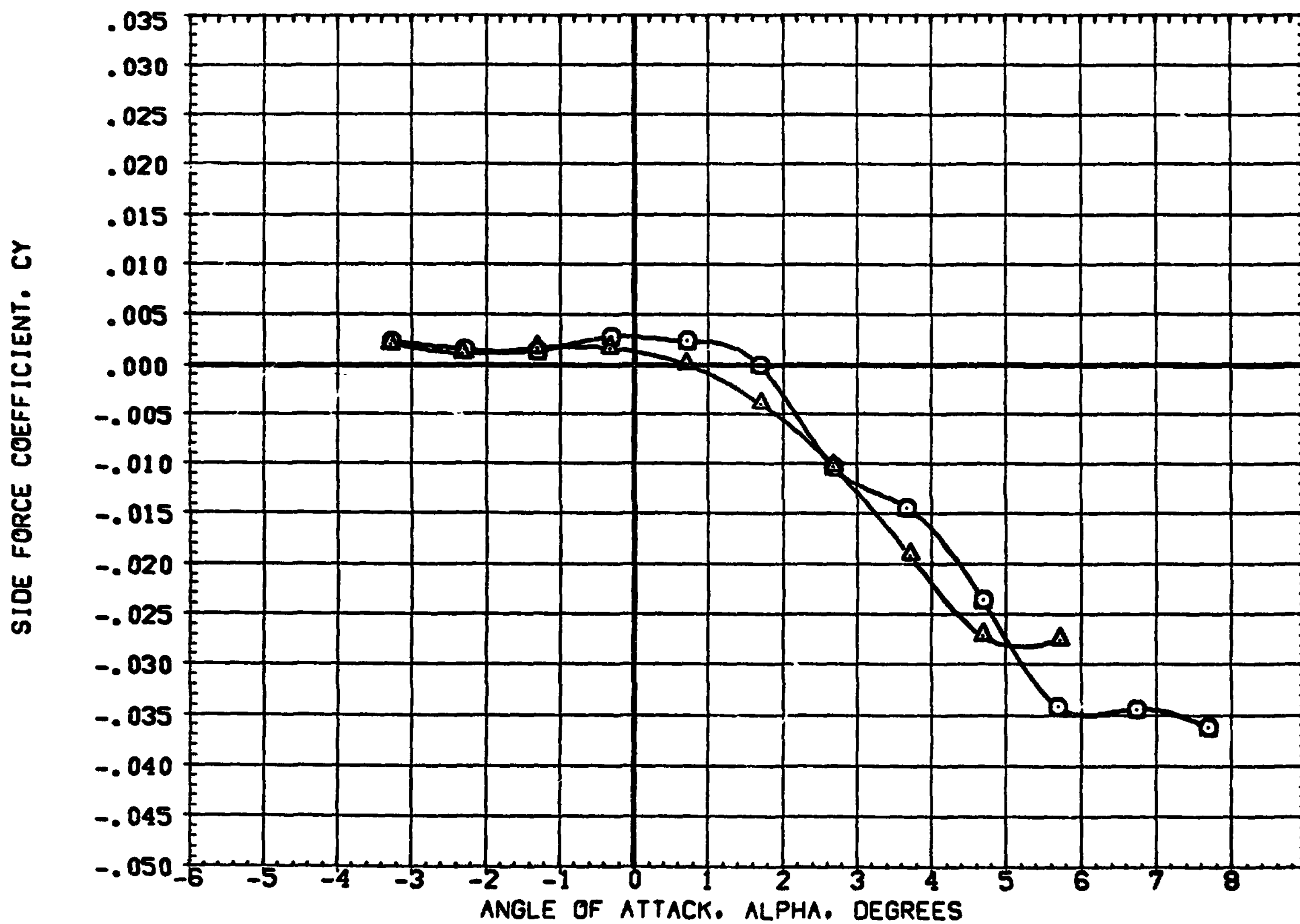


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES
(A)MACH = .98

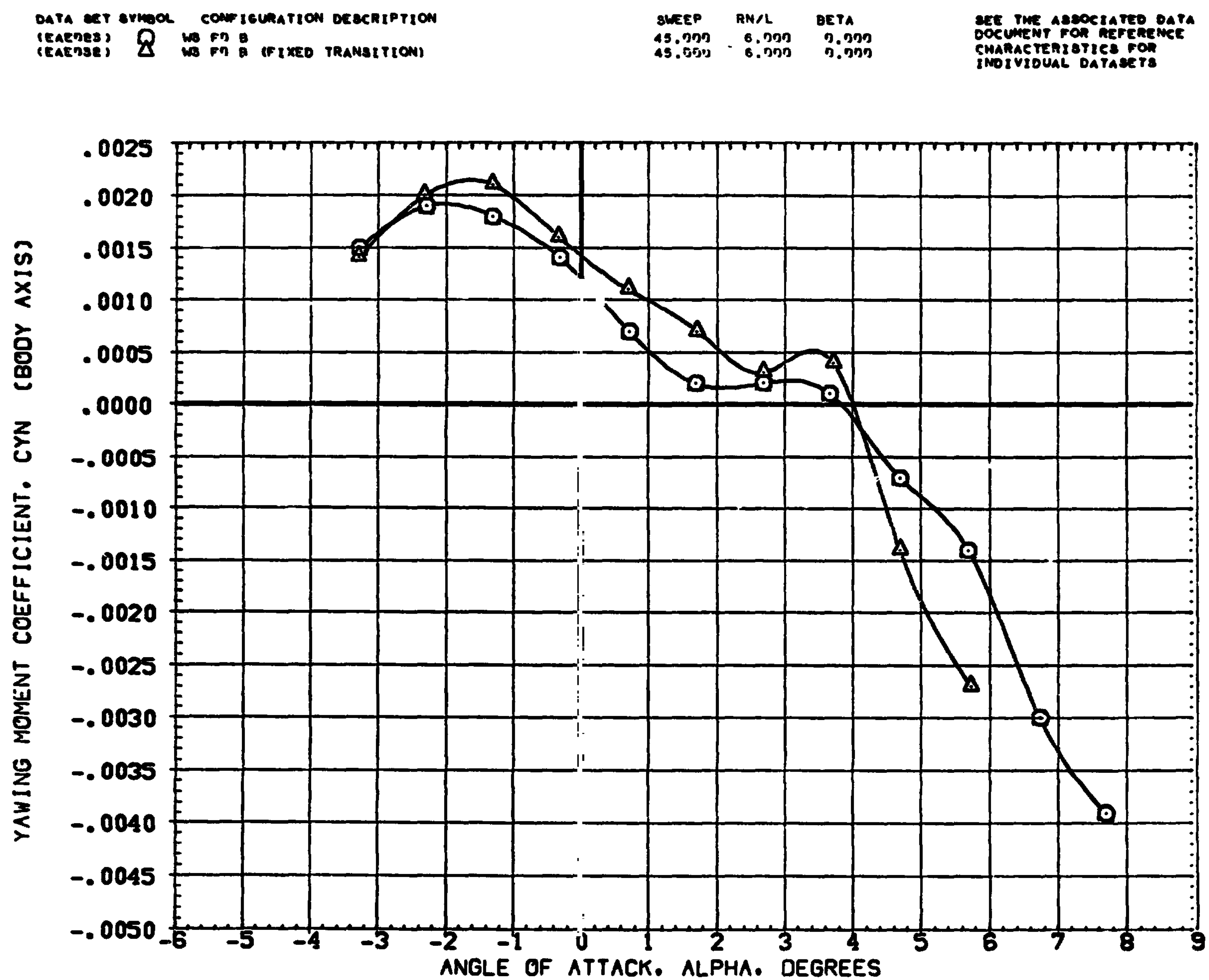


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

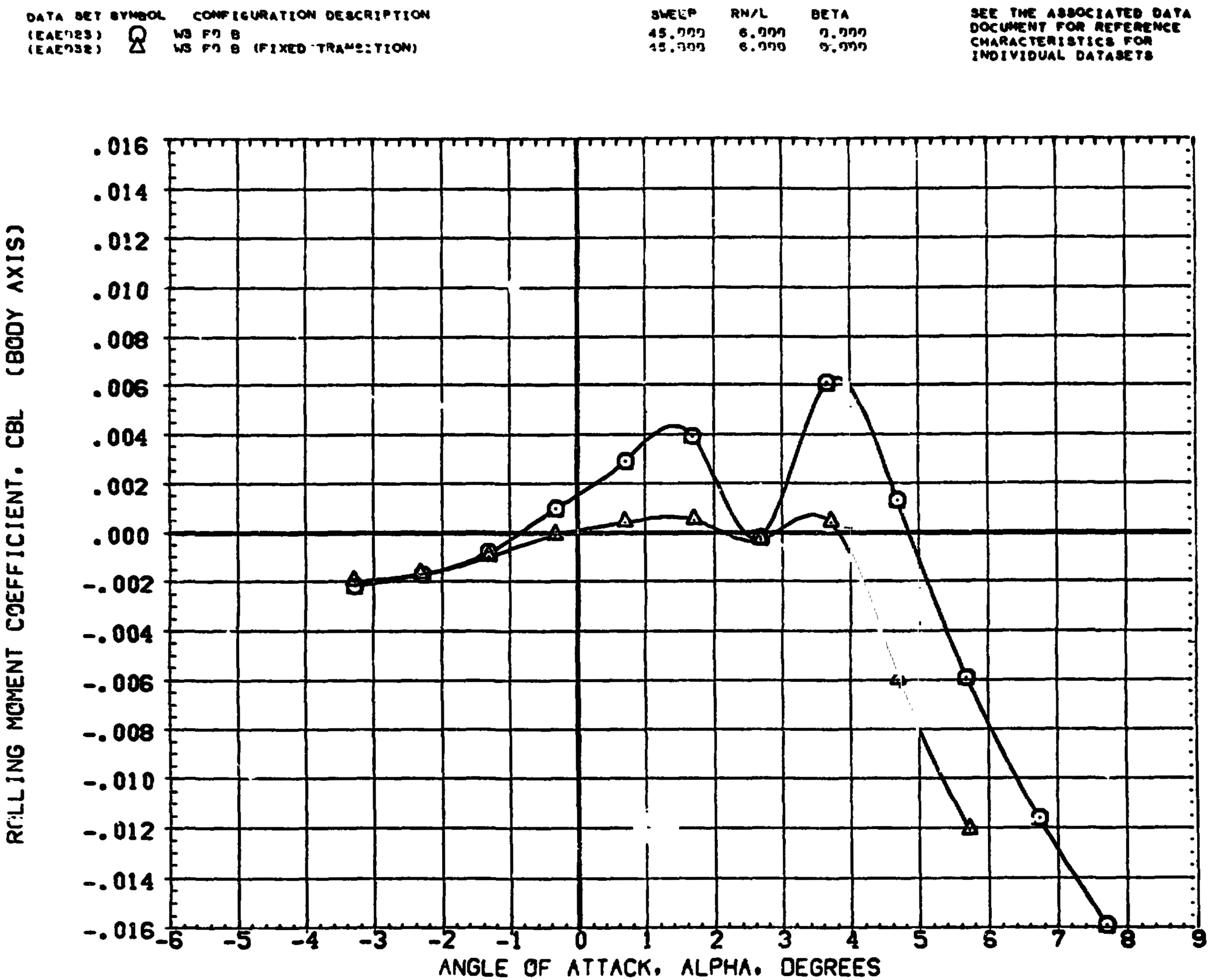


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 0.98, LAMBDA=45 DEGREES

(A)MACH = .98

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE029)	O	WB FD B	60.000	6.000	0.000
(EAE034)	Δ	WB FD B (FIXED TRANSITION)	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

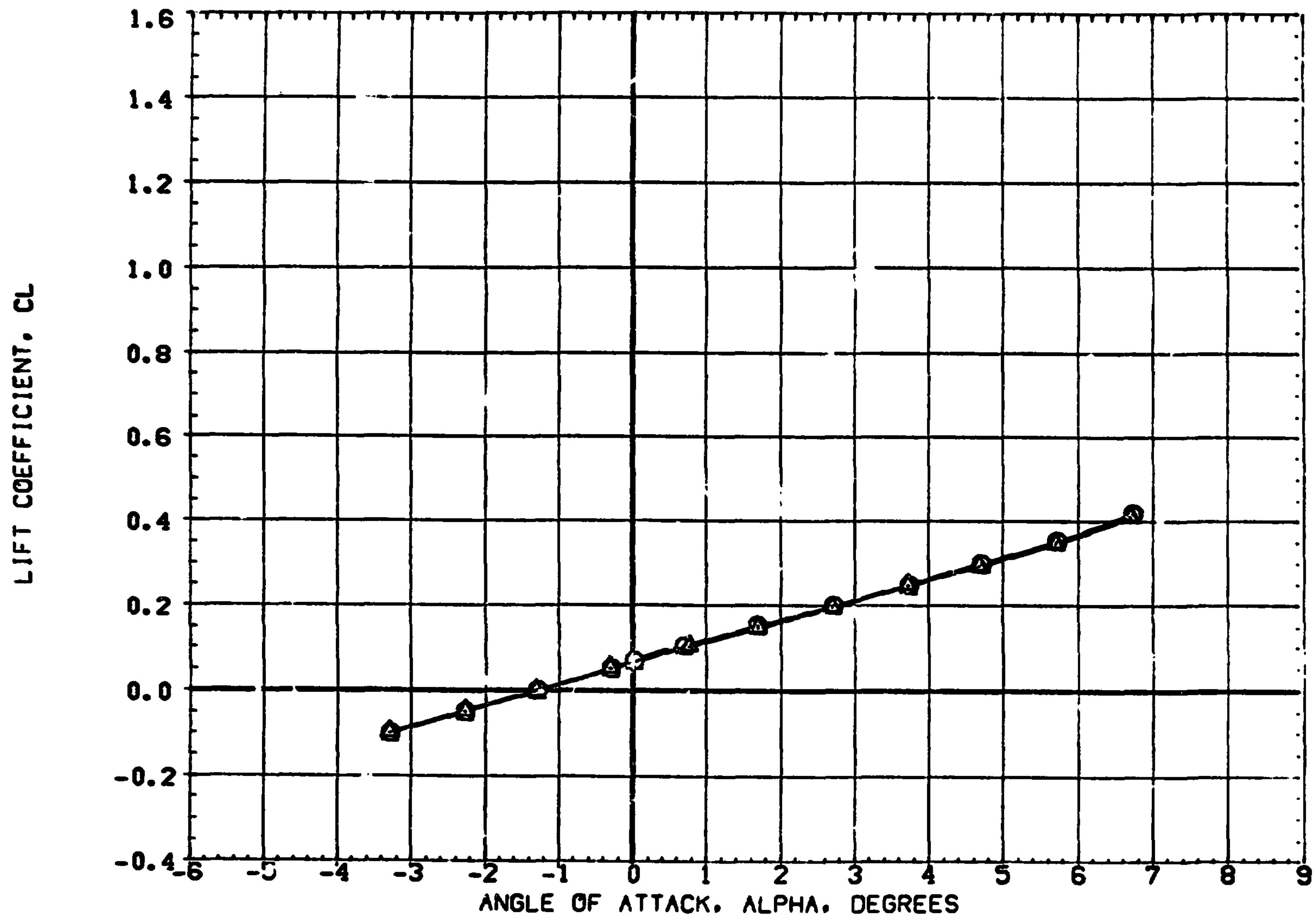


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

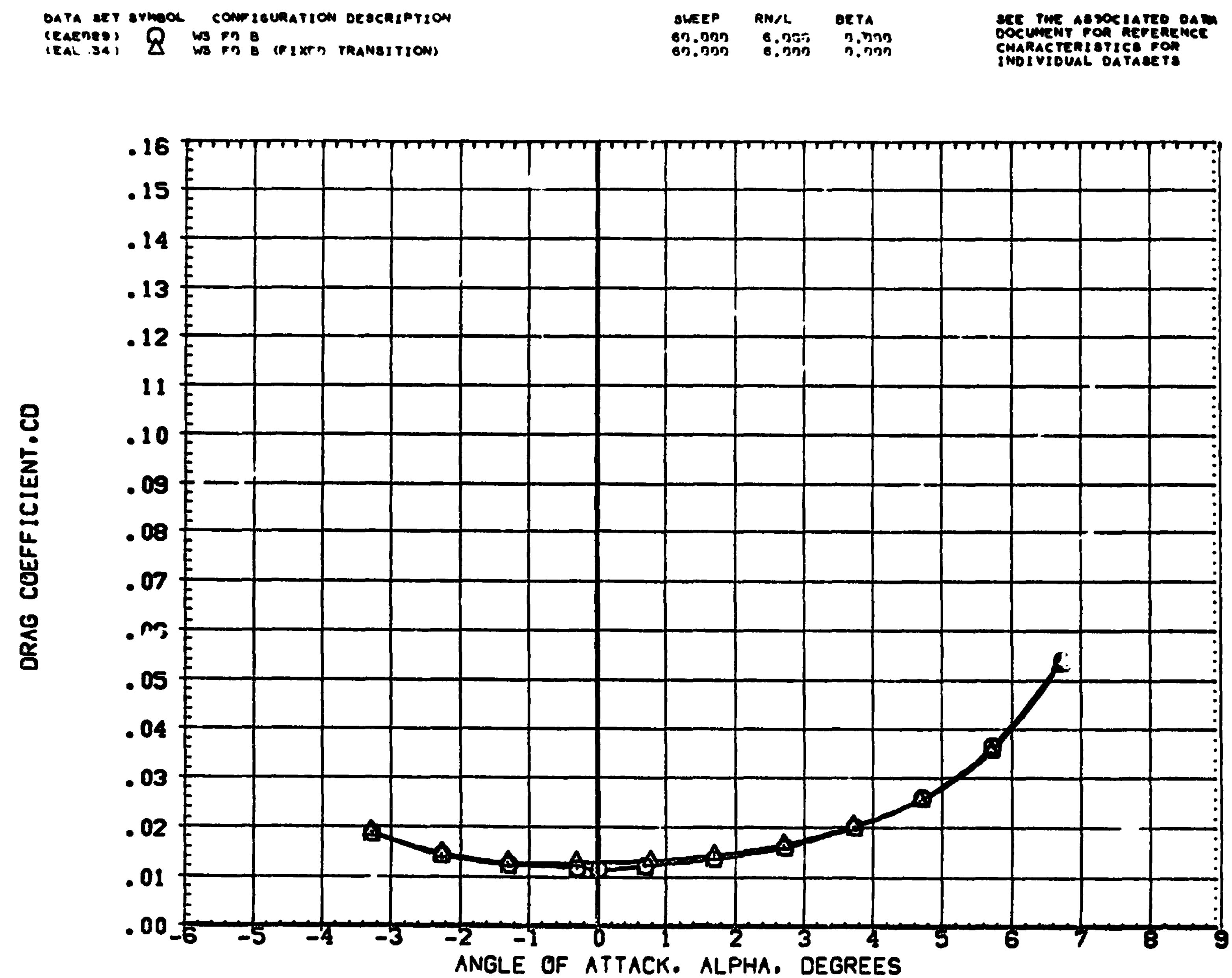


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES
(A)MACH = 1.10

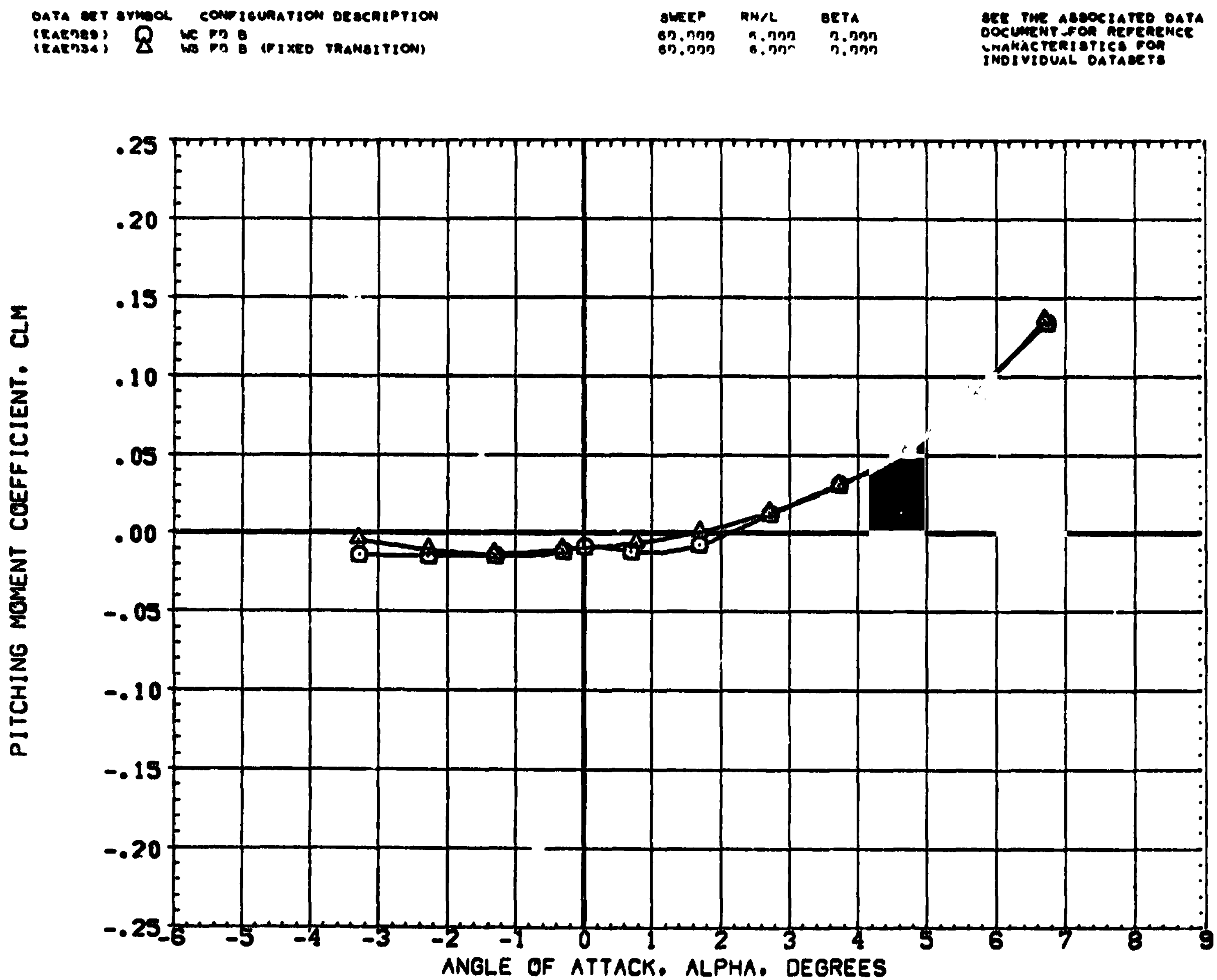


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

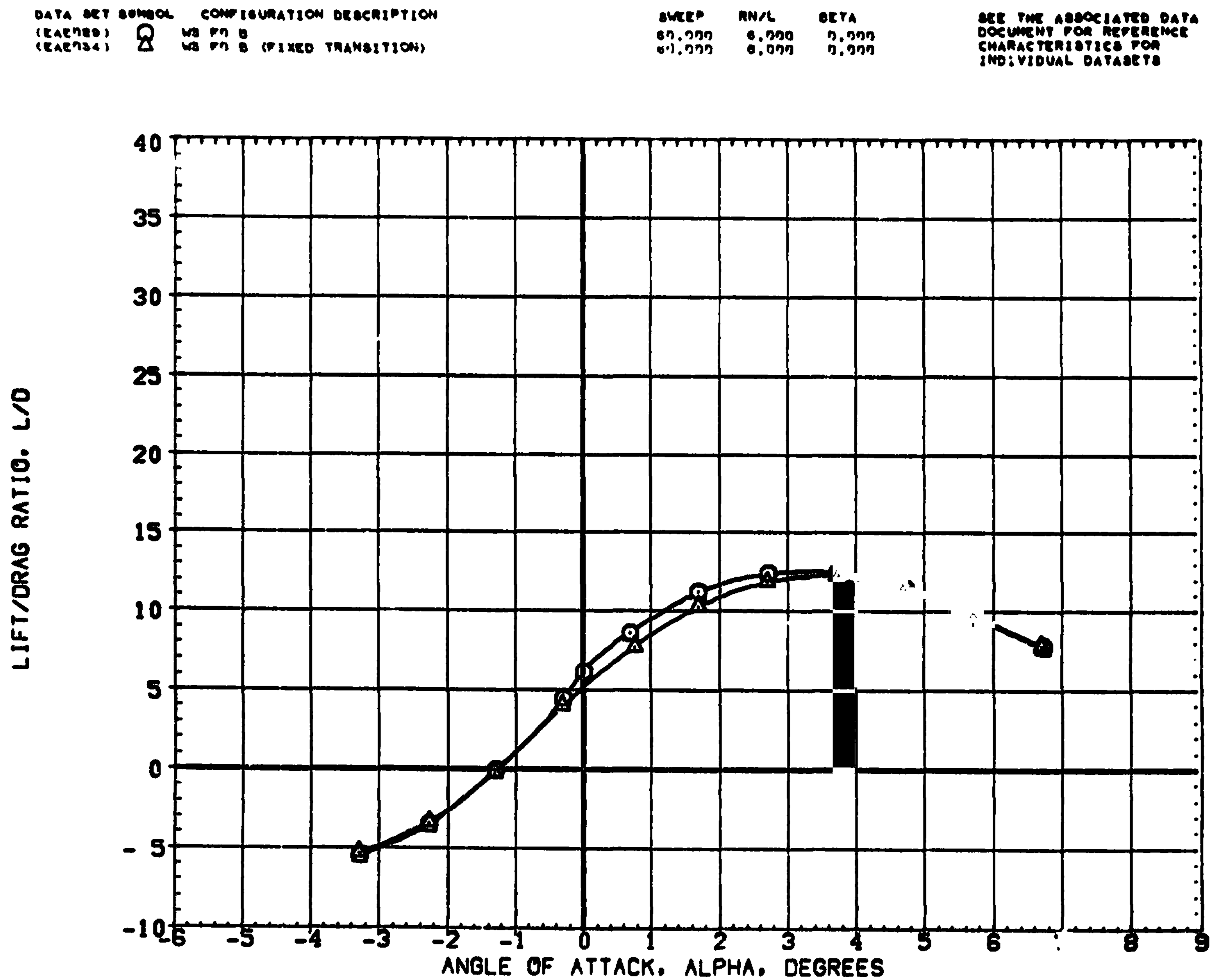


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(EAE029)	○	WB F0 B	60.000	6.000	0.000
(EAE034)	△	WB F0 B (FIXED TRANSITION)	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

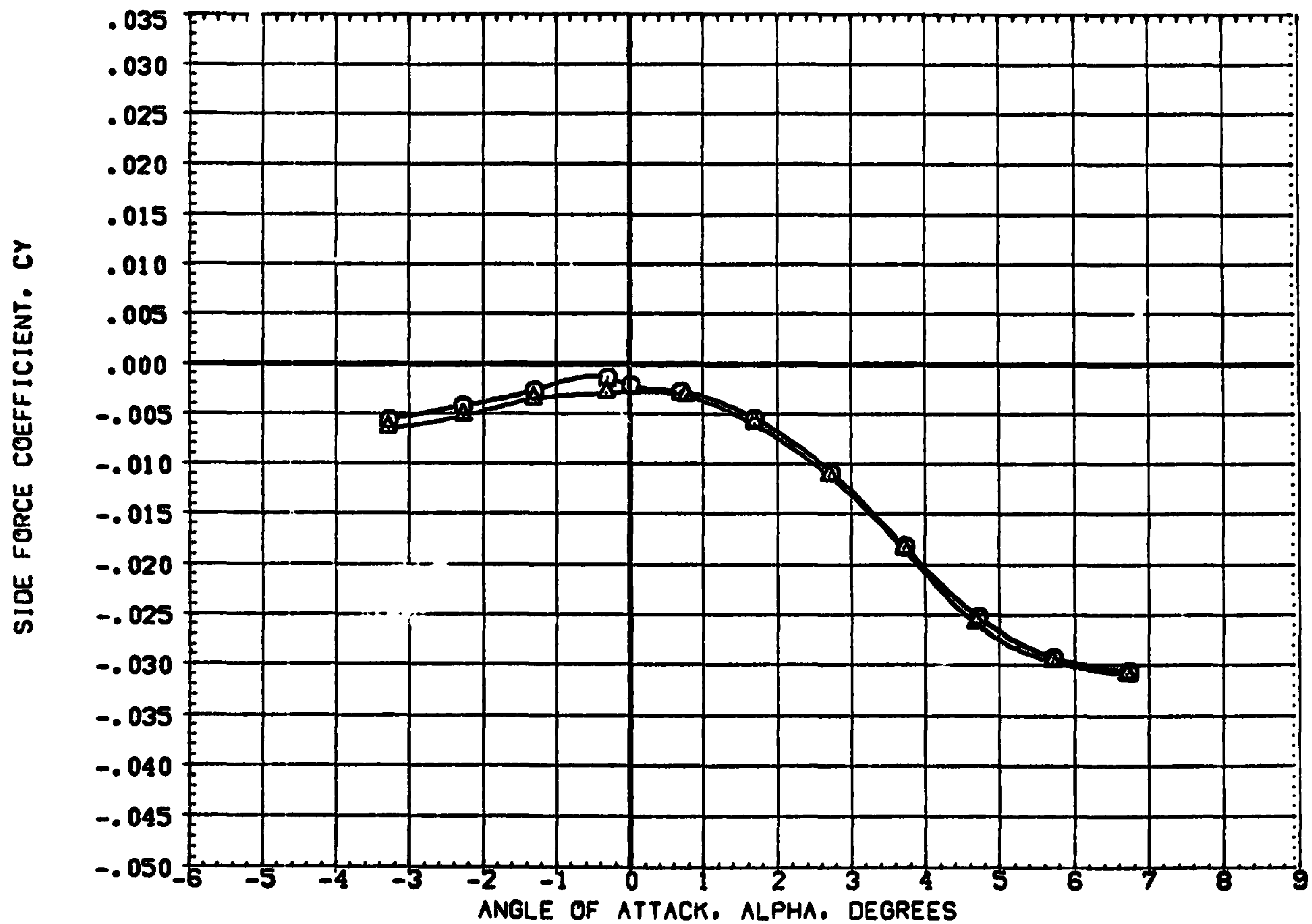


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES

(A)MACH = 1.10

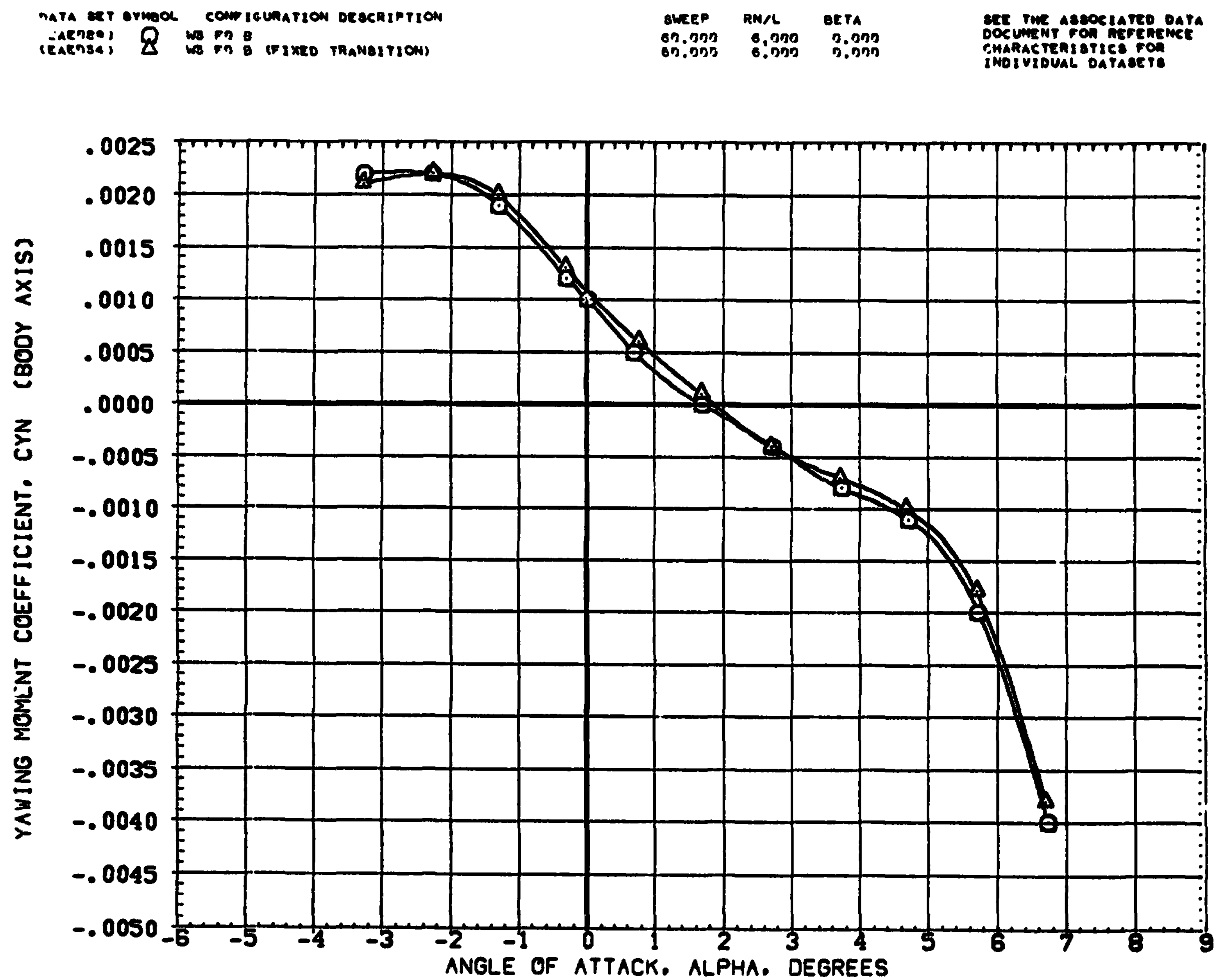


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES
(A)MACH = 1.10

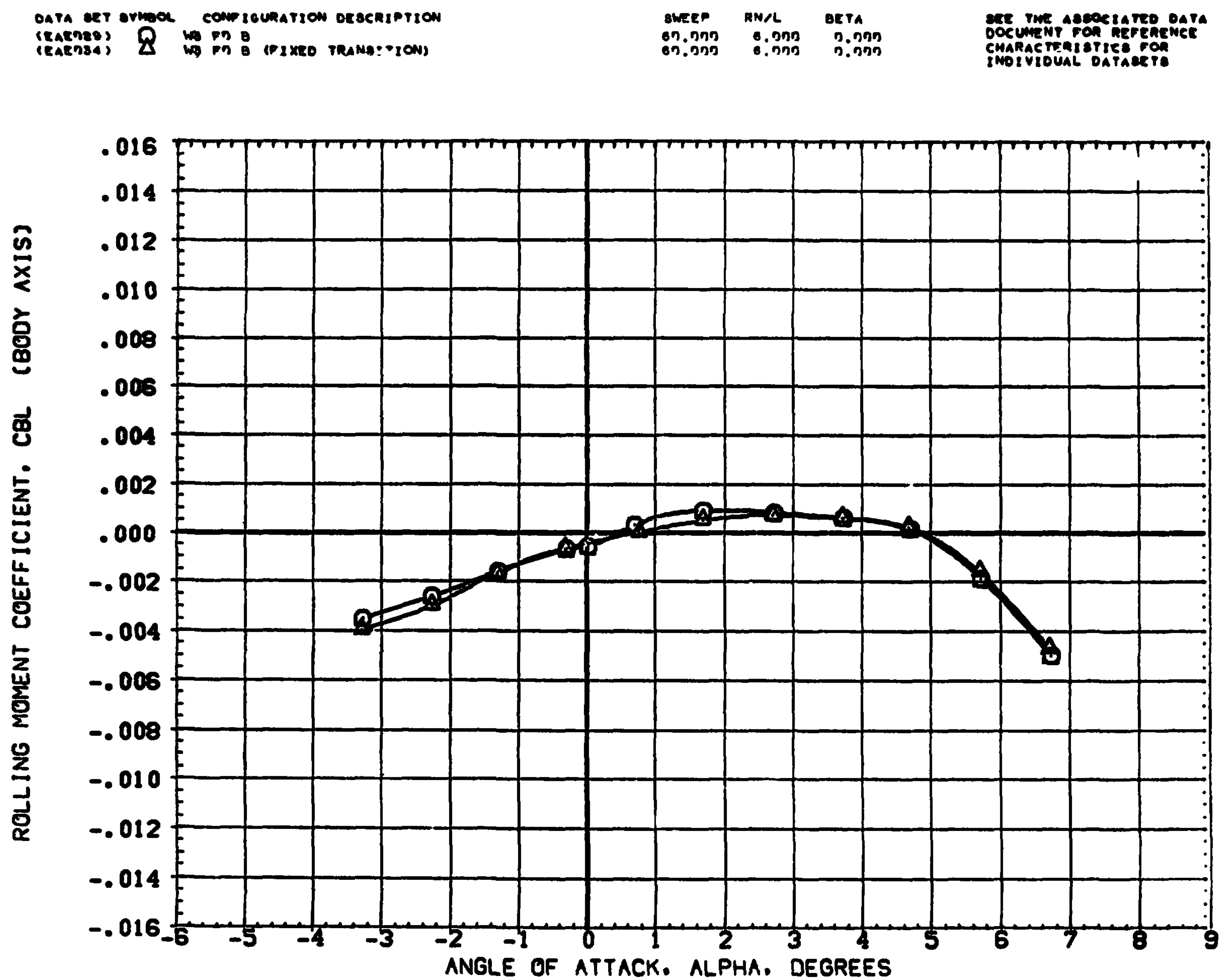


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.10, LAMBDA=60 DEGREES
(A)MACH = 1.10

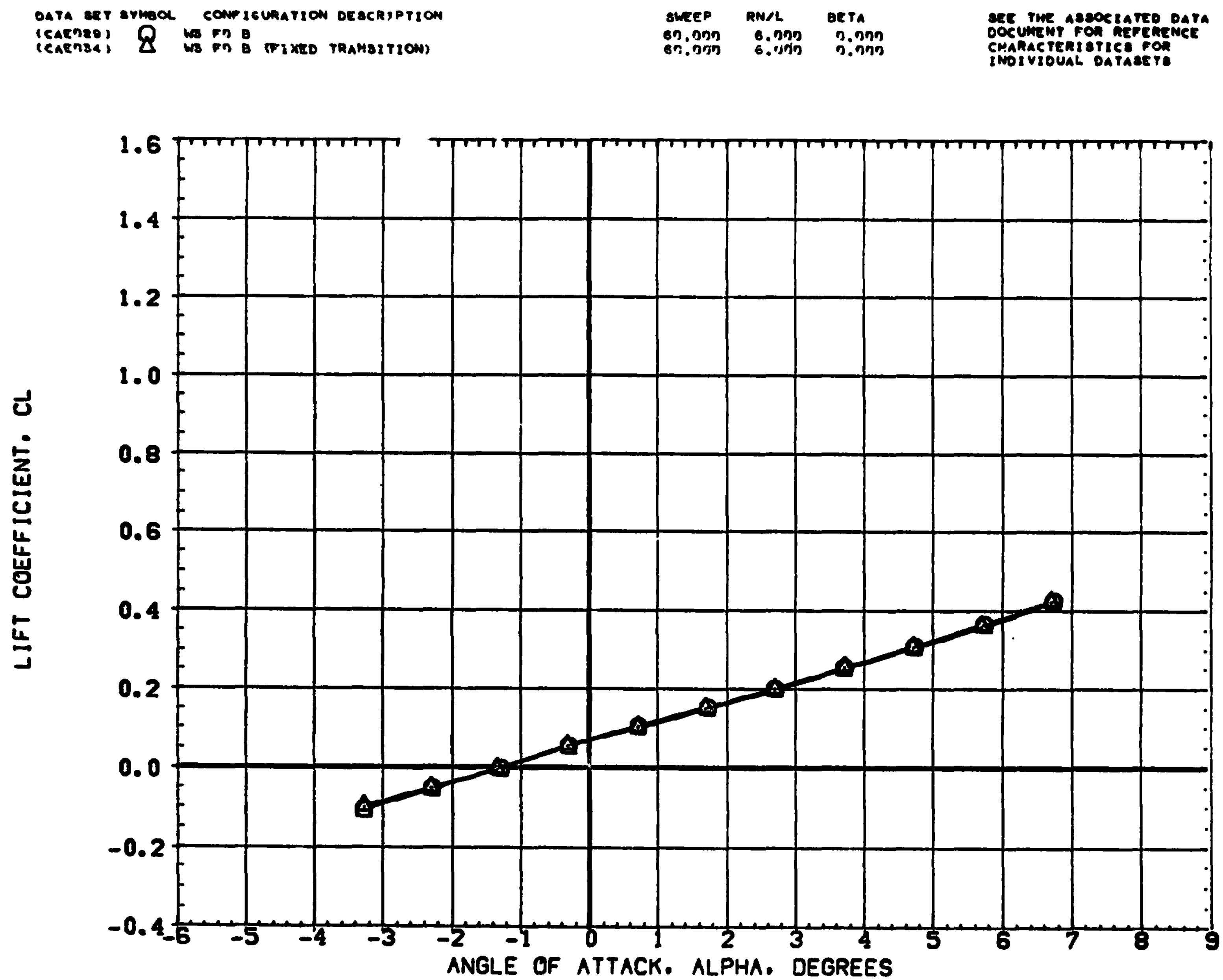


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

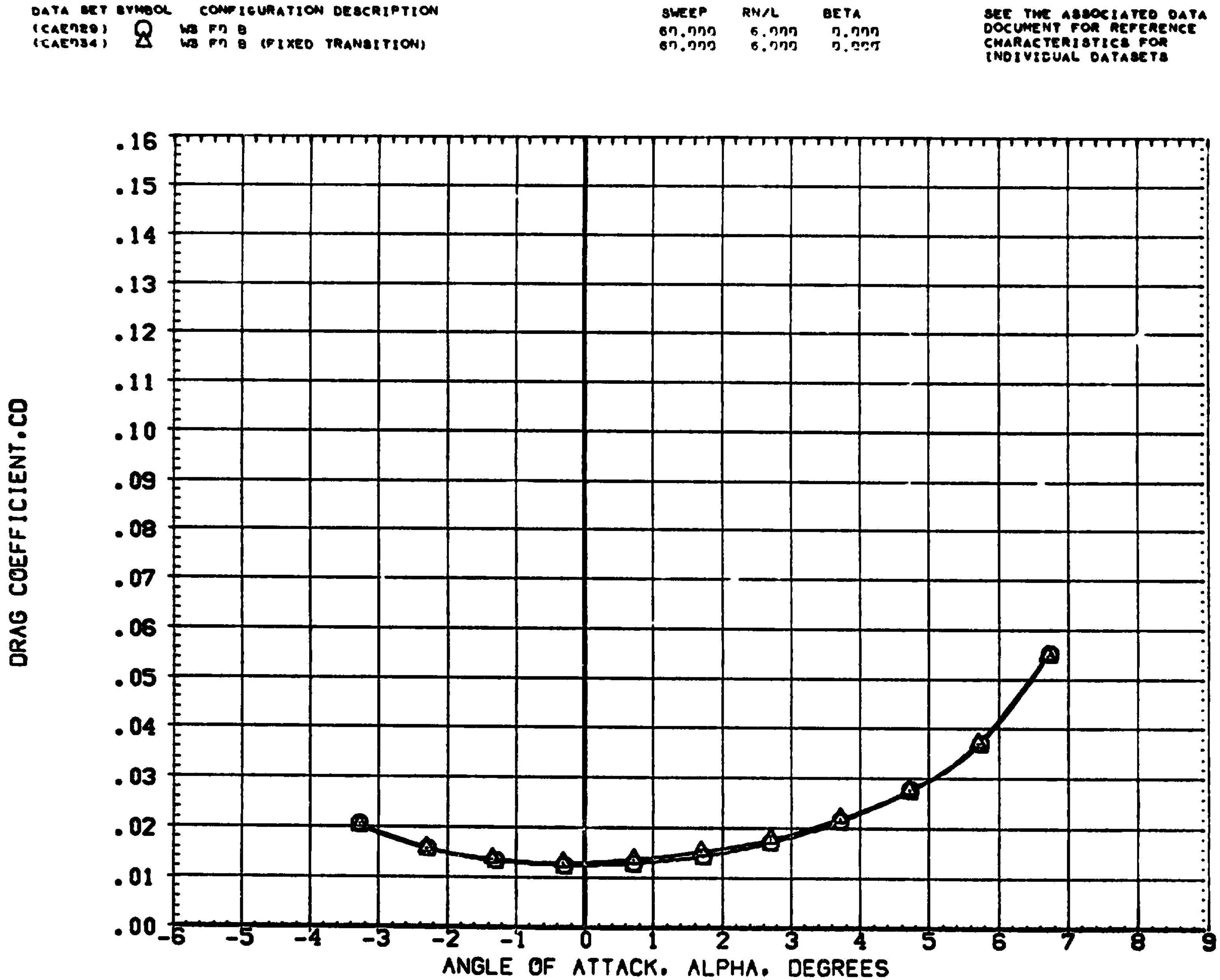


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

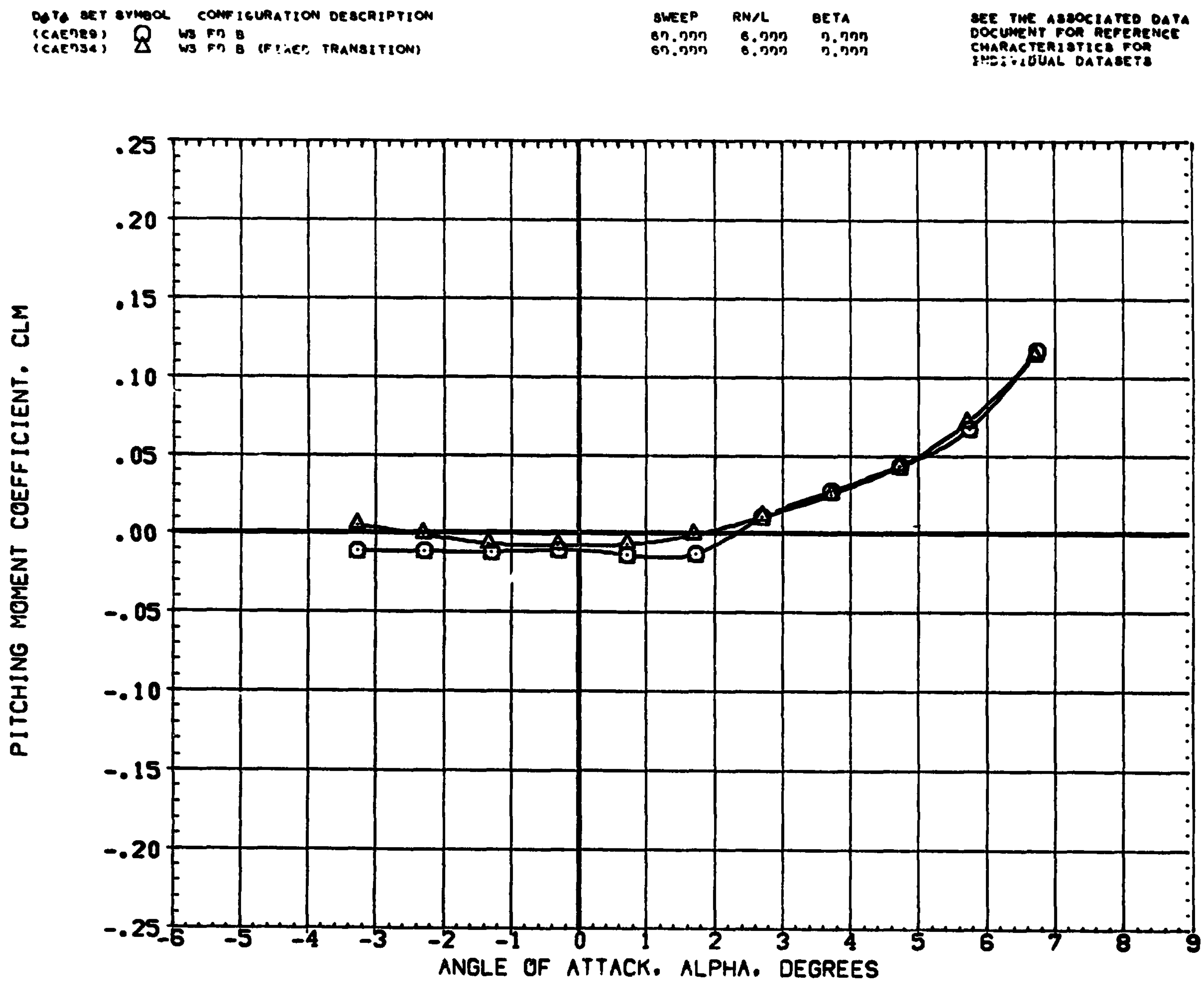


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE089)	O	WB F0 B	60.000	6.000	0.000
(CAE034)	Δ	WB F0 B (FIXED TRANSITION)	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS

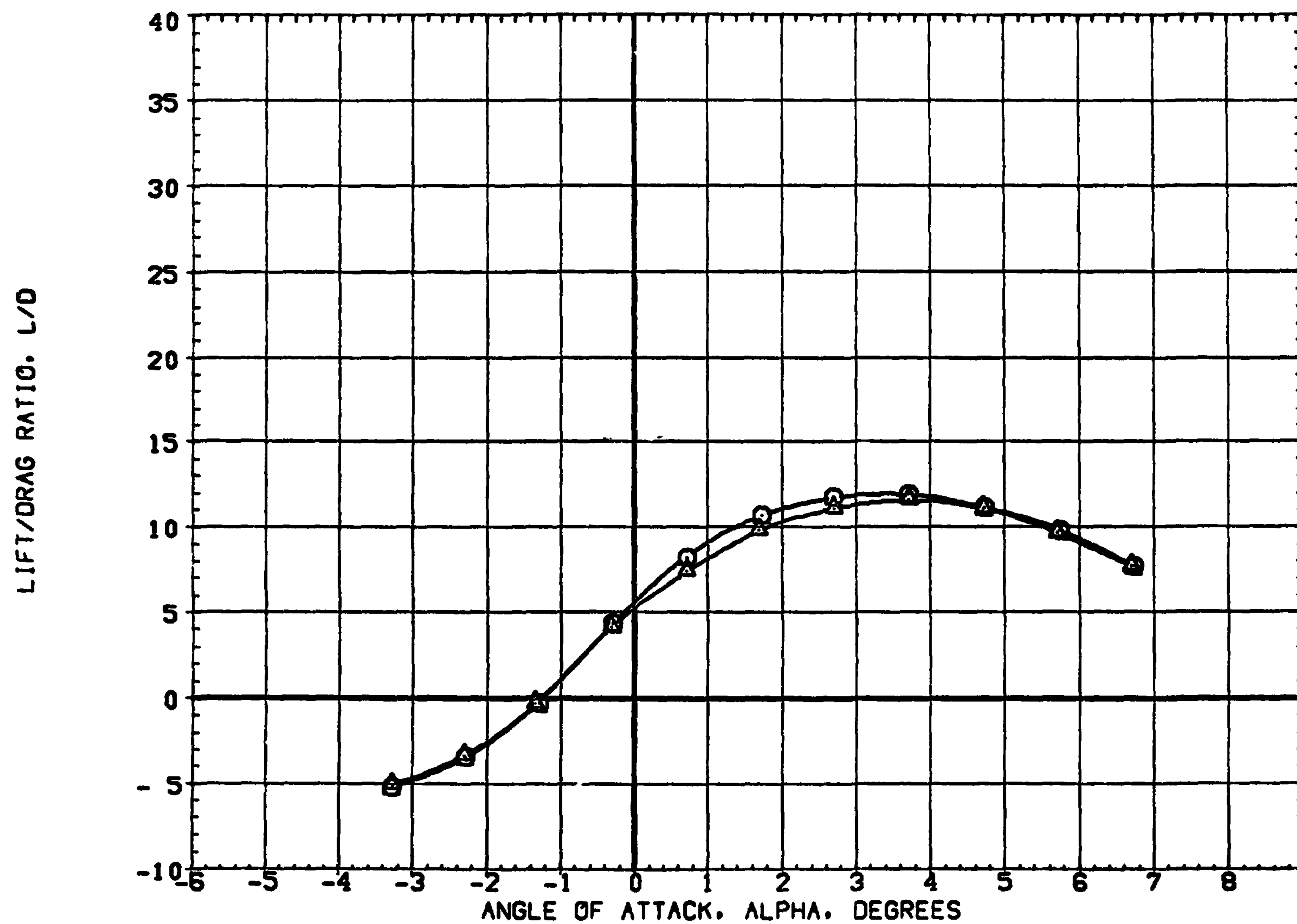
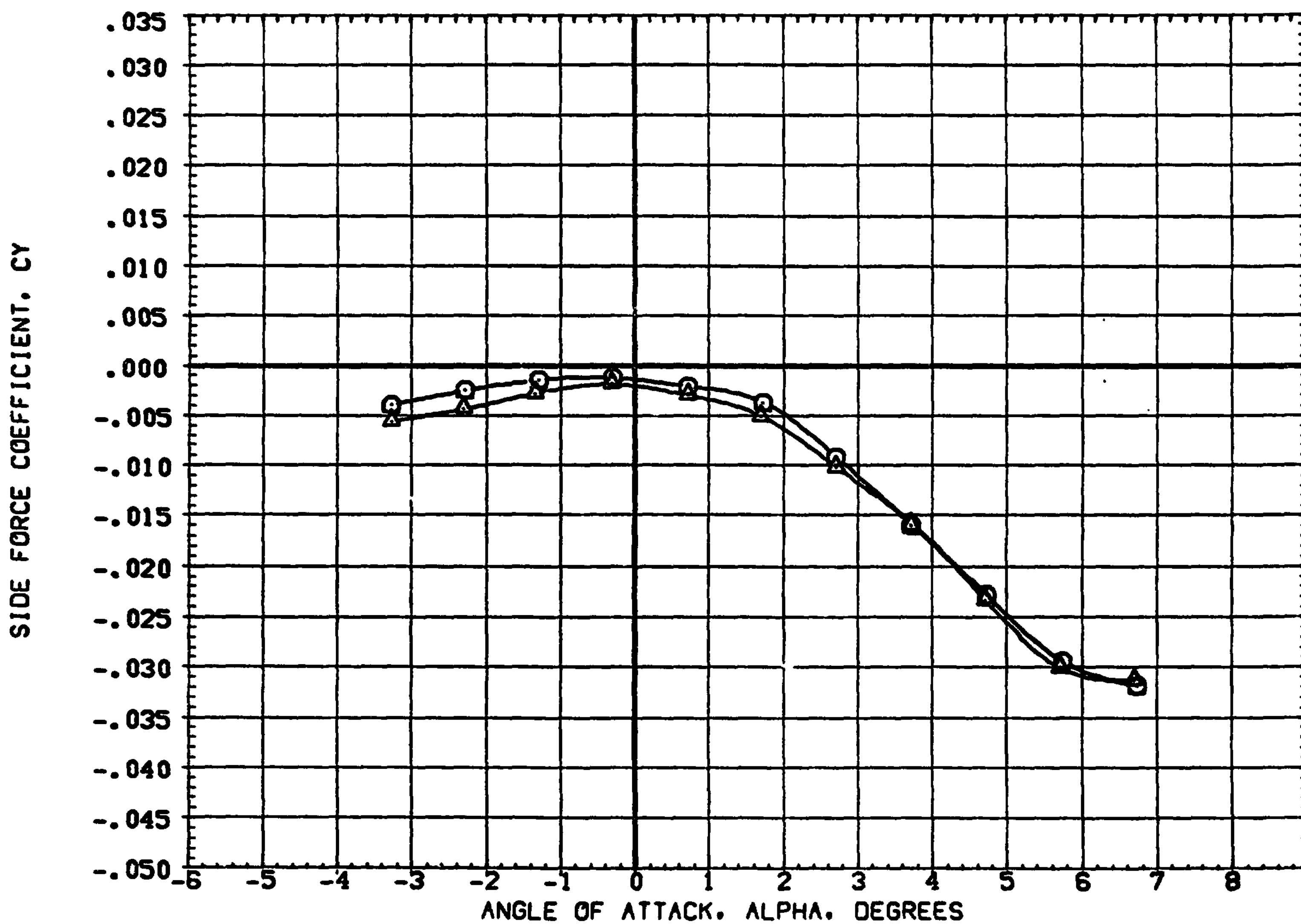


FIGURE 6 EFFECT OF SURFACE ROUGHNESS STRIPS, MACH NO.= 1.20, LAMBDA=60 DEGREES

(A)MACH = 1.20

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SWEEP	RN/L	BETA
(CAE029)	○	WS F0 B	60.000	6.000	0.000
(CAE034)	△	WS F0 B (FIXED TRANSITION)	60.000	6.000	0.000

SEE THE ASSOCIATED DATA DOCUMENT FOR REFERENCE CHARACTERISTICS FOR INDIVIDUAL DATASETS



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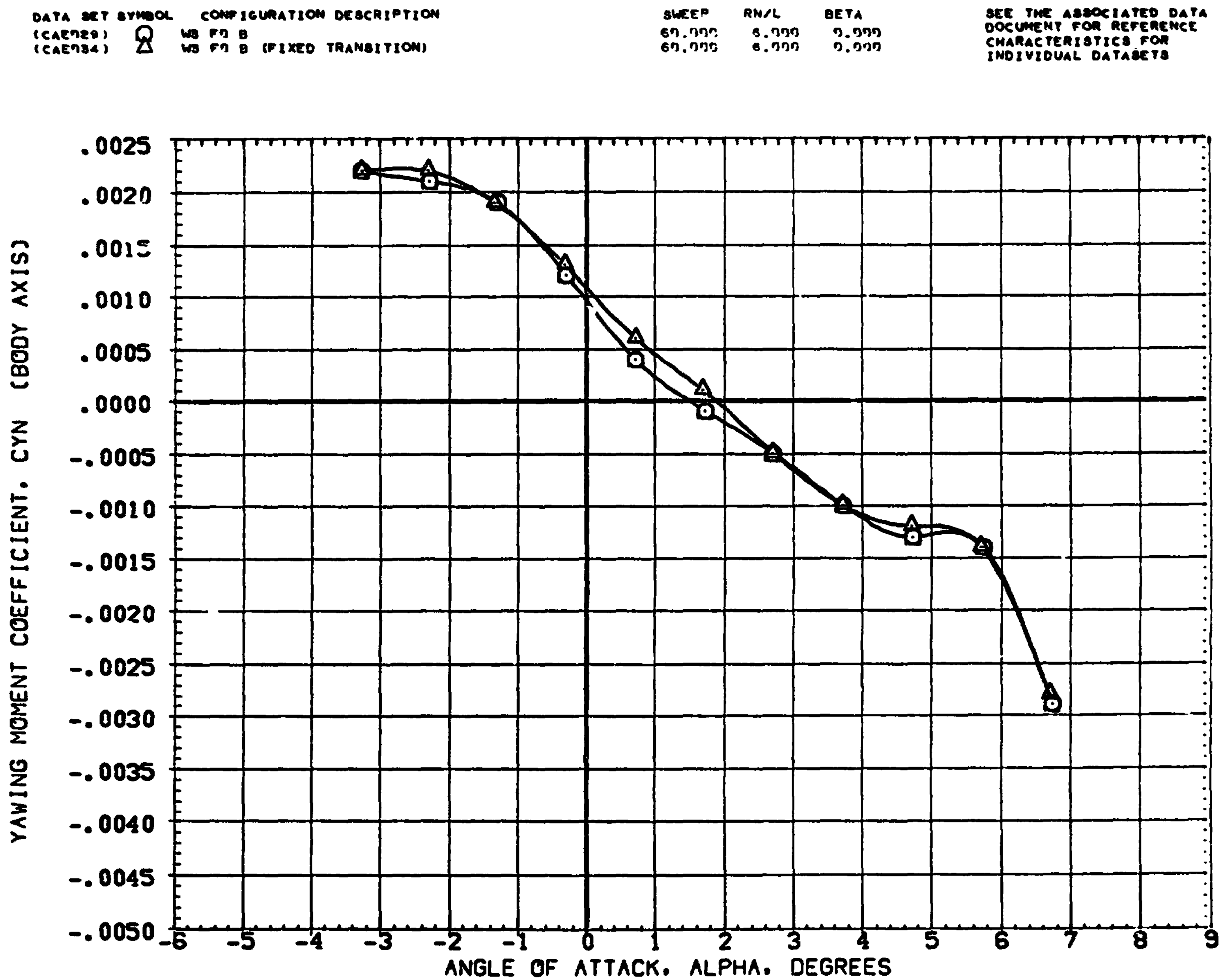

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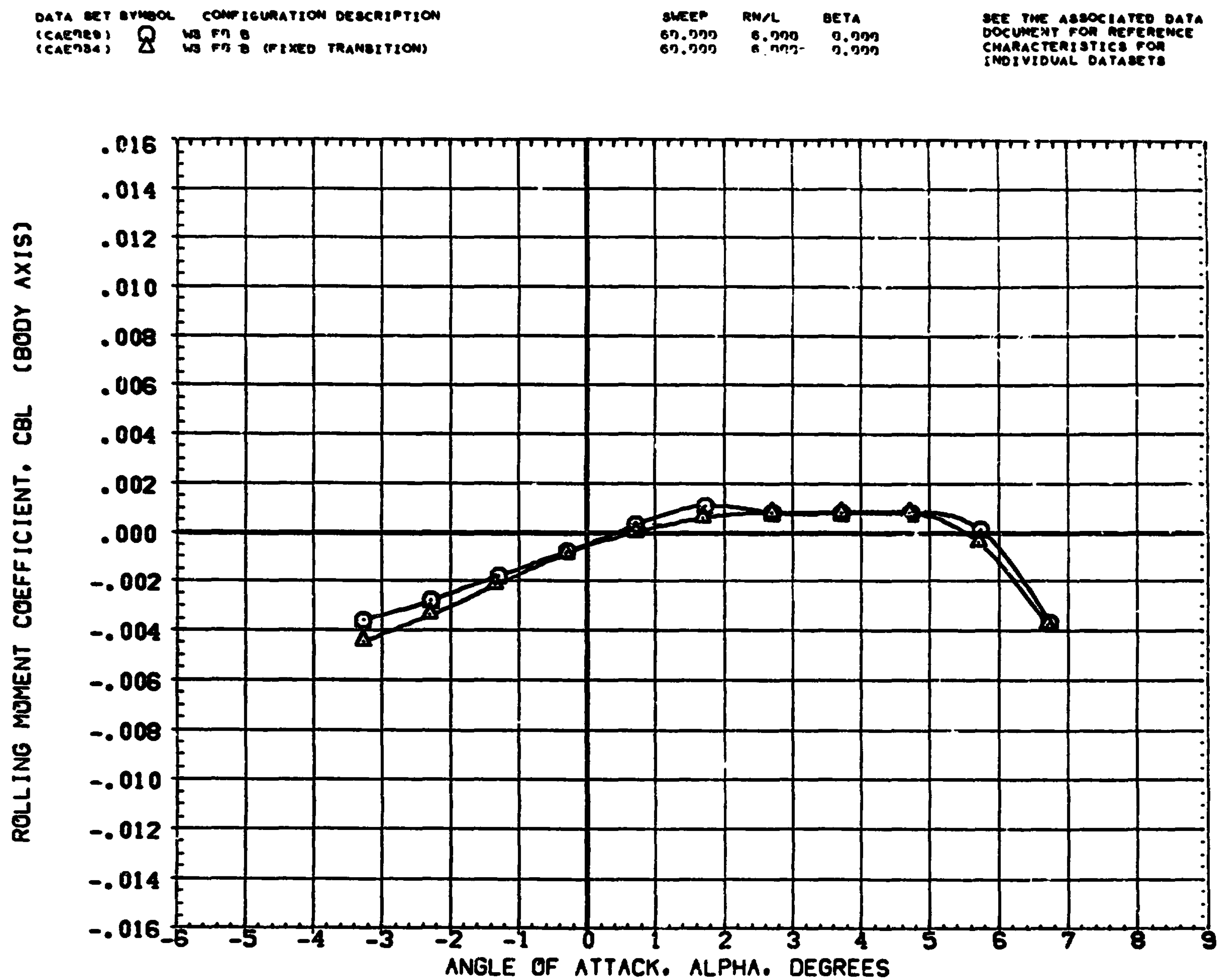

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