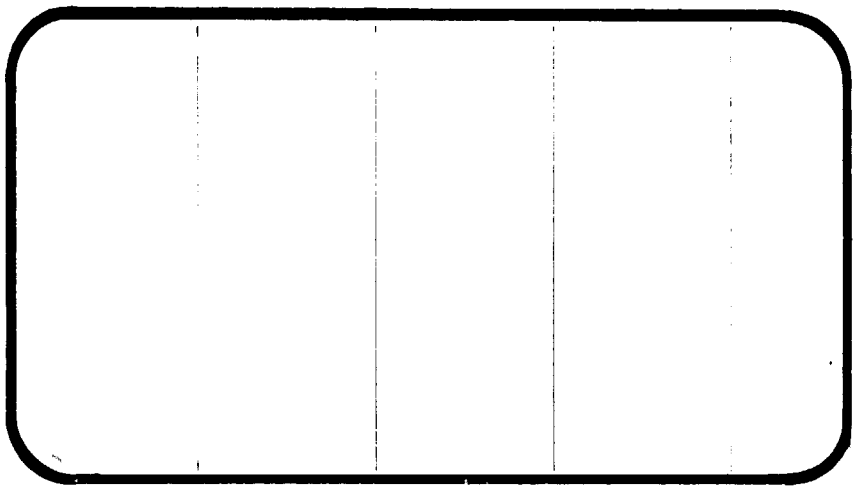
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



NASA-CR-134081) RESULTS OF INVESTIGATIONS (CA2CA) ON A 0.015-SCALE 140A/B CONFIGURATION SPACE SHUTTLE VEHICLE ORBITER MODEL IN THS (Chrysler Corp.) 175 p HC $11.75 CSCL 22B

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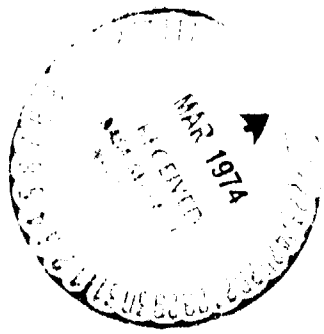

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

February, 1974

DMS-DR-2083
NASA CR-134,081

RESULTS OF INVESTIGATIONS (OA20A) ON AN 0.015-SCALE 140A/B CONFIGURATION SPACE SHUTTLE VEHICLE ORBITER MODEL IN THE NASA/LANGLEY RESEARCH CENTER UNITARY PLAN WIND TUNNEL

By

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Prepared under NASA Contract Number NAS9-13247

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Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

TEST NUMBER:	LARC UPWT 1057
NASA SERIES NO:	0A20A
MODEL NUMBER:	49-0
TEST DATES:	10 Sept. thru 12 Sept. 1973

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Chrysler Corporation Space Division assumes no responsibility for the data presented herein other than its display characteristics.

RESULTS OF INVESTIGATIONS (OA20A) ON AN 0.015-SCALE 140A/B CONFIGURATION SPACE SHUTTLE VEHICLE ORBITER MODEL IN THE NASA/LANGLEY RESEARCH CENTER UNITARY PLAN WIND TUNNEL

By

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ABSTRACT

This report documents data obtained from a wind tunnel test of an 0.015-scale 140A/B configuration SSV Orbiter model in the NASA/Langley Research Center Unitary Plan Wind Tunnel. This test was conducted beginning 10 September 1973, with runs at Mach numbers of 2.5, 3.9, and 4.6 for a constant Reynolds number of 2.5×10^6/foot. Only one model configuration, the complete 140A/B Orbiter vehicle, was investigated; various control-surface settings were run through angles-of-attack from -4 to +42 degrees at 0 and +3 degrees of yaw and through angles-of-sideslip from -4 to +6 degrees at 0, +10, +20, and +30 degrees pitch.

The purpose of this test was to establish and verify longitudinal and lateral-directional stability and control characteristics for the updated SSV configuration.

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TABLE OF CONTENTS

INDEX OF MODEL FIGURES

INDEX OF DATA FIGURES

FIGURE	TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PLOT PAGES
Fig. 4	Elevons Deflected	(A)	ELVTR, BDFLAP	1-30
Fig. 5	Bodyflap Deflected	(A)	BDFLAP	31-60
Fig. 6	Incremental Effects of Deflected Elevons	(B)	DELVTR, BDFLAP	61-75
Fig. 7	Incremental Effects of Deflected Bodyflap	(B)	DBDFLP	76-85
Fig. 8	Lateral-Directional Yaw Polar	(C)	BETA	86-94
Fig. 9	Lateral-Directional Derivatives	(D)	DBETA	95-103
Fig. 10	Lateral-Directional Characteristics From Beta Sweeps	(E)	ALPHA	104-112
Fig. 11	Lateral-Directional Derivatives From Beta Sweeps	(F)	MACH	113-115

PLOTTED COEFFICIENTS SCHEDULE:

(A) CL, CD, CDF, CA, CAF, CAB, CN, CLM, L/D, XCP/L VS. ALPHA
CLM VS. CL, CLM VS. CN, CD VS. CL

(B) DCL, DCD, DCDF, DCN, DCA, DCAF, DCAB, DCLM VS. ALPHA

(C) CYN, CBL, CY VS. ALPHA

(D) DCYNDB, DCBLDB, DCY/DB VS. ALPHA

(E) CYN, CBL, CY VS. BETA

(F) CYBETA, CYNBET, CBLBET VS. ALPHA

NOMENCLATURE
General

SYMBOL	SADSAC SYMBOL	DEFINITION
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_l - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m^2, psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m^2, psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m^3, $slugs/ft^3$
		Reference & C.G. Definitions
A_b		base area; m^2, ft^2
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
ℓ_{REF} $\bar{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m^2, ft^2
	MRP	moment reference point
X_{CG}	XMRP	moment reference point on X axis
Y_{CG}	YMRP	moment reference point on Y axis
Z_{CG}	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

SYMBOL	SADSAC SYMBOL	DEFINITION
C_N	CN	normal-force coefficient: $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient: $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient: $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient: $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient: $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CYN	yawing-moment coefficient: $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CRL	rolling-moment coefficient: $\frac{\text{rolling moment}}{qSb}$

Stability-Axis System

C_L	CL	lift coefficient: $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient: $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient: $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient: $C_D - C_{D_b}$
C_Y	CY	side-force coefficient: $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient: $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CLN	yawing-moment coefficient: $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CRL	rolling-moment coefficient: $\frac{\text{rolling moment}}{qSb}$
L/D	L/D	lift-to-drag ratio: C_L/C_D
L/D_f	L/DF	lift to forebody drag ratio: C_L/C_{D_f}

NOMENCLATURE (Concluded)

ADDITIONS TO STANDARD LIST

SYMBOL	SADSAC SYMBOL	DEFINITION
$C_{A_{SC}}$	CASC	Sting-cavity axial force coefficient
C_{P_B}	CPB	Base pressure coefficient
$C_{P_{SC}}$	CPSC	Sting-cavity pressure coefficient
X_{cp}/ℓ_B	XCP/L	Normal force center-of-pressure
P_T	PT	Freestream total pressure, PSF
P	P	Freestream static pressure, PSF
T_T	TT	Freestream total temperature, °R
δ_E	ELEVON	Elevon deflection, degrees
δ_A	AILRON	Aileron deflection, degrees
δ_{BF}	BDFLAP	Bodyflap deflection, degrees
δ_{SB}	SPDBRK	Speedbrake deflection, degrees
δ_R	RUDDER	Rudder deflection, degrees

CONFIGURATION INVESTIGATED

Throughout test OA20A the full 140A/B hybrid configuration Space Shuttle Vehicle Orbiter was used. No configuration buildup was possible in the short test period.

Model (49-0) dimensional data are given for the 140A/B configuration components in another section of this report.

The tested configuration included the following components:

B_{26}	Basic 140A/B configuration fuselage
C_9	Basic 140A/B configuration canopy
F_7	Basic 140A/B configuration bodyflap
M_7	Basic 140A/B configuration OMS/RCS pods
N_{28}	Basic 140A/B configuration OMS engine nozzles
W_{116}	Basic 140A/B configuration wing
E_{26}	Basic 140A/B configuration elevons for W_{116}
V_8	Basic 140A/B configuration vertical tail
R_5	Basic 140A/B configuration rudder for V_8

TEST FACILITY DESCRIPTION

The NASA LRC 4-foot Unitary Plan Wind Tunnel (UPWT) is a closed-circuit, continuous flow, variable density facility. The test section is 4 feet by 4 feet by 7 feet long.

Two tunnel legs are available for supersonic testing in the Mach number ranges 1.47 to 2.86 (Leg No. 1) and 2.29 to 4.63 (Leg No. 2). Leg No. 2 was used for this test. An asymmetric, sliding block nozzle position and total pressure setting provide the test Mach numbers at a specified Reynolds number. Reynolds number can be varied from 0.76 to 7.78 million per foot. Available stagnation pressure variation is 4.0 to 142. psia. Dynamic pressure variation is 95. to 1260. psf with normal operating stagnation temperature about 150°F in Mach modes 2 or 3 and about 175°F in Mach mode 4. The tunnel is equipped with a dry air supply, an evacuating system, and a cooling system. The facility power is approximately 83,000 horsepower.

Model mounting provisions consist of various sting arrangements, including axial (longitudinal), lateral (independent pitch and yaw), and roll movement with side wall support. A Schlieren system and oil flow visualization equipment are available. Data are recorded at the tunnel and reduced off-line at the Langley Computer Center. The tunnel is used for force and moment, pressure, and dynamic stability tests. Hot and cold jet effects and heat transfer have been studied in the UPWT.

DATA REDUCTION

Force and moment data are reduced to coefficient form in both body and stability axis systems. Base and cavity pressure adjustments are applied.

Base Pressure Coefficient

$$CPB = \frac{P_B - P_\infty}{q_\infty}, \text{ where } P_B = \frac{P_{B_F}A_{B_F} + P_{B_M}A_{B_M}}{AB_F + AB_M}$$

Sting-Cavity Pressure Coefficient

$$CPSC = \frac{P_{SC} - P_\infty}{q_\infty}, \text{ where } P_{SC} \text{ is sting-cavity pressure}$$

Sting-Cavity Axial-Force Coefficient

$$CASC = \frac{-(P_{SC} - P_B)\,A_{SC}}{q_\infty \quad S_W}, \text{ where } A_{SC} \text{ is sting-cavity area and } S_W \text{ is the wing reference area}$$

Fuselage Base Axial-Force Coefficient

$$CAB = -\frac{CPB(A_B) + CPSC\,(A_{SC})}{S_W}, \text{ where } A_B = A_{B_F} + A_{B_M}$$

Forebody Axial-Force Coefficient

$$CAF = CA - CAB$$

Normal-Force Center of Pressure

$$XCP/L = \frac{X_{CG}}{\ell B} - \frac{CLM\,(\bar{c}_W)}{CN\,(\ell B)}$$

Where X_{CG} is the longitudinal distance from the model nose to the Moment Reference Center, CLM is the pitching moment coefficient, CN is the normal force coefficient, ℓB is the reference body length, and $\bar{c}_W$ is the mean aerodynamic chord of the wing.

REFERENCE DIMENSIONS AND CONSTANTS

Symbol	Definition	Value
A_{B_F}	Fuselage base area (excluding cavity)	0.0414 Ft^2
A_{B_M}	Base area of OMS pods	0.0201 Ft^2
A_{SC}	Sting-cavity area	0.03409 Ft^2
b_w	Reference wing span	1.171 Ft
$\bar{c}_w$	Reference MAC	0.5935 Ft
ℓ_B	Reference body length	1.616 Ft
S_w	Reference wing area	0.60525 Ft^2
X_{CG}	Longitudinal length, nose to Moment Reference Center	12.774 in.
Y_{CG}	Lateral length, plane of symmetry to Moment Reference Center	0.000 in.
Z_{CG}	Vertical length, FRP to Moment Reference Center	0.375 in.
A_B	Base area ($A_{B_F} + A_{B_M}$)	0.0615 Ft^2

TEST : ØA-20	TABLE I.	DATE : 9-10-73

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
2.5	2.5×10^6	3.75	150
3.9	2.5×10^6	2.43	150
4.6	2.5×10^6	1.88	150

BALANCE UTILIZED: NASA/LRC #832D

	CAPACITY	ACCURACY	COEFFICIENT TOLERANCE
NF	1000 lbs.		
SF	250 lbs.		
AF	85 lbs.		
PM	2000 in-lbs.		
RM	500 in-lbs.		
YM	1000 in-lbs.		

COMMENTS:

TABLE II.

TEST: ØA - 20 — DATA SET/RUN NUMBER COLLATION SUMMARY — **DATE:** 9-10-73

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	δ_{EL}	δ_{ER}	δ_E	δ_A	δ_R	δ_{SB}	δ_{BF}			Re/ft.	NO. OF RUNS	MACH 2.5	MACH 3.9	MACH 4.6	
RQ2001	$B_{26}C_9M_7N_{28}F_7W_{[illegible]}E_{26}V_8R_5$	A	O	0	0	0	0	0	54.92	-11.7			2.5		4	10	16	
002		A	3												5	11	17	
003		O	B												6	12	18	
004		10	B												7	13	19	
005		20	B												8	14	20	
006		30	B												9	15	21	
007		A	O	-40	-40	-40	0	0	54.92	-11.7					24	22	23	
008		A	O	15	15	15	0	0	54.92	16.3					25	26	27	
009		A	O	0	0	0	0	0	54.92	16.3					—	28	29	

α OR β SCHEDULES (COEFFICIENTS):

(α) A: -4, -2, -1, 0, 1, 2, 3, 4, 6, 8, 10, 15, 20, 25, 30, 35, 40, 42 DEG.

(β) B: -4, -2, -1, 0, 1, 2, 4, 6 DEG

MODEL COMPONENT: BODY - B_{26}

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Fuselage

NOTE: B_{26} identical to B_{24} except underside of fuselage retained to accept W_{116}.

Model Scale = 0.015 MODEL DRAWING NO. SS-A00147

DRAWING NUMBER: VL70-000193
VL70-000119A

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length (Body Fwd Sta X_o = 235) - in.	1293.3	19.400
Max. Width (at X_o = 1520) - in.	262.0	3.93
Max. Depth (at X_o = 1464) - in.	250.0	3.75
Fineness Ratio	0.26357	0.26357
Area - ft^2		
Max. Cross-Sectional	340.88462	0.07670
Planform		
Wetted		
Base		

MODEL COMPONENT: CANOPY - Co

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Fuselage Canopy

Model Scale = 0.015 Model Drawing No. SS-A00147

DRAWING NUMBER VL70-000140A
VL70-000342A

DIMENSION:	FULL SCALE	MODEL SCALE
Length (X_o=434.643 to 670)	235.357	3.530
Max Width (X_o=513.127)	152.412	2.286
Max Depth (X_o=485.0)	25.000	0.375
Fineness Ratio		
Area		
Max Cross-Sectional		
Planform		
Wetted		
Base		

MODEL COMPONENT: Bodyflap – Y_7

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Bodyflap

NOTE: Bodyflap has variable scheduling deflection of +13.75° and -14.25° from null position. Hinge line located at X_o =2522.3. Z_o = 284.3.

Model Scale = 0.015 Model Drawing No. SS-A00147

DRAWING NUMBER VL70-000140, VL70-000145

DIMENSION:	FULL SCALE	MODEL SCALE
Length (X_o=1520 to X_o=1613) - IN.	93.000	1.395
Max Width - IN.	262.000	3.930
Max Depth (X_o = 1560) - IN.	23.000	0.345
Fineness Ratio		
Area - Ft^2		
Max Cross-Sectional		
Planform	150.5250	0.0339
Wetted		
Base	41.84722	0.00941

MODEL COMPONENT: OMS PODS- M/

GENERAL DESCRIPTION: Configuration 140A/B Orbiter OMS-Pods

MODEL SCALE: 0.015 Model Drawing No. SS-A00147

DRAWING NUMBER: VL70-000140A
VL70-000145

DIMENSIONS:	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta X_o = 1233.0) - IN.	327.000	4.905
Max Width (@ X_o = 1450.0) - IN.	94.5	1.418
Max. Depth (@ X_o = 1493.0) - IN.	109.000	1.635
Area		
Max Max Cross-Sectional		
Planform		
Wetted		
Base		

MODEL COMPONENT: OMS Nozzles (N_{28})

GENERAL DESCRIPTION: Configuration 140A/B Orbiter OMS Nozzles

MODEL SCALE: 0.015 Model Drawing No. SS-A00147

DRAWING NO.: VL70-000140A

DIMENSIONS:	FULL SCALE	MODEL SCALE
Mach No.		
Length ~ in.		
Gimbal Point to Exit Plane		
Throat to Exit plane		
Diameter ~ in.		
Exit		
Throat		
Inlet		
Area ~ ft^2		
Exit		
Throat		
Gimbal Point (Station) ~ in.		
X	1518.0	22.77
Y	+ 88.0	1.32
Z	492.0	7.38
Null Position ~ deg.		
Pitch	15° 49'	15° 49'
Yaw (Outboard)	12° 17'	12° 17'

MODEL COMPONENT: WING-W_{116}

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Wing

NOTE: Identical to W_{114} except airfoil thickness. Dihedral angle is along trailing edge of wing.

MODEL SCALE: 0.015 Model Drawing No. SS-A00148

TEST NO. DWG. NO. VL70-000140B VL70-000200

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.00	0.6053
Span (Theo In.	936.6816	14.050
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees	3.500	3.500
Incidence Angle, degrees	0.500	0.500
Aerodynamic Twist, degrees	± 3.000	± 3.000
Sweep Back Angles, degrees		
Leading Edge	45.00	45.00
Trailing Edge	-10.056	-10.056
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.0.0.	680.2429	10.339
Tip, (Theo) B.P.	137.8486	2.068
MAC	474.8117	7.222
Fus. Sta. of .25 MAC	1126.721	17.051
W.P. of .25 MAC	291.00	4.365
B.L. of .25 MAC	187.33491	2.810
EXPOSED DATA		
Area (Theo) Ft^2	1812.2205	0.408
Span, (Theo) In. BP108	736.6816	11.050
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
Chords		
Root BP108	570.6230	8.559
Tip 1.00 $\frac{b}{2}$	137.8512	2.06
MAC	354.2376	5.314
Fus. Sta. of .25 MAC	1164.237	17.464
W.P. of .25 MAC	292.00	4.380
B.L. of .25 MAC	230.67786	3.595
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root $\frac{b}{2}$ =	0.113	0.113
Tip $\frac{b}{2}$ =	0.12	0.12
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft^2	118.333	0.0266
Leading Edge Intersects Fus M. L. @ Sta	505.0	7.575
Leading Edge Intersects Wing @ Sta	1003.5	15.053

MODEL COMPONENT: ELEVONS - E_{26}

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Elevons

NOTE: VL70 [illegible]400 data for (1) of (2) sides. Identical to E_{25} except airfoil thickness.

Model Scale = 0.015 Model Drawing No. SS-A00148

DRAWING NUMBER: VL70 [illegible]
VL70 [illegible]

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	223.5914	0.0503
Span (equivalent)	368.34	5.525
Inb'd equivalent chord	119.623	1.794
Outb'd equivalent chord	55.1922	0.828
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.2096	0.2096
At Outb'd equiv. chord	0.4004	0.4004
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Tailing Edge	-10.056	-10.056
Hingeline	0.00	0.00
Area Moment (Normal to hinge line)	851.1502	0.00287

MODEL COMPONENT: VERTICAL - V e

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Vertical Tail

NOTE: Similar to V5 with radius on TE upper corner and LE lower corner where vertical meets fuselage.

Model Scale = 0.015 Model Drawing No. SS-A00148

DRAWING NUMBER: VL70-[illegible]

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) Ft^2	413.253	0.09298
Planform		
Span (Theo) In	315.[illegible]	4.73580
Aspect Ratio	1.[illegible]	1.675
Rate of Taper	0.[illegible]	0.[illegible]
Taper Ratio	0.[illegible]	0.[illegible]
Sweep Back Angles, degrees		
Leading Edge	45.00	45.00
Trailing Edge	25.[illegible]	25.[illegible]
0.25 Element Line	41.130	41.130
Chords:		
Root (Theo) WP	268.500	4.02750
Tip (Theo) WP	108.[illegible]	1.62705
MAC	199.[illegible]	2.99711
Fus. Sta. of .25 MAC	1463.[illegible]	21.95250
W. P. of .25 MAC	635.[illegible]	9.53283
B. L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle Deg	10.00	10.00
Trailing Wedge Angle Deg	14.[illegible]	14.[illegible]
Leading Edge Radius (Min) - In.	2.0[illegible]	0.0300
Void Area	13.32	0.00296
Blanketed Area	0.00	0.00

MODEL COMPONENT: RUDDER - R5

GENERAL DESCRIPTION: 2A, 3, and 3A Configuration per Rockwell Lines VL70-000095

Model Scale = 0.015

DRAWING NUMBER: VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - FT^2	106.38	0.0239
Span (equivalent) - IN.	201.0	3.015
Inb'd equivalent chord	91.585	1.374
Outb'd equivalent chord	50.833	0.762
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.400	0.400
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	34.83	34.83
Trailing Edge	26.25	26.25
Hingeline	34.83	34.83
Area Moment (Normal to hinge line)- FT^3 Product of Area and Mean Chord	526.13	0.00178

Notes:

1. Positive directions of force cofficients, moment coefficients, and angles are indicated by arrow
2. For clarity, origins of wind and stability axe have been displaced from the center of gravity

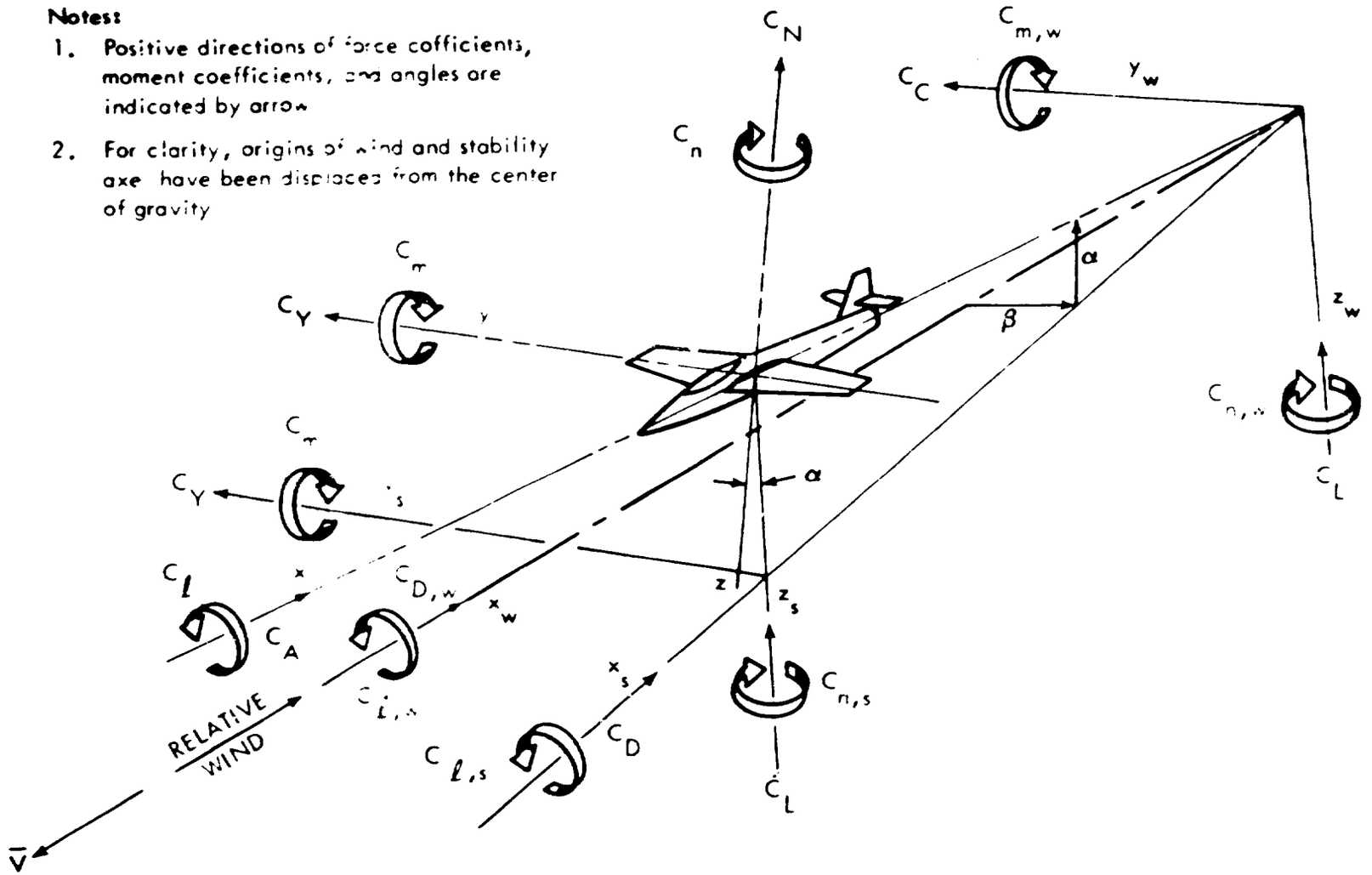
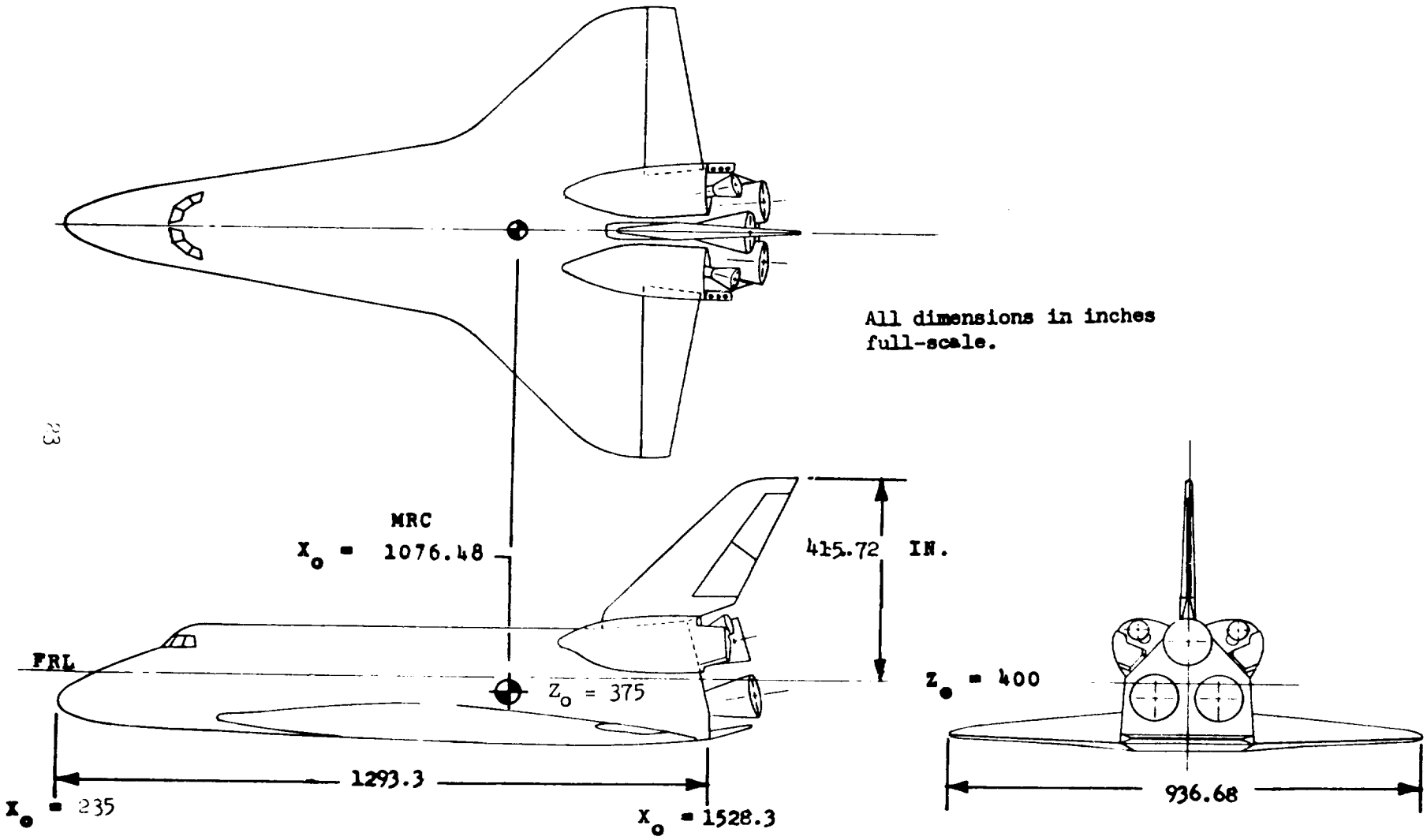
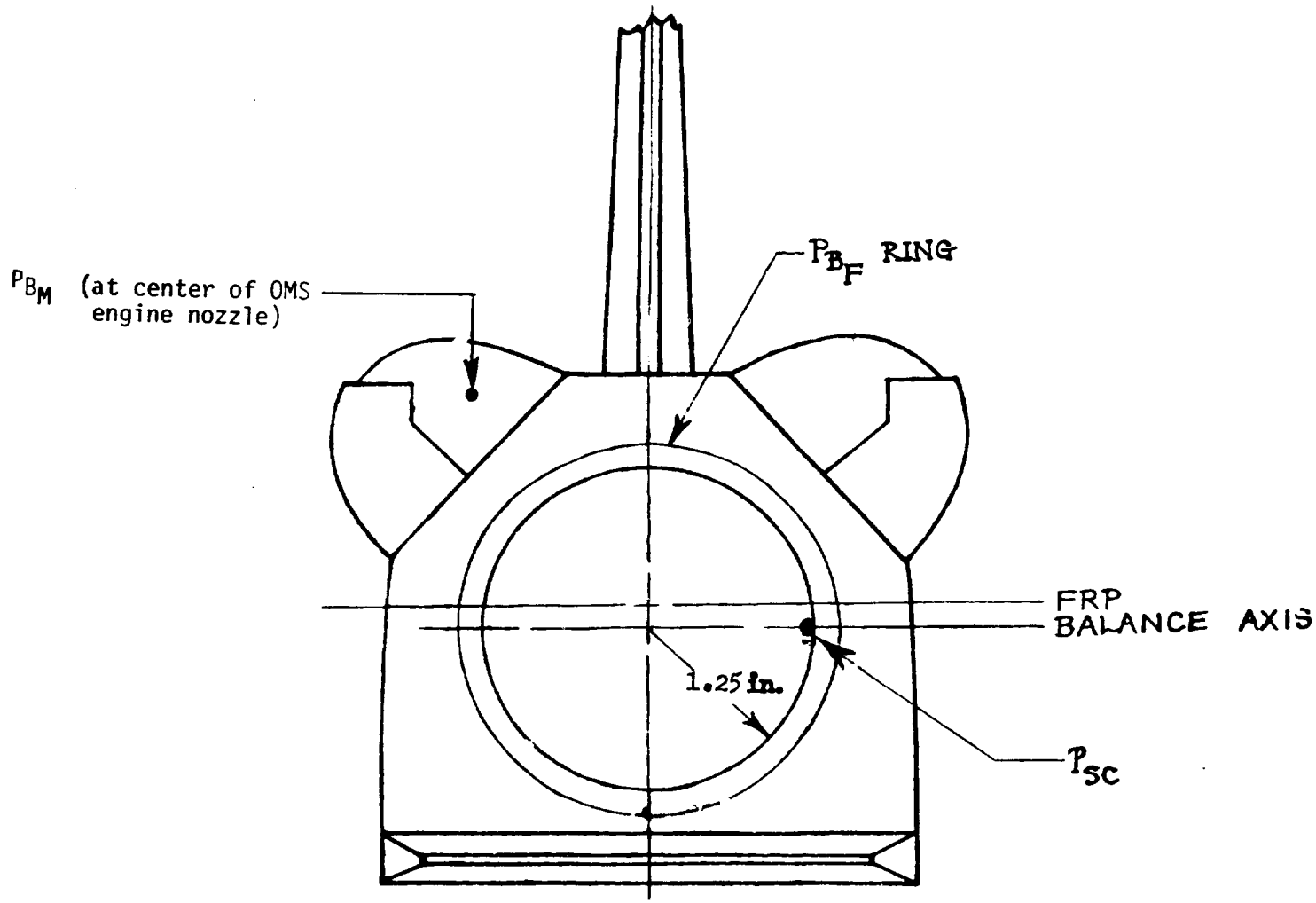


Figure 1. - Axis Systems.



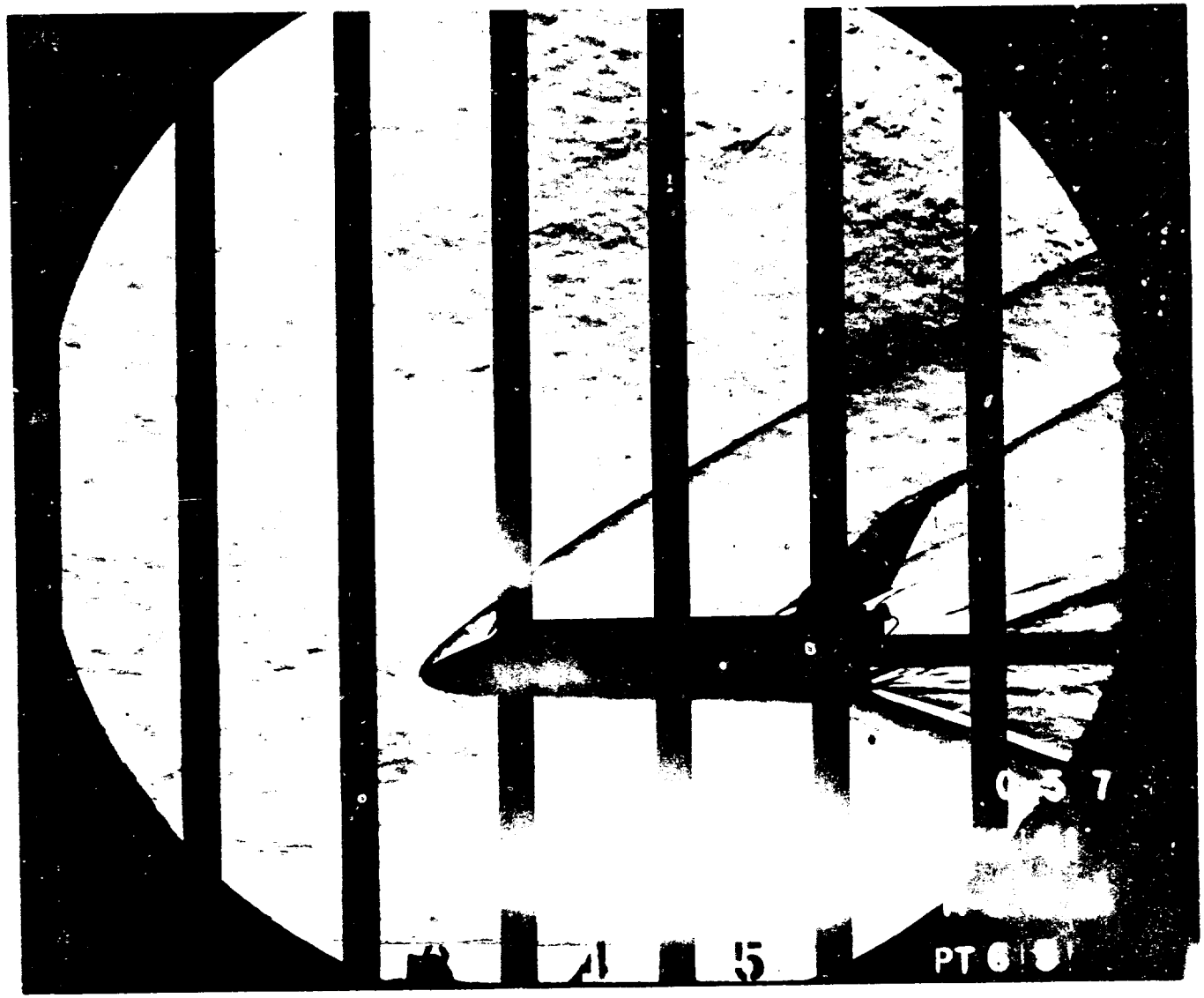
a. SSV Orbiter Configuration 140A/B for Tests OA20A and OA25

Figure 2. - Model Sketches.



b. Base and Cavity Pressure Locations for Test 0A20A

Figure 2. - Concluded.

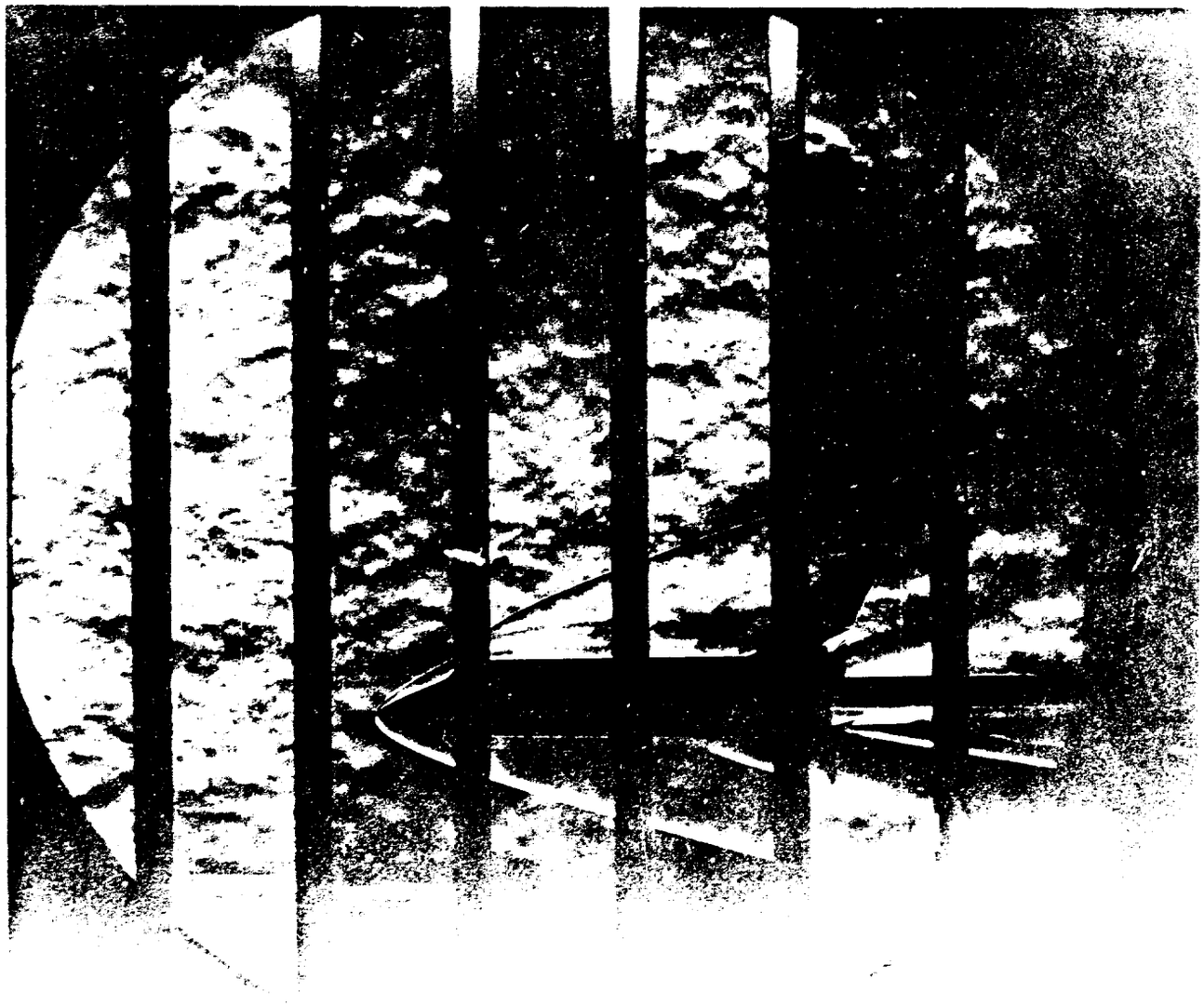


a. Schlieren Photograph at α = 0 and Mach = 2.5

Figure 3. - Model Photographs.

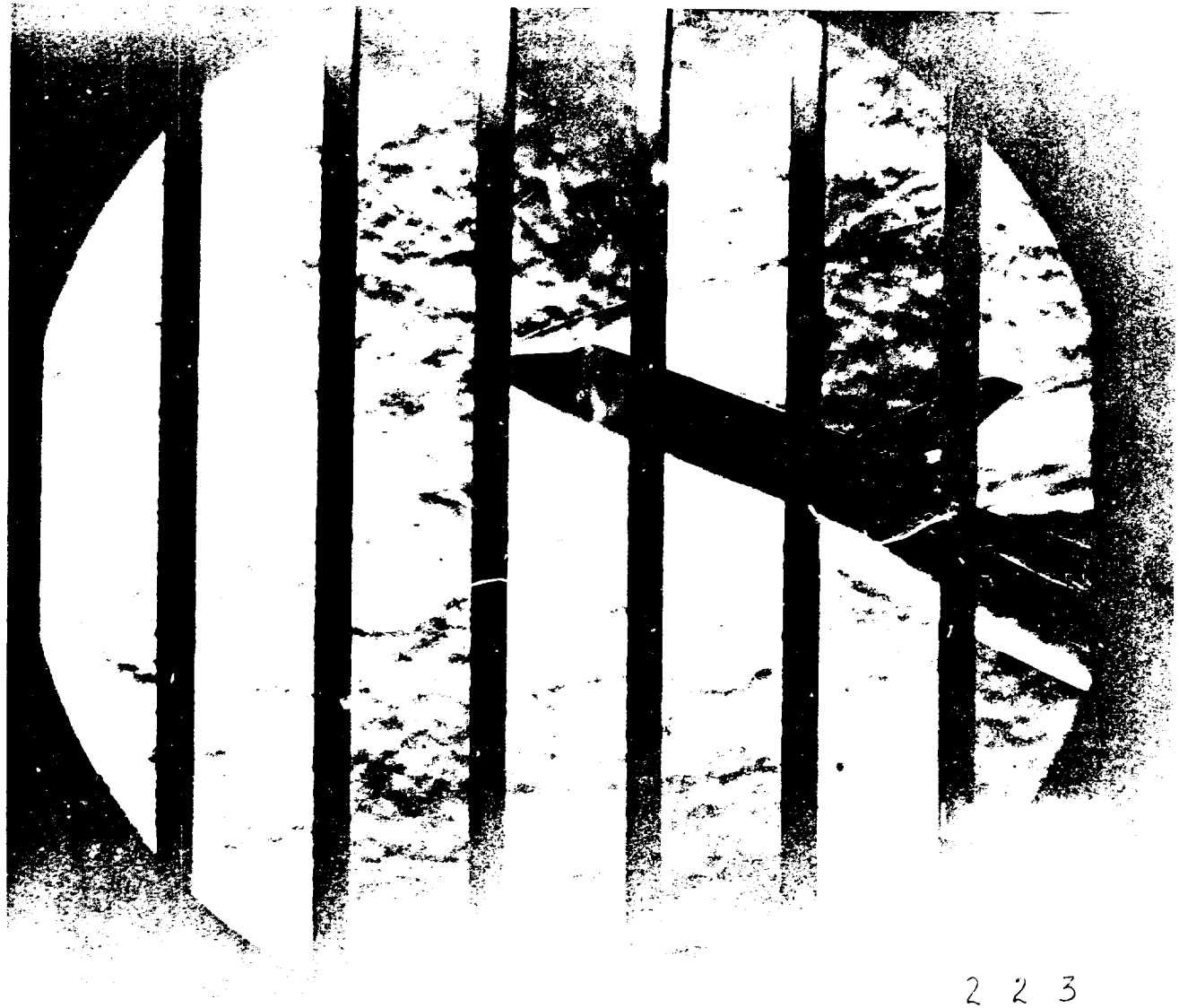
b. Schlieren Photograph at Nominal Flight Angle of Attack and Mach 2.5

Figure 3. - Continued.



c. Schlieren Photograph at α = 0 and Mach = 1.6

Figure 7. - Continued.



223

d. Schlieren Photograph at Nominal Flight Angle of Attack and Mach = 4.6

Figure 3. - Concluded.

DATA FIGURES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPDBRK	AILRON
(KQ2001)	▭	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	[illegible]	.000
(KQ2007)	▭	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	[illegible]	.000
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	[illegible]	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

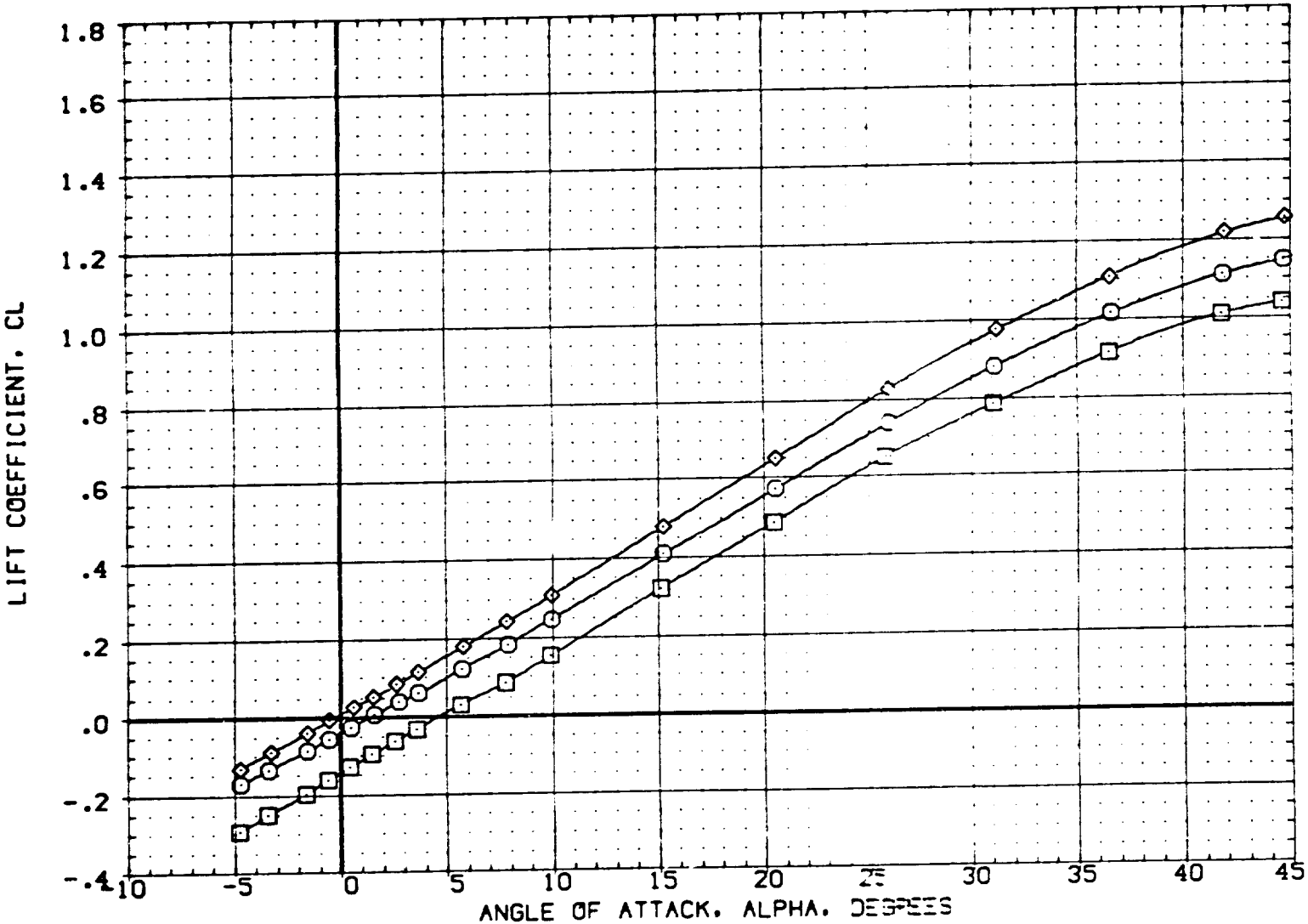


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

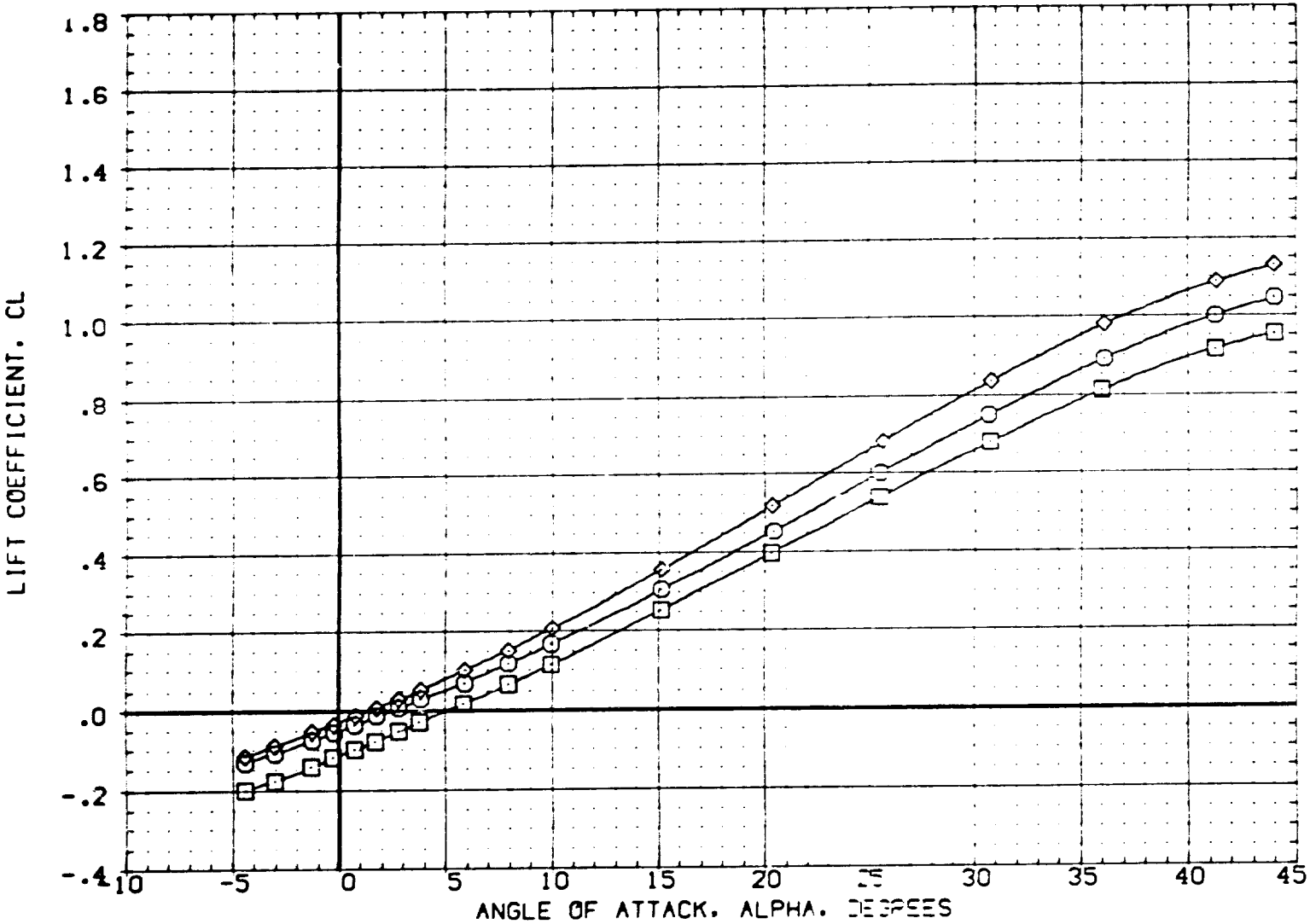


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(K02001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(K02007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(K02008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

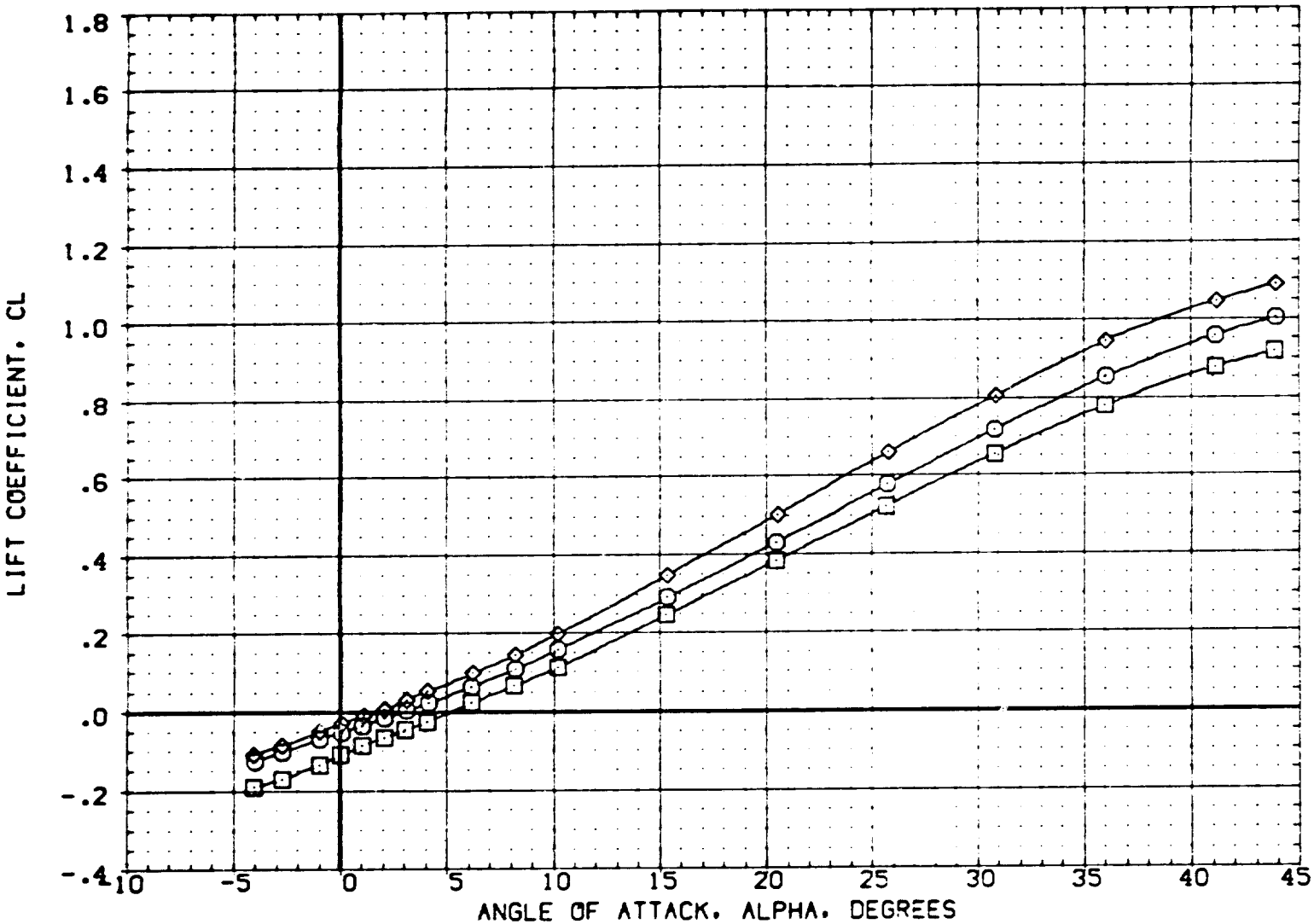


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2001)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2007)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEVTR	BOFLAP	SPOBRK	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

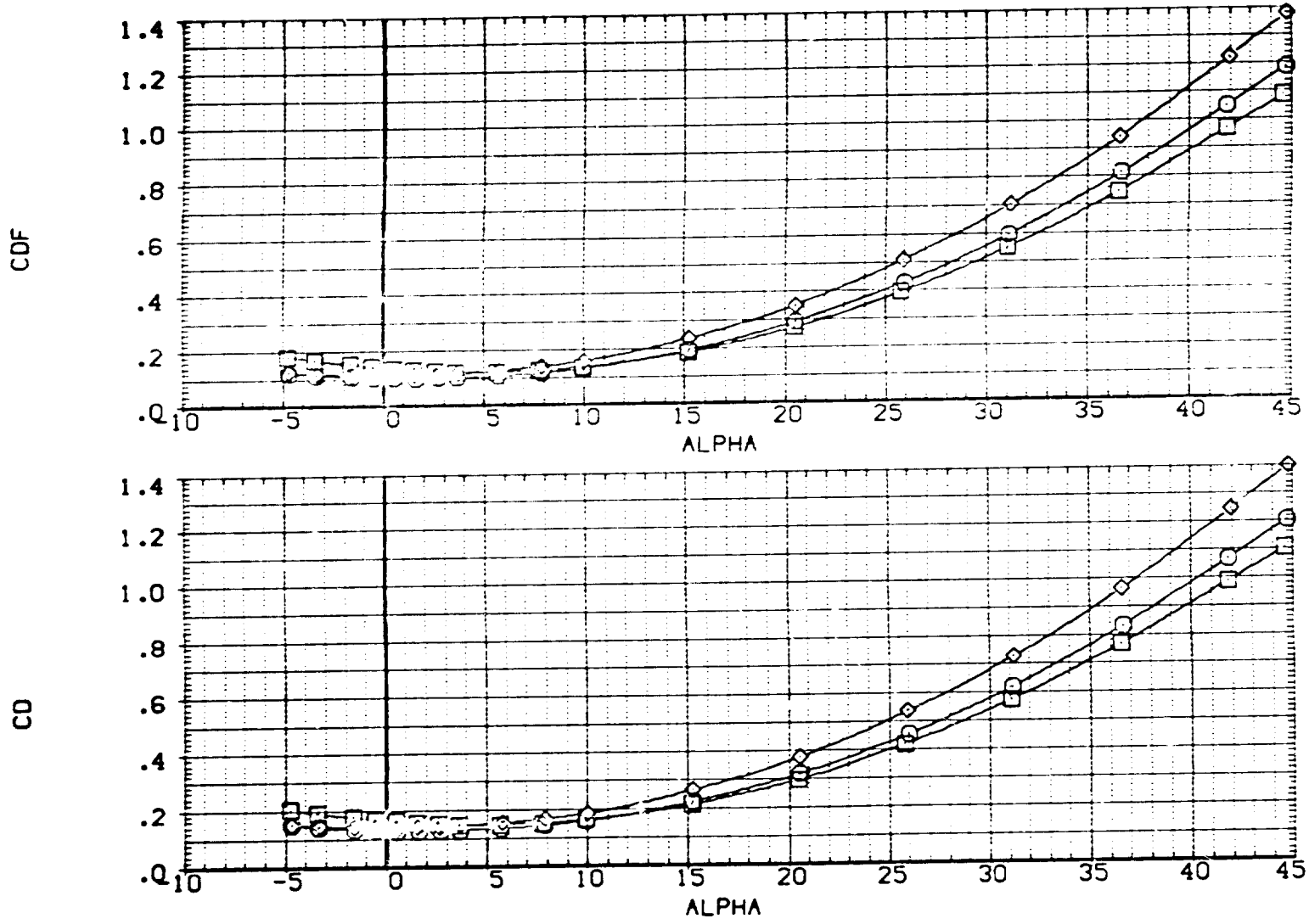
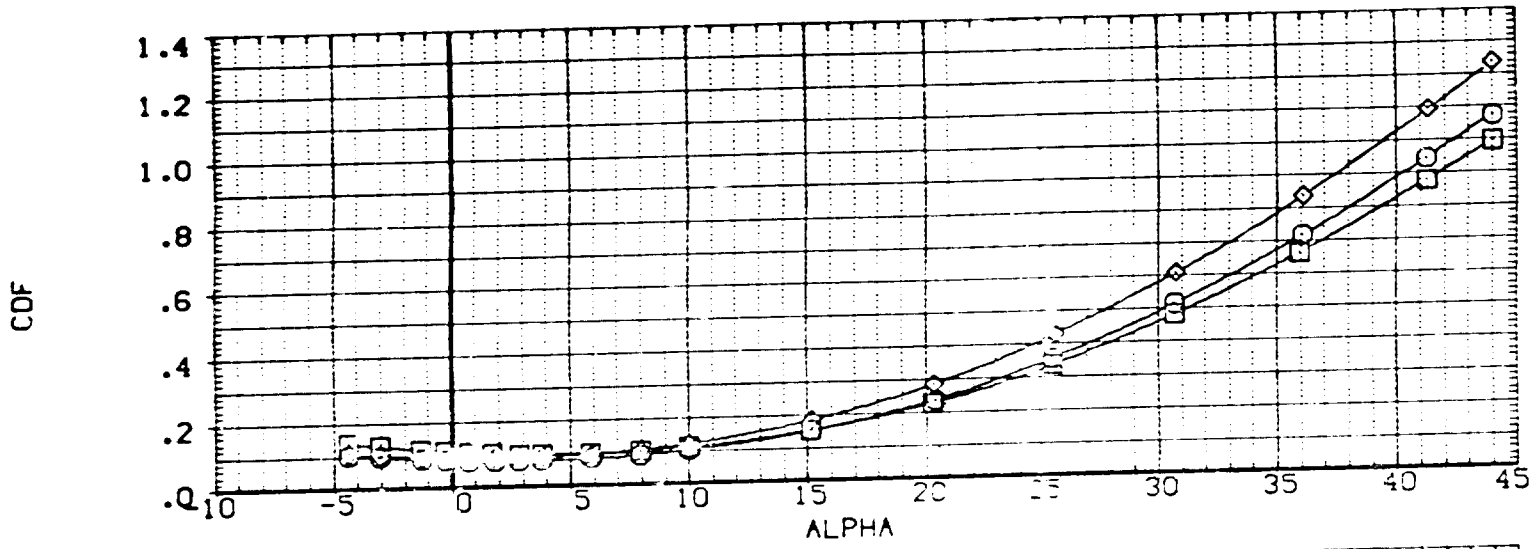


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPOBRK	AILRON
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE



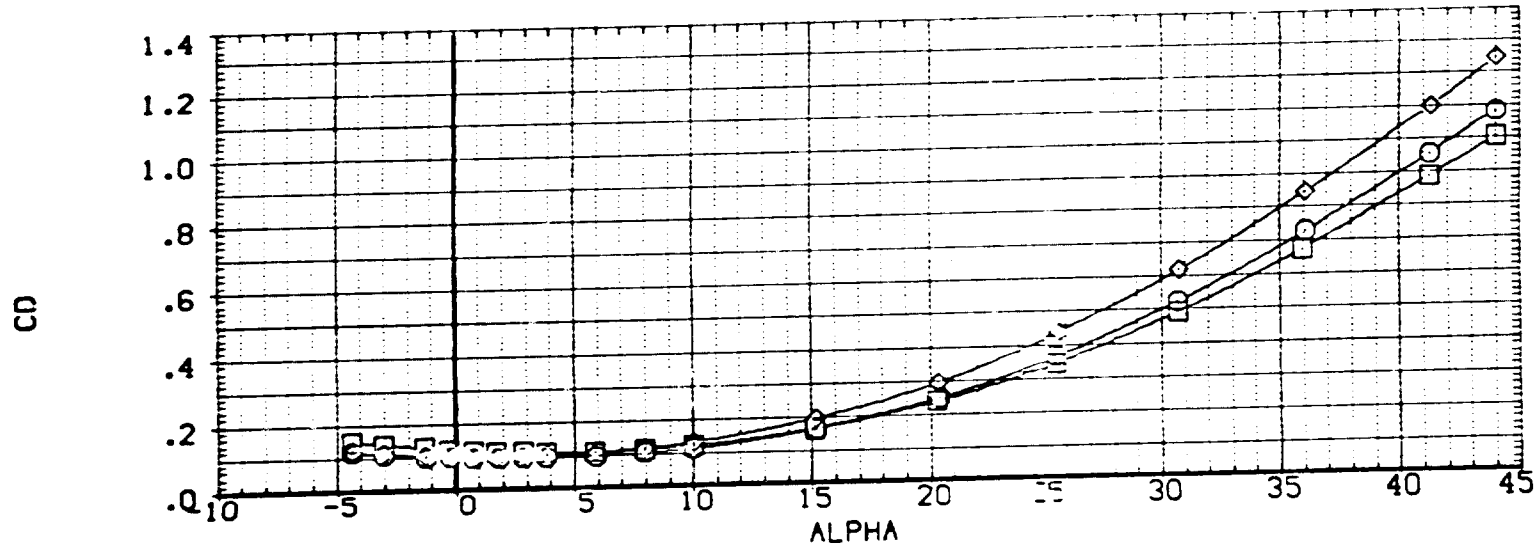


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

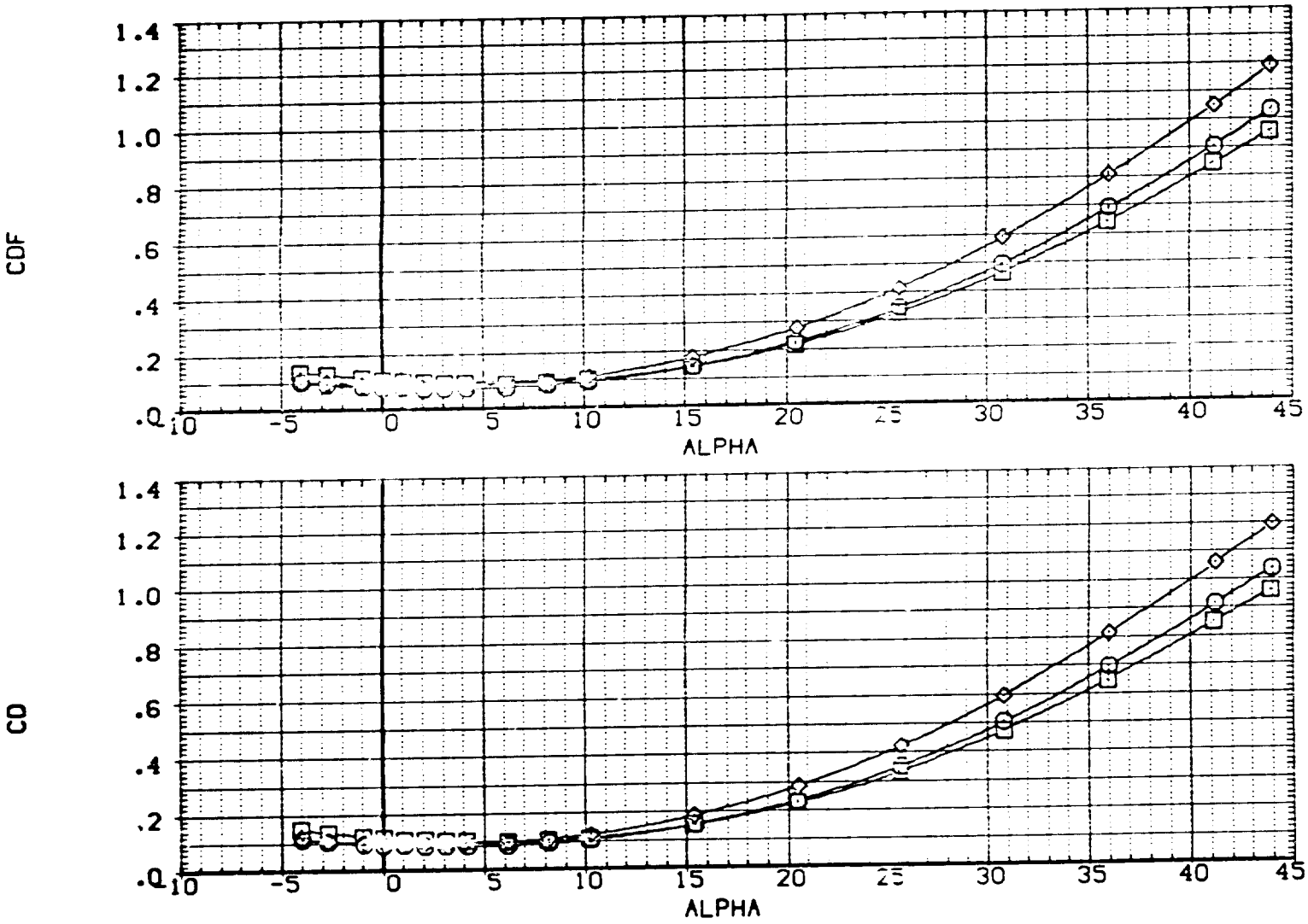


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

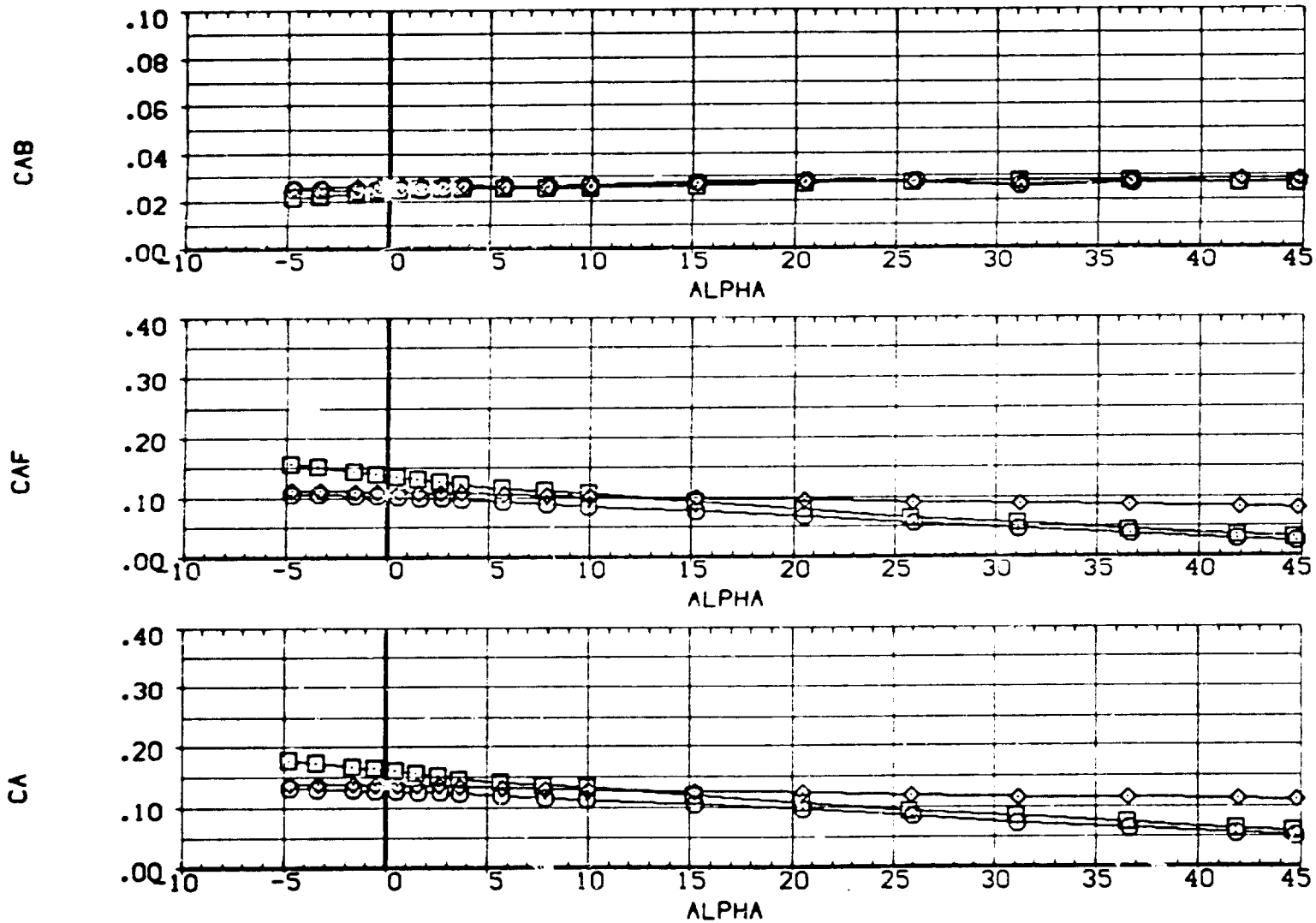


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEVTR	BOFLAP	SPDBRK	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

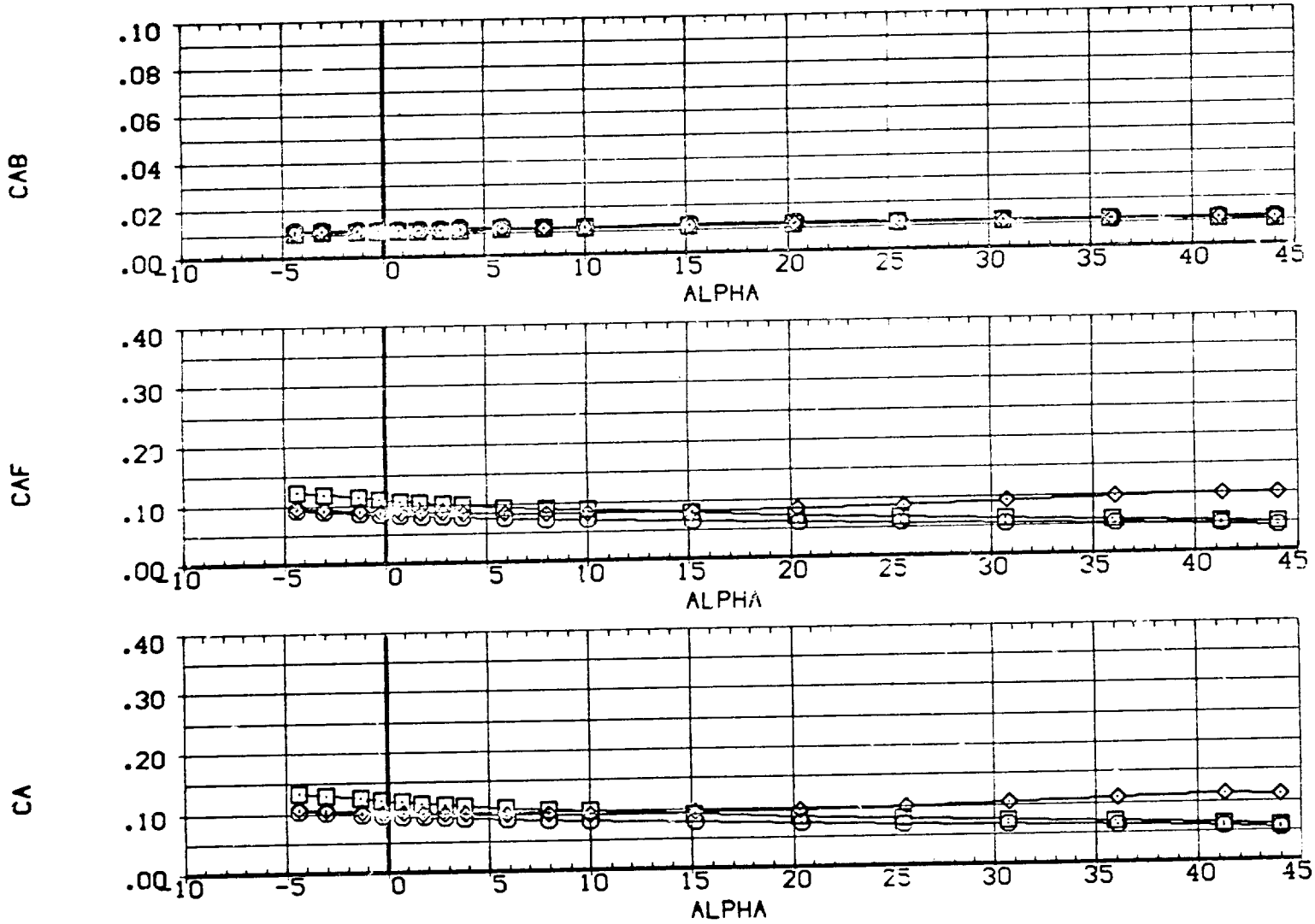


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPDBRK	AILRON
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

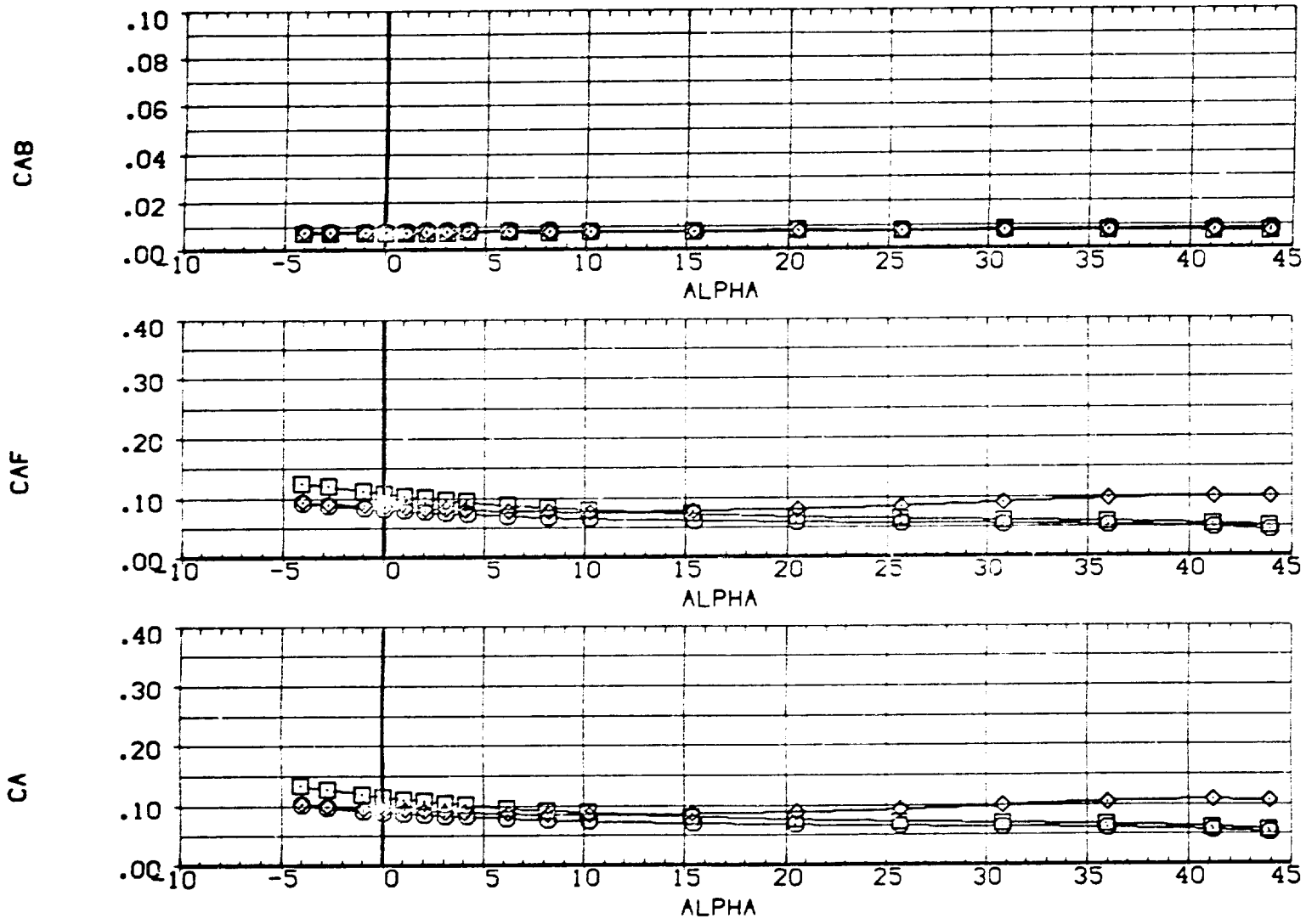


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
F22001	○	OA-20 LARC UPWT 1057 - 140A/B OPBITER	.000	-21.000	55.000	.000
F22007	□	OA-20 LARC UPWT 1057 - 140A/B OPBITER	-40.000	-21.000	55.000	.000
F22008	◇	OA-20 LARC UPWT 1057 - 140A/B OPBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8.17	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

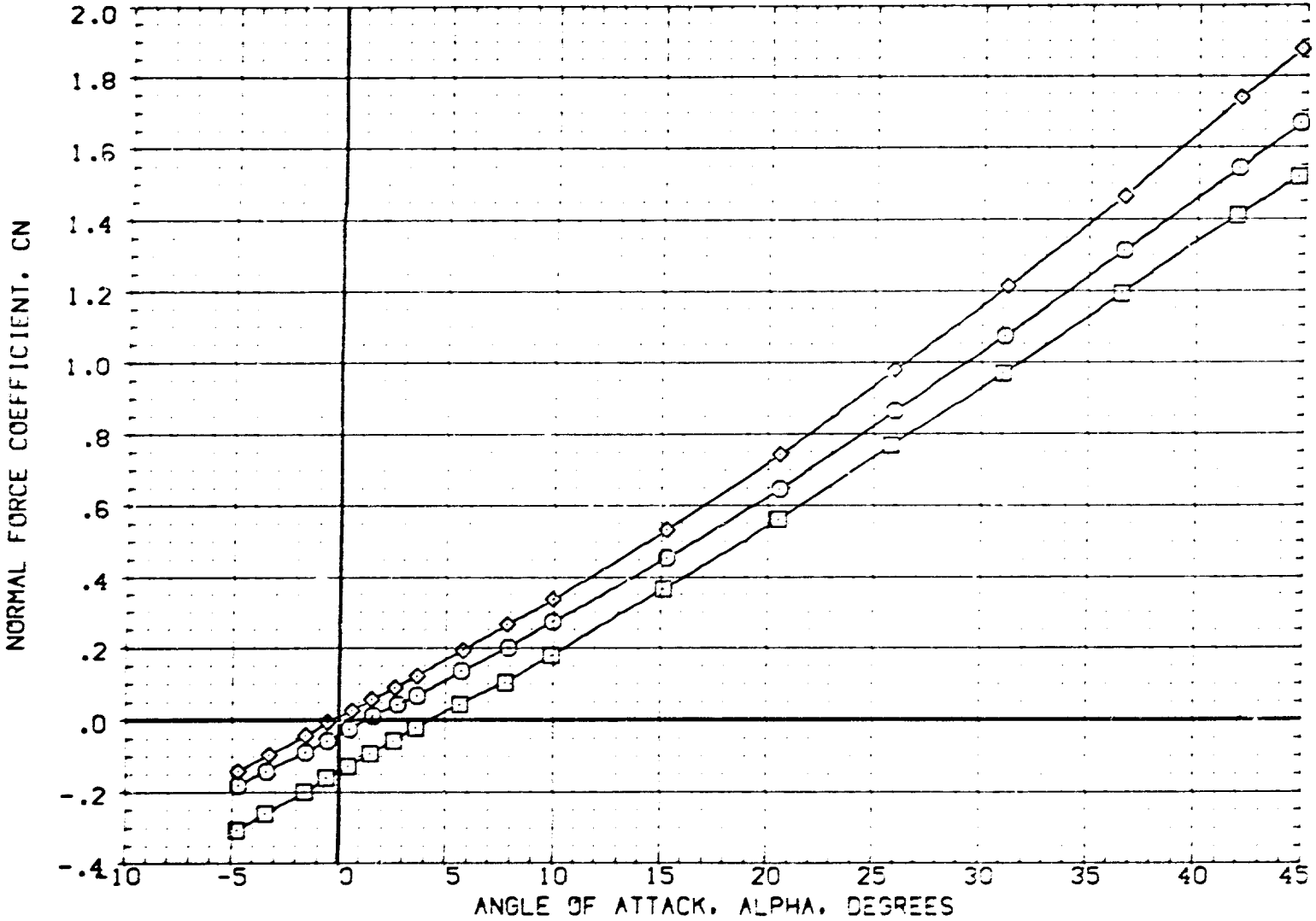


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPOBRK	AILRON
#02001		DA-20 LARC UPWT 1057 - 140A/B DPBITEP	.000	-21.000	.000	.000
#02007		DA-20 LARC UPWT 1057 - 140A/B DPBITEP	-40.000	-21.000	.000	.000
#02008		DA-20 LARC UPWT 1057 - 140A/B DPBITEP	15.000	10.000	.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	475.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	0.150	SCALE

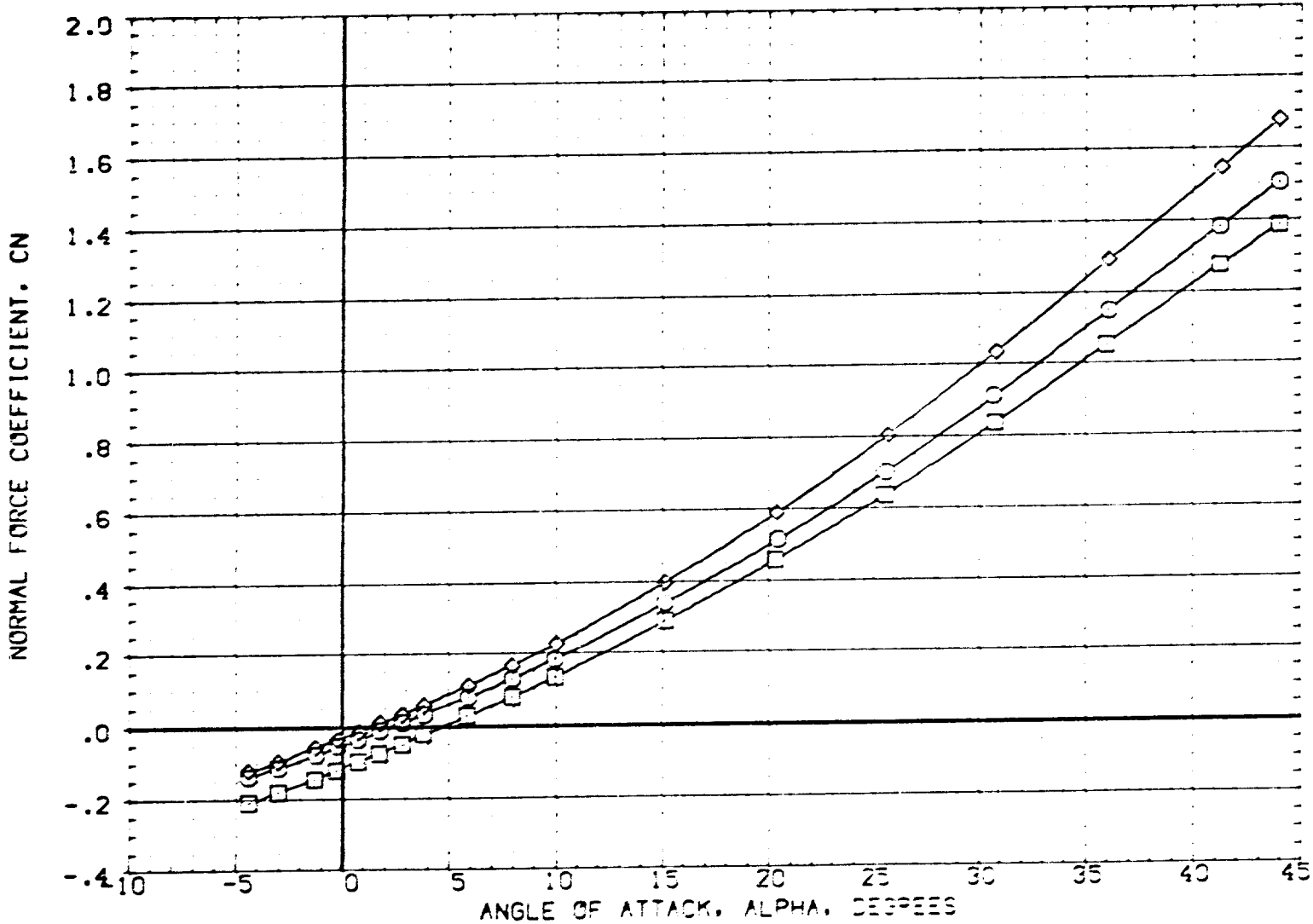


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(22006)		OA-20 LARC UPWT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(22007)		OA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(22008)		OA-20 LARC UPWT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

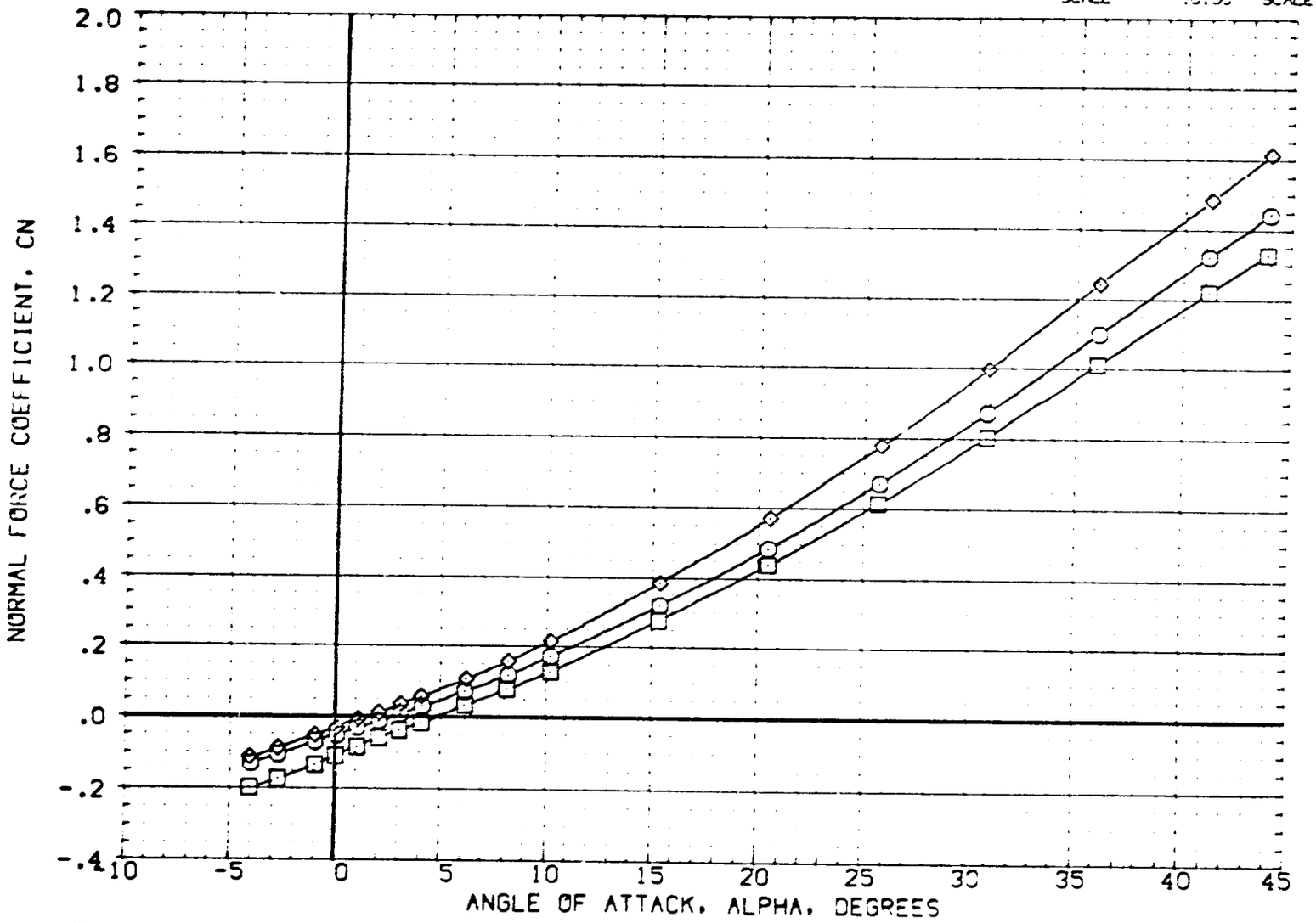


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPOBRK	AILRON
(F32001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(F32007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(F32008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

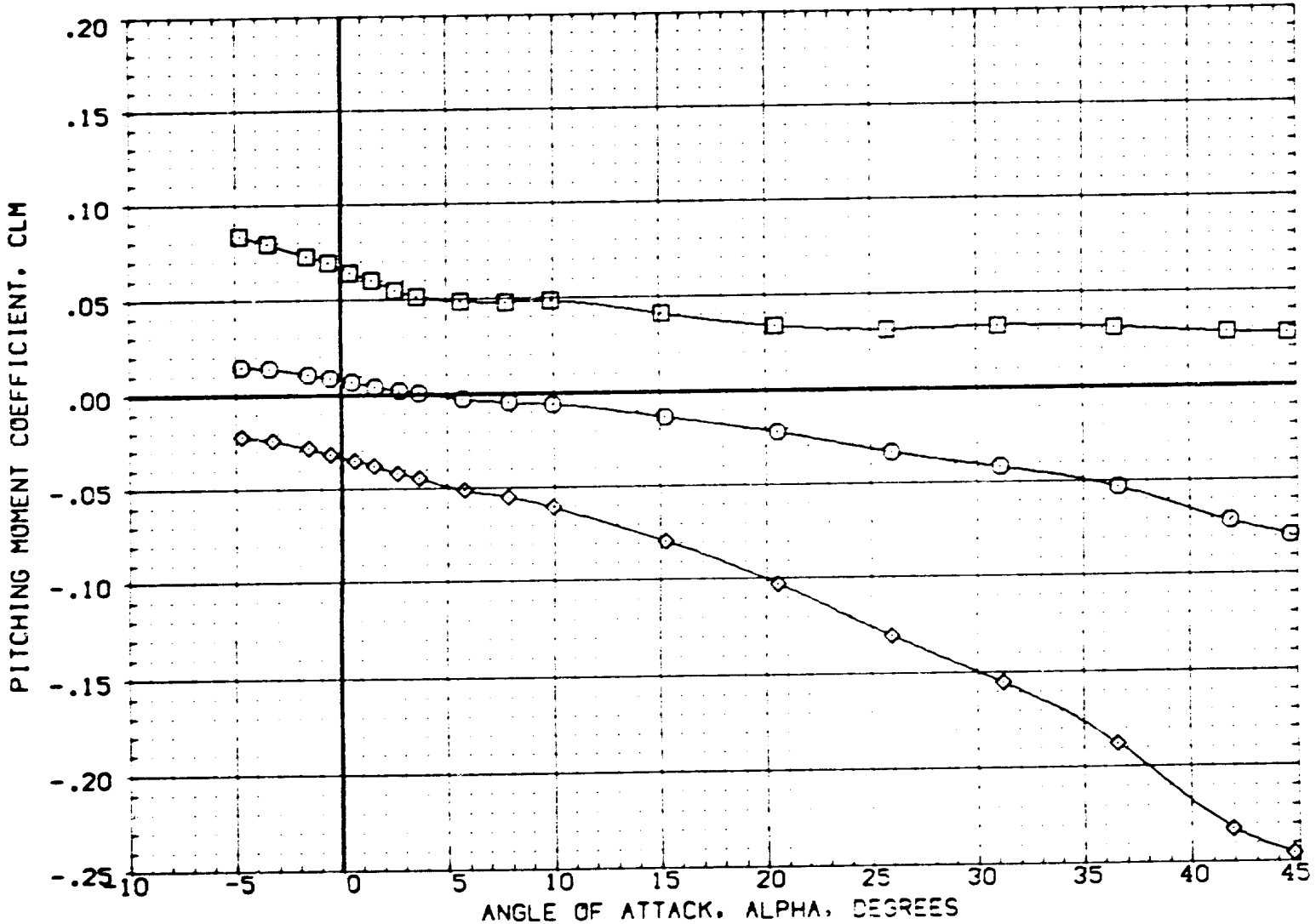


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
F22001	CLM	SA-20 LARC JPNT 1057 - 140A/B DPB ITER	.000	-21.000	55.000	.000
F22007	CLM	SA-20 LARC JPNT 1057 - 140A/B DPB ITER	-40.000	-21.000	55.000	.000
F22008	CLM	SA-20 LARC JPNT 1057 - 140A/B DPB ITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

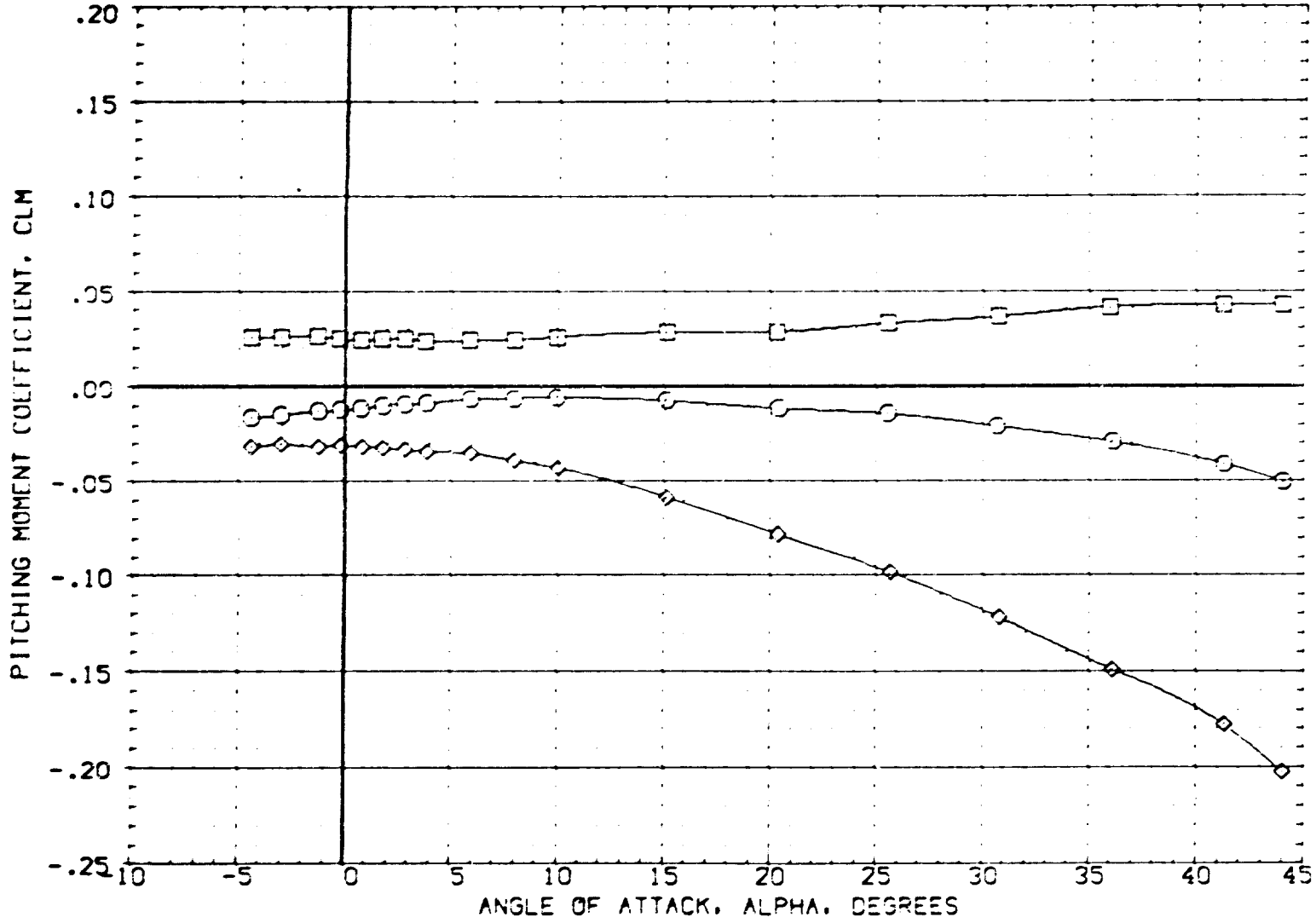


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPDBRK	AILRON
(RG2001)	○	CA-20 LARC UPWT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(RG2007)	□	CA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(RG2008)	◇	CA-20 LARC UPWT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

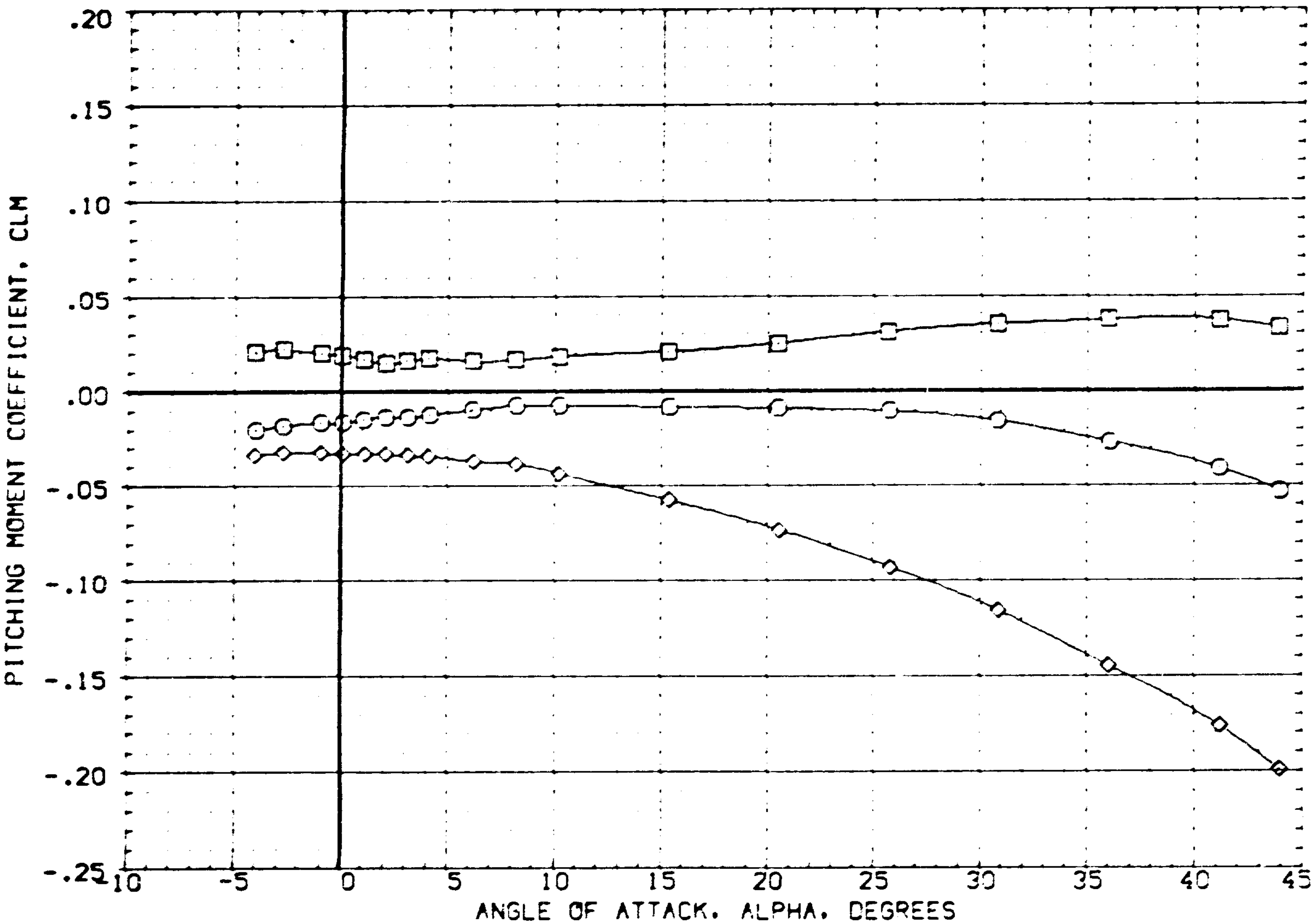


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

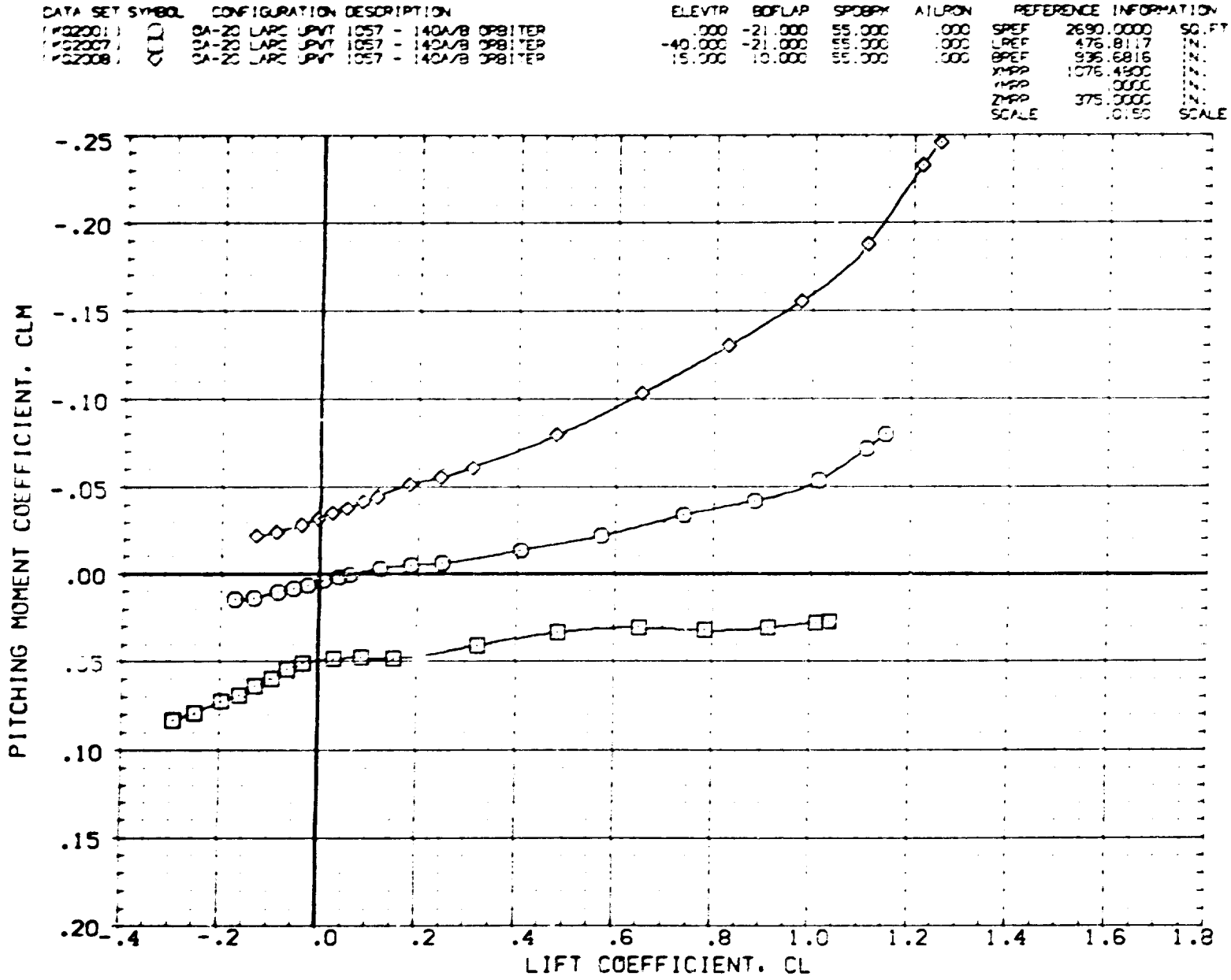


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(MG2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(MG2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(MG2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

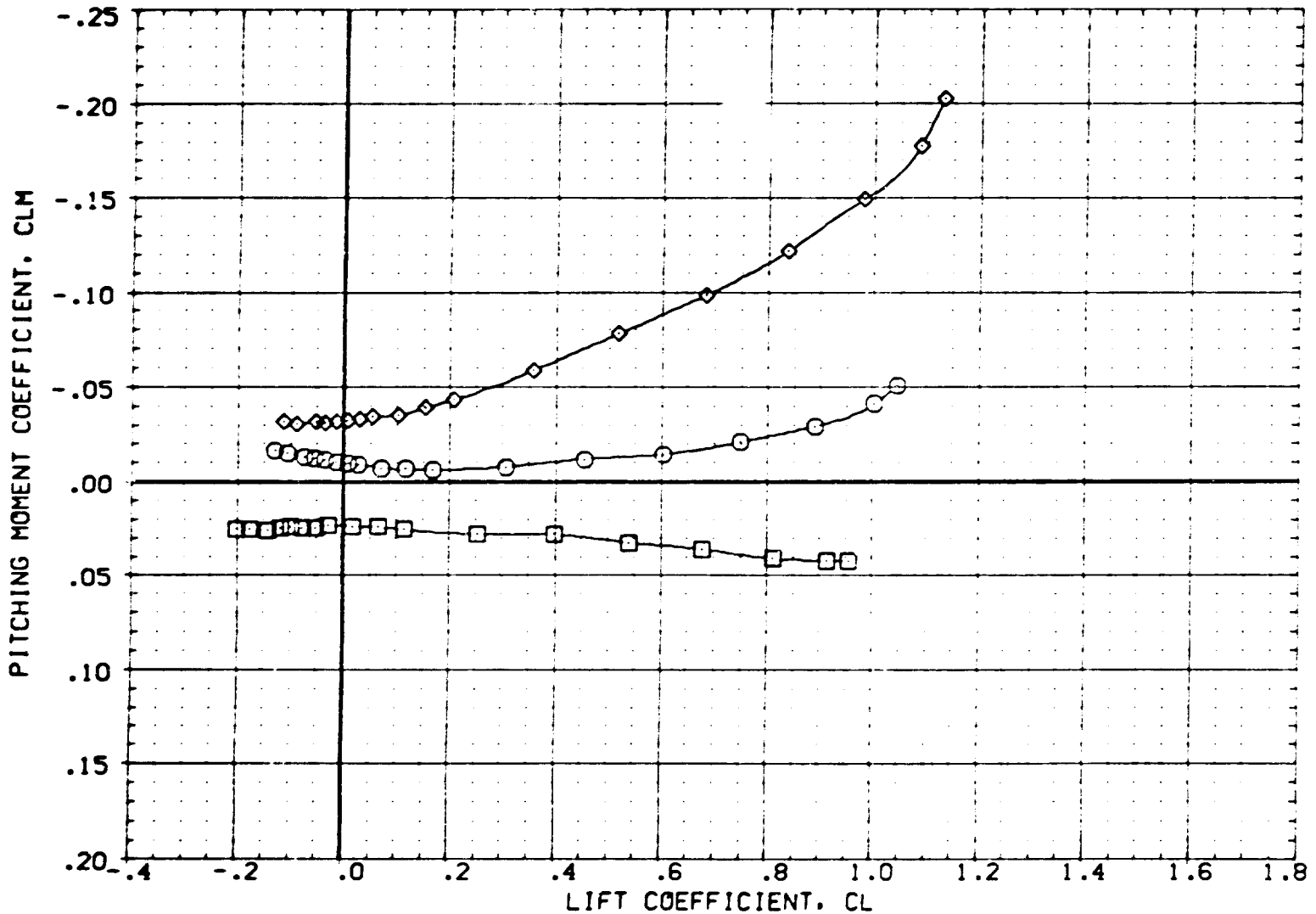


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

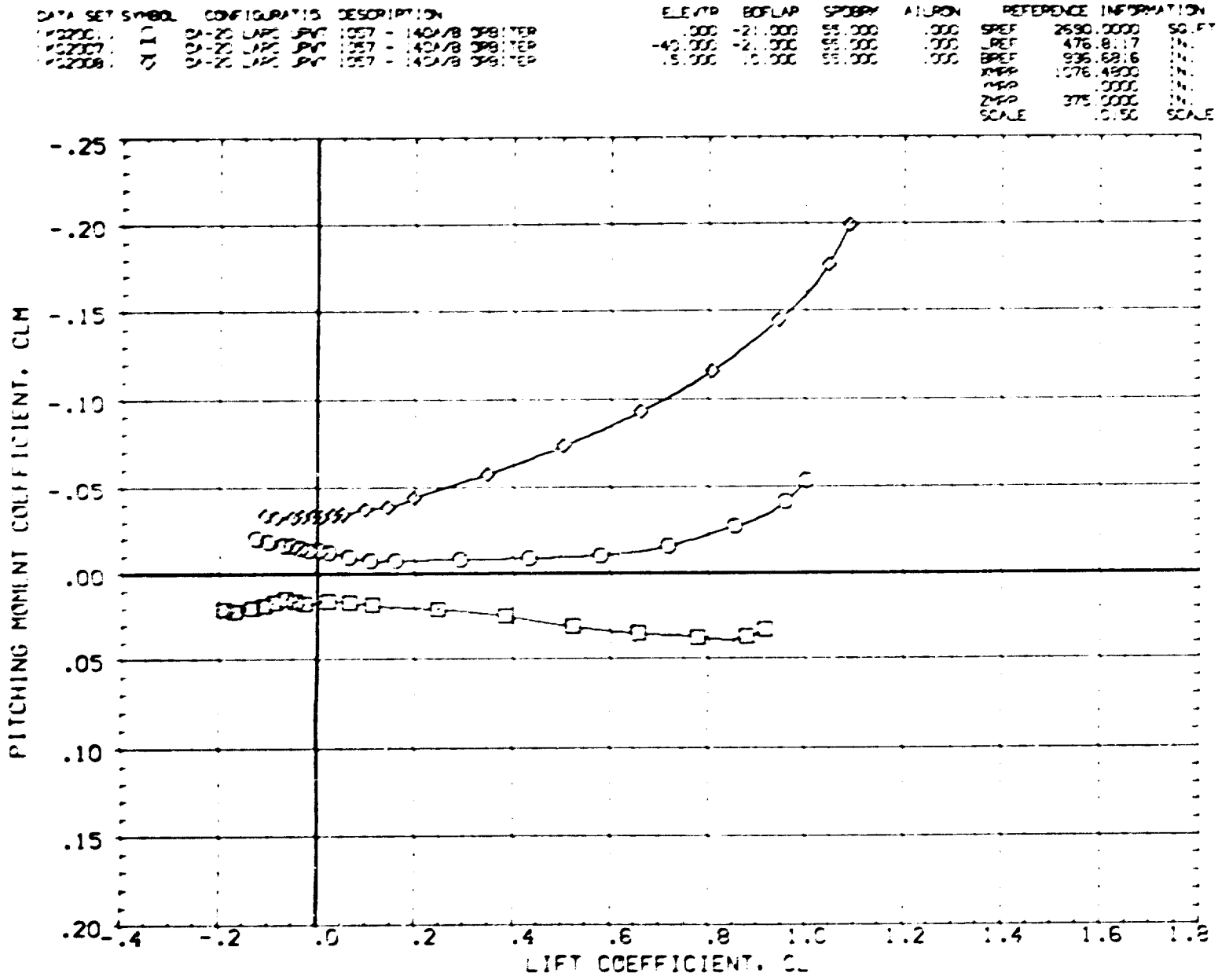


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(FQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(FQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
FQ2008	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEV TR	BOFLAP	SPOBRK	AILRON
.000	-21.000	55.000	.000
-40.0000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4600	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

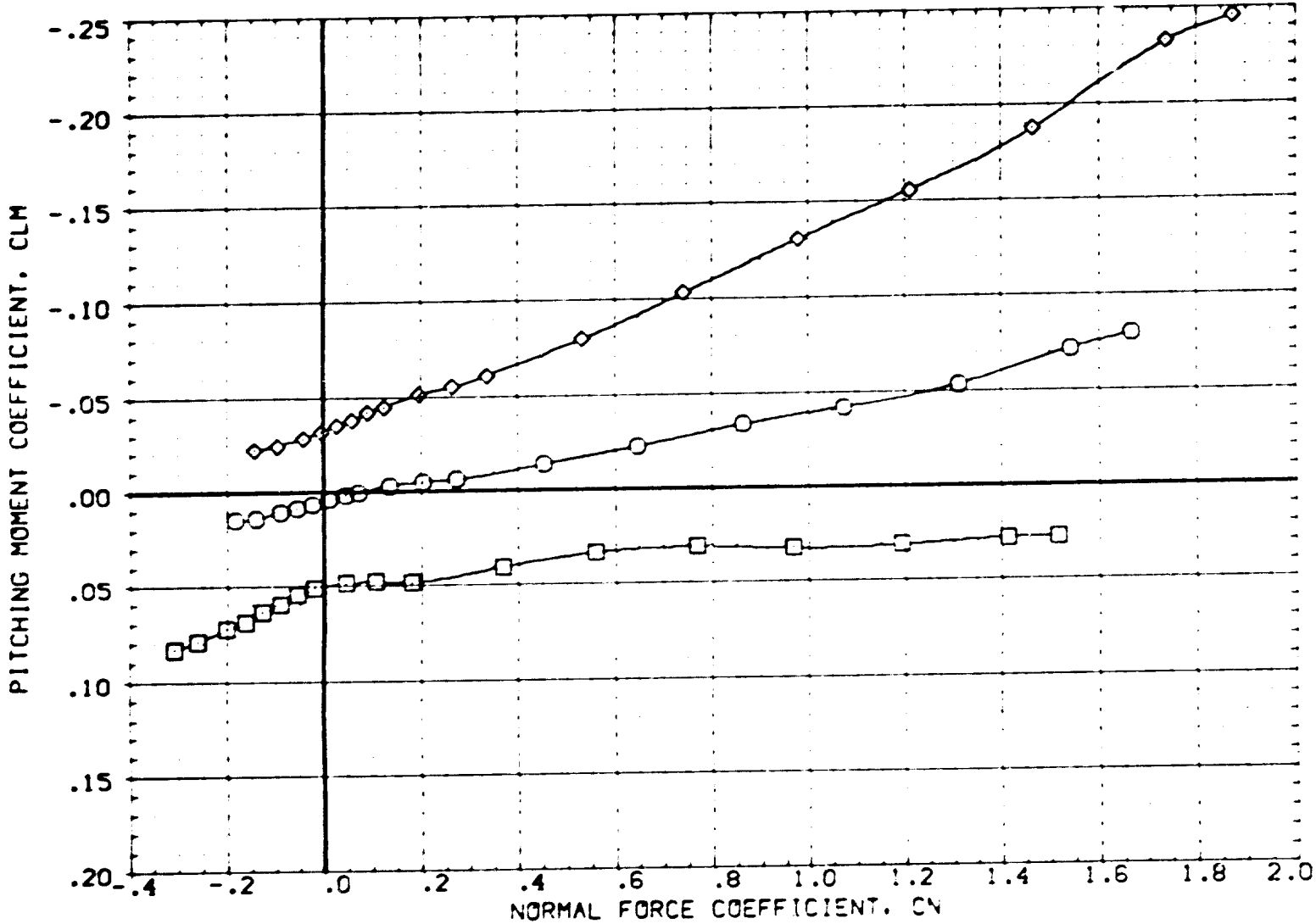


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPDBRK	AILRON
(FG2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(FG2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FG2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

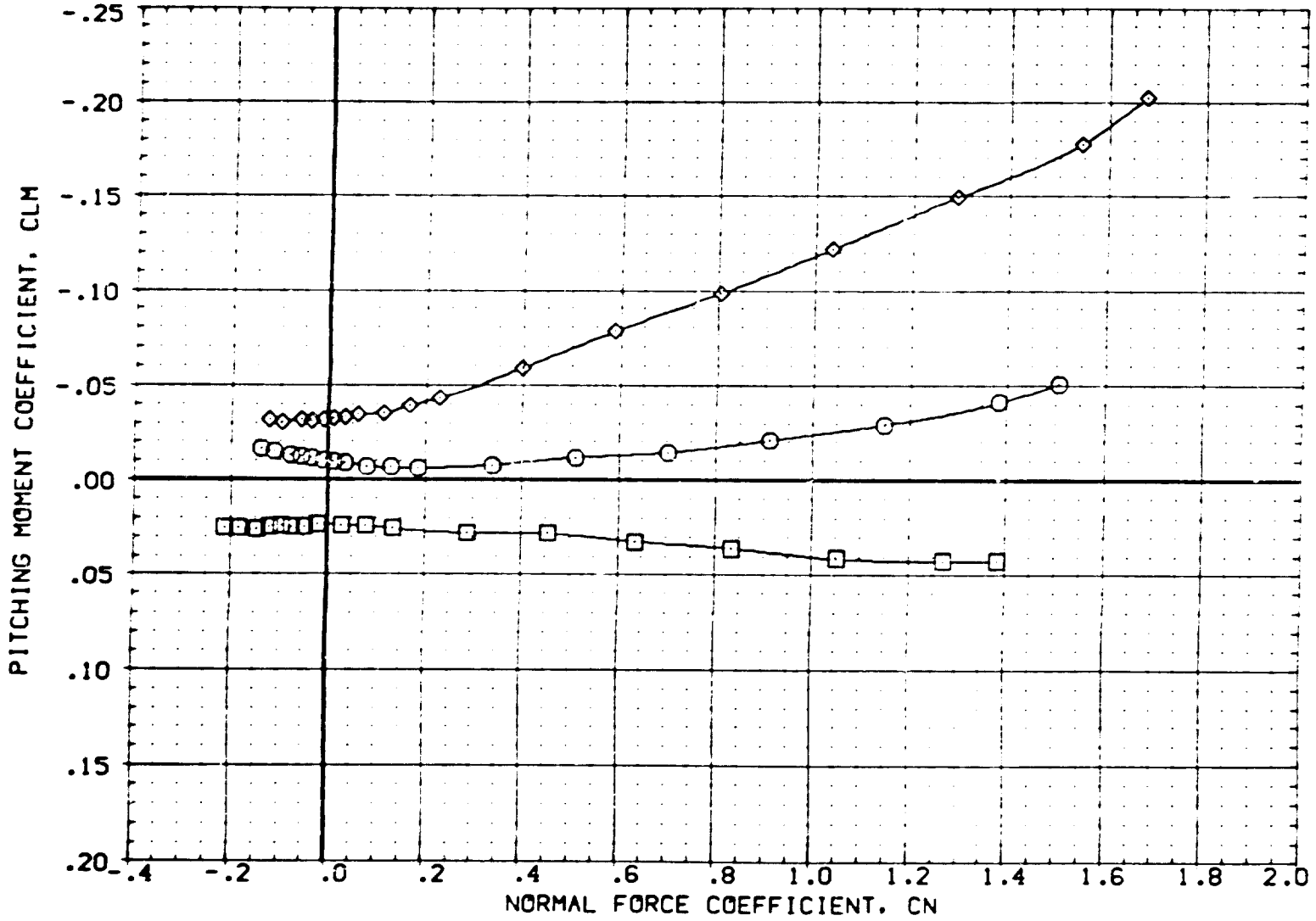


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K02001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(K02007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(K02008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	775.0000	IN.
SCALE	.0150	SCALE

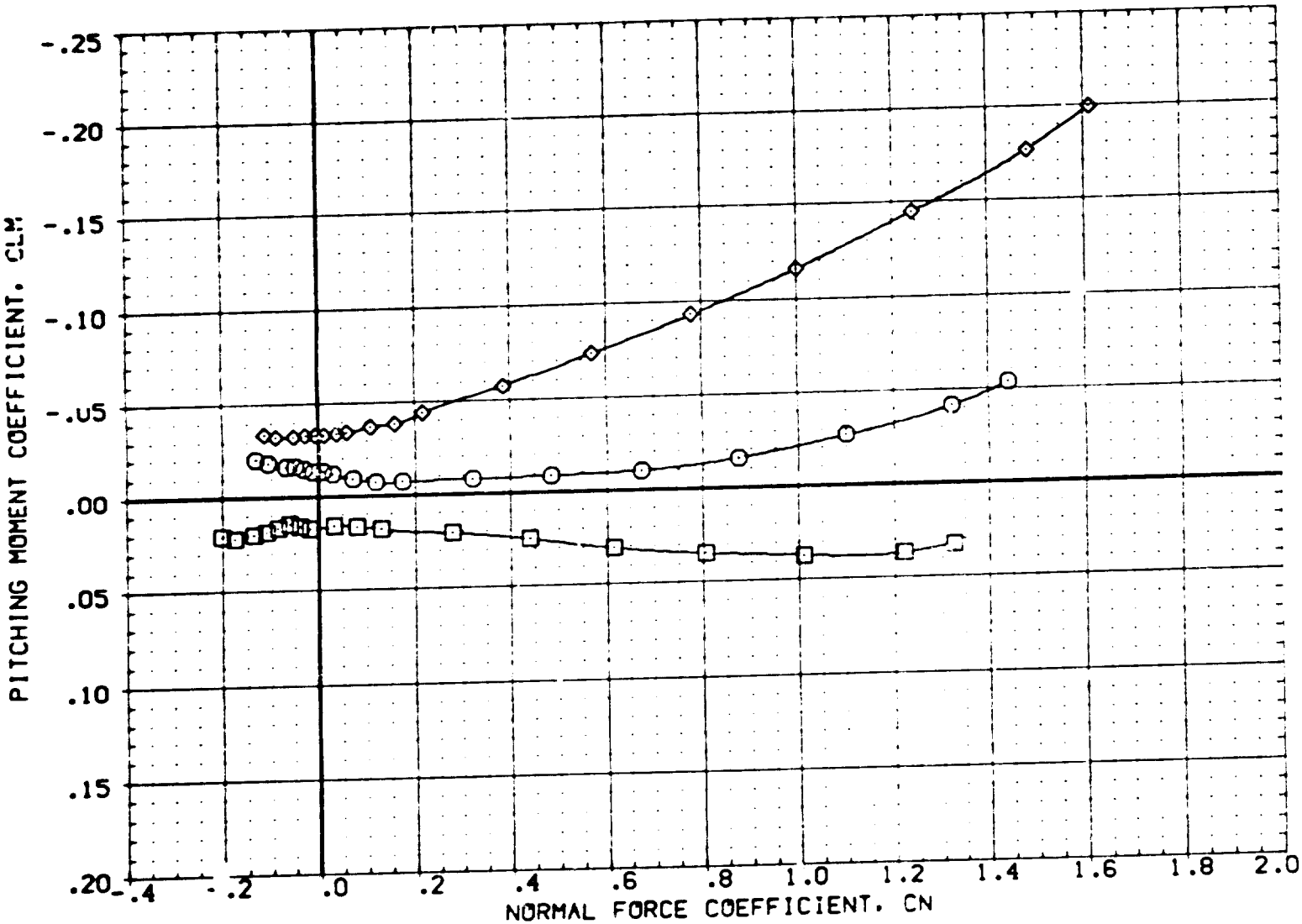


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPDBRK	AILRON
(KQ2001)	○	OA-2C LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

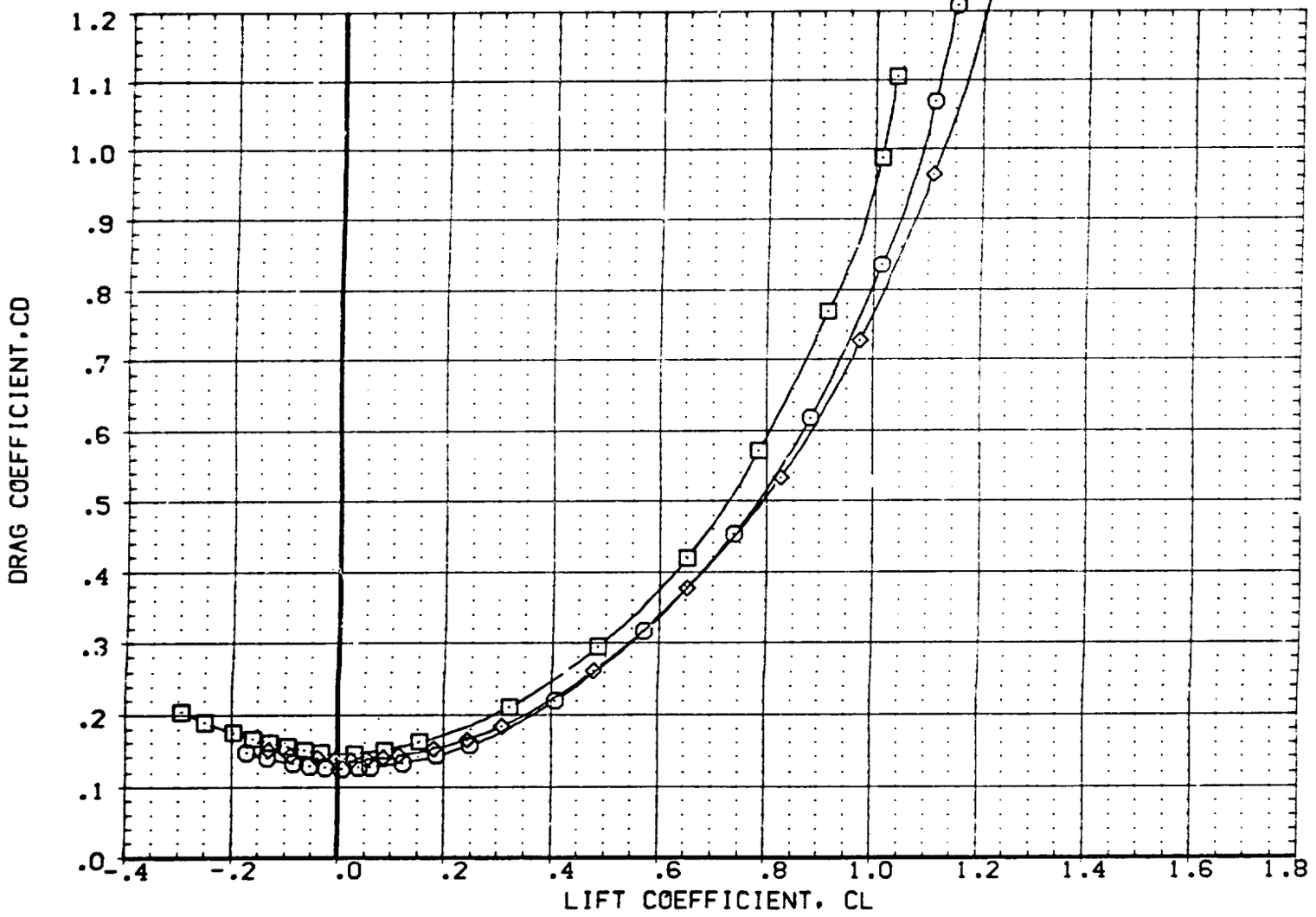


FIG 4 ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(KQ2001)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2007)	⊡	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ELEVTR	BDFLAP	SPDBRK	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

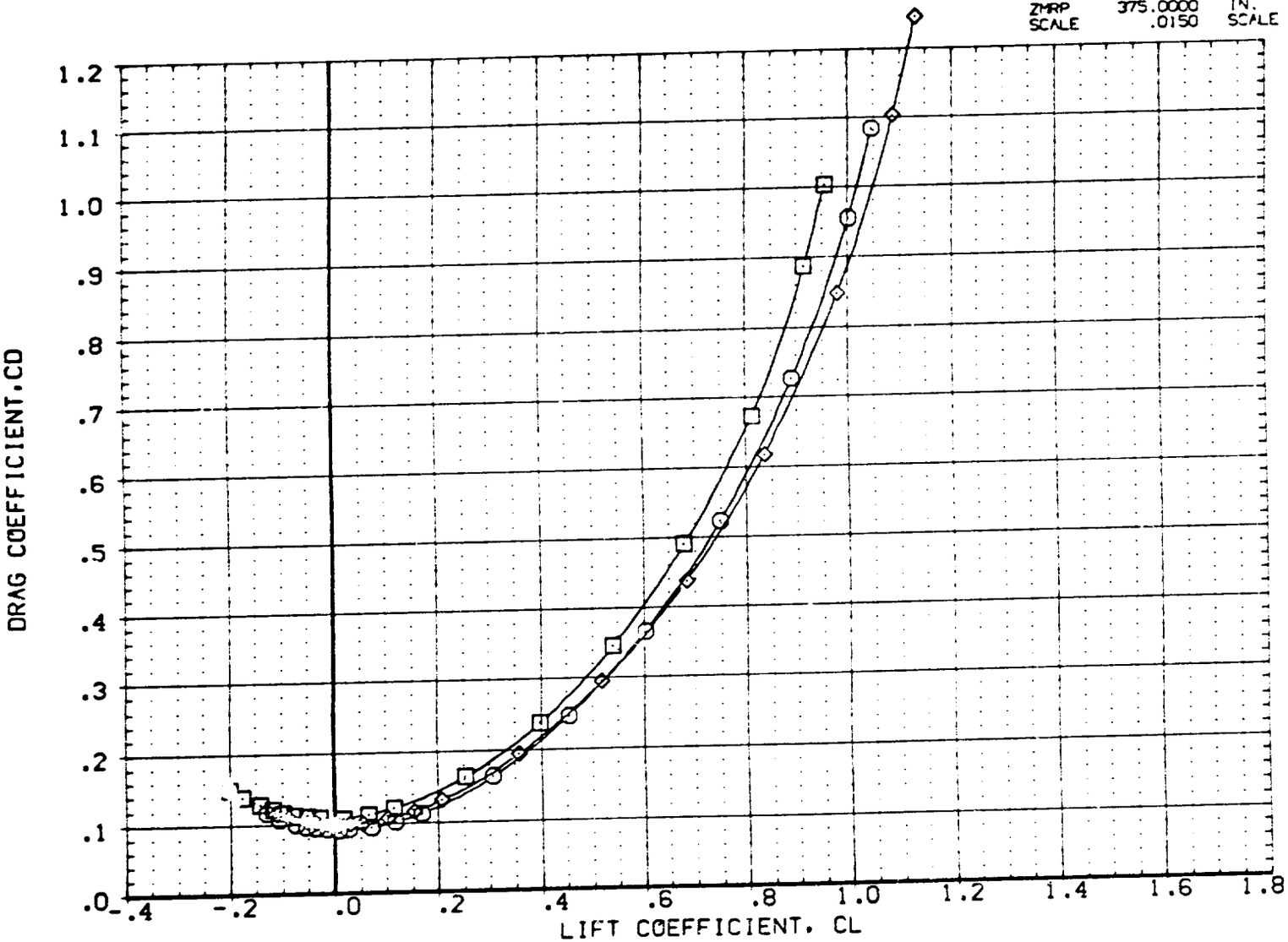


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	BDFLAP	SPOBRK	AILRON
(*G2001)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(*G2007)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(*G2008)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

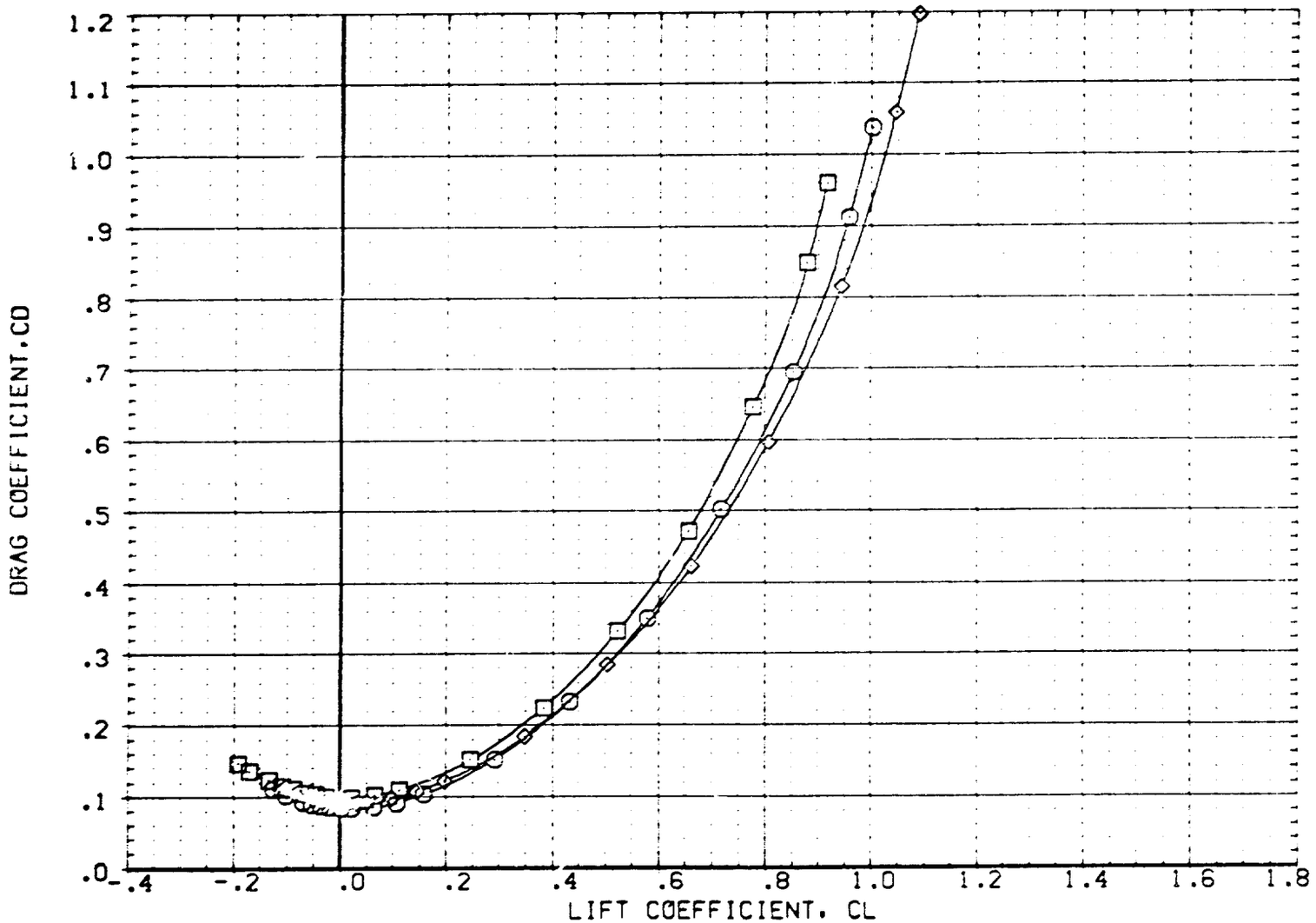


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

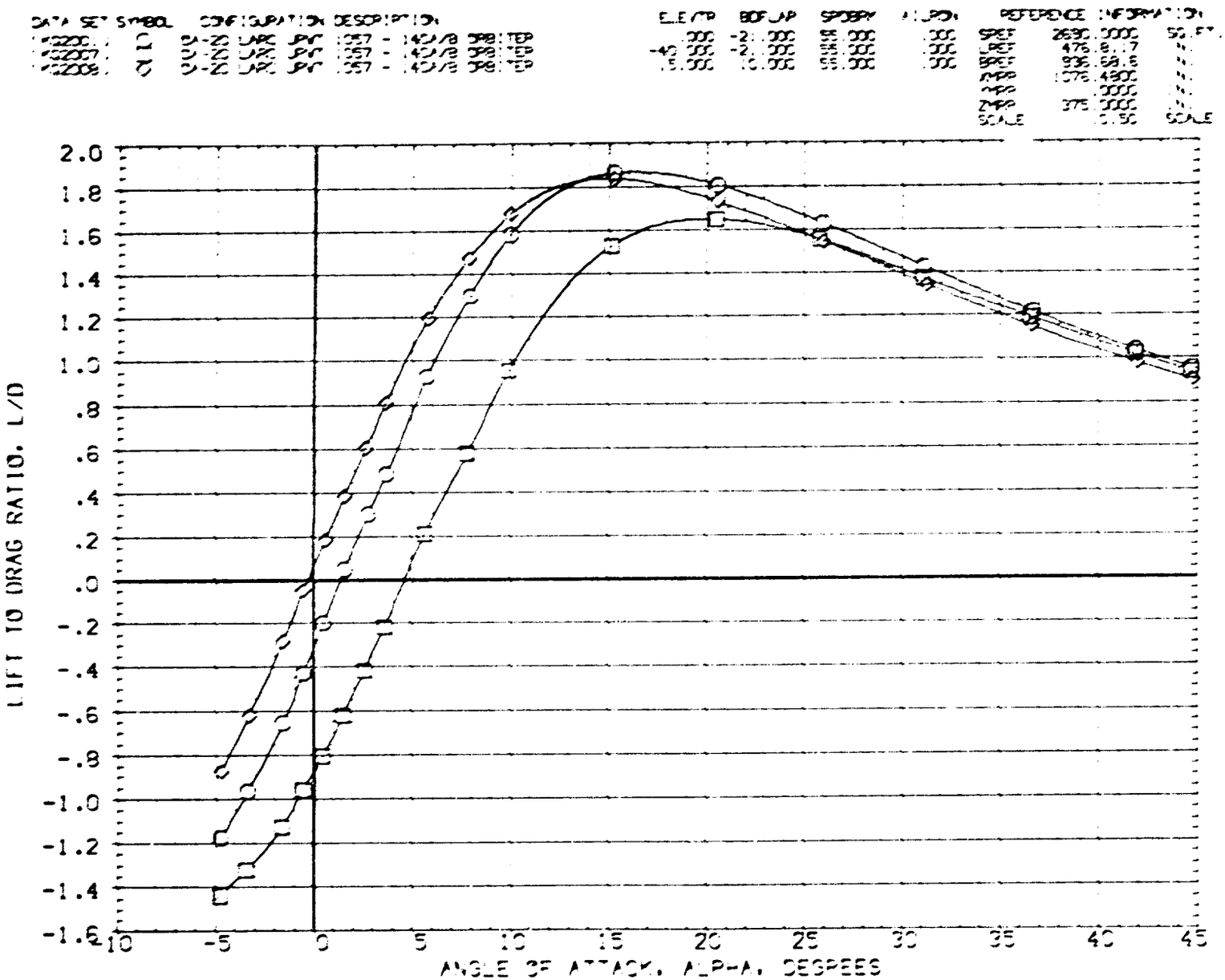


FIG 4 ELEVONS DEFLECTED

CA)MAC- = 2.50

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	ELEVTR	BOFLAP	SPOBRK	AILRON
(KQ2001)	□	OA-20 LARC UPWT 1057 - 140A/B ORBITER	.000	-21.000	55.000	.000
(KQ2007)	○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(KQ2008)	◇	OA-20 LARC UPWT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

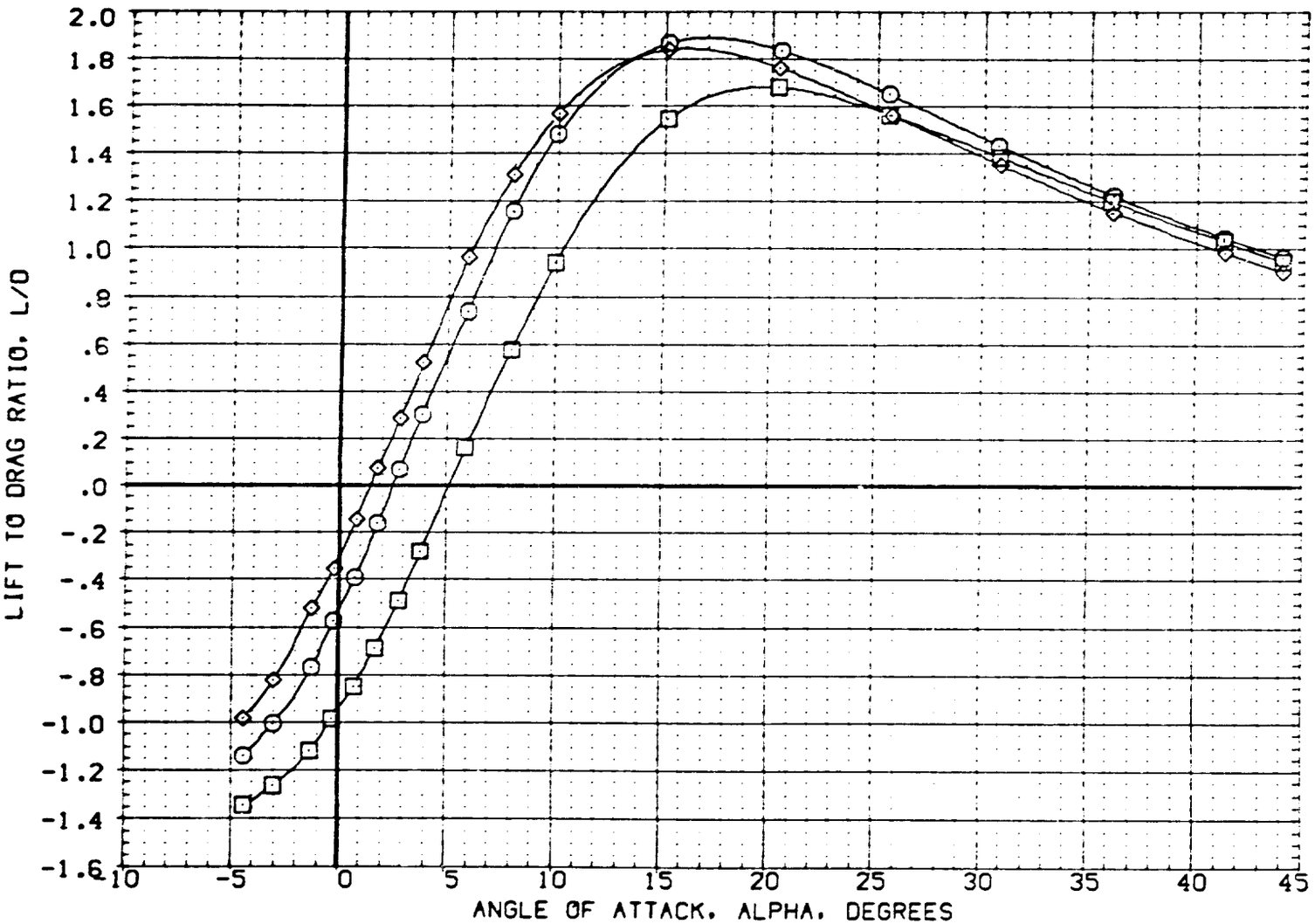


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

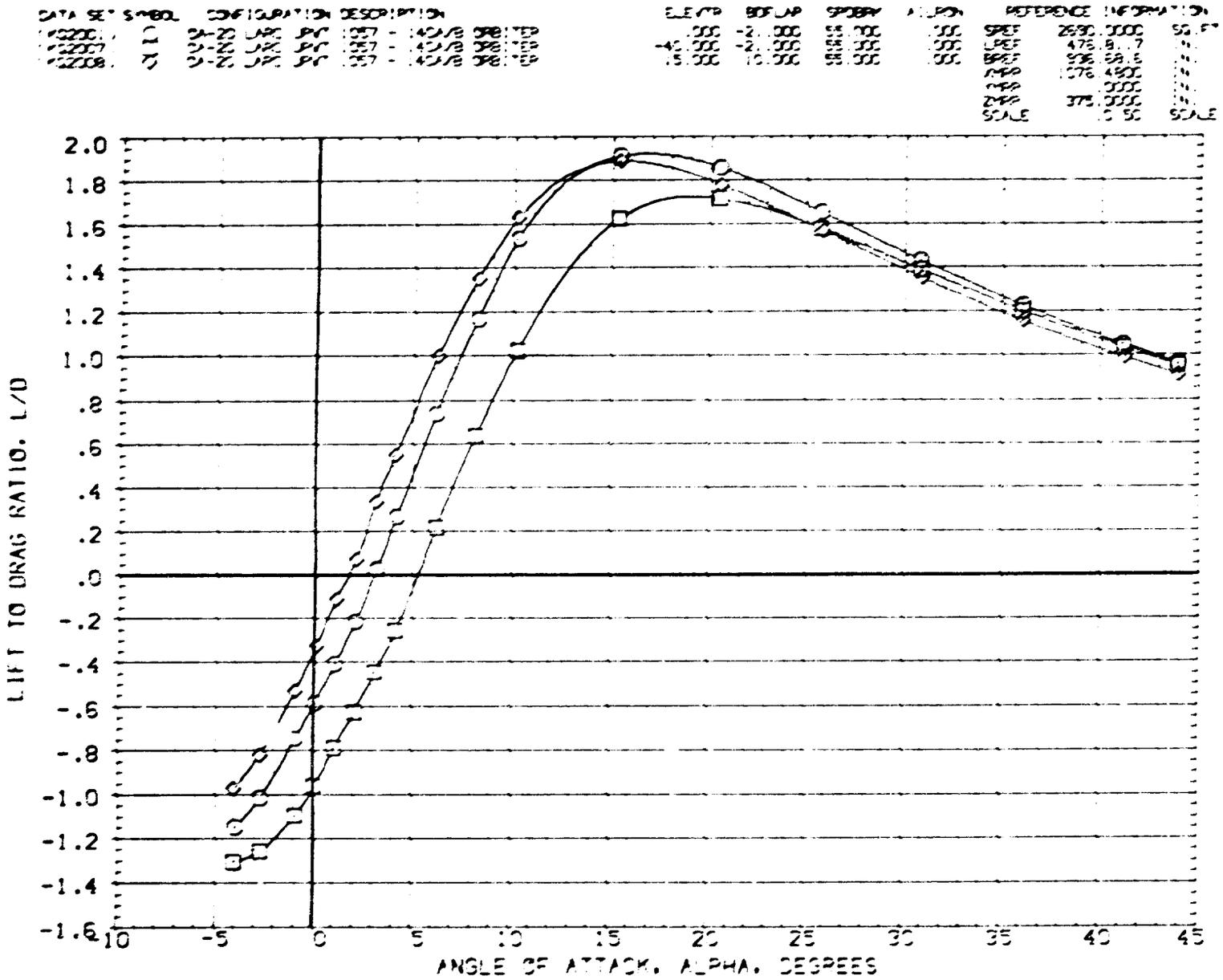


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
MG2006	□	DA-20 LARC SPVT 1057 - 140A/B DPBITER
MG2007	◇	DA-20 LARC SPVT 1057 - 140A/B DPBITER
MG2008	○	DA-20 LARC SPVT 1057 - 140A/B DPBITER

ELEVTR	BOFLAP	SPOBPY	AILRON
.000	-21.000	55.000	.000
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	475.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	0.150	SCALE

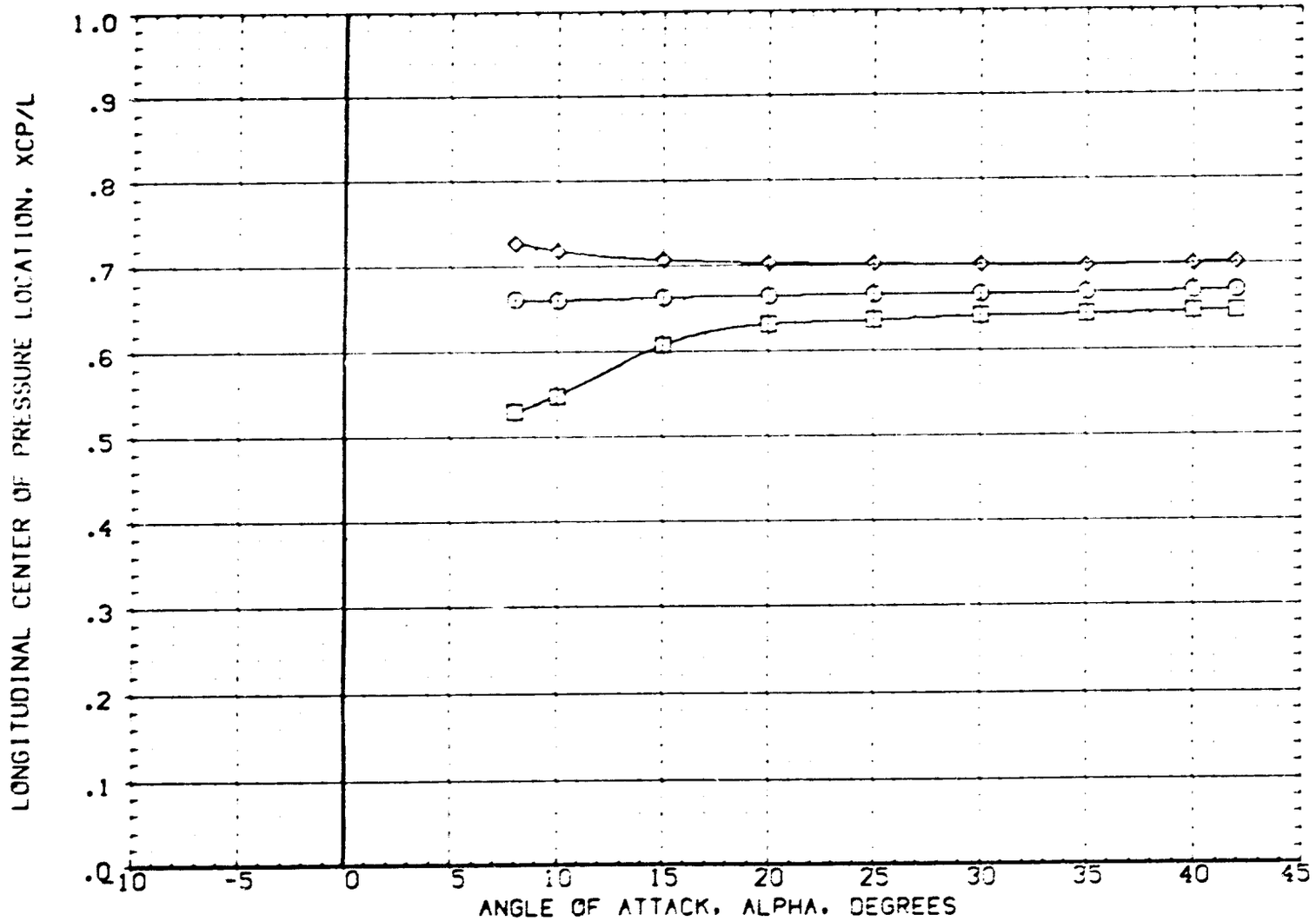


FIG 4 ELEVONS DEFLECTED

(A) MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
HG2DC	○	DA-2C LAPC SPC .057 - 42A/B 398 TEP
HG2DC7	□	DA-2C LAPC SPC .057 - 42A/B 398 TEP
HG2DC8	◇	DA-2C LAPC SPC .057 - 42A/B 398 TEP

ELEVTP	BOFLAP	SPOBRP	AILRON
.000	-2.000	55.000	.000
-40.000	-2.000	55.000	.000
5.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2530.0000	SQ.FT.
LREF	476.8000	IN.
BREF	936.6000	IN.
XMRP	1078.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	0.150	SCALE

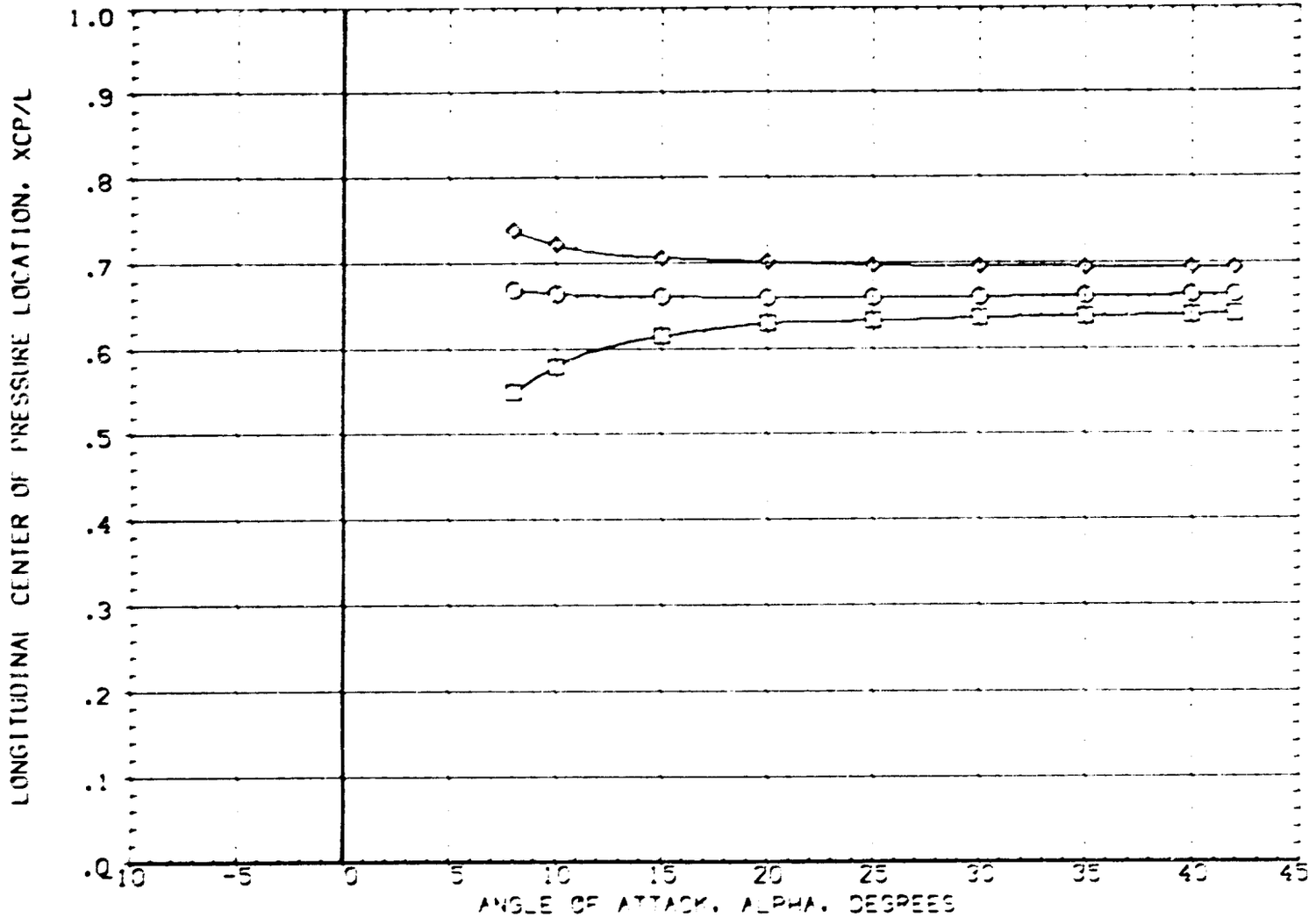


FIG 4 ELEVONS DEFLECTED

(B)MACH = 3.90

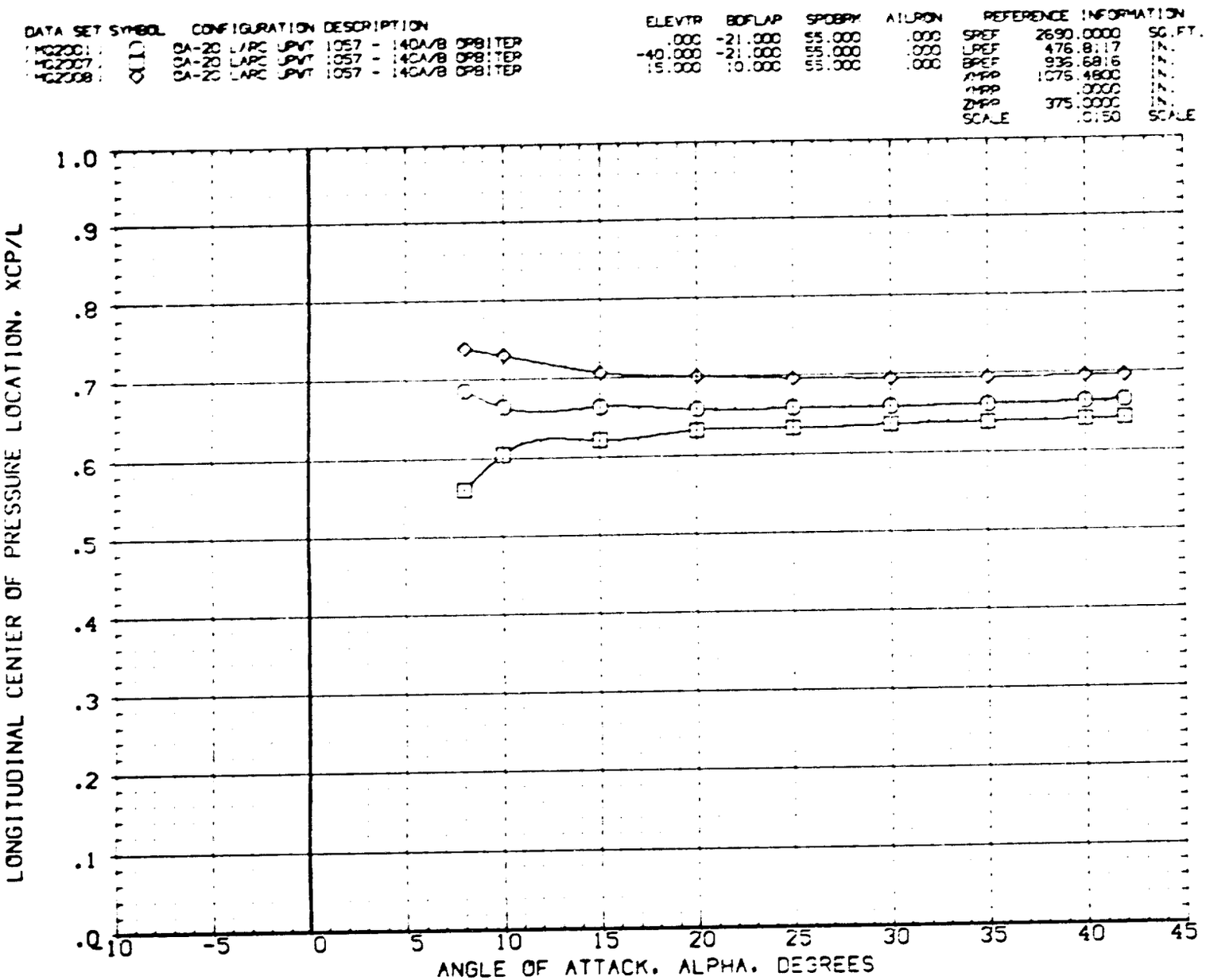


FIG 4 ELEVONS DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
F022001	□	DA-20 LARC SPVT 1057 - 140A/B ORBITER
F022009	□	DATA NOT AVAILABLE

BOFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2630.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	1.50	SCALE

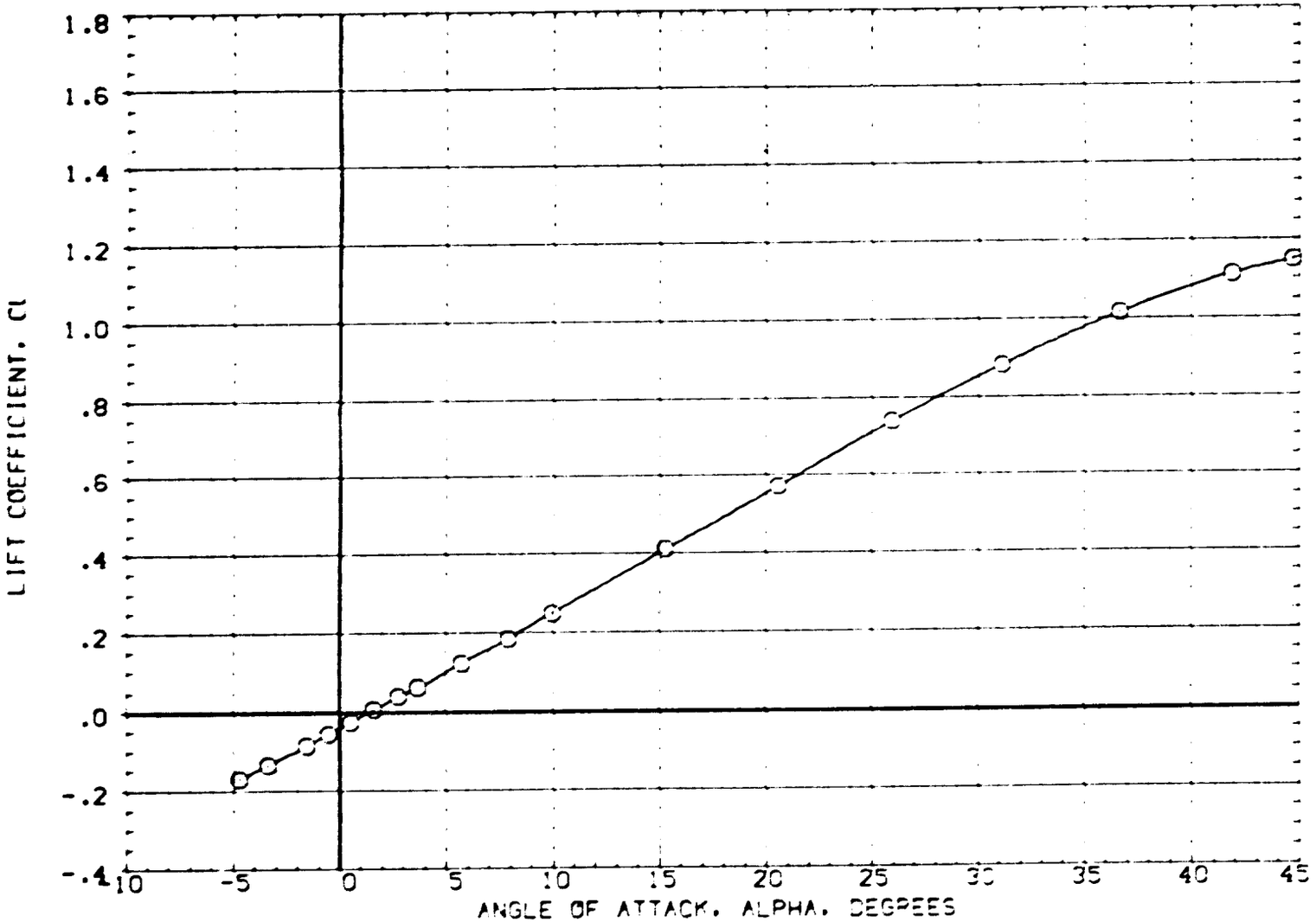


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BDFLAP	ELEVTR	SPDBRK	AILRON
(RG2001)	○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(RG2009)	□	OA-20 LARC UPWT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

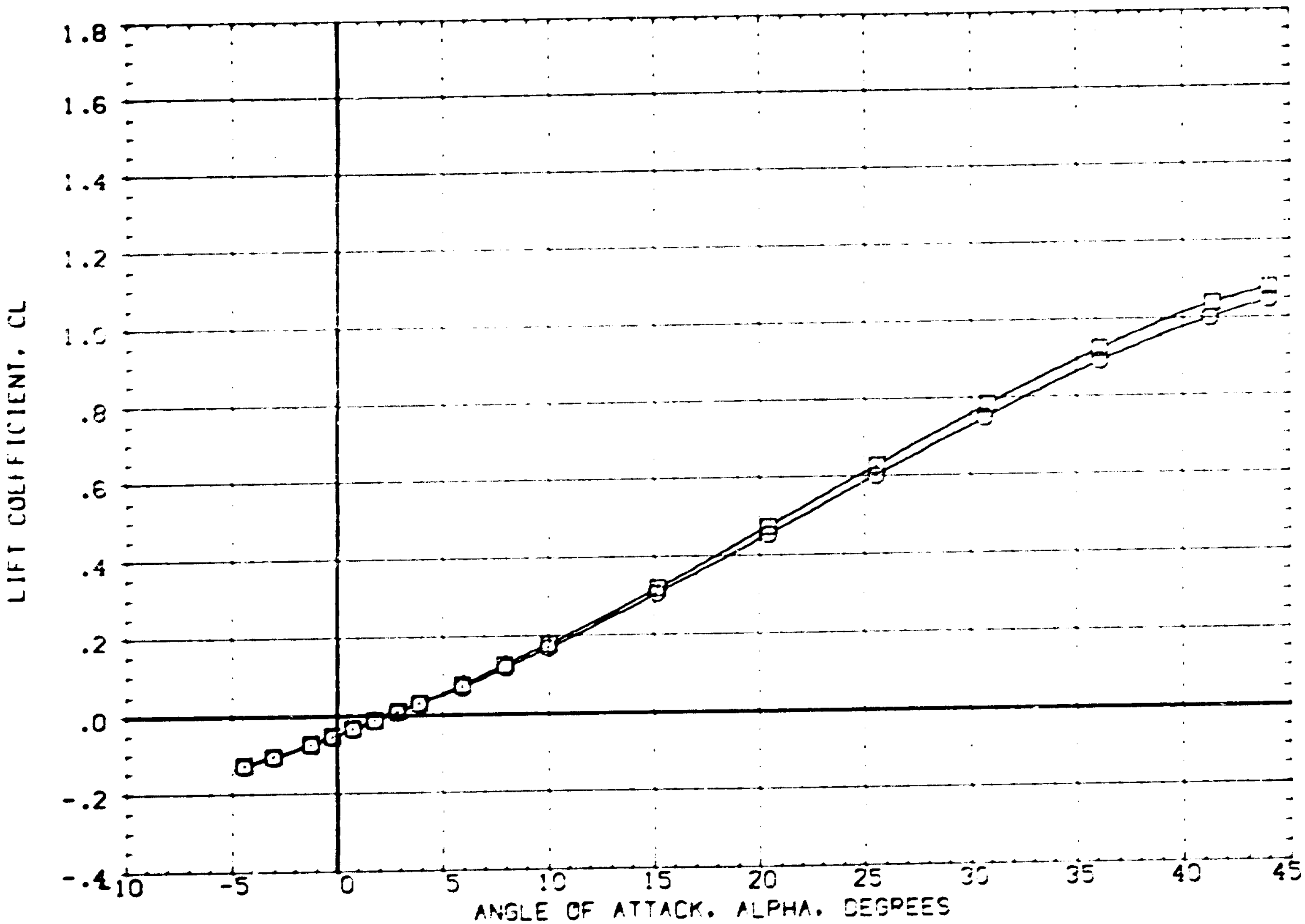


FIG 5 BODYFLAP DEFLECTED
(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(K02001)	☐	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(K02009)	☐	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BOFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

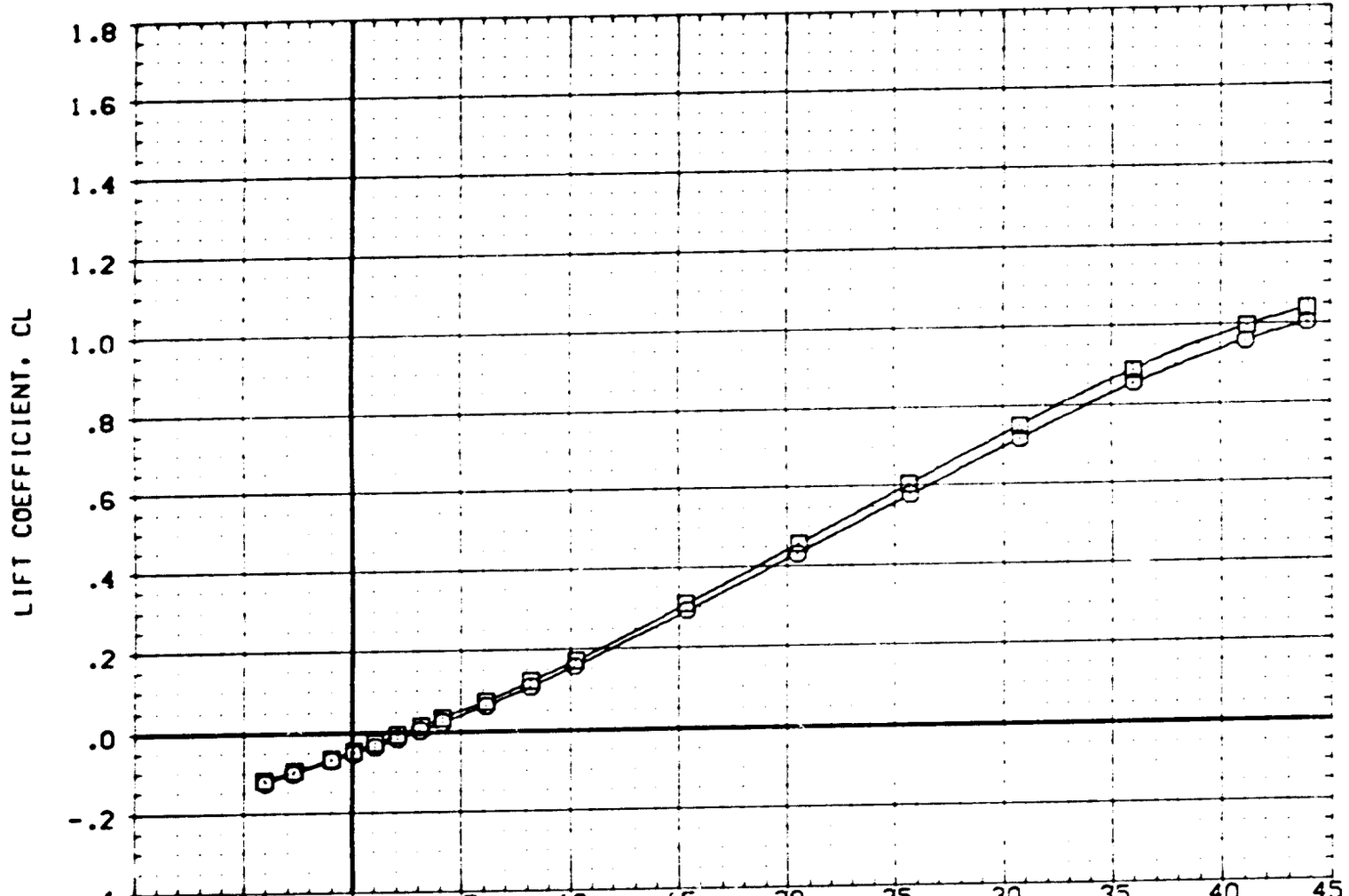


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(P32001)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(P32009)		DATA NOT AVAILABLE

BOFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

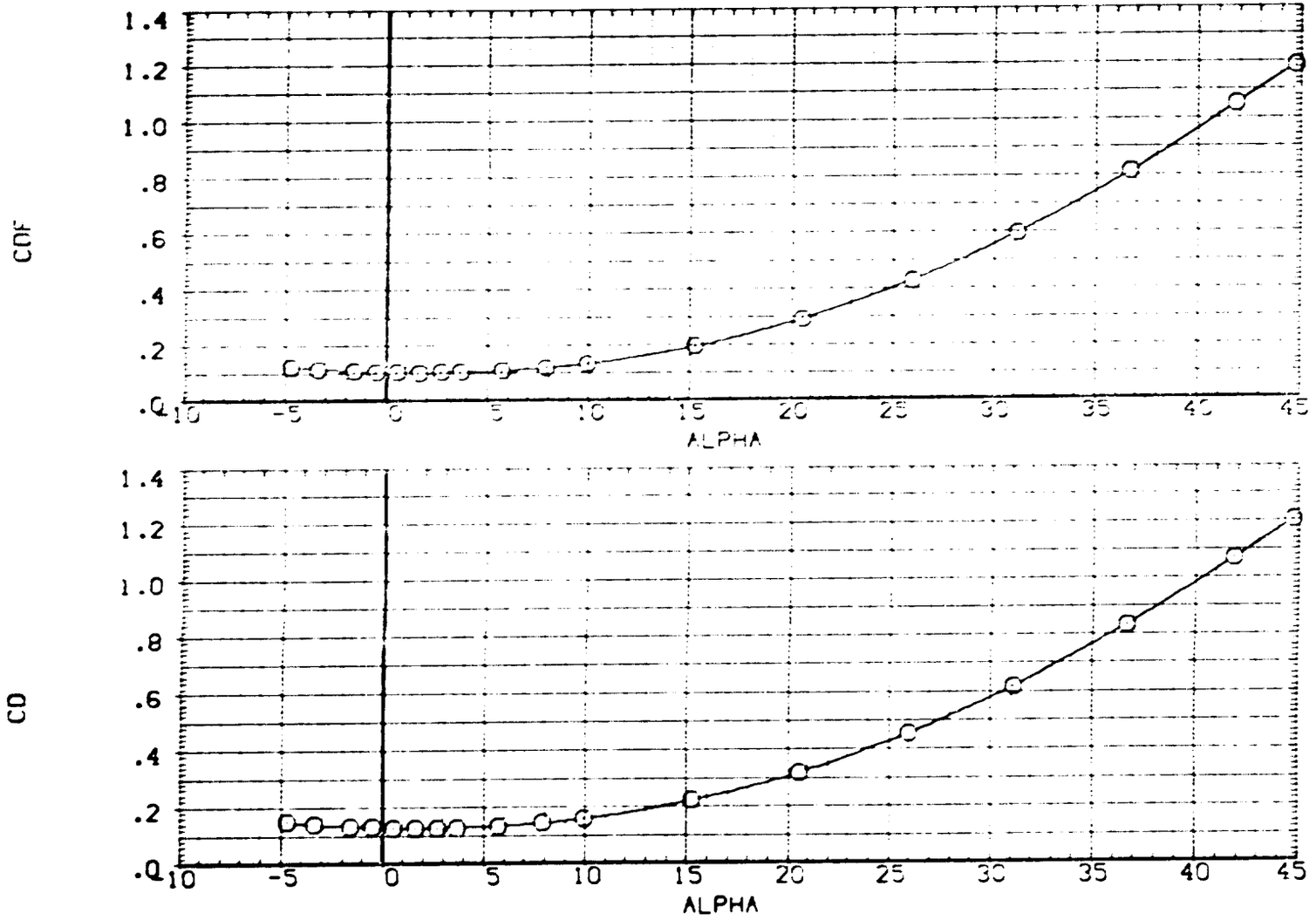


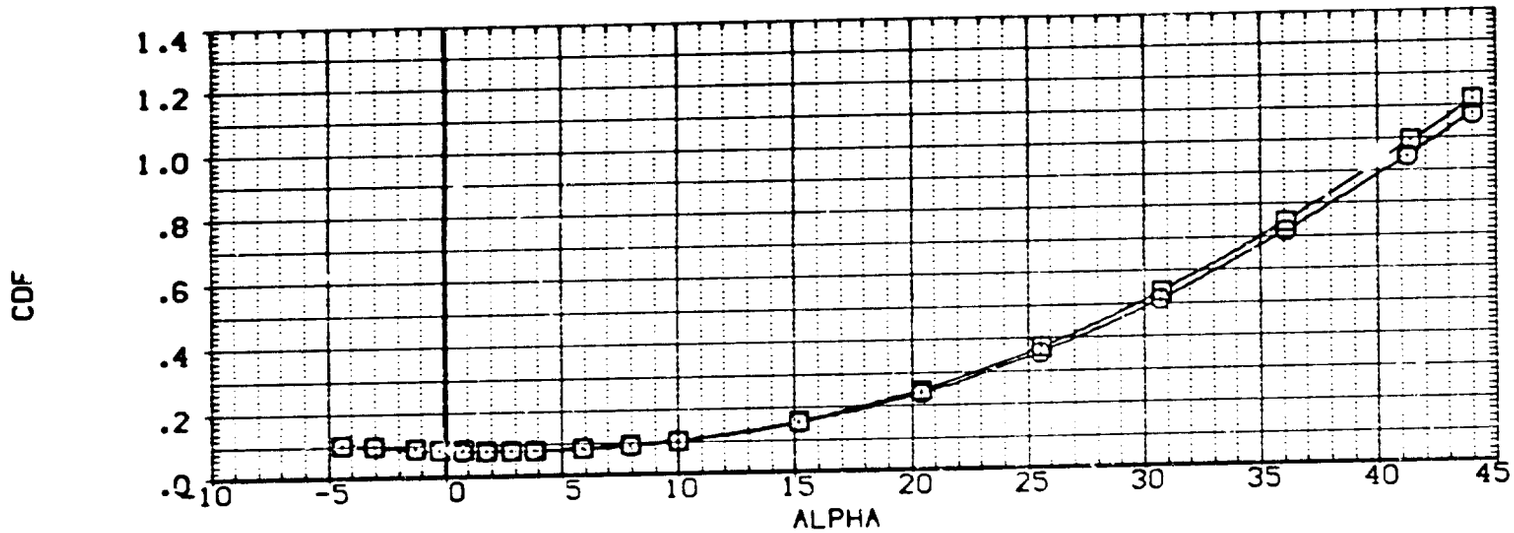
FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BDFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE



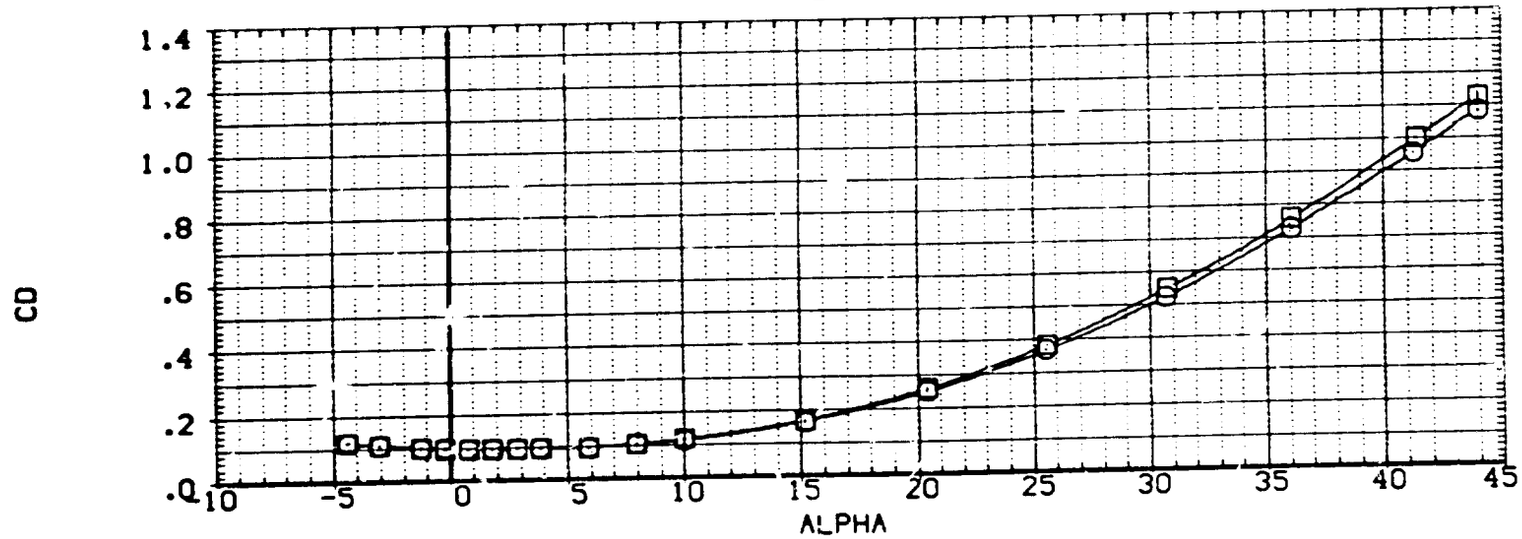
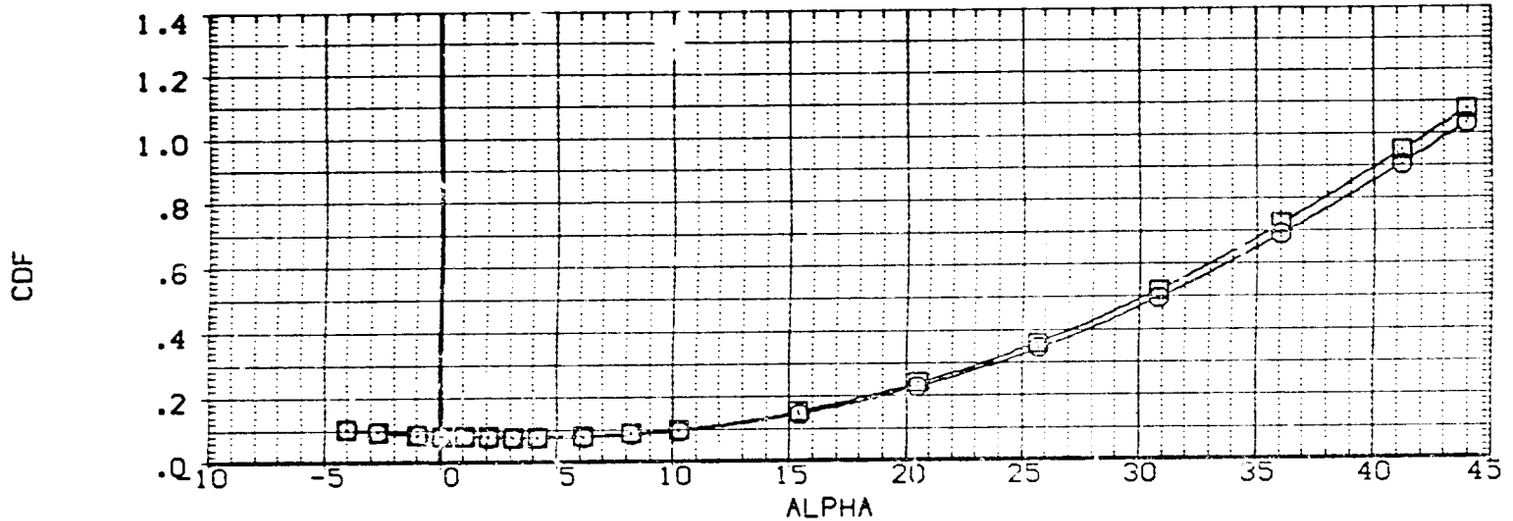


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BDFLAP	ELEVTR	SPOBRK	AILRON
(KQ2001)	○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	□	OA-20 LARC UPWT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE



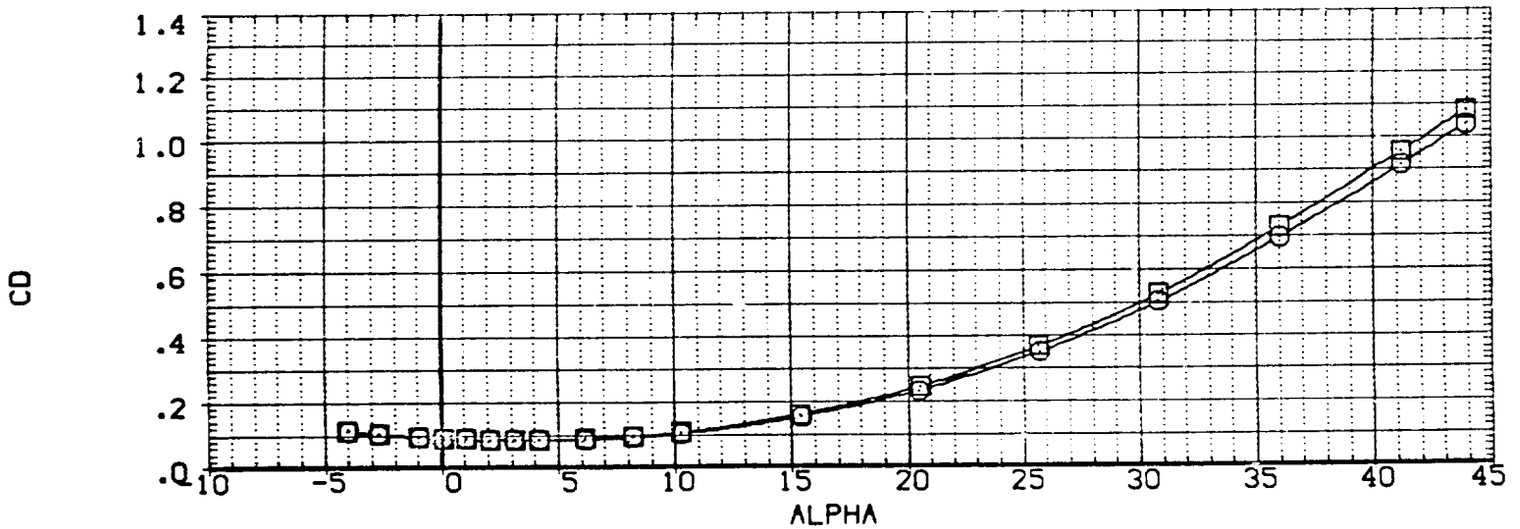


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2009)	DATA NOT AVAILABLE

BDFLAP	ELEVTR	SPDBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

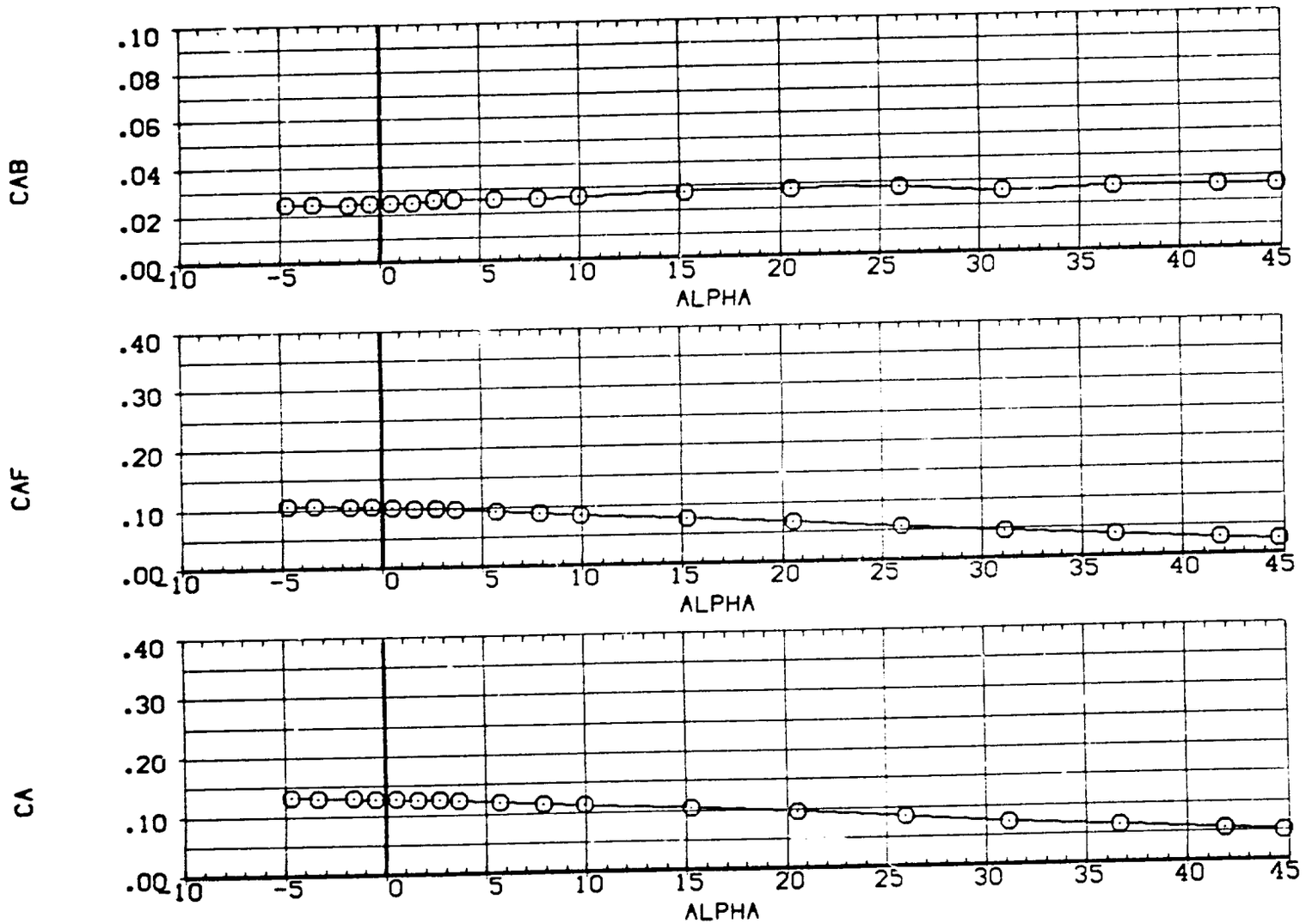


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(KQ2009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BDFLAP	ELEVTR	SPDBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4300	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

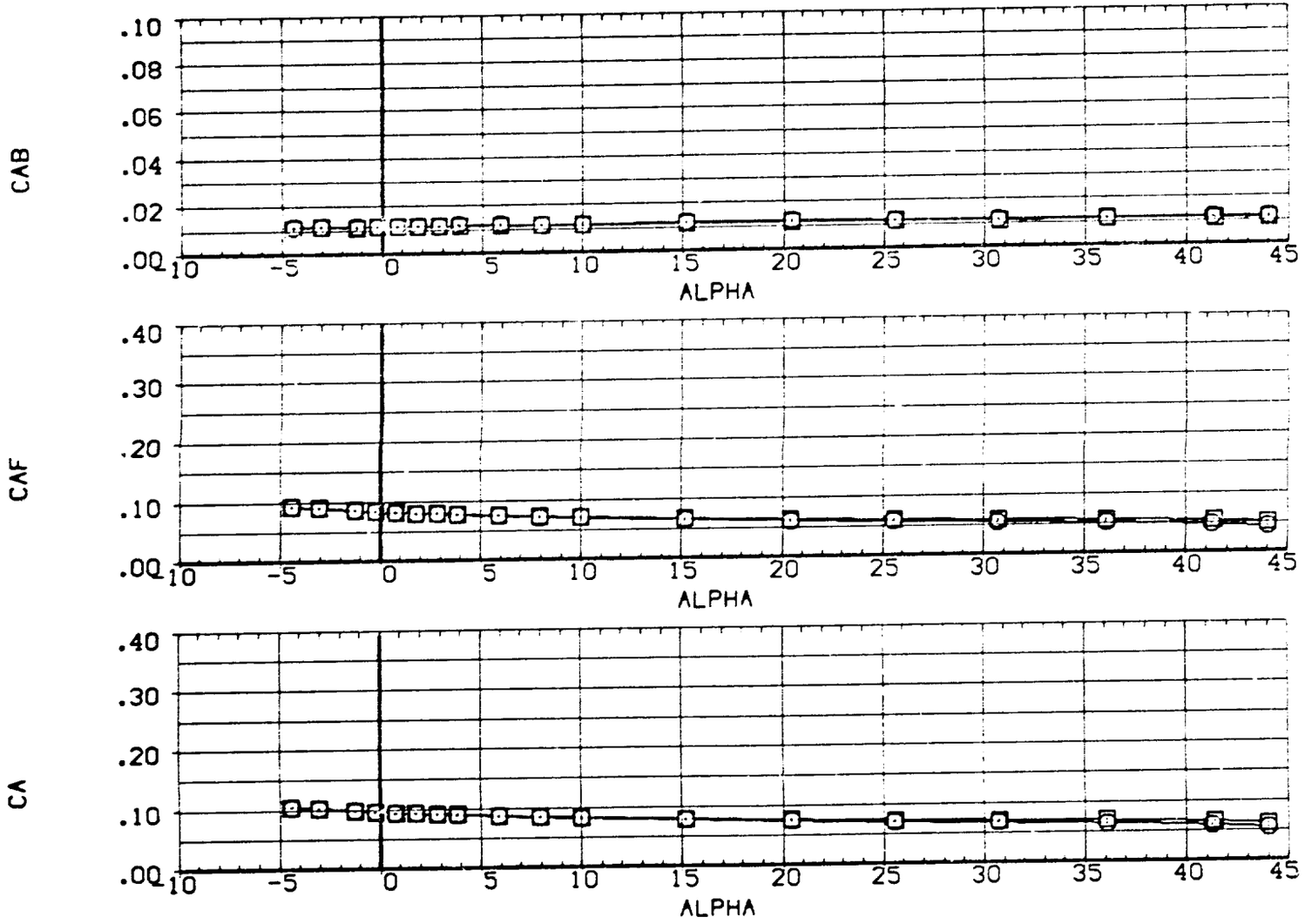


FIG 5 BODYFLAP DEFLECTED

(3)MACH = 3.90

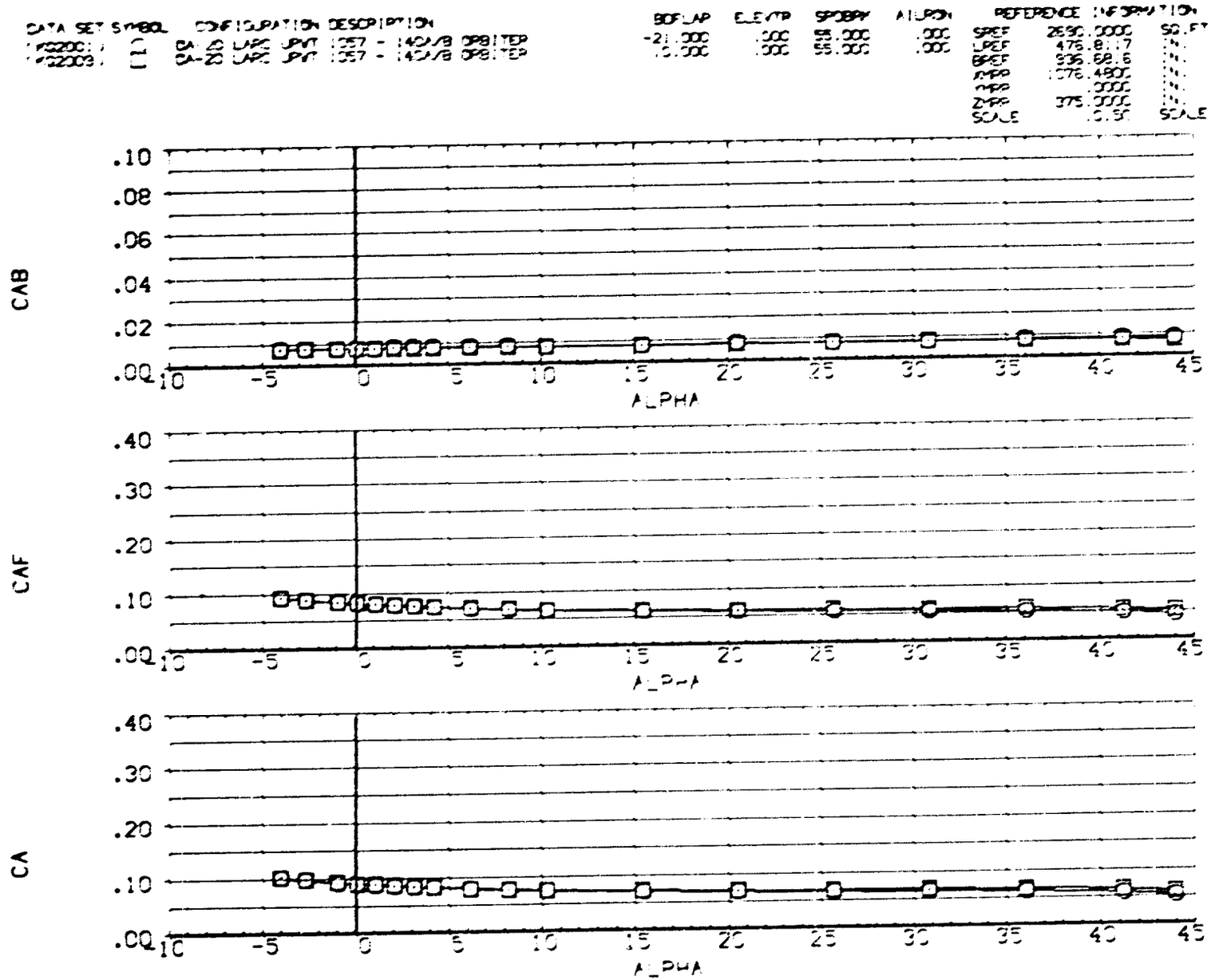


FIG 5 BODYFLAP DEFLECTED

COMACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BDFLAP	ELEVTR	SPDBRK	AILRON
(RS2001)	○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(RS2009)	□	DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

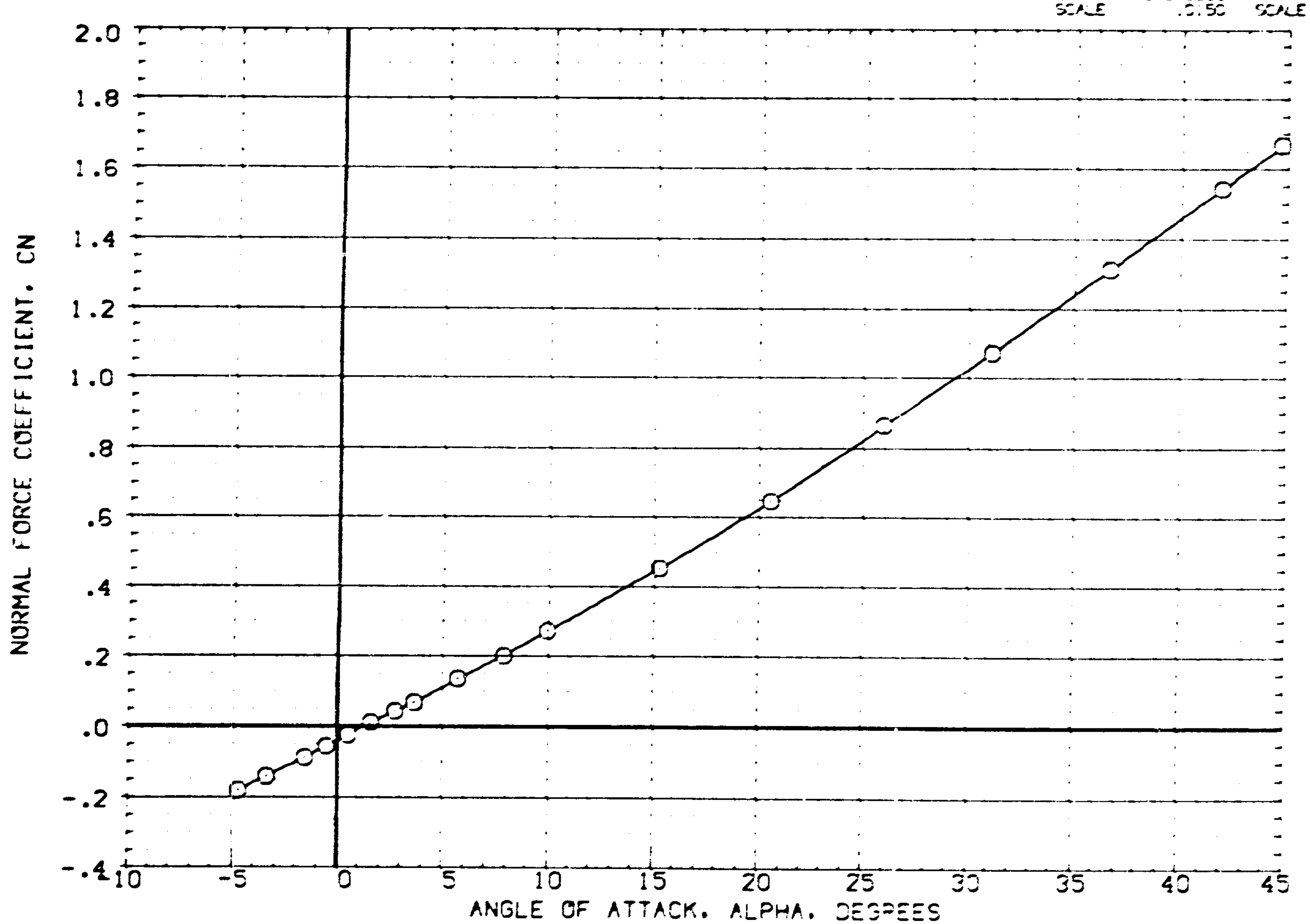


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BDFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

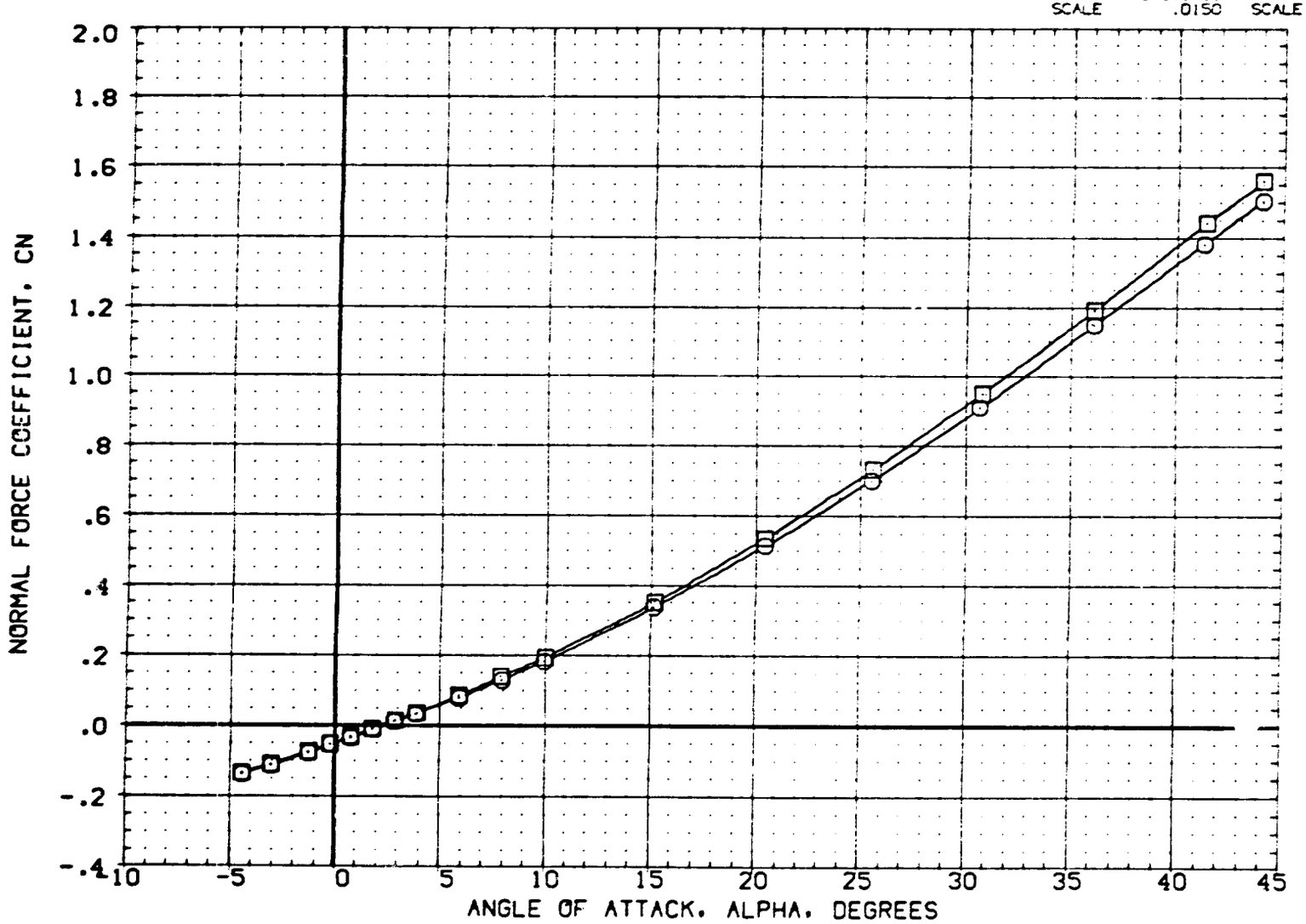


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

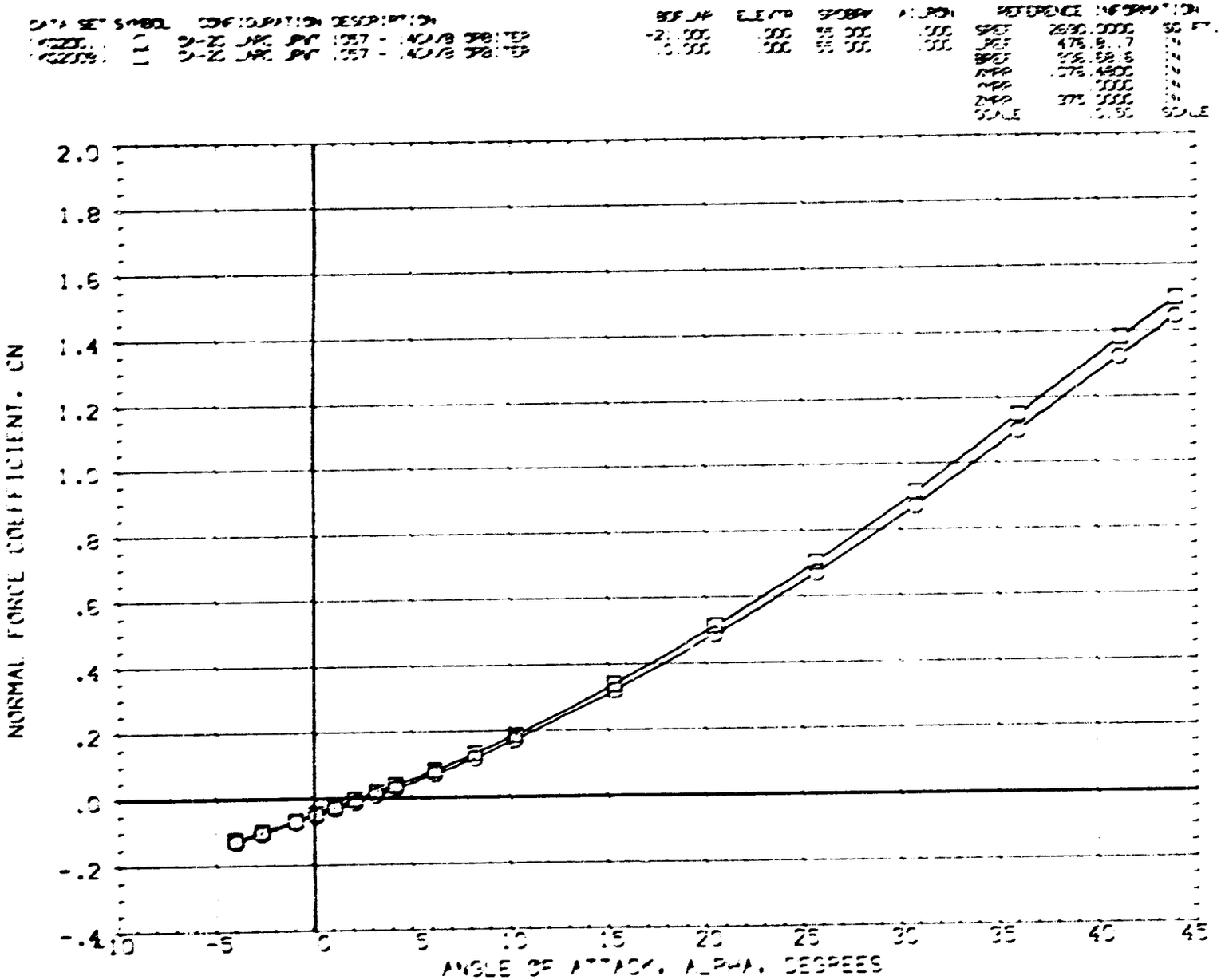


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

FIG 5 ELEVATOR DEFLECTED

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(52201)	○	OA-20 LARC UPVT 1057 - 14OA/B OPBITER
(52209)	□	OA-20 LARC UPVT 1057 - 14OA/B OPBITER

BODFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

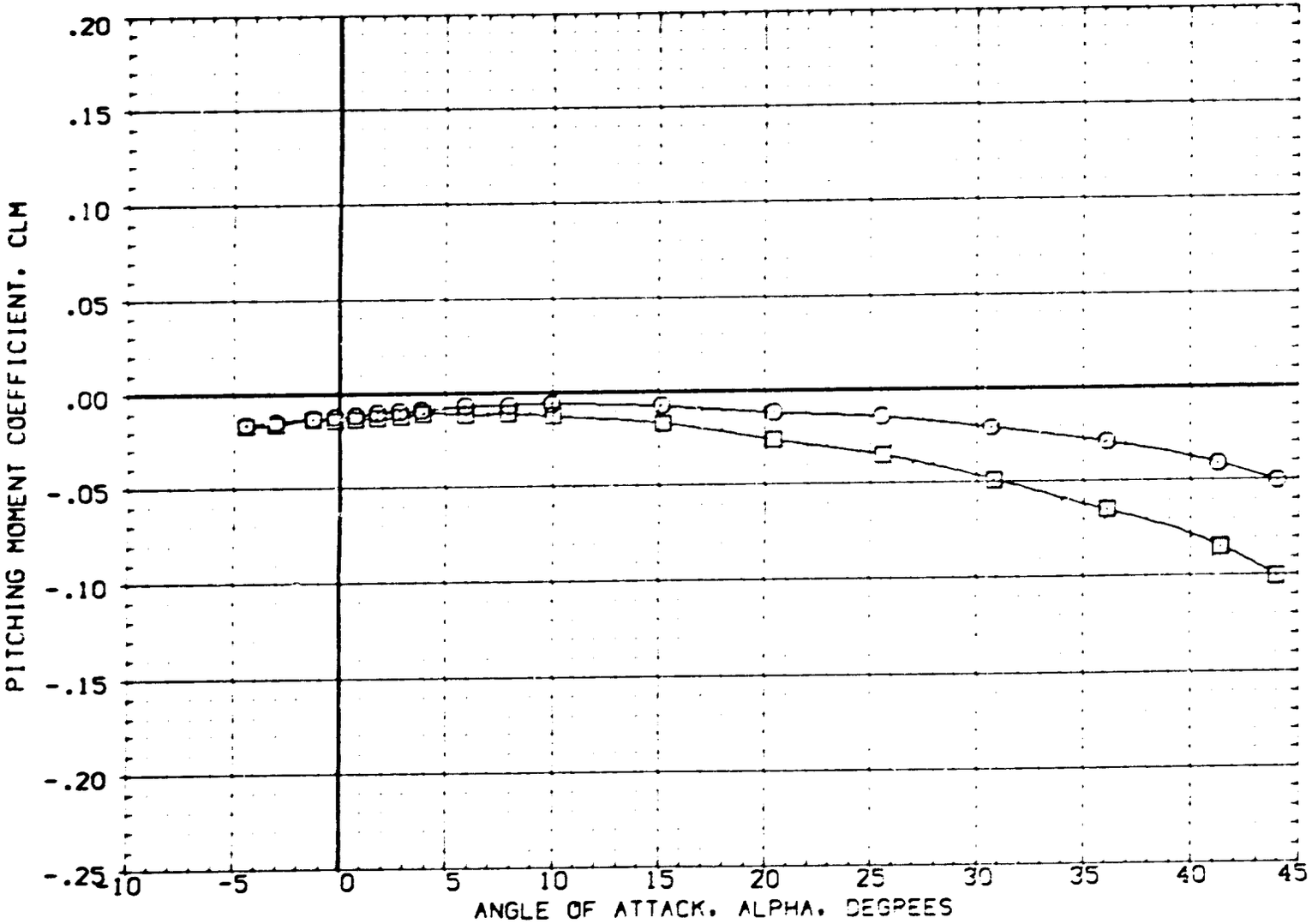


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
F02001	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
F02209	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BDFLAP	ELEVTR	SPOBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	475.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4900	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

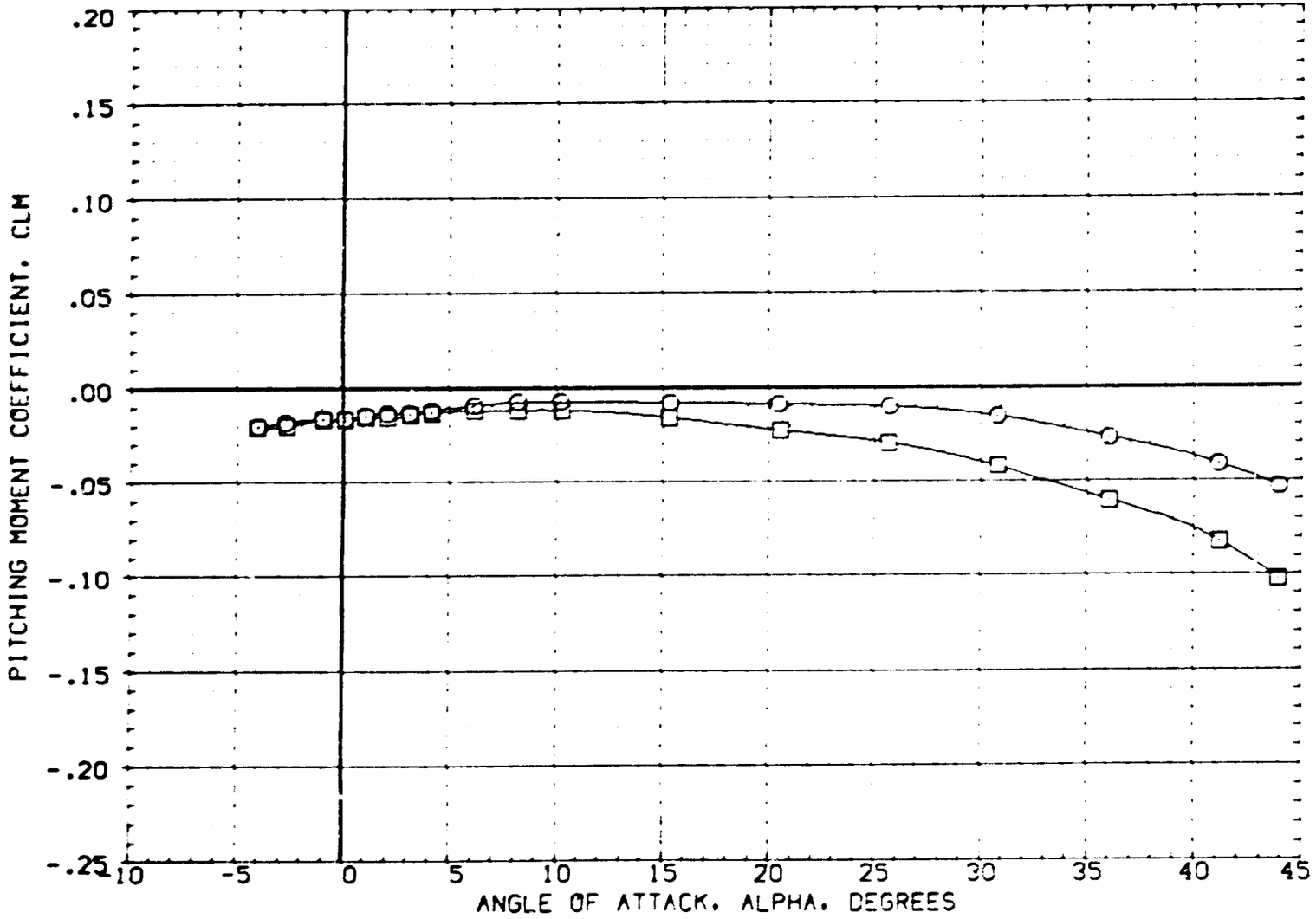


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPOBRK	AILRON
(FQ2001)		OA-2C LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(FQ2009)		DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

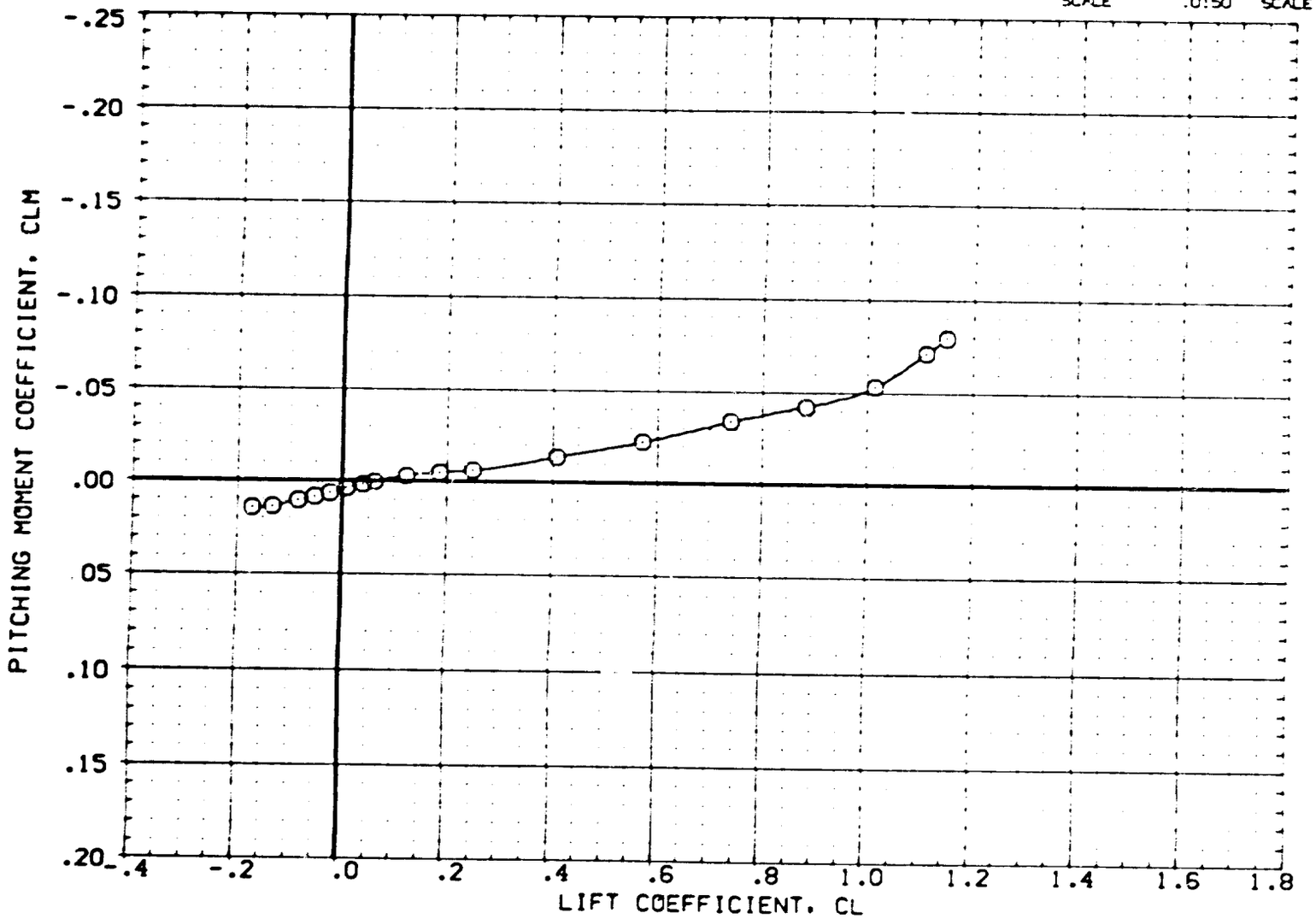


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPOBRK	AILRON
(KQ2001)		OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)		OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

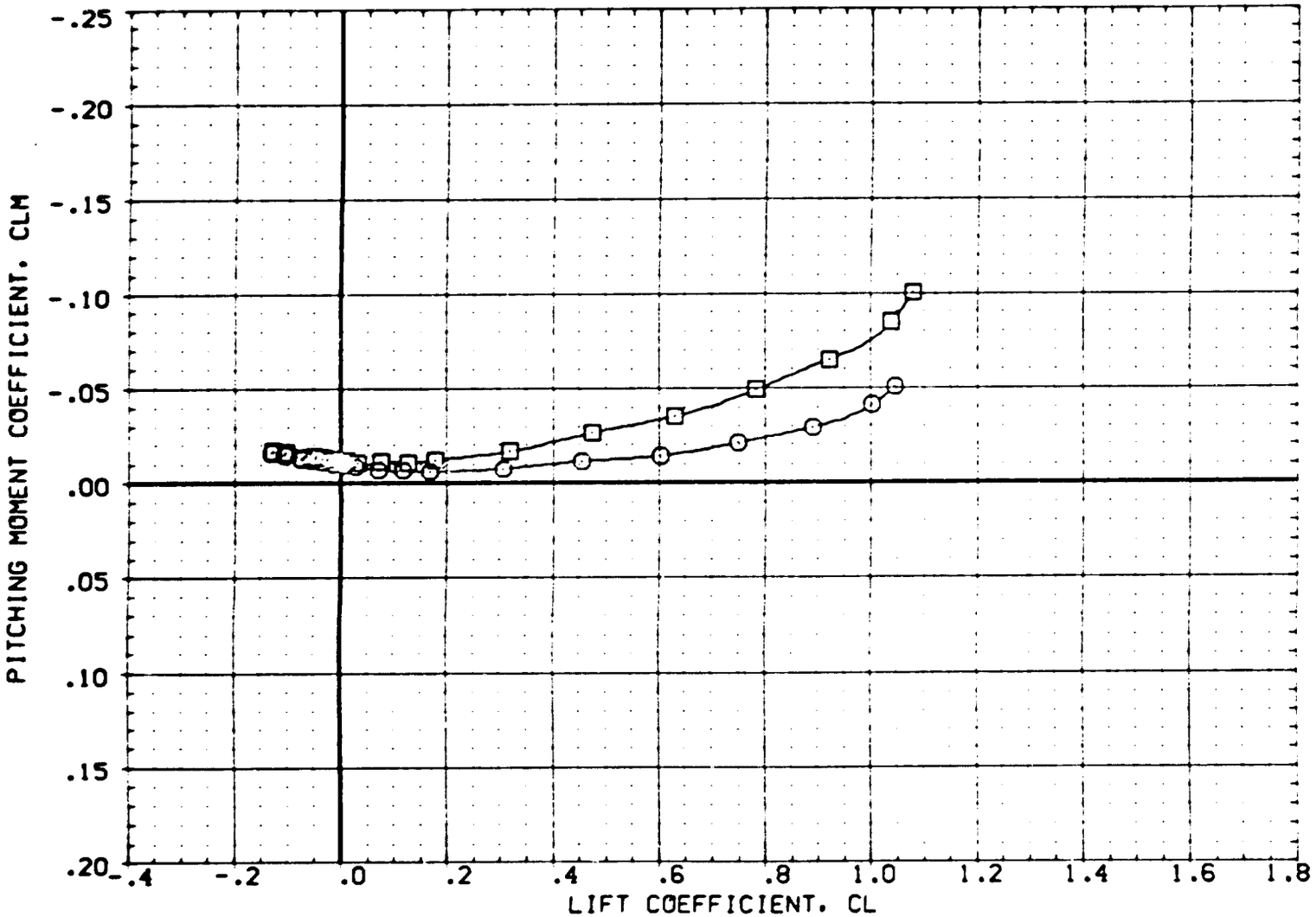


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(F02001)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(F02009)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

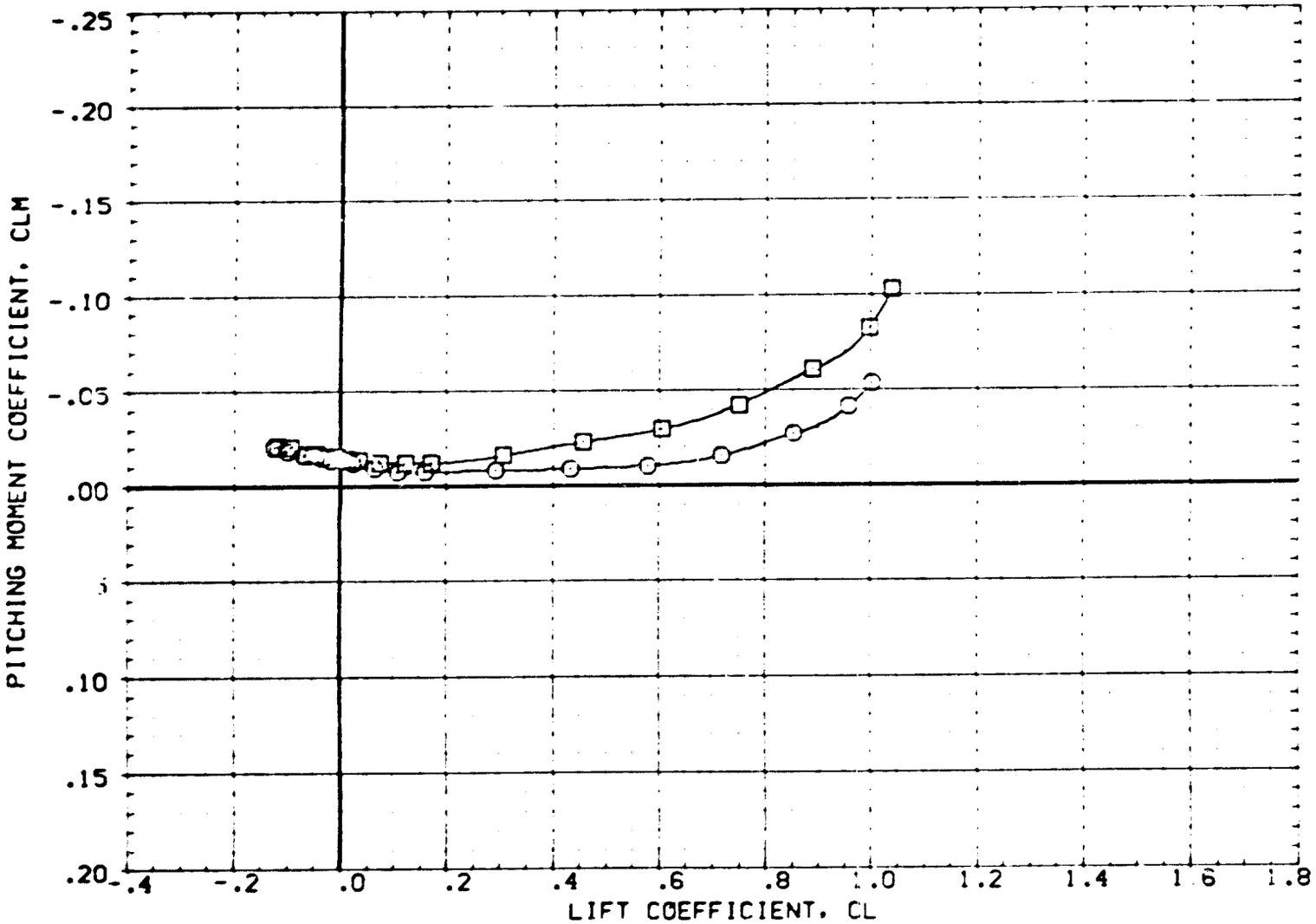


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPOBRK	AILRON
(KQ220C1)	☐	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2209)	☐	DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

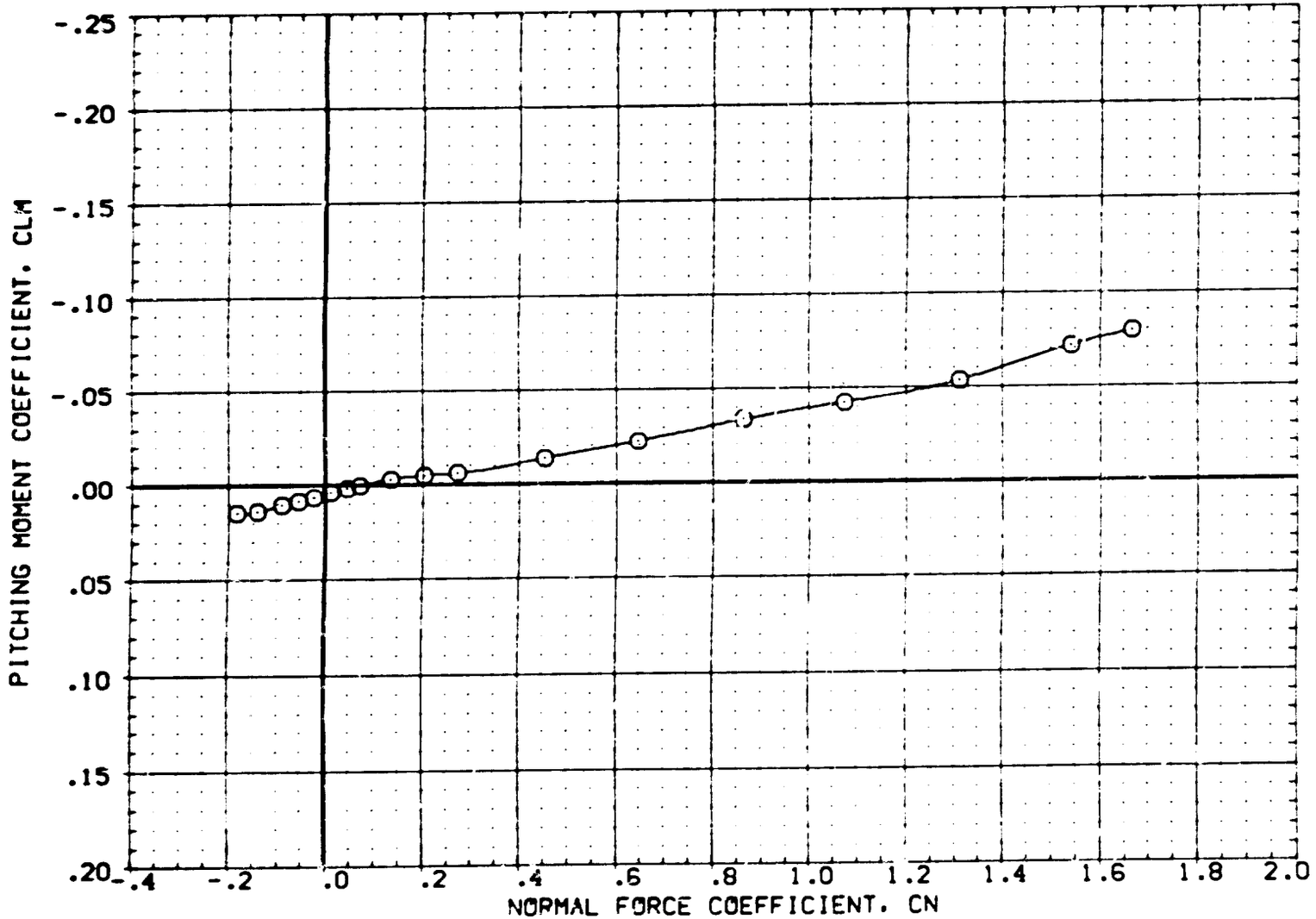


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(KQ200I) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	21.000	.000	55.000	.000
(KQ2C19) □	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	480.8117	IN.
BREF	936.6916	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

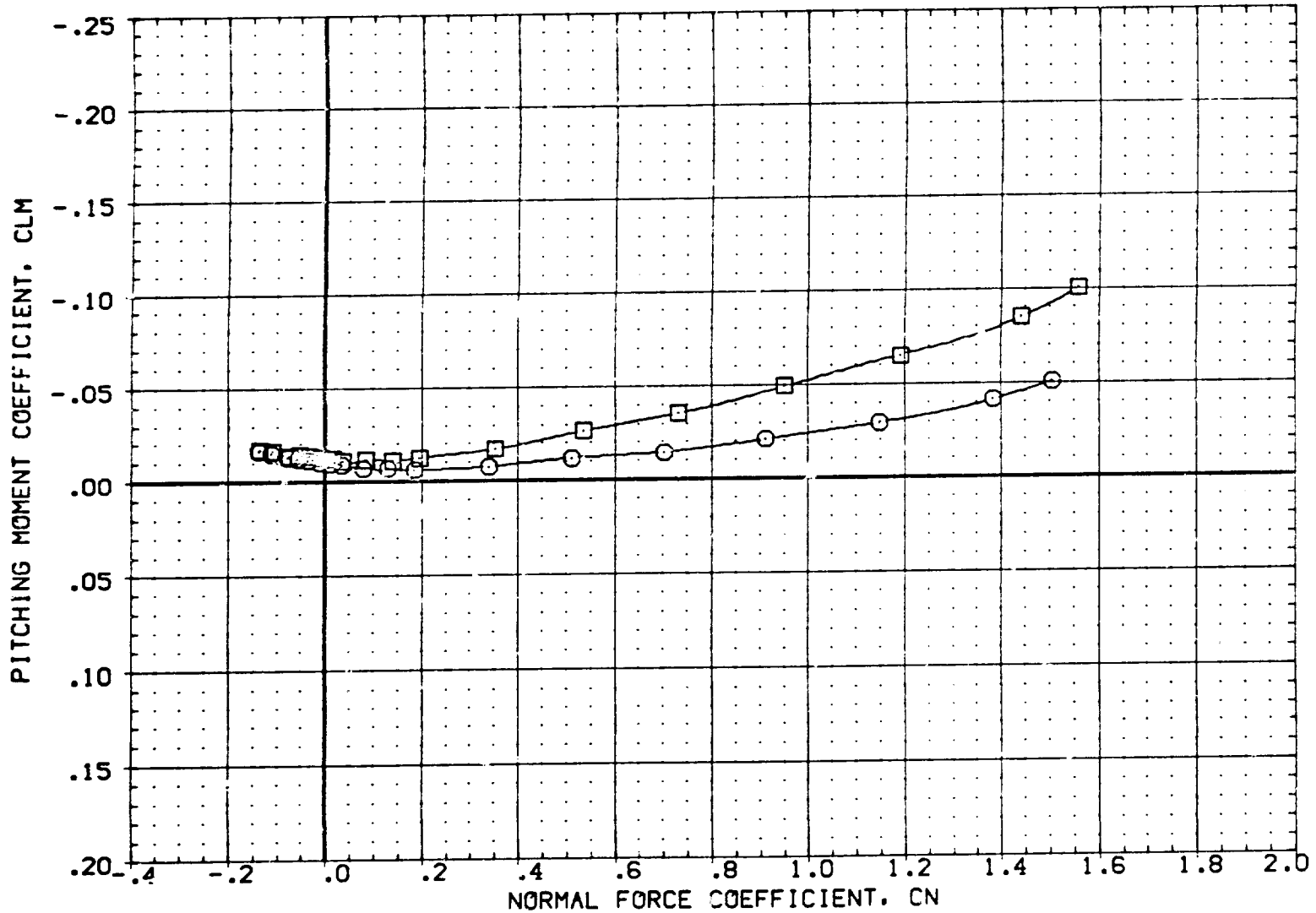


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

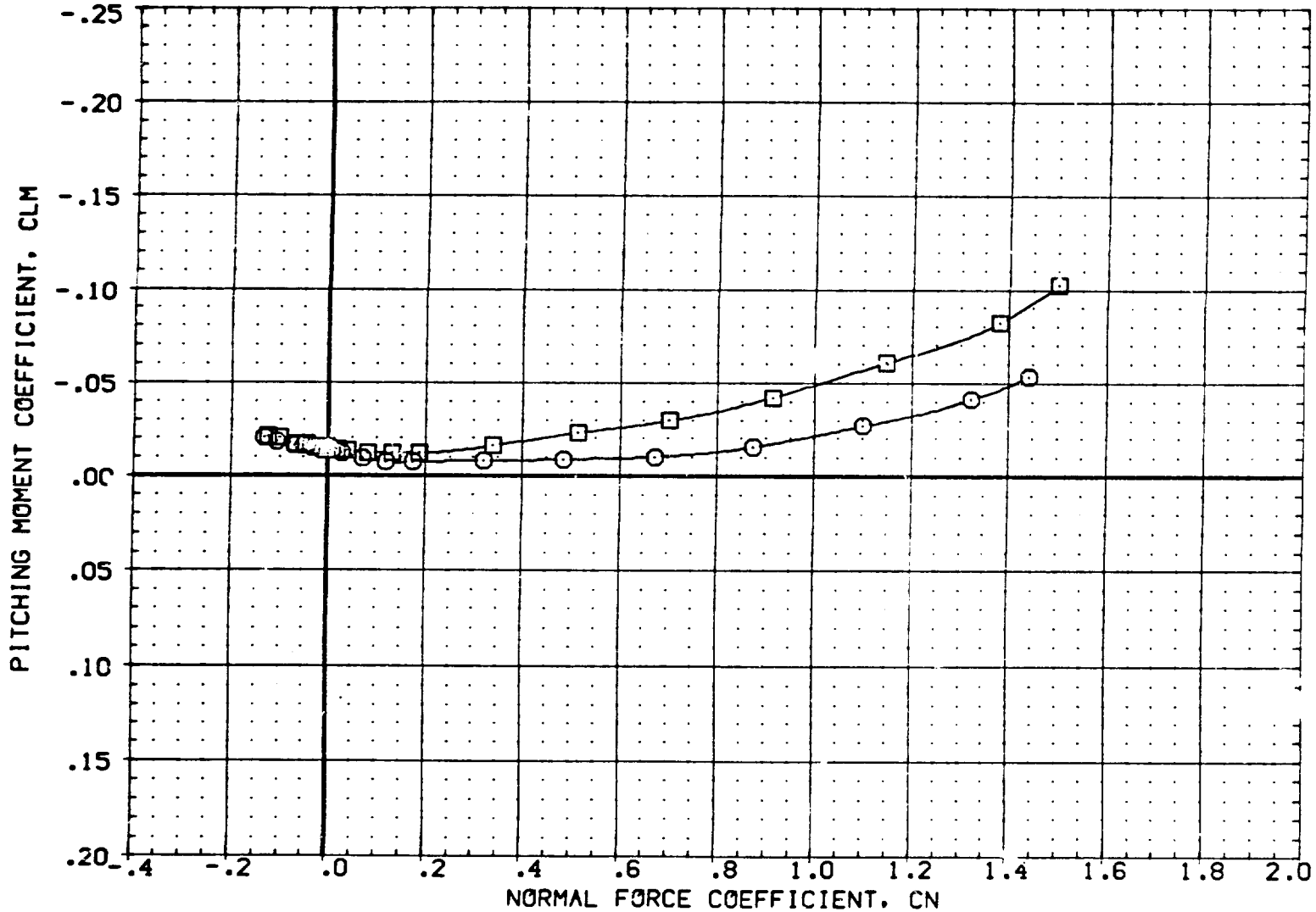


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001)	○	OA-20 LARC UPVT 1057 - 14"A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	□	DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

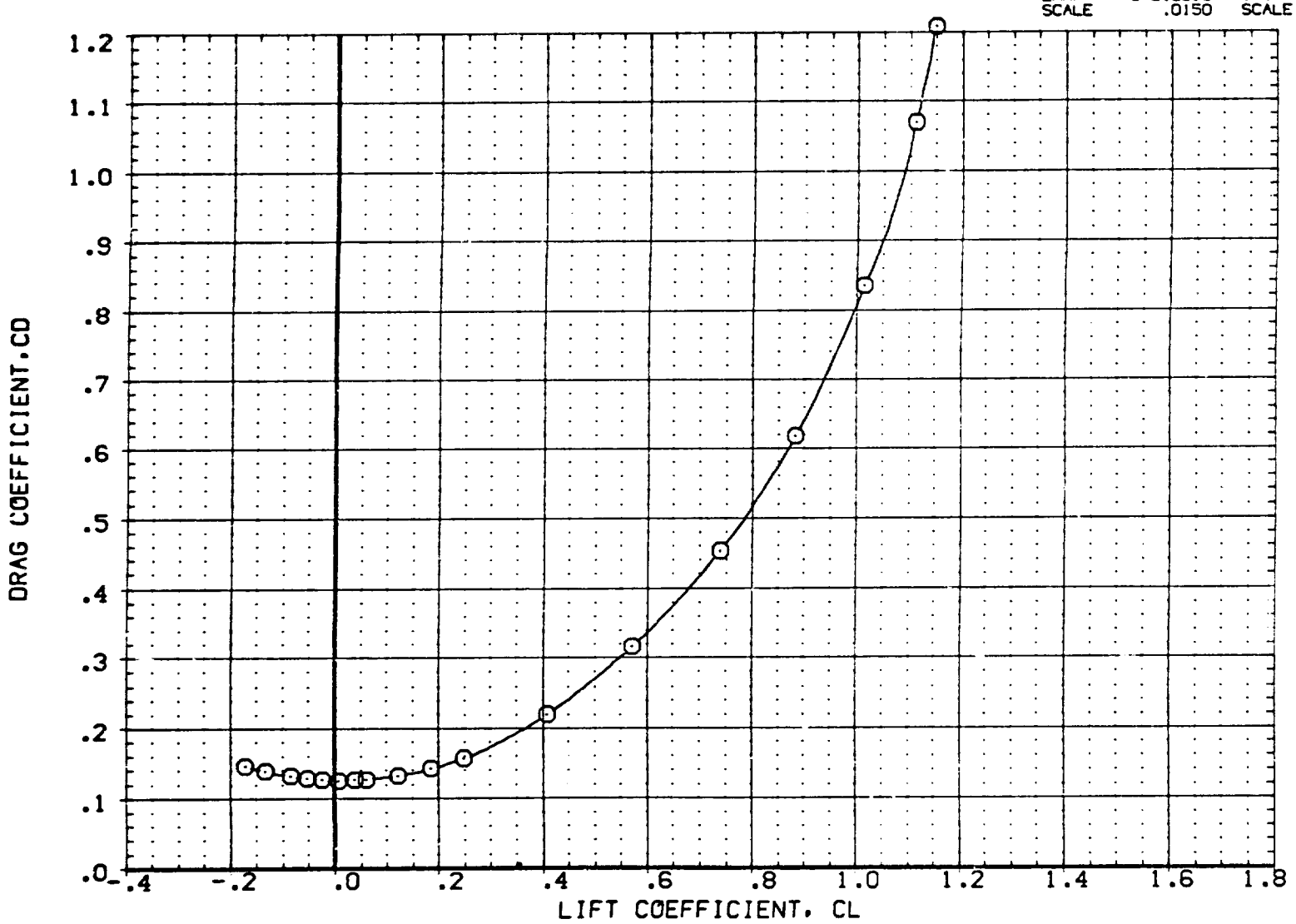


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

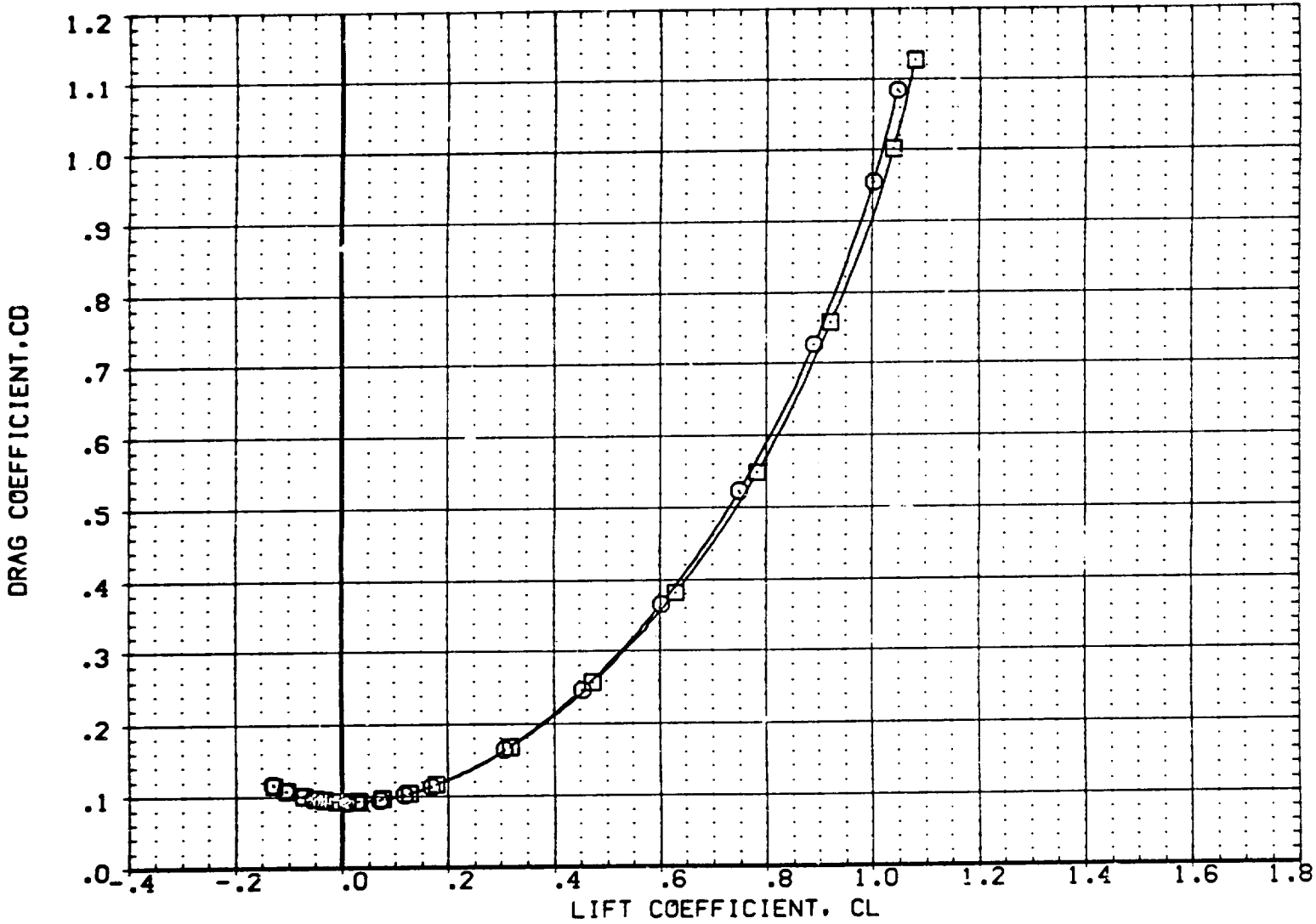


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001)	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	OA-20 LARC UPWT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

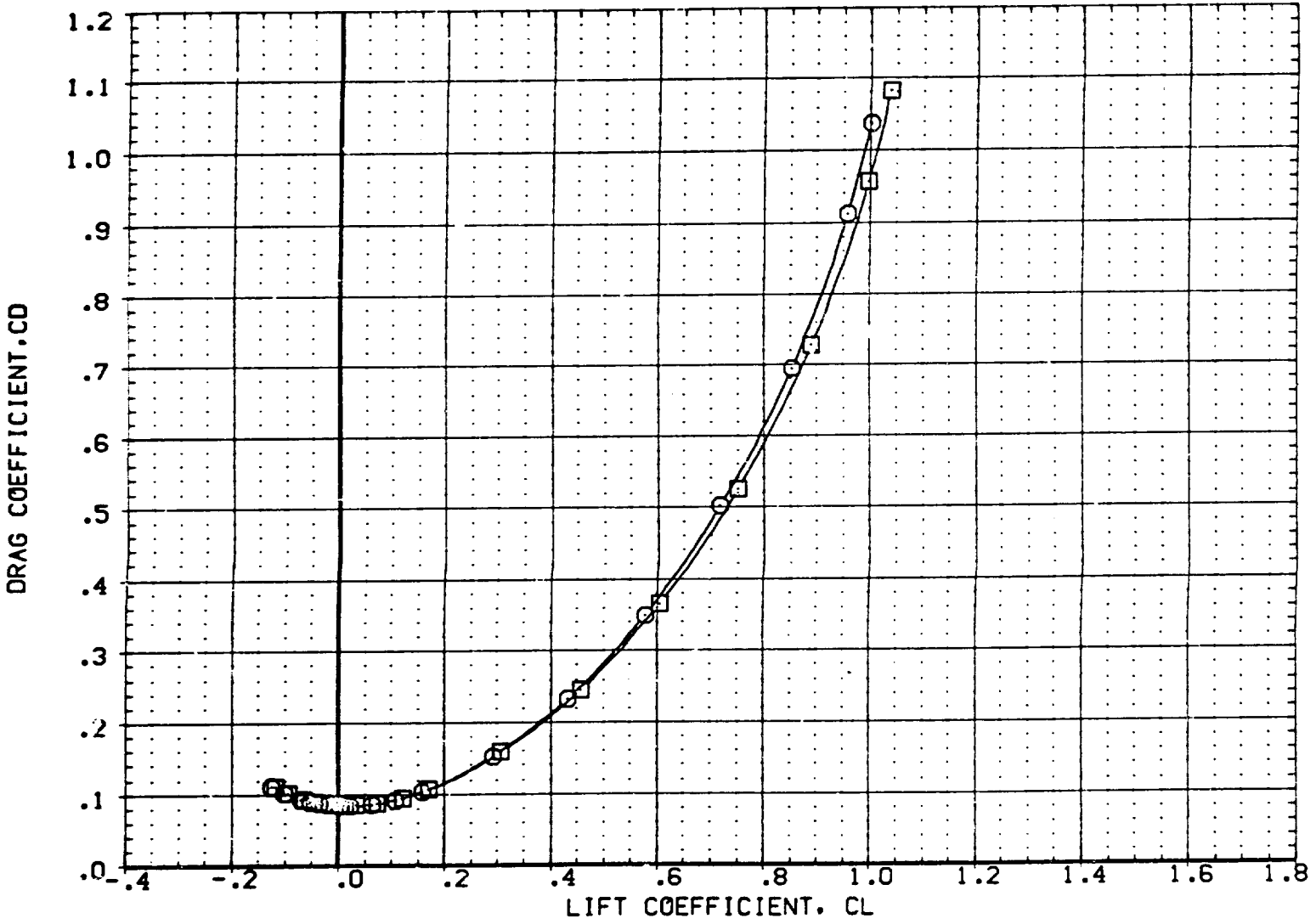


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BDFLAP	ELEVTR	SPDBRK	AILRON
(KQ2001) ○	OA-20 LARC UPVT 1057 - 140A/2 ORBITER	-21.000	.000	55.000	.000
(KQ2009) □	DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPOBRK	AILRON
(KQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(KQ2009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

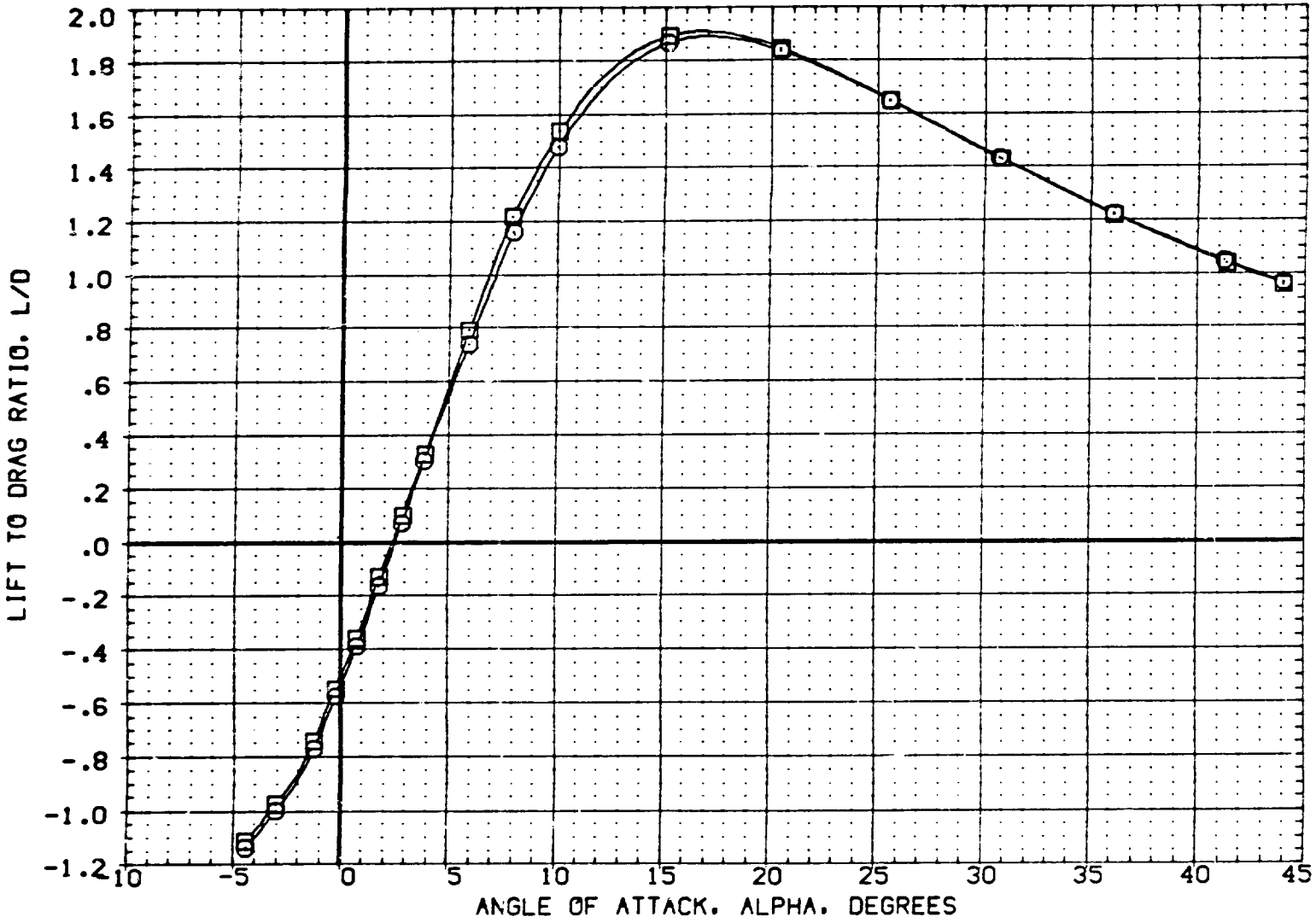


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(K02001)		OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(K02009)		OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

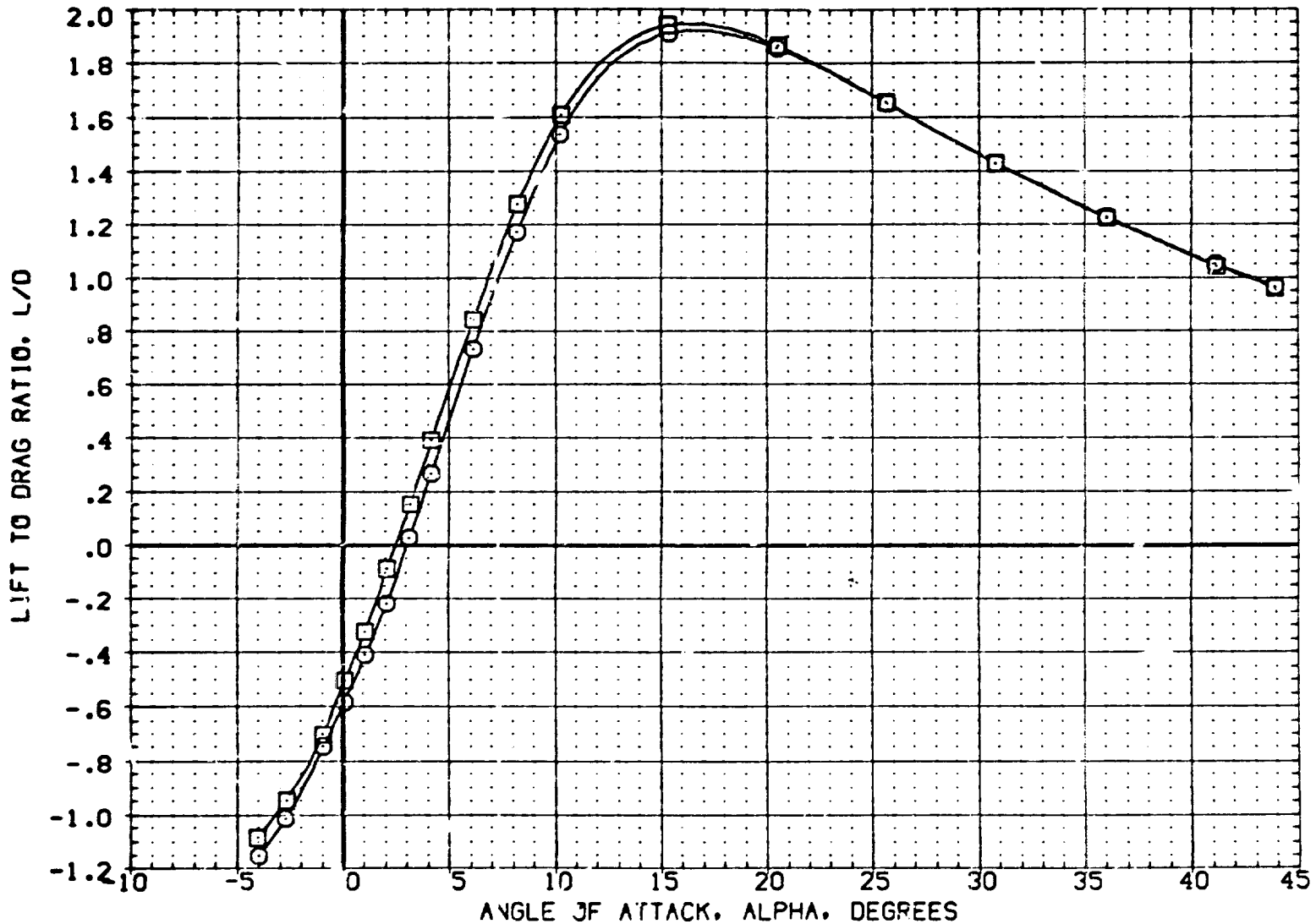


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(M02001)	⊟	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(M02009)		DATA NOT AVAILABLE	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.811"	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

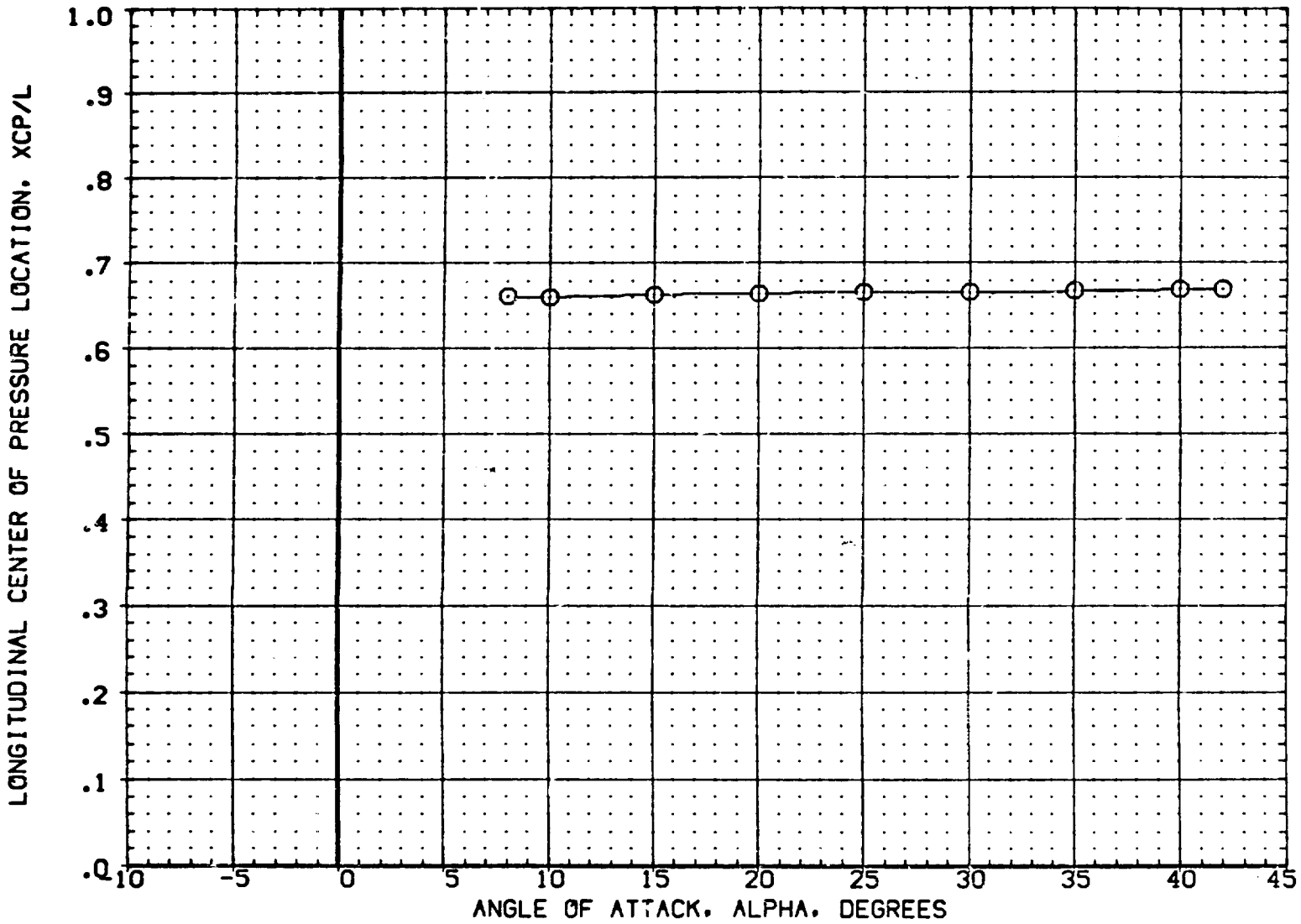


FIG 5 BODYFLAP DEFLECTED

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BOFLAP	ELEVTR	SPDBRK	AILRON
(MQ2001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-21.000	.000	55.000	.000
(MQ2009)	OA-20 LARC UPVT 1057 - 140/B ORBITER	10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

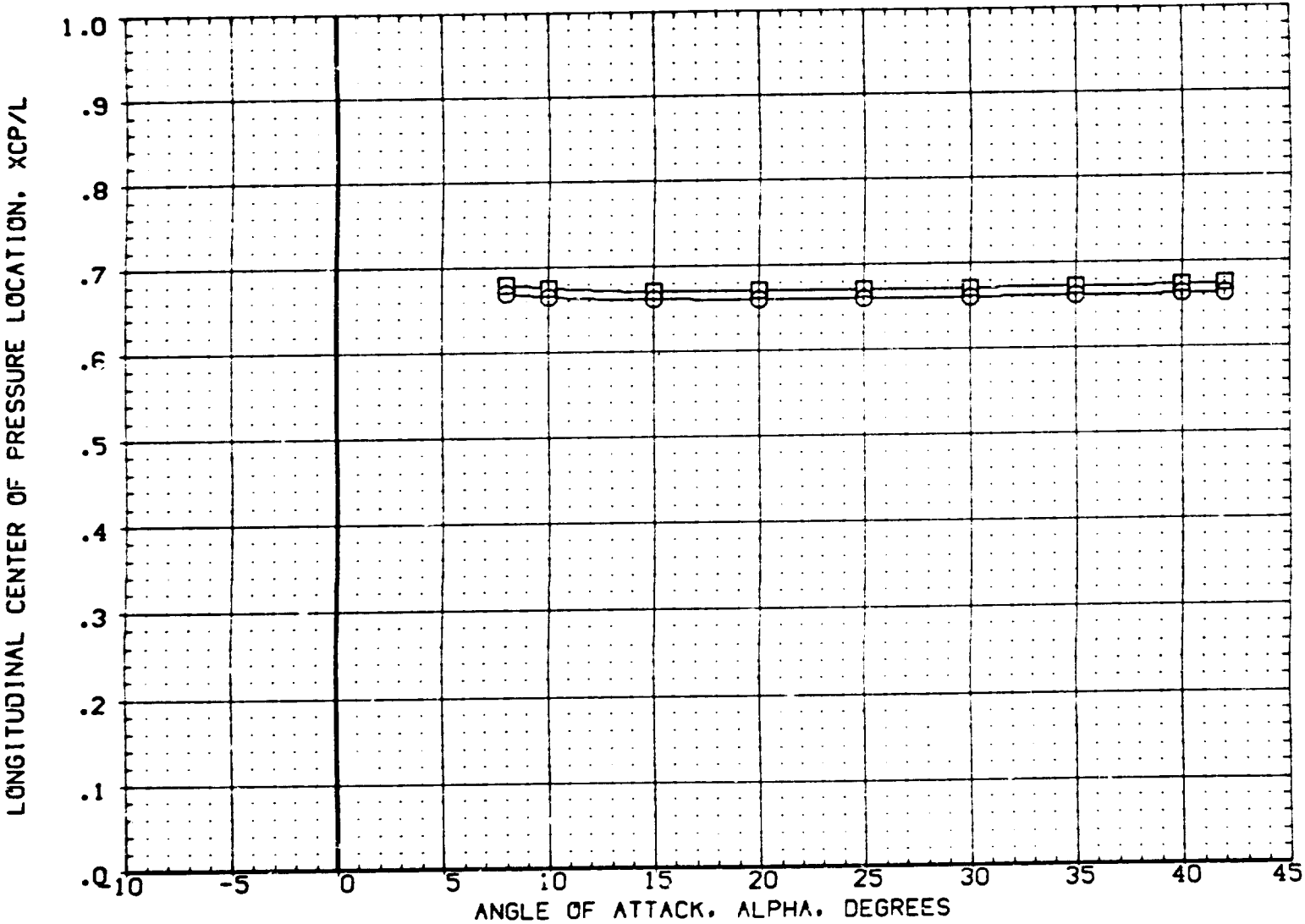


FIG 5 BODYFLAP DEFLECTED

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M02001)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(M02009)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BDFLAP	ELEVTR	SPDBRK	AILRON
-21.000	.000	55.000	.000
10.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

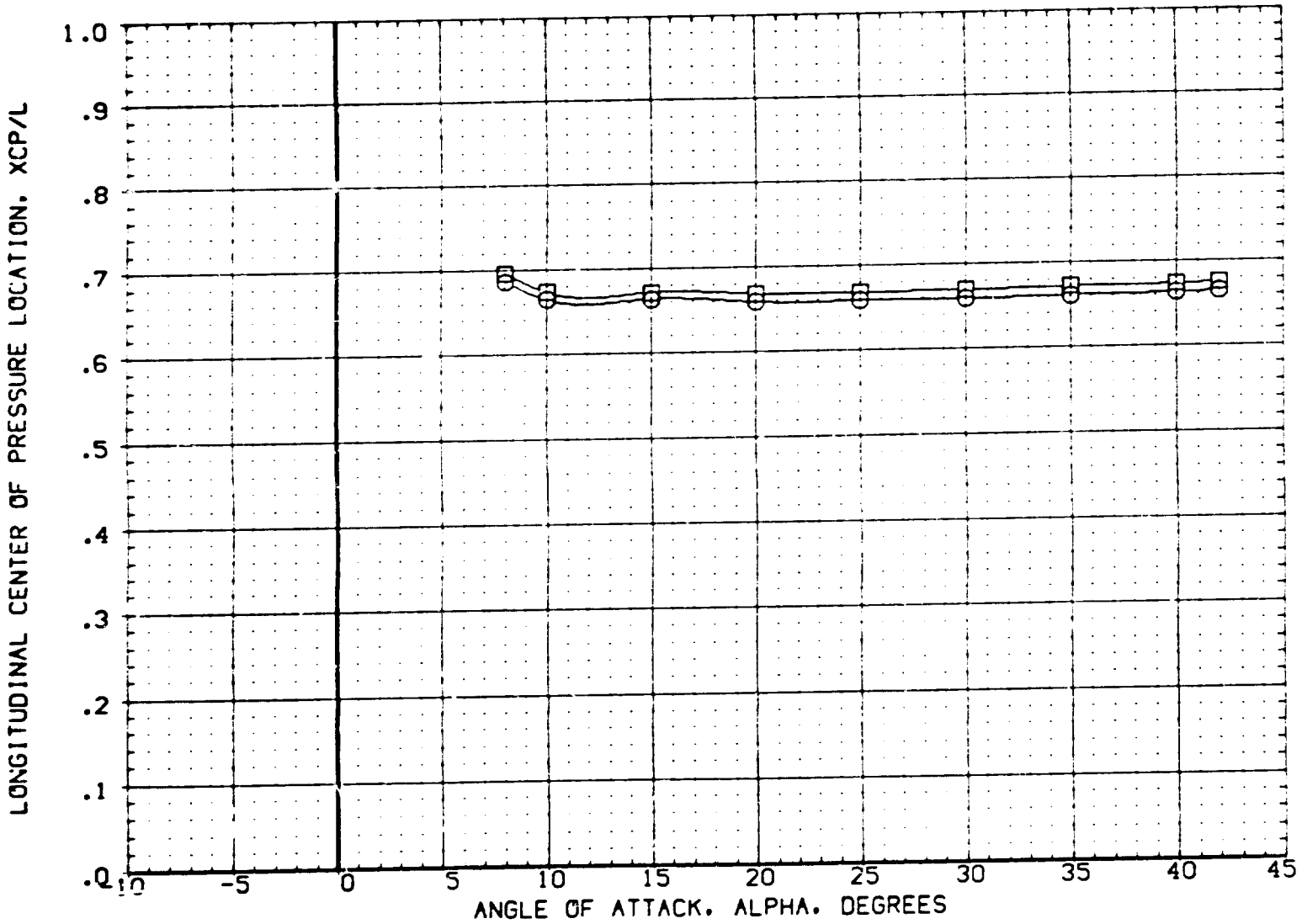


FIG 5 BODYFLAP DEFLECTED

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(FQ2007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(FQ2008)	DATA NOT AVAILABLE

DELVTR	BDFLAP	SPDBRK	AILRON
-40.000	-21.000	55.000	.000
15.000	0.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

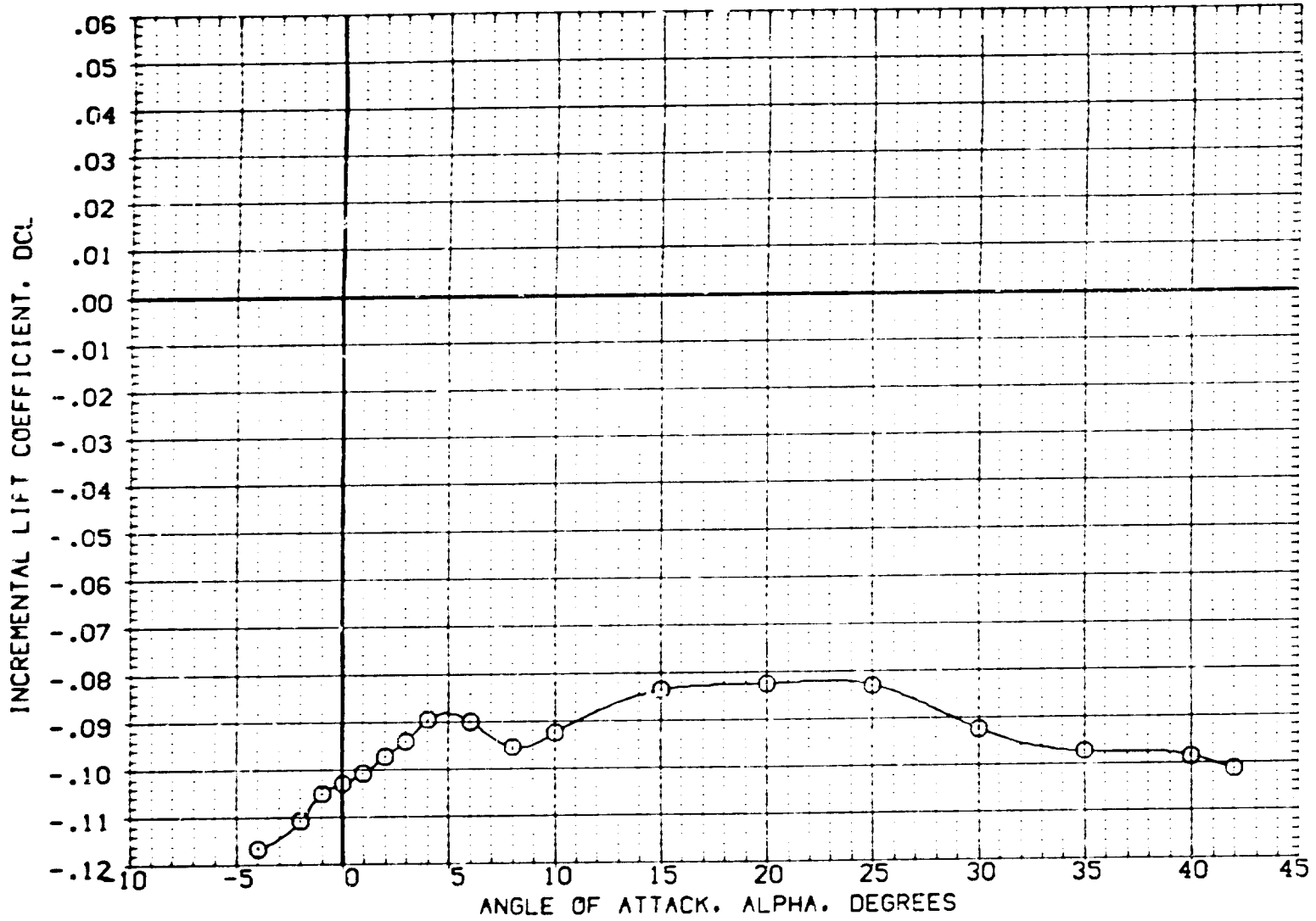


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BOFLAP	SPOBRK	AILRON
(FQ2007)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

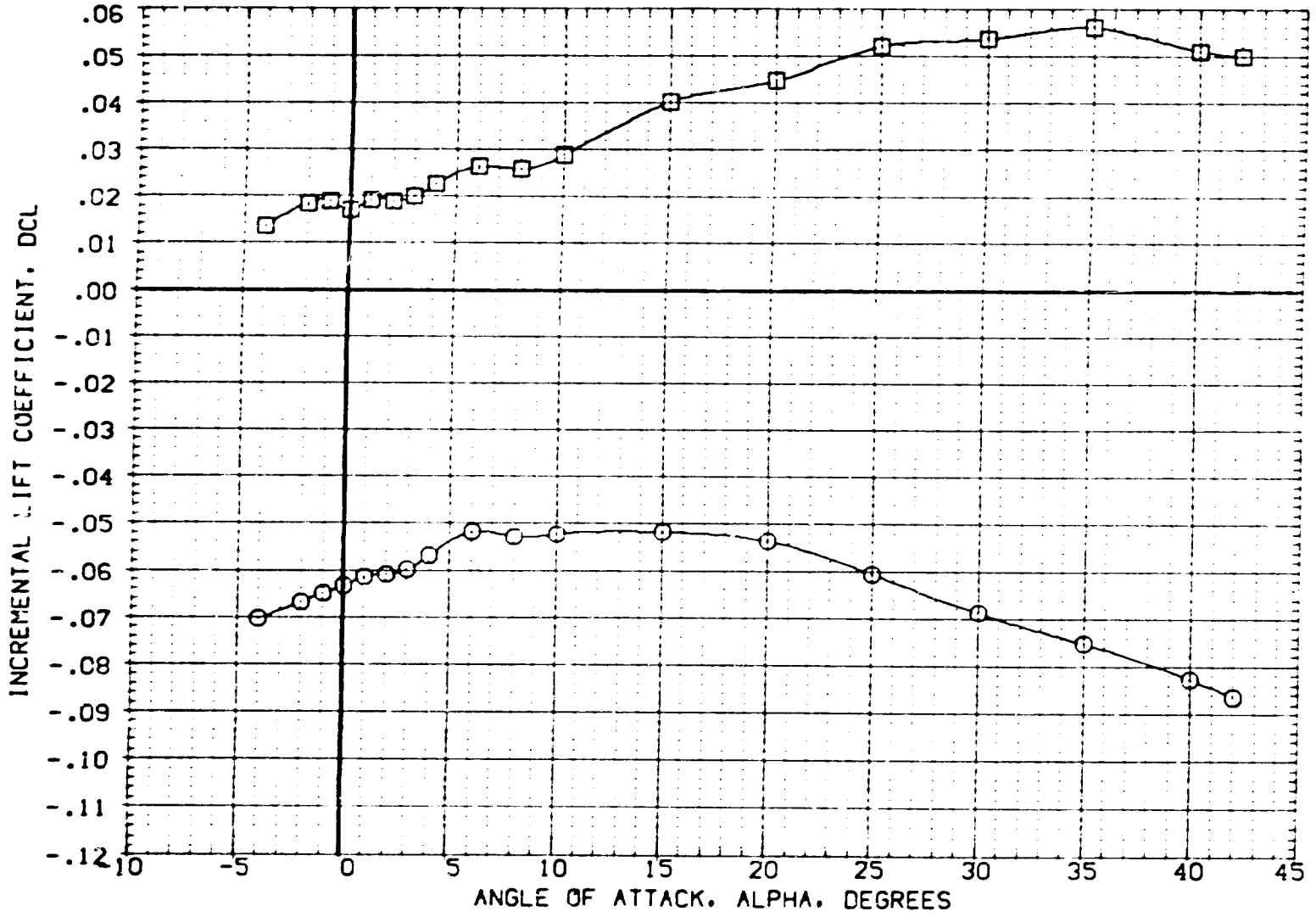


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(B)MACH = 3.90

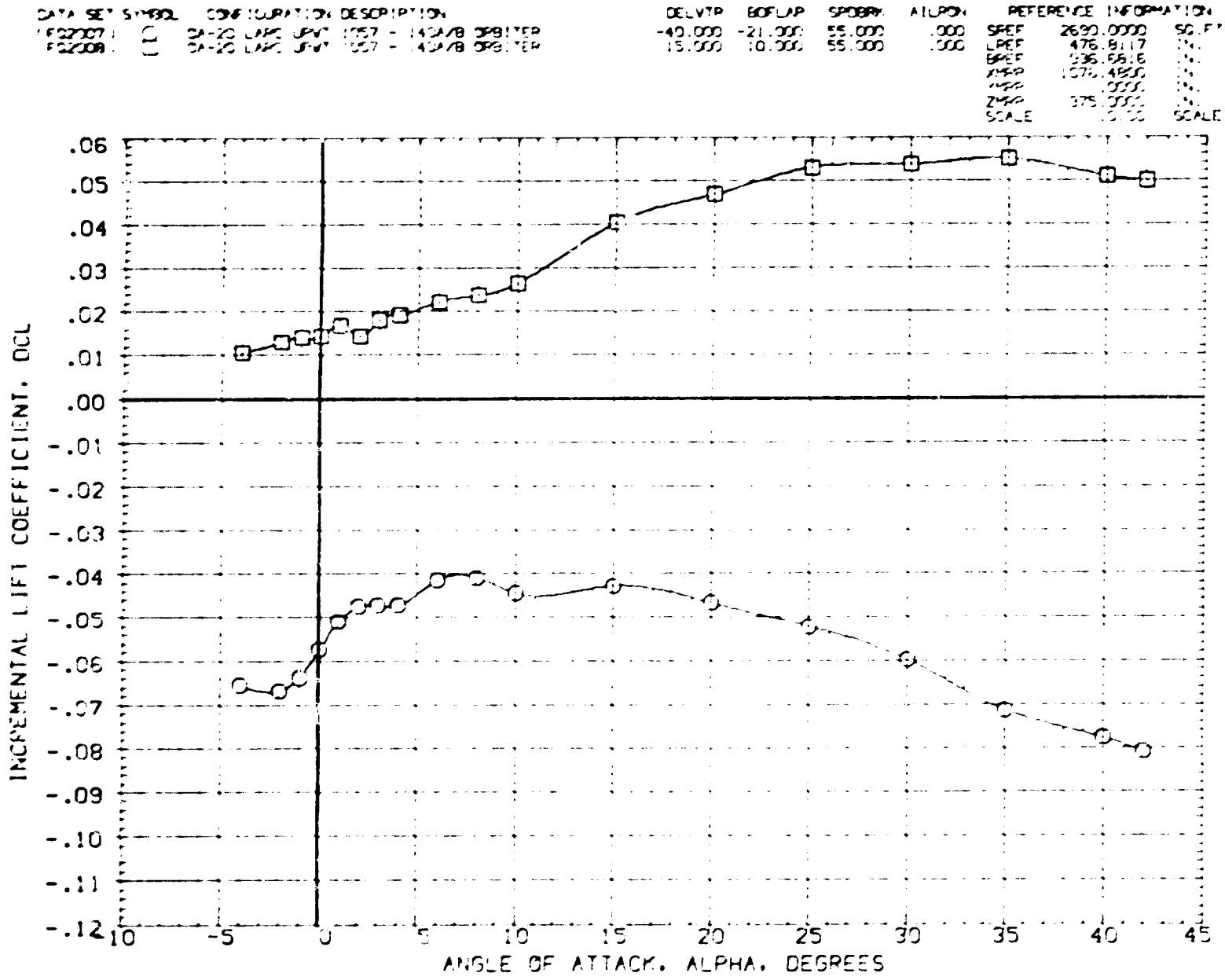


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BOFLAP	SPOSRK	AILRON
(FQ2007) ○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008) □	DATA NOT AVAILABLE	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

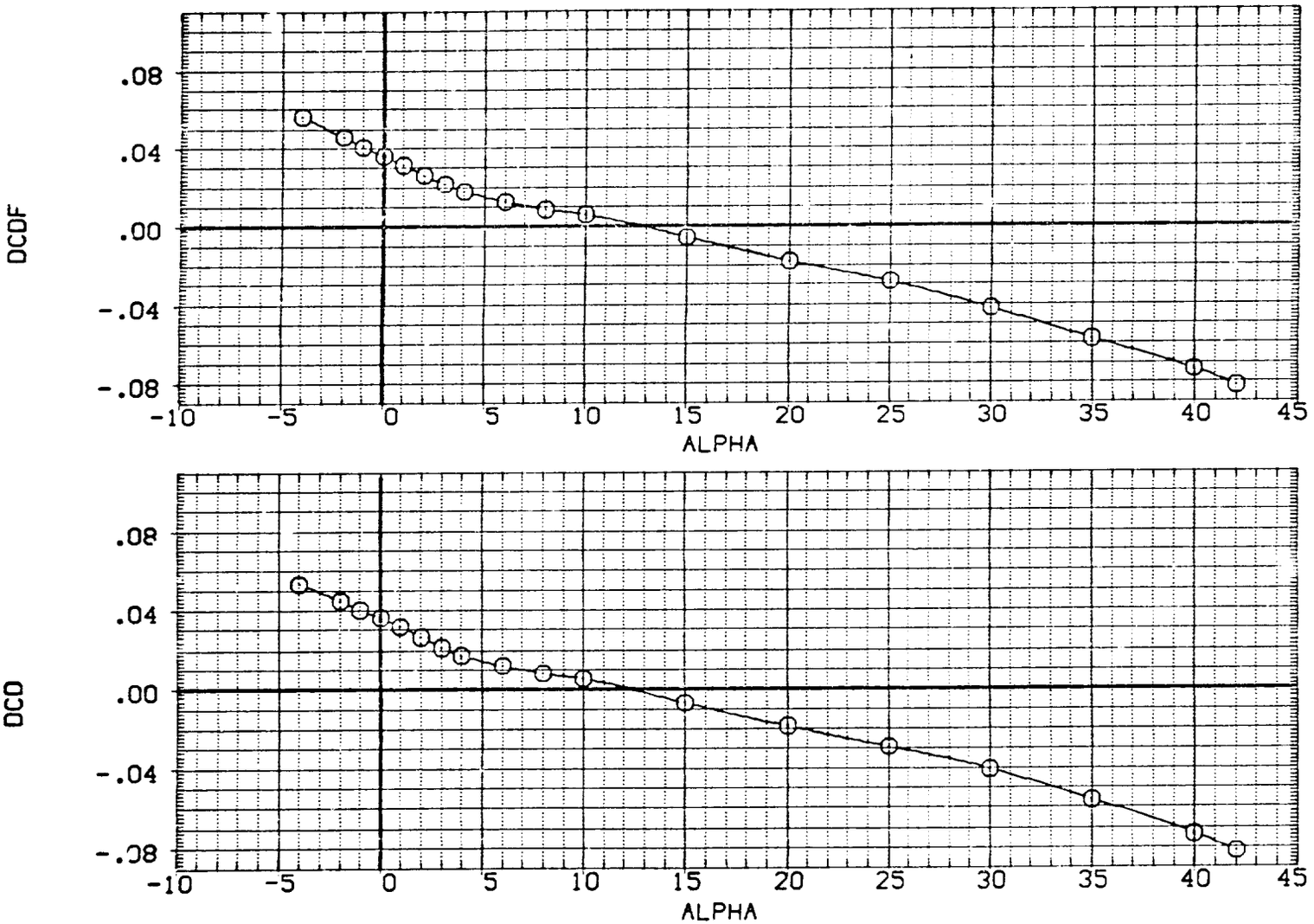


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPDBRK	AILRON
(FQ2007)	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	OA-20 LARC UPWT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

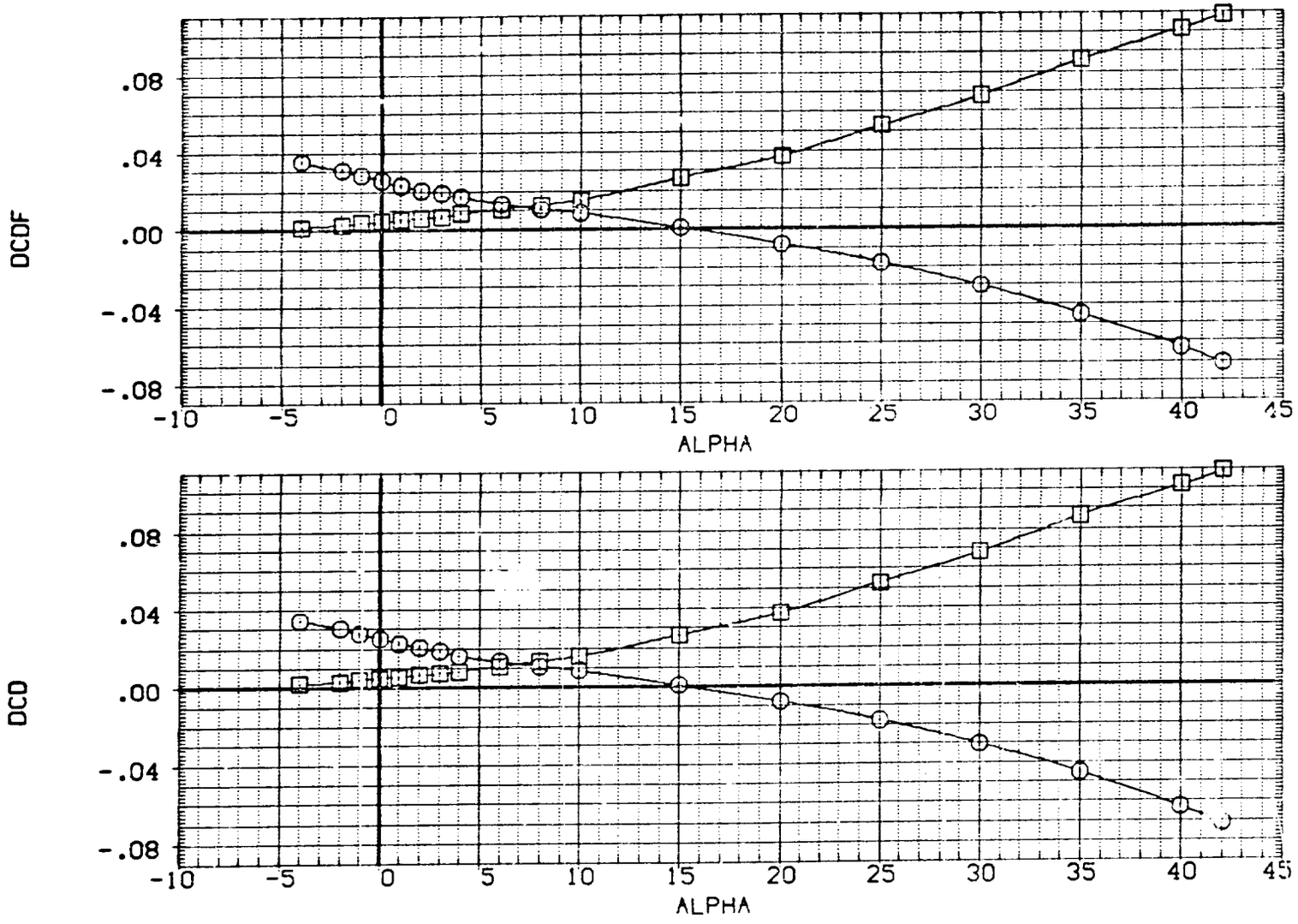


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BOFLAP	SPOBRK	AILRON
(FQ2007) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008) □	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

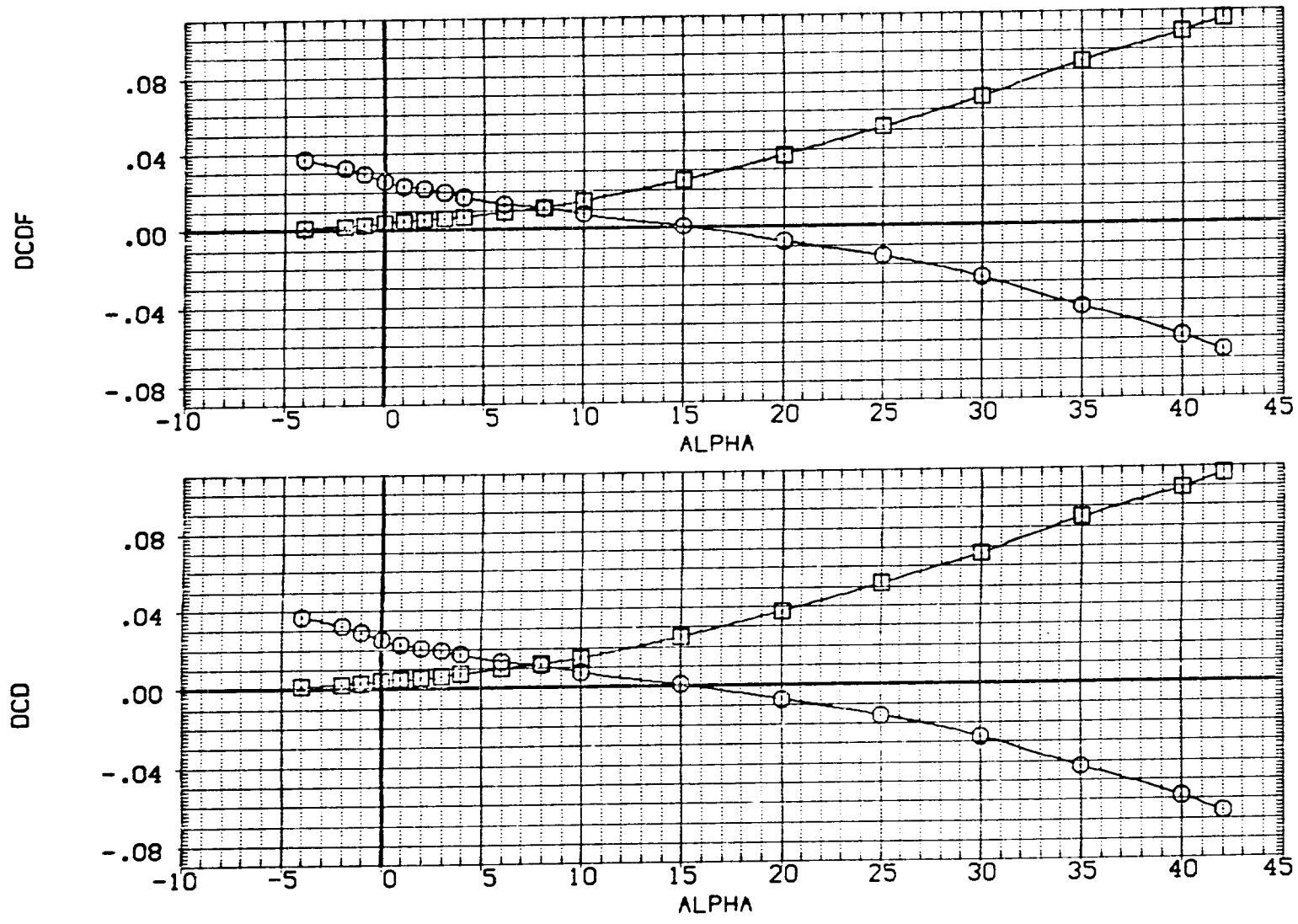


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(C)MACH = 4.60

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(F02007)	⊡	OA-20 LARC UPWT 1057 - 140A/B ORBITER
(F02008)	□	DATA NOT AVAILABLE

DELVTR	BOFLAP	SPOBRK	AILRON
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

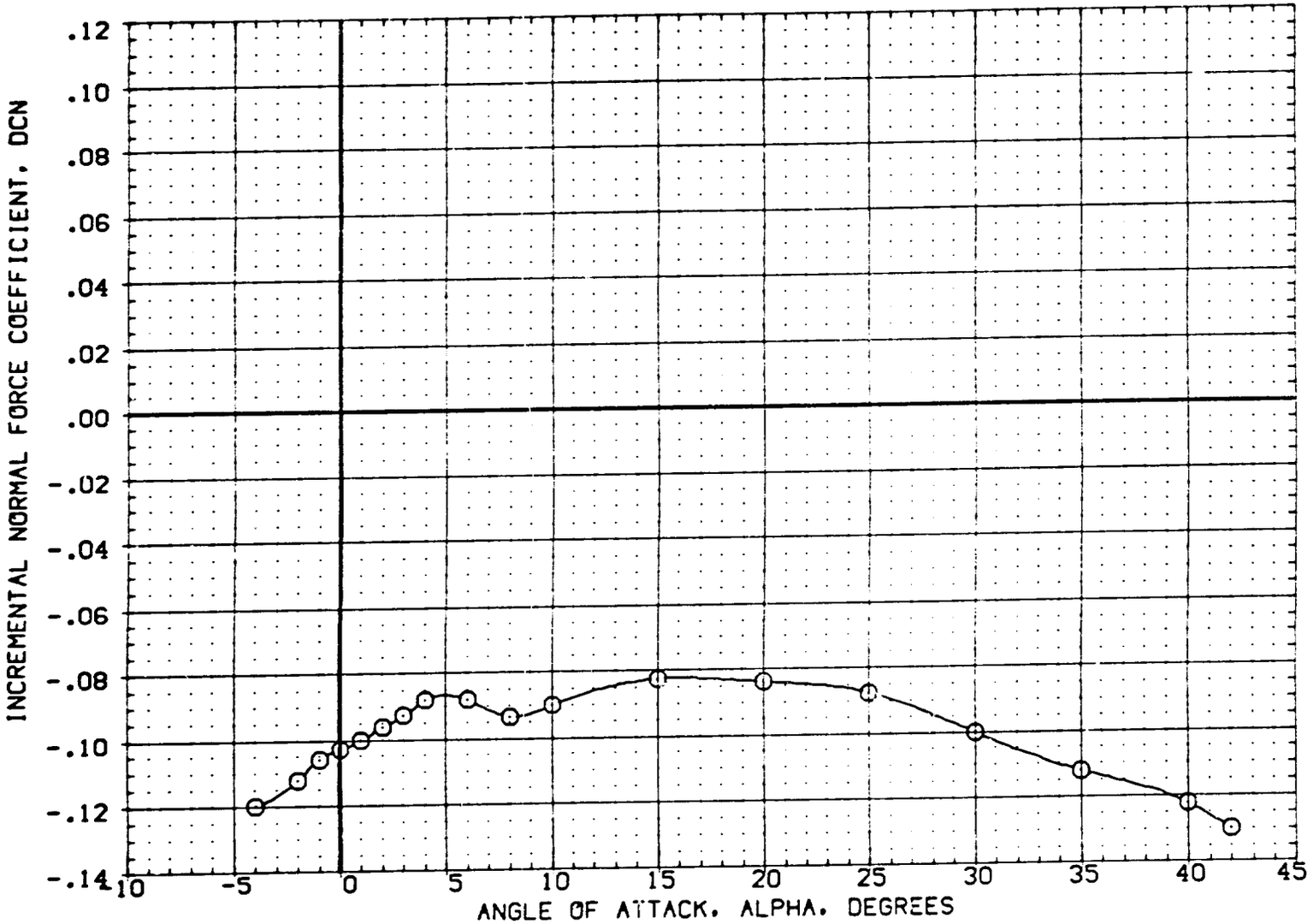


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(A)MACH = 2.50

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(F02007)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(F02008)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER

DELVTR	BOFLAP	SPOBRK	AILRON
-40.000	-21.000	55.000	.000
15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

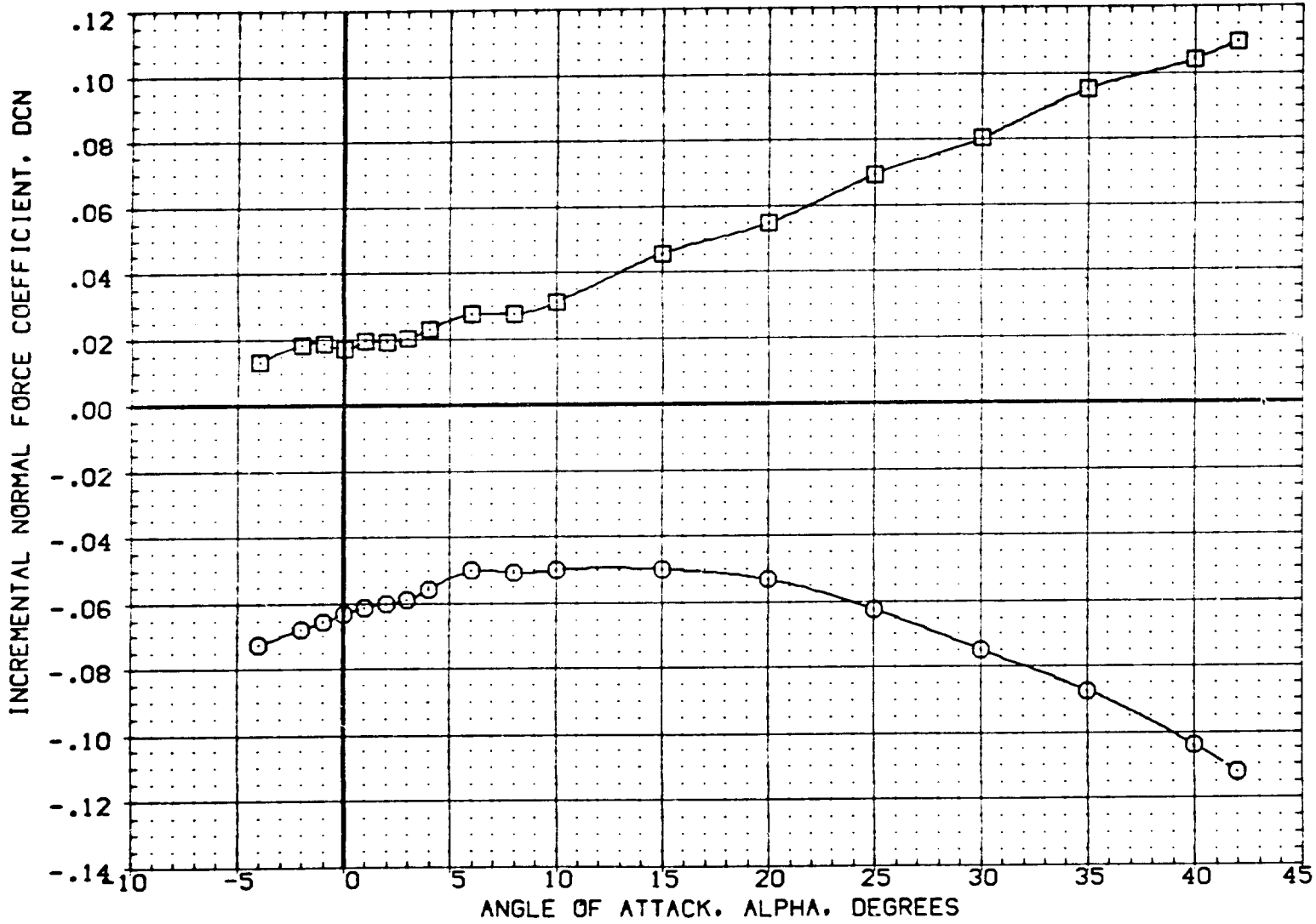


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPDBRK	AILRON
(F02007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(F02008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

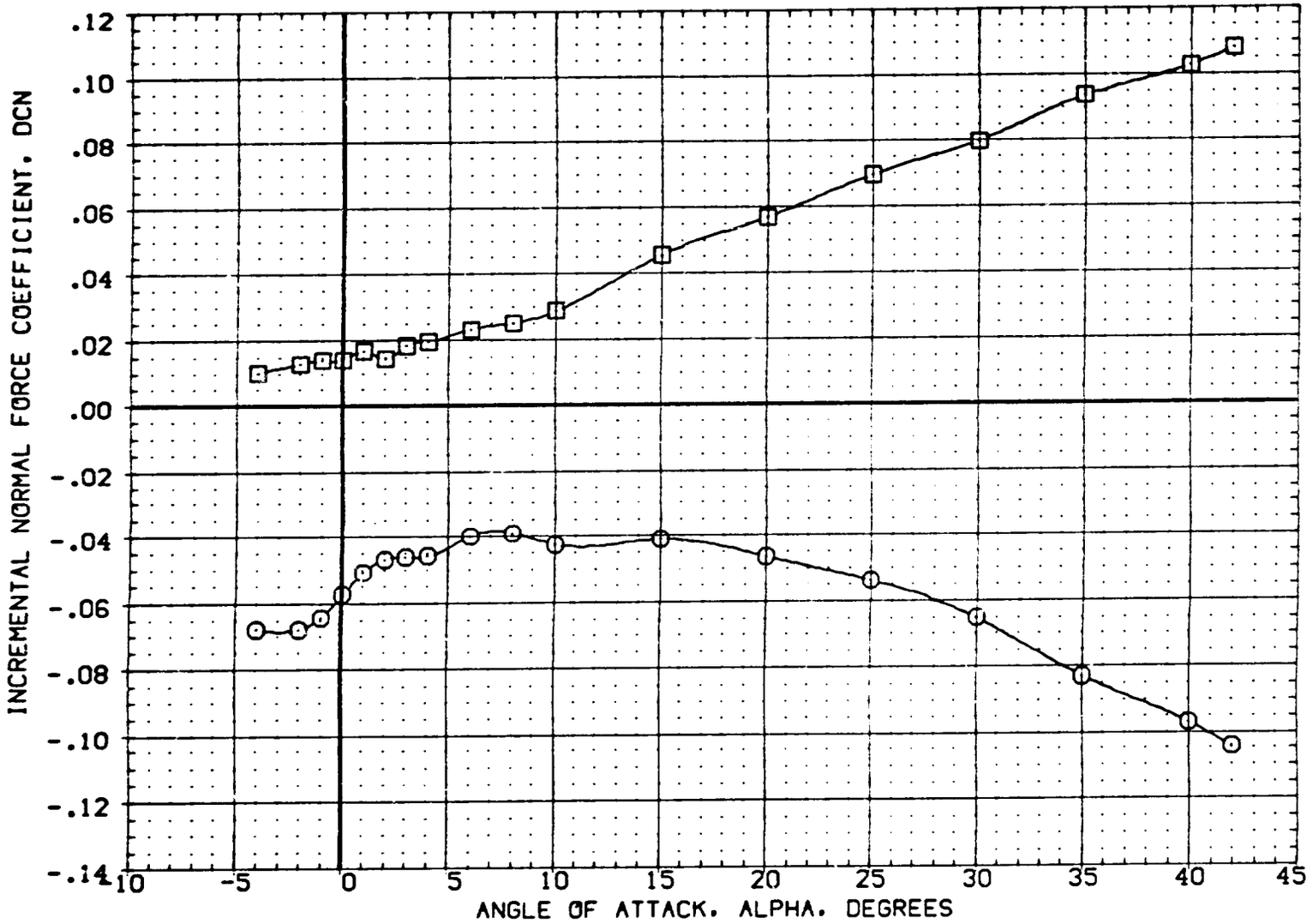


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BOFLAP	SPOBRK	AILRON
(FQ2007)	OA-20 LARC UPWT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	DATA NOT AVAILABLE	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

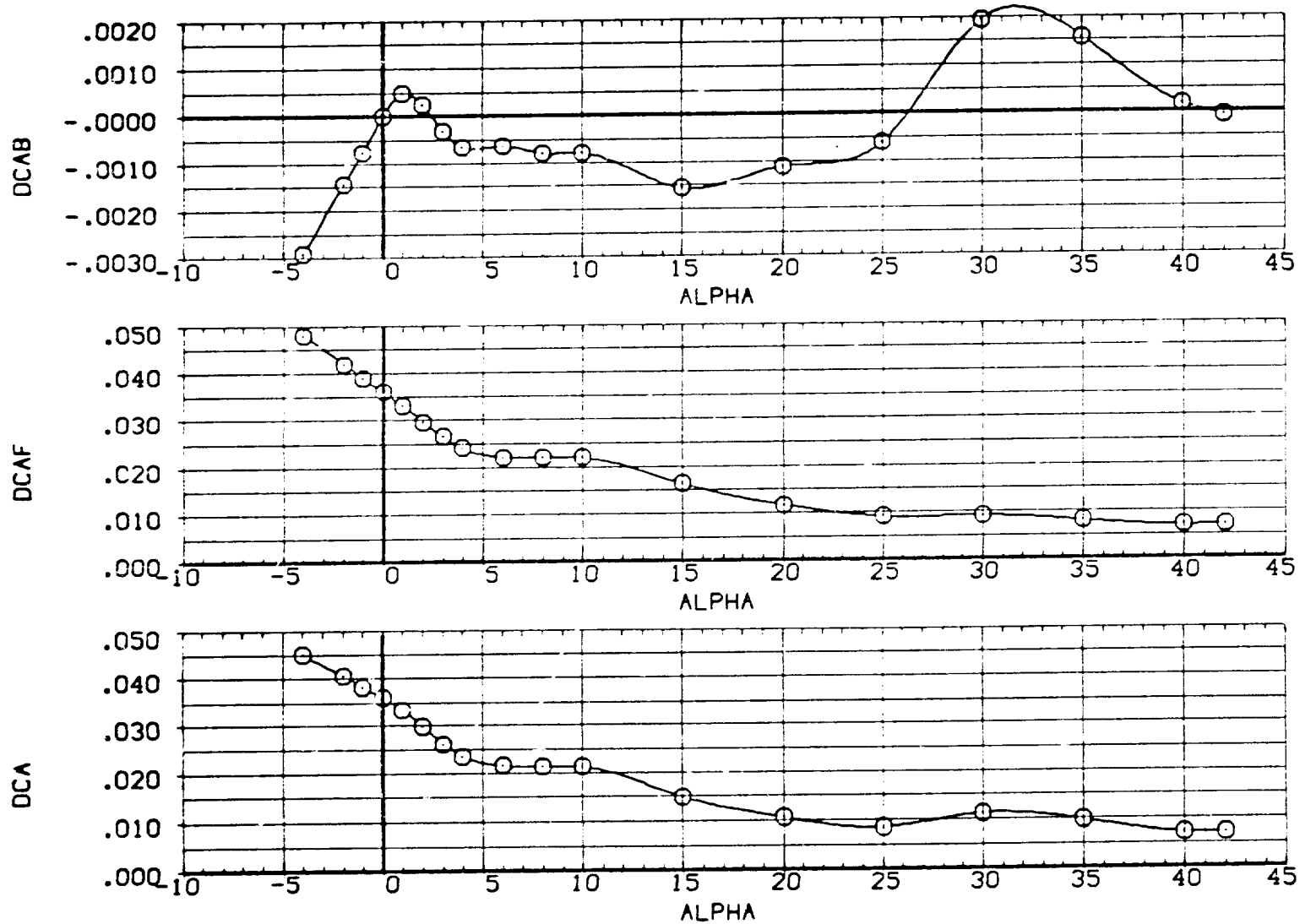


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPDBRK	AILRON
(FQ2007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

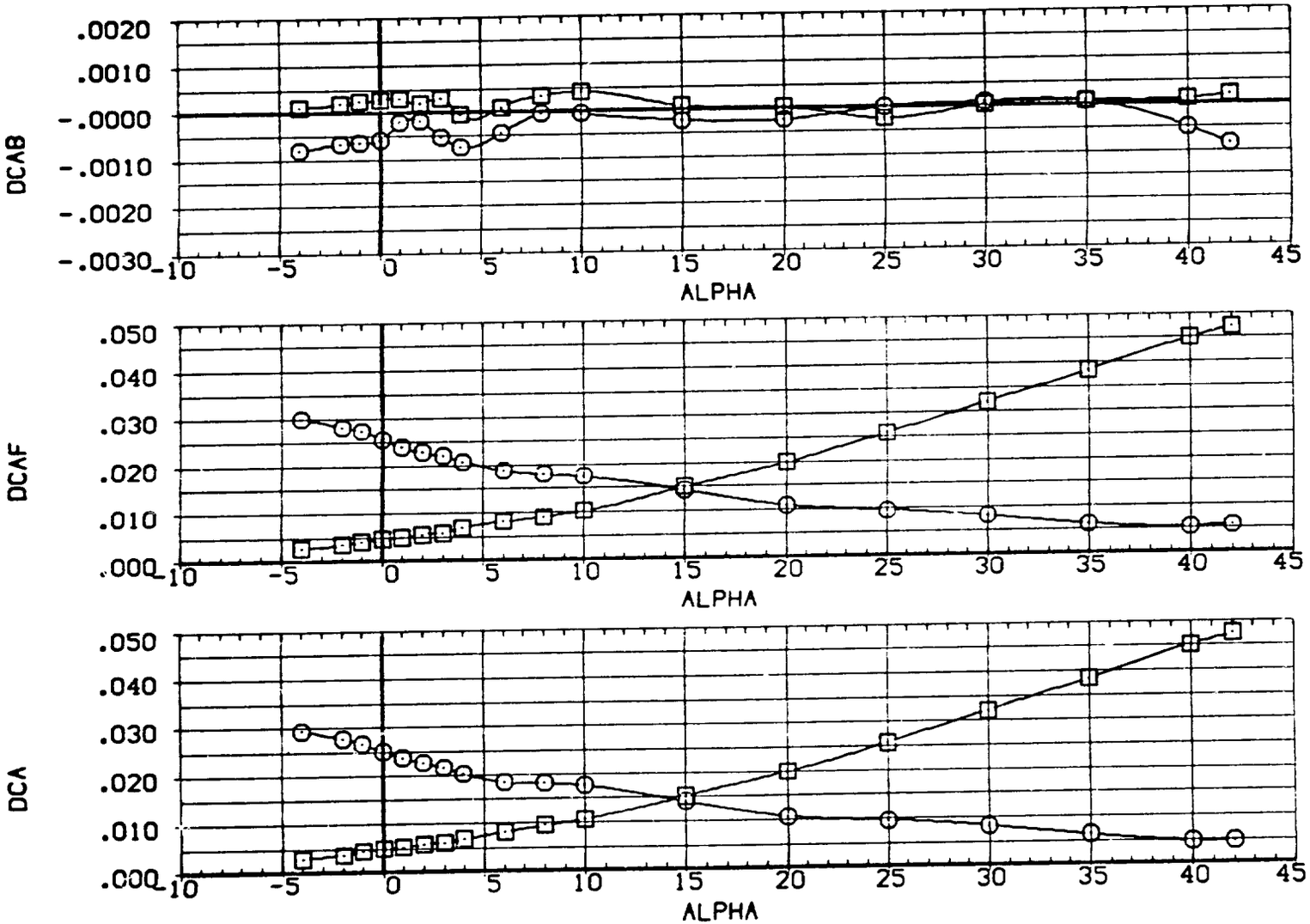


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BOFLAP	SPDBRK	AILRON
(FQ2007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

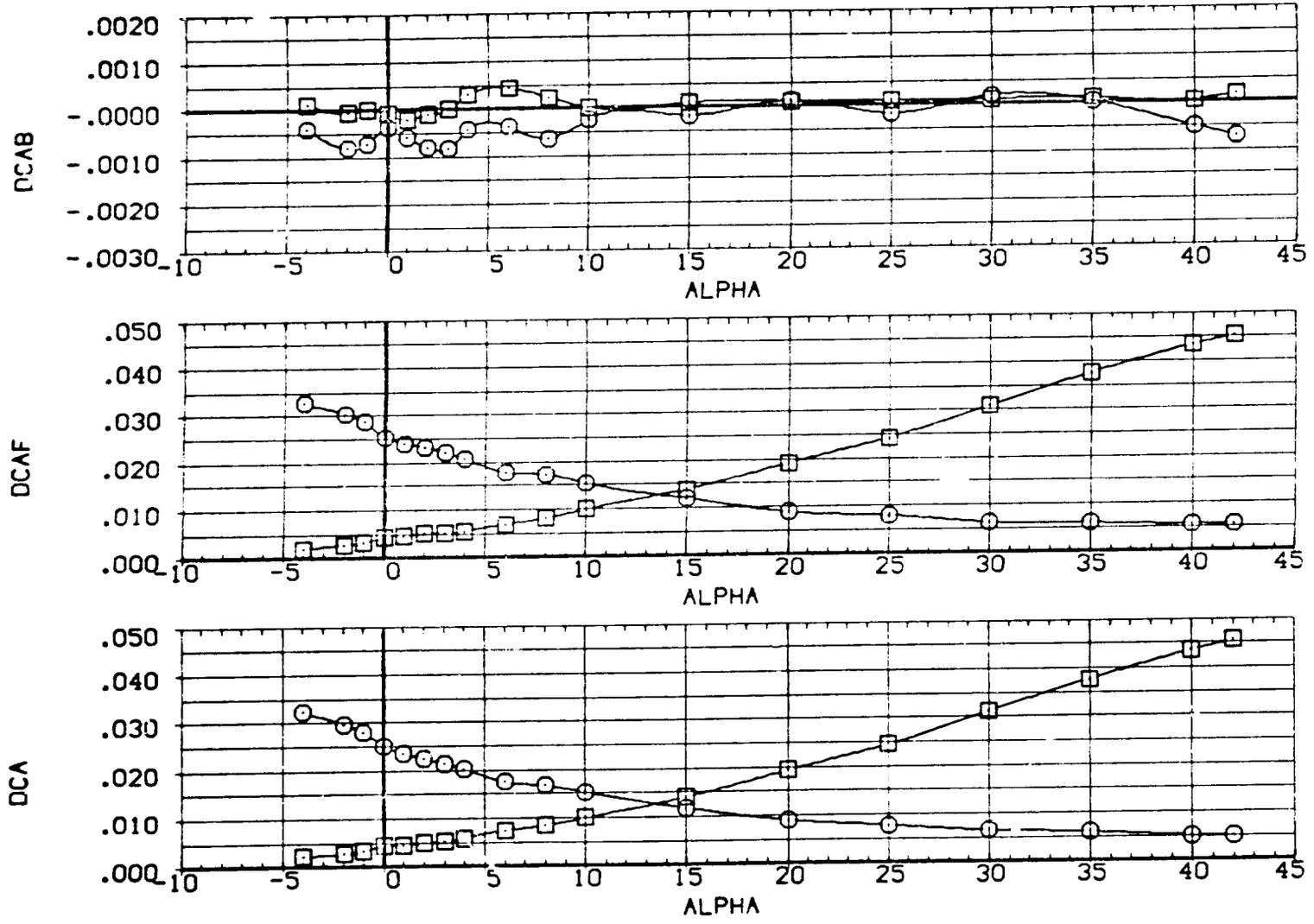


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPDBRK	AILRON
(F02007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(F02008)	DATA NOT AVAILABLE	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

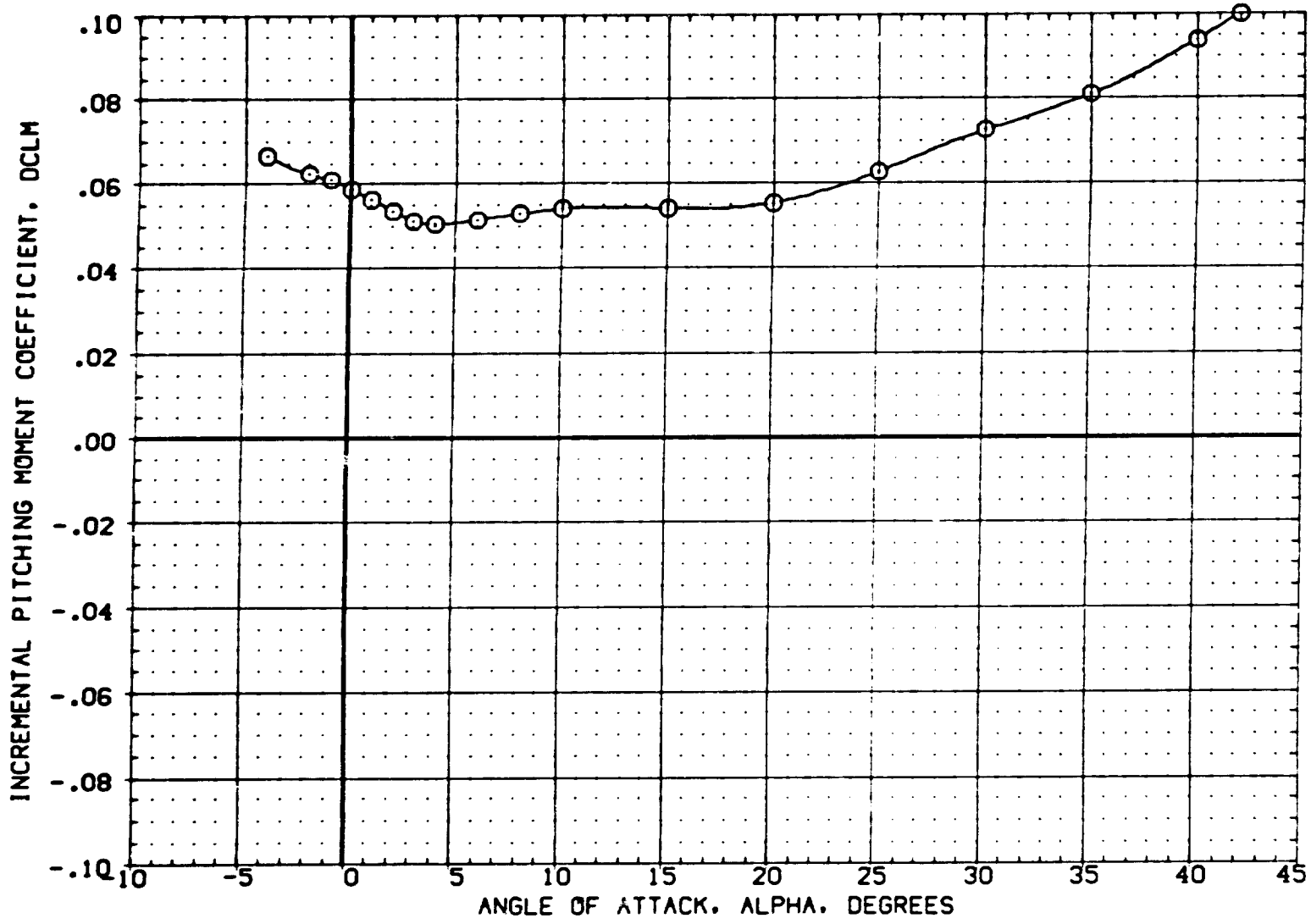


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPDBRK	AILRON
(FQ2007)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(FQ2008)	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

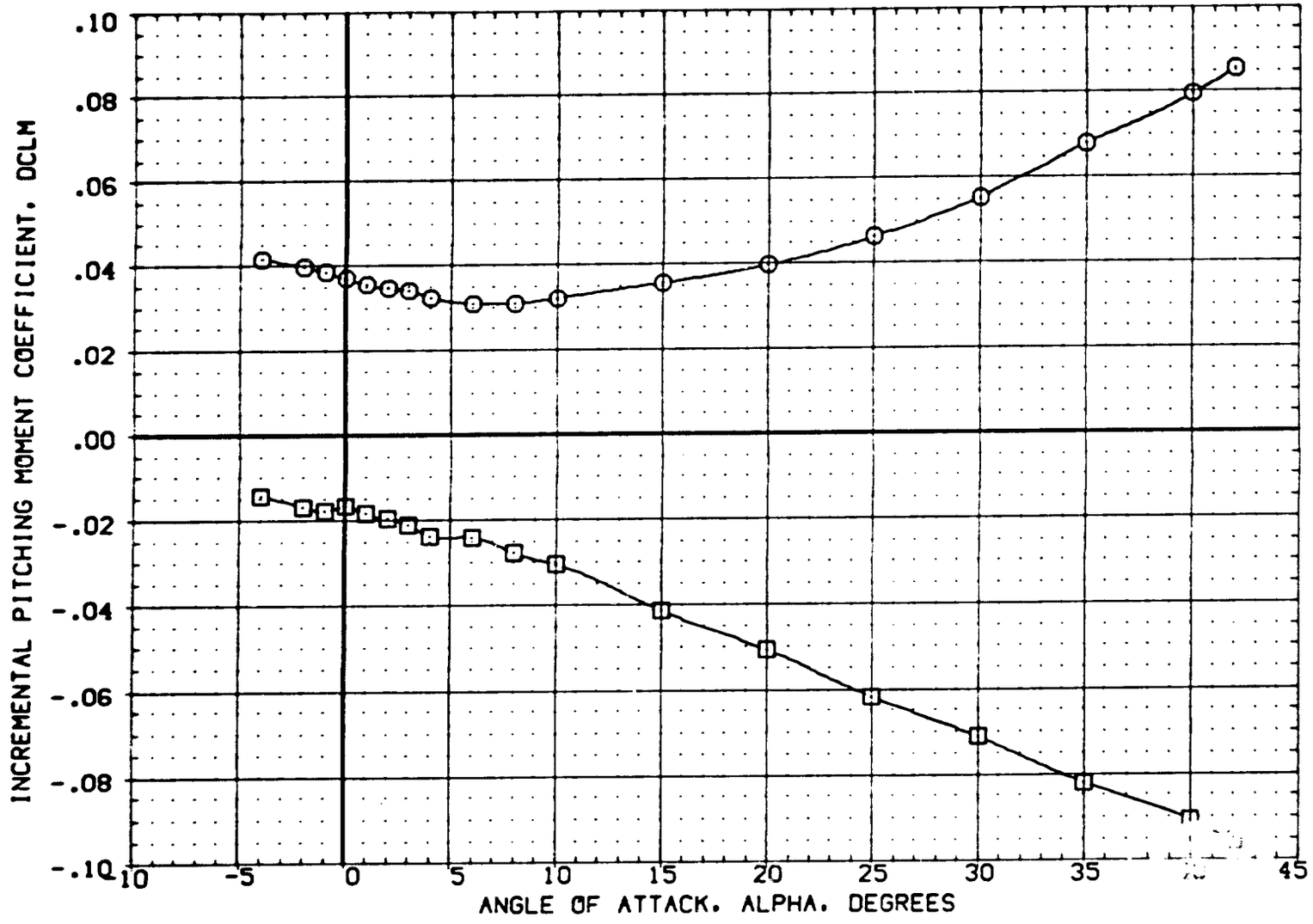


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	DELVTR	BDFLAP	SPOBRK	AILRON
(F02007)	⊟	OA-20 LARC UPVT 1057 - 140A/B ORBITER	-40.000	-21.000	55.000	.000
(F02008)	⊟	OA-20 LARC UPVT 1057 - 140A/B ORBITER	15.000	10.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

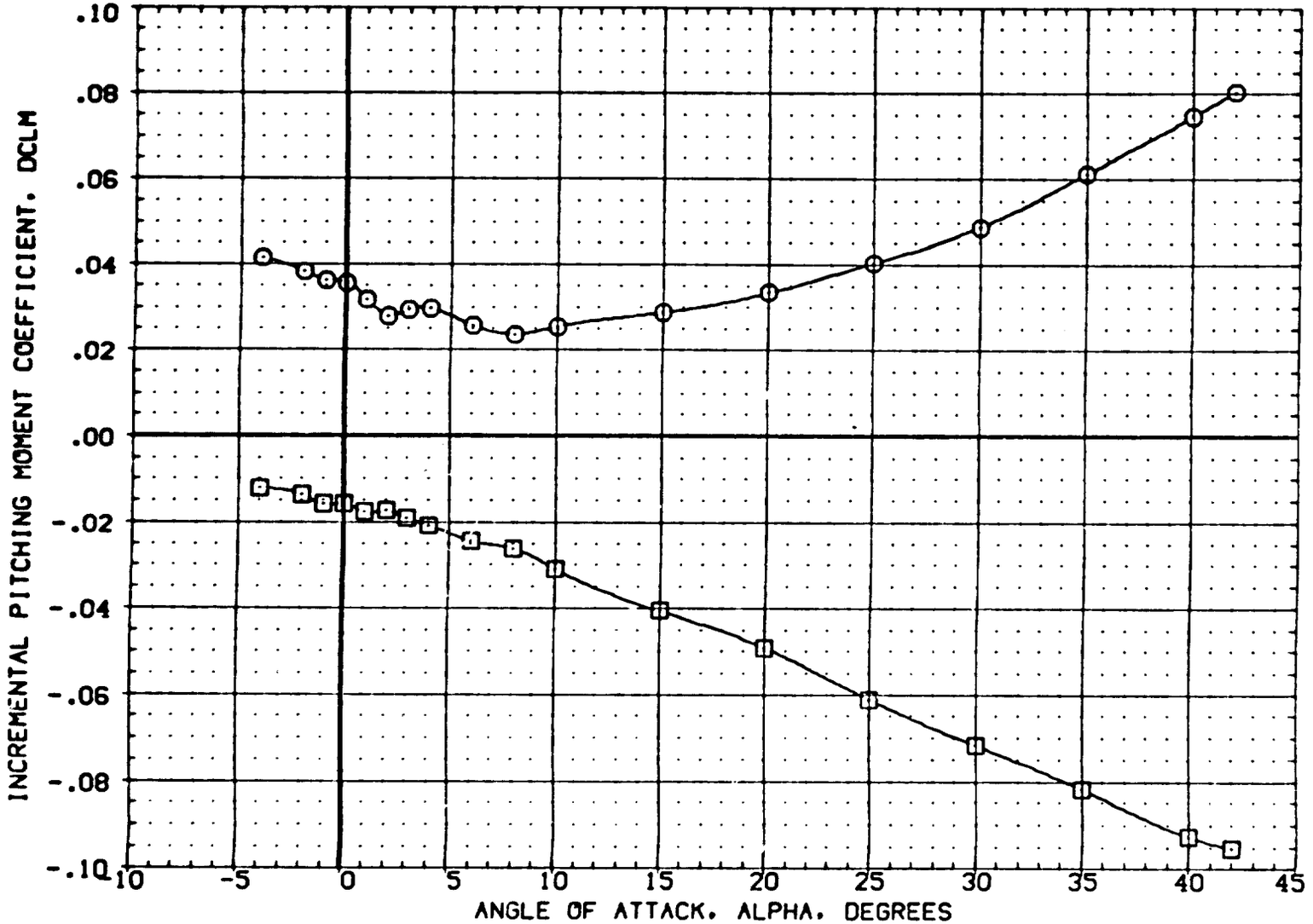


FIG 6 INCREMENTAL EFFECTS OF DEFLECTED ELEVONS

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBOFLP	ELEVTR	SPOBRK	AILRON
(002009) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	31.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

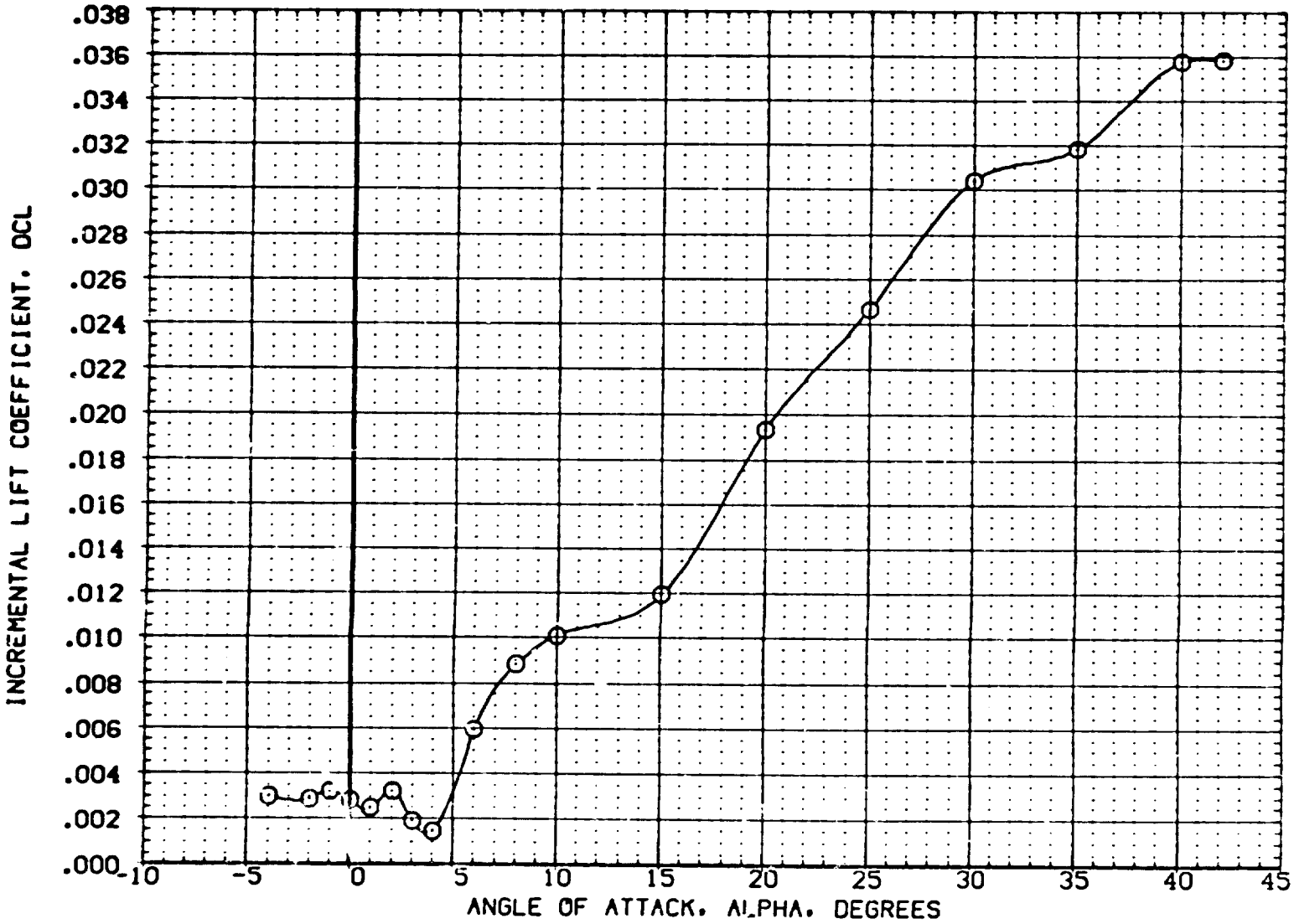


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(A)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	DBDFLP	ELEVTR	SPDBRK	AILRON
(002009)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	31.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

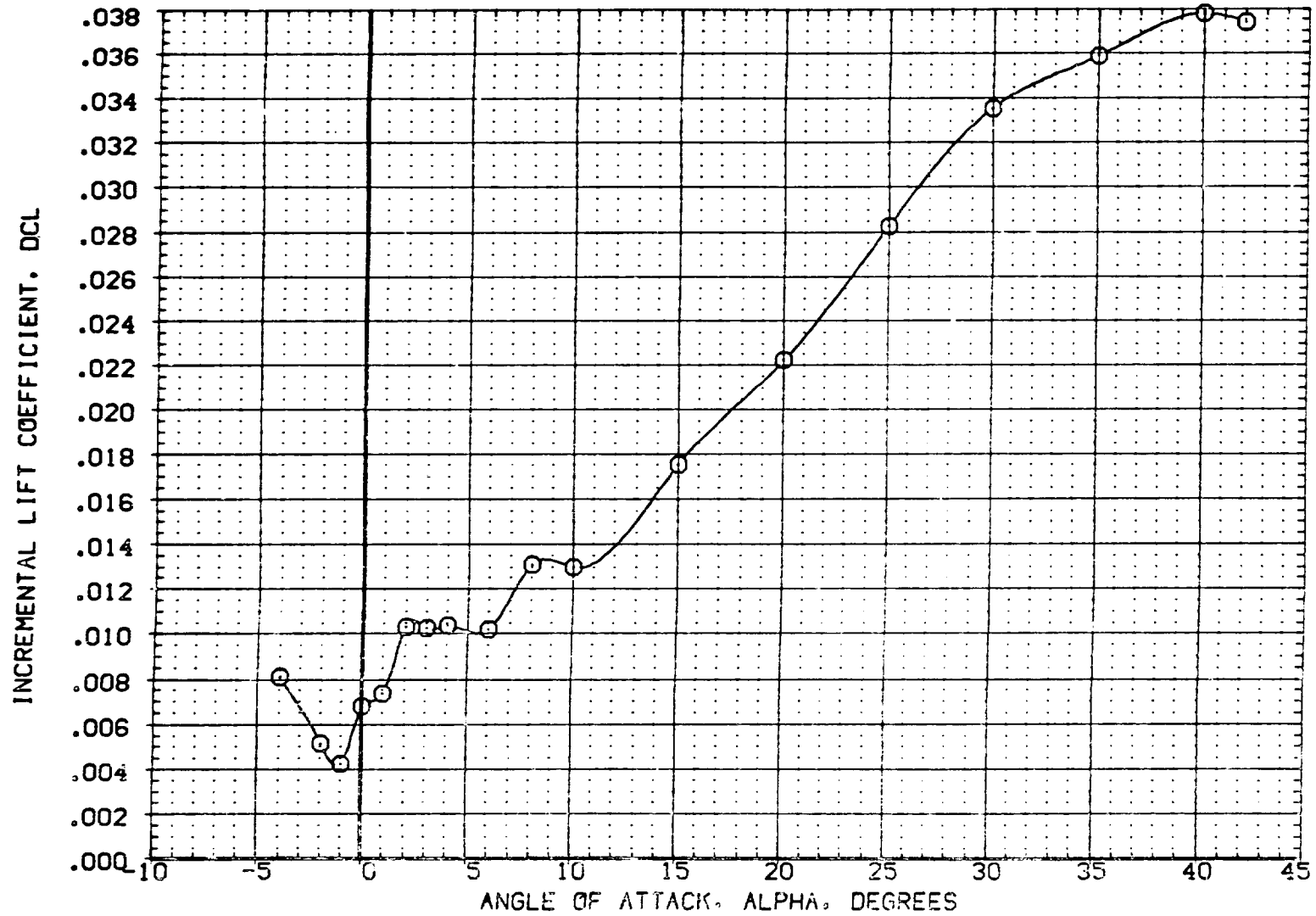


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(S)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ GA-20 LARC UPVT 1057 - 140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

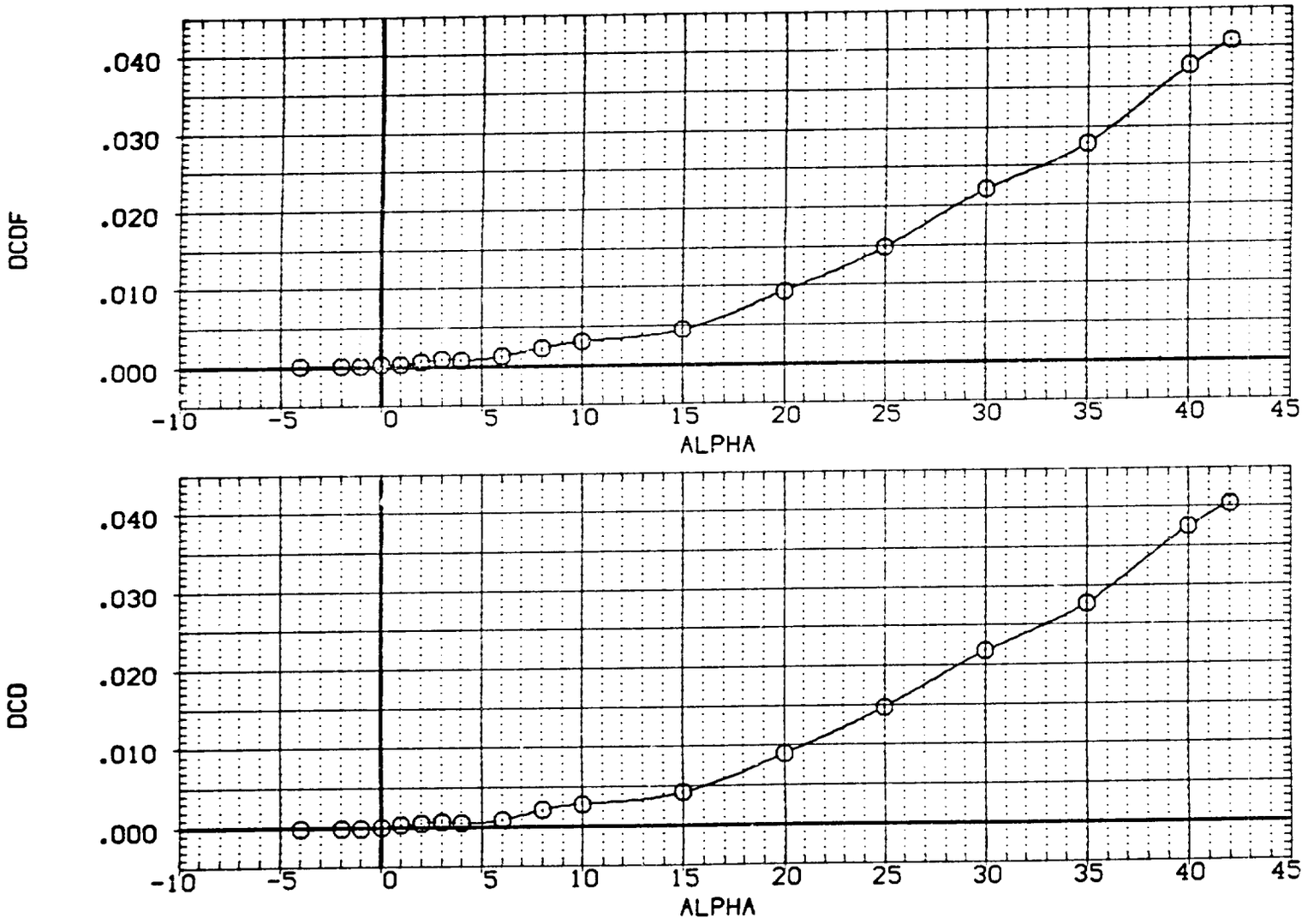


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(A)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBDFLP	ELEVTR	SPDBRK	AILRON
(002009) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	31.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

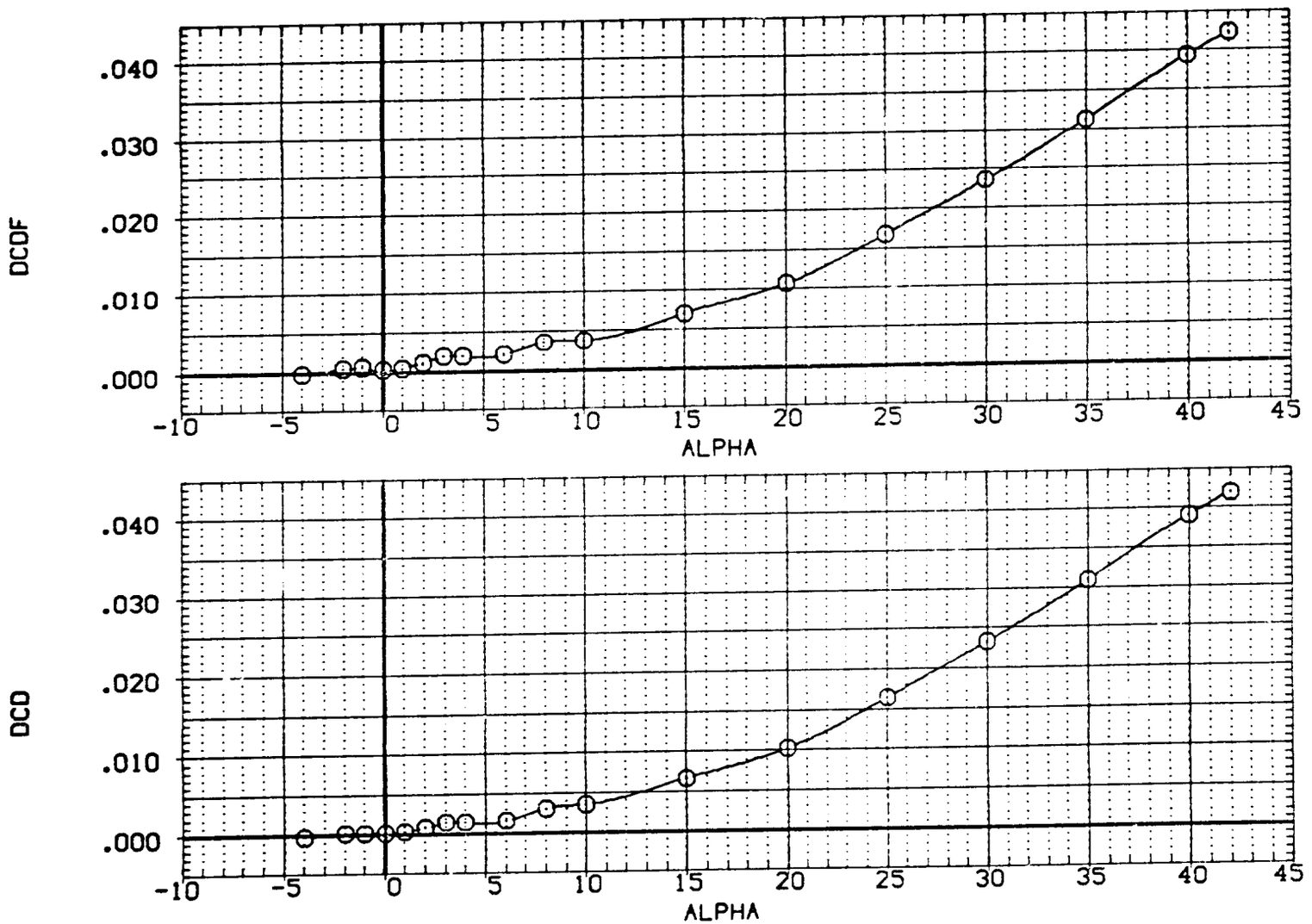


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

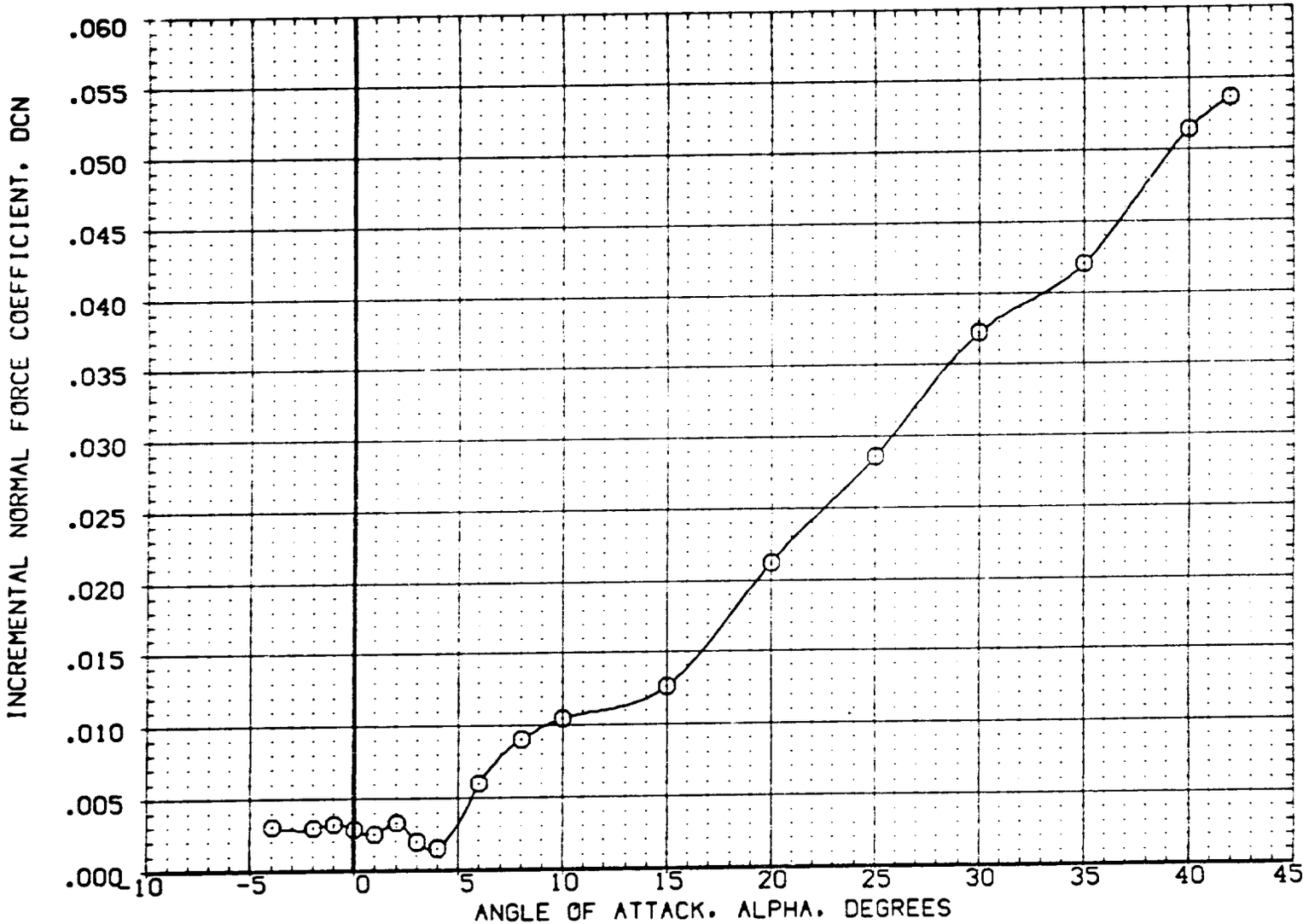


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(A)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBOFLP	ELEVTR	SPOBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

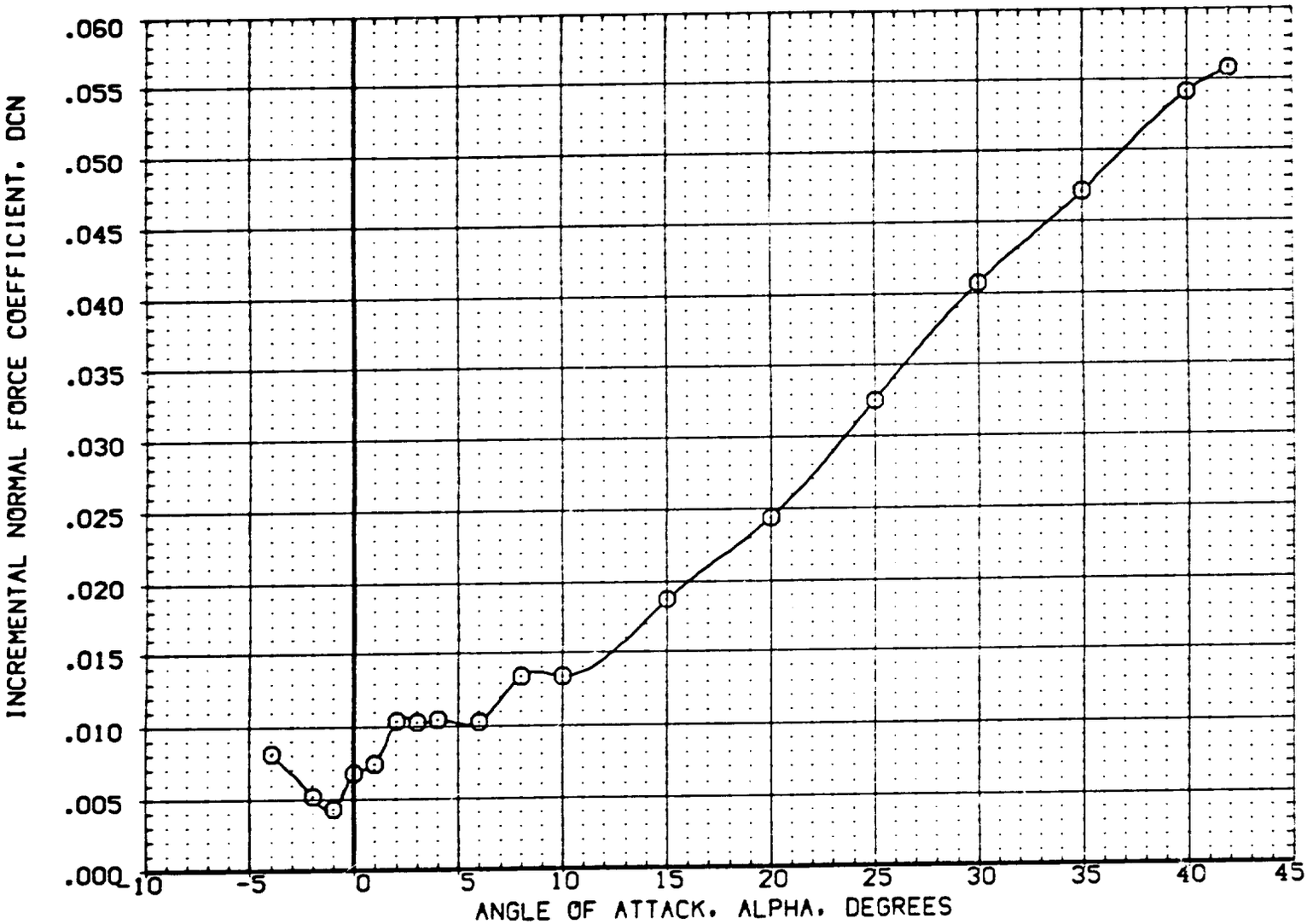


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(B)MACH = 4.60

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

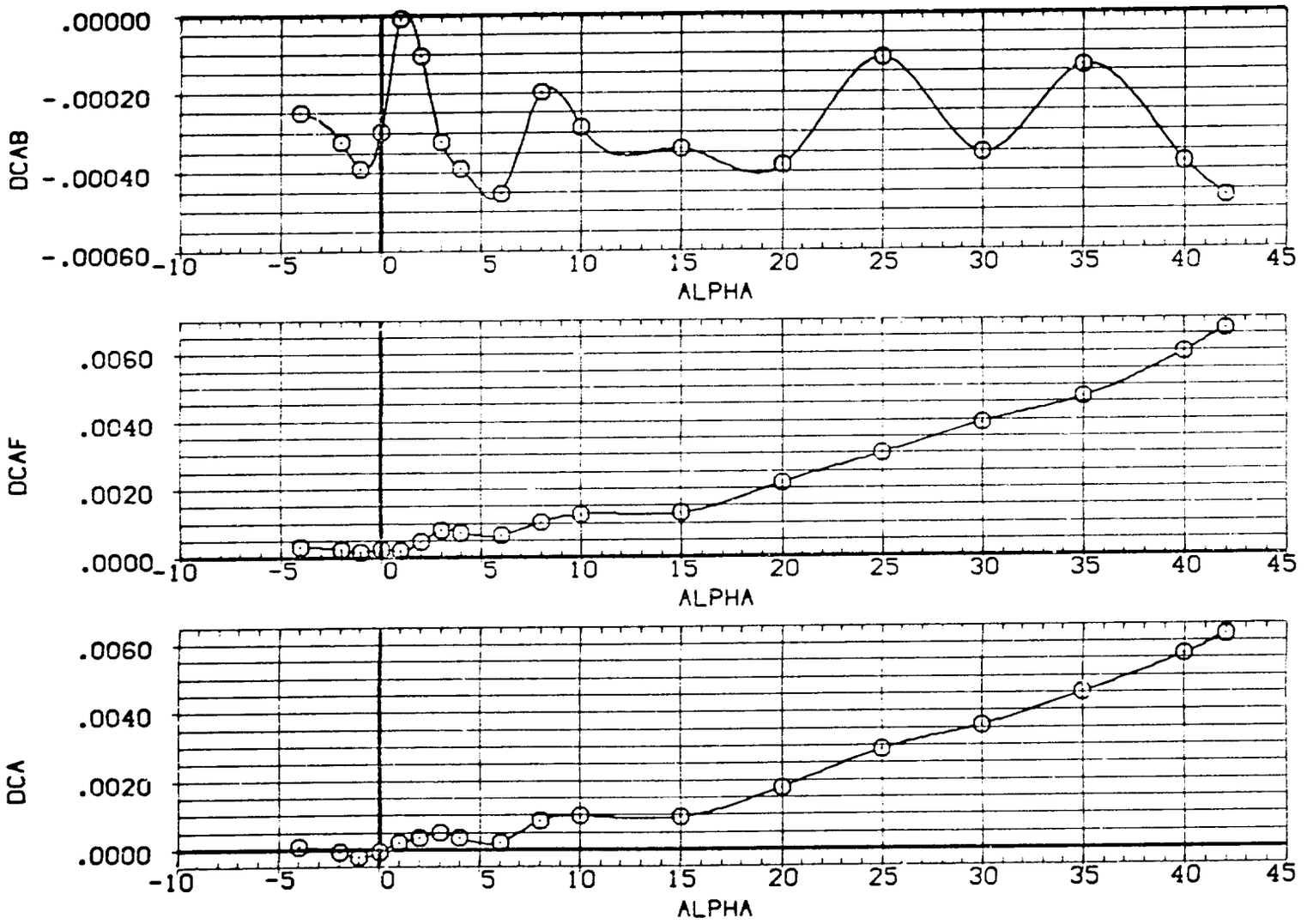


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(A)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBDFLP	ELEVTR	SPDBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

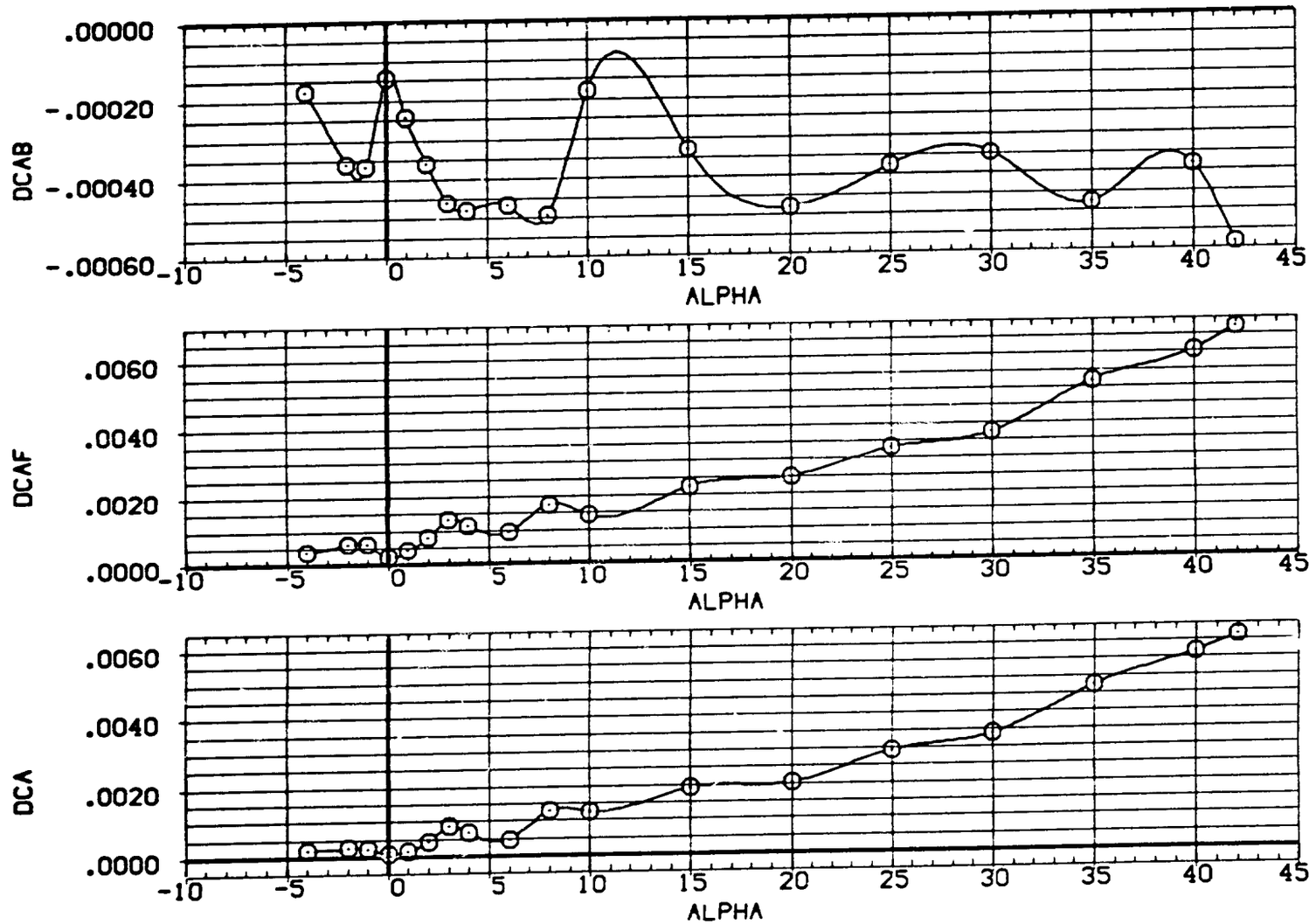


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(B)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBDFLP	ELEVTR	SPOBRK	AILRON
(002009) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	31.000	.000	55.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

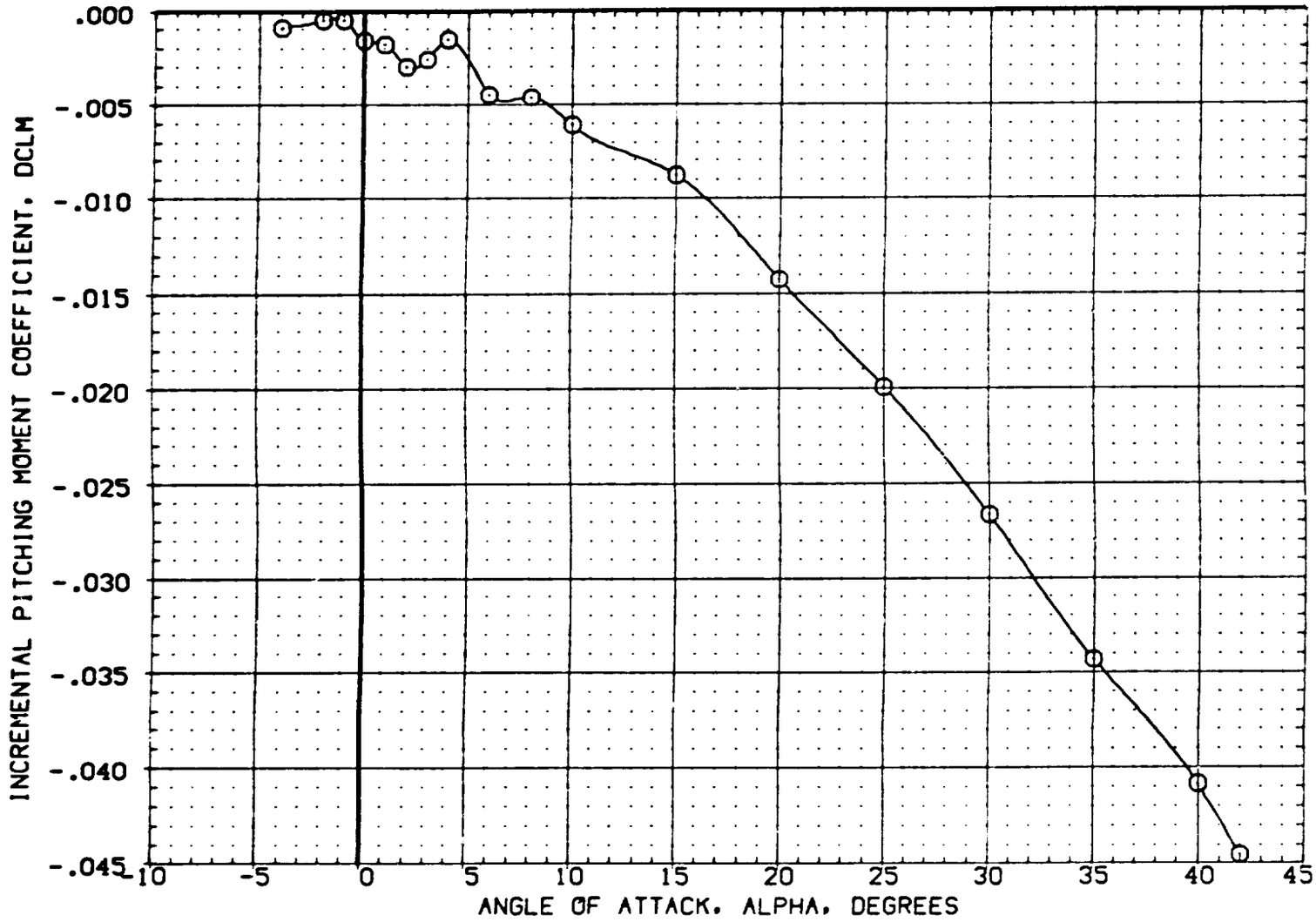


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(A)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(002009) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBOFLP	ELEVTR	SPDBRK	AILRON
31.000	.000	55.000	.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

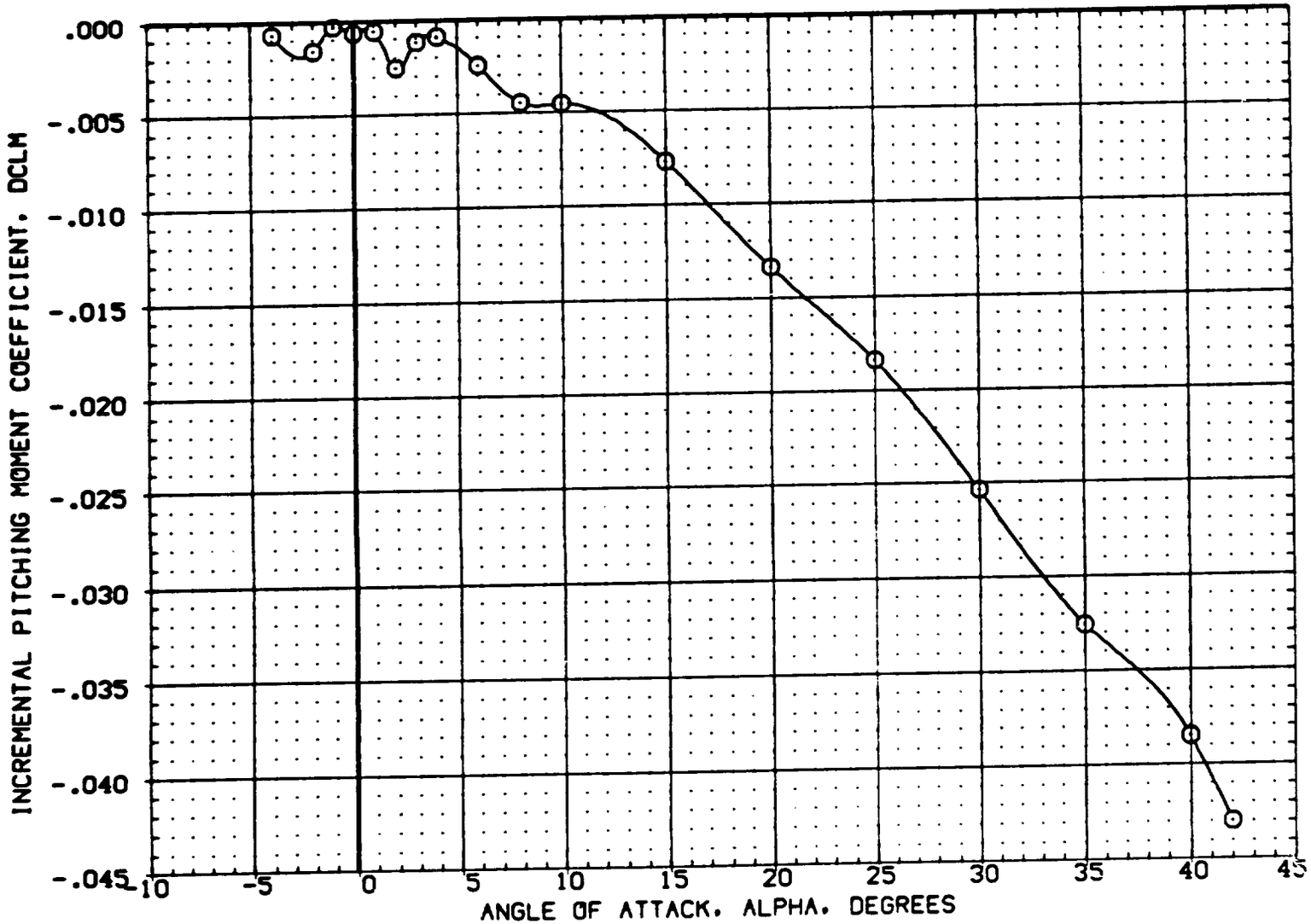


FIG 7 INCREMENTAL EFFECTS OF DEFLECTED BODYFLAP

(B)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(BG2001)	OA-20 LARC UPWT 1057 - 140A/B ORBITER
(BG2002)	OA-20 LARC UPWT 1057 - 140A/B ORBITER

BETA	RUDDER	BOFLAP	SPOBRK
.000	.000	-21.000	55.000
3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

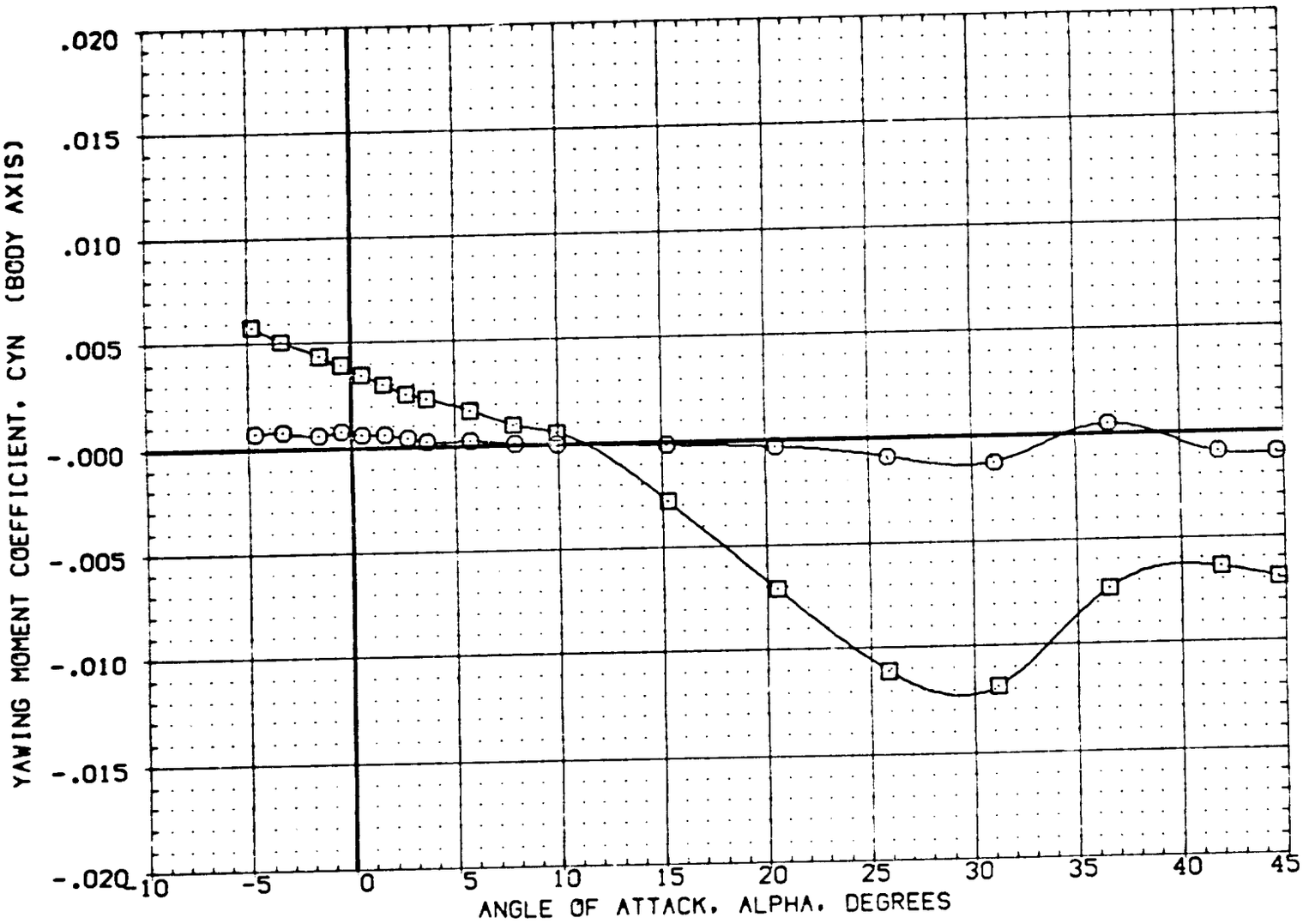


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BDFLAP	SPDBRK
(BQ2001)	8	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BQ2002)	8	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

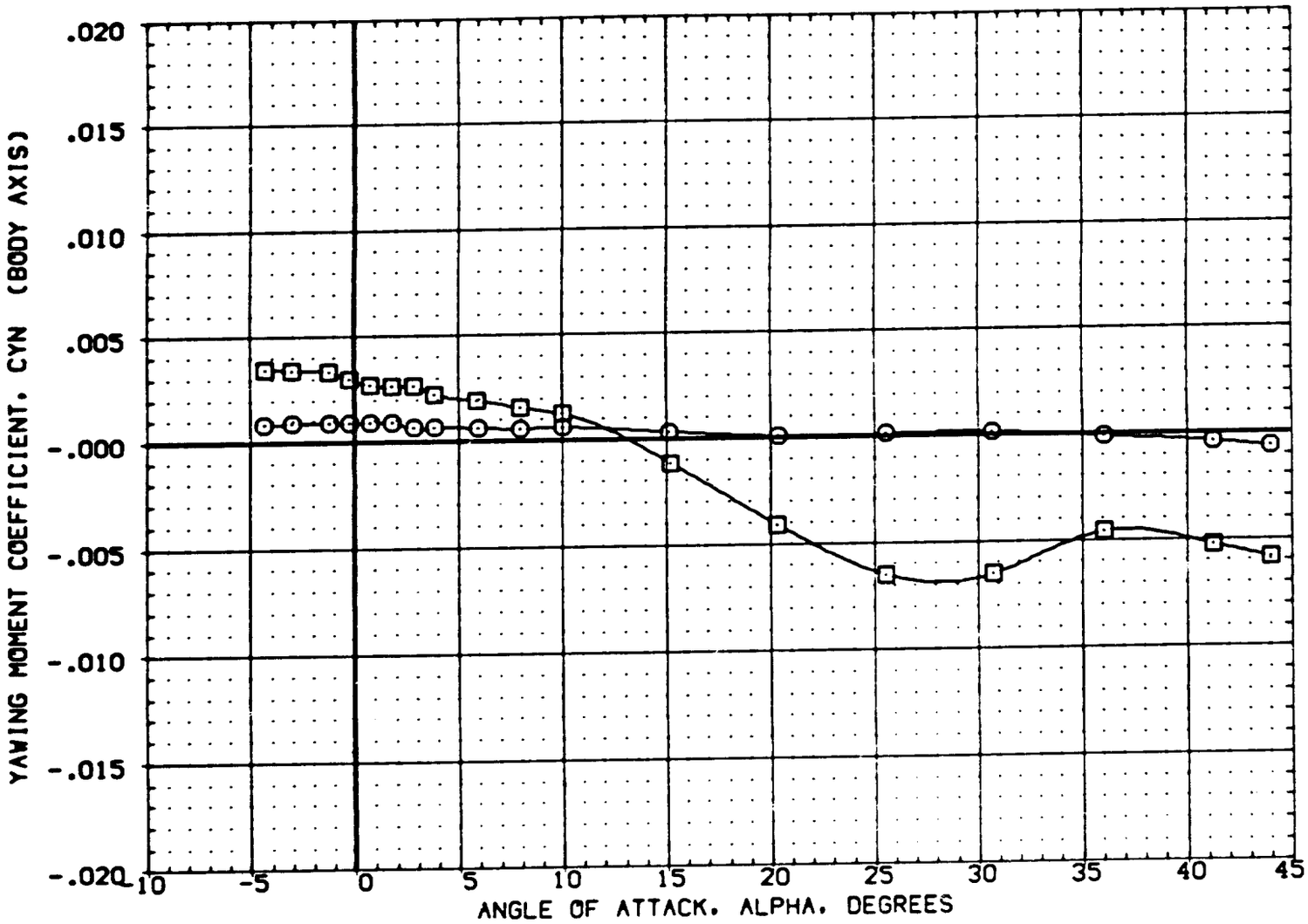


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BOFLAP	SPOBRK
(BQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BQ2002)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	935.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

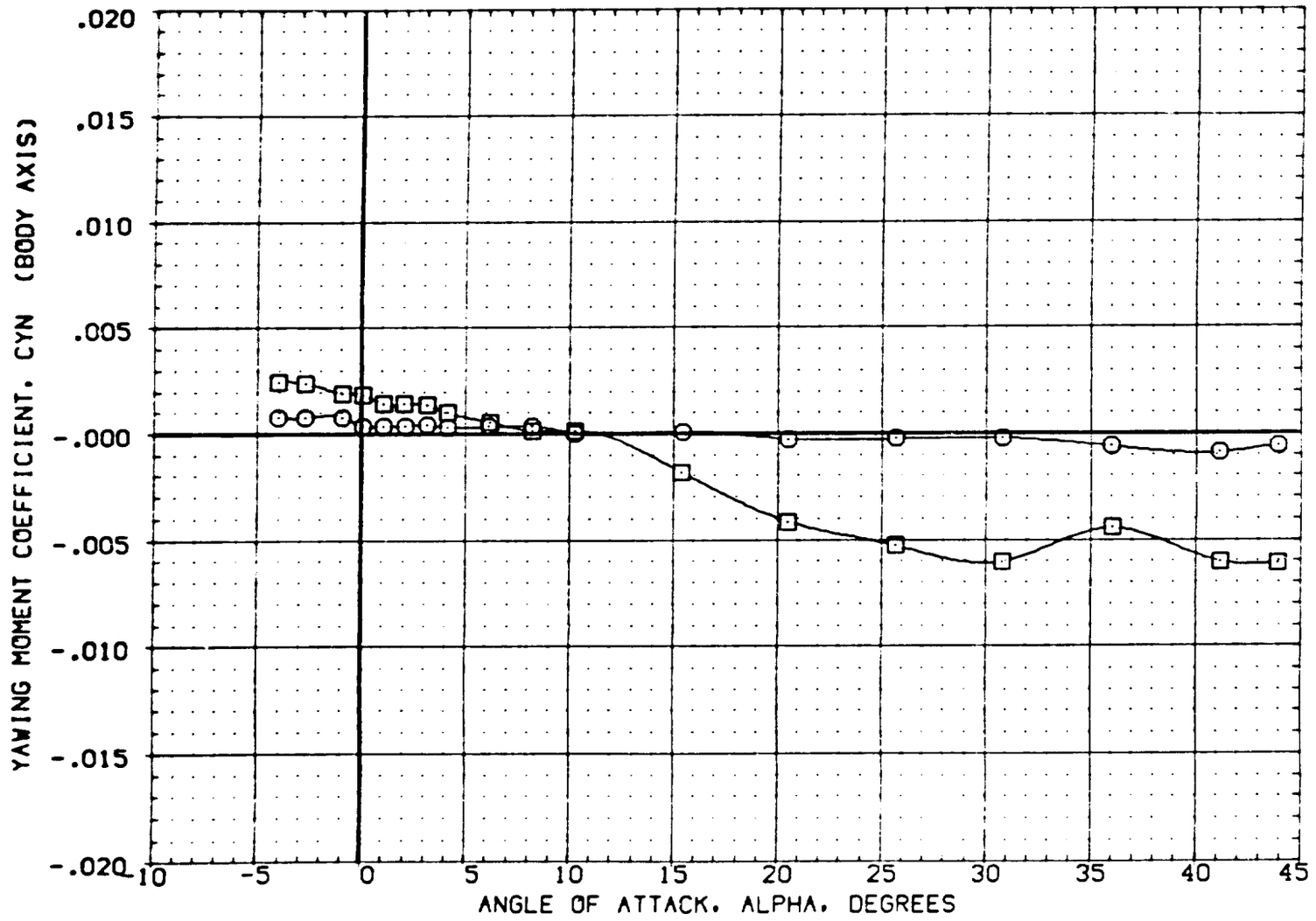


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(802001)	0A-20 LARC UPVT 1057 - 140A/B ORBITER
(802002)	0A-20 LARC UPVT 1057 - 140A/B ORBITER

BETA	RUDDER	BOFLAP	SPDBRK
.000	.000	-21.000	55.000
3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

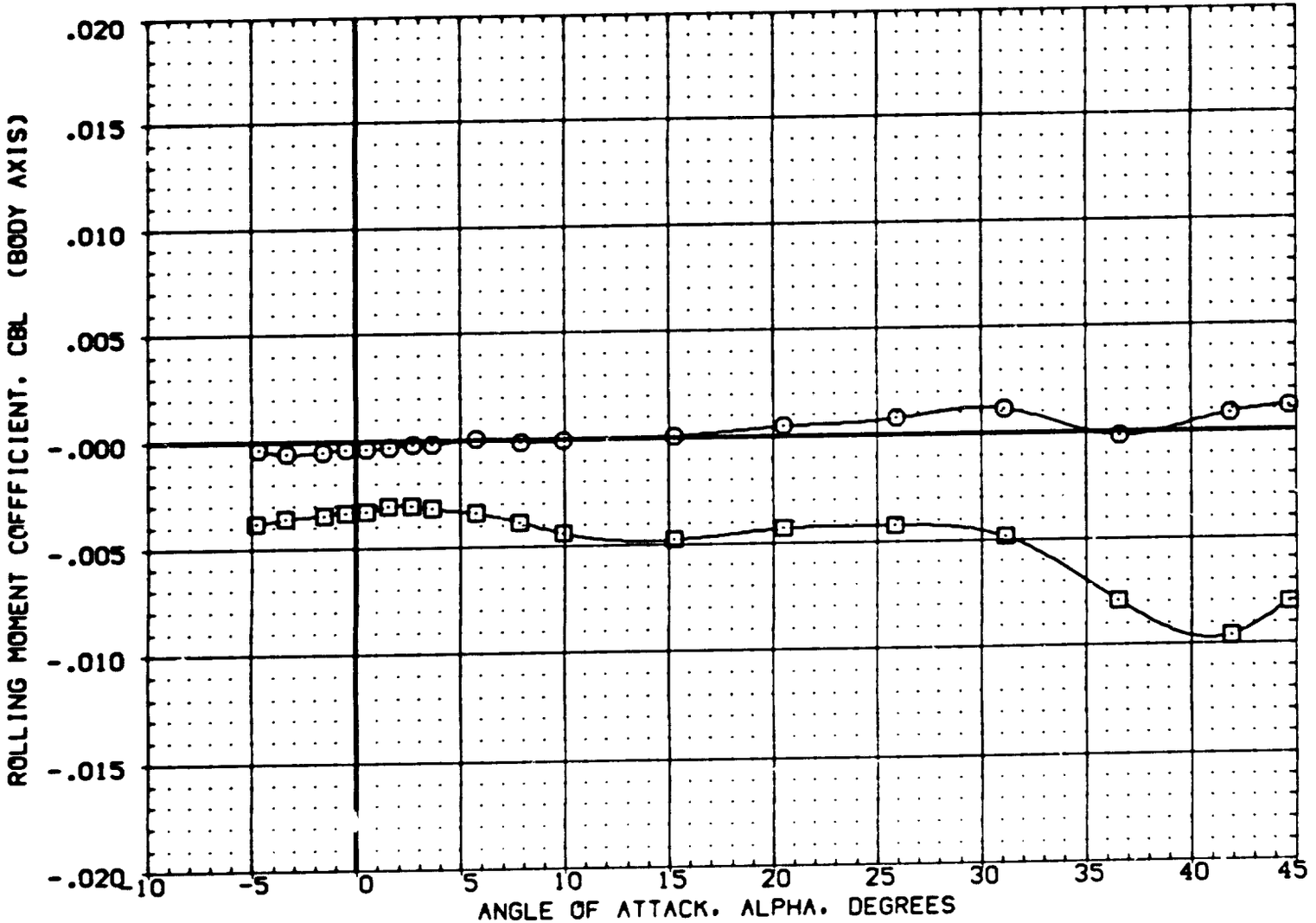


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BOFLAP	SPOBRK
(BC2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BC2002)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

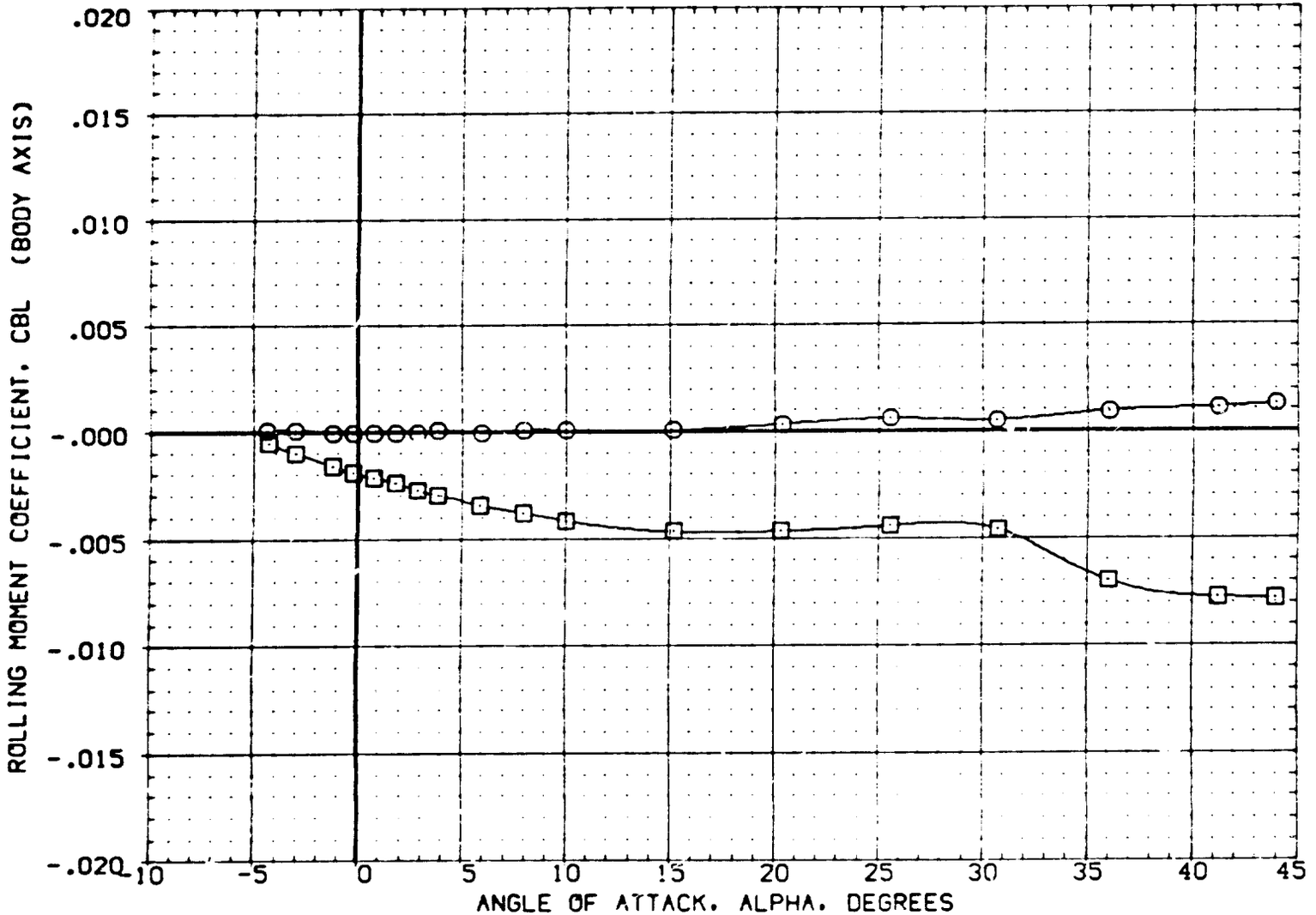


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BOFLAP	SPDBRK
(BQ2001) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BQ2002) □	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

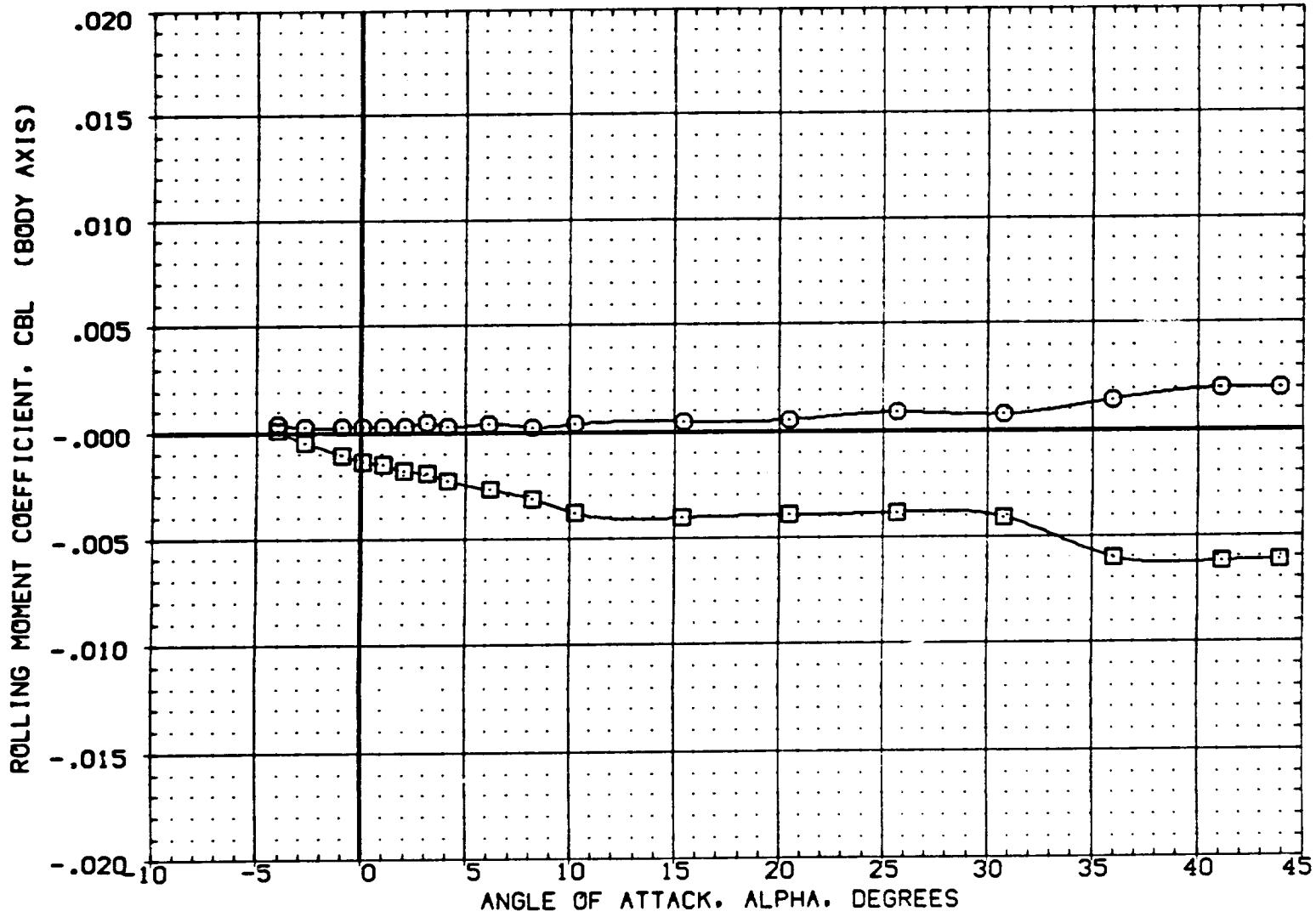


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BOFLAP	SPDBRK
(BQ2001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BQ2002)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

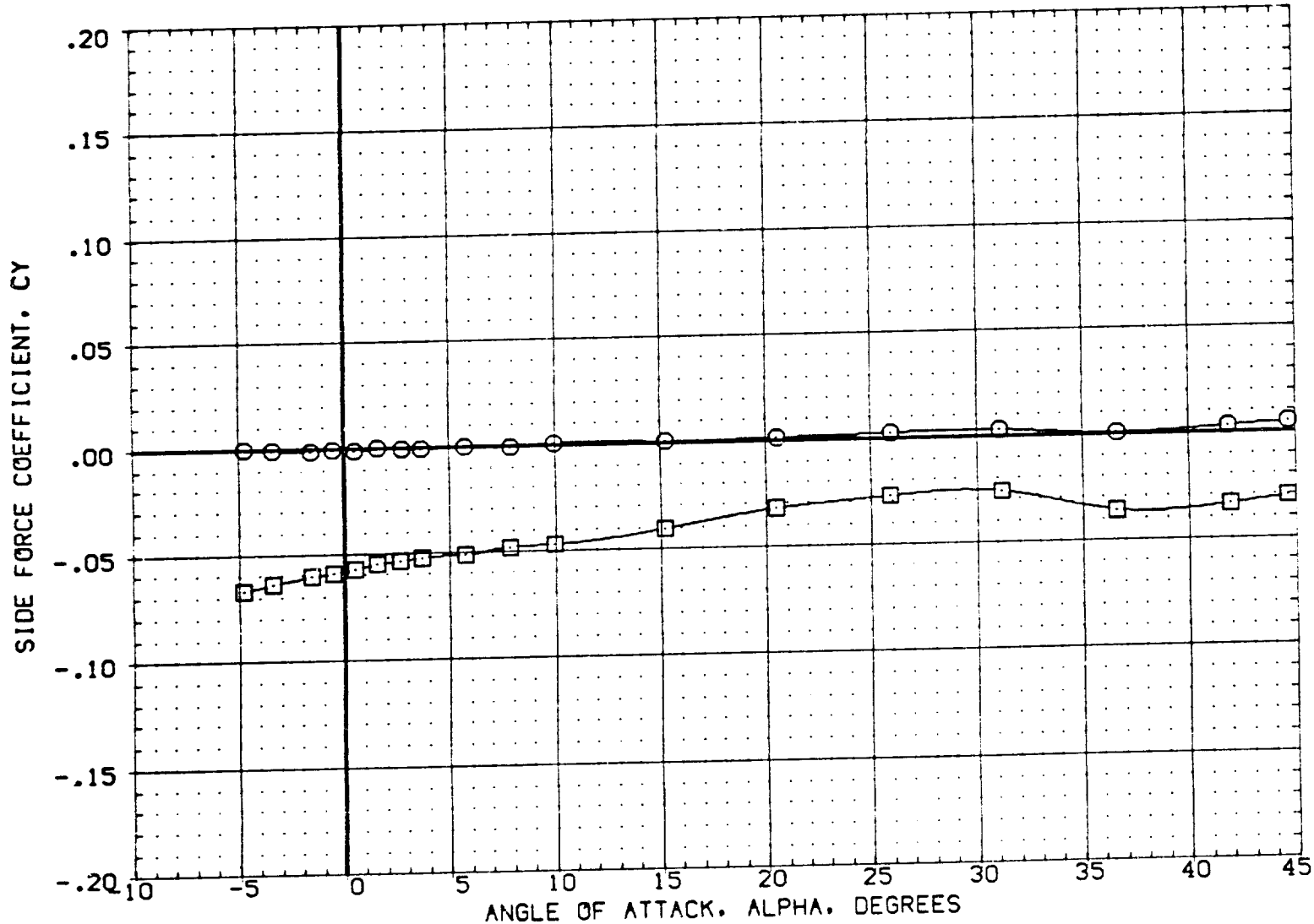


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(B02001)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(B02002)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER

BETA	RUDDER	BOFLAP	SPDBRK
.000	.000	-21.000	55.000
3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

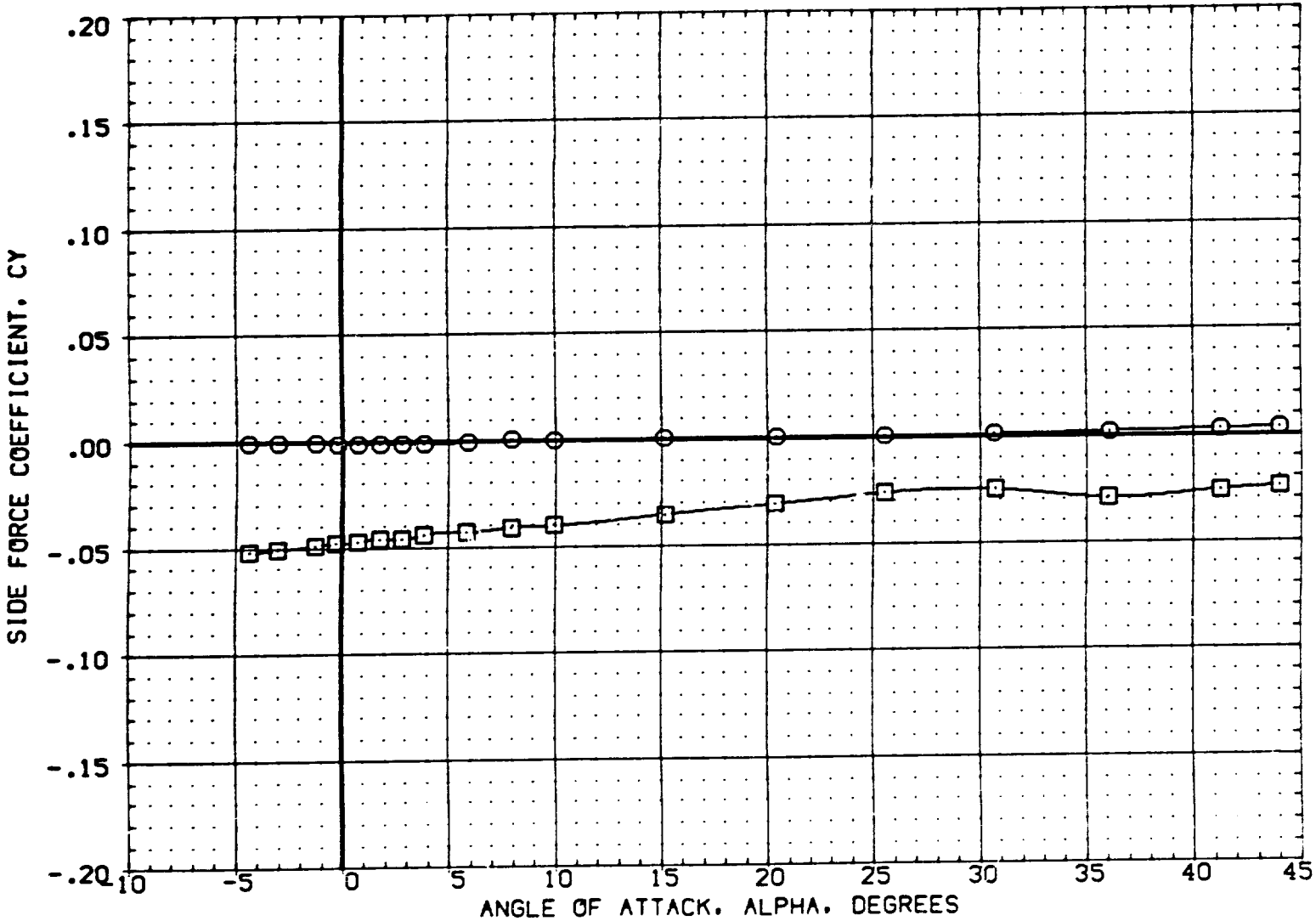


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	BDFLAP	SPDBRK
(BG20C1)	○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	.000	.000	-21.000	55.000
(BG20C2)	□	OA-20 LARC UPWT 1057 - 140A/B ORBITER	3.000	.000	-21.000	55.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

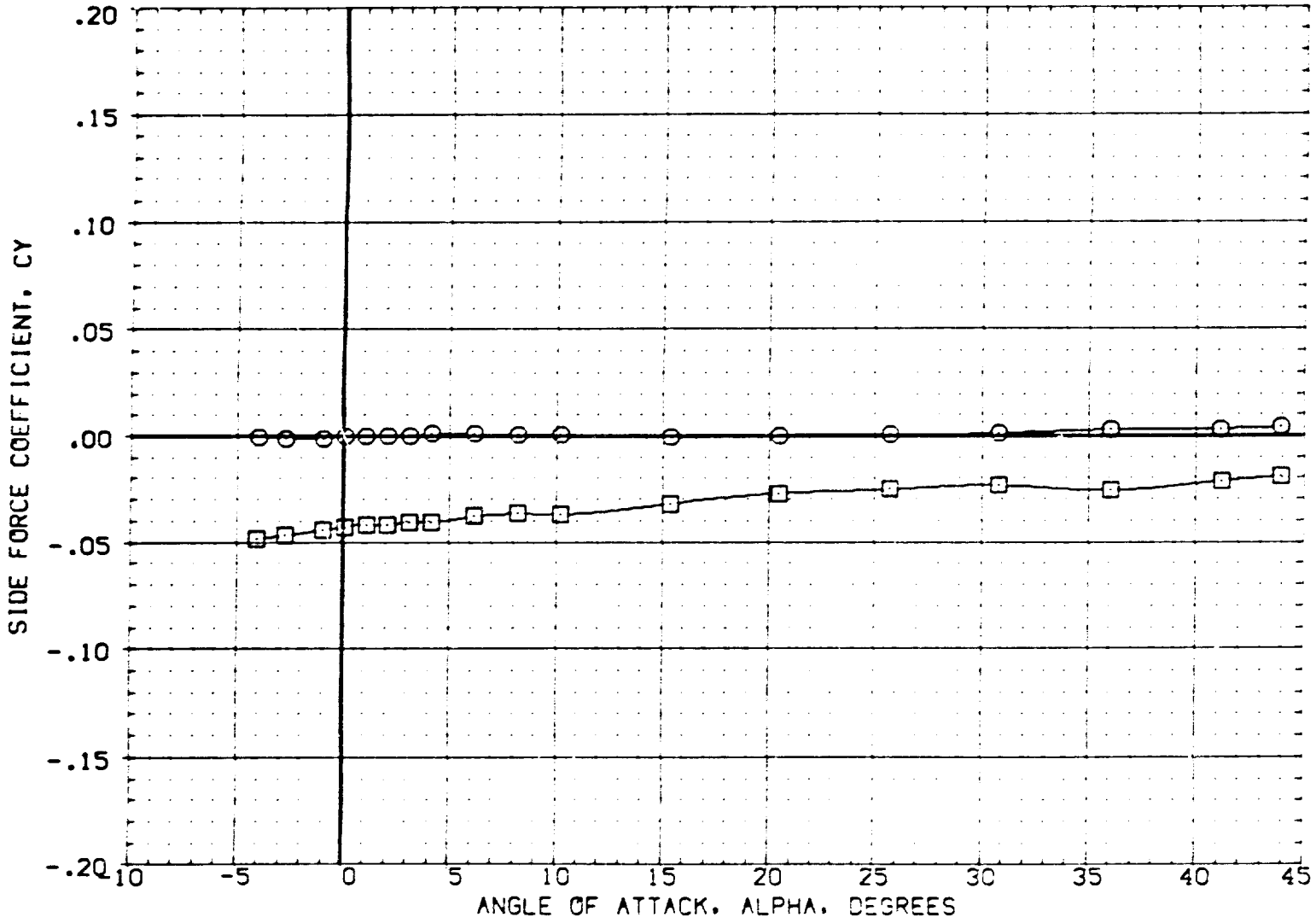


FIG 8 LATERAL-DIRECTIONAL YAW POLAR

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPOBRK	RUDDER	BOFLAP
(H02002) ○	0A-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

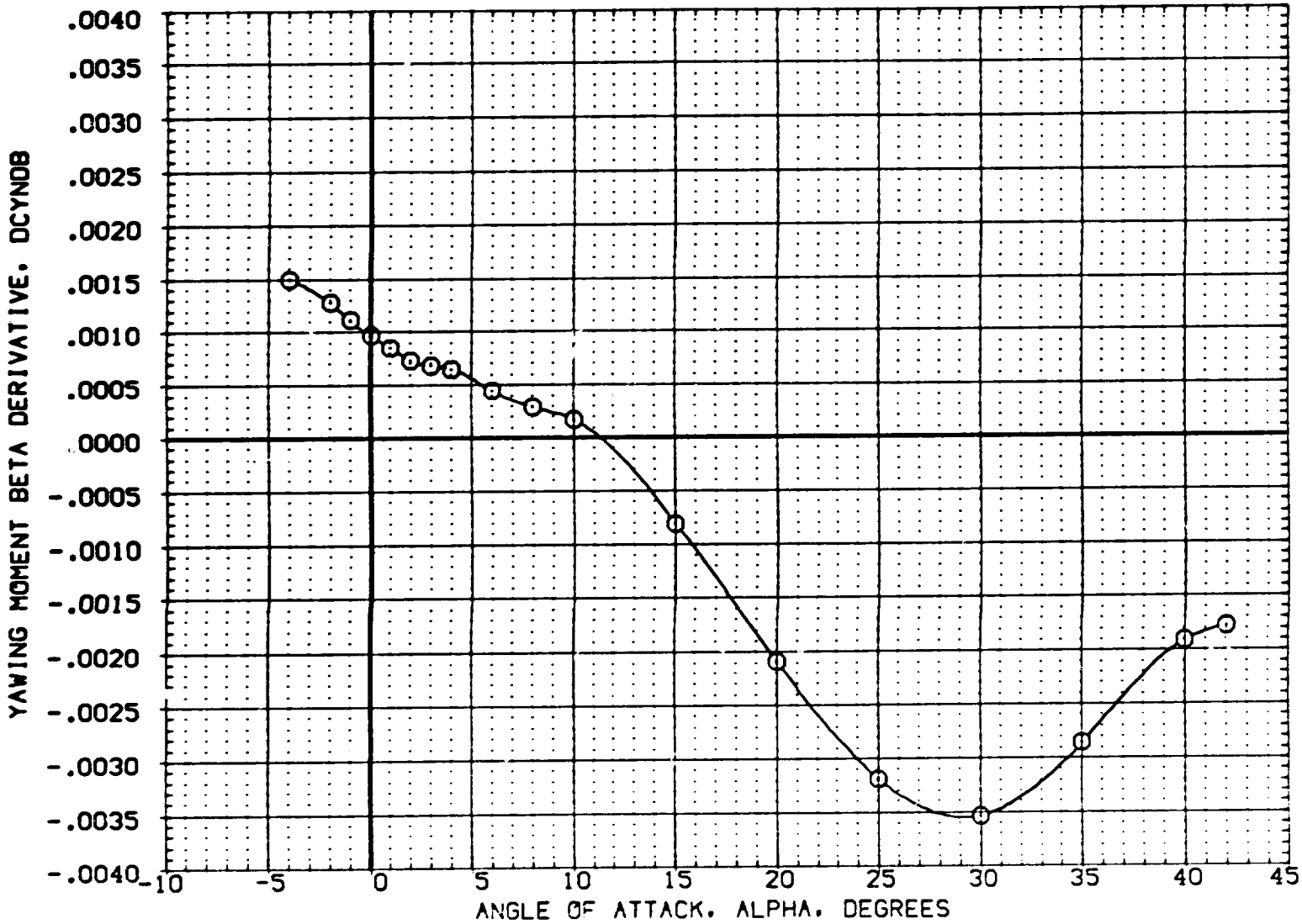


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPOBRK	PJODER	BOFLAP
(MG2002)	○	CA-20 LARC UPWT 1057 - 14CA/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

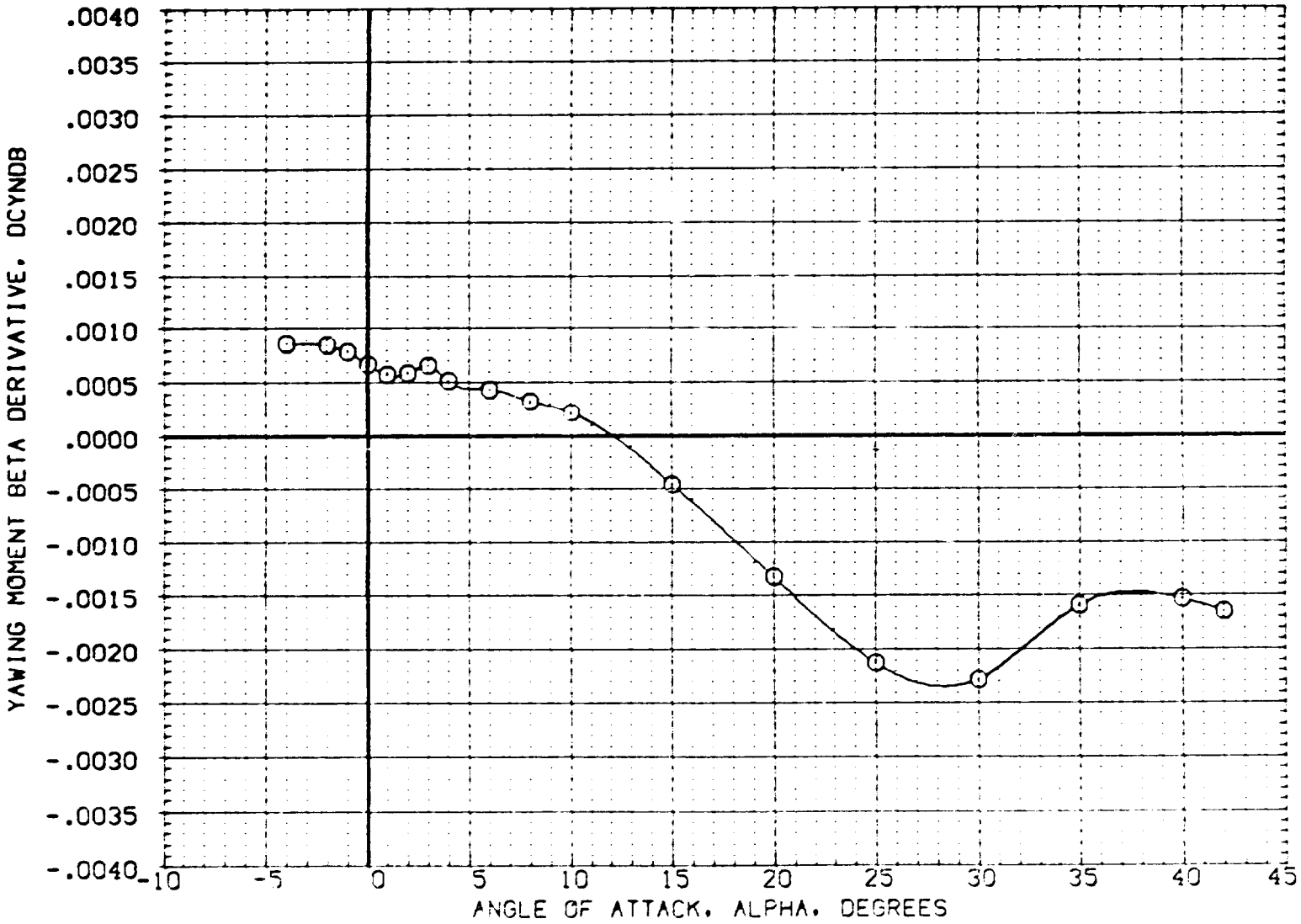


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(B)MACH = 3.90

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(HQ2002) ○ OA-20 LARC UPVT 1057 - 140A/B ORBITER

DBETA	SPOBRK	RUDDER	BOFLAP
3.000	55.000	.000	-21.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

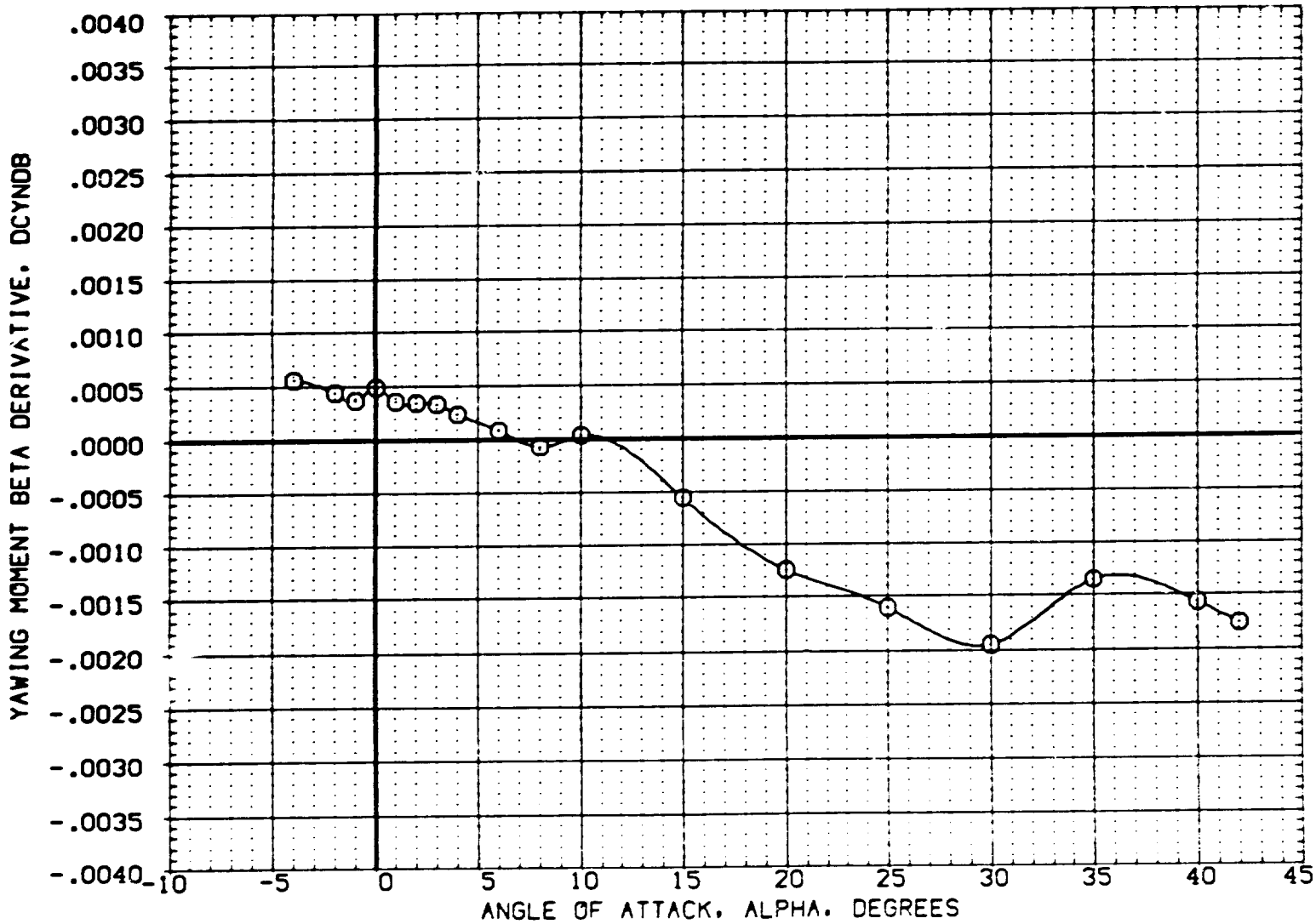


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(C)MACH = 4.60

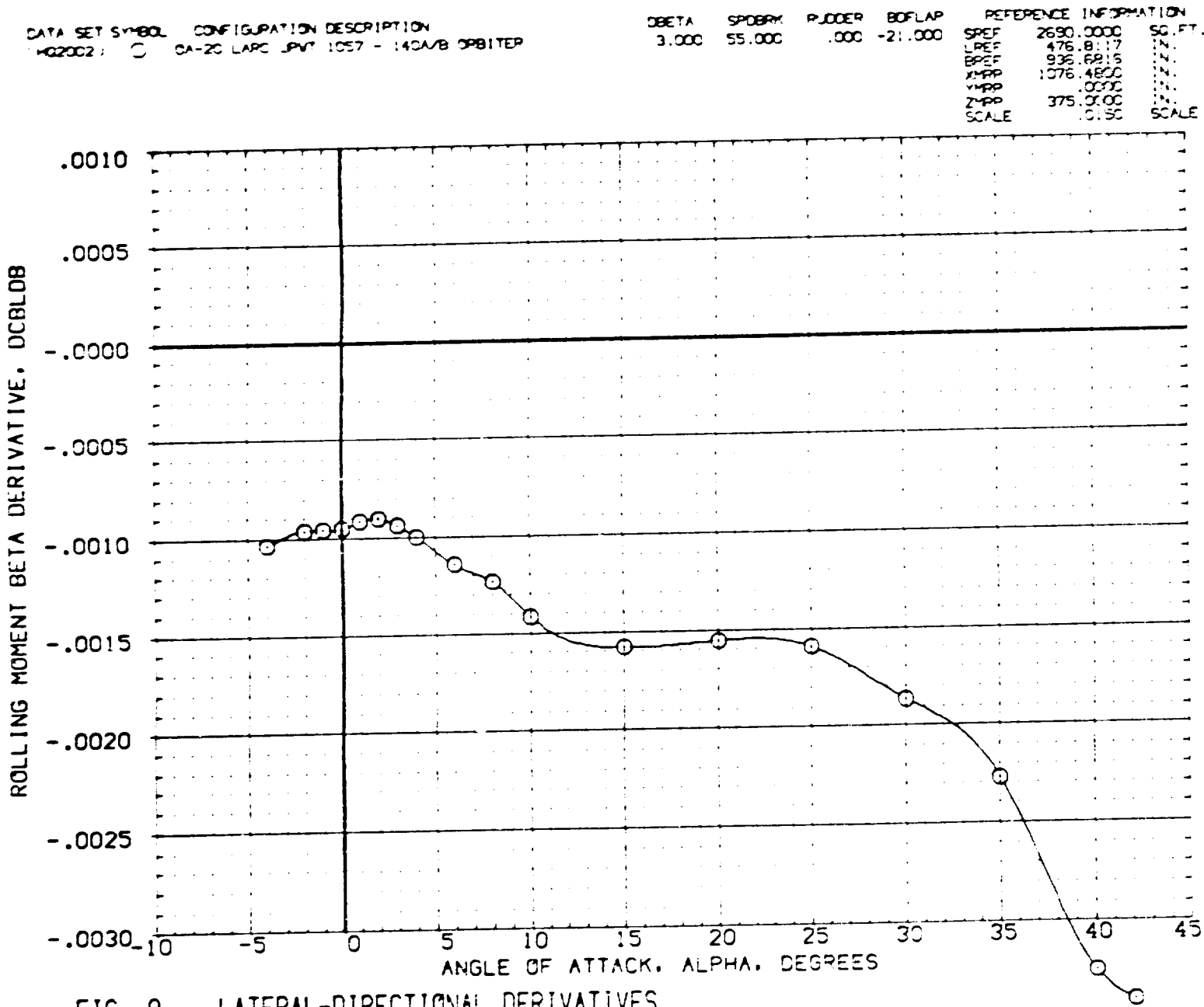


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(A)MACH = 2.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(HQ2002) ○ OA-20 LARC UPWT 1057 - 140A/B ORBITER

DBETA	SPOBRK	RUDDER	BOFLAP
3.000	55.000	.000	-21.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

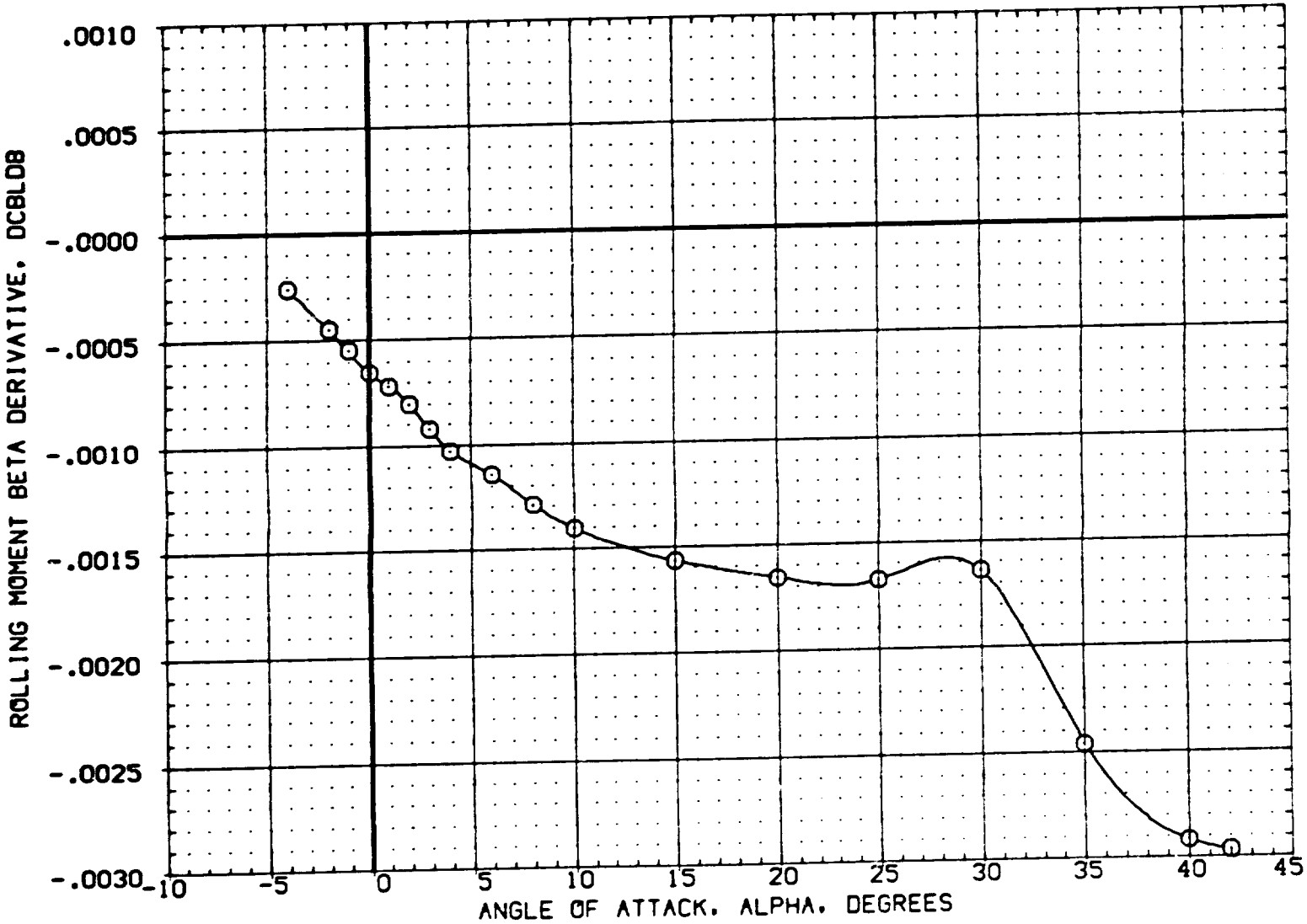


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPDBRK	RUDDER	BDFLAP
(HQ2002) ○	OA-20 LARC UPWT 1057 - 140A/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

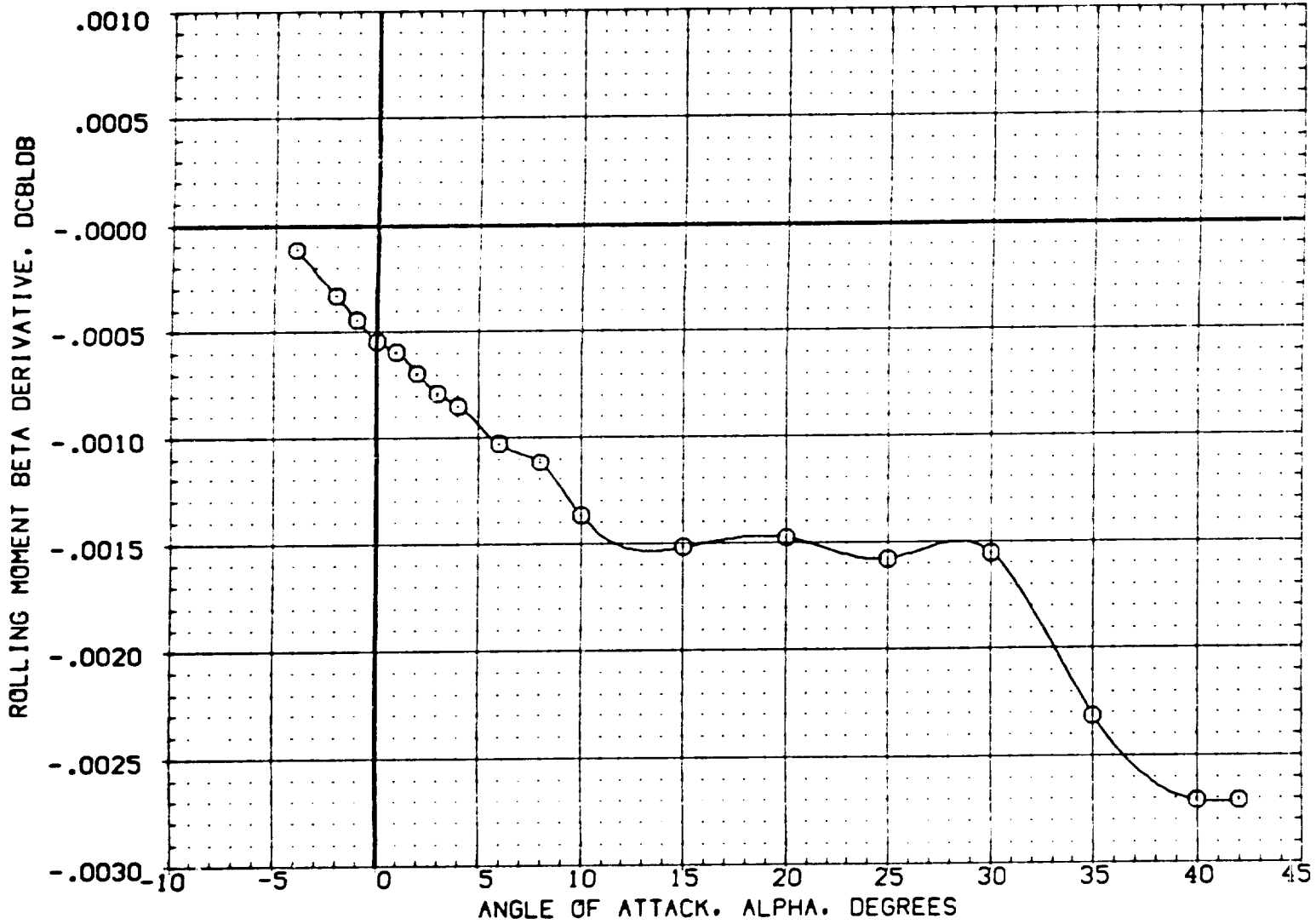


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPDBRK	RUDDER	BDFLAP
(H02002) ○	0A-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

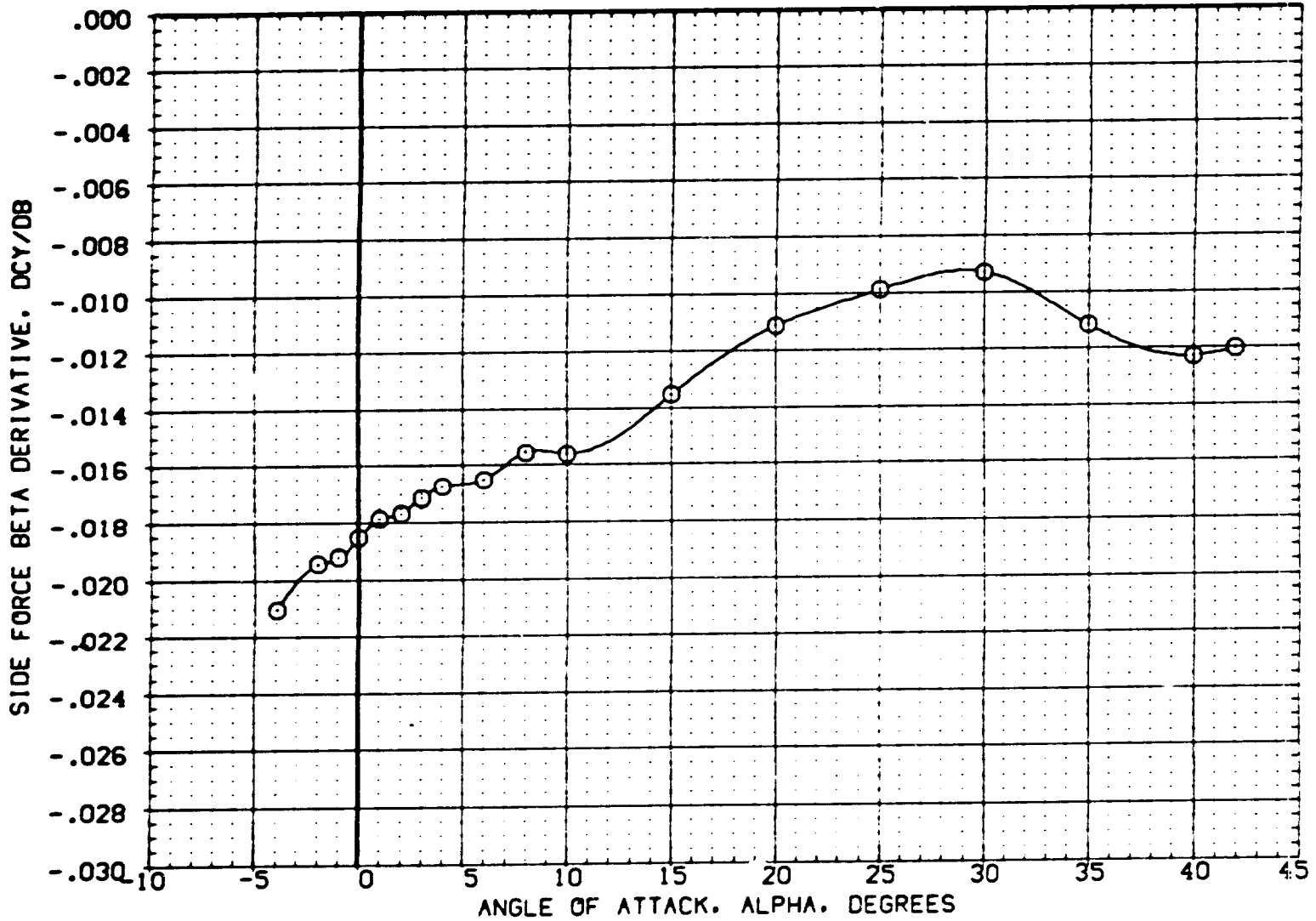


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPDBRK	RUDDER	BOFLAP
(HG2002)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

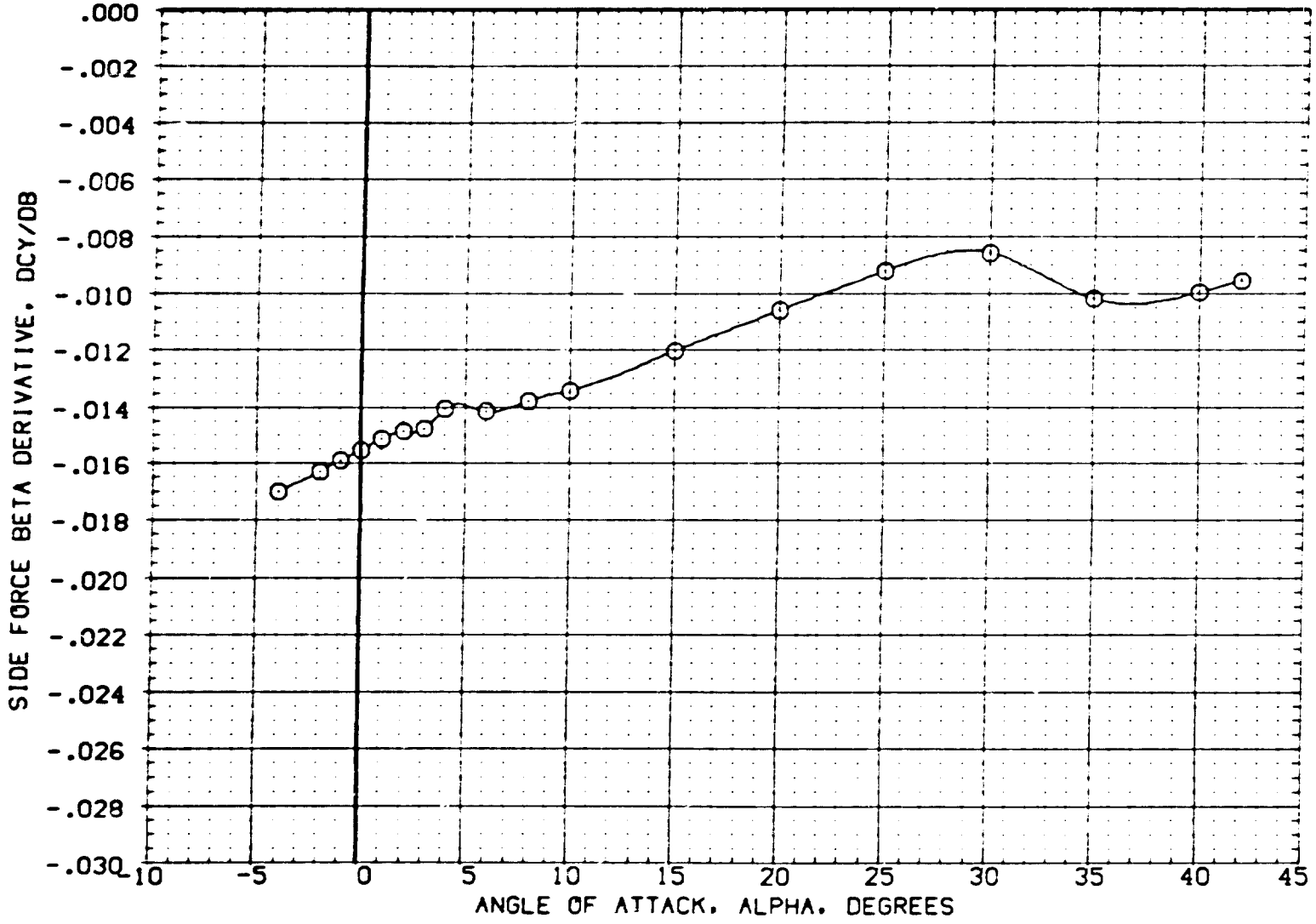


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(B)MACH = 3.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DBETA	SPDBRK	RUDDER	BDFLAP
(HQ2002) ○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	3.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

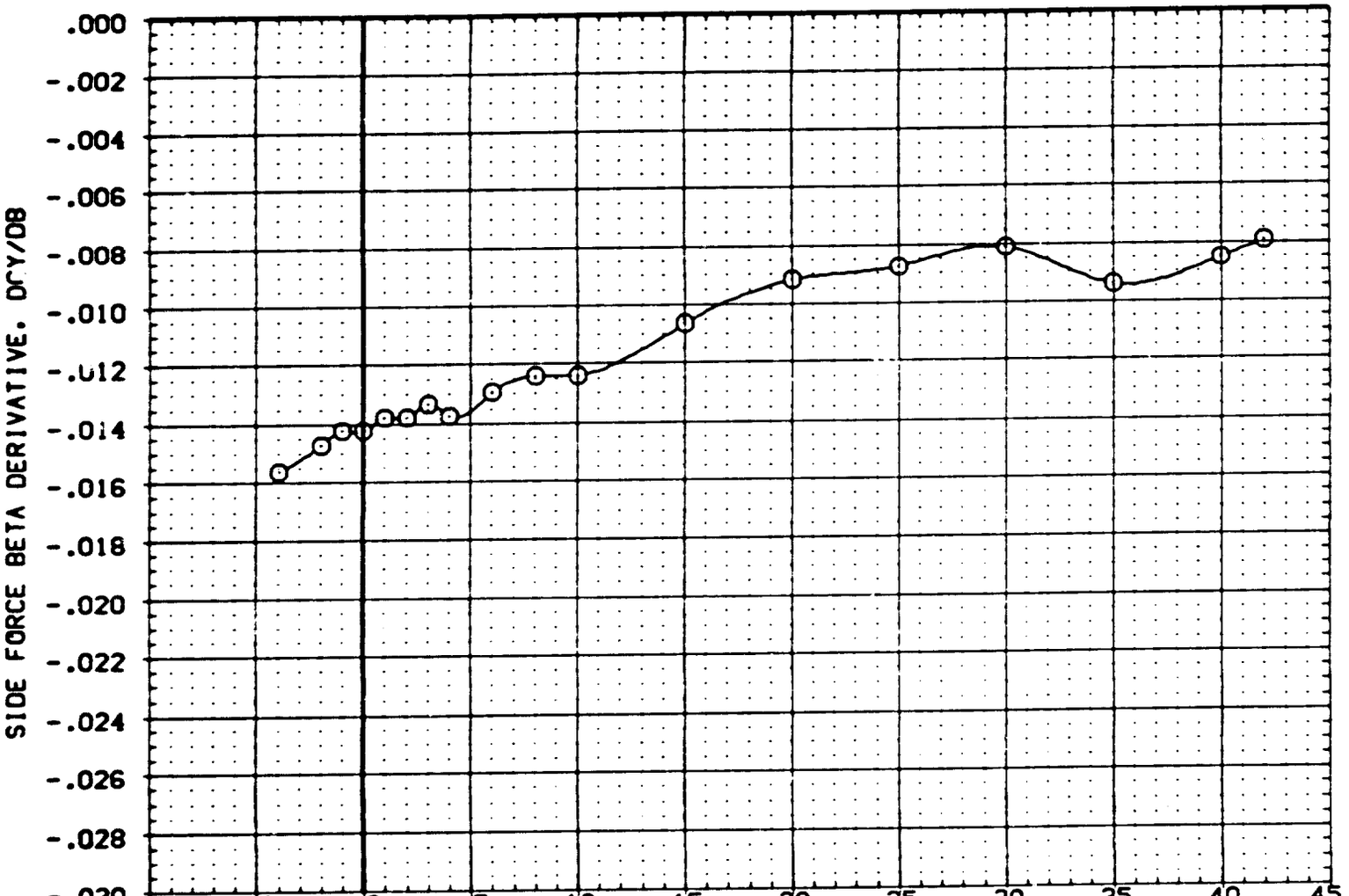


FIG 9 LATERAL-DIRECTIONAL DERIVATIVES

(C)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(BG2003)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2004)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2005)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2006)	△	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ALPHA	SPOBPK	RUDDER	BOFLAP
.000	55.000	.000	-21.000
10.000	55.000	.000	-21.000
20.000	55.000	.000	-21.000
30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.9117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

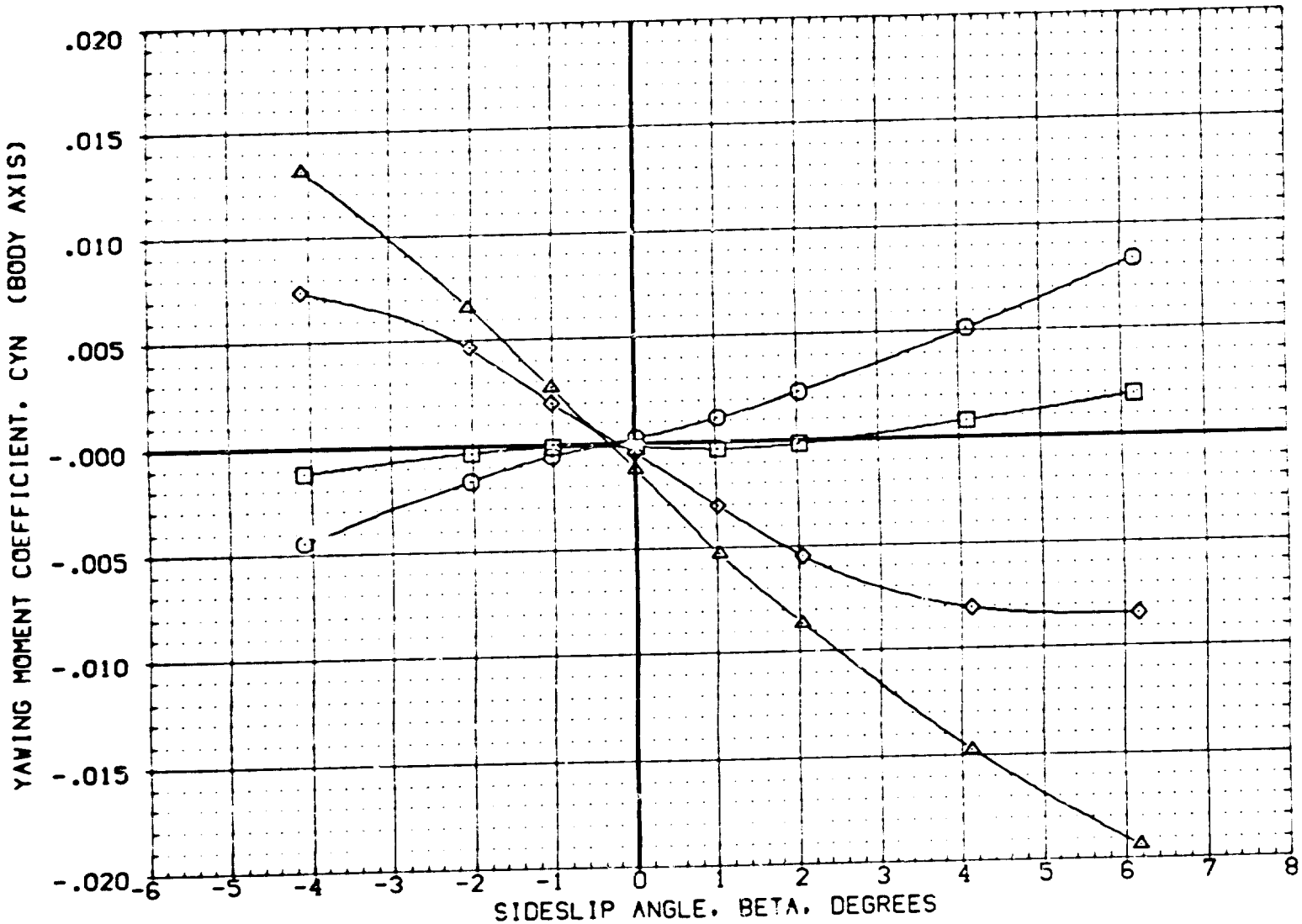


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(B02003)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(B02004)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(B02005)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(B02006)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ALPHA	SPDBRK	RUDDER	BDFLAP
.000	55.000	.000	-21.000
10.000	55.000	.000	-21.000
20.000	55.000	.000	-21.000
30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

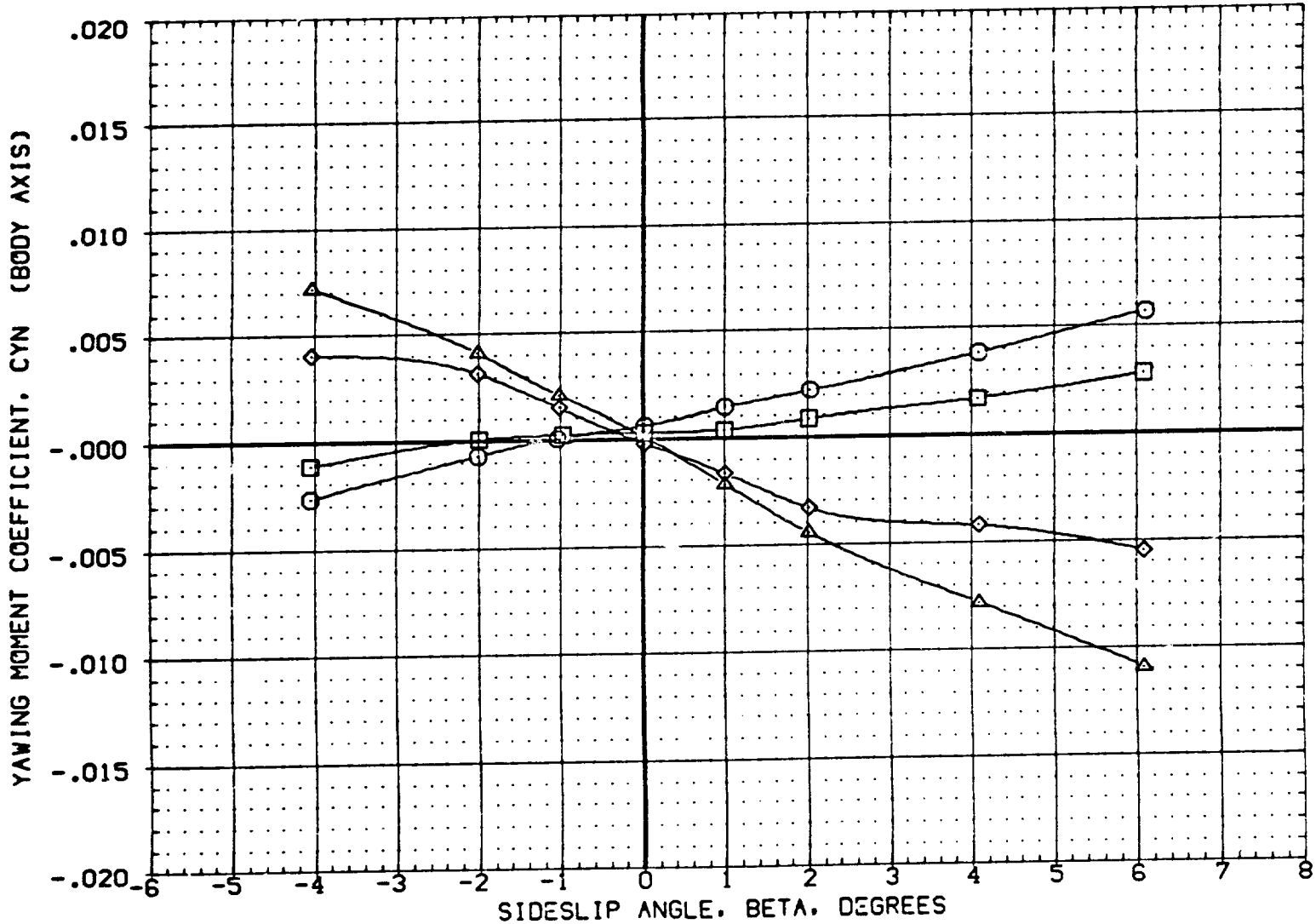


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	SPDBRK	RUDDER	BOFLAP
(BG2003)	○	OA-20 LARC UPVT 1057 - 140A/B ORBITER	.000	55.000	.000	-21.000
(BG2004)	□	OA-20 LARC UPVT 1057 - 140A/B ORBITER	10.000	55.000	.000	-21.000
(BG2005)	◇	OA-20 LARC UPVT 1057 - 140A/B ORBITER	20.000	55.000	.000	-21.000
(BG2006)	△	OA-20 LARC UPVT 1057 - 140A/B ORBITER	30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

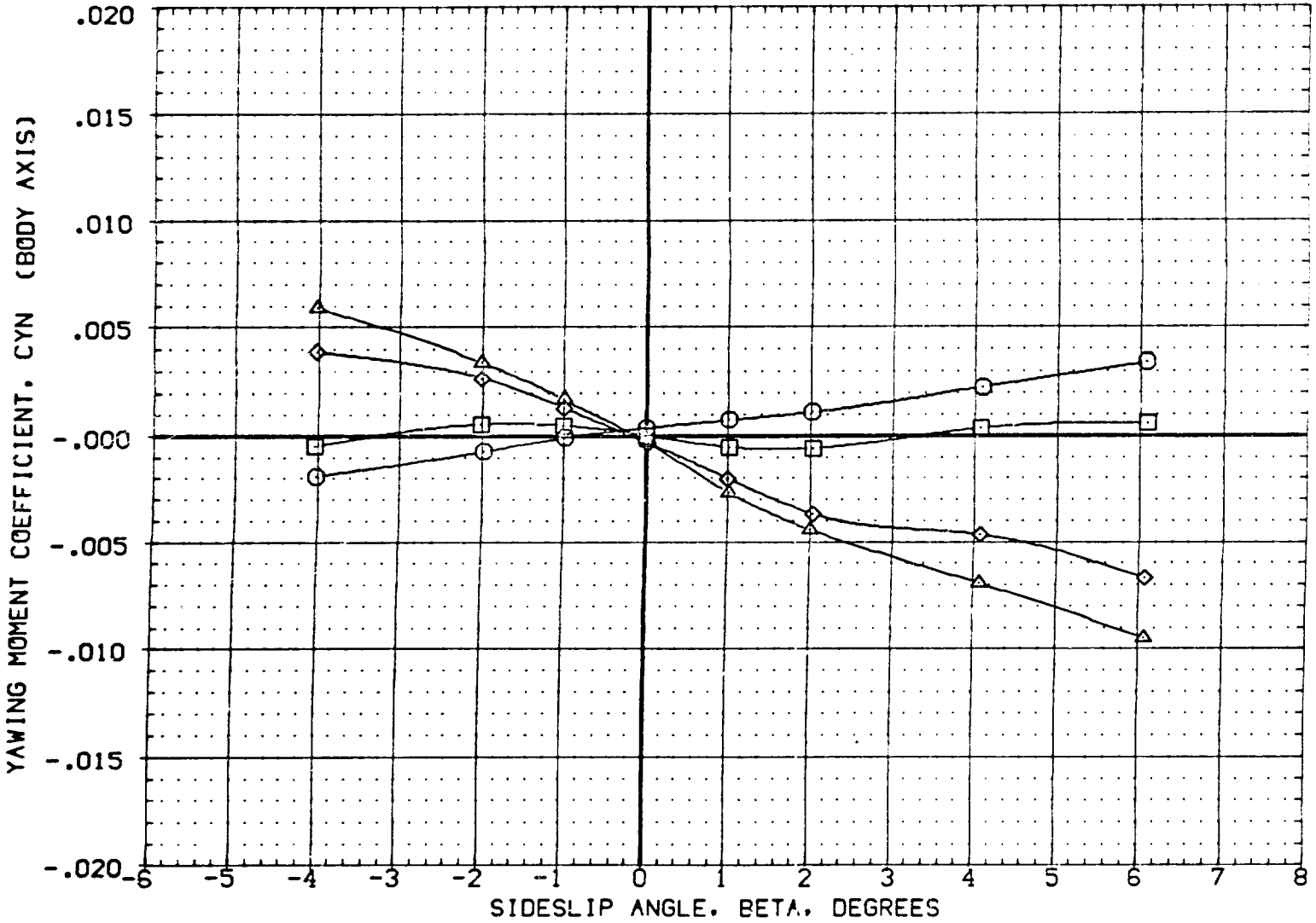


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(C)MACH = 4.60

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(BG2003)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2004)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2005)	OA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2006)	OA-20 LARC UPVT 1057 - 140A/B ORBITER

ALPHA	SPDBRK	RUDDER	BOFLAP
.000	55.000	.000	-21.000
10.000	55.000	.000	-21.000
20.000	55.000	.000	-21.000
30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

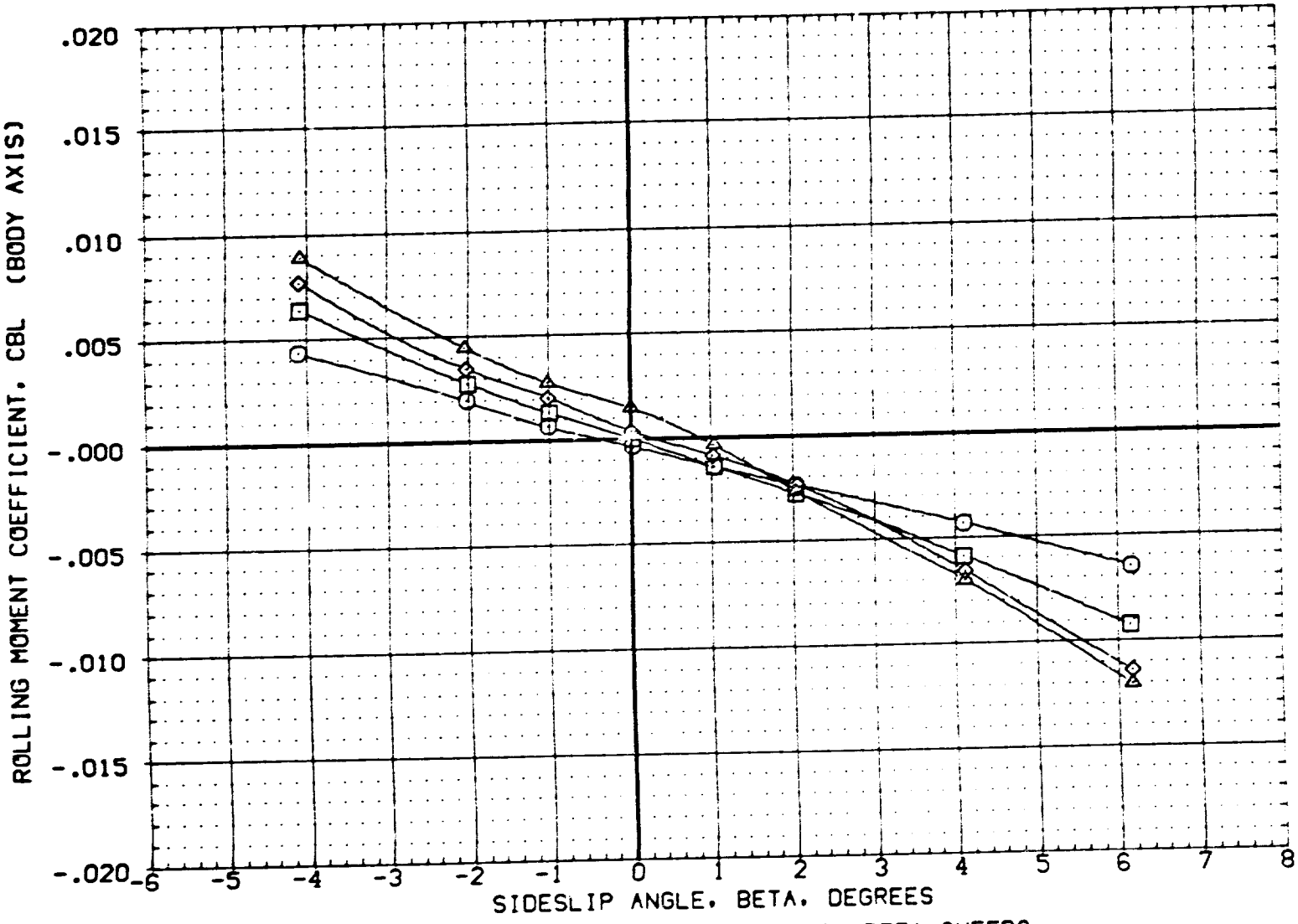


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(A)MACH = 2.50

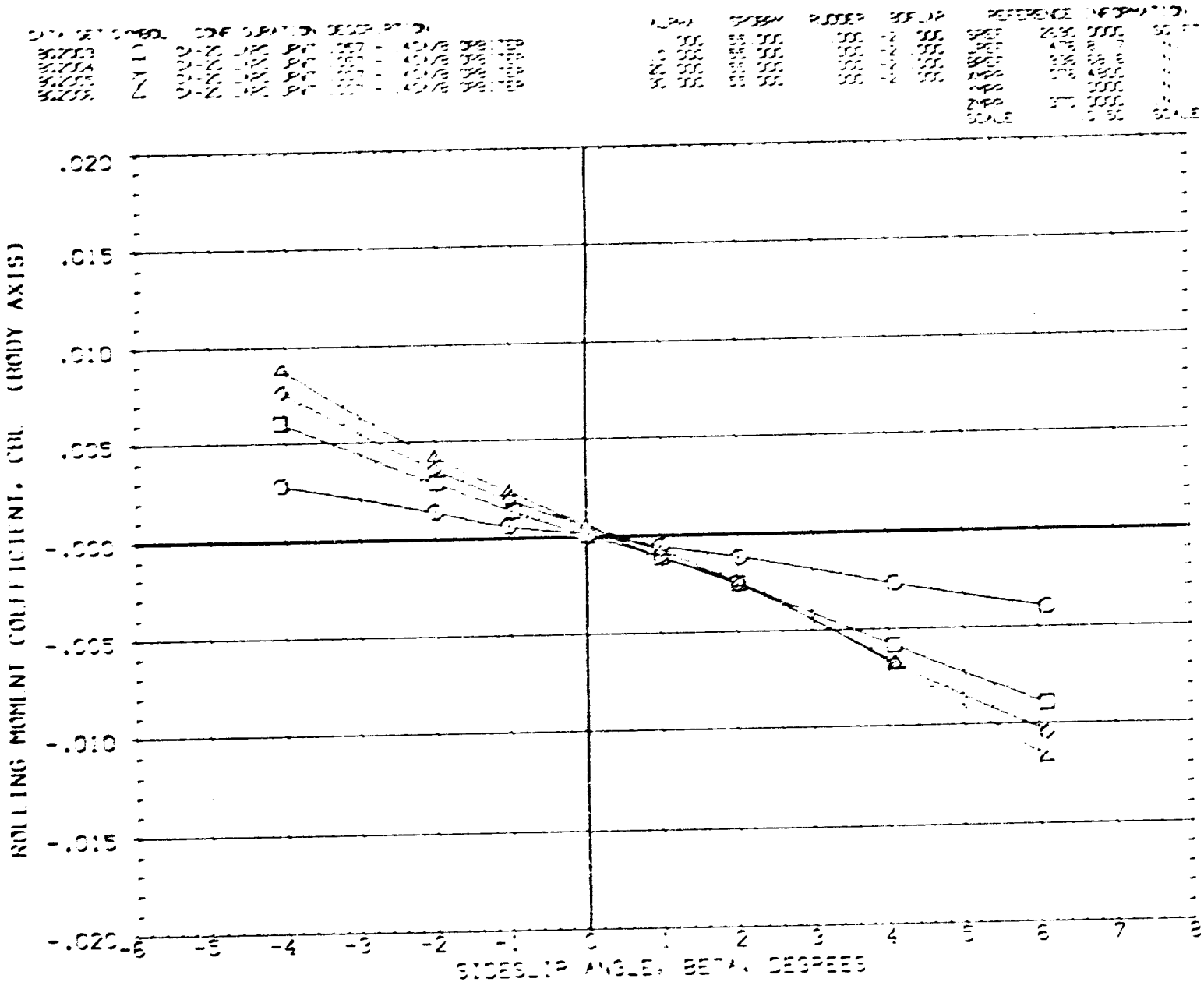


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

[illegible] = 3.30

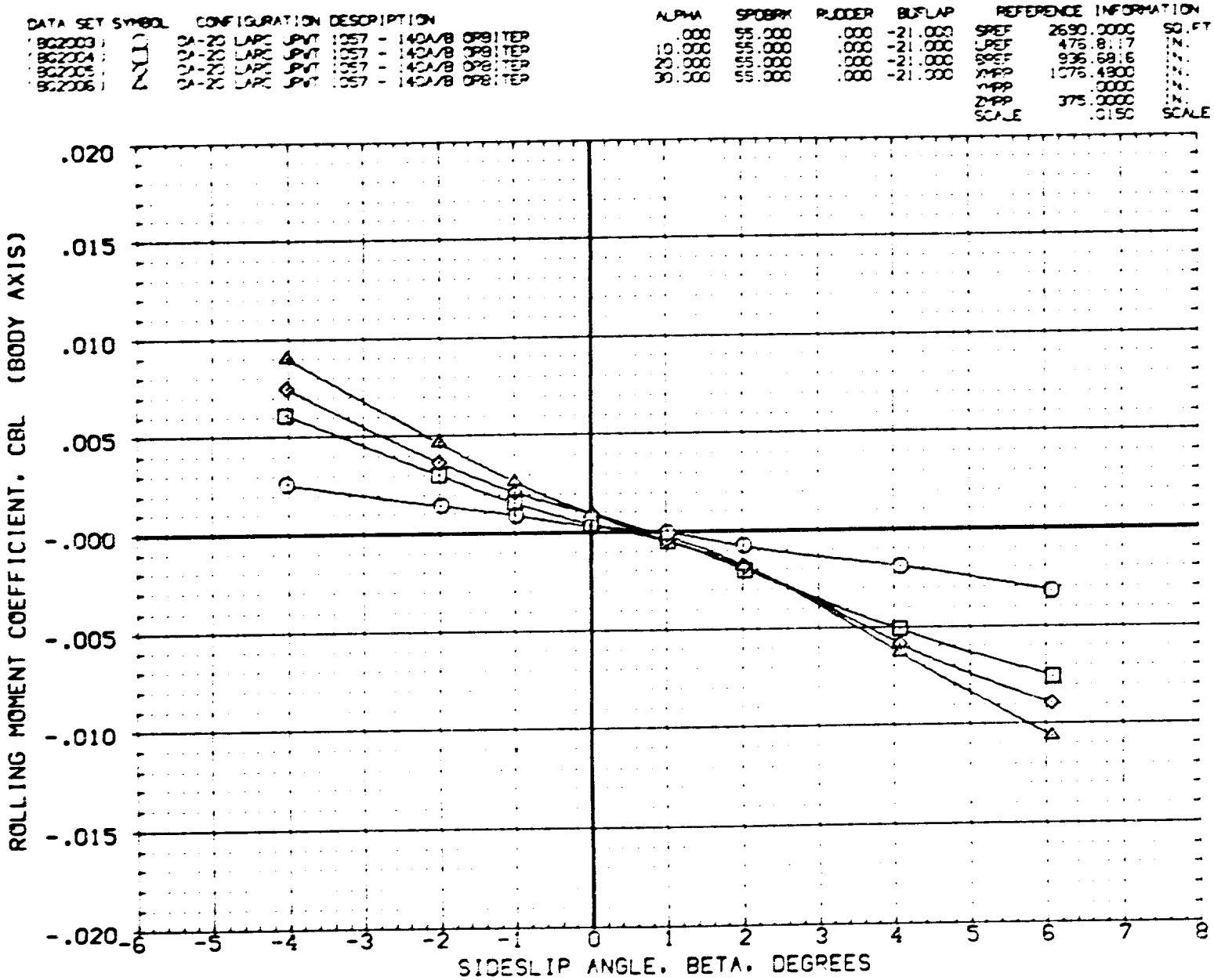


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(C)MACH = 4.60

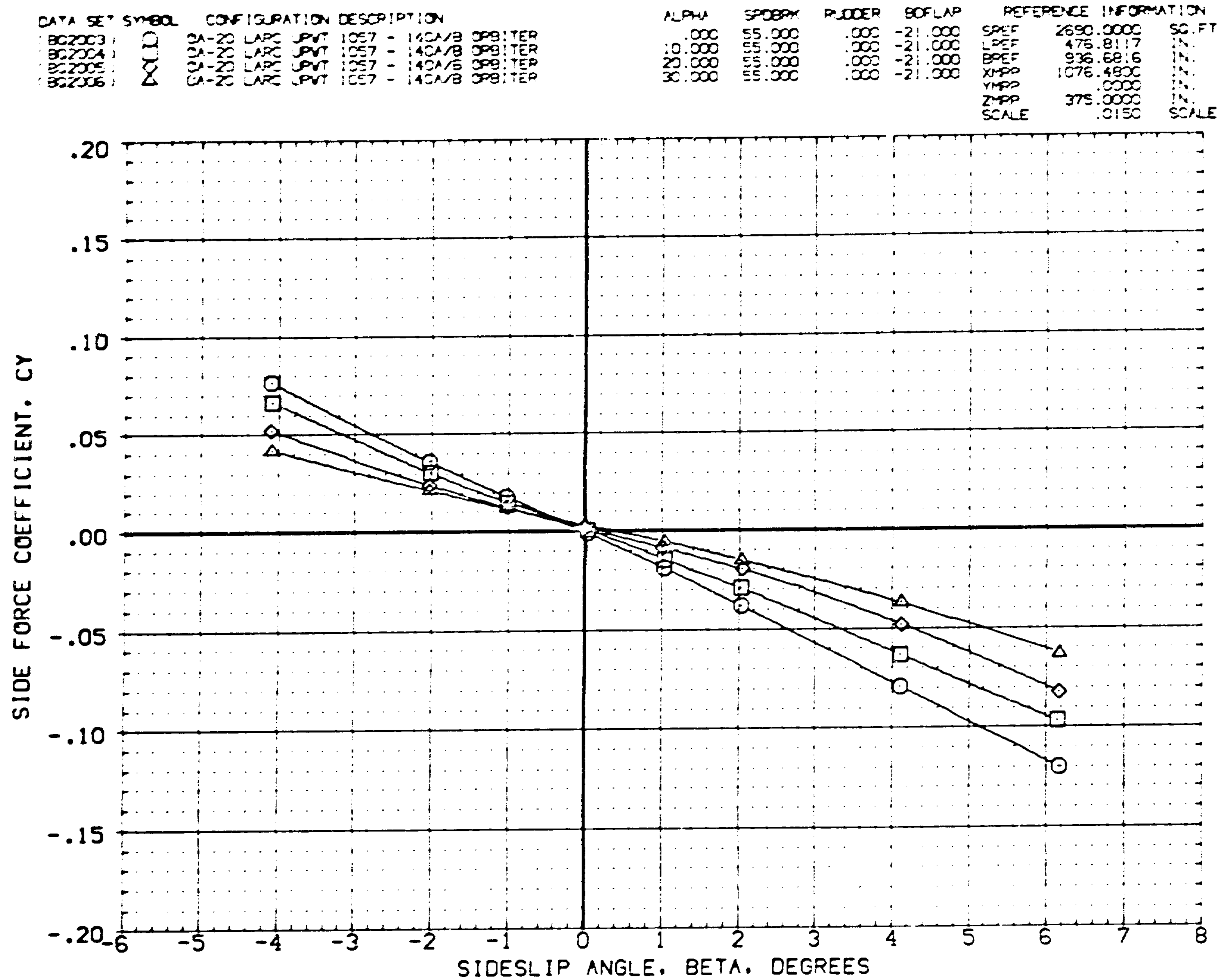

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(BG2003) ○ QA-20 LARC UPWT 1057 - 140A/B ORBITER
(BG2004) □ QA-20 LARC UPWT 1057 - 140A/B ORBITER
(BG2005) ◇ QA-20 LARC UPWT 1057 - 140A/B ORBITER
(BG2006) △ QA-20 LARC UPWT 1057 - 140A/B ORBITER
ALPHA SPDBRK RUDDER BDFLAP
.000 55.000 .000 -21.000
10.000 55.000 .000 -21.000
20.000 55.000 .000 -21.000
30.000 55.000 .000 -21.000
REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 476.8117 IN.
BREF 936.6816 IN.
XMRP 1076.4800 IN.
YMRP .0000 IN.
ZMRP 375.0000 IN.
SCALE .0150 SCALE
SIDE FORCE COEFFICIENT, CY
.20
.15
.10
.05
.00
-.05
-.10
-.15
-.20
-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8
SIDESLIP ANGLE, BETA, DEGREES

FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(BG2003)	○	CA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2004)	□	CA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2005)	◇	CA-20 LARC UPVT 1057 - 140A/B ORBITER
(BG2006)	△	CA-20 LARC UPVT 1057 - 140A/B ORBITER

ALPHA	SPDBRK	RUDDER	BDFLAP
.000	55.000	.000	-21.000
10.000	55.000	.000	-21.000
20.000	55.000	.000	-21.000
30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	936.6816	IN.
XMRP	1076.4800	IN.
YMRP	.0000	IN.
ZMRP	375.0000	IN.
SCALE	.0150	SCALE

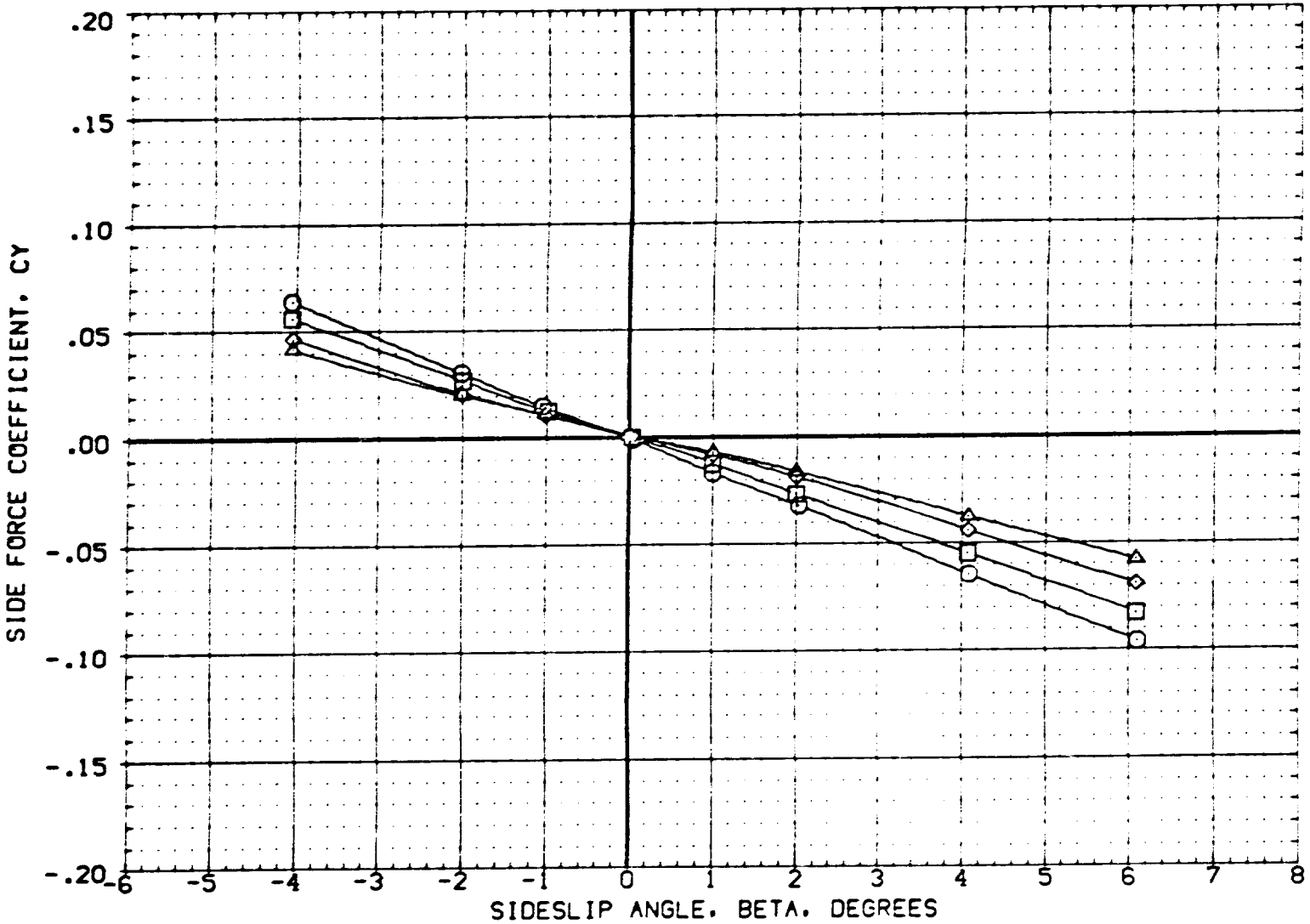


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(B)MACH = 3.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
BG2003		OA-20 LARC UPWT 1057 - 14OA/B ORBITER
BG2004		OA-20 LARC UPWT 1057 - 14OA/B ORBITER
BG2005		OA-20 LARC UPWT 1057 - 14OA/B ORBITER
BG2006	Δ	OA-20 LARC UPWT 1057 - 14OA/B ORBITER

ALPHA	SPOBPY	RUDDER	BOFLAP
.000	55.000	.000	-21.000
10.000	55.000	.000	-21.000
20.000	55.000	.000	-21.000
30.000	55.000	.000	-21.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	476.8117	IN.
BREF	935.6816	IN.
XMPP	1076.4800	IN.
YMPP	.0000	IN.
ZMPP	375.0000	IN.
SCALE	.0150	SCALE

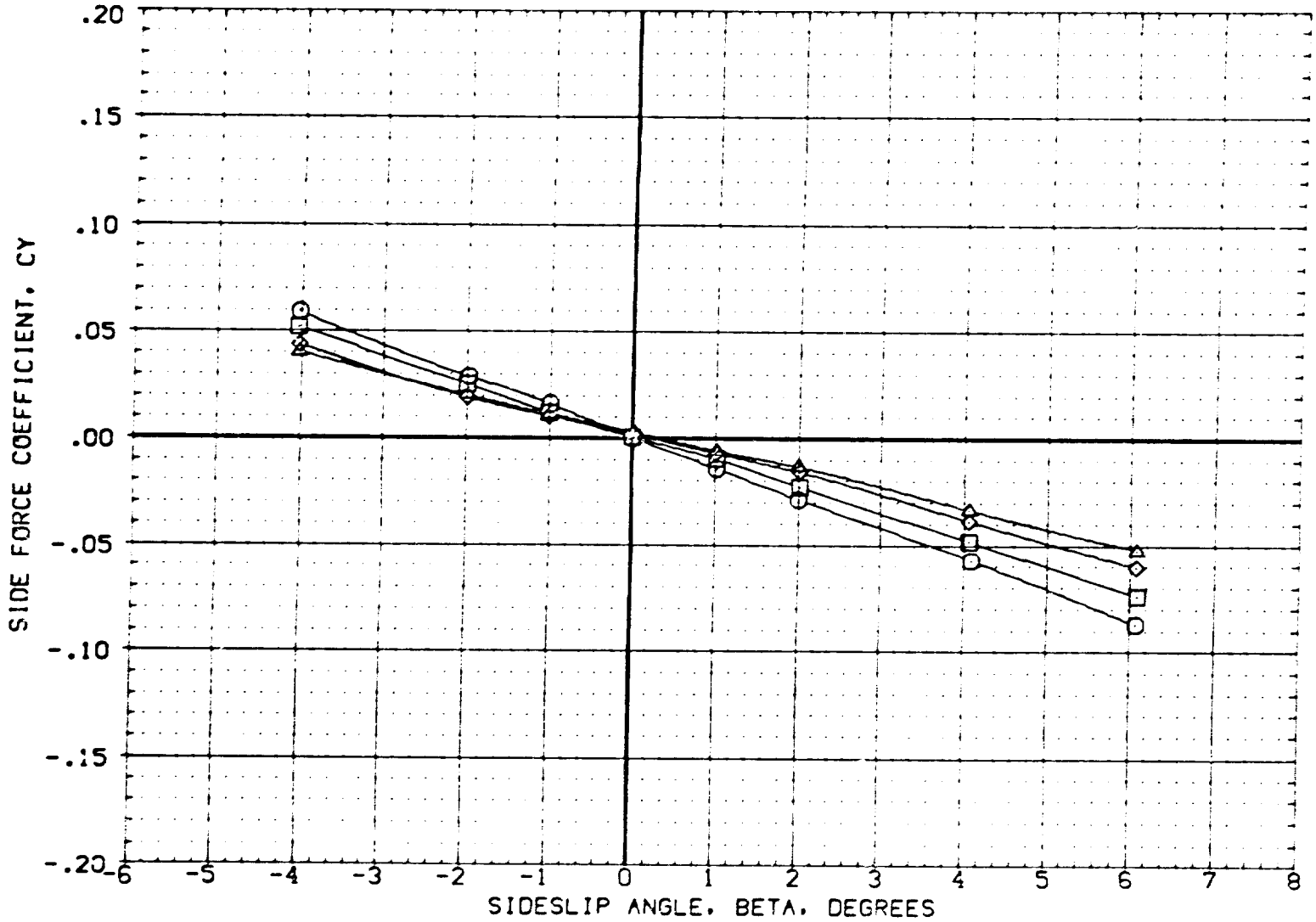


FIG 10 LATERAL-DIRECTIONAL CHARACTERISTICS FROM BETA SWEEPS

(C)MACH = 4.60

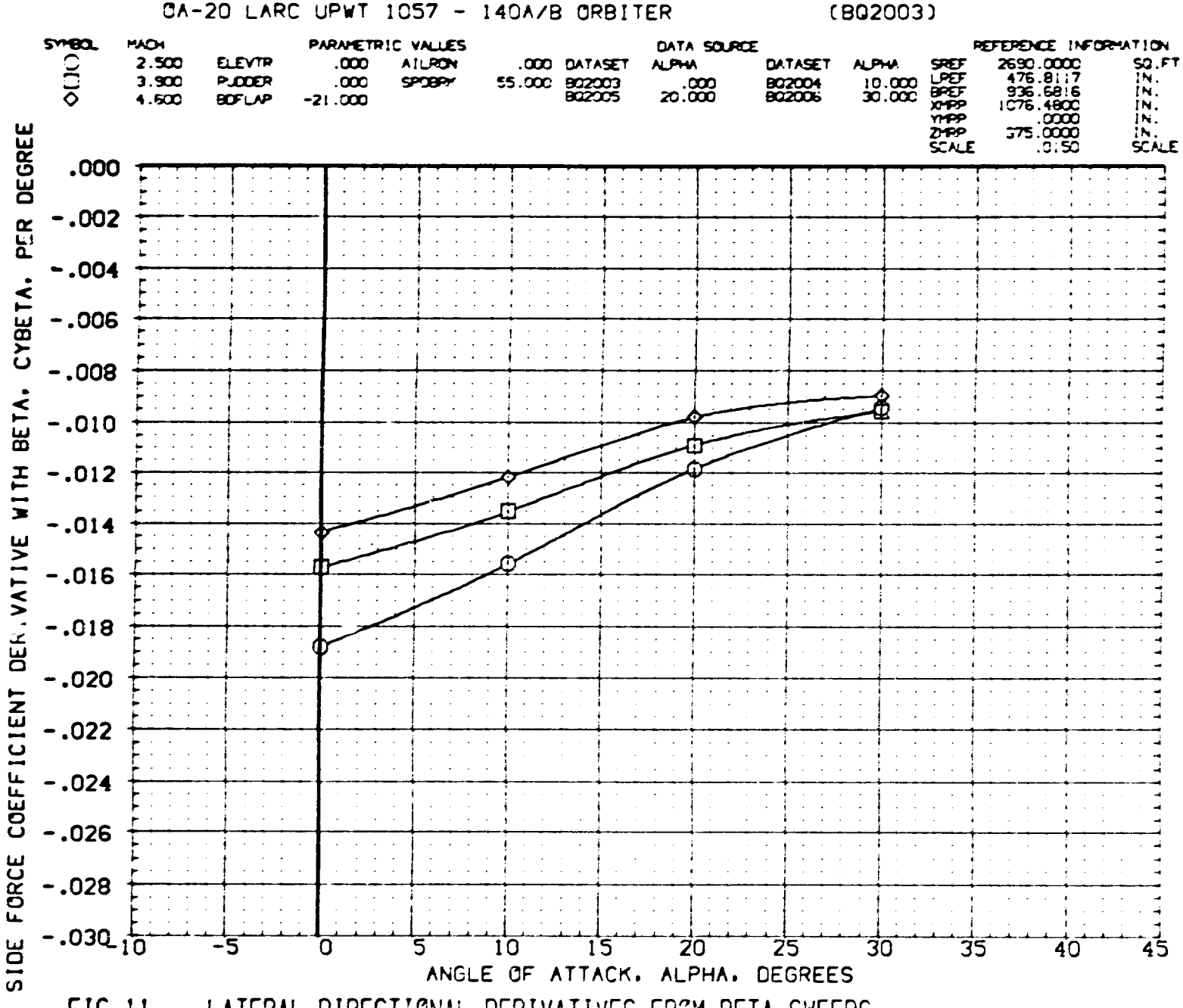


FIG 11 LATERAL-DIRECTIONAL DERIVATIVES FROM BETA SWEEPS

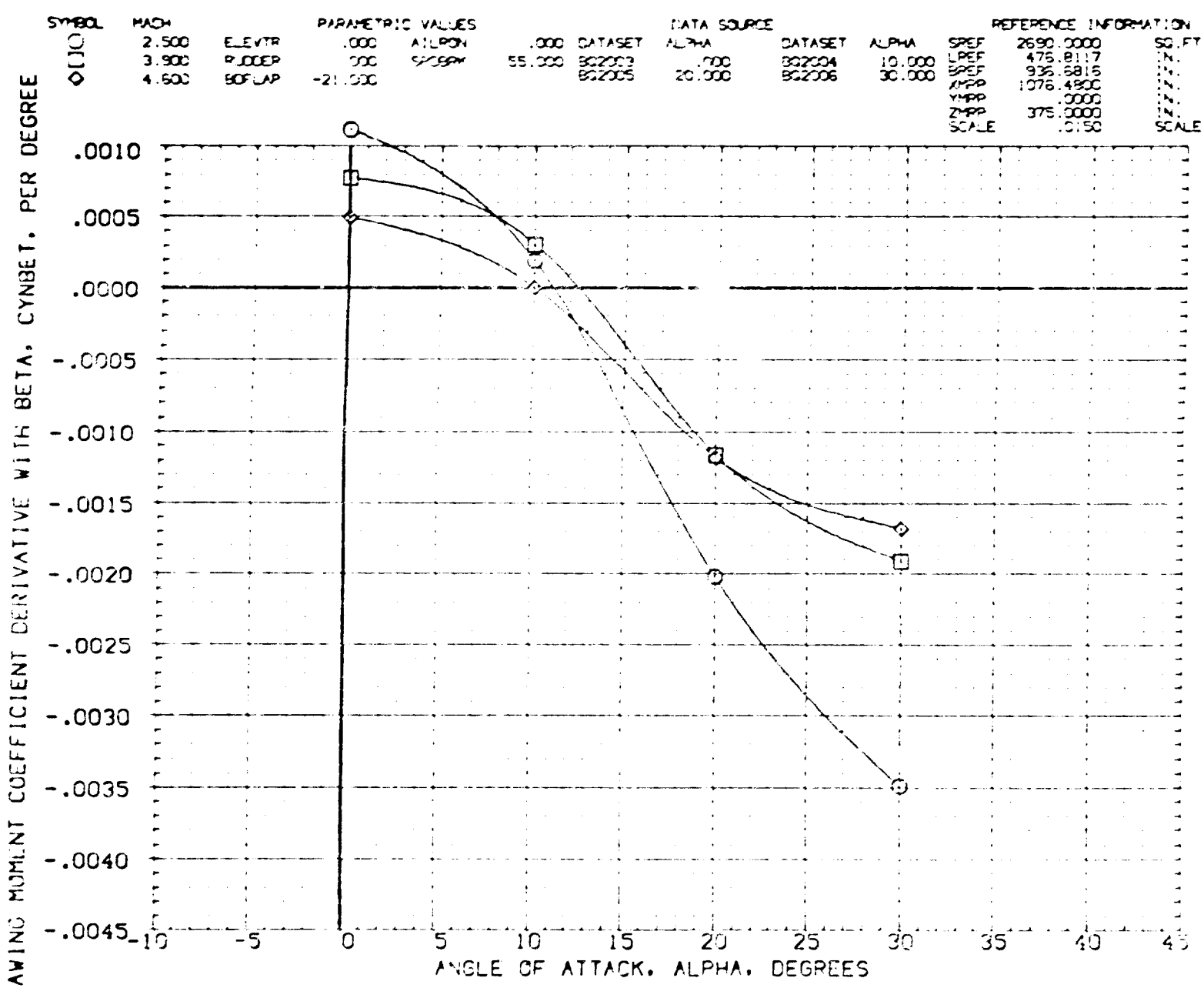


FIG 11 LATERAL-DIRECTIONAL DERIVATIVES FROM BETA SWEEPS

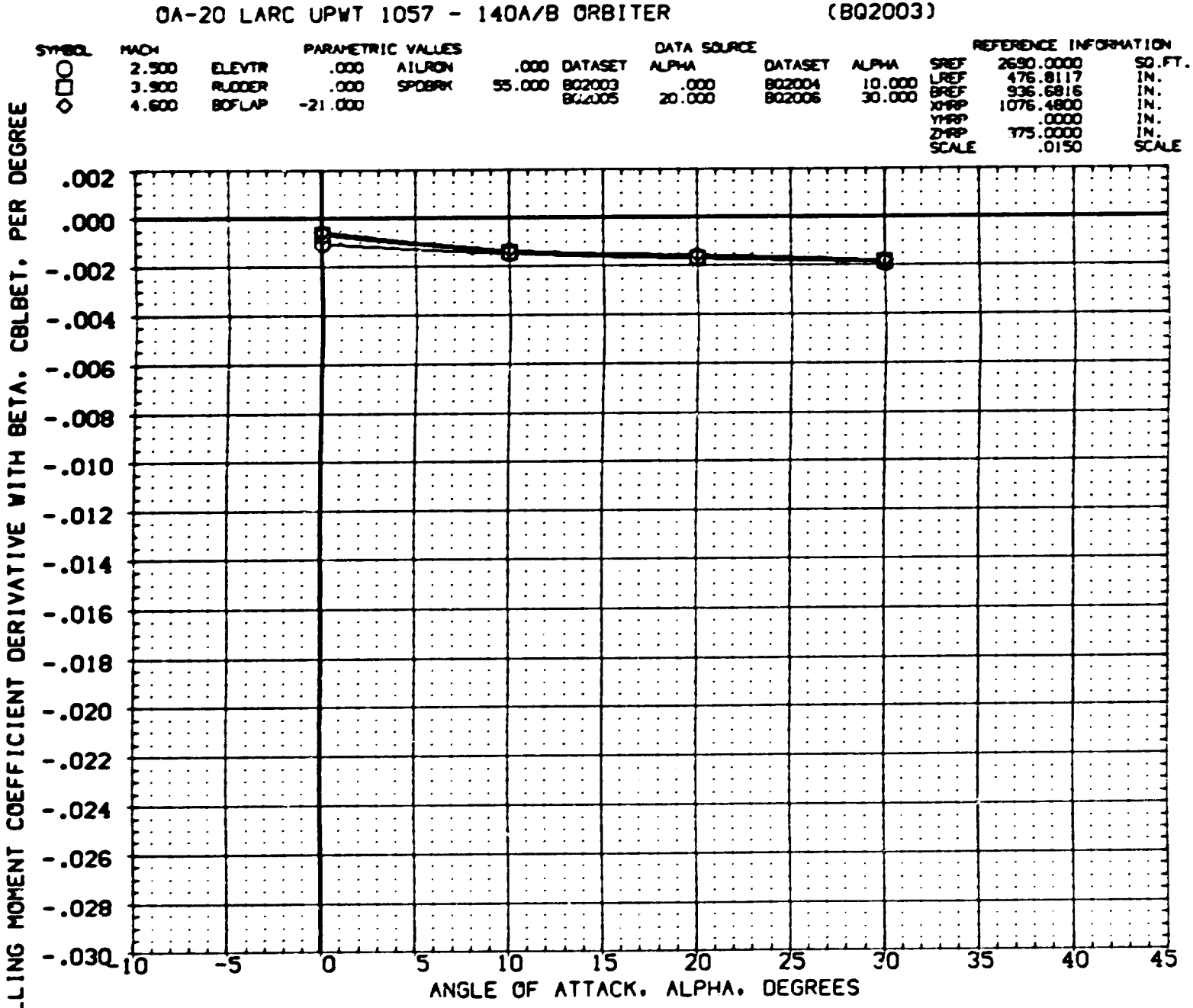


FIG 11 LATERAL-DIRECTIONAL DERIVATIVES FROM BETA SWEEPS

APPENDIX

TABULATED SOURCE DATA

Plotted data listings available on request
from the Data Management System.

OA-20 LARC UPWT 1057 - 140A/B ORBITER (X020001) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0190 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 4/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.900	-4.756	-.00233	-.18406	.13153	.00806	-.15540	-.15303	-.16627	-.17258	.14627	-1.1[illegible]83
2.900	-3.375	-.00102	-.14193	.13036	.00691	-.15370	-.15487	-.16458	-.13400	.13849	-.96780
2.900	-1.801	-.00010	-.08995	.12873	.00399	-.15016	-.15311	-.16985	-.08632	.13119	-.65800
2.900	-.531	-.00150	-.05594	.12770	.00180	-.15201	-.15318	-.17341	-.05476	.12821	-.42709
2.900	.495	.00332	-.02404	.12624	-.00019	-.15011	-.15482	-.17156	-.02513	.12603	-.19942
2.900	1.603	-.00153	.00992	.12501	-.00237	-.15365	-.15483	-.17156	.00642	.12524	.05129
2.900	2.724	-.00072	.04375	.12414	-.00455	-.15900	-.15838	-.17685	.03781	.12610	.29985
2.900	3.656	.00003	.06944	.12306	-.00600	-.16075	-.16013	-.17859	.06145	.12725	.48295
2.900	5.710	-.00059	.13481	.11938	-.00928	-.16073	-.16364	-.18033	.12225	.13222	.92456
2.900	7.870	.00041	.20205	.11523	-.01095	-.16074	-.16365	-.17859	.18437	.14181	1.30014
2.900	9.936	-.00123	.27113	.11145	-.01194	-.16435	-.16548	-.17688	.24783	.15657	1.58289
2.900	15.245	-.00056	.45252	.10449	-.01901	-.17498	-.17430	-.18040	.40912	.21981	1.86128
2.900	20.514	-.00085	.64549	.09612	-.02732	-.18026	-.17428	-.18388	.57087	.31623	1.80524
2.900	25.959	-.00084	.86520	.08425	-.03806	-.17673	-.17429	-.18214	.73923	.45359	1.62974
2.900	31.124	-.00041	1.07347	.07267	-.04581	-.16437	-.16121	-.16814	.88138	.61708	1.42830
2.900	36.631	-.00174	1.31196	.06402	-.05672	-.17321	-.16550	-.17690	1.01464	.83417	1.21634
2.900	41.857	-.00131	1.54213	.05539	-.07446	-.17498	-.16726	-.16989	1.11163	1.07028	1.03863
2.900	44.668	-.00365	1.66640	.05117	-.08211	-.17676	-.16727	-.16815	1.14873	1.20827	.95072
	GRADIENT	.00016	.03038	-.00103	-.00176	-.00263	-.00070	-.00151	.02808	-.00226	.20249

RUN NO. 10/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.429	.01803	-.13957	.10438	-.02189	-.07268	-.06894	-.07747	-.13110	.11483	-1.14169
3.900	-3.045	.01815	-.11350	.10172	-.02028	-.07267	-.07148	-.07747	-.10794	.10761	-1.00303
3.900	-1.267	.01832	-.07872	.09773	-.01812	-.07267	-.07148	-.07747	-.07653	.09944	-.76962
3.900	-.264	.01842	-.05551	.09552	-.01756	-.07268	-.07149	-.08001	-.05507	.09578	-.57501
3.900	.722	.01852	-.03522	.09373	-.01674	-.07014	-.06896	-.08002	-.03645	.09320	-.39027
3.900	1.768	.01862	-.01203	.09208	-.01492	-.07013	-.06895	-.08002	-.01486	.09166	-.16214
3.900	2.800	.01932	.01100	.09083	-.01439	-.07268	-.07149	-.07747	.00655	.09125	.07183
3.900	3.808	.01943	.03373	.08969	-.01366	-.07523	-.07148	-.08000	.02770	.09173	.30199
3.900	5.883	.01861	.07907	.08634	-.01148	-.07523	-.07148	-.08000	.06975	.09449	.73815
3.900	7.938	.01781	.13019	.08401	-.01092	-.07267	-.07148	-.07747	.11734	.10118	1.15972
3.900	9.986	.01806	.18423	.08217	-.01066	-.07267	-.07148	-.07747	.16719	.11287	1.48126
3.900	15.147	.01831	.33738	.07797	-.01190	-.07523	-.07403	-.08001	.30529	.16342	1.86810
3.900	20.387	.01866	.51222	.07368	-.01556	-.07523	-.07403	-.08001	.45447	.24750	1.83626
3.900	25.538	.01846	.70118	.06962	-.01809	-.07268	-.07403	-.07747	.60266	.36510	1.65067
3.900	30.718	.01834	.91036	.06671	-.02441	-.07267	-.07148	-.07747	.74855	.52238	1.43296
3.900	36.072	.01788	1.14727	.06379	-.03251	-.07268	-.07148	-.07494	.88376	.72707	1.22376
3.900	41.254	.01749	1.38236	.05912	-.04395	-.07523	-.07148	-.07493	1.00026	.95598	1.04632
3.900	43.940	.01749	1.50471	.05456	-.05338	-.07267	-.07148	-.07494	1.04468	1.08414	.96373
	GRADIENT	.00017	.02115	-.00183	.00100	-.00036	-.00009	-.00027	.01340	-.00287	.17694

OA-20 LARC UPWT 1037 - 140A/B ORBITER (X020001) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4000 IN.
LREF = 476.0117 IN. YMRP = .0000 IN.
BREF = 956.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SFCBRK = 54.920 BDFLAP = -20.700

RUN NO. 16/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.6000	-4.036	-.00056	-.13369	.10958	-.02590	-.04688	-.04533	-.05620	-.12658	.10976	-1.15317
4.5991	-2.724	-.00046	-.10803	.09870	-.02313	-.05015	-.04859	-.05295	-.10331	.10172	-1.01561
4.6001	-.960	-.00032	-.07095	.09168	-.02131	-.05015	-.04859	-.05295	-.06940	.09286	-.74741
4.6001	.035	-.00069	-.05246	.08940	-.02119	-.04688	-.04859	-.05620	-.05251	.08937	-.58761
4.6001	1.059	-.00062	-.03589	.08754	-.01946	-.04688	-.04859	-.05620	-.03546	.08692	-.40797
4.6001	2.058	-.00056	-.01532	.08552	-.01773	-.05015	-.04859	-.05620	-.01838	.08492	-.21647
4.6001	3.107	-.00047	.00676	.08336	-.01795	-.05015	-.04859	-.05620	.00223	.08360	.02664
4.6001	4.135	-.00142	.02639	.08181	-.01655	-.05015	-.04859	-.05620	.02233	.08364	.26696
4.6001	6.123	-.00126	.07165	.07922	-.01378	-.05015	-.04859	-.05620	.06289	.08542	.73628
4.6001	8.177	-.00109	.11854	.07615	-.01134	-.05015	-.04859	-.05620	.10666	.09122	1.16921
4.6001	10.226	-.00093	.17285	.07277	-.01124	-.05015	-.04859	-.05295	.15719	.10230	1.53660
4.6001	15.399	.00025	.32587	.06356	-.01161	-.05015	-.04859	-.05295	.29069	.15226	1.91044
4.6001	20.471	.00041	.48563	.06675	-.01238	-.05015	-.04859	-.05620	.43162	.23217	1.85747
4.6001	25.716	.00034	.67192	.06449	-.01372	-.05015	-.04859	-.05295	.57738	.34965	1.65131
4.6001	30.822	-.00029	.87305	.06332	-.01684	-.05015	-.04859	-.05295	.71730	.50171	1.42970
4.6001	36.034	-.00197	1.09911	.06765	-.02992	-.05015	-.04859	-.05620	.85314	.69561	1.22646
4.6001	41.165	-.00463	1.32196	.05662	-.04378	-.05015	-.04859	-.05620	.95793	.91278	1.04946
4.6001	43.991	-.00183	1.44169	.05193	-.05566	-.05015	-.04859	-.05620	1.01229	1.03759	.96598
	GRADIENT	-.00007	.01968	-.00229	.00108	-.00023	-.00026	-.00025	.01806	-.00320	.17393

OA-20 LARC UPWT 105T - 140A/B ORBITER (XQ2002) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = 3.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 5/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.500	-4.621	3.08948	-.19505	.13201	.00635	-.14849	-.14968	-.16817	-.18326	.14793	-1.23883
2.500	-3.397	3.08739	-.15122	.13054	.00323	-.15024	-.14966	-.17166	-.14322	.13927	-1.02835
2.500	-1.582	3.08436	-.09337	.12925	.00069	-.15555	-.15319	-.17516	-.08977	.13178	-.68120
2.500	-.524	3.08369	-.05941	.12836	-.00062	-.15733	-.15497	-.17342	-.05824	.12890	-.45180
2.500	.483	3.08196	-.02958	.12745	-.00330	-.15908	-.15495	-.17516	-.03065	.12720	-.24098
2.500	1.544	3.08025	.00437	.12635	-.00460	-.16086	-.15848	-.17692	.00097	.12642	.00767
2.500	2.616	3.07958	.03814	.12500	-.00676	-.15910	-.16201	-.17517	.03239	.12661	.25583
2.500	3.625	3.07829	.06759	.12363	-.00942	-.16088	-.16378	-.16993	.05964	.12765	.46720
2.500	5.730	3.07839	.13272	.12032	-.01091	-.16793	-.16729	-.17167	.12004	.13297	.90274
2.500	7.841	3.07644	.20159	.11647	-.01273	-.17150	-.17084	-.17695	.18381	.14288	1.28649
2.500	9.957	3.07597	.27248	.11242	-.01386	-.17328	-.17261	-.18396	.24894	.15784	1.57716
2.500	15.218	3.07615	.45551	.10523	-.02103	-.18033	-.18140	.19095	.41192	.22110	1.86302
2.500	20.490	3.07732	.65169	.09525	-.03048	-.17857	-.17788	-.18395	.57712	.31734	1.81864
2.500	25.876	3.08211	.86522	.08359	-.03815	-.17504	-.17261	-.17871	.74199	.45281	1.63865
2.500	31.189	3.08260	1.08127	.07323	-.04908	-.17148	-.16554	-.16468	.88706	.62259	1.42478
2.500	36.587	3.08369	1.31368	.06446	-.05847	-.17148	-.16378	-.16818	1.01640	.83476	1.21759
2.500	41.945	3.07779	1.55432	.05665	-.07633	-.18032	-.17259	-.16818	1.11822	1.08106	1.03437
2.500	44.633	3.07451	1.66480	.05384	-.08007	-.18564	-.17789	-.17346	1.14687	1.20794	.94945
	GRADIENT	-.00133	.03123	-.00096	-.00179	-.00153	-.00174	-.00044	.02891	-.00235	.20610

RUN NO. 11/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.375	3.03464	-.13842	.10468	-.02214	-.06756	-.06894	-.08001	-.13004	.11494	-1.13134
3.900	-3.023	3.03373	-.11249	.10178	-.02049	-.06756	-.06894	-.07747	-.10696	.10757	-.99435
3.900	-1.274	3.03183	-.07795	.09827	-.01830	-.07012	-.07148	-.07747	-.07575	.09998	-.75764
3.900	-.289	3.03148	-.05781	.09654	-.01746	-.07267	-.07148	-.07493	-.05732	.09683	-.59202
3.900	.745	3.03113	-.03758	.09462	-.01535	-.07011	-.07148	-.07747	-.03880	.09412	-.41225
3.900	1.781	3.03021	-.01450	.09263	-.01477	-.07012	-.07149	-.07747	-.01737	.09213	-.18855
3.900	2.823	3.03033	.01124	.09062	-.01573	-.07012	-.07149	-.07747	.00677	.09106	.07432
3.900	3.823	3.02896	.03381	.08918	-.01516	-.07268	-.07149	-.07747	.02778	.09124	.30451
3.900	5.848	3.02872	.07902	.08653	-.01276	-.07524	-.07149	-.07748	.06979	.09413	.74145
3.900	7.946	3.02748	.12997	.08420	-.01217	-.07523	-.07403	-.08001	.11708	.10136	1.15509
3.900	9.985	3.02728	.18381	.08270	-.01189	-.07524	-.07403	-.08001	.16669	.11332	1.47095
3.900	15.168	3.02752	.33959	.07813	-.01332	-.07523	-.07403	-.08254	.30731	.16426	1.87087
3.900	20.331	3.02899	.50855	.07385	-.01511	-.07524	-.07404	-.08001	.45120	.24594	1.83460
3.900	25.540	3.02938	.70311	.06988	-.01816	-.07524	-.07404	-.08001	.60428	.36619	1.65017
3.900	30.753	3.02819	.91237	.06720	-.02448	-.07523	-.07403	-.08000	.74971	.52428	1.42999
3.900	36.045	3.02862	1.14256	.06388	-.03186	-.07524	-.07404	-.08001	.88623	.72395	1.22415
3.900	41.275	3.02659	1.37954	.05969	-.04351	-.07524	-.07149	-.07241	.99741	.95491	1.04451
3.900	43.981	3.02619	1.50258	.05557	-.05041	-.07268	-.07148	-.07240	1.04263	1.08339	.96238
	GRADIENT	-.00065	.02095	-.00190	.00090	-.00050	-.00034	.00018	.01921	-.00292	.17623

OA-20 LARC UPWT 1057 - 140A/B ORBITER (X02002) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = 3.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 17/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.600	-4.045	3.02309	-.13654	.10049	-.02580	-.04688	-.04533	-.05295	-.12911	.10987	-1.17513
4.600	-2.716	3.02217	-.10707	.09653	-.02334	-.04688	-.04859	-.05295	-.10238	.10149	-1.00876
4.600	-.962	3.02082	-.07394	.09282	-.02115	-.04688	-.04859	-.05620	-.07237	.09404	-.76954
4.600	.040	3.01986	-.05550	.09053	-.01938	-.04688	-.04859	-.05295	-.05556	.09049	-.61401
4.600	1.061	3.01950	-.03338	.08809	-.01959	-.04688	-.04859	-.05295	-.03500	.08746	-.40023
4.600	2.050	3.01957	-.01491	.08587	-.01783	-.04688	-.04859	-.05295	-.01797	.08528	-.21073
4.600	3.110	3.01863	.01072	.08324	-.01838	-.05015	-.04859	-.05295	.00619	.08370	.07396
4.600	4.111	3.01929	.02858	.08185	-.01662	-.05015	-.04859	-.05620	.02264	.08369	.27051
4.600	6.159	3.01799	.07526	.07874	-.01577	-.05342	-.04859	-.05620	.06637	.08636	.76852
4.600	8.209	3.01772	.12202	.07606	-.01330	-.05015	-.04859	-.05620	.10991	.09271	1.18554
4.600	10.226	3.01790	.17247	.07354	-.01119	-.05015	-.04859	-.05620	.15668	.10299	1.52130
4.600	15.378	3.01725	.32027	.06962	-.01148	-.05342	-.04859	-.05620	.29034	.15206	1.90933
4.600	20.501	3.01725	.48486	.06698	-.01223	-.05342	-.05185	-.05620	.43069	.23254	1.85213
4.600	25.707	3.01761	.67478	.06449	-.01388	-.05342	-.04859	-.05620	.58002	.35080	1.65340
4.600	30.796	3.01739	.86845	.06340	-.01990	-.05342	-.04859	-.05620	.71354	.49909	1.42967
4.600	36.043	3.01681	1.09736	.06020	-.03120	-.05015	-.04859	-.05295	.85188	.69435	1.22686
4.600	41.197	3.01577	1.31980	.05570	-.04498	-.05015	-.04859	-.05295	.95641	.91119	1.04962
4.600	43.935	3.01410	1.43584	.05068	-.05811	-.04688	-.04859	-.04971	.99884	1.03273	.96718
	GRADIENT		-.00052	.02017	-.00229	.00104	-.00039	-.00026	-.00015	.01855	-.00321	.17892

OA-20 LARC UPWT 1057 - 140A/B ORBITER (XQ2003) (11 DEC 73)

REFERENCE DATA

SREF = 2090.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 6/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.900	-4.101	-.54337	-.05248	.12797	-.00019	-.16265	-.15851	-.18219	-.05126	.12846	-.39906
2.900	-2.033	-.57255	-.05410	.12863	.00164	-.16091	-.15677	-.18046	-.05281	.12917	-.40885
2.900	-1.027	-.55062	-.05405	.12829	.00163	-.15563	-.15503	-.17522	-.05281	.12881	-.41003
2.900	.021	-.55770	-.05386	.12826	.00159	-.15210	-.15328	-.17348	-.05261	.12878	-.40855
2.900	1.029	-.51354	-.05375	.12848	.00068	-.15389	-.15506	-.17524	-.05260	.12896	-.40788
2.900	2.037	-.53009	-.05359	.12873	-.00025	-.15740	-.15152	-.17523	-.05240	.12922	-.40550
2.900	4.114	-.52822	-.05527	.12844	-.00279	-.15737	-.15852	-.17520	-.05408	.12895	-.41940
2.900	6.167	-.53923	-.05494	.12825	-.00552	-.15742	-.16033	-.17349	-.05373	.12876	-.41725
	GRADIENT	.00423	-.00023	.00005	-.00035	.00070	.00024	.00089	-.00024	.00005	-.00169

RUN NO. 12/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.060	-.28273	-.05921	.09709	-.01714	-.07267	-.07148	-.08000	-.05873	.09738	-.60314
3.900	-2.015	-.28116	-.05875	.09638	-.01595	-.07012	-.07148	-.08001	-.05827	.09667	-.60282
3.900	-1.036	-.29563	-.05858	.09608	-.01599	-.07012	-.06894	-.08001	-.05808	.09638	-.60264
3.900	.019	-.26299	-.05544	.09556	-.01630	-.07268	-.06894	-.08001	-.05500	.09581	-.57403
3.900	.998	-.27912	-.05528	.09588	-.01763	-.07012	-.06894	-.08001	-.05481	.09615	-.57006
3.900	2.034	-.29631	-.05797	.09626	-.01742	-.07012	-.06894	-.08001	-.05747	.09656	-.59515
3.900	4.089	-.28112	-.05760	.09707	-.01751	-.07012	-.07149	-.07748	-.05712	.09735	-.58673
3.900	6.100	-.27102	-.05430	.09791	-.01790	-.07268	-.07149	-.07748	-.05384	.09816	-.54844
	GRADIENT	-.00019	.00026	-.00001	-.00014	.00024	.00012	.00024	.00026	-.00001	.00265

RUN NO. 18/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.600	-4.025	.02245	-.05697	.09043	-.02068	-.05015	-.04859	-.05295	-.05700	.09041	-.63045
4.600	-1.988	.00813	-.05654	.09002	-.02077	-.05015	-.04859	-.05295	-.05656	.09001	-.62831
4.600	-.995	.00093	-.05638	.08962	-.02080	-.04688	-.04859	-.05620	-.05638	.08962	-.62911
4.600	-.001	.04584	-.05615	.08894	-.02083	-.05015	-.04859	-.05620	-.05622	.08889	-.63248
4.600	1.014	.03044	-.05590	.08939	-.02090	-.05015	-.04859	-.05620	-.05595	.08936	-.62615
4.600	2.008	.02446	-.05570	.08983	-.01932	-.04688	-.04859	-.05620	-.05574	.08980	-.62065
4.600	4.092	.02349	-.05536	.09055	-.02105	-.04688	-.04859	-.05295	-.05540	.09052	-.61200
4.600	6.078	.03881	-.05499	.09162	-.02116	-.04688	-.04859	-.05295	-.05505	.09159	-.60108
	GRADIENT	.00154	.00020	-.00000	.00003	.00039	.00000	-.00015	.00020	-.00000	.00218

GA-2D LARC UPWT 1097 - 140A/B ORBITER (1020D4) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .01X SCALE

PARAMETRIC DATA

ALPHA = 10.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPOBSP = 54.320 BDFLAP = -20.700

RUN NO. 7/ 0 FN/L = 2.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.900	-4.995	9.95285	.27693	.11234	-.01517	-.16622	-.17614	-.18747	.25334	.15 :	1.59828
2.900	-2.015	9.95223	.27467	.11183	-.01319	-.16271	-.17088	-.18049	.25125	.15764	1.59355
2.900	-1.004	9.96163	.27441	.11172	-.01317	-.16452	-.16917	-.18052	.25095	.15751	1.59324
2.900	.019	9.96224	.27253	.11176	-.01299	-.16443	-.16737	-.17524	.24907	.15725	1.58392
2.900	1.027	9.97922	.27457	.11196	-.01403	-.16621	-.16734	-.17696	.25102	.15785	1.59127
2.900	2.031	9.97915	.27467	.11199	-.01405	-.16372	-.17083	-.17694	.25111	.15790	1.59033
2.900	4.152	9.96983	.27635	.11275	-.01599	-.17505	-.17613	-.18746	.25268	.15849	1.59017
2.900	6.152	9.95641	.27701	.11219	-.01663	-.17841	-.17772	-.18732	.25344	.15839	1.60005
	GRADIENT	.00324	-.00005	.00005	-.00014	-.00119	.00005	.00125	-.00007	.00016	-.00068

RUN NO. 13/ 0 FN/L = 2.5 GRADIENT INTERVAL = -5.00/ 5.0

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.055	9.93389	.18456	.08246	-.01327	-.07523	-.07403	-.08001	.16745	.11324	1.47878
3.900	-1.934	9.95661	.18433	.08216	-.01368	-.07524	-.07404	-.07748	.16729	.11288	1.48200
3.900	-.977	9.96859	.18428	.08254	-.01368	-.07526	-.07404	-.07747	.16719	.11319	1.47711
3.900	.019	9.95644	.18417	.08245	-.01366	-.07524	-.07403	-.07747	.16708	.11314	1.47669
3.900	.998	9.97742	.18415	.08247	-.01365	-.07526	-.07404	-.07747	.16713	.11312	1.47661
3.900	2.013	9.97733	.18401	.08277	-.01365	-.07524	-.07404	-.07747	.16699	.11345	1.47171
3.900	4.093	9.96479	.18363	.08236	-.01385	-.07524	-.07404	-.08001	.16657	.11295	1.47467
3.900	6.093	9.94212	.18331	.08198	-.01434	-.07524	-.07403	-.08001	.16632	.11251	1.47829
	GRADIENT	-.00178	-.00011	.00002	.00014	-.00005	-.00000	.00006	-.00011	-.00006	-.00068

RUN NO. 19/ 0 FN/L = 2.5 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.600	-4.041	10.24132	.16980	.07355	-.01261	-.05015	-.04859	-.05620	.15382	.10283	1.50015
4.600	-2.018	10.23162	.16930	.07317	-.01258	-.05015	-.04859	-.05620	.15341	.10248	1.50487
4.600	-1.012	10.23153	.16916	.07274	-.01253	-.05342	-.04859	-.05621	.15355	.10263	1.51084
4.600	.009	10.23149	.16910	.07272	-.01251	-.05342	-.04859	-.05295	.15350	.10260	1.51075
4.600	1.012	10.22197	.16907	.07275	-.01251	-.05342	-.04859	-.05295	.15347	.10260	1.51059
4.600	2.025	10.22188	.16893	.07314	-.01249	-.05342	-.04859	-.05295	.15327	.10296	1.50325
4.600	4.068	10.23116	.16861	.07307	-.01243	-.05342	-.05165	-.05620	.15298	.10246	1.50157
4.600	6.041	10.24055	.16843	.07258	-.01243	-.05342	-.05165	-.05944	.15268	.10258	1.48845
	GRADIENT	-.00164	-.00011	-.00005	.00002	-.00048	-.00031	.00023	-.00017	-.00017	.00005

OA-20 LARC UPWT 1057 - 140A/B ORBITER (X22005) (11 DEC 73)

REFERENCE DATA

SREF = 2890.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0190 SCALE

PARAMETRIC DATA

ALPHA = 20.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 8/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.900	-4.103	20.32827	.65089	.09444	-.03142	-.18022	-.17953	-.18209	.57645	.31667	1.82034
2.900	-2.031	20.47384	.64842	.09634	-.02938	-.17844	-.17952	-.18311	.57376	.31706	1.80965
2.900	-1.026	20.48207	.64657	.09635	-.02829	-.18197	-.17950	-.18733	.57198	.31650	1.80721
2.900	.000	20.49447	.64805	.09647	-.02841	-.18021	-.17599	-.18384	.57326	.31725	1.80694
2.900	1.007	20.52576	.64829	.09641	-.02839	-.18018	-.17772	-.18381	.57333	.31760	1.80517
2.900	2.052	20.51383	.64703	.09604	-.02917	-.17849	-.17780	-.18389	.57235	.31669	1.80729
2.900	4.126	20.50319	.65148	.09439	-.03294	-.18017	-.18124	-.18732	.57715	.31660	1.82296
2.900	6.161	20.51473	.65424	.09310	-.03577	-.18729	-.18481	-.18208	.58012	.31648	1.83307
	GRADIENT	.00371	.00063	-.00002	-.00014	.00004	-.00004	-.00016	.00063	.00000	.00015

RUN NO. 14/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.037	20.32891	.50762	.07362	-.01651	-.07523	-.07403	-.08001	.45043	.24339	1.83558
3.900	-2.013	20.32958	.50698	.07425	-.01513	-.07524	-.07403	-.08001	.44960	.24578	1.82942
3.900	-1.016	20.31942	.50669	.07427	-.01503	-.07524	-.07404	-.07747	.44937	.24560	1.82969
3.900	.019	20.30930	.50650	.07366	-.01501	-.07524	-.07404	-.08001	.44945	.24488	1.83539
3.900	.997	20.32895	.50622	.07389	-.01496	-.07524	-.07404	-.08001	.44902	.24516	1.83155
3.900	2.013	20.32005	.50597	.07392	-.01364	-.07524	-.07404	-.08001	.44881	.24502	1.83171
3.900	4.085	20.32975	.50829	.07352	-.01632	-.07779	-.07403	-.07747	.45109	.24553	1.83717
3.900	6.096	20.32211	.51054	.07350	-.01647	-.07779	-.07658	-.08001	.45324	.24624	1.84066
	GRADIENT	-.00014	.00001	-.00003	.00009	-.00024	-.00000	.00016	.00002	-.00003	.00031

RUN NO. 20/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.600	-4.022	20.49629	.47932	.06710	-.01193	-.05342	-.05185	-.05620	.42548	.23068	1.84447
4.600	-2.005	20.50637	.47870	.06662	-.01180	-.05015	-.04859	-.05295	.42503	.23009	1.84720
4.600	-1.012	20.49571	.47845	.06666	-.01174	-.05015	-.04859	-.05295	.42482	.22997	1.84731
4.600	.019	20.49836	.48197	.06621	-.01204	-.05015	-.04859	-.05295	.42826	.23080	1.85558
4.600	.993	20.49822	.48175	.06661	-.01200	-.05015	-.04859	-.05295	.42792	.23109	1.85176
4.600	2.024	20.50856	.48152	.06655	-.01195	-.05342	-.05185	-.05620	.42769	.23103	1.85124
4.600	4.069	20.50811	.48084	.06654	-.01181	-.05342	-.04859	-.05944	.42716	.23078	1.85049
4.600	6.073	20.52755	.48031	.06680	-.01335	-.05342	-.04859	-.05620	.42639	.23098	1.84598
	GRADIENT	.00128	.00035	-.00006	-.00000	-.00016	.00015	-.00046	.00035	.00008	.00046

OA-20 LARC UPWT 1057 - 140A/B ORBITER (X02006) (11 DEC 73)

REFERENCE DATA

SREF = 7890.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 490.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ALPHA = 30.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPOBFF = 54.920 BOFLAP = -20.700

RUN NO. 9/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CFB	CFC	CFN	CL	CD	L/D
2.900	-4.082	31.13630	1.07054	.07394	-.04832	-.17312	-.16893	-.18208	.87809	.61684	1.42353
2.900	-2.036	31.07540	1.06962	.07297	-.04722	-.16426	-.16187	-.16814	.87867	.61462	1.42961
2.900	-1.027	31.05209	1.07086	.07316	-.04642	-.16431	-.16191	-.16383	.87966	.61504	1.43025
2.900	.991	31.12043	1.07262	.07274	-.04656	-.16430	-.16014	-.16408	.88066	.61664	1.42814
2.900	1.027	31.11999	1.07296	.07277	-.04650	-.16243	-.16135	-.15750	.88093	.61684	1.42815
2.900	2.036	31.12362	1.07601	.07271	-.04762	-.16429	-.16169	-.15929	.88354	.61842	1.42871
2.900	4.139	31.15640	1.07754	.07371	-.04942	-.17666	-.16892	-.16452	.88398	.62057	1.42446
2.900	6.166	31.19016	1.07635	.07514	-.04835	-.18138	-.17593	-.16927	.88185	.62170	1.41846
	GRADIENT	.00595	.00099	-.00004	-.00012	-.00030	.00004	.00232	.00080	.00057	-.00001

RUN NO. 15/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CFB	CFC	CFN	CL	CD	L/D
3.900	-4.038	30.76475	.91185	.06754	-.02351	-.07523	-.07403	-.08001	.74838	.52446	1.42658
3.900	-2.014	30.75452	.91365	.06696	-.02464	-.07524	-.07404	-.08001	.75095	.52470	1.43120
3.900	-1.017	30.73228	.91334	.06697	-.02476	-.07524	-.07404	-.07747	.75085	.52430	1.43209
3.900	-.001	30.75672	.91599	.06718	-.02497	-.07523	-.07149	-.07747	.75260	.52617	1.43072
3.900	.996	30.75774	.91572	.06718	-.02364	-.07268	-.07149	-.07494	.75256	.52604	1.43061
3.900	2.013	30.76844	.91552	.06714	-.02358	-.07267	-.07148	-.07747	.75231	.52604	1.43012
3.900	4.085	30.75953	.91739	.06746	-.02367	-.07524	-.07404	-.07747	.75384	.52715	1.43091
3.900	6.096	30.75868	.91650	.06811	-.02347	-.07779	-.07403	-.07747	.75274	.52725	1.42769
	GRADIENT	.00076	.00166	.00001	.00007	.00018	.00018	.00042	.00056	.00036	.00009

RUN NO. 21/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CFB	CFC	CFN	CL	CD	L/D
4.600	-4.023	30.84746	.86351	.06283	-.01976	-.05342	-.04859	-.05620	.70914	.49672	1.42765
4.600	-2.006	30.83964	.86639	.06288	-.01830	-.05342	-.04859	-.05620	.71165	.49813	1.42864
4.600	-1.013	30.81571	.86597	.06255	-.01982	-.05342	-.04859	-.05295	.71167	.49734	1.43095
4.600	.018	30.81550	.86566	.06254	-.01975	-.05342	-.04859	-.05620	.71140	.49717	1.43092
4.600	1.013	30.79347	.86555	.06262	-.01979	-.05342	-.04859	-.05620	.71147	.49691	1.43160
4.600	2.005	30.79328	.86526	.06302	-.01965	-.05342	-.04859	-.05620	.71101	.49719	1.43033
4.600	4.069	30.7914	.86427	.06341	-.02108	-.05015	-.04859	-.05295	.70998	.49691	1.42880
4.600	6.071	30.80163	.86334	.06378	-.02090	-.05342	.04859	-.05620	.70890	.49687	1.42673
	GRADIENT	-.00798	.00101	.00006	-.00019	.00031	.00000	.00023	.00004	-.00004	.00021

OA-25 LARC UPWT 1057 - 140A/B ORBITER (XB2007) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 474.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 24/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.900	-4.014	-.00225	-.30946	.17849	.57427	-.13326	-.13090	-.15116	-.29338	.20384	-1.43931
2.900	-3.438	-.00196	-.26169	.17415	.57009	-.13845	-.13431	-.15281	-.25098	.18955	-1.32410
2.900	-1.659	-.00100	-.20187	.16852	.56384	-.14735	-.14141	-.15986	-.19690	.17429	-1.12974
2.900	-.595	-.00017	-.16189	.16500	.56024	-.15094	-.14851	-.16458	-.16016	.15687	-.98094
2.900	.438	-.00040	-.12800	.16128	.55548	-.15623	-.15252	-.17392	-.12922	.16029	-.80617
2.900	1.474	-.00018	-.09215	.15698	.55140	-.15627	-.15599	-.17571	-.09611	.15456	-.62184
2.900	2.537	.00123	-.05628	.15216	.54845	-.15907	-.15563	-.17924	-.06297	.14952	-.42111
2.900	3.576	-.00019	-.02269	.14757	.54346	-.15831	-.15387	-.18170	-.03185	.14586	-.21838
2.900	5.624	-.00081	.04452	.14125	.54094	-.15986	-.15740	-.17400	.03047	.14488	.21031
2.900	7.778	.00014	.10582	.13671	.54075	-.15804	-.15599	-.17396	.08635	.14977	.57652
2.900	9.890	-.00148	.17908	.13275	.54109	-.15810	-.15742	-.17926	.15362	.16154	.95099
2.900	15.148	-.00182	.36662	.11922	.53449	-.16340	-.16093	-.17925	.32272	.21098	1.53037
2.900	20.470	-.00226	.55967	.10646	.52805	-.17043	-.16793	-.18273	.48710	.29546	1.64860
2.900	25.792	-.00198	.76714	.09327	.52615	-.17470	-.16974	-.18626	.65050	.41794	1.55646
2.900	31.085	-.00259	.96778	.08424	.52804	-.17757	-.17329	-.18804	.78551	.57154	1.37437
2.900	36.520	-.00431	1.19201	.07776	.52728	-.17760	-.17156	-.18631	.91487	.78783	1.19123
2.900	41.829	-.00478	1.41154	.06299	.52469	-.17043	-.16623	-.17927	1.01018	.98786	1.02259
2.900	44.594	-.00551	1.51689	.05851	.52418	-.16694	-.16622	-.17925	1.03910	1.10664	.93897
	GRADIENT	.00034	.03433	-.00366	-.00378	-.00702	-.00322	-.00399	.03134	-.00688	.14701

RUN NO. 22/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.415	.01605	-.21315	.13419	.01873	-.06599	-.06441	-.07548	-.20219	.15020	-1.34616
3.900	-3.381	.01619	-.16406	.13016	.01881	-.06617	-.06443	-.07590	-.17685	.13981	-1.26498
3.900	-1.332	.01634	-.14641	.12497	.01944	-.06818	-.06770	-.07551	-.14347	.12834	-1.11785
3.900	-.313	.01604	-.12041	.12123	.01853	-.06816	-.06697	-.07402	-.11995	.12188	-.98413
3.900	.898	.01614	-.09770	.11777	.01784	-.06815	-.06696	-.07402	-.09893	.11658	-.84864
3.900	1.872	.01625	-.07445	.11514	.01843	-.07070	-.06695	-.07401	-.07777	.11292	-.68877
3.900	2.793	.01637	-.04848	.11253	.01873	-.07089	-.06694	-.07547	-.05391	.11003	-.48994
3.900	3.799	.01649	-.02298	.11007	.01777	-.07089	-.06694	-.07547	-.03022	.10830	-.27899
3.900	5.858	.01672	.02816	.10526	.01837	-.07089	-.06949	-.07401	.01727	.10759	.16054
3.900	7.931	.01592	.07926	.10251	.01894	-.07326	-.06950	-.07401	.06443	.11197	.57541
3.900	9.954	.01617	.13331	.09995	.02048	-.07326	-.06950	-.07401	.11409	.12114	.94180
3.900	15.127	.01641	.28486	.09189	.02312	-.07326	-.07205	-.08054	.25234	.16357	1.54636
3.900	20.313	.01515	.45597	.08430	.02388	-.07326	-.07205	-.08055	.39835	.23734	1.67839
3.900	25.514	.01648	.63660	.07915	.02852	-.07326	-.07205	-.08055	.54042	.34564	1.56356
3.900	30.736	.01570	.83449	.07460	.03219	-.07326	-.07205	-.07401	.67914	.49061	1.38428
3.900	35.969	.01573	1.05227	.06966	.03750	-.07326	-.06950	-.07401	.81073	.67443	1.20211
3.900	41.240	.01562	1.27285	.06360	.03882	-.06814	-.06695	-.07547	.91577	.88705	1.03239
3.900	45.384	.01462	1.38437	.05957	.03933	-.06302	-.06441	-.07401	.93465	1.00428	.93042
	GRADIENT	.00004	.02319	-.00250	-.00011	-.00057	-.00033	-.00003	.02199	-.00519	.12342

OA-25 LARC UPWT 1057 - 140A/B ORBITER (X02007) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 474.8117 IN. YMRP = .0000 IN.
BREF = 936.6810 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.32? BDFLAP = -20.700

RUN NO. 23/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.600	-4.063	.01627	-.20240	.13299	.01401	-.04446	-.04284	-.03367	-.19247	.14700	-1.30934
4.600	-2.758	.01637	-.17601	.12715	.01523	-.04437	-.04281	-.03365	-.17[illegible]	.13545	-1.29900
4.600	-1.[illegible]2	.01711	-.13927	.11975	.01352	-.04437	-.04281	-.03365	-.13419	.12215	-1.09873
4.600	.011	.01617	[illegible]	.11444	.01300	-.04764	-.04281	-.03365	[illegible]	.11442	-.96428
4.600	1.013	.01606	-.0[illegible]448	.11196	.01185	-.04433	-.04277	-.03363	-.0[illegible]662	.10943	-.79154
4.600	2.[illegible]	.01694	-.0[illegible]24[illegible]	.1[illegible]791	.01000	-.04437	-.04281	-.03365	-.0[illegible]	.10982	-.62673
4.600	3.044	.01[illegible]	[illegible]	.1[illegible]447	.01142	-.04437	-.04281	-.03365	-.04584	.10236	-.44781
4.600	4.[illegible]77	.01711	-.01272	.10[illegible]37	.01164	-.04764	-.04616	-.03365	-.02[illegible]	.10[illegible]36	-.25822
4.600	6.117	.01703	.03183	.09558	.01074	-.04764	-.04616	-.03365	.02193	.09941	.21674
4.600	8.148	.01748	.07872	.0917[illegible]	.01157	-.04437	-.04616	-.03365	.06433	.10193	.63772
4.600	10.2[illegible]	.01[illegible]24	.12[illegible]33	.08774	.0136[illegible]	-.04764	-.04616	-.03[illegible]	.11178	.10826	1.0[illegible]
4.600	15.325	.01790	.27751	.0[illegible]11[illegible]	.01566	-.04764	-.04616	-.03[illegible]	.2457[illegible]	.15158	1.62483
4.600	20.477	.01703	.4[illegible]	.07111	.02114	-.0[illegible]	-.04932	-.03[illegible]	.33446	.22470	1.71484
4.600	25.644	.01687	.61415	.07011	.02792	-.04764	-.04616	-.03[illegible]	.52245	.33[illegible]73	1.57935
4.600	30.[illegible]	.01755	.8[illegible]437	.0[illegible]	.03142	-.0[illegible]	-.04932	-.03[illegible]	.65526	.47162	1.38[illegible]
4.600	35.575	.01735	1.0[illegible]	.06654	.03396	-.0[illegible]	-.049[illegible]	-.03[illegible]	.77454	.54730	1.2[illegible]75
4.600	41.102	.01[illegible]4	1.22[illegible]72	.06131	.03598	-.04437	-.04616	-.03365	.87454	.84372	1.03385
4.600	43.475	.01637	1.32[illegible]	.0[illegible]7[illegible]	.02[illegible]	-.04437	-.04281	-.03[illegible]41	.91635	.96[illegible]24	.95429
	GRADIENT	.00[illegible]	.02934	-.00326	-.00[illegible]57	-.00[illegible]	-.00[illegible]22	.00[illegible]	.02[illegible]	-.00[illegible]73	.13[illegible]

DATE 10 JAN 74 TABULATED SOURCE DATA - OA25

OA-25 LARC UPWT 1057 - 140A/B ORBITER (AEP008) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 474.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = 10.000

RUN NO. 25/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
2.990	-4.731	-.00299	-.14902	.13808	-.02932	-.16177	-.15578	-.17412	-.13115	.14941	-.87779
2.990	-3.314	-.00270	-.09724	.13785	-.03175	-.16172	-.15596	-.17758	-.09011	.14324	-.62210
2.990	-1.984	-.00255	-.04334	.13725	-.03576	-.16348	-.15744	-.18284	-.03953	.13838	-.28564
2.990	-.927	-.00256	-.00743	.13680	-.03903	-.16347	-.15923	-.18633	-.00417	.13666	-.04516
2.990	.816	-.00276	.02644	.13800	-.04254	-.15844	-.15930	-.18287	.02552	.13628	.18399
2.990	1.545	.00004	.05635	.13547	-.04476	-.15845	-.15755	-.18638	.05288	.13664	.38472
2.990	2.690	-.00238	.08021	.13535	-.04870	-.15956	-.15933	-.18989	.08379	.13934	.60134
2.990	3.437	-.00241	.12572	.13455	-.05180	-.16174	-.15927	-.18666	.11434	.14213	.80468
2.990	5.780	-.00319	.18475	.13214	-.05227	-.16175	-.15927	-.18285	.18050	.15174	1.18487
2.990	7.040	-.00218	.24343	.13006	-.06131	-.16177	-.16036	-.18112	.24154	.16434	1.47462
2.990	9.982	-.00173	.33471	.12789	-.06787	-.19003	-.16136	-.17539	.32348	.18432	1.67895
2.990	15.243	-.00346	.52218	.12547	-.08582	-.16275	-.16573	-.18111	.47335	.25844	1.83744
2.990	20.399	-.00444	.74270	.12362	-.11124	-.17219	-.16647	-.18072	.65162	.37642	1.73109
2.990	25.932	-.00378	.97765	.11890	-.13471	-.17222	-.16971	-.18095	.82726	.53447	1.54782
2.990	31.231	-.00447	1.21194	.11547	-.16172	-.18519	-.18794	-.17402	.97555	.72680	1.34288
2.990	36.544	-.00463	1.44228	.11380	-.19554	-.17408	-.16977	-.18174	1.11912	.94429	1.19519
2.990	41.958	-.00431	1.70000	.11213	-.23857	-.18292	-.17024	-.18017	1.21895	1.24473	.97772
2.990	44.790	-.00722	1.87528	.10917	-.25166	-.18113	-.17458	-.18430	1.25493	1.39777	.89781
	GRADIENT	.00013	.03174	-.00045	-.00273	-.00035	-.00024	-.00184	.02923	-.00068	.27744

RUN NO. 26/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.950	-4.413	-.00284	-.12275	.10700	-.03752	-.07143	-.07012	-.07554	-.11413	.11632	-.98119
3.950	-3.049	-.00292	-.08444	.10903	-.03587	-.07147	-.07016	-.07554	-.07876	.11300	-.82499
3.950	-1.288	-.00233	-.03415	.10474	-.03685	-.07144	-.07013	-.07849	-.03344	.10294	-.52332
3.950	-.276	-.00326	-.01390	.10029	-.03404	-.07144	-.07013	-.08012	-.01341	.10044	-.35245
3.950	.784	-.00319	-.01273	.09804	-.03478	-.07599	-.07012	-.07842	-.01411	.09878	-.14284
3.950	1.782	-.00304	.01134	.09808	-.03793	-.07143	-.07012	-.07842	.00731	.09824	.07437
3.950	2.879	-.00397	.03333	.09735	-.03927	-.07599	-.07012	-.07842	.02833	.09887	.28441
3.950	3.852	-.00345	.05884	.09887	-.03927	-.07142	-.07011	-.07844	.05221	.10040	.52021
3.950	5.900	-.00359	.11272	.09507	-.04025	-.07144	-.07013	-.07844	.10233	.10413	.98419
3.950	7.937	-.00275	.16888	.09419	-.04224	-.07599	-.07012	-.08011	.15928	.11831	1.30753
3.950	10.003	-.00390	.22833	.09377	-.04795	-.07599	-.07012	-.08011	.20440	.13167	1.54959
3.950	15.152	-.00318	.39432	.09415	-.04399	-.07599	-.07012	-.08011	.35734	.15444	1.64142
3.950	20.342	-.00275	.58814	.09483	-.08204	-.07599	-.07012	-.07844	.51814	.23430	1.70153
3.950	25.423	-.00281	.80904	.09094	-.11357	-.07143	-.07012	-.07595	.68112	.43734	1.54193
3.950	30.785	-.00390	1.03341	.10345	-.12714	-.07143	-.07012	-.07541	.83118	.61800	1.35142
3.950	36.108	-.00371	1.29143	.10831	-.15515	-.07599	-.07012	-.07541	.97871	.84758	1.15418
3.950	41.293	-.00415	1.54490	.11165	-.18377	-.07143	-.07012	-.07554	1.08773	1.03342	.98515
3.950	44.018	-.00424	1.47472	.11755	-.20424	-.07143	-.07012	-.07559	1.15902	1.24554	.90752
	GRADIENT	-.00018	.02199	-.00150	-.00024	-.00018	.00000	-.00032	.02017	-.00138	.18441

OA-20 LARC UPWT 1057 - 140A/B ORBITER , (X020D0) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4000 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0139 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BOFLAP = 10.200

RUN NO. 27/ 5 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.000	-4.051	-.00254	-.11791	.10305	-.03096	-.04859	-.04363	-.05427	-.10824	.11097	-.97536
4.000	-2.740	-.00244	-.08140	.09956	-.03784	-.04859	-.04363	-.05427	-.08504	.10374	-.81974
4.000	-.979	-.00171	-.05295	.09534	-.03786	-.04859	-.04363	-.05427	-.05131	.09624	-.53319
4.000	.954	-.00163	-.03084	.09380	-.03795	-.04856	-.04359	-.05425	-.03092	.09377	-.32977
4.000	1.976	-.00257	-.00666	.09205	-.03843	-.04882	-.04363	-.05427	-.01039	.09187	-.11306
4.000	2.971	-.00250	.00567	.09098	-.03805	-.04859	-.04363	-.05427	.00657	.09128	.07200
4.000	3.992	-.00241	.03554	.08937	-.03864	-.04859	-.04363	-.05427	.03487	.09118	.33645
4.000	4.989	-.00232	.05715	.08846	-.03889	-.04859	-.04688	-.05750	.05368	.09229	.54916
4.000	6.202	-.00154	.10741	.08607	-.04166	-.05186	-.04688	-.05427	.09749	.09717	1.00328
4.000	8.199	-.00135	.15815	.08493	-.04292	-.04856	-.04685	-.05425	.14437	.10661	1.35424
4.000	10.226	-.00216	.21552	.08412	-.04799	-.04859	-.04688	-.05427	.19716	.12104	1.62885
4.000	15.346	-.00194	.38903	.08578	-.06186	-.04859	-.04688	-.05103	.34860	.18462	1.88817
4.000	20.556	-.00126	.57179	.08866	-.07793	-.04856	-.04685	-.05101	.50425	.28378	1.77694
4.000	25.743	-.00158	.77842	.09275	-.09754	-.04859	-.04688	-.05103	.66087	.42164	1.56737
4.000	30.882	-.00185	.99642	.09915	-.12569	-.04856	-.04685	-.05101	.80621	.59723	1.34991
4.000	36.038	-.00189	1.24247	.10455	-.15907	-.04856	-.04685	-.05101	.94361	.81502	1.15778
4.000	41.230	-.00254	1.48436	.10716	-.18210	-.04859	-.04688	-.05103	1.04627	1.03835	.98859
4.000	43.954	-.00279	1.61462	.10598	-.21478	-.04859	-.04363	-.05103	1.08881	1.19697	.90964
	GRADIENT	-.00001	.02126	-.00177	-.00004	.00004	-.00022	-.00022	.01956	-.02229	.19048

OA-2D LARC UPWT 1037 - 140A/B ORBITER (X02009) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4000 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0190 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPOBAK = 54.920 BDFLAP = 10.300

RUN NO. 28/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
3.900	-4.440	-.00273	-.13664	.10440	-.02215	-.06793	-.06914	-.07998	-.12815	.11467	-1.11756
3.900	-3.030	-.00261	-.11056	.10181	-.02178	-.06795	-.06916	-.08252	-.10502	.10752	-.97681
3.900	-1.272	-.00245	-.07568	.09753	-.01835	-.06797	-.06918	-.08252	-.07349	.09919	-.74096
3.900	-.271	-.00234	-.05263	.09541	-.01907	-.06796	-.06917	-.08252	-.05218	.09566	-.54544
3.900	.747	-.00224	-.03237	.09384	-.01828	-.06796	-.06917	-.08253	-.03359	.09341	-.35959
3.900	1.743	-.00213	-.00928	.09242	-.01773	-.06795	-.06915	-.08252	-.01209	.09210	-.13130
3.900	2.824	-.00206	.01375	.09129	-.01719	-.06794	-.06914	-.08251	.00923	.09185	.10052
3.900	3.867	-.00295	.03644	.08999	-.01537	-.07050	-.06915	-.08252	.03029	.09224	.32836
3.900	5.878	-.00376	.08460	.08704	-.01581	-.06794	-.06914	-.08515	.07525	.09524	.79007
3.900	7.916	-.00351	.13855	.08486	-.01554	-.06795	-.06916	-.08515	.12554	.10313	1.21731
3.900	10.012	-.00325	.19538	.08313	-.01682	-.06794	-.06915	-.08252	.17795	.11583	1.53624
3.900	15.184	-.00298	.35136	.07889	-.02588	-.07305	-.06914	-.08251	.31843	.16816	1.89357
3.900	20.397	-.00361	.53451	.07554	-.03143	-.07049	-.07169	-.08251	.47466	.25708	1.84631
3.900	25.562	-.00274	.73156	.07259	-.03885	-.07050	-.07175	-.08252	.62863	.38115	1.64931
3.900	30.791	-.00384	.95174	.07036	-.05261	-.06795	-.06915	-.07999	.78156	.54765	1.42711
3.900	36.085	-.00369	1.19131	.06852	-.06860	-.07050	-.06915	-.07998	.92239	.75705	1.21840
3.900	41.405	-.00409	1.44246	.06490	-.08806	-.06795	-.06915	-.07998	1.03950	1.00269	1.03621
3.900	44.004	-.00402	1.55931	.06135	-.10325	-.06795	-.06661	-.07999	1.07830	1.12739	.95706
	GRADIENT	-.00002	.02100	-.00177	.00076	-.00017	.00000	-.00026	.01925	-.00275	.17756

RUN NO. 29/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CPB	CPC	CPN	CL	CD	L/D
4.000	-4.064	-.00259	-.12640	.10087	-.02652	-.04586	-.04563	-.06265	-.11094	.10957	-1.08548
4.000	-2.699	-.00249	-.10072	.09683	-.02540	-.04410	-.04560	-.06264	-.09604	.10147	-.94655
4.000	-.987	-.00237	-.06720	.09199	-.02180	-.04413	-.04563	-.05942	-.06561	.09314	-.70449
4.000	.082	-.00195	-.04505	.08942	-.02181	-.04413	-.04563	-.06265	-.04515	.08937	-.50519
4.000	1.027	-.00163	-.02653	.08772	-.02010	-.04413	-.04563	-.05942	-.02610	.08723	-.32208
4.000	2.081	-.00154	-.00458	.08594	-.02033	-.04413	-.04563	-.06265	-.00750	.08573	-.08749
4.000	3.140	-.00146	.01768	.08418	-.01895	-.04413	-.04563	-.05942	.01304	.08502	.15338
4.000	4.180	-.00138	.03931	.08238	-.01758	-.04410	-.04560	-.05947	.03523	.08502	.39091
4.000	6.139	-.00122	.08239	.07870	-.01640	-.04413	-.04563	-.05942	.07350	.08706	.84424
4.000	8.207	-.00103	.13302	.07640	-.01597	-.04410	-.04560	-.05941	.12075	.09480	1.27636
4.000	10.253	-.00127	.18693	.07397	-.01584	-.04739	-.04563	-.05942	.17277	.10696	1.61510
4.000	15.399	-.00174	.33423	.07154	-.01980	-.04413	-.04563	-.05942	.31726	.15647	1.93897
4.000	20.546	-.00213	.51325	.06877	-.02649	-.04413	-.04563	-.05942	.45646	.24453	1.86672
4.000	25.642	-.00145	.70287	.06754	-.03301	-.04413	-.04563	-.05942	.67443	.36515	1.85573
4.000	30.805	-.00277	.91413	.06682	-.04564	-.04413	-.04563	-.05942	.75095	.52554	1.42891
4.000	36.016	-.00140	1.14679	.06566	-.06369	-.04413	-.04563	-.05942	.84697	.72744	1.22215
4.000	41.219	-.00246	1.37962	.06247	-.08527	-.04413	-.04563	-.05942	.93658	.95607	1.04237
4.000	43.943	-.00145	1.49692	.05864	-.10522	-.04586	-.04234	-.05614	1.03657	1.08239	.95952
	GRADIENT	-.00017	.02010	-.00222	.00105	-.00025	.00000	.00034	.01855	-.00297	.16228

OA-20 LARC UPWT 1057 - 140A/B ORBITER (Z02001) (11 DEC 73)

REFERENCE DATA

SREF = 2090.0000 SQ.FT. XMRP = 1076.4600 IN.
LREF = 476.0117 IN. YMRP = .0000 IN.
BREF = 956.6616 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 4/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLN	CBL	CYN	CY	CPB	CPC	CPN
2.900	-4.736	-.00233	-.16406	.13153	.00815	-.00036	.00089	.00016	-.15540	-.15303	-.16627
2.900	-3.378	-.00102	-.14193	.13036	.00691	-.00054	.00075	-.00084	-.15370	-.15487	-.16458
2.900	-1.601	-.00010	-.08995	.12873	.00399	-.00044	.00059	-.00113	-.15016	-.15311	-.16985
2.900	-.531	-.00150	-.05594	.12770	.00180	-.00036	.00076	-.00052	-.15201	-.15318	-.17341
2.900	.495	.00032	-.02404	.12624	-.00019	-.00034	.00062	-.00148	-.15011	-.15482	-.17156
2.900	1.803	-.00155	.00992	.12501	-.00237	-.00027	.00057	-.00011	-.15365	-.15483	-.17156
2.900	2.724	-.00072	.04375	.12414	-.00455	-.00017	.00039	-.00030	-.15900	-.15838	-.17685
2.900	3.656	.00003	.06944	.12306	-.00600	-.00017	.00022	-.00045	-.16075	-.16013	-.17859
2.900	5.710	-.00059	.13481	.11938	-.00928	.00007	.00022	-.00002	-.16073	-.16364	-.18033
2.900	7.870	.00041	.20205	.11523	-.01095	-.00010	.00006	-.00036	-.16074	-.16365	-.17859
2.900	9.938	-.00123	.27113	.11145	-.01194	-.00011	.00001	.00085	-.16435	-.16548	-.17688
2.900	15.245	-.00056	.45252	.10449	-.01901	.00005	-.00013	.00071	-.17498	-.17430	-.18340
2.900	20.514	-.00065	.64549	.09612	-.02732	.00042	-.00030	.00128	-.18026	-.17428	-.18388
2.900	25.998	-.00084	.86320	.08425	-.03806	.00070	-.00068	.00248	-.17673	-.17429	-.18214
2.900	31.124	-.00041	1.07347	.07267	-.04581	.00106	-.00123	.00295	-.16437	-.16121	-.16814
2.900	36.631	-.00174	1.31196	.06402	-.05672	-.00018	.00047	.00143	-.17321	-.16550	-.17690
2.900	41.857	-.00131	1.54213	.05539	-.07446	.00078	-.00092	.00302	-.17498	-.16726	-.16989
2.900	46.688	-.00365	1.66640	.05117	-.08211	.00103	-.00097	.00473	-.17676	-.16727	-.16815
	GRADIENT	.00016	.03038	-.00103	-.00176	.00004	-.00005	-.00000	-.00063	-.00070	-.00151

RUN NO. 10/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLN	CBL	CYN	CY	CPB	CPC	CPN
3.900	-4.423	.01803	-.13957	.10438	-.02189	.00010	.00086	-.00152	-.07268	-.06894	-.07747
3.900	-3.045	.01815	-.11390	.10172	-.02028	.00010	.00087	-.00165	-.07267	-.07148	-.07747
3.900	-1.267	.01832	-.07872	.09773	-.01812	-.00001	.00088	-.00082	-.07267	-.07148	-.07747
3.900	-.264	.01842	-.05551	.09552	-.01756	-.00001	.00088	-.00094	-.07268	-.07147	-.08001
3.900	.722	.01852	-.03522	.09373	-.01674	-.00001	.00089	-.00104	-.07014	-.06896	-.08002
3.900	1.760	.01862	-.01203	.09208	-.01492	.00000	.00090	-.00115	-.07013	-.06895	-.08002
3.900	2.800	.01932	.01100	.09082	-.01439	.00000	.00063	-.00129	-.07268	-.07149	-.07747
3.900	3.838	.01943	.03373	.08969	-.01386	.00012	.00064	-.00141	-.07523	-.07148	-.08000
3.900	5.883	.01861	.07907	.08684	-.01148	-.00003	.00060	-.00050	-.07523	-.07148	-.08000
3.900	7.930	.01781	.13019	.08401	-.01092	.00007	.00056	.00036	-.07267	-.07148	-.07747
3.900	9.966	.01806	.18423	.08217	-.01066	.00006	.00058	.00008	-.07267	-.07148	-.07747
3.900	15.147	.01831	.33738	.07797	-.01190	.00003	.00032	.00041	-.07523	-.07403	-.08001
3.900	20.367	.01866	.51222	.07368	-.01556	.00031	.00007	.00062	-.07523	-.07403	-.08001
3.900	25.530	.01846	.70110	.06962	-.01809	.00057	.00010	.00081	-.07268	-.07403	-.07747
3.900	30.718	.01834	.91036	.06671	-.02441	.00048	.00014	.00091	-.07267	-.07148	-.07747
3.900	36.072	.01788	1.14727	.06379	-.03251	.00087	-.00014	.00198	-.07268	-.07148	-.07494
3.900	41.254	.01710	1.38236	.05912	-.04395	.00102	-.00041	.00306	-.07523	-.07148	-.07493
3.900	43.940	.01749	1.50471	.05456	-.05338	.00116	-.00067	.00354	-.07267	-.07148	-.07494
	GRADIENT	.00017	.02115	-.00183	.00100	-.00001	-.00003	-.00011	-.00006	-.00009	-.00027

OA-20 LARC UPWT 1057 - 140A/B ORBITER (2020001) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4000 IN.
LREF = 478.8117 IN. YMRP = .0000 IN.
BREF = 956.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0190 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BODY AP = -20.700

RUN NO. 16/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
4.600	-4.036	-.00056	-.13399	.10058	-.02990	.00046	.00077	-.00069	-.04688	-.04533	-.05620
4.600	-2.724	-.00046	-.10803	.09670	-.02313	.00030	.00077	-.00101	-.05015	-.04859	-.05295
4.600	-.980	-.00032	-.07095	.09168	-.02131	.00031	.00079	-.00120	-.05015	-.04859	-.05295
4.600	.033	-.00000	-.05246	.08940	-.02119	.00030	.00037	.00011	-.04688	-.04859	-.05620
4.600	1.030	-.00062	-.03389	.08754	-.01946	.00031	.00037	.00002	-.04688	-.04859	-.05620
4.600	2.050	-.00056	-.01532	.08552	-.01773	.00031	.00038	-.00007	-.05015	-.04859	-.05620
4.600	3.107	-.00047	.00676	.08336	-.01796	.00047	.00039	-.00019	-.05015	-.04859	-.05620
4.600	4.135	-.00142	.02830	.08181	-.01655	.00029	.00032	.00114	-.05015	-.04859	-.05620
4.600	6.123	-.00126	.07165	.07822	-.01378	.00042	.00034	.00193	-.05015	-.04859	-.05620
4.600	8.172	-.00109	.11654	.07513	-.01134	.00025	.00035	.00170	-.05015	-.04859	-.05620
4.600	10.226	-.00029	.17285	.07277	-.01124	.00039	.00002	.00039	-.05015	-.04859	-.05295
4.600	15.399	.00025	.32587	.06956	-.01161	.00051	.00008	-.00037	-.05015	-.04859	-.05295
4.600	20.471	.00041	.48563	.06675	-.01238	.00054	-.00027	.00021	-.05015	-.04859	-.05620
4.600	25.716	.00004	.67192	.06449	-.01372	.00047	-.00026	.00072	-.05015	-.04859	-.05295
4.600	30.622	-.00029	.87305	.06332	-.01884	.00073	-.00024	.00116	-.05015	-.04859	-.05295
4.600	36.034	-.00097	1.09911	.06165	-.02992	.00138	-.00062	.00206	-.05015	-.04859	-.05620
4.600	41.165	-.00063	1.32196	.05662	-.04378	.00189	-.00092	.00314	-.05015	-.04859	-.05620
4.600	43.930	-.00183	1.44169	.05190	-.05566	.00189	-.00057	.00398	-.05015	-.04859	-.05620
	GRADIENT	-.00007	.01988	-.00229	.00108	-.00000	-.00007	.00022	-.00023	-.00026	-.00025

OA-20 LARC UPWT 1057 - 140A/B ORBITER (ZOZ002) (11 DEC 73)

REFERENCE DATA

SREF	2690.0000 SQ.FT.	XMRP =	1076.4000 IN.
LREF =	474.8117 IN.	YMRP =	.0000 IN.
BREF =	936.6816 IN.	ZMRP =	400.0000 IN.
SCALE =	.0150 SCALE		

PARAMETRIC DATA

BETA =	5.000	ELEVTR =	.000
AILRON =	.000	RUDDER =	.000
SPDBRK =	54.920	BDFLAP =	-20.700

RUN NO. 57/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
2.500	-4.021	5.00949	-.19915	.13201	.00635	-.00205	.00579	-.06701	-.14649	-.14968	-.16817
2.500	-3.337	5.04733	-.15122	.13054	.00328	-.00189	.00510	-.06421	-.14924	-.14966	-.17166
2.500	-1.567	5.06436	-.00557	.12925	.00069	-.00182	.00436	-.06067	-.15555	-.15319	-.17516
2.500	-.524	5.05363	-.05941	.12456	-.00062	-.00174	.00392	-.05911	-.15733	-.15497	-.1793
2.500	.485	5.06196	-.02256	.12745	-.00339	-.00175	.00345	-.05719	-.15908	-.15495	-.17516
2.500	1.544	5.07025	.00057	.12655	-.00480	-.00159	.00297	-.05506	-.16066	-.15840	-.17692
2.500	2.616	5.07954	.05814	.12500	-.00676	-.00160	.00253	-.05371	-.15910	-.16201	-.17517
2.500	3.625	5.07629	.06753	.12963	-.00942	-.00178	.00228	-.05232	-.16088	-.16378	-.16993
2.500	5.730	5.07659	.13272	.12032	-.01091	-.00205	.00166	-.05114	-.16733	-.16723	-.17167
2.500	7.641	5.07584	.20153	.11847	-.01273	-.00254	.00097	-.04833	-.17190	-.17004	-.17695
2.500	9.957	5.07597	.27284	.11242	-.01346	-.00318	.00054	-.04714	-.17324	-.17261	-.18396
2.500	15.210	5.07615	.45551	.10523	-.02103	-.00372	-.00273	-.04053	-.16033	-.18140	-.19095
2.500	20.490	5.07752	.65169	.09525	-.02944	-.00346	-.00715	-.03244	-.17657	-.17768	-.16335
2.500	25.876	5.08211	.86522	.08359	-.03815	-.00351	-.01112	-.02756	-.17504	-.17261	-.17471
2.500	31.169	5.08260	1.08127	.07327	-.04398	-.00417	-.01169	-.02650	-.17148	-.16554	-.16468
2.500	36.547	5.08369	1.31364	.06446	-.05847	-.00699	-.00734	-.03622	-.17148	-.16378	-.16818
2.500	41.945	5.09779	1.55432	.05665	-.07633	-.00869	-.00642	-.03457	-.16832	-.17259	-.16818
2.500	44.633	5.07451	1.66480	.05504	-.08407	.00726	-.00694	-.03977	-.16564	-.17769	-.17346
	GRADIENT	-.00133	.03123	-.00060	-.00179	.00004	-.00042	.00176	-.00153	-.00174	-.00044

RUN NO. 117/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
3.950	-4.375	5.03464	-.13847	.10468	-.02214	.00084	.00344	-.05207	-.06756	-.06894	-.08001
3.950	-3.023	5.03375	-.11249	.10174	-.02049	.00035	.00343	.05107	-.06756	-.06894	-.07747
3.950	-1.274	5.03183	-.07795	.09827	-.01095	-.00028	.00332	-.04900	-.07012	-.07148	-.07747
3.950	-.289	5.03148	-.05781	.09654	-.01746	-.00065	.00293	-.0464	-.07267	-.07148	-.07433
3.950	.745	5.03113	-.03758	.09462	-.01535	-.00091	.00267	-.04659	-.07011	-.07148	-.07747
3.950	1.781	5.03021	-.01450	.09265	-.01477	.00016	.00261	.04537	-.07012	-.07149	-.07747
3.950	2.823	5.03013	.01124	[illegible]	-.01573	-.00152	.00262	-.0461	-.07012	-.07149	-.07747
3.950	3.823	5.02944	[illegible]	[illegible]	-.01816	-.00173	.00224	-.04349	-.07267	-.07149	-.07747
3.950	5.848	5.02872	.07762	.08659	-.01276	-.00253	.00192	-.04309	-.07524	-.07143	-.07744
3.950	7.946	5.02744	.12097	.08427	-.01217	-.00270	.00155	-.04117	-.07523	-.07403	[illegible]
3.950	9.985	5.02726	.18501	[illegible]	-.01189	-.00290	.00124	-.04020	-.07524	-.07403	[illegible]
3.950	15.164	5.02752	.33950	.07613	-.01332	-.00374	-.00117	-.03560	-.07523	-.07403	-.08254
3.950	20.331	5.02695	.51455	.07205	-.01511	-.00365	-.00411	-.03170	-.07524	-.07403	[illegible]
3.950	25.540	5.02414	.70511	.06844	-.01916	-.00372	-.00651	-.02643	-.07524	-.07404	[illegible]
3.950	30.753	5.02619	.91257	.06720	-.02448	-.00335	[illegible]	-.02525	-.07523	-.07403	[illegible]
3.950	36.045	5.02662	1.14256	.06388	-.03186	-.00623	[illegible]	-.02347	-.07524	[illegible]	[illegible]
3.950	41.275	5.02754	1.37154	.05969	-.04551	-.00708	-.00526	-.02609	-.07524	-.07149	-.07241
3.950	43.381	5.02619	1.51256	.05557	-.05041	-.00720	-.00546	-.02446	-.07264	-.07144	-.0724
	GRADIENT	.00065	.02095	-.00130	.00095	-.00032	-.00015	.00095	-.00005	[illegible]	[illegible]

OA-2L LARC UPWT 105° - 140A/B ORBITER (Z020002) (11 DEC 73)

REFERENCE DATA

SREF = 2090.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = 3.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SFCBFK = 54.920 BOFLAP = -20.700

RUN NO. 17/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
4.600	-4.045	3.02309	-.13654	.10049	-.02580	.00139	.00248	-.04822	-.04688	-.04533	-.05295
4.600	-2.716	3.02217	-.10707	.09653	-.02334	.00076	.00241	-.04693	-.04688	-.04859	-.05295
4.600	-.962	3.02082	-.07394	.09282	-.02115	.00011	.00192	-.04424	-.04688	-.04859	-.05620
4.600	.040	3.01986	-.05550	.09053	-.01938	-.00021	.00184	-.04290	-.04688	-.04859	-.05295
4.600	1.061	3.01950	-.03[illegible]8	.08809	-.01959	-.00038	.00143	-.04160	-.04688	-.04859	-.05295
4.600	2.090	3.01957	-.01491	.08587	-.01783	-.00069	.00143	-.04169	-.04688	-.04859	-.05295
4.600	3.110	3.01863	.01072	.08324	-.01838	-.00086	.00137	-.04039	-.05015	-.04859	-.05295
4.600	4.111	3.01929	.02858	.08185	-.01662	-.00118	.00102	-.04049	-.05015	-.04859	-.05620
4.600	6.159	3.01799	.07526	.07874	-.01577	-.00169	.00054	-.03788	-.05342	-.04859	-.05620
4.600	8.209	3.01772	.12202	.07606	-.01330	-.00219	.00013	-.03669	-.05015	-.04859	-.05620
4.600	10.226	3.01790	.17247	.07354	-.01119	-.00283	.00014	-.03693	-.05015	-.04859	-.05620
4.600	15.378	3.01725	.32027	.06962	-.01148	-.00321	-.00184	-.03206	-.05342	-.04859	-.05620
4.600	20.501	3.01725	.48486	.06698	-.01223	-.00321	-.00416	-.02728	-.05342	-.05185	-.05620
4.600	25.707	3.01761	.67478	.06449	-.01388	-.00319	-.00528	-.02541	-.05342	-.04859	-.05620
4.600	30.796	3.01739	.86845	.06340	-.01990	-.00348	-.00603	-.02353	-.05342	-.04859	-.05620
4.600	36.043	3.01681	1.09736	.06020	-.03120	-.00533	-.00445	-.02592	-.05015	-.04859	-.05205
4.600	41.197	3.01577	1.31980	.05570	-.04498	-.00564	-.00603	-.02136	-.05015	-.04859	-.05295
4.600	43.935	3.01410	1.43584	.05068	-.05811	-.00565	-.00610	-.01909	-.04688	-.04859	-.04971
	GRADIENT	-.00052	.02017	-.00229	.00104	-.00030	-.00018	.00101	-.00039	-.00026	-.00015

OA-20 LARC UPWT 1057 - 149A/B ORBITER (ZQ2003) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6616 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 6/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
2.500	-4.101	-.54337	-.05248	.12797	-.00019	.00230	-.00447	.07670	-.16265	-.15851	-.18219
2.500	-2.033	-.57255	-.05410	.12863	.00164	.00099	-.00165	.03577	-.16091	-.15677	-.18046
2.500	-1.027	-.55062	-.05405	.12829	.00163	.00015	-.00056	.01800	-.15563	-.15503	-.17522
2.500	.021	-.55770	-.05386	.12826	.00159	-.00034	.00023	-.00135	-.15210	-.15328	-.17348
2.500	1.029	-.51354	-.05375	.12848	.00068	-.00093	.00113	-.01912	-.15389	-.15506	-.17524
2.500	2.037	-.53009	-.05359	.12873	-.00025	-.00134	.00230	-.03845	-.15740	-.15152	-.17523
2.500	4.114	-.52922	-.05527	.12844	-.00279	-.00223	.00513	-.07941	-.15737	-.15852	-.17520
2.500	6.167	-.53923	-.05434	.12825	-.00552	-.00328	.00834	-.12026	-.15742	-.16033	-.17349
	GRADIENT	.00423	-.00023	.00005	-.00035	-.00055	.00111	-.01881	.00070	.00024	.00089

RUN NO. 12/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
3.900	-4.060	-.28273	-.05121	.09709	-.01714	.00108	-.00268	.06403	-.07267	-.07148	-.08000
3.900	-2.015	-.28116	-.05875	.09638	-.01595	.00054	-.00071	.03045	-.07012	-.07148	-.08001
3.900	-1.036	-.29563	-.05858	.09608	-.01599	.00021	.00008	.01477	-.07012	-.06894	-.08001
3.900	.019	-.26299	-.05544	.09559	-.01630	.00012	.00061	-.00095	-.07268	-.06894	-.08001
3.900	.998	-.27912	-.05528	.09568	-.01763	-.00010	.00141	-.01664	-.07012	-.06894	-.08001
3.900	2.034	-.29631	-.05797	.09626	-.01742	-.00032	.00220	-.03231	-.07012	-.06894	-.08001
3.900	4.089	-.28142	-.05760	.09707	-.01751	-.00098	.00384	-.06478	-.07012	-.07149	-.07748
3.900	6.100	-.27102	-.05430	.09791	-.01790	-.00142	.00571	-.09614	-.07268	-.07149	-.07748
	GRADIENT	-.00019	.00026	-.00001	-.00014	-.00024	.00078	-.01573	.00024	.00012	.00024

RUN NO. 18/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
4.600	-4.025	.02245	-.05697	.09043	-.02068	.00098	-.00191	.05893	-.05015	-.04859	-.05295
4.600	-1.988	.00813	-.05654	.09002	-.02077	.00065	-.00073	.02882	-.05015	-.04859	-.05295
4.600	-.995	.00093	-.05638	.08962	-.02080	.00046	-.00008	.01592	-.04688	-.04859	-.05620
4.600	-.001	.04584	-.05615	.08894	-.02083	.00030	.00037	.00013	-.05015	-.04859	-.05620
4.600	1.014	.03044	-.05590	.08939	-.02090	.00029	.00075	-.01422	-.05015	-.04859	-.05620
4.600	2.008	.02446	-.05570	.08983	-.01932	-.00004	.00112	-.02856	-.04688	-.04859	-.05620
4.600	4.092	.02349	-.05536	.09055	-.02105	-.00038	.00223	-.05726	-.04688	-.04859	-.05295
4.600	6.078	.03881	-.05499	.09162	-.02116	-.00087	.00340	-.08737	-.04688	-.04859	-.05295
	GRADIENT	.00154	.00020	-.00000	.00003	-.00016	.00050	-.01435	.00039	.00000	-.00015

OA-20 LARC UPWT 1057 - 140A/B ORBITER (Z02004) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ALPHA = 10.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 7/ 0 RN/L = 2.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
2.500	-4.095	9.95285	.27693	.11234	-.01517	.00465	-.00121	.06656	-.16622	-.17614	-.18747
2.500	-2.010	9.95223	.27467	.11185	-.01319	.00196	-.00033	.03022	-.16271	-.17088	-.18049
2.500	-1.004	9.96163	.27441	.11172	-.01317	.00093	-.00012	.01474	-.16452	-.16917	-.18052
2.500	.019	9.96828	.27253	.11176	-.01299	-.00003	-.00018	.00082	-.16448	-.16737	-.17524
2.500	1.027	9.97922	.27457	.11196	-.01405	-.00105	-.00034	-.01471	-.16621	-.16734	-.17696
2.500	2.031	9.97915	.27467	.11199	-.01405	-.00200	-.00017	-.02943	-.16972	-.17083	-.17694
2.500	4.103	9.96983	.27635	.11275	-.01599	-.00420	.00079	-.06347	-.17505	-.17613	-.18746
2.500	6.152	9.95641	.27701	.11219	-.01863	-.00669	.00191	-.09705	-.17841	-.17772	-.18732
	GRADIENT	.00324	-.00005	.00005	-.00014	-.00106	.00019	-.01559	-.00119	.00005	.00025

RUN NO. 13/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
3.900	-4.055	9.99389	.18456	.08246	-.01327	.00454	-.00113	.05607	-.07523	-.07403	-.08001
3.900	-1.994	9.98661	.18433	.08216	-.01068	.00212	.00005	.02698	-.07524	-.07404	-.07748
3.900	-.977	9.96859	.18426	.08254	-.01068	.00104	.00024	.01240	-.07268	-.07404	-.07747
3.900	.019	9.98644	.18417	.08246	-.01066	.00006	.00031	.00006	-.07524	-.07403	-.07747
3.900	.996	9.97742	.18415	.08247	-.01065	-.00079	.00038	-.01228	-.07268	-.07404	-.07747
3.900	2.013	9.97733	.18401	.08277	-.01065	-.00187	.00084	-.02684	-.07524	-.07404	-.07747
3.900	4.083	9.98479	.18363	.08236	-.01185	-.00442	.00170	-.05484	-.07524	-.07404	-.08001
3.900	6.093	9.98212	.18331	.08198	-.01434	-.00672	.00283	-.08284	-.07524	-.07403	-.08001
	GRADIENT	-.00109	-.00011	.00002	.00014	-.00107	.00031	-.01354	-.00000	-.00000	.00000

RUN NO. 19/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
4.600	-4.041	10.24132	.16960	.07355	-.01261	.00473	-.00046	.05206	-.05015	-.04859	-.05620
4.600	-2.006	10.23162	.16930	.07317	-.01256	.00233	.00055	.02485	-.05015	-.04859	-.05620
4.600	-1.012	10.23153	.16916	.07274	-.01253	.00121	.00050	.01193	-.05342	-.04859	-.05620
4.600	.000	10.23149	.16910	.07272	-.01251	.00039	.00002	.00041	-.05342	-.04859	-.05295
4.600	1.012	10.22197	.16907	.07275	-.01251	-.00028	-.00052	-.00968	-.05342	-.04859	-.05295
4.600	2.025	10.22188	.16893	.07314	-.01249	-.00140	-.00058	-.02261	-.05342	-.04859	-.05295
4.600	4.068	10.23115	.16861	.07307	-.01243	-.00382	.00036	-.04839	-.05342	-.05185	-.05620
4.600	6.091	10.24055	.16849	.07380	-.01243	-.00559	.00061	-.07422	-.05342	-.05185	-.05944
	GRADIENT	-.00164	-.00011	-.00005	.00002	-.00101	.00000	-.01219	-.00046	-.00031	.00023

OM-2G LARC UPWT 1057 - 140A/B ORBITER (Z02005) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .015G SCALE

PARAMETRIC DATA

ALPHA = 20.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPOBRK = 54.920 BOFLAP = -20.700

RUN NO. 8/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
2.500	-4.100	20.52627	.65089	.09444	-.03142	.00633	.00741	.05212	-.18022	-.17953	-.18209
2.500	-2.035	20.47384	.64842	.09634	-.02938	.00283	.00464	.02406	-.17844	-.17952	-.18011
2.500	-1.026	20.48277	.64657	.09635	-.02829	.00172	.00260	.01229	-.17897	-.17950	-.18033
2.500	.000	20.49447	.64605	.09647	-.02841	.00034	-.00049	.00126	-.18021	-.17993	-.18064
2.500	1.007	20.52576	.64829	.09641	-.02839	-.00063	-.00302	-.00990	-.18218	-.17772	-.18081
2.500	2.052	20.51343	.64703	.09604	-.02917	-.00184	-.00549	-.02000	-.17949	-.17780	-.18349
2.500	4.126	20.50319	.65146	.09439	-.03294	-.00534	-.00858	-.04817	-.18017	-.18124	-.18732
2.500	6.161	20.51473	.65424	.09310	-.03577	-.00923	-.00844	-.06230	-.18739	-.18481	-.19208
	GRADIENT	.00071	.00003	-.00002	-.00014	-.00135	-.00202	-.01185	.00004	-.00004	-.00016

RUN NO. 14/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
3.900	-4.037	20.32891	.50762	.07362	-.01651	.00640	.00407	.04684	-.07523	-.07403	-.08001
3.900	-2.013	20.32958	.50698	.07425	-.01513	.00300	.00316	.02102	-.07524	-.07403	-.08001
3.900	-1.016	20.31942	.50669	.07427	-.01508	.00165	.00148	.01083	-.07524	-.07404	-.07747
3.900	.019	20.30930	.50650	.07366	-.01501	.00043	-.00021	.00063	-.07524	-.07404	-.08001
3.900	.997	20.32895	.50622	.07389	-.01496	-.00093	-.00168	-.00842	-.07524	-.07404	-.08001
3.900	2.013	20.32905	.50597	.07392	-.01364	-.00215	-.00336	-.01861	-.07524	-.07404	-.08001
3.900	4.065	20.32975	.50829	.07352	-.01632	-.00555	-.00426	-.04447	-.07773	-.07403	-.07747
3.900	6.096	20.32211	.51754	.07350	-.01647	-.00859	-.00549	-.06520	-.07779	-.07658	-.08001
	GRADIENT	-.00014	.00001	-.00003	.00009	-.00143	-.00116	-.01090	-.00024	-.00000	.00010

RUN NO. 20/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
4.600	-4.022	20.49629	.47932	.06710	-.01193	.00631	.00388	.04353	-.05342	-.05165	-.05620
4.600	-2.005	20.50637	.47870	.06662	-.01180	.00312	.00265	.01908	-.05315	-.04959	-.05295
4.600	-1.012	20.49571	.47645	.06666	-.01174	.00182	.00133	.01140	-.05315	-.04959	-.05295
4.600	.019	20.49836	.48137	.06621	-.01204	.00084	-.00034	.00166	-.05315	-.04959	-.05295
4.600	.993	20.49822	.48175	.06661	-.01200	-.00031	-.00211	-.00705	-.05315	-.04959	-.05295
4.600	2.024	20.50856	.48152	.06655	-.01195	-.00145	-.00369	-.01577	-.05342	-.05165	-.05620
4.600	4.069	20.50811	.48084	.06654	-.01181	-.00461	-.00665	-.03676	-.05366	-.04959	-.05944
4.600	6.093	20.52755	.48031	.06643	-.01335	-.00738	-.00672	-.05141	-.05342	-.04959	-.05620
	GRADIENT	.00128	.00035	-.00016	-.00001	-.00131	-.00114	-.00961	-.00016	.00015	-.00046

CA-25 LARC UPWT 1057 - 140A/B ORBITER (2020D6) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ALPHA = 30.000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPOILR = 54.92° BOFLAP = -2°.??0

RUN NO. 3/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
2.900	-4.042	31.13632	1.07754	.07394	-.04832	.00778	.01316	.04176	-.17312	-.16893	-.18278
2.900	-2.036	31.07540	1.06942	.07237	-.04722	.00331	.00659	.02127	-.16426	-.16187	-.16814
2.900	-1.027	31.05259	1.07186	.07316	-.04642	.00241	.00271	.01173	-.16431	-.16191	-.16583
2.900	.000	31.12543	1.07262	.07274	-.04656	.00141	-.00123	.00295	-.16439	-.16214	-.16478
2.900	1.023	31.11999	1.07296	.07277	-.04650	-.00023	-.00535	-.00581	-.16249	-.16110	-.15750
2.900	2.036	31.12362	1.07691	.07271	-.04762	-.00237	-.00867	-.01529	-.16429	-.16189	-.15929
2.900	4.130	31.15845	1.07754	.07371	-.04842	-.00607	-.01473	-.02733	-.17666	-.16692	-.16452
2.900	6.168	31.19116	1.07635	.07514	-.04835	-.01041	-.01938	-.03636	-.18136	-.17599	-.15927
	GRADIENT	.00595	.00099	-.00004	-.00012	-.00164	-.00349	-.00645	-.00637	.00004	.00232

RUN NO. 15/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
3.900	-4.038	30.76475	.91185	.06754	-.02351	.00763	.00716	.04159	-.07522	-.07403	-.07751
3.900	-2.014	30.75452	.91305	.06690	-.02484	.00366	.00411	.02115	-.07524	-.07404	-.07751
3.900	-1.017	30.73228	.91334	.06697	-.02476	.00206	.00210	.01119	-.07524	-.07404	-.07747
3.900	-.001	30.75672	.91599	.06718	-.02497	.00060	.00014	.00026	-.07523	-.07149	-.07747
3.900	.998	30.75774	.91572	.06718	-.02364	-.00063	-.00221	-.01079	-.07260	-.07149	-.07494
3.900	2.013	30.76844	.91552	.06714	-.02358	-.00215	-.00450	-.01619	-.07267	-.07148	-.07747
3.900	4.085	30.75953	.91739	.06746	-.02367	-.00589	-.00781	-.03764	-.07524	-.07404	-.07747
3.900	6.098	30.75868	.91640	.06811	-.02347	-.01018	-.01092	-.05732	-.07773	-.07403	-.07747
	GRADIENT	.00076	.00066	.00001	.00007	-.00161	-.00131	-.00956	.00018	.00018	.00042

RUN NO. 21/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
4.600	-4.023	30.84746	.86351	.06283	-.01976	.00794	.00589	.04722	-.05342	-.04859	-.05620
4.600	-2.006	30.83984	.86639	.06288	-.01830	.00410	.00338	.02704	-.05342	-.04859	-.05620
4.600	-1.013	30.81571	.86597	.06255	-.01982	.00233	.00171	.01134	-.05342	-.04859	-.05295
4.600	.010	30.81550	.86568	.06254	-.01975	.00088	-.00032	.00262	-.05342	-.04859	-.05620
4.600	1.013	30.79347	.86555	.06262	-.01970	-.00010	-.00269	-.00613	-.05342	-.04859	-.05620
4.600	2.005	30.79328	.86526	.06302	-.01965	-.00141	-.00443	-.01340	-.05342	-.04859	-.05620
4.600	4.089	30.79144	.86427	.06341	-.02108	-.00541	-.00693	-.03358	-.05315	-.04859	-.05295
4.600	6.071	30.80180	.86334	.06378	-.02090	-.00926	-.00951	-.05232	-.05342	-.04859	-.05620
	GRADIENT	-.00798	.00001	.00006	-.00019	-.00158	-.00168	-.00895	.00031	.00000	.00023

OA-20 LARC UPWT 1057 - 140A/B ORBITER (ZQ2007) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = -40.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = -20.700

RUN NO. 24/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
2.500	-4.814	-.00225	-.30946	.17849	.07427	-.00033	.00096	-.00045	-.13326	-.13090	-.15116
2.500	-3.438	-.00196	-.26189	.17415	.07009	-.00023	.00100	-.00071	-.13845	-.13431	-.15281
2.500	-1.659	-.00170	-.20187	.16852	.06384	-.00013	.00084	-.00104	-.14735	-.14141	-.15986
2.500	-.595	-.00017	-.16189	.16500	.06024	-.00029	.00068	-.00126	-.15094	-.14851	-.16868
2.500	.438	-.00040	-.12800	.16128	.05548	-.00003	.00047	-.00069	-.15623	-.15202	-.17392
2.500	1.474	-.00018	-.09215	.15698	.05140	-.00020	.00049	-.00088	-.15627	-.15559	-.17571
2.500	2.537	.00123	-.05628	.15216	.04645	-.00010	.00014	-.00110	-.15657	-.15563	-.17924
2.500	3.576	-.00019	-.02269	.14757	.04346	.00006	.00031	-.00049	-.15631	-.15387	-.18100
2.500	5.624	-.00081	.04452	.14120	.04094	.00005	.00031	-.00035	-.15986	-.15745	-.17400
2.500	7.778	.00014	.10582	.13671	.04075	-.00012	.00014	-.00035	-.15804	-.15559	-.17396
2.500	9.890	-.00148	.17908	.13275	.04109	.00012	.00009	.00085	-.15810	-.15742	-.17926
2.500	15.148	-.00182	.36662	.11922	.03449	.00028	-.00008	.00146	-.16340	-.16093	-.17925
2.500	20.470	-.00226	.55967	.10646	.02805	.00064	.00016	.00129	-.17043	-.16793	-.18273
2.500	25.792	-.00188	.76754	.09327	.02615	.00101	-.00021	.00162	-.17401	-.16974	-.18625
2.500	31.065	-.00259	.96778	.08424	.02404	.00128	-.00063	.00319	-.17757	-.17329	-.18804
2.500	36.520	-.00431	1.19201	.07270	.02728	-.00106	.00059	.00231	-.17760	-.17156	-.18631
2.500	41.829	-.00406	1.41154	.06239	.02469	.00143	-.00060	.00423	-.17049	-.16623	-.17927
2.500	44.594	-.00551	1.51629	.05851	.02418	.00166	-.00064	.00530	-.16634	-.16622	-.17925
	GRADIENT	.00034	.03433	-.00366	-.00378	.00003	-.00010	-.00002	-.01302	-.01322	-.01399

RUN NO. 22/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
3.900	-4.415	.01605	-.21315	.13419	.01873	.00055	.00096	.00120	-.06559	-.06441	-.07548
3.900	-3.061	.01619	-.18406	.13016	.01881	.00055	.00097	.00105	-.06417	-.06443	-.07550
3.900	-1.332	.01636	-.14641	.12437	.01944	.00044	.00098	.00086	-.06418	-.06700	-.07551
3.900	-.313	.01604	-.12061	.12123	.01853	.00031	.00067	.00182	-.06816	-.06697	-.07852
3.900	.698	.01614	-.09750	.11777	.01784	.00044	.00068	.00170	-.06815	-.06696	-.07852
3.900	1.672	.01625	-.07445	.11514	.01843	.00020	.00069	.00159	-.07070	-.06695	-.07851
3.900	2.793	.01637	-.04848	.11253	.01873	.00032	.00070	.00145	-.07069	-.06694	-.07547
3.900	3.795	.01649	-.02238	.11007	.01777	.00020	.00071	.00132	-.07069	-.06694	-.07547
3.900	5.858	.01672	.02816	.10526	.01637	.00018	.00073	.00106	-.07069	-.06343	-.07851
3.900	7.931	.01592	.07926	.10201	.01894	.00016	.00069	.00193	-.07326	-.06950	-.07851
3.900	9.954	.01617	.13331	.09960	.02048	.00015	.00071	.00166	-.07326	-.06350	-.07851
3.900	15.127	.01641	.28686	.09183	.02312	.00037	.00044	.00271	-.07326	-.07205	-.08054
3.900	20.313	.01510	.45597	.08430	.02388	.00050	.00040	.00342	-.07326	-.07205	-.08055
3.900	25.514	.01642	.63660	.07915	.02852	.00078	.00019	.00255	-.07326	-.07205	-.08055
3.900	31.736	.01570	.83449	.07460	.03219	.00068	.00048	.00278	-.07326	-.07205	-.07851
3.900	35.969	.01573	1.05227	.06966	.03750	.00107	-.00010	.00400	-.07326	-.06950	-.07851
3.900	41.240	.01562	1.27285	.06380	.03882	.00122	-.00007	.00411	-.06414	-.06695	-.07547
3.900	43.946	.01462	1.38437	.05957	.03933	.00134	-.00042	.00542	-.06302	-.06440	-.07548
	GRADIENT	.00014	.02319	-.00300	-.00011	-.00004	-.00004	.00005	-.01057	-.00033	-.00039

DATE 18 JAN 74 TABULATED SOURCE DATA - [illegible] PAGE 23

[illegible] - 140A/B ORBITER [illegible] (11 DEC 73)

REFERENCE DATA

SREF = [illegible] SQ.FT. XMRP = [illegible] IN.
LREF = [illegible] IN. YMRP = [illegible] IN.
BREF = [illegible] IN. ZMRP = [illegible] IN.
SCALE = [illegible] SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = [illegible]
AILRON = .000 RUDDER = .000
SPDBRK = [illegible] BDFLAP = [illegible]

RUN NO. [illegible] RN/L = [illegible] GRADIENT INTERVAL = [illegible]

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	[illegible]	[illegible]	[illegible]
[illegible]	-4.[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-.[illegible]	-[illegible]
[illegible]	-2.[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	-1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]
	GRADIENT	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]

CA-25 LARC UPWT 1057 - 140A/B ORBITER (ZXXXXX) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.6800 IN.
LREF = 474.8100 IN. YMRP = .0000 IN.
BREF = 936.6800 IN. ZMRP = 375.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000
AILRON = .000 RUDDER = .000
SPDBRK = 55.000 BDFLAP = 11.700

RUN NO. 29/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	[illegible]	[illegible]	[illegible]
2.500	-4.731	-.00295	-.14502	.13906	-.02892	-.00025	.00076	.00050	-.16177	-.15578	-.17412
2.500	-3.114	-.00270	-.15724	.13785	-.03175	-.00037	.00077	.00025	-.15172	-.15558	-.17758
2.500	-1.964	-.00255	-.14534	.13700	-.03376	-.00027	.00080	-.00014	-.16343	-.15748	-.18284
2.500	-.577	-.00258	-.00741	.13880	-.03953	-.00015	.00059	.00052	-.15147	-.15901	-.18433
2.500	.616	-.00176	.05644	.13500	-.04706	-.00009	.00042	.00033	-.15844	-.15950	-.18287
2.500	1.545	.00004	.19655	.13547	-.04476	-.00016	.00023	-.00042	-.15885	-.15755	-.18538
2.500	2.690	.00028	.29307	.13555	-.04270	.00008	.00042	.00075	-.16155	-.15511	-.18595
2.500	3.657	-.00081	.32572	.13455	-.05146	.00008	.00022	.00033	-.16174	-.15927	-.18384
2.500	5.700	-.00313	.43475	.13218	-.05927	-.00001	.00022	.00073	-.16173	-.15927	-.18285
2.500	7.400	-.00218	.56523	.13169	-.06151	.00007	.00004	.00137	-.16177	-.16016	-.18112
2.500	9.382	-.00170	.71675	.12765	-.08767	.00007	.00001	.00065	-.16003	-.16016	-.17939
2.500	15.245	-.00385	[illegible]	.12567	-.09582	[illegible]	.00001	.00292	-.16870	-.16075	[illegible]
2.500	20.559	-.00444	.74250	.12782	-.13504	.00093	.00016	.00272	-.17215	-.15947	-.18272
2.500	25.982	-.00378	.97763	.11290	-.15671	.00122	-.00057	.00325	-.17000	-.15971	-.18093
2.500	31.251	-.00447	1.20154	.11547	-.16177	.00134	-.00051	.00429	-.18515	-.15564	-.17611
2.500	36.564	-.00651	1.45522	.11500	-.13554	.00093	.00075	.00311	-.17415	-.16577	-.18114
2.500	41.954	-.00831	1.70000	.11211	-.20257	.00246	-.00115	.00494	-.18790	-.17824	-.18057
2.500	44.700	-.00700	1.87526	.11017	.20156	.00225	-.00097	.00713	-.18113	-.17858	-.18450
	GRADIENT	.00013	.03174	-.00043	-.00275	.00005	-.00007	.00014	-.00055	-.00054	-.00134

RUN NO. 28/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	[illegible]	[illegible]	[illegible]
3.950	-4.413	-.00264	-.12075	.11700	-.01752	.00033	.00051	.00151	-.17143	-.17012	-.17554
3.950	-3.149	-.00252	-.10645	.11501	-.01587	.00034	.00032	.00138	-.17147	-.17016	-.17558
3.950	-1.266	-.00255	-.05415	.11174	-.02425	.00035	.00054	.00118	-.17144	-.17013	-.17649
3.950	-.276	-.00176	-.01990	.11073	-.03014	.00034	.00043	.00213	-.17144	-.17011	-.18112
3.950	.748	.00335	-.01275	.10656	-.03472	.00034	.00050	.00204	-.17155	-.17012	-.17848
3.950	1.702	-.00034	[illegible]	.10808	[illegible]	.00035	.00051	.00131	-.17143	-.17012	-.17848
3.950	2.906	-.00337	[illegible]	.10755	[illegible]	.00044	.00047	[illegible]	[illegible]	[illegible]	-.17848
3.950	3.852	-.00385	[illegible]	.10447	[illegible]	.00044	.00048	.00275	[illegible]	[illegible]	-.17848
3.950	5.900	-.00353	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	7.557	-.00275	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00054	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	25.621	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	41.255	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.950	44.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	GRADIENT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CA-25 LARC UPWT 1057 - 140A/B ORBITER (2BZ230) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4000 IN.
LREF = 474.8117 IN. YMRP = .0000 IN.
BREF = 936.6816 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = 15.000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = 15.000

RUN NO. 27/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB	CPC	CPN
4.000	-4.091	-.00254	-.11581	.10005	-.03096	.00043	.00046	.00180	-.54059	-.54363	-.55427
4.000	-2.765	-.00244	-.08005	.09956	-.03784	.00044	.00047	.00166	-.54059	-.54363	-.55427
4.000	-.979	-.00171	-.05295	.09534	-.03786	.00045	.00033	.00144	-.54055	-.54363	-.55427
4.000	.054	-.00163	-.03084	.09505	-.03795	.00045	.00034	.00132	-.54056	-.54359	-.55425
4.000	1.078	-.00257	-.00066	.09006	-.03813	.00044	.00028	.00253	-.54532	-.54363	-.55427
4.000	2.071	-.00250	.00087	.09098	-.03075	.00040	.00029	.00253	-.54859	-.54353	-.55427
4.000	3.092	-.00241	.05554	.08937	-.03084	.00041	.00035	.00259	-.54859	-.54383	-.55427
4.000	4.089	-.00232	.05715	.08845	-.03099	.00040	.00031	.00220	-.54859	-.54408	-.55795
4.000	6.202	-.00154	.10741	.08857	-.04196	.00048	-.00001	.00159	-.55184	-.54409	-.55427
4.000	8.199	-.00155	.15819	.08493	-.04292	.00057	.00004	.00171	-.54854	-.54415	-.55425
4.000	10.226	-.00215	.21592	.08412	-.04795	.00044	-.00003	.00281	-.54859	-.54408	-.55427
4.000	15.346	-.00064	.34903	.08578	-.04196	.00047	-.00028	.00184	-.54859	-.54408	-.55153
4.000	20.556	-.00128	.57179	.08844	-.07793	.00151	-.00024	.00228	-.54854	-.54415	-.55151
4.000	25.743	-.00158	.77842	.09275	-.09754	.00119	-.00019	.00259	-.54859	-.54408	-.55153
4.000	30.002	-.00105	.99842	.10015	-.12089	.00107	-.00013	.00288	-.54854	-.54415	-.55151
4.000	36.078	-.00149	1.24247	.11455	-.15007	.00188	-.00082	.00441	-.54854	-.54415	-.55151
4.000	41.205	-.00254	1.44434	.10714	-.18215	.00237	-.00115	.00097	-.54859	-.54404	-.55153
4.000	43.954	-.00270	1.61442	.10094	-.20478	.00240	-.00154	.00027	-.54859	-.54363	-.55153
	GRADIENT	-.00000	.02126	-.00177	-.00004	.00002	-.00006	.00011	.00004	-.00022	-.00022

OA-20 LARC UPWT 1057 - 140A/B ORBITER (ZØ2ØØ9) (11 DEC 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
LREF = 476.8117 IN. YMRP = .0000 IN.
BREF = 936.6815 IN. ZMRP = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
AILRON = .000 RUDDER = .000
SPDBRK = 54.920 BDFLAP = 10.300

RUN NO. 28/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
3.900	-4.440	-.00273	-.13664	.10440	-.02215	.00020	.00047	.00168	-.06793	-.06914	-.07998
3.900	-3.030	-.00261	-.11056	.10181	-.02178	.00009	.00048	.00154	-.06795	-.06916	-.08252
3.900	-1.272	-.00245	-.07568	.09753	-.01835	.00009	.00049	.00138	-.06797	-.06918	-.08000
3.900	-.271	-.00214	-.05263	.09541	-.01907	.00010	.00050	.00125	-.06796	-.06917	-.08252
3.900	.747	-.00224	-.03237	.09384	-.01826	.00010	.00051	.00115	-.06796	-.06917	-.08253
3.900	1.745	-.00213	-.00928	.09242	-.01773	-.00002	.00052	.00104	-.06795	-.06915	-.08252
3.900	2.824	-.00306	.01375	.09129	-.01719	.00009	.00047	.00204	-.06794	-.06914	-.08251
3.900	3.867	-.00295	.03644	.08999	-.01537	.00009	.00047	.00193	-.07050	-.06915	-.08252
3.900	5.876	-.00376	.08460	.08704	-.01581	.00006	.00044	.00280	-.06794	-.06914	-.08505
3.900	7.916	-.00351	.13855	.08486	-.01554	.00018	.00046	.00252	-.06795	-.06916	-.08505
3.900	10.012	-.00325	.19538	.08313	-.01682	.00017	.00049	.00222	-.06794	-.06915	-.08252
3.900	15.184	-.00298	.35136	.07889	-.02088	.00026	.00023	.00252	-.07305	-.06914	-.08251
3.900	20.397	-.00361	.53450	.07554	-.03043	.00053	-.00006	.00378	-.07049	-.07169	-.08251
3.900	25.562	-.00274	.73156	.07259	-.03885	.00068	.00004	.00278	-.07050	-.07170	-.08252
3.900	30.791	-.00384	.95174	.07036	-.05261	.00070	.00004	.00390	-.06795	-.06915	-.07998
3.900	36.085	-.00369	1.19131	.06352	-.06860	.00123	-.00049	.00489	-.07050	-.06915	-.07998
3.900	41.405	-.00409	1.44246	.06490	-.08806	.00138	-.00074	.00586	-.06795	-.06915	-.07998
3.900	44.004	-.00402	1.55931	.06135	-.10325	.00164	-.00099	.00634	-.06795	-.06661	-.07999
	GRADIENT	-.00002	.02100	-.00177	.00076	-.00001	.00000	.00002	-.00017	.00000	-.00026

RUN NO. 29/ 0 RN/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CFB	CFC	CFN
4.600	-4.064	-.00259	-.12640	.10087	-.02652	.00027	.00063	.00193	-.04086	-.04563	-.06255
4.600	-2.699	-.00249	-.10072	.09683	-.02540	.00012	.00063	.00180	-.04410	-.04560	-.06264
4.600	-.987	-.00237	-.06720	.09199	-.02160	.00012	.00064	.00164	-.04413	-.04563	-.05942
4.600	.062	-.00170	-.04505	.08942	-.02181	.00013	.00030	.00150	-.04413	-.04563	-.06265
4.600	1.027	-.00163	-.02653	.08772	-.02010	.00014	.00030	.00141	-.04413	-.04563	-.05942
4.600	2.081	-.00154	-.00438	.08594	-.02033	.00014	.00031	.00129	-.04413	-.04563	-.06265
4.600	3.140	-.00146	.01768	.08418	-.01895	.00030	.00032	.00118	-.04413	-.04563	-.04942
4.600	4.160	-.00138	.03931	.08238	-.01758	.00029	.00033	.00108	-.04410	-.04560	-.05940
4.600	6.139	-.00122	.08239	.07870	-.01640	.00027	.00034	.00086	-.04413	-.04563	-.05942
4.600	8.207	-.00103	.13302	.07640	-.01597	.00025	.00036	.00060	-.04410	-.04560	-.05940
4.600	10.253	-.00127	.18693	.07397	-.01584	.00022	-.00004	.00172	-.04739	-.04563	-.05942
4.600	15.339	-.00174	.33823	.07154	-.01980	.00033	-.00004	.00235	-.04413	-.04563	-.05942
4.600	20.546	-.00213	.51325	.06877	-.02649	.00051	-.00002	.00287	-.04413	-.04563	-.05942
4.600	25.642	-.00145	.70287	.06754	-.03301	.00070	.00007	.00190	-.04413	-.04563	-.05942
4.600	30.805	-.00277	.91413	.06682	-.04564	.00056	.00003	.00368	-.04413	-.04563	-.05942
4.600	36.016	-.00180	1.14679	.06566	-.06389	.00122	-.00060	.00386	-.04413	-.04563	-.05942
4.600	41.219	.00246	1.37362	.06247	-.08527	.00172	-.00096	.00548	-.04413	-.04563	-.05942
4.600	43.943	.00145	1.49892	.05864	-.10522	.00175	-.00122	.00480	-.04086	-.04238	-.05618
	GRADIENT	-.00017	.02018	-.00222	.00105	.00001	-.00005	-.00010	-.00025	.00000	-.00024