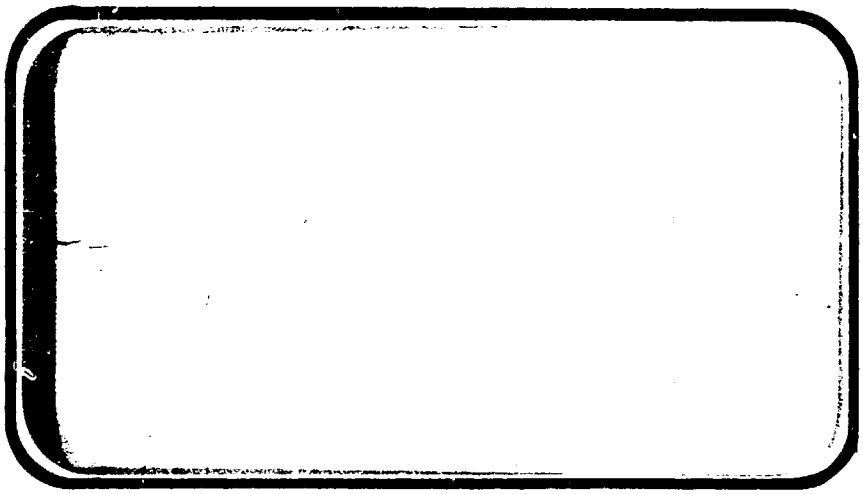
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

CR 134080



SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

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SUPERSONIC PERFORMANCE, STABILITY AND CONTROL CHARACTERISTICS OF A 0.01875 SCALE MODEL ROCKWELL INTERNATIONAL 089B-139B ORBITER CONFIGURATION (LA8C)

By

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Prepared under NASA Contract Number NAS9-13247

by

Data Management Services
Chrysler Corporation Space Division
New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS

Test Numbers: UPWT 1040
NASA Series No.: La8C
Date: July 10 - 13, (42 Occ. Hrs.)

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FOR N. D. Kemp
Data Management Services

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SUPERSONIC PERFORMANCE, STABILITY AND CONTROL CHARACTERISTICS OF A 0.01875 SCALE MODEL ROCKWELL INTERNATIONAL 089B-139B ORBITER CONFIGURATION

By

R. W. Powell and G. M. Ware, NASA/LaRC

SUMMARY

An investigation was made in the Langley Unitary Plan Wind Tunnel at Mach numbers of 1.9 and 2.86 to study the supersonic aerodynamic characteristics of a Rockwell International shuttle orbiter configuration. Tests were made at a Reynolds number of 1.5×10^6 per foot with an angle-of-attack range of -4° to 28° and sideslip variations of -6° to 8°. The effects of elevon and aileron deflections were investigated.

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CN, CL VS. CLM
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B: DCY/DB, DCBLDB, DCYNDB VS. ALPHA

C: CY, CYN, CBL VS. BETA

D: DCY/DA, DCYNDA, DCBLDA VS. ALPHA

E: DCY/DR, DCYNDR, DCBLDR 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
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	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	CBL	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	CL'	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$
L/D	L/D	lift-to-drag ratio; C_L/C_D

NOMENCLATURE (Continued)

SYMBOL	SADSAC SYMBOL	DEFINITION
δ_{e_L}		left elevon surface deflection angle, positive deflection trailing edge down; degrees.
δ_{e_R}		right elevon surface deflection angle, positive deflection trailing edge down; degrees.
δ_e	ELEVTR	elevator, surface deflection angle, positive deflection trailing edge down, degrees, $(\delta_{e_L} + \delta_{e_R})/2$
δ_a	AILRON	aileron, aileron deflection angle, degrees, $(\delta_{e_L} - \delta_{e_R})/2$
	GT-LOC	grit location (refer to Test Conditions).
K	K	roughness height.
K/ℓ	K/L	ratio of roughness to model body length (ℓ = 24.93 in).
	CPC	cavity pressure coefficient.
	CPB1, CPB2	base pressure coefficients.
C_{Y_β}	DCY/DB	side force coefficient derivative with respect to beat. Algebraic difference of the side force coefficient of two runs divided by the algebraic difference of the side slip angle of the runs; per degree.
C_{n_β}	DCYNDB	yawing moment coefficient derivative with respect to beta. Algebraic difference of the yawing moment coefficient of two runs divided by the algebraic difference of the side slip angle of the runs; body axis system; per degree.
δ_R	RUDDER	rudder deflection angle, degree.
δ_{BF}	BDFLAP	body flap deflection angle, degree.
δ_{RF}	RUDFLF	rudder flare, split rudder deflection angle, degree.

NOMENCLATURE (Concluded)

SYMBOL	SADSAC SYMBOL	DEFINITION
C_{ℓ_β}	DCBLDB	rolling moment coefficient derivative with respect to beta. Algebraic difference of rolling moment coefficient of two runs divided by algebraic difference of side slip angle of the runs; body axis system; per degree.
$C_{y_{\delta_a}}$	DCY/DA	side force coefficient derivative with respect to total aileron deflection. Algebraic difference of the side force coefficients of two runs divided by the algebraic difference of the total aileron deflection angle of the runs; per degree.
$C_{\ell_{\delta_a}}$	DCBLDA	rolling moment coefficient derivative with respect to total aileron deflection. Algebraic difference of the rolling moment coefficient of two runs divided by the algebraic difference of the total aileron deflection angle of the runs; body axis system; per degree.
Cn_{δ_a}	DCYNDA	yawing moment coefficient derivative with respect to total aileron deflection. Algebraic difference of the yawing moment coefficient of two runs divided by the algebraic difference of the total aileron deflection angle of the runs; body axis system; per degree.
$C_{y_{\delta_r}}$	DCY/DR	side force coefficient derivative with respect to rudder deflection. Algebraic difference of the side force coefficient of two runs divided by the algebraic difference of the rudder deflection angle of the runs; body axis system; per degree.
Cn_{δ_r}	DCYNDR	yawing moment coefficient derivative with respect to rudder deflection. Algebraic difference of the yawing moment coefficient of two runs divided by the algebraic difference of the rudder deflection angle of the runs; body axis system; per degree.
$C_{\ell_{\delta_r}}$	DCBLDR	rolling moment coefficient derivative with respect to rudder deflection. Algebraic difference of the rolling moment coefficient of two runs divided by the algebraic difference of the rudder deflection angle of the runs; body axis system; per degree.

TEST FACILITY DESCRIPTION

The NASA LaRC 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 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. 1 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.

CONFIGURATION INVESTIGATED

The configuration tested was a 0.01875 scale model of a blend of Rockwell International shuttle configurations. The model consisted of a 089B configuration with a 139B configuration nose forward of F.S. 500. A sketch of the model is shown in figure 2. All of the tests were made with the rudder flared to form a 40° wedge vertical tail and the body flap deflected -14.25°. Tests were made with elevon deflections ranging from -30° to 0°, and a 10° aileron deflection about a -10° elevon deflection.

DATA REDUCTION

A LaRC 832-B six-component strain gage balance was used to measure model forces and moments. All final data were presented along a set of body and stability axes passing through the nominal center of gravity located at F.S. 1076.48 or 65 percent of the body length. Model data were converted to standard NASA Coefficients using the following constants:

Reference Area, S_{ref} = wing planform area = 0.9457 ft.^{2}

Reference Length, $\bar{c}_{ref}$ = wing mean aerodynamic chord = 8.9025 in.

Reference Span, b_{ref} = wing span = 17.5628 in.

Transition was fixed with number 50 grit located 0.283 inch streamwise on wing and vertical tail, and 1.2 inches streamwise on nose. The drag data presented herein is gross drag in that base drag is included. Tabulated base pressure coefficients are presented, however, if corrections are desired.

TABLE I.

TEST : UPWT 1040

DATE : 7/10-13,1973

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
1.90	1.5×10^6	2.500	
2.86	1.5×10^6	2.059	

BALANCE UTILIZED: 832-B

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	1000 lb	±5.00 lb	
SF	250 lb	±1.25 lb	
AF	85 lb	±0.43 lb	
PM	2000 in-lb	±10.00 in-lb	
RM	1000 in-lb	±5.00 in-lb	
YM	500 in-lb	±2.50 in-lb	

COMMENTS:

TABLE II.

TEST : UPWT 1040(LH-8C)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE : July 10-13, 1973

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	GRIT SIZE	GRIT LOC	PARAMETERS/VALUES							NO. OF RUNS	MACH NUMBERS 1.6	1.9	2.5	TEST RUN NUMBERS
	ORB					EL	ER	δ_{BF}	δ_{NF}	δ_R							
LH8 201	OSTB w/MOD NOSE + OMS	A	0	529	2	0	0	-1.25	40	0				1	8	1	
202			3			0	0							3	2	—	
203			0			-10	-10								10	14	
204			3			-10	-10								11	15	
205			0			-20	-20								28	30	
206			3			-20	-20								29	31	
207			0			-30	-30								34	32	
208			3			-30	-30			0					35	33	
209			0			-30	-30			10					36	25	
210			3			-30	-30			10					37	37	
211			0			0	-20			0					24	17	
212		A	3			0	-20								28	20	
213		15	C			0	-20								26	21	
214		20				0	-20								21	22	
215		25				0	-20									23	
216		15				-11	-10								12	16	
217		20				-10	-10								13	17	
LPT 215		25	C	LPT	L	-10	-10	-1.25	40	0						15	

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CM CA CLM CBL CYN CY CPEL CPRC CPRC

α OR β SCHEDULES

COEFFICENTS

A) $-4° \le \alpha \le 25°$, $\Delta\alpha = 5°$

C) $-6° \le \alpha \le 25°$, $\Delta\alpha = 2°$

IDVAR (1) IDVAR (2) NDV

TABLE III.
MODEL COMPONENT DIMENSIONAL DATA

MODEL COMPONENT: BODY - 089B-139B(Modified Nose)

GENERAL DESCRIPTION: Nose section from full-scale station 238.0 to STA. 500 from NAR drawing VL70-000139B. Remaining body AFT of STA 500 from NAR drawing VL70-000093

DRAWING NUMBER: VL70-000093

DIMENSIONS:	FULL-SCALE	.01875 MODEL SCALE
Length	1290.3	24.193
Max. Width	265.0	4.969
Max. Depth	248.0	4.650
Fineness Ratio	4.869	4.869
Area		
Max. Cross-Sectional	456.40	0.1605
Planform		
Wetted		
Base		

TABLE III. (CONTINUED)

MODEL COMPONENT: ELEVON

GENERAL DESCRIPTION: CONFIGURATION PER LINES VL70-000093

DATA FOR (1) OF (2) SIDES

MODEL SCALE = 0.01875

DRAWING NUMBER: VL70-000093

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	205.517	0.0723
Span (equivalent)	353.34	6.625
Inb'd equivalent chord	114.78	2.152
Outb'd equivalent chord	55.00	1.031
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	.208	.208
At Outb'd equiv. chord	.400	.400
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Tailing Edge	-10.02	-10.02
Hingeline	0.00	0.00
Area Moment (Normal to hinge line)- Ft^3	1548.07	0.0102

TABLE III. (CONTINUED)

MODEL COMPONENT: WING

GENERAL DESCRIPTION: Orbiter Configuration per Lines VL70-000093.

NOTE: (Dihedral angle is defined at the lower surface of the wing at the 75.33% element line projected into a plane perpendicular to the FRL).

SCALE MODEL = 0.01875

DRAWING NUMBER: VL70-000093

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	2690.00	0.9457
Wetted	--------	--------
Span (equivalent)	936.68	17.56
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Diehedral Angle, degrees	3.500	3.500
Incidence Angle, degrees	3.000	3.000
Aerodynamic Twist, degrees	+3.000	+3.000
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	-10.24	-10.24
0.25 Element Line	35.209	35.209
Chords:		
Root (Wing Sta. 0.0)	689.24	12.923
Tip, (equivalent)	137.85	2.585
MAC	474.81	8.903
Fus. Sta. of .25 MAC	1136.89	21.317
W.P. of .25 MAC	299.20	5.610
B.L. of .25 MAC	182.13	3.415
Airfoil Section		
Root		
Tip		
EXPOSED DATA		
Area	1752.29	0.6160
Span, (equivalent)	720.68	13.513
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
Chords		
Root	562.40	10.545
Tip	137.85	2.585
MAC	393.03	7.369
Fus. Sta. of .25 MAC	1185.31	22.224
W.P. of .25 MAC	300.20	5.629
B.L. of .25 MAC	143.76	2.700

TABLE III. (CONTINUED)

MODEL COMPONENT: Vertical Tail

GENERAL DESCRIPTION: Centerline vertical tail double wedge airfoil with rounded leading edge.

Scale Model = 0.01875

DRAWING NUMBER: VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area (theo) ft.^{2}	413.25	0.145
Span (equivalent)	315.72	5.920
Inb'd equivalent chord	268.50	5.034
Outb'd equivalent chord	108.47	2.034
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	45	45
Tailing Edge	26.249	26.249
Hingeline		
Area Moment (Normal to hinge line)		

TABLE III. (CONCLUDED)

MODEL COMPONENT: RUDDER

GENERAL DESCRIPTION: CONFIGURATION PER LINES VL70-000095

SCALE MODEL = 0.01875

DRAWING NUMBER: VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	106.38	0.0374
Span (equivalent)	201.0	3.769
Inb'd equivalent chord	91.585	1.717
Outb'd equivalent chord	50.833	0.953
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
Tailing Edge	26.25	26.25
Hingeline	34.83	34.83
Area Moment (Normal to hinge line)-Ft^3	526.125	0.0034

NOTES:

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

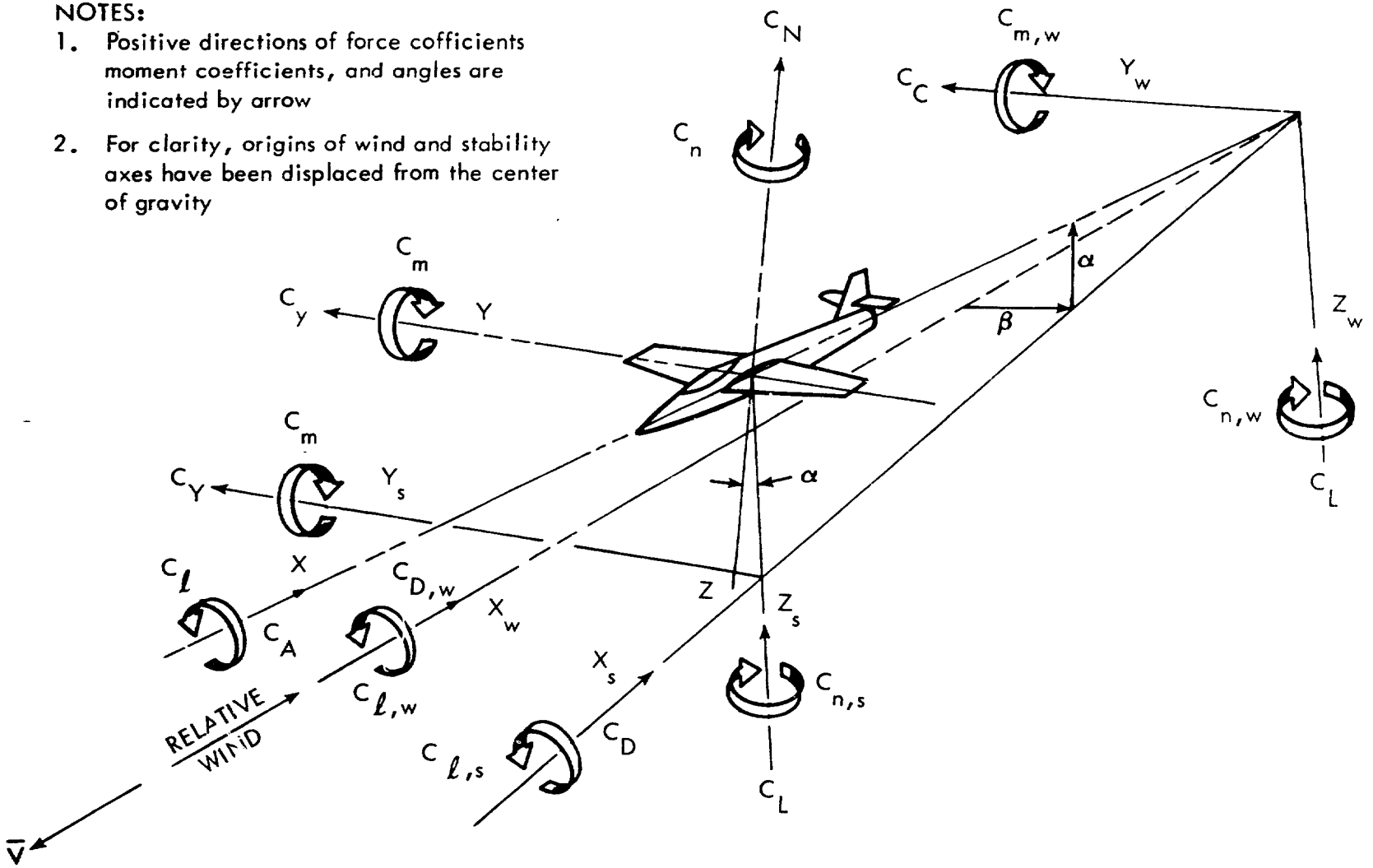
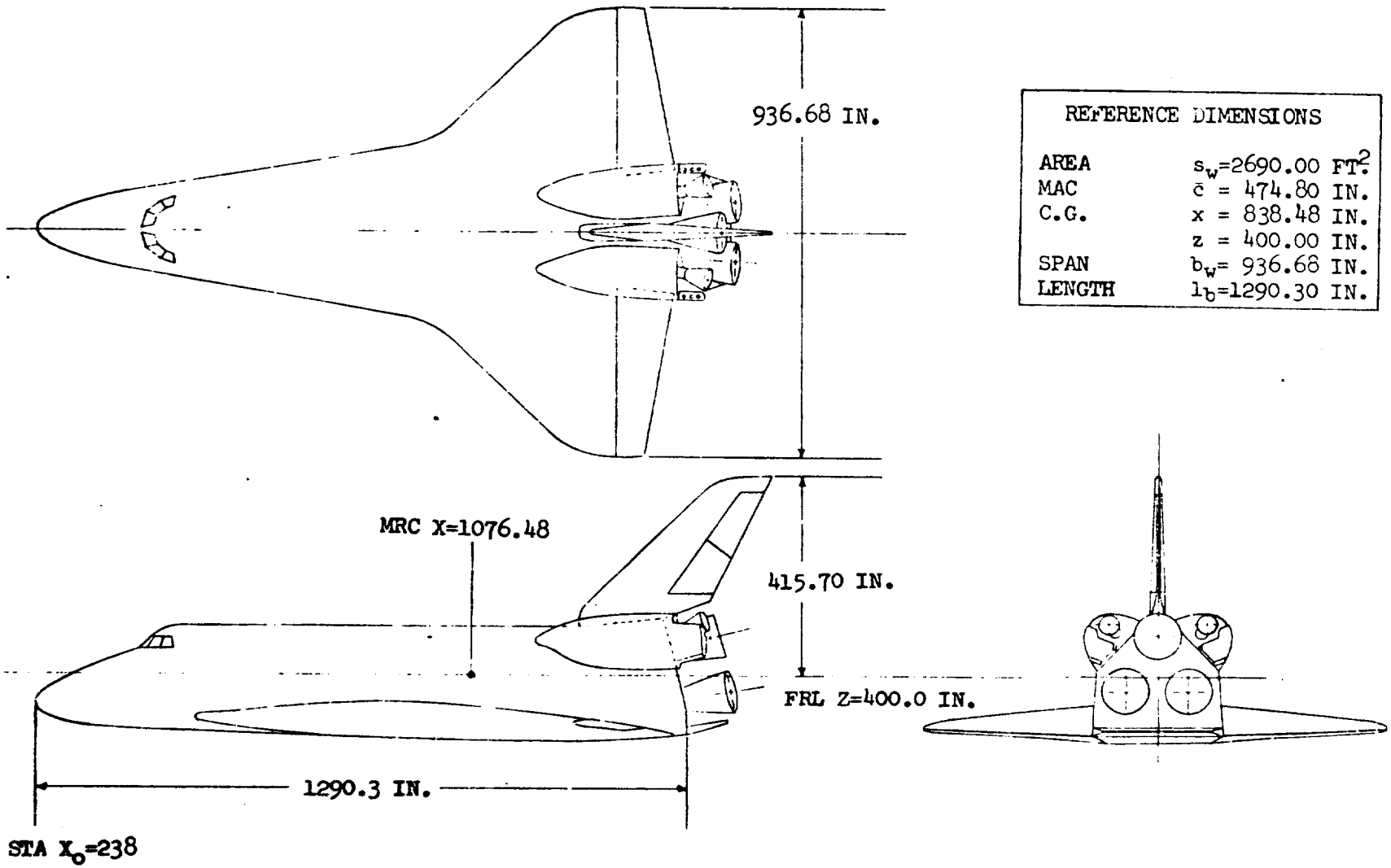


Figure 1. - Axis Systems.



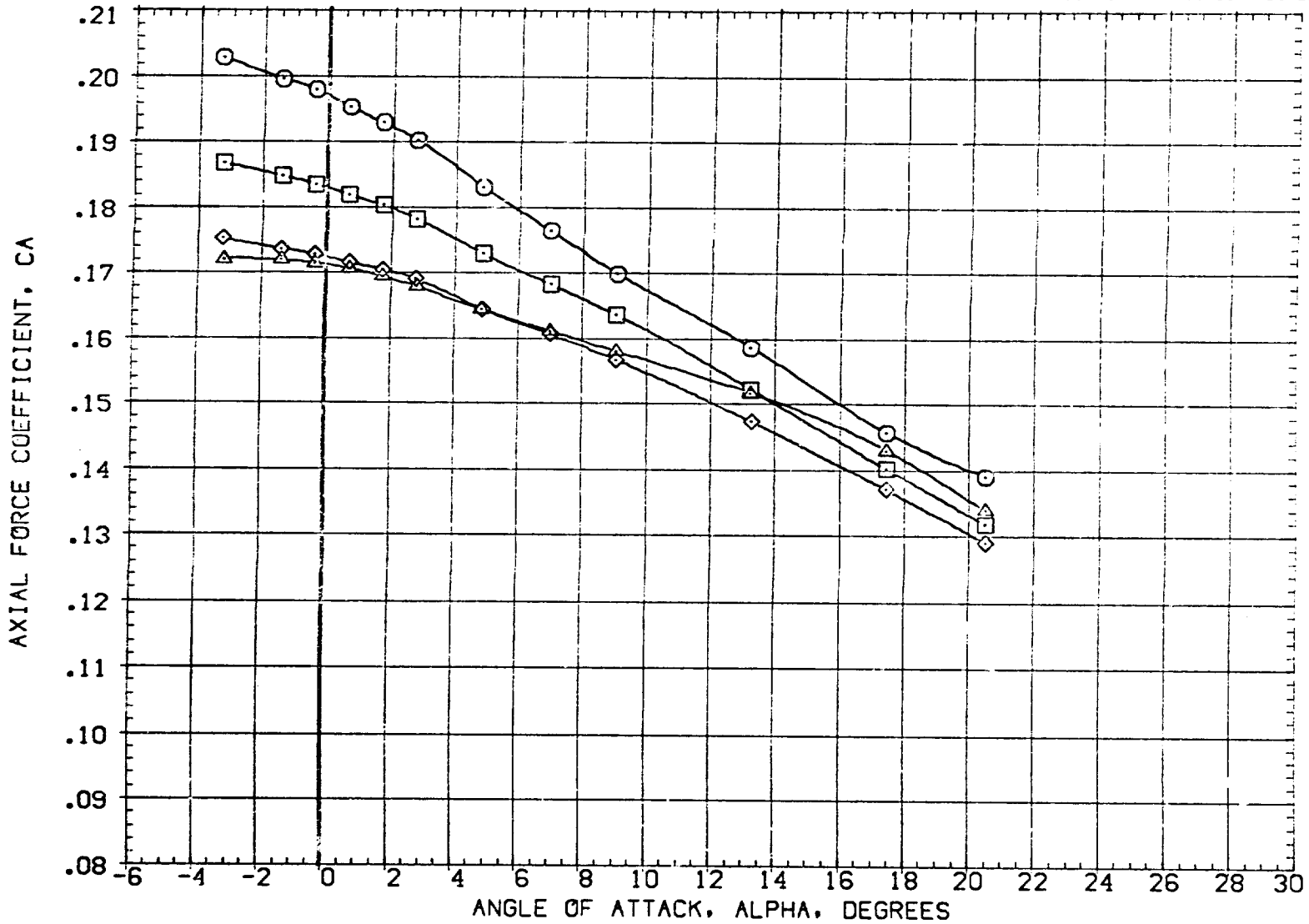
REFERENCE DIMENSIONS	
AREA	s_w=2690.00 FT^2
MAC	$\bar{c}$ = 474.80 IN.
C.G.	x = 838.48 IN.
	z = 400.00 IN.
SPAN	b_w= 936.68 IN.
LENGTH	l_b=1290.30 IN.

Figure 2. - SSV Orbiter Configuration.

DATA FIGURES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(OP6208)	○	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	3.000	-30.000	.000	-14.250
(OP6206)	□	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	3.000	-20.000	.000	-14.250
(OP6204)	◇	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	3.000	-10.000	.000	-14.250
(OP6202)	△	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5528	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

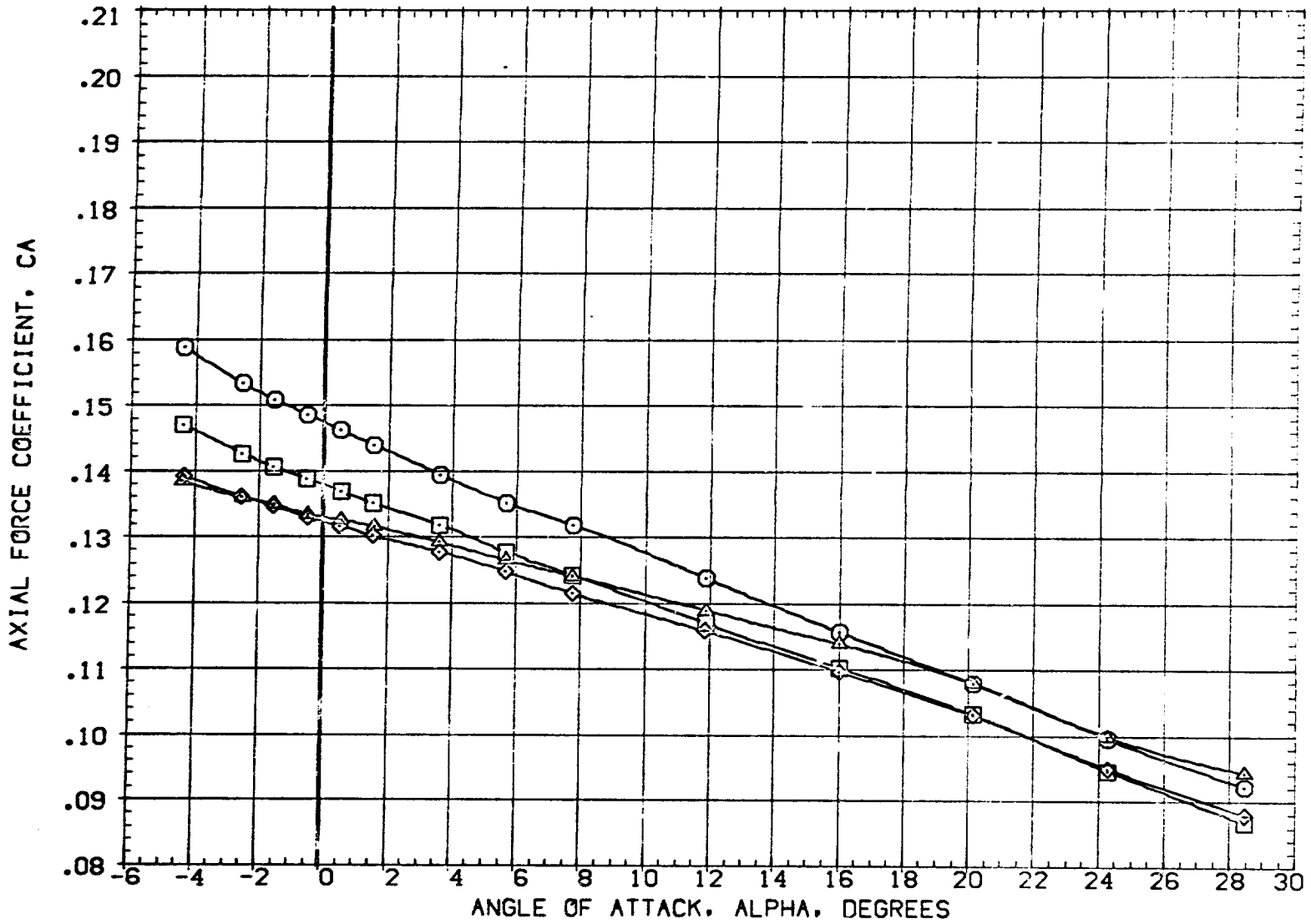


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
[DP6208]	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-30.000	.000	-14.250
[DP6206]	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-20.000	.000	-14.250
[DP6204]	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-10.000	.000	-14.250
[DP6202]	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0168	SCALE

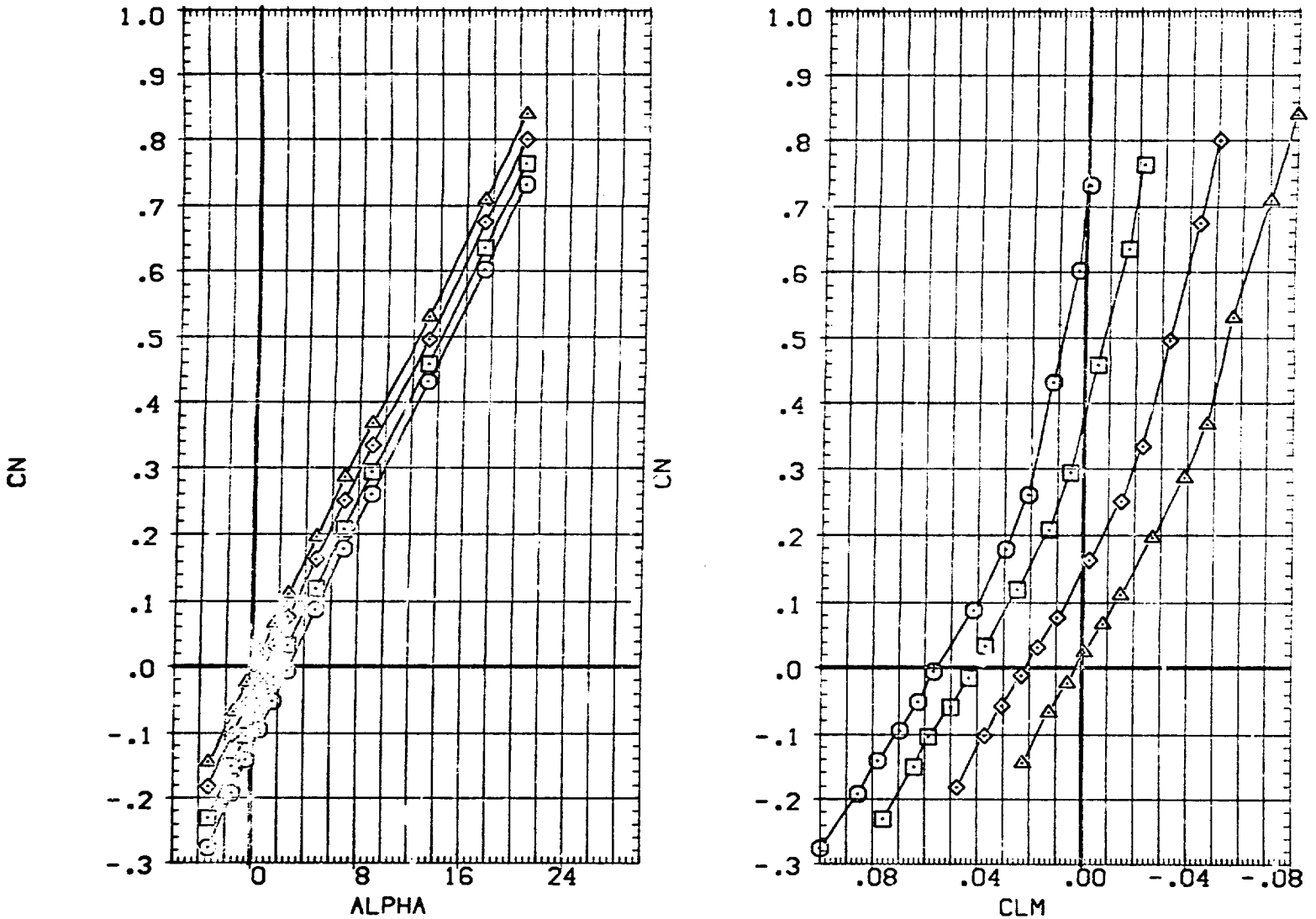


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BOFLAP
(DP6208)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

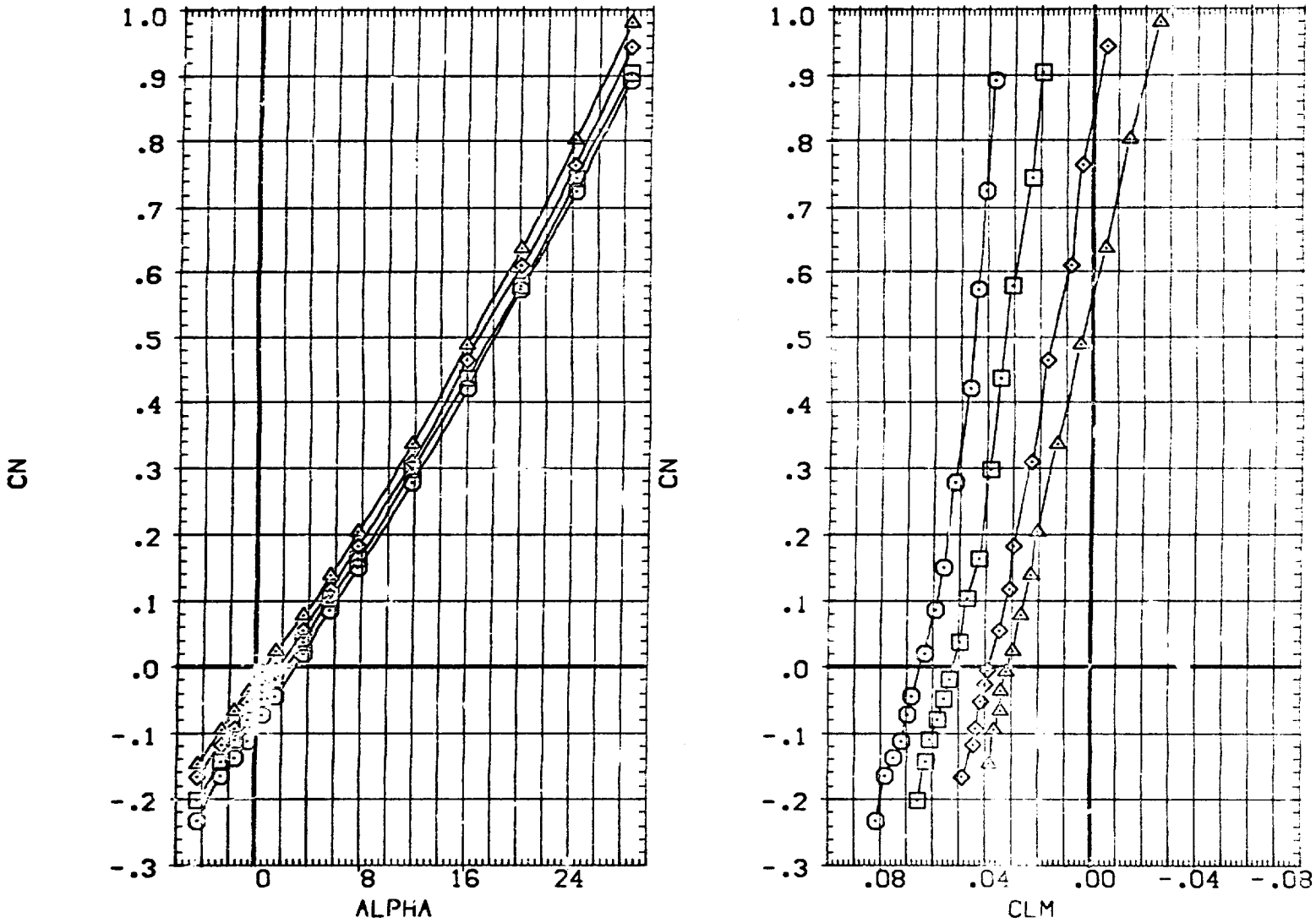


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6208)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1809	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

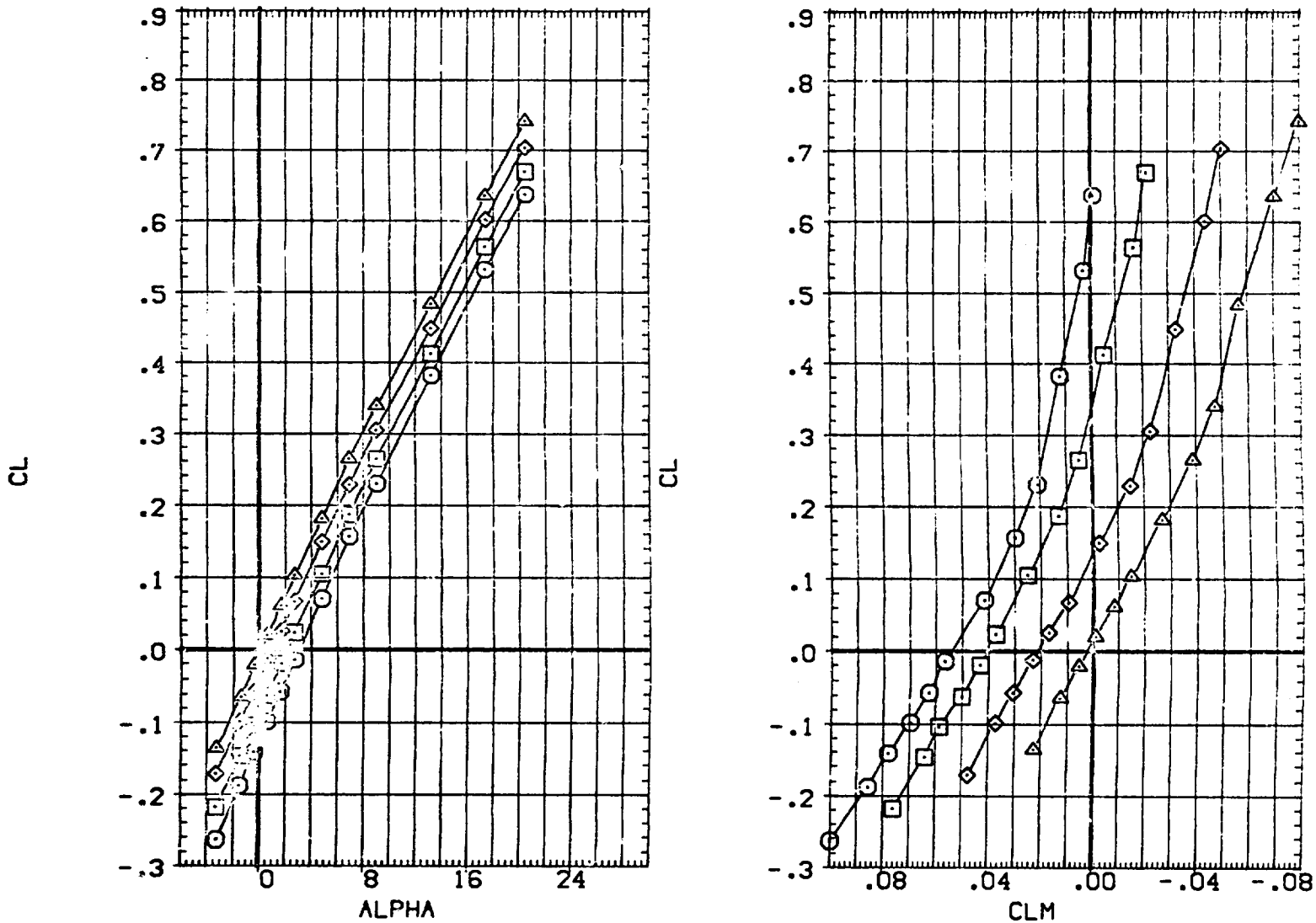


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	DFLAP
(DP6208)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPWT1040. ORBITER C89B W/MOD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0183	SCALE

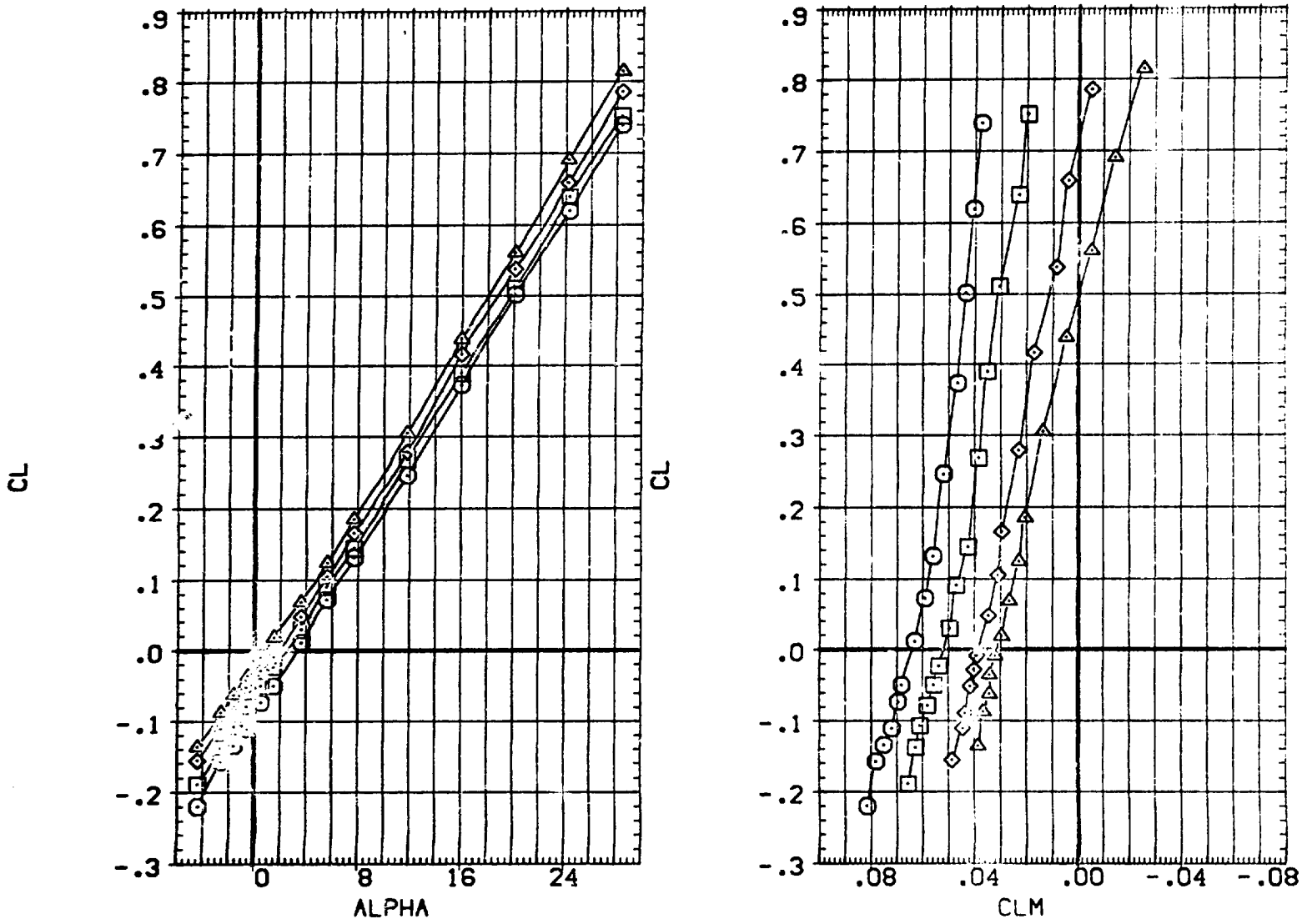


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6208)	○	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP3204)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
PAEP	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

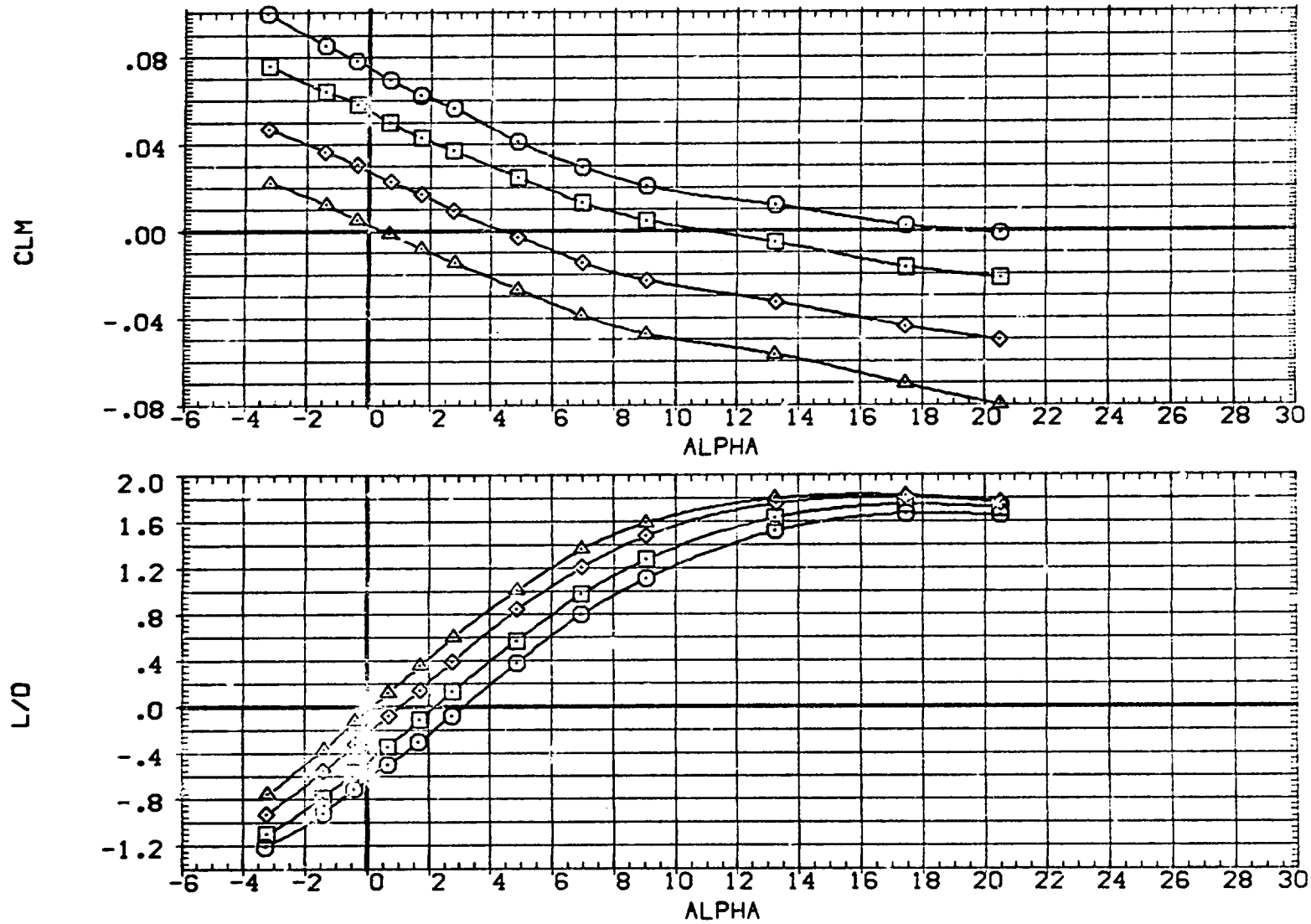


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6208)	○	LA-8C. UPVT1040. ORBITER 0899 W/MOD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

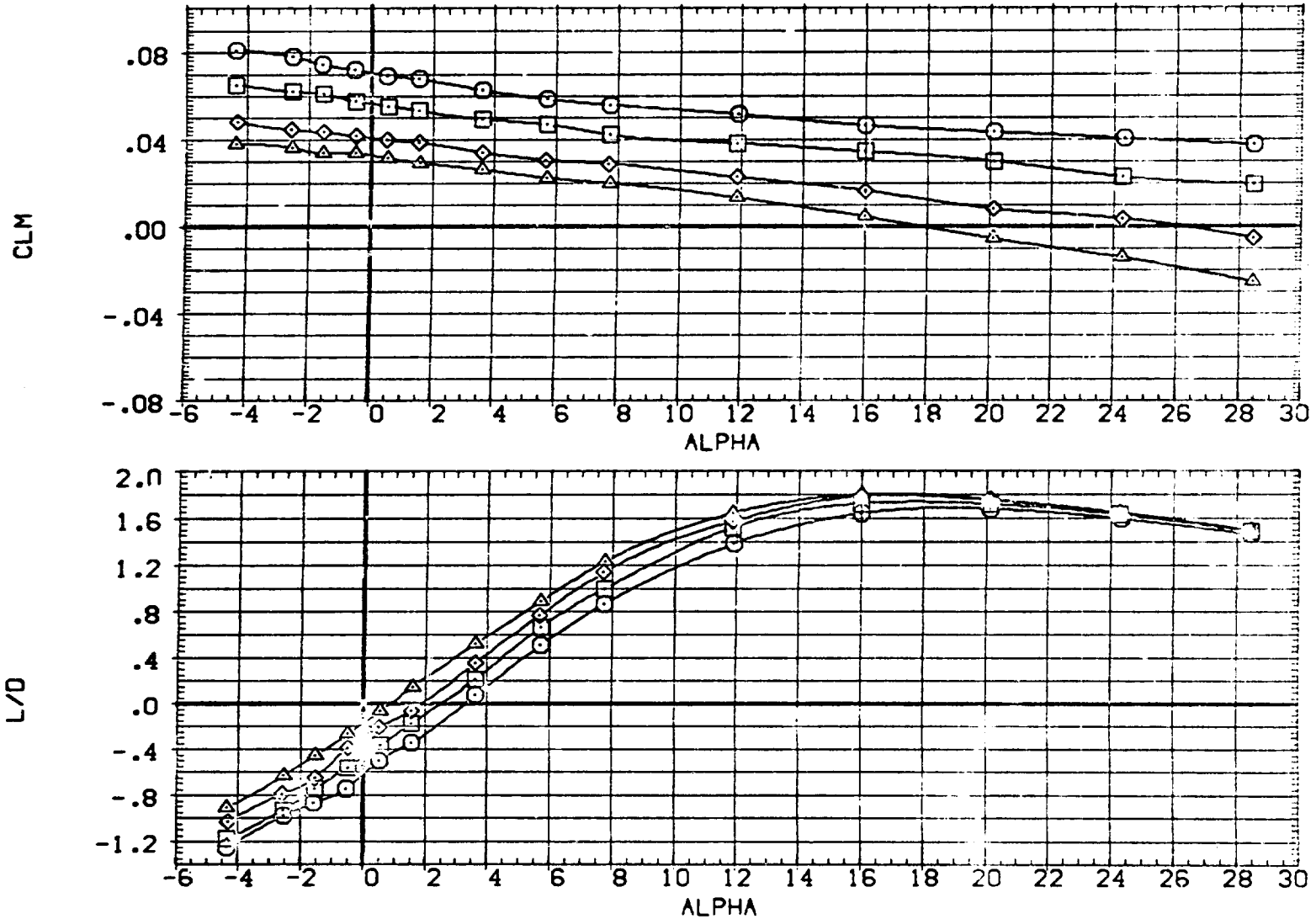


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6208)	○	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +CMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +CMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +CMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +CMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9975	INCHES
BREF	17.5678	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

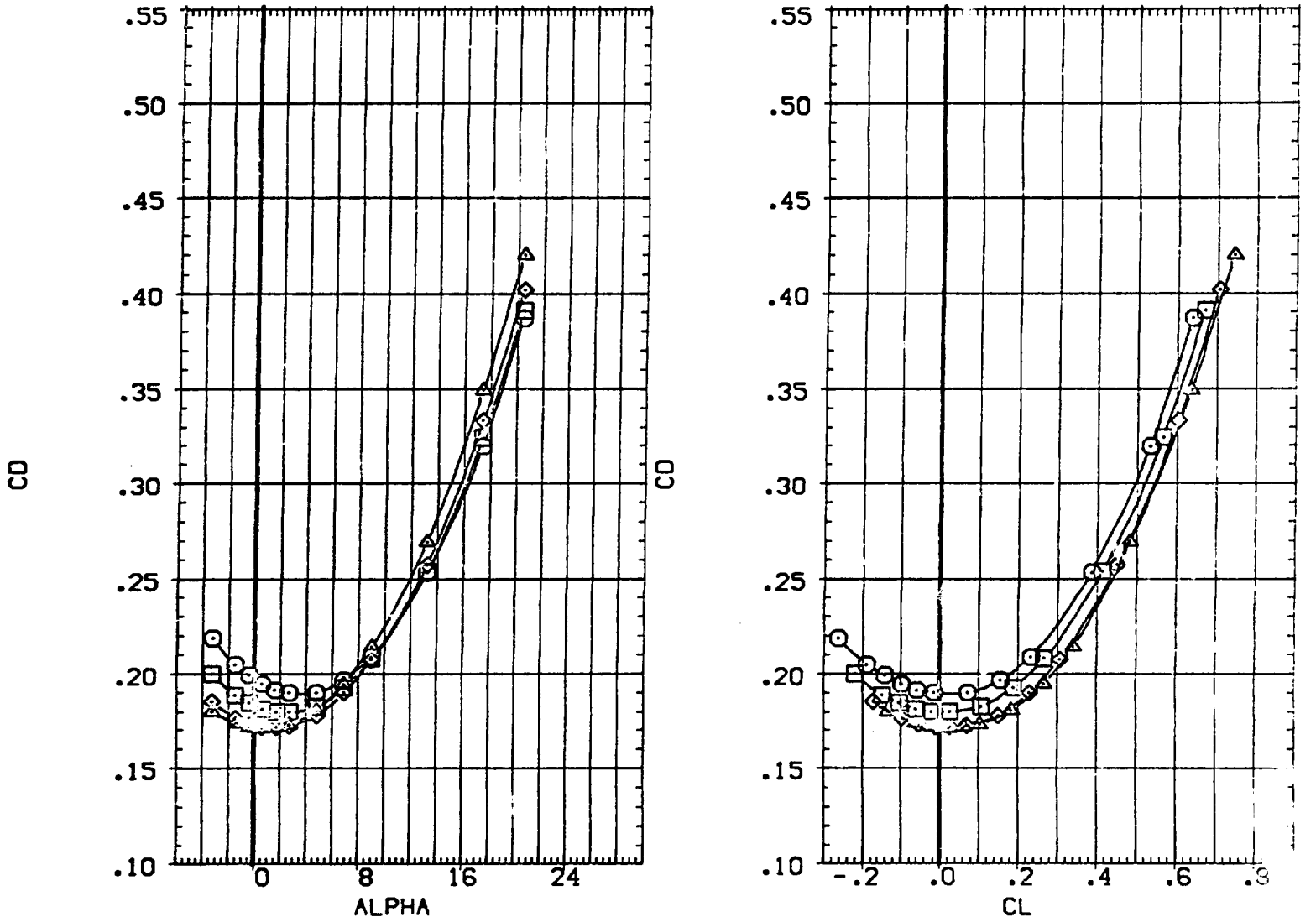


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6208)	○	LA-8C. UPWT1040. ORBITER 089B W/MJD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP62C6)	□	LA-8C. UPWT1040. ORBITER 089B W/MCD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPWT1040. ORBITER 089B W/MCD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPWT1040. ORBITER 089B W/MCD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

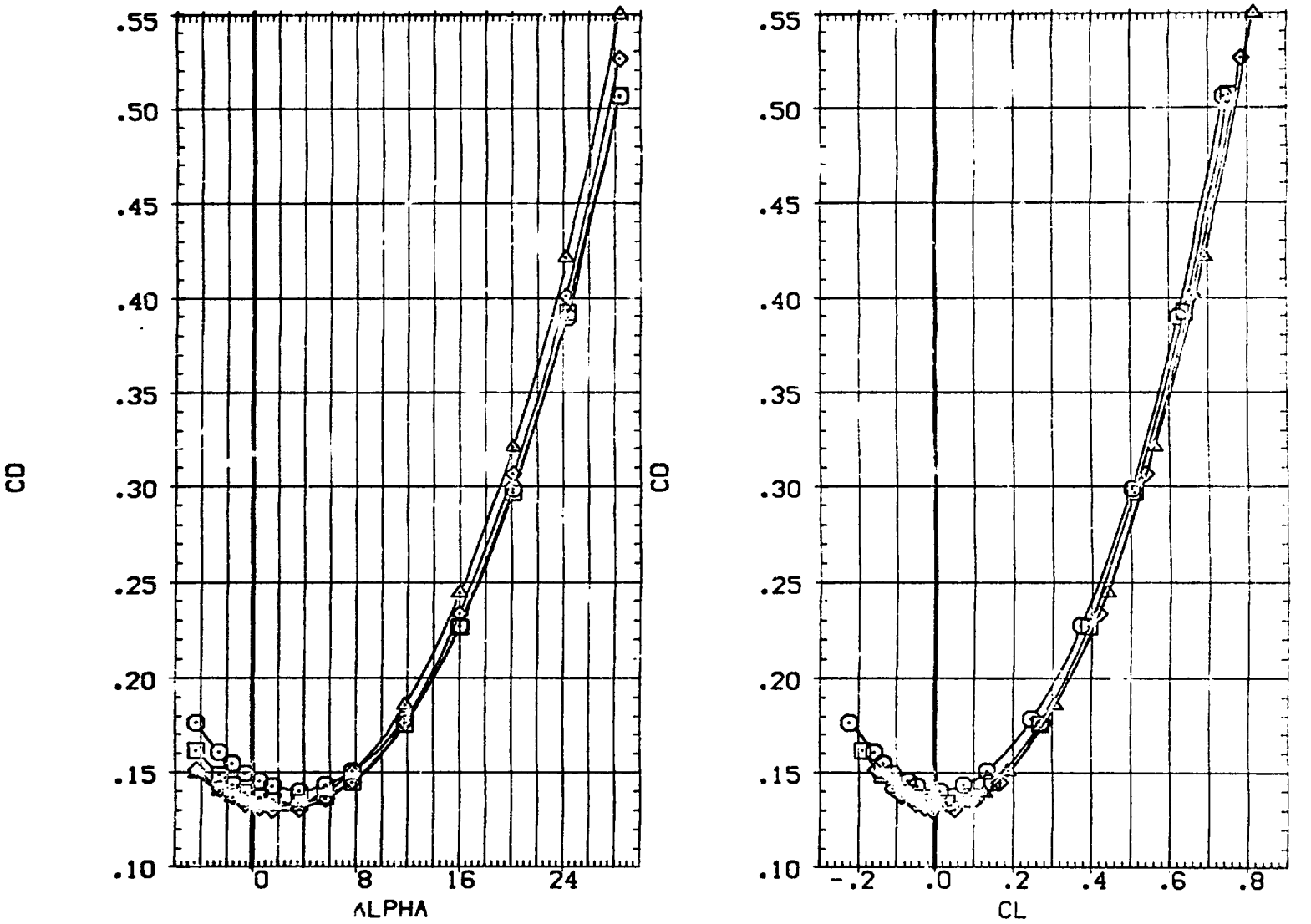


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BOFLAP
(DP6208)	○	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-30.000	.000	-14.250
(DP6206)	□	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-20.000	.000	-14.250
(DP6204)	◇	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	-10.000	.000	-14.250
(DP6202)	△	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	3.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0138	SCALE

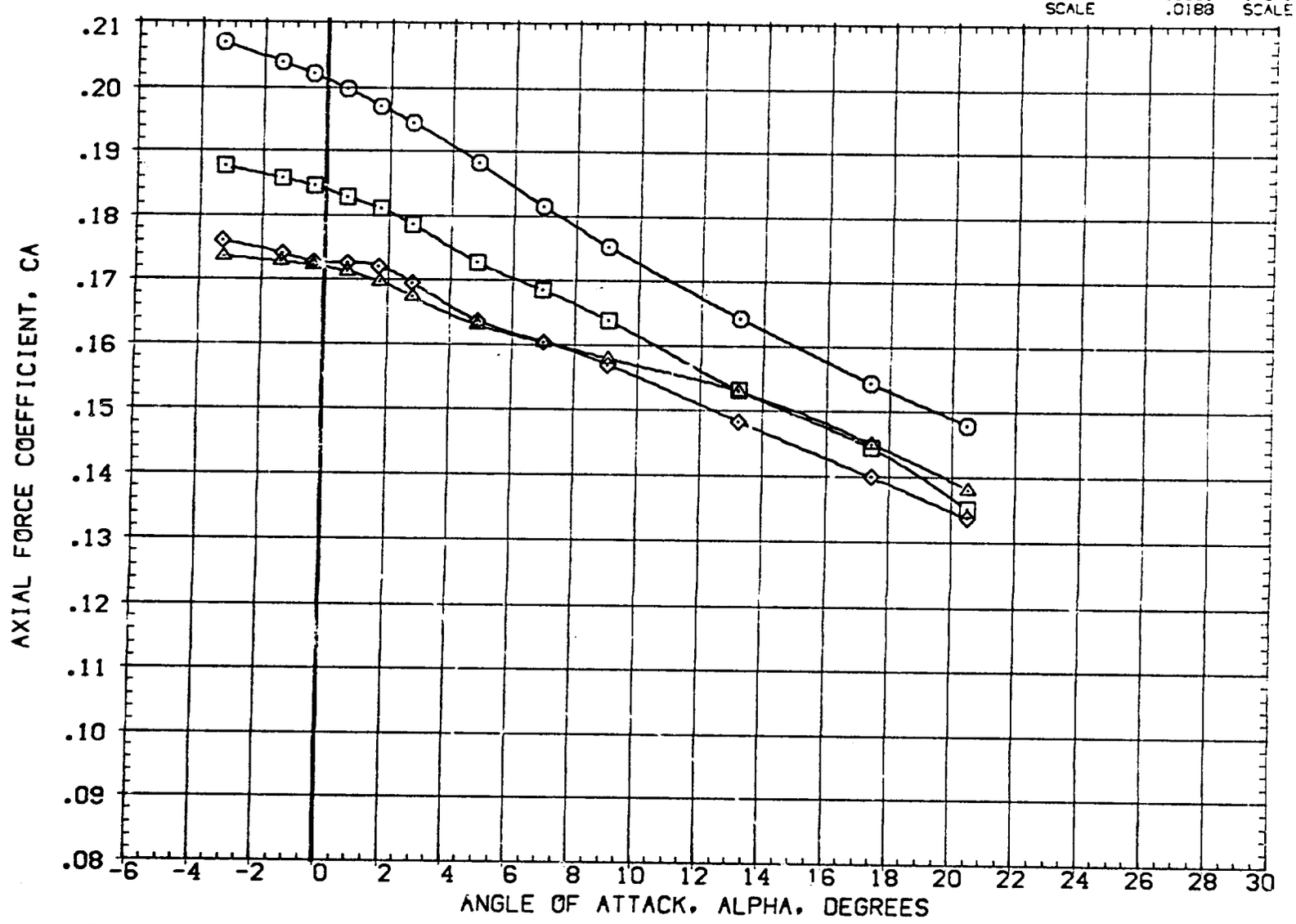


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6209)	○	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

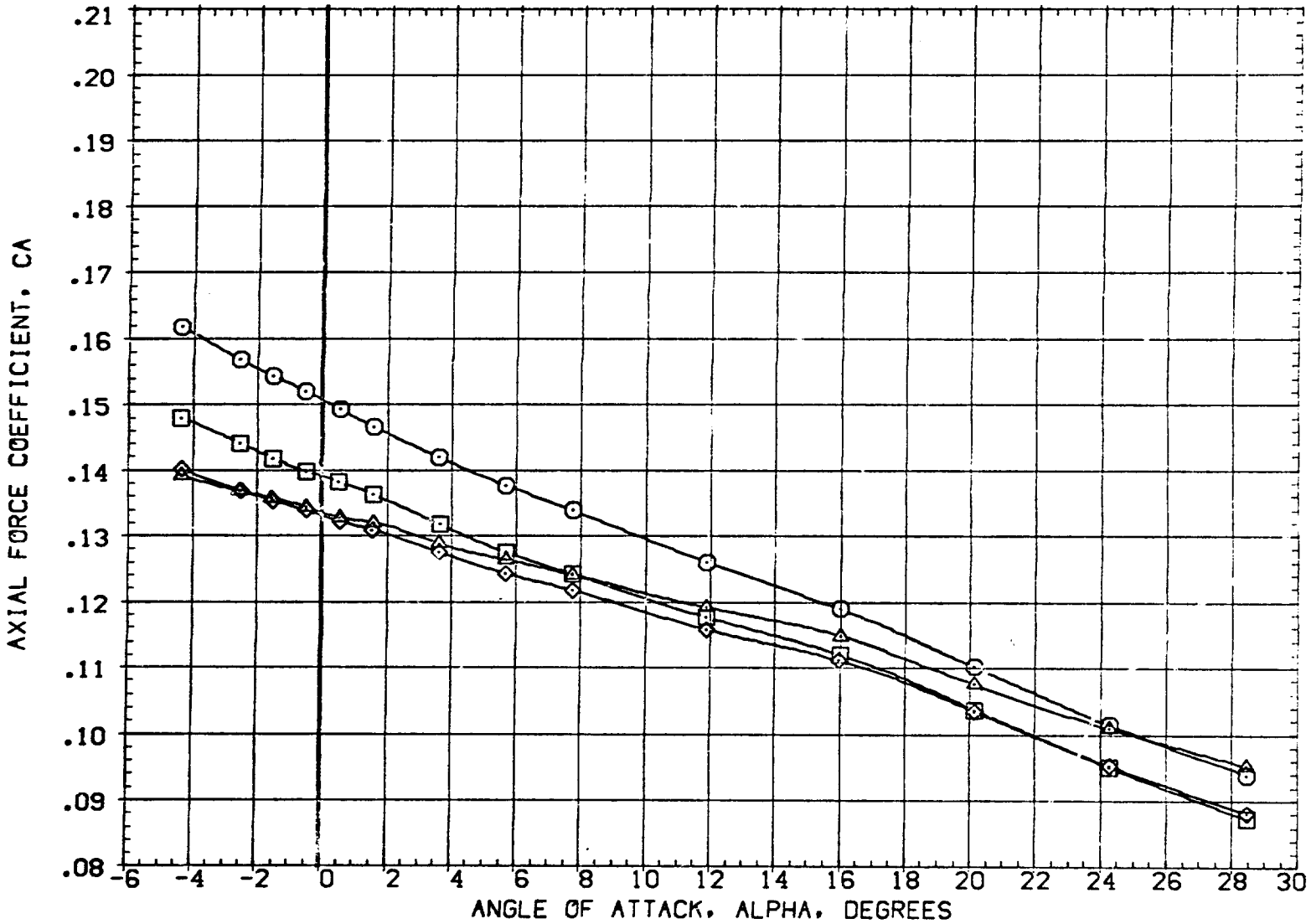


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6209)	○	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5528	INCHES
XMRP	1 .7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

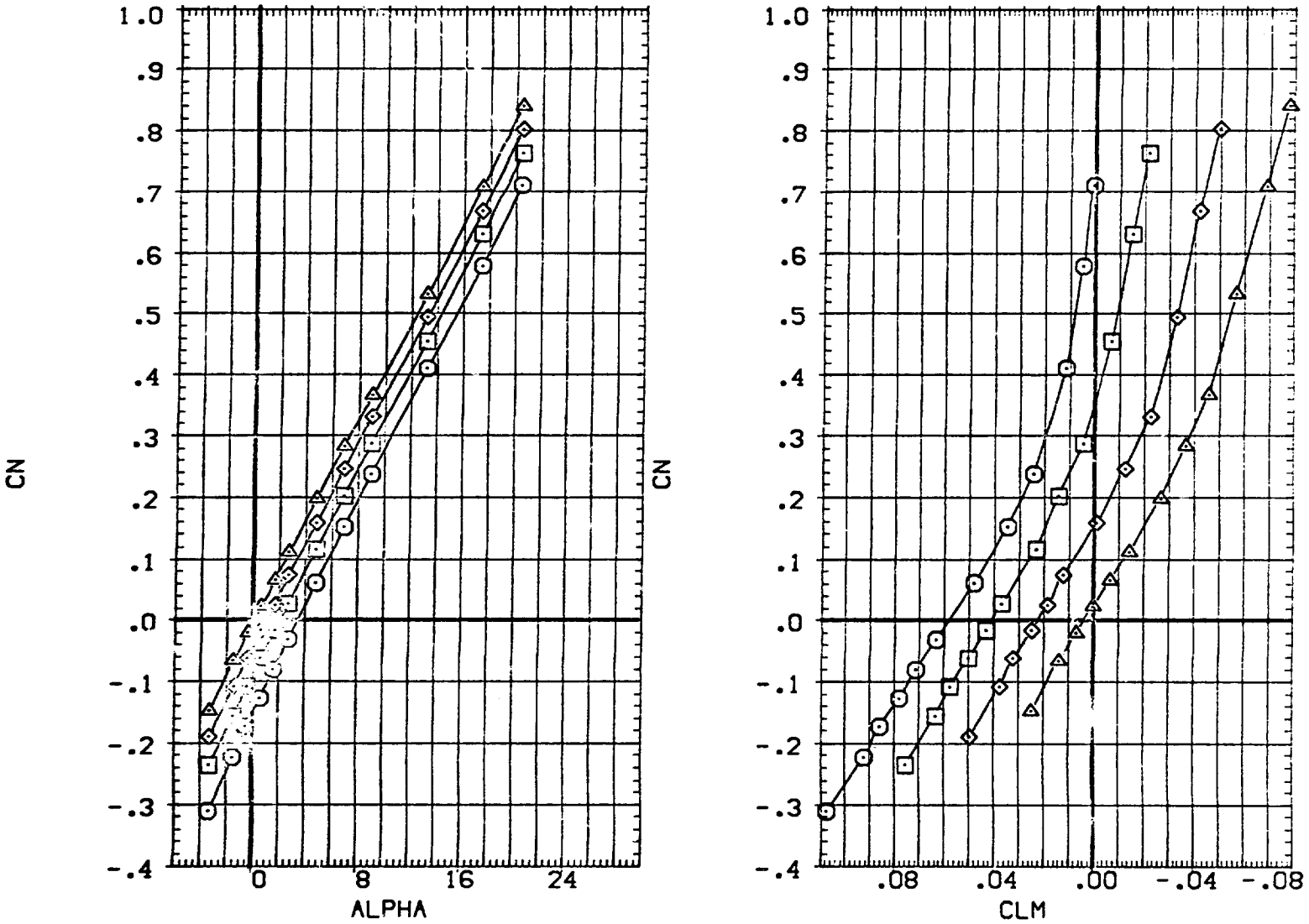


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BOFLAP
(OP6209)	○	LA-8C. UPVT1040. ORBITER 0899 W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(OP6205)	□	LA-8C. UPVT1040. ORBITER 0899 W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(OP6203)	◇	LA-8C. UPVT1040. ORBITER 0899 W/MOD NOSE +OMS	.000	-10.000	.000	-14.250
(OP6201)	△	LA-8C. UPVT1040. ORBITER 0899 W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5528	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

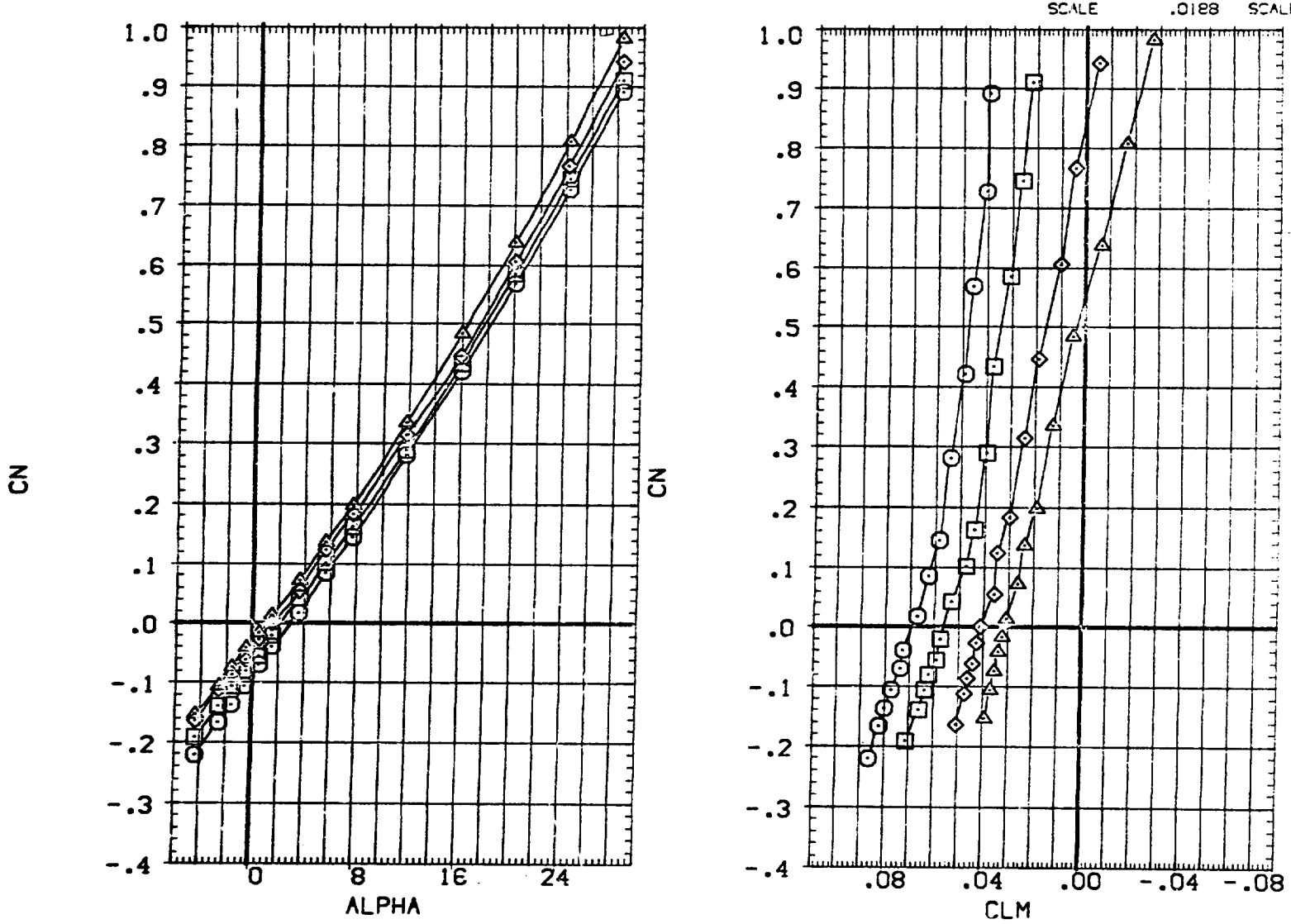


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BOFLAP
(OP6209)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(OP6205)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(OP6203)	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(OP6201)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

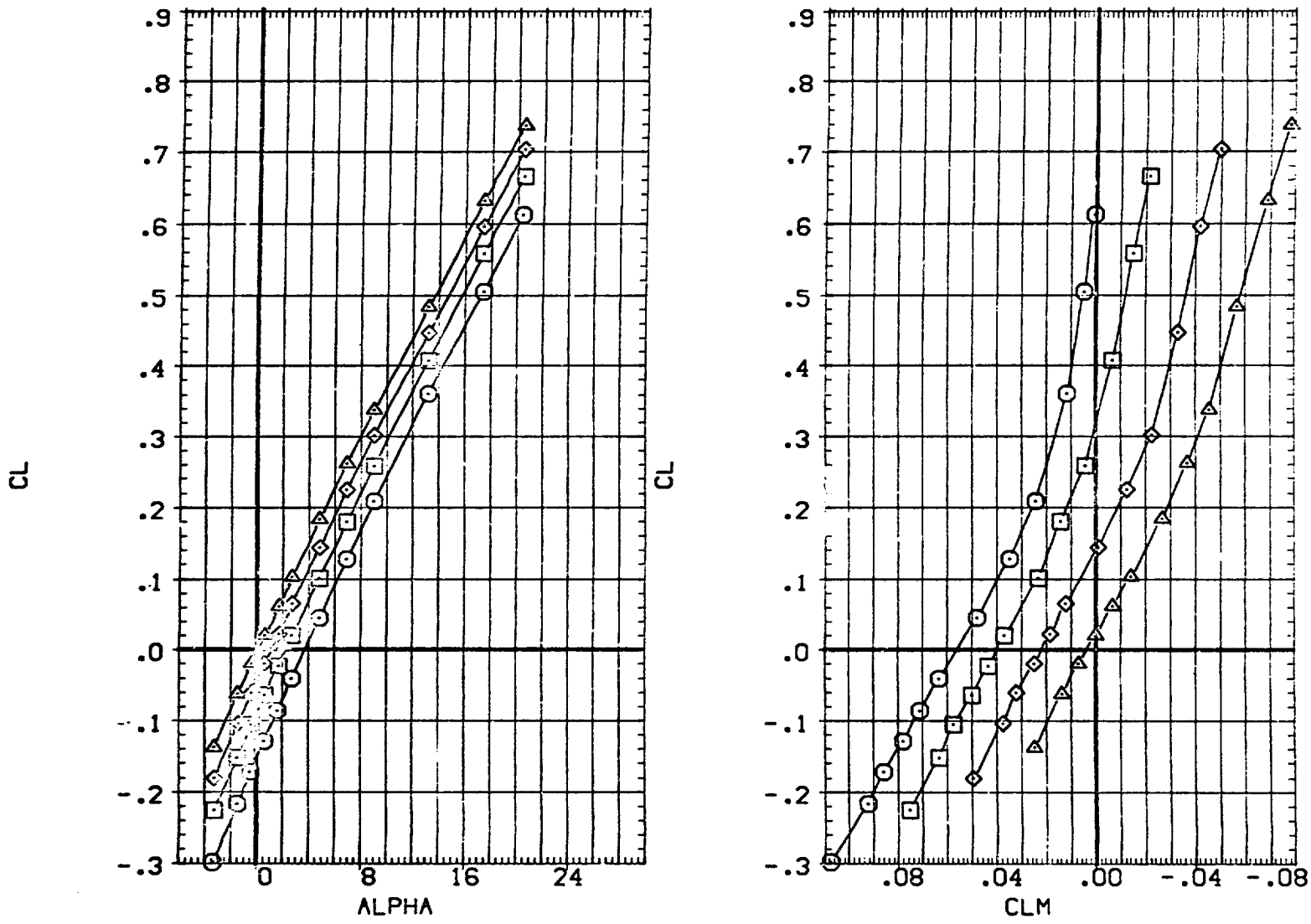


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(OP6209)	○	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(OP6205)	□	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(OP6203)	◇	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(OP6201)	△	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

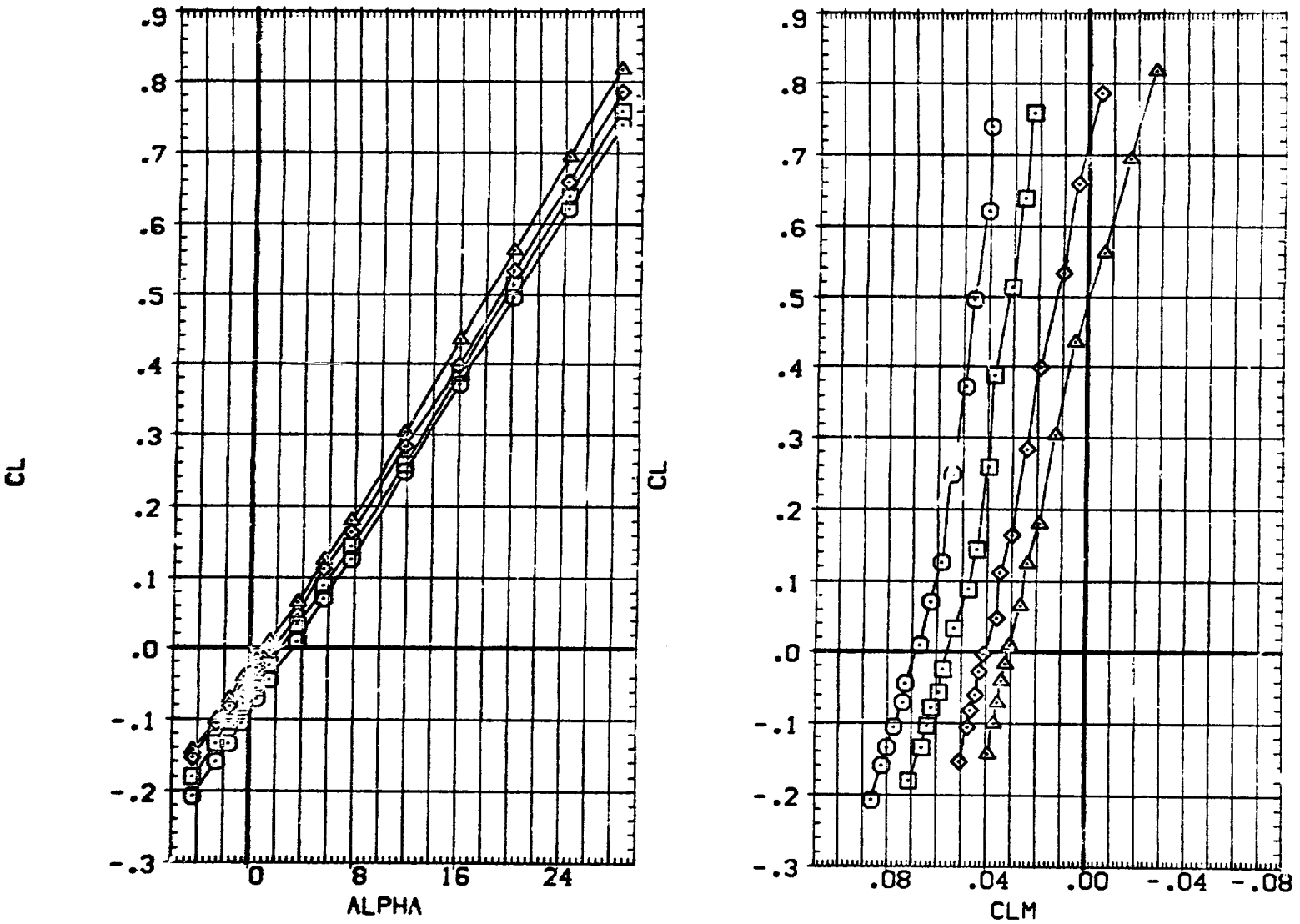


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6209)	○	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

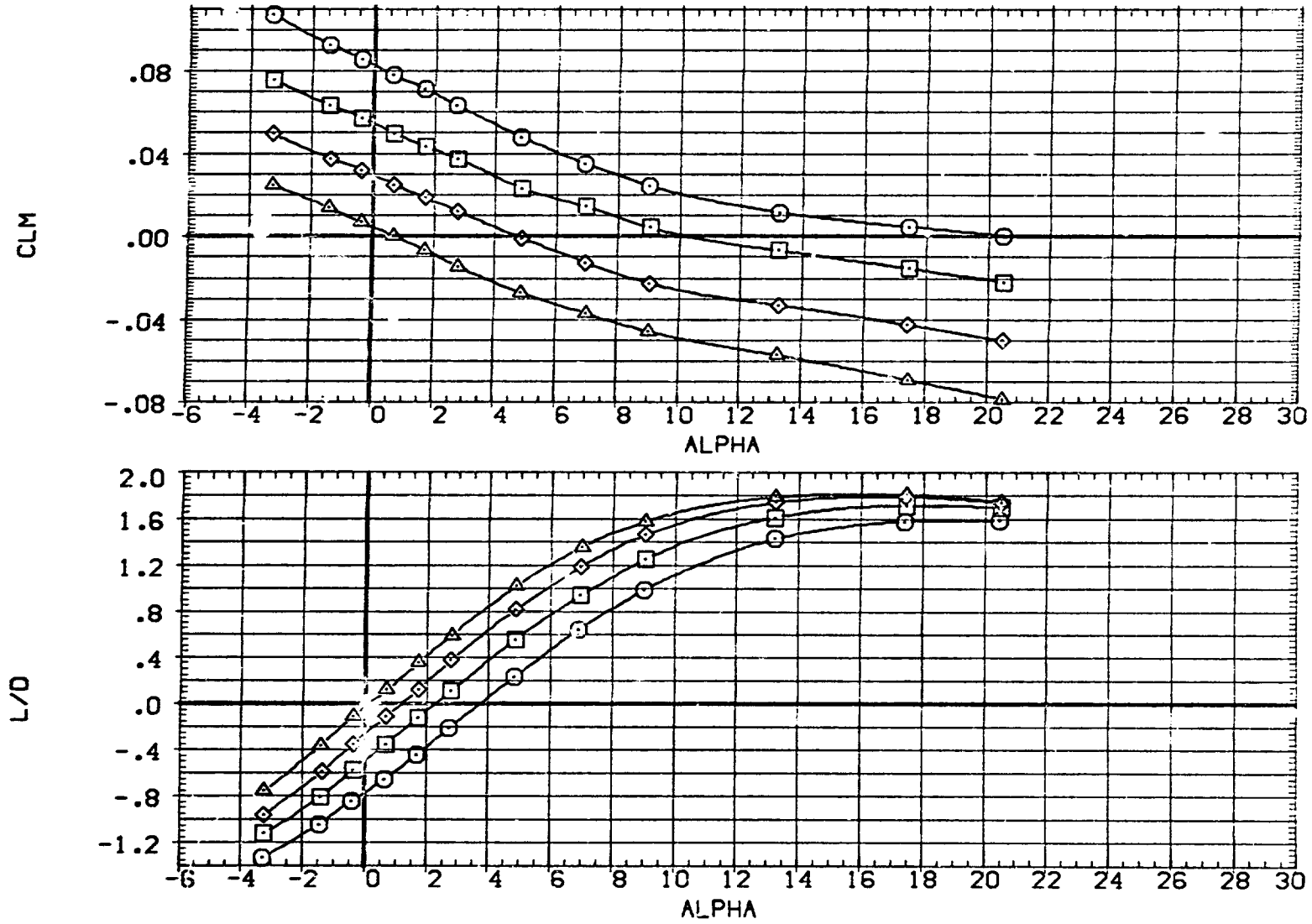


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6209)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

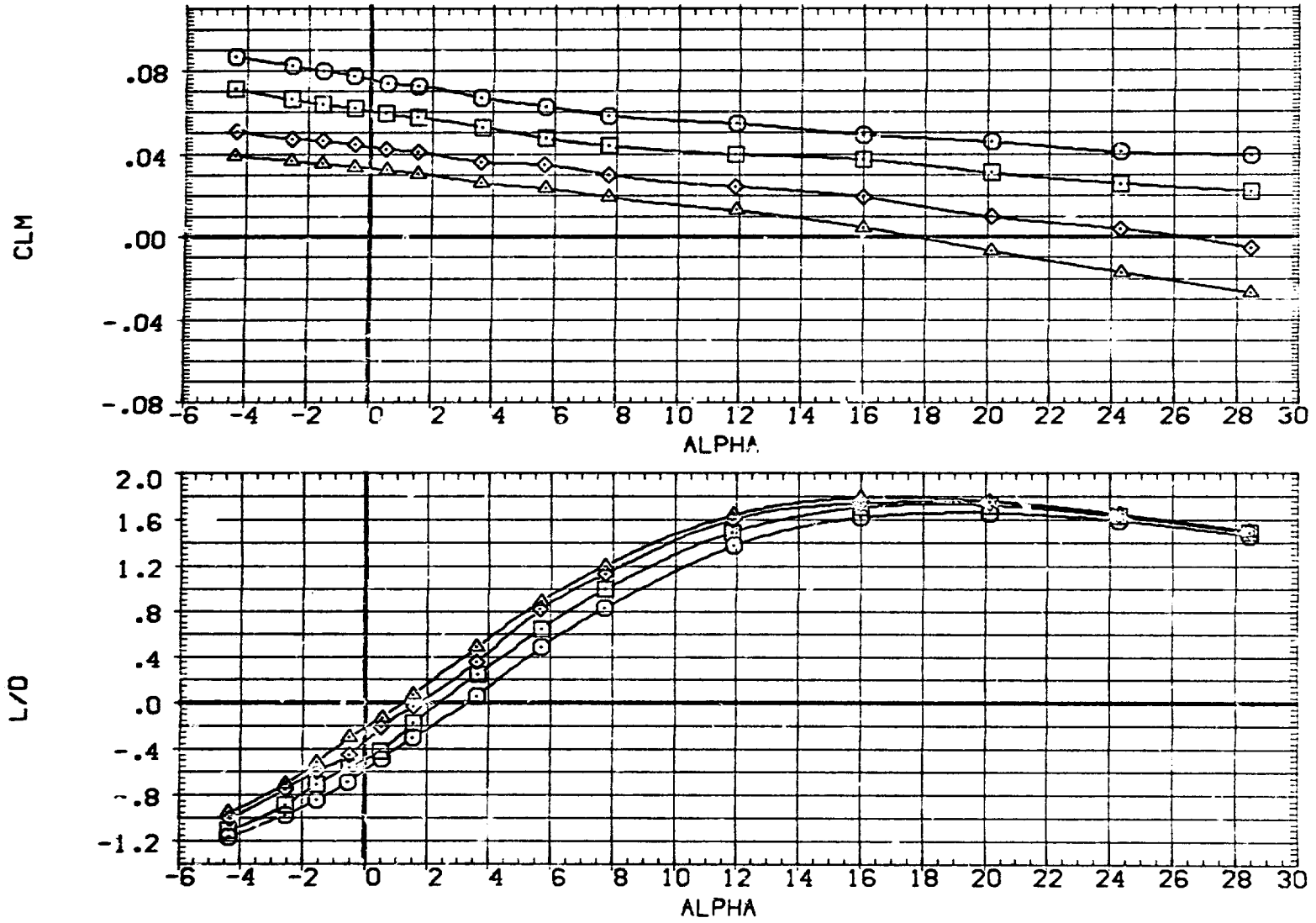


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BDFLAP
(DP6209)	○	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

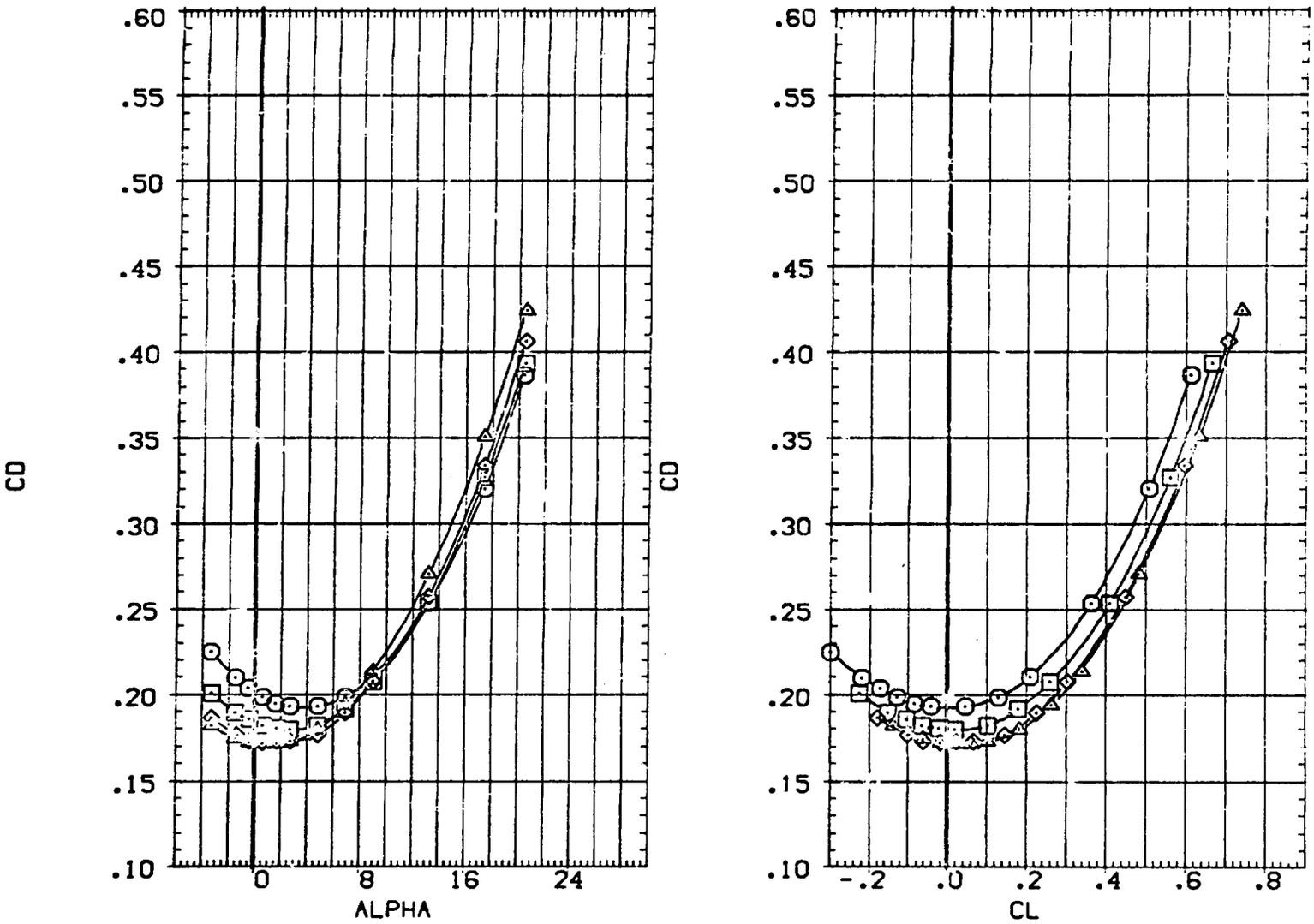


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELEVTR	AILRON	BOFLAP
(DP6209)	○	LA-8C. LPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-30.000	.000	-14.250
(DP6205)	□	LA-8C. LPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-20.000	.000	-14.250
(DP6203)	◇	LA-8C. LPVT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	-10.000	.000	-14.250
(DP6201)	△	LA-8C. LPVT1040. ORBITER 08 W/MOD. NOSE +OMS	.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



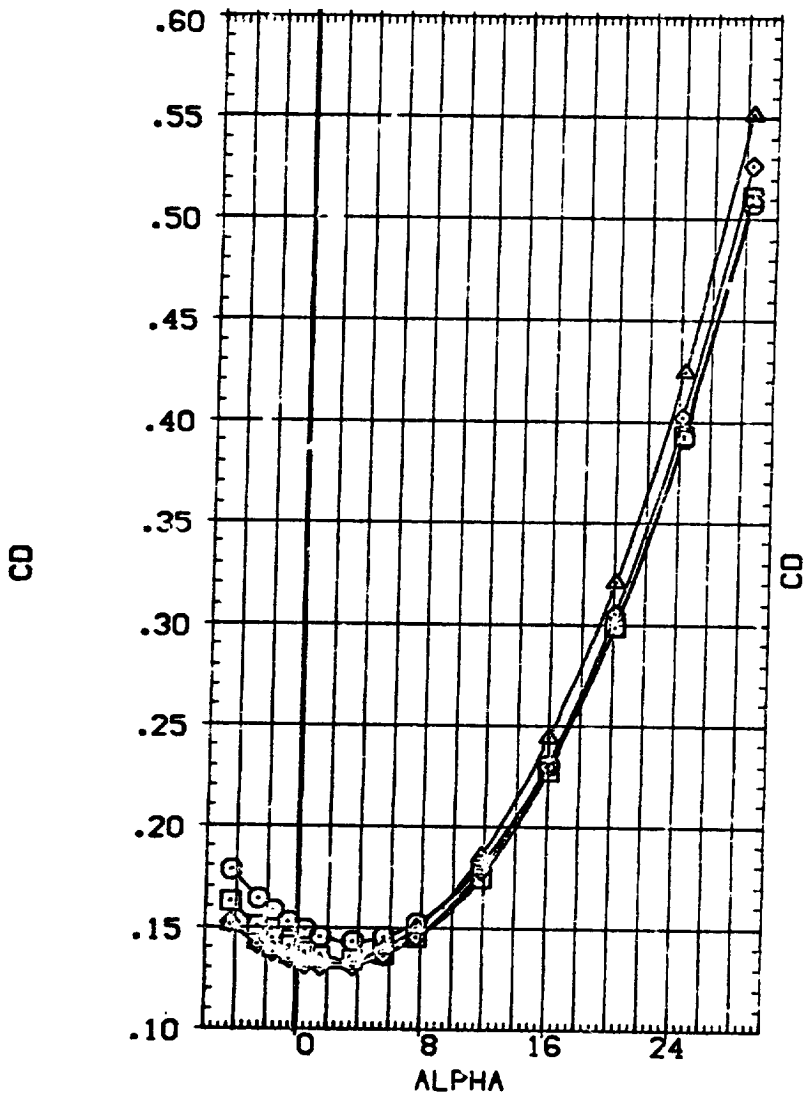
EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

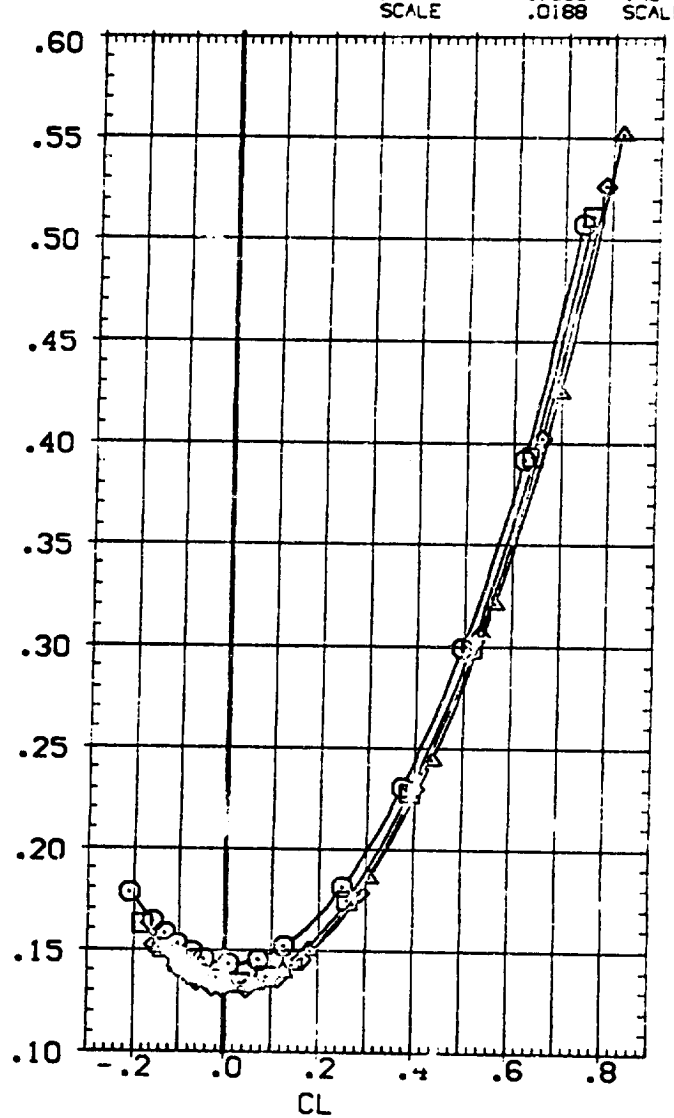
(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(DP6209)	○	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS
(DP6205)	□	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS
(DP6203)	◇	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS
(DP6201)	△	LA-8C. UPVT1040. ORBITER 0898 W/MOD. NOSE +OMS

BETA	ELEVTR	AILRON	BDFLAP
.000	-30.000	.000	-14.250
.000	-20.000	.000	-14.250
.000	-10.000	.000	-14.250
.000	.000	.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5528	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



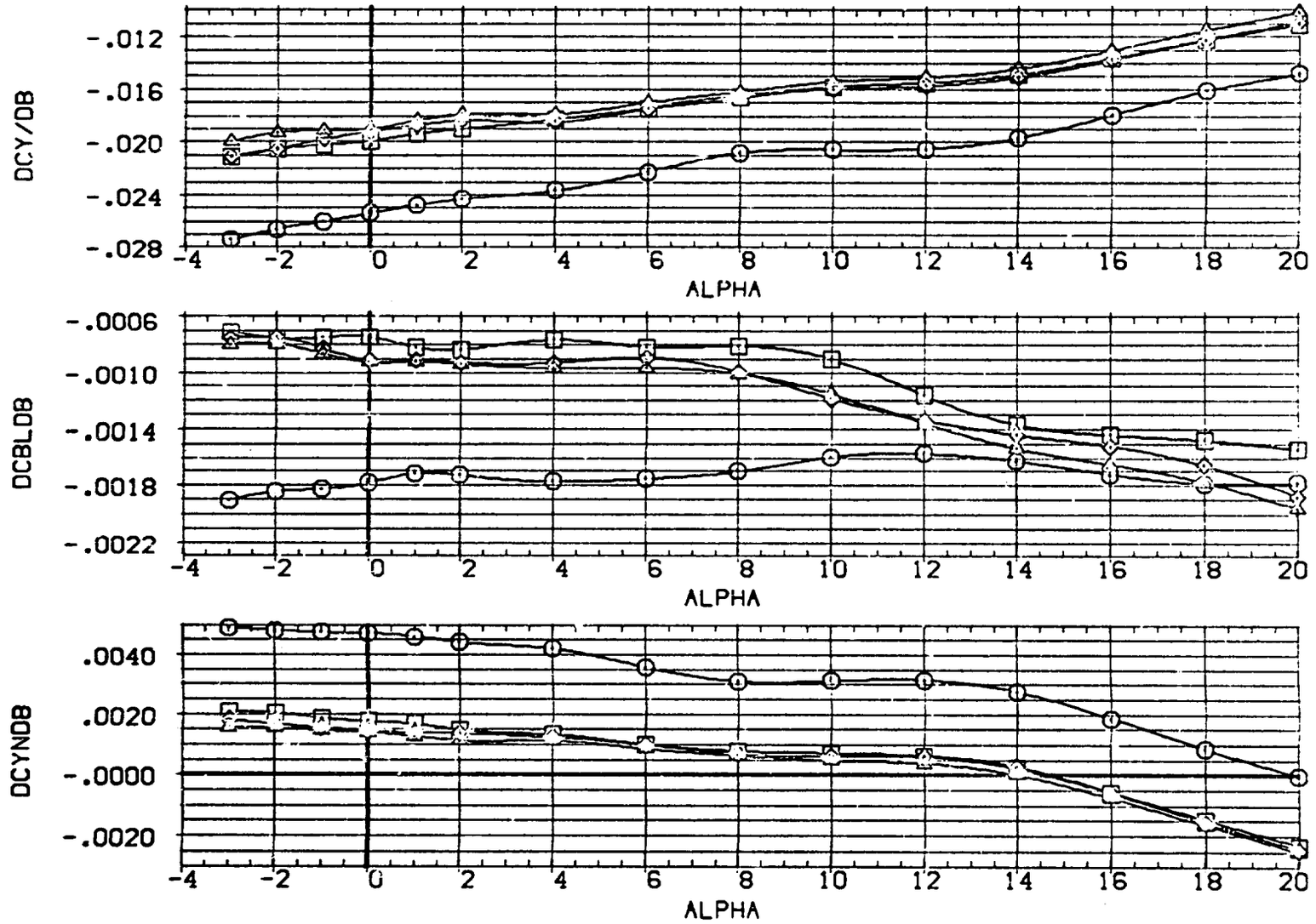


EFFECT OF ELEVON DEFLECTION ON LONGITUDINAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(LP6CC8) ○	LA-8C. UPWT1040. ORBITER 0698 W/MOD. NOSE +OMS	-30.000	.000	
(LP6CC6) □	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-20.000	.000	.000
(LP6CC4) ⊠	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-10.000	.000	.000
(LPSCC2) △	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	.000	.000	.000

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

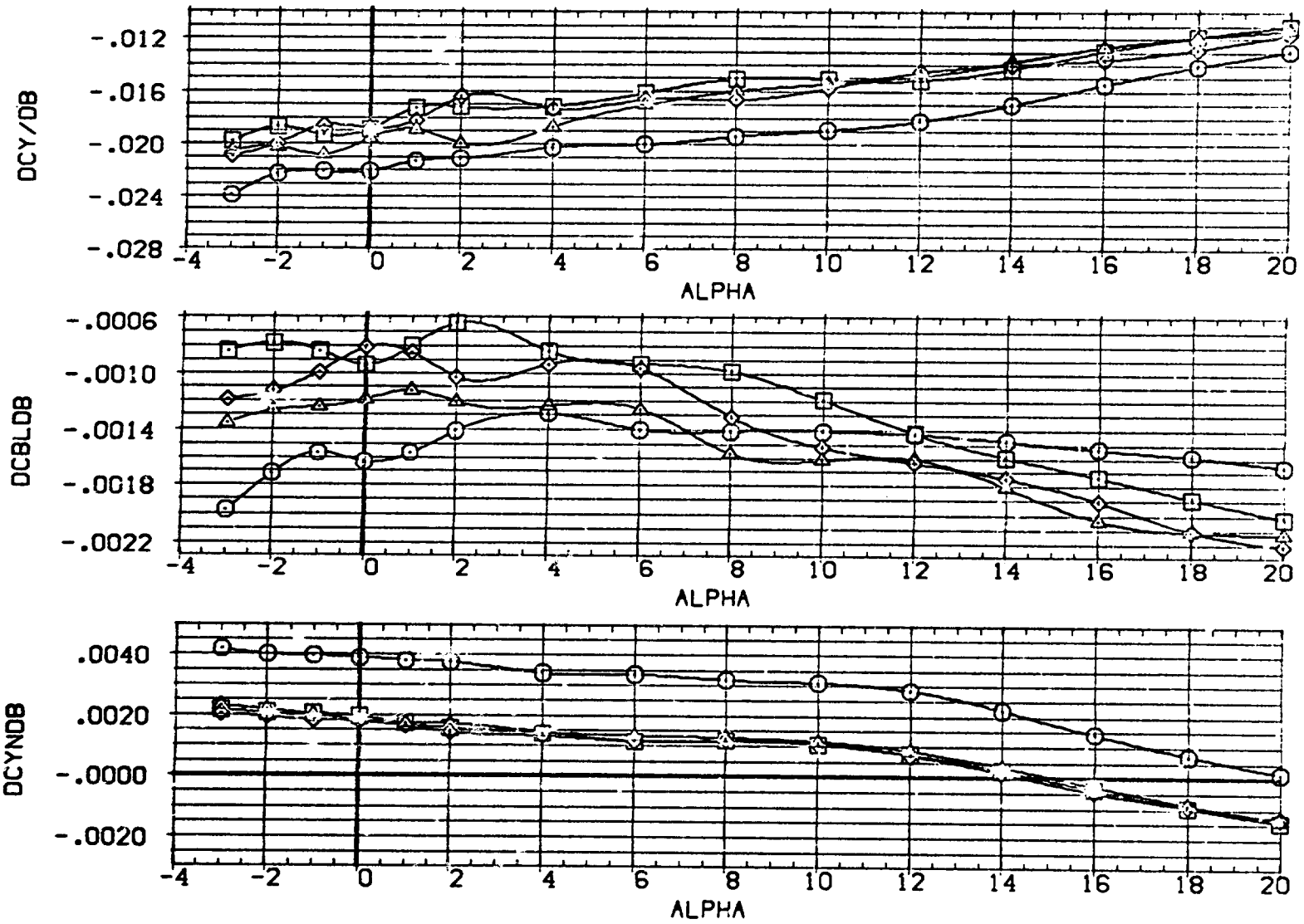


EFFECT OF ELEVON DEFLECTION ON LATERAL-DIRECTIONAL CHARACTERISTICS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(LP6C08)	○	LA-8C. UPVT1040. ORBITER C838 W/MOD. NOSE +OMS	-30.000	.000	
(LP6C06)	□	LA-8C. UPVT1040. ORBITER C898 W/MOD. NOSE +OMS	-20.000	.000	.000
(LP6C04)	◇	LA-8C. UPVT1040. ORBITER C898 W/MOD. NOSE +OMS	-10.000	.000	.000
(LP6C02)	△	LA-8C. UPVT1040. ORBITER C898 W/MOD. NOSE +OMS	.000	.000	.000

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9026	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



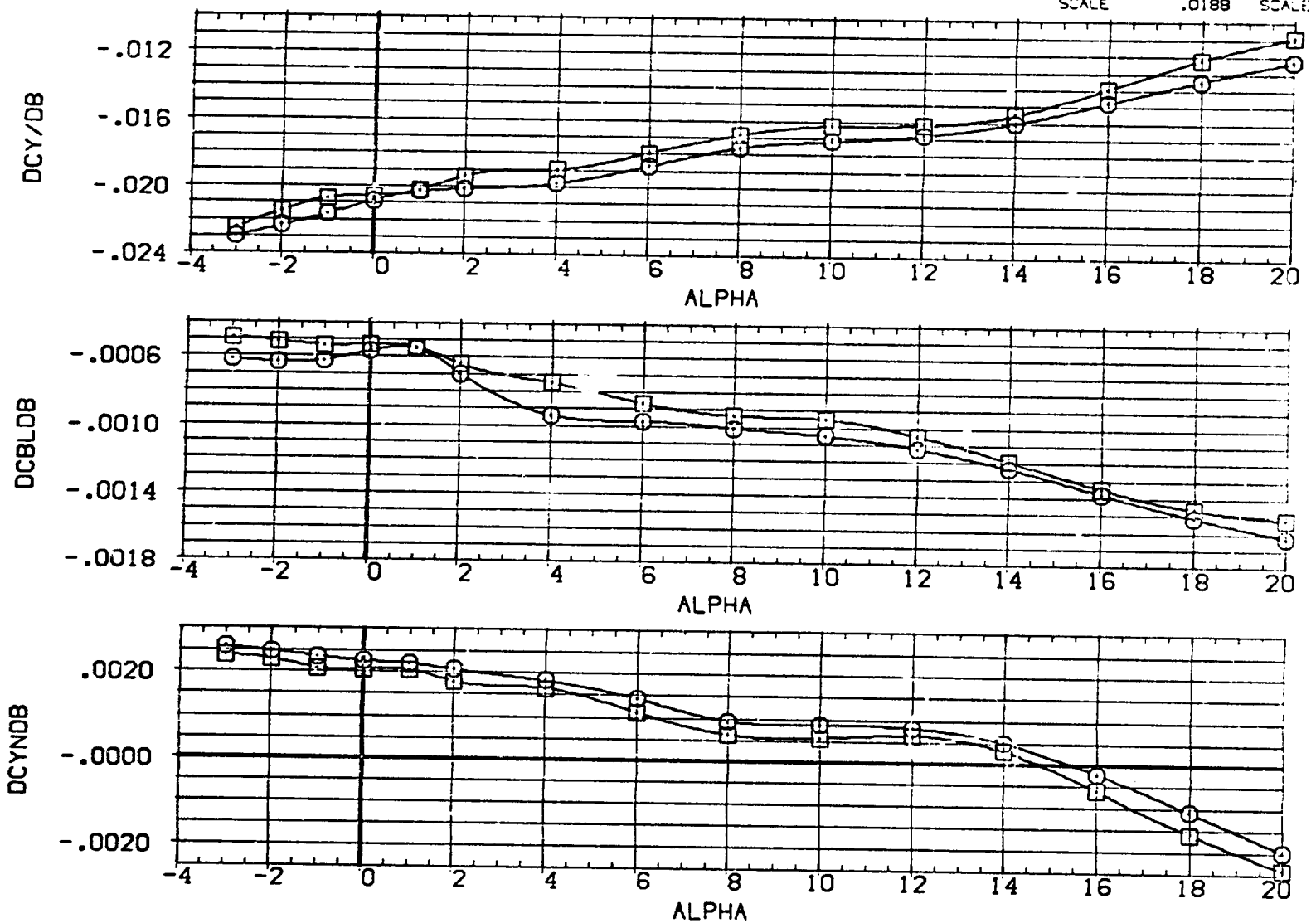
EFFECT OF ELEVON DEFLECTION ON LATERAL-DIRECTIONAL CHARACTERISTICS

(B)MACH = 2.86

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(MPSC10)	○	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	-30.000	.000	10.000
(MPSC08)	□	LA-8C. UPVT1040. ORBITER 089B W/MOD. NOSE +OMS	-30.000	.000	.000

REFERENCE INFORMATION

SREF	136.1806	SQ.IN.
LREF	8.9525	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



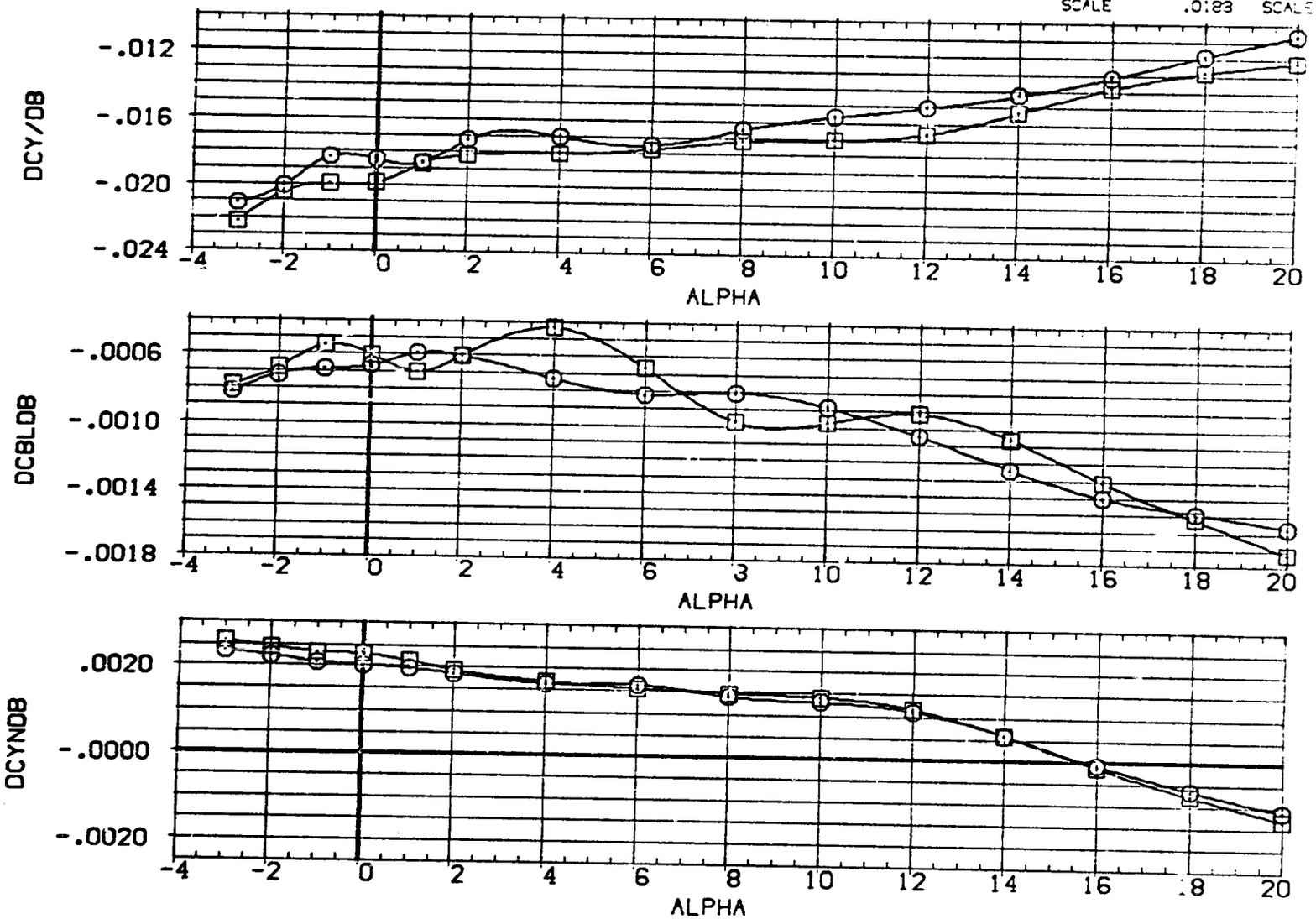
EFFECT OF RUDDER DEFLECTION ON LATERAL-DIRECTIONAL DERIVATIVES

(A)MACH = 1.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(MP6C10) ○	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-30.000	.000	10.000
(MP6C08) □	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-30.000	.000	.000

REFERENCE INFORMATION

SREF	136.1808	SQ.IN.
LREF	8.3025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0183	SCALE



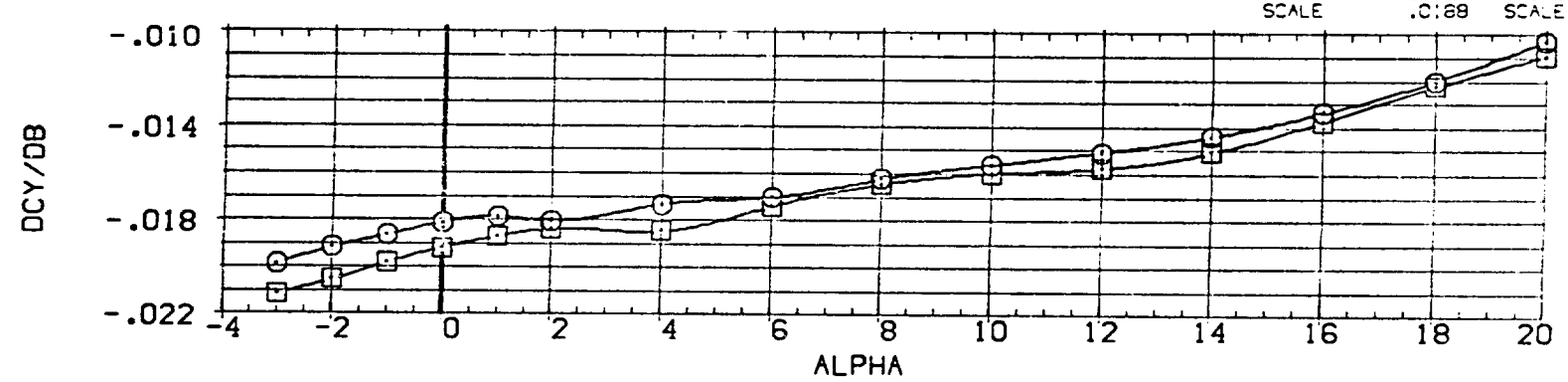
EFFECT OF RUDDER DEFLECTION ON LATERAL-DIRECTIONAL DERIVATIVES

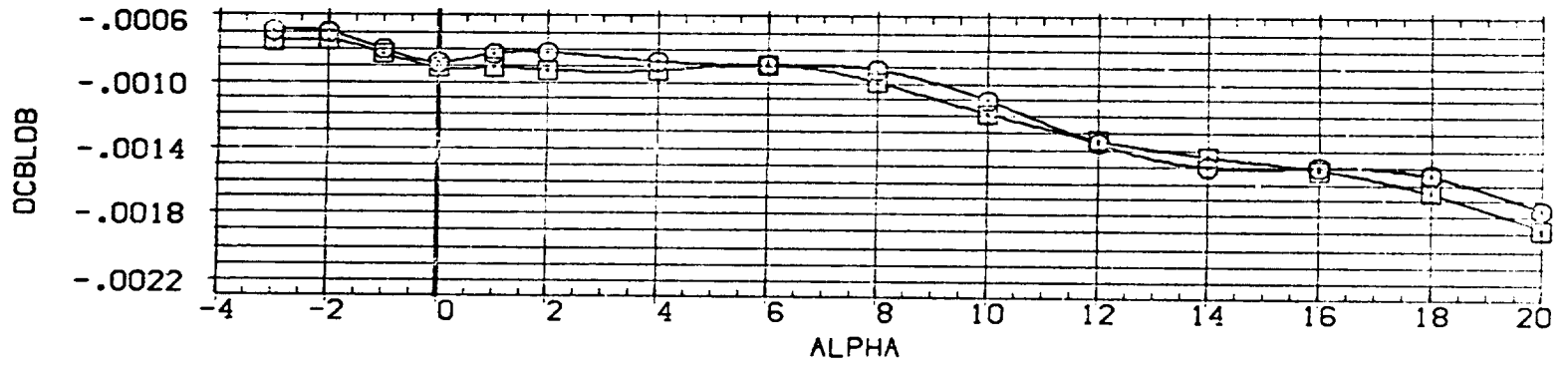
(B)MACH = 2.86

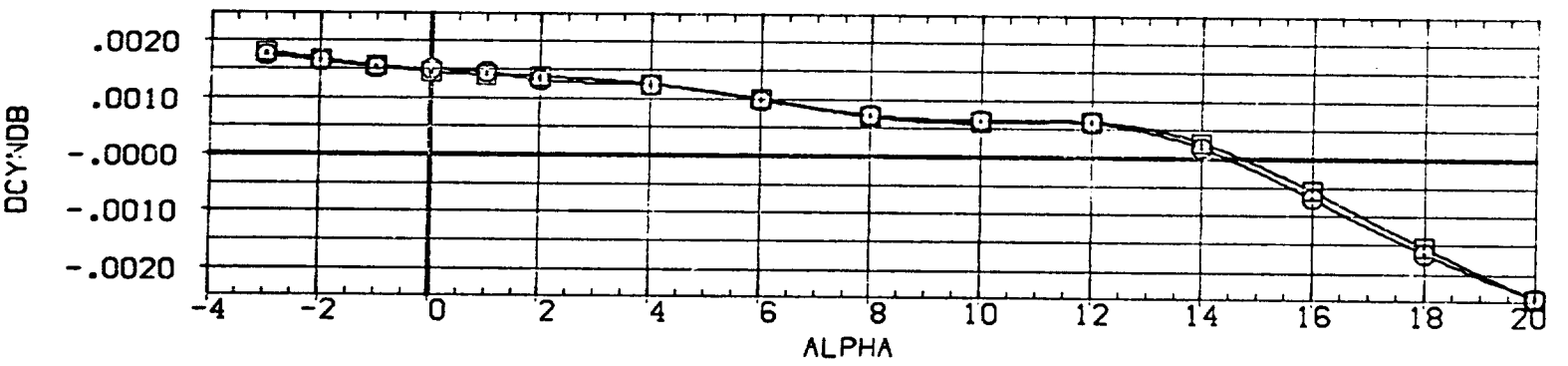
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(NP6C12) ○	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-10.000	10.000	.000
(NP6C04) □	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +OMS	-10.000	.000	.000

REFERENCE INFORMATION

SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE







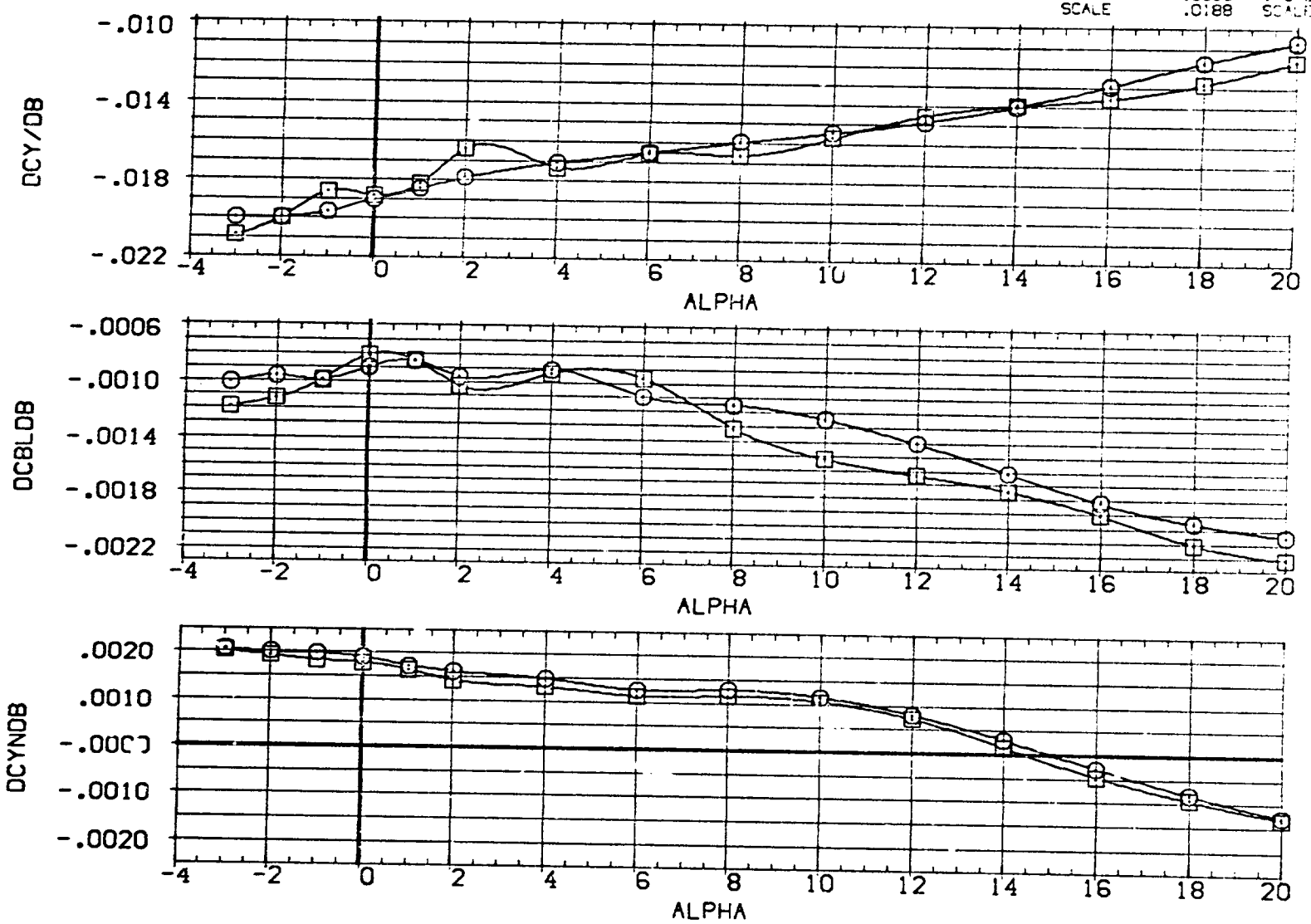
EFFECT OF AILERON DEFLECTION ON LATERAL-DIRECTIONAL DERIVATIVES

(A)MACH = 1.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(NP6C12) ○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	-10.000	10.000	.000
(NP6CC4) □	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	-10.000	.000	.000

REFERENCE INFORMATION

SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



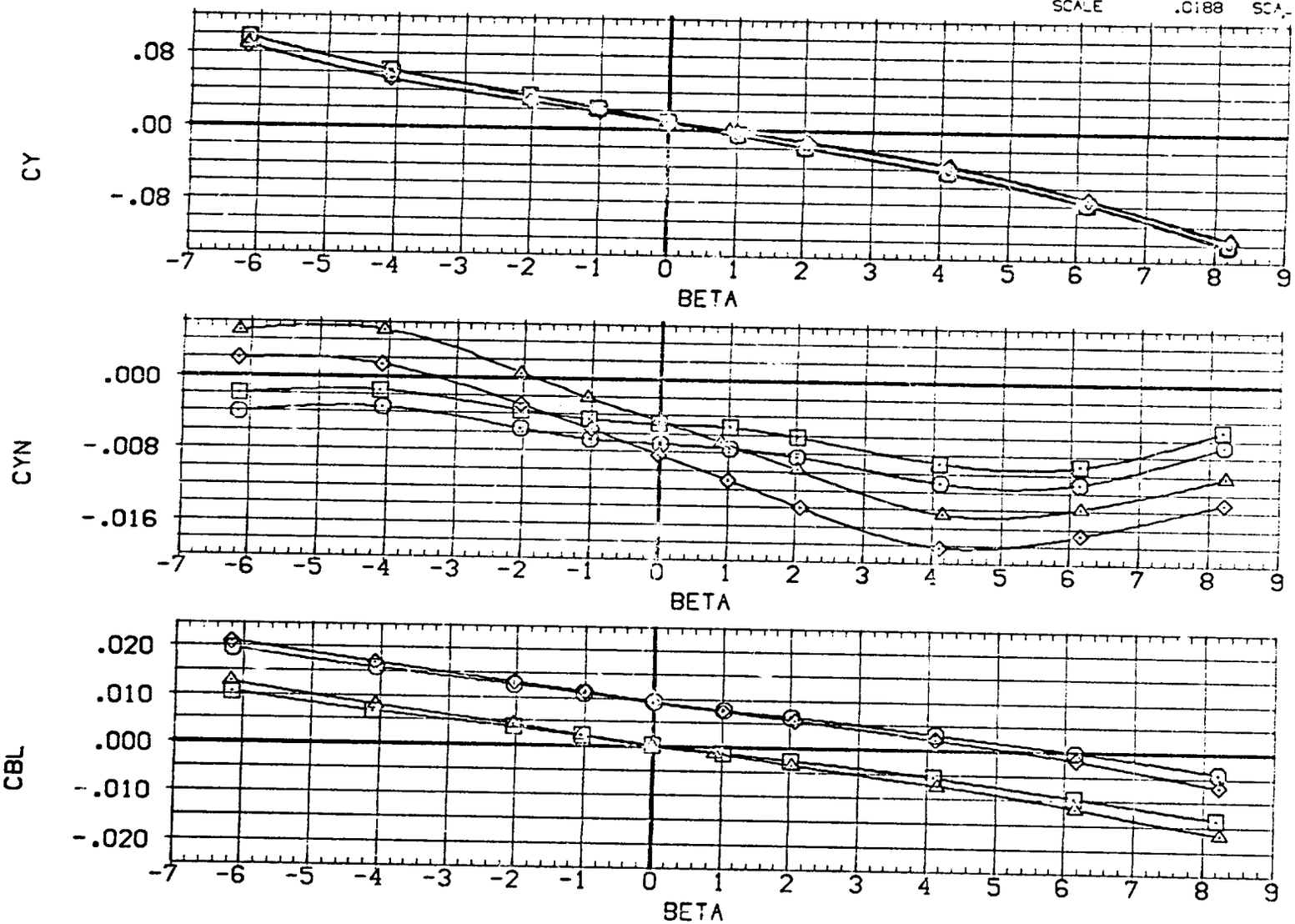
EFFECT OF AILERON DEFLECTION ON LATERAL-DIRECTIONAL DERIVATIVES

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(AP6213)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS
(AP6216)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS
(AP6214)	◇	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS
(AP6217)	△	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +CMS
(AP6215)	▽	DATA NOT AVAILABLE
(AP6218)	⬠	DATA NOT AVAILABLE

ALPHA	ELEVTR	AILRON	RUDDER
15.000	-10.000	10.000	.000
15.000	-10.000	.000	.000
20.000	-10.000	10.000	.000
20.000	-10.000	.000	.000
25.000	-10.000	10.000	.000
25.000	-10.000	.000	.000

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

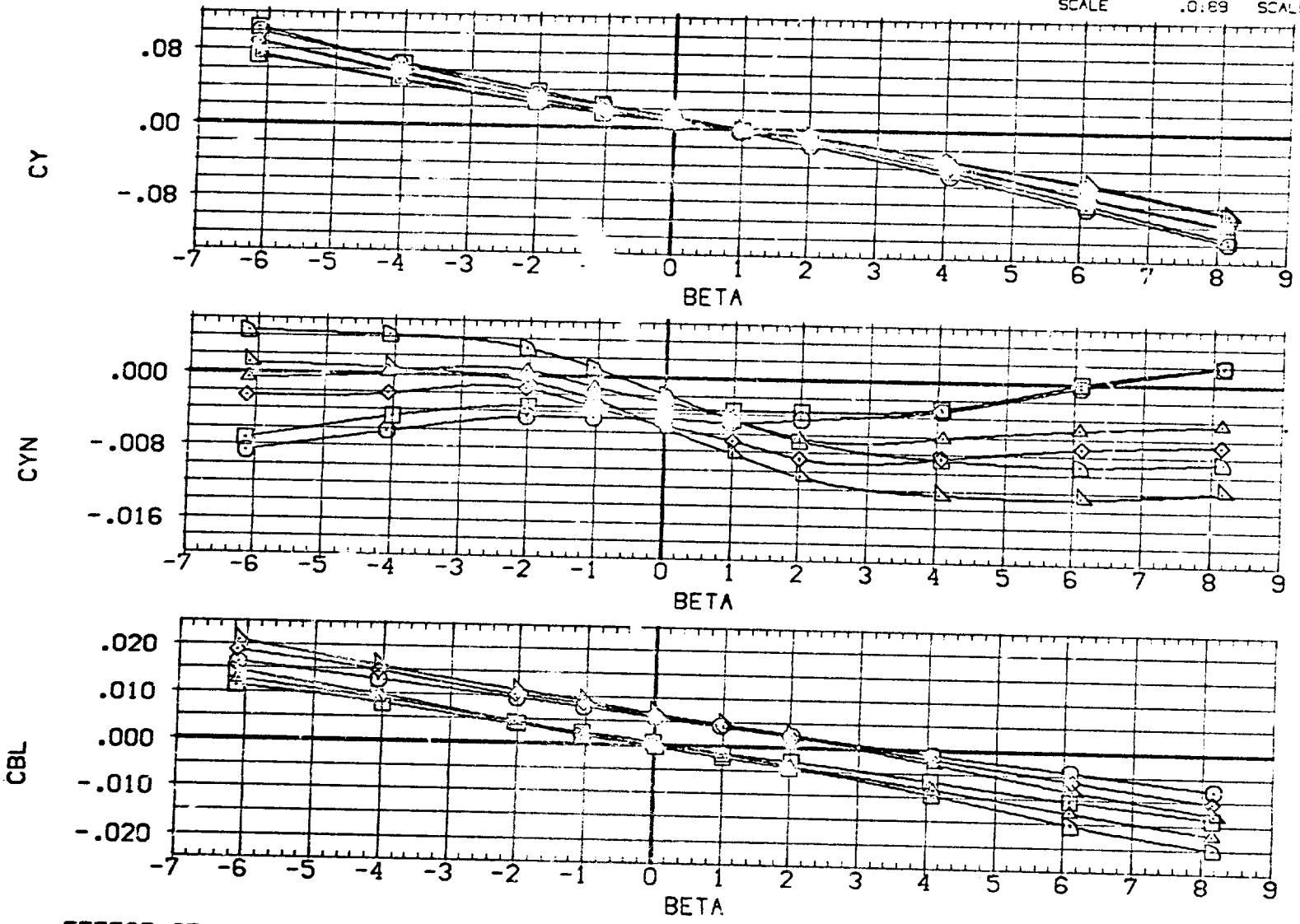


EFFECT OF AILERON DEFLECTION ON LATERAL-DIRECTIONAL CHARACTERISTICS IN SIDESLIP

(A)MACH = 1.90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER
(AP6213)	○	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	15.000	-10.000	10.000	.000
(AP6216)	△	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	15.000	-10.000	.000	.000
(AP6214)	◇	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	20.000	-10.000	10.000	.000
(AP6217)	▽	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	20.000	-10.000	.000	.000
(AP6215)	□	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	25.000	-10.000	10.000	.000
(AP6218)	▷	LA-8C. UPWT1040. ORBITER C893 W/MOD. NOSE +CMS	25.000	-10.000	.000	.000

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0.89	SCALE



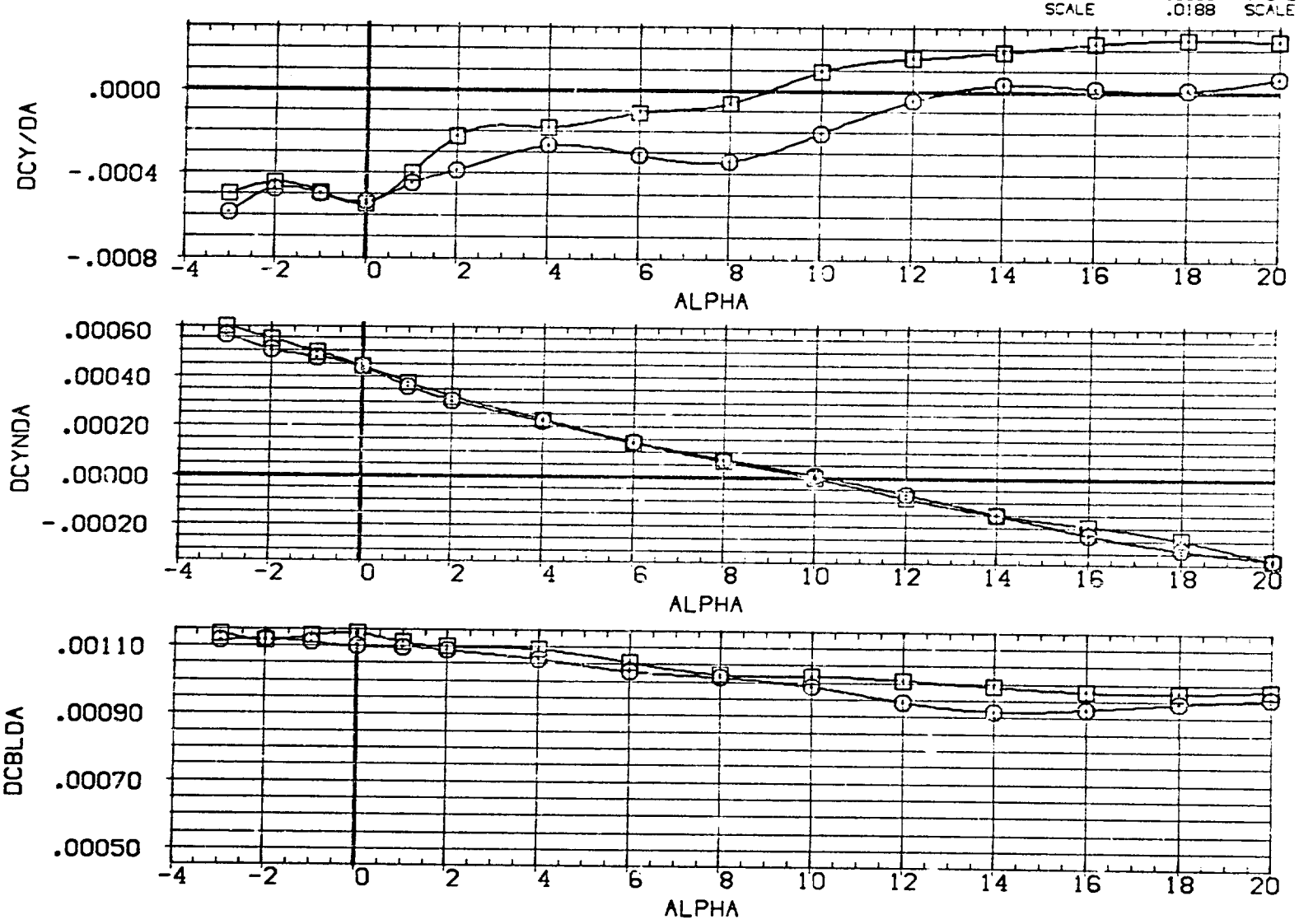
EFFECT OF AILERON DEFLECTION ON LATERAL-DIRECTIONAL CHARACTERISTICS IN SIDESLIP

(B)MACH = 2.86

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDFLR	BDFLAP
(OP6C04)	○	LA-8C. UPWT1040. ORBITER 089J W/MOD. NOSE +OMS	3.000	40.000	-14.250
(OP6C05)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	40.000	-14.250

REFERENCE INFORMATION

SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



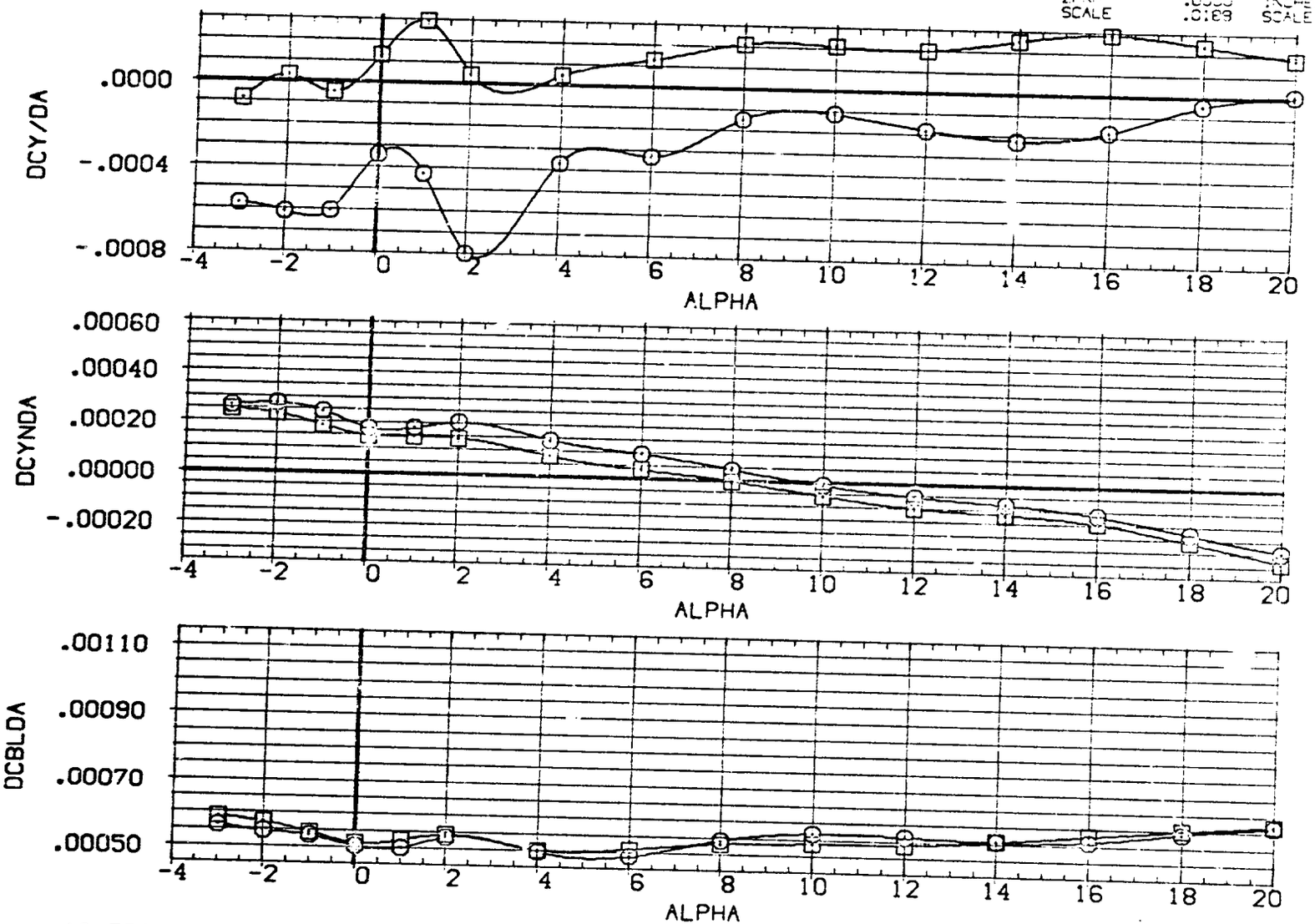
AILERON CONTROL EFFECTIVENESS

(A)MACH = 1.90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDFLR	BDFLAP
(OP6CO4) ○	LA-8C. UPWT1040. ORBITER 0899 W/MOD. NOSE +CMS	3.000	40.000	-14.250
(OP6CO5) □	LA-8C. UPWT1040. ORBITER 0898 W/MOD. NOSE +CMS	.000	40.000	-14.250

REFERENCE INFORMATION

SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5528	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0189	SCALE

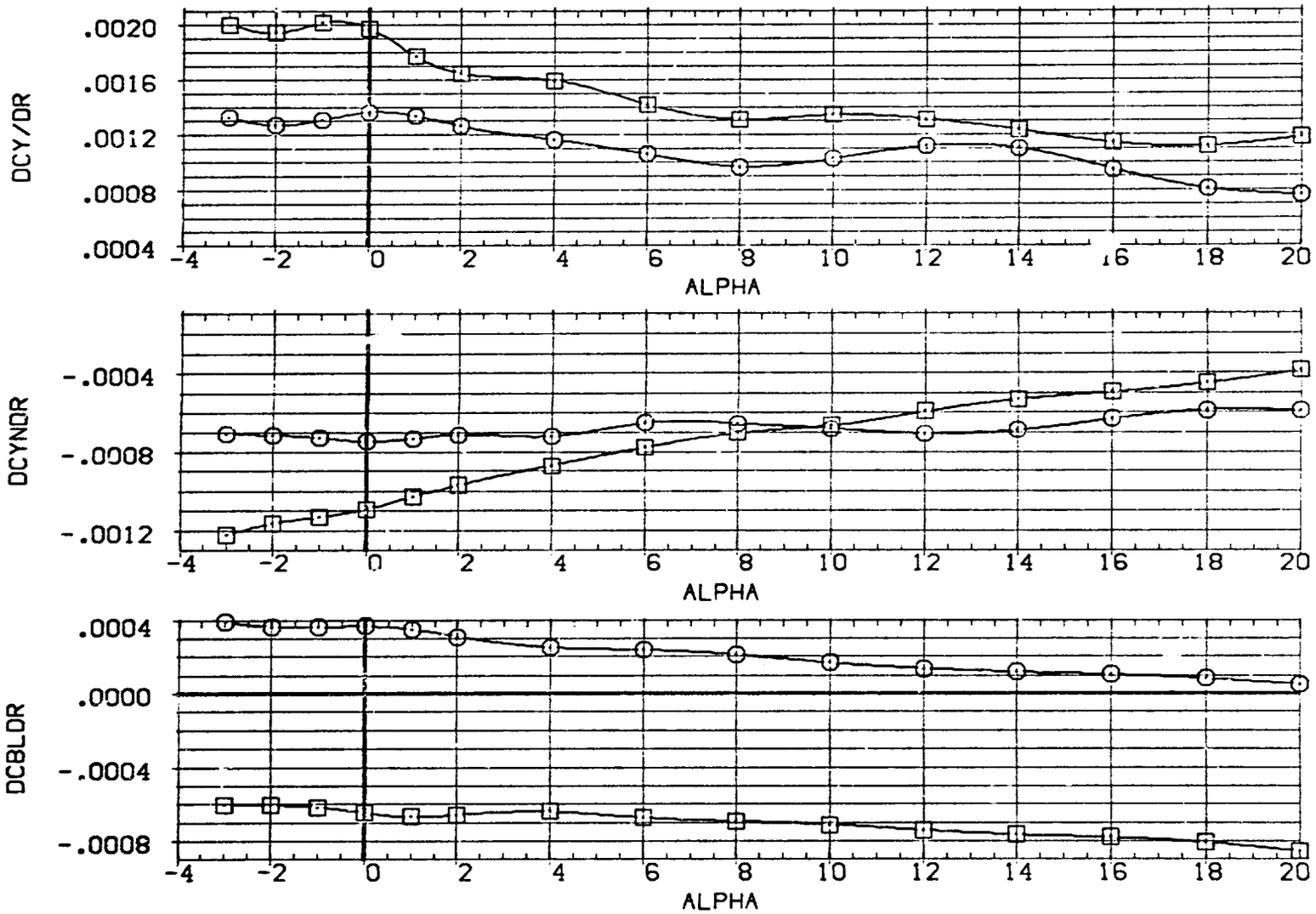


AILERON CONTROL EFFECTIVENESS

(B)MACH = 2.86

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BETA	RUDFLR	BDFLAP
(PP6CC8)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	40.000	-14.250
(PP6C11)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	40.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE

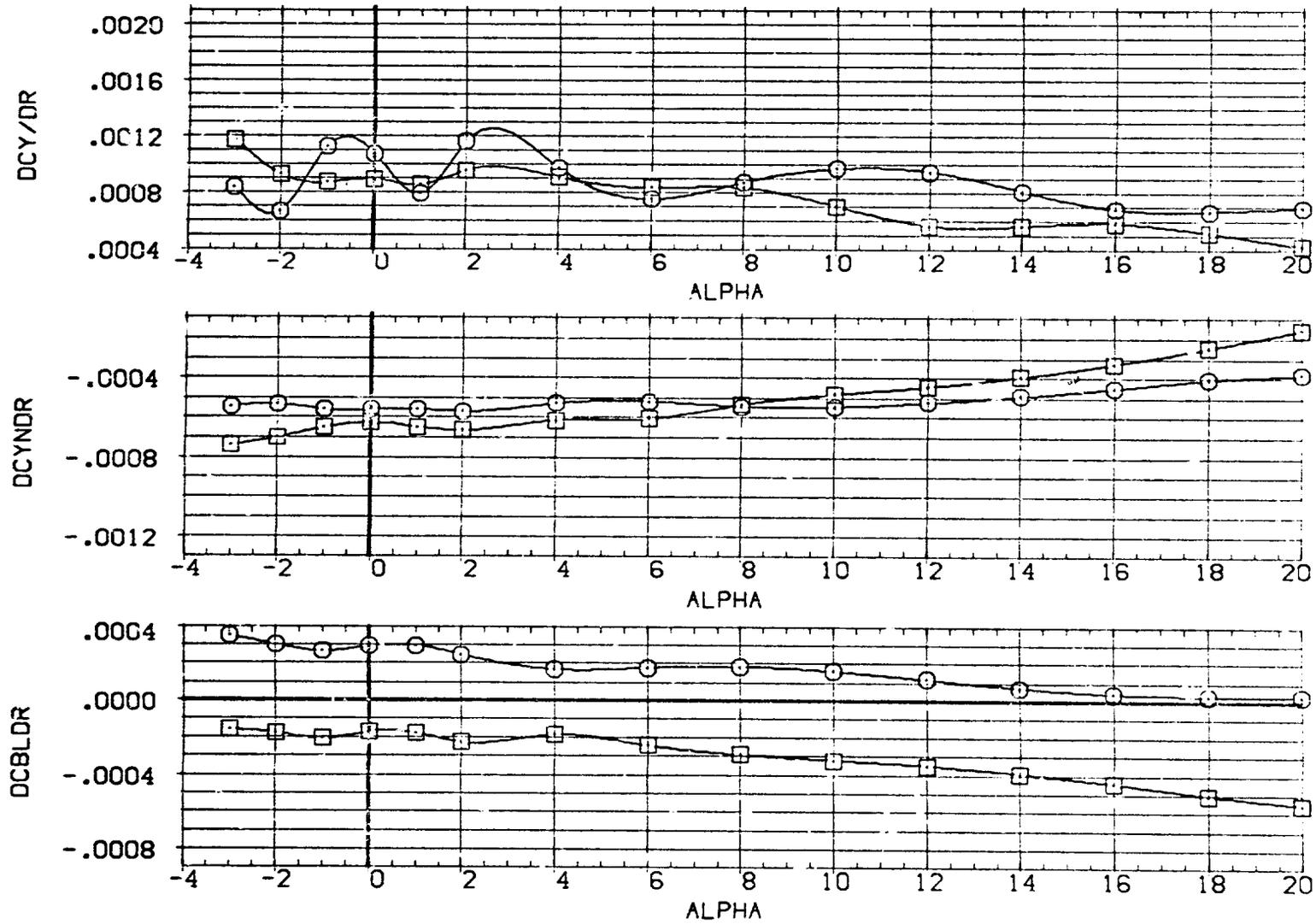


RUDDER CONTROL EFFECTIVENESS

(A)MACH = 1.90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDFLR	BDFLAP
(PP6C08)	○	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	3.000	40.000	-14.250
(PP6C11)	□	LA-8C. UPWT1040. ORBITER 089B W/MOD. NOSE +OMS	.000	40.000	-14.250

REFERENCE INFORMATION		
SREF	136.1808	SQ.IN.
LREF	8.9025	INCHES
BREF	17.5628	INCHES
XMRP	15.7313	INCHES
YMRP	.0000	INCHES
ZMRP	.0000	INCHES
SCALE	.0188	SCALE



RUDDER CONTROL EFFECTIVENESS

(B)MACH = 2.86

APPENDIX

TABULATED SOURCE DATA

Plotted data tabulations are available from DMS on request.

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6201) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
R/L =	5.290	GT-LOC =	2.000

RUN NO. 8/ 0 RN/L = 1.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.239	.00102	-.14765	.17361	.02101	.00048	-.00451	.01305	-.22292	.28144	-.24432
1.900	-1.423	.00243	-.06716	.17274	.01183	.00035	-.00469	.01243	-.22059	.29843	-.24195
1.900	-.370	.00048	-.02018	.17219	.00613	.00040	-.00449	.01335	-.22064	.24028	-.24200
1.900	.694	.00083	.02278	.17123	.00077	.00033	-.00436	.01269	-.22079	.24769	-.24213
1.900	1.730	.00119	.06574	.16975	-.00513	.00026	-.00424	.01205	-.22057	.29560	-.24193
1.900	2.797	-.00014	.11069	.16734	-.01137	.00032	-.00421	.01294	-.21791	.36783	-.24192
1.900	4.879	.00003	.19721	.16305	-.02200	.00026	-.00409	.01244	-.21485	.43070	-.23362
1.900	6.987	.00139	.28387	.16034	-.02965	.00010	-.00426	.01187	-.21205	.43406	-.23613
1.900	9.061	.00215	.36624	.15787	-.03629	-.00005	-.00428	.01133	-.20925	.43476	-.24130
1.900	13.242	.00301	.53138	.15298	-.04316	.00008	-.00450	.01103	-.22248	.32307	-.25455
1.900	17.454	.00385	.70857	.14505	-.05049	-.00027	-.00463	.01076	-.23044	.46146	-.25986
1.900	20.526	.00371	.84026	.13809	-.05626	-.00057	-.00441	.01040	-.22917	.65285	-.25723
	GRADIENT	-.00020	.04232	-.00130	-.00535	-.00002	.00007	-.00006	.00088	.02088	.00100

RUN NO. 1/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.369	-.01828	-.15468	.13912	.03481	.00186	-.00486	.01474	-.09022	-.15184	-.03283
2.860	-2.565	-.01563	-.10652	.13678	.03389	.00195	-.00514	.01295	-.09355	-.15188	-.04267
2.860	-1.548	-.01697	-.07545	.13570	.03320	.00162	-.00480	.01311	-.09356	-.15188	-.03307
2.860	-.499	-.01775	-.04188	.13430	.03274	.00170	-.00463	.01325	-.09356	-.15188	-.02987
2.860	.531	-.01617	-.01569	.13280	.03176	.00131	-.00454	.01146	-.09361	-.15189	-.02996
2.860	1.568	-.01859	.01309	.13206	.03103	.00139	-.00448	.01345	-.09359	-.15510	-.02993
2.860	3.620	-.01946	.07276	.12878	.02806	.00141	-.00432	.01366	-.09682	-.15511	-.03958
2.860	5.680	-.01579	.13719	.12635	.02718	.00103	-.00430	.01012	-.09683	-.15511	-.05559
2.860	7.737	-.01616	.19848	.12407	.02436	.00125	-.00402	.00943	-.09683	-.15511	-.06518
2.860	11.876	-.01673	.33547	.11911	.02161	.00028	-.00393	.00986	-.10322	-.15511	-.08110
2.860	16.011	-.01982	.48472	.11475	.01728	.00002	-.00312	.01046	-.10643	-.15832	-.10398
2.860	20.149	-.02123	.63793	.10740	.00992	-.00024	-.00214	.00918	-.10644	-.16153	-.10360
2.860	24.309	-.02038	.80867	.10082	.00405	-.00053	-.00152	.00698	-.10323	-.15511	-.12277
2.860	28.480	-.02183	.98175	.09522	-.00159	-.00076	-.00076	.00667	-.09683	-.14869	-.12277
	GRADIENT	-.00024	.02853	-.00127	-.00081	-.00008	.00009	-.00011	-.00062	-.00047	.00005

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6202) (15 AUG /3)

REFERENCE DATA

SREF =	136.1606 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	3.000	ELEVTR =	.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 9/ 0 RN/L = 1.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.212	3.05335	-.14615	.17210	.01832	-.00195	-.00061	-.04772	-.21722	.19254	-.24928
1.900	-1.395	3.05144	-.06745	.17197	.01043	-.00216	-.00090	-.04525	-.21985	.16333	-.24926
1.900	-.370	3.05076	-.02236	.17150	.00452	-.00237	-.00098	-.04439	-.22248	.16073	-.24924
1.900	.697	3.05005	.02284	.17065	-.00067	-.00245	-.00105	-.04350	-.22252	.16859	-.24662
1.900	1.735	3.05006	.06599	.16941	-.00663	-.00256	-.00155	-.04194	-.21989	.18184	-.24399
1.900	2.797	3.04925	.11117	.16786	-.01169	-.00257	-.00134	-.04179	-.21726	.19242	-.24400
1.900	4.857	3.04908	.19560	.16437	-.02164	-.00266	-.00178	-.04010	-.21201	.20819	-.24405
1.900	6.968	3.05069	.28597	.16114	-.03106	-.00285	-.00267	-.03848	-.20671	.21201	-.24405
1.900	9.049	3.05058	.36809	.15803	-.03770	-.00328	-.00334	-.03606	-.20406	.39168	-.24670
1.900	13.241	3.05307	.53108	.15170	-.04268	-.00439	-.00450	-.03348	-.20938	.48733	-.25467
1.900	17.446	3.06158	.71029	.14295	-.05189	-.00550	-.00933	-.02524	-.22530	.60422	-.25733
1.900	20.516	3.06884	.84063	.13389	-.05777	-.00665	-.01309	-.01929	-.21996	.70017	-.24935
	GRADIENT	- 00051	.04237	-.00097	-.00504	-.00009	-.00014	.00093	.00069	.00347	.00086

RUN NO. 2/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.379	3.02588	-.14695	.13834	.03436	-.00195	.00103	-.05463	-.09370	-.15192	-.08765
2.860	-2.532	3.01950	-.09420	.13587	.03388	-.00210	.00081	-.04794	-.09690	-.14871	-.08446
2.860	-1.530	3.02114	-.06566	.13487	.03214	-.00208	.00063	-.04883	-.09689	-.15192	-.08445
2.860	-.490	3.02221	-.03683	.13338	.03296	-.00206	.00031	-.04879	-.10010	-.15192	-.08446
2.860	.533	3.01937	-.00817	.13260	.03136	-.00207	-.00005	-.04500	-.10012	-.15193	-.08769
2.860	1.583	3.02039	.02279	.13157	.02998	-.00215	-.00005	-.04586	-.10010	-.15513	-.08767
2.860	3.617	3.02033	.07771	.12917	.02827	-.00235	-.00061	-.04393	-.10010	-.15513	-.09086
2.860	5.690	3.01964	.13730	.12646	.02613	-.00266	-.00097	-.04195	-.10010	-.15513	-.10364
2.860	7.750	3.01658	.20389	.12409	.02538	-.00341	-.00084	-.03904	-.10311	-.15508	-.11307
2.860	11.874	3.01698	.33638	.11885	.02219	-.00456	-.00190	-.03511	-.10310	-.15829	-.09064
2.860	16.010	3.01885	.48804	.11385	.01720	-.00614	-.00449	-.02763	-.10636	-.16152	-.09711
2.860	20.150	3.02450	.63686	.10791	.01121	-.00669	-.00695	-.02479	-.10640	-.16152	-.10036
2.860	24.299	3.02701	.80324	.09980	.00669	-.00767	-.00829	-.02175	-.10320	-.15510	-.11635
2.860	28.475	3.02335	.97895	.09425	.00041	-.00844	-.00726	-.01927	-.09678	-.14225	-.12594
	GRADIENT	-.00051	.02815	-.00112	-.00078	-.00004	-.00021	.00119	-.00083	-.00062	-.00055

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6203) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-10.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 10/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.263	.00170	-.19024	.17630	.04443	.00096	-.00516	.01446	-.19005	-.27997	-.24041
1.900	-1.382	.00243	-.10717	.17410	.03474	.00061	-.00498	.01327	-.18574	-.27637	-.23384
1.900	-.385	.00273	-.06187	.17279	.03039	.00080	-.00486	.01267	-.17992	-.27610	-.22813
1.900	.696	.00246	-.01650	.17259	.02444	.00078	-.00458	.01203	-.16943	-.27619	-.22559
1.900	1.715	.00404	.02688	.17210	.01916	.00070	-.00477	.01133	-.16410	-.27619	-.22293
1.900	2.778	.00206	.07350	.16957	.01381	.00082	-.00453	.01213	-.16155	-.27230	-.22232
1.900	4.870	.00284	.15840	.16373	.00324	.0007	-.00455	.01150	-.16287	-.27037	-.22066
1.900	6.974	.00301	.24613	.16044	-.00623	.00060	-.00448	.01108	-.14992	-.27705	-.21689
1.900	9.047	.00376	.33141	.15695	-.01393	.00044	-.00451	.01052	-.12652	-.27458	-.21915
1.900	13.252	.00638	.49399	.14870	-.02024	.00044	-.00493	.00941	-.10795	-.26924	-.22438
1.900	17.440	.00597	.66855	.13	-.02506	.00034	-.00485	.00922	-.10984	-.26890	-.23188
1.900	20.520	.00518	.80124	.13369	-.02922	.00027	-.00458	.00889	-.14199	-.26909	-.23741
	GRADIENT	.00012	.04293	-.00138	-.00507	-.00001	.00018	-.00036	.00402	.00108	.00248

RUN NO. 14/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.352	-.01893	-.16479	.14013	.04658	.00240	-.00493	.01565	.05525	-.15311	-.12080
2.860	-2.538	-.02030	-.11222	.13683	.04438	.00233	-.00494	.01675	.00723	-.15312	-.12083
2.860	-1.535	-.01760	-.08616	.13536	.04415	.00209	-.00492	.01406	-.01165	-.15308	-.12394
2.860	-.491	-.01661	-.06244	.13386	.04280	.00161	-.00466	.01229	-.01808	-.15309	-.12395
2.860	.527	-.01904	-.02655	.13223	.04183	.00146	-.00460	.01429	-.02133	-.15310	-.12397
2.860	1.552	-.01864	-.00028	.13088	.04089	.00154	-.00447	.01346	-.02131	-.15309	-.12396
2.860	3.610	-.01946	.05442	.12750	.03747	.00124	-.00431	.01364	-.01504	-.15311	-.12080
2.860	5.674	-.02038	.12385	.12425	.03788	.00081	-.00412	.01391	-.00856	-.15310	-.11757
2.860	7.738	-.02073	.18236	.12173	.03483	.00095	-.00381	.01319	.01032	-.15313	-.11767
2.860	11.866	-.01908	.31470	.11568	.03257	.00092	-.00396	.01175	.05512	-.15312	-.10805
2.860	15.989	-.02438	.44654	.11116	.03085	.00059	-.00311	.01423	.01110	-.15947	-.13025
2.860	20.143	-.02350	.60516	.10340	.02563	.00056	-.00269	.01198	-.02098	-.15948	-.13347
2.860	24.296	-.02262	.76657	.09524	.02401	-.00020	-.00193	.00976	-.07226	-.15305	-.13988
2.860	28.466	-.02358	.94244	.08808	.01945	-.00011	-.00121	.00855	-.04664	-.14662	-.13348
	GRADIENT	-.00301	.02756	-.00156	-.00109	-.00016	.00009	-.00034	-.00811	.00030	-.00014

LA-8C, UPWT1040, ORBITER 0898 W/MOD. NOSE +OMS (RP6204) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES
LREF =	6.9025 INCHES	YMRP =	.0000 INCHES
BREF =	17.9628 INCHES	ZMRP =	.0000 INCHES
SCALE =	.0188 SCALE		

PARAMETRIC DATA

BETA =	3.000	ELEVTR =	-10.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 11/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.247	3.03709	-.18264	.17525	.04223	-.00136	-.00049	-.04979	-.15028	-.28255	-.24292
1.900	-1.404	3.03581	-.10254	.17365	.03392	-.00176	-.00097	-.04742	-.13138	-.28235	-.24266
1.900	-.371	3.03458	-.05752	.17282	.02879	-.00191	-.00117	-.04584	-.12316	-.28223	-.24252
1.900	.698	3.03326	-.01053	.17158	.02237	-.00199	-.00110	-.04495	-.11522	-.28223	-.24252
1.900	1.718	3.03318	.03067	.17054	.01766	-.00208	-.00133	-.04411	-.11261	-.28224	-.24254
1.900	2.787	3.03300	.07964	.16901	.01118	-.00204	-.00128	-.04398	-.11537	-.28229	-.24260
1.900	4.885	3.03393	.16393	.16447	.00160	-.00200	-.00178	-.04306	-.12342	-.27703	-.24002
1.900	6.969	3.03329	.24997	.16065	-.00817	-.00218	-.00263	-.03986	-.12891	-.27446	-.24013
1.900	9.045	3.03452	.33372	.15671	-.01394	-.00287	-.00332	-.03820	-.13166	-.27186	-.24020
1.900	13.260	3.03725	.49638	.14724	-.01960	-.00382	-.00413	-.03714	-.11305	-.26385	-.23749
1.900	17.456	3.04631	.67380	.13697	-.02611	-.00451	-.00927	-.02894	-.11296	-.25585	-.23215
1.900	20.524	3.05356	.80024	.12900	-.02950	-.00559	-.01309	-.02301	-.12874	-.25315	-.22945
	GRADIENT	-.00045	.04258	-.00128	-.00510	-.00008	-.00014	.00082	.00342	.00052	.00028

RUN NO. 15/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.356	3.05981	-.16747	.13922	.04368	-.00092	.00043	-.04918	.00442	-.14986	-.12711
2.860	-2.572	3.05629	-.11740	.13610	.04127	-.00122	.00024	-.04534	-.00508	-.14985	-.12388
2.860	-1.550	3.05626	-.08537	.13462	.04081	-.00113	-.00006	-.04436	-.01794	-.14986	-.12390
2.860	-.508	3.05493	-.05261	.13292	.04012	-.00113	.00001	-.04325	-.02443	-.14987	-.12393
2.860	.515	3.05541	-.02629	.13164	.03918	-.00089	-.00015	-.04322	-.02114	-.14986	-.12390
2.860	1.542	3.05096	-.00473	.13019	.03864	-.00140	-.00063	-.03761	-.02114	-.14986	-.12711
2.860	3.606	3.05309	.05485	.12774	.03564	-.00168	-.00097	-.03842	-.01801	-.14987	-.13033
2.860	5.664	3.05240	.11696	.12478	.03370	-.00200	-.00135	-.03644	-.01160	-.15308	-.13032
2.860	7.730	3.05267	.18314	.12145	.03379	-.00288	-.00101	-.03715	-.01475	-.15307	-.13031
2.860	11.848	3.05257	.30824	.11580	.03083	-.00399	-.00227	-.03232	-.02441	-.15308	-.12713
2.860	16.010	3.05663	.46538	.10962	.02886	-.00516	-.00509	-.02672	-.01476	-.15950	-.12391
2.860	20.140	3.06057	.60972	.10299	.02412	-.00613	-.00725	-.02293	-.01479	-.15950	-.13032
2.860	24.268	3.05953	.76461	.09489	.02373	-.00622	-.00853	-.01794	-.03080	-.15305	-.13352
2.860	28.459	3.06412	.94222	.08796	.01931	-.00839	-.00832	-.01940	-.03084	-.14666	-.13354
	GRADIENT	-.00090	.02804	-.00144	-.00093	-.00008	-.00018	.00141	-.00232	-.00000	-.00048

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6205) (15 AUG 73)

REFERENCE DATA

SREF =	136.1008 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.3628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 28/ 0 RN/L = 1.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.255	.00852	-.23581	.18768	.06928	.00044	-.00540	.00981	-.14618	-.27860	-.25476
1.900	-1.416	.00871	-.15674	.18577	.05937	.00048	-.00530	.00932	-.13377	-.28044	-.25376
1.900	-.377	.00728	-.10741	.18457	.05453	.00033	-.00498	.00951	-.12304	-.28040	-.25105
1.900	.670	.00823	-.06180	.18293	.04826	.00037	-.00499	.00879	-.11111	-.28096	-.25175
1.900	1.722	.00742	-.01658	.18106	.04297	.00029	-.00481	.00890	-.10679	-.28135	-.24960
1.900	2.788	.00775	.02840	.17855	.03785	.00035	-.00468	.00825	-.09403	-.28152	-.24717
1.900	4.848	.00792	.11647	.17272	.02632	.00034	-.00457	.00773	-.07478	-.27327	-.24151
1.900	6.966	.00691	.20158	.16845	.01939	.00040	-.00444	.00802	-.05775	-.27817	-.24363
1.900	9.046	.00943	.28822	.16382	.01175	-.00004	-.00462	.00668	-.05161	-.27788	-.24326
1.900	13.237	.01082	.45548	.15308	.00501	-.00010	-.00468	.00562	-.00925	-.28327	-.24066
1.900	17.445	.01108	.63106	.14434	.00104	-.00025	-.00498	.00612	-.05463	-.28867	-.25670
1.900	20.521	.01081	.76164	.13517	-.00195	-.00034	-.00454	.00504	-.07662	-.28626	-.25967
	GRADIENT	-.00010	.04357	-.00182	-.00528	-.00002	.00011	-.00026	.00890	.00044	.00158

RUN NO. 30/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.376	.00619	-.19136	.14800	.06622	.00163	-.00505	.01005	.00579	-.15486	-.12563
2.860	-2.954	.00650	-.14004	.14406	.06241	.00155	-.00494	.00931	-.00331	-.15802	-.12549
2.860	-1.529	.00574	-.10666	.14174	.06114	.00155	-.00477	.00946	-.00308	-.15800	-.12221
2.860	-.497	.00445	-.07989	.13982	.05994	.00185	-.00472	.01046	-.00374	-.15806	-.11921
2.860	.514	.00720	-.05619	.13827	.05784	.00138	-.00467	.00771	-.00398	-.16129	-.11929
2.860	1.561	.00529	-.02036	.13630	.05688	.00131	-.00446	.00879	-.00083	-.16130	-.11611
2.860	3.652	.00443	.04159	.13169	.05414	.00101	-.00430	.00902	.01537	-.16449	-.10964
2.860	5.680	.00296	.10113	.12745	.05032	.00099	-.00395	.00927	.01550	-.16127	-.10960
2.860	7.749	.00437	.16236	.12419	.04831	.00064	-.00383	.00760	.04108	-.15806	-.10960
2.860	11.865	.00263	.29000	.11758	.04731	.00047	-.00380	.00896	.06012	-.15807	-.11284
2.860	16.010	.00299	.43491	.11199	.04855	.00016	-.00345	.00763	.02173	-.16128	-.13203
2.860	20.157	.00039	.58563	.10366	.04609	.00004	-.00249	.00732	-.01042	-.16130	-.13847
2.860	24.303	.00123	.74499	.09501	.04518	-.00020	-.00192	.00512	-.06140	-.15808	-.14164
2.860	28.475	.00083	.91151	.08721	.04572	-.00059	-.00078	.00301	-.05497	-.14845	-.13523
	GRADIENT	-.00019	.02888	-.00199	-.00147	-.00007	.00010	-.00016	.00106	-.00114	.00203

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6206) (15 AUG 73)

REFERENCE DATA

SREF = 136.1808 SQ.IN. XMRP = 15.9638 INCHES
LREF = 8.9025 INCHES YMRP = .0000 INCHES
BREF = 17.5628 INCHES ZMRP = .0000 INCHES
SCALE = .0188 SCALE

PARAMETRIC DATA

BETA = 3.000 ELEVTR = -20.000
AILRON = .000 BDFLAP = -14.250
RUDDER = .000 RUDFLR = 40.000
K/L = 5.290 GT-LOC = 2.000

RUN NO. 29/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.255	3.040/9	-.23016	.18683	.06988	-.00165	.00008	-.05445	-.11126	-.2/837	-.25448
1.900	-1.421	3.03891	-.15181	.18483	.05989	-.00183	-.00022	-.05200	-.10856	-.28100	-.25445
1.900	-.390	3.03878	-.10460	.18355	.05558	-.00190	-.00046	-.05115	-.10856	-.28366	-.25445
1.900	.660	3.03811	-.05968	.18185	.04827	-.00204	-.00054	-.05029	-.11388	-.28633	-.25446
1.900	1.724	3.03812	-.01461	.18032	.04248	-.00227	-.00104	-.04871	-.11921	-.28899	-.25713
1.900	2.772	3.03789	.03257	.17825	.03757	-.00202	-.00100	-.04856	-.11144	-.28906	-.25721
1.900	4.862	3.03778	.11889	.17297	.02781	-.00206	-.00174	-.04613	-.10627	-.28645	-.25198
1.900	6.969	3.03764	.20908	.16825	.01840	-.00209	-.00248	-.04369	-.11427	-.28382	-.25466
1.900	9.052	3.03804	.29305	.16363	.01265	-.00255	-.00304	-.04202	-.12220	-.28382	-.25466
1.900	13.246	3.04107	.45968	.15223	.00660	-.00406	-.00403	-.04022	-.09828	-.2/846	-.25195
1.900	17.453	3.05015	.63493	.14010	-.00010	-.00468	-.00918	-.03201	-.11156	-.27849	-.24933
1.900	20.523	3.05717	.76345	.13182	-.00186	-.00506	-.01265	-.02751	-.13005	-.2/317	-.24667
	GRADIENT	-.00034	.04317	-.00168	-.00526	-.00006	-.00022	.00099	.00008	-.00124	.00004

RUN NO. 31/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.376	3.02761	-.20162	.14692	.06013	-.00100	.00057	-.05471	-.01667	-.1516/	-.13524
2.860	-2.554	3.02112	-.14422	.14257	.05838	-.00091	.00067	-.04891	-.01663	-.15166	-.13523
2.860	-1.551	3.01929	-.11076	.14048	.05795	-.00082	.00060	-.04697	-.01651	-.15485	-.13520
2.860	-.511	3.02146	-.07989	.13884	.05555	-.00088	.00054	-.04877	-.01332	-.15485	-.13521
2.860	.532	3.01978	-.04891	.13685	.05413	-.00136	.00011	-.04594	.00265	-.1580/	-.13521
2.860	1.555	3.01803	-.02010	.13500	.05259	-.00074	-.00030	-.04311	.00588	-.15806	-.13520
2.860	3.611	3.01906	.03704	.13188	.05019	-.00140	-.00060	-.04297	.01215	-.1580/	-.13523
2.860	5.642	3.01780	.10401	.12769	.04953	-.00181	-.00113	-.04005	.00579	-.16128	-.13522
2.860	7.738	3.01531	.16276	.12419	.04646	-.00230	-.00092	-.03800	-.00377	-.16128	-.13522
2.860	11.871	3.01912	.29735	.11694	.04601	-.00379	-.00211	-.03687	-.00067	-.15808	-.12565
2.860	16.013	3.02384	.43777	.11027	.04598	-.00507	-.00511	-.03135	-.01338	-.16128	-.12243
2.860	20.147	3.02608	.58011	.10316	.04531	-.00609	-.00737	-.02569	.00260	-.16128	-.13202
2.860	24.301	3.02789	.74378	.09457	.04229	-.00680	-.00831	-.02349	-.03899	-.1548/	-.13843
2.860	28.454	3.02719	.90289	.08670	.04308	-.00779	-.00789	-.02205	-.04860	-.14846	-.13524
	GRADIENT	-.00093	.02991	-.00186	-.00131	-.00004	-.00017	.00140	.00429	-.00099	.00000

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6207) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-30.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 34/ 0 RN/L = 1.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.291	.00287	-.27870	.20313	.09141	.00148	-.00391	.01006	-.11063	-.28265	-.23761
1.900	-1.440	.00356	-.19320	.19978	.08102	.00143	-.00369	.00879	-.09661	-.28765	-.23983
1.900	-.411	.00156	-.14829	.19838	.07372	.00158	-.00324	.00897	-.08337	-.29297	-.23983
1.900	.660	.00321	-.09913	.19582	.06801	.00125	-.00372	.00900	-.07594	-.29313	-.24007
1.900	1.688	.00292	-.05209	.19326	.06236	.00133	-.00345	.00838	-.07356	-.29322	-.23756
1.900	2.756	.00263	-.00515	.18999	.05615	.00162	-.00320	.00777	-.07072	-.29315	-.23746
1.900	4.855	.00287	.08491	.18325	.04467	.00170	-.00341	.00797	-.08648	-.29047	-.23741
1.900	6.955	.00251	.17487	.17562	.03454	.00133	-.00342	.00819	-.06272	-.27987	-.23478
1.900	9.036	.00327	.25930	.17045	.02820	.00102	-.00346	.00766	-.09904	-.27960	-.23706
1.900	13.221	.00537	.42813	.15862	.02096	.00087	-.00400	.00731	-.04341	-.27960	-.23441
1.900	17.439	.00627	.59973	.14909	.01877	.00047	-.00445	.00779	-.11758	-.28226	-.25296
1.900	20.532	.00790	.73013	.14257	.01850	.00007	-.00473	.00738	-.14405	-.29022	-.26355
	GRADIENT	-.00001	.04472	-.00243	-.00576	.00001	.00006	-.00025	.00361	-.00096	.00019

RUN NO. 32/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.393	.00101	-.22912	.15868	.07662	.00246	-.00462	.01382	-.02118	-.15323	-.11750
2.860	-2.575	.00092	-.18158	.15429	.07228	.00225	-.00502	.01483	-.01480	-.15324	-.11431
2.860	-1.581	.00235	-.14811	.15210	.07181	.00224	-.00460	.01220	-.00841	-.15324	-.11431
2.860	-.522	.00161	-.11472	.14946	.07045	.00185	-.00445	.01233	.00433	-.15645	-.11113
2.860	.495	.00208	-.08604	.14724	.06886	.00208	-.00466	.01239	.01388	-.15645	-.10795
2.860	1.536	.00242	-.05525	.14440	.06577	.00202	-.00420	.01067	.02986	-.15645	-.10475
2.860	3.642	.00161	.01390	.13974	.06277	.00163	-.00439	.01180	.04585	-.16287	-.10155
2.860	5.669	.00074	.07826	.13512	.06020	.00135	-.00423	.01203	.06027	-.15966	-.10473
2.860	7.727	.00033	.14446	.13132	.05866	.00165	-.00397	.01136	.04268	-.16287	-.10795
2.860	11.863	.00036	.27668	.12348	.05803	.00080	-.00411	.01176	.01059	-.15967	-.11757
2.860	16.008	-.00164	.41891	.11700	.05821	.00081	-.00345	.01141	-.04379	-.16288	-.12718
2.860	20.144	-.00485	.56316	.10891	.05856	.00091	-.00242	.01113	-.05659	-.16289	-.13678
2.860	24.294	-.00770	.72176	.10034	.05933	.00115	-.00089	.00911	-.06622	-.15969	-.13679
2.860	28.468	-.00331	.88821	.09276	.06158	.00026	-.00086	.00589	-.07256	-.15008	-.13359
	GRADIENT	.00012	.03035	-.00236	-.00168	-.00009	.00006	-.00038	.00899	-.00115	.00211

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6208) (15 AUG 73)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.9628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	3.000	ELEVTR =	-30.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 35/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.296	3.03823	-.27497	.20300	.09260	.00002	.00236	-.05867	-.04664	-.27979	-.23733
1.900	-1.435	3.03407	-.19291	.19963	.08015	.00004	.00207	-.05466	-.02280	-.28775	-.23731
1.900	-.400	3.03221	-.14197	.19799	.07408	-.00005	.00199	-.05300	-.01218	-.28773	-.23729
1.900	.698	3.03268	-.09517	.19532	.06693	-.00034	.00184	-.05293	-.00953	-.28508	-.23729
1.900	1.685	3.03156	-.05213	.19290	.06098	-.00053	.00133	-.05059	-.01483	-.28773	-.23729
1.900	2.764	3.03136	-.00502	.19037	.05610	-.00049	.00136	-.05046	-.02809	-.28775	-.23731
1.900	4.847	3.03250	.08693	.18313	.04332	-.00068	.00026	-.04810	-.07573	-.28245	-.23733
1.900	6.961	3.03502	.17905	.17642	.03405	-.00145	-.00163	-.04432	-.09692	-.27981	-.23999
1.900	9.048	3.03592	.26080	.16997	.02737	-.00180	-.00251	-.04189	-.08661	-.27195	-.23748
1.900	13.241	3.03716	.43119	.15868	.02309	-.00255	-.00311	-.04071	-.03655	-.26670	-.23754
1.900	17.448	3.04653	.60227	.14566	.01814	-.00387	-.00900	-.03033	-.13436	-.27204	-.24816
1.900	20.513	3.05371	.73262	.13907	.01797	-.00456	-.01298	-.02438	-.17920	-.27466	-.25606
	GRADIENT	-.00066	.04443	-.00240	-.00599	-.00010	-.00024	.00123	-.00317	-.00022	-.00000

RUN NO. 33/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.396	3.02385	-.23312	.15888	.07511	-.00021	.00178	-.05443	.05499	-.15329	-.11445
2.860	-2.562	3.01958	-.16412	.15336	.07365	.00000	.00179	-.05056	.05541	-.15325	-.11435
2.860	-1.568	3.01665	-.13612	.15087	.07093	.00035	.00175	-.04775	.07495	-.15322	-.11426
2.860	-.525	3.01770	-.11199	.14859	.06897	.00023	.00171	-.04863	.08457	-.15643	-.11425
2.860	.512	3.01596	-.07131	.14609	.06754	.00001	.00127	-.04575	.09410	-.15643	-.11107
2.860	1.550	3.01532	-.04501	.14384	.06660	.00003	.00113	-.04476	.11976	-.15322	-.10785
2.860	3.620	3.01642	.01954	.13938	.06319	.00031	.00008	-.04284	.12600	-.15644	-.10789
2.860	5.684	3.01628	.08621	.13518	.06077	-.00050	-.00018	-.04174	.03956	-.15645	-.12071
2.860	7.745	3.01551	.14985	.13184	.05979	-.00123	-.00020	-.04062	.00434	-.15966	-.12712
2.860	11.875	3.01695	.27762	.12383	.05878	-.00196	- 00119	-.03854	-.00519	-.15965	-.12710
2.860	16.005	3.01888	.42107	.11565	.05731	-.00314	-.00442	-.03026	-.04332	-.15963	-.13342
2.860	20.162	3.02262	.57346	.10789	.05833	-.00434	-.00699	-.02553	-.05293	-.16284	-.13984
2.860	24.310	3.02527	.72535	.09950	.05934	-.00533	-.00812	-.02336	-.09147	-.15643	-.13987
2.860	28.474	3.02622	.89170	.09220	.06074	-.00646	-.00761	-.02374	-.05951	-.15322	-.13668
	GRADIENT	-.00090	.03102	-.00240	-.00154	.00004	-.00021	.00141	.01024	-.00037	.00101

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6209) (15 AUG 73)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-30.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	10.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 36/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.304	.01241	-.31612	.20690	.09927	.00583	-.01143	.02497	-.06366	-.28047	-.23281
1.900	-1.455	.01198	-.22254	.20397	.08673	.00555	-.01132	.02446	-.06341	-.28304	-.23533
1.900	-.431	.01115	-.17359	.20205	.08120	.00542	-.01125	.02461	-.06077	-.28569	-.23798
1.900	.629	.01380	-.12684	.19983	.07477	.00490	-.01129	.02241	-.05813	-.28834	-.24062
1.900	1.689	.01186	-.07988	.19713	.06919	.00464	-.01117	.02333	-.05813	-.28834	-.24062
1.900	2.747	.01208	-.03102	.19454	.06240	.00486	-.01086	.02197	-.06341	-.28834	-.24062
1.900	4.820	.01110	.06080	.18835	.04967	.00462	-.01087	.02222	-.08451	-.28568	-.24060
1.900	6.914	.01235	.15055	.18150	.03882	.00384	-.01060	.02018	-.09243	-.28038	-.23796
1.900	9.023	.01320	.23813	.17530	.03060	.00315	-.01099	.02036	-.09240	-.28036	-.23794
1.900	13.219	.01410	.41029	.16431	.02231	.00227	-.01131	.02006	-.02897	-.27240	-.23793
1.900	17.411	.01555	.57748	.15436	.01978	.00149	-.01176	.01976	-.08705	-.27504	-.24584
1.900	20.491	.01535	.70921	.14787	.01897	.00081	-.01163	.01943	-.12410	-.28301	-.25644
	GRADIENT	-.00010	.04555	-.00228	-.00602	-.00016	.00008	-.00040	-.00191	-.00078	-.00102

RUN NO. 38/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.372	.01057	-.22075	.16174	.08089	.00564	-.00984	.02052	.00077	-.16016	-.13399
2.860	-2.552	.01022	-.16613	.15680	.07817	.00573	-.00965	.01985	-.00529	-.15692	-.13391
2.860	-1.539	.01058	-.13746	.15438	.07634	.00515	-.00927	.01811	-.00228	-.16015	-.13395
2.860	-.517	.00930	-.10647	.15203	.07486	.00507	-.00931	.01917	-.00211	-.15692	-.13391
2.860	.532	.00916	-.07070	.14928	.07218	.00491	-.00940	.01927	.00111	-.16013	-.13391
2.860	1.573	.00904	-.03956	.14663	.07161	.00450	-.00947	.01936	.01065	-.16014	-.13393
2.860	3.607	.00935	.01765	.14185	.06752	.00418	-.00945	.01859	.02971	-.16336	-.13076
2.860	5.689	.00907	.08447	.13762	.06513	.00369	-.00956	.01879	.06799	-.16658	-.12758
2.860	7.734	.00815	.14567	.13386	.06227	.00304	-.00911	.01812	.06165	-.16337	-.12757
2.860	11.885	.00919	.28063	.12605	.06189	.00235	-.00913	.01670	.01997	-.16337	-.13399
2.860	16.008	.00606	.42087	.11888	.06014	.00149	-.00806	.01640	-.02472	-.16658	-.14037
2.860	20.159	.00568	.56780	.11012	.06066	.00069	-.00679	.01332	-.03754	-.16658	-.14678
2.860	24.306	.00347	.72719	.10138	.05974	.00046	-.00537	.01126	-.04392	-.16336	-.14357
2.860	28.467	.00358	.89124	.09397	.06262	-.00004	-.00417	.00823	-.07917	-.15373	-.14358
	GRADIENT	-.00021	.03016	-.00248	-.00168	-.00020	.00004	-.00017	.00363	-.00047	.00031

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6210) (15 AUG 73)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	3.000	ELEVTR =	-30.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	10.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 37/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.276	3.04695	-.28931	.20416	.09643	.00397	-.00450	-.04513	-.03115	-.27224	-.23773
1.900	-1.442	3.04392	-.20697	.20111	.08603	.00363	-.00495	-.04186	.01100	-.28025	-.23779
1.900	-.408	3.04152	-.15789	.19835	.07974	.00361	-.00521	-.03943	.02400	-.28032	-.24052
1.900	.659	3.04197	-.11097	.19699	.07324	.00325	-.00542	-.03932	.02897	-.28305	-.24328
1.900	1.705	3.04016	-.06413	.19473	.06689	.00269	-.00555	-.03766	.01823	-.28310	-.24334
1.900	2.764	3.04235	-.01534	.19223	.06072	.00231	-.00592	-.03836	.01542	-.28314	-.24340
1.900	4.846	3.04160	.07237	.18611	.04830	.00174	-.00636	-.03666	.00236	-.28054	-.23819
1.900	6.937	3.04456	.16039	.18014	.04012	.00084	-.00794	-.03437	-.04804	-.28319	-.24083
1.900	9.036	3.04567	.24795	.17368	.03261	.00005	-.00902	-.03201	-.06647	-.28053	-.24081
1.900	13.226	3.04631	.41428	.16186	.02662	-.00131	-.00997	-.02938	-.08037	-.26459	-.23811
1.900	17.432	3.05535	.58548	.15056	.02308	-.00297	-.01482	-.02193	-.07685	-.26723	-.24073
1.900	20.496	3.06372	.71204	.14472	.02256	-.00417	-.01881	-.01679	-.15856	-.26982	-.24859
	GRADIENT	-.00059	.04472	-.00220	-.00595	-.00029	-.00023	.00098	.00299	-.00095	-.00036

RUN NO. 39/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.399	3.03079	-.23039	.15930	.07657	.00324	-.00415	-.04337	.06487	-.16015	-.13397
2.860	-2.557	3.02806	-.16580	.15428	.07283	.00333	-.00346	-.04302	.05507	-.16017	-.13400
2.860	-1.539	3.02512	-.13220	.15191	.07146	.00310	-.00358	-.04007	.05801	-.16018	-.13405
2.860	-.497	3.02053	-.10127	.14948	.06910	.00295	-.00381	-.03534	.05494	-.16018	-.13403
2.860	.524	3.02443	-.07263	.14697	.06837	.00305	-.00416	-.03812	.07416	-.16338	-.13402
2.860	1.590	3.02100	-.04409	.14448	.06590	.00272	-.00442	-.03433	.09013	-.16338	-.13402
2.860	3.633	3.02092	.02282	.14005	.06440	.00204	-.00515	-.03237	.13184	-.16338	-.13400
2.860	5.664	3.02303	.07728	.13591	.06008	.00123	-.00523	-.03411	.10299	-.16659	-.13721
2.860	7.742	3.02169	.14574	.13249	.05953	.00061	-.00549	-.03203	.03244	-.16660	-.14044
2.860	11.868	3.02137	.27805	.12444	.05891	-.00077	-.00631	-.02895	-.01868	-.16660	-.14045
2.860	16.017	3.02432	.42075	.11663	.05822	-.00274	-.00884	-.02336	-.03454	-.16659	-.14682
2.860	20.152	3.02584	.56805	.10946	.05966	-.00407	-.01070	-.01853	-.02814	-.16659	-.14681
2.860	24.302	3.03002	.72502	.10155	.06027	-.00527	-.01212	-.01735	-.08888	-.16018	-.14682
2.860	28.470	3.03020	.89117	.09366	.06166	-.00641	-.01078	-.01948	-.05056	-.15697	-.14363
	GRADIENT	-.00127	.03100	-.00239	-.00154	-.00014	-.00016	.00150	.00847	-.00053	-.00000

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6211) (15 AUG 73)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-10.000
AILRON =	10.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 24/ 0 RN/L = 1.49 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.249	-.00477	-.19348	.17931	.04465	.01186	.00065	.00461	-.14785	-.27832	-.25173
1.900	-1.405	-.00326	-.10920	.17801	.03456	.01166	-.00019	.00476	-.12854	-.28068	-.25134
1.900	-.336	-.00232	-.06383	.17696	.03015	.01174	-.00043	.00409	-.12542	-.28316	-.24843
1.900	.699	-.00065	-.01650	.17603	.02367	.01153	-.00110	.00413	-.12272	-.28851	-.24574
1.900	1.746	-.00302	.02906	.17456	.01923	.01129	-.00151	.00655	-.12032	-.29396	-.24589
1.900	2.774	-.00146	.07189	.17234	.01429	.01128	-.00188	.00579	-.12300	-.29496	-.24471
1.900	4.824	-.00112	.15872	.16694	.00311	.01116	-.00269	.00666	-.14075	-.28255	-.23796
1.900	6.979	.00037	.24455	.16334	-.00445	.01069	-.00350	.00682	-.13780	-.27977	-.24039
1.900	9.052	.00186	.32934	.16013	-.01151	.01016	-.00429	.00699	-.12332	-.27919	-.24224
1.900	13.239	.00472	.49552	.15317	-.01904	.00986	-.00595	.00734	-.08245	-.28136	-.24690
1.900	17.442	.00514	.66854	.14487	-.02263	.00946	-.00724	.00856	-.11623	-.28909	-.25983
1.900	20.920	.00734	.80085	.13643	-.02766	.00990	-.00809	.00735	-.11620	-.27842	-.25185
	GRADIENT	.00040	.04340	-.00148	-.00507	-.00079	-.00041	.00030	.00097	-.00130	.00166

RUN NO. 19/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.381	.00013	-.17329	.14318	.04957	.00782	-.00242	.00953	.00865	-.15210	-.11649
2.860	-2.562	.00044	-.11372	.14009	.04799	.00735	-.00253	.00880	-.01357	-.15207	-.11643
2.860	-1.552	-.00077	-.09460	.13864	.04710	.00715	-.00262	.00980	-.02000	-.15529	-.11964
2.860	-.514	.00034	-.06597	.13699	.04536	.00710	-.00311	.00982	-.02318	-.15529	-.11963
2.860	.526	-.00092	-.03007	.13558	.04521	.00649	-.00320	.01087	-.02640	-.15529	-.12284
2.860	1.564	-.00113	-.00147	.13393	.04276	.00669	-.00297	.01007	-.02645	-.15529	-.12286
2.860	3.611	.00043	.05337	.13072	.04101	.00609	-.00339	.00925	-.02342	-.15853	-.11332
2.860	5.688	-.00099	.11785	.12721	.03846	.00605	-.00356	.01039	-.00100	-.15531	-.11011
2.860	7.733	-.00013	.18164	.12464	.03669	.00593	-.00380	.00965	-.01055	-.15531	-.11329
2.860	11.875	-.00005	.31661	.11825	.03379	.00586	-.00475	.01093	-.02653	-.15530	-.11969
2.860	16.006	-.00079	.45681	.11373	.03207	.00594	-.00487	.01050	-.02973	-.15852	-.13249
2.860	20.145	.00017	.60825	.10563	.02798	.00625	-.00536	.00911	-.02977	-.15852	-.13251
2.860	24.303	.00045	.77702	.09809	.02367	.00645	-.00567	.00781	-.05854	-.15852	-.13570
2.860	28.474	.00067	.94801	.09168	.02218	.00691	-.00619	.00653	-.06179	-.14890	-.13252
	GRADIENT	-.00005	.02826	-.00154	-.00110	-.00021	-.00013	.00006	-.00372	-.00076	-.00007

LA-8C, UPWT1040, ORBITER 089B W/MOD, NOSE +OMS (RP6212) (15 AUG 73)

REFERENCE DATA

SREF =	136.1608 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

BETA =	3.000	ELEVTR =	-10.000
AILRON =	10.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 25/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-3.250	3.02614	-.19276	.17797	.04288	.00975	.00521	-.05600	-.15668	-.28139	-.24429
1.900	-1.417	3.02505	-.11223	.17607	.03442	.00940	.00381	-.05209	-.14614	-.28408	-.24168
1.900	-.352	3.02497	-.06325	.17529	.02885	.00908	.00336	-.05124	-.13290	-.28142	-.24168
1.900	.686	3.02498	-.01826	.17409	.02226	.00899	.00265	-.04967	-.12496	-.28408	-.24168
1.900	1.733	3.02560	.02493	.17276	.01771	.00881	.00179	-.04612	-.11443	-.28144	-.24171
1.900	2.777	3.02550	.06820	.17118	.01388	.00877	.00136	-.04727	-.10388	-.27880	-.24173
1.900	4.859	3.02719	.15433	.16796	.00269	.00845	.00006	-.04567	-.10923	-.27882	-.24441
1.900	6.978	3.02953	.24454	.16489	-.00604	.00800	-.00165	-.04335	-.11987	-.28416	-.24973
1.900	9.039	3.03066	.32843	.16095	-.01112	.00716	-.00296	-.04096	-.11470	-.28420	-.25508
1.900	13.253	3.03341	.49494	.15226	-.01789	.00540	-.00531	-.03697	-.09084	-.28153	-.25505
1.900	17.456	3.04557	.67040	.14147	-.02455	.00486	-.01202	-.02892	-.11993	-.27887	-.25505
1.900	20.527	3.05163	.80105	.13276	-.02614	.00400	-.01644	-.02219	-.15690	-.26557	-.24973
	GRADIENT	.00014	.04281	-.00122	-.00496	-.00016	-.00063	.00125	.00681	.00050	-.00002

RUN NO. 20/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-4.385	3.01745	-.16623	.14264	.04901	.00461	.00347	-.05239	.00548	-.15209	-.12288
2.860	-2.560	3.01798	-.12049	.13960	.04721	.00434	.00278	-.05140	-.02333	-.15209	-.12289
2.860	-1.537	3.01733	-.08942	.13788	.04566	.00423	.00256	-.05037	-.02981	-.15211	-.12612
2.860	-.504	3.01677	-.06063	.13623	.04563	.00412	.00200	-.04851	-.03612	-.15209	-.12609
2.860	.525	3.03397	-.02727	.13494	.04359	.00399	.00149	-.04566	-.03613	-.15531	-.12609
2.860	1.539	3.03333	.00142	.13331	.04284	.00385	.00128	-.04467	-.03612	-.15530	-.12609
2.860	3.622	3.03326	.06362	.13079	.04175	.00337	.00051	-.04270	-.03614	-.15531	-.12930
2.860	5.684	3.03267	.12565	.12746	.03979	.00282	-.00037	-.03982	-.02659	-.15832	-.13251
2.860	7.739	3.03193	.17982	.12449	.03801	.00248	-.00056	-.03876	-.02654	-.15531	-.13250
2.860	11.882	3.03358	.31963	.11812	.03550	.00165	-.00283	-.03399	-.02971	-.15851	-.13249
2.860	16.014	3.03834	.45736	.11228	.03440	.00045	-.00627	-.02847	-.02659	-.15852	-.13251
2.860	20.161	3.04231	.61885	.10556	.03035	.00003	-.00976	-.02286	-.02339	-.16173	-.13251
2.860	24.302	3.04590	.77507	.09736	.02504	-.00017	-.01169	-.02168	-.04907	-.15533	-.13254
2.860	28.470	3.04748	.94915	.09051	.02291	-.00057	-.01266	-.02125	-.05541	-.14890	-.12932
	GRADIENT	.00263	.02918	-.00149	-.00094	-.00015	-.00038	.00135	-.00461	-.00054	-.00076

LA-8C, UPWT1040, ORB.TER 089B W/MOD. NOSE +OMS (RP6213) (15 AUG 73)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	15.000	ELEVTR =	-10.000
AILRON =	10.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 26/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-6.174	16.40833	.62574	.14201	-.02642	.01957	-.00277	.09640	-.08304	-.29149	-.25247
1.900	-4.068	16.41145	.62779	.14303	-.02430	.01576	-.00258	.06209	-.06217	-.27902	-.24730
1.900	-2.043	16.41821	.62486	.14564	-.02189	.01267	-.00518	.03440	-.08601	-.28169	-.24998
1.900	-1.018	16.41993	.62412	.14678	-.02272	.01107	-.00641	.02173	-.10455	-.28437	-.25529
1.900	.006	16.42245	.62555	.14684	-.02127	.00932	-.00702	.00761	-.10722	-.28703	-.25530
1.900	1.033	16.42340	.62513	.14677	-.02141	.00764	-.00766	-.00651	-.10977	-.29100	-.25790
1.900	2.061	16.41730	.62474	.14578	-.02222	.00640	-.00863	-.01836	-.09915	-.28432	-.25787
1.900	4.110	16.41084	.62369	.14224	-.02387	.00319	-.01164	-.04535	-.11758	-.26839	-.25520
1.900	6.141	16.41114	.62255	.14158	-.02467	-.00016	-.01200	-.07818	-.12800	-.26832	-.26306
1.900	8.210	16.40161	.61992	.13996	-.02744	-.00418	-.00837	-.12274	-.13343	-.27369	-.26577
	GRADIENT	-.00602	-.00036	-.00007	.00005	-.00154	-.00104	-.01314	-.00591	.00082	-.00116

RUN NO. 21/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.135	14.42818	.41117	.11370	.02932	.01617	-.00729	.09967	.00879	-.16493	-.12606
2.860	-4.065	14.44901	.41208	.11470	.03177	.01293	-.00544	.06691	-.02010	-.16494	-.12928
2.860	-2.017	14.45125	.40583	.11542	.03357	.00941	-.00407	.03502	-.03932	-.16494	-.13569
2.860	-1.039	14.46372	.41259	.11493	.03578	.00783	-.00418	.02368	-.03295	-.16494	-.13570
2.860	-.001	14.46958	.41424	.11507	.03582	.00592	-.00434	.00949	-.03297	-.16494	-.13571
2.860	.980	14.47136	.41349	.11497	.03482	.00416	-.00487	-.00288	-.03619	-.16494	-.13571
2.860	2.018	14.47588	.41052	.11451	.03530	.00254	-.00464	-.01702	-.03296	-.16494	-.13570
2.860	4.077	14.46971	.41139	.11332	.03519	-.00102	-.00389	-.04897	-.02339	-.15852	-.13251
2.860	6.092	14.46542	.40960	.11225	.03228	-.00434	-.00149	-.08258	-.01377	-.15531	-.13250
2.860	8.166	14.44818	.41252	.11051	.03064	-.00770	.00045	-.11807	.01816	-.15853	-.13572
	GRADIENT	.00284	.00017	-.00019	.00038	-.00173	.00010	-.01393	-.00008	.00061	-.00030

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6214) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.5638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	20.000	ELEVTR =	-10.000
AILRON =	10.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 27/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-6.169	20.51100	.[illegible]83	.12785	-.03626	.02098	.00302	.08705	-.11538	-.28712	-.25278
1.900	-4.097	20.51713	.80094	.13135	-.03183	.01696	.00209	.05265	-.09949	-.28180	-.24747
1.900	-2.049	20.52254	.80225	.13386	-.02976	.01305	-.00263	.02926	-.12851	-.27121	-.25011
1.900	-1.002	20.52738	.80243	.13570	-.02703	.01123	-.00539	.01868	-.12051	-.27382	-.25007
1.900	-.011	20.52520	.80019	.13635	-.02660	.00916	-.00823	.00006	-.11256	-.27381	-.25005
1.900	1.016	20.52104	.79601	.13593	-.02491	.00745	-.01101	-.00177	-.12579	-.27117	-.25007
1.900	2.066	20.51974	.79545	.13445	-.02641	.00563	-.01413	-.01320	-.15220	-.26854	-.25008
1.900	4.123	20.52196	.79832	.13145	-.02837	.00213	-.01870	-.03732	-.15223	-.26855	-.24746
1.900	6.156	20.51419	.79490	.12872	-.03104	-.00192	-.01773	-.07304	-.14956	-.27383	-.25008
1.900	8.227	20.51270	.78644	.12800	-.02854	-.00702	-.01459	-.11620	-.14434	-.27651	-.25539
	GRADIENT	.00017	-.00071	.00004	.00052	-.00181	-.00259	-.01079	-.00612	.00141	.00000

RUN NO. 22/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.149	20.15609	.62109	.10243	.02378	.01860	-.00132	.08971	-.02983	-.16174	-.13892
2.860	-4.071	20.15234	.61511	.10385	.02558	.01471	-.00145	.05622	-.01380	-.16494	-.13891
2.860	-2.041	20.16037	.61620	.10518	.02883	.01006	-.00106	.02880	-.02660	-.16173	-.13571
2.860	-1.039	20.17209	.61827	.10536	.02900	.00843	-.00315	.01807	-.02661	-.16174	-.13572
2.860	.001	20.17267	.61762	.10548	.03051	.00600	-.00511	.00824	-.02986	-.16174	-.13573
2.860	1.003	20.16906	.61258	.10621	.03168	.00407	-.00685	-.00154	-.02984	-.16174	-.13572
2.860	2.004	20.17482	.61680	.10616	.03114	.00223	-.00882	-.01132	-.01708	-.15853	-.13573
2.860	4.082	20.17075	.61542	.10438	.03080	-.00202	-.00897	-.03881	-.02026	-.15853	-.13573
2.860	6.121	20.17265	.61151	.10254	.03020	-.00632	-.00813	-.07088	.00856	-.15532	-.13572
2.860	8.156	20.17128	.61010	.10078	.02901	-.01038	-.00799	-.09929	.01820	-.15531	-.13251
	GRADIENT	.00232	-.00008	.00011	.00064	-.00203	-.00115	-.01123	-.00023	.00075	.00030

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RF6215) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	25.000	ELEVTR =	-10.000
AILRON =	10.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 23/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.132	25.37752	.81968	.09396	.02222	.02090	.00199	.07486	-.03622	-.15532	-.13892
2.860	-4.075	25.37803	.81829	.09363	.02354	.01573	.00125	.04812	-.05541	-.15532	-.13892
2.860	-2.024	25.38750	.82173	.09456	.02451	.01108	-.00038	.02504	-.07462	-.15532	-.13893
2.860	-1.042	25.38544	.81900	.09533	.02505	.00900	-.00230	.01616	-.07462	-.15532	-.13893
2.860	.000	25.39067	.82362	.09561	.02538	.00657	-.00551	.00708	-.07141	-.15532	-.13892
2.860	1.003	25.38739	.82091	.09585	.02508	.01446	-.00820	-.00098	-.06182	-.15211	-.13892
2.860	2.005	25.38625	.82072	.09577	.02586	.00252	-.01076	-.00899	-.06182	-.15211	-.13573
2.860	4.068	25.38565	.81911	.09420	.02636	-.00298	-.01287	-.03314	-.04908	-.15212	-.13254
2.860	6.123	25.38712	.81986	.09477	.02534	-.00830	-.01337	-.05610	-.03951	-.14892	-.13255
2.860	8.181	25.39083	.81652	.09524	.02645	-.01298	-.01291	-.08737	-.04582	-.15211	-.13252
	GRADIENT	.00170	.00008	.00012	.00033	-.00226	-.00195	-.00962	.00149	.00052	.00075

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6216) (15 AUG /3)

REFERENCE DATA

SREF =	136.1608 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.5620 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	15.000	ELEVTR =	-10.000
AILRON =	.000	BDFLAP =	-14.290
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 12/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-6.172	16.41833	.6[illegible]927	.13779	-.02585	.01047	-.00074	.09702	-.06559	-.28245	-.24018
1.900	-4.104	16.42130	.62544	.13957	-.02460	.00674	-.00073	.06270	-.07372	-.27193	-.24028
1.900	-2.042	16.42373	.63031	.14104	-.02395	.00365	-.00312	.03584	-.07379	-.26665	-.24295
1.900	-1.036	16.42417	.62989	.14185	-.02337	.00203	-.00422	.02243	-.07903	-.26664	-.24030
1.900	-.012	16.42572	.62932	.14183	-.02422	.00028	-.00484	.00830	-.06576	-.26926	-.23762
1.900	1.032	16.42694	.63098	.14148	-.02347	-.00134	-.00529	-.00501	-.07094	-.26922	-.23757
1.900	2.019	16.42464	.62870	.14063	-.02305	-.00271	-.00646	-.01845	-.07880	-.26655	-.23754
1.900	4.090	16.41808	.63155	.13878	-.02433	-.00572	-.00946	-.04386	-.11581	-.25595	-.24284
1.900	6.143	16.42105	.63199	.13775	-.02519	-.00966	-.01017	-.07750	-.12902	-.26656	-.25341
1.900	8.152	16.41589	.63330	.13532	-.03022	-.01352	-.00668	-.12054	-.12910	-.26130	-.25346
	GRADIENT	-.00019	.00015	-.00010	.00006	-.00153	-.00099	-.01309	-.00397	.00143	.00008

RUN NO. 16/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.160	14.97584	.42353	.10988	.02601	.01126	-.00585	.10428	.03632	-.15950	-.12394
2.860	-3.990	14.98503	.42433	.11064	.02757	.00787	-.00375	.06691	.00752	-.15950	-.12394
2.860	-2.001	14.98561	.41369	.11185	.03150	.00389	-.00284	.03870	.01075	-.15950	-.12713
2.860	-1.058	15.00165	.42509	.11240	.03157	.00244	-.00309	.02455	.02034	-.15950	-.13033
2.860	-.021	14.99226	.42660	.11258	.03077	.00057	-.00335	.01222	.03306	-.15951	-.13035
2.860	1.018	14.99375	.42366	.11210	.03124	-.00154	-.00360	-.00107	.03950	-.15950	-.12714
2.860	2.016	14.99666	.42767	.11194	.03153	-.00304	-.00376	-.01334	.02020	-.15951	-.12397
2.860	4.096	14.99340	.42838	.11027	.02885	-.00673	-.00358	-.04352	-.02773	-.15951	-.12717
2.860	6.091	14.98461	.42172	.10380	.02634	-.01043	-.00111	-.07807	-.01813	-.15630	-.13356
2.860	8.149	14.98964	.43178	.10723	.02277	-.01380	.00045	-.11457	-.00214	-.15951	-.13675
	GRADIENT	.00111	.00101	-.00004	.00011	-.00180	-.00004	-.01351	-.00248	-.00000	-.00007

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP621/) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9638 INCHES		
LREF =	6.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	1/.5628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	20.000	ELEVTR =	-10.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	3.290	GT-LOC =	2.000

RUN NO. 13/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
1.900	-6.191	20.52283	.80448	.12329	-.03532	.01245	.00610	.08866	-.12130	-.2/195	-.24295
1.900	-4.079	20.52690	.80454	.12653	-.03340	.00805	.00585	.05195	-.11353	-.2/467	-.24040
1.900	-2.049	20.53585	.80618	.1298/	-.02849	.00421	.00095	.02856	-.11616	-.266/2	-.24040
1.900	-1.059	20.53569	.80412	.13200	-.0280/	.00209	-.00184	.018/2	-.10816	-.26668	-.24299
1.900	-.013	20. 3734	.80765	.1329/	-.02852	.00008	-.00454	.00813	-.12135	-.26933	-.24565
1.900	.895	20.53742	.80555	.13238	-.02806	-.00137	-.00684	-.00006	-.11341	-.2666/	-.2429/
1.900	2.024	20.53330	.80480	.13055	-.02868	-.00369	-.00996	-.01151	-.10822	-.26141	-.23774
1.900	4.160	20.52802	.80576	.12674	-.03031	-.00736	-.01499	-.03649	-.15046	-.25348	-.23512
1.900	6.15/	20.52246	.80360	.12438	-.03210	-.01175	-.014/1	-.07230	-.16638	-.26413	-.24310
1.900	8.24/	20.52929	.79894	.12346	-.0320/	-.01695	-.01166	-.11463	-.15335	-.26686	-.2484/
	GRADIENT	.00000	.00008	.00004	.00026	-.00188	-.00256	-.01052	-.00325	.00223	.00063

RUN NO. 1// 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.123	20.13296	.60/28	.09992	.02314	.01259	.00051	.08819	-.01496	-.15631	-.13996
2.860	-4.092	20.14266	.61079	.10117	.02323	.00895	.00082	.05803	-.01811	-.15630	-.13995
2.860	-2.042	20.14623	.60460	.10244	.02585	.00444	.00091	.02962	-.02134	-.15631	-.13996
2.860	-1.039	20.15765	.61602	.10325	.0267/6	.00200	-.00089	.01892	-.02136	-.15631	-.13996
2.860	-.002	20.15530	.61085	.10344	.02621	-.00006	-.00255	.01009	-.02772	-.15951	-.13995
2.860	.980	20.15781	.61519	.10362	.02740	-.00168	-.00439	.00035	-.02458	-.15952	-.1367/
2.860	2.003	20.14936	.60993	.103/9	.02684	-.00410	-.00656	-.00952	-.01817	-.15631	-.1367/6
2.860	4.099	20.14741	.61083	.10178	.02499	-.00843	-.00668	-.03702	-.02133	-.15630	-.1367/6
2.860	6.083	20.13935	.60435	.09988	.0241/	-.01296	-.00601	-.07005	-.00854	-.15309	-.1367/5
2.860	8.158	20.14787	.61202	.09825	.02039	-.01705	-.00574	-.10027	-.00217	-.15310	-.13356
	GRADIENT	.00059	.00023	.00013	.00022	-.01211	-.00113	-.01113	-.00023	-.00007	.00052

LA-8C, UPWT1040, ORBITER 089B W/MOD. NOSE +OMS (RP6218) (15 AUG /3)

REFERENCE DATA

SREF =	136.1808 SQ.IN.	XMRP =	15.9636 INCHES		
LREF =	8.9025 INCHES	YMRP =	.0000 INCHES		
BREF =	17.9628 INCHES	ZMRP =	.0000 INCHES		
SCALE =	.0188 SCALE				

PARAMETRIC DATA

ALPHA =	25.000	ELEVTR =	-10.000
AILRON =	.000	BDFLAP =	-14.250
RUDDER =	.000	RUDFLR =	40.000
K/L =	5.290	GT-LOC =	2.000

RUN NO. 18/ 0 RN/L = 1.50 GRADIENT INTERVAL = -5.00/ 5.00

MACH	BETA	ALPHA	CN	CA	CLM	CBL	CYN	CY	CPB1	CPB2	CPC
2.860	-6.151	25.36088	.81252	.09129	.0187/	.01426	.00555	.07391	-.03091	-.15309	-.13995
2.860	-4.078	25.36733	.81617	.09099	.02049	.00964	.00485	.04912	-.01811	-.15309	-.13675
2.860	-2.046	25.36867	.81235	.09234	.02248	.00433	.00332	.02599	-.05971	-.14989	-.13676
2.860	-1.060	25.37363	.81614	.09309	.0227/	.00170	.00114	.01517	-.06617	-.15311	-.13679
2.860	.018	25.37117	.81642	.09340	.02270	-.00034	-.00078	.00710	-.07249	-.15310	-.13676
2.860	1.002	25.37075	.81608	.09393	.02262	-.00244	-.00448	-.00095	-.06610	-.15310	-.13996
2.860	2.002	25.36674	.81336	.09350	.02318	-.0 1443	-.00677	-.00800	-.05653	-.14990	-.13997
2.860	4.085	25.36848	.8147/	.09208	.02221	-.00964	-.00901	-.03215	-.03411	-.14989	-.13675
2.860	6.106	25.36557	.81317	.09205	.02009	-.01547	-.00983	-.05805	-.02449	-.14988	-.13355
2.860	8.163	25.36356	.81639	.091/2	.01929	-.02012	-.009/1	-.08745	-.03088	-.14988	-.13355
	GRADIENT	-.00005	-.00008	.00017	.00019	-.00231	-.00190	-.00956	-.00133	.00030	-.00022

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