NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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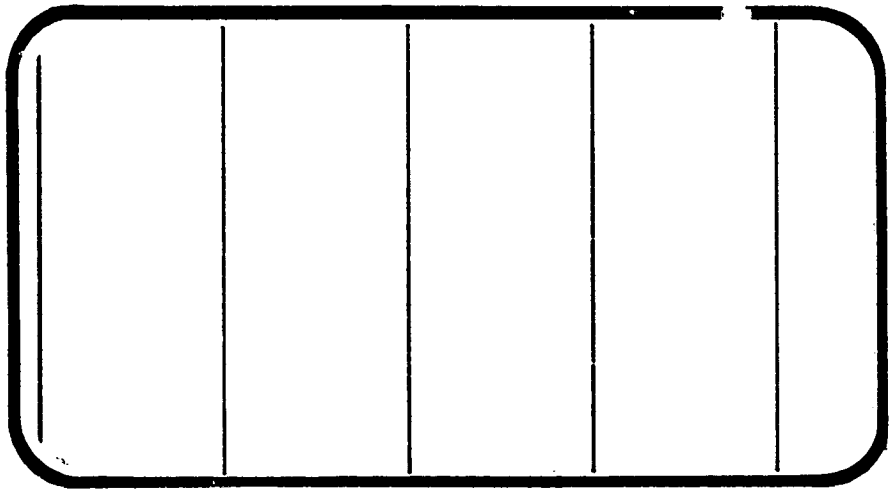

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

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SPACE SHUTTLE VEHICLE FERRY CONFIGURATION AFTERBODY FAIRING EFFECTS ON 140A/B ORBITER AERODYNAMIC CHARACTERISTICS USING AN .0405-SCALE MODEL ORBITER (43-0) IN THE ROCKWELL INTERNATIONAL 7.75 x 11 FT LOW SPEED WIND TUNNEL (OA123)

By

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Prepared under NASA Contract Number NAS9-13247

By

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for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number:	NAAL 731
NASA Series Number:	OA123
Model Number:	43-0
Test Dates:	9 September through 11 September 1974
Occupancy Hours:	47

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SPACE SHUTTLE VEHICLE FERRY CONFIGURATION AFTERBODY FAIRING EFFECTS ON 140A/B ORBITER AERODYNAMIC CHARACTERISTICS USING AN .0405-SCALE MODEL ORBITER (43-0) IN THE ROCKWELL INTERNATIONAL 7.75 x 11 FT LOW SPEED WIND TUNNEL (OA123)

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R. C. Mennell, Rockwell International B-1 Division

ABSTRACT

Experimental aerodynamic investigations were conducted on a dual strut mounted .0405-scale representation of the 140A/B outer mold line Space Shuttle Orbiter in the Rockwell International 7.75 x 11.00 foot low speed wind tunnel during the time period from 9 to 11 September 1974. NASA designation for this test period was OA123.

The primary test objectives were to define ferry configuration afterbody fairing effects on Orbiter stability and control characteristics and to substantiate wind tunnel results obtained at the Boeing Aerospace Company. Parametric variations consisted entirely of testing different afterbody fairing contours in an effort to improve both the Orbiter drag levels and lateral-directional control characteristics. The three afterbody contours that were tested consisted of the Boeing TC_3 beavertail, the new Rockwell-Boeing TC_4 fairing, and a modification of an existing short bumblebee fairing redesignated TC_6.

For this test period, aerodynamic force and moment data were measured in the stability axis system by the NAAL planar balance. The model was dual strut mounted from the wing tips with the center of rotation located at the main landing gear wheel axis. The nominal angle of attack range was $-2° \leq \alpha \leq 18°$ with yaw polars recorded over the sideslip angle range of $-20° \leq \beta \leq 20°$ at alpha angles of 0°, 4°, 8°, 12°, and 16°.

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B) CYN, CBL, CY vs. BETA

NOMENCLATURE
General

SYMBOL	PLOT 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	PLOT 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; $\frac{\text{pitching moment}}{qSl_{REF}}$
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	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qSl_{REF}}$
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	Plot Symbol	Description
A_B		model base area, ft^2
C_{D_b}	CDB	$-\left(\frac{P_{B_i} - P_S}{q}\right)\left(\frac{A_{B_i}}{S}\right)\cos\alpha$, i = 1→11
C_{D_S}		strut interference drag tare
C_{D_U}		planar balance uncorrected drag coefficient
C_{D_τ}		model weight tare drag force coefficient
C_{L_f}	CLF	forebody lift coefficient
ELEV-L	ELV-L	left wing inboard and outboard elevon deflection angle, degrees
ELEV-R	ELV-R	right wing inboard and outboard elevon deflection angle, degrees
$P_{B_{1,2...11}}$		base pressure at tap locations 1...11, respectively, psia
XCP/L	XCP/L	model longitudinal center of pressure location, fraction of Orbiter body length
δ_a	AILRON	aileron deflection, degrees
δ_{BF}	BDFLAP	bodyflap deflection, degrees
δ_e	ELEVON	elevon deflection, degrees
δ_R	RUDDER	rudder deflection, degrees
δ_{SB}	SPDBRK	speed brake deflection, degrees
L/D_f	L/DF	lift-to-drag ratio - forebody; CLF/CDF

CONFIGURATION INVESTIGATED

The model provided for test period OA123 was an .0405-scale representation of the 140A/B Space Shuttle Outer Mold Line Configuration. The basic model was the blended wing-body design utilizing a double delta wing (75°/45° Λ_{LE}), full span, dual panel elevons (unswept hingeline and 6" gaps), a centerline vertical tail with rudder and/or speed brake deflection capability, a canopy, a bodyflap, and an orbital maneuvering system (OMS pods) mounted on the aft fuselage sidewalls adjacent to the vertical tail. Provisions for mounting the 140C "short" OMS pods were also provided.

In addition to the aforementioned model components, three configurations of ferry mission afterbody fairings were tested in conjunction with the 140A/B fuselage B_{26}. (See Dimensional Data).

For this test period the following nomenclature was used to designate the various model components:

Component	Description
B_{26}, B_{50}	140A/B Orbiter fuselage
C_9	140A/B Orbiter canopy
E_{43}	140A/B Orbiter dual panel elevon with 6" gaps
F_8	140A/B Orbiter bodyfla
M_7	140A/B Orbiter long OMS pods
M_{16}	140C Orbiter short OMS pods
N_{28}	140A/B and 140C Orbiter OMS pod nozzles

CONFIGURATION INVESTIGATED (Concluded)

R_5	140A/B Orbiter "solid" panel rudder
TC_3	Boeing "Beavertail" X_3 afterbody fairing
TC_4	Rockwell-Boeing X_{3B} afterbody fairing
TC_6	Rockwell modified bumblebee afterbody fairing
V_8	140A/B Orbiter centerline vertical tail
W_{116}	140A/B Orbiter double delta wing

TEST FACILITY DESCRIPTION

North American Aerodynamics Laboratory (NAAL) 7.75 x 11-foot Wind Tunnel is a continuous flow, closed circuit, single return tunnel capable of speeds up to 200 miles per hour.

The test section is vented to atmospheric pressure and is 7.75 x 11 feet wide and 12 feet long. Power, supplied by a 1250-horsepower nacelle-mounted synchronous motor drives a 19-foot, seven-blade, laminated birch propeller. Airspeed is controlled by using a magnetic clutch to vary the degree of coupling between the motor and propeller. Turbulence is minimized by a damping screen and a honeycomb section in the settling chamber upstream from the contraction cone (ratio 7.53 to 1).

Tests may be conducted using a variety of mounting systems: single strut, double strut, sting strut, reflection plane, cable suspension, or two-dimensional wall. Aerodynamic data may be measured by a planar type external balanc system or sting-mounted internal balances. An Astrodata Automatic Data Acquisition System collects, multiplexes, digitizes, and records on magnetic tape 50 channels of force and/or pressure data. Data are then reduced and plotted using automatic data processing equipment and an automatic digital plotter.

The NAAL wind Tunnel has been operating since June 1943. Calibrations are available over a wide range of test conditions.

DATA REDUCTION

The aerodynamic force and moment data presented in the report were measured by the NAAL external planar balance. The data have been corrected for model blockage influence on tunnel dynamic pressure, wall interference effects on model aerodynamic characteristics, model support strut interference, and model weight tare. All aerodynamic data recorded with the ferry configuration afterbodies removed have been corrected for model base area pressure drag effects. No base drag corrections were applied to data taken on configurations with afterbodies attached.

The corrections made to axial force were accomplished in the following manner:

$$C_{D_F} = C_{D_U} - C_{D_B} - C_{D_S} - C_{D_\tau}$$

where

C_{D_U} = planar balance uncorrected drag coefficient

$$C_{D_B} = -\left(-\frac{P_{B_i} - P_\infty}{q}\right)\left(\frac{A_{B_i}}{S}\right) \cos \alpha, \quad 1 \rightarrow 11$$

C_{D_S} = strut interference drag tare coefficient

C_{D_τ} = model weight tare coefficient

All other aforementioned corrections to the aerodynamic data were applied utilizing standard low speed wind tunnel methods.

The following reference dimensions and constants were used for reducing all aerodynamic data to coefficient form:

DATA REDUCTION (Concluded)

Symbol	Definition	Value
A_{B1}	Area of influence, base pressure #1, ft^2	.02813
A_{B2}	Area of influence, base pressure #2, ft^2	.06614
A_{B3}	Area of influence, base pressure #3, ft^2	.08211
A_{B4}	Area of influence, base pressure #4, ft^2	.06361
A_{B5}	Area of influence, base pressure #5, ft^2	.05157
A_{B6}	Area of influence, base pressure #6, ft^2	.03435
A_{B7}	Area of influence, base pressure #7, ft^2	.04583
A_{B8}	Area of influence, base pressure #8, ft^2	.04282
A_{B9}	Area of influence, base pressure #9, ft^2	.06601
A_{B10}	Area of influence, base pressure #10, ft^2	.07014
A_{B11}	Area of influence, base pressure #11, ft^2	.14028
S	Area of wing, ft^2	4.4120
XMRP	Center of gravity, fus. sta., in.	43.5974
ZMRP	Center of gravity, waterplane, in.	15.1875
LB	Length Orbiter fuselage, in	52.2570
$\bar{c}$'LREF)	Wing MAC, in.	19.2300
b(BREF)	Wing span, in.	37.9360

TEST : 0A123 NAAL 731 | DATE : 10/10/74

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per foot)	DYNAMIC PRESSURE (pounds/sq. foot)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.26	1.85×10^6/ft	100 lbs/ft^2	90° to 120°F

BALANCE UTILIZED: NAAL Planar Balance

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
LF	600 lbs.		
SF	250 lbs.		
DF	300 lbs.		
PM	450 ft-lbs.		
RM	250 ft-lbs.		
YM	100 ft-lbs.		

COMMENTS:

TABLE II.

TEST : OA123 NAAL 731 — DATA SET/RUN NUMBER COLLATION SUMMARY — DATE : 10/10/74

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	de	δBF	δSB	δR	NO. OF RUNS	MACH NUMBERS .26	TEST RUN NUMBERS
RFA001	①+M7N28	A	0	0	-	0	0	1	1	
002		0	F						2	
003		4							3	
004		8							4	
005		12							5	
006		16							6	
007	①+M7TC3	A	0						7	
008		0	F						8	
009		4							9	
010		8							10	
011		12							11	
012		16							12	
013		B	0						13	
015	②+M16N28F2X2	A	0		11.7				15	
016		0	F						16	
017		4							17	
018		8							18	
019		12							19	
020		16							20	

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

C_L . . . C.D.F. . . C.L.M. . . C_N . . . C.A.F. . . C_Y.N. . . C.B.L. . . C_Y . . . X.C.P./L. . . C.A.B. . . MACH . . . ALPHA 1.0

BETA α OR β SCHEDULES

α(A) = -2° → +18°, Δα = 2° COEFFICENTS

α(B) = 0 → +16°, Δα = 4°

β(F) = -20, -15, -10, -5, -2½, 0, 2½, 5, 10, 15, 20

① = B26C9 IDVAR(1) W116E43VBRS NDV

② = B50C9 IDVAR(2) W116E43VBRS

TABLE II. - Concluded.

TEST: DA123 NAAL 731 — DATA SET/RUN NUMBER COLLATION SUMMARY — DATE: 10/10/74

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES δe	δeF	δSB	δR	NO. OF RUNS	MACH NUMBERS .26
RFA021	①+M16N28F8X9	A	0	0	11.7	0	0	1	21
022		0	F						22
023		4							23
024		8							24
025		12							25
026		16							26
027	①+M16TC4X9	A	0		—				27
028		0	F						28
029		4							29
030		8							30
031		12							31
032		16							32
036	①+M16TC6X9	A	0						36
037		0	F						37
038		4							38
037		8							39
040		12							40
041		16							41

TEST RUN NUMBERS

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

CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB	MACH	ALPHA	1.0

BETA α OR β SCHEDULES

α(A) = -2° → +18°, Δα = 2°

α(B) = 0 → +16°, Δα = 4°

β(F) = -20°, -15°, -10°, -5°, -2½°, 0, 2½°, 5°, 10°, 15°, 20°

COEFFICENTS

IDVAR (1) — IDVAR (2) — NDV

① B26C9 W116E43V8R5

② B50C9 W116E43V8R5

TABLE III (MODEL DIMENSIONAL DATA)

MODEL COMPONENT : BODY - B26

GENERAL DESCRIPTION : Configuration 140A/B orbiter fuselage.

MODEL SCALE: 0.0405

DRAWING NUMBER : VL70-000193, VL70-000140A

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (Body nose @ X_o=238.0), In.	1290.3	52.257
Max Width (X_o = 1528.3), In.	264.0	10.692
Max Depth (X_o = 1464.0), In.	250.0	10.125
Fineness Ratio	4.925	4.925
Area - Ft^2		
Max. Cross-Sectional	340.88	0.559
Planform		
Wetted		
Base		

TABLE III (CONT'D)

MODEL COMPONENT : BODY - B_{50}

GENERAL DESCRIPTION : Orbiter fuselage configuration 140A/B with the simulated MPS nozzles.

MODEL SCALE: 0.0405

DRAWING NUMBER : VL70-000140A/B

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (Body nose @ X_o=238.0), In.	1290.3	52.257
Max Width (@ X_o = 1528.3), In.	264.0	10.692
Max Depth (@ X_o = 1464.0), In.	250.0	10.125
Fineness Ratio	4.925	4.925
Area - $Ft.^2$		
Max. Cross-Sectional	340.88	0.559
Planform		
Wetted		
Base		

TABLE III (CONT'D)

MODEL COMPONENT : CANOPY - C_9

GENERAL DESCRIPTION : Configuration 140A'B orbiter canopy configuration used with fuselage B_{26}.

MODEL SCALE: 0.0405

DRAWING NUMBER : VL70-000143A, VL70-000140A

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (X_o= 434.64 to 578.0), In.	143.36	5.806
Max Width (@ X_o = 513.13), In.	152.41	6.173
Max Depth (@ X = 485.00), In.	25.00	1.013
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III (CONT'D)

MODEL COMPONENT: ELEVON - E43

GENERAL DESCRIPTION: Configuration 140A/B dual panel elevon with 6" elevon/elevon and elevon/fuselage gaps.

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000140A/B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - Ft^2	210.00	0.344
Span (equivalent), In.	349.20	14.143
Inb'd equivalent chord, In.	118.00	4.779
Outb'd equivalent chord	55.19	2.235
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.210	0.210
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	0.0	0.0
Tailing Edge	- 10.056	-10.056
Hingeline	0.0	0.0
Area Moment (Product of area and $\bar{c}$) Normal to hingeline, Ft^3	1587.25	0.1054
Mean aerodynamic chord, In.	90.70	3.673

TABLE III (CONT'D)

MODEL COMPONENT : BODY FLAP - F8

GENERAL DESCRIPTION : Configuration 140A'B orbiter body flap. Hingeline located at X_o = 1528.3. Z_o = 284.3

MODEL SCALE: 0.0405 MODEL DWG - SS-A00147, RELEASE 12

DRAWING NUMBER : VL70-000140A. VL70-000145

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (X_o=1520 to X_o=1613), In.	93.00	3.767
Max Width (In.)	262.00	10.611
Max Depth (X_o = 1520, In.)	23.00	0.932
Fineness Ratio		
Area - Ft^2		
Max. Cross-Sectional		
Planform	150.525	0.247
Wetted		
Base	41.847	0.0686

TABLE III (CONT'D)

MODEL COMPONENT : ORBITAL MANEUVERING SYSTEM - M_7

GENERAL DESCRIPTION : 140A'B configuration orbiter OMS/RCS pods

MODEL SCALE: 0.0405 MODEL DWG: SS-A00147, Release 12

DRAWING NUMBER VL70-000145

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta. X_o=1233.0). In.	327.000	13.244
Max Width (@ X_o = 1450.0). In.	94.5	3.827
Max Depth (@ X_o = 1493.0). In.	109.000	4.415
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III (CONT'D)

MODEL COMPONENT : ORBITAL MANEUVERING SYSTEM - M_{14}

GENERAL DESCRIPTION : Configuration 140C orbiter OMS pod - short pod.

MODEL SCALE: 0.0405

DRAWING NUMBER : VL70-008401, VL70-008410

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta X_o = 1310.5). In.	258.50	10.469
Max Width (@ Y_o = 1511). In.	136.8	5.540
Max Depth (@ X = 1511). In.	74.70	3.025
Fineness Ratio	2.484	2.484
Area - Ft^2		
Max. Cross-Sectional	58.864	0.097
Planform		
Wetted		
Base		

TABLE III (CONT'D)

MODEL COMPONENT: OMS NOZZLES - N_{28}

GENERAL DESCRIPTION: Configuration 140A'B Orbiter OMS Nozzles

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000140A (Location), SS-A00106, Rel. 5 (Contour)

DIMENSIONS:		FULL SCALE	MODEL SCALE
MACH NO.			
Length - In.			
Gimbal Point to Exit Plane			
Throat to Exit Plane			
Diameter - In.			
Exit			
Throat			
Inlet			
Area - ft^2			
Exit			
Throat			
Gimbal Point (Station) - In.			
Left Upper Nozzle			
X_o		1518.0	61.479
Y_o		- 88.0	- 3.564
Z_o		492.0	19.926
Right Nozzles			
X_o		1518.0	61.479
Y_o		88.0	3.564
Z_o		492.0	19.926
Null Position - Deg.			
Left Upper Nozzle			
Pitch	$15^o49'$	± 8	$13^o17'$ OUTB'D $2^o30'$ INB'D
Yaw	$12^o17'$ (OUTB'D)	± 8	$13^o17'$ OUT'D 2 17' INB'D
Lower Nozzle			
Pitch			
Yaw			

TABLE III (CONT'D)

MODEL COMPONENT: RUDDER - B_5

GENERAL DESCRIPTION: Configuration 140C orbiter rudder (identical to configuration 140A/B rudder)

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000146B, VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - $Ft.^2$	100.15	0.164
Span (equivalent), In.	201.00	8.141
Inb'd equivalent chord, In.	91.585	3.709
Outb'd equivalent chord, In.	50.833	2.059
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 (Product of area and $\bar{c}$) Normal to hingeline, $Ft.^3$	610.92	0.0406
Mean Aerodynamic Chord, In.	73.20	2.965

TABLE III (CONT'D)

MODEL COMPONENT: VERTICAL - V_8

GENERAL DESCRIPTION: Configuration 140C orbiter vertical tail (identical to configuration 140A/B vertical tail)

MODEL SCALE: 0.0405

DRAWING NUMBER: VL70-000140C, VL70-000146B

DIMENSIONS:	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft^2		
Planform	413.253	0.678
Span (Theo) - In.	315.72	12.787
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.404	0.404
Sweep-Back Angles, Degrees.		
Leading Edge	45.000	45.000
Trailing Edge	26.25	26.25
0.25 Element Line	41.13	41.13
Chords: - In.		
Root (Theo) WP	268.50	10.874
Tip (Theo) WP	108.47	4.393
MAC	199.81	8.093
Fus. Sta. of .25 MAC	1463.35	59.272
W.P. of .25 MAC	635.52	25.738
B.L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle - Deg.	10.00	10.00
Trailing Wedge Angle - Deg.	14.92	14.92
Leading Edge Radius	2.00	0.081
Void Area	13.17	0.022
Blanketed Area	0.00	0.00

TABLE III (CONT'D)

MODEL COMPONENT: WING-W_{116}

GENERAL DESCRIPTION: Configuration 4

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

MODEL SCALE: 0.0405

TEST NO.

DWG. NO. VL70-000140A, -000200

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2 Planform	2690.00	4.412
Span (Theo In.	936.68	37.936
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees	3.500	3.500
Incidence Angle, degrees	0.500	0.500
Aerodynamic Twist, degrees	+ 3.000	+ 3.000
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	- 10.056	- 10.056
0.25 Element Line	35.209	35.209
Chords: - In.		
Root (Theo) B.P.0.0.	689.24	27.914
Tip, (Theo) B.P.	137.85	5.583
MAC	474.81	19.230
Fus. Sta. of .25 MAC	1136.83	46.042
W.P. of .25 MAC	290.58	11.768
B.L. of .25 MAC	182.13	7.376
EXPOSED DATA		
Area (Theo) Ft^2	1751.50	2.873
Span, (Theo) In. BP108	720.68	29.188
Aspect Ratio	2.059	2.059
Taper Ratio	0.245	0.245
Chords - In.		
Root BP108	562.09	22.765
Tip 1.00 $\frac{b}{2}$	137.85	5.583
MAC	392.83	15.910
Fus. Sta. of .25 MAC	1185.98	48.032
W.P. of .25 MAC	294.30	11.919
B.L. of .25 MAC	251.77	10.197
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root $\frac{b}{2}$ =	0.113	0.113
Tip $\frac{b}{2}$ =	0.120	0.120
Data for (1) of (2) Sides		
Leading Edge Cuff Planform Area Ft^2	113.18	0.185
Leading Edge Intersects Fus M. L. @ Sta	500.00	20.250
Leading Edge Intersects Wing @ Sta	1024.00	41.472

TABLE III (CONT'D)

MODEL COMPONENT: TAILCONE - TC_3

GENERAL DESCRIPTION: Afterbody fairing used on body B_{26} for ferry configuration drag reduction. Fairing extends from body B_{26} trailing edge to fuselage station 1882.59. Fairing encloses OMS pods and terminates in a sharp trailing edge. Also designated as the Boeing Beavertail.

DRAWING NO.: SS-A01460

MODEL COMPONENT: TAILCONE - TC_4

GENERAL DESCRIPTION: Afterbody fairing used on body B_{26} for ferry configuration drag reduction. Fairing extends from body B_{26} trailing edge to fuselage station 1900.00. Fairing encloses OMS pods and terminates in a blunt trailing edge.

DRAWING NO.: 3S-A01460.

MODEL COMPONENT: TAILCONE - TC_6

GENERAL DESCRIPTION: Afterbody fairing used on body B_{26} for ferry configuration drag reduction. Fairing extends from body B_{26} trailing edge to fuselage station 1805.98. Fairing does not enclose OMS pods and terminates in a rounded trailing edge. OMS pods have been contoured to provide a smooth transition between OMS pods trailing edge and afterbody fairing. Also designated as the Rockwell Bumblebee.

DRAWING NO.: SS-A01163.

Notes:

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

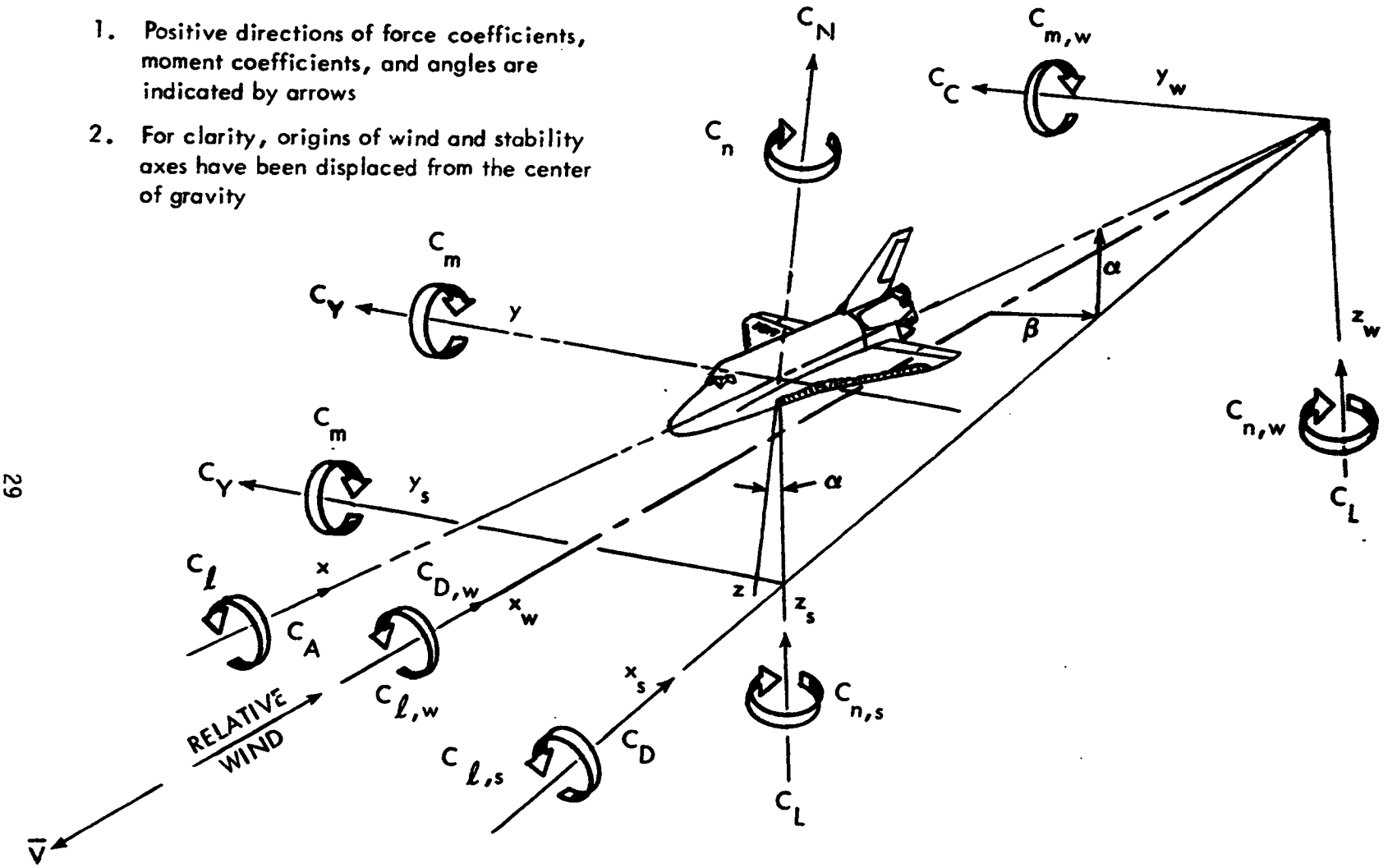
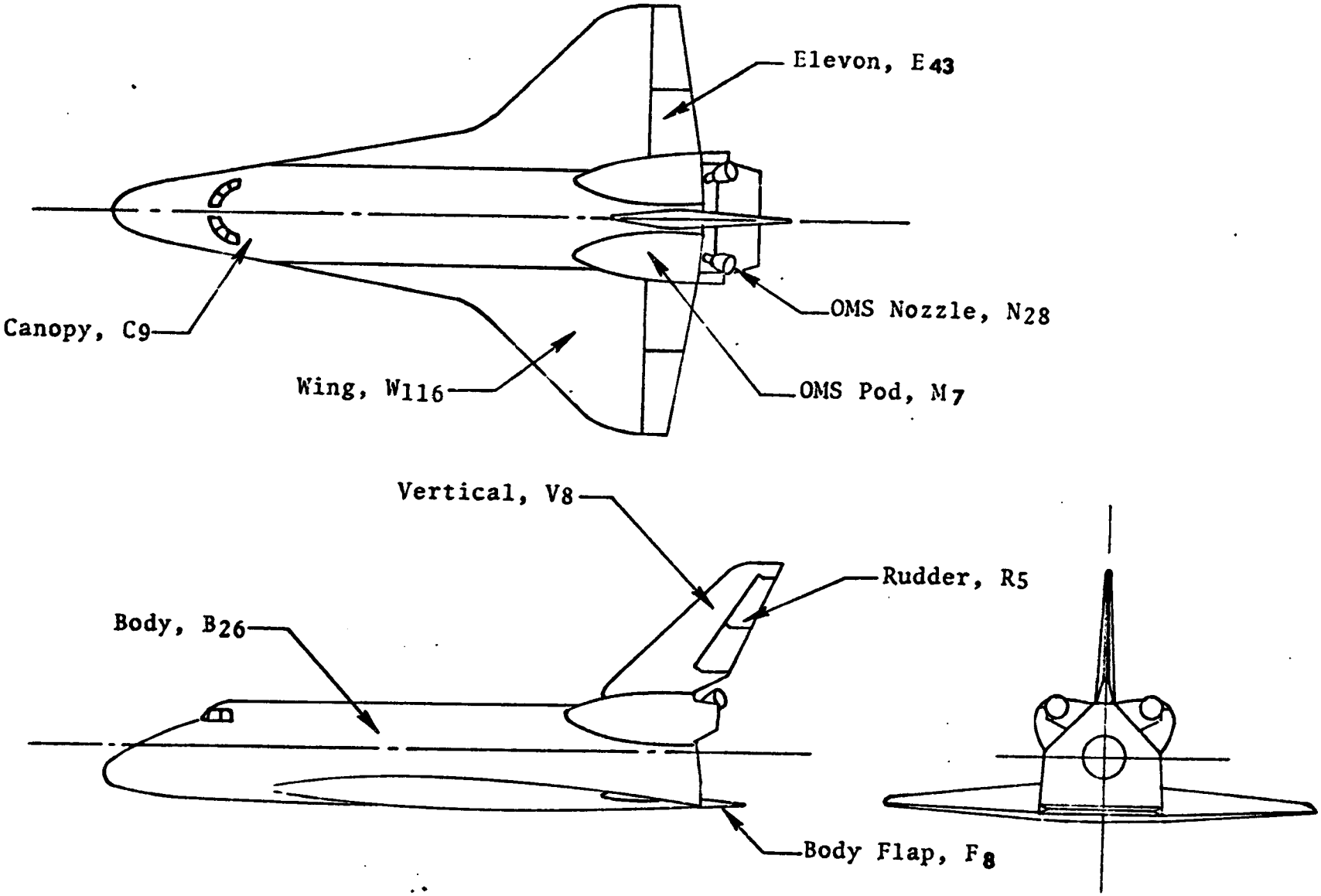
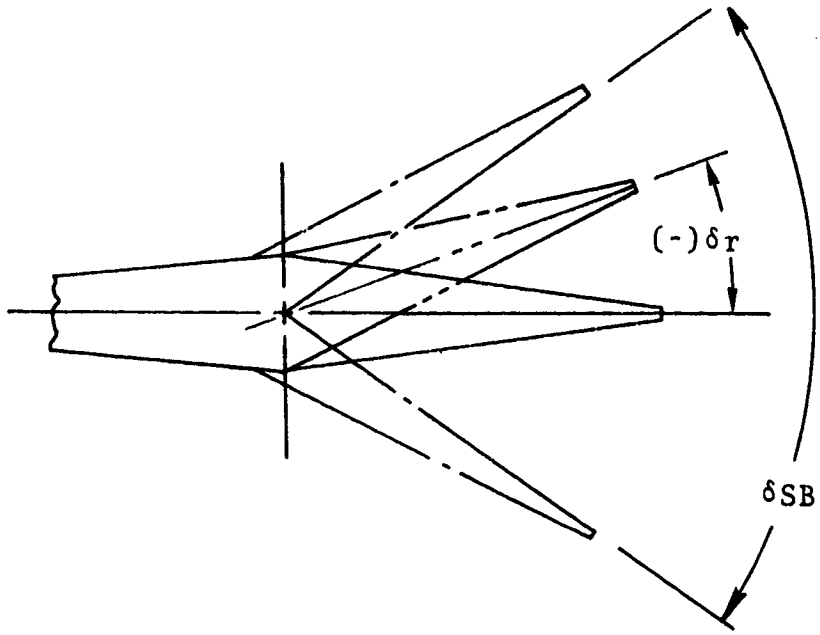


Figure 1. - Axis systems.

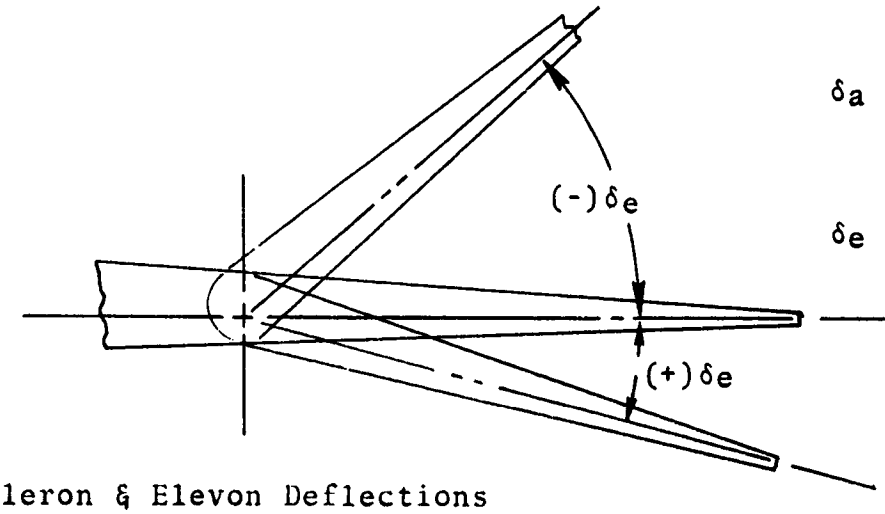


a. Orbiter Three View

Figure 2. - Model sketches.



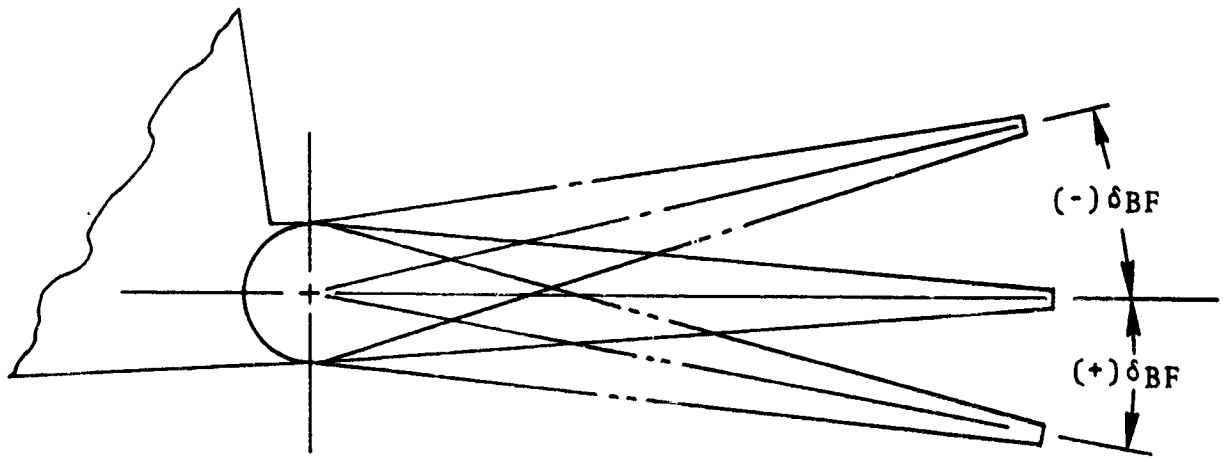
Rudder and Speed Brake Deflections



$$\delta a = \frac{\delta eL - \delta eR}{2}$$

$$\delta e \quad \frac{\delta e_L + \delta e_R}{2}$$

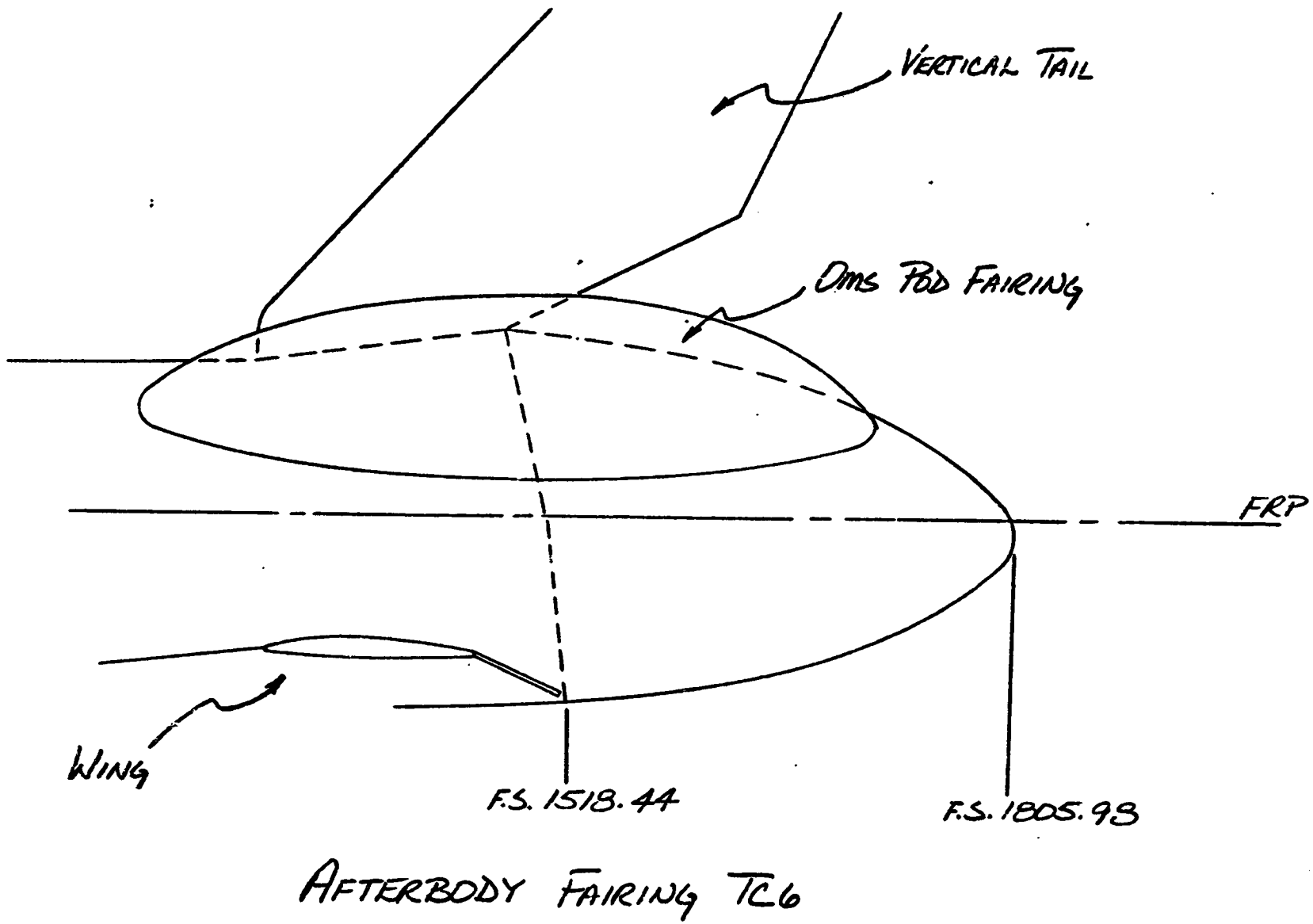
Aileron & Elevon Deflections



Body Flap Deflections

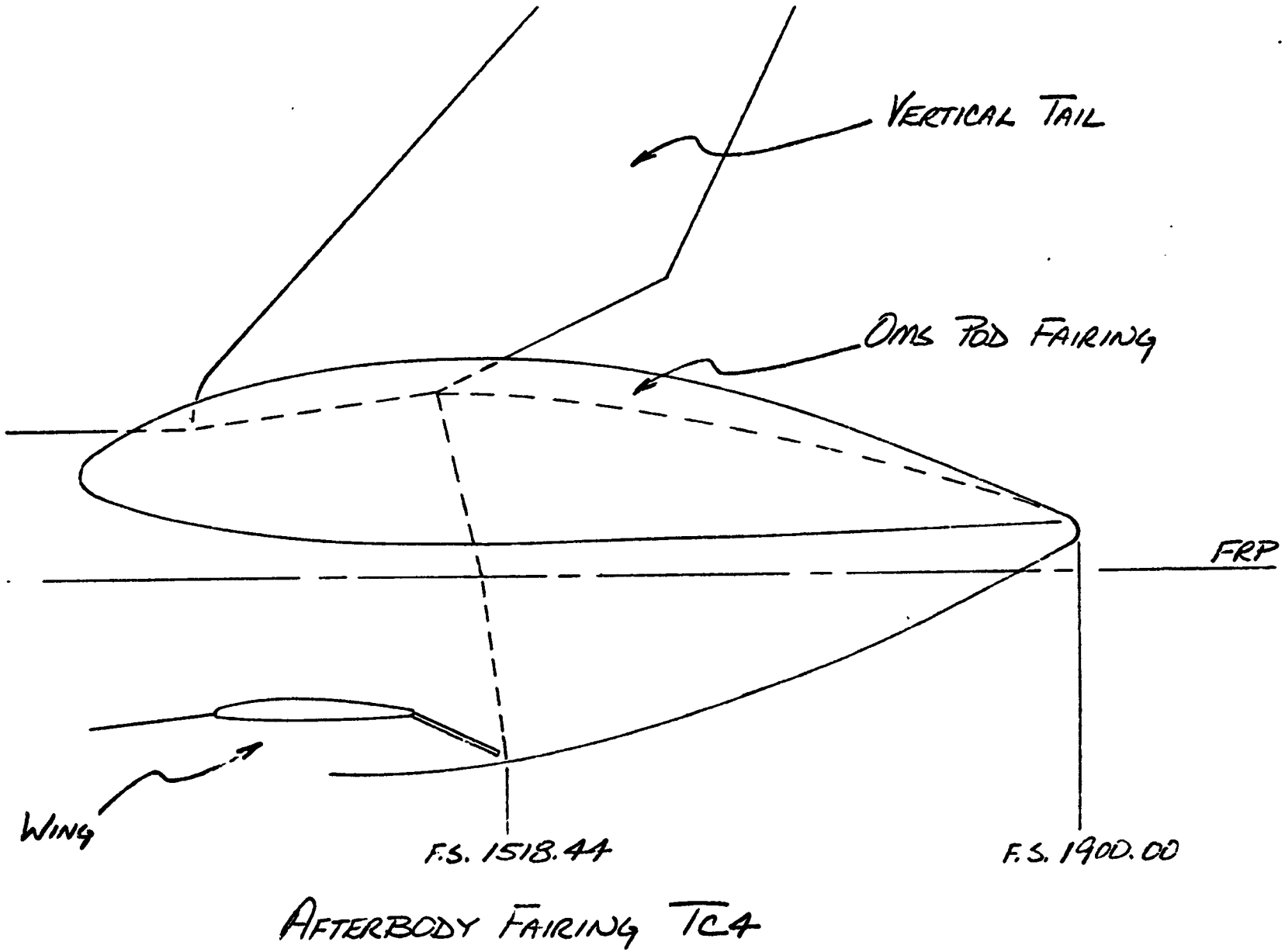
b. Sign Convention for Control Surfaces

Figure 2. - Continued.



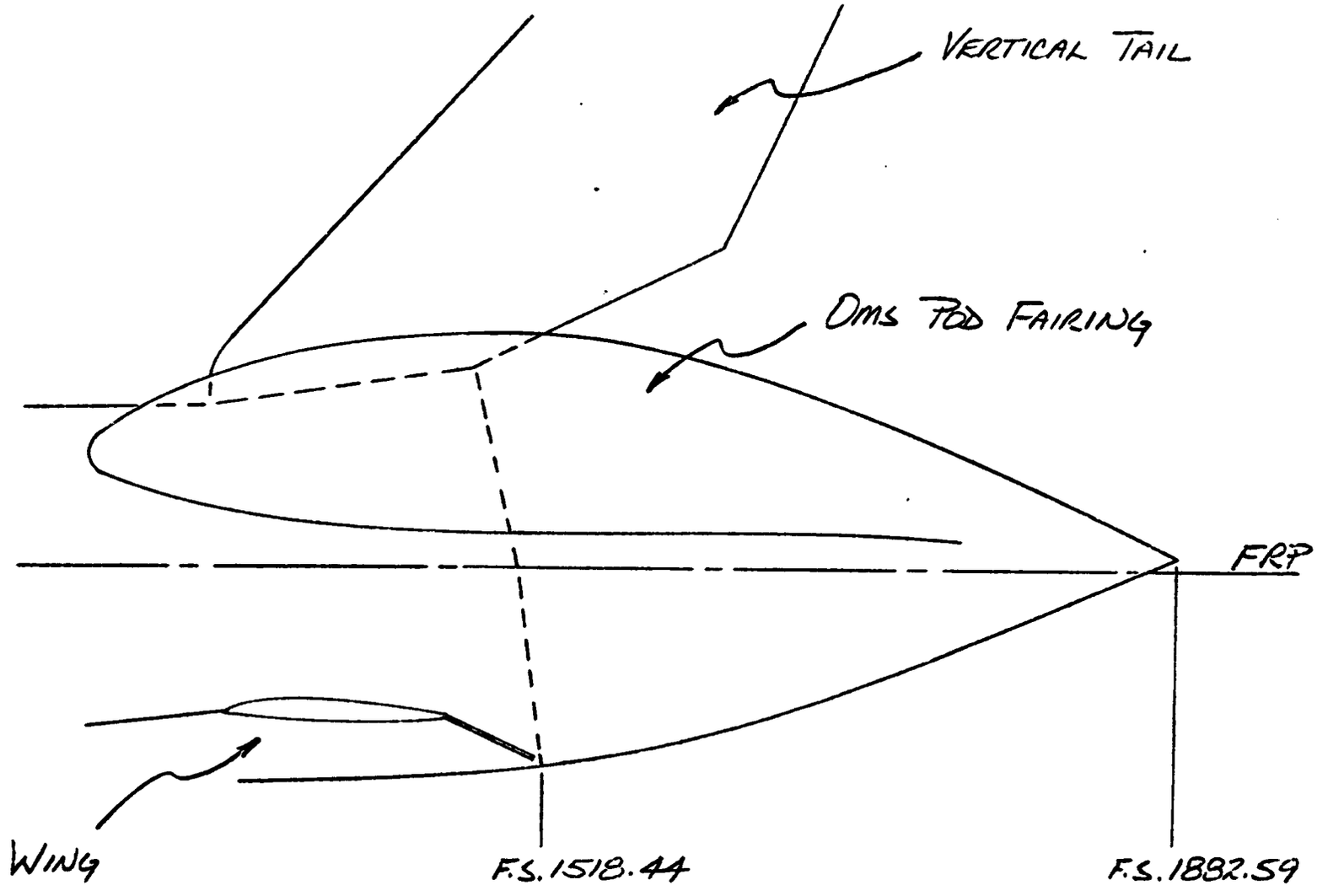
c. Afterbody Fairing TC_6

Figure 2. - Continued.



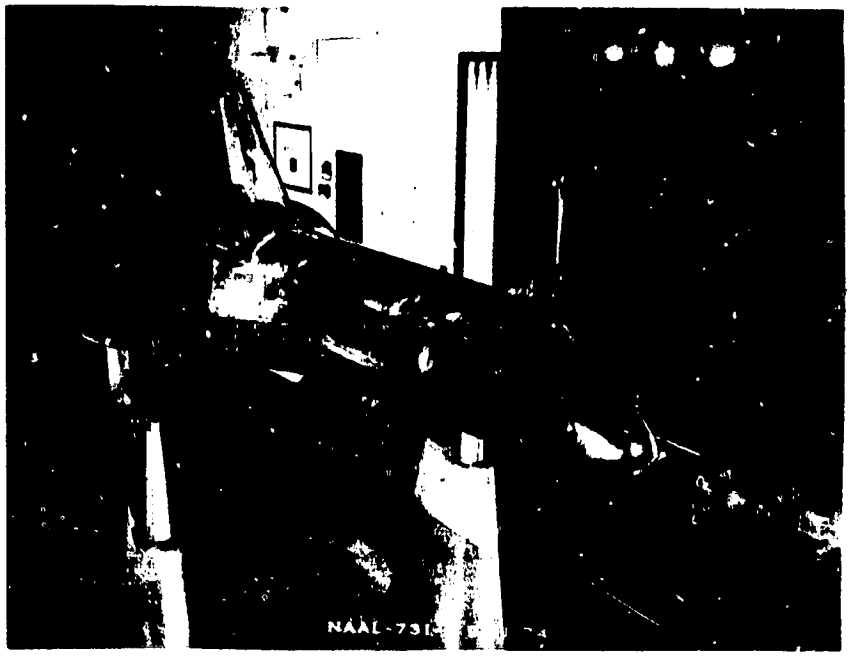
d. Afterbody Fairing TC_4

Figure 2. - Continued.

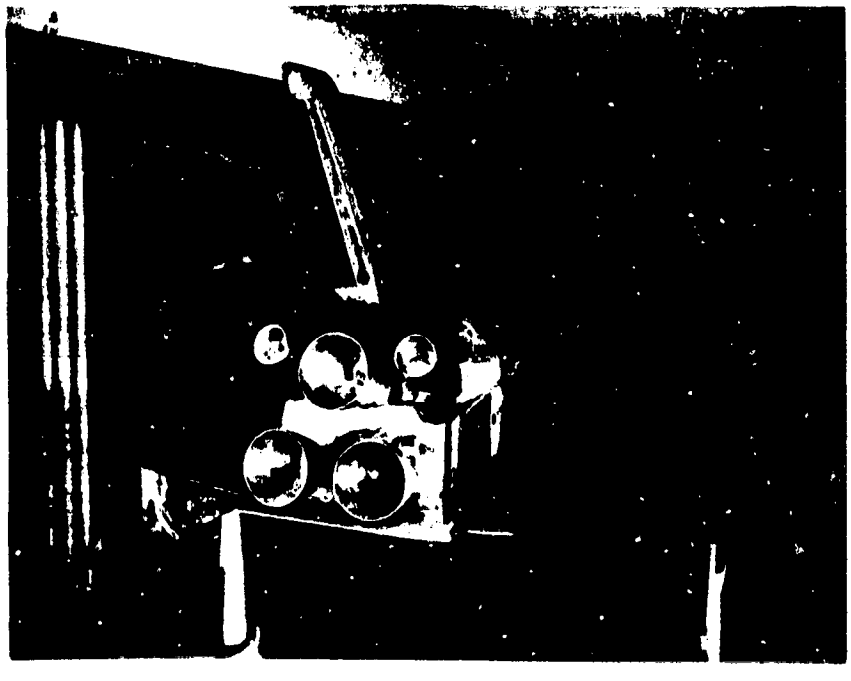


e. Afterbody Fairing TC_3

Figure 2. - Concluded.

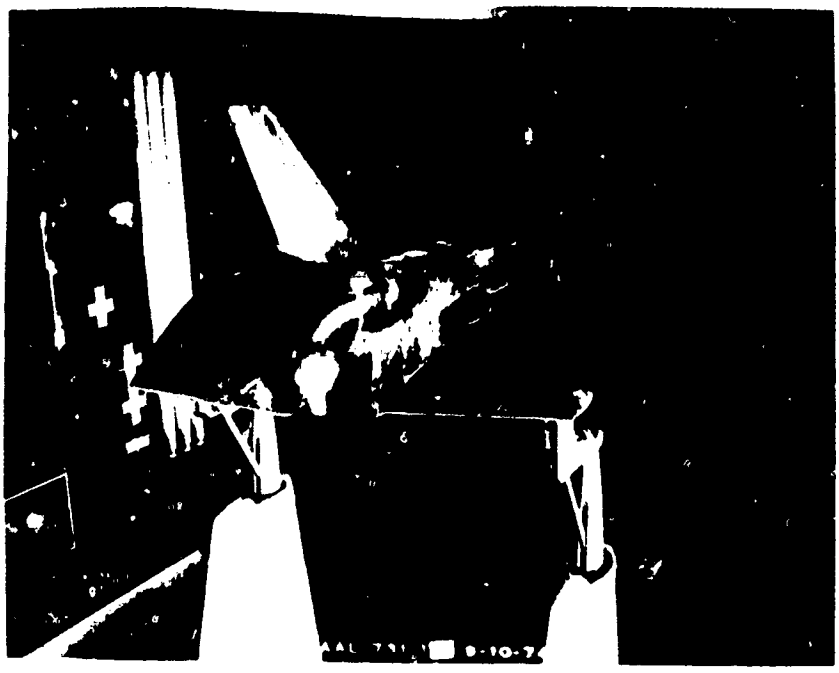


a. Front View, NAAL Dual Strut Installation, Configuration B_{26} C_9 M_{16} W_{116} E_{43} V_8 R_5 TC_4 X_9

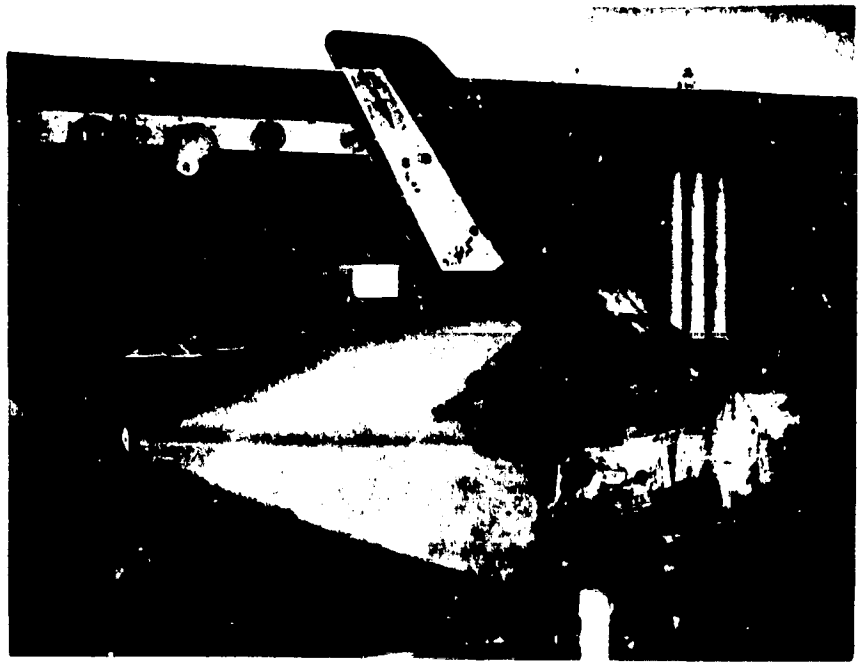


b. Rear View, NAAL Dual Strut Installation, Configuration B_{50} C_9 M_{16} N_{28} W_{116} E_{43} V_8 R_5 X_9

Figure 3. - Model photographs.

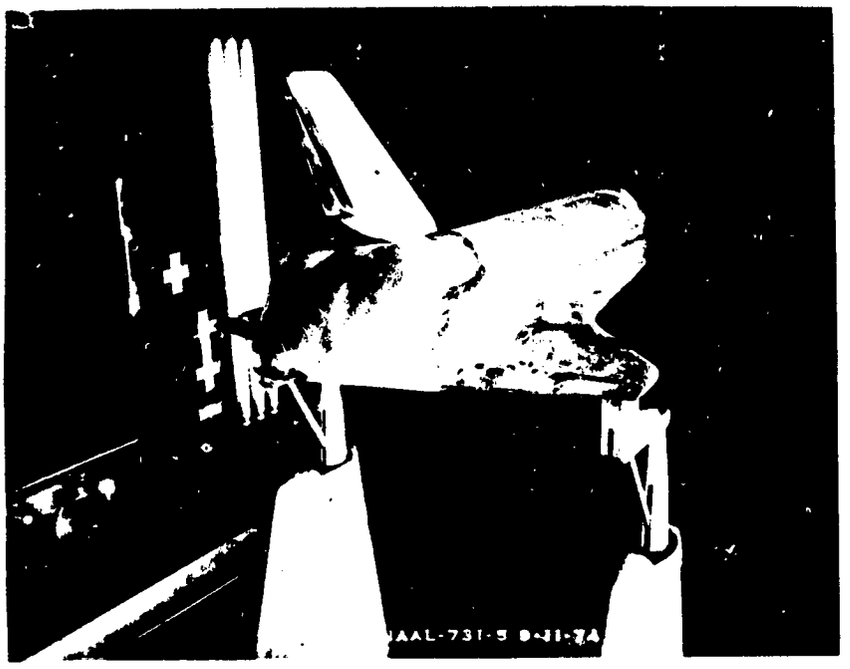


c. Rear View, NAAL Dual Strut Installation, Configuration B_{26} C_9 M_7 W_{116} E_{43} V_8 R_5 TC_3



d. Rear Side View, NAAL Dual Strut Installation, Configuration B_{26} C_9 M_{16} W_{116} E_{43} V_8 R_5 TC_4 X_9

Figure 3. - Continued.



e. Rear View, NAAL Dual Strut Installation, Configuration B_{26} C_9 M_{16} W_{116} E_{43} V_8 R_5 TC_6 X_9

Figure 3. - Concluded.

DATA FIGURES

SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	RUDDER	SPDBRK
[illegible]	[illegible]	.000	.000	.000	.000
[illegible]	[illegible]	.000	.000	.000	.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1016.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

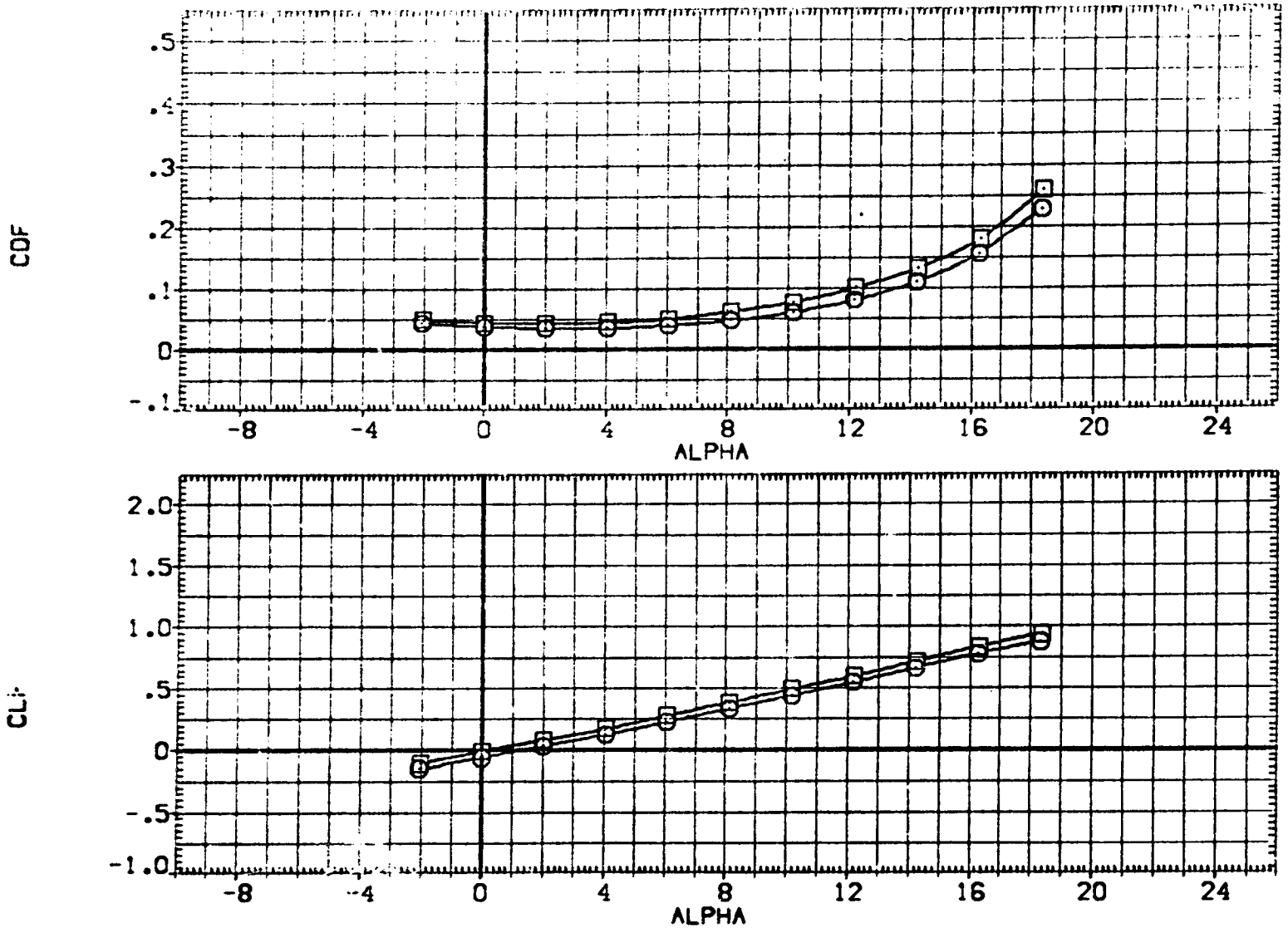


FIG 4 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT OFF

[A]MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	RUDDER	SPDBRK
[AFA001]	○	0A123 B26C9 M7 N28W116E43VBR5	.000	.000	.000	.000
[AFA007]	□	0A123 B29C9 M7 N28W116E43VBR5TC3	.000	.000	.000	.000

REFERENCE INFORMATION

SREF	2689.8300	SQ.FT.
LREF	474.3100	INCHES
BREF	936.6800	INCHES
XMRP	1075.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

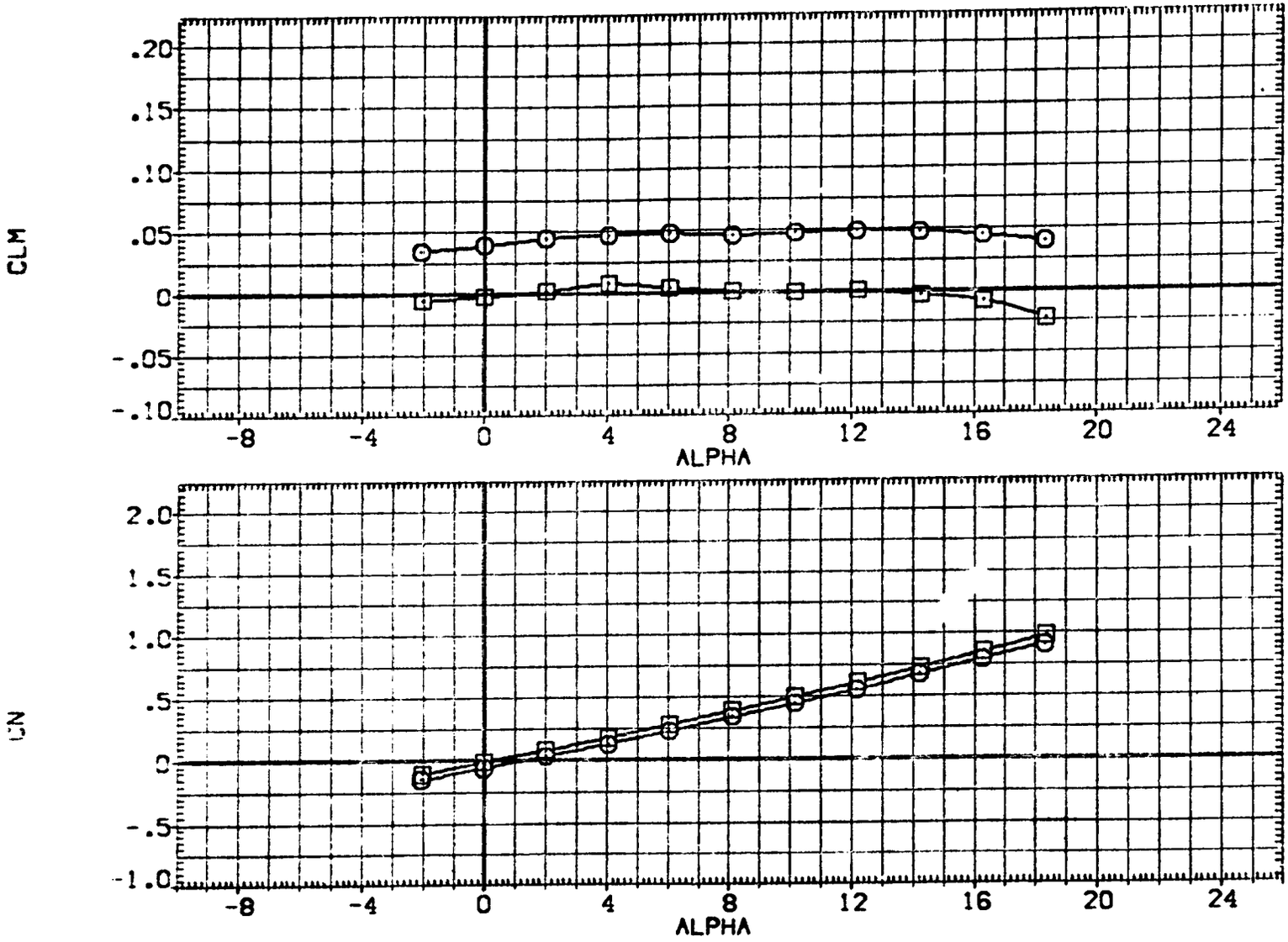


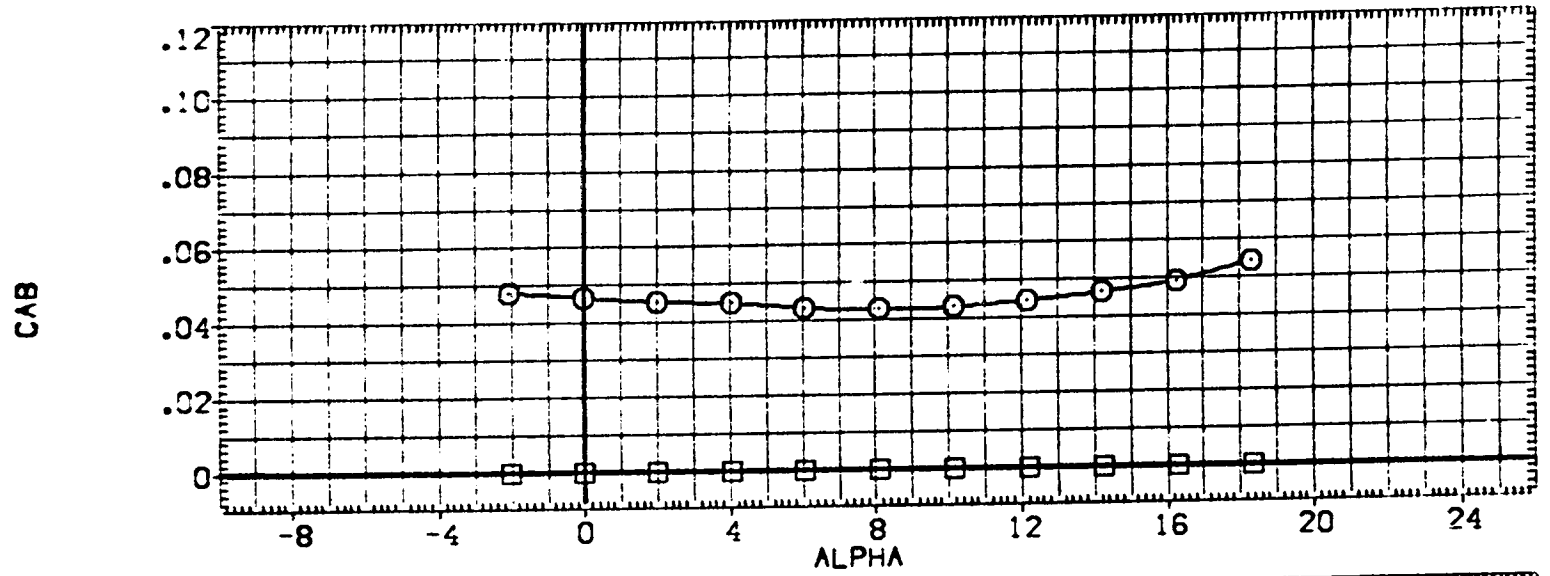
FIG 4 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT OFF

[A]MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			
[AFA001]	○	OA123	826C9	M7 N28W116E43V8R5	
[AFA007]		OA123	829C9	M7 N28W116E43V8R5TC3	

ELEVON	AILRON	RUDDER	SPDBRK
.000	.000	.000	.000
.000	.000	.000	.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE



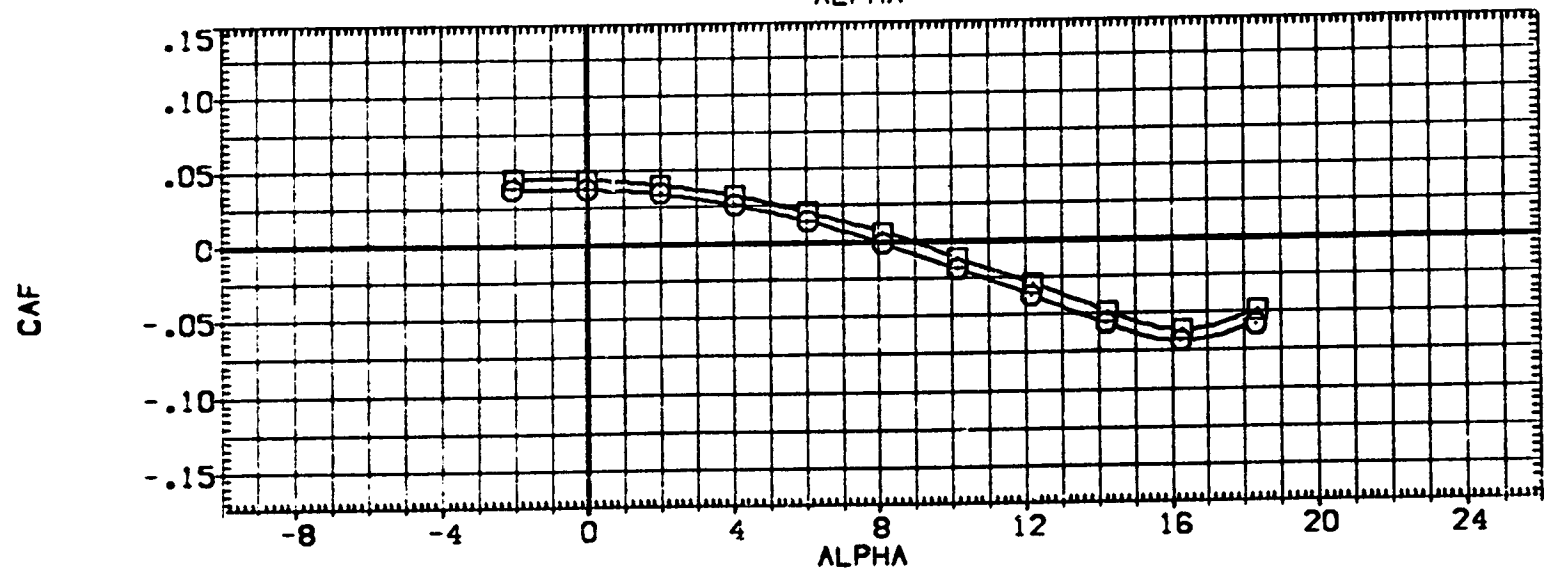


FIG 4 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT OFF

[A]MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
[AFA001]	○	OA123 B26C9 M7 N28W116E43V8R5
[AFA007]	...	OA123 B29C9 M7 N28W116E43V8R5TC3

ELEVON	AILRON	RUDDER	SPDBRK
.000	.000	.000	.000
.000	.000	.000	.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

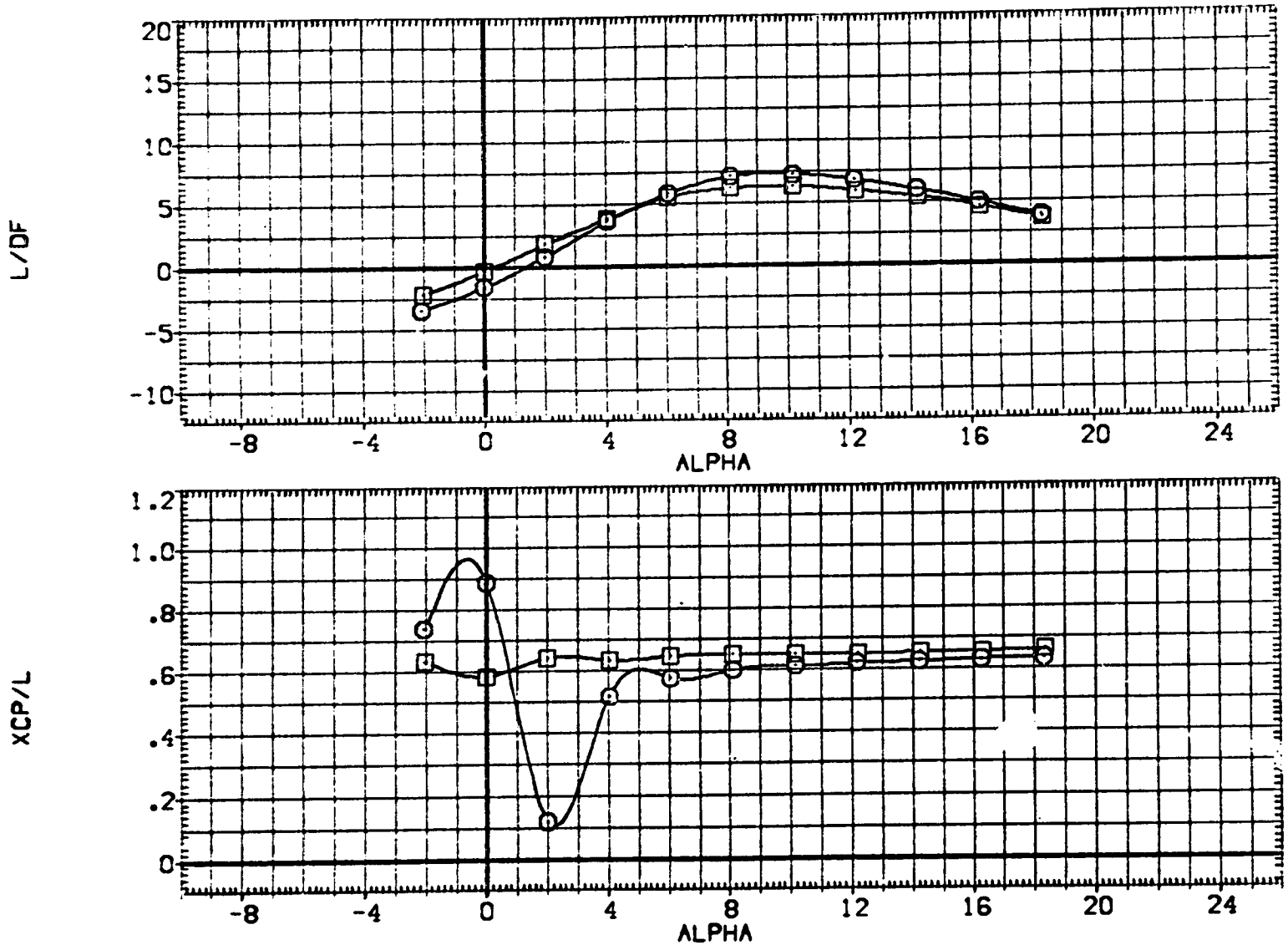


FIG 4 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT OFF

[A]MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
[A]A000[ ]	○	0A123 B26C9 M7 N28W116E43V8R5
[A]A000[ ]		0A123 B29C9 M7 N28W116E43V8R5TC3

ELEVON	AILRON	RUDDER	SPDBRK
.000	.000	.000	.000
.000	.000	.000	.000

REFERENCE INFORMATION

SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

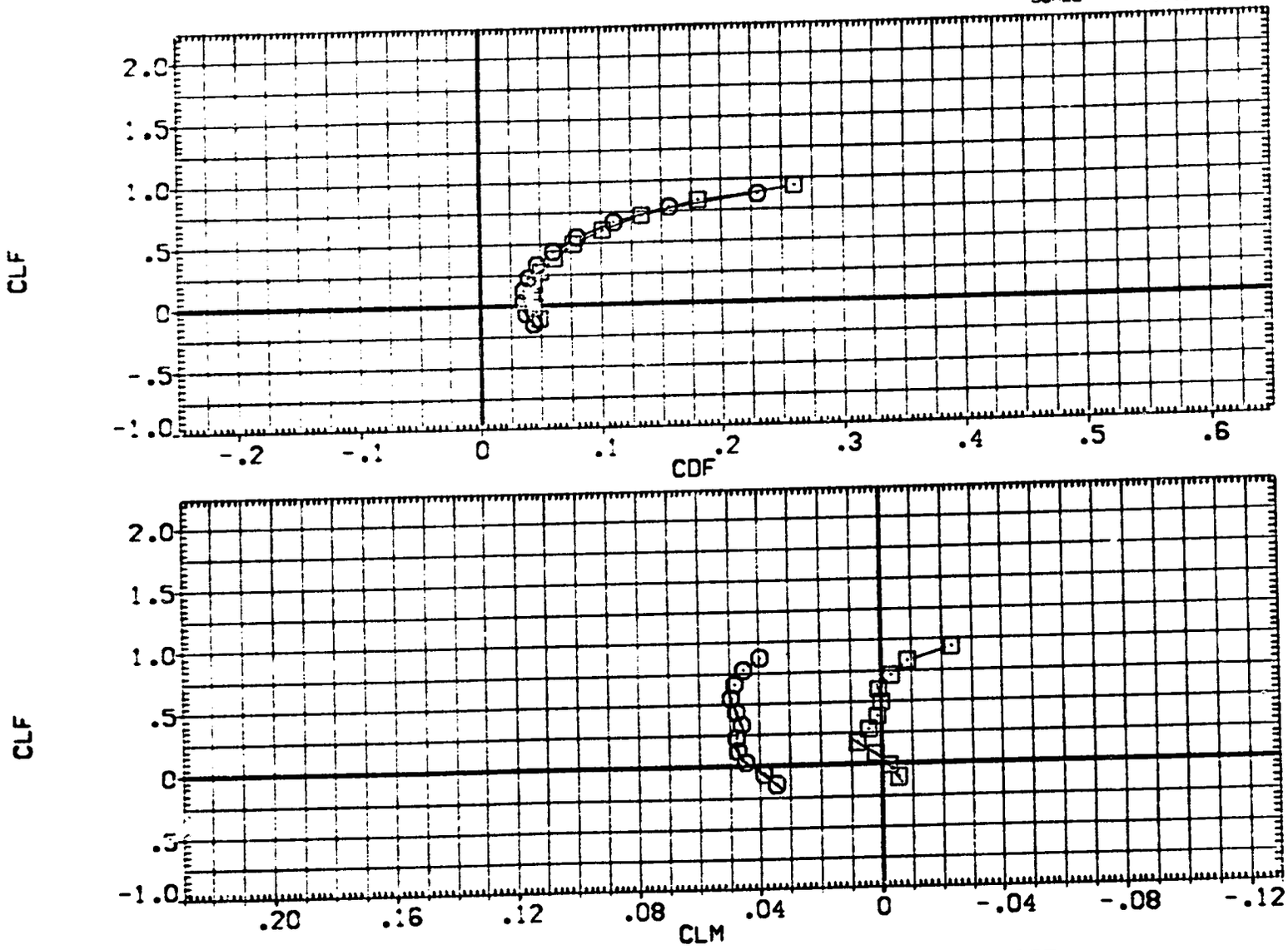


FIG 4 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT OFF

[A]MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	RUDDER	SPDBRK
[AFA021]	□	CA123 B29C9F8M16N28W116E43V8R5 x9	.000	.000	.000	40.000
[AFA015]	○	CA123 B50C9F8M16N28W116E43V8R5 x9	.000	.000	.000	40.000
[AFA027]	◇	CA123 B26C9 M16 W116E43V8R5TC4X9	.000	.000	.000	40.000
[AFA036]	△	CA123 B26C9 M16 W116E43V8R5TC6X9	.000	.000	.000	40.000

REFERENCE INFORMATION	
SREF	2889.8300 SQ.FT
LREF	474.8100 INCHES
BREF	936.6800 INCHES
XMRP	1076.6800 INCHES
YMRP	.0000 INCHES
ZMRP	375.0000 INCHES
SCALE	.0405 SCALE

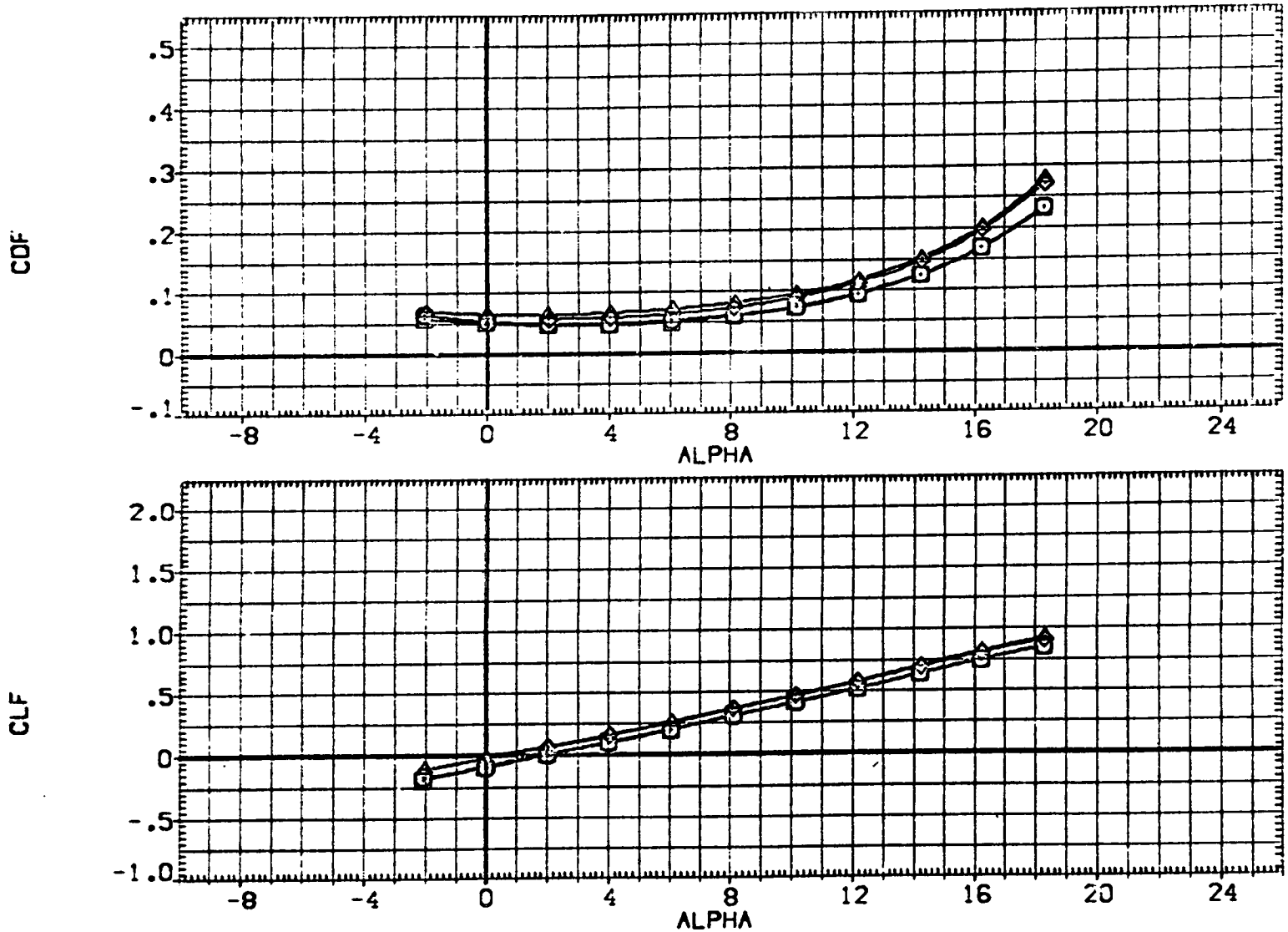


FIG 5 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT ON

(A)MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	RUDDER	SPOBRK
[AFA021]	○	OA123 B29C9F8M16N28W116E43V8R5 X9	.000	.000	.000	40.000
[AFA015]	□	OA123 B5CC9F8M16N28W116E43V8R5 X9	.000	.000	.000	40.000
[AFA027]	◇	OA123 B26C9 M16 W116E43V8R5TC4X9	.000	.000	.000	40.000
[AFA036]	△	OA123 B26C9 M16 W116E43V8R5TC6X9	.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

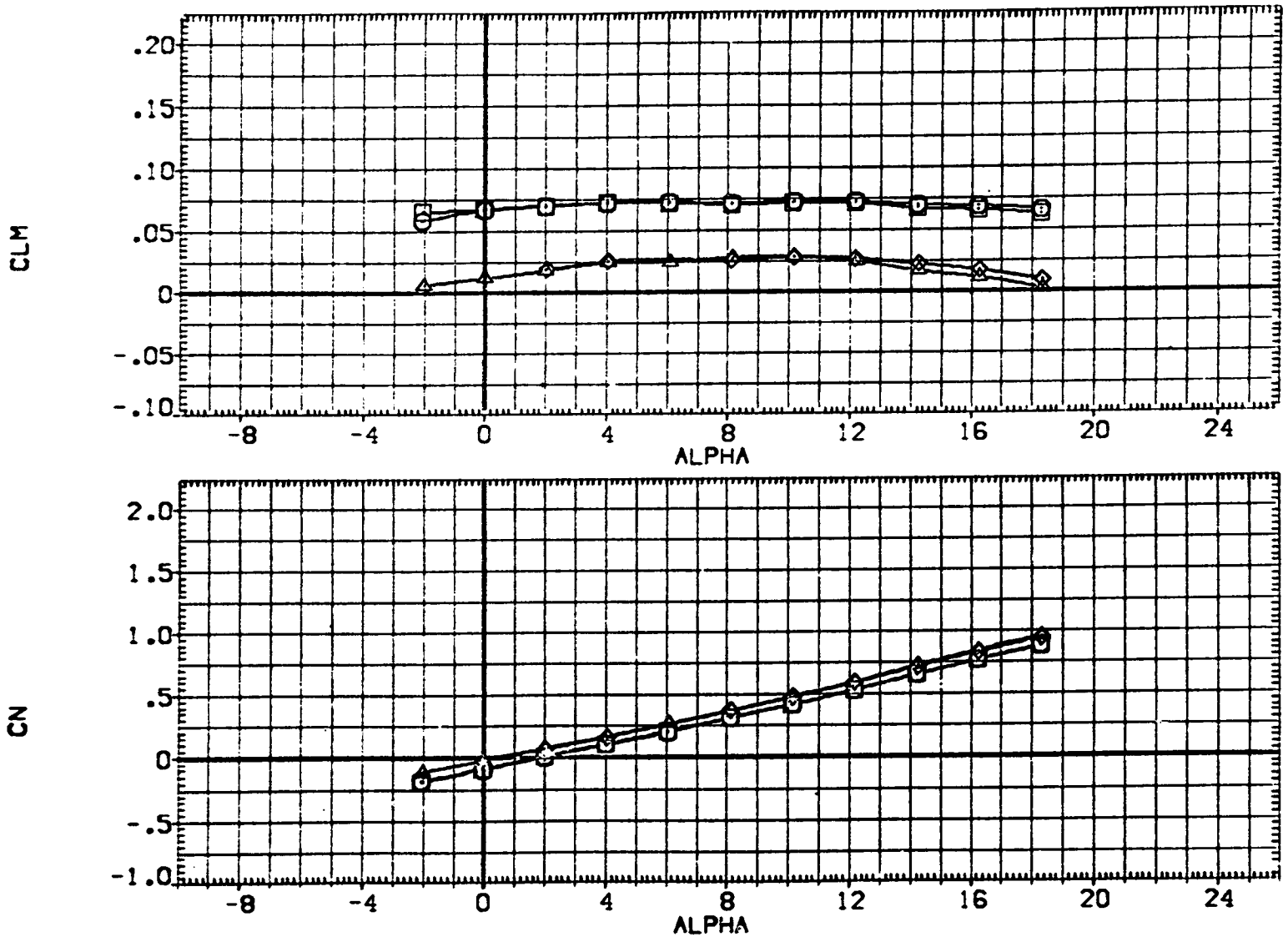


FIG 5 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT ON

(A)MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	RUDDER	SPDBRK
[AFA021]	□	CA123 B29C9FBM16N28W116E43V8R5 X9	.000	.000	.000	40.000
[AFA015]		CA123 B5CC9FBM16N28W116E43 8R5 X9	.000	.000	.000	40.000
[AFA027]	◇	CA123 B26C9 M:6 W116E43V8R5TC4X9	.000	.000	.000	40.000
[AFA036]	△	CA123 B26C9 M:6 W116E43V8R5TC6X9	.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

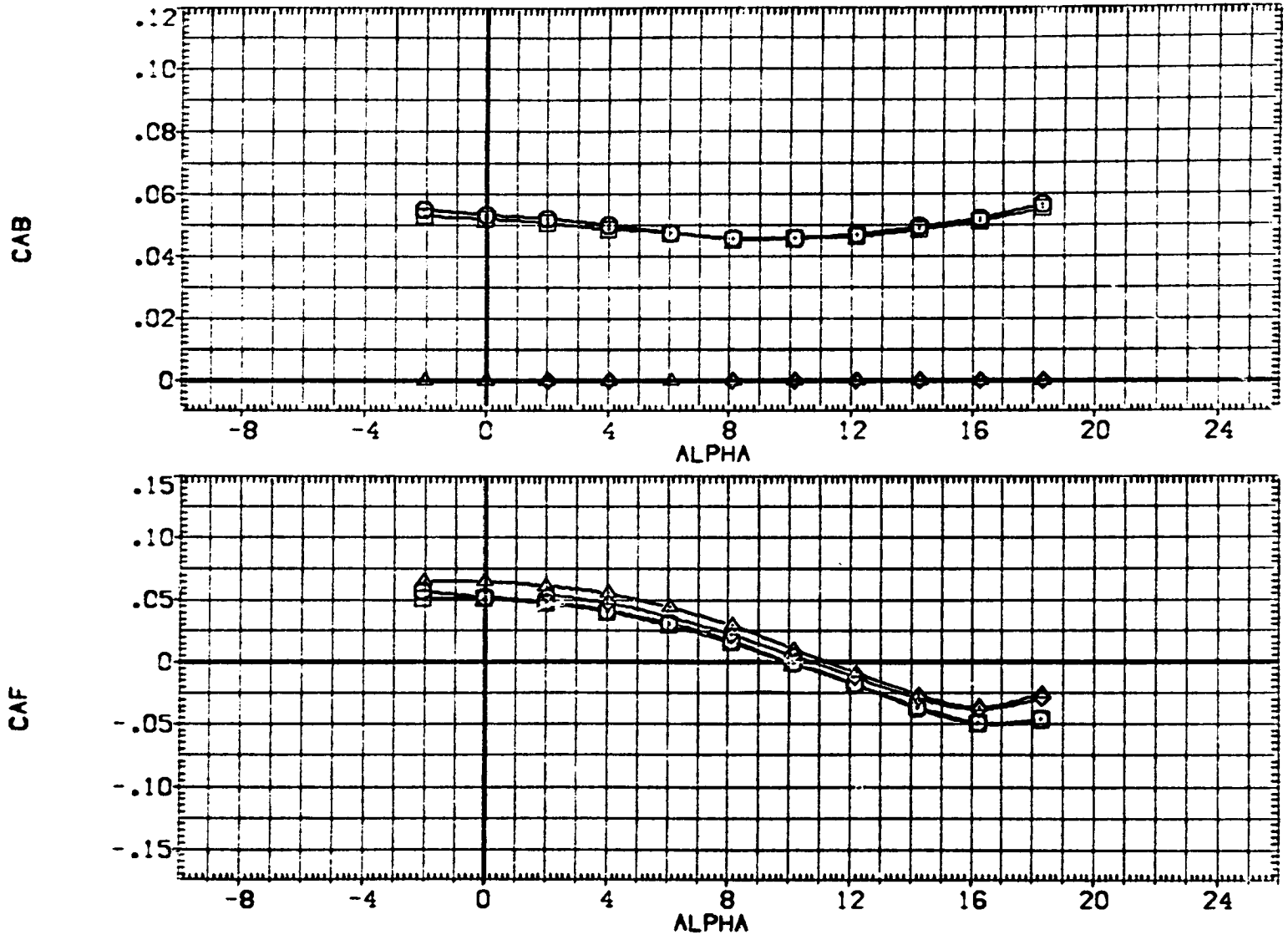


FIG 5 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT ON

[A]MACH = .26

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(AFA021)	□	OA123 329C9F8M16N28W11GE43VBR5 X9
(AFA035)		OA123 950C9F8M16N28W11GE43VBR5 X9
(AFA037)	◇	OA123 32GC9 M16 W11GE43VBR5TC4X9
(AFA036)	△	OA123 32GC9 M16 W11GE43VBR5TC6X9

ELEVON	AILRON	RUDDER	SPDBRK
.000	.000	.000	40.000
.000	.000	.000	40.000
.000	.000	.000	40.000
.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

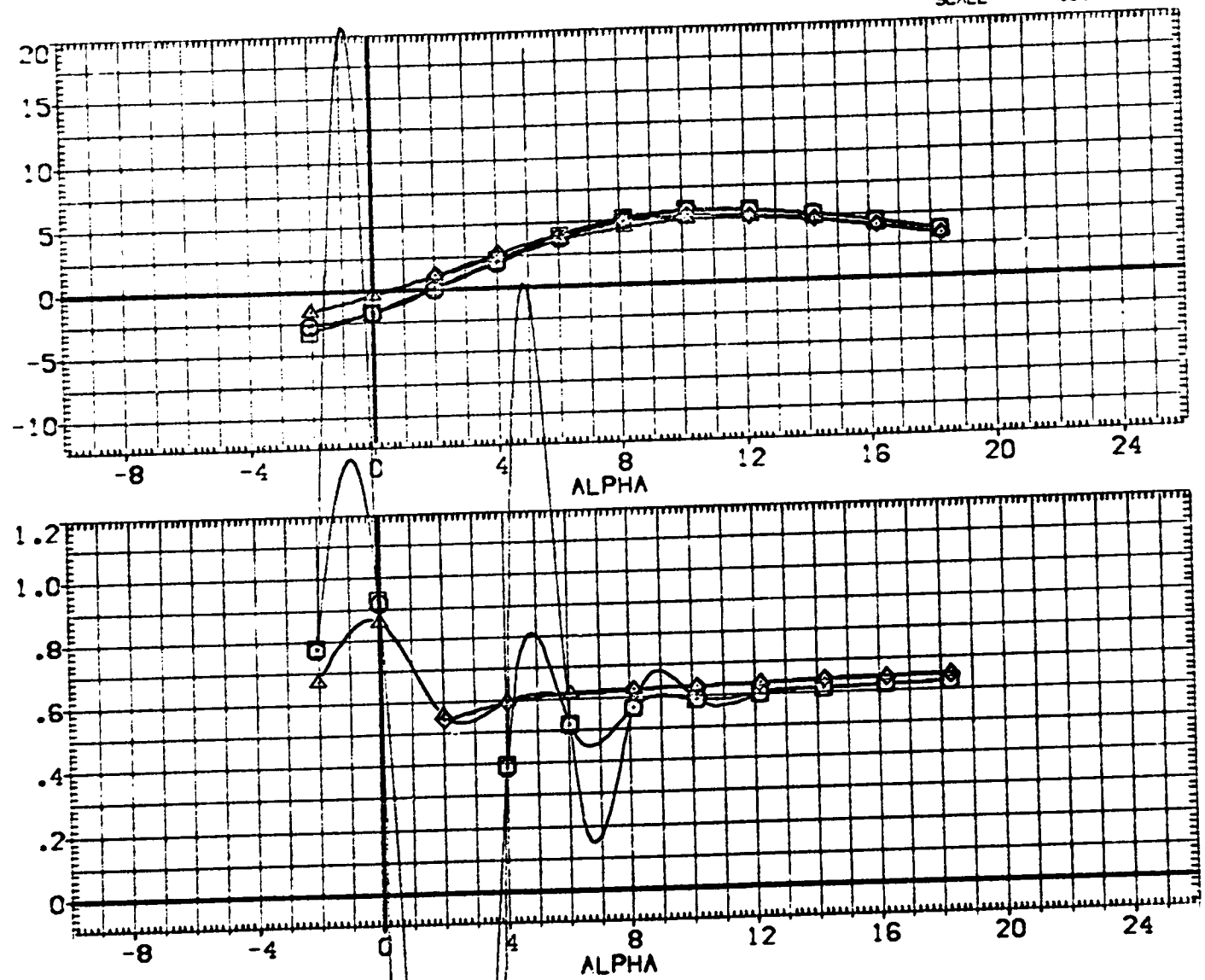


FIG 5 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT ON

(A)MACH = .26

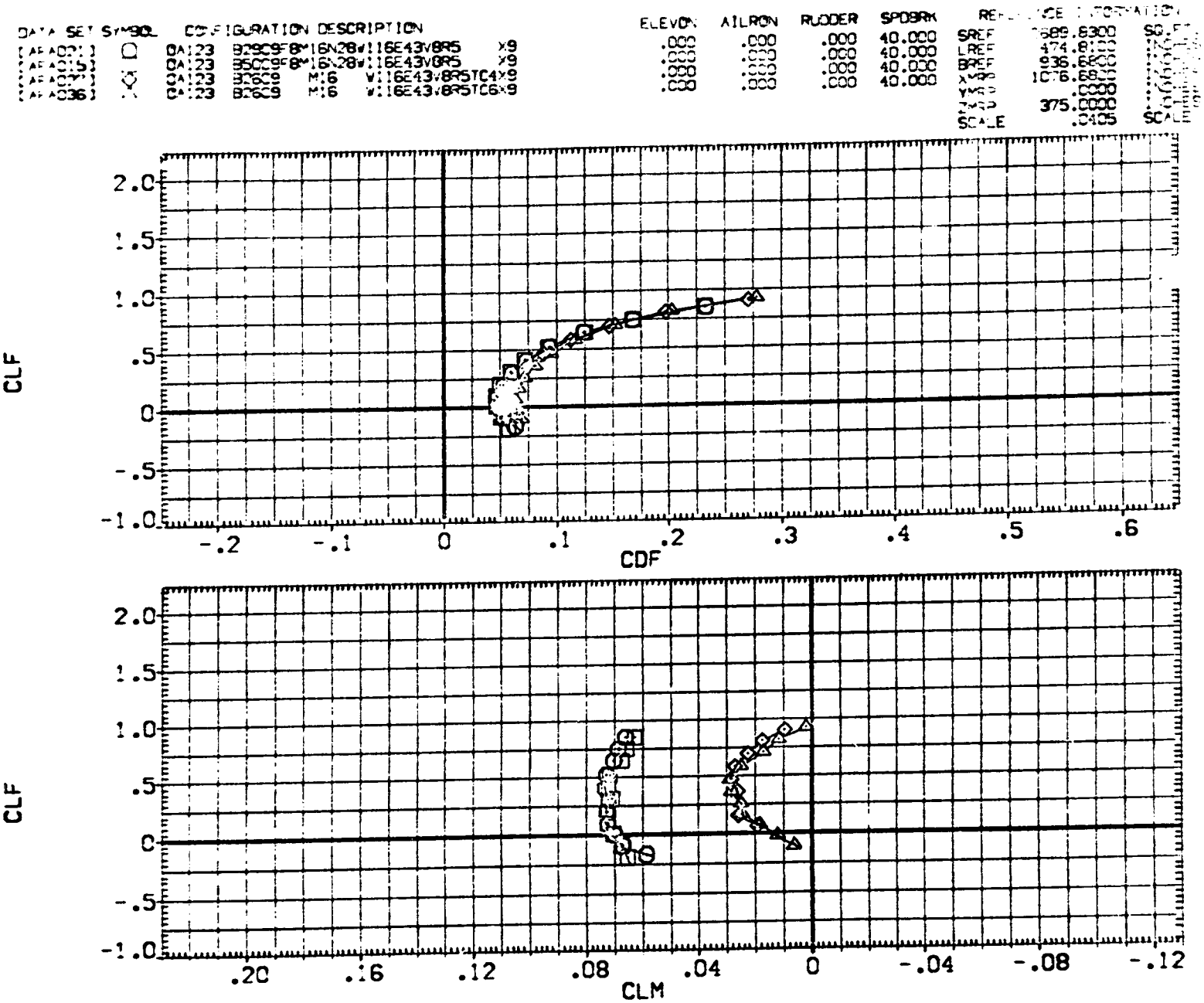


FIG 5 ORB. AFTBDY FAIRING EFF. ON LONG. CHAR. -TRAN GRIT ON

(A)MACH = .26

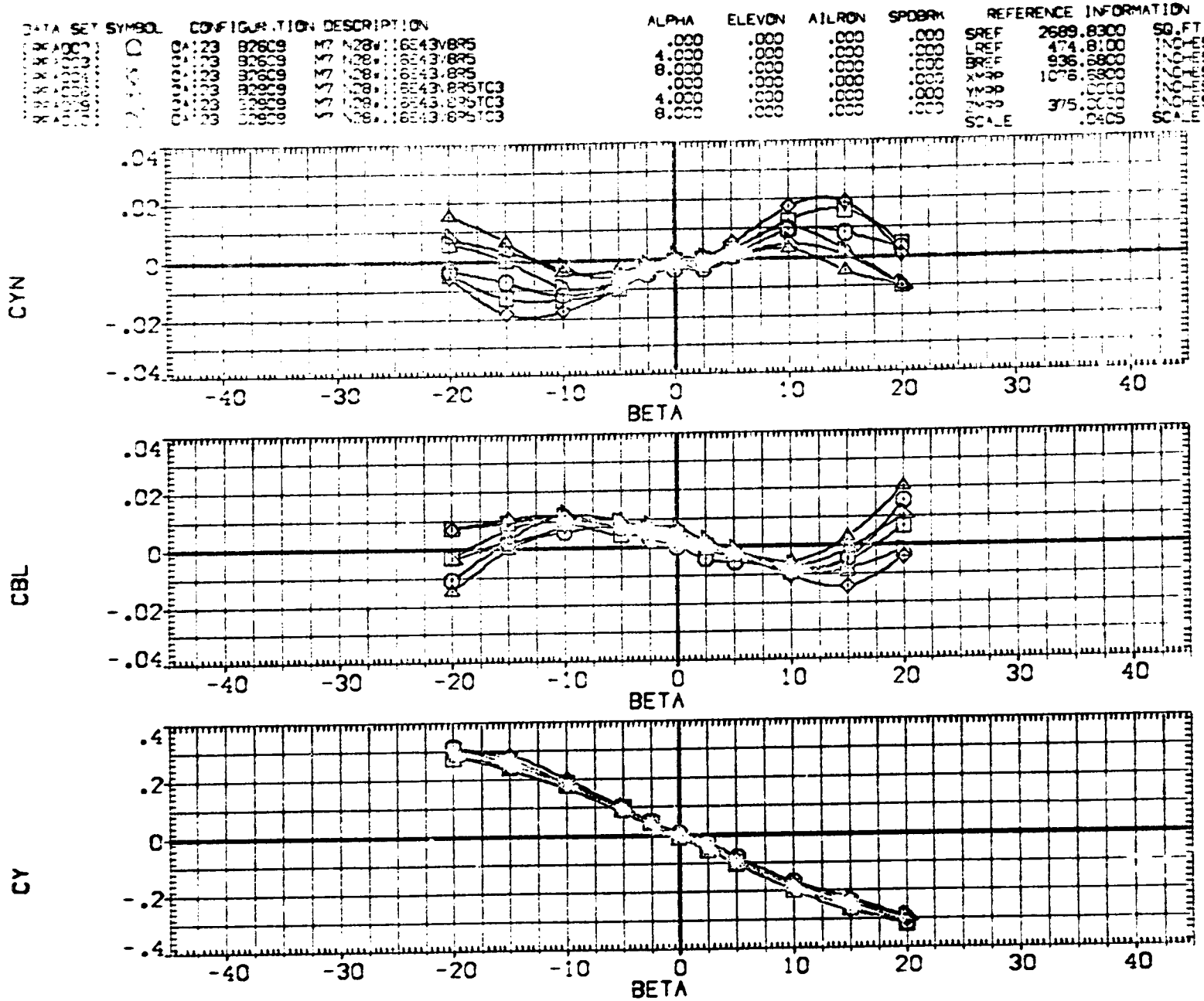


FIG 6 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR. -TRAN GRIT OFF ALPHA=0,4,8

(A)MACH = .26

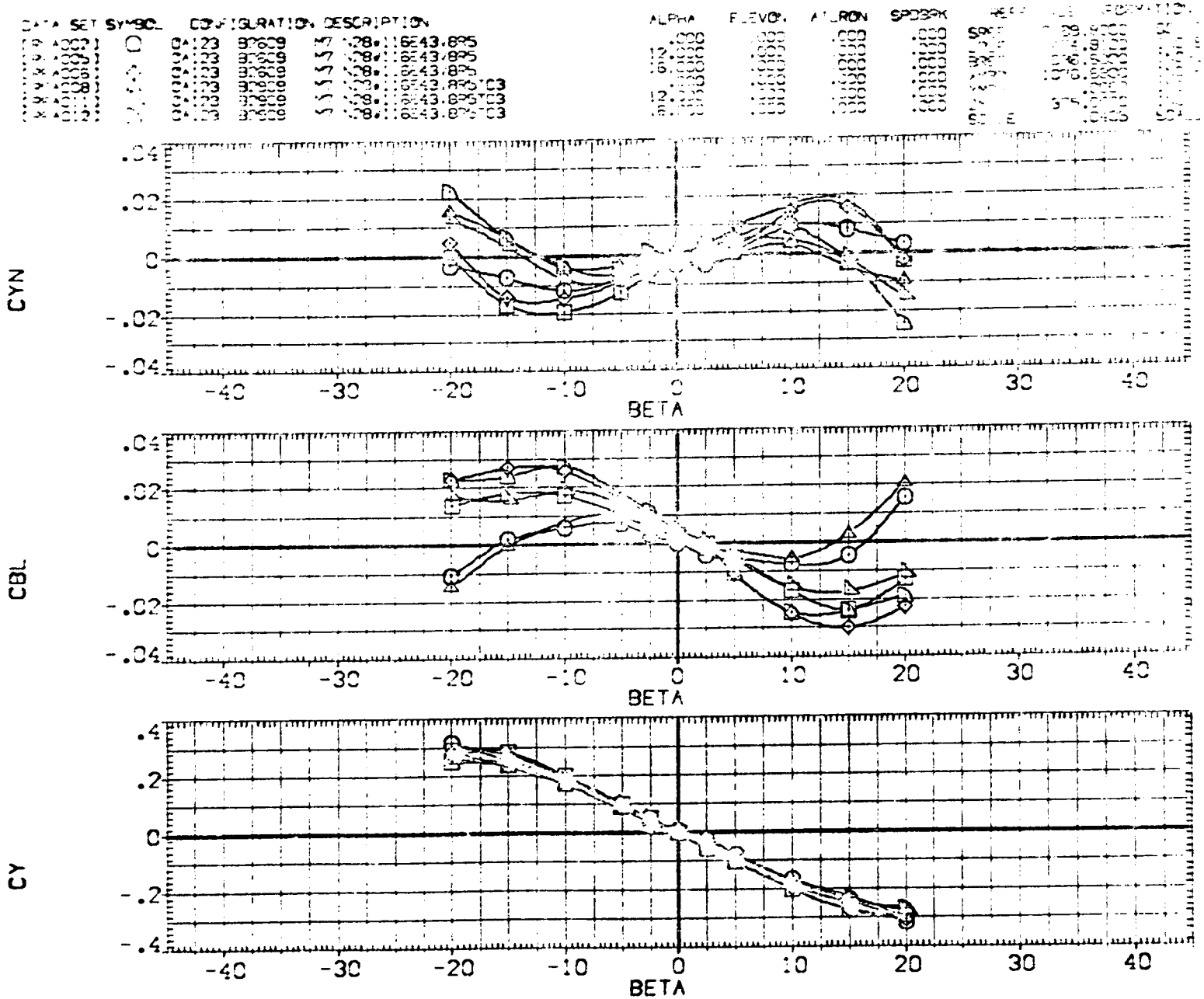


FIG 7 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR. -TRAN GRIT OFF ALPHA=0,12,16

(A)MAC= = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVON	AILRON	SPOBRK
[illegible]	○	CA:23 B26C9F8M16N28V[illegible]16E43V8R5 X9	.000	.000	.000	40.000
[illegible]	□	CA:23 B26C9F8M16N28[illegible]16E43.875 X9	.000	.000	.000	40.000
[illegible]	◇	CA:23 B26C9 M16 [illegible]16E43.875TC4X9	.000	.000	.000	40.000
[illegible]	△	CA:23 B26C9 M16 W[illegible]16E43.875TC6X9	.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

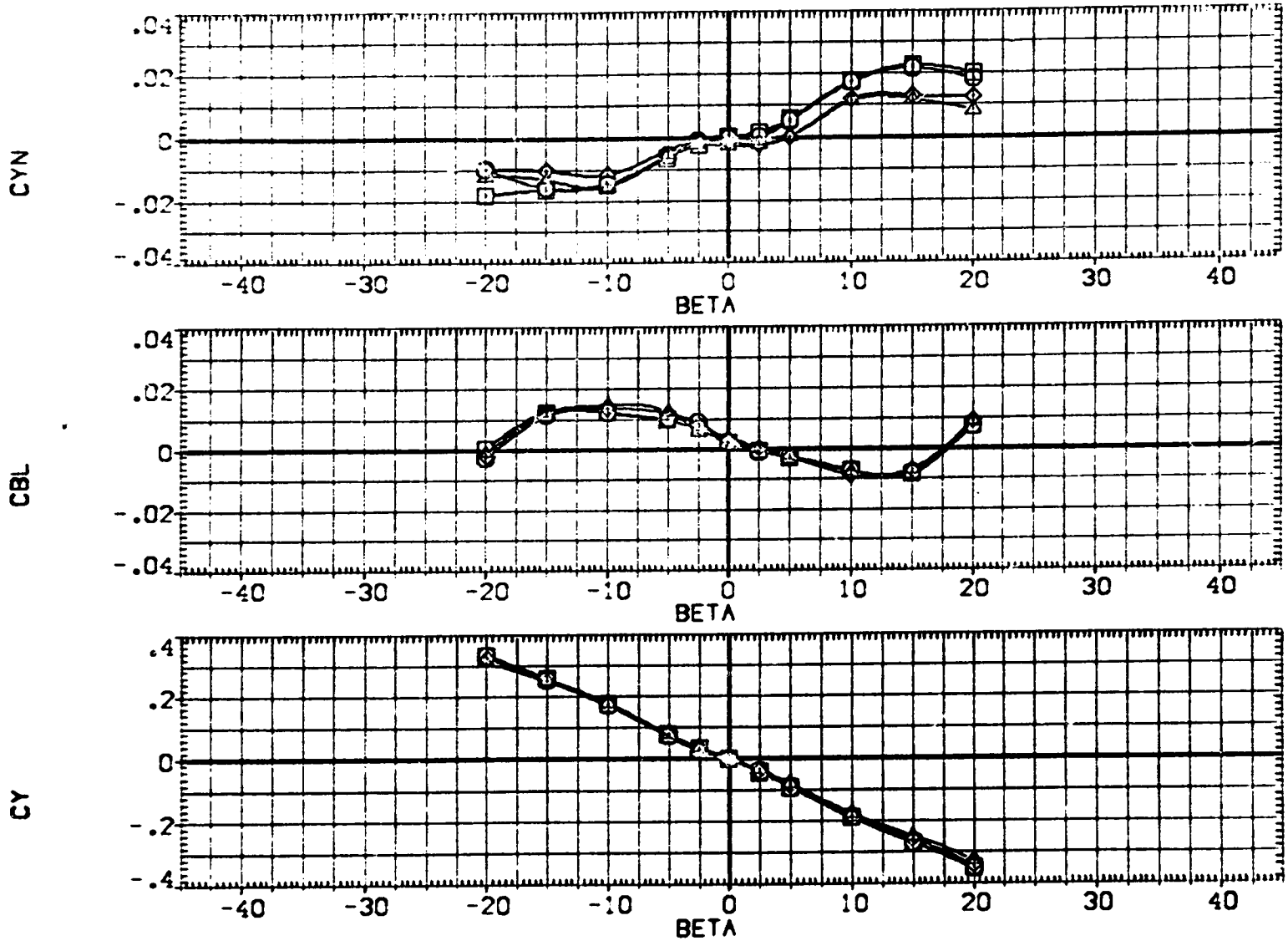


FIG 8 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR., ALPHA=0

(A)MAC = .26

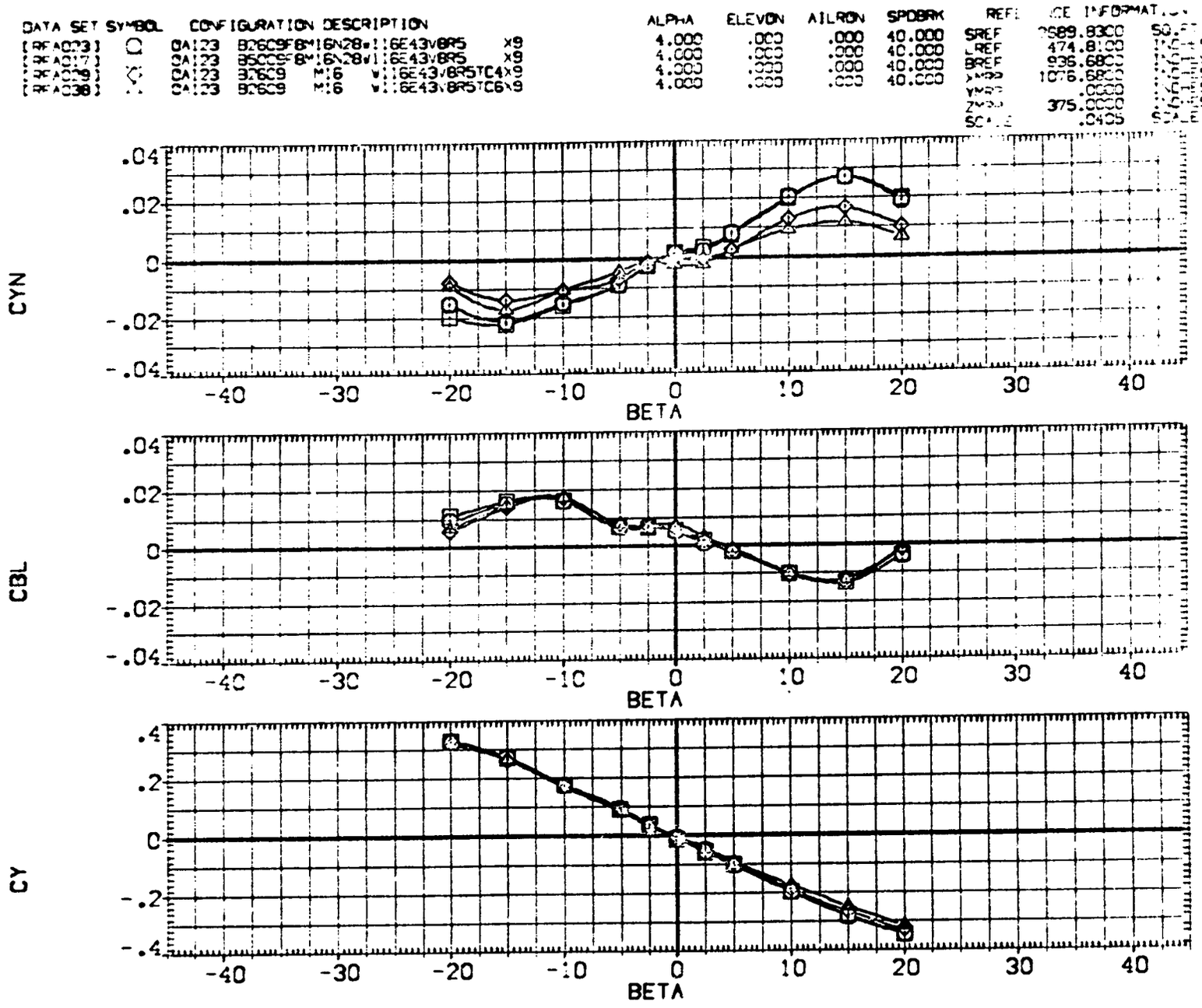


FIG 9 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR., ALPHA=4

(A)MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(RFA024)	○	OA123 B26C9F8M16N28W116E43V8R5 X9
(RFA018)	□	OA123 B6OC9F8M16N28W116E43V8R5 X9
(RFA030)	◇	OA123 B26C9 M16 W116E43V8R5TC4X9
(RFA039)	△	OA123 B26C9 M16 W116E43V8R5TC6X9

ALPHA	ELEVON	AILRON	SPDBRK
8.000	.000	.000	40.000
8.000	.000	.000	40.000
8.000	.000	.000	40.000
8.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

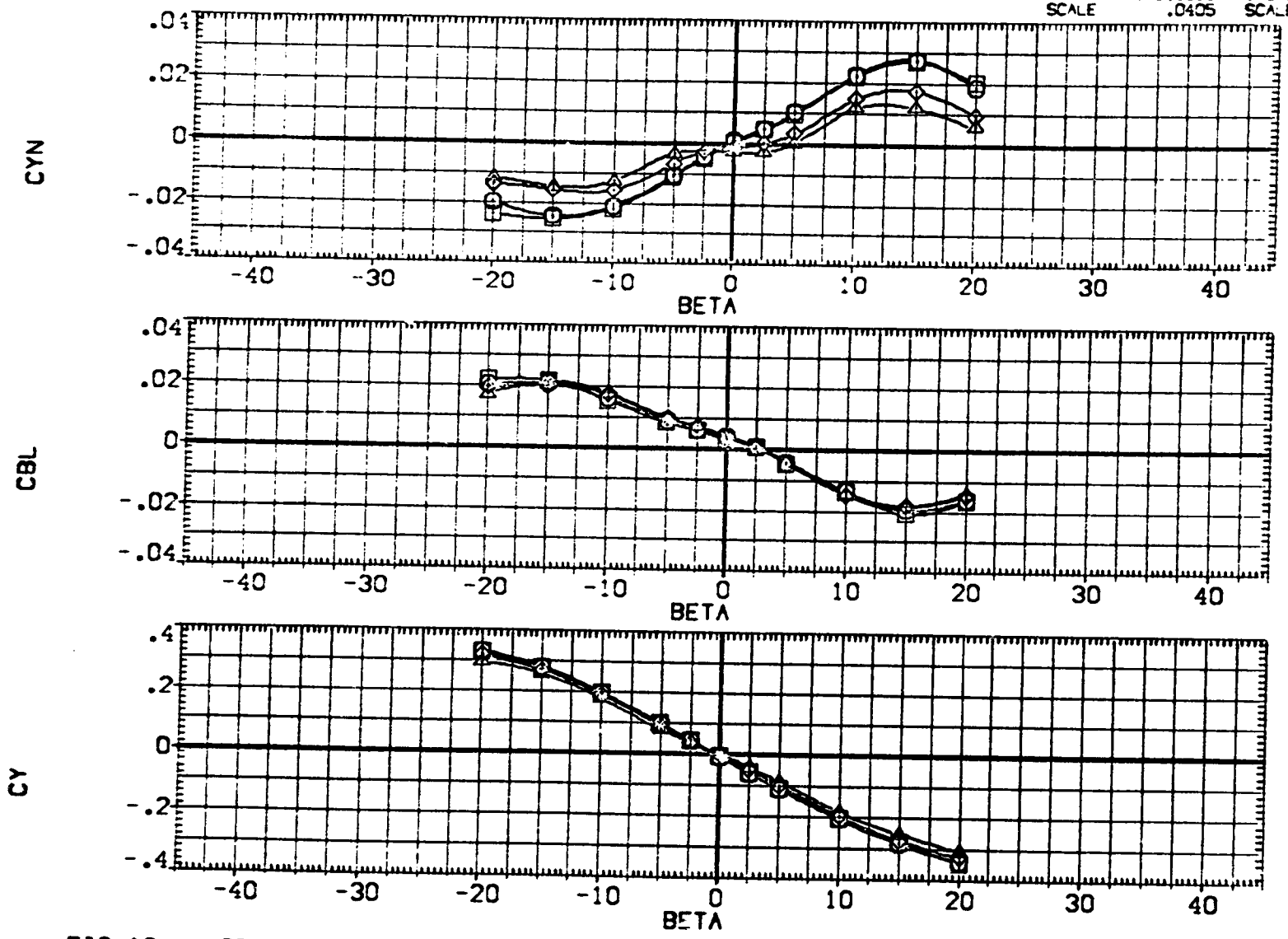


FIG 10 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR., ALPHA=8

(A)MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION					
(REA025)	○	OA123	B26C9F8M16N28W116E43V8R5				X9
(REA019)	□	OA123	B50C9F8M16N28W116E43V8R5				X9
(REA031)	◇	OA123	B26C9	M16	W116E43V8R5TC4		X9
(REA040)	△	OA123	B26C9	M16	W116E43V8R5TC6		X9

ALPHA	ELEVON	AILRON	SPOBRK
12.000	.000	.000	40.000
12.000	.000	.000	40.000
12.000	.000	.000	40.000
12.000	.000	.000	40.000

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

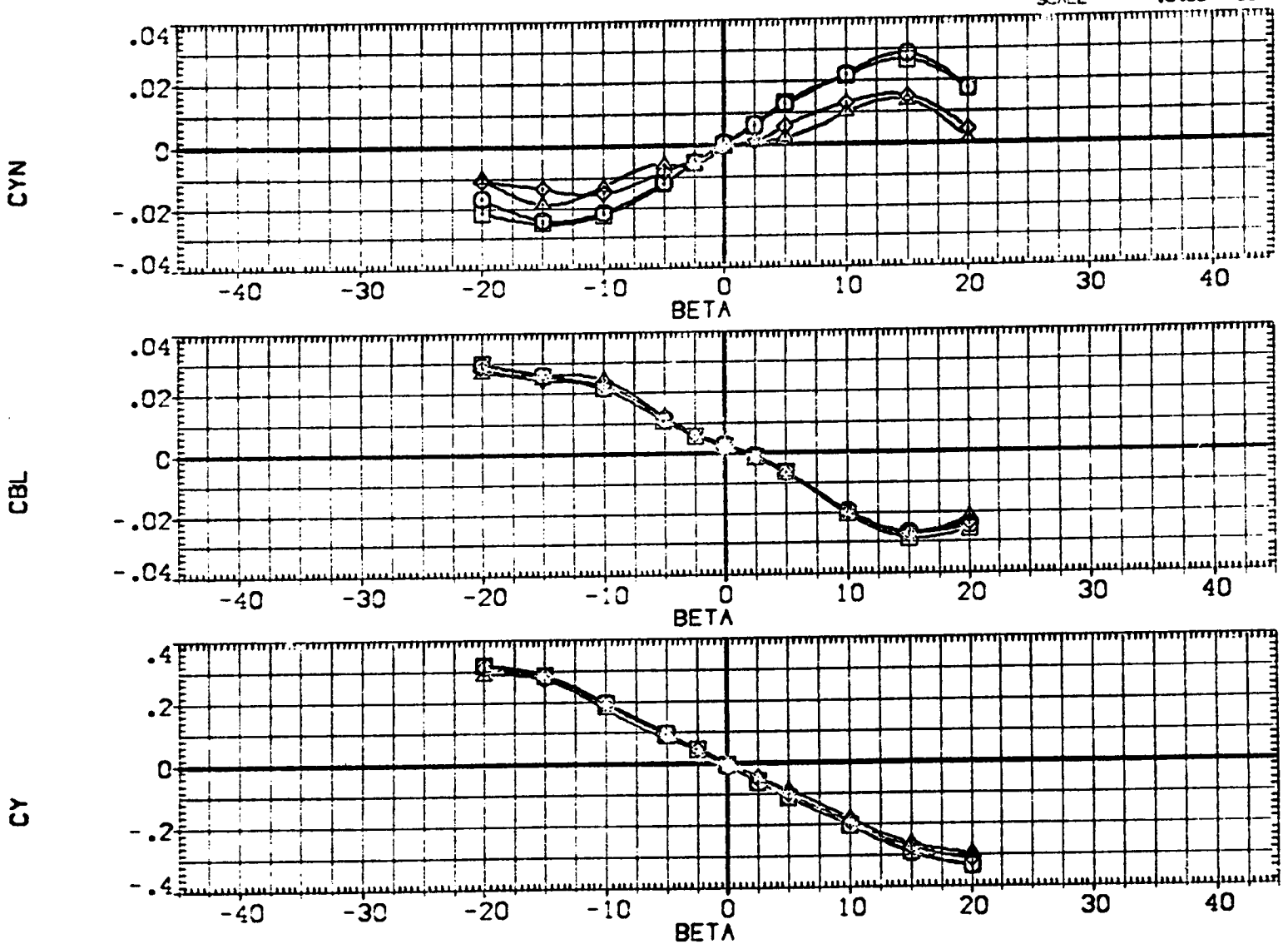


FIG 11 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR., ALPHA=12

(A)MACH = .26

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVON	AILRON	SPOBRK
[RFA026]	○	0A123 B26C9F8M16N28W116E43V8R5 X9	16.000	.000	.000	40.000
[RFA027]		0A123 B5CC9F8M16N28W116E43V8R5 X9	16.000	.000	.000	40.000
[RFA032]	◇	0A123 B26C9 M16 W116E43V8R5TC4X9	16.000	.000	.000	40.000
[RFA041]	△	0A123 B26C9 M16 W116E43V8R5TC6X9				

REFERENCE INFORMATION		
SREF	2689.8300	SQ.FT.
LREF	474.8100	INCHES
BREF	936.6800	INCHES
XMRP	1076.6800	INCHES
YMRP	.0000	INCHES
ZMRP	375.0000	INCHES
SCALE	.0405	SCALE

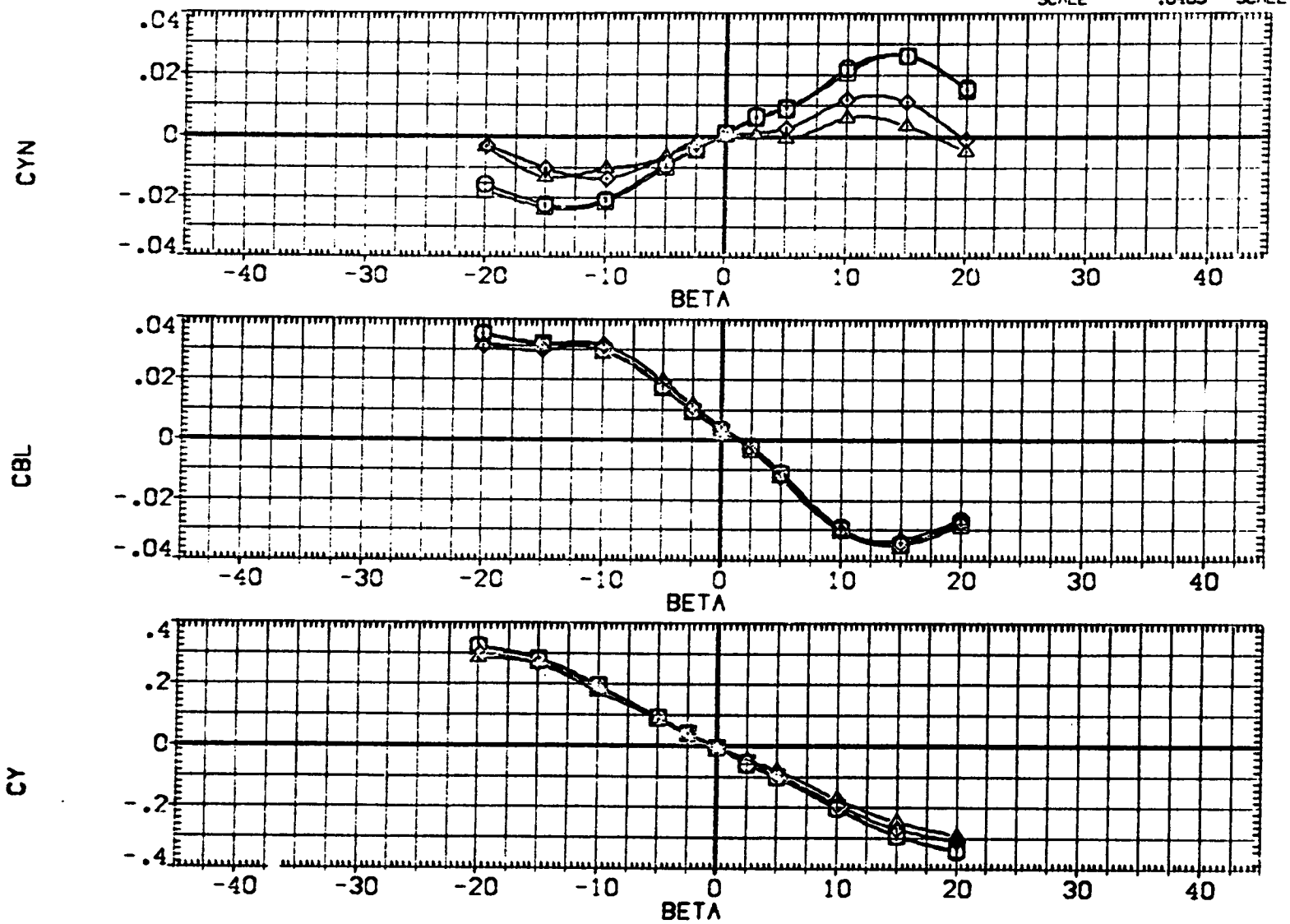


FIG 12 ORB. AFTBDY FAIRING EFF. ON LAT. CHAR., ALPHA=16

(A)MACH = .26

APPENDIX

TABULATED SOURCE DATA

Tabulations of plotted data are available
on request from Data Management Services.

DATE 28 JAN 75 TABULATED SOURCE DATA - OA123

OA123 B26C9 M7 N28W18E43V8R5 (RFA001) (27 JAN 75)

REFERENCE DATA

SREF = 2989.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 1/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-2.050	-.14850	.04320	.03480	-.14990	.03792	-.00330	-.00260	.01300	.73700	.04799
.280	-.010	-.06050	.03740	.03910	-.06050	.03748	-.00200	-.00050	.00500	.89000	.04685
.280	2.000	.02970	.03510	.04460	.03090	.03404	-.00240	.00000	.00400	.12100	.04547
.280	4.030	.12510	.03470	.04720	.12730	.02583	-.00150	.00180	.00000	.51500	.04484
.280	6.070	.22750	.03910	.04760	.23040	.01482	-.00170	.00190	.00000	.57600	.04342
.280	8.110	.33580	.04670	.04620	.33890	-.00109	-.00110	.00160	.00000	.60100	.04268
.280	10.140	.44110	.06000	.04750	.44470	-.01864	-.00130	.00120	.00100	.61200	.04320
.280	12.170	.54860	.08020	.04940	.55320	-.03728	-.00140	.00090	.00100	.61900	.04492
.280	14.210	.66670	.11040	.04830	.67340	-.05673	-.00170	.00090	.00000	.62500	.04647
.280	16.250	.78230	.15620	.04500	.79480	-.06899	-.00170	.00130	.00100	.63100	.04928
.280	18.300	.87920	.22940	.03990	.90660	-.05821	.00140	.00310	-.00400	.63500	.05418
	GRADIENT	.04499	-.00137	.00211	.04558	-.00196	.00025	.00068	-.00198	-.07064	-.00052

OA123 B26C9 M7 N28W18E43V8R5 (RFA002) (27 JAN 75)

REFERENCE DATA

SREF = 2989.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 2/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-19.990	-.00430	-.00300	.01670	-.00430	-.00308	-.00350	-.01100	.31400	2.07700	.07824
.280	-15.010	-.00740	.01490	.02140	-.00740	.00497	-.00740	.00170	.25500	1.70500	.05930
.280	-10.000	-.02930	.02560	.02170	-.02930	.02560	-.01200	.00550	.18100	.92400	.05134
.280	-5.010	-.05020	.03600	.03020	-.05030	.03604	-.00810	.00670	.08900	.87300	.04793
.280	-2.490	-.06050	.03780	.03620	-.06050	.03764	-.00530	.00300	.04700	.87200	.04704
.280	.000	-.05060	.03950	.03750	-.05860	.03955	-.00350	.00000	.00500	.88700	.04647
.280	2.500	-.05010	.04000	.03680	-.05820	.04002	-.00360	-.00450	-.02800	.88300	.04795
.280	5.030	-.04770	.03930	.03220	-.04770	.03533	.00060	-.00570	-.07500	.90000	.04858
.280	10.030	-.02490	.02270	.02420	-.02490	.02274	.00920	-.00790	-.16600	1.01000	.05288
.280	15.020	-.00680	.01360	.01610	-.00660	.01369	.00820	-.00470	-.23600	1.92200	.05825
.280	20.080	.00550	.00990	.00700	.00550	.00398	.00310	.01530	-.31600	.18300	.07268
	GRADIENT	.00030	.00004	.00018	.00030	.00004	.00076	-.00129	-.01608	.00267	.00009

OA123 B26C9 M7 N28W16E43V8R5 (RFA003) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1078.8600 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 3/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.000	.17670	.00920	.01780	.17690	-.00324	-.01460	-.00310	.30700	.61500	.07718
.280	-15.000	.18600	.00580	.02470	.18600	-.00731	-.01290	.00660	.26800	.60300	.05677
.280	-9.980	.18500	.02460	.02500	.18640	.01297	-.01350	.00890	.18500	.59600	.04995
.280	-5.000	.14080	.03300	.03540	.14280	.02304	-.00970	.00440	.09800	.56000	.04655
.280	-2.500	.13520	.03580	.03980	.13740	.02622	-.00430	.00470	.04200	.54500	.04537
.280	-.010	.13480	.03790	.04250	.13710	.02835	-.00080	.00460	-.00900	.53800	.04439
.280	2.500	.13720	.03690	.04160	.13940	.02718	-.00040	.00020	-.04800	.54200	.04639
.280	5.020	.14860	.03240	.03780	.15050	.02185	.00300	-.00270	-.09300	.55900	.04750
.280	10.040	.17540	.02370	.02440	.17660	.01129	.01240	-.00900	-.18000	.60100	.05105
.280	15.030	.20025	.01290	.01510	.20060	-.00126	.01580	-.00560	-.26000	.62400	.05770
.280	20.080	.19560	.00580	.01190	.19560	-.00704	.00420	.00660	-.31700	.62900	.07476
	GRADIENT	.00071	-.00001	.00026	.00070	-.00006	.00117	-.00075	-.01885	-.00019	.00012

OA123 B26C9 M7 N28W16E43V8R5 (RFA004) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1078.8600 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 8.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 4/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.000	.35240	.03300	.02670	.35350	-.01701	-.00570	.00690	.30000	.62400	.08135
.280	-15.020	.37900	.02130	.03120	.37820	-.03218	-.01830	.01030	.28300	.62100	.05575
.280	-10.000	.35600	.03690	.03220	.35770	-.01574	-.01750	.01110	.19800	.61600	.04924
.280	-5.015	.35020	.04740	.03430	.35340	-.00248	-.01000	.00650	.09700	.61600	.04603
.280	-2.500	.35020	.04930	.03640	.35370	-.00060	-.00550	.00460	.04500	.61400	.04368
.280	.000	.34410	.04980	.04080	.34770	.00080	-.00150	.00320	-.00600	.60800	.04290
.280	2.510	.34070	.04840	.04340	.34410	-.00005	.00060	.00010	-.05200	.60500	.04435
.280	5.020	.34720	.04410	.04110	.34990	-.00532	.00510	-.00310	-.10100	.60800	.04602
.280	10.040	.36980	.03330	.03170	.37080	-.01924	.01710	-.01050	-.19500	.62000	.05007
.280	15.020	.39220	.02930	.02190	.39240	-.02643	.01850	-.01430	-.26900	.63100	.05733
.280	20.080	.36560	.02880	.02750	.36610	-.02310	.00080	-.00440	-.30000	.62400	.08002
	GRADIENT	-.00062	-.00030	.00082	-.00066	-.00020	.00144	-.00095	-.01966	-.00100	.00002

OA123 B26C9 M7 N28W16E43V8R5 (RFA005) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 930.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 12.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 5/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-10.070	.55490	.07230	.03500	.55730	-.04634	-.00040	.01370	.29000	.63000	.08781
.200	-14.990	.58130	.06340	.03440	.58160	-.06076	-.01670	.01770	.28100	.63000	.05800
.200	-9.980	.57860	.07310	.03100	.57970	-.04842	-.01930	.01700	.19800	.63200	.05186
.200	-5.000	.56770	.08160	.03710	.57210	-.04009	-.01280	.01010	.10000	.62800	.04548
.200	-2.490	.56260	.08360	.04130	.56760	-.03703	-.00690	.00580	.04600	.62500	.04410
.200	.020	.55790	.08430	.04490	.56310	-.03530	-.00130	.00270	-.00400	.62200	.04360
.200	2.920	.55910	.07950	.04500	.56330	-.04029	.00320	-.00030	-.05500	.62200	.04420
.200	5.040	.56860	.07660	.04090	.57020	-.04457	.00870	-.00510	-.10400	.62500	.04568
.200	10.030	.58270	.07230	.03080	.58480	-.05238	.01650	-.01700	-.19700	.63200	.05173
.200	15.030	.59060	.06940	.02440	.59200	-.05689	.01760	-.02350	-.27100	.63600	.05795
.200	20.060	.55820	.07220	.03250	.56090	-.04722	-.00260	-.01330	-.29200	.63000	.08778
	GRADIENT	-.00021	-.00055	.00045	-.00032	-.00049	.00212	-.00145	-.02029	-.00036	.00004

OA123 B26C9 M7 N28W16E43V8R5 (RFA006) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 930.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 16.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 6/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.000	.79030	.15700	.02740	.77010	-.08087	.00470	.02270	.27600	.63900	.09428
.200	-15.030	.78820	.14950	.02870	.80700	-.03390	-.01400	.02670	.27400	.63900	.06958
.200	-10.010	.79310	.13980	.02880	.80610	-.06896	-.01480	.02560	.18800	.63900	.05405
.200	-5.030	.78080	.10950	.03670	.80290	-.05782	-.00810	.01570	.09200	.63500	.04988
.200	-2.520	.78780	.17150	.03920	.80440	-.05805	-.00140	.01010	.03600	.63400	.04953
.200	-.020	.79300	.18100	.04340	.80640	-.06754	-.00110	.00290	-.00580	.63200	.04877
.200	2.490	.79040	.15880	.04540	.80270	-.07085	.00370	-.00170	-.05600	.63100	.04823
.200	5.000	.78890	.16280	.03990	.80100	-.06403	.00370	-.01070	-.09400	.63300	.04936
.200	10.010	.79700	.15570	.02780	.80870	-.07372	.01430	-.02500	-.19300	.63900	.05351
.200	15.030	.80140	.14720	.02100	.81050	-.08321	.01570	-.02990	-.27300	.64200	.06311
.200	20.030	.79070	.15210	.01700	.80170	-.07542	-.00270	-.02290	-.30500	.64400	.08475
	GRADIENT	.00010	-.00112	.00050	-.00022	-.00110	.00114	-.00258	-.01851	-.00028	-.00009

OA123 B29C9 M7 N28W216E43V8R5TC3 (RFA007) (27 JAN 75)

REFERENCE DATA

SREF = 2889.0300 SQ.FT. XMRP = 1076.0800 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 7/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-2.040	-.10780	.04880	-.00530	-.10950	.04479	-.00300	-.00160	.01000	.65400	.00000
.280	.000	-.01380	.04420	-.00240	-.01383	.04423	-.00110	.00090	.00000	.58500	.00000
.280	2.010	.07870	.04290	.00190	.08010	.04018	.00020	.00330	-.00700	.64300	.00000
.280	4.040	.17190	.04470	.00780	.17480	.03255	.00110	.00510	-.01100	.65500	.00000
.280	6.070	.27830	.05010	.00410	.28210	.02044	.00190	.00590	-.01300	.64600	.00000
.280	8.120	.38360	.06180	.00120	.39040	.00672	.00040	.00400	-.00900	.65000	.00000
.280	10.160	.49450	.07730	.00010	.50040	-.01114	.00060	.00420	-.00900	.65200	.00000
.280	12.210	.60350	.10070	.00070	.61120	-.02926	.00040	.00410	-.00900	.65100	.00000
.280	14.260	.72150	.13320	-.00320	.73210	-.04860	-.00040	.00280	-.00500	.65300	.00000
.280	16.300	.83810	.18080	-.00880	.85510	-.06172	-.00030	.00320	-.00500	.65500	.00000
.280	18.350	.94120	.26000	-.02340	.97520	-.04951	.00290	.00490	-.01000	.66100	.00000
	GRADIENT	.04600	-.00064	.00215	.04672	-.00202	.00067	.00111	-.00346	.00299	.00000

OA123 B29C9 M7 N28W216E43V8R5TC3 (RFA008) (27 JAN 75)

REFERENCE DATA

SREF = 2889.0300 SQ.FT. XMRP = 1076.0800 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 8/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.010	.03630	.01530	-.01810	.03630	.01532	.01510	-.01480	.28700	.83600	.00000
.280	-15.020	.02780	.02410	-.01610	.02780	.02409	.00640	-.00060	.22900	.86700	.00000
.280	-10.020	.00990	.03670	-.01690	.00990	.03676	-.00410	.00710	.16600	1.27700	.00000
.280	-5.040	-.00380	.04440	-.01160	-.00380	.04445	-.00370	.00970	.08000	-.47300	.00000
.280	-2.550	-.01730	.04460	-.00230	-.01730	.04461	-.00280	.00570	.03900	.60200	.00000
.280	-.030	-.01160	.04550	-.00430	-.01160	.04560	-.00170	.00240	-.00100	.31400	.00000
.280	2.470	-.00910	.04570	-.00530	-.00910	.04679	-.00350	-.00180	-.03600	.43500	.00000
.280	4.990	.00240	.04230	-.01020	.00240	.04232	-.00070	-.00290	-.08300	2.18400	.00000
.280	10.000	.02440	.03470	-.02050	.02440	.03469	.00300	-.00550	-.16700	.96000	.00000
.280	14.990	.04080	.03170	-.02710	.04090	.03177	-.00480	.00270	-.22300	.89600	.00000
.280	20.010	.05060	.03170	-.03820	.05060	.03167	-.00980	.02020	-.30000	.93000	.00000
	GRADIENT	.00082	-.00008	-.00001	.00082	-.00008	.00021	-.00130	-.01599	.20525	.00000

OA123 B29C9 M7 N28W16E43V8R5TC3 (RFA009) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 9/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.020	.22310	.04540	-.04240	.22780	.02930	.00770	-.0[illegible]70	.27900	.72000	.00000
.200	-15.030	.22390	.02650	-.01720	.22530	.01059	.00310	.00530	.23600	.68000	.00000
.200	-10.010	.20770	.03660	-.01590	.20990	.02384	-.00290	.01150	.16400	.68000	.00000
.200	-5.020	.18320	.04200	-.00270	.18570	.02897	-.00580	.00700	.09200	.65700	.00000
.200	-2.530	.17730	.04500	.00290	.18000	.03242	-.00220	.00720	.03800	.64600	.00000
.200	-.030	.17650	.04590	.00560	.17930	.03338	.00080	.00650	-.01300	.64000	.00000
.200	2.470	.18390	.04480	.00160	.18670	.03173	.00000	.00200	-.05200	.64800	.00000
.200	4.990	.19180	.04120	-.00340	.19420	.02754	.00110	-.00150	-.09500	.65800	.00000
.200	10.000	.21630	.03580	-.01740	.21830	.02034	.00460	-.00710	-.17500	.68100	.00000
.200	15.020	.23900	.03120	-.02800	.24060	.01416	.00060	-.00140	-.23700	.69500	.00000
.200	20.000	.23910	.03980	-.04180	.24140	.02269	-.01020	.01010	-.29200	.71500	.00000
	GRADIENT	.00095	-.00007	-.00011	.00095	-.00014	.00064	-.00089	-.01854	.00016	.00000

OA123 B29C9 M7 N28W16E43V8R5TC3 (RFA010) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 8.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 10/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.020	.41890	.07270	-.05080	.42590	.01245	.00590	.00750	.27500	.69800	.00000
.200	-15.030	.42800	.04980	-.01900	.42820	-.01402	.00010	.00910	.24000	.68800	.00000
.200	-10.010	.40120	.05070	-.01050	.40430	-.00860	-.00910	.01160	.18400	.66100	.00000
.200	-5.030	.39780	.05970	-.00660	.40210	.00279	-.00740	.00940	.09400	.65800	.00000
.200	-2.520	.39800	.06220	-.00450	.40080	.00553	-.00360	.00700	.04200	.65800	.00000
.200	-.030	.39030	.06890	.00020	.39530	.00706	-.00100	.00450	-.00700	.65100	.00000
.200	2.470	.38570	.06060	.00230	.39050	.00582	.00000	.00060	-.05200	.64900	.00000
.200	5.000	.39300	.05660	-.00010	.39700	.00040	.00310	-.00320	-.10200	.65200	.00000
.200	9.990	.41660	.04920	-.01260	.41920	-.01123	.00990	-.00930	-.19200	.66300	.00000
.200	15.030	.43570	.05320	-.02830	.43690	-.00906	.00230	-.00840	-.24500	.67500	.00000
.200	20.020	.43100	.06550	-.04580	.43600	.00381	-.01000	-.00190	-.28800	.69000	.00000
	GRADIENT	-.00078	-.00030	.00079	-.00082	-.00019	.00098	-.00126	-.01940	-.00076	.00000

OA123 B29C9 M7 N28W16E43V8R5TC5 (RFA011) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 936.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 12.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 11/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.010	.83930	.13110	-.06950	.85260	-.00711	.01260	.01700	.25700	.69100	.00000
.280	-15.030	.83710	.09420	-.02350	.84280	-.04273	.00350	.01550	.24300	.66800	.00000
.280	-10.000	.82940	.09720	-.02070	.83570	-.03819	-.00800	.01860	.17900	.66400	.00000
.280	-5.020	.81480	.09930	-.00820	.82190	-.03294	-.03860	.01330	.09200	.65500	.00000
.280	-2.520	.81280	.10170	-.00410	.82050	-.03014	-.00490	.00760	.04300	.65400	.00000
.280	-.030	.80980	.10230	-.00040	.81740	-.02883	-.00010	.00450	-.00800	.65200	.00000
.280	2.500	.80590	.09800	.00000	.81690	-.03317	.00260	.00020	-.05600	.65200	.00000
.280	5.000	.81510	.09550	-.00390	.82140	-.03669	.00570	-.00590	-.10100	.65400	.00000
.280	10.000	.83960	.09340	-.02210	.84490	-.04411	.00900	-.01570	-.19000	.66400	.00000
.280	15.020	.84540	.10090	-.03470	.85310	-.03816	-.00170	-.01730	-.23900	.67100	.00000
.280	20.030	.84330	.12140	-.06340	.85440	-.01742	-.01530	-.01130	-.27700	.68700	.00000
	GRADIENT	-.00009	-.00045	.00035	-.00018	-.00042	.00144	-.00183	-.01935	-.00016	.00000

OA123 B29C9 M7 N28W16E43V8R5TC5 (RFA012) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 936.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 16.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 12/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-19.990	.84900	.21750	-.08220	.87600	-.02941	.02240	.02270	.24900	.68600	.00000
.280	-15.020	.85830	.18400	-.04100	.87550	-.06423	.00640	.02390	.23400	.66900	.00000
.280	-9.990	.84410	.18630	-.02930	.86250	-.05791	-.00340	.02710	.17000	.66400	.00000
.280	-5.030	.83250	.19170	-.01410	.85330	-.04948	-.00500	.01770	.09000	.65800	.00000
.280	-2.510	.83810	.19390	-.01410	.85890	-.04891	.00130	.01140	.03300	.65800	.00000
.280	-.010	.84470	.18290	-.00790	.86210	-.06138	-.00070	.00400	-.00400	.65500	.00000
.280	2.470	.84450	.18050	-.00730	.86120	-.06359	.00180	-.00170	-.05200	.65500	.00000
.280	4.990	.83720	.17930	-.00930	.85390	-.06267	.00480	-.01080	-.09600	.65600	.00000
.280	10.010	.84840	.18070	-.02960	.86500	-.06454	.00460	-.02440	-.18200	.66400	.00000
.280	15.000	.86710	.18320	-.04730	.88370	-.06740	-.00300	-.02400	-.24300	.67100	.00000
.280	20.020	.86190	.21380	-.08440	.88720	-.03682	-.02430	-.01890	-.26300	.68700	.00000
	GRADIENT	.00060	-.00193	.00068	.00014	-.00164	.00080	-.00280	-.01827	-.00028	.00000

OA123 B29C9 M7 N28W16E43V8R5T03 +BUGS (RFAD13) (27 JAN 75)

REFERENCE DATA

SREF = 2889.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0403 SCALE

PARAMETRIC DATA

BETA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = .000

RUN NO. 13/ 0 RN/L = 1.42 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	.000	-.02670	.04680	.01080	-.02670	.04681	-.00250	.00230	.00200	.80000	.00000
.200	4.040	.18000	.04880	.01420	.18300	.03742	.00060	.00610	-.00900	.61900	.00000
.200	8.120	.38510	.06310	.01060	.37040	.01088	-.00100	.00420	-.00300	.64100	.00000
.200	12.200	.57420	.09950	.01060	.58230	-.02412	-.00180	.00260	.00000	.64500	.00000
.200	16.270	.79650	.16930	.01000	.81200	-.06069	-.00320	.00060	.00300	.64700	.00000
	GRADIENT	.04921	.00050	.00084	.04898	-.00232	.00077	.00094	-.00272	-.04480	.00000

OA123 B50C9F8W16N28W16E43V8R5 X9 (RFAD13) (27 JAN 75)

REFERENCE DATA

SREF = 2889.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.0100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0403 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 15/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-2.070	-.10380	.05750	.06530	-.10770	.05083	.00070	.00020	.00000	.78000	.05280
.280	-.050	-.08850	.05120	.06750	-.08860	.05114	.00270	.00290	-.00900	.93200	.05208
.280	1.990	.00740	.04720	.07030	.00900	.04694	.00400	.00510	-.01500	-2.19900	.05075
.280	4.010	.10130	.04710	.07250	.10430	.03993	.00510	.00710	-.02000	.39800	.04891
.280	6.050	.20170	.05030	.07240	.20590	.02883	.00580	.00760	-.02200	.52200	.04758
.280	8.090	.30860	.05900	.07090	.31190	.01527	.00460	.00610	-.01800	.56800	.04548
.280	10.120	.41080	.07170	.07200	.41700	-.00152	.00380	.00480	-.01500	.58600	.04593
.280	12.170	.52160	.09310	.07160	.52970	-.01897	.00300	.00410	-.01300	.60200	.04648
.280	14.210	.64180	.12510	.06730	.65290	-.03622	.00190	.00270	-.01000	.61400	.04885
.280	16.240	.79420	.16800	.06590	.77110	-.04960	.00140	.00350	-.00800	.62200	.05143
.280	18.280	.89150	.23170	.06270	.88120	-.04710	.00200	.00500	-.00900	.62500	.05544
	GRADIENT	.04720	-.00174	.00120	.04801	-.00182	.00071	.00113	-.00325	-.21207	-.00088

OA123 B50C9F8M16N28W16E43V8R5 X8 (RFA016) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 16/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.030	-.03890	.00820	.02280	-.00890	.00826	-.01810	.00070	.33100	1.59300	.07187
.280	-15.040	-.02800	.01660	.03770	-.02810	.01659	-.01840	.01240	.25500	1.14700	.06175
.280	-10.030	-.05950	.04020	.05030	-.05980	.04024	-.01500	.01210	.17200	.96300	.05872
.280	-5.030	-.08010	.05050	.05980	-.08010	.05044	-.00630	.00960	.07700	.92600	.05480
.280	-2.500	-.08330	.05250	.06260	-.08330	.05252	-.00230	.00680	.03200	.92800	.05421
.280	-.020	-.08870	.05330	.06640	-.08880	.05324	.00010	.00220	-.00400	.92700	.05164
.280	2.480	-.08540	.05360	.06430	-.08550	.05356	.00150	-.00060	-.04200	.92900	.05190
.280	5.010	-.07820	.04940	.05960	-.07820	.04940	.00550	-.00300	-.08800	.93200	.05274
.280	10.010	-.05230	.03970	.04860	-.05230	.03975	.01730	-.00750	-.18500	.99400	.05602
.280	15.020	-.02420	.02550	.02870	-.02420	.02555	.02240	-.00860	-.28700	1.08800	.05990
.280	20.040	-.00850	.00890	.01470	-.00850	.00895	.01990	.00750	-.34900	1.28300	.07051
	GRADIENT	.00007	-.00004	.00005	.00007	-.00004	.00109	-.00130	-.01612	.00052	-.00026

OA123 B50C9F8M16N28W16E43V8R5 X9 (RFA017) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 17/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.020	.17490	.00870	.02530	.17510	-.00359	-.01990	.01090	.32900	.59800	.07147
.280	-15.030	.16310	.01440	.04260	.16380	.00294	-.02220	.01590	.27600	.55600	.06089
.280	-10.020	.13510	.03670	.05190	.13730	.02716	-.01600	.01620	.17500	.51300	.05355
.280	-5.030	.10460	.04400	.06620	.10750	.03662	-.00890	.00670	.08100	.47500	.05205
.280	-2.500	.10060	.04560	.06680	.10330	.03853	-.00260	.00640	.03600	.46700	.05224
.280	.000	.09970	.04950	.07130	.10290	.04241	.00180	.00570	-.01400	.39700	.04918
.280	2.480	.10600	.04890	.06880	.10920	.04137	.00350	.00190	-.05500	.42000	.04858
.280	5.010	.11480	.04550	.06540	.11770	.03713	.00790	-.00250	-.10000	.44700	.04950
.280	10.010	.13690	.03640	.05340	.14110	.02655	.01960	-.01010	-.19400	.51200	.05399
.280	15.030	.16970	.02270	.03260	.17090	.01077	.02690	-.01350	-.27700	.58100	.05812
.280	20.040	.17620	.01590	.01940	.17690	.00346	.01930	-.00410	-.34400	.61100	.06824
	GRADIENT	.00103	.00024	-.00006	.00104	.00013	.00158	-.00091	-.01888	.00227	-.00033

OA123 B50C9F8M16N28W16E43V8R5 X9 (RFA018) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0409 SCALE

PARAMETRIC DATA

ALPHA = 8.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 18/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.020	.38380	.03190	.02750	.38680	-.02000	-.02390	.02170	.32900	.62400	.07025
.200	-15.020	.36380	.03110	.04600	.36450	-.02055	-.02540	.02140	.27900	.60500	.05949
.200	-10.000	.32750	.04390	.05730	.33050	-.00267	-.02170	.01530	.19700	.58800	.05455
.200	-5.030	.31830	.05520	.06160	.32290	.00991	-.01120	.00850	.09600	.58100	.05044
.200	-2.500	.31320	.05880	.06630	.31830	.01412	-.00470	.00590	.04200	.57500	.04821
.200	-.020	.30840	.06120	.07100	.31400	.01721	.00020	.00330	-.00800	.56800	.04674
.200	[illegible]	.30830	.05810	.07090	.31340	.01421	.00470	.00060	-.05700	.56800	.04821
.200	[illegible]	.31280	.05400	.06730	.31730	.00950	.00970	-.00460	-.10700	.57400	.04769
.200	10.000	.33490	.04500	.05700	.33790	-.00260	.02200	-.01360	-.20100	.58900	.05323
.200	15.030	.36180	.04000	.03940	.36370	-.01138	.02670	-.02080	-.27900	.61200	.05752
.200	20.040	.38720	.03620	.02640	.38880	-.01934	.02020	-.01650	-.34200	.62500	.06712
	GRADIENT	-.00083	-.00012	.00064	-.00064	-.00003	.00204	-.00126	-.02014	-.00084	-.00030

OA123 B50C9F8M16N28W16E43V8R5 X9 (RFA019) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0409 SCALE

PARAMETRIC DATA

ALPHA = 12.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 19/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.020	.57880	.08340	.01980	.58340	-.04058	-.02150	.03000	.31900	.63900	.07300
.200	-15.030	.56990	.07040	.04080	.56800	-.03056	-.02500	.02570	.28600	.62000	.06149
.200	-10.020	.55140	.06300	.05200	.55650	-.03508	-.02240	.02130	.19500	.61700	.05559
.200	-5.030	.53520	.09090	.06450	.54230	-.02389	-.01750	.01080	.09500	.60800	.04816
.200	-2.510	.53020	.09510	.06890	.53840	-.01878	-.00570	.00550	.04300	.60500	.04802
.200	-.010	.52390	.09470	.07340	.53210	-.01777	.00040	.00220	-.00700	.60100	.04663
.200	2.490	.52370	.09210	.07340	.53140	-.02034	.00620	-.00140	-.05900	.60100	.04585
.200	5.010	.52990	.08580	.06880	.53810	-.02794	.01300	-.00640	-.10900	.60400	.04749
.200	10.020	.54790	.08190	.05430	.55280	-.03547	.02150	-.02020	-.20100	.61500	.05356
.200	15.020	.56800	.07980	.03840	.57210	-.04179	.02650	-.02840	-.28500	.62700	.05932
.200	20.040	.57270	.08370	.02270	.57740	-.03902	.01720	-.02550	-.33200	.63700	.07048
	GRADIENT	-.00088	-.00054	.00052	-.00077	-.00039	.00251	-.00165	-.02033	-.00048	-.00015

OA123 B50C9F8M16N28W16E43V8R5 X9 (RFA020) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 16.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 20/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.010	.78290	.16630	.01370	.79810	-.03961	-.01780	.03480	.32000	.64500	.07615
.280	-15.030	.78750	.15260	.03610	.79870	-.07407	-.02330	.03190	.28200	.63500	.06536
.280	-10.000	.7[illegible]830	.16700	.04970	.78440	-.05482	-.02160	.02950	.19400	.62800	.05594
.280	-5.020	.7[illegible]500	.17470	.06210	.77370	-.04363	-.00980	.01720	.09100	.62200	.05081
.280	-2.490	.7[illegible]720	.17380	.06500	.77560	-.04510	-.00420	.00940	.04100	.62100	.05249
.280	-.010	/5890	.17190	.06720	.77670	-.04741	.00090	.00290	-.00600	.62000	.05222
.280	2.500	[illegible]6160	.17170	.06680	.77930	-.04840	.00600	-.00310	-.05500	.62000	.04965
.280	5.010	.75790	.17210	.06440	.77570	-.04697	.00900	-.01150	-.09700	.62100	.04953
.280	10.010	.76420	.16780	.04650	.78060	-.05285	.02060	-.02960	-.19800	.63000	.05373
.280	15.050	.78620	.16320	.02700	.80040	-.06358	.02620	-.03460	-.28900	.63900	.06322
.280	20.040	.78570	.16910	.01250	.80170	-.05773	.01490	-.02820	-.33700	.64600	.07307
	GRADIENT	.00041	-.00029	.00026	.00031	-.00040	.00191	-.00279	-.01884	-.00012	-.00022

OA123 B29C9F8M16N28W16E43V8R5 X9 (RFA021) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 21/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-2.050	-.17420	.06330	.05840	-.17640	.05703	.00010	.00520	-.00900	.77300	.[illegible]9511
.280	-[illegible]	-.09350	.05270	.06710	-.09360	.05276	.00000	.00270	-.00500	.91606	.05344
.280	1.990	.00060	.04860	.07000	.00230	.04858	.00110	.00510	-.01100	-10.35400	.05216
.280	4.020	.09890	.04810	.07230	.10010	.04123	.00200	.00650	-.01500	.38600	.05016
.280	8.060	.19590	.05260	.07300	.20040	.03169	.00150	.00560	-.01400	.51800	.04761
.280	9.100	.30470	.06070	.07180	.31020	.01712	.00100	.00460	-.01200	.56600	.04598
.280	10.140	.40970	.07270	.07340	.41610	-.00057	.00140	.00450	-.01300	.58700	.04588
.280	12.180	.52200	.09410	.07300	.53010	-.01814	.00100	.00360	-.01100	.60100	.04707
.280	14.220	.64070	.12380	.07010	.65150	-.03735	.00010	.00210	-.00800	.61200	.04945
.280	16.240	.75410	.16010	.06870	.77110	-.04957	.00040	.00360	-.00700	.61900	.05227
.280	18.290	.85110	.23250	.06610	.88110	-.04640	.00110	.00510	-.00800	.62400	.05688
	GRADIENT	.04488	-.00248	.00221	.04577	-.00255	.00034	.00031	-.00119	-.61151	-.00080

OA123 B26C9F8M16N28W16E43V8R5 X9 (RFA022) (27 JAN 75)

REFERENCE DATA

SREF = 2888.8300 SQ.FT. XMRP = 1076.8800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 22/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.020	-.01380	-.01390	.04120	-.01380	-.01397	-.00970	-.00260	.33100	1.76100	.07209
.200	-15.010	-.03140	.01770	.03920	-.03140	.01776	-.01570	.01160	.25400	1.11100	.06177
.200	-9.990	-.06250	.04120	.05080	-.06250	.04125	-.01450	.01220	.17000	.95100	.05630
.200	-5.020	-.08140	.05110	.05990	-.08140	.05113	-.00570	.01030	.07400	.92300	.05505
.200	-2.520	-.08190	.05350	.06270	-.08200	.05350	-.00090	.00910	.02400	.93300	.05459
.200	-.020	-.09260	.05270	.06670	-.09260	.05268	.00000	.00230	-.00400	.91700	.05387
.200	2.480	-.08??	.05400	.06560	-.08970	.05403	.00030	-.00090	-.04000	.92100	.05321
.200	5.010	-.08030	.04950	.06040	-.08030	.04954	.00540	-.00290	-.08800	.92800	.05312
.200	10.000	-.05520	.03910	.04990	-.05520	.03908	.01740	-.00750	-.18600	.98400	.05630
.200	15.030	-.02730	.02550	.03030	-.02730	.02554	.02140	-.00810	-.26600	1.06000	.06064
.200	20.040	-.01190	.00910	.01640	-.01190	.00916	.01830	.00750	-.34600	1.15800	.07061
	GRADIENT	-.00022	-.00011	.00015	-.00022	-.00011	.00093	-.00145	-.01548	-.00008	-.00021

OA123 B26C9F8M16N28W16E43V8R5 X9 (RFA023) (27 JAN 75)

REFERENCE DATA

SREF = 2888.8300 SQ.FT. XMRP = 1076.8800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 23/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.17280	-.00030	.03590	.17230	-.01255	-.01540	.00930	.32800	.57800	.07116
.200	-15.000	.15970	.01380	.04400	.16020	.00260	-.02130	.01910	.26900	.55000	.06081
.200	-10.000	.13410	.03700	.05250	.13640	.02758	-.01540	.01610	.17400	.51000	.05508
.200	-5.010	.10250	.04320	.06790	.10520	.03590	-.00880	.00690	.09100	.41400	.05284
.200	-2.510	.08820	.04540	.07060	.10120	.03848	-.00240	.00700	.03400	.39500	.05233
.200	-.010	.09540	.04940	.07250	.09870	.04258	.00130	.00520	-.01100	.38100	.04961
.200	2.490	.10180	.04910	.07030	.10500	.04184	.00250	.00080	-.05300	.40500	.05013
.200	5.020	.11250	.04410	.06700	.11530	.03610	.00810	-.00240	-.10200	.43800	.05101
.200	10.030	.13770	.03600	.05400	.13990	.02622	.02010	-.01010	-.19500	.51000	.05480
.200	15.020	.16780	.02120	.03400	.16890	.00935	.02690	-.01280	-.28000	.57700	.05990
.200	20.040	.17320	.01480	.02130	.17380	.00259	.01850	-.00440	-.34300	.60600	.06925
	GRADIENT	.00094	.00022	-.00008	.00096	.00015	.00154	-.00099	-.01887	.00232	-.00023

CA123 B26C9F8M16N28W16E43V8R5 X9 (RFA024) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1078.8800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 8.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 24/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.38320	.02210	.03720	.36270	-.02845	-.01980	.02020	.32800	.61400	.07137
.200	-15.020	.36080	.03030	.04670	.36150	-.02089	-.02450	.02050	.27700	.60400	.05997
.200	-10.000	.32940	.04380	.05730	.33220	-.00308	-.02090	.01590	.19500	.58800	.05565
.200	-5.020	.31740	.05440	.06300	.32190	.00909	-.01070	.00880	.09400	.58000	.05108
.200	-2.490	.31210	.05870	.06710	.31720	.01413	-.00420	.00610	.04100	.57400	.04861
.200	-.010	.30730	.06090	.07100	.31280	.01702	.00090	.00400	-.01100	.56800	.04654
.200	2.500	.30750	.05900	.07150	.31270	.01511	.00500	.00050	-.05900	.56700	.04600
.200	5.010	.31290	.05370	.06810	.31740	.00913	.01010	-.00450	-.10900	.57300	.04810
.200	10.020	.33360	.04440	.05800	.33660	-.00305	.02250	-.01370	-.20400	.58800	.05431
.200	15.030	.36510	.03930	.03800	.36700	-.01268	.02750	-.01940	-.28300	.61400	.05950
.200	20.030	.36550	.03460	.02760	.36670	-.01734	.01870	-.01620	-.33800	.62400	.07071
	GRADIENT	-.00054	-.00004	.00058	-.00054	.00004	.00203	-.00127	-.02020	-.00084	-.00034

CA123 B26C9F8M16N28W16E43V8R5 X9 (RFA025) (27 JAN 75)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1078.8800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.8800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 12.000 BDFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 25/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.000	.57410	.07220	.03040	.57640	-.05055	-.01690	.02890	.31600	.63200	.07596
.200	-15.030	.56370	.06880	.04930	.56950	-.05169	-.02390	.02610	.28200	.62000	.06229
.200	-10.010	.55150	.06280	.05230	.55650	-.03542	-.02140	.02140	.19300	.61700	.05631
.200	-5.020	.53510	.05080	.06490	.54230	-.02401	-.01200	.01090	.09300	.60800	.04821
.200	.000	.52200	.04560	.07290	.53040	-.01659	.00050	.00270	-.00900	.60100	.04683
.200	2.490	.52440	.04380	.07180	.53240	-.01885	.00620	-.00110	-.05900	.60200	.04575
.200	5.000	.53240	.04830	.06890	.53900	-.02591	.01220	-.00660	-.10800	.60600	.04784
.200	10.010	.55380	.04240	.05130	.55870	-.03631	.02190	-.01940	-.20300	.61800	.05558
.200	15.030	.56650	.03740	.03910	.57200	-.04434	.02860	-.02650	-.29100	.62600	.06218
.200	20.040	.56960	.04140	.02530	.57390	-.04072	.01720	-.02450	-.33300	.63500	.07389
	GRADIENT	-.00043	-.00015	.00031	-.00047	-.00008	.00241	-.00171	-.02009	-.00029	-.00009

OA123 B26C9F8M16N28W116E43V8R5 X9 (RFA028) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 16.000 3DFLAP = -12.000
ELEVON = .000 AILRON = .000
RUDDER = .000 SPDBRK = 40.000

RUN NO. 28/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	-20.010	.78350	.15940	.01880	.79870	-.06693	-.01380	.03520	.32100	.64300	.07977
.280	-15.030	.78720	.15210	.03730	.79830	-.07444	-.02240	.03140	.27900	.63400	.08693
.280	-10.030	.78700	.14880	.04930	.78360	-.05266	-.02080	.02990	.19200	.62800	.05592
.280	-5.020	.75350	.17470	.06310	.77230	-.04317	-.00800	.01770	.08900	.62200	.05102
.280	-2.490	.75610	.17330	.06650	.77440	-.04523	-.00410	.00970	.04100	.62000	.05346
.280	-.020	.75870	.17110	.06930	.77630	-.04806	.00090	.00360	-.00700	.61900	.05299
.280	2.490	.76000	.17110	.06900	.77750	-.04850	.00630	-.00220	-.03600	.61900	.05000
.280	5.010	.75980	.17160	.06420	.77740	-.04787	.00910	-.01100	-.09900	.62100	.04963
.280	10.020	.76800	.16730	.04640	.78410	-.05433	.02180	-.02910	-.20200	.63000	.05543
.280	15.040	.78630	.16180	.02790	.80010	-.06485	.02600	-.03430	-.28900	.63900	.06586
.280	20.030	.78780	.16700	.01190	.80290	-.06021	.01550	-.02700	-.34000	.64600	.07648
	GRADIENT	.00068	-.00034	.00019	.00053	-.00051	.00186	-.00277	-.01889	-.00012	-.00025

OA123 B26C9 M16 W116E43V8R5TC4X9 (RFA027) (27 JAN 75)

REFERENCE DATA

SREF = 2089.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 27/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.280	2.020	.09210	.05880	.01920	.06410	.05437	-.00030	.00330	-.00500	.54100	.00000
.280	4.040	.13520	.05820	.02590	.15300	.04714	.00080	.00490	-.01000	.59200	.00000
.280	8.120	.36460	.07340	.02630	.37130	.02116	-.00030	.00350	-.00600	.62800	.00000
.280	10.150	.46620	.08870	.02840	.47650	.00475	-.00080	.00260	-.00300	.63000	.00000
.280	12.190	.57880	.11250	.02730	.58960	-.01200	-.00120	.00170	-.00200	.63500	.00000
.280	14.240	.70170	.14780	.02280	.71650	-.02955	-.00170	.00030	.00000	.64000	.00000
.280	16.280	.81440	.19780	.01740	.83720	-.03861	-.00020	.00220	-.00100	.64400	.00000
.280	18.320	.91020	.27060	.00970	.94920	-.02933	.00120	.00380	-.00400	.64800	.00000
	GRADIENT	.04609	.00079	.00352	.04698	-.00358	.00045	.00079	-.00248	.02525	.00000

OA123 B26C9 M16 W16E43V8R5TC4X9 (RFA029) (27 JAN 75)

REFERENCE DATA

SREF = 2099.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 29/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-19.940	.01770	.03070	-.00730	.01770	.03069	-.00990	-.00220	.32100	.80400	.00000
.200	-15.020	.01470	.03160	-.00240	.01470	.03161	-.01030	.01110	.25000	.71200	.00000
.200	-9.990	.00120	.04880	-.00620	.00120	.04883	-.01140	.01360	.17100	2.47700	.00000
.200	-2.510	-.01 40	.06200	.00480	-.01740	.06202	-.00110	.00830	.02800	.75400	.00030
.200	-.040	-.02770	.07020	.01110	-.02770	.06023	-.00150	.00320	-.00300	.79900	.00000
.200	2.490	-.02370	.06050	.00900	-.02370	.06056	-.00240	.00010	-.03900	.79200	.00000
.200	5.010	-.01440	.05740	.00530	-.01440	.05749	.00020	-.00280	-.08100	.78700	.00000
.200	10.010	.01140	.04570	-.00700	.01150	.04579	.01180	-.00890	-.18000	.87600	.00000
.200	15.040	.02290	.03920	-.01330	.02290	.03926	.01270	-.00750	-.25500	.86700	.00000
.200	20.030	.02550	.03870	-.02350	.02550	.03876	.01230	.00880	-.34000	.99000	.00000
	GRADIENT	.00053	-.00054	-.00003	.00053	-.00053	.00012	-.00145	-.01447	.00364	.00000

OA123 B26C9 M16 W16E43V8R5TC4X9 (RFA029) (27 JAN 75)

REFERENCE DATA

SREF = 2099.8300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 29/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.000	.21110	.02280	.00390	.21210	.00757	-.00770	.00570	.33200	.64500	.00000
.200	-14.990	.21080	.03100	-.00010	.21220	.01604	-.01390	.01400	.26200	.65200	.00000
.200	-9.980	.19400	.04980	.00100	.19700	.03575	-.01080	.01680	.17200	.65000	.00000
.200	-5.000	.16660	.05550	.01540	.17010	.04369	-.00690	.00780	.09000	.61800	.00000
.200	-2.490	.16030	.05820	.02060	.16400	.04672	-.00150	.00680	.03500	.60500	.00000
.200	-.020	.15730	.05950	.02470	.16110	.04824	.00000	.00600	-.01000	.59500	.00000
.200	2.470	.16510	.05800	.02080	.16880	.04626	-.00050	.00170	-.04800	.60600	.00000
.200	5.000	.17820	.05460	.01630	.17970	.04209	.00270	-.00180	-.09300	.61800	.00000
.200	10.010	.19820	.04660	.00160	.20100	.03253	.01260	-.01070	-.18600	.64900	.00000
.200	15.020	.21790	.03900	-.01060	.22020	.02345	.01630	-.01230	-.26600	.67000	.00000
.200	20.030	.21430	.04910	-.02300	.21730	.03385	.01000	-.00190	-.32900	.69100	.00000
	GRADIENT	.00096	-.00008	.00008	.00096	-.00015	.00081	-.00097	-.01799	.00005	.00000

OA123 B26C9 M16 W16E43V8R5TC4X9 (RFA030) (27 JAN 75)

REFERENCE DATA

SREF = 2989.0300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 8.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 30/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.000	.40240	.06180	-.01270	.40710	.00397	-.01380	.01920	.32000	.66300	.00000
.200	-19.010	.41220	.05310	.00080	.41580	-.00582	-.01550	.02000	.26700	.65100	.00000
.200	-10.000	.38520	.08220	.01010	.39010	.00712	-.01560	.01710	.19000	.64200	.00000
.200	-5.010	.37570	.07240	.01660	.38220	.01858	-.00680	.00960	.08800	.63600	.00000
.200	-2.500	.37160	.07420	.02140	.37840	.02096	-.00260	.00720	.03700	.63100	.00000
.200	.010	.36980	.07500	.02450	.37260	.02262	-.00120	.00400	-.00700	.62700	.00000
.200	2.490	.36930	.07260	.02530	.37190	.02028	.00010	.00070	-.05000	.62700	.00000
.200	5.010	.36930	.06890	.02320	.37530	.01600	.00340	-.00440	-.09700	.62900	.00000
.200	10.010	.39320	.06170	.00950	.39800	.00543	.01460	-.01470	-.19400	.64300	.00000
.200	15.020	.41820	.06190	-.00990	.42270	.00209	.01730	-.01830	-.27200	.66000	.00000
.200	20.040	.40660	.07170	-.02280	.41260	.01348	.00950	-.01480	-.32500	.67200	.00000
	GRADIENT	-.00078	-.00034	.00068	-.00081	-.00023	.00092	-.00138	-.01826	-.00072	.00000

OA123 B26C9 M16 W16E43V8R5TC4X9 (RFA031) (27 JAN 75)

REFERENCE DATA

SREF = 2989.0300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 12.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 31/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.61930	.11950	-.02870	.63060	-.01409	-.01090	.02800	.30900	.66800	.00000
.200	-15.010	.62030	.10050	-.00400	.62750	-.03289	-.01370	.02430	.27100	.65400	.00000
.200	-10.010	.60620	.10890	.00600	.61550	-.02162	-.01540	.02240	.18800	.64800	.00000
.200	-5.020	.59100	.11220	.02150	.60140	-.01518	-.00840	.01170	.09000	.63800	.00000
.200	-2.490	.58740	.11480	.02200	.59840	-.01187	-.00480	.00600	.04200	.63800	.00000
.200	-.010	.58290	.11420	.02630	.59390	-.01147	-.00110	.00260	-.00500	.63500	.00000
.200	2.490	.58250	.11240	.02560	.59310	-.01311	.00100	-.00200	-.04900	.63600	.00000
.200	5.010	.58850	.10810	.02350	.59610	-.01819	.00570	-.00670	-.09700	.63700	.00000
.200	10.020	.61160	.10790	.00550	.62060	-.02377	.01270	-.02000	-.19100	.64800	.00000
.200	15.050	.62890	.10750	-.01470	.63750	-.02789	.01500	-.02640	-.27200	.66000	.00000
.200	20.020	.61200	.12780	-.03530	.62320	-.00462	.00450	-.02360	-.31000	.67200	.00000
	GRADIENT	-.00055	-.00042	.00029	-.00063	-.00029	.00136	-.00179	-.01858	-.00016	.00000

OA123 B26C9 M16 W16E43V0R5TC4X9 (RFA032) (27 JAN 75)

REFERENCE DATA

SREF = 2909.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 10.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 32/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-19.980	.82180	.21380	-.04670	.84800	-.02525	-.00310	.03120	.29700	.67200	.00000
.200	-15.000	.84480	.19200	-.02210	.86480	-.05250	-.01020	.02970	.26500	.66100	.00000
.200	-9.940	.82040	.19900	-.00020	.84330	-.03834	-.01340	.03120	.18500	.65200	.00000
.200	-2.510	.81250	.20270	.01550	.83670	-.03294	-.00230	.01100	.03900	.64500	.00000
.200	-.010	.81870	.19870	.01690	.84160	-.03862	.00050	.00420	-.00600	.64400	.00000
.200	5.000	.81470	.19840	.01660	.83760	-.03769	.00270	-.01220	-.09000	.64400	.00000
.200	10.000	.82230	.19800	-.00120	.84490	-.04029	.01180	-.03020	-.18800	.65200	.00000
.200	15.020	.84820	.19870	-.03040	.86990	-.04705	.01100	-.03390	-.26800	.66500	.00000
.200	20.040	.82450	.21550	-.05420	.85190	-.02414	-.00110	-.02730	-.30500	.67500	.00000
	GRADIENT	.00014	-.00050	.00012	-.00001	-.00052	.00063	-.00312	-.01712	-.00011	.00000

ERROR THERE IS NO AERO DATASET NAMED RFA033

ERROR THERE IS NO AERO DATASET NAMED RFA034

OA123 B26C9 M16 W16E43V0R5TC6X9 (RFA036) (27 JAN 75)

REFERENCE DATA

SREF = 2909.0300 SQ.FT. XMRP = 1078.0000 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.0000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

BETA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 36/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	ALPHA	CL	CDF	CLN	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-2.040	-.11000	.08810	.00830	-.11250	.06917	-.00180	.00120	.00300	.87200	.00000
.200	.000	-.02170	.06470	.01230	-.02170	.06474	-.00160	.00240	.00000	.86000	.00000
.200	2.010	.08910	.06340	.01830	.07130	.06099	-.00050	.00390	-.00400	.55700	.00000
.200	4.040	.18020	.08840	.02480	.16450	.05493	-.00300	.00550	.00000	.59600	.00000
.200	6.090	.28210	.07170	.02520	.26820	.04354	-.00300	.00540	.00000	.61700	.00000
.200	8.140	.36310	.08140	.02830	.37100	.02917	-.00170	.00400	-.00100	.62400	.00000
.200	10.180	.47030	.09440	.02870	.47980	.00996	-.00140	.00370	-.00100	.63000	.00000
.200	12.210	.58440	.11700	.02500	.59590	-.00924	-.00070	.00310	-.00200	.63600	.00000
.200	14.250	.71160	.15280	.01730	.72740	-.02710	-.00120	.00180	-.00100	.64300	.00000
.200	16.280	.82400	.20250	.01150	.84780	-.03666	.00000	.00320	-.00100	.64700	.00000
.200	18.330	.92290	.27830	.00200	.96360	-.02612	.00150	.00510	-.00500	.65100	.00000
	GRADIENT	.04491	-.00048	.00301	.04560	-.00170	-.00011	.00071	-.00064	-.02610	.00000

OA123 B26C9 M16 W16E43V8R5TC6X9 (RFA037) (27 JAN 75)

REFERENCE DATA

SREF = 2909.0300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = .000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 37/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.02270	.04940	-.01190	.02270	.04944	-.01210	-.00100	.31100	.84500	.00000
.200	-15.030	.02780	.03880	-.00680	.02760	.03884	-.01310	.01220	.25000	.74300	.00000
.200	-10.010	.01190	.03400	-.00840	.01190	.03408	-.01360	.01460	.17700	.85200	.00000
.200	-5.020	-.00480	.06440	.00210	-.00490	.06441	-.00540	.01220	.07600	.81300	.00000
.200	-2.500	-.01540	.06380	.00790	-.01540	.06389	-.00230	.00630	.03600	.84200	.00000
.200	-.010	-.01800	.06570	.01110	-.01800	.06575	-.00270	.00370	.00100	.87900	.00000
.200	2.470	-.01480	.06570	.01050	-.01470	.06572	-.00230	.00040	-.03600	.91400	.00000
.200	5.000	-.00580	.06310	.00500	-.00580	.06317	.00040	-.00240	-.07900	.97800	.00000
.200	9.990	.02170	.05330	-.00750	.02170	.05334	.01110	-.00780	-.17400	.77900	.00000
.200	15.000	.03370	.04580	-.01670	.03370	.04583	.01160	-.00710	-.24600	.83400	.00000
.200	20.020	.03690	.04650	-.02680	.03700	.04651	.00830	.00860	-.32300	.91800	.00000
	GRADIENT	-.00004	-.00003	.00034	-.00004	-.00003	.00046	-.00140	-.01528	.01608	.00000

OA123 B26C9 M16 W16E43V8R5TC6X9 (RFA038) (27 JAN 75)

REFERENCE DATA

SREF = 2909.0300 SQ.FT. XMRP = 1078.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 4.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 38/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.000	.20580	.04380	.00470	.20820	.02914	-.00910	.00680	.31700	.64300	.00000
.200	-15.020	.21820	.04000	-.00110	.21850	.02462	-.01730	.01470	.26300	.65400	.00000
.200	-10.000	.19350	.06200	.00740	.19740	.04814	-.01050	.01720	.16600	.63800	.00000
.200	-5.000	.18120	.06930	.02320	.18540	.05378	-.00440	.00780	.08100	.63000	.00000
.200	-2.510	.17180	.06410	.01700	.17590	.05183	-.00100	.00730	.03400	.61800	.00000
.200	-.010	.18570	.06730	.02270	.17000	.05545	-.00250	.00750	-.00500	.60200	.00000
.200	2.490	.17430	.06540	.01970	.17850	.05294	-.00210	.00320	-.04300	.61100	.00000
.200	4.990	.18440	.06190	.01480	.18840	.04875	.00260	-.00130	-.09000	.62300	.00000
.200	10.010	.19830	.05780	.00760	.20190	.04345	.00900	-.01020	-.17200	.63800	.00000
.200	15.010	.22190	.04750	-.01080	.22470	.03171	.01150	-.01270	-.24600	.66900	.00000
.200	20.010	.22000	.05620	-.02150	.22350	.04055	.00660	-.00230	-.31600	.68700	.00000
	GRADIENT	.00198	-.00022	-.00056	.00195	-.00036	.00052	-.00089	-.01677	.00164	.00000

OA123 B26C9 M18 W18E43V8R5TC6X9 (RFA039) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.0800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 8.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 39/ 0 RN/L = 1.85 GRADIENT INTERVAL = -8.00/ 8.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.38180	.08950	-.00800	.39070	.03463	-.01180	.01700	.29500	.65700	.00000
.200	-15.020	.41430	.08260	.00350	.41900	.00336	-.01460	.02100	.25700	.64900	.00000
.200	-10.010	.37890	.07510	.01810	.38570	.02072	-.01260	.01770	.17700	.63400	.00000
.200	-5.020	.37540	.08110	.02040	.38310	.02721	-.00340	.00990	.07700	.63200	.00000
.200	-2.510	.38500	.07980	.01610	.39250	.02455	-.00250	.00710	.03800	.63700	.00000
.200	-.010	.38950	.08230	.02660	.37750	.02922	-.00280	.00390	.00000	.62600	.00000
.200	2.470	.37280	.07950	.02410	.38030	.02595	-.00290	.00110	-.04000	.62800	.00000
.200	5.010	.37670	.07630	.02090	.38380	.02230	.00040	-.00440	-.08500	.63200	.00000
.200	10.010	.39510	.07090	.01310	.40120	.01424	.01170	-.01420	-.18100	.64000	.00000
.200	15.010	.41800	.06980	-.00620	.42360	.00970	.01170	-.01820	-.25000	.65700	.00000
.200	20.020	.39680	.08060	-.00740	.40420	.02362	.00590	-.01430	-.30600	.65800	.00000
	GRADIENT	-.00038	-.00040	.00036	-.00043	-.00034	.00029	-.00138	-.01606	-.00036	.00000

OA123 B26C9 M16 W16E43V8R5TC6X9 (RFA040) (27 JAN 75)

REFERENCE DATA

SREF = 2889.8300 SQ.FT. XMRP = 1076.6800 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.0800 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 12.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 40/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-20.010	.58270	.14120	-.00420	.59930	.01491	-.01030	.02660	.28700	.65400	.00000
.200	-15.000	.61530	.10800	.00730	.62430	-.02440	-.01850	.02590	.27300	.64700	.00000
.200	-10.000	.60930	.11680	.01010	.62020	-.01457	-.01310	.02430	.17500	.64600	.00000
.200	-5.020	.59080	.11950	.02510	.60250	-.00792	-.00590	.01230	.07900	.63600	.00000
.200	-2.500	.60370	.11940	.01670	.61530	-.01086	-.00650	.00630	.04600	.64200	.00000
.200	.000	.59310	.11920	.02450	.60490	-.00869	-.00140	.00260	-.00200	.63700	.00000
.200	2.490	.59850	.11710	.01990	.60970	-.01205	.00080	-.00120	-.04600	.64000	.00000
.200	5.010	.59340	.11400	.02320	.60410	-.01391	.00210	-.00660	-.08500	.63800	.00000
.200	10.010	.61150	.11370	.00990	.62170	-.01807	.00960	-.02040	-.17800	.64600	.00000
.200	15.030	.61990	.11350	-.00080	.62990	-.02003	.01330	-.02710	-.26000	.65200	.00000
.200	20.020	.59720	.13630	-.00630	.60270	.00924	.00120	-.02160	-.29200	.65600	.00000
	GRADIENT	.00002	-.00053	-.00002	-.00009	-.00053	.00093	-.00181	-.01676	.00008	.00000

OA123 B26C9 M16 M16E43V8R3TC6X9 (RFA041) (27 JAN 79)

REFERENCE DATA

SREF = 2989.8300 SQ.FT. XMRP = 1078.6000 INCHES
LREF = 474.8100 INCHES YMRP = .0000 INCHES
BREF = 938.6000 INCHES ZMRP = 375.0000 INCHES
SCALE = .0405 SCALE

PARAMETRIC DATA

ALPHA = 16.000 ELEVON = .000
AILRON = .000 RUDDER = .000
SPDBRK = 40.000

RUN NO. 41/ 0 RN/L = 1.85 GRADIENT INTERVAL = -6.00/ 6.00

MACH	BETA	CL	CDF	CLM	CN	CAF	CYN	CBL	CY	XCP/L	CAB
.200	-19.990	.78470	.22450	-.01090	.81620	-.00437	-.00350	.03150	.28100	.65700	.00000
.200	-14.990	.83680	.19680	-.00700	.85840	-.04598	-.01300	.03130	.26200	.65500	.00000
.200	-9.990	.82020	.20650	.00540	.84520	-.03181	-.01040	.03130	.17300	.64900	.00000
.200	-5.020	.81800	.21110	.01200	.84440	-.02678	-.00650	.01970	.08700	.64600	.00000
.200	-2.500	.82420	.21210	.00910	.85060	-.02765	-.00130	.01200	.03700	.64800	.00000
.200	.000	.83070	.20530	.01210	.85490	-.03587	-.00040	.00400	-.00300	.64600	.00000
.200	2.480	.82080	.20240	.01490	.85230	-.03825	.00060	-.00300	-.04300	.64500	.00000
.200	5.010	.81810	.20590	.01840	.84300	-.03175	-.00050	-.01280	-.07800	.64400	.00000
.200	10.010	.81870	.20520	.00400	.84340	-.03266	.00620	-.03010	-.17000	.65000	.00000
.200	15.030	.83920	.20280	-.01610	.86240	-.04079	.00370	-.03290	-.24400	.65900	.00000
.200	20.030	.79790	.22060	-.01800	.82780	-.01195	-.00480	-.02640	-.28800	.66000	.00000
	GRADIENT	.00019	-.00080	.00074	-.00004	-.00082	.00056	-.00320	-.01637	-.00028	.00000