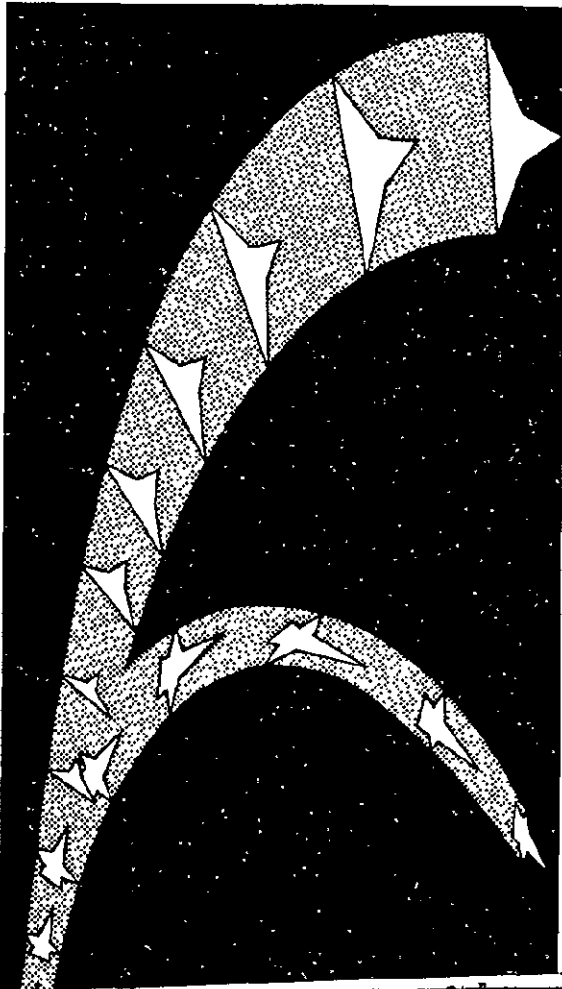


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MARCH, 1971



—SPACE SHUTTLE—

EFFECTS OF HORIZONTAL TAIL
GEOMETRY AND POSITION ON
LONGITUDINAL STABILITY OF
MODEL S-5, NASA/MSC 0.01875
SCALE ORBITER SHUTTLE

By

H. A. Pope

FACILITY FORM 602

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TEXAS A&M
LOW SPEED WIND TUNNEL

Manned Spacecraft
Center

N A S A

SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
AMENDMENT 130
DRL 184-58
MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION



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March, 1971

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MODEL S-5; NASA/MSC ORBITER SHUTTLE, 0.01875 SCALE

TEST PURPOSE: INVESTIGATION OF THE EFFECTS OF HORIZONTAL TAIL
GEOMETRY AND POSITION ON LONGITUDINAL STABILITY
AT A MACH NUMBER OF 0.25.

TEST FACILITY: TEXAS A & M LOW SPEED WIND TUNNEL

TESTING AGENCY: MANNED SPACECRAFT CENTER

TEST NO. & DATE: MSC S-XXXIX; 27-31 JULY, 1970

TEST CONDUCTOR(S): H. A. POPE

DATA MANAGEMENT SERVICES

LIAISON: _____

DATA OPERATIONS: _____

A. D. Martin
A. D. Martin

Aero Thermo Data Group

RELEASE APPROVAL: _____

N. D. Kemp
N. D. Kemp, Supervisor
Aero Thermo Data Group

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PLOT
SCHEDULE

COEFFICIENTS

A

CN, CA, CIM:vs Alpha

B

CL, CD, L/D, CY, CSL: vs Alpha

C

CIM vs CL

ABSTRACT

A 0.01875 scale model (model S-5) of a preliminary version of the NASA/ MSC orbiter shuttle configuration was tested (MSC test series S-XXXIX) in the Texas A&M University Low Speed Wind Tunnel from July 27 through July 31, 1970. The primary test objective was to obtain data to show the effects of horizontal tail geometry and vertical position on the longitudinal characteristics of the orbiter configuration. These tests were conducted at a Mach number of 0.25 at a Reynolds number of 1.7×10^6 per foot. The model was tested at an angle of attack range of -6° to 10° at zero sideslip angle. Horizontal tail aspect ratio, area, leading edge sweep, tail incidence angle and vertical position were tested.

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.

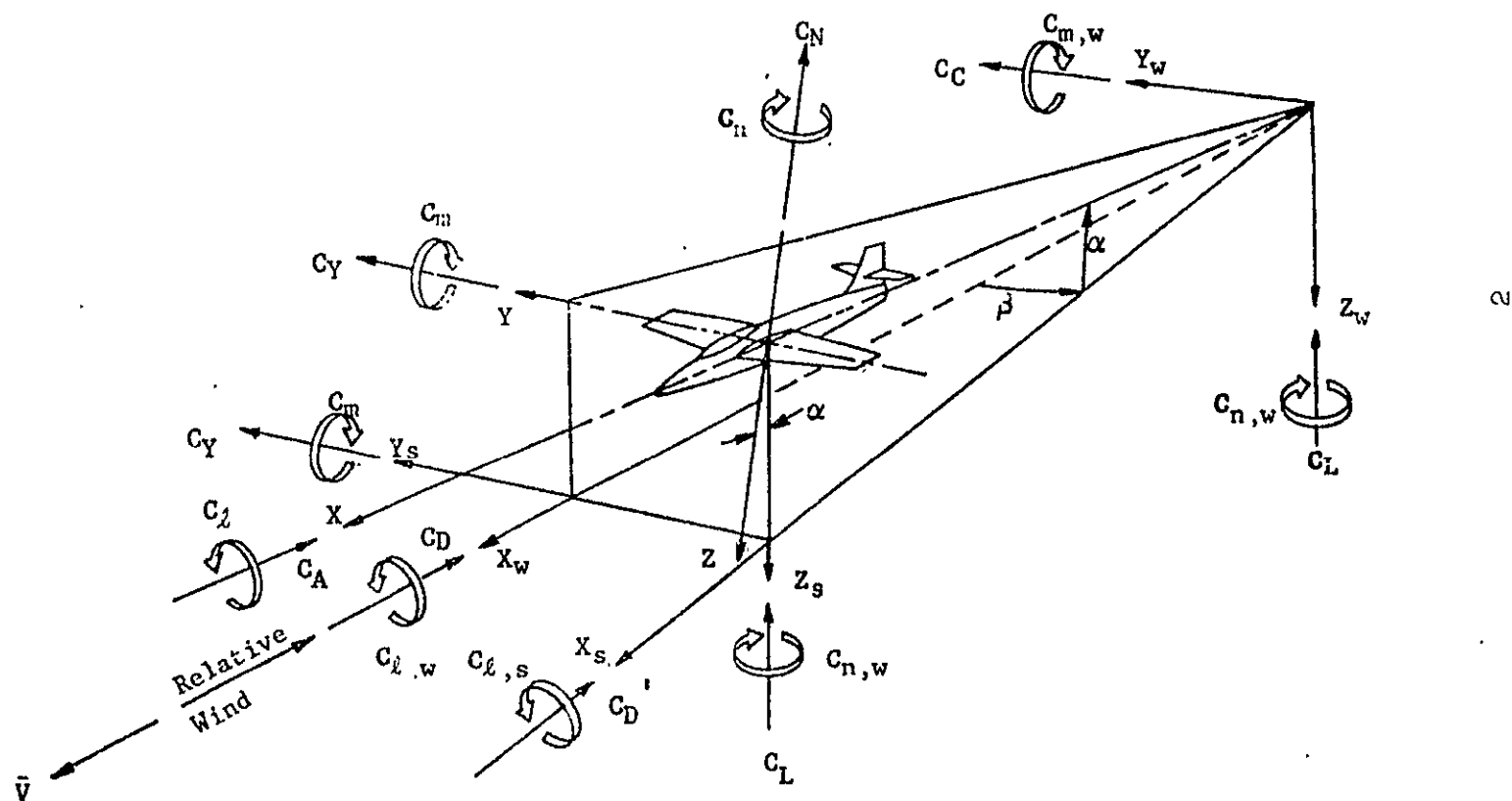


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

COEFFICIENT	COEFFICIENT NAME	SADSAC NOMENCLATURE		
		BODY AXIS	STABILITY AXIS	WIND AXIS
C _A	Total Axial Force	CA	-	-
C _{AB}	Base Axial Force	CAB	--	-
C _{AF}	Forebody Axial Force	CAF	-	-
C _D	Total Drag Force	-	CD	CDTOTL
C _{DB}	Base Drag Force	-	CDB	CDBASE
C _{DF}	Forebody Drag Force	-	CDF	CDFORE
C _L	Lift Force	-	CL	CL
C _N	Normal Force	CN	-	-
C _Y	Side Force	CY	CY	CC
C	Rolling Moment	CBL	CSL	CWL
C _m	Pitching Moment	CLM	CLM	CPM
C _n	Yawing Moment	CYN	CLN	CLN
L/D	Lift-To-Drag Force Ratio	-	L/D	CL/CD
L/D	Lift-To-Forebody Drag Force Ratio	-	L/DF	CL/CDF
N/A	Normal-To-Axial Force Ratio	N/A	-	-
N/A	Normal-To-Forebody Axial Force Ratio	CN/CAF	-	-

3

SUMMARY OF SADSAC NOMENCLATURE - AERODYNAMIC FORCE AND MOMENT COEFFICIENT

TEST FACILITY DESCRIPTION

The Texas A&M University Low Speed Wind Tunnel is a continuous closed circuit horizontal single return facility. The overall circuit length is 397.5 feet; the tunnel is constructed of steel supported above the ground on concrete pillars. The rectangular 7 foot by 10 foot test section is 16 feet long, and it is operated at atmospheric pressure through a speed range from zero to 300 feet per second. The tunnel is powered by a 1250 KVA synchronous electric motor which drives a 12 $\frac{1}{2}$ -foot diameter Curtiss Electric propeller; the controls for the motor and its auxiliaries are located in the control room. Cooling of the tunnel circuit during warm weather is accomplished by spraying the outside of the tunnel shell with water; this keeps the tunnel circuit temperature within 10°F of ambient temperatures to protect models and to maintain tolerable test section working conditions for model configuration changes. The 7 x 10 test section incorporated an external pyramid balance system which separates and independently measures the aerodynamic components; a variety of support systems for this balance are available. Internal balances are also available for use in this tunnel. For a more detailed description of this tunnel refer to the Low Speed Wind Tunnel Facility Handbook published by the Space Technology Division, Texas A&M University, College Station, Texas.

TEST CONDITIONS
TEST 5-39

[illegible]

BALANCE UTILIZED: 1.25 MCH TASK AIR XIII

CAPACITY:

ACCURACY:

COEFFICIENT
TOLERANCE:

NF	$N_1 = 500$	$N_2 = 500$ lb
SF	$S_1 = 500$	$S_2 = 500$ lb
AF	<u>150 lb</u>	
PM	<u>2625 in-lb</u>	
YM	<u>2125 in-lb</u>	
RM	<u>120 in-lb</u>	

1/2 % 01-MAY 2012

COMMENTS :

GAGE SPACING

NORMAL FORCE GAGES: 2.625 IN FROM BALANCE POINT
SIDE FORCE GAGES: 2.125 IN FROM BALANCE POINT

DATA REDUCTION

Forces and moments were measured by an internal strain gage balance in the body axis system and have been reduced to coefficient form utilizing the following reference values:

$$S_{REF} = S = \text{wing planform area} = 0.321 \text{ ft}^2$$

$$l_{REF} = \bar{c} = \text{wing mean aerodynamic chord} = 2.773 \text{ in.}$$

$$b = \text{wing span} = 1.5 \text{ ft.}$$

Axial force was not corrected for model base pressure effects nor have the data been corrected for tunnel effects (blockage, bouancy, etc.).

Moment coefficients are referenced about the longitudinal point at fuselage station 15.52. The vertical and lateral reference points are water line 2.4 inches and buttock line 0.0 respectively. For this test the internal balance electrical center was at fuselage station 14.82.

An axis transformation was performed, converting input body-axis data to stability-axis data. L/D was computed using C_D and C_L .

CONFIGURATIONS INVESTIGATED

NOMENCLATURE

B1 = Baseline fuselage MSC orbiter S-5 (August 1969 configuration)
W1 = Wing MSC orbiter S-5 (May 1969 configuration)
V3 = Vertical tail MSC orbiter S-5 (August 1969 configuration)
H6 = Horizontal stabilizer with elevator MSC, orbiter S-5 (August 1969 configuration)

Refer to the immediately following pages for model component dimensional data.

CONFIGURATIONS TESTED

B1 W1 V3	B1 W1 V3 H24C
B1 W1 V3 H6	B1 W1 V3 H26C
B1 W1 V3 H21A-42A	B1 W1 V3 H29C
B1 W1 V3 H24B	B1 W1 V3 H38C-41C
B1 W1 V3 H21C-22C	B1 W1 V3 H43C-45C

Figures 2 through 4 are drawings (components, model assembly, and tunnel installation) of the configuration. These drawings are not drawn to scale. Figure 3 shows the three vertical positions in which the horizontal tail was tested. Position C represents the nominal position for horizontal tail H6. The model was installed in the wind tunnel on a single support system (Figure 4). The model was attached to a sting which was connected perpendicular to, and upstream of, a single floor-mounted strut. In this arrangement the model and sting-tunnel centerline was coincident. Upon installation, the model was rolled 90° so that the wings were in the tunnel's vertical plane.

CONFIGURATIONS INVESTIGATED

(Continued)

In this attitude, angle of attack was varied by rotating the model in the tunnel horizontal plane. This was accomplished by mechanically rotating the sting-strut assembly, which is mounted on a turntable, about a 3.5-foot radius arc.

MODEL COMPONENT: BODY - B1

GENERAL DESCRIPTION: 0.01875 SCALE MSC ORBITAL S-15

DRAWING NUMBER: SDY 37100150

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>115.0</u>	<u>2.156</u>
Max. Width	<u>230.0</u>	<u>4.31</u>
Max. Depth	<u>256.0</u>	<u>4.8</u>
Fineness Ratio <u>(LENGTH / WIDTH)</u>	<u>5.565</u>	<u>5.565</u>
Area		
Max. Cross-Sectional	<u>308.0</u>	<u>0.1335</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u>160.3</u>	<u>0.0563</u>

MODEL COMPONENT: WING - W1

GENERAL DESCRIPTION: 0.01875 SCALE MSC ORBITER S-5

DRAWING NUMBER:

SDY 37100106

DIMENSIONS:

FULL-SCALE

MODEL SCALE

TOTAL DATA

Area Ft^2		
Planform	<u>916.6</u>	<u>0.321</u>
Wetted	<u>1295.0</u>	<u>0.455</u>
Span (equivalent) FT	<u>80.0</u>	<u>1.5</u>
Aspect Ratio	<u>7.03</u>	<u>7.03</u>
Rate of Taper $(C_R - C_T) \div b/2$	<u>0.0285</u>	<u>0.0285</u>
Taper Ratio	<u>0.33</u>	<u>0.33</u>
Diehedral Angle, degrees	<u>7.0</u>	<u>7.0</u>
Incidence Angle, degrees	<u>4.0</u>	<u>4.0</u>
Aerodynamic Twist, degrees	<u>0.0</u>	<u>0.0</u>
Toe-In Angle	<u>-</u>	<u>-</u>
Cant Angle	<u>-</u>	<u>-</u>
Sweep Back Angles, degrees		
Leading Edge	<u>14.0</u>	<u>14.0</u>
Trailing Edge	<u>-2.01</u>	<u>-2.01</u>
0.25 Element Line	<u>10.05</u>	<u>10.05</u>
Chords: <u>INCHES</u>		
Root (Wing Sta. 0.0)	<u>204.8</u>	<u>3.82</u>
Tip, (equivalent)	<u>68.3</u>	<u>1.28</u>
MAC	<u>148.3</u>	<u>2.773</u>
Fus. Sta. of .25 MAC	<u>738.0</u>	<u>13.837</u>
W.P. of .25 MAC	<u>200.5</u>	<u>3.76</u>
B.L. of .25 MAC	<u>-</u>	<u>-</u>
Airfoil Section		
Root	<u>NACA 0014-64</u>	<u>0014-64</u>
Tip	<u>NACA 0010-64</u>	<u>0010-64</u>

EXPOSED DATA

Area, Ft^2	<u>611.6</u>	<u>0.215</u>
Span, (equivalent) FT	<u>66.8</u>	<u>1.14</u>
Aspect Ratio	<u>6.04</u>	<u>6.04</u>
Taper Ratio	<u>0.394</u>	<u>0.394</u>
Chords, <u>INCHES</u>		
Root	<u>173.3</u>	<u>3.25</u>
Tip	<u>68.3</u>	<u>1.28</u>
MAC	<u>141.1</u>	<u>2.645</u>
Fus. Sta. of .25 MAC	<u>674.3</u>	<u>12.644</u>
W.P. of .25 MAC	<u>272.0</u>	<u>5.10</u>
B.L. of .25 MAC	<u>-</u>	<u>-</u>

MODEL COMPONENT: VERTICAL TAIL - V3

GENERAL DESCRIPTION: 001875 SCALE MSC ORBITER S-5

DRAWING NUMBER:

SGY 37100098

DIMENSIONS:

FULL-SCALE

MODEL SCALE

EXPOSED

DATA

Area IN^2		
Planform	<u>34704.0</u>	<u>12.2</u>
Wetted	<u>—</u>	<u>—</u>
Span (equivalent) IN	<u>290.0</u>	<u>6.936</u>
Aspect Ratio	<u>3.94</u>	<u>3.94</u>
Rate of Taper	<u>—</u>	<u>—</u>
Taper Ratio	<u>0.47</u>	<u>0.47</u>
Diehedral Angle, degrees	<u>0.0</u>	<u>0.0</u>
Incidence Angle, degrees	<u>0.0</u>	<u>0.0</u>
Aerodynamic Twist, degrees	<u>0.0</u>	<u>0.0</u>
Toe-In Angle	<u>—</u>	<u>—</u>
Cant Angle	<u>—</u>	<u>—</u>
Sweep Back Angles, degrees		
Leading Edge	<u>45.0</u>	<u>45.0</u>
Trailing Edge	<u>15.0</u>	<u>15.0</u>
0.25 Element Line	<u>42.5</u>	<u>42.5</u>
Chords: IN		
Root (Wing Sta. 0.0)	<u>255.5</u>	<u>4.79</u>
Tip, (equivalent)	<u>120.0</u>	<u>2.25</u>
MAC, inches	<u>195.8</u>	<u>3.672</u>
Fus. Sta. of .25 MAC	<u>1231.0</u>	<u>23.082</u>
2 STA Wing Sta. of .25 MAC	<u>337.3</u>	<u>6.325</u>
Airfoil Section		
Root	<u>NACA 0012-64</u>	<u>0012-64</u>
Tip	<u>NACA 0012-64</u>	<u>0012-64</u>

MODEL COMPONENT: HORIZONTAL TAIL WITH ELEVATOR H6

GENERAL DESCRIPTION: 0.01875 SCALE MSC ORBITER 5-5

DRAWING NUMBER: SGY37100086

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area IN^2		
Planform	<u>56234.7</u>	<u>19.77</u>
Wetted		
Span (equivalent) IN	<u>513.07</u>	<u>9.62</u>
Aspect Ratio	<u>4.68</u>	<u>4.68</u>
Rate of Taper		
Taper Ratio	<u>0.353</u>	<u>0.353</u>
Diehedral Angle, degrees	<u>0.0</u>	<u>0.0</u>
Incidence Angle, degrees	<u>0.0</u>	<u>0.0</u>
Aerodynamic Twist, degrees	<u>0.0</u>	<u>0.0</u>
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	<u>10.2</u>	<u>10.2</u>
Trailing Edge	<u>-12.9</u>	<u>-12.9</u>
0.25 Element Line	<u>4.5</u>	<u>4.5</u>
Chords: IN		
Root (Wing Sta. 0.0)	<u>162.13</u>	<u>3.04</u>
Tip, (equivalent)	<u>57.23</u>	<u>1.073</u>
MAC, inches	<u>118.03</u>	<u>2.213</u>
Fus. Sta. of .25 MAC	<u>1327.5</u>	<u>24.89</u>
Y STA W.P. of .25 MAC	<u>108.95</u>	<u>2.024</u>
Airfoil Section		
Root	NACA <u>0012-64</u>	<u>0012-64</u>
Tip	NACA <u>0012-64</u>	<u>0012-64</u>

TABLE I. - HORIZONTAL TAIL PLANFORM CHARACTERISTICS

TAIL NO.	AREA		ASPECT RATIO		SPAN		TAPER RATIO		LEADING EDGE SWEEP	TRAILING EDGE SWEEP	QUARTER CHORD SWEEP	ROOT CHORD	TIP CHORD	CENTER-LINE CHORD
	(ft ²)				(ft)				(DEG)	(DEG)	(DEG)	(FT)	(FT)	(FT)
21A	565.5	300	2.65	1.0	38.70	12.25	.388	.5	15	-21.74	5.78	16.33	8.17	21.06
22A	511.7	300	3.82	1.5	44.20	15.00	.404	.5	15	-10.01	8.91	13.33	6.67	16.99
23A	494.5	300	4.39	1.75	46.60	16.20	.410	.5	15	- 6.45	9.80	12.34	6.17	15.05
24A	480.8	300	4.96	2.0	48.84	17.32	.415	.5	15	- 3.74	10.46	11.55	5.77	13.91
25A	469.5	300	5.53	2.25	50.94	18.37	.419	.5	15	- 1.62	10.97	10.89	5.44	12.99
26A	460.1	300	6.09	2.5	52.93	19.37	.423	.5	15	0.07	11.38	10.33	5.16	12.22
27A	445.1	300	7.20	3.0	56.63	21.213	.428	.5	15	2.62	11.99	9.43	4.71	11.01
28A	433.6	300	8.31	3.5	60.03	22.91	.433	.5	15	4.43	12.43	8.73	4.36	10.08
29A	242.3	300	9.41	4.0	63.19	24.50	.437	.5	15	5.78	12.75	8.17	4.08	9.35
30A	480.8	300	4.96	2.0	48.84	17.32	.415	.5	0	-18.44	-4.76	11.55	5.77	13.91
31A	480.8	300	4.96	2.0	48.84	17.32	.415	.5	30	13.71	26.29	11.55	5.77	13.91
32A	480.8	300	4.96	2.0	48.84	17.32	.415	.5	45	33.69	42.51	11.55	5.77	13.91
33A	480.8	300	4.96	2.0	48.84	17.32	.415	.5	60	54.44	58.76	11.55	5.77	13.91
34A	596.4	300	4.00	2.0	48.84	17.32	0	0	15	-36.21	1.03	17.32	0	24.42
35A	527.0	300	4.53	2.0	48.84	17.32	.191	.25	15	-18.37	6.73	13.86	3.46	18.11
36A	447.7	300	5.33	2.0	48.84	17.32	.600	.75	15	7.13	13.07	9.90	7.42	10.91
37A	423.0	300	5.64	2.0	48.84	17.32	1.00	1.0	15	15.00	15.00	8.66	8.66	8.66

TABLE I. - CONCLUDED

TAIL NO.	AREA (ft ²)		ASPECT RATIO		SPAN (ft)		TAPER RATIO		LEADING EDGE SWEEP	TRAILING EDGE SWEEP	QUARTER CHORD SWEEP	ROOT CHORD	TIP CHORD	CENTER- LINE CHORD
	THEO	EXP	THEO	EXP	THEO	EXP	THEO	EXP	(DEG)	(DEG)	(DEG)	(FT)	(FT)	(FT)
38A	211.5	100	5.53	2.0	34.20	10.00	.369	.5	15	- 3.74	10.46	6.67	3.33	9.03
39A	350.7	200	5.15	2.0	42.48	14.14	.400	.5	15	- 3.74	10.46	9.43	4.71	11.80
40A	606.1	400	4.85	2.0	54.20	20.00	.425	.5	15	- 3.74	10.46	13.33	6.67	15.70
41A	728.5	500	4.77	2.0	58.92	22.36	.431	.5	15	- 3.74	10.46	14.91	7.45	17.27
42A	445.1	262.5	4.88	2.0	46.60	16.20	.335	.42	10.2	-12.87	4.45	11.41	4.79	14.31
24B	530.5	300	5.16	2.0	52.34	17.32	.398	.5	15	- 3.74	10.46	11.55	5.77	14.50
6C	390.45	334.22	4.70	-	42.73	-	.352	-	10.2	-12.90	5.84	-	4.75	13.50
21C	641.3	300	2.78	1.0	42.20	12.25	.367	.5	15	-21.74	5.78	16.33	8.17	22.23
22C	570.8	300	3.99	1.5	47.7	15.00	.386	.5	15	-10.01	8.91	13.33	6.67	17.27
24C	530.5	300	5.16	2.0	52.34	17.32	.398	.5	15	- 3.74	10.46	11.55	5.77	14.50
26C	503.7	300	6.32	2.5	56.43	19.37	.407	.5	15	0.07	11.38	10.33	5.16	12.69
27C	484.3	300	7.47	3.0	60.13	21.21	.414	.5	15	2.62	11.99	9.43	4.71	11.40
29C	457.6	300	9.72	4.0	66.69	24.50	.423	.5	15	5.78	12.75	8.17	4.08	9.64
38C	244.1	100	5.82	2.0	37.70	10.00	.347	.5	15	- 3.74	10.46	6.67	3.33	9.62
39C	393.0	200	5.38	2.0	46.00	14.14	.381	.5	15	- 3.74	10.46	9.43	4.71	12.38
40C	662.1	400	5.03	2.0	57.70	20.00	.409	.5	15	- 3.74	10.46	13.33	6.67	16.28
41C	790.0	500	4.93	2.0	62.42	22.36	.417	.5	15	- 3.74	10.46	14.91	7.45	17.86
43C	390.45	334.22	4.70	-	42.75	-	.352	-	10.2	-12.90	5.84	-	4.75	13.50
44C	327.8	271.06	5.58	-	42.75	-	.352	-	10.2	-12.90	5.84	-	4.75	13.50
45C	385.0	241.26	4.74	-	42.75	-	.352	-	10.2	-12.90	5.84	-	4.75	13.50

TEST 5-39 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		HORIZONTAL TAIL PARAMETERS						MACH NUMBERS									
		α	β	AR	LE	TAI	LE	TAI	LE	0.25									
RG20 01	B, W, V ₃	B	0	AR	AR	LE	TAI	LE	TAI	0									
02	B, W, V ₃ H ₆₀	↑	1	334	2.0	10.2	.5	0°	C	2									
03	H _{43C}			↓						3									
04	H _{44C}			↓						4									
05	H _{45C}	↓		341	↓	↓	↓	↓	↓	5									
06		B		-	-	-	-	-	-	6									
07	H _{24A}	A		300	2.0	15	.5	0	A	7									
08	H _{28A}				1.5					8									
09	H _{23A}				1.75					9									
10	H _{25A}				2.05					10									
11	H _{26A}				2.5					11									
12	H _{27A}				3.0					12									
13	H _{28A}				3.5					13									
14	H _{29A}				4.0	↓				14									
15	H _{30A}				2.0	0		↓		15									
16	H _{04A}					15		-2		16									
17								2		17									
18								4		18									
19								6		19									
20	H _{31A}	↓	↓	↓	30	↓	↓	0	↓	20									

15

1 7 13 19 25 31 37 43 49 55 61 67 75 76
CA CY CN CBL CLM CYN

COEFFICIENTS:

α or β

SCHEDULES

A $\alpha = -4, -2, 0, 2, 4, 6$

B $\alpha = -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6$

→ IDPVAR(1) IDPVAR(2) NDV

TEST 5-39 DATA SET COLLATION SHEET

2.

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		ALPH	AL	ALF	λ	λ/2	VERT Pos.	MACH NUMBERS									
		α	β							0.25									
RG00 21	B, W, V ₃ H _{32A}	A	0	300	2	45	.5	0	A	21									
22	H _{33A}			300		60	.			22									
23	H _{42A}			363		10.2	↓			23									
24	H _{31A}			300		15	0			24									
25	H _{35A}						.25			25									
26	H _{36A}						.75			26									
27	H _{37A}			↓			1.00			27									
28	H _{38A}			100			.5			28									
29	H _{39A}			200						29									
30	H _{40A}			100						30									
31	H _{41A}			500	↓					31									
32	H _{21A}	↓		300	1.0				↓	32									
33	H _{21B}	B		↓	2.0				B	33									
34	H _{24C}	B		↓					C	34									
35	H _{28C}	A		100						35									
36	H _{39C}			200						36									
37	H _{40C}			100						37									
38	H _{41C}			500	↓					38									
39	H _{21C}			300	1.0					39									
40	H _{27C}	↓	↓	↓	3.0	↓	↓	↓	↓	40									

16

1 7 13 19 25 31 37 43 49 55 61 67 75 76
CA ICY ICN ICL ICLM EYN

COEFFICIENTS:

α or β

SCHEDULES

A α = -4, -2, 0, 2, 4, 6

B α = -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6

⇒ IDPVAR(1) IDPVAR(2) NDV

3

POSTTEST

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COEFFICIENTS: A $\alpha = -4, -2, 0, 2, 4, 6$ IDPVAR(1) IDPVAR(2) NDV
 α or β
SCHEDULES

NOMENCLATURE

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
A_b		base area; m^2 , ft^2 , in^2
a		speed of sound; m/sec, ft/sec
AR	ASPECT	aspect ratio, b^2/S
b	REFB	wing span or reference span; m, ft, in
c		wing chord; m, ft, in
$\bar{c}$		wing mean aerodynamic chord or reference chord; m, ft, in (see l_{ref} or $refl$)
c.g.		center of gravity
C.P.		center of pressure
C_A	CA	axial force coefficient, F_A/qS_{ref}
C_{A_b}	CAB	base axial force coefficient, $[(p_\infty - p_b)/q] (A_b/S_{ref})$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_D	CDTOTL	drag force coefficient in the wind axis system, $F_D/q S_{ref}$

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
C'_D	CD	drag force coefficient in the stability axis system, $F'_D/q S_{ref}$
C_L	CL	lift force coefficient (stability or wind axis) $F_L/q S_{ref}$
C_{ℓ}	CBL	rolling moment coefficient in body axis system, $M_x/q S_{ref} b$
$C_{\ell,s}$	CSL	rolling moment coefficient in the stability axis system, $M_{x,s}/q S_{ref} b$
$C_{\ell,w}$	CWL	rolling moment coefficient in the wind axis system, $M_{x,w}/q S_{ref} b$
C_m	CLM	pitching moment coefficient in the body axis system, $M_y/q S_{ref} \ell_{ref}$
$C_{m,s}$	CLM	pitching moment coefficient in the stability axis system, $C_{m,s} = C_m$
$C_{m,w}$	CPM	pitching moment coefficient in the wind axis system, $M_{y,w}/q S_{ref} \ell_{ref}$
C_N	CN	normal force coefficient in the body axis system, $F_N/q S_{ref}$

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
C_n	CYN	yawing moment coefficient in the body axis system, $M_z/q S_{ref} b$
$C_{n,s}$	CLN	yawing moment coefficient in the stability axis system, $C_{n,s} = C_n$
$C_{n,w}$	CLN	yawing moment coefficient in the wind axis system, $M_{z,w}/q S_{ref} b$
C_p	CP	pressure coefficient, $(p-p_\infty)/q$
C_y	CY	side force coefficient (body or stability axis system), $F_y/q S_{ref}$
C_c —	CC	side force coefficient (wind axis system), $F_y/q S_{ref}$
F_A		axial force; N, lb
F_D		drag force in wind axis system; N, lb
F'_D		drag force in the stability axis system; N, lb
F_L		lift force (stability or wind axis system); N, lb
F_N		normal force; N, lb

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
F_Y		side force; N, lb
	N/A	normal to axial force ratio
ℓ_{ref}	REFL	reference length; m, ft, in (see $\bar{c}$)
L/D	L/D	lift-to-drag ratio, C_L/C_D (stability axis system)
L/D	CL/CD	lift-to-drag ratio, C_L/C_D (wind axis system)
M	MACH	Mach number
MRP	MRP	abbreviation for moment reference point
	XMRP	abbreviation for moment reference point on x-axis
	YMRP	abbreviation for moment reference point on y-axis
	ZMRP	abbreviation for moment reference point on z-axis
M_x		rolling moment in the body axis system; N-m, ft-lb
$M_{x,s}$		rolling moment in the stability axis system; N-m, ft-lb

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
$M_{x,w}$		rolling moment in the wind axis system; N-m, ft-lb
M_y		pitching moment in the body (or stability) axis system; N-m, ft-lb
$M_{y,w}$		pitching moment in the wind axis system; N-m, ft-lb
M_z		yawing moment in the body axis system; N-m, ft-lb
$M_{z,w}$		yawing moment in the wind axis system; N-m, ft-lb
p		static pressure; N/m ² ; psi
P		total pressure; N/m ² ; psi
q	Q(PSI) Q(PSF)	dynamic pressure; N/m ² , psi, psf
RN/L	RN/L	Reynold's number per unit length; million/ft.
S		wing area; m ² , ft ²
S _{ref}	REFS	reference area; m ² , ft ²
T		temperature; °K, °C, °R, °F
V		speed of vehicle relative to surrounding atmosphere; m/sec, ft/sec

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
i_T		tail incidence positive when trailing edge down, deg
$\bar{V}$		velocity of vehicle relative to surrounding atmosphere; m/sec, ft/sec
α	ALPHA	angle of attack, angle between the projection of the wind X_w -axis on the body X, Z-plane and the body X-axis; deg
β	BETA	sideslip angle, angle between the wind X_w -axis and the projection of this axis on the body X-Z-plane; deg
γ		ratio of specific heats
Γ	DIHEDRL	wing dihedral angle; deg
δ		control surface deflection angle; deg
		positive deflections are:
	AILRON	aileron - left aileron trailing edge down
	ELEVTR	elevator - trailing edge down
	RUDDER	rudder - trailing edge to the left
	FLAP	flap - trailing edge down
	TAB	tab - trailing edge down with respect to control surface
		air density; K_g/m^3 , slugs/ft ³

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
θ		pitch angle, angle of rotation about the body Y-axis, positive when the positive Z-axis is rotated toward the positive X-axis; deg
ϕ	PHI	roll angle, angle of rotation about the body X-axis, positive when the positive Y-axis is rotated toward the positive Z-axis; deg
ψ	PSI	yaw angle, angle of rotation about the body Z-axis, positive when the positive X-axis is rotated toward the positive Y-axis; deg

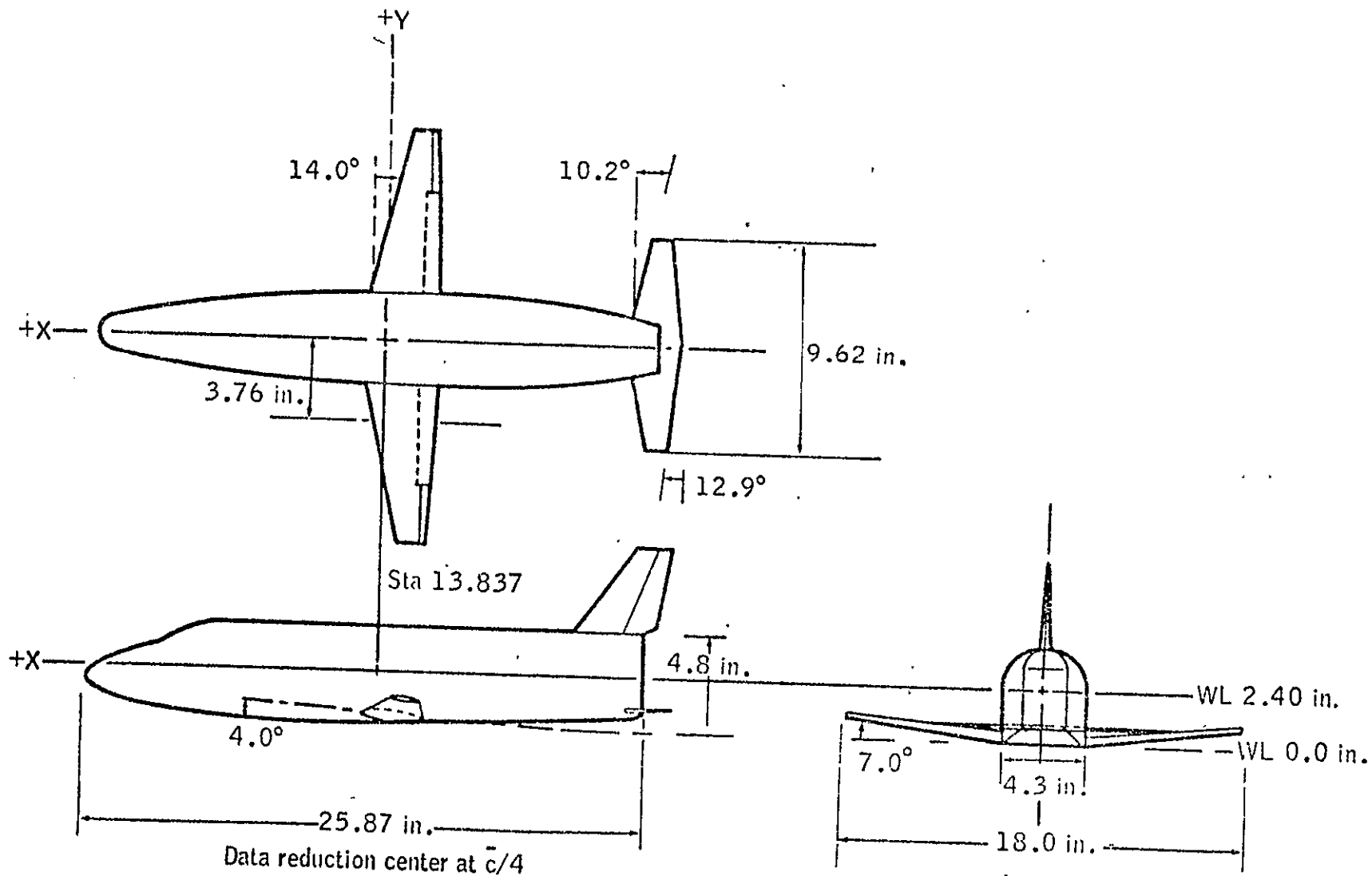
NOMENCLATURE (continued)

<u>SUBSCRIPTS</u>	<u>DEFINITION</u>
a	aileron
b	base
c	canard
e	elevator or elevon
f	flap
r	rudder or ruddervator
s	stability axis system
t	tail, or total conditions
w	wind axis system
ref	reference conditions

ADDITIONS TO NOMENCLATURE

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
	LSWEEP	
λ	TAPER	Taper Ratio of Horizontal Tail, C_t/C_v
i_t	INCID	Horizontal Tail Incidence Angle
	VERPOS	Vertical Location of Tail

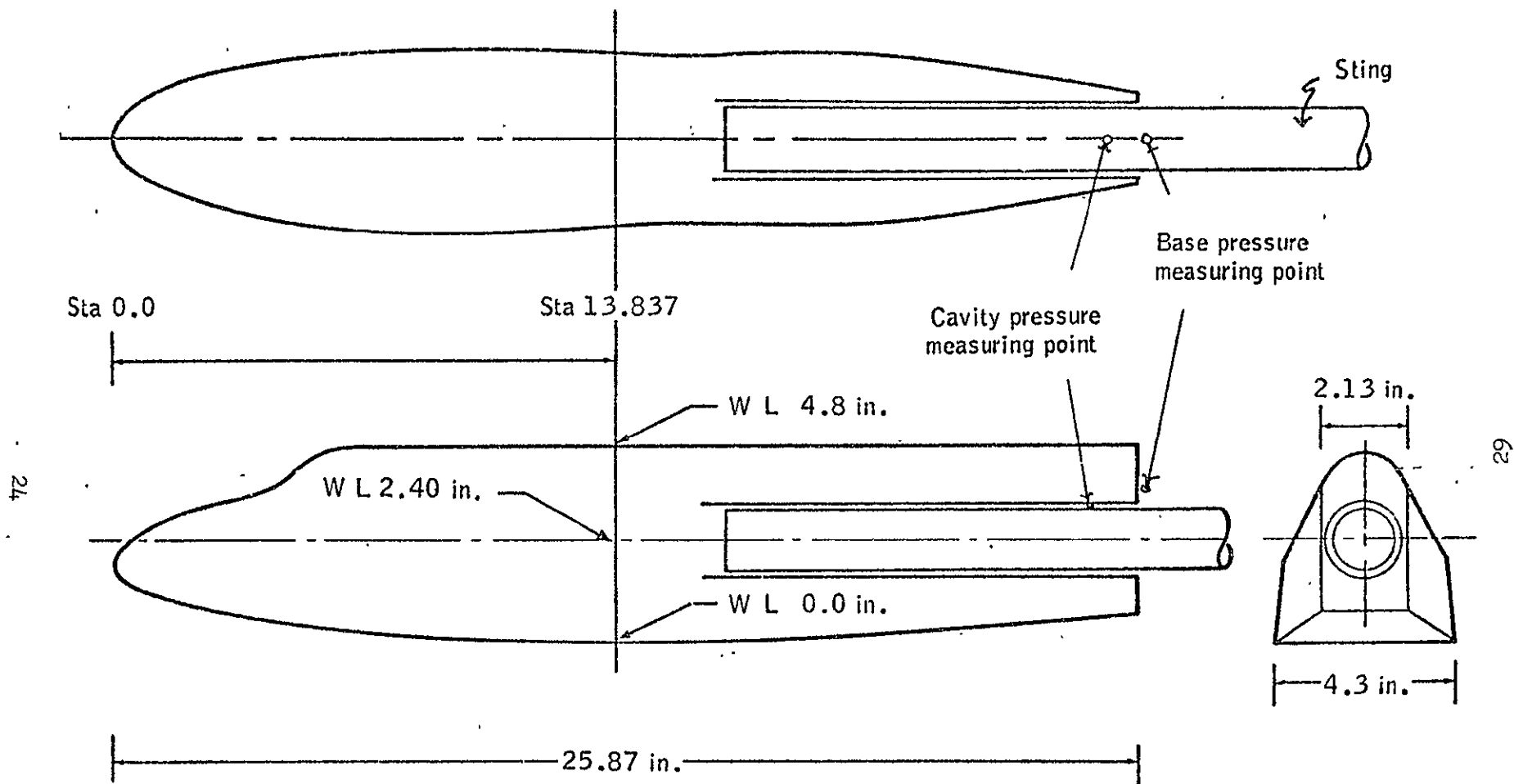
FIGURES



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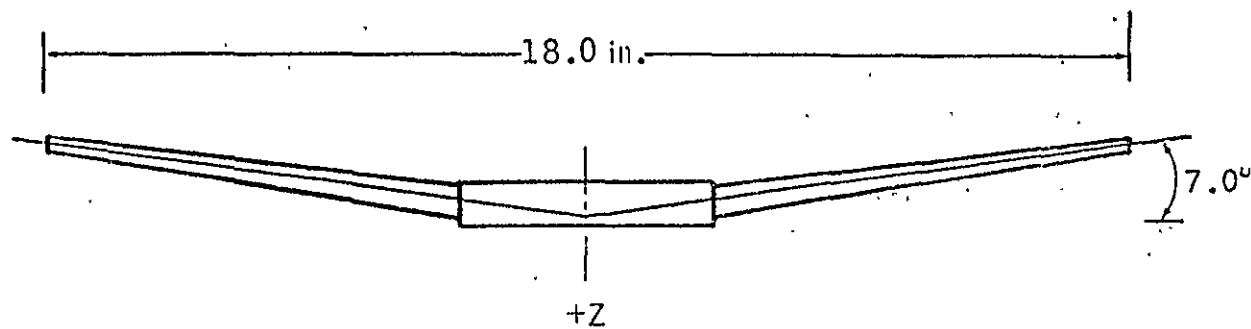
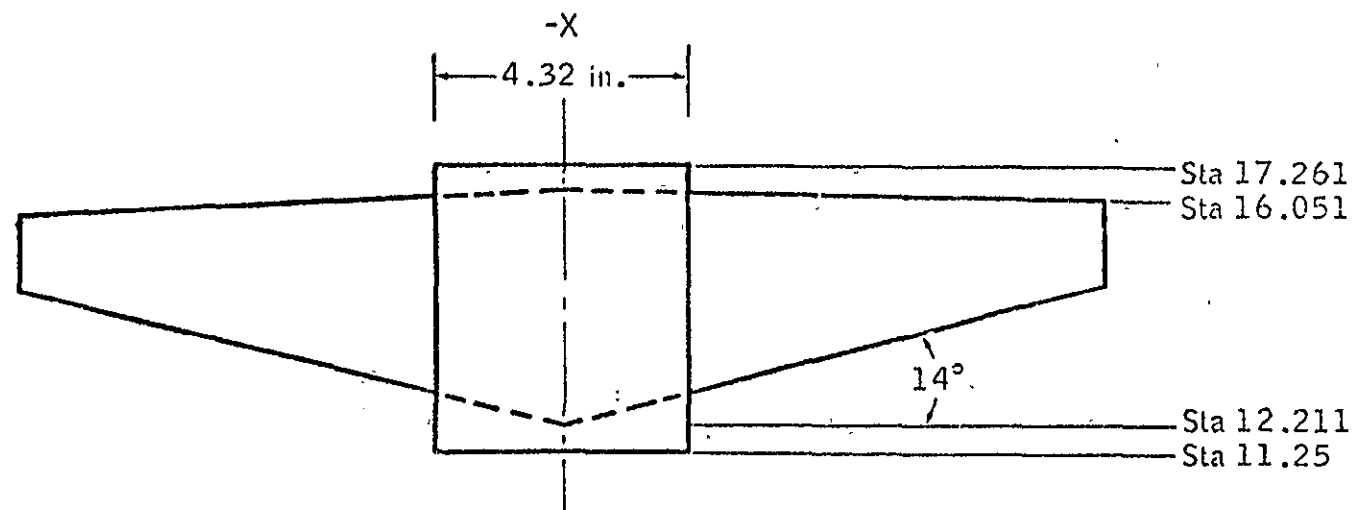
(a) Configuration $B_1 W_1 V_1 H_1$.

Figure 2.- Model S-5; 0.01875 scale model of the MSC orbiter shuttle base-line configuration.

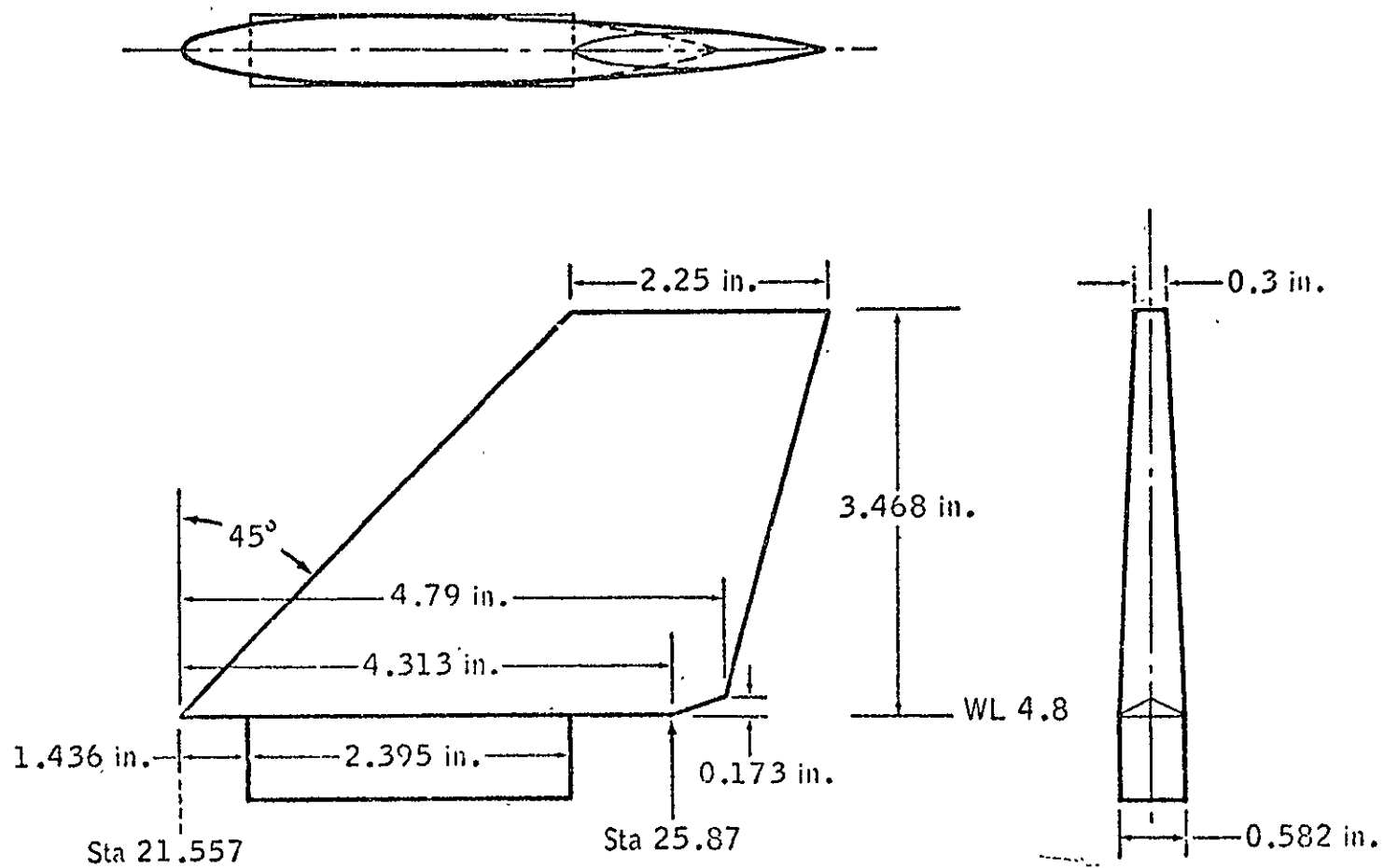


(b) Fuselage (B₁).

Figure 2.- Continued.

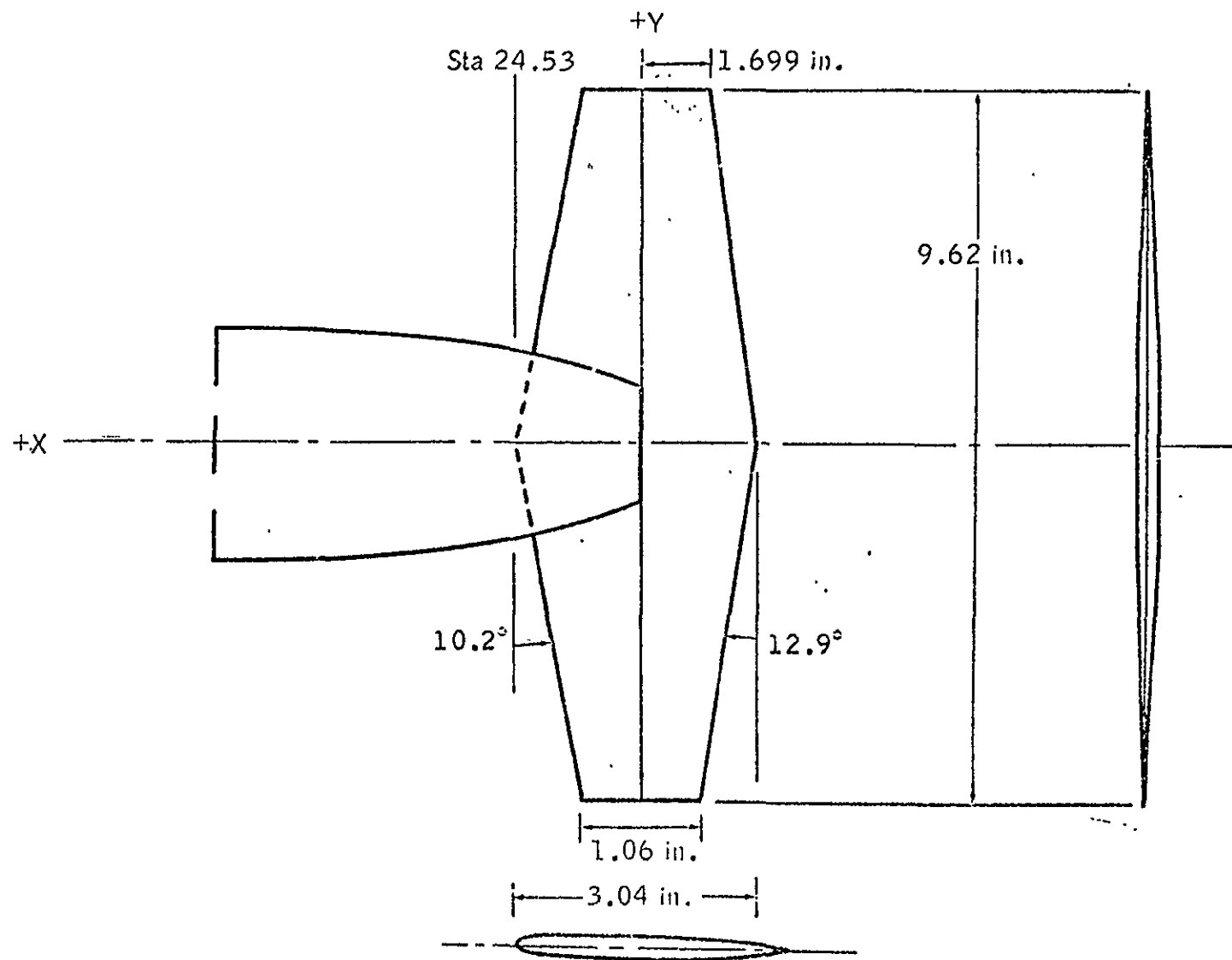


(c) Wing (W_1).
Figure 2.- Continued.



(d) Vertical stabilizer (V₃).

—Figure 2.— Continued.



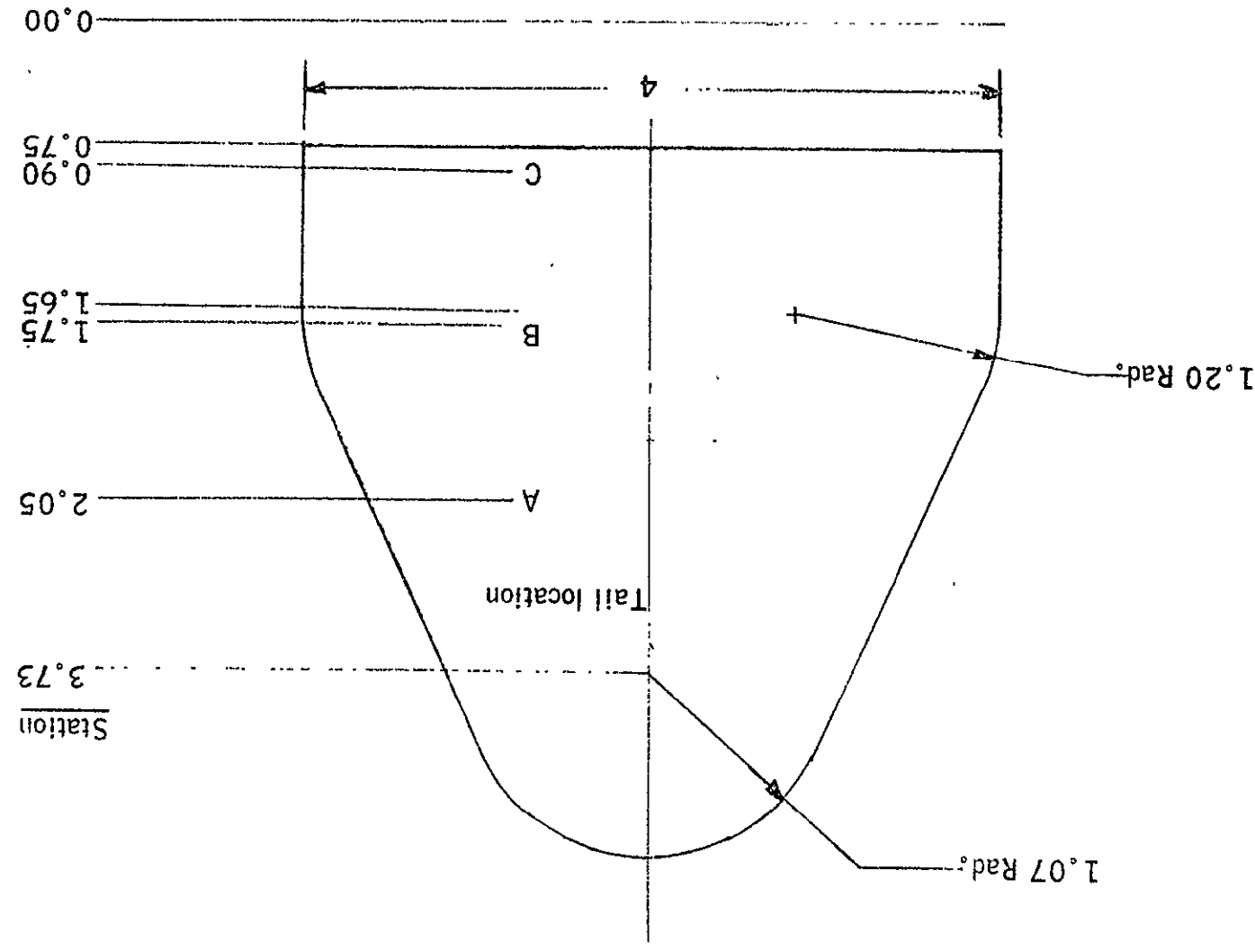
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(e) Horizontal stabilizer (H₆).

Figure 2.- Concluded.

Scale: 1/1

Figure 3.-- Cross section of aft end of model showing vertical positions of the horizontal tail used during testing.



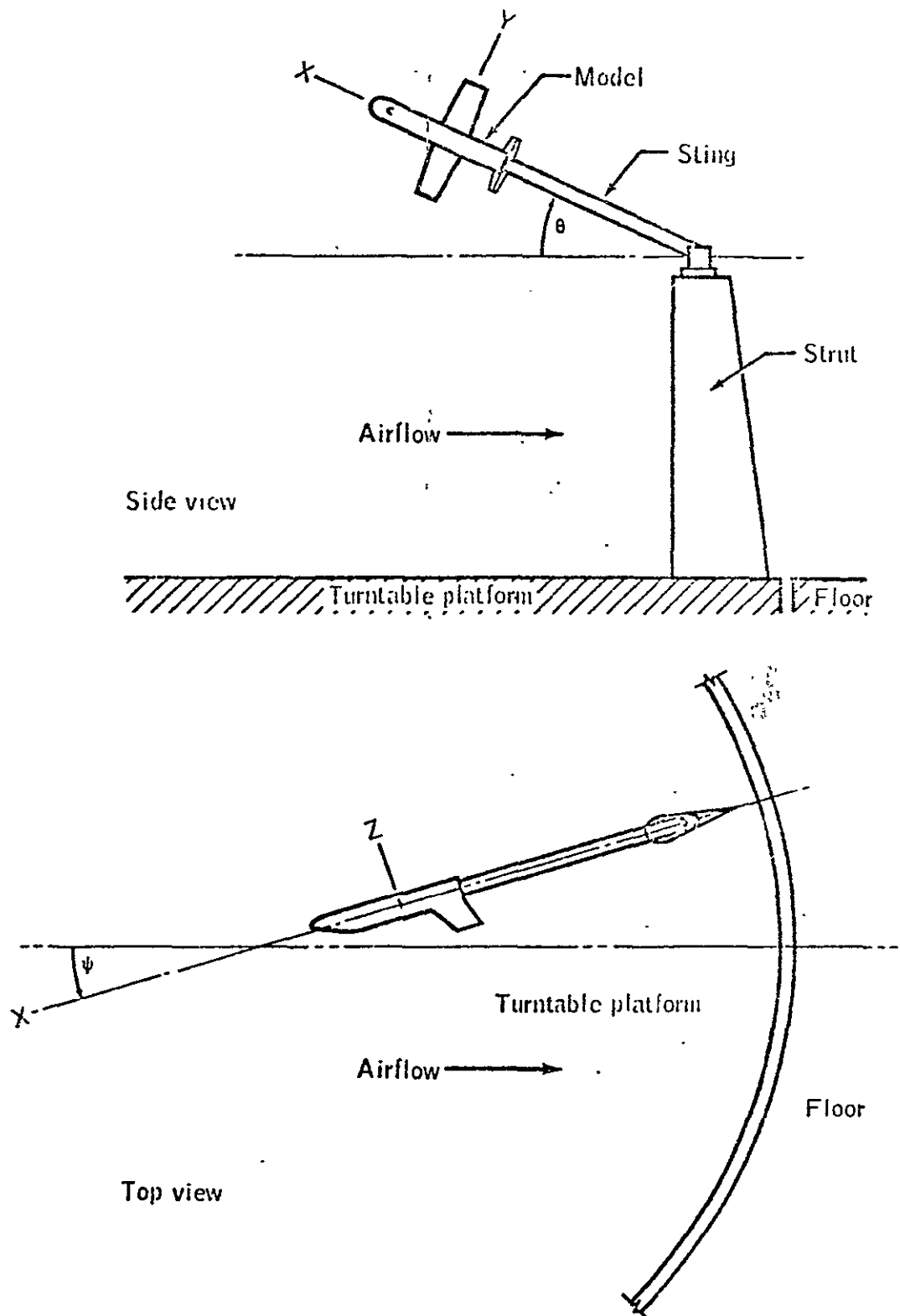


Figure 4. - Model installation in the test section at Texas A. and M. University's Low Speed Wind Tunnel.

DATA DISPLAY INDEX

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2001 RG2006

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	1	1
CA	ALPHA	2	2
CLM	ALPHA	3	3

COMPARISON OF FLAT PLATE TO AIRFOIL
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2002 RG2003 RG2004 RG2005

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	4	4
CA	ALPHA	5	5
CLM	ALPHA	6	6

ASPECT RATIO EFFECTS AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2032 RG2008 RG2009 RG2007 RG2010 RG2011

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	7	7
CA	ALPHA	8	8
CLM	ALPHA	9	9

DATASETS PLOTTED:

RG2007 RG2010 RG2011 RG2012 RG2013 RG2014

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	10	10
CA	ALPHA	11	11
CLM	ALPHA	12	12

EFFECTS OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2016 RG2007 RG2017 RG2018 RG2019

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	13	13
CA	ALPHA	14	14
CLM	ALPHA	15	15

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2015 RG2007 RG2020 RG2021 RG2022

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
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CN	ALPHA	16	16
CA	ALPHA	17	17
CLM	ALPHA	18	18

TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2024 RG2025 RG2007 RG2026 RG2027

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
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CN	ALPHA	19	19
CA	ALPHA	20	20
CLM	ALPHA	21	21

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2028 RG2029 RG2007 RG2030 RG2031

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
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CN	ALPHA	22	22
CA	ALPHA	23	23
CLM	ALPHA	24	24

EFFECT OF VERTICAL POSITION OF THE TAIL
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2007 RG2033 RG2034

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	25	25
CA	ALPHA	26	26
CLM	ALPHA	27	27

AREA EFFECT AT THE LOW POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2035 RG2036 RG2034 RG2037 RG2038

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	28	28
CA	ALPHA	29	29
CLM	ALPHA	30	30

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RG2039 RG2034 RG2040 RG2041 RG2042 RG2043

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CN	ALPHA	31	31
CA	ALPHA	32	32
CLM	ALPHA	33	33

NOMINAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RG2023	CN	ALPHA	34	34
RG2023	CA	ALPHA	35	35
RG2023	CLM	ALPHA	36	36

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2001 BG2006

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	37	37
CD	ALPHA	38	38
L/D	ALPHA	39	39
CY	ALPHA	40	40
CSL	ALPHA	41	41

COMPARISON OF FLAT PLATE TO AIRFOIL
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2002 BG2003 BG2004 BG2005

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	42	42
CD	ALPHA	43	43
L/D	ALPHA	44	44
CY	ALPHA	45	45
CSL	ALPHA	46	46

ASPECT RATIO EFFECTS AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

8G2032 8G2008 8G2009 8G2007 8G2010 8G2011

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	47	47
CD	ALPHA	48	48
L/D	ALPHA	49	49
CY	ALPHA	50	50
CSL	ALPHA	51	51

DATASETS PLOTTED:

8G2007 8G2010 8G2011 8G2012 8G2013 8G2014

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	52	52
CD	ALPHA	53	53
L/D	ALPHA	54	54
CY	ALPHA	55	55
CSL	ALPHA	56	56

EFFECTS OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

8G2016 8G2007 8G2017 8G2018 8G2019

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	57	57
CD	ALPHA	58	58
L/D	ALPHA	59	59
CY	ALPHA	60	60
CSL	ALPHA	61	61

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2015 BG2007 BG2020 BG2021 BG2022

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	62	62
CD	ALPHA	63	63
L/D	ALPHA	64	64
CY	ALPHA	65	65
CSL	ALPHA	66	66

TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2024 BG2025 BG2007 BG2026 BG2027

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	67	67
CD	ALPHA	68	68
L/D	ALPHA	69	69
CY	ALPHA	70	70
CSL	ALPHA	71	71

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2028 BG2029 BG2007 BG2030 BG2031

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	72	72
CD	ALPHA	73	73
L/D	ALPHA	74	74
CY	ALPHA	75	75
CSL	ALPHA	76	76

EFFECT OF VERTICAL POSITION OF THE TAIL
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2007 BG2033 BG2034

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	77	77
CD	ALPHA	78	78
L/D	ALPHA	79	79
CY	ALPHA	80	80
CSL	ALPHA	81	81

AREA EFFECT AT THE LOW POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2035 BG2036 BG2034 BG2037 BG2038

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	82	82
CD	ALPHA	83	83
L/D	ALPHA	84	84
CY	ALPHA	85	85
CSL	ALPHA	86	86

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2039 BG2034 BG2040 BG2041 BG2042 BG2043

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	ALPHA	87	87
CD	ALPHA	88	88
L/D	ALPHA	89	89
CY	ALPHA	90	90
CSL	ALPHA	91	91

NOMINAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS INDEPENDENT VARIABLE

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
BG2023	CL	ALPHA	92	92
BG2023	CD	ALPHA	93	93
BG2023	L/D	ALPHA	94	94
BG2023	CY	ALPHA	95	95
BG2023	CSL	ALPHA	96	96

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2001 BG2006

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	97	97

COMPARISON OF FLAT PLATE TO AIRFOIL
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2002 BG2003 BG2004 BG2005

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	98	98

ASPECT RATIO EFFECTS AT MID-TAIL POSITION
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2032 BG2008 BG2009 BG2007 BG2010 BG2011

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	99	99

DATASETS PLOTTED:

BG2007 BG2010 BG2011 BG2012 BG2013 BG2014

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	100	100

EFFECTS OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2016 BG2007 BG2017 BG2018 BG2019

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	101	101

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2015 BG2007 BG2020 BG2021 BG2022

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	102	102

TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2024 BG2025 BG2007 BG2026 BG2027

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	103	103

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2028 BG2029 BG2007 BG2030 BG2031

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	104	104

EFFECT OF VERTICAL POSITION OF THE TAIL
DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2007 BG2033 BG2034

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	105	105

AREA EFFECT AT THE LOW POSITION

DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2035 BG2036 BG2034 BG2037 BG2038

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	106	106

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION

DEPENDENT VARIABLE VS DEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

BG2039 BG2034 BG2040 BG2041 BG2042 BG2043

DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CL	CLM	107	107

NOMINAL TAIL AT MID-POSITION

DEPENDENT VARIABLE VS DEPENDENT VARIABLE

DATASETS PLOTTED	DEPENDENT VARIABLE	DEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
BG2023	CL	CLM	108	108

A tabulated data listing, consisting of all aero data sets, both original and those created in arriving at the plotted material to be presented subsequently, is available as an addendum to this report. The tabular listing is made up in three sections:

- (a) a brief summary list of all data sets containing the identifier, the descriptor, and the resident dependent variables.
- (b) an expanded list of all data sets, containing the identifier, the descriptor, the resident dependent variables, reference data, parameters and respective values, and independent variable ranges.
- (c) the full list of all data sets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

The listing is currently sent on limited distribution to the following organizations:

NASA AMES	Mr. V. Stevens
NASA MSC	Mr. Ray Nelson

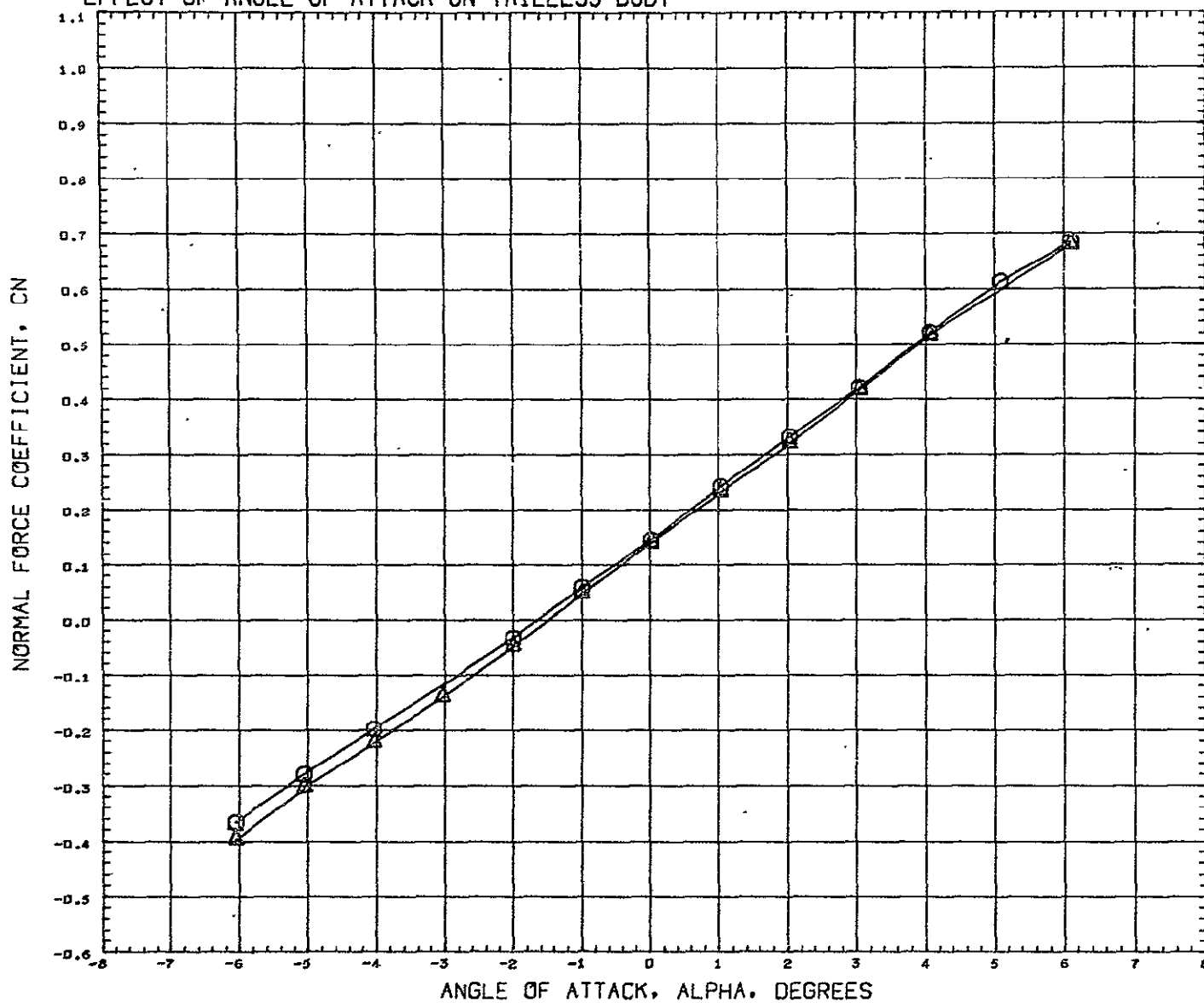
If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

Albert D. Martin
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

DATA

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



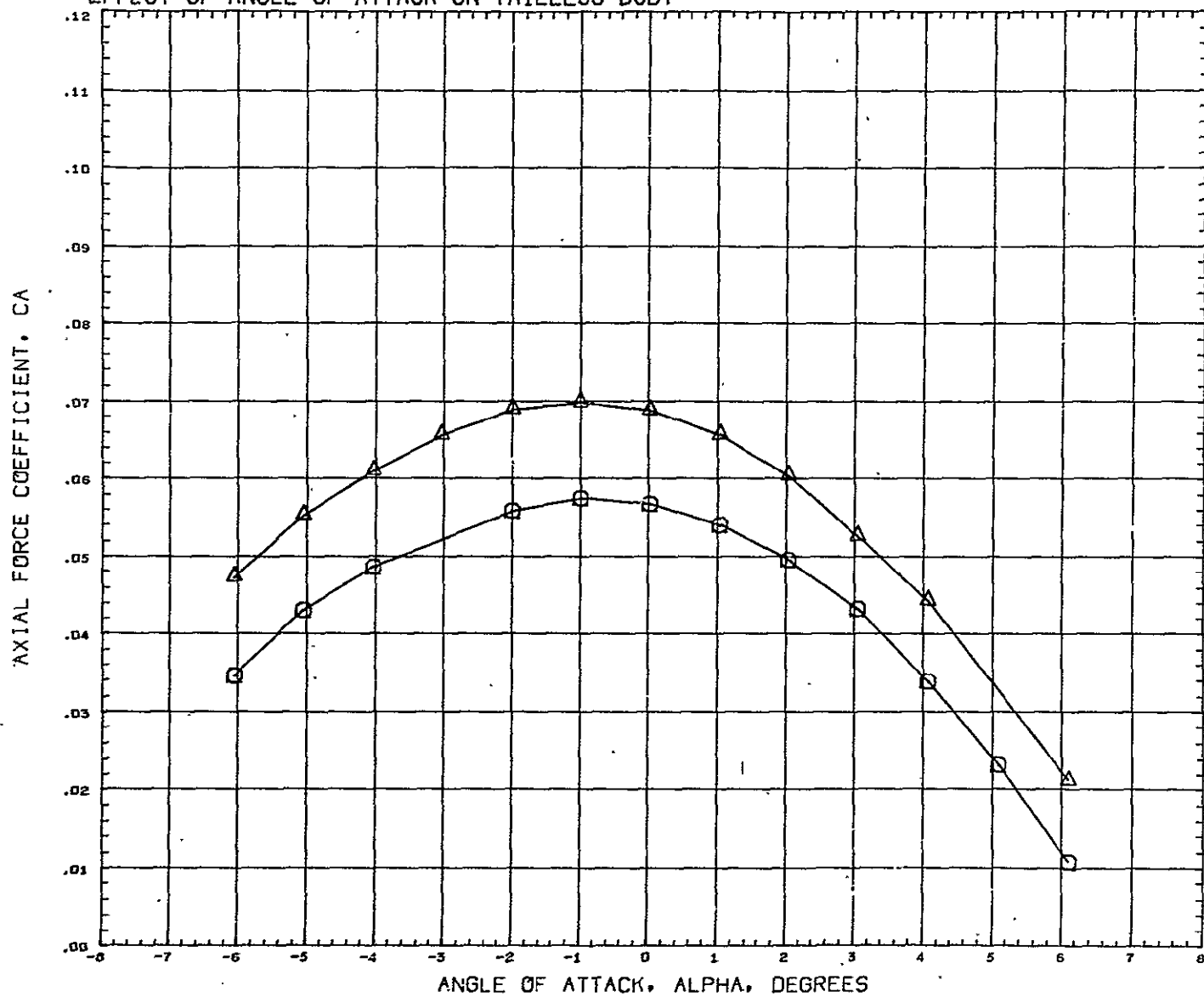
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RG2001) MSC SER 39 S-5 ORBITER B1W1V3
 (RG2006) MSC SER 39 S-5 ORBITER B1W1V3

BETA
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 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000 IN
 ZMRP 2.4000 IN
 SCALE 1.8750 PCT

HACH n.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



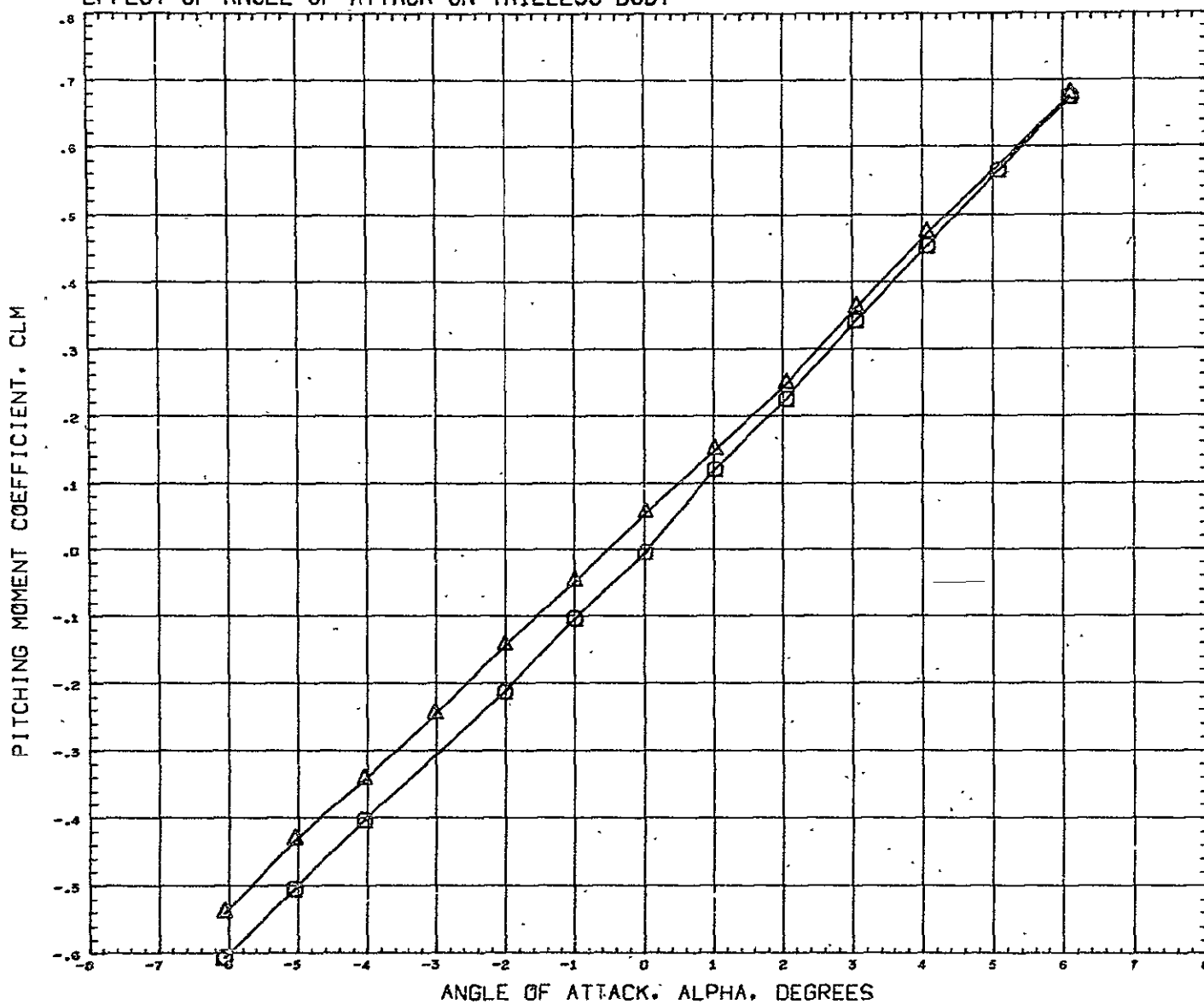
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RG2001) $\circ$ MSC SER 39 S-S ORBITER 01W1V3
 (RG2006) $\triangle$ MSC SER 39 S-S ORBITER 01W1V3

BETA
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 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000
 ZMRP 2.4000 IN
 SCALE 1.8750 PCT

MACH 0.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



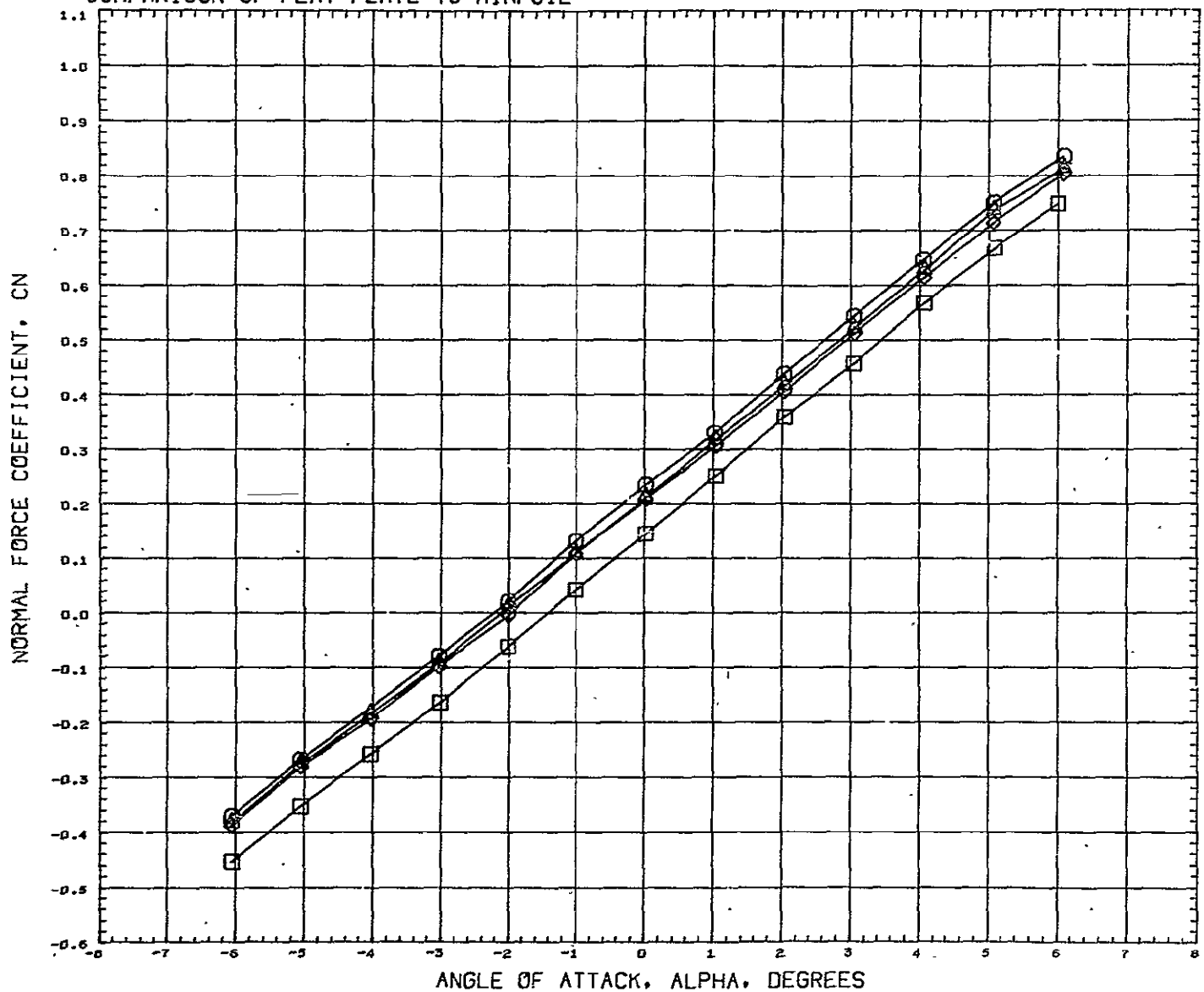
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 (RG2006) $\triangle$ MSC SER 39 5-5 ORBITER B1W1V3

BETA
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 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000
 ZMRP 2.4000 IN
 SCALE 1.0750 PCT

MACH 0.250

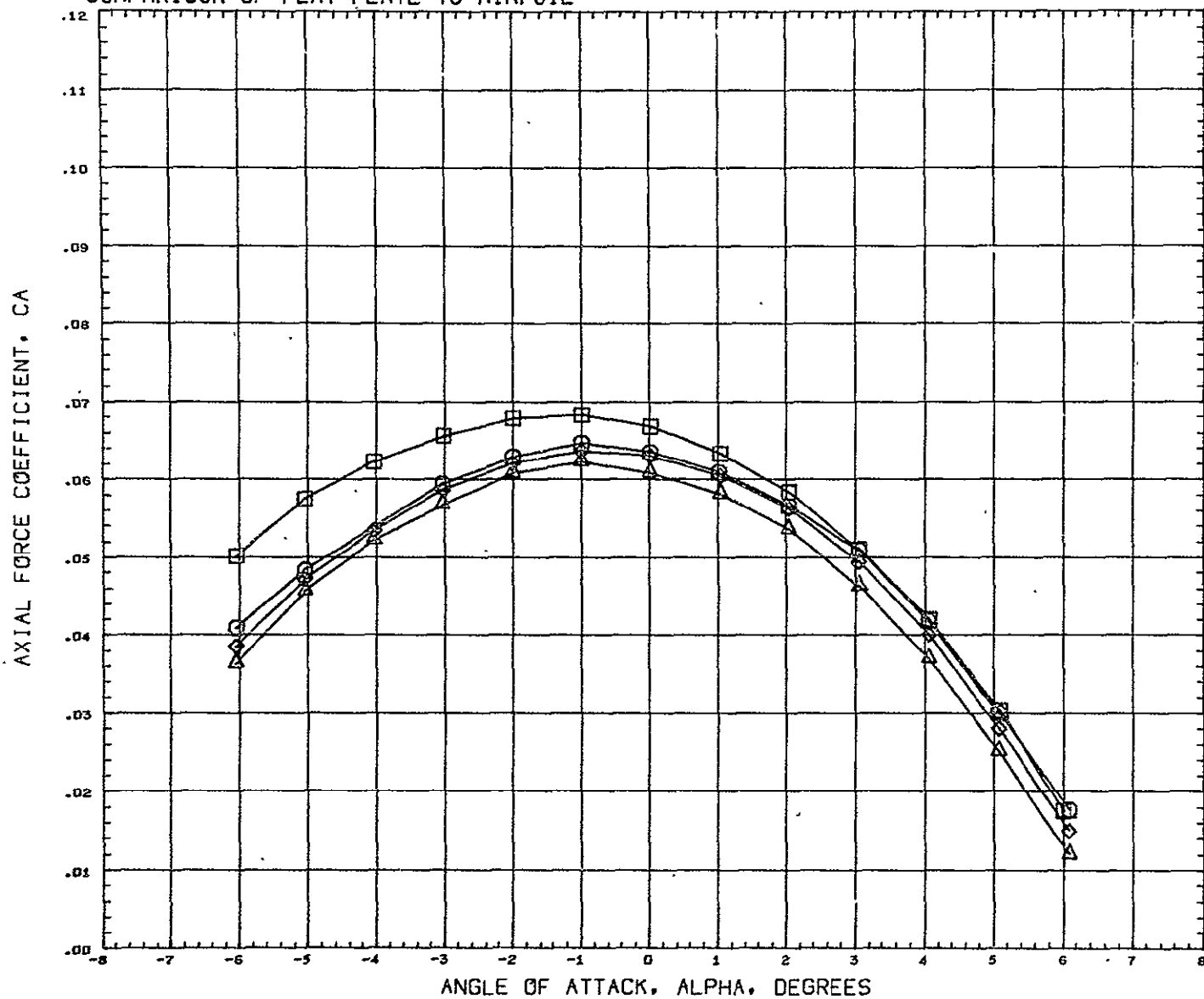
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION		
(RG2002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200	SQ FT
(RG2003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2360	FT
(RG2004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000	FT
(RG2005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.5200	IN
						YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

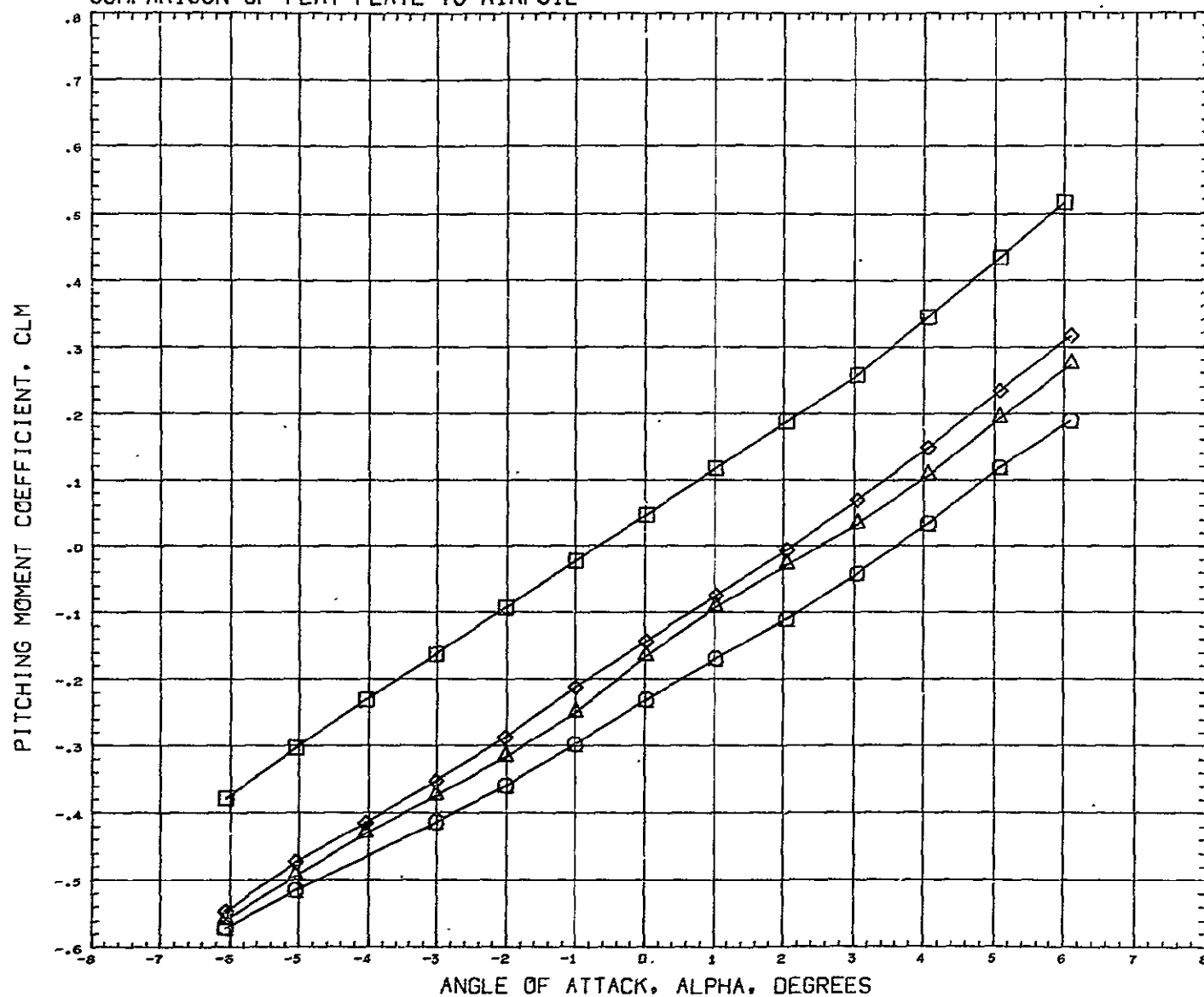
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(RG2003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(RG2004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(RG2005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMKF	15.5200 IN
						YMRP	0.0030
						ZHRF	2.4000 IN
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NACH 0.250

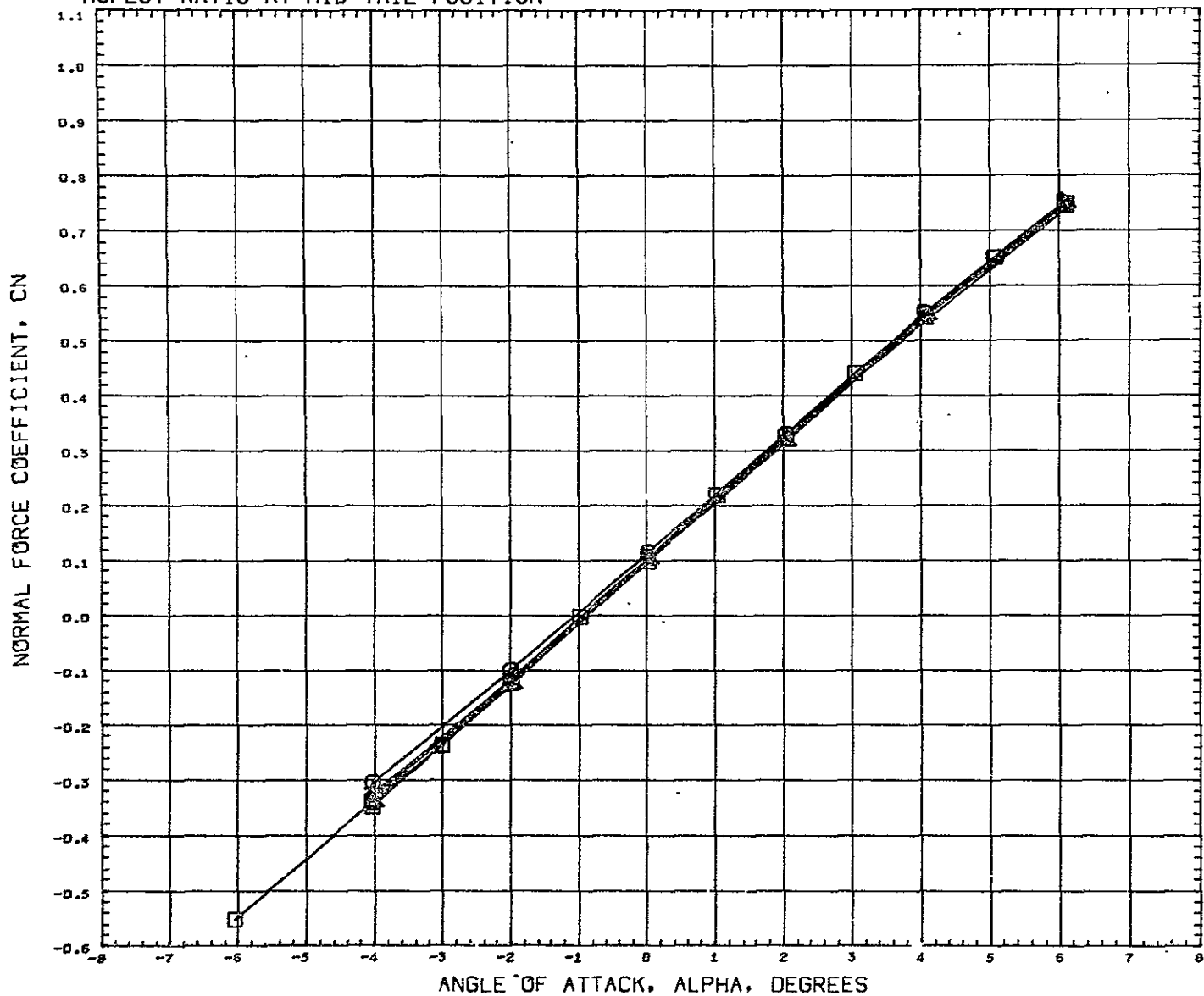
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(RG2003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(RG2004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(RG2005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.5200 IN
						YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

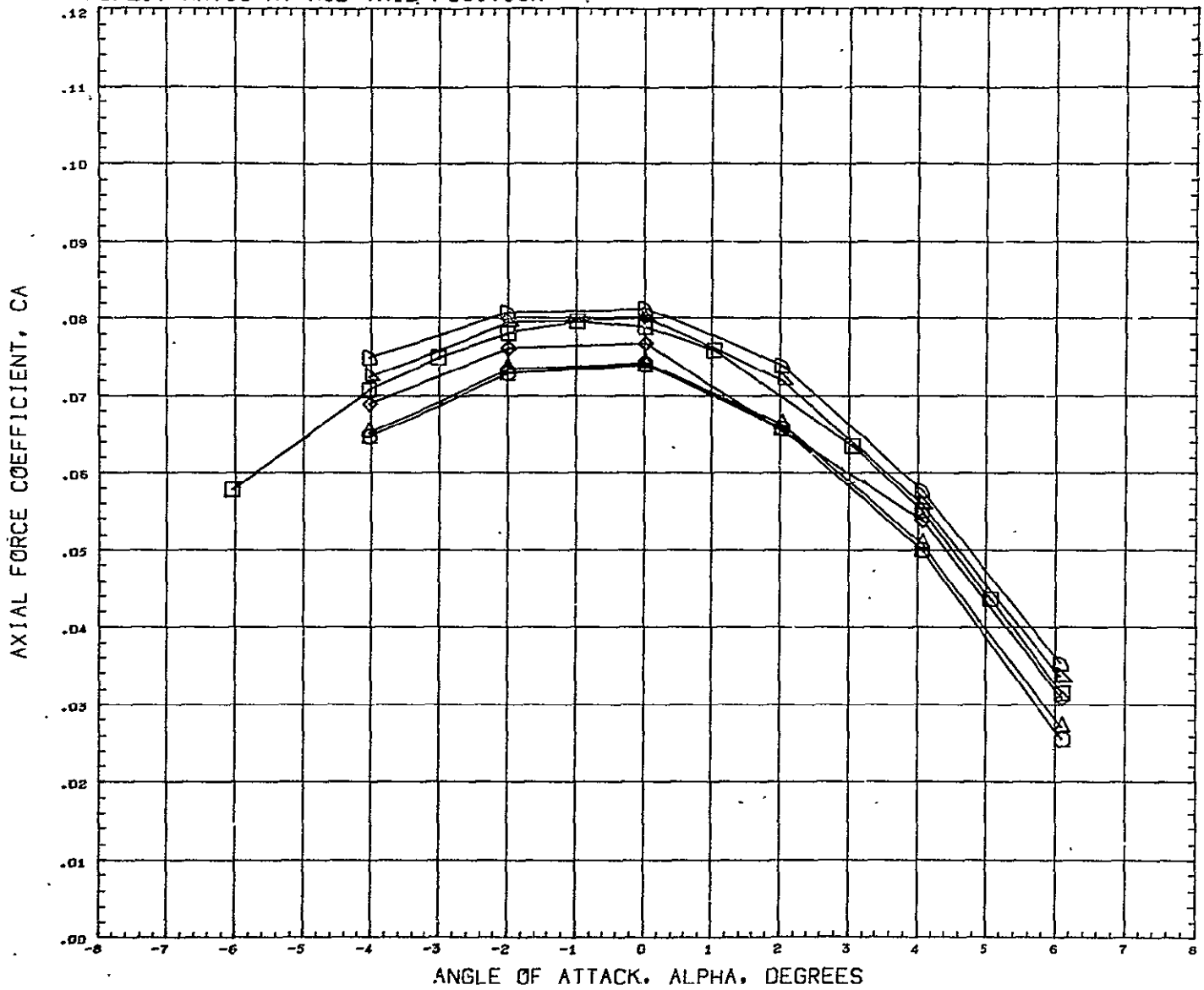
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



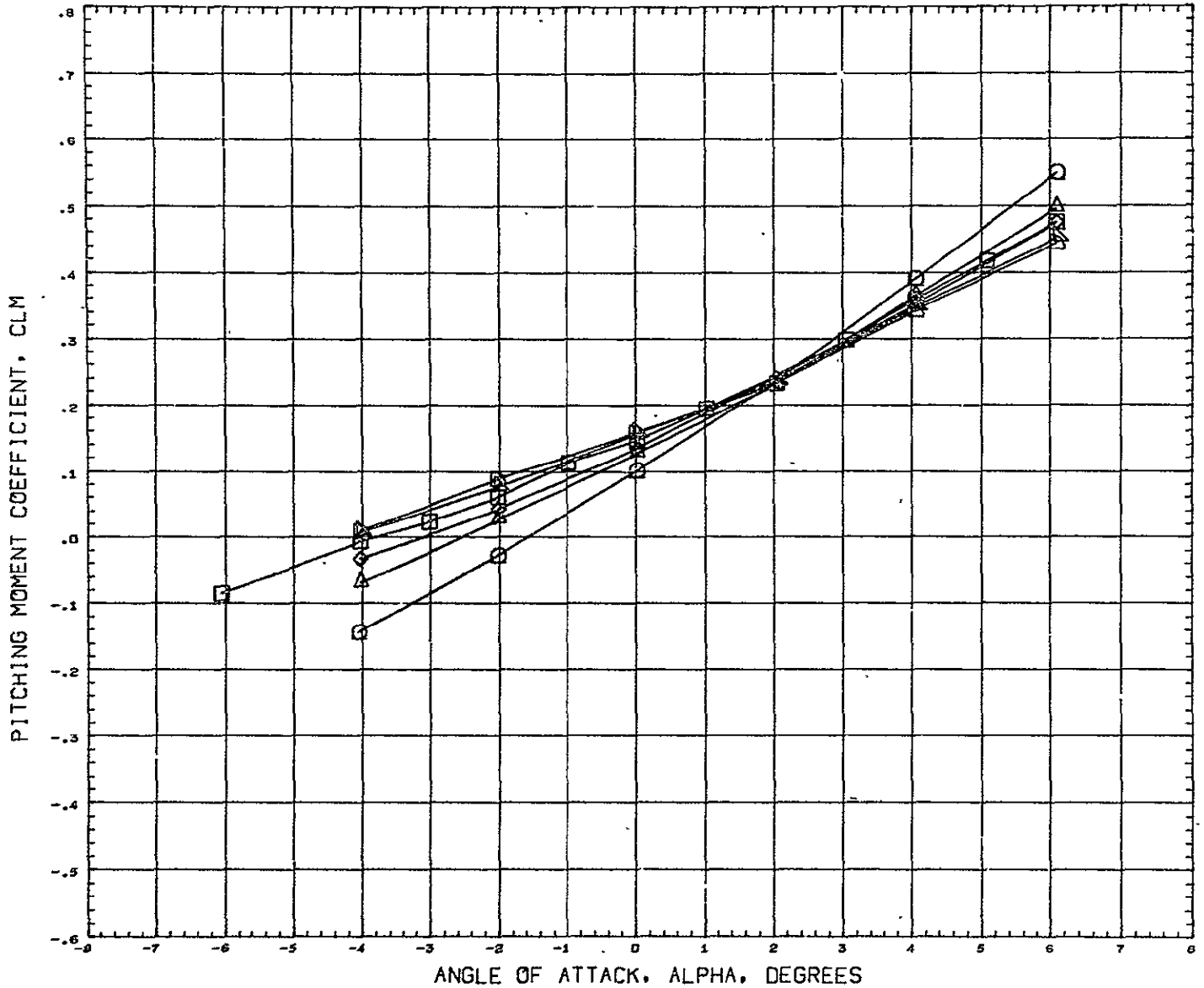
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(RG2032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(RG2009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFD	1.5000 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMHP	15.5200 IN
(RG2010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMHP	0.0000
(RG2011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMHP	2.4000 IN
MACH 0.250						SCALE	1.8750 PCT

ASPECT RATIO AT MID-TAIL POSITION



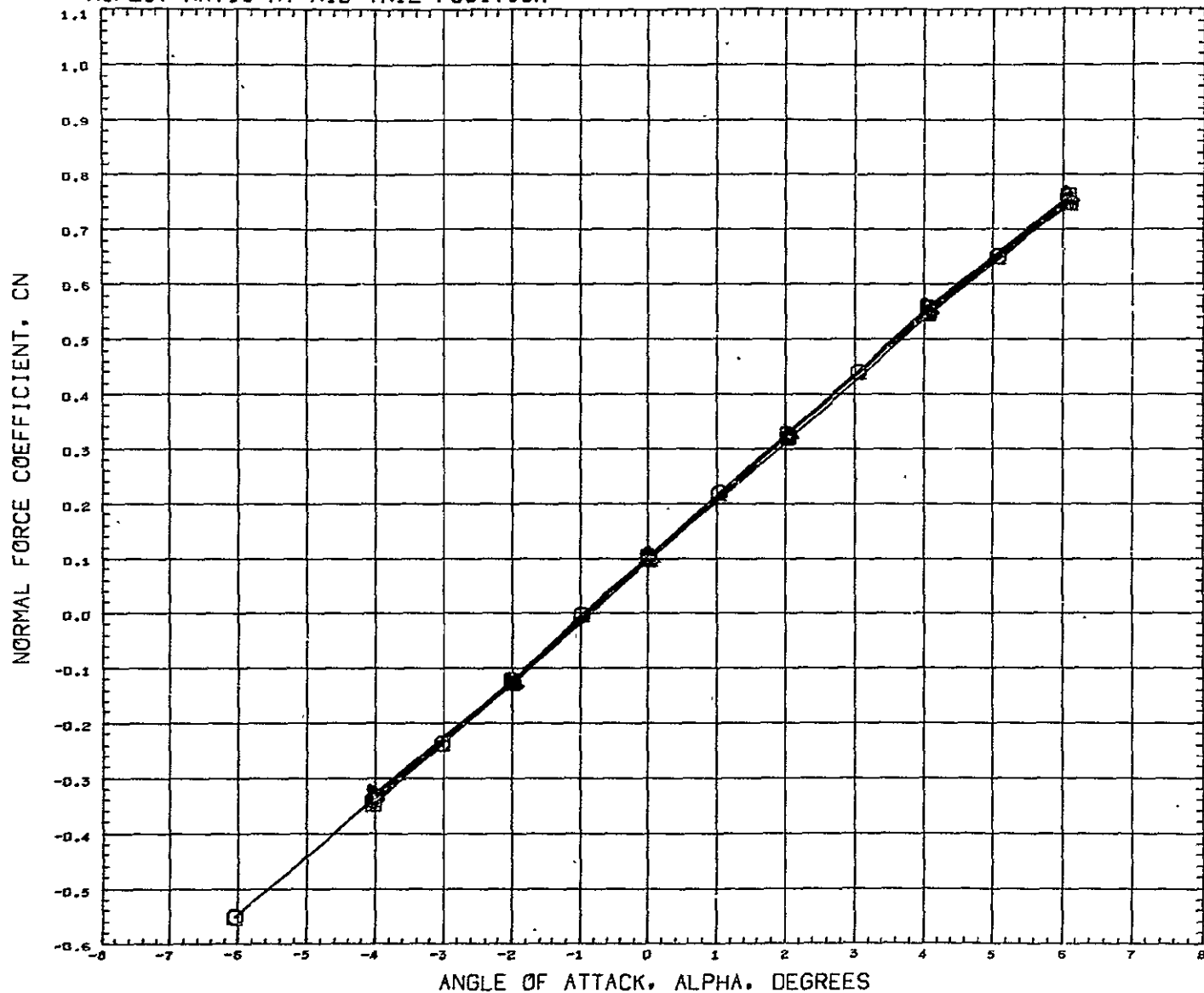
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(RG2032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(RG2009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.5000 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(RG2710)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRP	0.0000
(RG2011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH	0.250						

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(R02032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(R02008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(R02009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.5500 FT
(R02007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(R02010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRP	0.0000
(R02011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 FCT
	MACH 0.250						

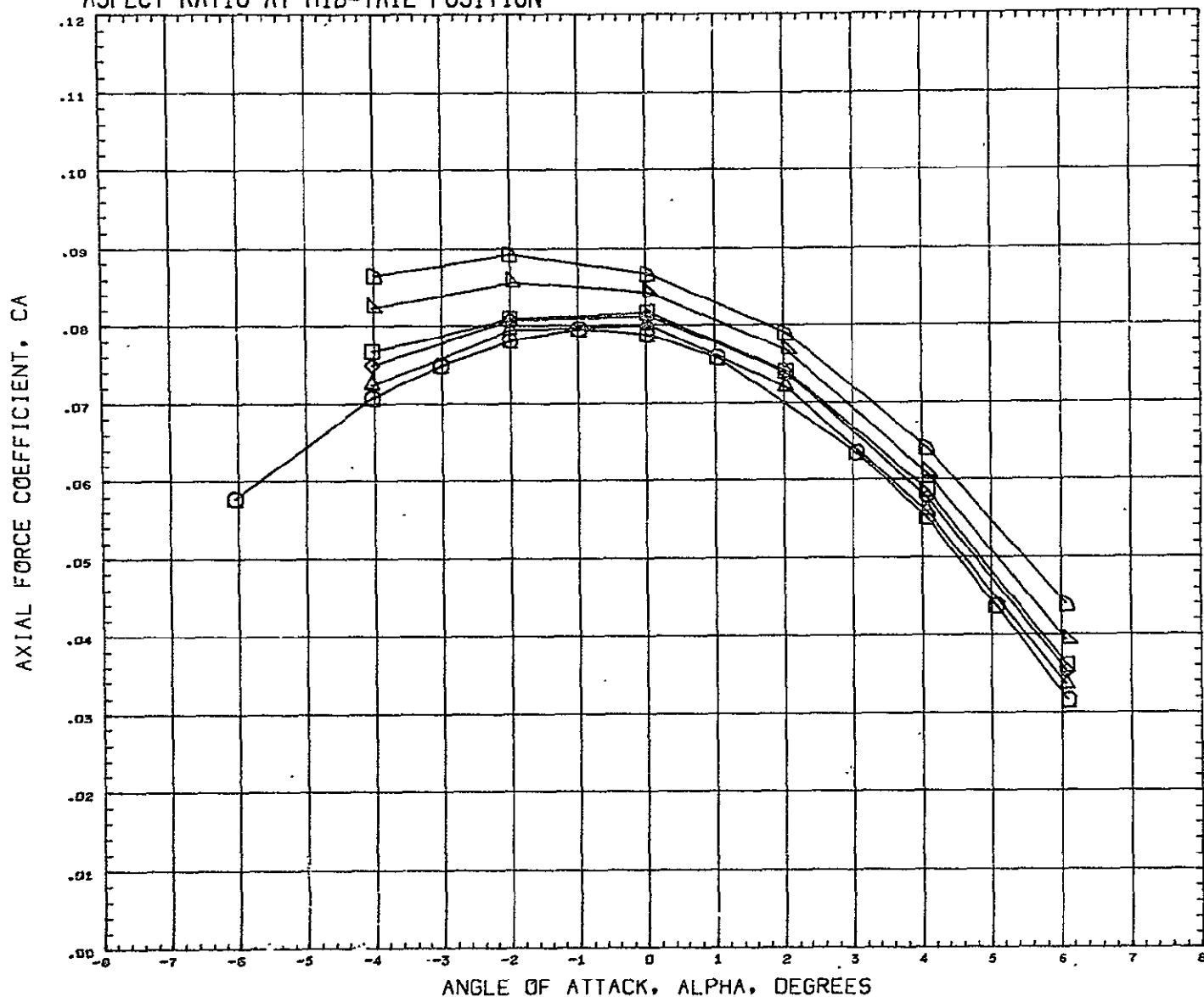
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(RG2011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5600 FT
(RG2012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(RG2013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP	0.0000
(RG2014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
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MACH 0.250

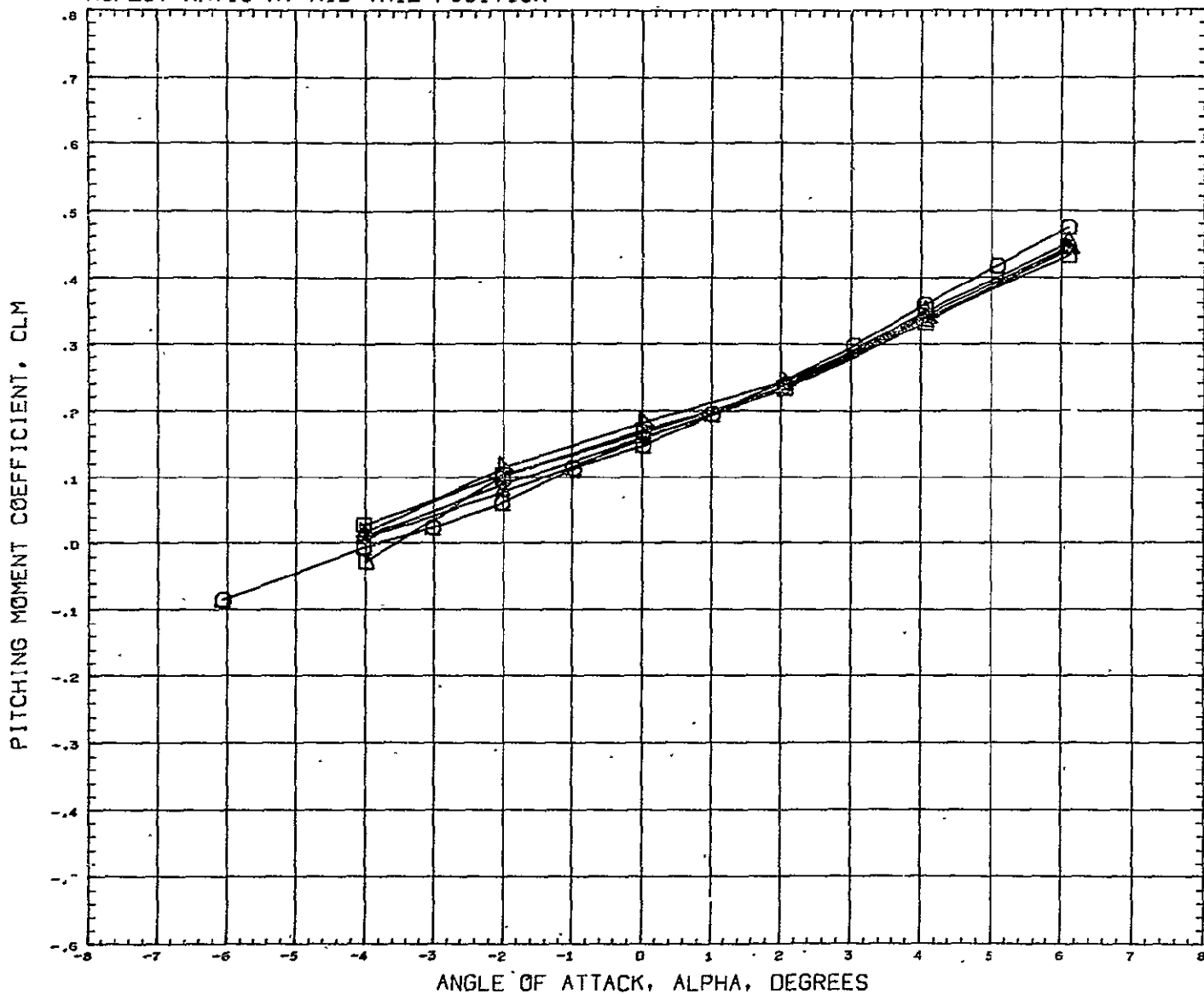
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(R02007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(R02010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(R02011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000 FT
(R02012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRF	15.5200 IN
(R02013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRF	0.0000
(R02014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRF	2.4000 IN
						SCALE	1.8750 FCT

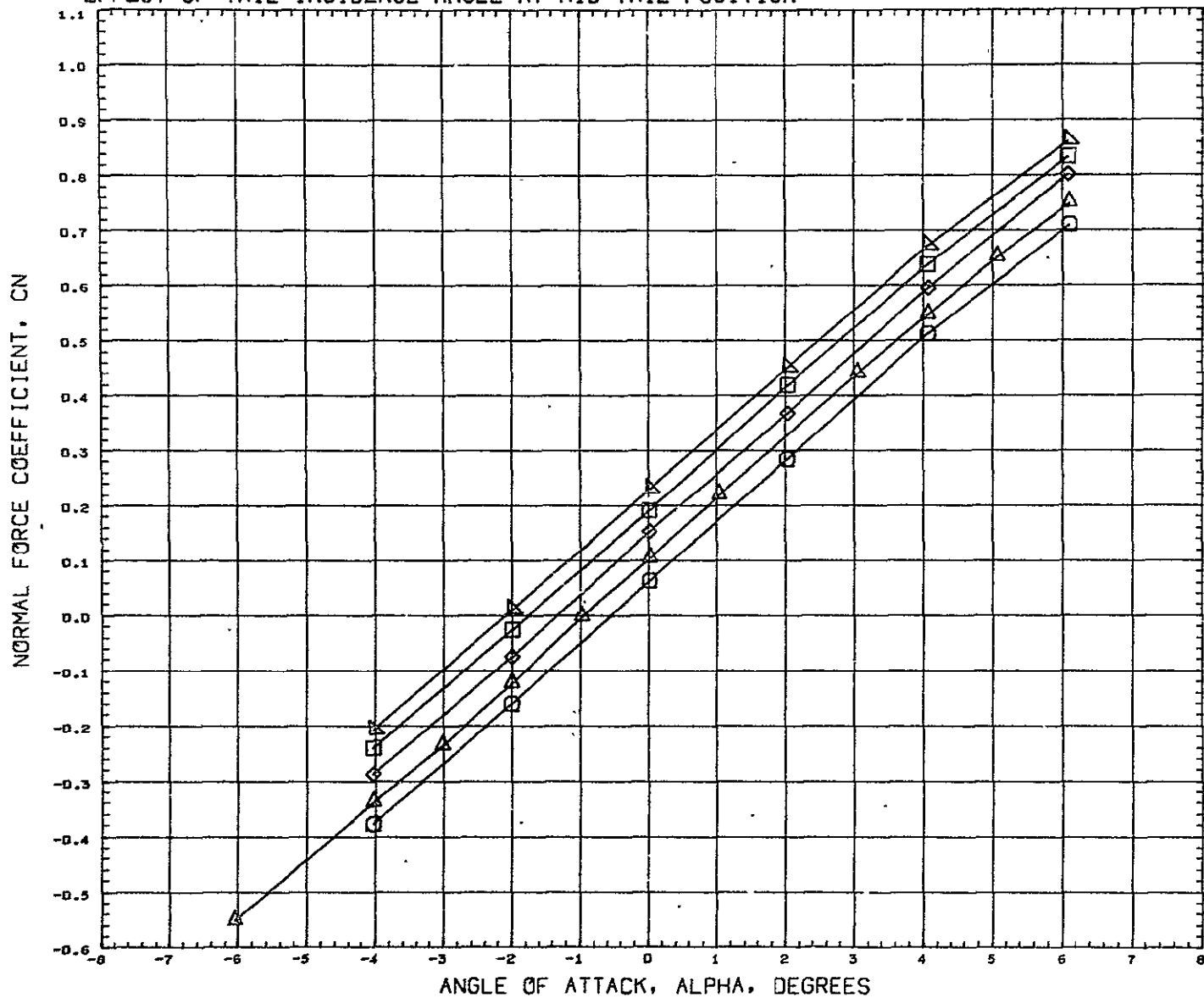
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION
(RG2007)	HSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS 0.3200 SQ FT
(RG2010)	HSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL 0.2300 FT
(RG2011)	HSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB 1.5000 FT
(RG2012)	HSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP 15.5200 IN
(RG2013)	HSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP 0.0000
(RG2014)	HSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP 2.4000 IN
						SCALE 1.8750 PCT
MACH	D.250					

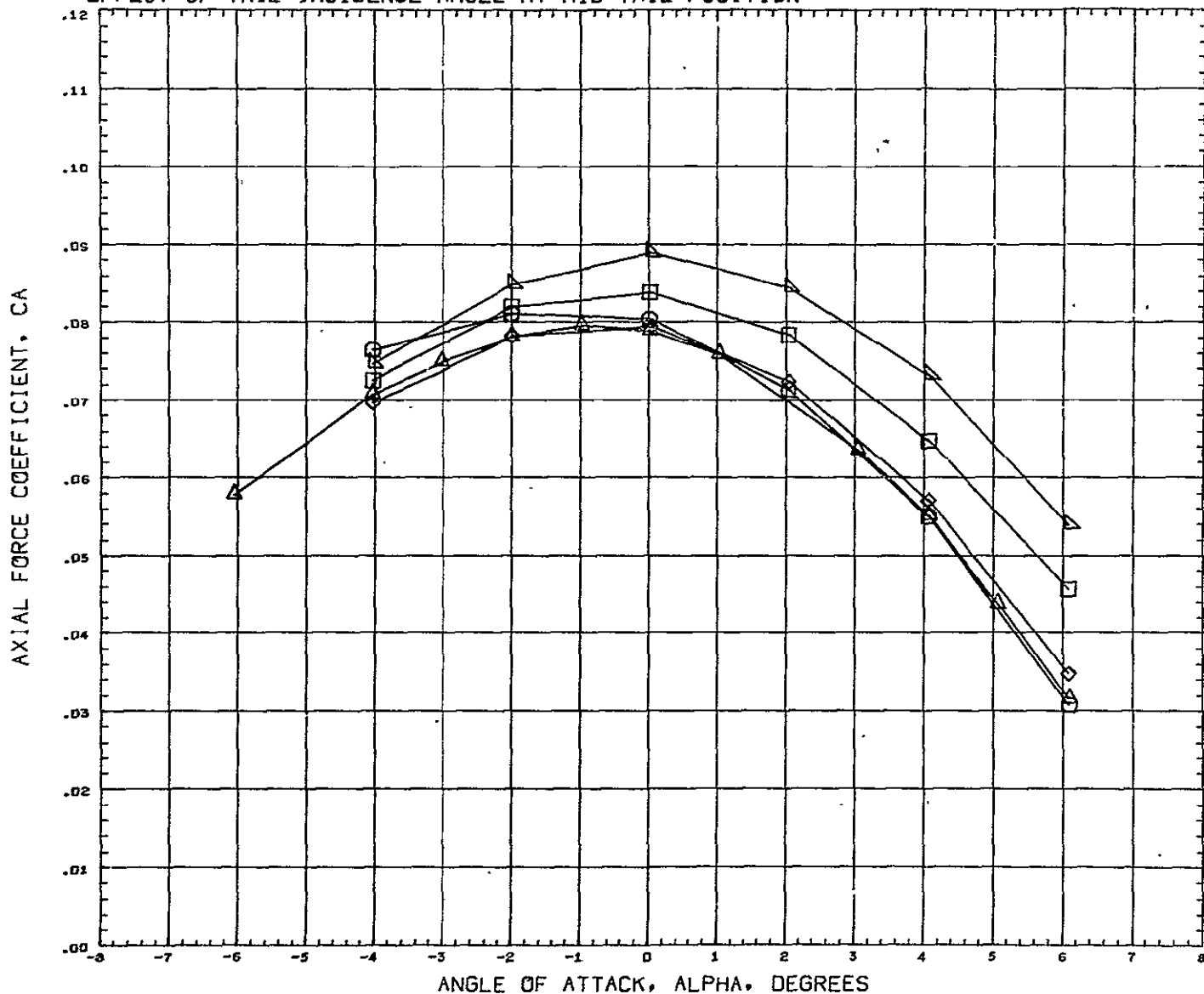
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 30 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(RG2017)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.5000 FT
(RG2018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XMRP	15.5200 IN
(RG2019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YMRF	0.0000 IN
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						SCALE	1.8750 PCT

MACH 0.250

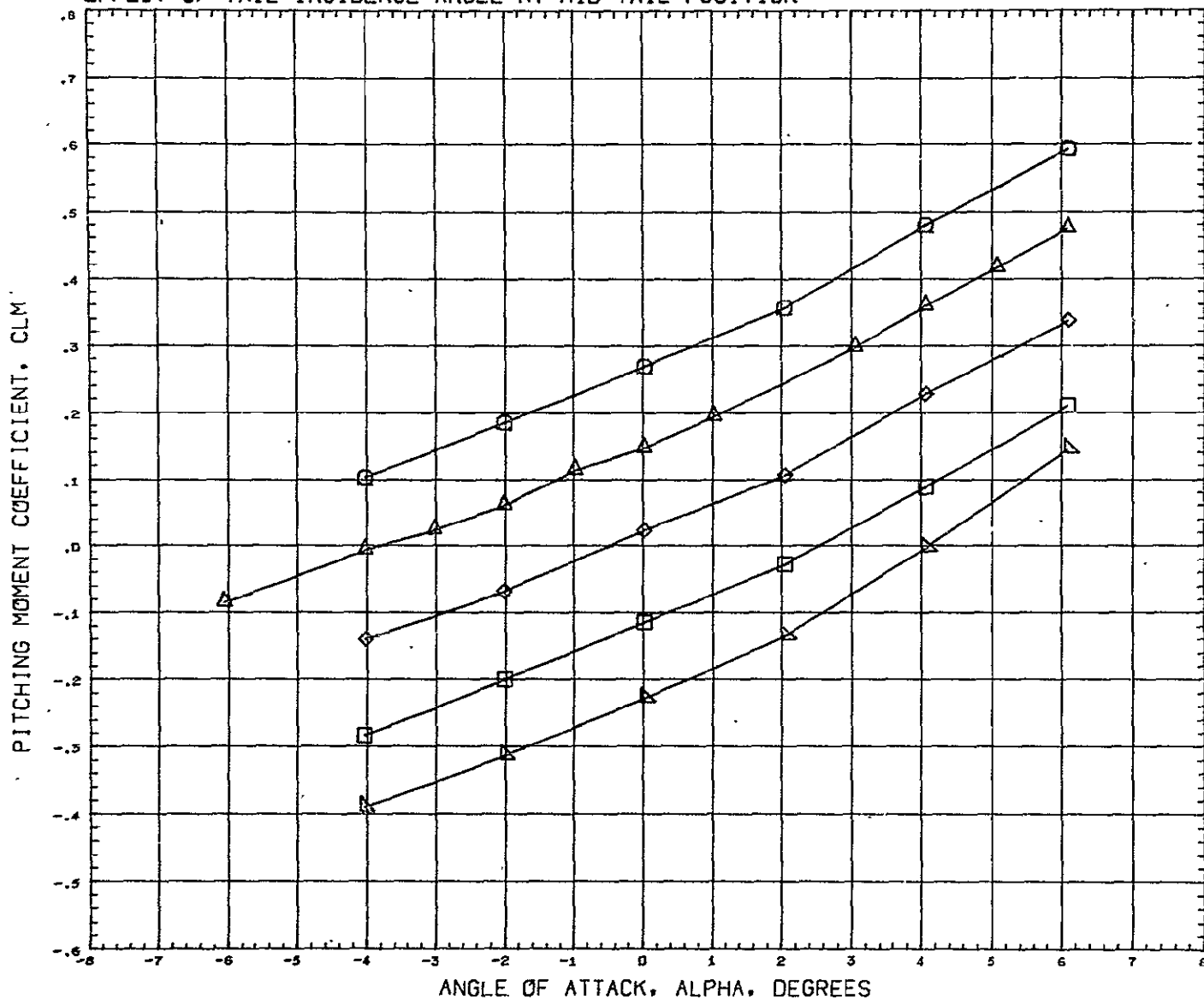
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(RG2017)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.5000 FT
(RG2018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XHRF	15.5200 IN
(RG2019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YHRF	0.0000 IN
						ZHRF	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

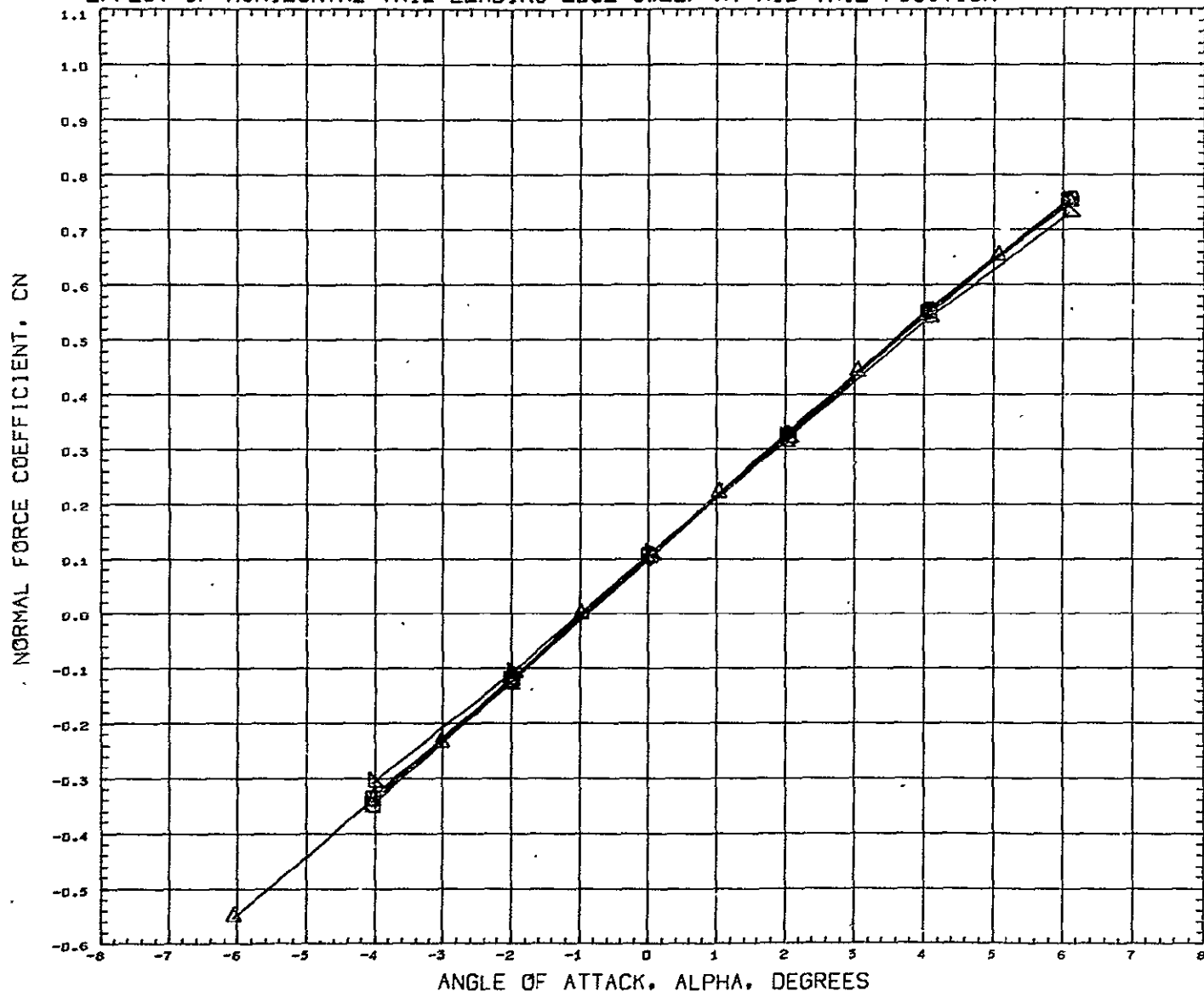
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2016)	MSC SER 39 S-5 ORBITER BIWIV3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RG2007)	MSC SER 39 S-5 ORBITER BIWIV3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(RG2017)	MSC SER 39 S-5 ORBITER BIWIV3H24	2.000	2.000	15.000	0.500	REFB	1.5000 FT
(RG2018)	MSC SER 39 S-5 ORBITER BIWIV3H24	4.000	2.000	15.000	0.500	XMRP	15.5200 IN
(RG2019)	MSC SER 39 S-5 ORBITER BIWIV3H24	6.000	2.000	15.000	0.500	YMRF	0.0003 IN
						ZMRF	2.4000 IN
						SCALE	1.8750 PLT

MACH 0.250

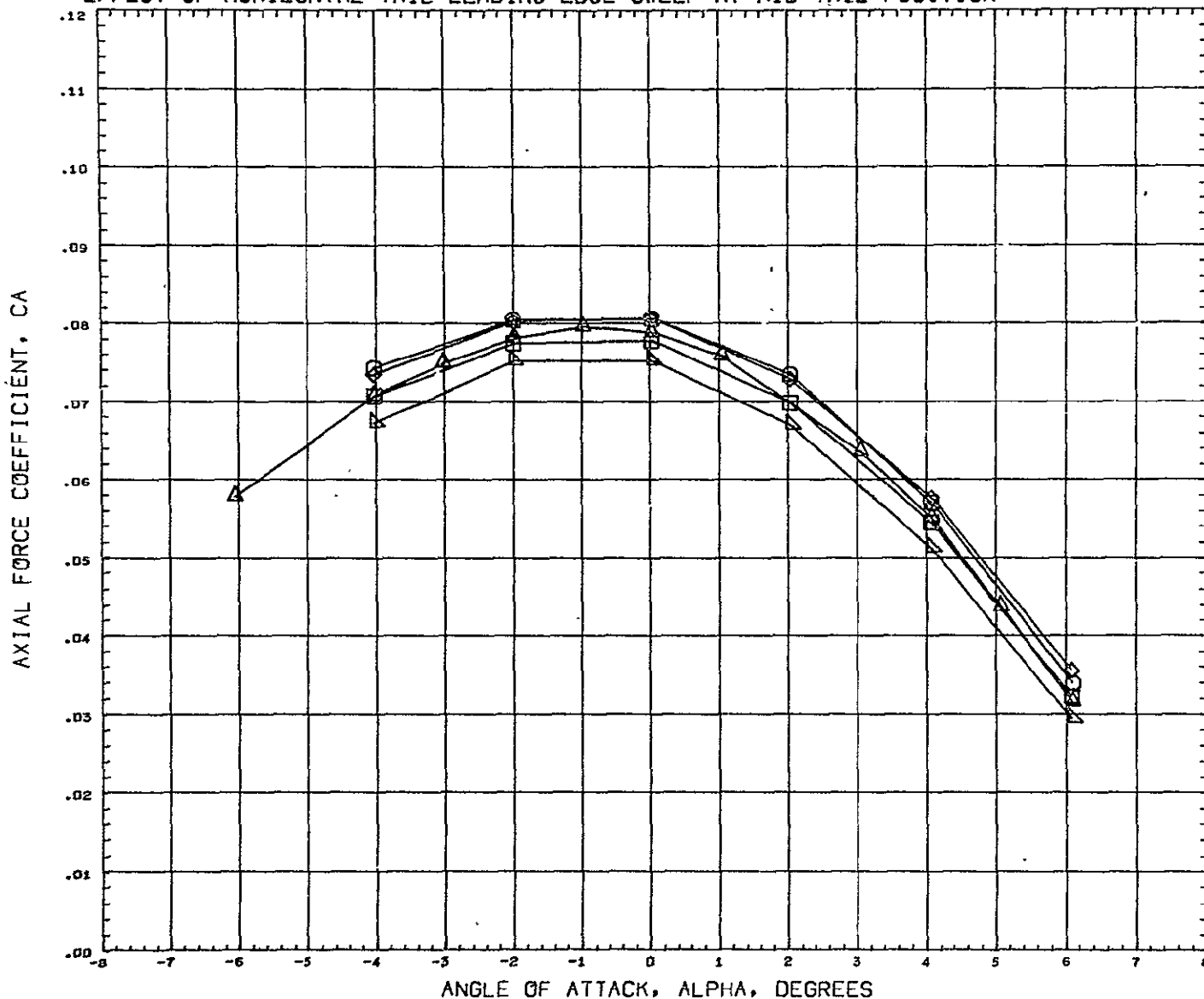
EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(RG2015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(RG2020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFB	1.5600 FT
(RGPD21)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	15.5200 IN
(RG2022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

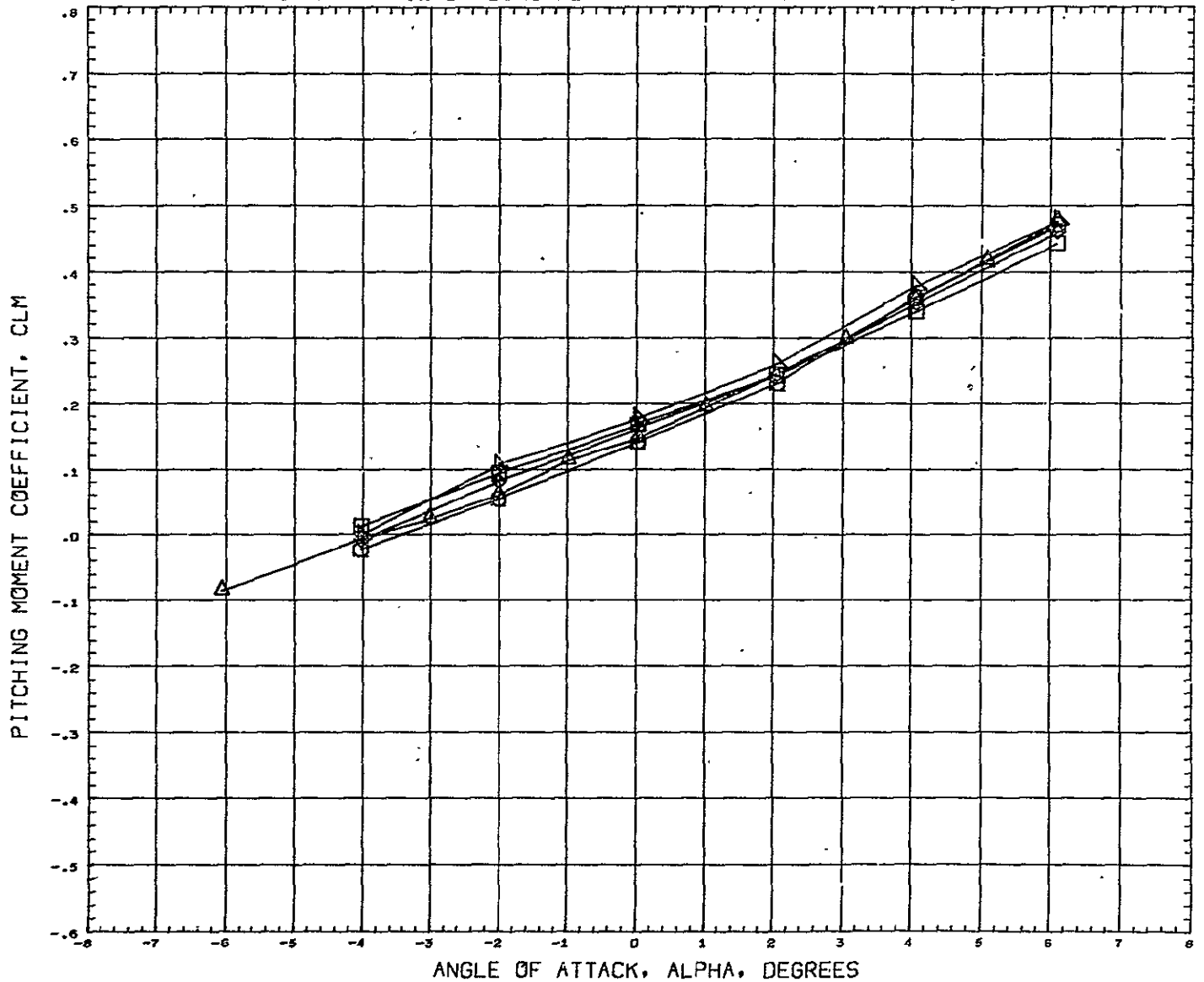
MACH 0.250

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



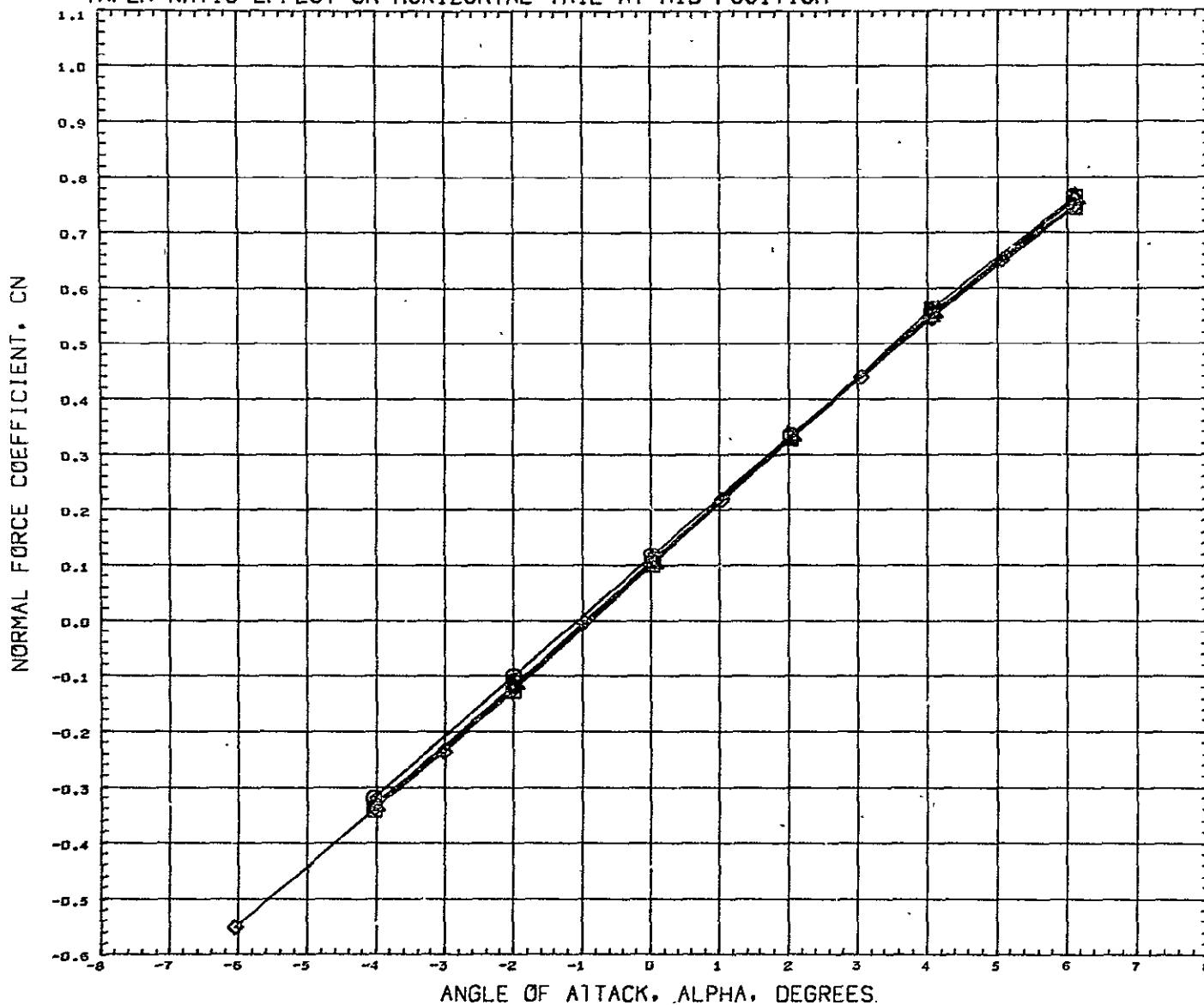
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(RG2015)	MSC SER 39 S-5 ORBITER BIWIV3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2007)	MSC SER 39 S-5 ORBITER BIWIV3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(RG2020)	MSC SER 39 S-5 ORBITER BIWIV3H31	30.000	2.000	0.500	0.000	REFB	1.5000 FT
(RG2021)	MSC SER 39 S-5 ORBITER BIWIV3H32	45.000	2.000	0.500	0.000	XMRP	15.5200 IN
(RG2022)	MSC SER 39 S-5 ORBITER BIWIV3H33	60.000	2.000	0.500	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(RG2015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(RG2020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFS	1.5000 IN
(RG2021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XHRP	15.5200
(RG2022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YHRP	0.0000
						ZHRP	2.4000 IN
						SCALE	1.0750 PCT
MACH 0.250							

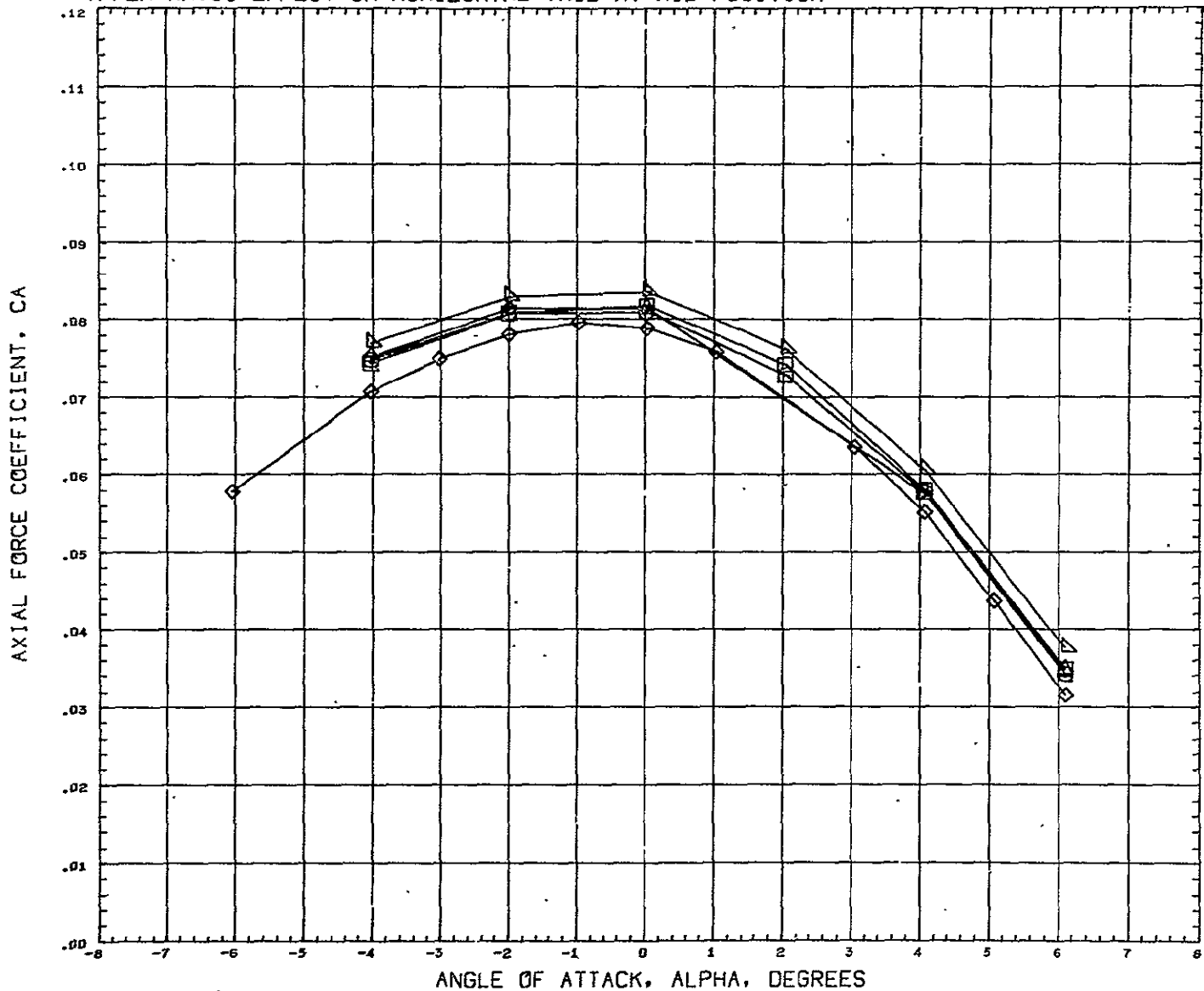
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION	
(RG2024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200 SQ FT
(RG2025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300 FT
(RG2027)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB	1.5000 FT
(RG2026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XHRP	15.5200 IN
(RG2027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YHRP	0.0000
						ZHRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

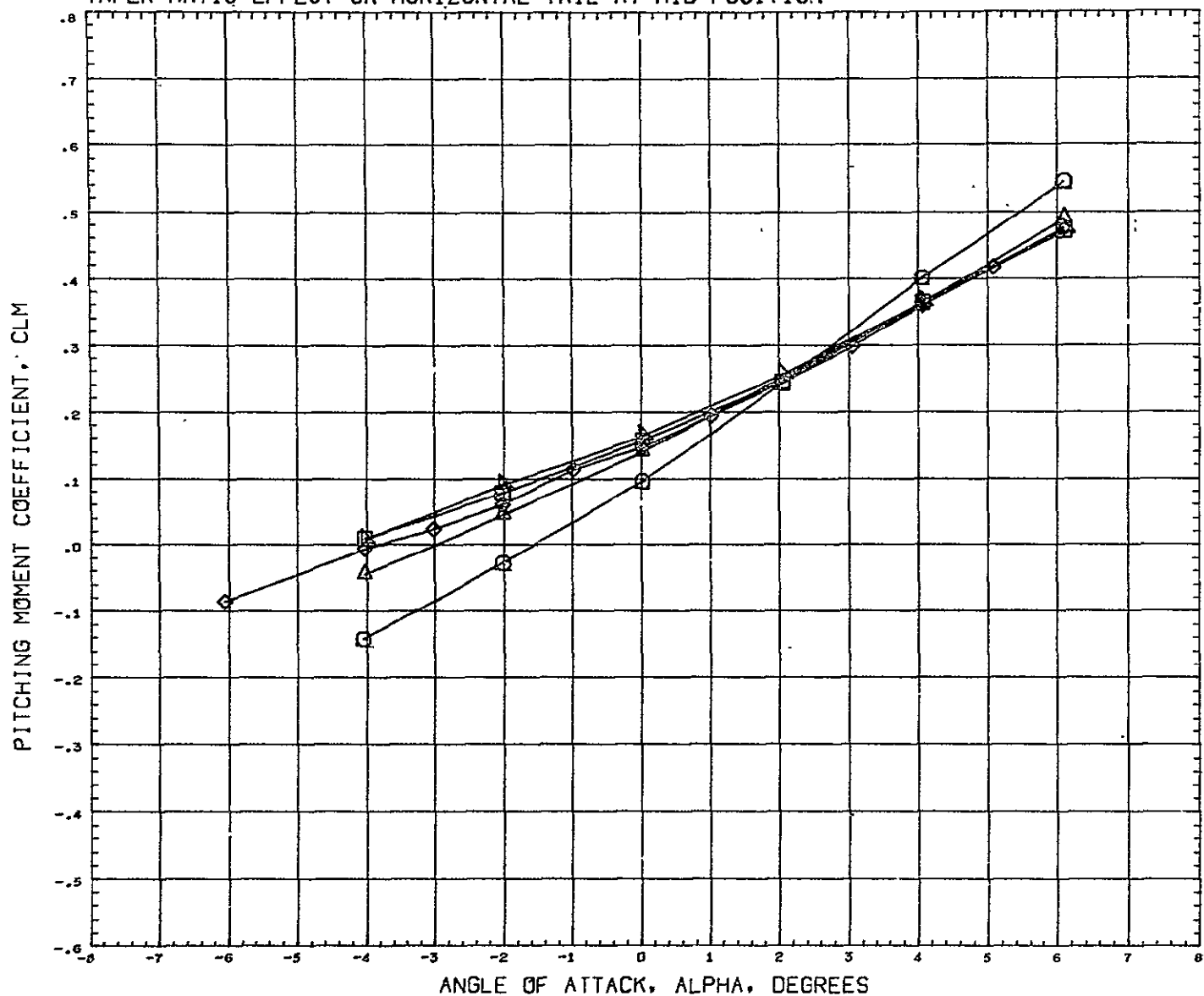
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION	
(RG2024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200 SQ FT
(RG2025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300 FT
(RG2027)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFE	1.5200 FT
(RG2026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP	15.5201 IN
(RG2027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

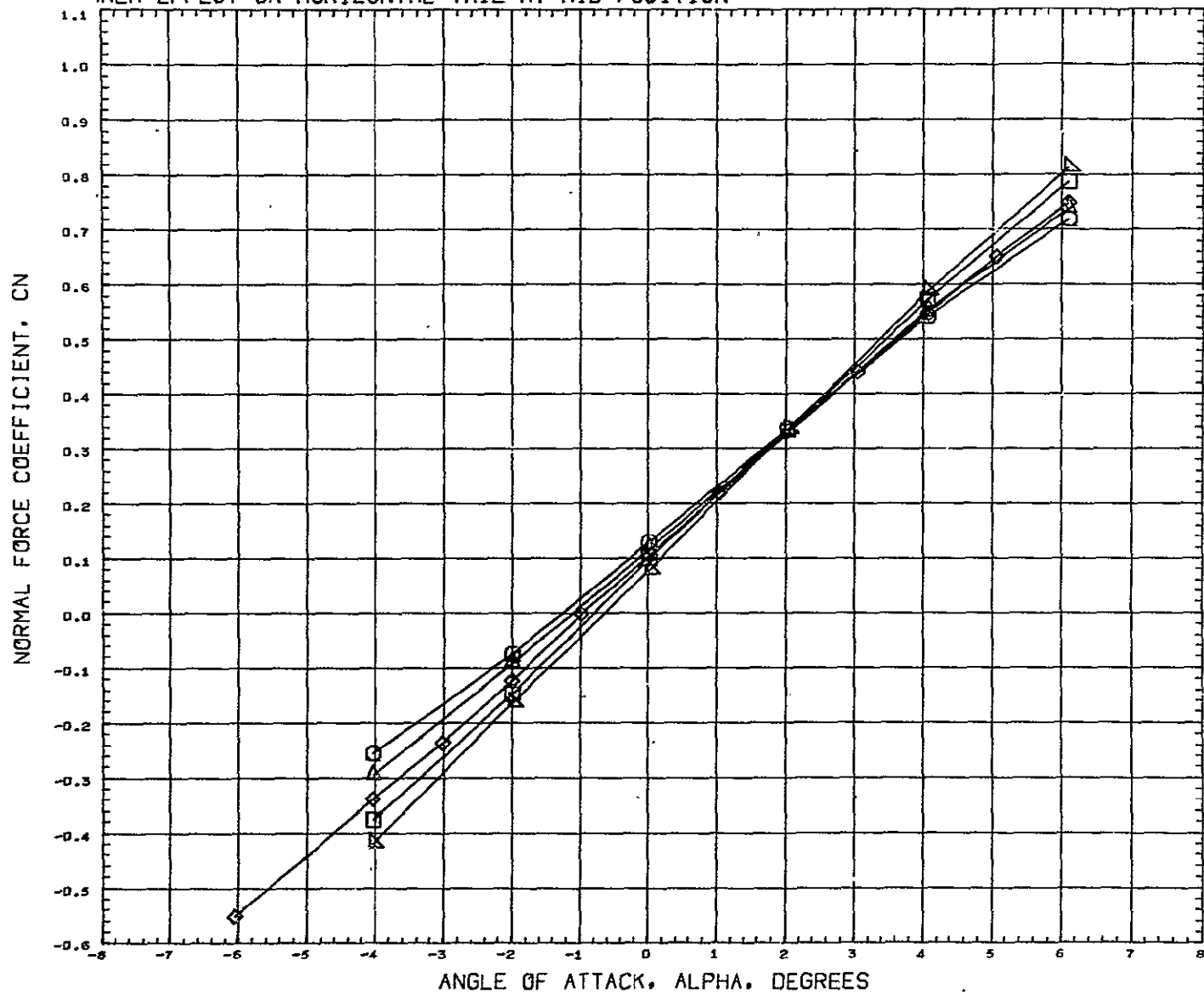
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION
(RG2024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS 0.3200 SQ FT
(RG2025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL 0.2300 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB 1.5000 FT
(RG2026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP 15.5200 IN
(RG2027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP 0.0060 IN
						ZMRP 2.4000 IN
						SCALE 1.8750 PCT

MACH 0.250

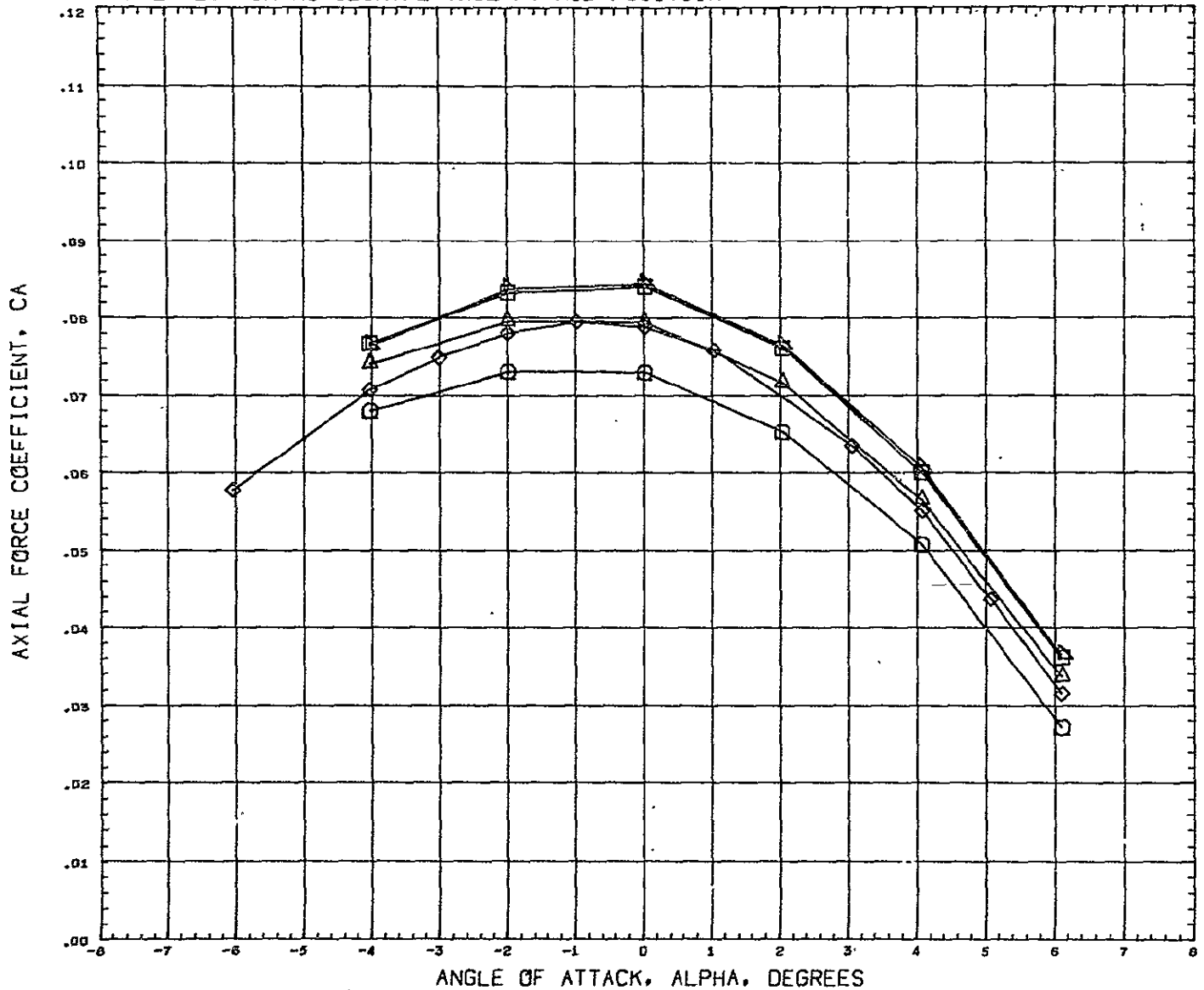
AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RG2029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	2.000	15.000	0.500	REFL	0.2300 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300,000	2.000	15.000	0.500	REFB	1.5000 FT
(RG2030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400,000	2.000	15.000	0.500	XMRP	15,5200 IN
(RG2031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500,000	2.000	15.000	0.500	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

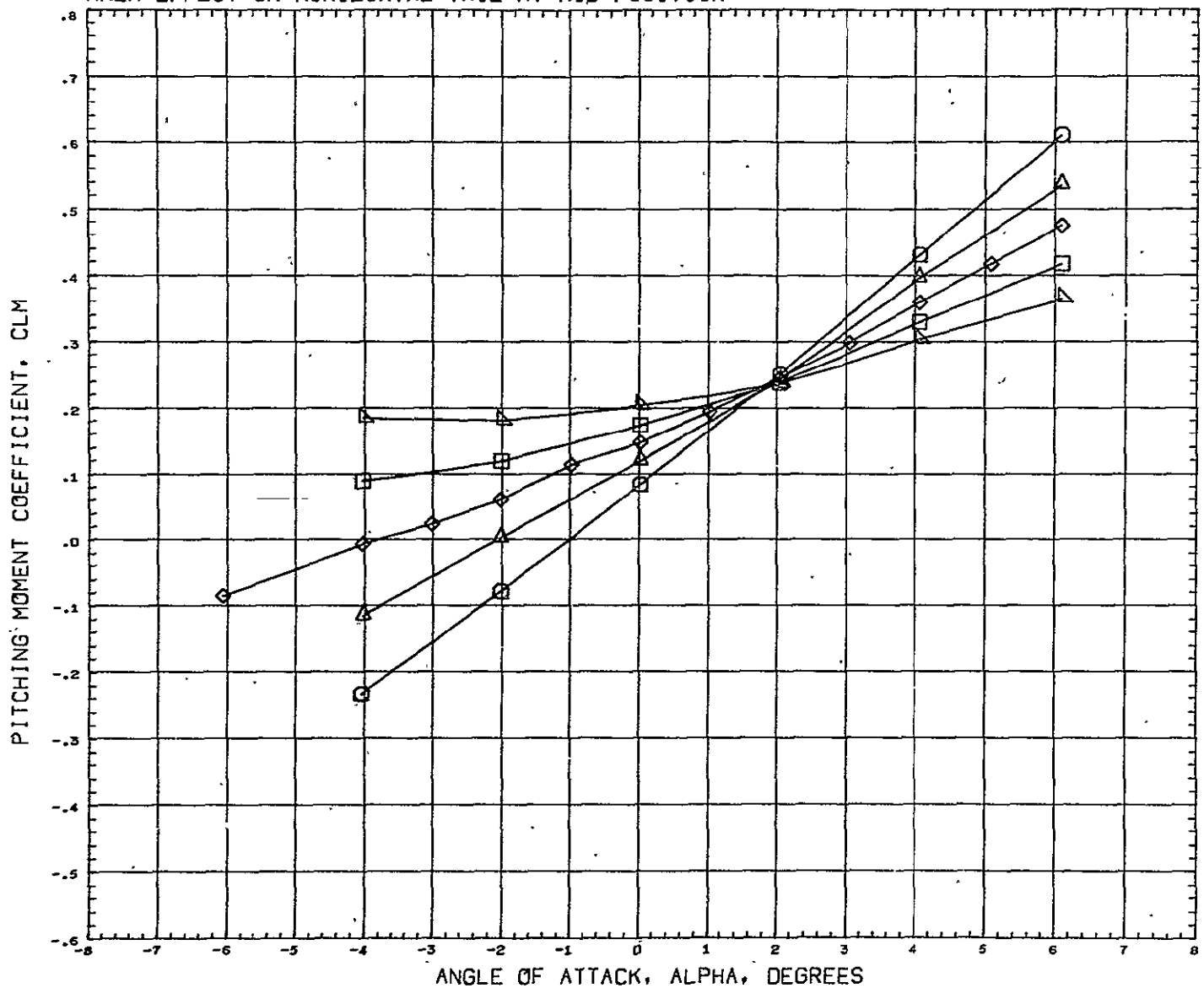
MACH 0.250

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RG2029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300 FT
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000 FT
(RG2030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	2.000	15.000	0.500	XMRP	15.5200 IN
(RG2031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	2.000	15.000	0.500	YMRP	0.0000
						ZMRP	2.4000
						SCALE	1.8750 PCT
MACH 0.250							

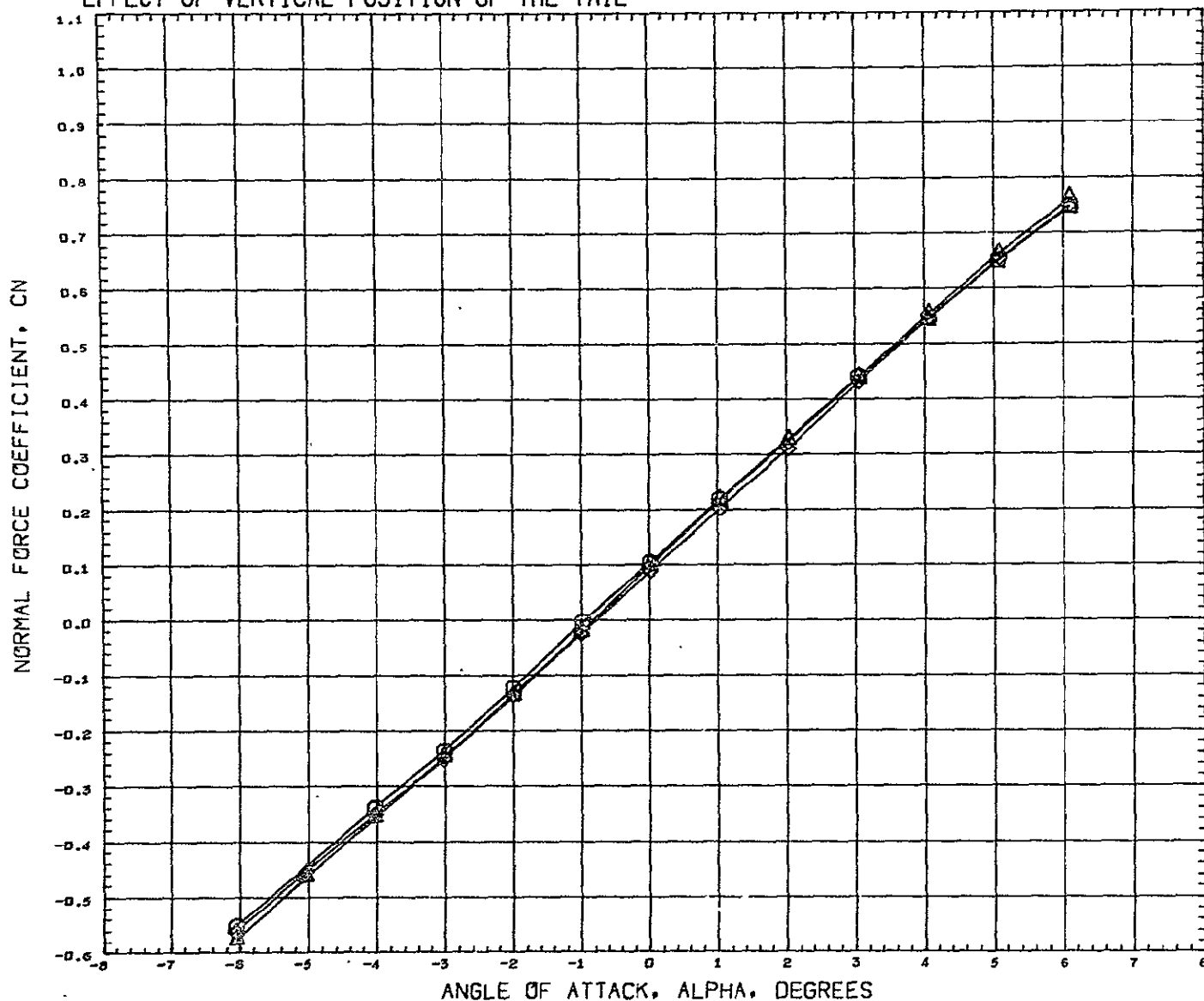
AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RC2028)	HSC SER 39 S-5 ORBITER B1W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RC2029)	HSC SER 39 S-5 ORBITER B1W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300 FT
(RC2007)	HSC SER 39 S-5 ORBITER B1W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000 FT
(RC2030)	HSC SER 39 S-5 ORBITER B1W1V3H40	400.000	2.000	15.000	0.500	XMRP	15.5200 IN
(RC2031)	HSC SER 39 S-5 ORBITER B1W1V3H41	500.000	2.000	15.000	0.500	YMRP	0.0000 IN
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

HACH 0.250

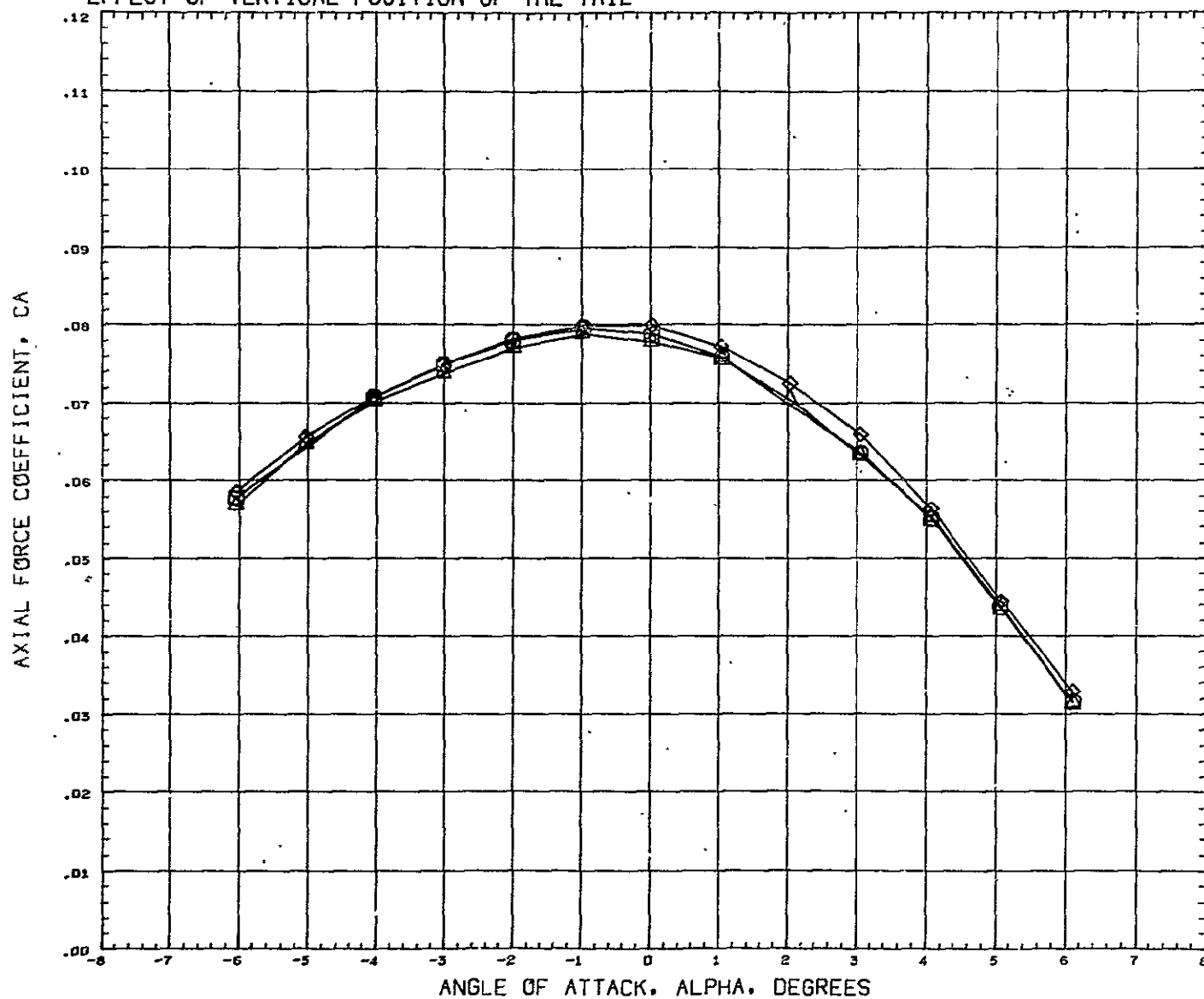
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200 SQ FT
(RG2033)	MSC SER 39 S-5 ORBITER F1W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300 FT
(RG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFS	1.5000 FT
						XMRP	15.5200 IN
						YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

EFFECT OF VERTICAL POSITION OF THE TAIL



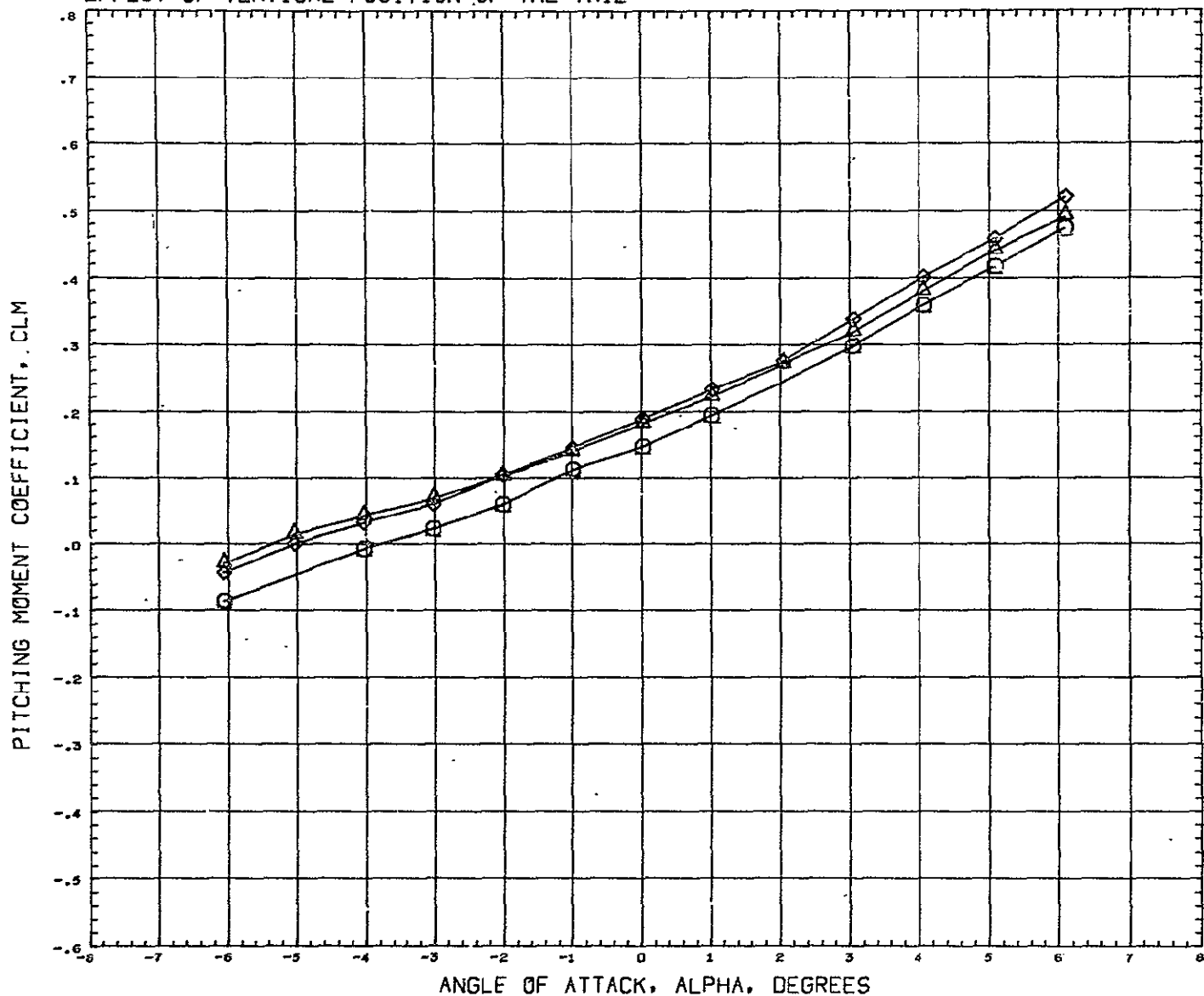
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24
(RG2033)	MSC SER 39 S-5 ORBITER B1W1V3H24
(RG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24

VERPOS	ASPECT	LSWEEP	TAPER
2.050	2.000	15.000	0.500
1.750	2.000	15.000	0.500
0.900	2.000	15.000	0.500

REFERENCE INFORMATION	
REFS	0.3200 SQ FT
REFL	0.2300 FT
REFC	1.5000 FT
XMRP	15.5201 IN
YMRP	0.0000
ZMRP	2.4000 IN
SCALE	1.8750 PCT

MACH 0.250

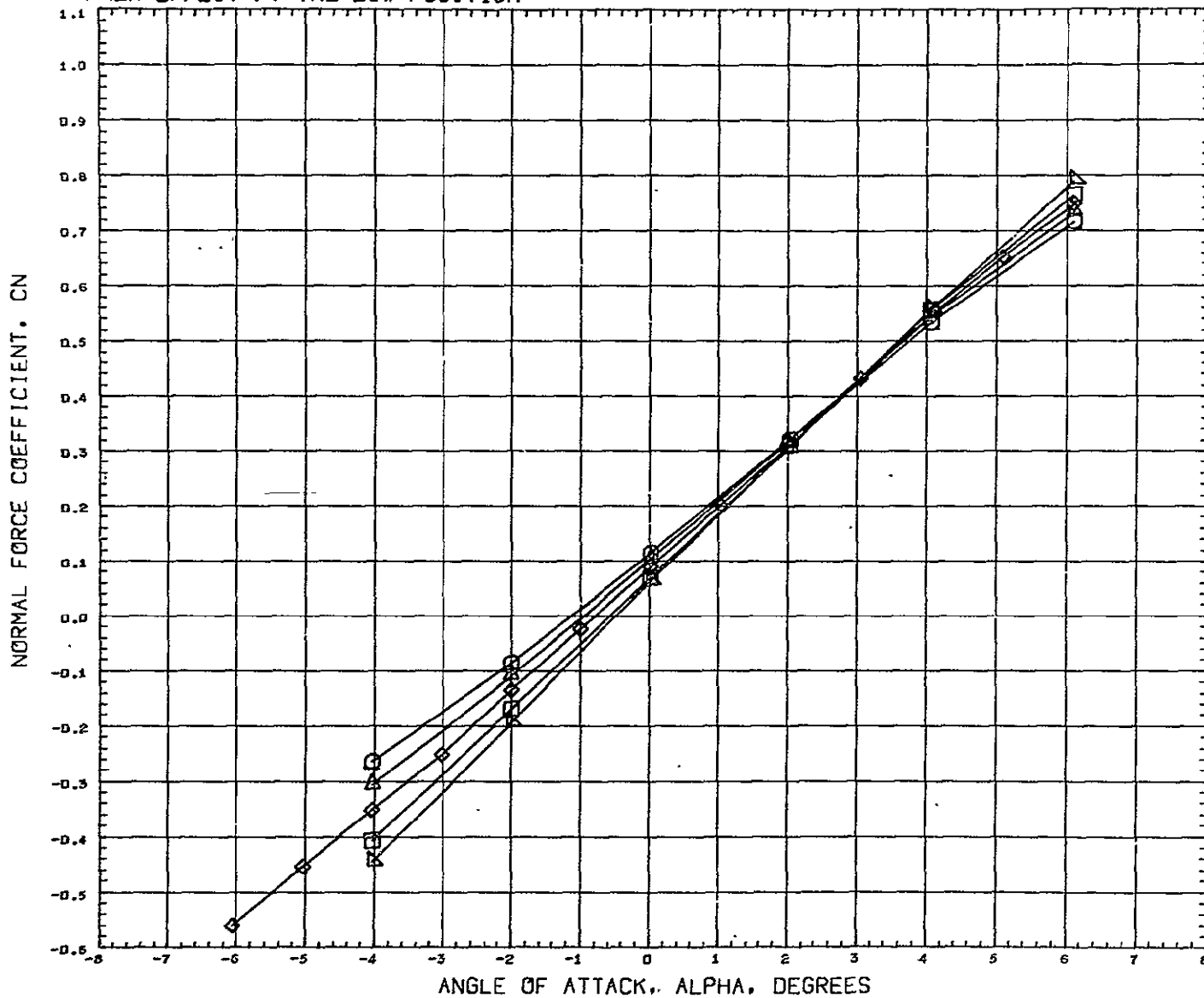
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION		
(RG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200	SQ FT
(RG2033)	MSC SER 39 S-5 ORBITER 31W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300	FT
(RG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFB	1.3900	FT
						XMRP	15.5200	IN
						YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

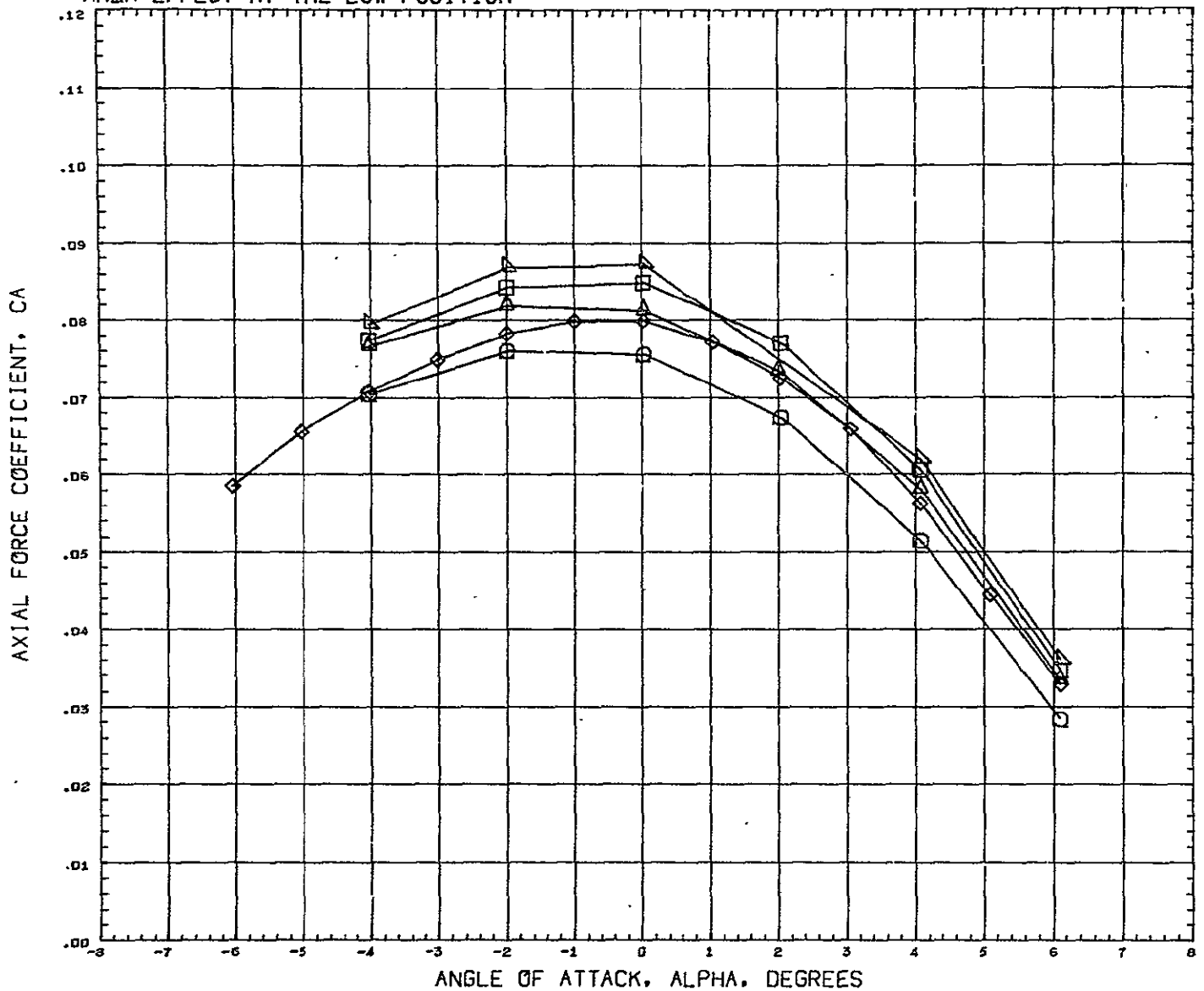
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION	
(R62035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200 SQ FT
(R62036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300 FT
(R62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5000 FT
(R62037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XMRP	15.520C IN
(R62038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YMRP	.0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.750

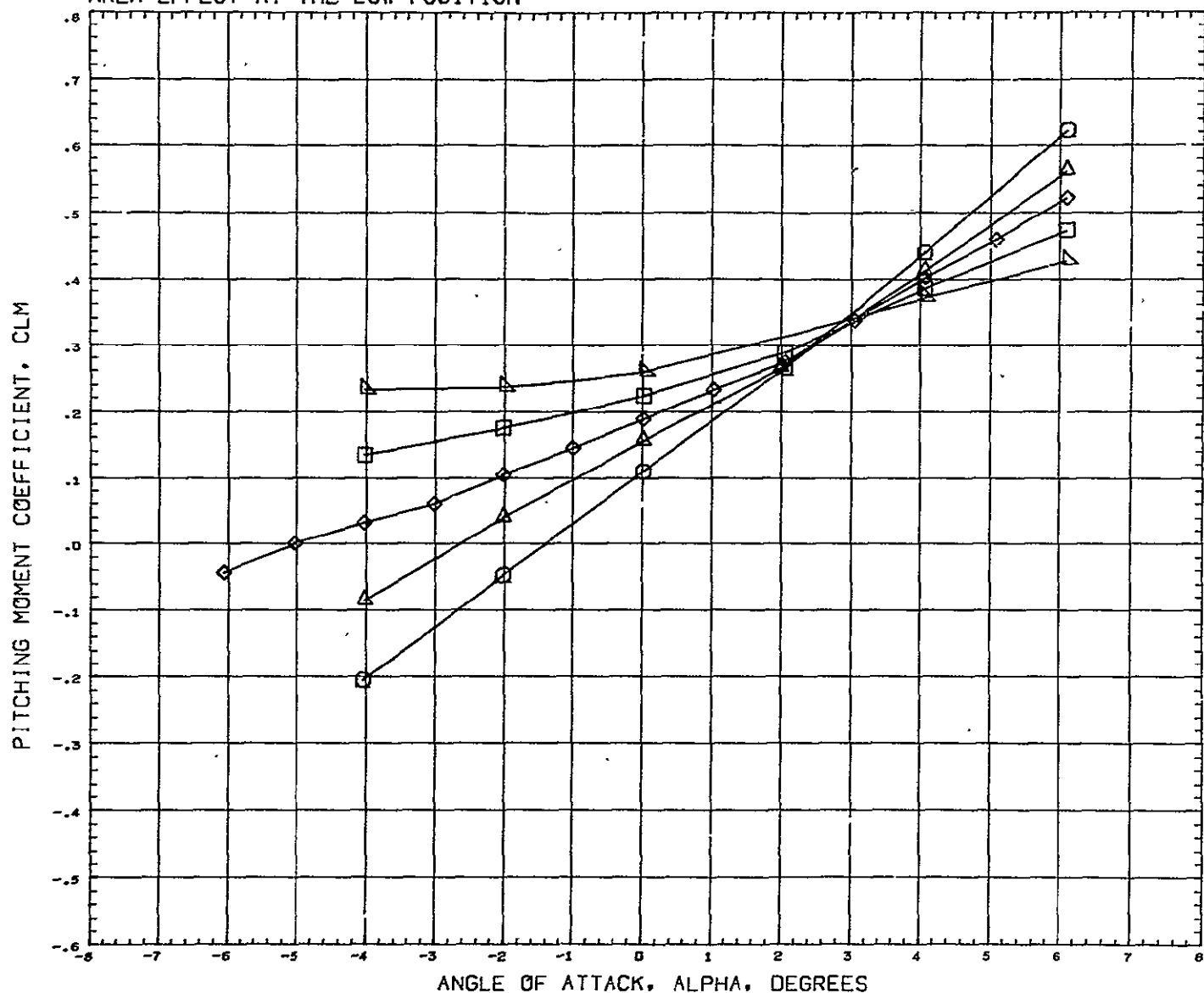
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION		
(R62035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200	SQ FT
(R62036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300	FT
(R62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5000	FT
(R62037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XMRP	15.5200	IN
(R62038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

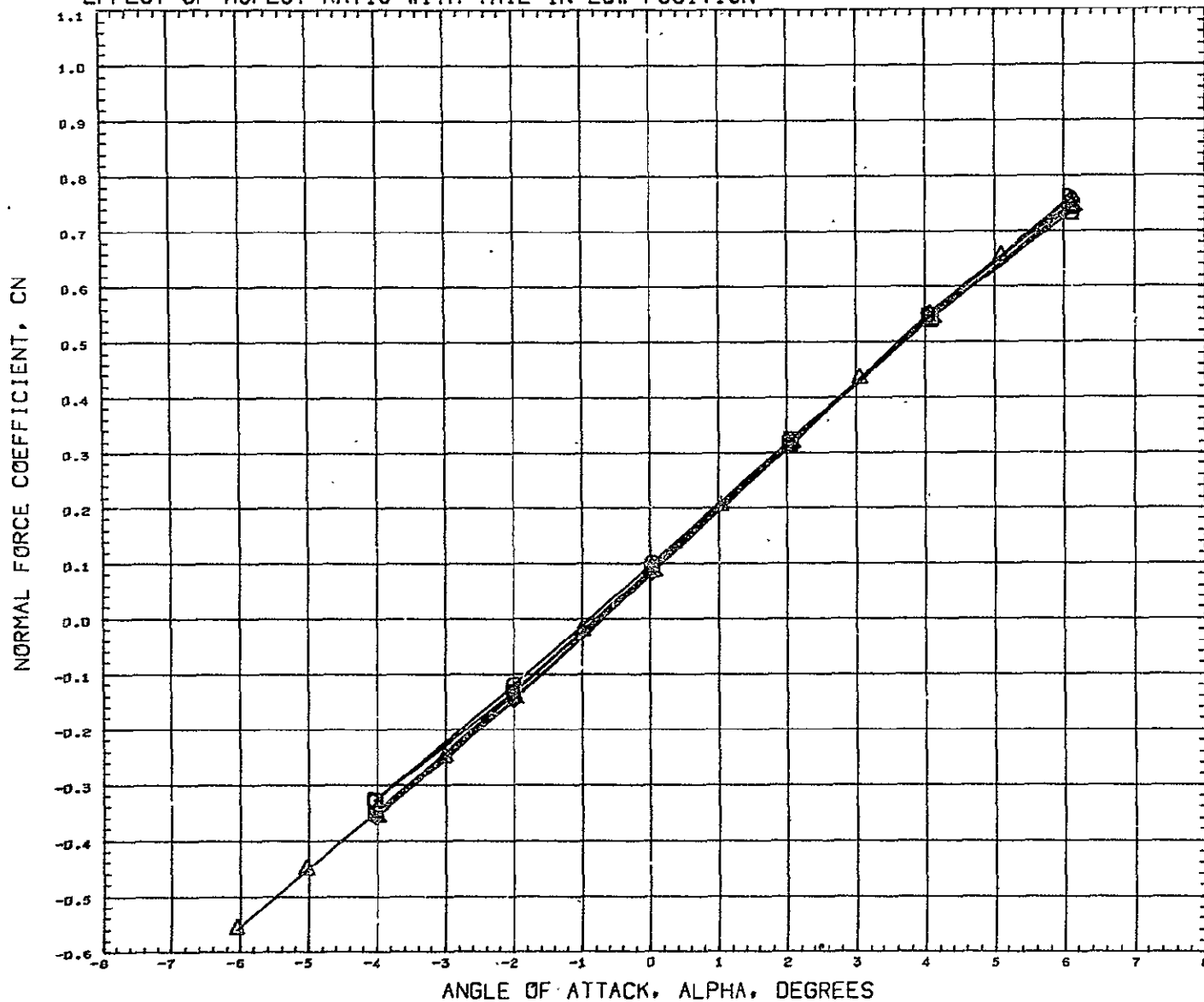
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION		
(R62035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200	SQ FT
(R62036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300	FT
(R62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5000	FT
(R62037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XMRP	15.5200	IN
(R62038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

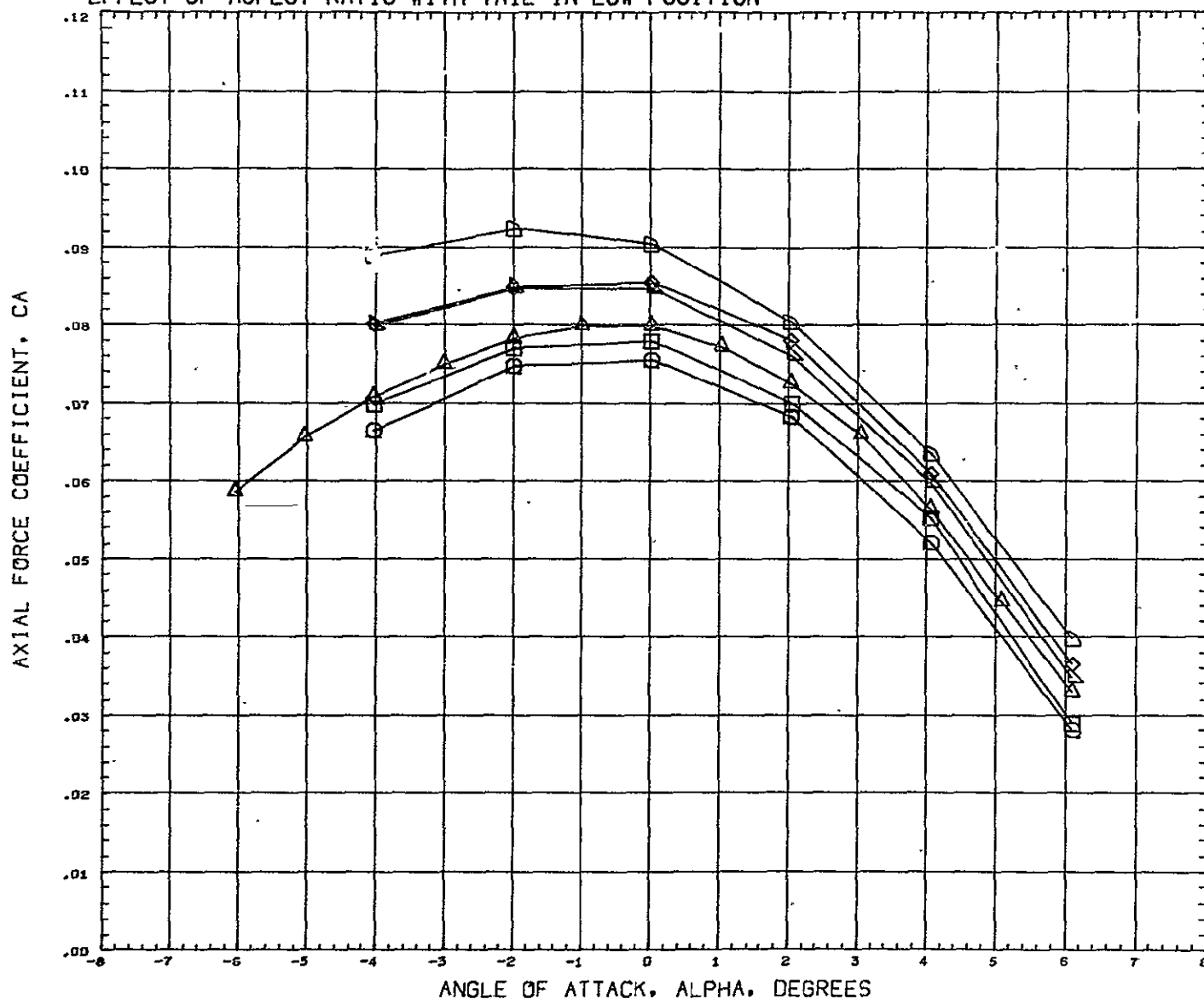
MACH 0.250

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(RG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(RG2040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFB	1.5000 FT
(RG2041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5200 IN
(RG2042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YMRP	0.0000
(RG2043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

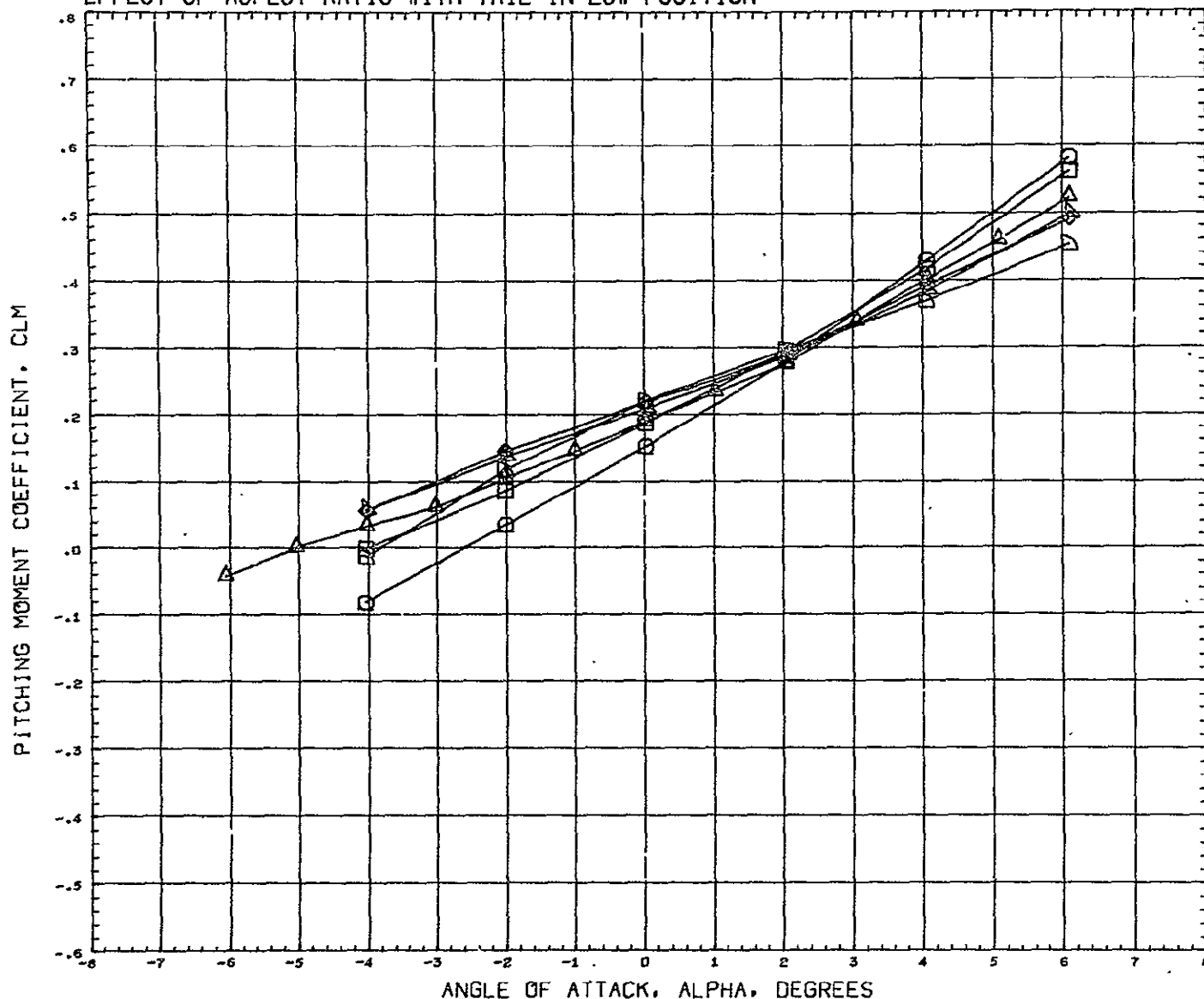
EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(RG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(RG2040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFB	1.5000 FT
(RG2041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XHRP	15.5200 IN
(RG2042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YHRP	0.0600
(RG2043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZHRP	2.4000 IN
						SCALE	1.8750 PCT

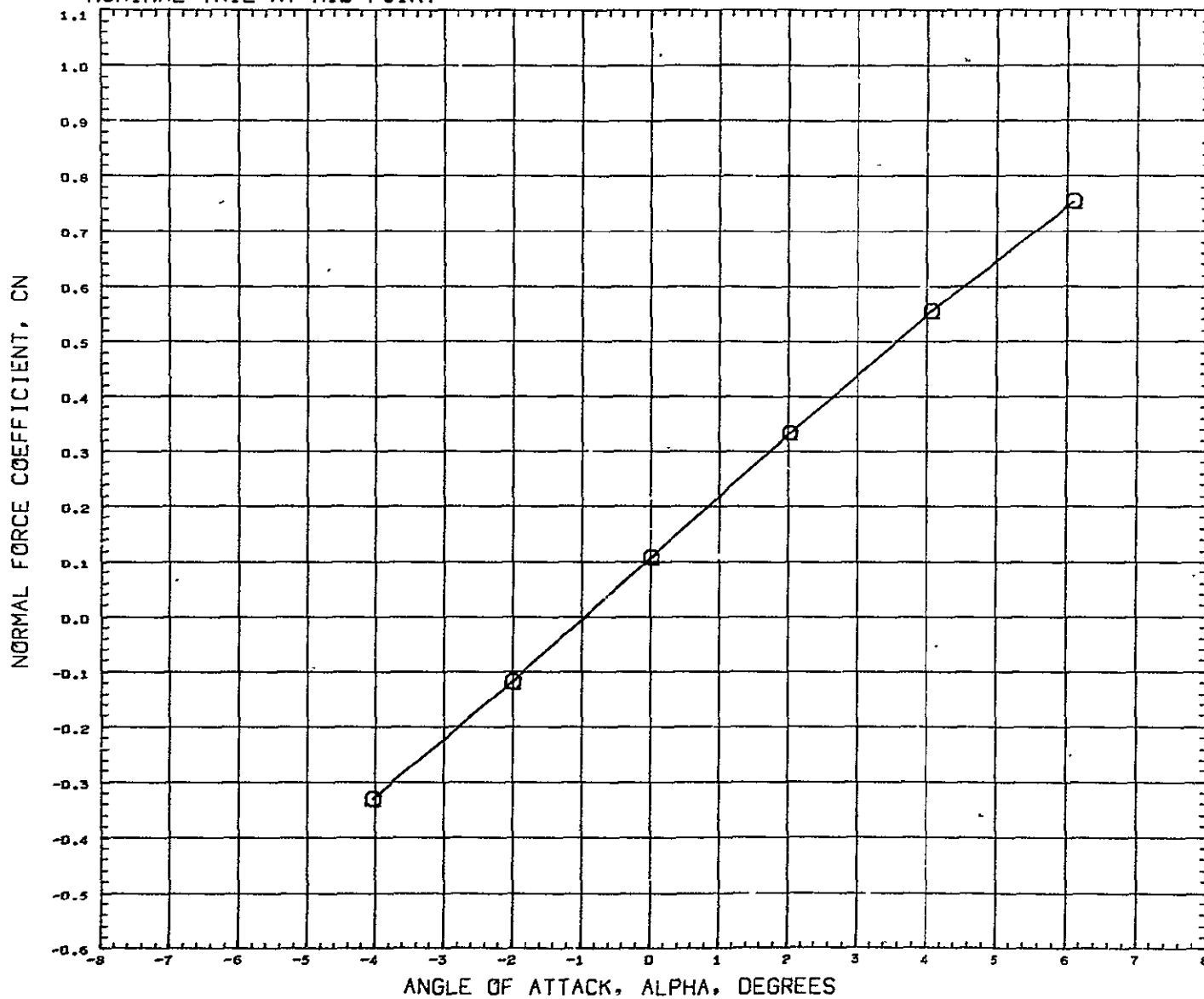
MACH . 0.250

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(RG2039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(RG2034)	MSC SER 39 S-5 ORBITER E1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(RG2040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFD	1.5000 FT
(RG2041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XHRP	15.5200 IN
(RG2042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YHRP	0.0000
(RG2043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZHRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

NOMINAL TAIL AT MID-POINT

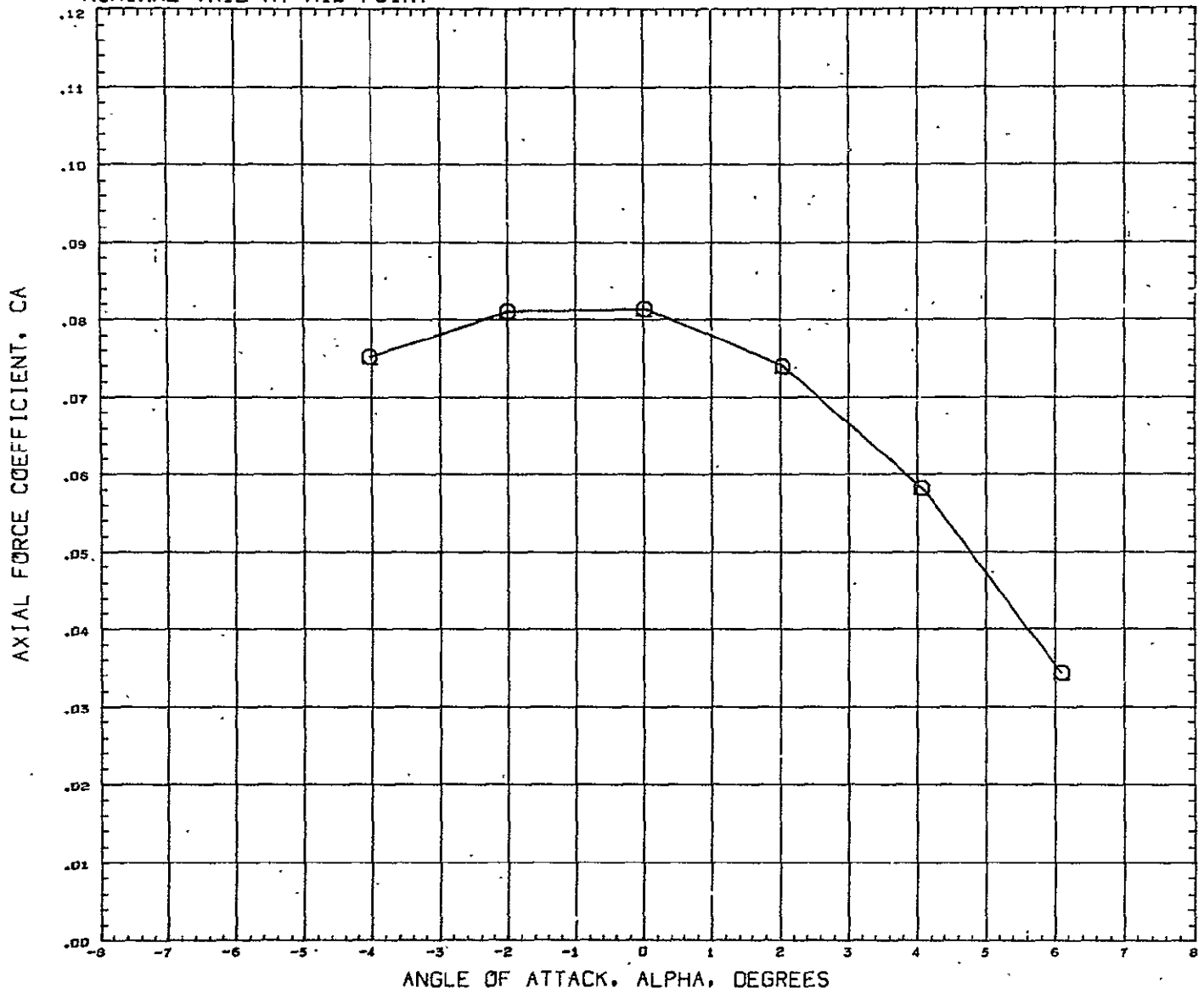


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERPOS	2.050

REFERENCE INFORMATION		
REFS	0.3200	SG FT
REFL	0.2300	FT
REFB	1.5000	FT
XNRF	15.5200	IN
YNRF	0.0000	
ZNRF	2.4000	IN
SCALE	1.8750	PCT

REFERENCE FILE

NOMINAL TAIL AT MID-POINT

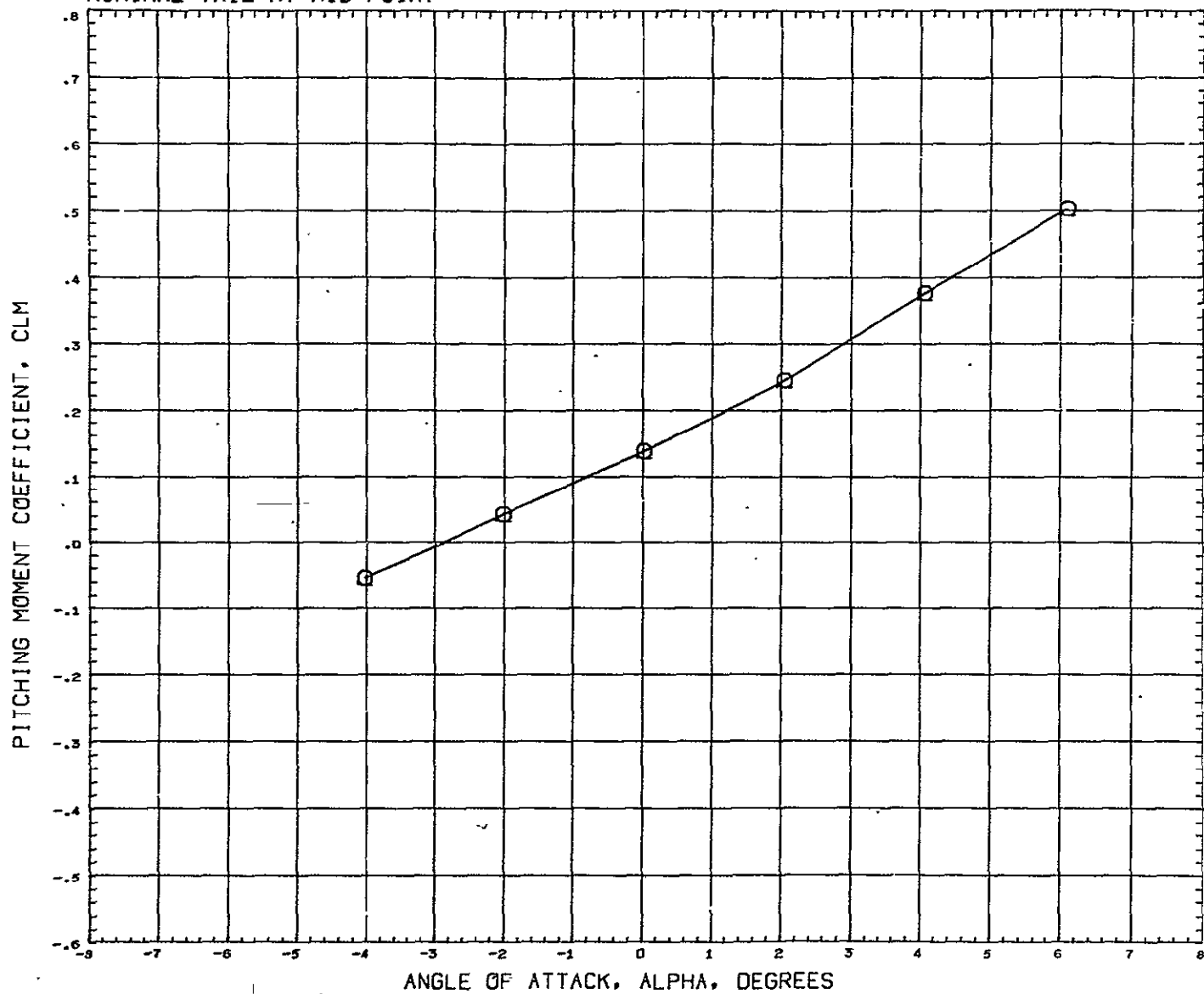


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERPOS	2.050

REFERENCE FILE

REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XHRP	15.5200	IN
YHRP	0.0000	
ZHRP	2.4000	IN
SCALE	1.8750	PCT

NOMINAL TAIL AT MID-POINT



SYMBOL	HACH	PARAMETRIC VALUES			
Q	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERPOS	2.050

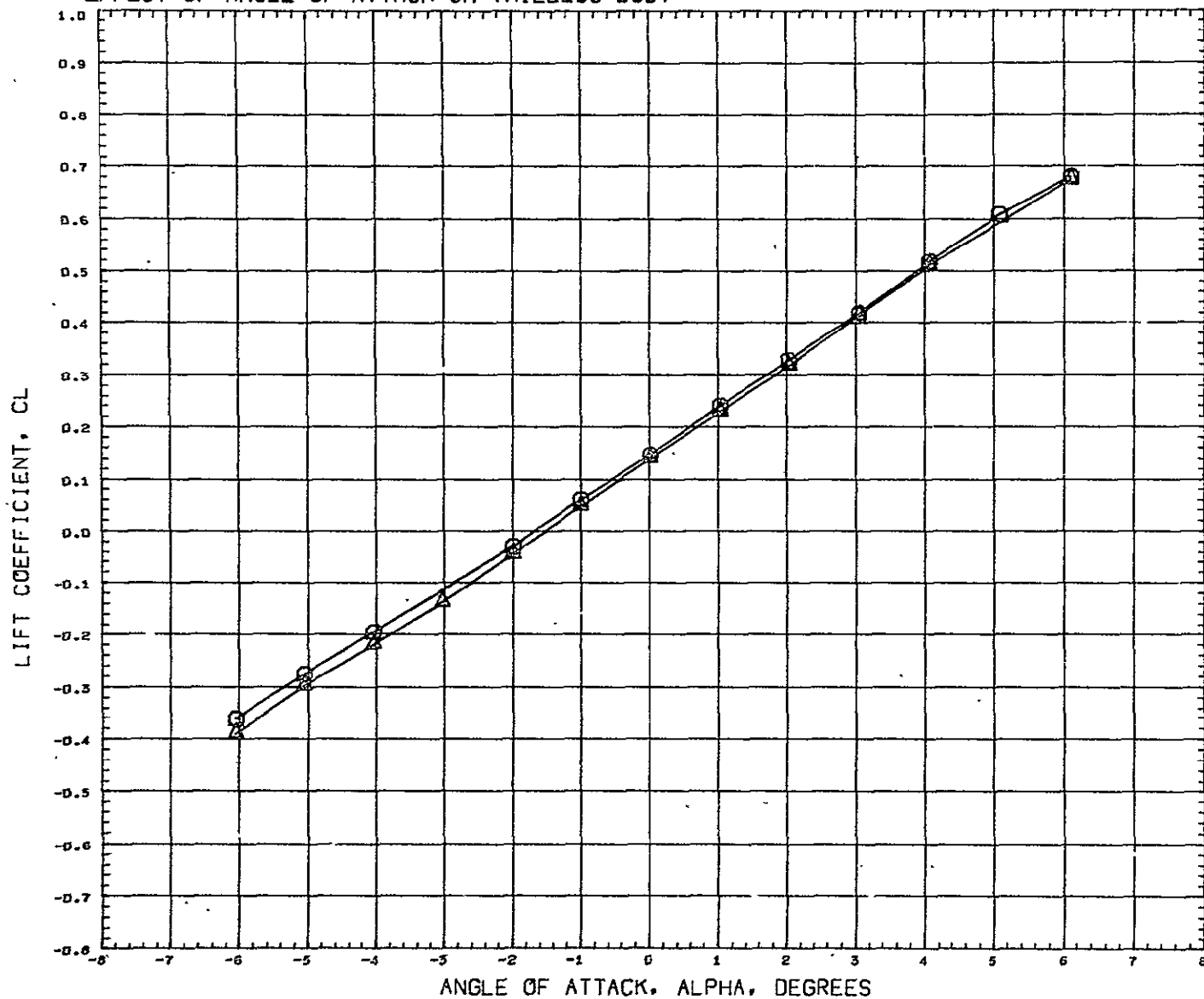
REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XMRP	15.5200	IN
YMRP	0.0000	
ZMRP	2.4000	IN
SCALE	1.8750	PCT

REFERENCE FILE

MSC SER 39 S-5 ORBITER B1W1V3H42

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EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



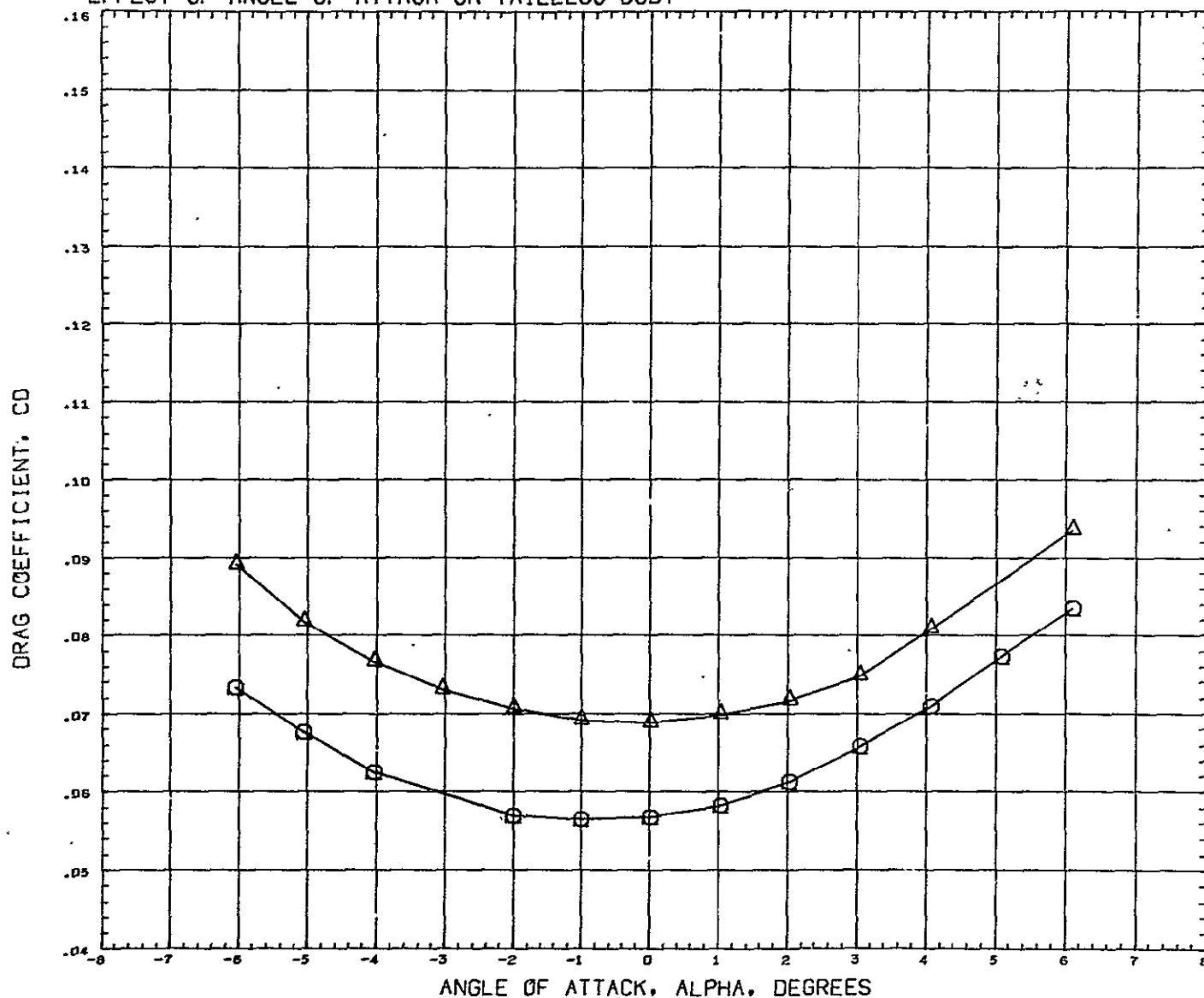
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BG2001) MSC SER 39 S-5 ORBITER B1W1V3
 (BG2006) MSC SER 39 S-5 ORBITER B1W1V3

BETA
 0.000
 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XHRP 15.5200 IN
 YHRP 0.0000
 ZHRP 2.4000 IN
 SCALE 1.8750 FCT

MACH 0.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



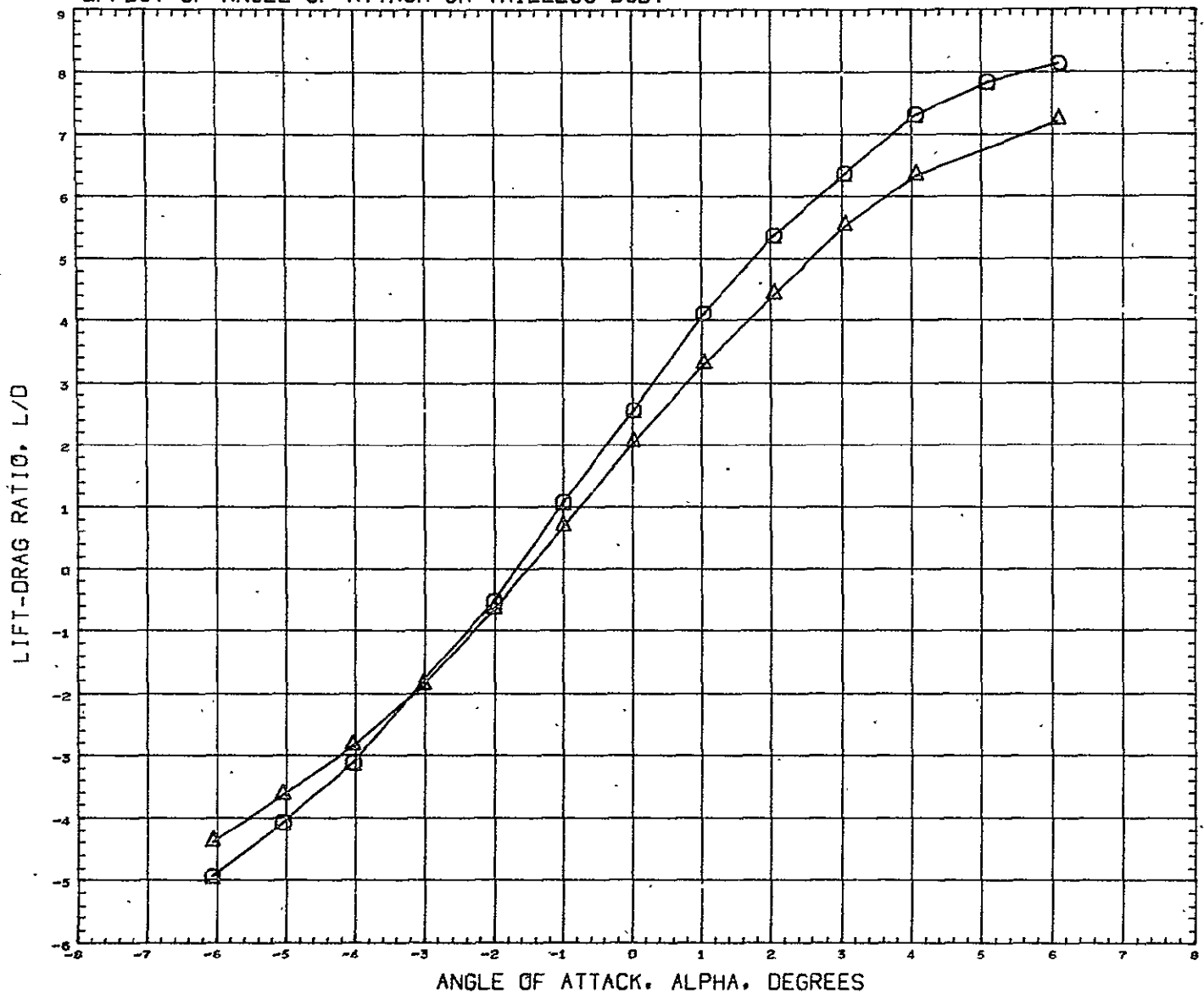
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (802001) MSC SER 39 S-5 ORBITER B1W1V3
 (802002) MSC SER 39 S-5 ORBITER D1W1V3

BETA
 0.000
 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5900 FT
 XMRP 15.5200 IN
 YMRP 0.0000
 ZMRP 2.4000 IN
 SCALE 1.8750 FCT

MACH 0.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



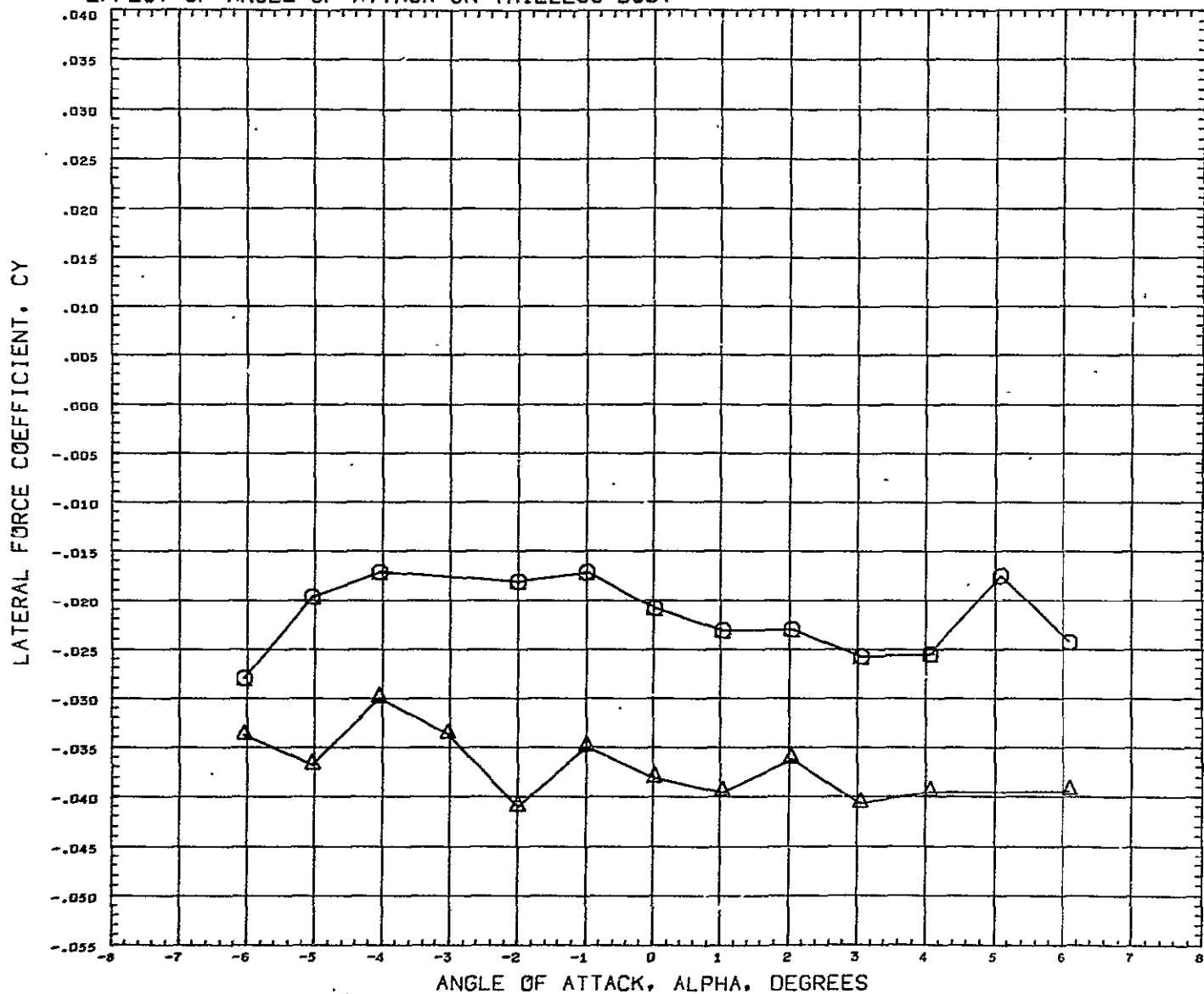
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BG2001) MSC SER 39 S-5 ORBITER B1W1V3
 (BG2006) MSC SER 39 S-5 ORBITER E1W1V3

BETA
 0.000
 0.000

REFERENCE INFORMATION
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 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000
 ZMRP 2.4000 IN
 SCALE 1.8750 PCT

MACH 0.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



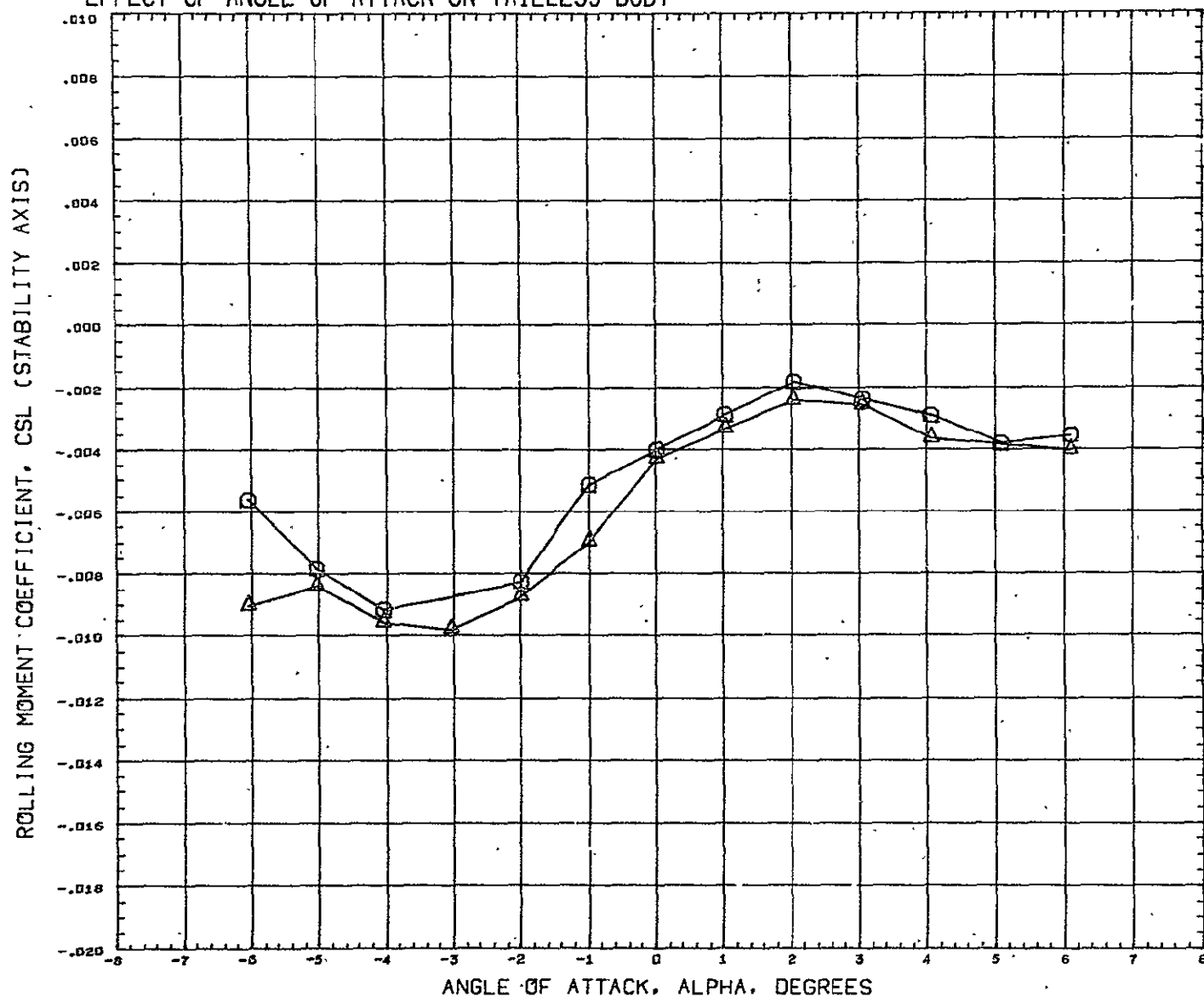
DATA SET SYMBOL CONFIGURATION DESCRIPTION
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 (862006) M5C SER 39 S-5 ORBITER B1W1V3

BETA
 0.000
 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XHRP 15.5200 IN
 YHRP 0.0000
 ZHRP 2.4000 IN
 SCALE 1.8750 PCT

MACH 0.250

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



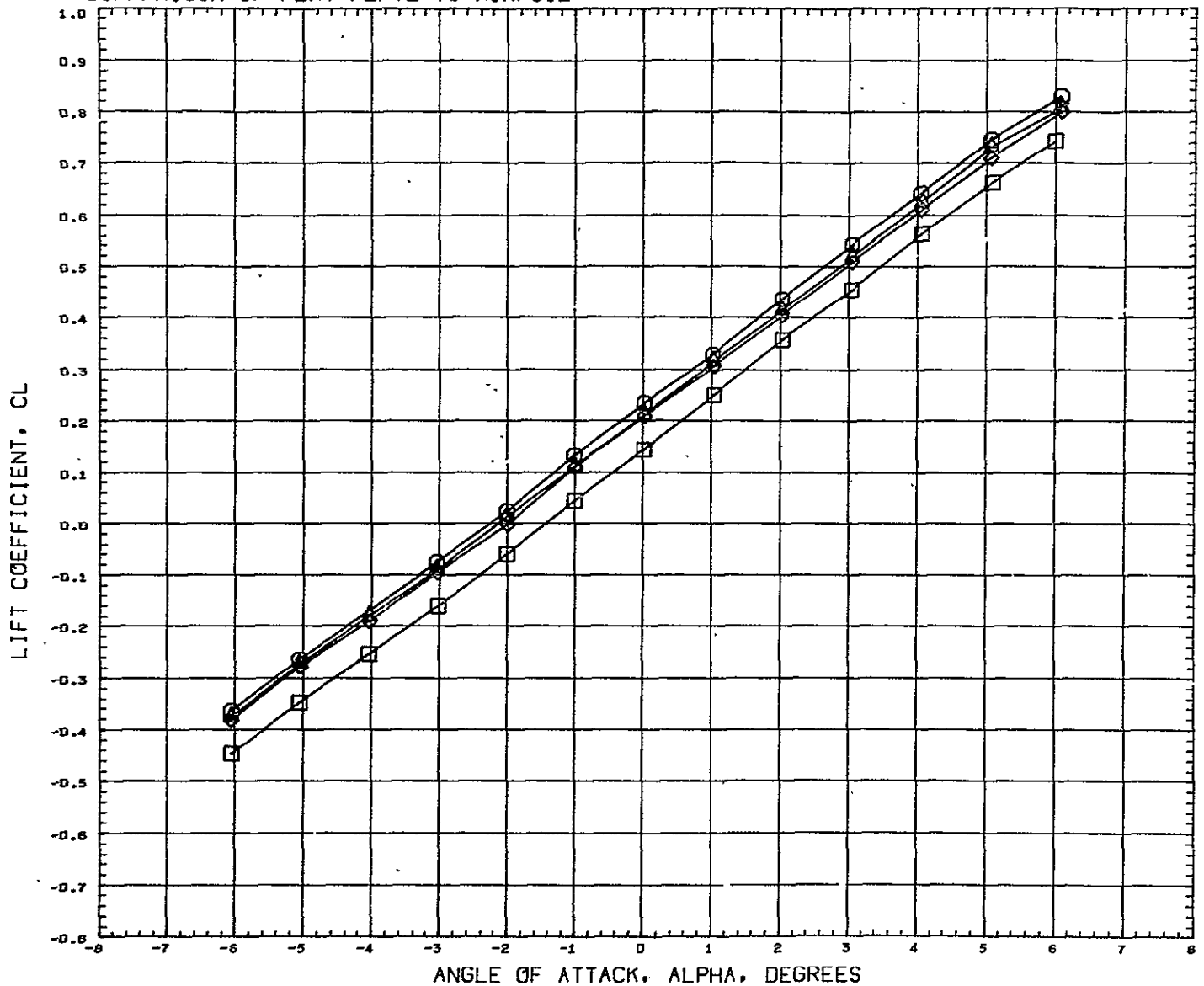
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BG2001) MSC SER 39 S-S ORBITER B1WLV3
 (BG2006) MSC SER 39 S-S ORBITER B1WLV3

BETA
 0.000
 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000 IN
 ZMRP 2.4000 IN
 SCALE 1.6750 FCT

HACH F.250

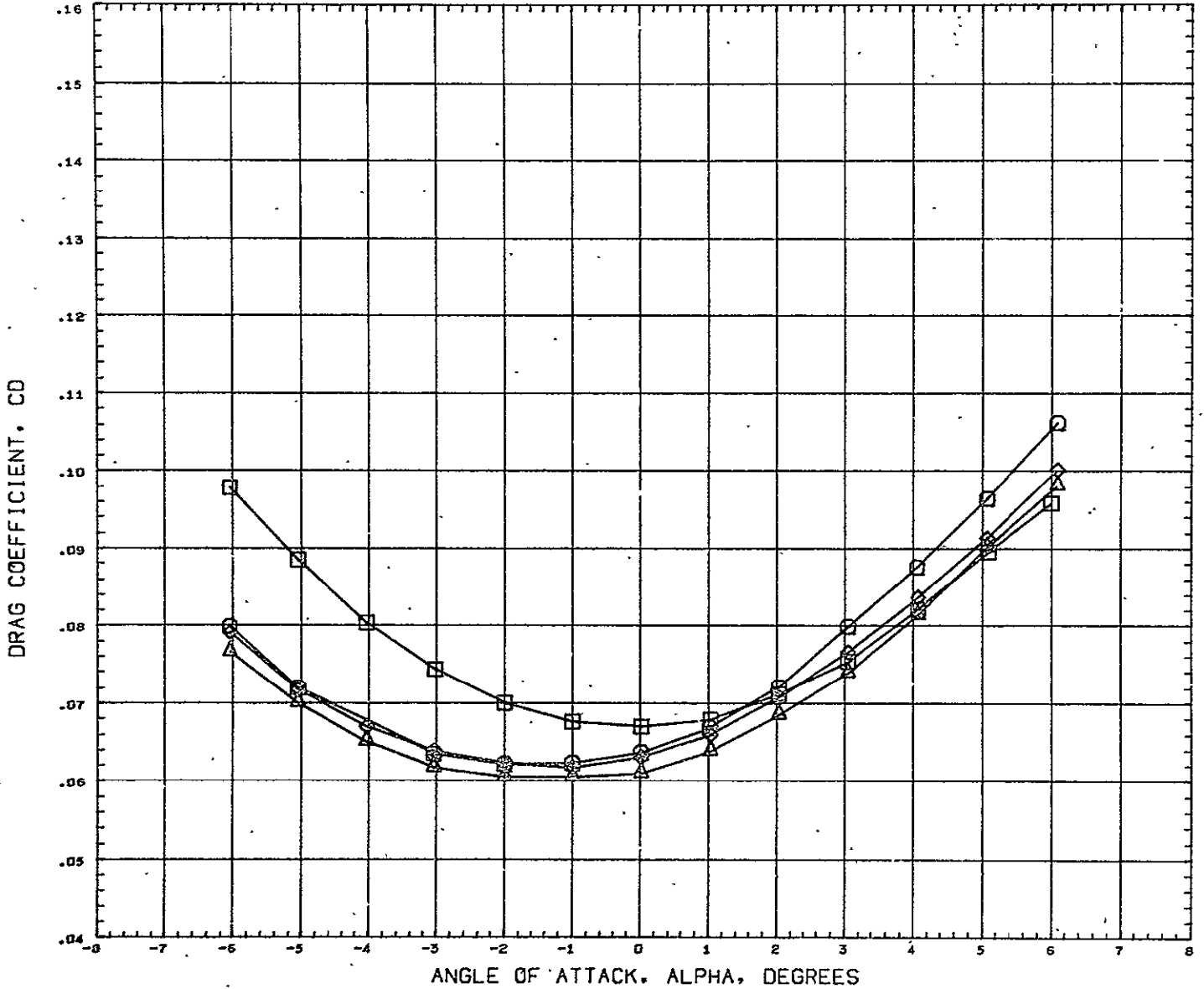
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B62002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(B62003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(B62004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(B62005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XHRF	15.5200 IN
						YHRF	0.0000
						ZHRF	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

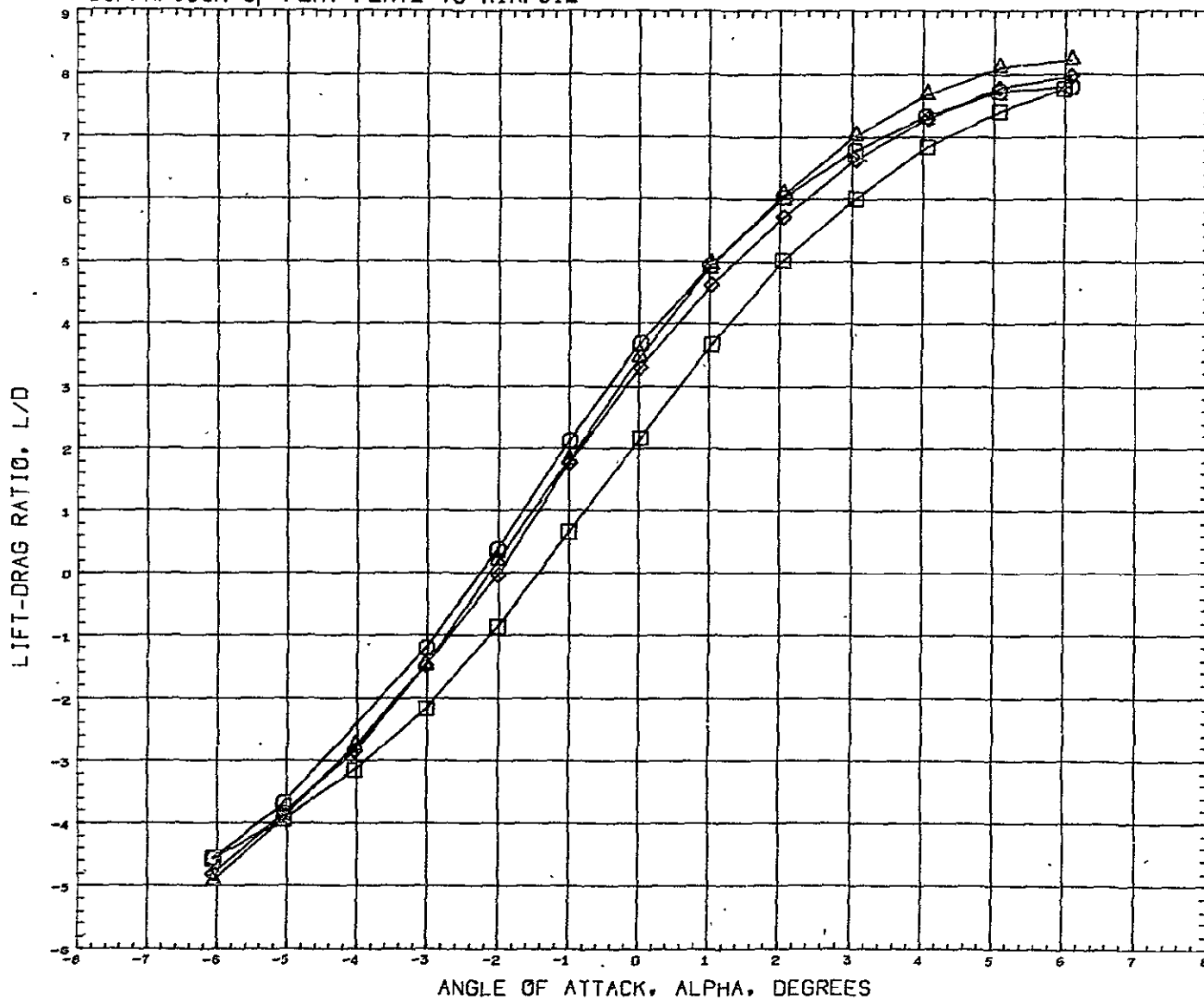
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION
(B62002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS 0.3200 SQ FT
(B62003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL 0.2300 FT
(B62004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB 1.5000 FT
(B62005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP 15.5200 IN
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						ZMRP 2.4000 IN
						SCALE 1.8750 PCT

MACH 0.250

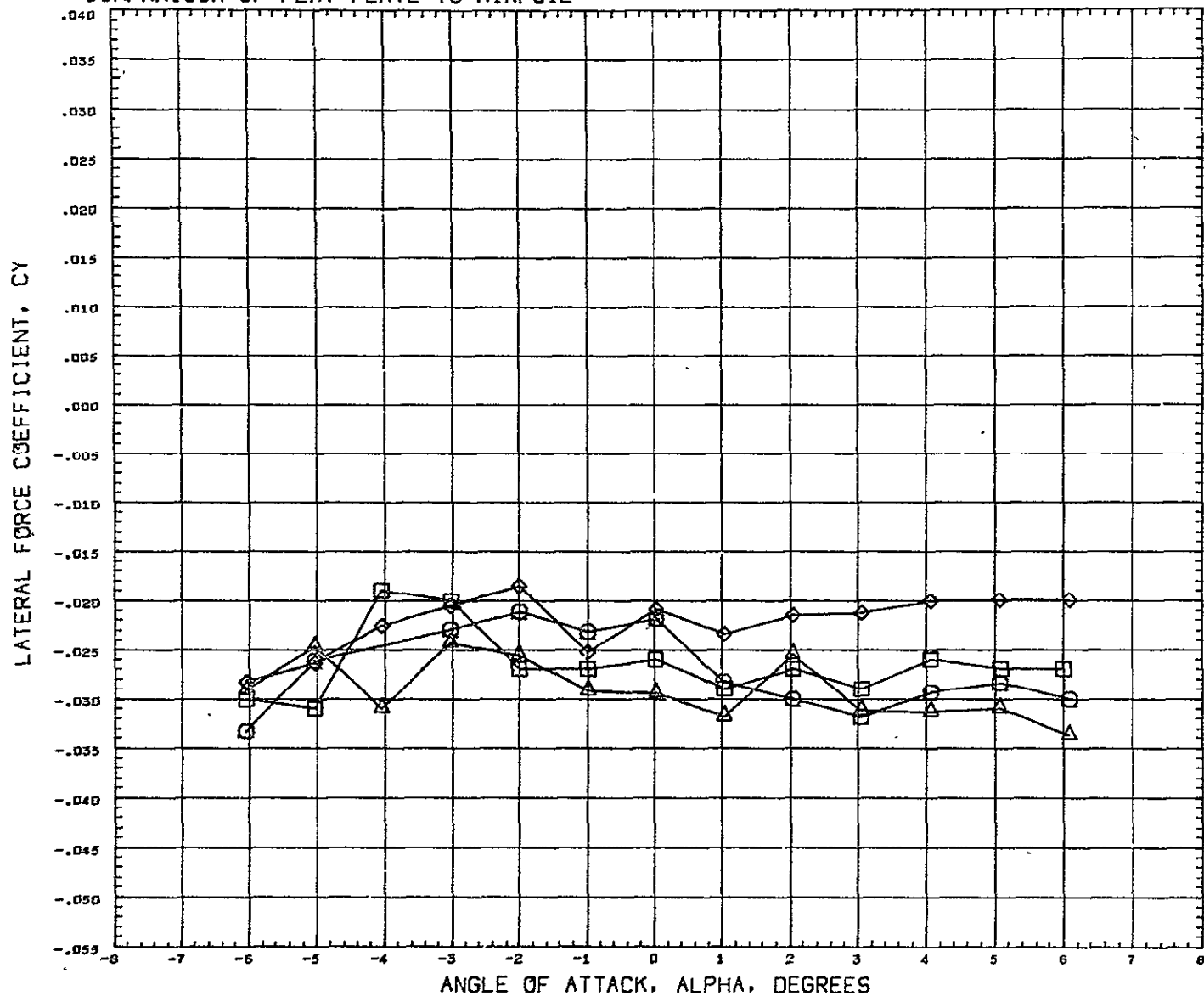
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(BG2003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(BG2004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFE	1.5000 FT
(BG2005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.9203 IN
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						ZHRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

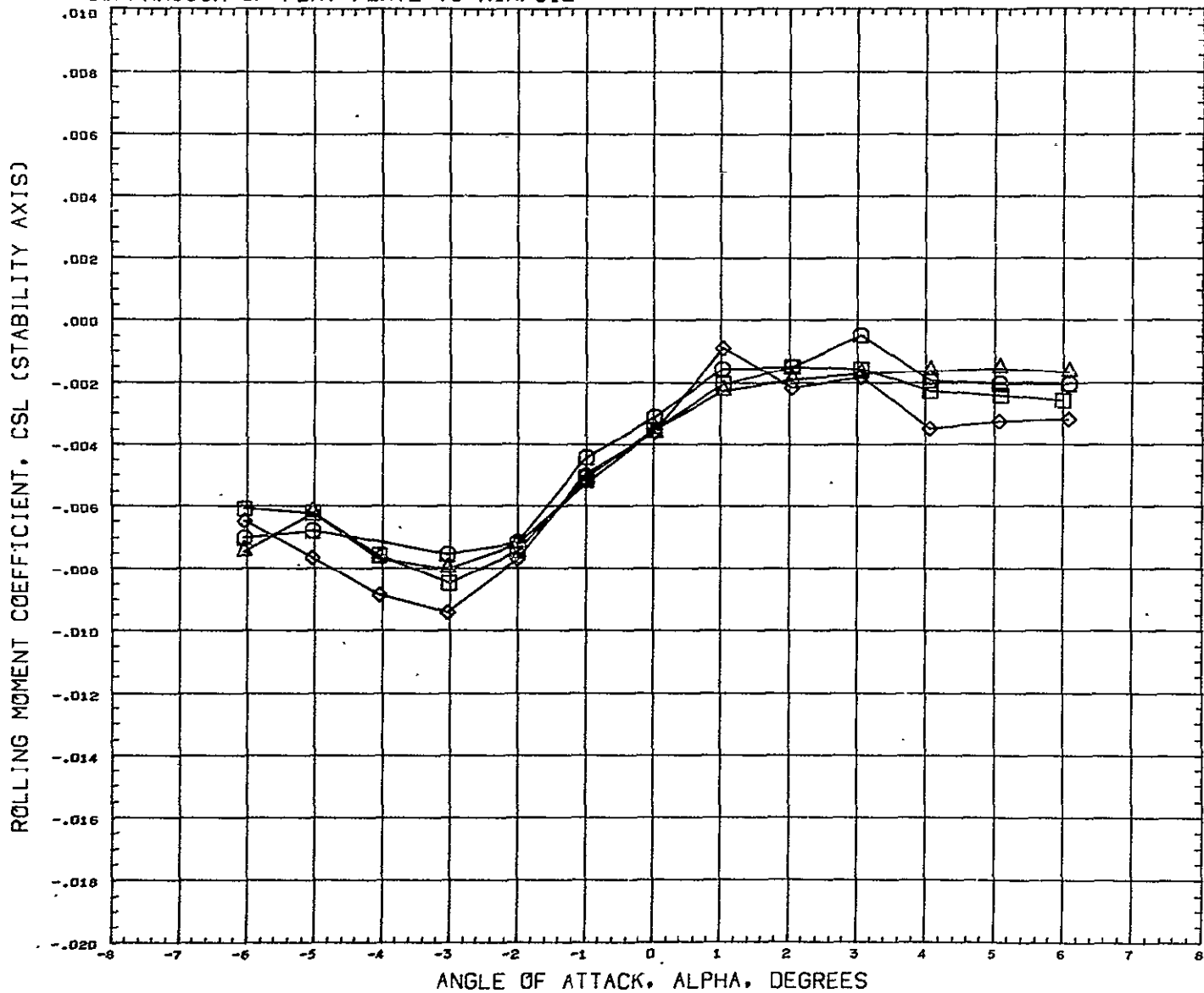
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B62002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(B62003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(B62004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(B62005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.5200 IN
						YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

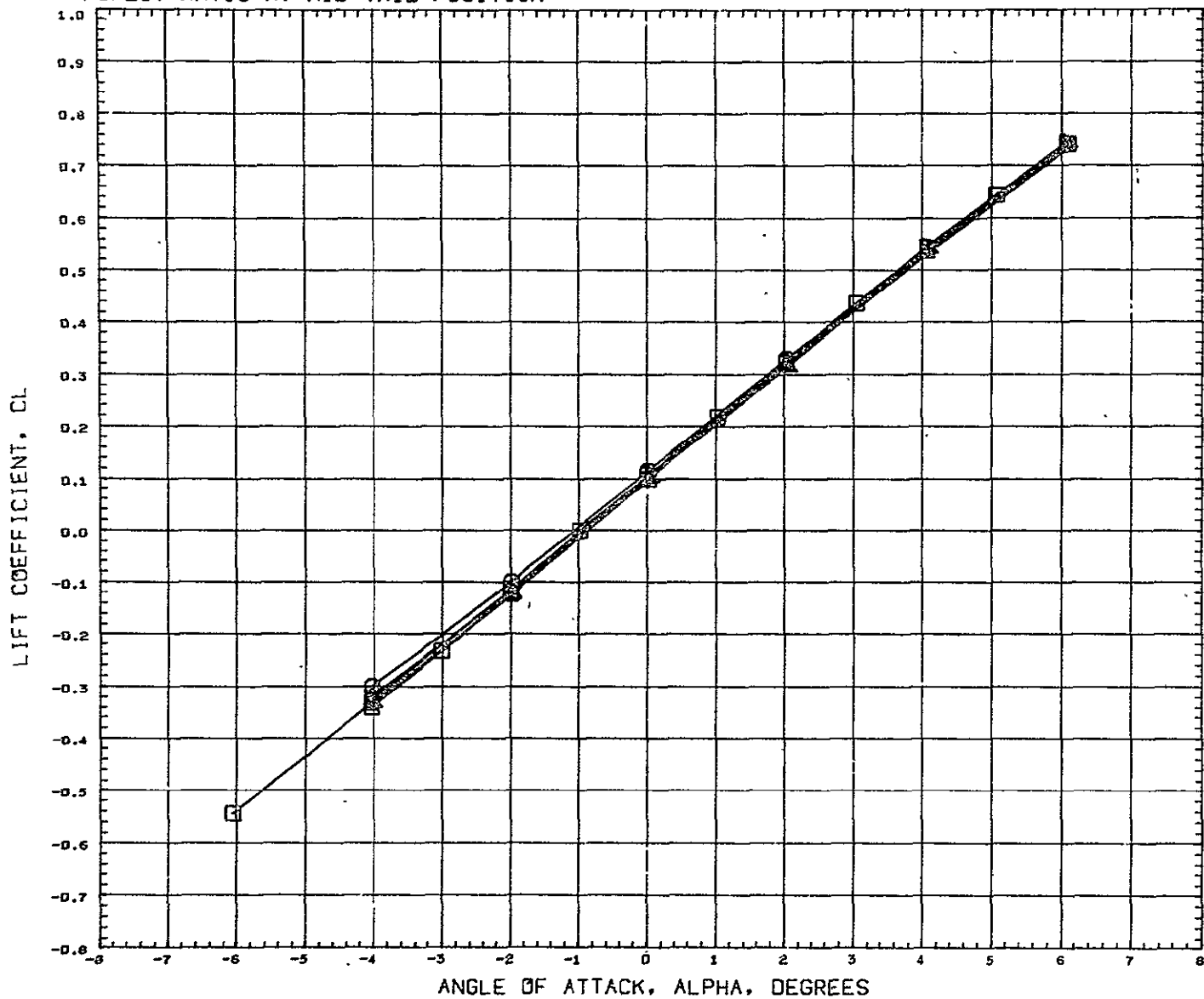
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(862002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(862003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(862004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(862005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.5200 IN
						YNRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

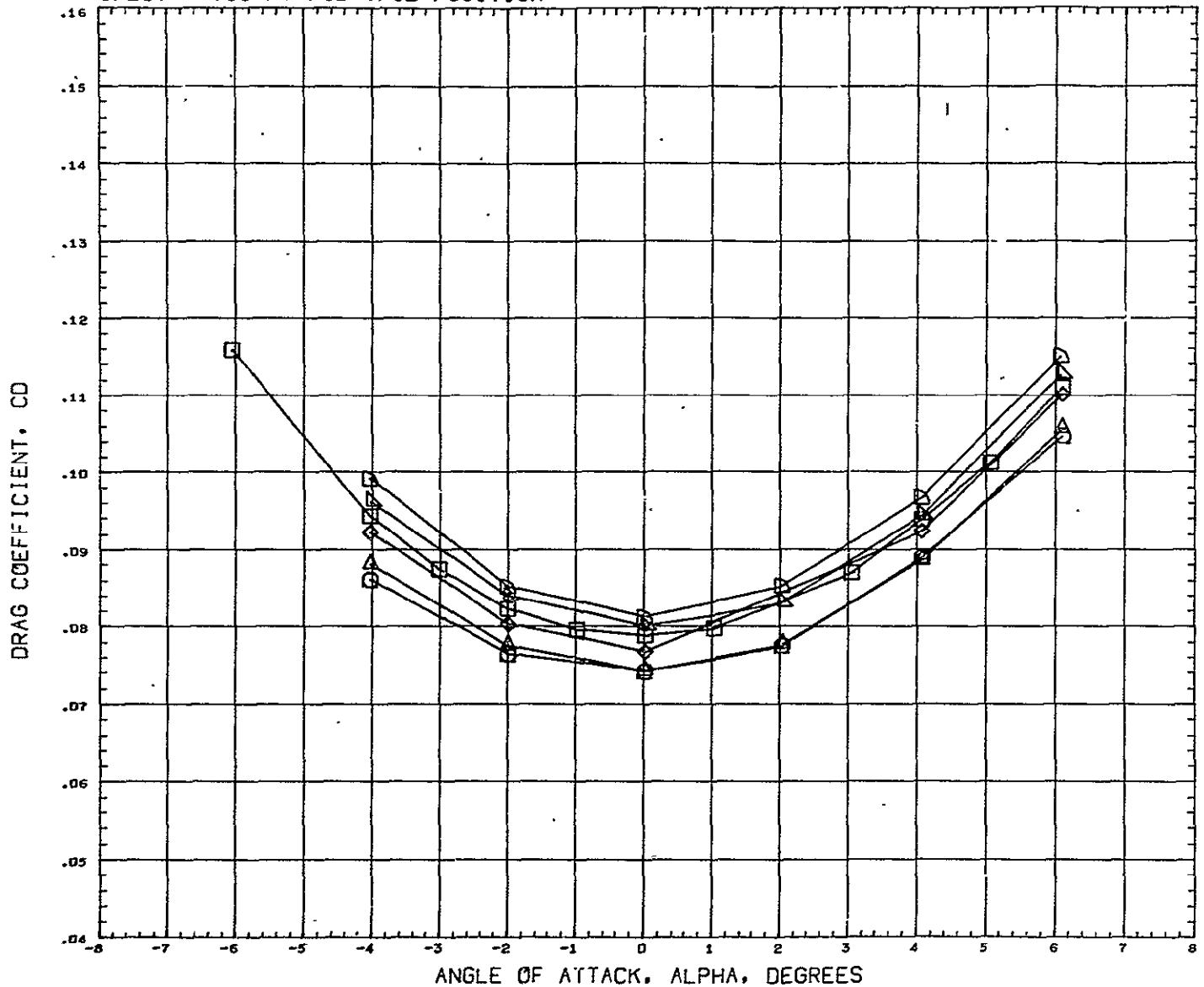
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



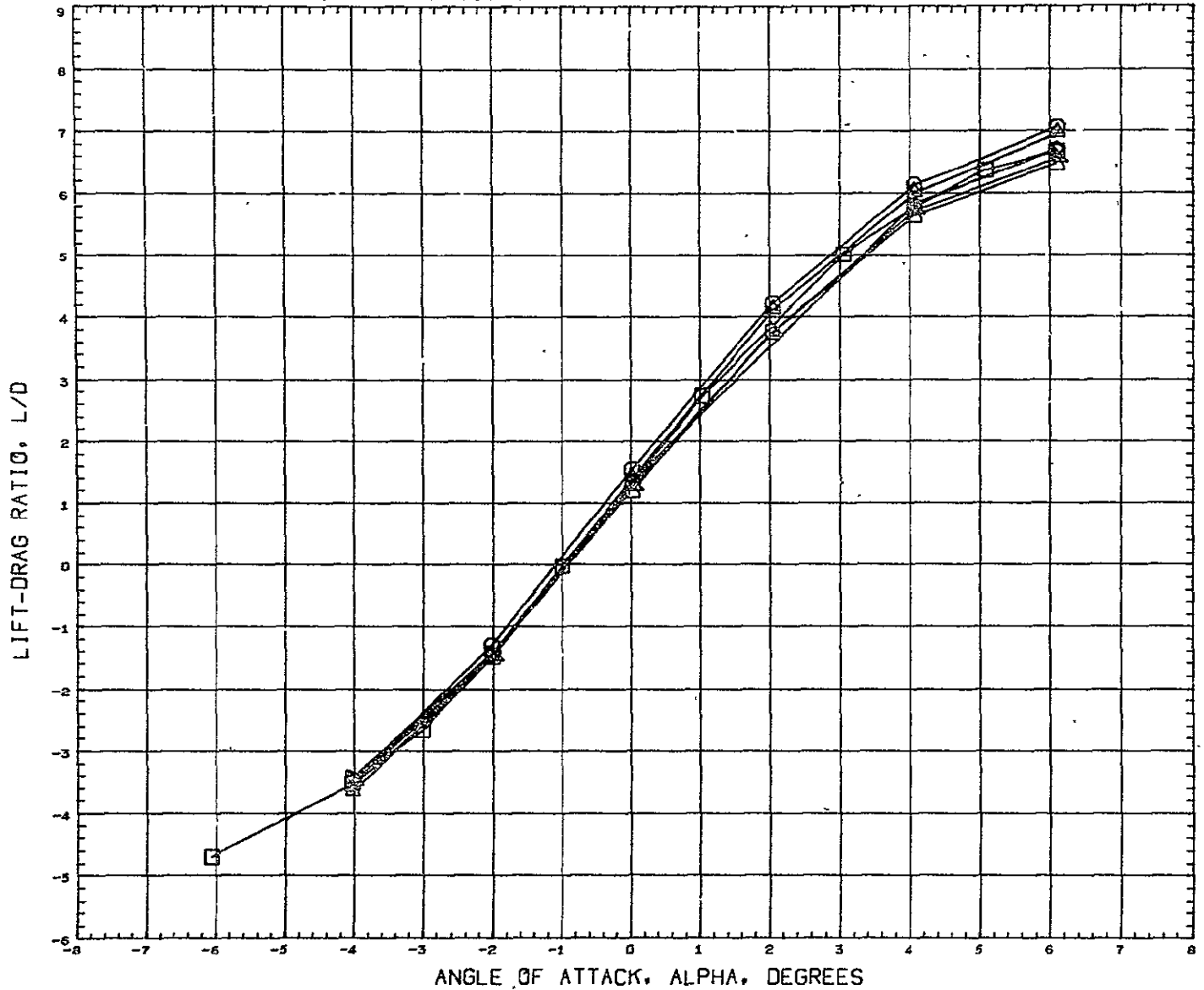
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(B62032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(B62008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(B62009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.5000 FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(B62010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YNRP	0.0000
(B62011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZNRP	2.4000 IN
						SCALE	1.0750 PCT
MACH 0.250							

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(BG2032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(BG2008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(BG2009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.5000 FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(BG2010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRP	0.0000
(BG2011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

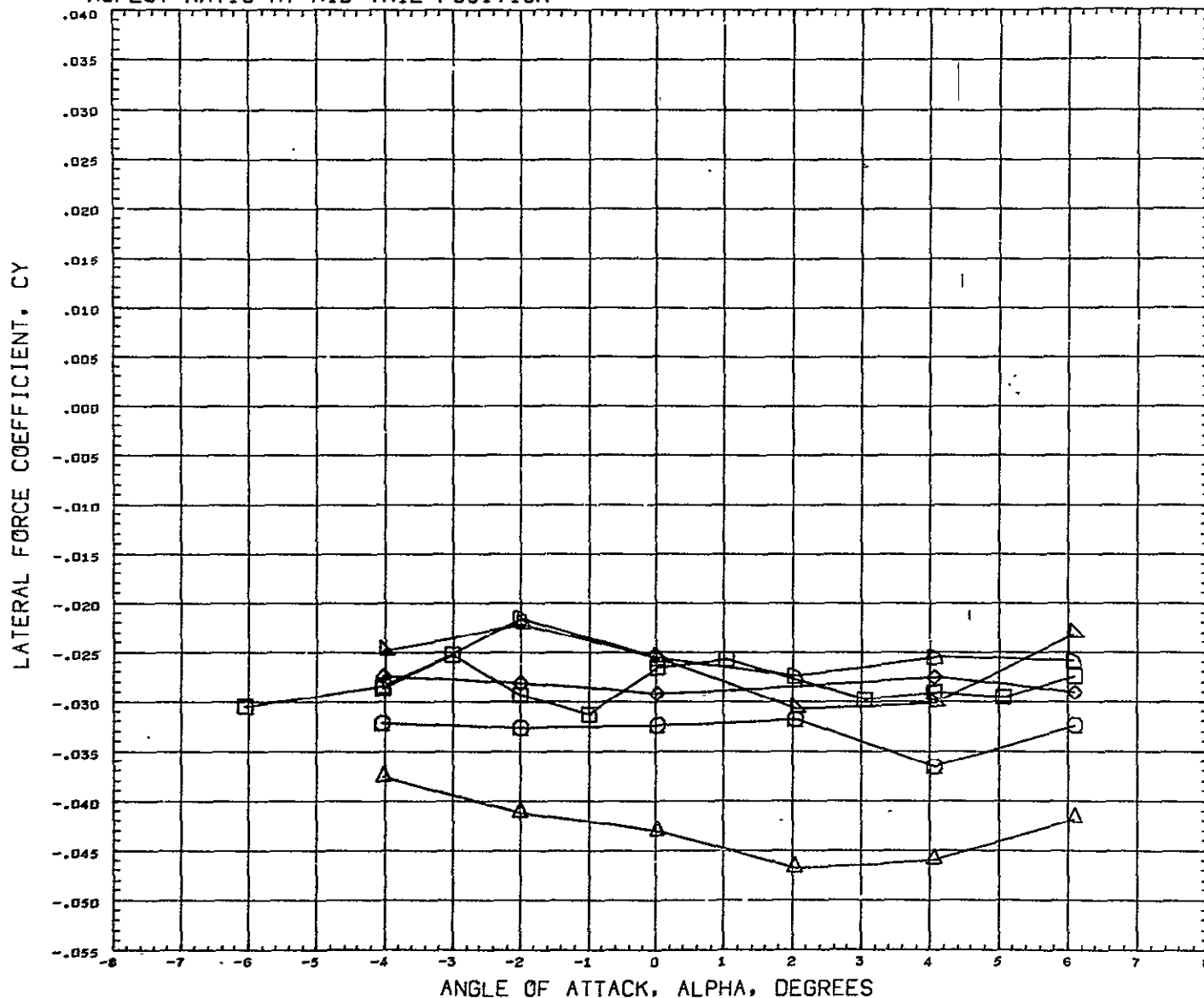
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION
(B62032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS 0.3200 SQ FT
(B62008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL 0.2300 FT
(B62009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB 1.5000 FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP 15.5200 IN
(B62010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRP 0.0000
(B62011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP 2.4000 IN
						SCALE 1.8750 PCT

MACH 0.250

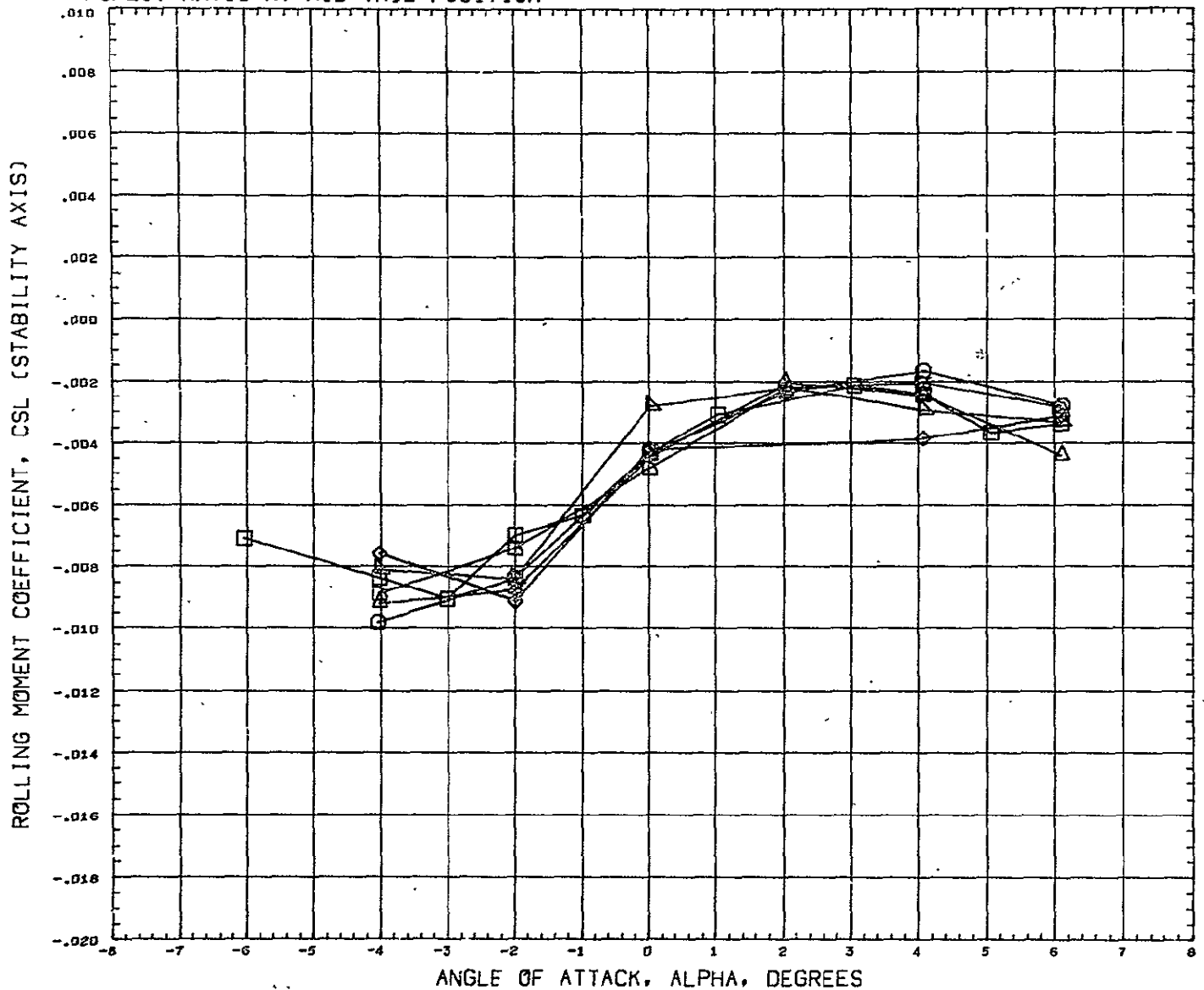
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION		
(B62032)	MSC SER 39 S-5 ORBITER B1WLV3H21	1.000	15.000	0.500	0.000	REFS	0.3200	SQ FT
(B62008)	MSC SER 39 S-5 ORBITER B1WLV3H22	1.500	15.000	0.500	0.000	REFL	0.2300	FT
(B62009)	MSC SER 39 S-5 ORBITER B1WLV3H23	1.750	15.000	0.500	-0.000	REFB	1.4000	FT
(B62007)	MSC SER 39 S-5 ORBITER B1WLV3H24	2.000	15.000	0.500	0.000	XHRF	15.5200	IN
(B62010)	MSC SER 39 S-5 ORBITER B1WLV3H25	2.250	15.000	0.500	0.000	YHRF	0.0000	
(B62011)	MSC SER 39 S-5 ORBITER B1WLV3H26	2.500	15.000	0.500	0.000	ZHRF	2.4000	IN
						SCALE	1.8750	PCT

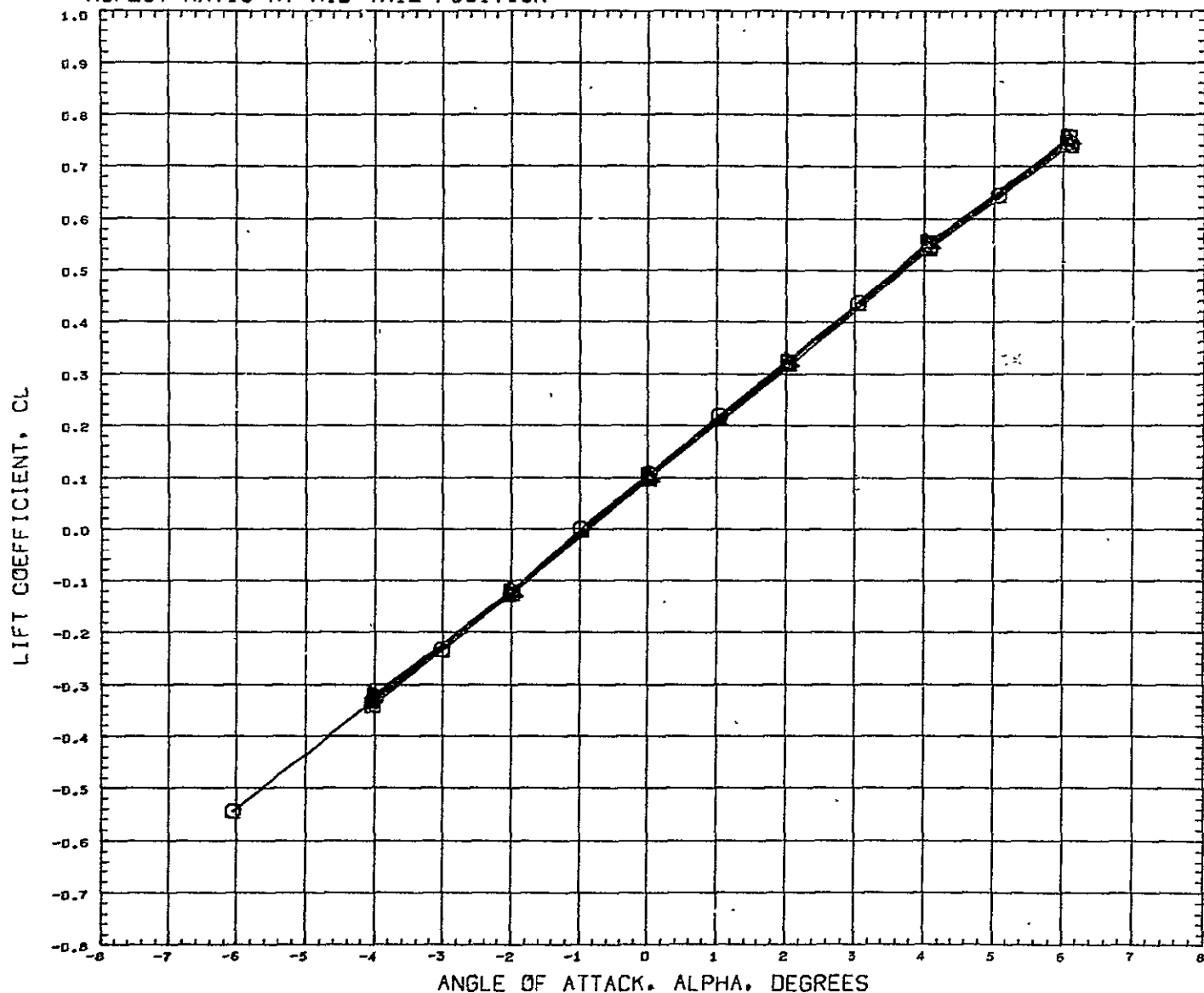
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



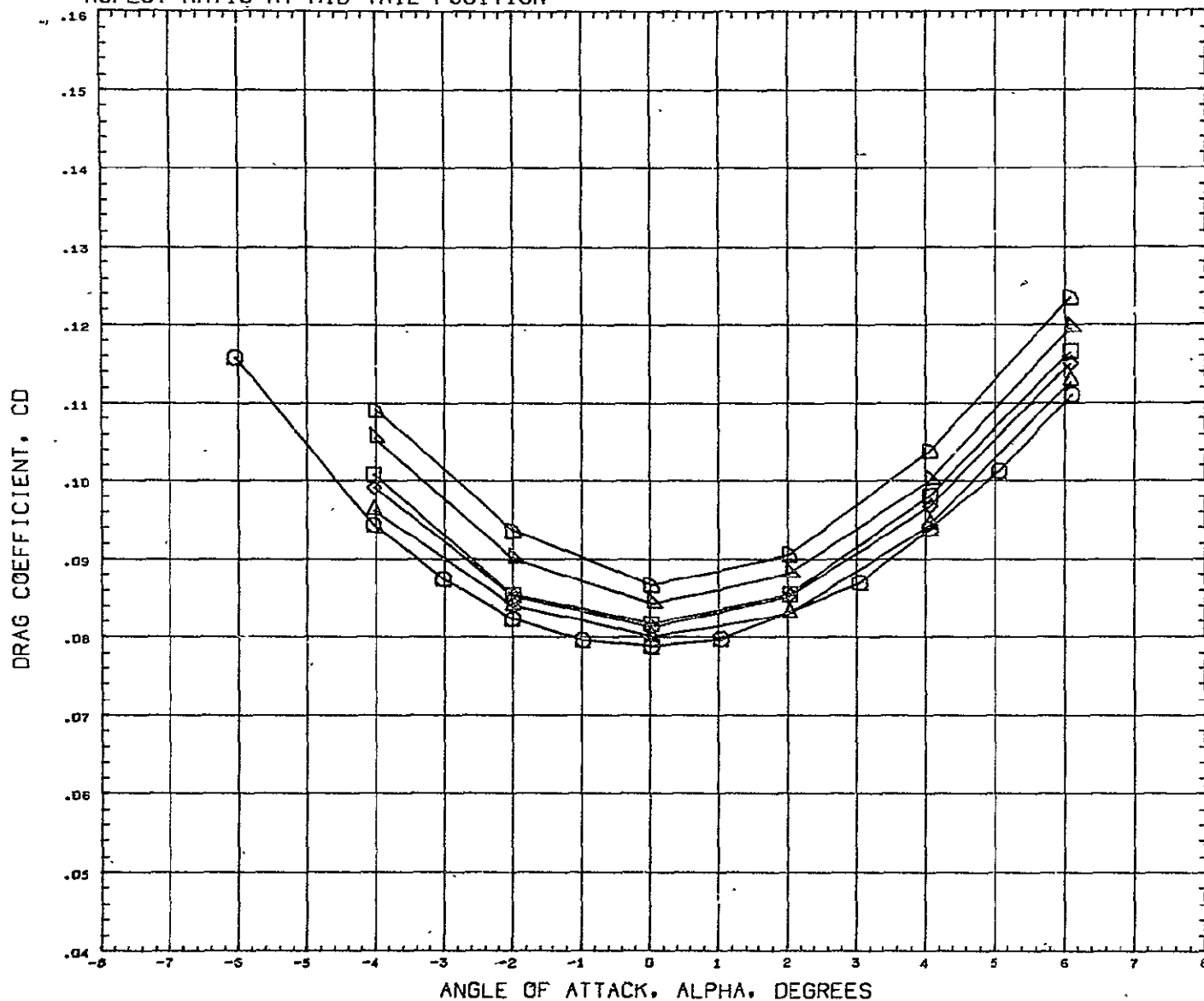
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(862032)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(862008)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(862009)	MSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.3000 FT
(862007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(862010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRF	0.0000
(862011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP	2.4000 IN
MACH 0.250						SCALE	1.8750 PCT

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(862007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SR FT
(862010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(862011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000 FT
(862012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(862013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP	0.0000
(862014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

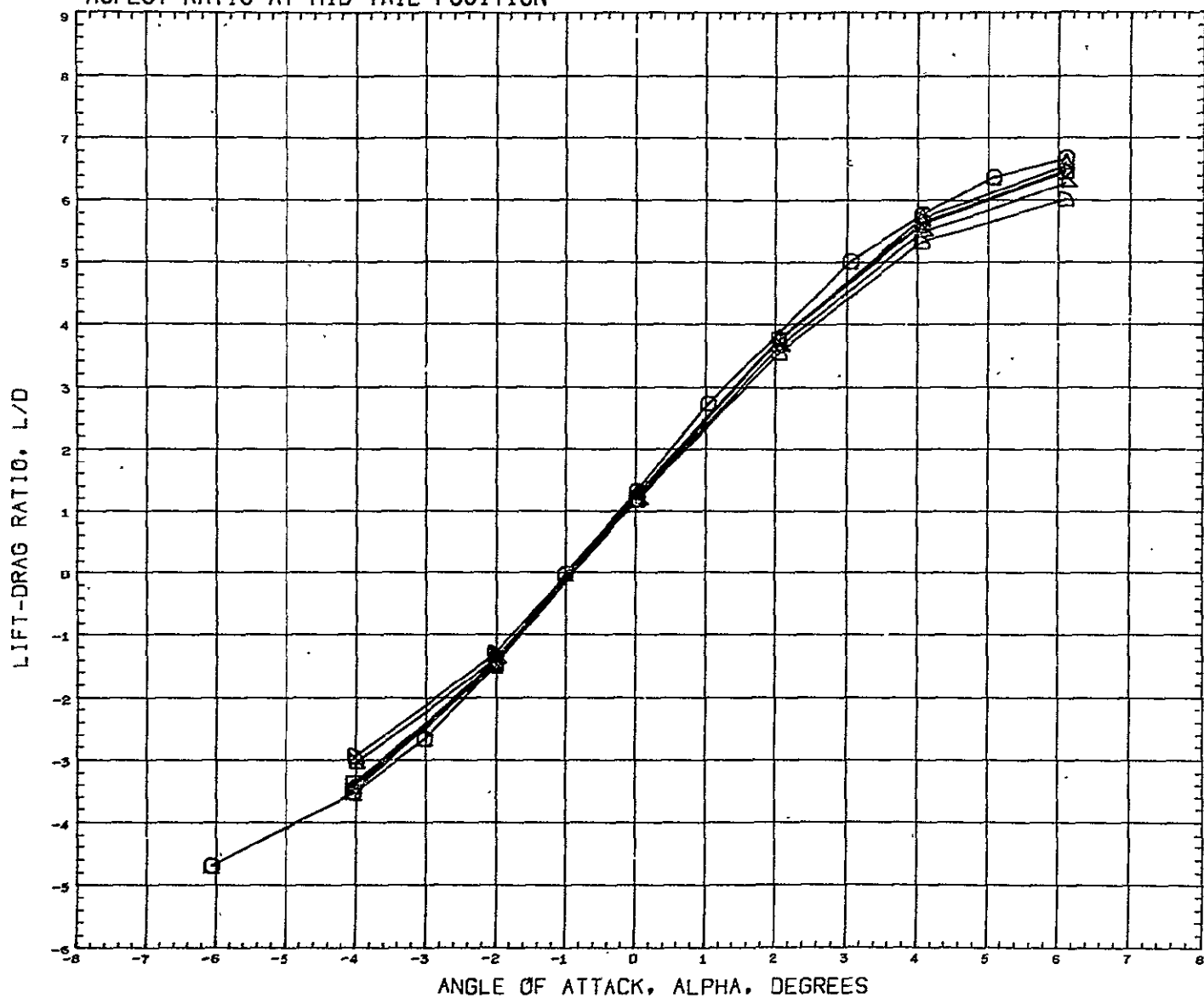
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(B62010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(B62011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000 FT
(B62012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(B62013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRF	0.0000
(B62014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.0750 PCT

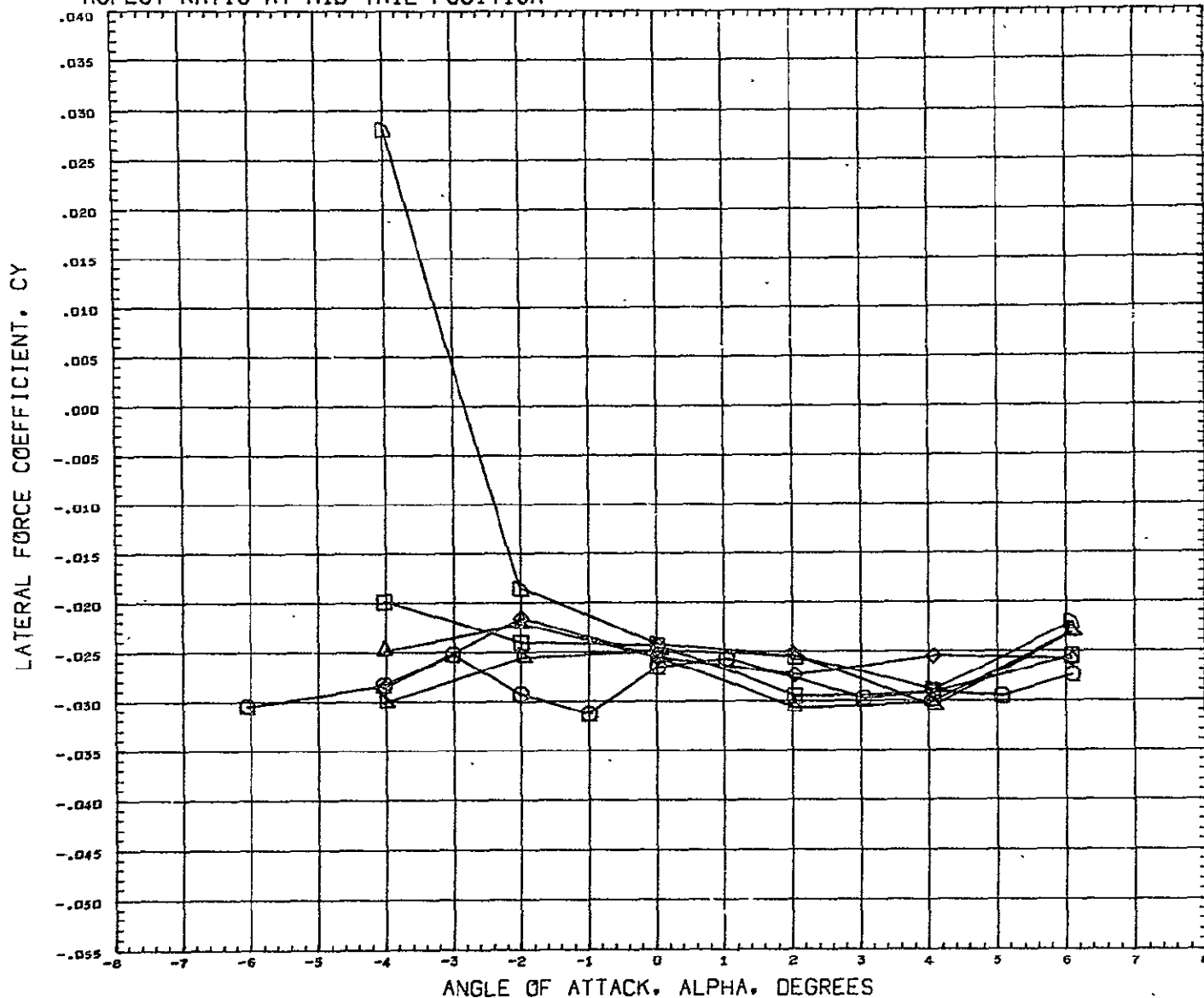
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



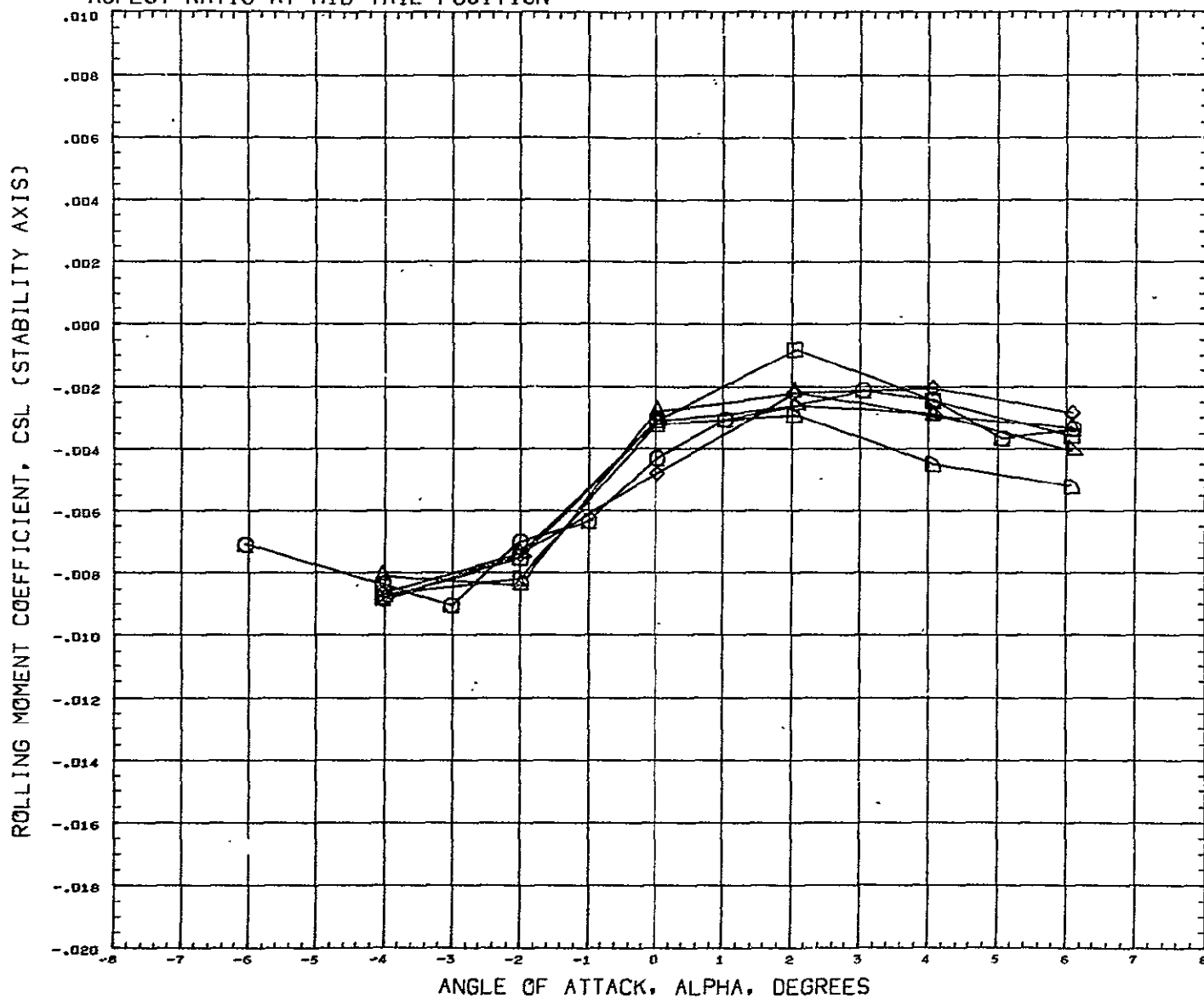
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(BG2010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(BG2011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000 FT
(BG2012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(BG2013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP	0.0000
(BG2014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

ASPECT RATIO AT MID-TAIL POSITION



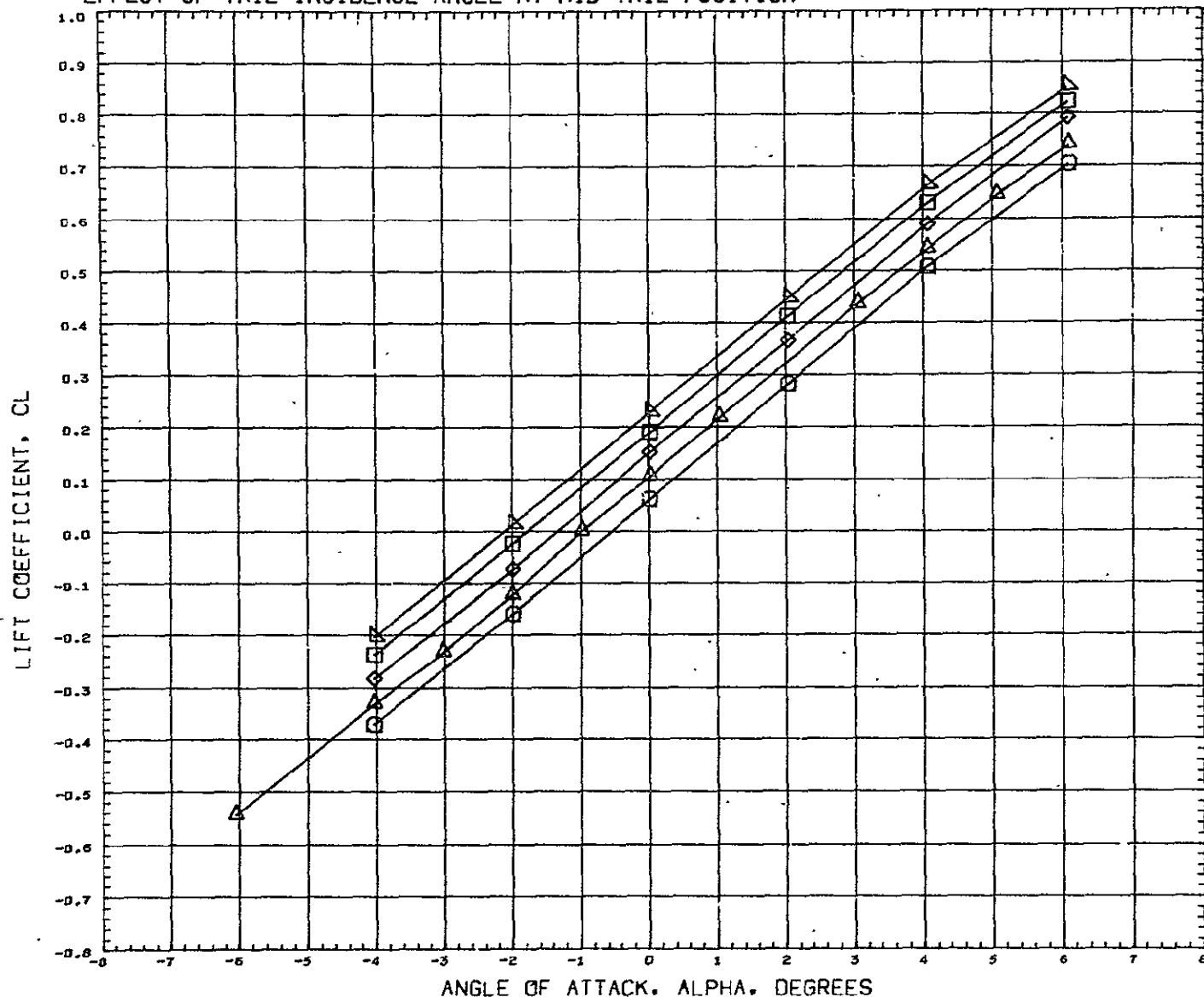
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION		
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200	SQ FT
(B62010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300	FT
(B62011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000	FT
(B62012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XHRF	15.5200	IN
(B67013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YHRF	0.0000	
(B62014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZHRF	2.4000	IN
						SCALE	1.8750	FCT
MACH 0.250								

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(862007)	HSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(862010)	HSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(862011)	HSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFB	1.5000 FT
(862012)	HSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(862013)	HSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP	0.0000
(862014)	HSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

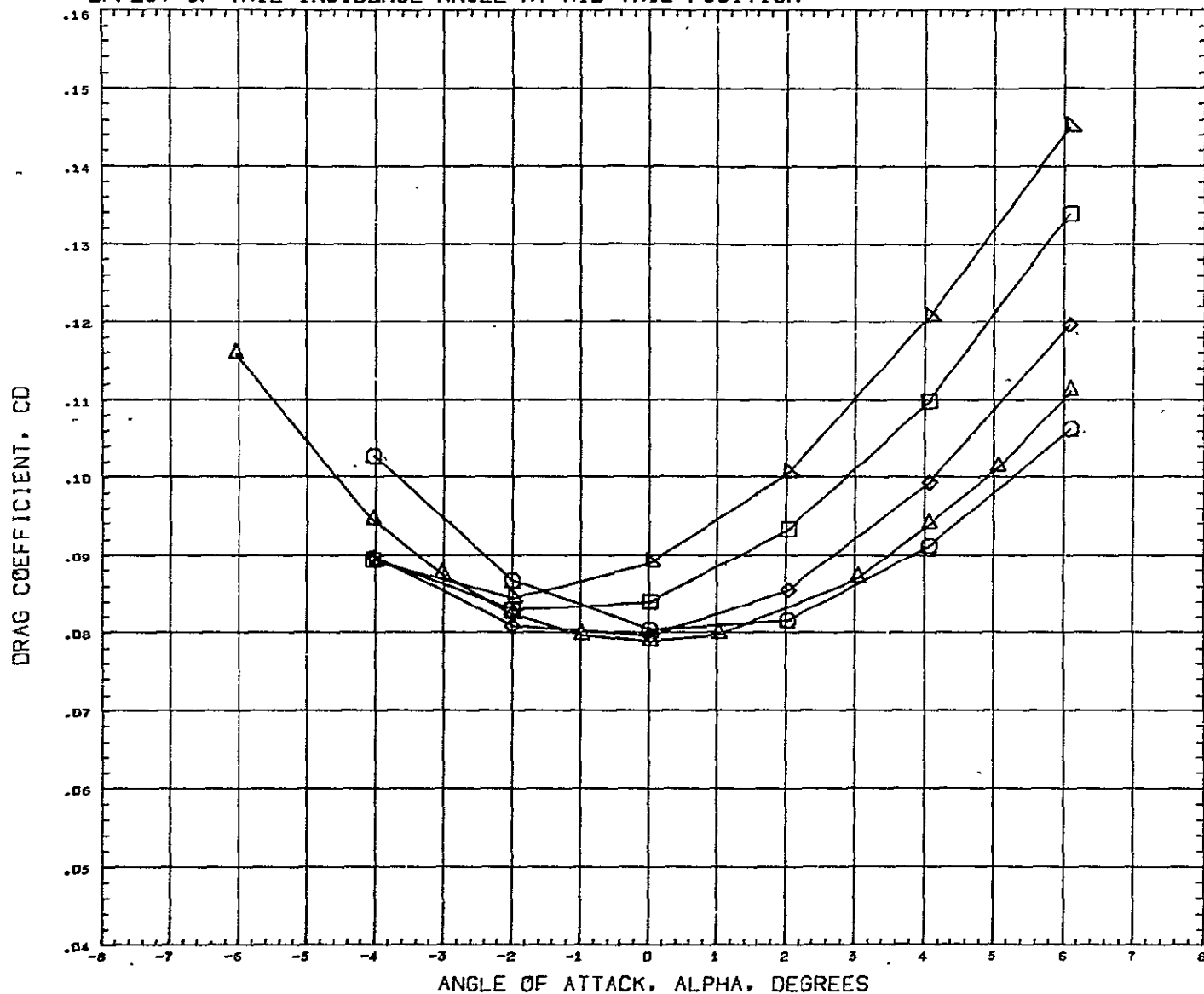
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	SWEEP	TAPER	REFERENCE INFORMATION	
(B02016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REF3	0.3200 SQ FT
(B02007)	MSC SER 39 S-5 ORBITER E1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(B02017)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REF3	1.5000 FT
(B02018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XMRP	15.5209 IN
(B02019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

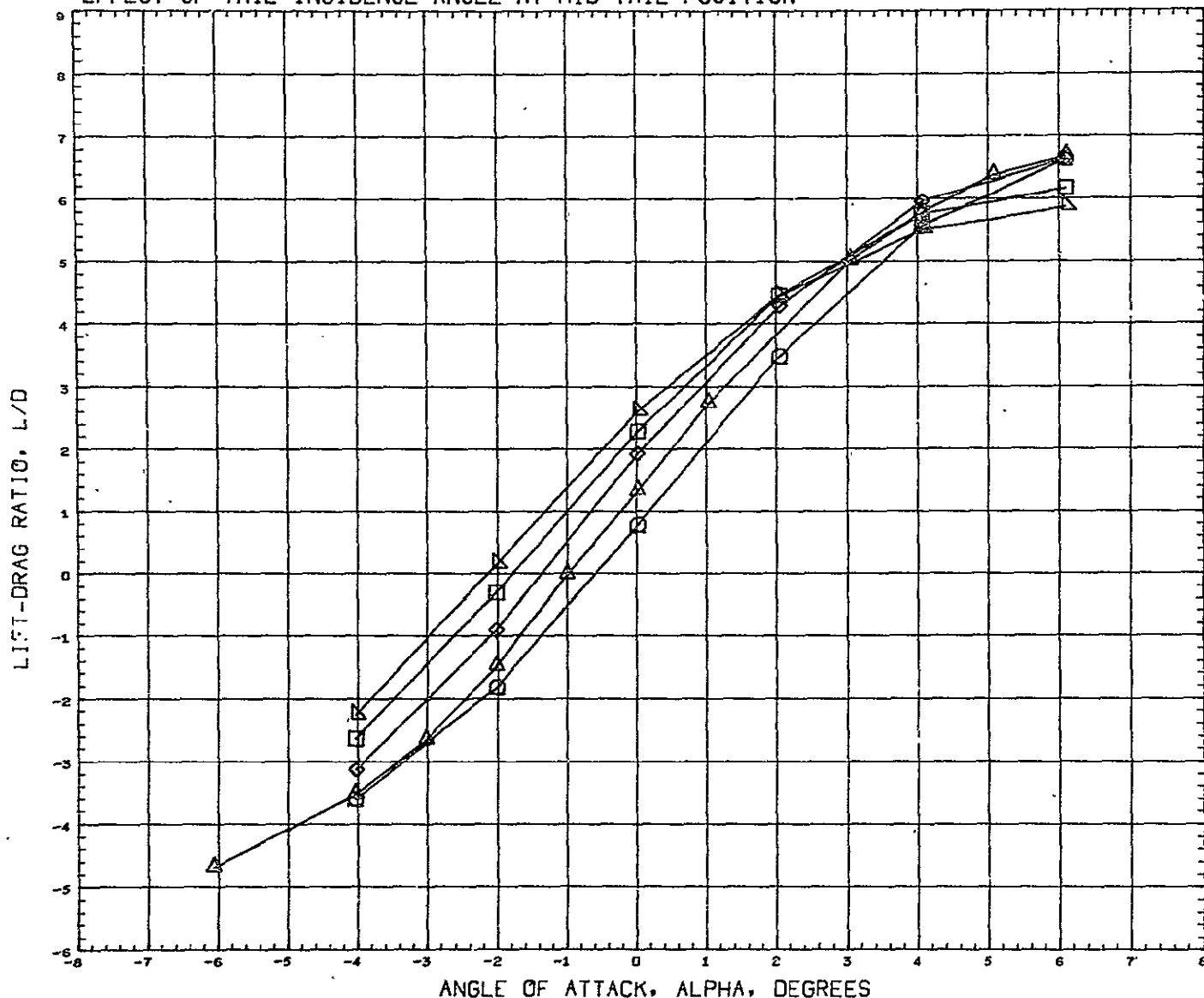
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REF5	0.3200 SQ FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(BG2017)	MSC SER 39 S-5 ORBITER L1W1V3H24	2.000	2.000	15.000	0.500	REF8	1.5000 FT
(BG2018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XMRP	15.5200 IN
(BG2019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

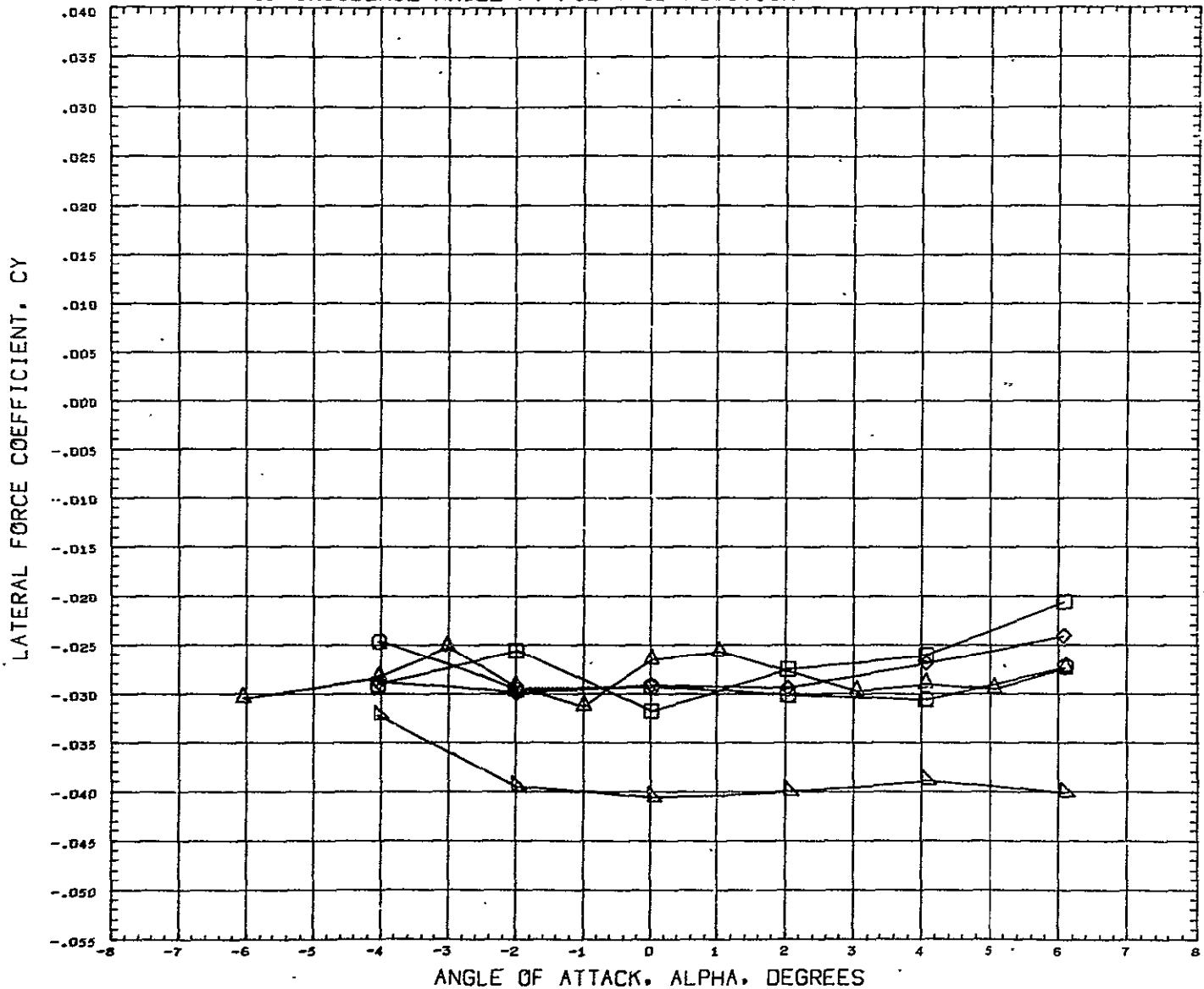
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(862016)	MSC SER 39 5-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(862007)	MSC SER 39 5-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(862017)	MSC SER 39 5-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.5000 FT
(862018)	MSC SER 39 5-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XMRF	15.5200 IN
(862019)	MSC SER 39 5-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YMRF	0.0000
						ZMRF	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

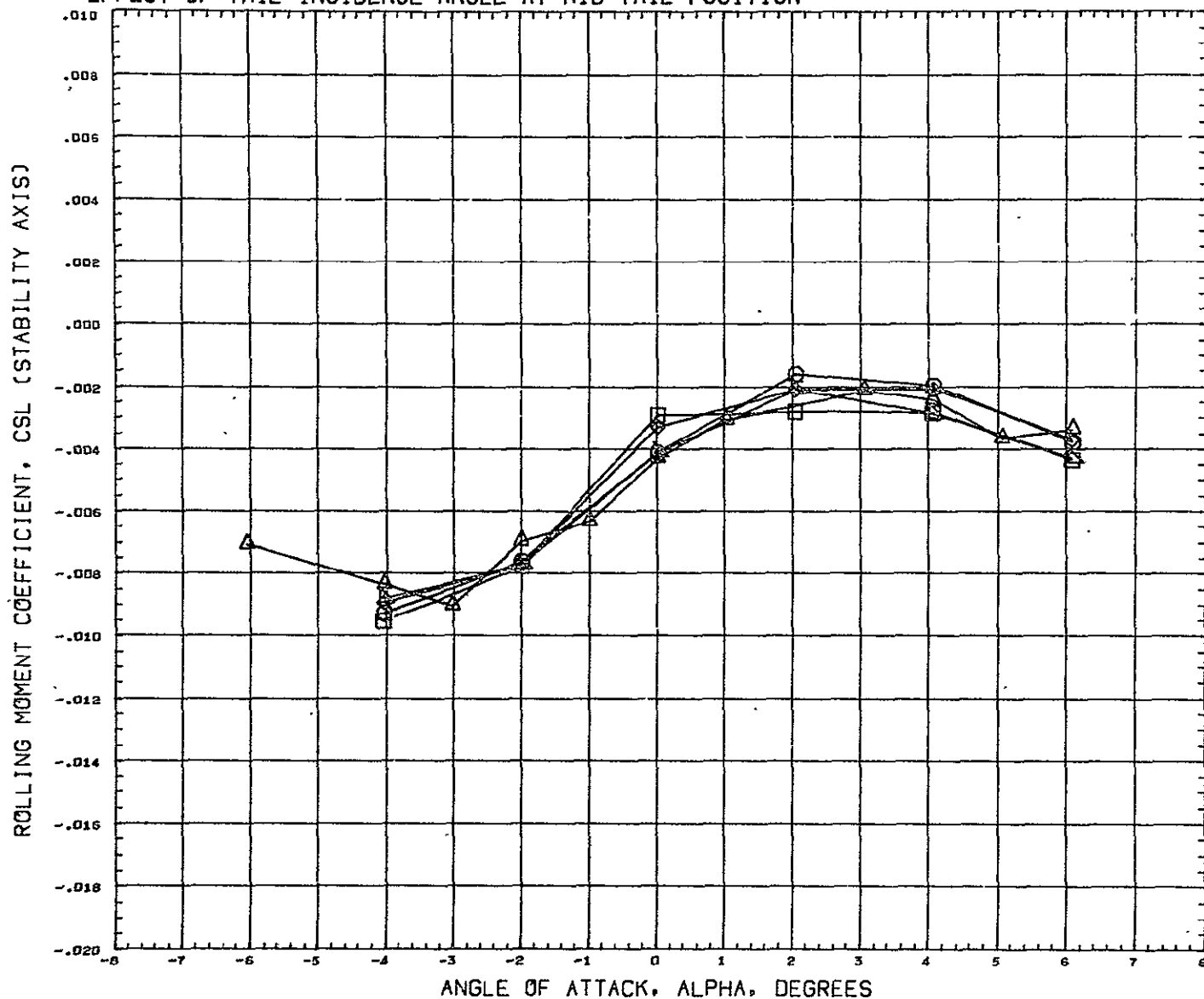
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B02016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 Sq FT
(B02007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(B02017)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.3000 FT
(B02018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XNRP	15.3200 IN
(B02019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YNRP	0.0000 IN
						ZNRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION

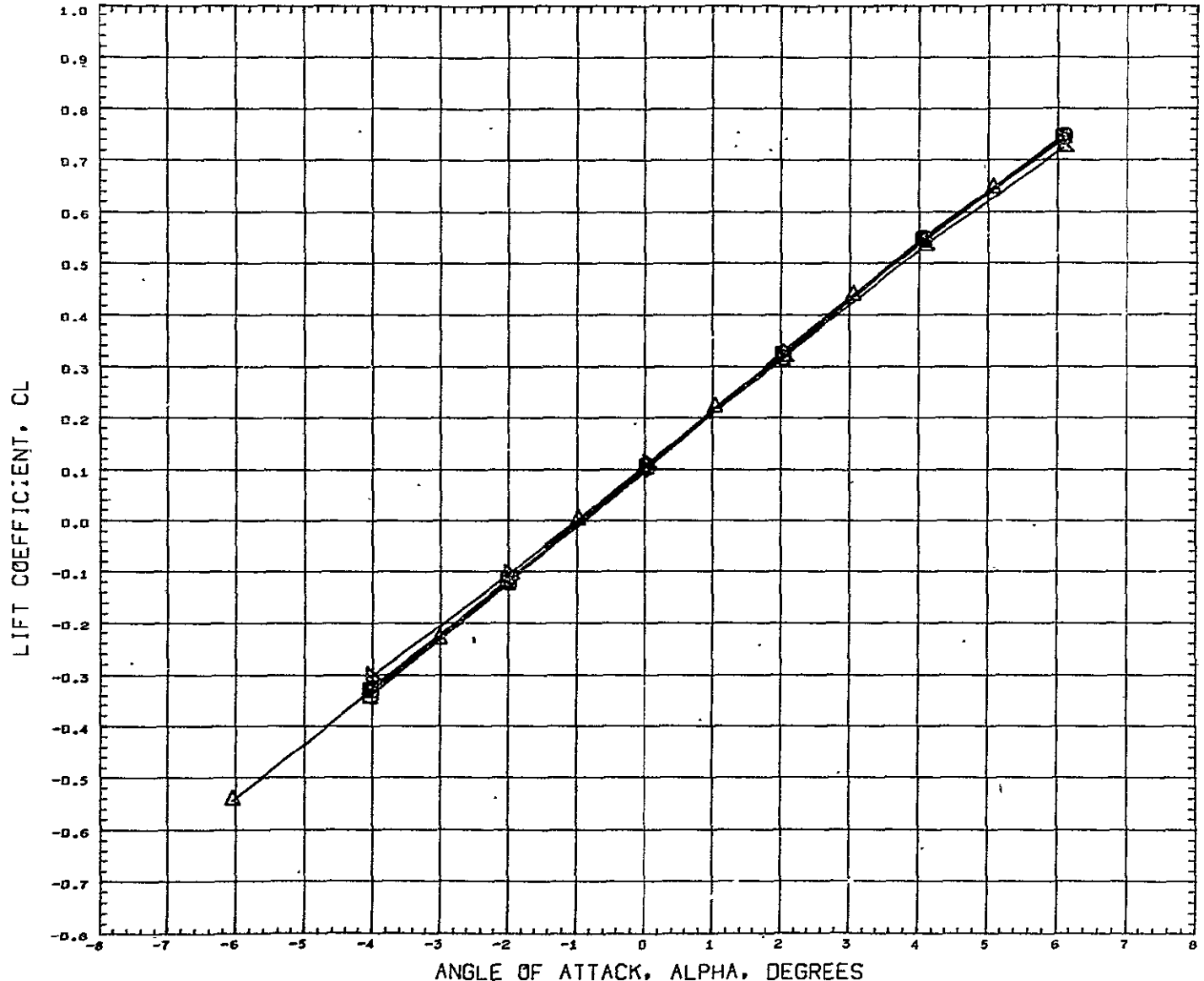


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
00014	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(BG2016)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.5000 FT
(BG2017)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XMRP	15.5200 IN
(BG2018)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YMRP	0.0000 IN
(BG2019)	MSC SER 39 S-5 ORBITER B1W1V3H24					ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

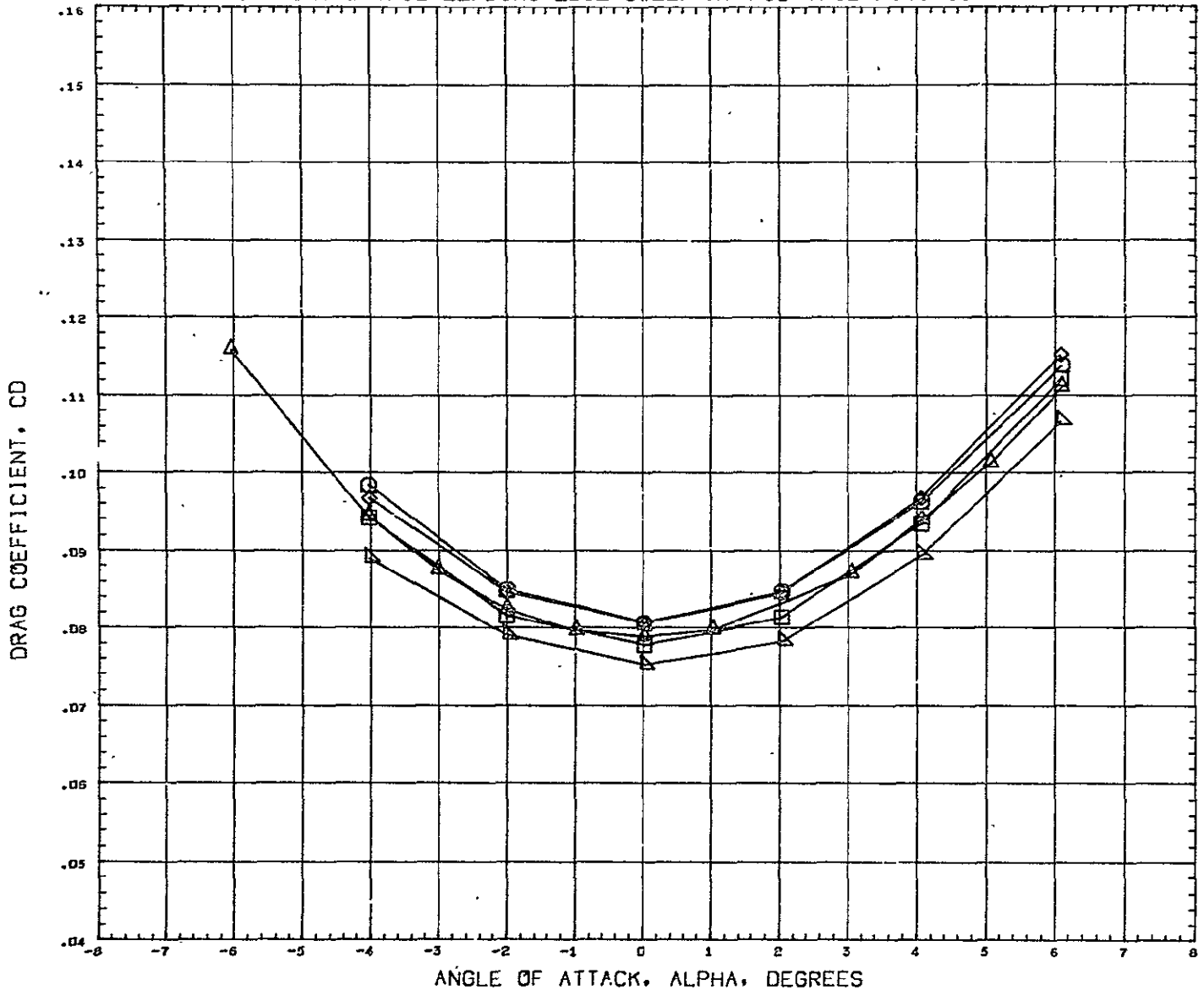
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EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(BG2015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(BG2020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFB	1.5000 FT
(BG2021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	12.5200 IN
(BG2022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000 IN
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

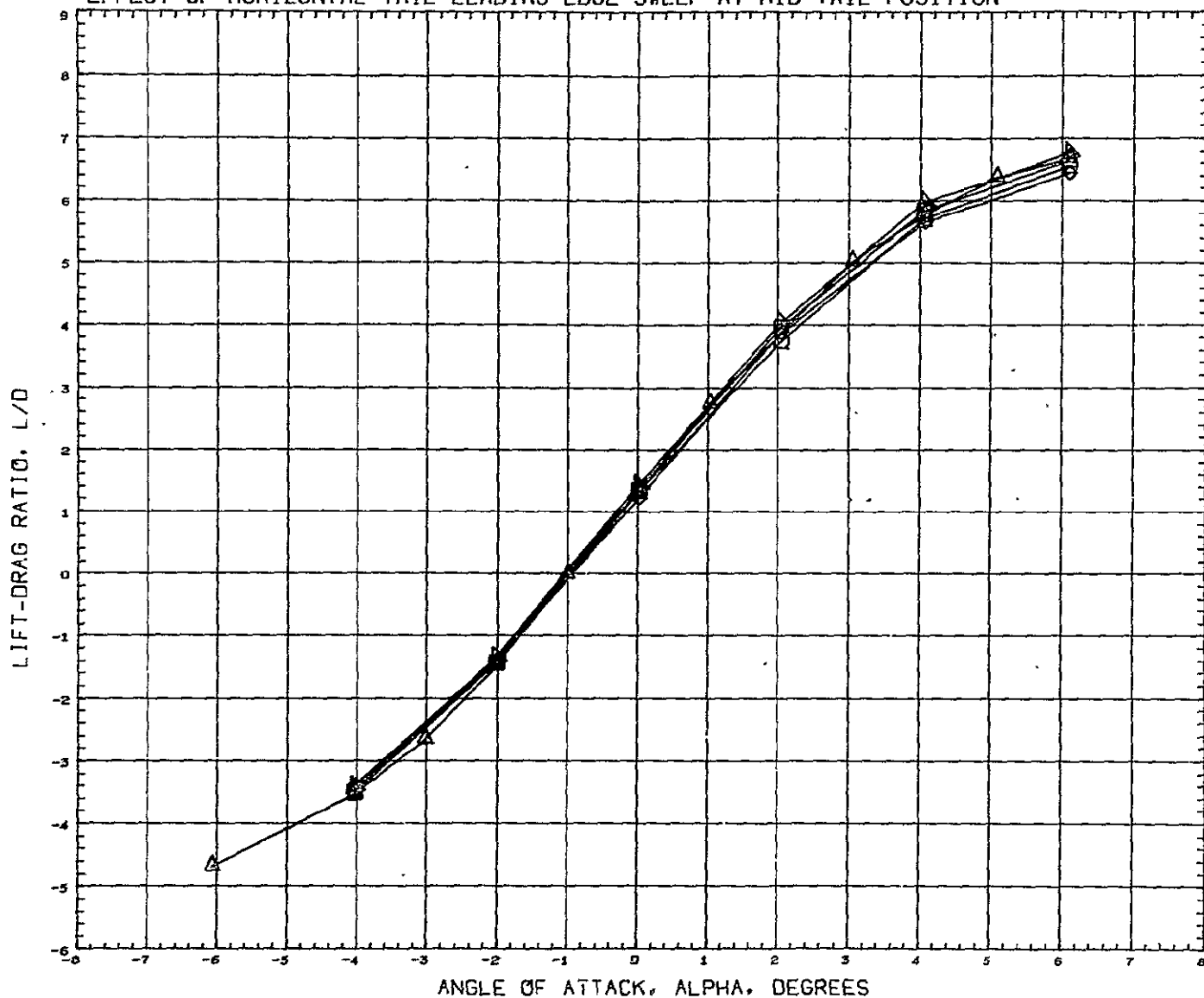
EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION		
(B62015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200	SQ FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300	FT
(B62020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFE	1.5000	FT
(B62021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	15.5200	IN
(B62022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

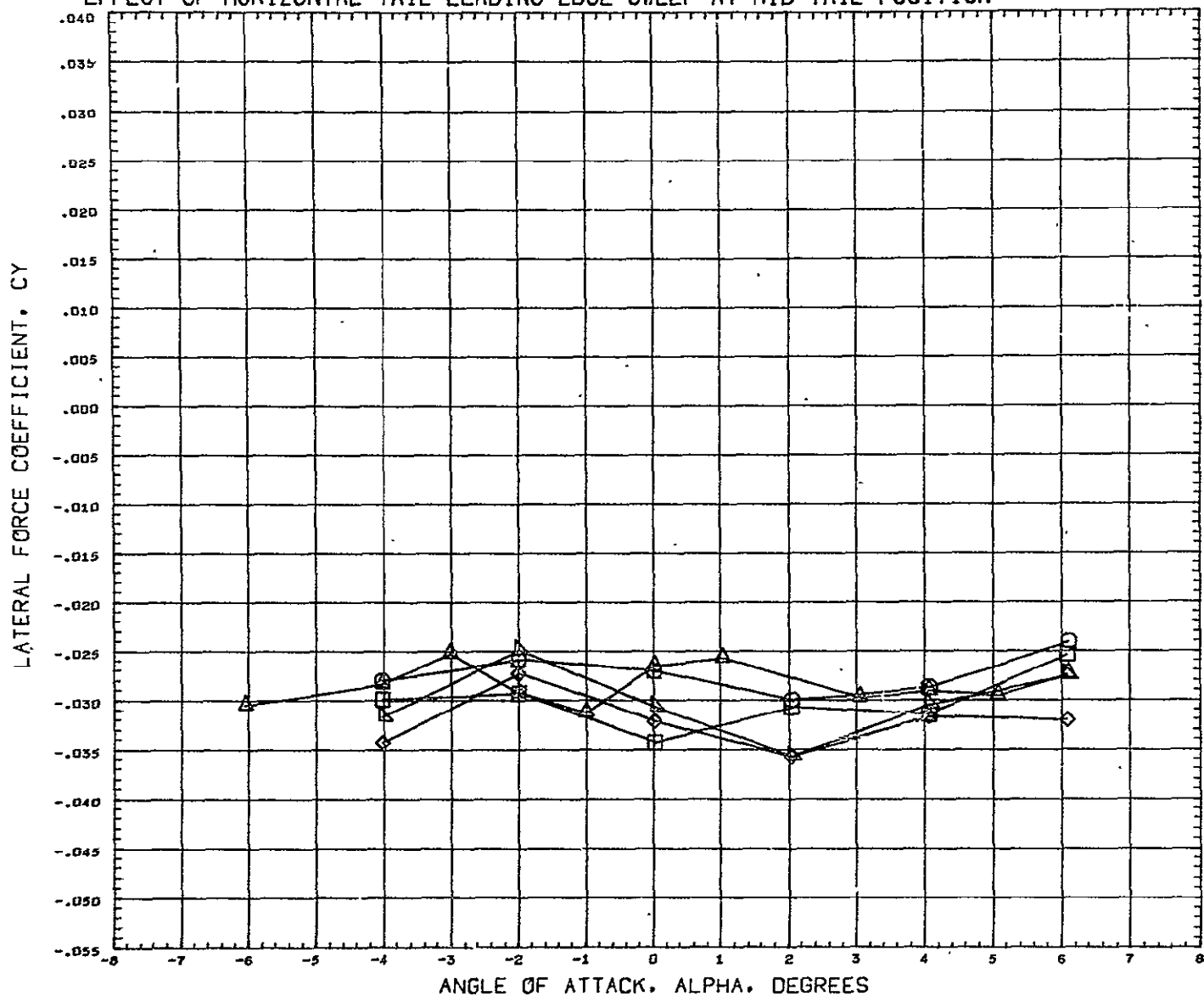
EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(B62015)	MSC SER 39 S-5 ORBITER BIWIV3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(B62007)	MSC SER 39 S-5 ORBITER BIWIV3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(B62020)	MSC SER 39 S-5 ORBITER BIWIV3H31	30.000	2.000	0.500	0.000	REFB	1.5000 FT
(B62021)	MSC SER 39 S-5 ORBITER BIWIV3H32	45.000	2.000	0.500	0.000	XMRP	15.5200 IN
(B62022)	MSC SER 39 S-5 ORBITER BIWIV3H33	60.000	2.000	0.500	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

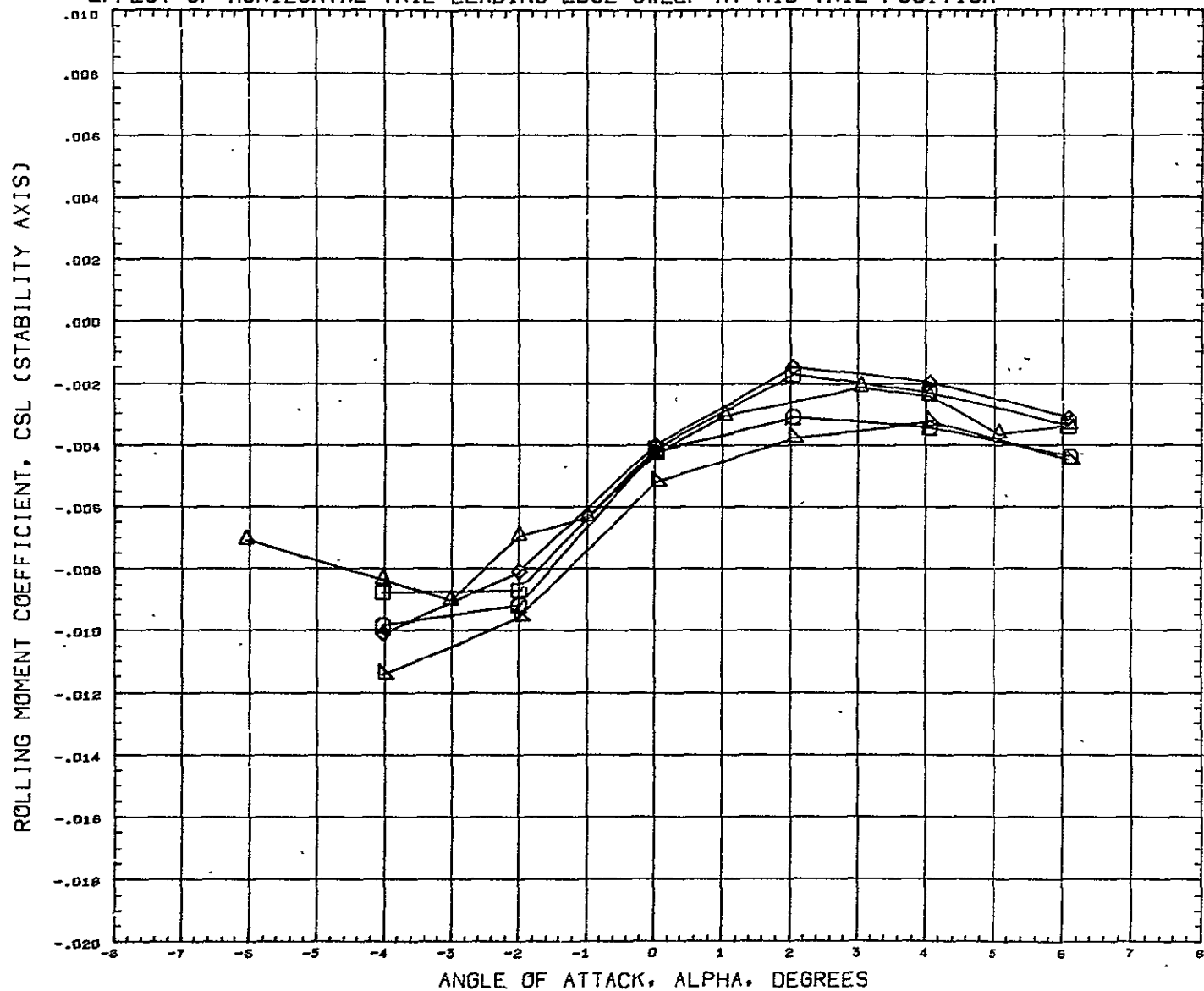
EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(BG2015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(BG2007)	MSC SER 39 S-5 ORBITER F1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(BG2020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFS	1.5000 FT
(BG2021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	15.5200 IN
(BG2022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

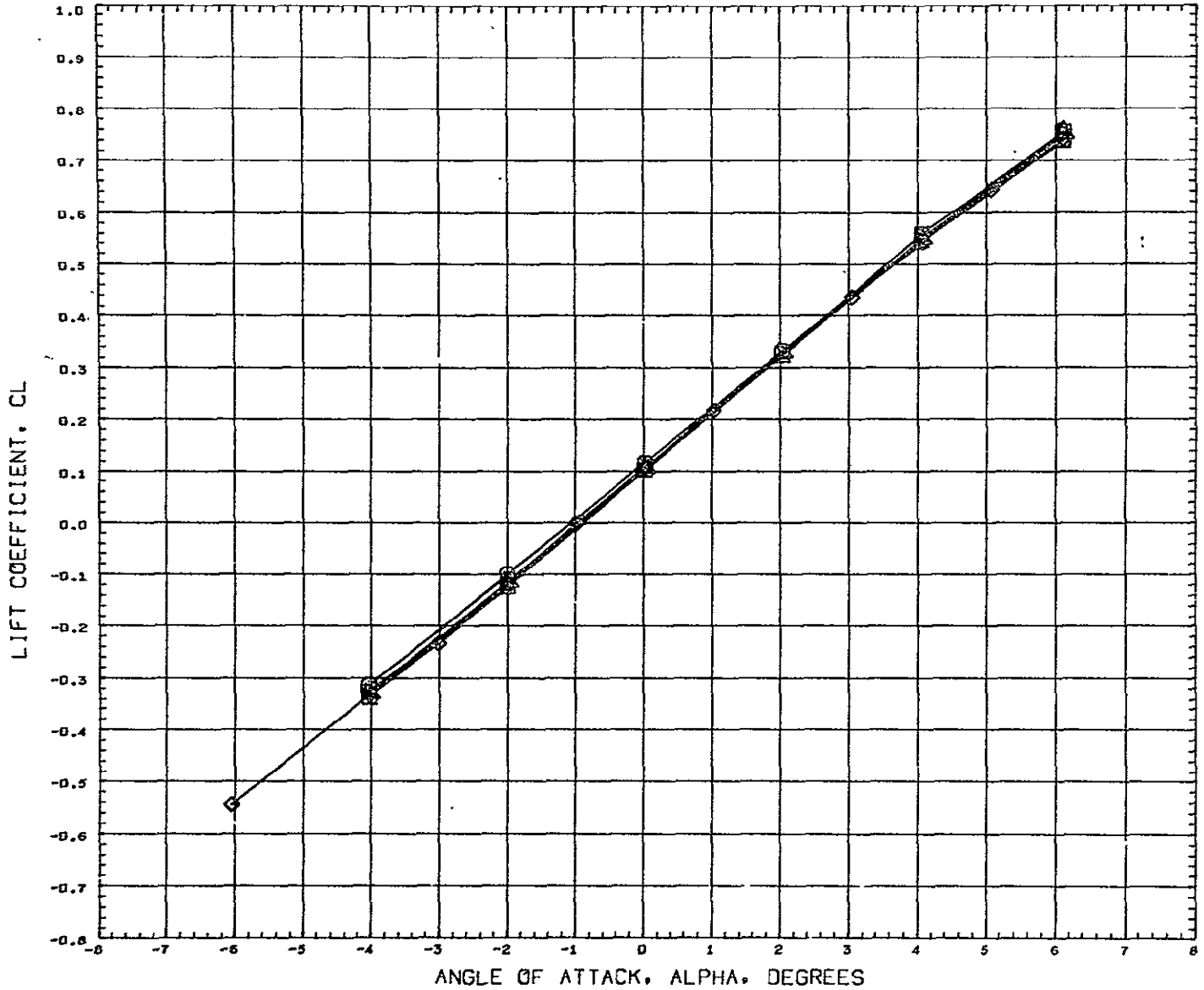
EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION	
(B62015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200 SQ FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300 FT
(B62020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFB	1.5000 FT
(B62021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	15.5200 IN
(B62022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

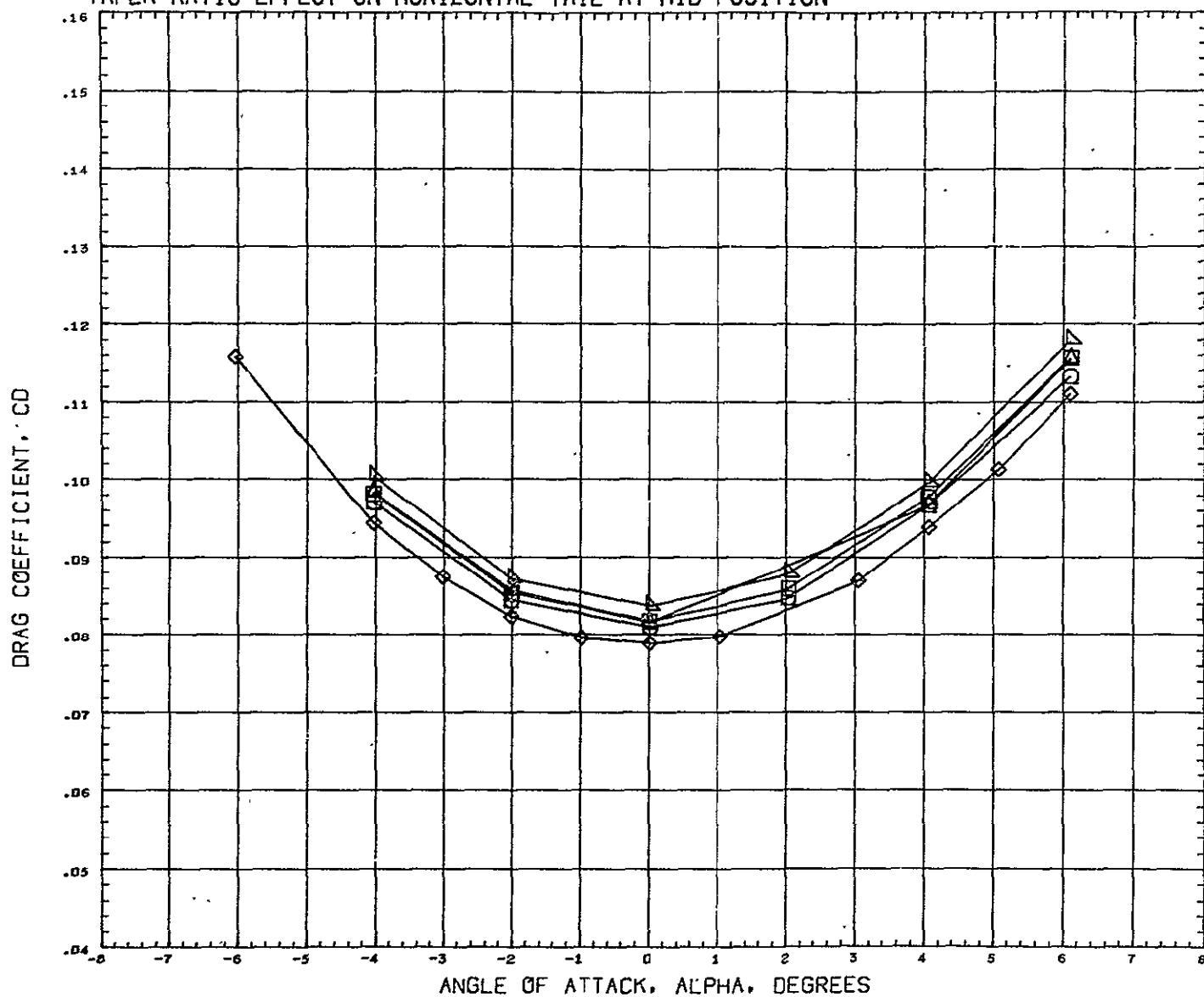
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION	
(862024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200 SQ FT
(862025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300 FT
(862007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB	1.5000 FT
(862026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRF	15.5200 IN
(862027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRF	0.0000
						ZMRF	2.4000 IN
						SCALE	1.0750 PCT

MACH 0.250

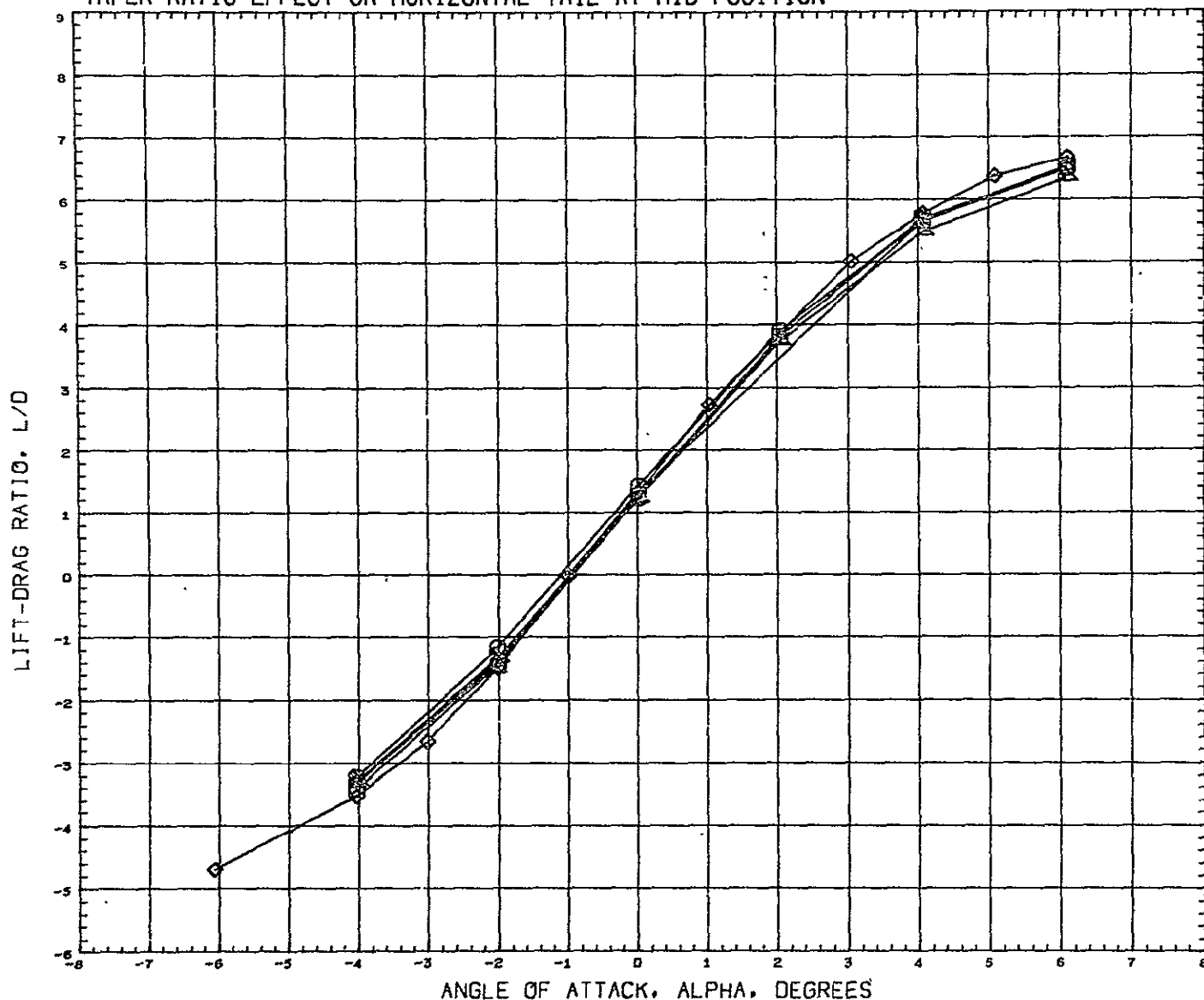
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION		
(B62024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200	SQ FT
(B62025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300	FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB	1.5000	FT
(B62026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP	15.5200	IN
(B62027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

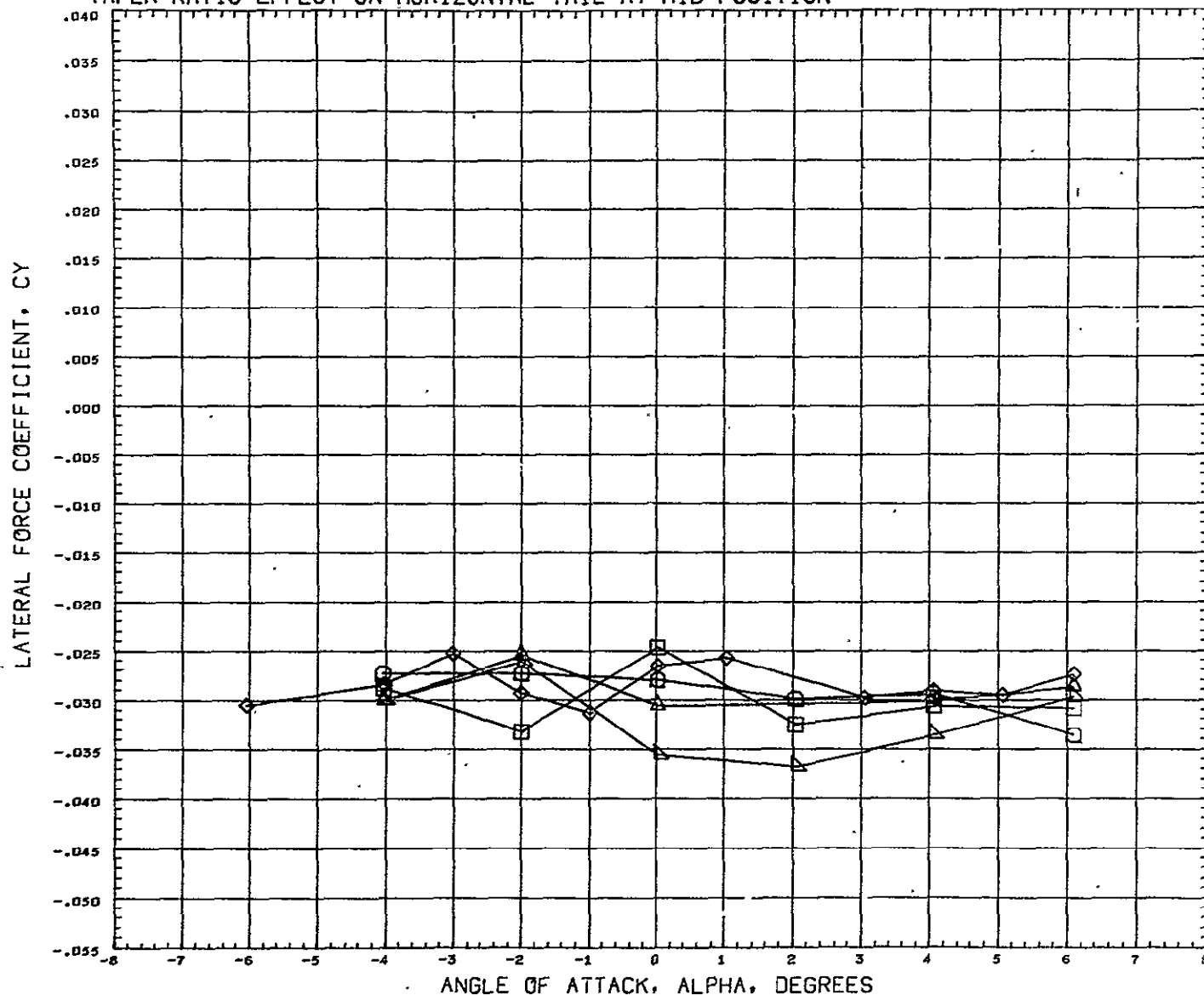
MACH 0.250

TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION		
(BG2024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200	50 FT
(BG2025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300	FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB	1.5000	FT
(BG2026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP	15.5205	IN
(BG2027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT
MACH 0.250								

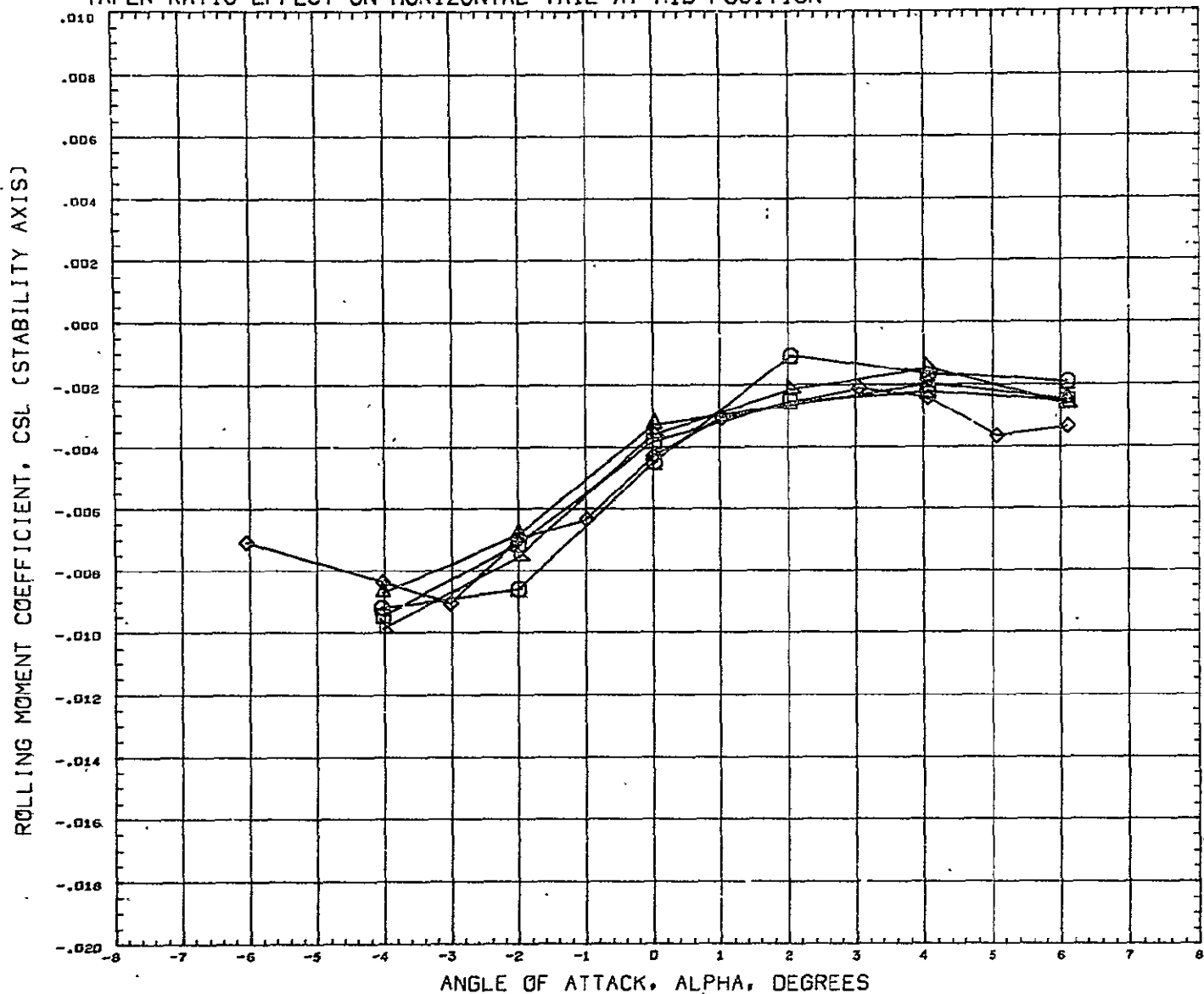
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION	
(B62024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS	0.3200 SQ FT
(B62025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL	0.2300 FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REFB	1.5000 FT
(B62026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP	15.5200 IN
(B62027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP	0.0000 IN
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

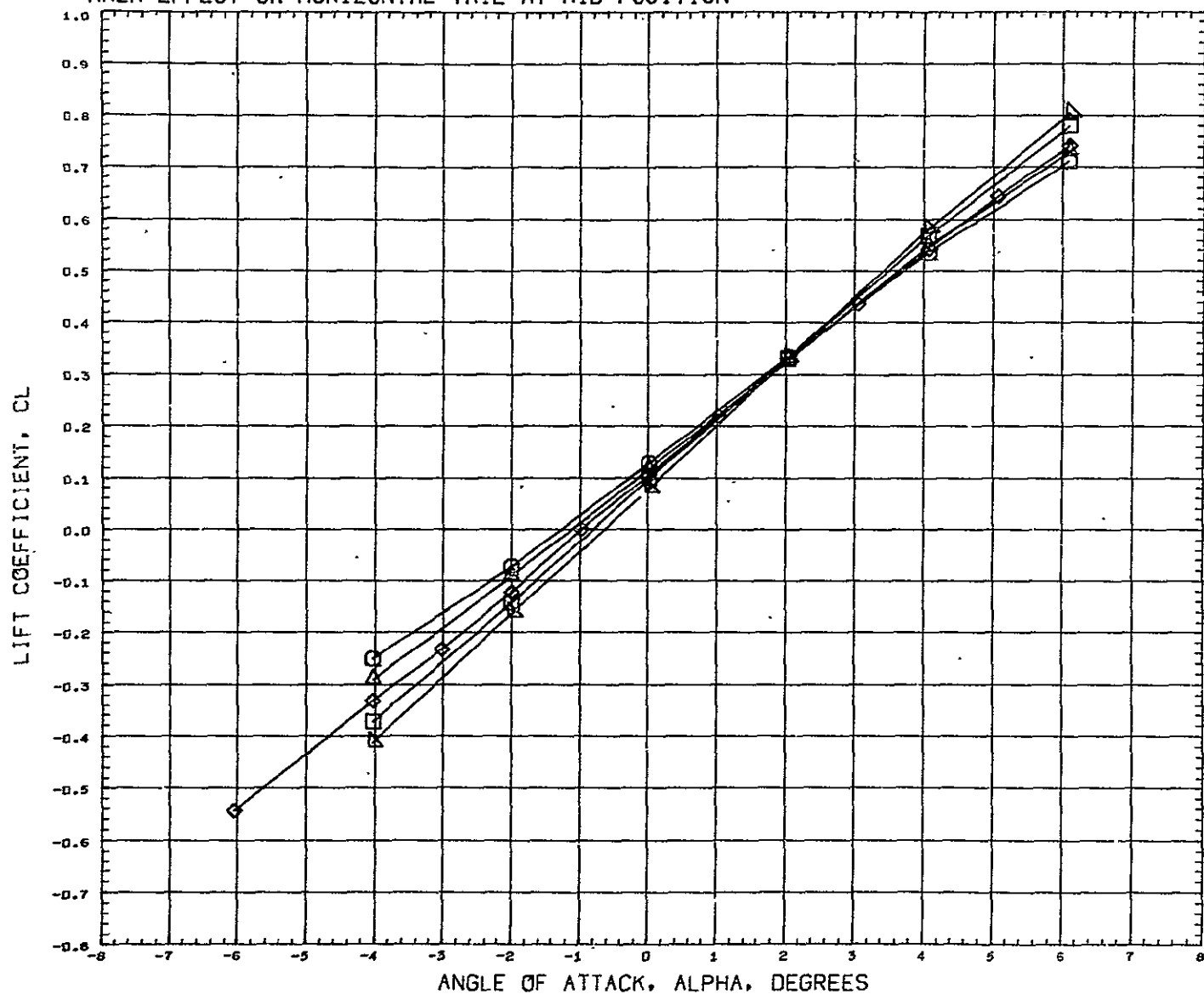
TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION
(862024)	MSC SER 39 S-5 ORBITER B1W1V3H34	0.000	2.000	15.000	0.000	REFS 0.3200 SQ FT
(862025)	MSC SER 39 S-5 ORBITER B1W1V3H35	0.250	2.000	15.000	0.000	REFL 0.2300 FT
(862027)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.500	2.000	15.000	0.000	REF6 1.5000 FT
(862026)	MSC SER 39 S-5 ORBITER B1W1V3H36	0.750	2.000	15.000	0.000	XMRP 15.520J IN
(862027)	MSC SER 39 S-5 ORBITER B1W1V3H37	1.000	2.000	15.000	0.000	YMRP 0.0000 IN
						ZMRP 2.4000 IN
						SCALE 1.8750 PCT

HACK 0.250

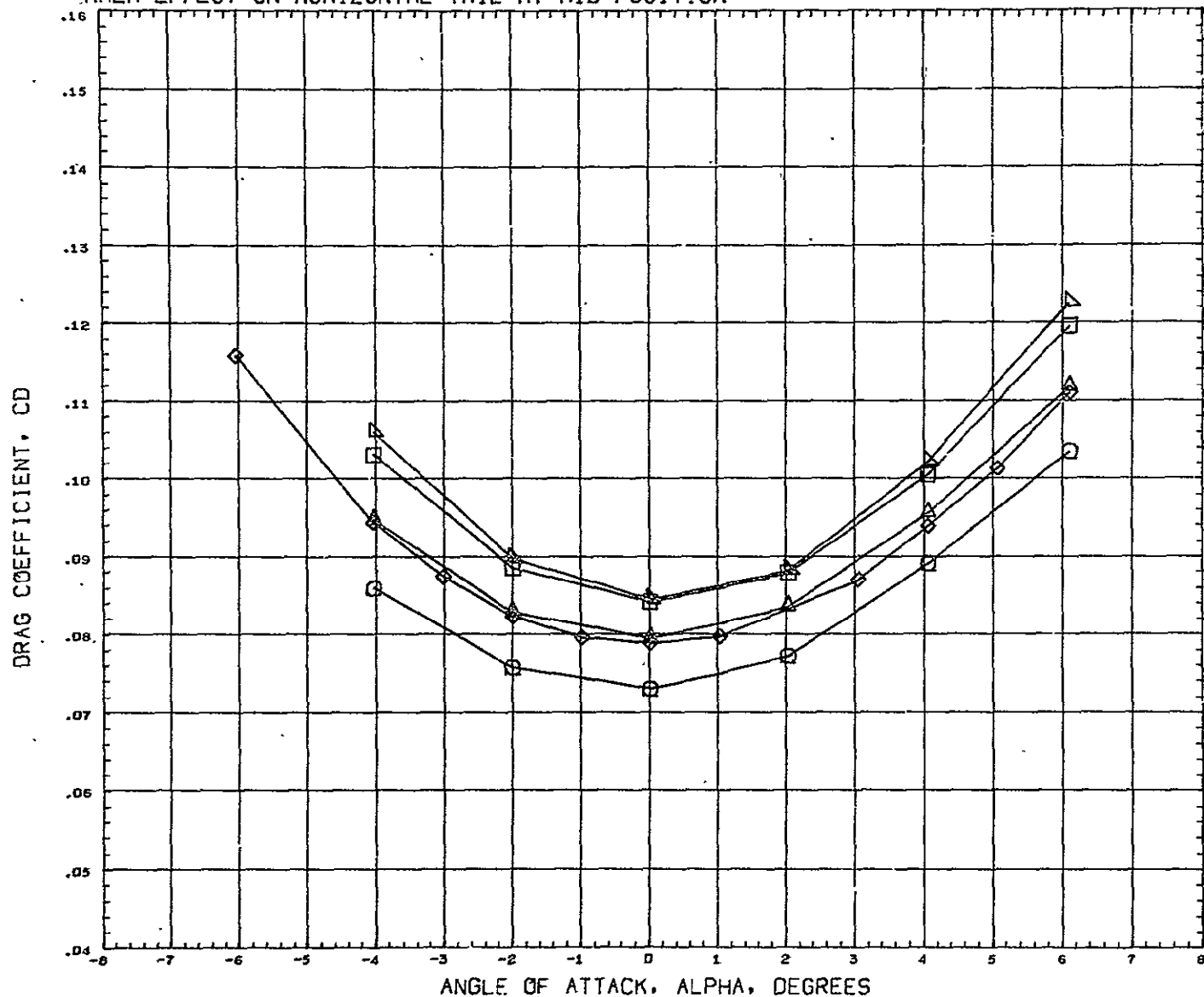
AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	SWEEP	TAPER	REFERENCE INFORMATION	
(B62028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(B62029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300 FT
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000 FT
(B62030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	2.000	15.000	0.500	XNRP	15.6200 IN
(B62031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	2.000	15.000	0.500	YHRP	0.0000
						ZHRP	2.4000 IN
						SCALE	1.8750 FCT

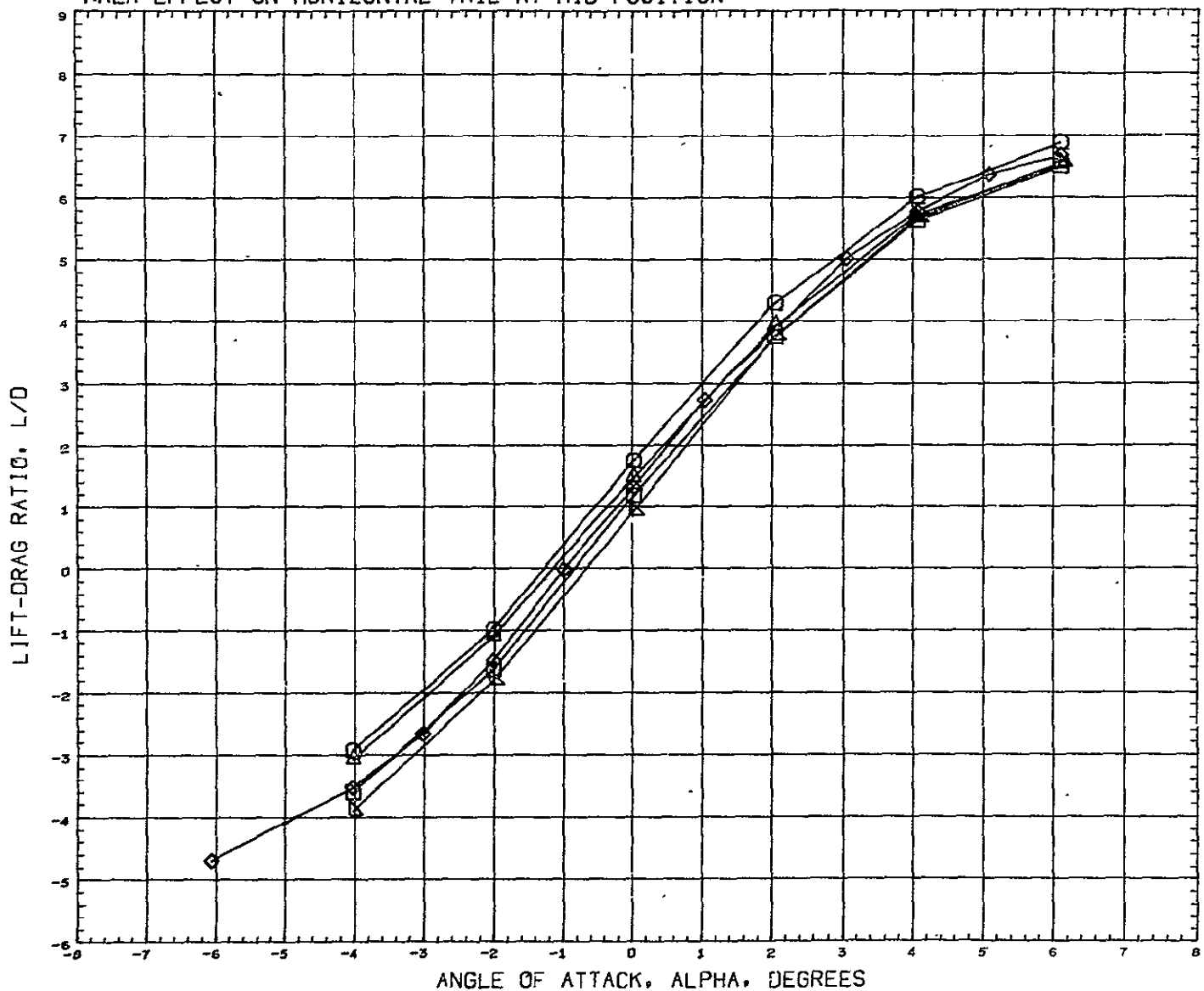
MACH 0.250

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION		
(BG2028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200	SQ FT
(BG2029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300	FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000	FT
(BG2030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	2.000	15.000	0.500	XMRP	15.5200	IN
(BG2031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	2.000	15.000	0.500	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	FT
MACH		0.250						

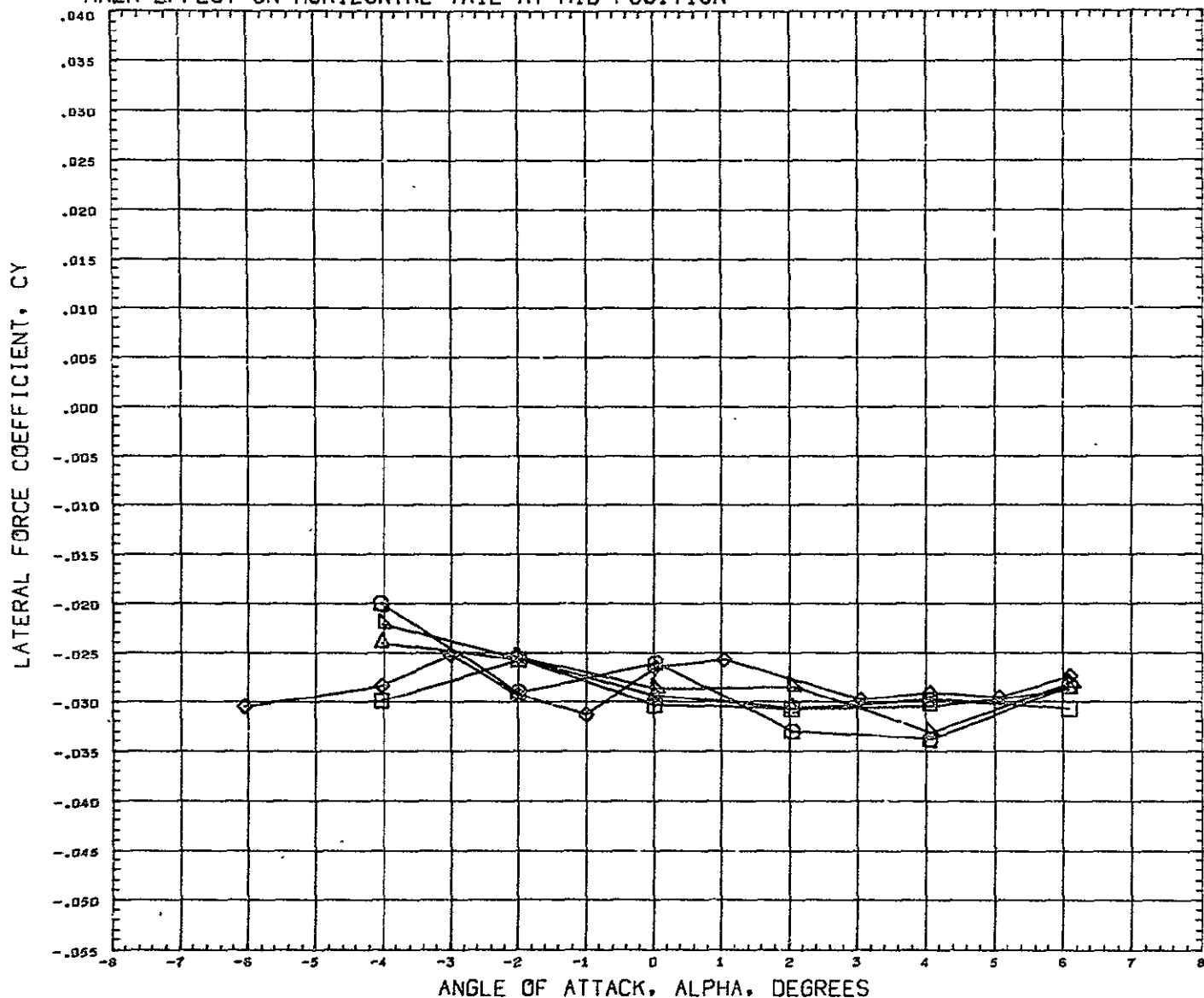
AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(862028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	2,000	15,000	0.500	REFS	0.3200 SQ FT
(862029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	2,000	15,000	0.500	REFL	0.2300 FT
(862030)	MSC SER 39 S-5 ORBITER B1W1V3H40	300,000	2,000	15,000	0.500	REFB	1.5000 FT
(862031)	MSC SER 39 S-5 ORBITER B1W1V3H41	400,000	2,000	15,000	0.500	XMRP	15.5200 IN
		500,000	2,000	15,000	0.500	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

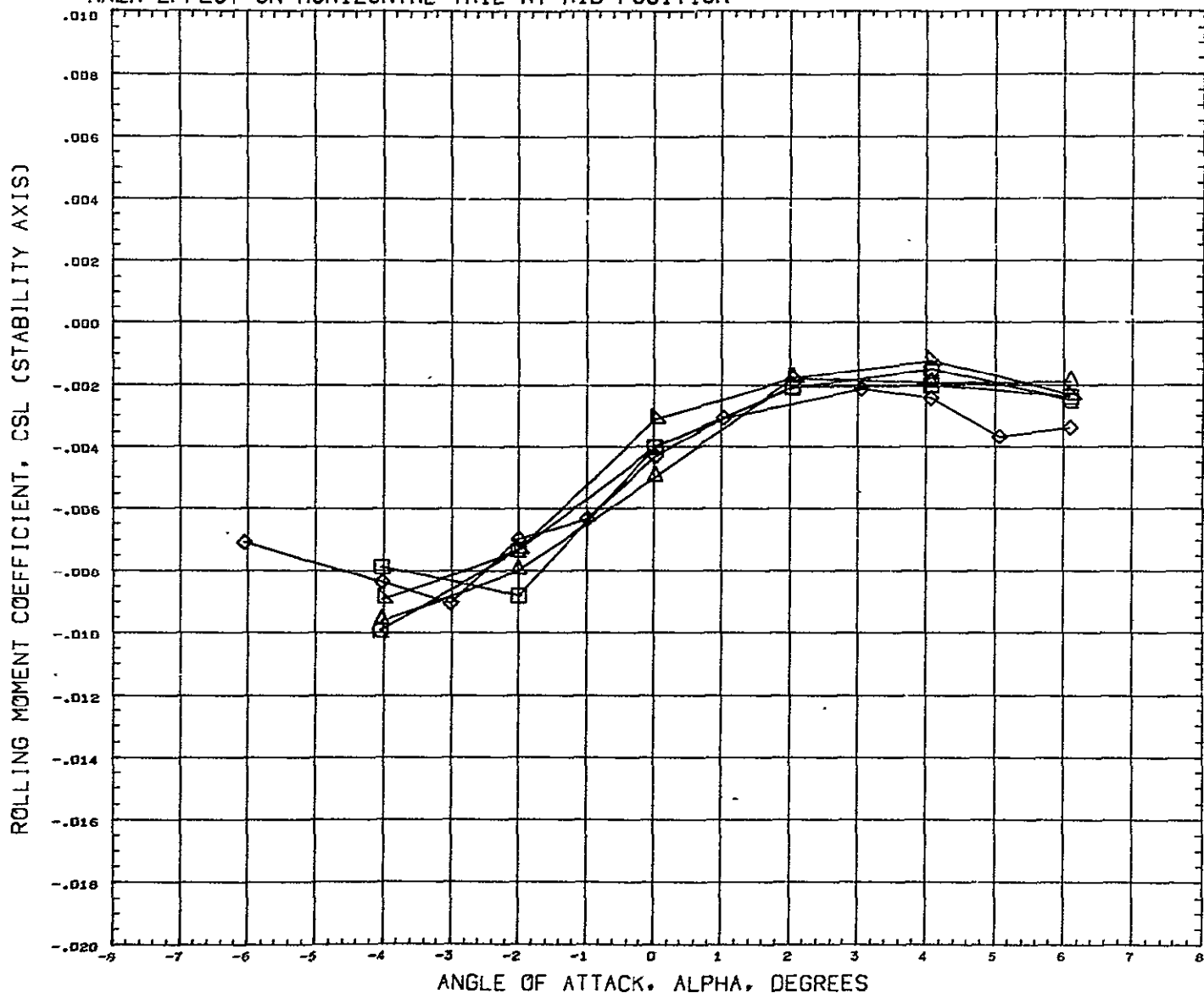
HACH 0.230

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



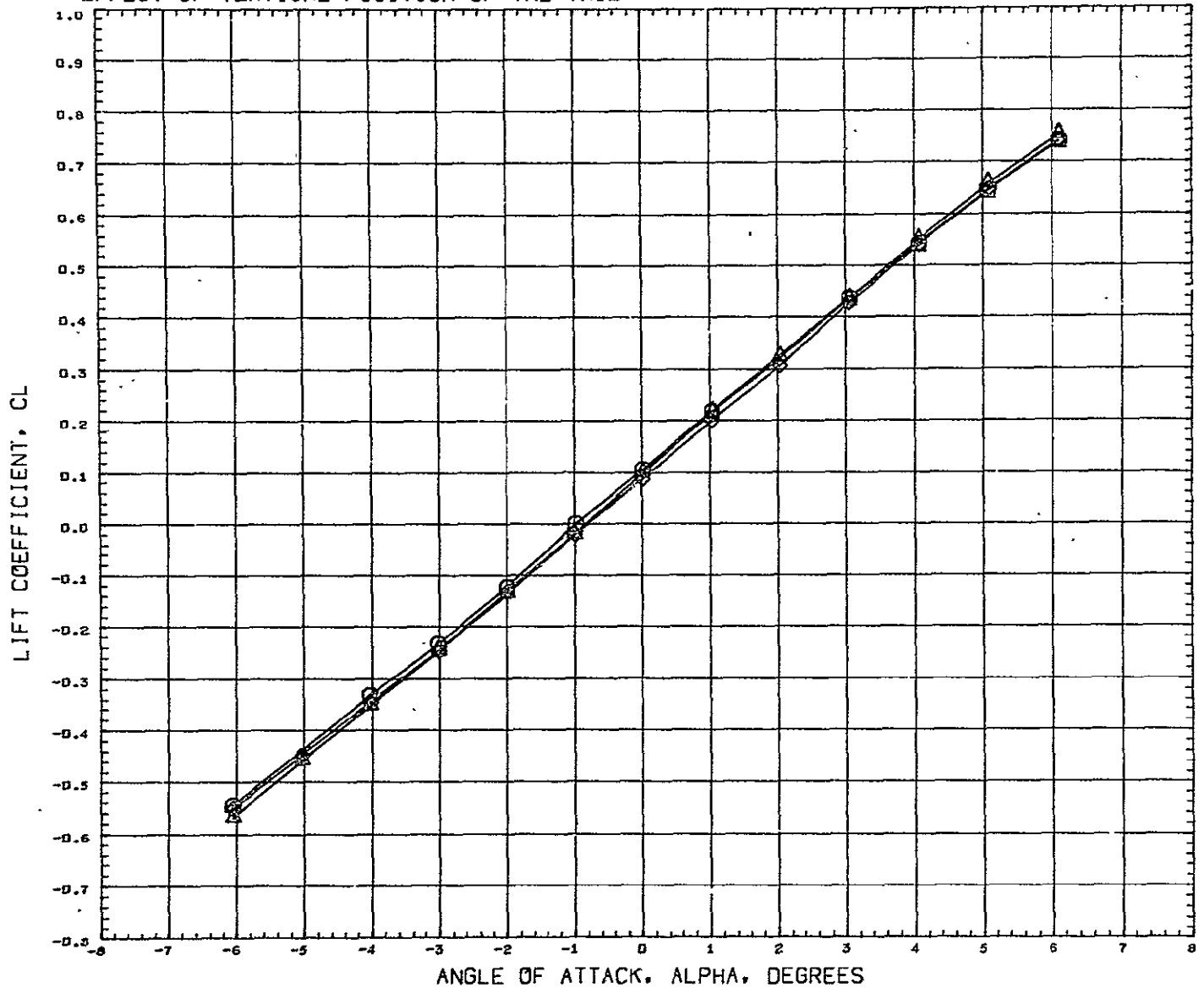
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2020)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(BG2029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	2.000	15.000	0.500	REFL	0.2300 FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300,000	2.000	15.000	0.500	REFB	1.5000 FT
(BG2030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400,000	2.000	15.000	0.500	XHRP	15.5200 IN
(BG2031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500,000	2.000	15.000	0.500	YHRP	0.0000
						ZHRP	2.4000
						SCALE	1.8750 PCT
NACH 0.250							

AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B02028)	MSC SER 39 S-5 ORBITER 01W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(B02029)	MSC SER 39 S-5 ORBITER 01W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300 FT
(B02007)	MSC SER 39 S-5 ORBITER 01W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000 FT
(B02030)	MSC SER 39 S-5 ORBITER 01W1V3H40	400.000	2.000	15.000	0.500	XMRP	15.5200 IN
(B02031)	MSC SER 39 S-5 ORBITER 01W1V3H41	500.000	2.000	15.000	0.500	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT
MACH 0.250							

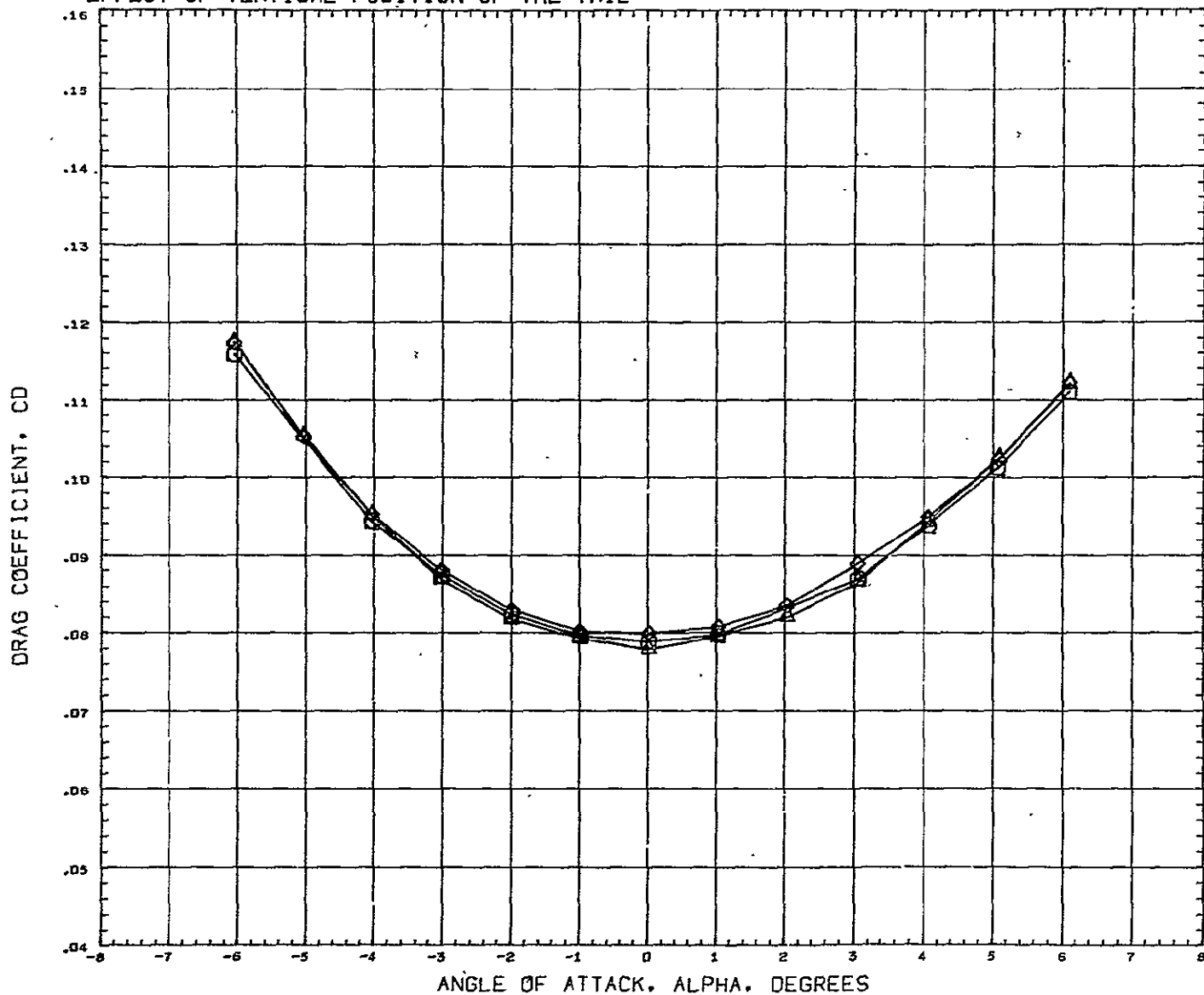
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B02007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200 SQ FT
(B02033)	MSC SER 39 S-5 ORBITER U1W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300 FT
(B02034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFB	1.5000 FT
						XMRP	15.5200 IN
						YMRP	0.0000 IN
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

EFFECT OF VERTICAL POSITION OF THE TAIL

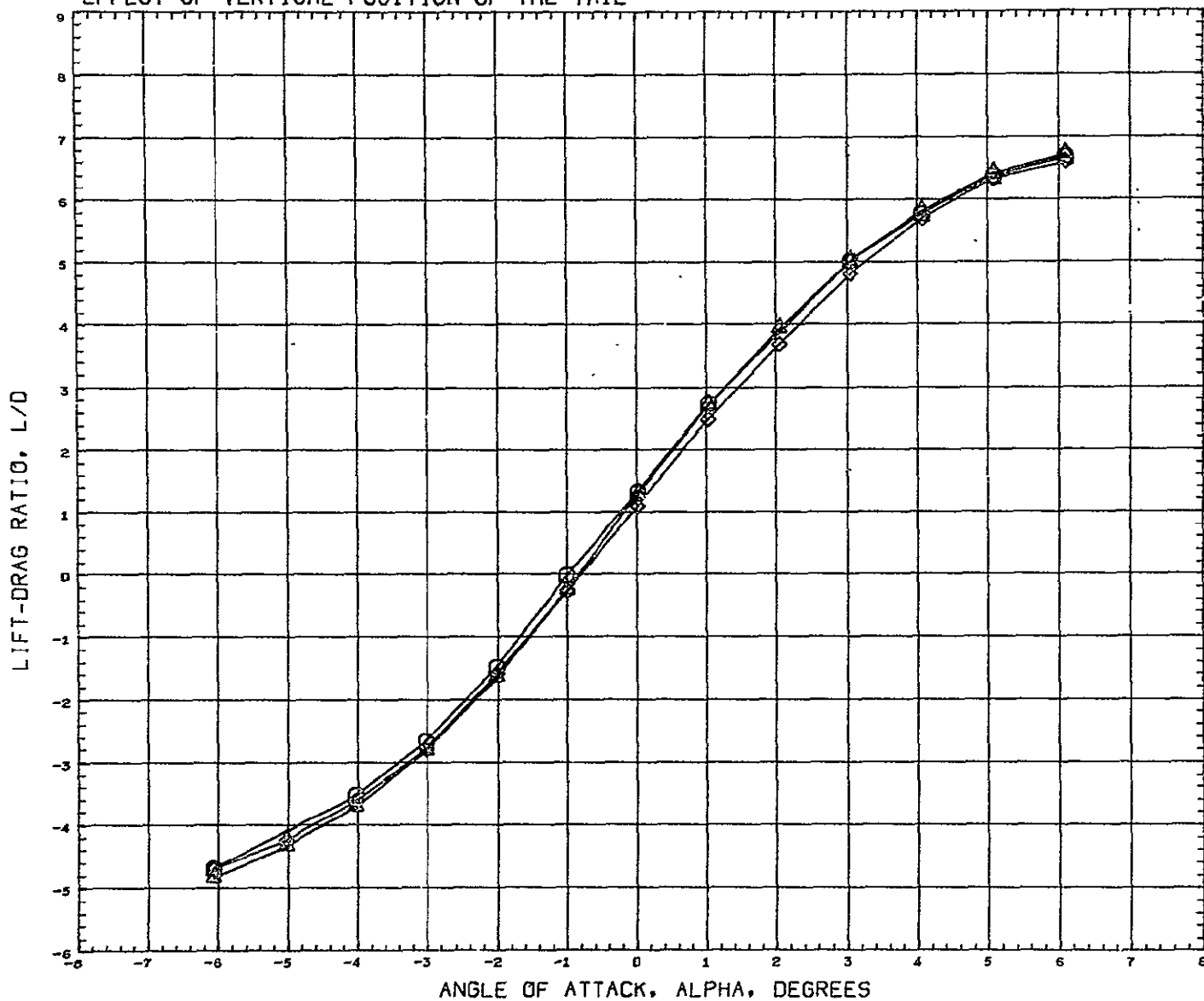


DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(B62007)	HSC SER 39 S-5 ORBITER B1W1V3H24
(B62033)	HSC SER 39 S-5 ORBITER B1W1V3H24
(B62034)	HSC SER 39 S-5 ORBITER B1W1V3H24

VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
2.050	2.000	15.000	0.500	REF5	0.3200 SQ FT
1.750	2.000	15.000	0.500	REFL	0.2300 FT
0.900	2.000	15.000	0.500	REFB	1.5000 FT
				XMRP	15.5200 IN
				YMRP	0.0000
				ZMRP	2.4000 IN
				SCALE	1.8750 PCT

MACH 0.250

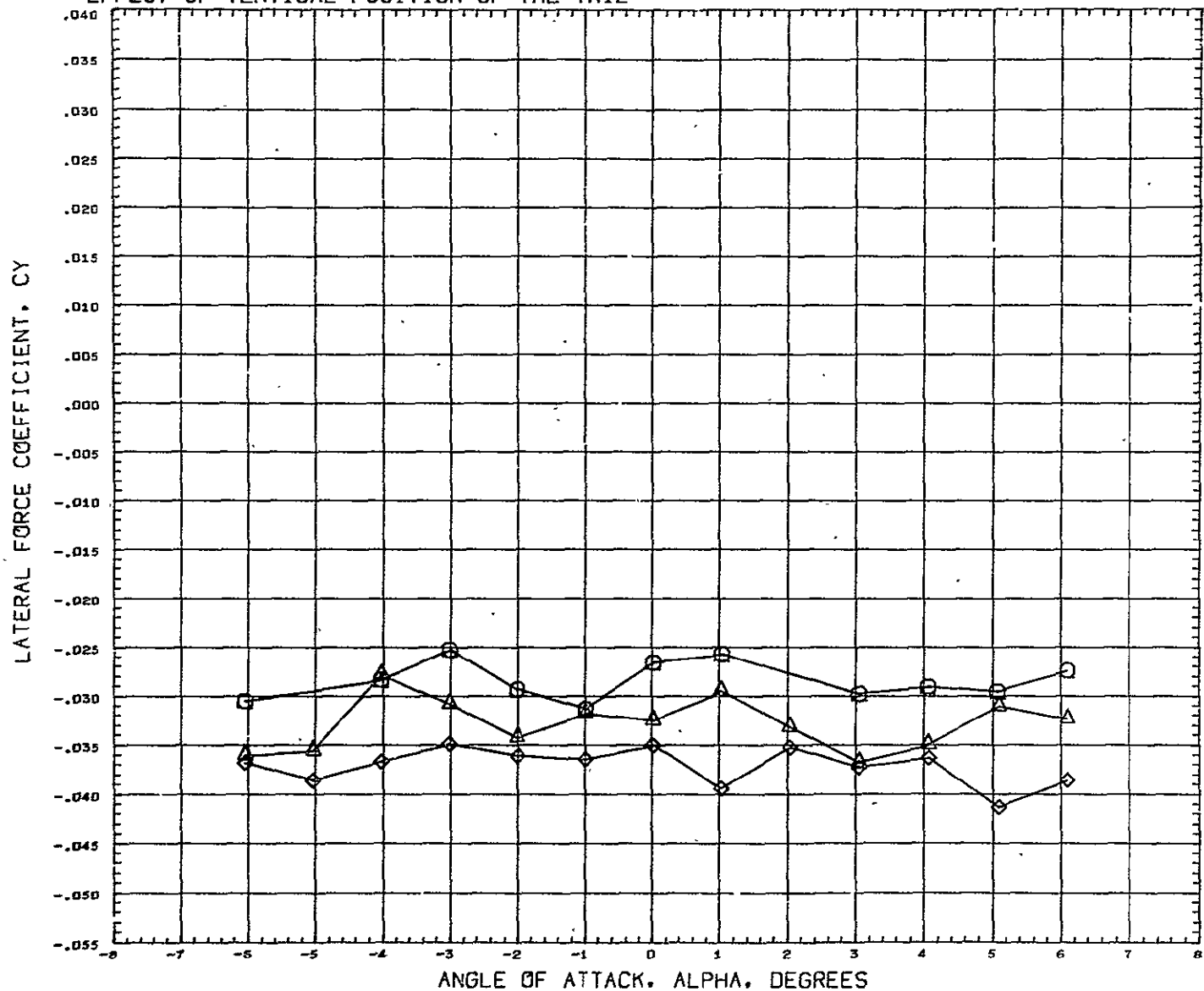
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200 SQ FT
(B62033)	MSC SER 39 S-5 ORBITER B1W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300 FT
(B62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFD	1.5000 FT
						XHRF	15.5200 IN
						YHRF	0.0000
						ZHRF	2.4000 IN
						SCALE	1.8750 FCT

MACH 0.250

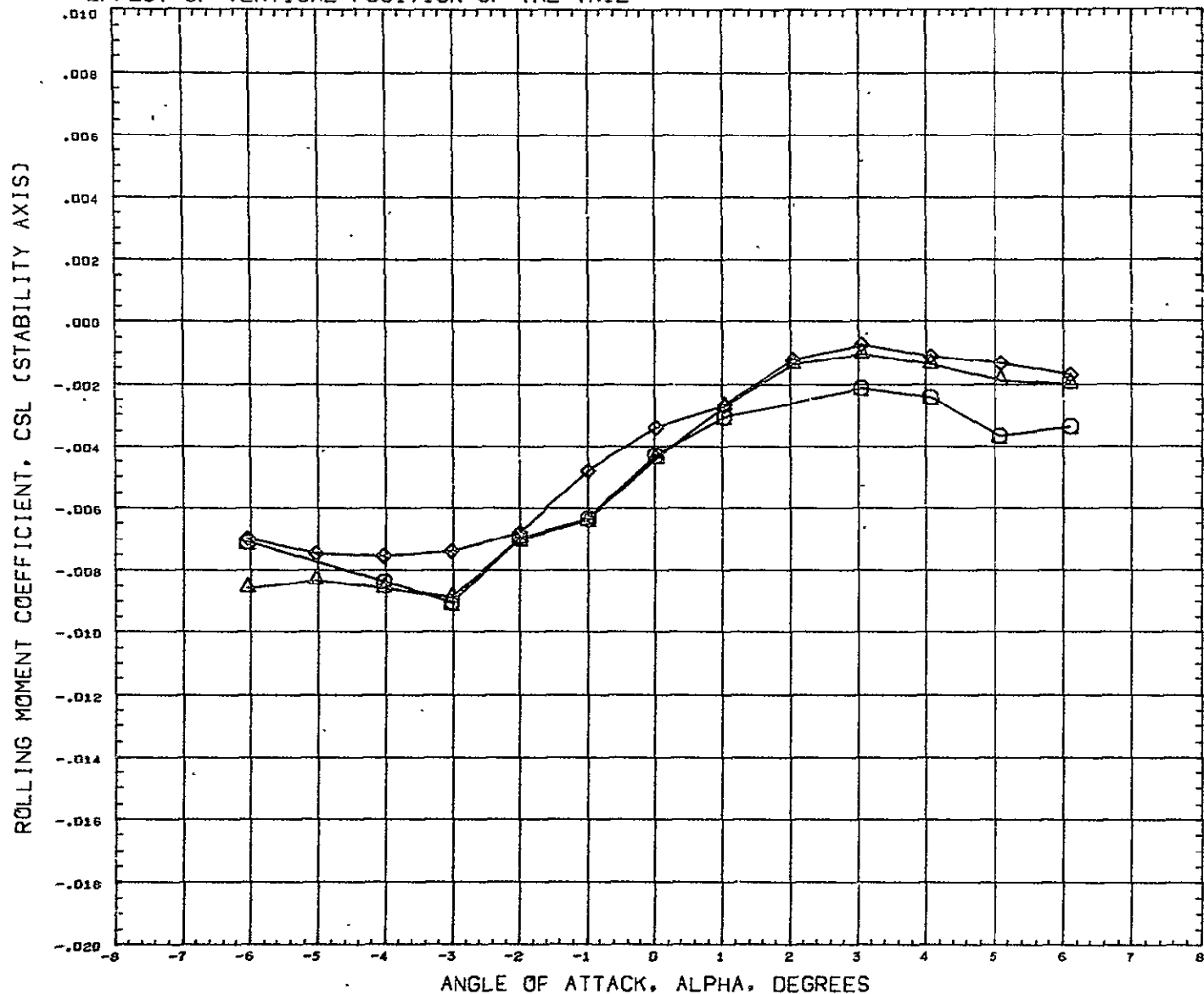
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION		
(862007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200	SQ FT
(862033)	MSC SER 39 S-5 ORBITER B1W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300	FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFB	1.5000	FT
						XMRP	15.5200	IN
						YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

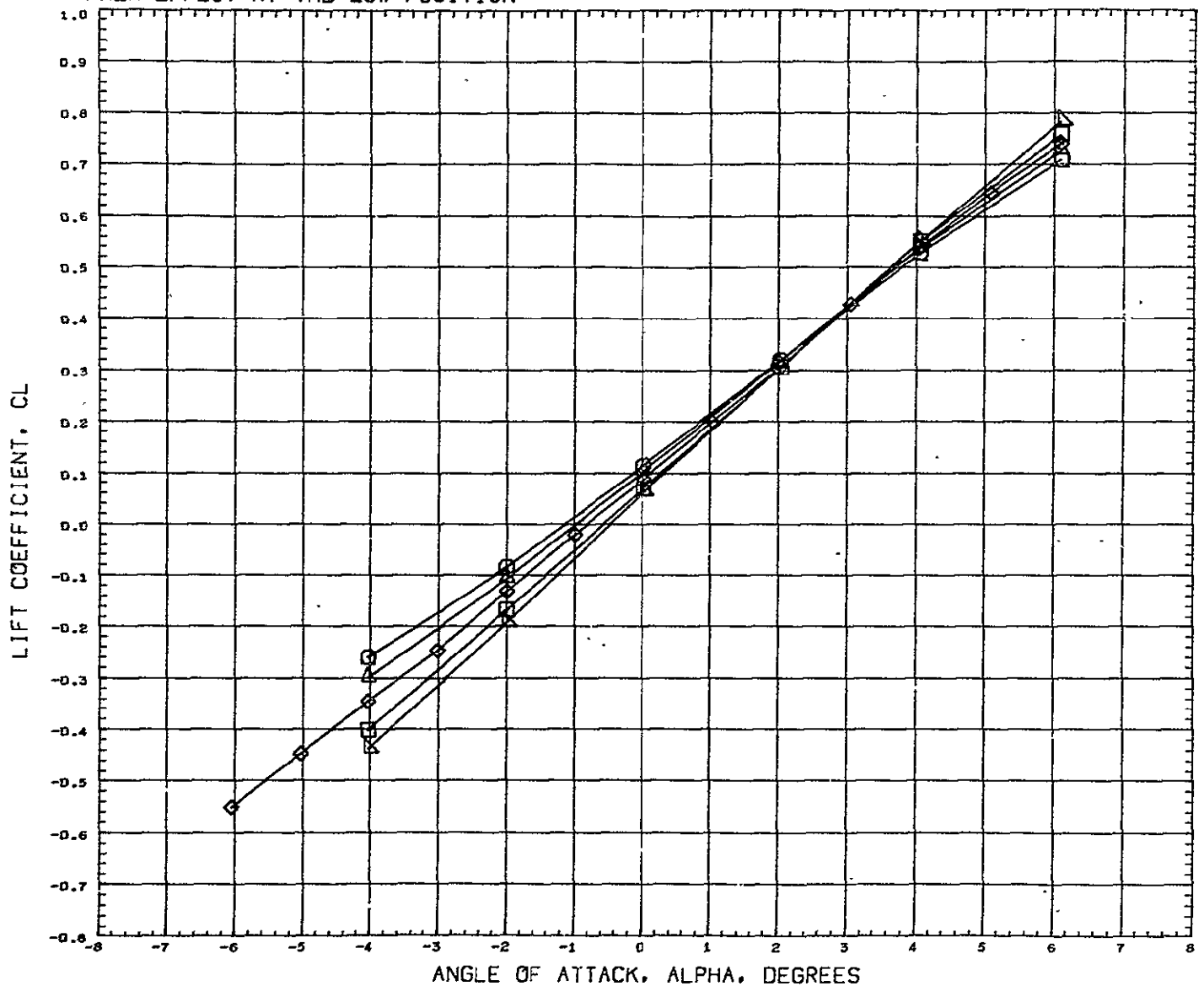
EFFECT OF VERTICAL POSITION OF THE TAIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	VERPOS	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(862007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.050	2.000	15.000	0.500	REFS	0.3200 SQ FT
(862033)	MSC SER 39 S-5 ORBITER J1W1V3H24	1.750	2.000	15.000	0.500	REFL	0.2300 FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.900	2.000	15.000	0.500	REFB	1.5000 FT
						XMRP	15.5200 IN
						YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

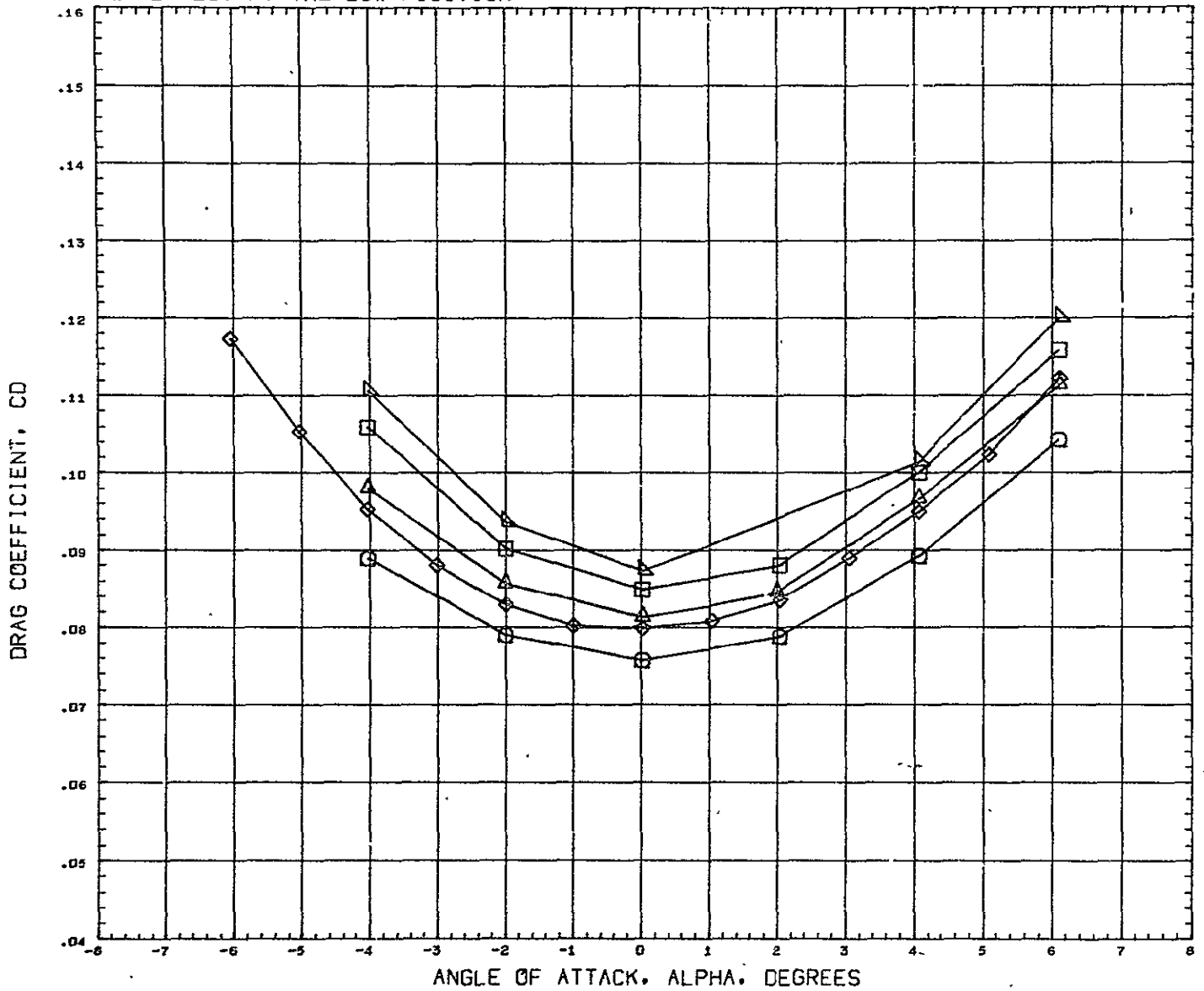
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION	
(862035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	0.900	2.000	15.000	REFS	0.3200 SQ FT
(862036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	0.900	2.000	15.000	REFL	0.2300 FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300,000	0.900	2.000	15.000	REFB	1.5000 FT
(862037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400,000	0.900	2.000	15.000	XMRP	15.5200 IN
(862038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500,000	0.900	2.000	15.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

MACH 0.250

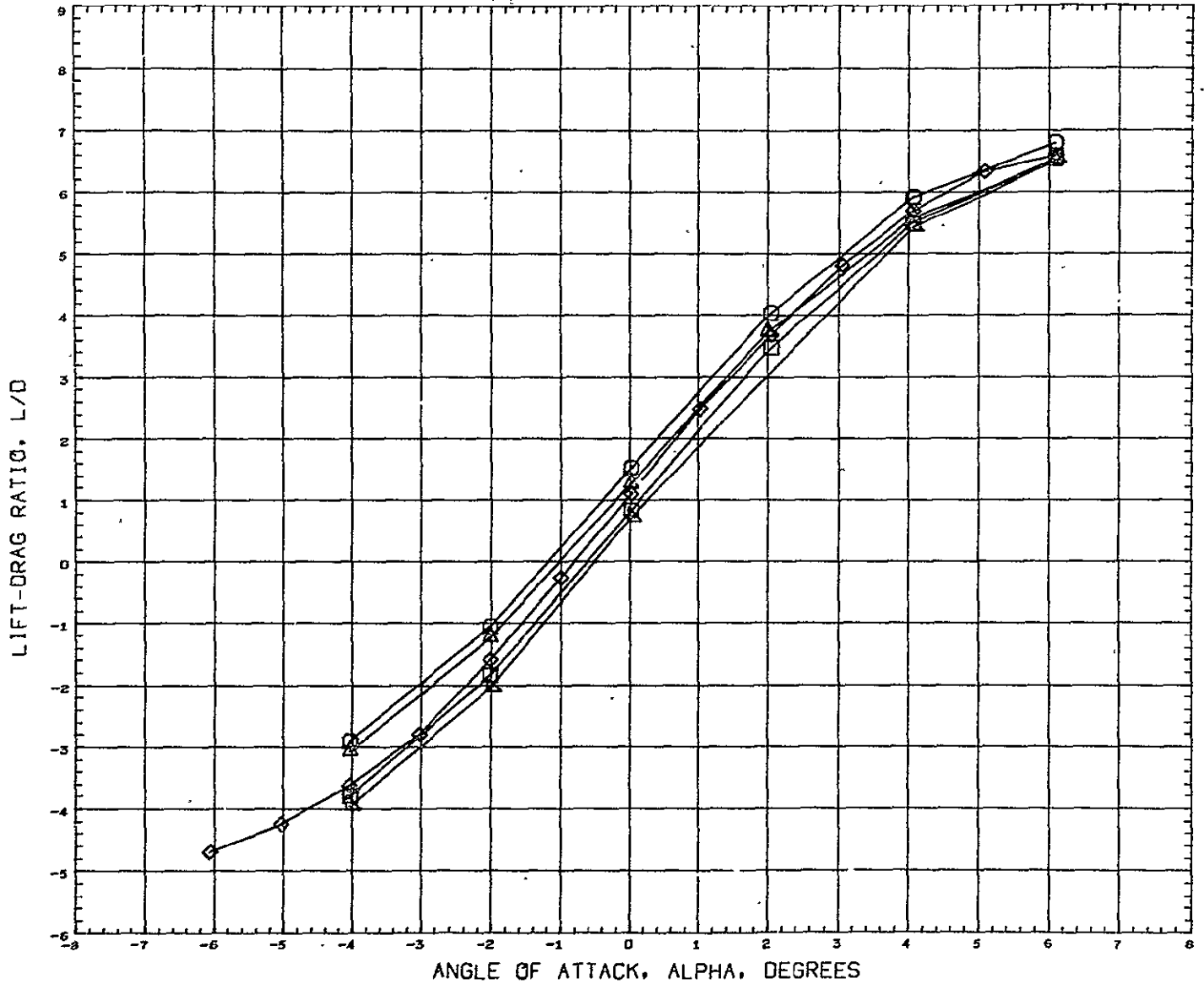
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION		
(862035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	0.900	2.000	15.000	REFS	0.3200	SQ FT
(862036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	0.900	2.000	15.000	REFL	0.2300	FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300,000	0.900	2.000	15.000	REFB	1.5000	FT
(862037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400,000	0.900	2.000	15.000	XMRP	15.5200	IN
(862038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500,000	0.900	2.000	15.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT

MACH 0.250

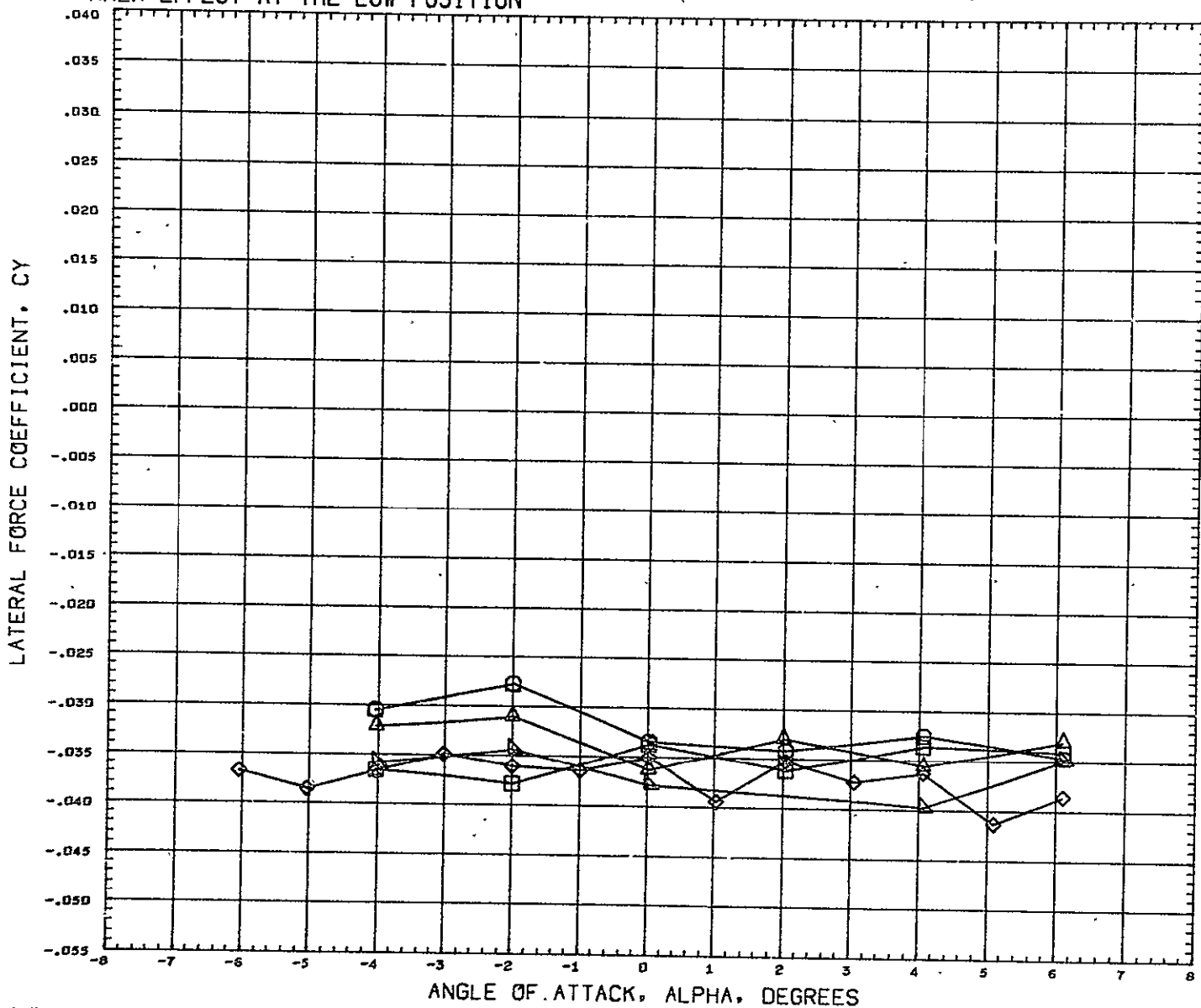
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERFOS	ASPECT	LSWEEP	REFERENCE INFORMATION	
(8G2035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100,000	0.900	2.000	15.000	REFS	0.3200 SQ FT
(8G2036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200,000	0.900	2.000	15.000	REFL	0.2300 FT
(8G2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300,000	0.900	2.000	15.000	REFB	1.5000 FT
(8G2037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400,000	0.900	2.000	15.000	XMRP	15.3200 IN
(8G2038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500,000	0.900	2.000	15.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

MACH 0.250

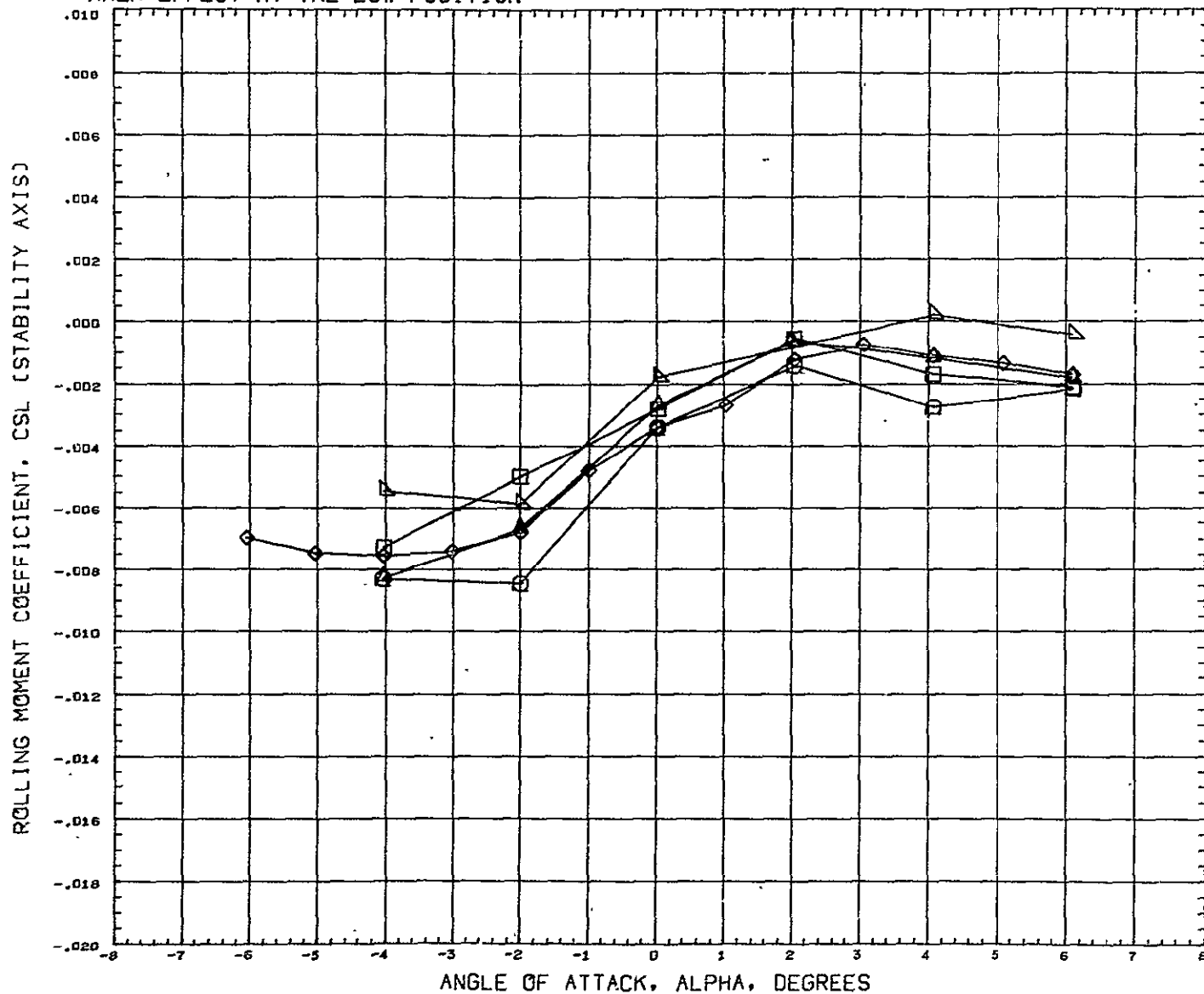
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION	
(BG2035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200 SQ FT
(BG2036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300 FT
(BG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5300 FT
(BG2037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XMRP	15.5200 IN
(BG2038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

MACH 0.250

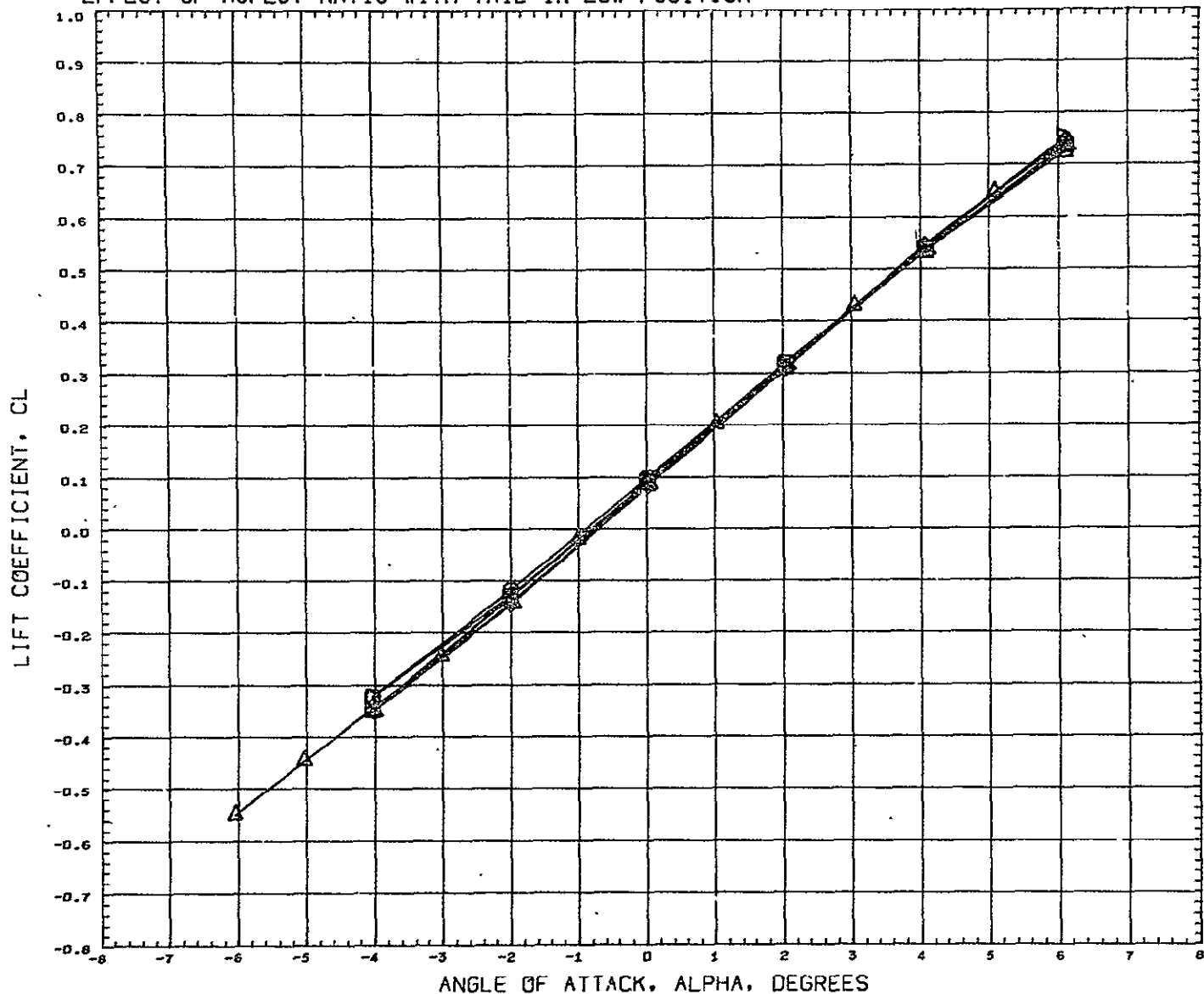
AREA EFFECT AT THE LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION	
(B62035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200 SQ FT
(B62036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300 FT
(B62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5000 FT
(B62037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XHRP	15.5200 IN
(B62038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YHRP	0.0000
						ZHRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

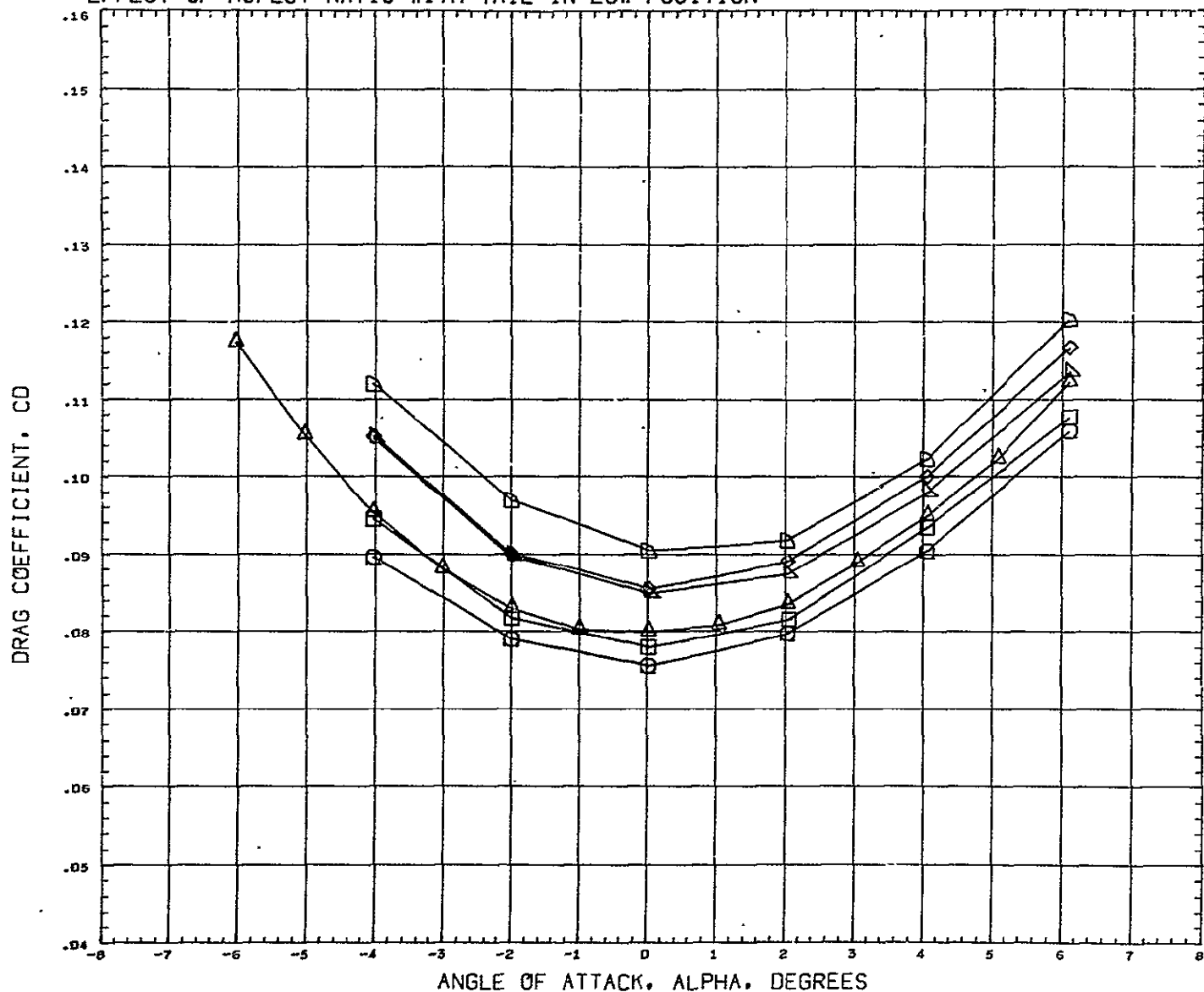
EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VEPP05	LSWEEP	TAPER	REFERENCE INFORMATION
(B02039)	M5C SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS 0.3200 SQ FT
(B02034)	M5C SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL 0.2300 FT
(B02040)	M5C SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REF3 1.5000 FT
(B02041)	M5C SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP 15.5200 IN
(B02042)	M5C SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YMRP 0.0000
(B02043)	M5C SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP 2.4000 IN
						SCALE 1.0750 PCT

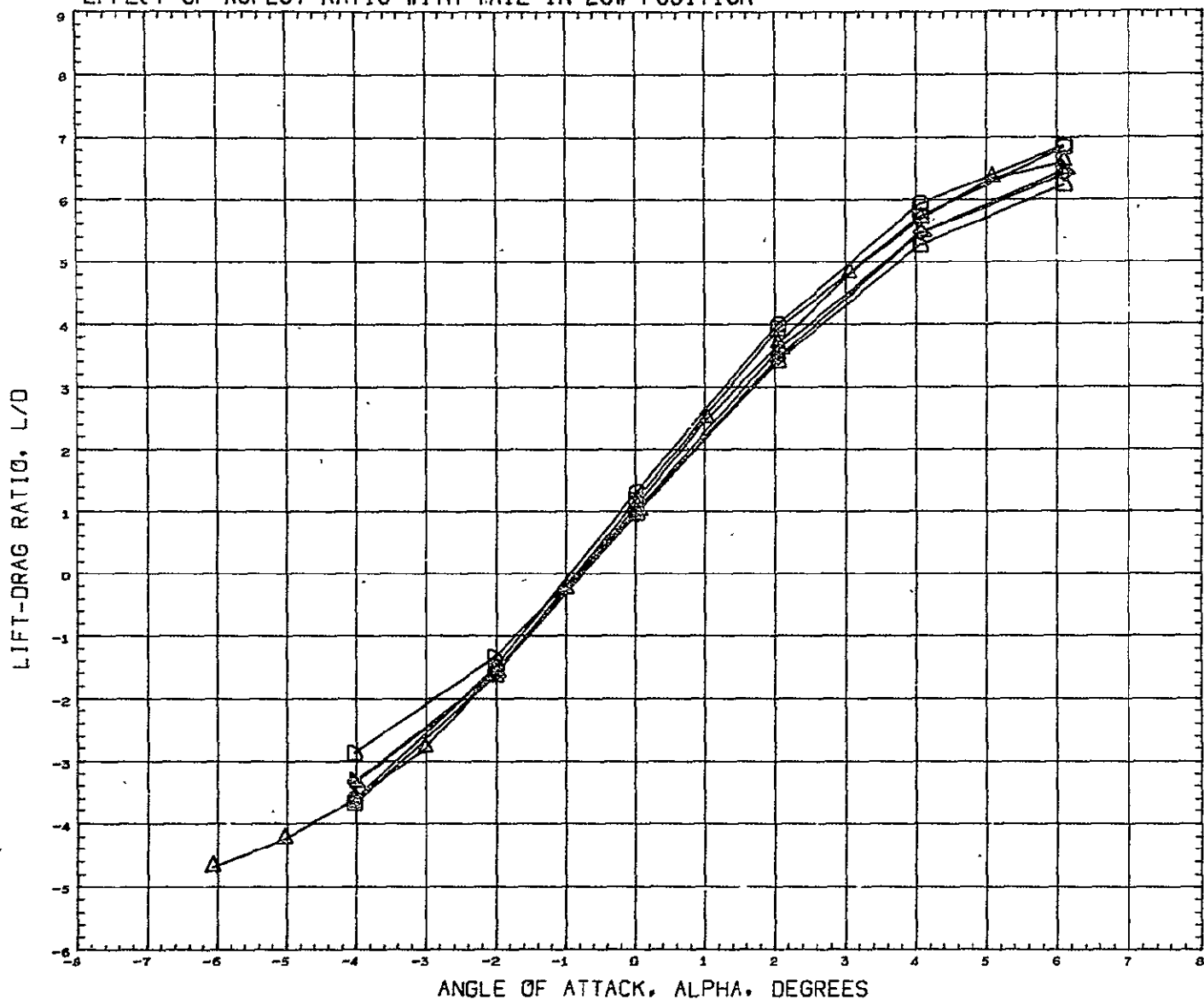
MACH 0.250

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



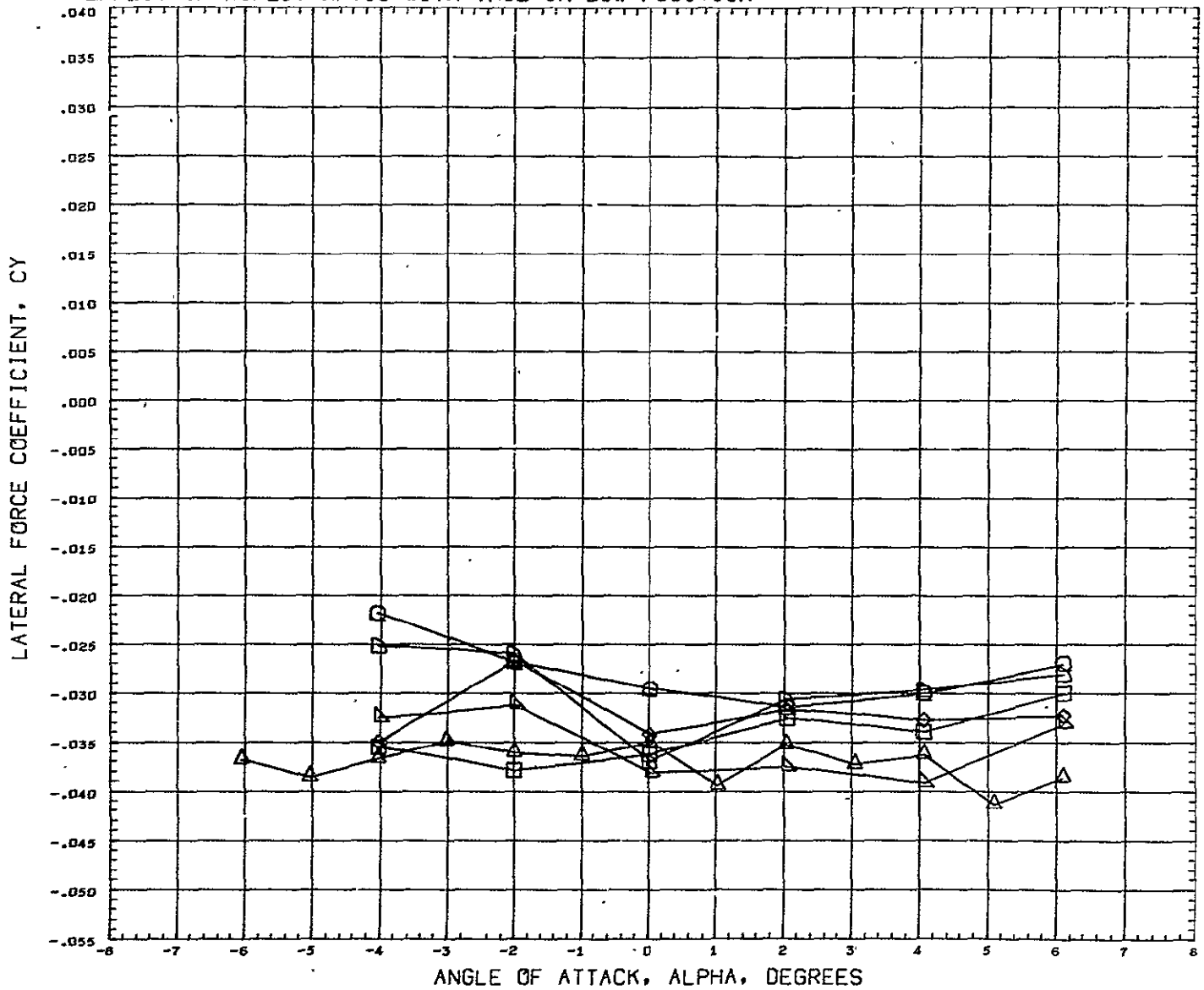
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERFOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(BG2034)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(BG2040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFB	1.5000 FT
(BG2041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5200 IN
(BG2042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YMRP	0.0000
(BG2043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
						SCALE	1.8750 PCT
MACH 0.250							

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(802039)	MSC SER 39 S-5 ORBITER BIW1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(802034)	MSC SER 39 S-5 ORBITER BIW1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(802040)	MSC SER 39 S-5 ORBITER BIW1V3H27	3.000	0.900	15.000	0.500	REFB	1.5600 FT
(802041)	MSC SER 39 S-5 ORBITER BIW1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5200 IN
(802042)	MSC SER 39 S-5 ORBITER BIW1V3H26	2.500	0.900	15.000	0.500	YMRP	0.0000
(802043)	MSC SER 39 S-5 ORBITER BIW1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
MACH 0.250						SCALE	1.8750 PCT

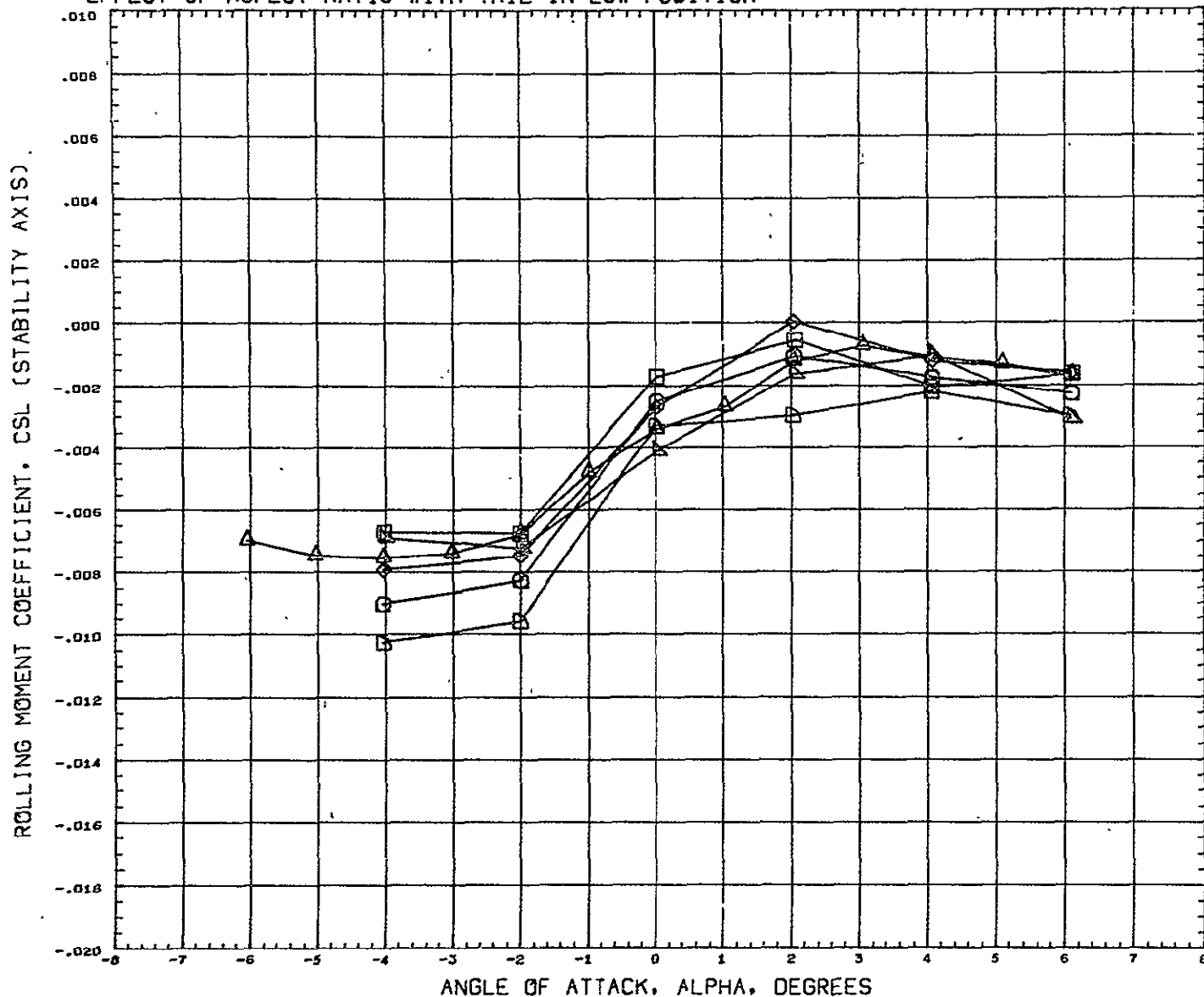
EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2039)	HSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(BG2034)	HSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(BG2040)	HSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFD	1.5000 FT
(BG2041)	HSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5203 IN
(BG2042)	HSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YMRP	0.0000
(BG2043)	HSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

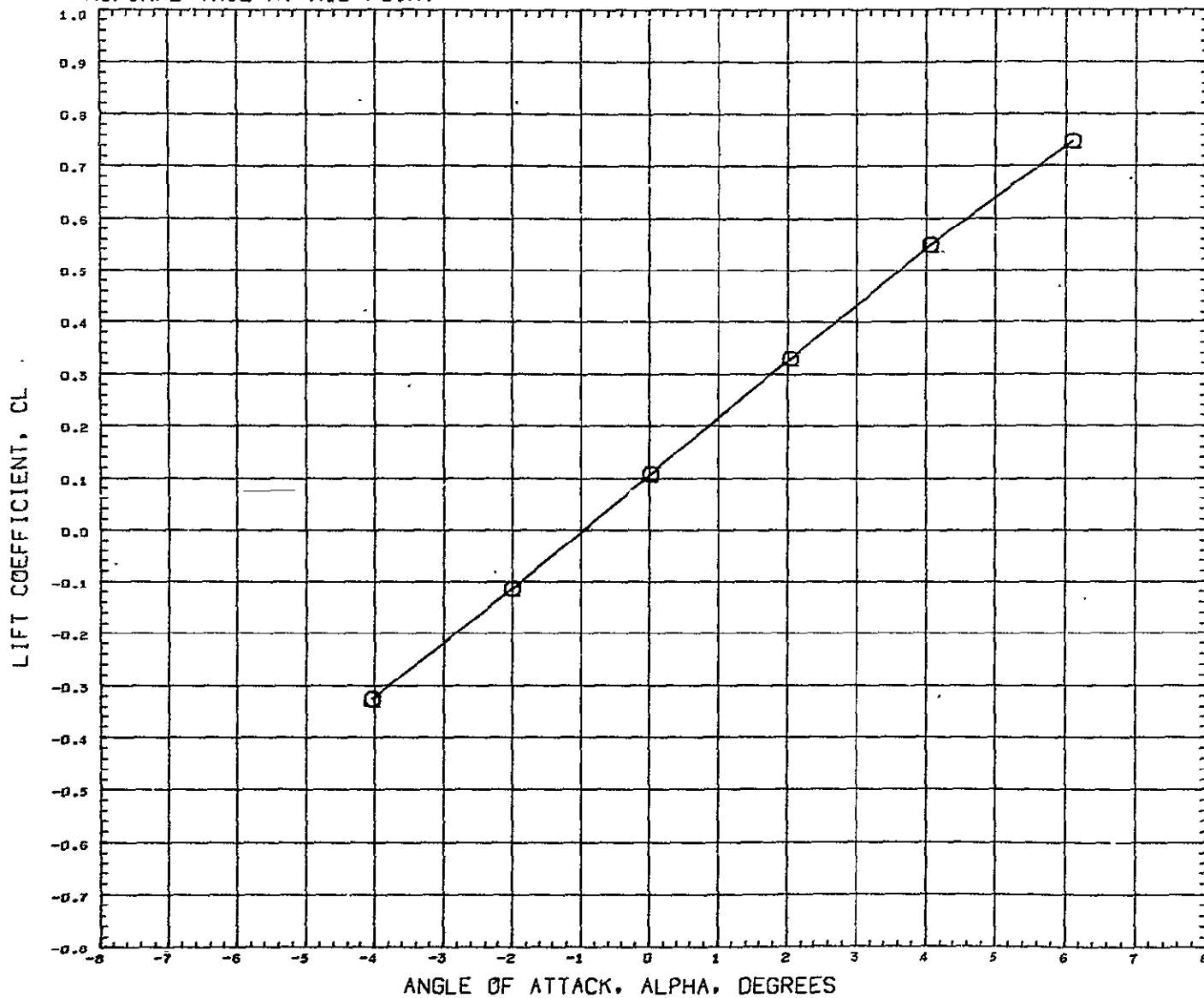
EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(862039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(862040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFR	1.5000 FT
(862041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5200 IN
(862042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.900	15.000	0.500	YMRP	0.0000
(862043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

NOMINAL TAIL AT MID-POINT

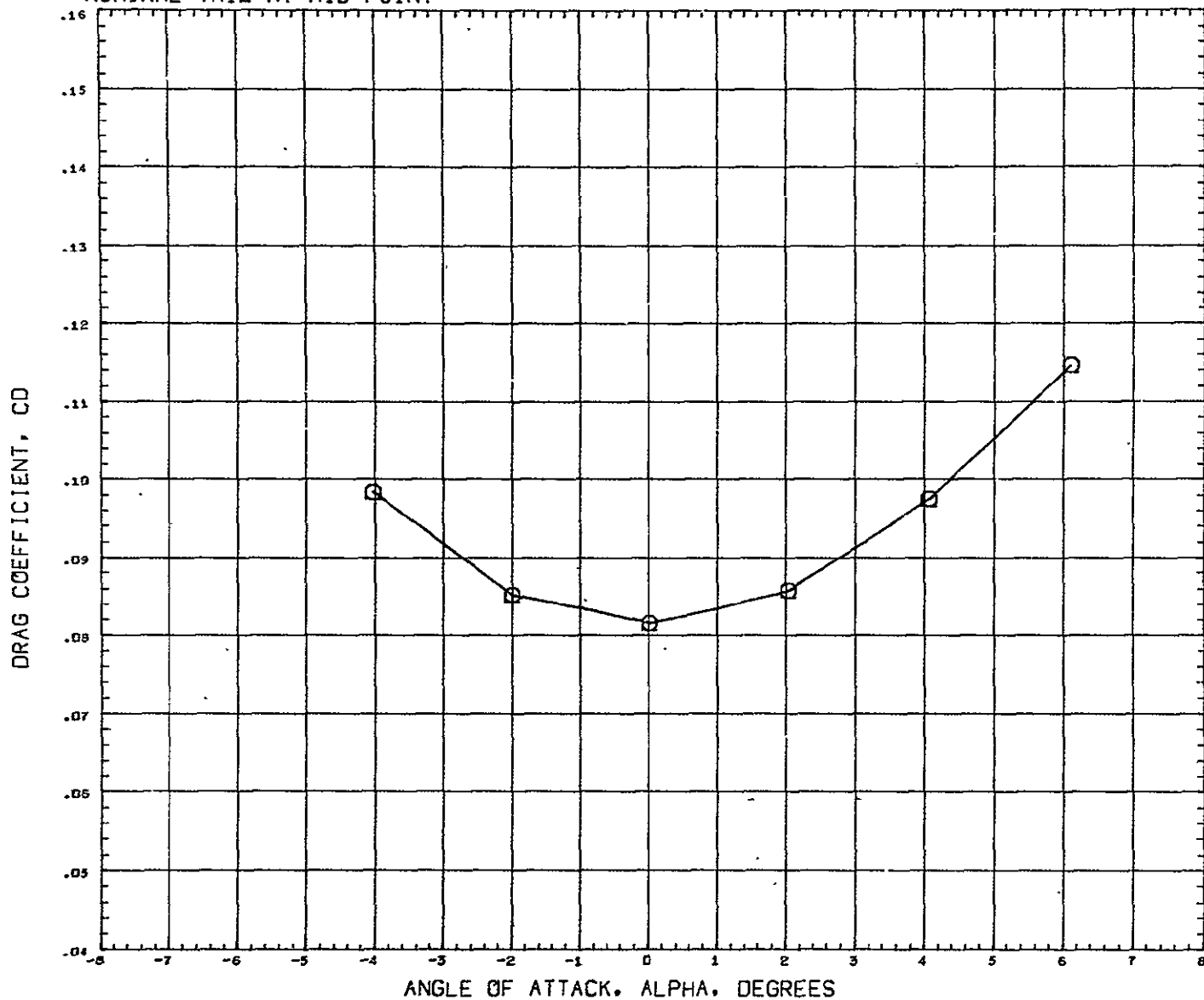


SYMBOL	HACH	PARAMETRIC VALUES			
○	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERFOS	2.050

DATA HIST. CODE TV

REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XMRP	15.5200	IN
YMRP	0.0000	
ZMRP	2.4000	IN
SCALE	1.8750	PCT

NOMINAL TAIL AT MID-POINT

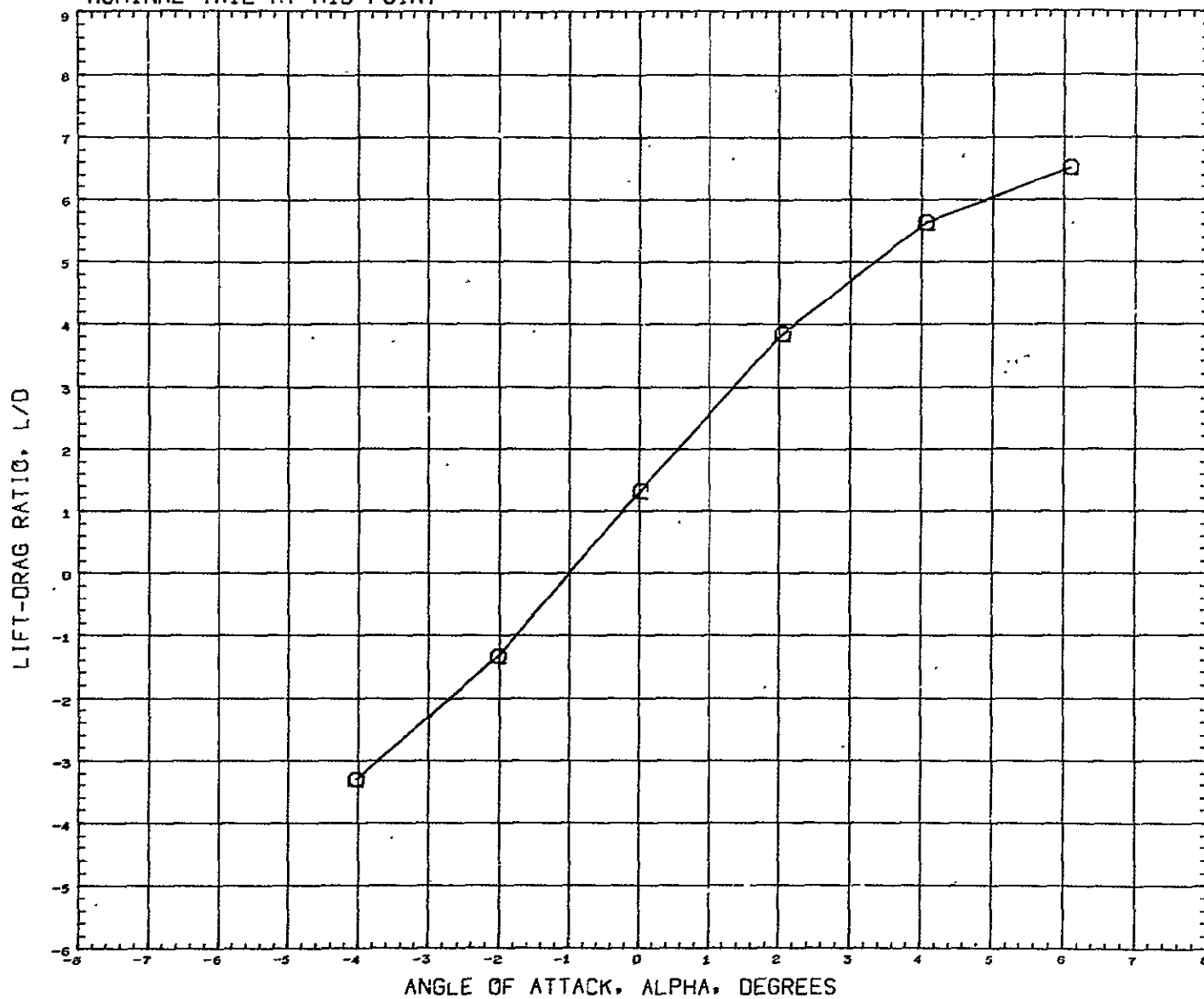


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERPOS	2.050

REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XMRP	15.5200	IN
YMRP	0.0000	
ZMRP	2.4000	IN
SCALE	1.0750	PCT

DATA HIST. CODE TV

NOMINAL TAIL AT MID-POINT



SYMBOL	MACH	PARAMETRIC VALUES			
○	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERFOS	2.050

REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XMRP	15.5200	IN
YMRP	0.0000	
ZMRP	2.4000	IN
SCALE	1.8750	PCT

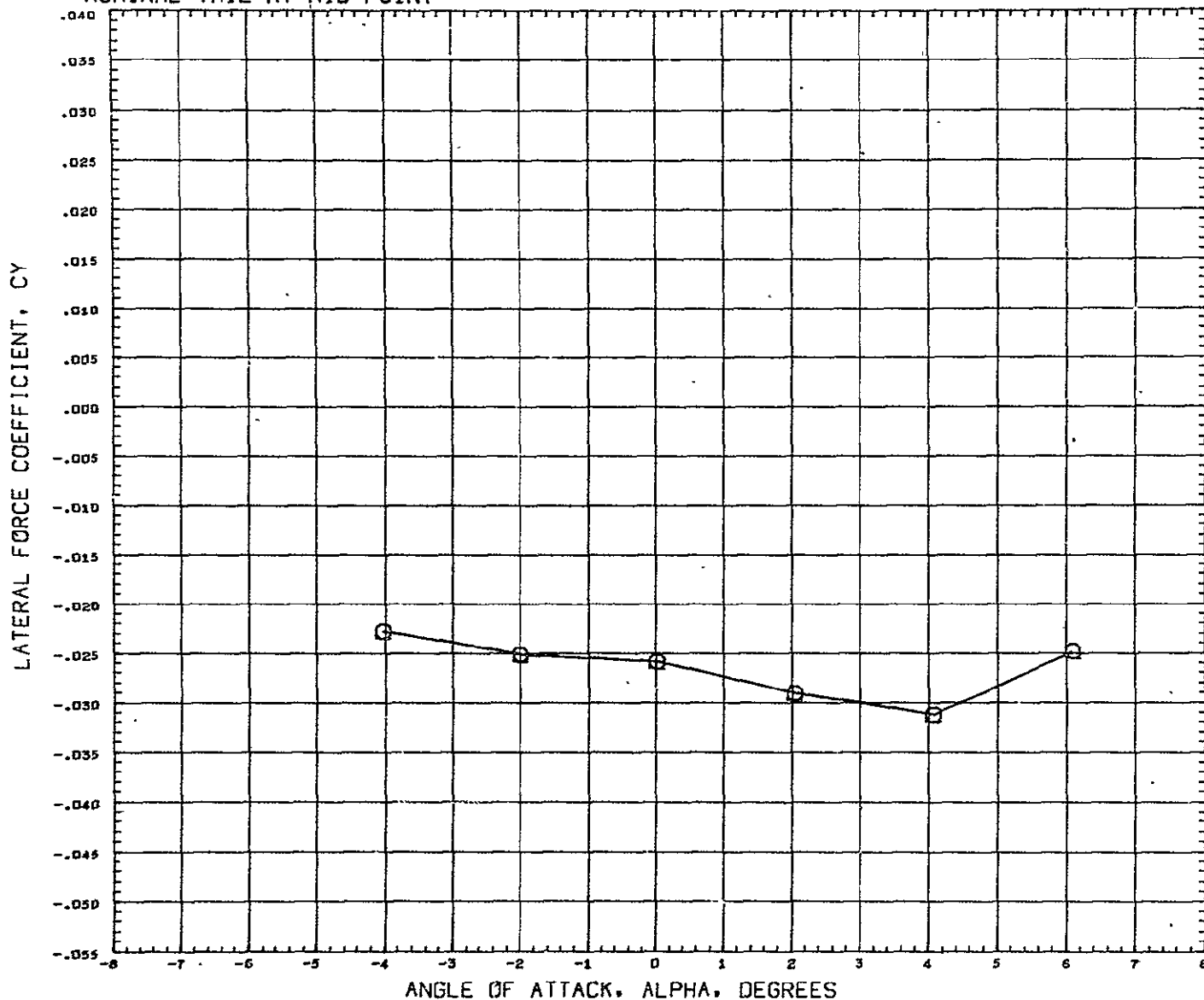
DATA HIST. CODE

MSC SER 39 S-5 ORBITER B1W1V3H42

(BG2023) 26 MAR 71

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NOMINAL TAIL AT MID-POINT



SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	HACH	AREA	ASPECT	VERPOS	REFS	SCALE	
□	0.250	262.500	2.000	2.050	0.3200	1.8750	SQ FT
		LSWEEP	TAPER		0.2300		FT
		INCIC			1.5000		FT
					15.5200		IN
					0.0000		IN
					2.4000		IN
							PCT

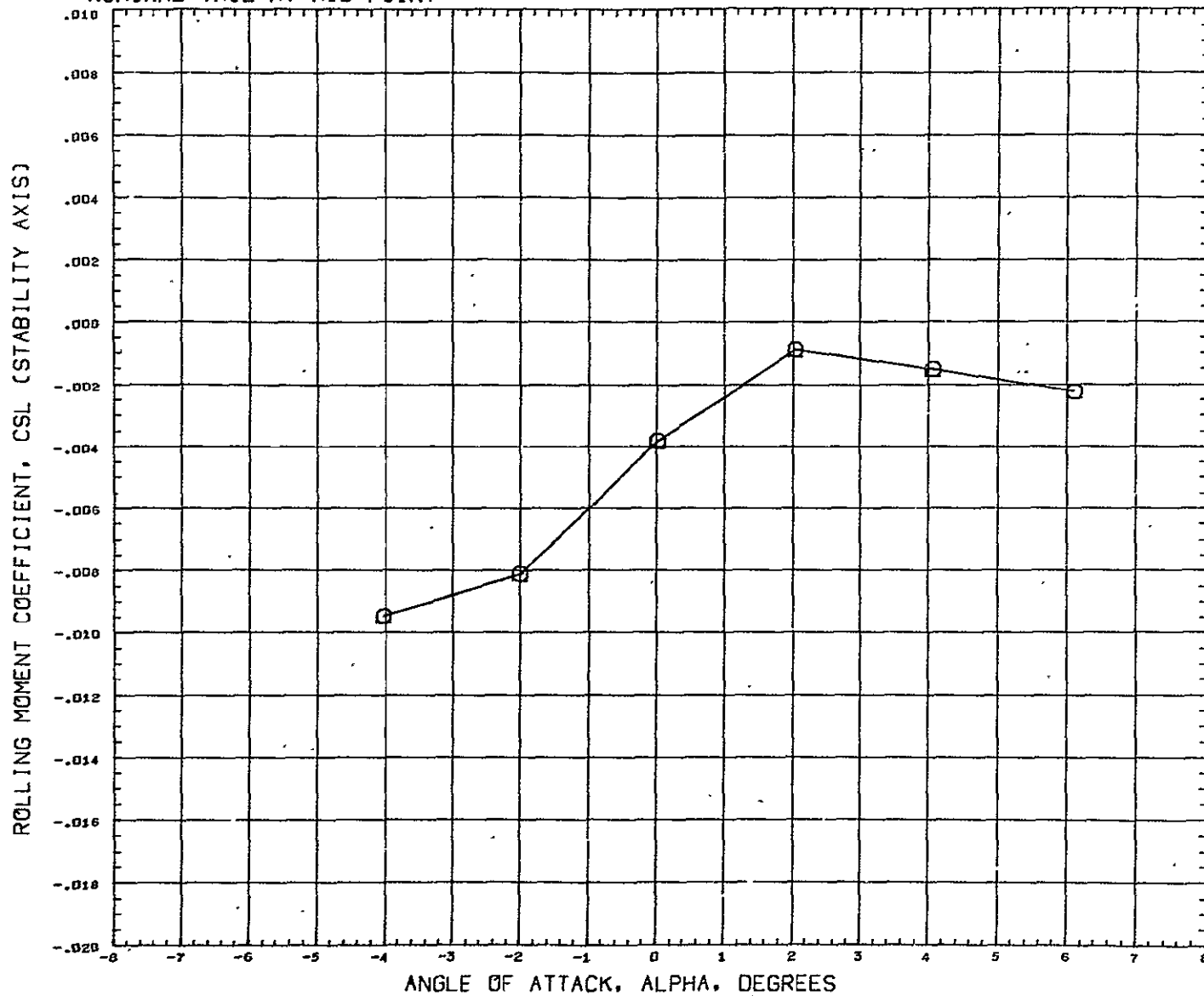
DATA HIST. CODE TV

MSC SER 39 S-5 ORBITER B1W1V3H42

(B62023) 26 MAR 71

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NOMINAL TAIL AT MID-POINT

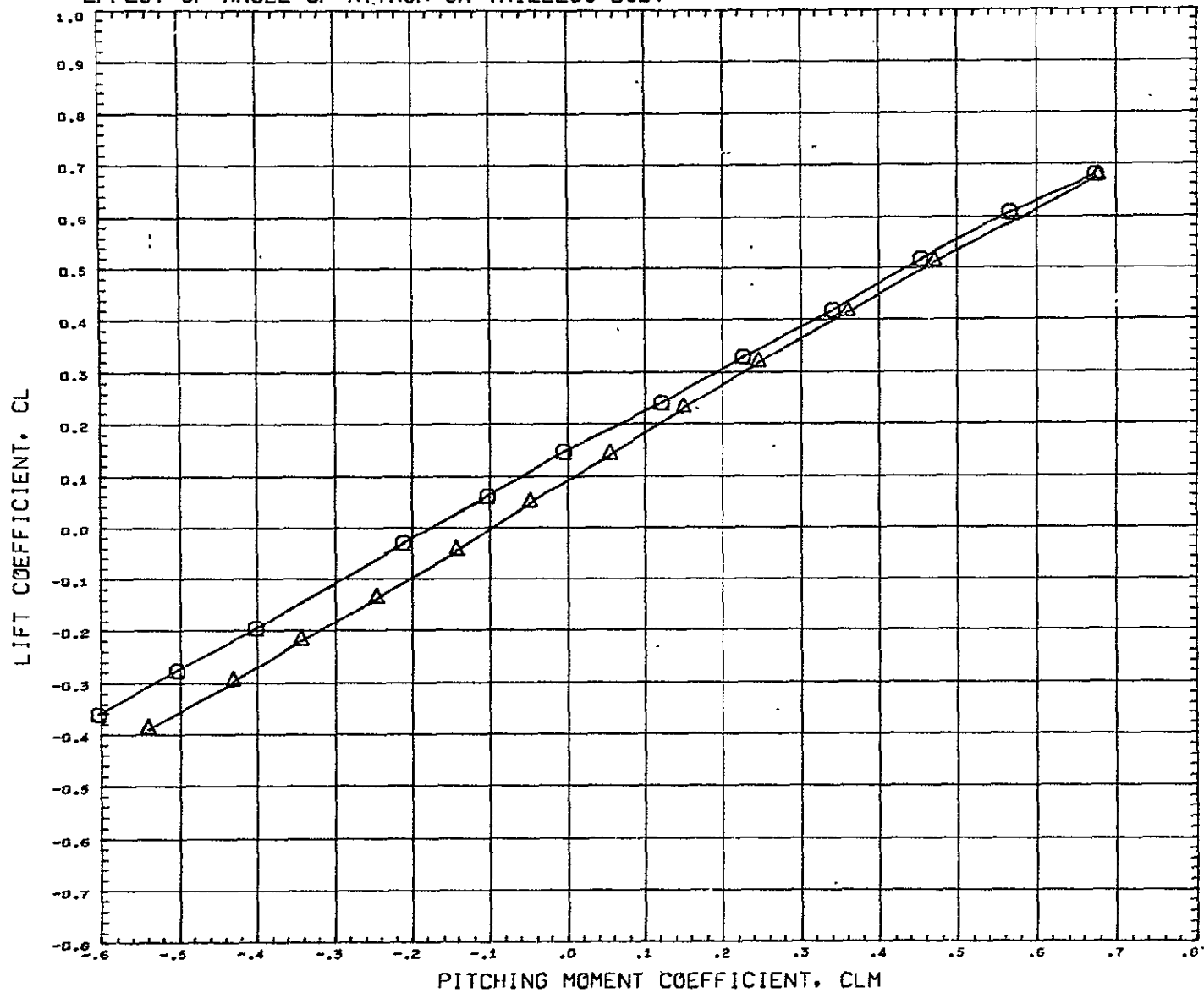


SYMBOL	HACH	PARAMETRIC VALUES			
Q	0.250	AREA	262.500	ASPECT	2.000
		LSWEEP	10.200	TAPER	0.500
		INCID	0.000	VERPOS	2.050

REFERENCE INFORMATION		
REFS	0.3200	SQ FT
REFL	0.2300	FT
REFB	1.5000	FT
XMRP	15.5200	IN
YMRP	0.0000	
ZMRP	2.4000	IN
SCALE	1.8750	FACT

DATA HIST. CODE TV

EFFECT OF ANGLE OF ATTACK ON TAILLESS BODY



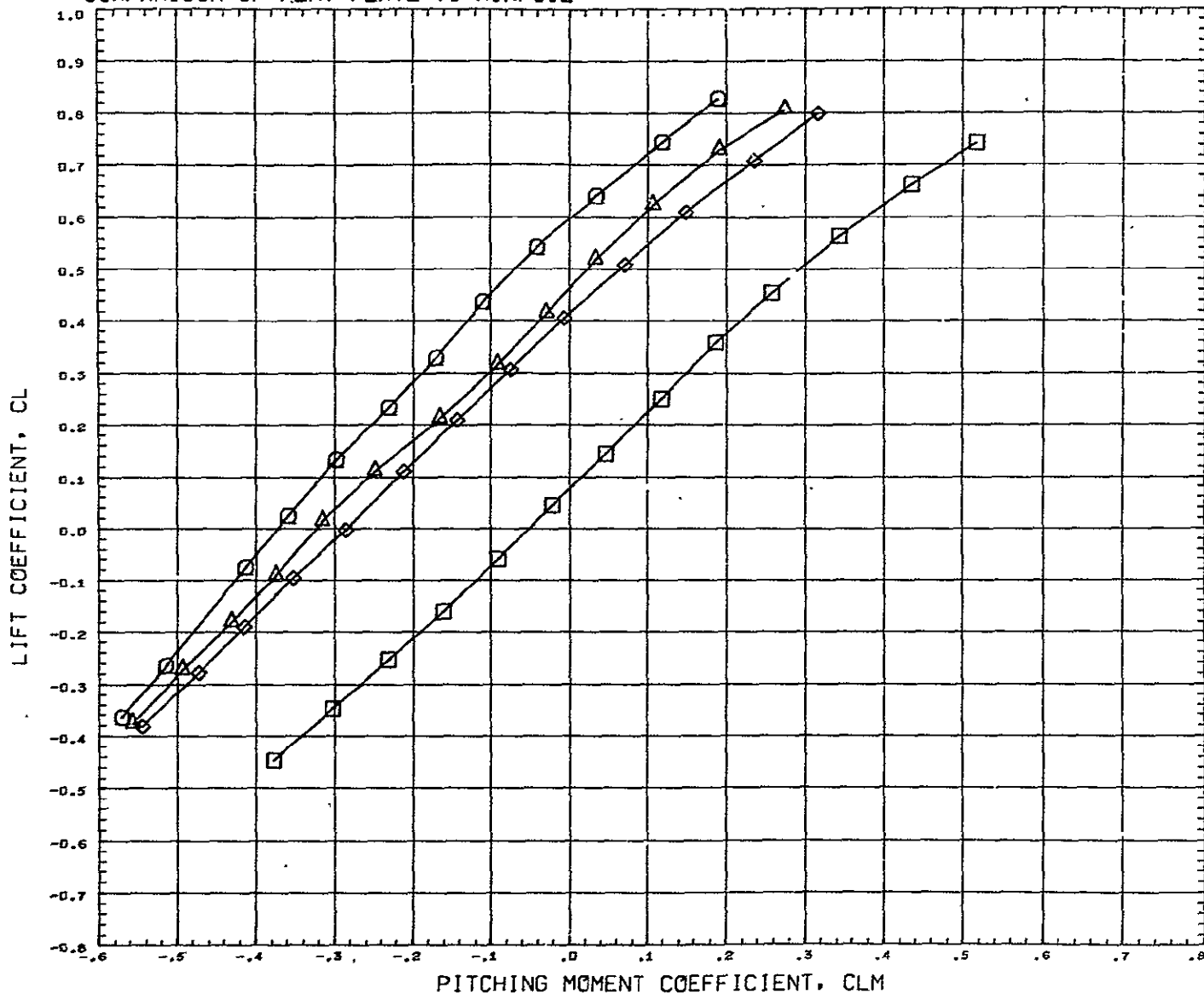
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (862001) $\circ$ HSC SER 39 S-5 ORBITER B1W1V3
 (862006) $\triangle$ HSC SER 39 S-5 ORBITER B1W1V3

BETA
 0.000
 0.000

REFERENCE INFORMATION
 REFS 0.3200 SQ FT
 REFL 0.2300 FT
 REFB 1.5000 FT
 XMRP 15.5200 IN
 YMRP 0.0000 IN
 ZMRP 2.4000 IN
 SCALE 1.8750 PCT

MACH 0.250

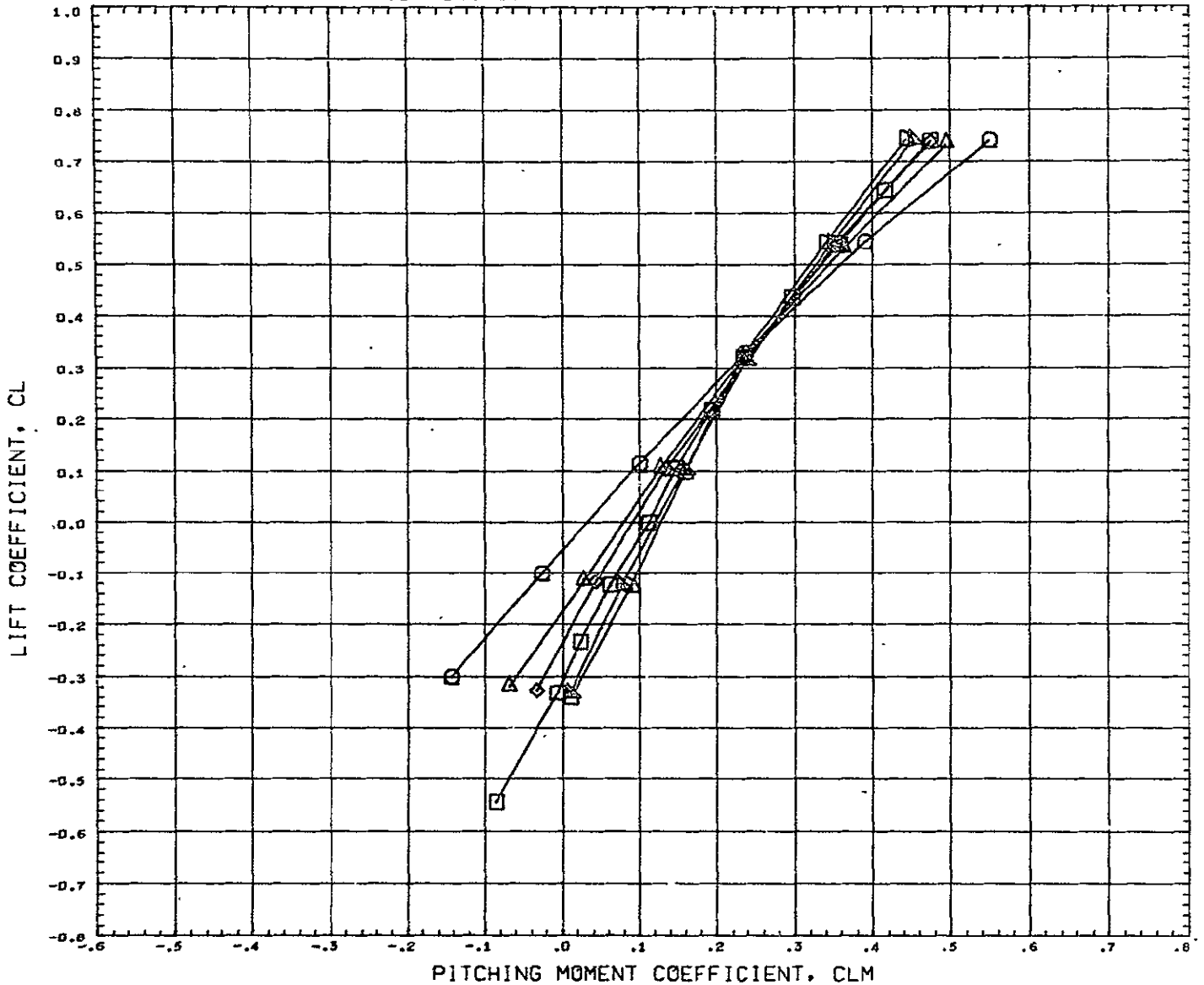
COMPARISON OF FLAT PLATE TO AIRFOIL



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(862002)	MSC SER 39 S-5 ORBITER B1W1V3H6	334.220	2.000	10.200	0.500	REFS	0.3200 SQ FT
(862003)	MSC SER 39 S-5 ORBITER B1W1V3H43	334.220	2.000	10.200	0.500	REFL	0.2300 FT
(862004)	MSC SER 39 S-5 ORBITER B1W1V3H44	271.060	2.000	10.200	0.500	REFB	1.5000 FT
(862005)	MSC SER 39 S-5 ORBITER B1W1V3H45	241.260	2.000	10.200	0.500	XMRP	15.5200 IN
						YMRP	0.0000
						ZMRP	2.4000 IN
						SCALE	1.8750 FCT

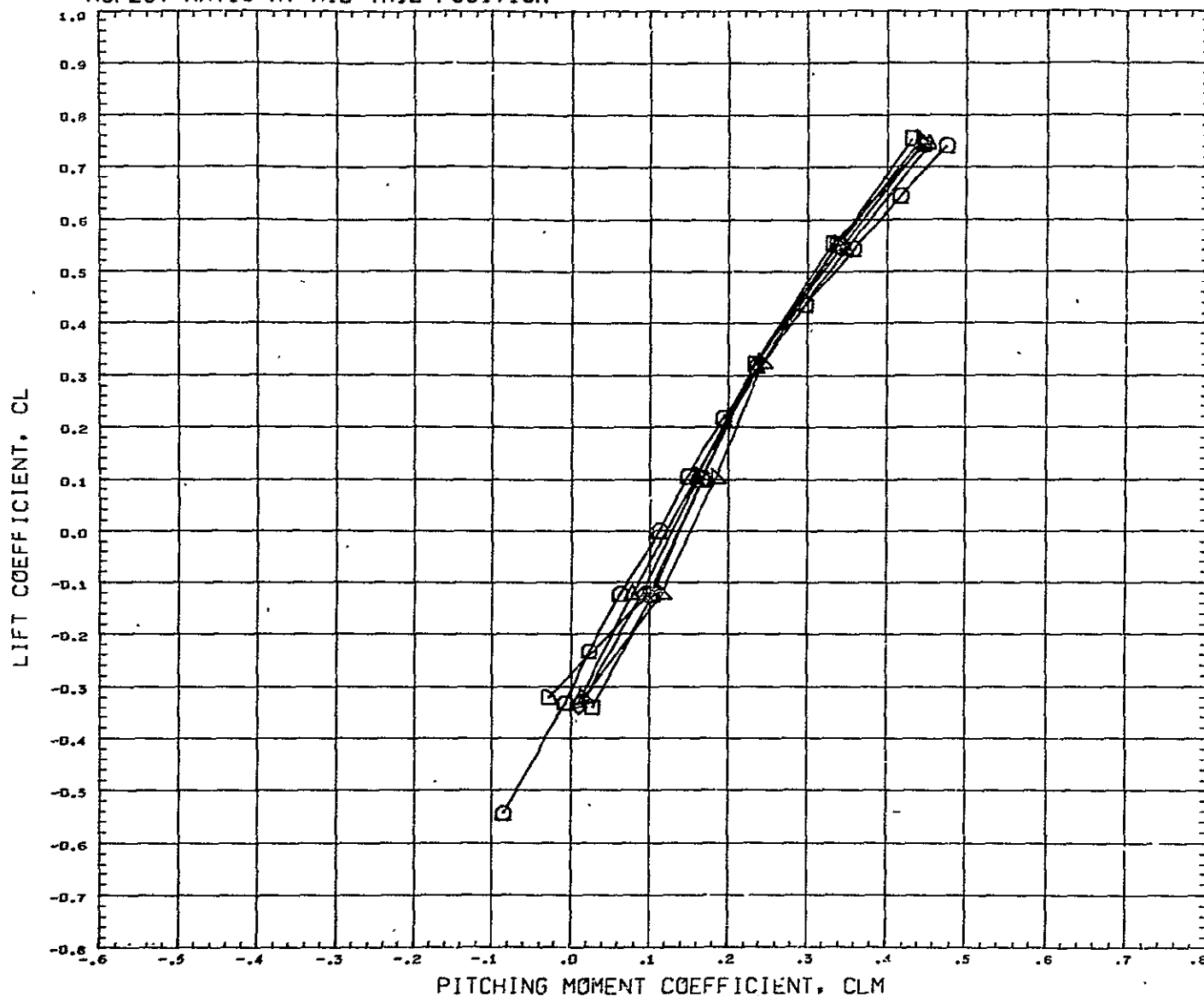
MACH 0.250

ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(862032)	HSC SER 39 S-5 ORBITER B1W1V3H21	1.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(862008)	HSC SER 39 S-5 ORBITER B1W1V3H22	1.500	15.000	0.500	0.000	REFL	0.2300 FT
(862009)	HSC SER 39 S-5 ORBITER B1W1V3H23	1.750	15.000	0.500	0.000	REFB	1.5000 FT
(862007)	HSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	XMRP	15.5200 IN
(862010)	HSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	YMRP	-0.0000
(862011)	HSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	ZMRP	2.4000 IN
MACH 0.250						SCALE	1.8750 FCT

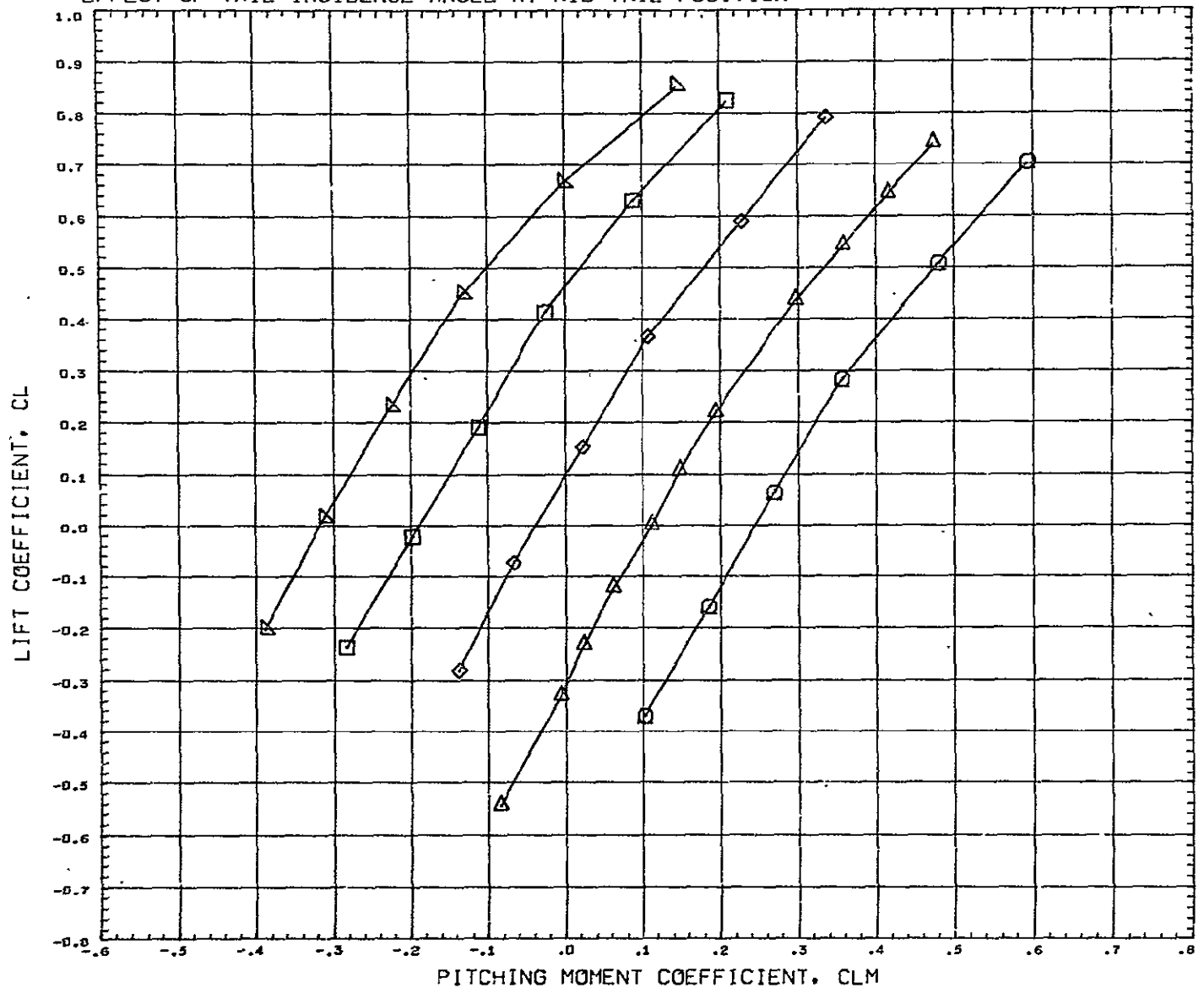
ASPECT RATIO AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	LSWEEP	TAPER	INCID	REFERENCE INFORMATION	
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	15.000	0.500	0.000	REFS	0.3200 SQ FT
(B62010)	MSC SER 39 S-5 ORBITER B1W1V3H25	2.250	15.000	0.500	0.000	REFL	0.2300 FT
(B62011)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	15.000	0.500	0.000	REFR	1.5000 FT
(B62012)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	15.000	0.500	0.000	XMRP	15.5200 IN
(B62013)	MSC SER 39 S-5 ORBITER B1W1V3H28	3.500	15.000	0.500	0.000	YMRP	0.0000
(B62014)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	15.000	0.500	0.000	ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

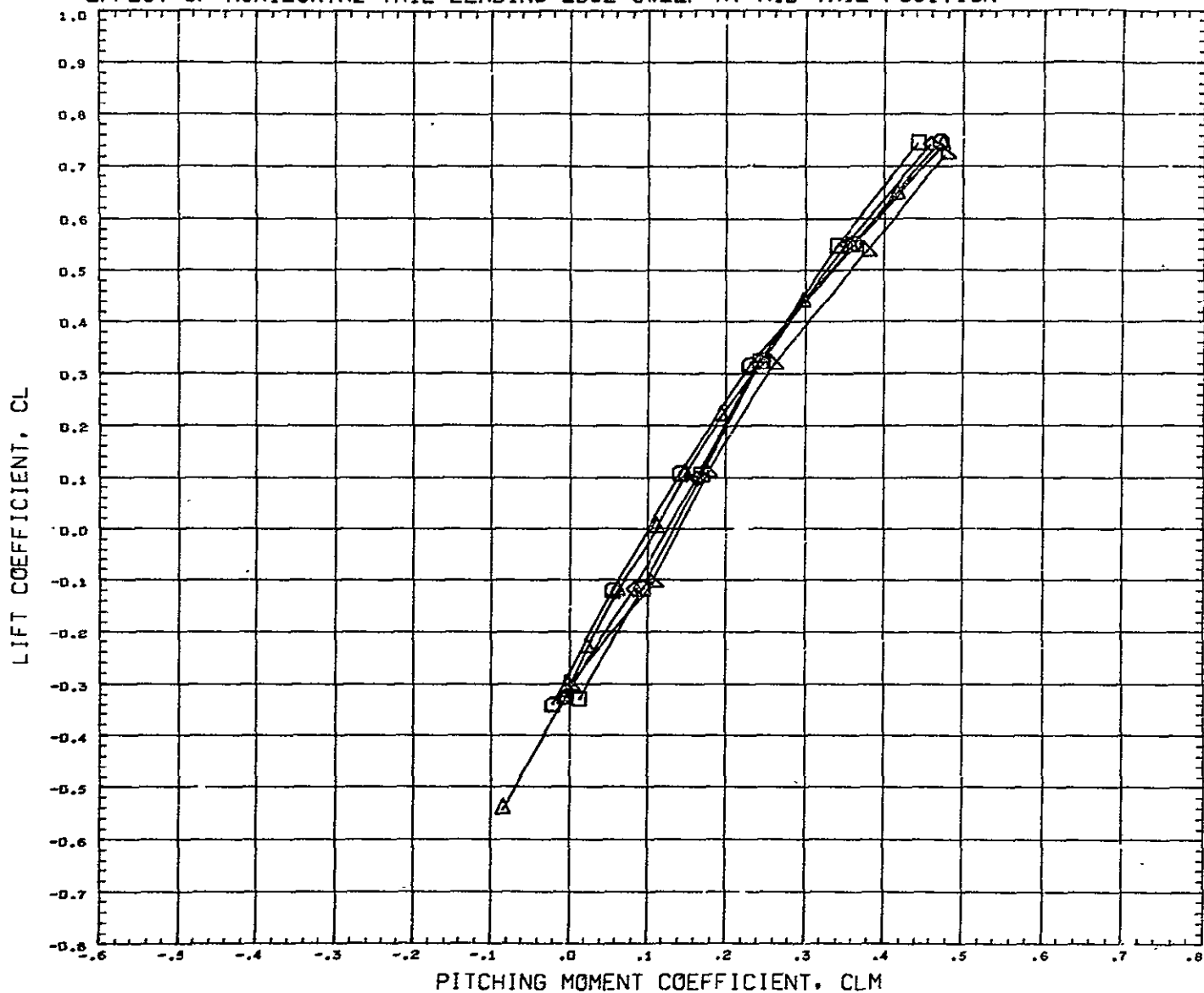
EFFECT OF TAIL INCIDENCE ANGLE AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCID	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(B02016)	MSC SER 39 S-5 ORBITER B1W1V3H24	-2.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(B02007)	MSC SER 39 S-5 ORBITER B1W1V3H24	0.000	2.000	15.000	0.500	REFL	0.2300 FT
(B02017)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	2.000	15.000	0.500	REFB	1.3000 FT
(B02018)	MSC SER 39 S-5 ORBITER B1W1V3H24	4.000	2.000	15.000	0.500	XHPP	15.5200 IN
(B02019)	MSC SER 39 S-5 ORBITER B1W1V3H24	6.000	2.000	15.000	0.500	YHRP	0.0000 IN
						ZHRP	2.4000 IN
						SCALE	1.8750 PCT

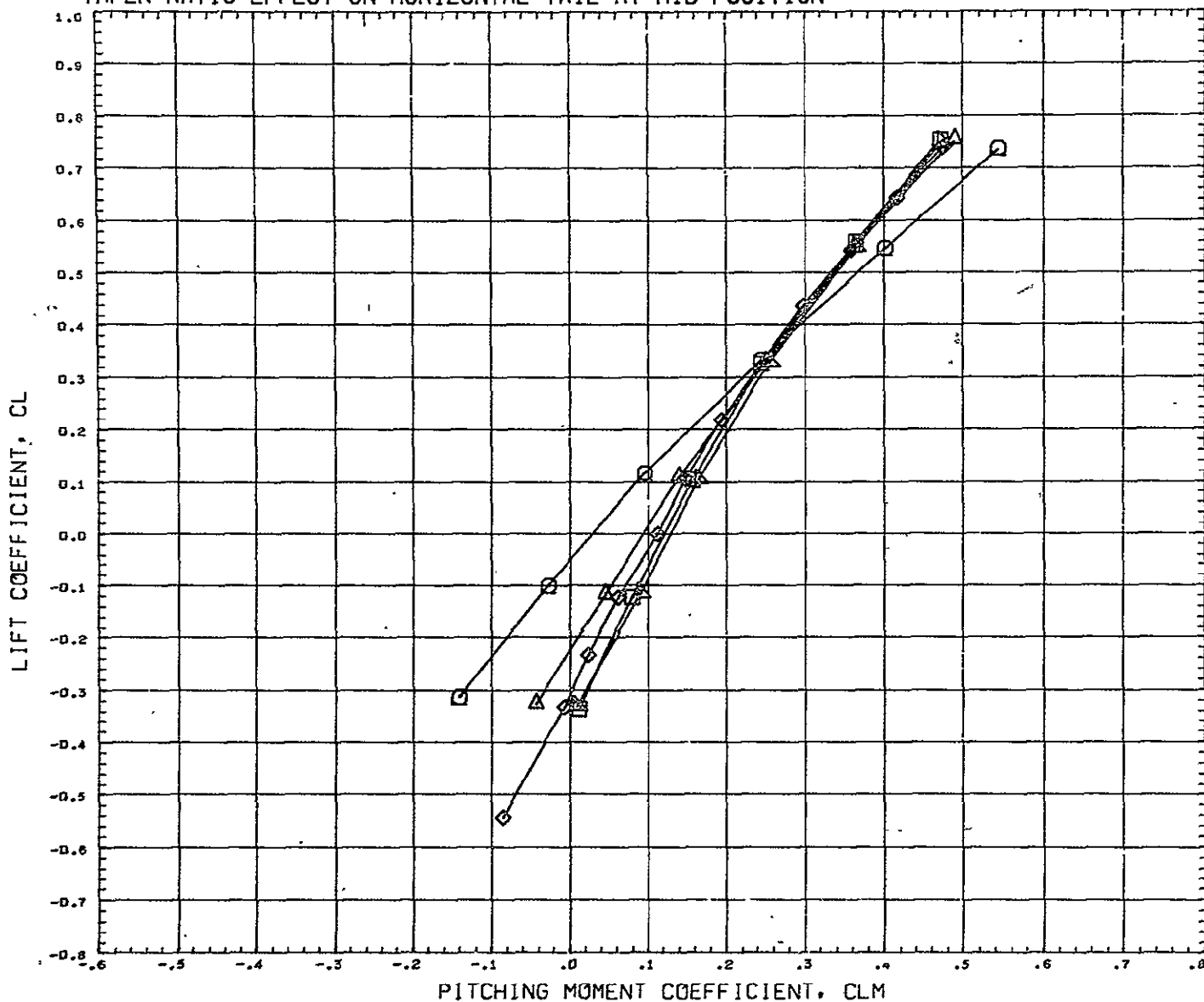
MACH 0.250

EFFECT OF HORIZONTAL TAIL LEADING EDGE SWEEP AT MID-TAIL POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LSWEEP	ASPECT	TAPER	INCID	REFERENCE INFORMATION		
(B02015)	MSC SER 39 S-5 ORBITER B1W1V3H30	0.000	2.000	0.500	0.000	REFS	0.3200	SQ FT
(B02007)	MSC SER 39 S-5 ORBITER F1W1V3H24	15.000	2.000	0.500	0.000	REFL	0.2300	FT
(B02020)	MSC SER 39 S-5 ORBITER B1W1V3H31	30.000	2.000	0.500	0.000	REFB	1.5000	FT
(B02021)	MSC SER 39 S-5 ORBITER B1W1V3H32	45.000	2.000	0.500	0.000	XMRP	15.5200	IN
(B02022)	MSC SER 39 S-5 ORBITER B1W1V3H33	60.000	2.000	0.500	0.000	YMRP	0.0000	
						ZMRP	2.4000	IN
						SCALE	1.8750	PCT
MACH 0.250								

TAPER RATIO EFFECT ON HORIZONTAL TAIL AT MID-POSITION

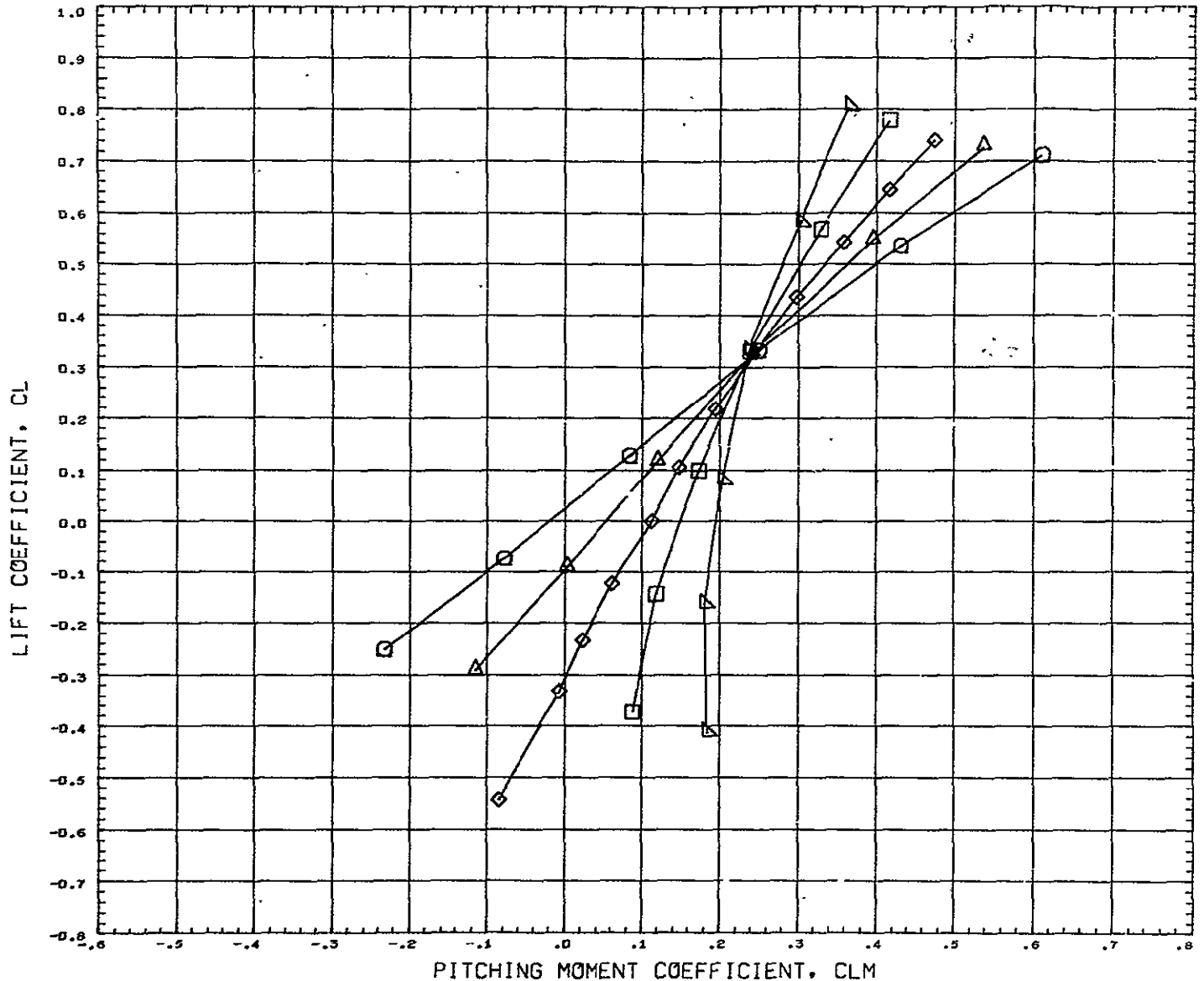


DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(B02024)	HSC SER 39 S-S ORBITER B1W1V3H34
(B02025)	HSC SER 39 S-S ORBITER B1W1V3H35
(B02027)	HSC SER 39 S-S ORBITER B1W1V3H24
(B02026)	HSC SER 39 S-S ORBITER B1W1V3H36
(B02027)	HSC SER 39 S-S ORBITER B1W1V3H37

TAPER	ASPECT	LSWEEP	INCID	REFERENCE INFORMATION
0.000	2.000	15.000	0.000	REFS 0.3200 SQ FT
0.250	2.000	15.000	0.000	REFL 0.2300 FT
0.500	2.000	15.000	0.000	REFR 1.5000 FT
0.750	2.000	15.000	0.000	XMRP 15.5200 IN
1.000	2.000	15.000	0.000	YMRP 0.0000
				ZMRP 2.4000 IN
				SCALE 1.8750 PCT

MACH 0.250

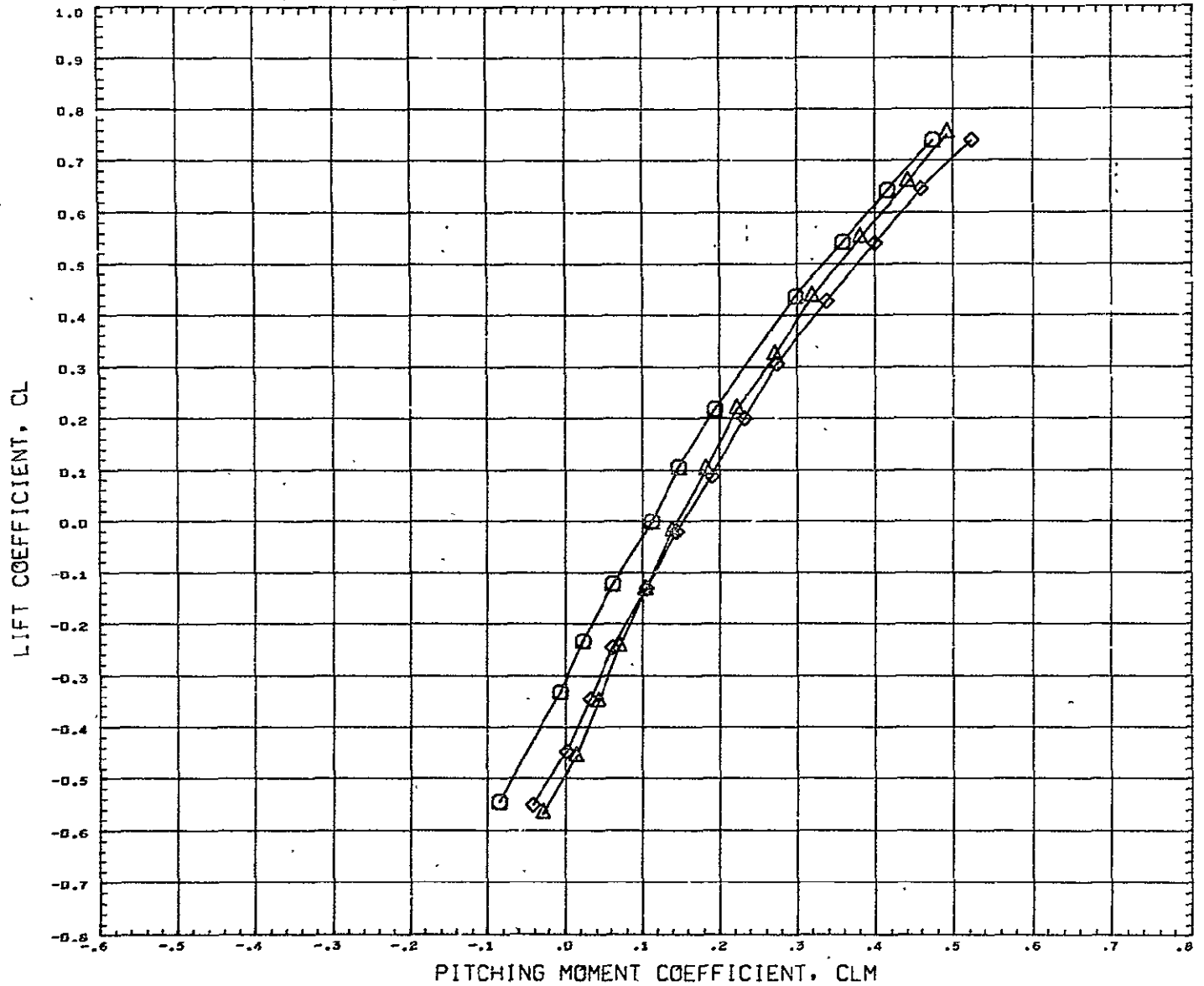
AREA EFFECT ON HORIZONTAL TAIL AT MID-POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	ASPECT	LSWEEP	TAPER	REFERENCE INFORMATION	
(BG2028)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	2.000	15.000	0.500	REFS	0.3200 SQ FT
(BG2029)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	2.000	15.000	0.500	REFL	0.2300 FT
(BG2007)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	2.000	15.000	0.500	REFB	1.5000 FT
(BG2030)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	2.000	15.000	0.500	XMRP	15.5200 IN
(BG2031)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	2.000	15.000	0.500	YMRP	0.0600 IN
						ZMRP	2.4000 IN
						SCALE	1.8750 PCT

MACH 0.250

EFFECT OF VERTICAL POSITION OF THE TAIL



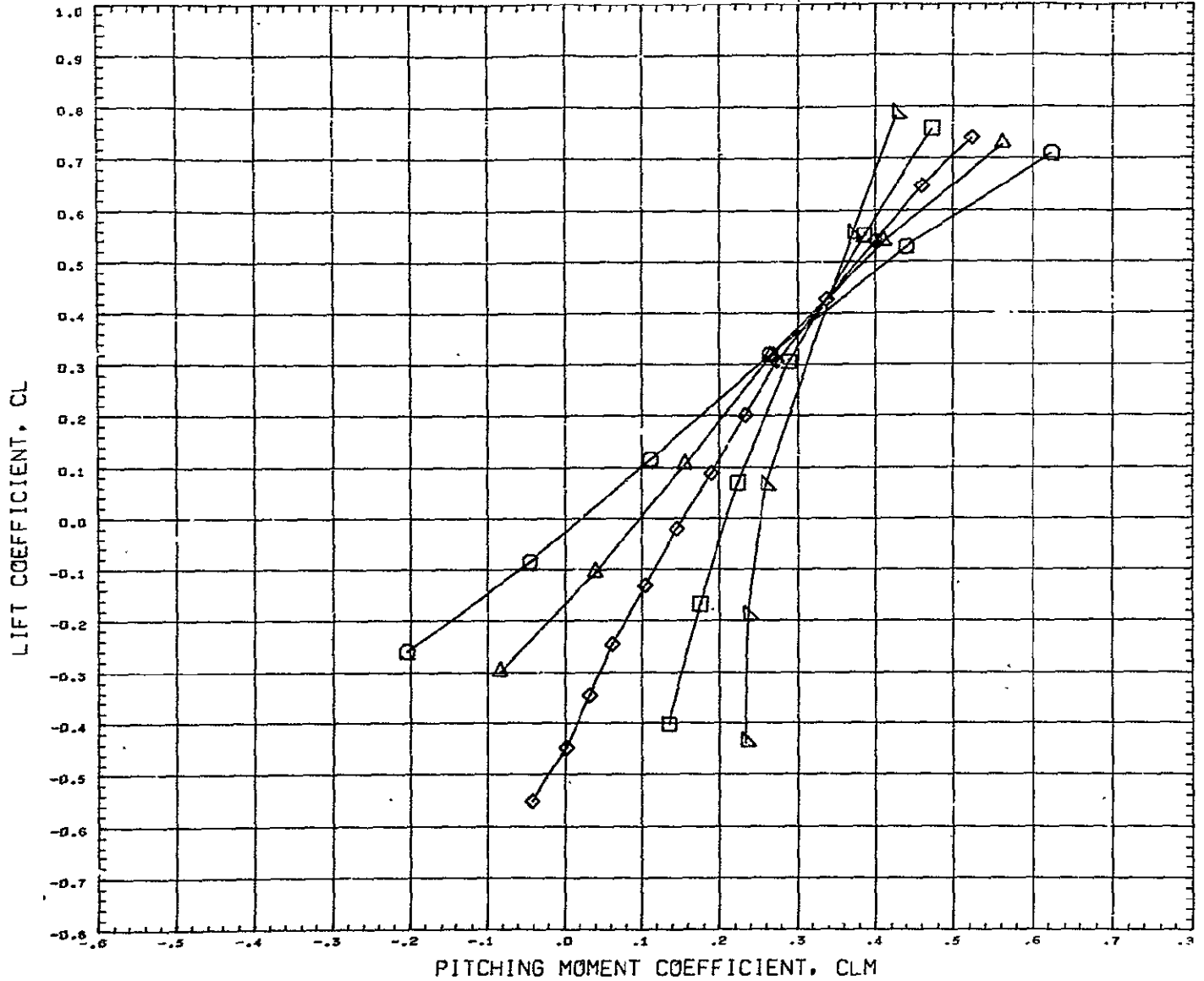
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(B62007)	MSC SER 39 S-5 ORBITER B1W1V3H24
(B62033)	MSC SER 39 S-5 ORBITER B1W1V3H24
(B62034)	MSC SER 39 S-5 ORBITER B1W1V3H24

VERPOS	ASPECT	LSWEEP	TAPER
2.050	2.000	15.000	0.500
1.750	2.000	15.000	0.500
0.900	2.000	15.000	0.500

REFERENCE INFORMATION	
REFS	0.3200 SQ FT
REFL	0.2300 FT
REFB	1.5000 IN
YMRP	0.0000
ZMRP	2.4000 IN
SCALE	1.8750 FCT

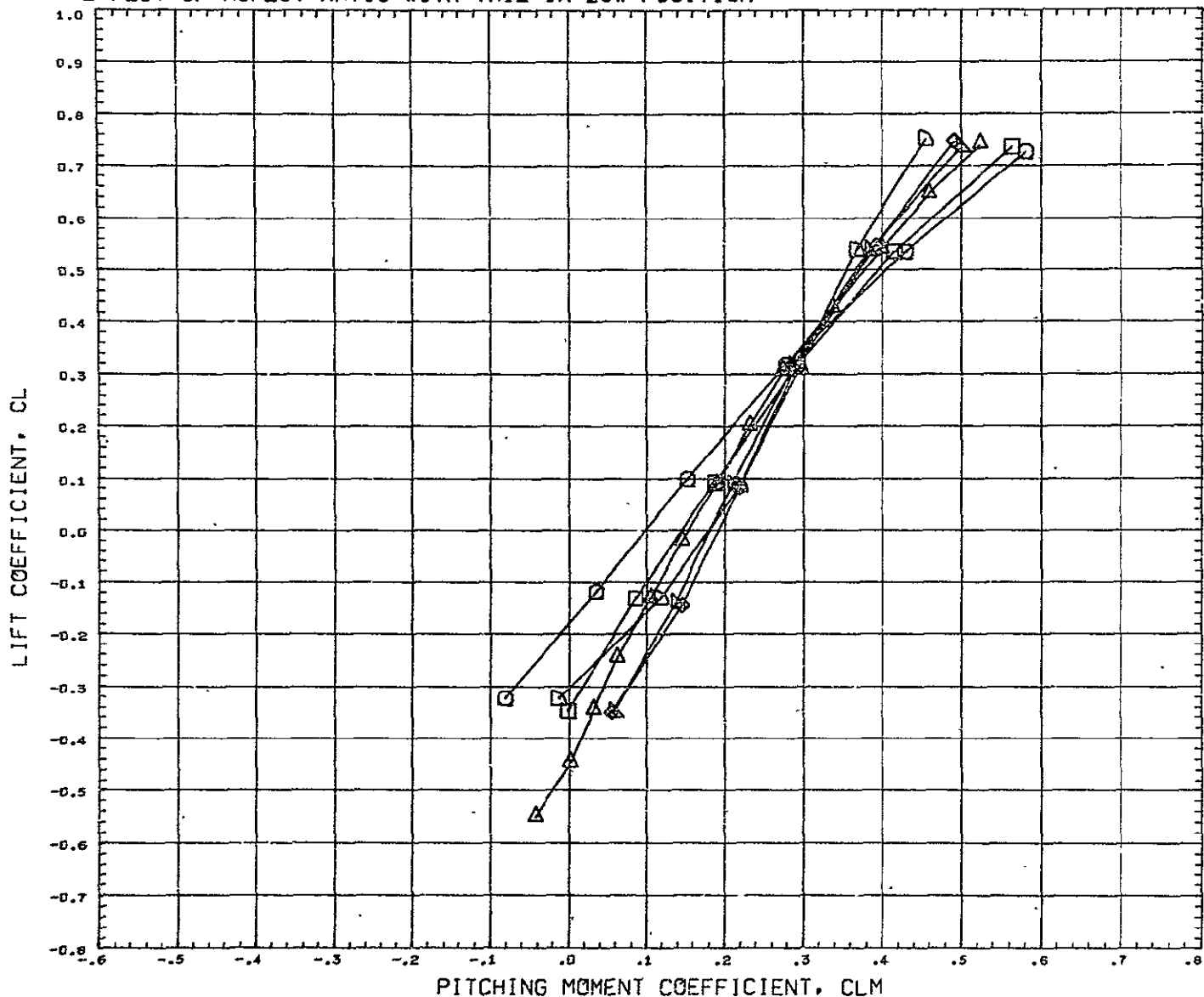
MACH 0.250

AREA EFFECT AT THE LOW POSITION



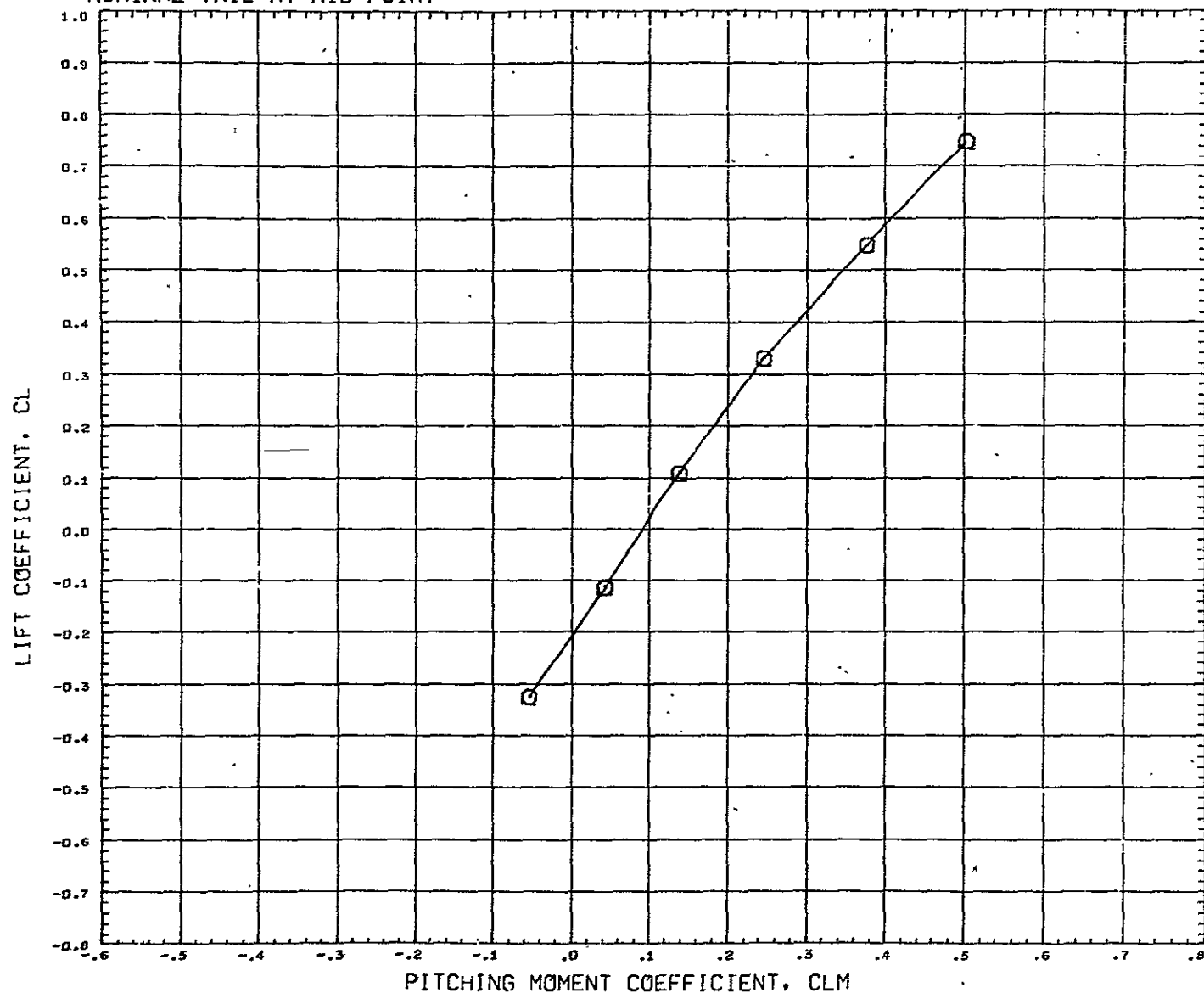
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	AREA	VERPOS	ASPECT	LSWEEP	REFERENCE INFORMATION		
(862035)	MSC SER 39 S-5 ORBITER B1W1V3H38	100.000	0.900	2.000	15.000	REFS	0.3200	SQ FT
(862036)	MSC SER 39 S-5 ORBITER B1W1V3H39	200.000	0.900	2.000	15.000	REFL	0.2300	FT
(862034)	MSC SER 39 S-5 ORBITER B1W1V3H24	300.000	0.900	2.000	15.000	REFB	1.5000	FT
(862037)	MSC SER 39 S-5 ORBITER B1W1V3H40	400.000	0.900	2.000	15.000	XMRF	15.5200	IN
(862038)	MSC SER 39 S-5 ORBITER B1W1V3H41	500.000	0.900	2.000	15.000	YMRF	0.0000	IN
						ZMRF	2.4000	IN
						SCALE	1.8750	PCT
MACH 0.250								

EFFECT OF ASPECT RATIO WITH TAIL IN LOW POSITION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ASPECT	VERPOS	LSWEEP	TAPER	REFERENCE INFORMATION	
(B62039)	MSC SER 39 S-5 ORBITER B1W1V3H21	1.000	0.900	15.000	0.500	REFS	0.3200 SQ FT
(B62034)	MSC SER 39 S-5 ORBITER B1W1V3H24	2.000	0.900	15.000	0.500	REFL	0.2300 FT
(B62040)	MSC SER 39 S-5 ORBITER B1W1V3H27	3.000	0.900	15.000	0.500	REFB	1.5000 FT
(B62041)	MSC SER 39 S-5 ORBITER B1W1V3H22	1.500	0.900	15.000	0.500	XMRP	15.5200 IN
(B62042)	MSC SER 39 S-5 ORBITER B1W1V3H26	2.500	0.930	15.000	0.500	YMRP	0.0000
(B62043)	MSC SER 39 S-5 ORBITER B1W1V3H29	4.000	0.900	15.000	0.500	ZMRP	2.4000 IN
MACH 0.250						SCALE	1.8750 PCT

NOMINAL TAIL AT MID-POINT



SYMBOL . MACH
Q 0.250

PARAMETRIC VALUES
AREA 262.500 ASPECT 2.000
LSWEEP 10.200 TAPER 0.500
INCID 0.000 VERPOS 2.050

REFERENCE INFORMATION
REFS 0.3200 SQ FT
REFL 0.2300 FT
REFB 1.5000 FT
XMRP 15.5200 IN
YMRP 0.0000
ZMRP 2.4000 IN
SCALE 1.8750 PCT

DATA HIST. CODE TV

MSC SER 39 S-5 ORBITER B1W1V3H42

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