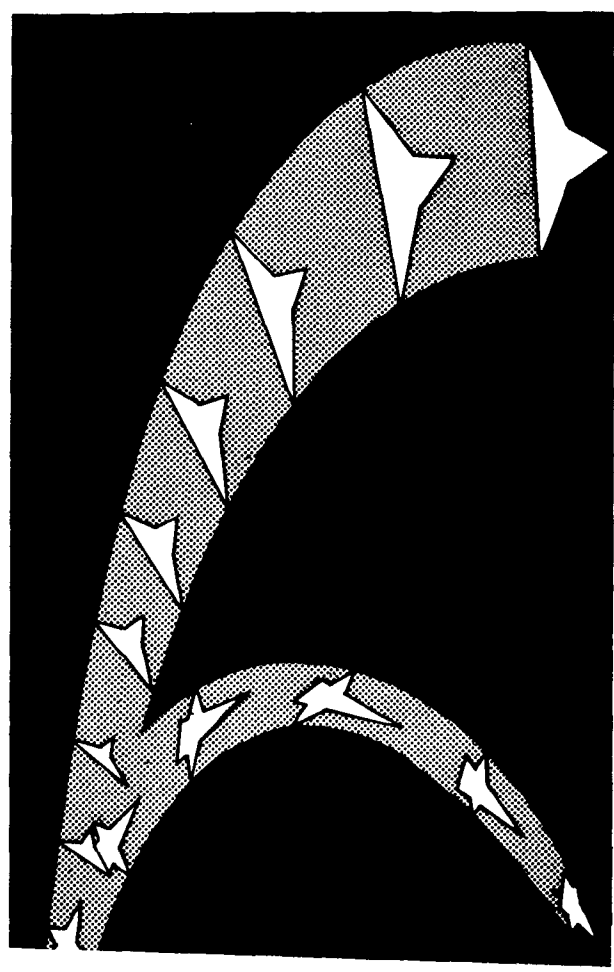


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DMS-DR-1130
CR-119,994
FEBRUARY 1972 .



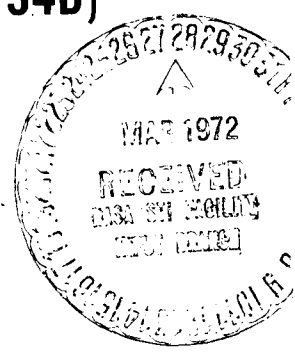
—SPACE SHUTTLE—

**STATIC STABILITY AND
CONTROL INVESTIGATION
OF NR/GD DELTA WING
BOOSTER (B-20) AND
DELTA WING ORBITER (134D)**

VOLUME I

by

**E.C. ALLEN, NR
F.W. EDER, GD/C**



102

(NASA-CR-119994) SPACE SHUTTLE: STATIC STABILITY AND CONTROL INVESTIGATION OF NR/GD DELTA WING BOOSTER (B-20) AND DELTA WING ORBITER (134D), E.C. Allen, et al. (Chrysler Corp.) Feb. 1972 323 p CSCL

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22B G3/31 21146

**Marshall Space
Flight Center**

SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

N A S A

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER

This document should be
referenced as NASA CR-119,994



NASA Series Numbers: S-0242, S-0242.10

DMS-DR-1130
CR-119,994
VOLUME I
February, 1972

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: Delta Wing Booster Alone (B-20) and With Delta Wing Orbiter
(134D), 0.0035 Scale Model

TEST PURPOSE: Static Stability and Control Investigation

TEST FACILITY: NASA/MSFC 14 x 14 Inch Trisonic Wind Tunnel

TESTING AGENCY: North American Rockwell

TEST NO. & DATE: MSFC TWT 490; 4/15/71 through 5/5/71

FACILITY COORDINATOR: Mr. J. Weaver - NASA/MSFC

PROJECT ENGINEER(S): Mr. E. C. Allen - NR
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This report has been prepared by Chrysler Corporation Space Division under a Data Management Contract to the NASA. Chrysler assumes no responsibility for the data presented herein other than its display characteristics.

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ABSTRACT

Experimental aerodynamic investigations have been made on a .0035 scale model North American Rockwell/General Dynamics version of the space shuttle in the NASA/MSFC 14 x 14 Inch Trisonic Wind Tunnel. Static stability and control data were obtained on the delta wing booster alone (B-20) and with the delta wing orbiter (134D) mounted in various positions on the booster. Six component aerodynamic force and moment data were recorded over an angle of attack range from -10° to 24° at 0° and 6° sideslip angles and from -10° to $+10^{\circ}$ sideslip at 0° angle of attack. Mach number ranged from 0.6 to 4.96.

This document is the first of four volumes presenting the results of the MSFC TWT 490 test. The contents of each volume are indicated below:

- Volume I - Delta Wing Booster
- Volume II - Launch Configuration Piggyback Baseline
- Volume III - Launch Configurations Piggyback, Belly to Belly and Incidence Variations
- Volume IV - Launch Configurations Component Data
Booster, Orbiter Build-up

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NOMENCLATURE

(General)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
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; degrees
β	BETA	sideslip angle, angle between the wind X_w -axis and the projection of this axis on the body X-Z-plane; degrees
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; degrees
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; degrees
ρ		air density; K_g/m^3 , slugs/ft ³
a		speed of sound; m/sec, ft/sec
V		speed of vehicle relative to surrounding atmosphere; m/sec, ft/sec
q	Q(PSI) Q(PSF)	dynamic pressure; $1/2\rho V^2$, psi, psf
M	MACH	Mach number; V/a
RN/L	RN/L	Reynolds number per unit length; million/ft
p		static pressure; psi
P		total pressure; psi
C_p	CP	pressure coefficient; $(p-p_\infty)/q$

NOMENCLATURE (Continued)

Reference & C. G. Definitions

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
S		wing area; m^2 , ft^2
S	SREF	reference area; m^2 , ft^2
\bar{c}		wing mean aerodynamic chord or reference chord; m, ft, in (see l_{ref} or LREF)
l_{ref}	LREF	reference length; m, ft, in.; (see \bar{c})
b_{ref}	BREF	wing span or reference span; m, ft, in
A_b		base area; m^2 , ft^2 , in^2
c. g.		center of gravity
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

NOMENCLATURE (Continued)

Axis System General

<u>SYMBOL</u>	<u>DEFINITION</u>
F	force; F, lbs
M	moment; M, in-lb

<u>Subscript</u>	<u>Definition</u>
N	normal force
A	axial force
L	lift force
D	drag force
Y	force or moment about the Y axis
Z	moment about the Z axis
X	moment about the X axis
s	stability axis system
w	wind axis system
ref	reference conditions
∞	free stream conditions
t	total conditions
b	base

NOMENCLATURE (Continued)
Body & Stability Axis System

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
<u>Body Axis System</u>		
C_N	CN	normal force coefficient; F_N/qS
C_A	CA	axial force coefficient; F_A/qS
C_{A_b}	CAB	base axial force coefficient; $\left[\begin{matrix} -1 \\ \end{matrix} \right] \left[\frac{(P_b - P_\infty)}{q} \right] (A_b/S)$
C_{A_f}	CAF	forebody axial force coefficient; $C_A - C_{A_b}$
C_n	CYN	yawing moment coefficient; $M_Z/qS b_{ref}$
C_l	CBL	rolling moment coefficient; $M_X/qS b_{ref}$
<u>Common to Both Axis Systems</u>		
C_m	CIM	pitching moment coefficient; $M_Y/qS l_{ref}$
C_y	CY	side force coefficient; F_Y/qS
<u>Stability Axis System</u>		
C_L	CL	lift force coefficient; F_L/qS
C_D	CD	drag force coefficient; F_D/qS
C_{D_b}	CDB	base drag coefficient
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_n	CLN	yawing moment coefficient; $M_{Z,s}/qS b_{ref}$
C_l	CSL	rolling moment coefficient; $M_{X,s}/qS b_{ref}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D _f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)

Surface Definitions

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
i_t	HORIZT	horizontal tail incidence; positive when trailing edge down; degrees
δ		symmetrical surface deflection angle; degrees; positive deflections are:
	AILRON	aileron - total aileron deflection; (left aileron - right aileron)/2
	CANARD	canard - trailing edge down
	ELEVON	elevon - trailing edge down
	ELEVTR	elevator - trailing edge down
	FLAP	flap - trailing edge down
	RUDDER	rudder - trailing edge to the left
	SPOILR	spoiler - trailing edge down
	TAB	tab - trailing edge down with respect to control surface
δ		antisymmetrical surface deflection angle, degrees; positive trailing edge down:
	AIL-L	left aileron - trailing edge down
	AIL-R	right aileron - trailing edge down
	ELVN-L	left elevon - trailing edge down
	ELVN-R	right elevon - trailing edge down
	SPLR-L	left spoiler - trailing edge down
	SPLR-R	right spoiler - trailing edge down

<u>SURFACE SUBSCRIPTS</u>	<u>DEFINITION</u>
a	aileron
b	base
c	canard
e	elevator or elevon
f	flap
r	rudder or ruddervator
s	spoiler
t	tail

CONFIGURATIONS INVESTIGATED

The booster model was composed of the following components

B₂₀ - body (see Figure 8)

W₁₄ - wing (see Figure 9)

C_{4B} - canard (see Figure 10)

V₈ - vertical stabilizer (see Figure 11)

and was tested alone in the complete configuration as well as in a buildup mode. The orbiter model consisted of

B₅ - body (see Figure 12)

W₁₇ - wing (see Figure 13)

V₁₇ - vertical stabilizer (see Figure 14)

and was tested in a buildup mode on the complete booster and along with a booster buildup mode. It was also tested as a complete model at various mounting positions on the booster. The Dataset Collation Sheets give a complete summary of the configurations investigated. There were five orbiter mounting positions tested. For the piggy-back mode, where the orbiter was mounted on top of the booster, the baseline position had the orbiter nose ahead of the booster (position 1) as shown in Figures 1 and 6. There were two alternate positions tested in the piggyback mode and had the orbiter nose aligned with the booster nose (position 2, Figure 2 and 6) and the orbiter nose aft of the booster nose (position 3, Figure 3 and 6). Two belly-to-belly mounting positions were tested where the orbiter was slung under the booster in a belly-to-belly mode. The baseline position had the

CONFIGURATIONS INVESTIGATED
(Continued)

orbiter nose forward of the booster nose (position 4, Figures 4 and 6) and the alternate position had the orbiter nose well aft of the booster nose base to base (position 5, Figure 5 and 6).

Pertinent dimensional information on each of the model components tested is listed in the Model Component Description Sheets which follow the Dataset Collation Sheets.

TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Transonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F . The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of 20° ($\pm 10^{\circ}$). Sting offsets are available for obtaining various maximum angles of attack up to 25° .

DATA REDUCTION

The six aerodynamic forces and moments measured by the strain gauge balance were reduced to coefficient form in the body axis system utilizing the following reference dimensions:

$$S_{REF} = \text{booster wing planform area} = 15.656 \text{ in}^2$$

$$l_{REF} = \bar{c} = \text{booster wing mean aerodynamic chord} = 3.095 \text{ inches}$$

$$b_{REF} = \text{booster wing span} = 6.099 \text{ inches}$$

Moments are referenced, in all cases, about the booster nose which is booster fuselage station 0, water line 0, butt line 0.

For the launch configuration and booster alone tests, static pressures were measured at two locations on the booster base as shown in Figure 15. These pressures were utilized to correct the measured axial force coefficient to one which assumed free-stream static pressure at the base. The calculation of this base axial force correction was:

$$C_{Ab} = - \left[(P_{b1} - P_{\infty})A_{b1} + (P_{b2} - P_{\infty})A_{b2} \right] / q_{\infty} S_{REF}$$

where $A_{b1} = 0.418 \text{ in}^2$

$$A_{b2} = 0.634 \text{ in}^2$$

A further correction was made to the axial force for the pressure acting in

DATA REDUCTION
(Continued)

the balance cavity area. This force coefficient correction was determined by

$$C_{A_c} = - (p_c - p_\infty) A_c / q_\infty S_{REF}$$

where $A_c = 0.785 \text{ in}^2$

Therefore the final corrected axial force coefficient was:

$$C_{A_F} = C_A - (C_{A_b} + C_{A_c})$$

SADSAC calculation routines were utilized to obtain stability axis data; to determine the center of pressure location as a percent of body length (XCP/L); to calculate cross-derivative data ($C_{Y\beta}$, $C_{N\delta_e}$, $C_{Y\delta_a}$ etc.); and to determine incremental coefficients due to component addition or control surface deflection.

TABLE I
TEST CONDITIONS
TEST TWT-490

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.6	6.5×10^6	5.58	97
0.9	6.9×10^6	7.96	95
1.0	6.7×10^6	8.33	98
1.1	6.7×10^6	8.73	96
1.2	6.6×10^6	8.98	97
1.46	6.6×10^6	9.56	99
1.96	8.9×10^6	12.80	96
2.99	4.4×10^6	4.95	98
4.96	6.1×10^6	3.40	99

BALANCE UTILIZED: TWT Model 200 Moment Balance

CAPACITY:

NF 175 lbs
 SF 150 lbs
 AF 100 lbs
 PM 185 in. lbs
 YM 160 in. lbs
 RM 50 in. lbs

ACCURACY:

**COEFFICIENT
TOLERANCE:**

0.3%
0.3%
0.3%
0.3%
0.3%
0.3%

COMMENTS:

No satisfactory method is known for determining the absolute accuracy of the final data coefficients.

TEST TW-490 DATA SET COLLATION SHEET

Force-Booster, 0.0035-Scale, Stability and Control

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION	NO. OF RUNS	MACH NUMBERS														
		a	R			0.6	0.9	1.0	1.1	1.2	1.46	1.96	2.99	4.96						
R32 01A	B20	A	0		5															
02A	B20C48				5	158/0	159/0	140/0	141/0	142/0	212/0	206/0	213/0	208/1						
03A	B20C48W14			0	7	110/0	111/0	112/0	113/0	114/0	218/0	206/0	219/0	214/0	217/0					
04A	B20W14			+10L	9	201/0	202/1	203/0	204/1	205/0	211/0	208/0	216/0	209/0	215/0					
05A	B20C48W14V8			-10R	7	010/0	009/0	008/0	007/0	004/0	222/0	163/0	278/1	278/0	276/0	275/0				
06A					5						334/0	333/1								
05B	B20	A	6		5						332/0									
07A	B20C48W14V8			0	9	324/0	330/0	329/0	328/0	327/0	219/0	219/0	219/0	214/0	217/0					
05C				0	9	083/0	084/0	085/0	084/0	087/0	223/0	161/0	264/0	265/0						
57B				10	1														277/0	

1 7 13 19 25 31 37 43 49 55 61 67 75 76
 KLM ICN ICY KBL KYN ICAE KAB KPB1 KPC ICL
 COEFFICIENTS: KA = -10 -8 -6 -4 -2 0 2 4 6 8 10
 KB = 6 8 10 12 14 16 18 20 22 24
 KC = -10 -8 -6 -4 -2 0 2 4 6 8 10
 IDPVAR(1) IDPVAR(2) INDV

α or β SCHEDULES

TEST TWST-490 DATA SET COLLATION SHEET
 Force-Rooster + Orbits, 0.0035-Scale, Launch Stability
 and Control

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION		NO. OF RUNS	SER. ATT.		MACH NUMBERS														
		A	B	SE	SC		SE	SO	POS	L	0.6	0.9	1.0	1.1	1.2	1.4	1.6	1.9	2.2	2.5	2.8	3.1	
R32 08A	B20+BS	A	0			5	1	0	0.6	0.9	1.0	1.1	1.2	1.4	1.6	1.9	2.2	2.5	2.8	3.1			
09A	B20W14+BS			0		5			134/0	135/0		136/0		219/0	200/0								
10A	B20W14+BSW17					5			121/0	120/0		119/0		217/0	199/0								
11A	B20C4Bw14+BSW17					5			122/0	123/0		124/0		231/0	197/0								
12A	B20C4B+BS					5			139/0	138/0		137/0		210/0	205/0								
13A	B20+BSW17					5			152/0	153/0		154/0		215/0	202/0								
14A	B20+BSW17V17					5			151/0	150/0		149/0		216/0	203/0								
15A	B20C4B+BSW17V17					5			146/0	147/0		148/0		209/0	204/0								
16A	B20C4Bw14V8+BSV17					5			127/0	126/0		125/0		232/0	198/0								
17A	B20+BS		6			5			340/0	339/0		338/0		287/0	288/0								
18A	B20C4Bw14V8+BSW17					5			323/0	322/0		321/0		284/0	291/0								
19A	B20C4Bw14+BSW17V17					5			318/0	319/0		320/0		283/0	292/0								
20A	B20+BSW17V17					5			335/0	336/0		337/0		286/0	289/0								
21A	B20C4Bw14V8+BSW17V17					9			317/0	316/0	315/0	314/0	313/0	281/0	294/0	273/0	227/0						
22A				0		9			025/0	024/0	027/0	028/0	029/0	235/0	177/0	264/0	259/0						
23A						5			024/0	023/0		022/0		236/0	178/0								
24A						5			019/0	020/0		021/0		237/0	179/0								
25A						5			018/0	017/0		016/0		238/0	180/0								
26A						8			011/0	012/0	013/0	014/0	015/0	239/0		262/0	261/0						
27A						5			032/0	031/0		030/0		240/0	182/0								

CLM 7 CN 13 CV 19 FBL 25 CYN 31 CAF 37 CAB 43 CPB1 49 CPC 55 CL 61 7576
 COEFFICIENTS: A = -10.8 -6.4 -2.0 2.4 6.8 10
 SCHEDULES: POS 1: P/B-BASE POS 4: P/B-BASE
 2: P/B-N/N S: B/B-AFT
 3: P/B-AFT

TEST TW-410 DATA SET COLLATION SHEET
 Force - Booster + Orbiter, 0.0035-Scale, Launch Stab. 1.1ly
 and Control

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHID.		CONTROL DEFLECTIONS				NO. OF MINS.	OE B. ATT.		MACH NUMBERS									
		a	R	SE	SC	SE	SE		Pos	L	0.6	0.9	1.0	1.1	1.2	1.46	1.96	2.99	4.96	
R32 28A	R304BWKV8+ESWTV17	A	O	O	O	-10	O	5	1	O	0.6	0.9	1.0	1.1	1.2	1.46	1.96	2.99	4.96	
29A		B						5			0.38/0	0.37/0		0.36/0		2.41/0	1.84/0			
22B								1			2.99/0									
23B								1			3.00/0									
24B								1			3.01/0									
25B								1			3.02/0									
26B								1			3.03/0									
30B								1			3.04/0									
31B								1			3.05/0									
22C								9			0.46/0	0.45/0	0.44/0	0.43/0	0.42/0	0.41/0	0.40/0	0.39/0	0.38/0	
32C								9			3.08/0	3.07/0	3.06/0	3.05/0	3.04/0	3.03/0	3.02/0	3.01/0	3.00/0	
33C								5			0.47/0	0.48/0		0.49/0		2.46/0	1.87/0			
34C								5			0.52/0	0.51/0		0.50/0		2.45/0	1.88/0			
35C								5			0.39/0	0.41/0		0.41/0		2.44/0	1.85/0			
36A								5			0.53/0	0.54/0		0.55/0		2.47/0	1.76/0			
37A								5			0.58/0	0.57/0		0.56/0		2.48/0	1.75/0			
38A								5			0.59/0	0.60/0		0.61/0		2.49/0	1.91/0			
38C								5			0.70/0	0.69/0		0.68/0		2.52/0	1.92/0			
39A								5			0.64/0	0.63/0		0.62/0		2.50/0	1.90/0			
40A								5			0.65/0	0.66/0		0.67/0		2.51/0	1.89/0			

CLM 7 13 19 25 31 37 43 49 55 61 67 7576
 CN 7 13 19 25 31 37 43 49 55 61 67 7576
 KY 7 13 19 25 31 37 43 49 55 61 67 7576
 ICB 7 13 19 25 31 37 43 49 55 61 67 7576
 KYN 7 13 19 25 31 37 43 49 55 61 67 7576
 CAF 7 13 19 25 31 37 43 49 55 61 67 7576
 KAB 7 13 19 25 31 37 43 49 55 61 67 7576
 KPB 7 13 19 25 31 37 43 49 55 61 67 7576
 ICP 7 13 19 25 31 37 43 49 55 61 67 7576
 KL 7 13 19 25 31 37 43 49 55 61 67 7576

COEFFICIENTS:
 αA = -0.5 - 6 - 4 - 2 0 2 4 6 8 10
 αB = 6 9 10 12 14 16 18 20 22 24
 αC = -0.5 - 6 - 4 - 2 0 2 4 6 8 10

α or β SCHEDULES
 POS 1: P/B-BASE POS 4: E/B-BASE
 2: P/B-N/N 5: B/B-AFT
 3: P/B-AFT

TEST TWT-490 DATA SET COLLATION SHEET
 Force-Booster + Orbiter, 00035-Scale, Launch Stability
 and Control

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION				NO. OF RUNS	OEB. ATT.		MACH NUMBERS									
		A	R	SE	SC	SE	SC		Pos	L	0.6	0.9	1.0	1.1	1.2	1.46	1.96	2.99	4.96	
42C	B20C4Bw14+BSw17v17	A	O	O	O	O	O	5	3	0	0.6	0.9	1.0	1.1	1.2	1.46	1.96	2.99	4.96	
43A		O	C					5		↓	0.71/0	0.72/0	0.73/0	0.74/0	0.75/0	0.76/0	0.77/0	0.78/0	0.79/0	
44A		A	O					5	↓	4	0.82/0	0.81/0	0.80/0	0.79/0	0.78/0	0.77/0	0.76/0	0.75/0	0.74/0	
45A	B30w14+BS							5	4	0	1.33/0	1.32/0	1.31/0	1.30/0	1.29/0	1.28/0	1.27/0	1.26/0	1.25/0	
46A	B20w14+BSw17							5			1.16/0	1.17/0	1.18/0	1.19/0	1.20/0	1.21/0	1.22/0	1.23/0	1.24/0	
47A	B20C4Bw14+BS							5			1.25/0	1.24/0	1.23/0	1.22/0	1.21/0	1.20/0	1.19/0	1.18/0	1.17/0	
48A	B30C4Bw14+BSw17v17							5			1.09/0	1.08/0	1.07/0	1.06/0	1.05/0	1.04/0	1.03/0	1.02/0	1.01/0	
49A	B20C4B+BS							5			1.45/0	1.44/0	1.43/0	1.42/0	1.41/0	1.40/0	1.39/0	1.38/0	1.37/0	
50A	B30C4Bw14v18+BSw17v17							9			0.97/0	0.96/0	0.95/0	0.94/0	0.93/0	0.92/0	0.91/0	0.90/0	0.89/0	
51A								5			0.98/0	0.99/0	1.00/0	1.01/0	1.02/0	1.03/0	1.04/0	1.05/0	1.06/0	
51B								1			3.07/0									
50B								1			3.06/0									
50C								7			0.88/0	0.89/0	0.90/0	0.91/0	0.92/0	0.93/0	0.94/0	0.95/0	0.96/0	
52A								5		2	1.03/0	1.02/0	1.01/0	1.00/0	0.99/0	0.98/0	0.97/0	0.96/0	0.95/0	
53A								2			1.02/0	1.01/0	1.00/0	0.99/0	0.98/0	0.97/0	0.96/0	0.95/0	0.94/0	
54A								5		5	1.04/0	1.05/0	1.06/0	1.07/0	1.08/0	1.09/0	1.10/0	1.11/0	1.12/0	
55A								5		↓	3.31/0	3.32/0	3.33/0	3.34/0	3.35/0	3.36/0	3.37/0	3.38/0	3.39/0	
56A								1		↓	1.81/0									

1 7 13 19 25 31 37 43 49 55 61 67 75 76
 C L M K N K Y K B L C Y N C A F C A B C P B 1 C P C K L IDPVAR(1) IDPVAR(2) INDV
 COEFFICIENTS: αA = -b - 8 - 6 - 4 - 2 0 2 4 6 8 10
 αB = 6 8 10 12 14 16 18 20 22 24 26
 αC = -10 - 8 - 6 - 4 - 2 0 2 4 6 8 10
 POS 1: P/B - BASE POS 4: B/B - GASE
 S: P/B - AFT

TABLE III

MODEL COMPONENT: BODY - B₂₀

GENERAL DESCRIPTION: Body for E-15B Delta Wing Configuration, extended
10% over basic (B₁₉) body

DRAWING NUMBER: WT-70-105222

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
		AS BUILT
Length (nose to wing T. E.)		<u>10.689</u>
Max. Width		<u>1.356</u>
Max. Depth		<u>1.587</u>
Fineness Ratio		<u>6.73</u>
Area		
Max. Cross-Sectional		<u>2.252</u>
Planform		<u>13.809</u>
Wetted		<u> </u>
Base		<u>1.840</u>

TABLE III (CONCLUDED)

MODEL COMPONENT: Wing W14

GENERAL DESCRIPTION: W10 modified to unswept trailing edge and with twist outboard of B. L. 340 linearly increasing to -4 degrees at tip and with leading edge faired into fuselage (W10 is the basic B-15B wing)

DRAWING NUMBER: WT-7-105222

DIMENSIONS: FULL-SCALE MODEL SCALE
AS BUILT

TOTAL DATA

Area		
Planform		15.656
Wetted		
Span (equivalent)		6.099
Aspect Ratio		2.38
Rate of Taper		
Taper Ratio		0.1192
Dihedral Angle, degrees		3 at T. E.
Incidence Angle, degrees		2
Aerodynamic Twist, degrees		-4
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge		53
Trailing Edge		0
0.25 Element Line		44.85
Chords:		
Root (Wing Sta. 0.0)		4.587
Tip, (equivalent)		0.547
MAC		3.095
Fus. Sta. of .25 MAC		10.193*
W.P. of .25 MAC		0.766
B.L. of .25 MAC		1.126
Airfoil Section		
Root		NACA-0010-64 (mod)
Tip		NACA-0010-64 (mod)

EXPOSED DATA

Area		10.03
Span, (equivalent)		4.743
Aspect Ratio		2.24
Taper Ratio		0.1485
Chords		
Root		3.684
Tip		0.547
MAC		2.504
Fus. Sta. of .25 MAC		11.356
W.P. of .25 MAC		0.776
B.L. of .25 MAC		1.572

*Fuselage stations are relative to an origin 3.500 inches ahead of the nose of B19

TABLE III (CONTINUED)

MODEL COMPONENT: Canard C_H

GENERAL DESCRIPTION: Basic canard for B-15B Delta Wing Configuration

DRAWING NUMBER: WT-70-105224

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE AS BUILT</u>
Area (exposed)		<u>0.706</u>
Span (equivalent)		<u>2.576</u>
Inb'd equivalent chord		<u>1.061</u>
Outb'd equivalent chord		<u>0.099</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u> </u>	<u> </u>
At Outb'd equiv. chord	<u> </u>	<u> </u>
Sweep Back Angles, degrees		
Leading Edge		<u>57.68</u>
Tailing Edge		<u>0</u>
Hingeline	<u> </u>	<u> </u>
Area Moment (Normal to hinge line)	<u> </u>	<u> </u>
Hinge line located at 25% of M.A.C. of exposed area		

MODEL COMPONENT: Vertical Tail V8

GENERAL DESCRIPTION: Alternate vertical tail with NACA 0012-64 (MOD) airfoil
section.

DRAWING NUMBER: WT-71-105803 Sheet 1, Chg. Ltr. C

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u> (with cut-out as built
Area	_____	<u>2.326 in²</u>
Span (equivalent)	_____	<u>2.007 in</u>
Inb'd equivalent chord	_____	<u>1.723 in</u>
Outb'd equivalent chord	_____	<u>0.656 in</u>
Ratio Elevator chord/horizontal tail chord		
At Inb'd equiv. chord	_____	<u>.35</u>
At Outb'd equiv. chord	_____	<u>.35</u>
Sweep Back Angles, degrees		
Leading Edge	_____	<u>35.0 Deg</u>
Trailing Edge	_____	<u>10.0 Deg</u>
Hingeline	_____	<u>20.0 Deg</u>
Area Moment (Normal to hinge line)	_____	_____

TABLE III (CONTINUED)

MODEL COMPONENT: BODY - B5

GENERAL DESCRIPTION: 9992-134B body. Delta wing orbiter body including a canopy on the upper surface aft of the nose. The model scale factor is 0.0035

DRAWING NUMBER: Lines Dwg. 9992-134B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>2120.00</u>	<u>7.420</u>
Max. Width, in.	<u>462.86</u>	<u>1.620</u>
Max. Depth, in.	<u>274.29</u>	<u>0.960</u>
Fineness Ratio	<u>5.906</u>	<u>5.906</u>
Area		
Max. Cross-Sectional, ft ² (Fus. Sta. 1215.0 to 1809.0 in.)	<u>702.75</u>	<u>0.00860</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>

TABLE III (CONTINUED)

MODEL COMPONENT: Wing-W17

GENERAL DESCRIPTION: Delta wing with -5° twist and rounded wing tips. Wing blends into body. Follows NR lines drawing 9992-134D.

Model Scale = 0.0035

DRAWING NUMBER: 8-865-13, - 14, - 55 thru - 60

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area, ft ²		
Planform	6026.60	0.07383
Wetted		
Span (equivalent), in.	1286.28	4.502
Aspect Ratio	1.892	1.892
Rate of Taper	1.723	1.723
Taper Ratio	0.094	0.094
Diehedral Angle, degrees	7.0	7.0
Incidence Angle, degrees	0.0	0.0
Aerodynamic Twist, degrees (about T.E)	-5.0	-5.0
Toe-In Angle	-	-
Cant Angle	-	-
Sweep Back Angles, degrees:		
Leading Edge	60.056	60.056
Trailing Edge	0.000	0.000
0.25 Element Line	52.473	52.473
Chords: in.		
Root (Hing Sta. 0.0)	1232.91	4.315
Tip, (equivalent) (W.S. 647.97)	116.45	0.408
MAC (W.S. 234.63)	828.64	2.900
Fus. Sta. of .25 MAC	1498.52	5.245
W.P. of .25 MAC	46.27	0.162
B.L. of .25 MAC	232.88	0.815
Airfoil Section		
Root (W.S. 241.80)	NACA 0009-64	
Tip (W.S. 546.07)	NACA 0012-64	

EXPOSED DATA

Area, ft ²	2658.68	0.03257
Span, (equivalent) in.	814.61	2.851
Aspect Ratio	1.720	1.720
Taper Ratio	0.141	0.141
Chords: in.		
Root, (Equiv.) (W.S. 237.61)	823.51	2.882
Tip, (Equiv.) (W.S. 647.97)	116.45	0.408
MAC (W.S. 391.34)	558.63	1.955
Fus. Sta. of .25 MAC	1701.03	5.954
W.P. of .25 MAC	65.37	0.229
B.L. of .25 MAC	388.43	1.359

LEADING EDGE CUFF

Planform area, ft ²	46.13	0.00057
Leading edge intersects Fus. M.L. @ Sta., in.	1182.86	4.140
Leading edge intersects wing L.E. @ Sta., in.	1425.73	4.000

TABLE III (CONTINUED)

MODEL COMPONENT: Vertical Stabilizer - V17

GENERAL DESCRIPTION: Centerline vertical stabilizer with the 5° (half angle) wedge trailing edge. Used with delta wing orbiter body B₅ (configuration 9992-1342).

The model scale factor is 0.0035.

DRAWING NUMBER: 8-867-47, -50

DIMENSIONS:	FULL-SCALE	MODEL SCALE
<u>TOTAL DATA</u>		
Area		
Planform, ft ²	667.76	0.00818
Theoretical Span, in.	380.421	
Span (equivalent), in.	377.52	1.321
Aspect Ratio	1.482	1.482
Rate of Taper	0.718	0.718
Taper Ratio	0.305	0.305
Dihedral Angle, degrees	-	-
Incidence Angle, degrees	-	-
Aerodynamic Twist, degrees	-	-
Toe-In Angle, degrees	0.0	0.0
Cant Angle, degrees	0.0	0.0
Sweep Back Angles, degrees		
Leading Edge	45.0	45.0
Trailing Edge	15.734	15.734
0.25 Element Line	39.367	39.367
Chords: Theoretical Tip, in.	117.053	
Root W.P. 274.29, in.	390.29	1.366
Tip, (equivalent), (W.P. 646.90 in), in.	119.13	0.417
MAC (W.P. 428.19 in.), in.	278.76	0.976
Fus. Sta. of .25 MAC, in.	2034.10	7.119
W.P. of .25 MAC, in.	429.55	1.503
B.L. of .25 MAC, in.	0.0	0.0
Airfoil Section, Wedge shape with L.E.H. and flat T.E.		
L.E. Radius, in. (1.6% chord)	6.29	0.022
<u>EXPOSED DATA</u>		
Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

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MODEL FIGURES

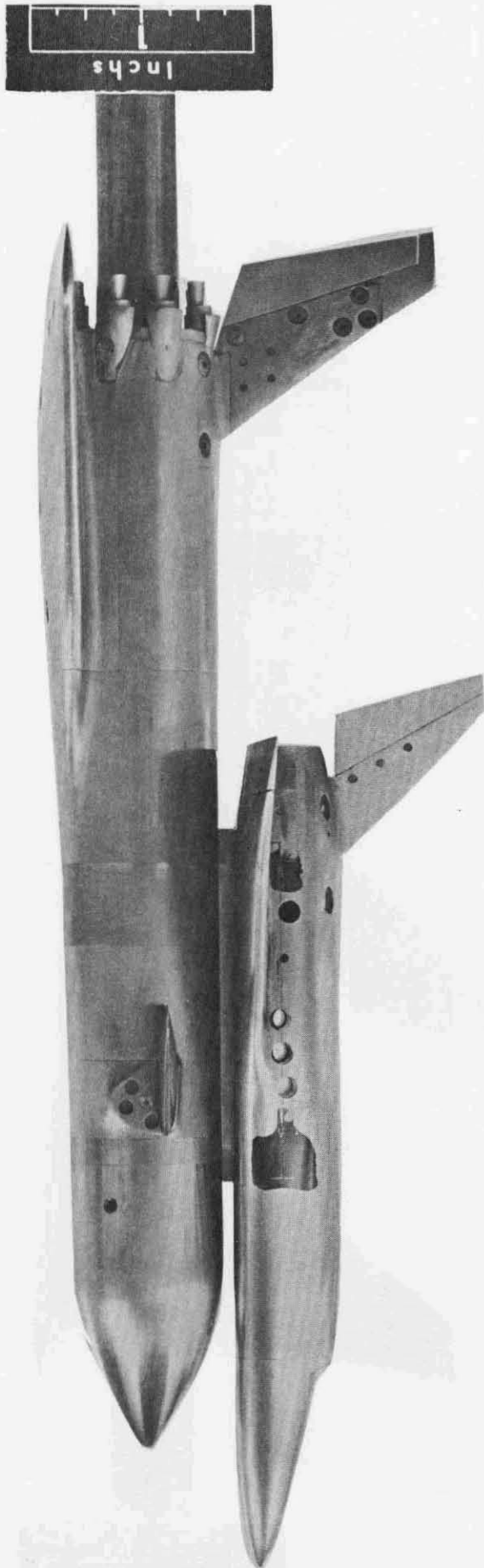
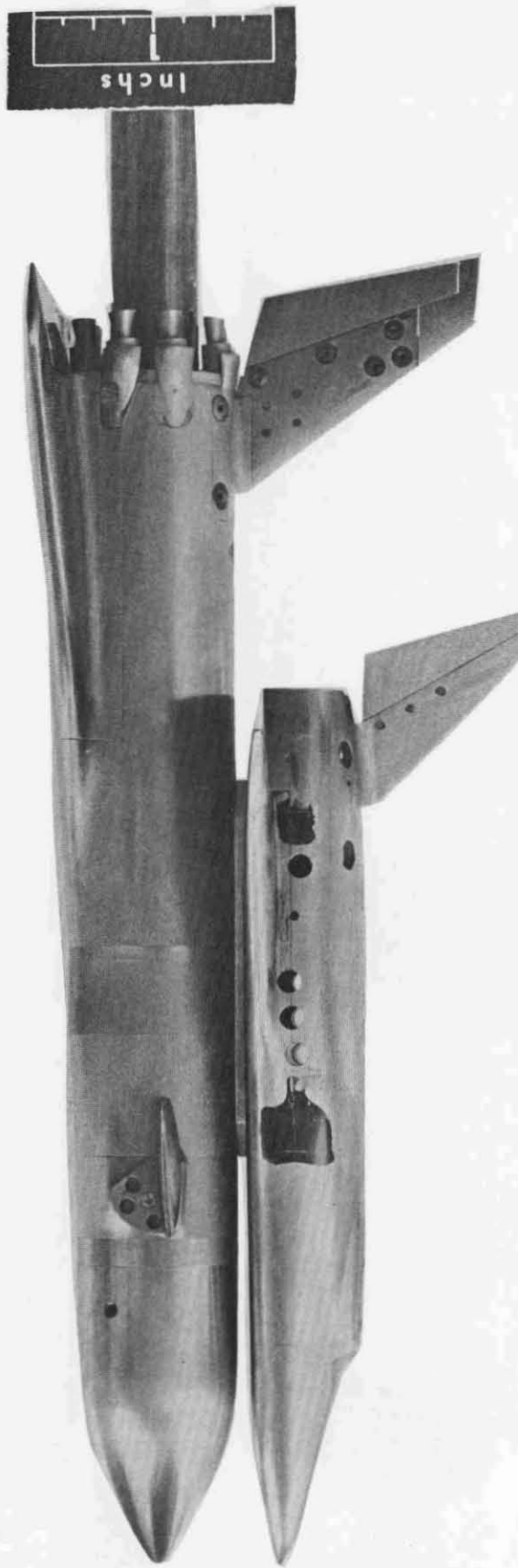


Figure 1. Photograph of Launch Configuration, Orbiter in Position 1 (Baseline - Piggyback)

Figure 2. Photograph of Launch Configuration, Orbiter in Position 2



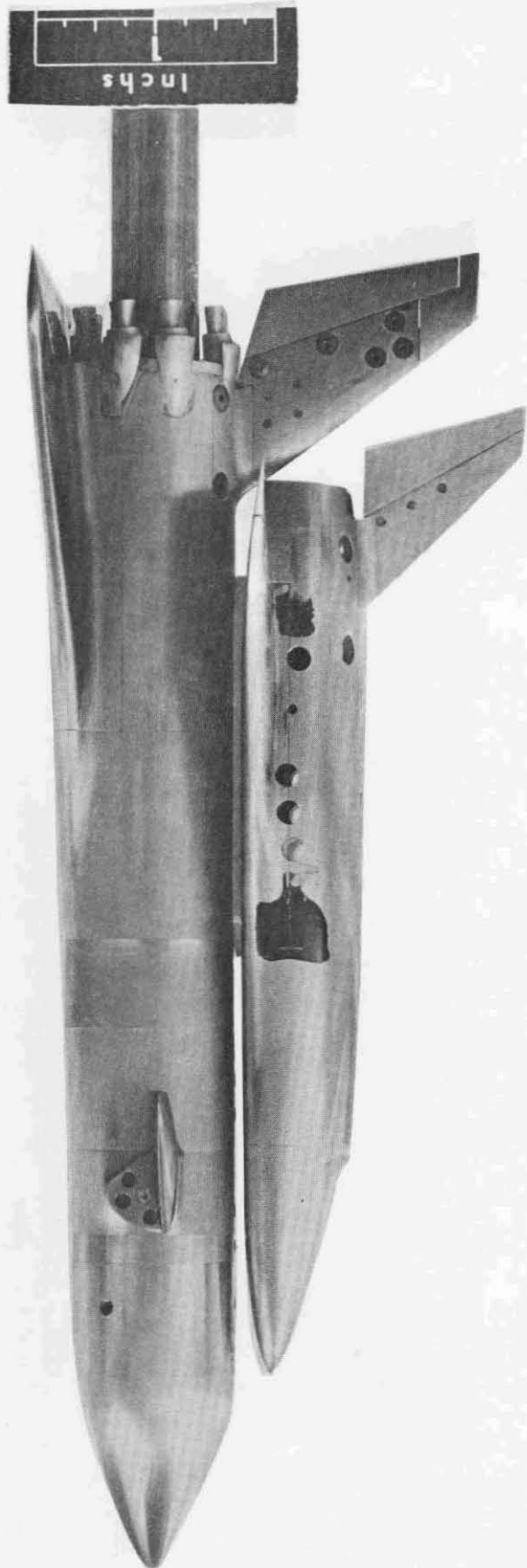


Figure 3. Photograph of Launch Configuration, Orbiter in Position 3

Figure 4. Photograph of Launch Configuration, Orbiter in Position 4 (Baseline - Belly-to-Belly)

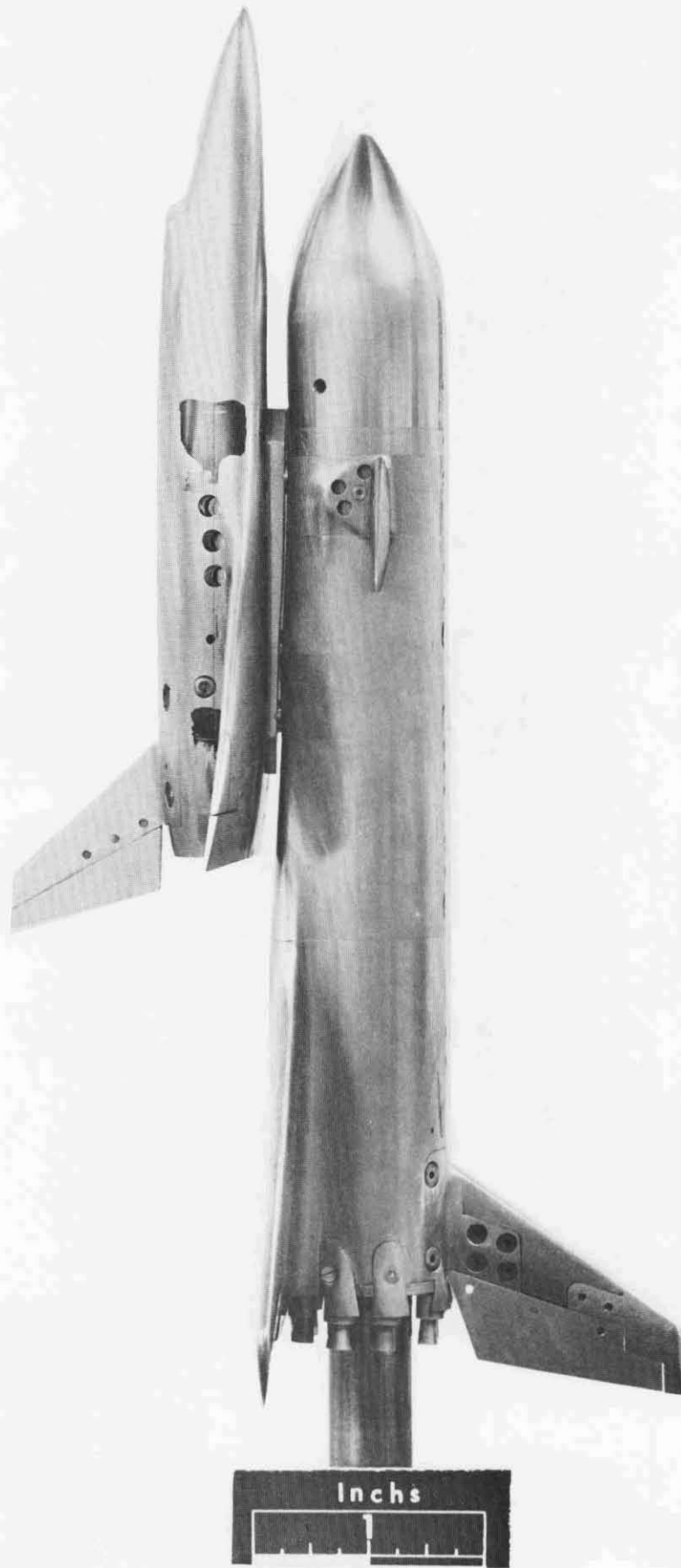
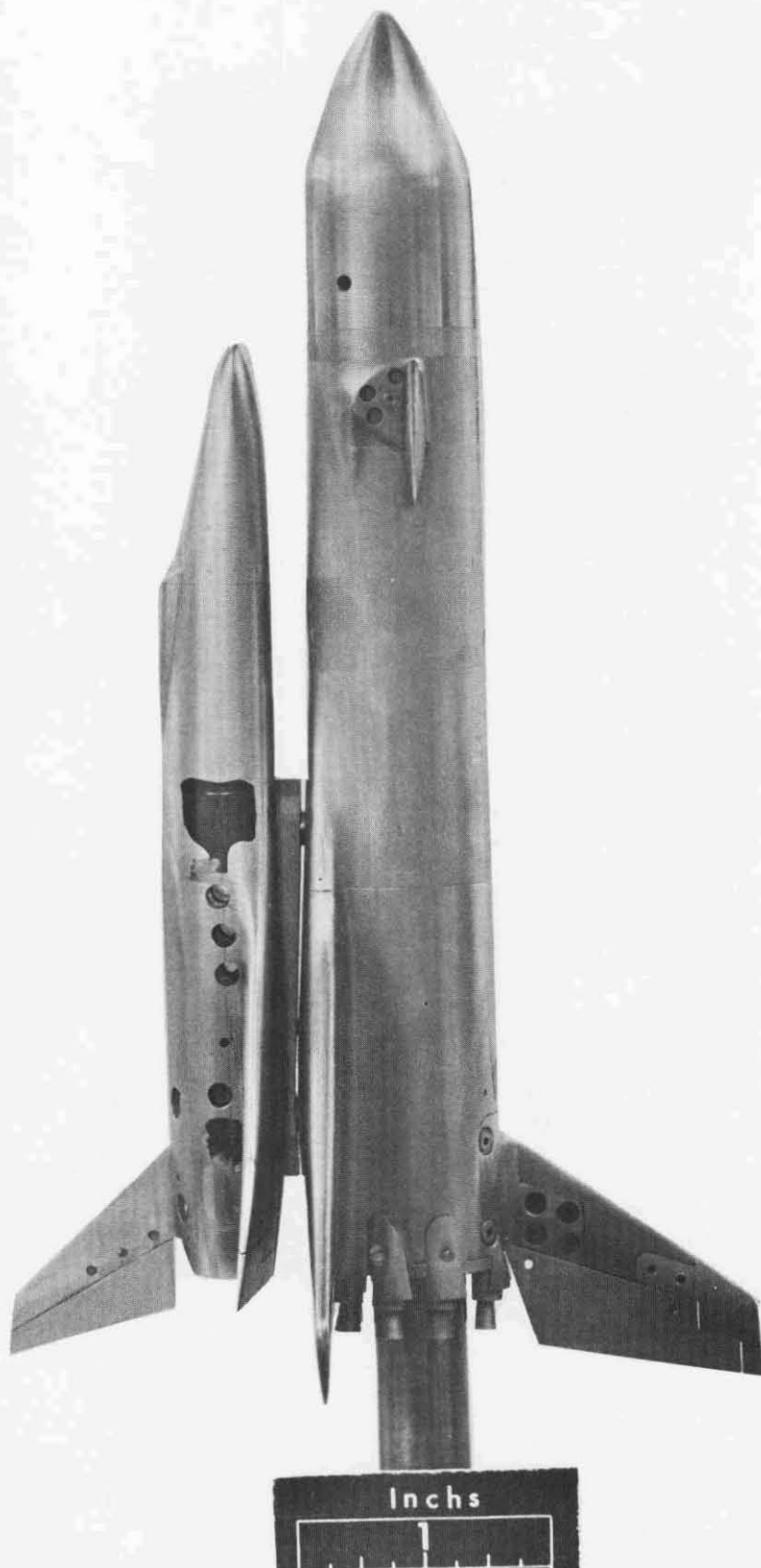


Figure 5. Photograph of Launch Configuration, Orbiter in Position 5



SSV LAUNCH CONFIGURATION

P1887 Back - Baseline
(Position 1)

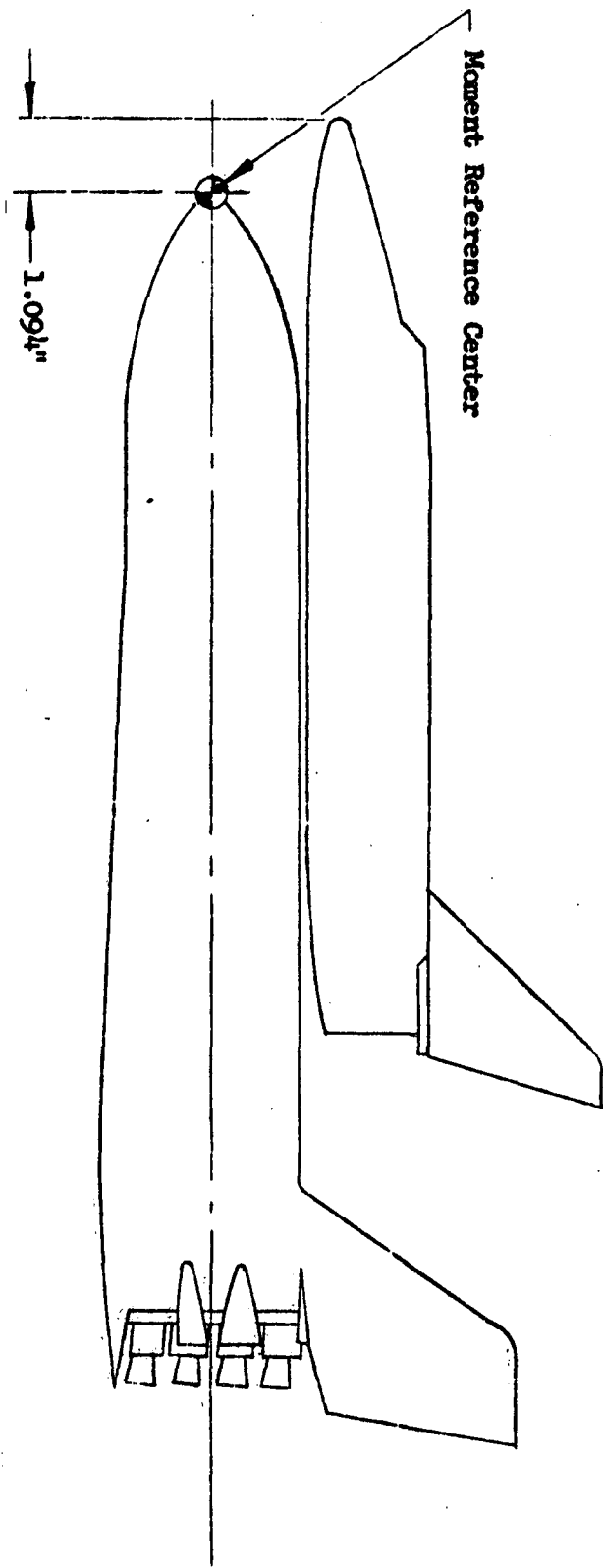


FIGURE 6. BOOSTER ORBITER MOUNTING RELATIONSHIPS

SSV LAUNCH CONFIGURATION

P1667 Back - Nose To Nose
(Position 2)

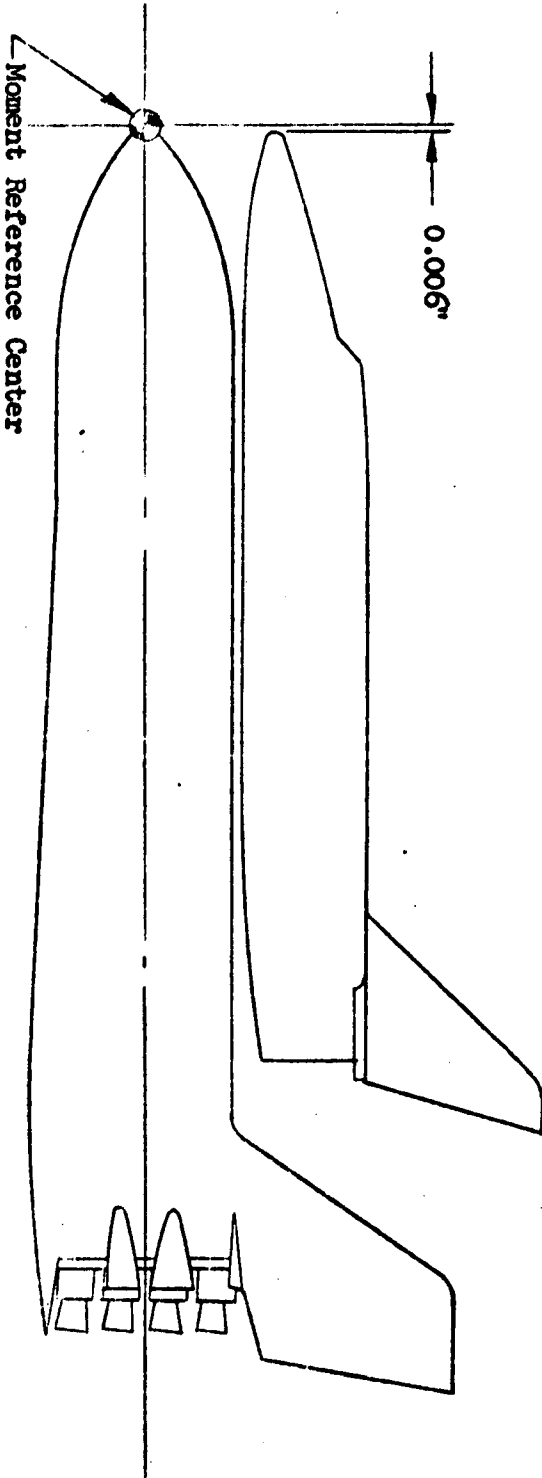


FIGURE 6. BOOSTER ORBITER MOUNTING RELATIONSHIPS (Continued)

SSV LAUNCH CONFIGURATION
P16GJ Back - Orbiter Att
(Position 3)

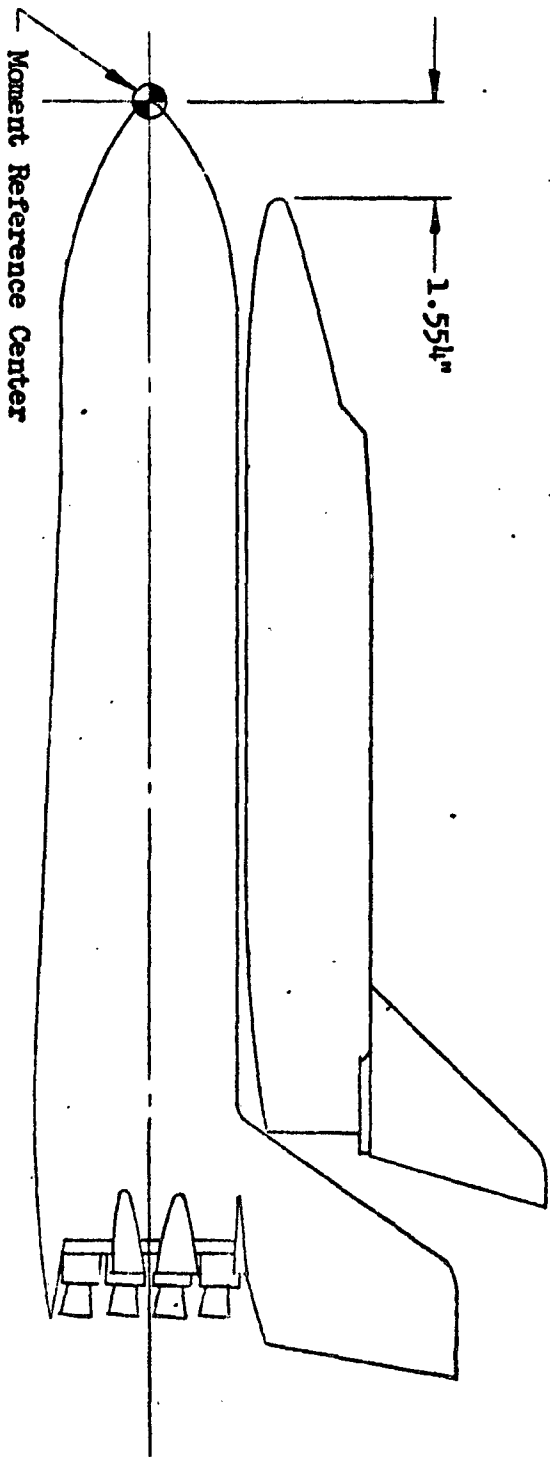


FIGURE 6. BOOSTER ORBITER MOUNTING RELATIONSHIPS (Continued)

SSV LAUNCH CONFIGURATION
Belly To Belly - Baseline
(Position 4)

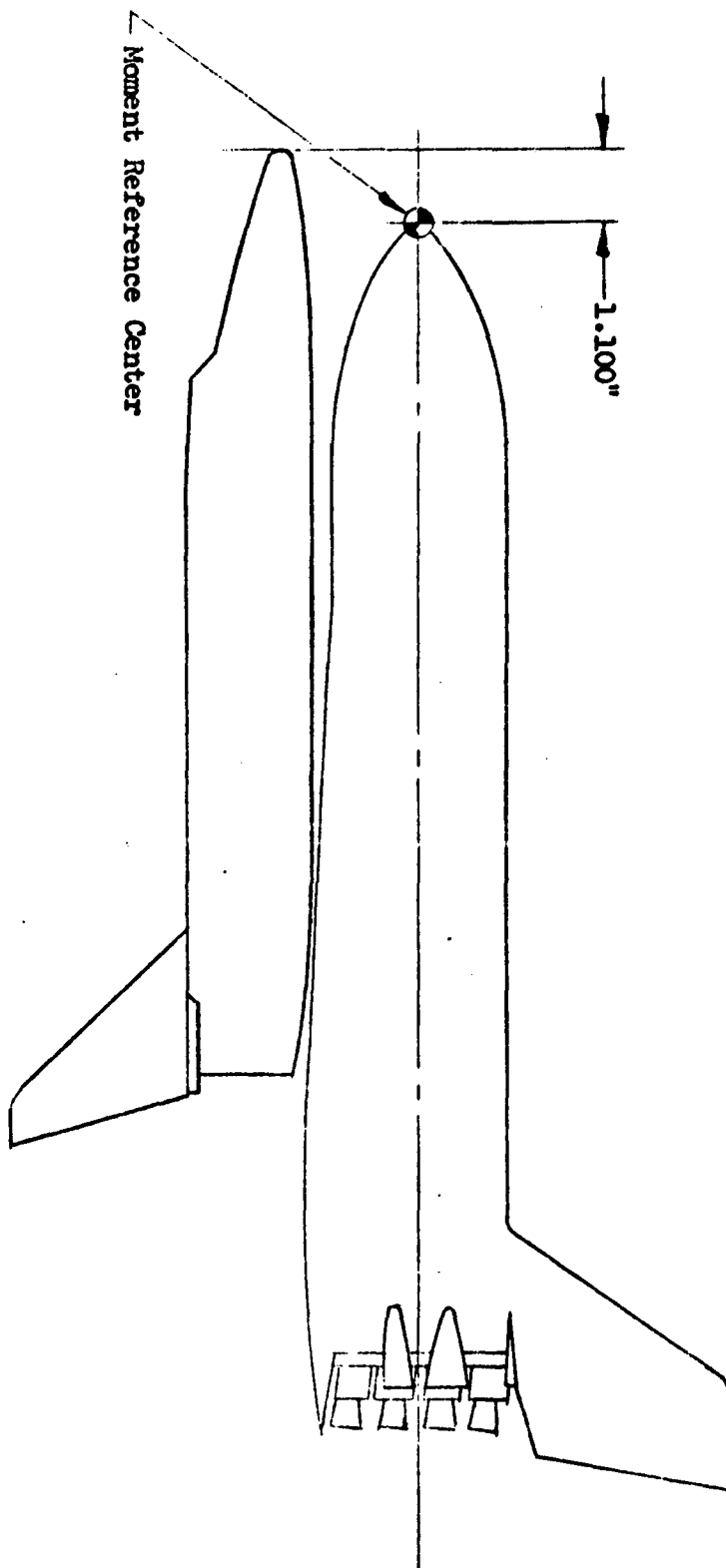


FIGURE 6. BOOSTER ORBITER MOUNTING RELATIONSHIPS (Continued)

SSV LAUNCH CONFIGURATION

Belly To Belly - Art
(Position 5)

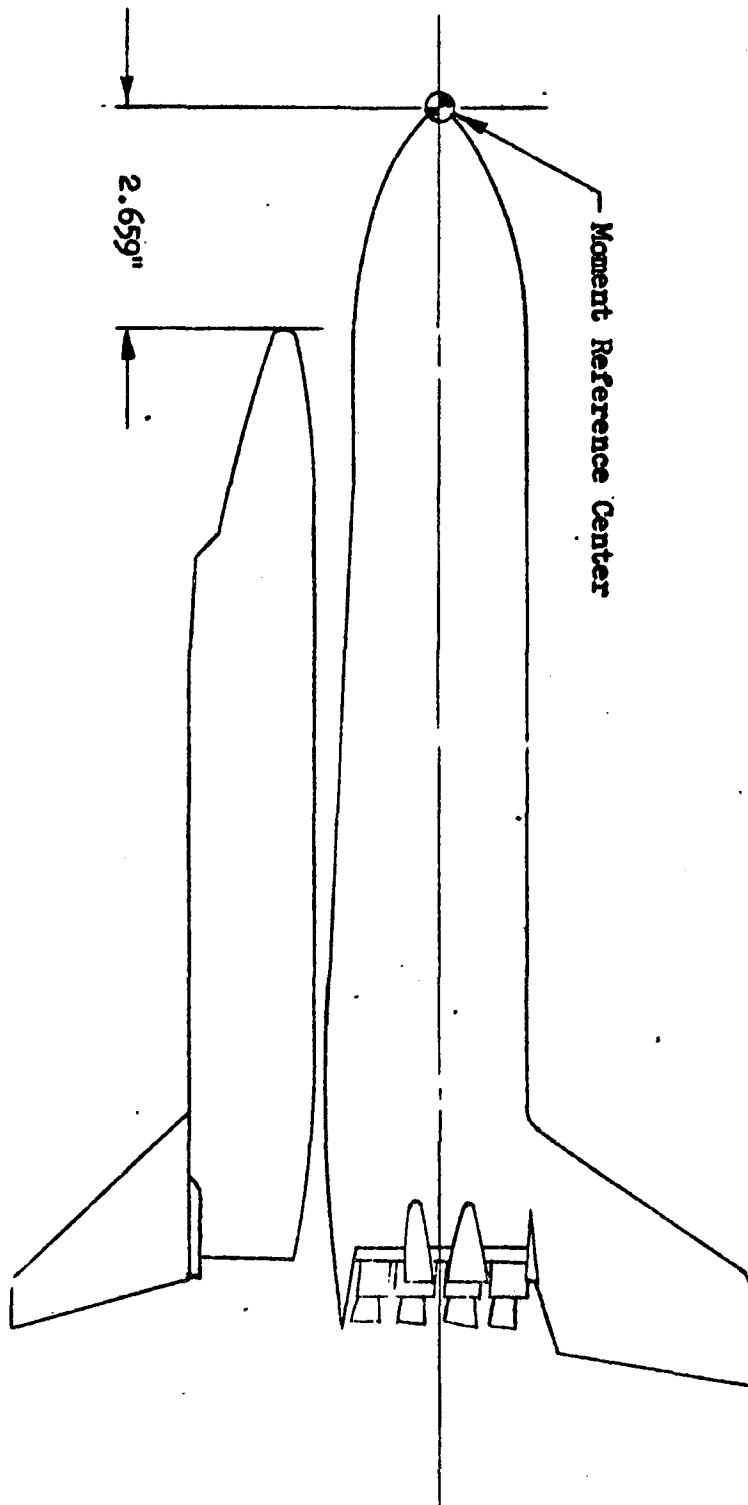


FIGURE 6. BOOSTER ORBITER MOUNTING RELATIONSHIPS (Continued)

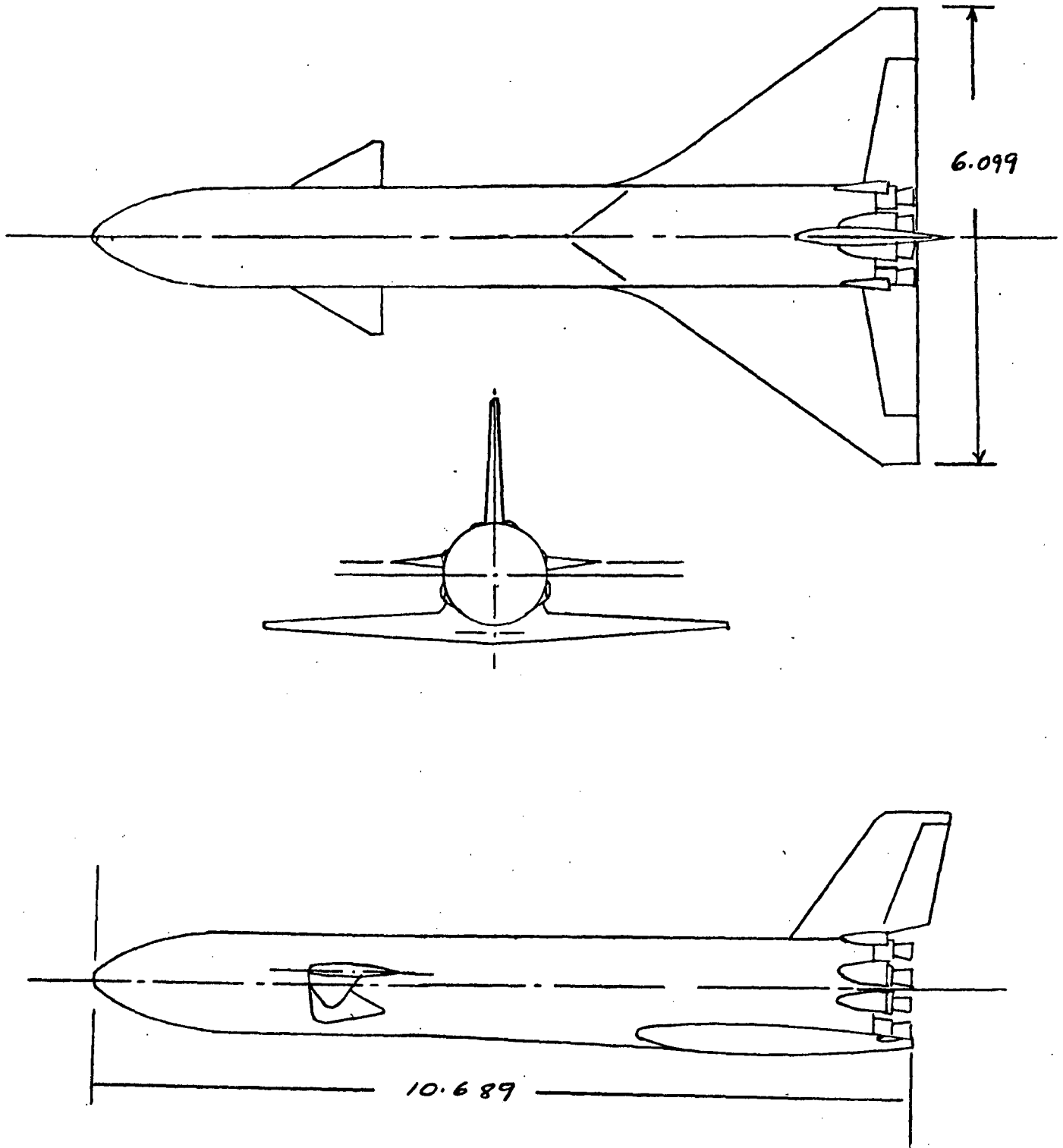
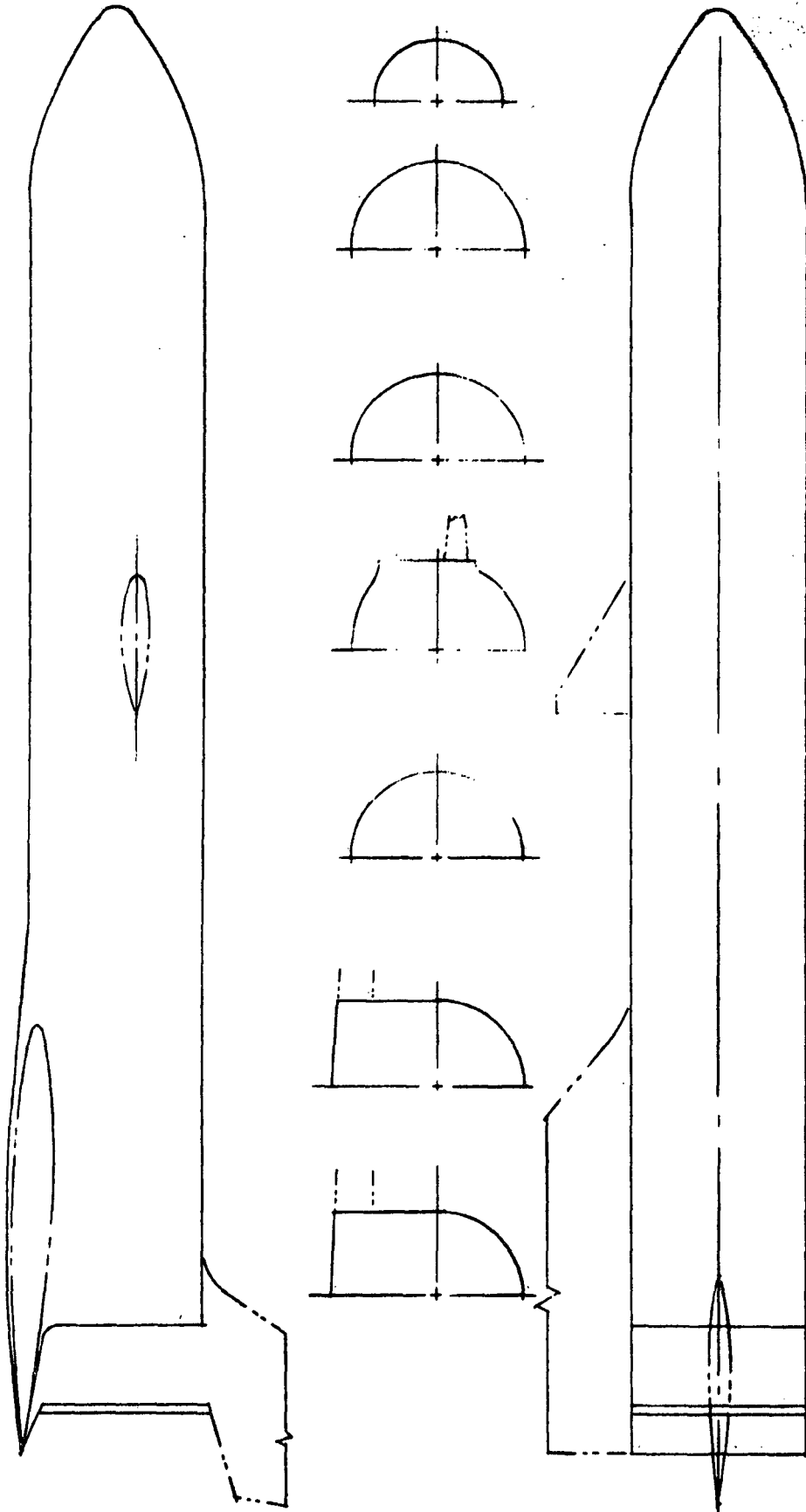


FIGURE 7. THREE-VIEW SKETCH OF BOOSTER $B_{20}W_{14}C_{48}V_8$

BODY B20 - BOOSTER B-15 B-1 (LENGTHENED 10%) CONFIGURATION

FIGURE 8.



MODEL DESCRIPTION

Delta Wing Booster - (Cont'd)

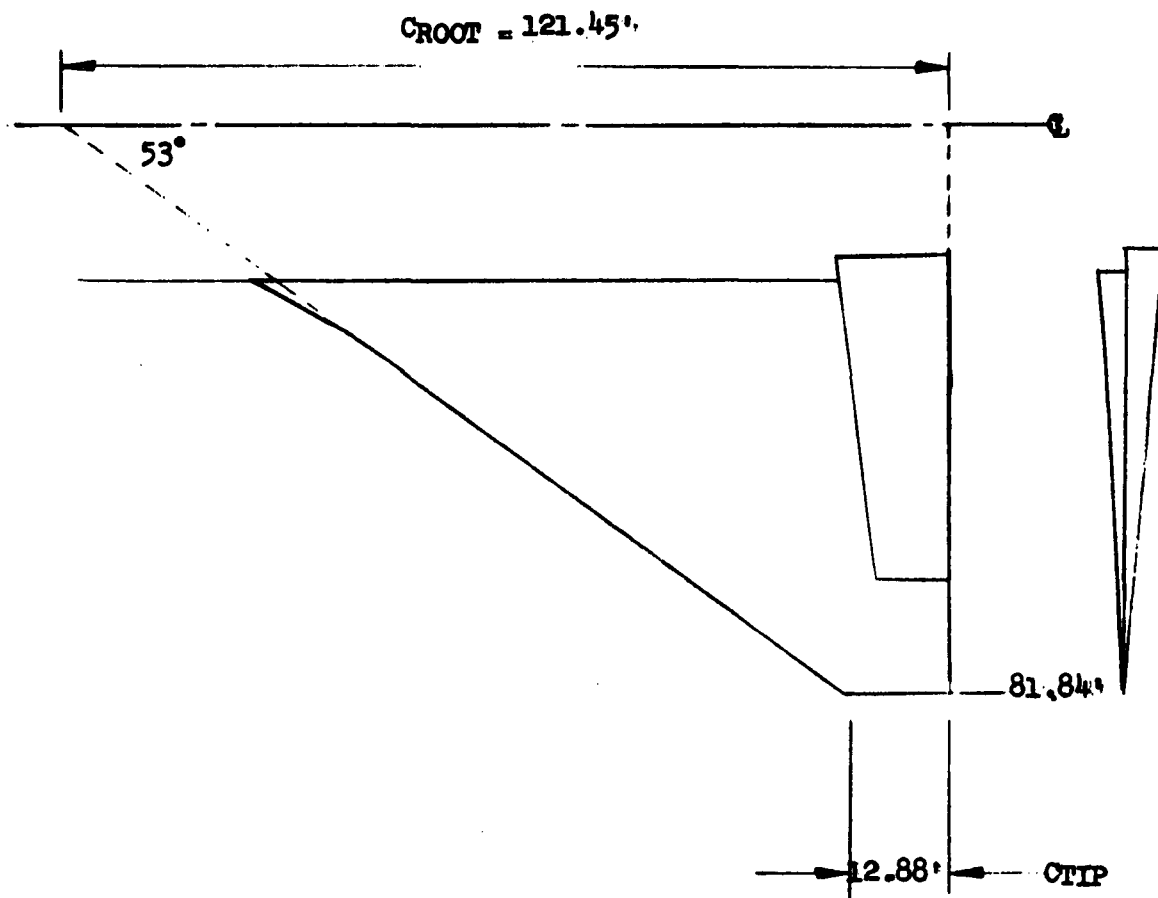


FIGURE 9. WING W₁₄ - BOOSTER CONFIGURATION

MODEL DESCRIPTION

Delta Wing Booster - (Cont'd)

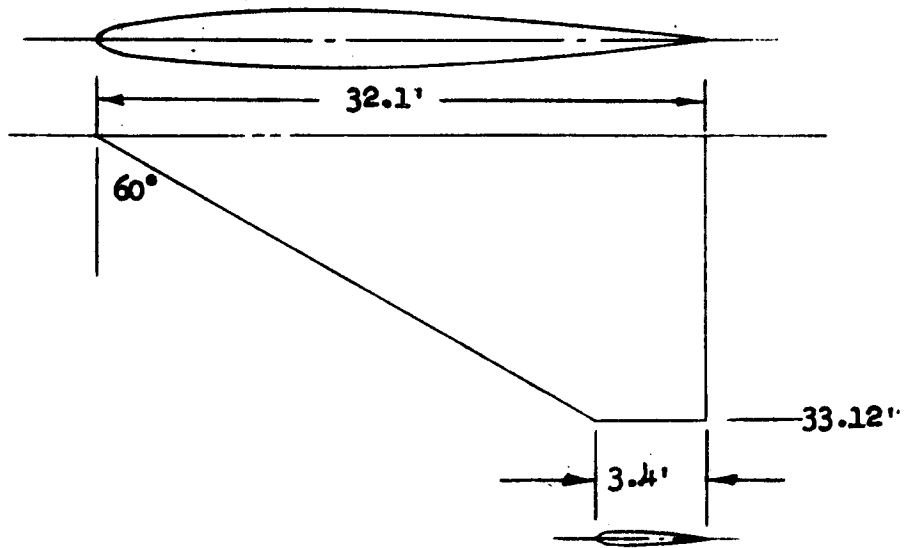


FIGURE 10. CANARD - C4

LOS ANGELES DIVISION
NORTH AMERICAN ROCKWELL CORPORATION

MODEL DESCRIPTION

Delta Wing Booster - (Cont'd)

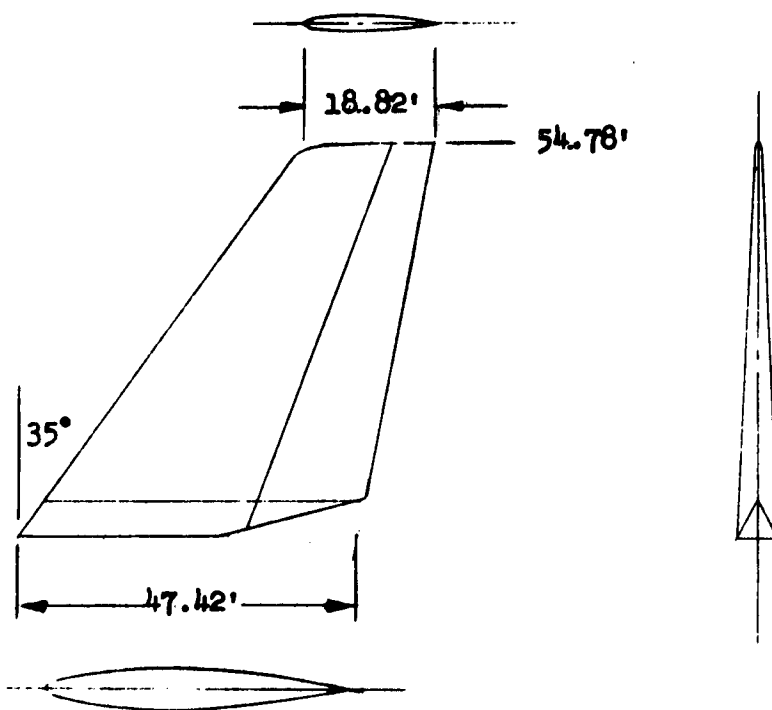
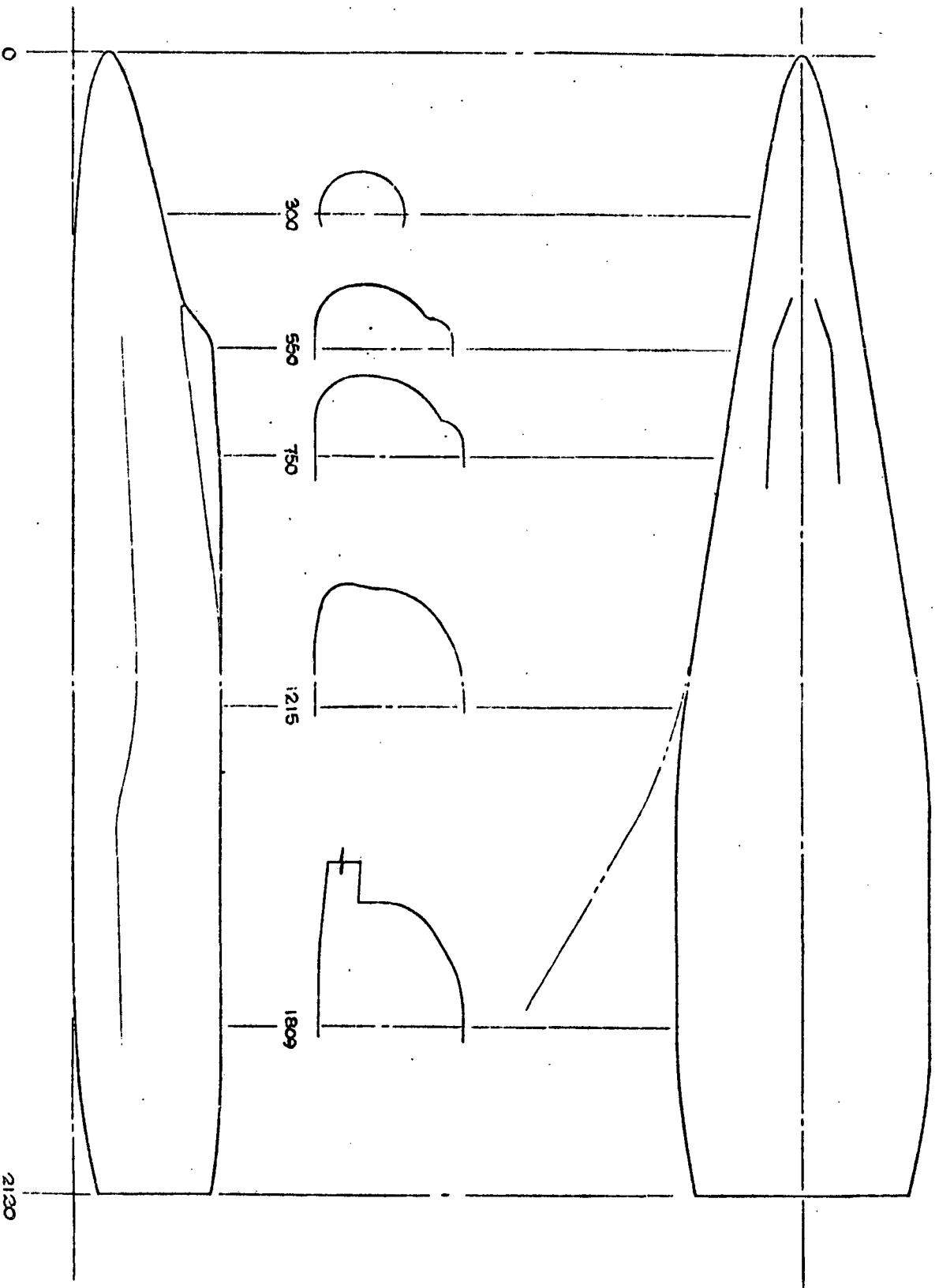


FIGURE 11. VERTICAL TAIL - V8

FIGURE 12. BODY B5 9932-134B CONFIGURATION



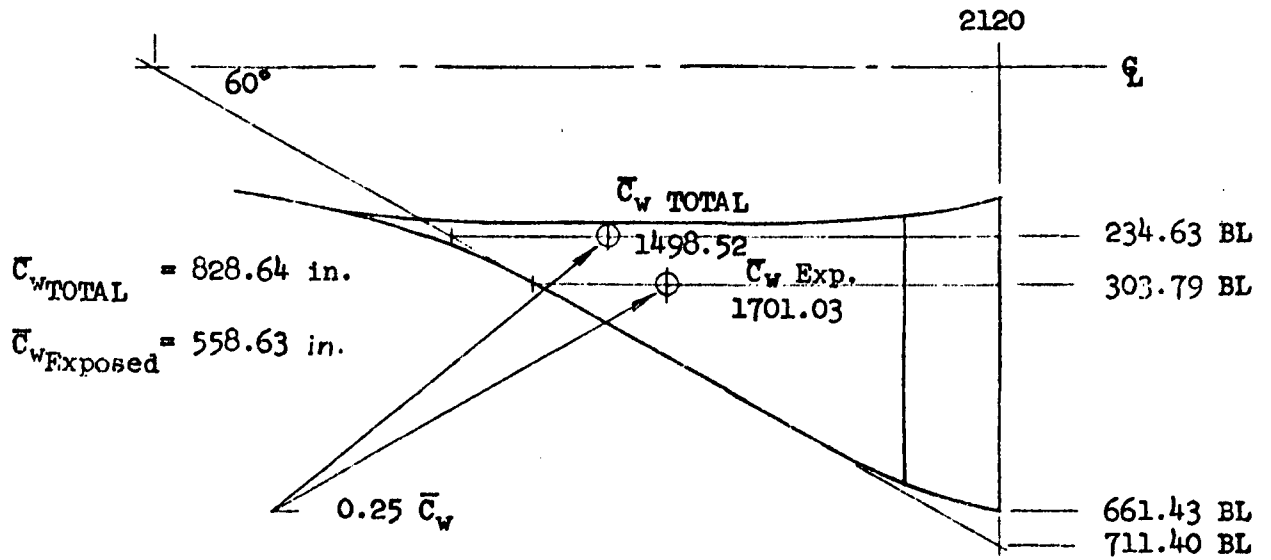


FIGURE 13. WING W_{17} 9992-134 D Configuration

MODEL DESCRIPTION - CONTINUED
Dimensional Data - Continued
Delta Wing Orbiter - Continued

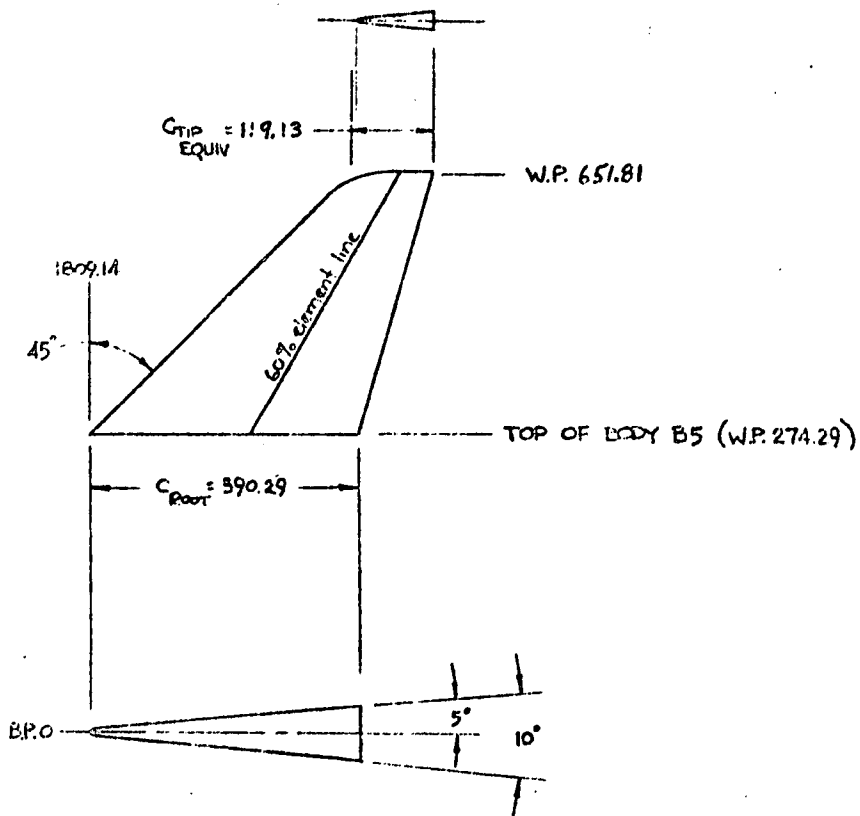
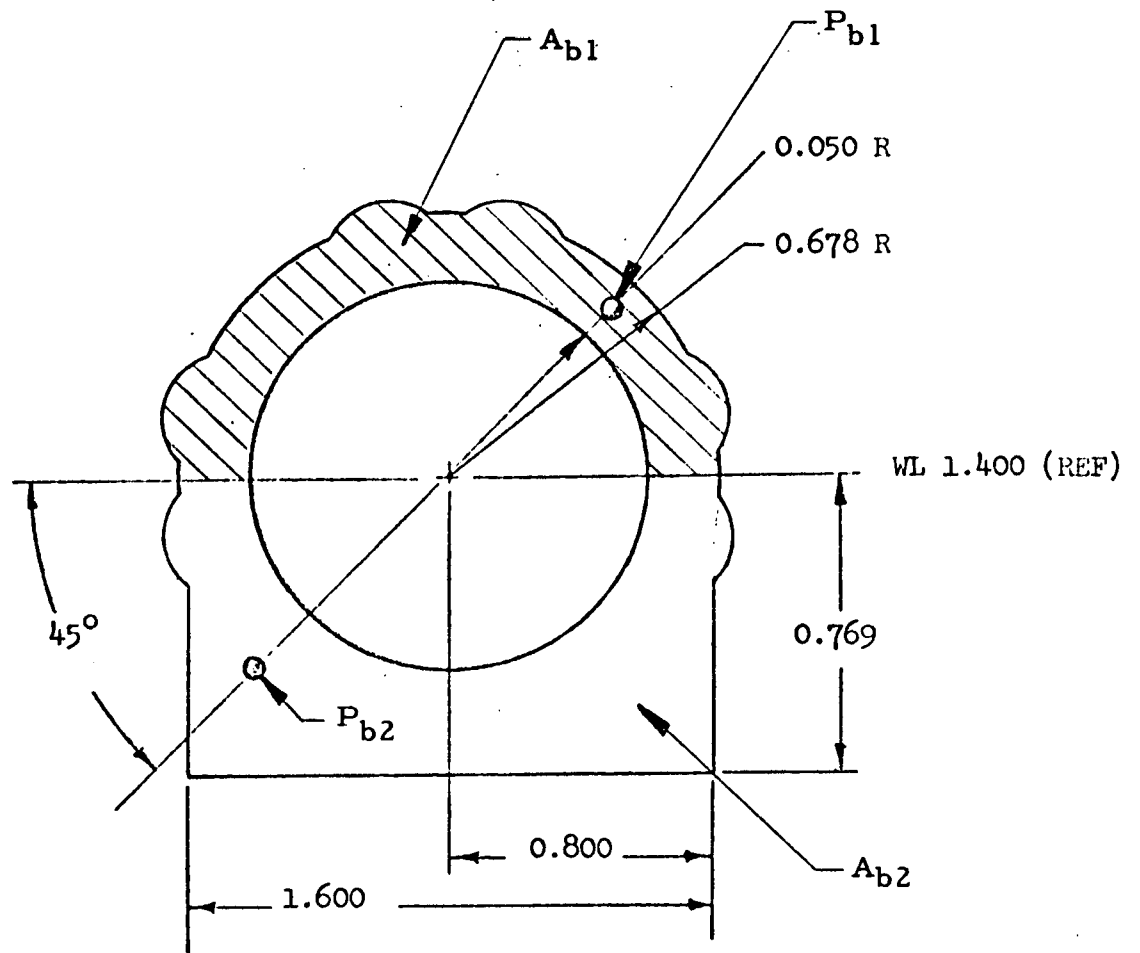


FIGURE 14.
VERTICAL STABILIZER V17



View Looking Forward

NOTE: Location of pressure taps may vary slightly as installation will be made during test setup.

FIGURE 15. BOOSTER BASE PRESSURE ORIFICE LOCATIONS

- 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.

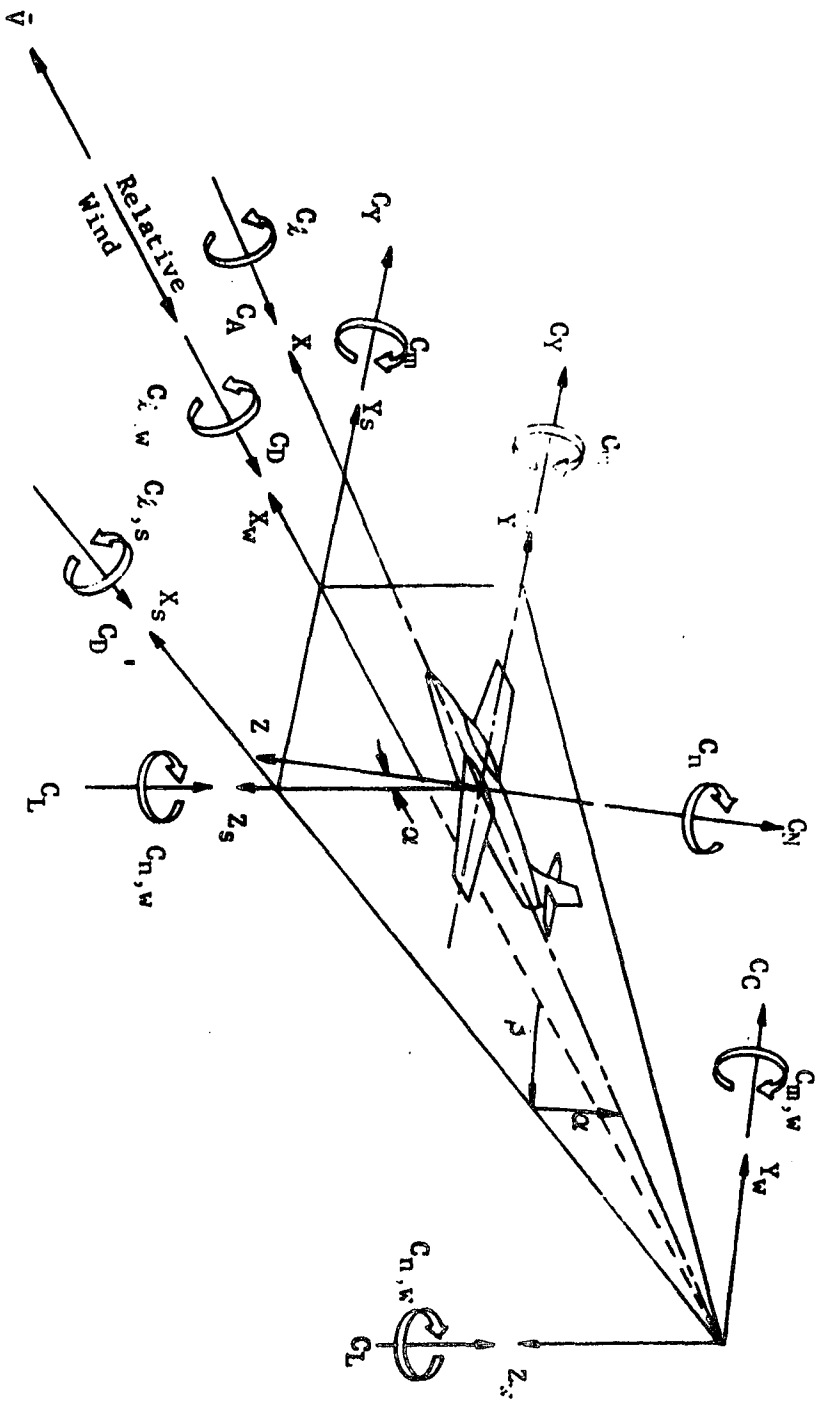
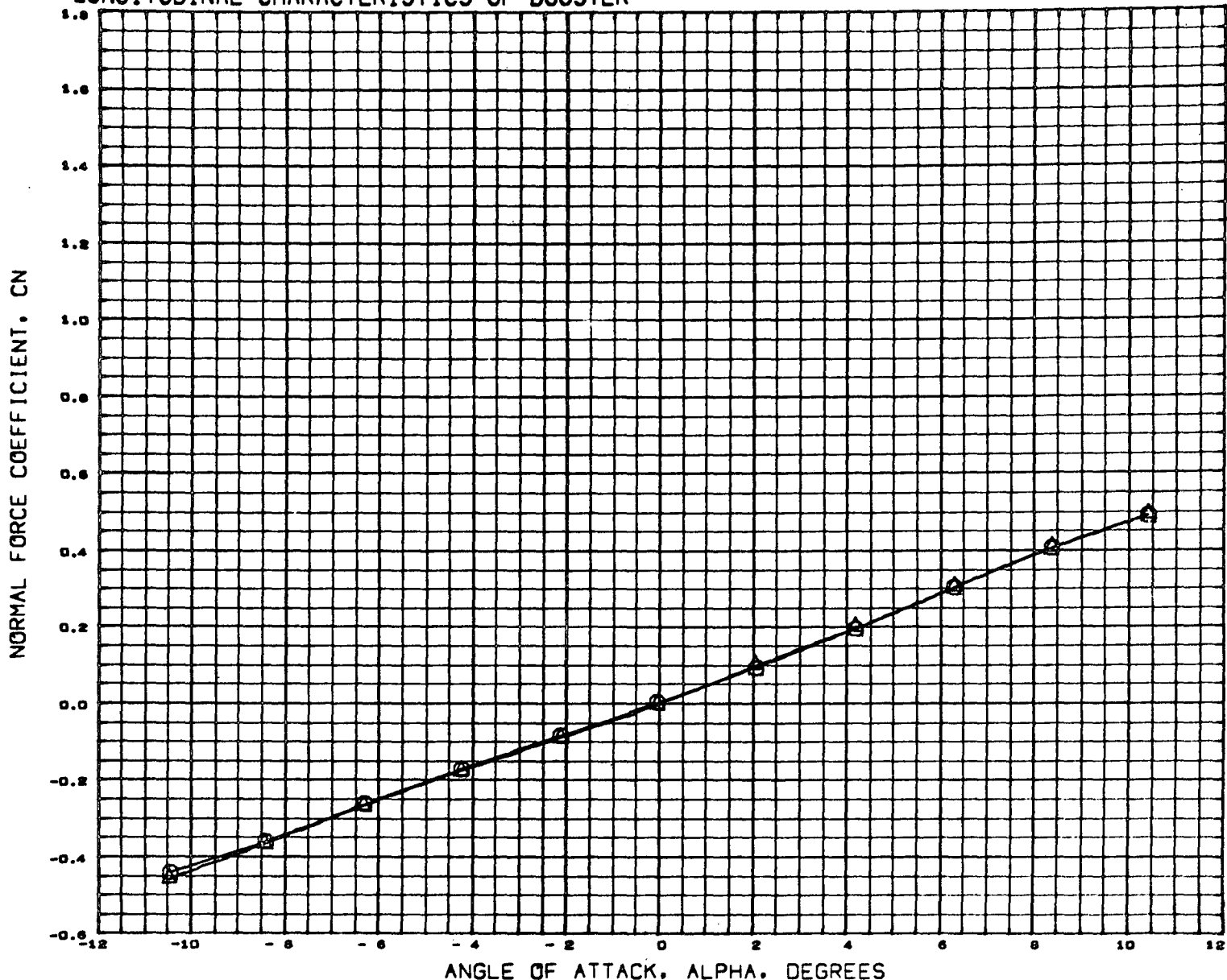


Figure 1b. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

DATA FIGURES

LONGITUDINAL CHARACTERISTICS OF BOOSTER



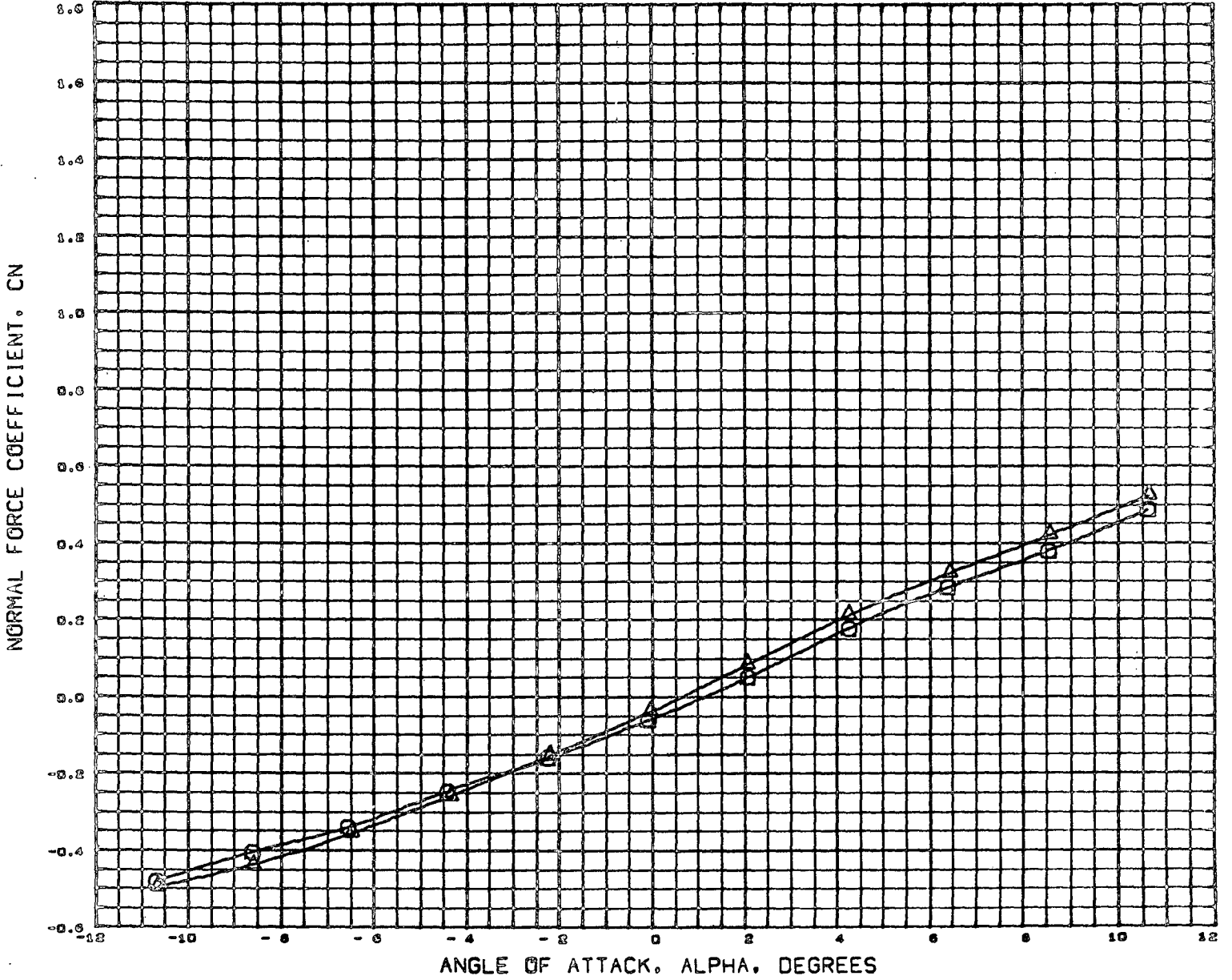
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) □	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

LONGITUDINAL CHARACTERISTICS OF BOOSTER



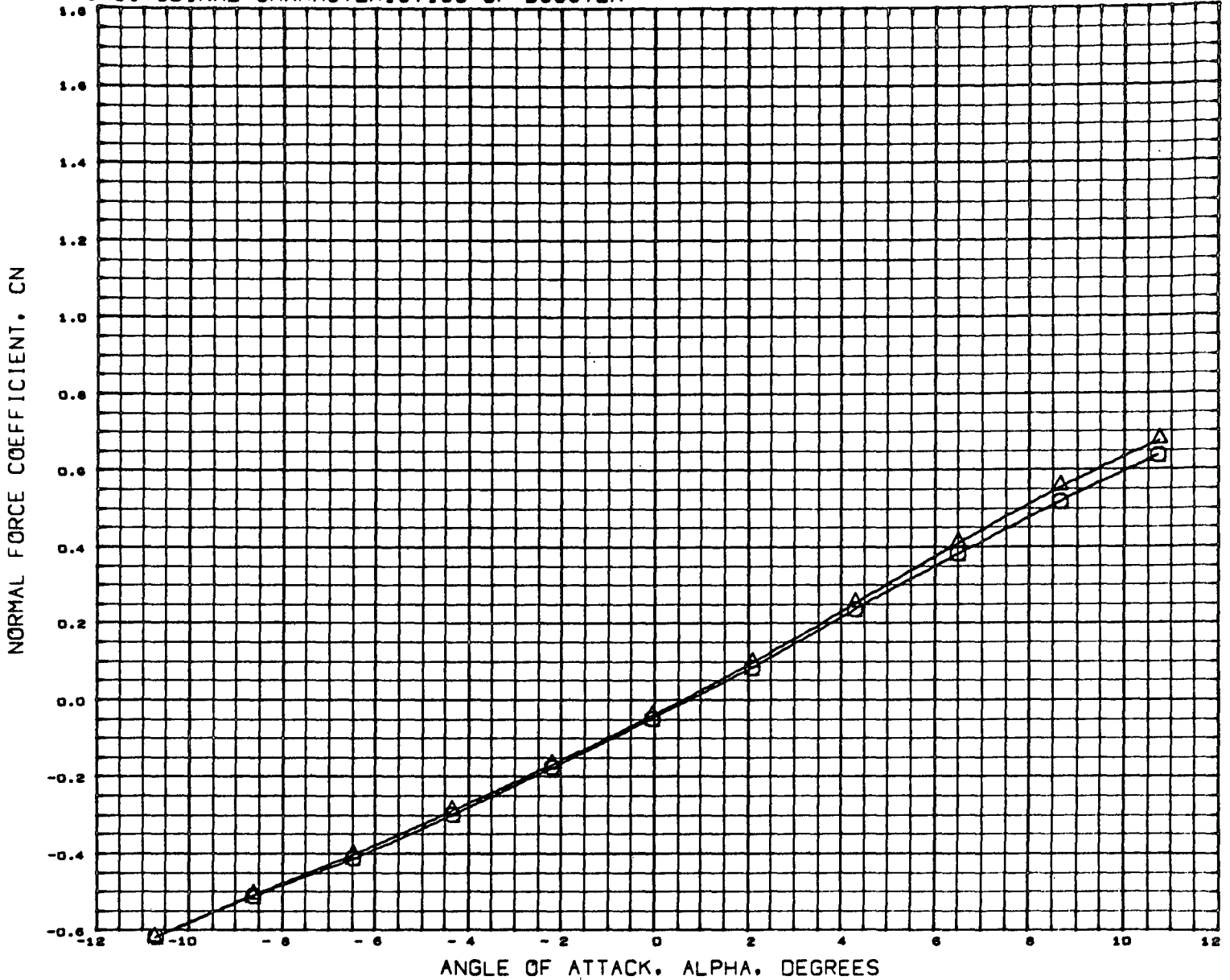
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
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(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER



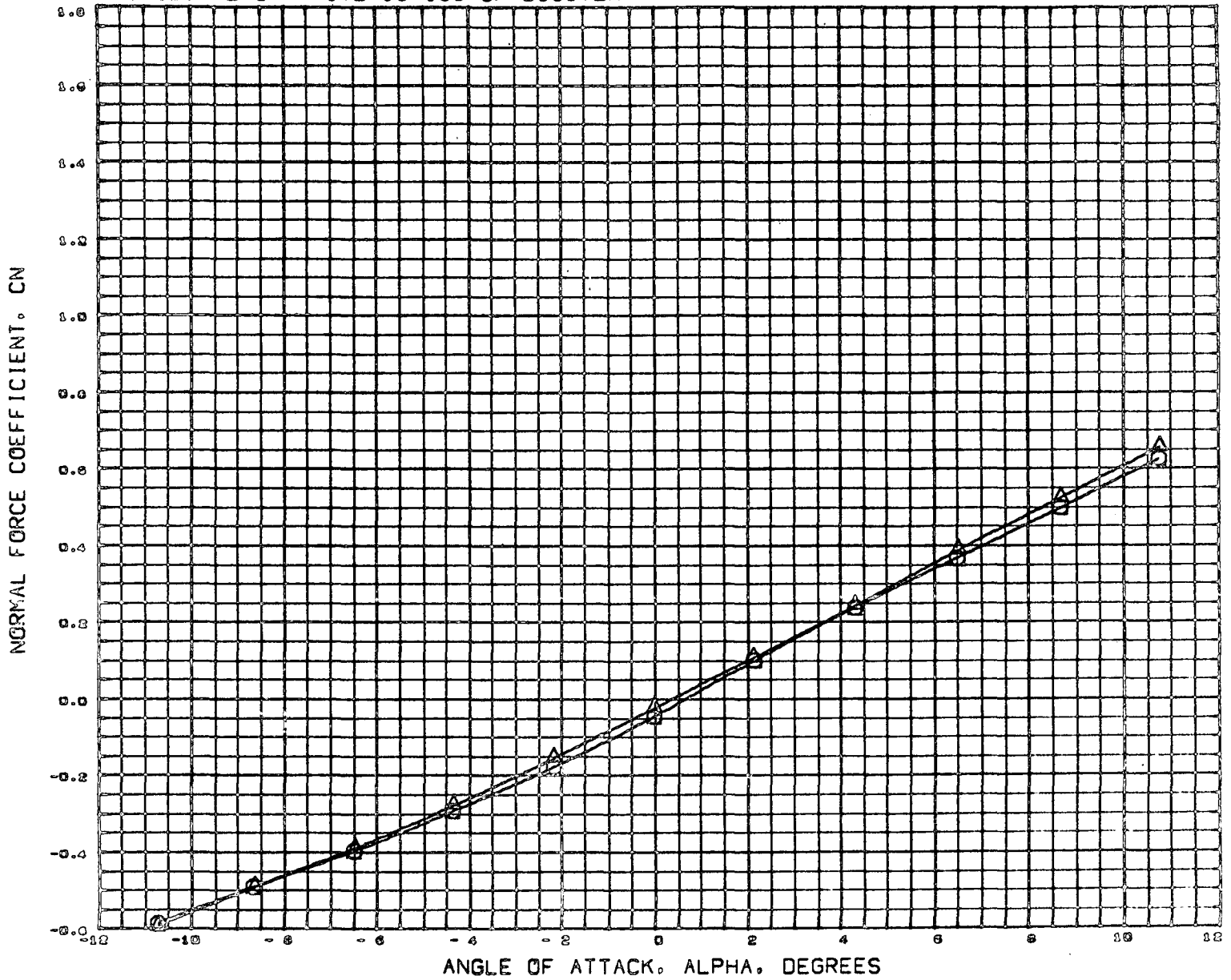
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



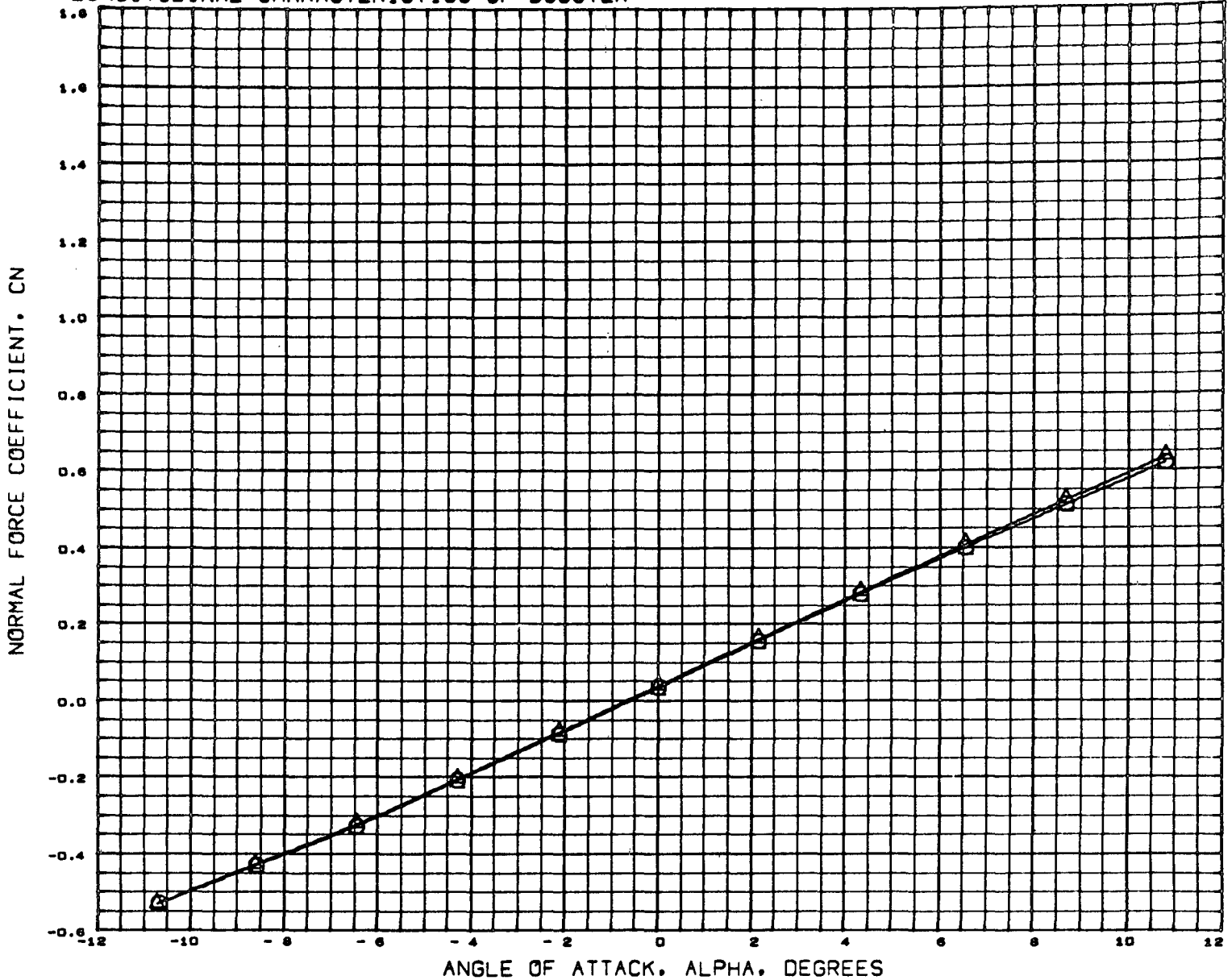
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M9209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M9206A)	MSFC400 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	19.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER



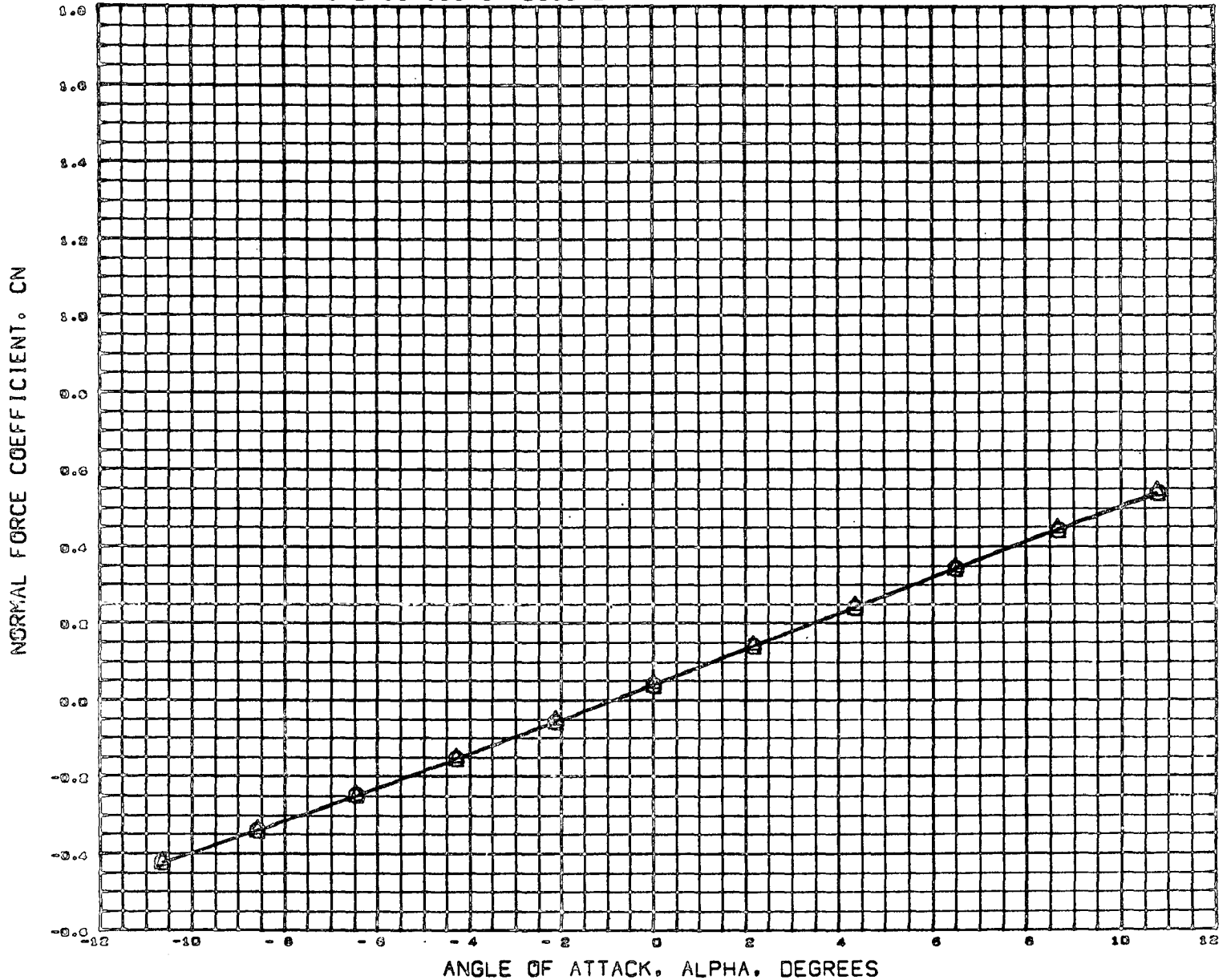
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) \circ	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) Δ	MSFC490 GD DELTA BOOSTER B20C4BW14V8



BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



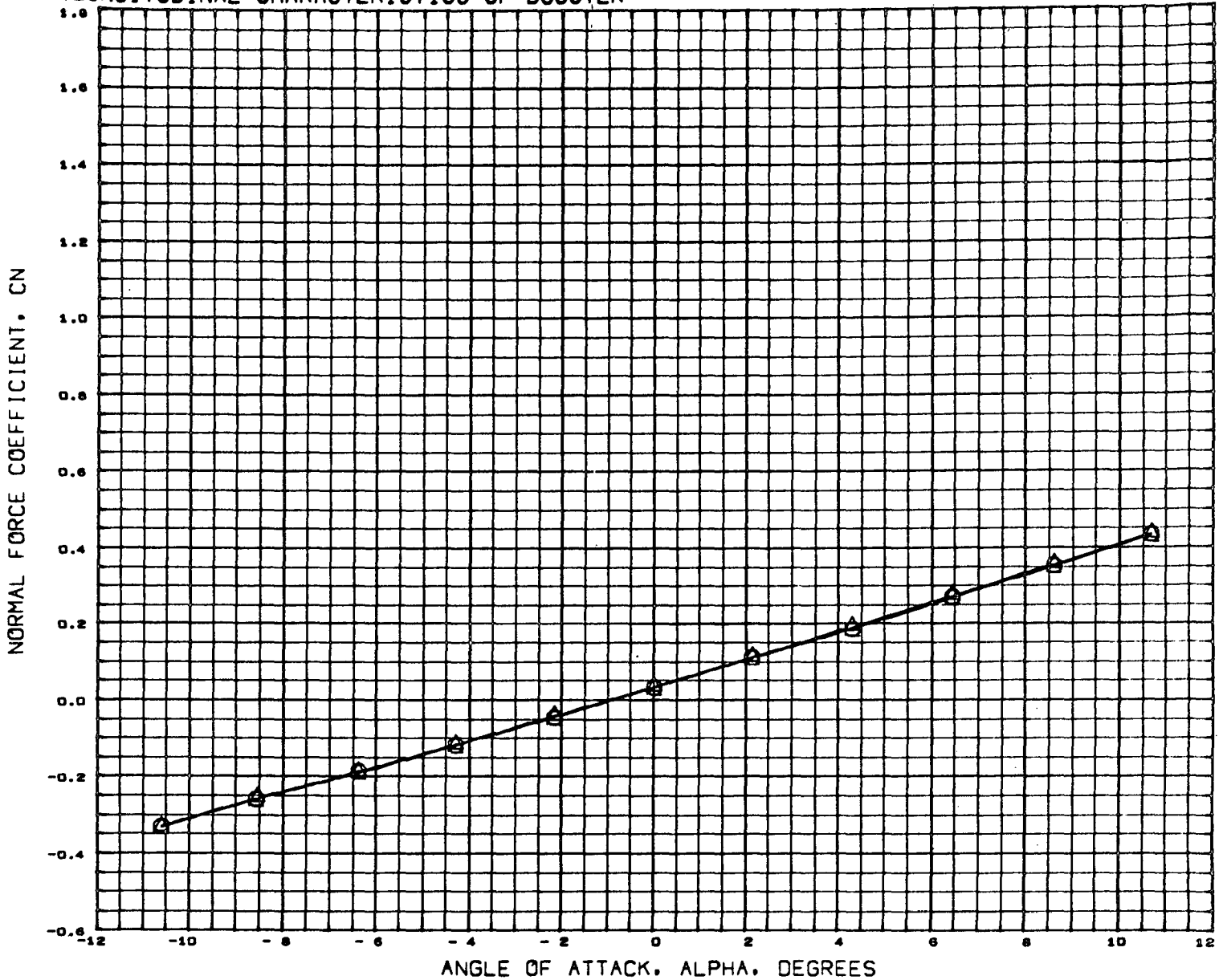
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3206A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



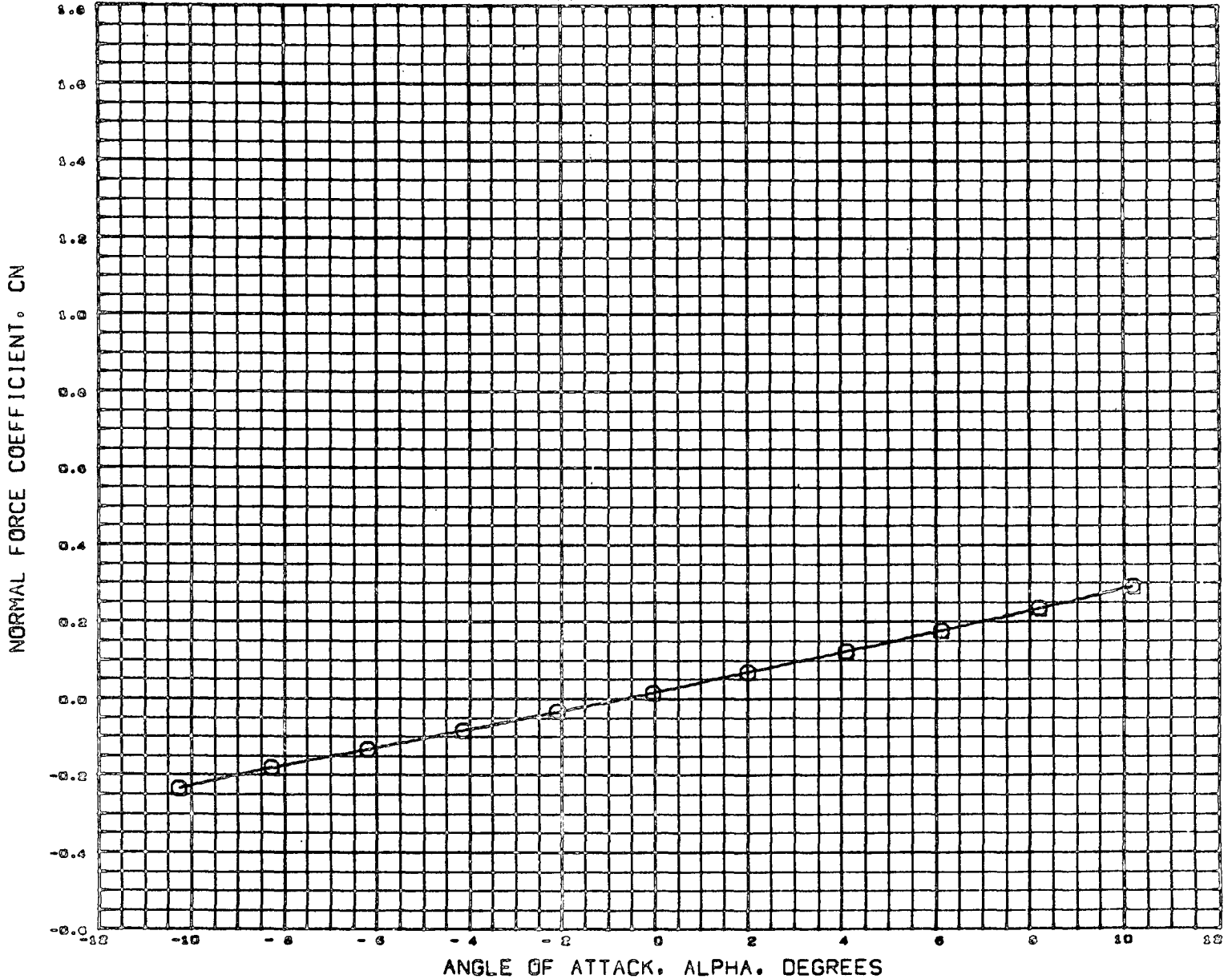
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



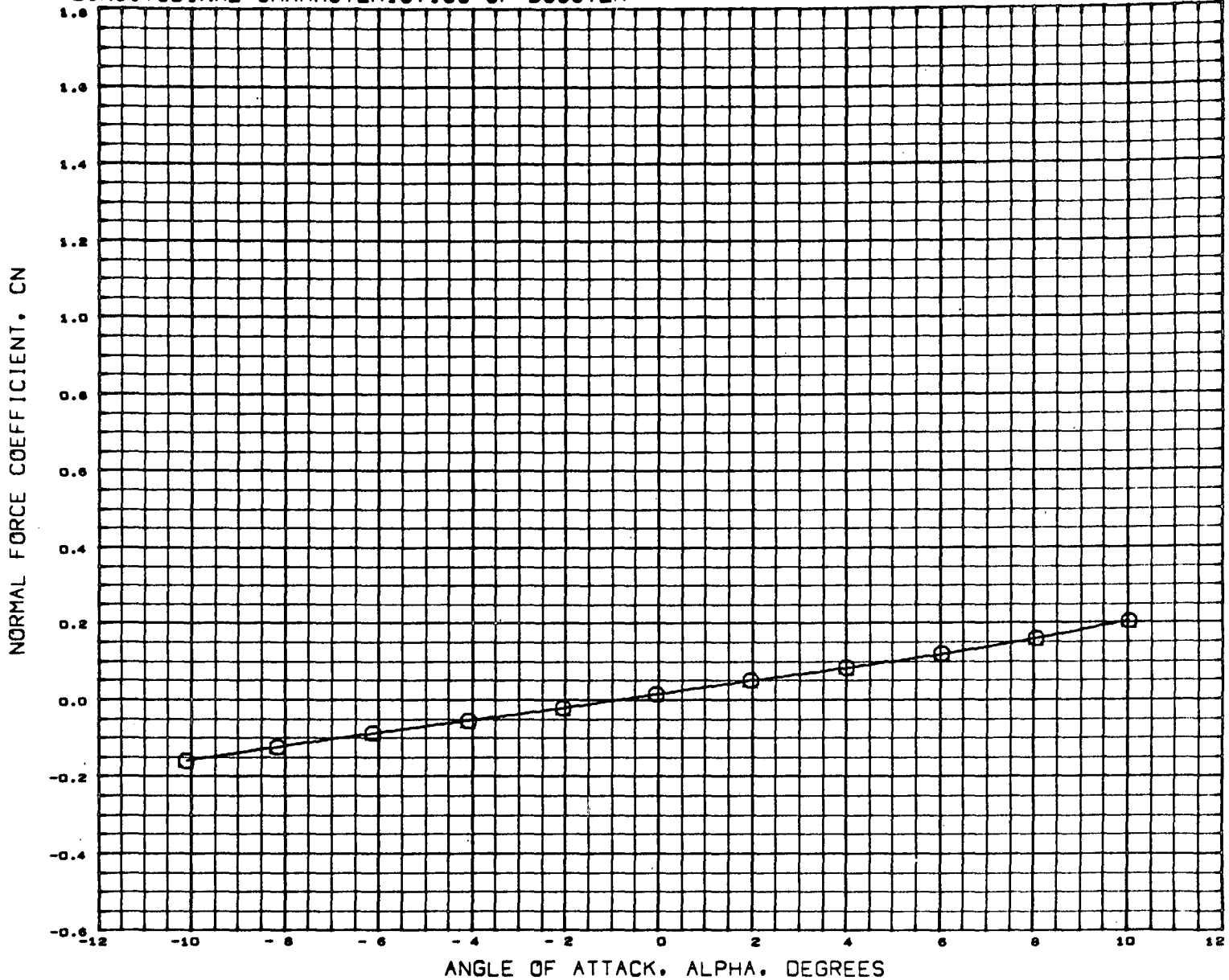
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A) 	MSFC490 GD DELTA BOOSTER B20C4BWS4V0
(M3206A) 	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(H3206A) △	DATA NOT AVAILABLE FOR ALL CONDITIONS

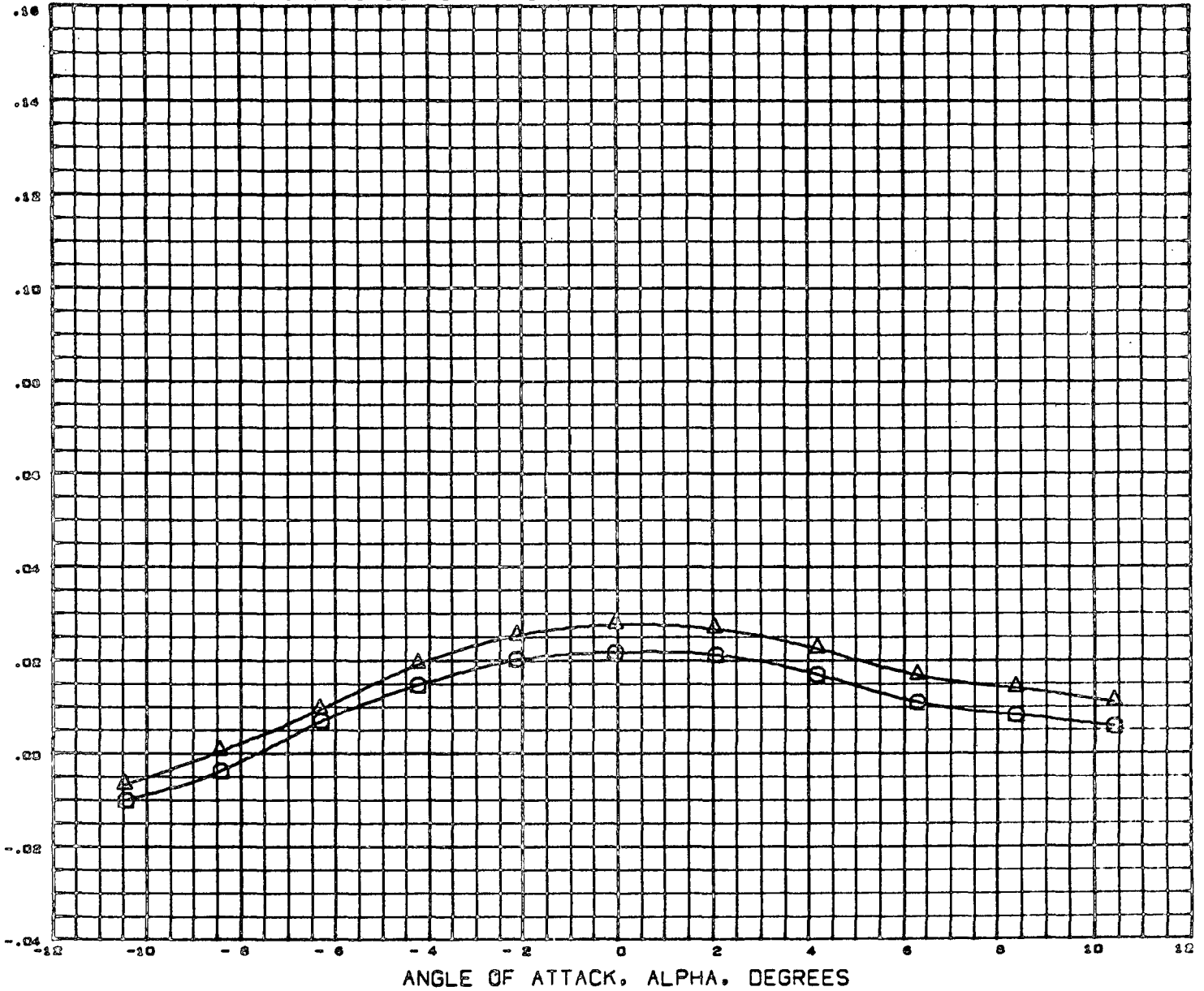
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



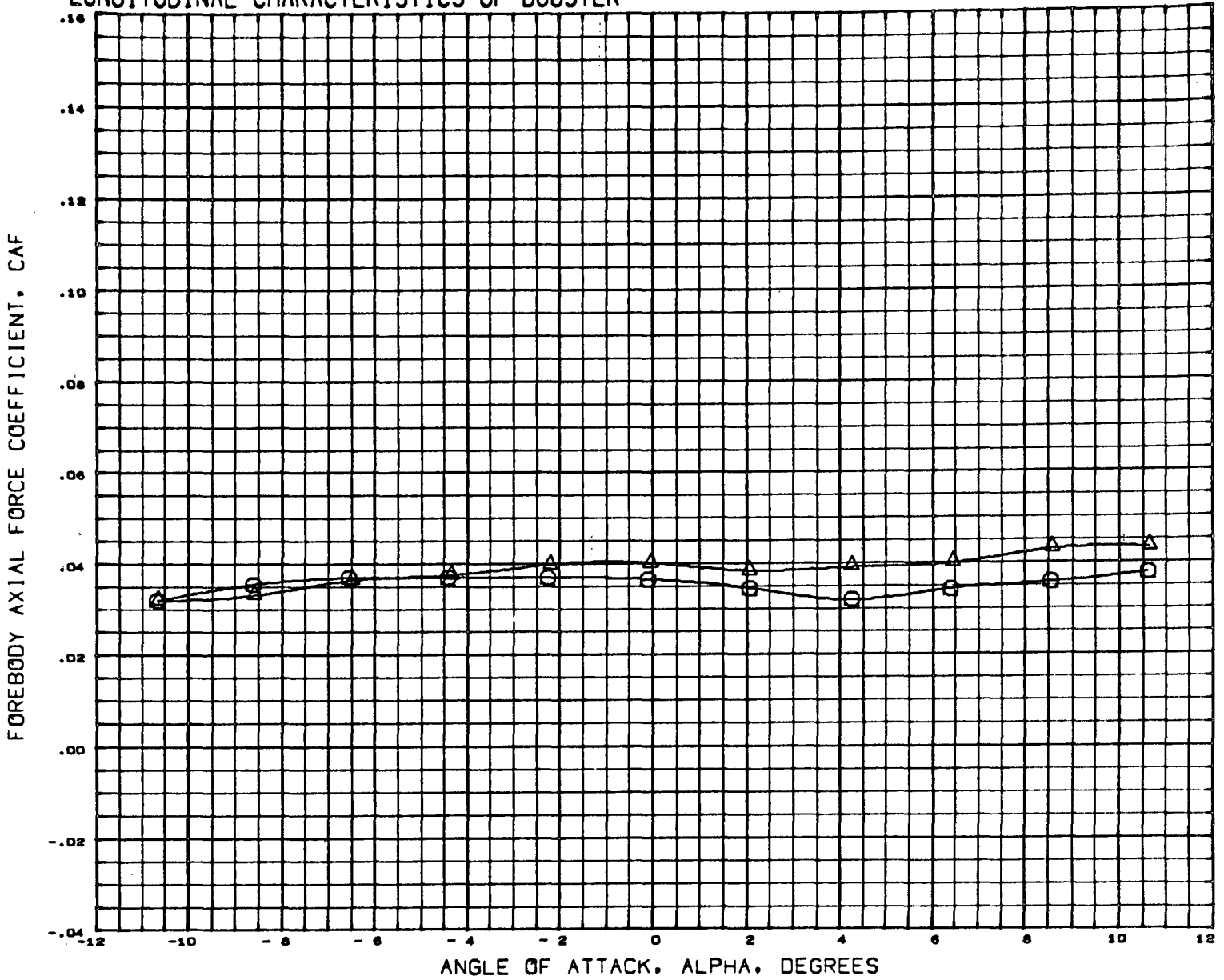
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC49D GD DELTA BOOSTER B20C48W14V8
(M3208A)	MSFC49D GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.606

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

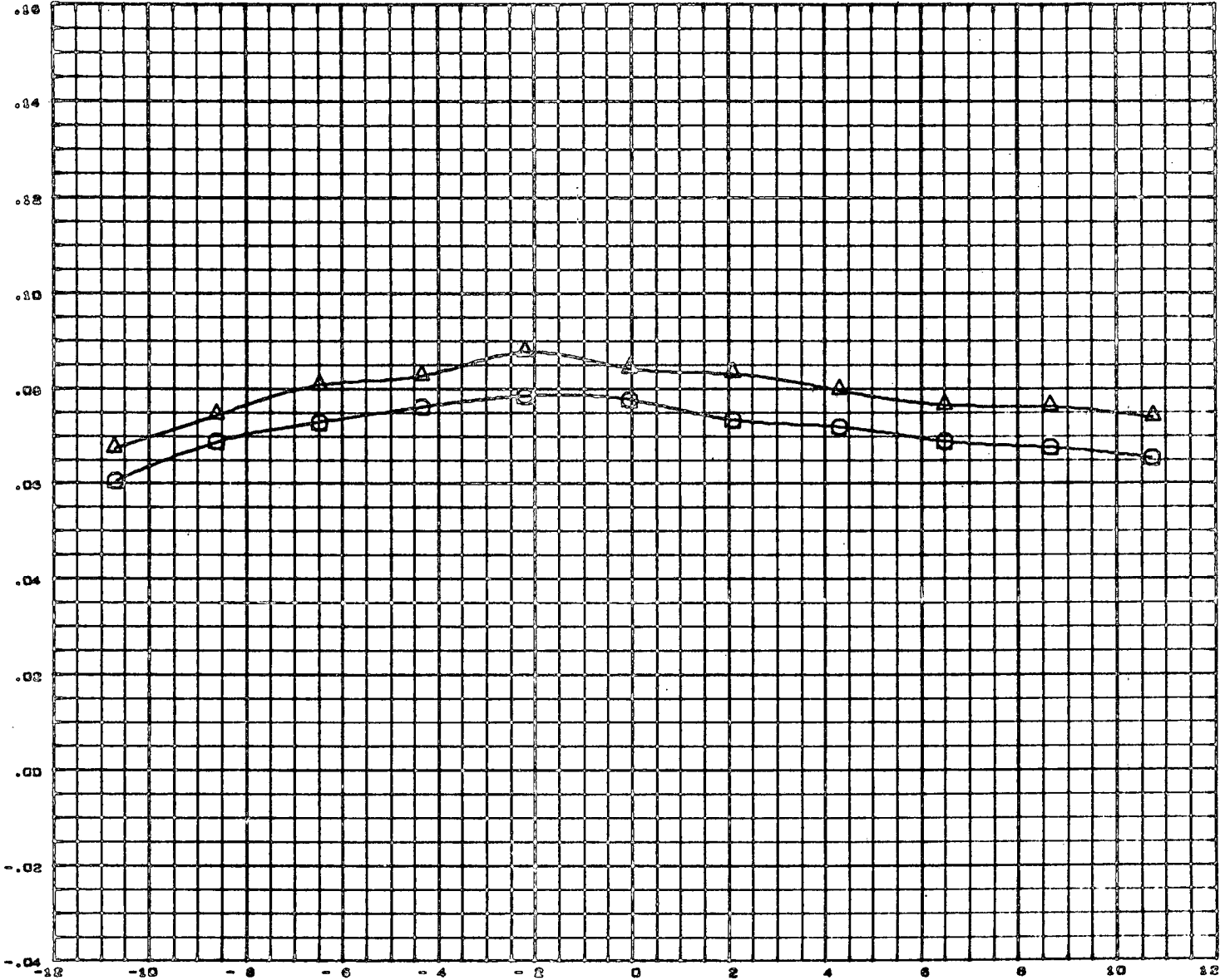
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



ANGLE OF ATTACK, ALPHA, DEGREES

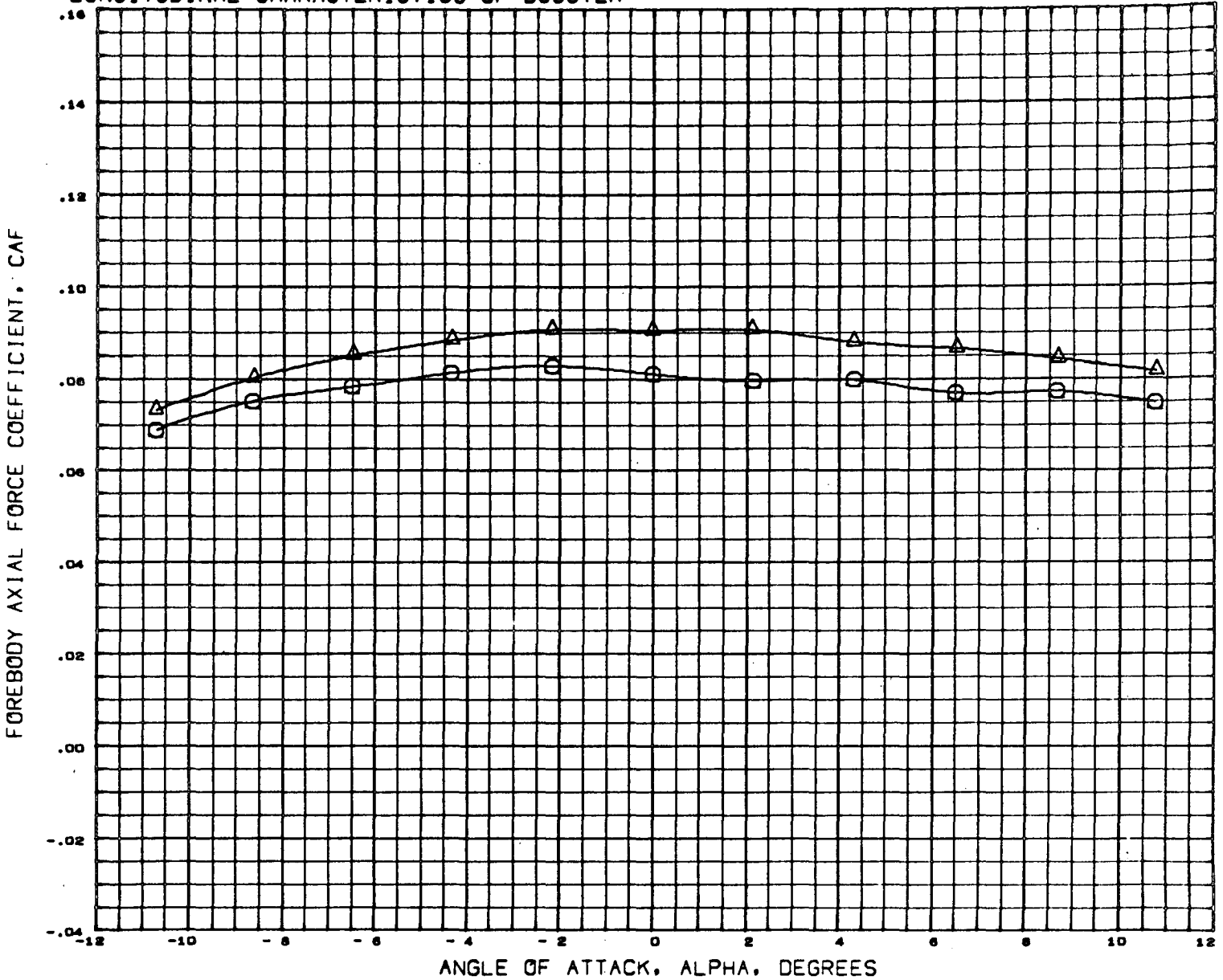
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3203A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3203A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

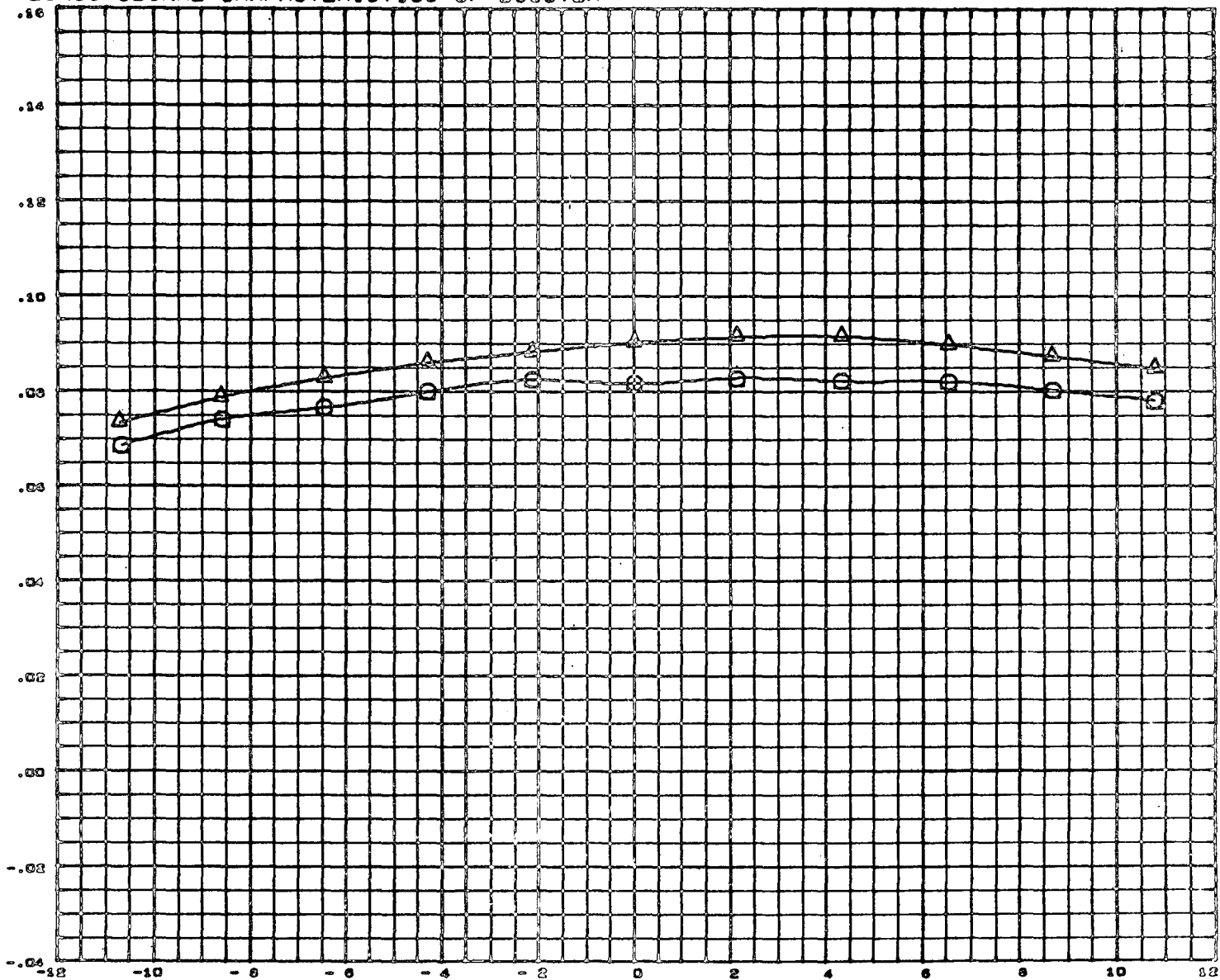
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



ANGLE OF ATTACK, ALPHA, DEGREES

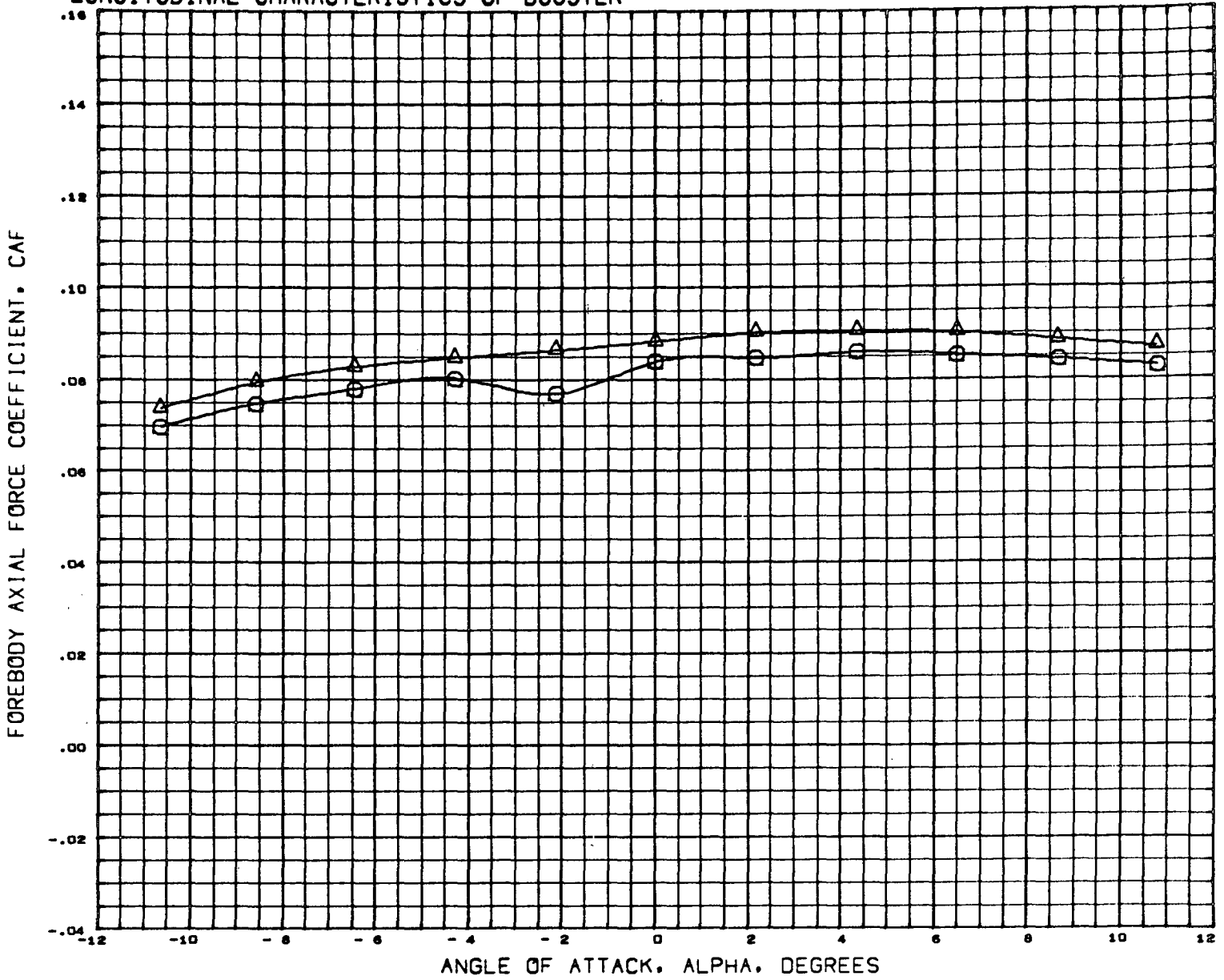
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(MS205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0
(MS206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

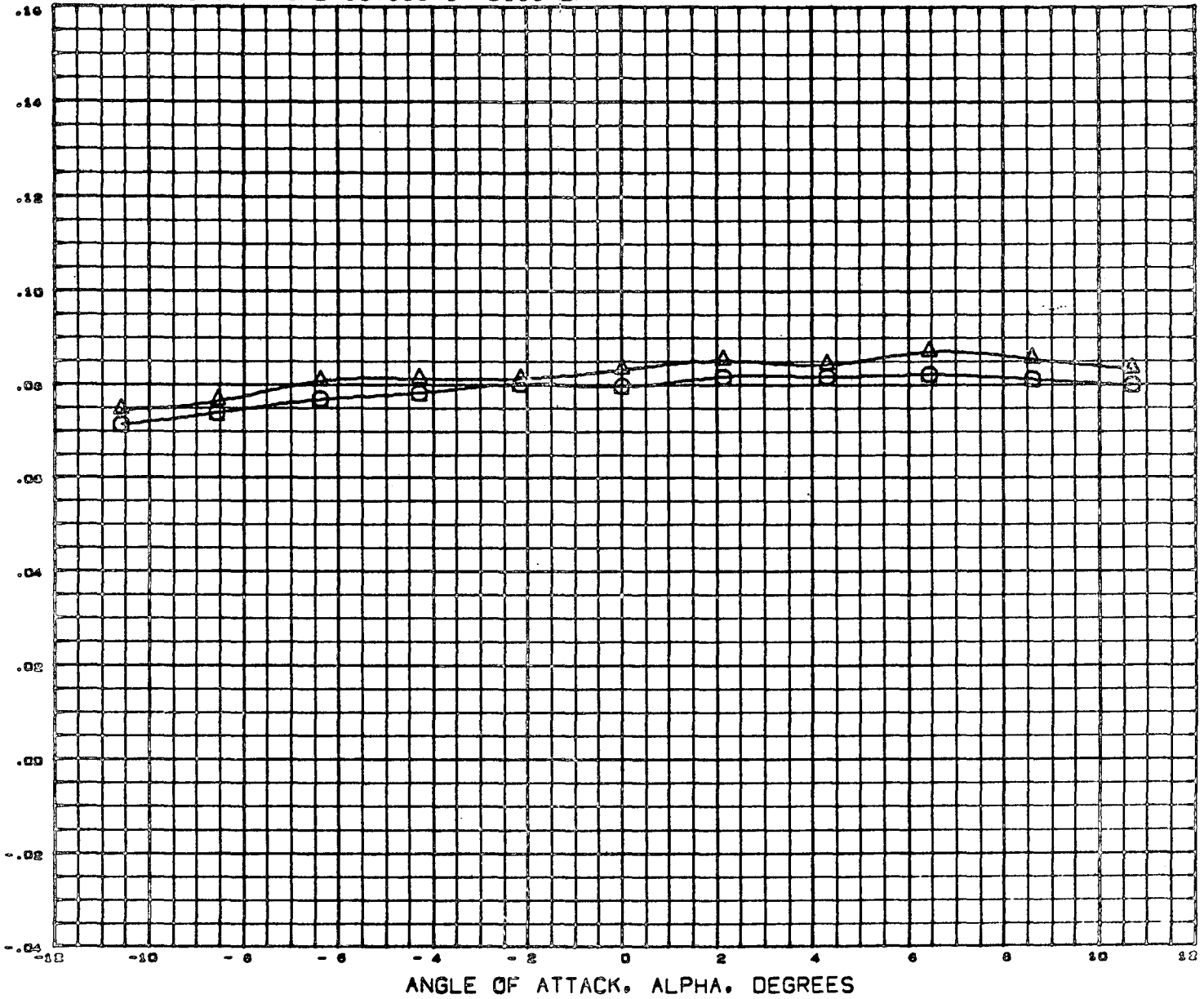
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



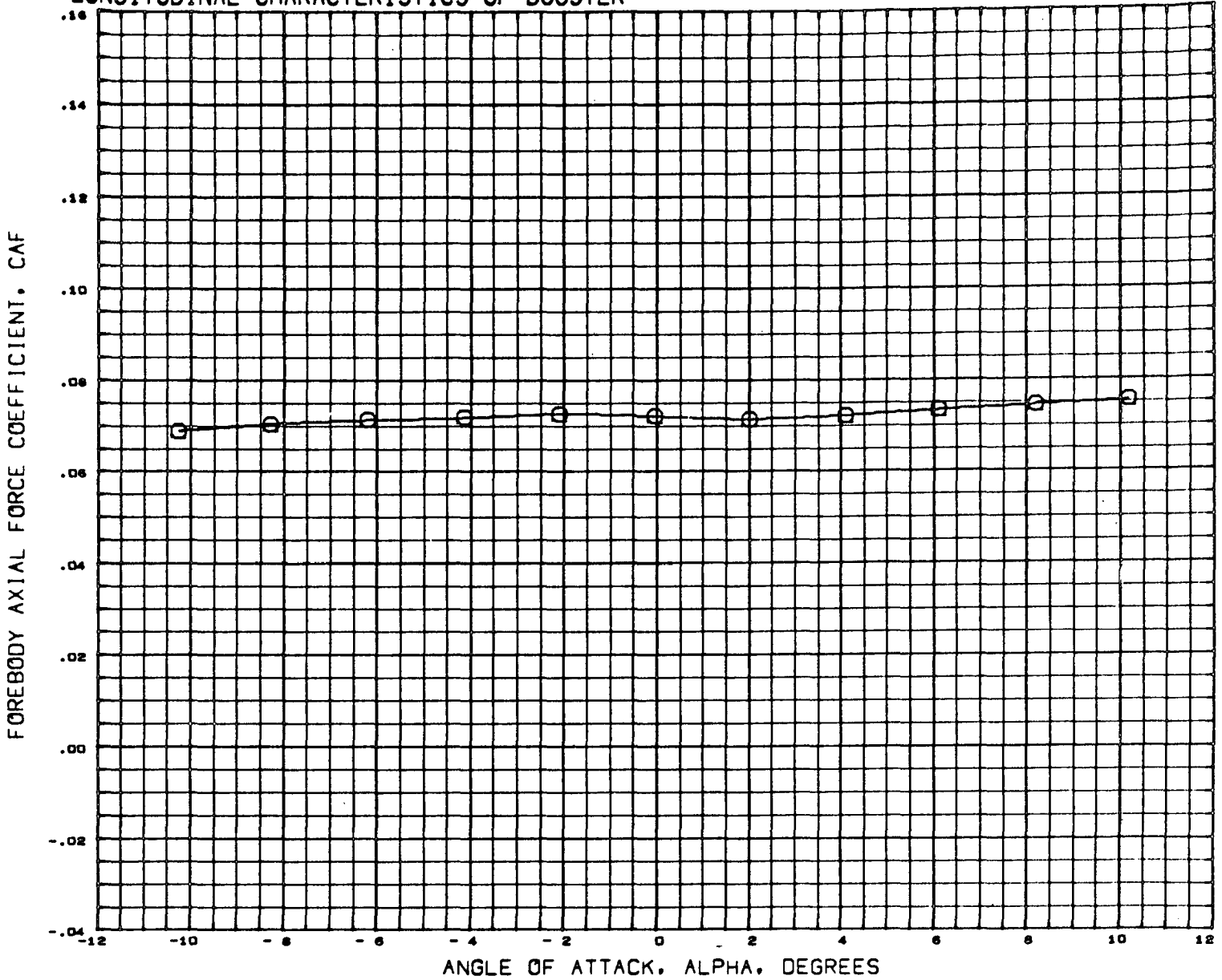
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H3205A) ○ MSFC490 GD DELTA BOOSTER B20C48W14V8
 (H3206A) △ DATA NOT AVAILABLE FOR ALL CONDITIONS

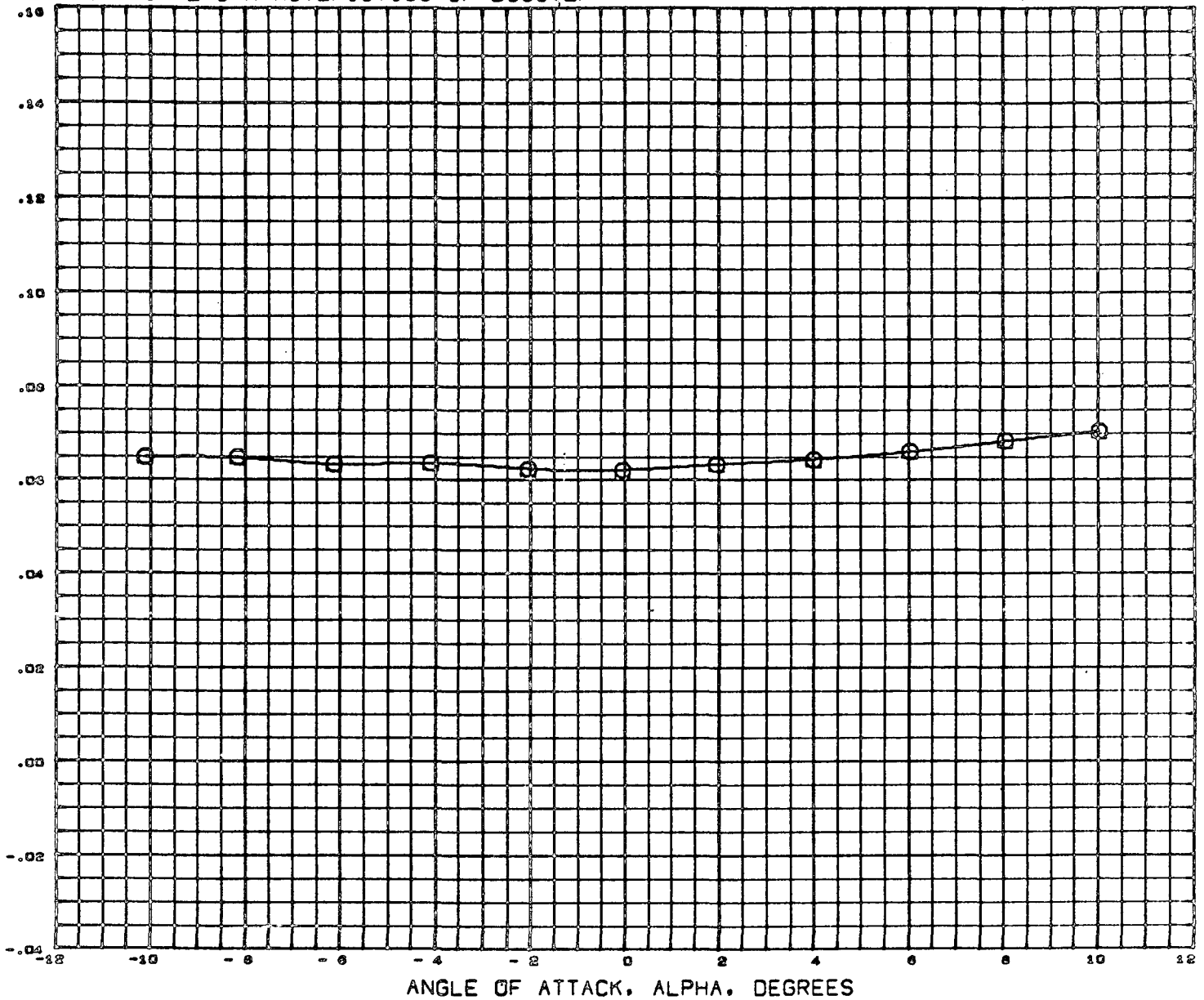
BETA ELVATR AILRON
 0.000 0.000 0.000
 0.000 0.000 10.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



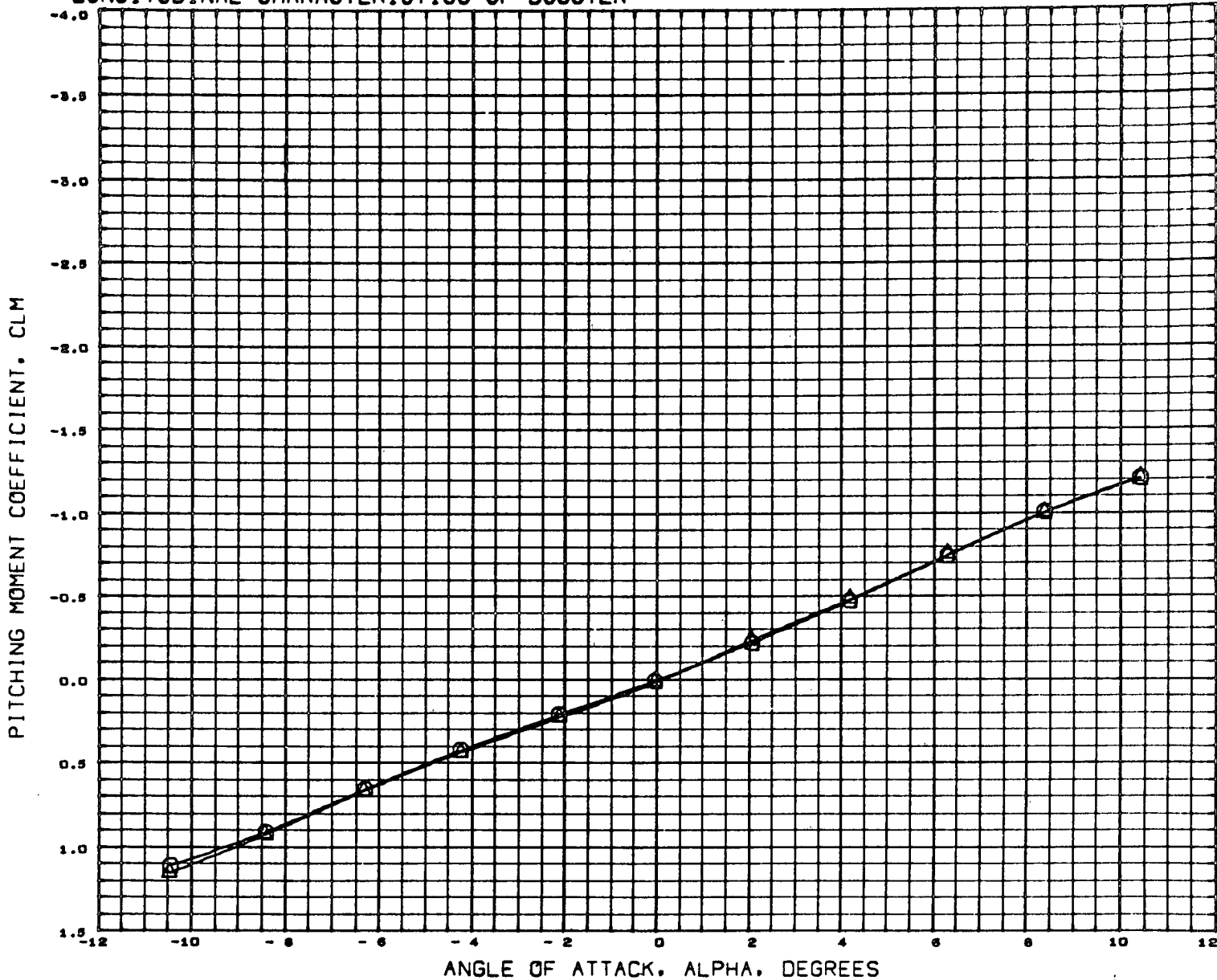
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(H3206A)	DATA NOT AVAILABLE FOR ALL CONDITIONS



BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6960	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



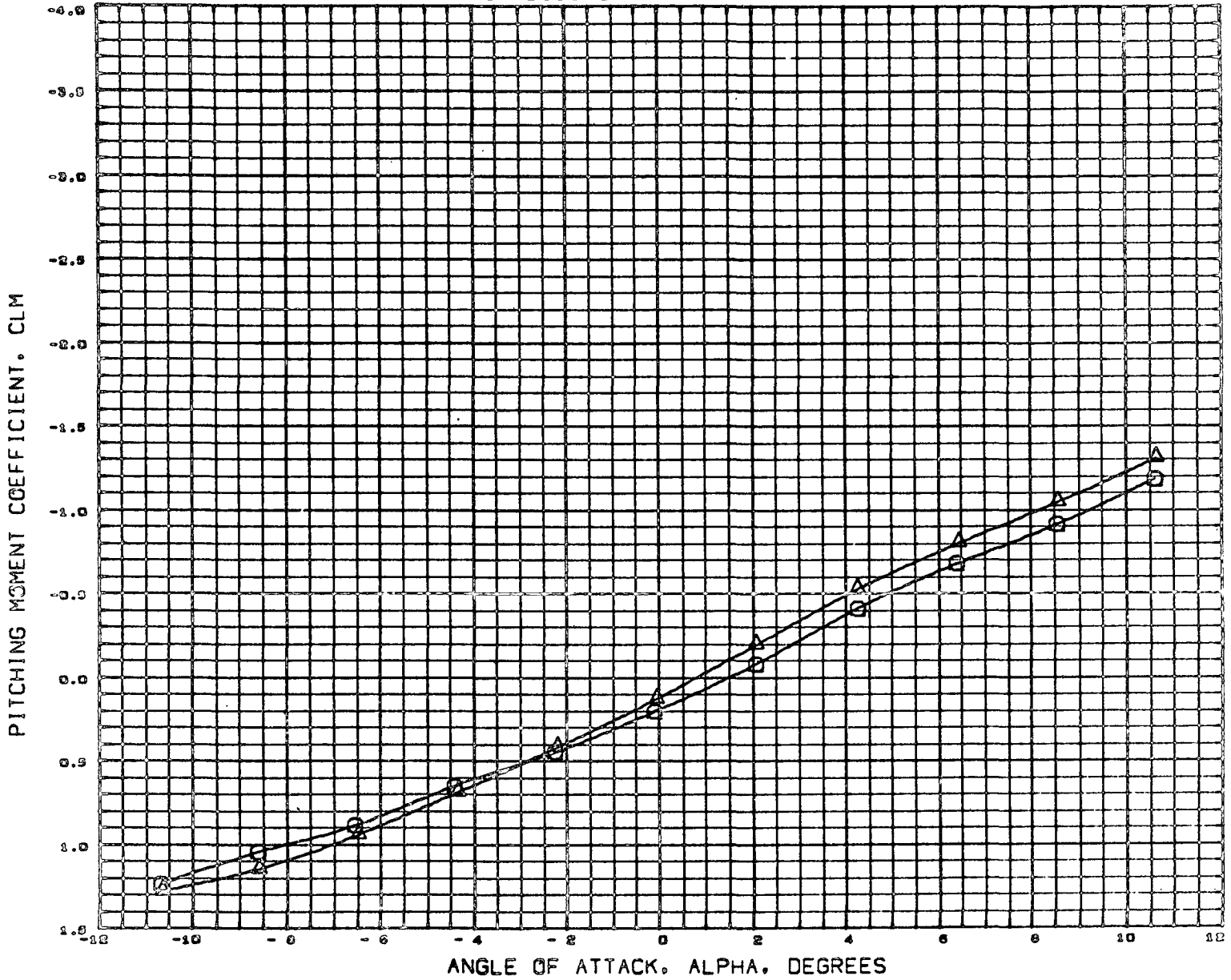
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.8560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

LONGITUDINAL CHARACTERISTICS OF BOOSTER



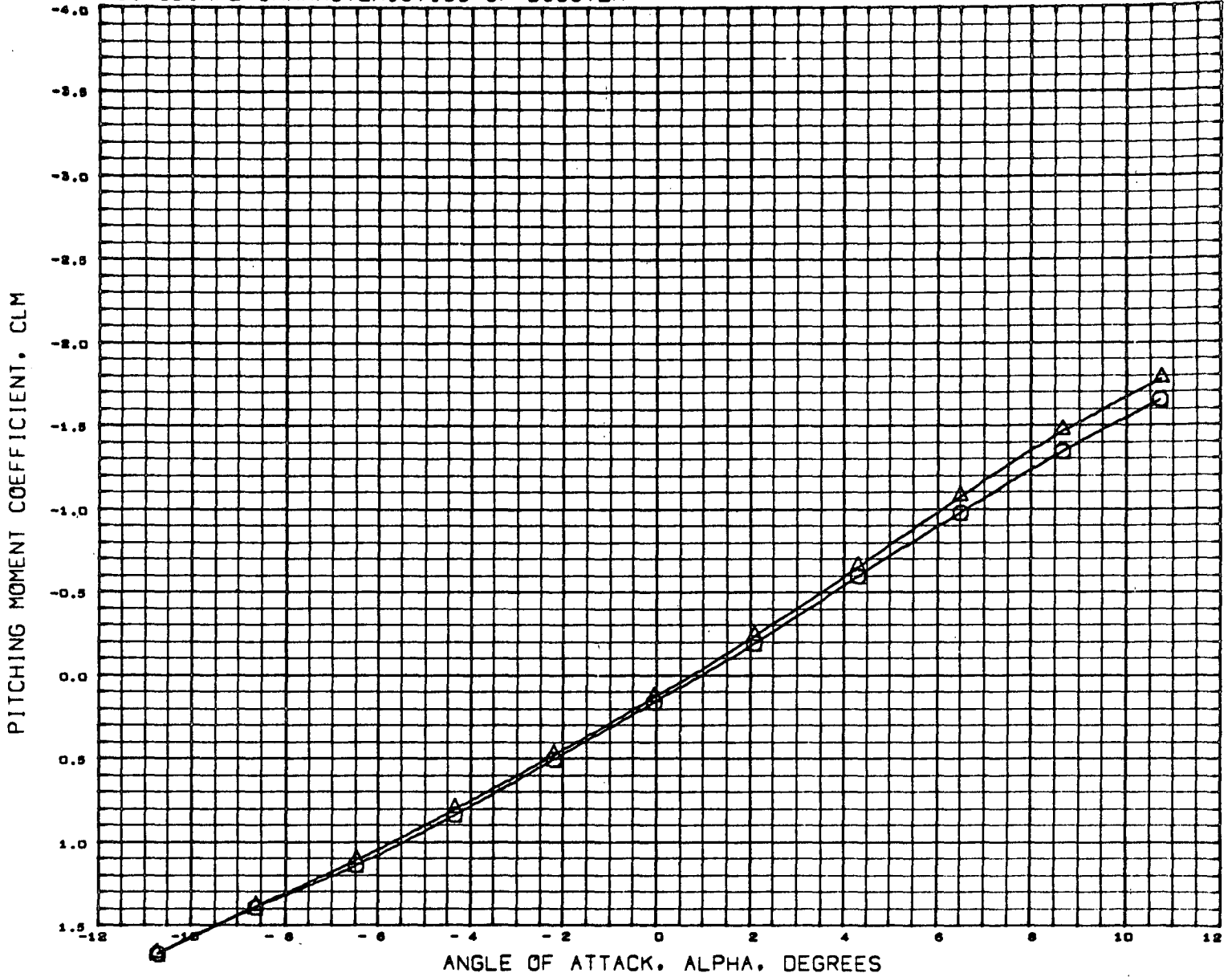
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(MS205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(MS206A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER



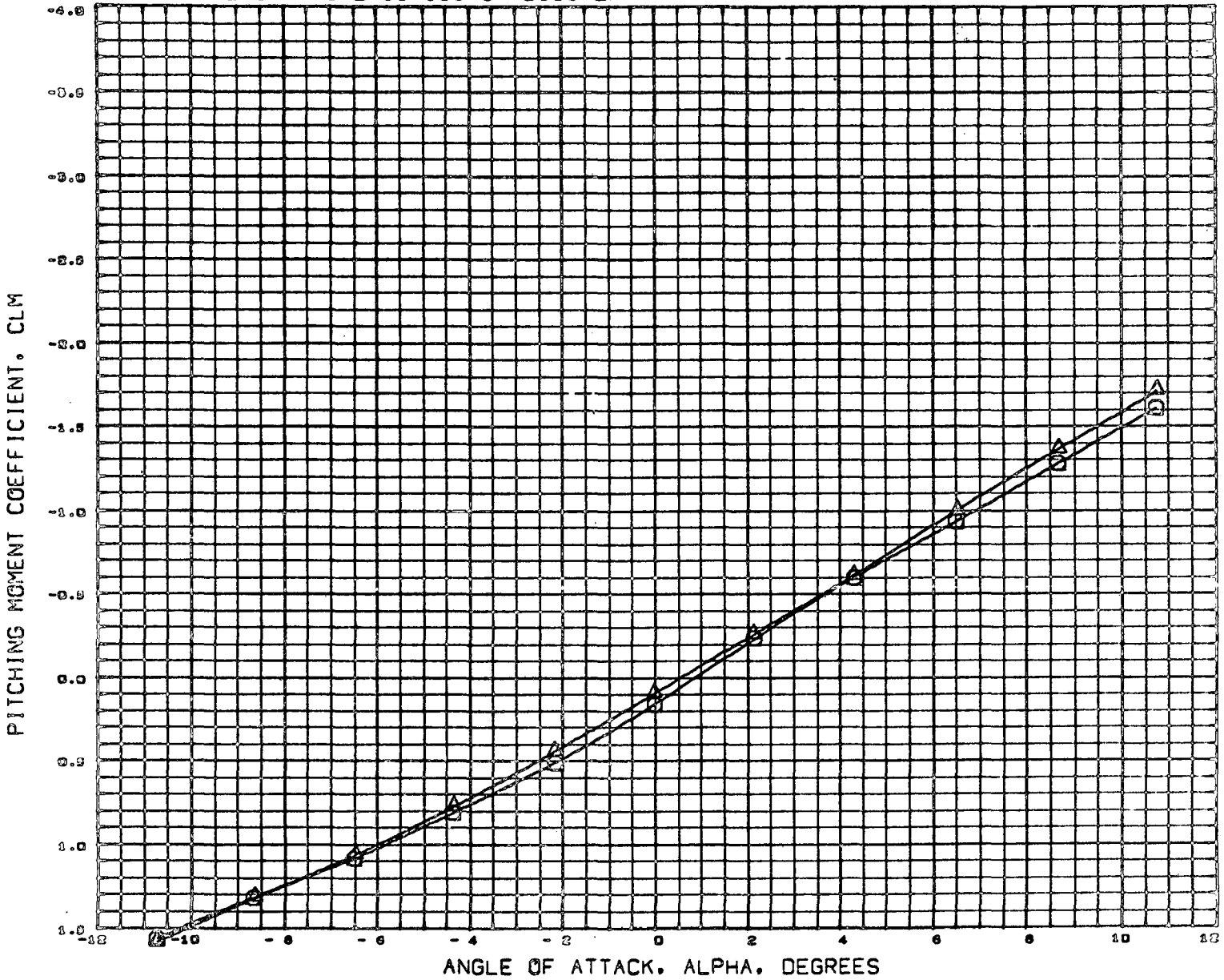
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	Sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



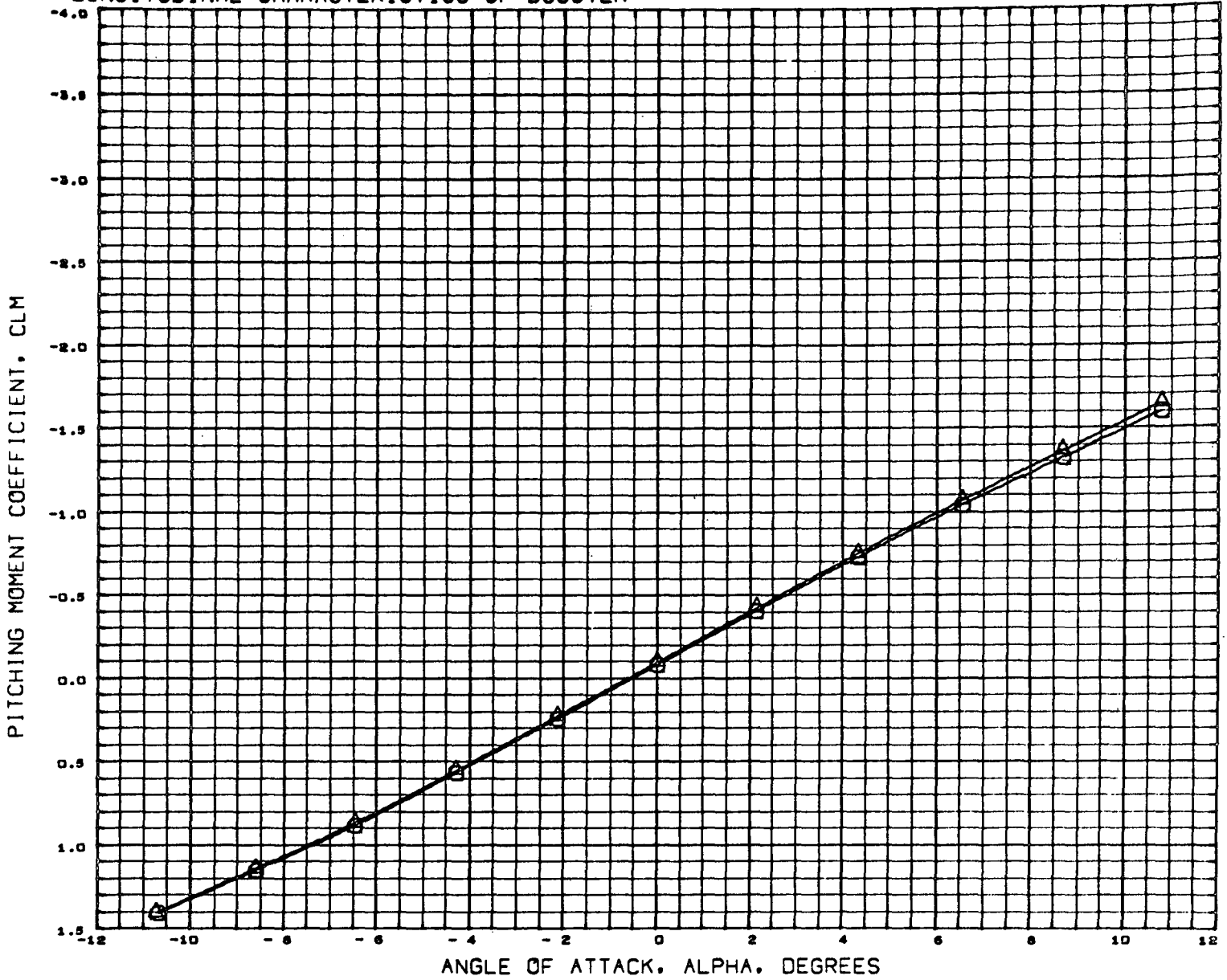
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M5205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V3
(M5206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6960 90 IN
LREF	3.0890 INCHES
BREF	6.0890 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0039 SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER



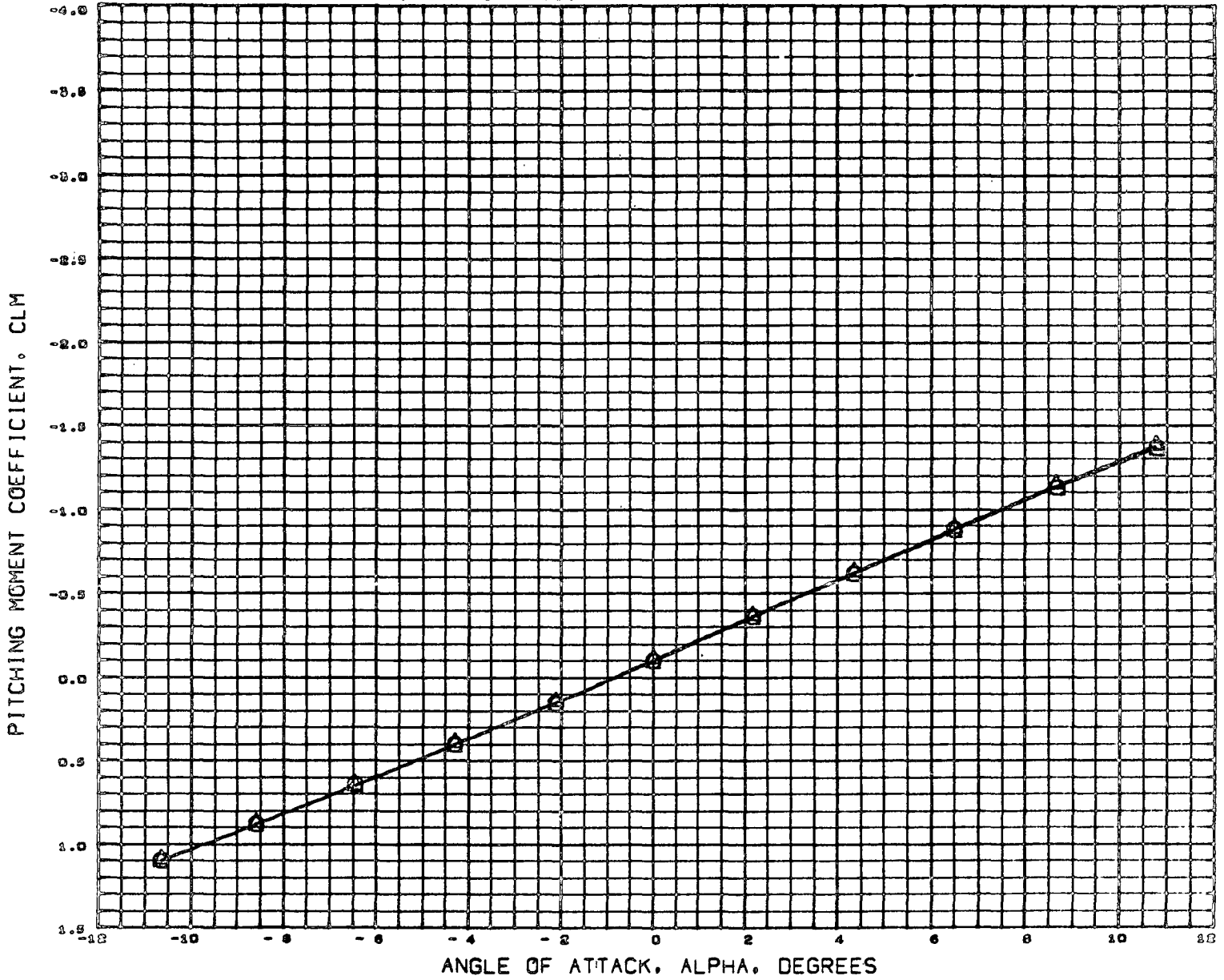
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C48W14V8
(H3206A) △	MSFC49D GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



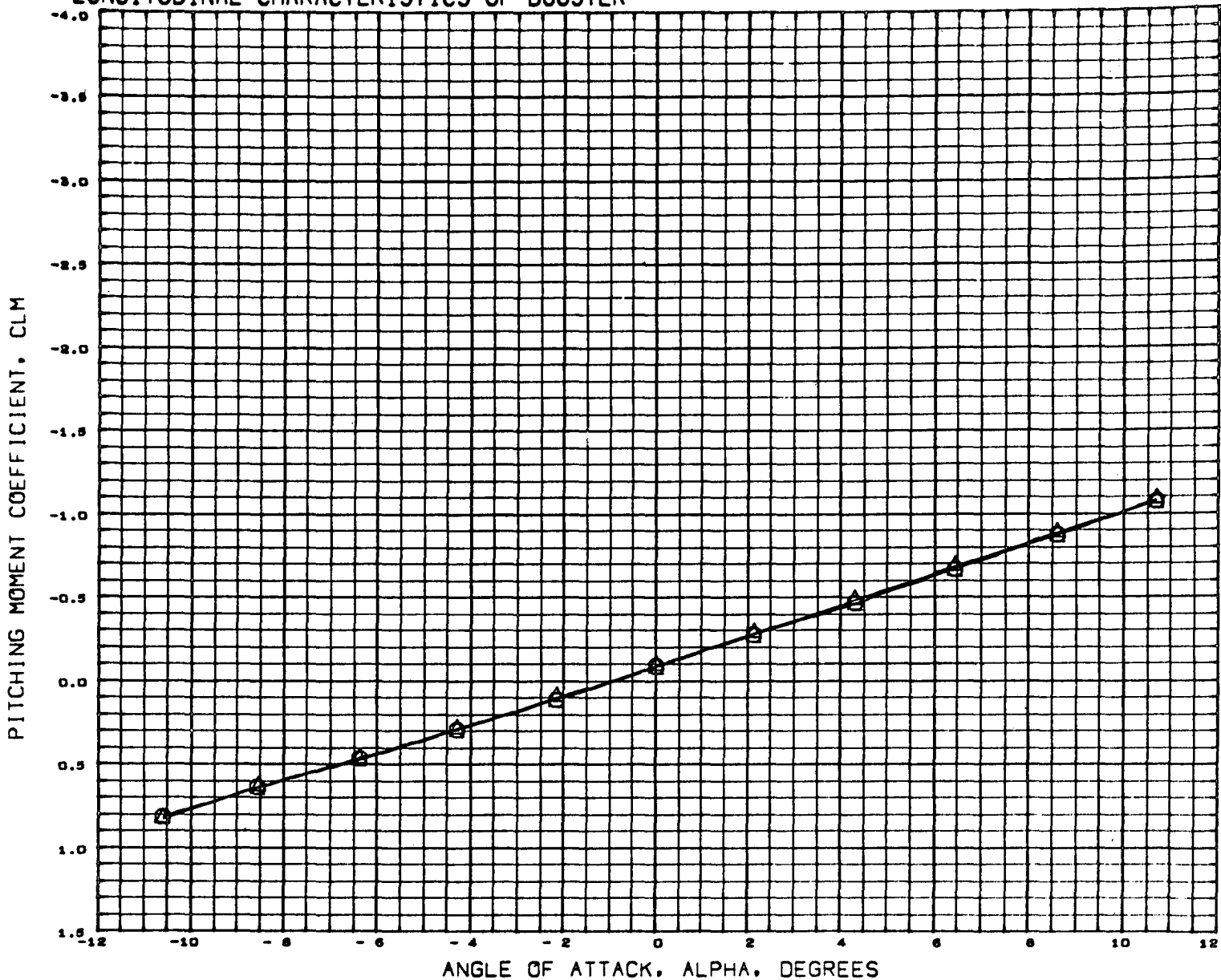
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	98 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

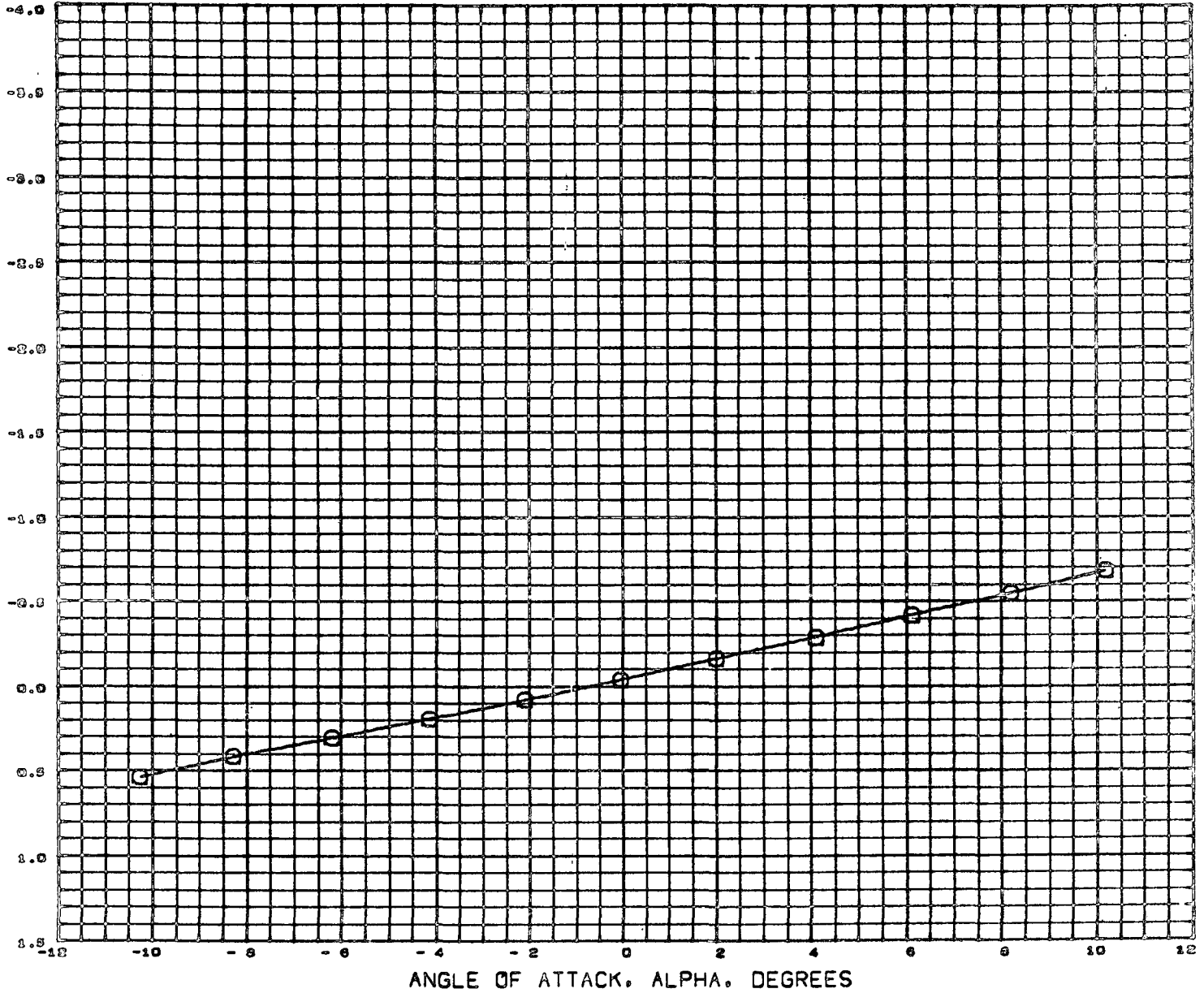
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

PITCHING MOMENT COEFFICIENT, CLM



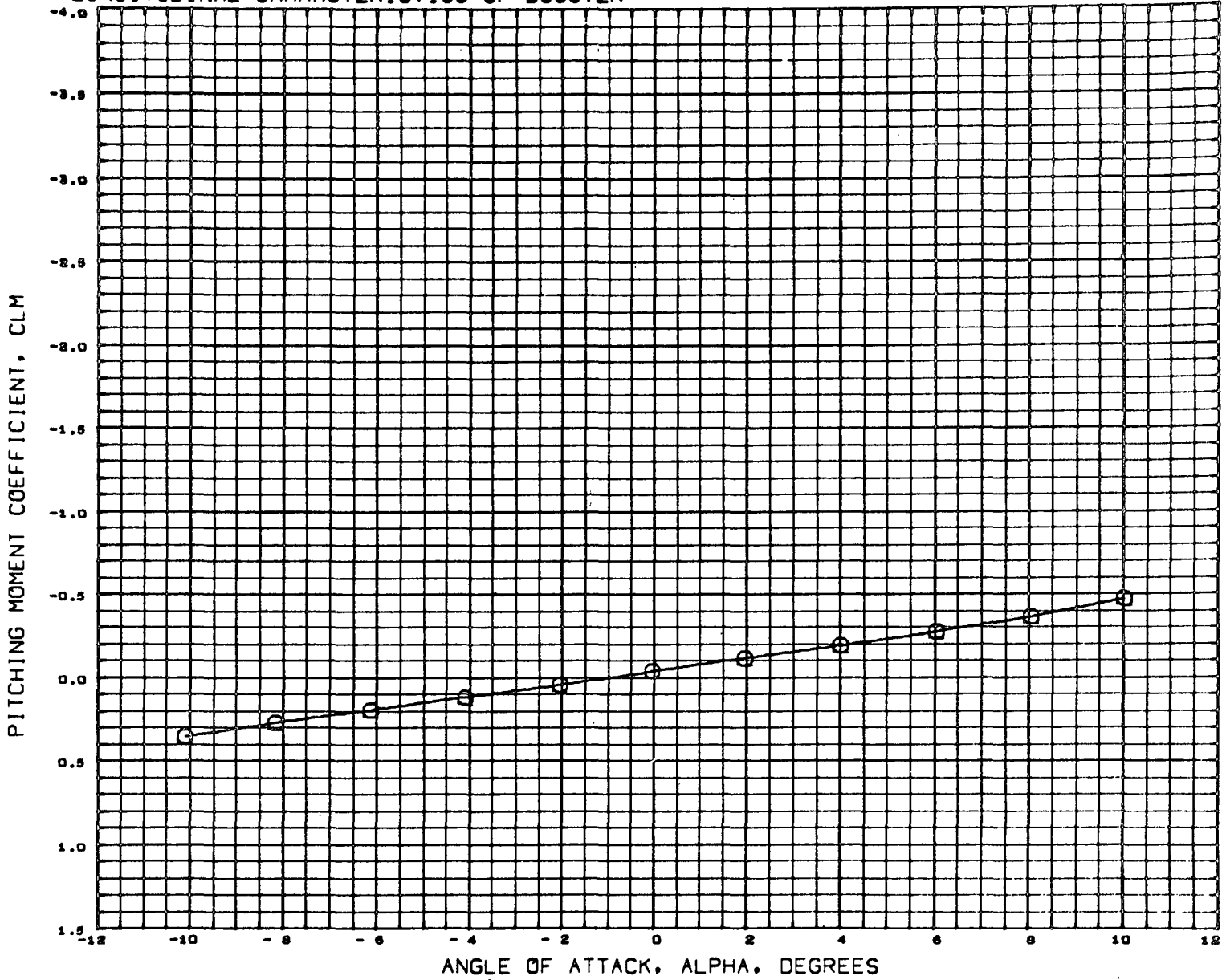
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (M3205A) MSFC490 GD DELTA BOOSTER B20C48W14V8
 (M3206A) DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA ELVATR AILRON
 0.000 0.000 0.000
 0.000 0.000 10.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 G0 DELTA BOOSTER B20C48W14V8
(H3206A) △	DATA NOT AVAILABLE FOR ALL CONDITIONS

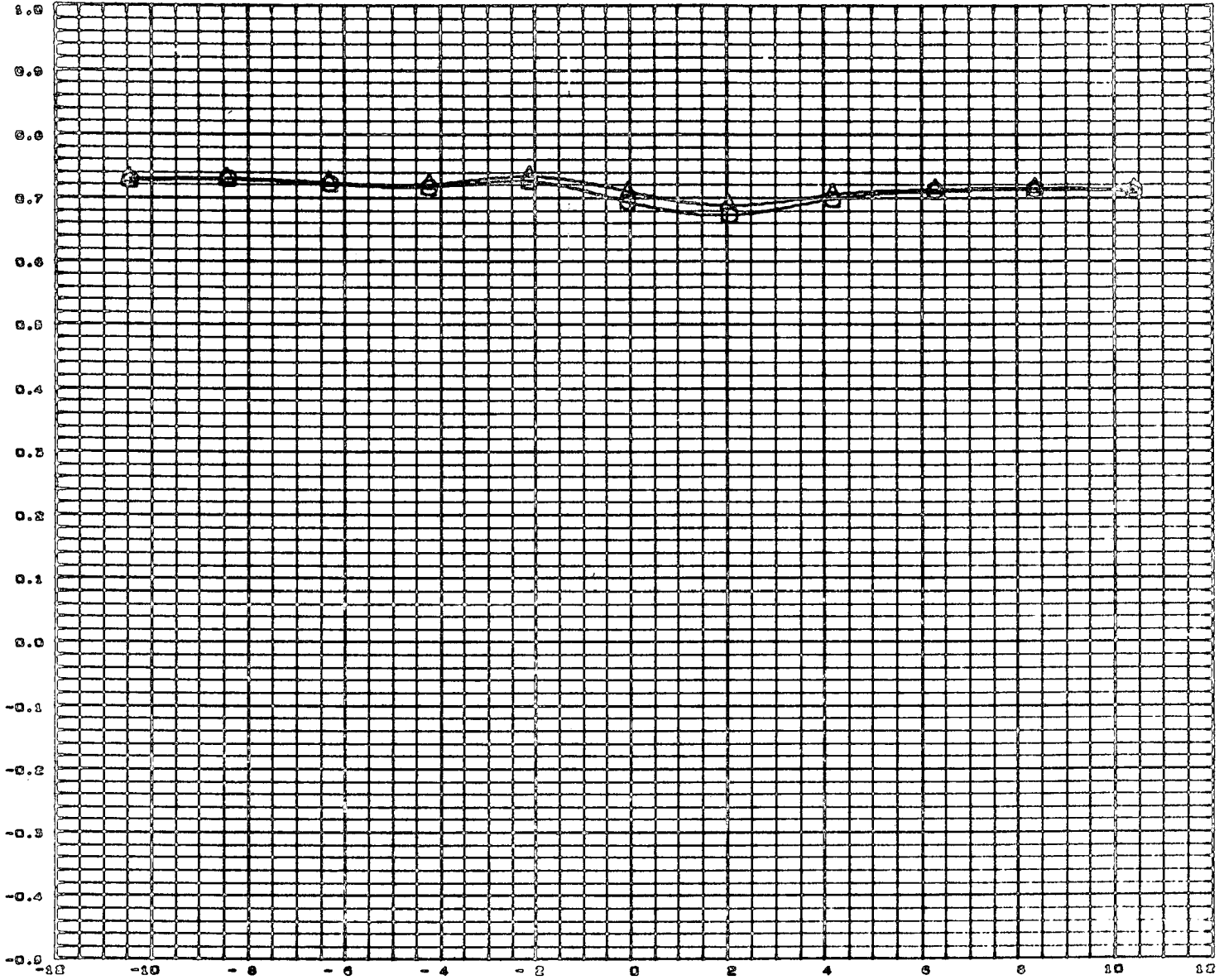
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

CENTER OF PRESSURE REFERENCED TO BODY LENGTH, XCP/L



ANGLE OF ATTACK, ALPHA, DEGREES

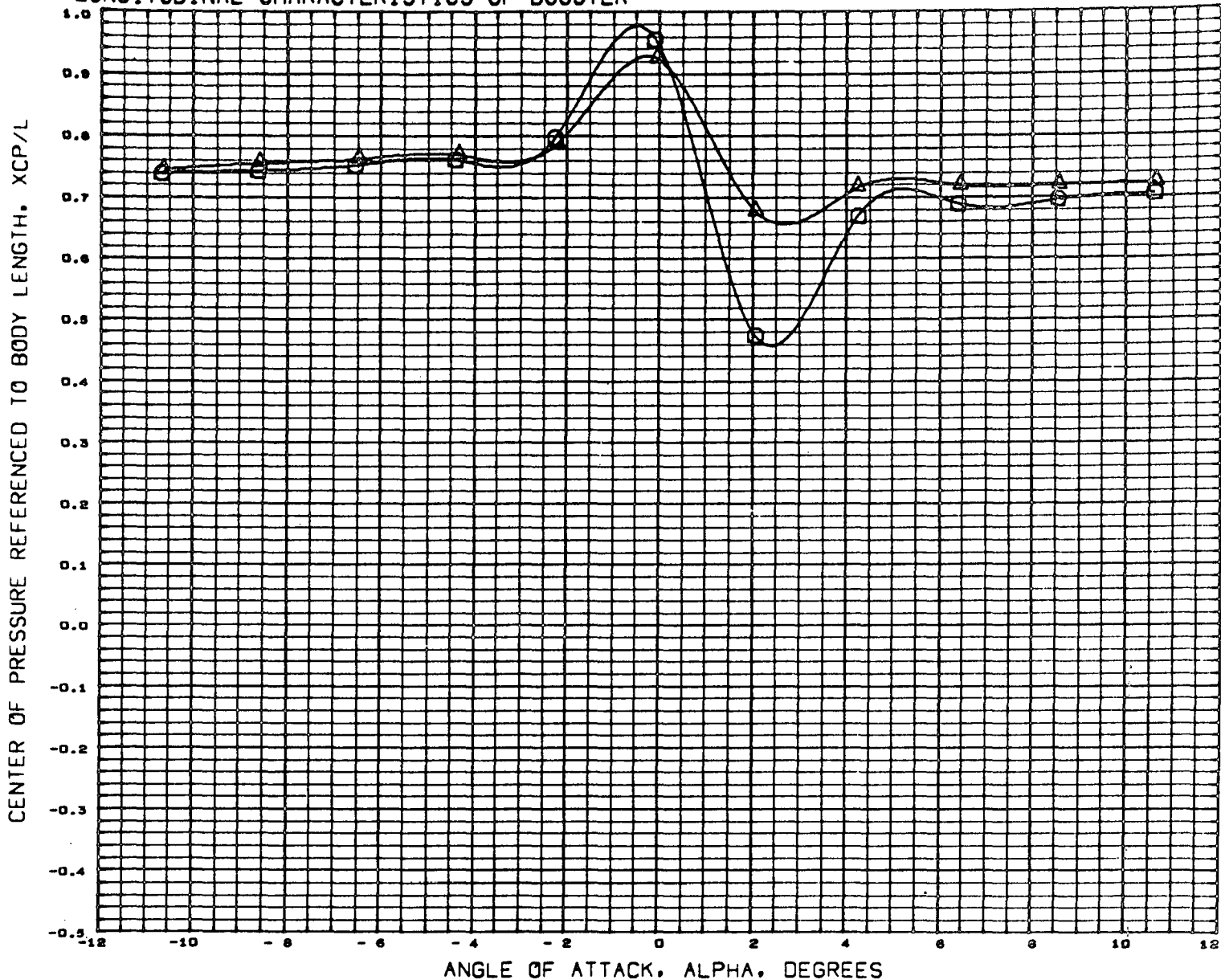
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSPC400 GD DELTA BOOSTER B20C4BW14V6
(M3208A)	MSPC400 GD DELTA BOOSTER B20C4BW14V6

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	19.6500	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.006

LONGITUDINAL CHARACTERISTICS OF BOOSTER



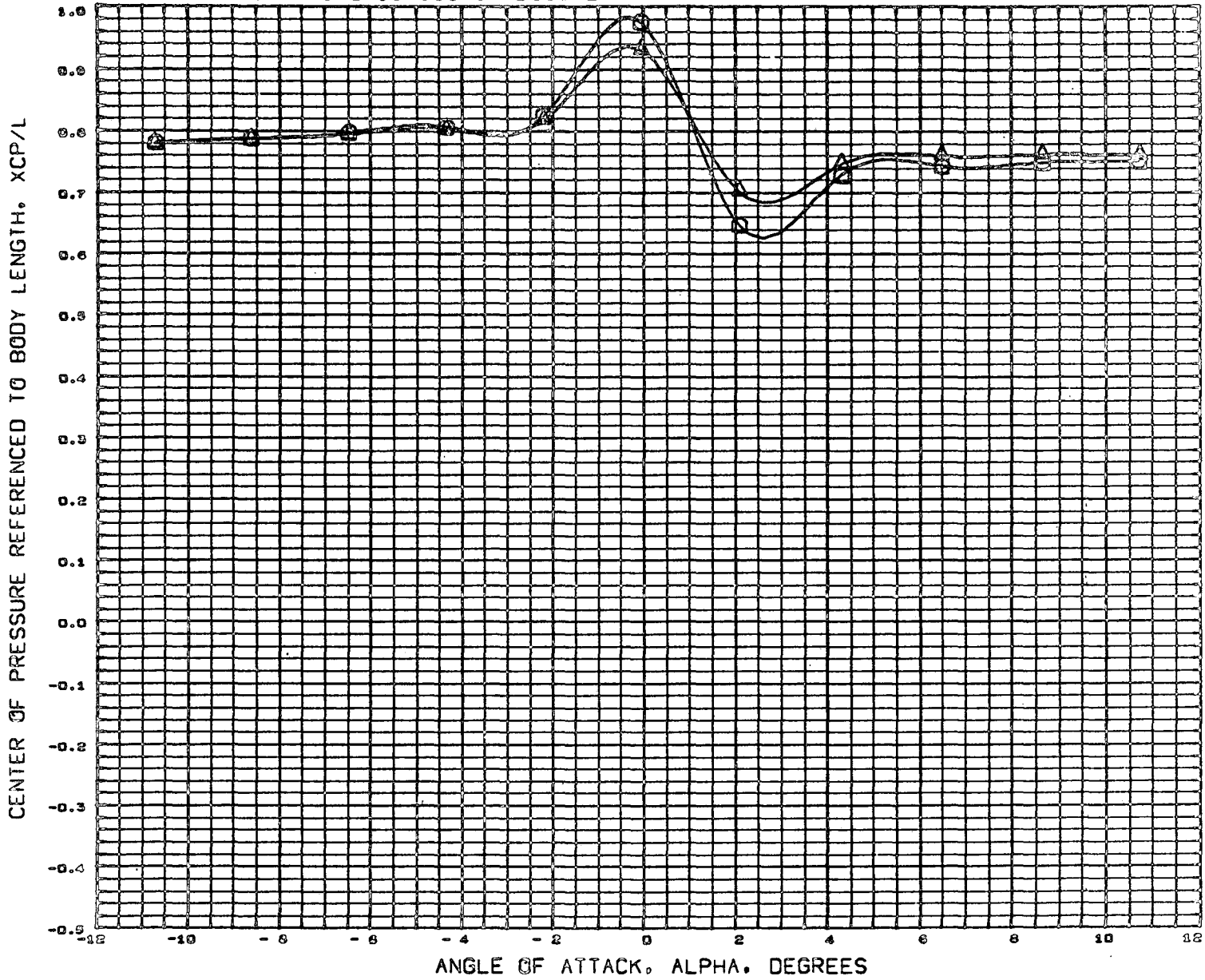
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER



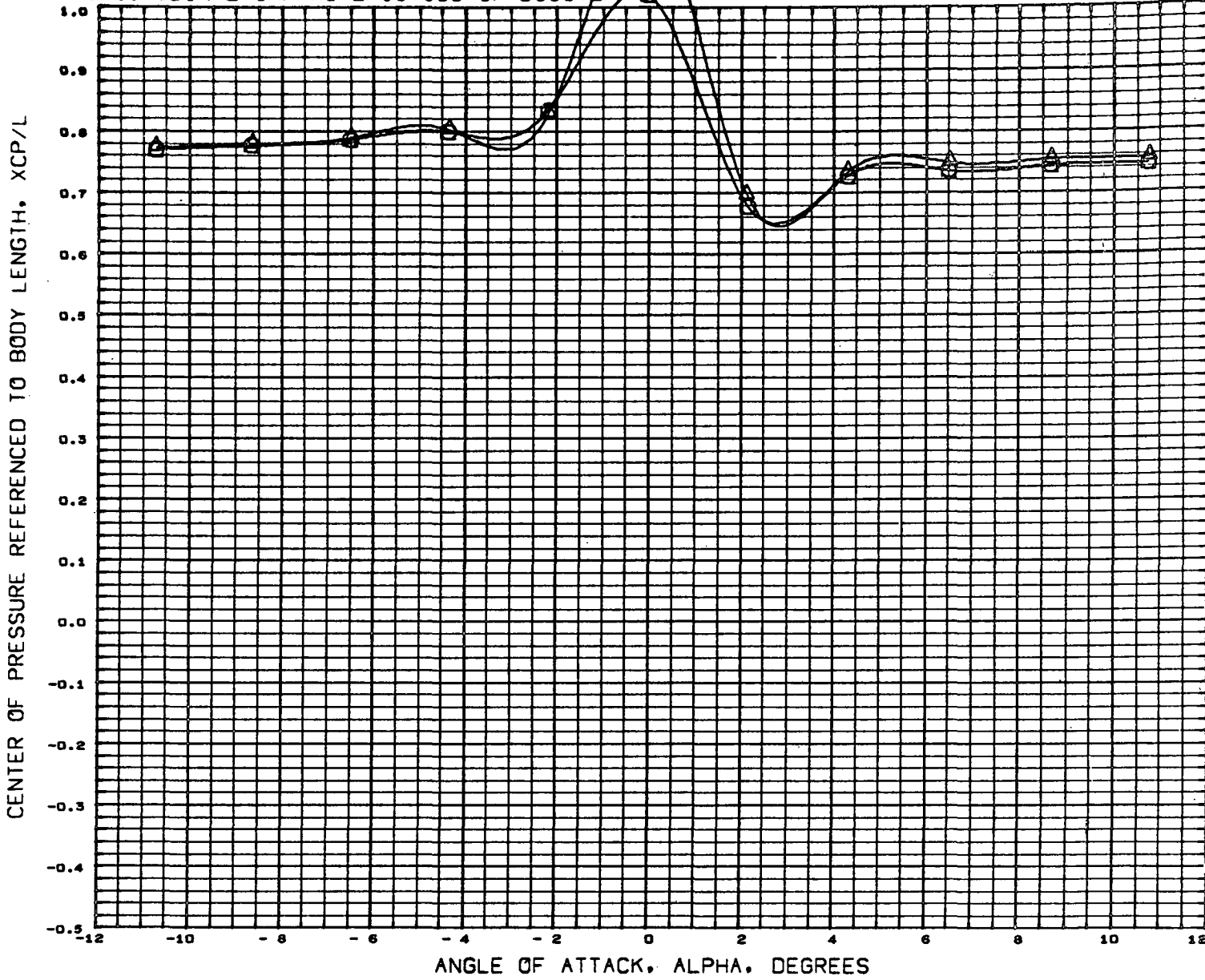
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M9205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M9206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0095	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



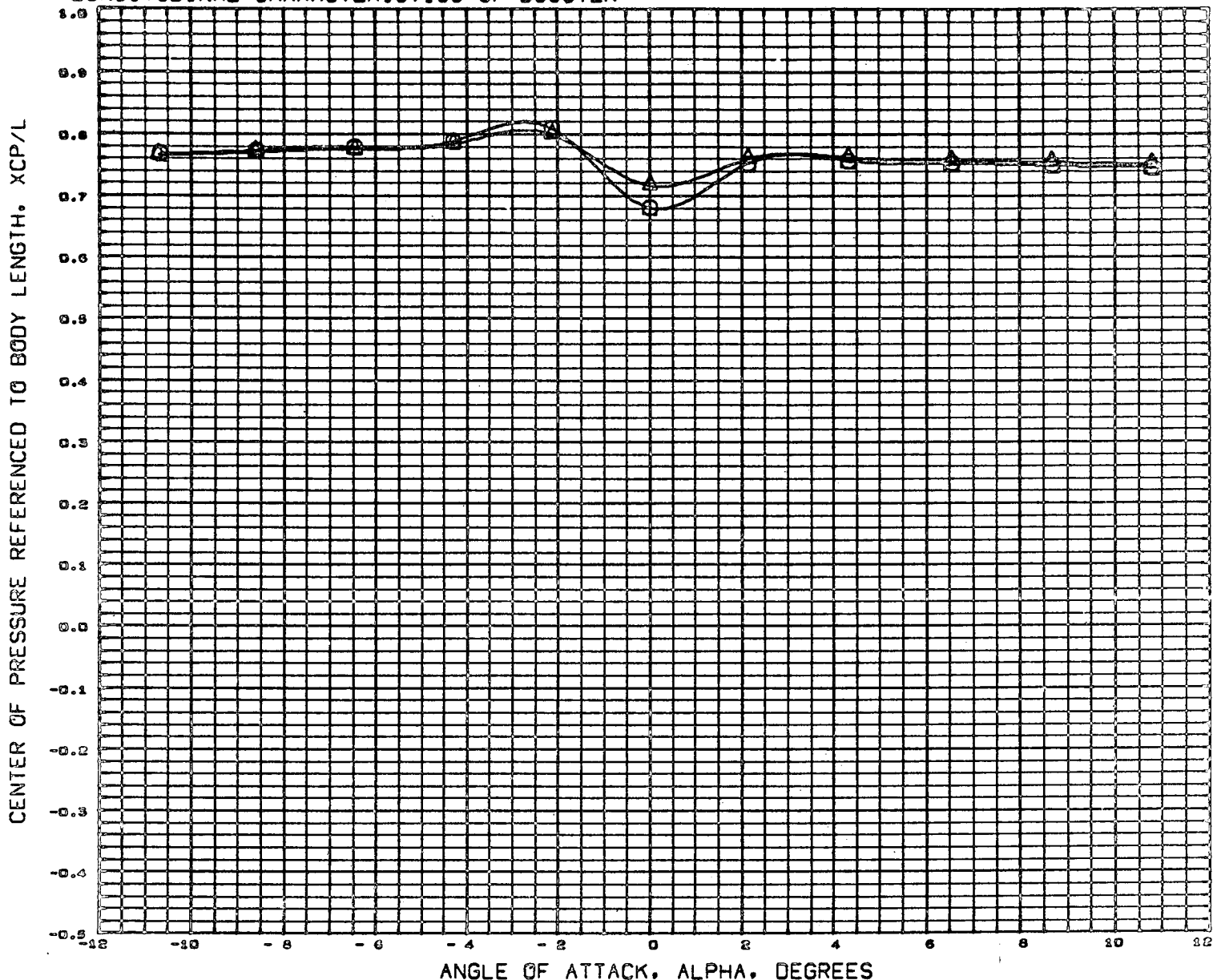
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER



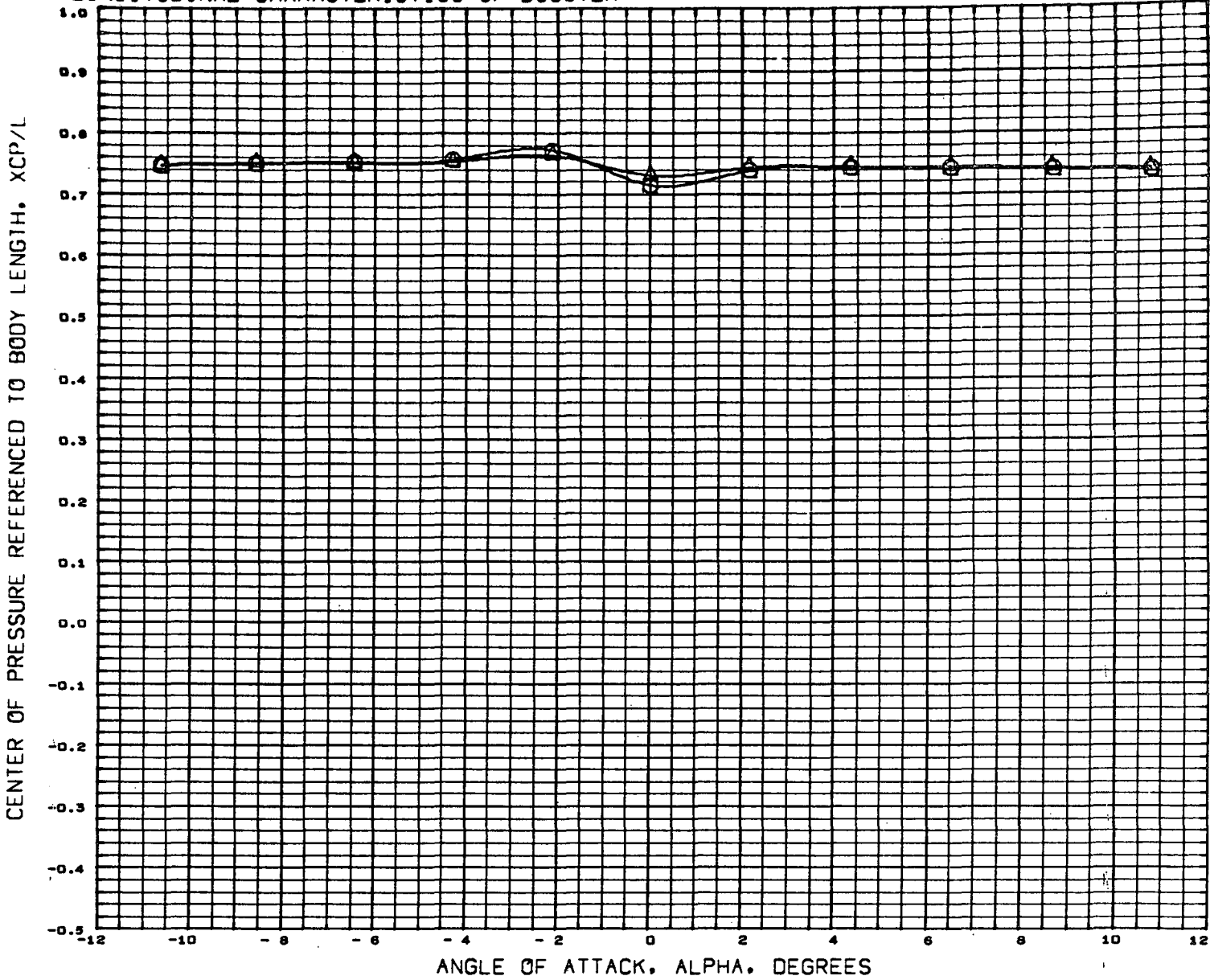
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XHRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



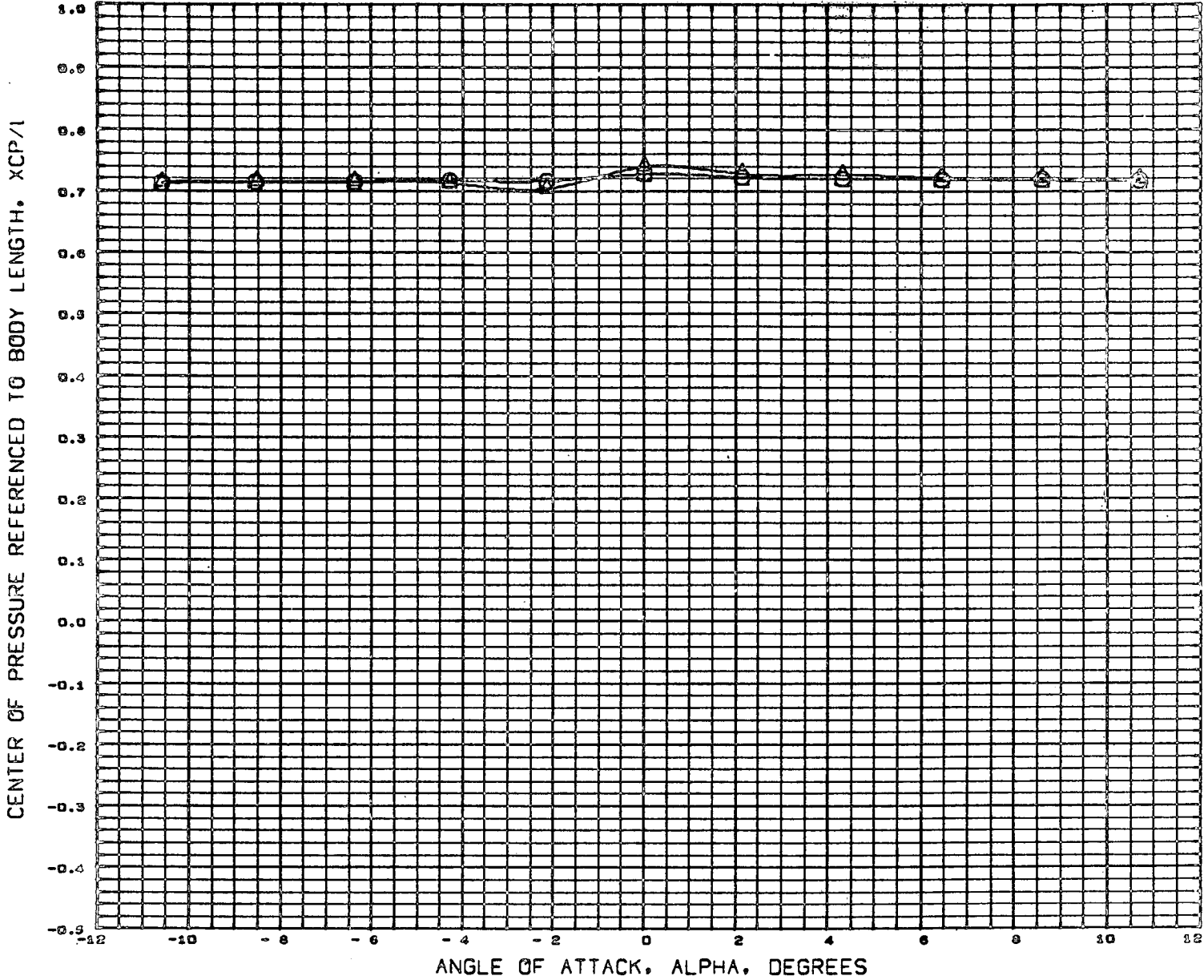
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



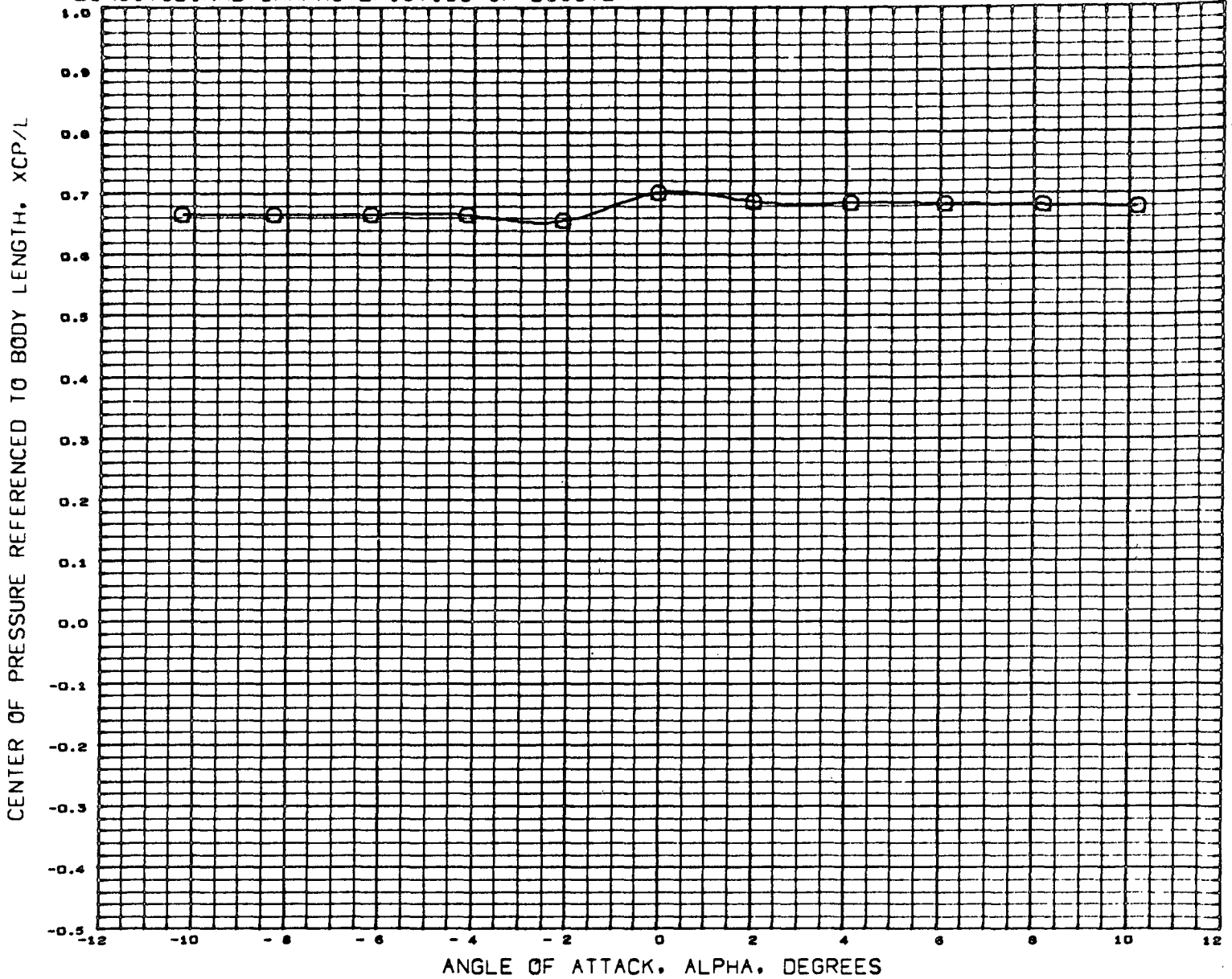
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	19.6560	SQ IN
LREF	3.6950	INCHES
BREF	6.0990	INCHES
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



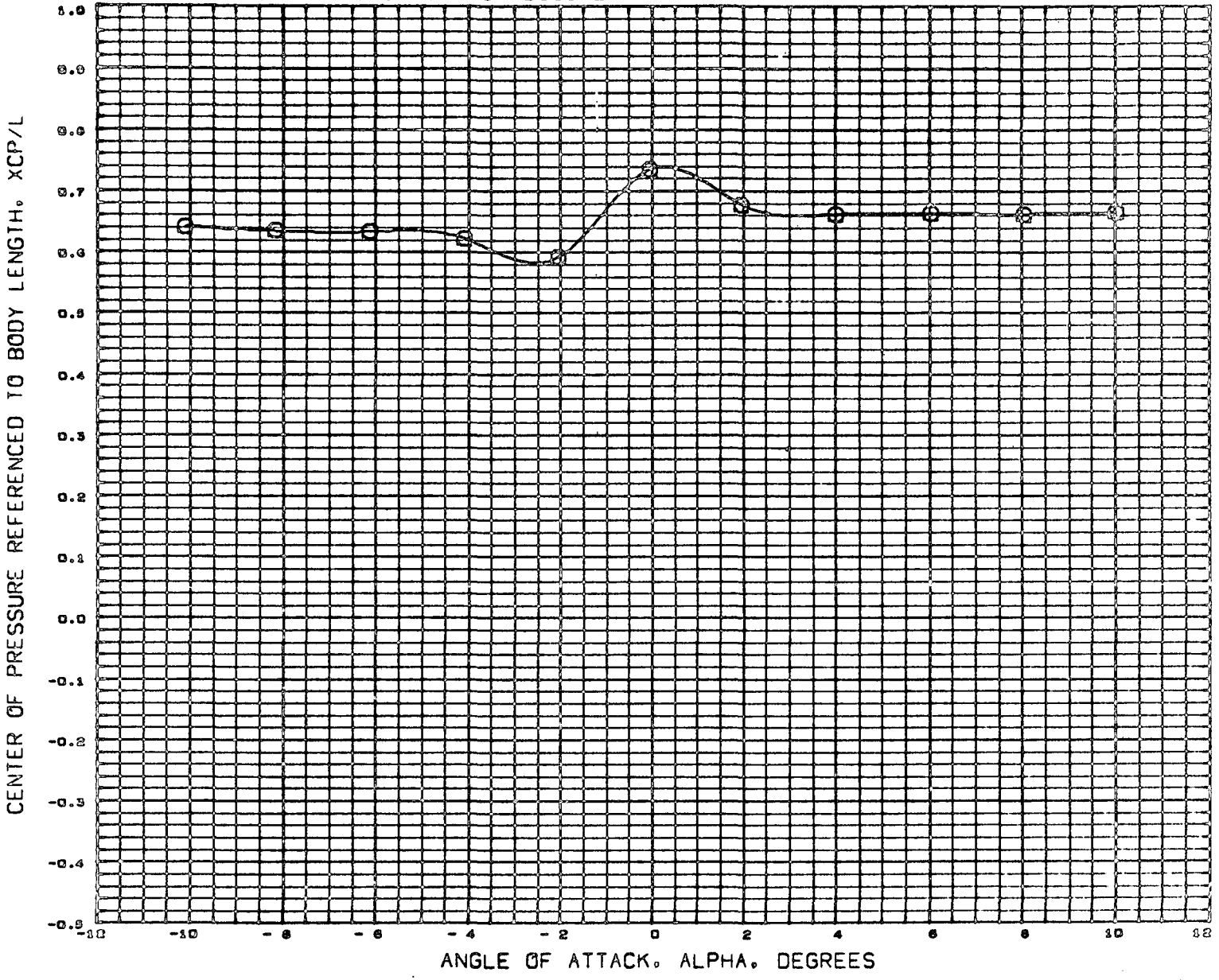
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
YMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



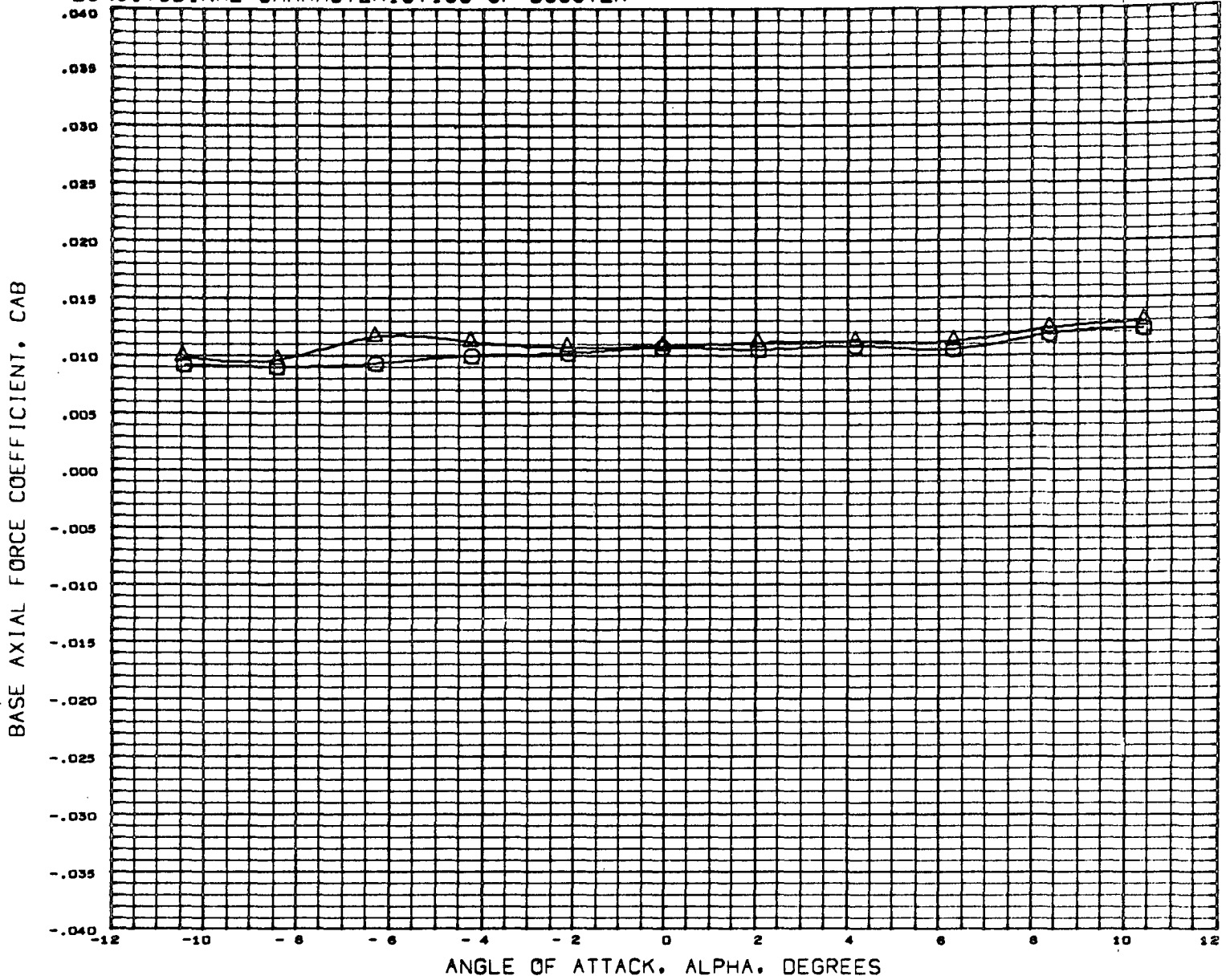
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (M3209A) MSFC490 GD DELTA BOOSTER B20C48W14V8
 (M3206A) DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA ELVATR AILRON
 0.000 0.000 0.000
 0.000 0.000 10.000

REFERENCE INFORMATION
 SREF 15.6960 90 IN
 LREF 3.0990 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0099 SCALE

MACH 4.939

LONGITUDINAL CHARACTERISTICS OF BOOSTER



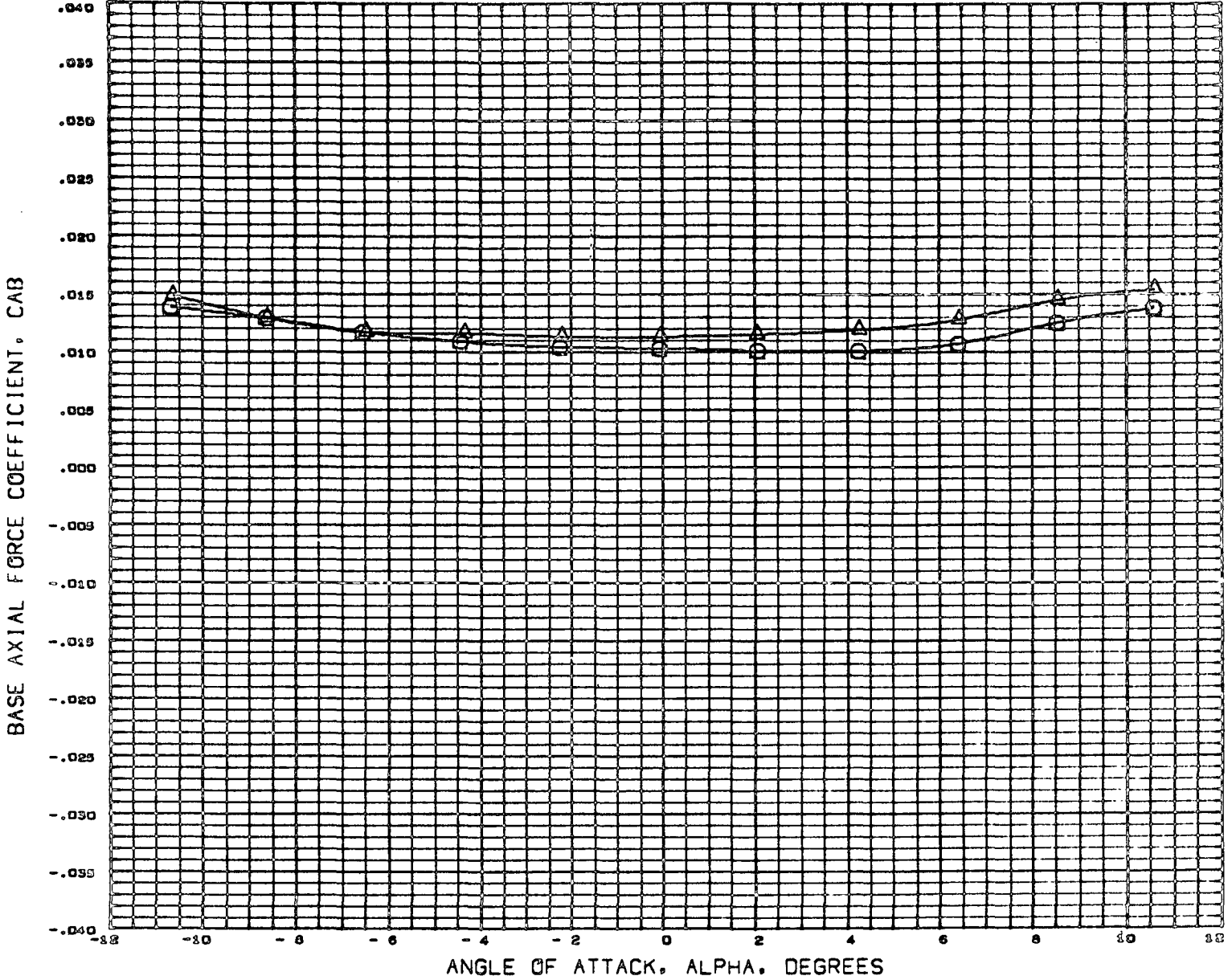
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

LONGITUDINAL CHARACTERISTICS OF BOOSTER



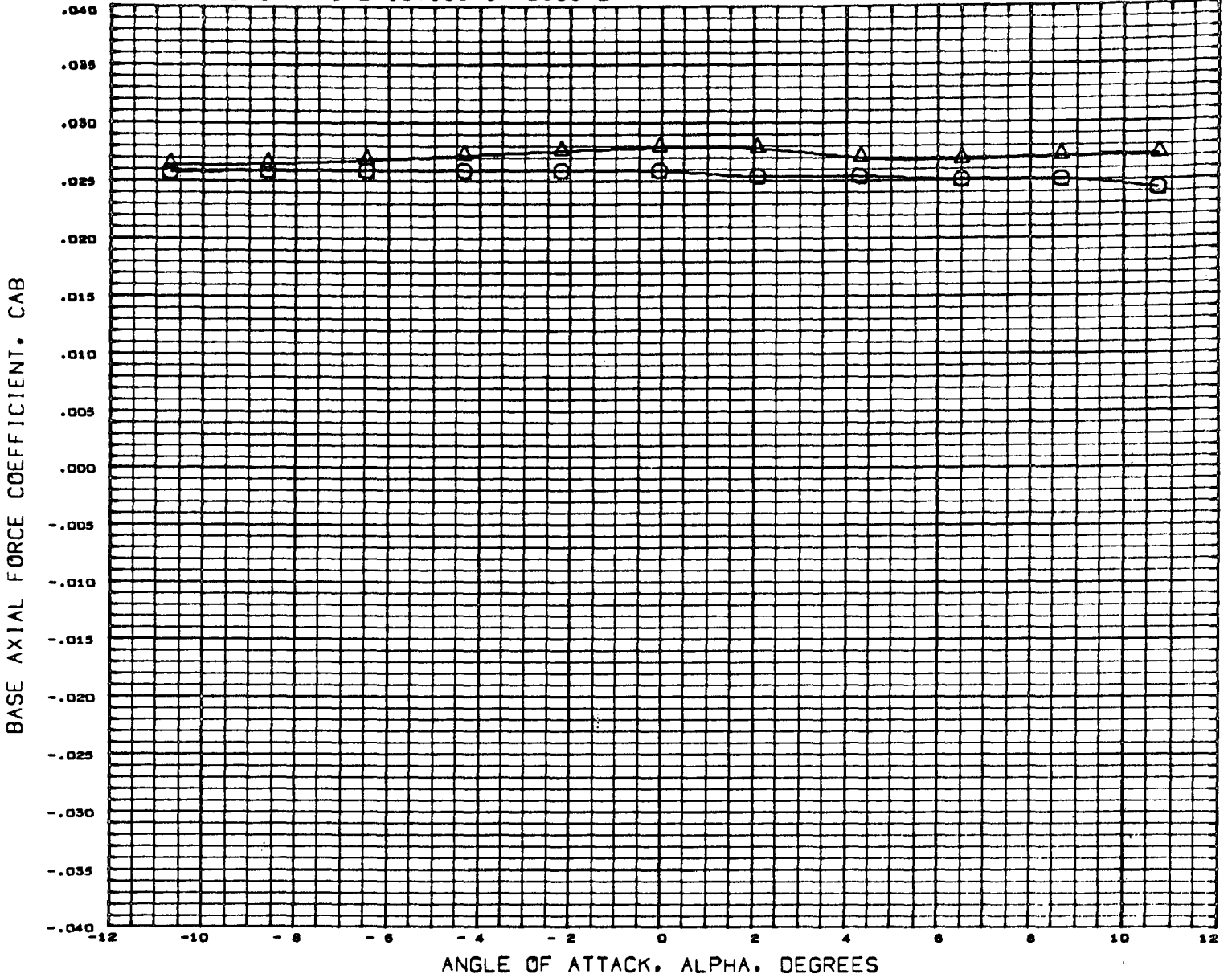
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER



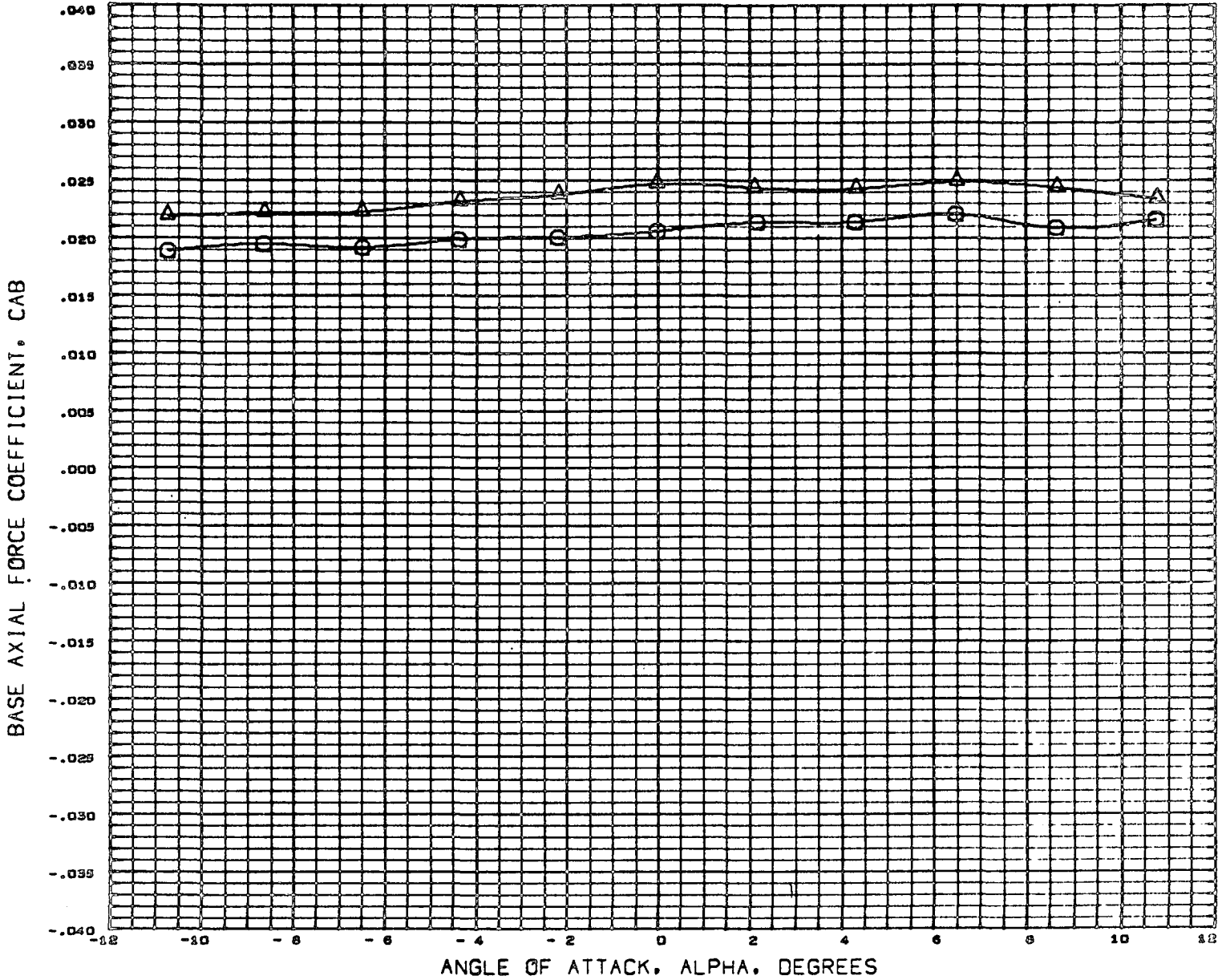
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



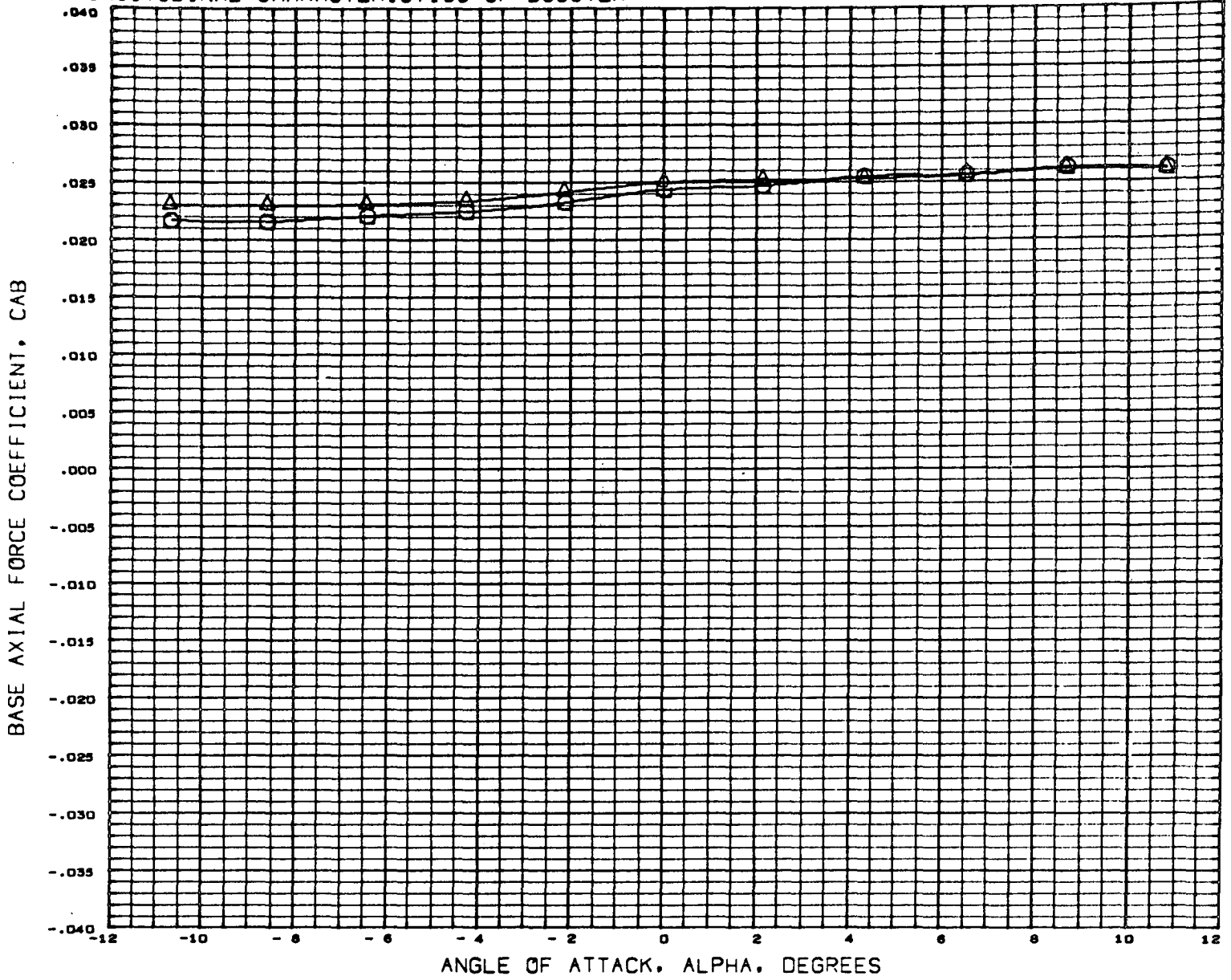
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER



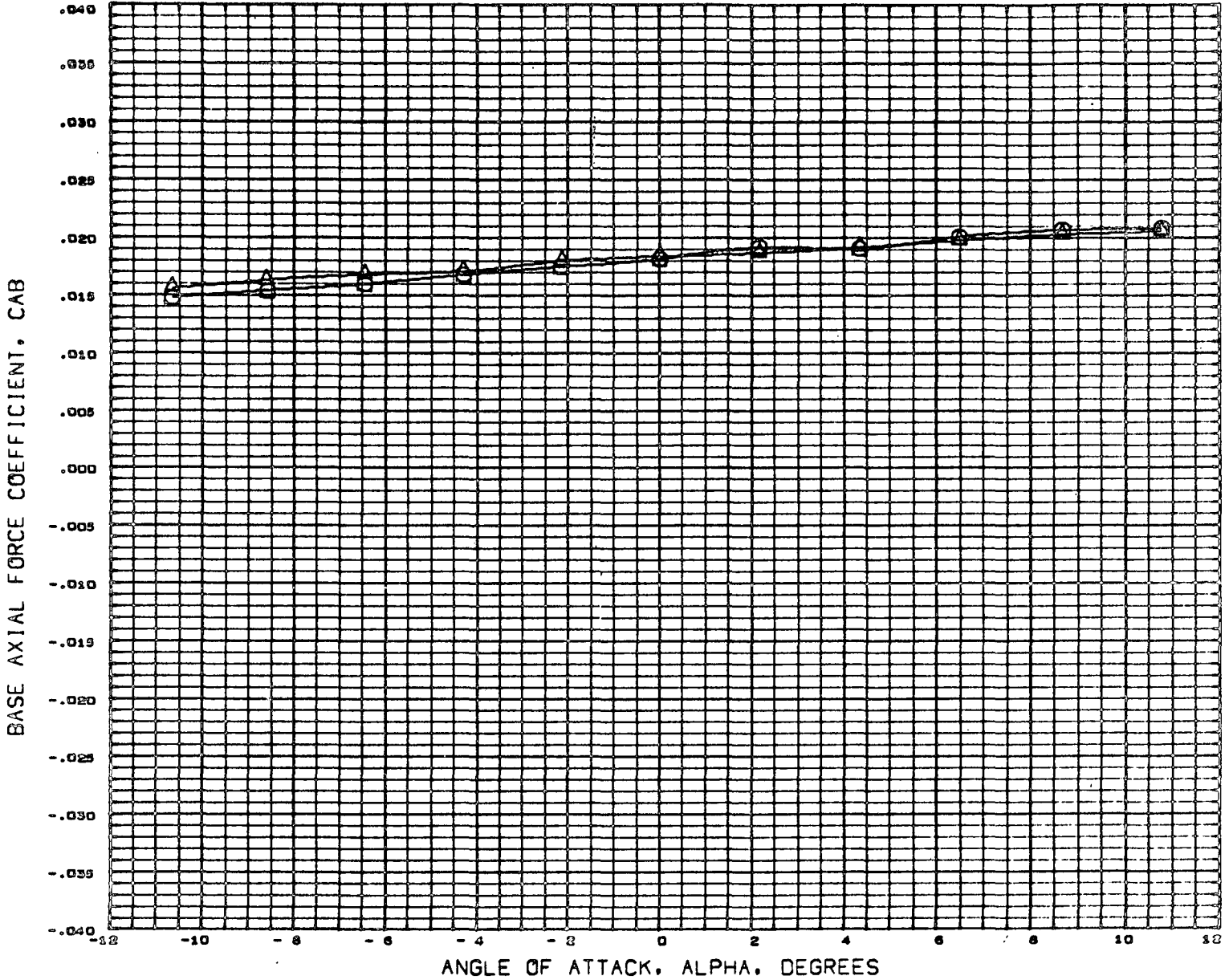
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6360	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



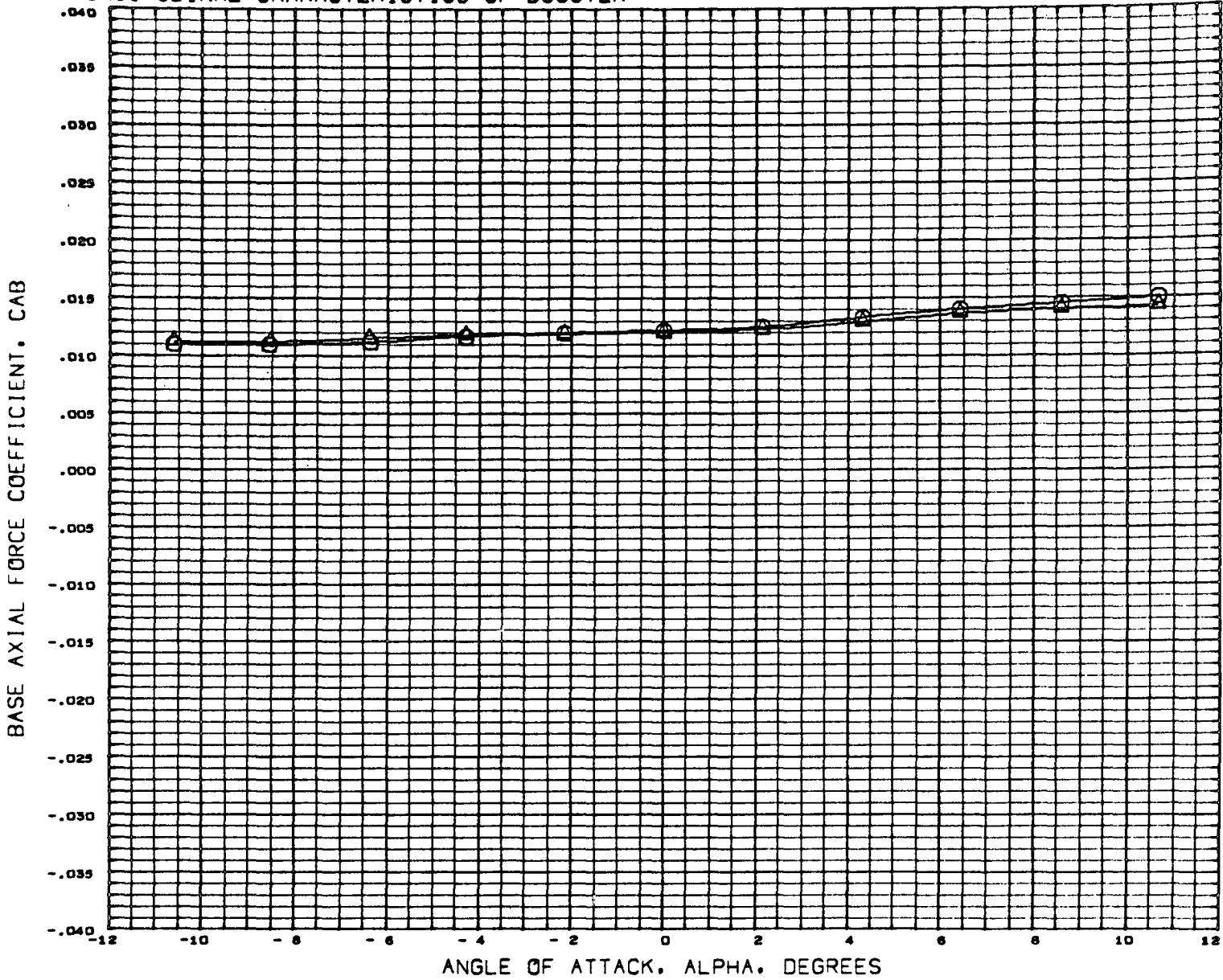
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



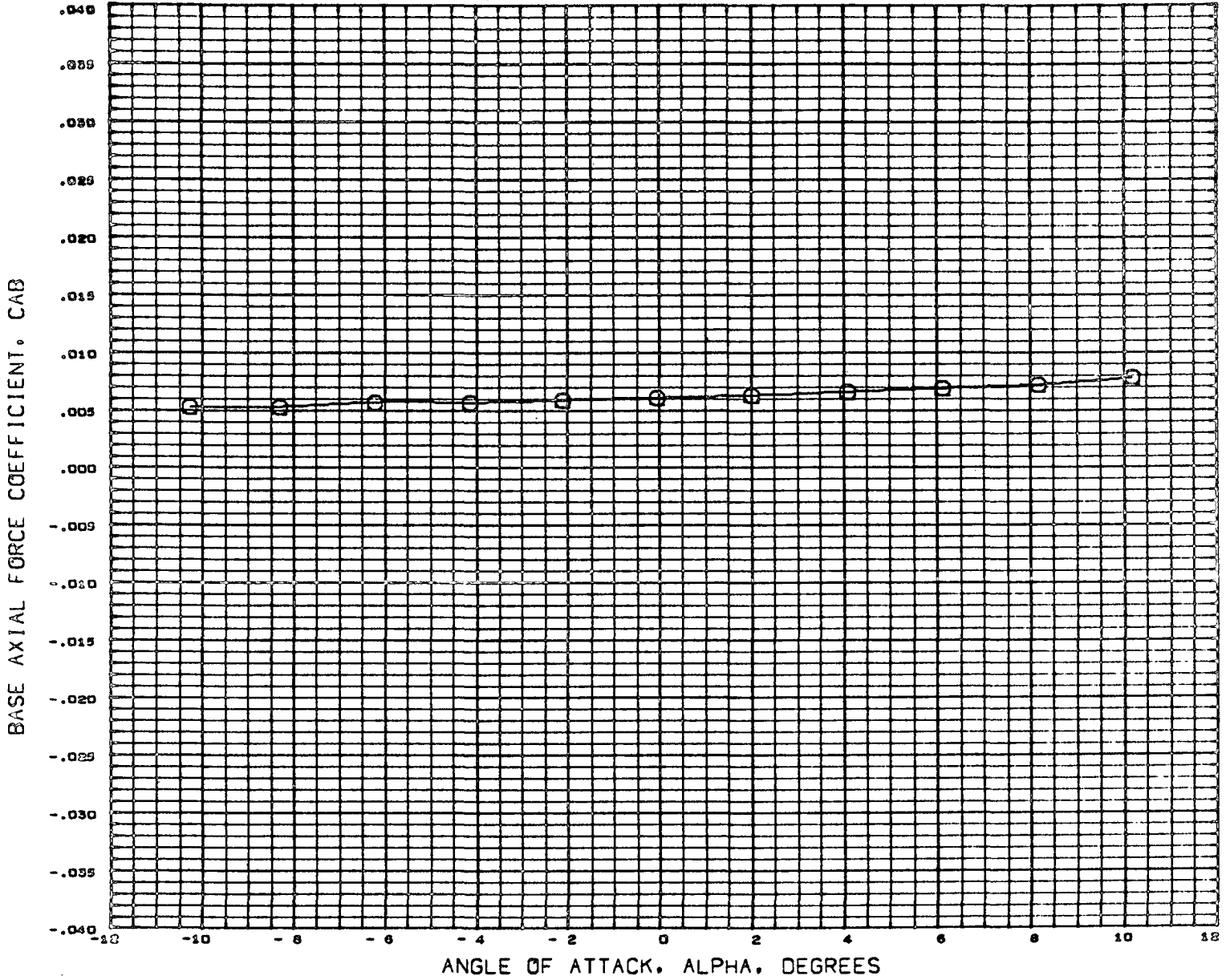
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER 820C4BW14V8
(H3206A)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	89 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	DATA NOT AVAILABLE FOR ALL CONDITIONS

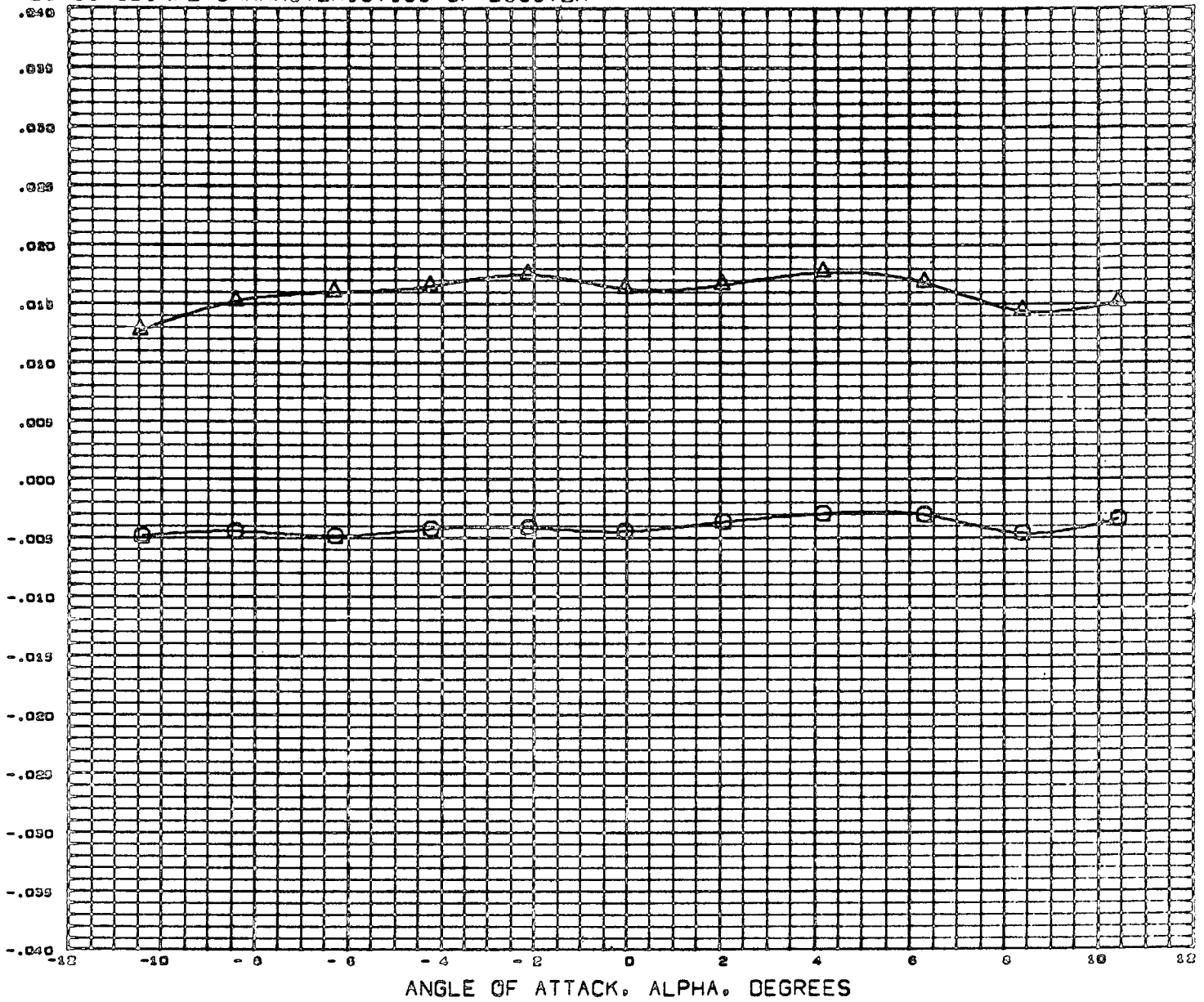
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



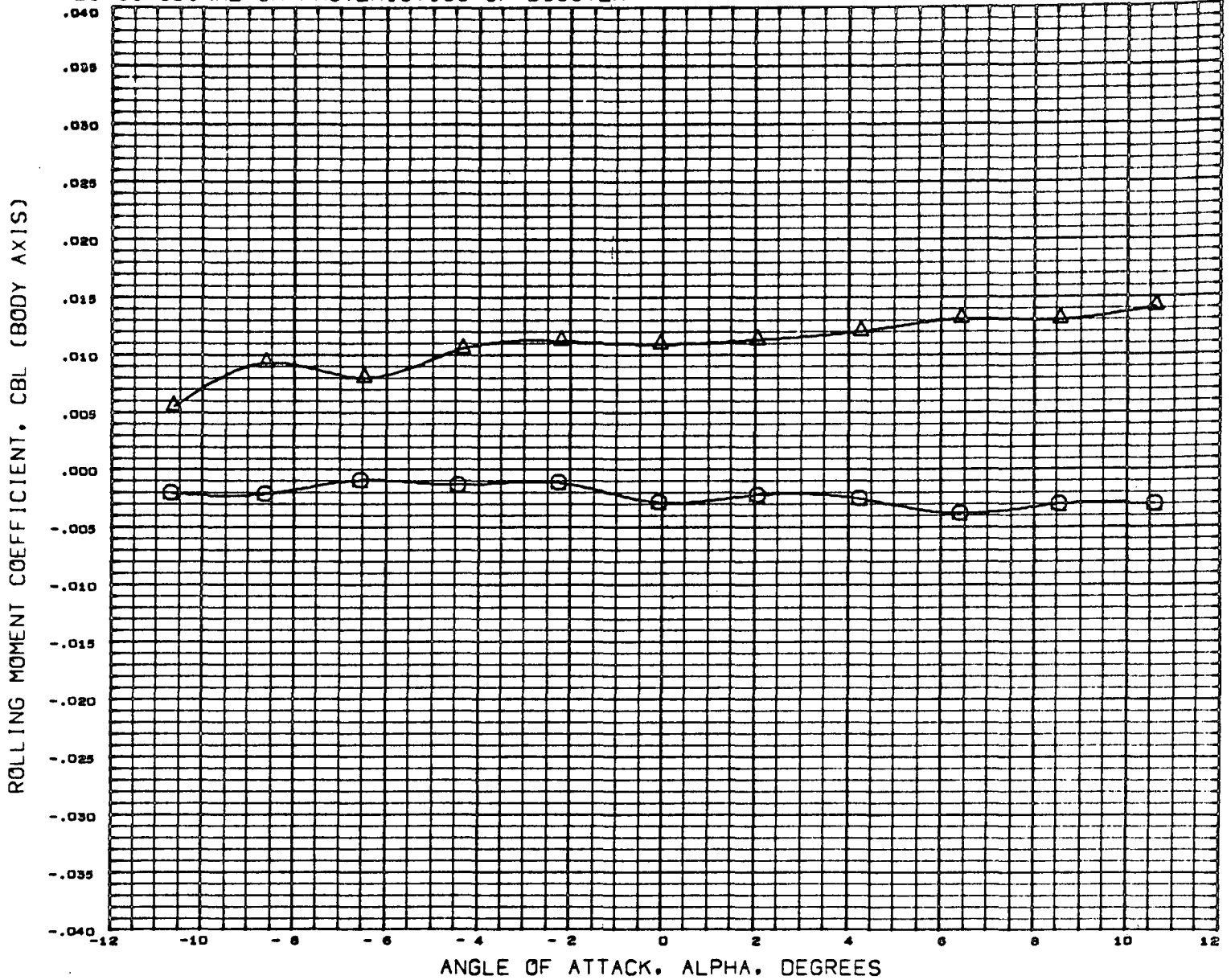
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V9
(M3208A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.606

LONGITUDINAL CHARACTERISTICS OF BOOSTER



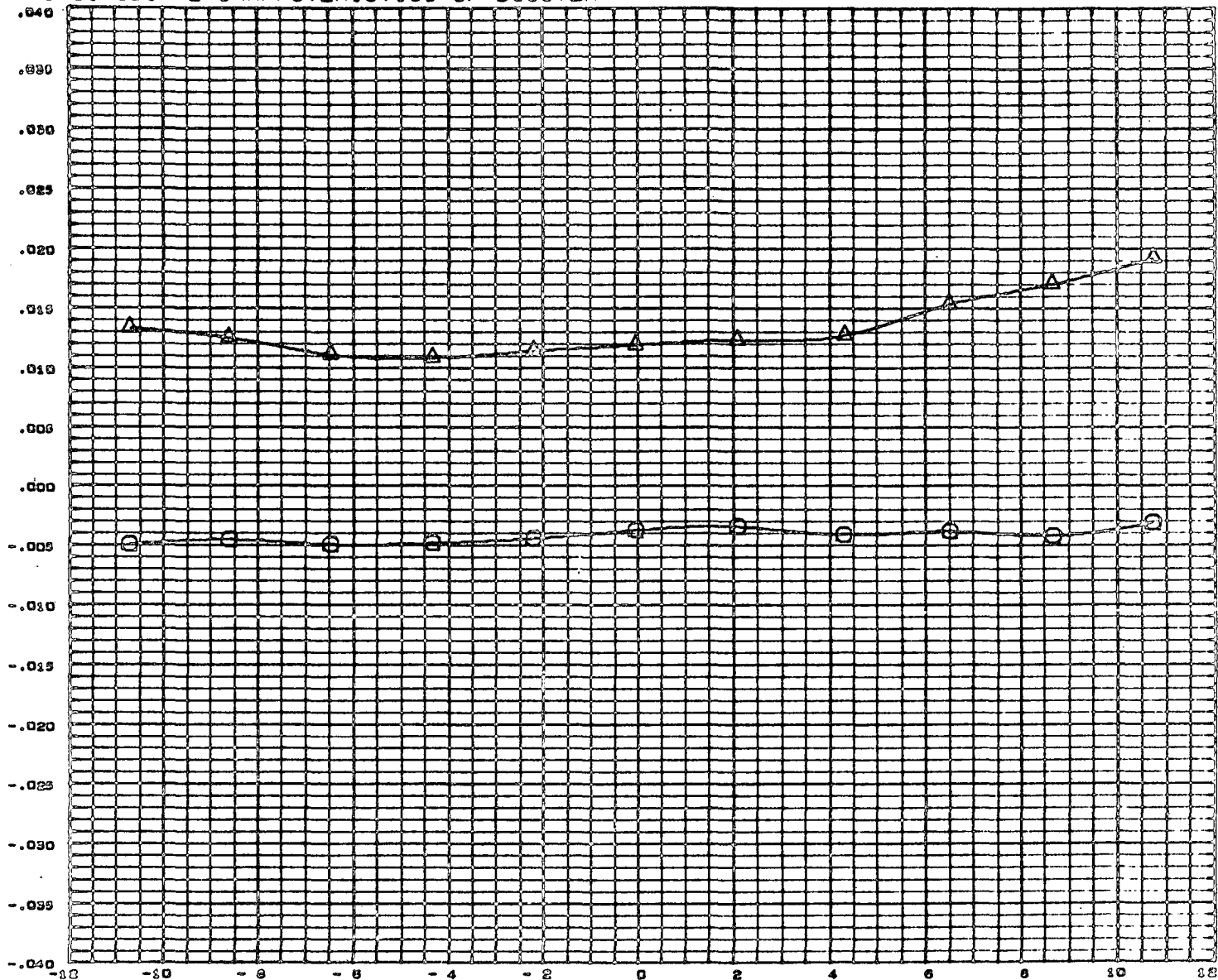
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	Sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



ANGLE OF ATTACK, ALPHA, DEGREES

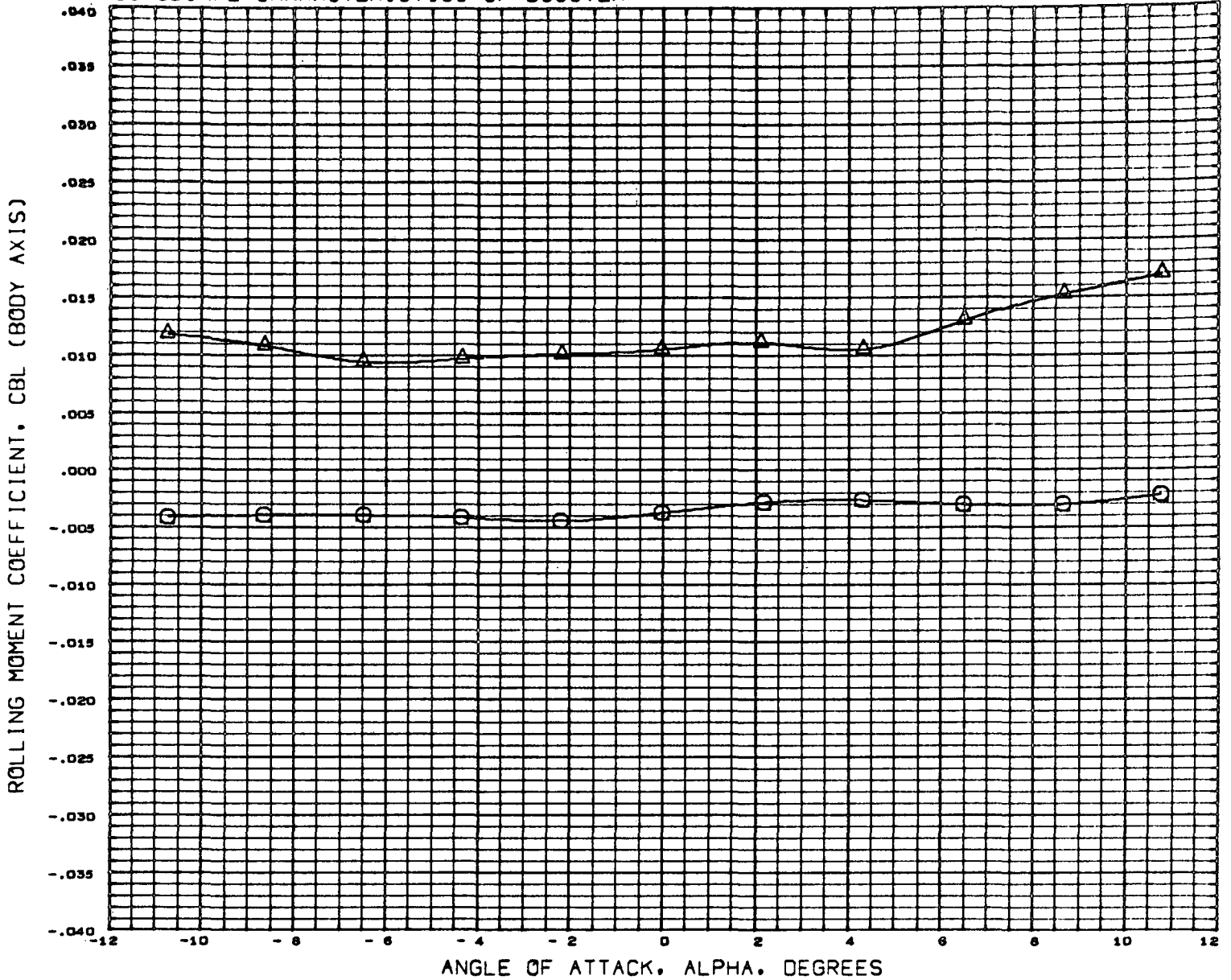
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(M3200A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.998

LONGITUDINAL CHARACTERISTICS OF BOOSTER



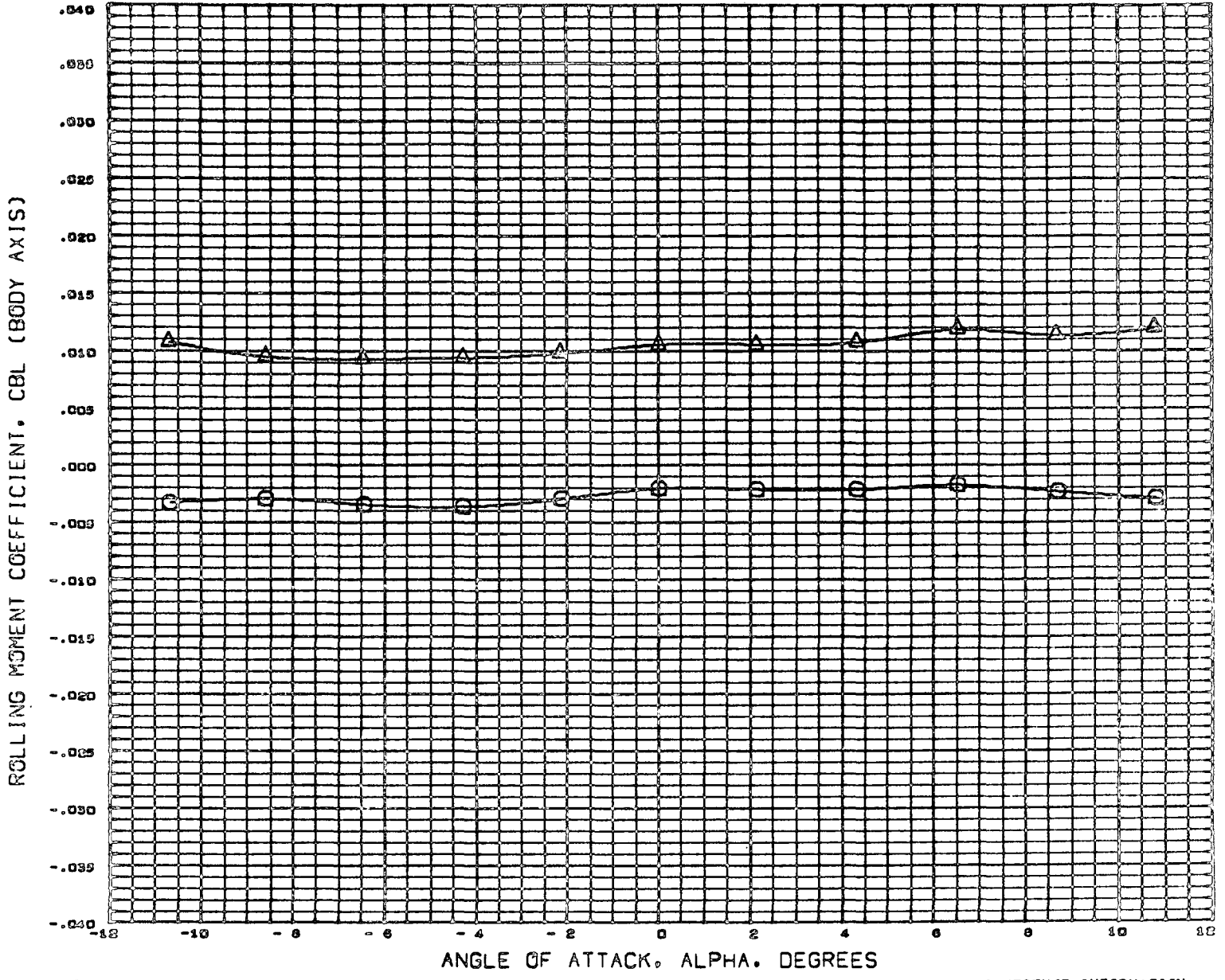
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC400 GD DELTA BOOSTER B20C4BW14V0
(M3206A)	MSFC400 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.107

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3206A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

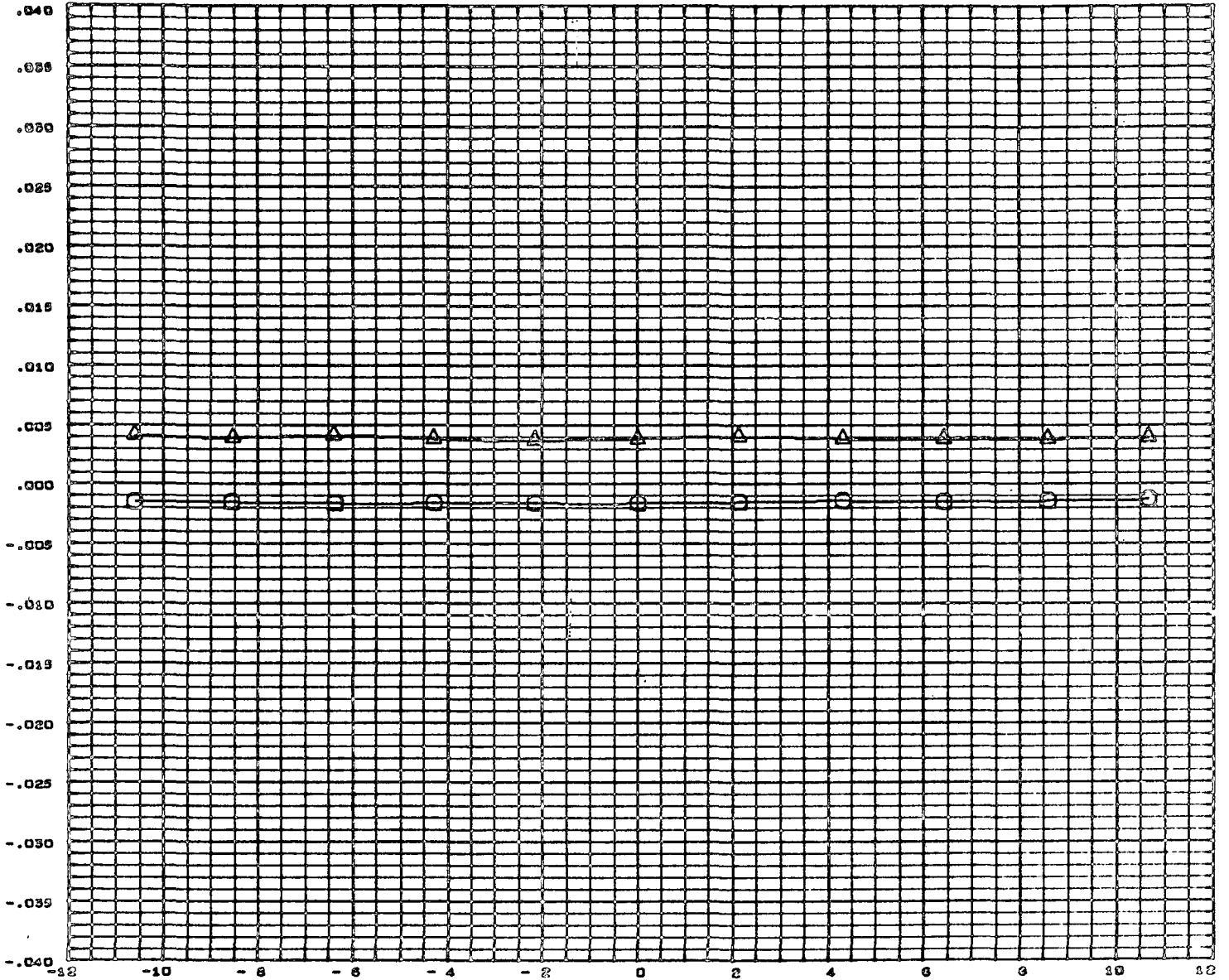
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	89 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



ANGLE OF ATTACK, ALPHA, DEGREES

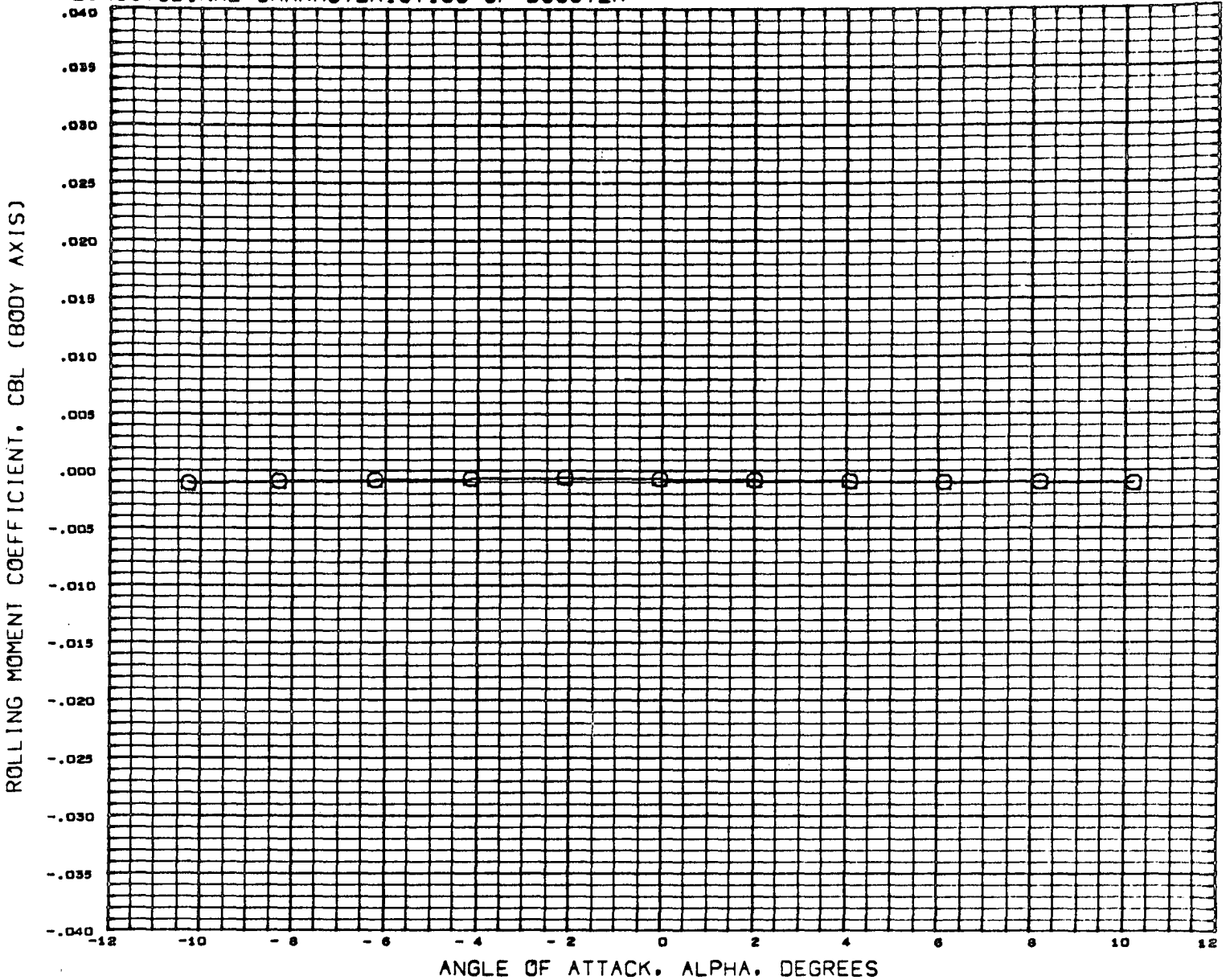
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



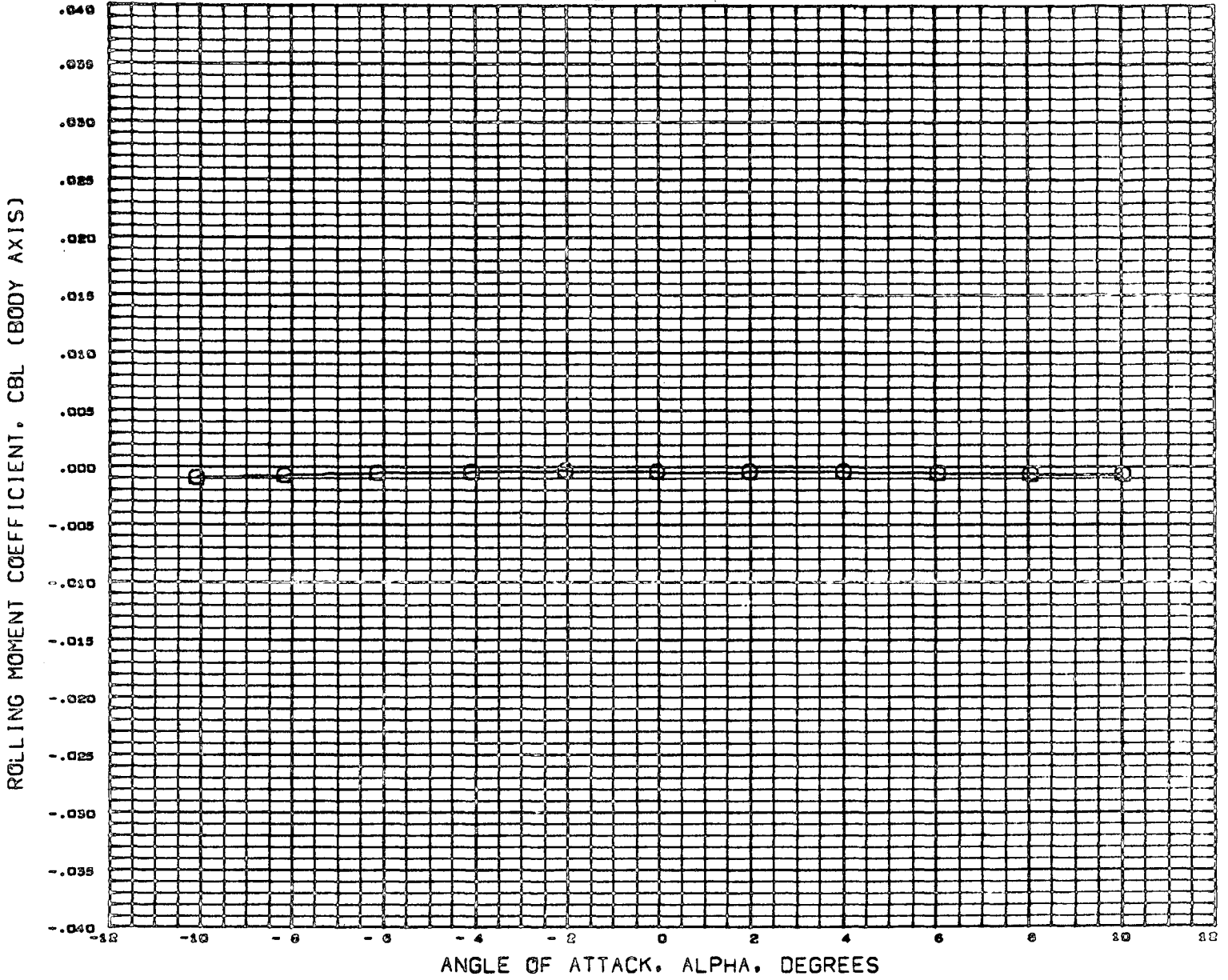
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3206A)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



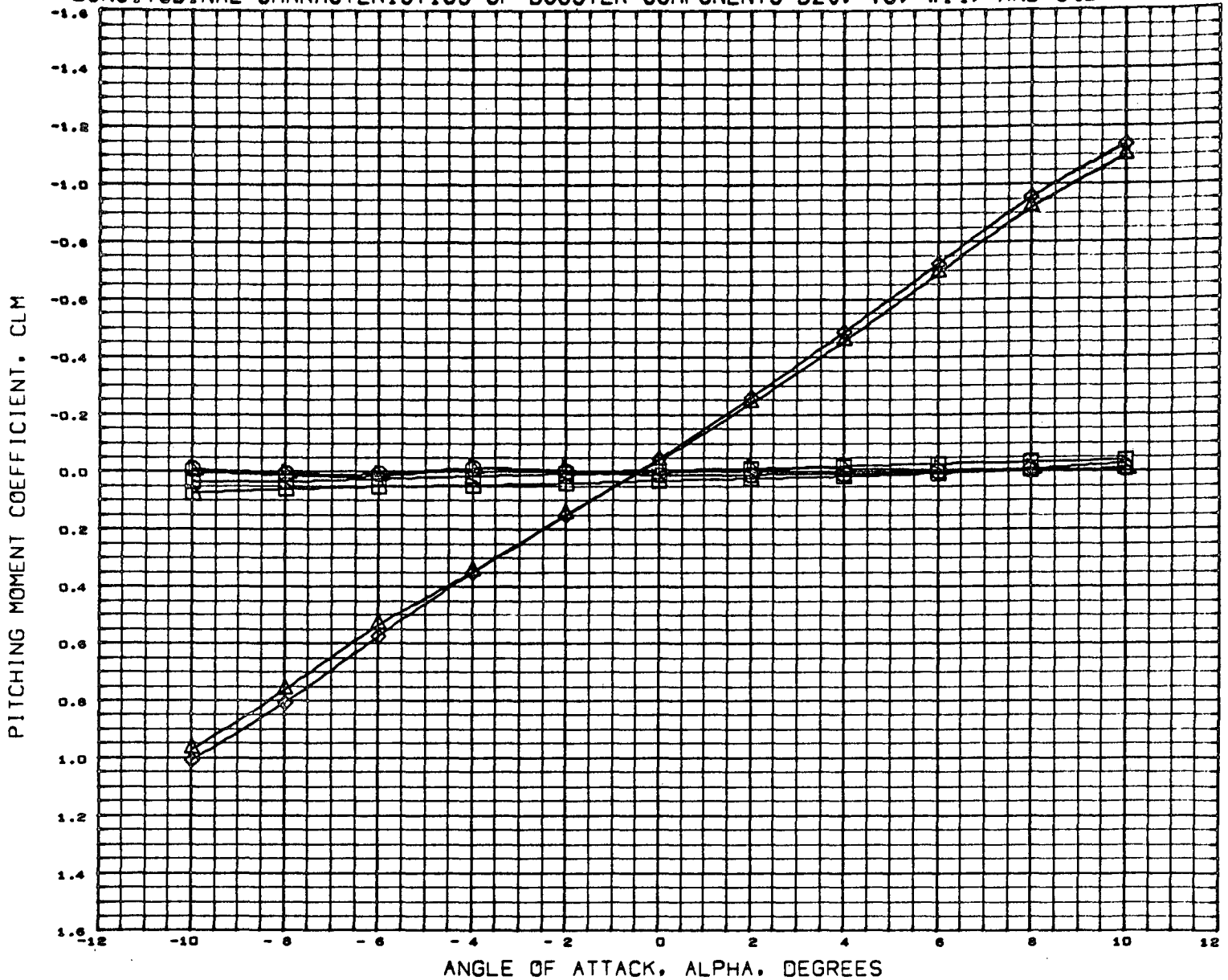
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	MSFC490 GD DELTA BOOSTER B2UC4BW14V8
(H3209A)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

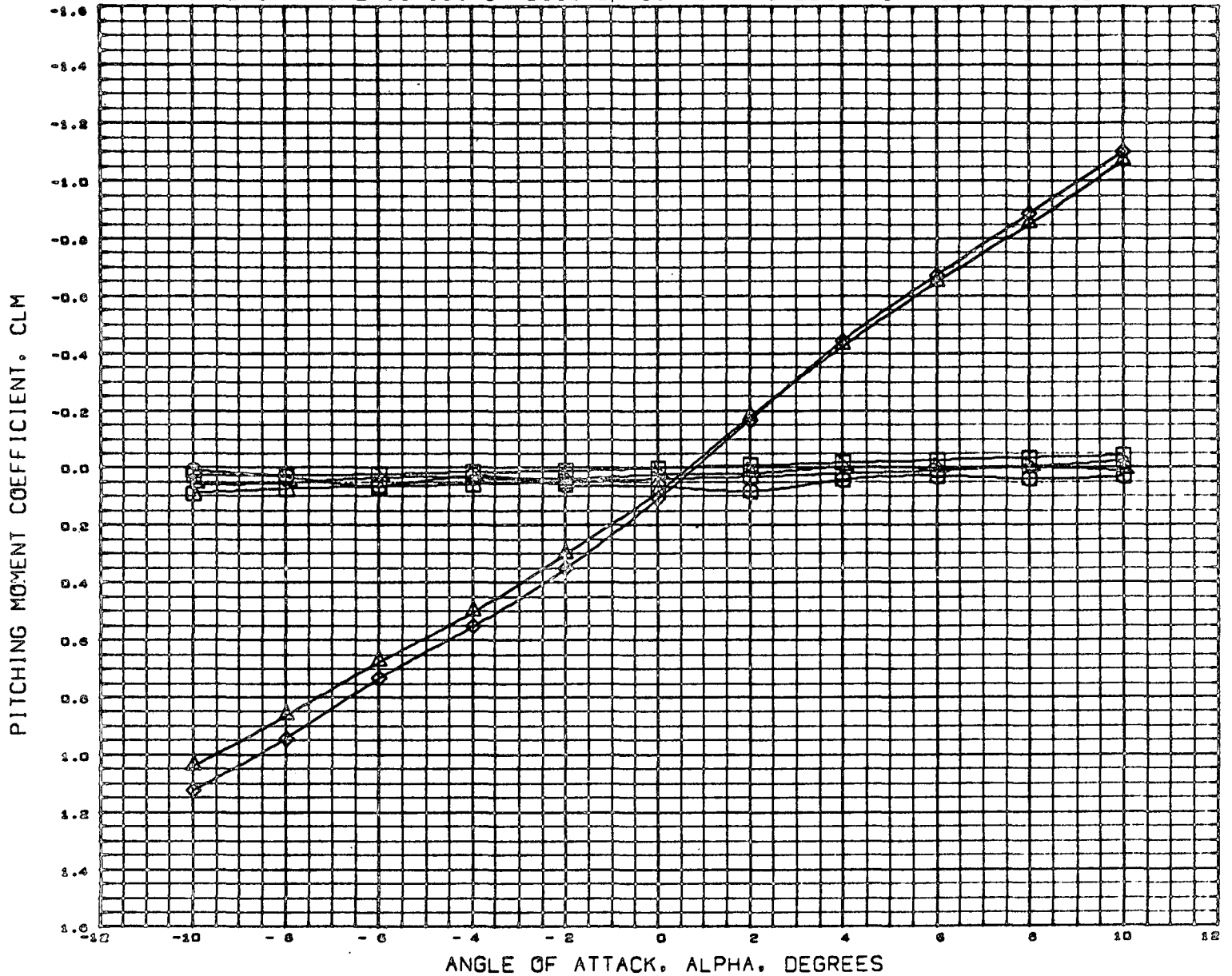
MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C48 OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C48 OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
	MACH 0.600				SCALE 0.0035 SCALE

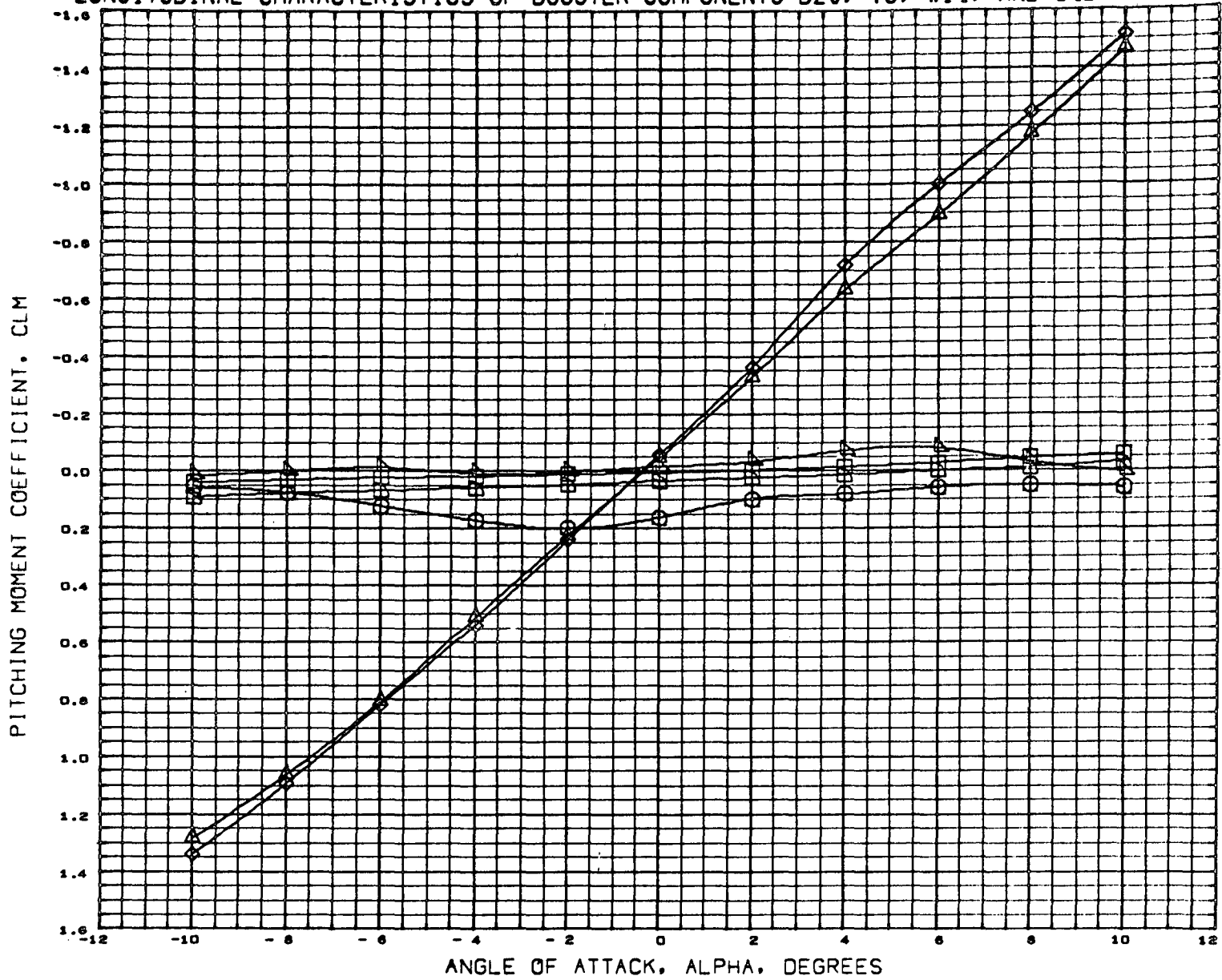
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3203A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C48 OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C48 OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	M3FC490 GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 0.900

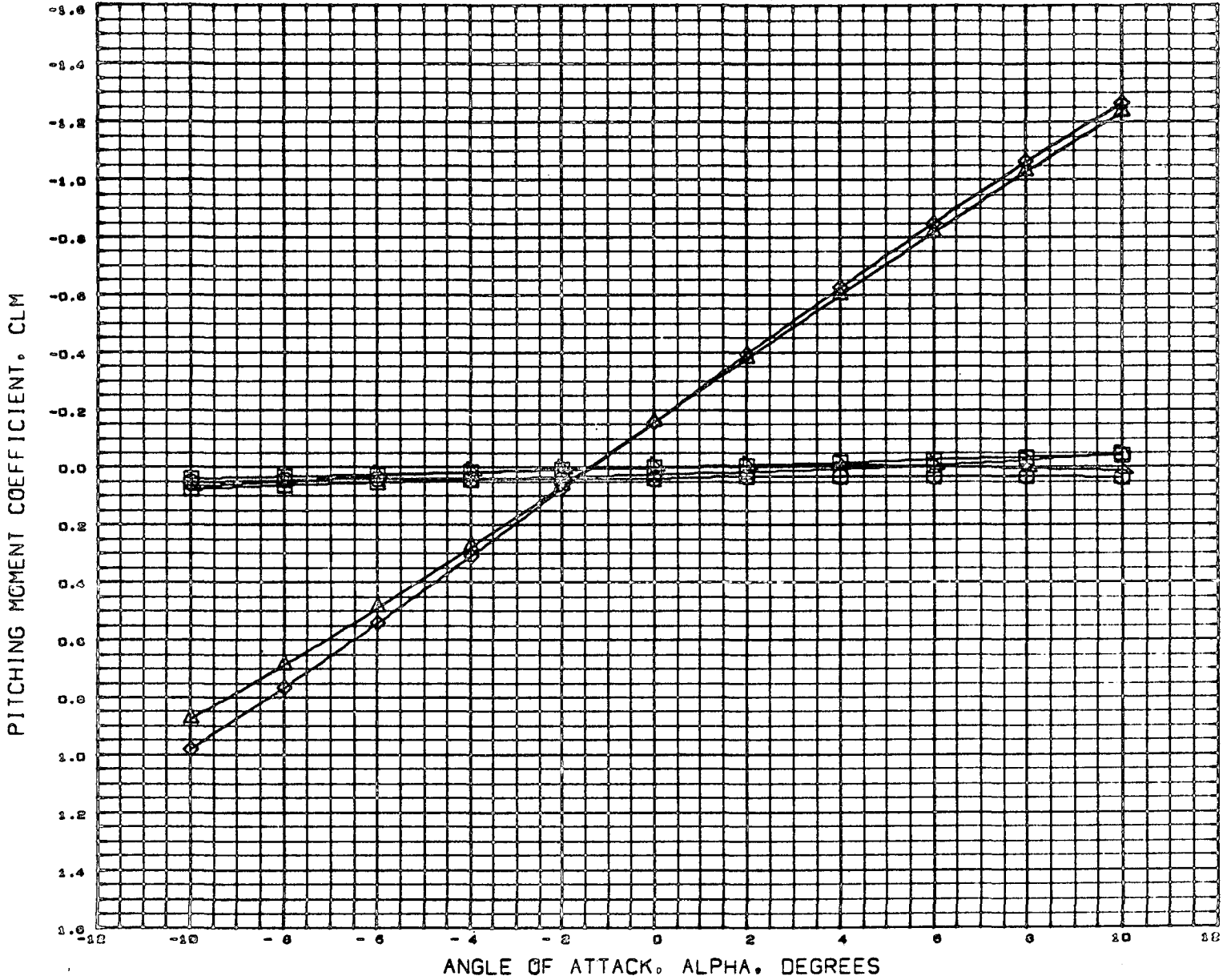
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	LREF	3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000	0.000	0.000	ZMRP	0.0000
					SCALE	0.0035 SCALE

MACH 1.100

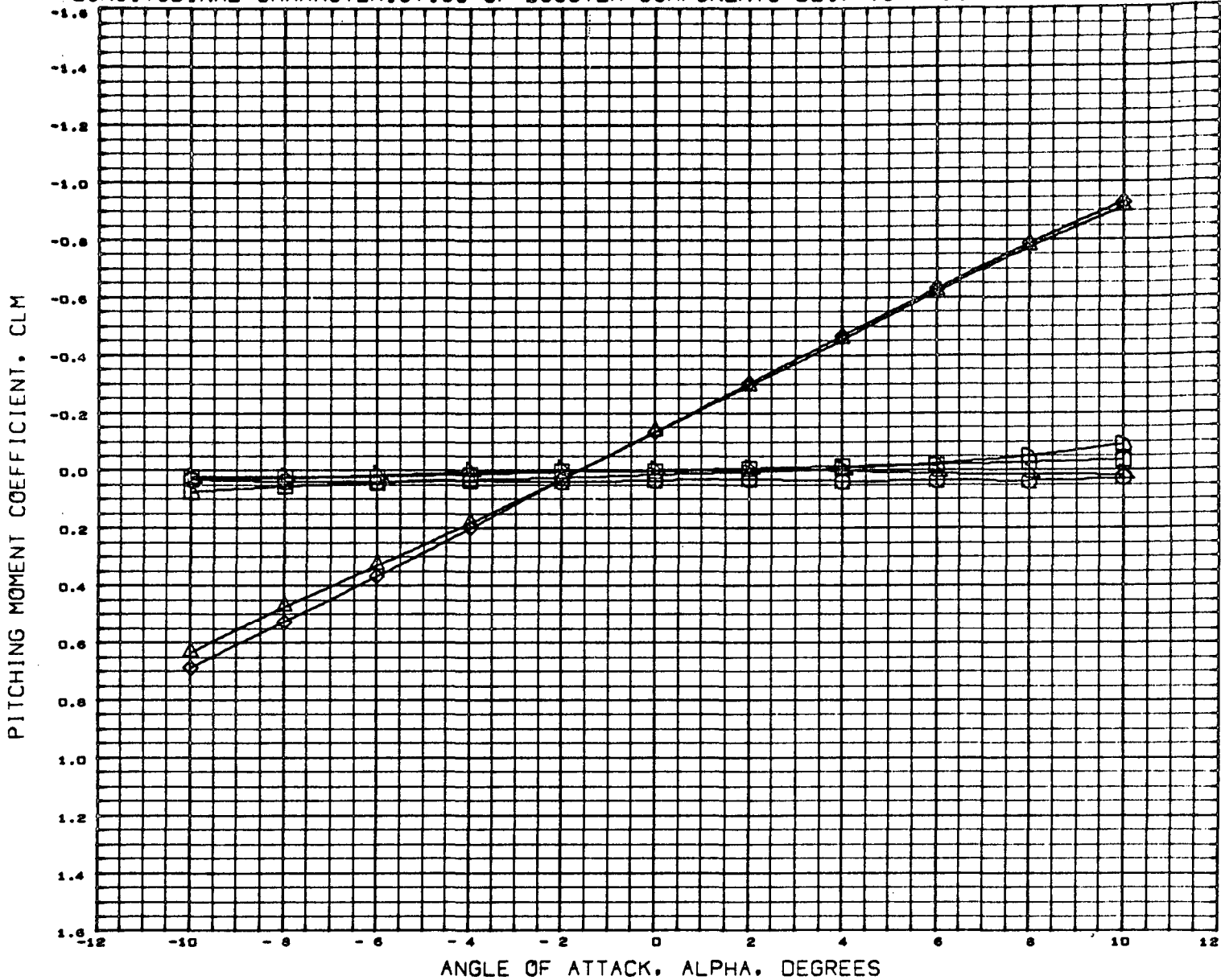
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 90 IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC49D GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.460

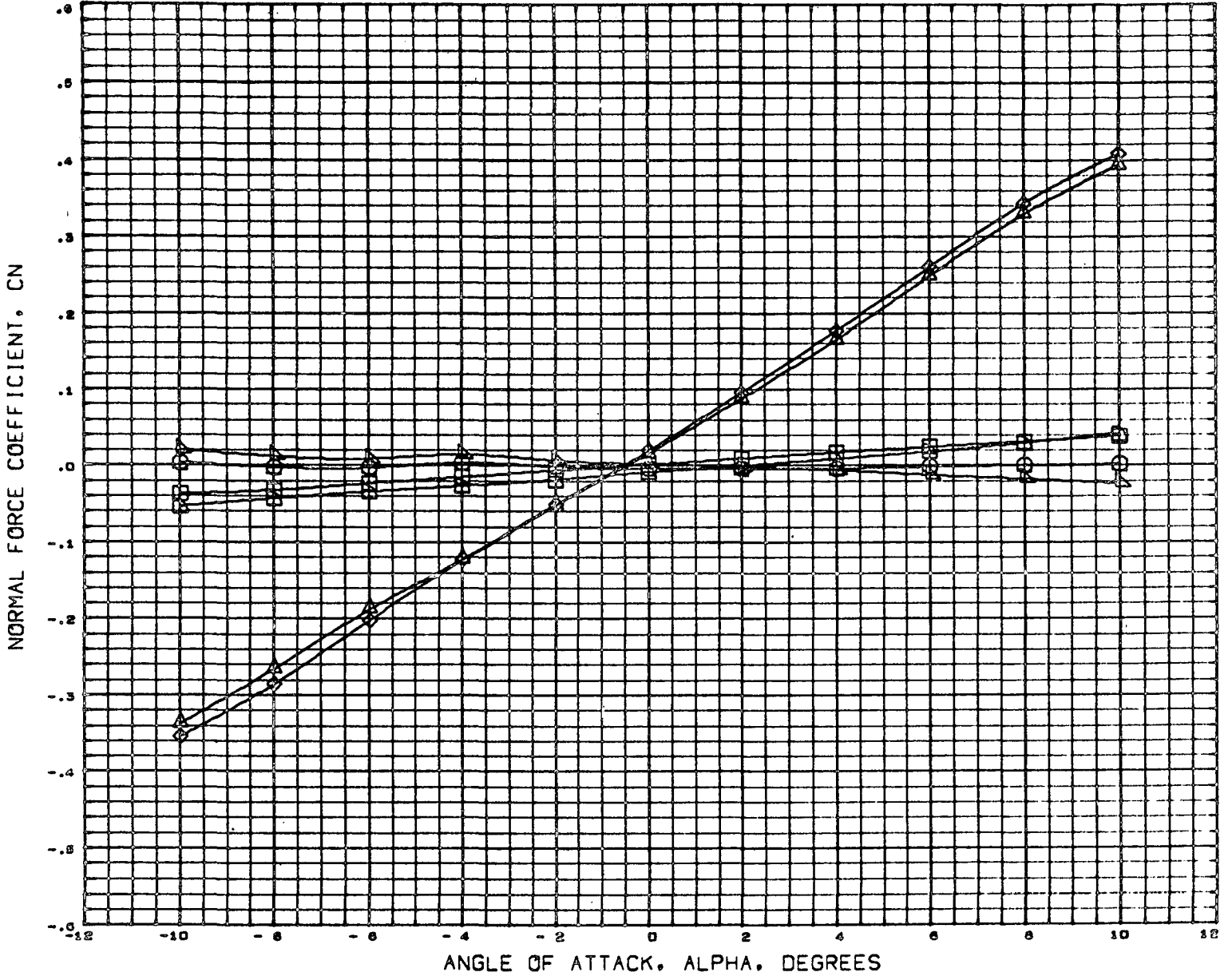
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.960

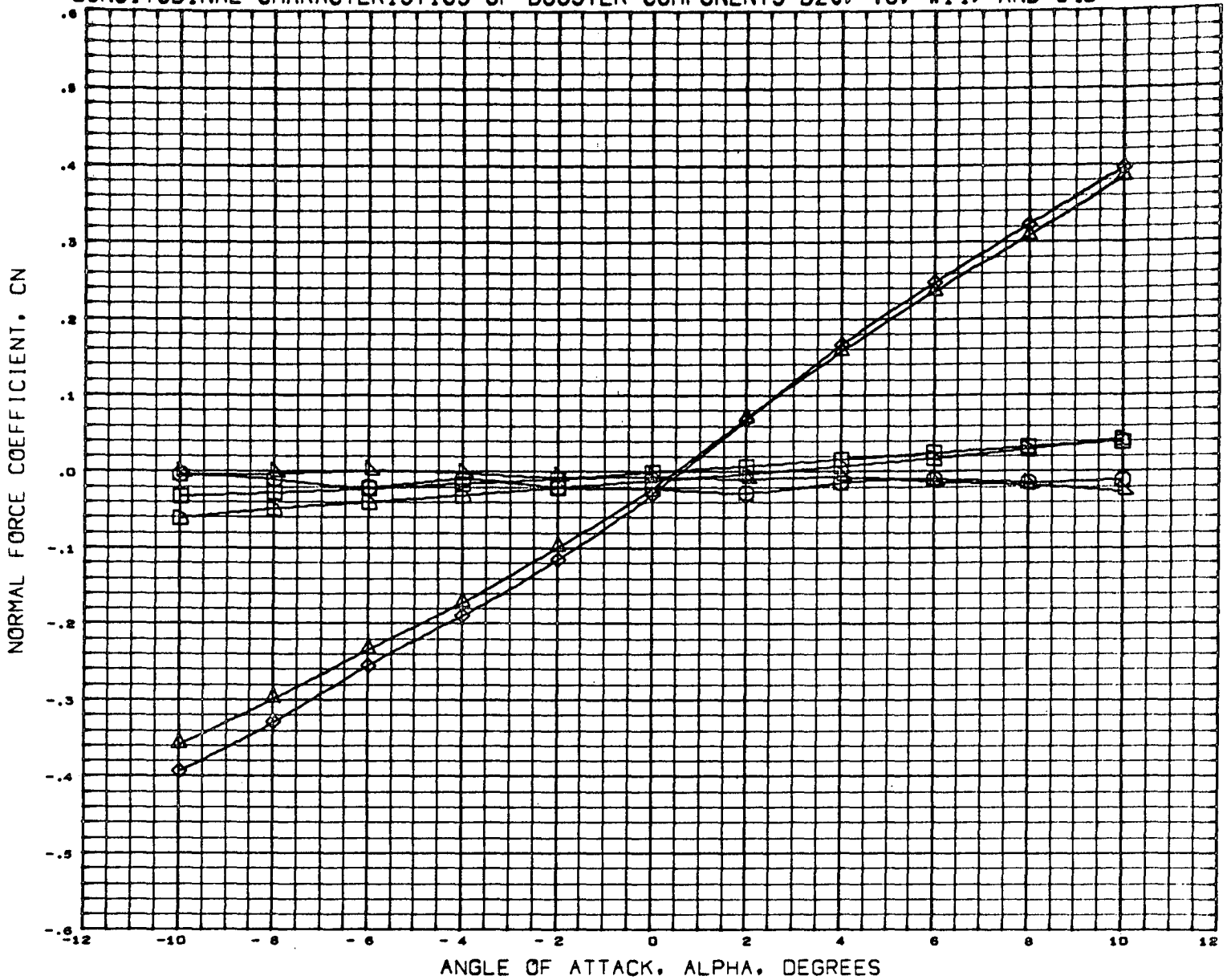
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF	3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C48 OF GD BOOSTER	0.000			XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C48 OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J3201A)	MSFC49D GD DELTA BOOSTER B20	0.000			ZMRP	0.0000
					SCALE	0.0035 SCALE

MACH 0.600

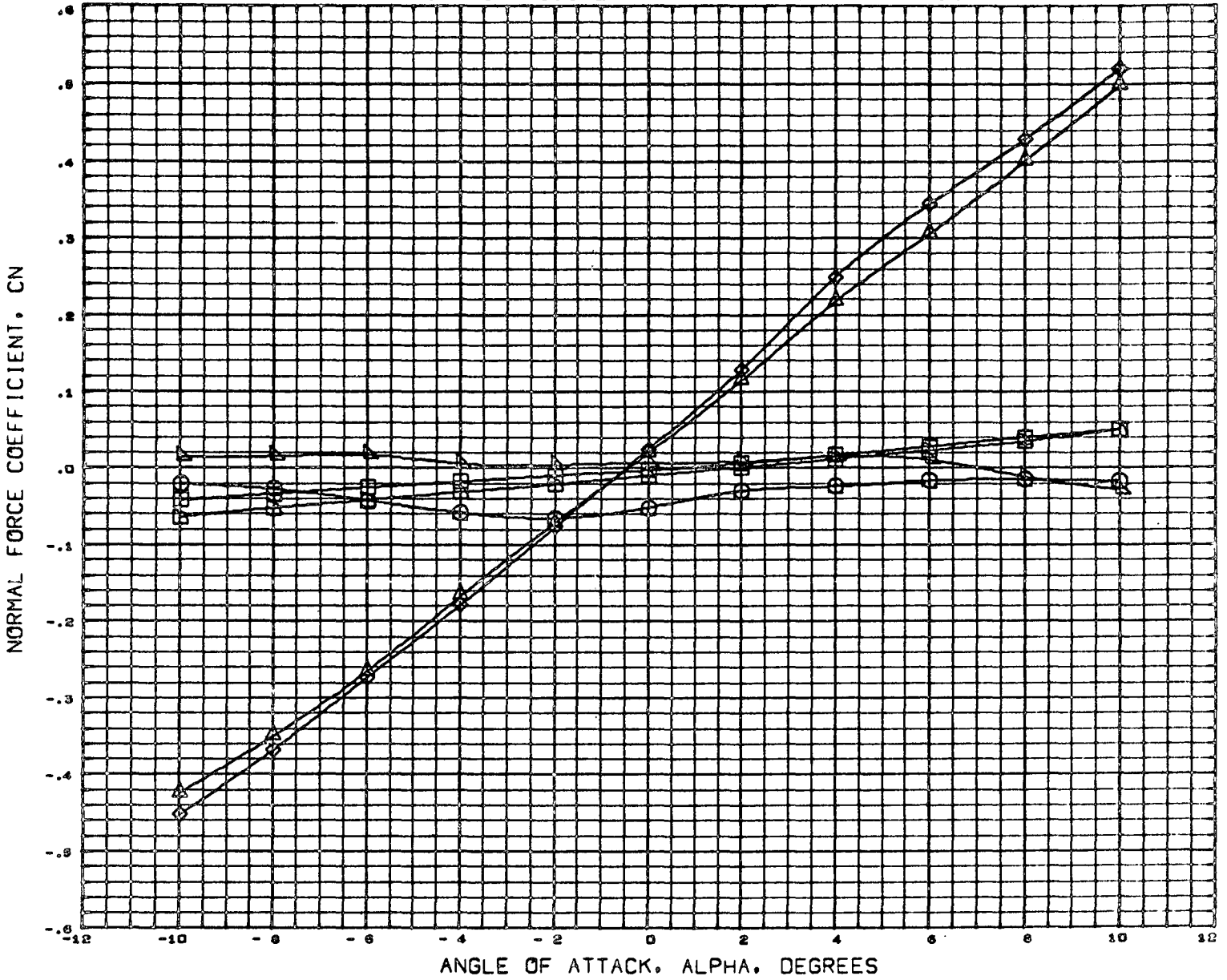
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3203A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC49D GD DELTA BOOSTER B20	0.000	0.000	0.000	ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 0.900

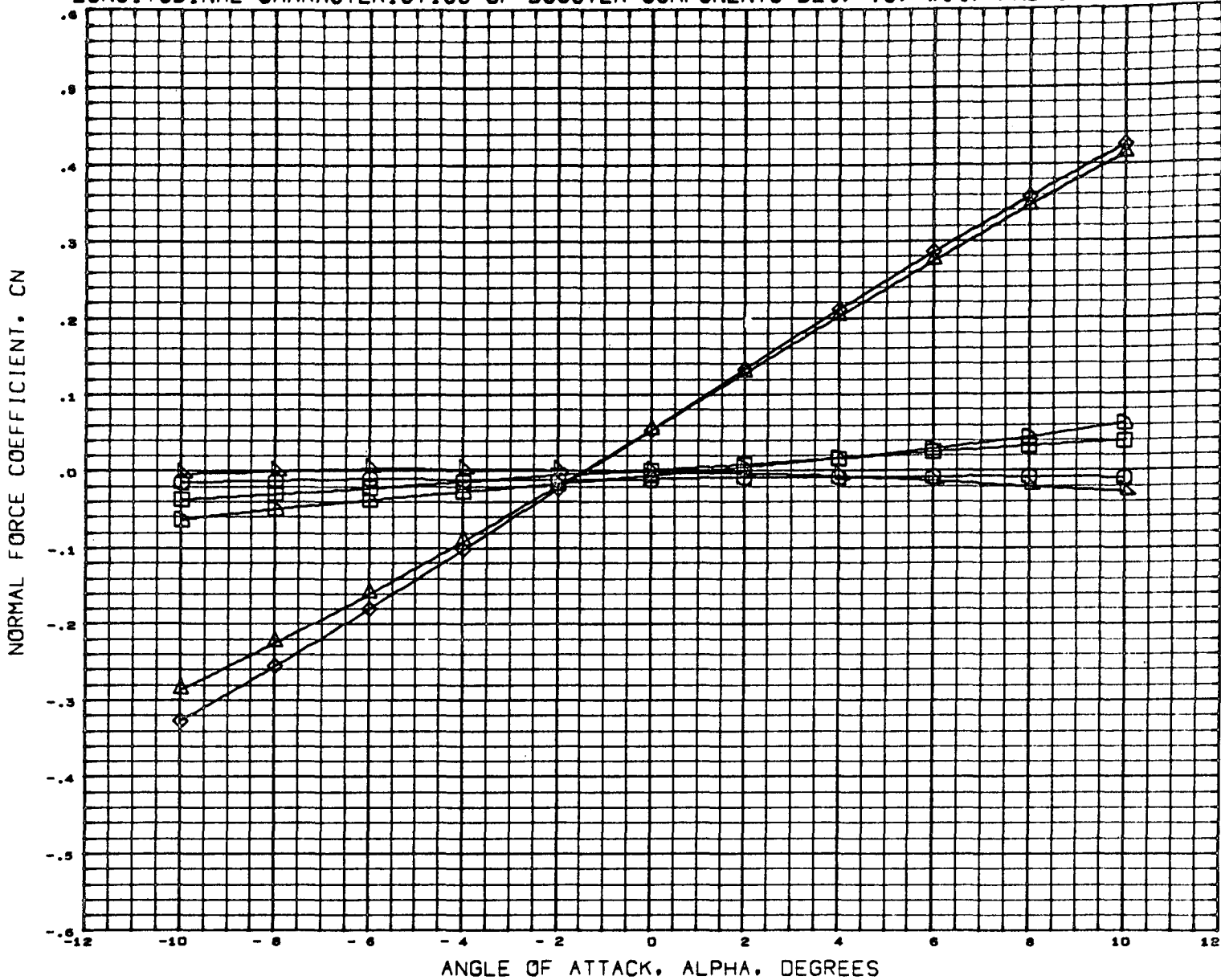
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF	3.0990 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J9201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP	0.0000
					SCALE	0.0035 SCALE

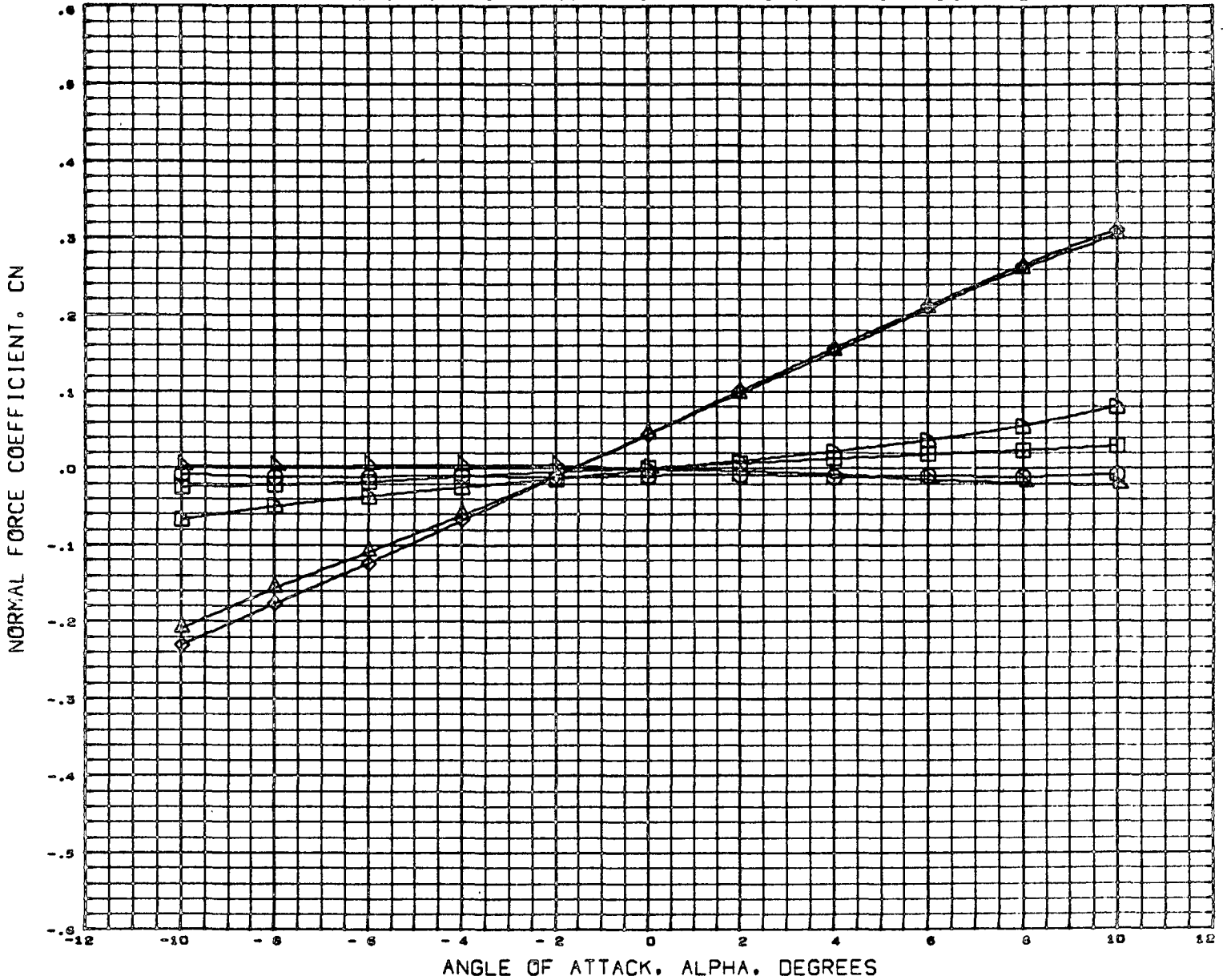
MACH 1.100

LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
MACH	1.460				SCALE 0.0035 SCALE

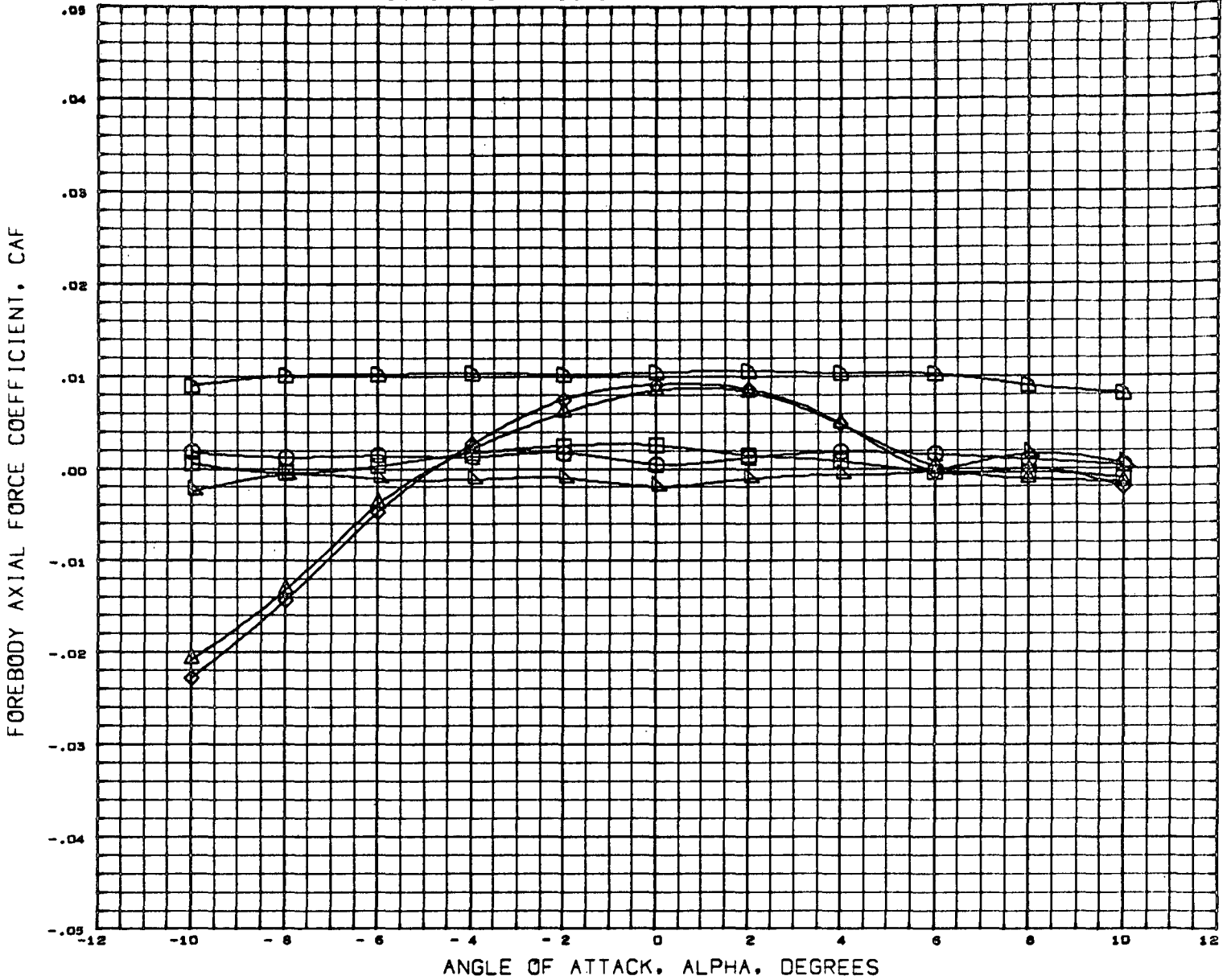
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000	0.000	0.000	ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.960

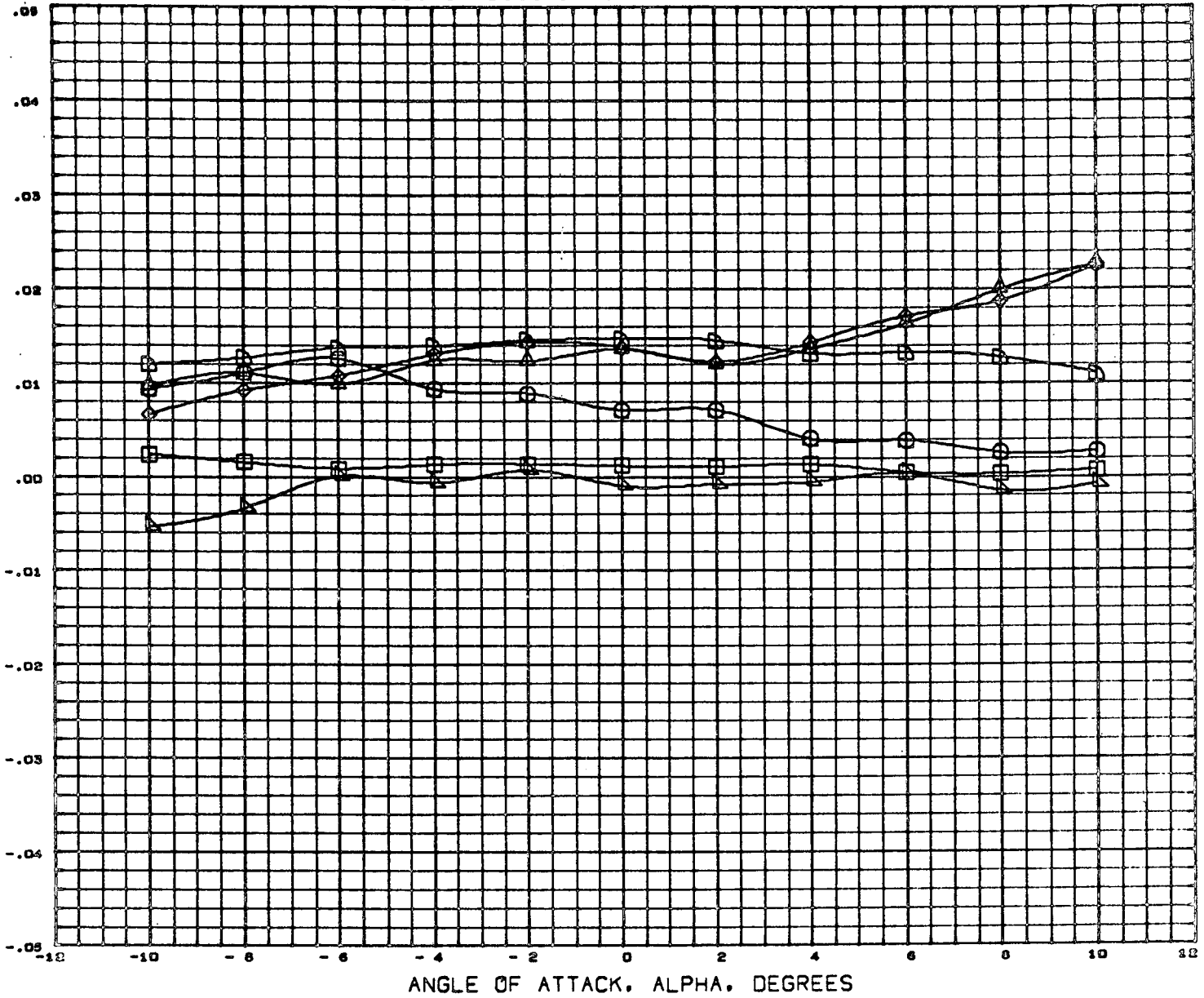
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF	3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP	0.0000
					SCALE	0.0035 SCALE
MACH 0.600						

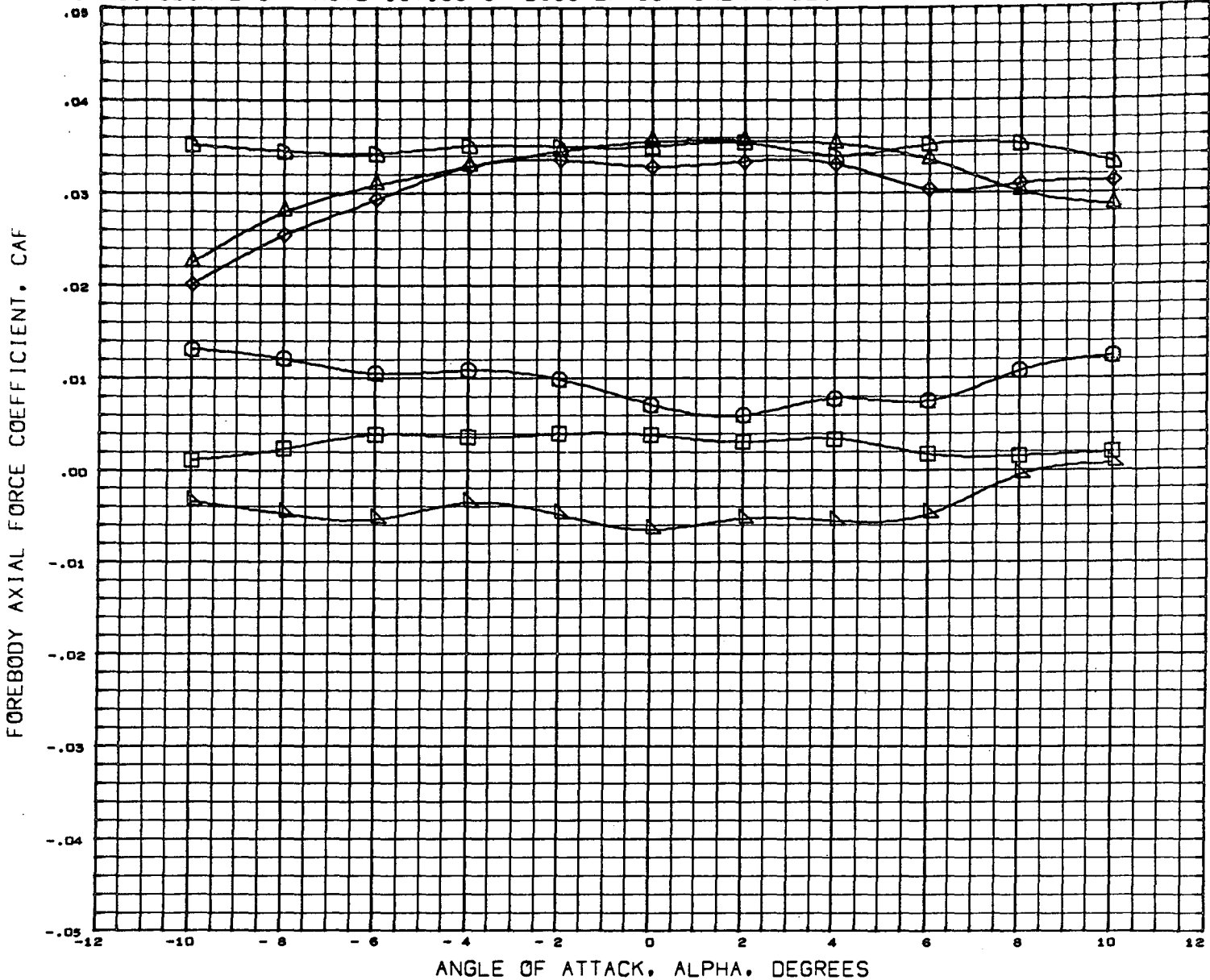
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B

FOREBODY AXIAL FORCE COEFFICIENT, CAF



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3203A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF 3.0990 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			ZMRP 0.0000
	MACH 0.900				SCALE 0.0035 SCALE

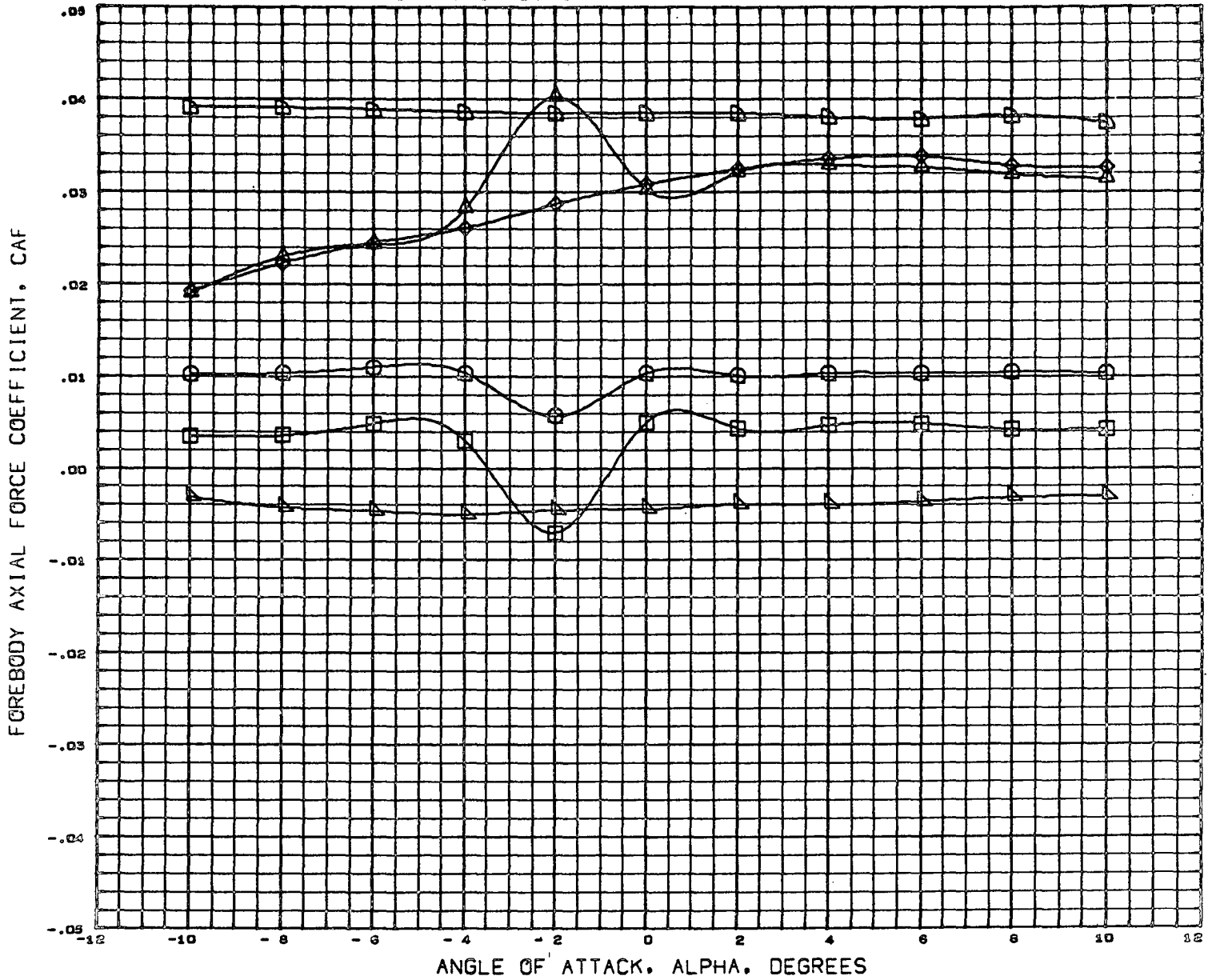
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF 15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	LREF 3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000	0.000	0.000	BREF 6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	XMRP 0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP 0.0000
(J3201A)	MSFC490 GD DELTA BOOSTER B20	0.000	0.000	0.000	ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.100

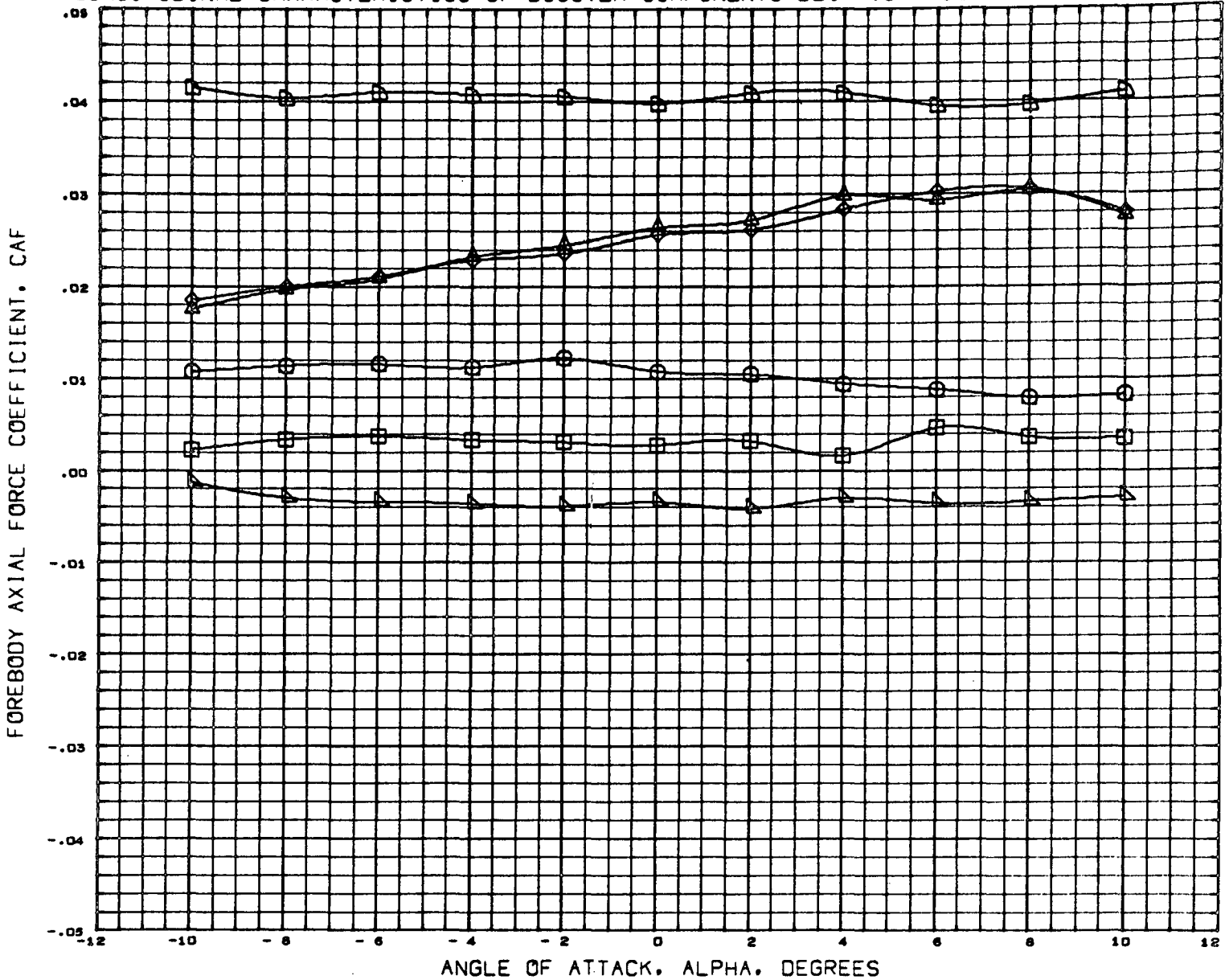
LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C4B



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6360 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF	3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C4B OF GD BOOSTER	0.000			XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C4B OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J3201A)	MSFC49D GD DELTA BOOSTER B20	0.000			ZMRP	0.0000
					SCALE	0.0035 SCALE

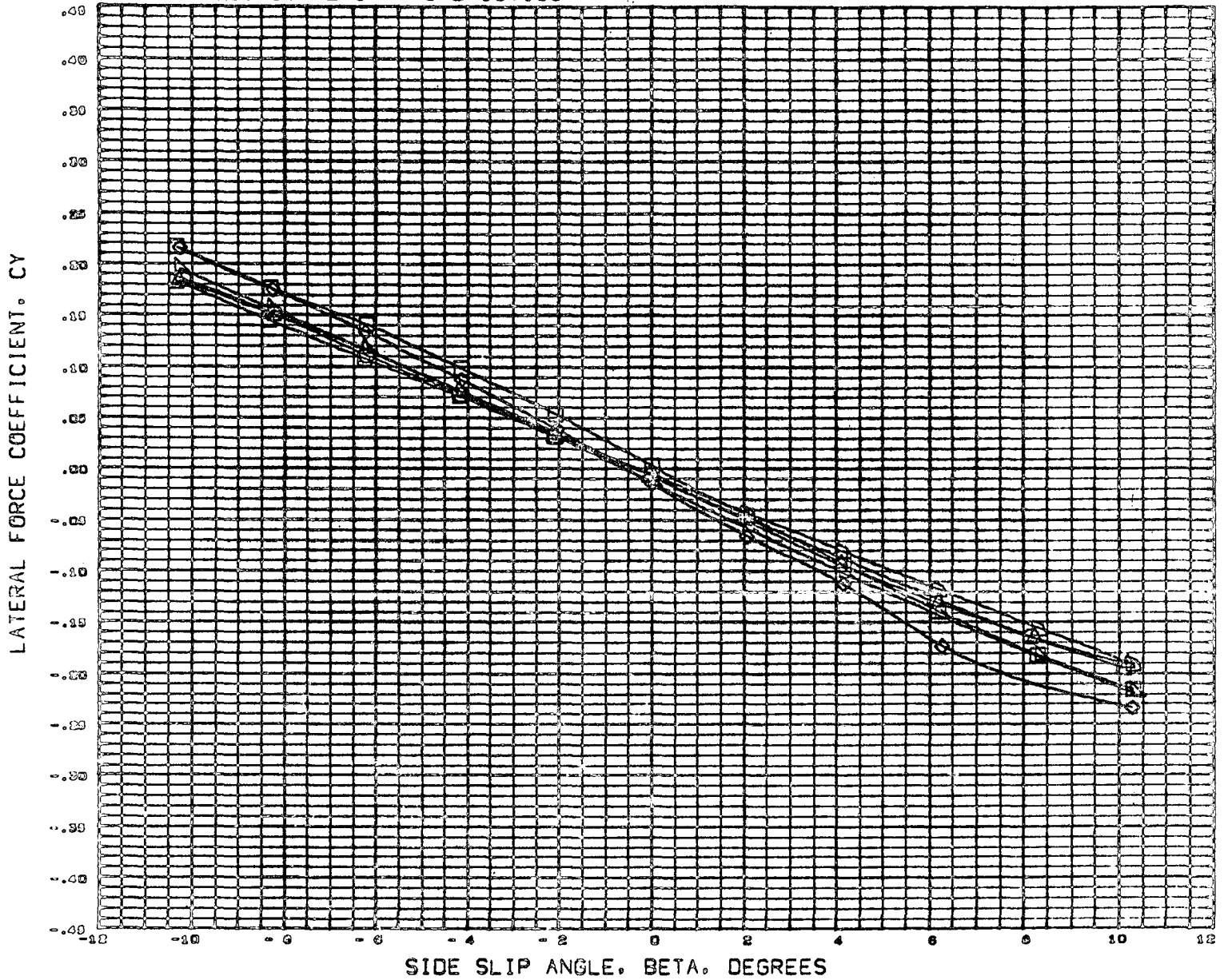
MACH 1.460

LONGITUDINAL CHARACTERISTICS OF BOOSTER COMPONENTS B20, V8, W14, AND C48



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(A32100)	A3205A-A3203A, DELTA DUE TO V8 OF GD BOOSTER	0.000	0.000	0.000	SREF	15.6560 SQ IN
(A32101)	A3203A-A3202A, DELTA DUE TO W14 OF GD BOOSTER	0.000			LREF	3.0950 INCHES
(A32102)	A3204A-A3201A, DELTA DUE TO W14 OF GD BOOSTER	0.000			BREF	6.0990 INCHES
(A32103)	A3202A-A3201A, DELTA DUE TO C48 OF GD BOOSTER	0.000			XMRP	0.0000
(A32104)	A3204A-A3203A, DELTA DUE TO C48 OF GD BOOSTER	0.000	0.000	0.000	YMRP	0.0000
(J3201A)	MSFC49D GD DELTA BOOSTER B20	0.000			ZMRP	0.0000
	MACH 1.960				SCALE	0.0035 SCALE

LATERAL DIRECTIONAL CHARACTERISTICS



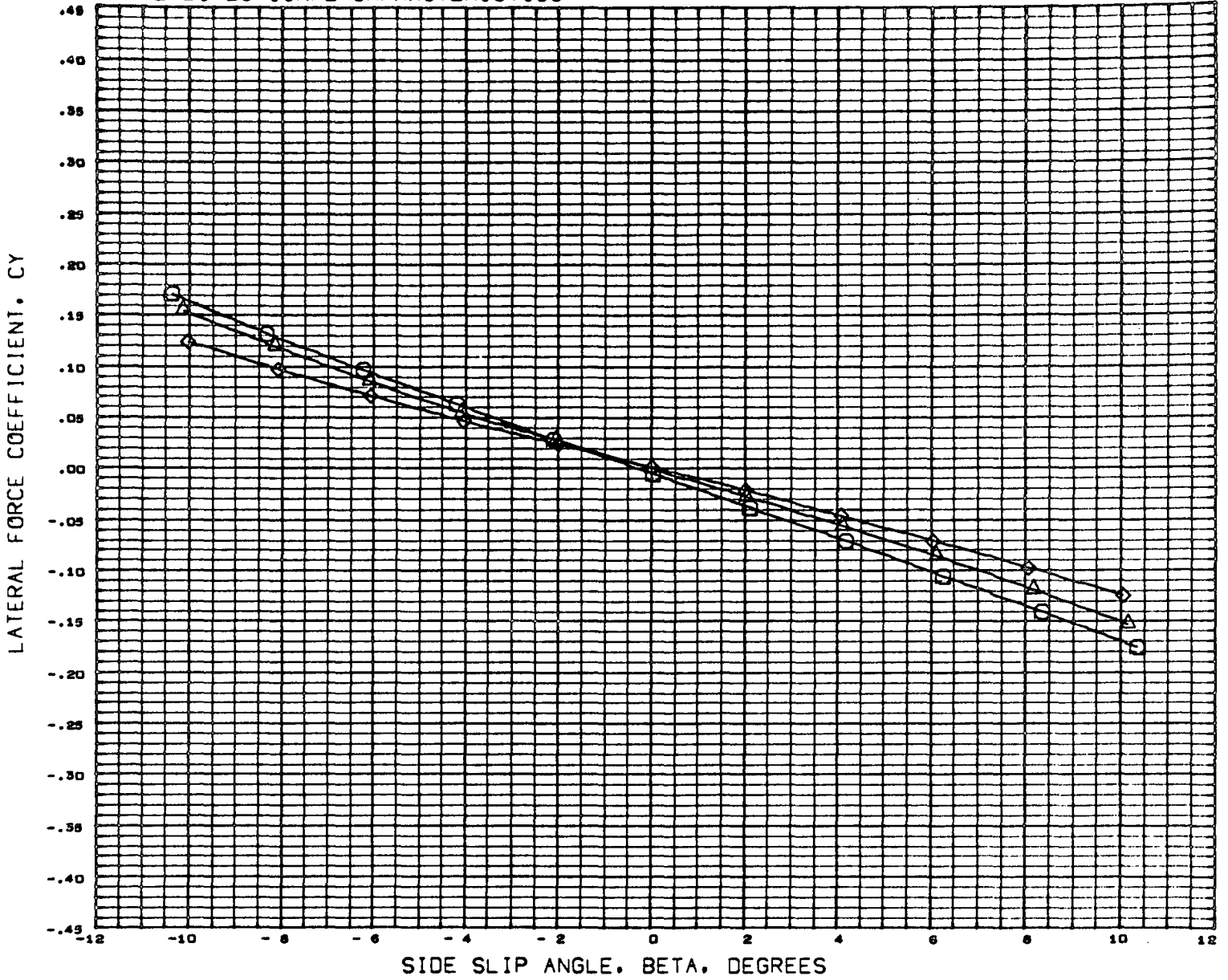
SYMBOL	MACH	ALPHA	PARAMETRIC VALUES		
○	0.009	0.000	ELVATR	0.000	
□	0.096	AILRON	0.000		
△	0.097				
◇	1.100				
▽	1.104				
x	1.400	REFERENCE FILE	TN-71-AE-01		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(A3205C) 03 AUG 71 PAGE 70

LATERAL DIRECTIONAL CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES		
○	1.961	ALPHA	0.000	ELVATR 0.000
Δ	2.990	AILRON	0.000	
◇	4.959			

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

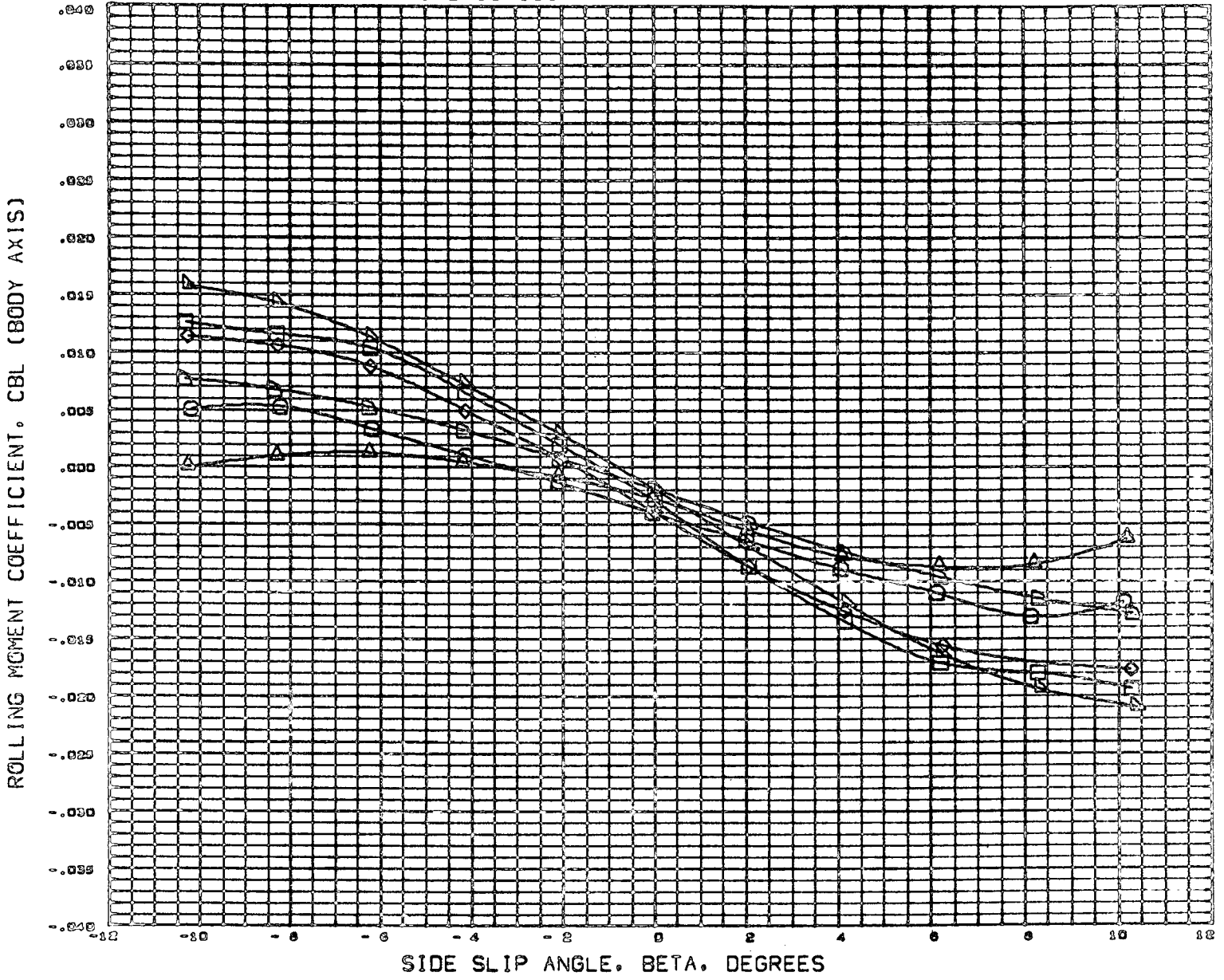
REFERENCE FILE TN-71-AE-01

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(A3205C) 03 AUG 71

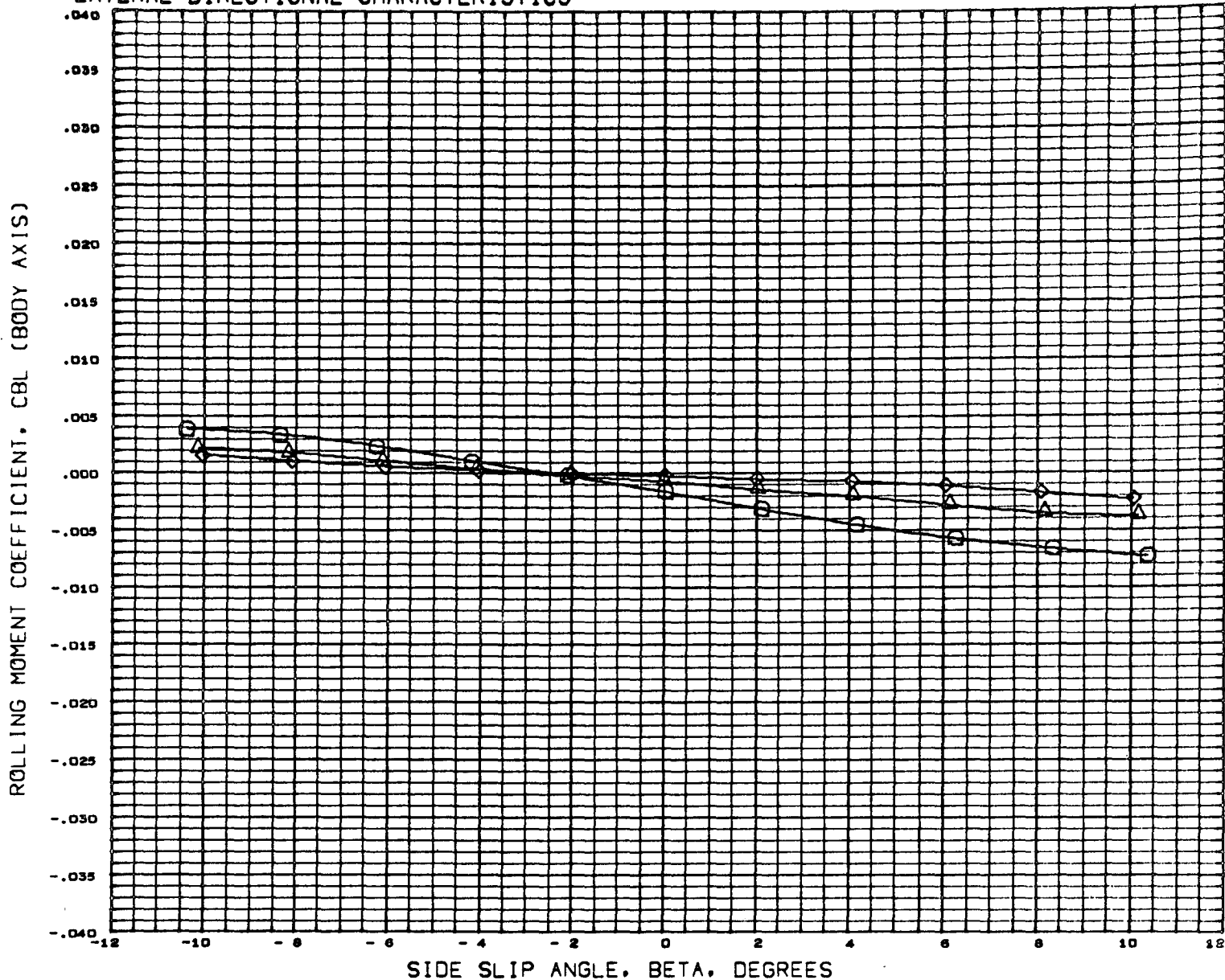
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LATERAL DIRECTIONAL CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
△	0.603	ALPHA 0.000 ELVATR 0.000	SREF 15.6560 SQ IN
□	0.666	AILRON 0.000	LREF 3.0930 INCHES
◇	0.697		BREF 6.0980 INCHES
○	1.100		XMRP 0.0000
▽	1.194		YMRP 0.0000
◇	1.460	REFERENCE FILE TN-71-AE-03	ZMRP 0.0000
			SCALE 0.0035 SCALE

LATERAL DIRECTIONAL CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES			
○	1.961	ALPHA	0.000	ELVATR	0.000
△	2.990	AILRON	0.000		
◇	4.959				

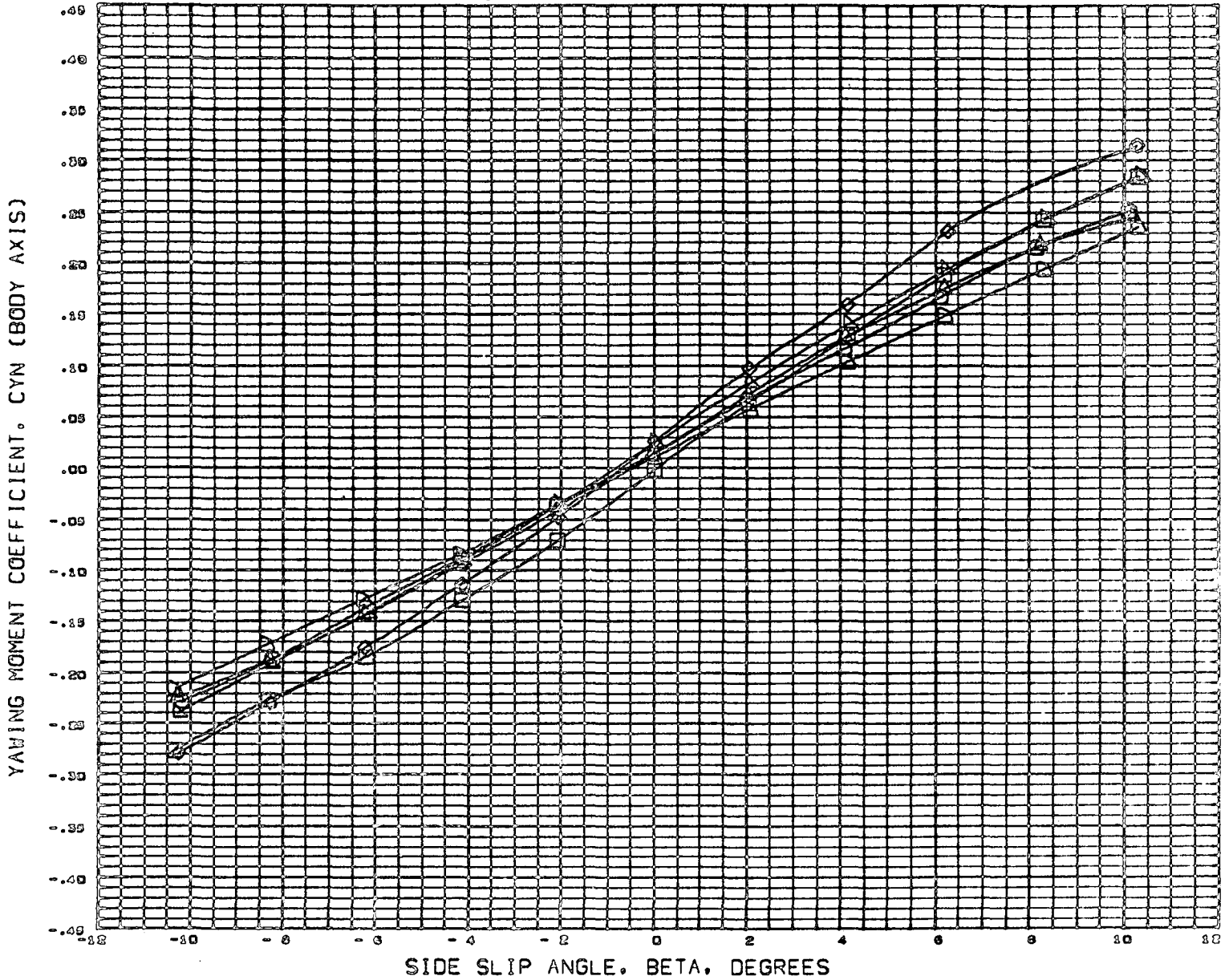
REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

REFERENCE FILE TN-71-AE-01

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(A3205C) 03 AUG 71 PAGE 73

LATERAL DIRECTIONAL CHARACTERISTICS

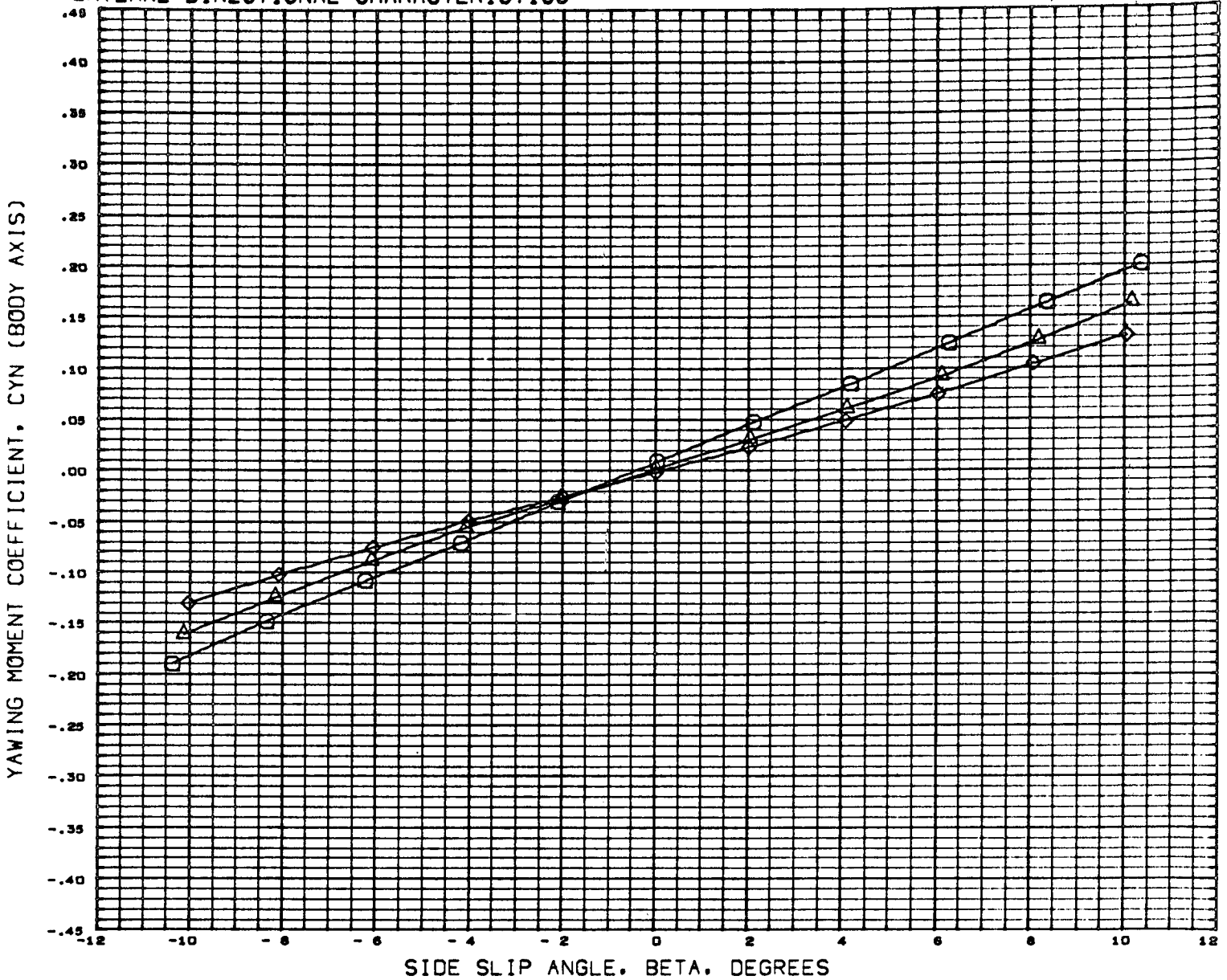


SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION		
		ALPHA	ELVATR	AILRCN	SREF	INCHES	SCALE
○	0.003	0.000	0.000	0.000	15.6560	50 IN	
△	0.006	0.000	0.000	0.000	3.0990	INCHES	
◇	0.007				6.0990	INCHES	
□	1.300				0.0000		
▽	1.304				0.0000		
◇	1.460				0.0000		
		REFERENCE FILE	TN-71-AE-01		SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(A3205C) 03 AUG 71 PAGE 74

LATERAL DIRECTIONAL CHARACTERISTICS

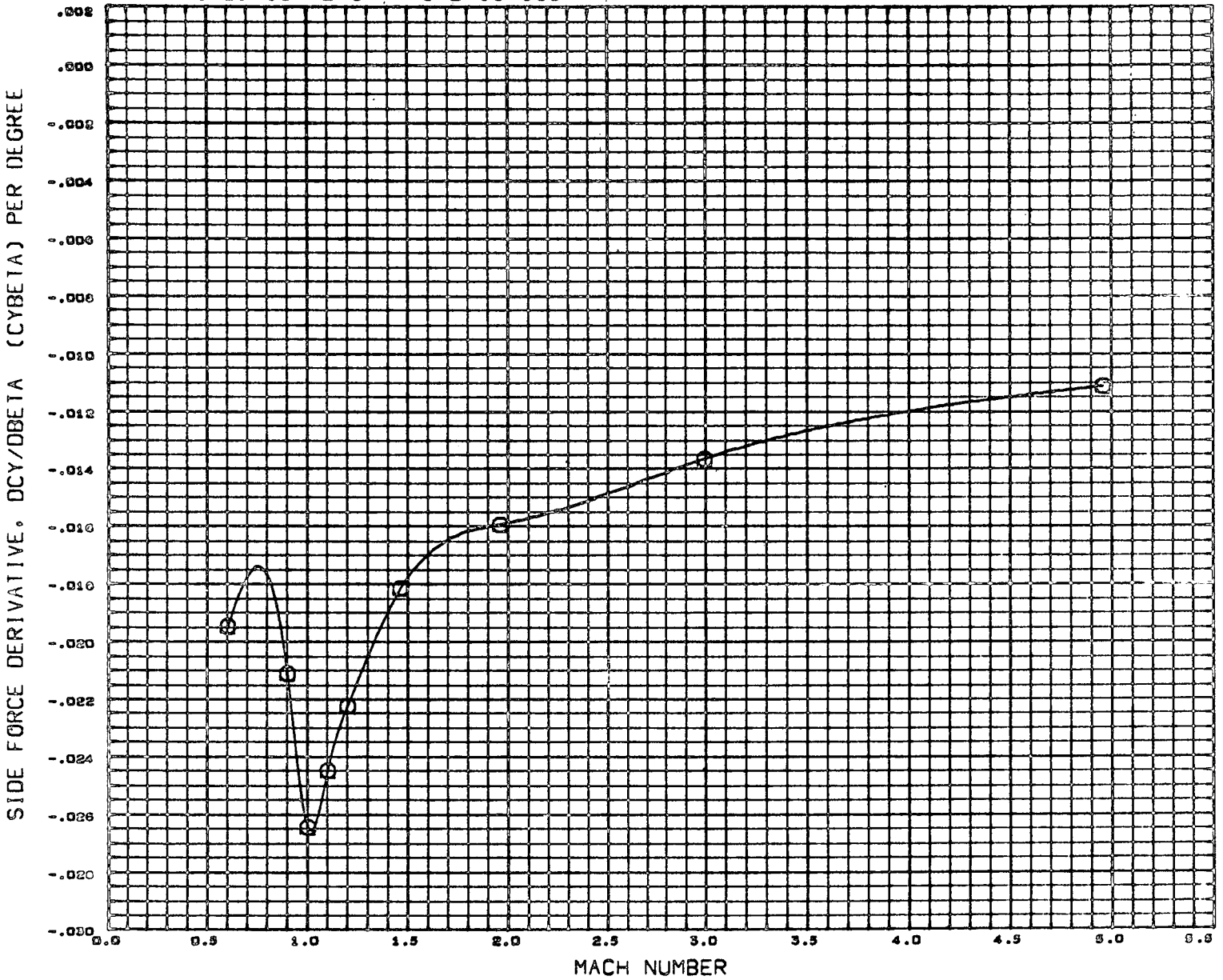


SYMBOL	MACH	PARAMETRIC VALUES			
○	1.961	ALPHA	0.000	ELVATR	0.000
△	2.990	AILRON	0.000		
◇	4.959				

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

REFERENCE FILE TN-71-AE-01

LATERAL DIRECTIONAL CHARACTERISTICS



SYMBOL \circ BETA 0.000 ALPHA 0.000 ELVATR 0.000
 PARAMETRIC VALUES
 AILRON 0.000

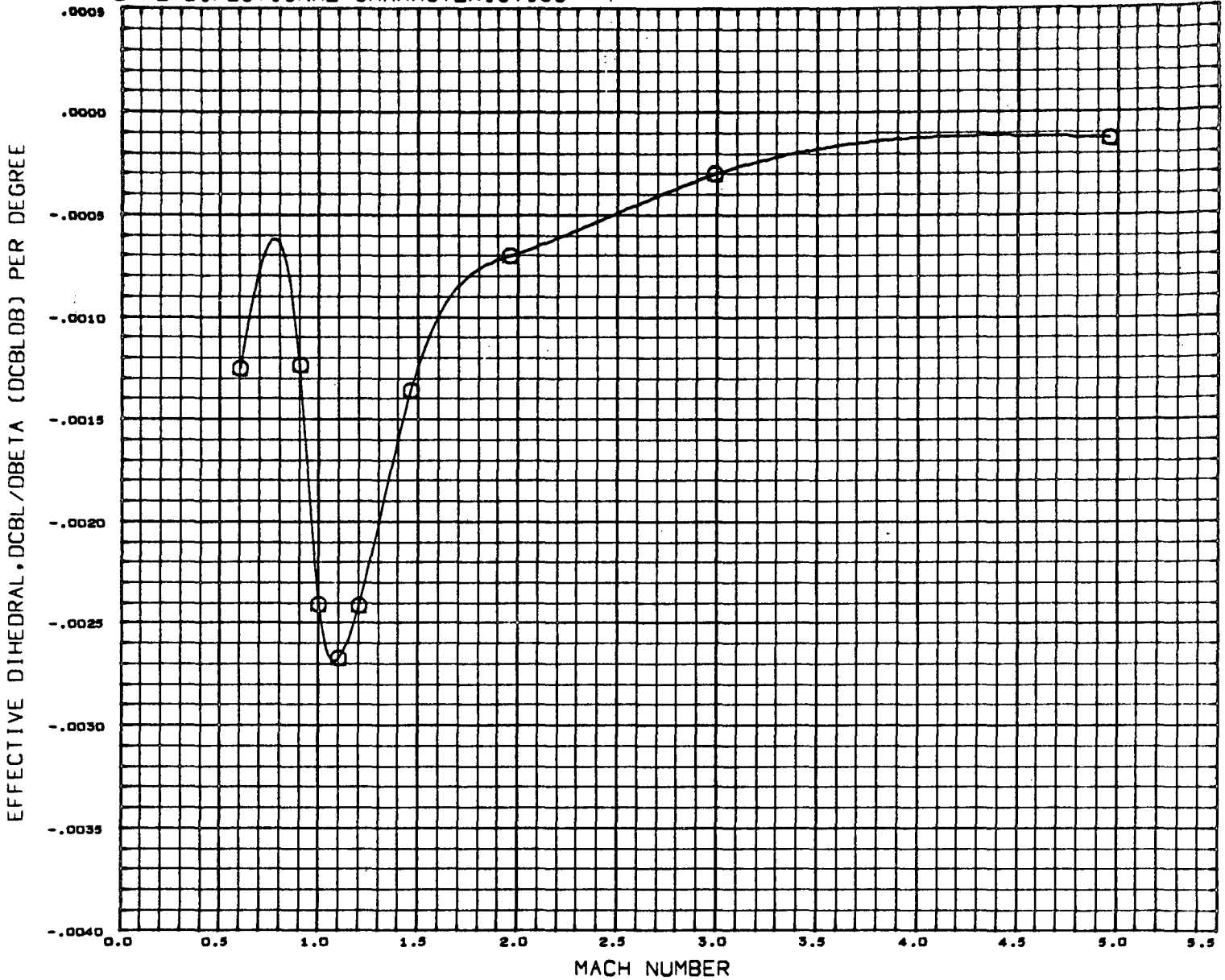
REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

DATA HIST. CODE GI

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(L3205C) 23 OCT 71 PAGE 76

LATERAL DIRECTIONAL CHARACTERISTICS



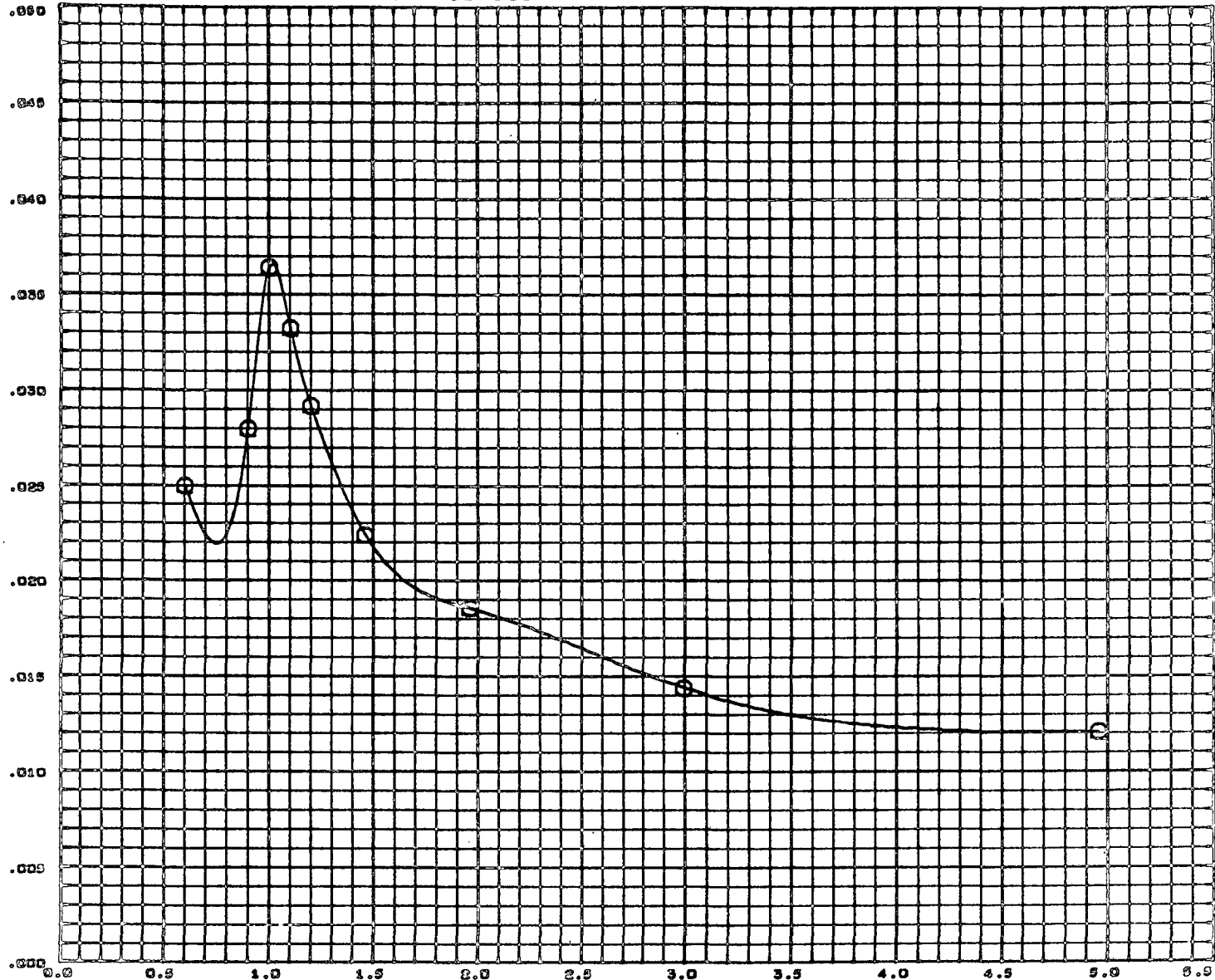
SYMBOL \circ BETA 0.000 ALPHA 0.000
 AILRON 0.000 PARAMETRIC VALUES ELVATR 0.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

DATA HIST. CODE GI

LATERAL DIRECTIONAL CHARACTERISTICS

DIRECTIONAL STABILITY DERIVATIVE, DCYN/DBETA (DCYNDB) PER DEGREE



MACH NUMBER

SYMBOL	BETA	PARAMETRIC VALUES			
○	0.000	ALPHA	0.000	ELVATR	0.000
		AELRON	0.000		

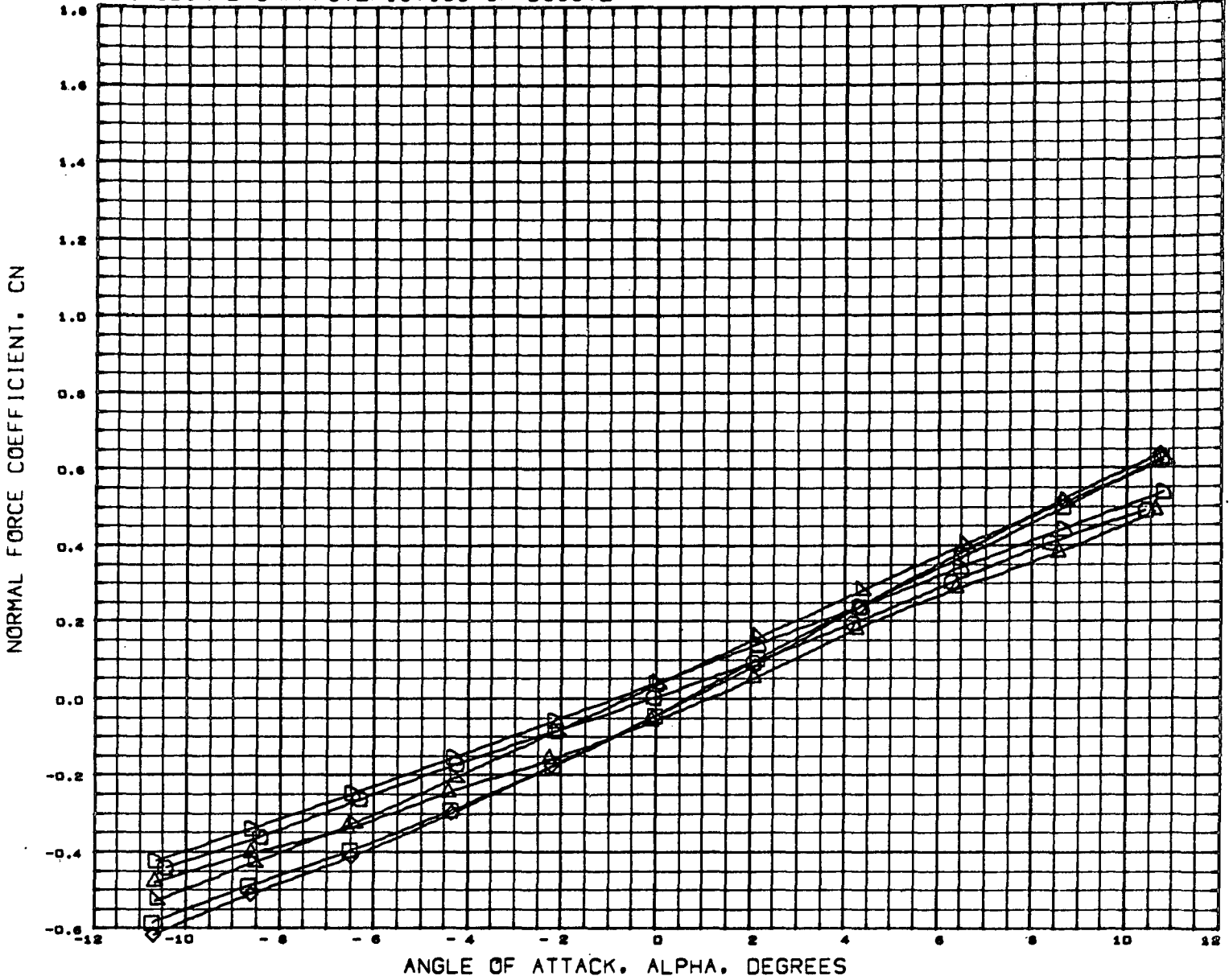
REFERENCE INFORMATION		
SREF	19.6500	00 IN
LREF	3.0950	INCHES
BREF	0.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

DATA HIST. CODE 61

MSFC490 GD DELTA BOOSTER B20C4BW14V8

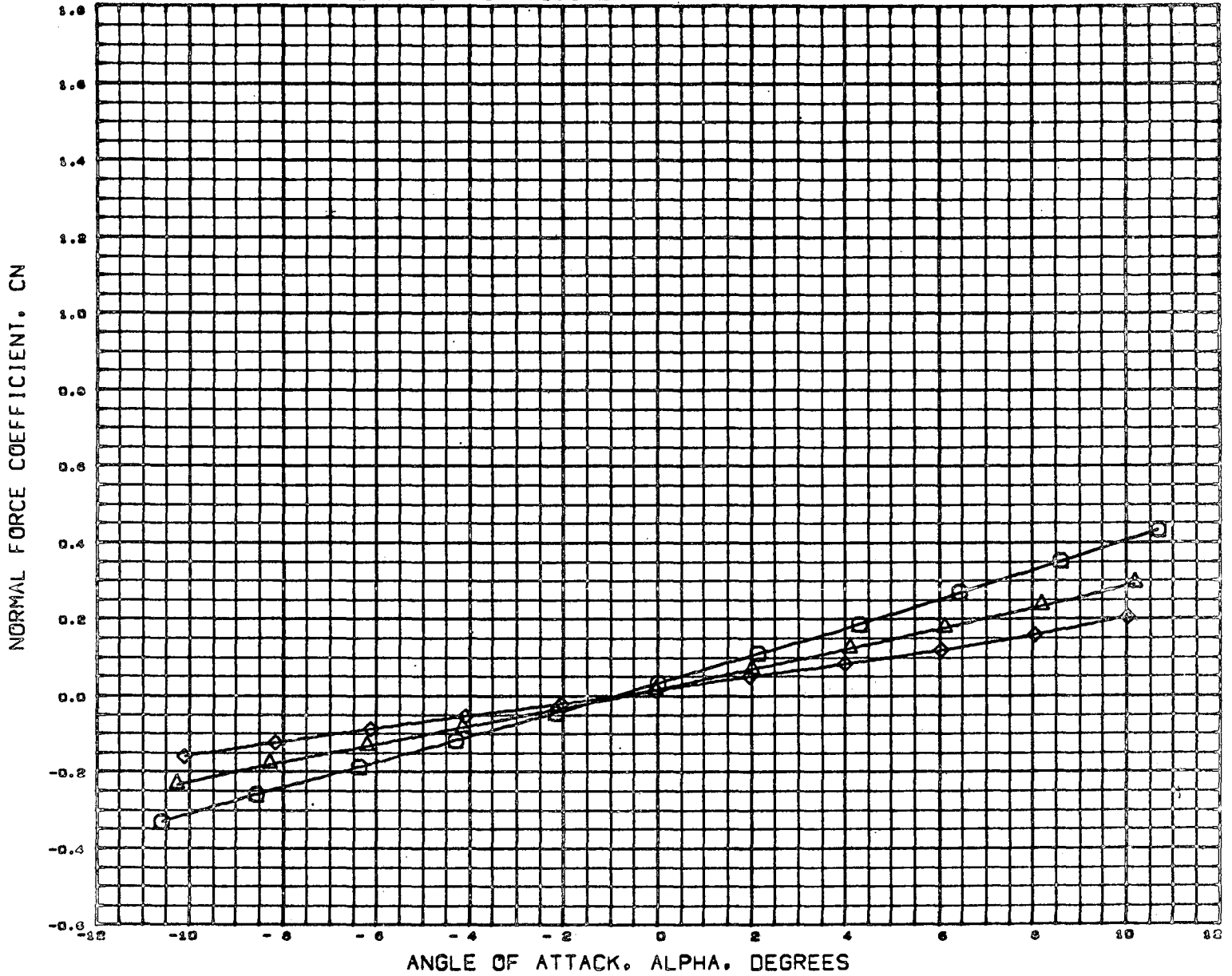
(L3205C) 23 OCT 71 PAGE 78

LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	AILRON	ELVATR	ZMRP	SCALE		
□	0.606	0.000	0.000	0.000	15.6560	30	IN	
◇	0.900	0.000	0.000	0.000	3.0950	INCHES		
◇	0.998				6.0990	INCHES		
◇	1.097				0.0000			
◇	1.197				0.0000			
◇	1.466				0.0000			
		DATA HIST. CODE *E				0.0035	SCALE	

LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
○	1.959	BETA	0.000	ELVATR	0.000
△	2.990	AILRON	0.000		
◇	4.059				

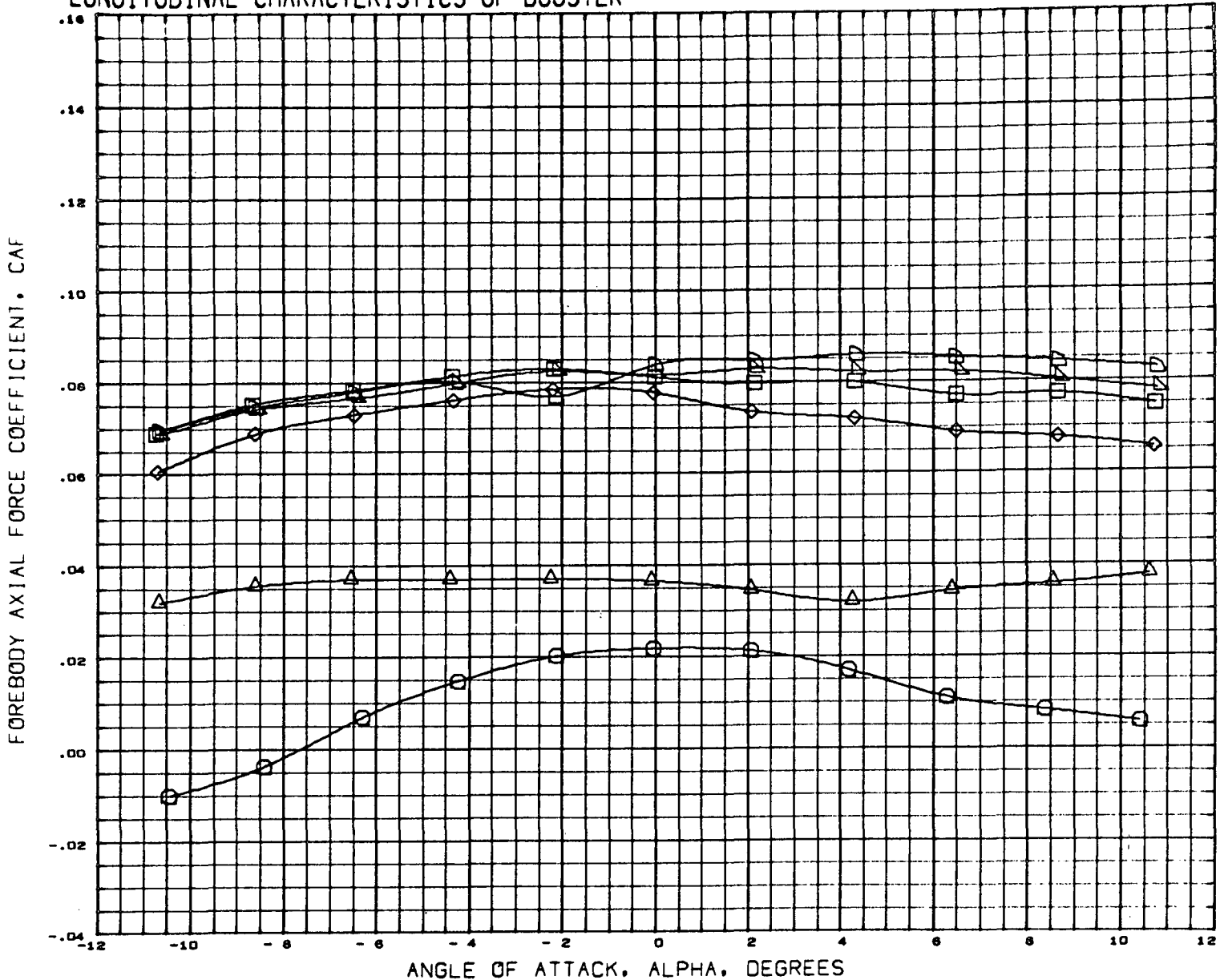
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SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE *E

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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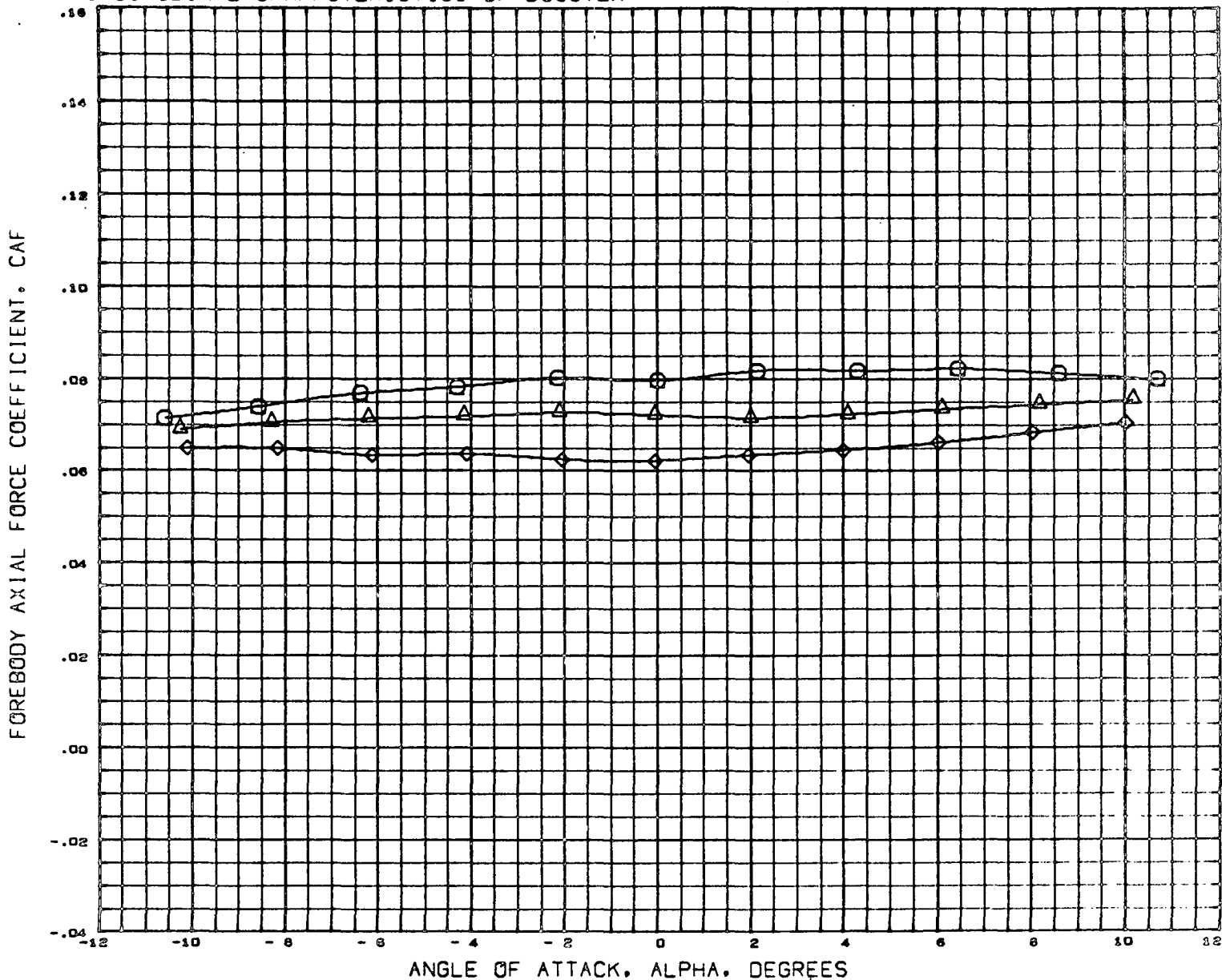
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
		BETA	AILRON	ELVATR	0.000
○	0.606				
△	0.900				
◇	0.998				
□	1.097				
▽	1.197				
×	1.466	DATA HIST. CODE	*E		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
○	1.959	BETA	0.000	ELVATR	0.000
△	2.990	AILRON	0.000		
◇	4.999				

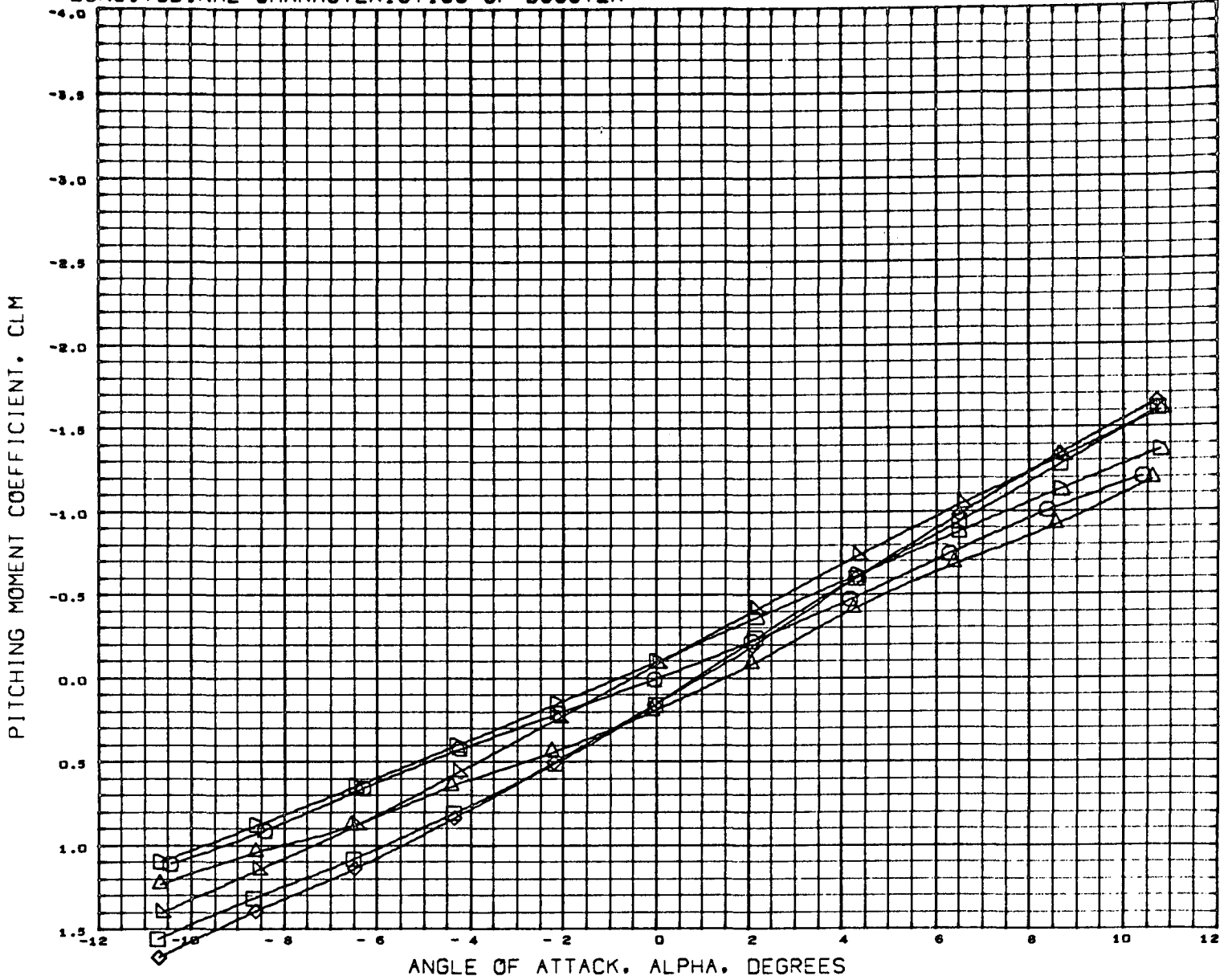
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SCALE	0.0035	SCALE

DATA HIST. CODE #E

MSFC490 GD DELTA BOOSTER B20C4BW14V8

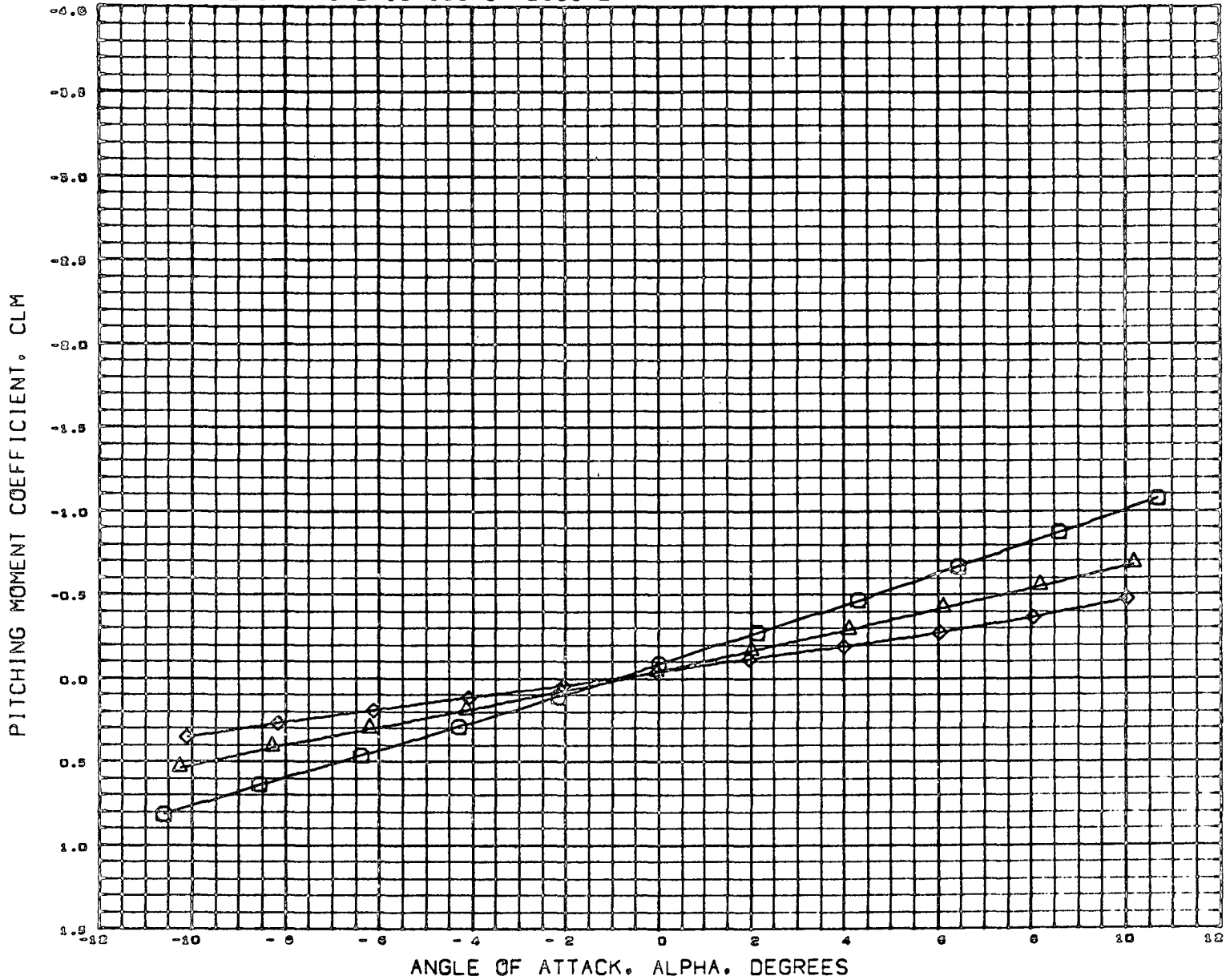
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LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
□	0.606	BETA	0.000	ELVATR	0.000	SREF	15.6560	SQ IN
△	0.900	AILRON	0.000			LREF	3.0930	INCHES
○	0.998					BREF	6.0990	INCHES
◇	1.097					XMRP	0.0000	
▽	1.197					YMRP	0.0000	
×	1.466	DATA HIST. CODE	*E			ZMRP	0.0000	
						SCALE	0.0035	SCALE

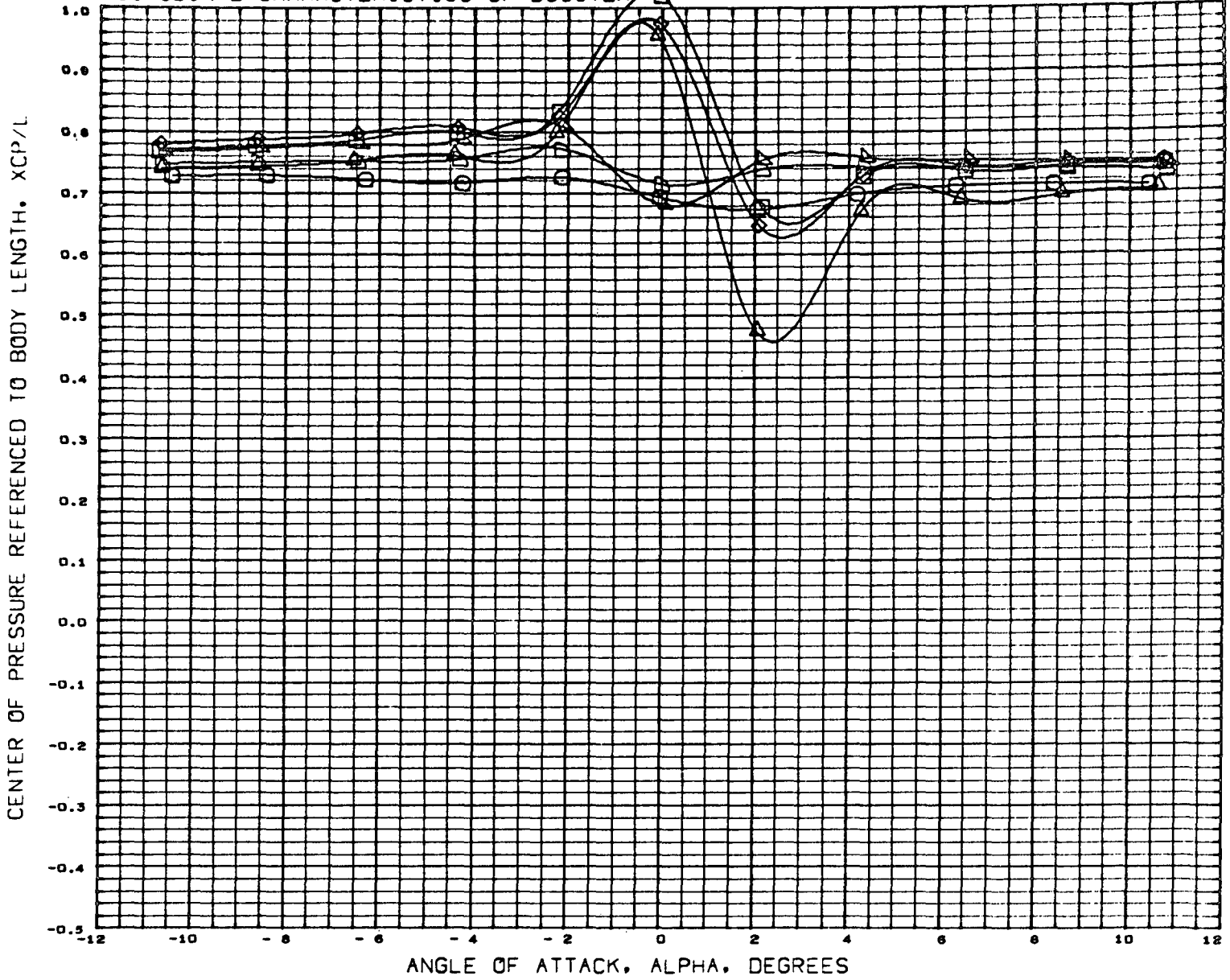
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
○	1.099	BETA	0.000	ELVATR	0.000	SREF	19.6560	50 IN
△	2.090	AILRON	0.000			LREF	3.0950	INCHES
◇	4.099					BREF	6.0990	INCHES
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						YMRP	0.0000	
						ZMRP	0.0000	
						SCALE	0.0039	SCALE

DATA HIST. CODE *E

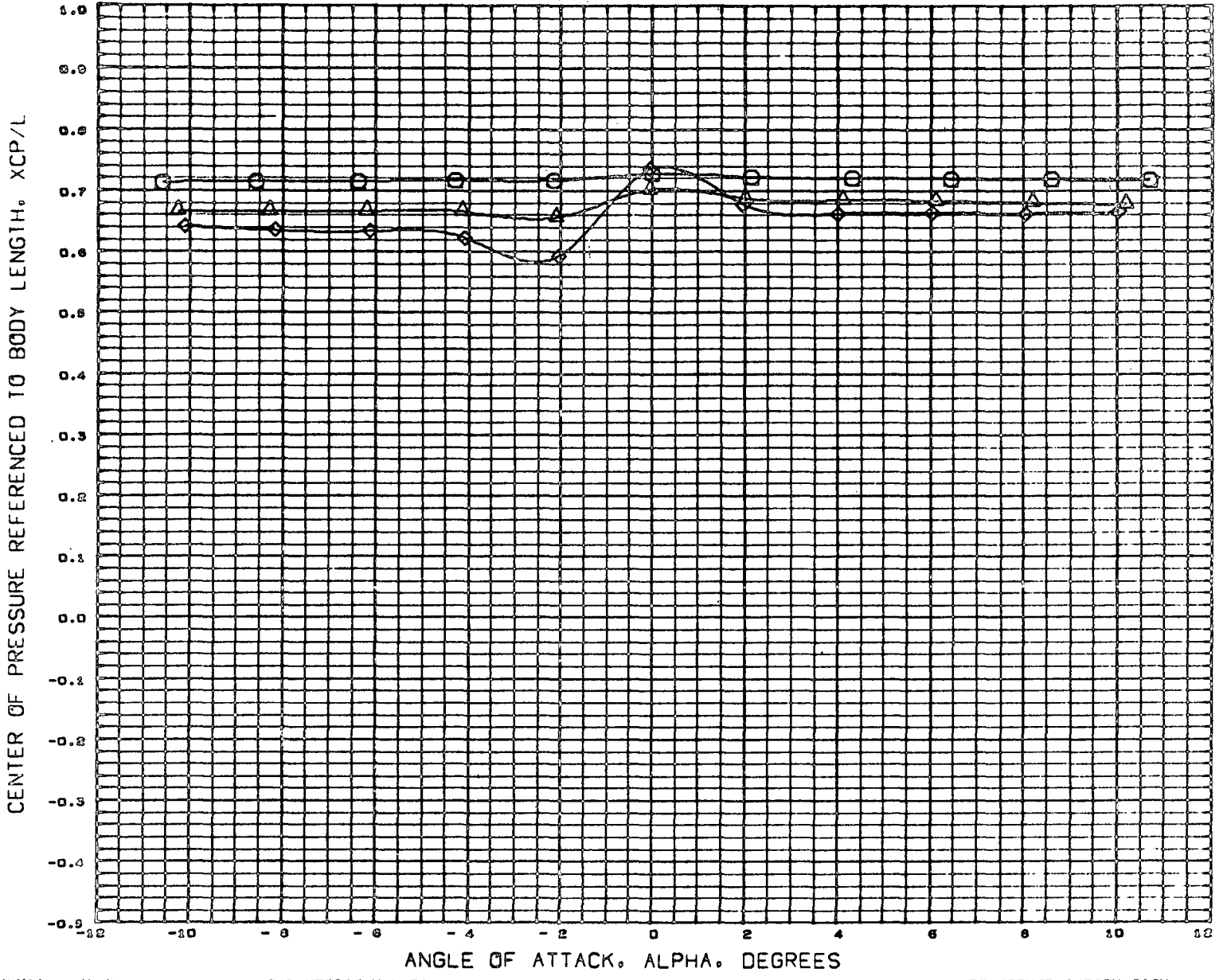
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION					
		BETA	ELVATR	AILRON	SREF	LREF	BREF	YMRP	ZMRP	SCALE
○	0.606	0.000	0.000	0.000	15.6560	3.0950	6.0990	0.0000	0.0000	0.0035
◇	0.900									
△	0.998									
□	1.097									
◇	1.197									
△	1.466									

DATA HIST. CODE *E

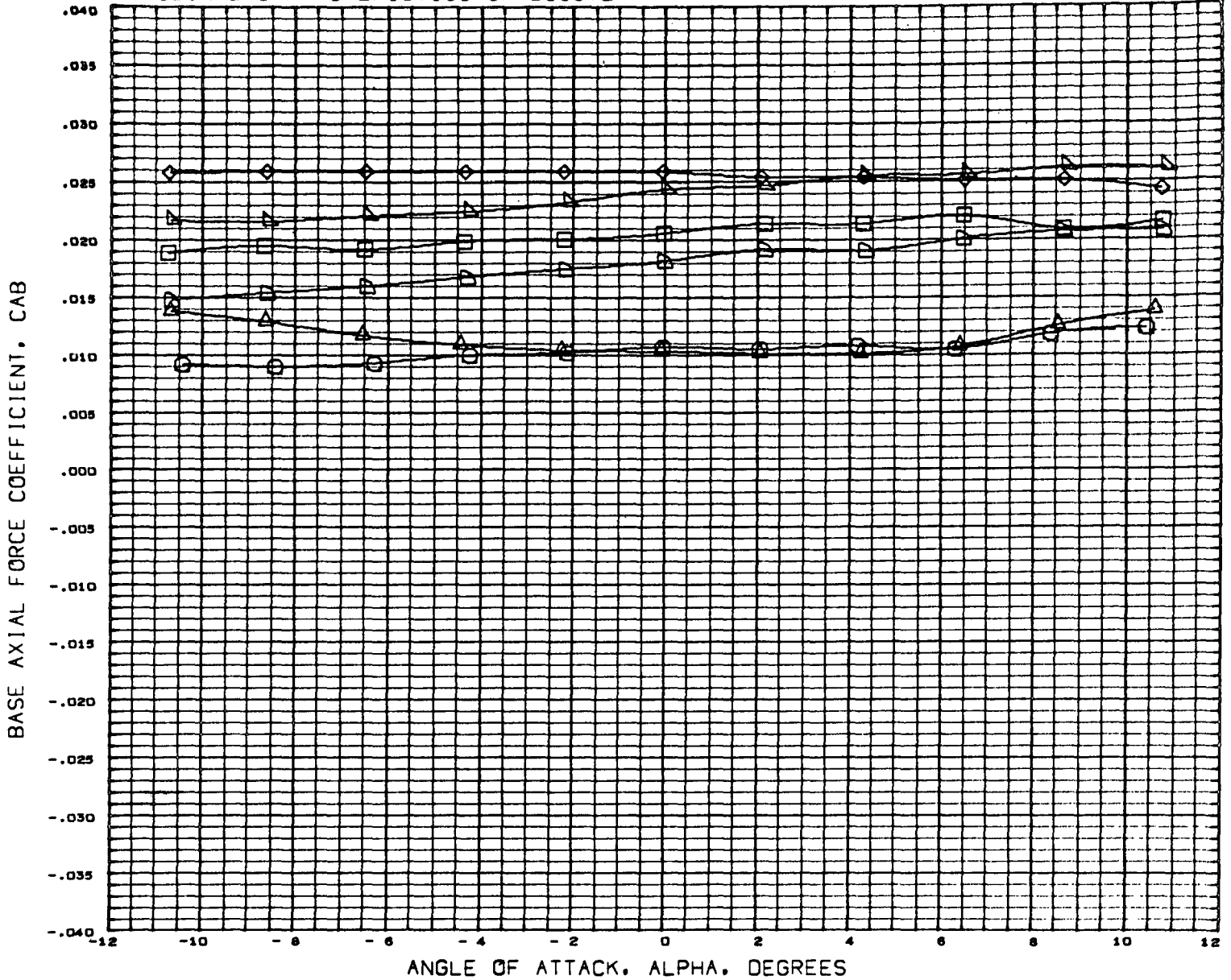
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
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△	2.990	AILRON	0.000			LREF	3.0990	INCHES
◇	4.999					BREF	6.0990	INCHES
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						YMRP	0.0000	
						ZMRP	0.0000	
						SCALE	0.0035	SCALE

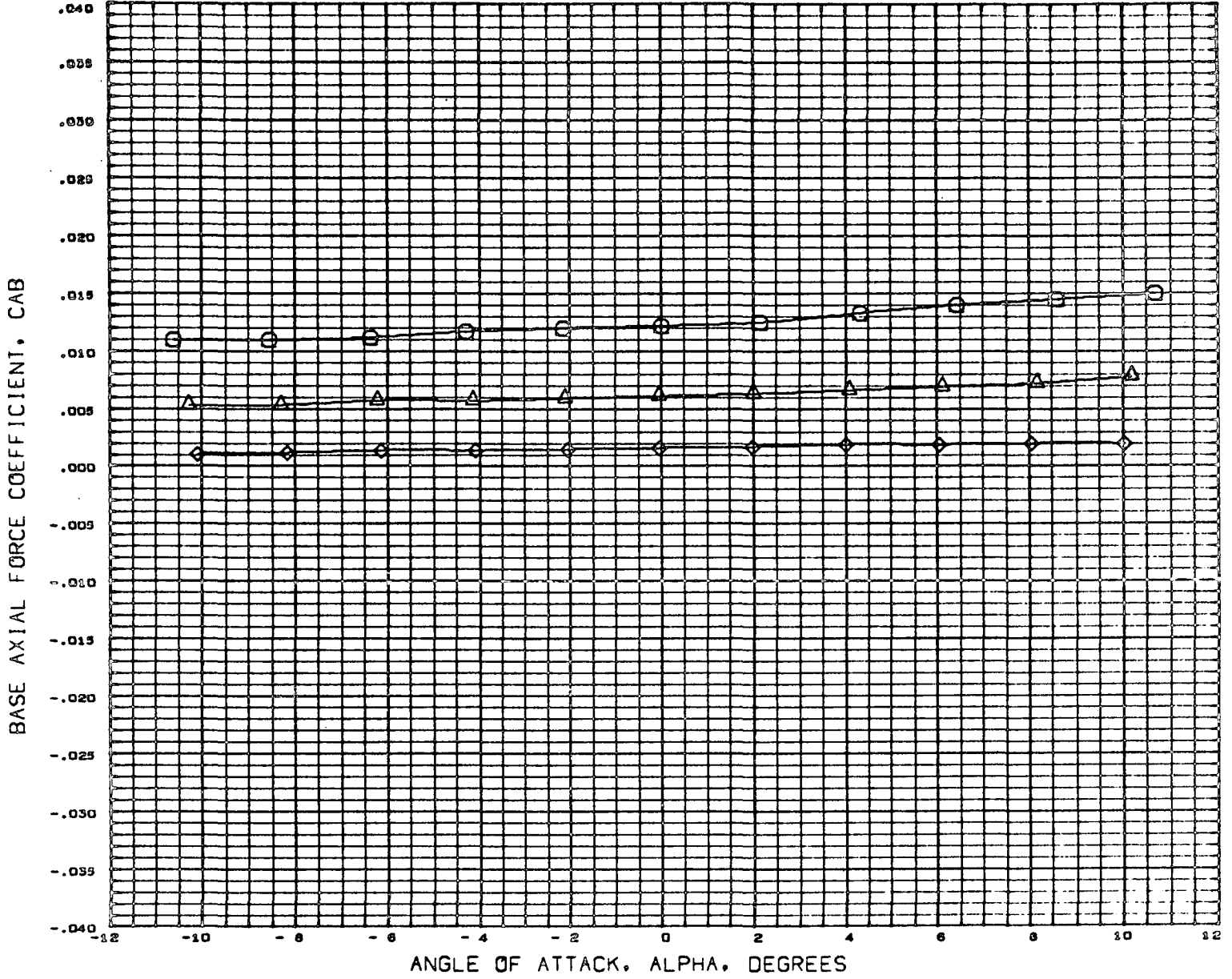
DATA HIST. CODE *E

LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	AILRON	ELVATR	SREF	LREF	BREF	SCALE
◇	0.606	0.000	0.000	0.000	15.6560	3.0950	6.0990	90 IN
□	0.900	0.000	0.000					INCHES
△	0.998							INCHES
▽	1.097							
○	1.197							
◻	1.466							
		DATA HIST. CODE	*E					
								SCALE

LONGITUDINAL CHARACTERISTICS OF BOOSTER

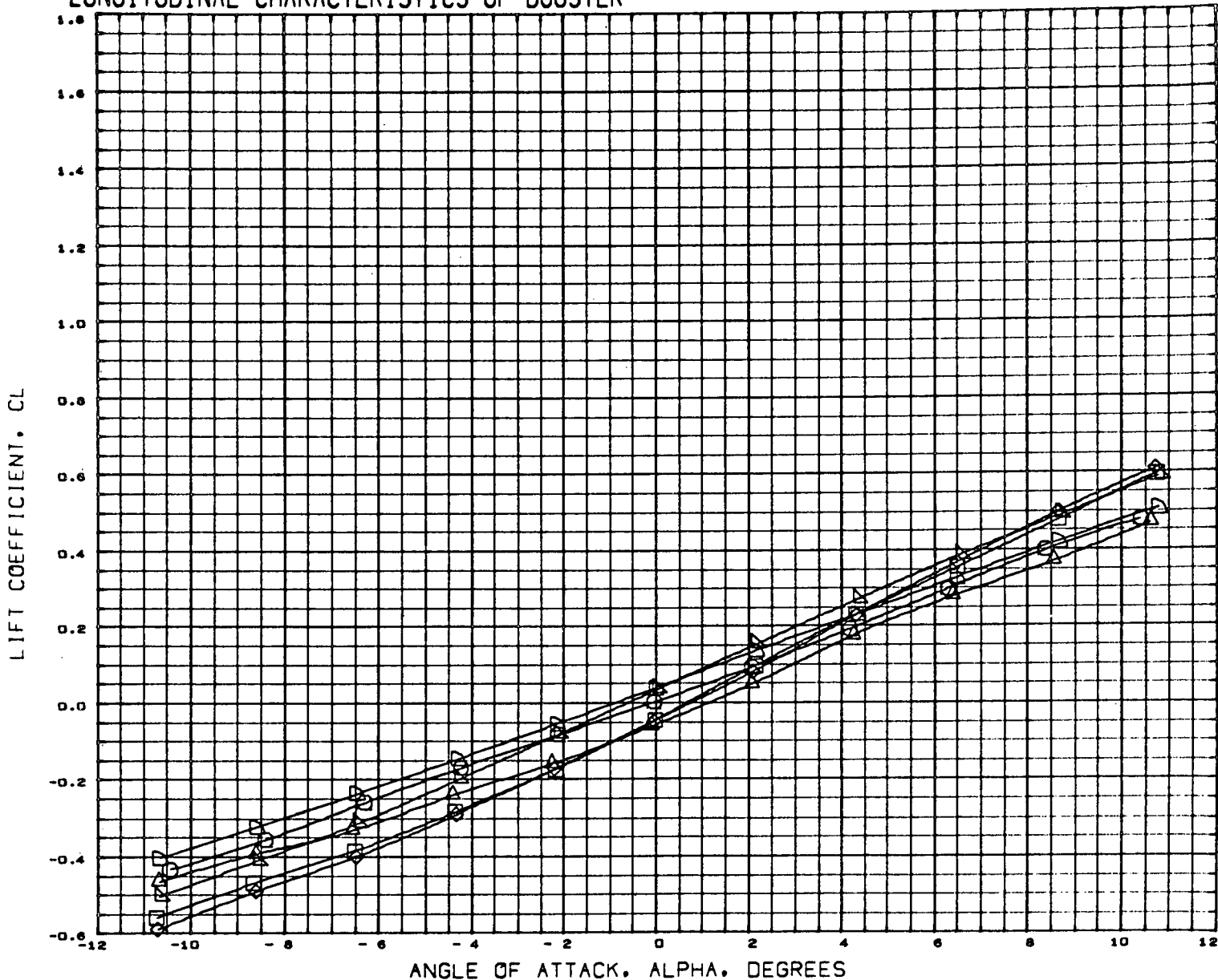


SYMBOL	MACH	PARAMETRIC VALUES			
○	1.959	BETA	0.000	ELVATR	0.000
△	2.090	AILRON	0.000		
◇	4.059				

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE *E

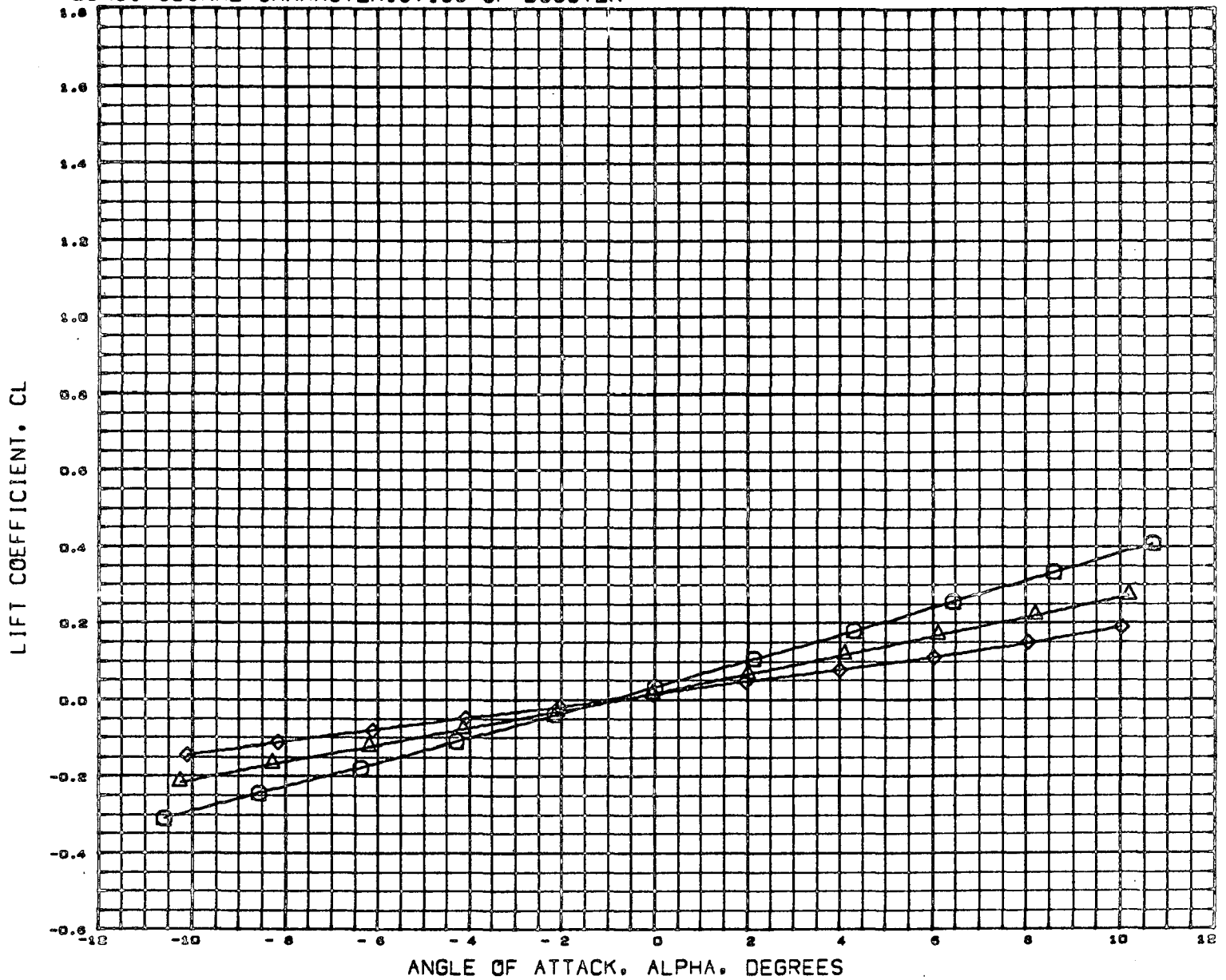
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
○	0.606	BETA	0.000	ELVATR	0.000
□	0.900	AILRON	0.000		
◇	0.998				
△	1.097				
▽	1.197				
◻	1.466	DATA HIST. CODE	#E		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

LONGITUDINAL CHARACTERISTICS OF BOOSTER

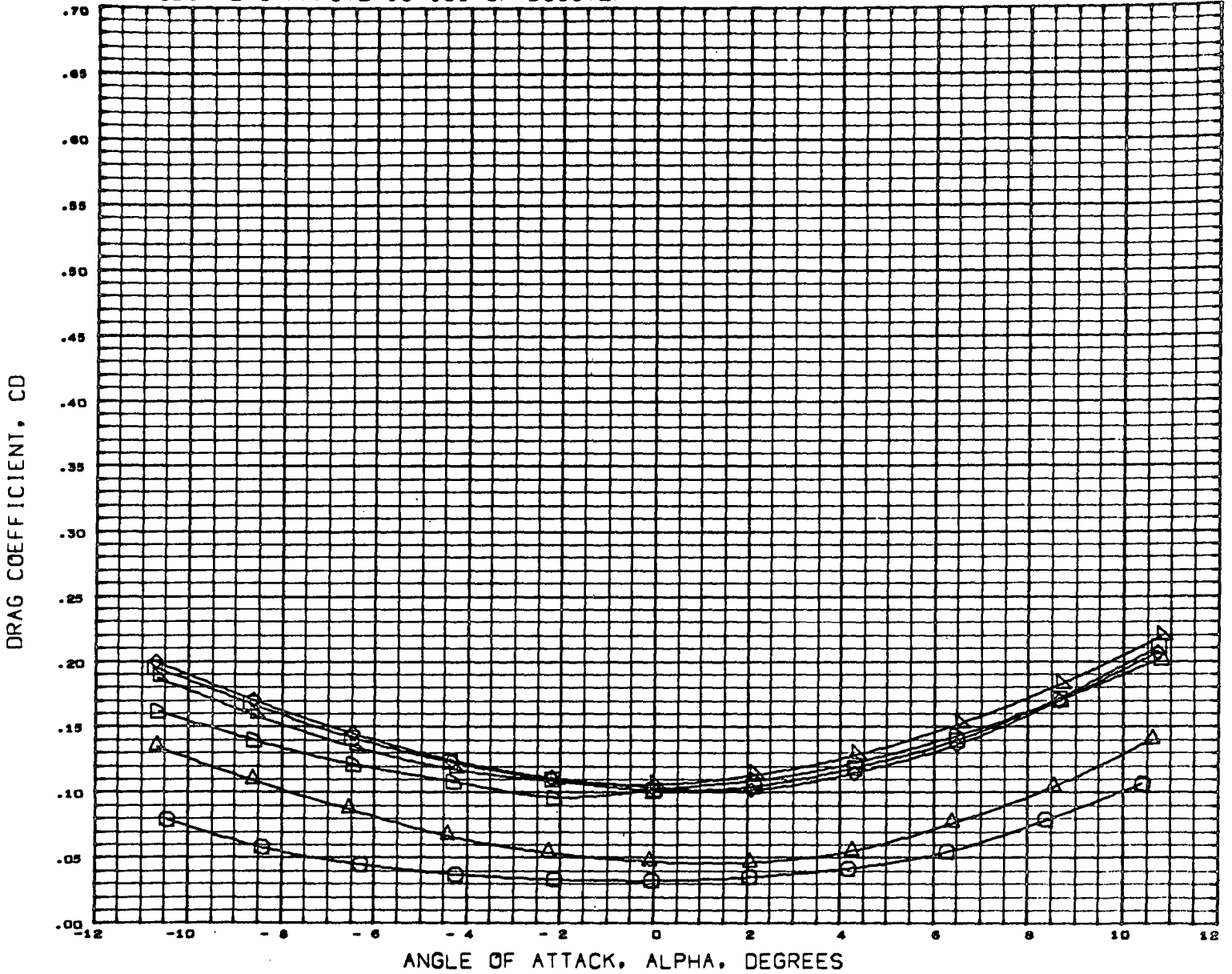


SYMBOL	MACH	PARAMETRIC VALUES			
○	1.099	BETA	0.000	ELVATR	0.000
△	2.090	AILRON	0.000		
◇	4.099				

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
YMRP	0.0000	
ZMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE #E

LONGITUDINAL CHARACTERISTICS OF BOOSTER



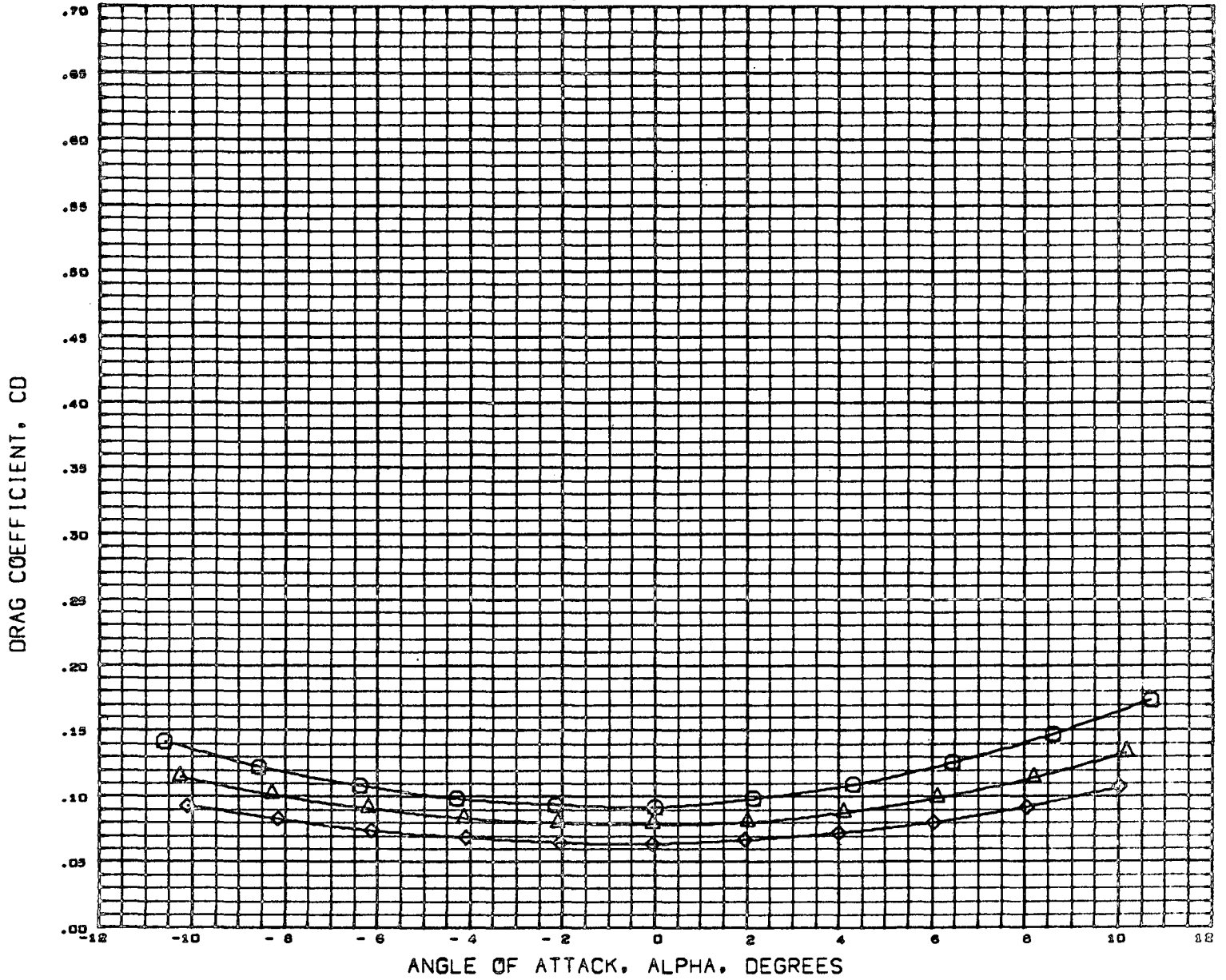
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.606	BETA	0.000	ELVATR	0.000
□	0.900	AILRON	0.000		
△	0.998				
◇	1.097				
▽	1.197				
×	1.466	DATA HIST. CODE	*E		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER

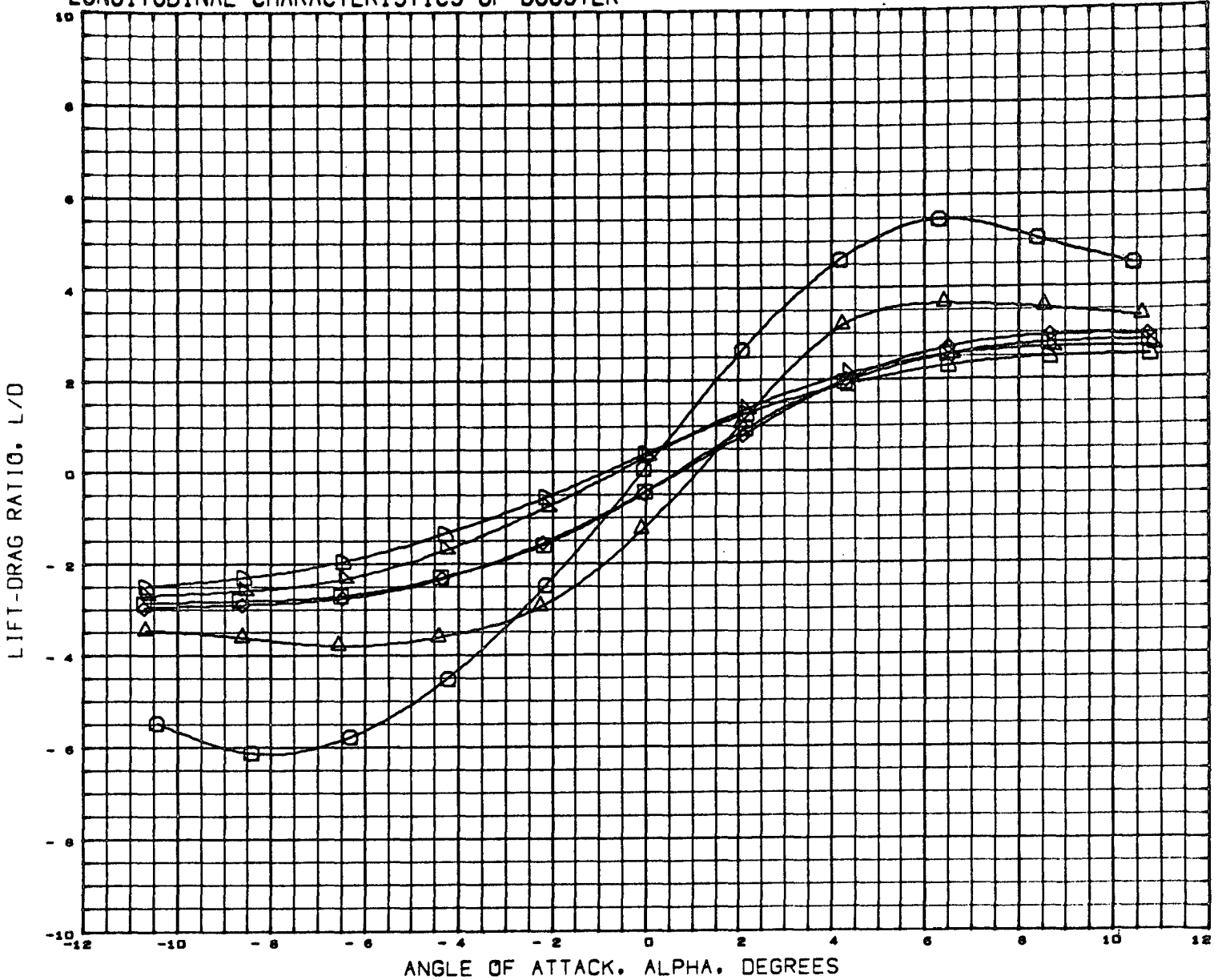


SYMBOL	MACH	PARAMETRIC VALUES
○	1.059	BETA 0.000 ELVATR 0.000
△	2.090	AILRON 0.000
◇	4.099	

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE *E

LONGITUDINAL CHARACTERISTICS OF BOOSTER



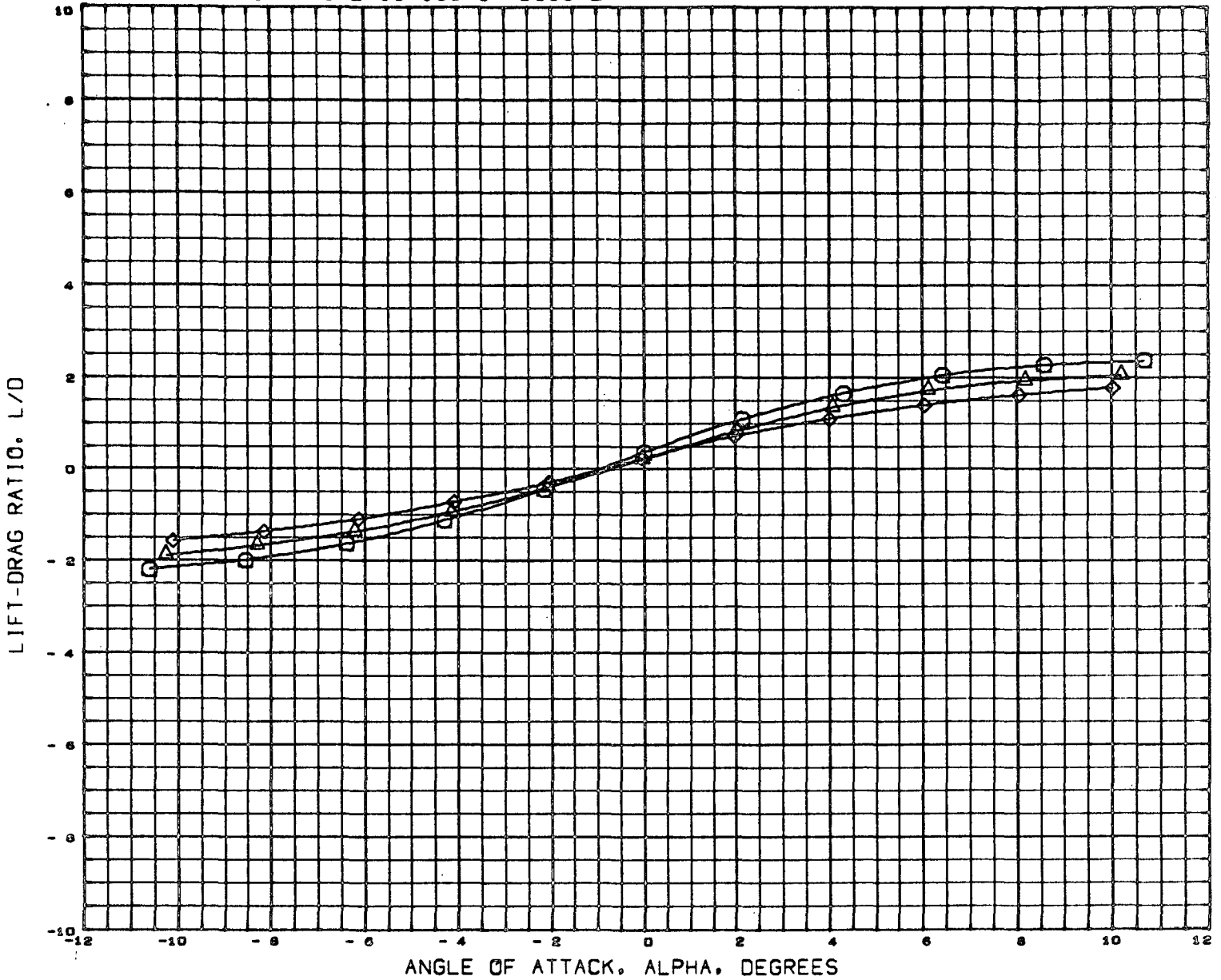
SYMBOL	MACH	PARAMETRIC VALUES		
		BETA	ELVATR	0.000
○	0.606		0.000	0.000
◇	0.900	AILRON	0.000	
◇	0.998			
◇	1.097			
◇	1.197			
◇	1.466	DATA HIST. CODE	#E	

REFERENCE INFORMATION		
SREF	15.6560	Sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

(H3205A) 23 OCT 71 PAGE 93

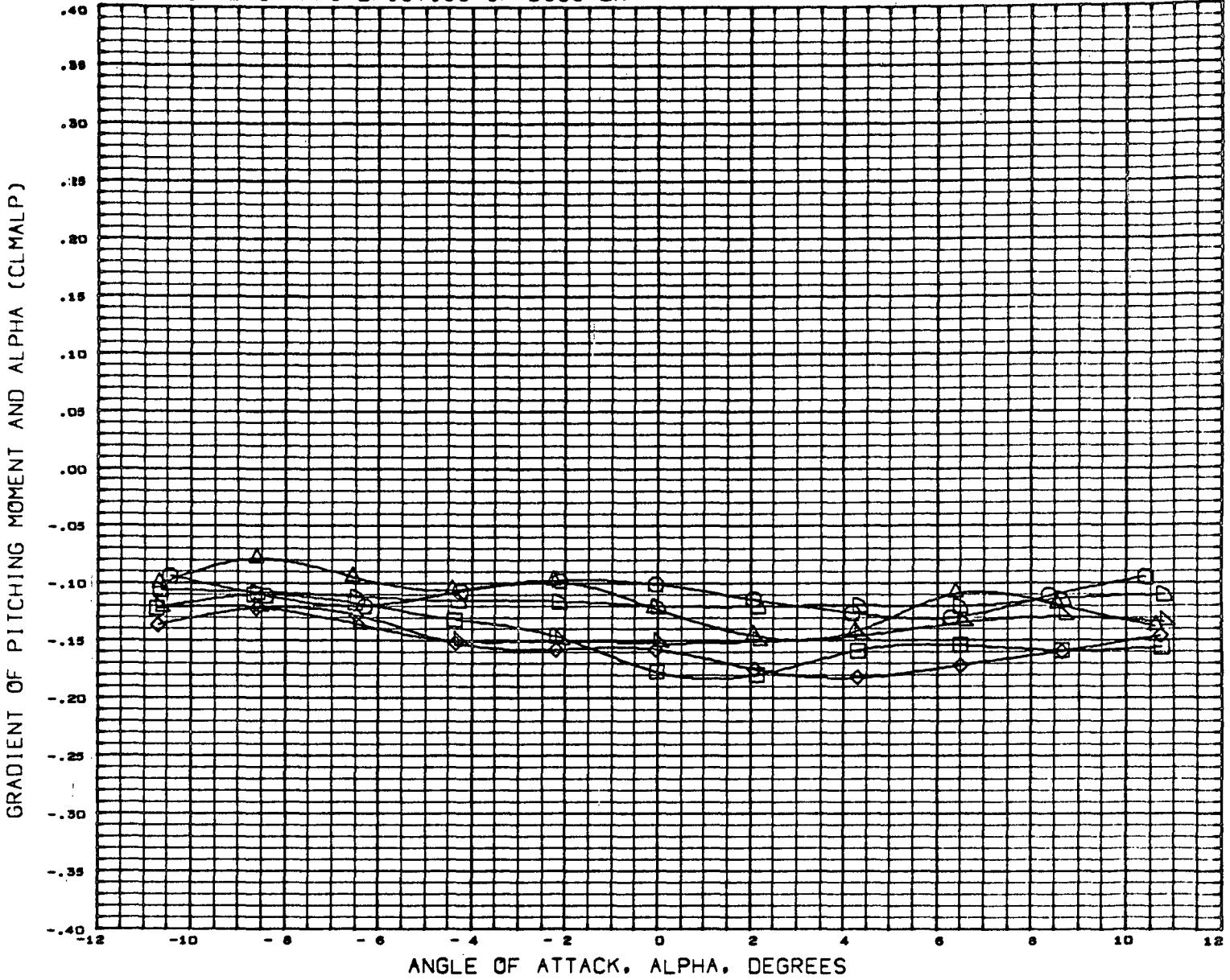
LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
○	1.999	BETA	0.000	ELVATR	0.000	SREF	15.6360	50 IN
△	2.990	AILRON	0.000			LREF	3.0950	INCHES
◇	4.999					BREF	6.0990	INCHES
						XMRP	0.0000	
						YMRP	0.0000	
						ZMRP	0.0000	
						SCALE	0.0035	SCALE

DATA HIST. CODE *E

LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
○	0.606	BETA	0.000	ELVATR	0.000
□	0.900	AILRON	0.000		
◇	0.998				
△	1.097				
▽	1.197				
×	1.466	DATA HIST. CODE	G		

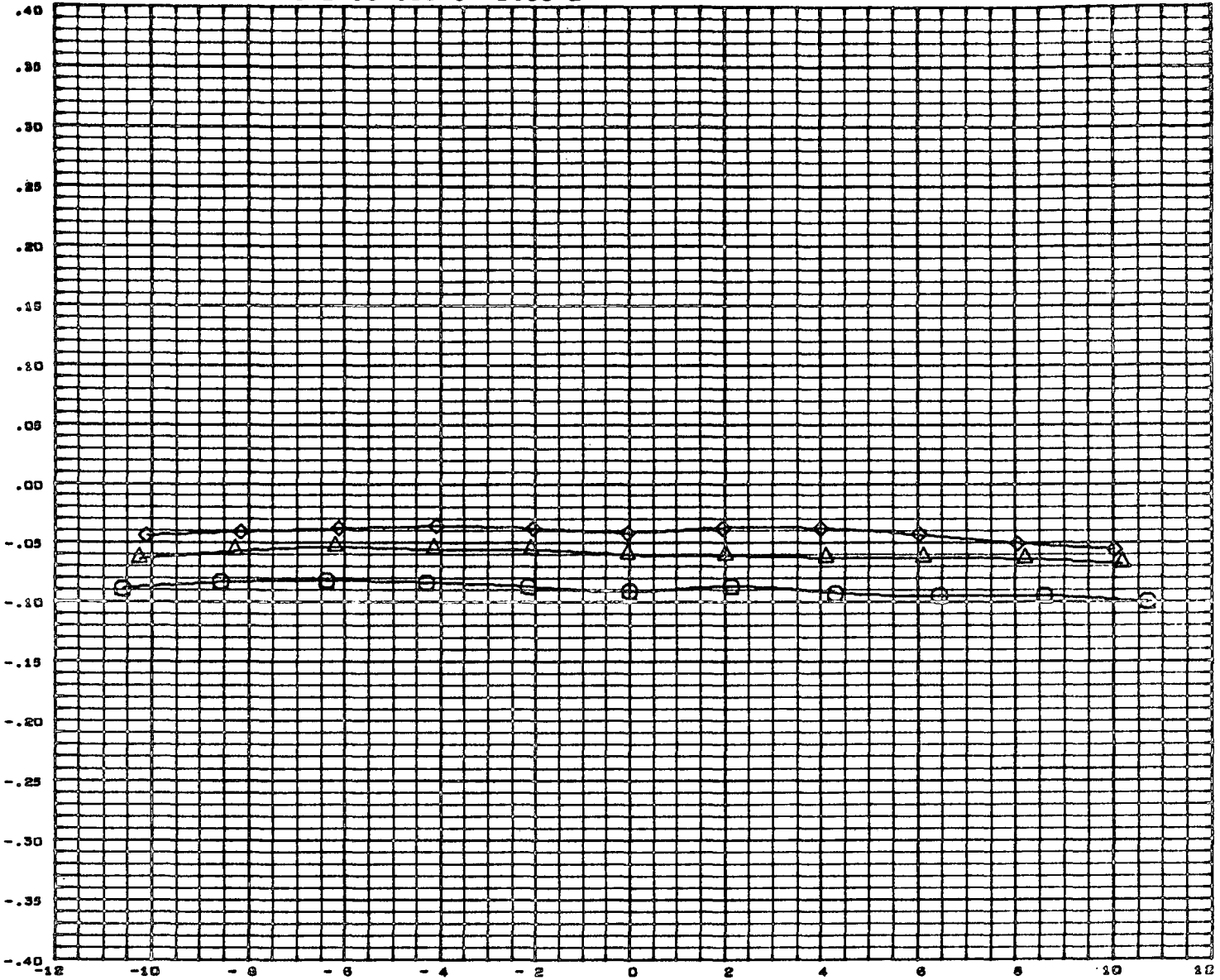
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BREF	6.0990	INCHES
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YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER

GRADIENT OF PITCHING MOMENT AND ALPHA (CLMALP)



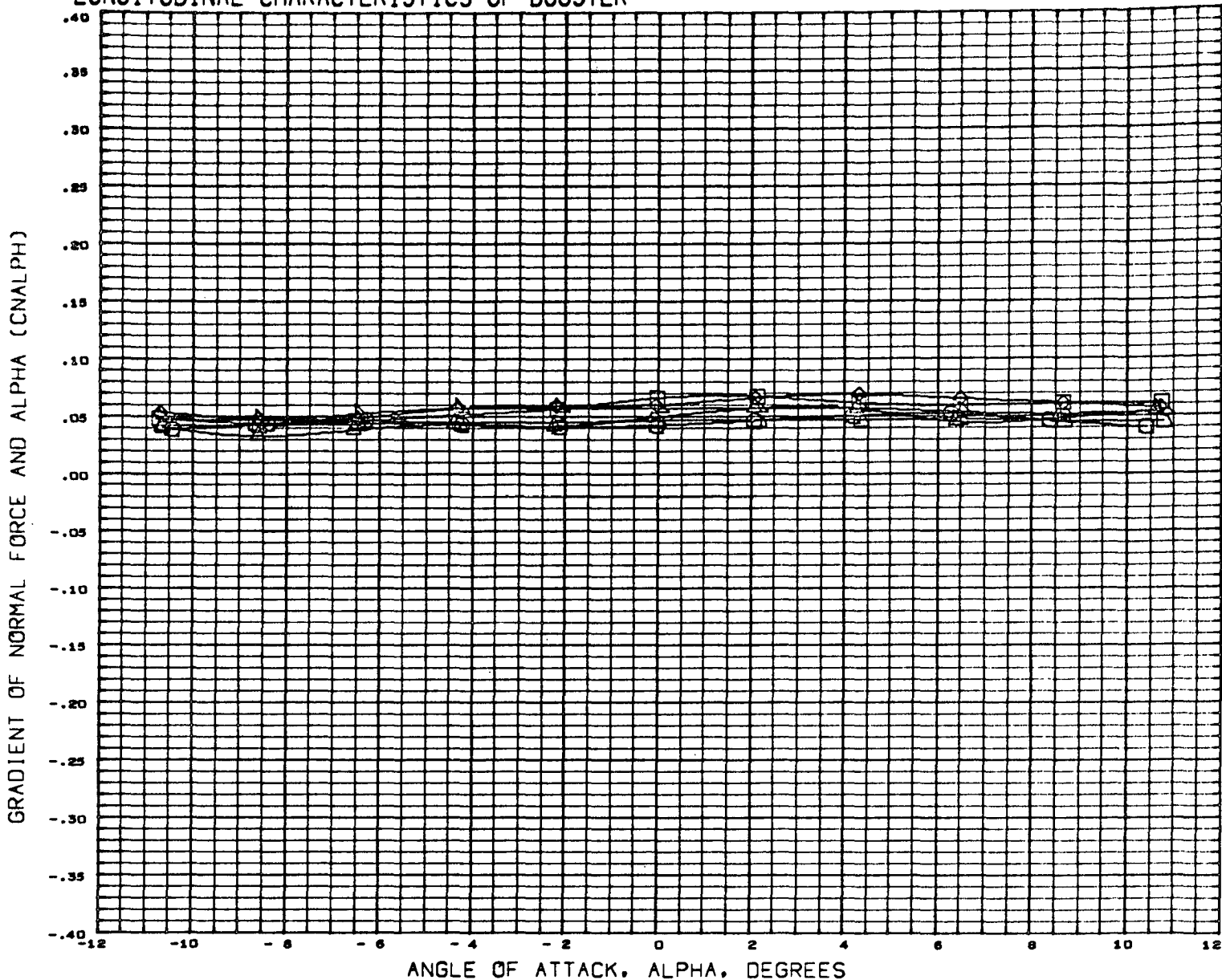
ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	MACH	PARAMETRIC VALUES			
○	1.959	BETA	0.000	ELVATR	0.000
△	2.990	AILRON	0.000		
◇	4.959				

REFERENCE INFORMATION		
SREF	15.6560	99 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE G

LONGITUDINAL CHARACTERISTICS OF BOOSTER



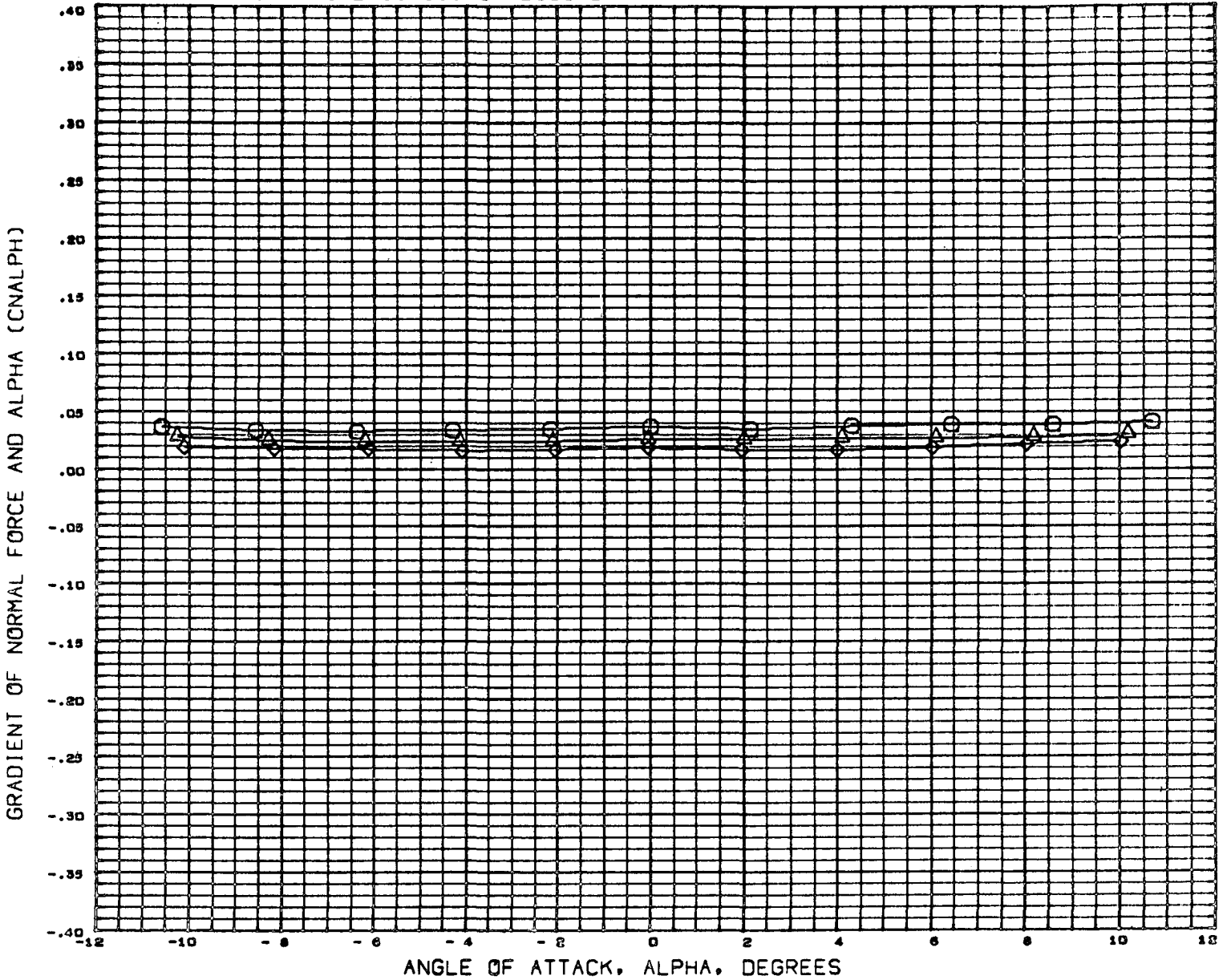
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.606	BETA	0.000	ELVATR	0.000
◇	0.900	AILRON	0.000		
◇	0.998				
□	1.097				
◇	1.197				
◇	1.466	DATA HIST. CODE	G		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER



SYMBOL	MACH	PARAMETRIC VALUES			
◇	1.959	BETA	0.000	ELVATR	0.000
◇	2.990	AILRON	0.000		
◇	4.959				

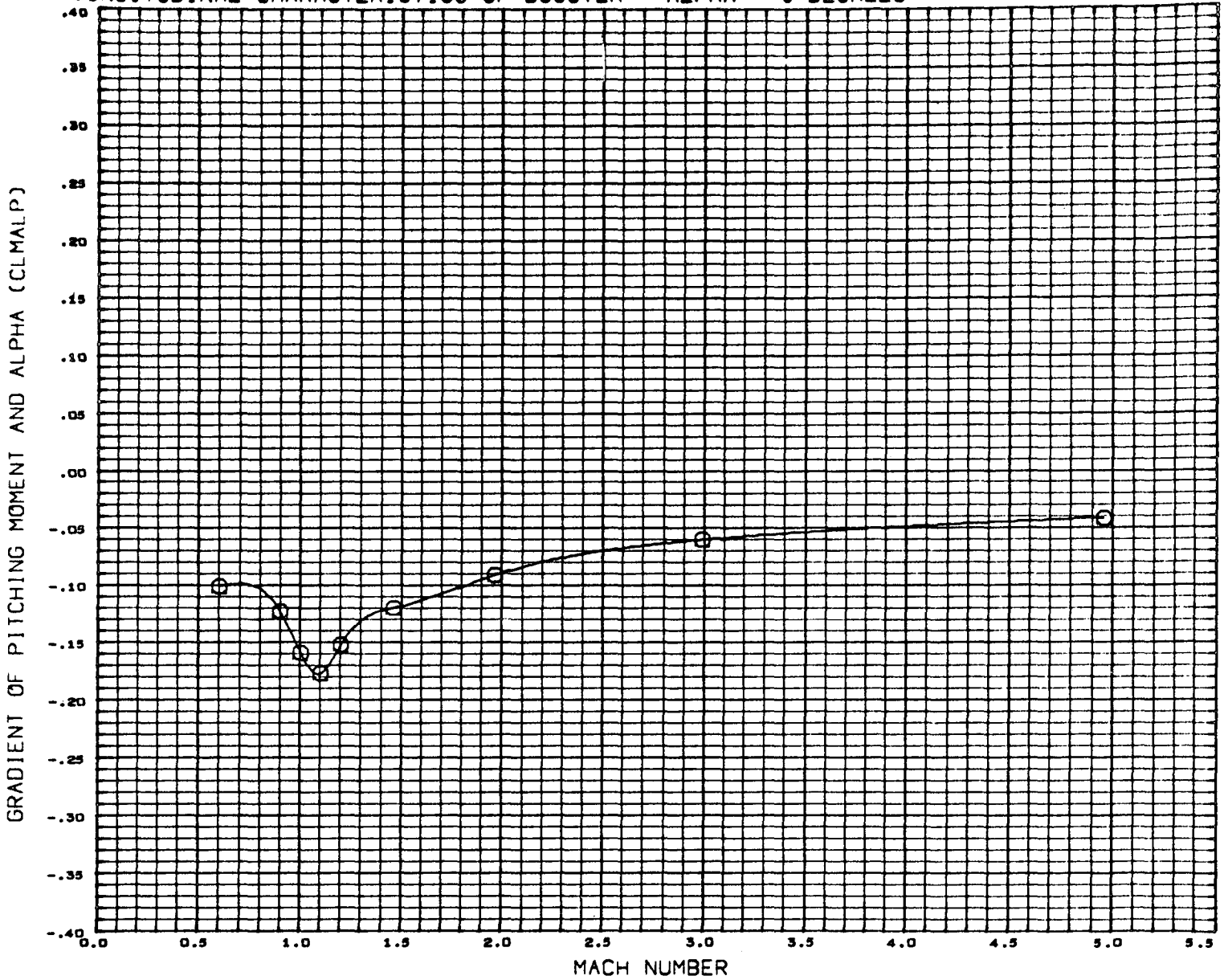
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LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE G

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER - ALPHA = 0 DEGREES

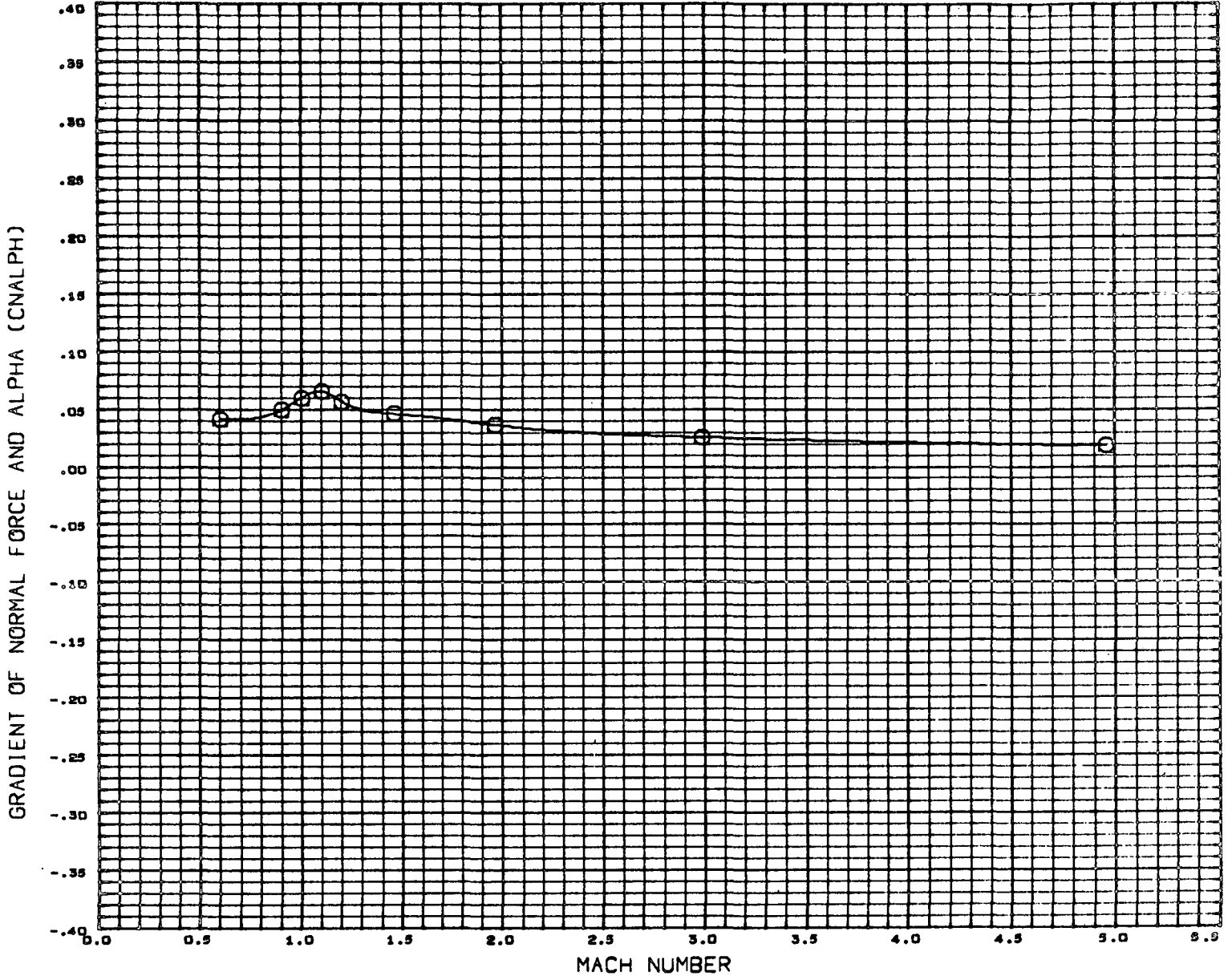


SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	BETA	0.000	ELVATR	0.000
		AILRON	0.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE GI

LONGITUDINAL CHARACTERISTICS OF BOOSTER - ALPHA = 0 DEGREES



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	BETA	0.000	ELVATR	0.000
		AILRON	0.000		

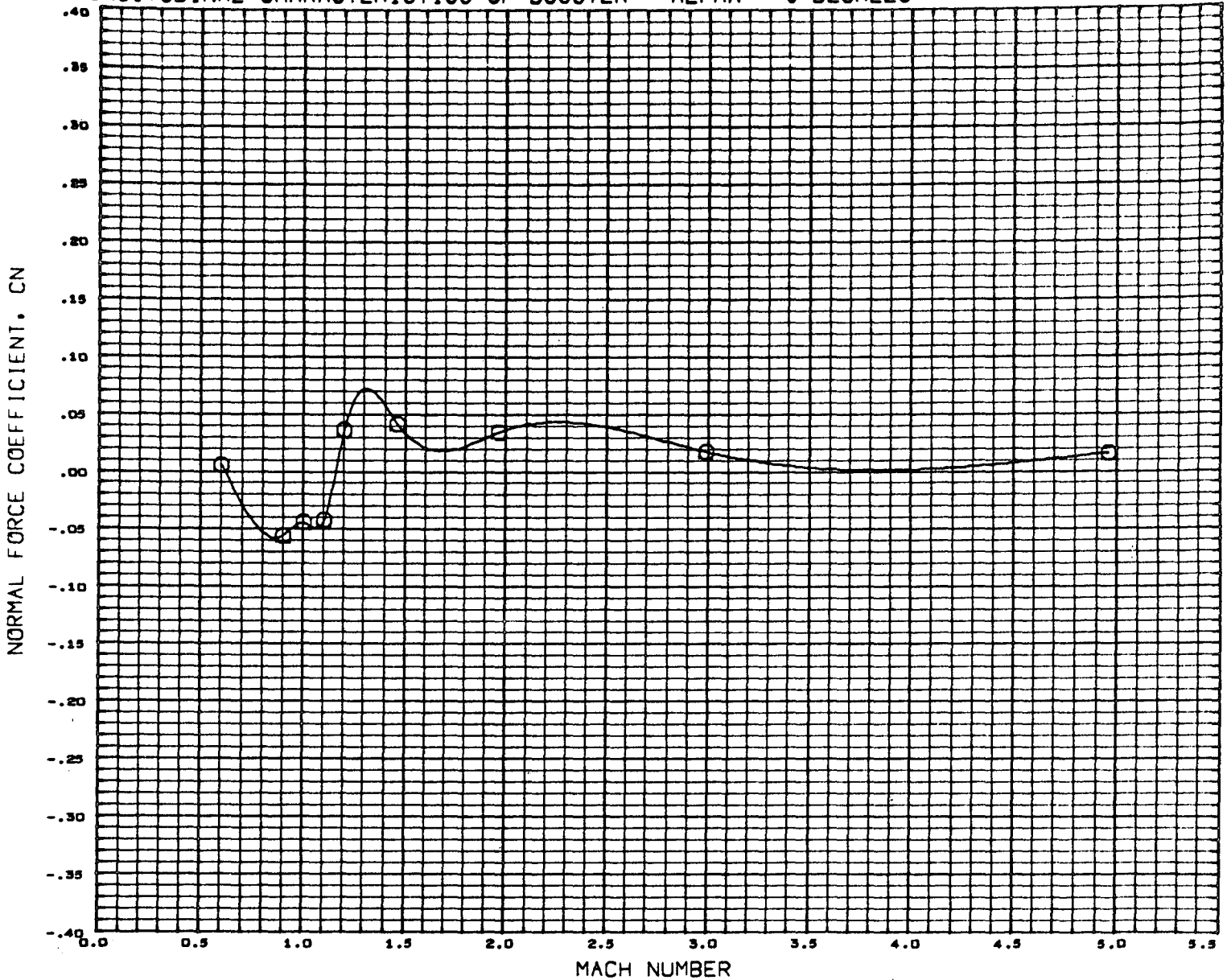
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BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE G1

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LONGITUDINAL CHARACTERISTICS OF BOOSTER - ALPHA = 0 DEGREES



SYMBOL ALPHA BETA PARAMETRIC VALUES ELVATR 0.000

○ 0.000 AILRON 0.000

REFERENCE INFORMATION

SREF 15.6560 SQ IN

LREF 3.0950 INCHES

BREF 6.0990 INCHES

XMRP 0.0000

YMRP 0.0000

ZMRP 0.0000

SCALE 0.0035 SCALE

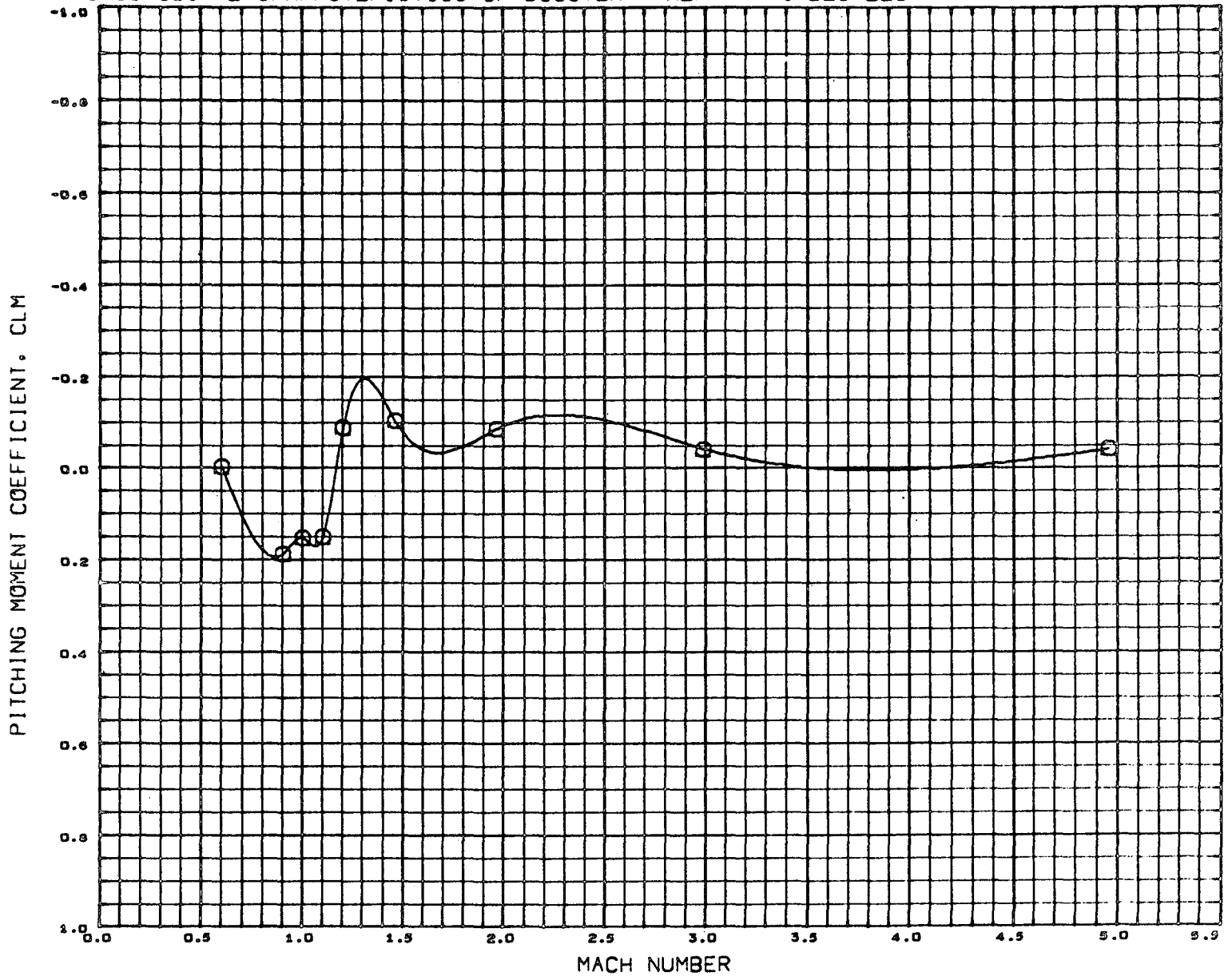
DATA HIST. CODE I

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER - ALPHA = 0 DEGREES



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	BETA	0.000	ELVATR	0.000
		AILRON	0.000		

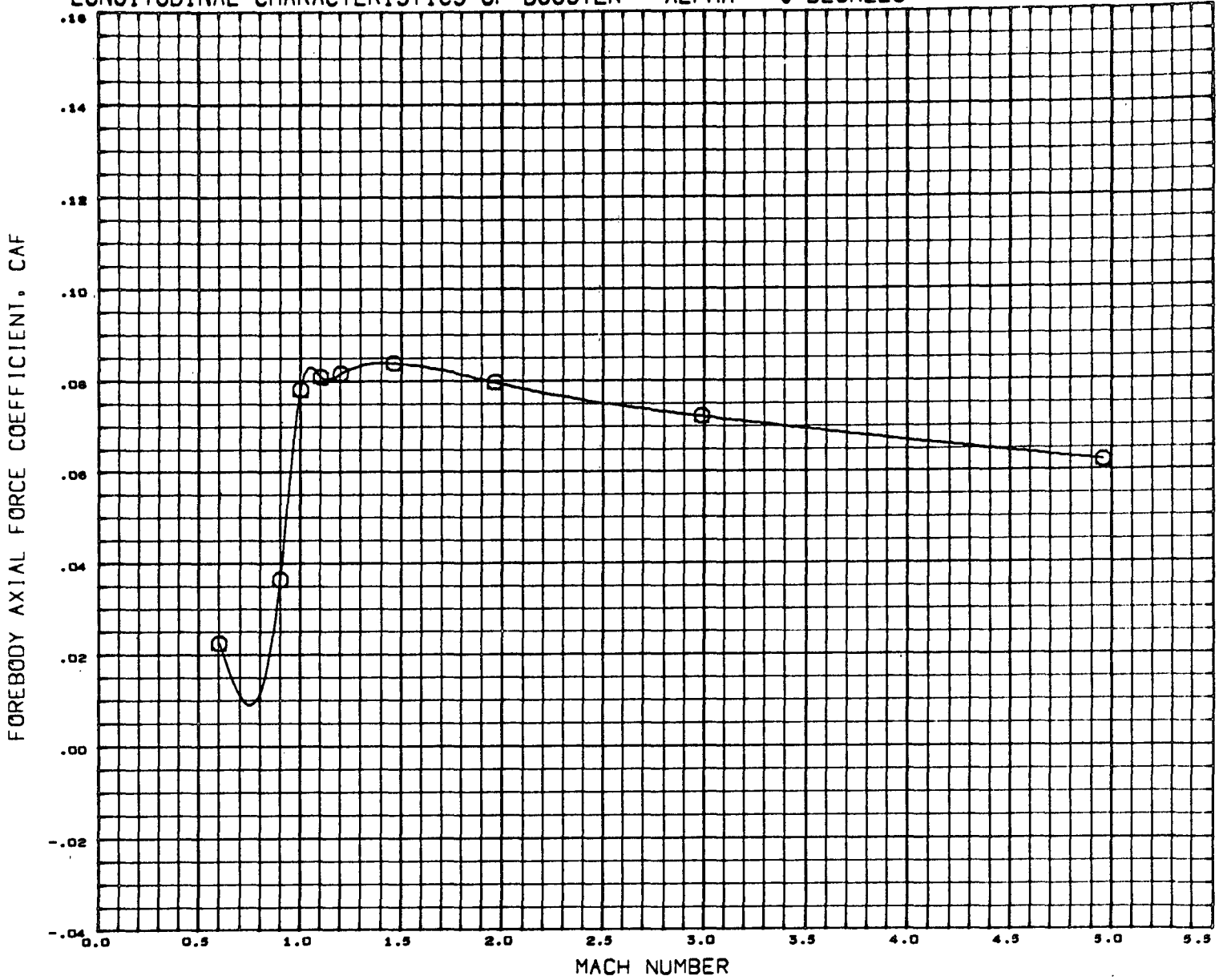
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LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

DATA HIST. CODE I

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER - ALPHA = 0 DEGREES



SYMBOL \bigcirc ALPHA 0.000 BETA 0.000
 PARAMETRIC VALUES ELVATR 0.000
 AILRON 0.000

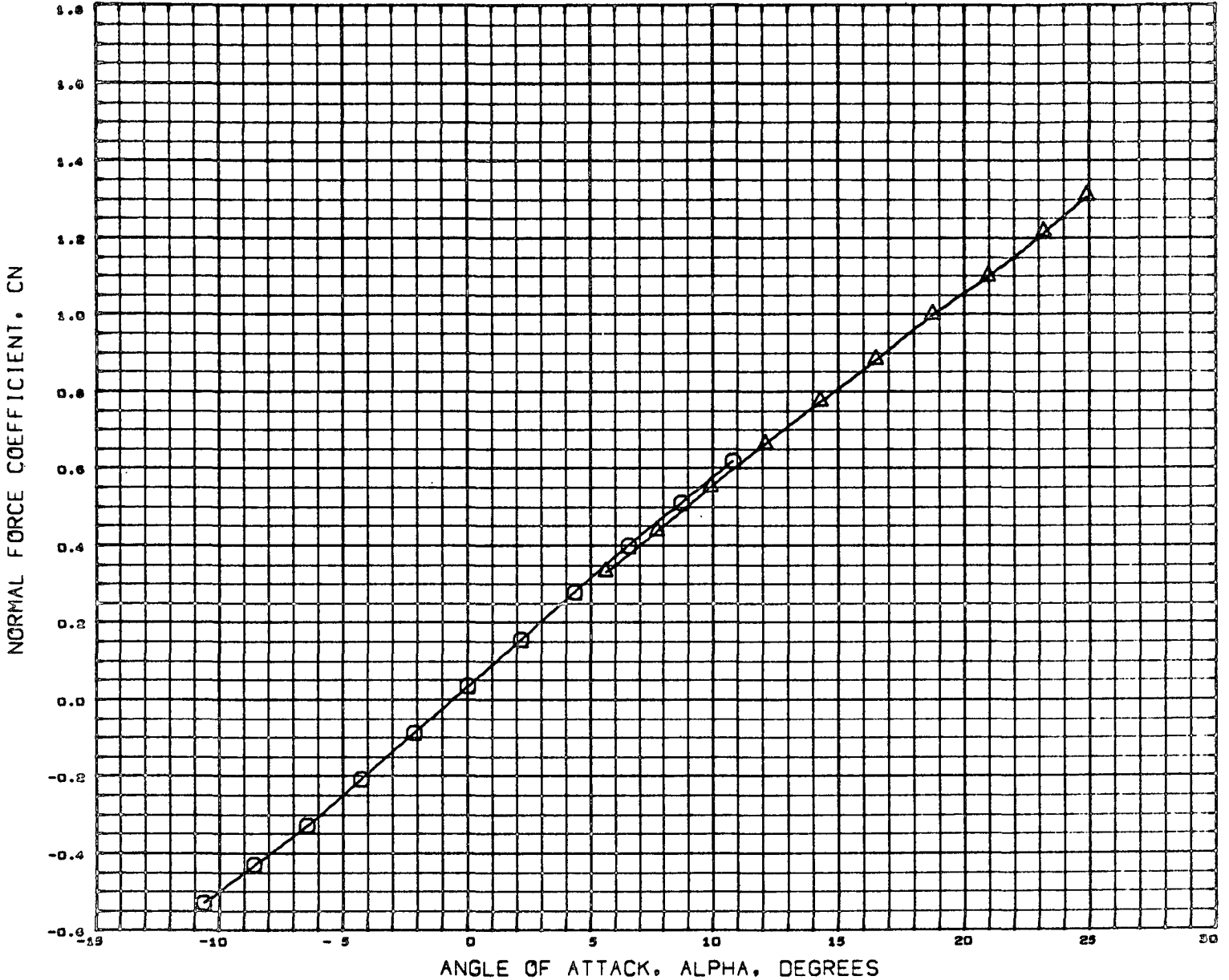
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 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

DATA HIST. CODE I

MSFC490 GD DELTA BOOSTER B20C4BW14V8

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LONGITUDINAL CHARACTERISTICS OF BOOSTER



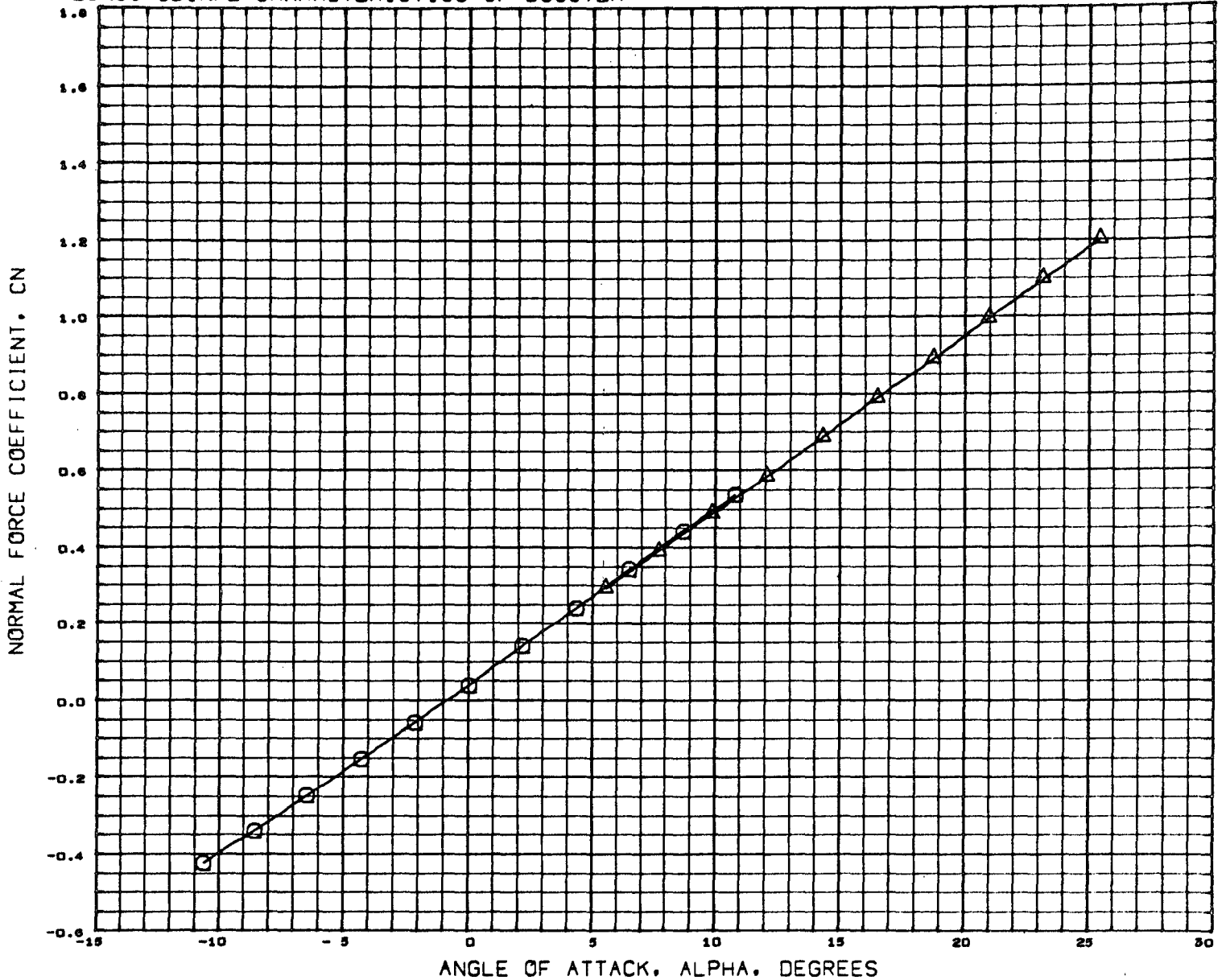
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(N3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3209B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3297B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



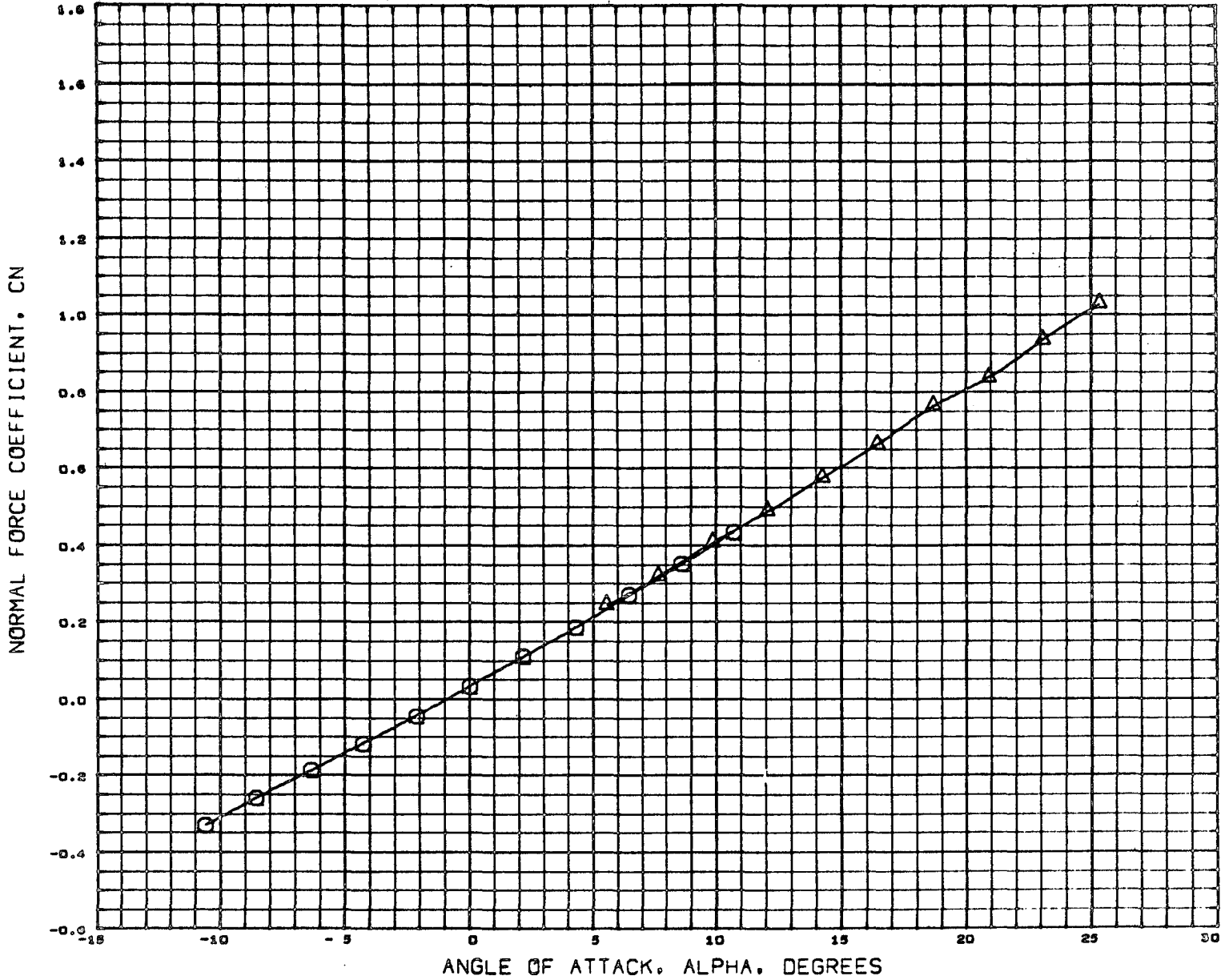
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	Sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



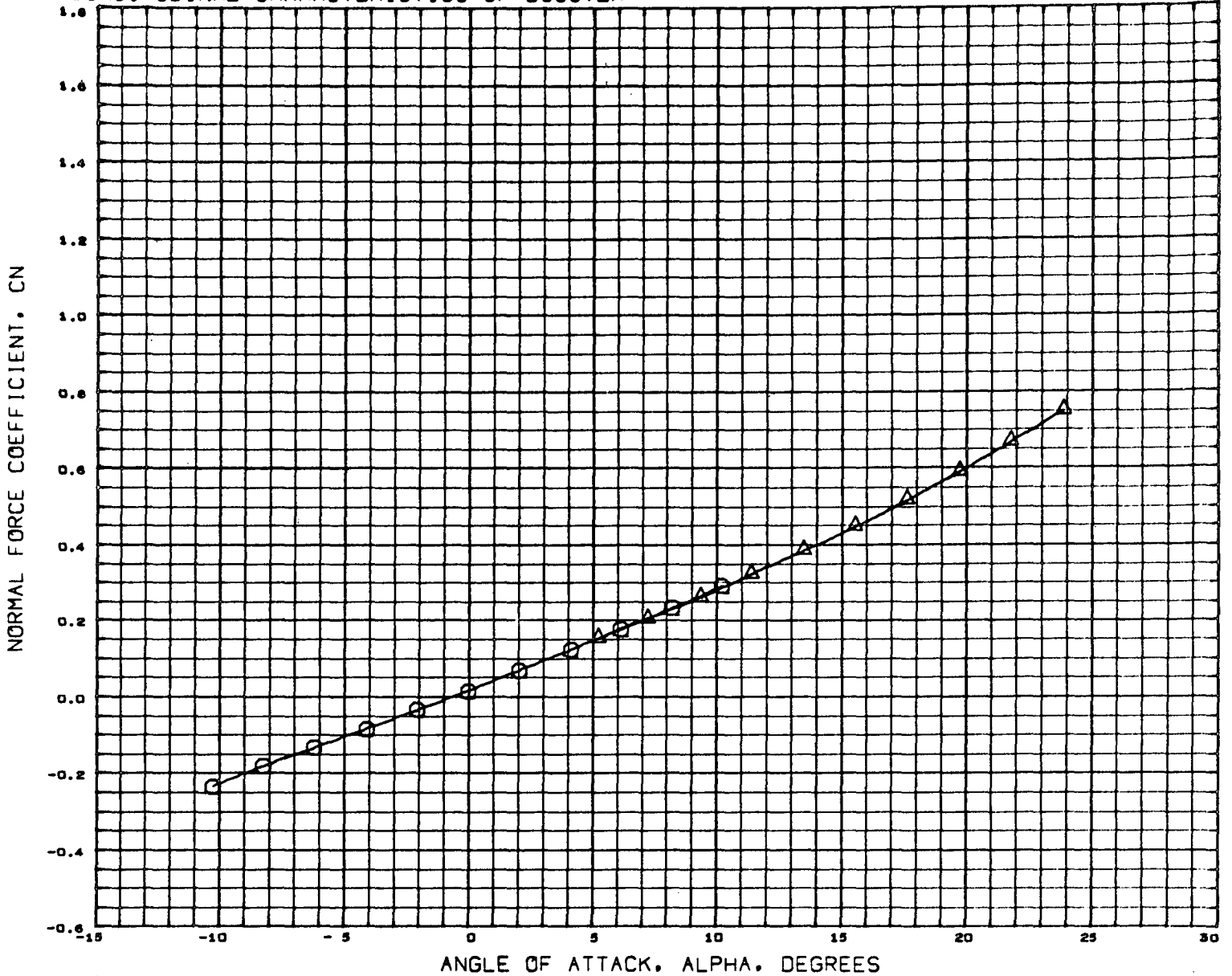
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



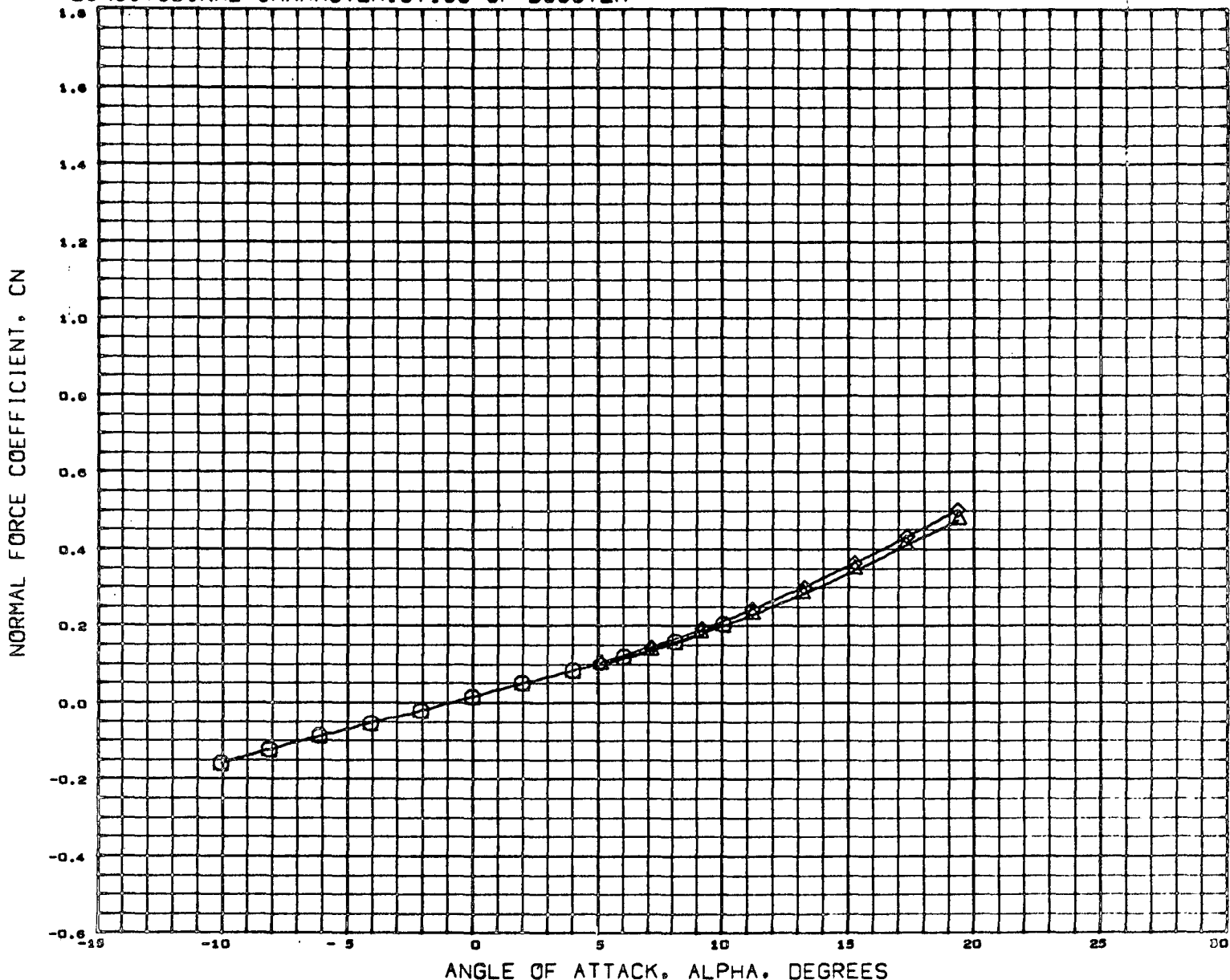
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	△	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



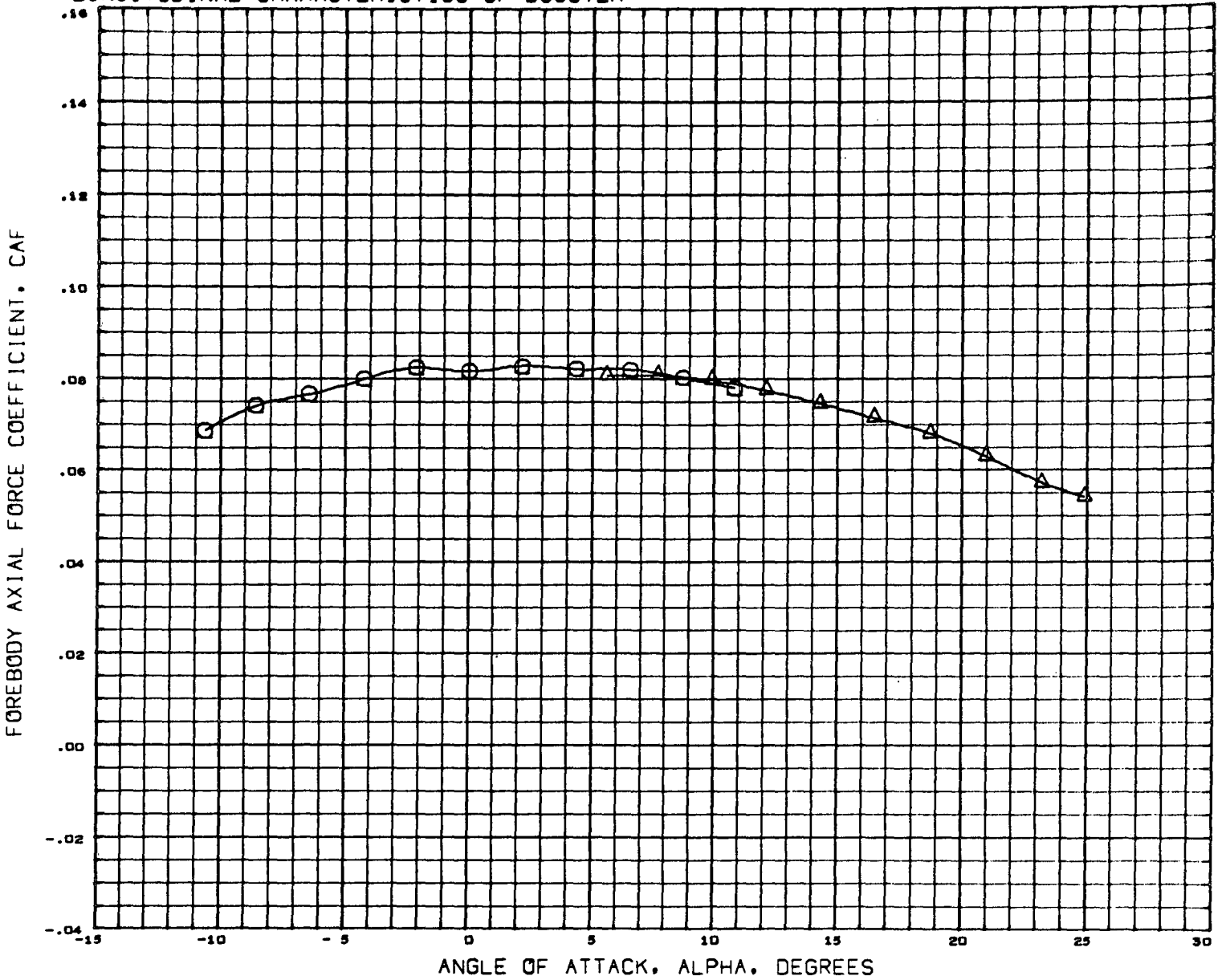
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3209B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

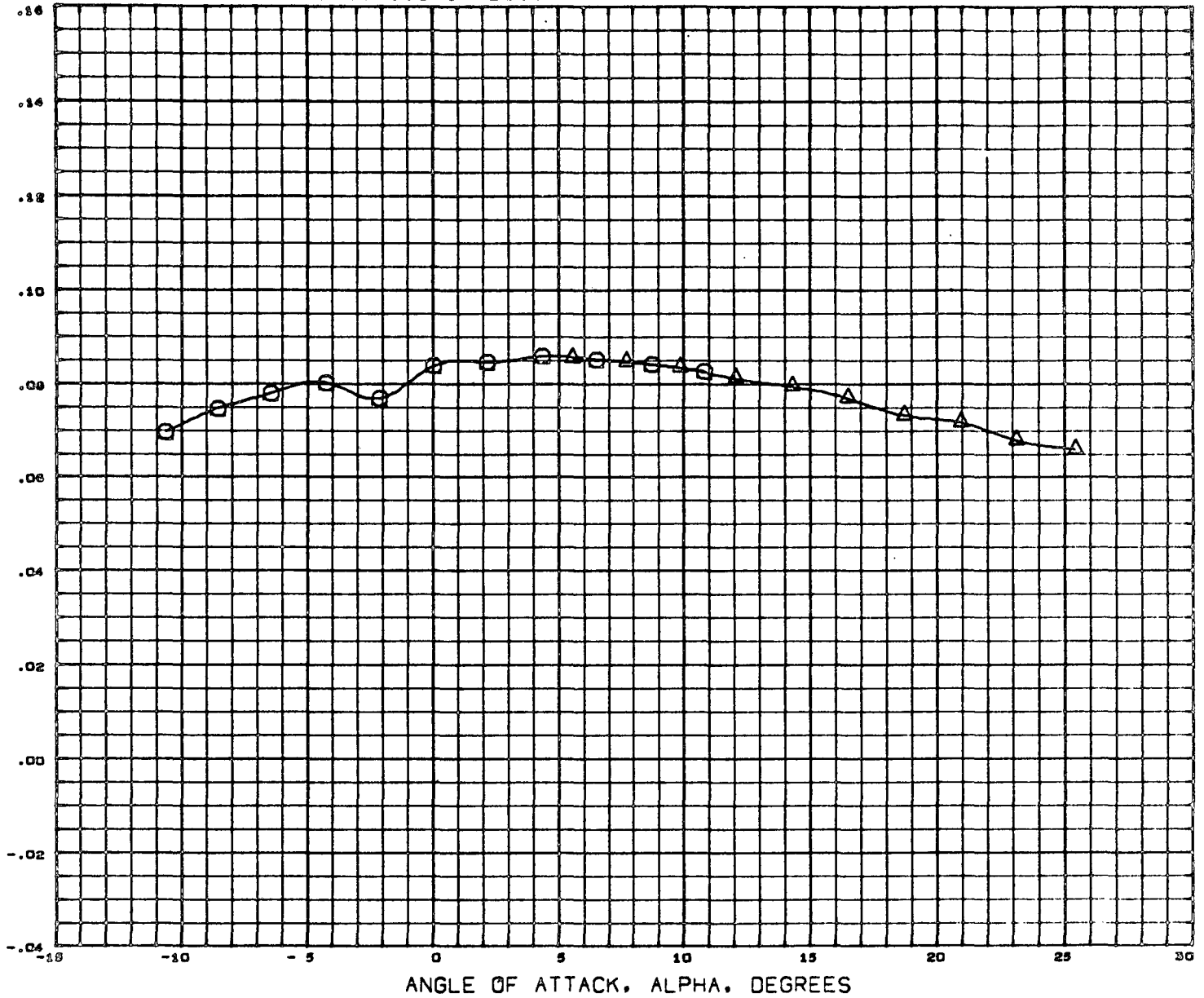
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	3Q IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



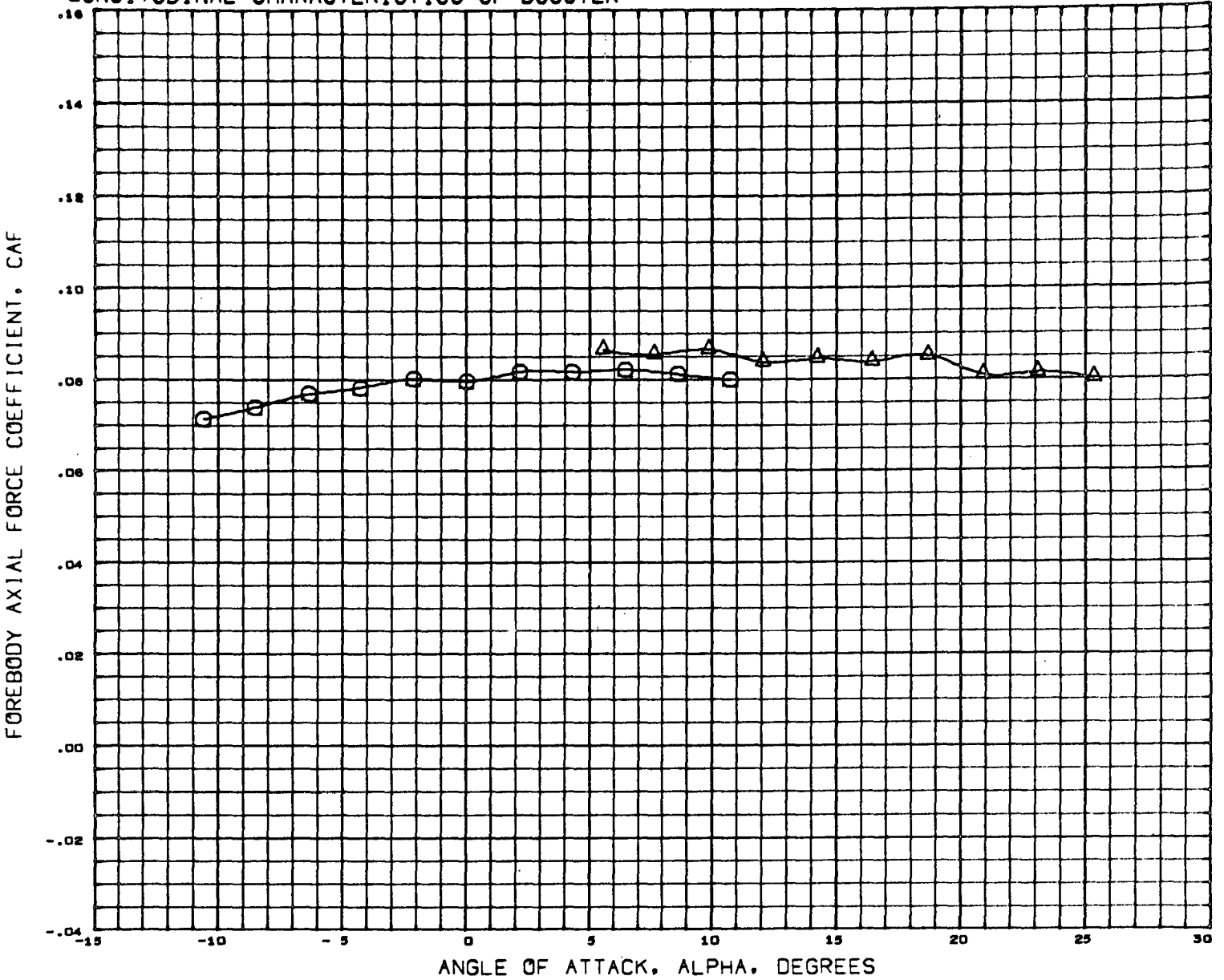
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	△	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

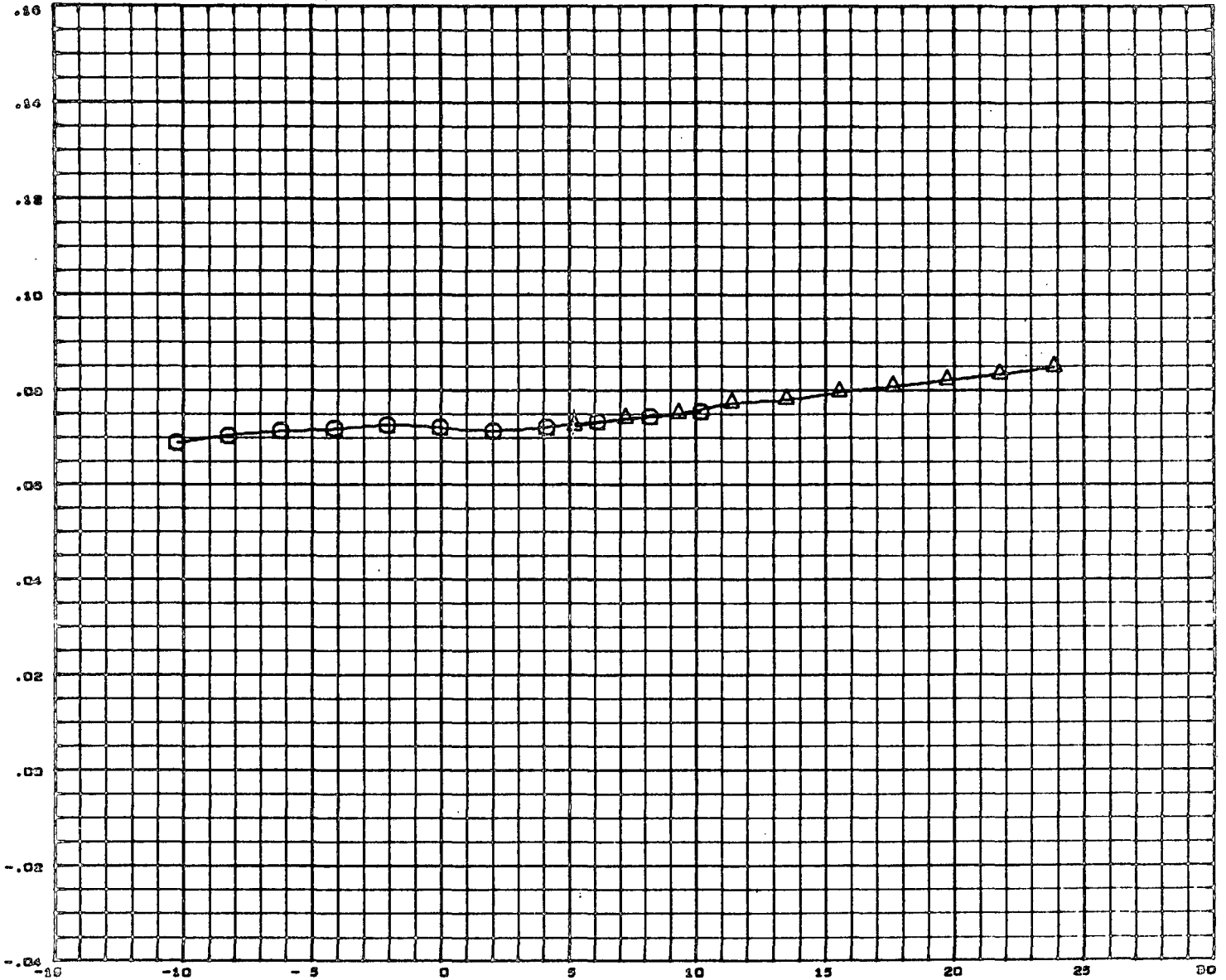
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

FOREBODY AXIAL FORCE COEFFICIENT, CAF



ANGLE OF ATTACK, ALPHA, DEGREES

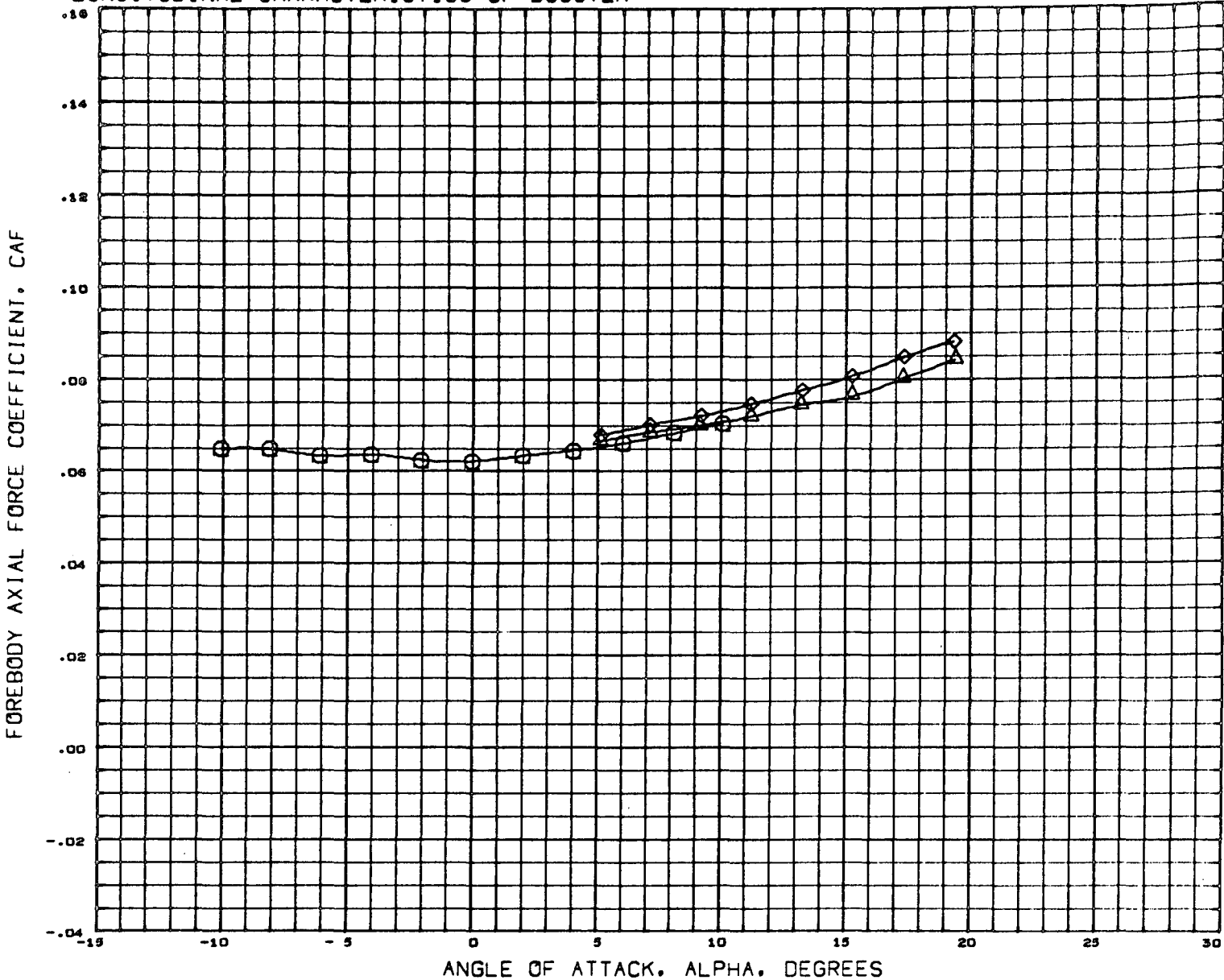
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



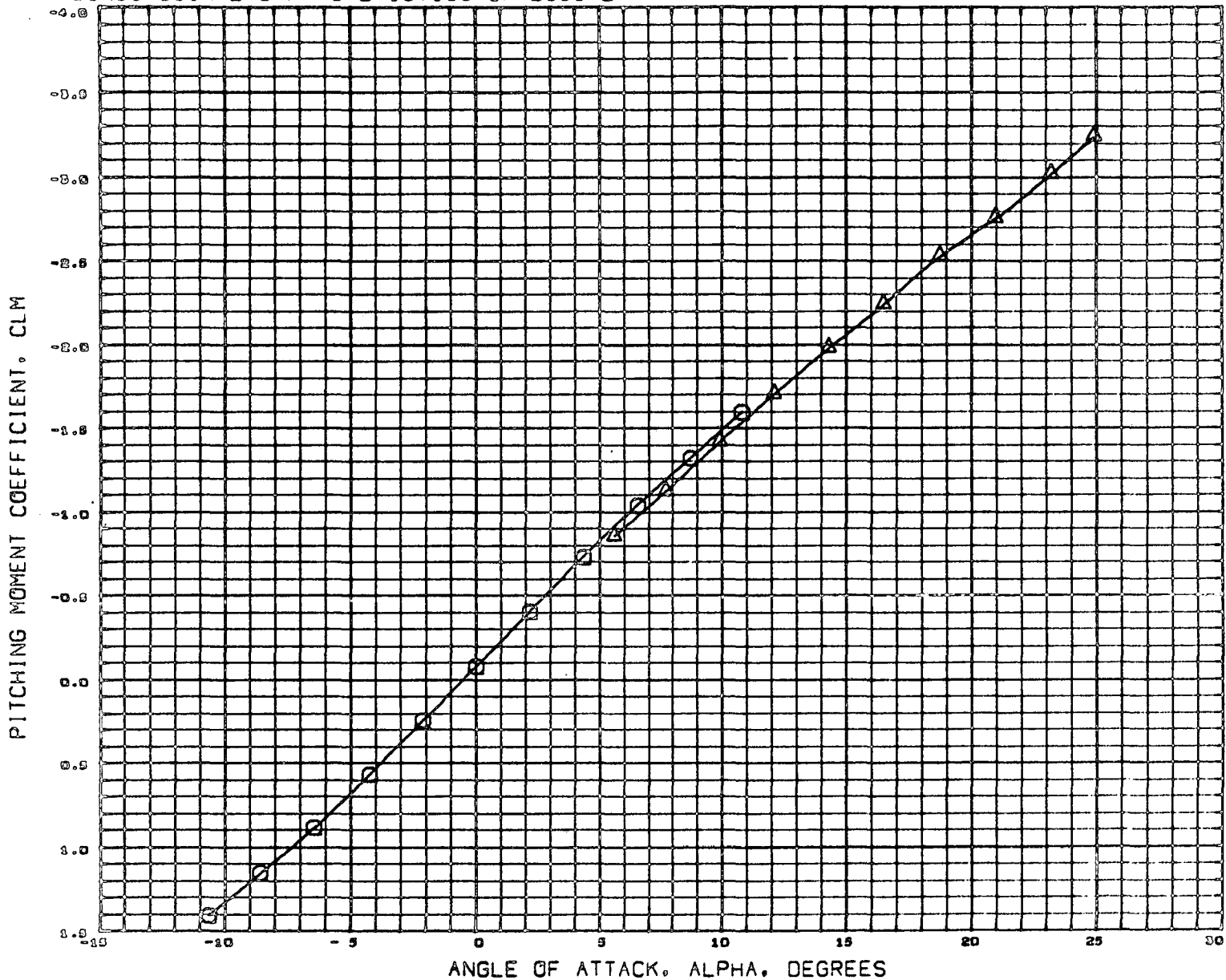
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



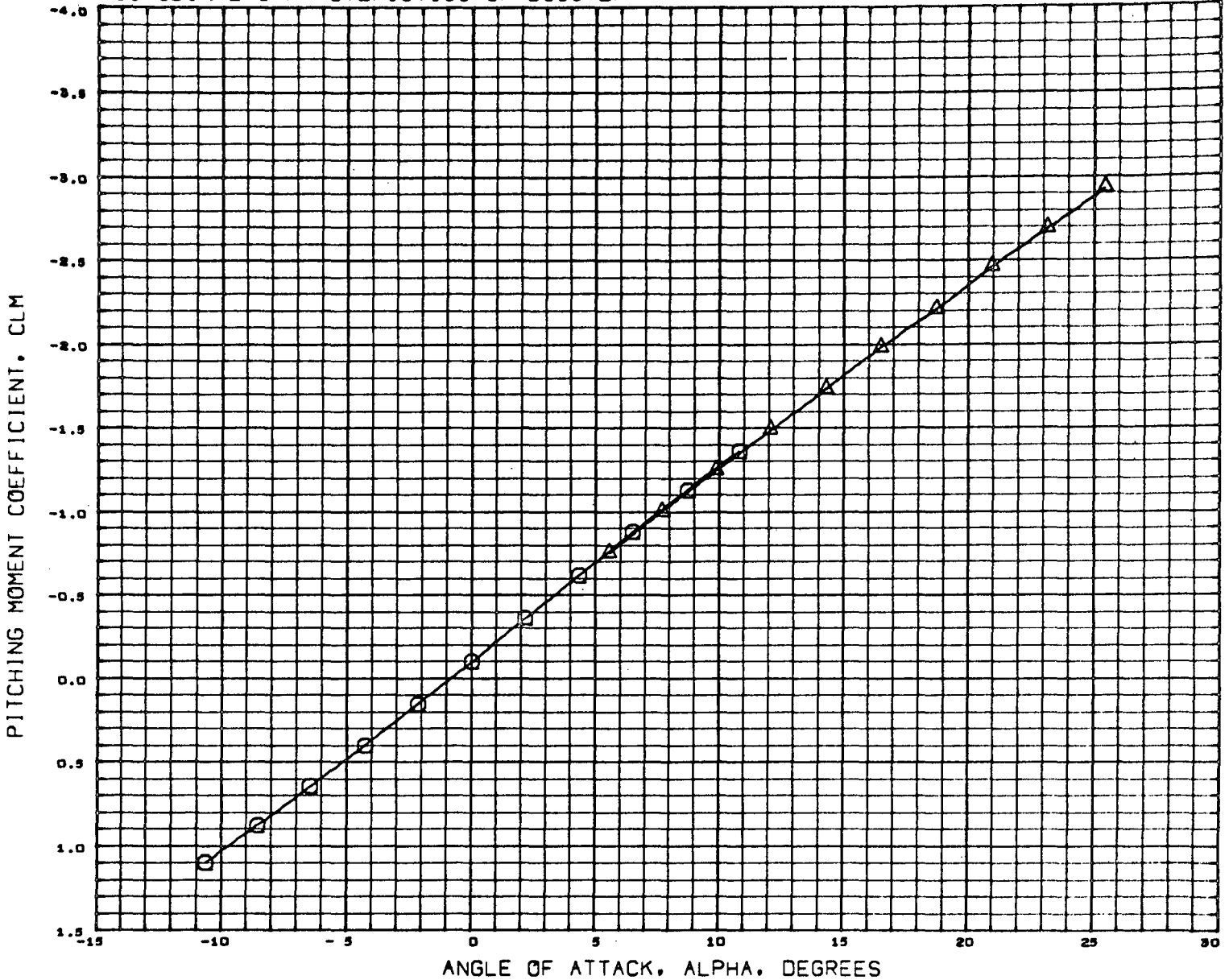
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3205B)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0930	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



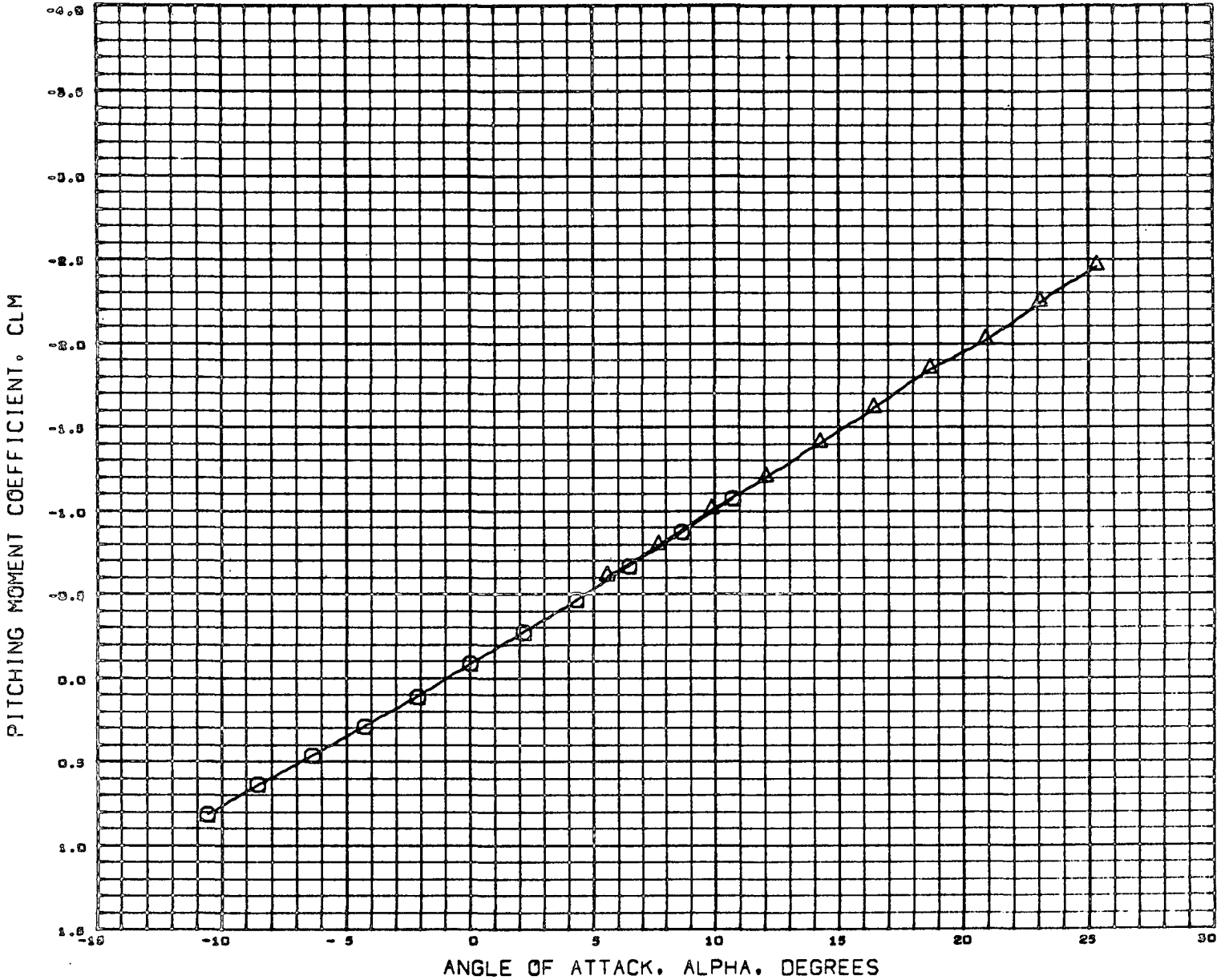
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC49D 6D DELTA BOOSTER B20C4BW14V8
(H3209B)	MSFC49D 6D DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.486

LONGITUDINAL CHARACTERISTICS OF BOOSTER



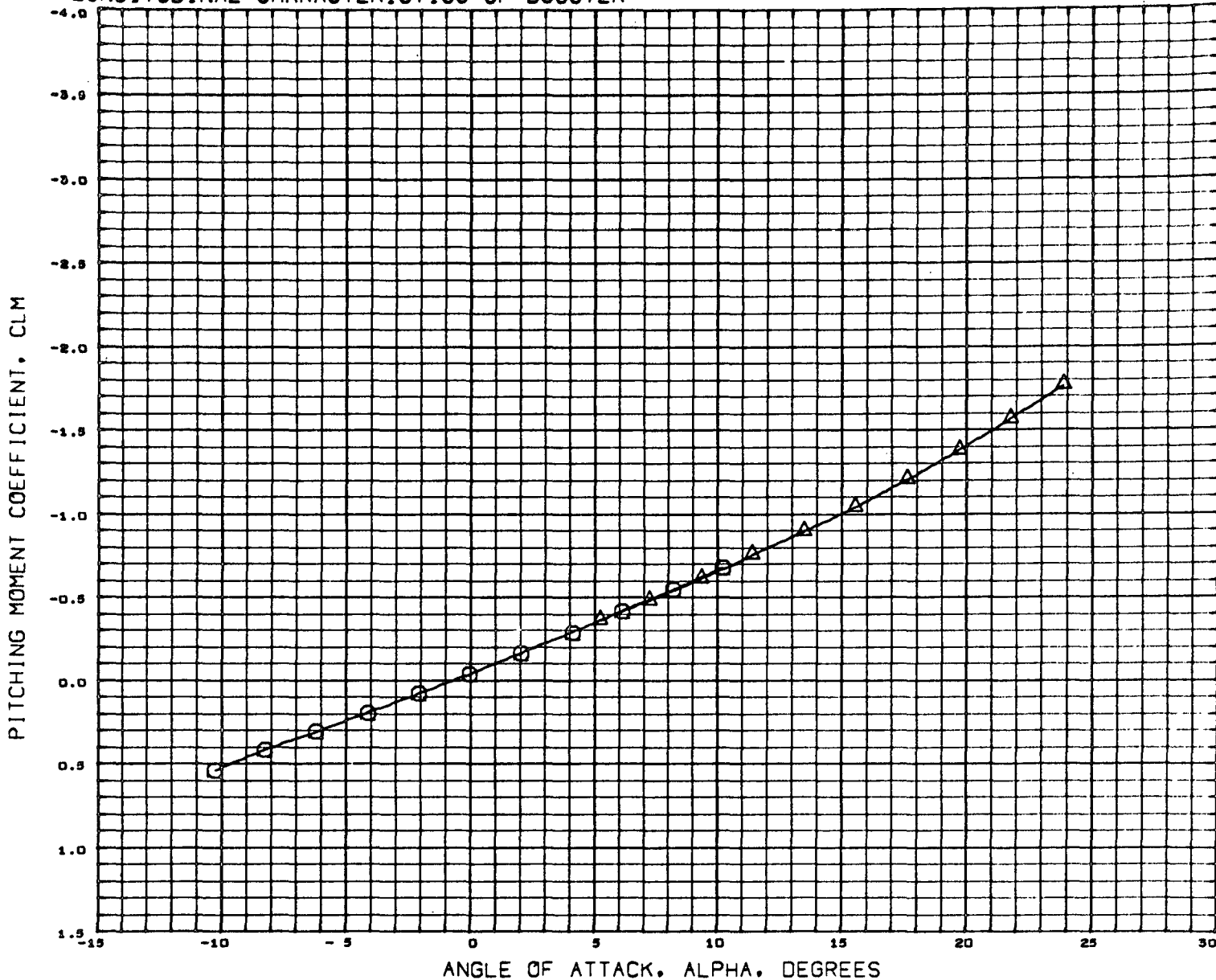
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



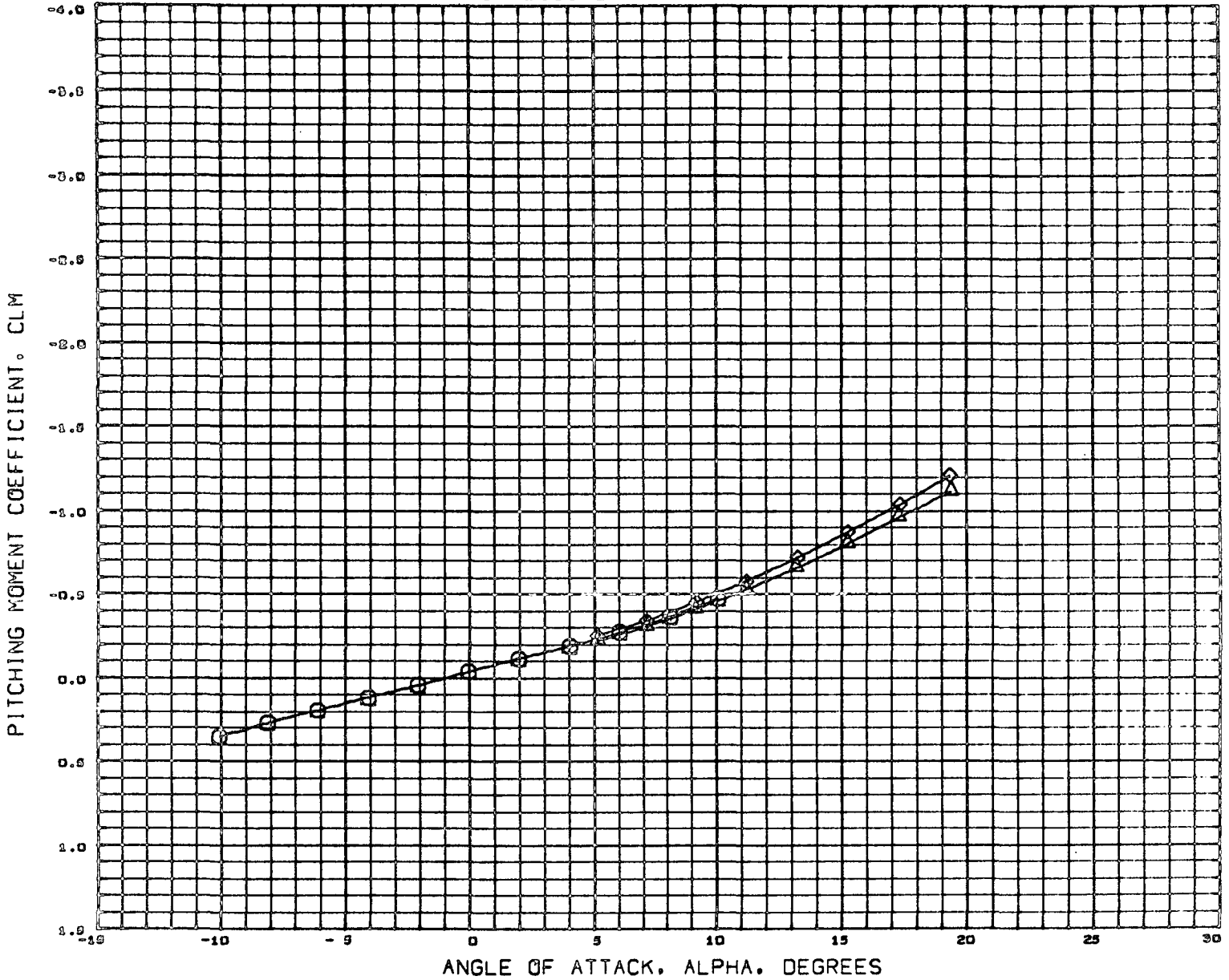
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

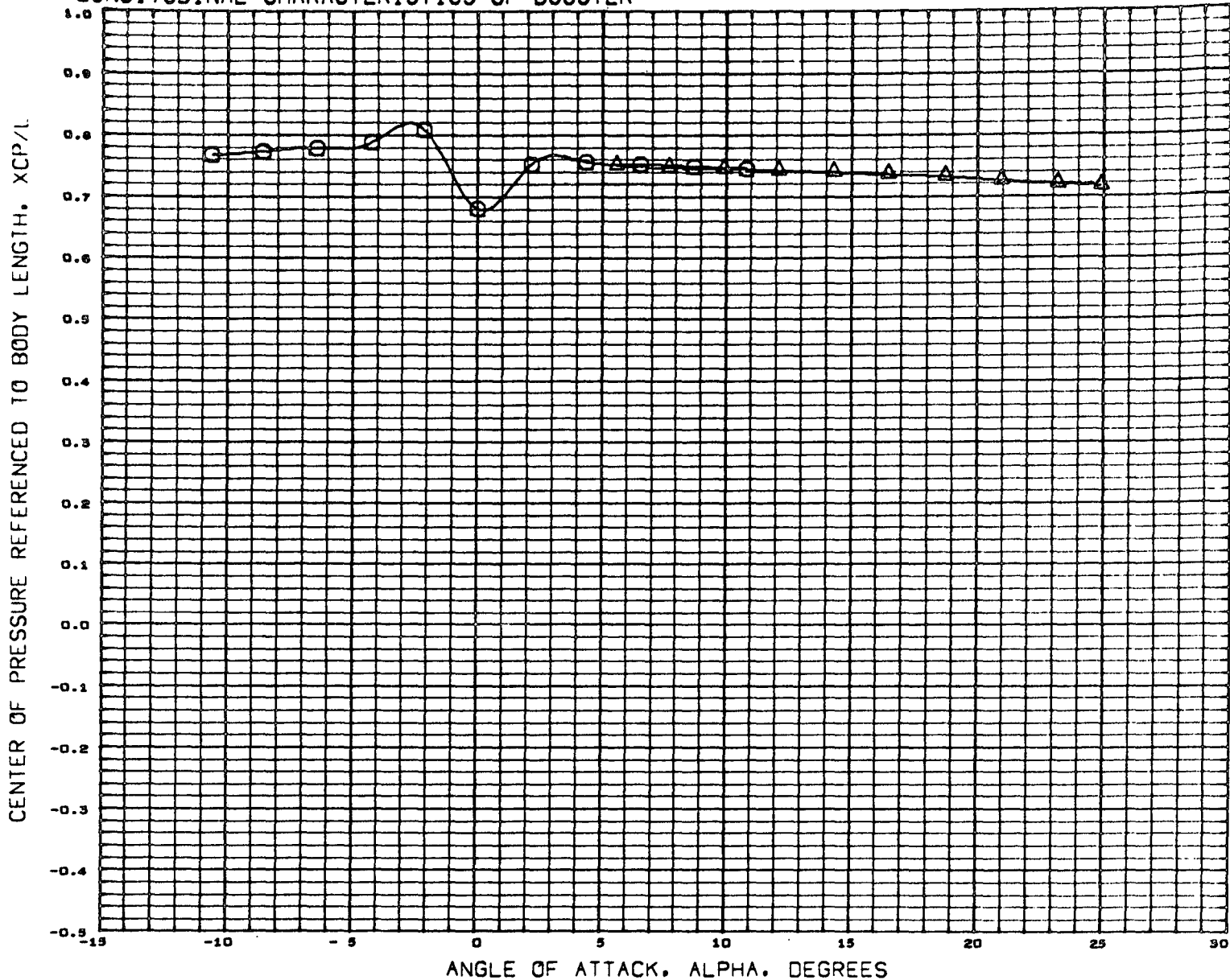
LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6560 SQ IN
(M3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	LREF 3.0950 INCHES
(M3257B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	10.000	0.000	BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 4.859

LONGITUDINAL CHARACTERISTICS OF BOOSTER



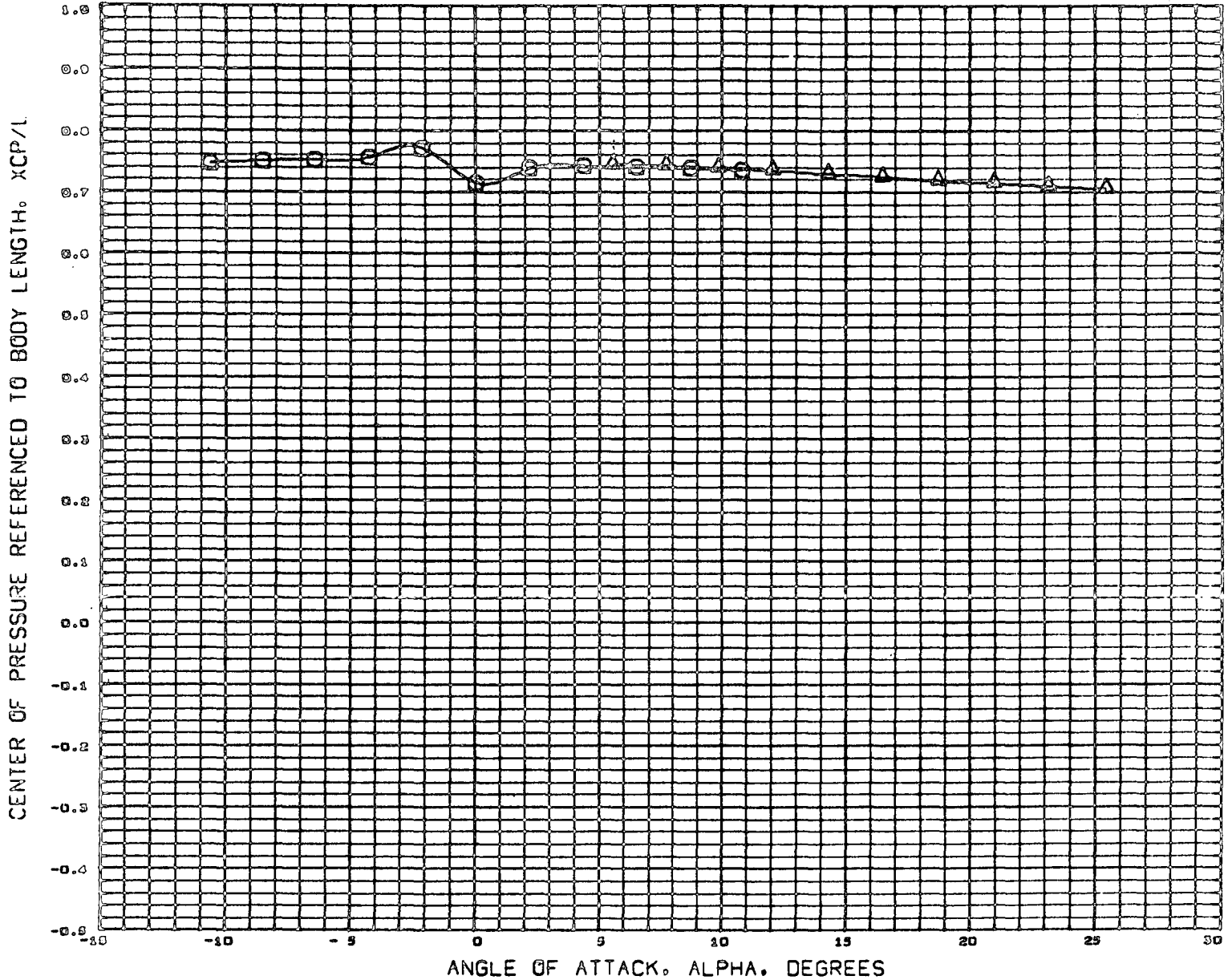
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



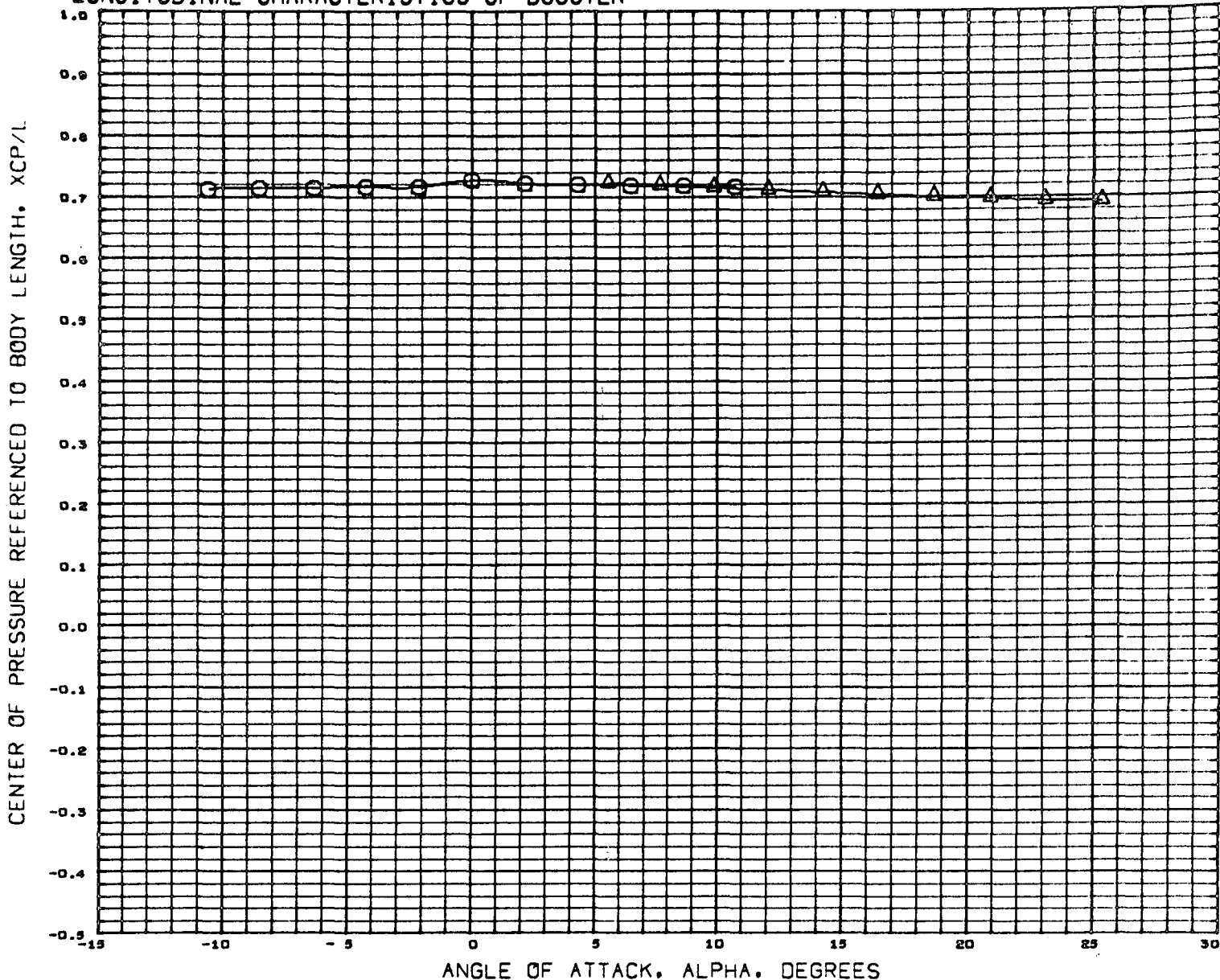
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(N3209A)	○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(N3209B)	△	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(N3297B)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRCN
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	58 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.486

LONGITUDINAL CHARACTERISTICS OF BOOSTER



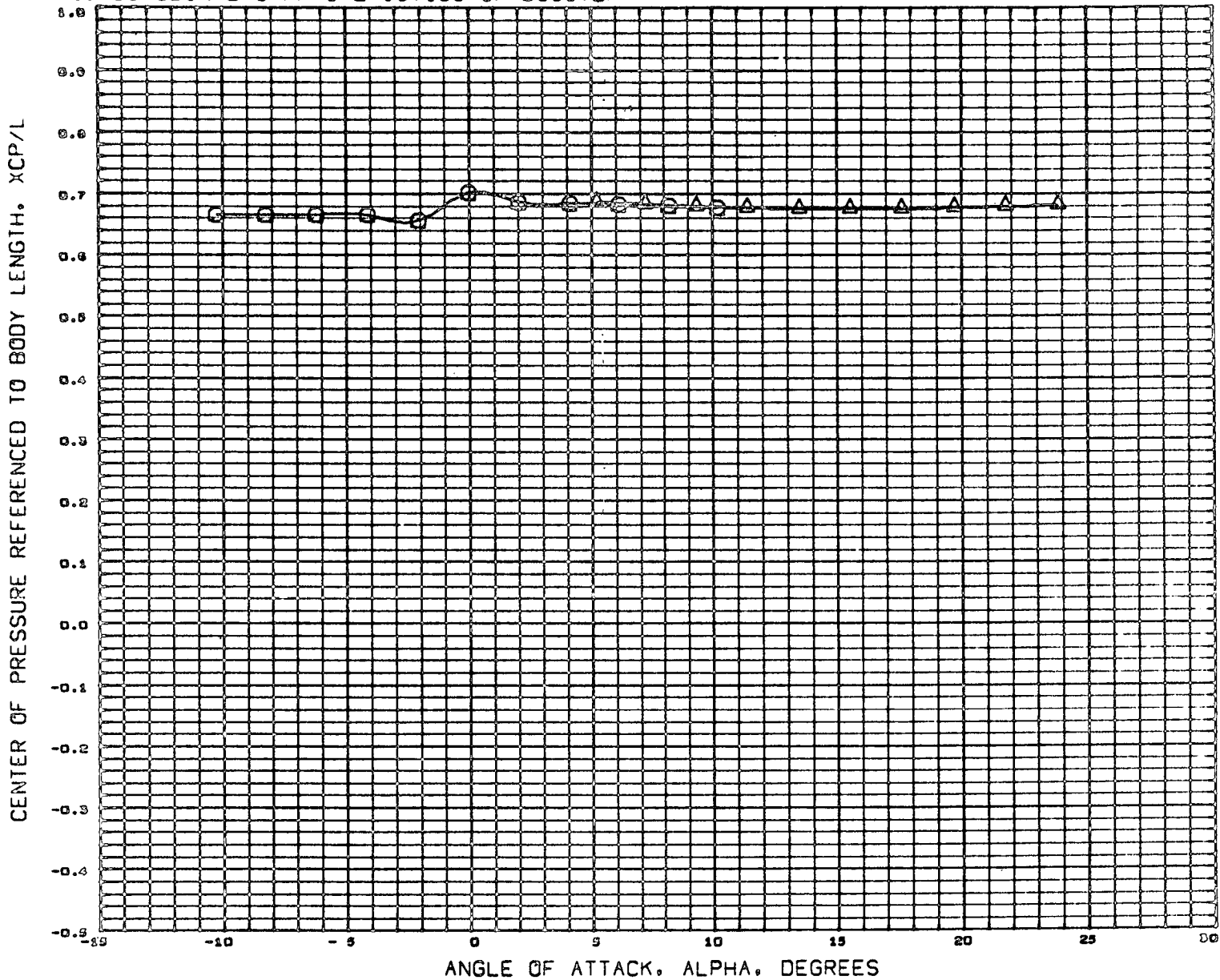
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3209B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



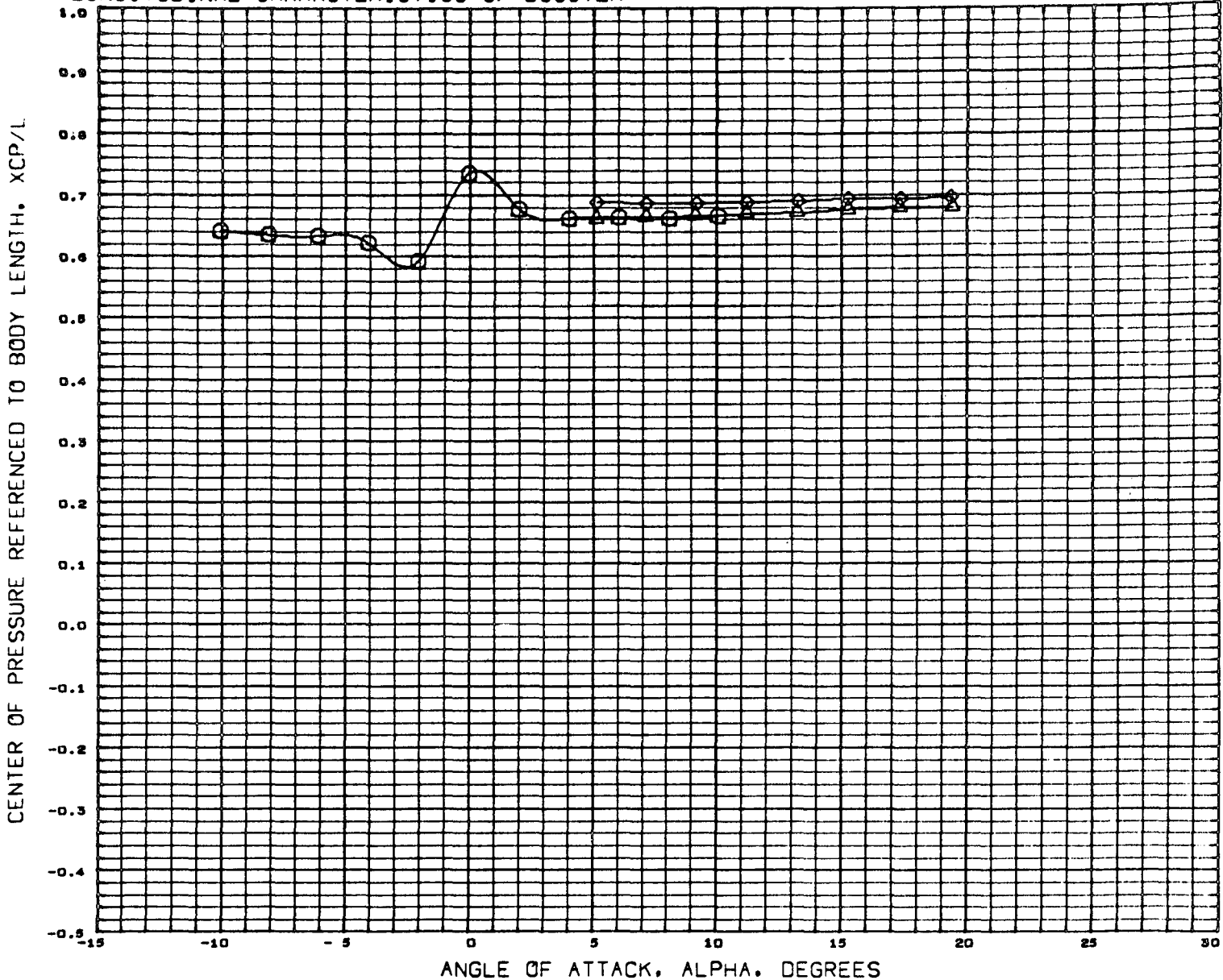
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0
(M3209B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.8560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.900

LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	△	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	◇	MSFC490 GD DELTA BOOSTER B20C4BW14V8

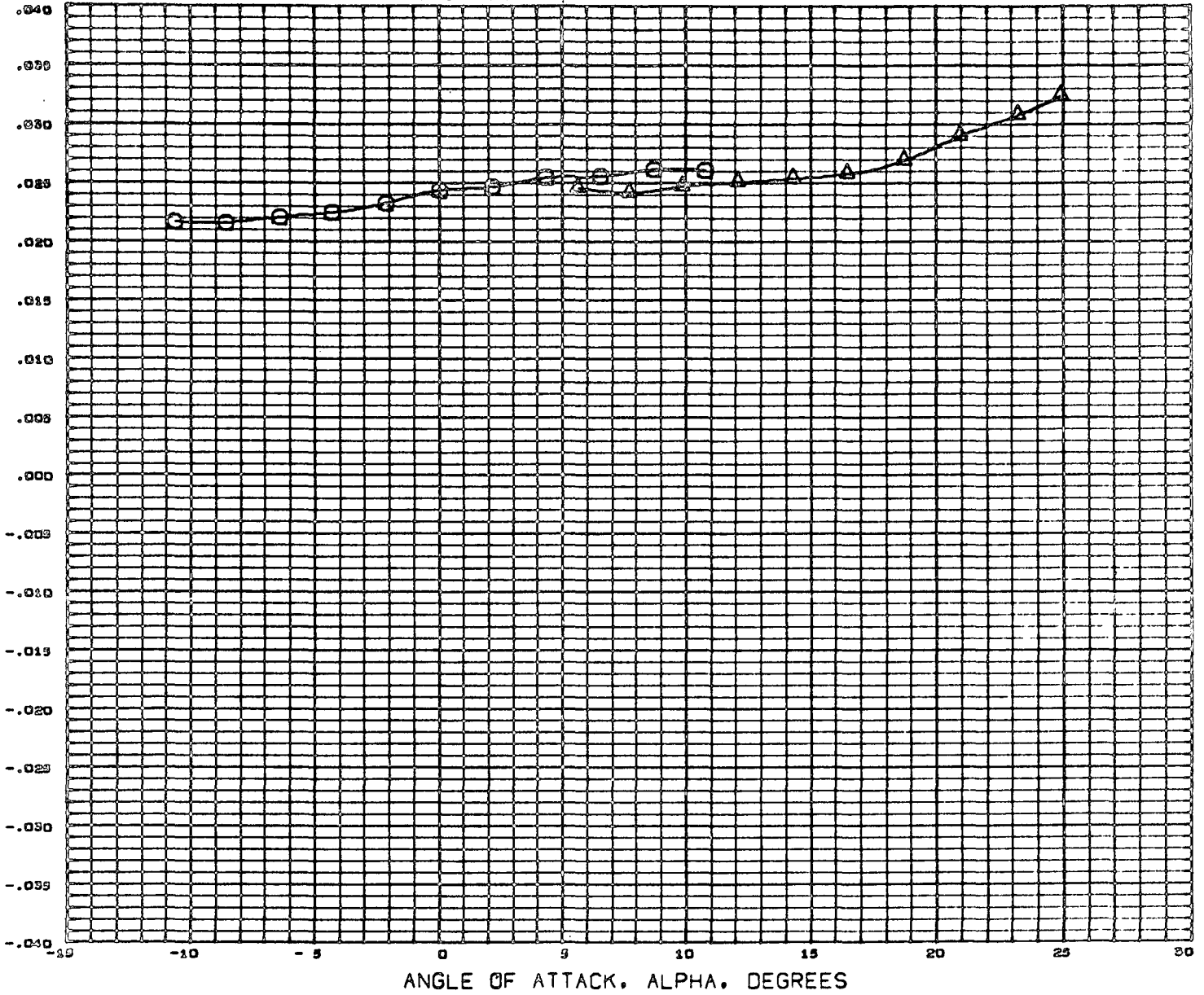
BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER

BASE AXIAL FORCE COEFFICIENT, CAB



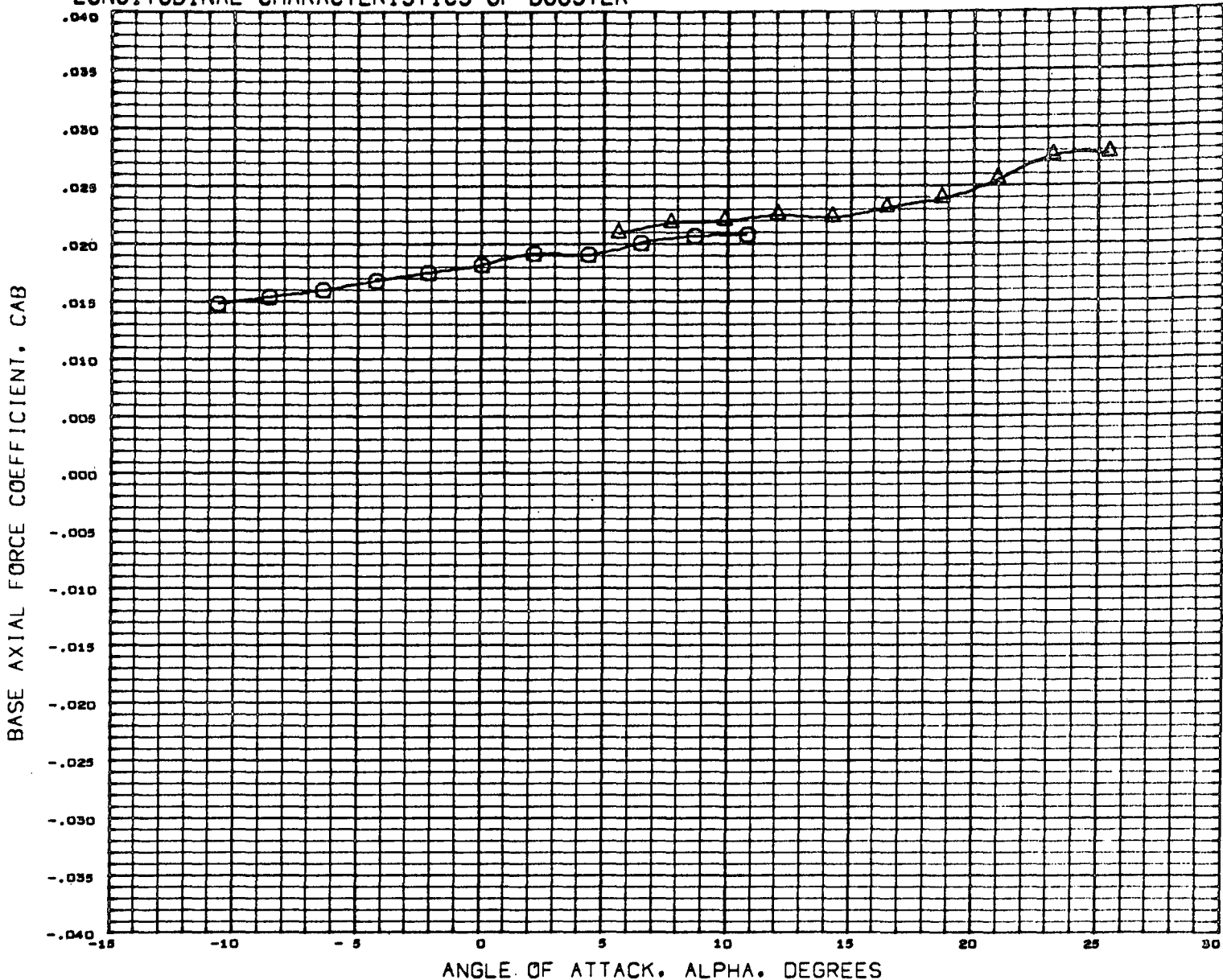
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3209B)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3297B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0099	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



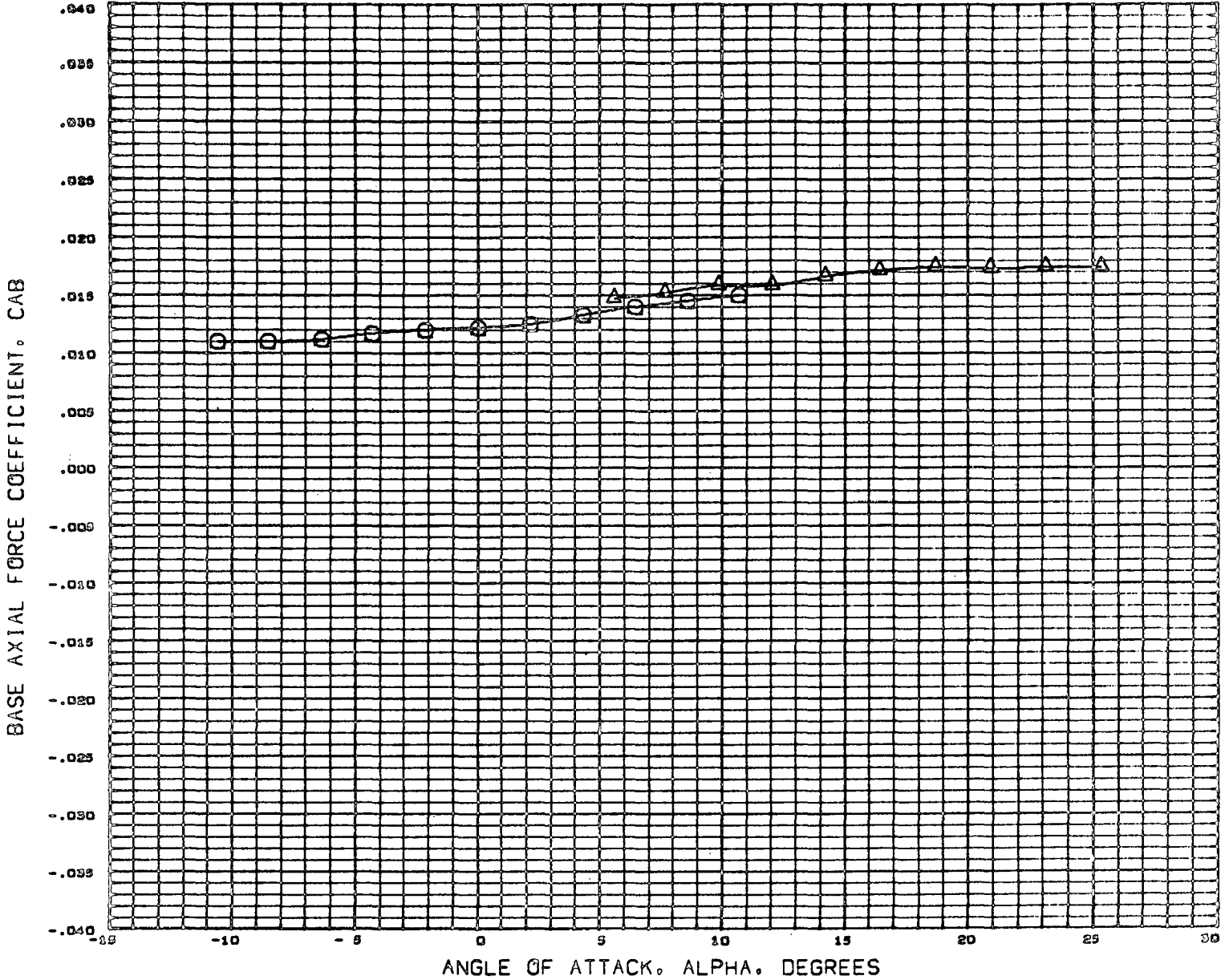
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	△	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



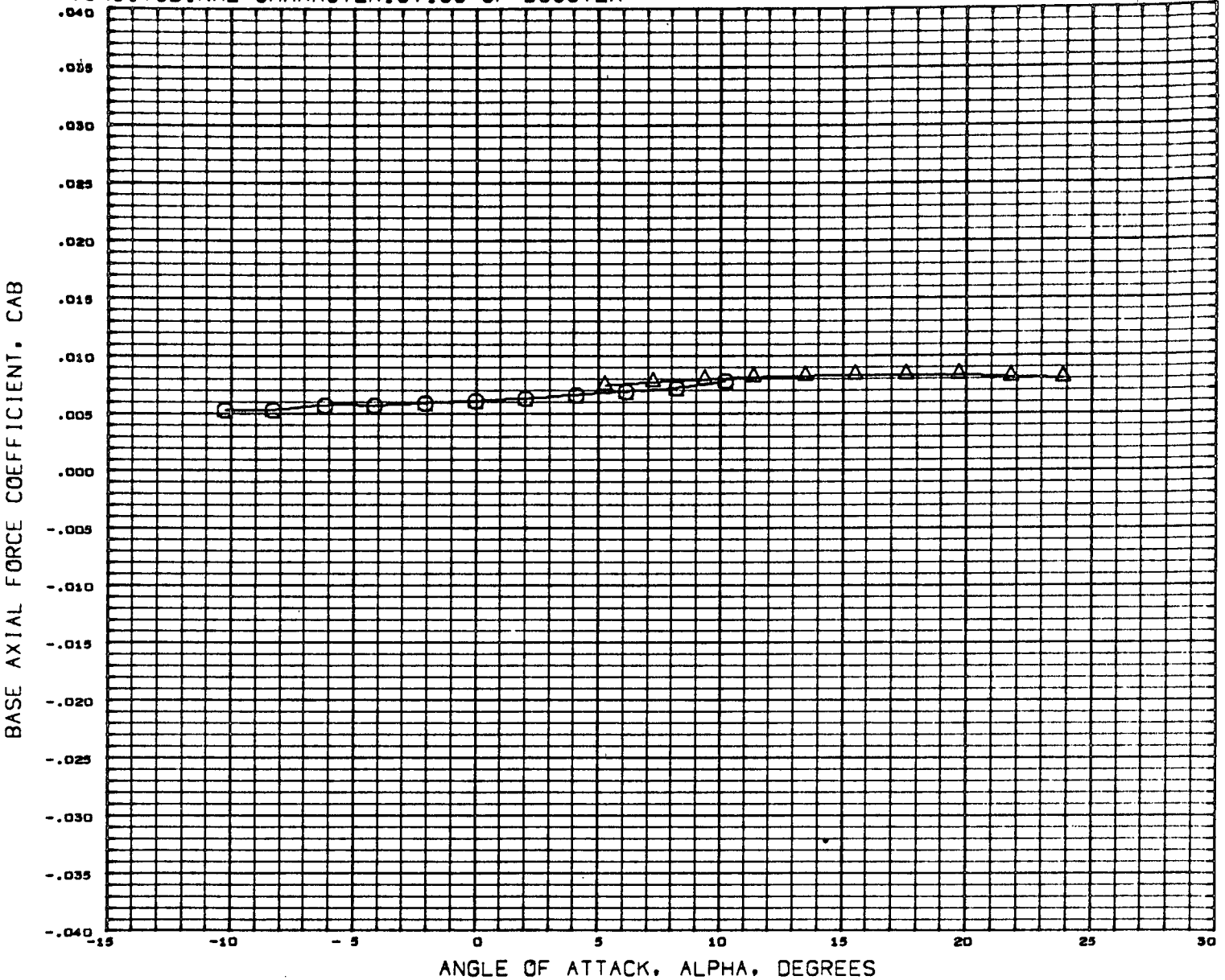
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3205B)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3257D)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



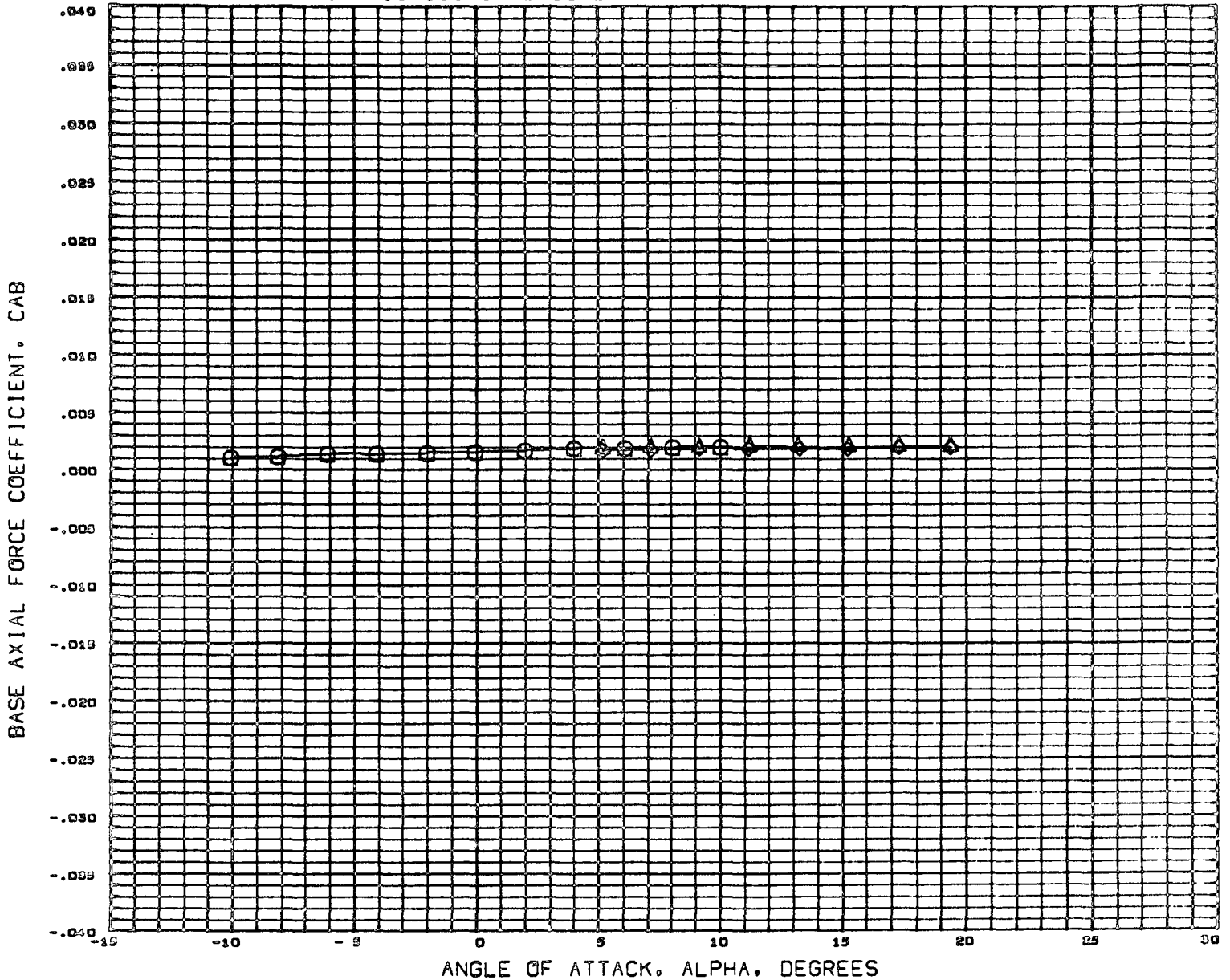
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



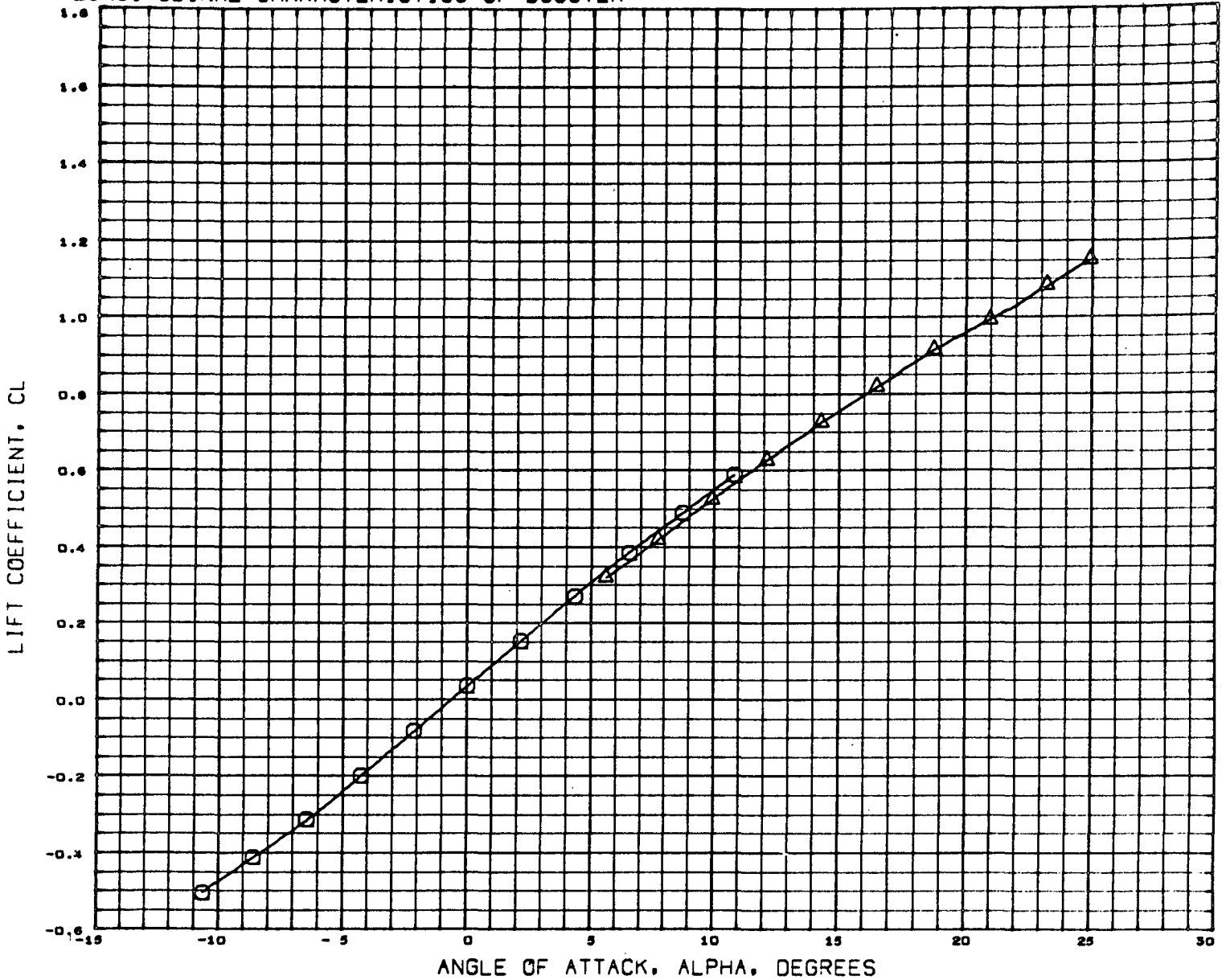
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M32057B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 4.959

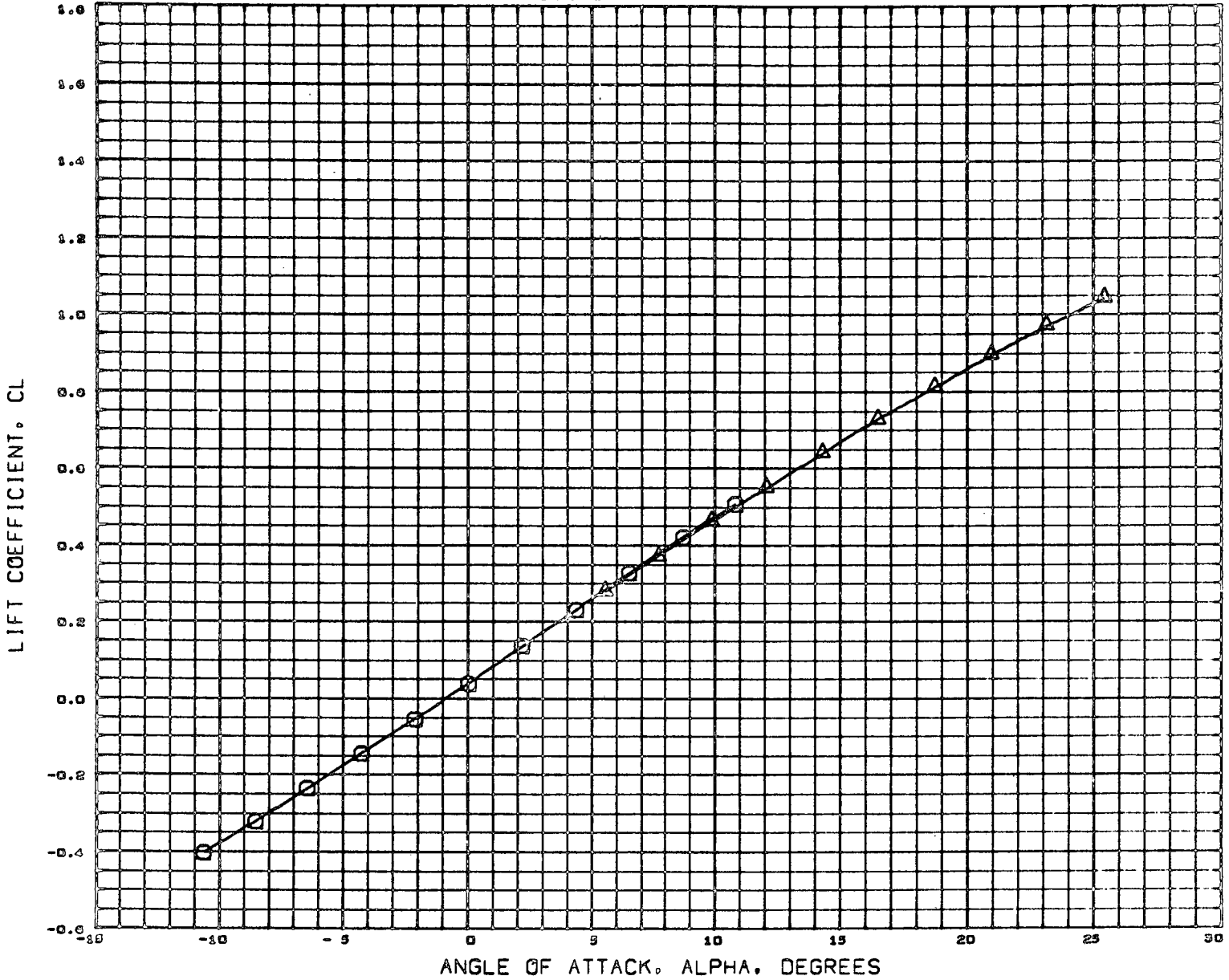
LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6560 SQ IN
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	LREF 3.0950 INCHES
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	10.000	0.000	BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



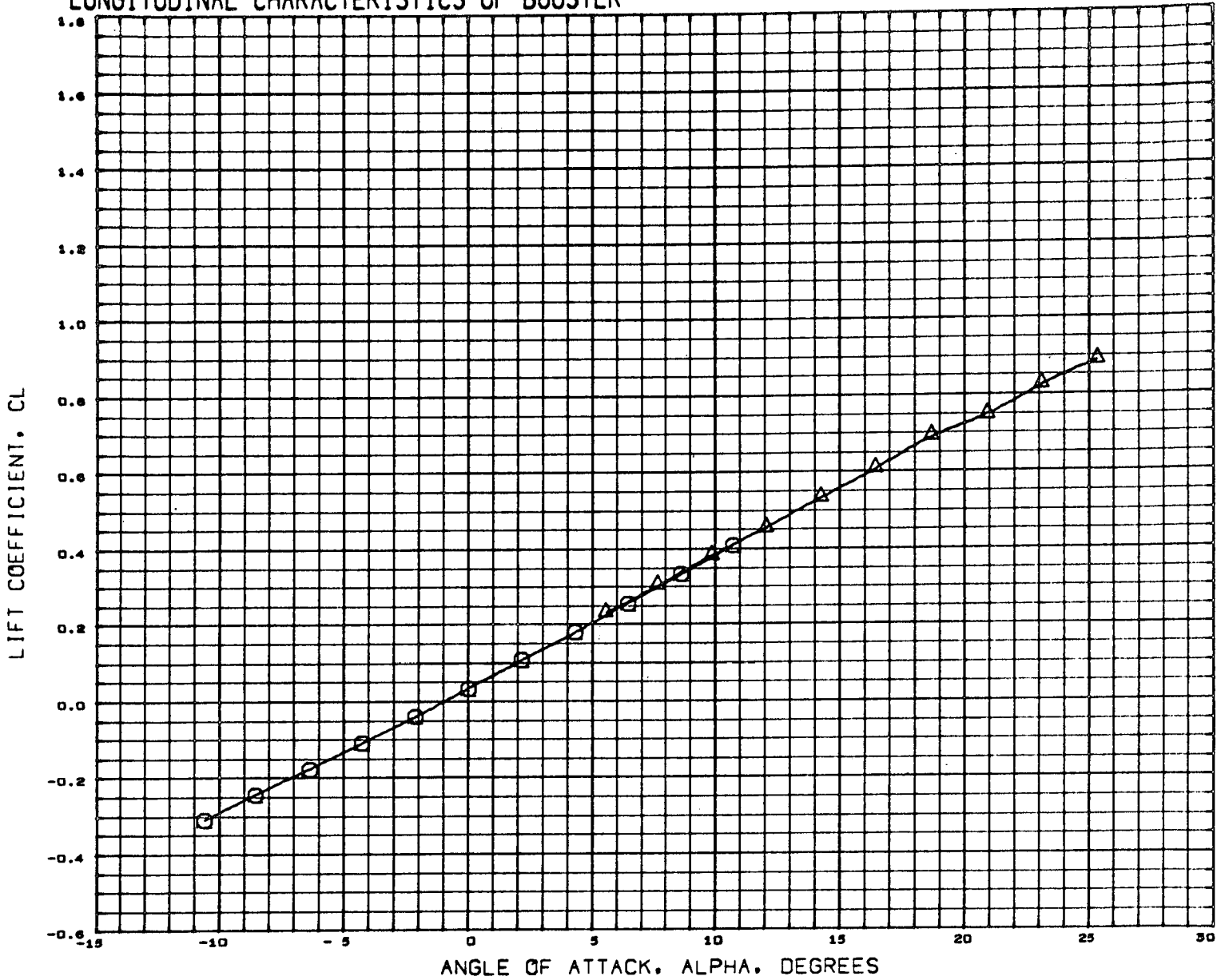
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC49D GD DELTA BOOSTER B20C48W14V8
(M3209B)	MSFC49D GD DELTA BOOSTER B20C48W14V8
(M3209C)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



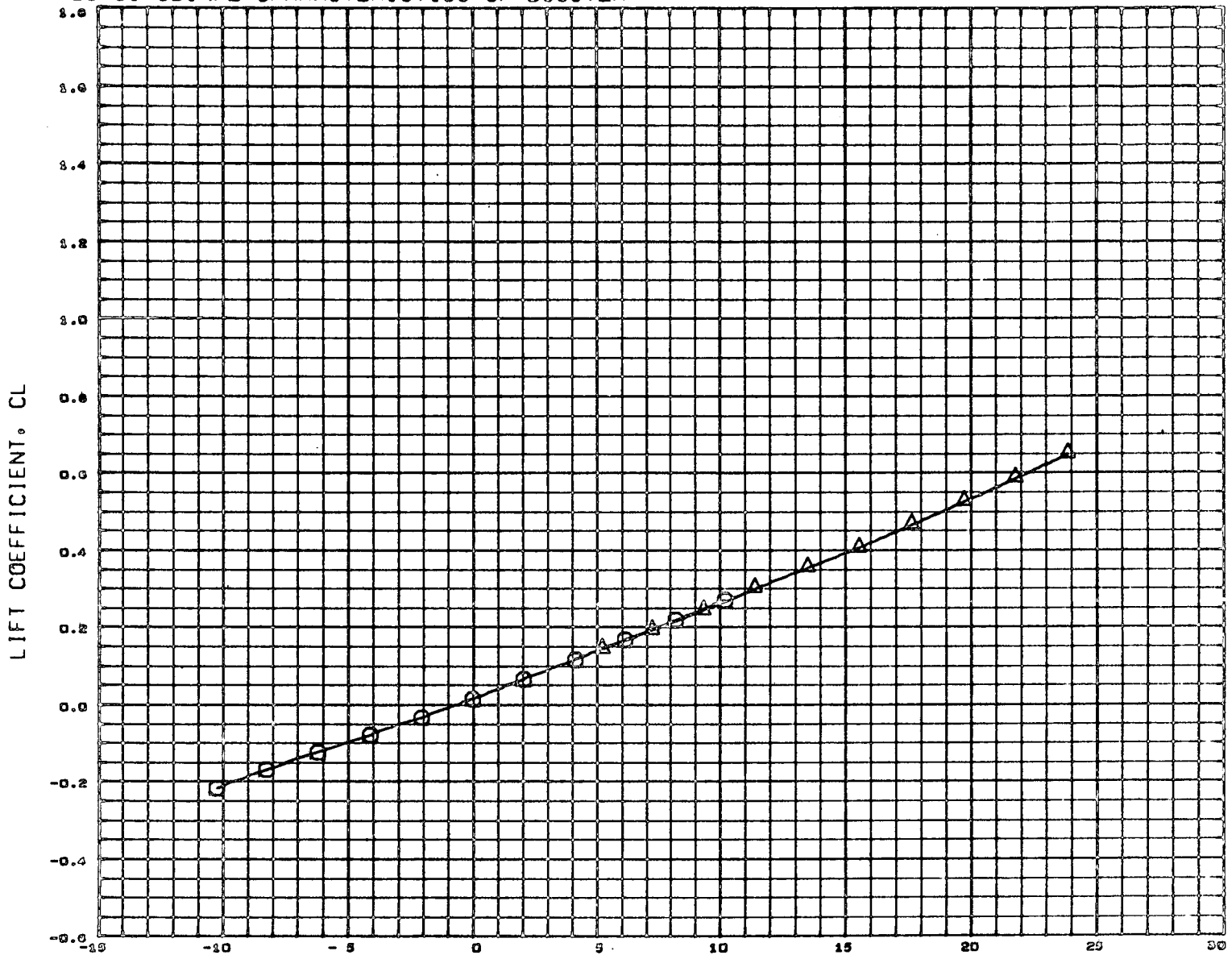
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

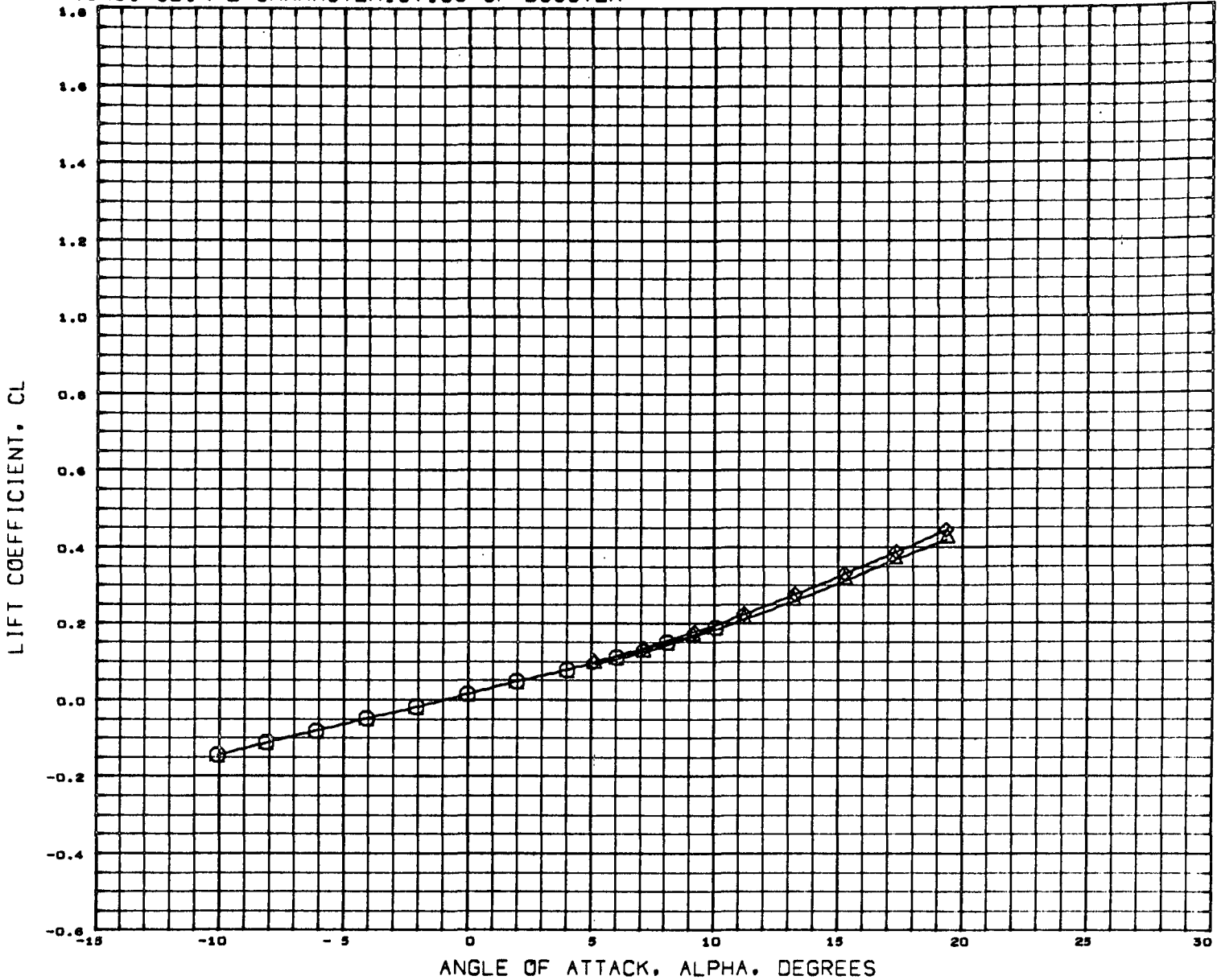
LONGITUDINAL CHARACTERISTICS OF BOOSTER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(N3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF	15.6560 SQ IN
(N3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	LREF	3.0990 INCHES
(N3237B)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	10.000	0.000	BREF	6.0990 INCHES
					XMRP	0.0000
					YMRP	0.0000
					ZMRP	0.0000
					SCALE	0.0039 SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



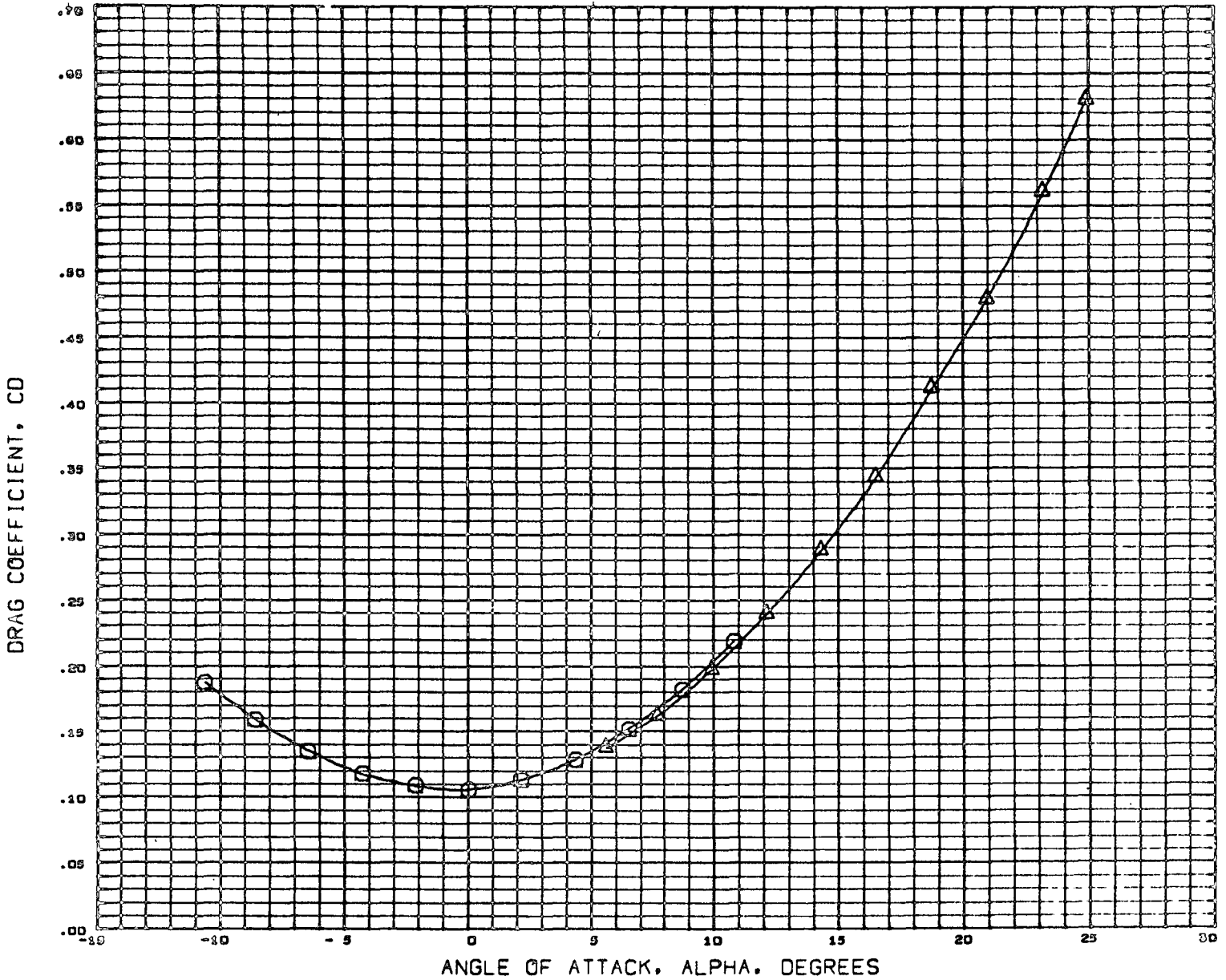
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3257B)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



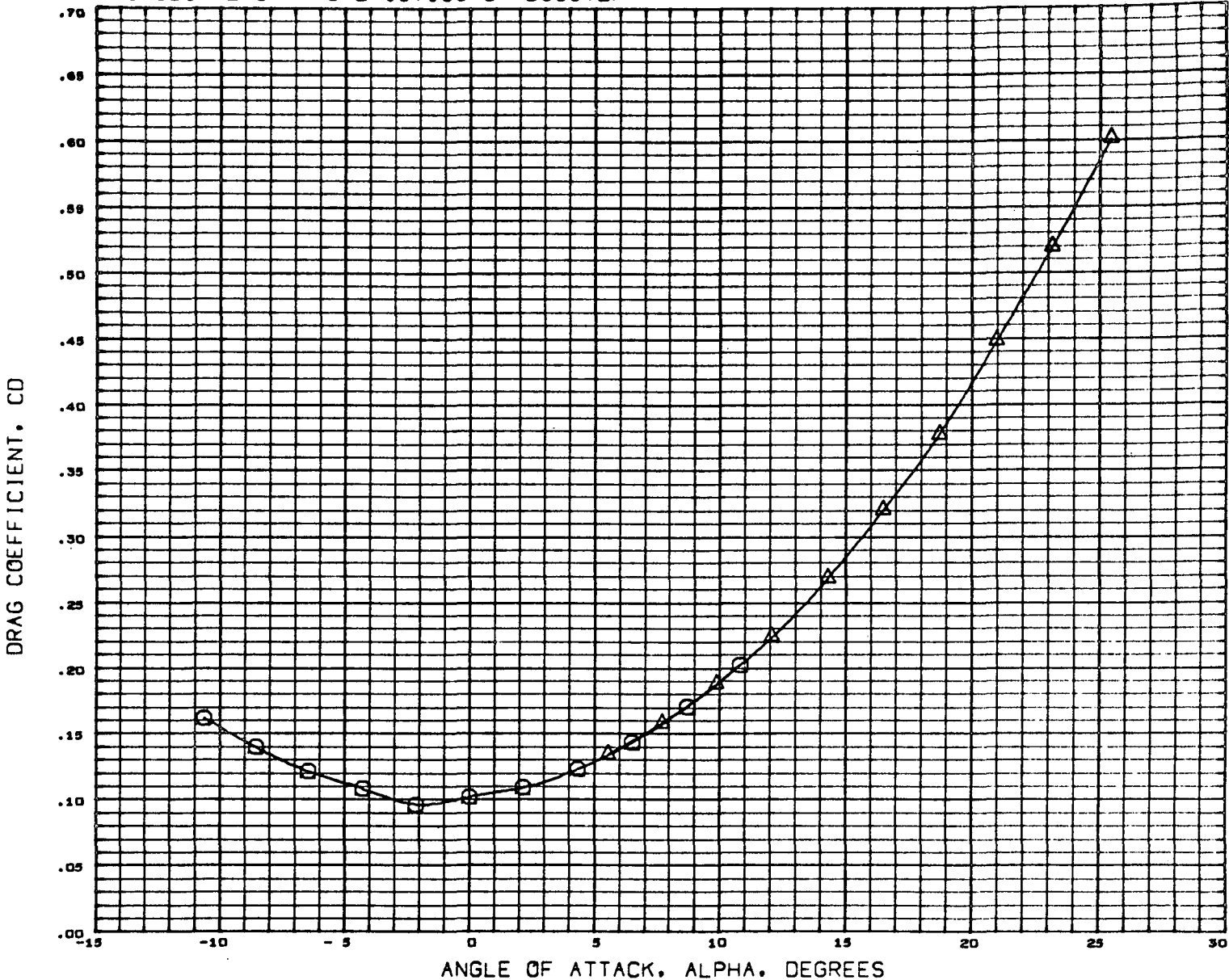
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3297B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0050	INCHES
BREF	6.0090	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

HACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



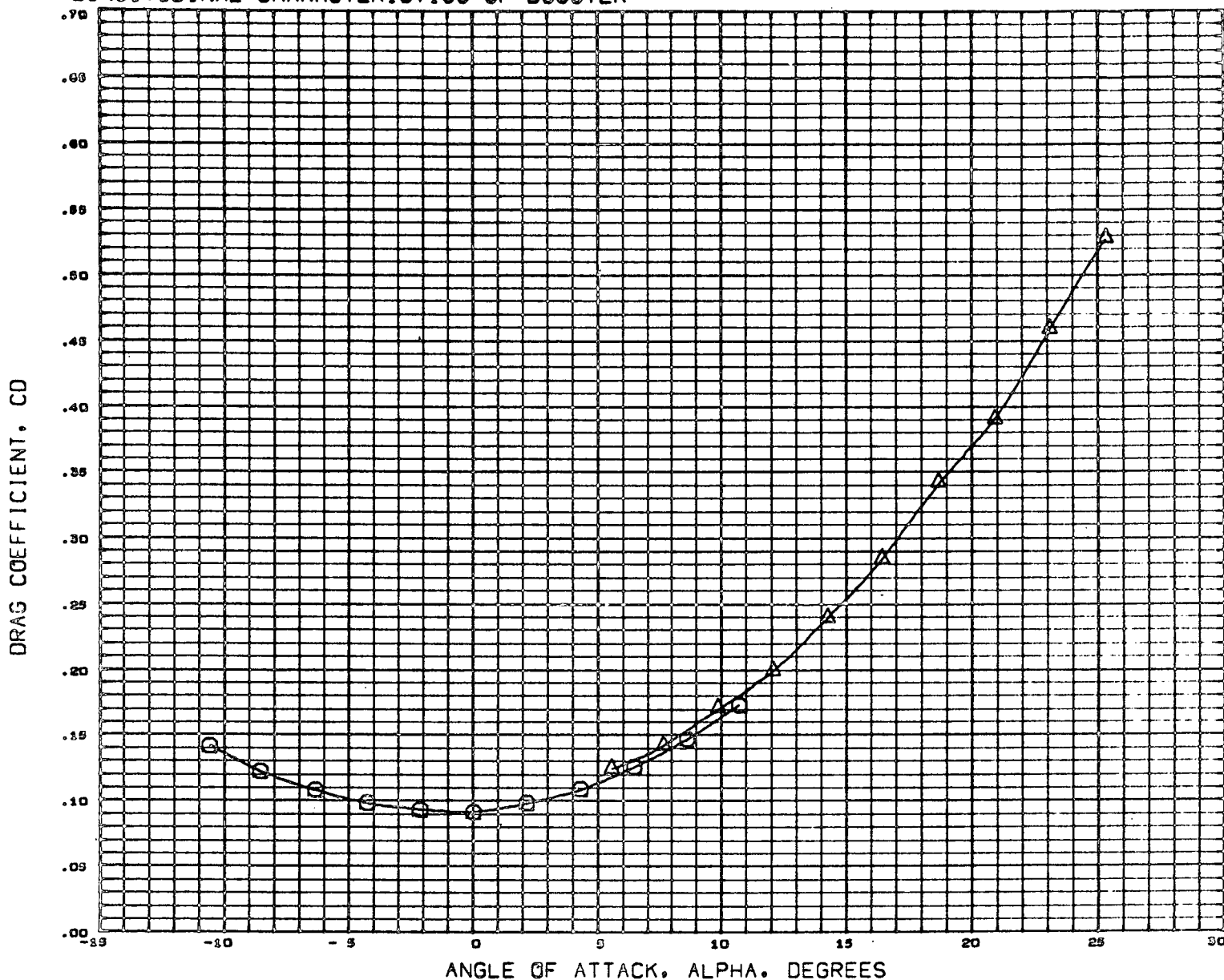
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0930	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

LONGITUDINAL CHARACTERISTICS OF BOOSTER



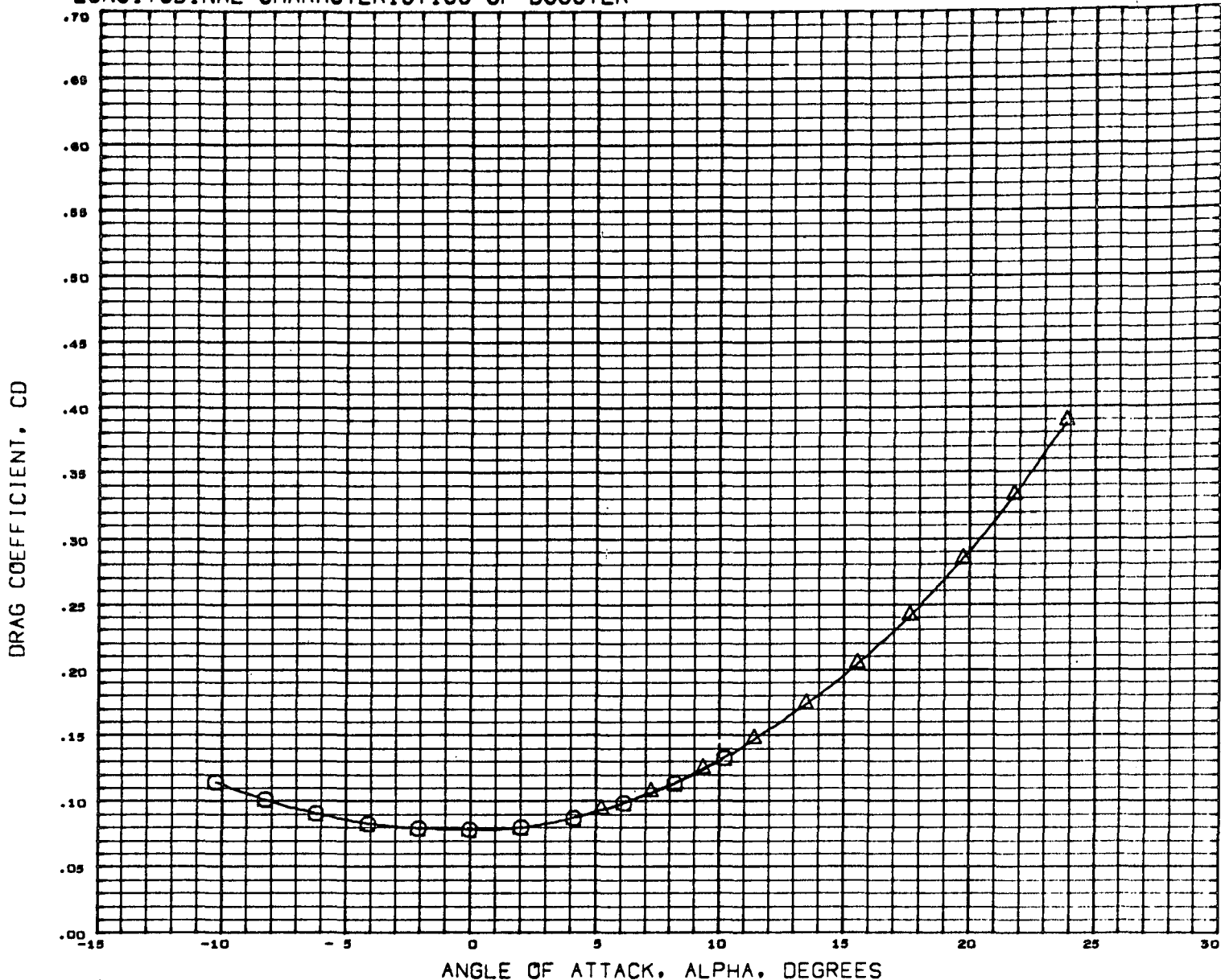
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N32054)	MSFC490 GD DELTA BOOSTER B2DC4BW14V0
(N32056)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(W32578)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.950

LONGITUDINAL CHARACTERISTICS OF BOOSTER



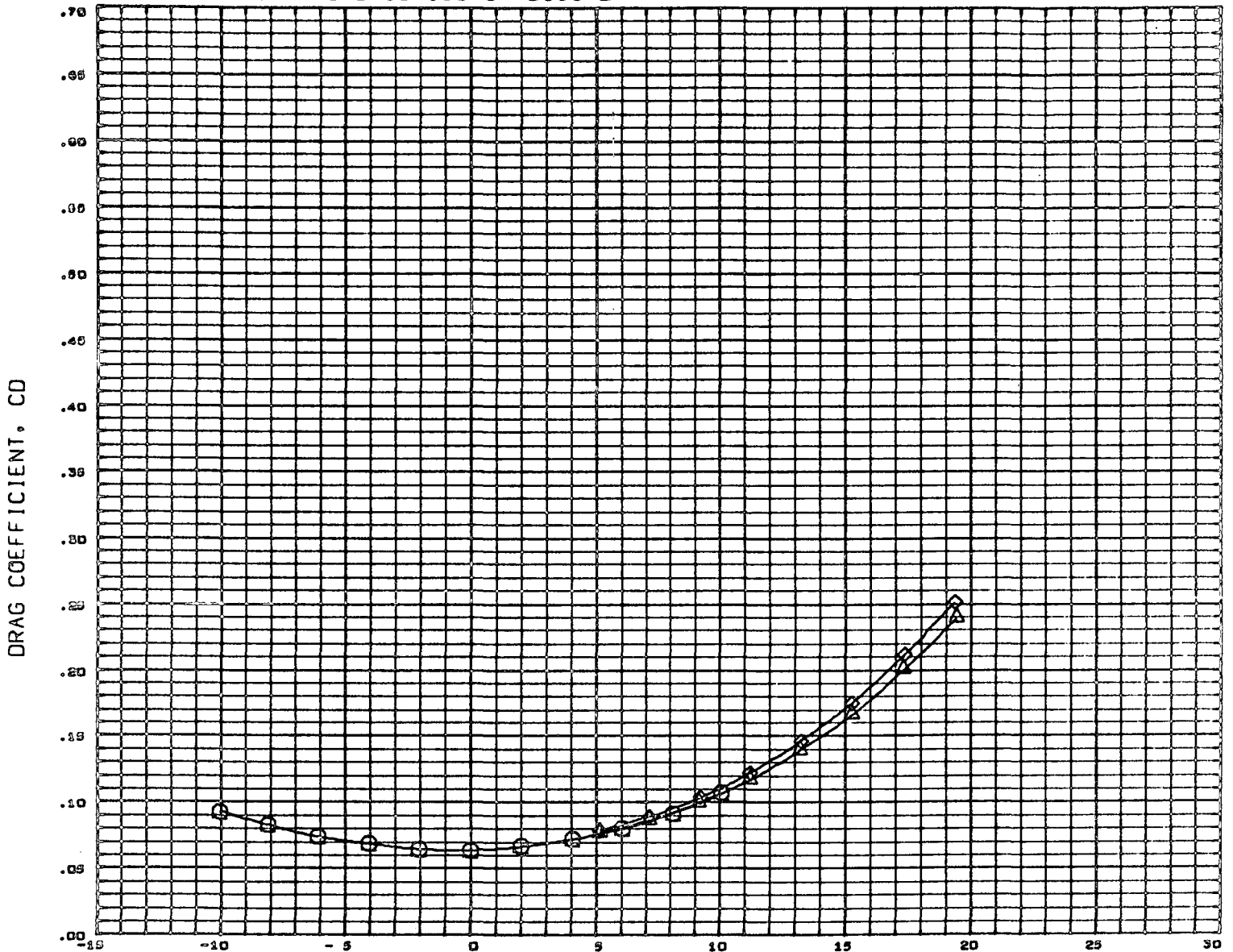
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER

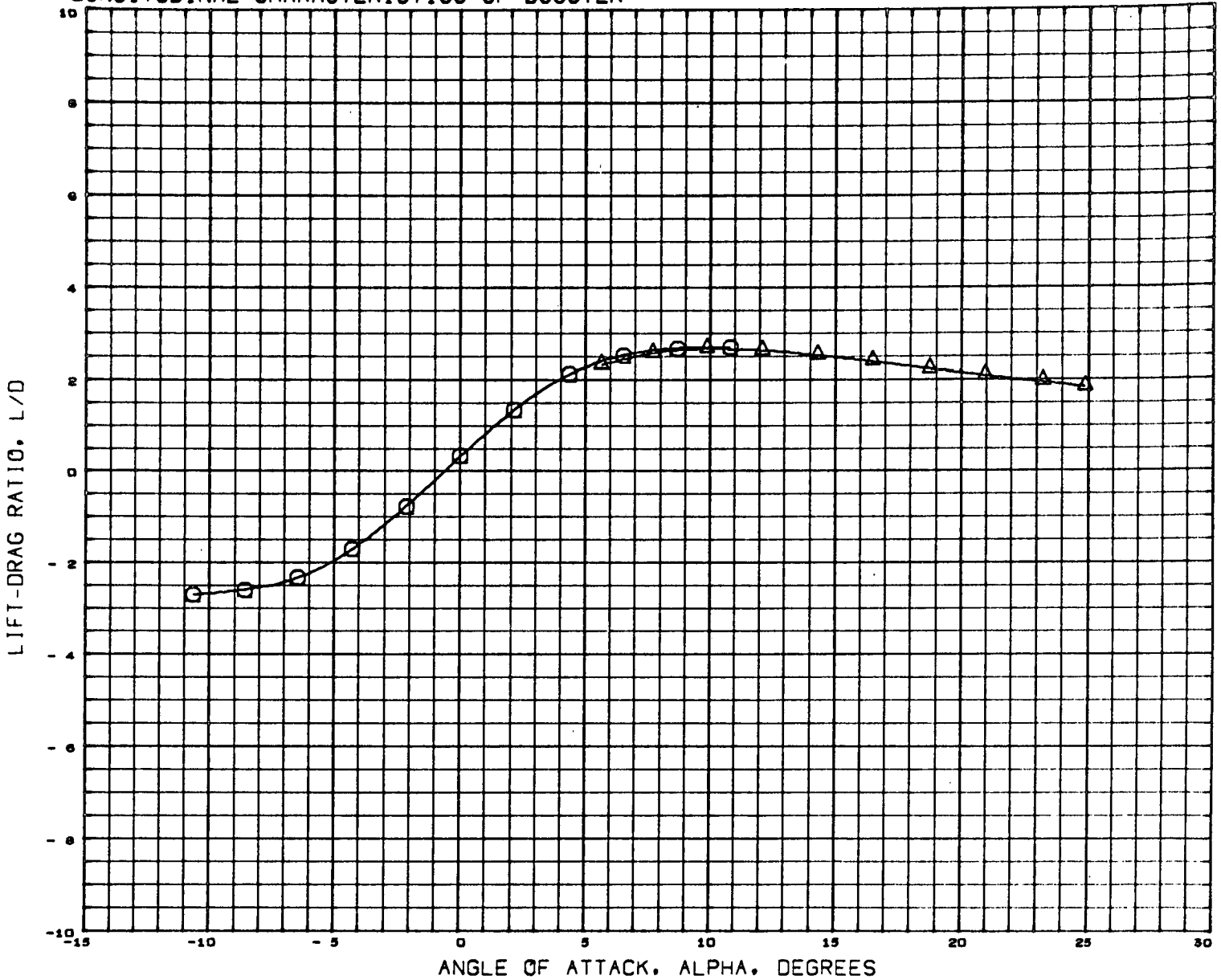


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6560 SQ IN
(N3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	LREF 3.0930 INCHES
(N3257B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	10.000	0.000	BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0039 SCALE

MACH 4.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



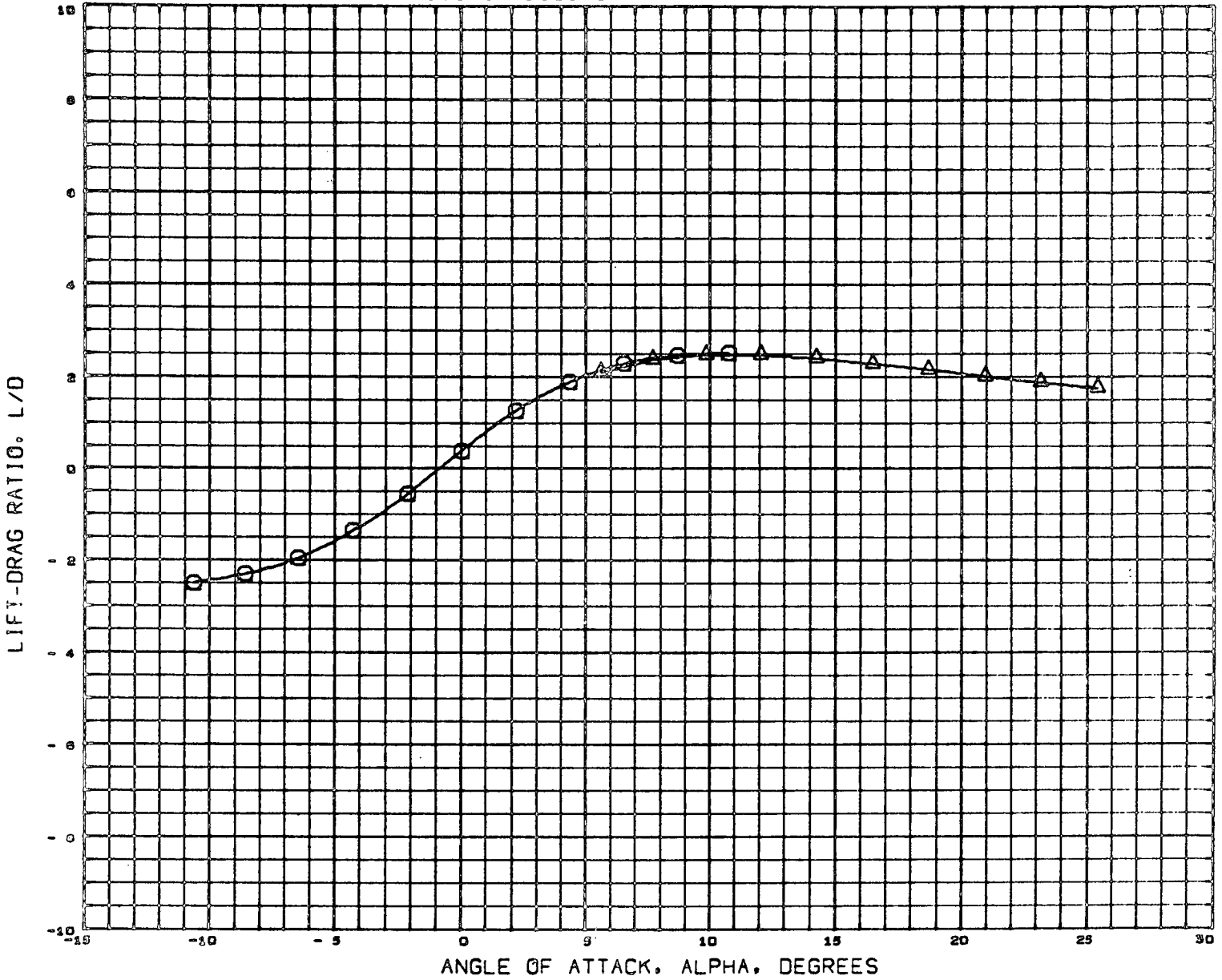
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN.
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

LONGITUDINAL CHARACTERISTICS OF BOOSTER



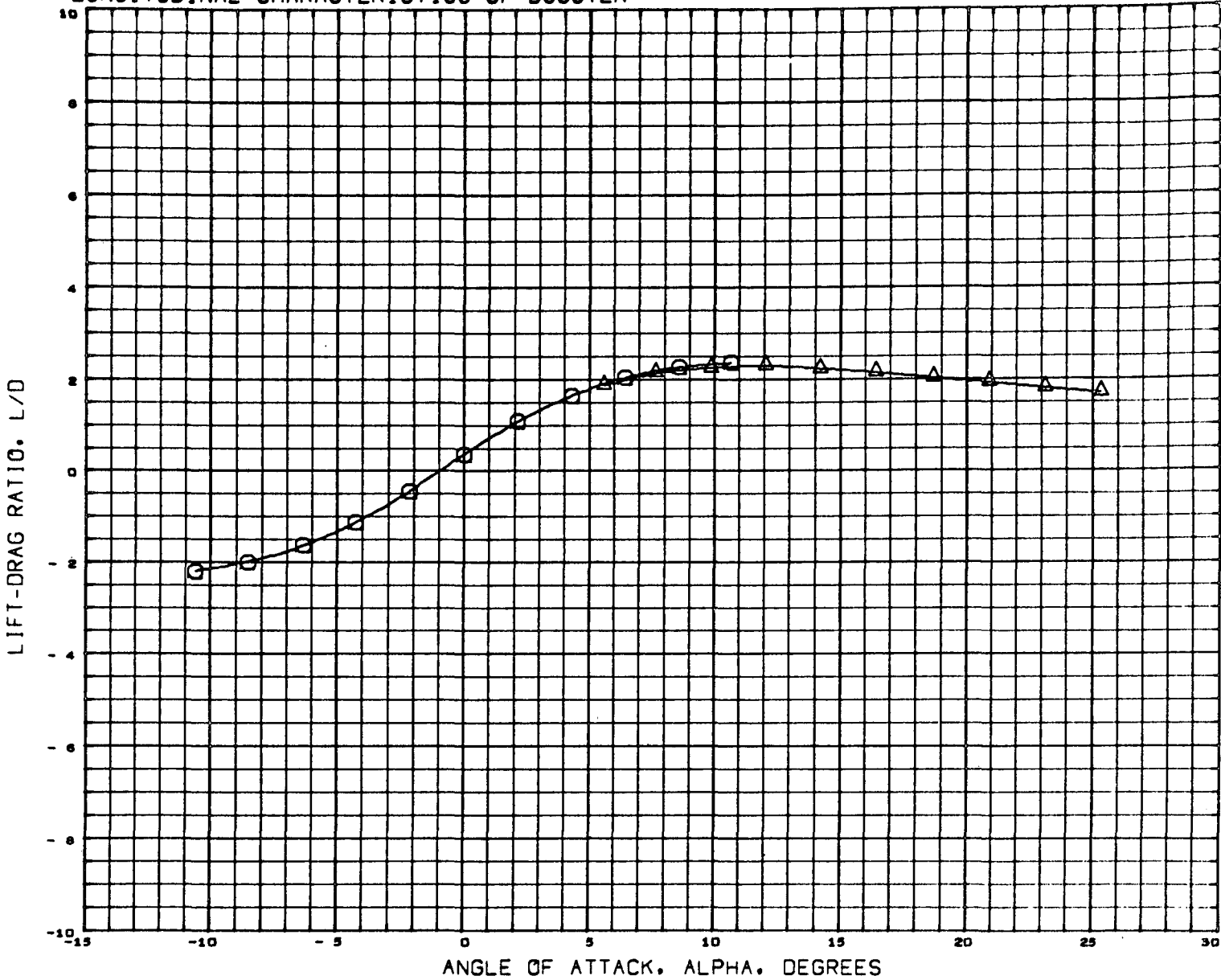
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(M3205B)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(M3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.406

LONGITUDINAL CHARACTERISTICS OF BOOSTER



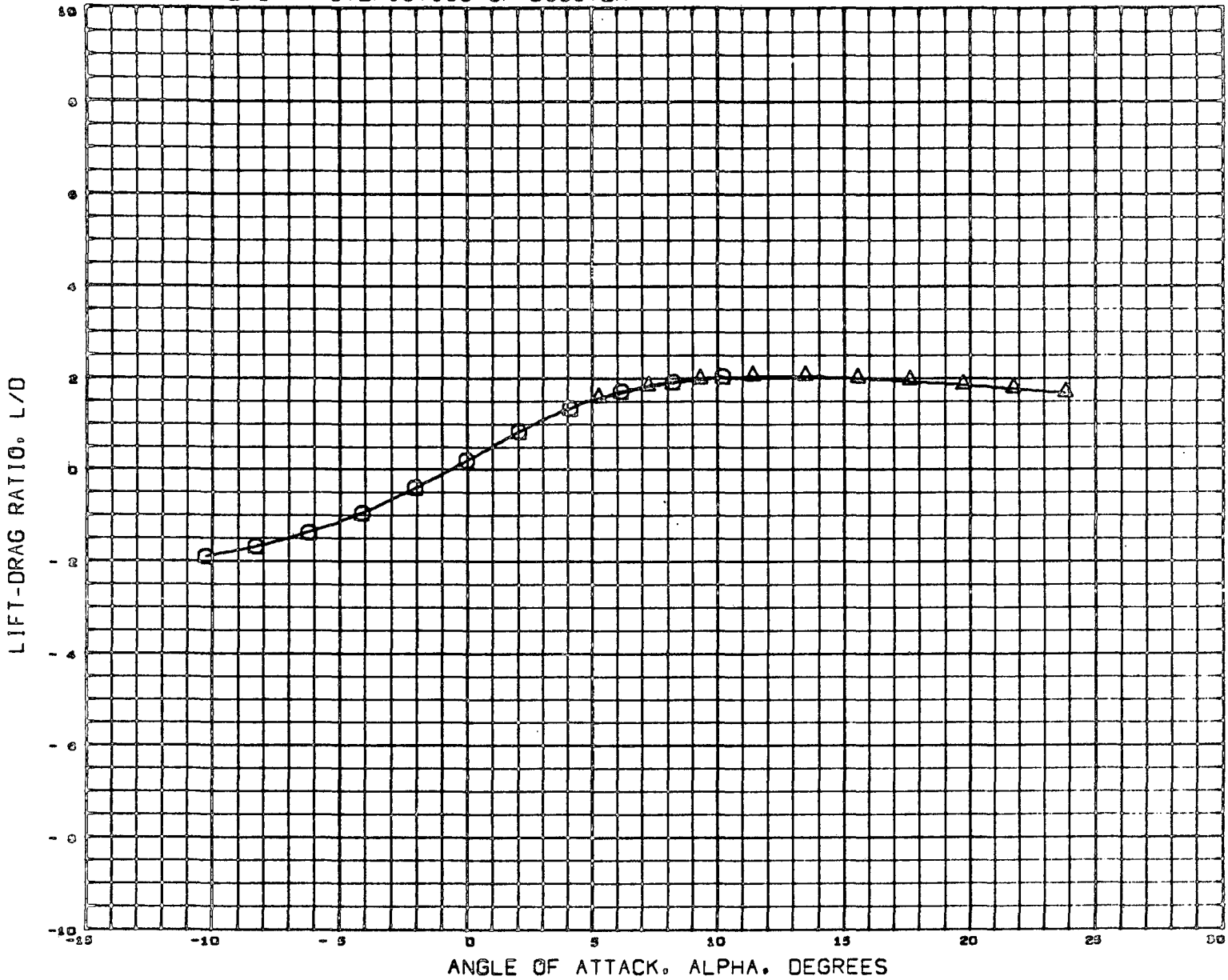
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3205B)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

LONGITUDINAL CHARACTERISTICS OF BOOSTER



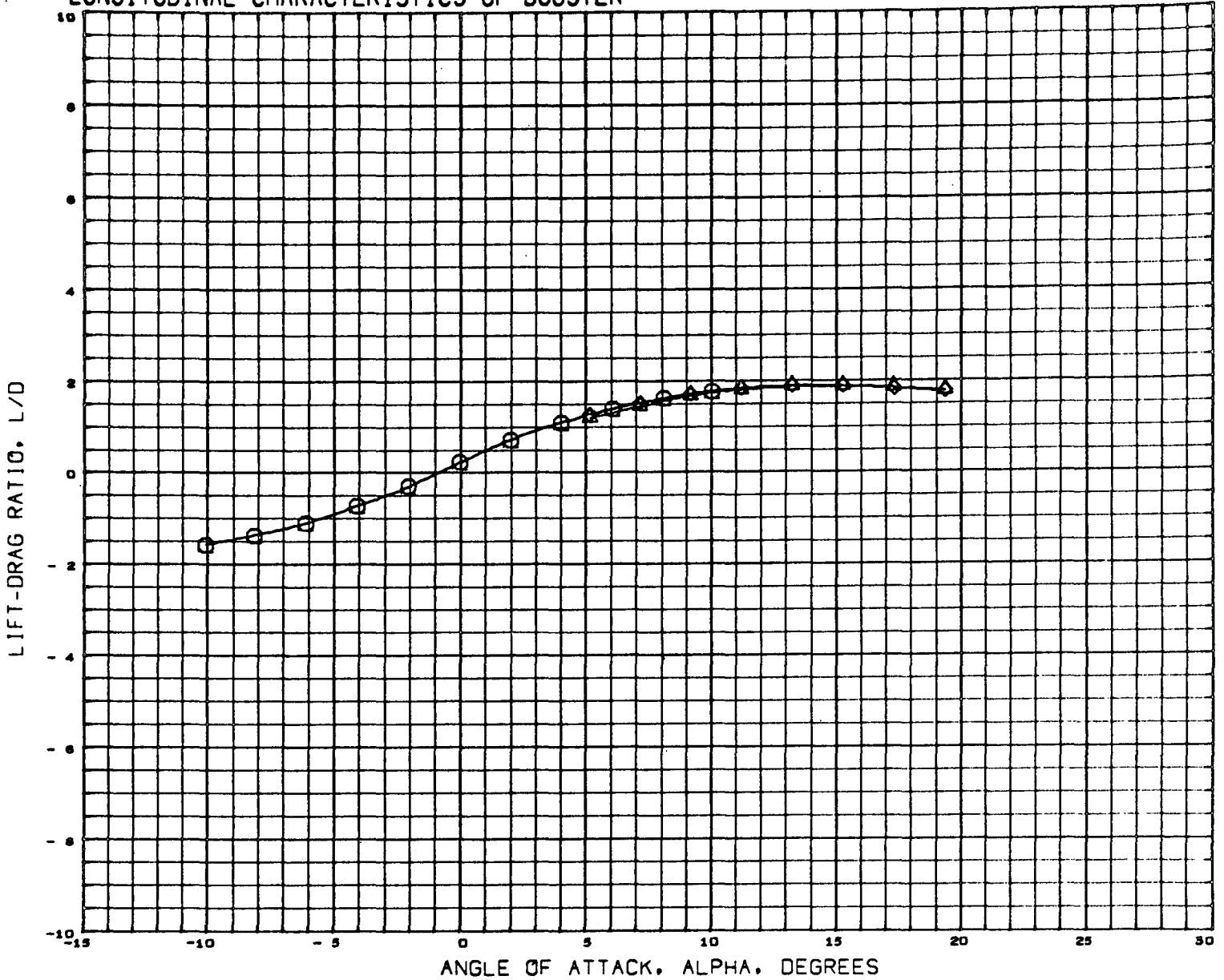
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M32D5A)	MSFC49D 6D DELTA BOOSTER B20C4BW14V8
(M3205B)	MSFC49D 6D DELTA BOOSTER B20C4BW14V8
(M3257B)	DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

LONGITUDINAL CHARACTERISTICS OF BOOSTER



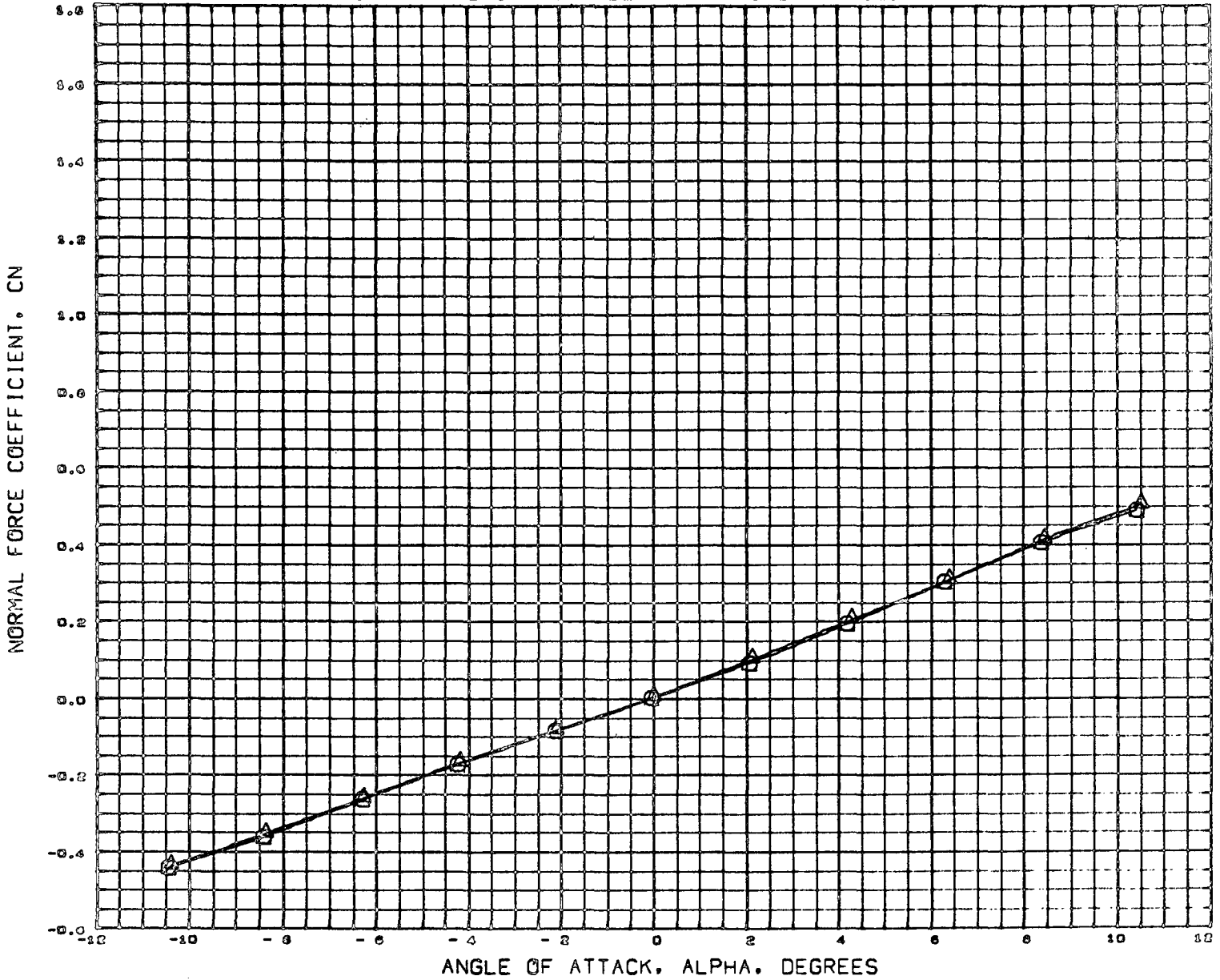
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC49D GD DELTA BOOSTER B2UC4BW14V8
(N3205B)	MSFC49D GD DELTA BOOSTER B2UC4BW14V8
(N3257B)	MSFC49D GD DELTA BOOSTER B2UC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

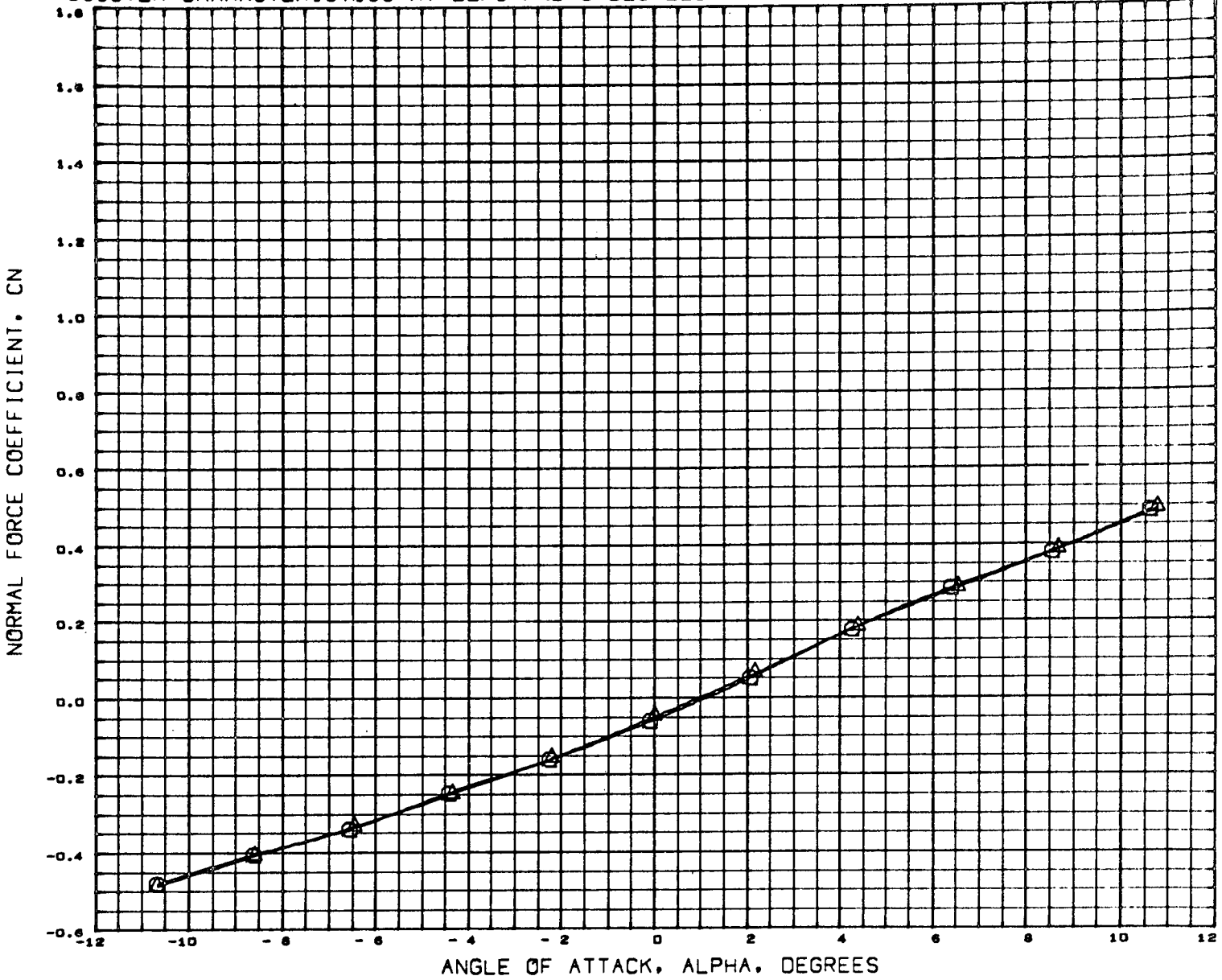
BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0	0.000	0.000	0.000	SREF 15.6560 SQ IN
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF 3.0990 INCHES
					BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0039 SCALE

MACH 0.006

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



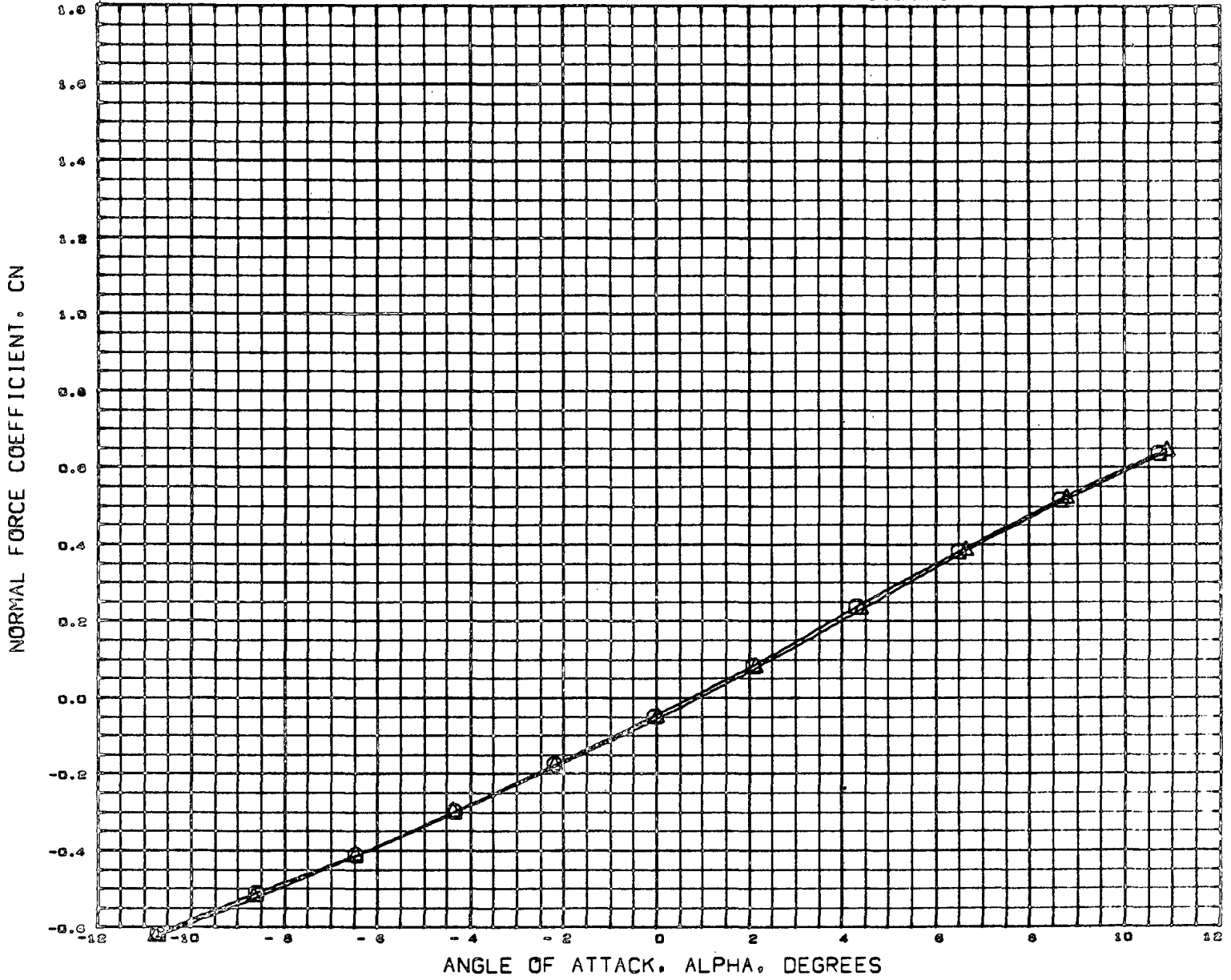
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



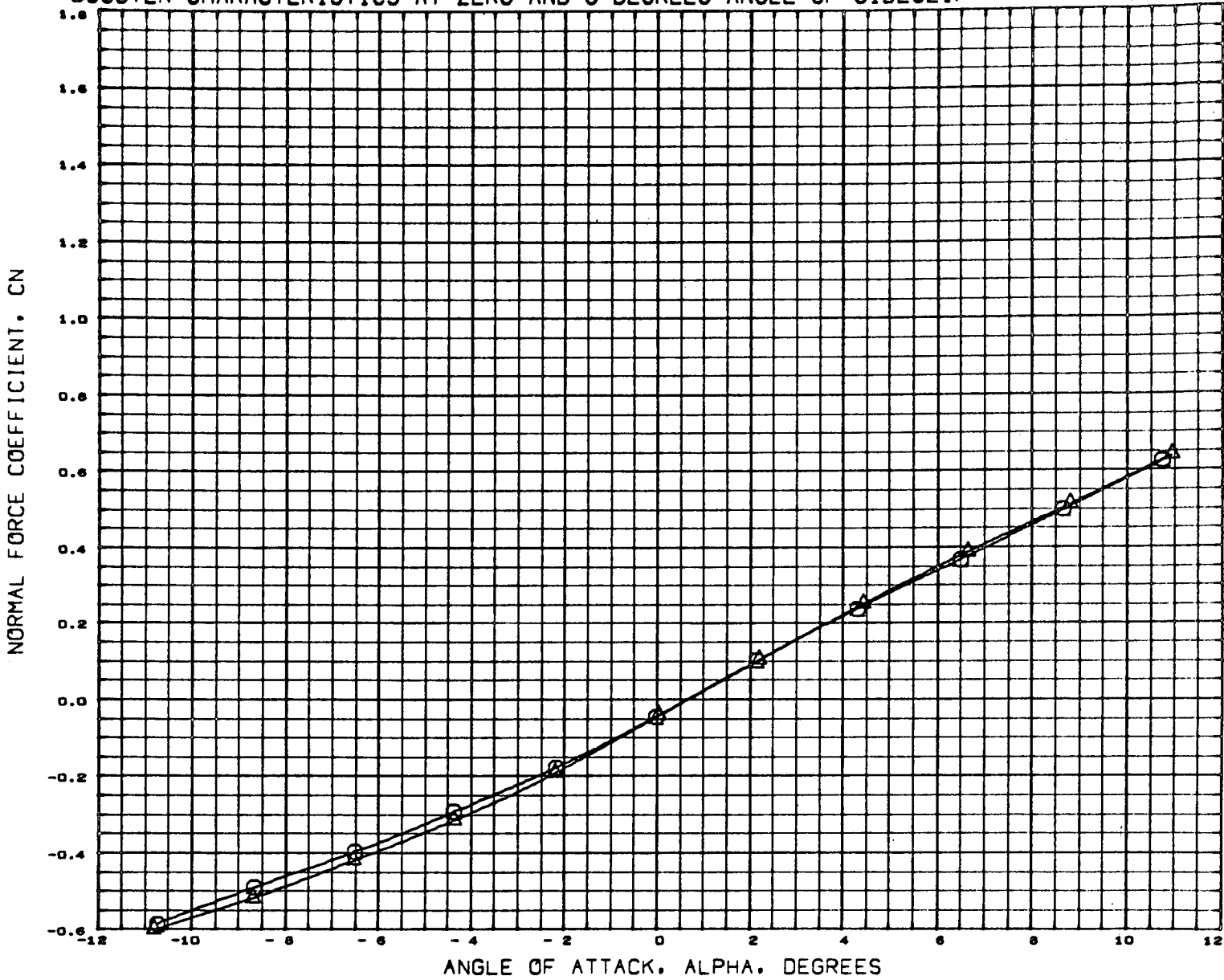
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



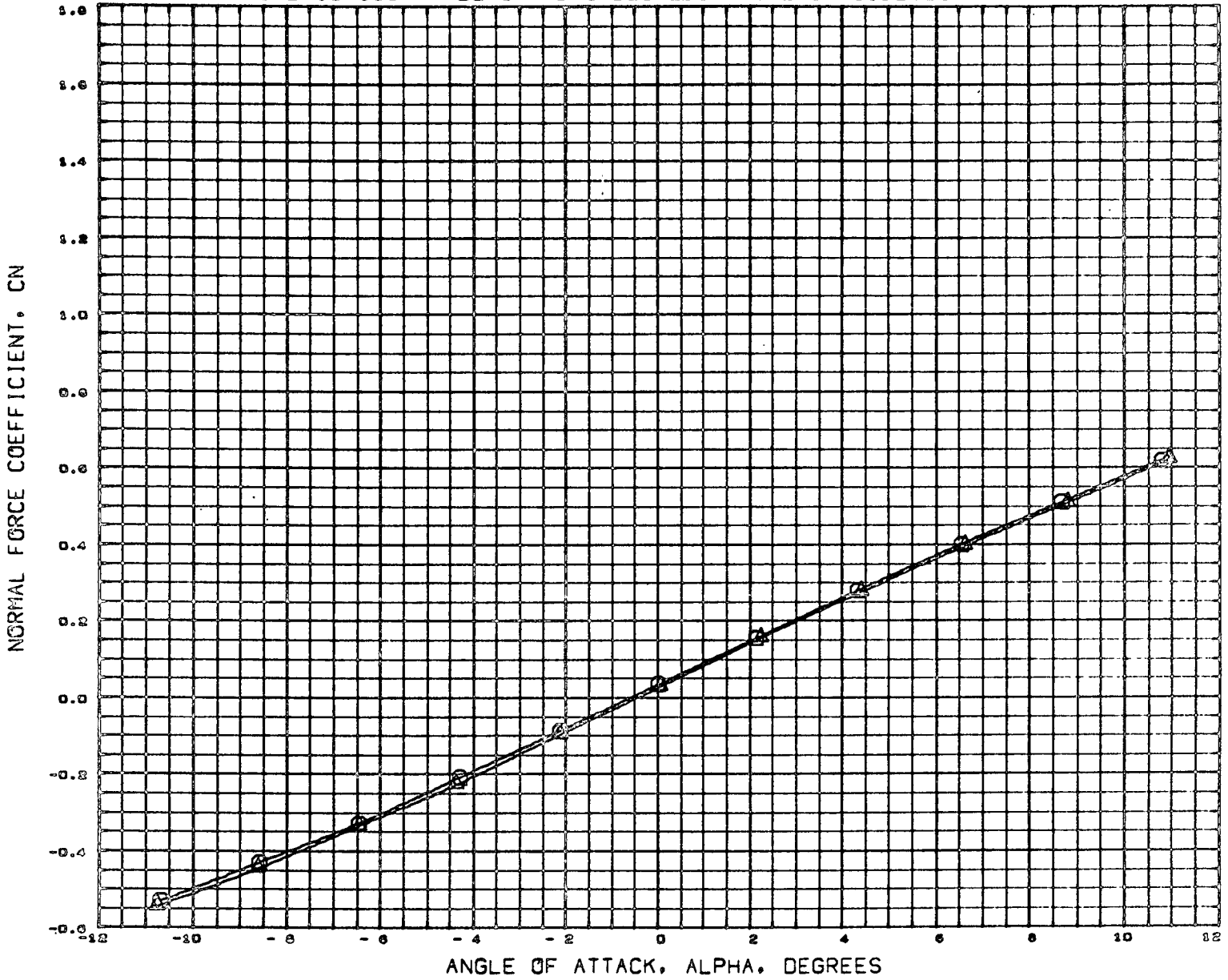
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



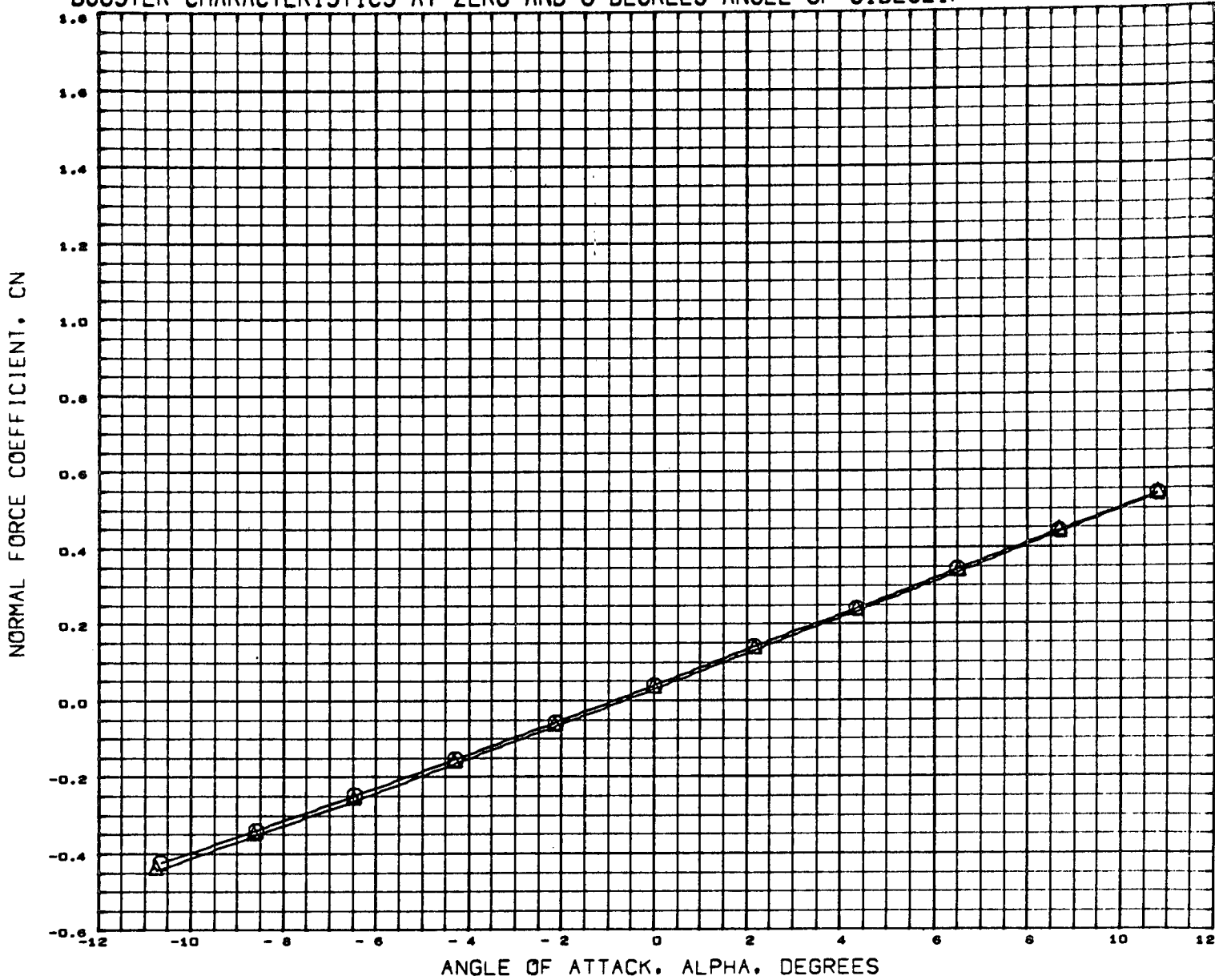
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	△	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



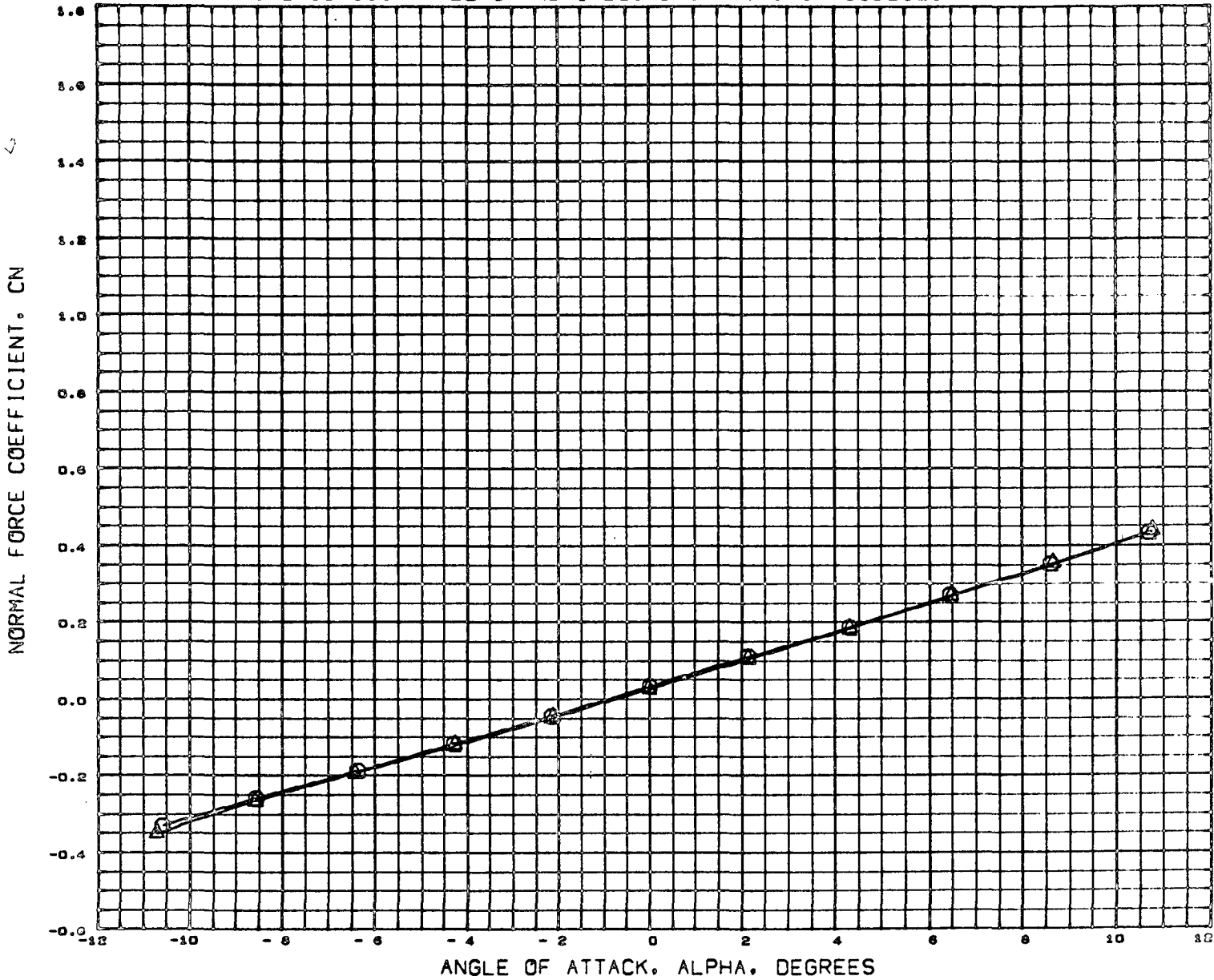
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



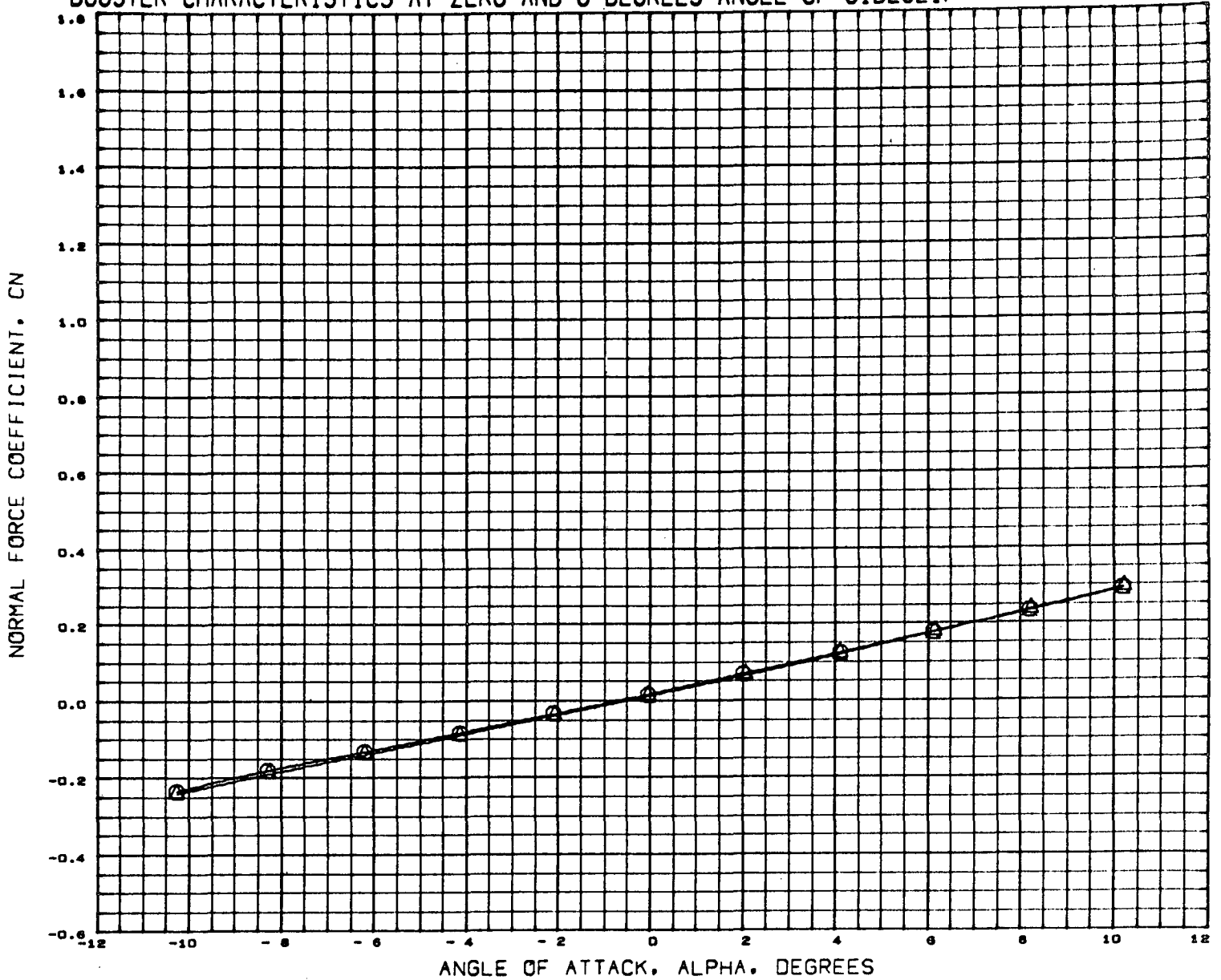
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XM RP	0.0000	
YM RP	0.0000	
ZM RP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



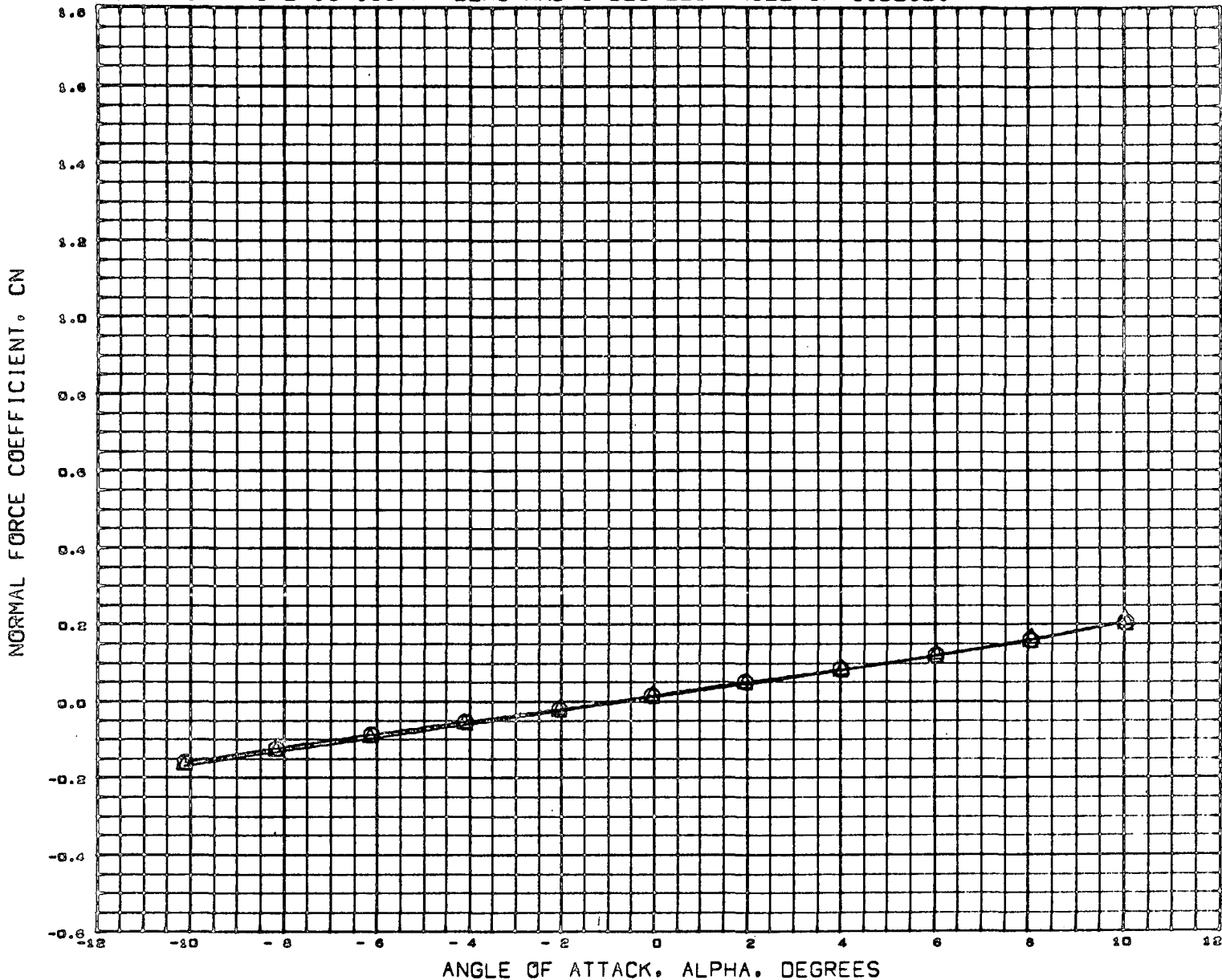
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



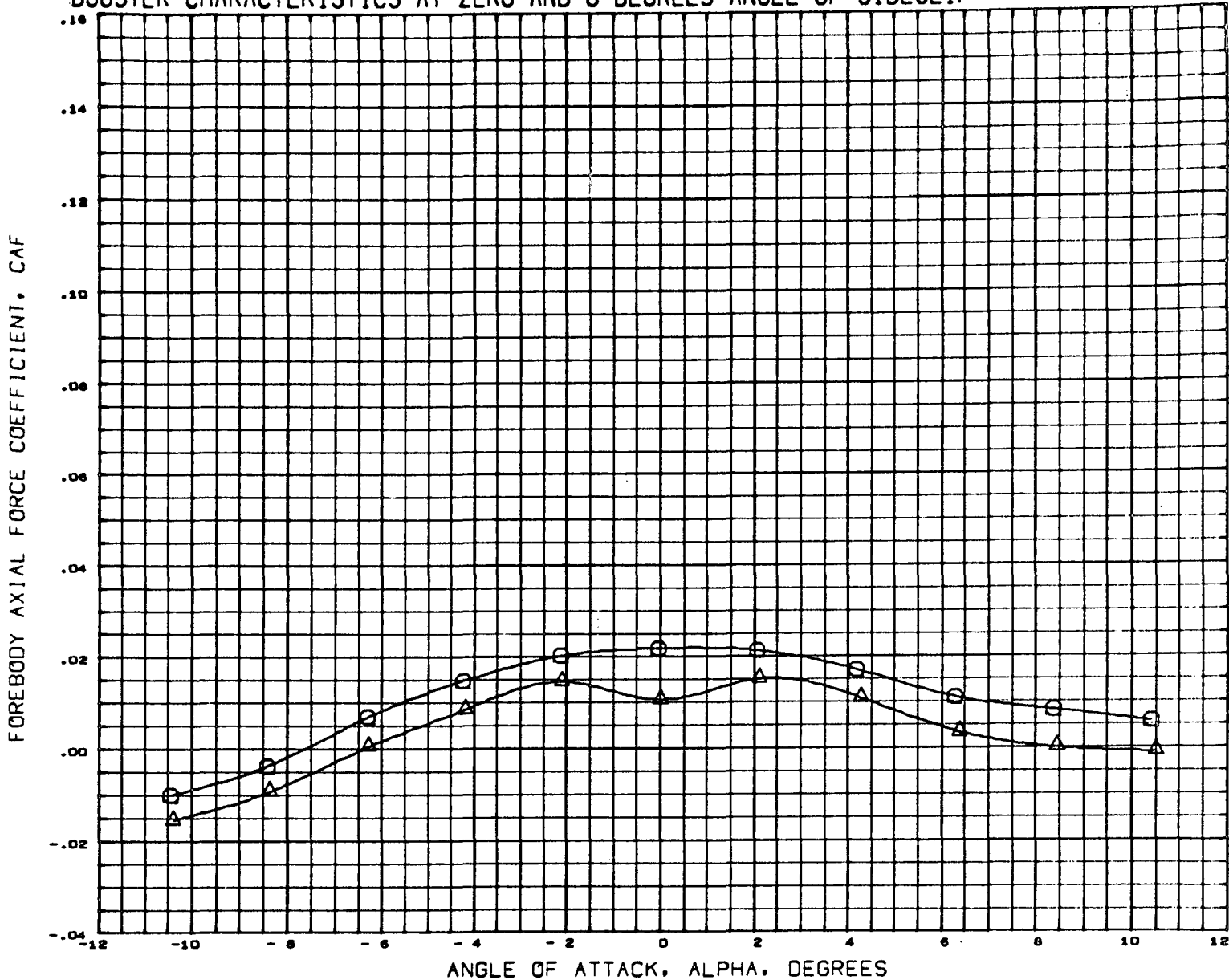
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C48W14V8
(H3207A) △	MSFC49D GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



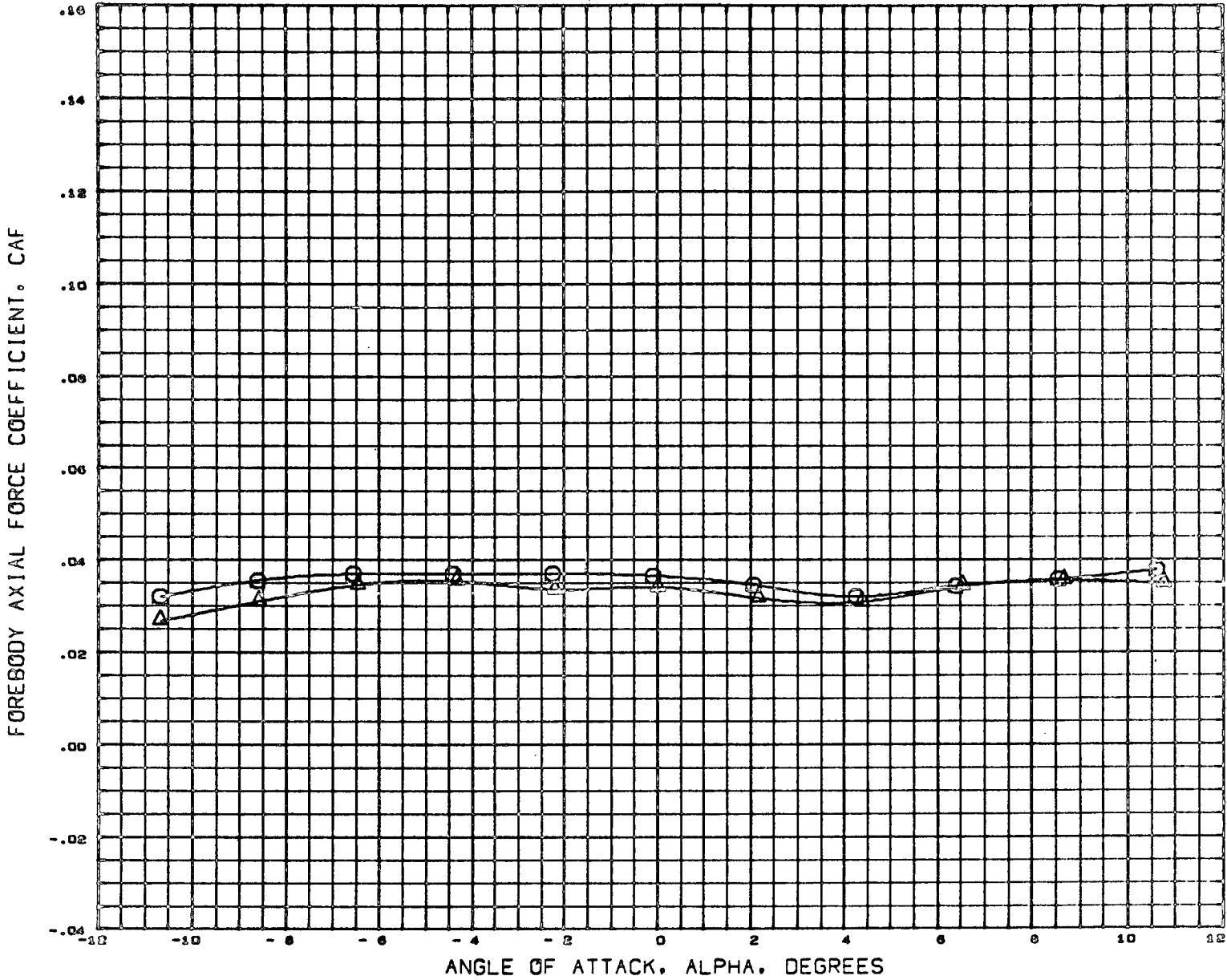
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.8560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



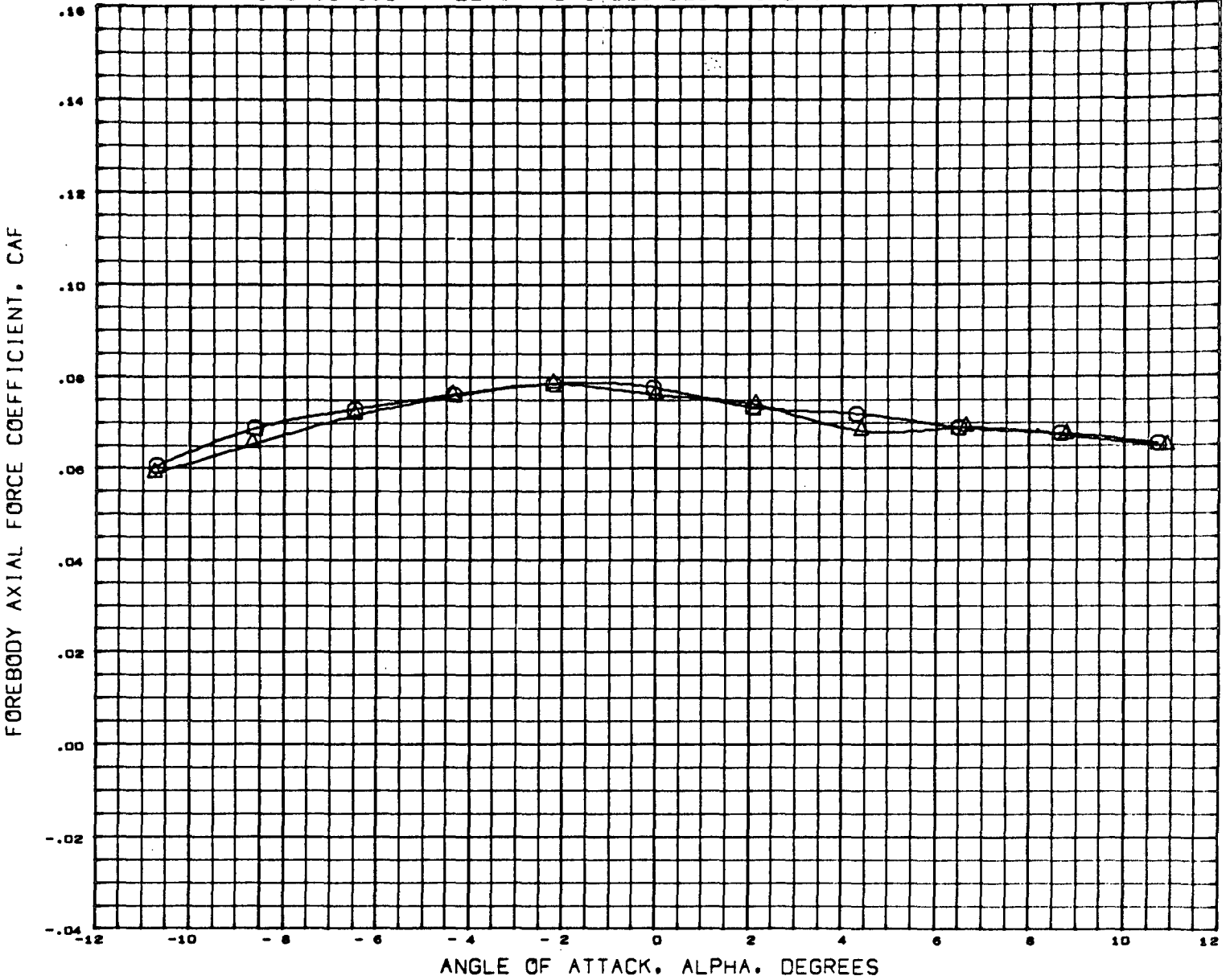
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0039	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

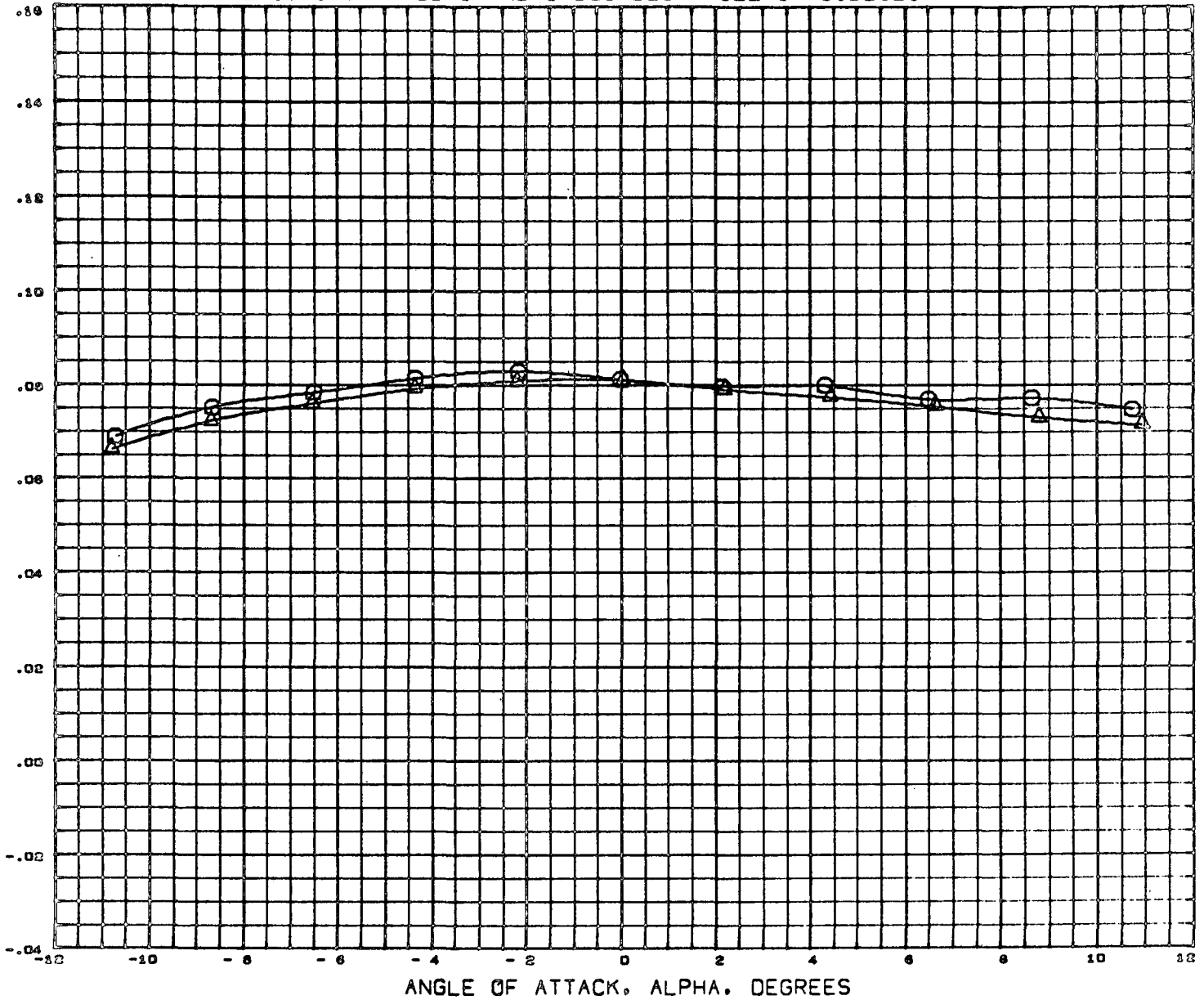
BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

FOREBODY AXIAL FORCE COEFFICIENT, CAF



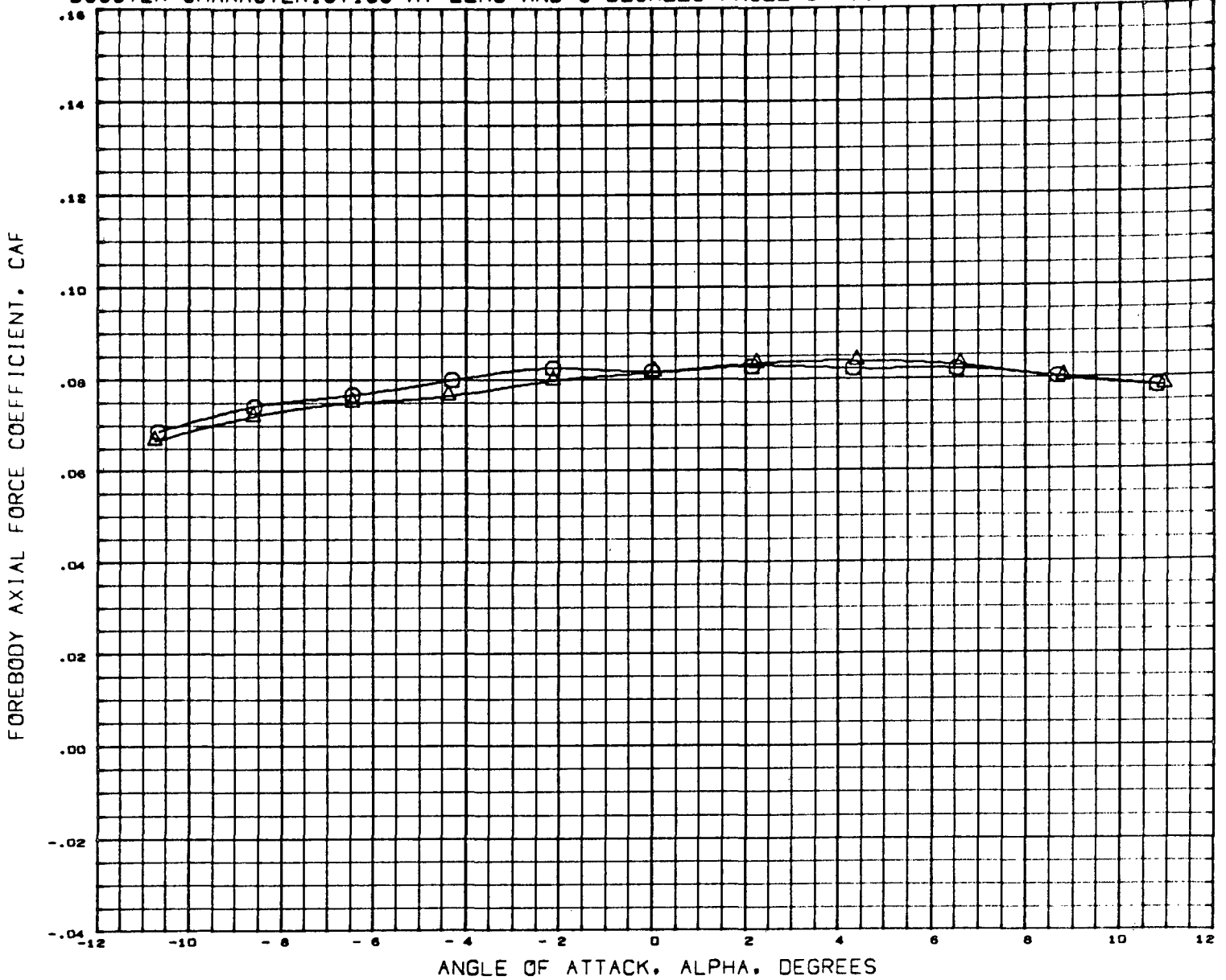
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



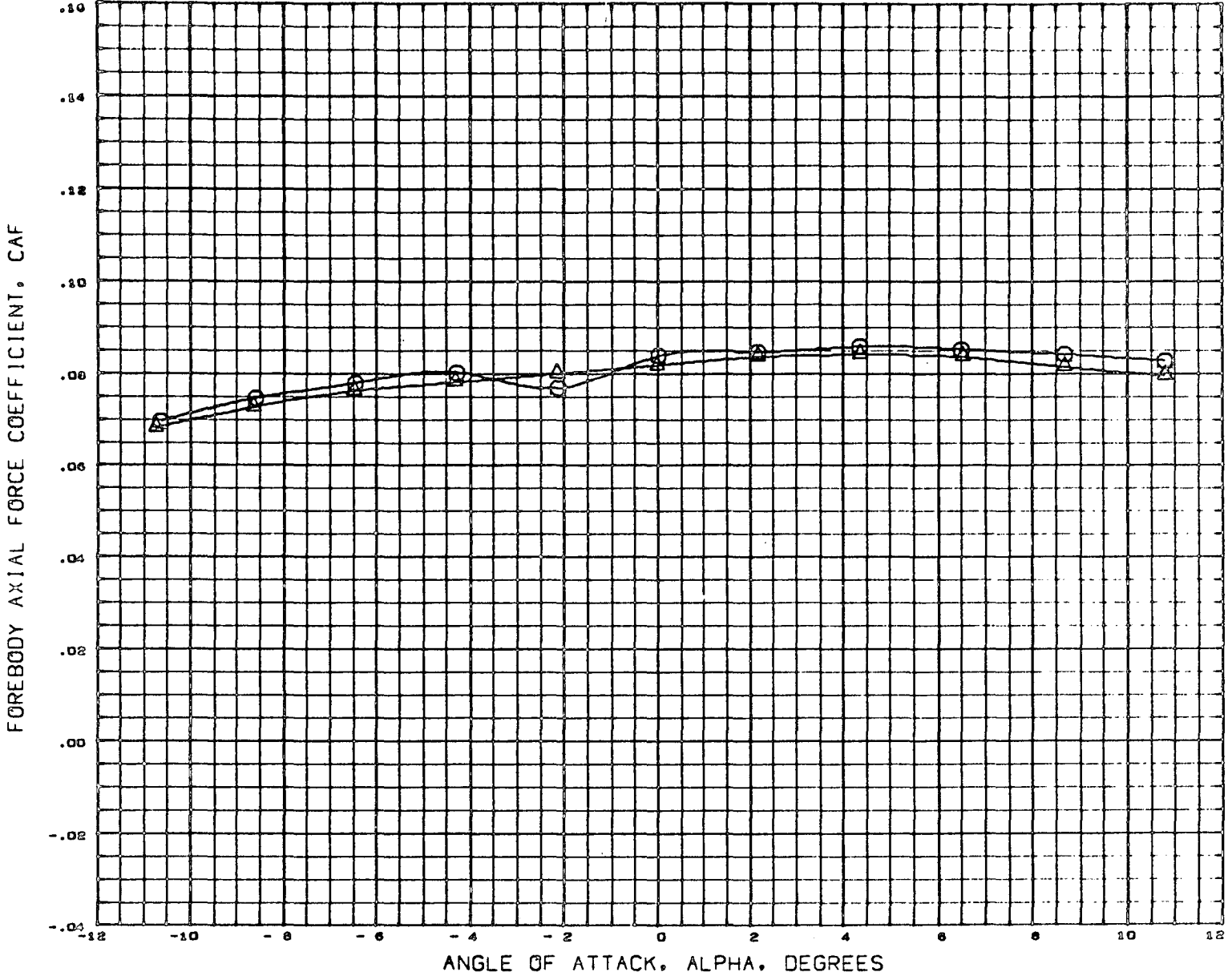
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



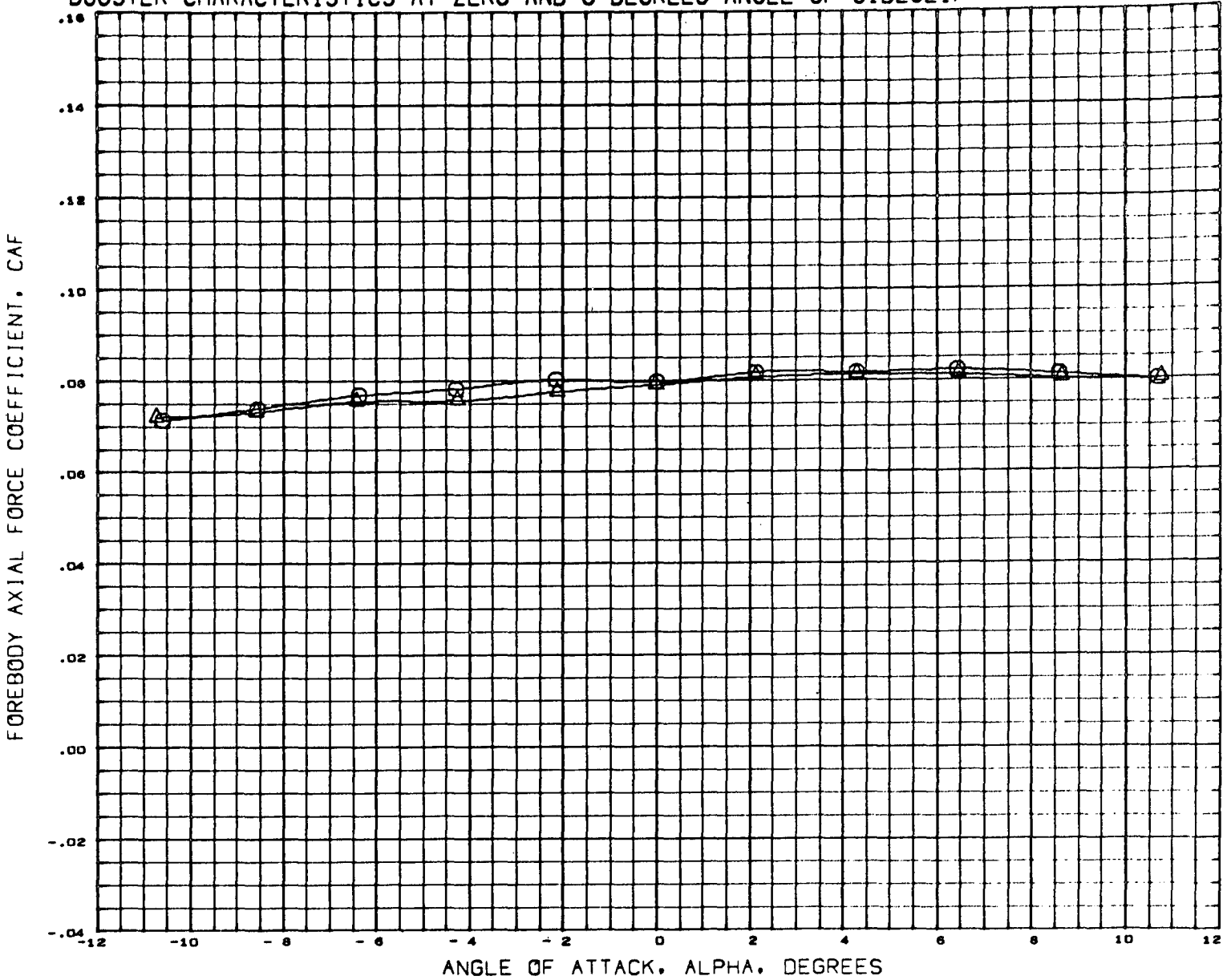
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(K3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(K3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C48W14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3205A)	⊙ M3FC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6560 SQ IN
(H3207A)	△ M3FC490 GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF 3.0990 INCHES
					BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



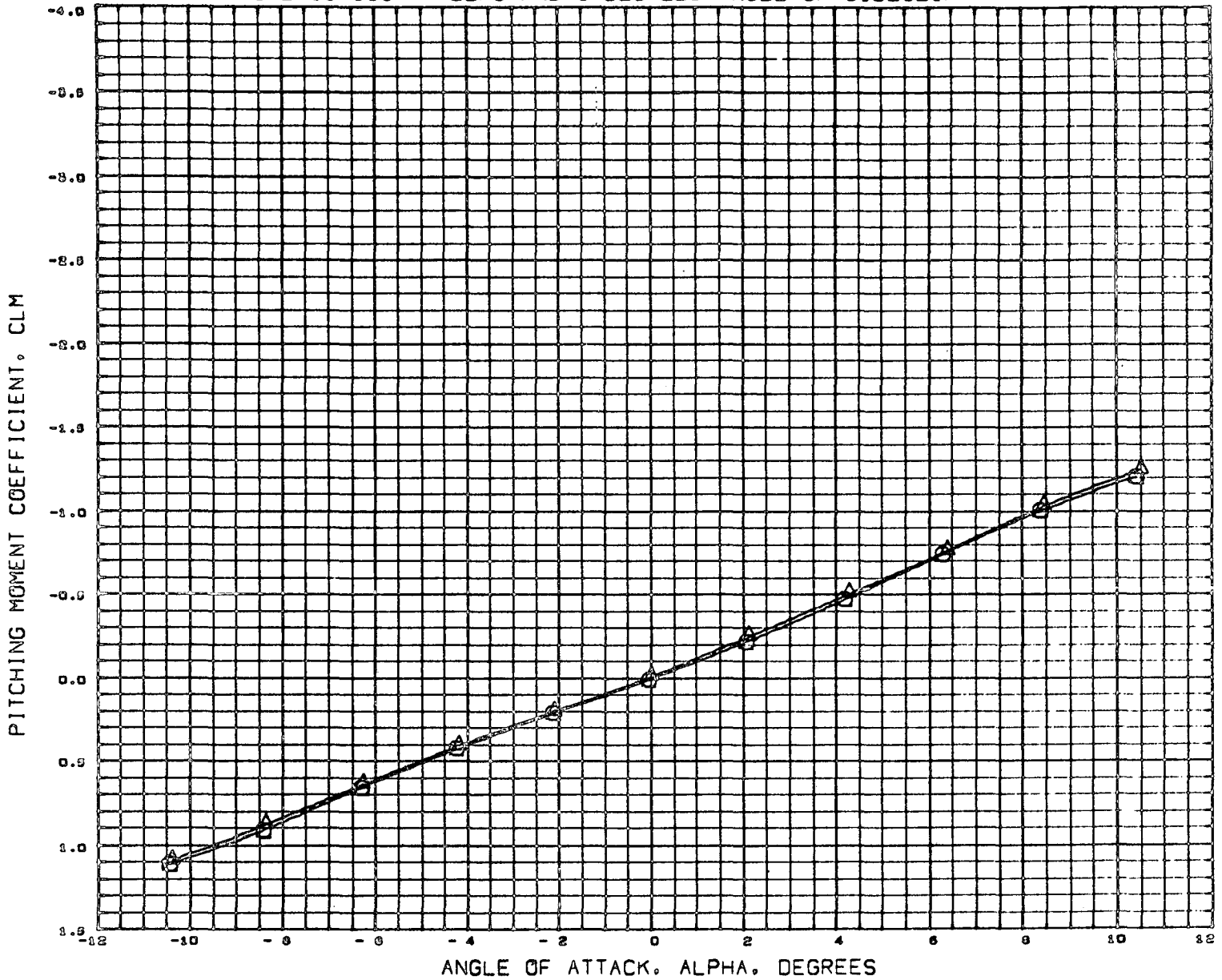
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



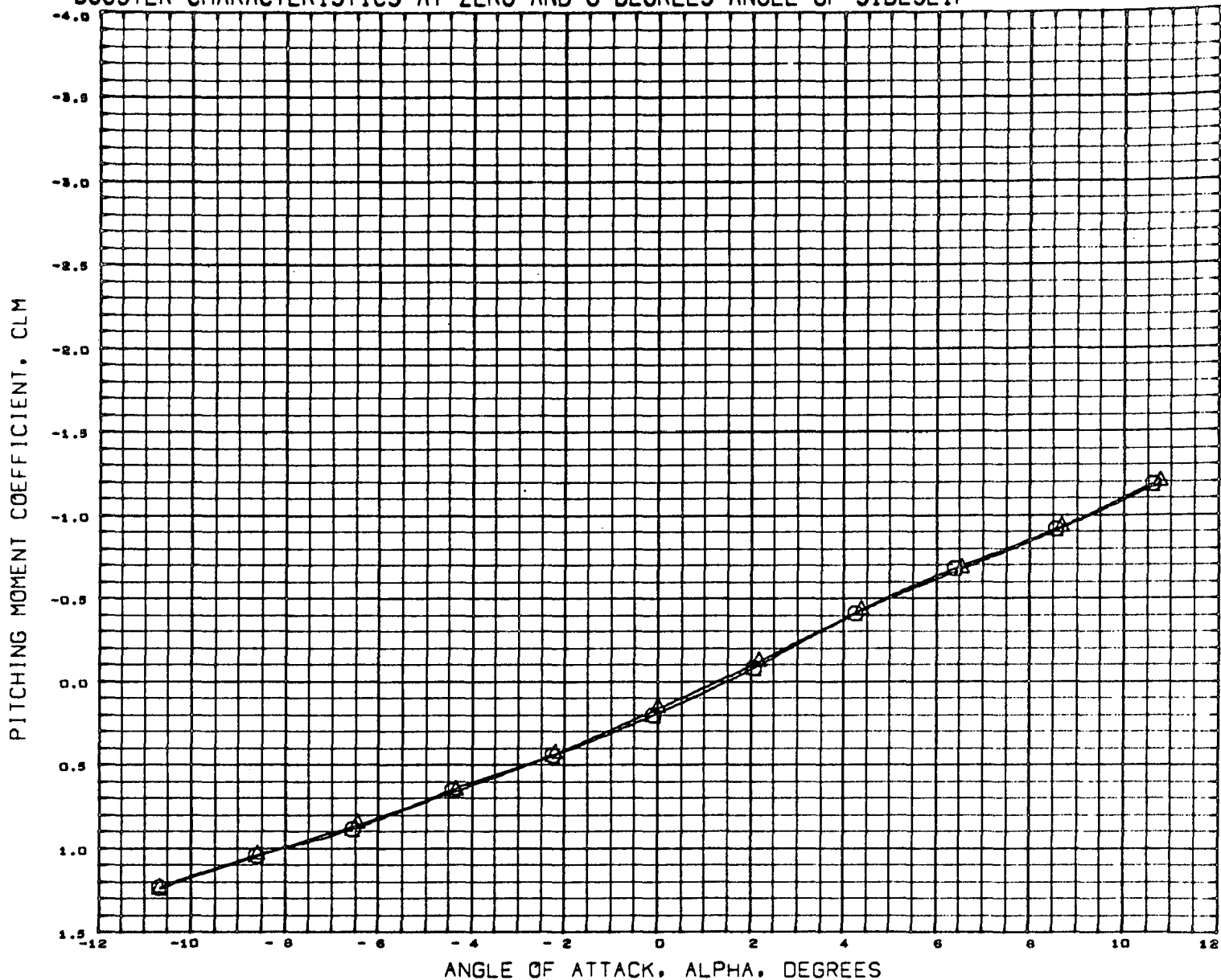
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	M3FC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	M3FC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6960 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



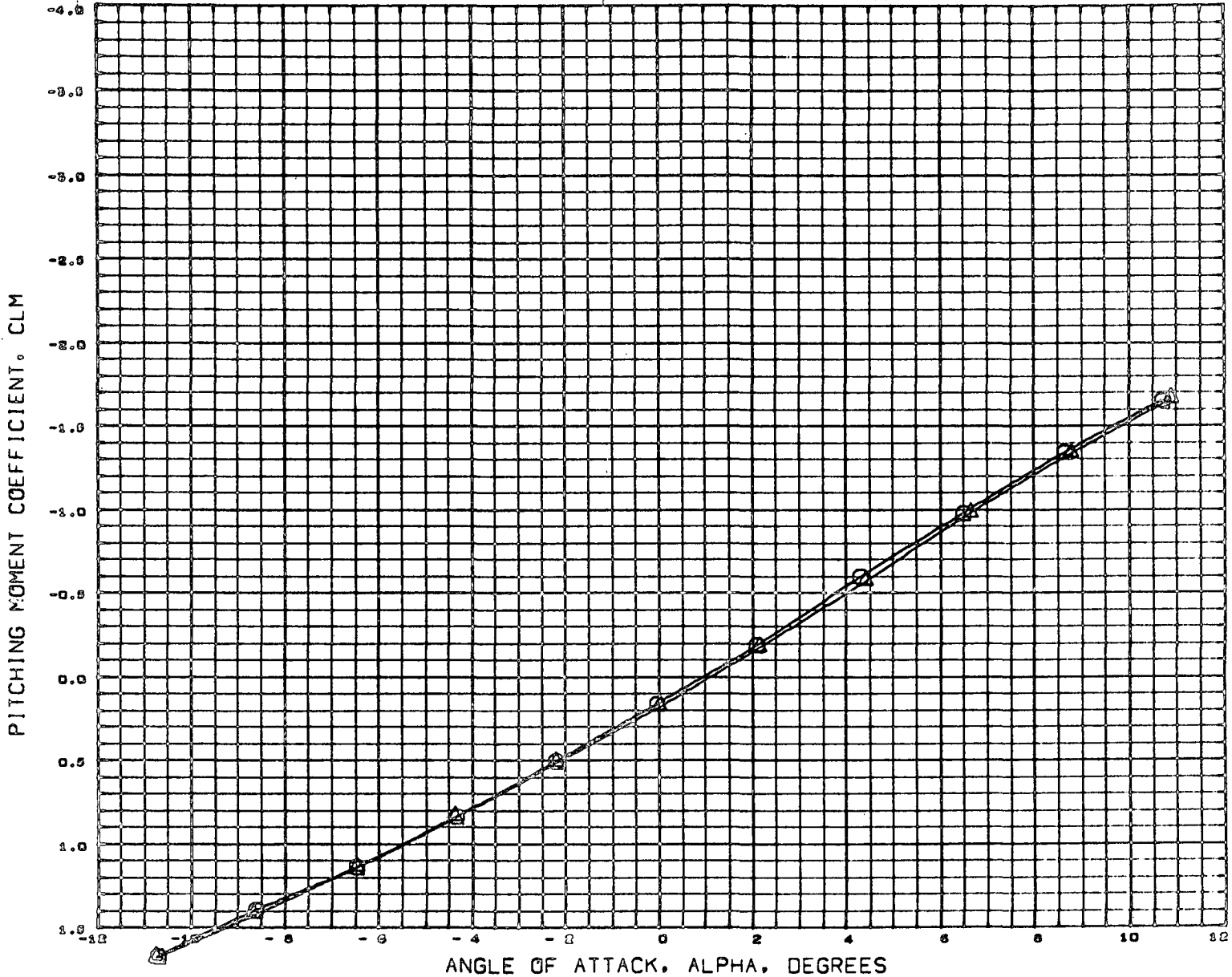
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



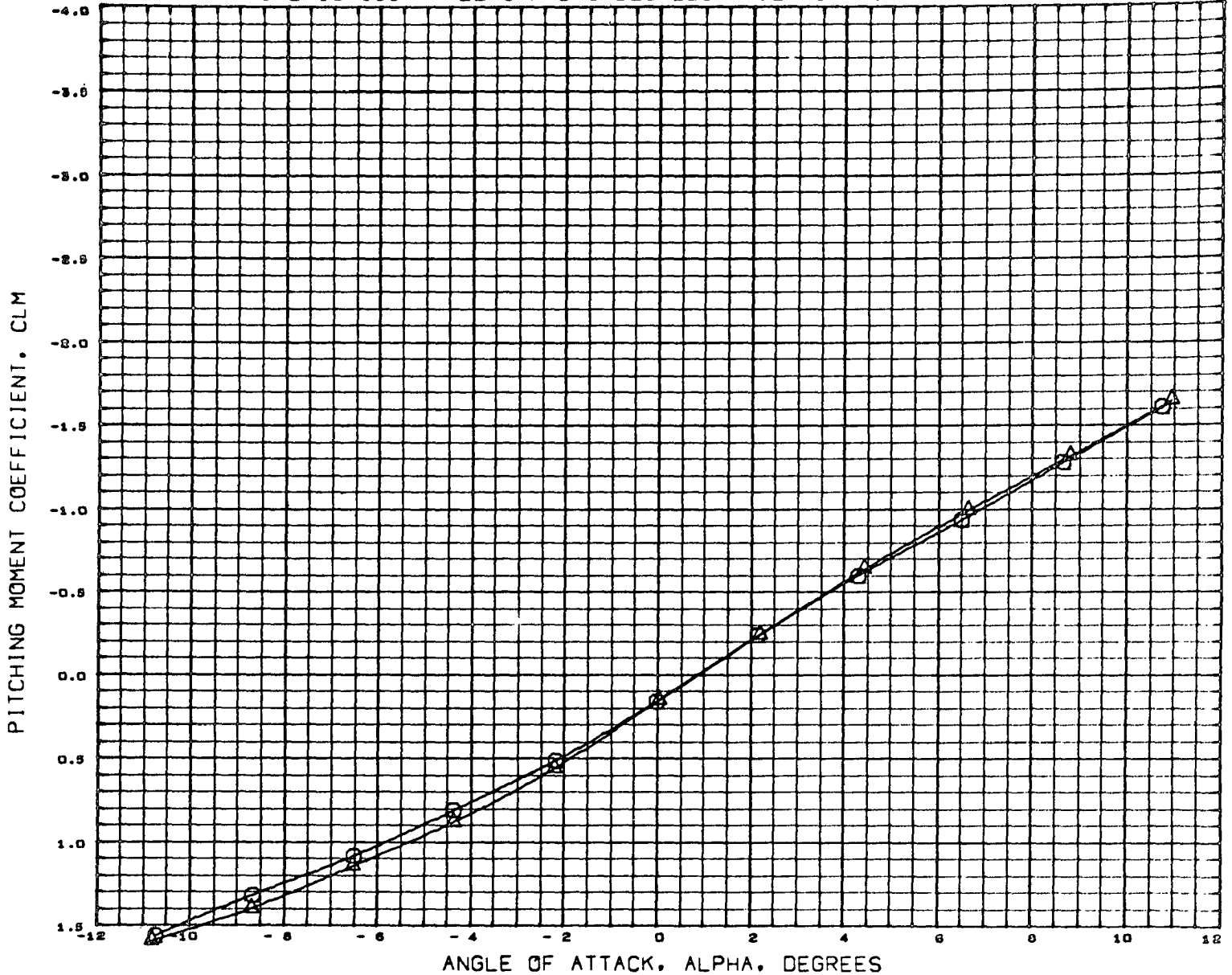
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC49D GD DELTA BOOSTER B20C48W14V8
(M3207A)	MSFC49D GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.996

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



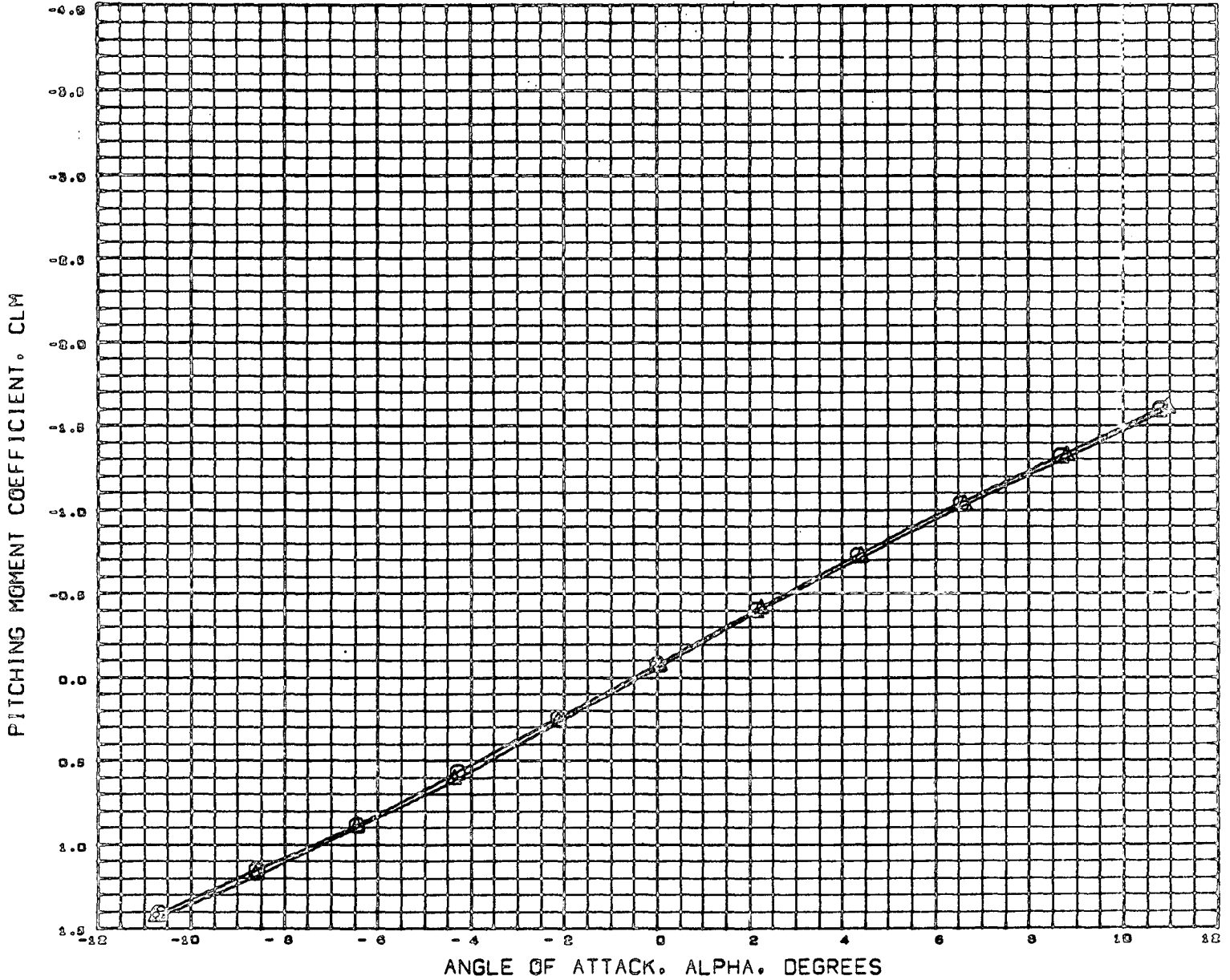
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



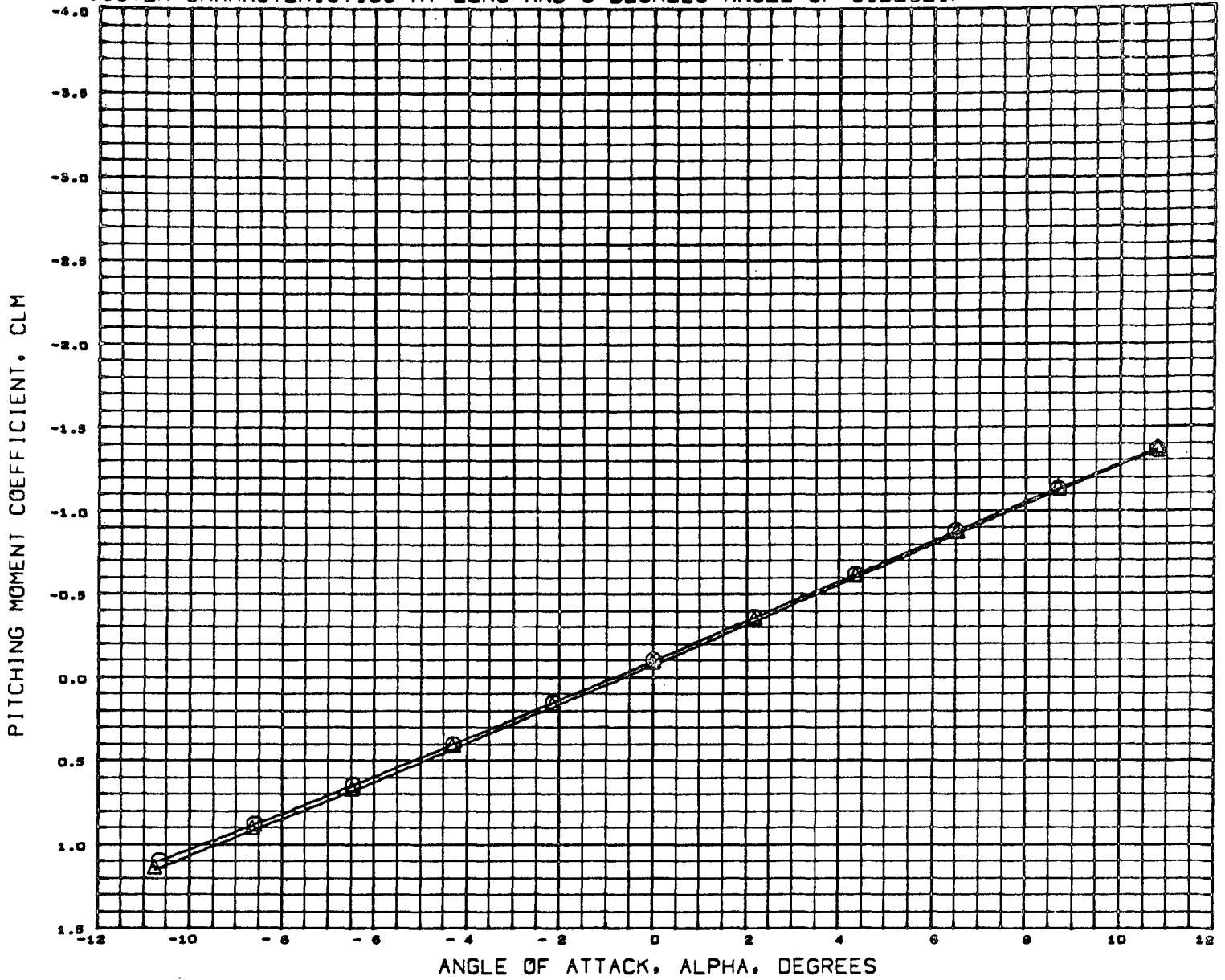
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0

ETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

HACH 1.107

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



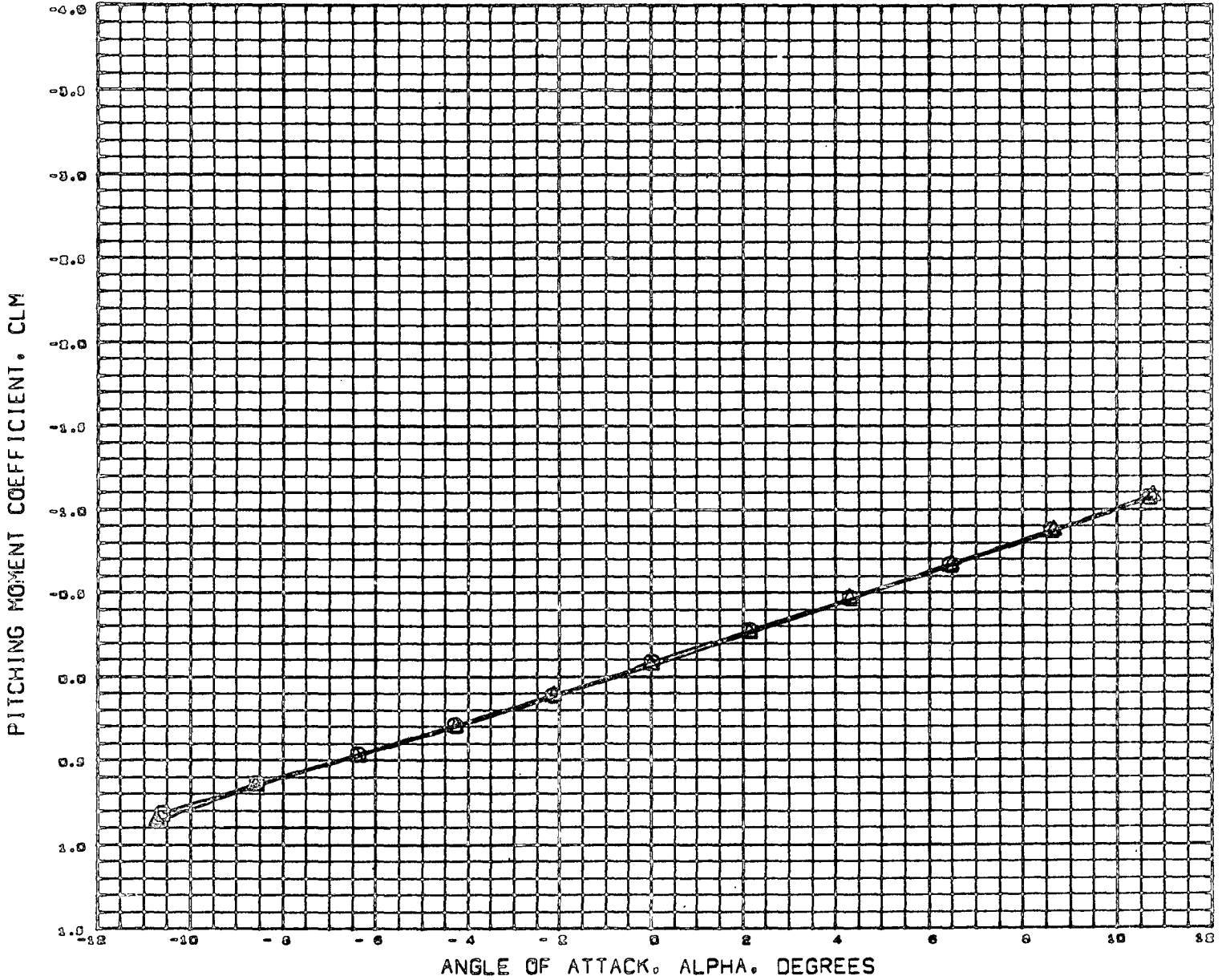
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



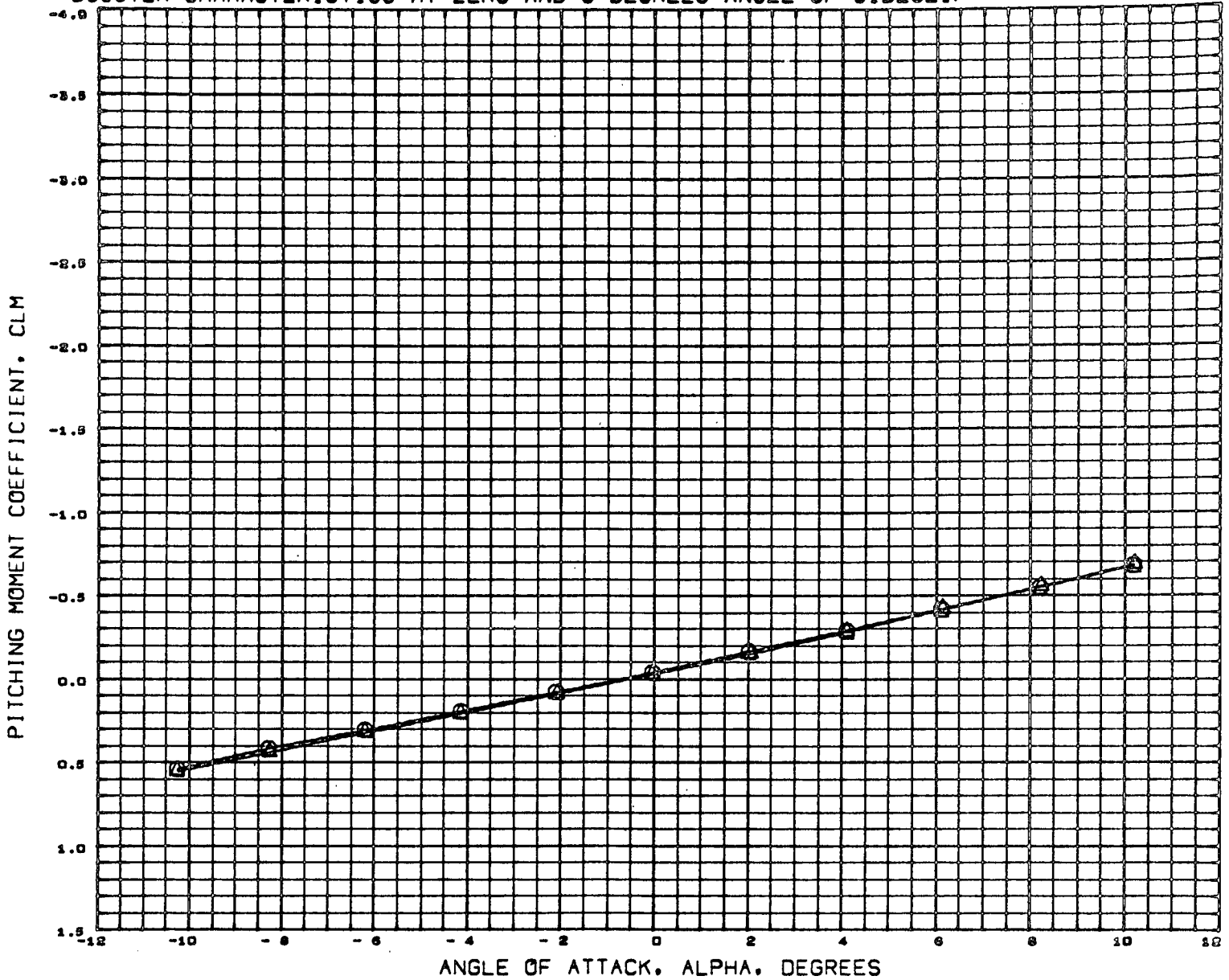
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	M3FC400 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	M3FC400 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.6560	80 IN
LREF	3.0990	INCHES
DREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.039

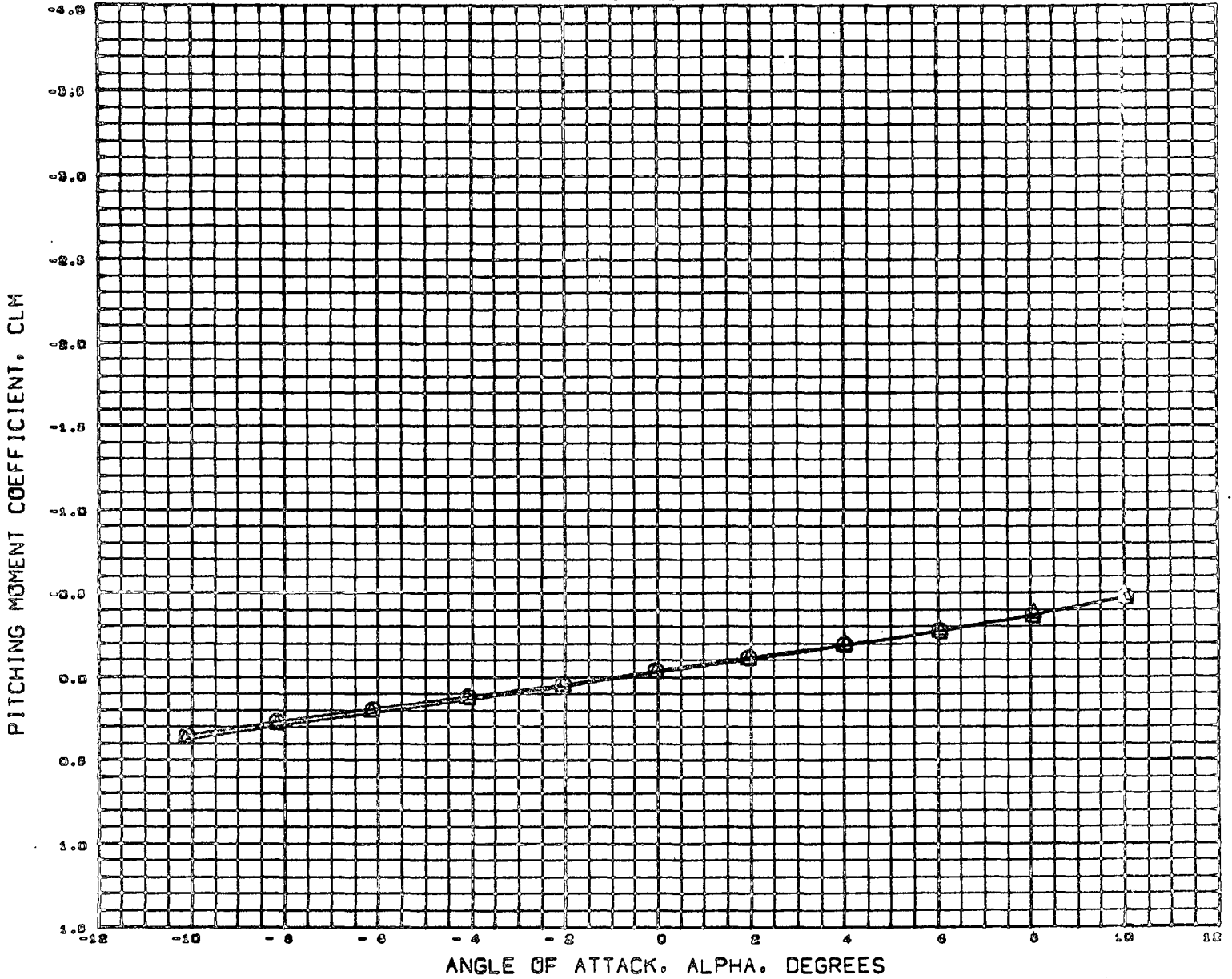
BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6560 SQ IN
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF 3.0950 INCHES
					BREF 6.0900 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



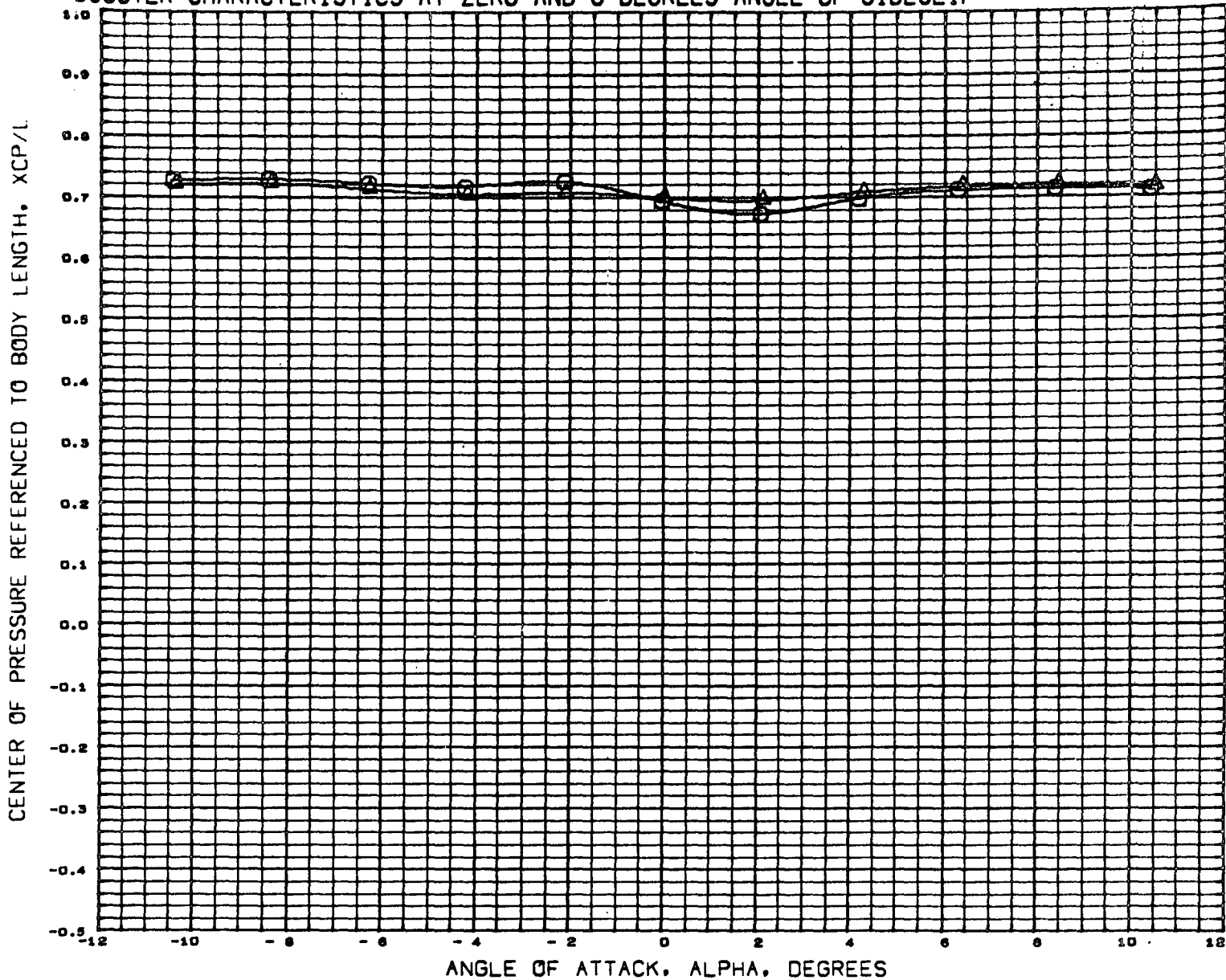
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(MS209A)	MSFC490 GD DELTA BOOSTER B20C48W14V0
(MS207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

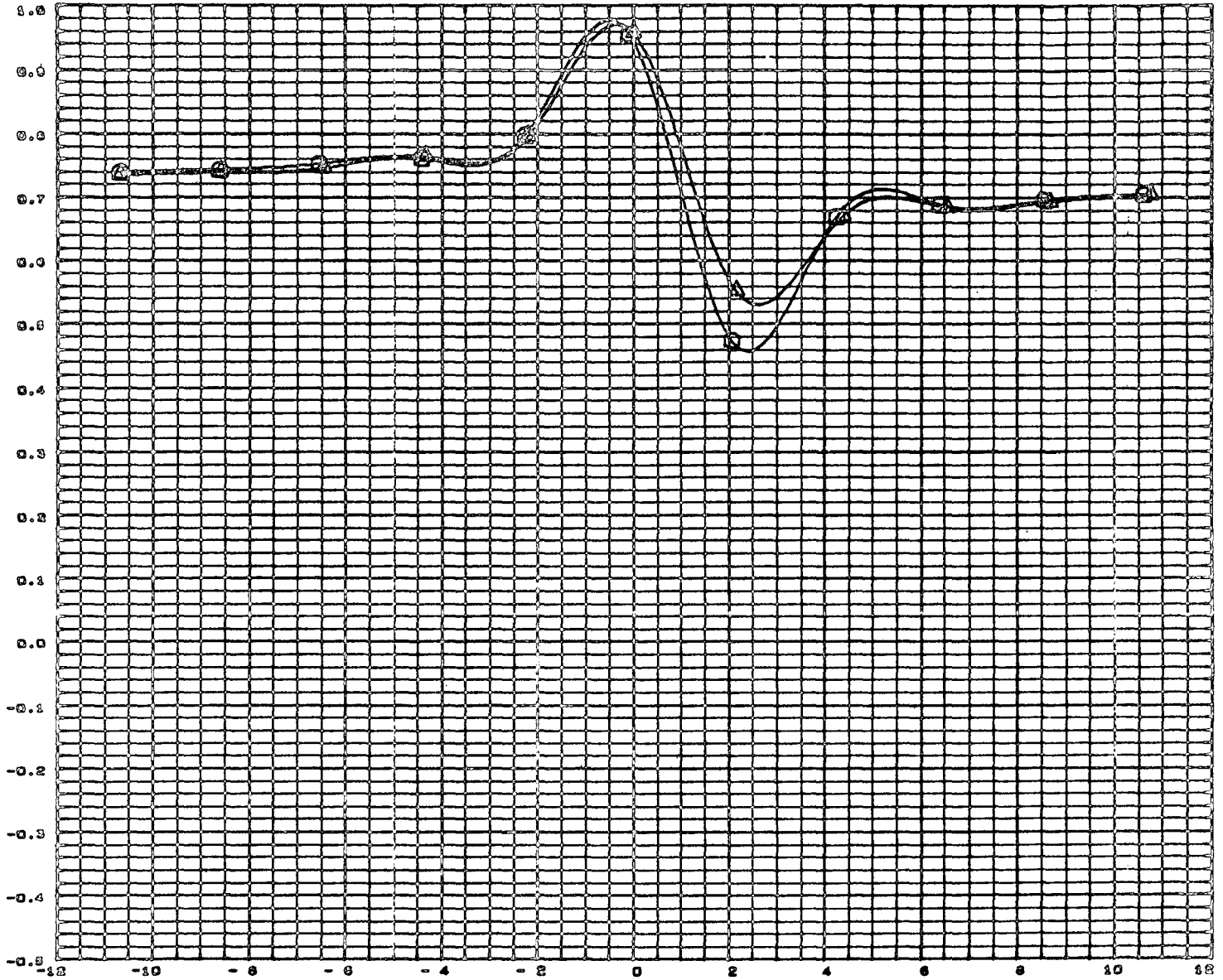
BETA	ELVTR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

CENTER OF PRESSURE REFERENCED TO BODY LENGTH, XCP/L



ANGLE OF ATTACK, ALPHA, DEGREES

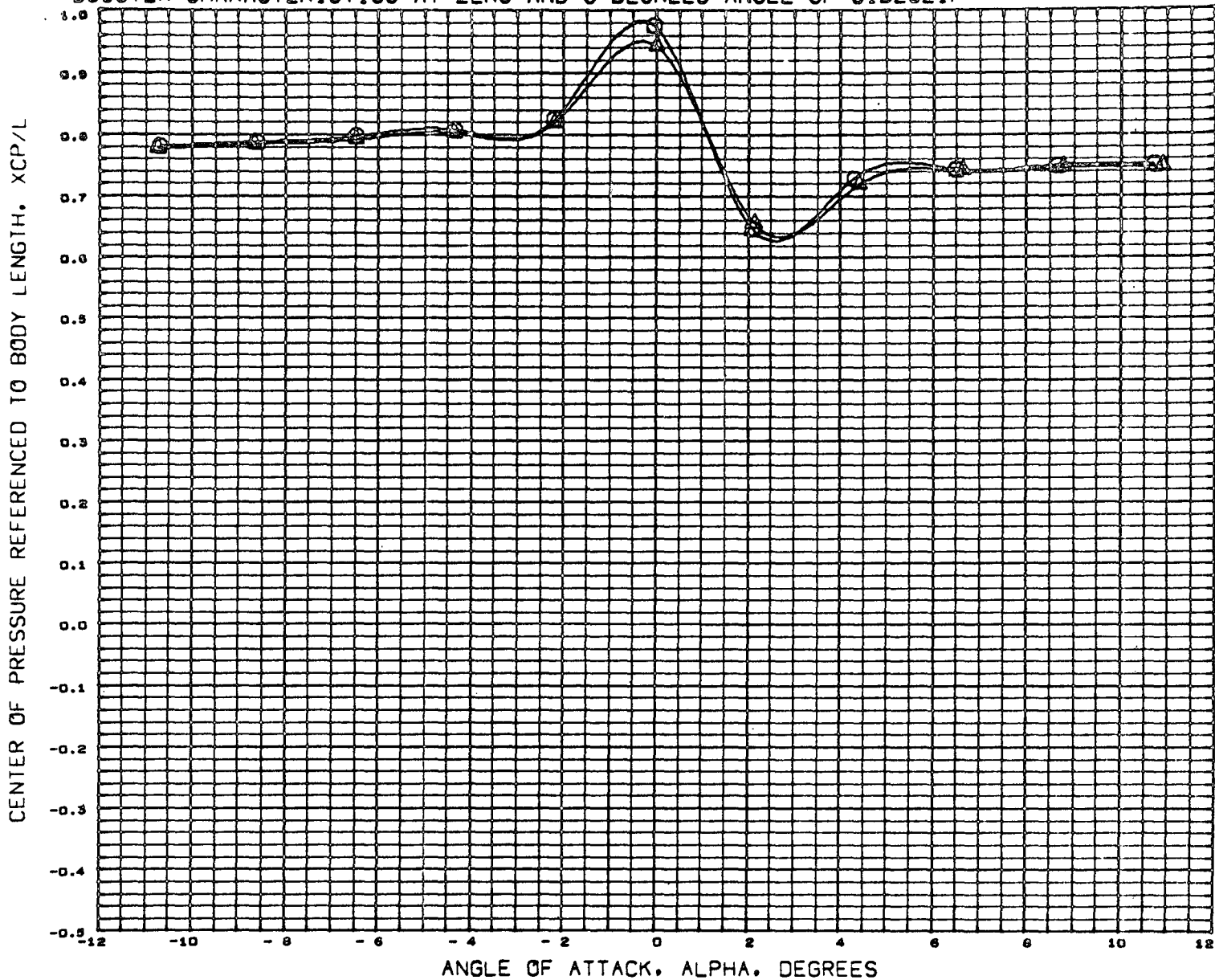
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSPC490 GD DELTA BOOSTER B2UC4BW14V0
(M3207A)	MSPC490 GD DELTA BOOSTER B2UC4BW14V0

ETA	ELVAT	AILRON
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	18.0560	80 IN
LREF	3.0090	INCHES
BREF	6.0090	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



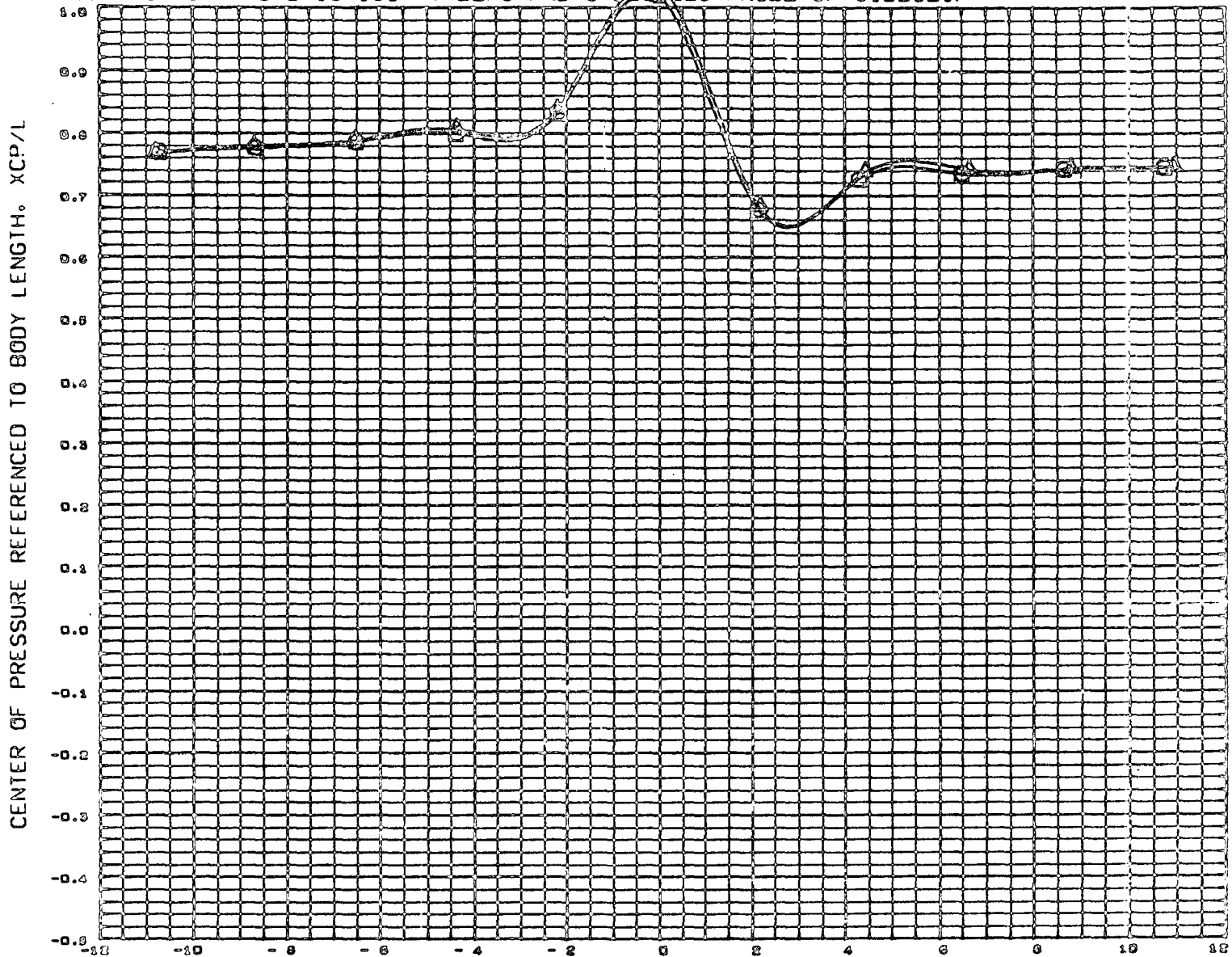
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



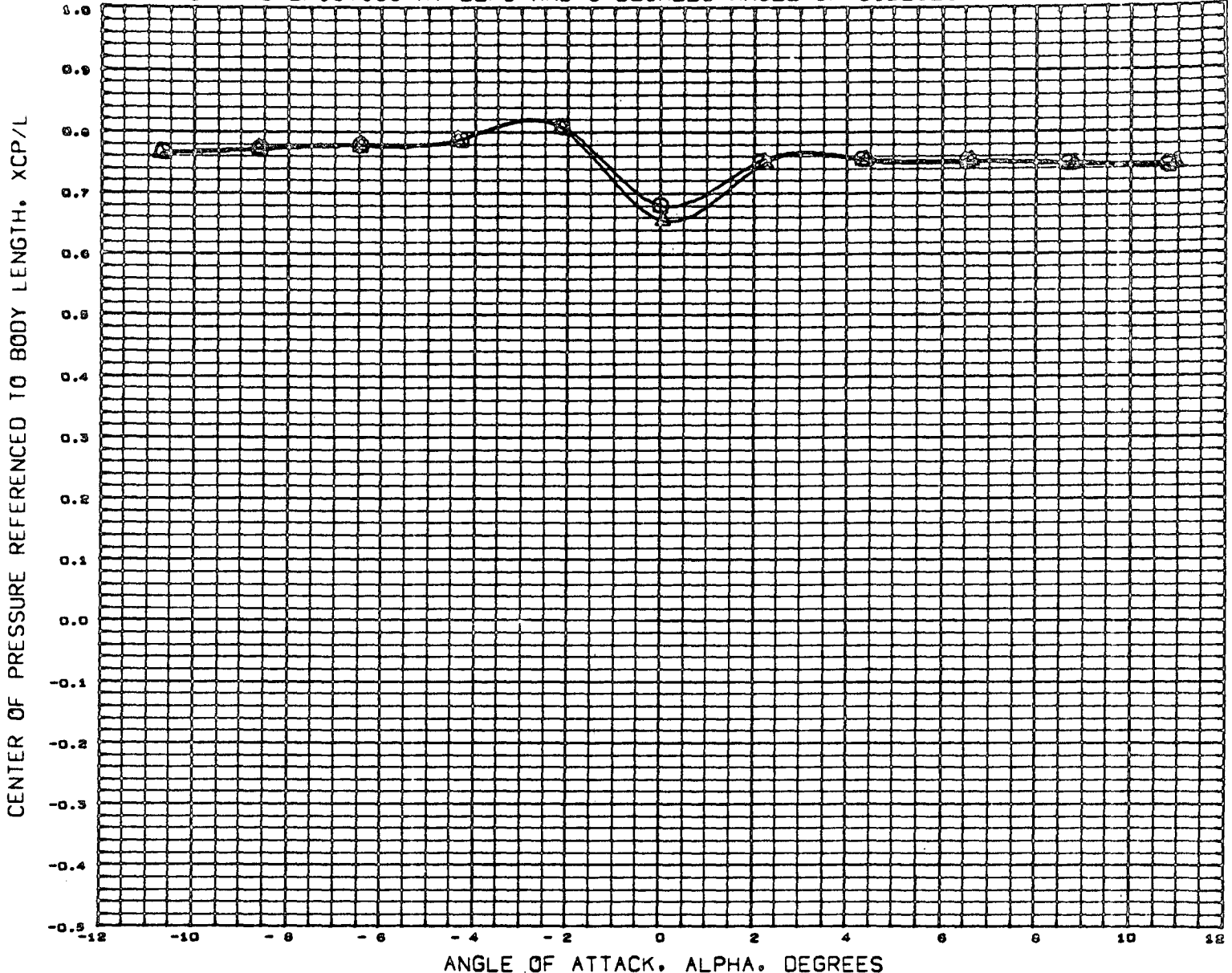
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A) ○	MSPC400 60 DELTA BOOSTER B20C48W14V8
(M3207A) △	MSPC480 60 DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.0963	DE IN
LREF	3.0990	INCHES
BREF	0.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



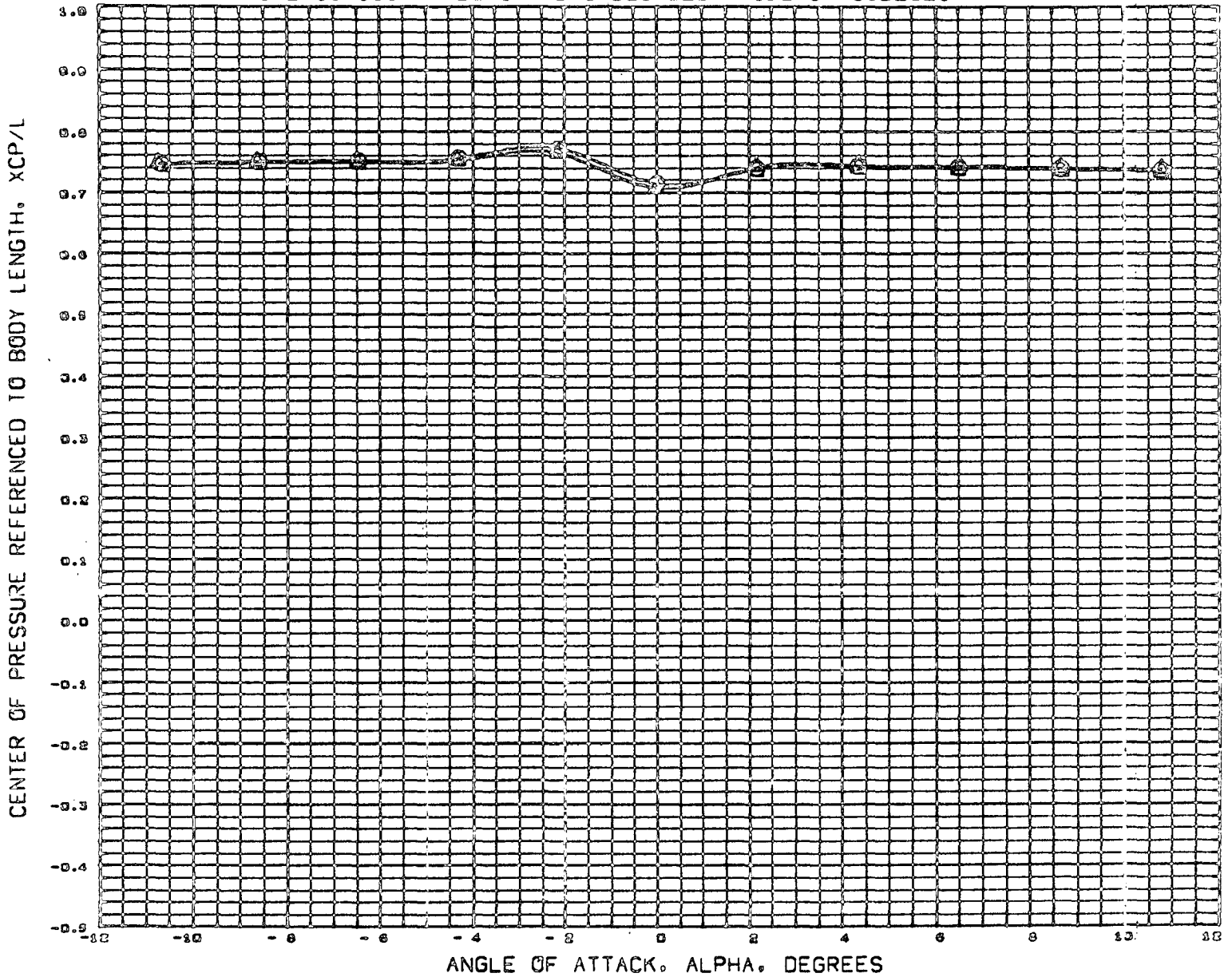
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H3205A) MSFC490 GD DELTA BOOSTER B20C4BW14V8
 (H3207A) MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA ELVATR AILRON
 0.000 0.000 0.000
 6.000 0.000 0.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0890 INCHES
 BREF 6.0890 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



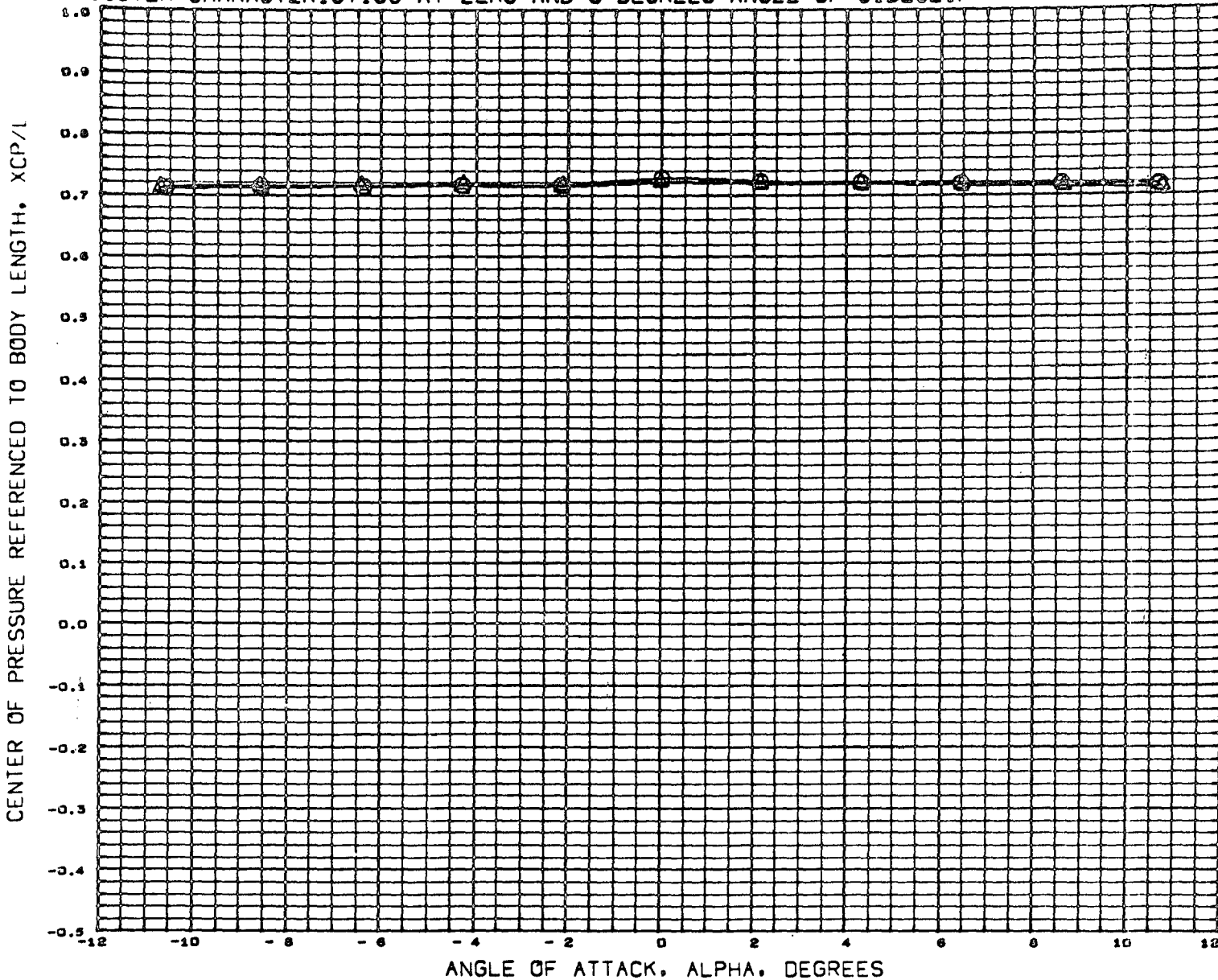
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B20C48W14V0
(M3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V0

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.6360	50 IN
LREF	3.0950	INCHES
BREF	6.0981	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



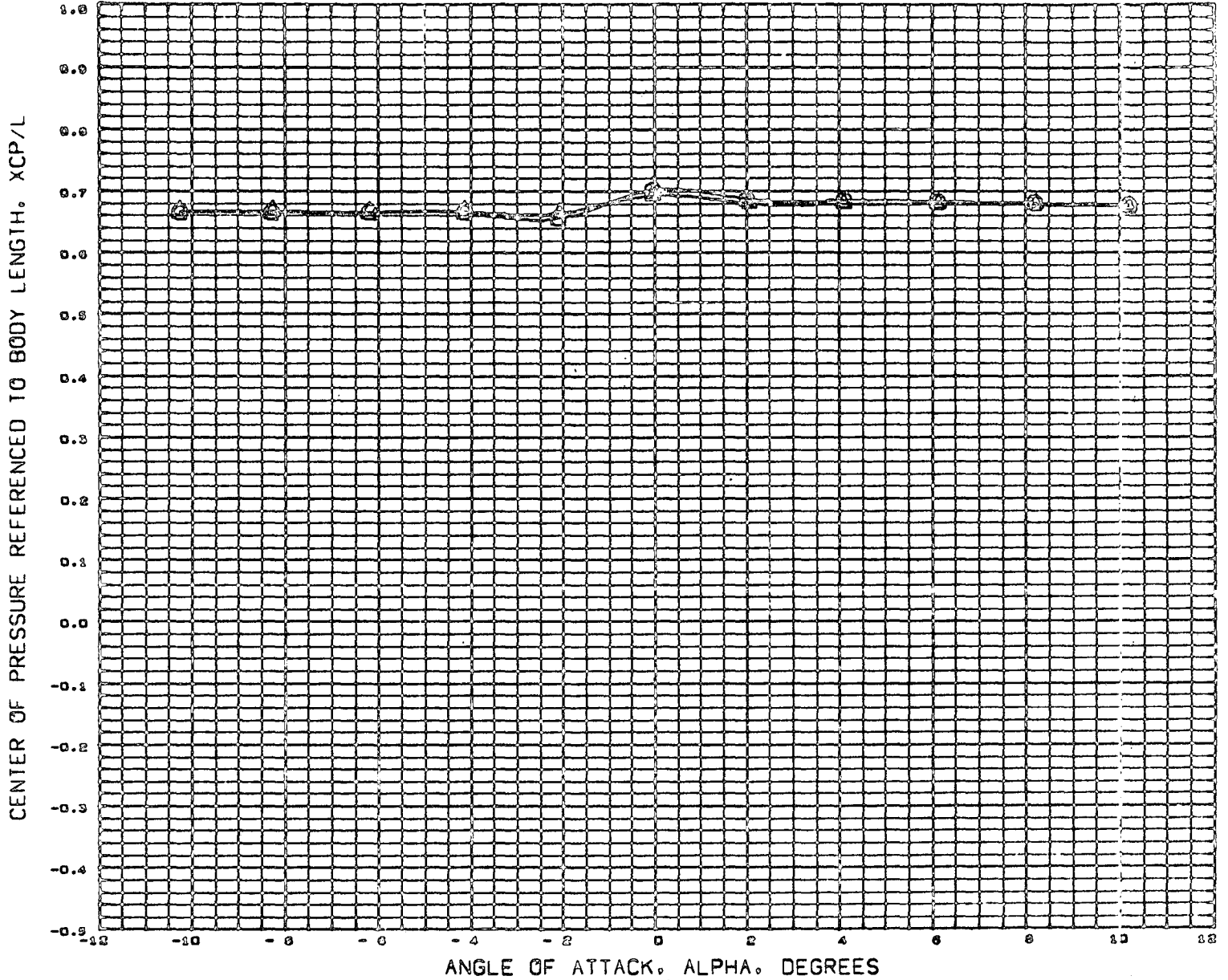
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B2DC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



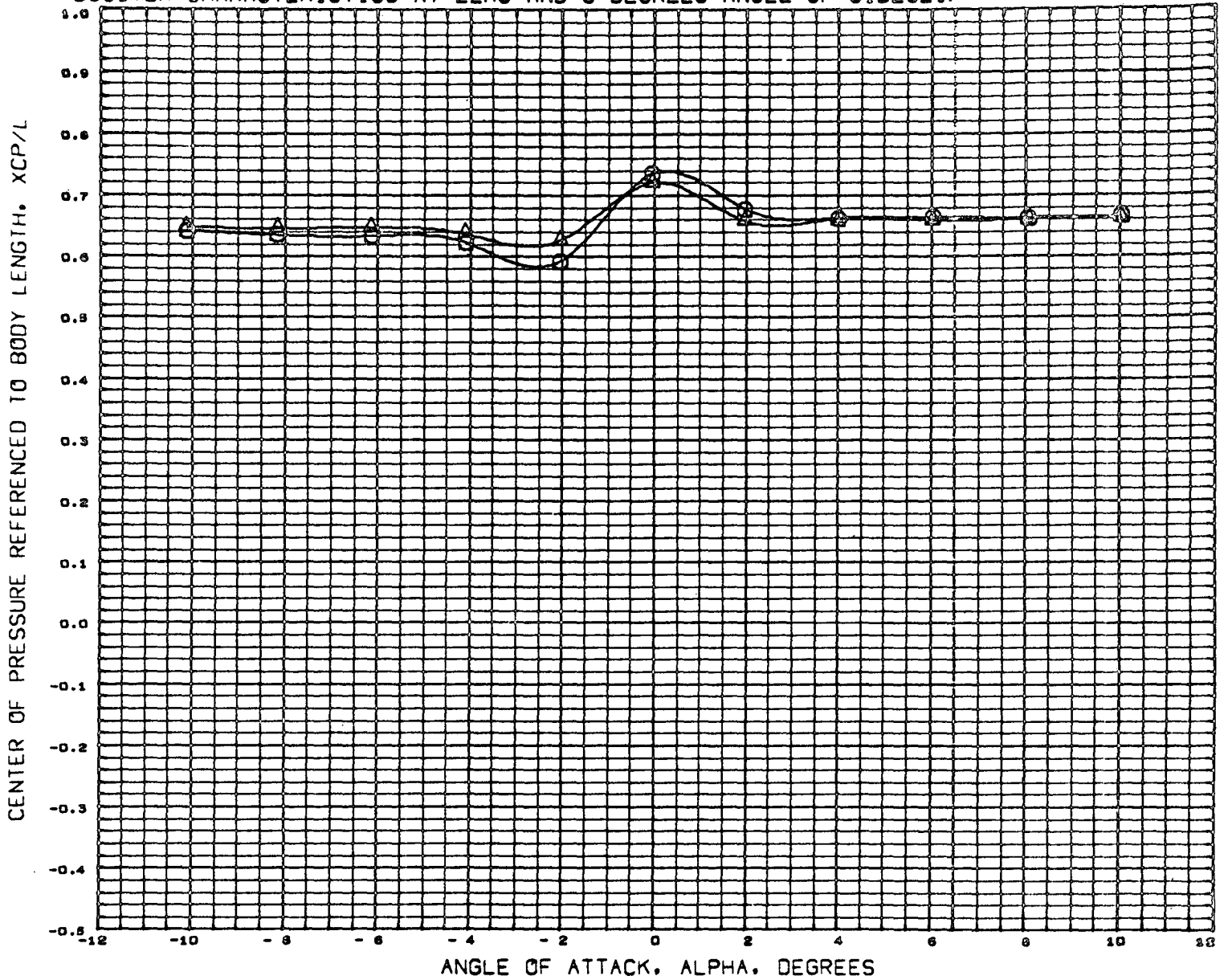
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC400 GD DELTA BOOSTER B2UC4B/14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B2UC4B/14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	60 IN
LREF	3.0950	INCHES
BREF	6.0950	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0055	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



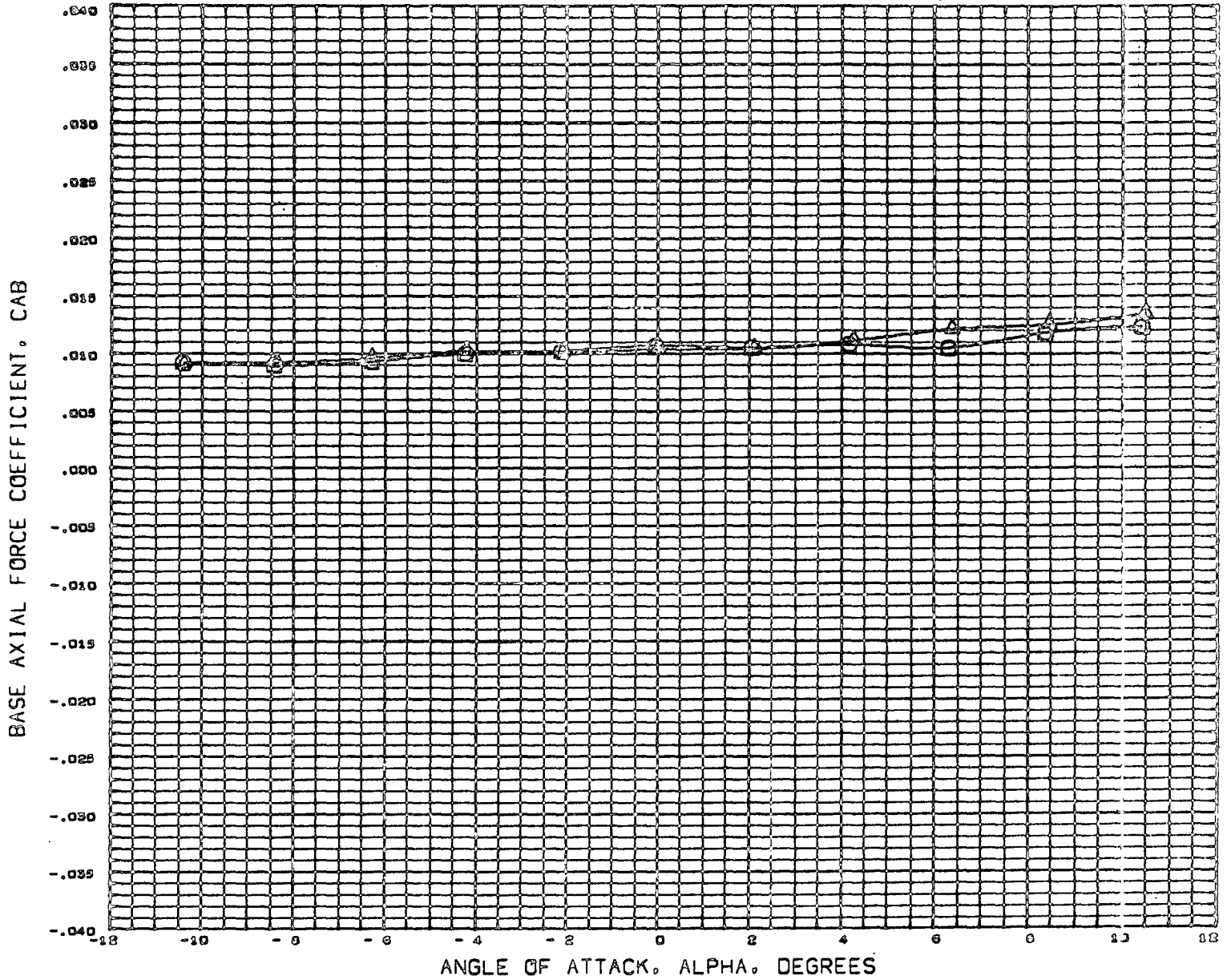
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



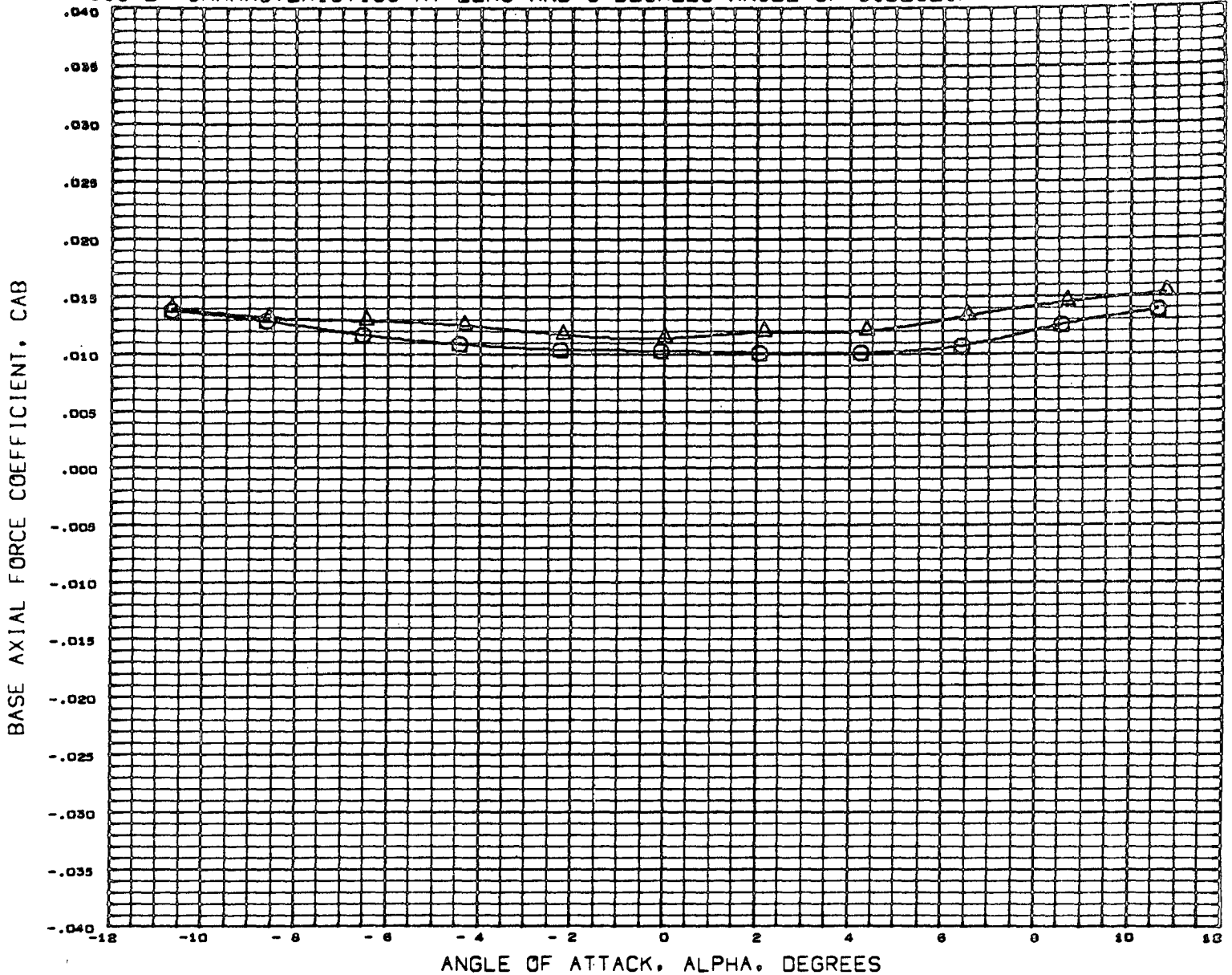
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V0

ETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6961	50 IN
LREF	3.0951	INCHES
BREF	6.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



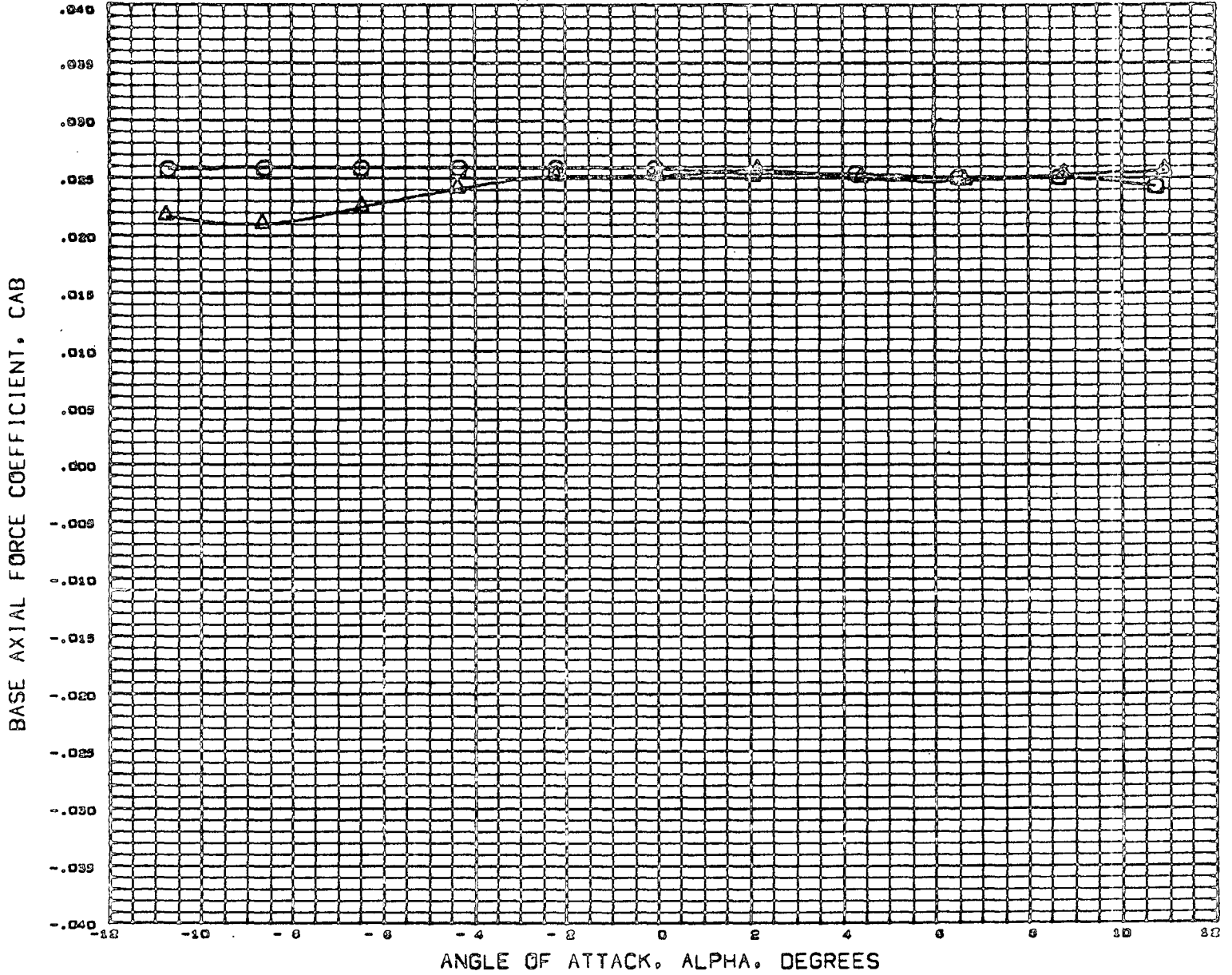
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H3205A) MSFC49D GD DELTA BOOSTER B20C4BW14V8
 (H3207A) MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA ELVATR AILRON
 0.000 0.000 0.000
 6.000 0.000 0.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0990 INCHES
 QREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0039 SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



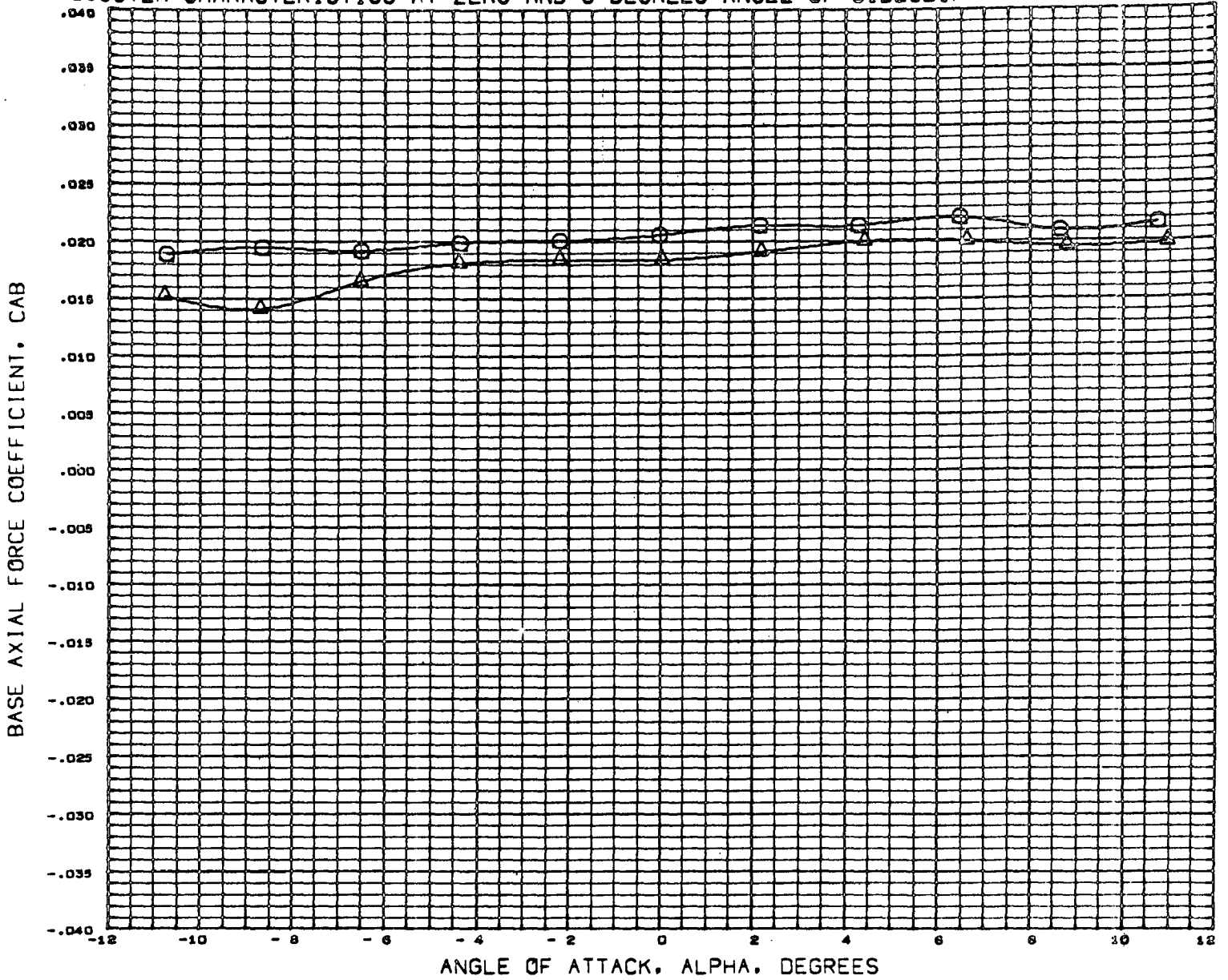
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A) △	MSFC480 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6940	50 IN
LREF	3.0000	INCHES
BREF	0.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



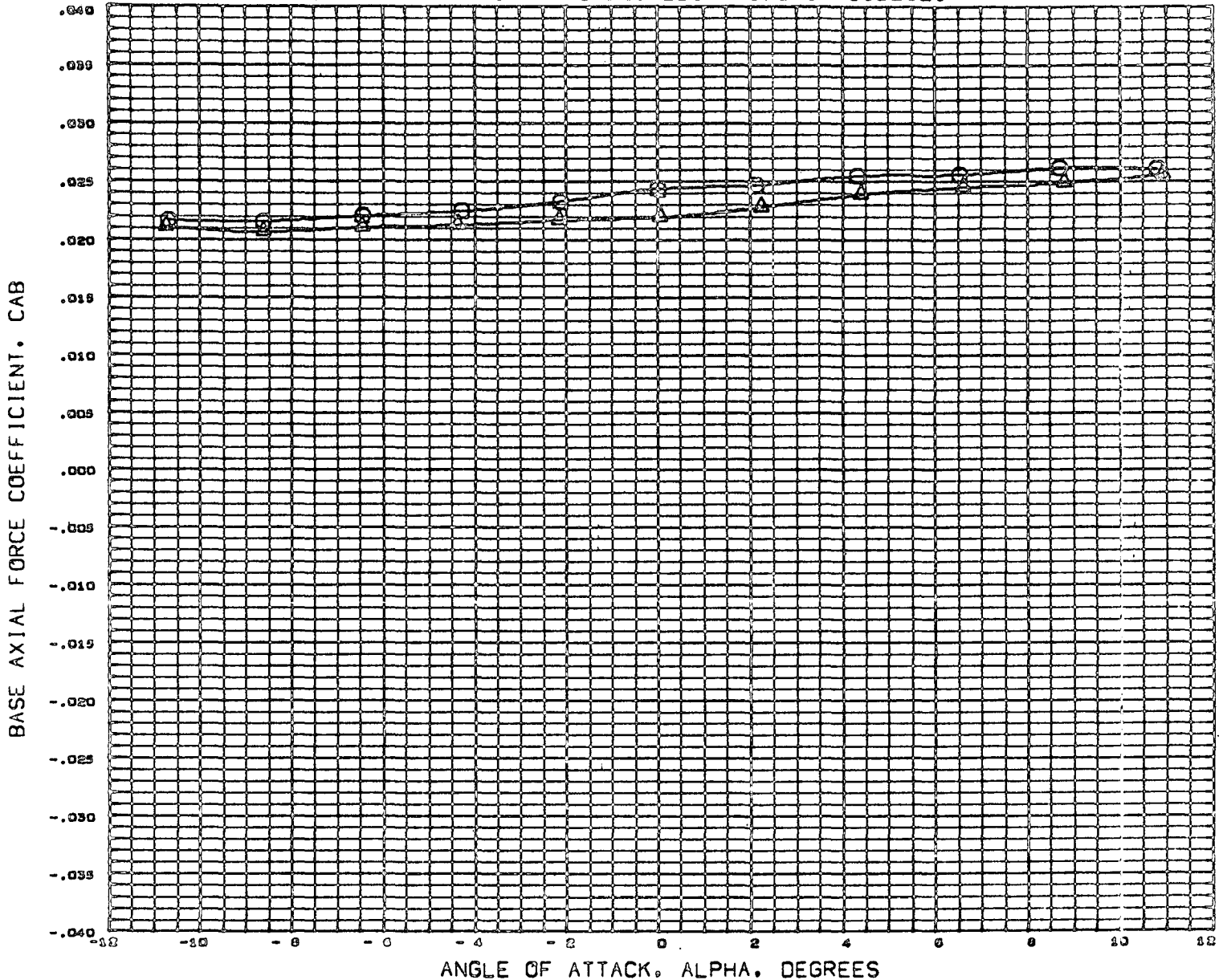
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	98 IN
LREF	3.0850	INCHES
BREF	6.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	M3FC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	M3FC490 GD DELTA BOOSTER B20C4BW14V8

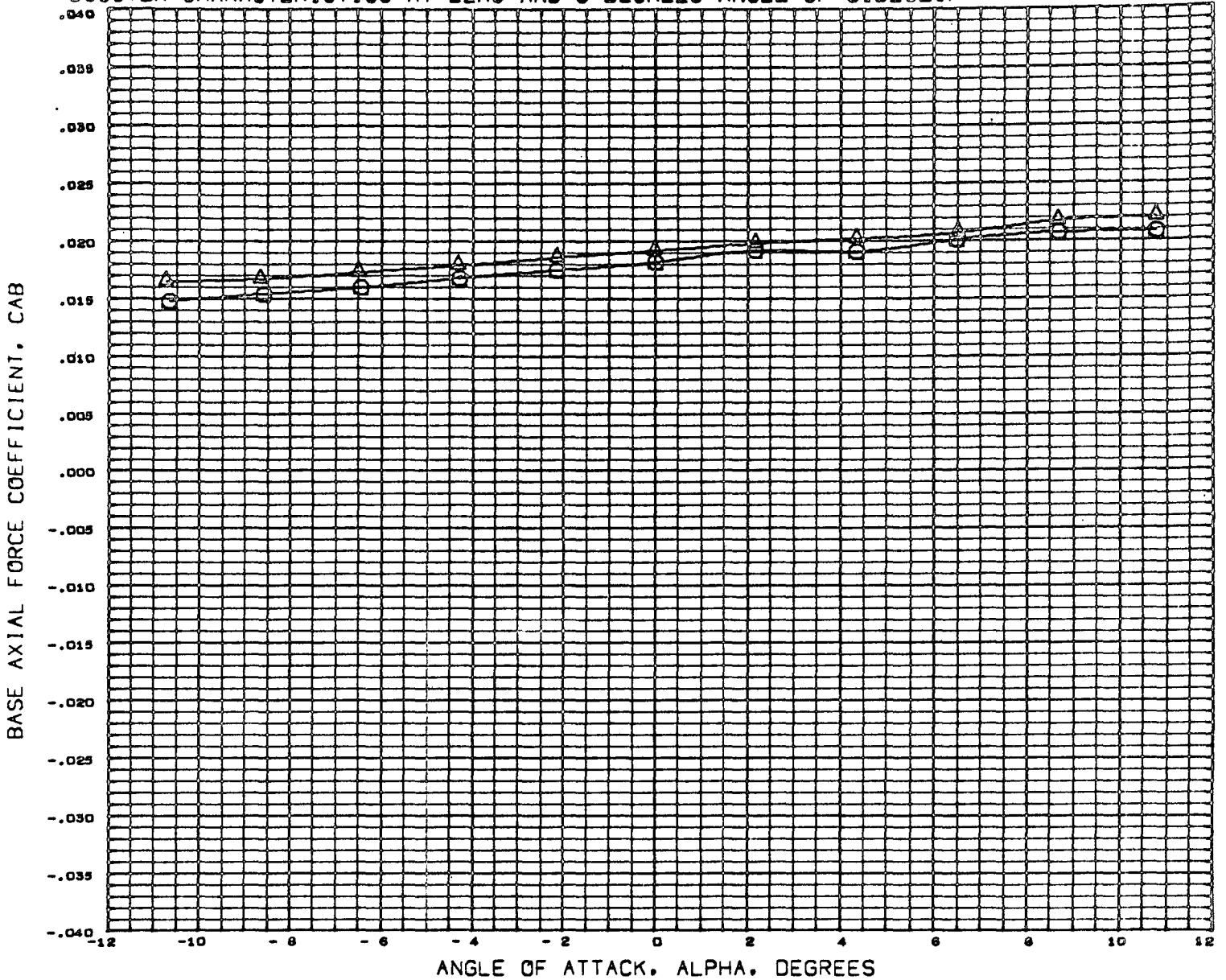
ZETA	ELVATR	AILRON
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.0960	90 IN
LREF	3.0990	INCH20
BREF	0.0990	INCH20
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

HACH 2.197

5

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



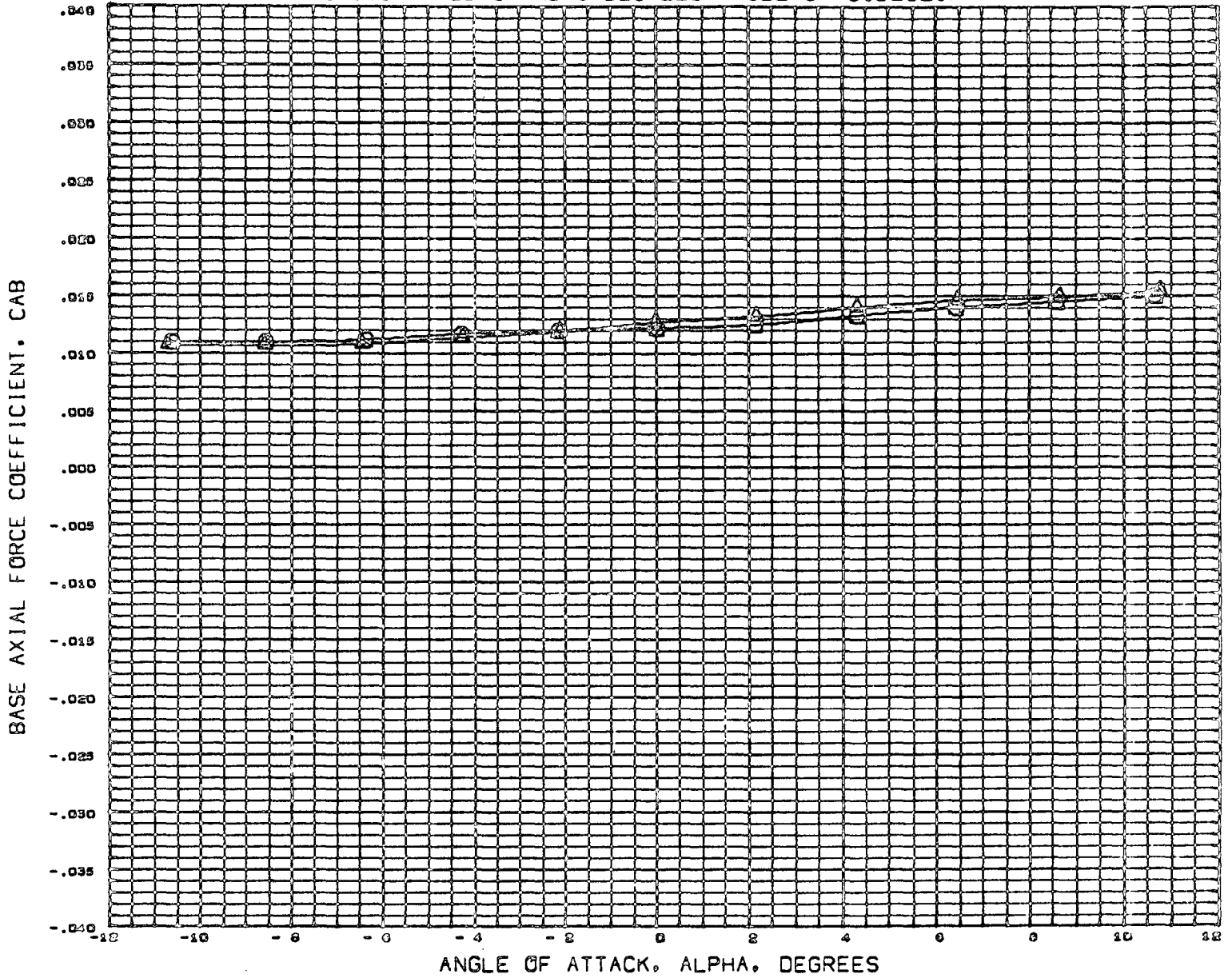
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

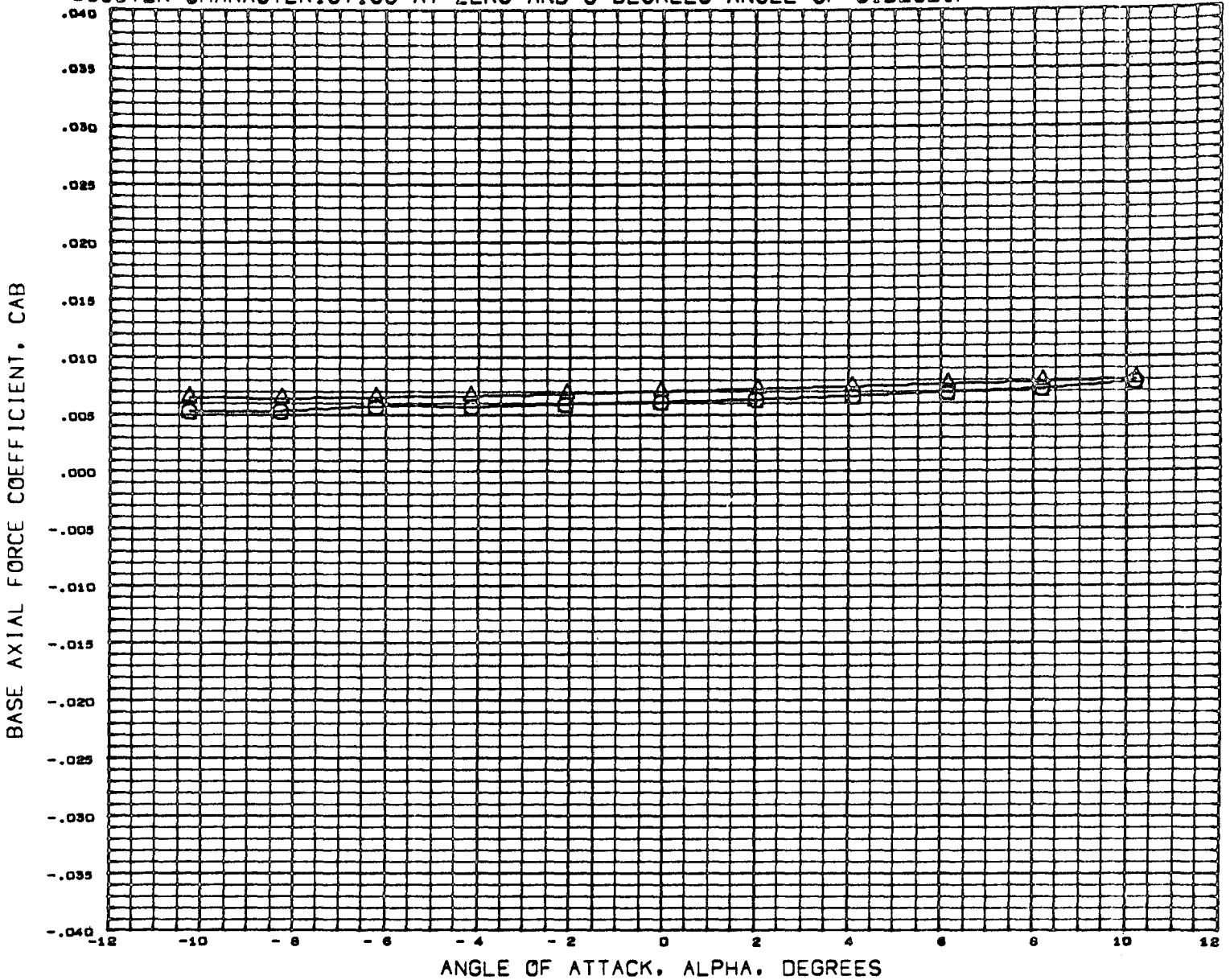
BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3205A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V0	0.000	0.000	0.000	SREF 15.6900 90 IN
(H3207A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V6	0.000	0.000	0.000	LREF 3.0990 INCHES
					BREF 6.0990 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.099

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	60 IN
LREF	3.0850	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



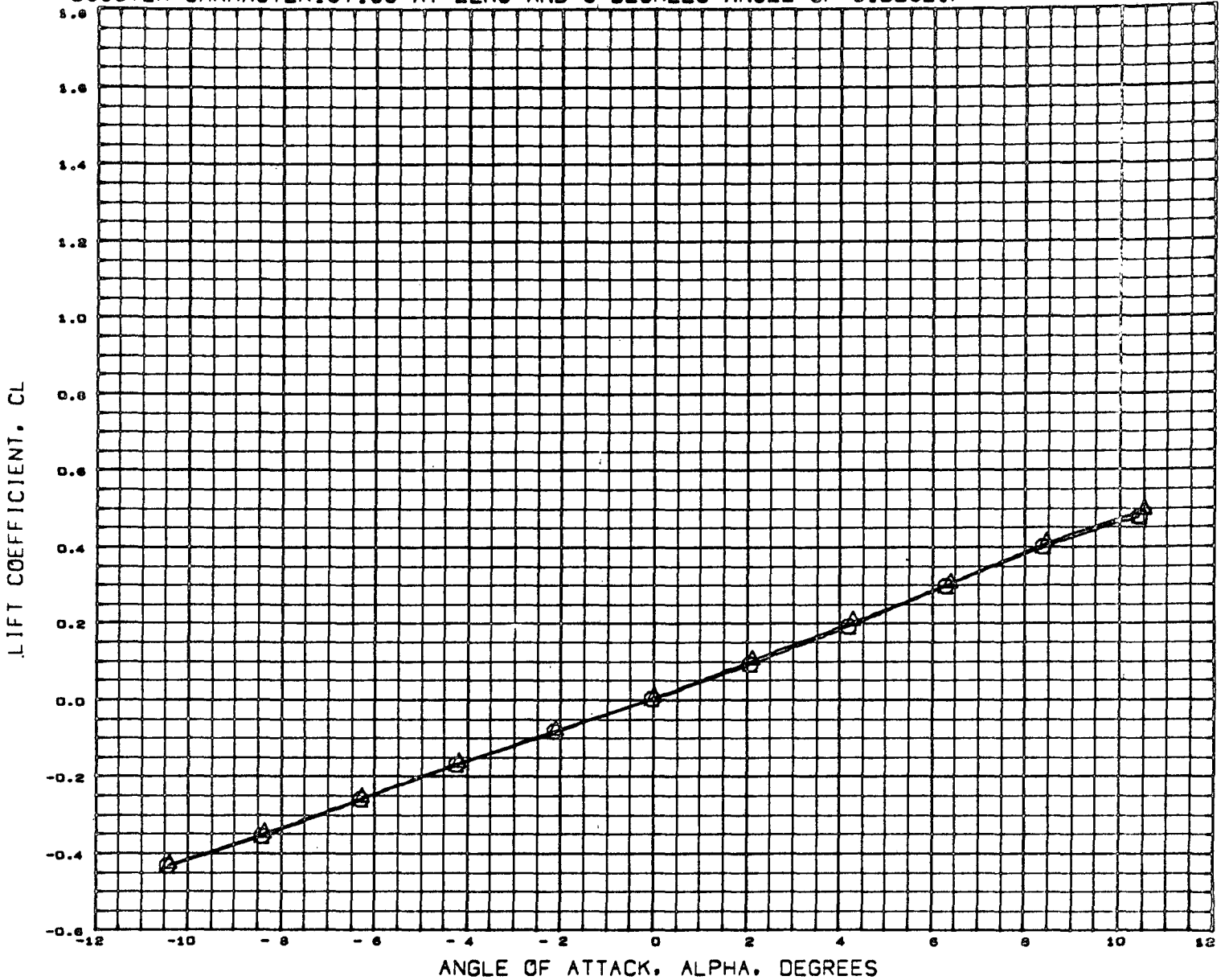
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.0960	00 IN
LREF	3.0910	INCHES
BREF	6.0910	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



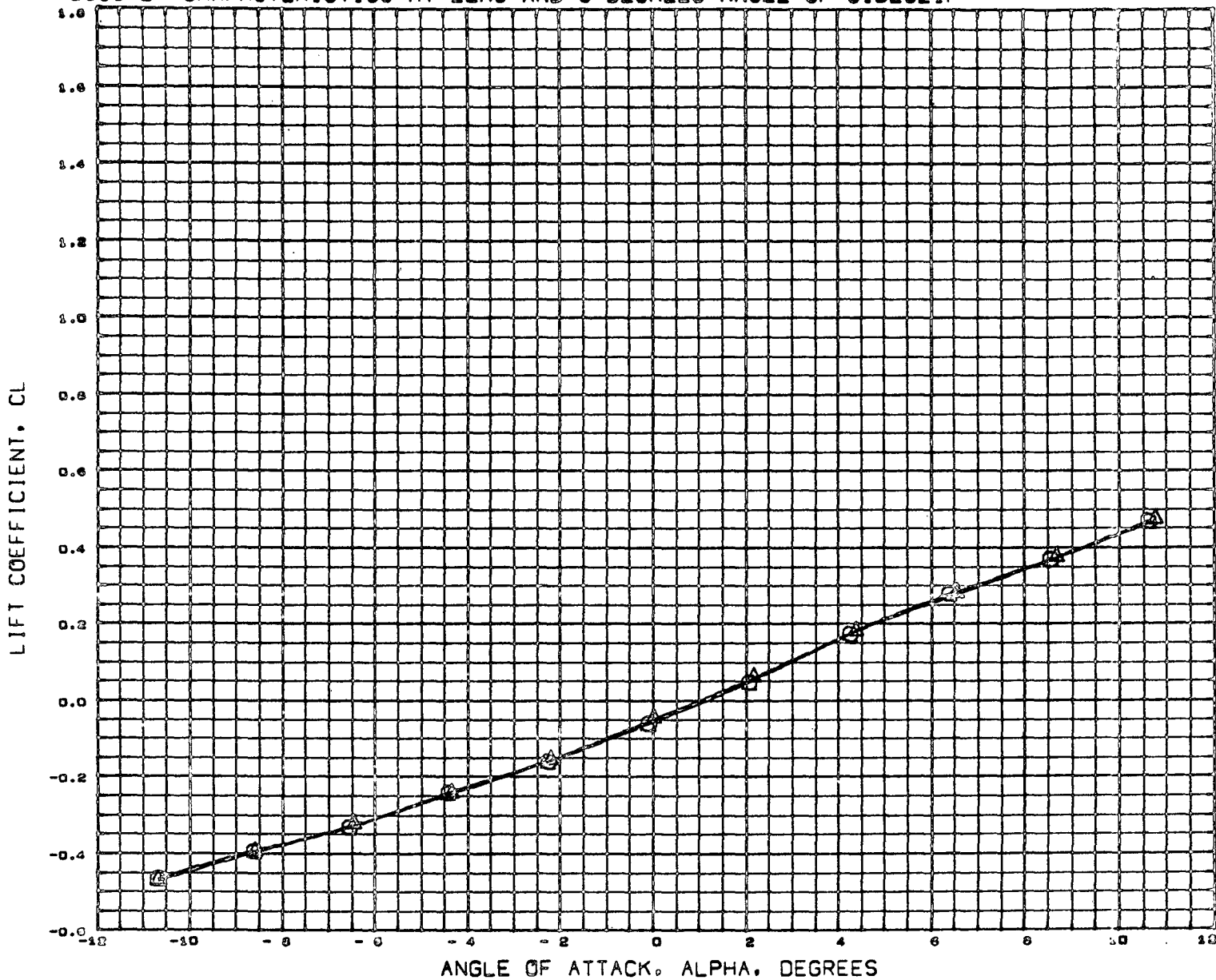
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



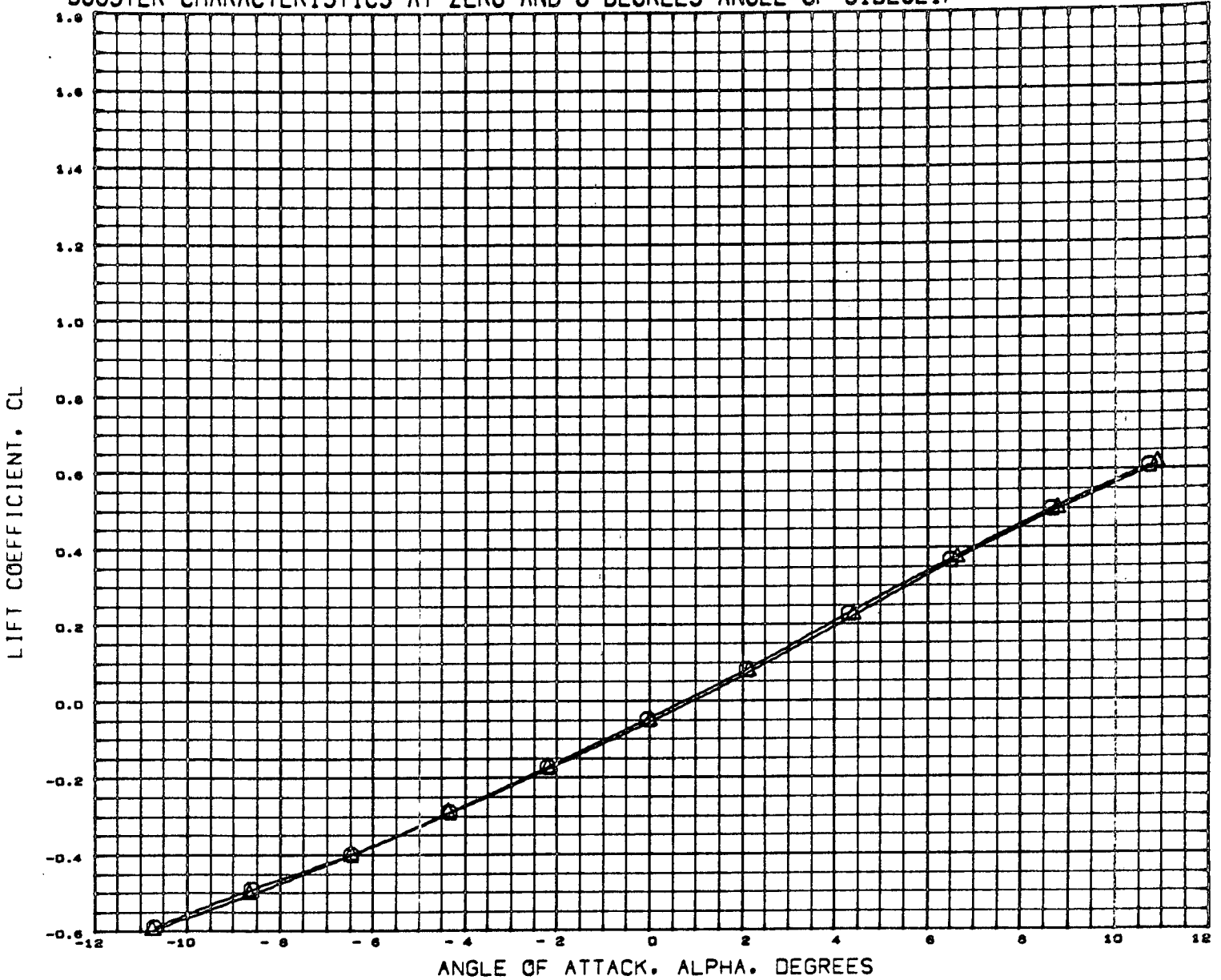
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V9

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6500	90 IN
LREF	3.0950	INCHES
BREF	6.0950	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



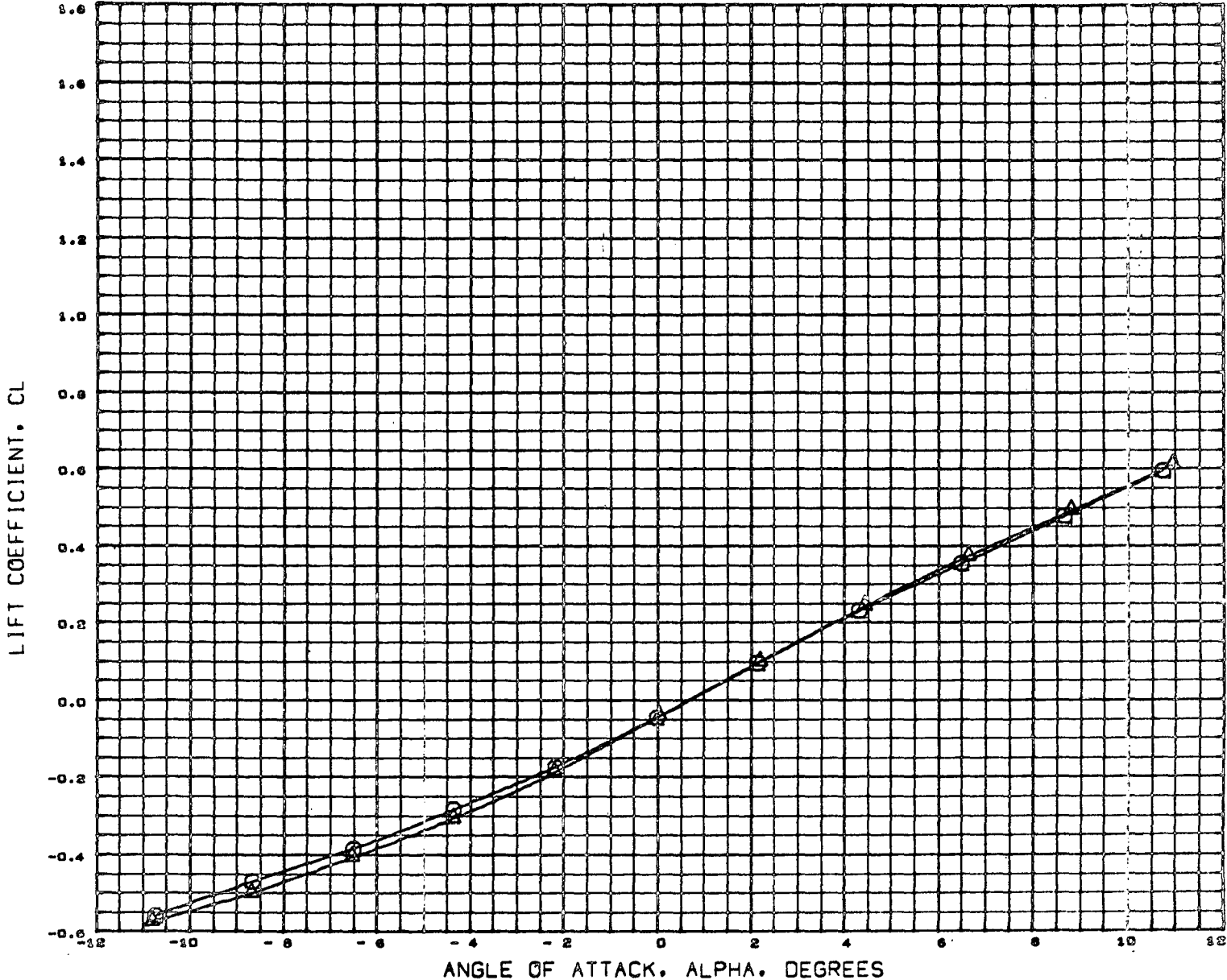
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



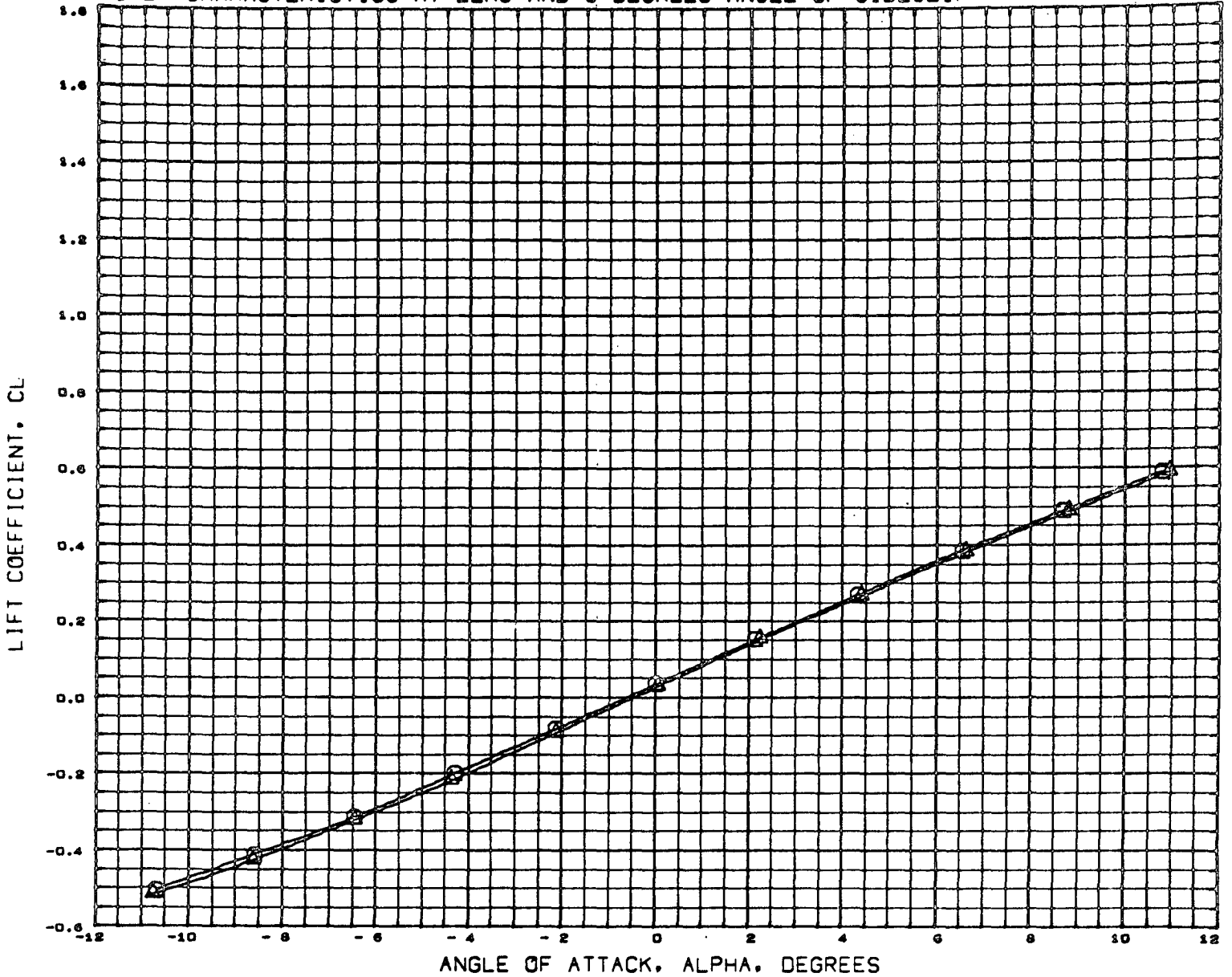
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A) ○	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3207A) △	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0033	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



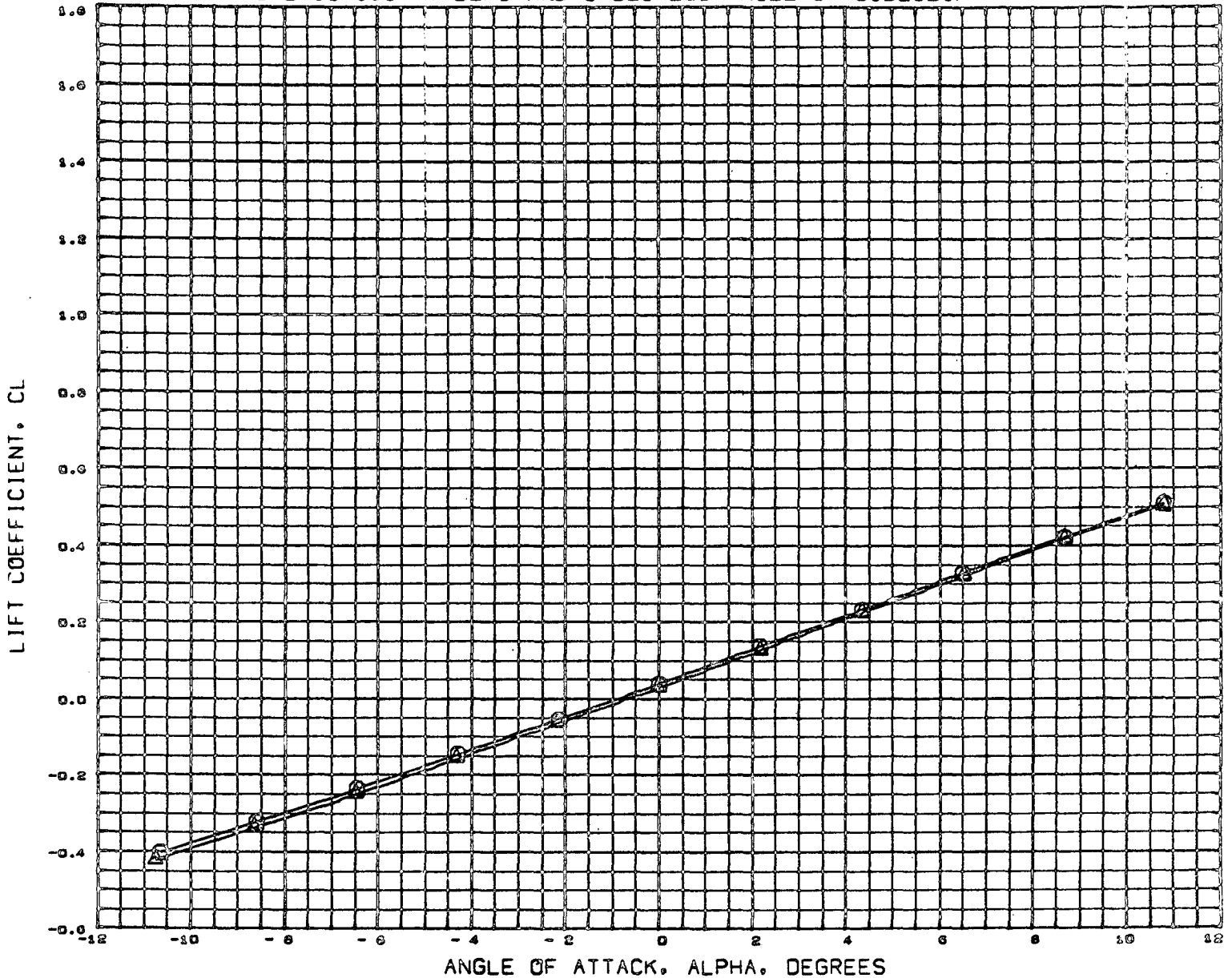
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	Sq IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



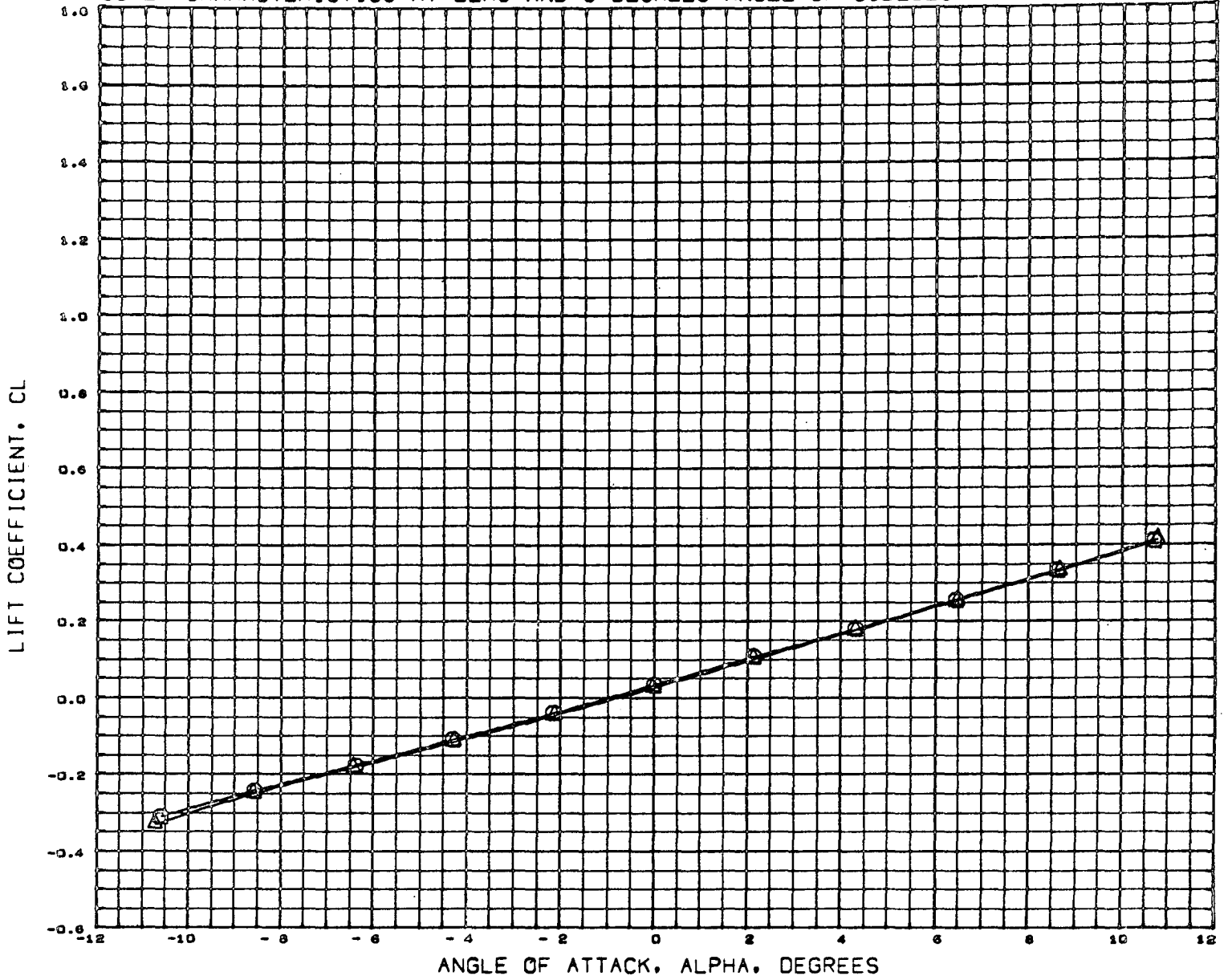
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8



BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



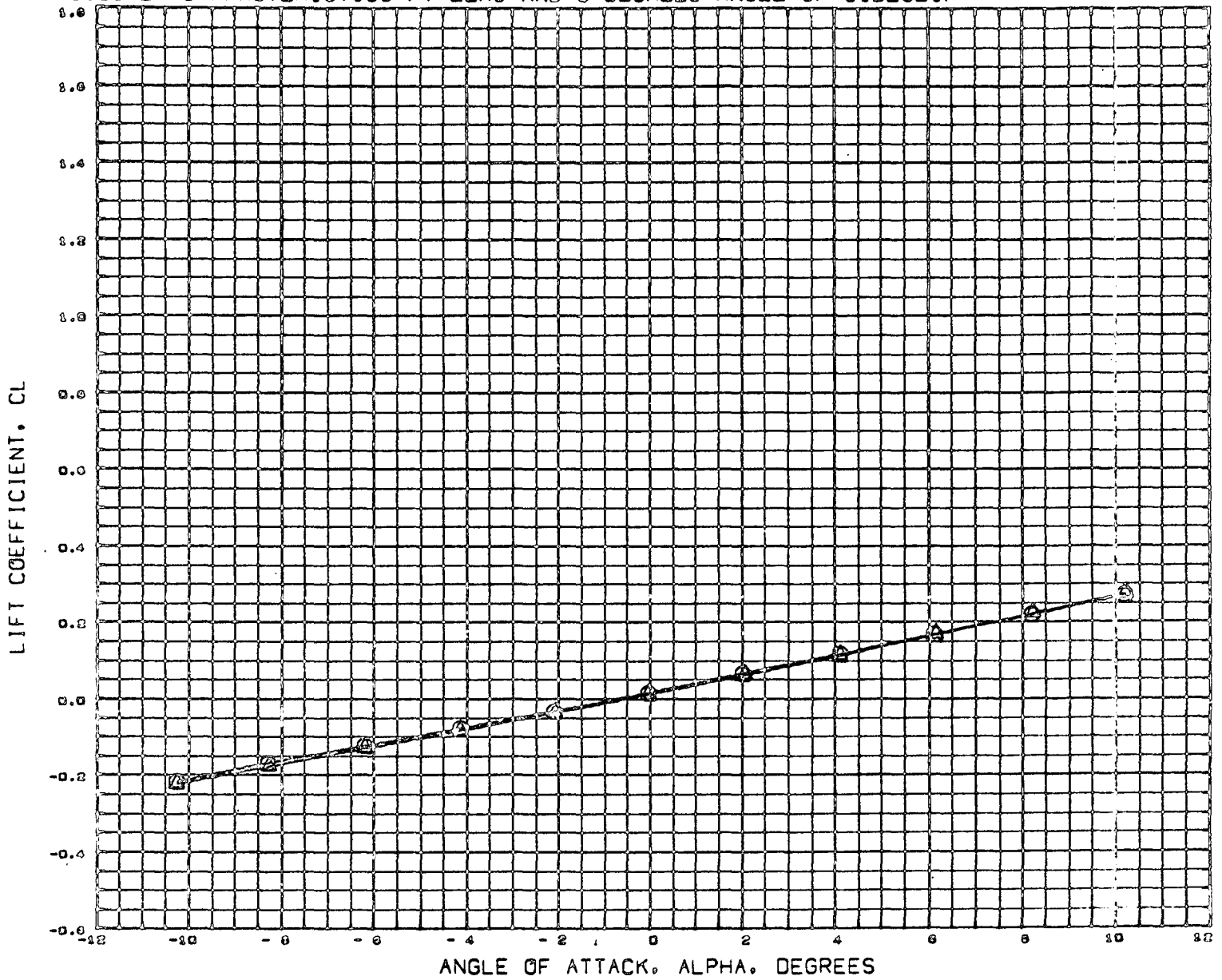
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



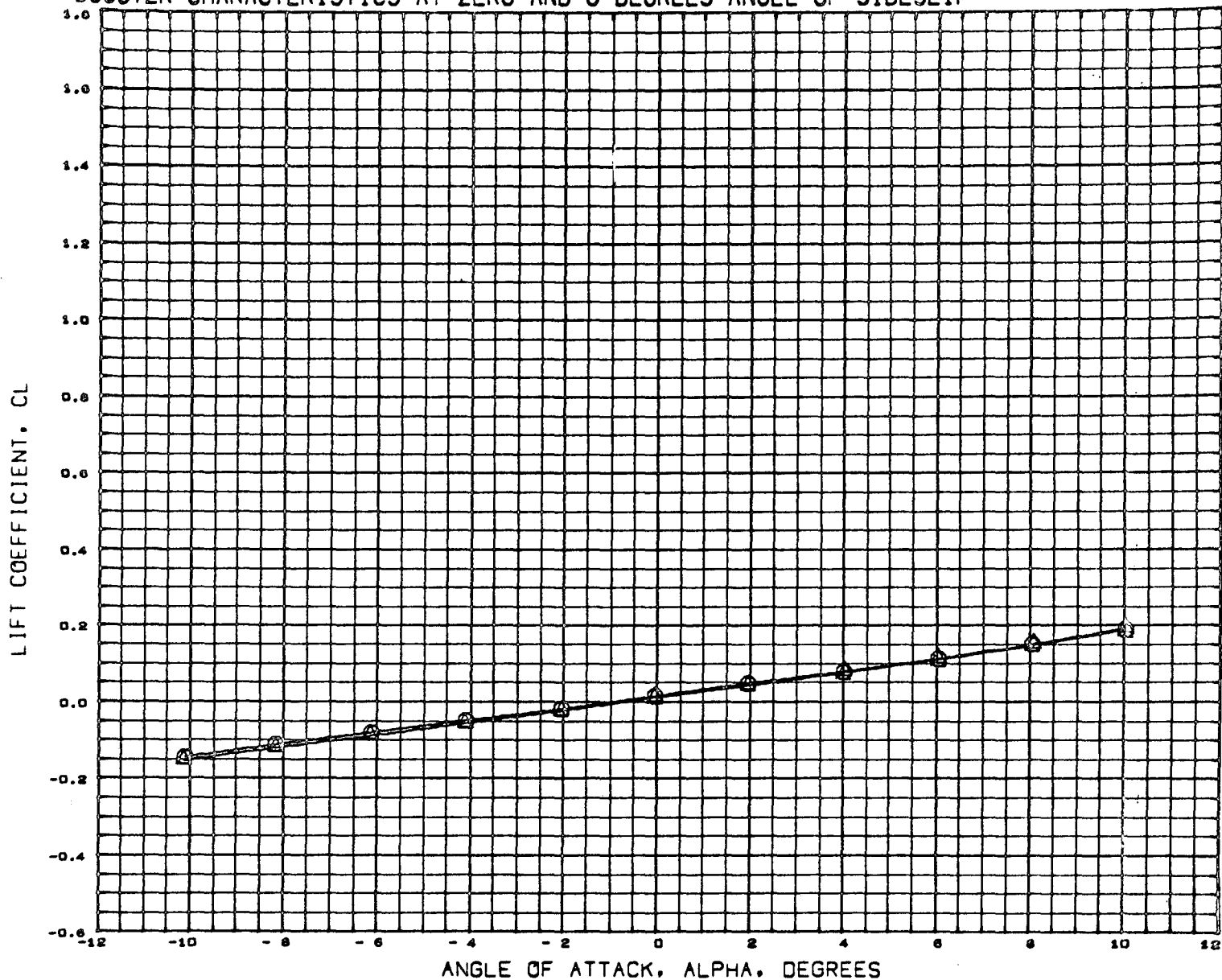
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B23C48W14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B23C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6563	30 IN
LREF	3.0953	INCHES
BREF	6.0903	INCHES
XMRP	0.0003	
YMRP	0.0003	
ZMRP	0.0003	
SCALE	0.0033	SCALE

MACH 2.000

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



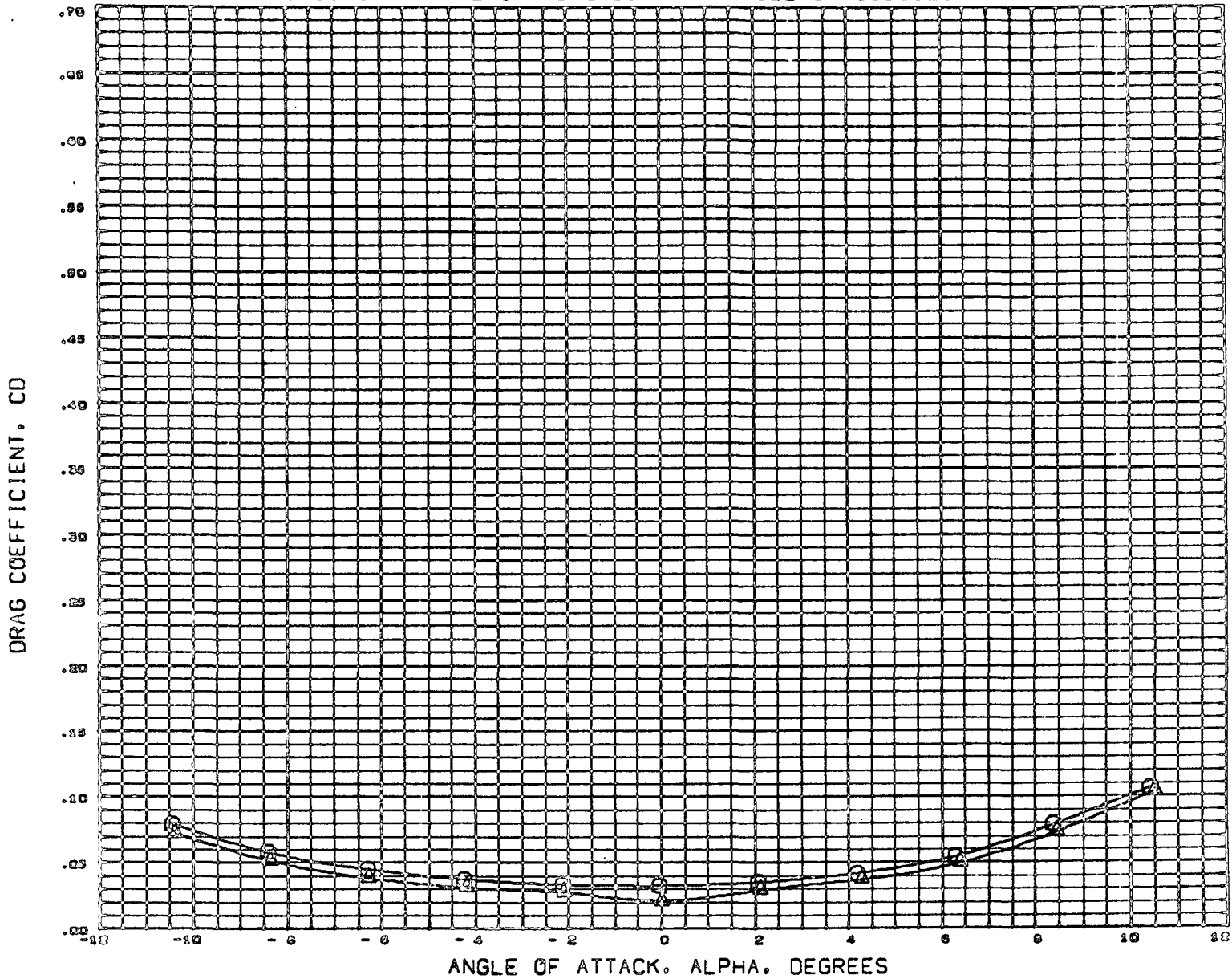
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(N3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(N3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



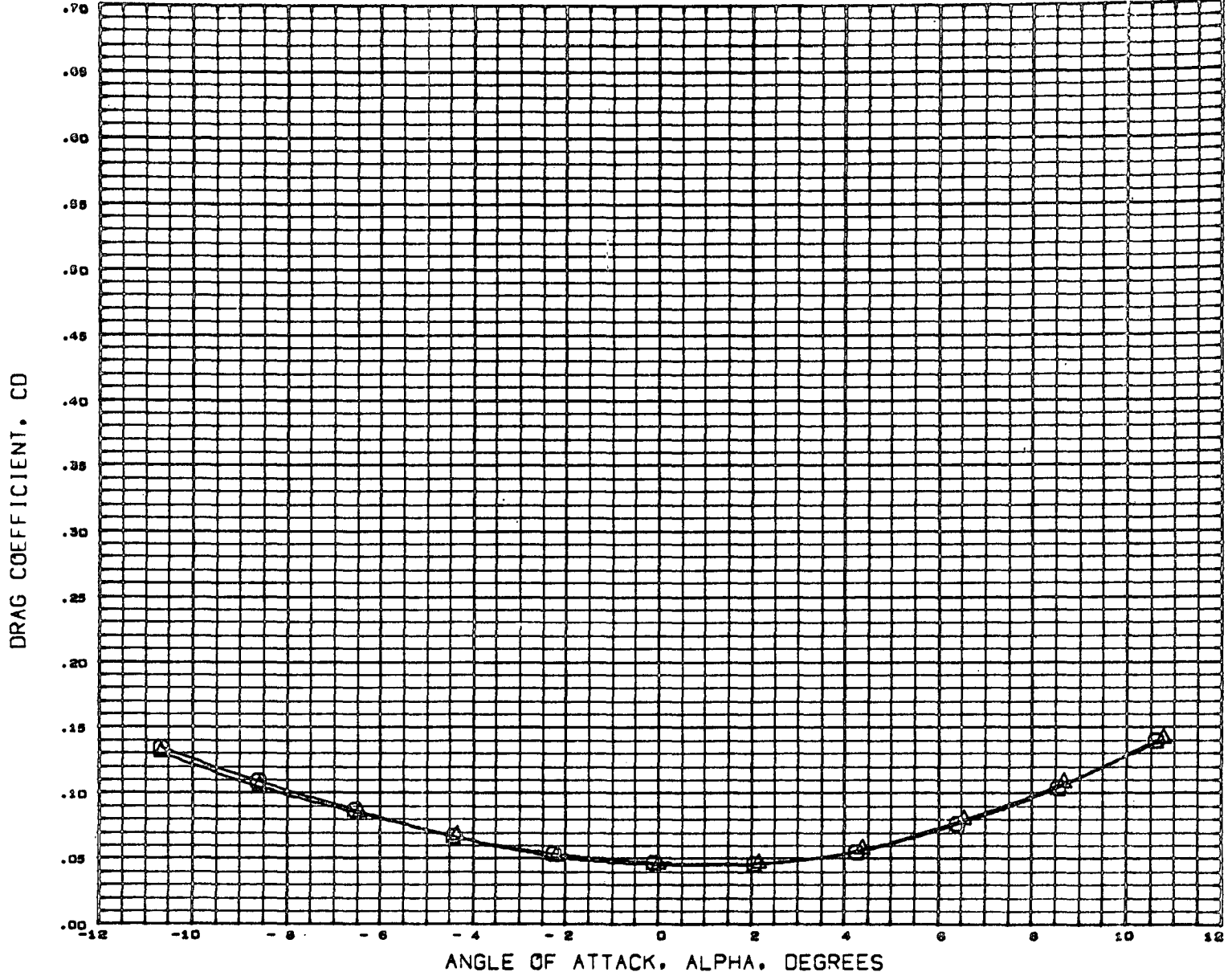
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

ETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.0960	90 IN
LREF	3.0000	INCHES
BREF	6.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



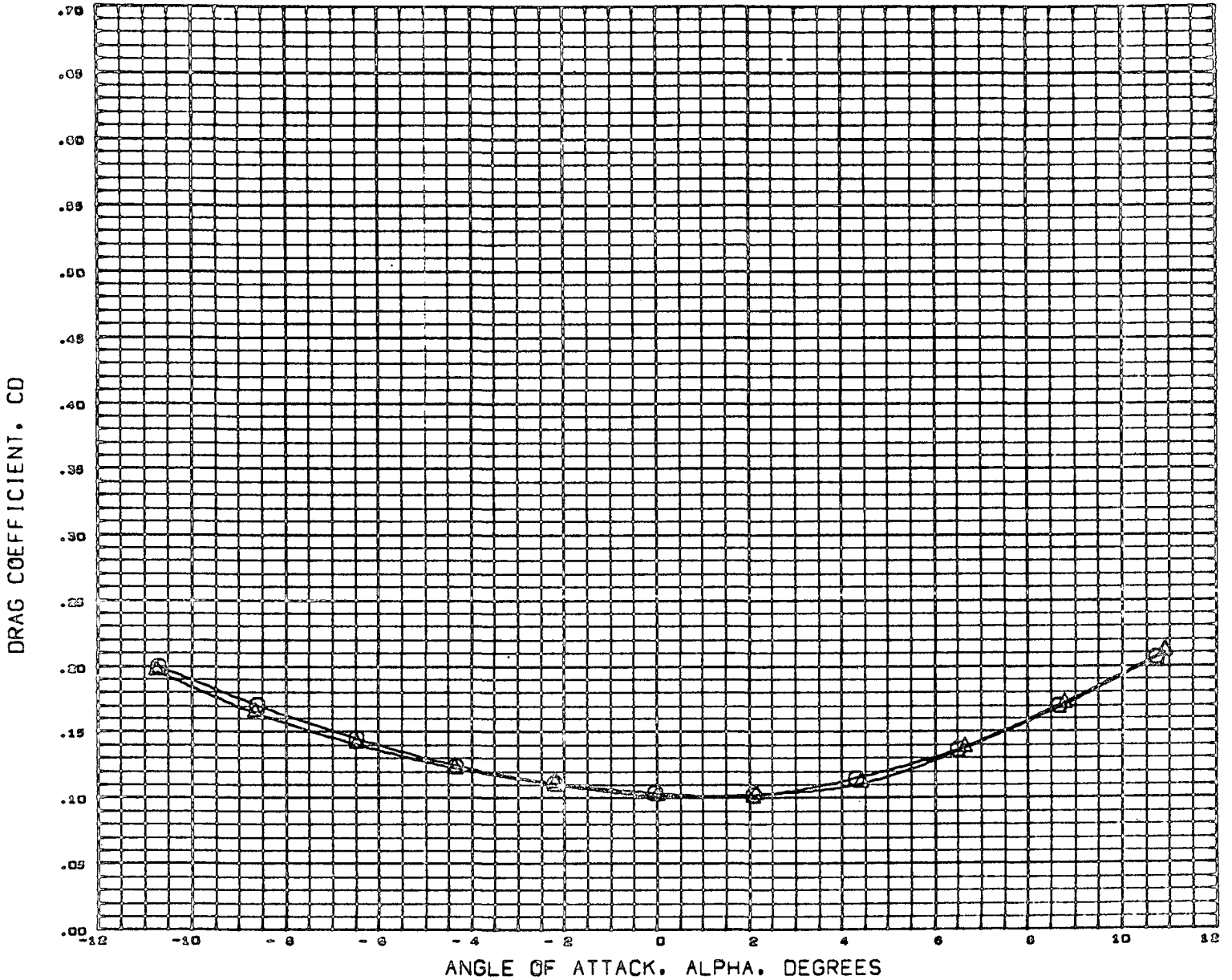
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	3.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



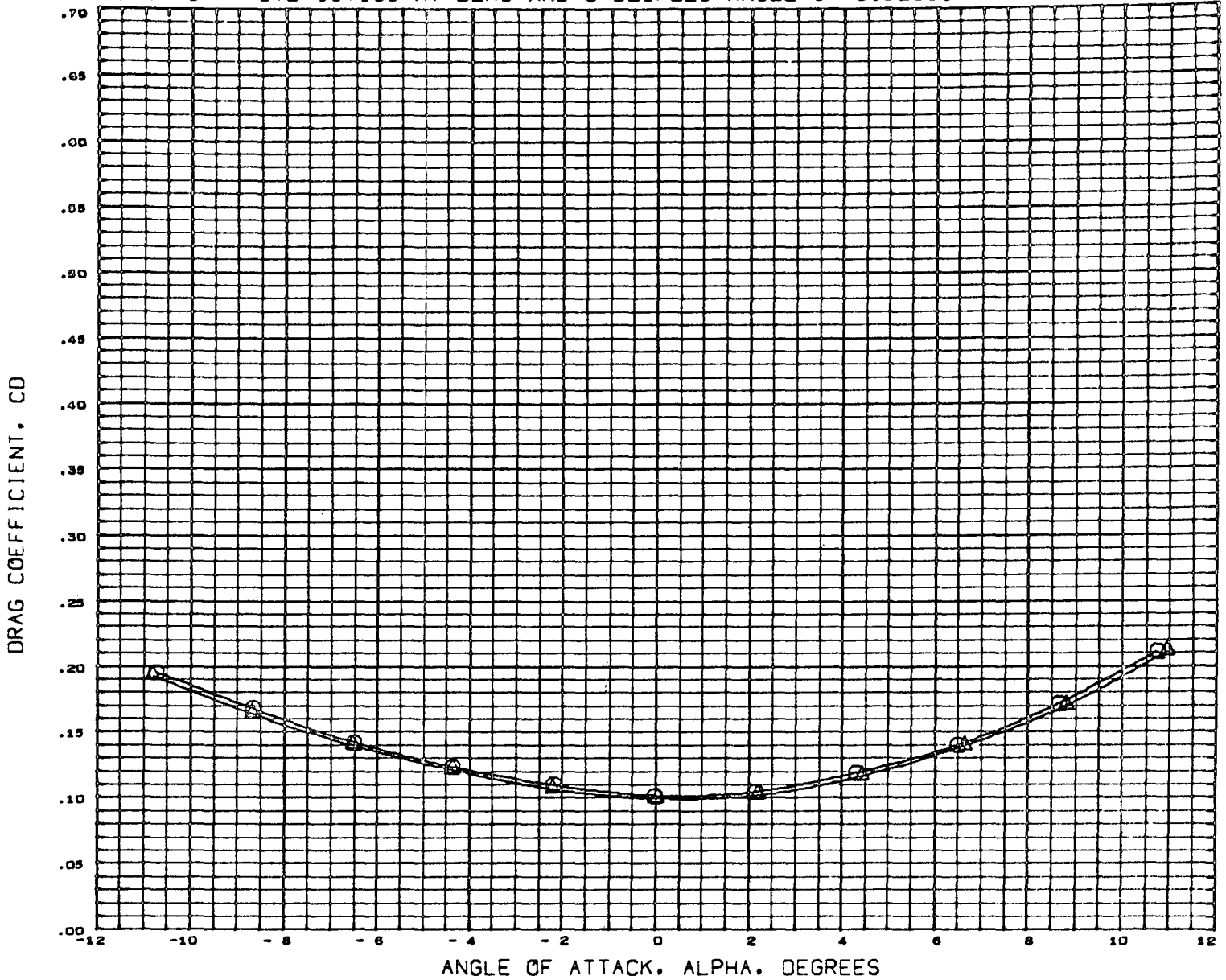
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3235A) ○	MSFC490 GD DELTA BOOSTER B20C48W14V8
(M3207A) △	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACM 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



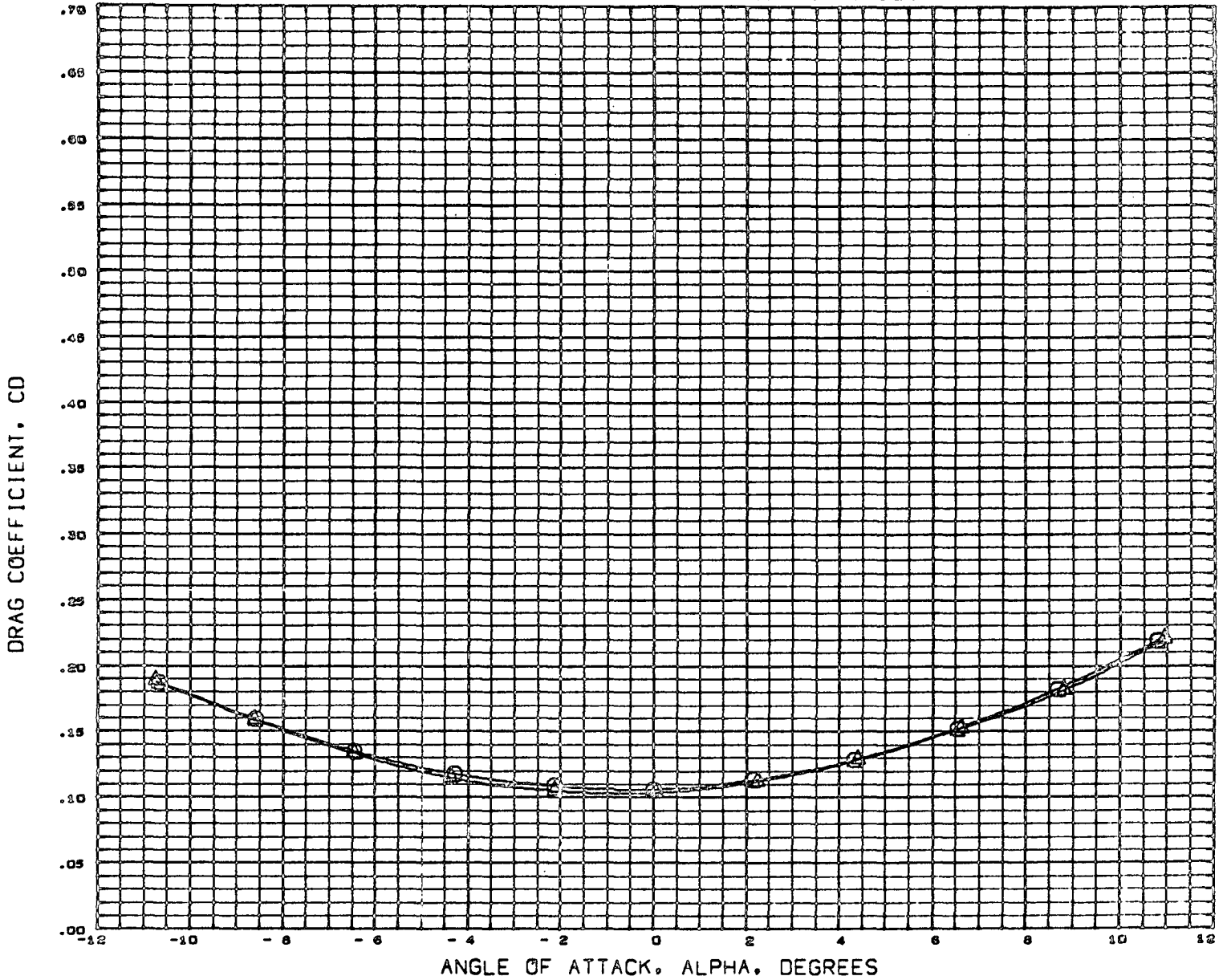
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



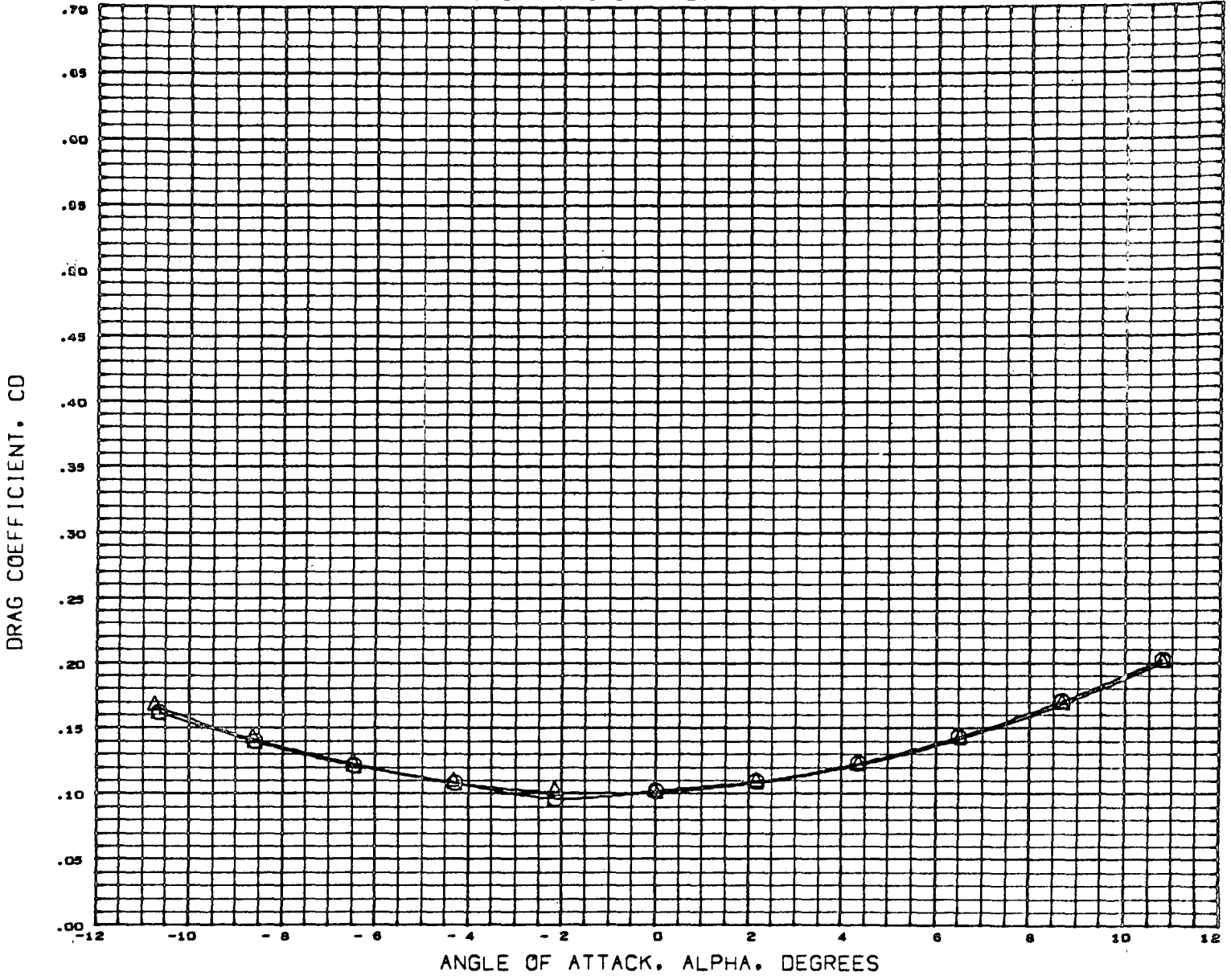
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



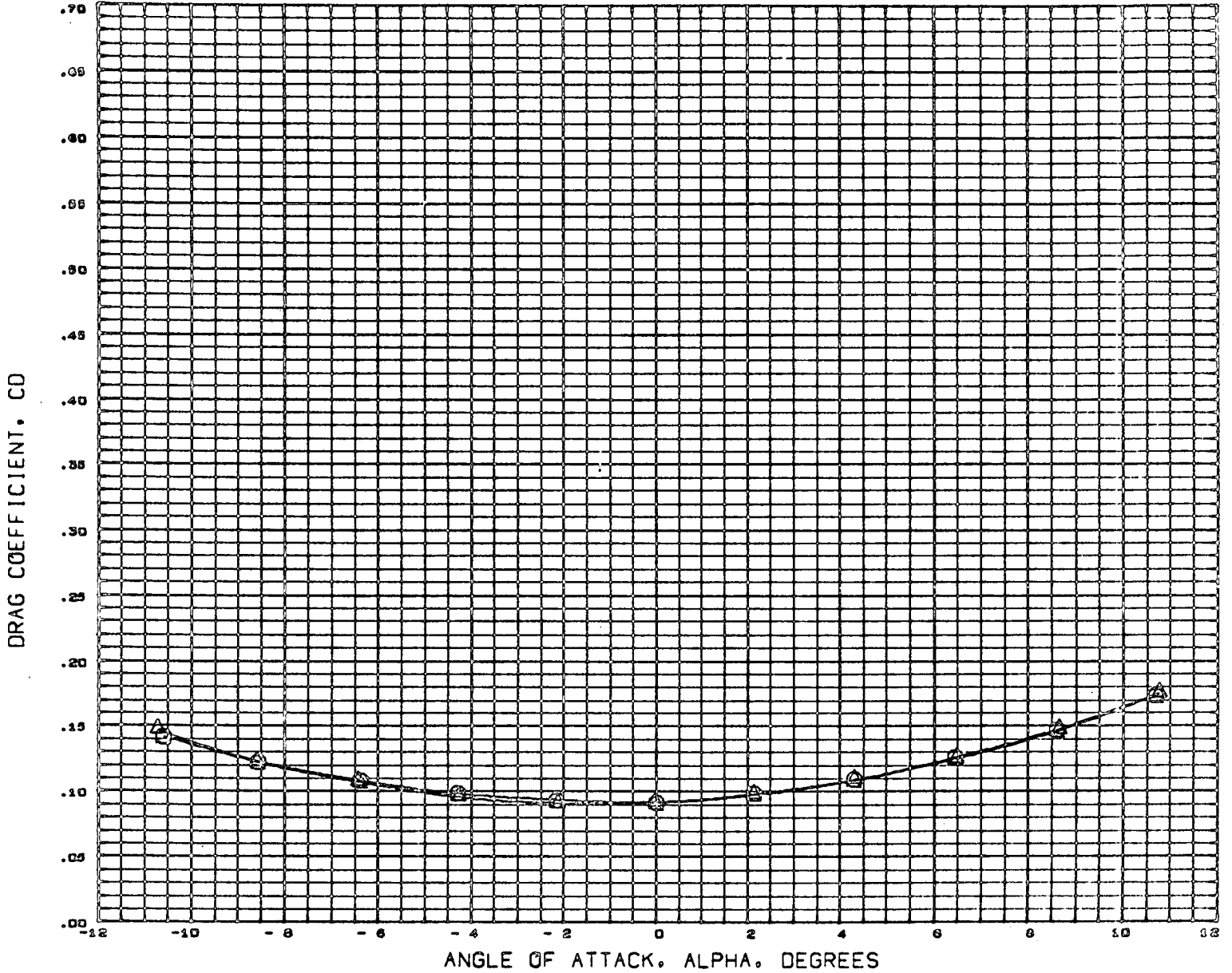
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



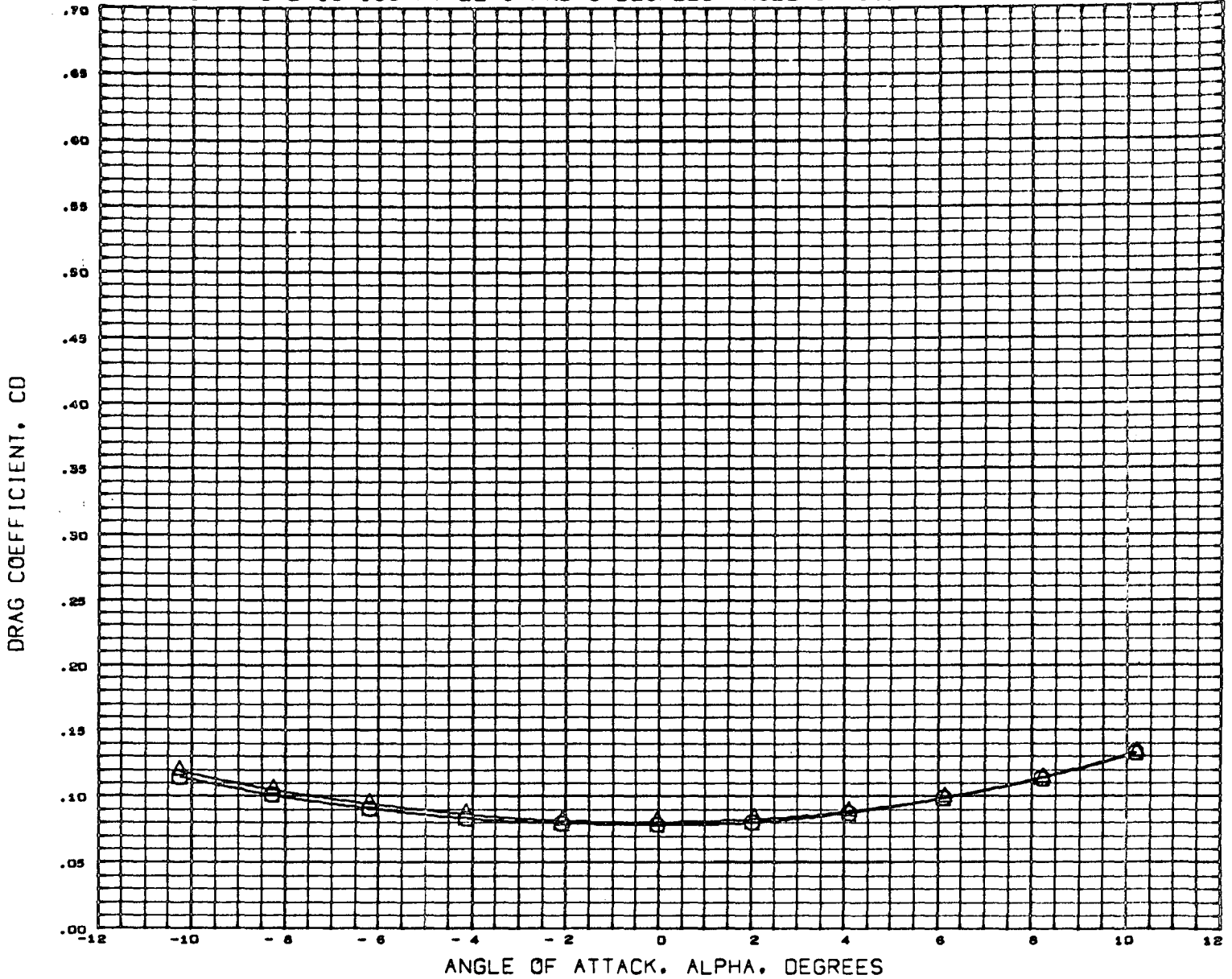
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



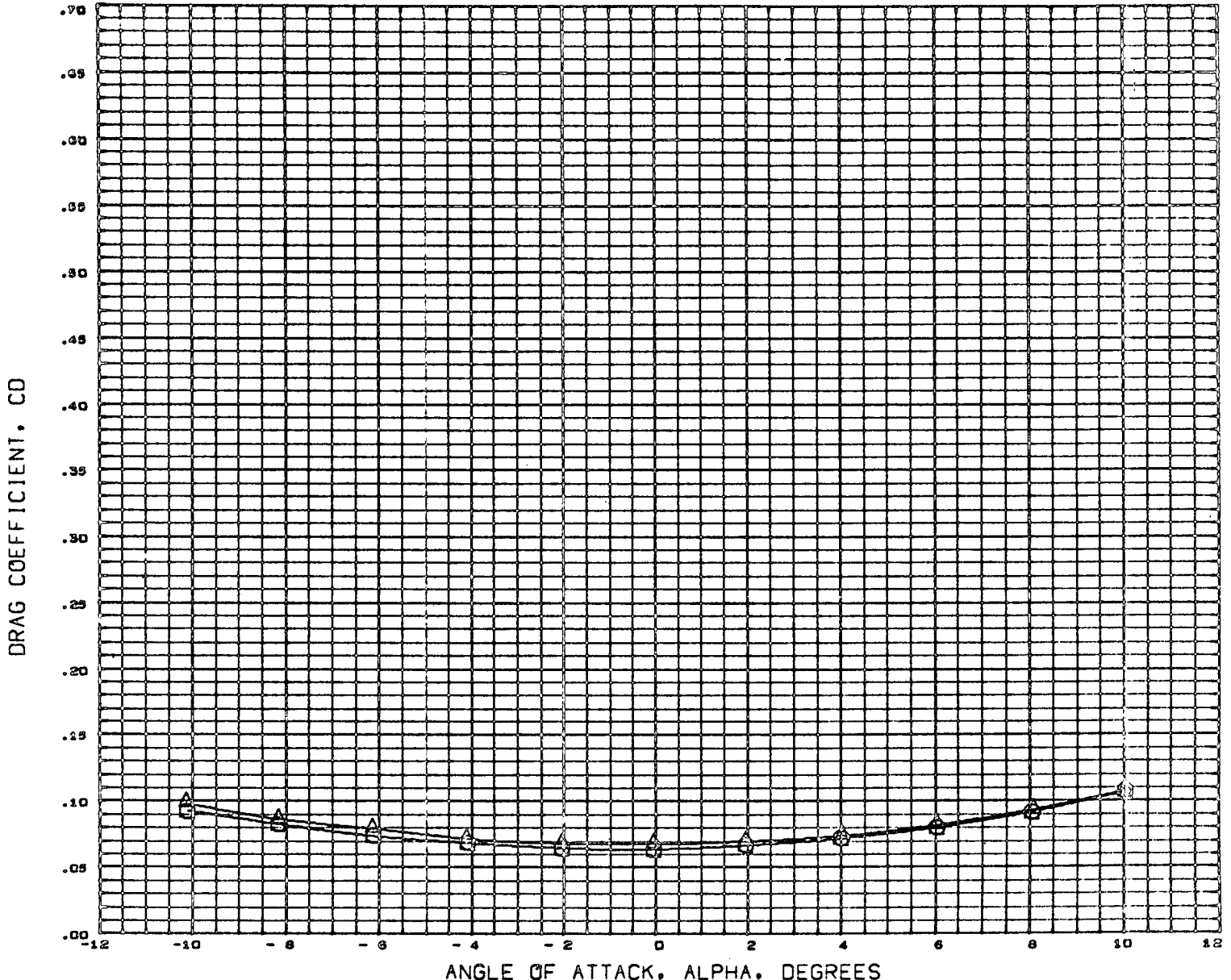
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8



BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



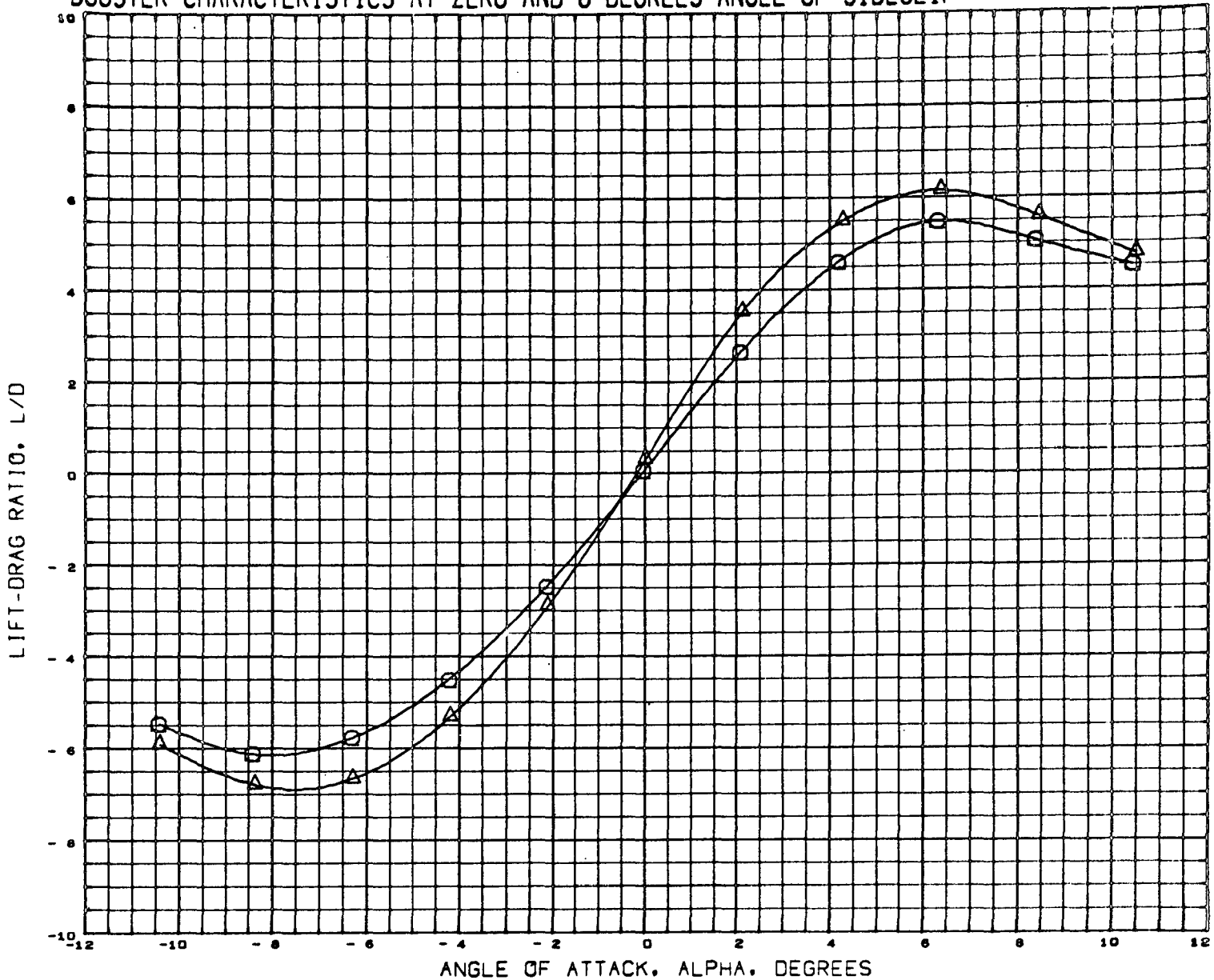
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) 	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.656C	90 IN
LREF	3.095C	INCHES
BREF	6.009C	INCHES
XMRP	0.000C	
YMRP	0.000C	
ZMRP	0.000C	
SCALE	0.0039	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



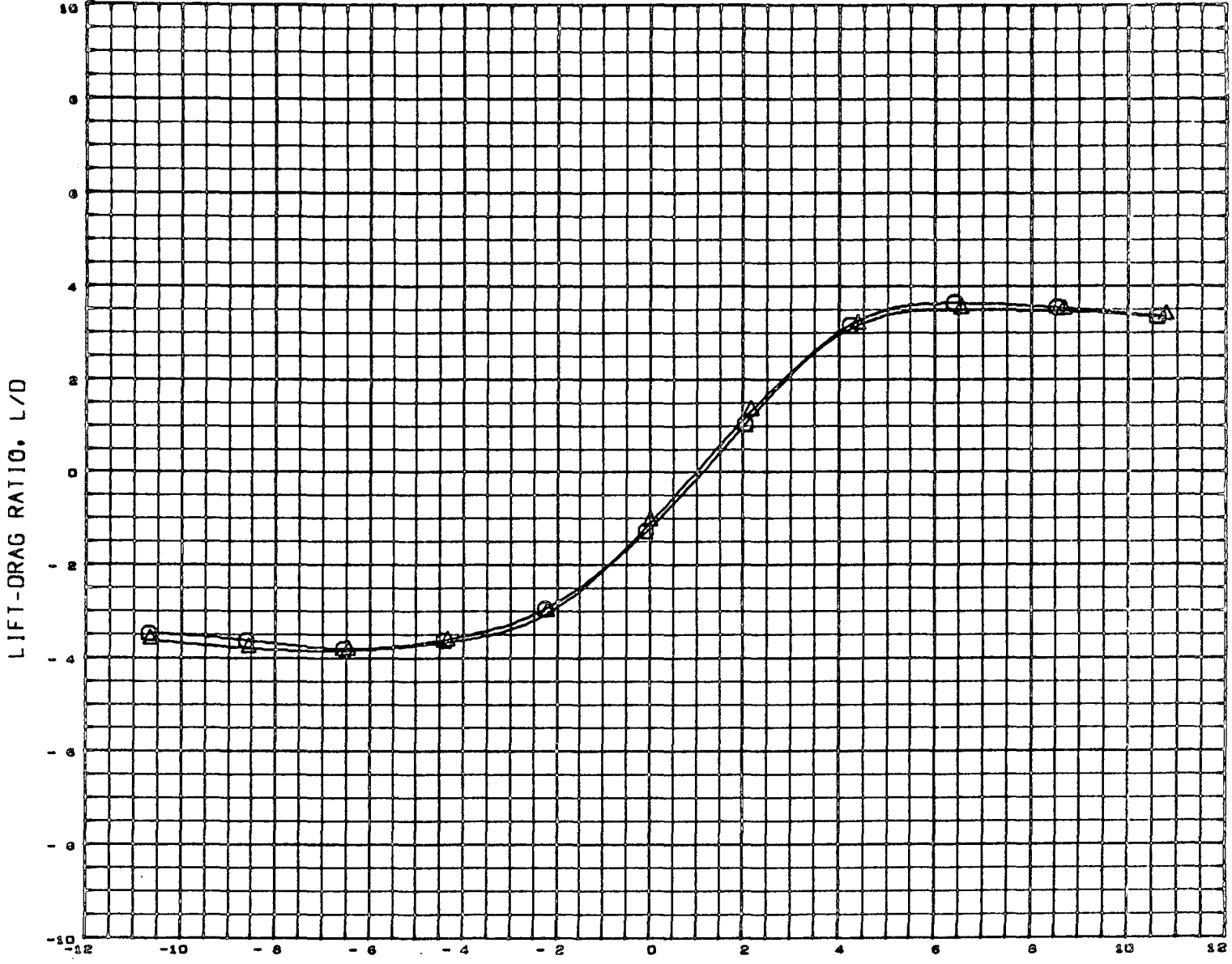
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 0.606

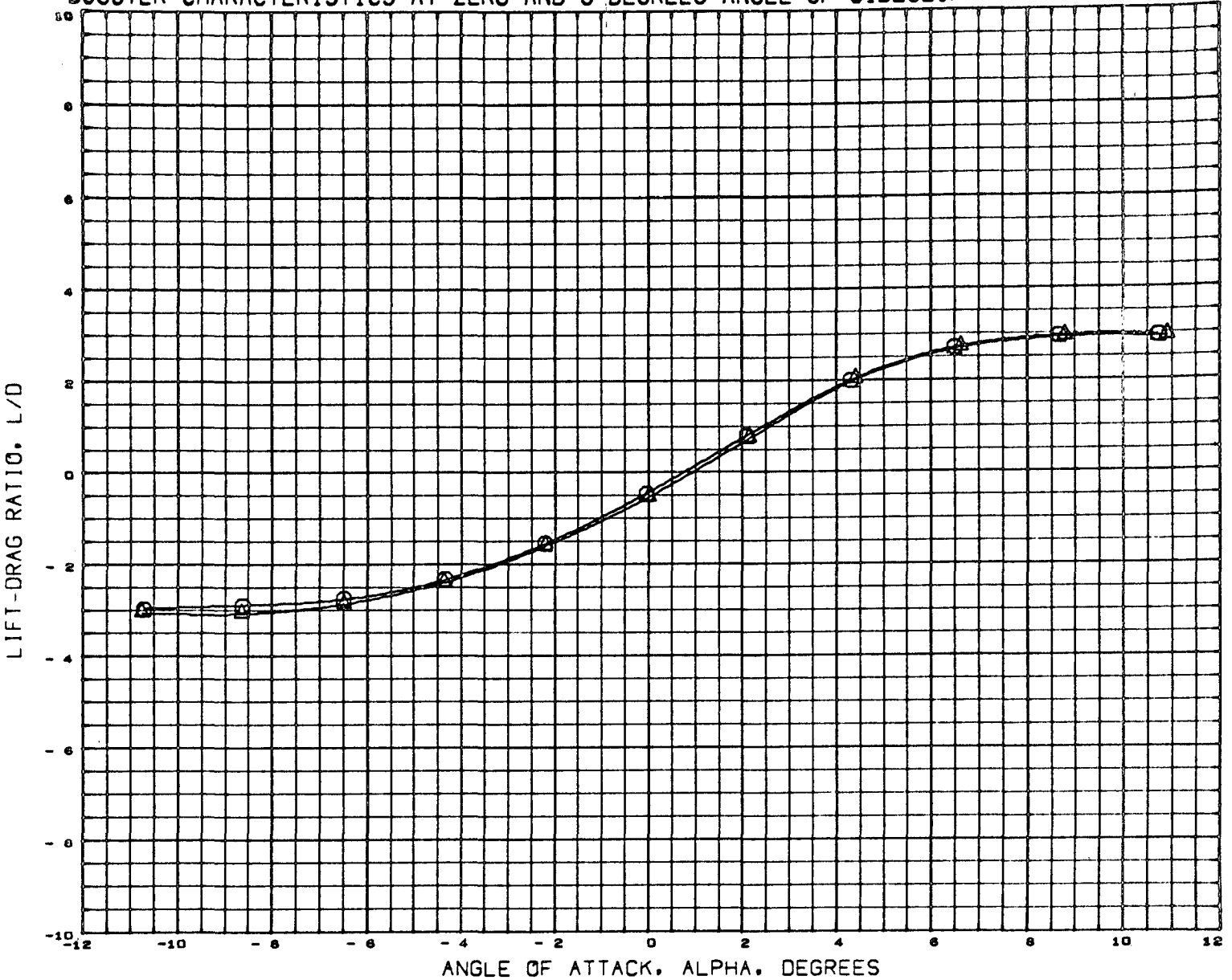
BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(H3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF	15.6960 SQ IN
(H3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF	3.0950 INCHES
					BREF	6.0990 INCHES
					XMRP	0.0000
					YMRP	0.0000
					ZMRP	0.0000
					SCALE	0.0035 SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



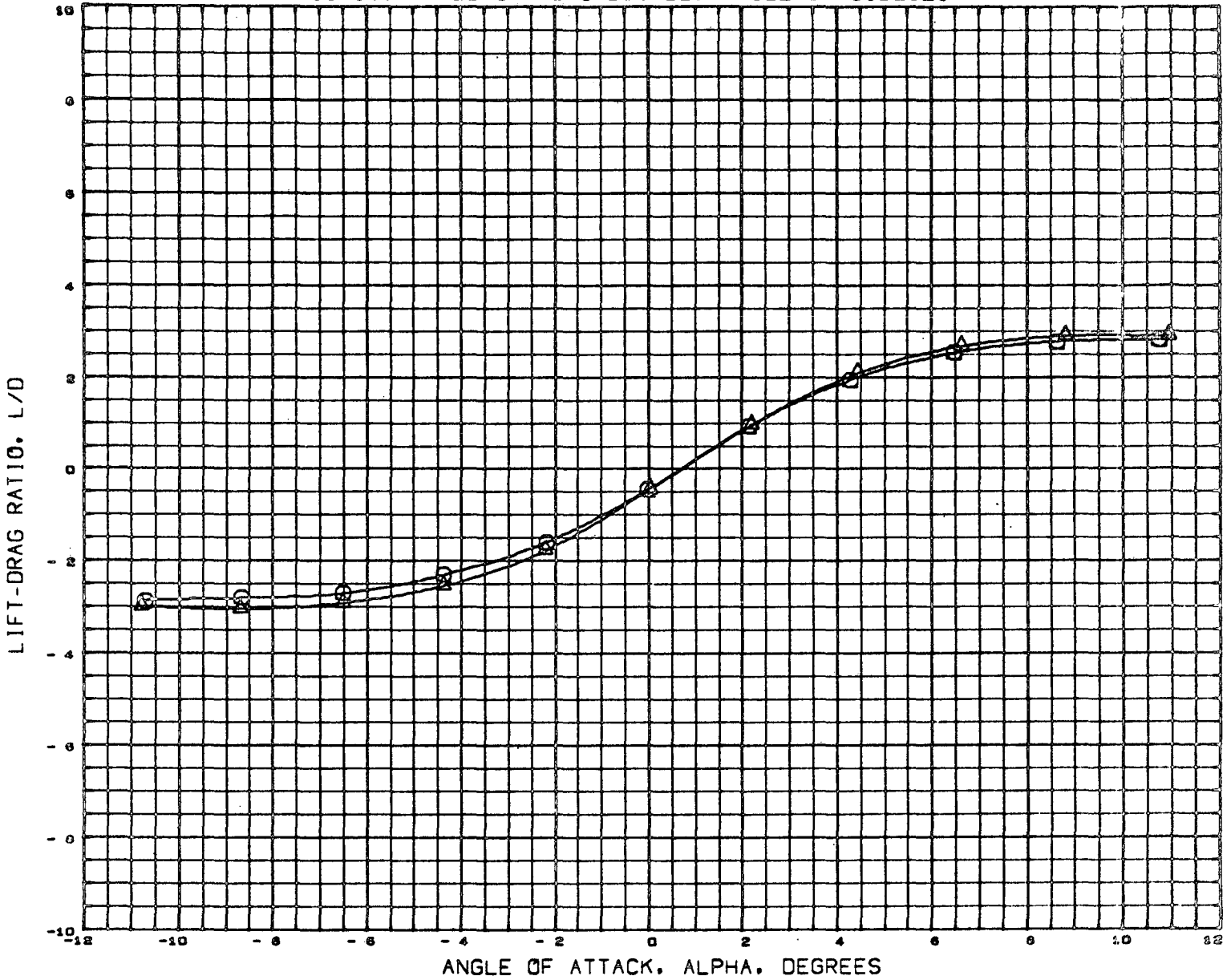
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



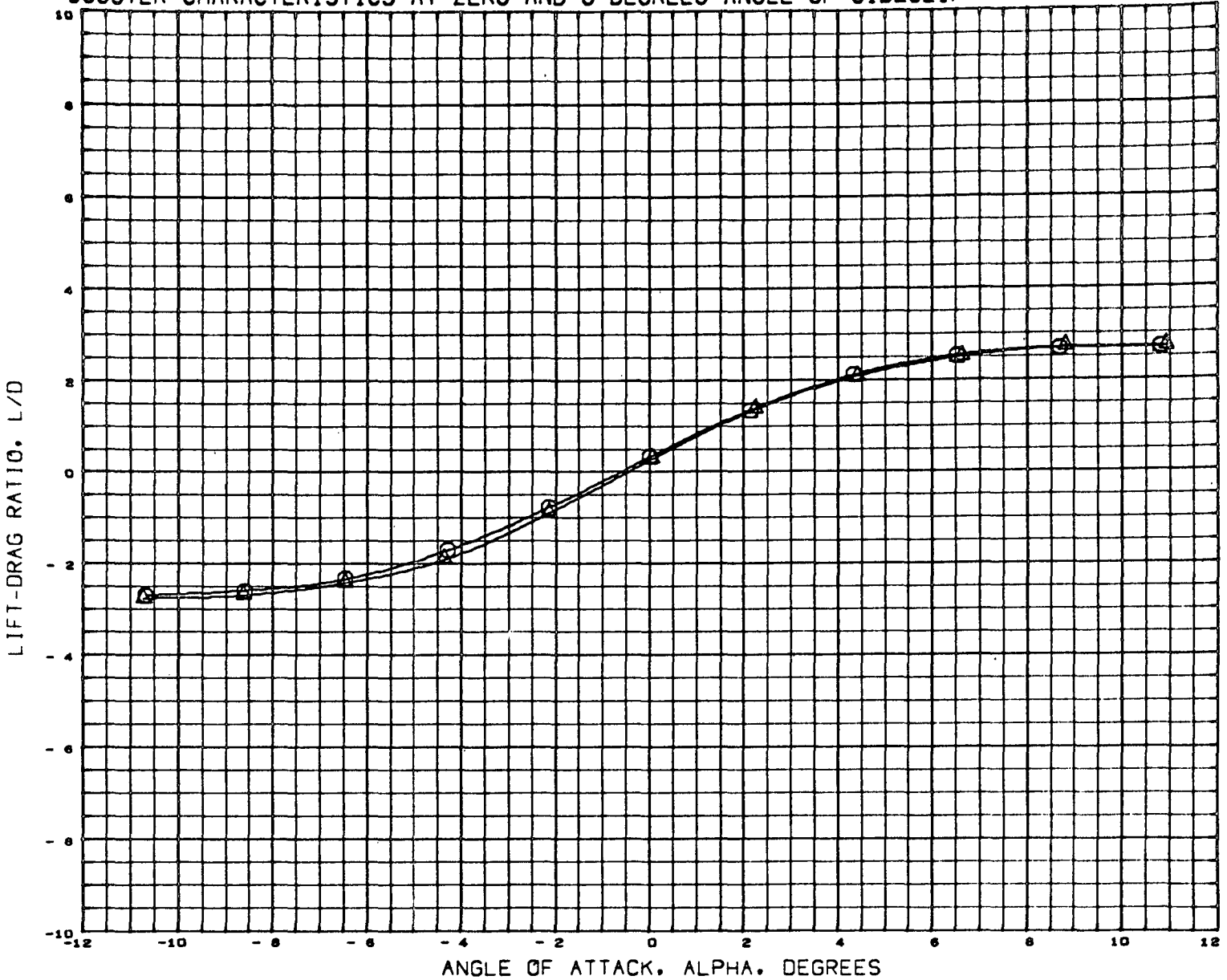
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6360	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



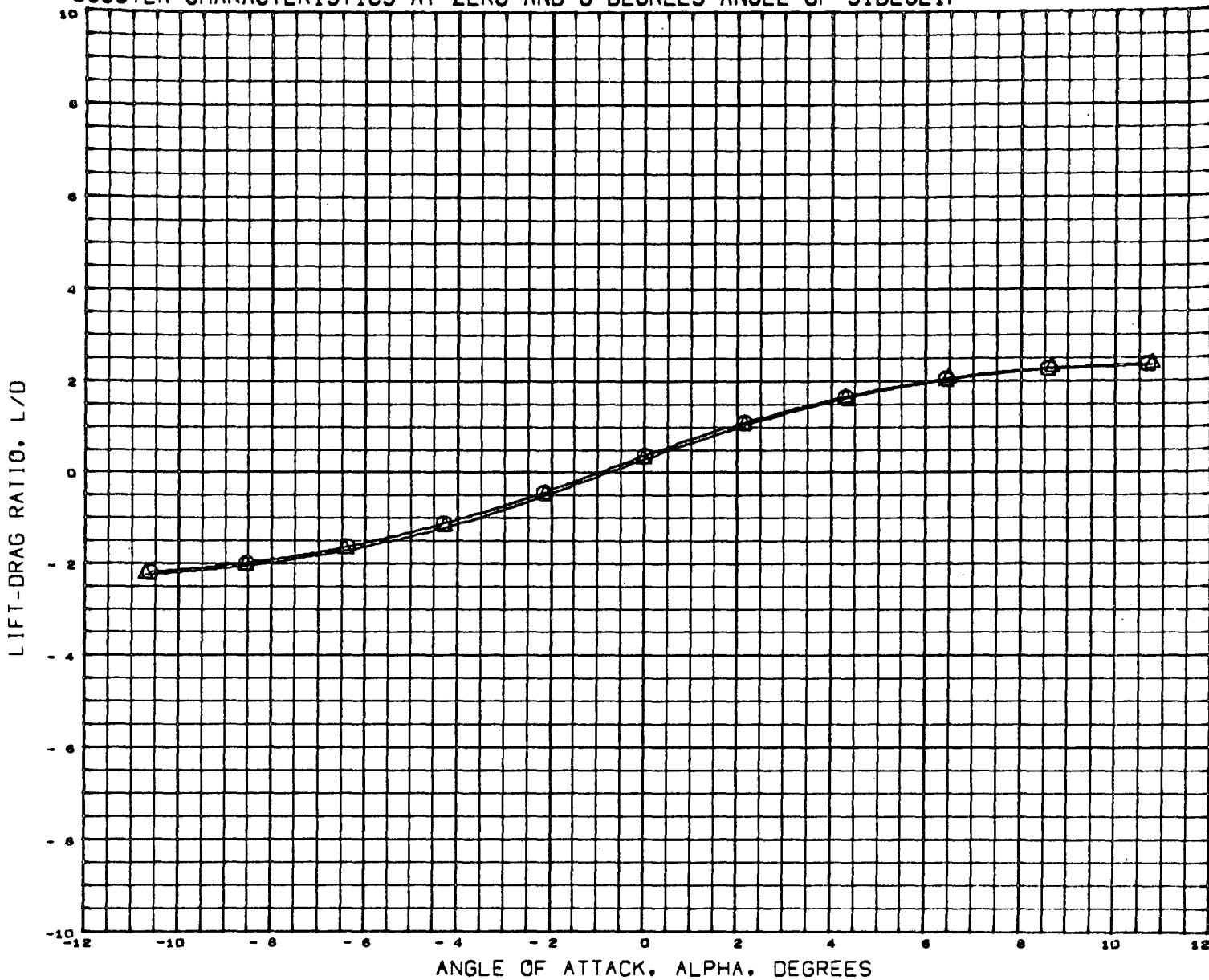
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0950	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



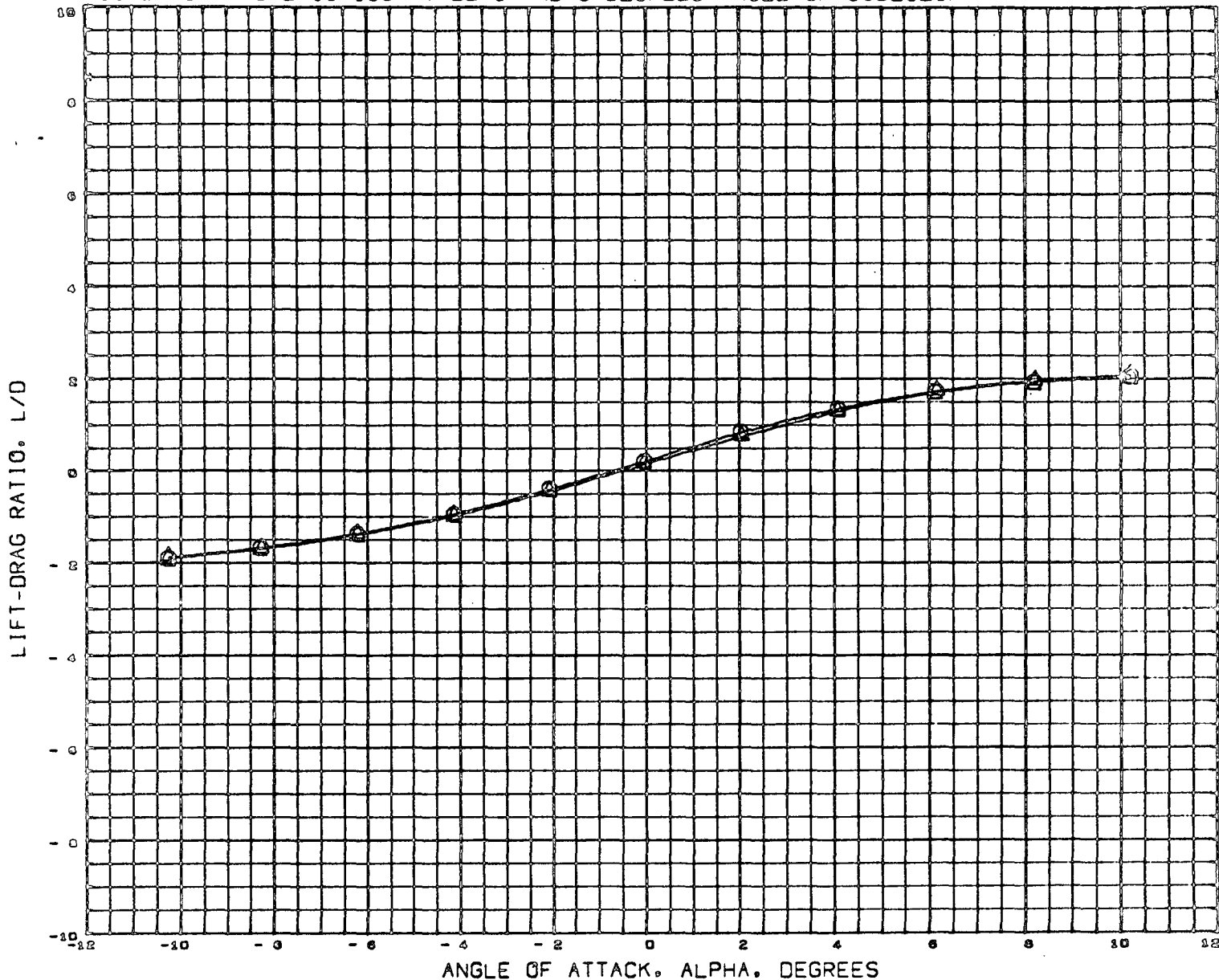
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A)	MSFC490 GD DELTA BOOSTER B2UC4BW14V8
(H3207A)	MSFC490 GD DELTA BOOSTER B2UC4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



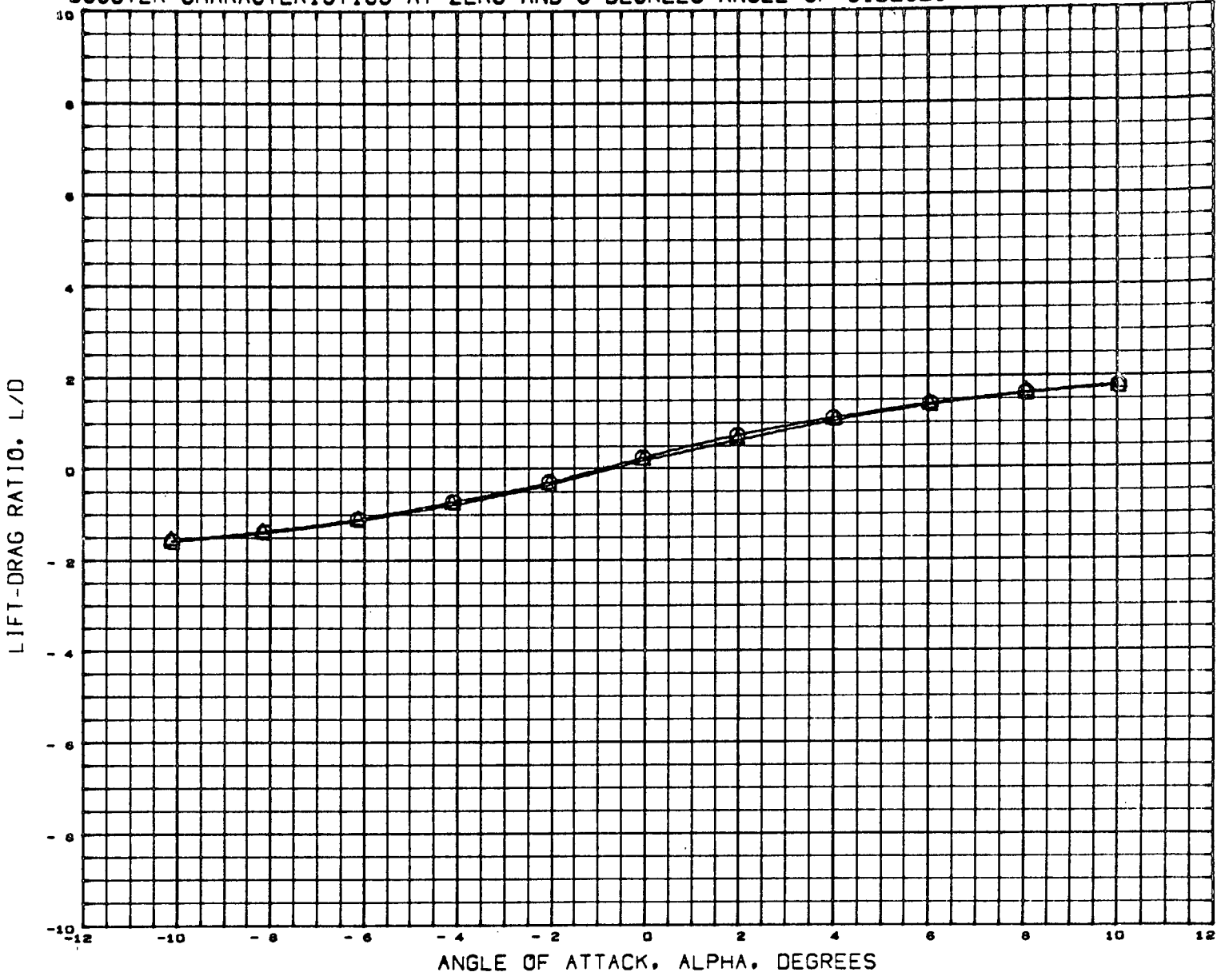
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M9203A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(M9207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6960 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



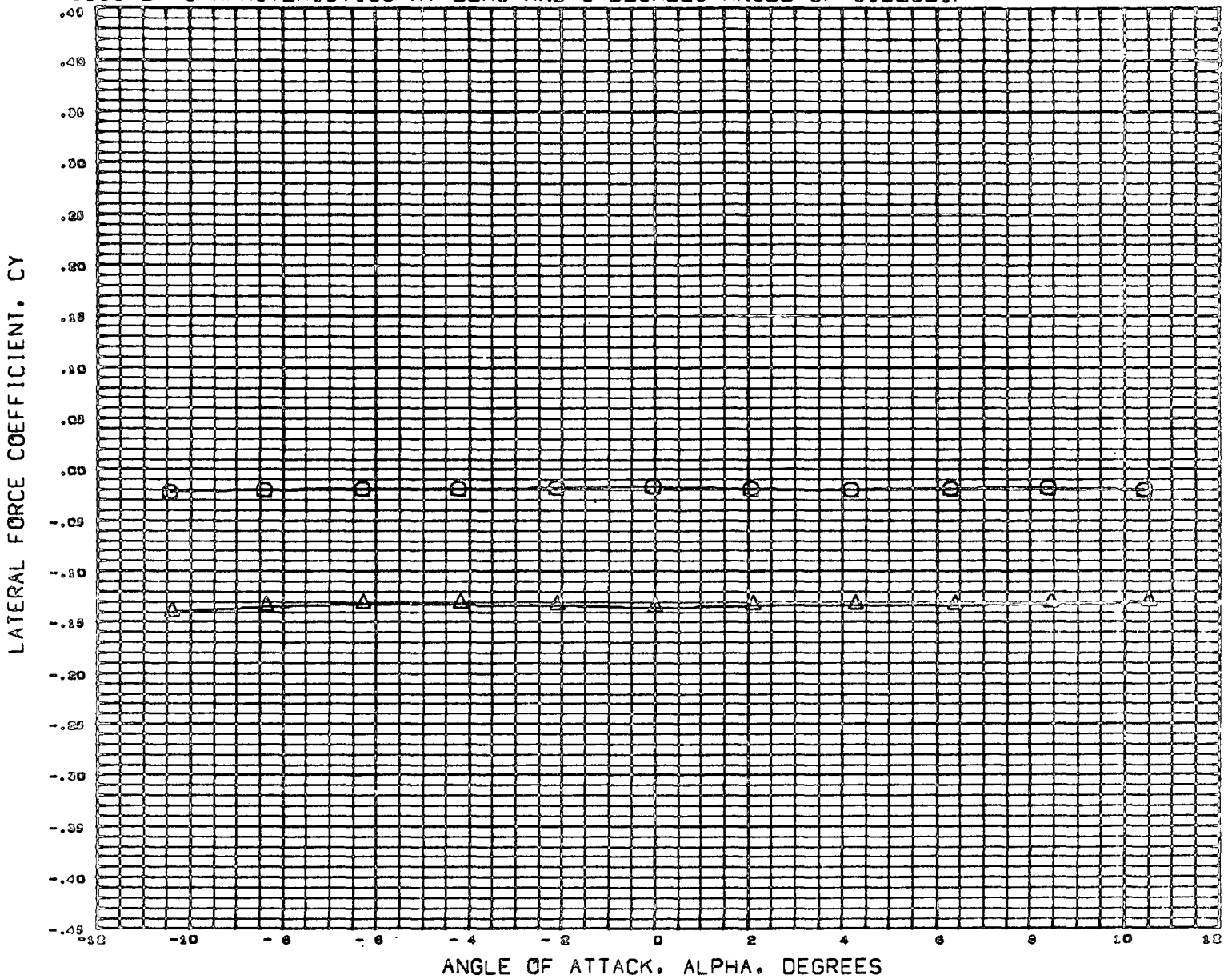
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(H3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3209A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.0960	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



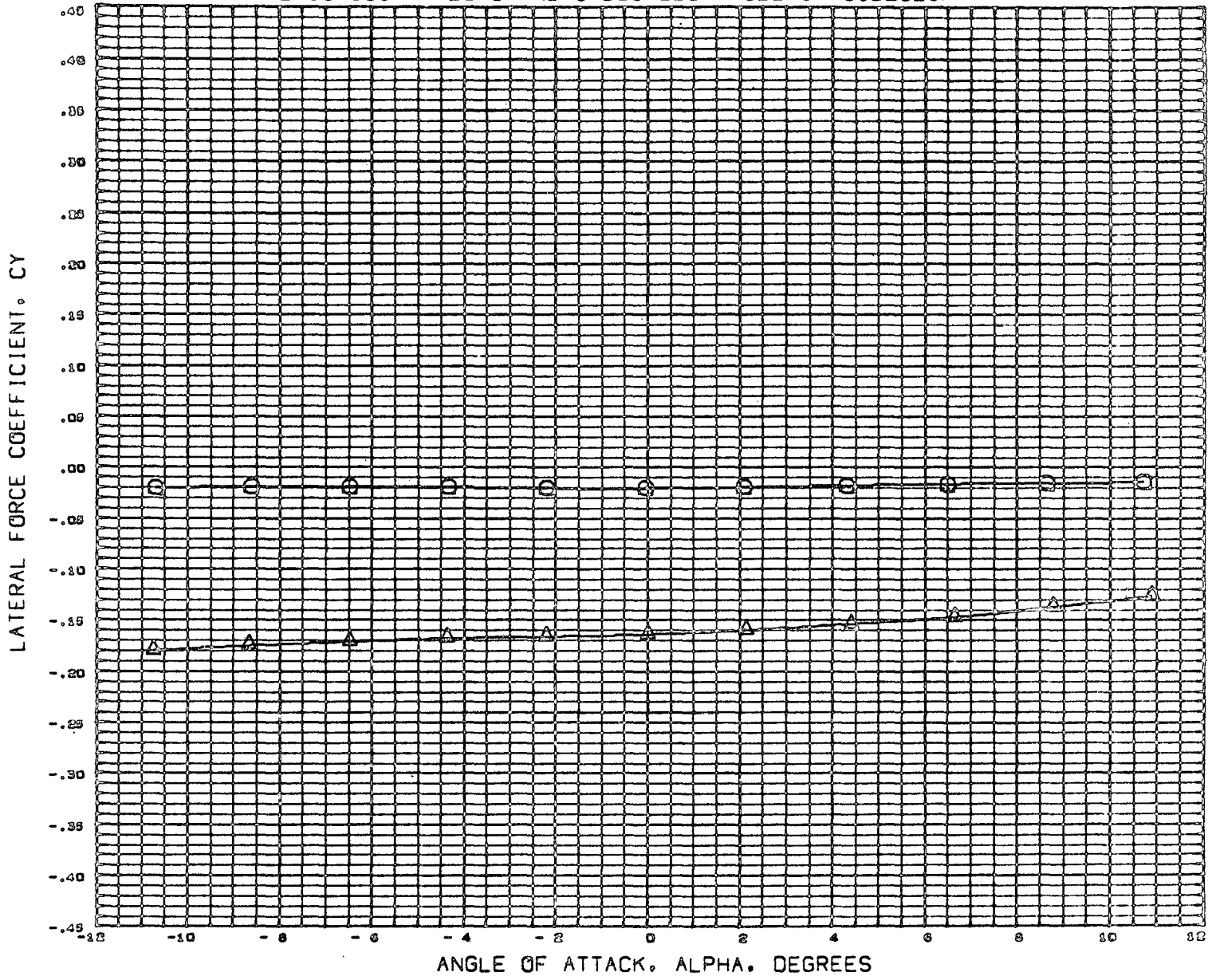
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



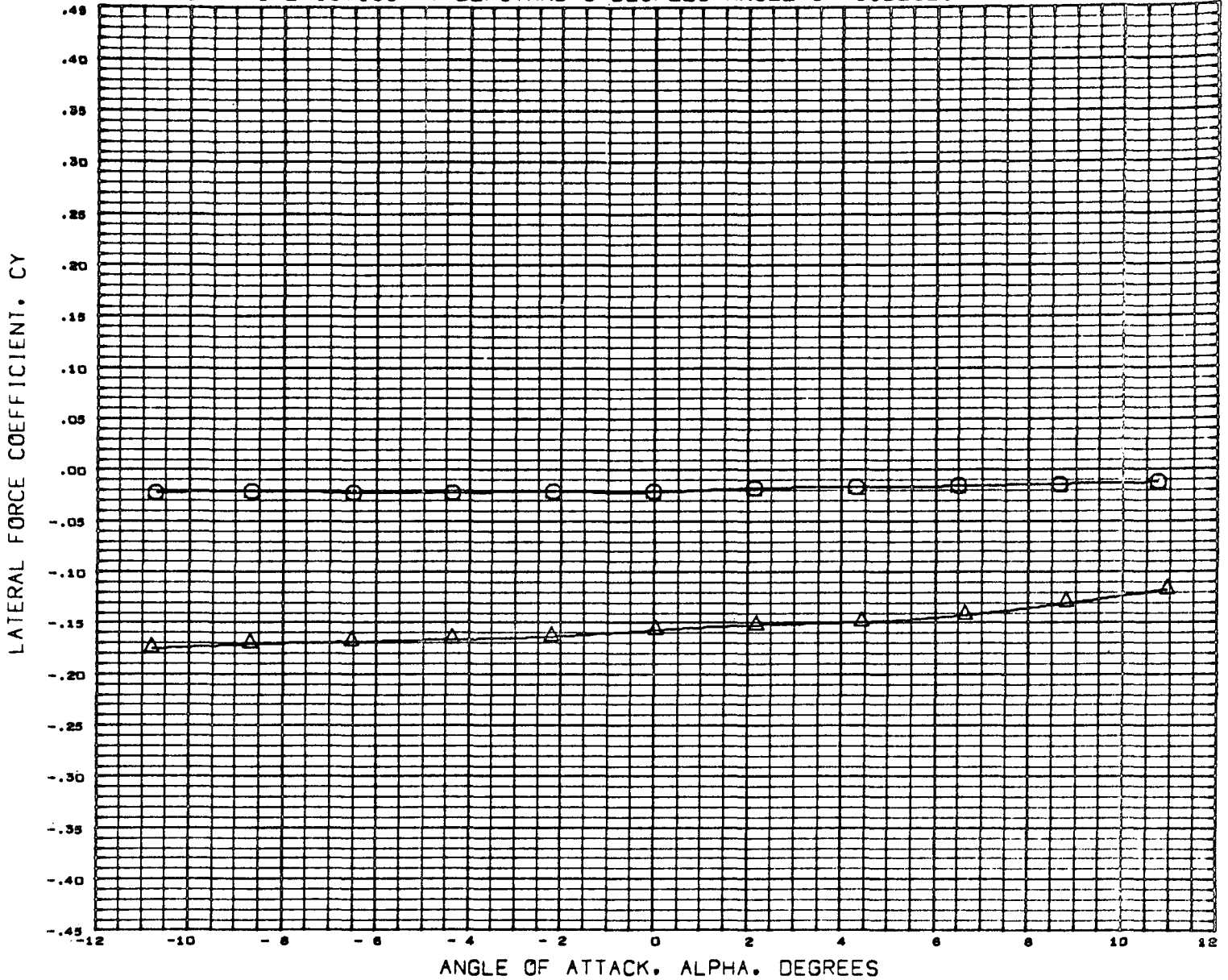
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



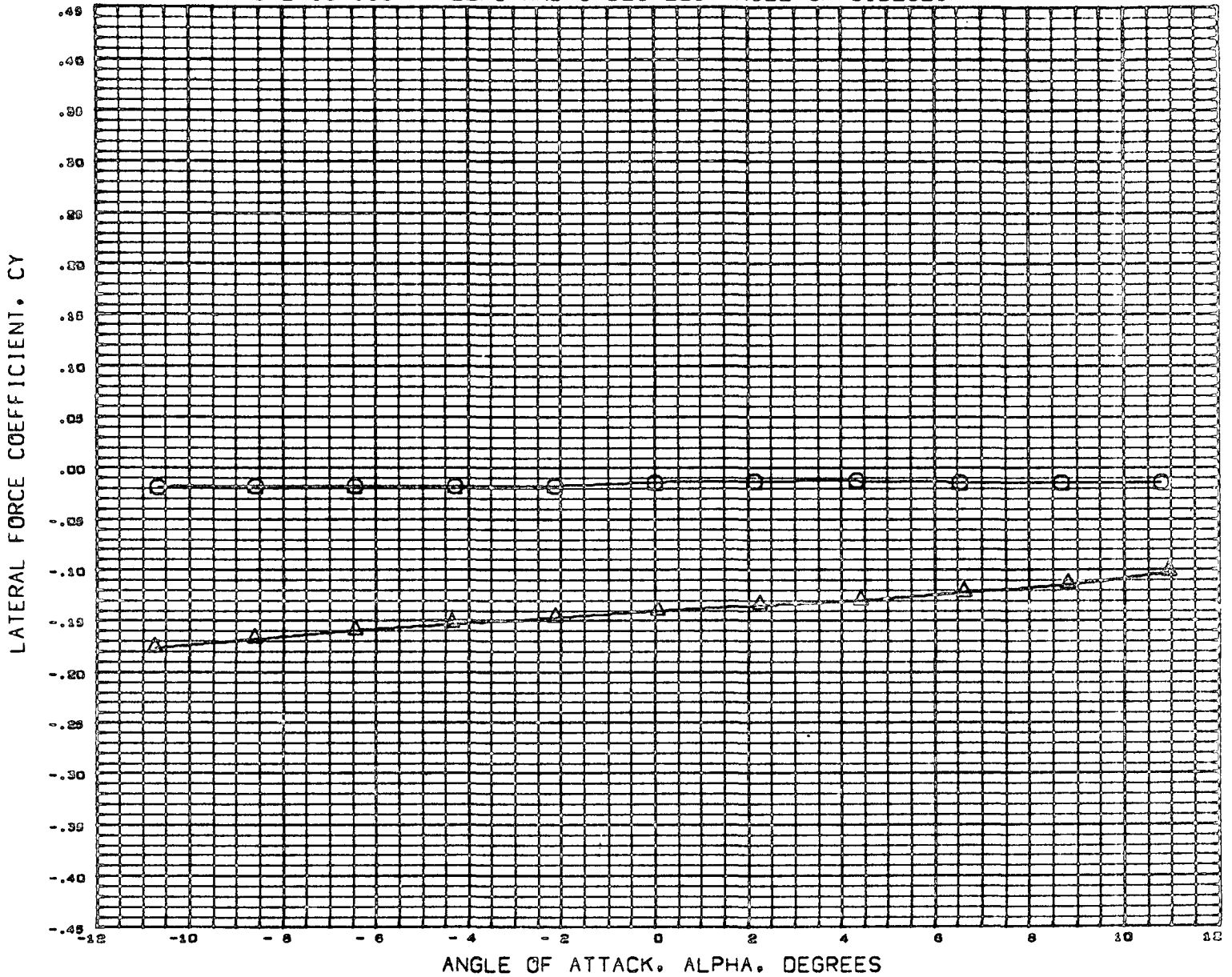
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AIRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMHP	0.0000	
YMHP	0.0000	
ZMHP	0.0000	
SCALE	0.0035	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.0560 SQ IN
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF 3.0950 INCHES
					BREF 6.0950 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0039 SCALE

MACH 2.107

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



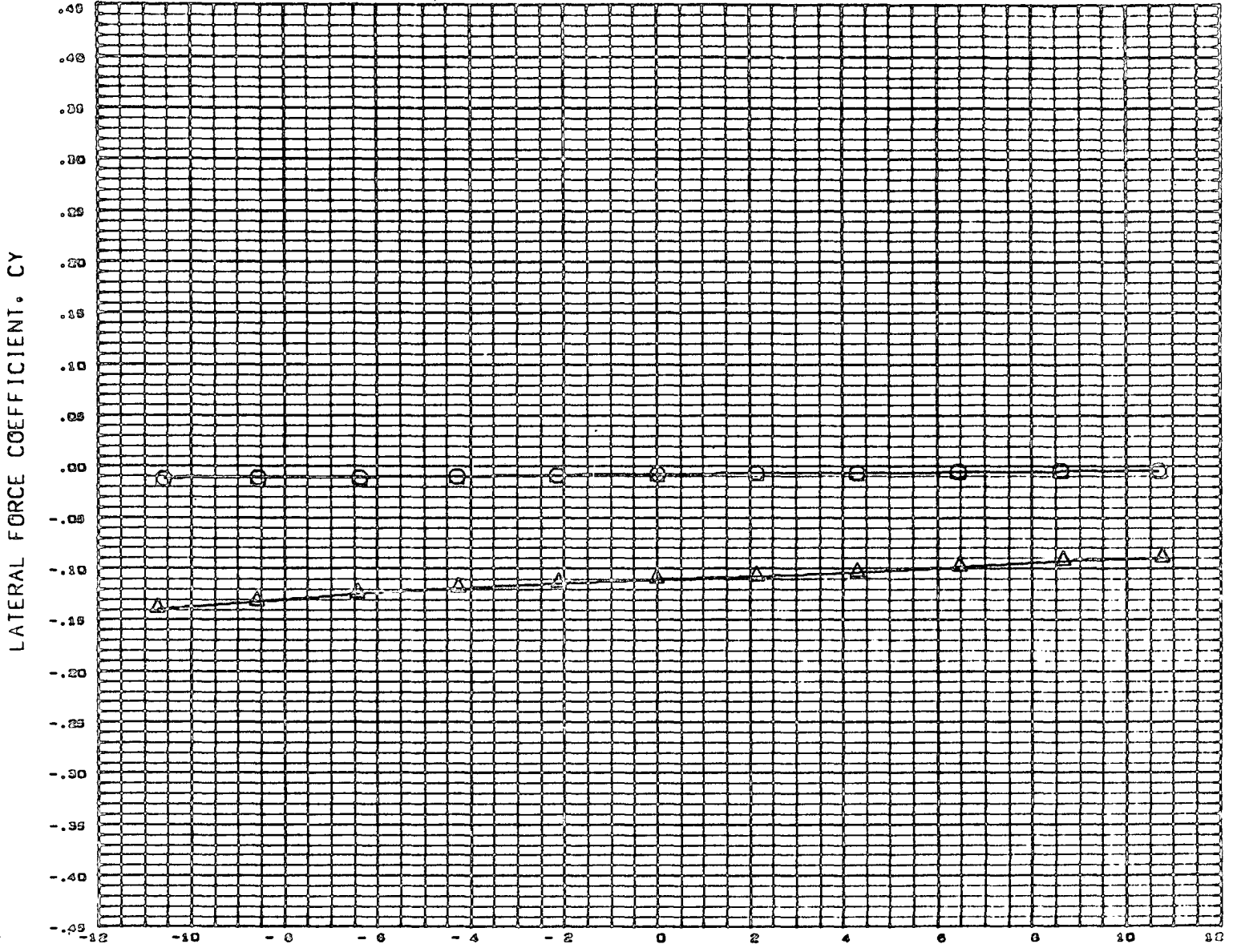
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(A3209A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	SREF 15.6960 SQ IN
(A3207A)	MSFC49D GD DELTA BOOSTER B20C4BW14V8	6.000	0.000	0.000	LREF 3.0690 INCHES
					BREF 6.0690 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



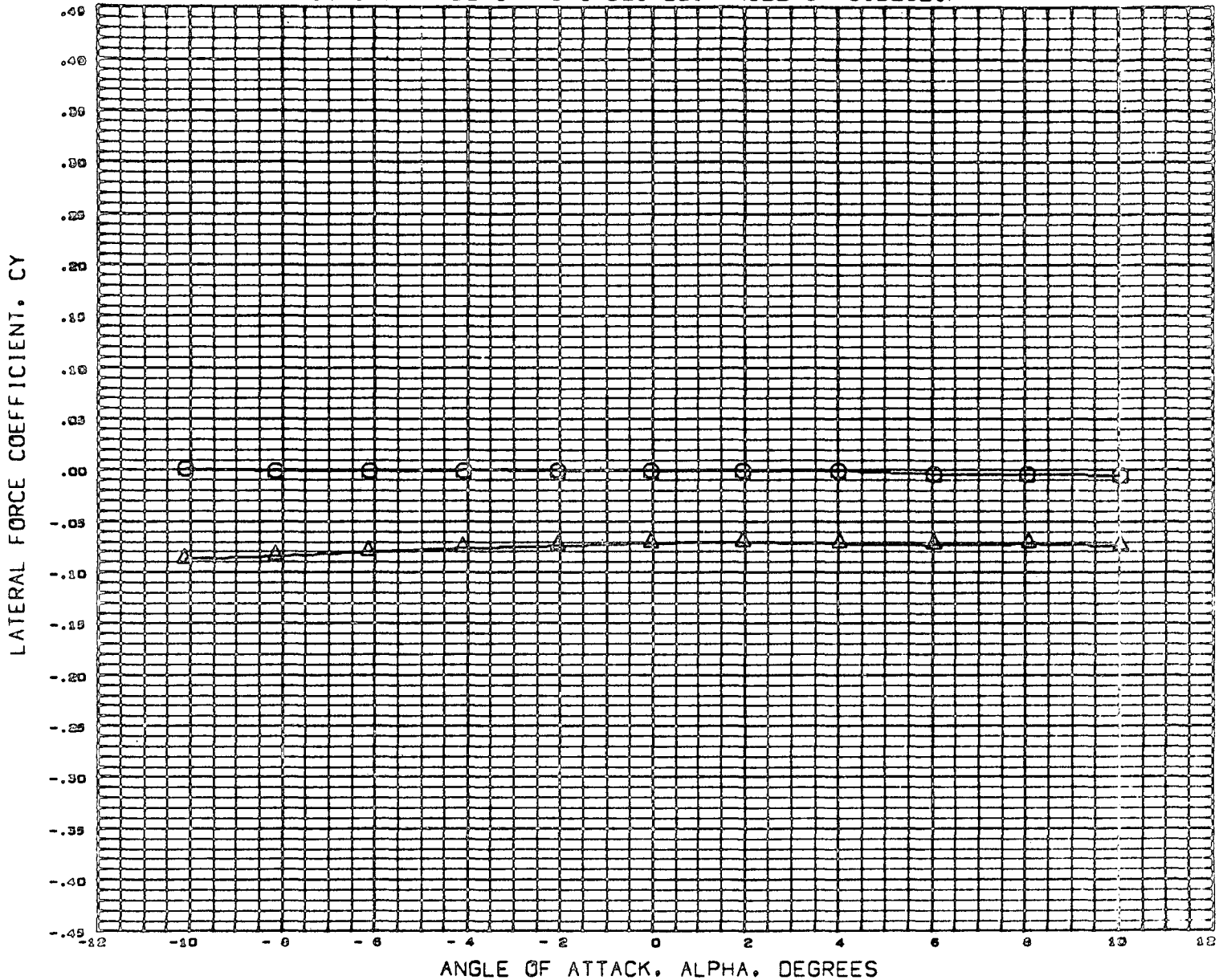
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



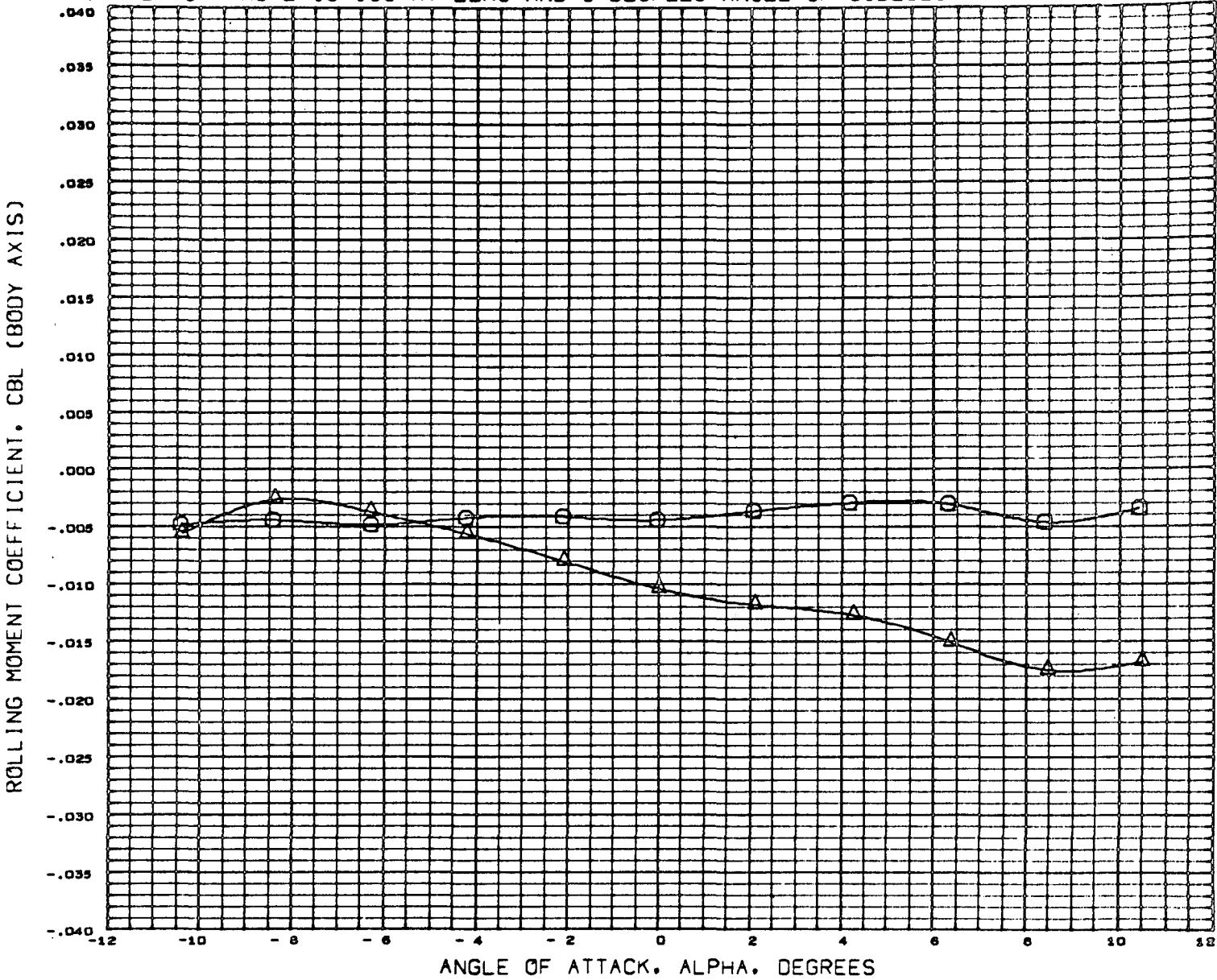
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6960	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER 320C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER 820C4BW14V8

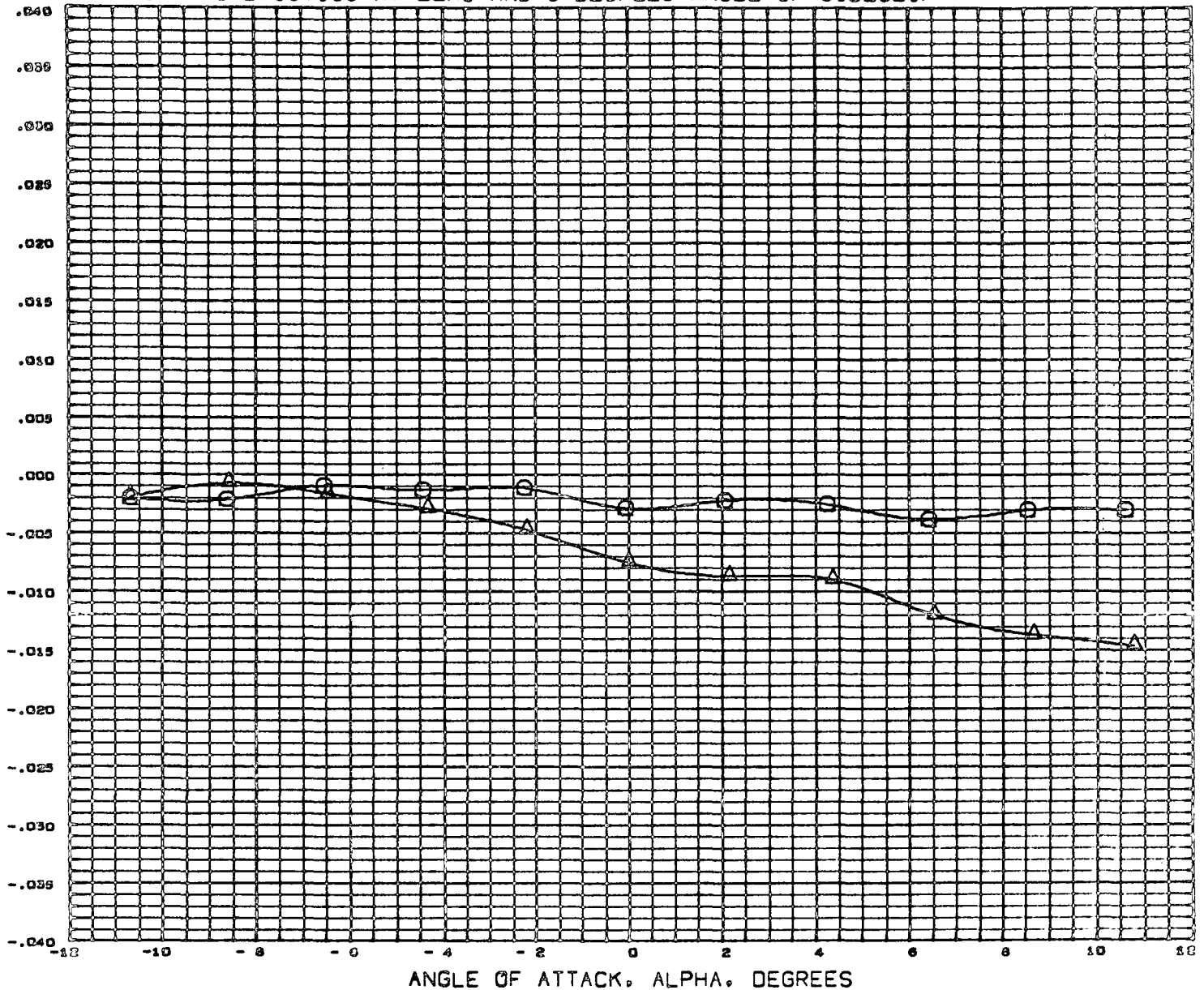
BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



ANGLE OF ATTACK, ALPHA, DEGREES

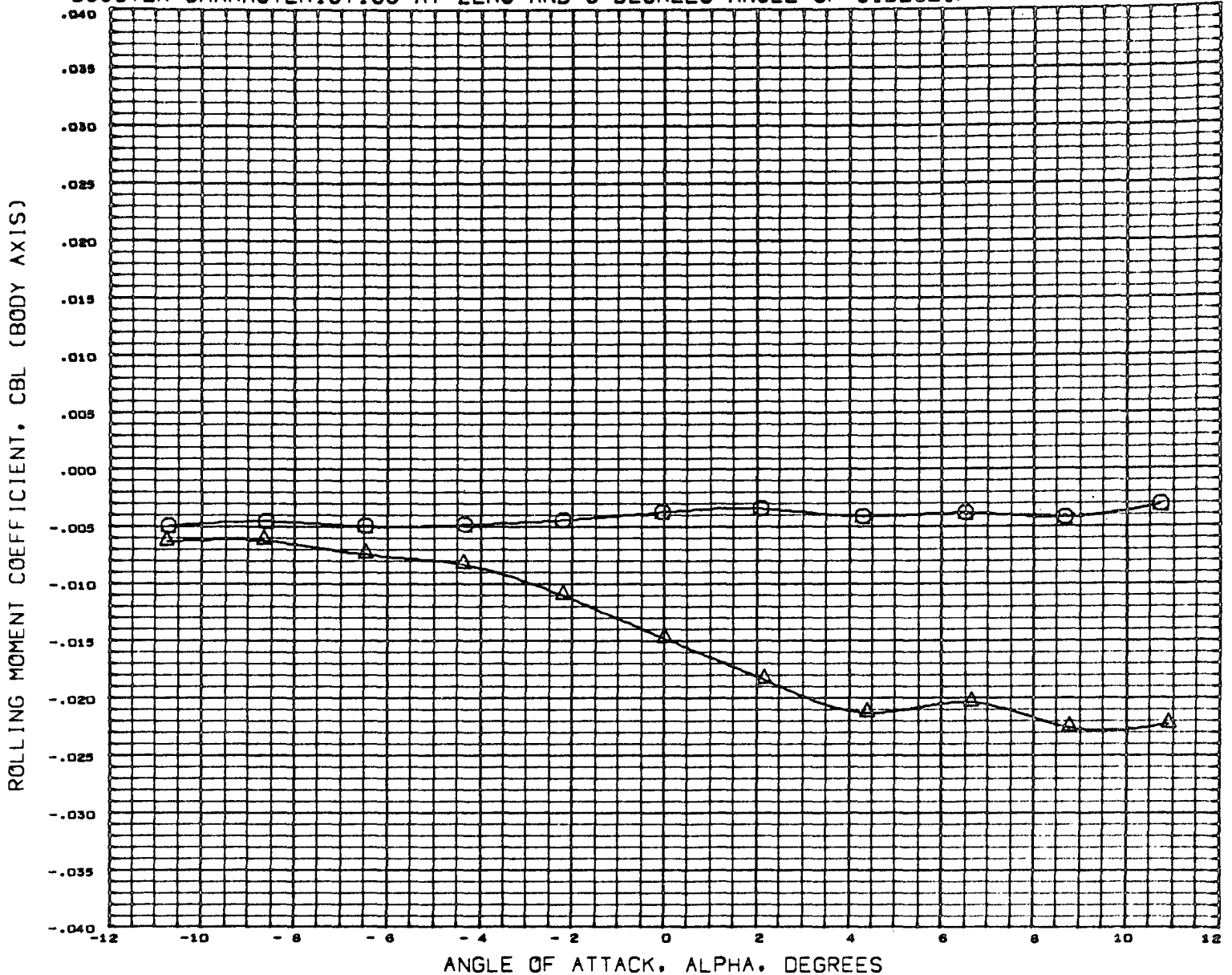
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6563	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0033	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



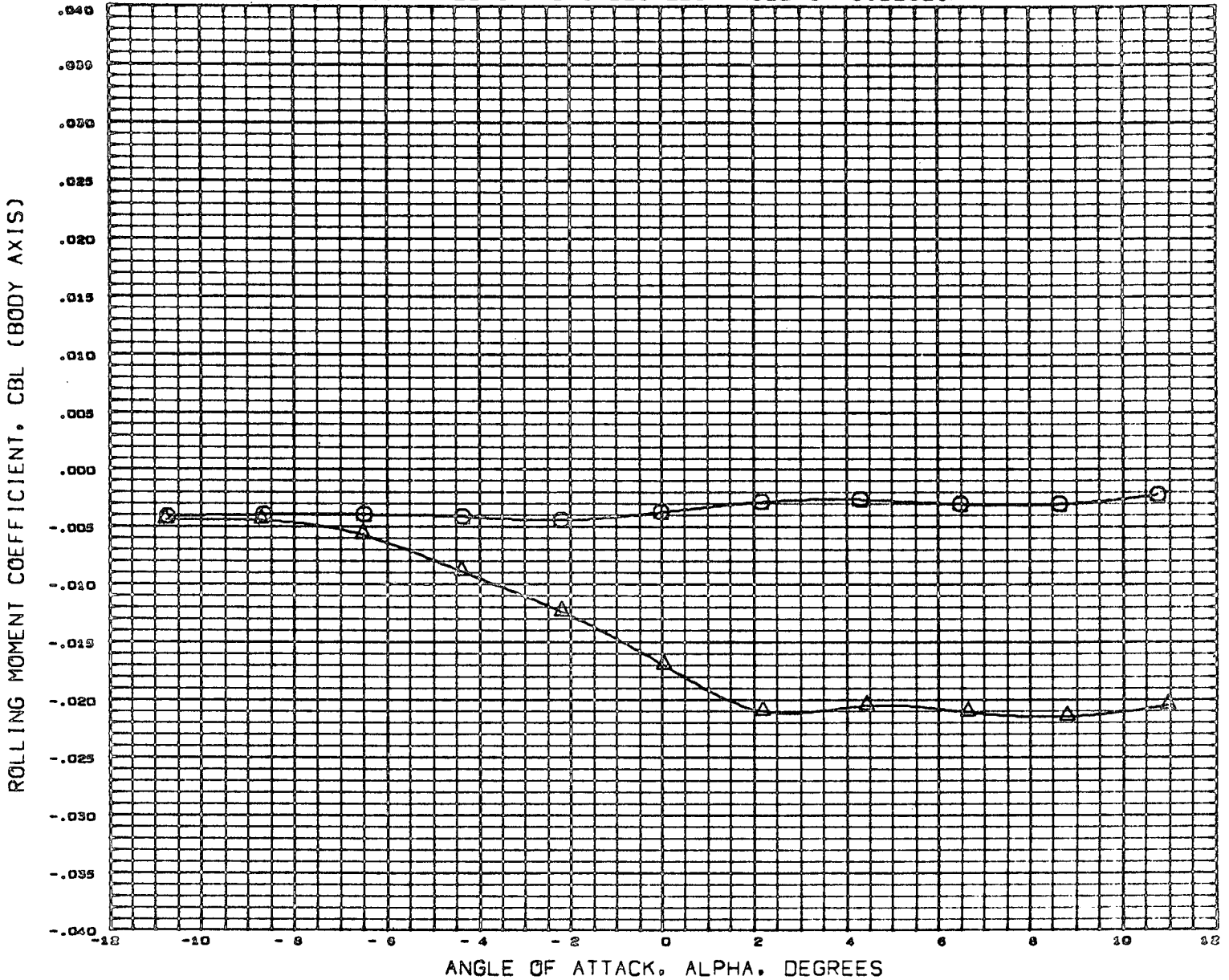
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



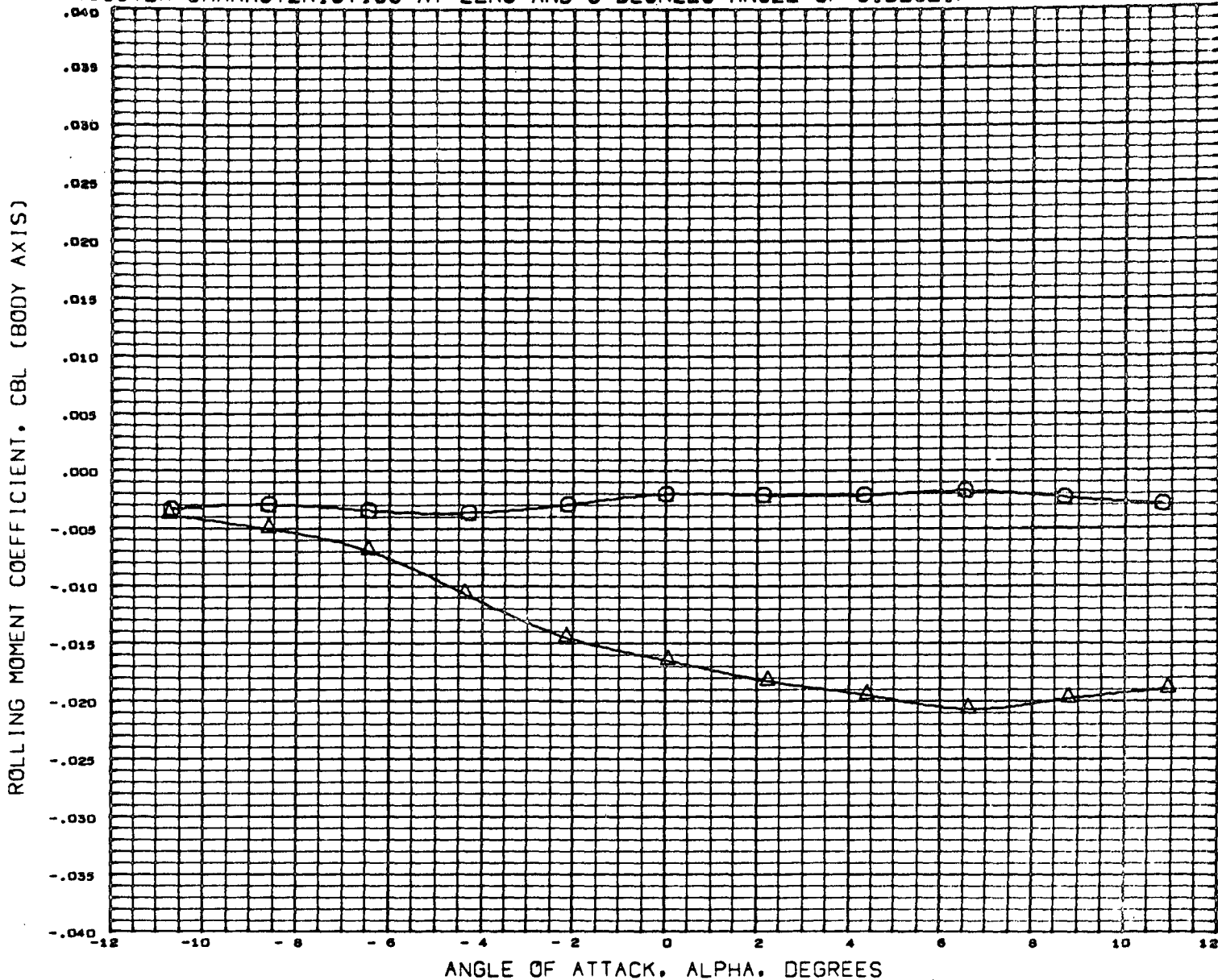
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0950 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0039 SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



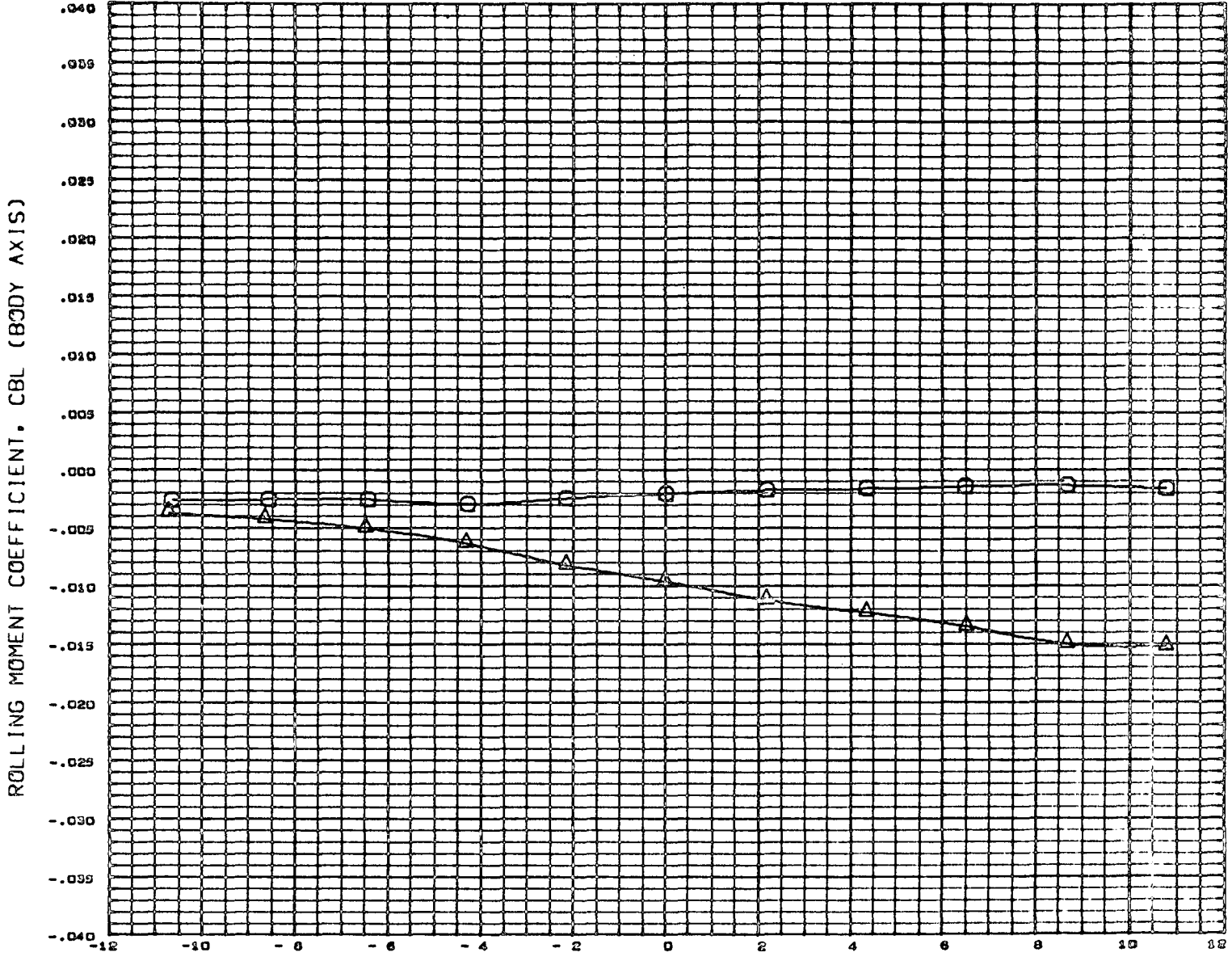
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



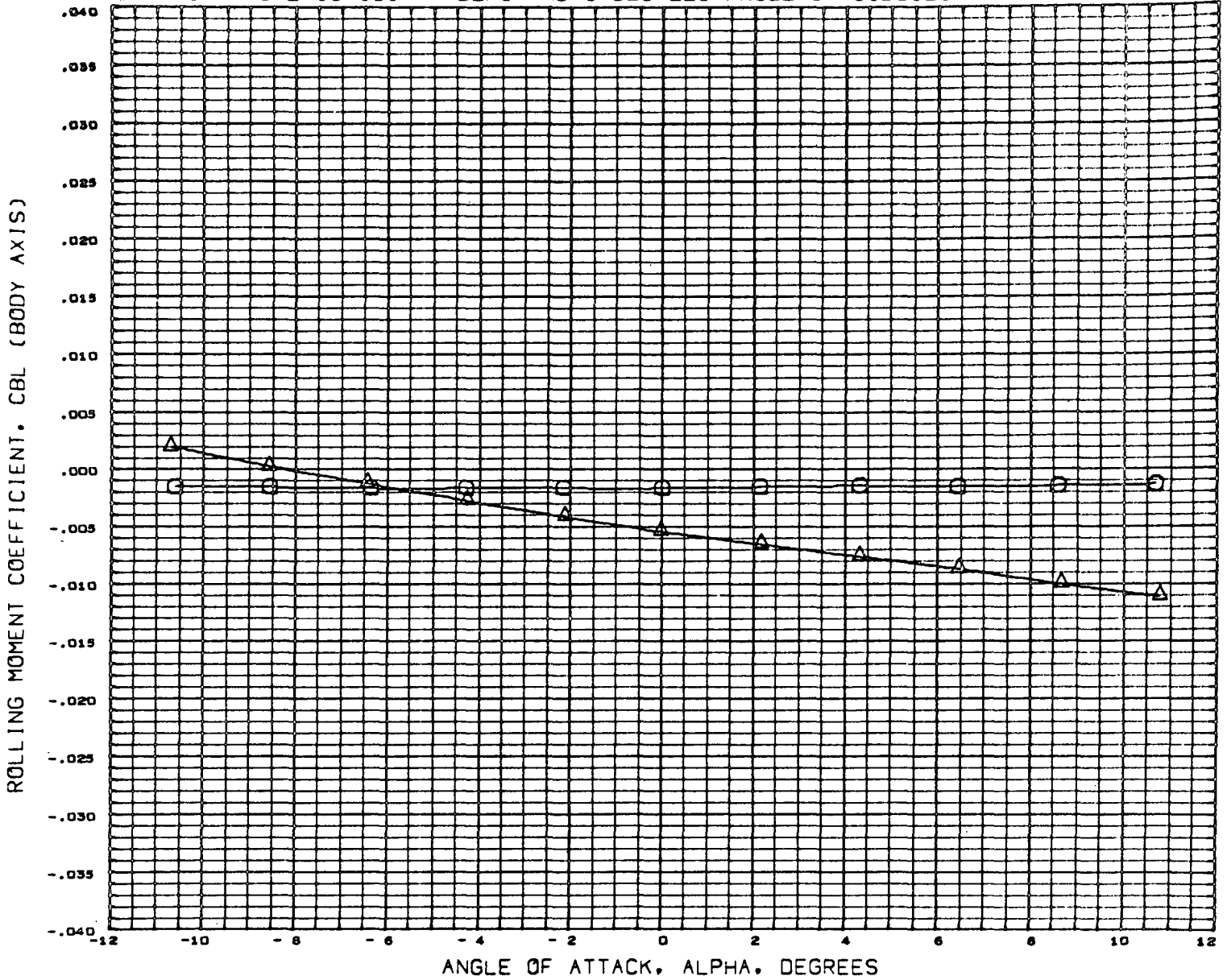
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

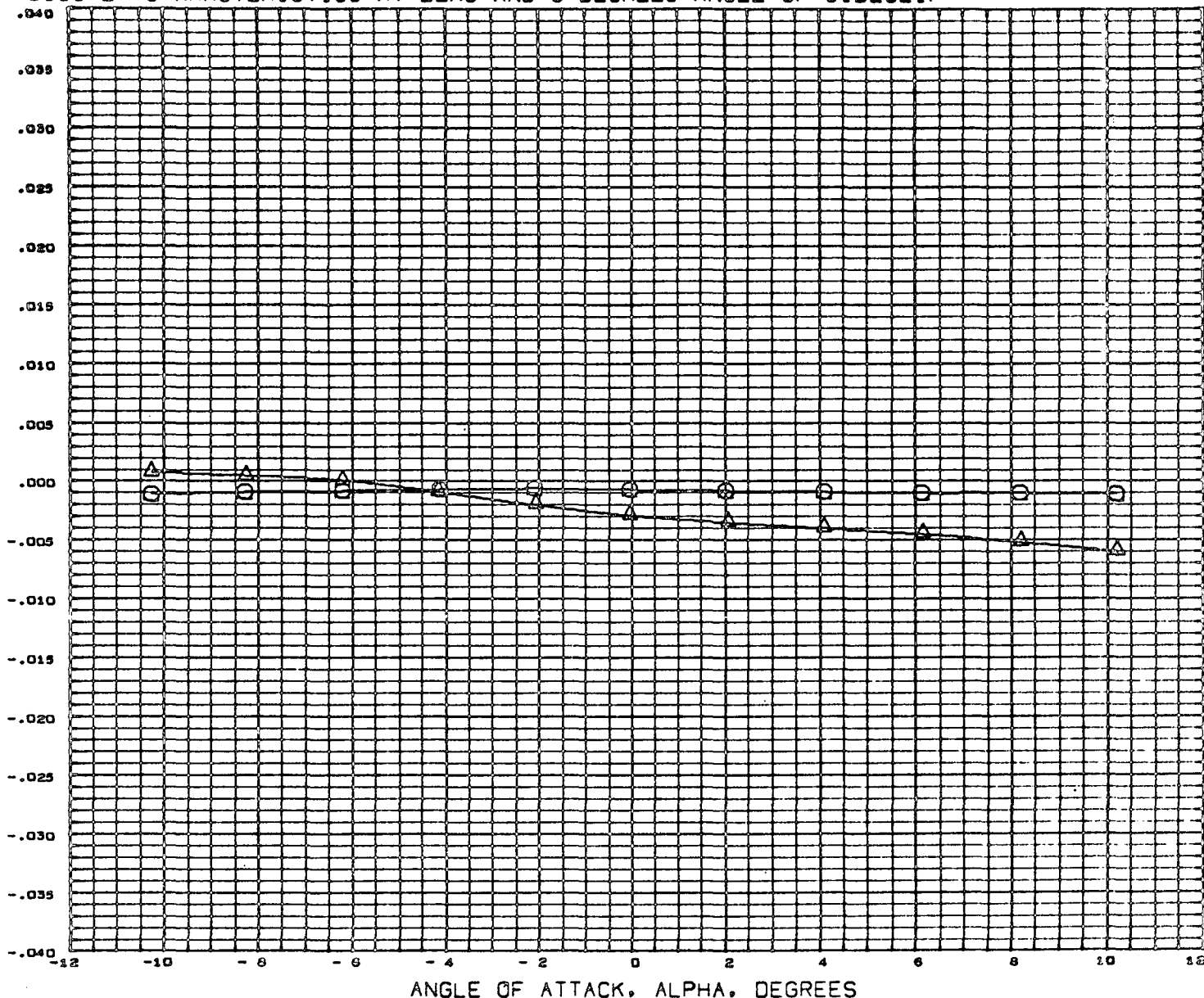
BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



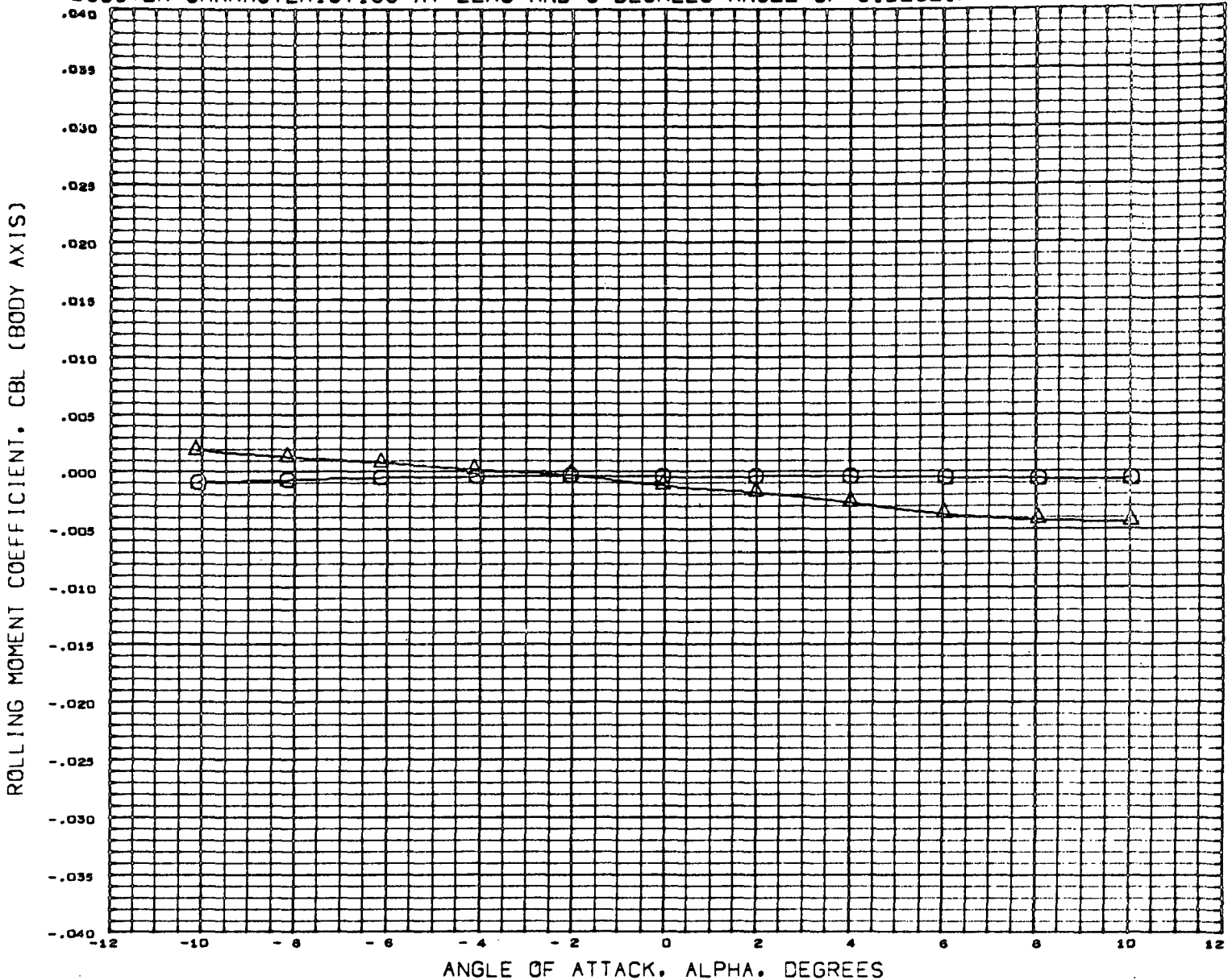
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6360	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

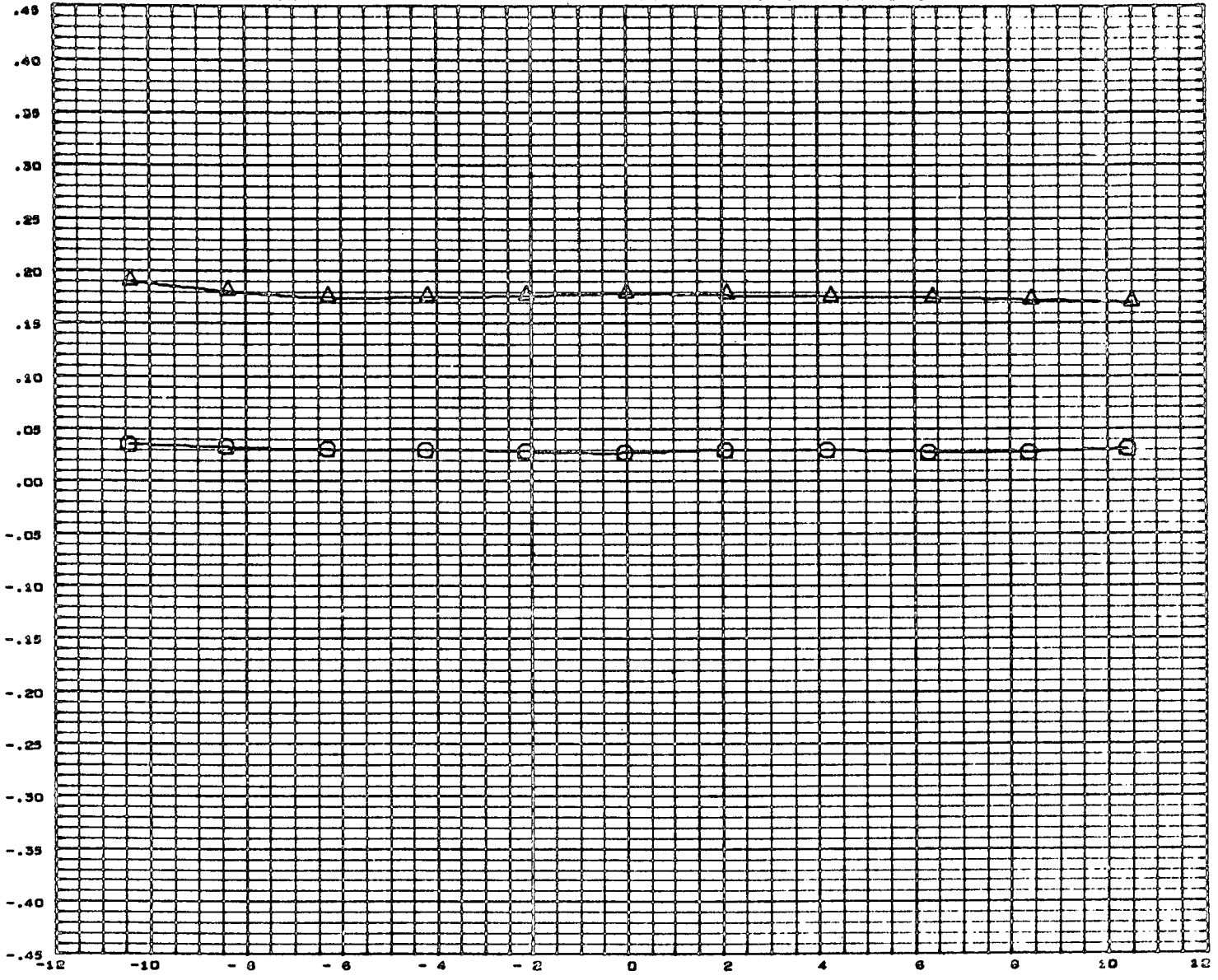
BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



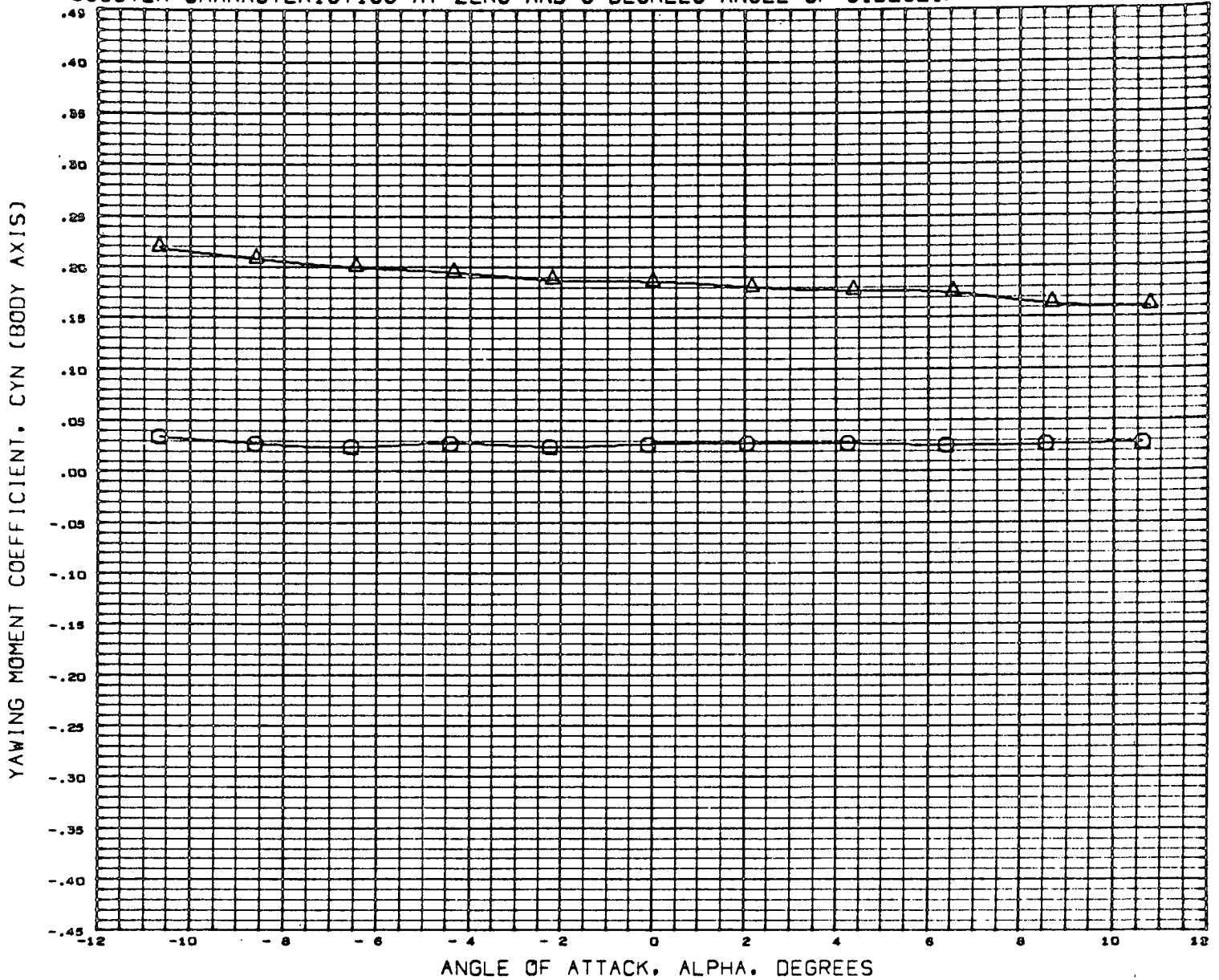
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0950	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.606

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



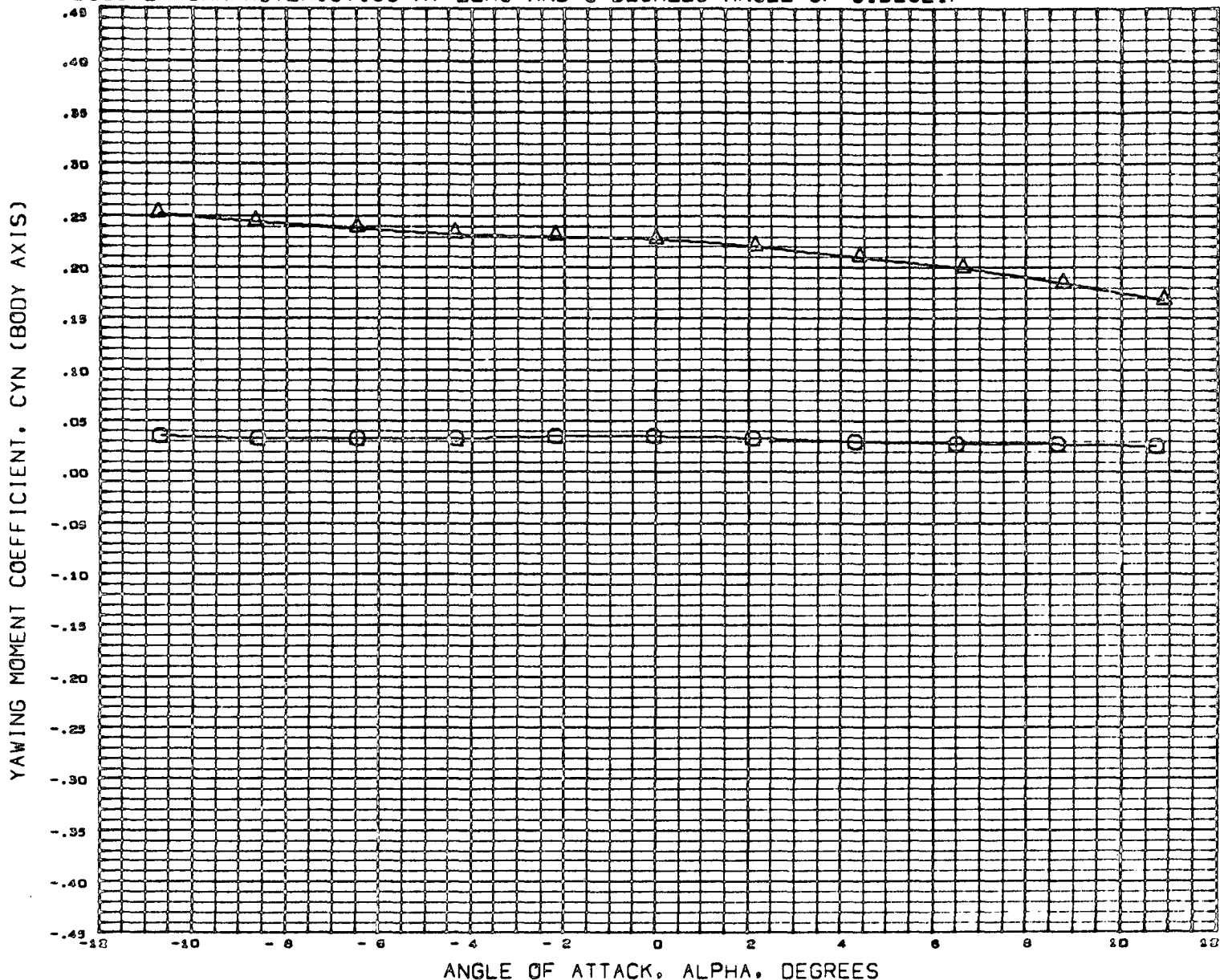
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.900

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



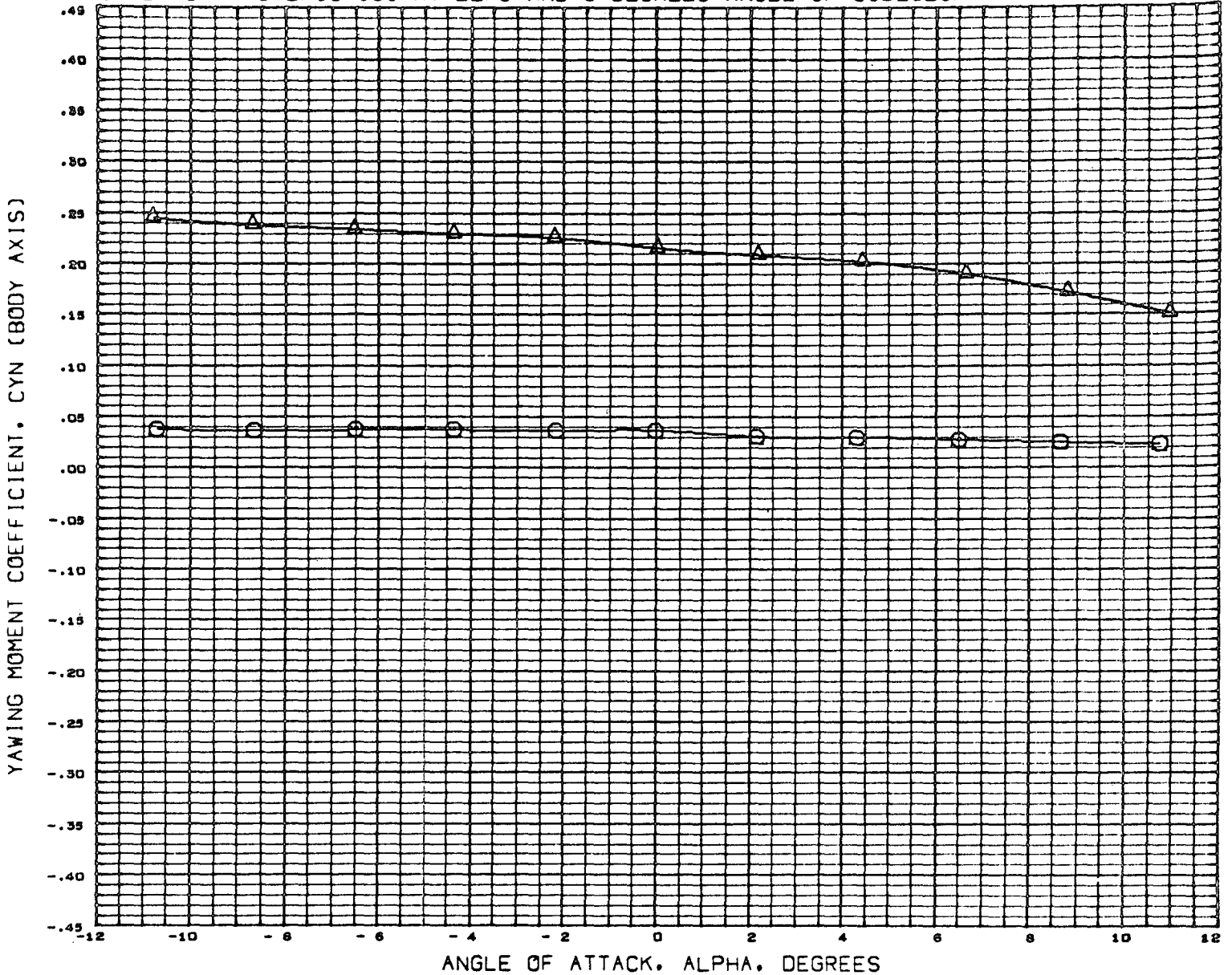
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER 820C48W14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER 820C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.998

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



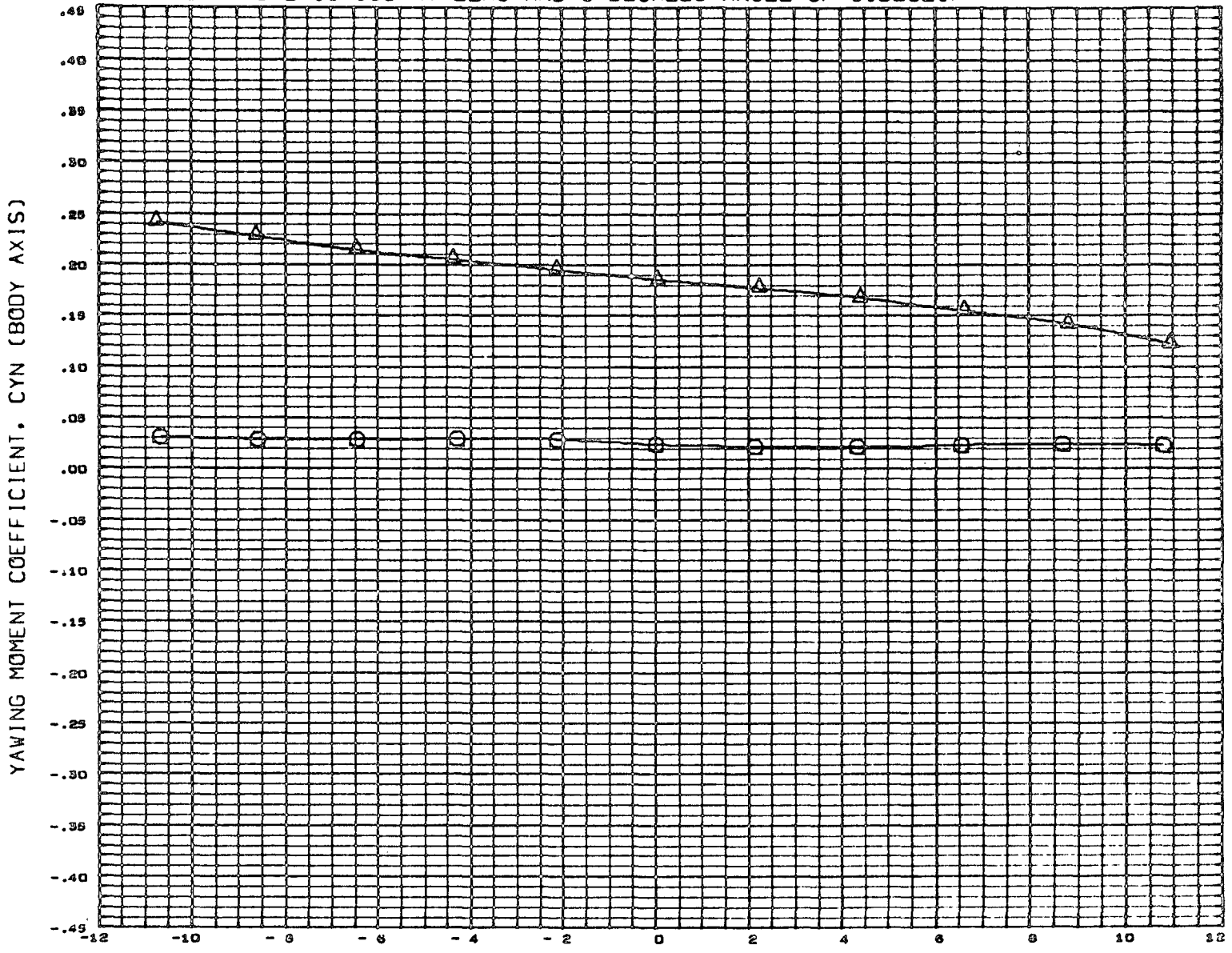
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.097

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



ANGLE OF ATTACK, ALPHA, DEGREES

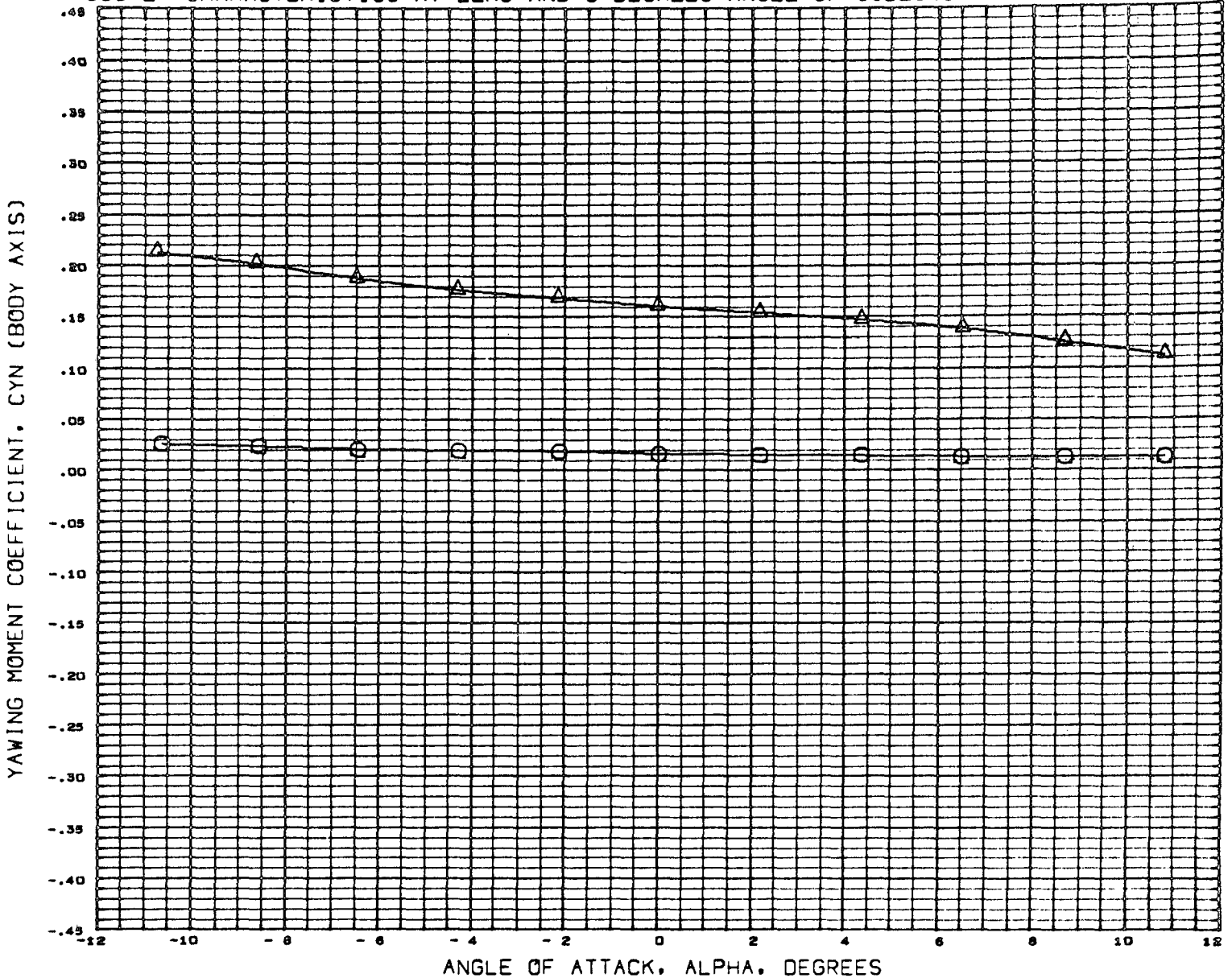
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0650	INCHES
BREF	6.0690	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.197

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC49D GD DELTA BOOSTER B2DC4BW14V8
(A3207A)	MSFC49D GD DELTA BOOSTER B2DC4BW14V8

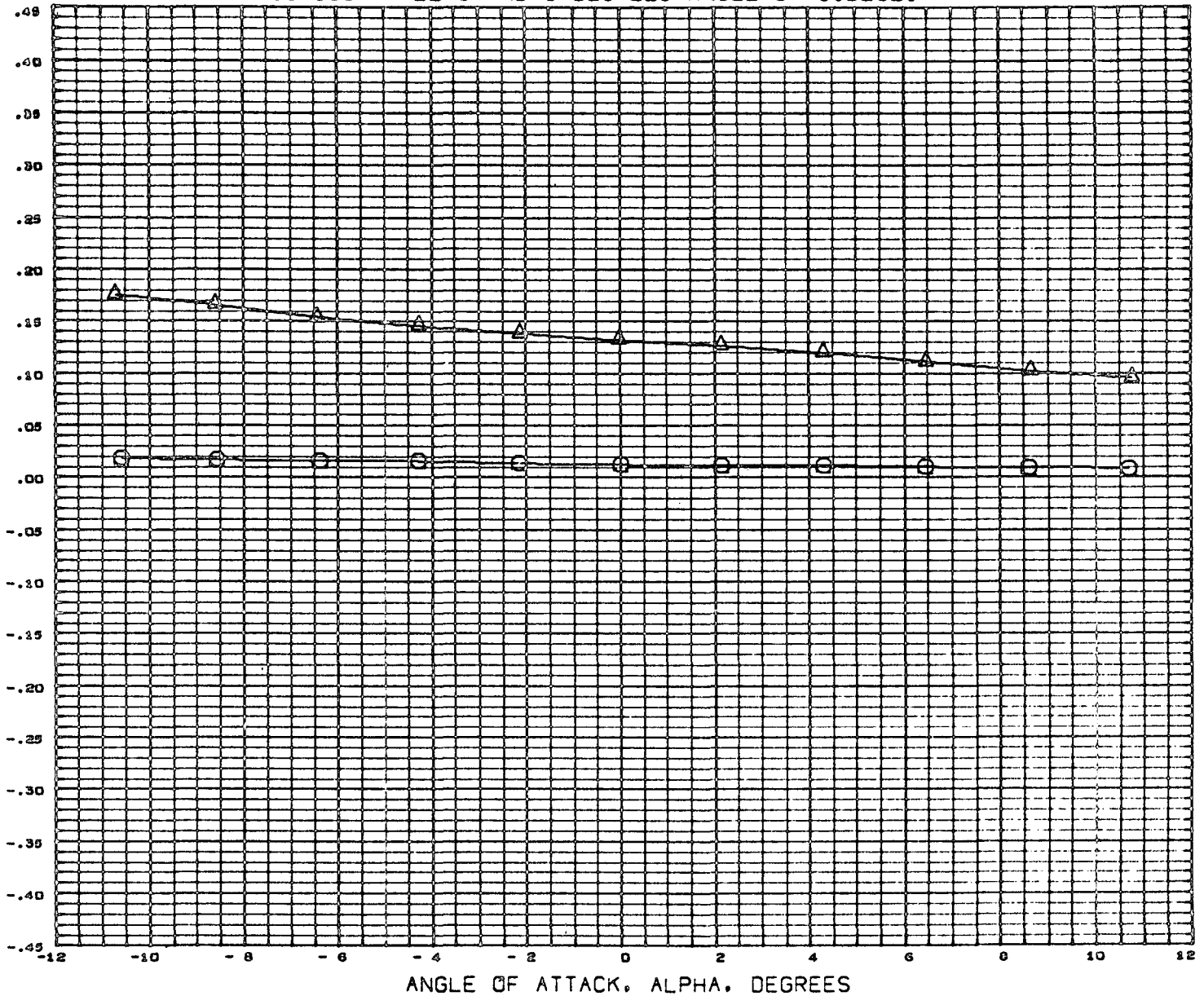
BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.466

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



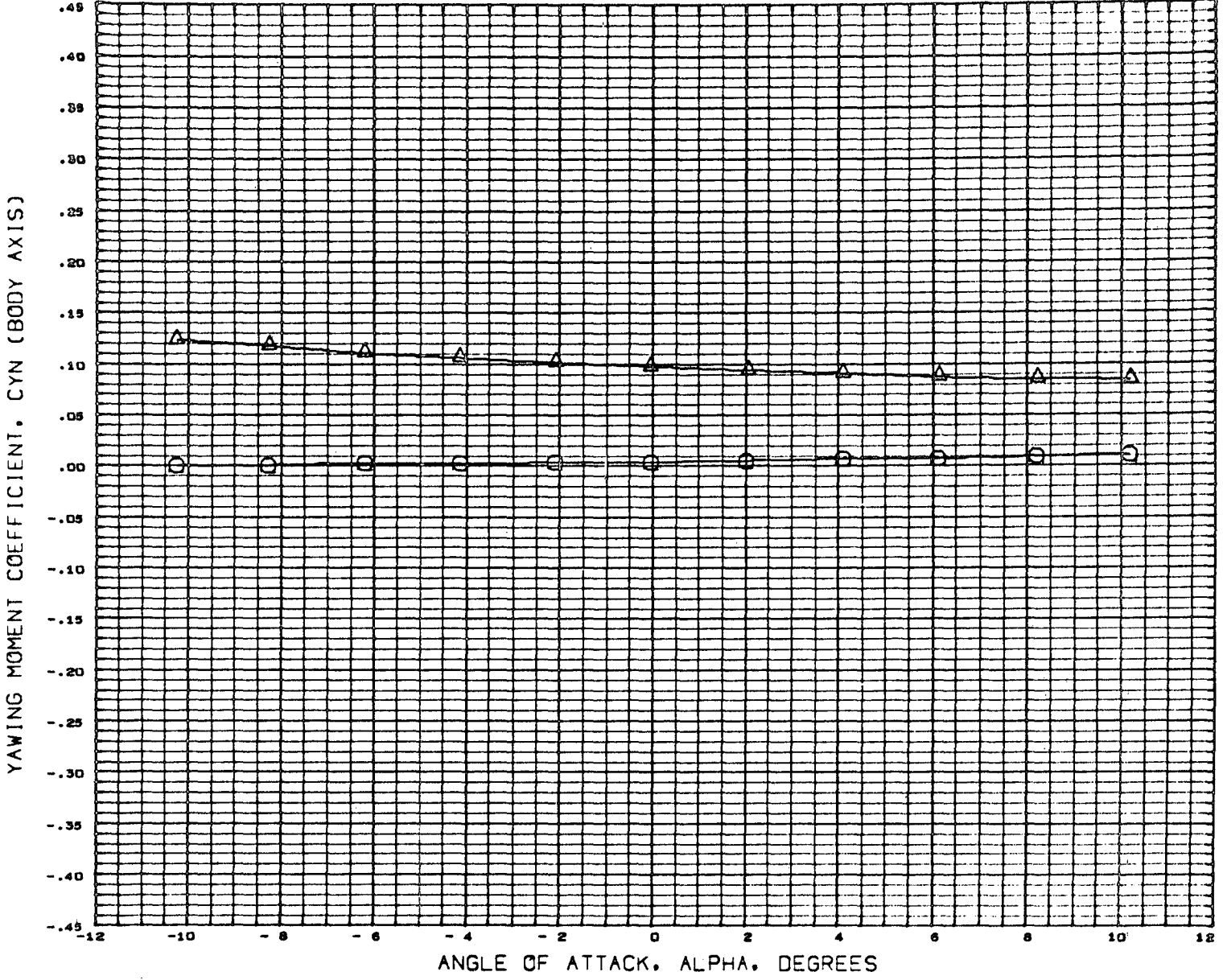
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8
(A3207A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	19.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



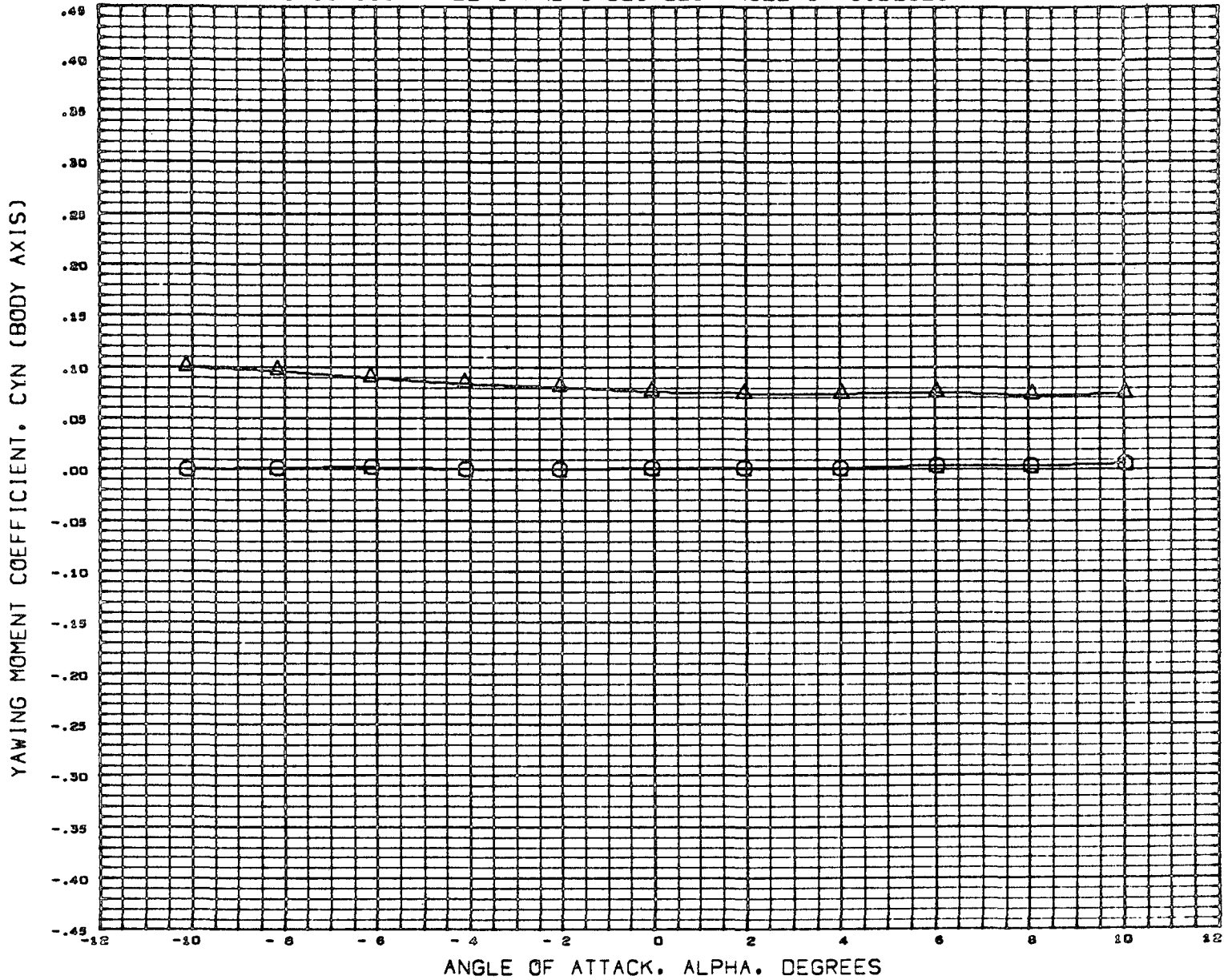
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC49D GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC49D CD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 2.990

BOOSTER CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



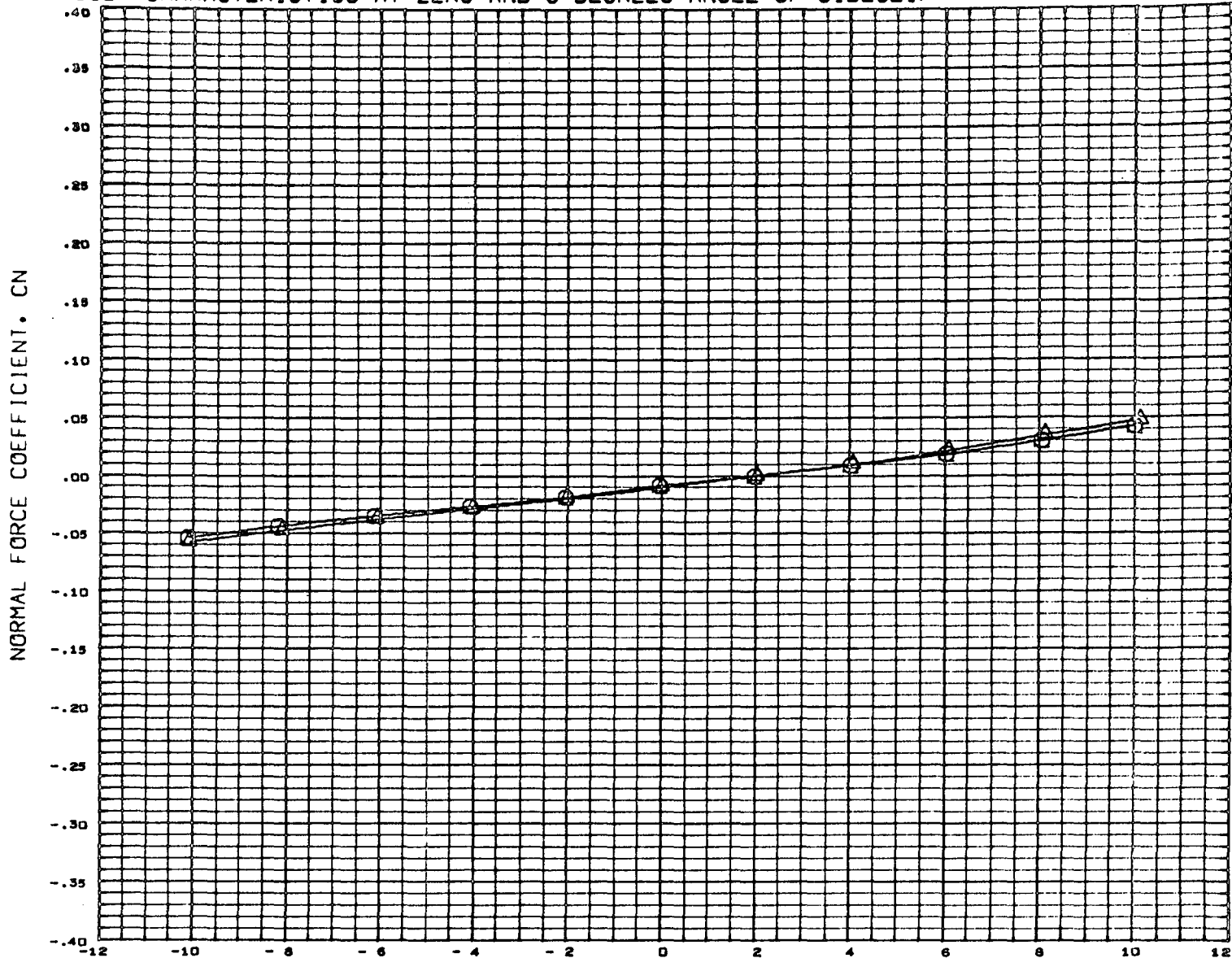
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3205A) ○	MSFC490 GD DELTA BOOSTER B20C4BW14V8
(A3207A) △	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000	0.000	0.000
6.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 4.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



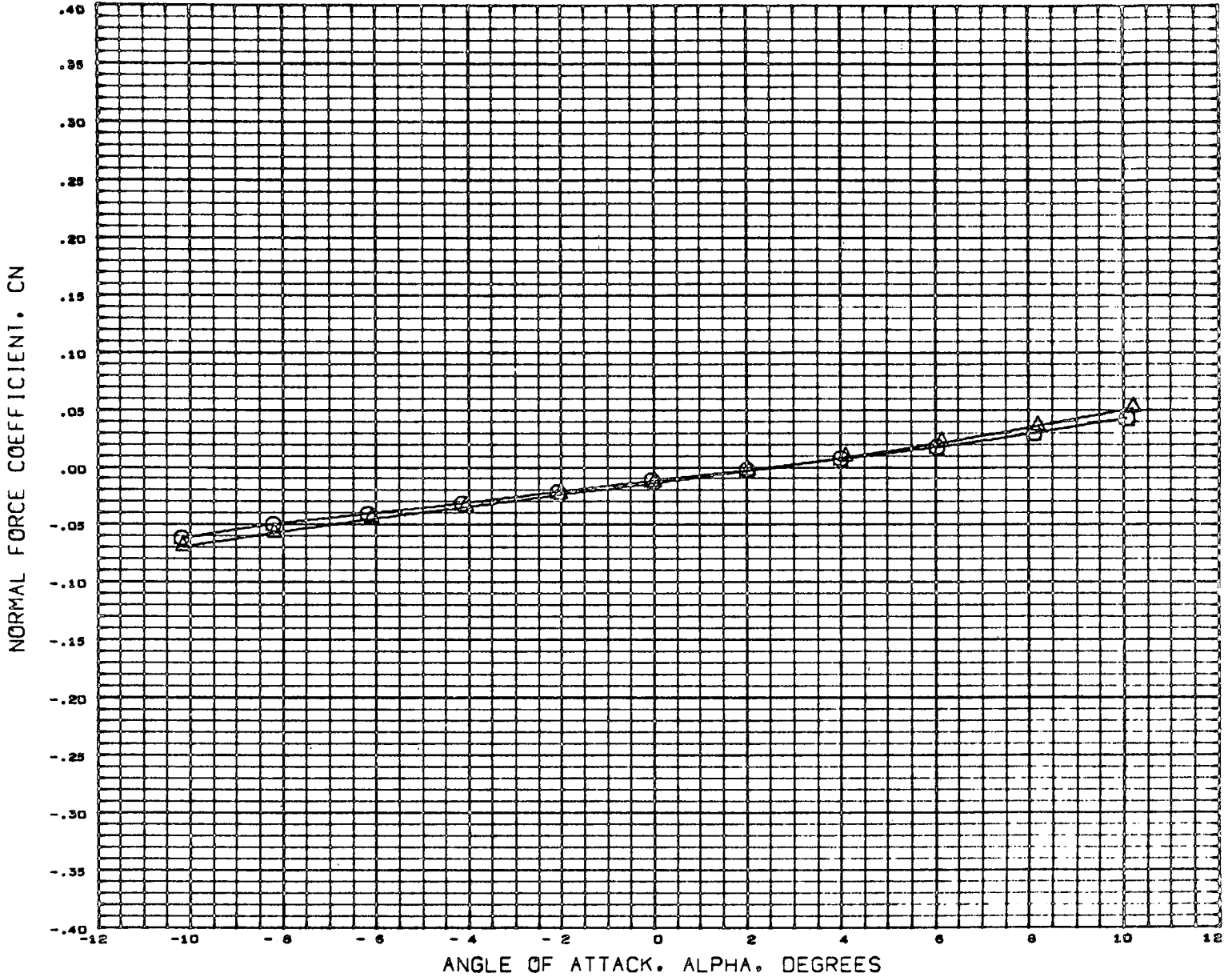
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



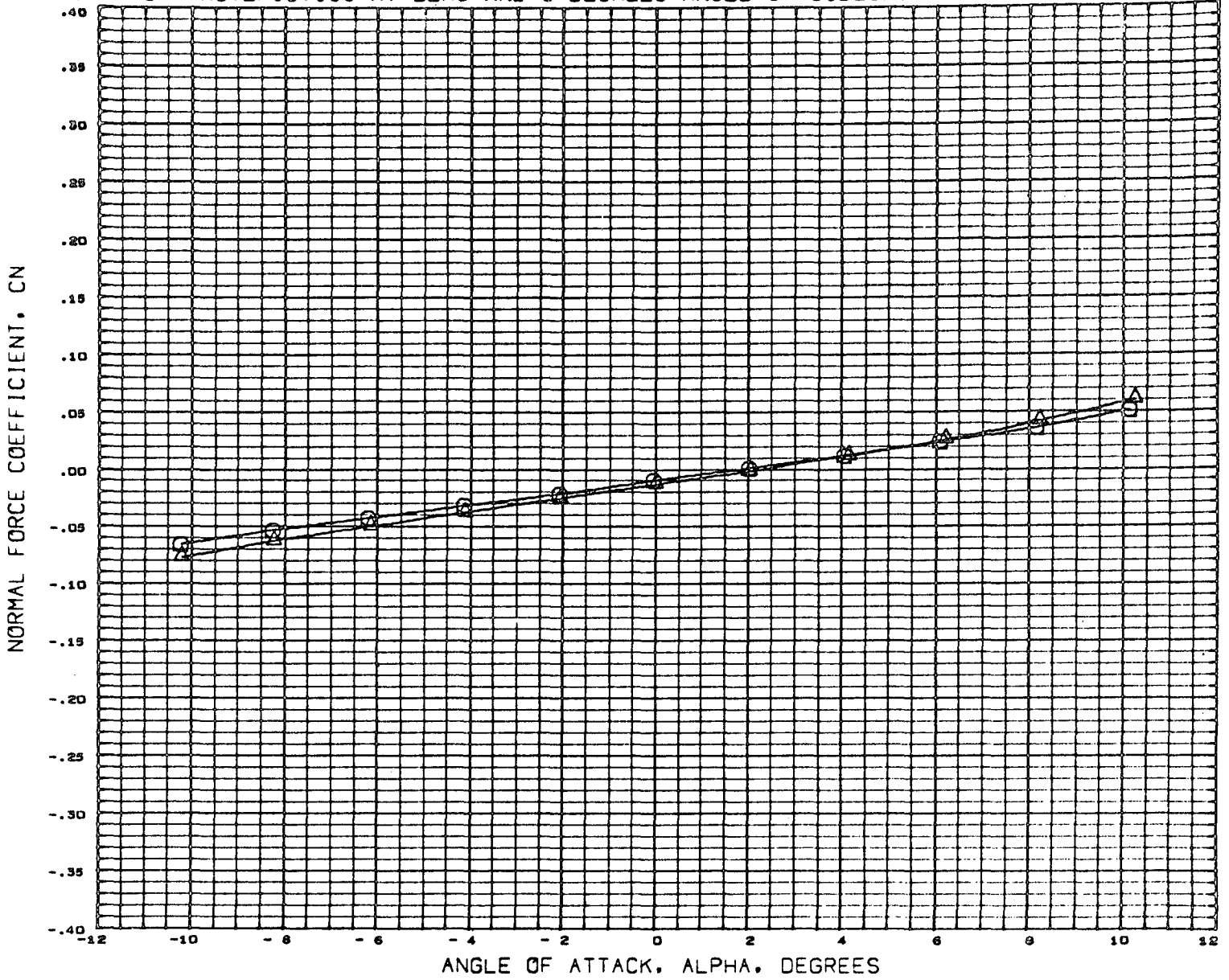
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	30 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



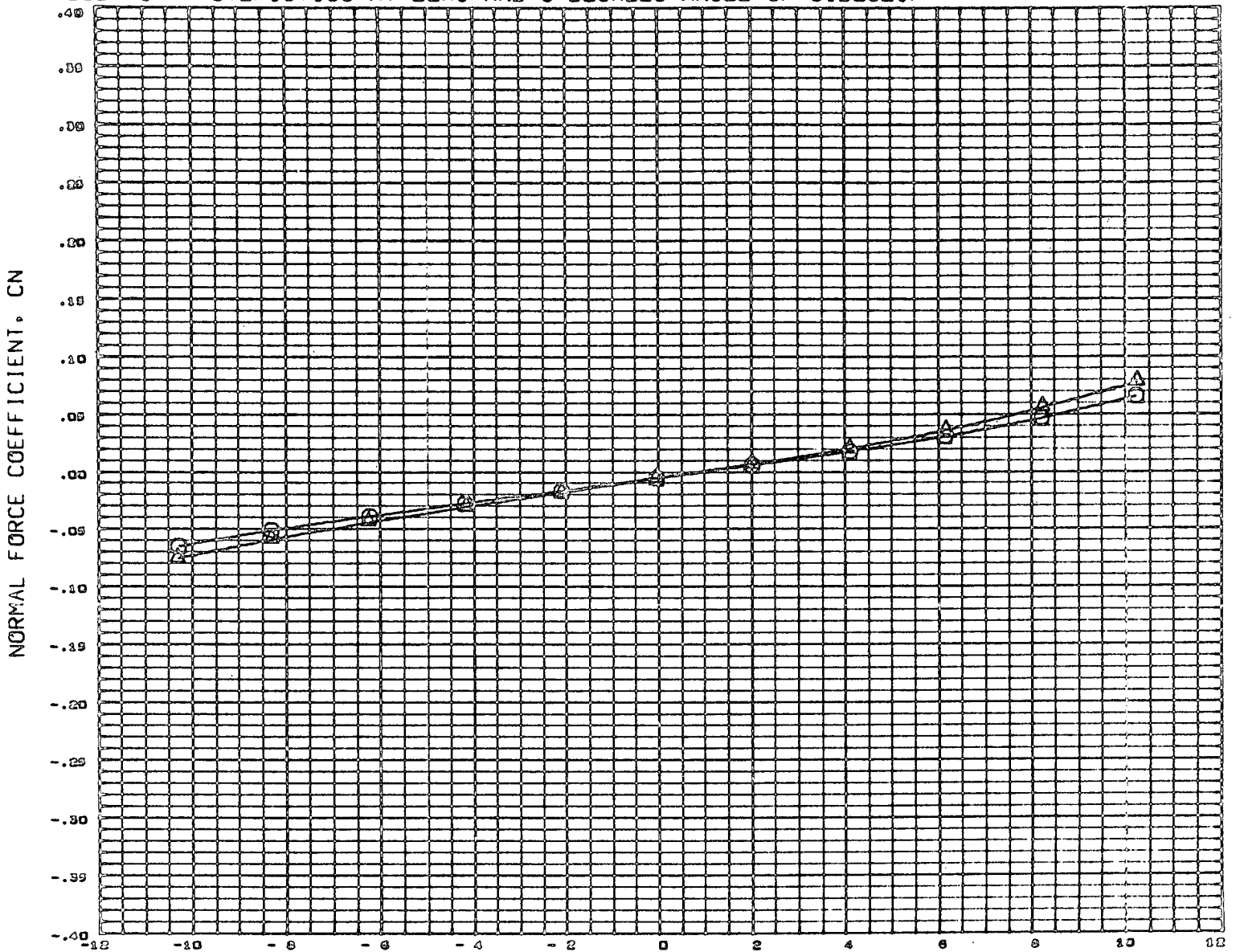
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



ANGLE OF ATTACK, ALPHA, DEGREES

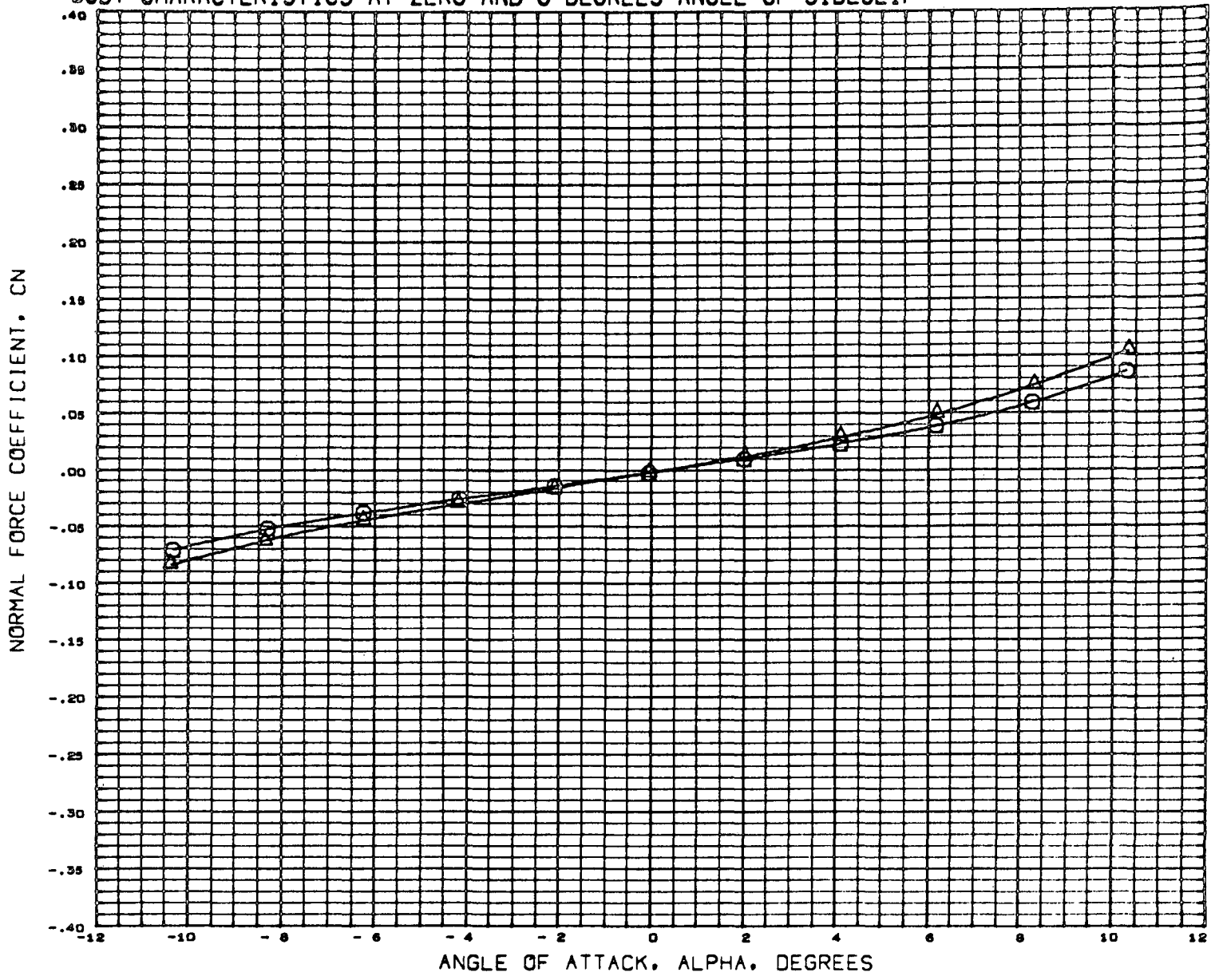
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3206A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H3201A) ○ MSFC49D GD DELTA BOOSTER B20
 (H3258A) △ MSFC49D GD DELTA BOOSTER B20

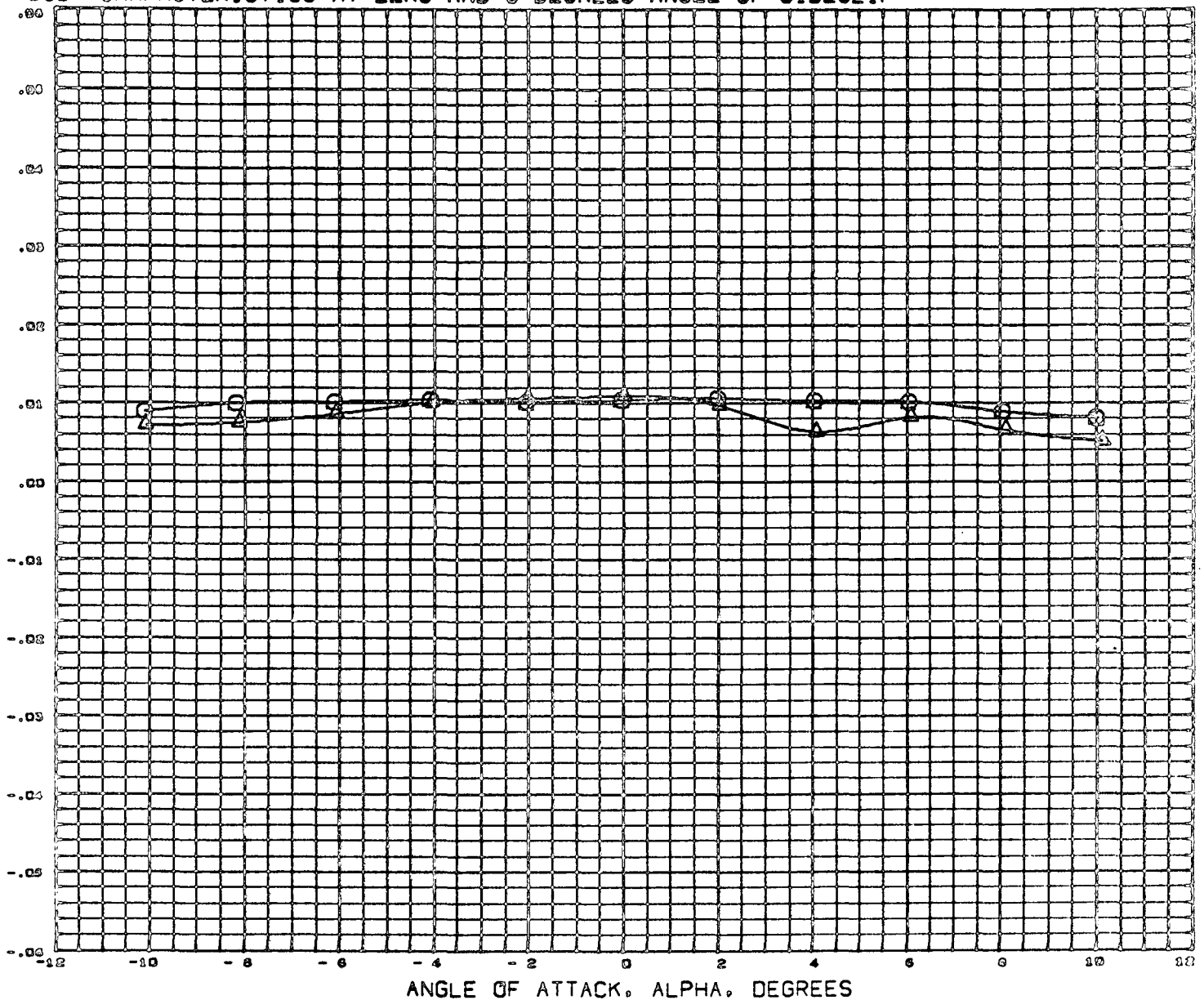
BETA ELVATR AILRON
 0.000
 6.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRF 0.0000
 YMRF 0.0000
 ZMRF 0.0000
 SCALE 0.0035 SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

FOREBODY AXIAL FORCE COEFFICIENT, CAF



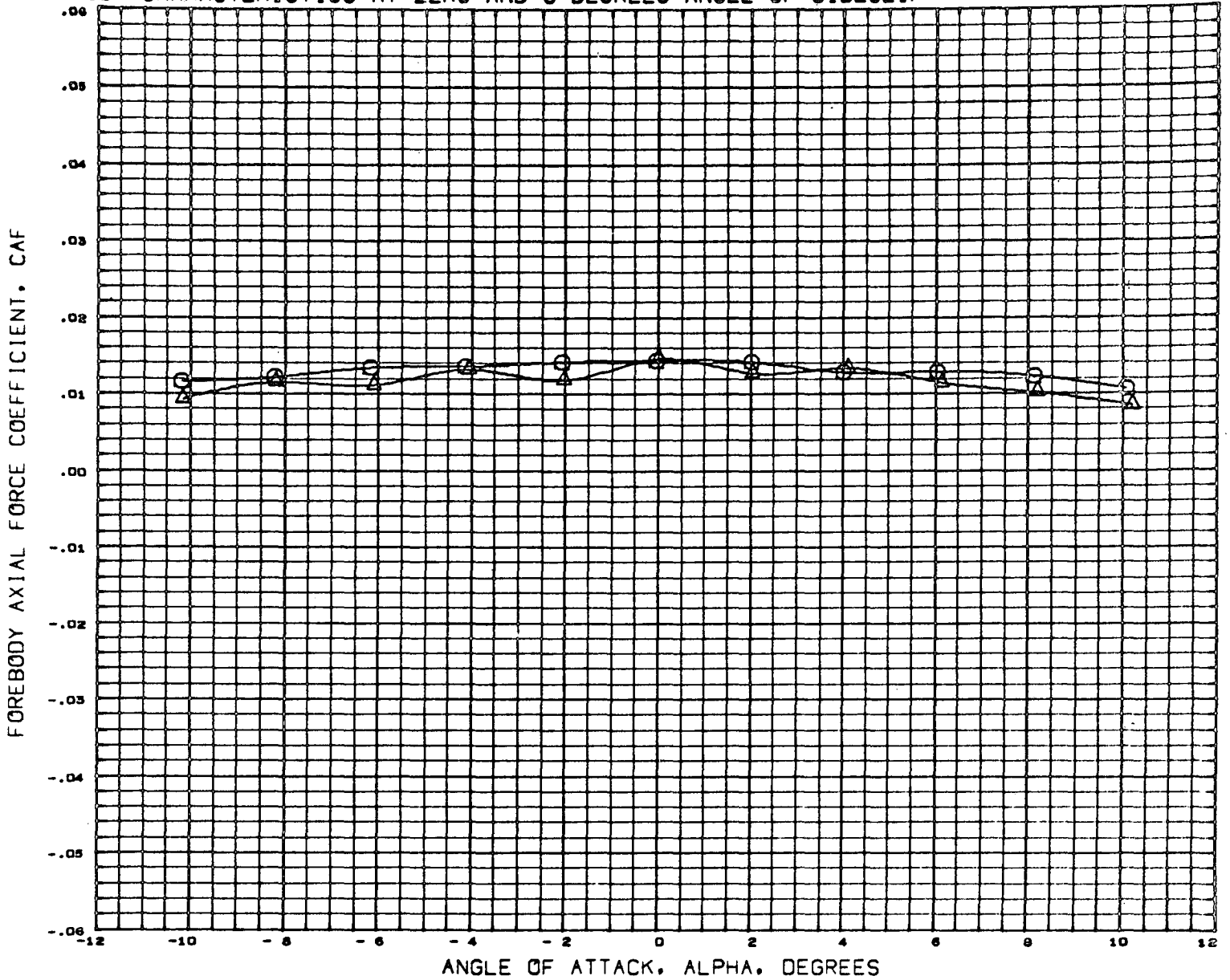
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3256A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



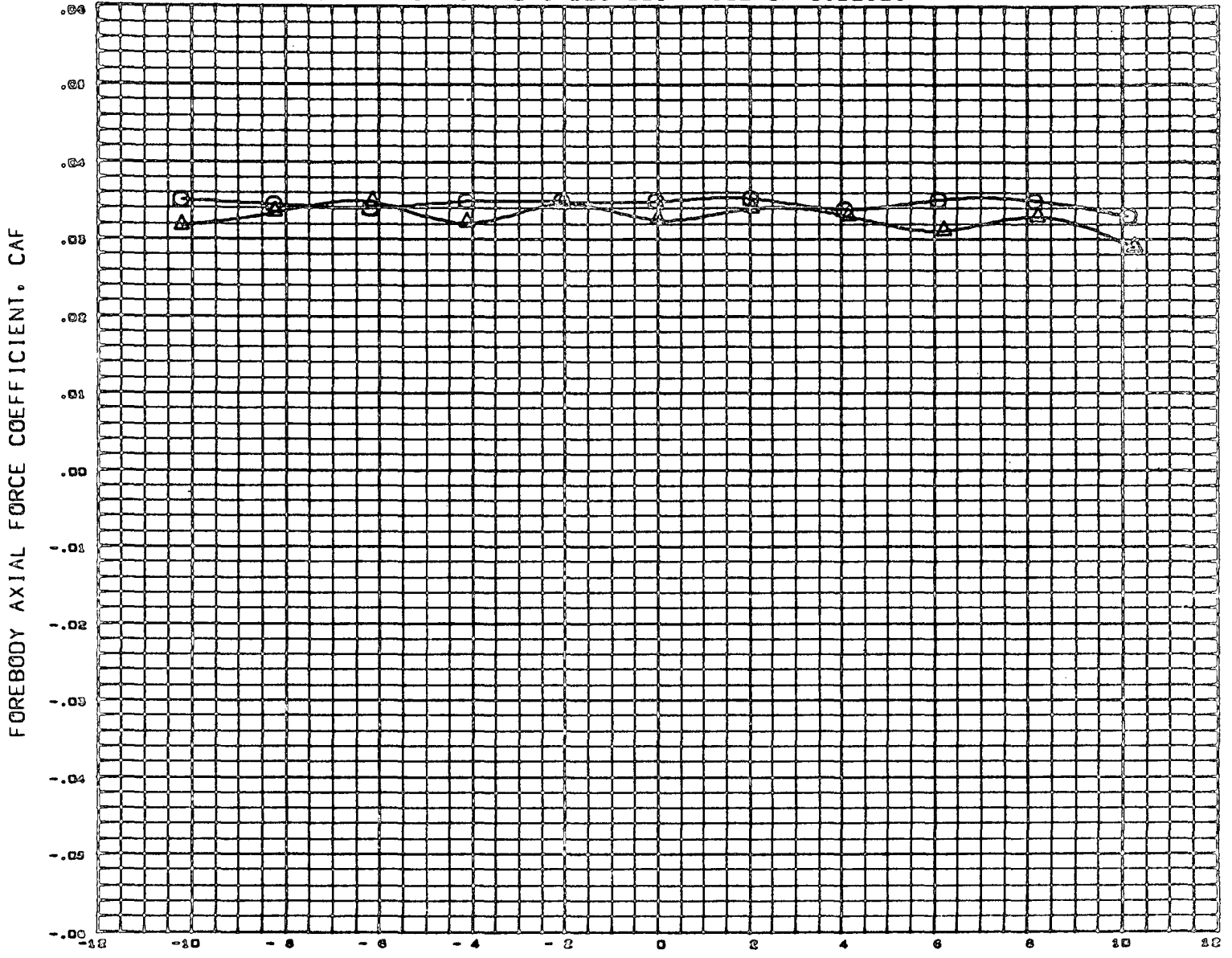
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.696

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



ANGLE OF ATTACK, ALPHA, DEGREES

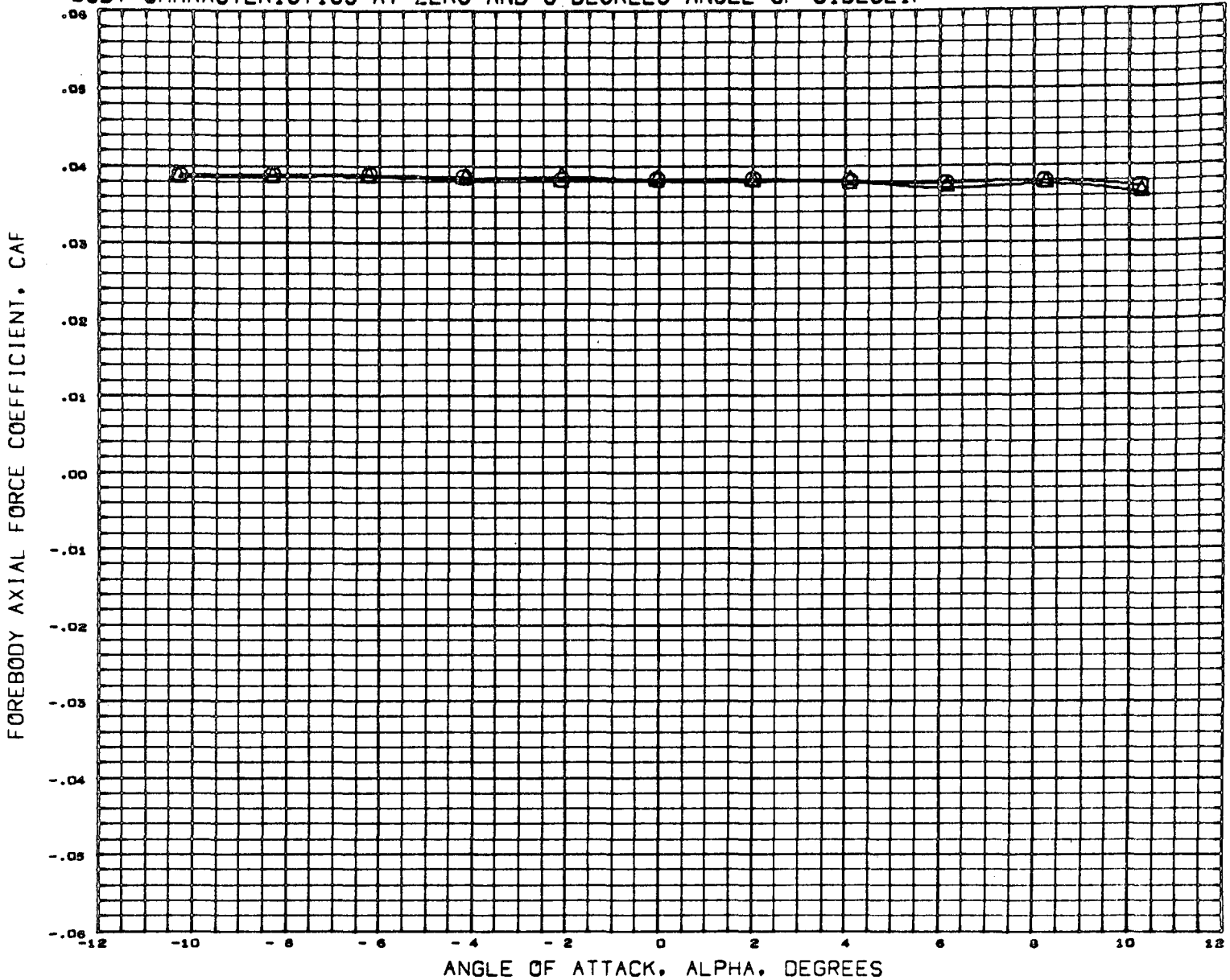
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER 82C
(M3250A)	MSFC490 GD DELTA BOOSTER 82G

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6500	00 IN
LREF	3.0950	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.000

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

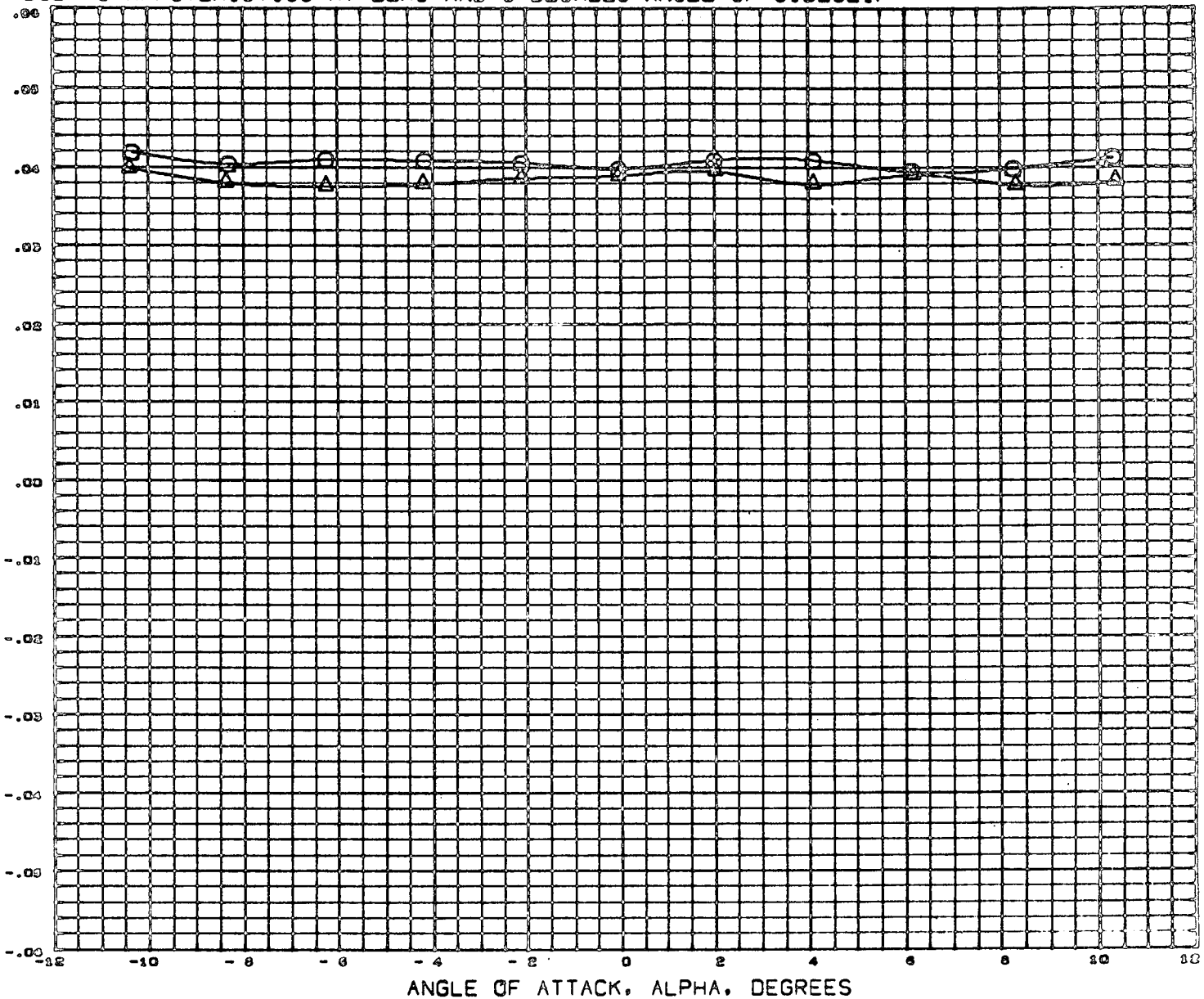
BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

FOREBODY AXIAL FORCE COEFFICIENT, CAF



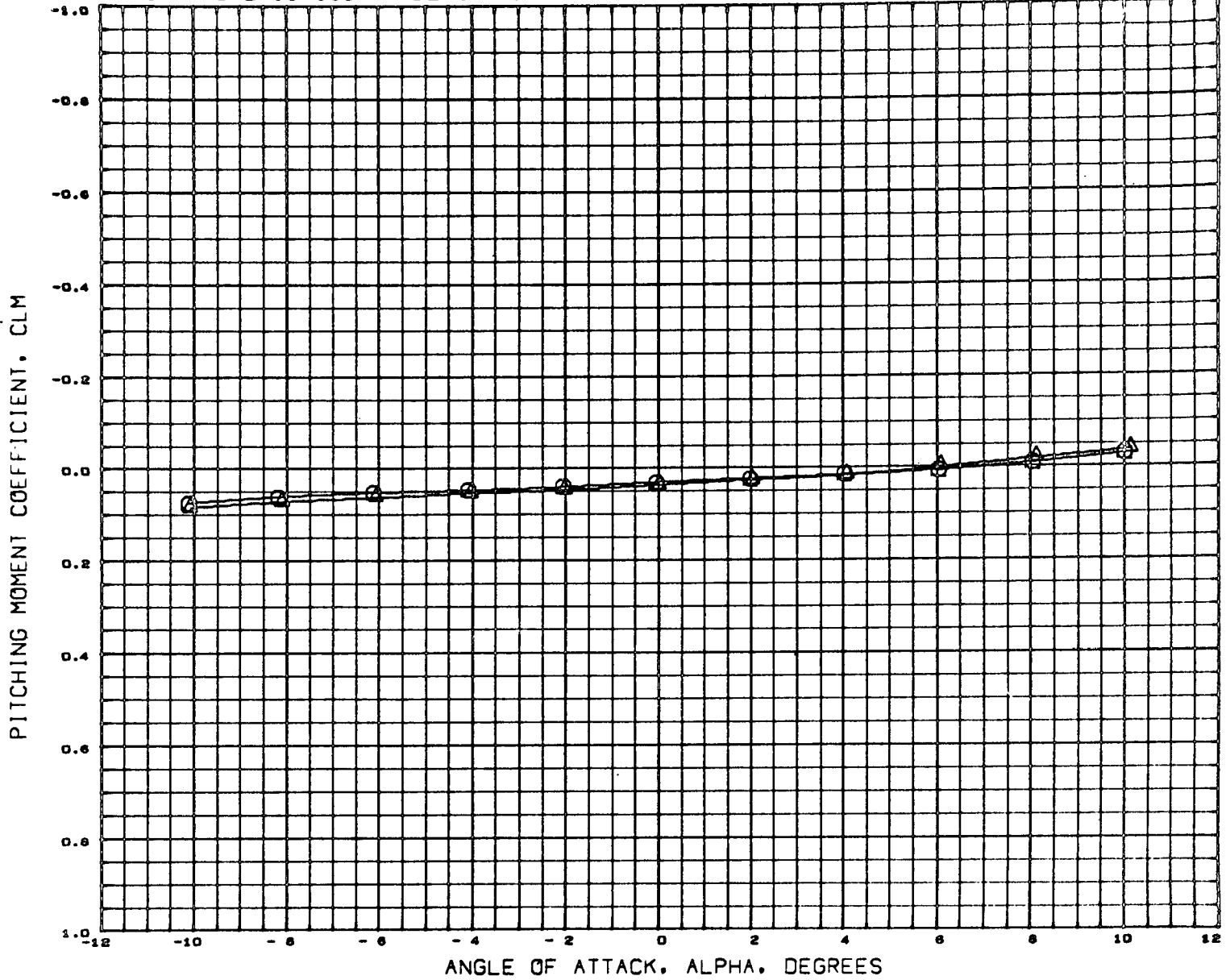
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC49D GD DELTA BOOSTER B20
(H3258A)	MSFC49D GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.8900	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



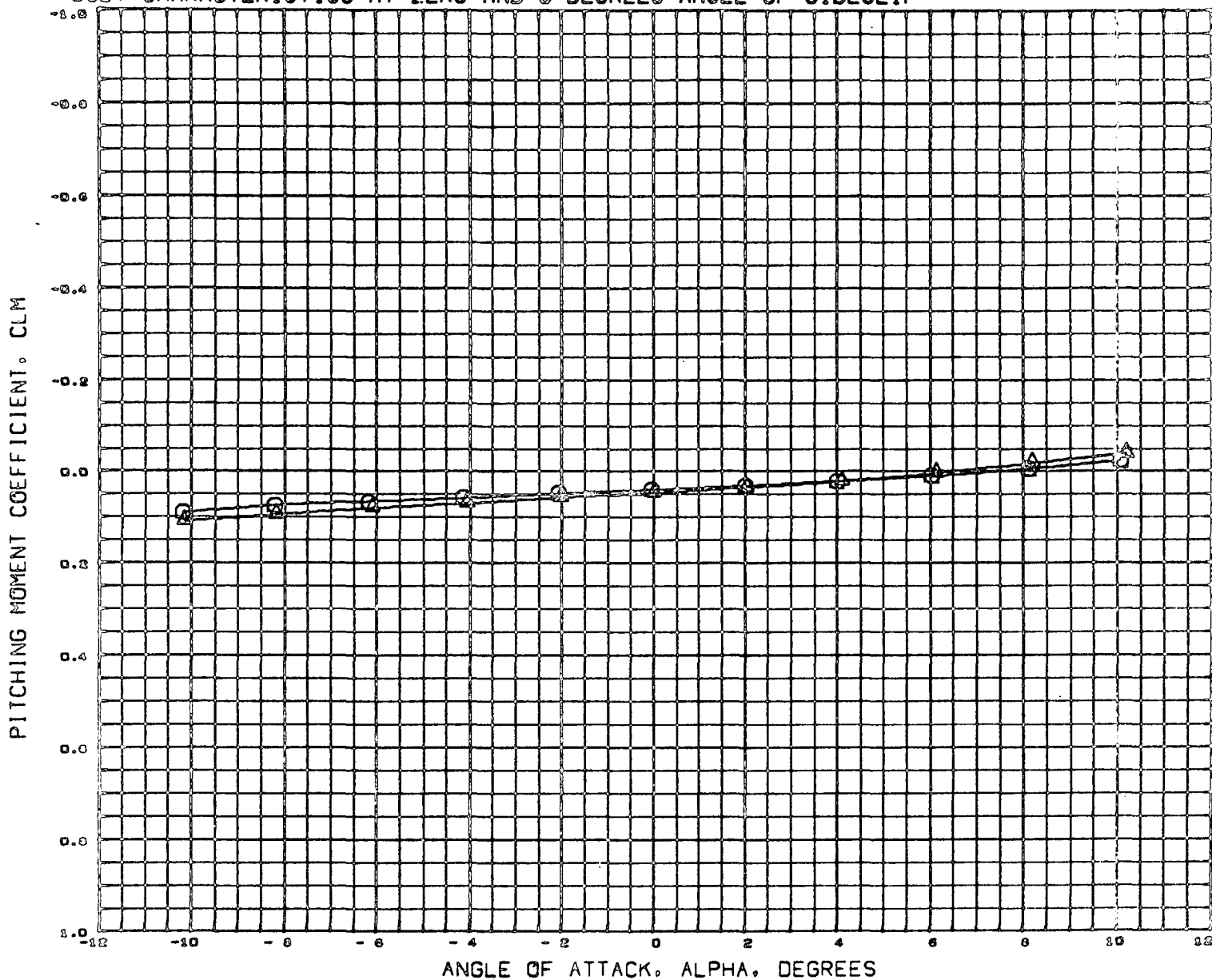
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H3201A) ○ MSFC49D GD DELTA BOOSTER B20
 (H3259A) △ MSFC49D GD DELTA BOOSTER B20

BETA ELVATR AILRON
 0.000
 6.000

REFERENCE INFORMATION
 SREF 15.6560 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



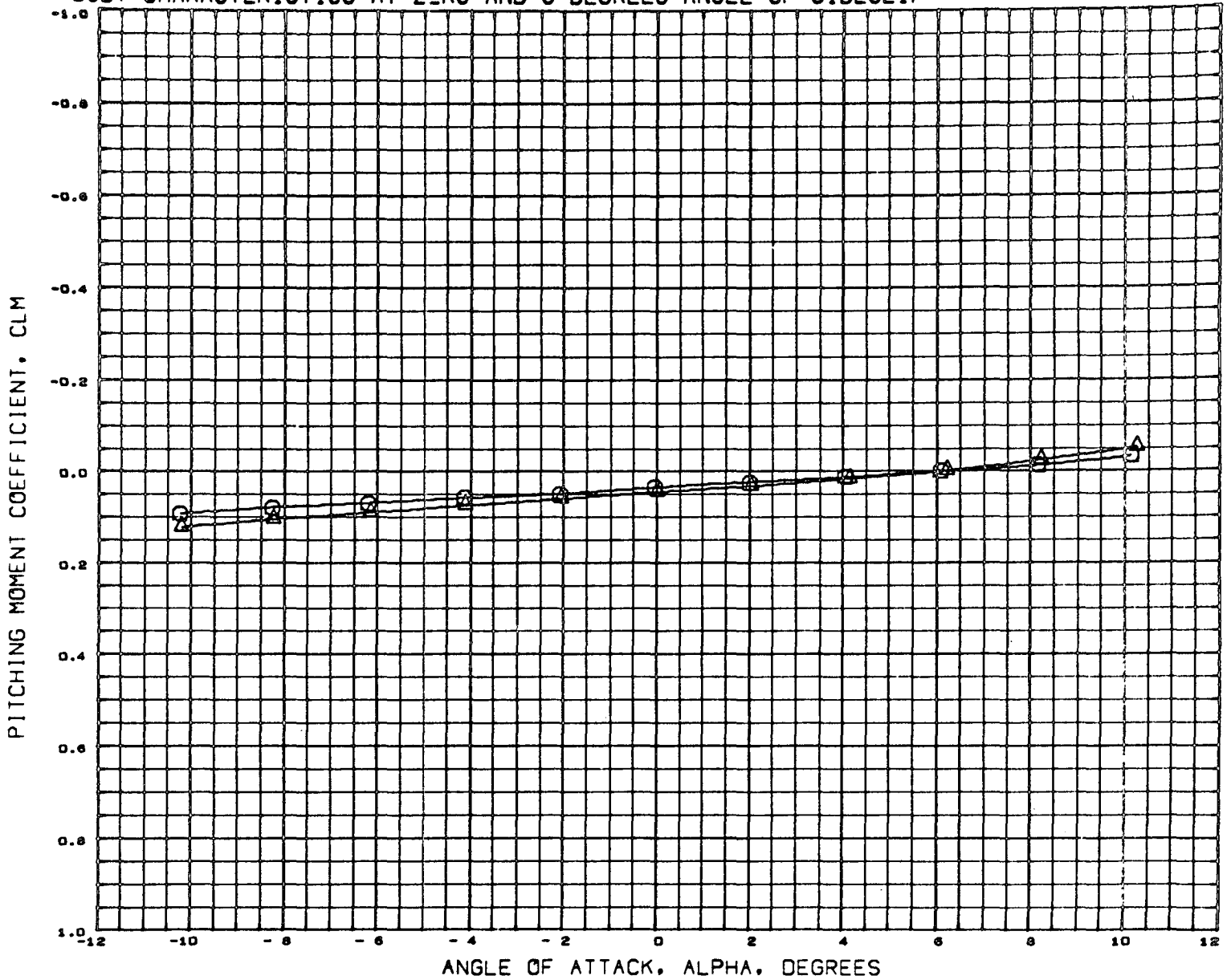
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (H32D1A) ○ MSFC49D GD DELTA BOOSTER B2D
 (H3258A) △ MSFC49D GD DELTA BOOSTER B2D

BETA ELVATR AILRON
 0.000 6.000

REFERENCE INFORMATION
 SREF 15.6500 SQ IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0095 SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



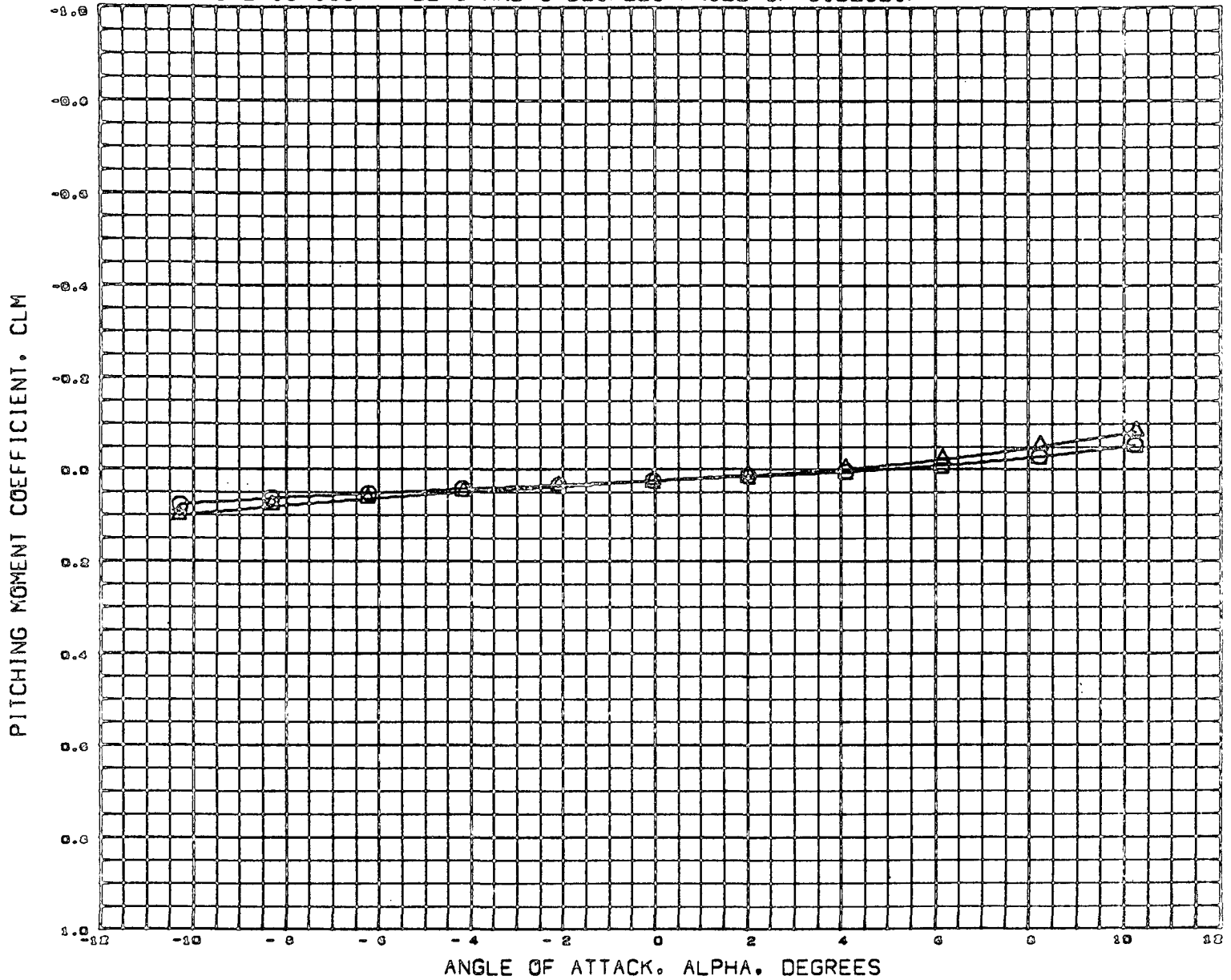
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A) ○	MSFC490 GD DELTA BOOSTER B20
(H3208A) △	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



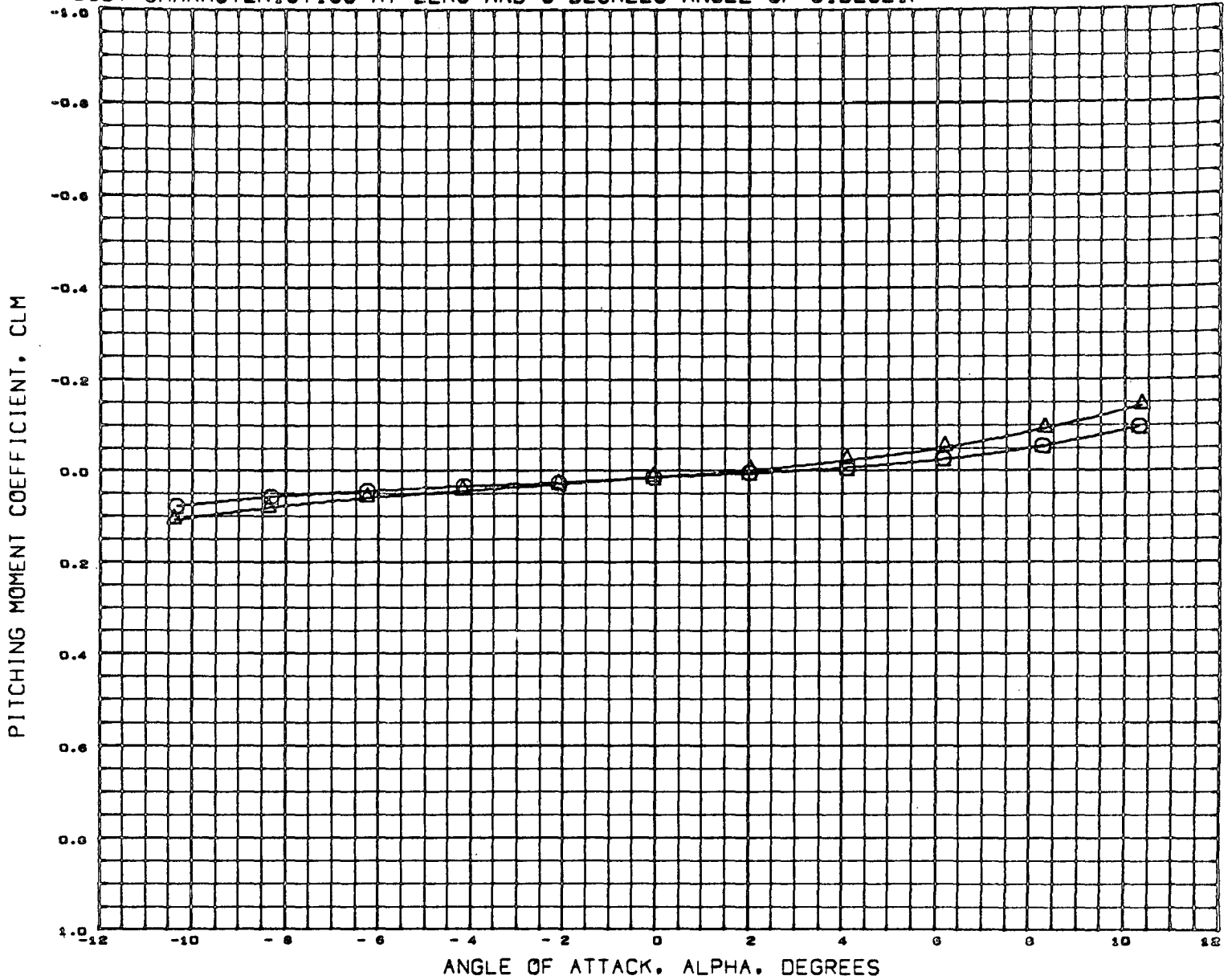
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3250A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	19.6963	56 IN
LREF	3.0993	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



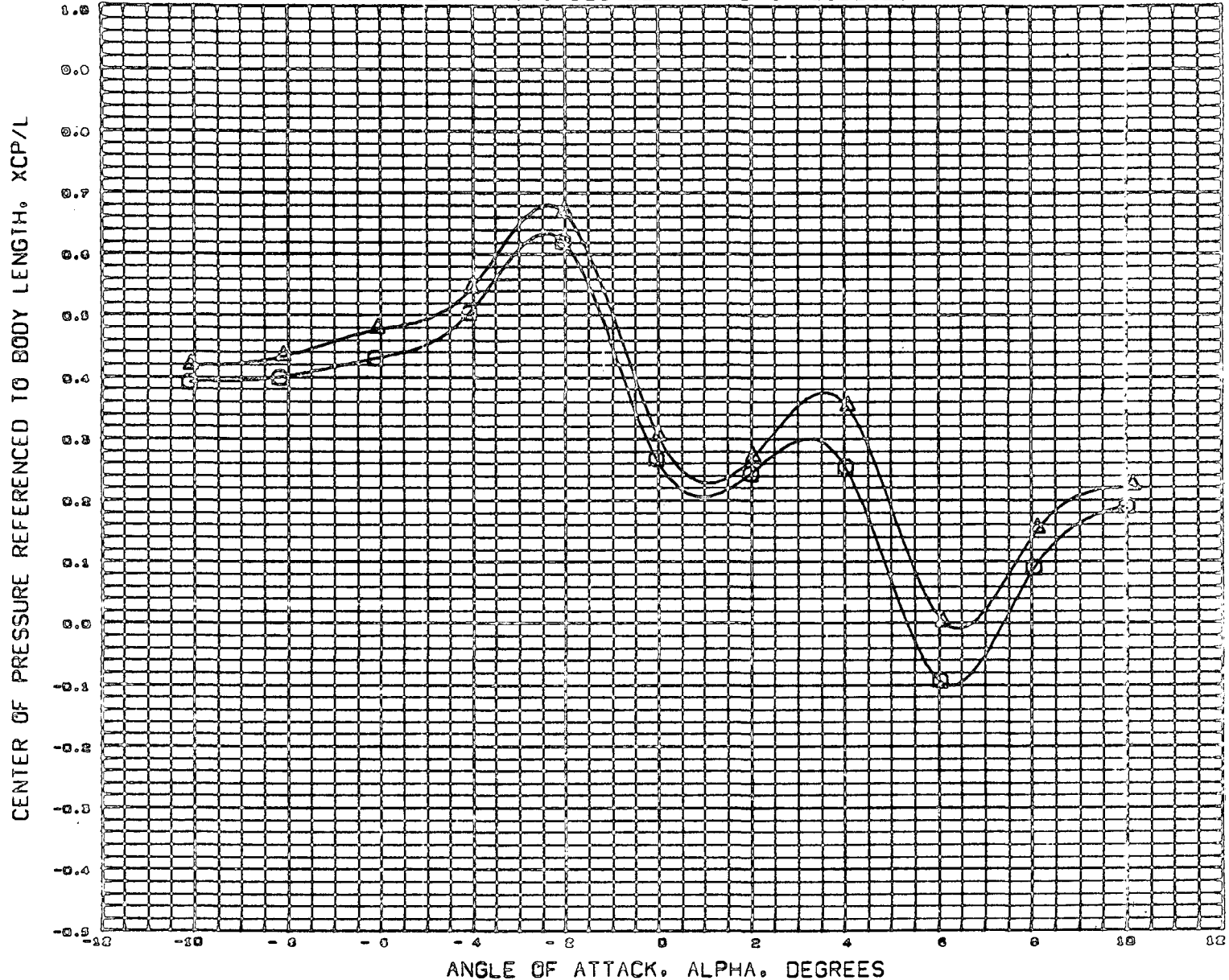
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6960	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



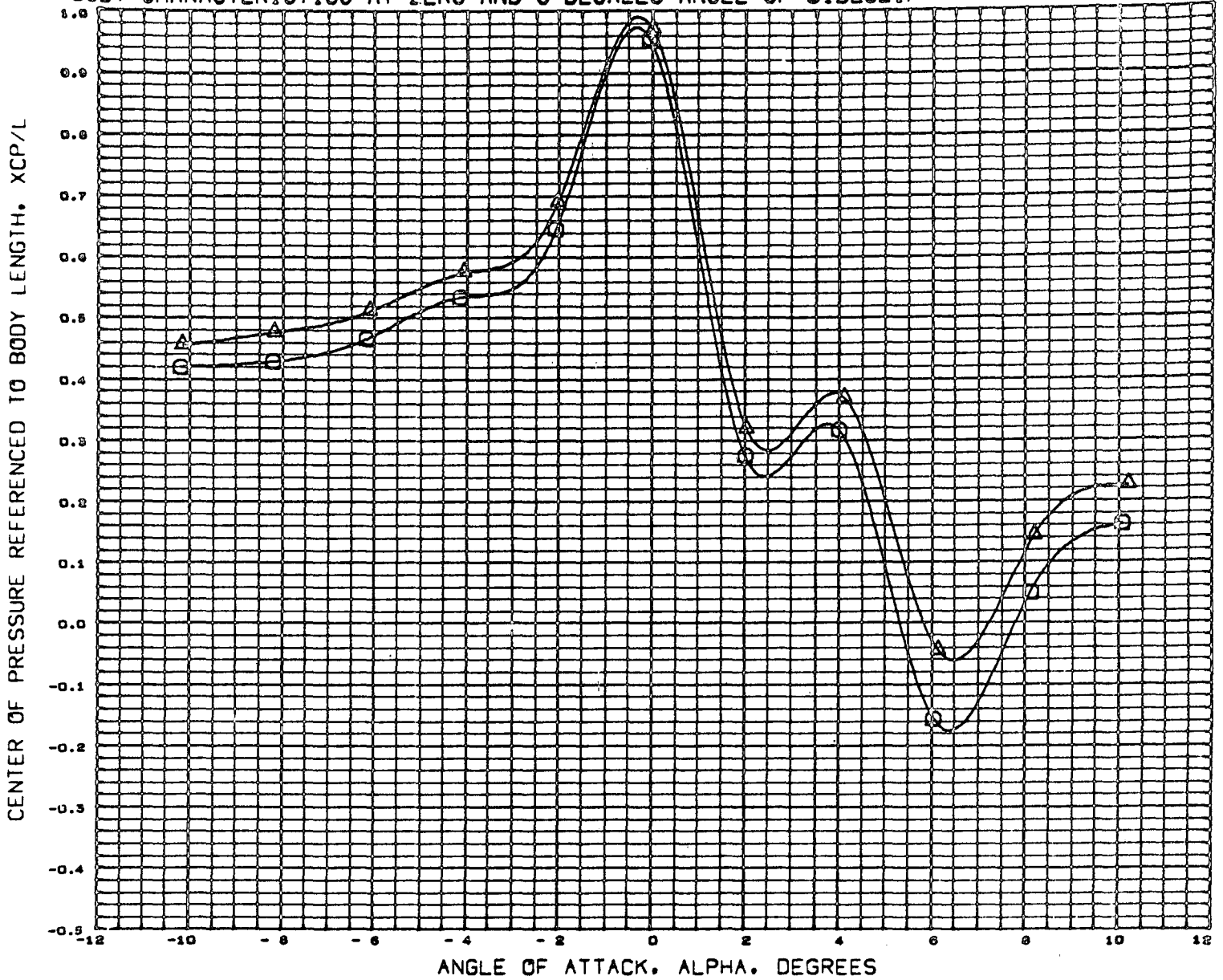
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	M3FC490 GD DELTA BOOSTER B23
(M3250A)	M3FC490 GD DELTA BOOSTER B23

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	19.0500	SO IN
LREF	3.0090	INCHES
BREF	0.0093	INCHES
XMRP	0.0000	
YMRP	0.0003	
ZMRP	0.0003	
SCALE	0.0033	SCALE

MACH 0.800

BODY CHARACTERISTICS AT ZERO AND 6 DEGREE ANGLE OF SIDESLIP



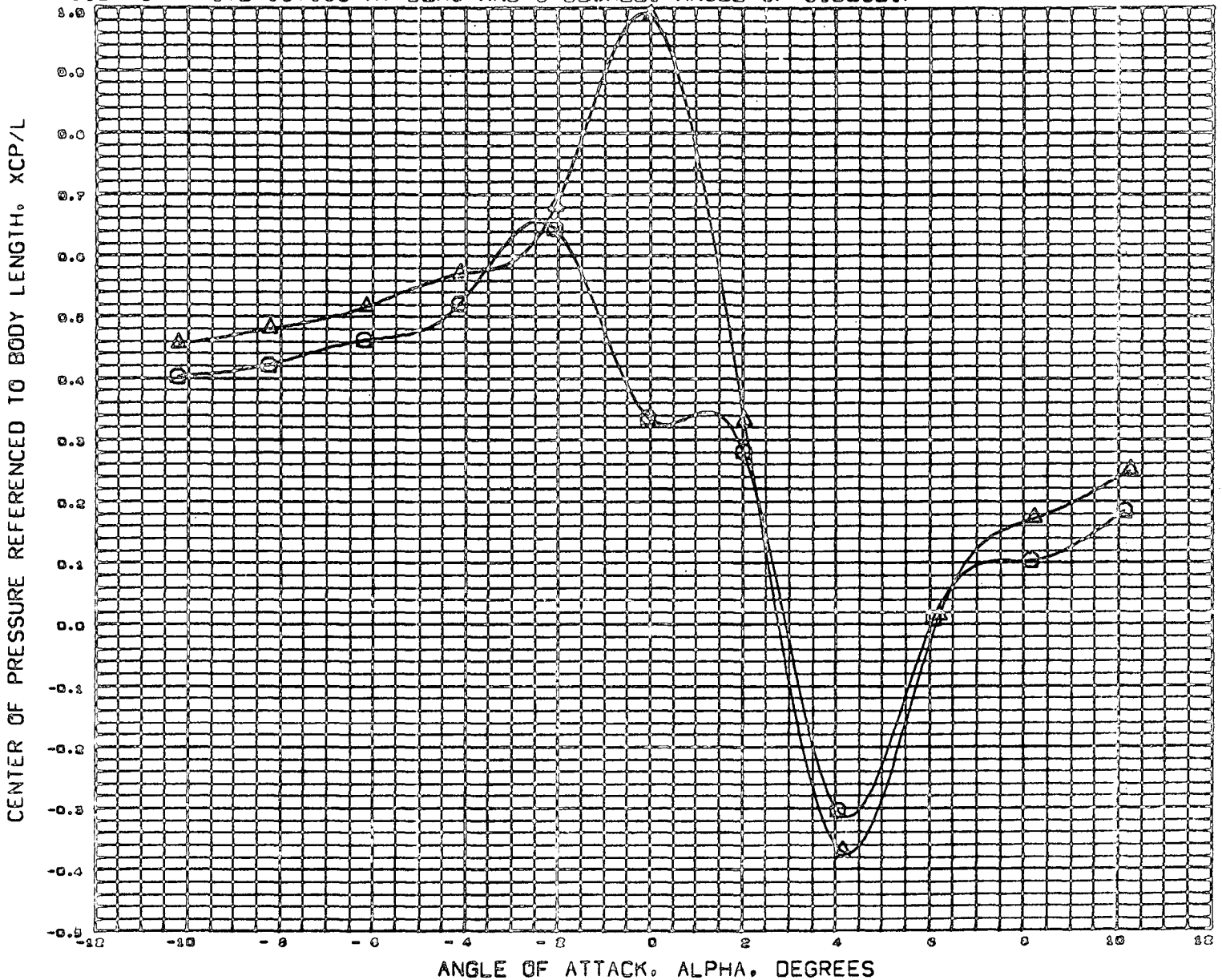
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



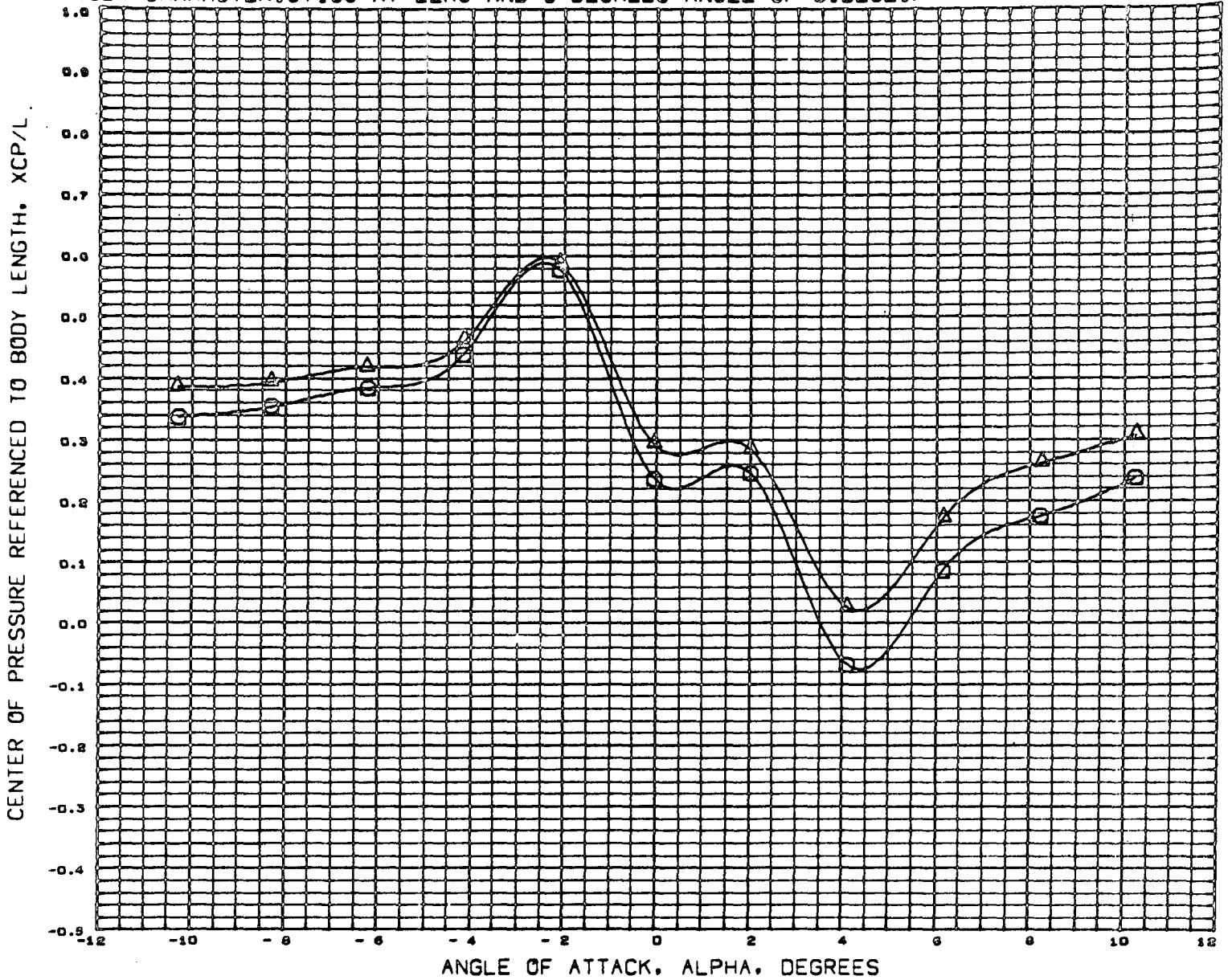
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A) ○	MSFC49D GD DELTA BOOSTER B20
(M3250A) △	MSFC49D GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	19.0900	50 IN
LREF	9.0950	INCHES
BREF	0.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0033	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A) ○	MSFC490 GD DELTA BOOSTER B20
(H3258A) △	MSFC490 GD DELTA BOOSTER B20

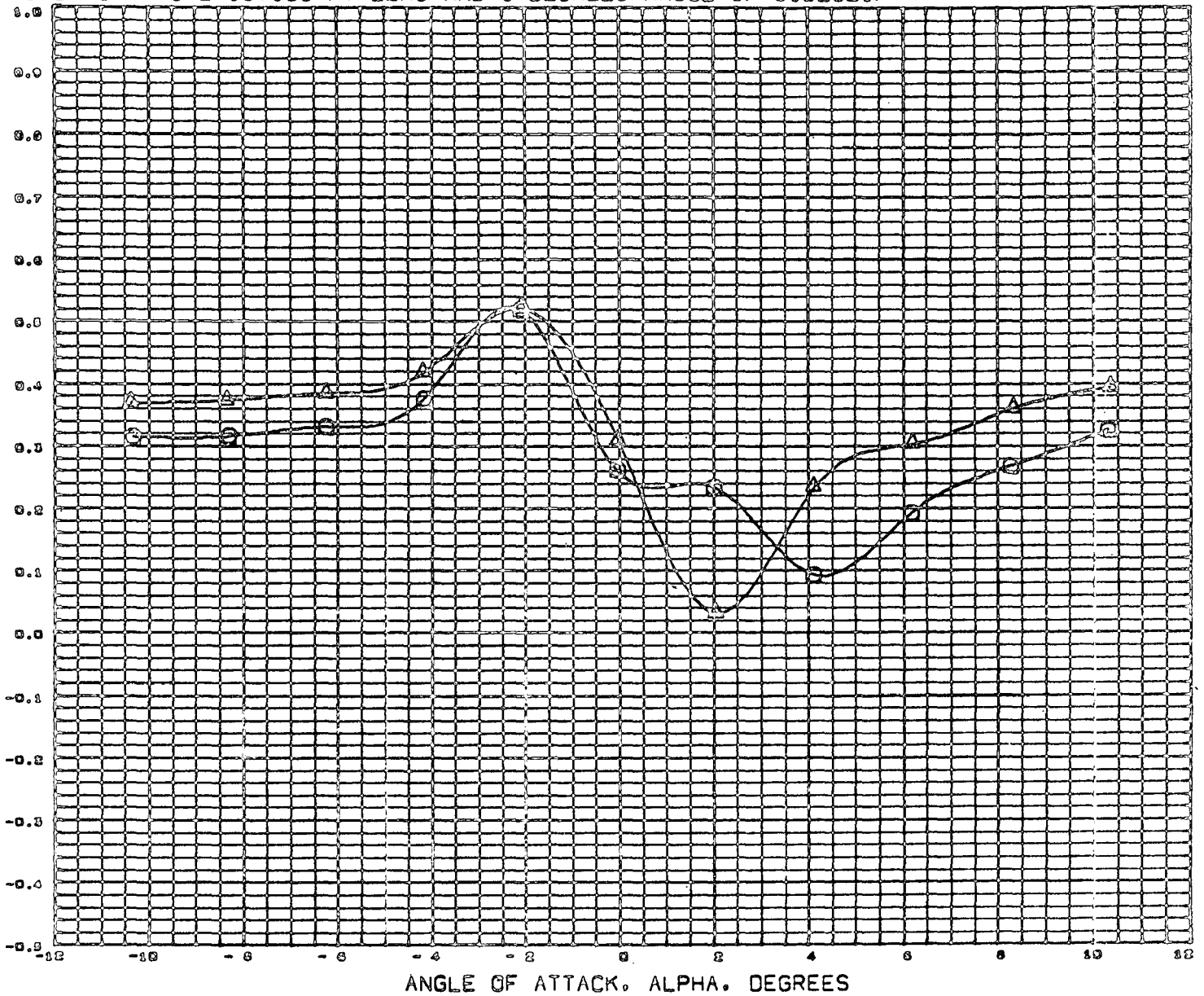
BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

CENTER OF PRESSURE REFERENCED TO BODY LENGTH, XCP/L



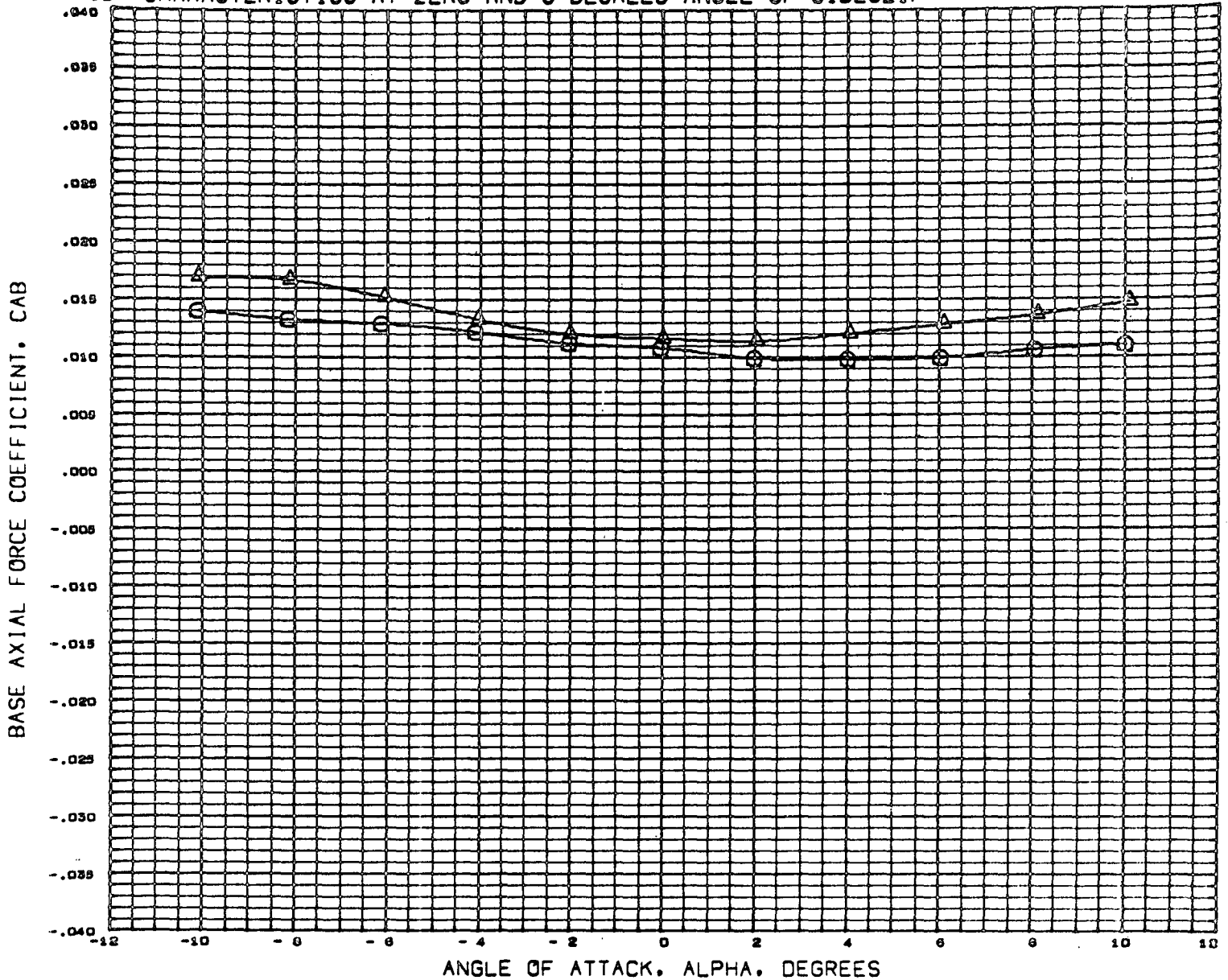
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3231A)	MSFC400 GD DELTA BOOSTER B2C
(M3230A)	MSFC400 GD DELTA BOOSTER B2C

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	19.0500	50 IN
LREF	3.0090	INCHES
BREF	6.0090	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0095	SCALE

MACH 1.050

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



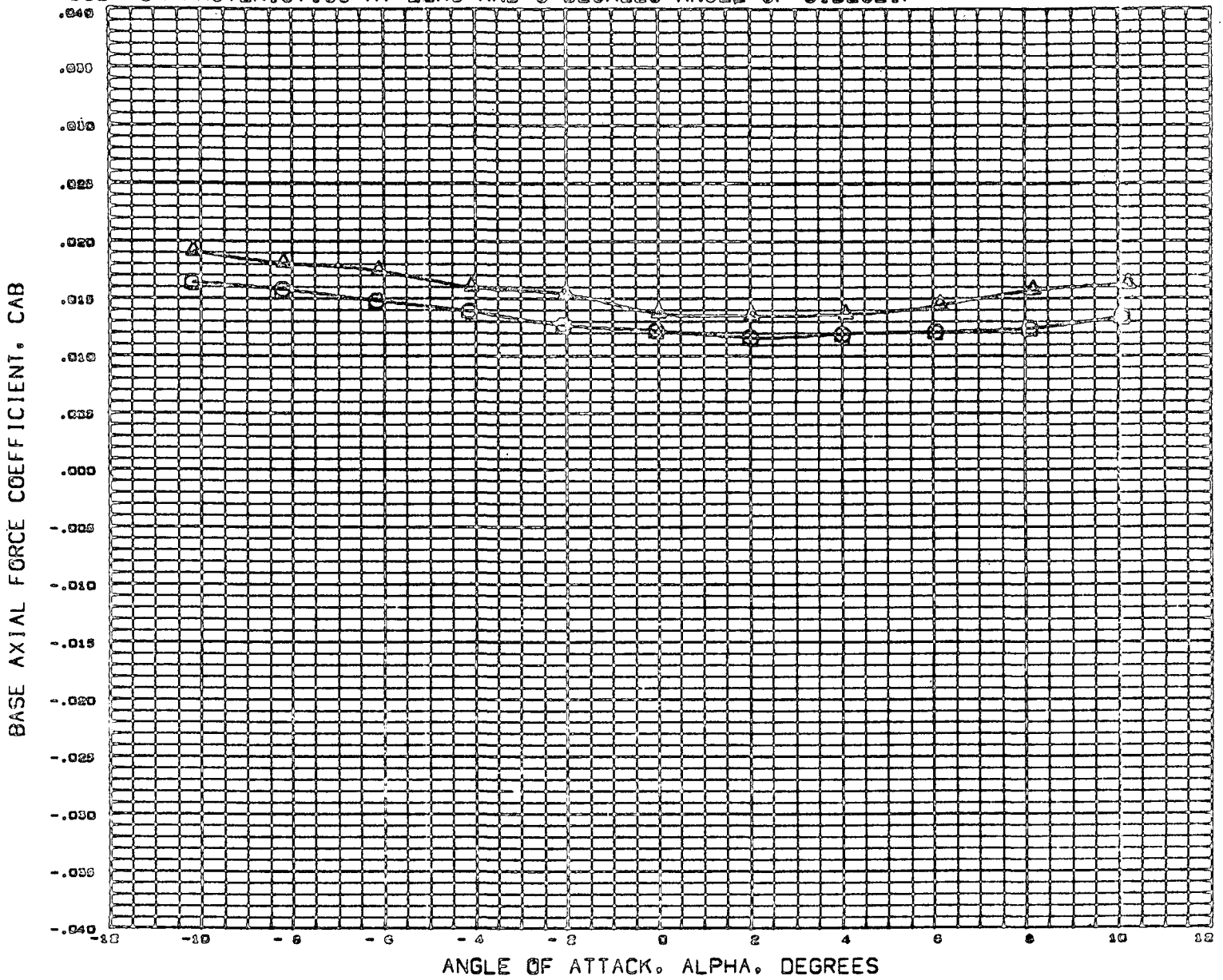
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A) ○	MSFC490 GD DELTA BOOSTER B20
(H3258A) △	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	19.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



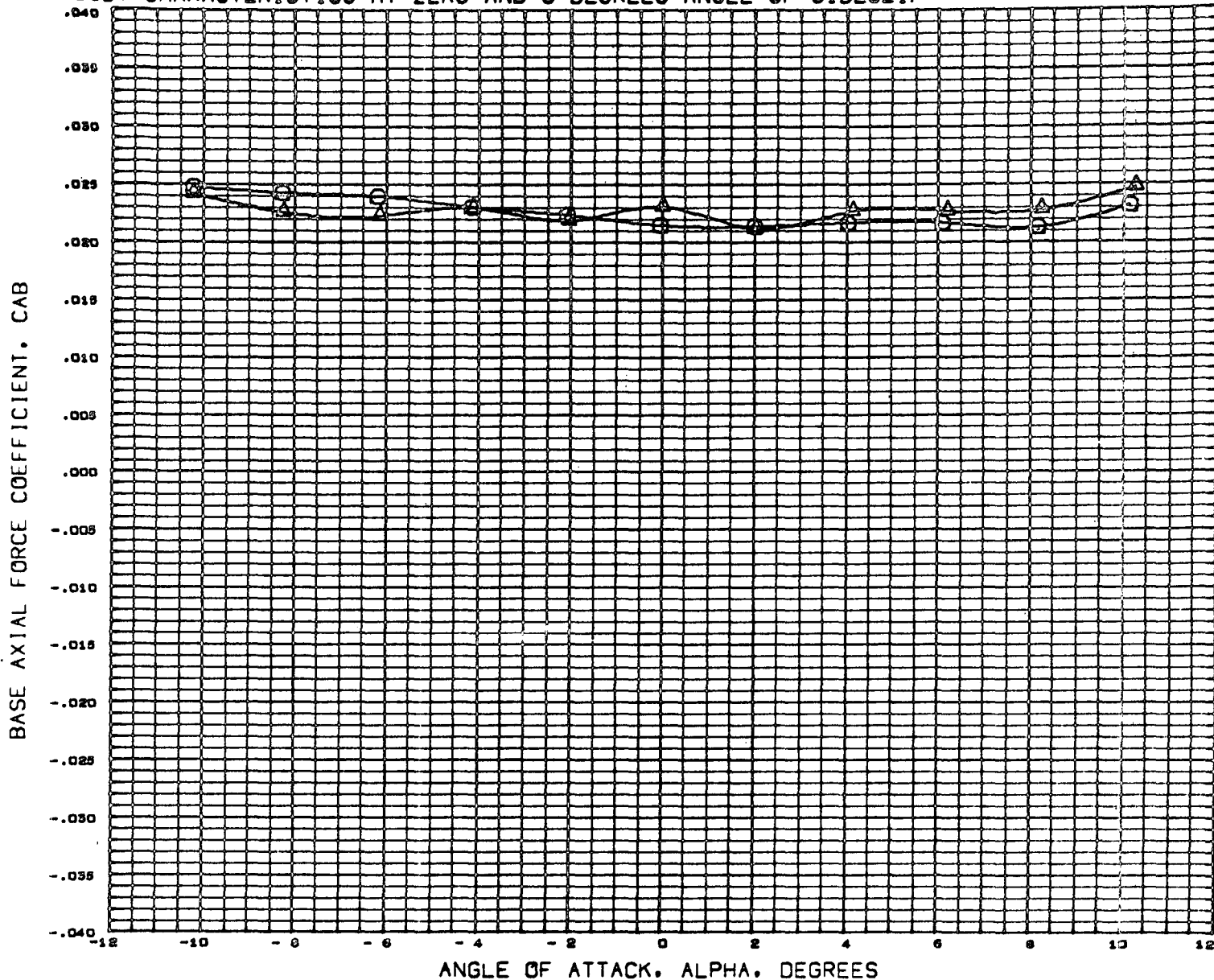
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3250A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.0960	00 IN
LREF	3.0090	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



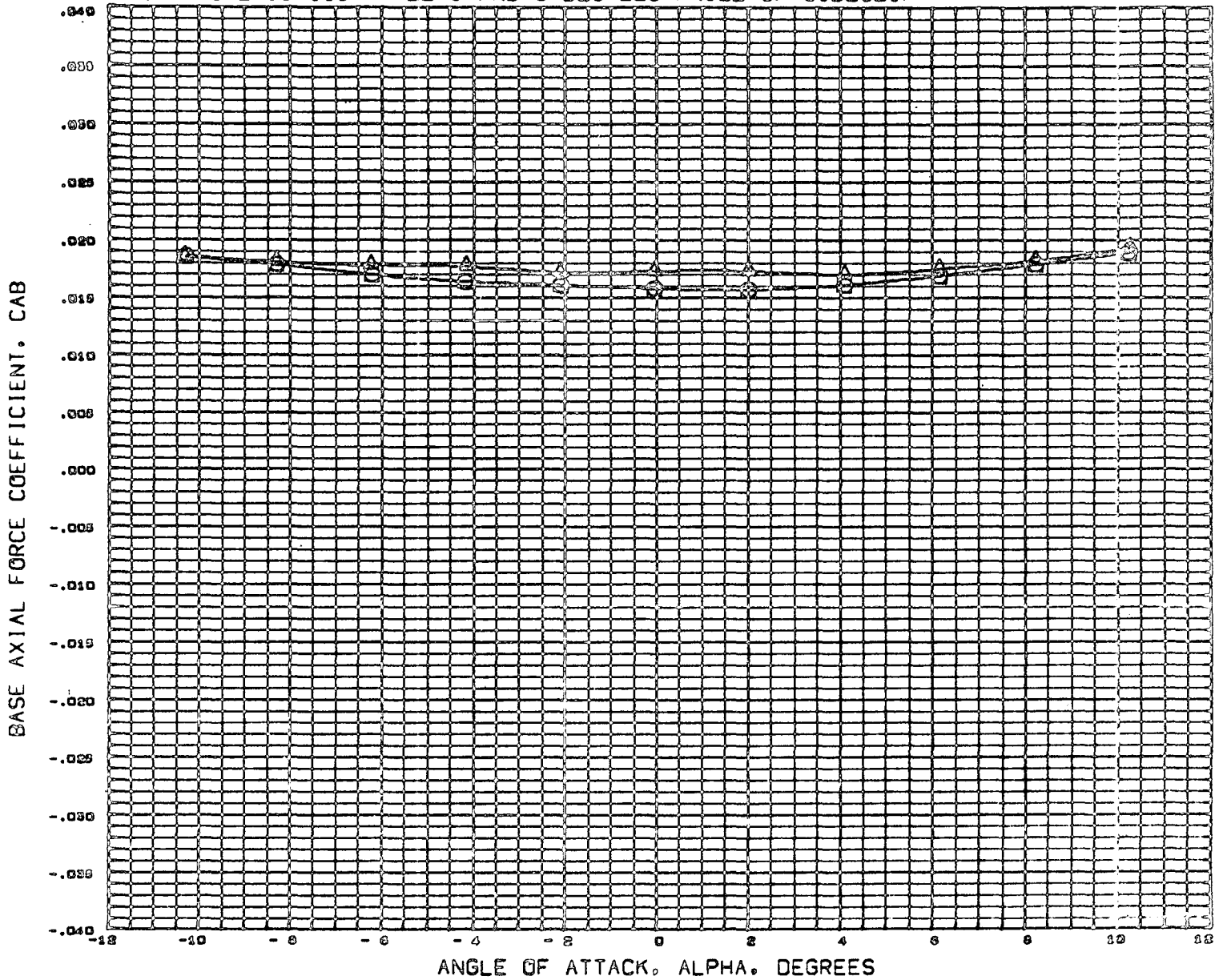
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A) ○	MSFC490 GD DELTA BOOSTER B20
(H3298A) △	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.0500	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



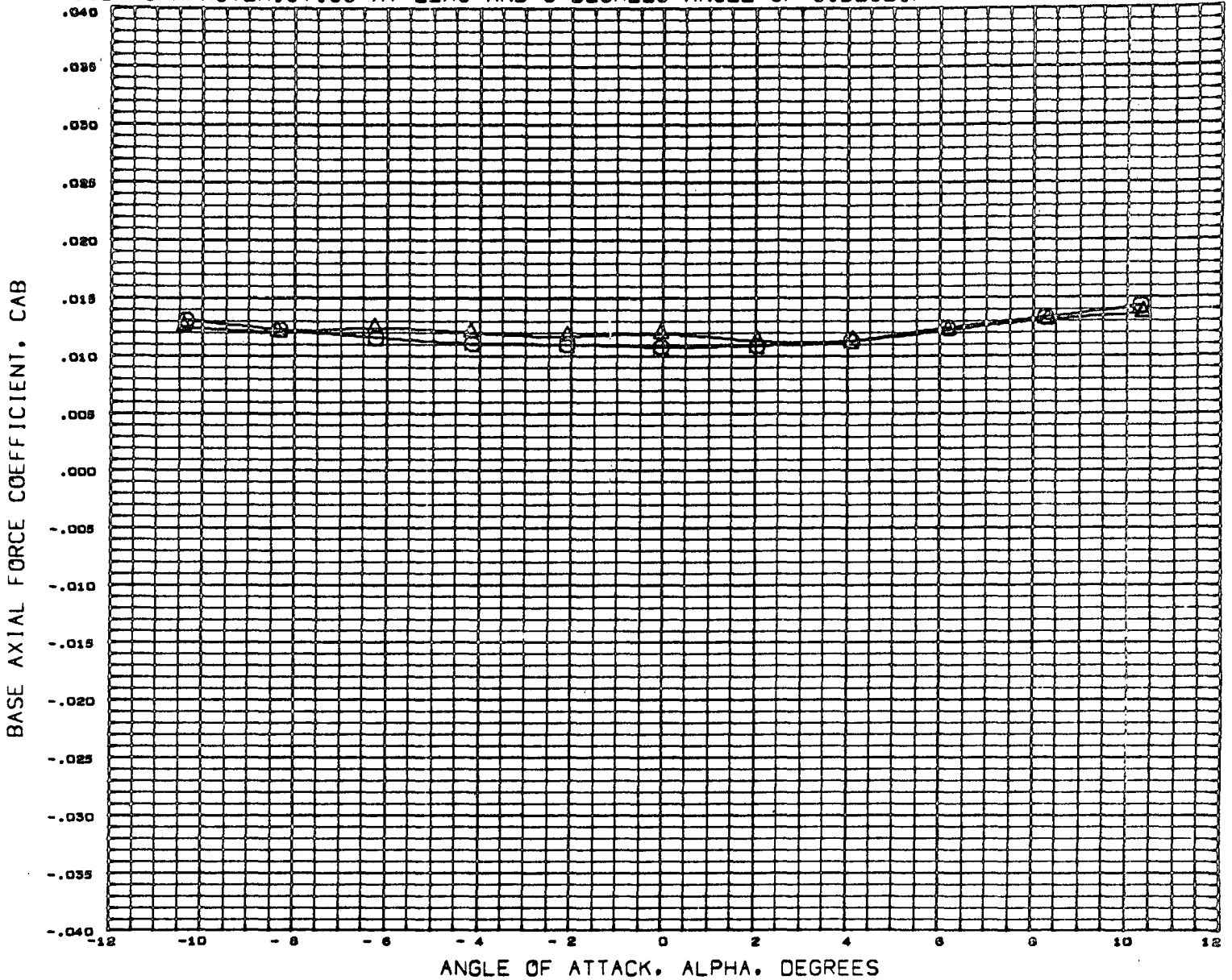
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3298A)	MSFC490 GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.0960	50 IN
LREF	3.0990	INCHES
DREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



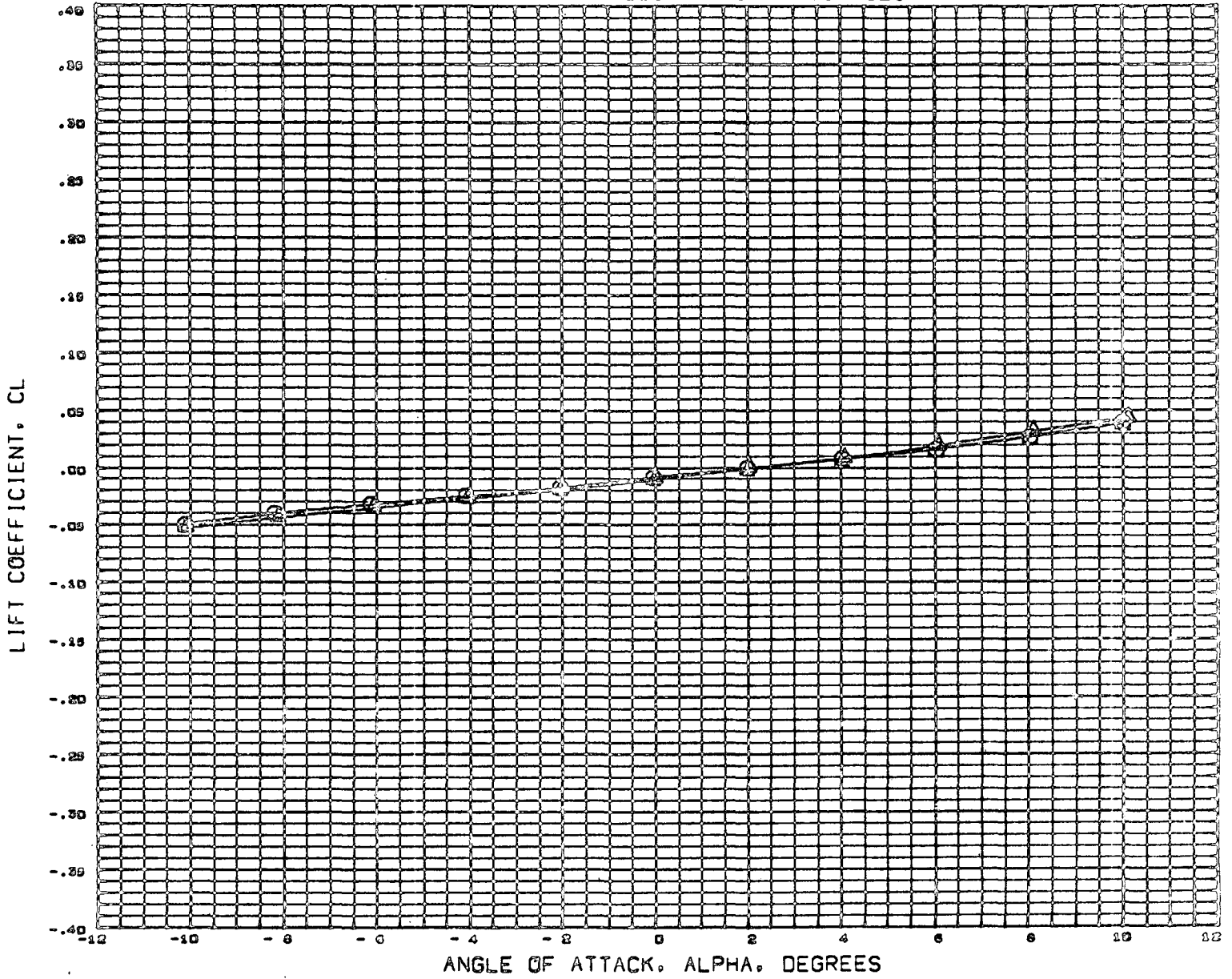
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.0500	80 IN
LREF	3.0950	INCHES
BREF	6.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



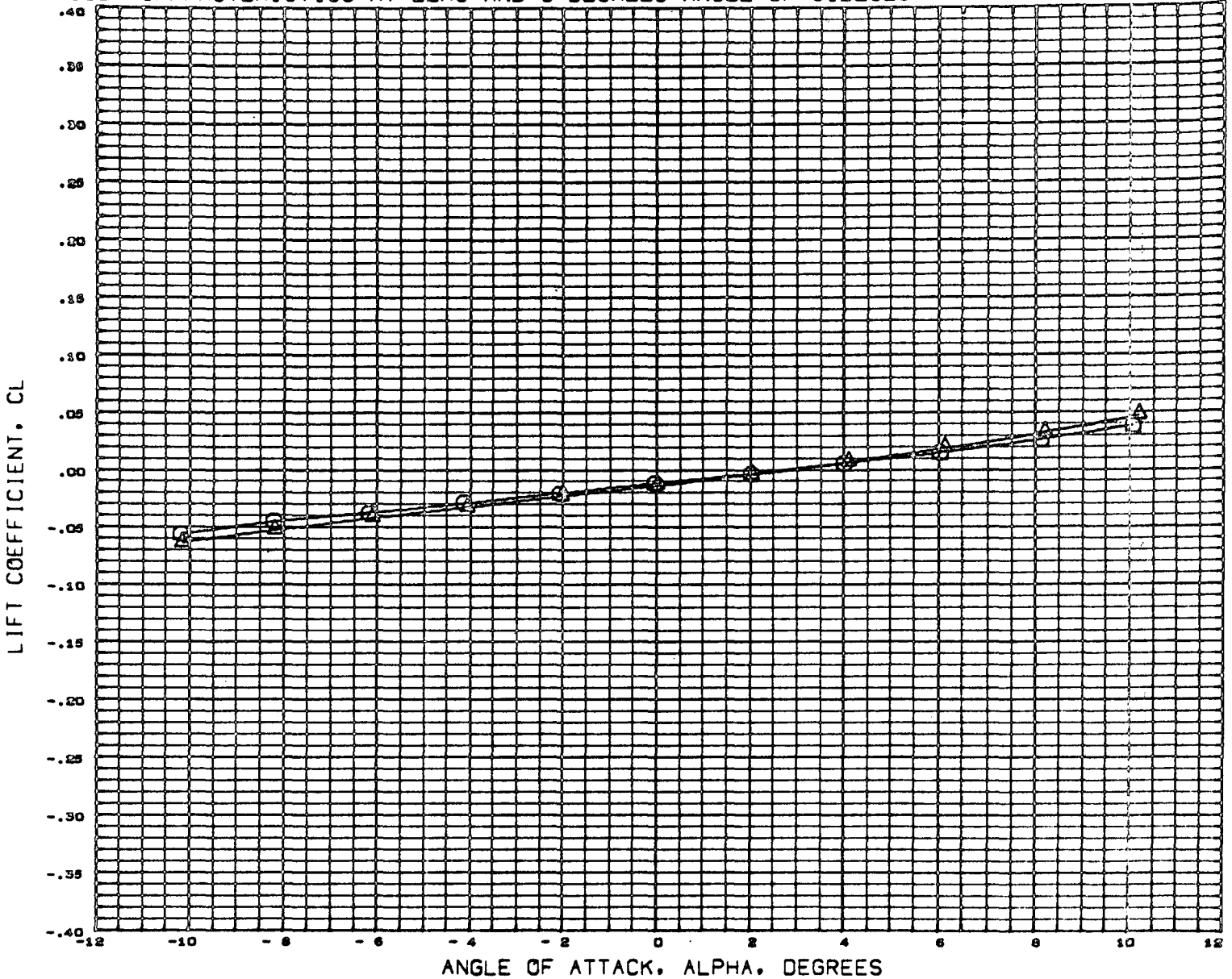
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER 82D
(M3256A)	MSFC490 GD DELTA BOOSTER 82D

DELTA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0910	INCHES
BREF	0.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



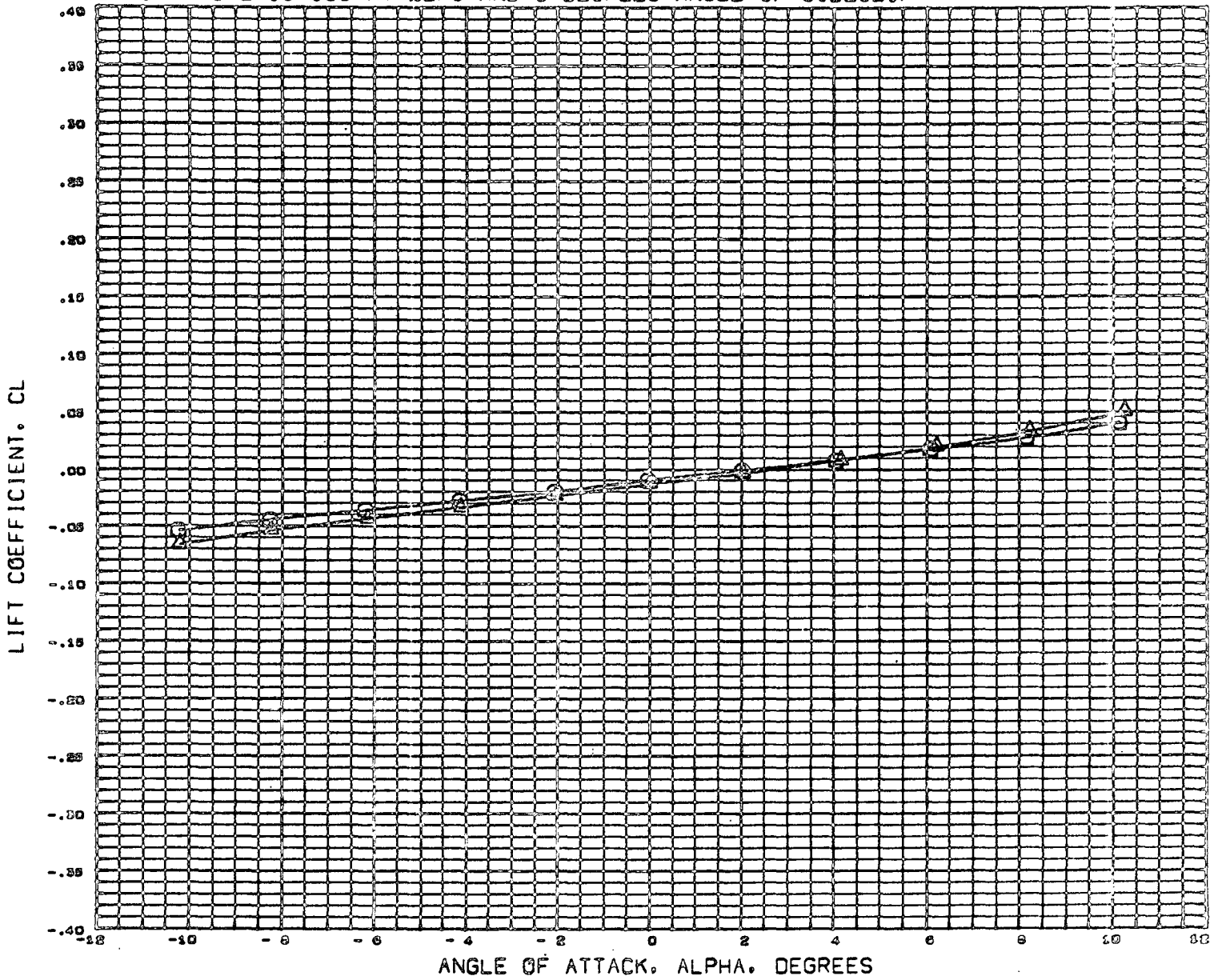
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6960	80 IN
LREF	3.0950	INCHES
BREF	6.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.898

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



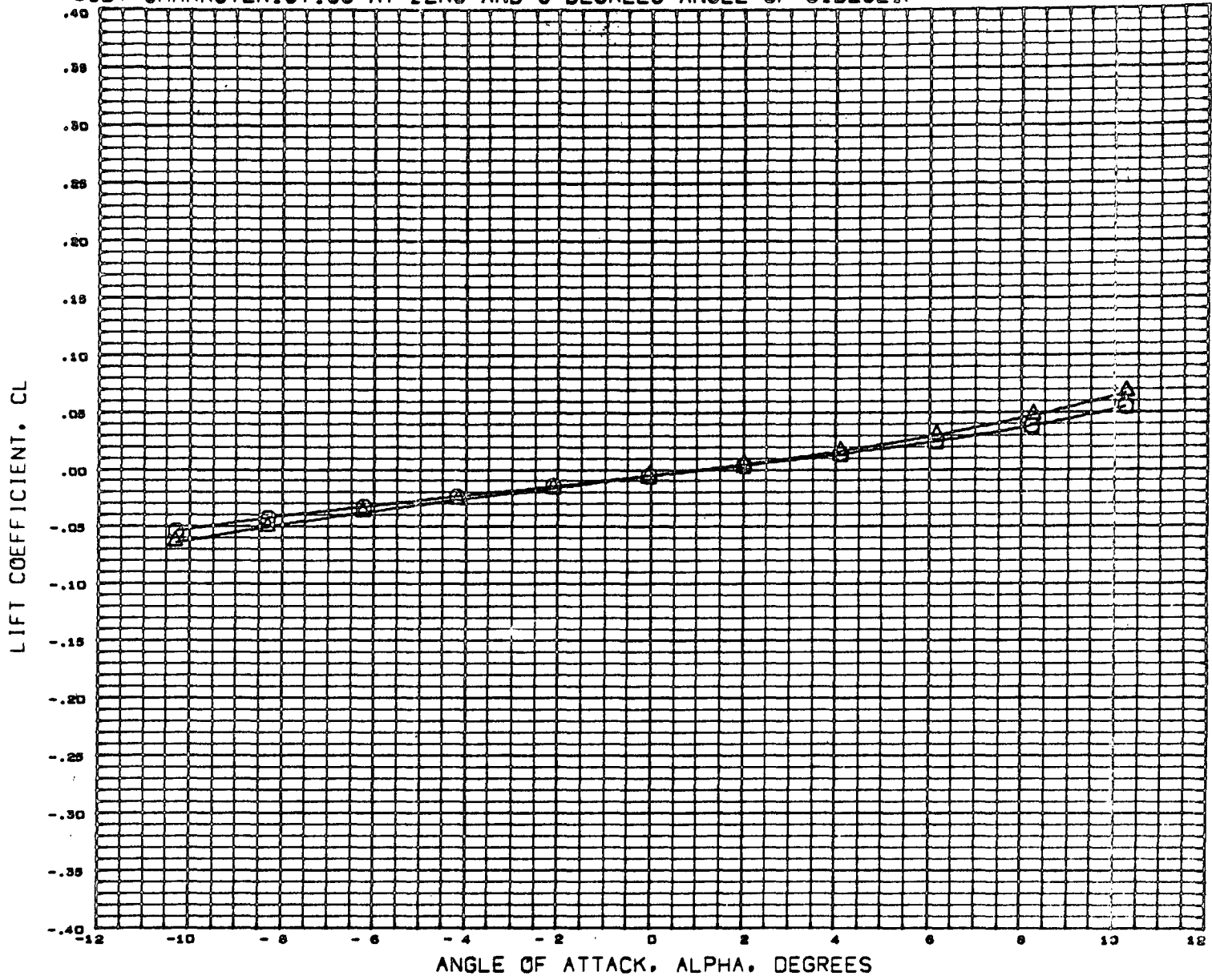
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.6900	00 IN
LREF	3.0050	INCHES
BREF	0.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.090

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



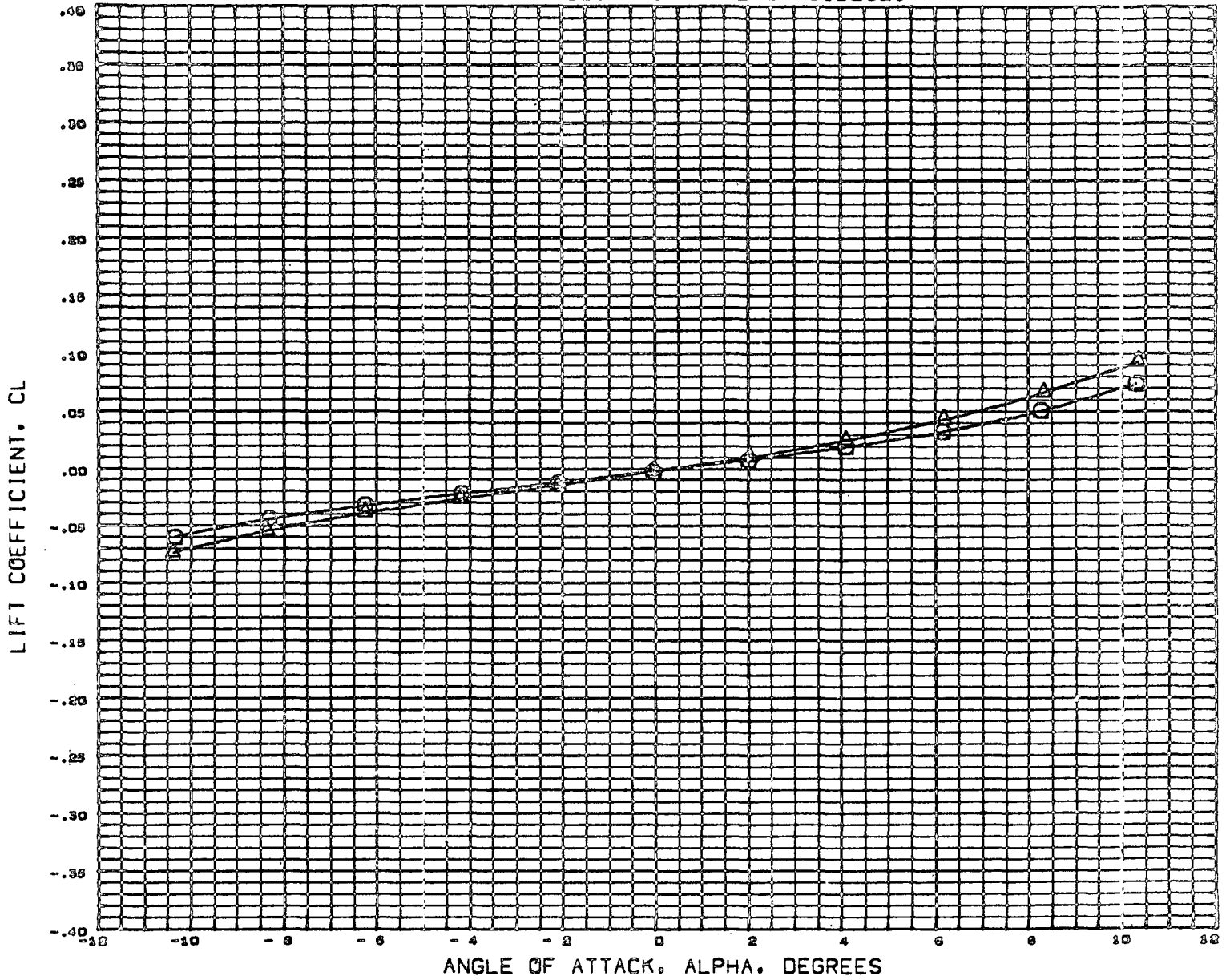
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (M32D1A) MSFC49D GD DELTA BOOSTER B20
 (M3258A) MSFC49D GD DELTA BOOSTER B20

BETA ELVATR AILRON
 0.000
 6.000

REFERENCE INFORMATION
 SREF 15.6560 80 IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



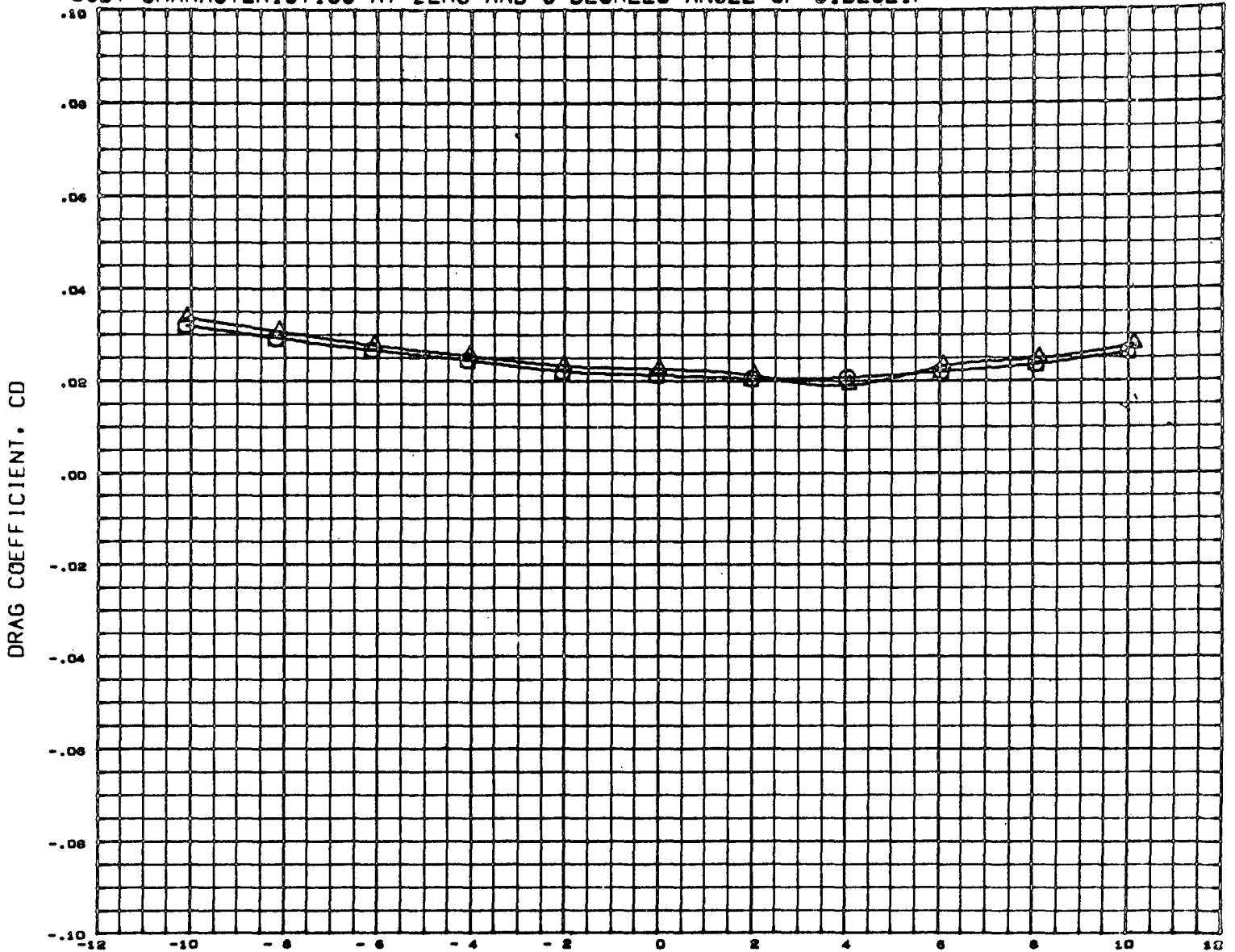
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3231A)	MSFC49D GD DELTA BOOSTER B20
(M3250A)	MSFC49D GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.0960	50 IN
LREF	3.0950	INCHES
BREF	0.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

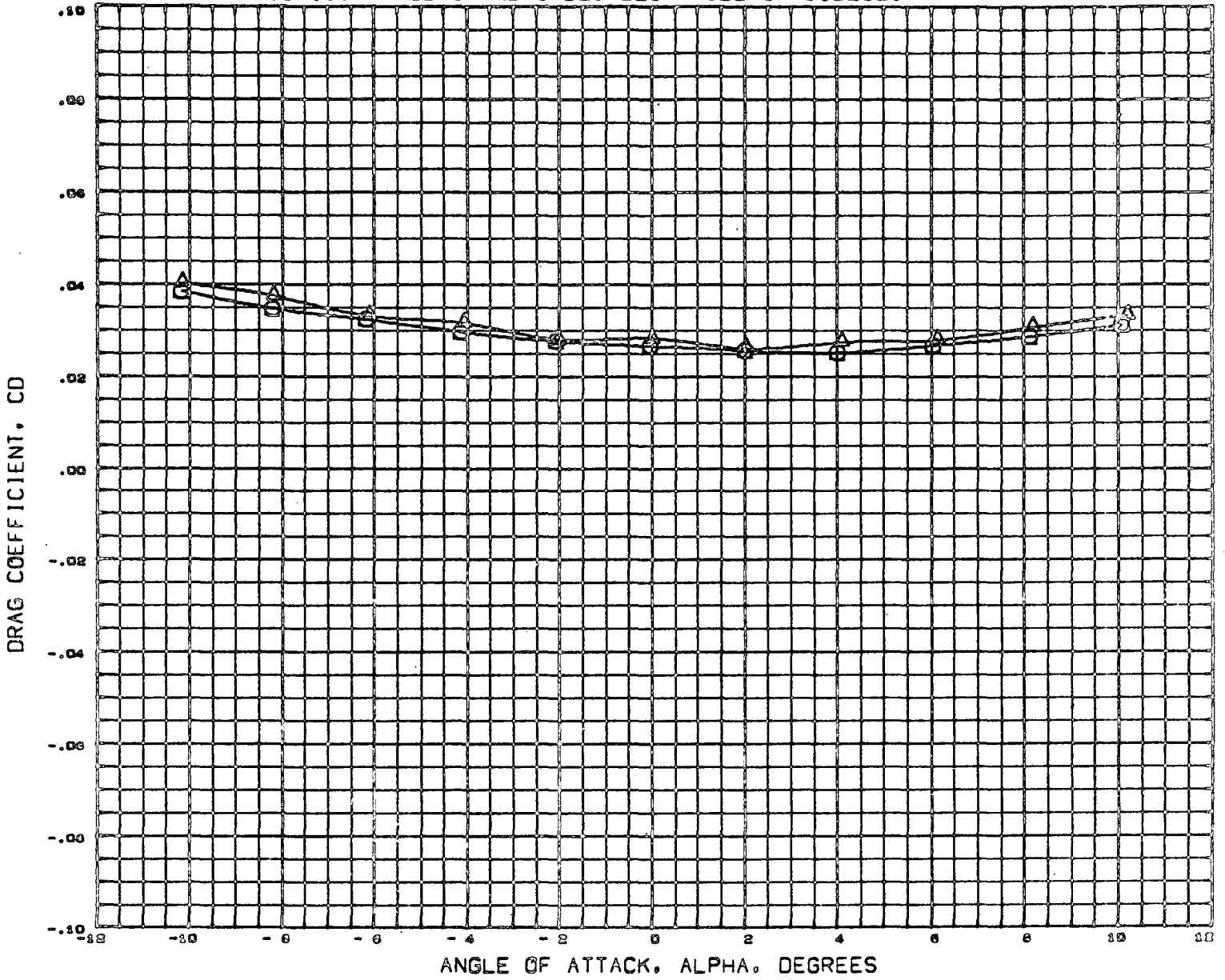
MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(MS201A)	MSFC490 GD DELTA BOOSTER B23	0.000			SREF 15.6560 30 IN
(MS258A)	MSFC490 GD DELTA BOOSTER B23	6.000			LREF 3.0950 INCHES
					BREF 6.0900 INCHES
					XMRP 0.0000
					YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0033 SCALE
MACH	0.600				

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



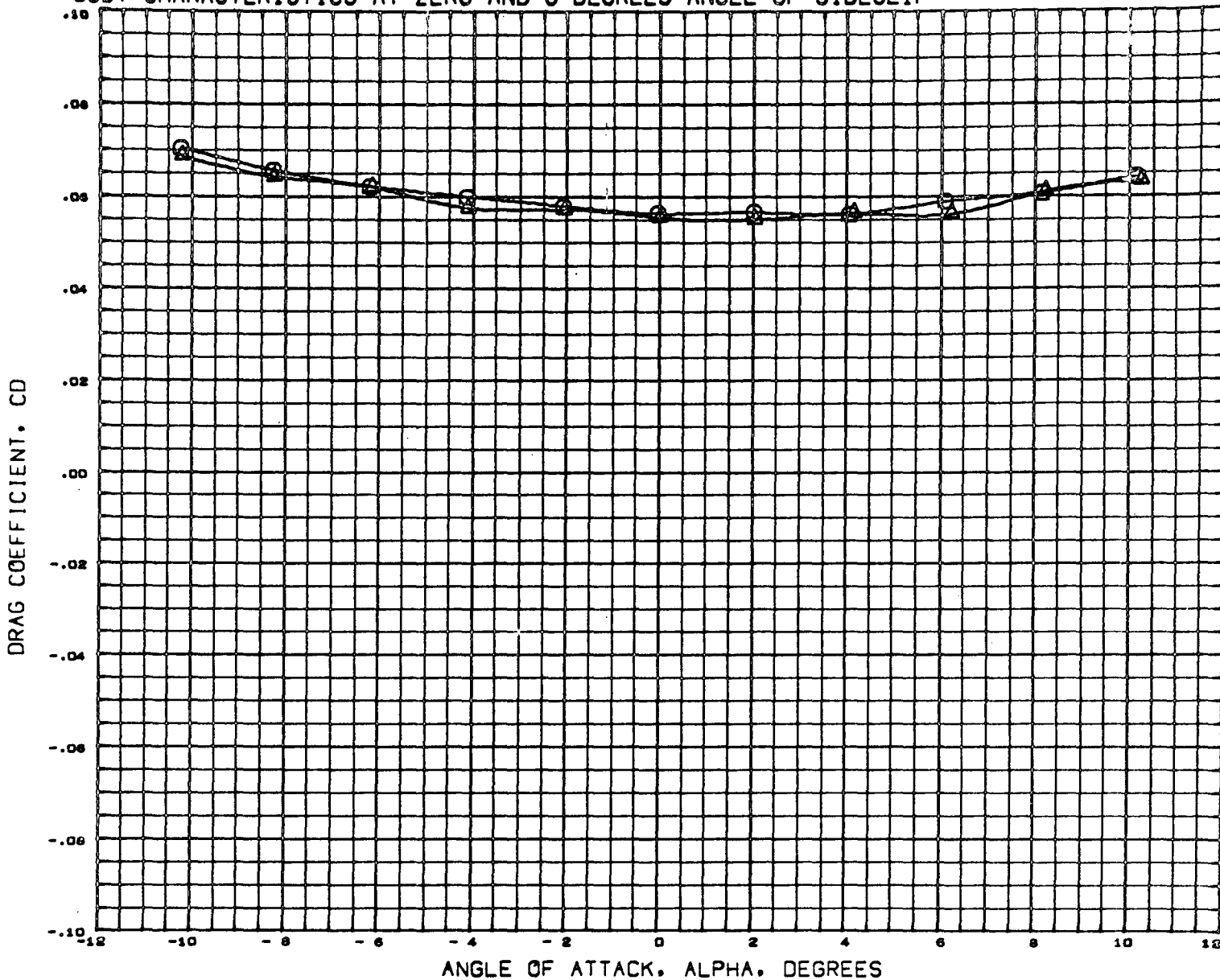
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M5201A)	M8FC49D GD DELTA BOOSTER B20
(M5258A)	M8FC49D GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	19.09 00	00 IN
LREF	5.00 00	INCHES
BREF	0.00 00	INCHES
XMRP	0.00 00	
YMRP	0.00 00	
ZMRP	0.00 00	
SCALE	0.00 99	SCALE

MACH 0.096

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



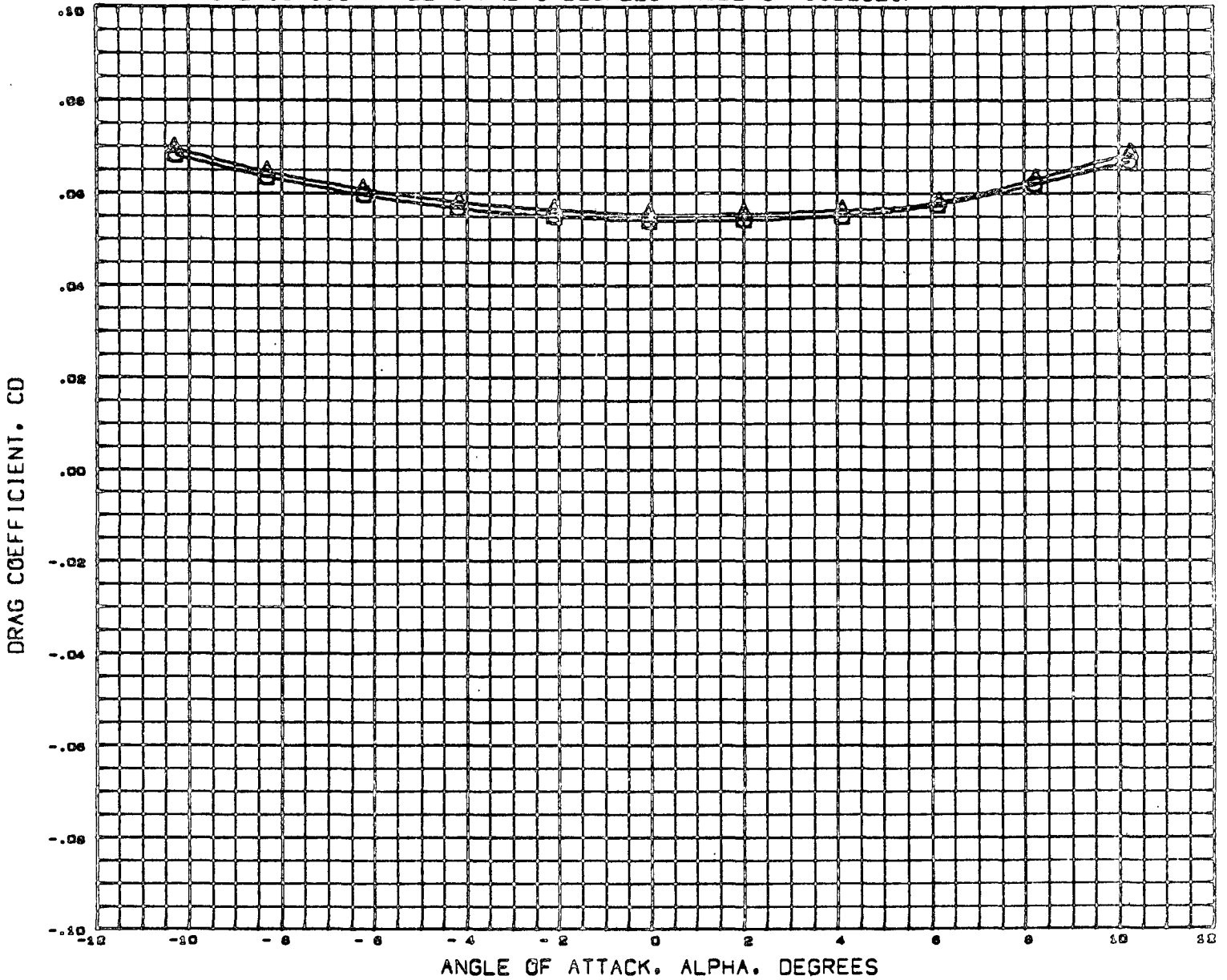
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

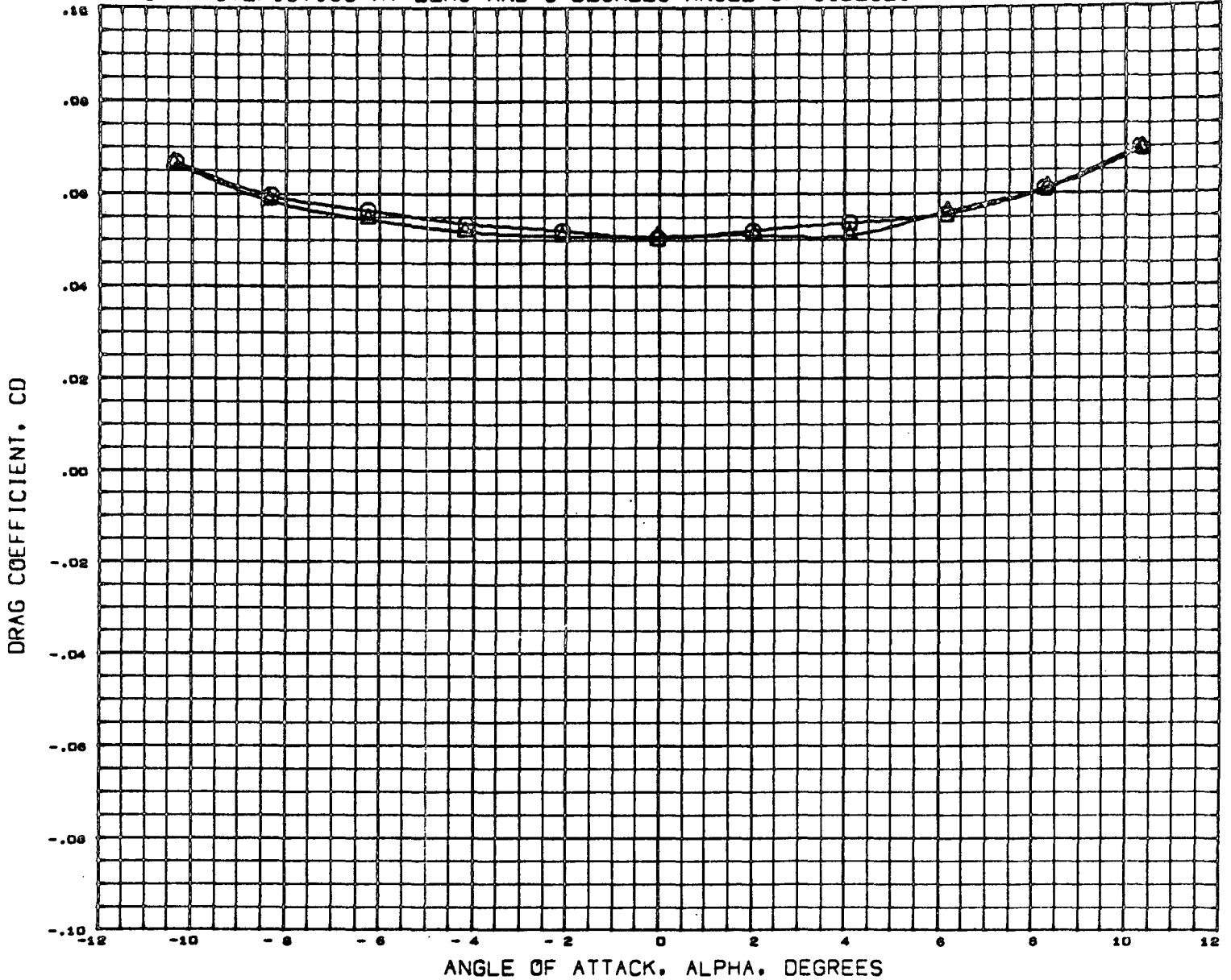
BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(M3201A)	NSFC490 GD DELTA BOOSTER B20	0.000			SREF	15.6960 00 IN
(M3250A)	NSFC490 GD DELTA BOOSTER B20	6.000			LREF	3.0950 INCR20
					BREF	6.0000 INCR20
					XMRP	0.0000
					YMRP	0.0000
					ZMRP	0.0000
					SCALE	0.0039 SCALE

MACH 3.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



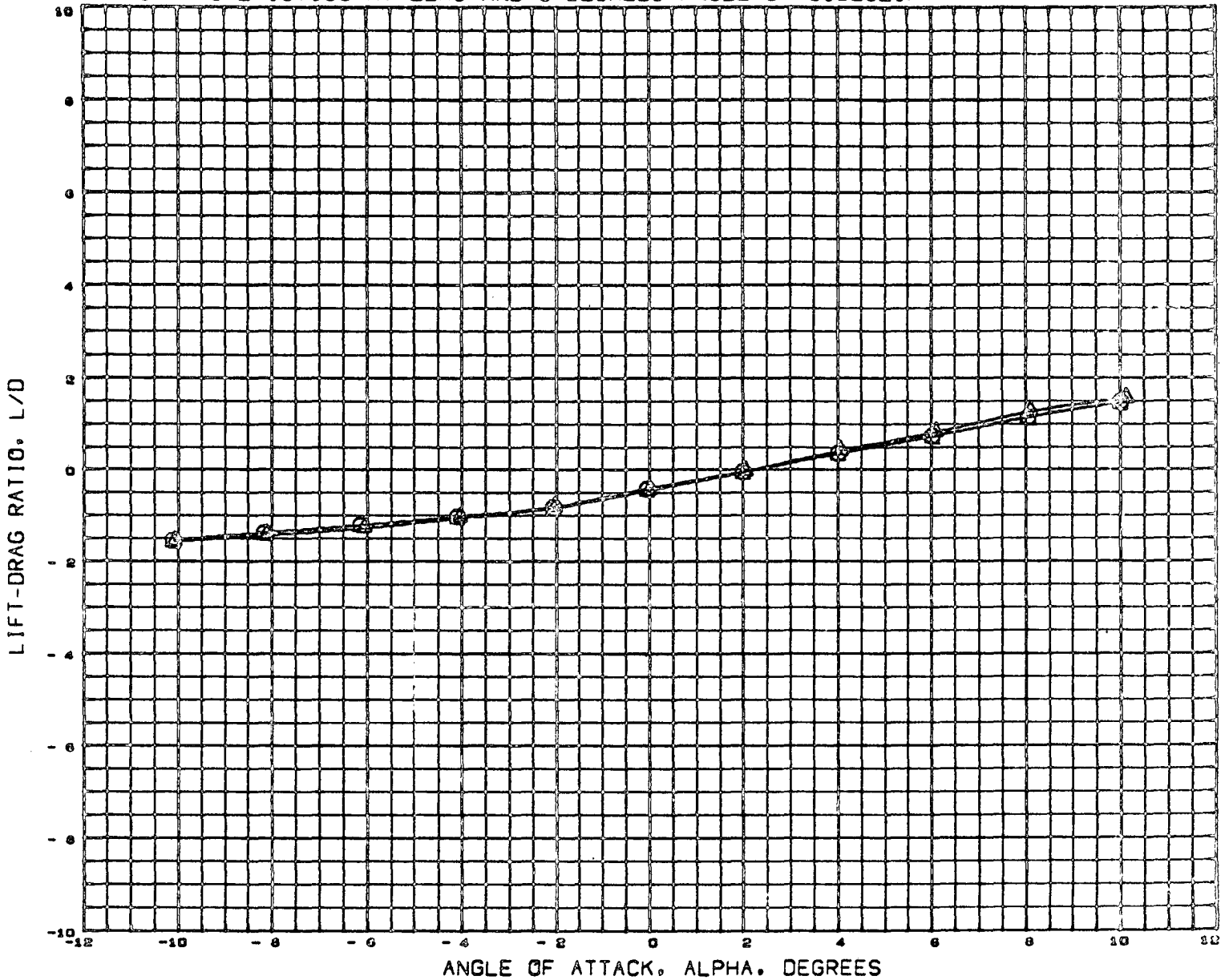
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC49D GD DELTA BOOSTER B2D
(H3258A)	MSFC49D GD DELTA BOOSTER B2D

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



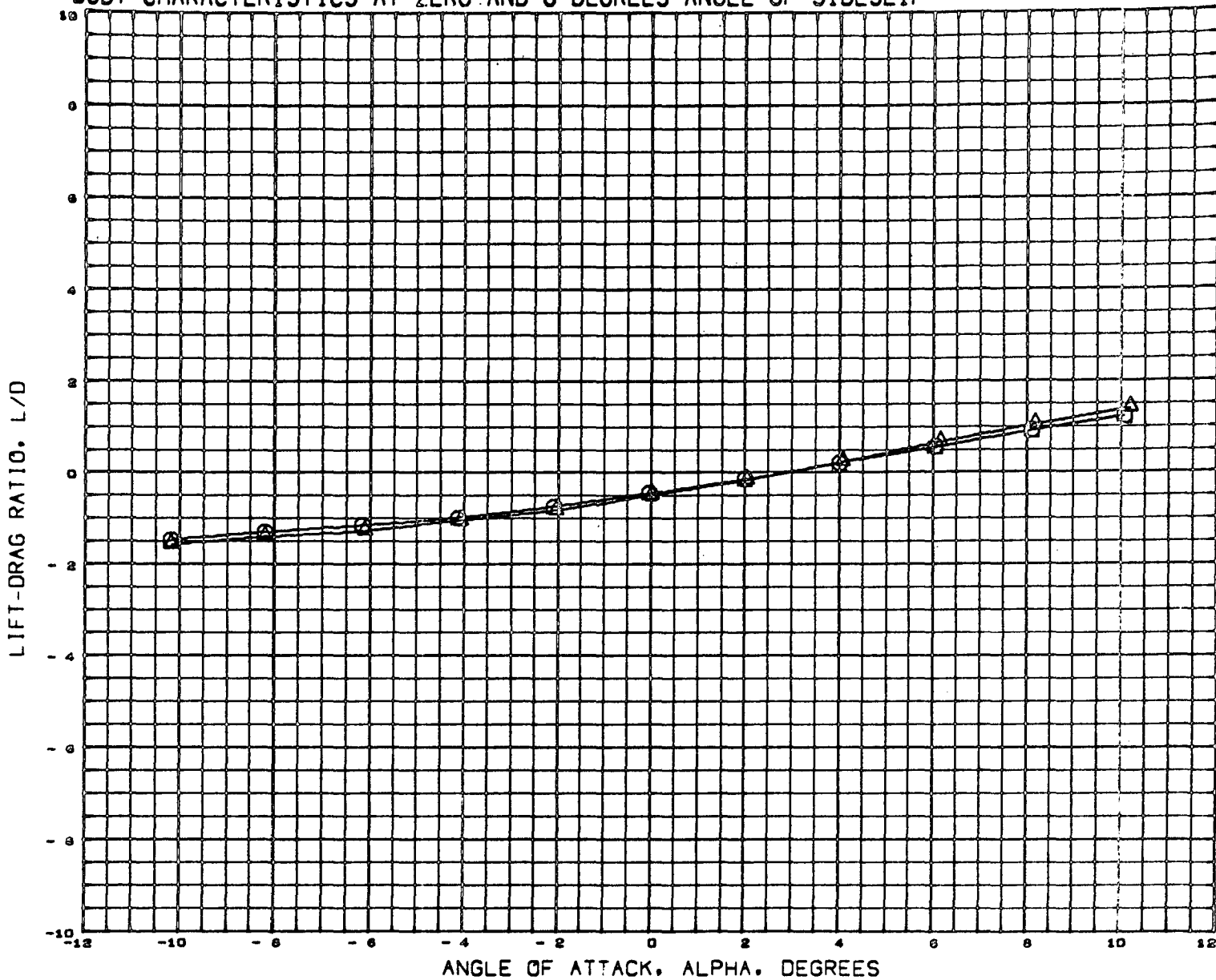
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3230A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0030	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



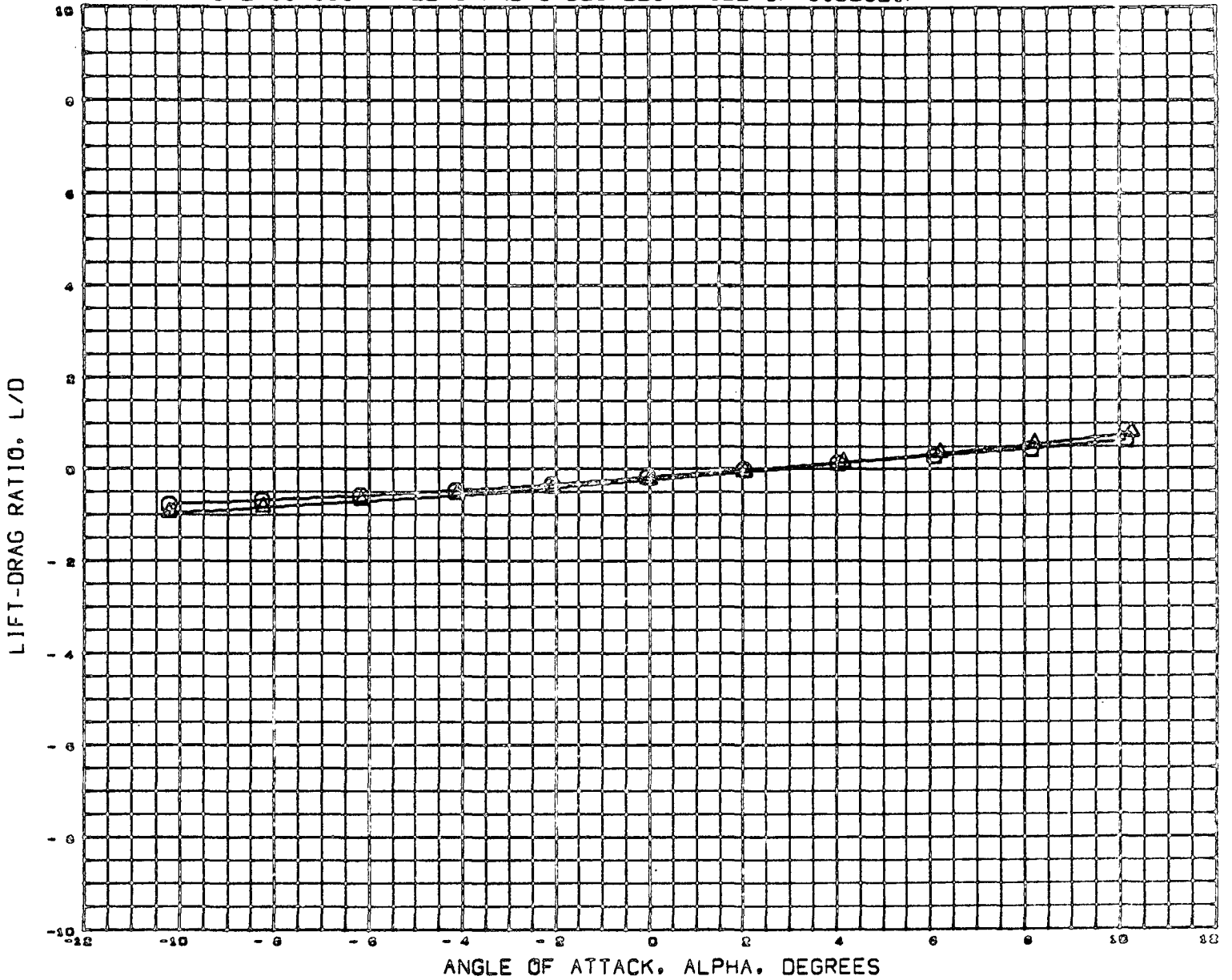
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC49D GD DELTA BOOSTER B2D
(H3258A)	MSFC49D GD DELTA BOOSTER B2D

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



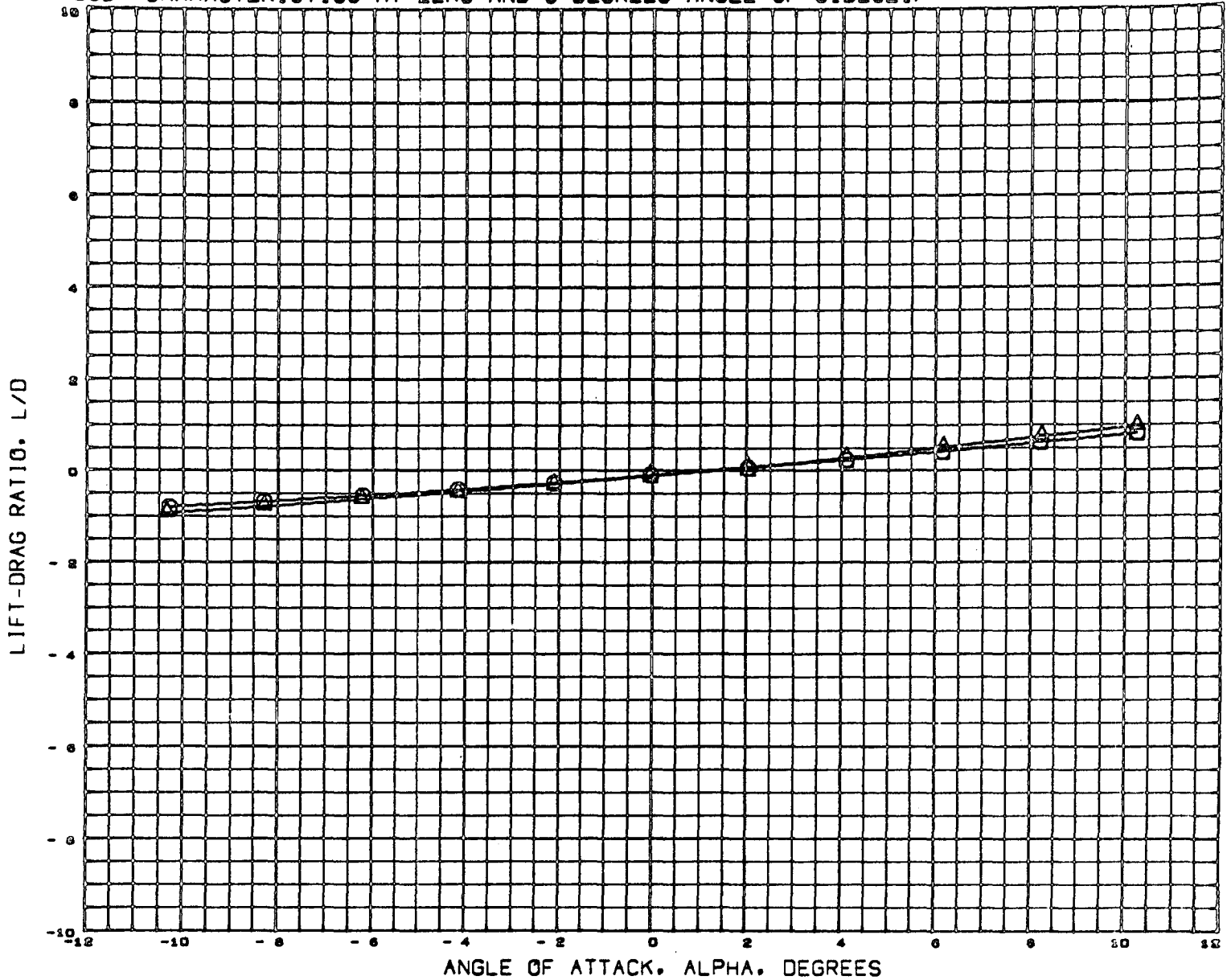
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3256A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.6500	80 IN
LREF	3.0000	INCHES
BREF	0.0000	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0033	SCALE

MACH 1.000

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



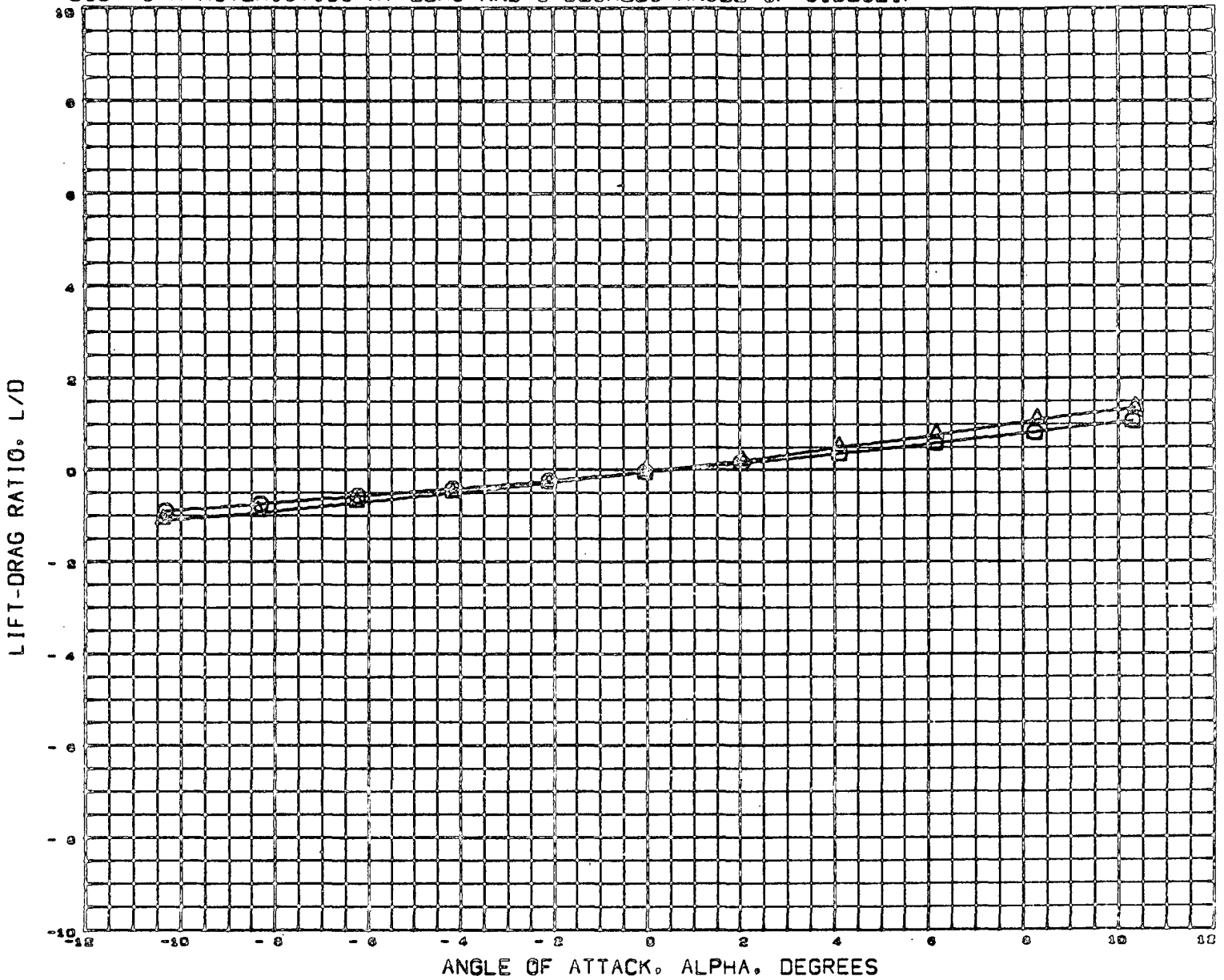
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0900	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



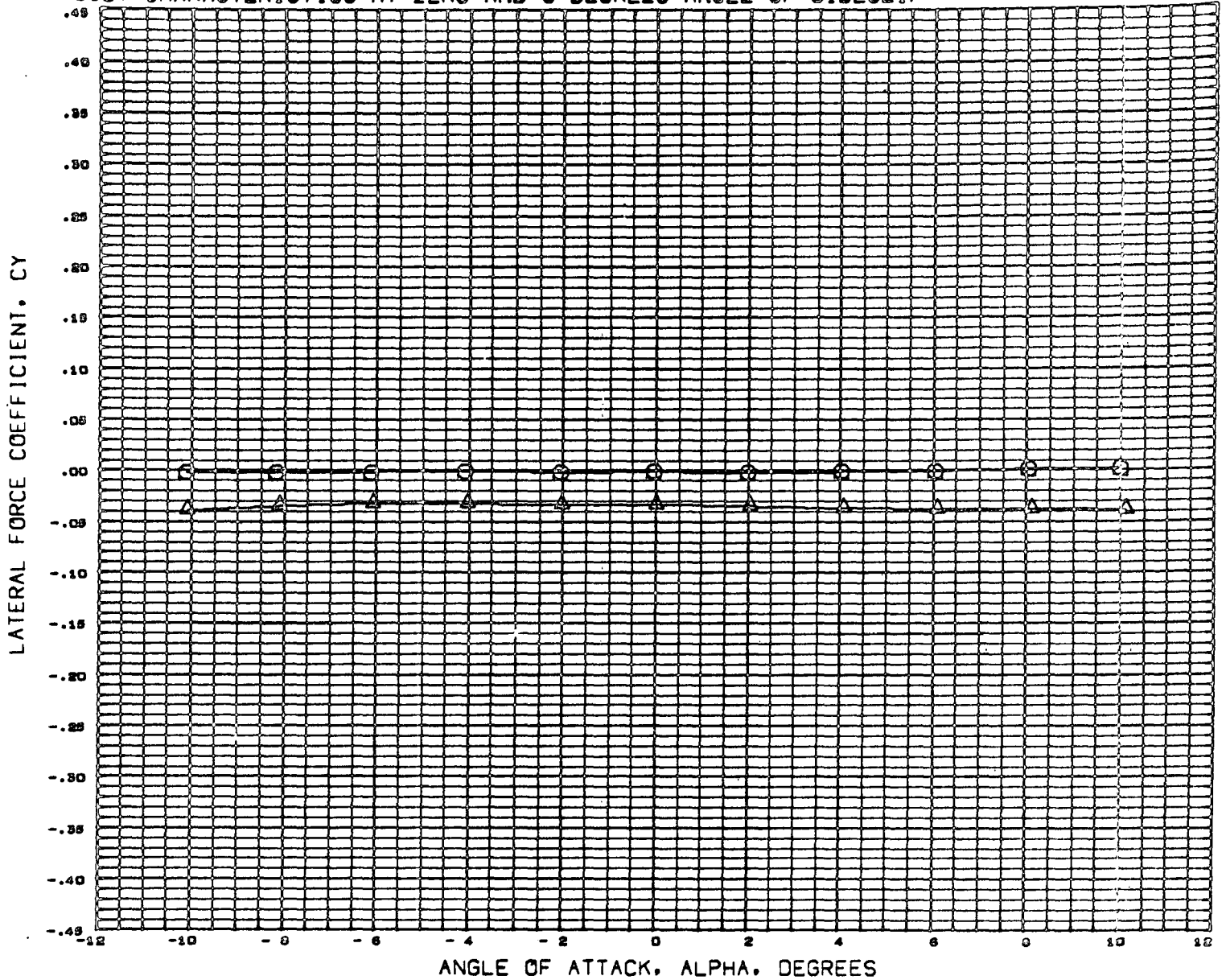
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3299A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.0000	30 IN
LREF	3.0000	INCHES
BREF	6.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.059

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



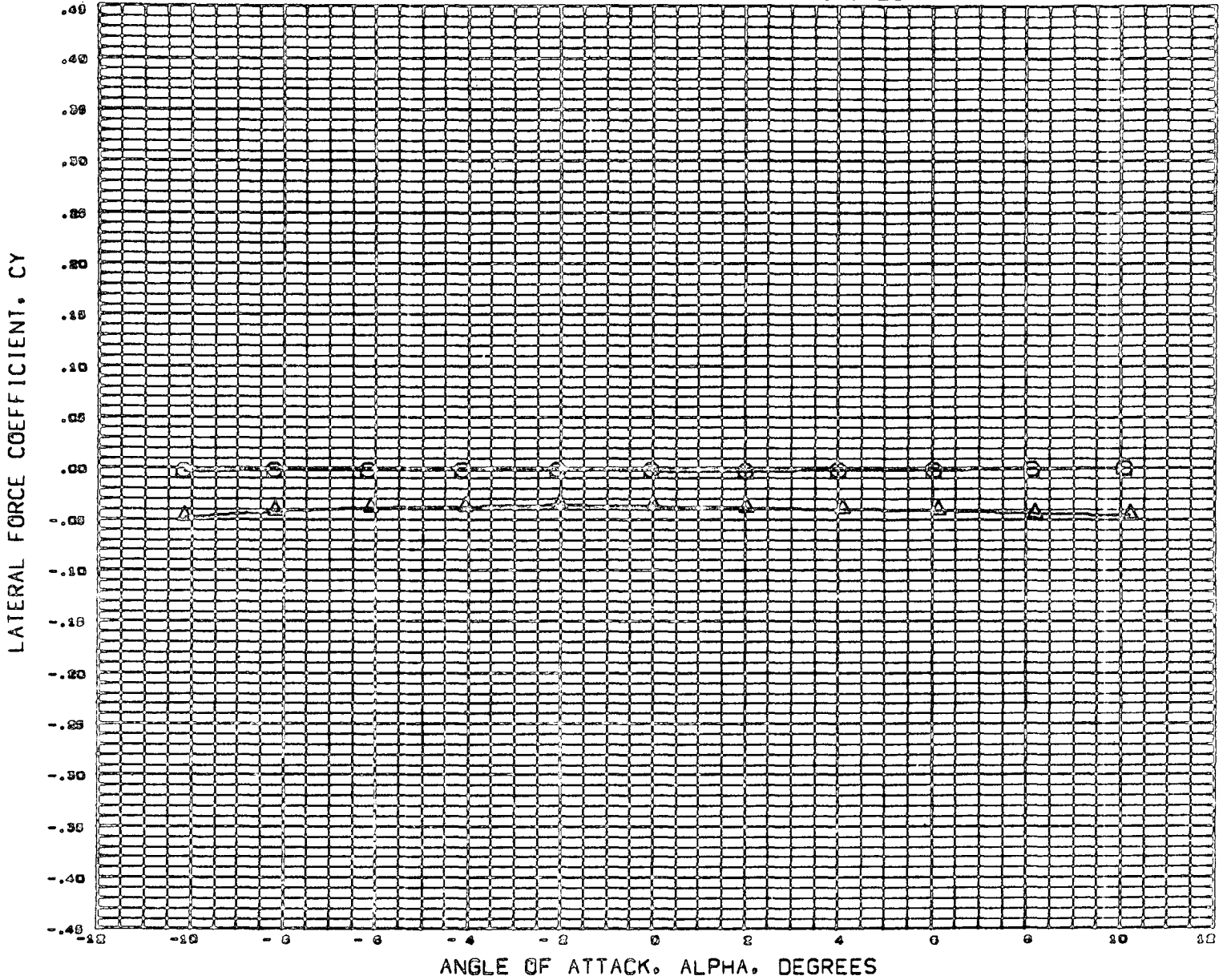
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC490 GD DELTA BOOSTER B20
(A3250A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0990	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



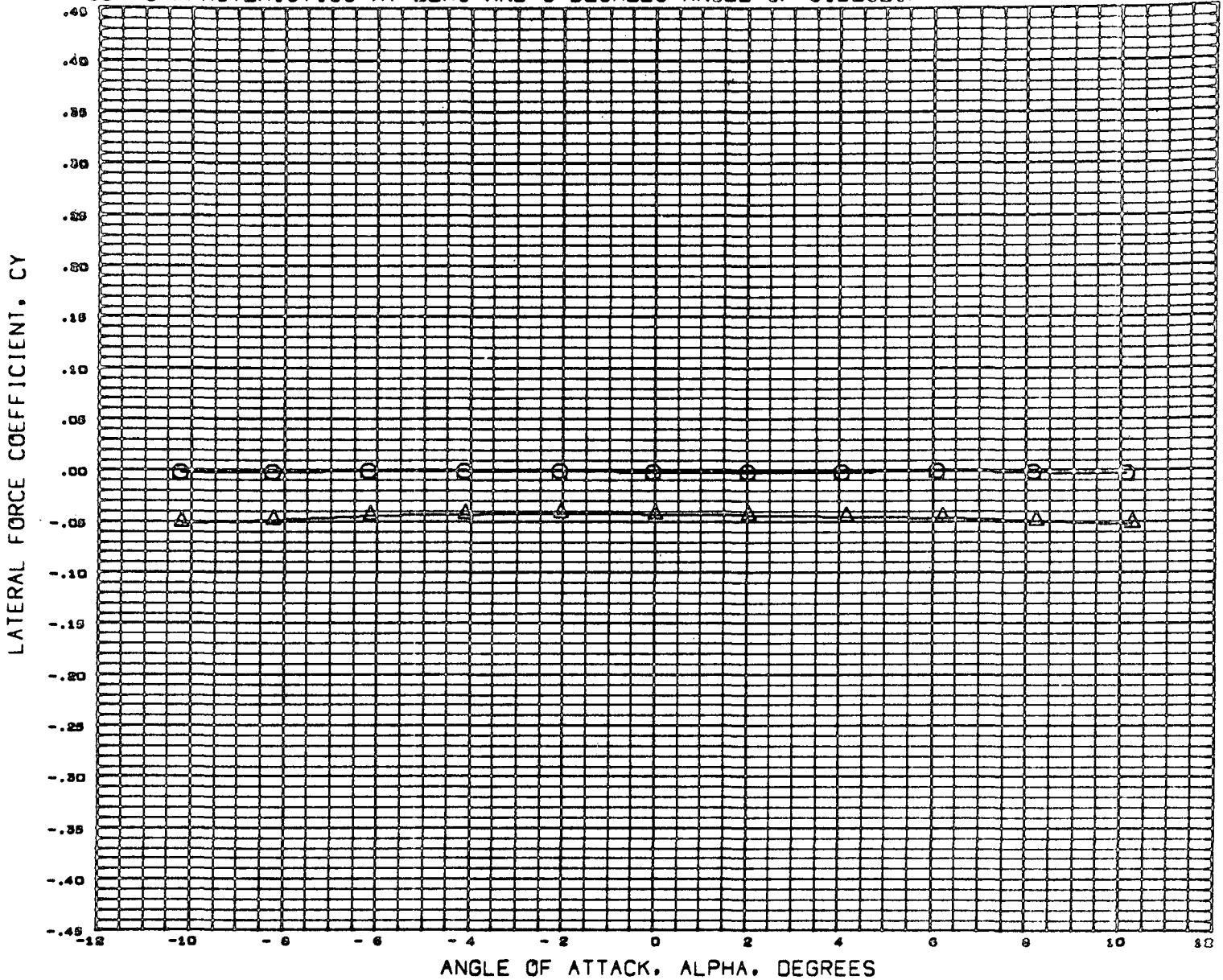
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (A3201A) M8PC400 6D DELTA BOOSTER 820
 (A3258A) M8PC490 6D DELTA BOOSTER 820

ETA ELVATR AILRON
 0.000
 0.000

REFERENCE INFORMATION
 SREF 19.0500 00 IN
 LREF 0.0090 INCHES
 BREF 0.0090 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0039 SCALE

MACH 0.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A) ○	MSFC490 GD DELTA BOOSTER B20
(A3258A) △	MSFC490 GD DELTA BOOSTER B20

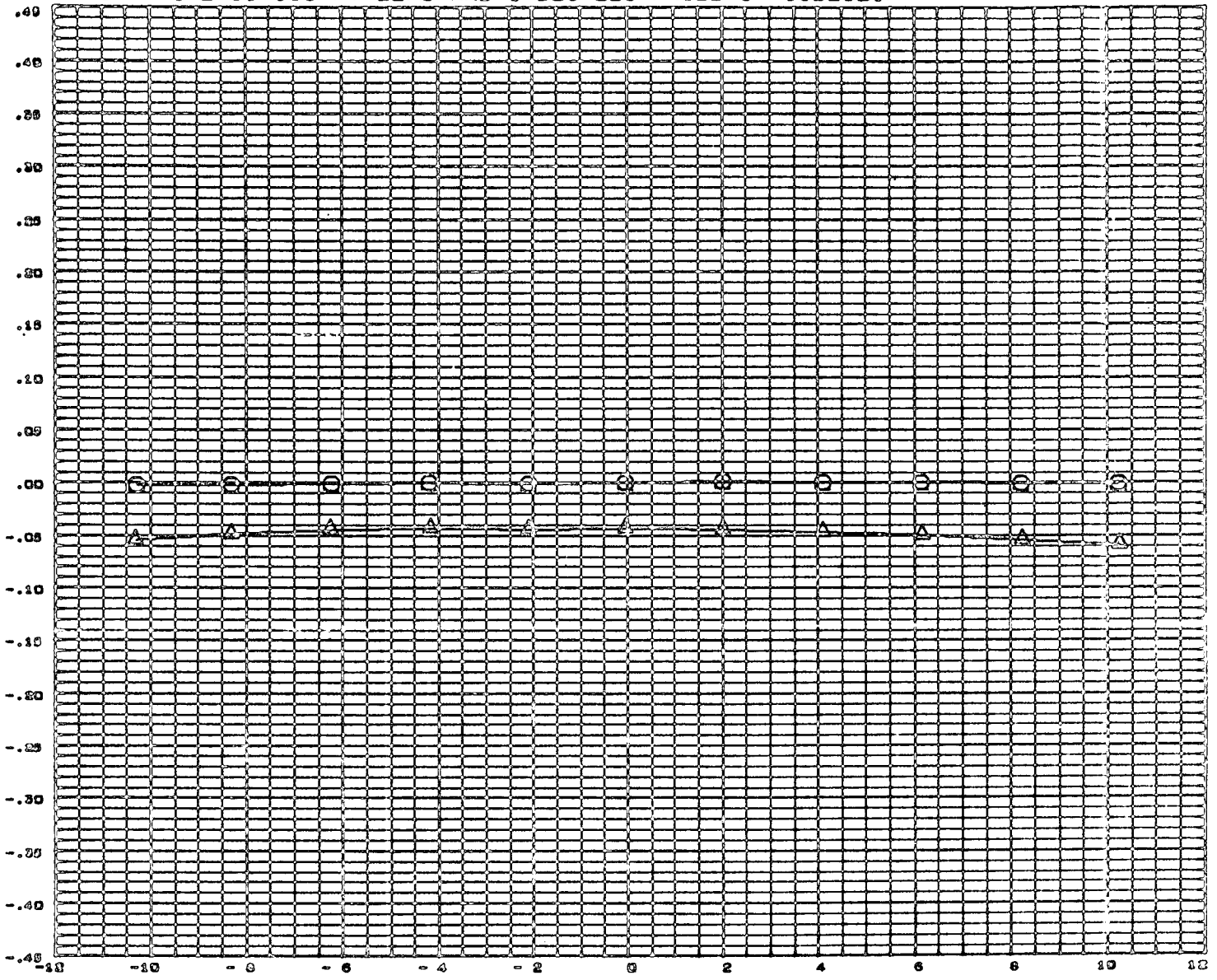
BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6980	50 IN
LREF	3.0990	INCHES
BREF	0.0000	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

LATERAL FORCE COEFFICIENT, CY



ANGLE OF ATTACK, ALPHA, DEGREES

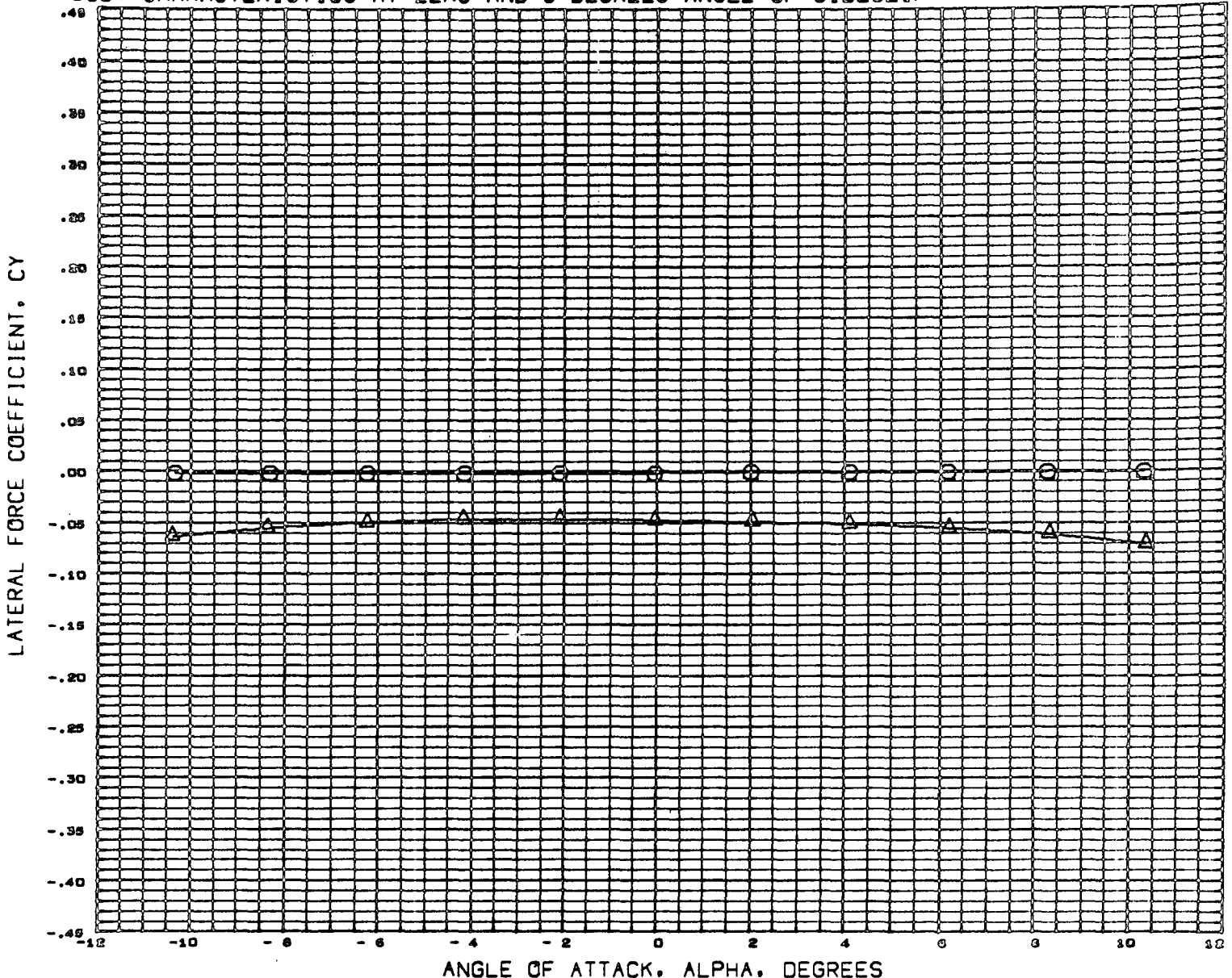
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC49D GD DELTA BOOSTER B20
(A3290A)	MSFC49D GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	15.6563	90 IN
LREF	3.0993	INCHES
BREF	6.0993	INCHES
XMRP	0.0003	
YMRP	0.0003	
ZMRP	0.0003	
SCALE	0.0033	SCALE

MACH 8.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC49D GD DELTA BOOSTER B2D
(A3258A)	MSFC49D GD DELTA BOOSTER B2D

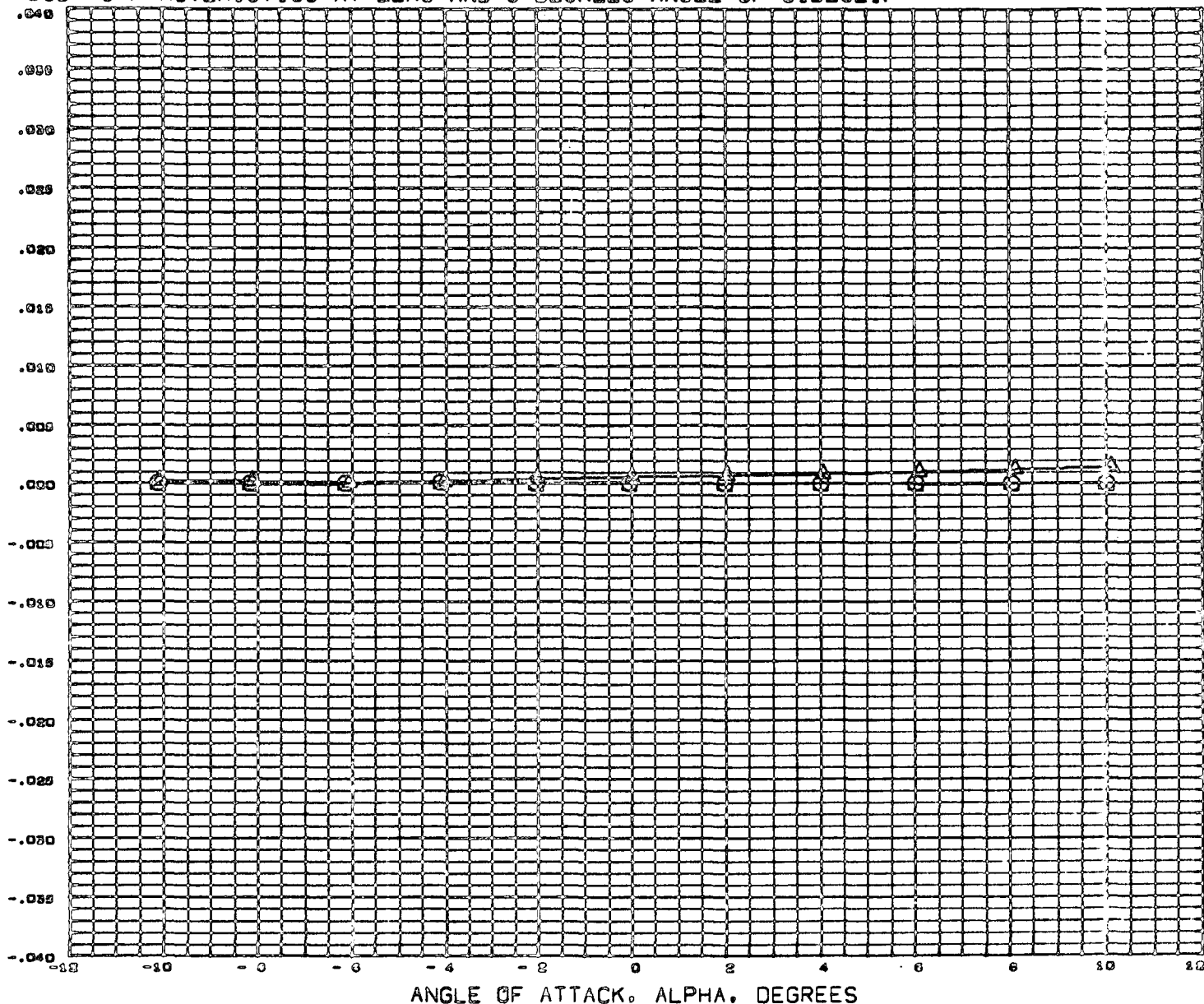
BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	50 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A9201A)	MSFC490 GD DELTA BOOSTER B20
(A3298A)	MSFC490 GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.0560	90 IN
LREF	3.0957	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



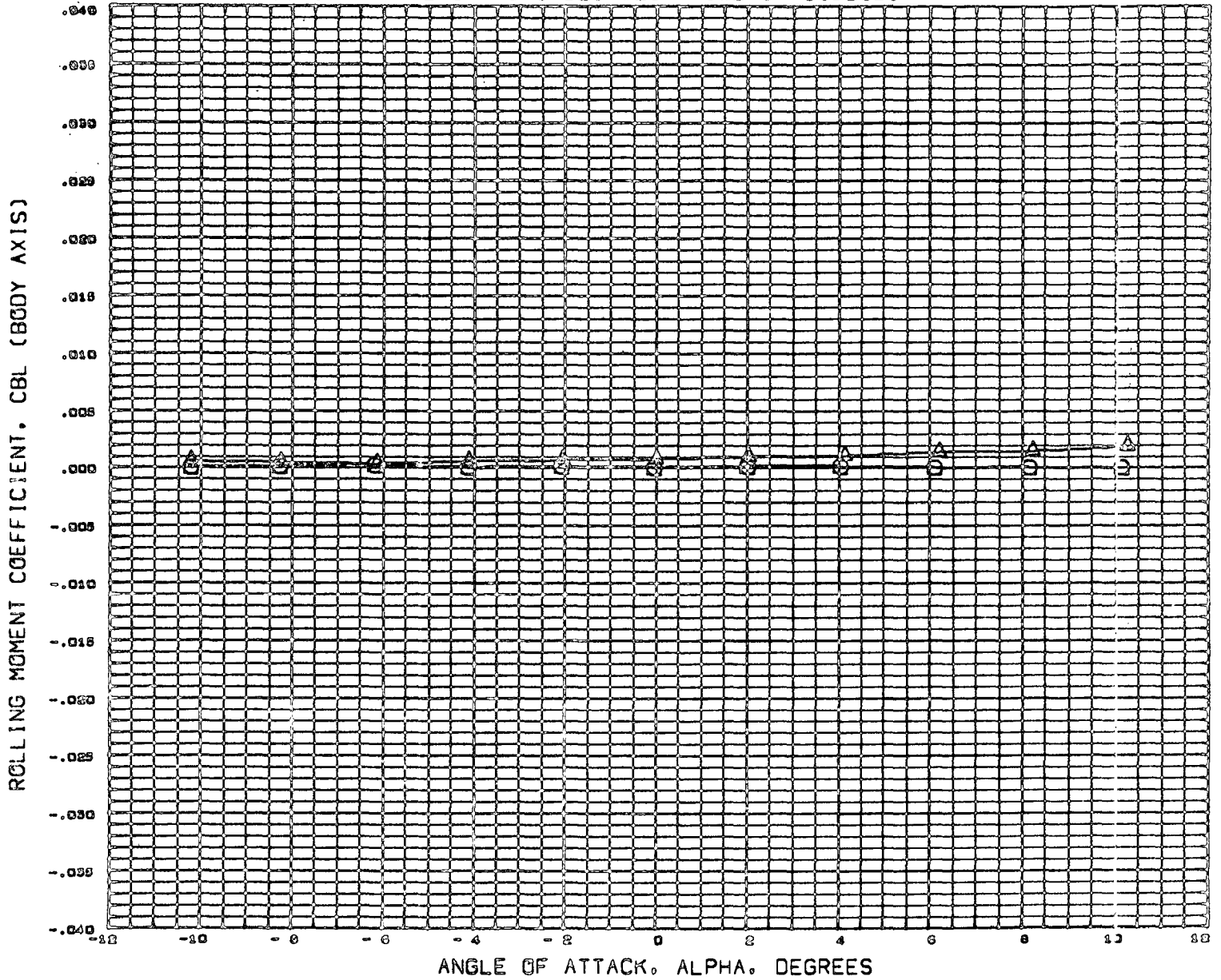
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC490 GD DELTA BOOSTER B20
(A3250A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6580	90 IN
LREF	3.0950	INCHES
BREF	6.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.896

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A5201A)	MSFC490 GD DELTA BOOSTER B20
(A5202A)	MSFC490 GD DELTA BOOSTER B20

ETA	ELVATR	AILRON
0.000		
0.000		

REFERENCE INFORMATION		
SREF	19.6500	98 IN
LREF	3.0950	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.098

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A9201A) ○	MSFC490 GD DELTA BOOSTER B20
(A9258A) △	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AIRCON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



ANGLE OF ATTACK, ALPHA, DEGREES

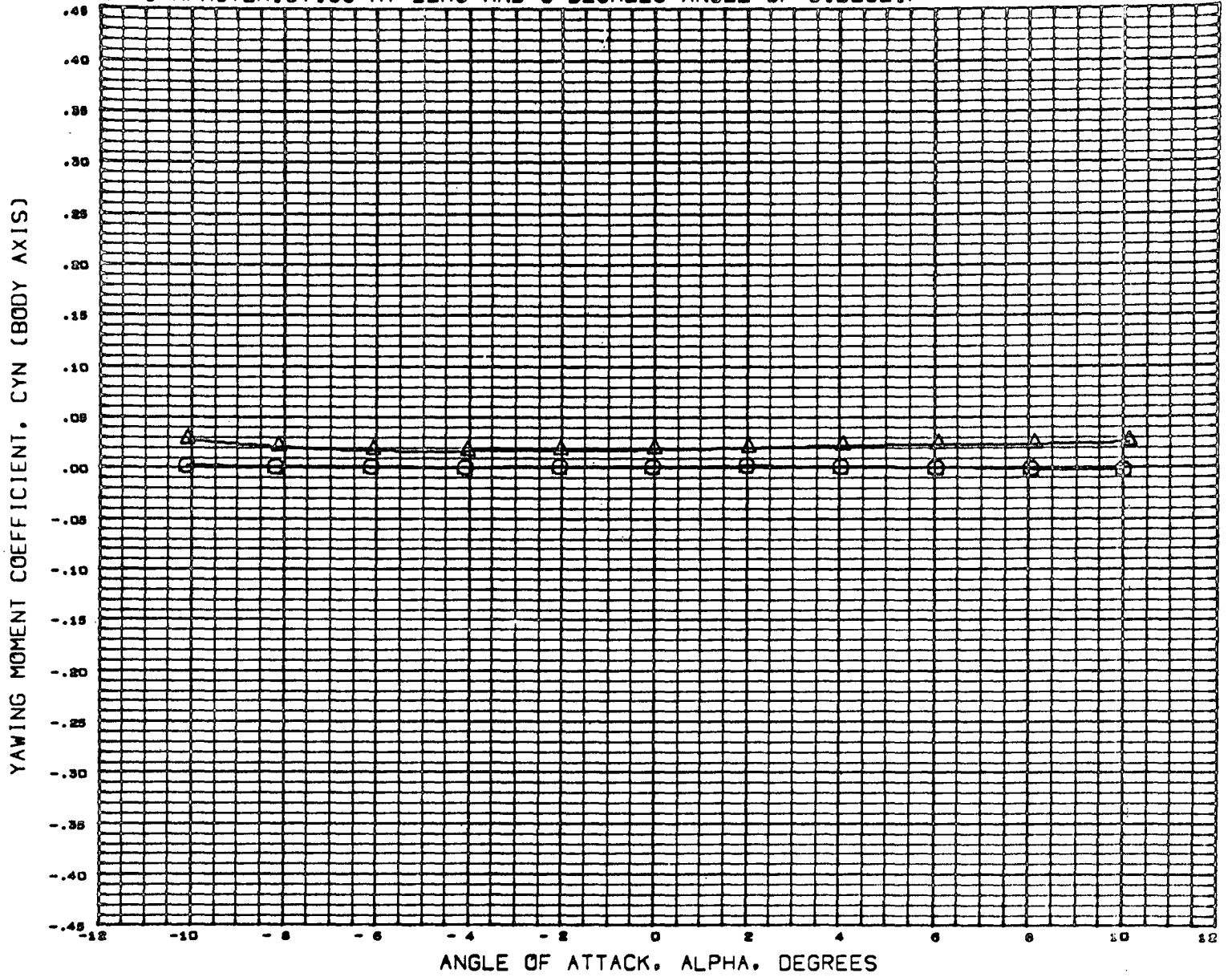
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC490 GD DELTA BOOSTER B20
(A3250A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	19.6963	80 IN
LREF	3.0953	INCHES
BREF	0.0993	INCHES
XMRP	0.0003	
YMRP	0.0003	
ZMRP	0.0003	
SCALE	0.0033	SCALE

MACH 1.059

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



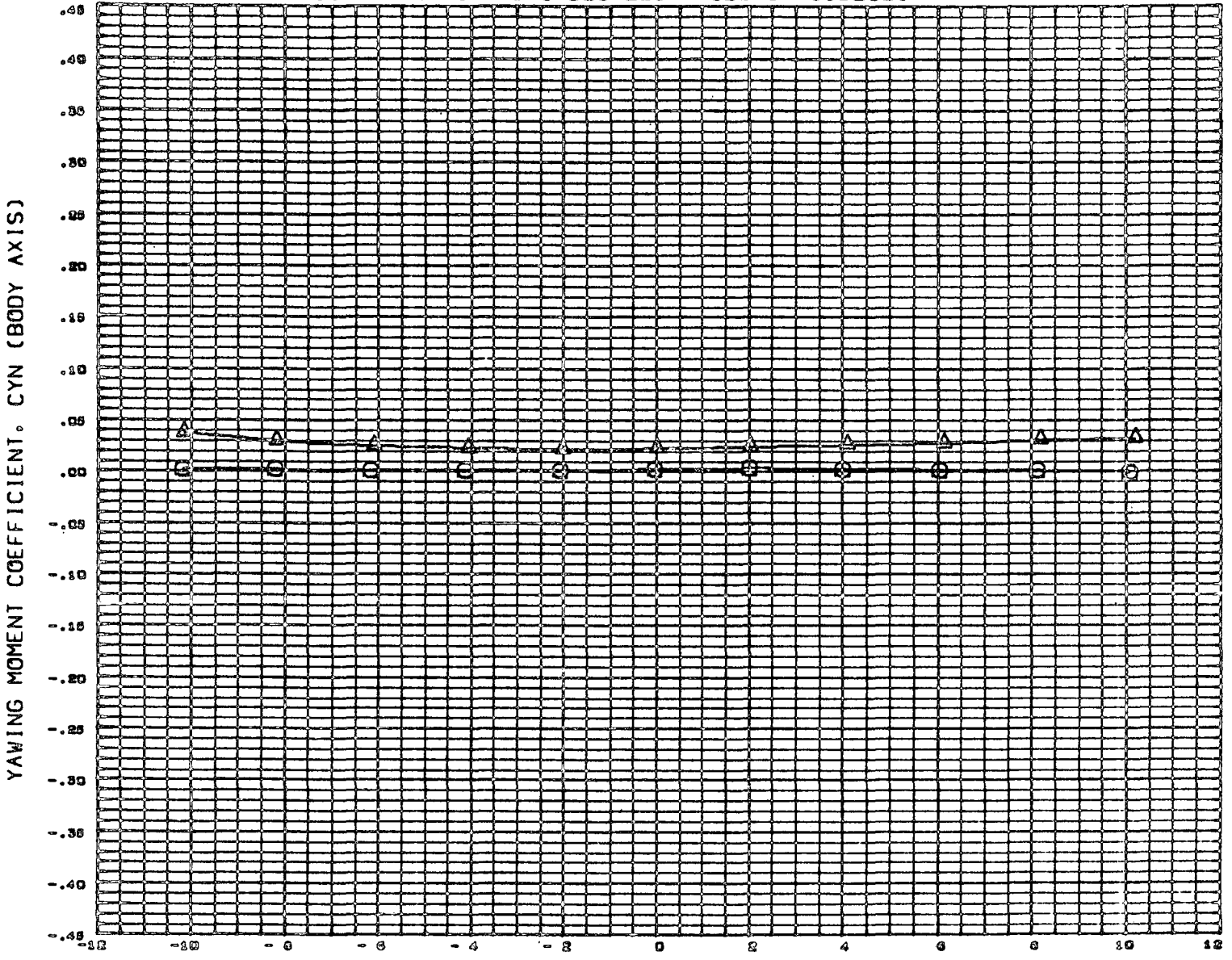
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A) ○	MSFC490 GD DELTA BOOSTER B20
(A3298A) △	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	80 IN
LREF	3.0950	INCHES
BREF	0.0980	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0033	SCALE

MACH 0.600

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



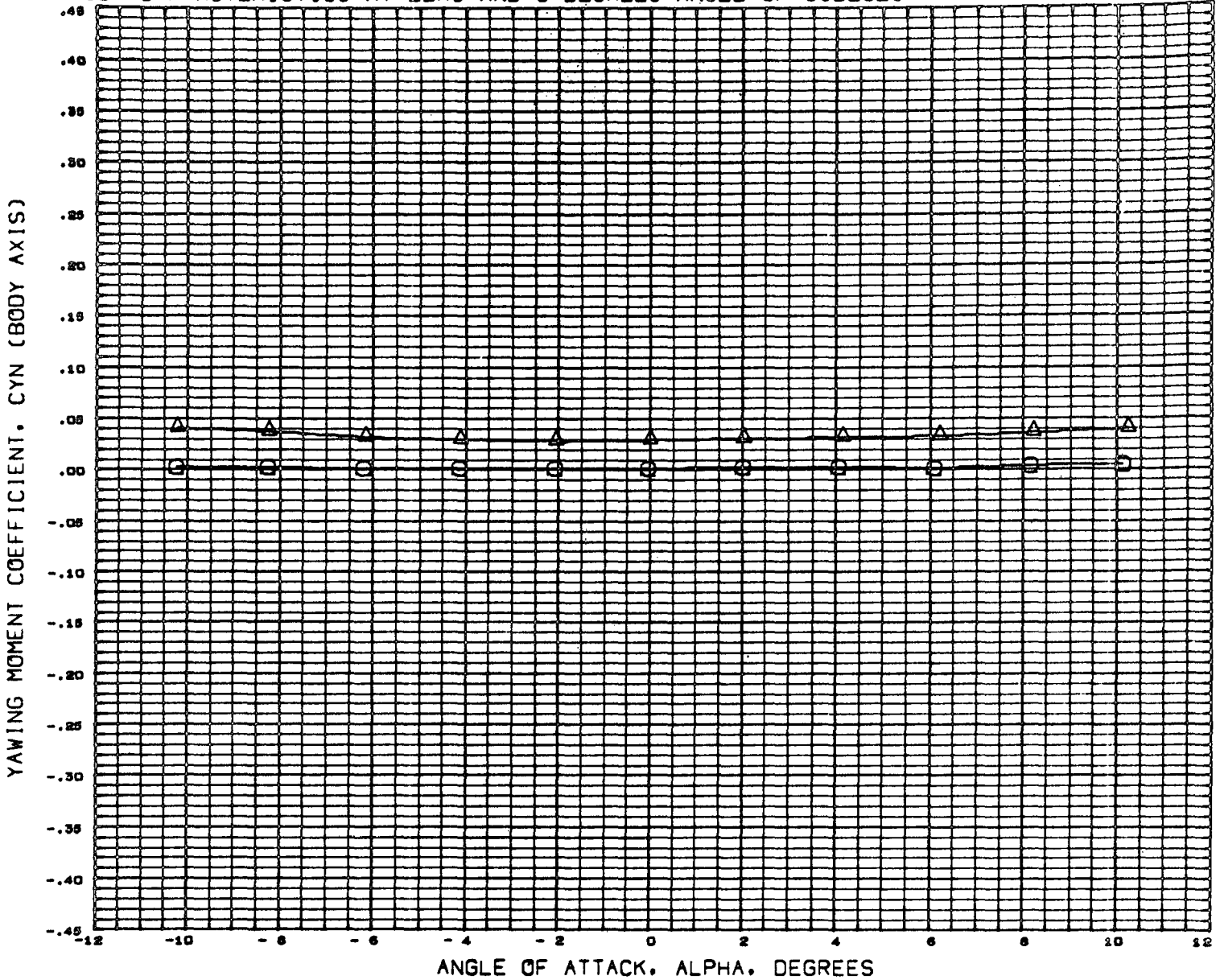
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (A3201A) MSFC490 GD DELTA BOOSTER B20
 (A3258A) MSFC490 GD DELTA BOOSTER B20

BETA 0.000
 ZLVATR 6.000
 AILRON

REFERENCE INFORMATION
 SREF 15.6960 98 IN
 LREF 3.0950 INCHES
 BREF 6.0990 INCHES
 XMRP 0.0000
 YMRP 0.0000
 ZMRP 0.0000
 SCALE 0.0035 SCALE

MACH 0.800

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



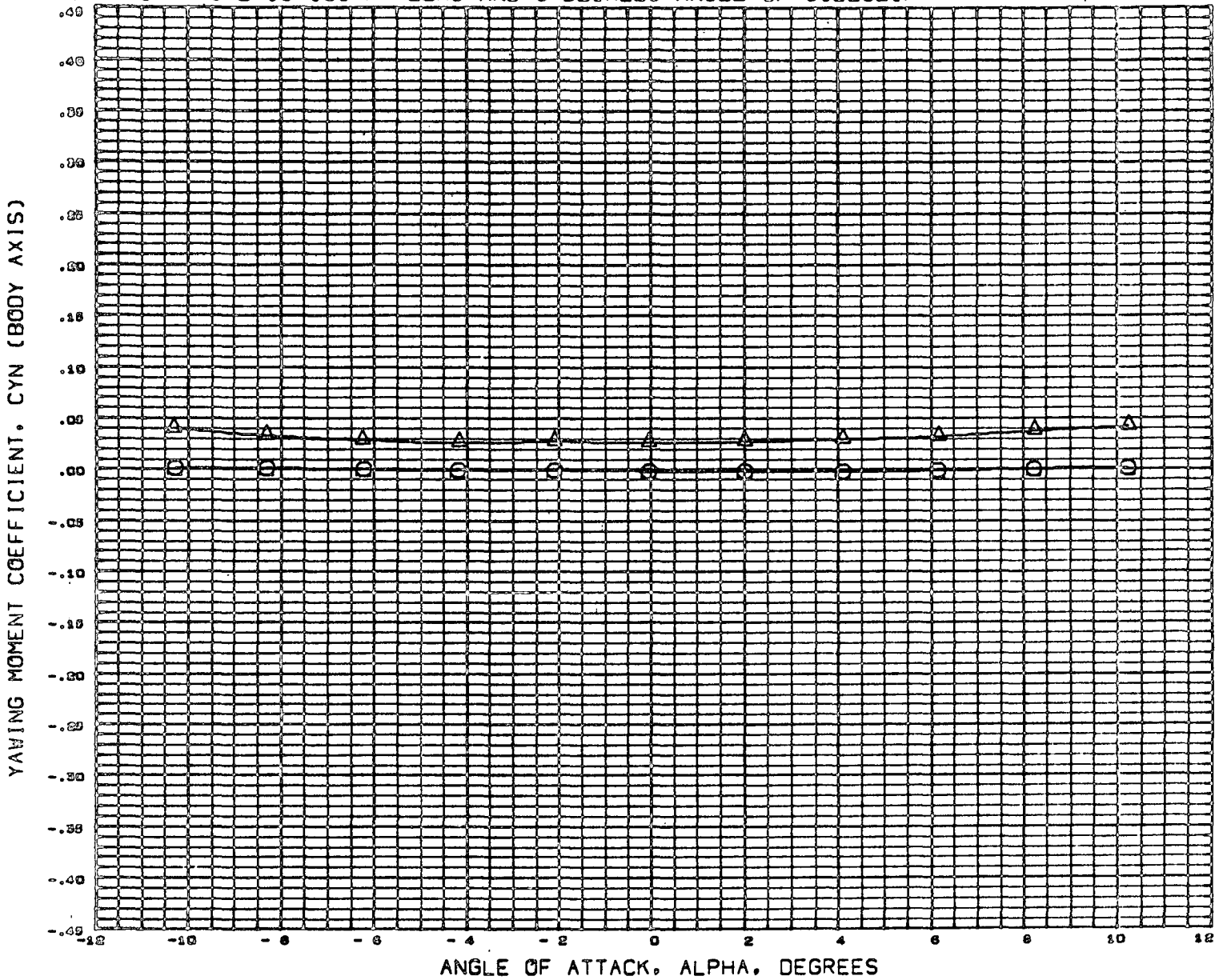
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC490 GD DELTA BOOSTER B20
(A3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.096

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	HSFC490 GD DELTA BOOSTER B20
(A3200A)	HSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.656C	50 IN
LREF	3.099C	INCHES
BREF	6.099C	INCHES
XMRF	0.000C	
YMRF	0.000C	
ZMRF	0.000C	
SCALE	0.0035	SCALE

MACH 1.473

BODY CHARACTERISTICS AT ZERO AND 6 DEGREES ANGLE OF SIDESLIP



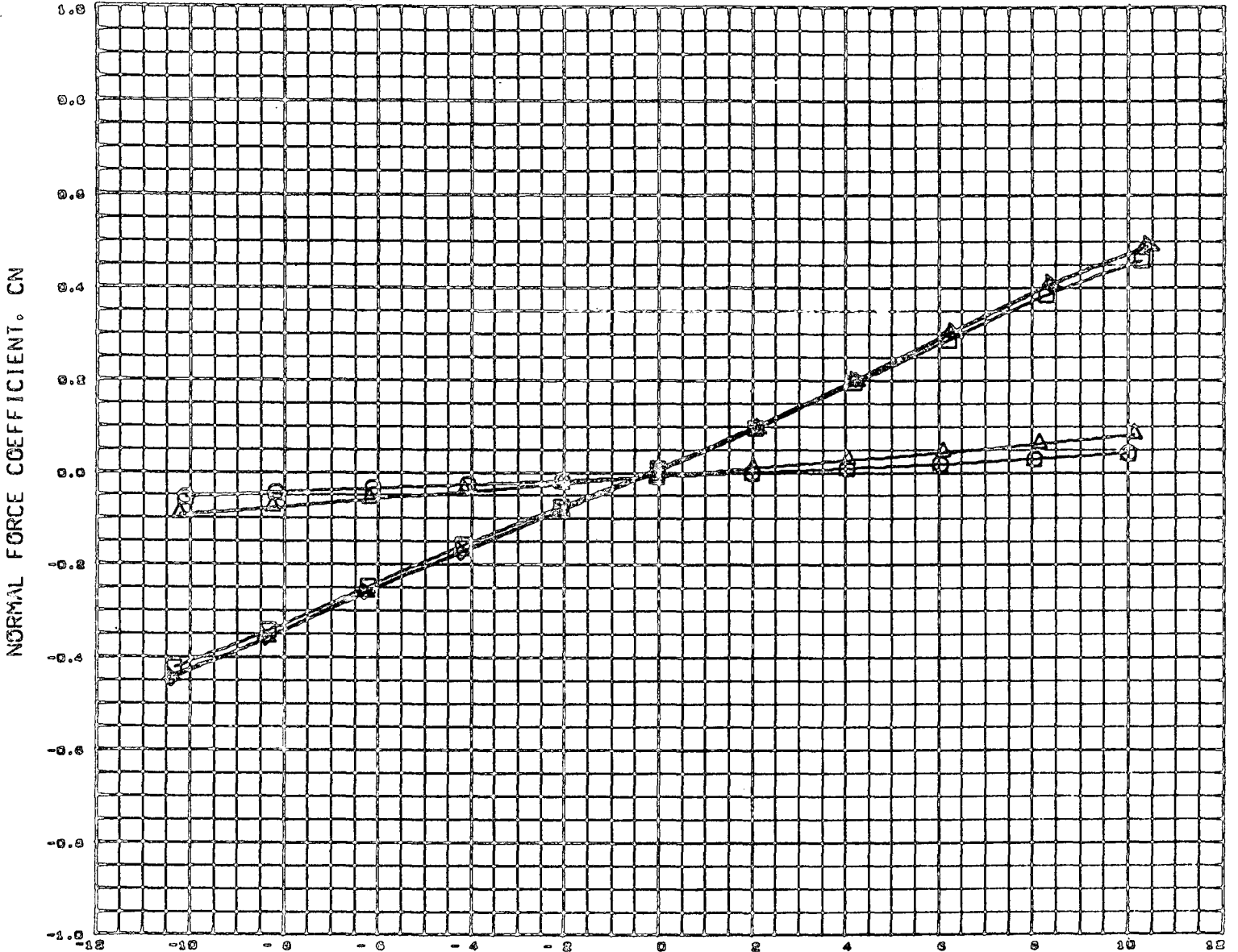
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(A3201A)	MSFC490 GD DELTA BOOSTER B20
(A3258A)	MSFC490 GD DELTA BOOSTER B20

BETA	ELVATR	AILRON
0.000		
6.000		

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.959

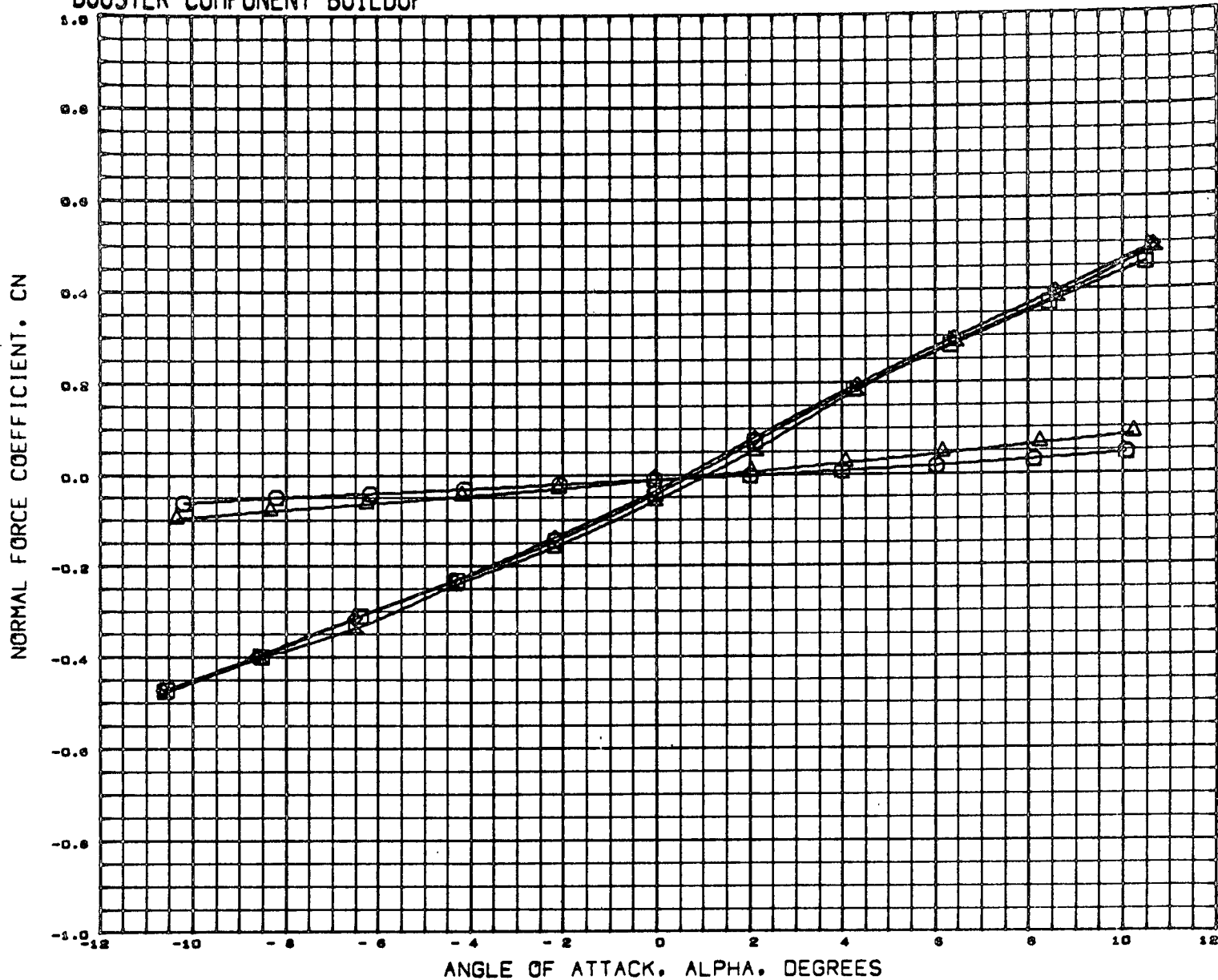
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ETA	ELVATR	AILRON	REFERENCE INFORMATION
(M3201A)	MSFC400 GD DELTA BOOSTER B20	0.000			SREF 19.6960 SQ IN
(M3202A)	MSFC400 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0950 INCHES
(I3203A)	MSFC400 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(M3204A)	MSFC400 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XHRP 0.0000
(I3205A)	MSFC400 GD DELTA BOOSTER B20C4BW14V0	0.000	0.000	0.000	ZHRP 0.0000
					SCALE 0.0039 SCALE

MACH 0.000

BOOSTER COMPONENT BUILDUP



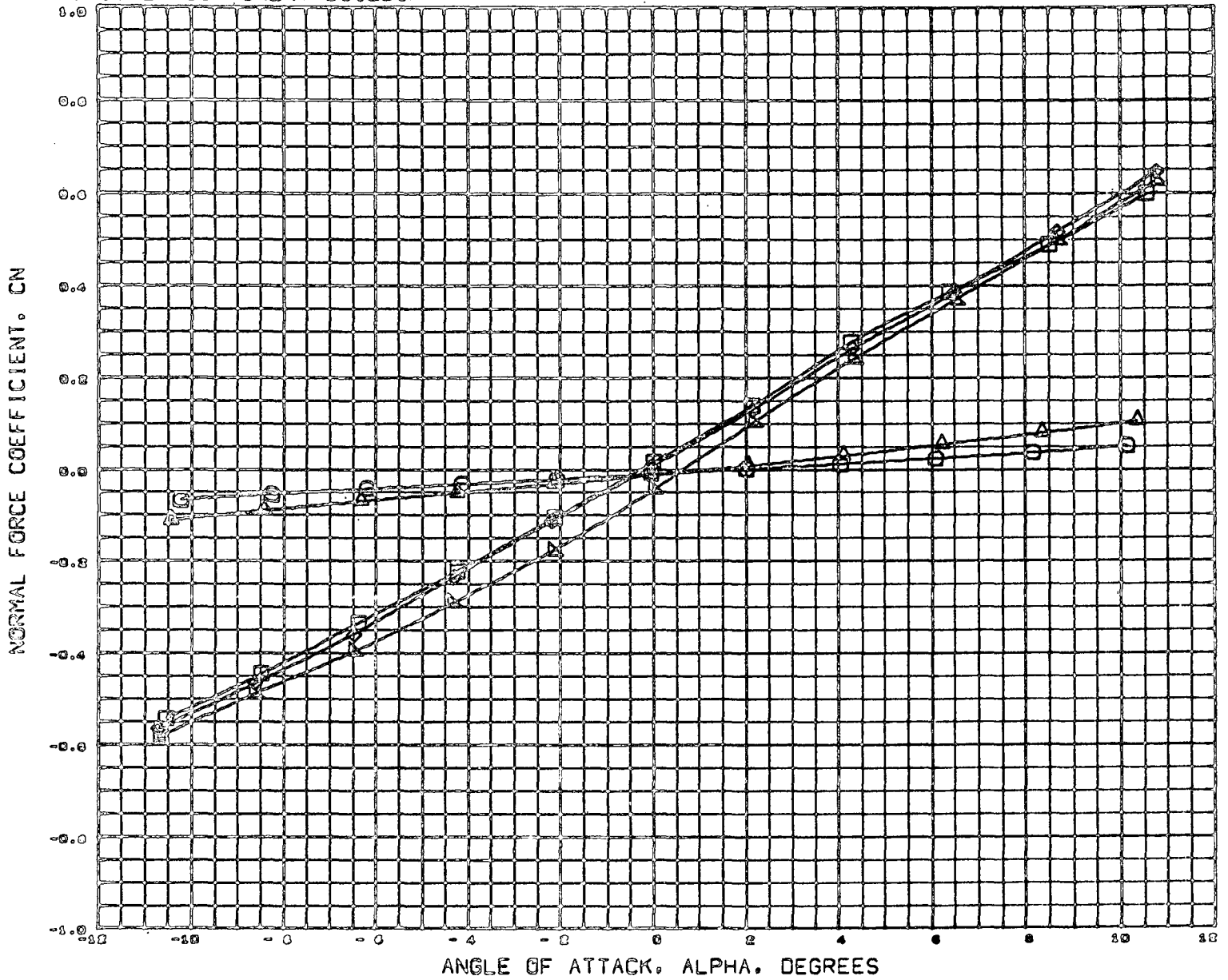
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000		
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0033	SCALE

MACH 0.896

BOOSTER COMPONENT BUILDUP

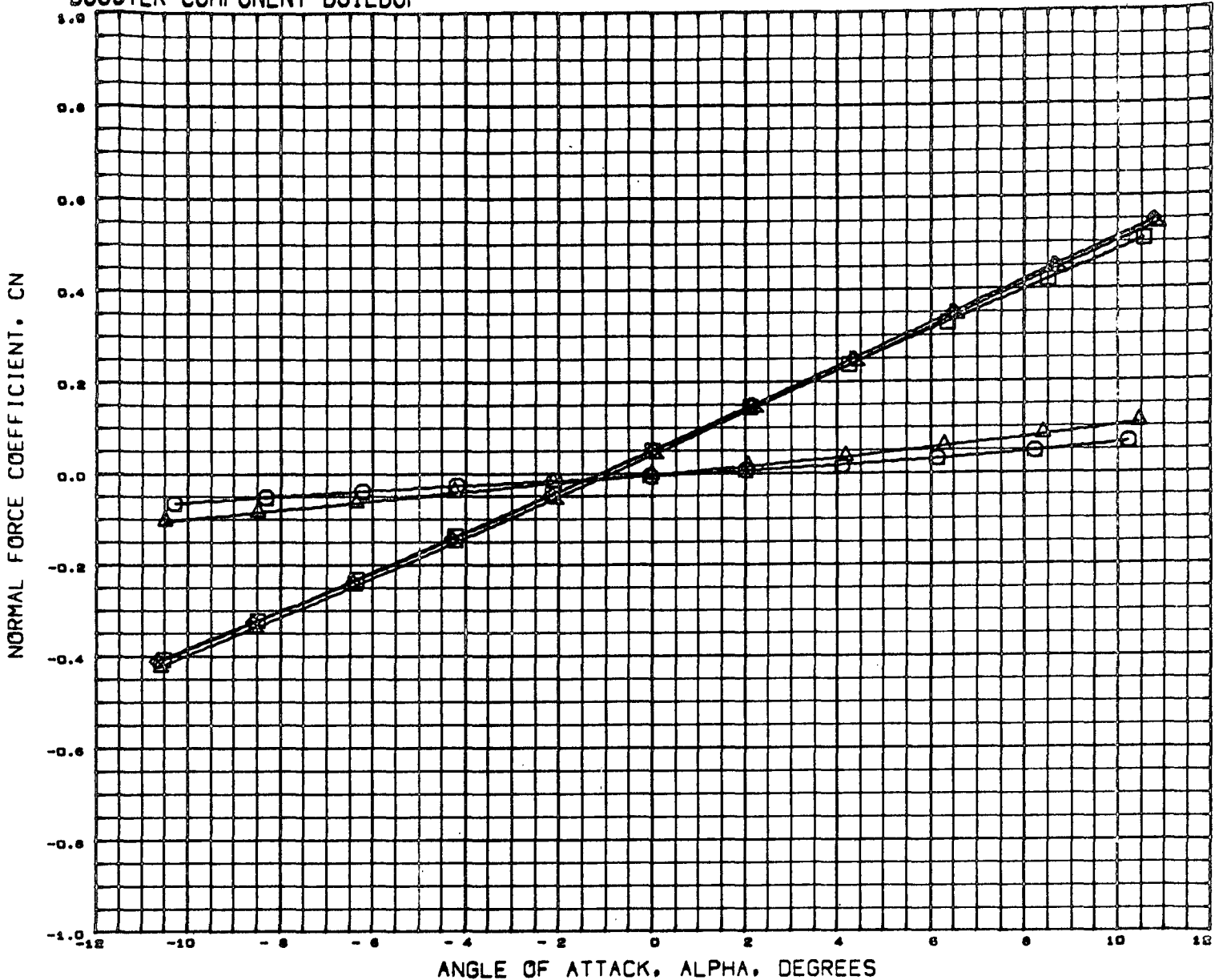


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H5201A)	H5FC400 GD DELTA BOOSTER B20	0.000		
(H5202A)	H5FC400 GD DELTA BOOSTER B20C4B	0.000		
(I5203A)	H5FC400 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(H5204A)	H5FC400 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I5205A)	H5FC400 GD DELTA BOOSTER B20C4BW14V0	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6500	SQ IN
LREF	3.0950	INCHES
BREF	0.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACN 1.000

BOOSTER COMPONENT BUILDUP

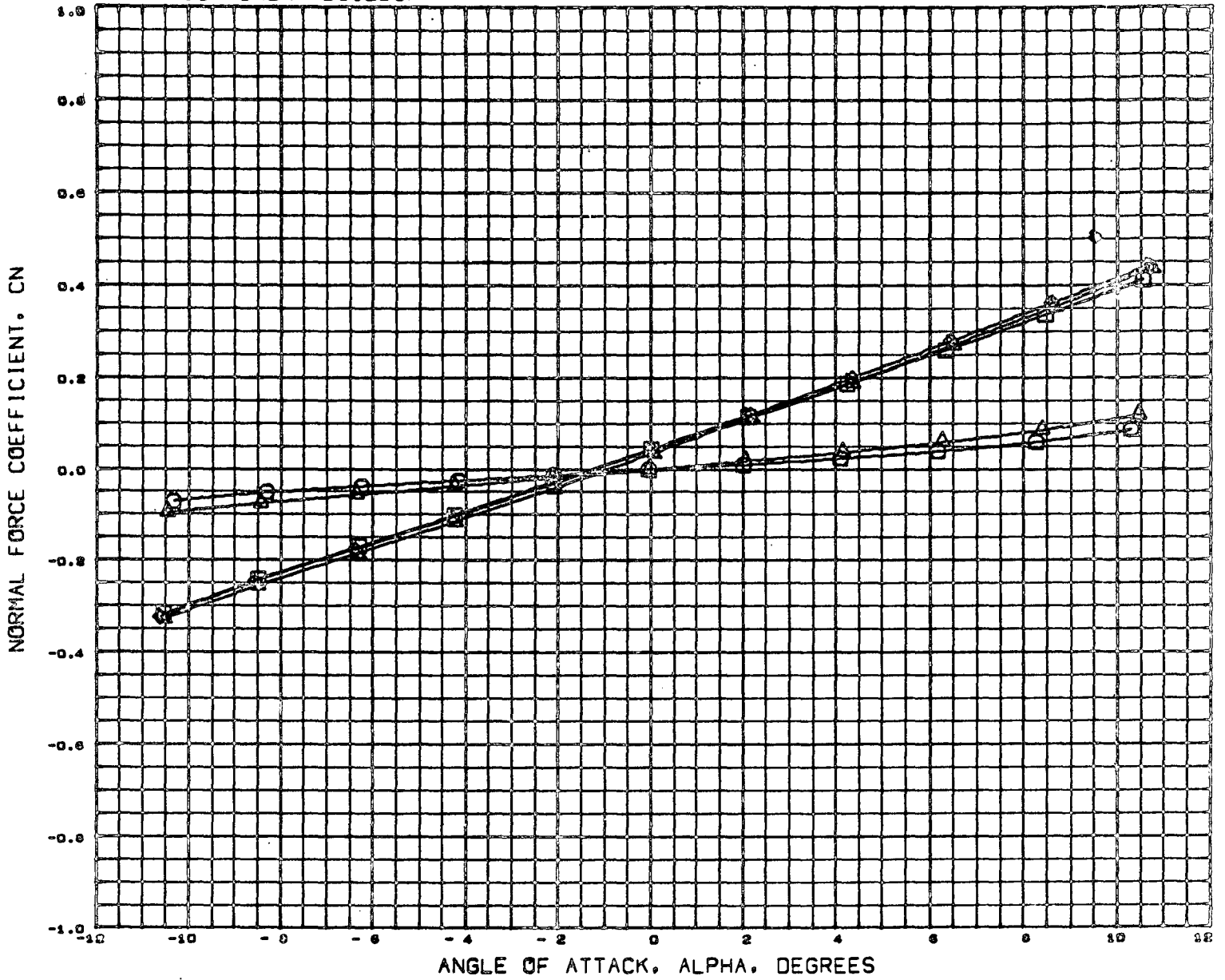


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000		
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H5201A)	MSFC490 GD DELTA BOOSTER B20
(H5202A)	MSFC490 GD DELTA BOOSTER B20C4B
(I5203A)	MSFC490 GD DELTA BOOSTER B20C4BW14
(H5204A)	MSFC490 GD DELTA BOOSTER B20W14
(I5205A)	MSFC400 GD DELTA BOOSTER B20C4BW14V8

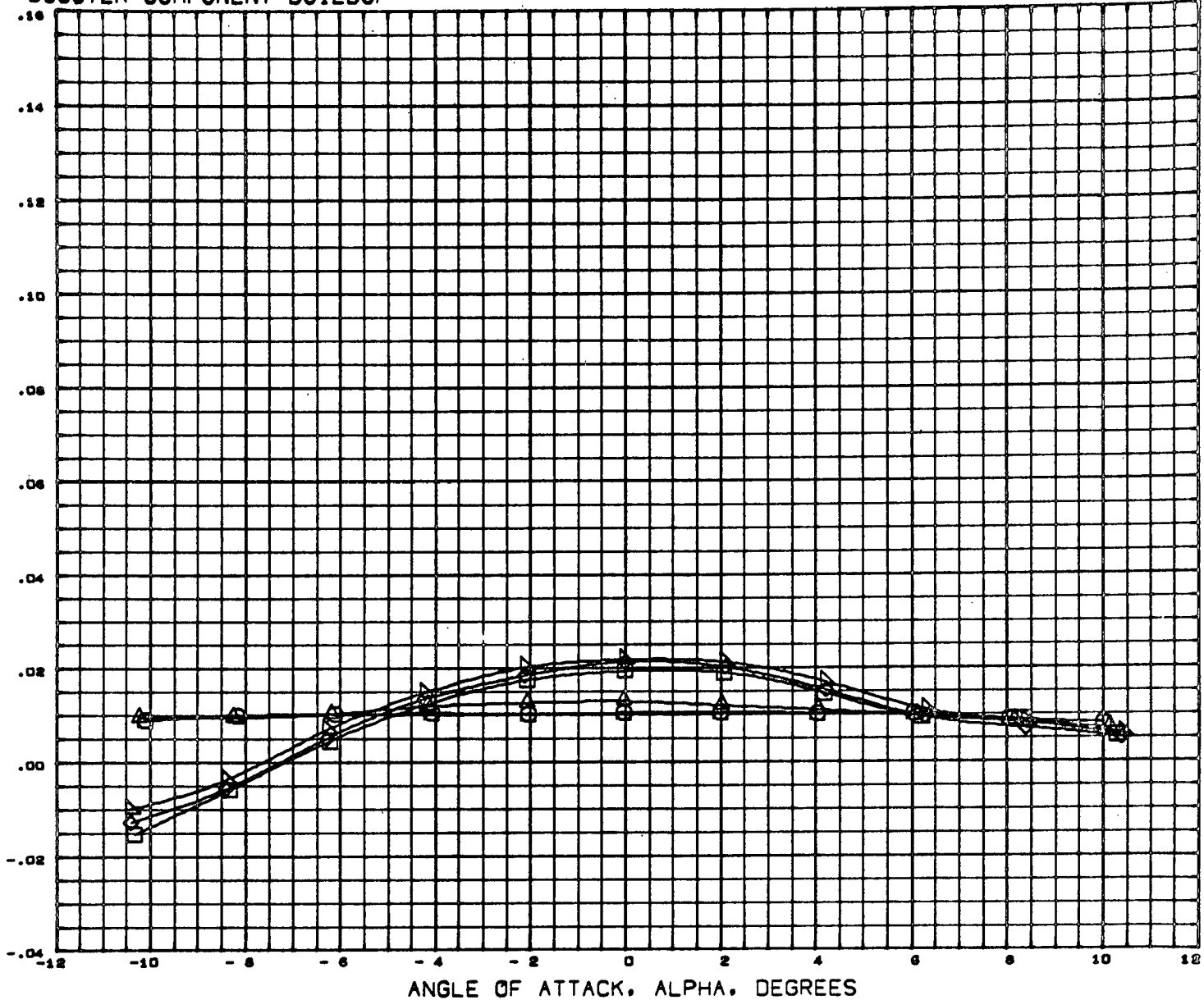
BETA	ELVATR	AILRON
0.000		
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6500	SQ IN
LREF	3.0000	INCHES
BREF	6.0000	INCHES
XMRF	0.0000	
YMRF	0.0000	
ZMRF	0.0000	
SCALE	0.0039	SCALE

MACH 1.958

BOOSTER COMPONENT BUILDUP

FOREBODY AXIAL FORCE COEFFICIENT, CAF

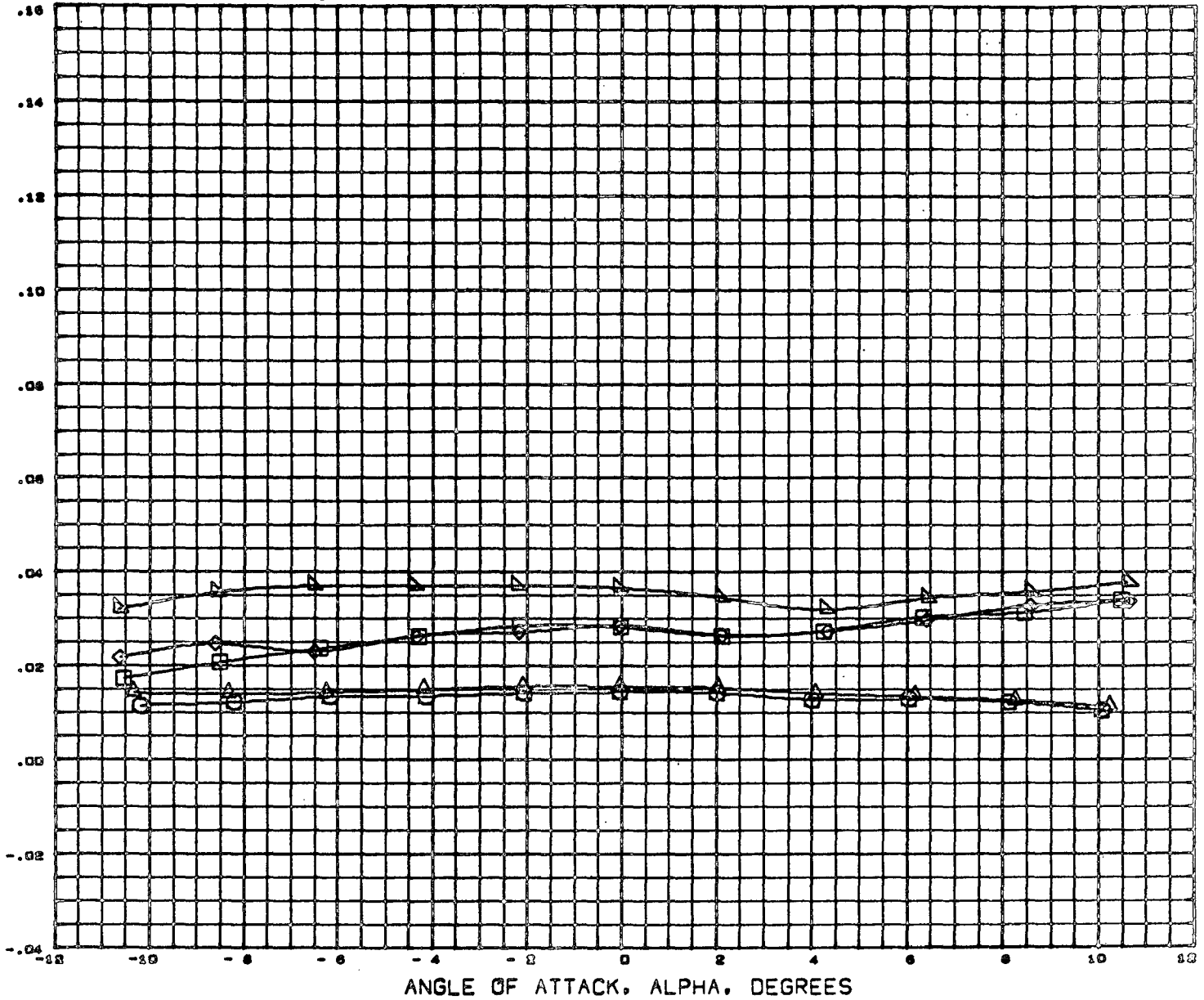


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 15.6560 30 IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0990 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 0.800

BOOSTER COMPONENT BUILDUP

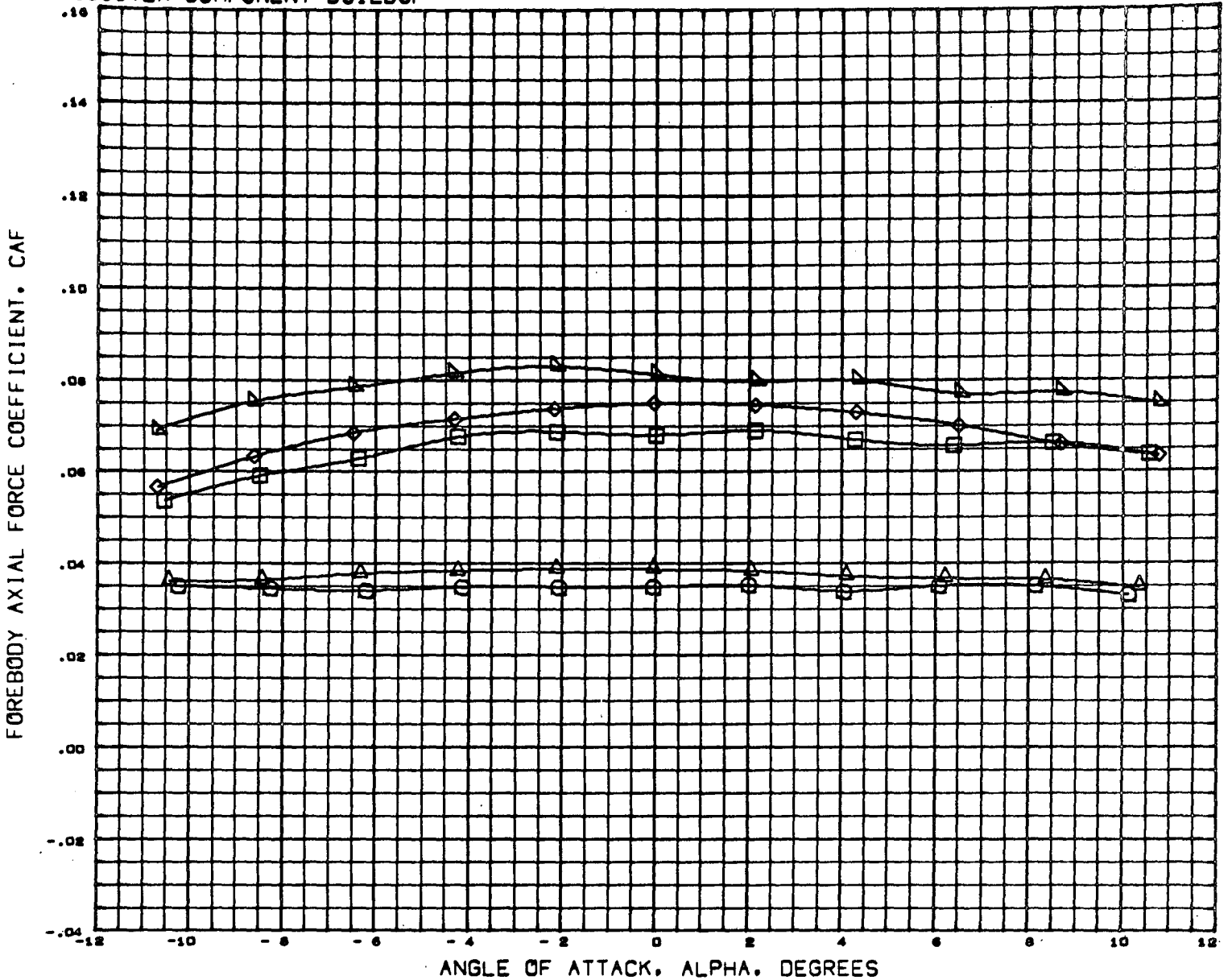
FOREBODY AXIAL FORCE COEFFICIENT, CAF



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION	
(M3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF	19.6960 90 IN
(M3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF	3.0950 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF	6.0960 INCHES
(M3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP	0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP	0.0000
					ZMRP	0.0000
					SCALE	0.0039 SCALE

MACH 0.696

BOOSTER COMPONENT BUILDUP



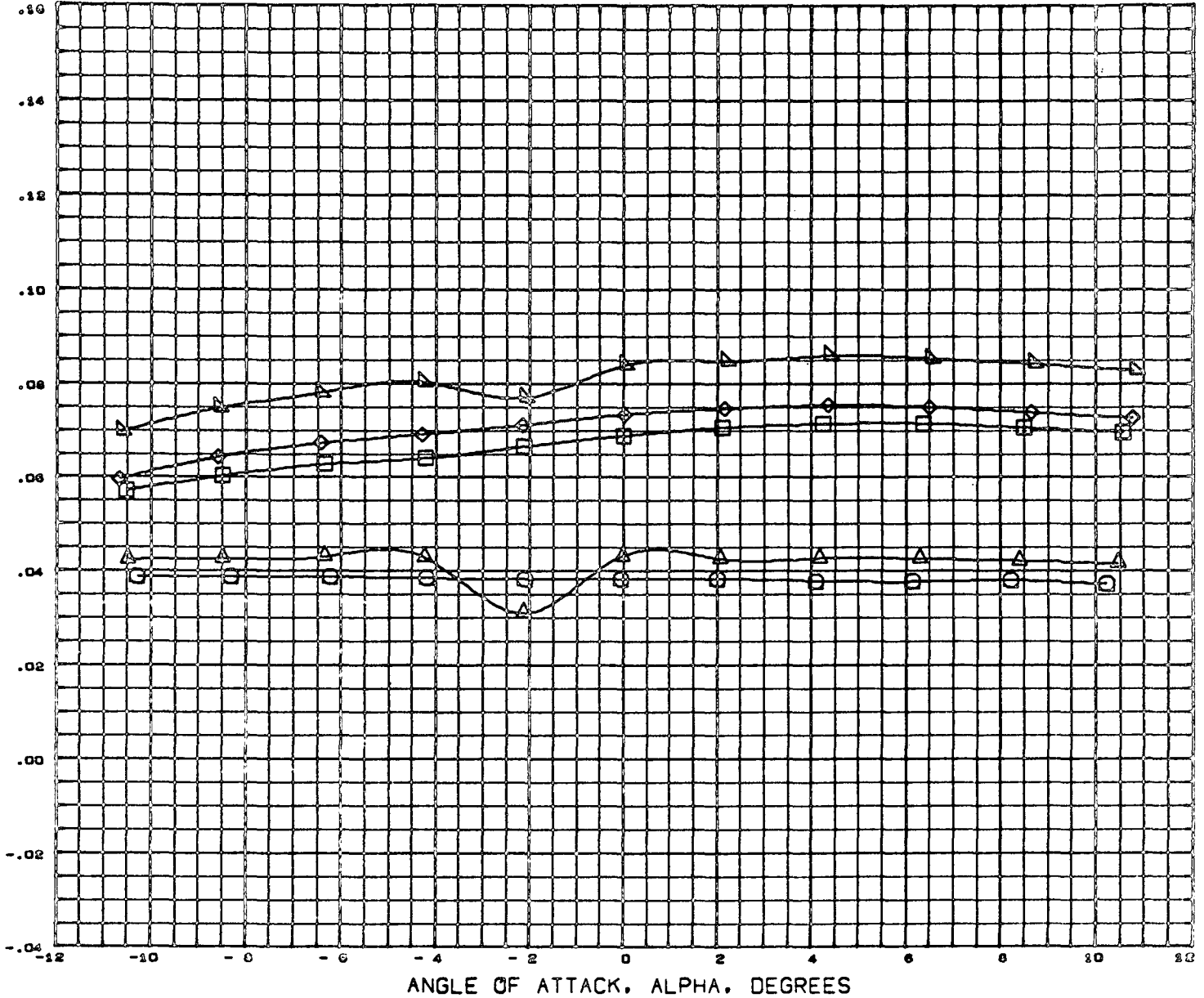
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(M3201A)	MSFC490 GD DELTA BOOSTER B2D	0.000		
(M3202A)	MSFC490 GD DELTA BOOSTER B2DC4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B2DC4BW14	0.000	0.000	0.000
(M3204A)	MSFC490 GD DELTA BOOSTER B2DW14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B2DC4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BOOSTER COMPONENT BUILDUP

FOREBODY AXIAL FORCE COEFFICIENT, CAF

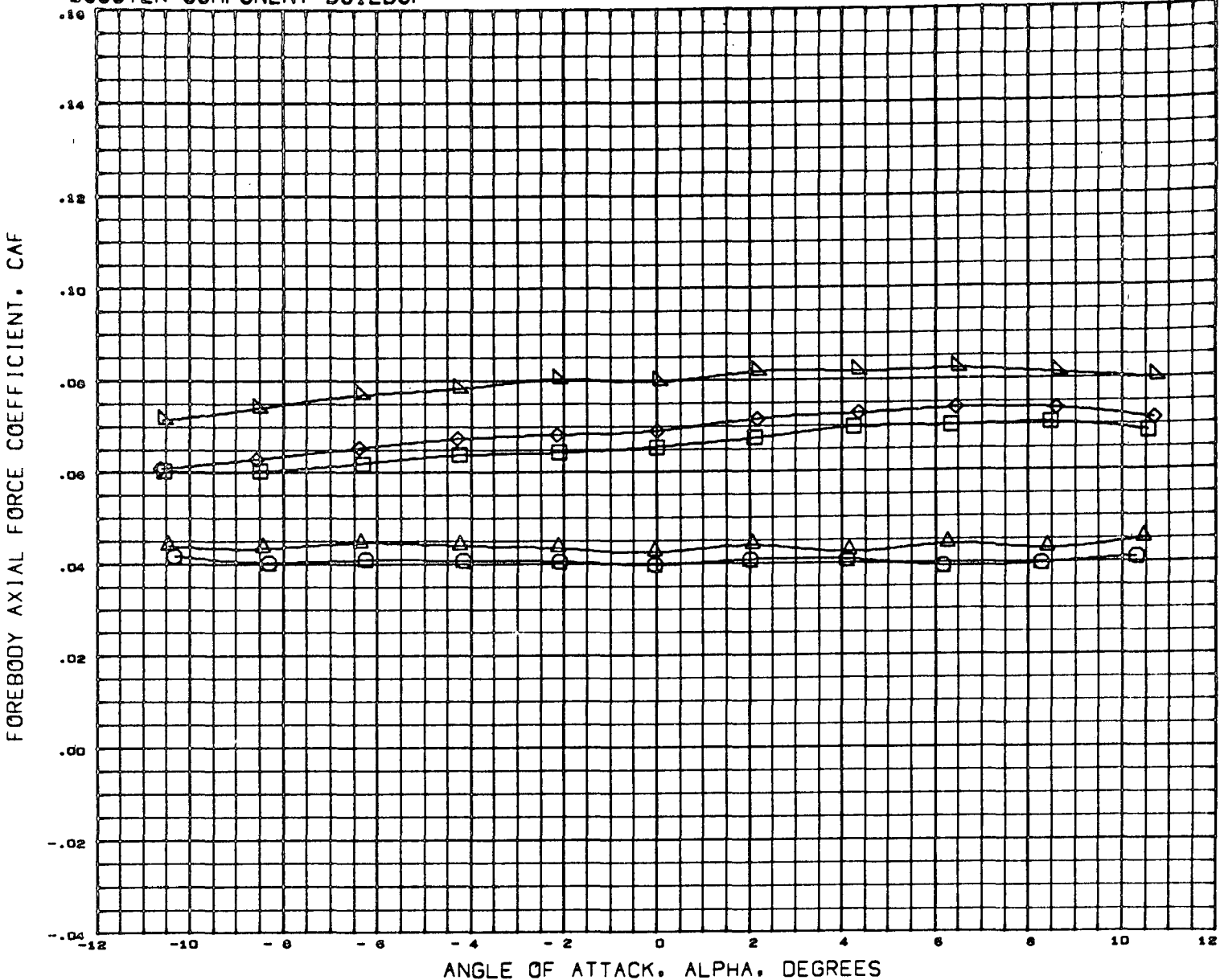


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(M3201A)	MSFC490 GD DELTA BOOSTER B20	0.000		
(M3202A)	MSFC490 GD DELTA BOOSTER B20C48	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C48W14	0.000	0.000	0.000
(M3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0990	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.473

BOOSTER COMPONENT BUILDUP

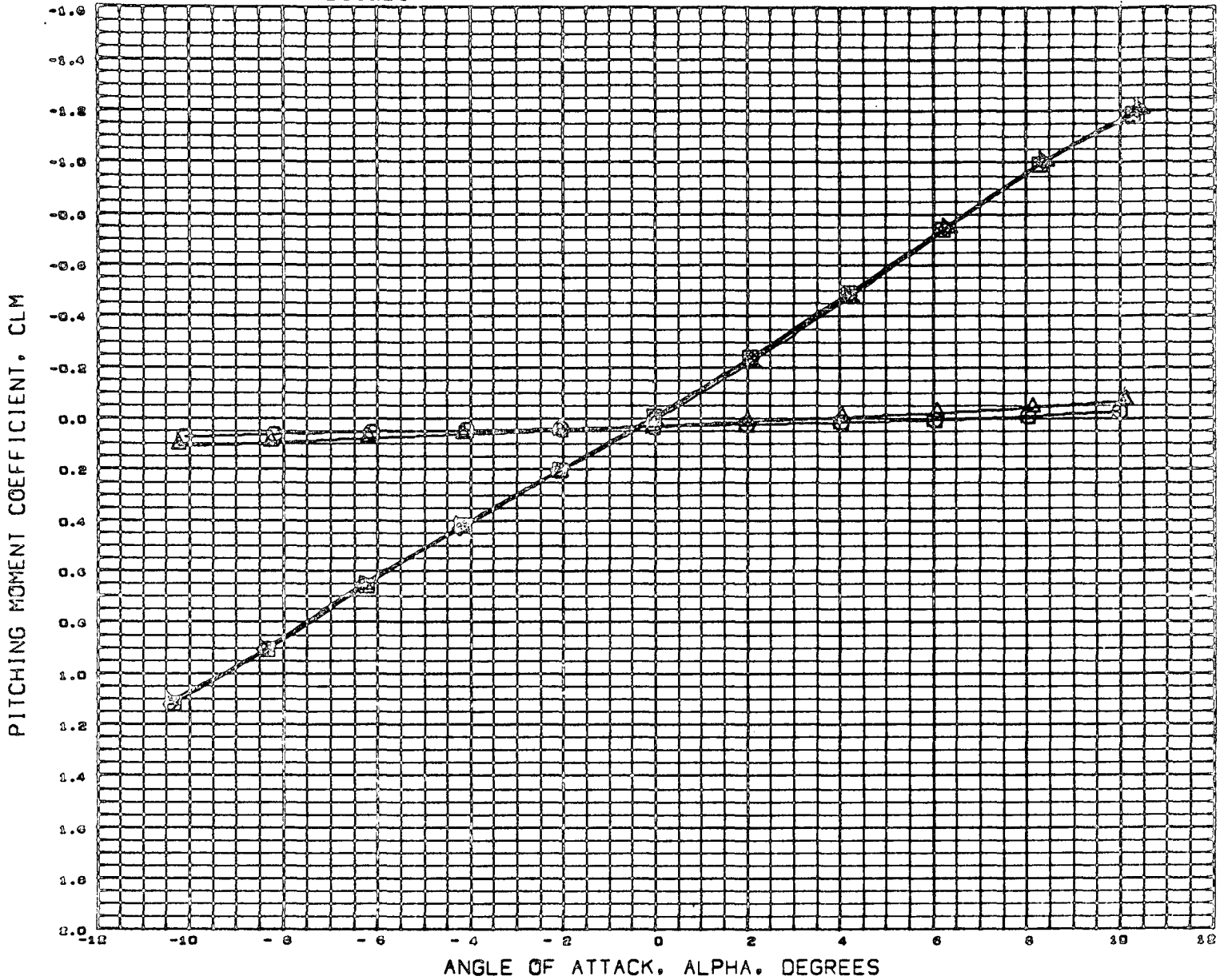


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(M3201A)	MSFC490 GD DELTA BOOSTER B20	0.000		
(M3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(M3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

BOOSTER COMPONENT BUILDUP



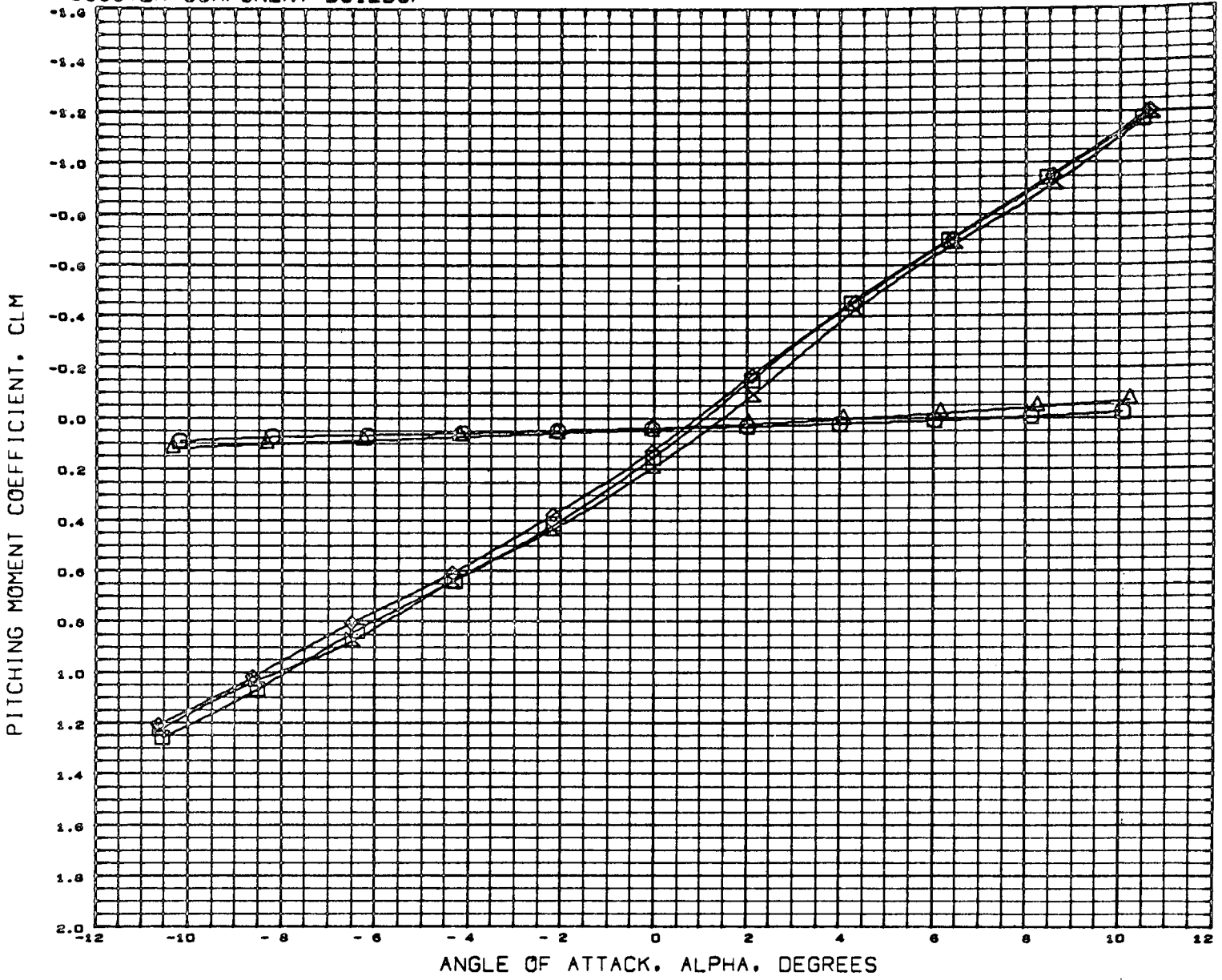
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(M3201A)	MSFC490 GD DELTA BOOSTER B20
(M3202A)	MSFC490 GD DELTA BOOSTER B20C48
(I3203A)	MSFC490 GD DELTA BOOSTER B20C48W14
(M3204A)	MSFC490 GD DELTA BOOSTER B20W14
(I3209A)	MSFC490 GD DELTA BOOSTER B20C48W14V8

BETA	ELVATR	AILRON
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.8960	08 IN
LREF	3.0990	INCKZB
BREF	6.0990	INCKZB
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

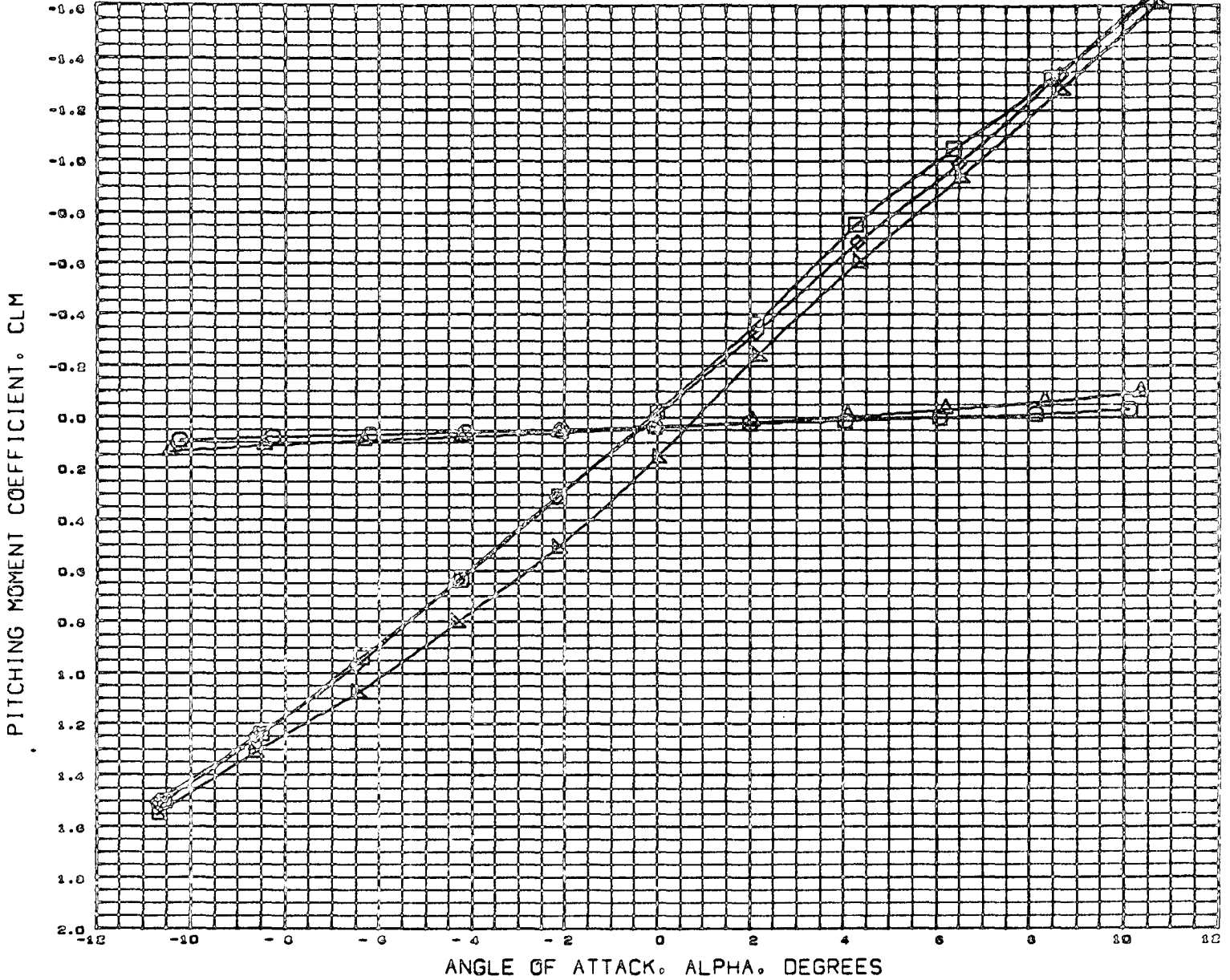
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B2D	0.000			SREF 15.6560 SQ IN
(H3202A)	MSFC490 GD DELTA BOOSTER B2UC4B	0.000			LREF 3.0950 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B2UC4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B2UW14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B2UC4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 0.896

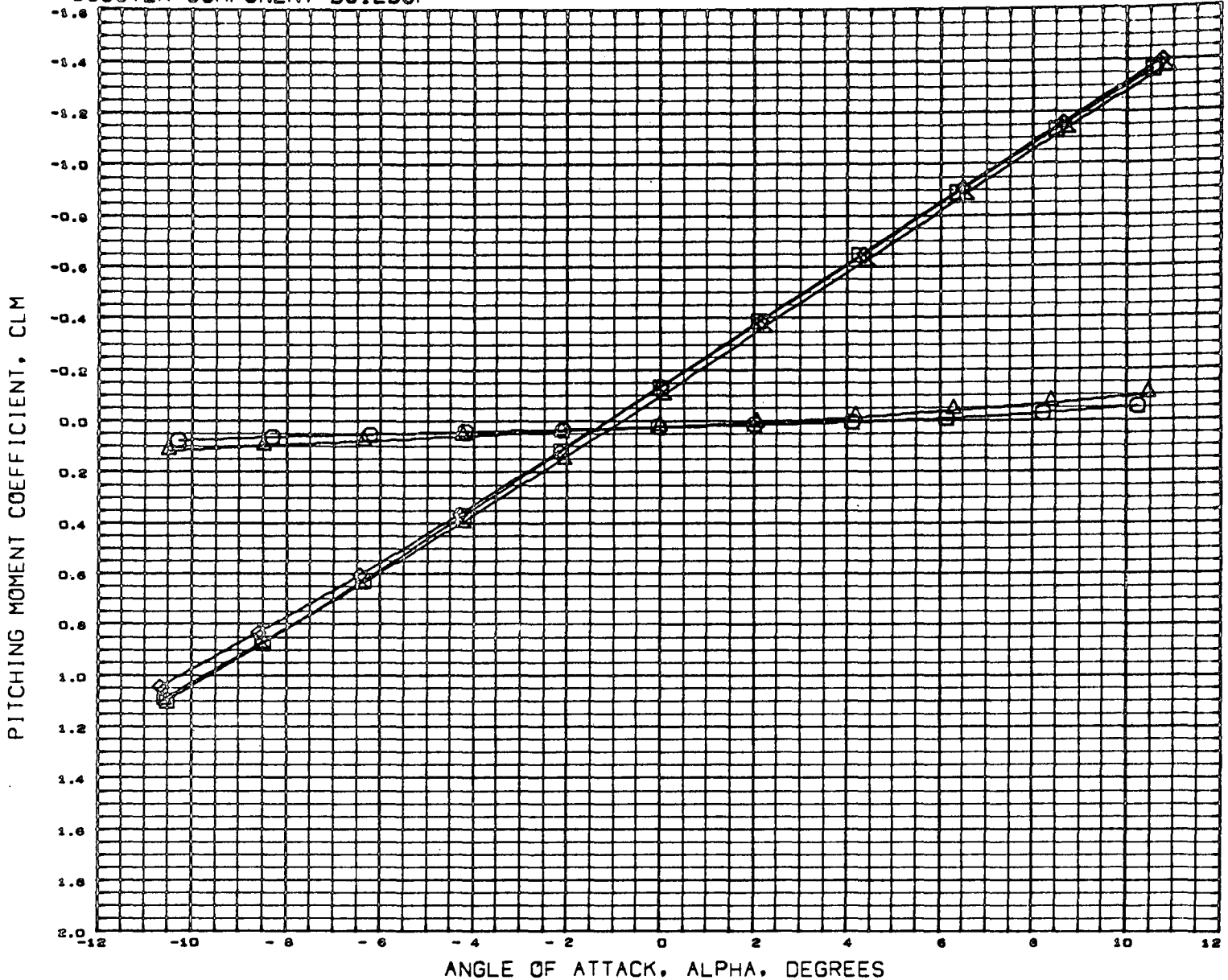
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 19.6930 SQ IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C48	0.000			LREF 3.0930 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C48W14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C48W14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0039 SCALE

MACH 1.096

BOOSTER COMPONENT BUILDUP

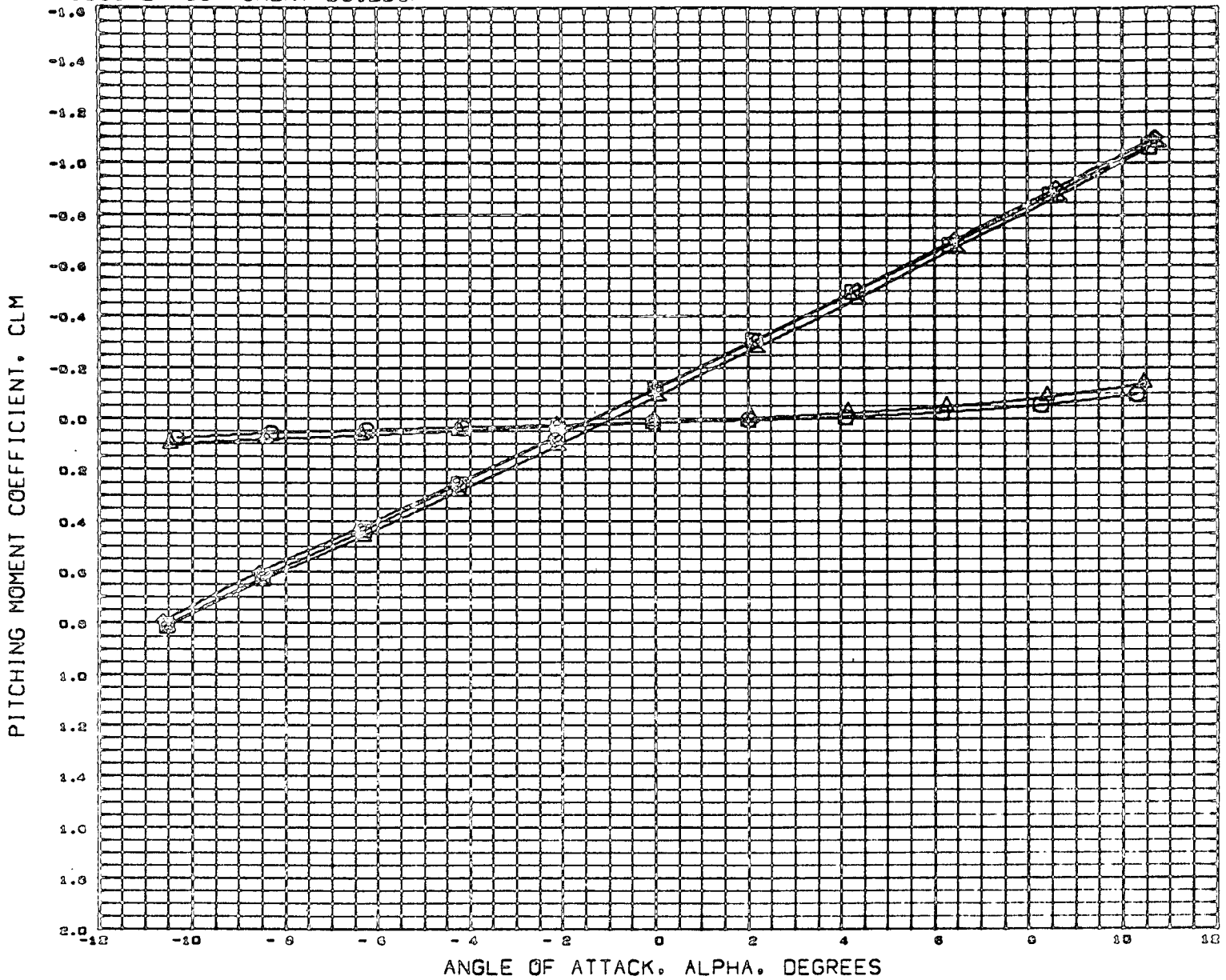


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000		
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION	
SREF	15.6560 SQ IN
LREF	3.0950 INCHES
BREF	6.0990 INCHES
XMRP	0.0000
YMRP	0.0000
ZMRP	0.0000
SCALE	0.0035 SCALE

MACH 1.473

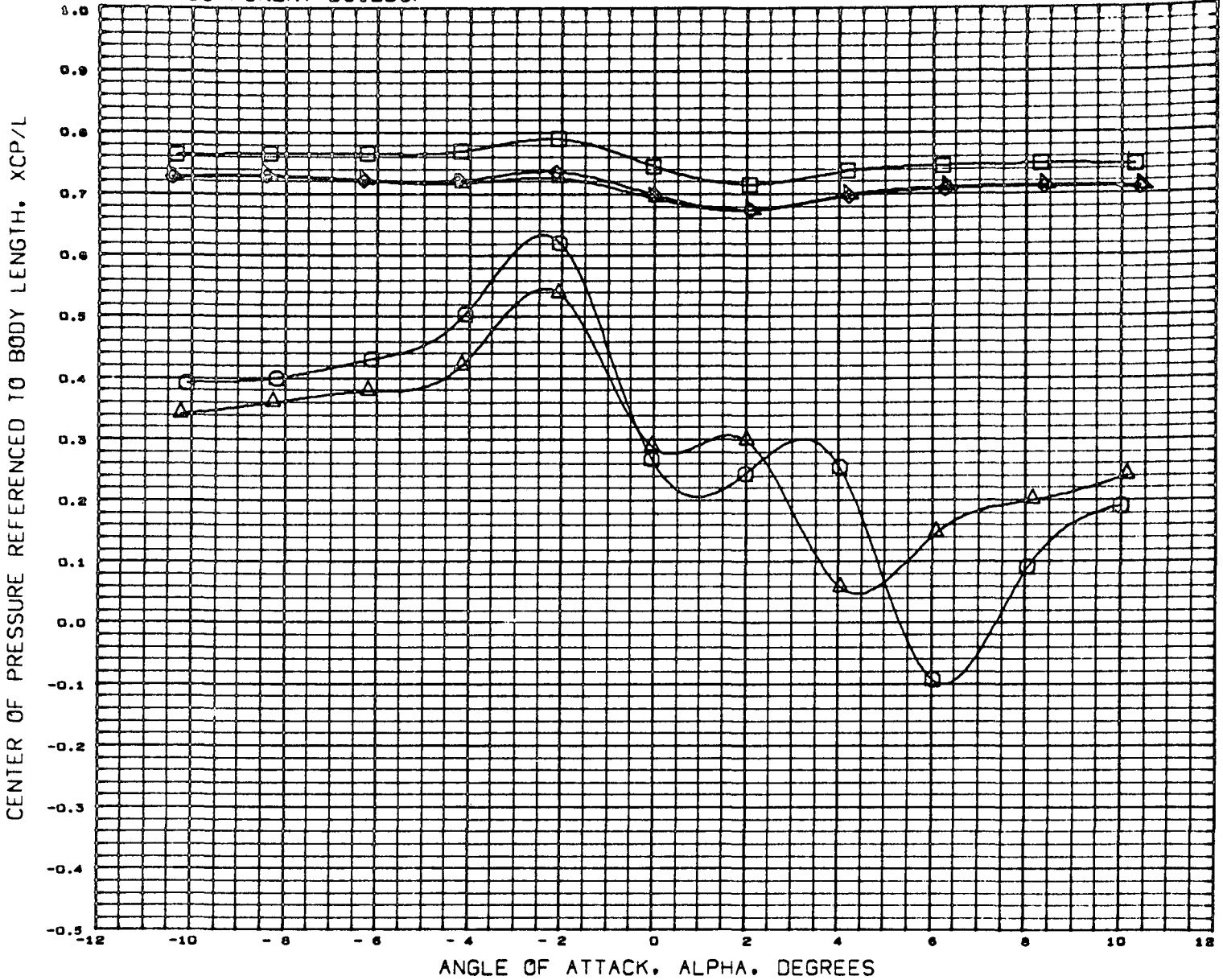
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 15.6560 SQ IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0990 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.959

BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

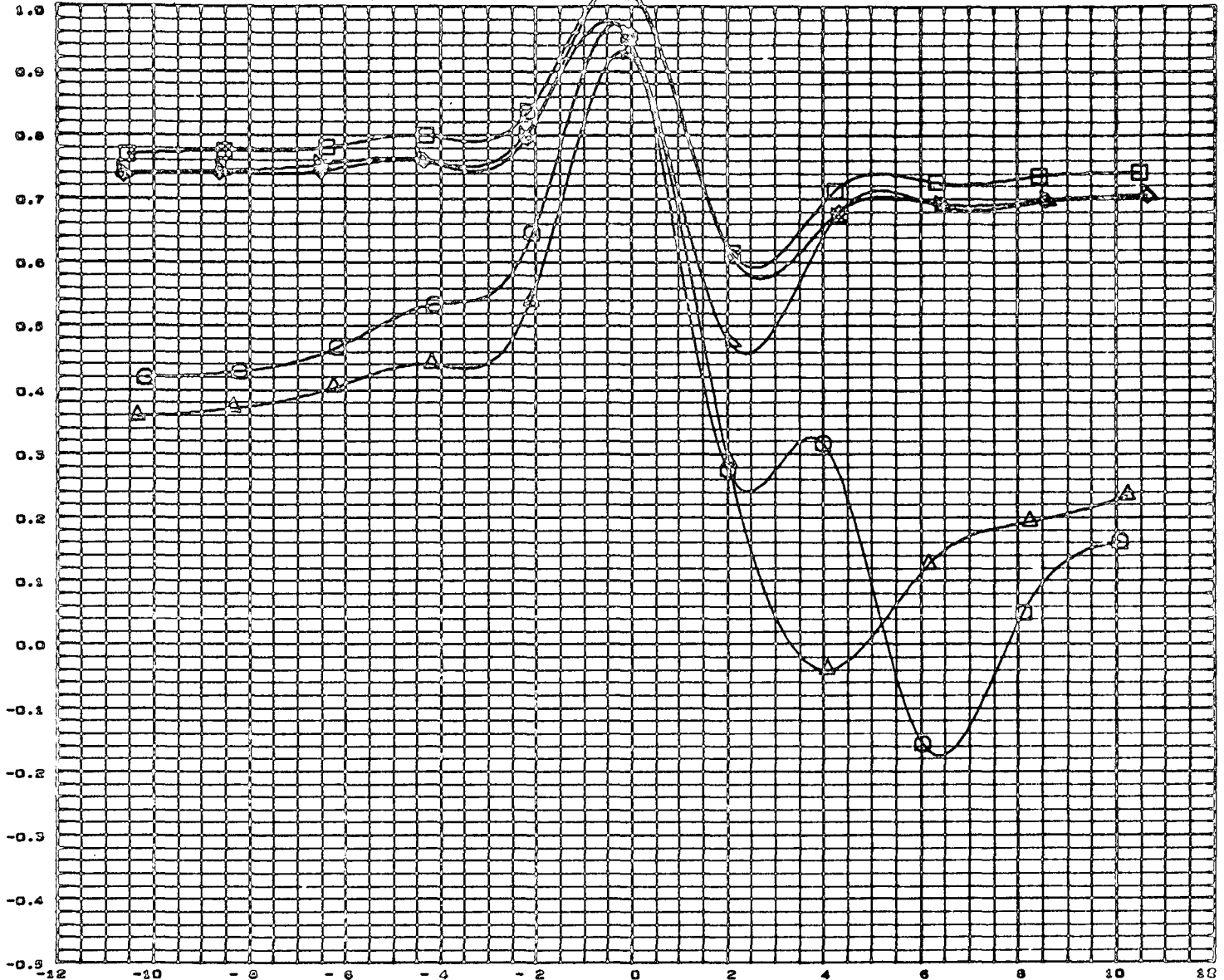
BETA	ELVATR	AILRON
0.000		
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 0.600

BOOSTER COMPONENT BUILDUP

CENTER OF PRESSURE REFERENCED TO BODY LENGTH, XCP/L



ANGLE OF ATTACK, ALPHA, DEGREES

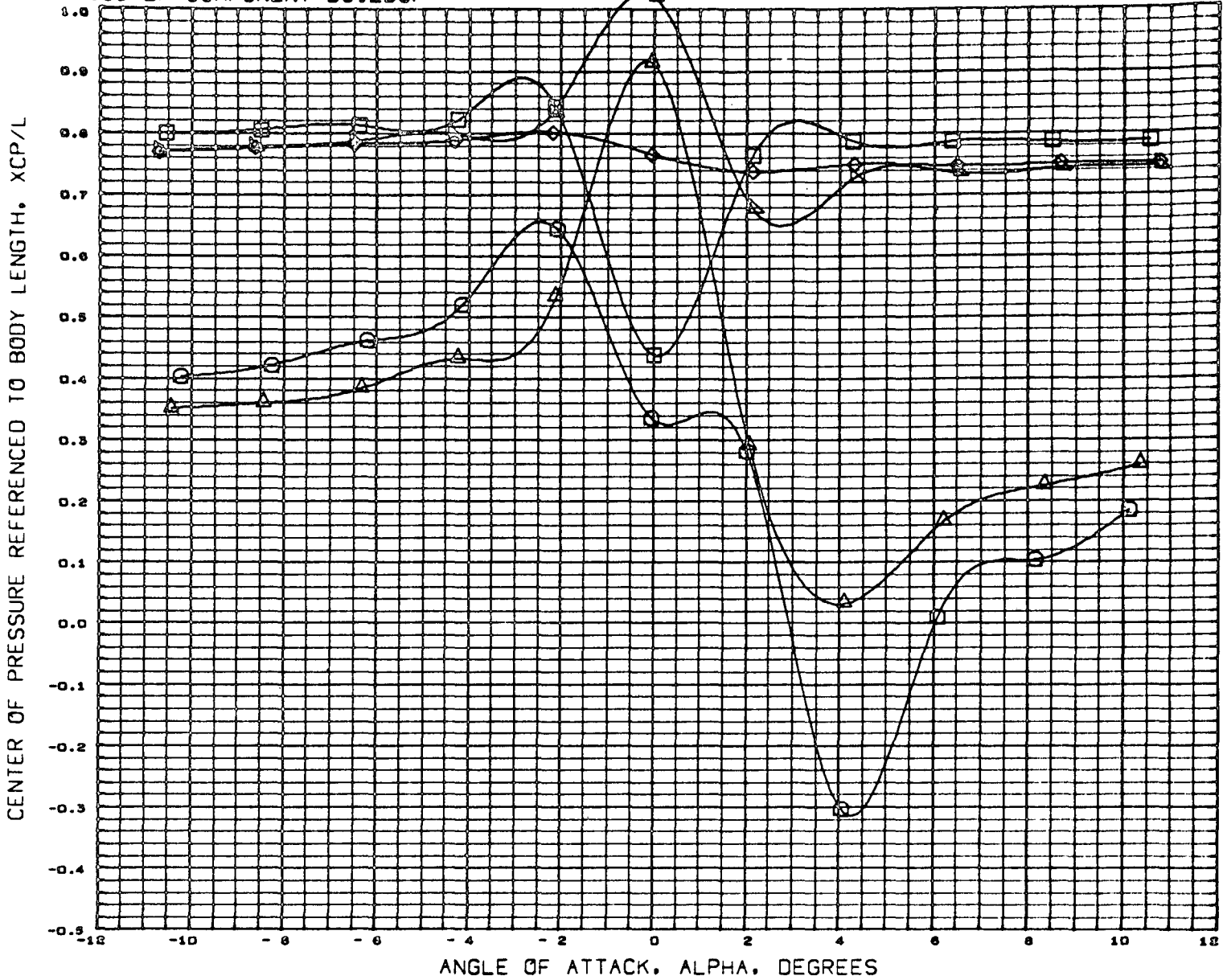
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	M3FC490 GD DELTA BOOSTER B2U
(H3202A)	M3FC490 GD DELTA BOOSTER B2UC4B
(I3203A)	M3FC490 GD DELTA BOOSTER B2UC4BW14
(H3204A)	M3FC490 GD DELTA BOOSTER B2UW14
(I3205A)	M3FC490 GD DELTA BOOSTER B2UC4BW14V8

BETA	ELVATR	AILRON
0.000		
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
YMRP	0.0000	
ZMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 0.096

BOOSTER COMPONENT BUILDUP



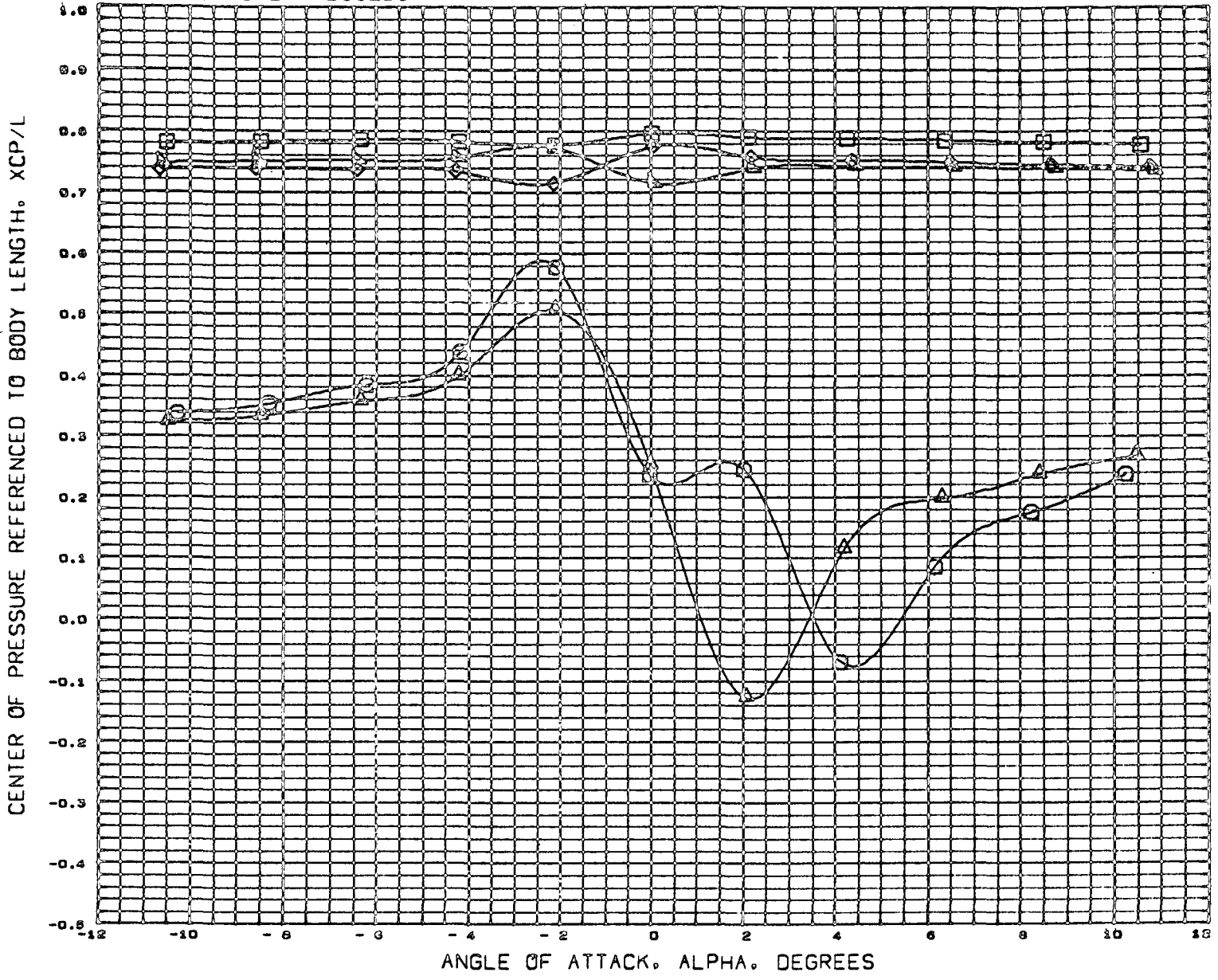
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(H3201A)	MSFC490 GD DELTA BOOSTER B20
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8

BETA	ELVATR	AILRON
0.000		
0.000		
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.098

BOOSTER COMPONENT BUILDUP

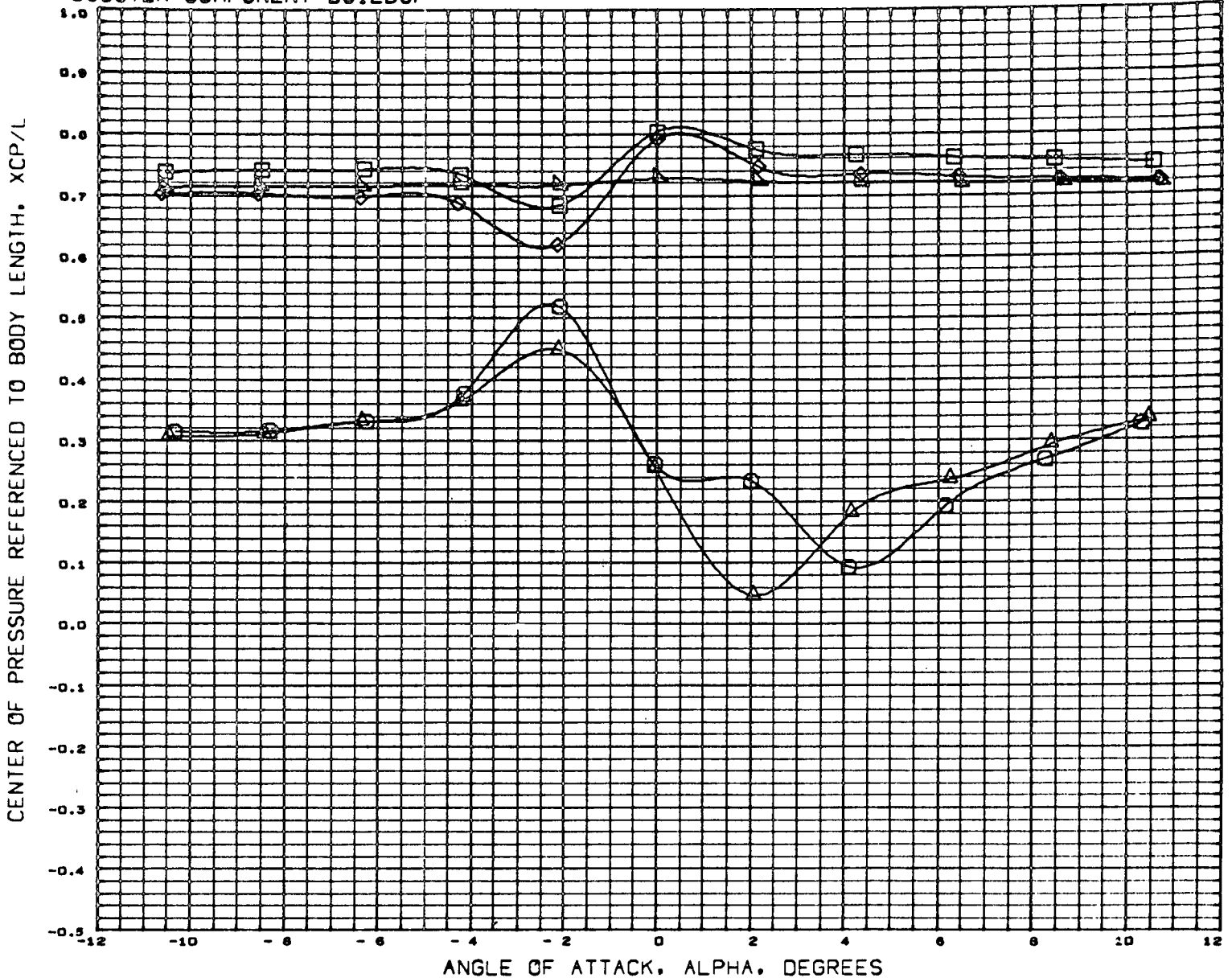


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000		
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	90 IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0039	SCALE

MACH 1.473

BOOSTER COMPONENT BUILDUP

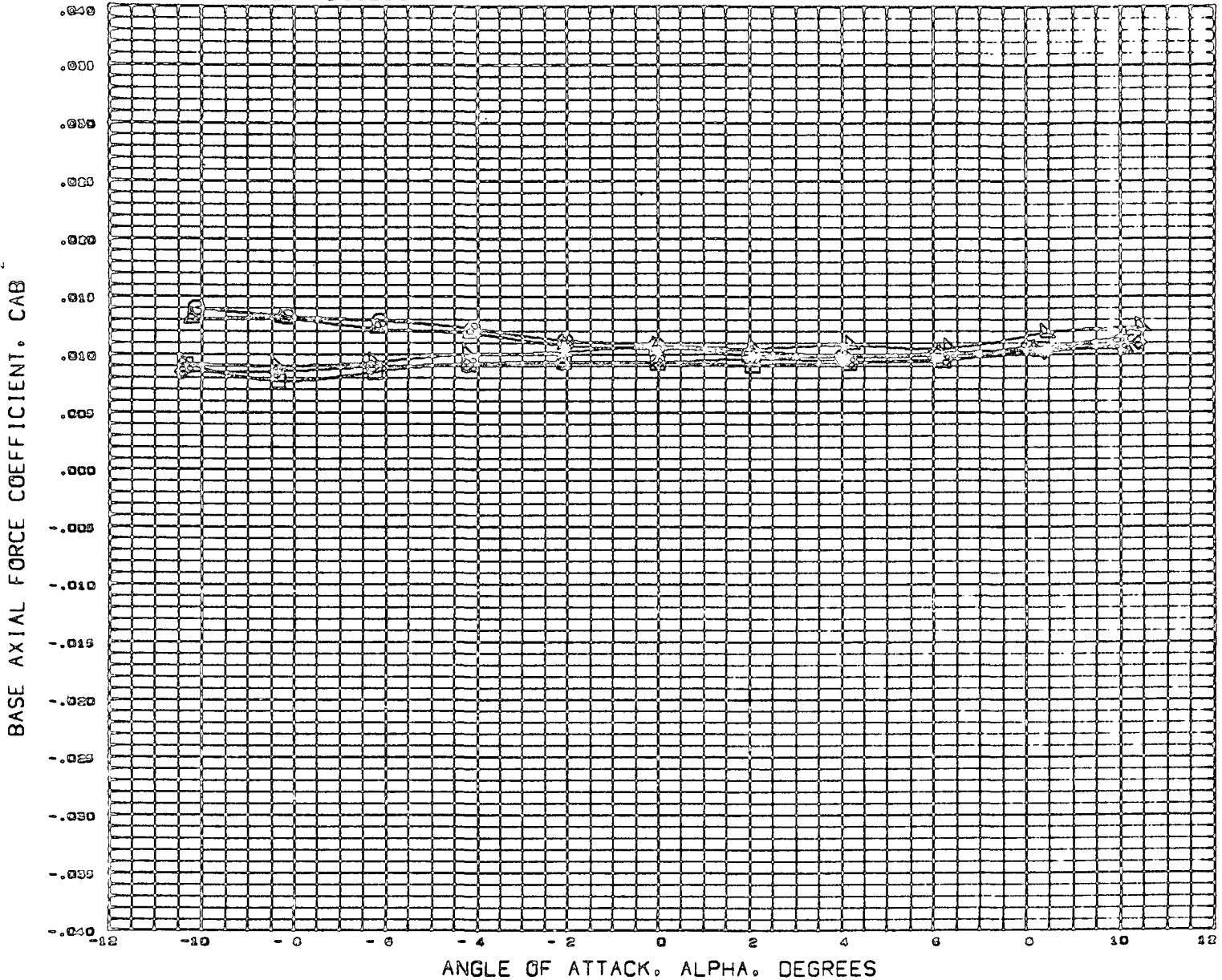


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3201A)	MSFC49D GD DELTA BOOSTER B2D	0.000		
(H3202A)	MSFC49D GD DELTA BOOSTER B2DC4B	0.000		
(H3203A)	MSFC49D GD DELTA BOOSTER B2DC4BW14	0.000	0.000	0.000
(H3204A)	MSFC49D GD DELTA BOOSTER B2DW14	0.000	0.000	0.000
(H3205A)	MSFC49D GD DELTA BOOSTER B2DC4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6560	SQ IN
LREF	3.0950	INCHES
BREF	6.0990	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.959

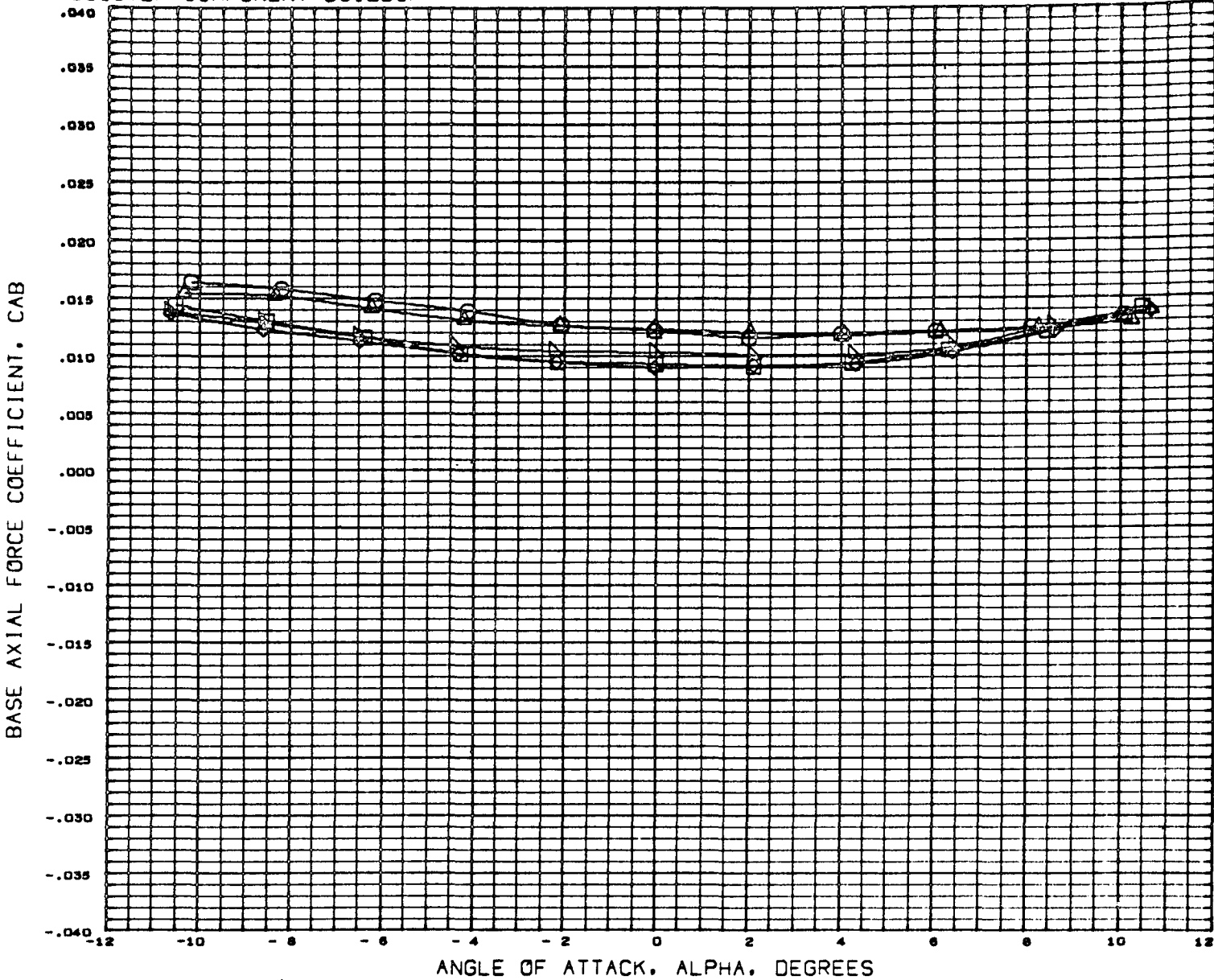
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ETA	ELVATR	AILRON	REFERENCE INFORMATION
(H5201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 15.0560 90 IN
(H5202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0950 INCHES
(I5203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H5204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I5205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0009 SCALE

MACH 0.000

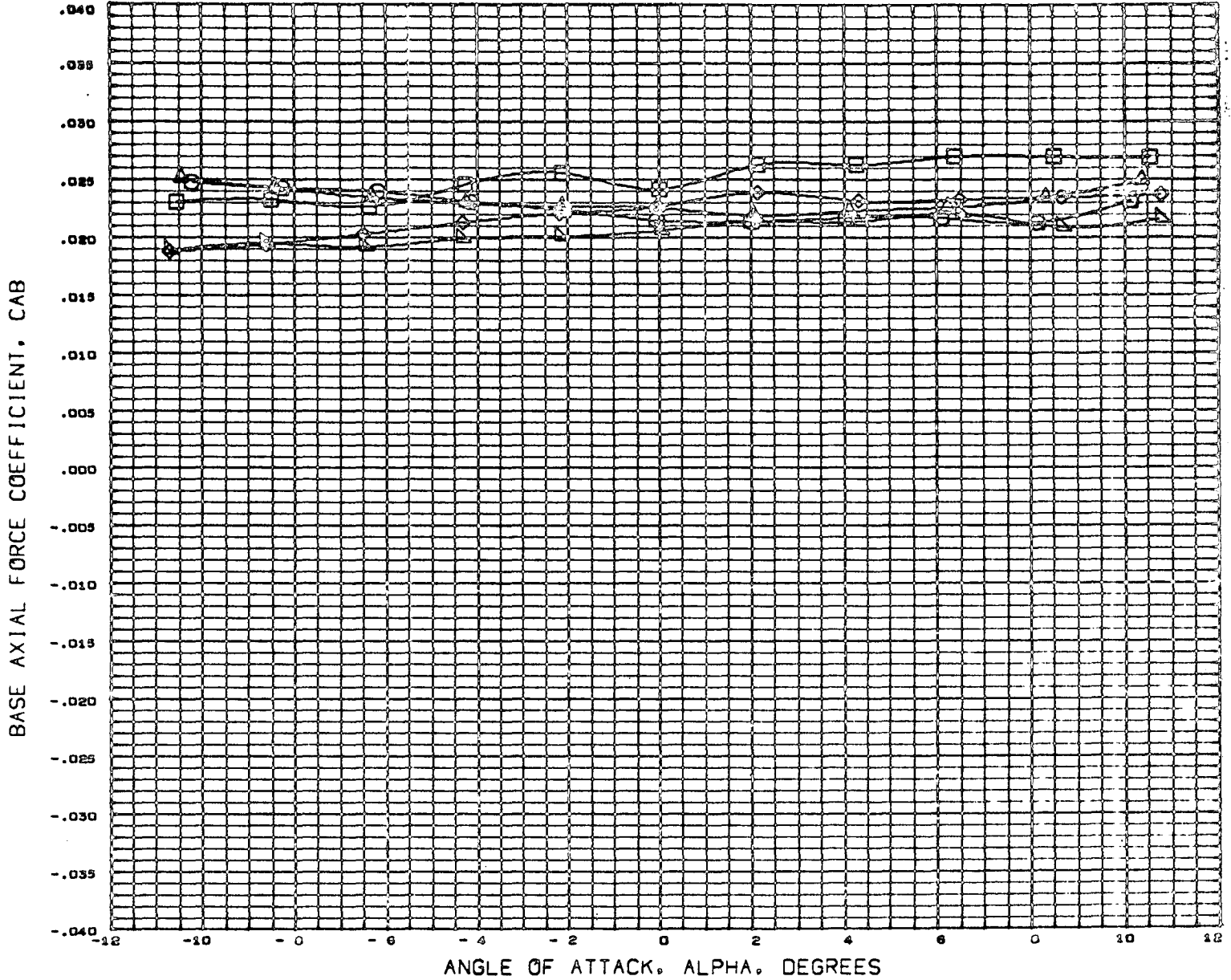
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B2D	0.000			SREF 15.6560 SQ IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0950 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 0.896

BOOSTER COMPONENT BUILDUP

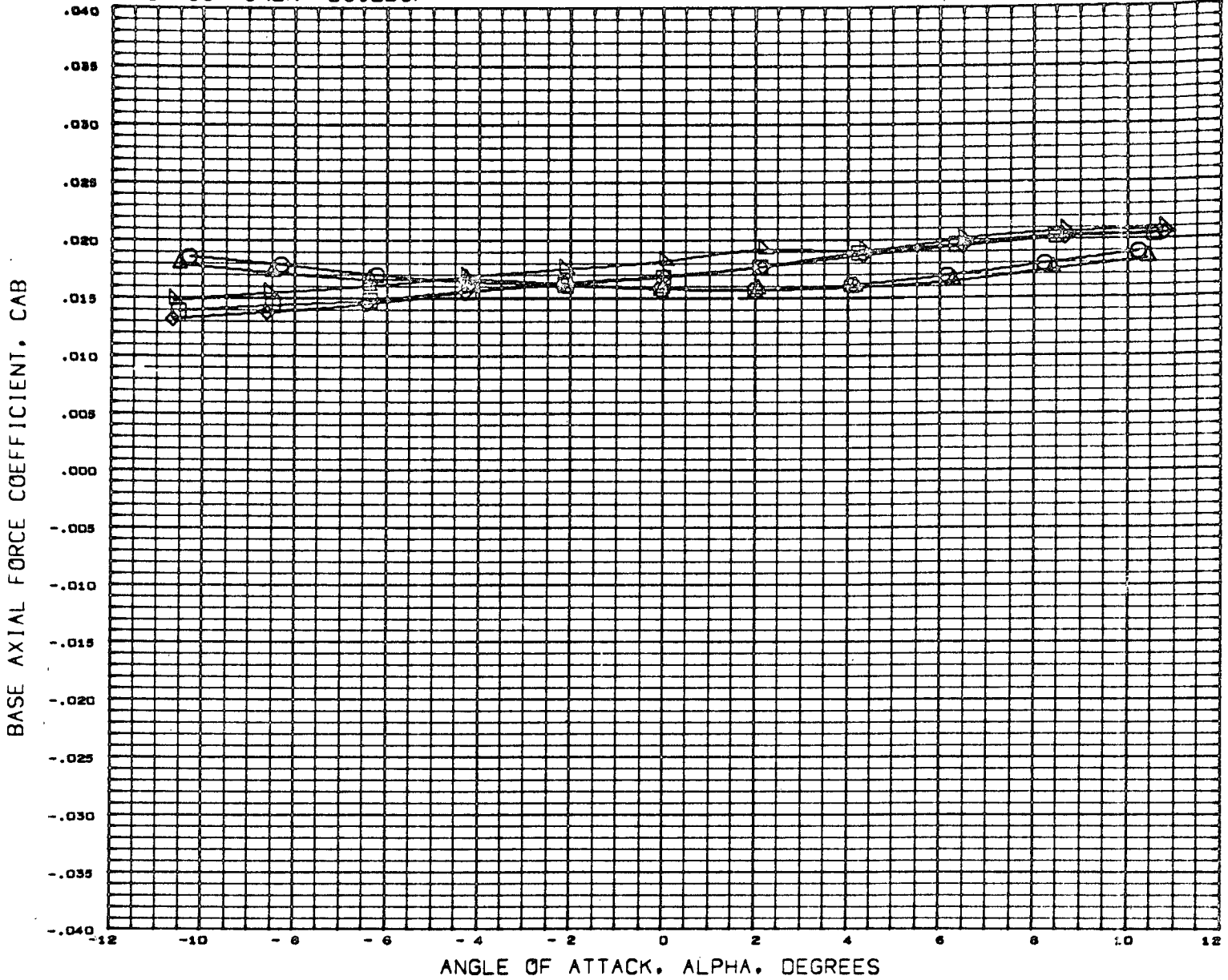


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON
(H3201A)	MSFC490 GD DELTA BOOSTER B7D	0.000		
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000		
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	15.6500	SQ IN
LREF	3.0950	INCHES
BREF	6.0950	INCHES
XMRP	0.0000	
YMRP	0.0000	
ZMRP	0.0000	
SCALE	0.0035	SCALE

MACH 1.090

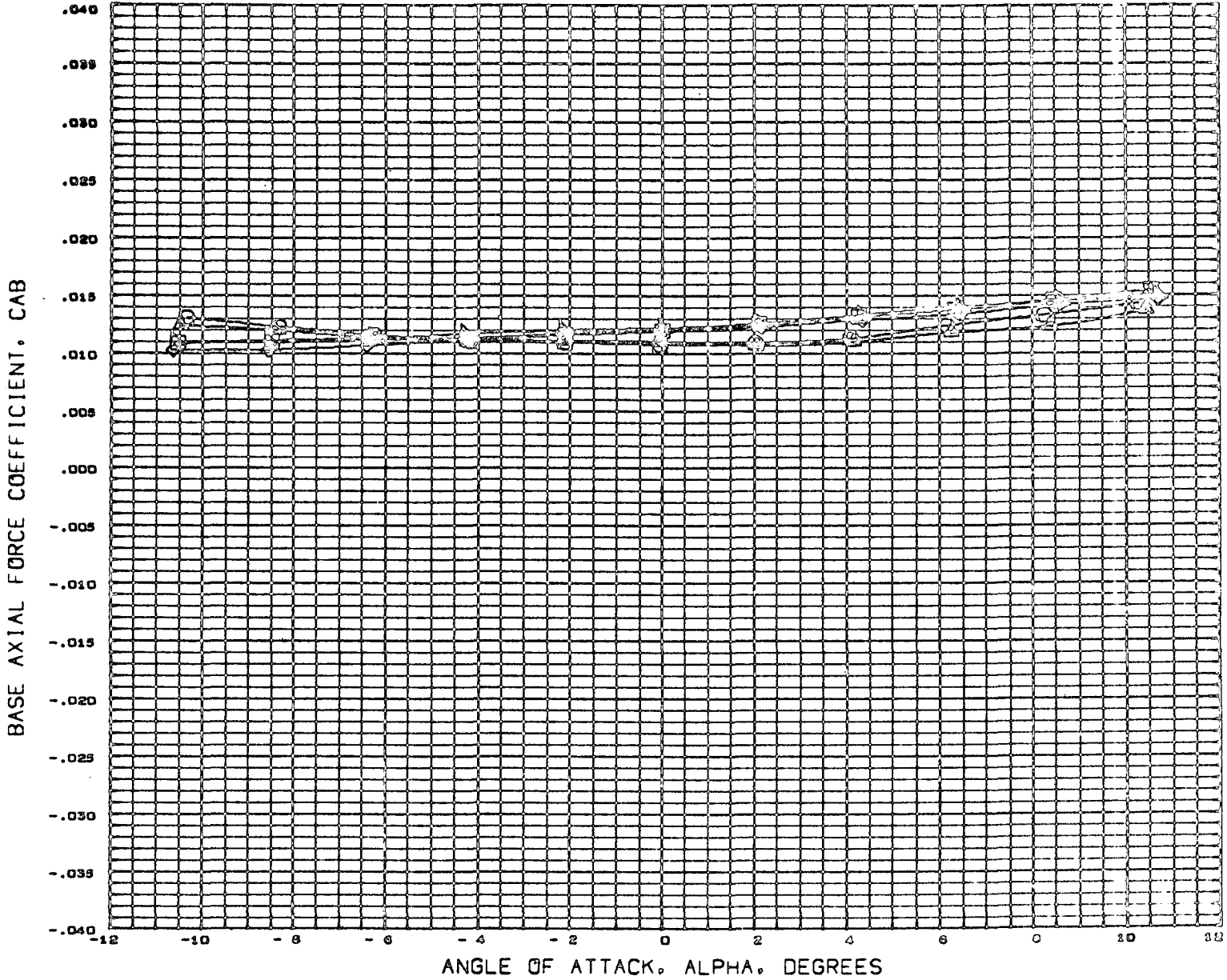
BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 15.8560 SQ IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0950 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0990 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.473

BOOSTER COMPONENT BUILDUP



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	ELVATR	AILRON	REFERENCE INFORMATION
(H3201A)	MSFC490 GD DELTA BOOSTER B20	0.000			SREF 19.0900 50 IN
(H3202A)	MSFC490 GD DELTA BOOSTER B20C4B	0.000			LREF 3.0900 INCHES
(I3203A)	MSFC490 GD DELTA BOOSTER B20C4BW14	0.000	0.000	0.000	BREF 6.0900 INCHES
(H3204A)	MSFC490 GD DELTA BOOSTER B20W14	0.000	0.000	0.000	XMRP 0.0000
(I3205A)	MSFC490 GD DELTA BOOSTER B20C4BW14V8	0.000	0.000	0.000	YMRP 0.0000
					ZMRP 0.0000
					SCALE 0.0035 SCALE

MACH 1.999