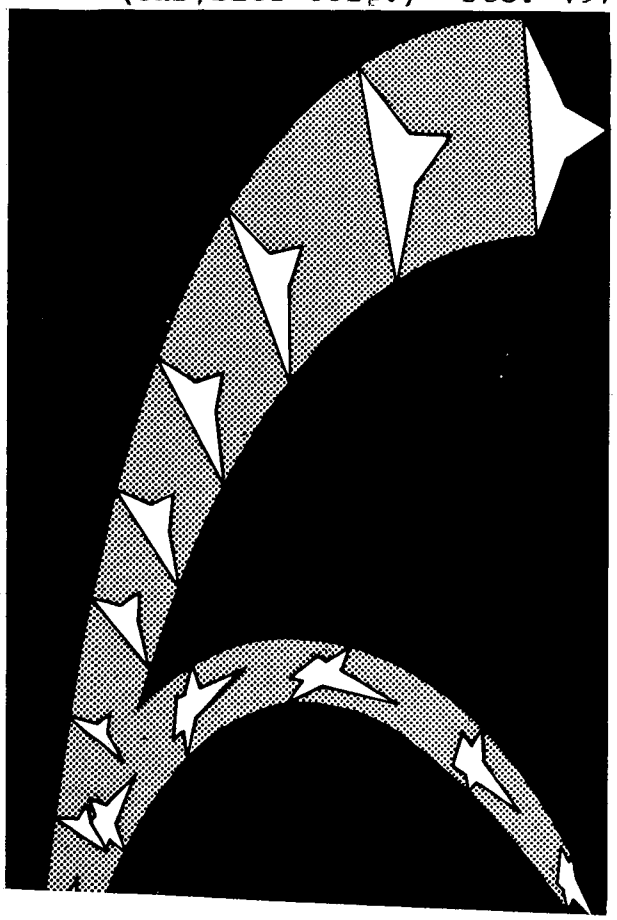
DMS-DR-1208
CR-120,026

CEMBER 1971



—SPACE SHUTTLE—

AERODYNAMIC CHARACTERISTICS OF THE MSFC PRESSURE FED BOOSTERS AT HIGH ANGLES OF ATTACK (M= 0.6 TO 5.0)

by

John Baker, LMSC-HREC

SFC 14-INCH TRISONIC WIND TUNNEL

SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION CHRYSLER CORPORATION

Marshall Space Flight Center
NASA

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NASA CR-120,026
DECEMBER, 1971

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: 0.003366 Scale MSFC Pressure-Fed Booster Configurations

TEST PURPOSE: To Determine the Aerodynamic Static Stability Characteristics of the MSFC Pressure Fed Booster Configurations at High Angles of Attack.

TEST FACILITY: NASA-MSFC 14 x 14 inch Trisonic Wind Tunnel

TESTING AGENCY: Lockheed Missiles & Space Co., Huntsville Research & Engineering Center

TEST NO. & DATE: MSFC TWT 518; 2 - 5 December 1971

FACILITY COORDINATOR: Jim Weaver, NASA-MSFC

PROJECT ENGINEER(S): John Baker, LMSC-HREC

DATA MANAGEMENT SERVICES

LIAISON: John E. Vaughn
J. E. Vaughn

DATA OPERATIONS: W. R. Morgan
W. R. Morgan

RELEASE APPROVAL: J. R. Zeier
N. D. Kemp, Supervisor
Aero Thermo Data Group

Contract NAS8-4016 Amendment 153 DRL 184-58

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ABSTRACT

Experimental aerodynamic investigations were conducted in the NASA/MSFC 14 x 14 Inch Trisonic Wind Tunnel during early December 1971 on 0.003366 scale models of the MSFC space shuttle pressure fed booster configurations. The basic configurations tested were a 40° cone/cylinder/13° flare designated the MSFC Pressure Fed Booster and a 35° cone/cylinder designated the MSFC Pressure Fed Booster Configuration X. Six component aerodynamic force and moment data were recorded over a Mach number range from 0.6 to 5.0 at angles of attack from +20 to $+60^{\circ}$ at 0° sideslip and over a sideslip range from -10° to $+10^{\circ}$ at 31° and 52° angles of attack. Primary configuration variables for the two basic pressure fed booster configurations were fin size and fin dihedral position.

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INTRODUCTION

Two basic NASA/MSFC Pressure Fed Space Shuttle Boosters have been aerodynamically investigated to determine their aerodynamic static stability characteristics at high angles of attack. The boosters are designated the MSFC Pressure Fed Booster and the MSFC Pressure Fed Booster Configuration X. Parametric data over the Mach number range of 0.6 to 5.0 at angles of attack from 20° to 60° were obtained primarily for fin size and fin dihedral position. Configurations and attitudes investigated are shown in the Dataset Collation section.

CONFIGURATIONS INVESTIGATED

Two basic pressure fed booster configurations were investigated: a 40° cone/cylinder/13° flare designated the MSFC Pressure Fed Booster and a 35° cone/cylinder designated the MSFC Pressure Fed Booster Configuration X. Component configuration symbols and descriptions are listed as follows:

Symbol	Descriptions
N_1B_1	MSFC Pressure Fed Booster body with 40° conical nose, 27 ft. diameter full scale cylindrical body and 13° aft flare. Full scale length is 178.8 ft. Five rocket engines shown in Figure 3 located on the base.
F_2	Two 250 sq. ft. full scale fins located at various dihedral positions on the flare of N_1B_1. Fin dihedral positions are shown in Fig. 11.
F_3	One 250 sq. ft. full scale fin located vertically on the lower surface of the flare of N_1B_1 (Fig. 4).
F_4	One 600 sq. ft. full scale fin located vertically on the lower surface of the flare of N_1B_1 (Fig. 5).
F_6	Two 600 sq. ft. full scale fins located at various dihedral positions on the flare of N_1B_1. Fin dihedral positions are shown in Fig. 11.
TS	Number 120 carborundum transition strip 0.075 in. wide located longitudinally on N_1B_1. Transition strip location is shown in Fig. 6.
N_2B_2	MSFC Pressure Fed Booster Configuration X body with 35° conical nose and 41 ft. diameter full scale cylindrical body. Full scale length is 145 ft. (Fig. 9)
F_7	Two 672 sq. ft. full scale fins located at various dihedral positions on the aft end of N_2B_2. Fin dihedral positions are shown in Fig. 10.

Model dimensional information for these components is given in the model component description sheets which follow the figures.

TEST MSFC 518 DATA SET/RUN NUMBER

COLLATION SUMMARY

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES Γ	NO. of RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE) 0.6	0.8	0.9	1.0	1.1	1.2	1.46	1.96	2.74	3.5	4.96	TEST RUN NUMBERS
R54 001	N_1B_1	A	0	-	7	001/0		002/0		003/0	004/0		063/0	064/0		065/0	
002		B	0	-	6			007/0		006/0	005/0		062/0	067/0		066/0	
003	$N_1B_1F_2$	A	0	30	3	009/0		012/0			011/0						
004		B	0		3	013/0		008/0			010/0						
005		50	C		2			014/0			015/0						
006		30	C		3	018/0		017/0			016/0						
007	$N_1B_1F_6$	A	0		3	042/0		041/0			043/0						
008		B	0		3			040/0			039/0					072/0	
009		50	C		2			046/0			047/0						
010		30	C		2			045/0			044/0						
011	$N_1B_1F_2$	A	0	0	1						030/0						
012		B	0		1						029/0						
013	$N_1B_1F_2F_3$	30	C		1						031/0						
014	$N_1B_1F_6$	A	0		3	036/0		035/0			034/0						
015		B	0		2			037/0			038/0						
016	$N_1B_1F_6F_4$	30	C		1						033/0						
017	$N_1B_1F_2$	A	0	45	1						027/0						
018		B	0		1						028/0						
019		30	C		1						026/0						
020		50	C		1						025/0						

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

CLM | CN | CY | CBL | CYN | CA | CAB | CAF | CAC | XCP | 10

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: α or β SCHEDULES

A: α = 20° to 40°

B: α = 40° to 60°

C: β = -10° to +10°

NASA-MSFC-MAF

TEST MSFC 518 DATA SET/RUN NUMBER

COLLATION SUMMARY

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES Γ	NO. of RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE) 0.6	0.8	0.9	1.0	1.1	1.2	1.46	1.96	2.74	3.5	4.96	TEST RUN NUMBERS
R54 021	$N_1B_1F_6$	A	0	45	5	054/0		053/0			052/0		059/0			069/0	
022		B	0		4			055/0			056/0		058/0			068/0	
023		30	C		4			050/0			051/0		060/0			070/0	
024		50	C		4			049/0			048/0		061/0			071/0	
025	$N_1B_1F_2F_3$	30	C	30	3	024/0		023/0			022/0						
026		50	C		3	019/0		020/0			021/0						
027	$N_1B_1F_2$	D	0	0	1	032/0											
028	$N_1B_1F_6$ + TS	A	0	45	1	057/0											

1	7	13	19	25	31	37	43	49	55	61	67	75 76
CLM	CN	CY	CBL	CYN	CA	CAB	CAF	CAC	XCP			10

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: α or β SCHEDULES

A: $\alpha = 20^\circ$ to 40°

B: $\alpha = 40^\circ$ to 60°

C: $\beta = -10^\circ$ to 10°

D: $\alpha = 30^\circ$ to 40°

NASA-MSFC-MAF

TEST MSFC 518 DATA SET/RUN NUMBER

COLLATION SUMMARY

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES Γ	NO. of RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE) 0.6	0.8	0.9	1.0	1.1	1.2	1.46	1.96	2.74	3.5	4.96	TEST RUN NUMBERS
R54 029	N_2B_2	A	0	-	2			094/0			095/0						
030		B	0	-	5			093/0			092/0		085/0	074/0		073/0	
031	$N_2B_2F_7$	B	0	45	2									076/0		075/0	
032		50	C	45	2									078/0		077/0	
033		B	0	30	5			090/0			091/0		086/0	082/0		081/0	
034		50	C	30	5			089/0			088/0		087/0	080/0		079/0	
035		B	0	0	2									084/0		083/0	

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

C L M | C N | CY | CBL | C Y N | CA | CAB | CAF | C A C | XC P | 1 0

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: α or β SCHEDULES

A: α = 20° to 40°

B: α = 40° to 60°

C: β = -10° to 10°

NASA-MSFC-MAF

TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic 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 $-40^{\circ}F$ 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 $180^{\circ}F$. 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°.

TABLE I

TEST CONDITIONS
TEST 518

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.6	6.4×10^6/ft.	5.55	99
0.9	6.9×10^6/ft.	8.05	99
1.1	6.6×10^6/ft.	8.74	100
1.2	6.7×10^6/ft.	9.15	100
1.96	7.1×10^6/ft.	10.2	99
2.74	5.2×10^6/ft.	6.38	100
4.96	5.8×10^6/ft.	3.25	99

BALANCE UTILIZED: MSFC NO. 232 Balance

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	300 lbs.		
SF	143 lbs.		
AF	50 lbs.		
PM	400 in-lbs.		
YM	192 in-lbs.		
RM	100 in-lbs.		

COMMENTS:

DATA REDUCTION

Six component force and moment data were recorded using an internal strain gage balance. Aerodynamic coefficients were calculated for the body and stability axis reference systems. Data reduction included an axial force static tare, and where applicable a blade sting slot correction to the balance recorded data. Base and cavity pressures were measured to determine base axial force and a sting cavity axial force correction. The model reference dimensions utilized in reducing the data are listed below:

MSFC Pressure Fed Booster

S_{ref} = Booster Body (N_1B_1) cylinder cross sectional area = 0.933 in.^{2}

ℓ_{ref} = b_{ref} = Booster body (N_1B_1) length: from nose to aft end of 13° flare = 7.223 in.

The moment reference center (MRC) is on a line coincident with the body longitudinal centerline 60 percent of the body length aft of the nose.

MRC = 60% body length aft of nose = 4.334 in.

The moment reference center location is shown in Fig. 3

MSFC Pressure Fed Booster Configuration X

S_{ref} = Booster body (N_2B_2) cylinder cross sectional area = 2.159 in.^{2}

ℓ_{ref} = b_{ref} = Booster body (N_2B_2) length: from nose to aft end of cylinder = 5.859 in.

The moment reference center (MRC) is on a line coincident with the body longitudinal centerline 60 percent of the body length aft of the nose.

MRC = 60% body length aft of nose = 3.515 in.

The moment reference center location is shown in Fig. 9

Two base pressures and one cavity pressure were recorded and used to determine base axial force C_{A_B} and a cavity correction to total axial force C_{A_T}.

$$C_{A_B} = -\frac{C_{P_1} A_{B_1}}{S_{ref}} - \frac{C_{P_2} A_{B_2}}{S_{ref}} - \frac{\left(C_{P_1} + C_{P_2}\right)}{2} \frac{A_C}{S_{ref}}$$

$$C_{A_T} = C_{A_{bal}} + \left[C_{P_C} - \frac{\left(C_{P_1} + C_{P_2}\right)}{2}\right] \frac{A_C}{S_{ref}}$$

Base and cavity areas for the two basic booster configurations are listed below.

Configuration	A_{B_1} (in.^{2})	A_{B_2} (in.^{2})	A_C (in.^{2})	Planview Blade Cutout Area (in.^{2})
N1B1	0.5466	0.6525	0.3673	0.1628
N2B2	0.7250	0.7250	0.4069	—
N2B2F7	1.2367	0.7250	0.4069	—

The base areas listed for N1B1 were used for all configurations fins on and fins off. The base area of the fins was added to A_{B_1} for configuration X runs with fins on.

Base pressure 1 was located on the upper half of the body base and base pressure 2 was located on the lower half of the body base. For configuration X runs with fins on base pressure 1 was located at the juncture of the left fin with the body base.

TABLE II. SADSAC NOMENCLATURE OF AERODYNAMIC COEFFICIENTS

COEFFICIENT	COEFFICIENT NAME	SADSAC NOMENCLATURE		
		BODY AXIS	STABILITY AXIS	WIND AXIS
C_A	Total Axial Force	CA	-	-
C_{AB}	Base Axial Force	CAB	--	-
C_{AF}	Forebody Axial Force	CAF	-	-
C_D	Total Drag Force	-	CD	CDTOTL
C_{DB}	Base Drag Force	-	CDB	CDBASE
C_{DF}	Forebody Drag Force	-	CDF	CDFORE
C_L	Lift Force	-	CL	CL
C_N	Normal Force	CN	-	-
C_Y	Side Force	CY	CY	CC
C_ℓ	Rolling Moment	CBL	CSL	CWL
C_m	Pitching Moment	CLM	CLM	CPM
C_n	Yawing Moment	CYN	CLN	CLN
L/D	Lift-To-Drag Force Ratio	-	L/D	CL/CD
L/D	Lift-To-Forebody Drag Force Ratio	-	L/DF	CL/CDF
N/A	Normal-To-Axial Force Ratio	N/A	-	-
N/A	Normal-To-Forebody Axial Force Ratio	CN/CAF	-	-

SUMMARY DATA PLOT INDEX

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
Effects of Fin Size and 30 Degree Dihedral - Longitudinal Characteristics	(A)	Configuration	1-30
Effects of Fin Size and 30 Degree Dihedral - Lateral-Directional Characteristics	(B)	Alpha & Configuration	31-38
Effects of Fin Size and 0 Degree Dihedral - Longitudinal Characteristics	(A)	Configuration	39-48
Effects of Fin Size and 0 Degree Dihedral - Lateral-Directional Characteristics	(B)	Configuration	49-52
Effects of Fin Size and 45 Degree Dihedral - Longitudinal Characteristics	(A)	Configuration	53-62
Effects of Fin Size and 45 Degree Dihedral - Lateral-Directional Characteristics	(B)	Alpha & Configuration	63-66
Effects of Transition Strip - 0.6 Mach Number	(C)	Configuration	67-72
N1B1 - Effects of Mach Number - Longitudinal Characteristics	(D)	Mach Number	73-94
Effects of Mach Number on Lateral-Directional Characteristics	(B)	Mach Number	95-98
Effects of Mach Number on Lateral-Directional Characteristics	(B)	Mach Number	99-102
Effect of Dihedral - N1B1F6 - Longitudinal Characteristics	(A)	Dihedral	103-142
Effect of Dihedral - N1B1F6 - Lateral-Directional Characteristics	(B)	Dihedral & Alpha	143-150

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
Effects of Mach Number - N1B1F6 - Lateral-Directional Characteristics-Alpha = 30	(E)	Mach Number	151-158
Effects of Mach Number - N1B1F6 - Lateral-Directional Characteristics-Alpha = 50	(E)	Mach Number	159-166
Effects of Mach Number - N1B1F6 - Longitudinal Characteristics	(E)	Mach Number	167-177
Effects of Mach Number - N1B1F2 - Lateral-Directional Characteristics-Alpha = 30	(B)	Mach Number	178-181
Effects of Mach Number - N2B2 - Longitudinal Characteristics	(D)	Mach Number	182-192
Effects of Dihedral - N2B2F7 - Longitudinal Characteristics	(A)	Dihedral	193-212
Effects of Dihedral - N2B2F7 - Lateral-Directional Characteristics	(B)	Dihedral	213-220
Effects of Mach Number - N2B2F7 - Longitudinal Characteristics	(D)	Mach Number	221-231
Effects of Mach Number - N2B2F7 - Lateral-Directional Characteristics	(E)	Mach Number	232-239

Note: See next page for Plotted Coefficients Schedule.

SUMMARY DATA PLOT INDEX
(Continued)

PLOTTED COEFFICIENTS SCHEDULE:

(A) CL, CD, L/D, CA, CN, CLM, CN/A, CLM/A, XAC vs. ALPHA

CN vs. CLM

(B) CY, CYN & CBL vs. BETA

CYN vs. CY

(C) CN, CLM, CA, CY, CYN & CBL vs. ALPHA

(D) CL, CD, L/D, CA, CAB, CN, CLM, CN/A, CLM/A & XAC vs. ALPHA

CN vs. CLM

(E) CY, CYN, & CBL vs. BETA

CYN vs. CY

D(CY)/DB, D(CYN)/DB, D(CBL)/DB & XAC vs. MACH

Notes:

1. Positive directions of force coefficients moment coefficients, and angles are indicated by arrows.

2. For clarity, origins of wind and stability axes have been displaced from the center of gravity.

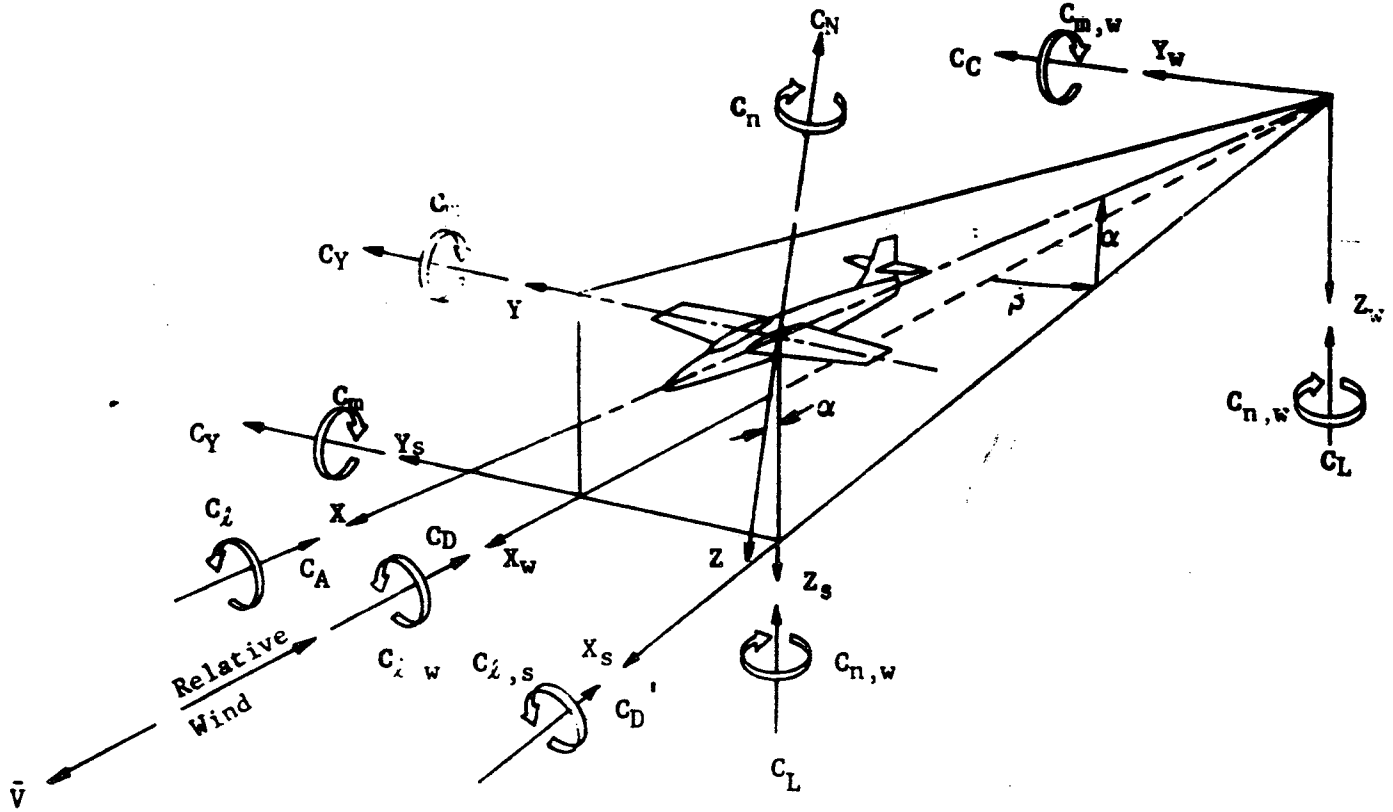


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

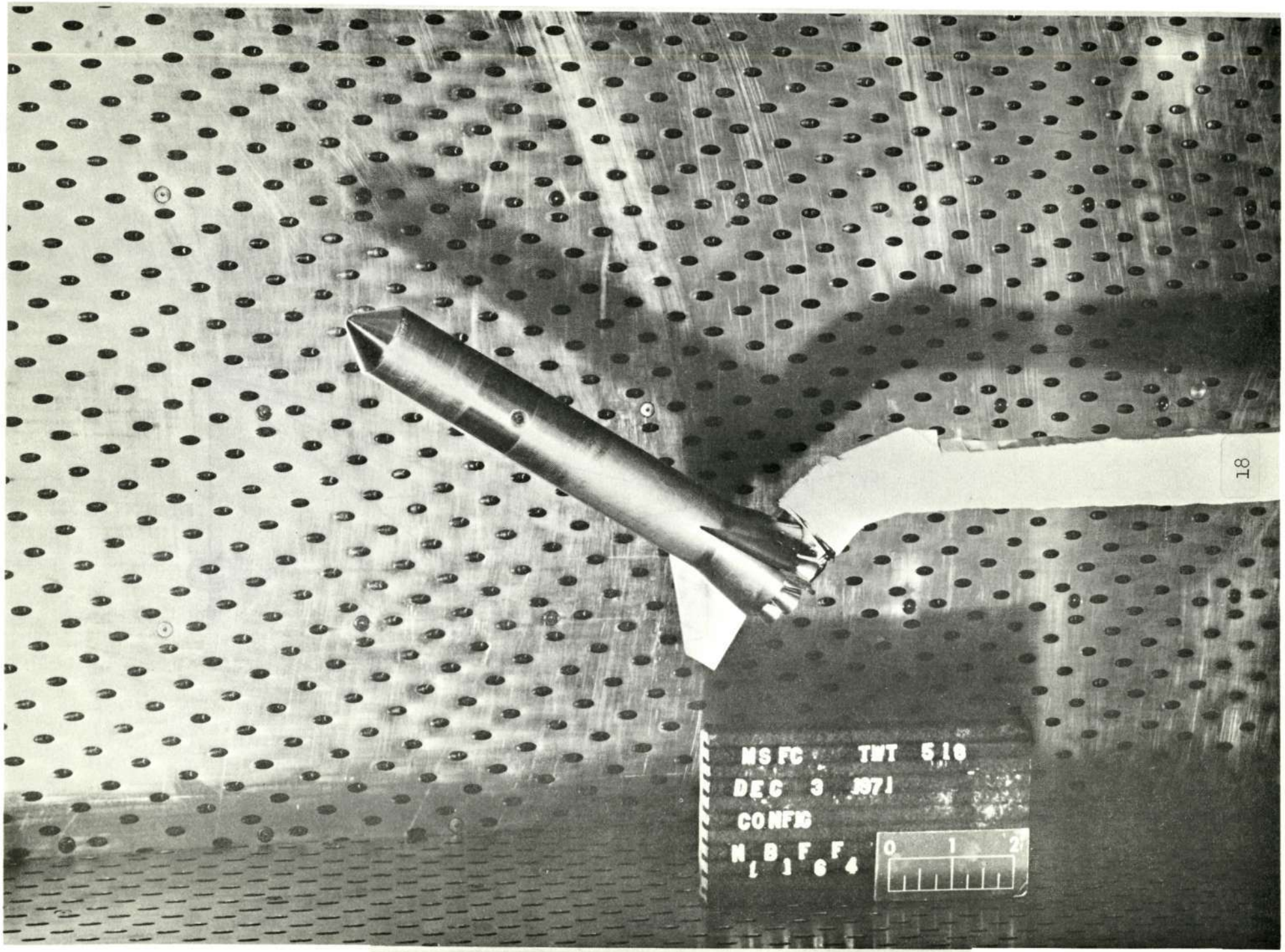


Figure 2. MSFC Pressure Fed Booster Model Installed in MSFC Trisonic Wind Tunnel

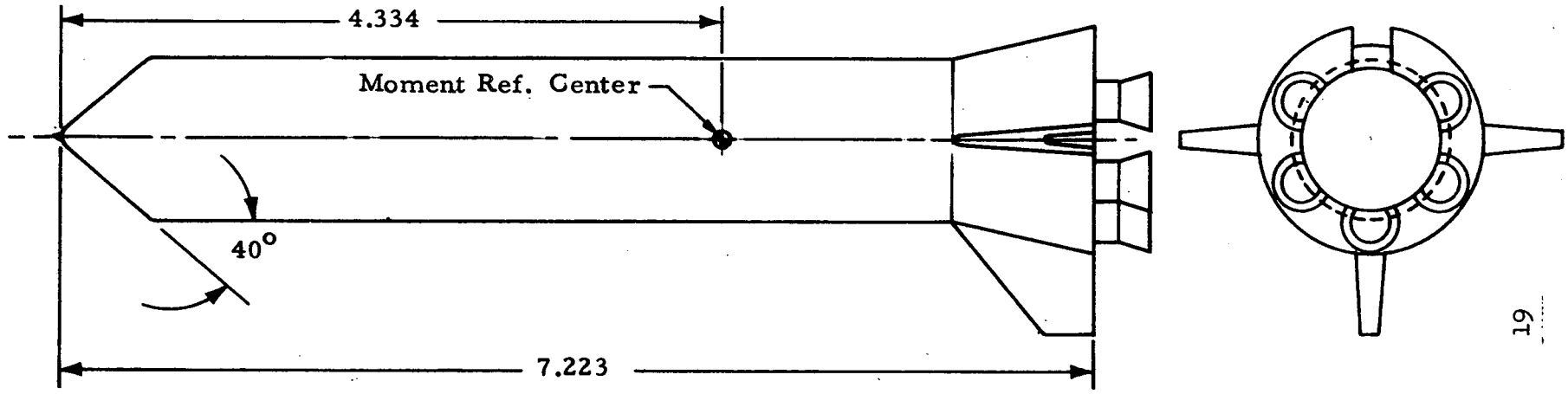


Figure 3. MSFC Pressure Fed Booster
Moment Reference Center Location

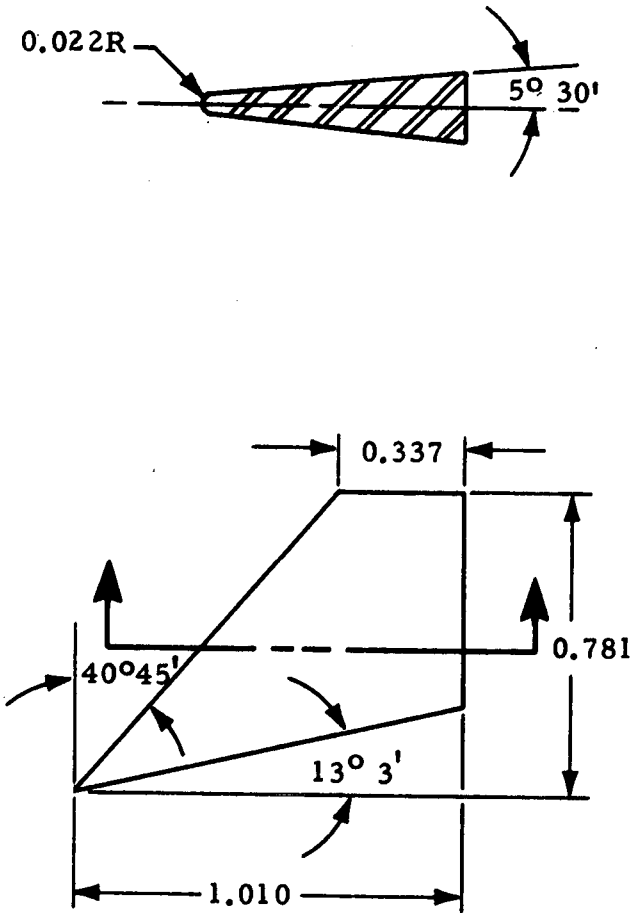
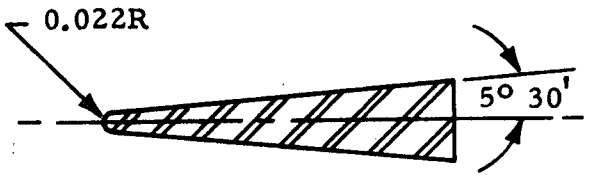


Figure 4 - Fins F2, F3



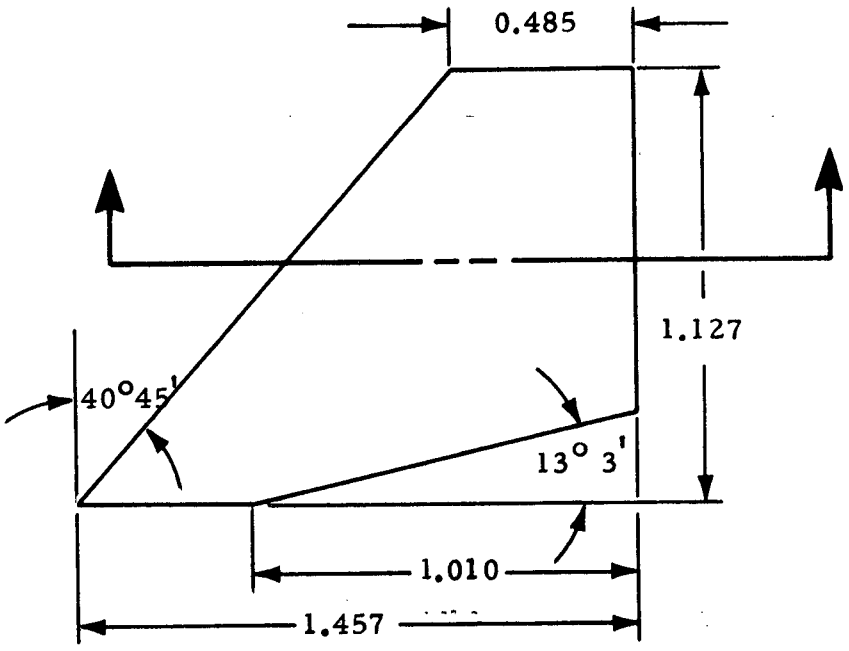
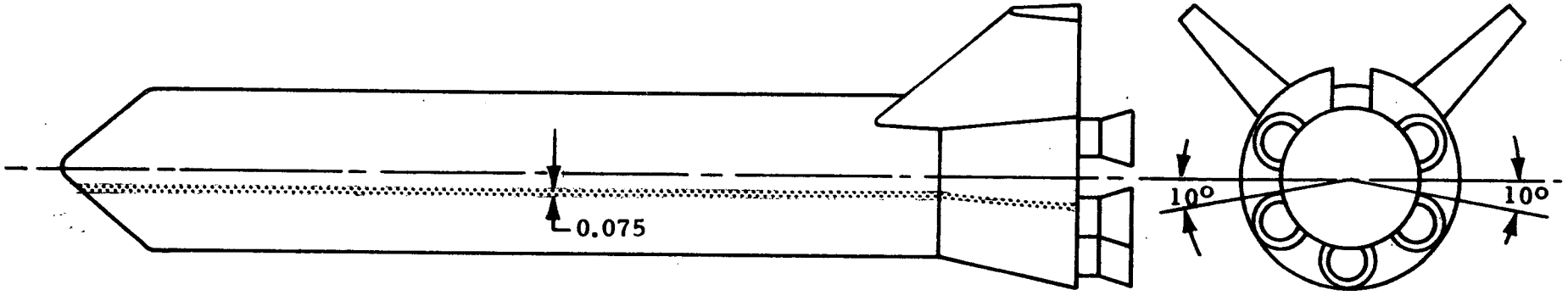


Figure 5 - Fins F4, F6



Transition strip No. 120 carborundum grit

Figure 6 - Transition Strip

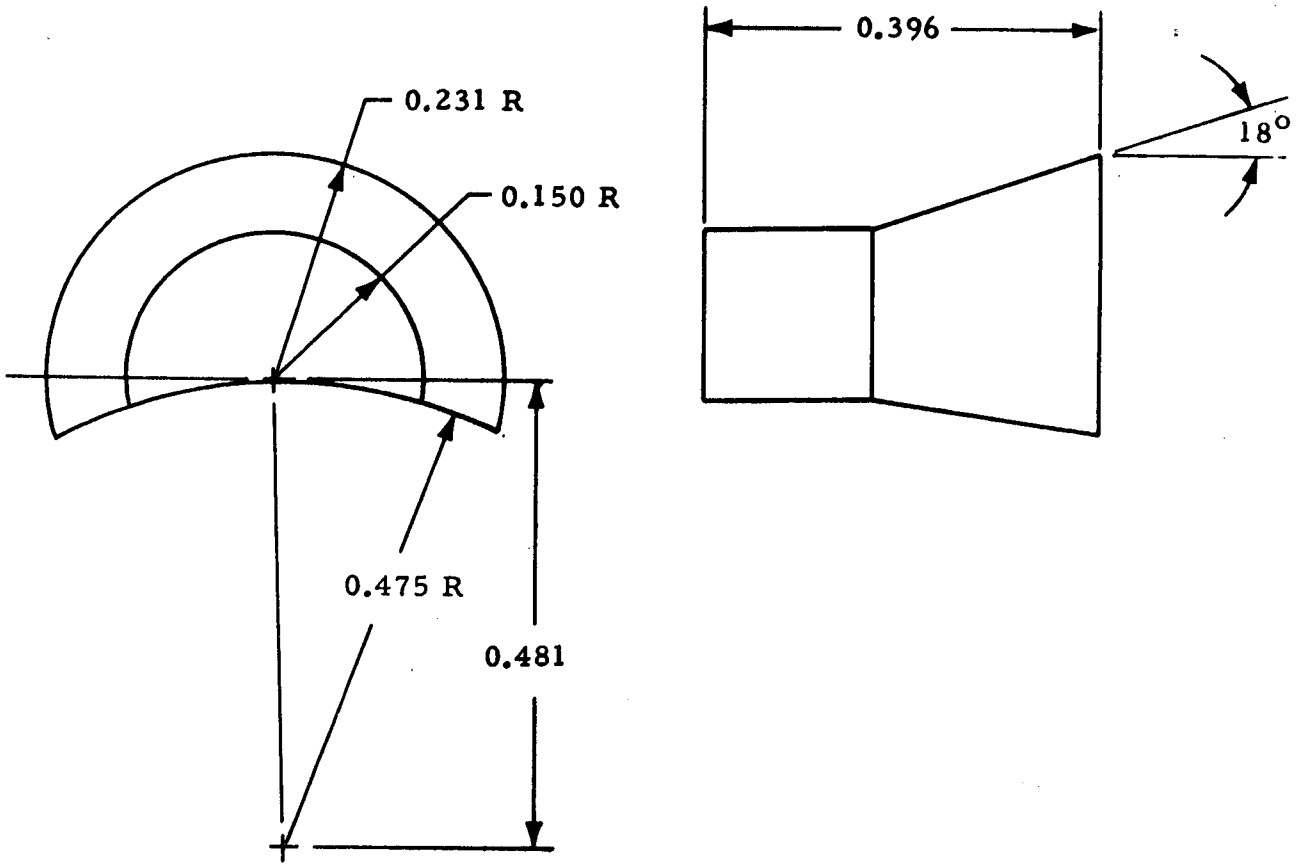


Figure. 7 - **Rocket Engines for N1B1**

NASA-MSFC
S&E-Aero-AE

Figure 8. MSFC Pressure Fed Booster Configuration X
0.003366 Scale Model

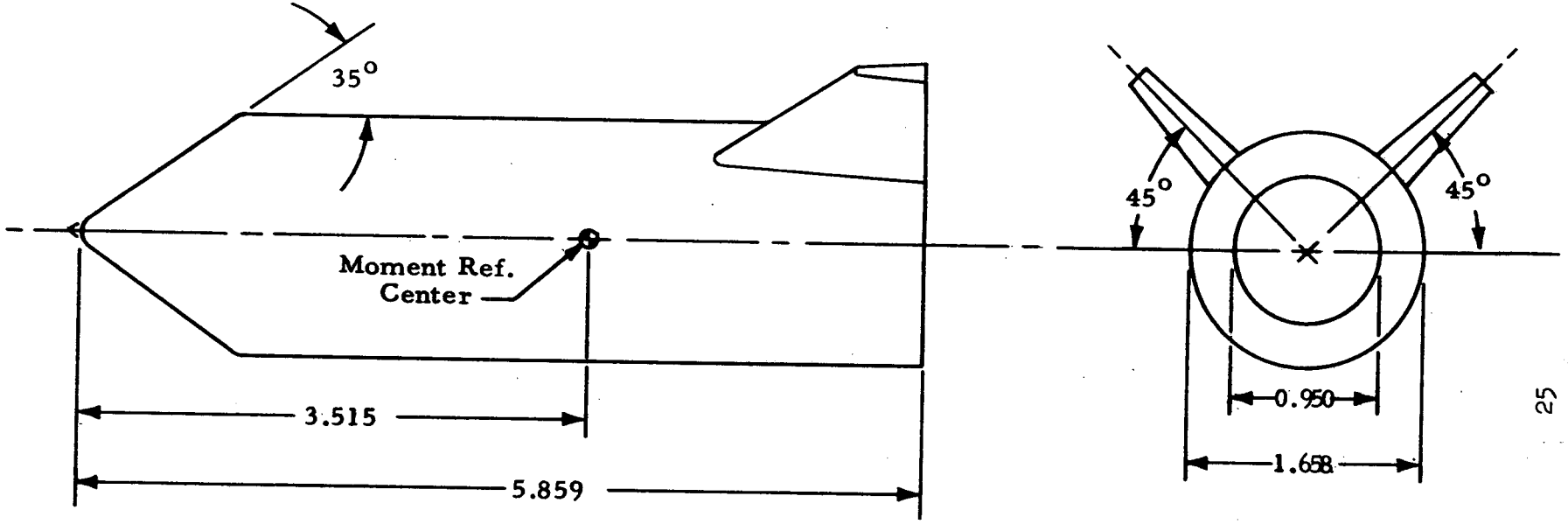


Figure 9 - MSFC Pressure Fed Booster Configuration X
Moment Reference Center Location

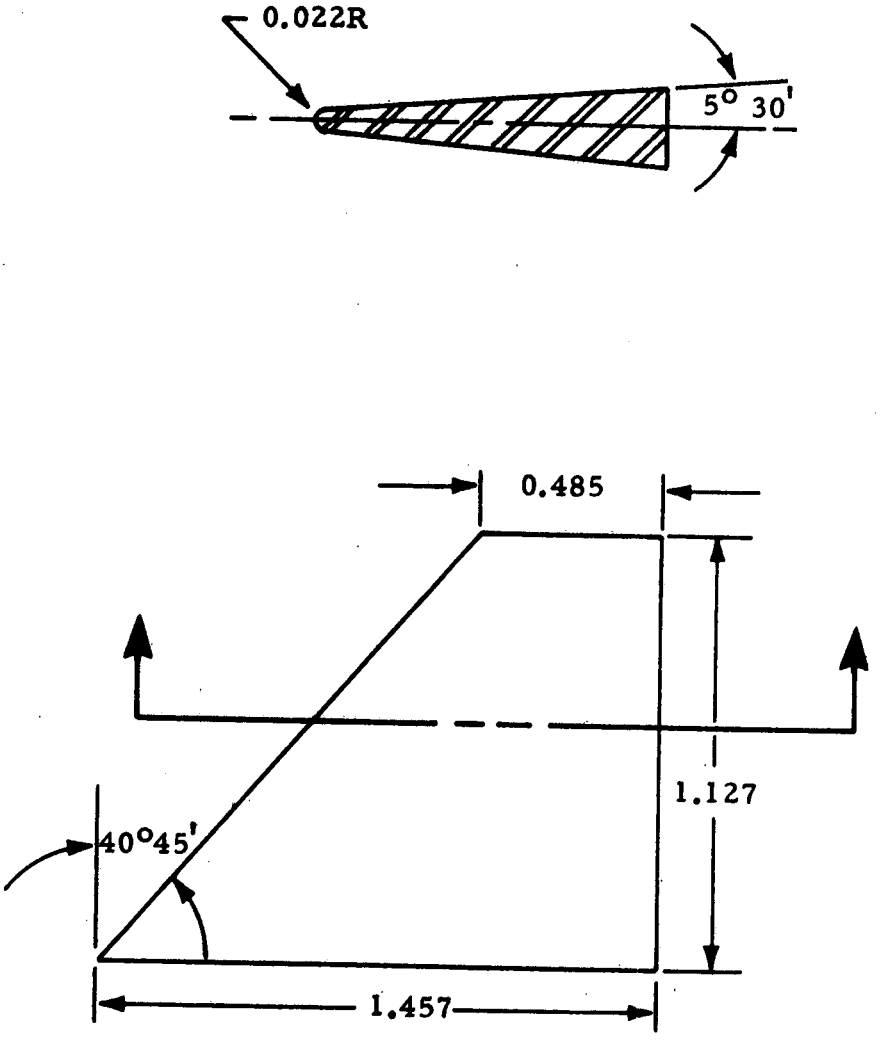
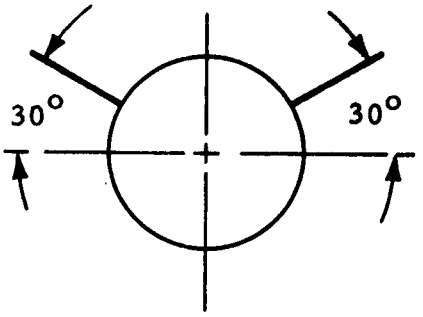
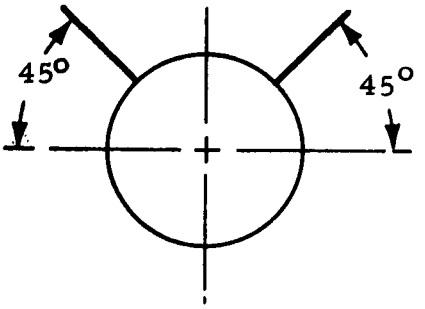


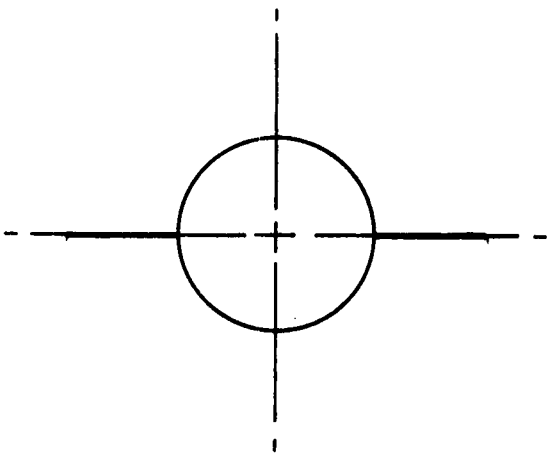
Figure 10. Fins F7



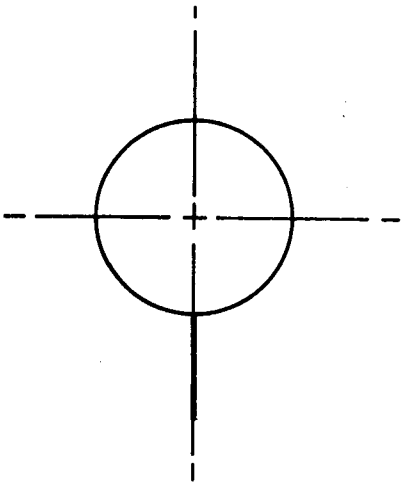
F2, F6, F7 30° Dihedral



F2, F6, F7 45° Dihedral



F2, F6, F7 0° Dihedral



F3, F4 Fin Vertical

Figure 11. Fin Positions

TABLE III

MODEL COMPONENT: BODY - N1B1

GENERAL DESCRIPTION: MSFC Pressure-Fed Booster Body with 40 degree conical nose, cylindrical body, and 13 degree aft flare.

DRAWING NUMBER:

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length	178.8 ft.	7.223 in.
Max. Width	38.6 ft.	1.558 in.
Max. Depth	38.6 ft.	1.558 in.
Fineness Ratio		
Area		
Cross-Sectional	572 ft^2	0.933 in^2
Planform		
Wetted		
Base	1168 ft^2	1.906 in^2
Body Diameter	27 ft.	1.091 in.
Base Diameter	38.6 ft.	1.558 in.
Base Flare Angle, Degrees	13.05	13.05
Conical Nose Angle, Degrees	40	40

TABLE IV

MODEL COMPONENT: FINS - F2, F3

GENERAL DESCRIPTION: Fins for MSFC Pressure Fed Booster

DRAWING NUMBER: _____

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	250 $ft.^2$	0.408 $in.^2$
Span (equivalent)		
Inb'd equivalent chord		
Outb'd equivalent chord	8.34 ft.	0.337 in.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	40.75	40.75
Tailing Edge	0.0	0.0
Hingeline		
Area Moment (Normal to hinge line)		

TABLE V

MODEL COMPONENT: FINS - F4, F6

GENERAL DESCRIPTION: Fins for MSFC Pressure Fed Booster

DRAWING NUMBER:

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	600 ft.^{2}	0.979 in.^{2}
Span (equivalent)		
Inb'd equivalent chord		
Outb'd equivalent chord	12.0 ft.	0.485 in.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	40.75	40.75
Tailing Edge	0.0	0.0
Hingeline		
Area Moment (Normal to hinge line)		

TABLE VI

MODEL COMPONENT: BODY - N2B2

GENERAL DESCRIPTION: MSFC Pressure-Fed Booster body configuration X with 35 degree conical nose and cylindrical body.

DRAWING NUMBER:

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length	145 ft.	5.859 in.
Max. Width	41 ft.	1.658 in.
Max. Depth	41 ft.	1.658 in.
Fineness Ratio		
Area		
Max. Cross-Sectional	1320 ft^2	2.159 in^2
Planform		
Wetted		
Base	1320 ft^2	2.159 in^2
Body Diameter	41 ft.	1.658 in.
Conical Nose Angle, Degrees	35	35

MODEL COMPONENT: FINS - F7

GENERAL DESCRIPTION: Fins for MSFC Pressure Fed Booster Configuration X

DRAWING NUMBER:

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	672 ft^2	1.100 in^2
Span (equivalent)		
Inb'd equivalent chord		
Outb'd equivalent chord	12.0 ft.	0.485 in.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	40.75	40.75
Tailing Edge	0.0	0.0
Hingeline		
Area Moment (Normal to hinge line)		

NOMENCLATURE

(General)

SYMBOL	SADSAC SYMBOL	DEFINITION
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

SYMBOL	SADSAC SYMBOL	DEFINITION
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

SYMBOL	DEFINITION
F	force; F, lbs
M	moment; M, in-lb

Subscript	Definition
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

SYMBOL	SADSAC SYMBOL	DEFINITION
		Body Axis System
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; $\left[-1\right]\left[(P_b - P_\infty)/q\right](A_b/S)$
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; $M_X/qS\ b_{ref}$
		Common to Both Axis Systems
C_m	CLM	pitching moment coefficient; $M_Y/qS\ \ell_{ref}$
C_y	CY	side force coefficient; F_Y/qS
		Stability Axis System
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

SYMBOL	SADSAC SYMBOL	DEFINITION
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

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

ADDITIONS TO NOMENCLATURE FOR MSFC 518

SYMBOL	SADSAC SYMBOL	DEFINITION
$C_{N_{local}}$	CN/A	normal force coefficient local slope; per degree.
$C_{m_{local}}$	CLM/A	pitching moment coefficient local slope, per degree.
$a.c._{local}$	XAC	local longitudinal center of pressure, local pitching moment coefficient slope divided by the local normal force coefficient slope, XAC - (CN/A)/CLM/A.
C_{y_β}	D(CY)/DB	Derivative of slide force coefficient with respect to Beta (Beta = $\pm 5^o$); per degree.
C_{n_β}	D(CYN)/DB	Derivative of yawing moment coefficient with respect to Beta (Beta = $\pm 5^o$); per degree.
C_{l_β}	D(CBL)/DB	Derivative of rolling moment coefficient with respect to Beta (Beta = $\pm 5^o$); per degree.
$a.c._{local}$	YAC	local lateral center of pressure. Derivative of yawing moment coefficient with respect to side force coefficient.

TABULATED DATA LISTING

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

(a) a brief summary list of all data sets containing the identifier, the descriptor, and the resident dependent variables.

(b) a full list of all datasets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

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

NASA AMES	Mr. V. Stevens
NASA MSFC	Mr. J. Weaver

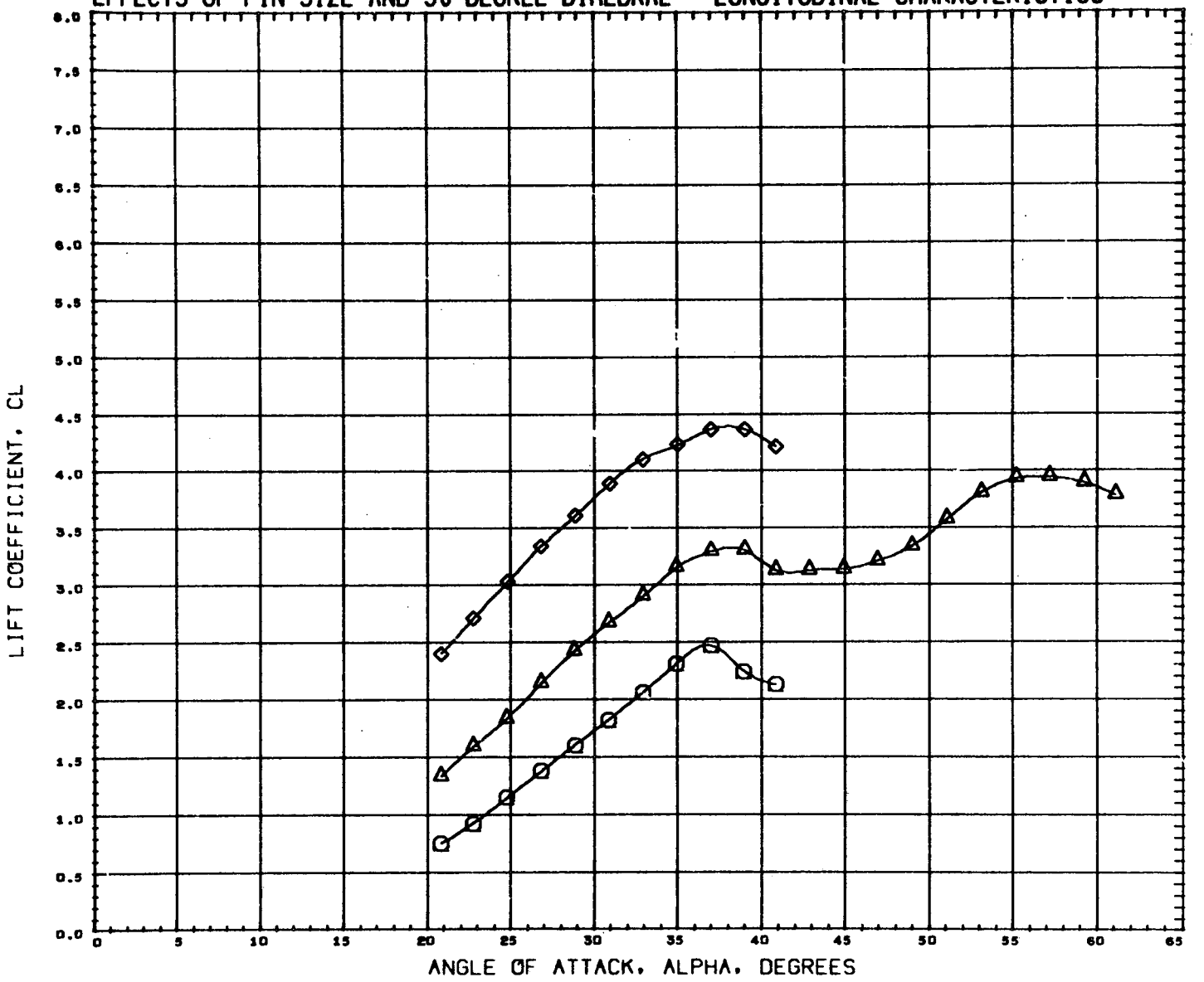
If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

Mr. W. R. Morgan
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

PLOTTED DATA

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



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(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.600

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BREF	7.2230	IN.
XMRP	4.3340	IN.
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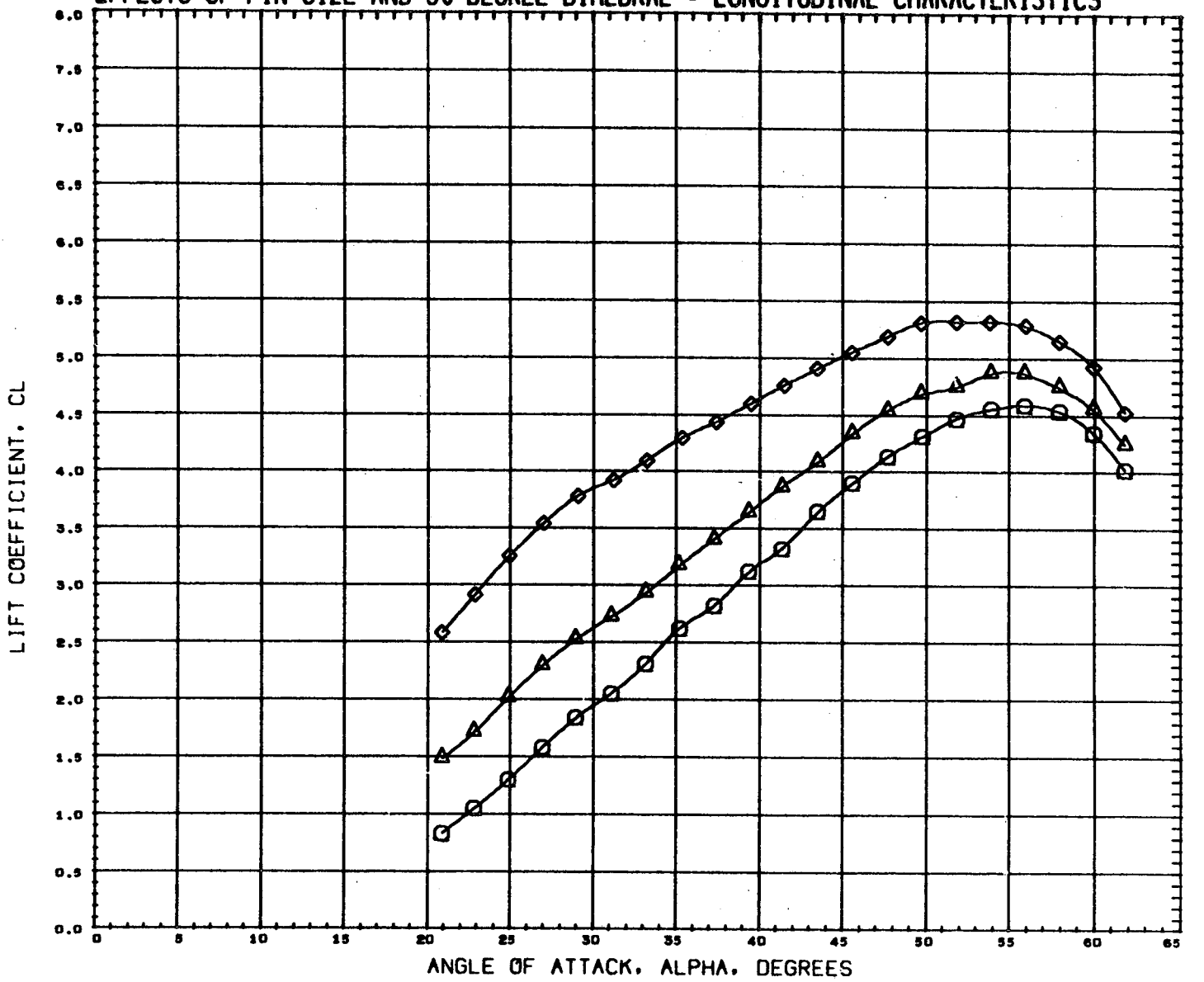
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



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MACH 0.899

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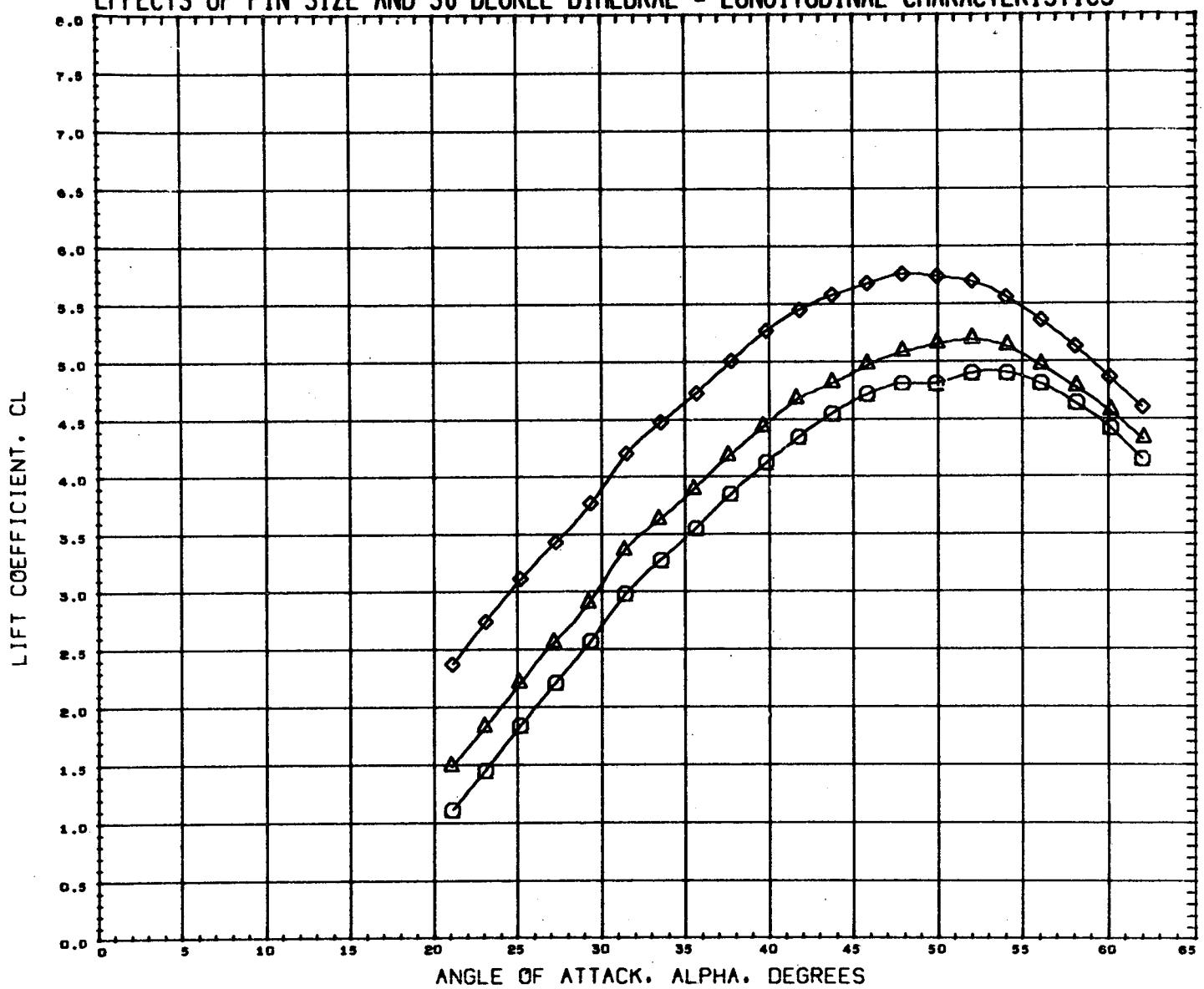

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MACH 1.200

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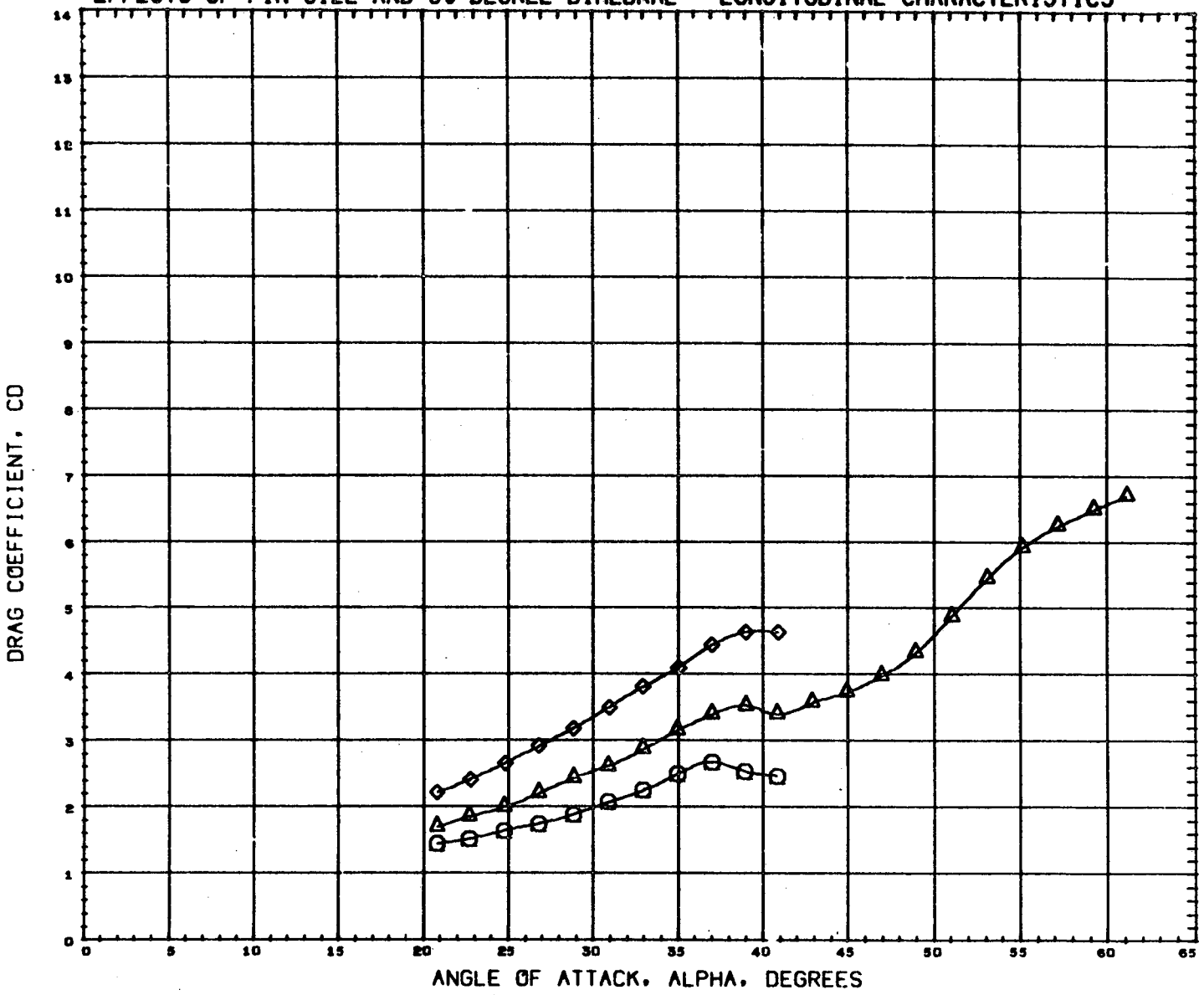

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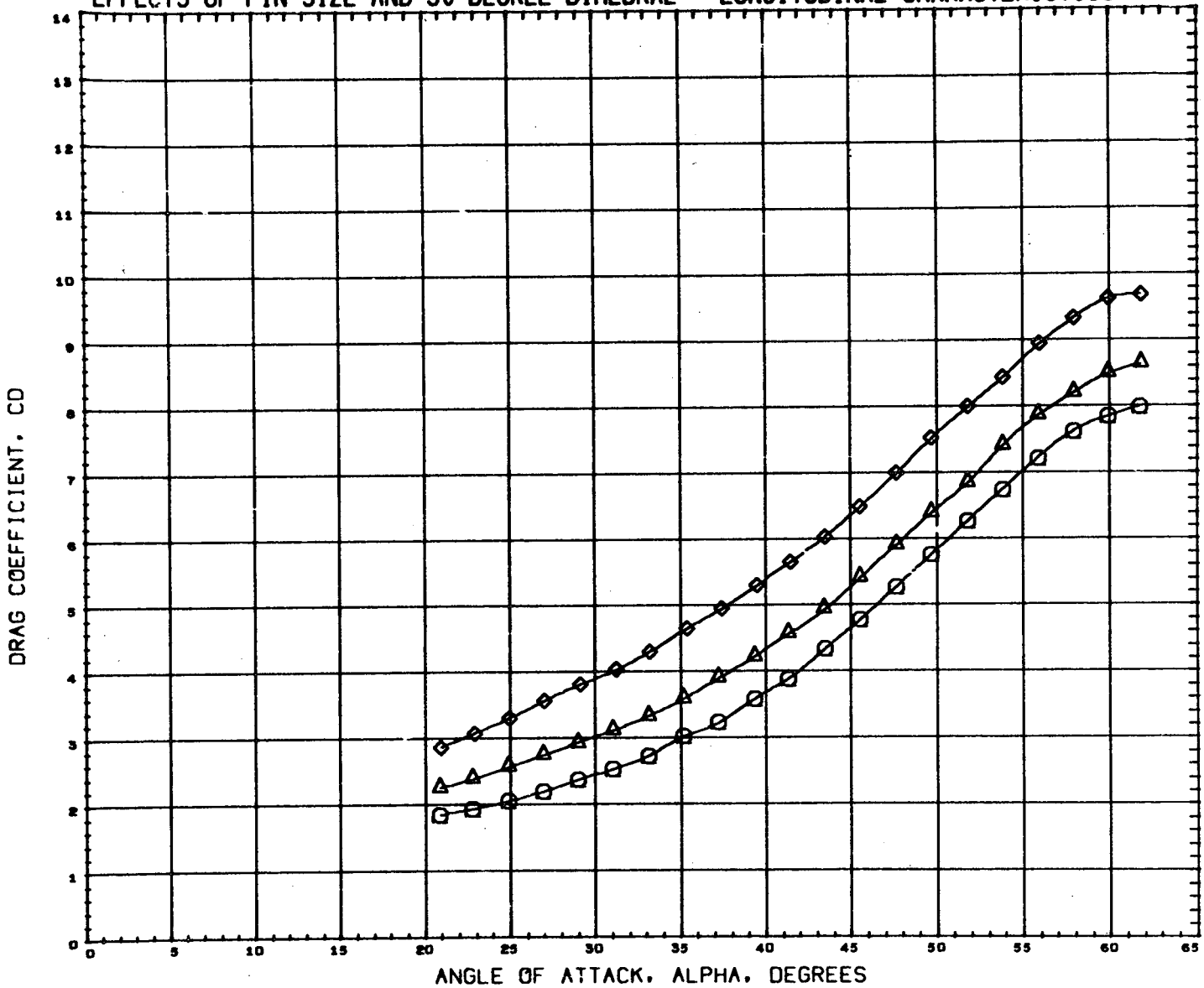

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MACH 0.899

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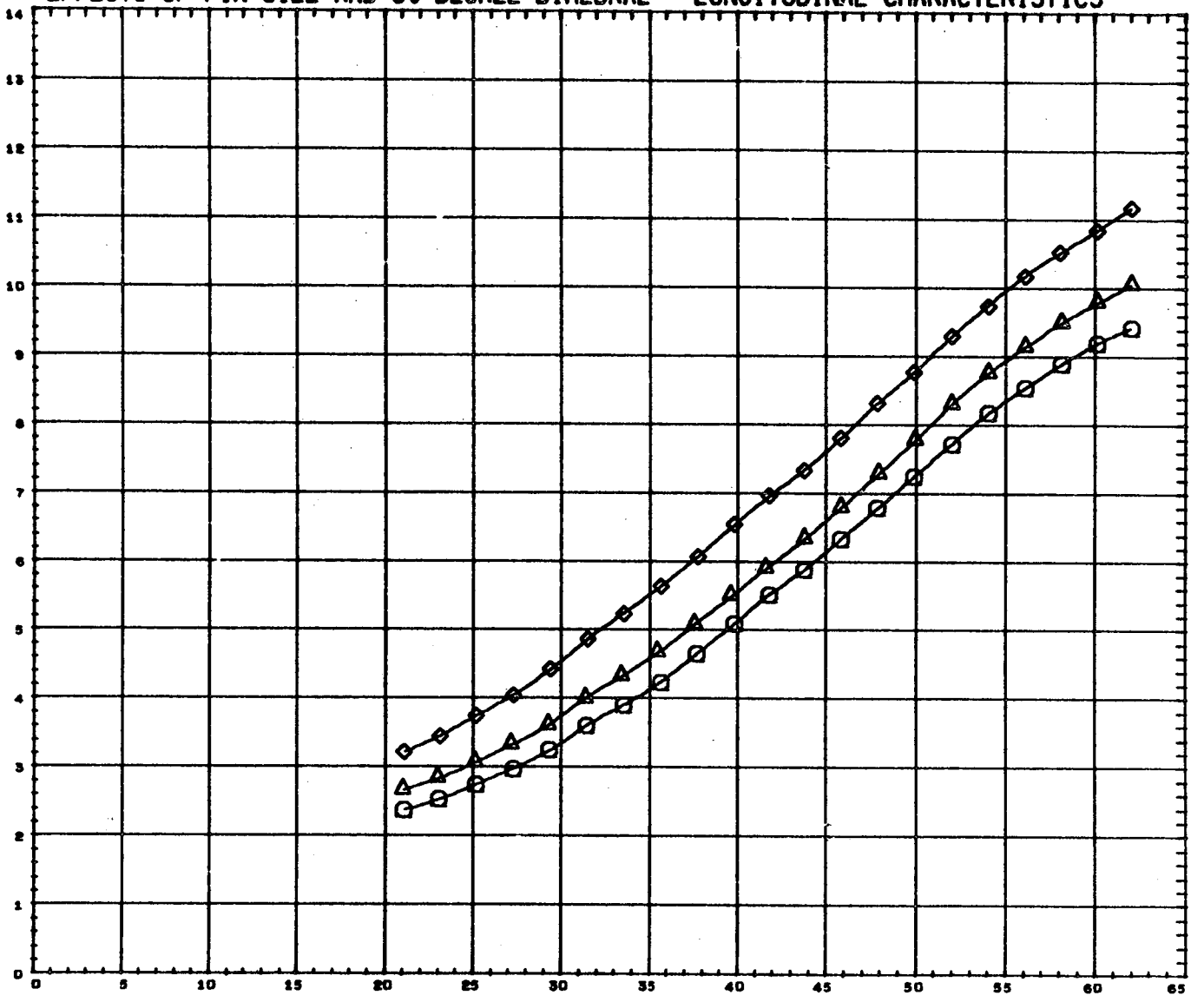

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MACH 1.200

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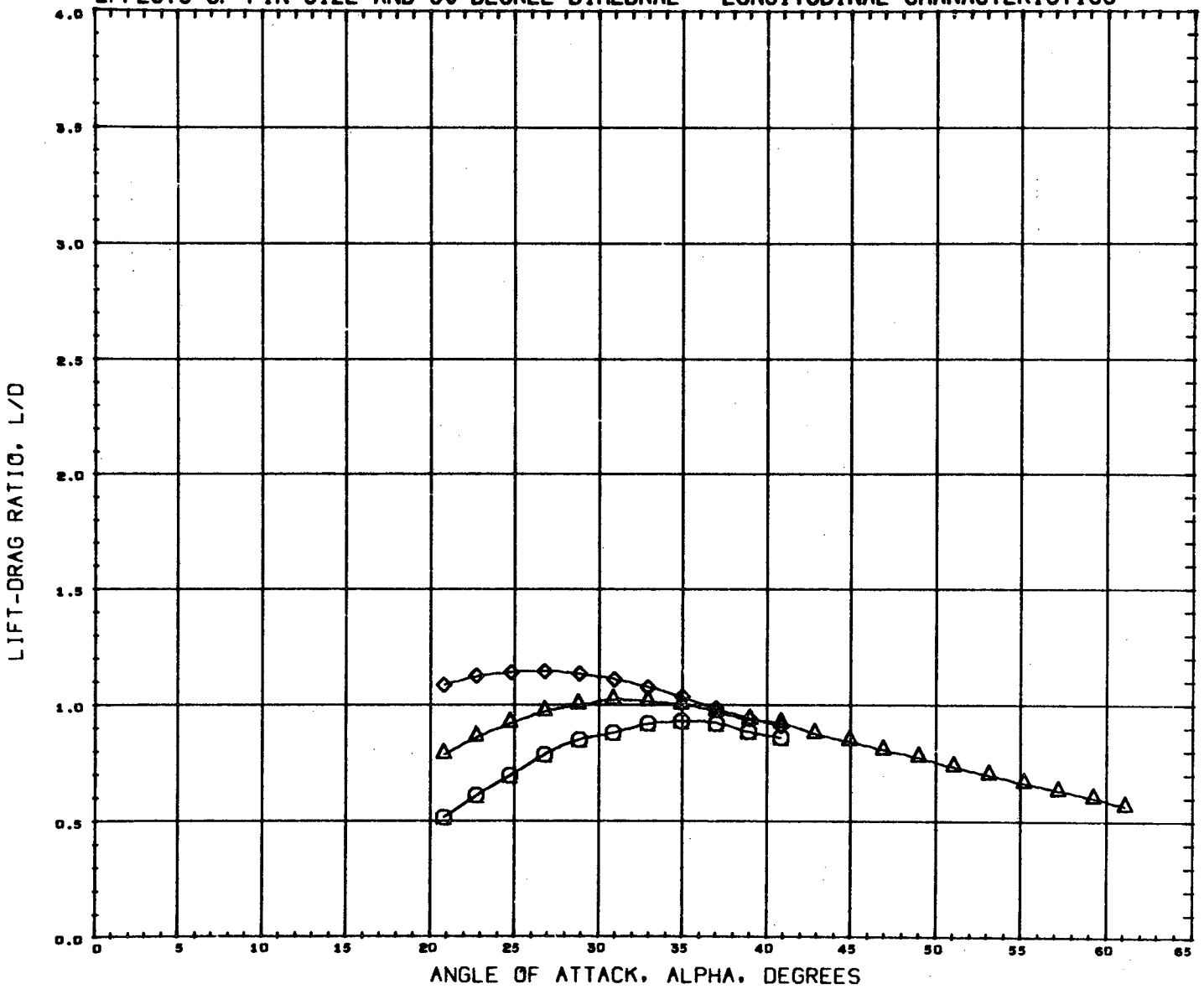

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MACH 0.600

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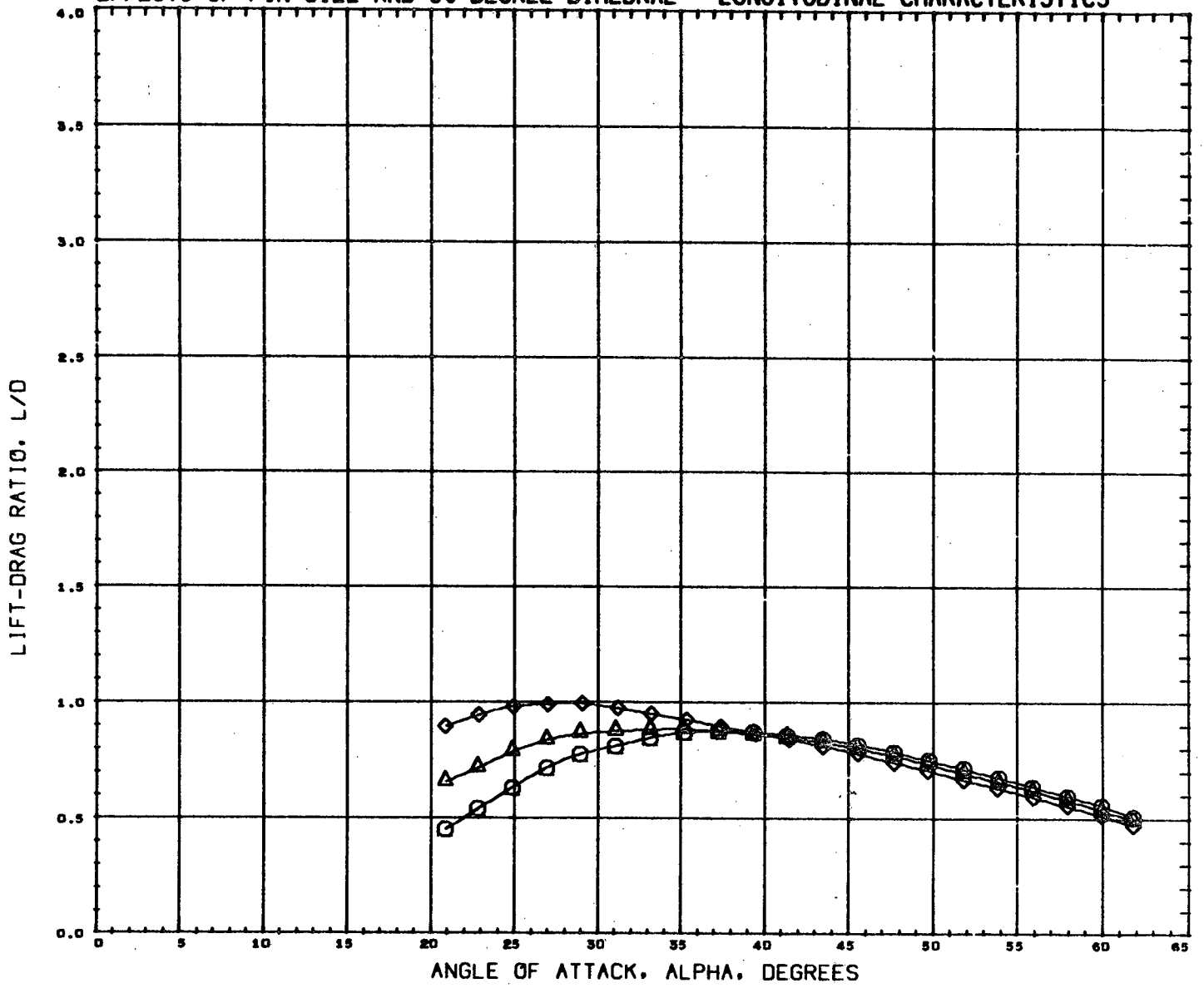

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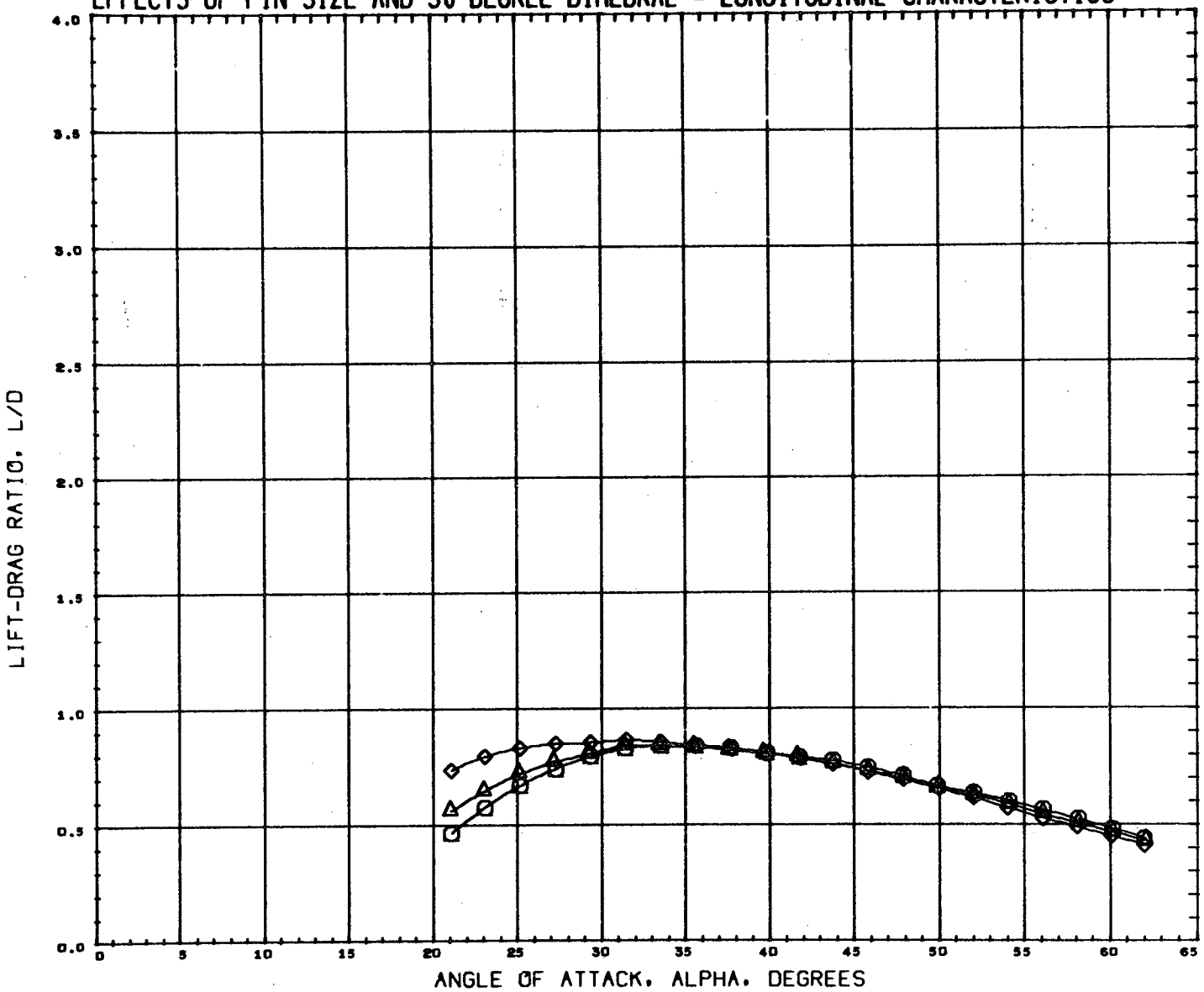

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MACH 1.200

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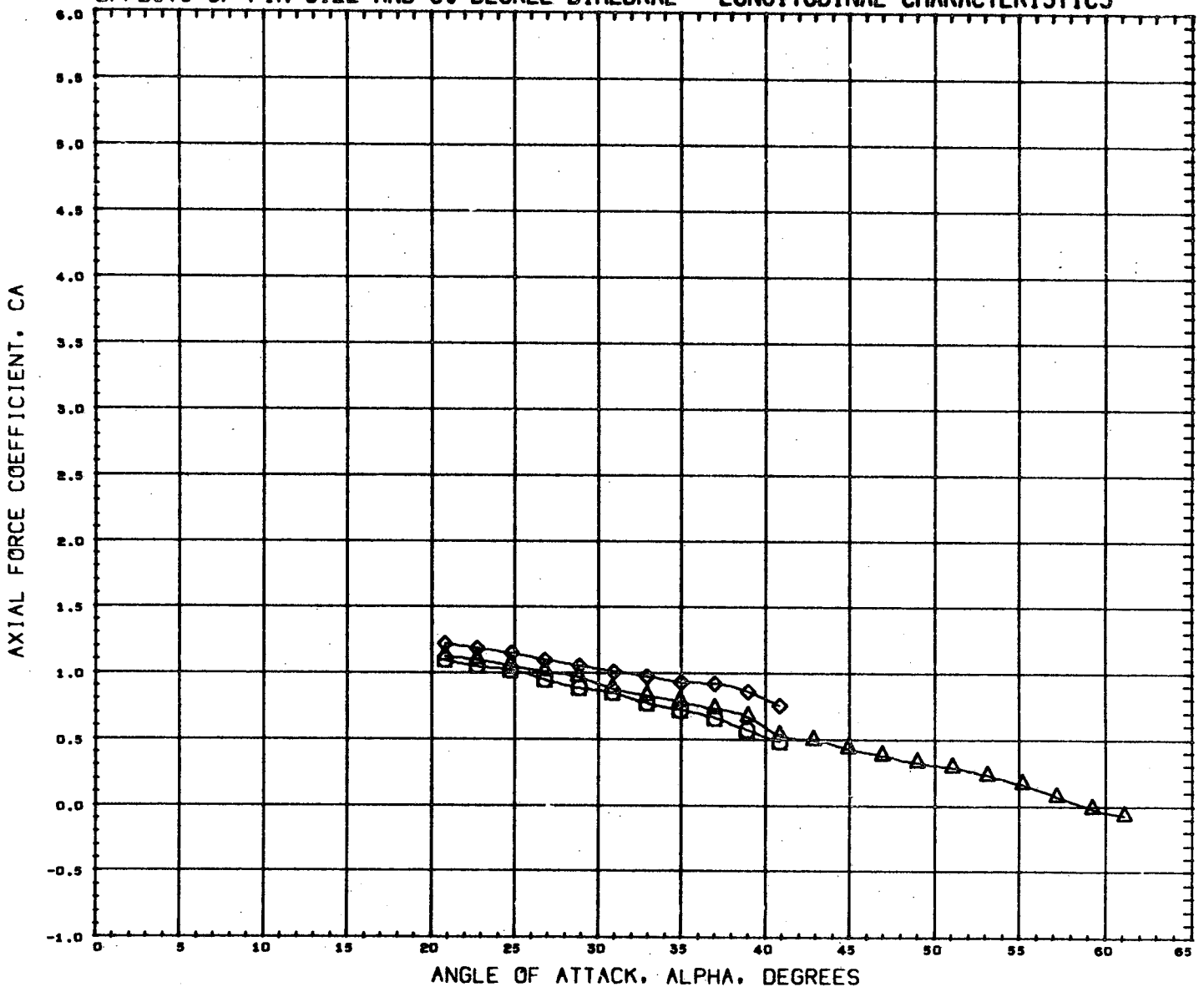

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MACH 0.600

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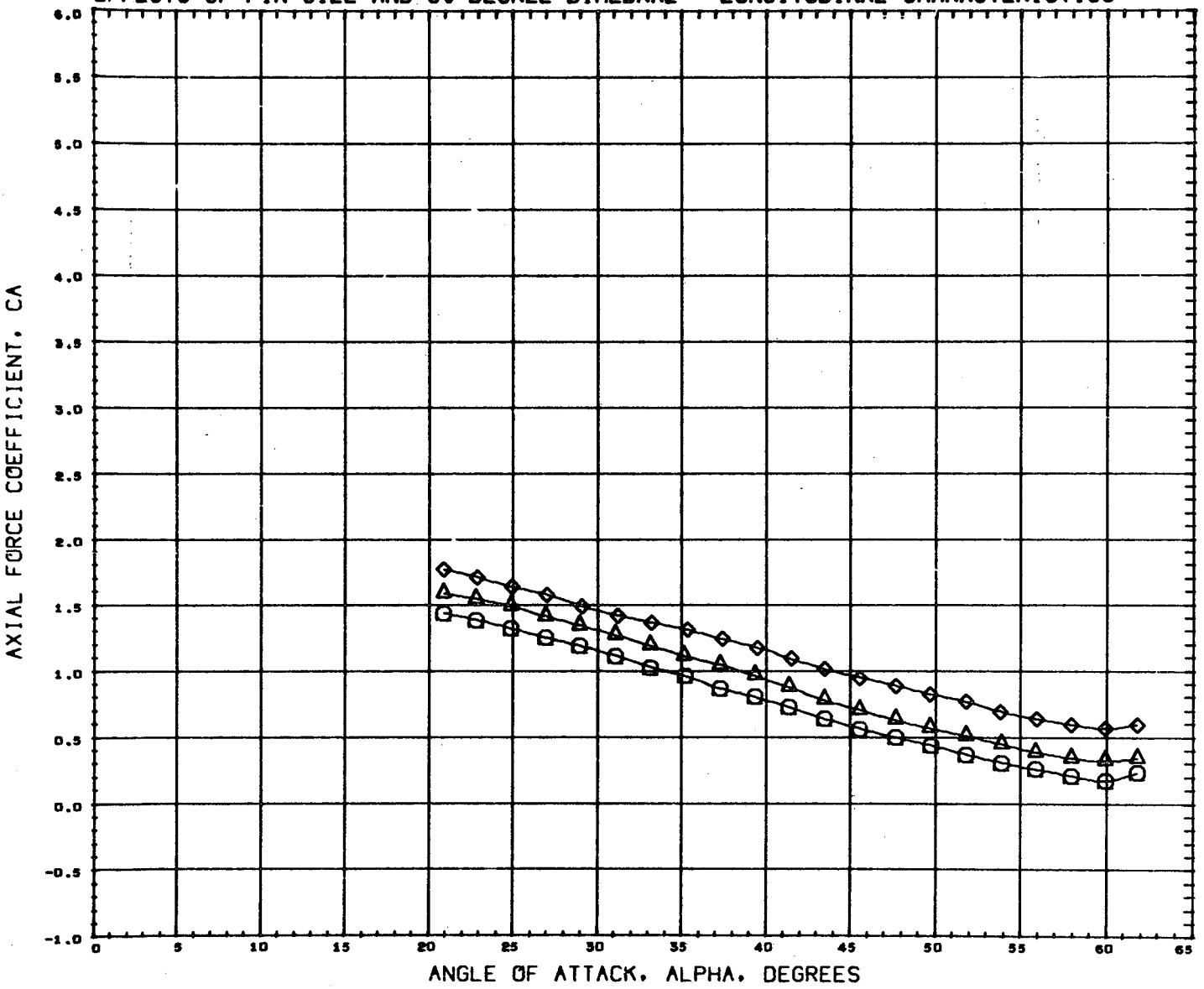
EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



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MACH 0.899

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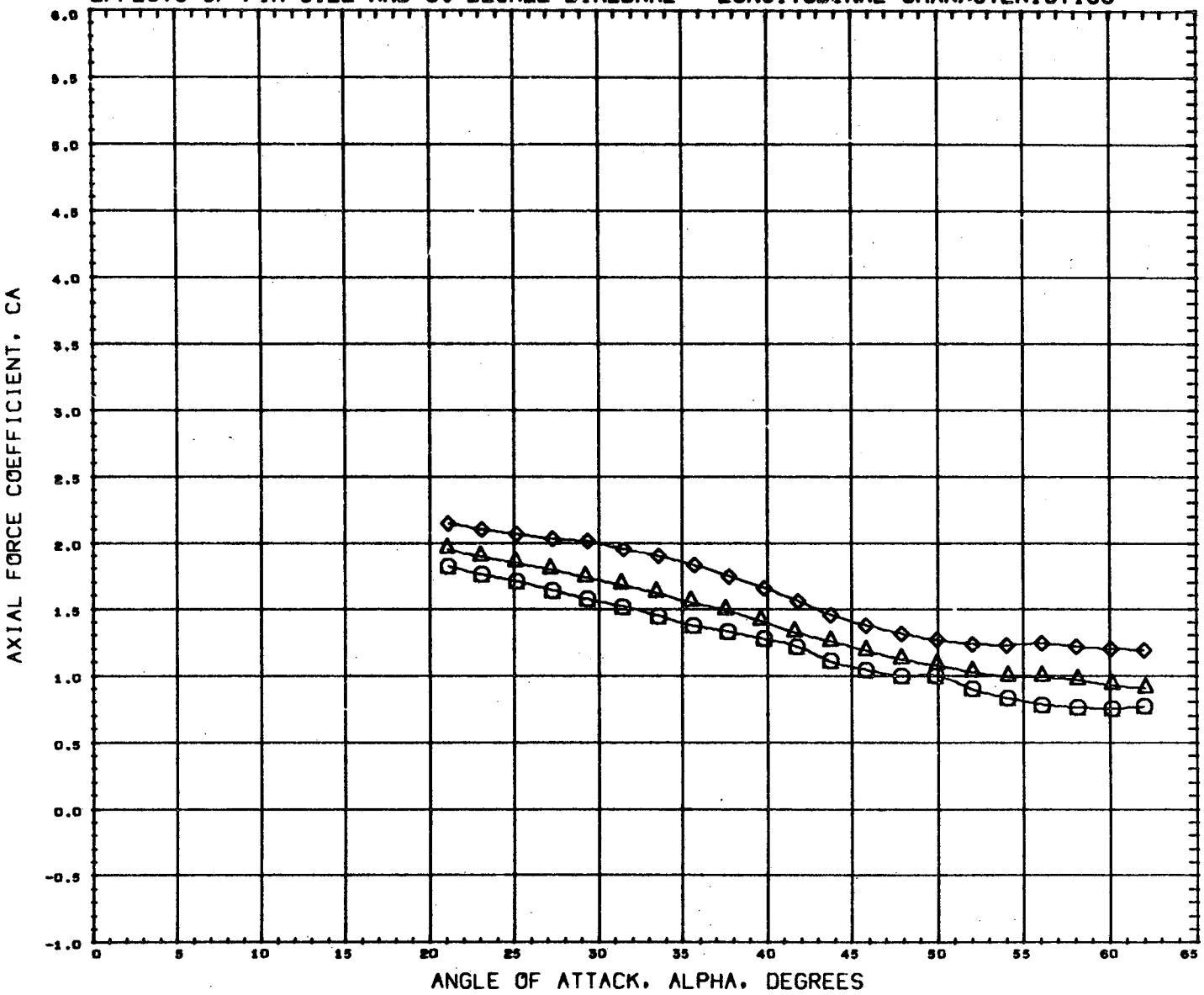
EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



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(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION		
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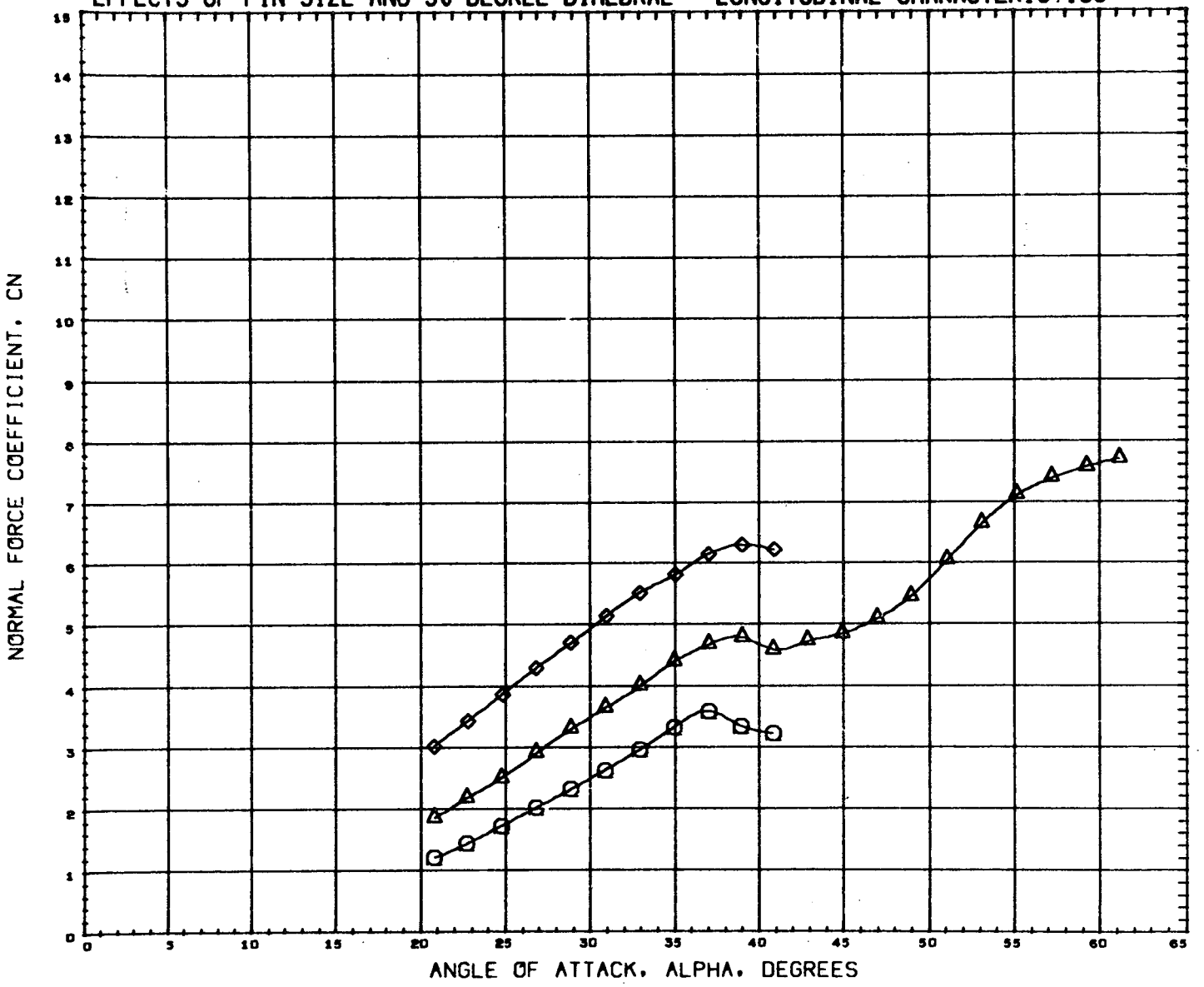
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



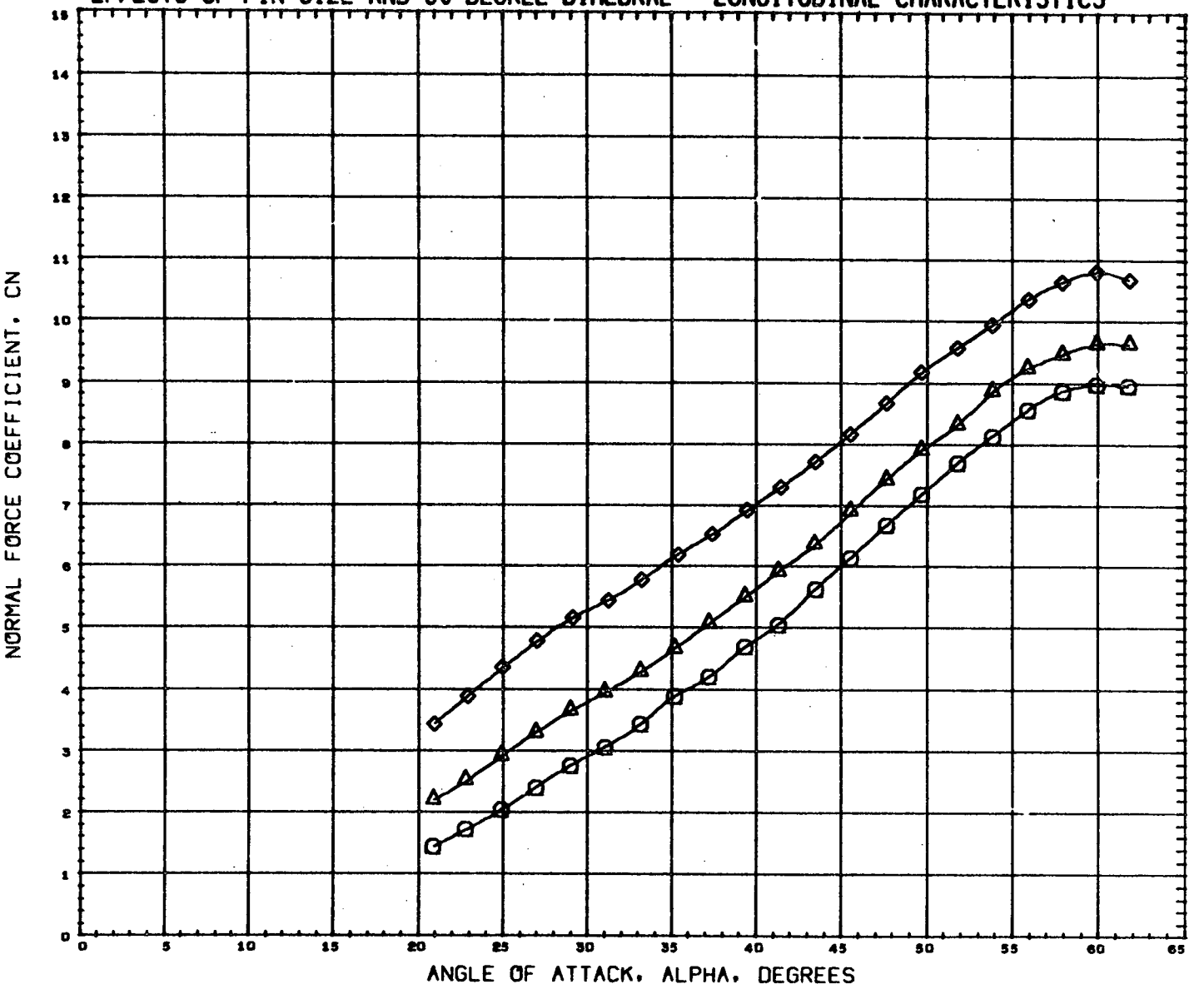
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

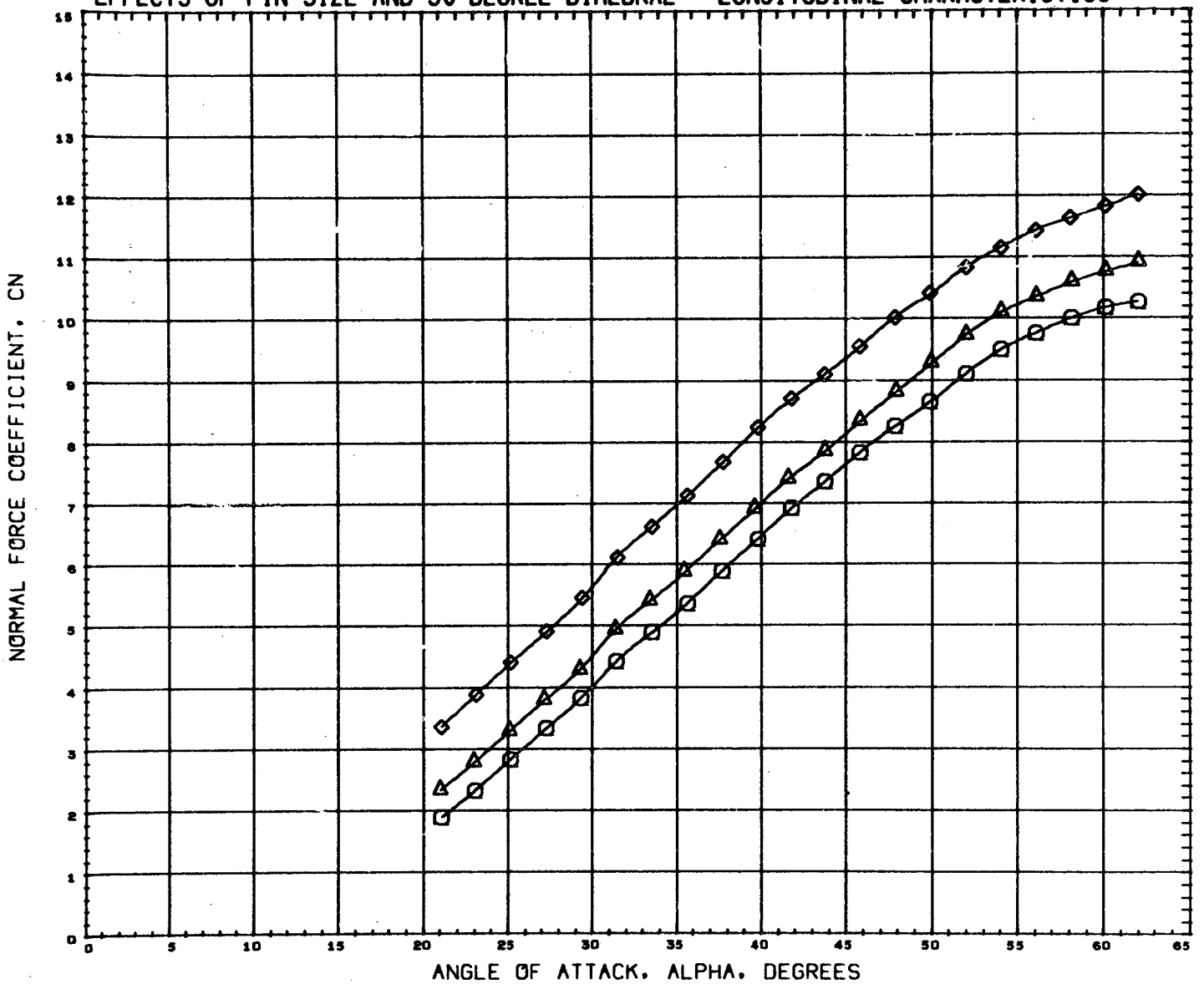


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

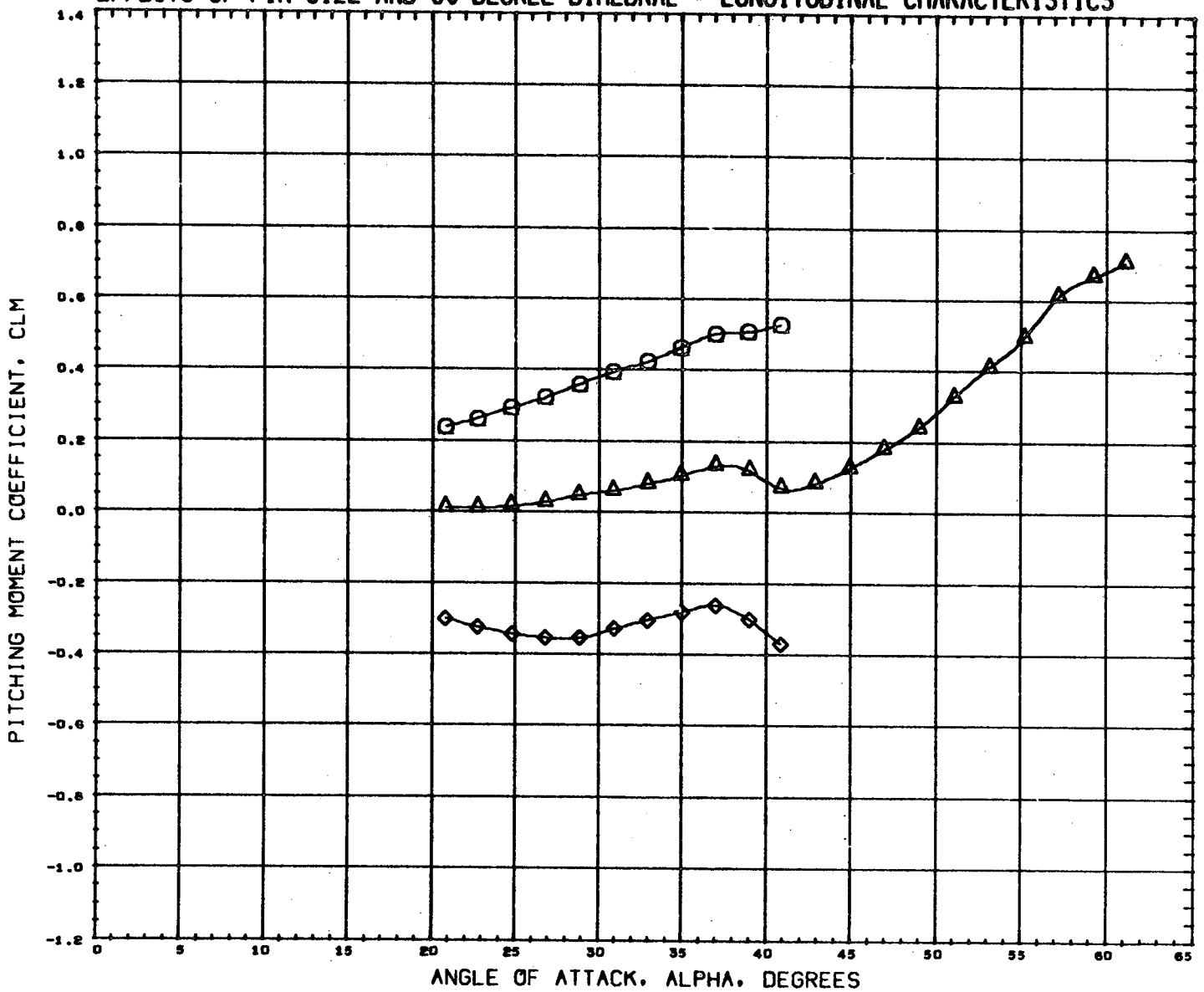


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54S01)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
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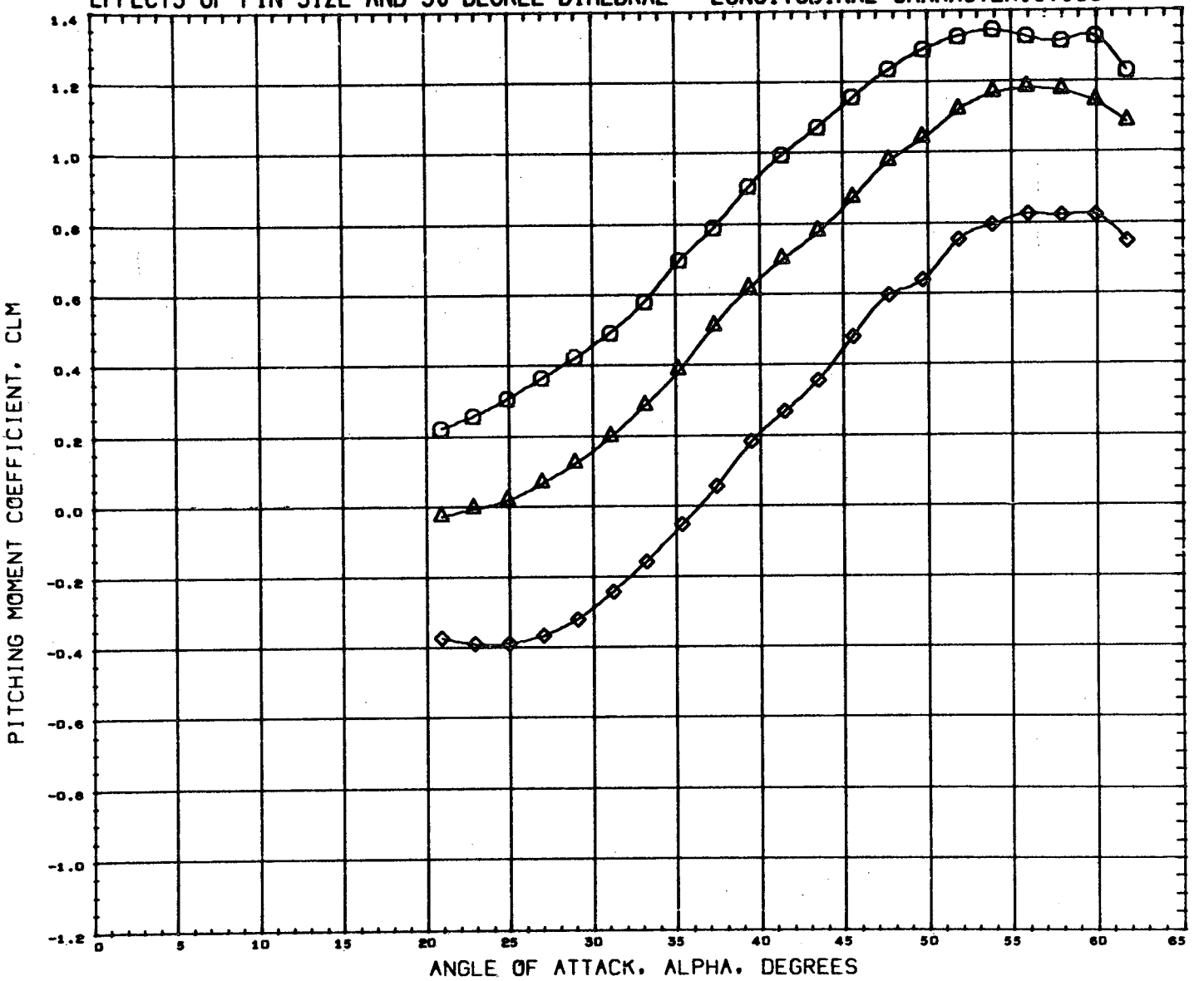
SCALE	0.0034	

20

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



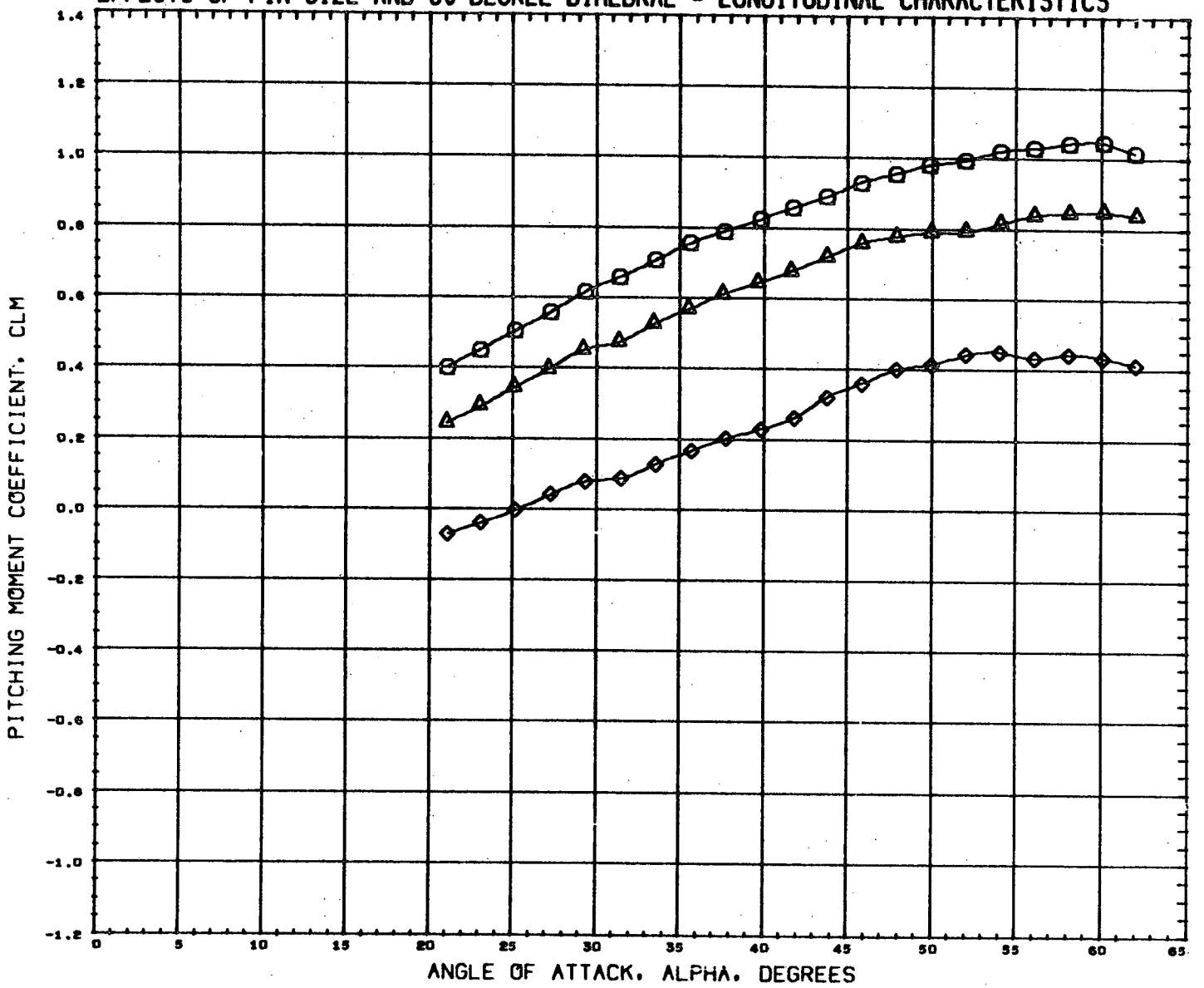
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

MACH 0.899

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



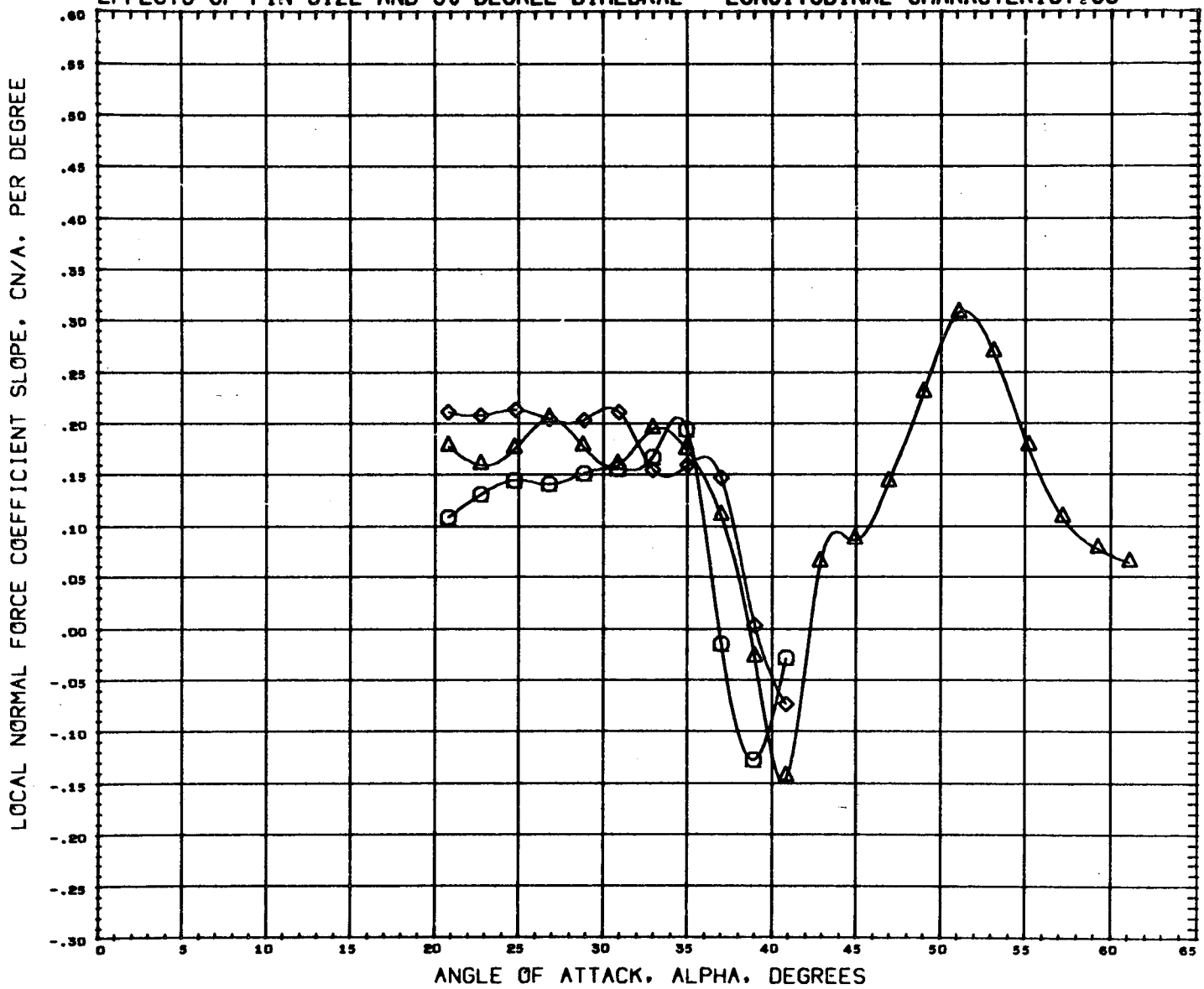
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(K54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



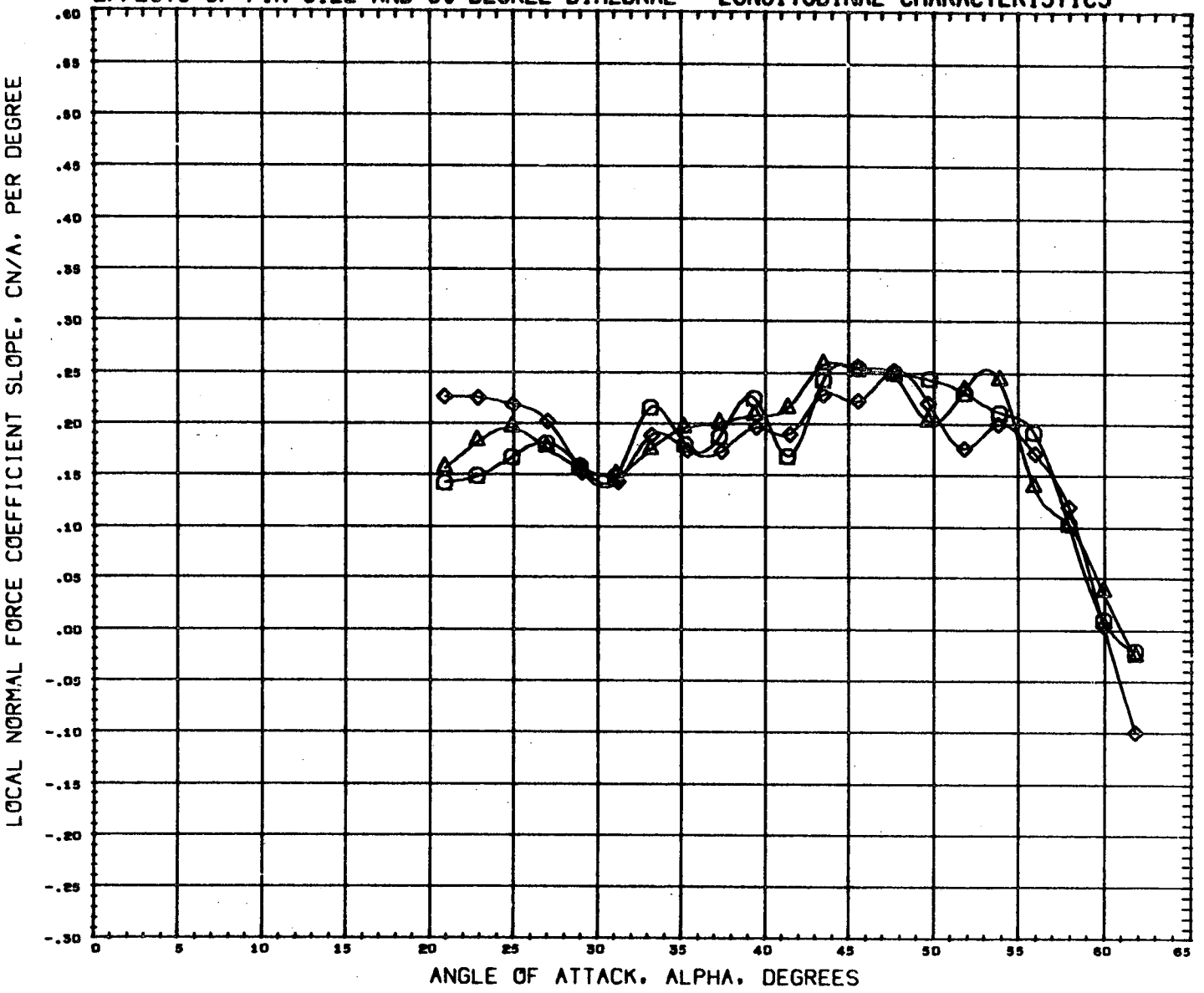
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

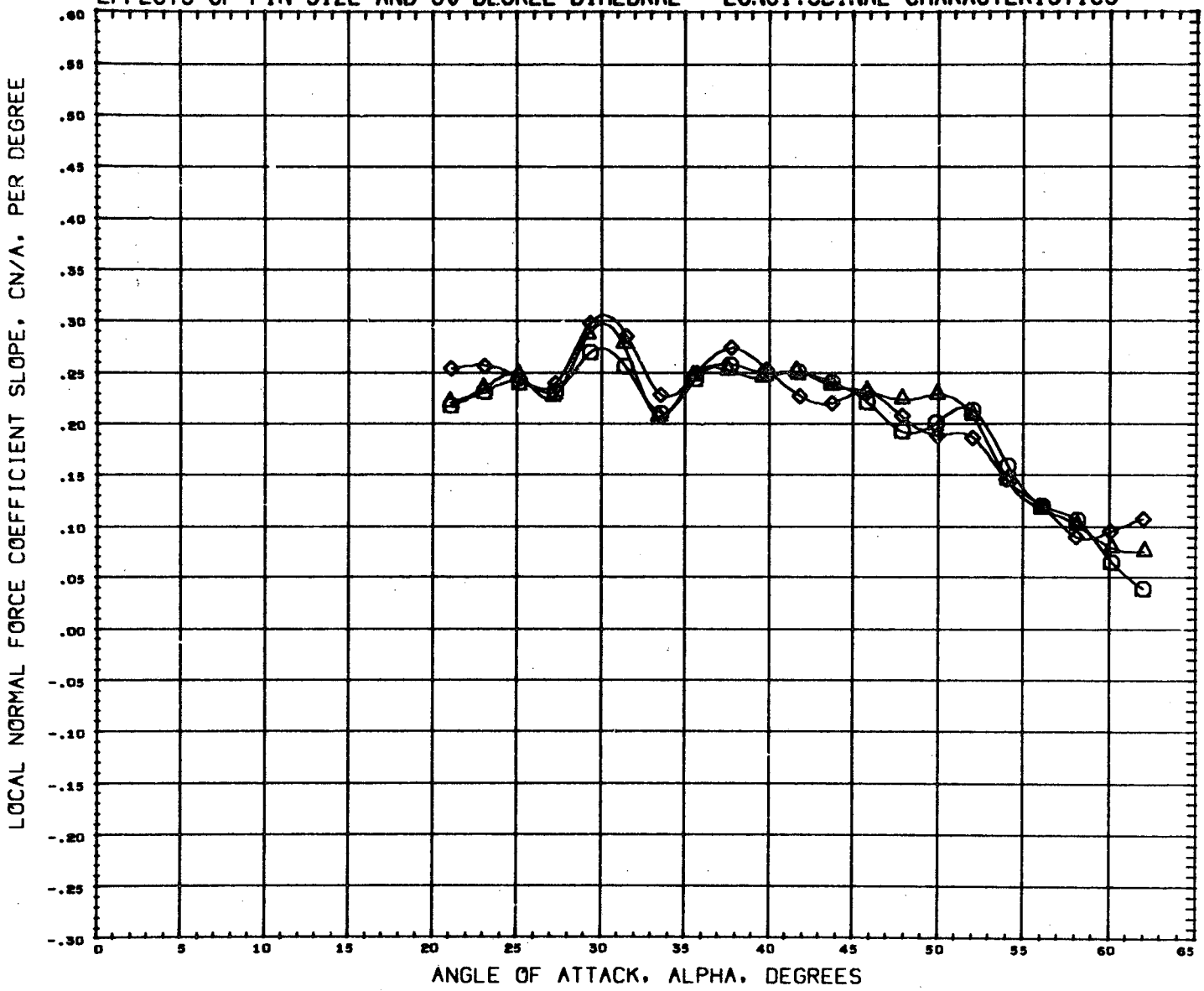


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



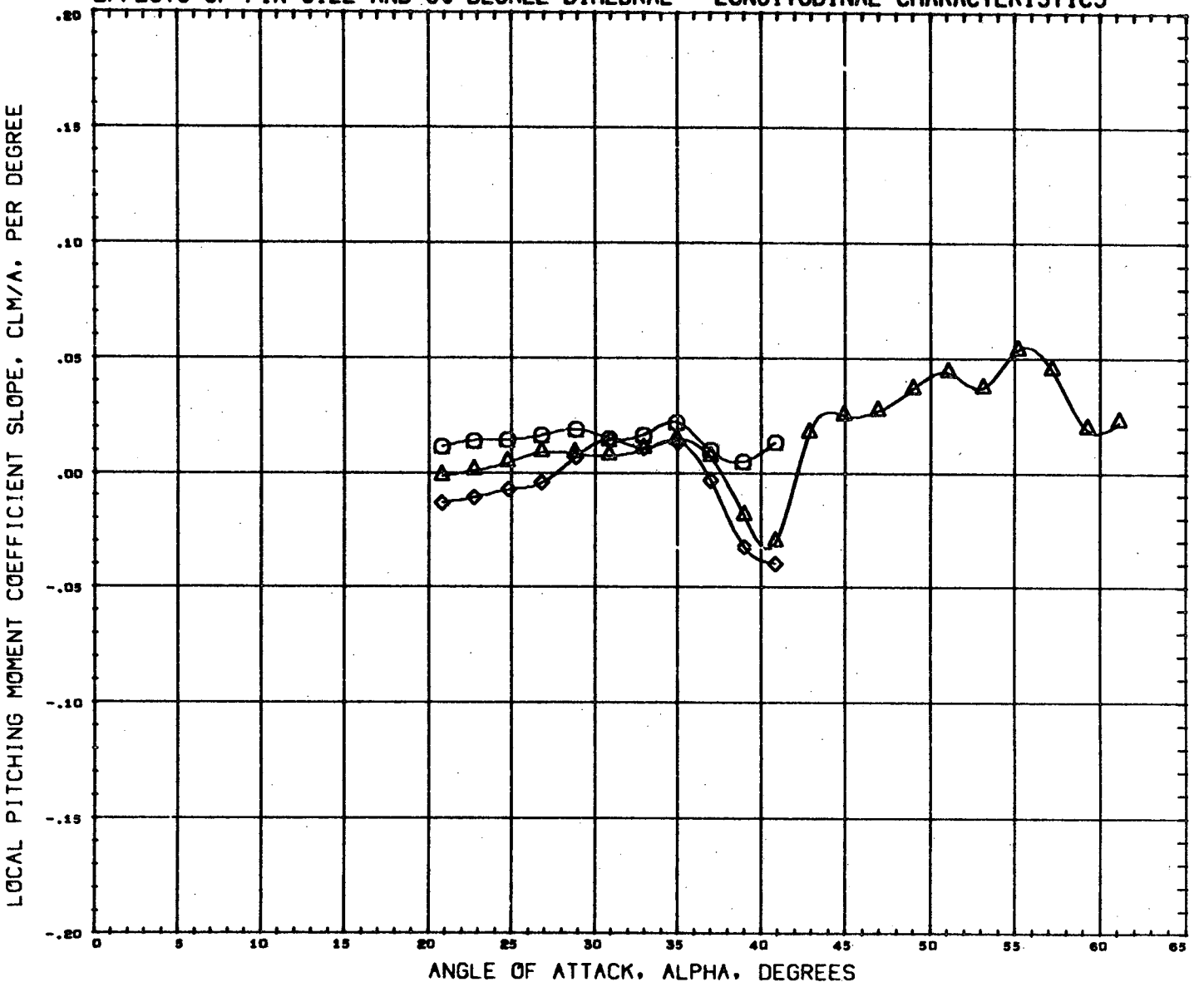
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(K54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



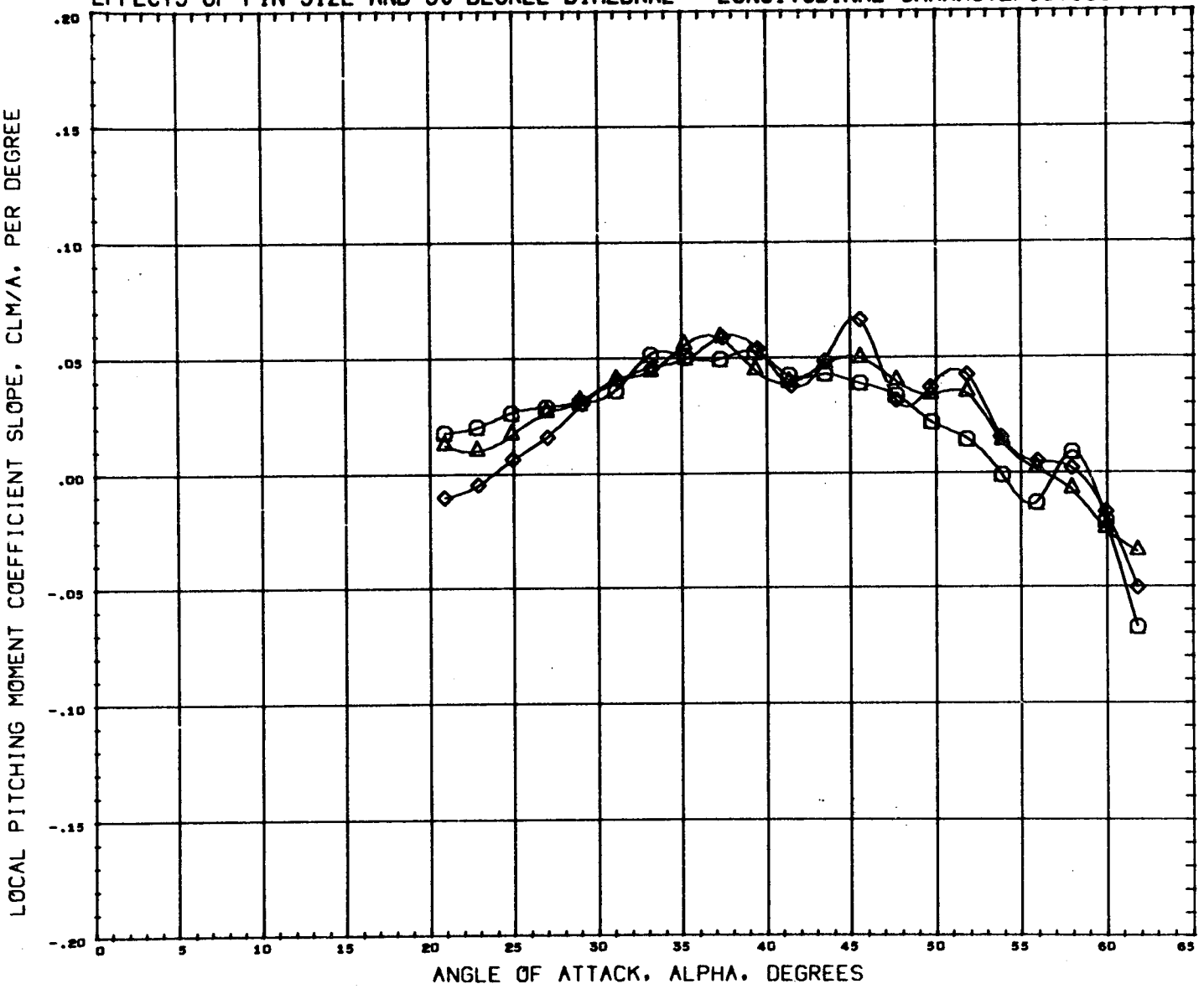
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(K54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1	0.000	
(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

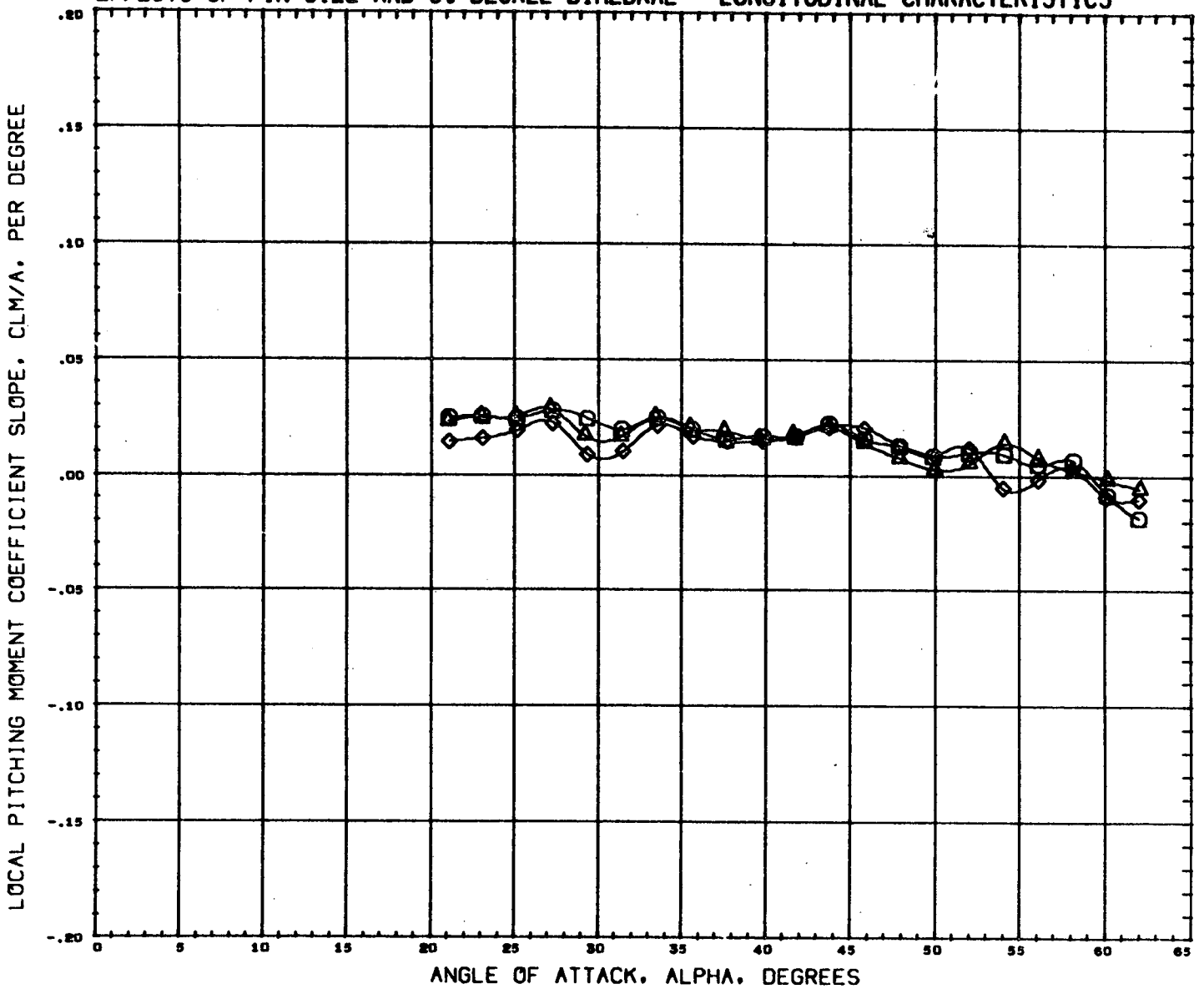


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



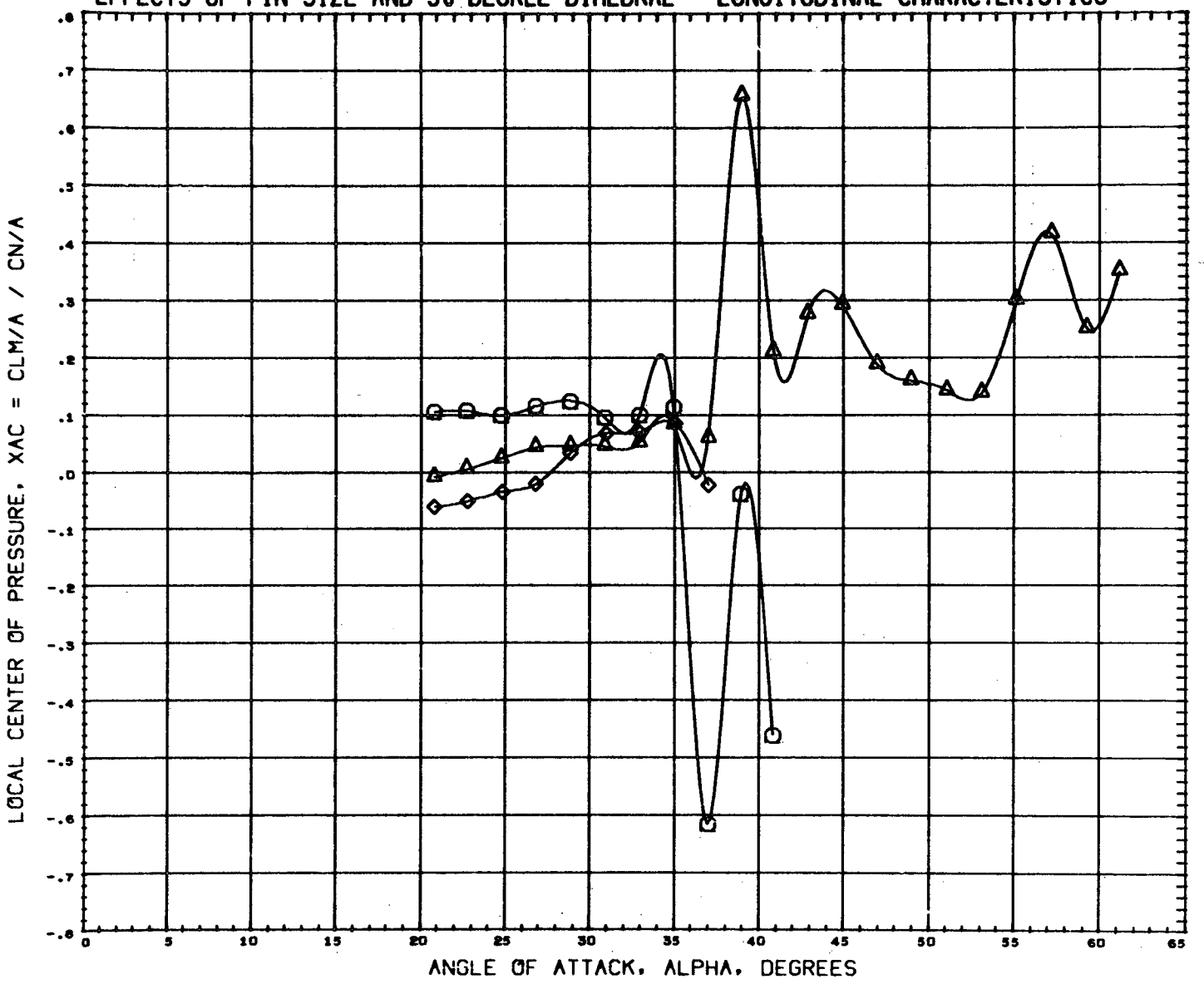
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(K54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1	0.000	
(I54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



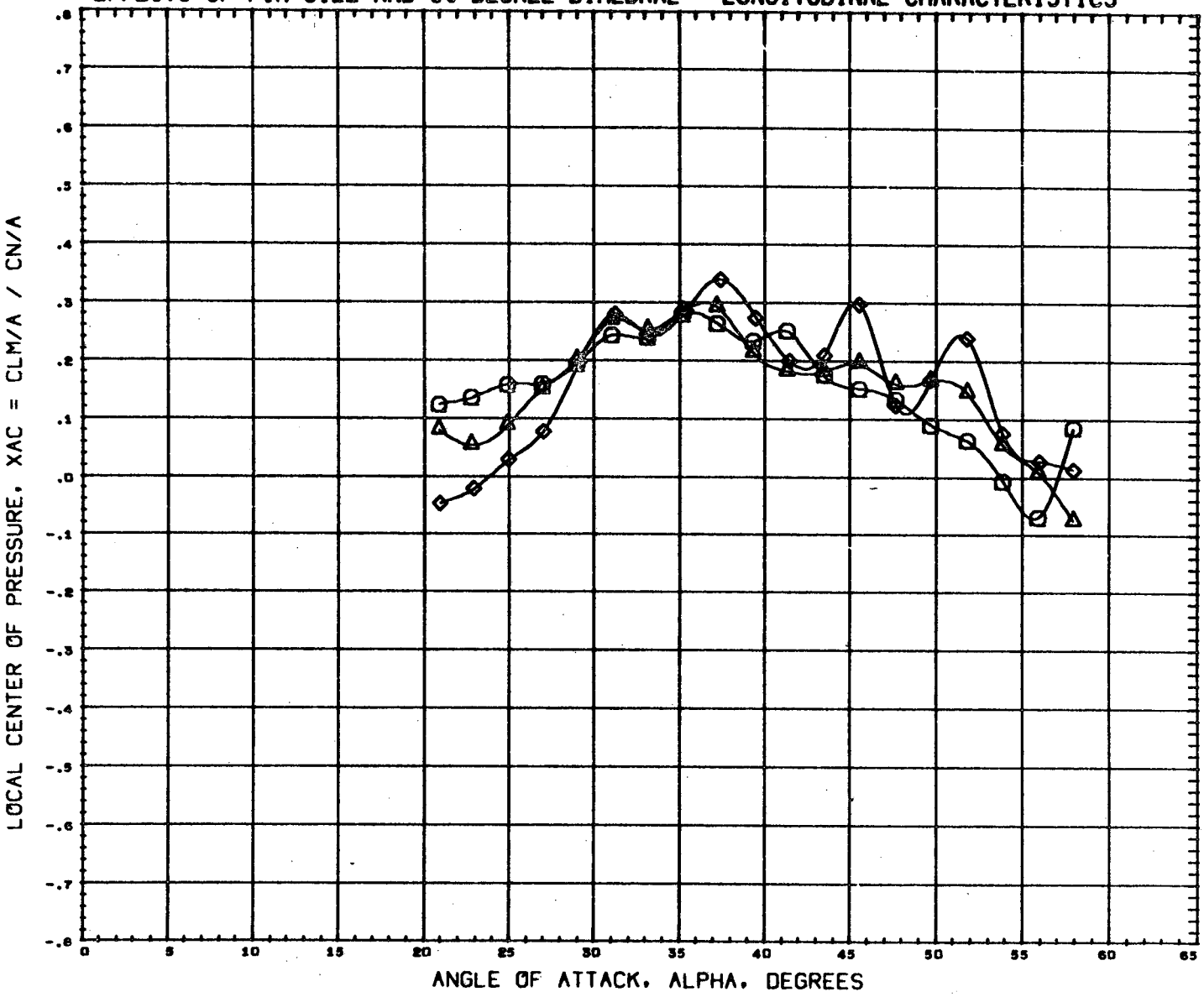
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(U54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(U54903)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(U54907)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



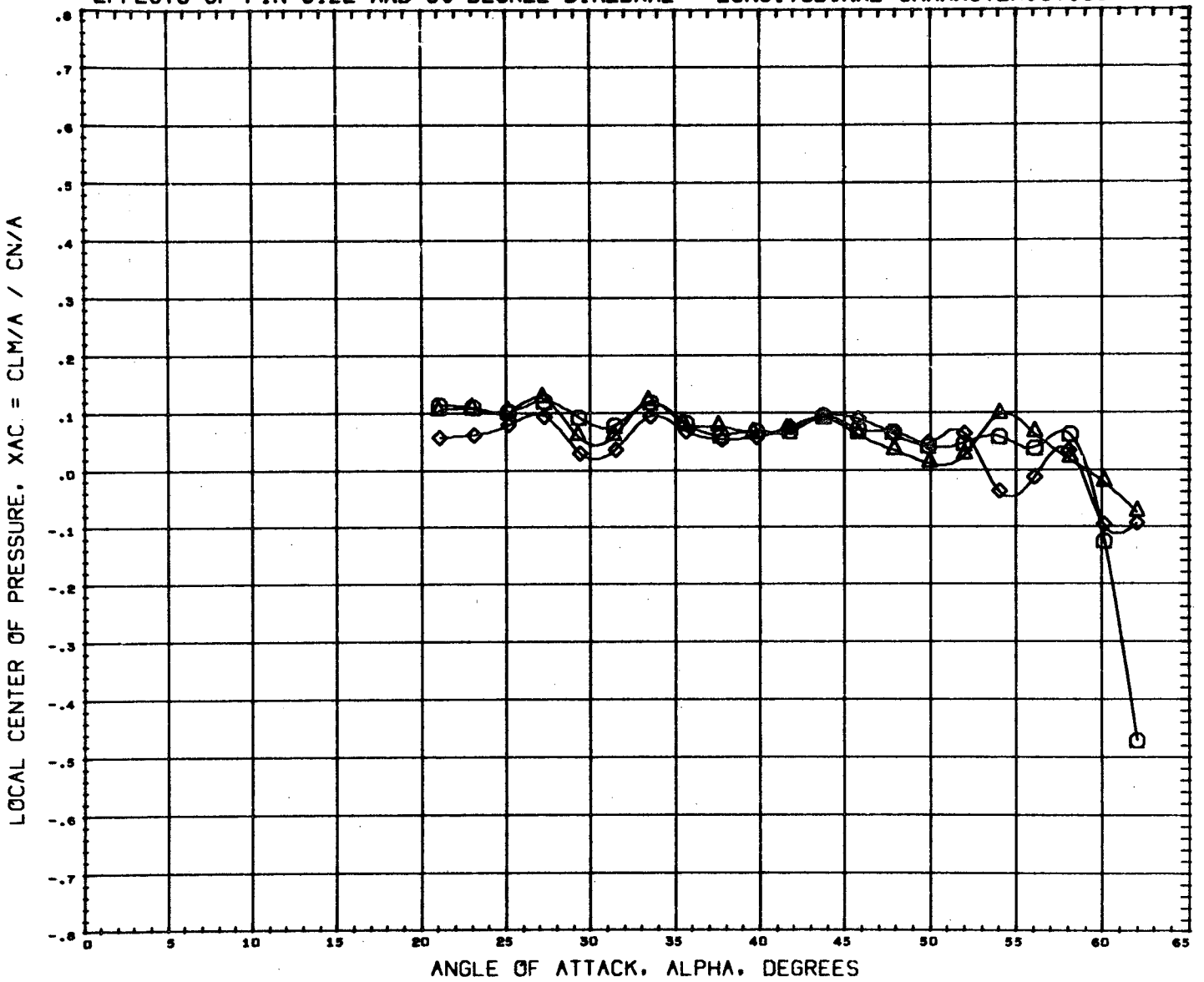
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(U54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(Q54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(U54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.899

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

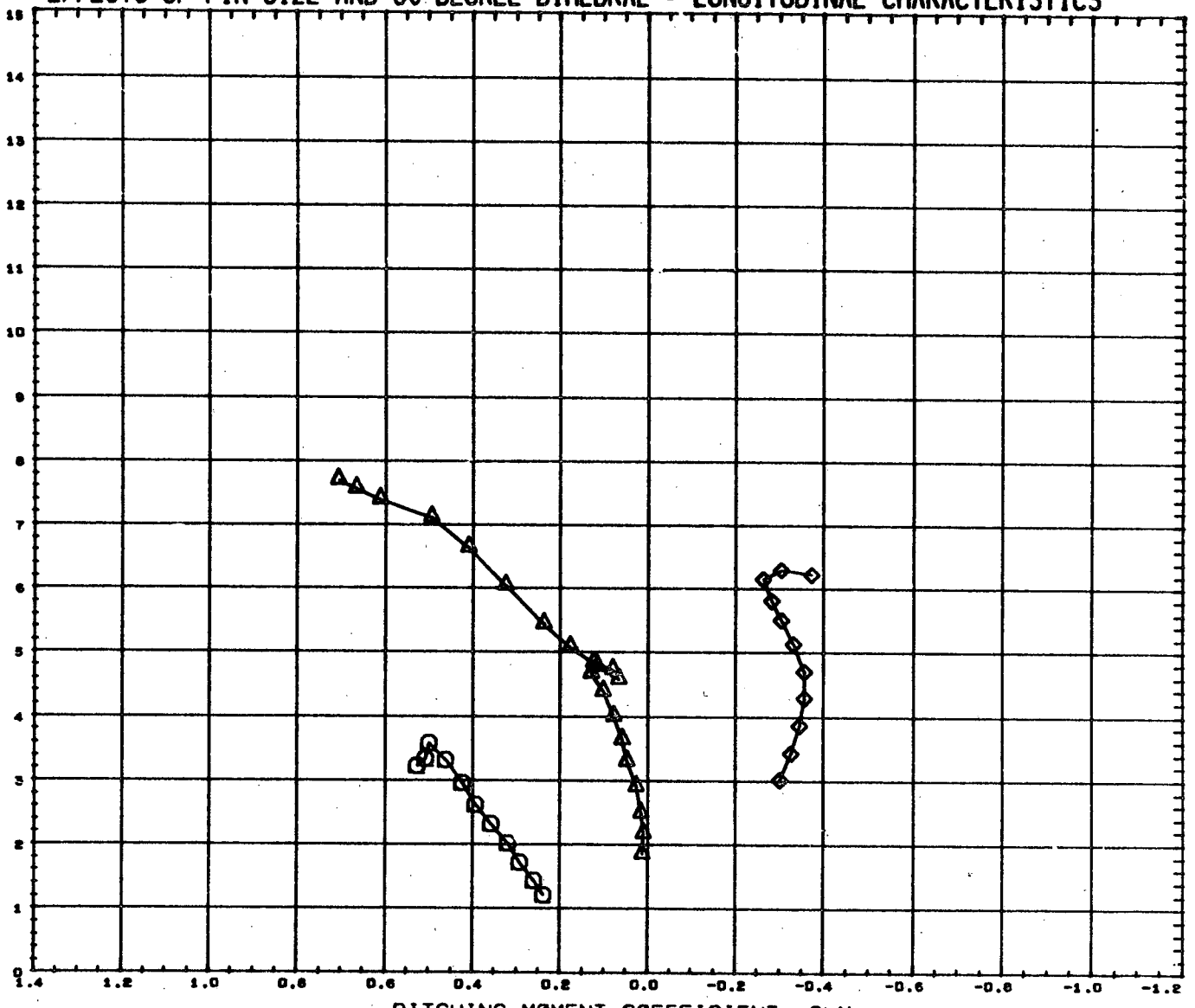


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(U54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(U549C3)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(U54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

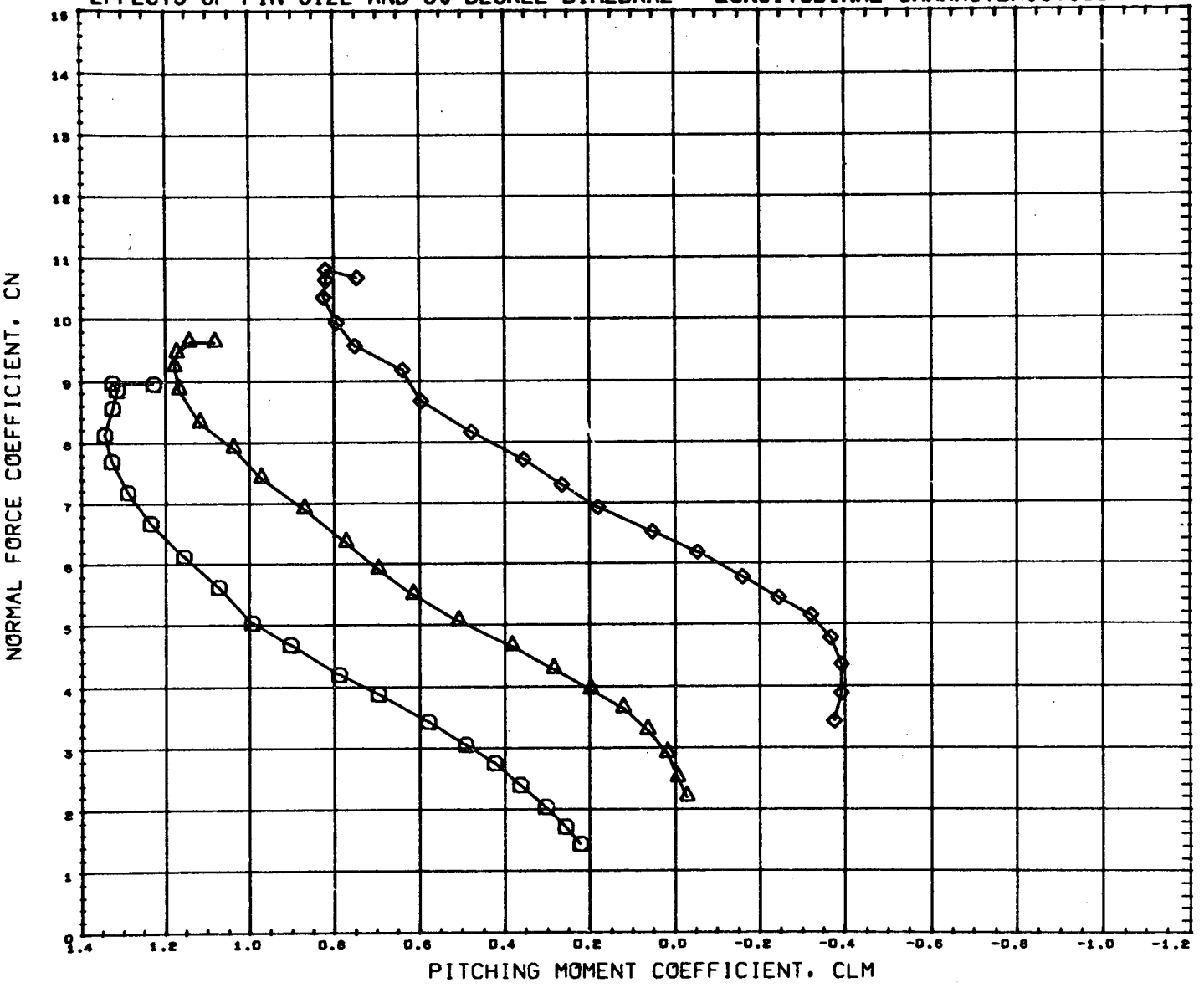


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.600

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

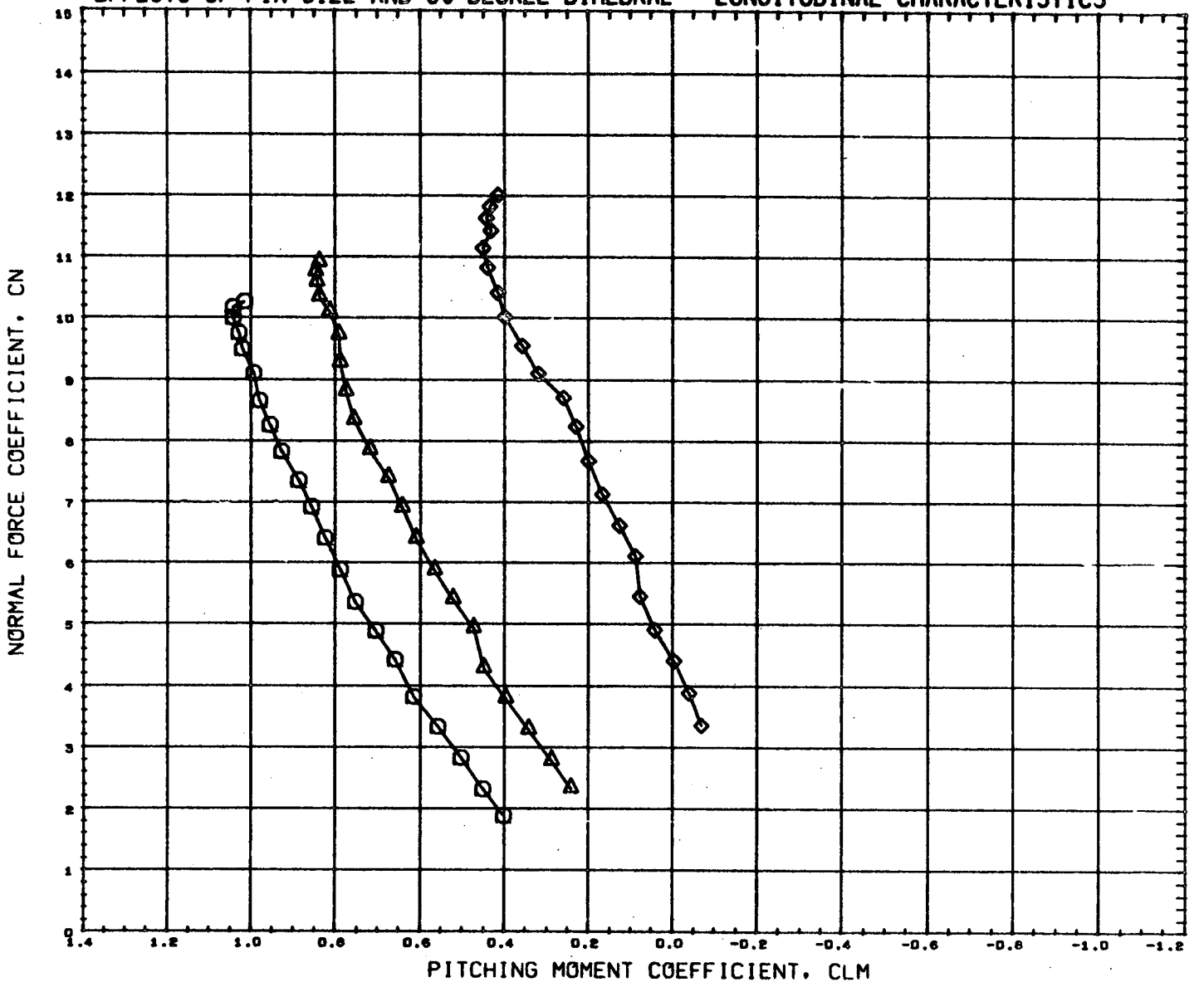


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

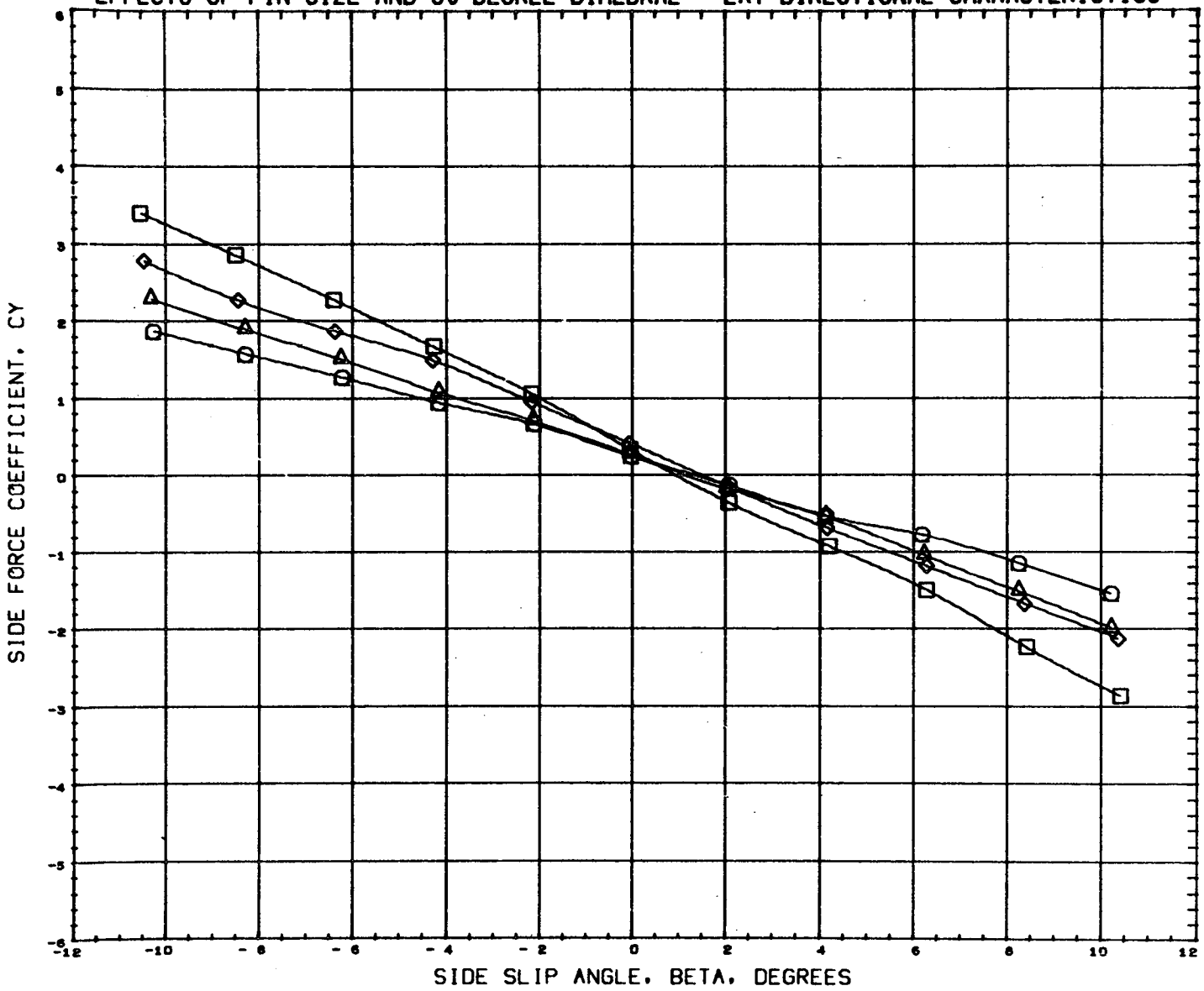


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(K54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54903)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	30.000
(K54907)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

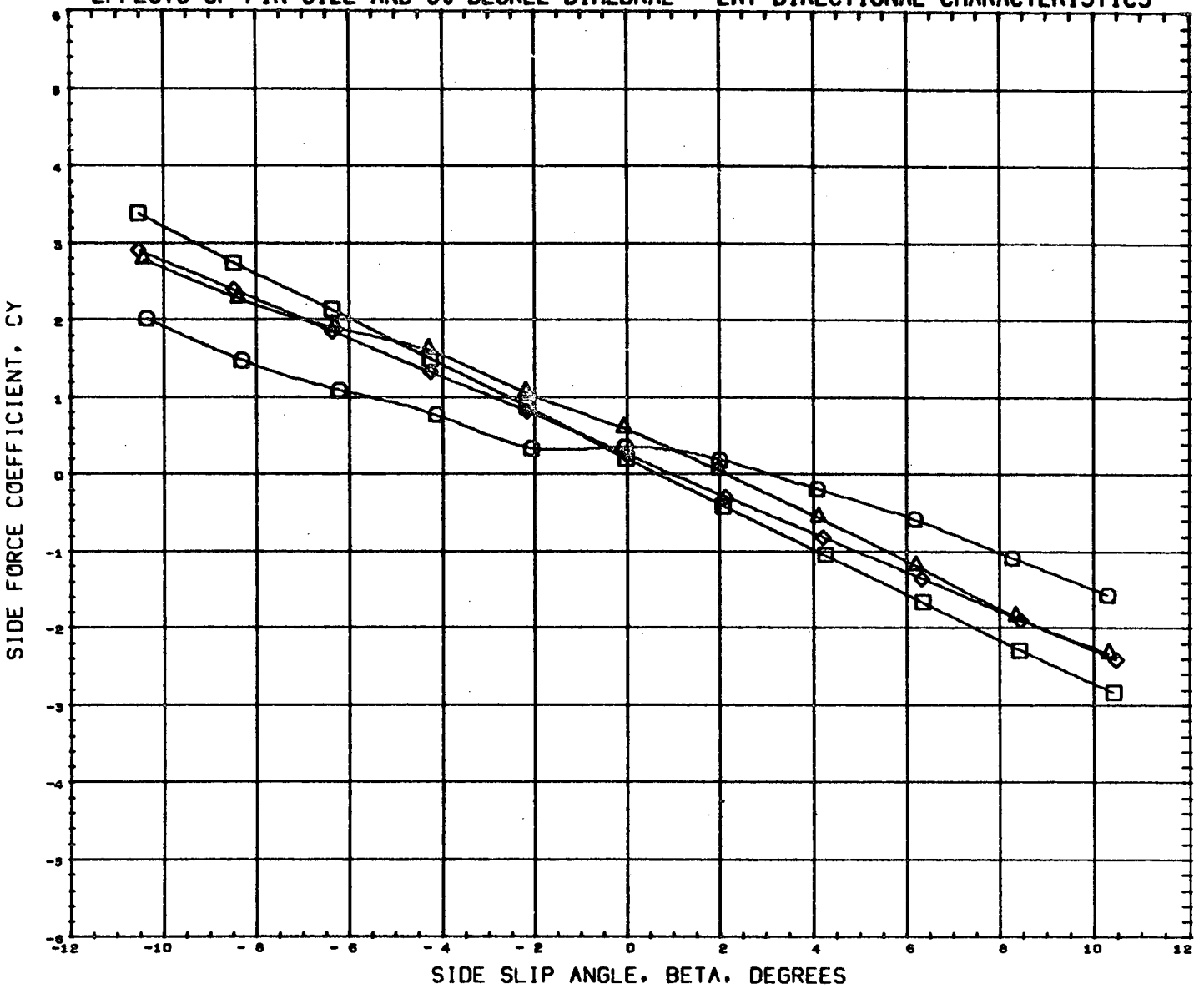


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54006)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)	□	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 0.902

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

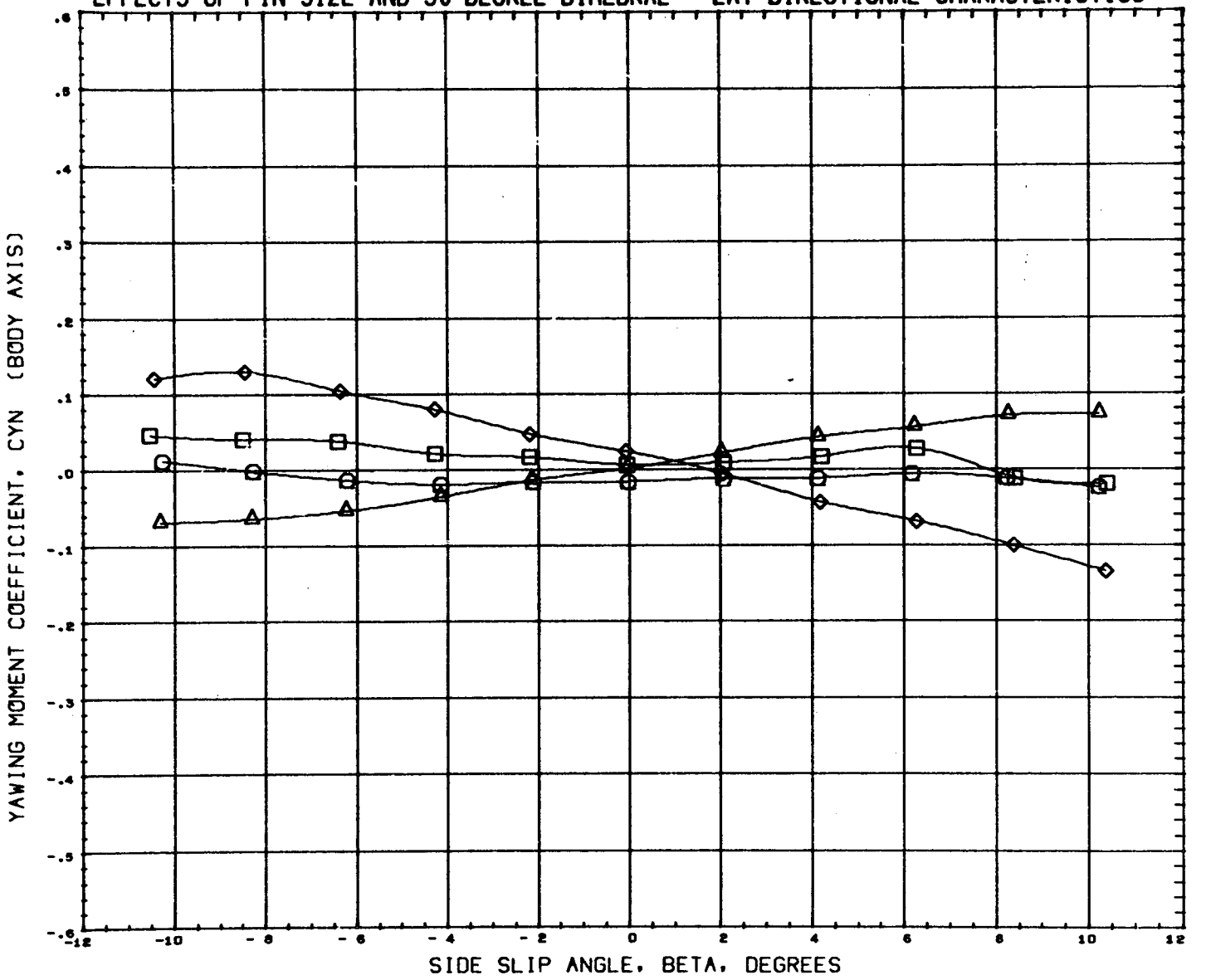


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(K54006)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 1.201

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

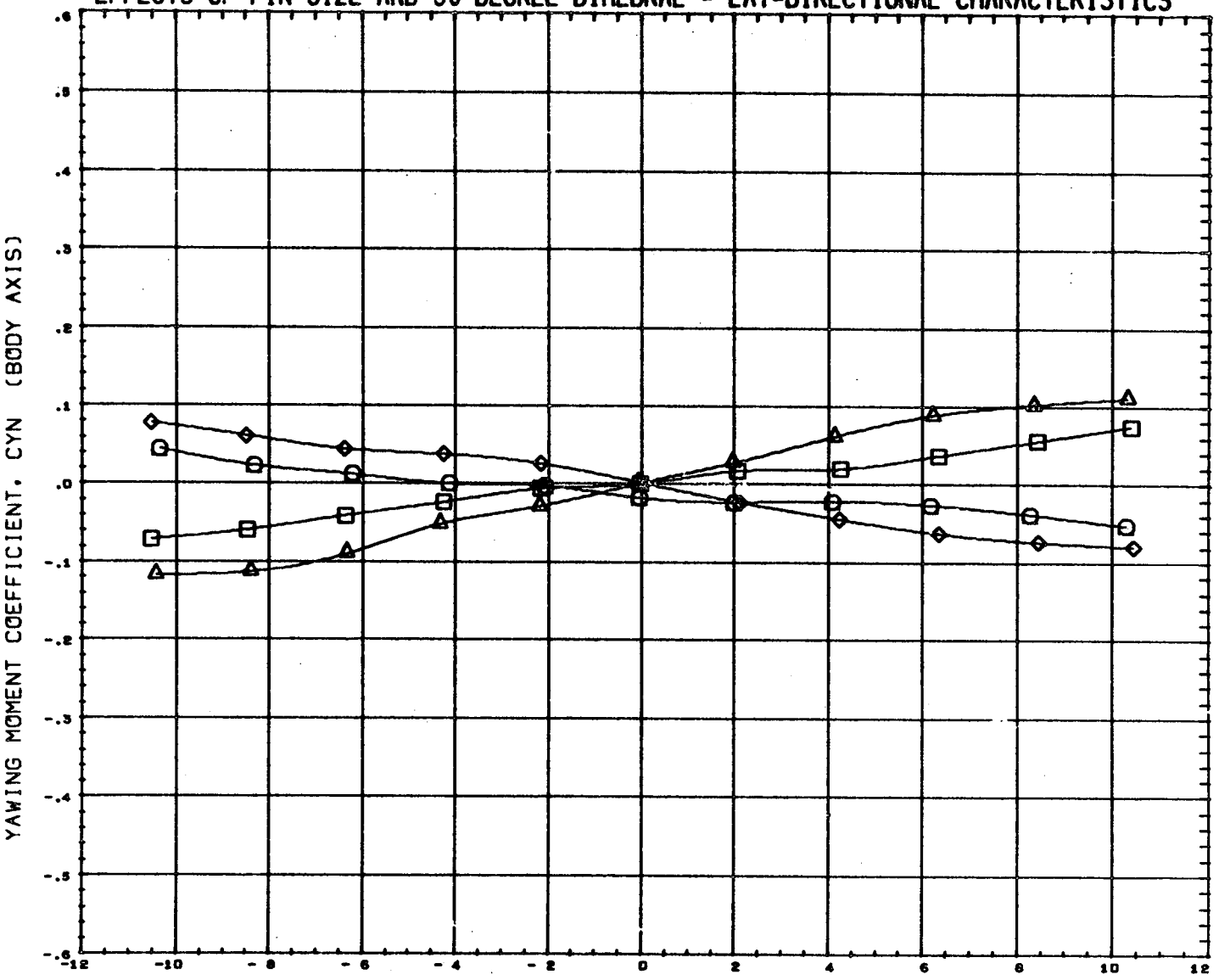


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(K54006)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 0.902

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

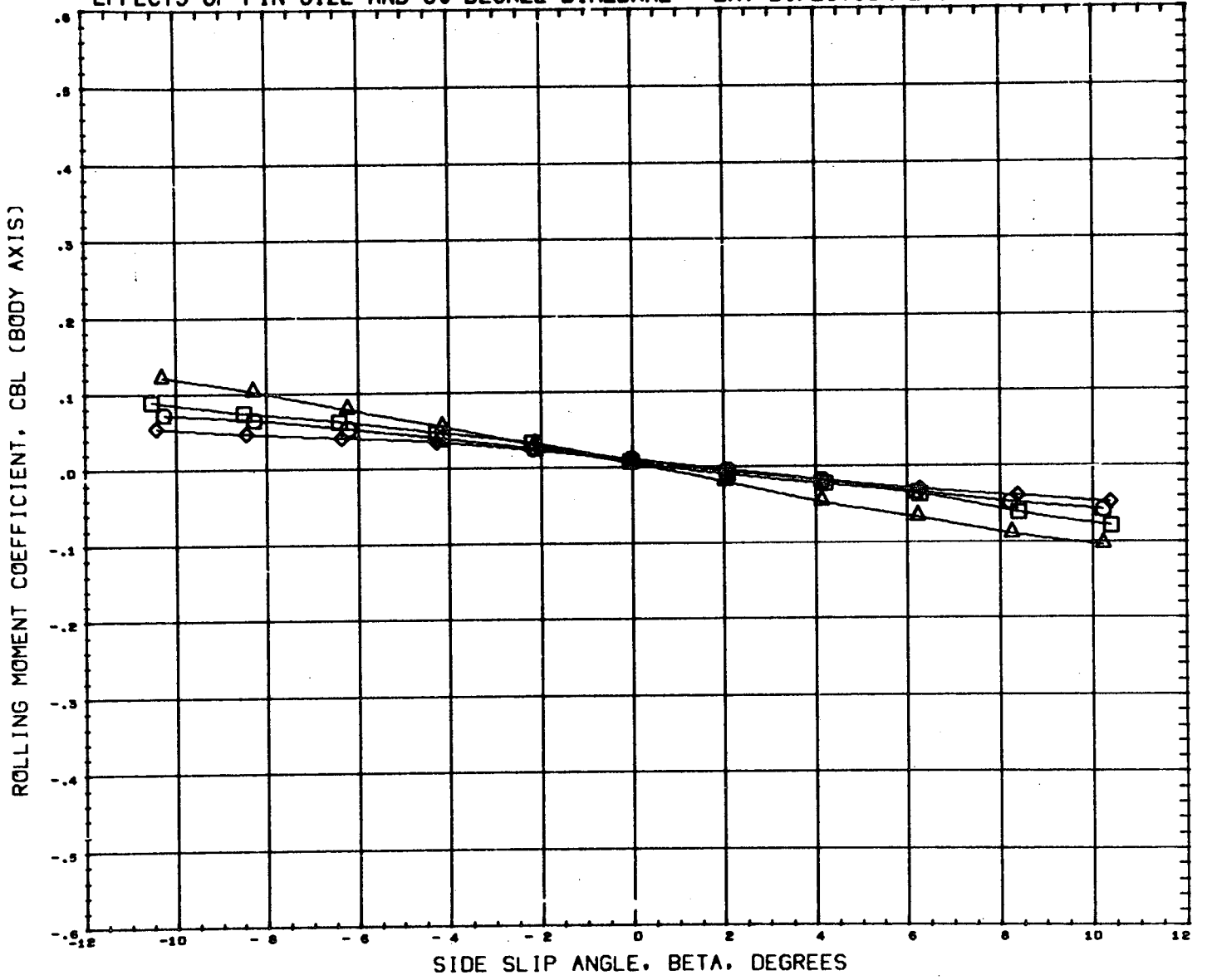


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54006)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54009)	□	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000

MACH 1.201

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

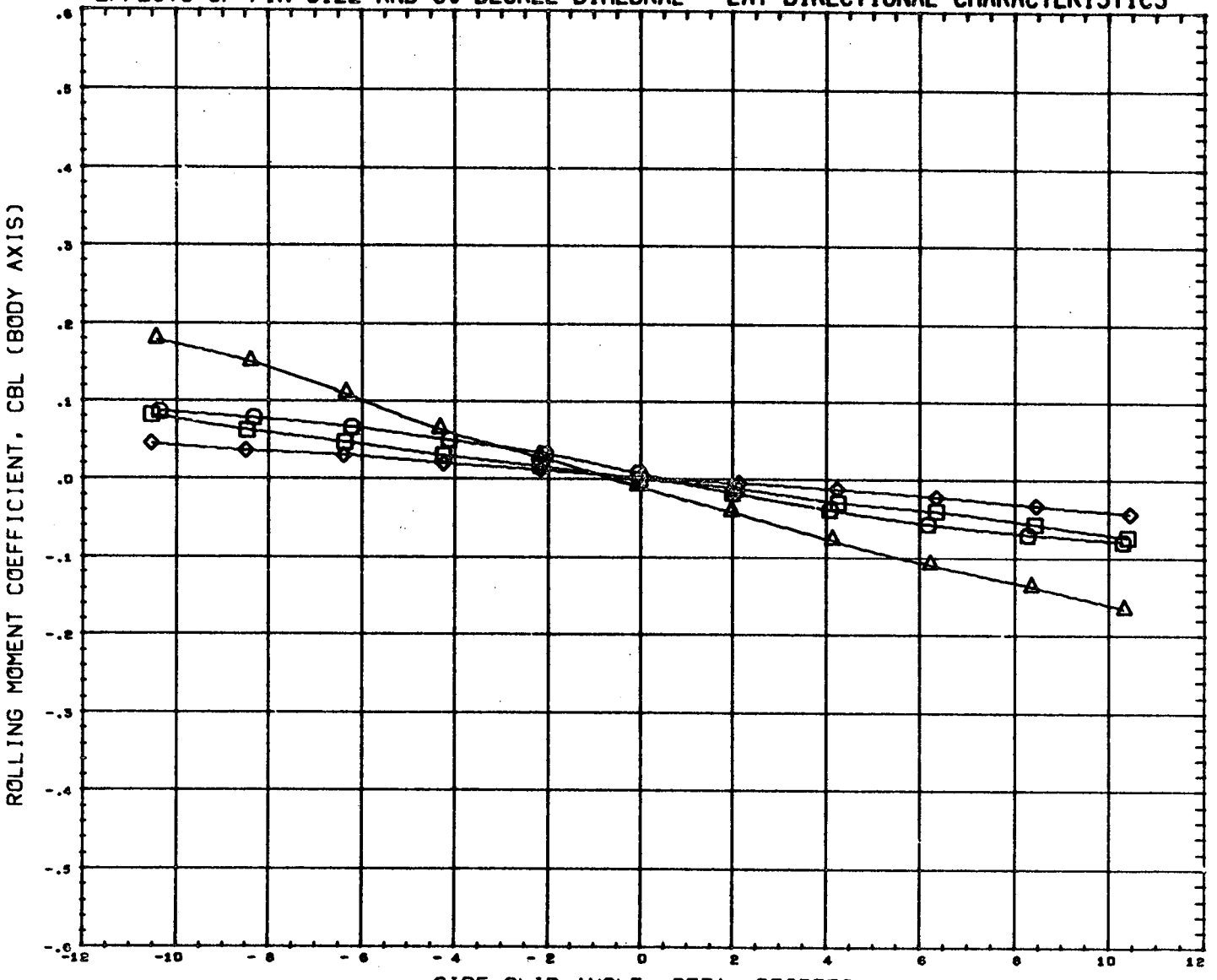


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54006)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)	□	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 0.902

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



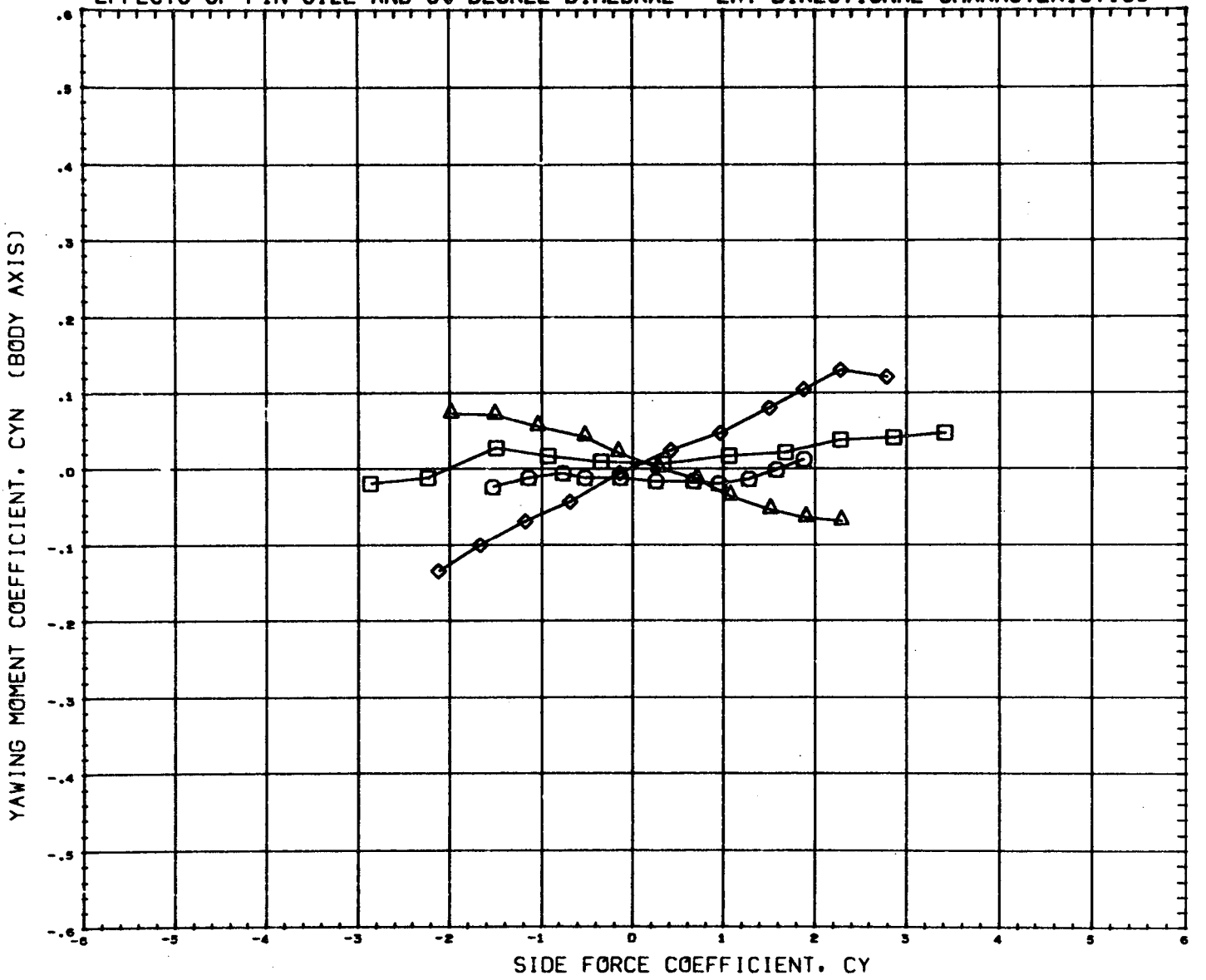
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(K54006)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54009)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000

MACH 1.201

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

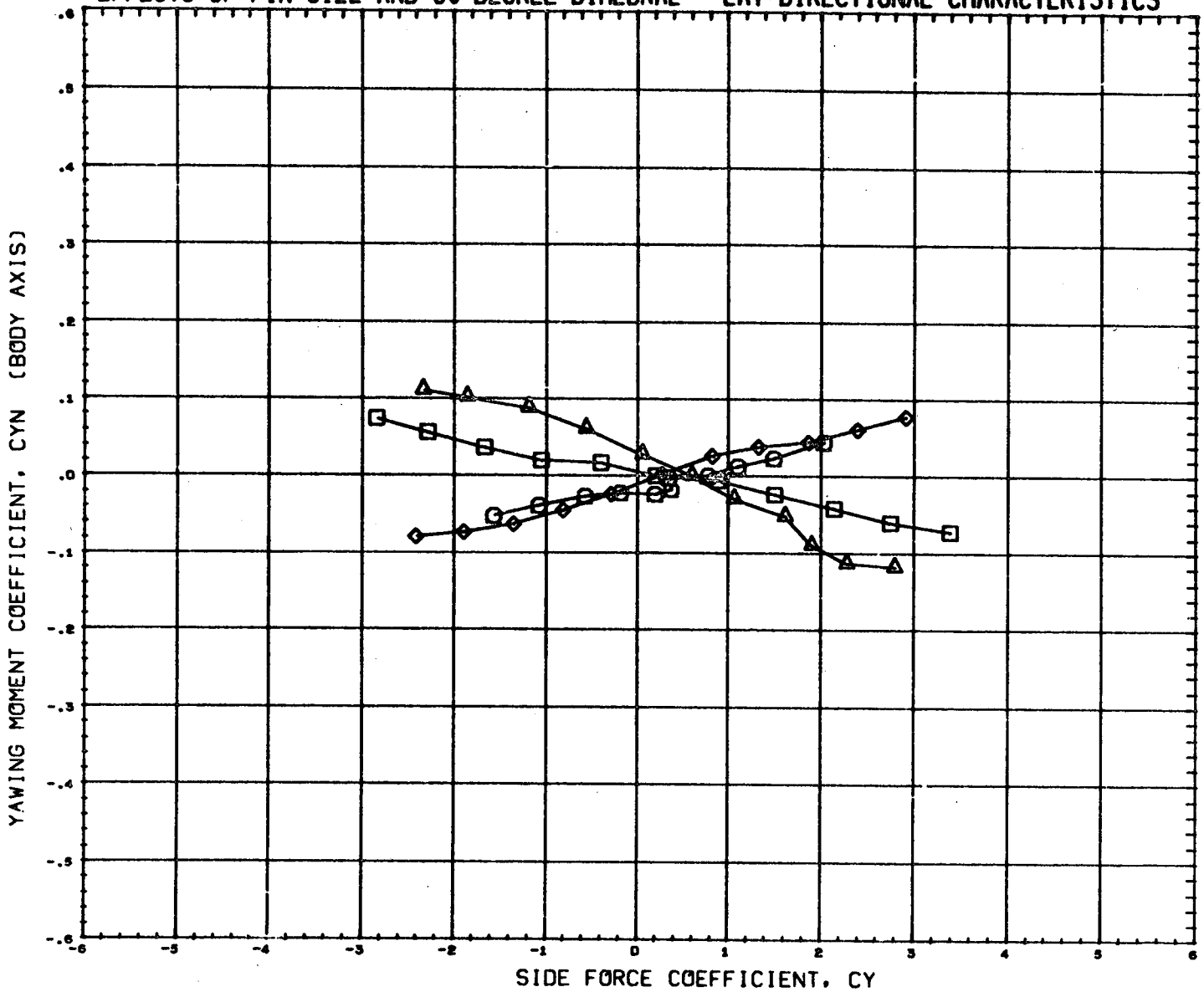


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(K54006)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 0.902

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 30 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



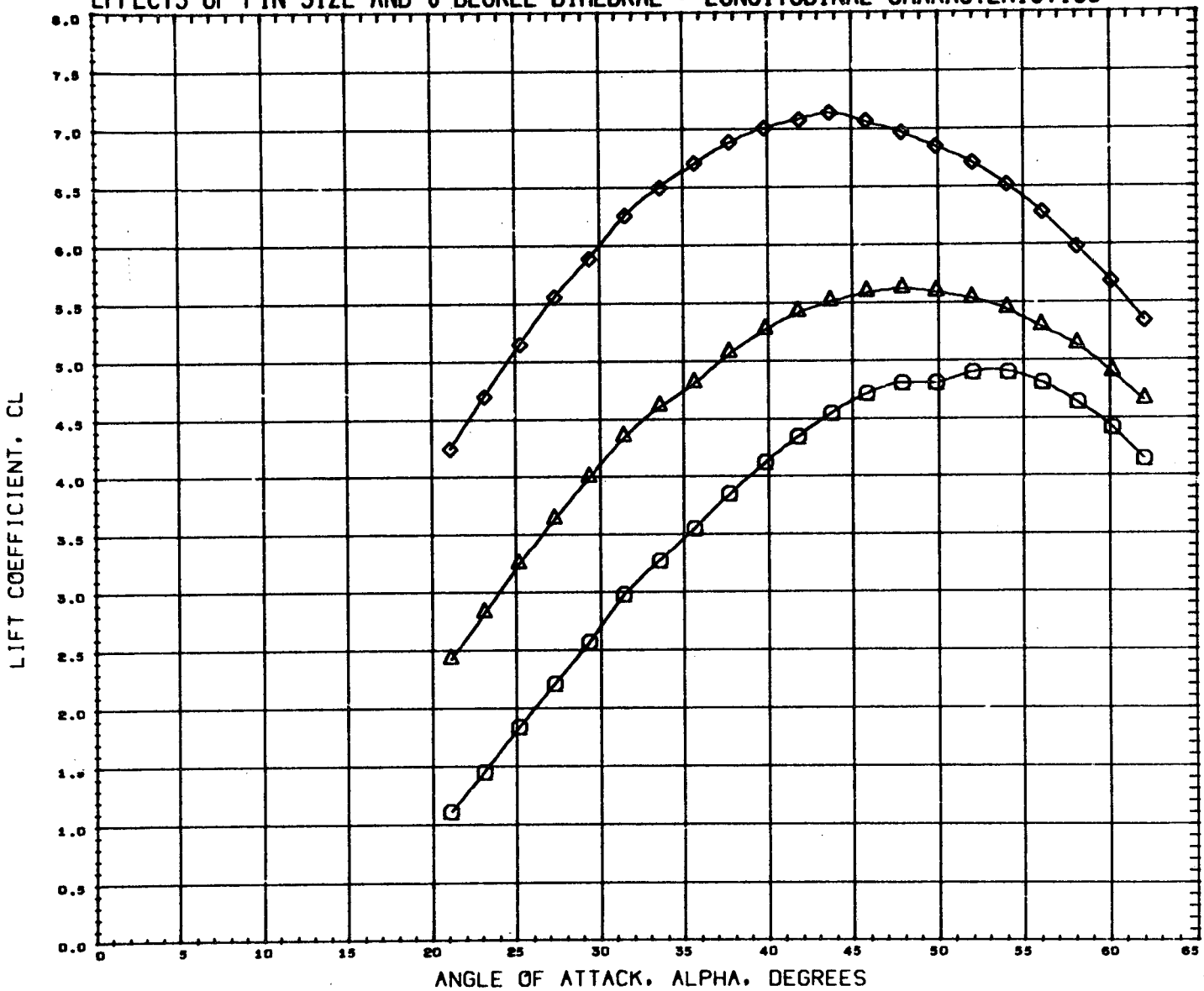
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(K54006)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	30.000
(S54010)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(S54005)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	30.000
(S54009)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000

MACH 1.201

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

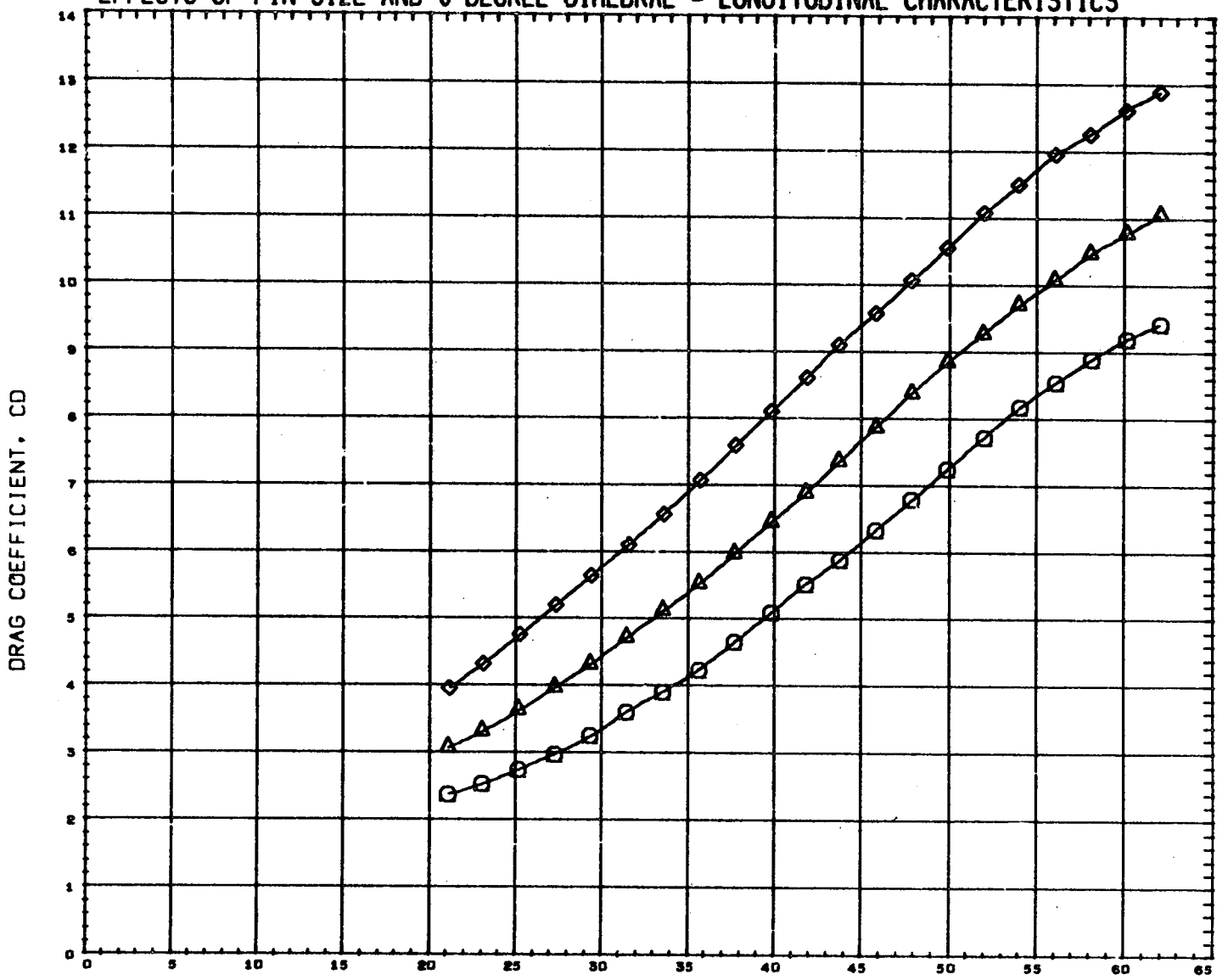


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



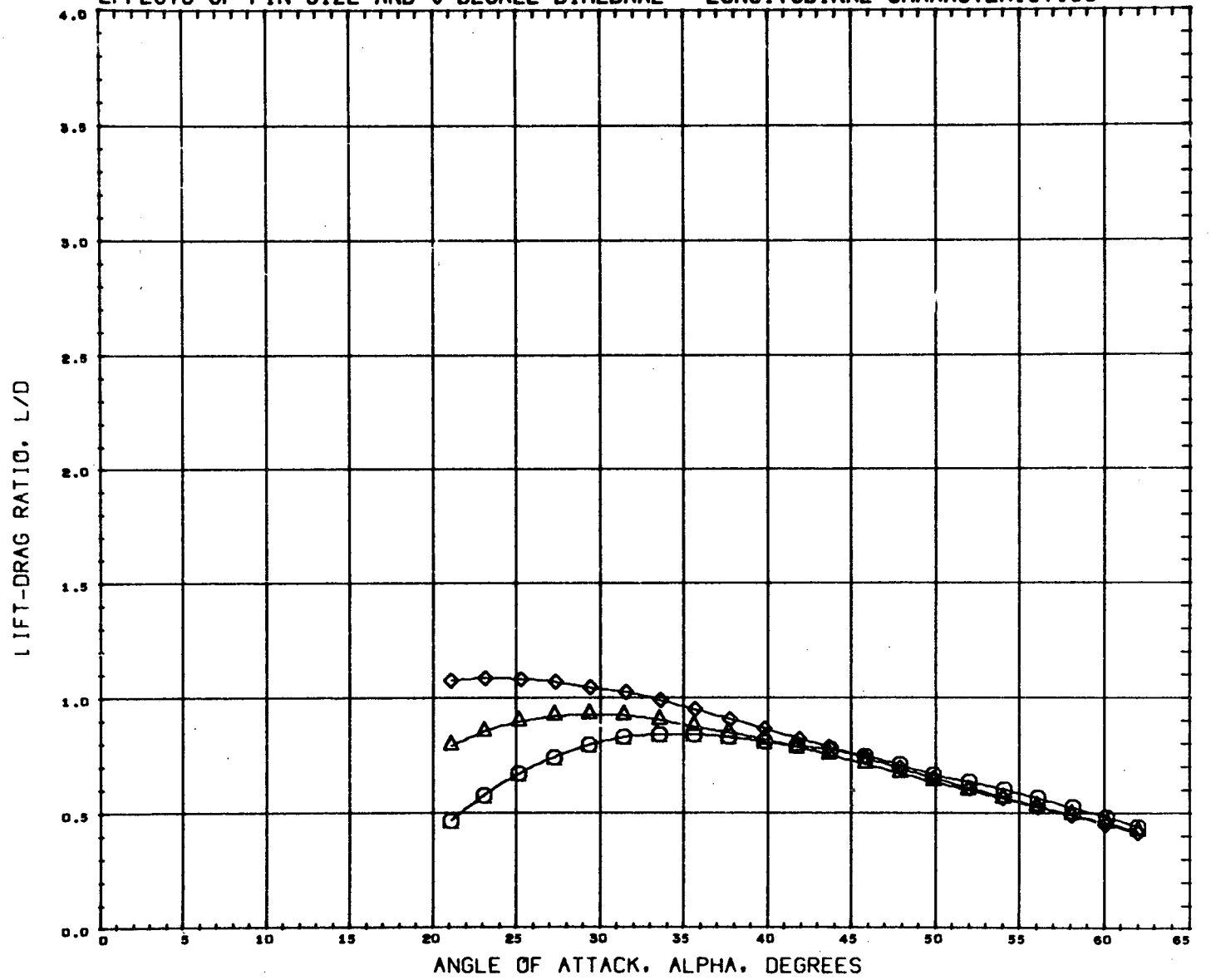
DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(M54901)	○	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

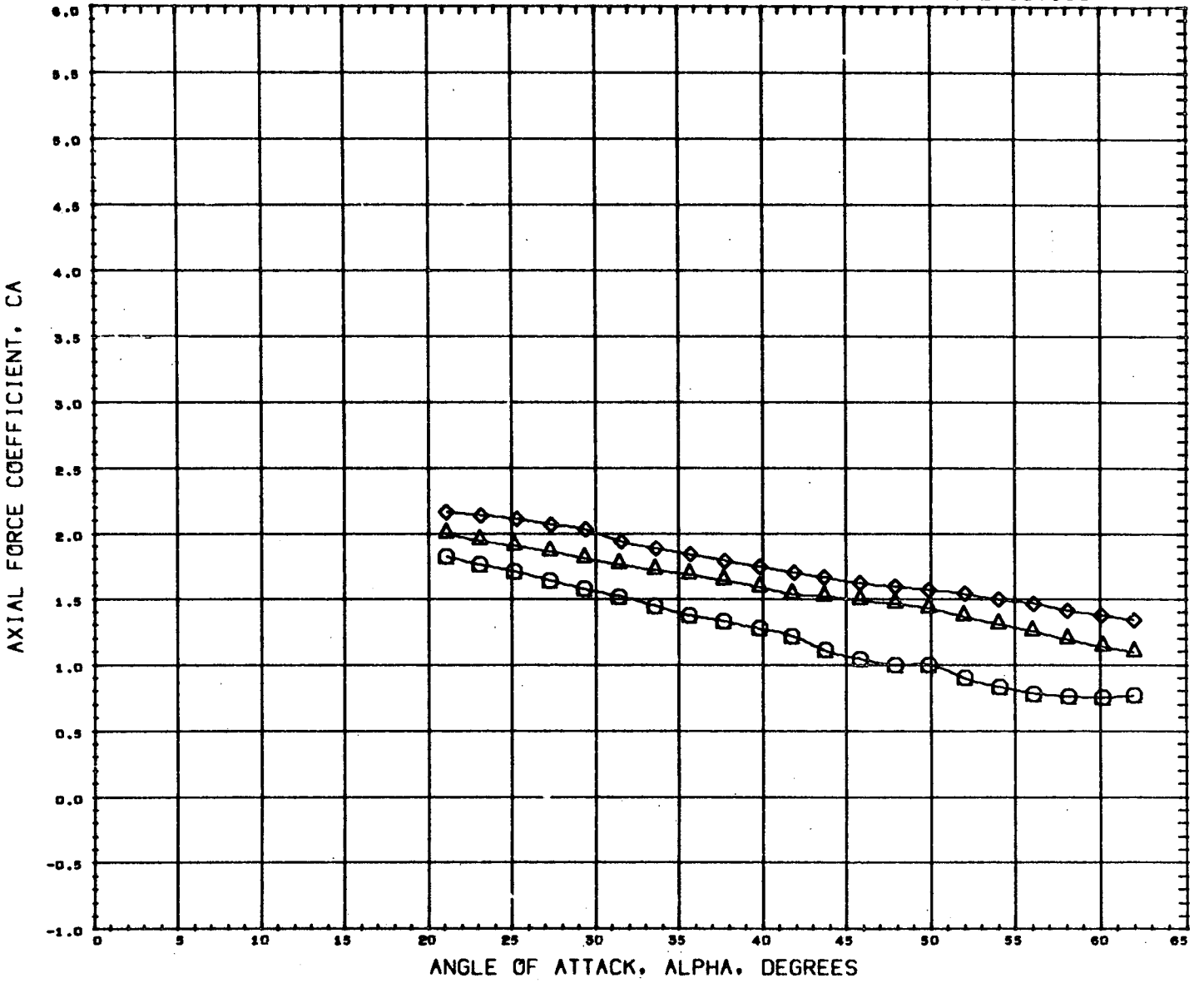


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(M54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

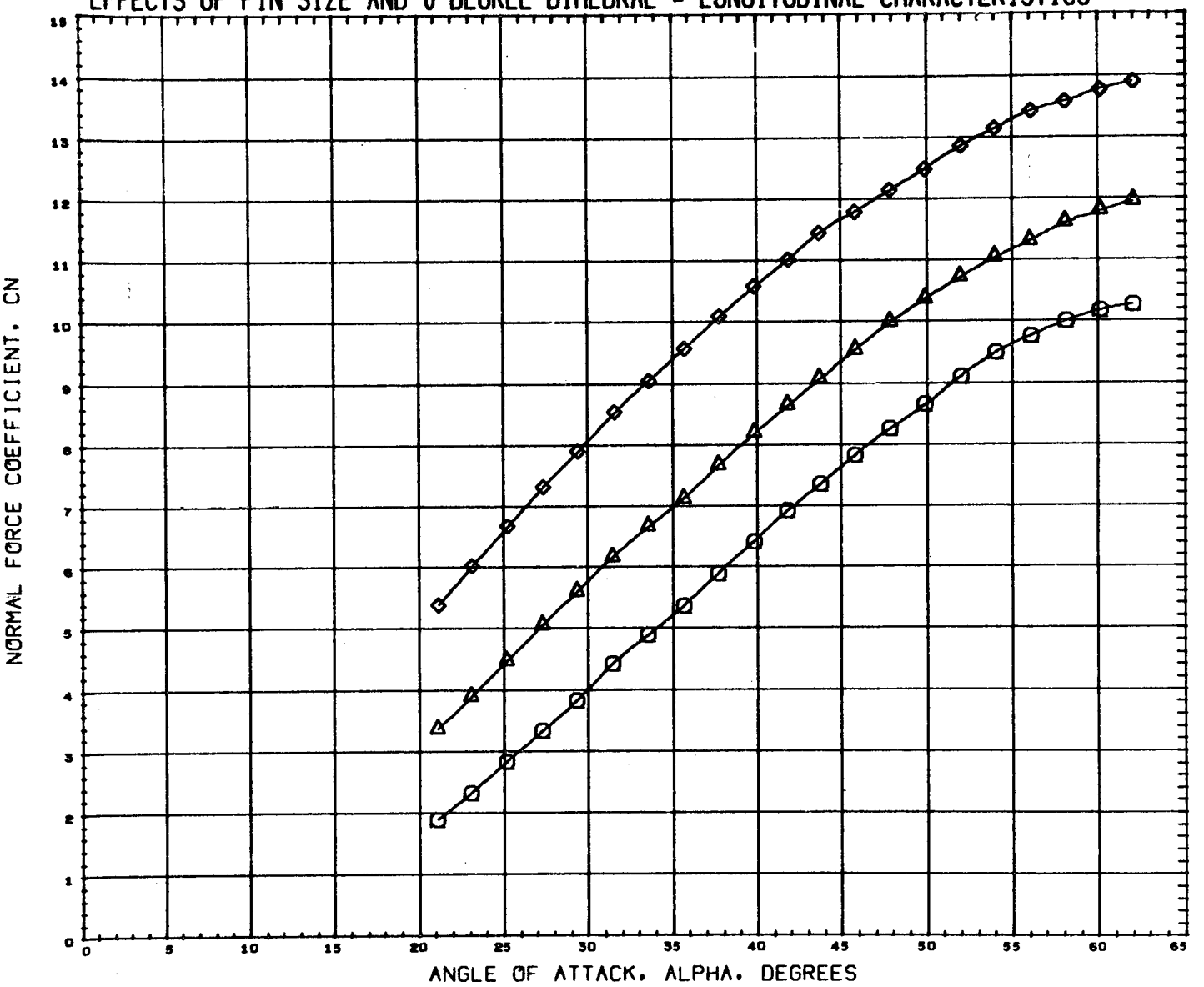


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

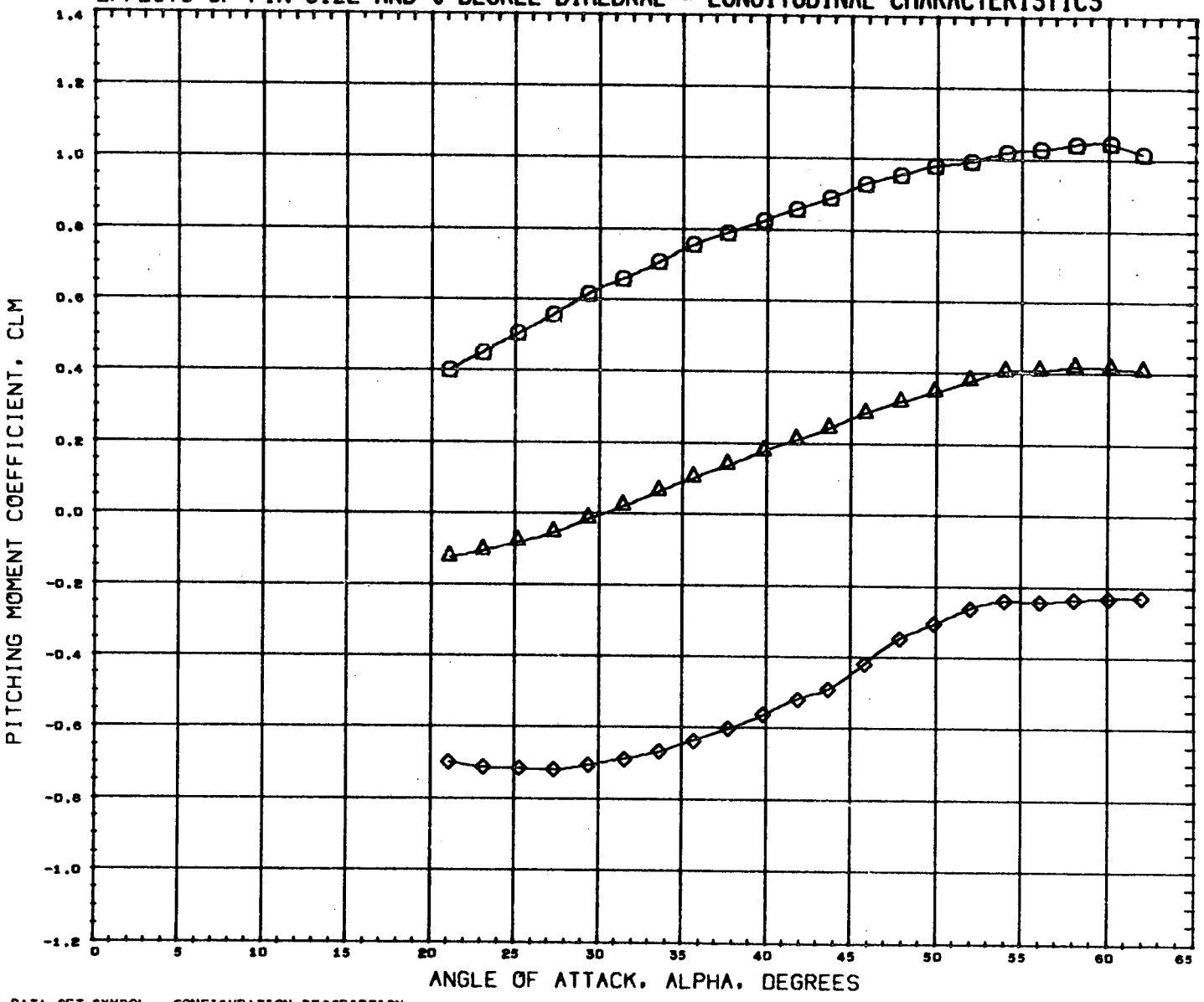


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(M54901)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

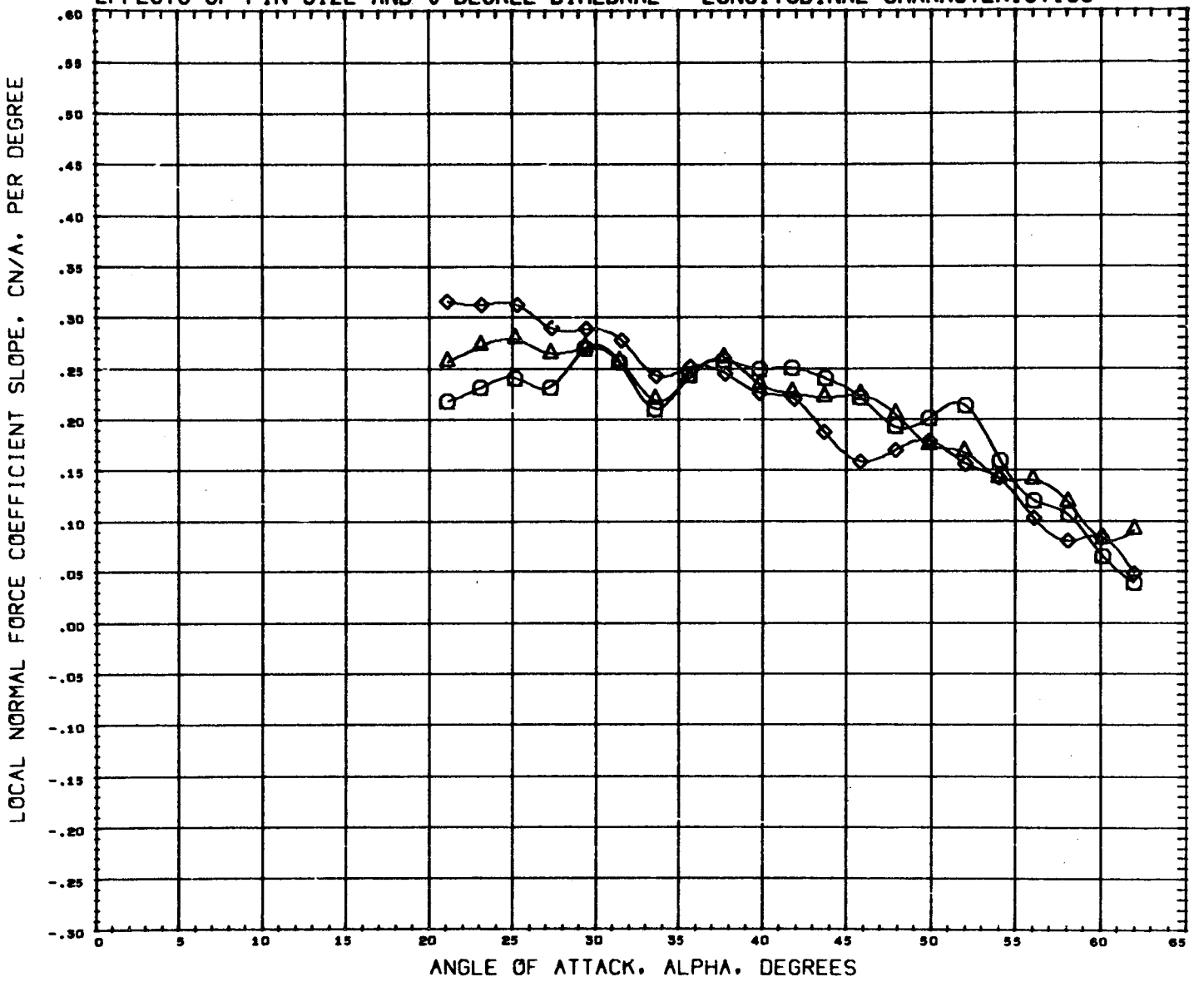


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

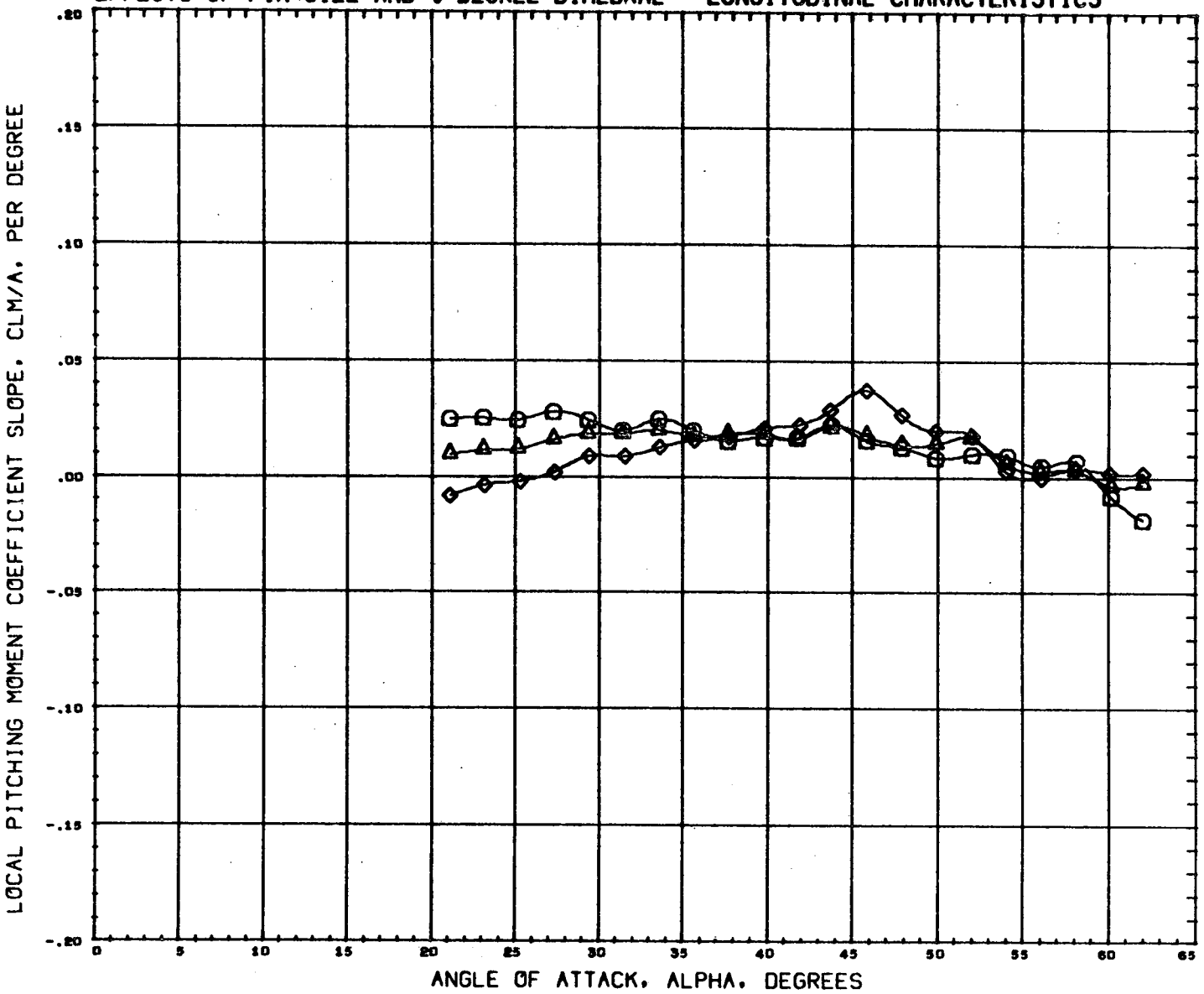


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

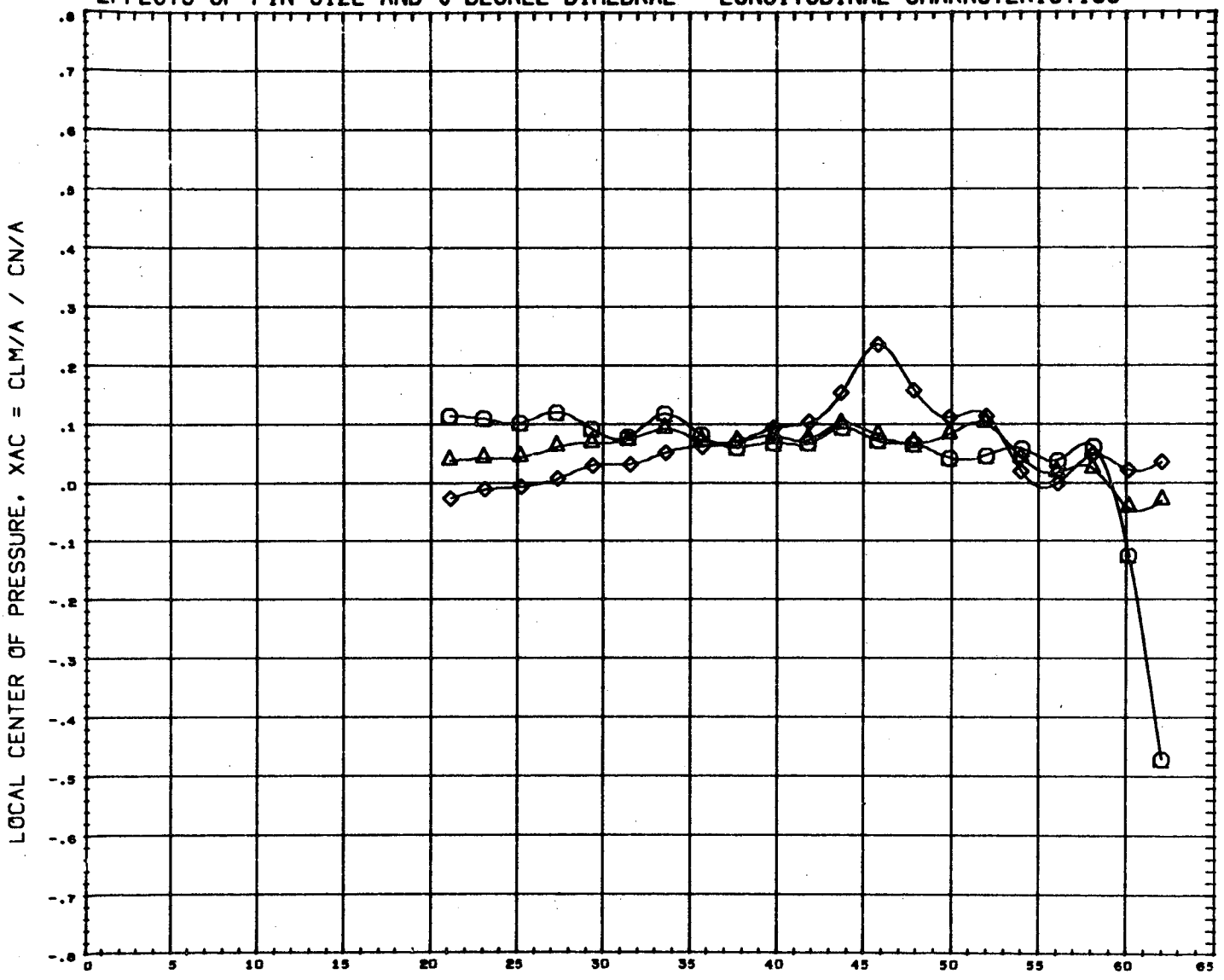


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	⊠	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

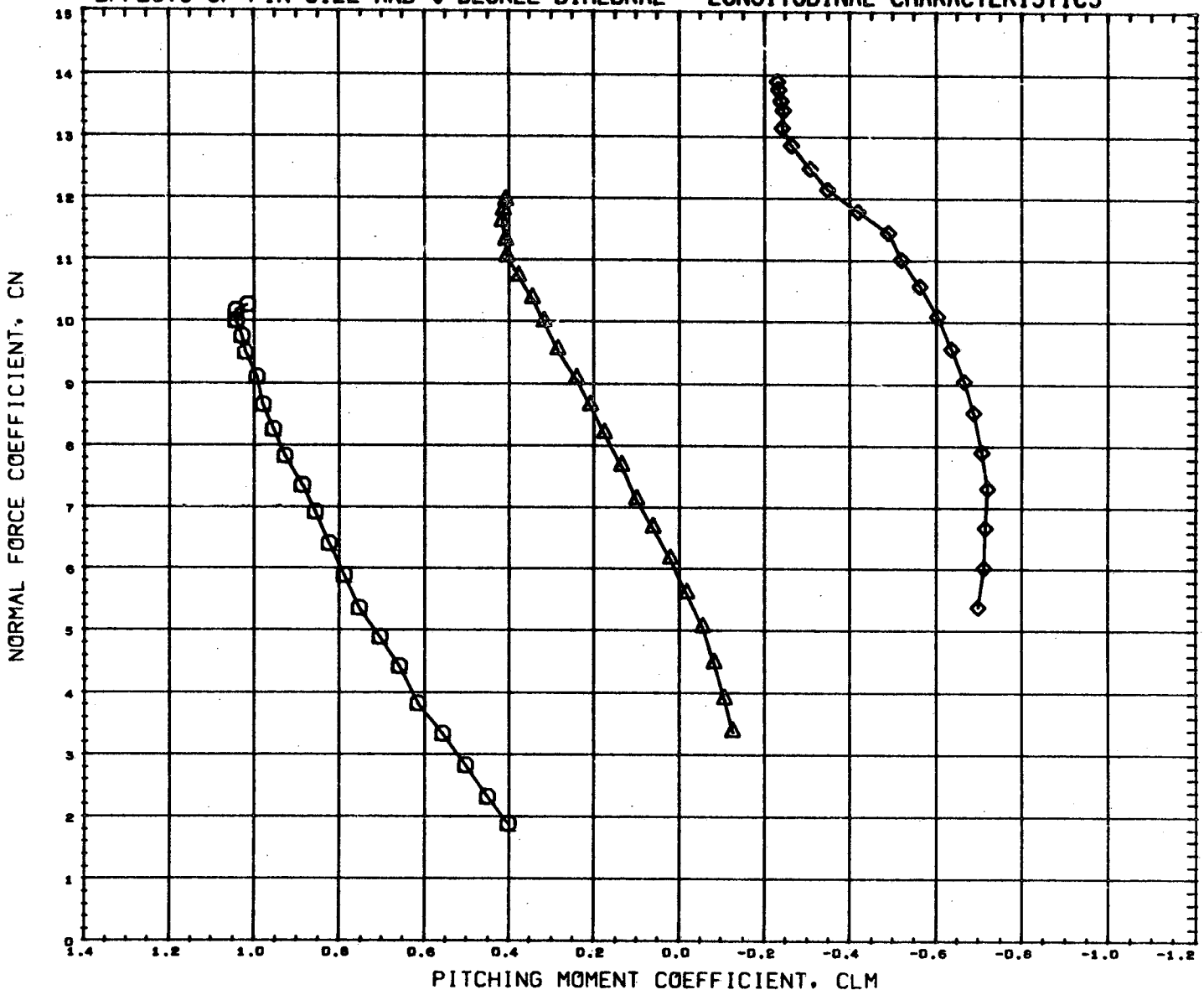


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(J54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(L54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

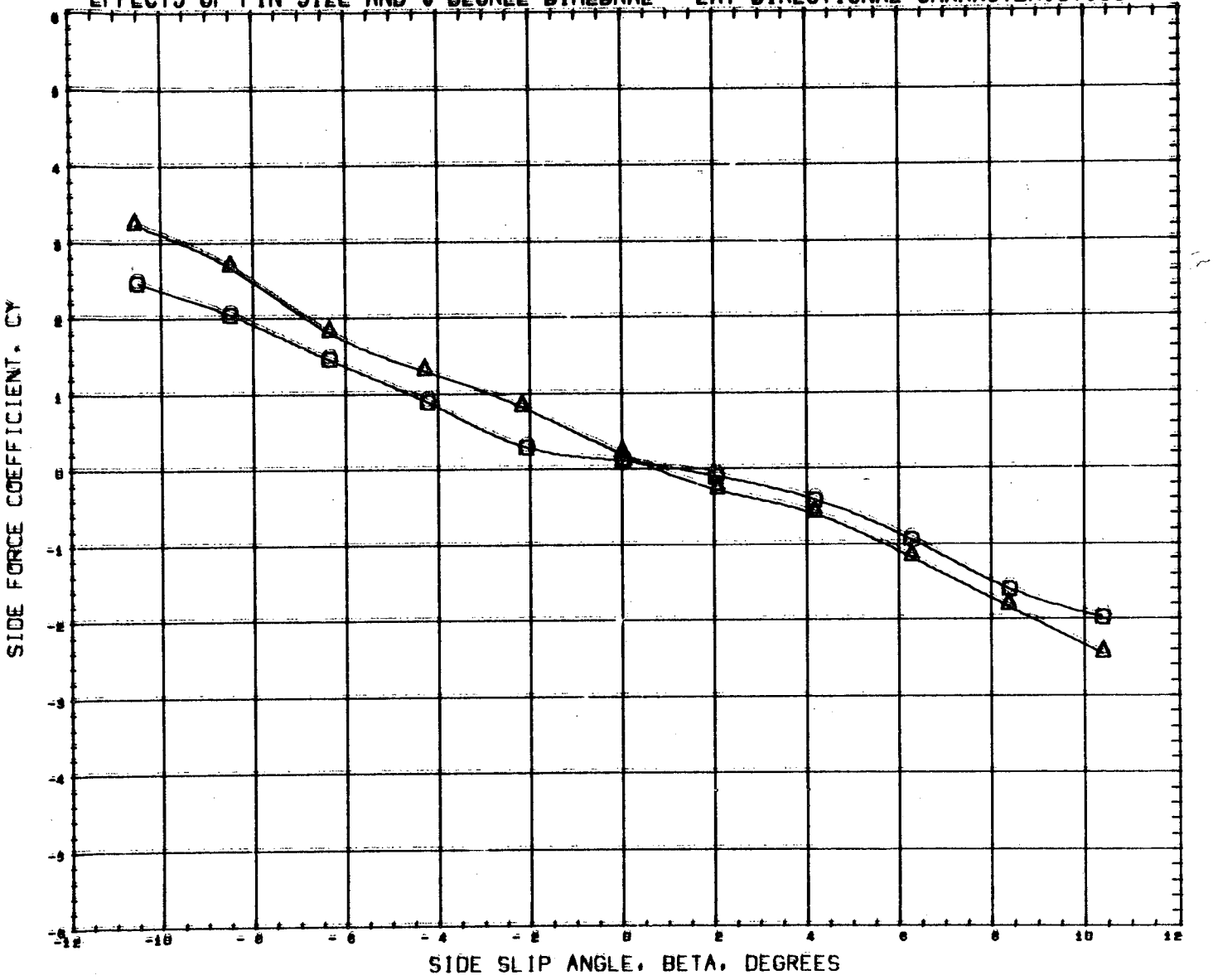


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54911)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	0.000
(K54914)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(554013)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2F3	30.000	0.000
(554016)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F0F4	30.000	0.000

MACH 1.202

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
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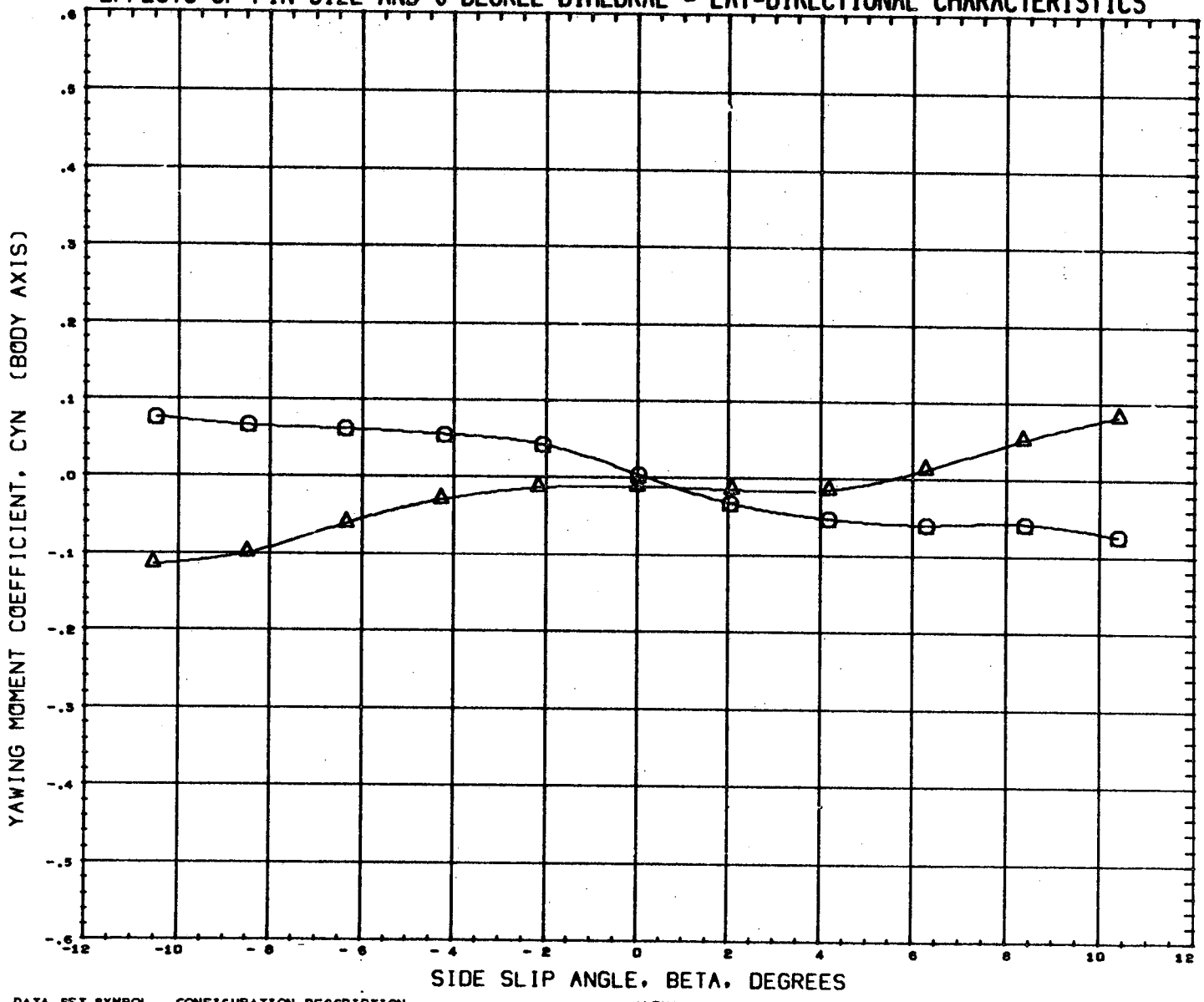
SCALE	0.0054	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



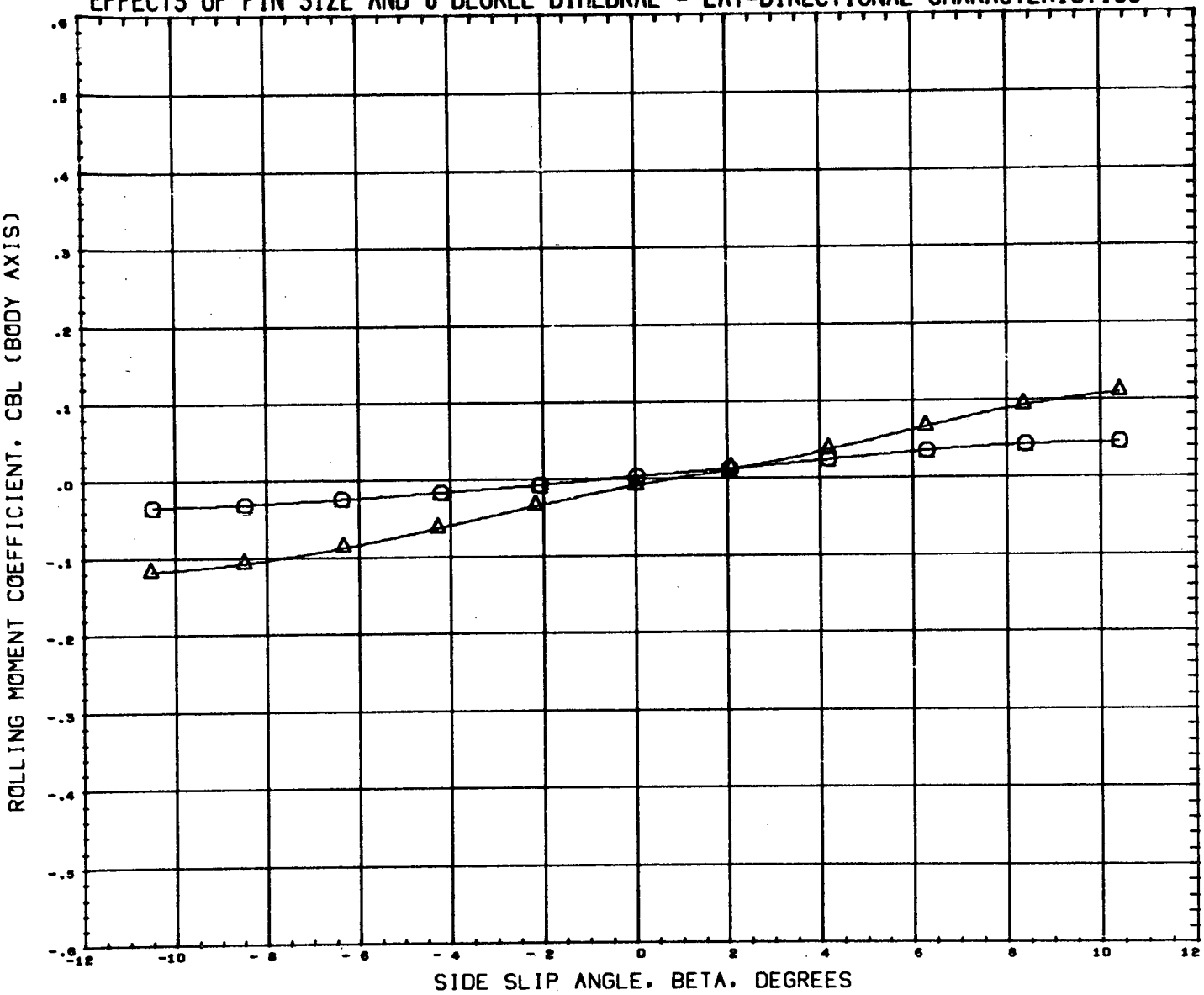
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(S54013)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2F3	30.000	0.000
(S54016)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6F4	30.000	0.000

MACH 1.202

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



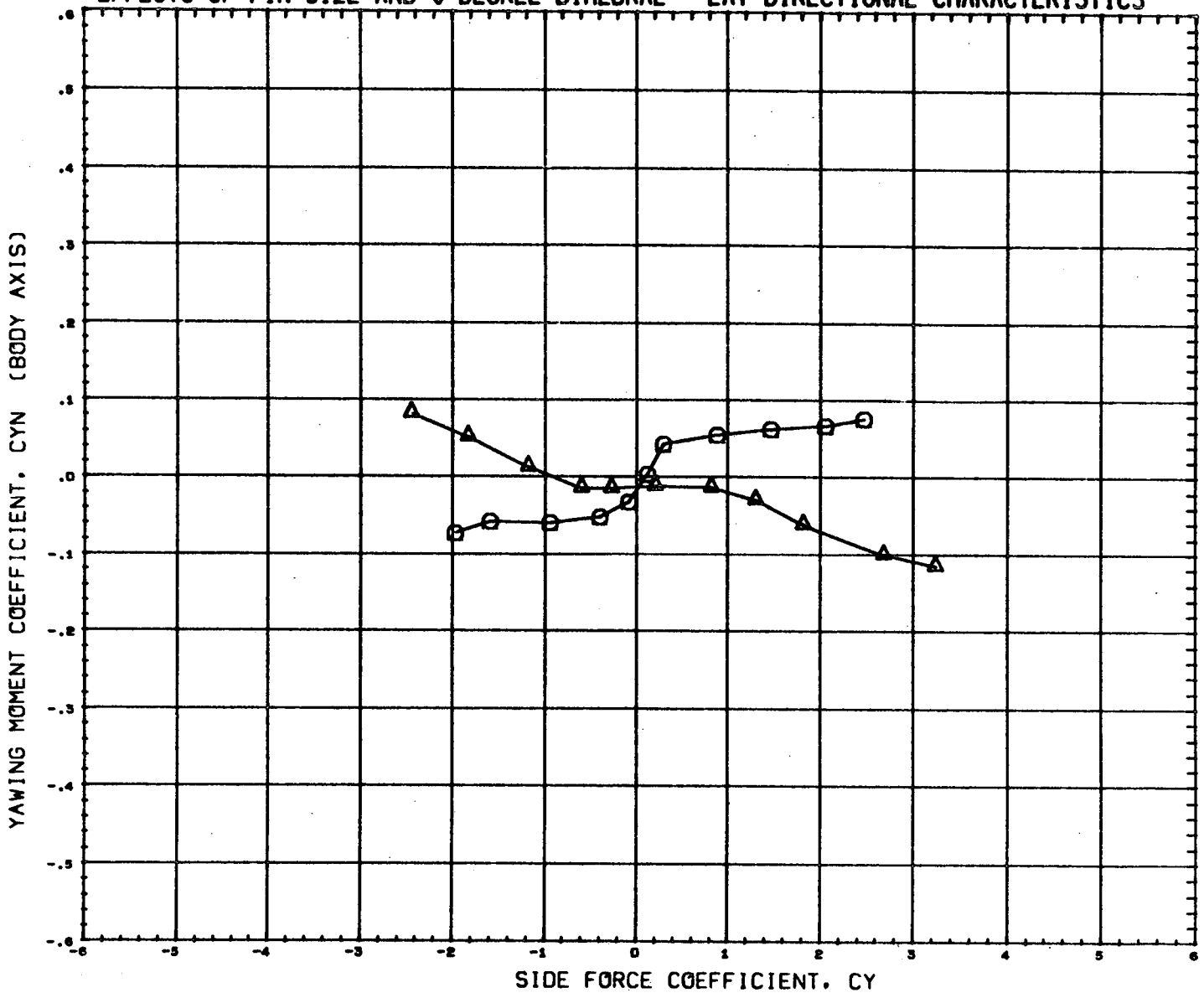
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(S54013)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2F3	30.000	0.000
(S54016)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6F4	30.000	0.000

MACH 1.202

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 0 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

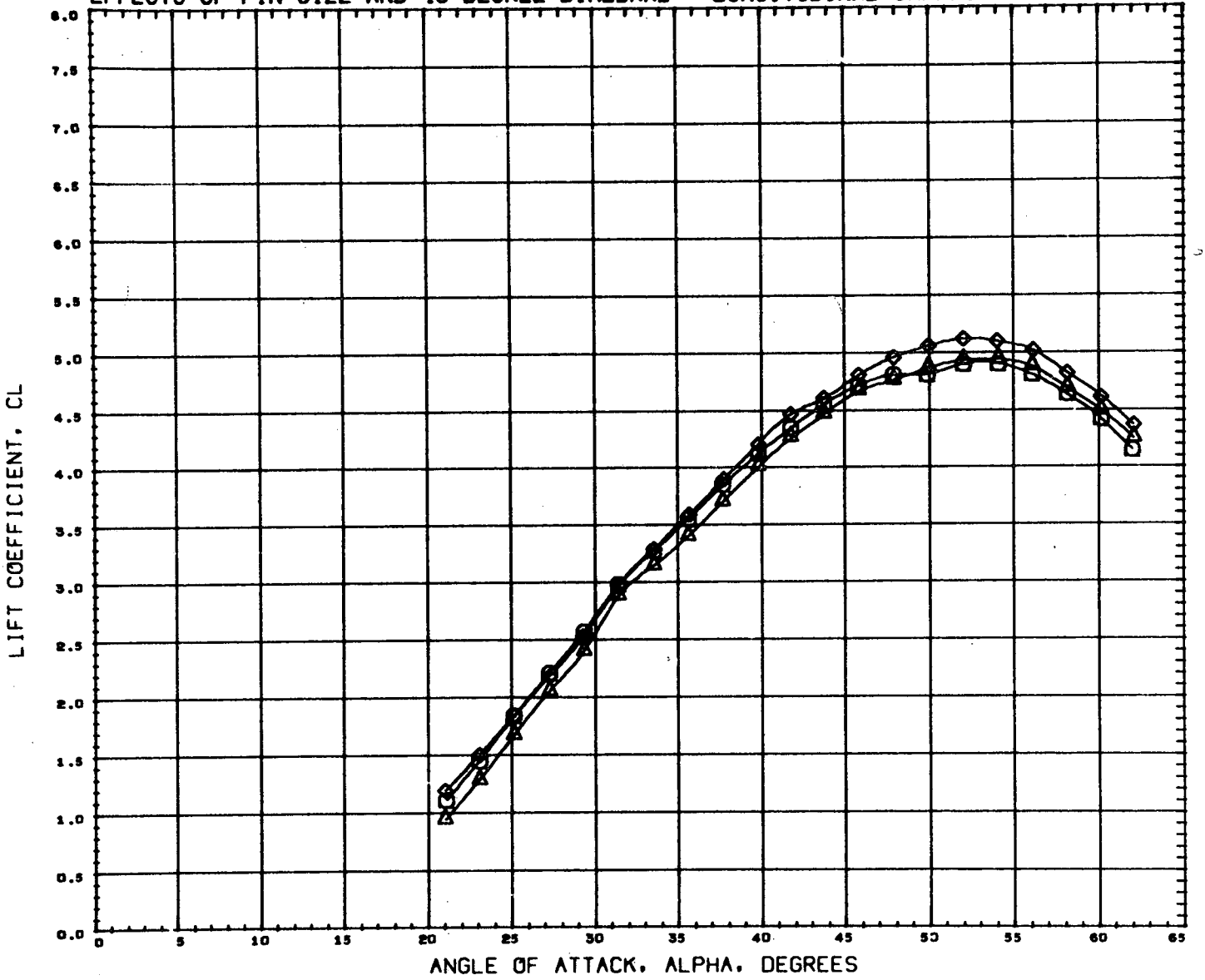


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(854013)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F2F3	30.000	0.000
(854016)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6F4	30.000	0.000

MACH 1.202

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

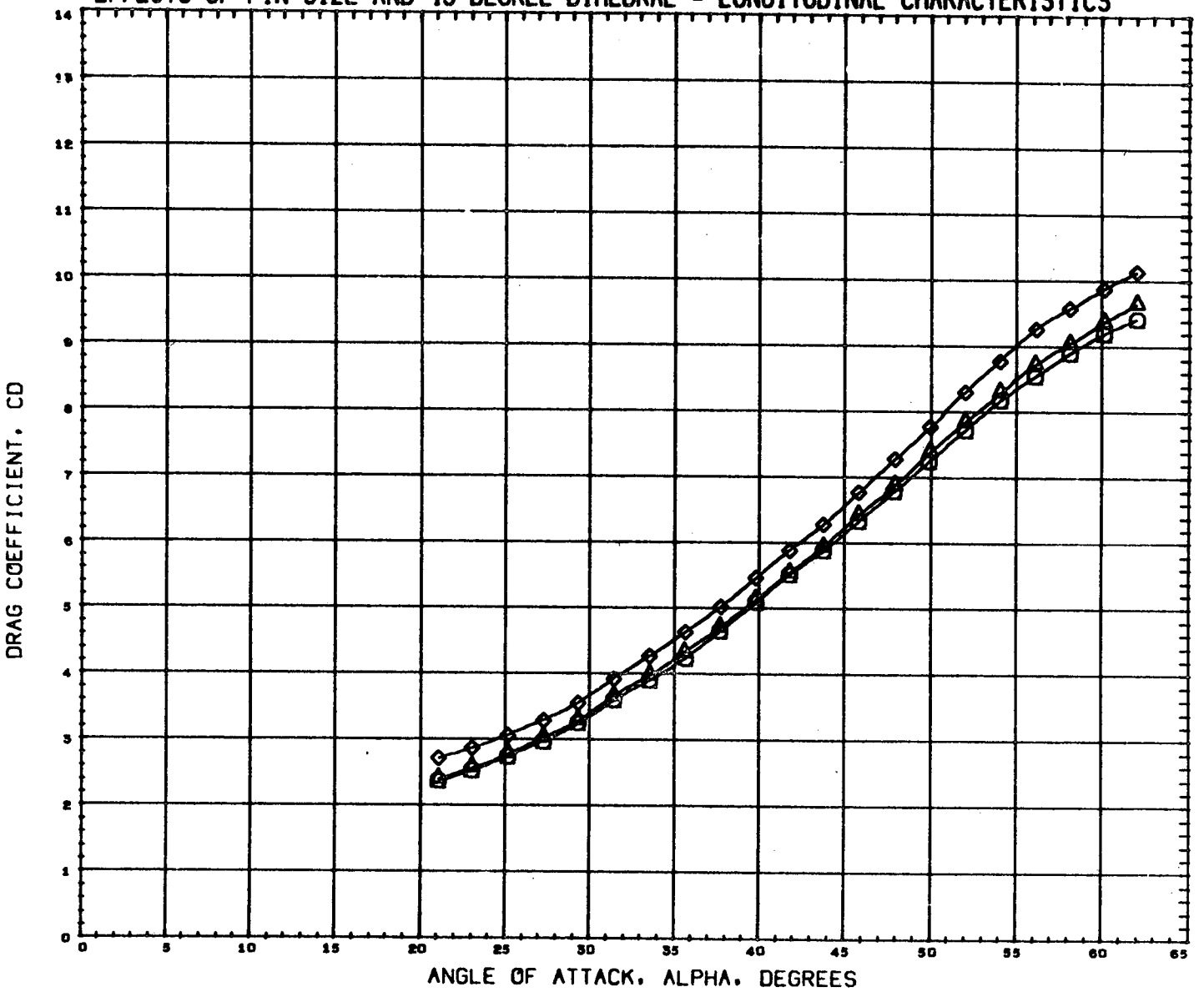


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

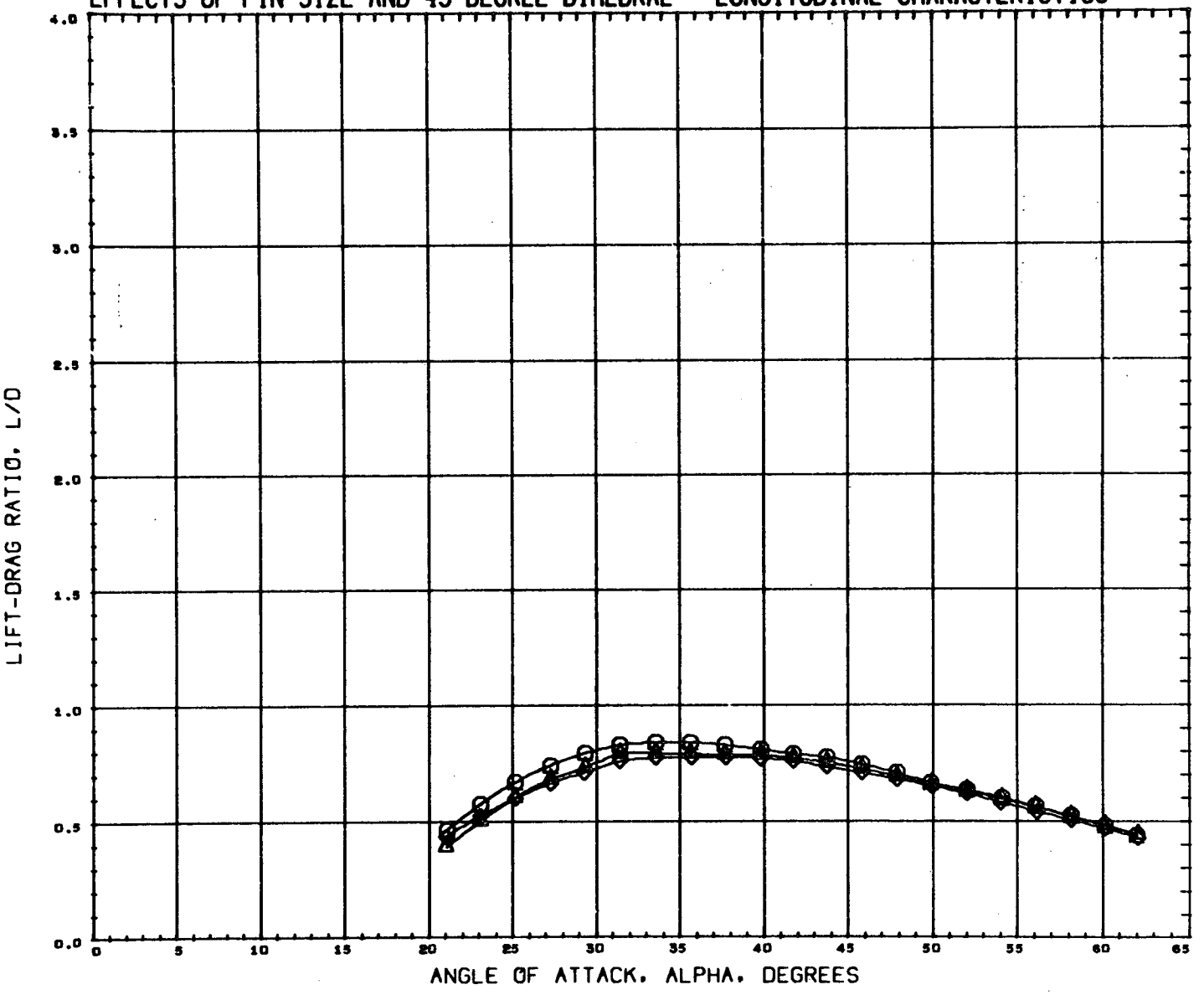


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(H54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



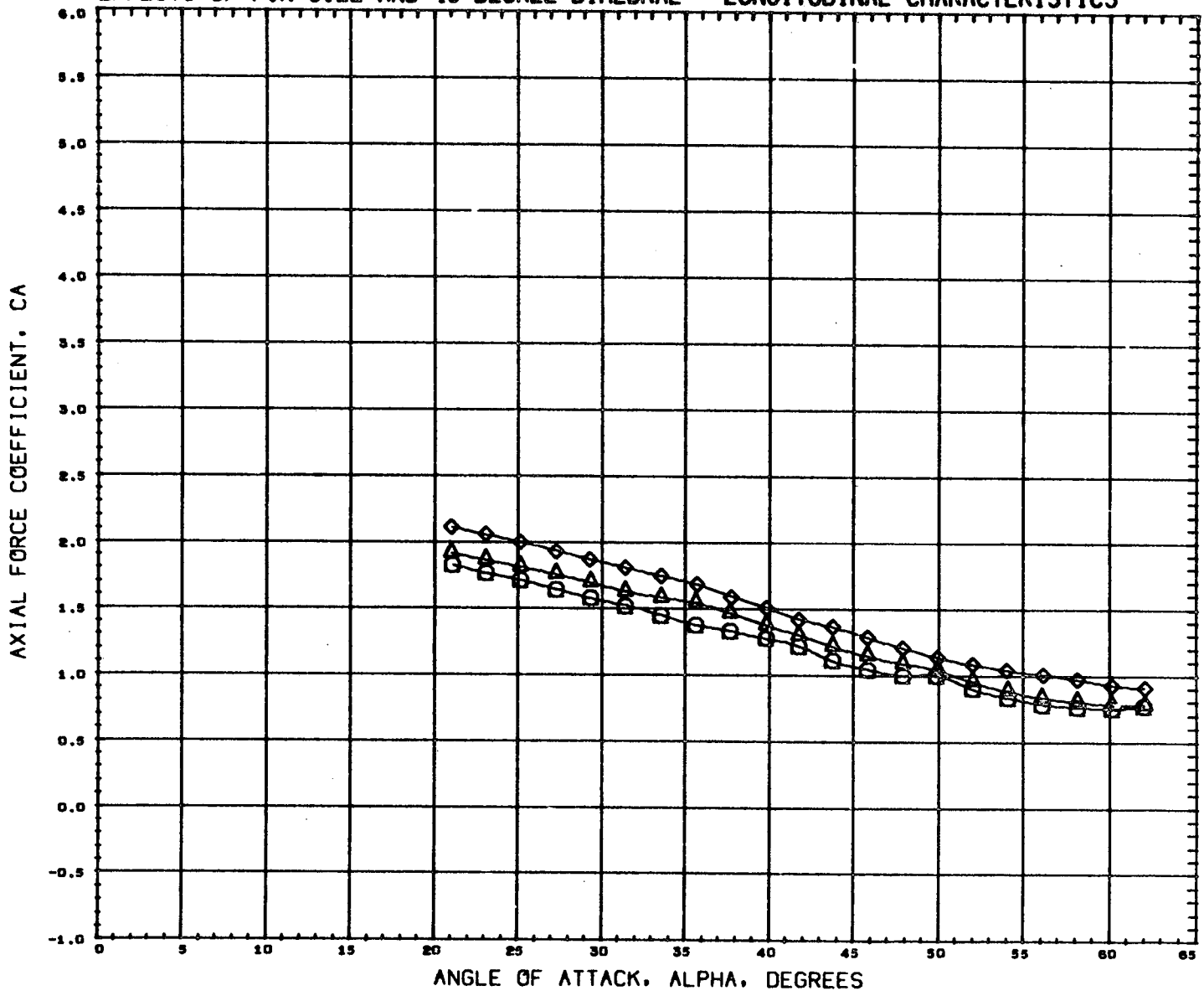
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



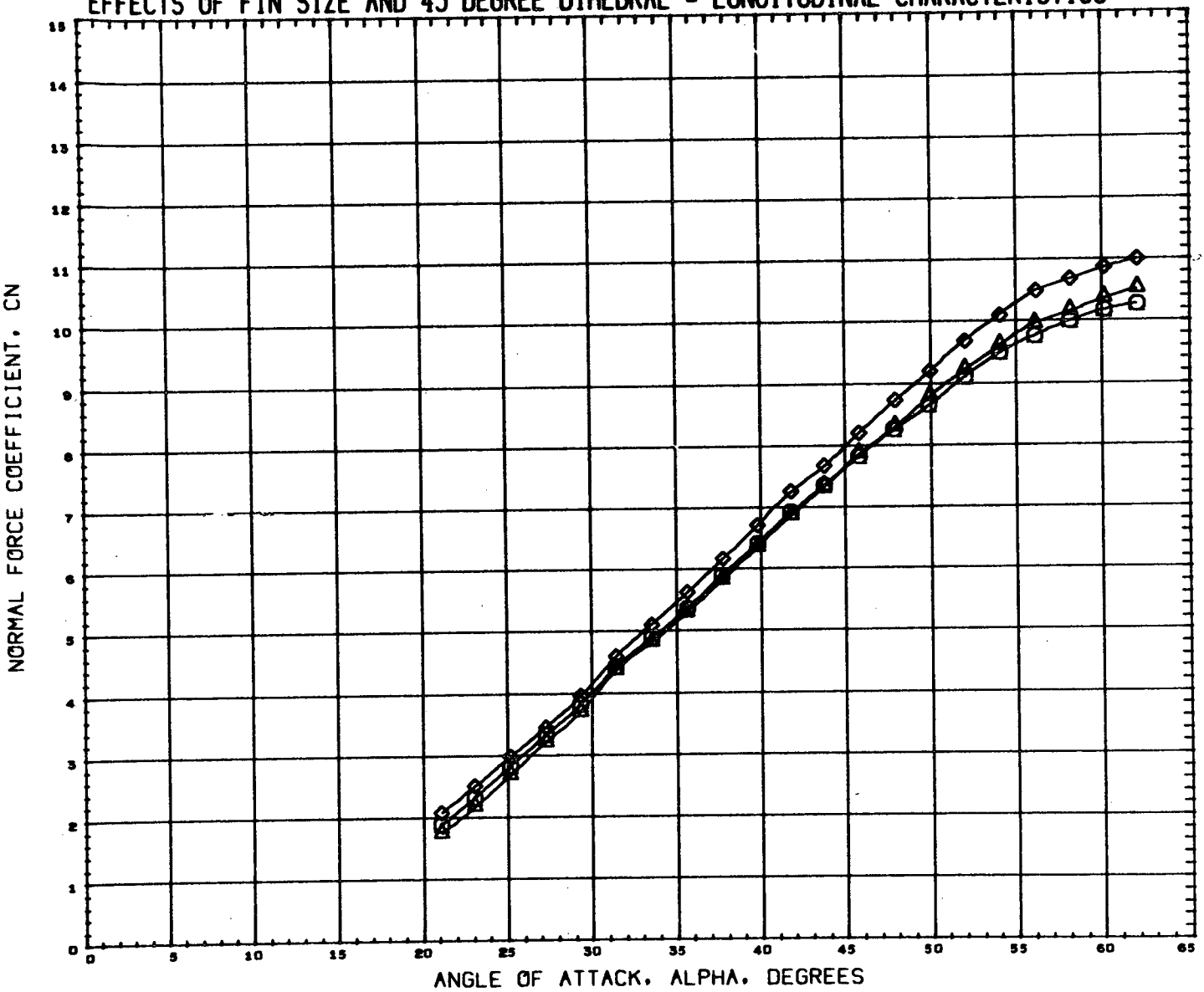
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

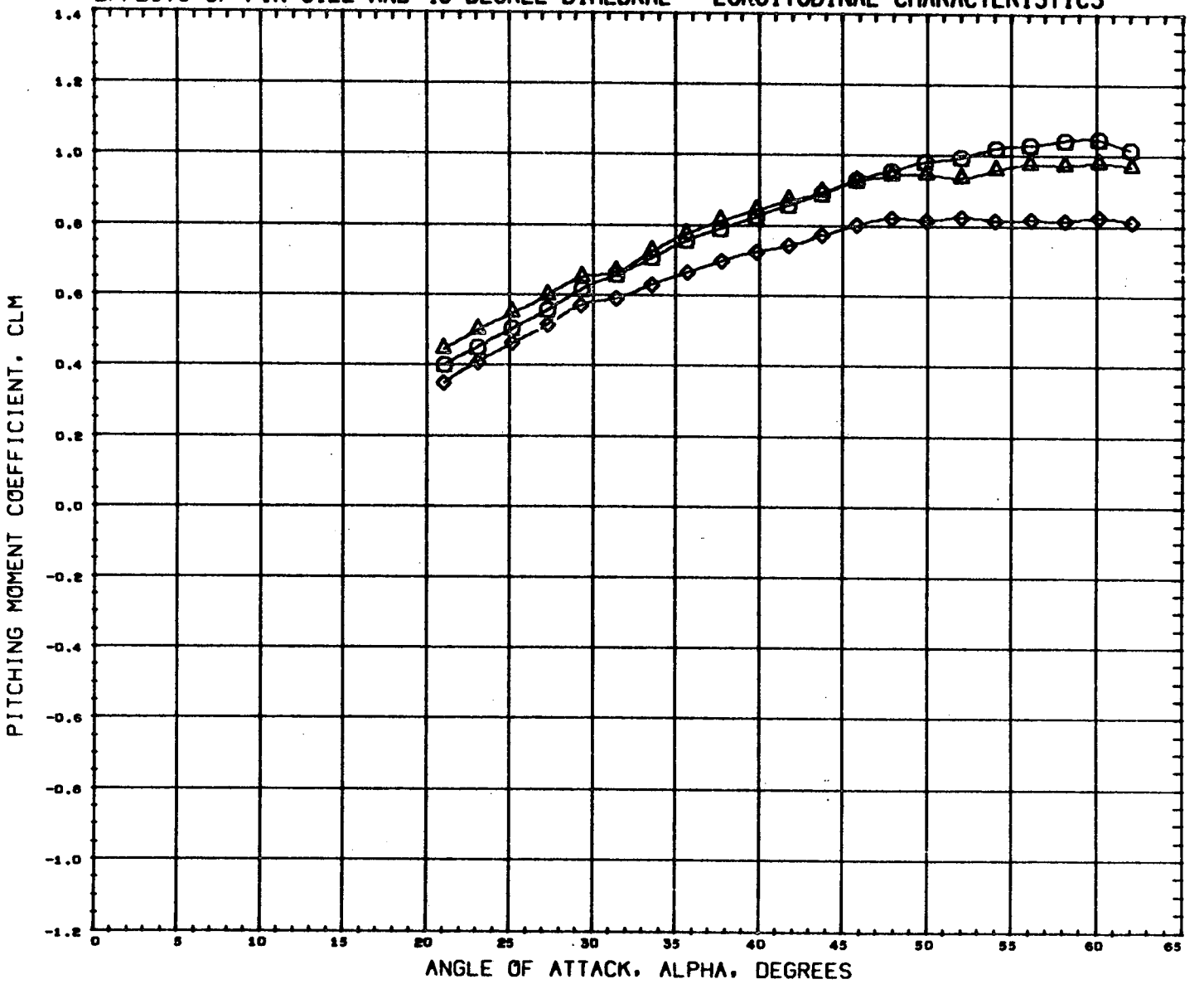


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

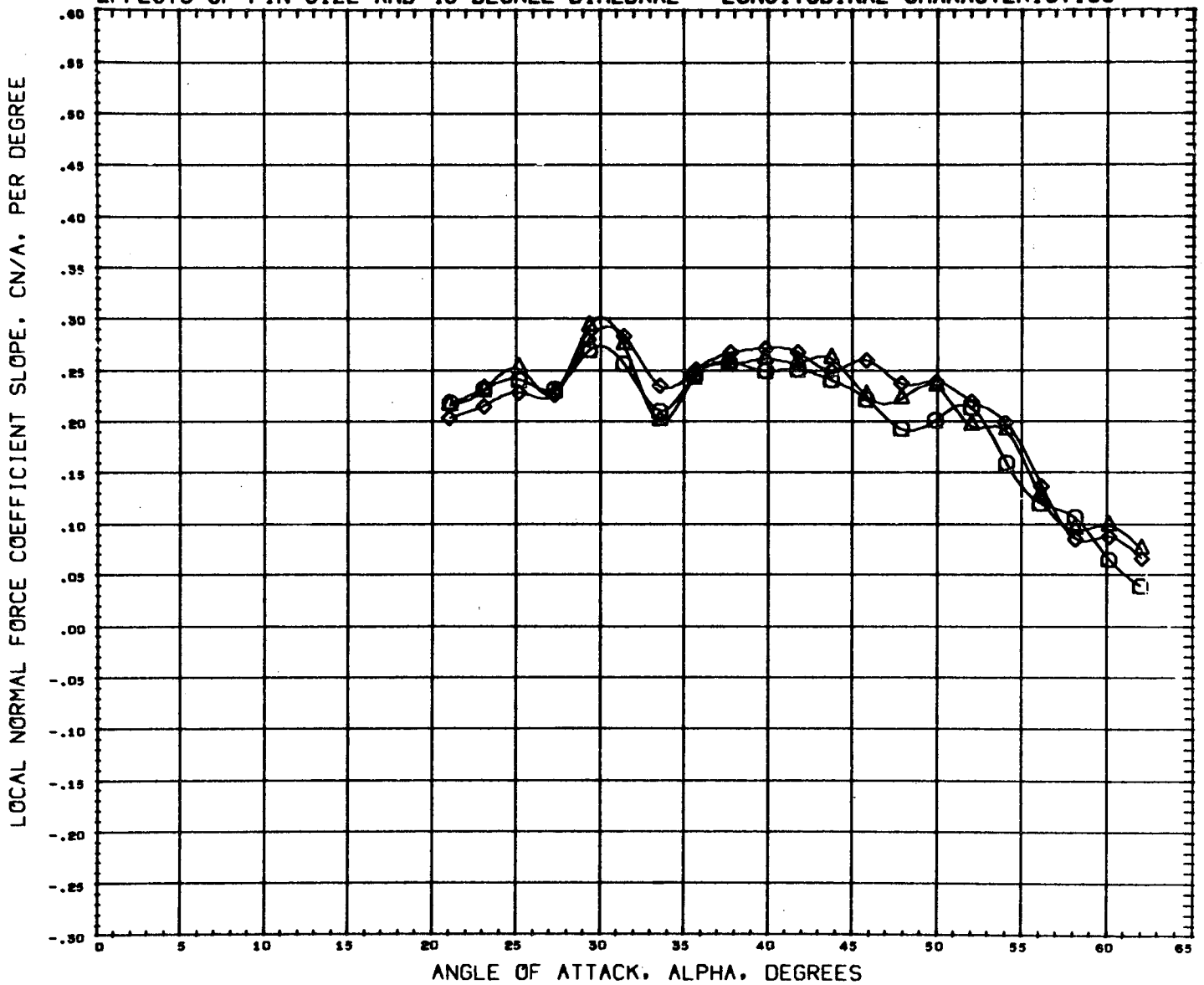


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

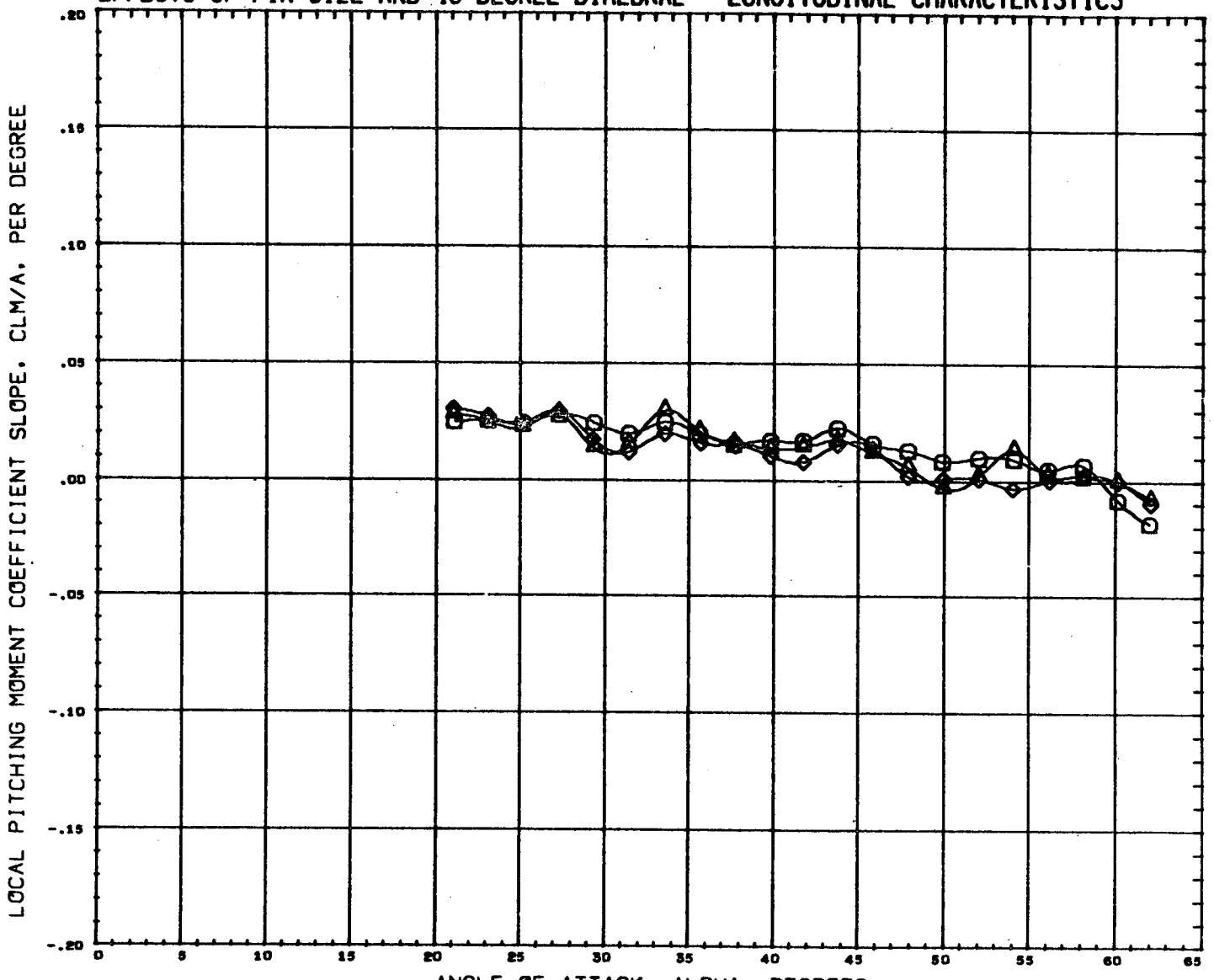


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(H54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS



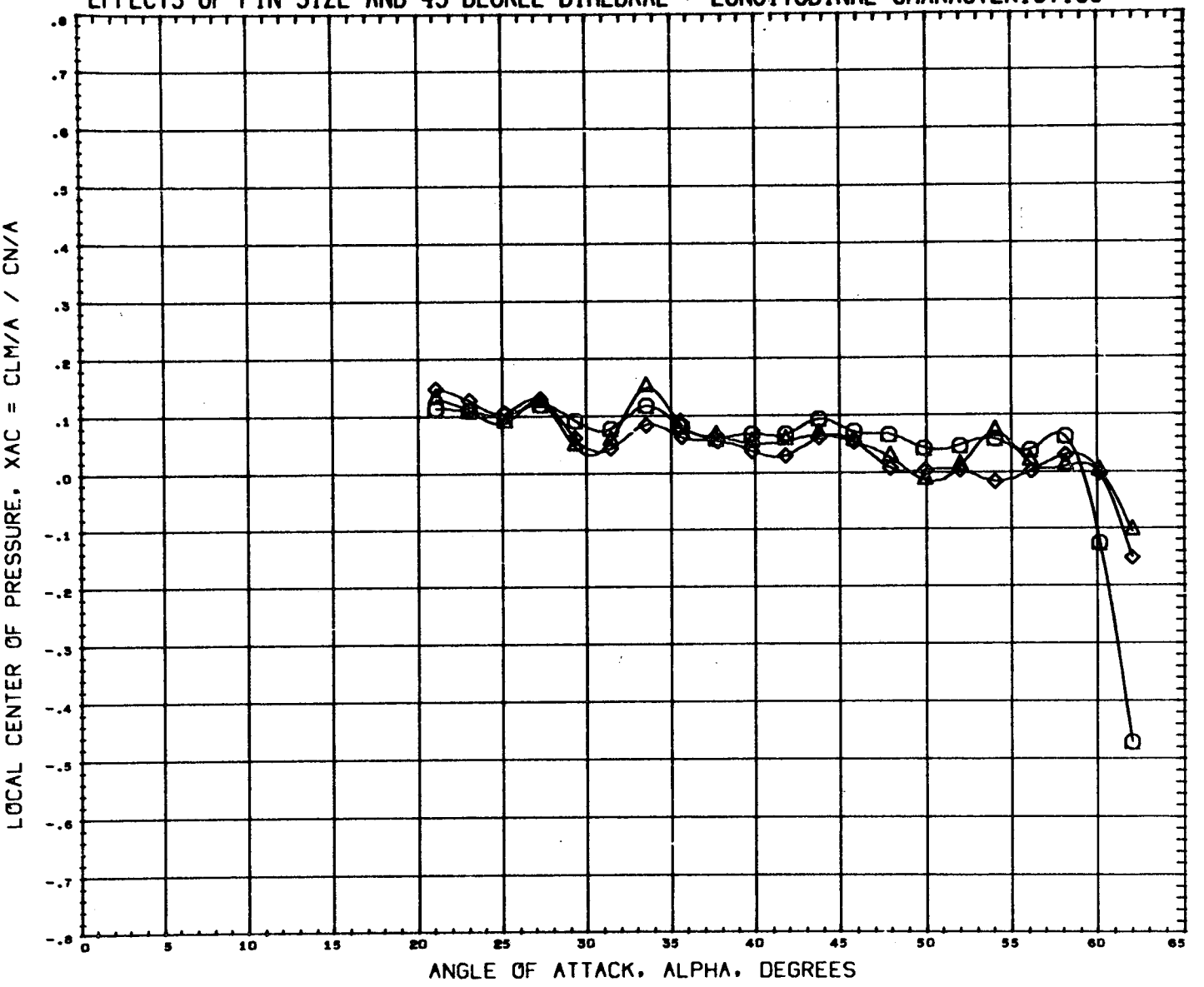
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(M54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

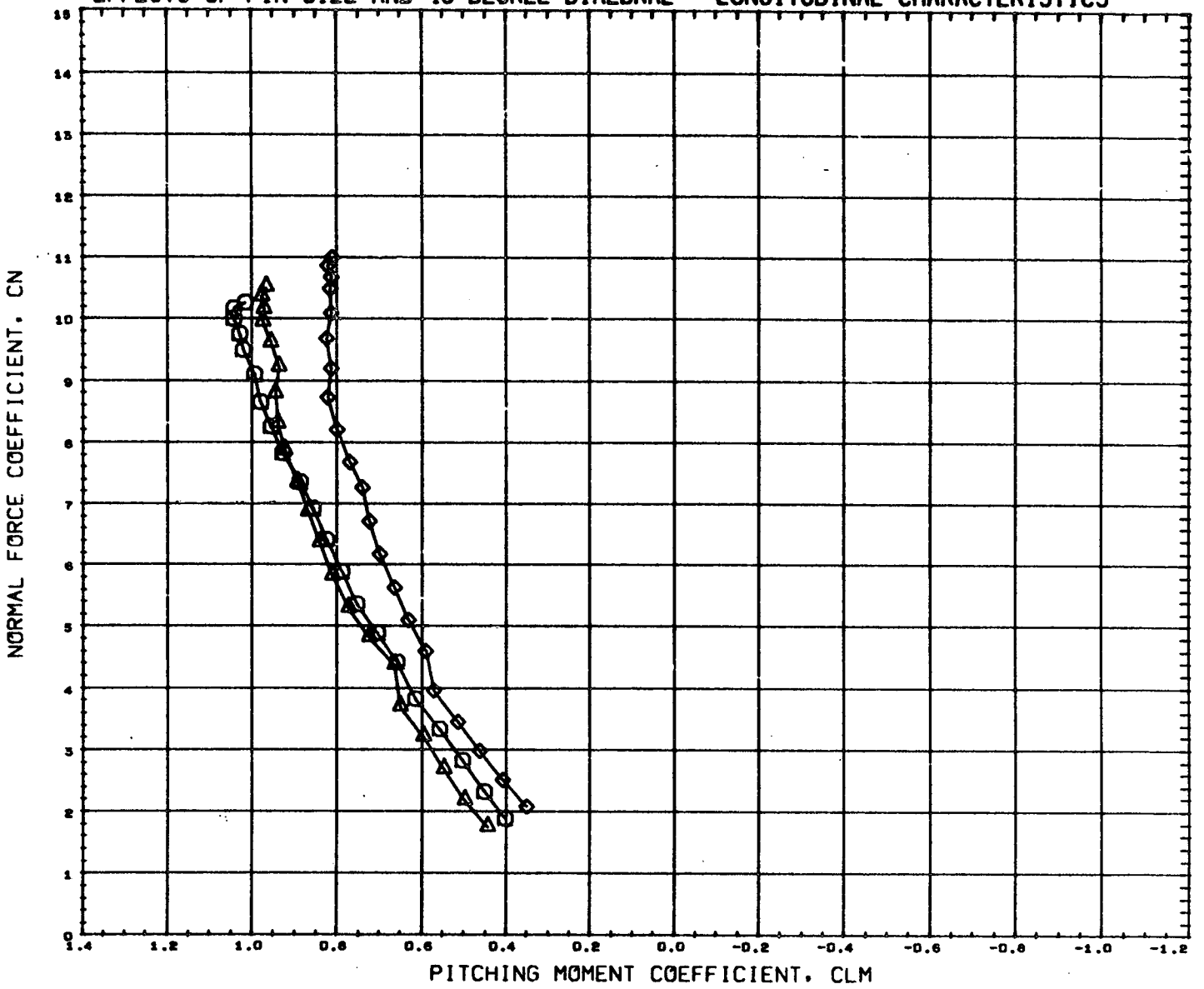


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION				BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED	BOOSTER	N1B1	0.000	
(J54917)	△	MSFC 518	MSFC PRESSURE FED	BOOSTER	N1B1F2	0.000	45.000
(L54921)	◇	MSFC 518	MSFC PRESSURE FED	BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LONGITUDINAL CHARACTERISTICS

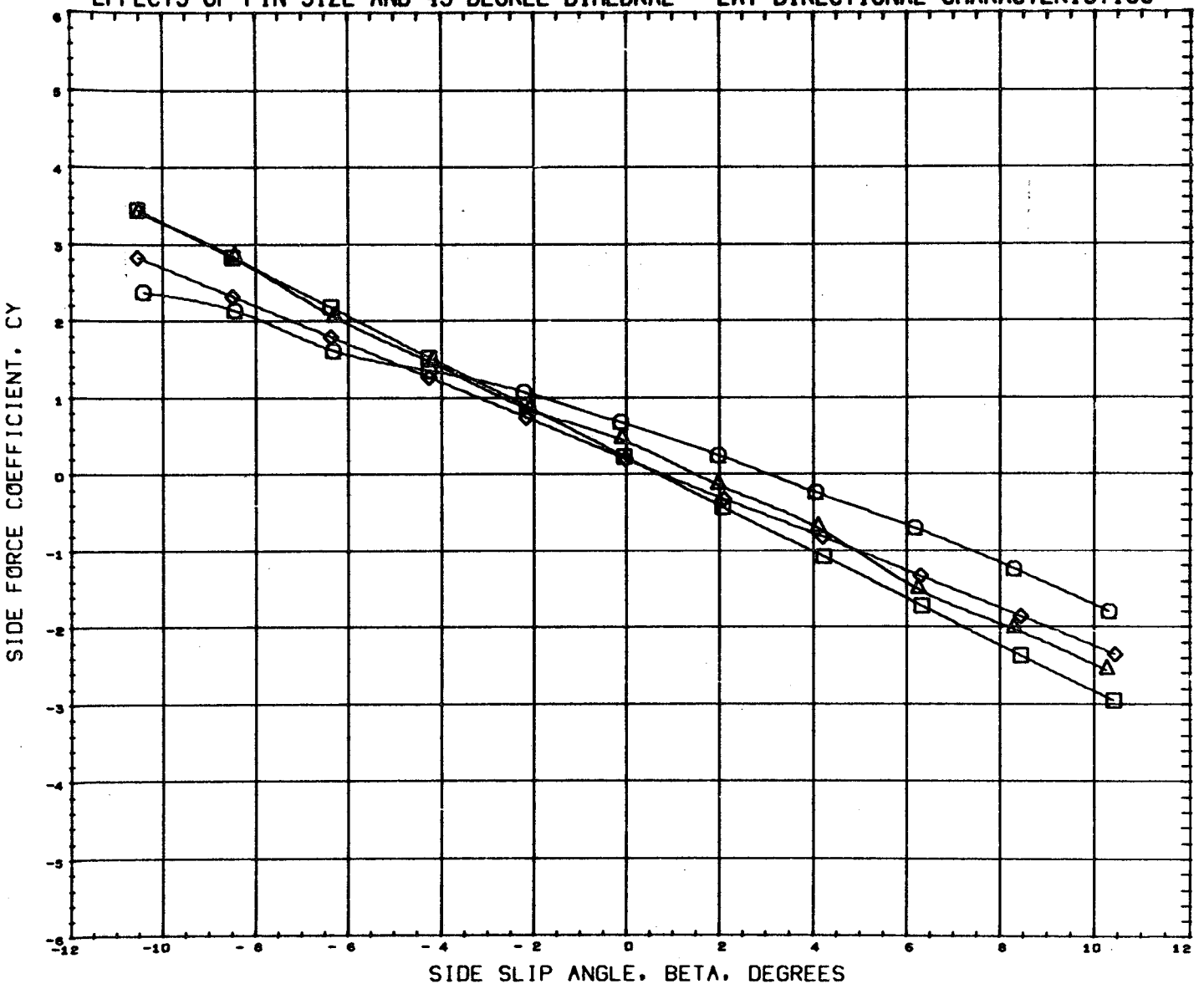


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(N54901)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1	0.000	
(I54917)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	0.000	45.000
(K54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.200

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS



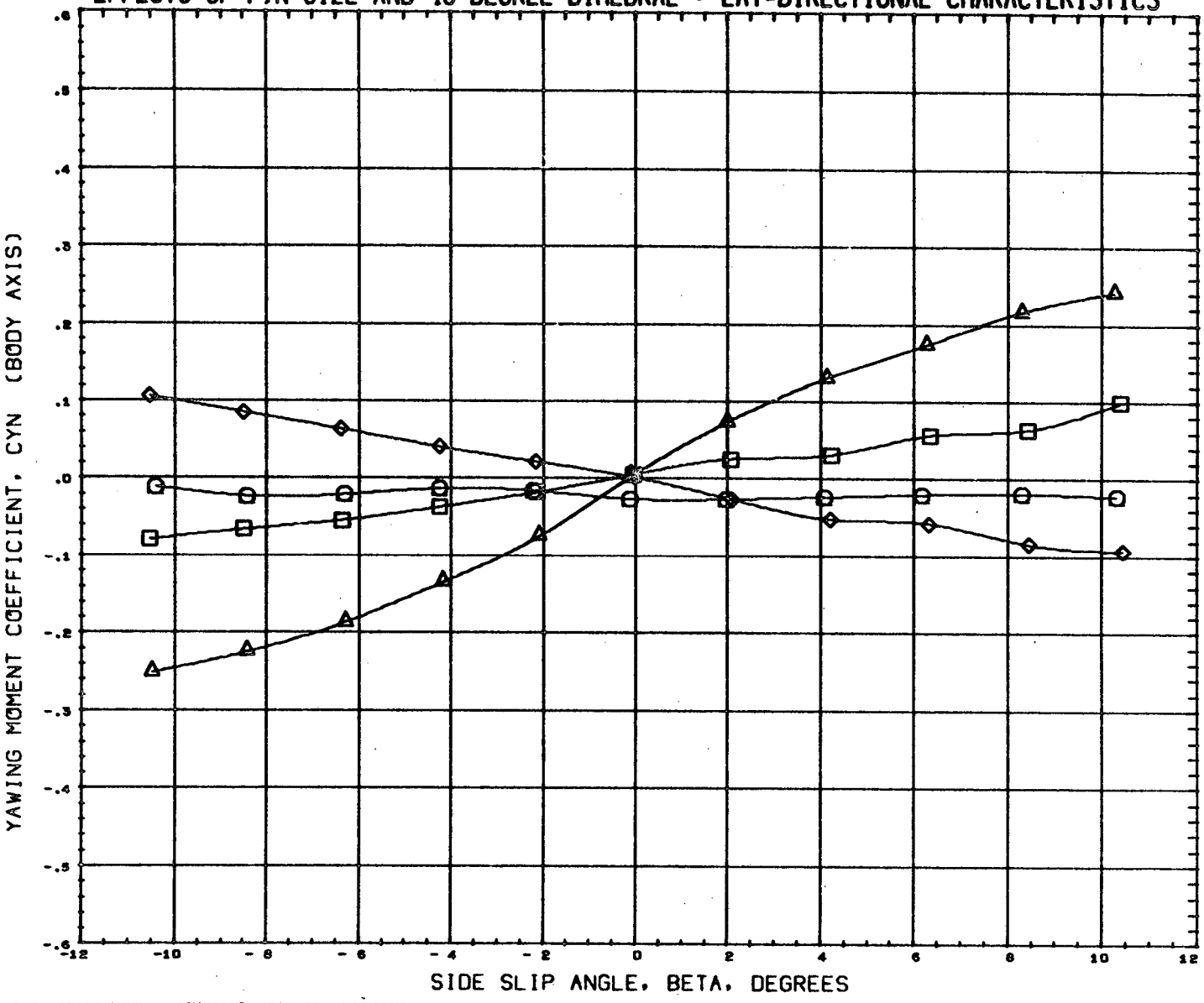
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION				ALPHA	DIHDRL
(S54D19)	○	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F2	30.000	45.000
(K54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	30.000	45.000
(S54020)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F2	50.000	45.000
(K54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	50.000	45.000

MACH 1.197

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

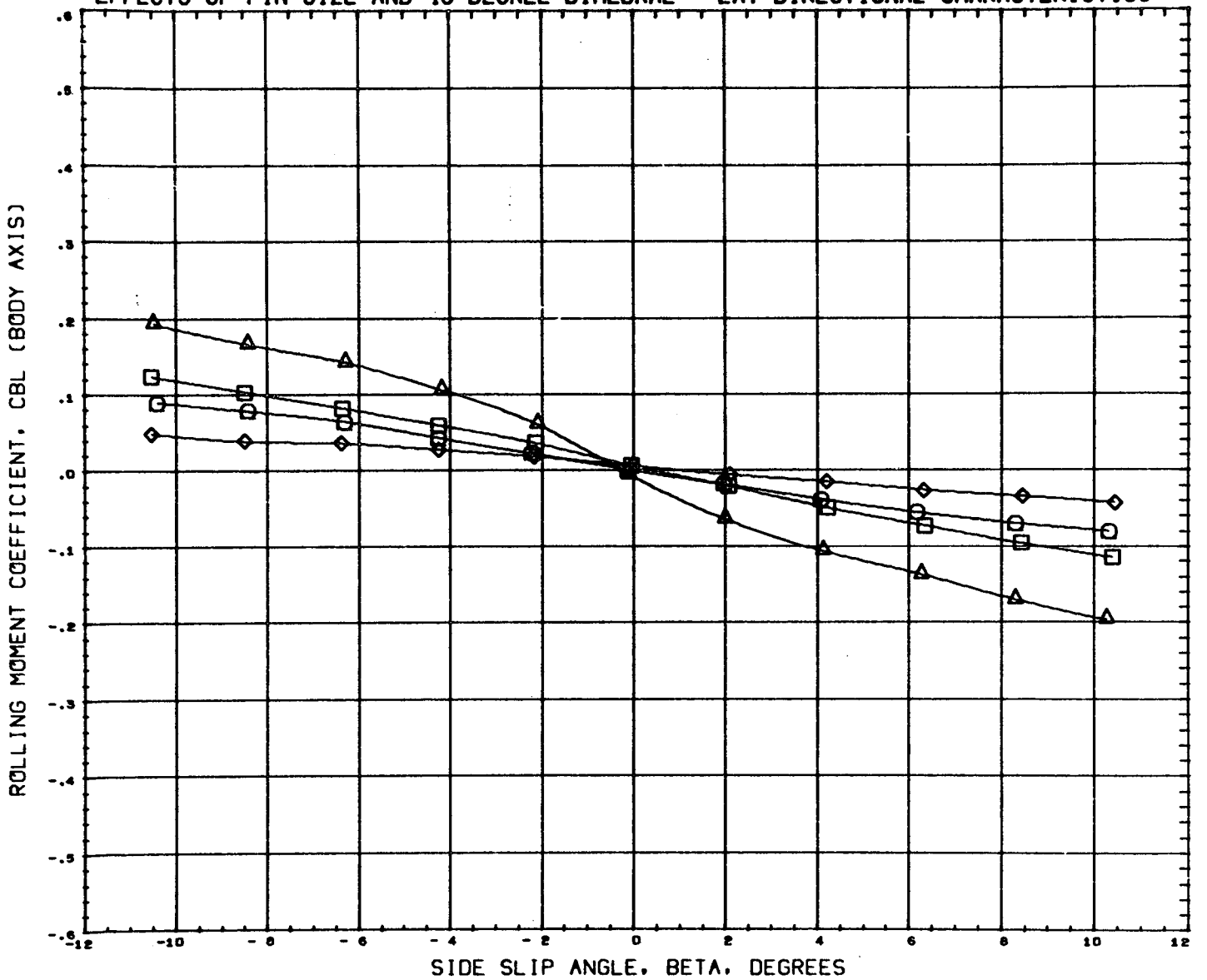


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(S54019)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	45.000
(K54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54020)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	45.000
(K54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.197

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

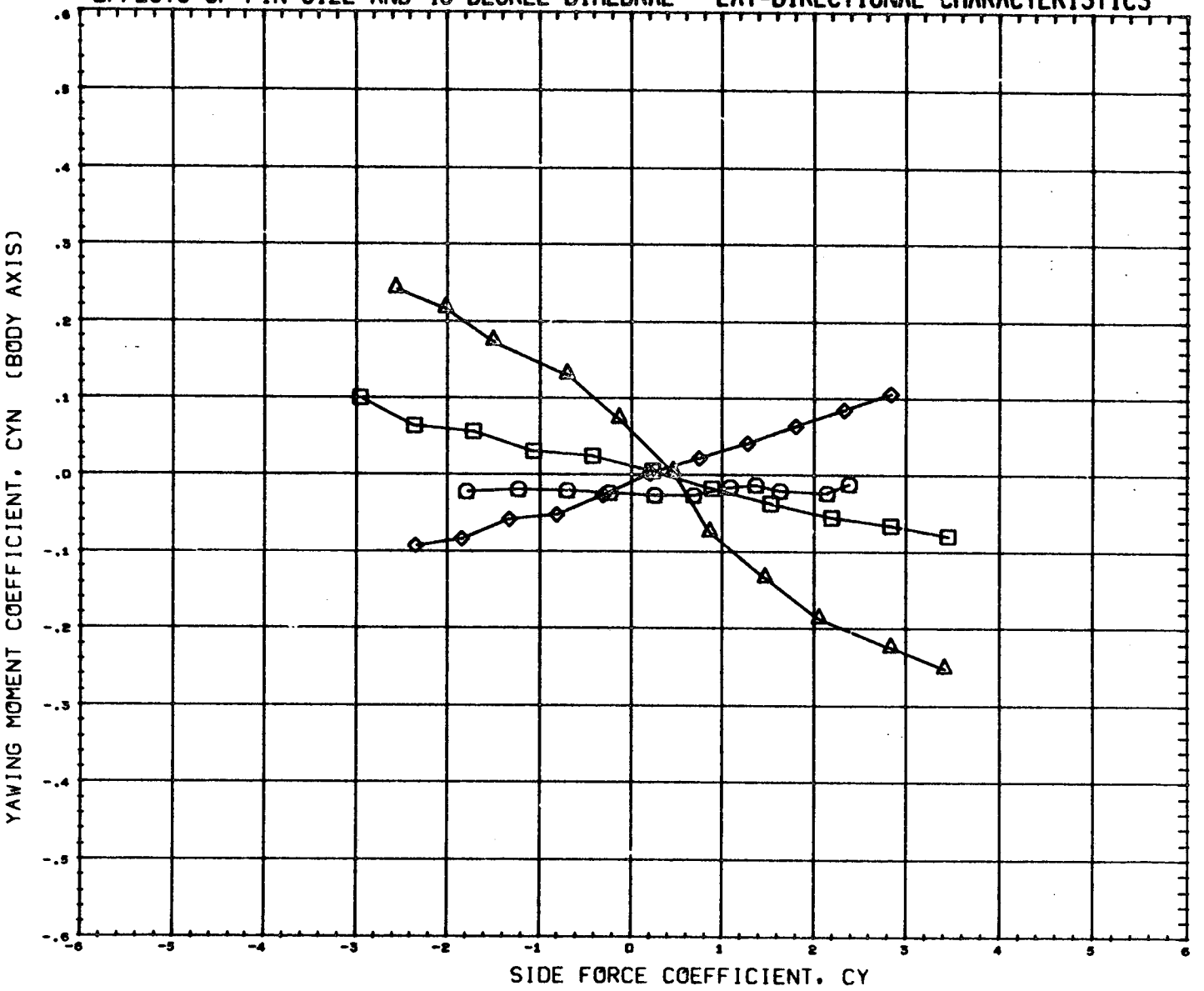


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(S54019)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	45.000
(K54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54020)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	45.000
(K54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.197

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF FIN SIZE AND 45 DEGREE DIHEDRAL - LAT-DIRECTIONAL CHARACTERISTICS

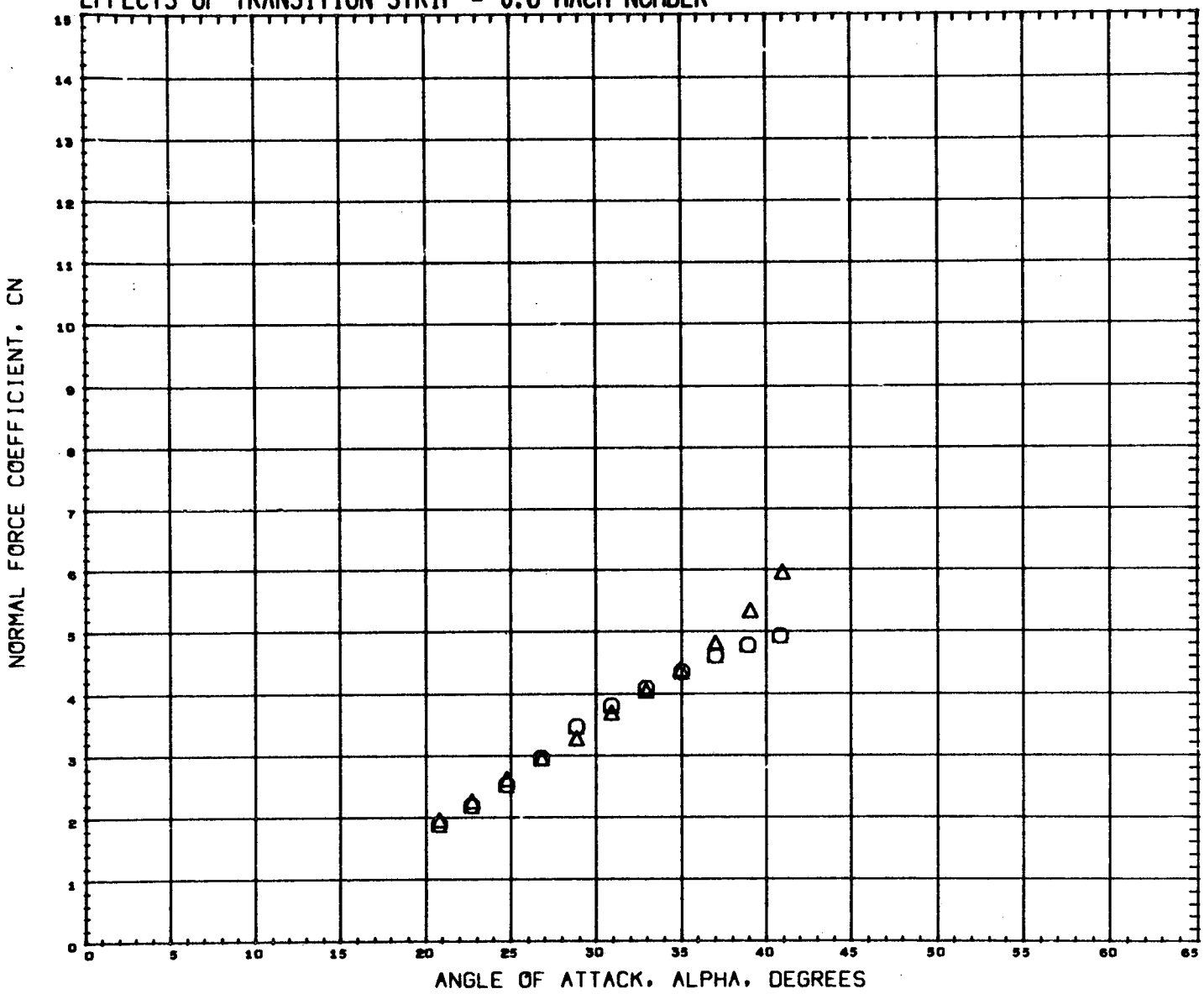


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(854019)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	30.000	45.000
(K54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(854020)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F2	50.000	45.000
(K54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.197

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER



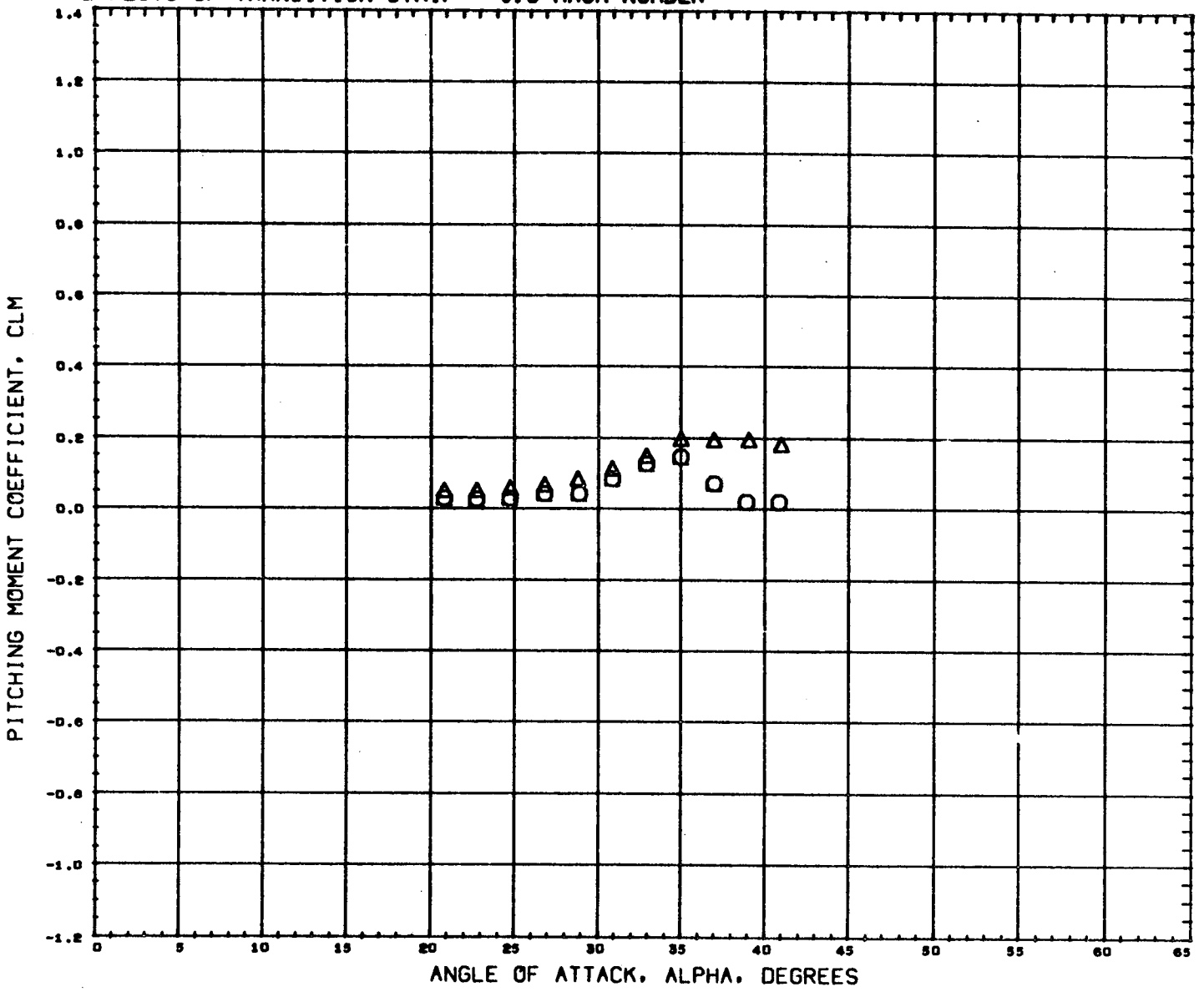
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BETA	DIHDRL
(S54021)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000
(S54026)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER



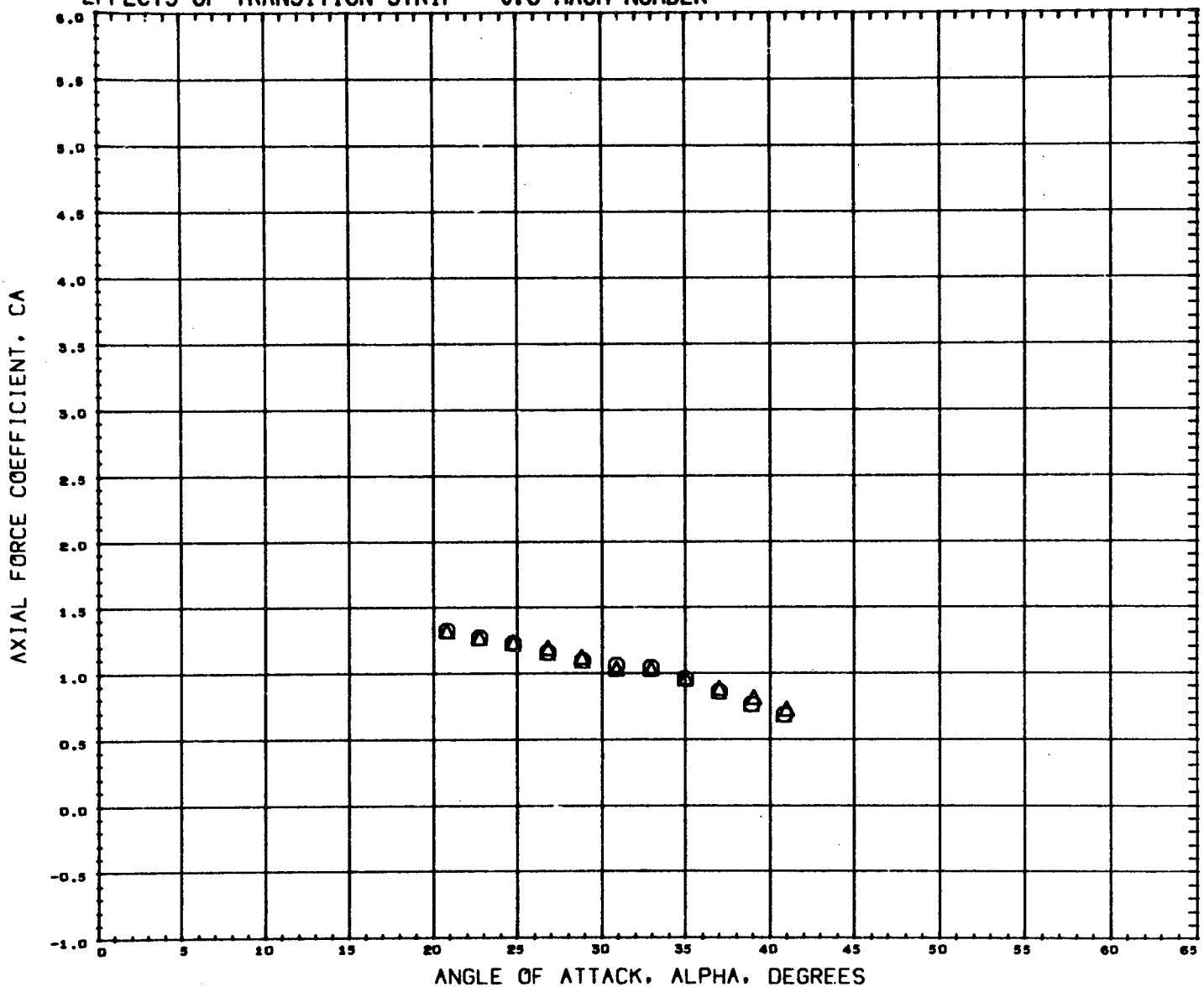
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(854021)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000
(854028)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER

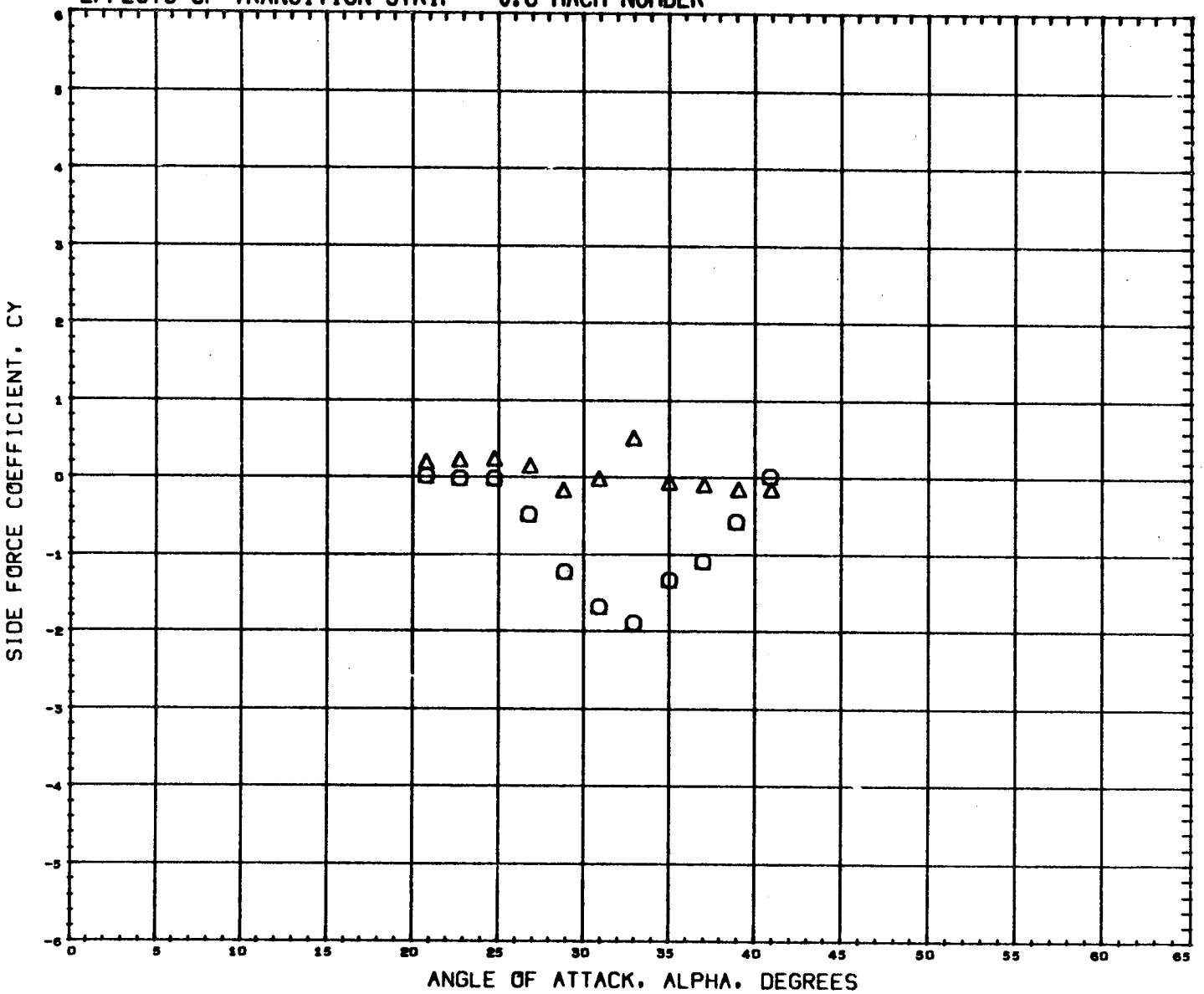


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(@54021)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000
(S54028)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER



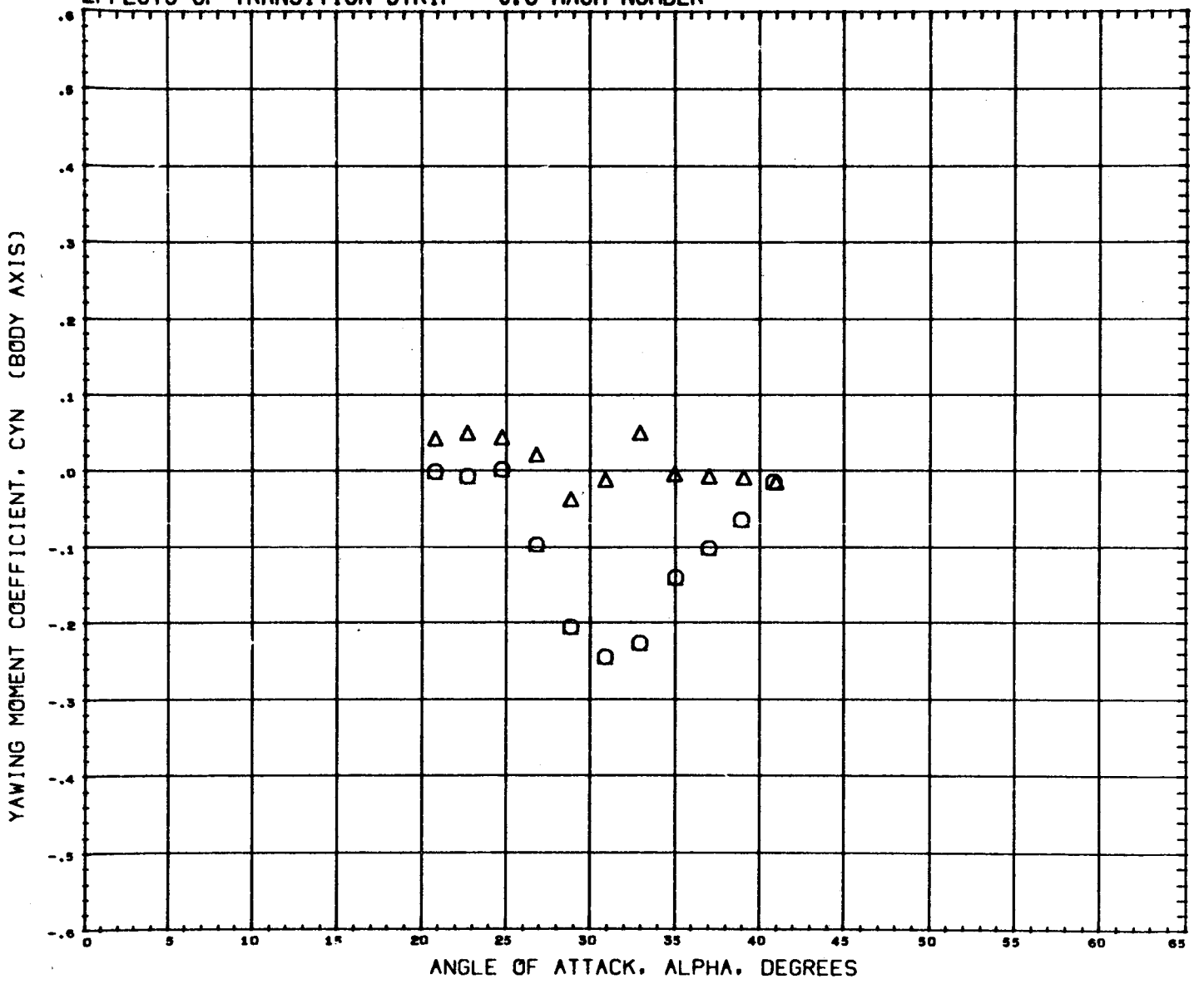
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(954021)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000
(954028)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER

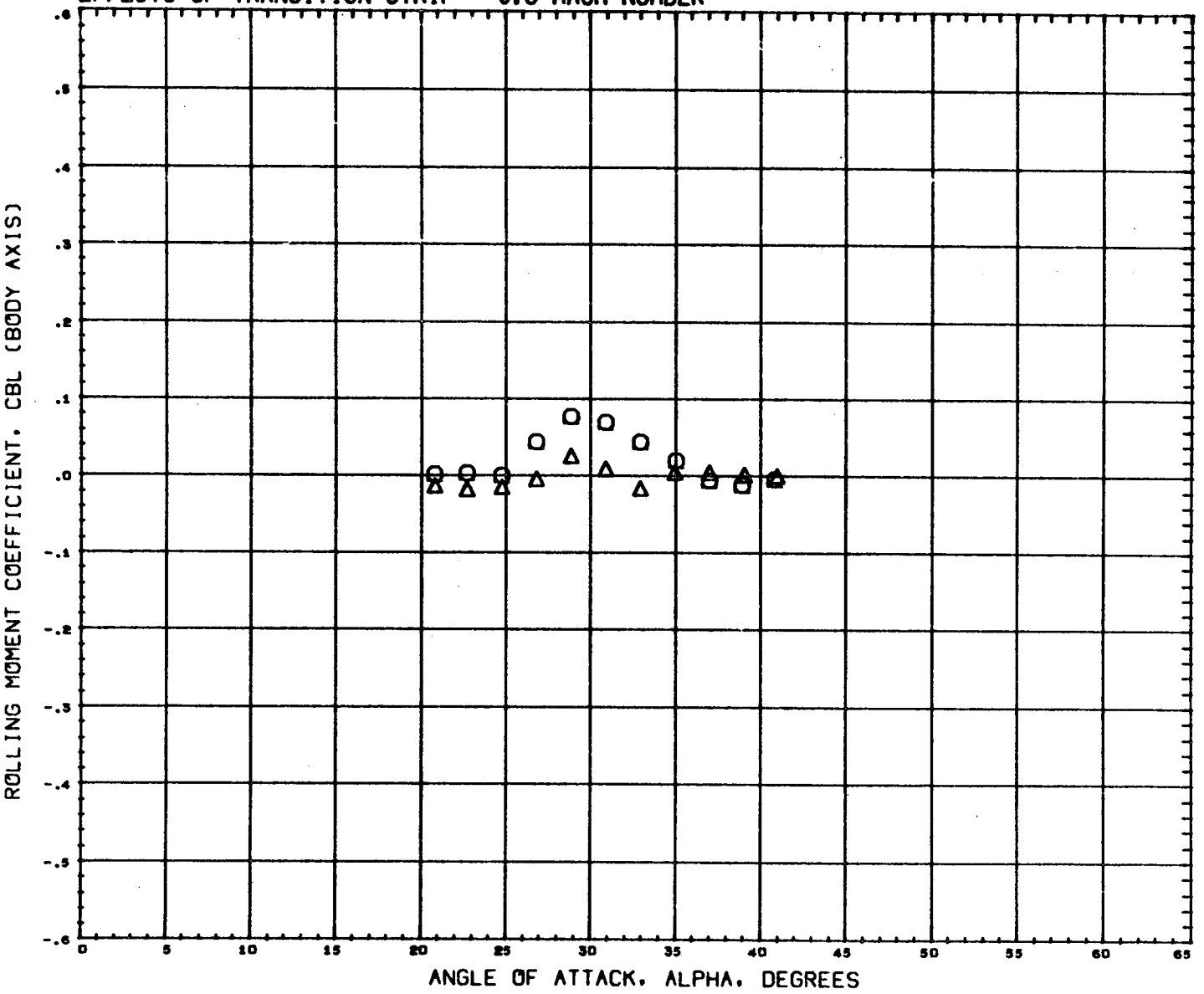


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(S54021)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000
(S54028)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF TRANSITION STRIP - 0.6 MACH NUMBER

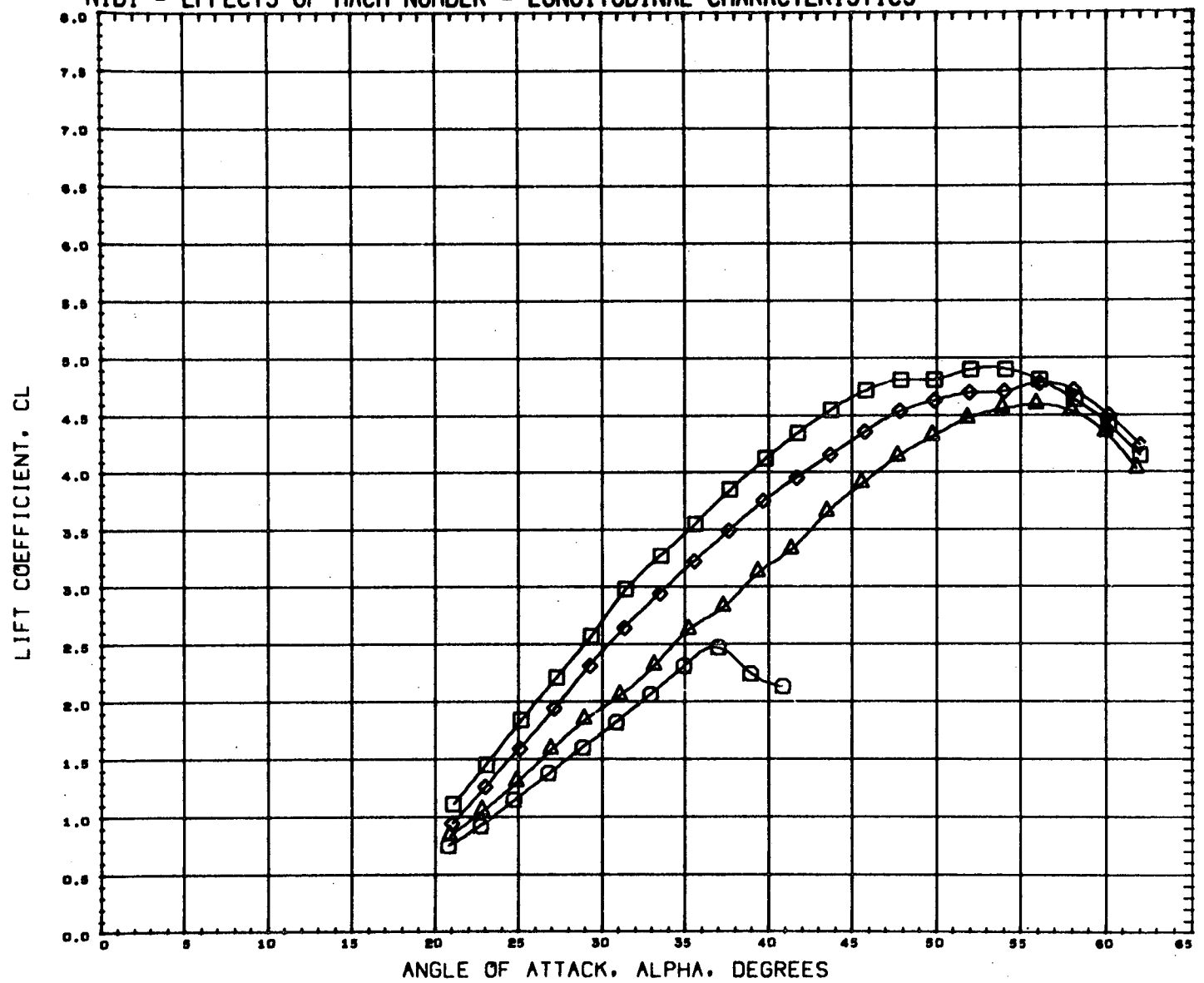


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(954021)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000
(954028)		MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6 + TS	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



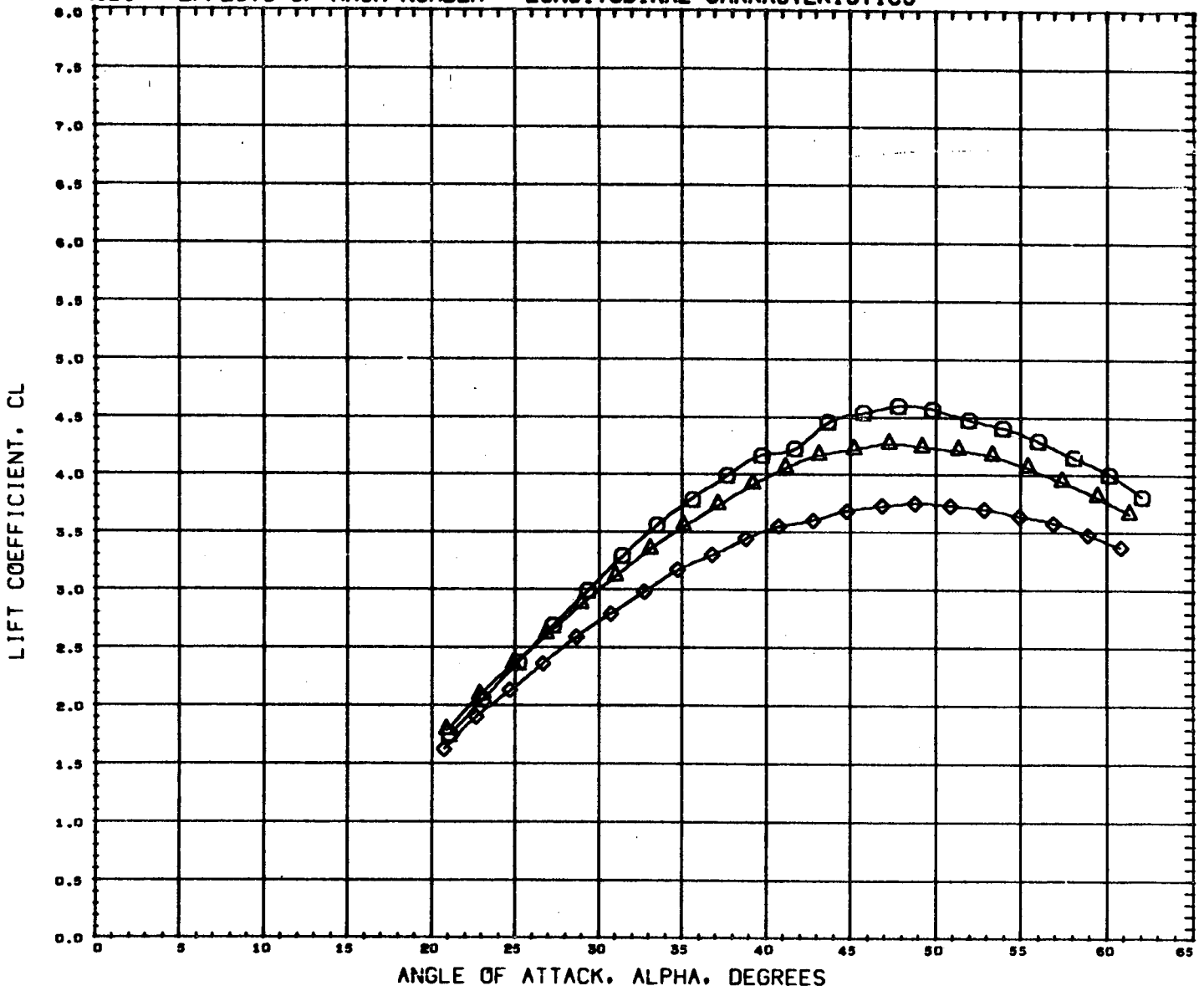
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



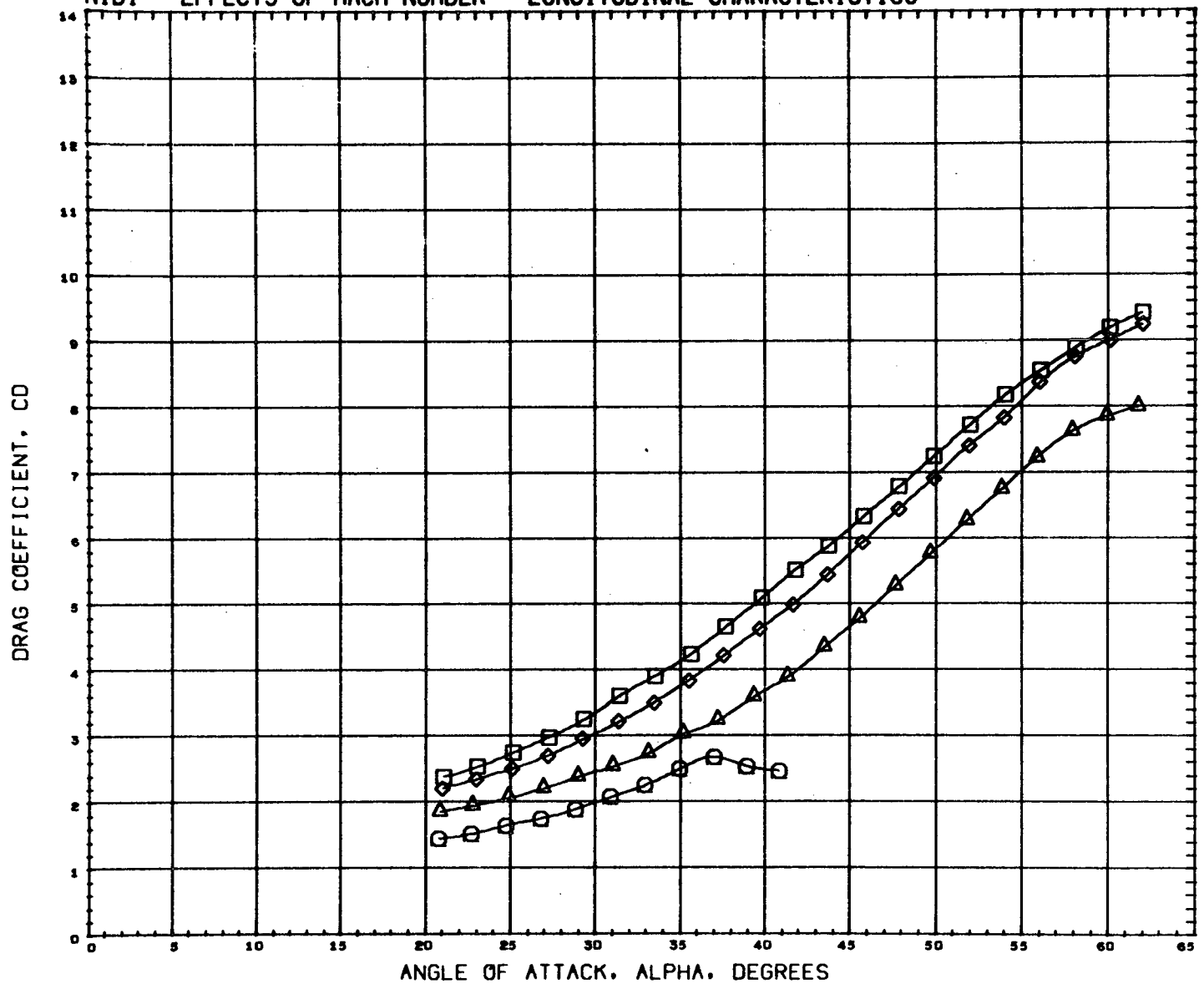
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

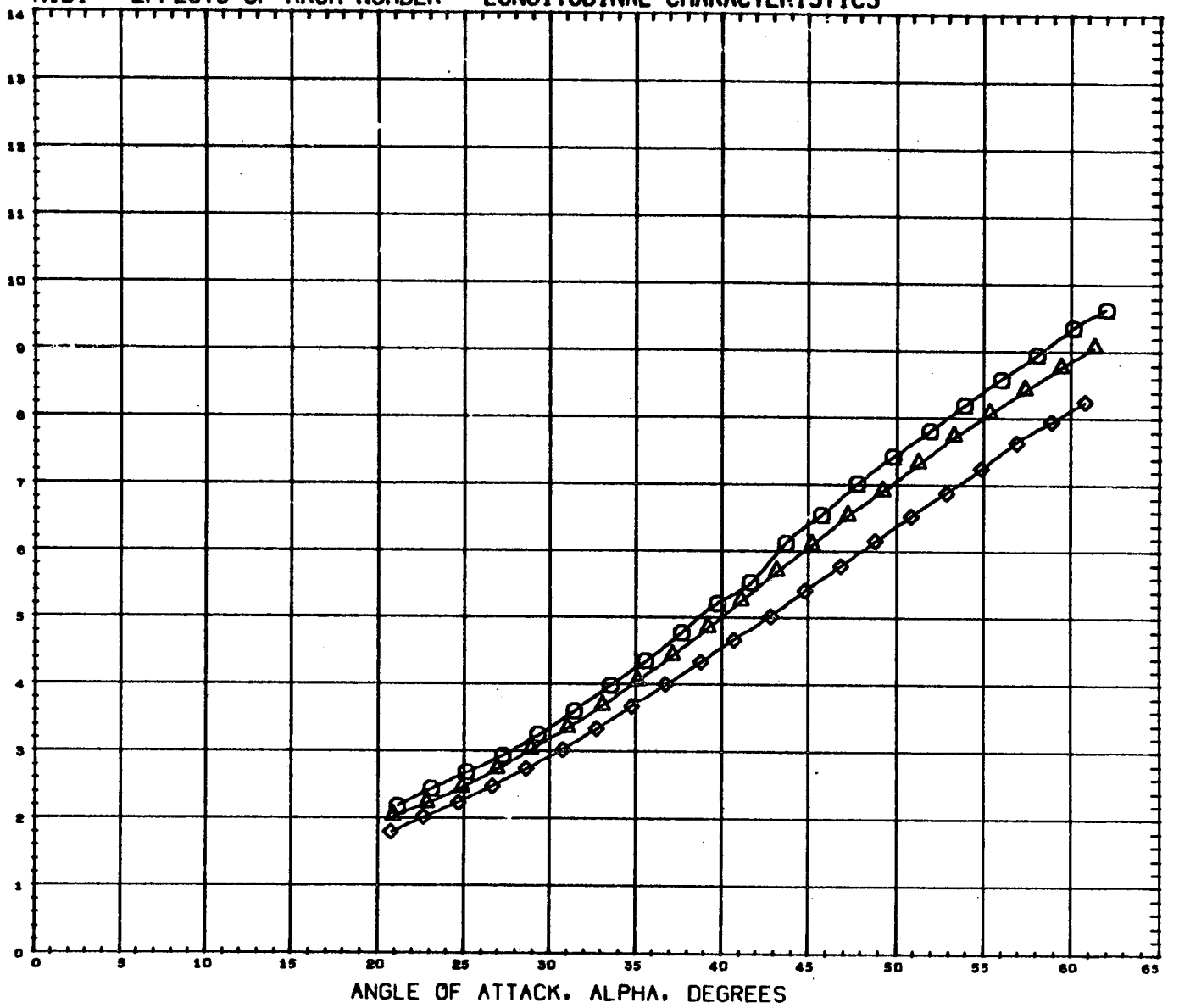
DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

38

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



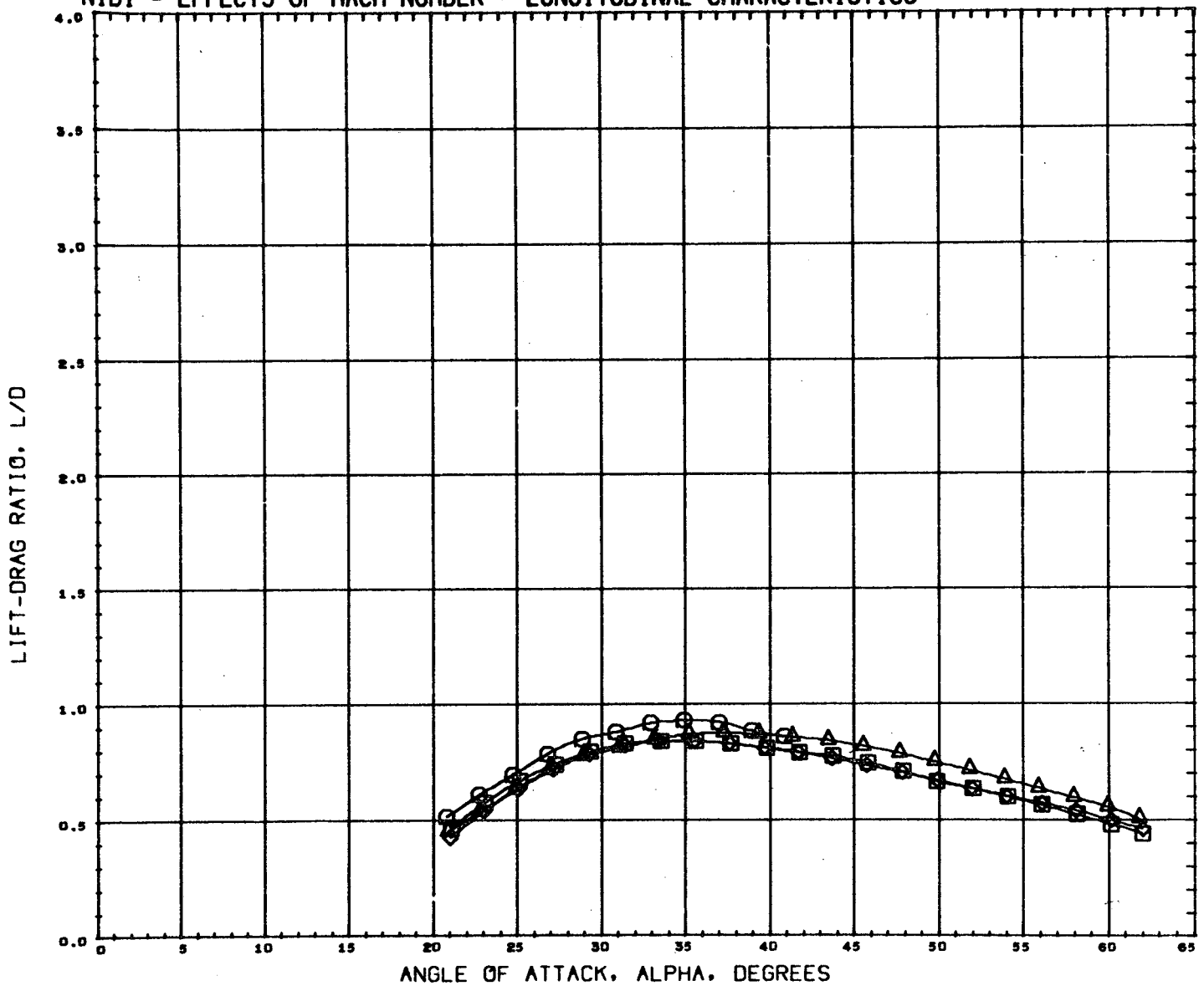
SYMBOL	MACH		PARAMETRIC VALUES
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



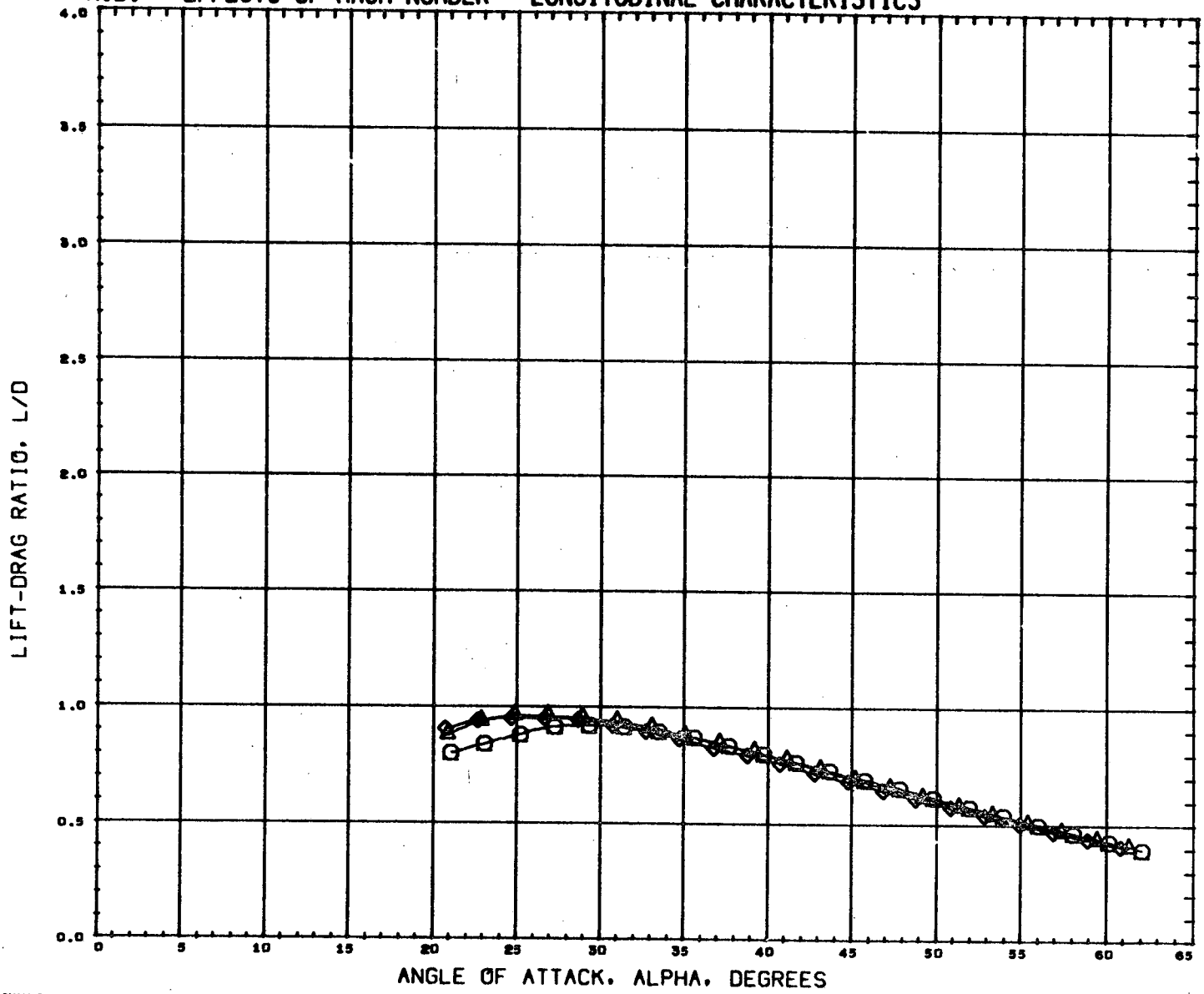
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



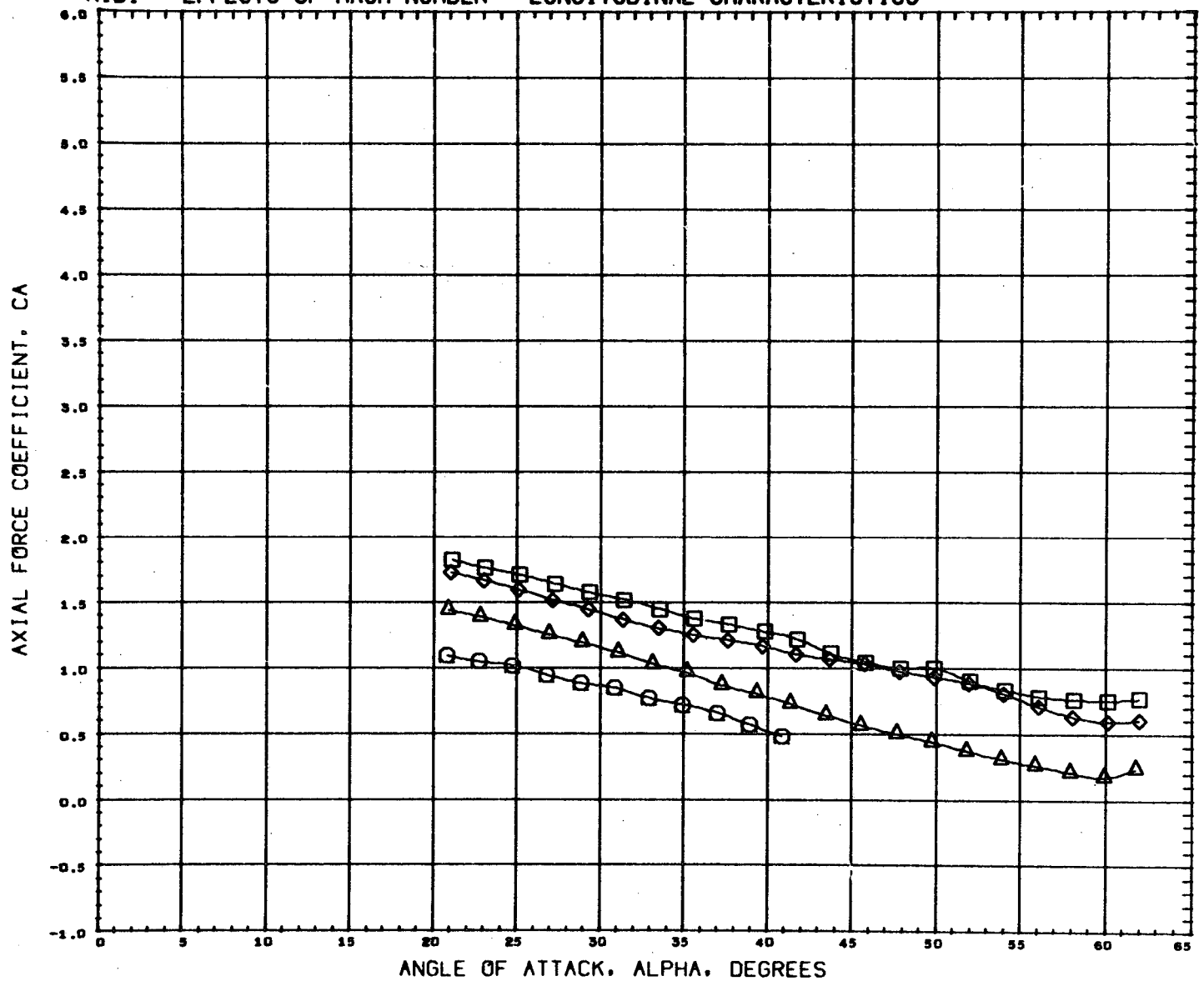
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV#E#G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



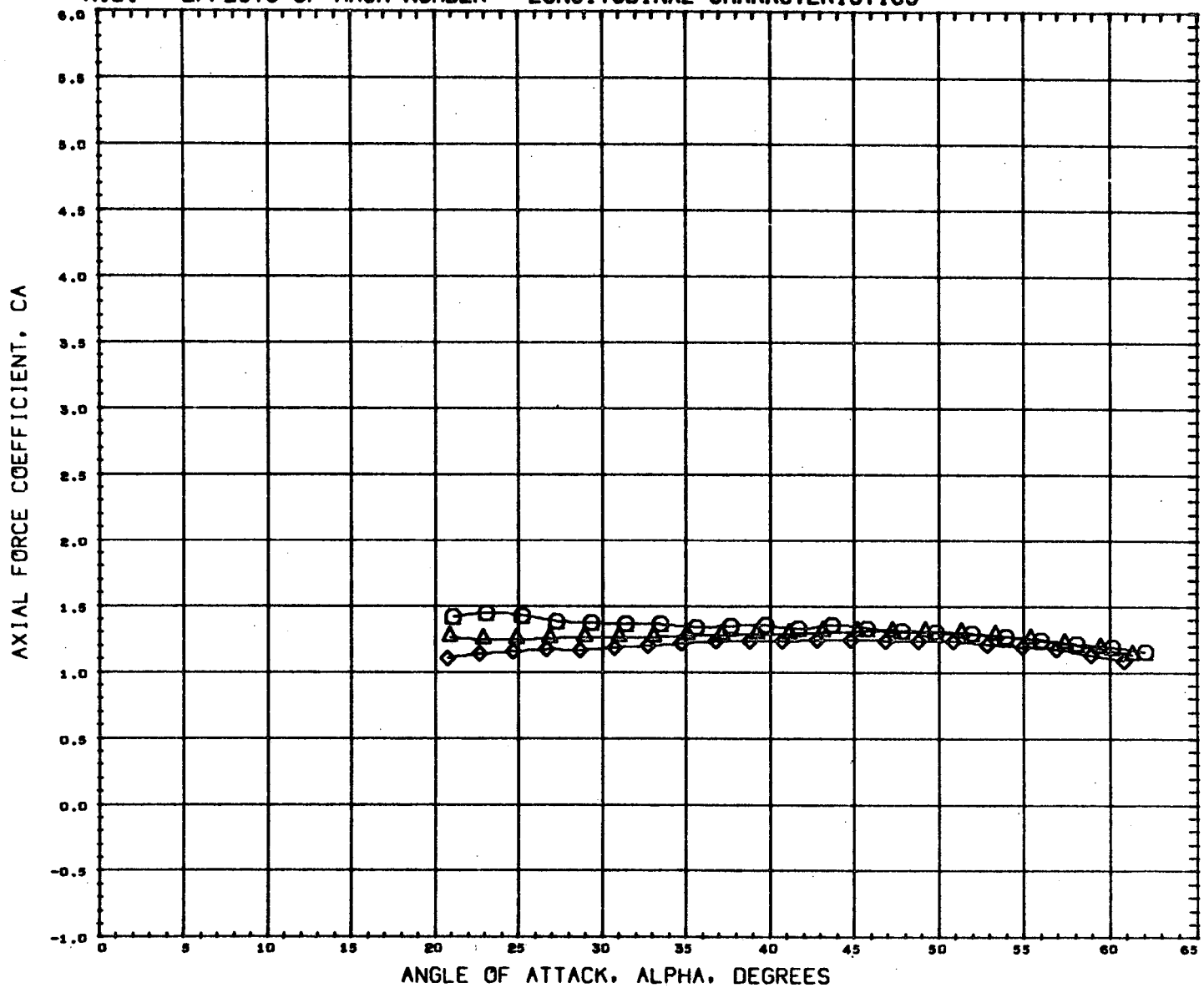
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



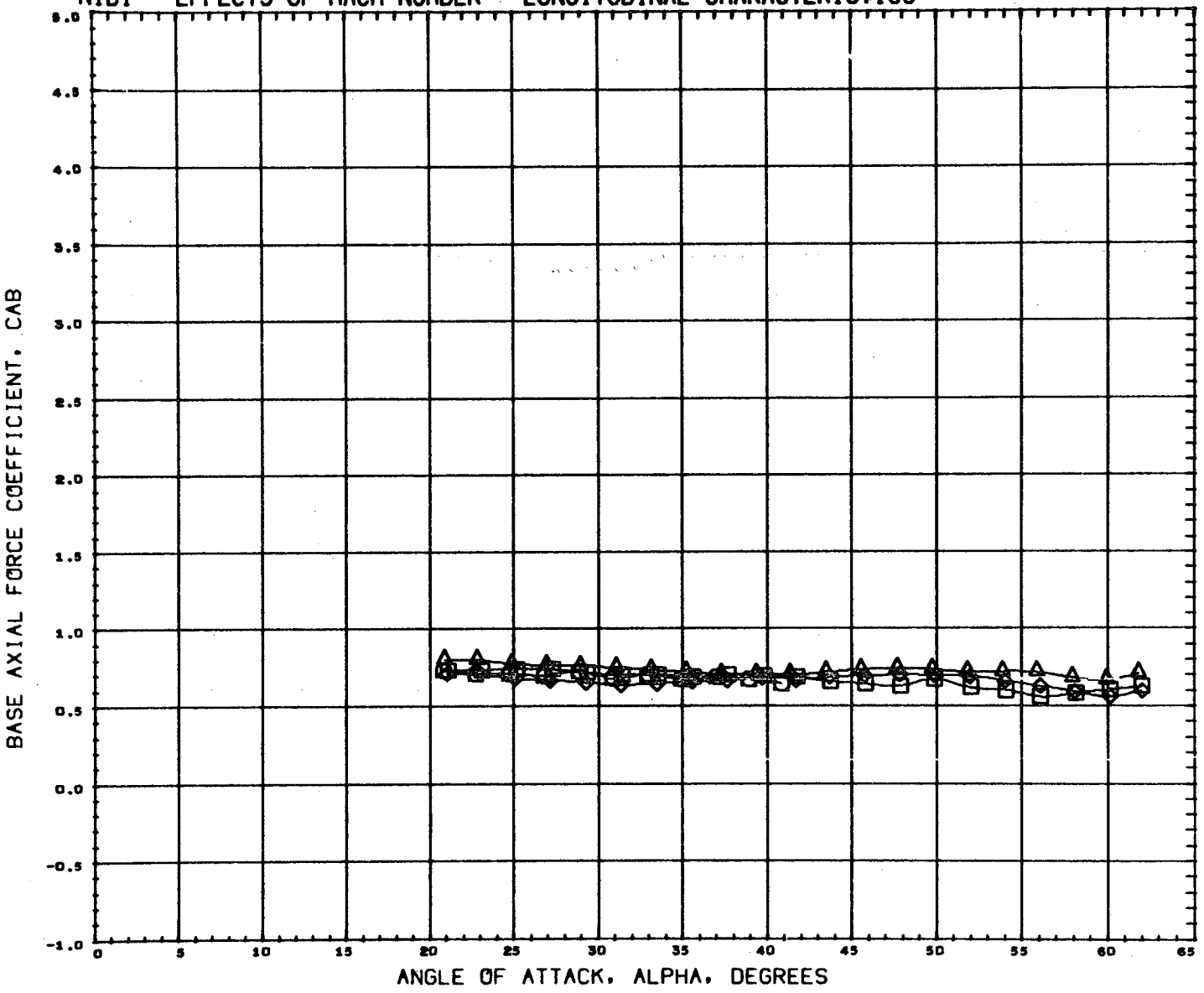
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



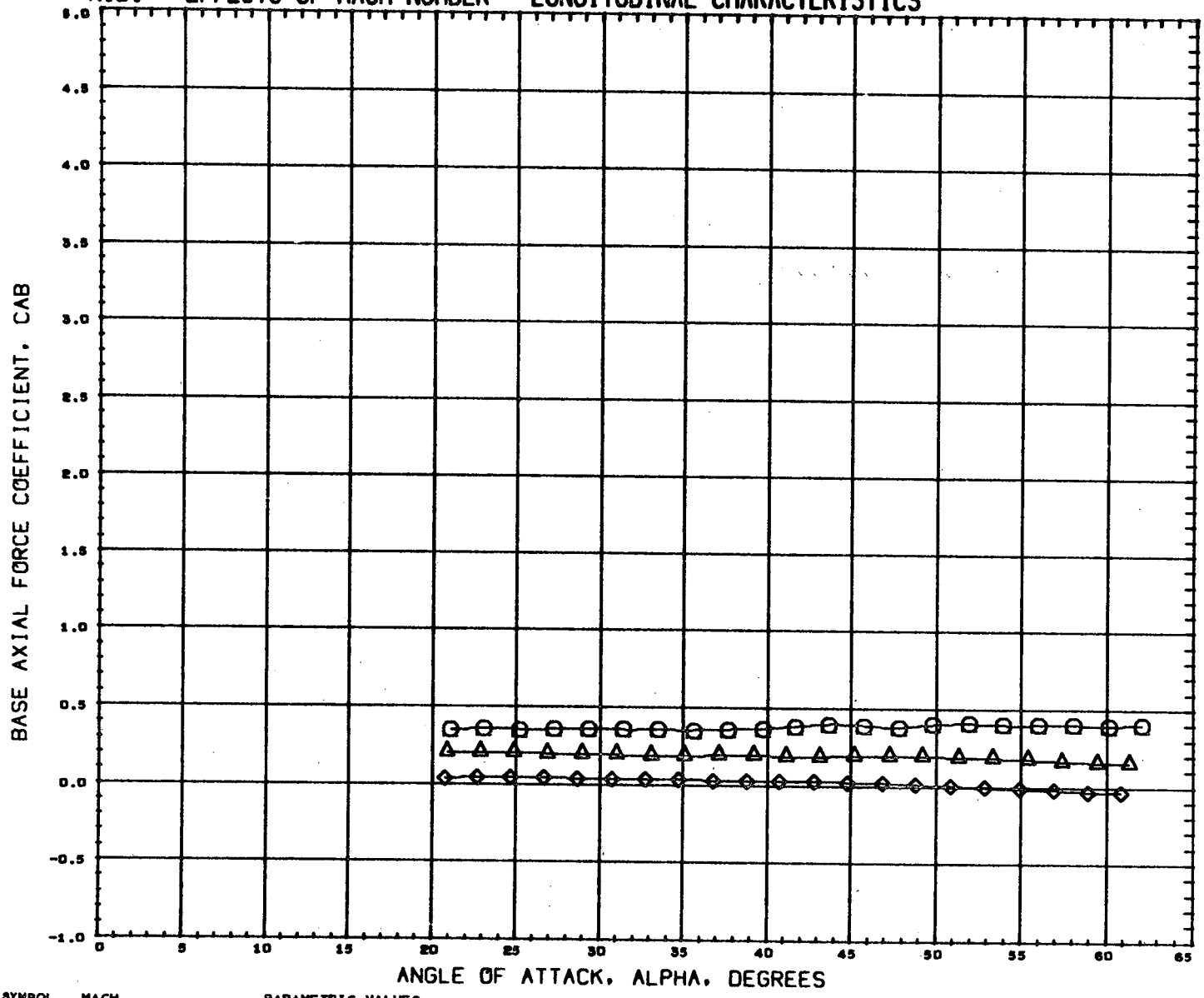
SYMBOL	MACH	PARAMETRIC VALUES
○	0.600	BETA 0.000
△	0.899	
◇	1.101	
□	1.200	

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



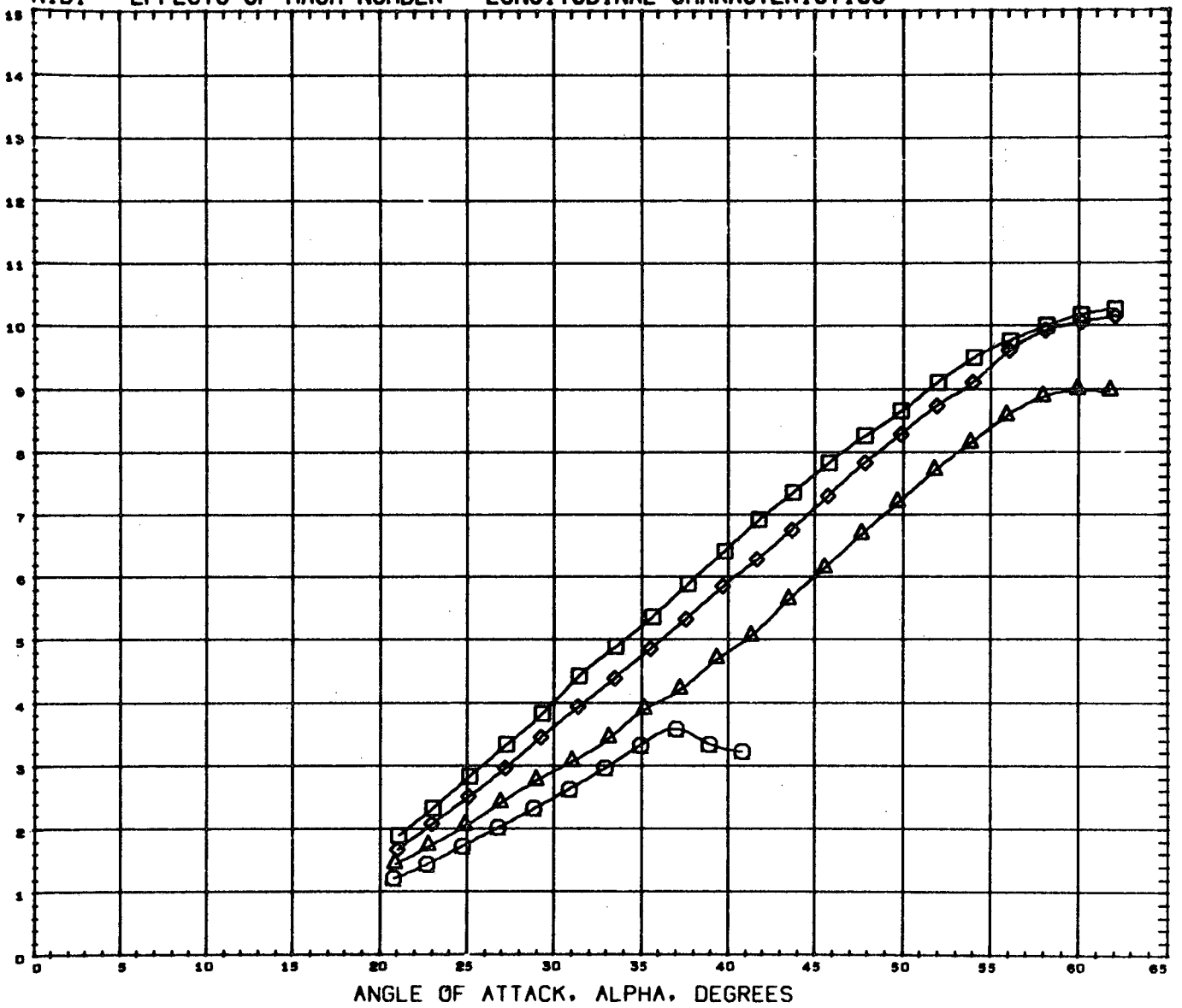
SYMBOL	MACH		PARAMETRIC VALUES
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



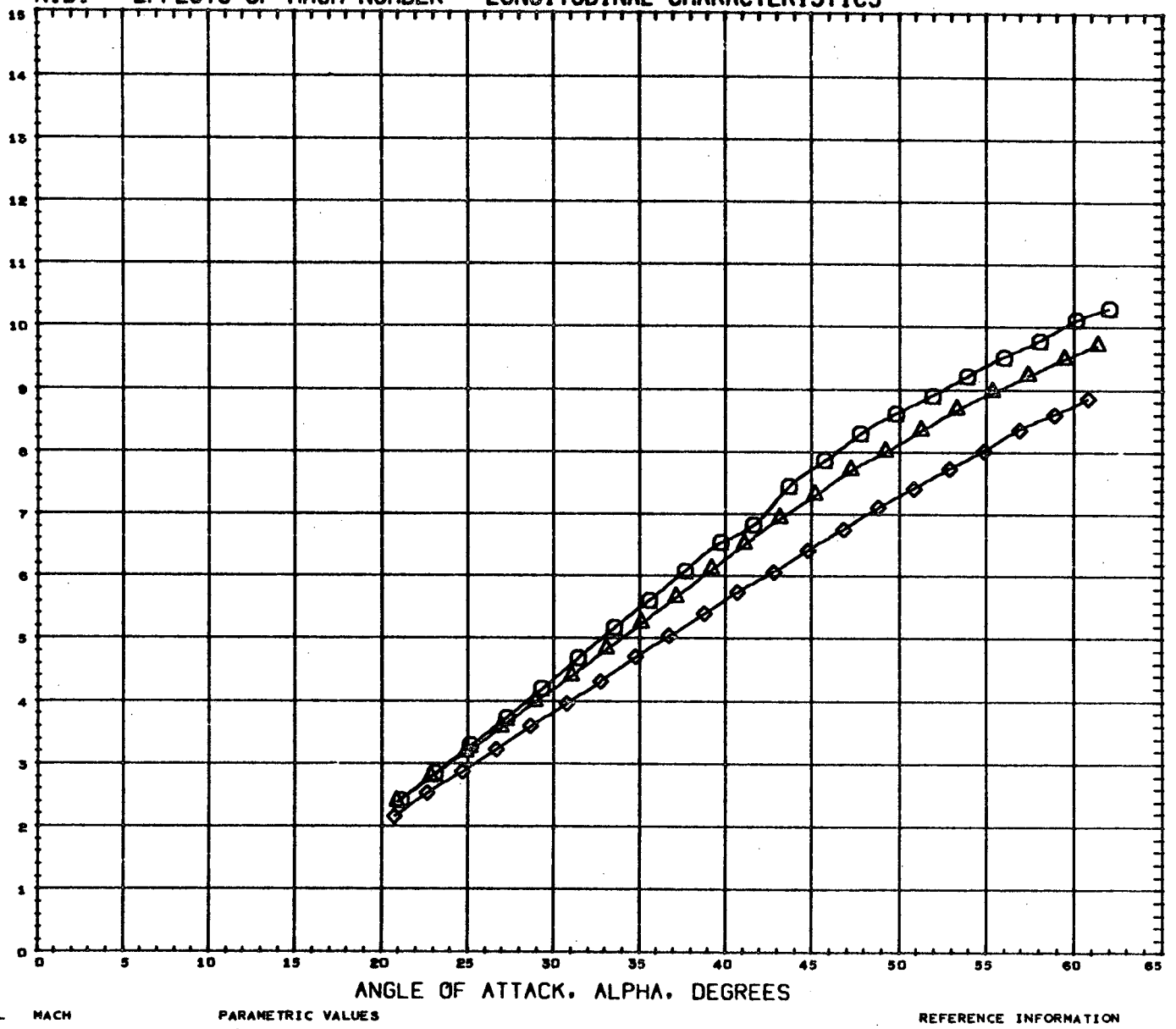
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.699		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



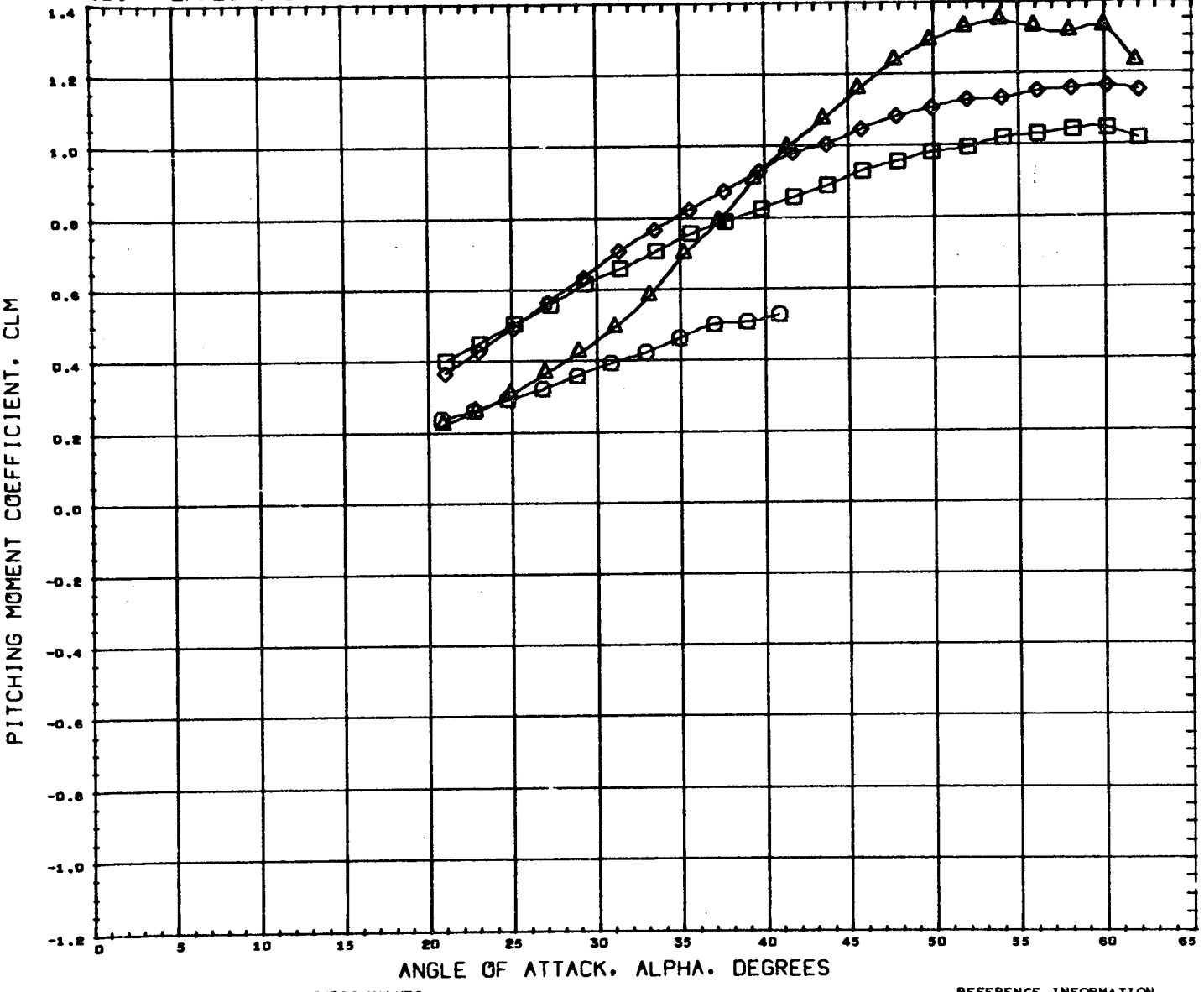
SYMBOL	MACH		PARAMETRIC VALUES
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



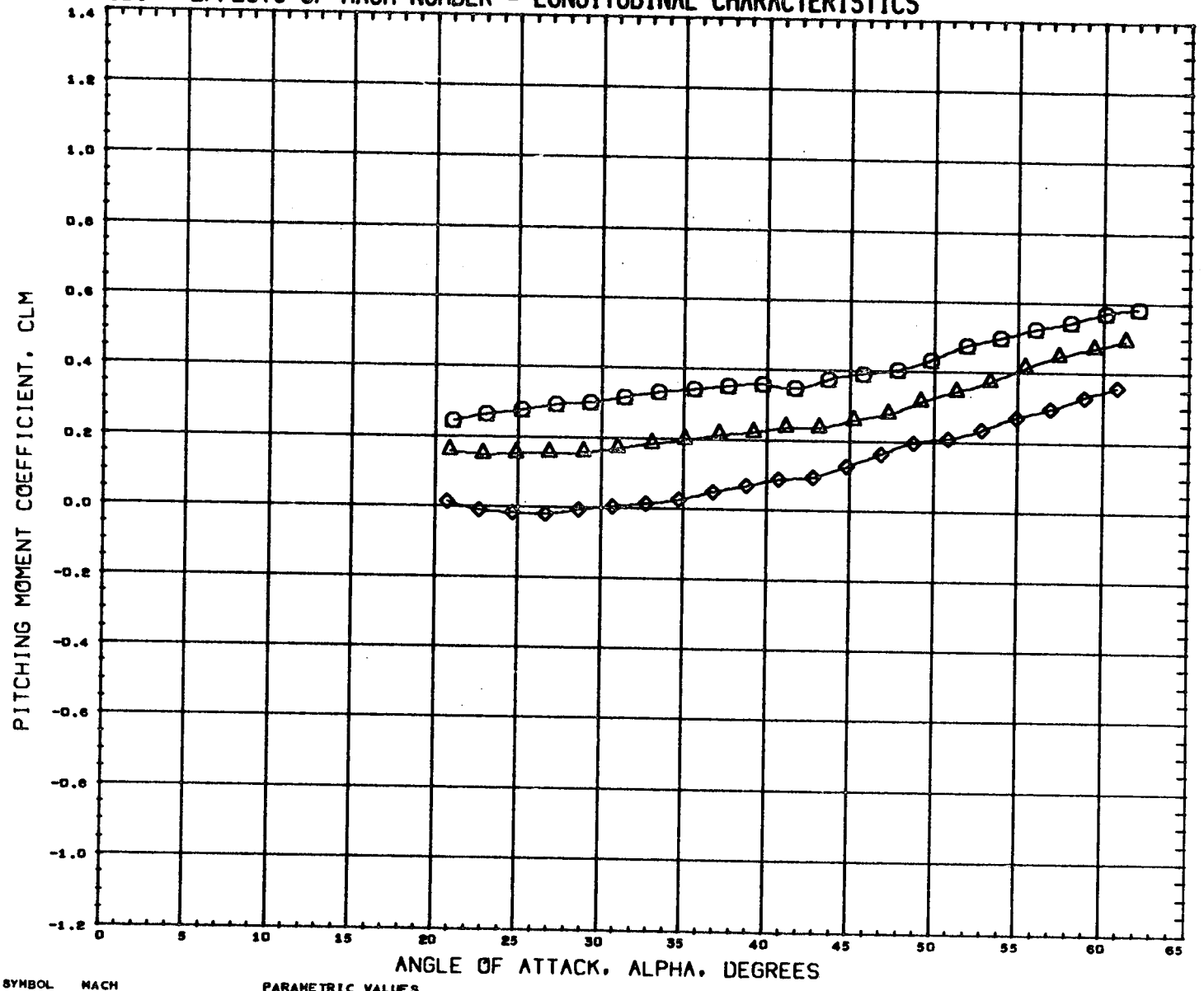
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



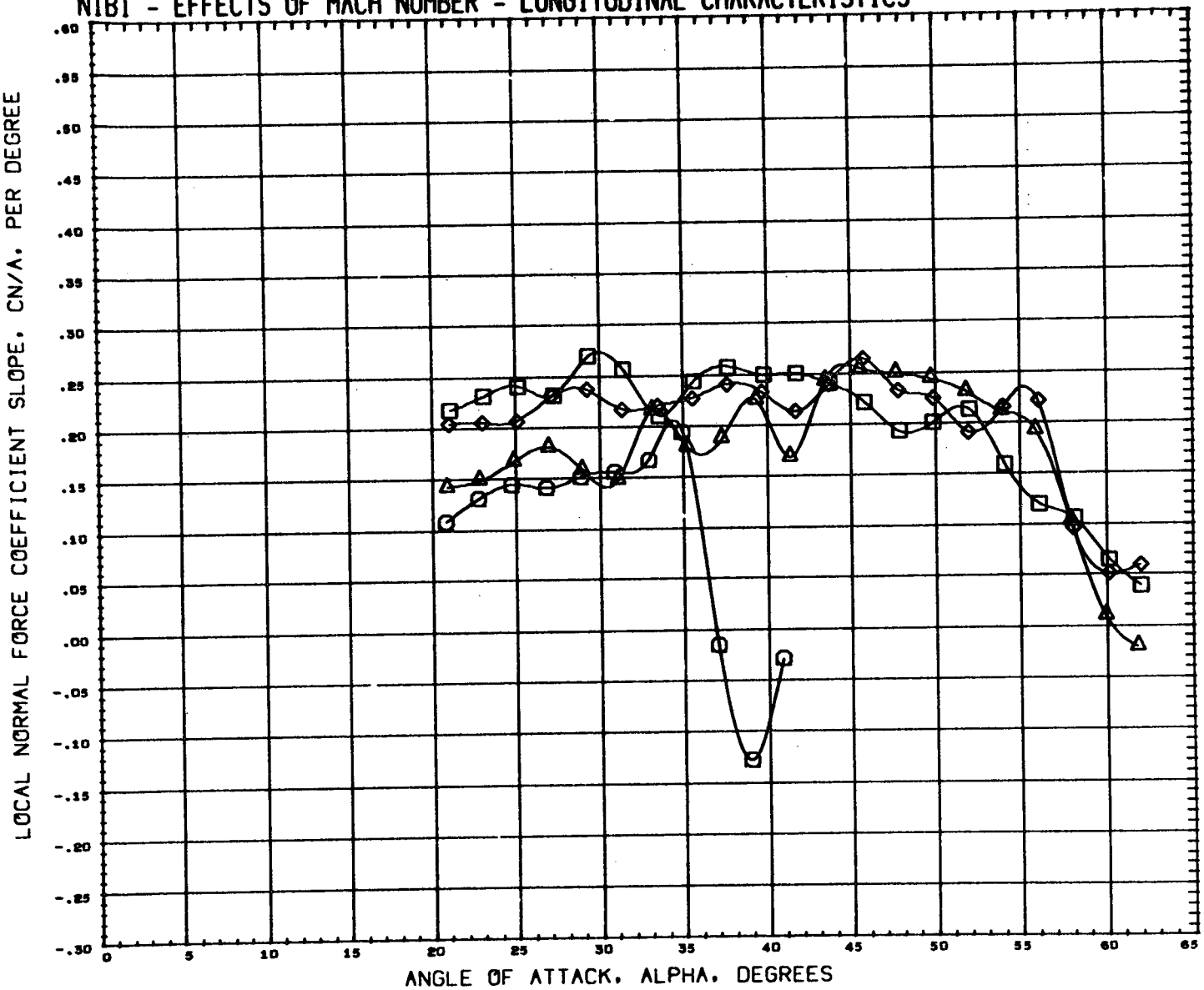
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.600
△	0.899
◇	1.101
□	1.200

PARAMETRIC VALUES

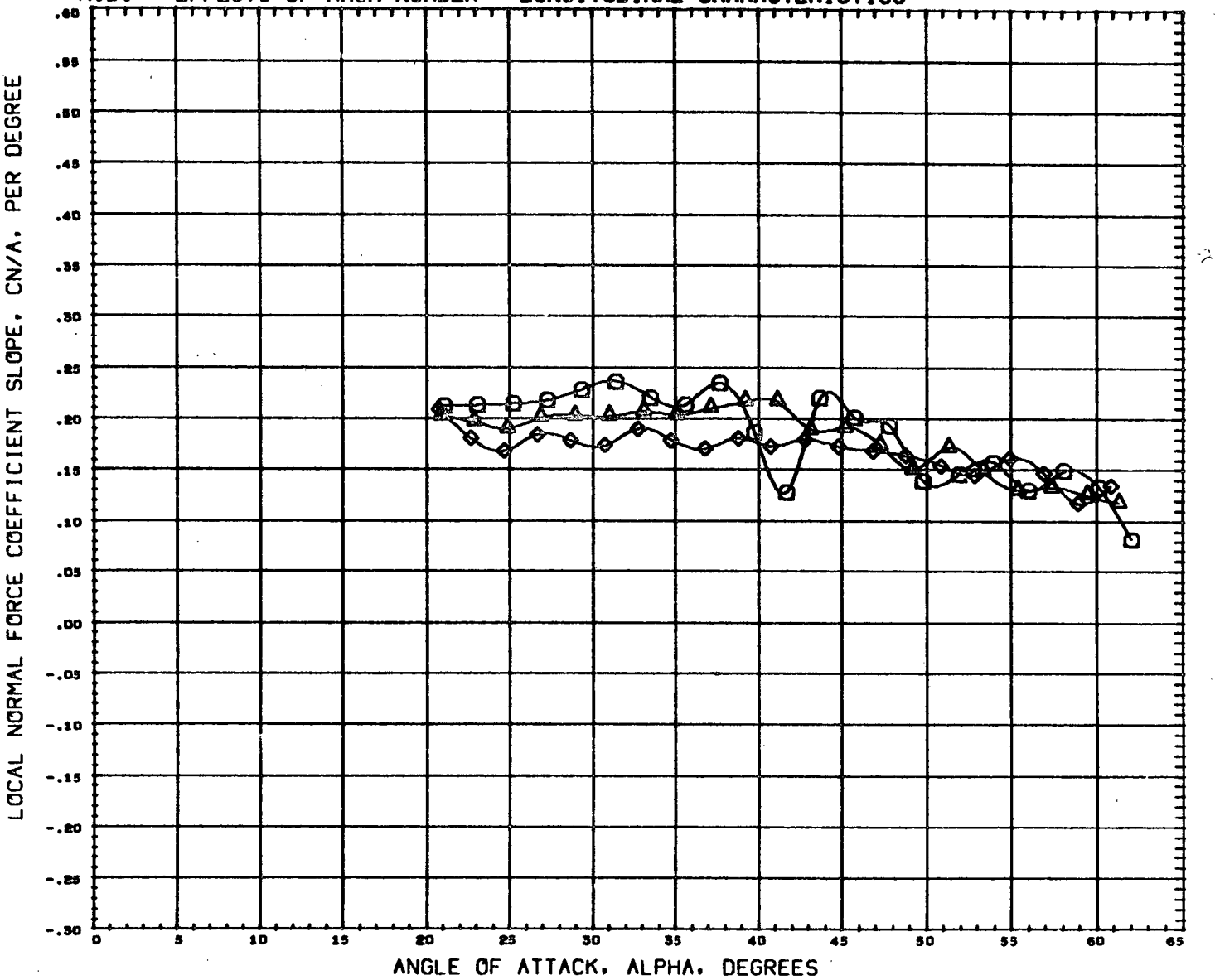
BETA 0.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE STV*E*G

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



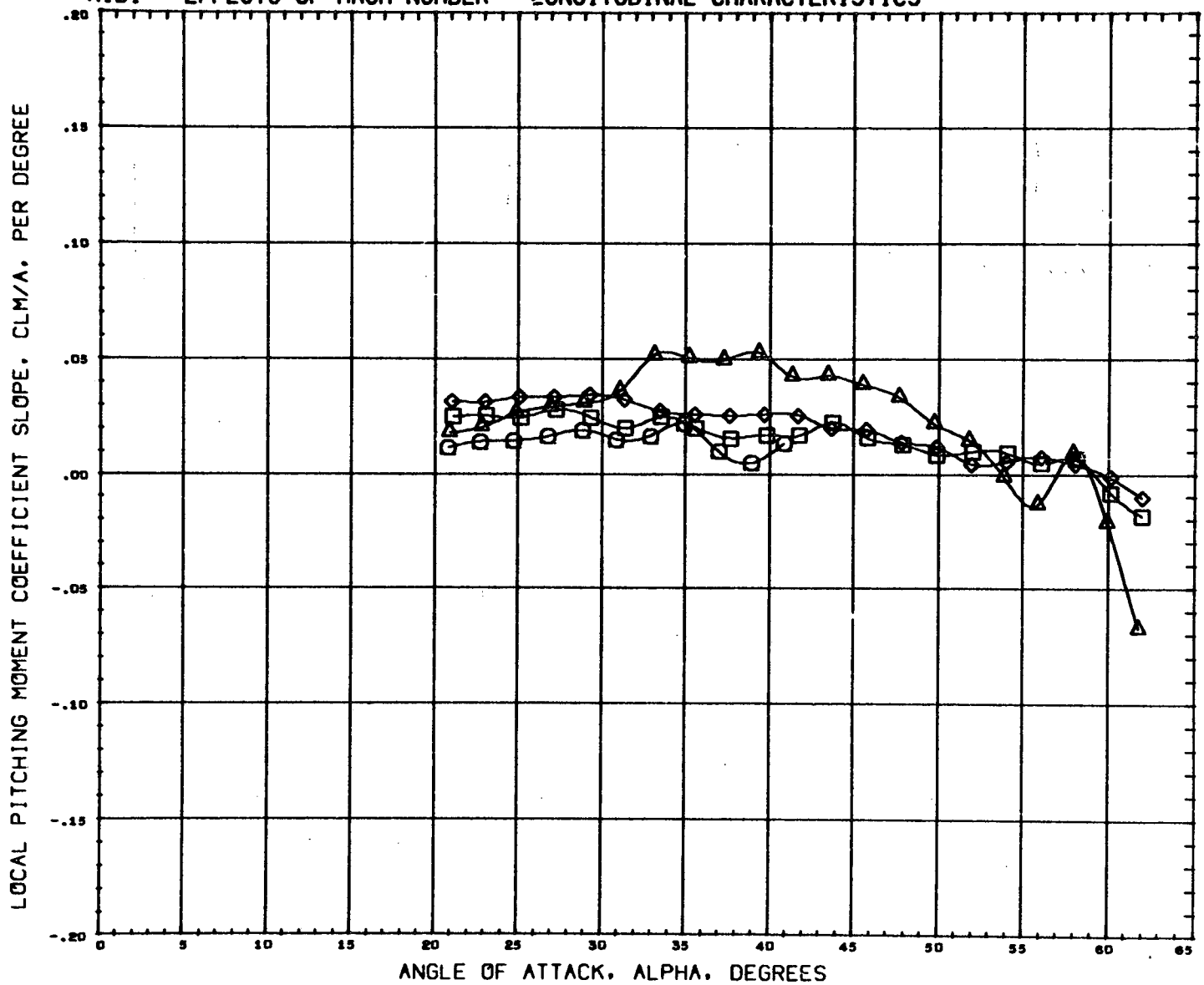
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3540	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



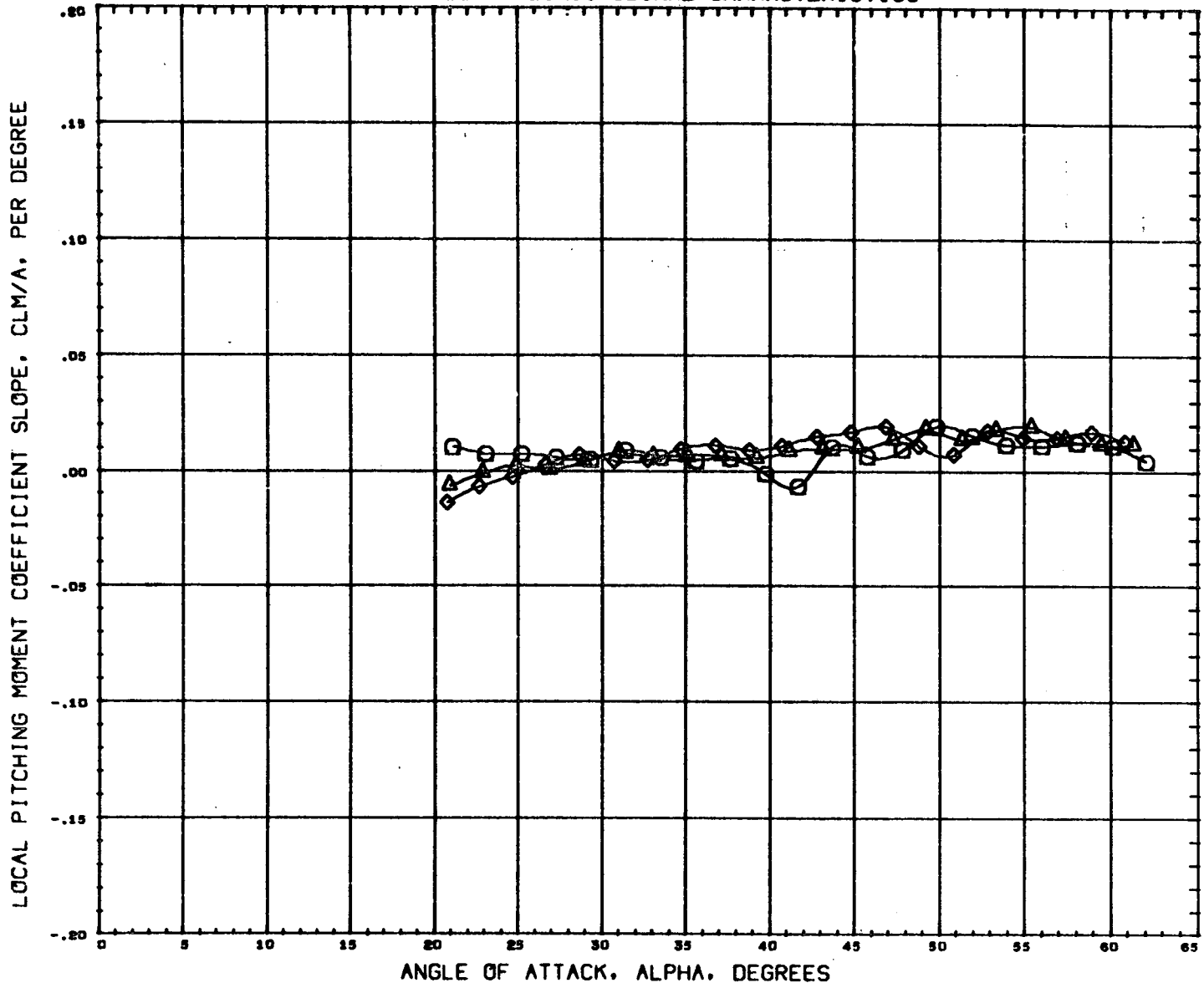
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS

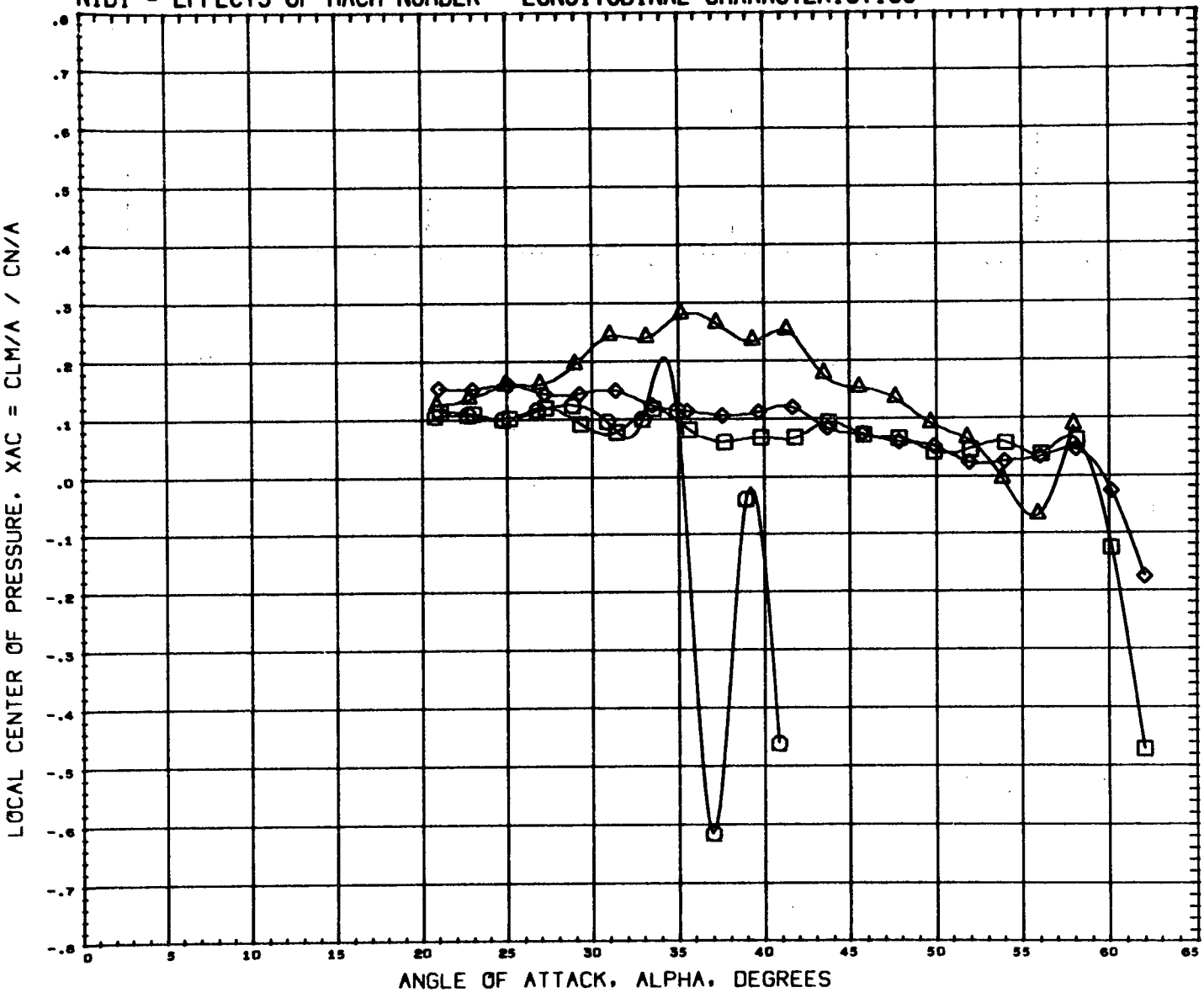


SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



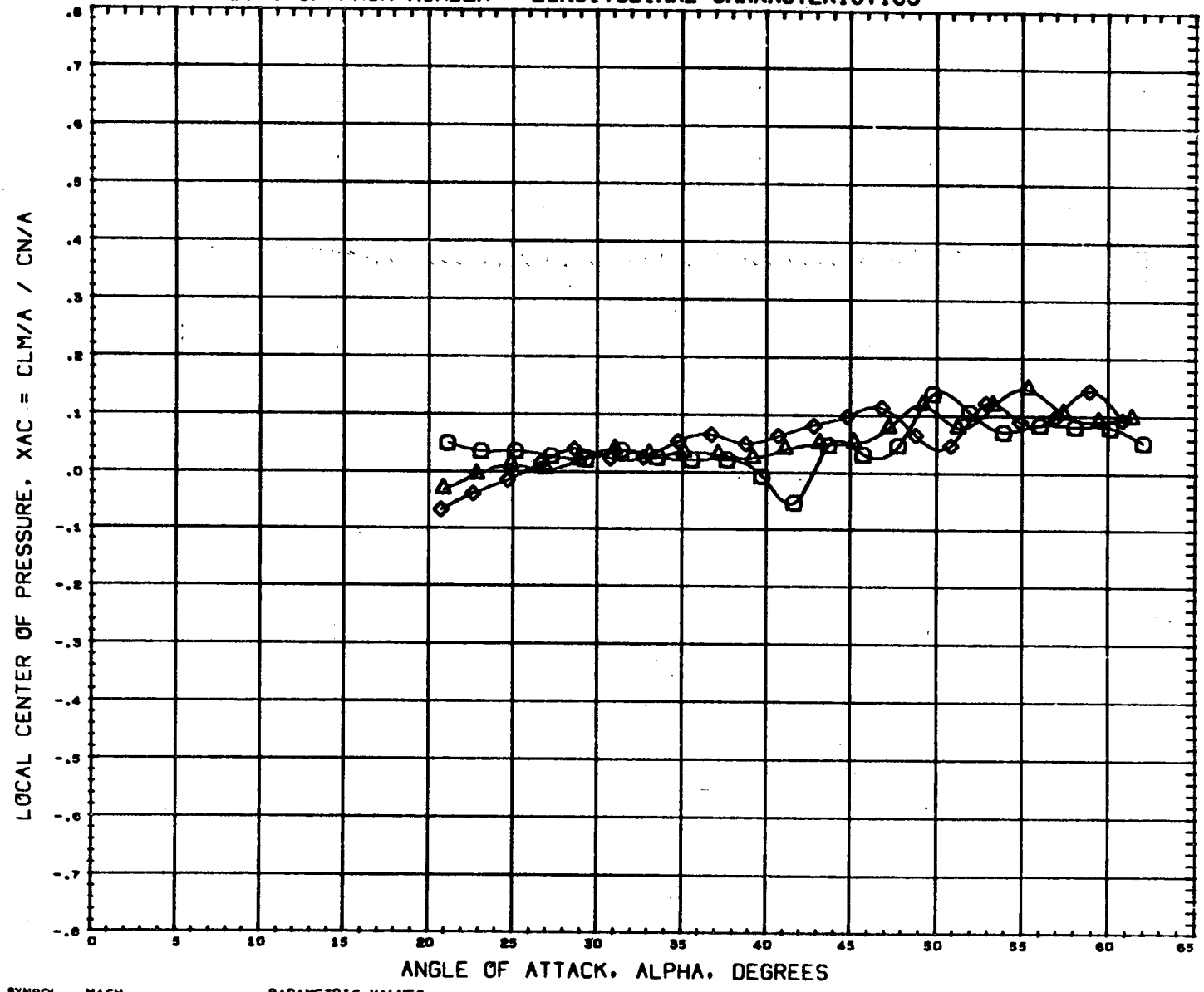
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE SGC*G*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



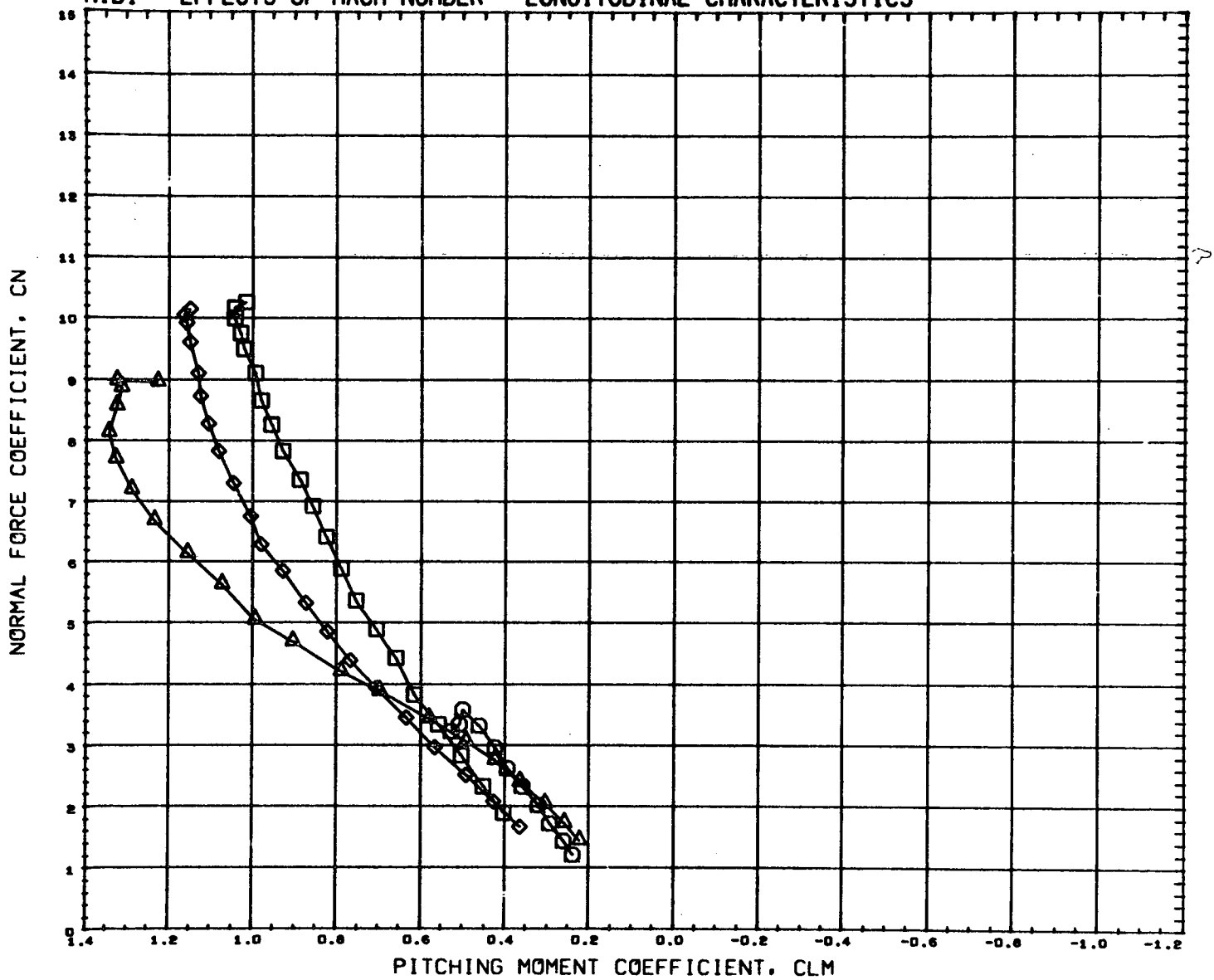
SYMBOL	MACH		PARAMETRIC VALUES
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE 8GC0G0G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



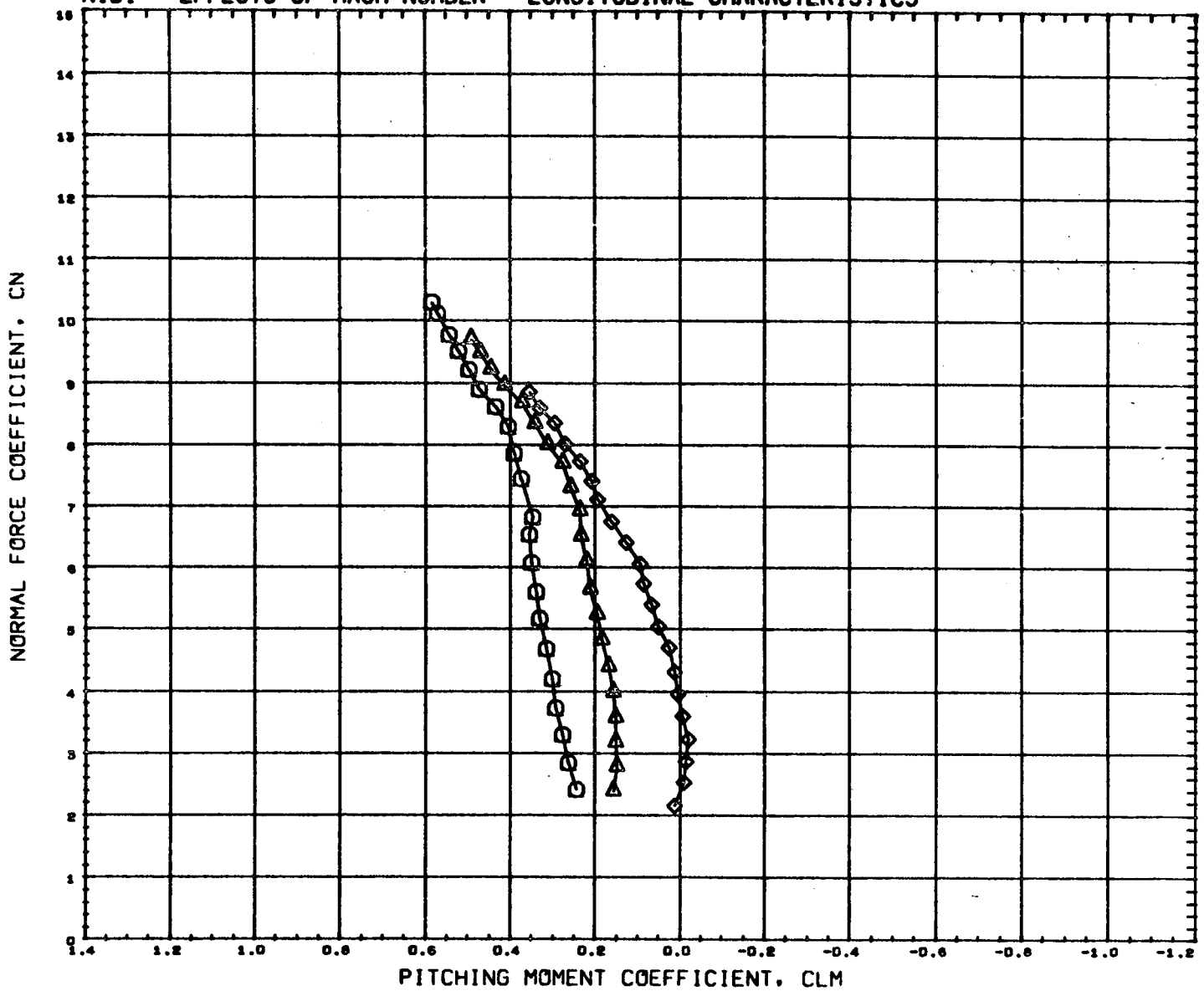
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.600	BETA	0.000
△	0.899		
◇	1.101		
□	1.200		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

N1B1 - EFFECTS OF MACH NUMBER - LONGITUDINAL CHARACTERISTICS



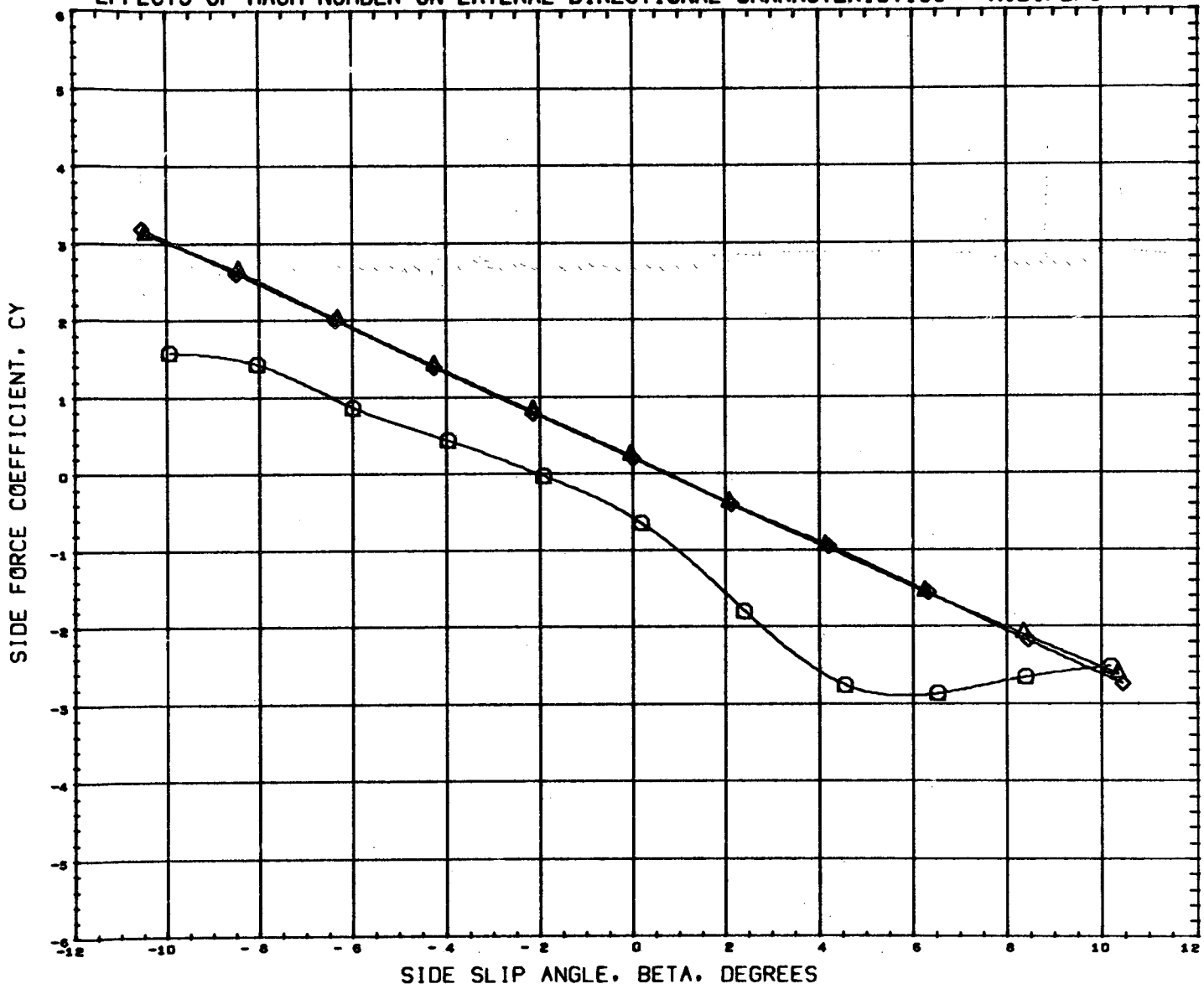
SYMBOL	MACH	PARAMETRIC VALUES	
○	1.961	BETA	0.000
△	2.740		
◇	4.959		

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3



SYMBOL	MACH
○	0.602
△	0.900
◇	1.198

PARAMETRIC VALUES

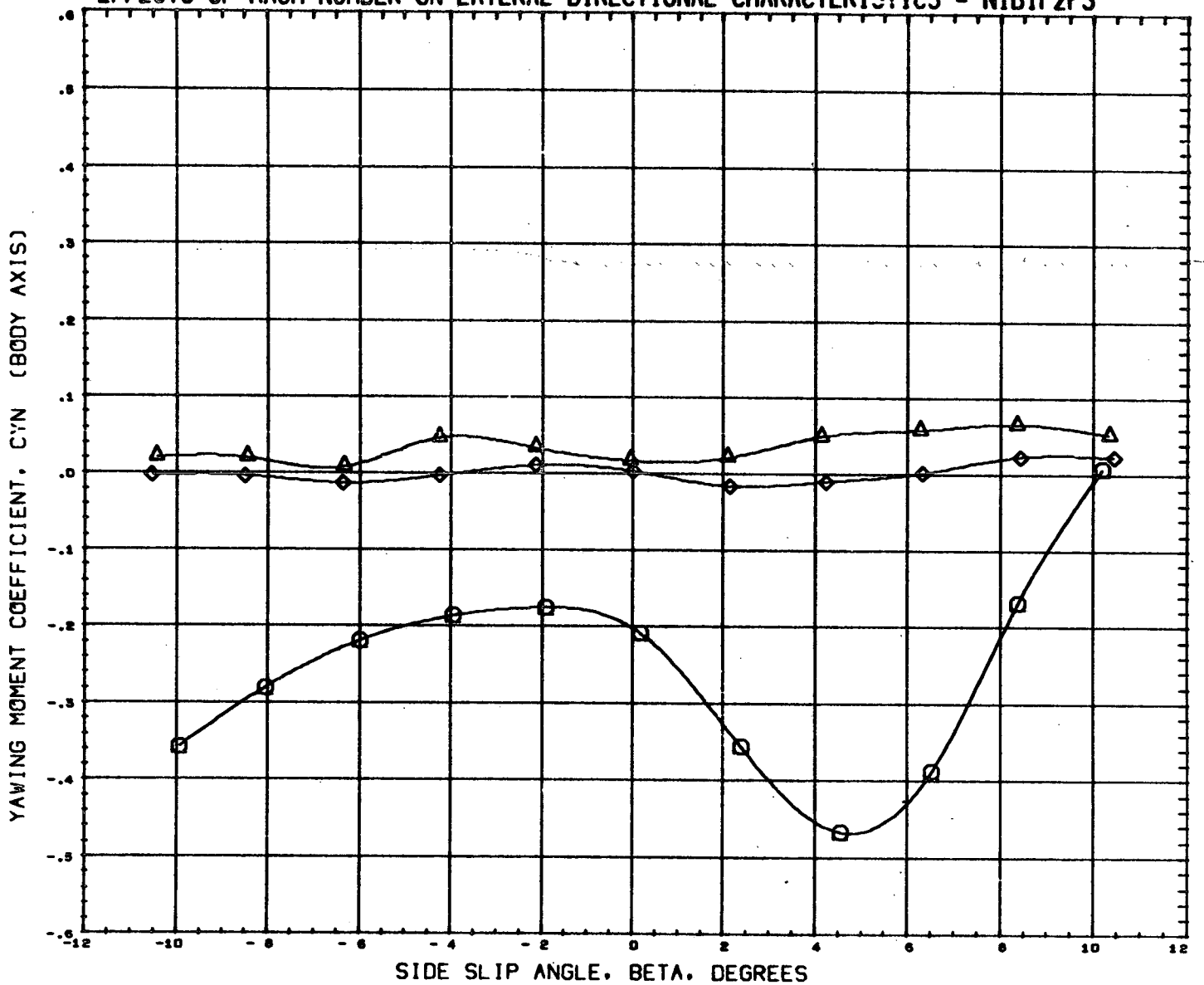
ALPHA 30.000 DIHDRL 30.000

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3

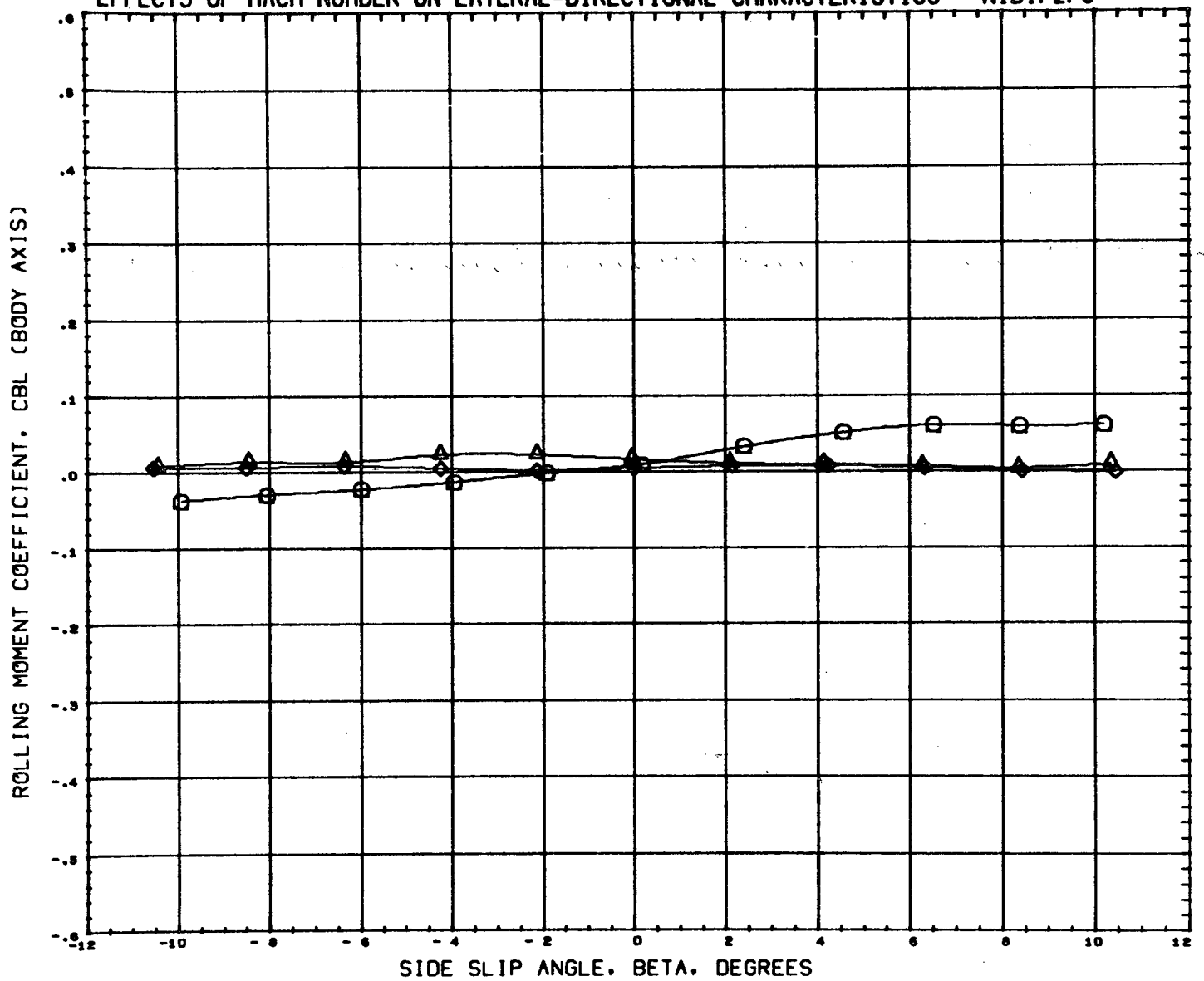


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.602	ALPHA	30.000	DIHDRL	30.000
△	0.900				
◇	1.198				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3



SYMBOL	MACH
▽	0.602
△	0.900
◇	1.198

PARAMETRIC VALUES

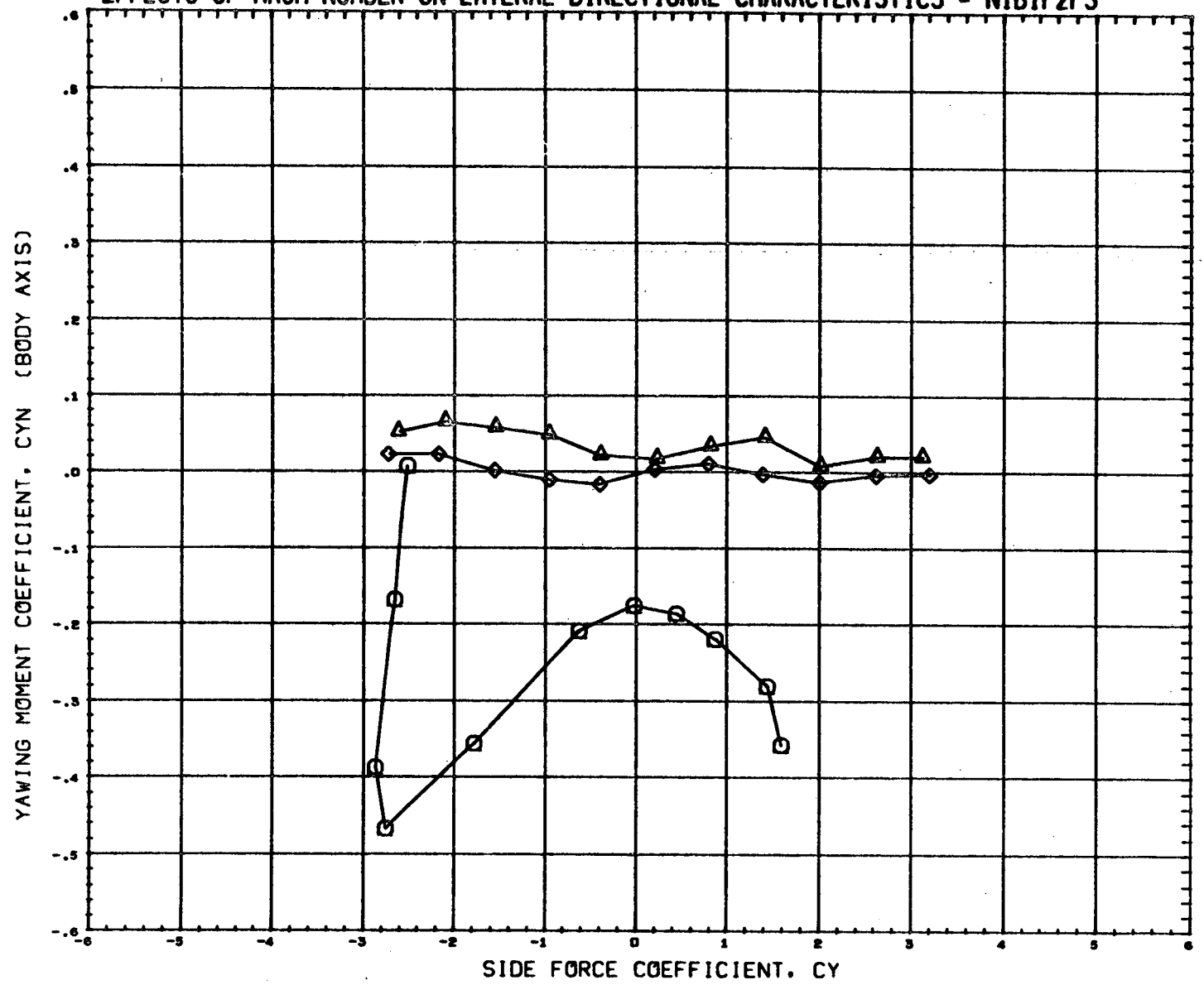
ALPHA 30.000 DIHDRL 30.000

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3

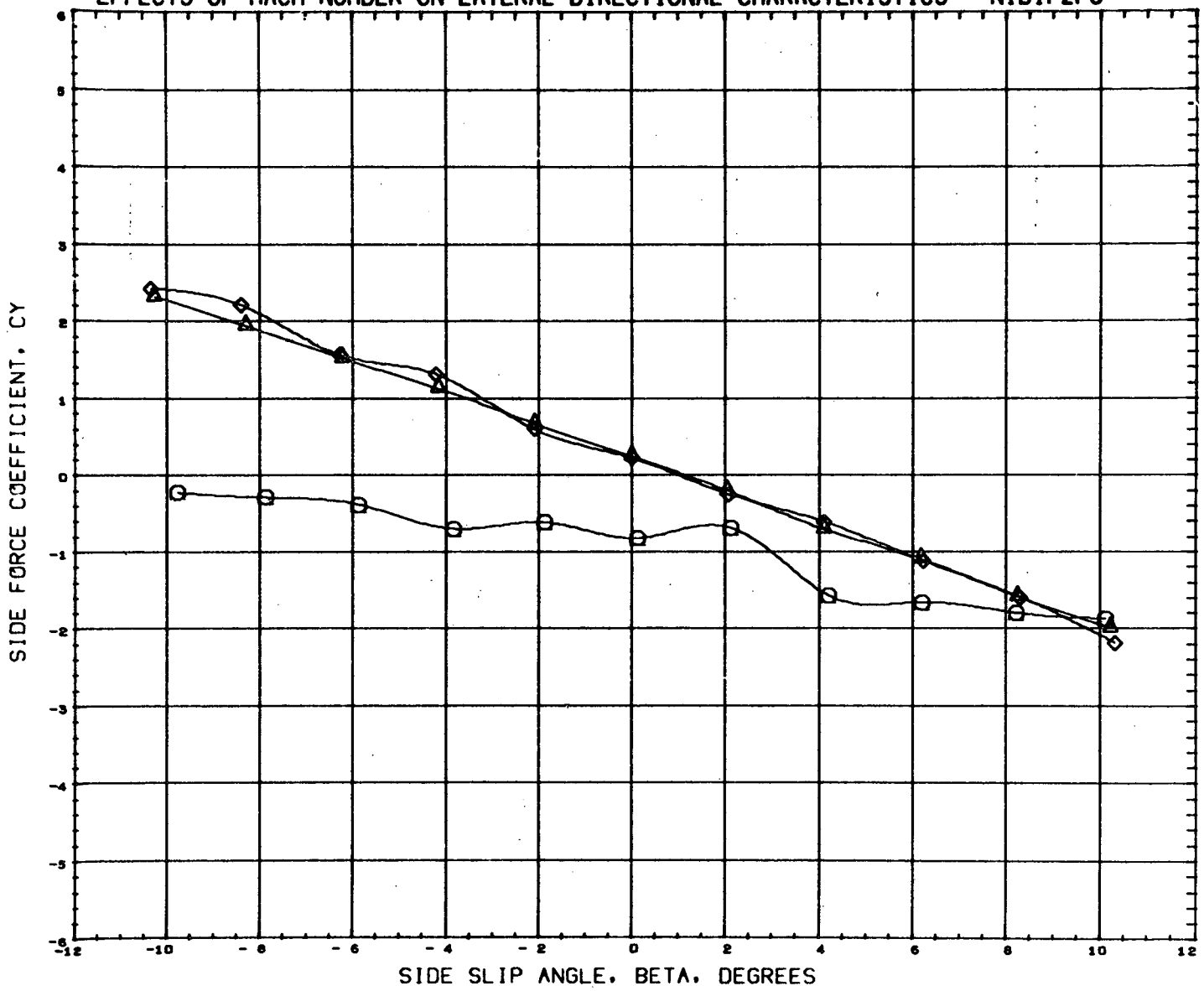


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.602	ALPHA	30.000	DIHDRL	30.000
△	0.900				
◇	1.198				

DATA HIST. CODE 8

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3

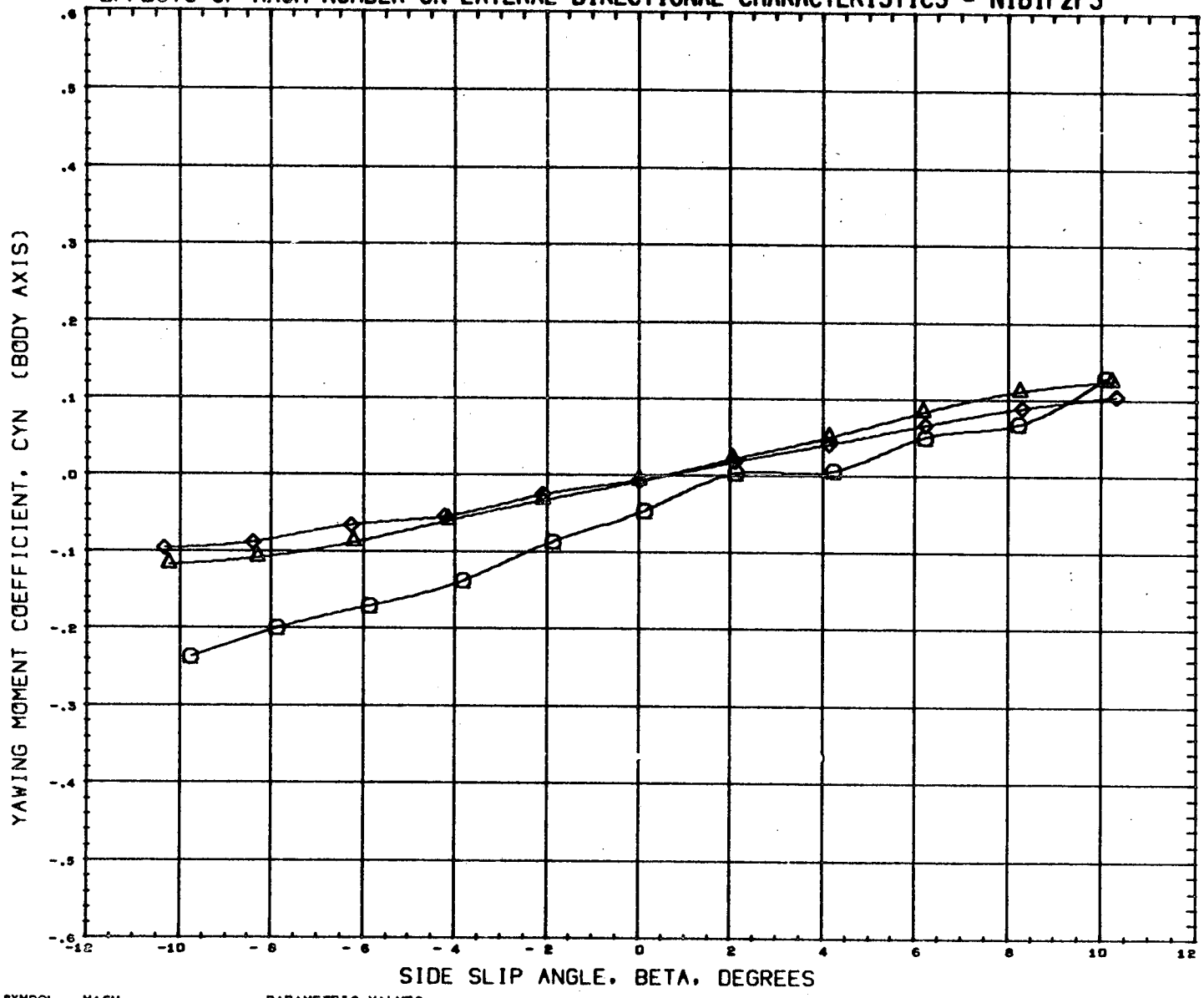


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.600	ALPHA	50.000	DIHDRL	30.000
△	0.901				
◇	1.200				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3

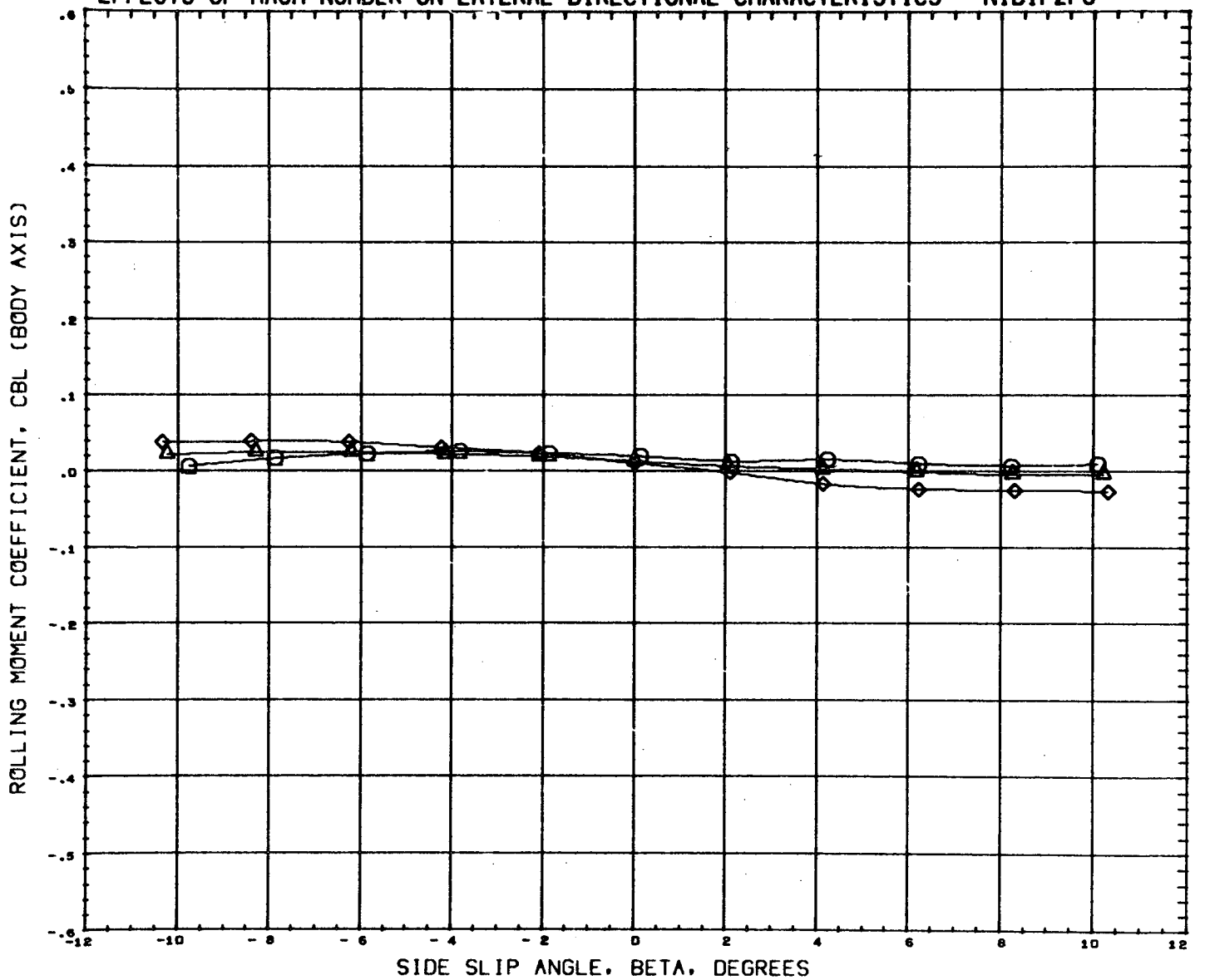


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.600	ALPHA	50.000	DIHDRL	30.000
△	0.901				
◇	1.200				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3



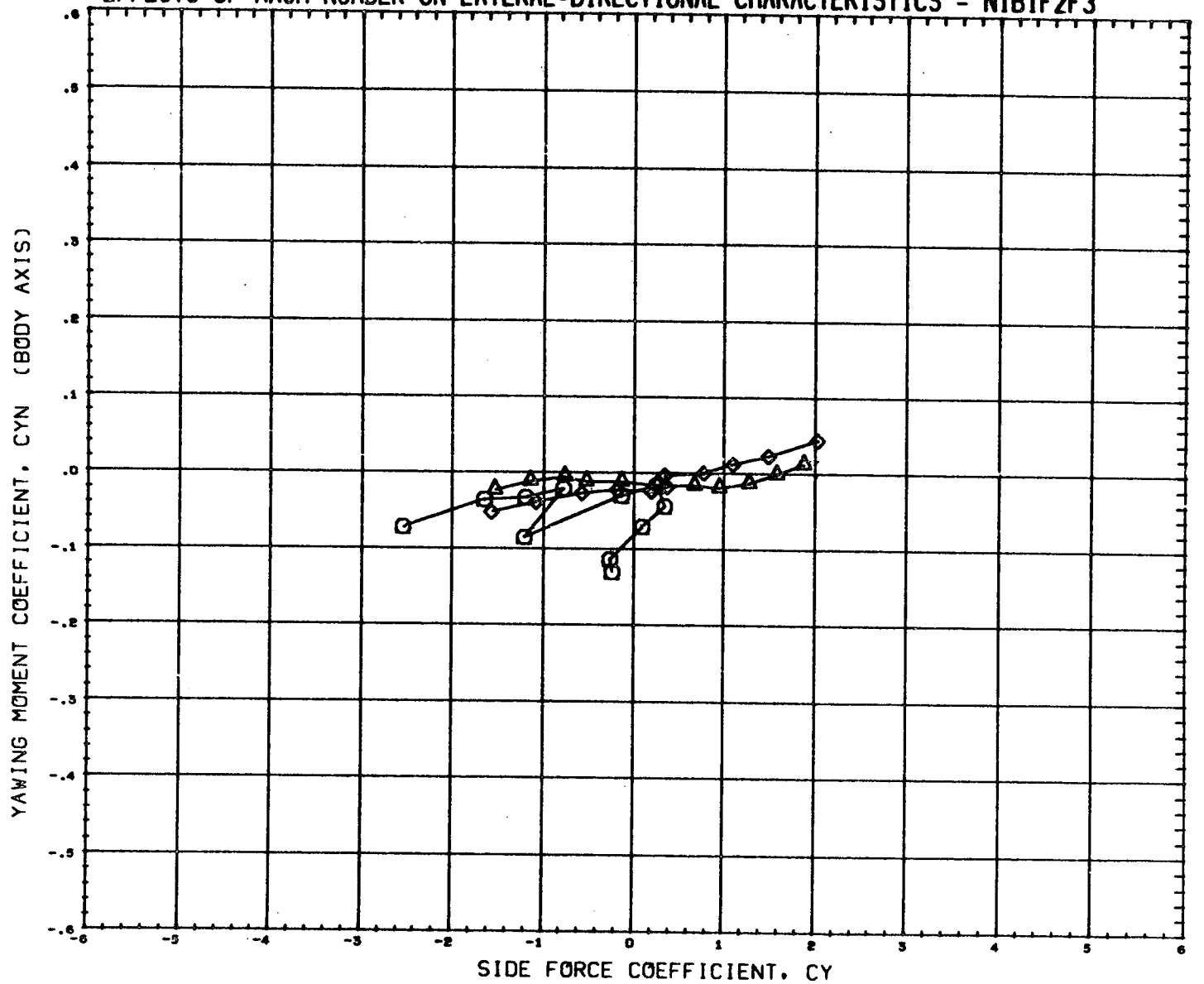
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.600	ALPHA	50.000	DIHDRL	30.000
△	0.901				
◇	1.200				

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER ON LATERAL-DIRECTIONAL CHARACTERISTICS - N1B1F2F3



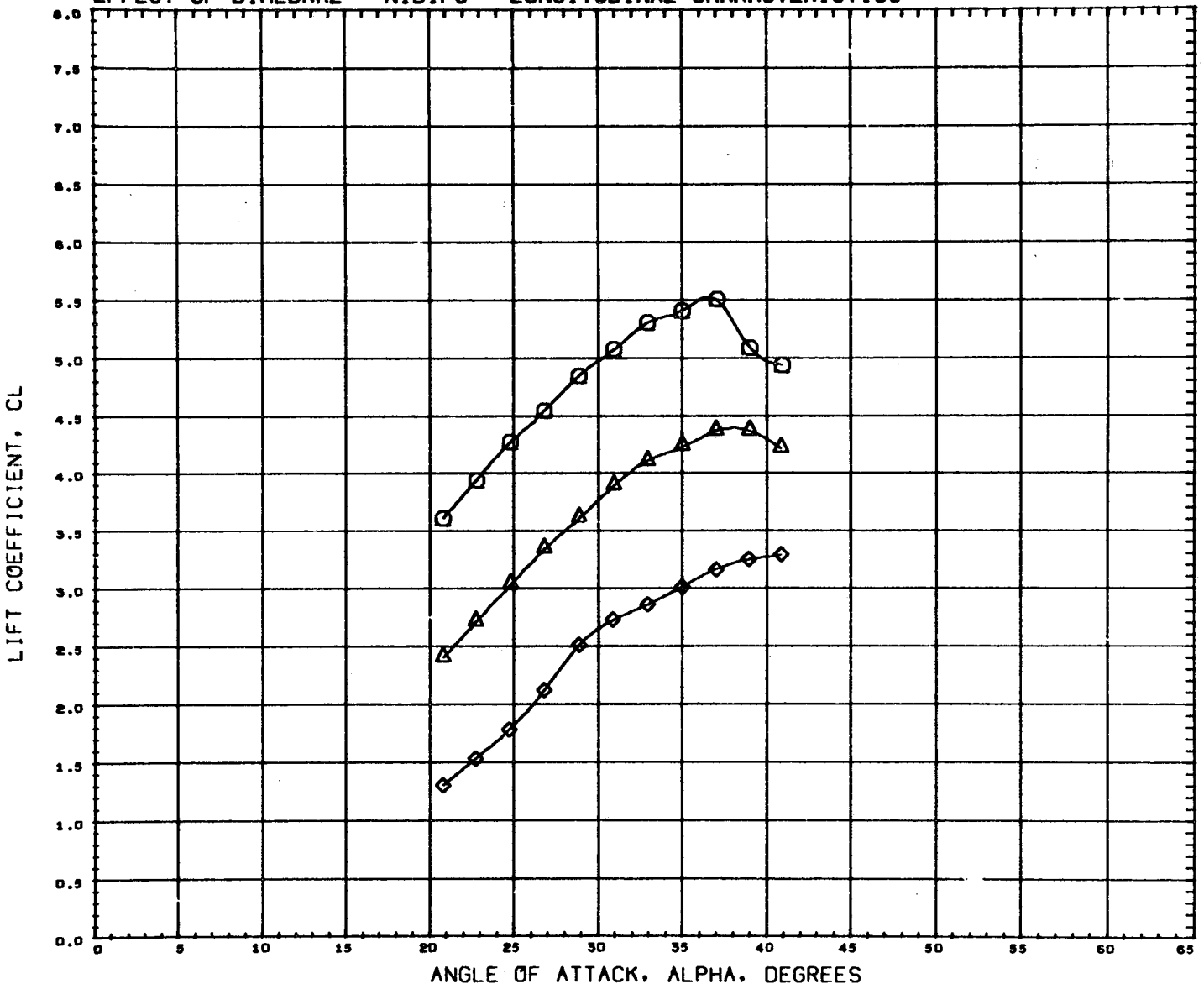
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.603	ALPHA	30.000	DIHDRL	30.000
△	0.902				
◇	1.201				

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



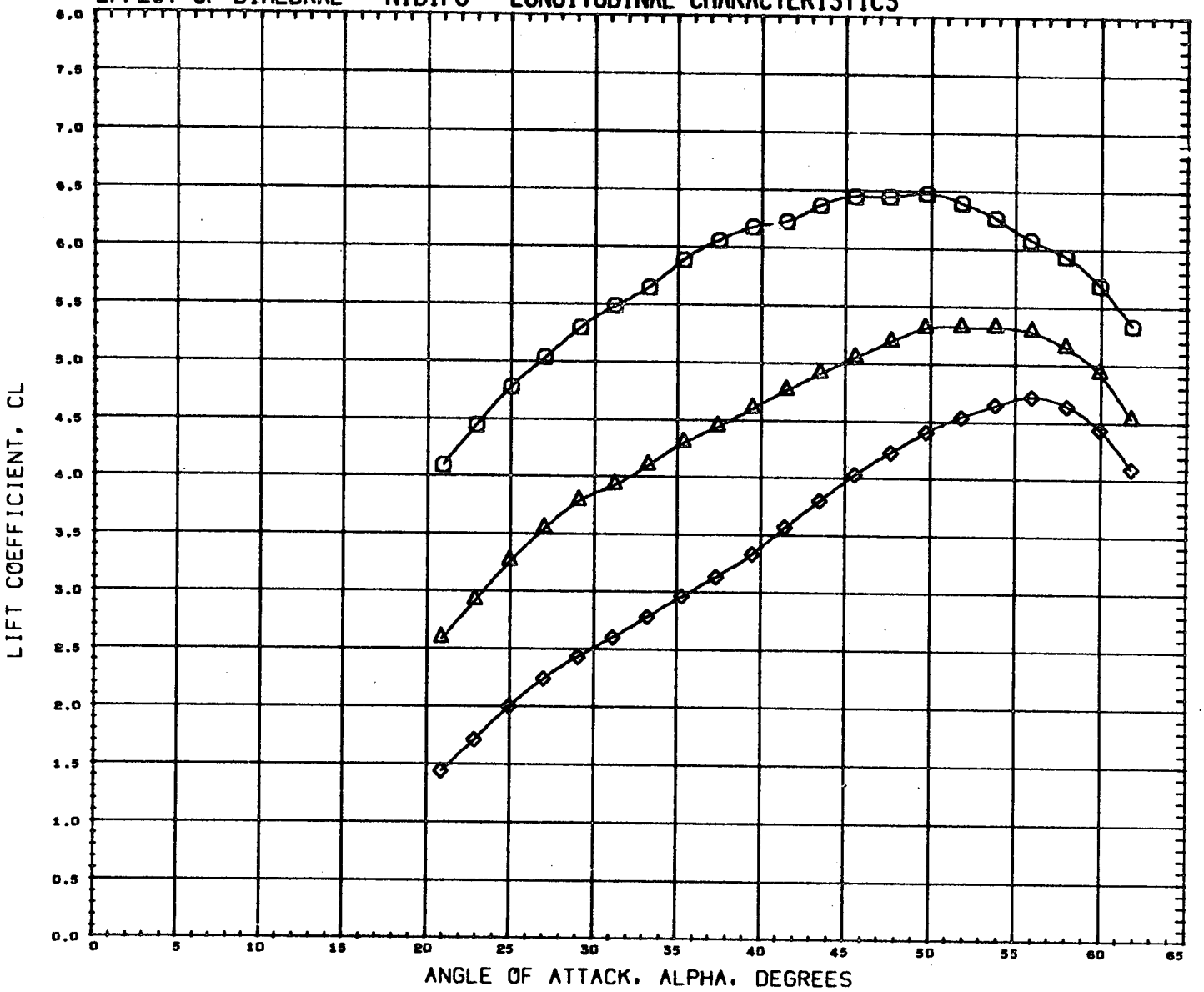
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



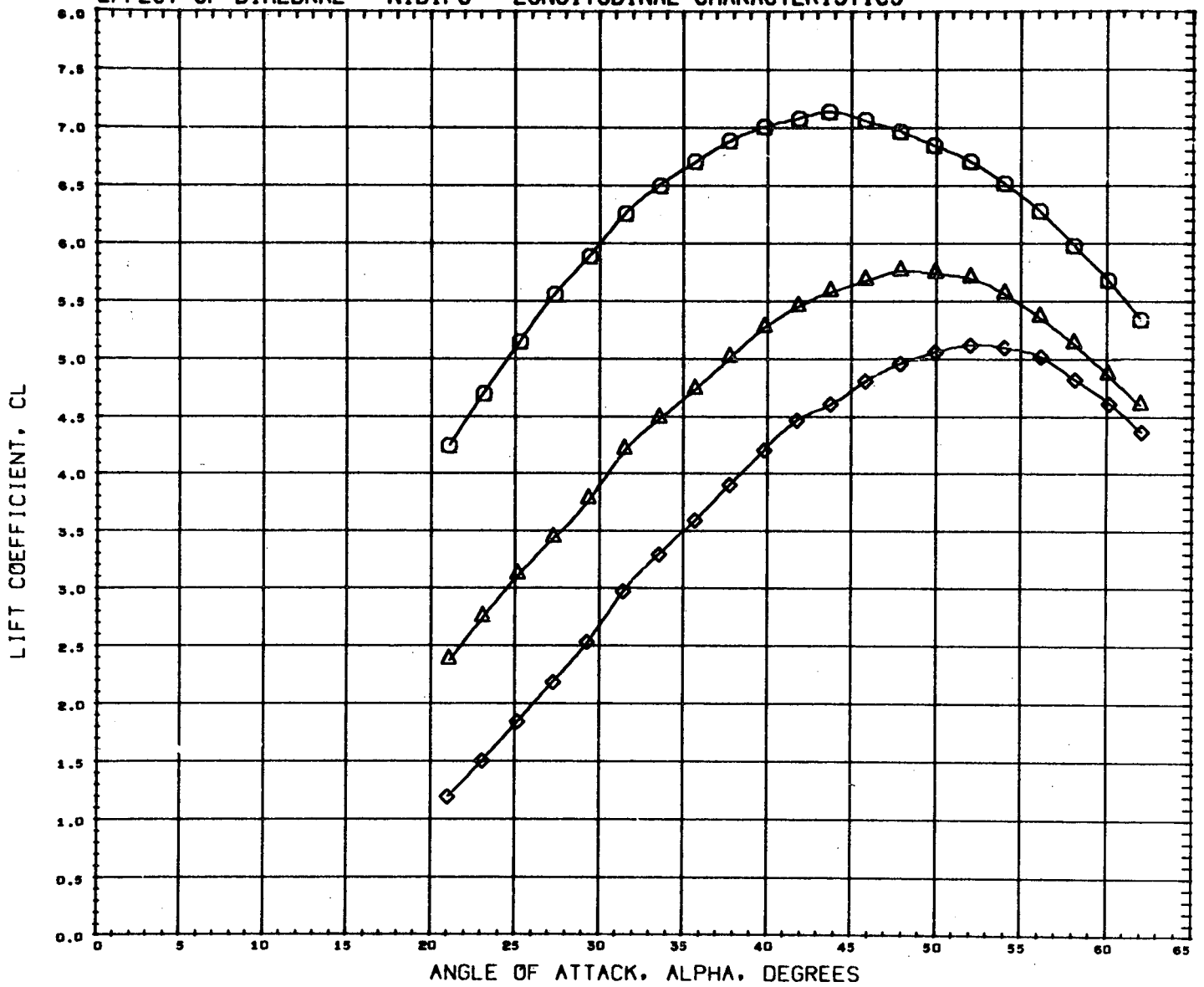
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.699

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



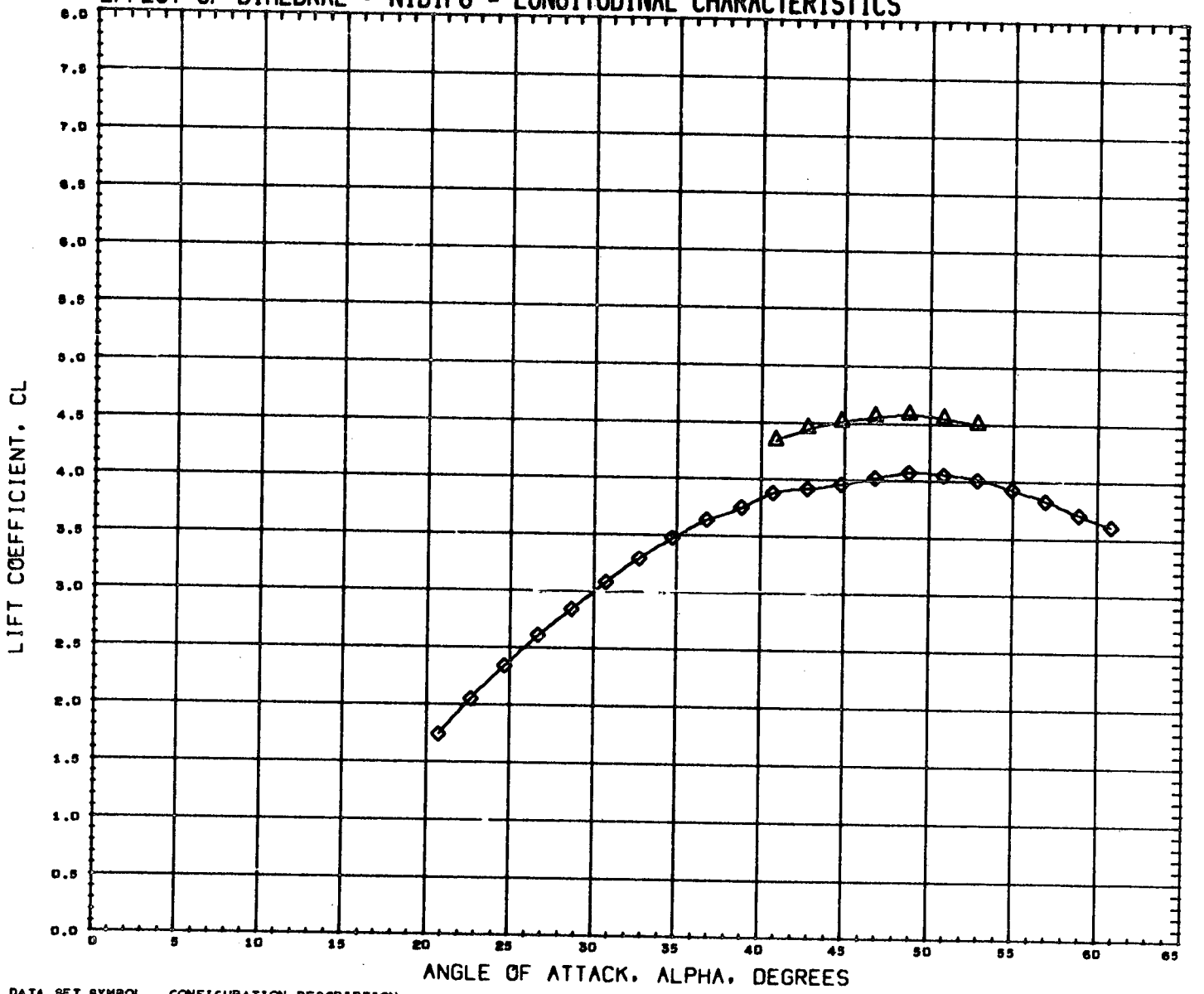
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



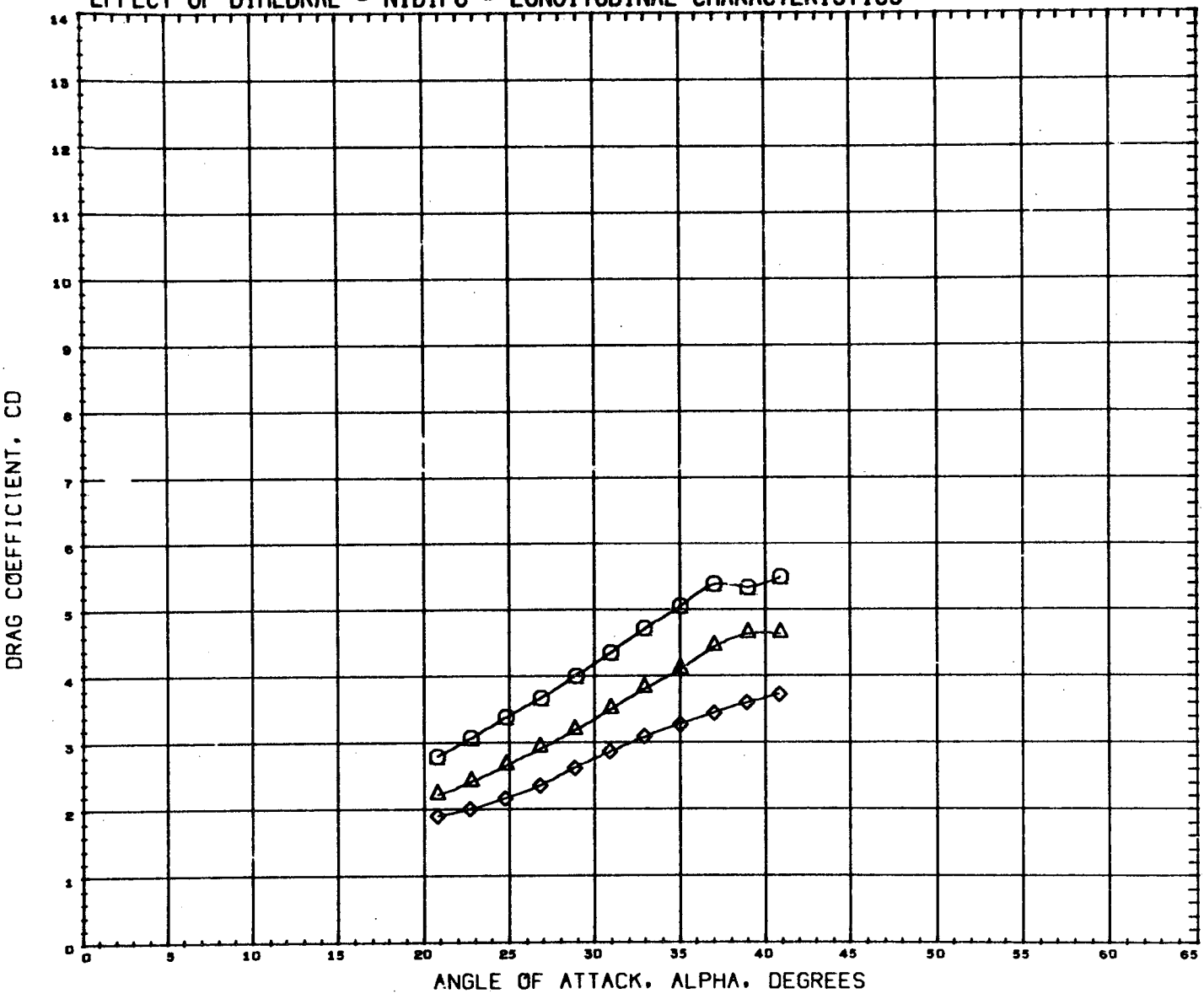
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(154914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS		
(154907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(054921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
			0.000	45.000

MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

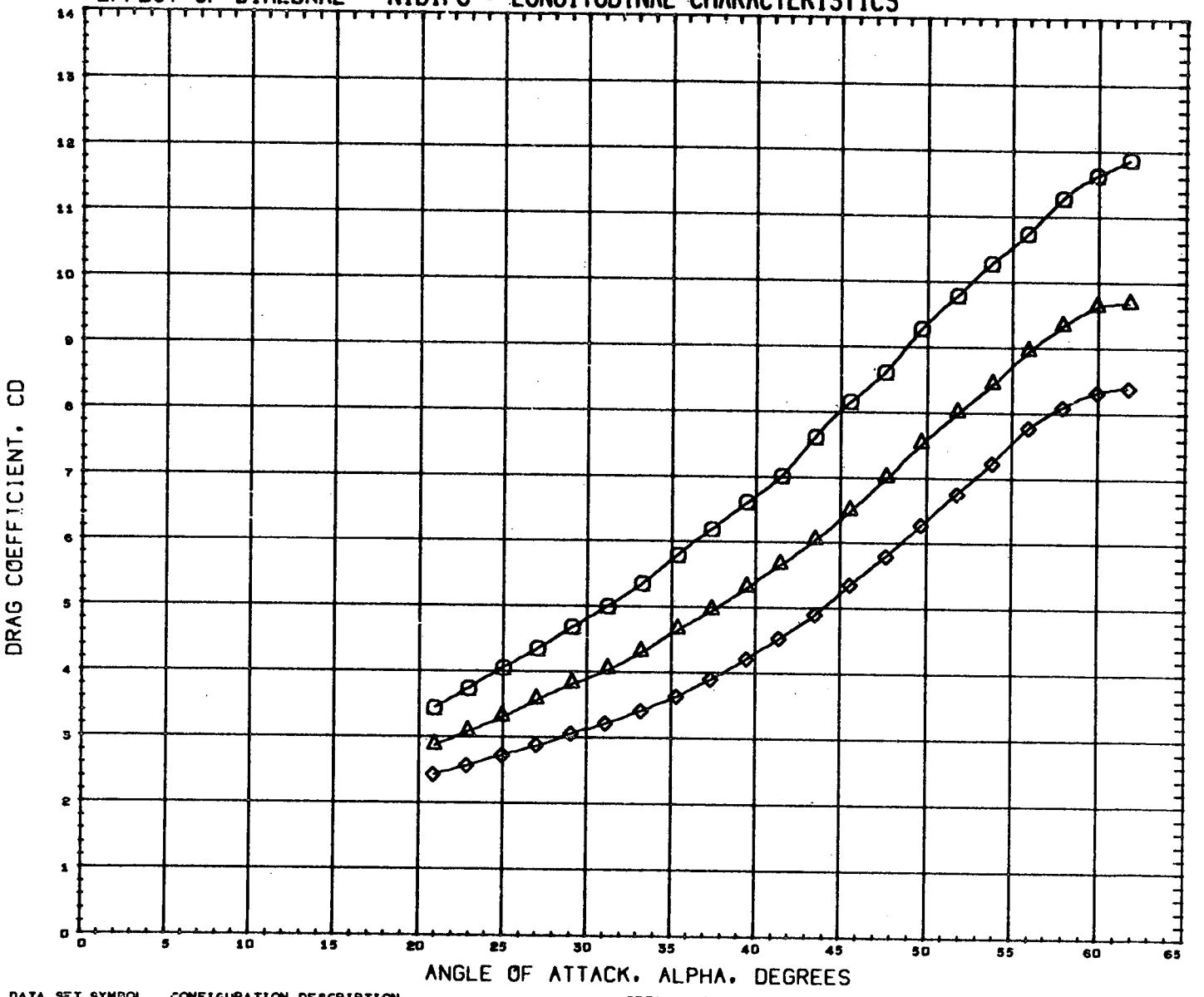


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(154914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



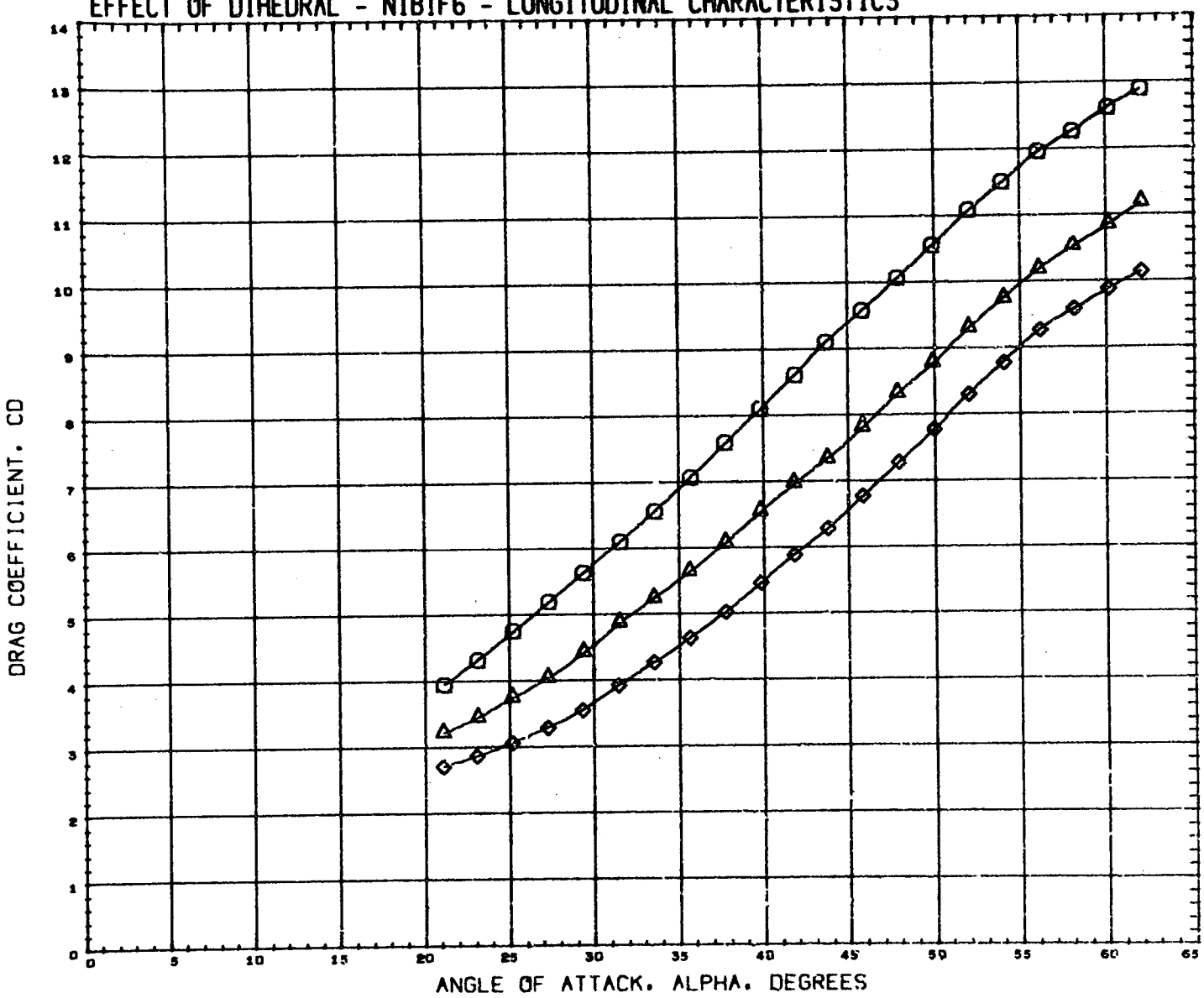
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(154914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



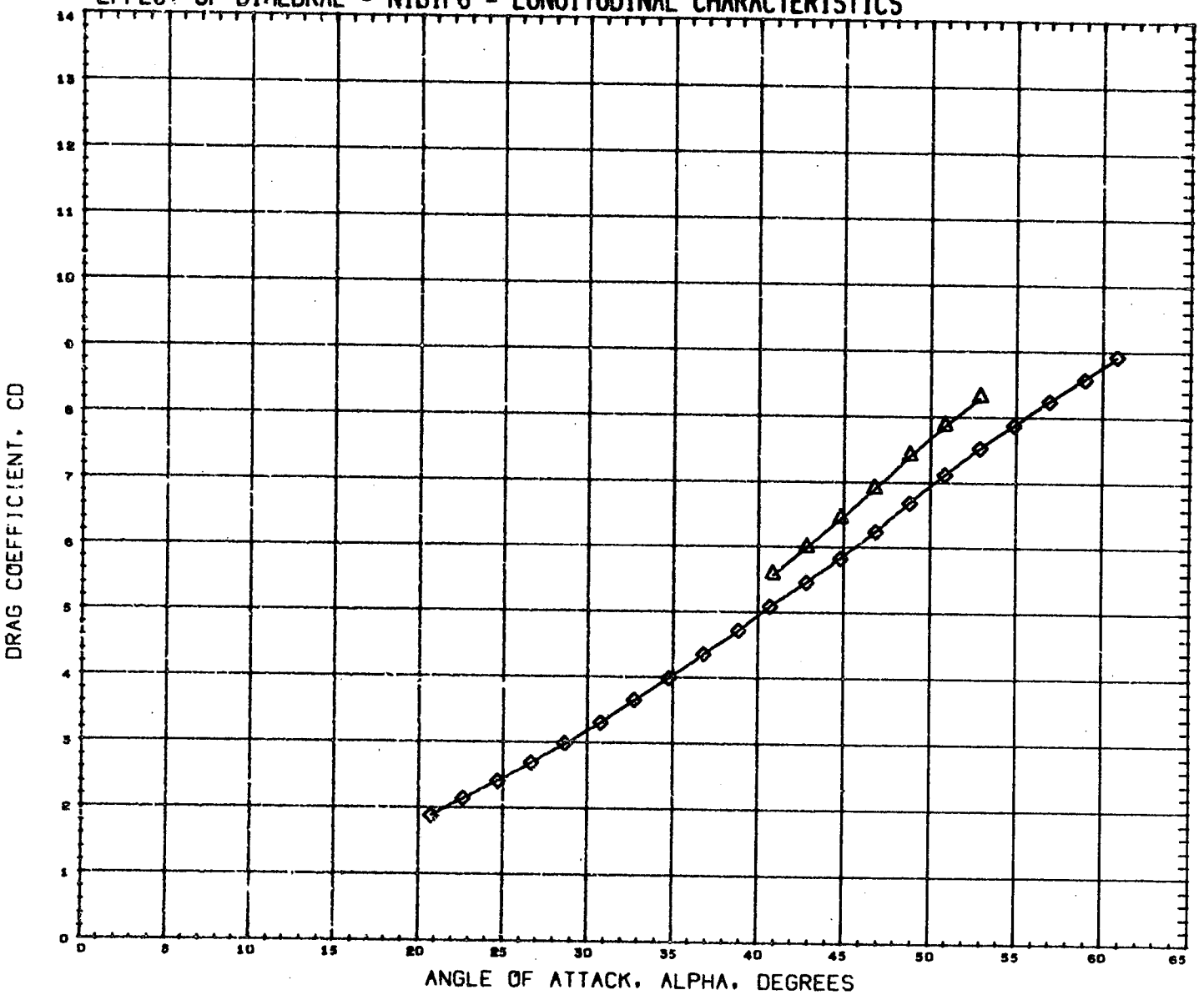
DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

MACH 1.198

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



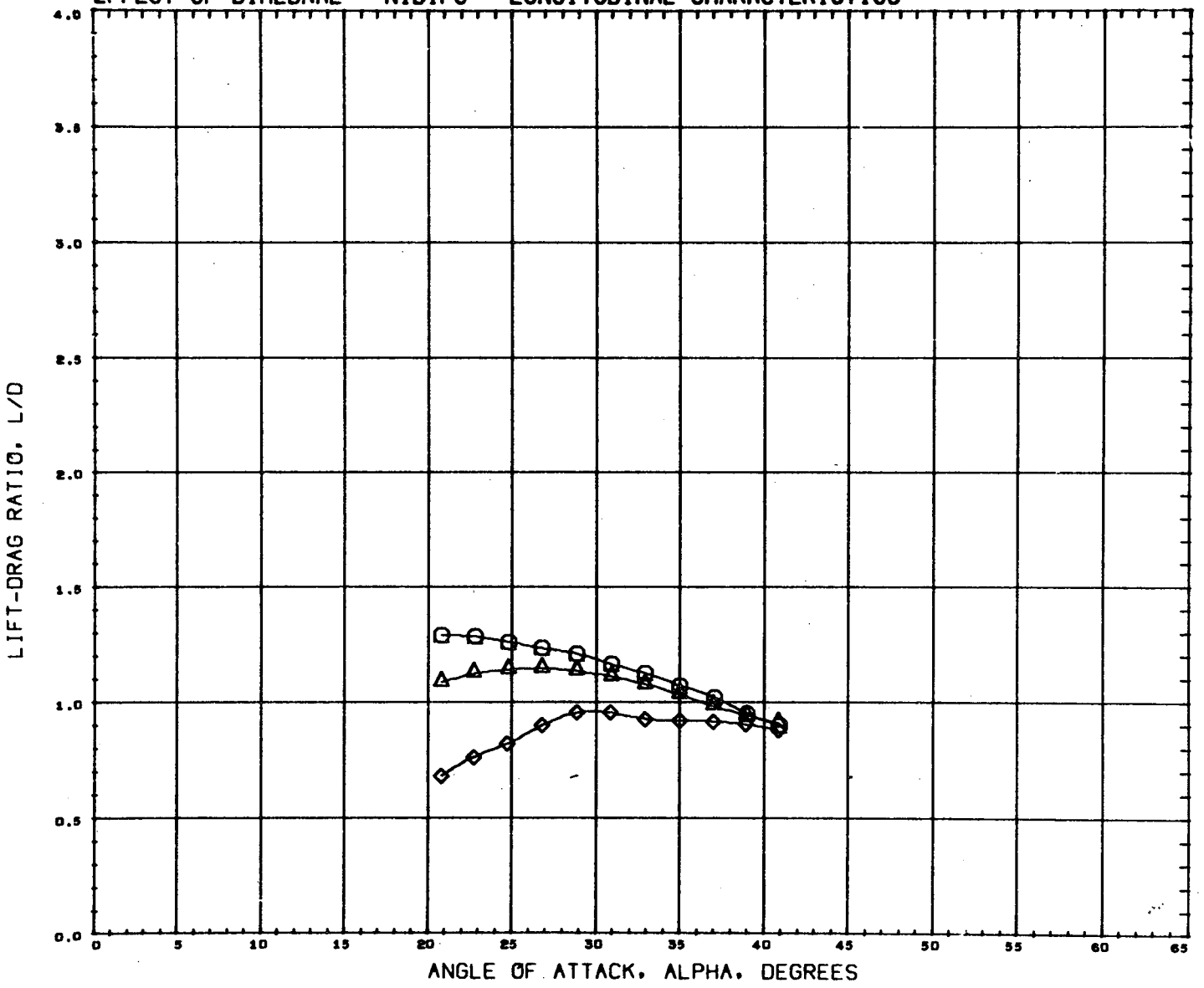
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

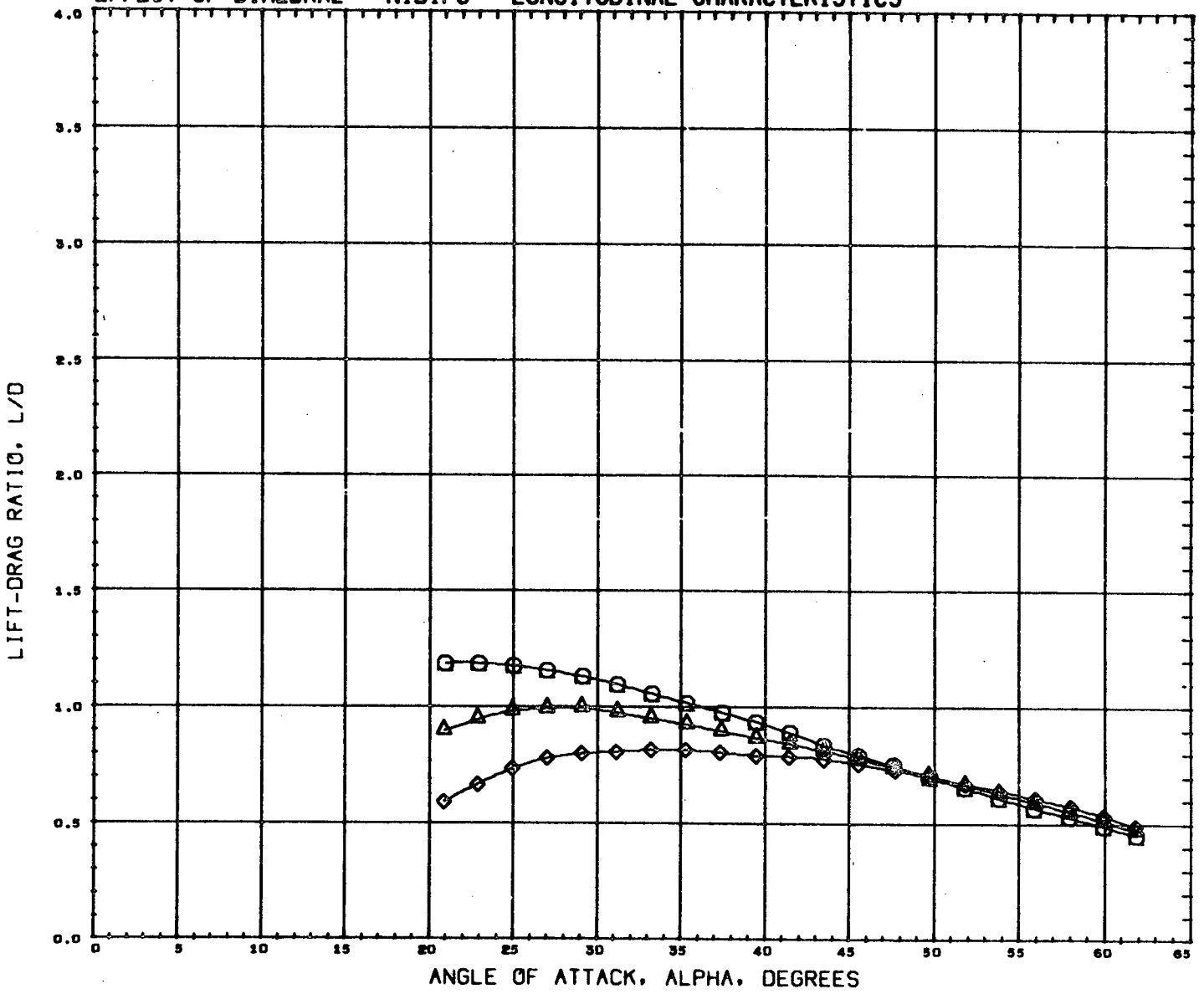


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(154914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(154907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(054921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



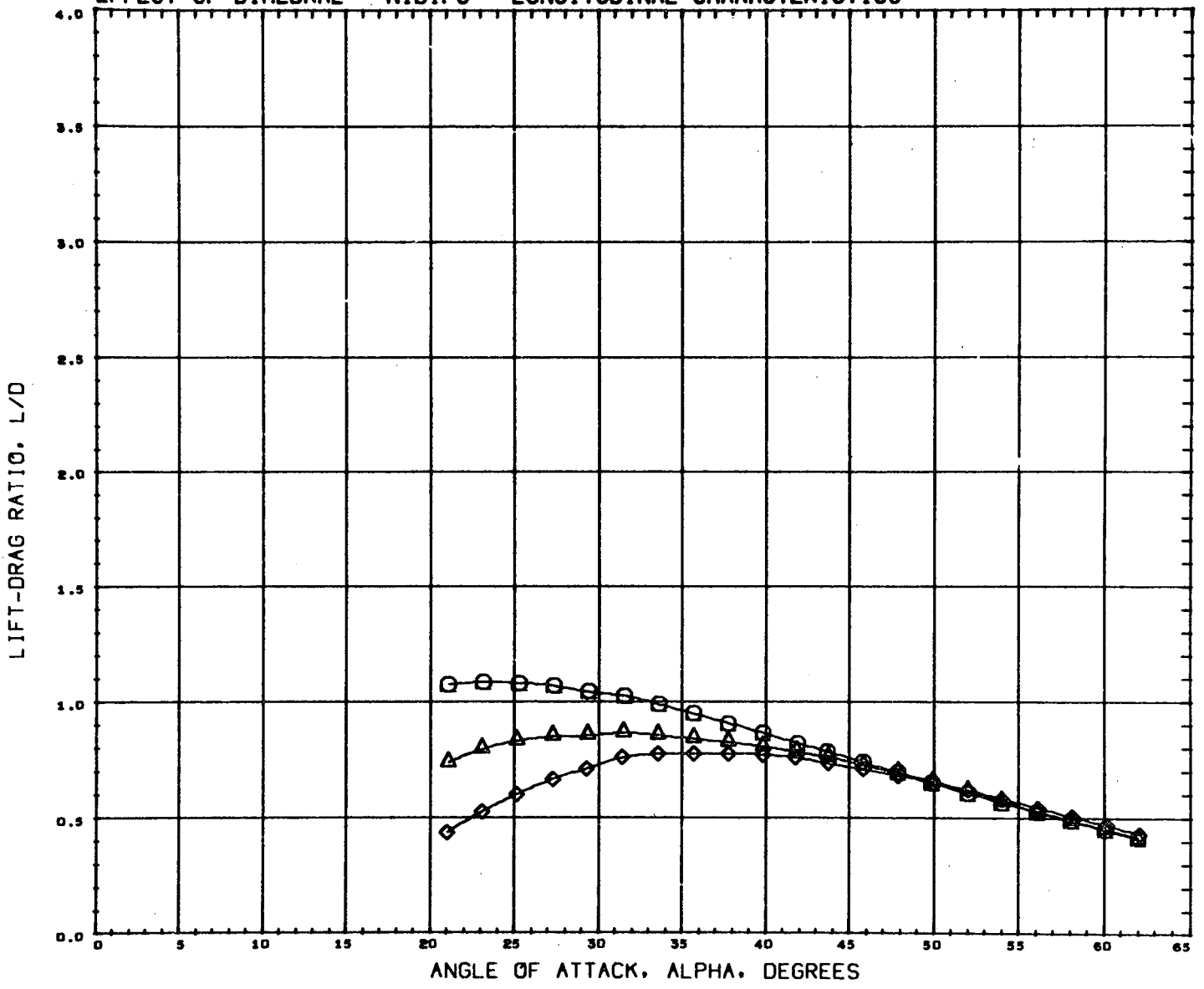
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.699

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

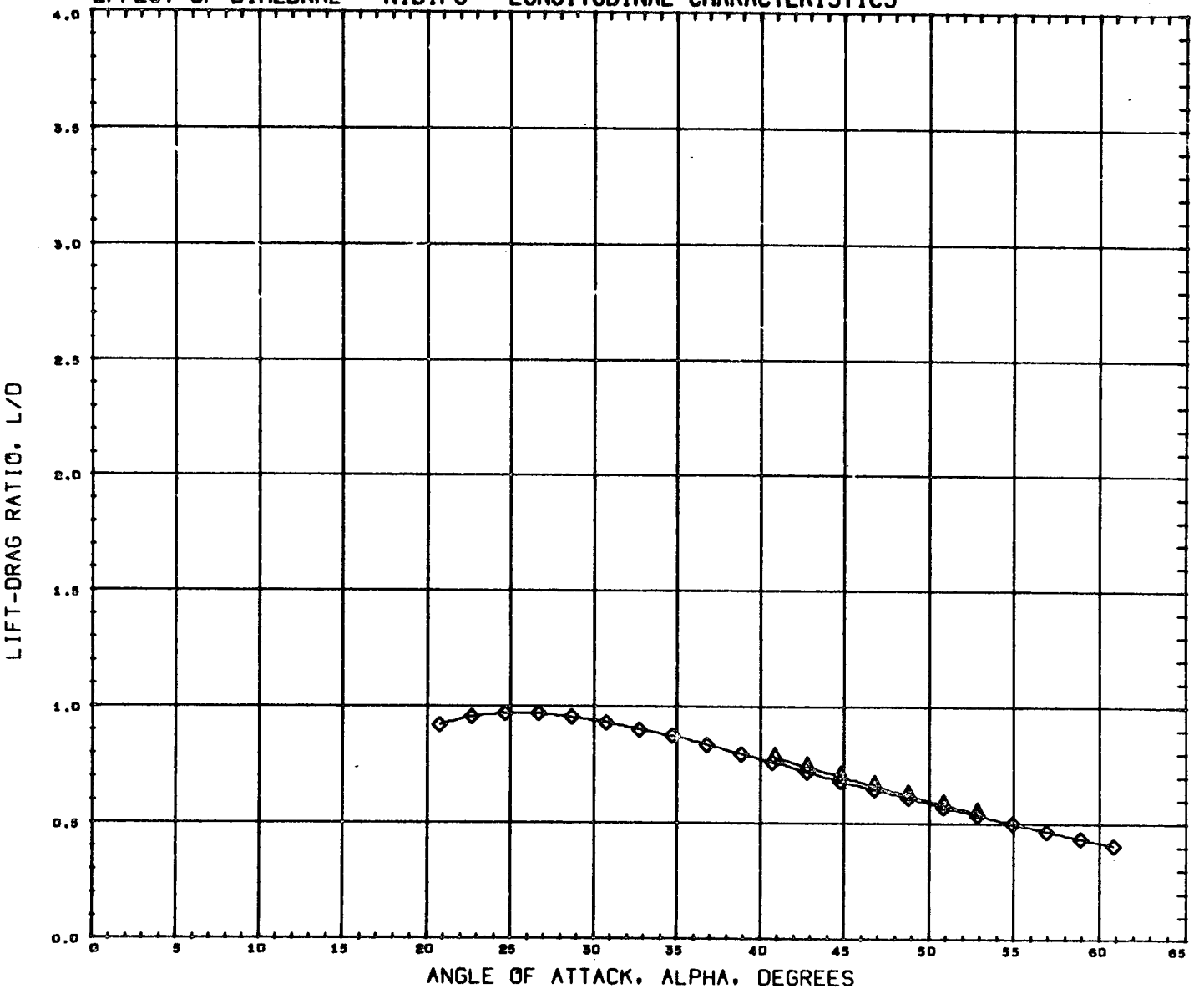


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
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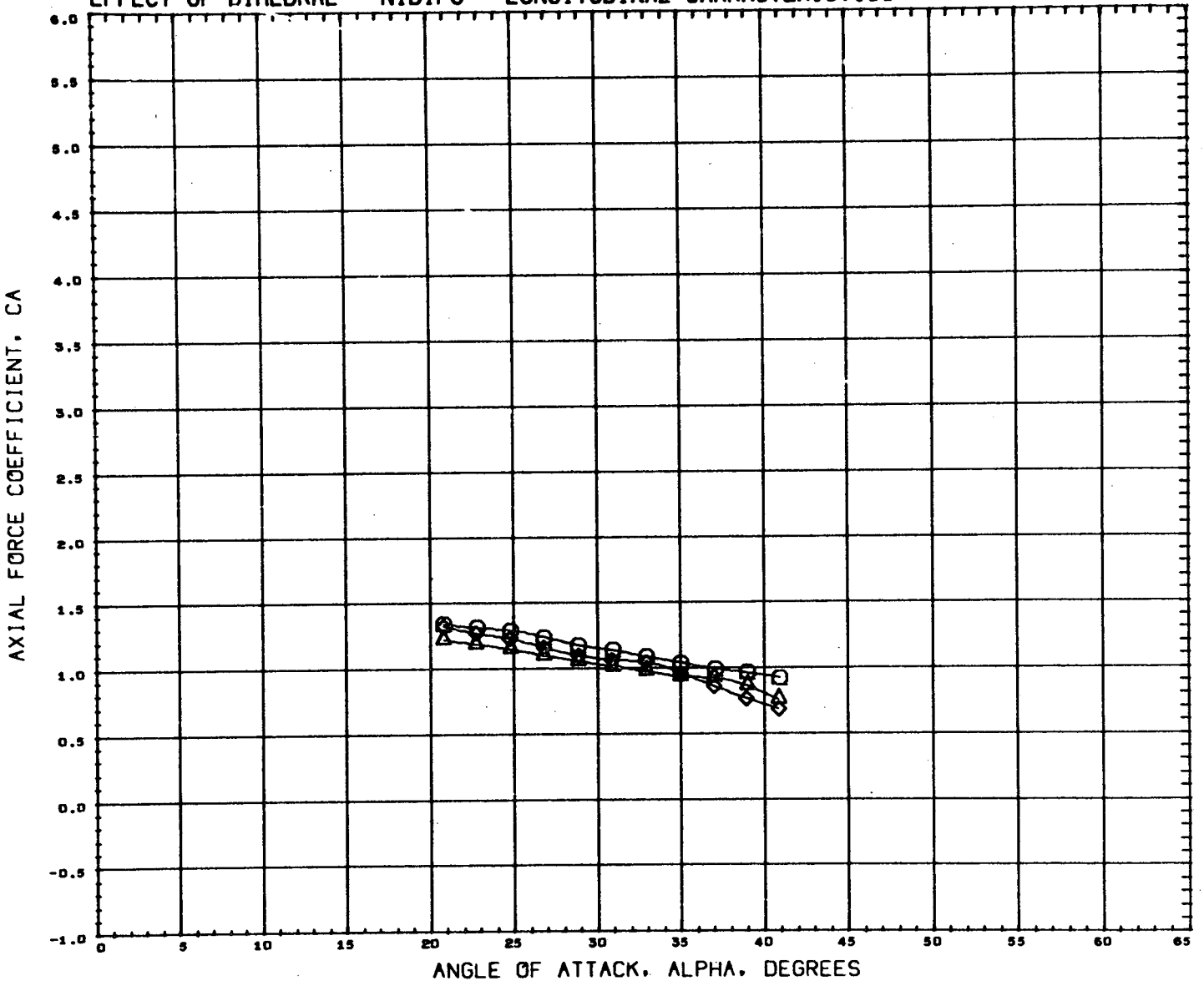
(I54007)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54021)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

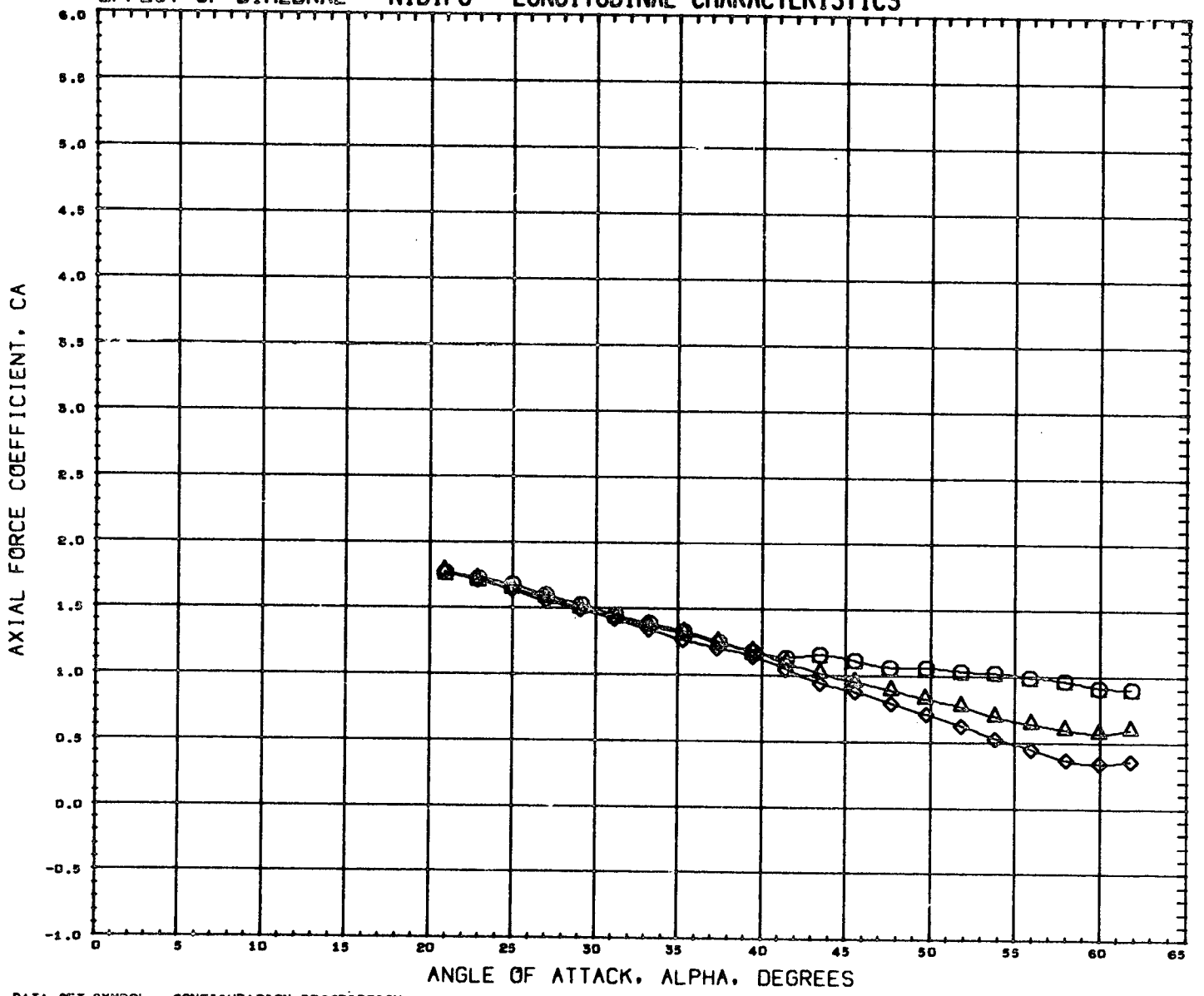


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

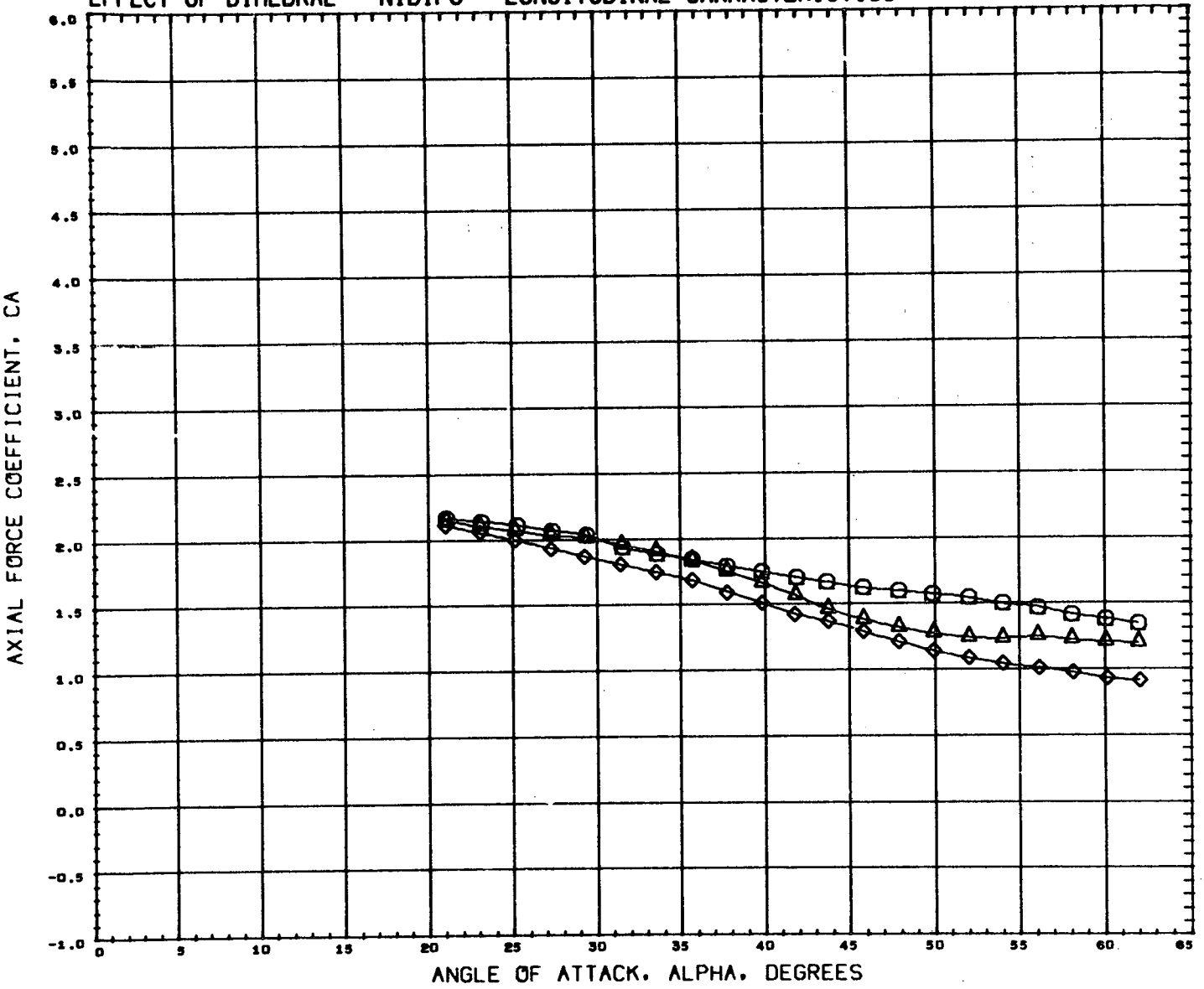


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O34921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

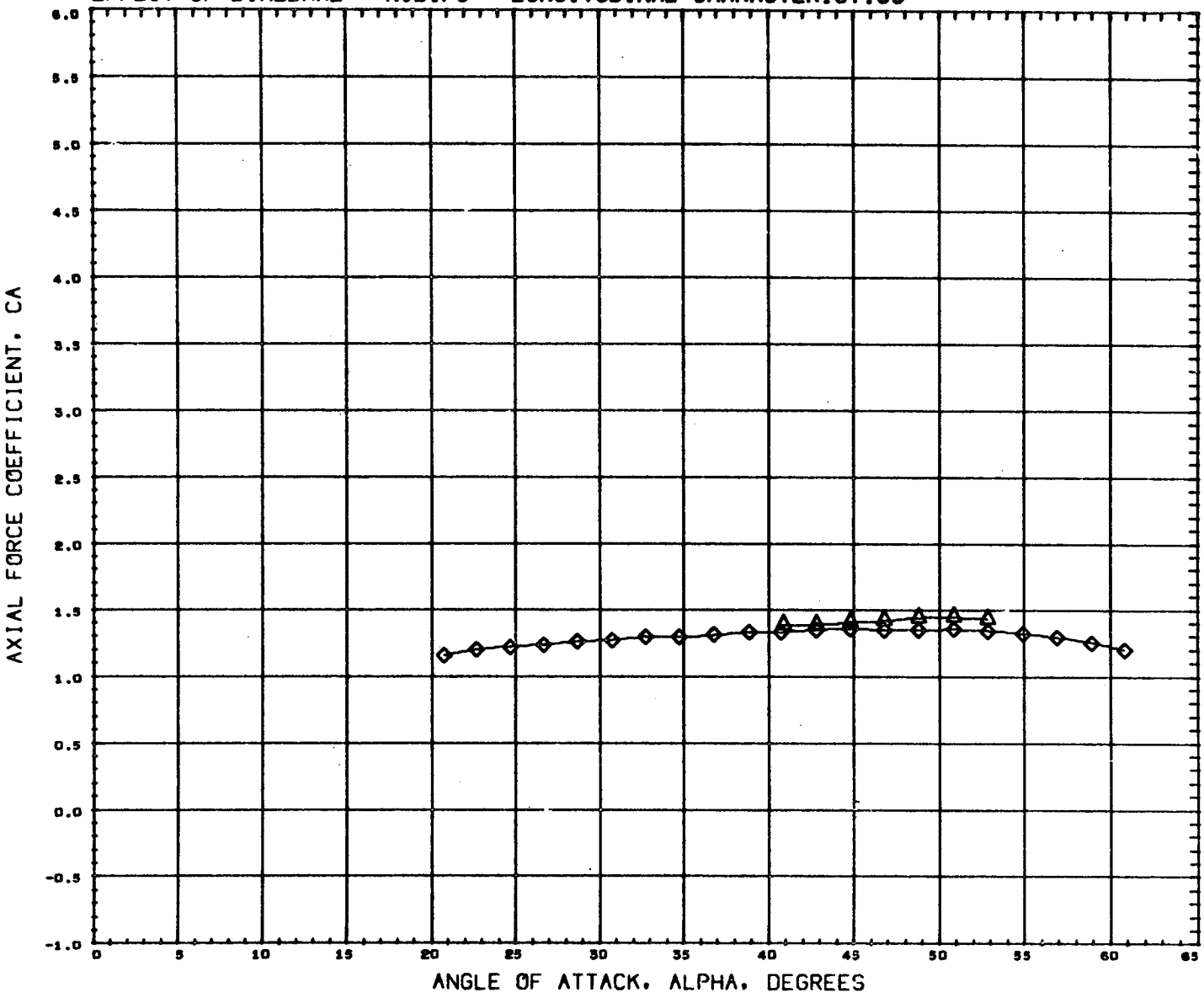


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

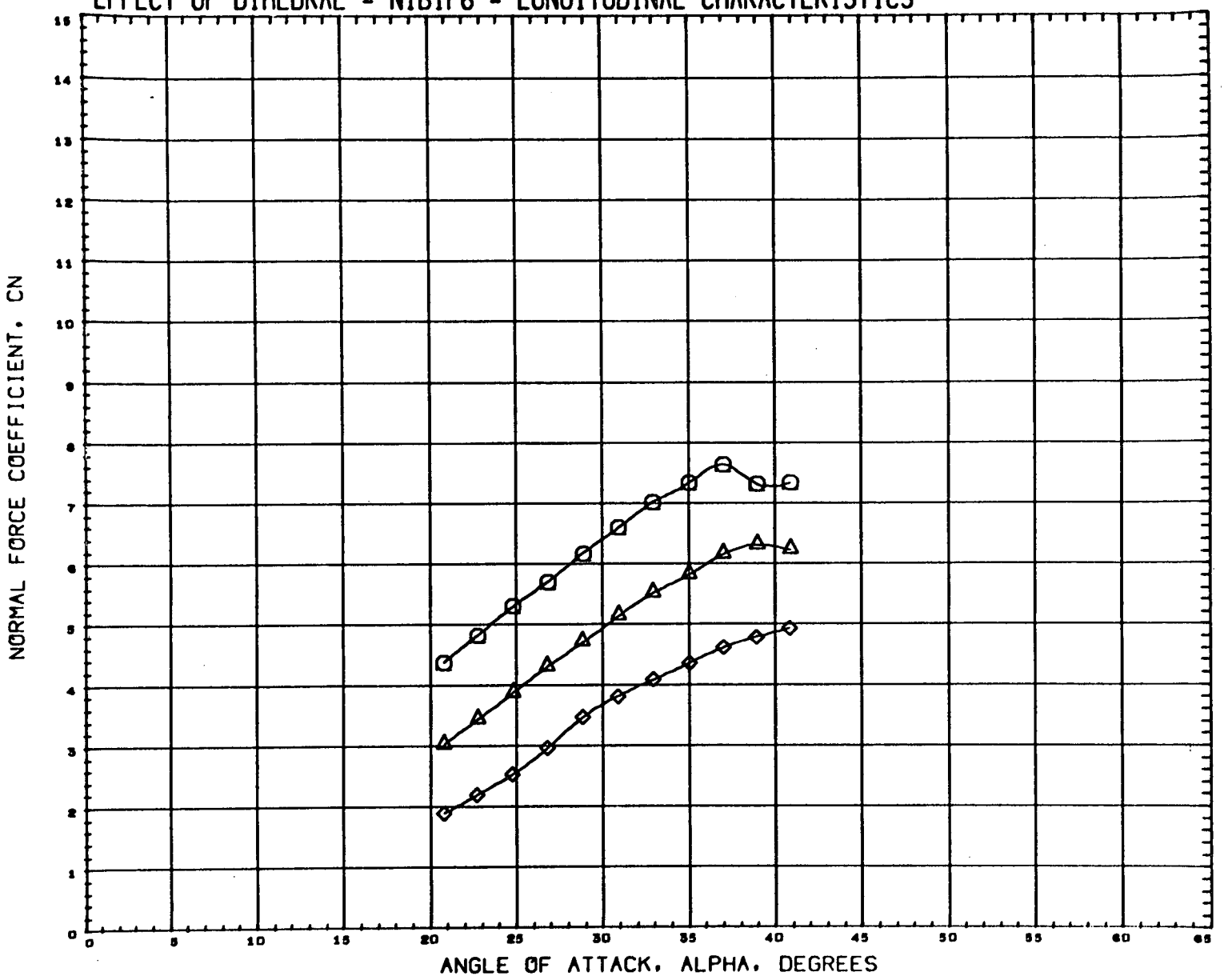


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(I54914)	○	M8FC 518	M8FC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	M8FC 518	M8FC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	M8FC 518	M8FC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9350	SQ.IN.
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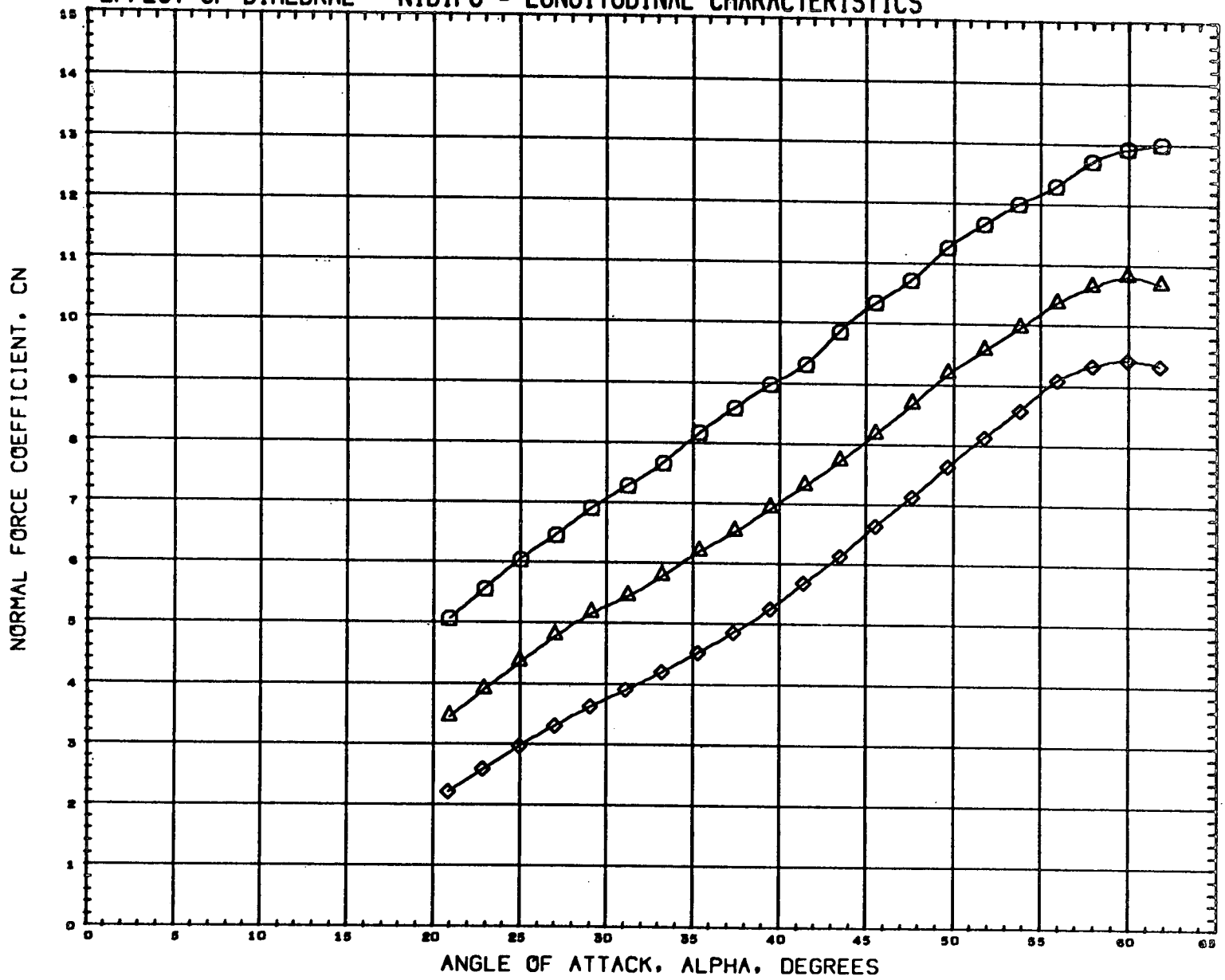
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

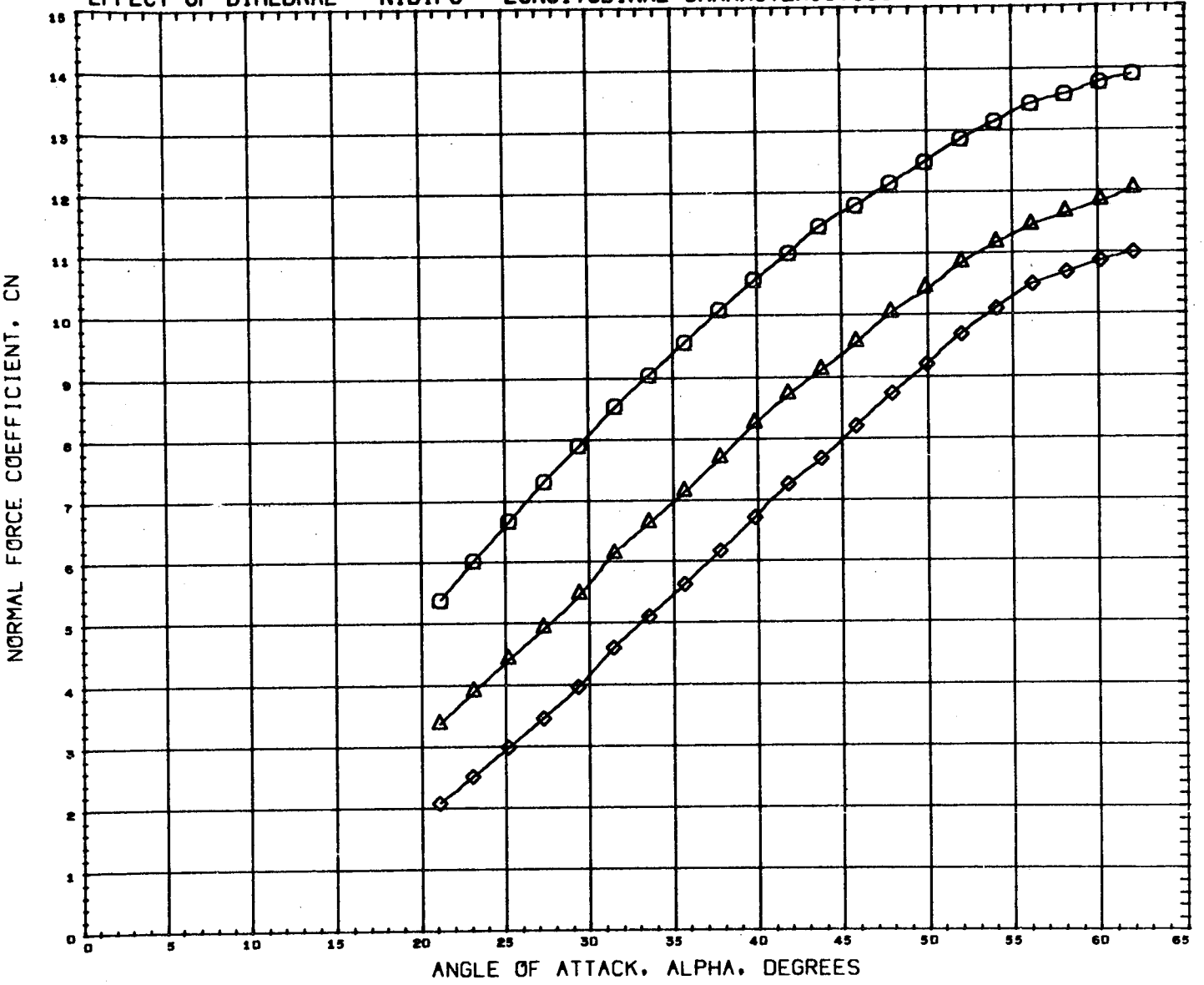


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(154914)	○	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(064921)	◇	MSFC 516	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

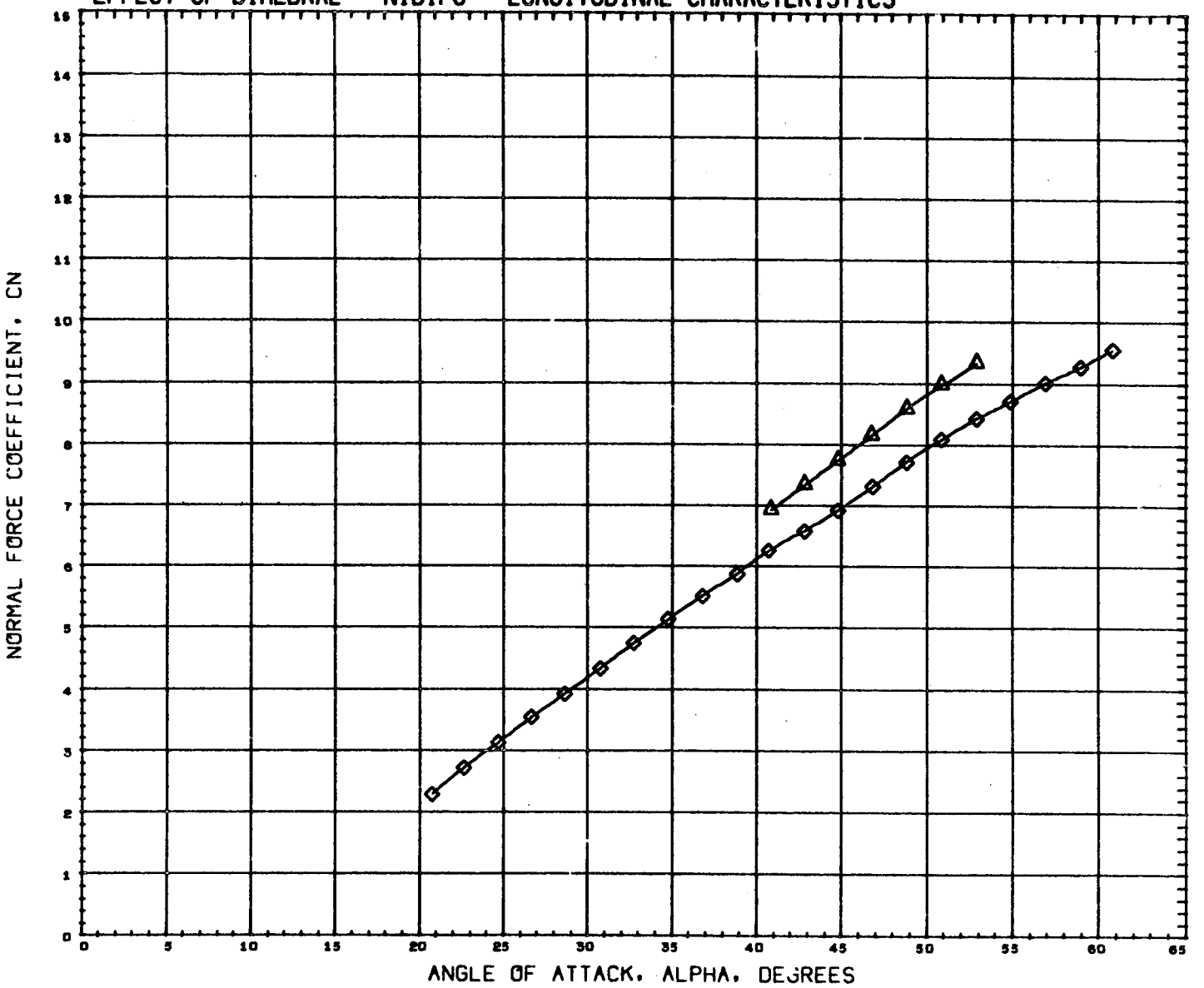


DATA SET SYMBOL		CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

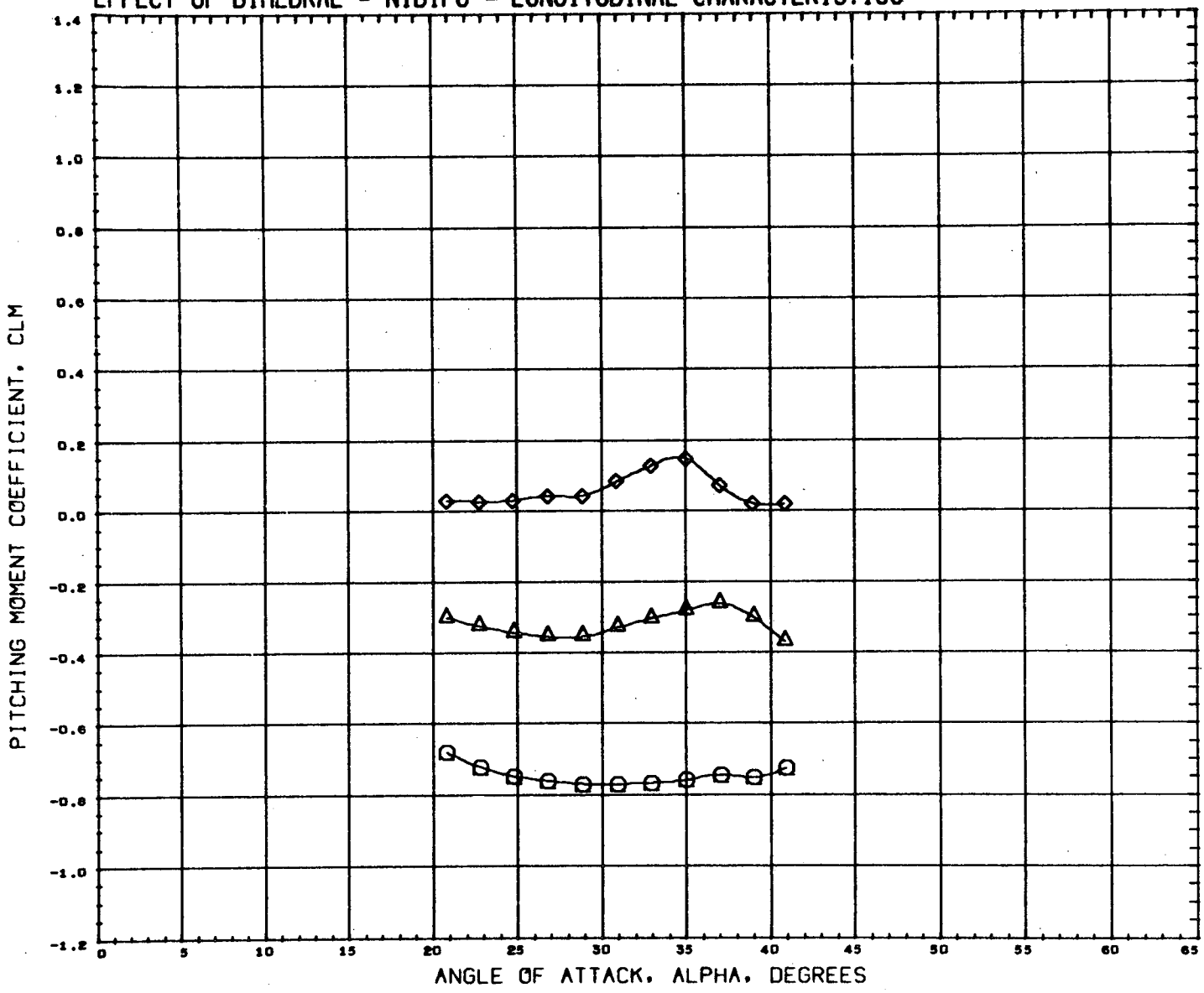


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

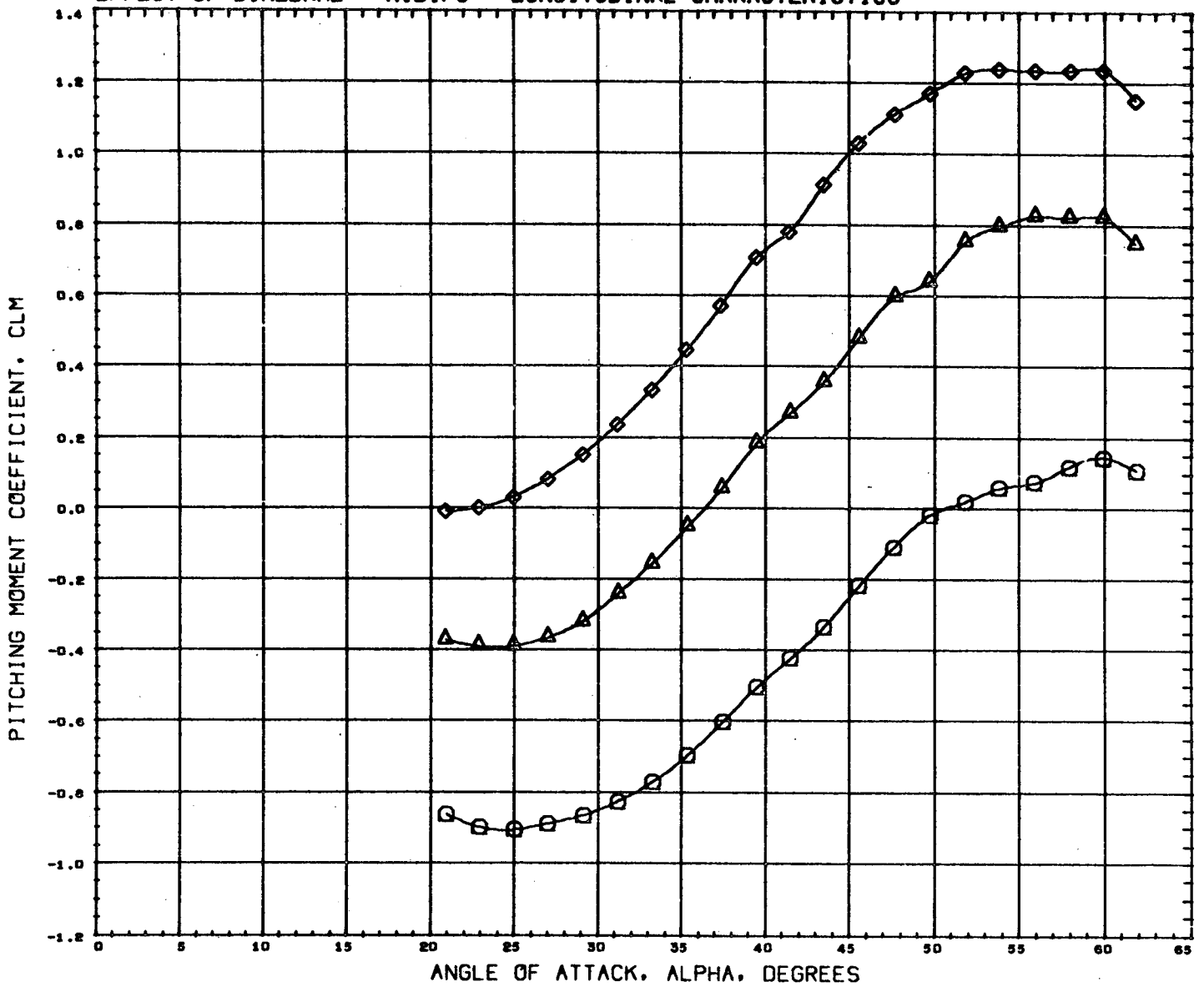


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

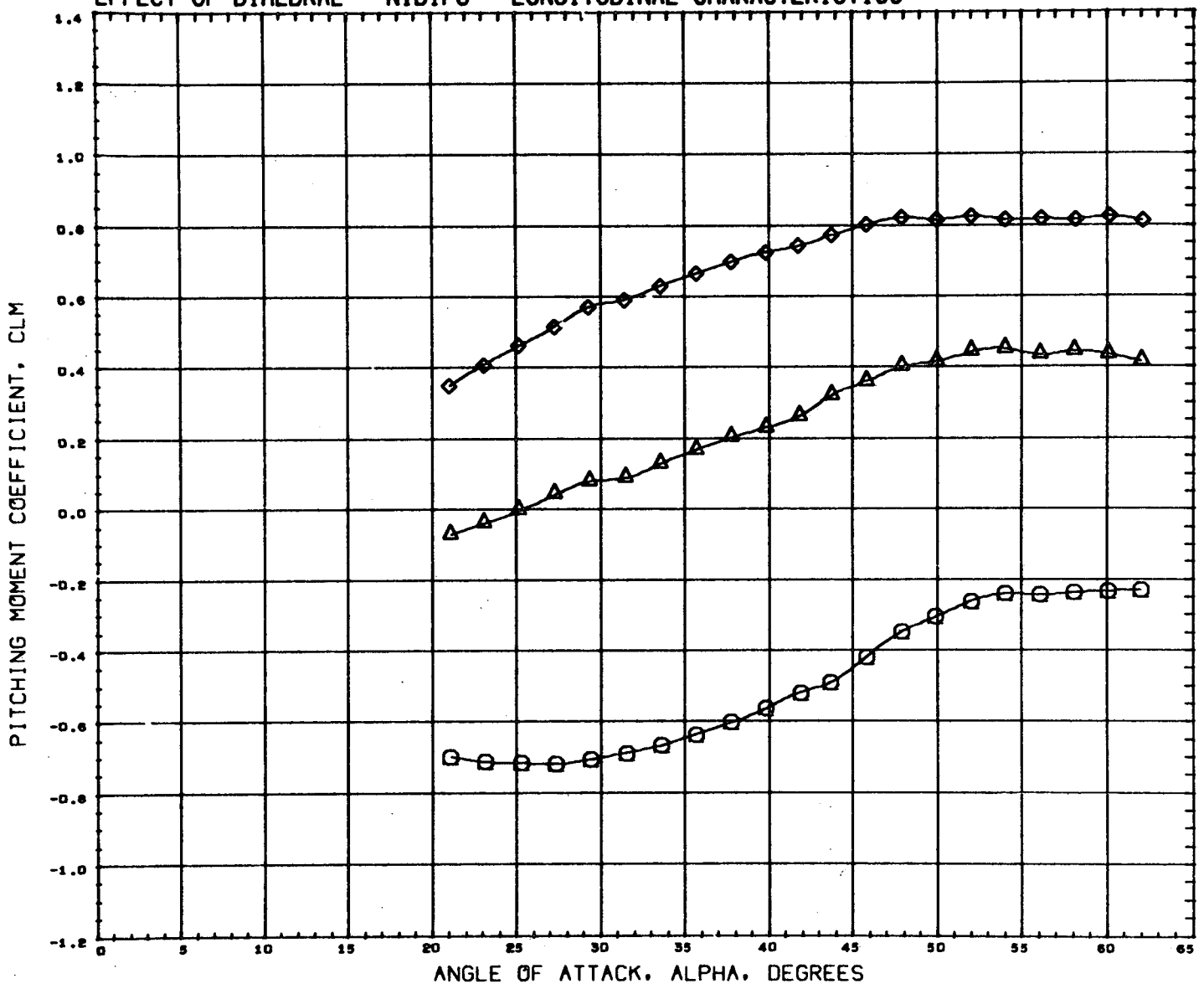


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



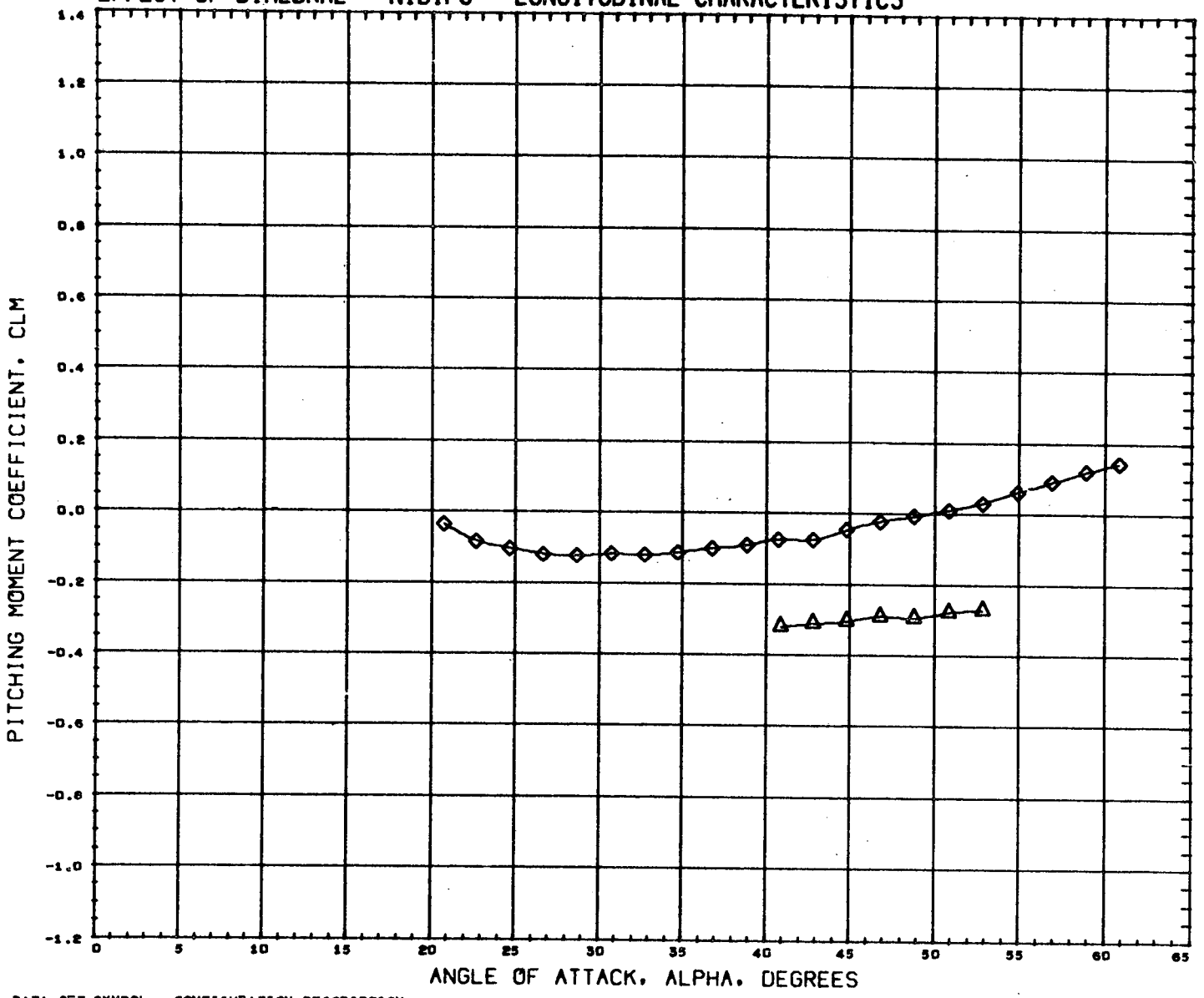
DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



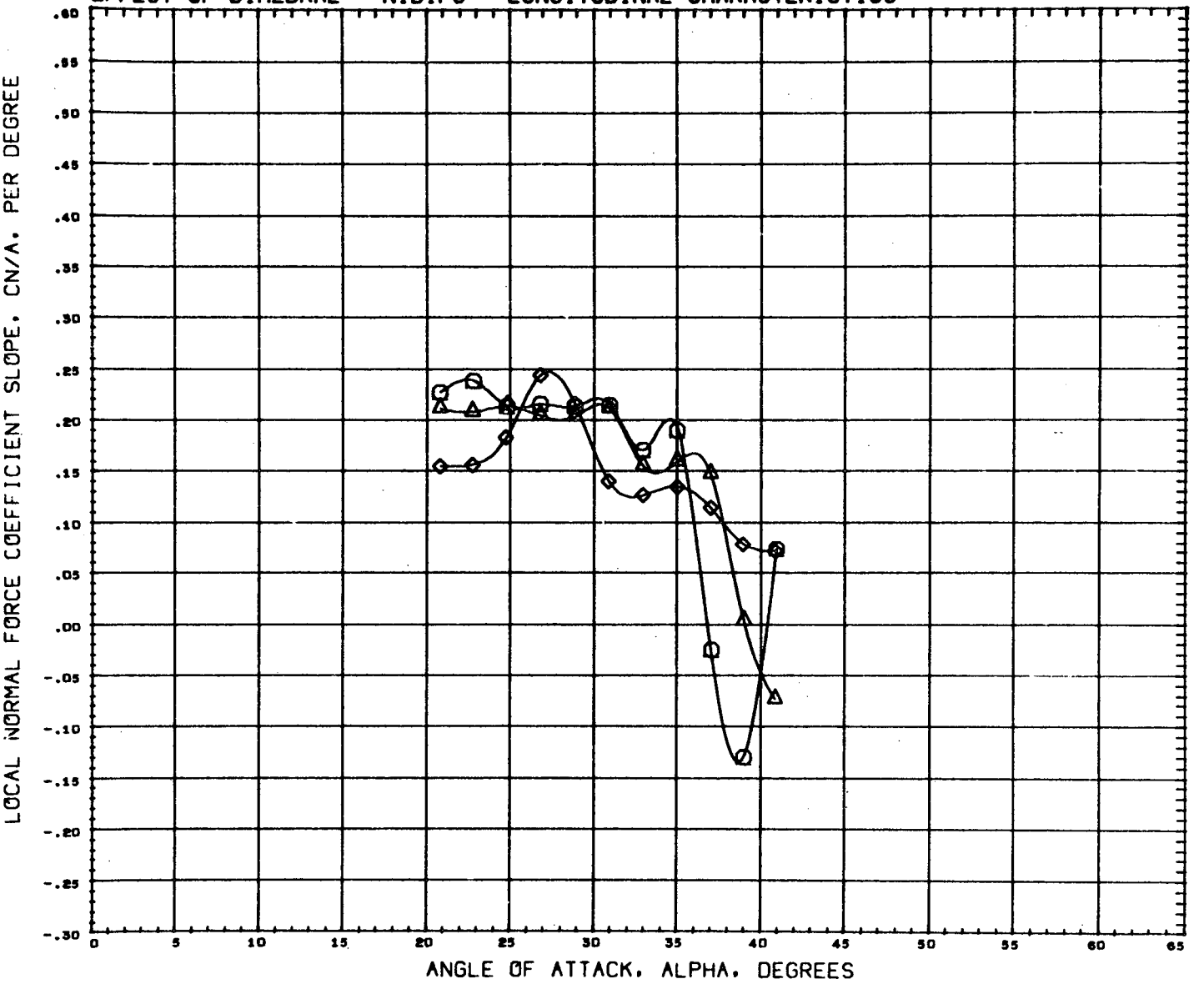
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

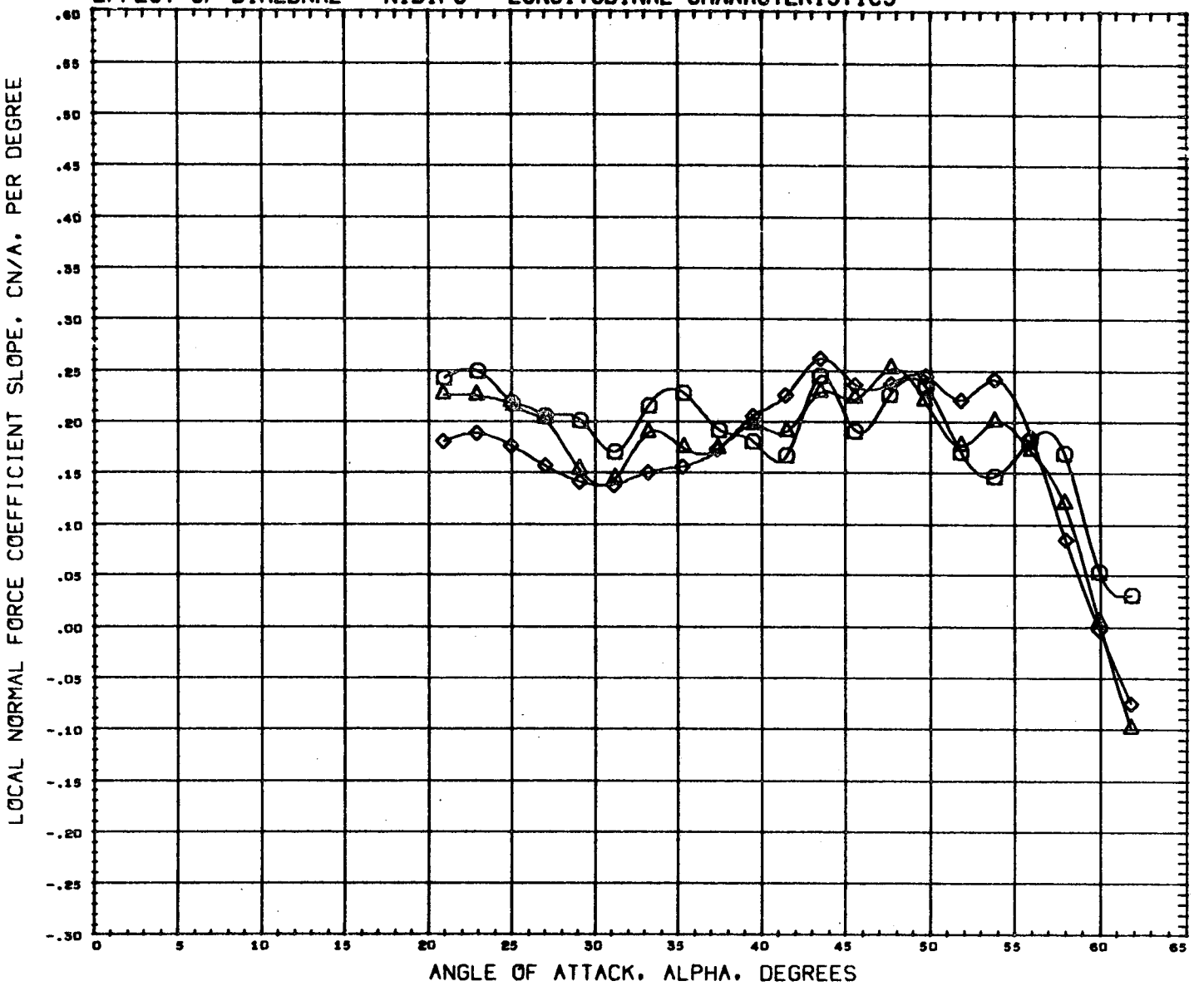


DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION		BETA	DIHDRL
(154914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

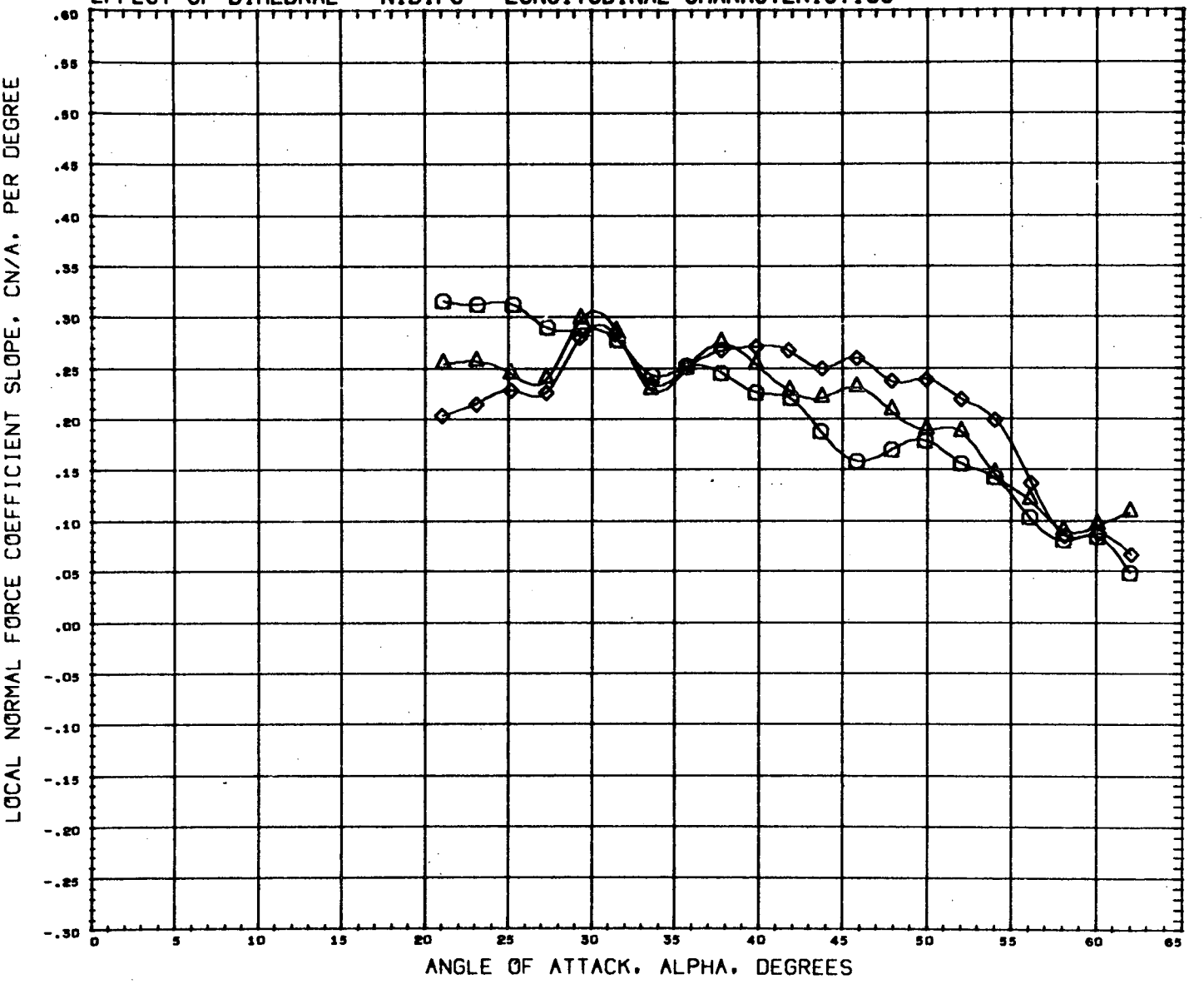


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(154914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

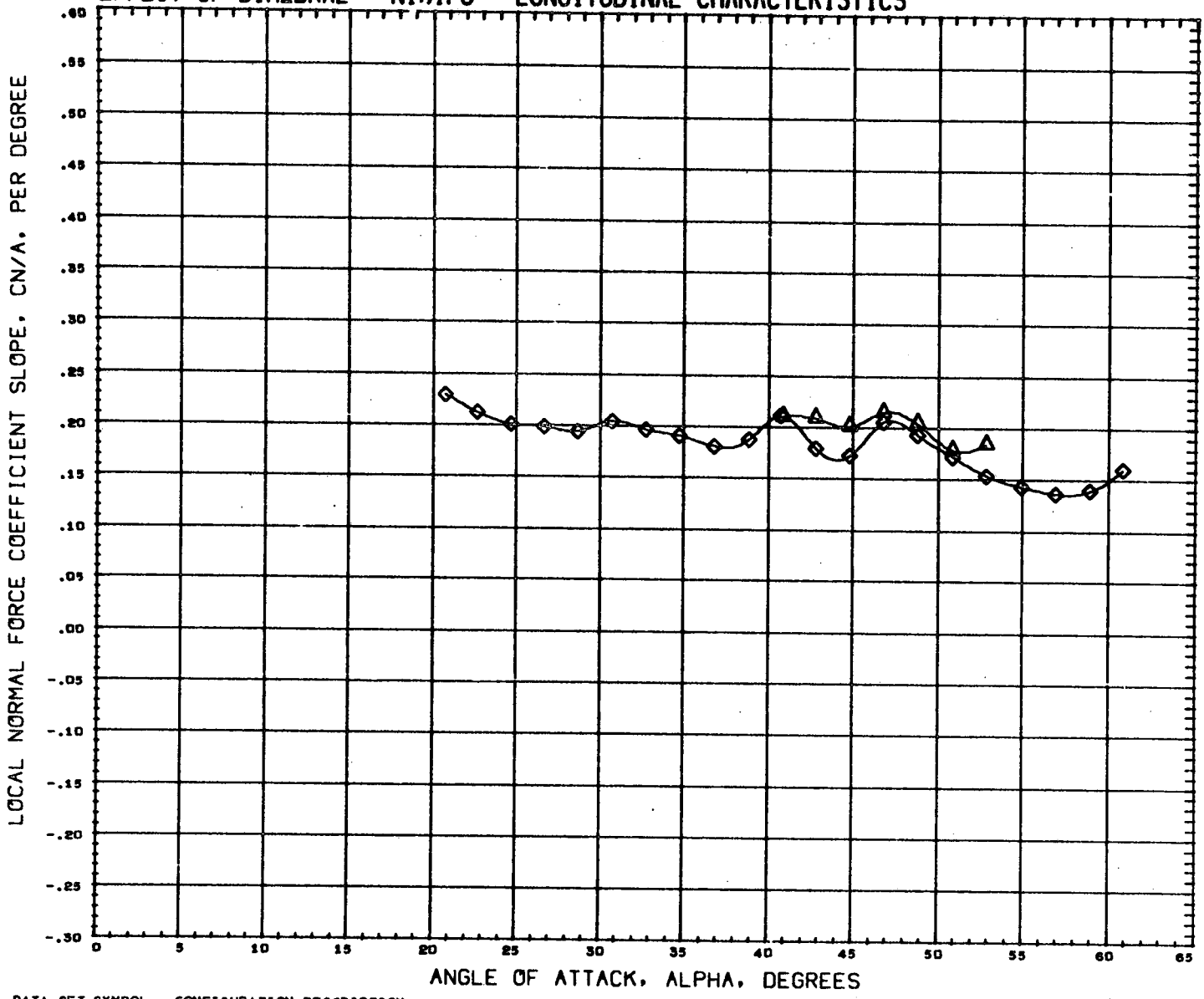


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(154914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



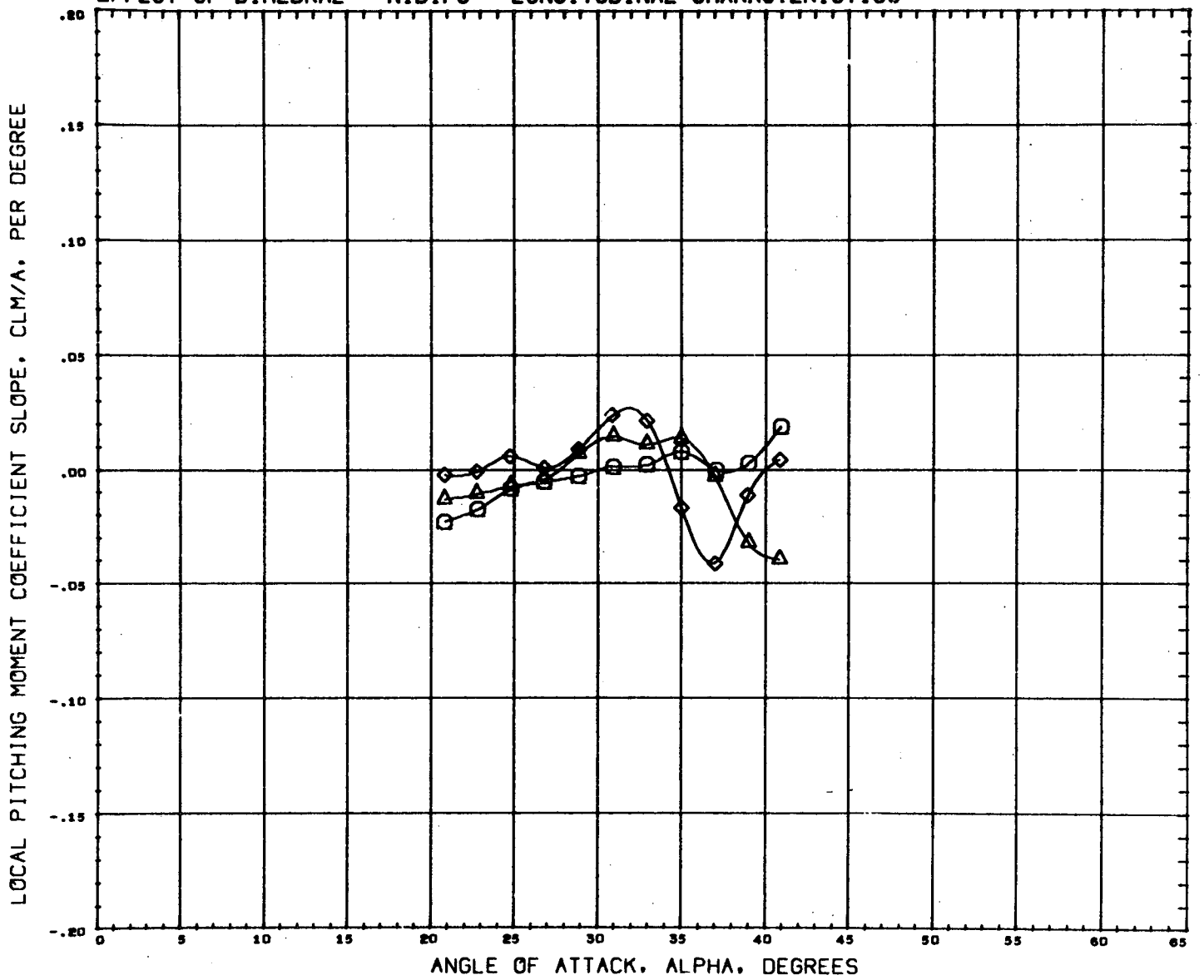
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

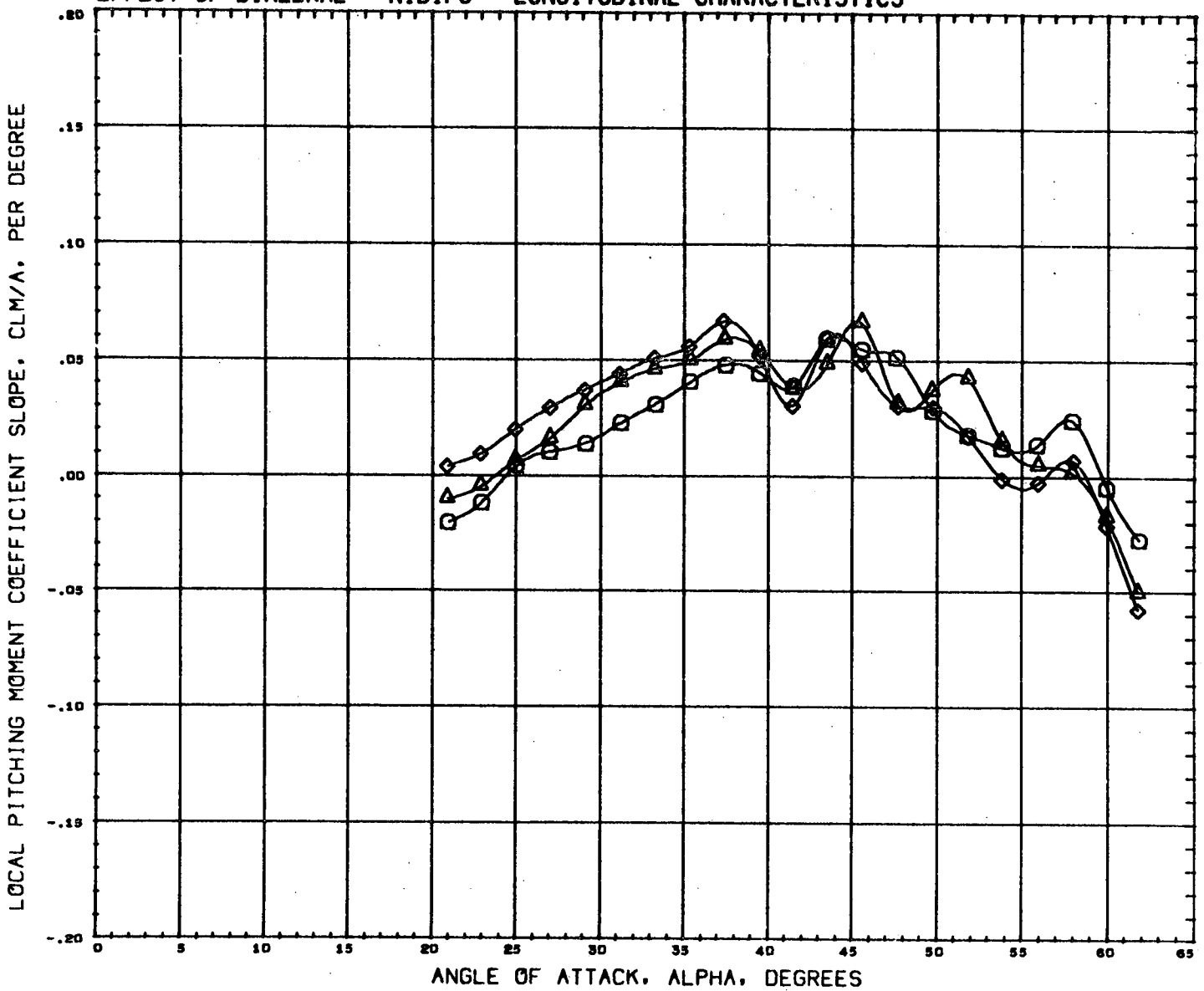


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

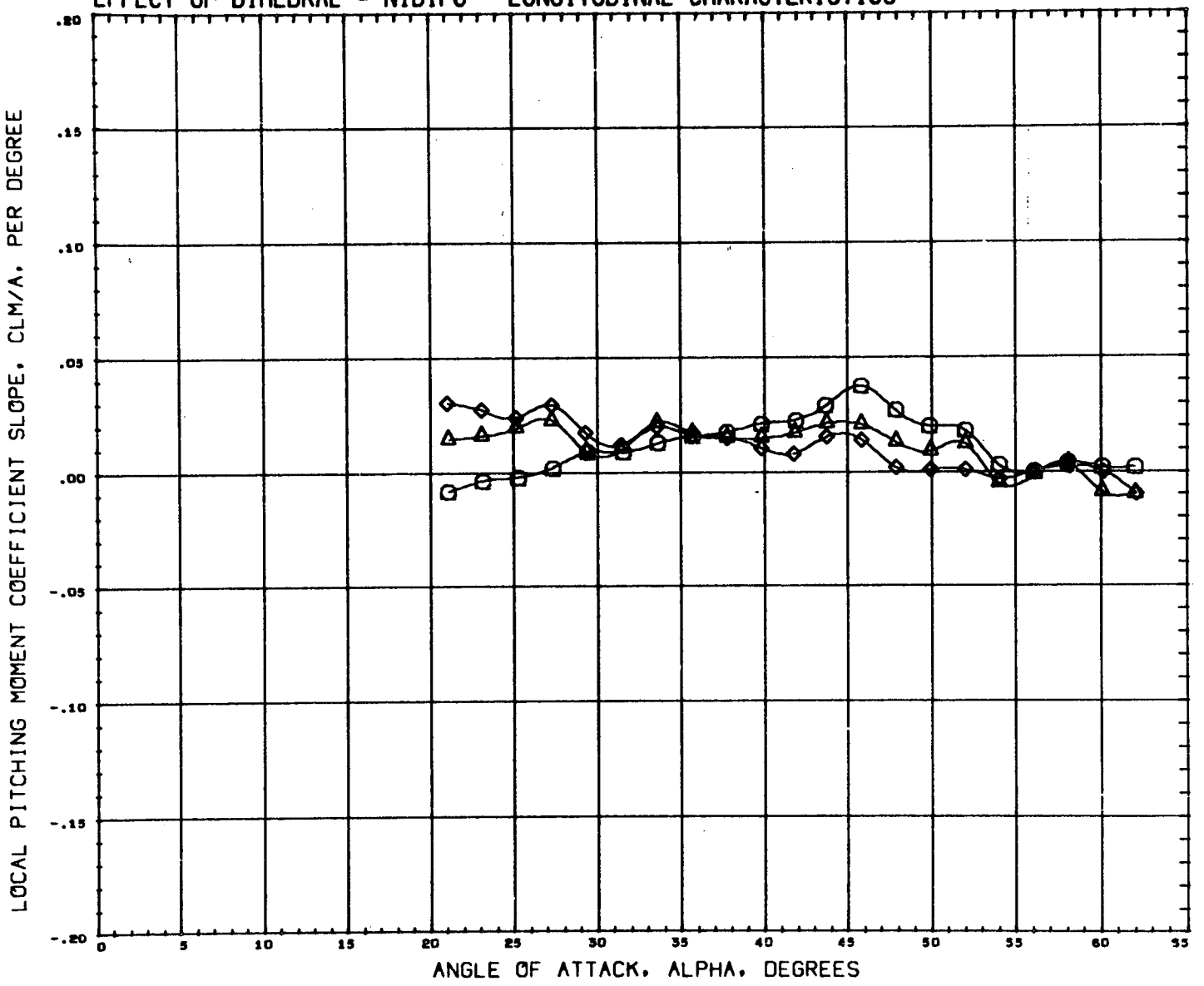


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.699

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

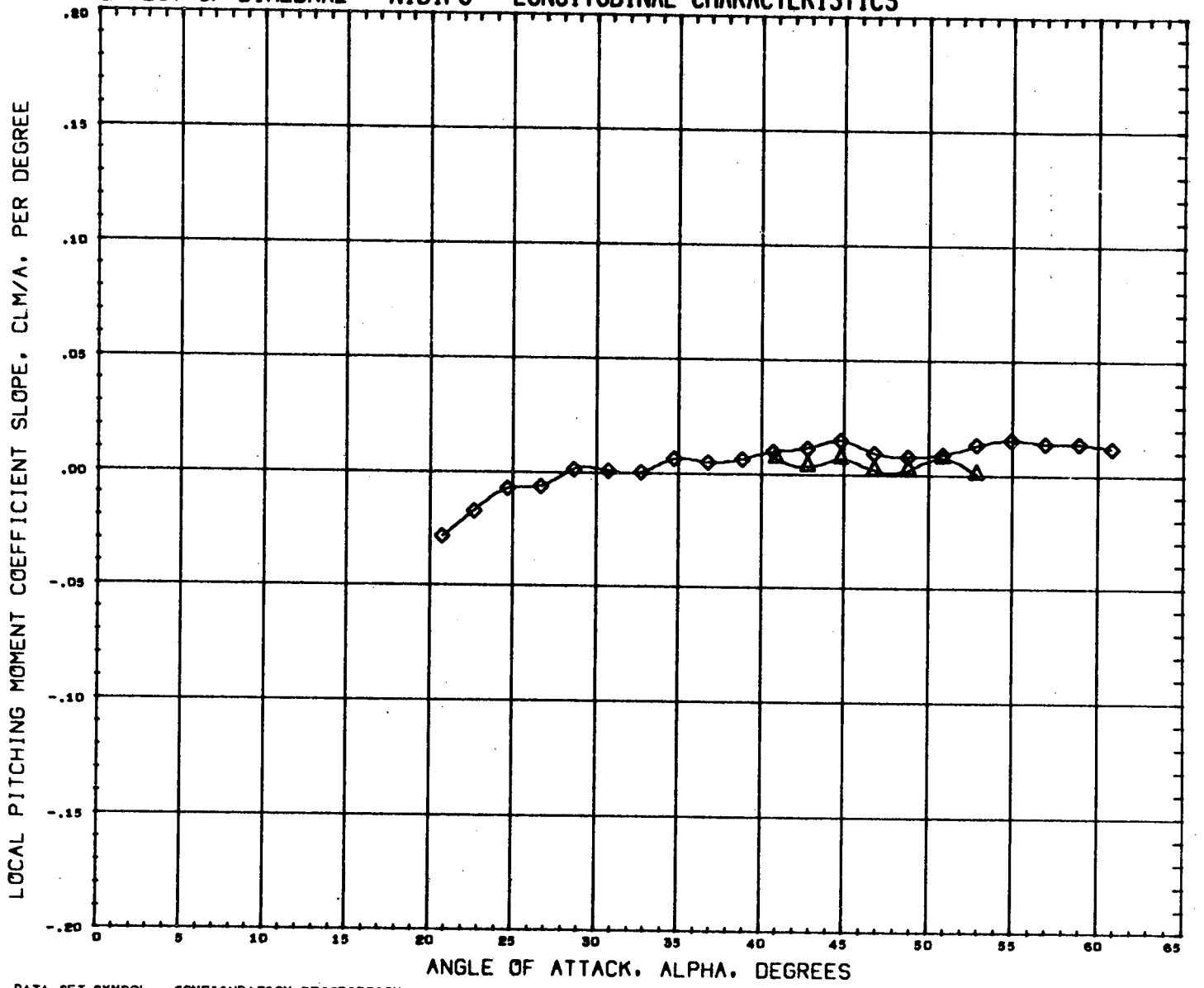


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

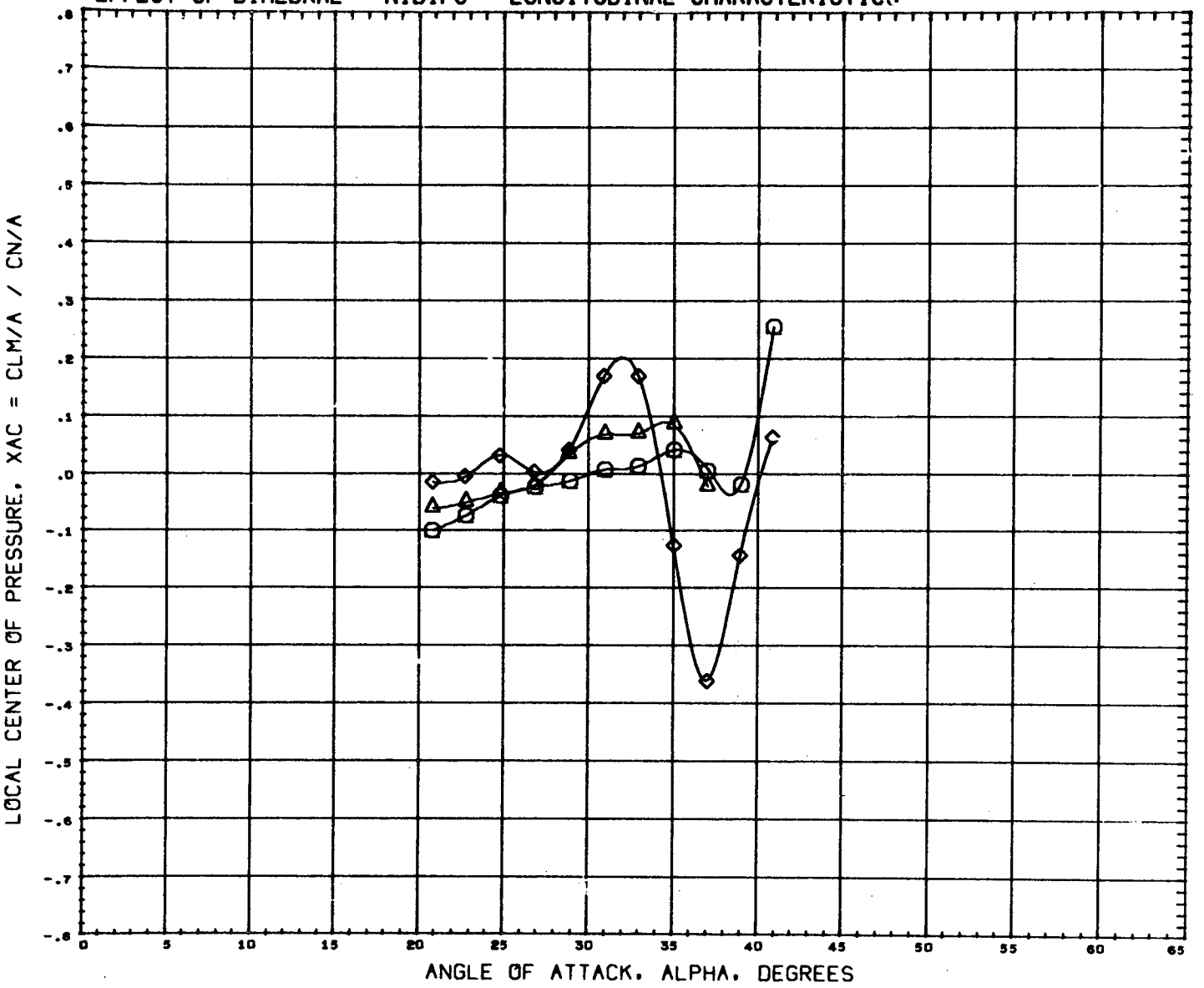
MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

40

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



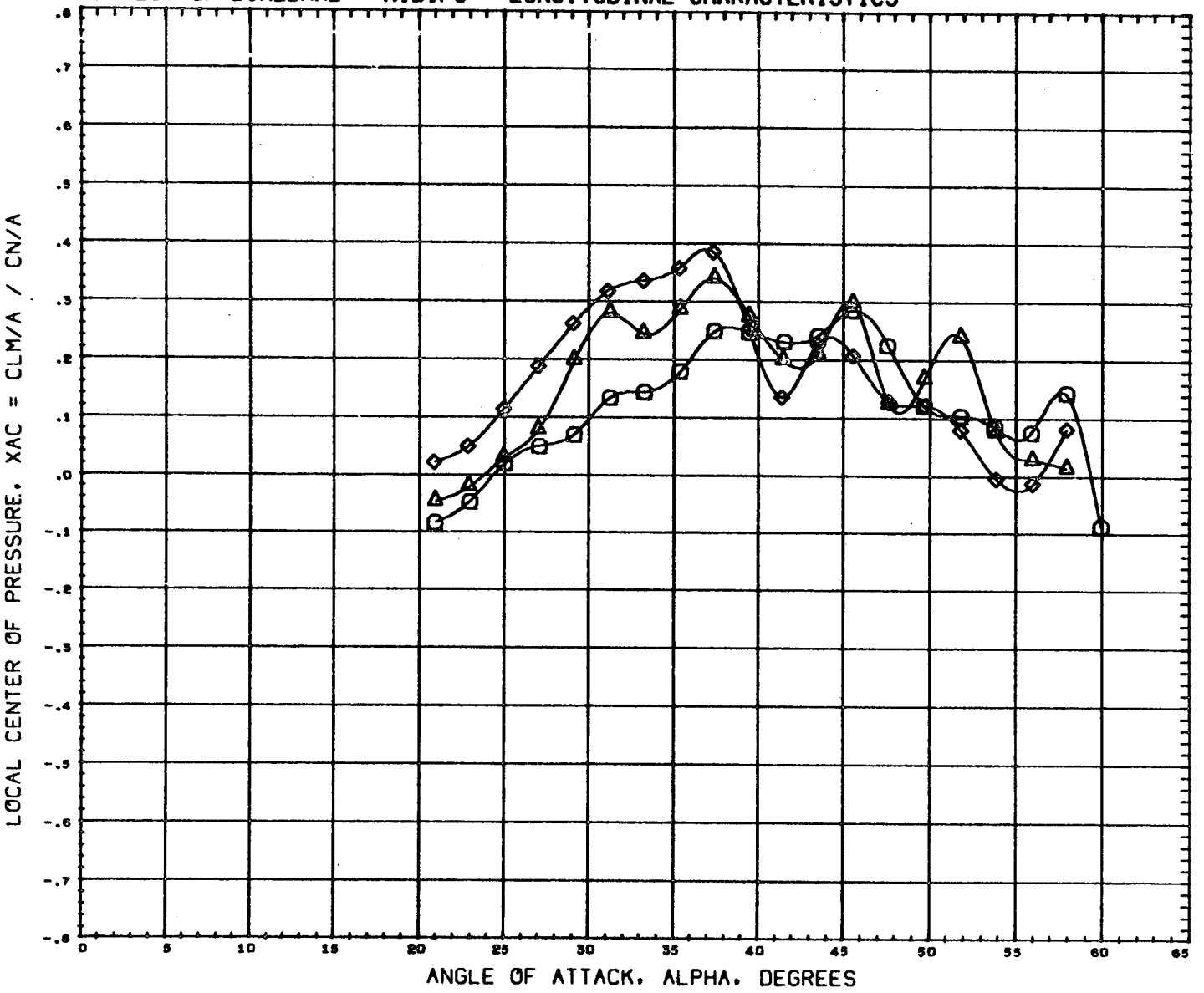
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(Q54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(Q54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(U54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



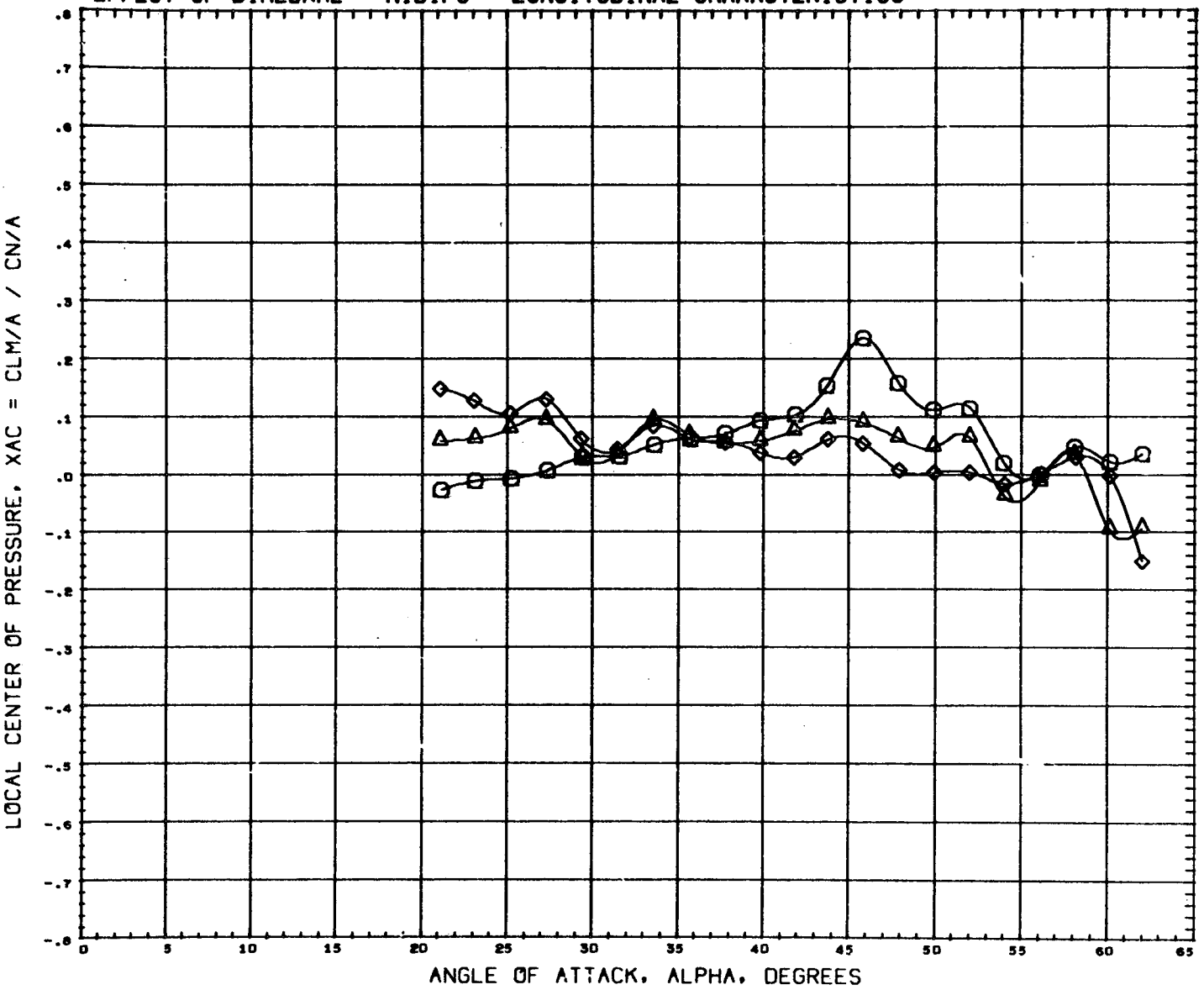
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(G54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(G54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(U54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

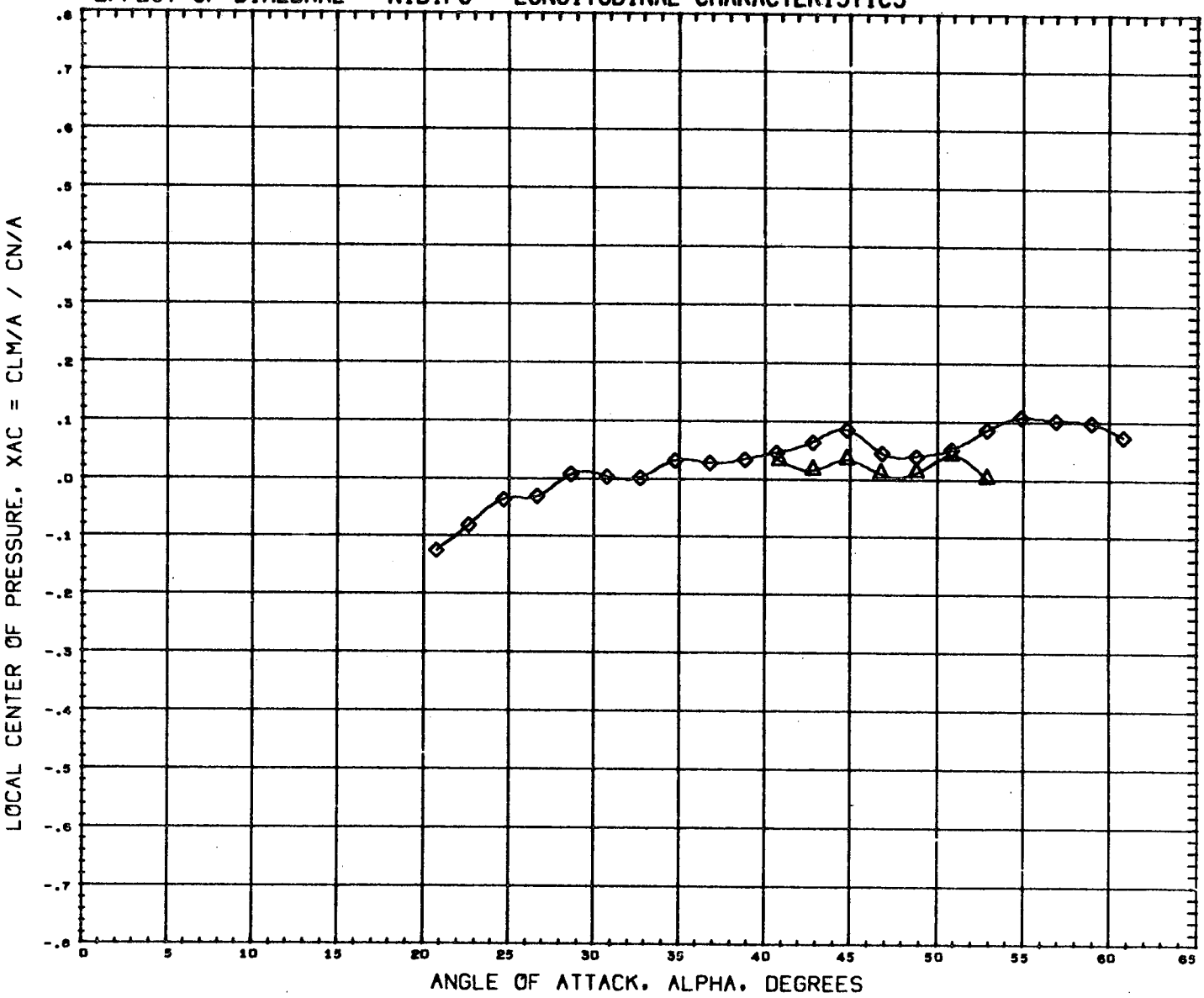


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(Q54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(Q54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(U54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



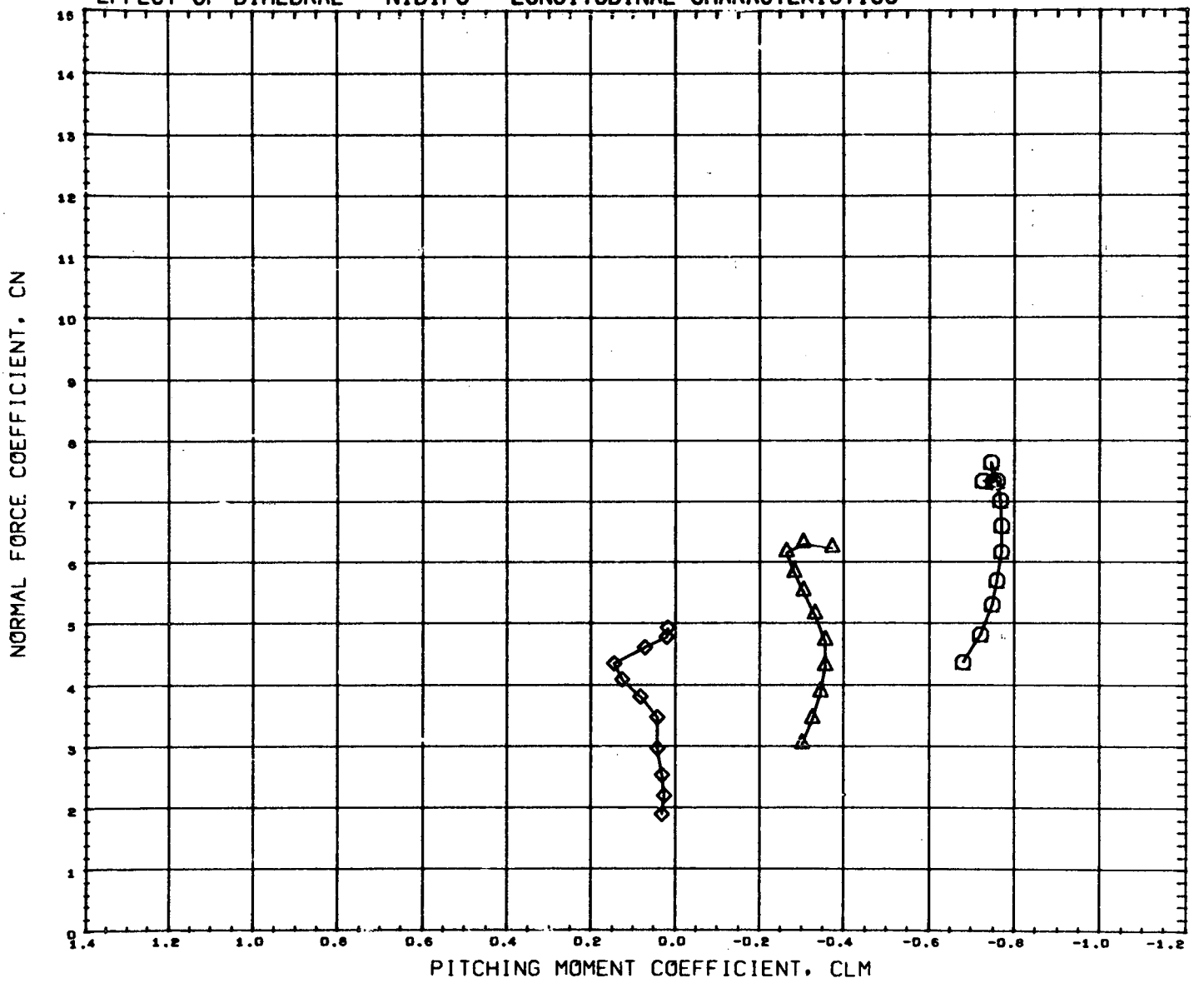
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(054914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(054907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(054921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

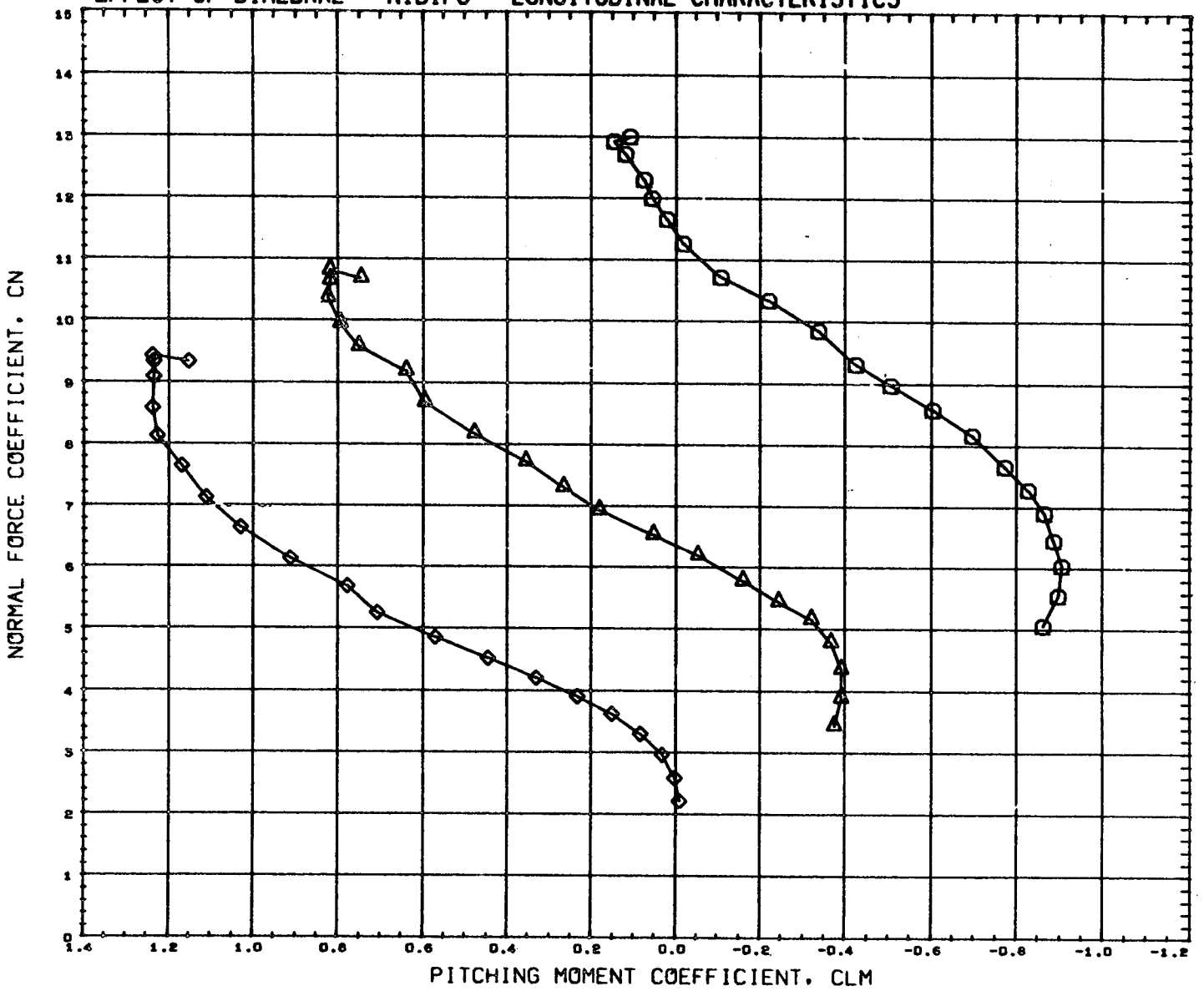


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 0.599

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS



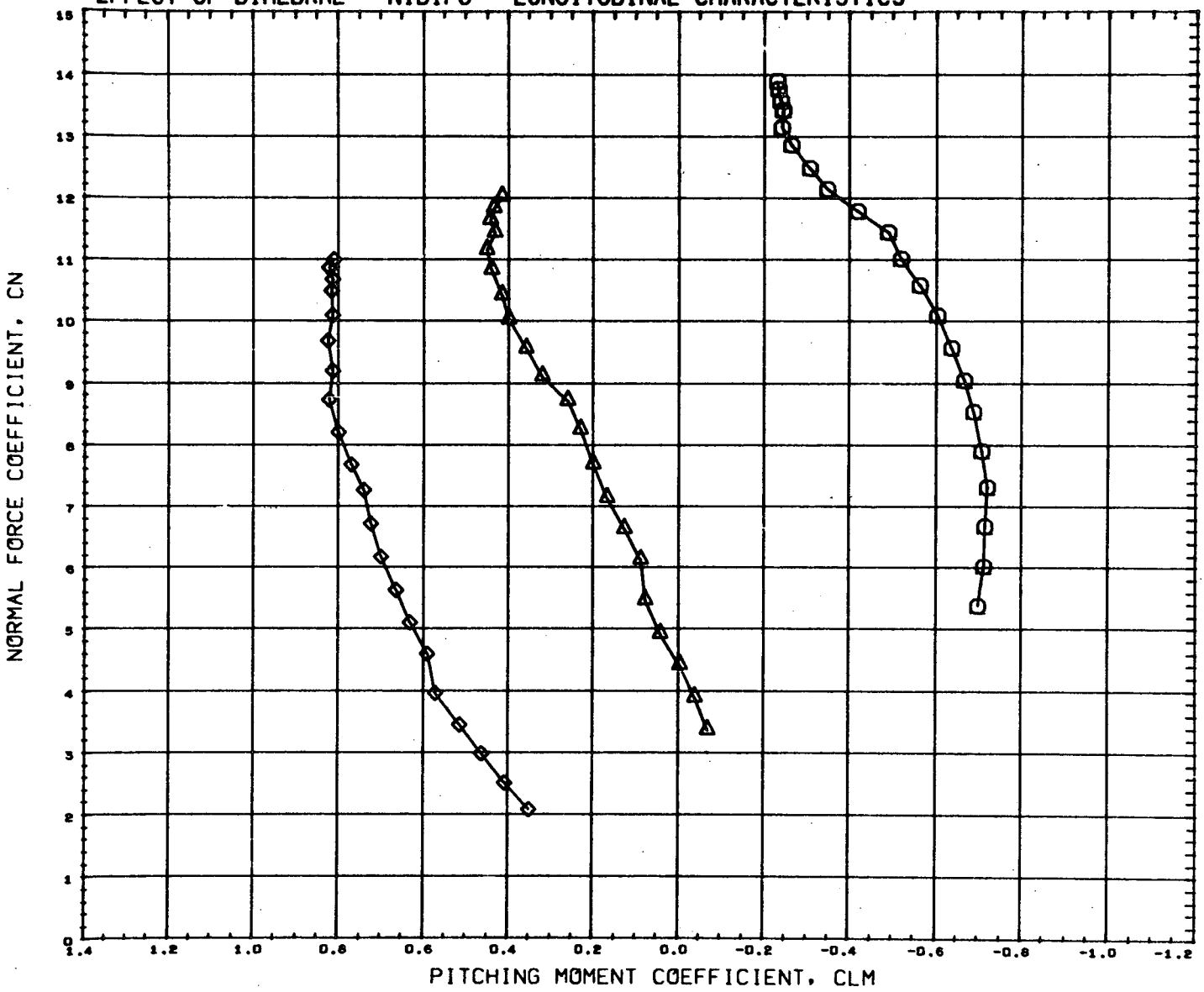
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(154914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(154907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(054921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 0.899

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

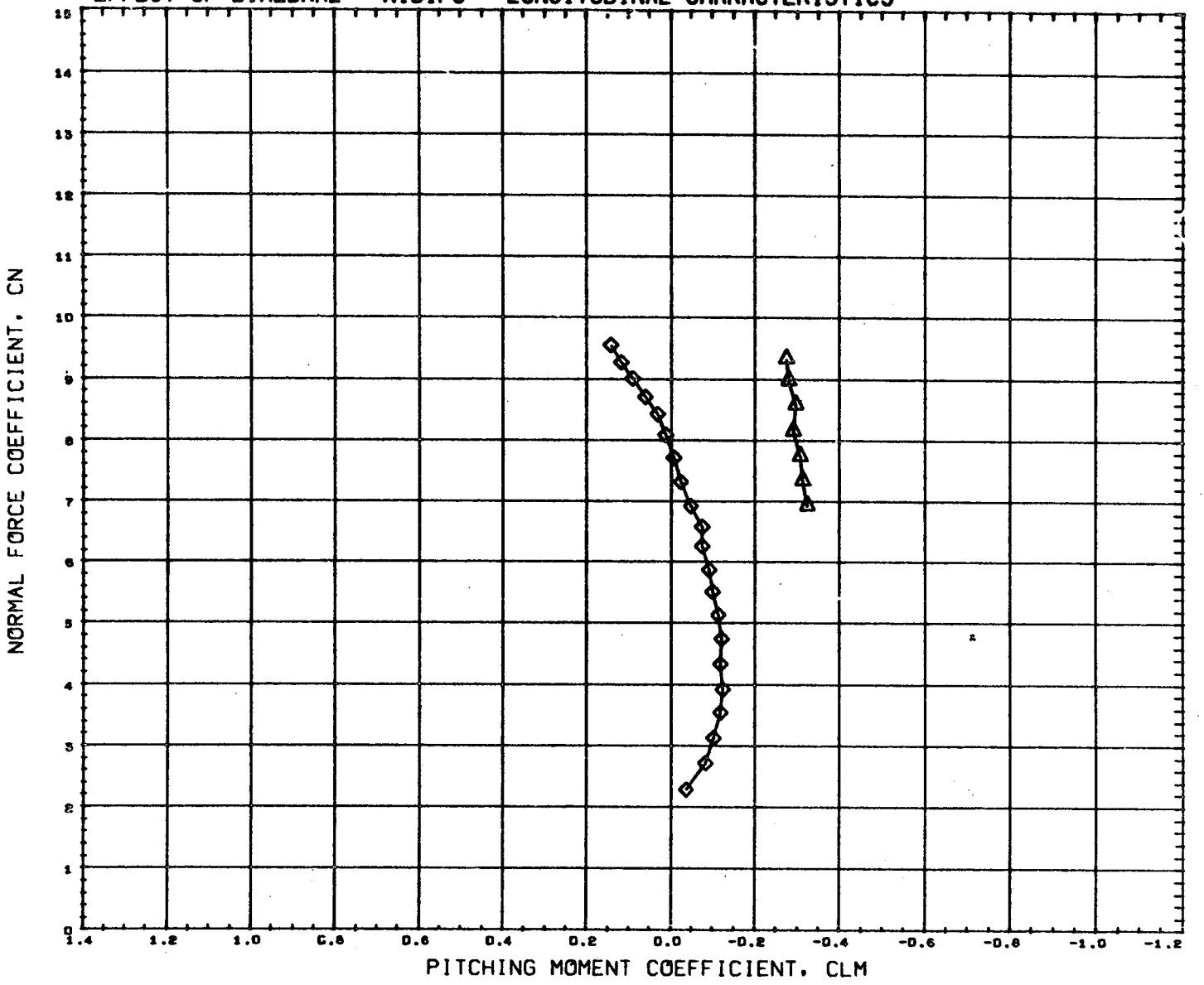


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			BETA	DIHDRL
(I54914)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	0.000
(I54907)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	0.000	45.000

MACH 1.198

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LONGITUDINAL CHARACTERISTICS

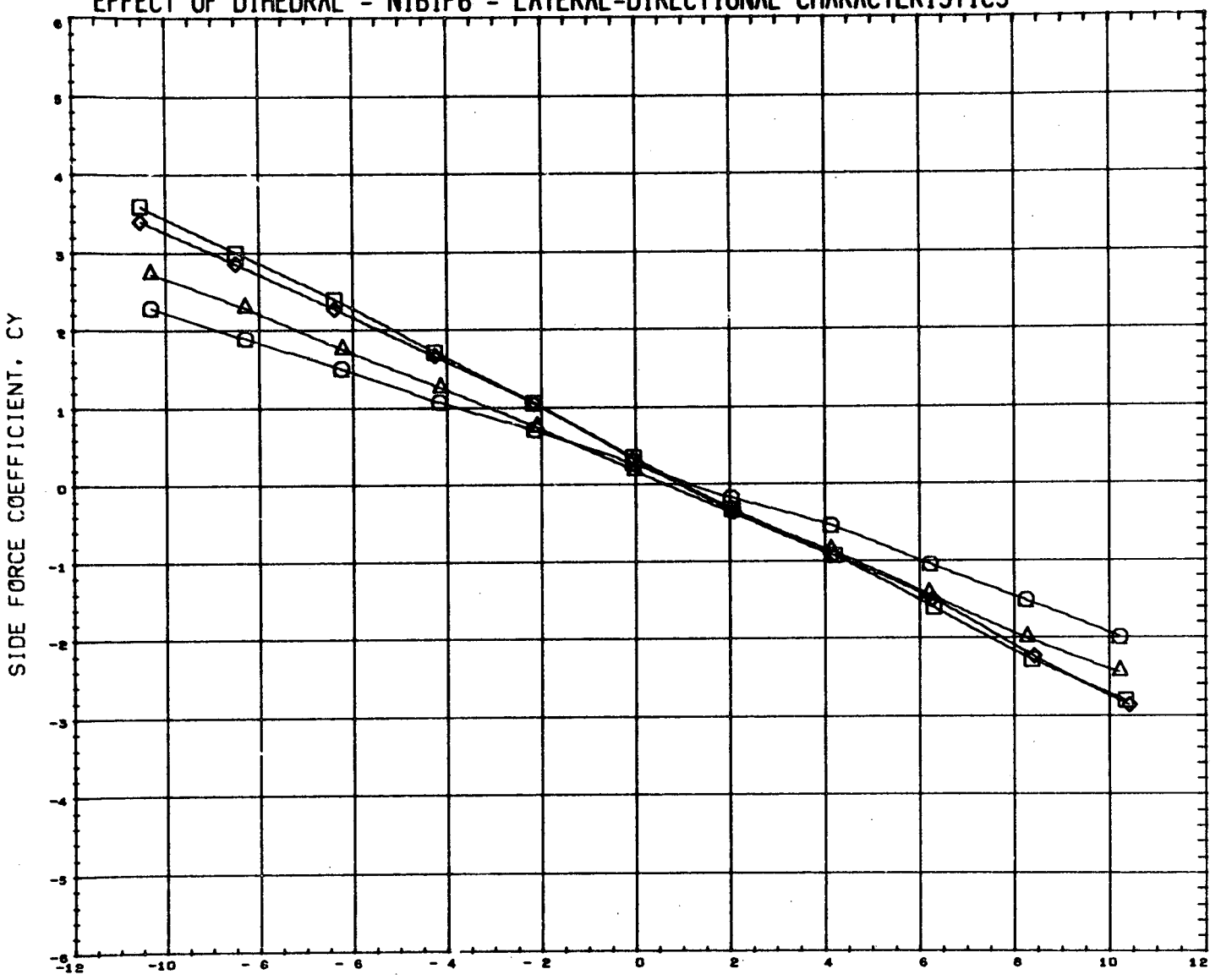


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BETA	DIHDRL
(I54914)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000
(I54907)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	30.000
(O54921)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	0.000	45.000

MACH 4.960

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS



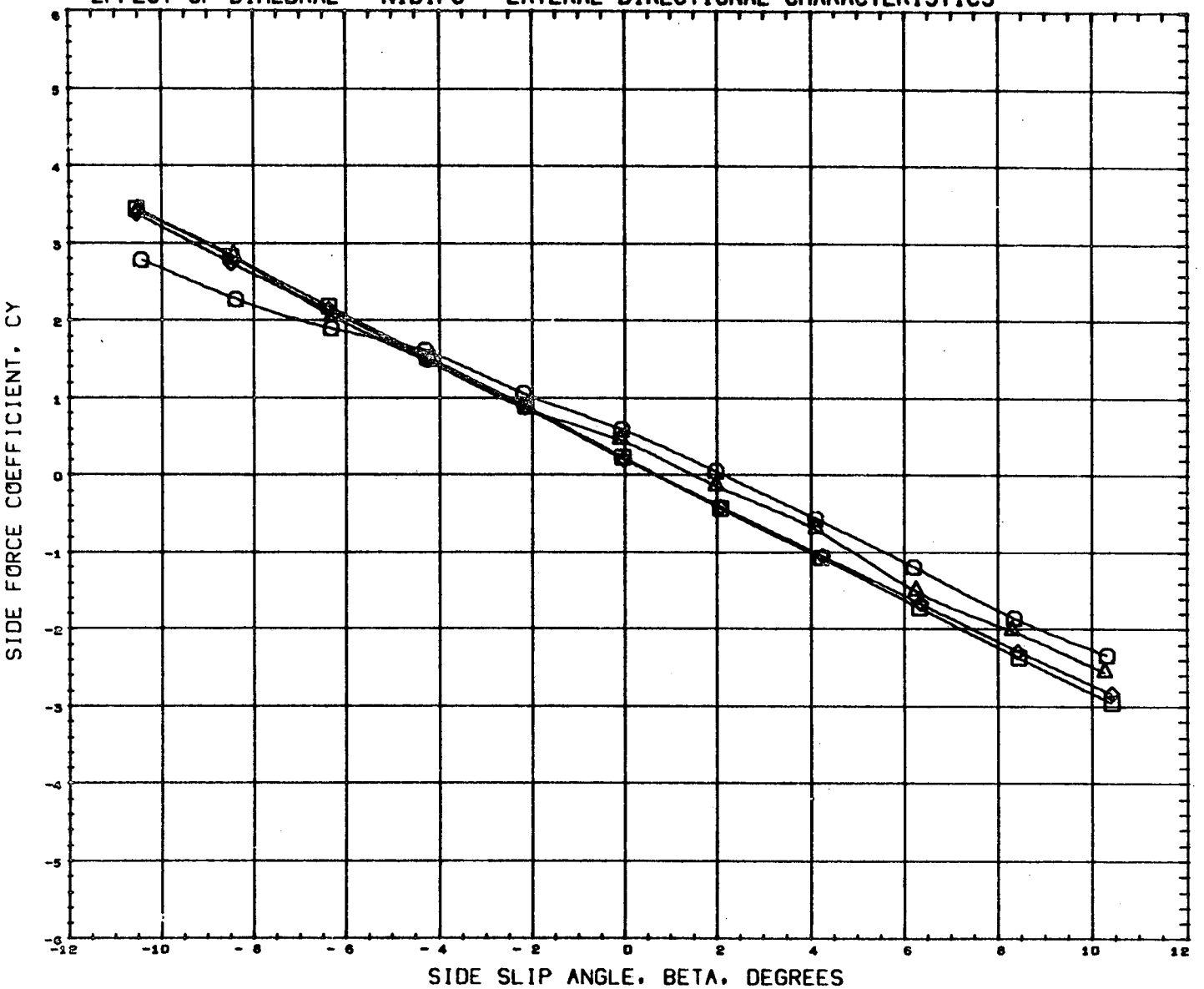
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	DIHDRL
(S54010)	○	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	30.000	30.000
(M54023)	△	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	50.000	30.000
(M54024)	□	MSFC 518 MSFC PRESSURE FED BOOSTER N1B1F6	50.000	45.000

MACH 0.901

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS

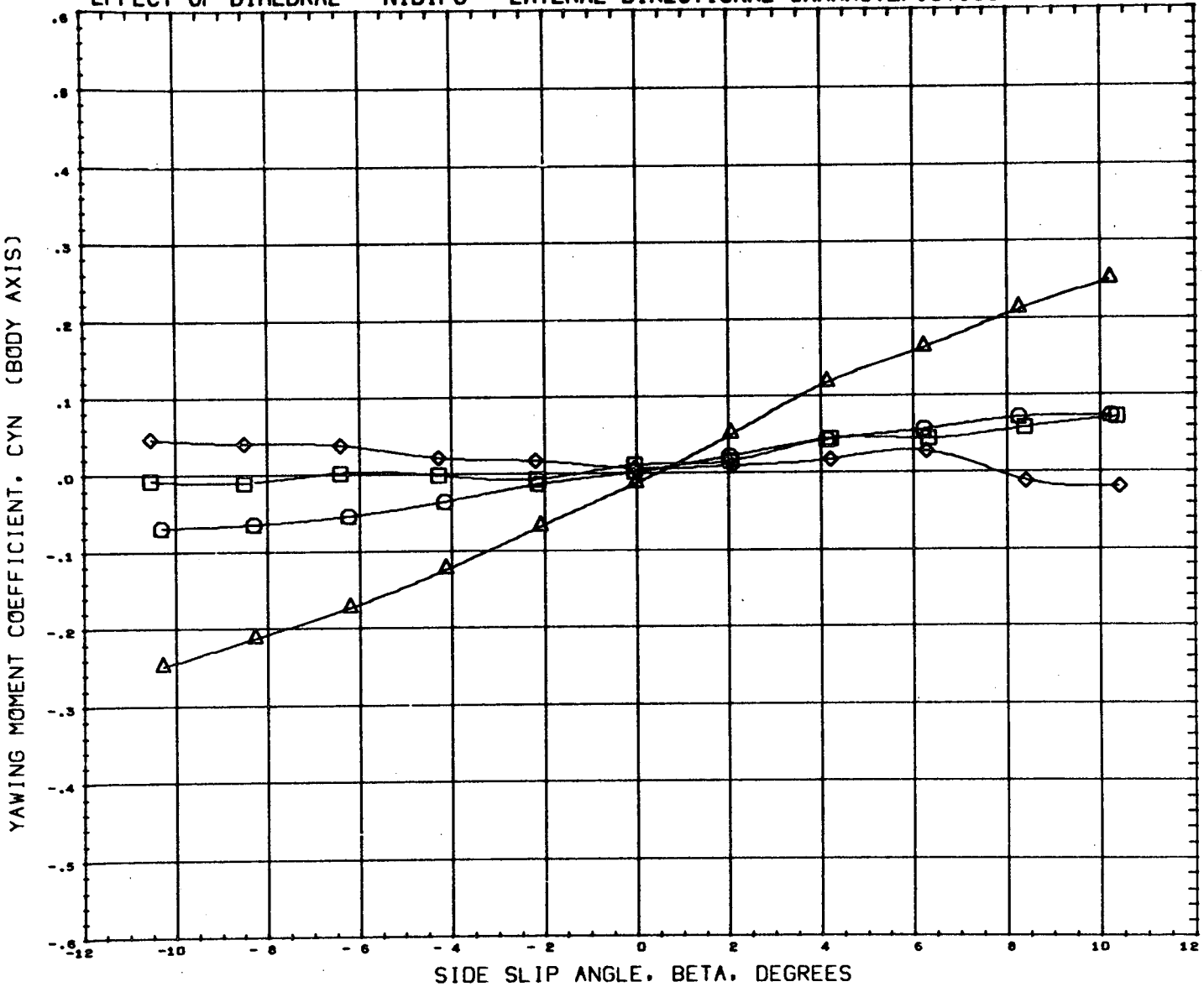


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION				ALPHA	DIHDRL
(S54010)	○	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	30.000	30.000
(M54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	50.000	30.000
(M54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER		N1B1F6	50.000	45.000

MACH 1.201

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS

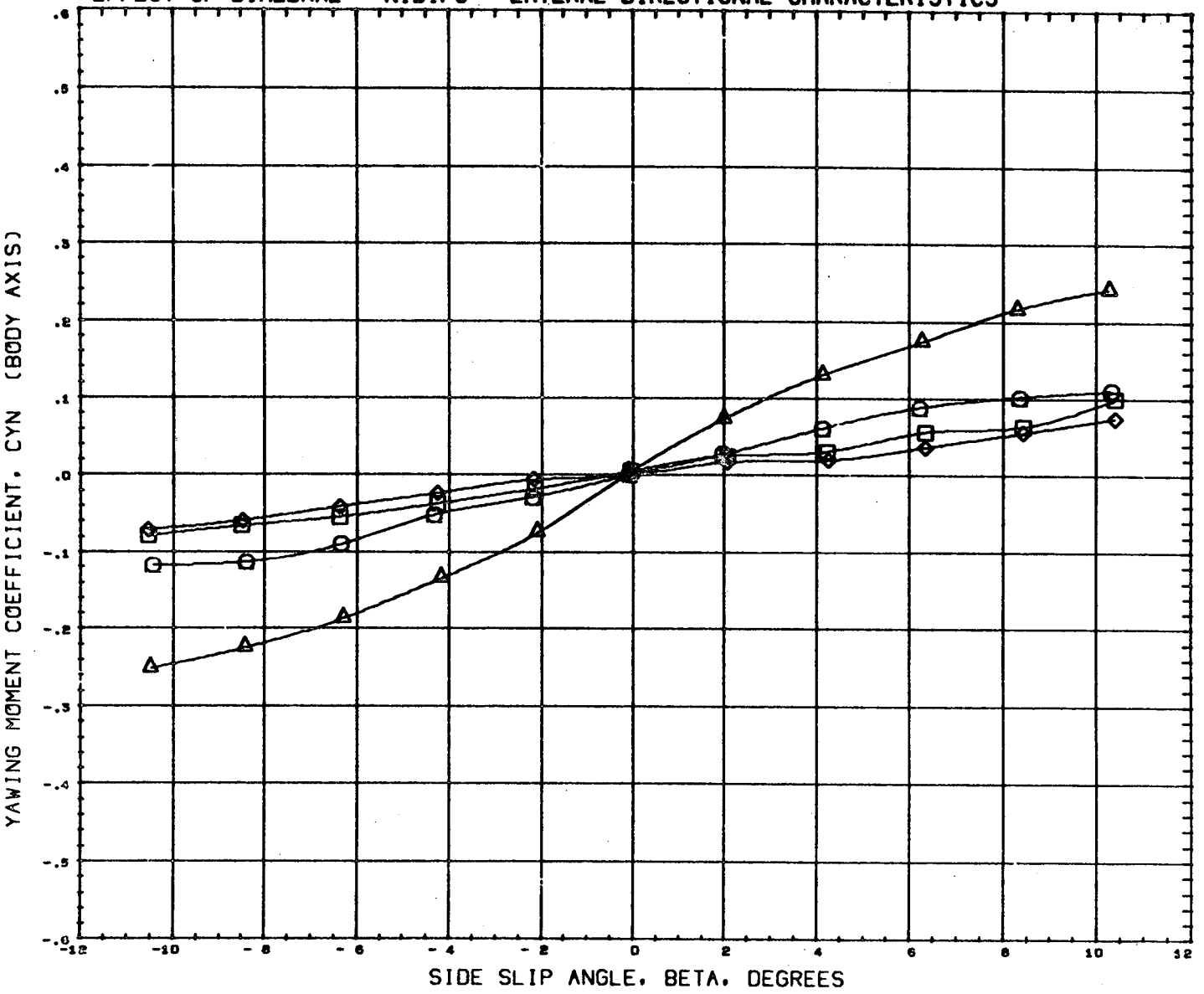


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(S54010)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(M54023)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(M54024)	□	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 0.901

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS



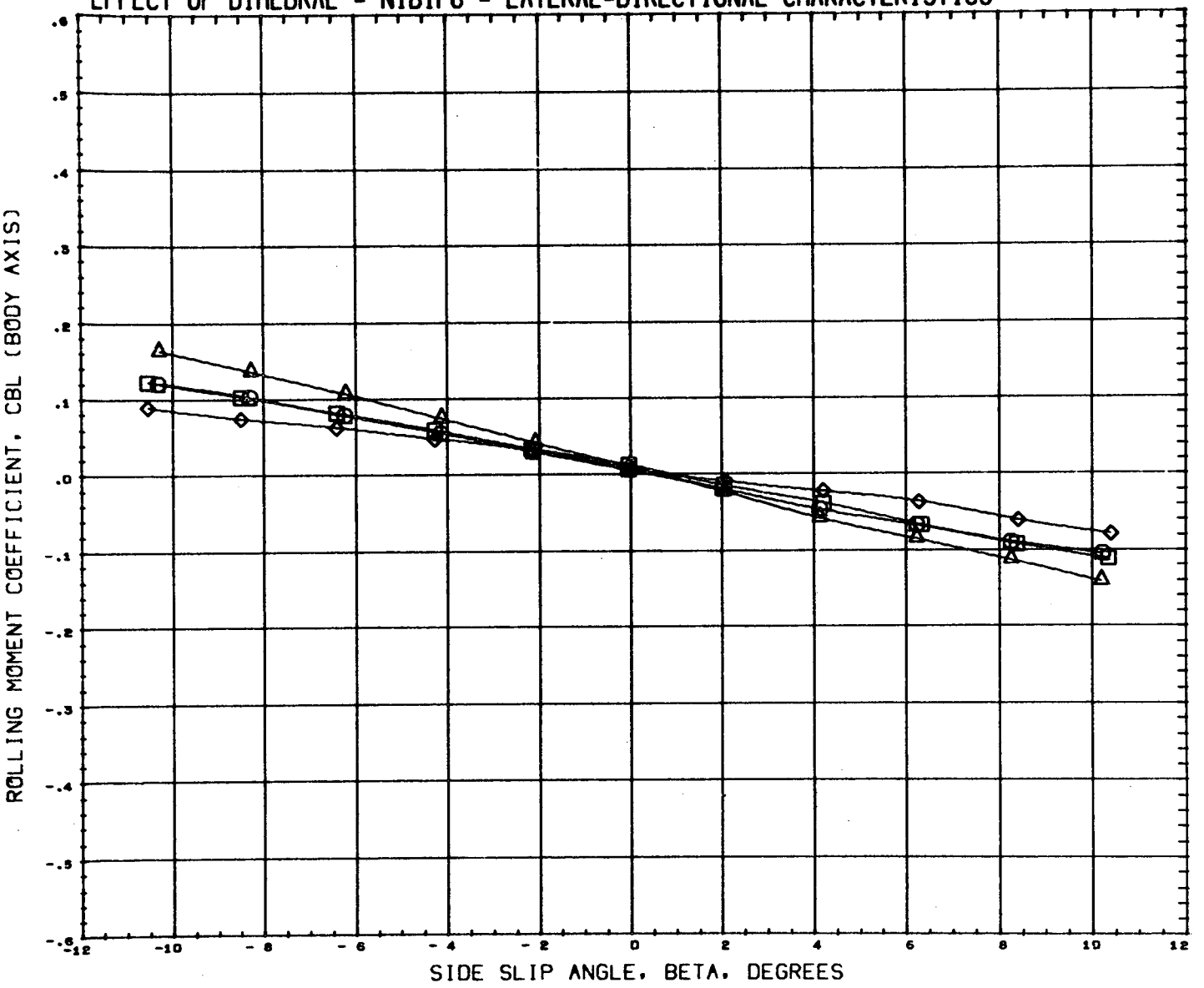
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(S54010)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(N54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(N54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.201

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS

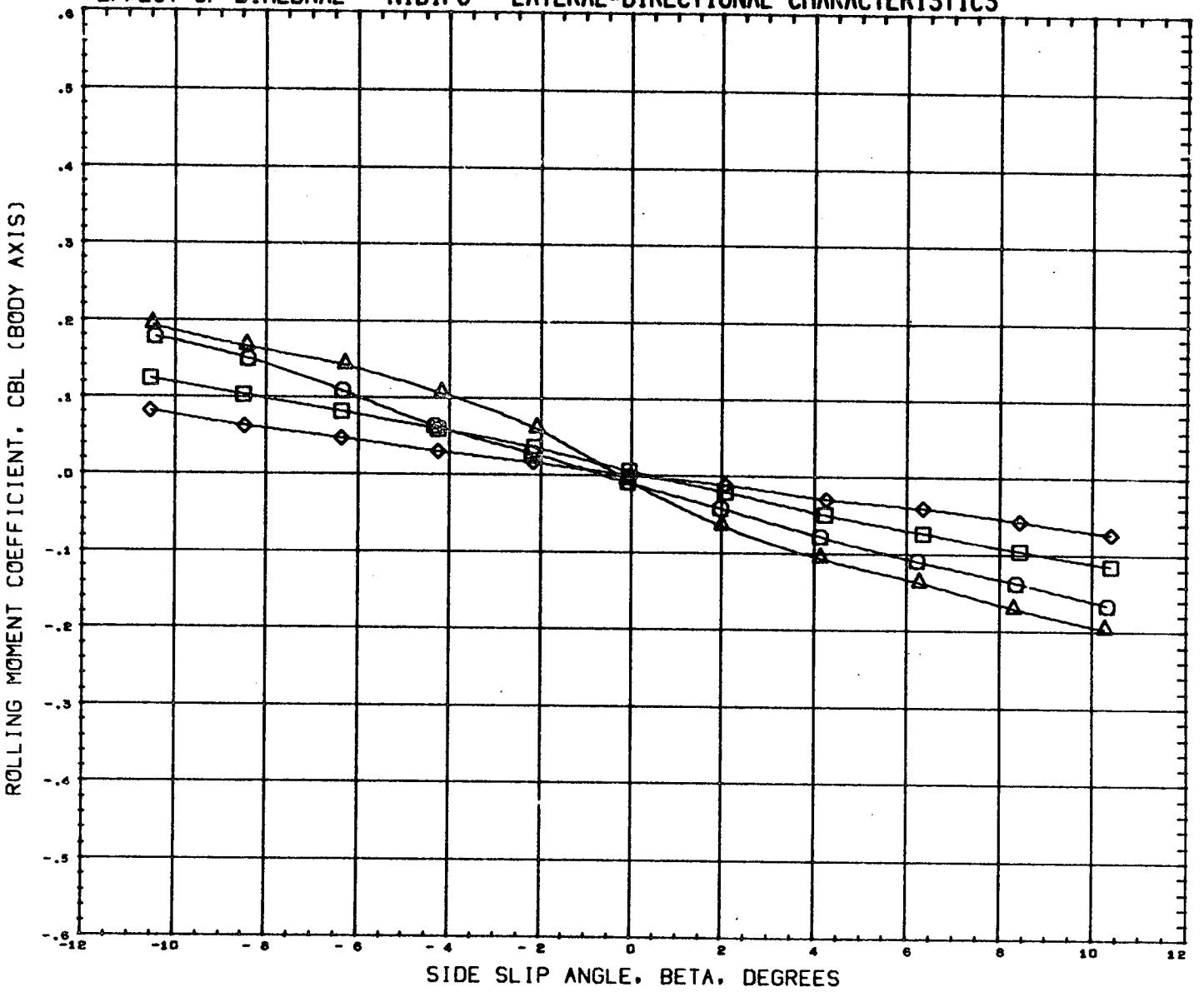


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(S54010)	○	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(M54023)	△	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(M54024)	□	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 0.901

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS



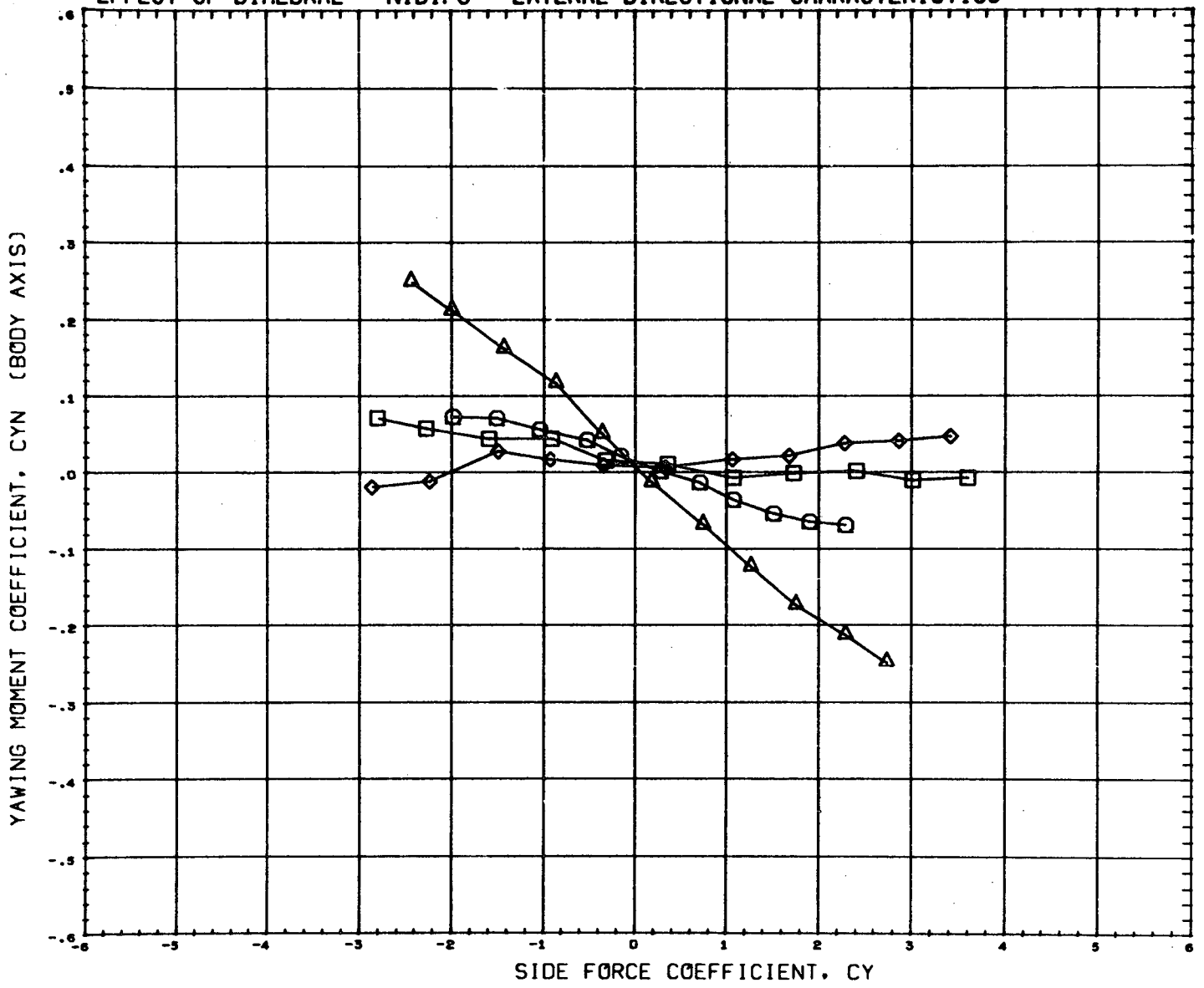
DATA SET SYMBOL	CONFIGURATION DESCRIPTION			ALPHA	DIHDRL
(S54010)	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(M54023)	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(M54024)	MSFC 518	MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.201

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.±230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS

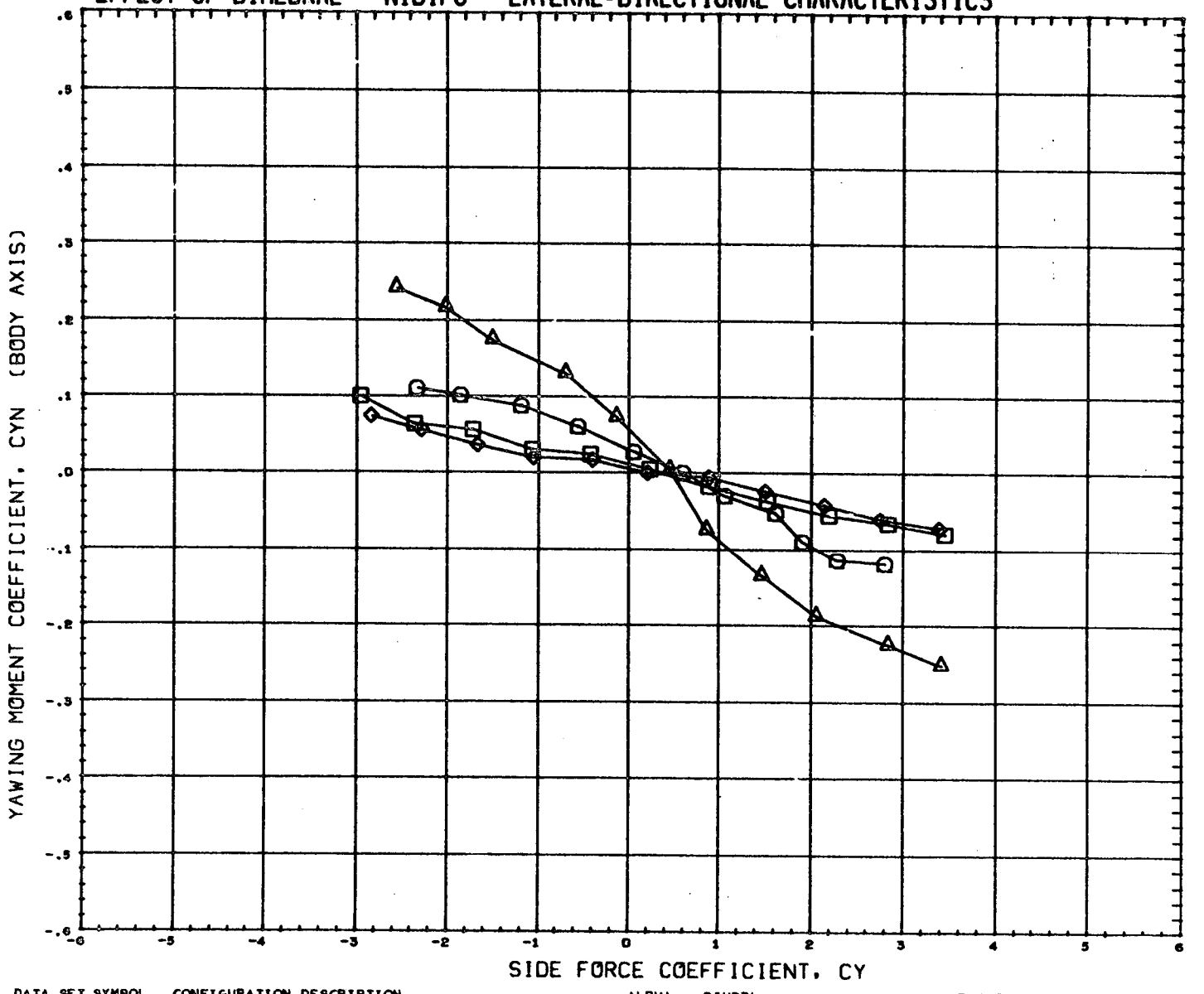


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(S54010)	○	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(M54023)	△	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)	◇	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(M54024)	□	MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 0.901

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECT OF DIHEDRAL - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS



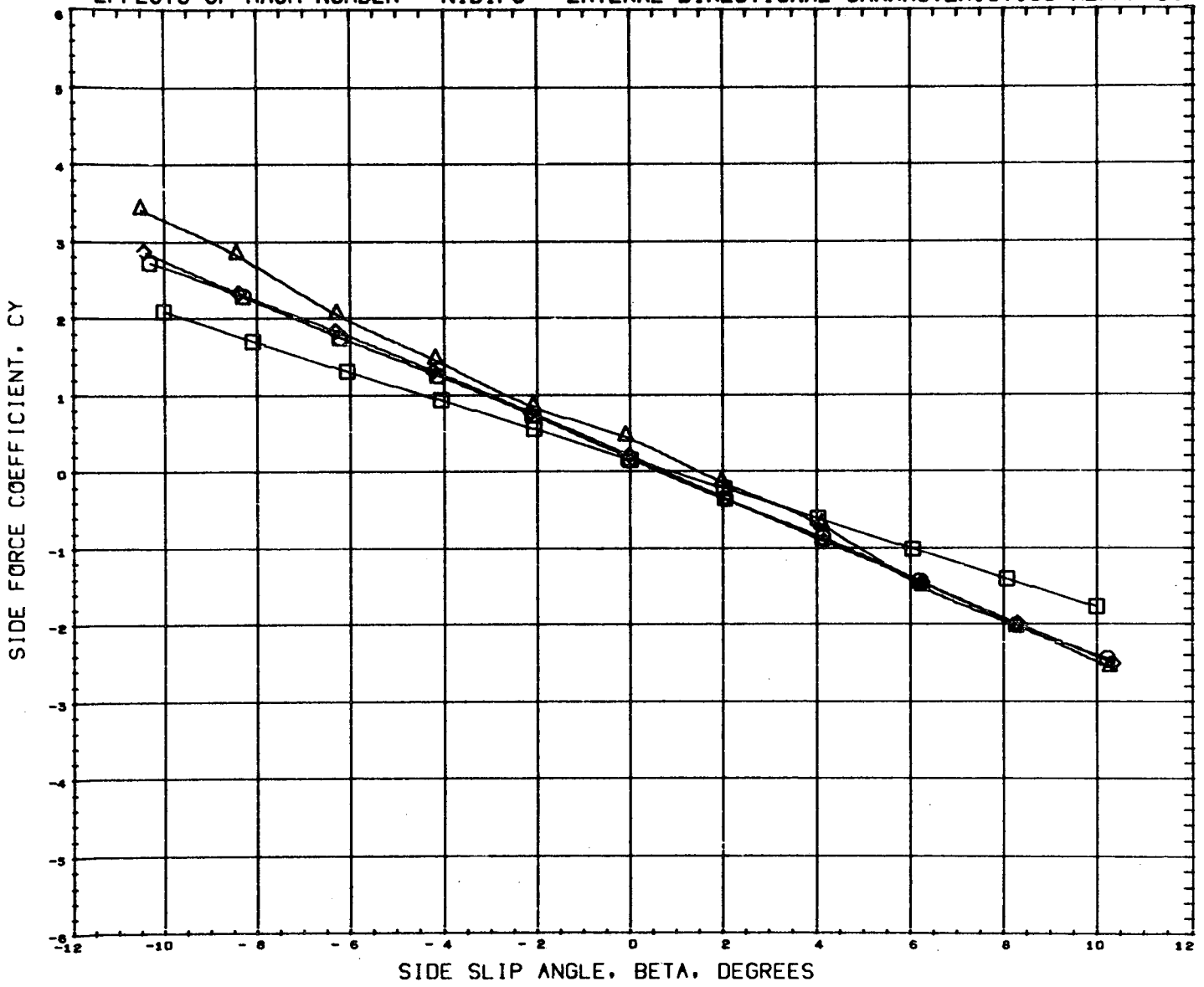
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(S54010)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	30.000
(M54023)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	30.000	45.000
(S54009)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	30.000
(M54024)		MSFC 518 MSFC PRESSURE FED BOOSTER	N1B1F6	50.000	45.000

MACH 1.201

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

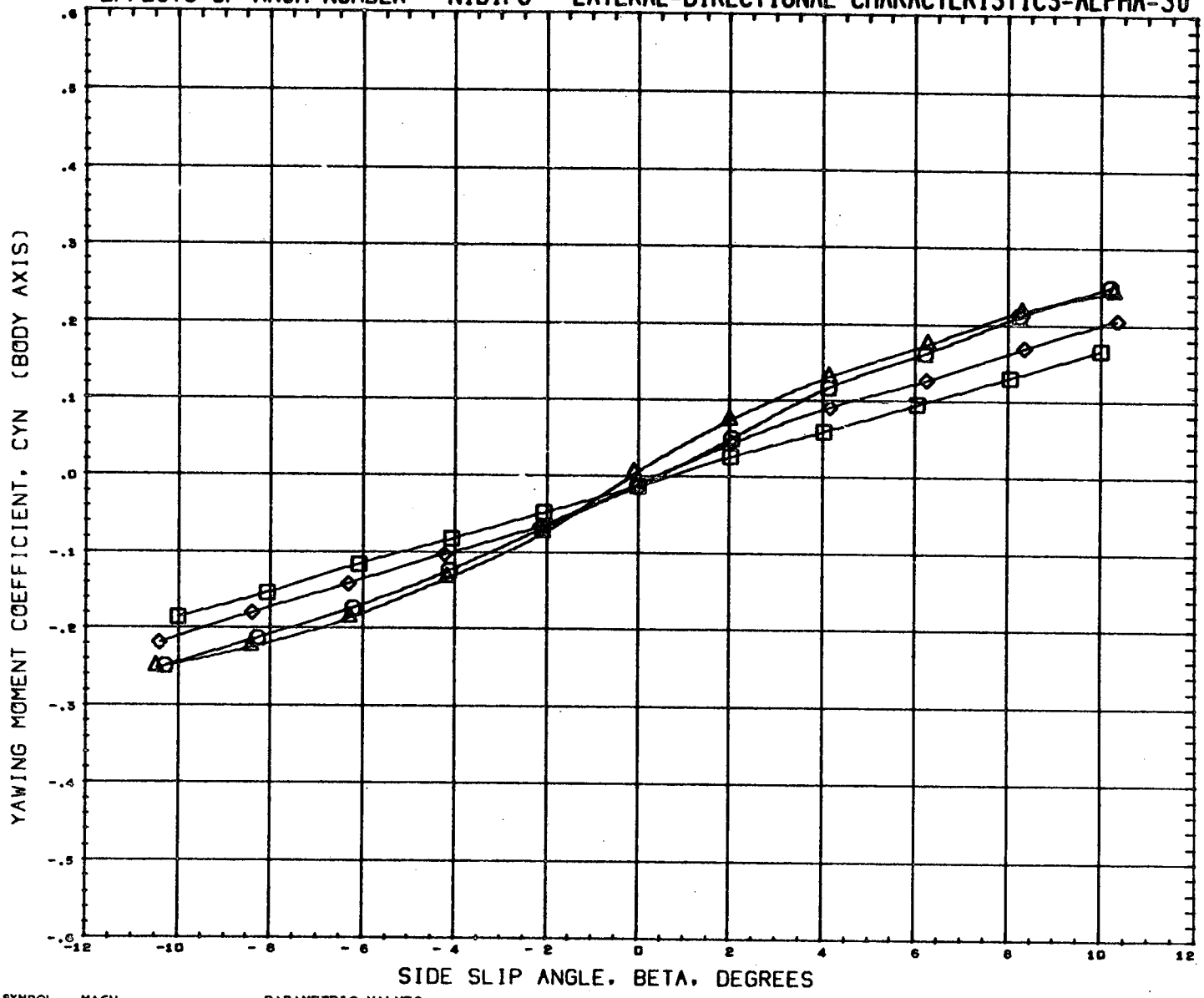


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.903	ALPHA	30.000	DIHDRL	45.000
△	1.199				
◇	1.961				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



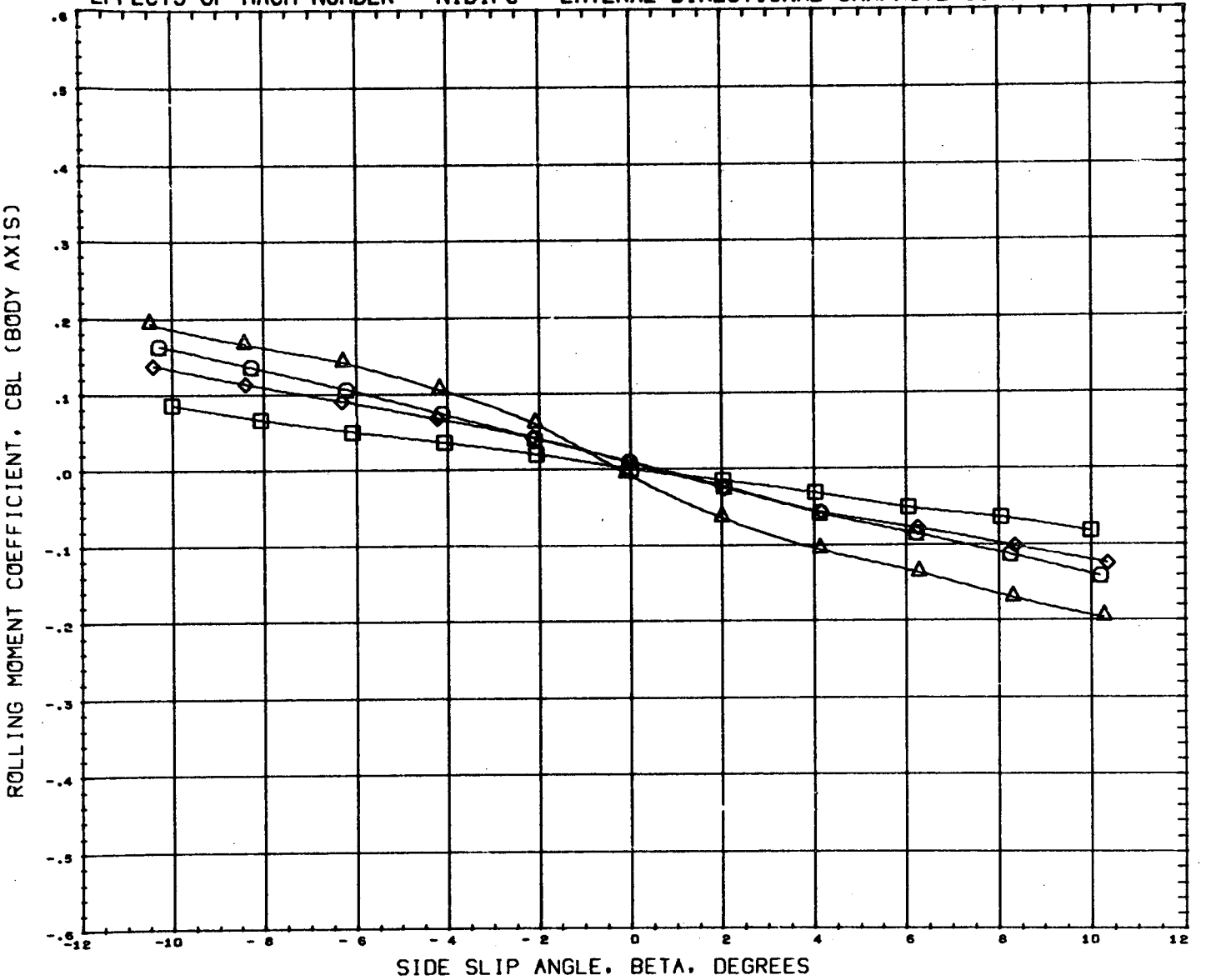
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.903	ALPHA	30.000	DIHDRL	45.000
△	1.199				
◇	1.961				
□	4.959				

DATA HIST. CODE 8

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

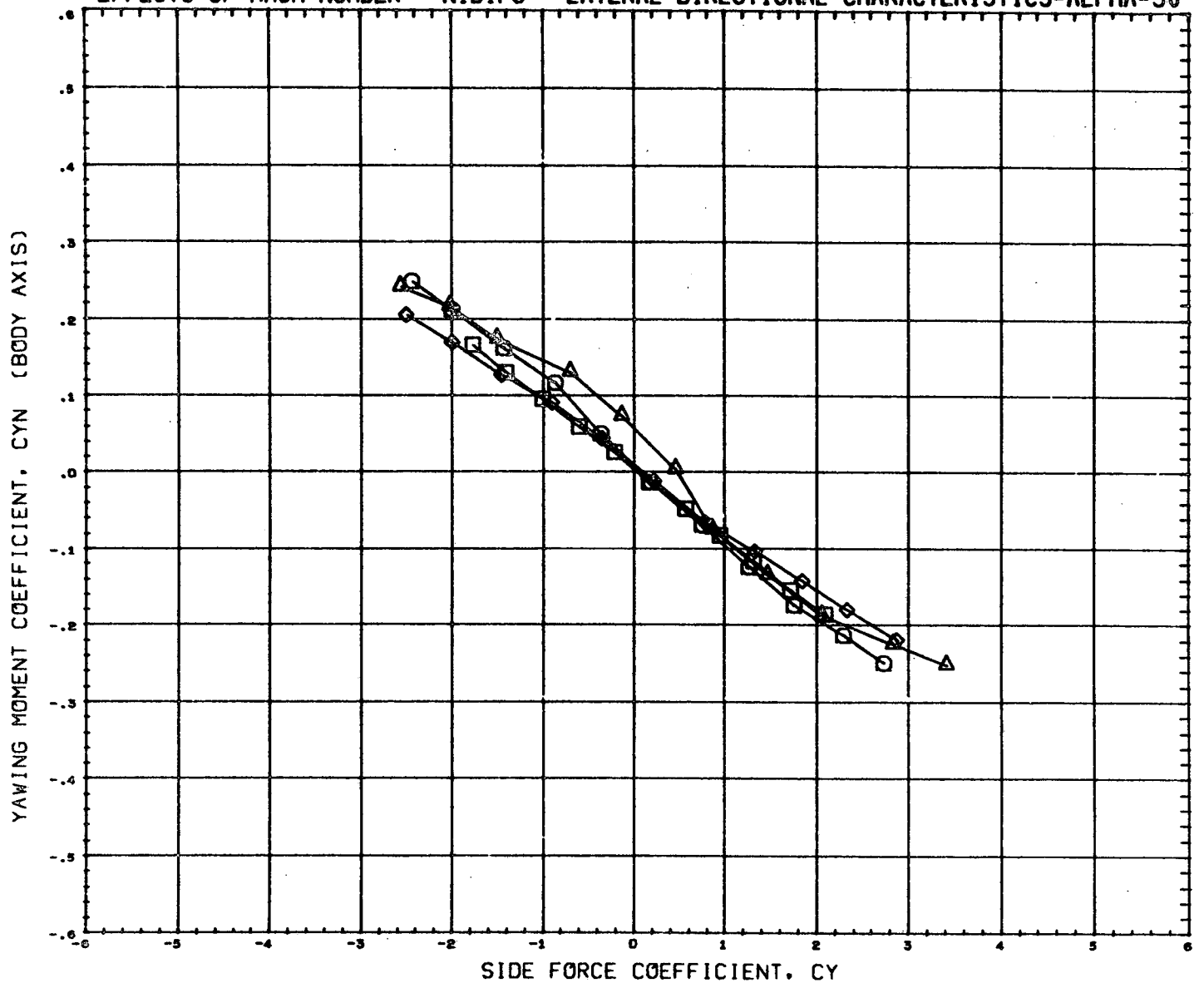


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.903	ALPHA	30.000	DIHDRL	45.000
△	1.199				
◇	1.961				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

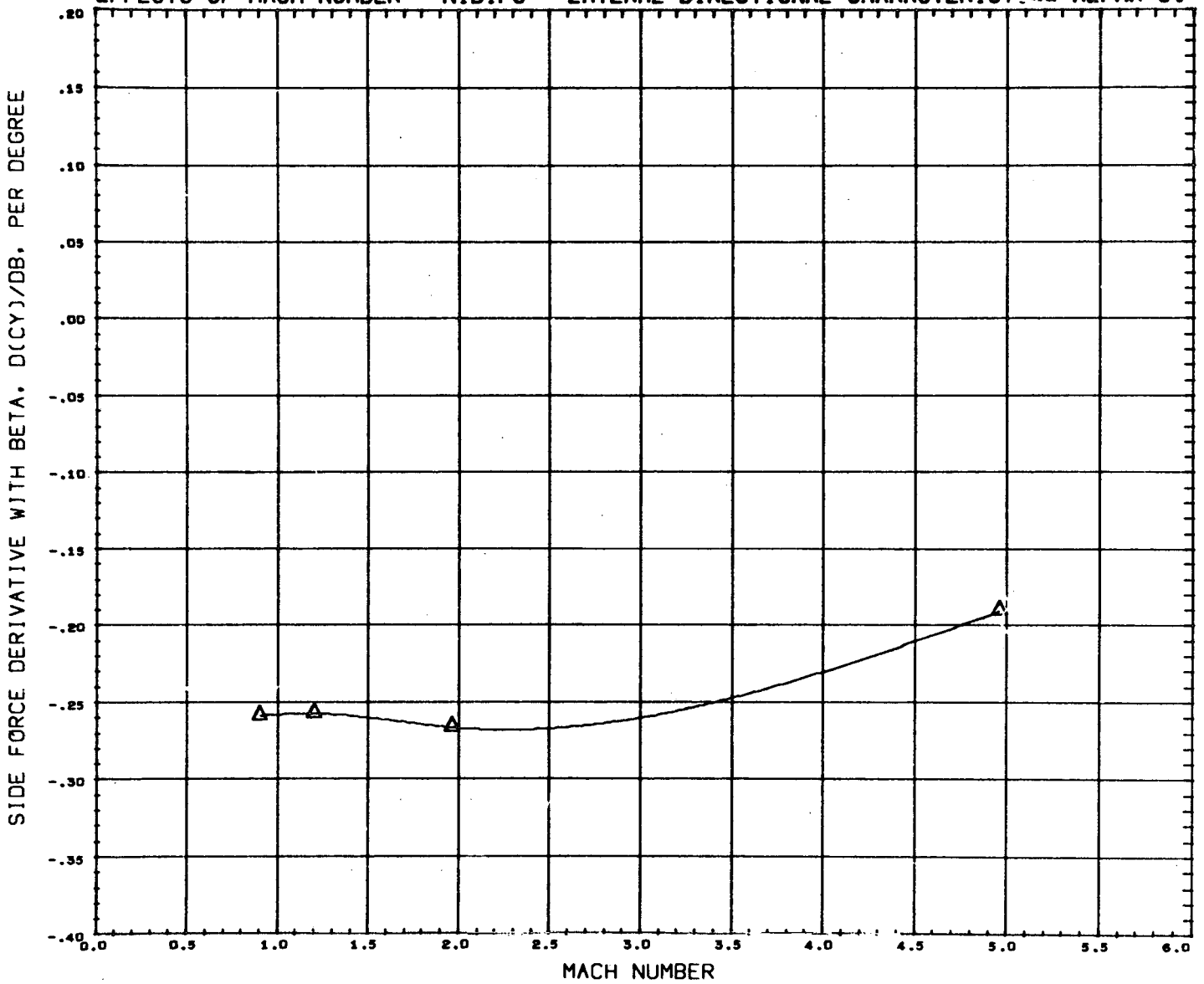


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.903	ALPHA	30.000	DIHDRL	45.000
△	1.199				
◇	1.961				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



PARAMETRIC VALUES

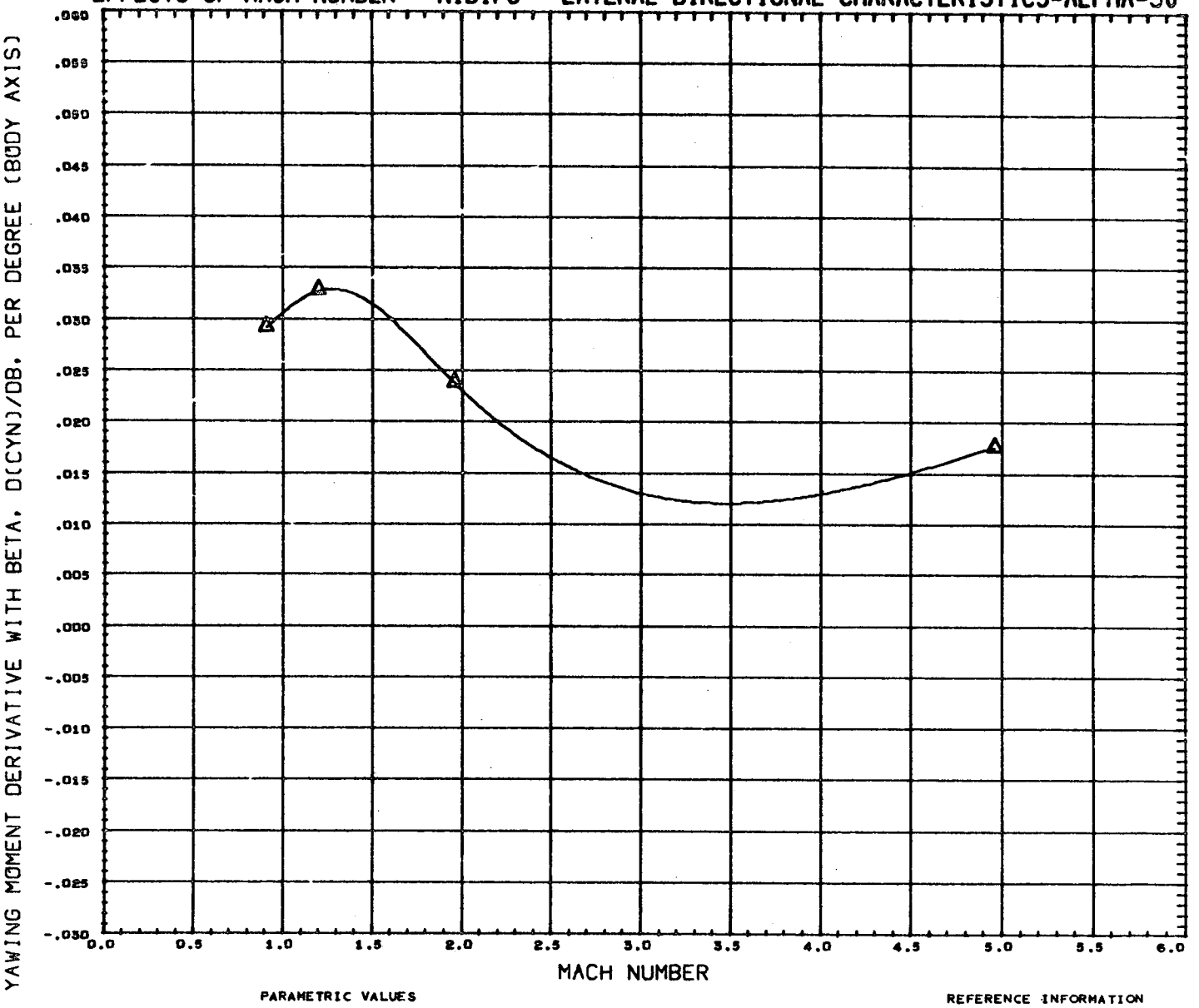
ALPHA 30.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE S

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



PARAMETRIC VALUES

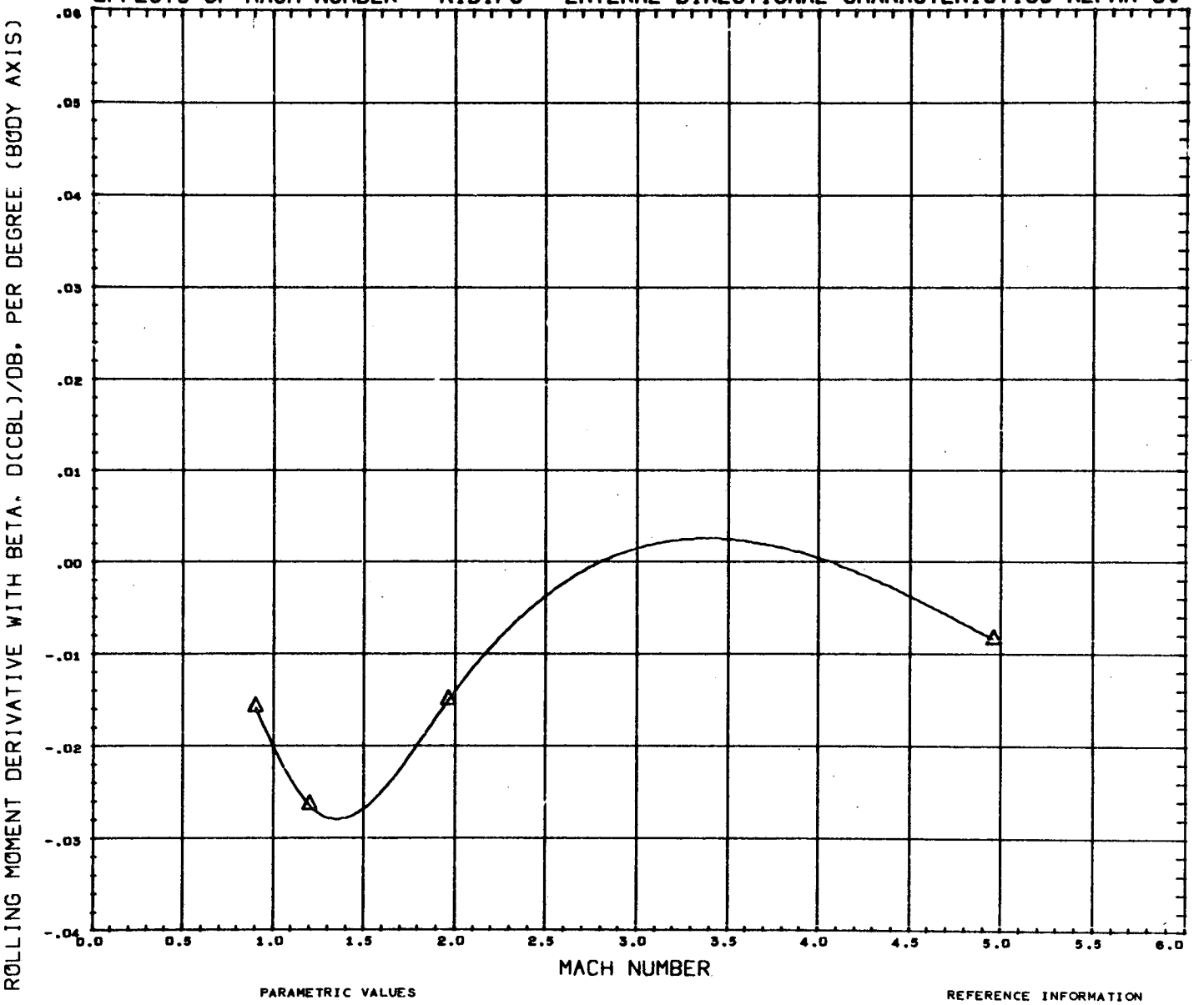
ALPHA 30.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE S

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



PARAMETRIC VALUES

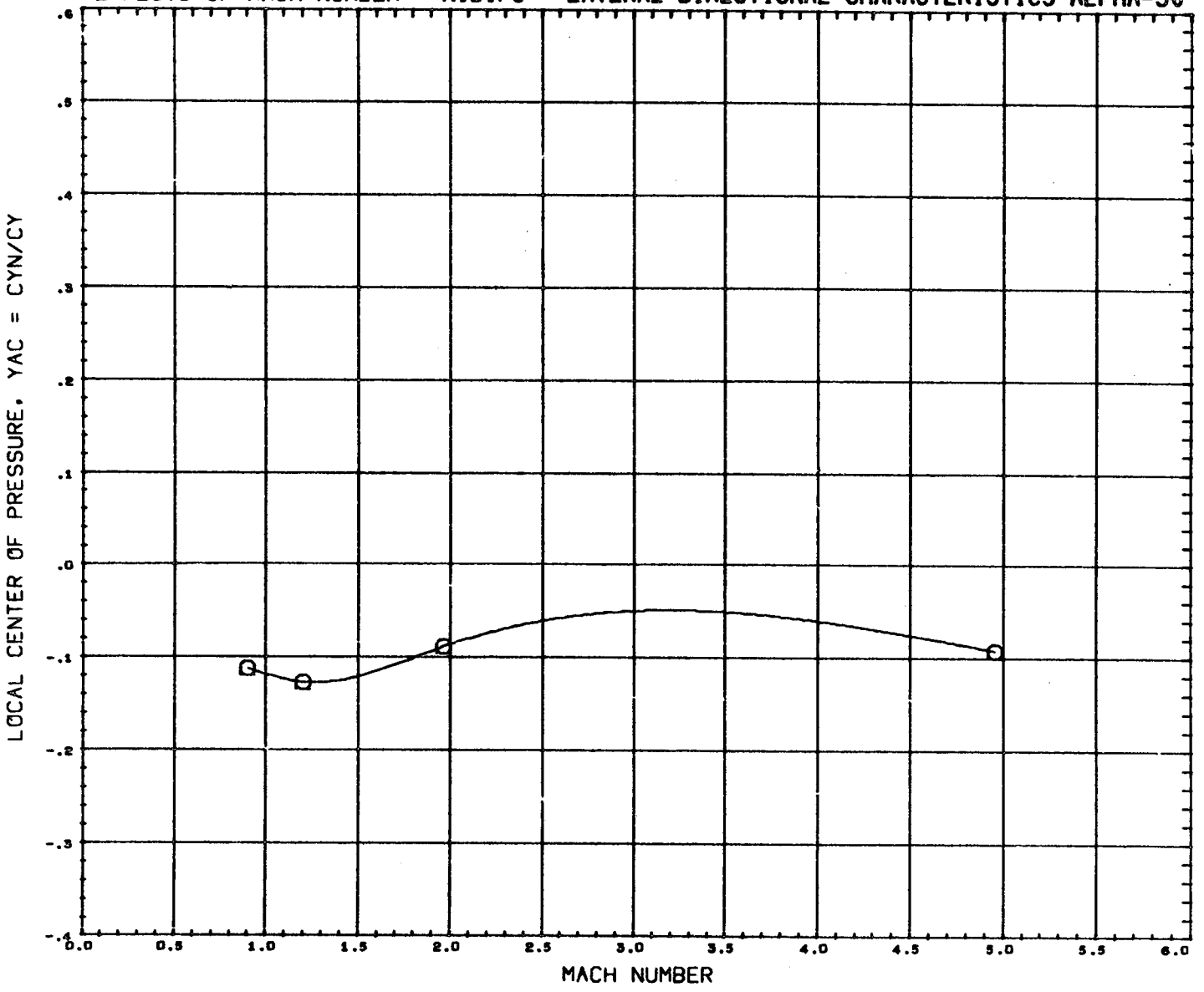
ALPHA 30.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE S

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

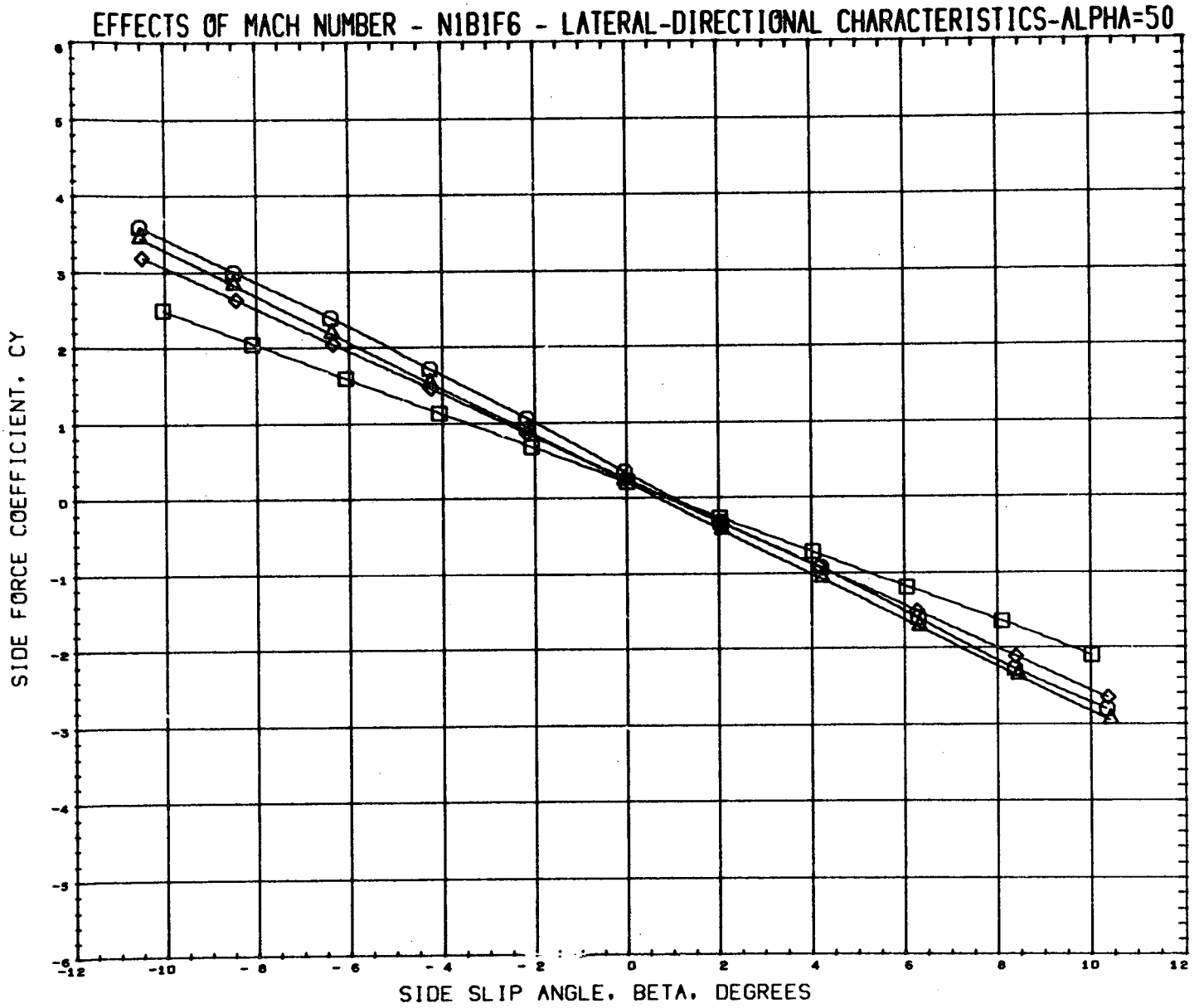


SYMBOL	BETA		PARAMETRIC VALUES		
O	0.000	ALPHA	30.000	DIHDRL	45.000

DATA HIST. CODE SCI

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

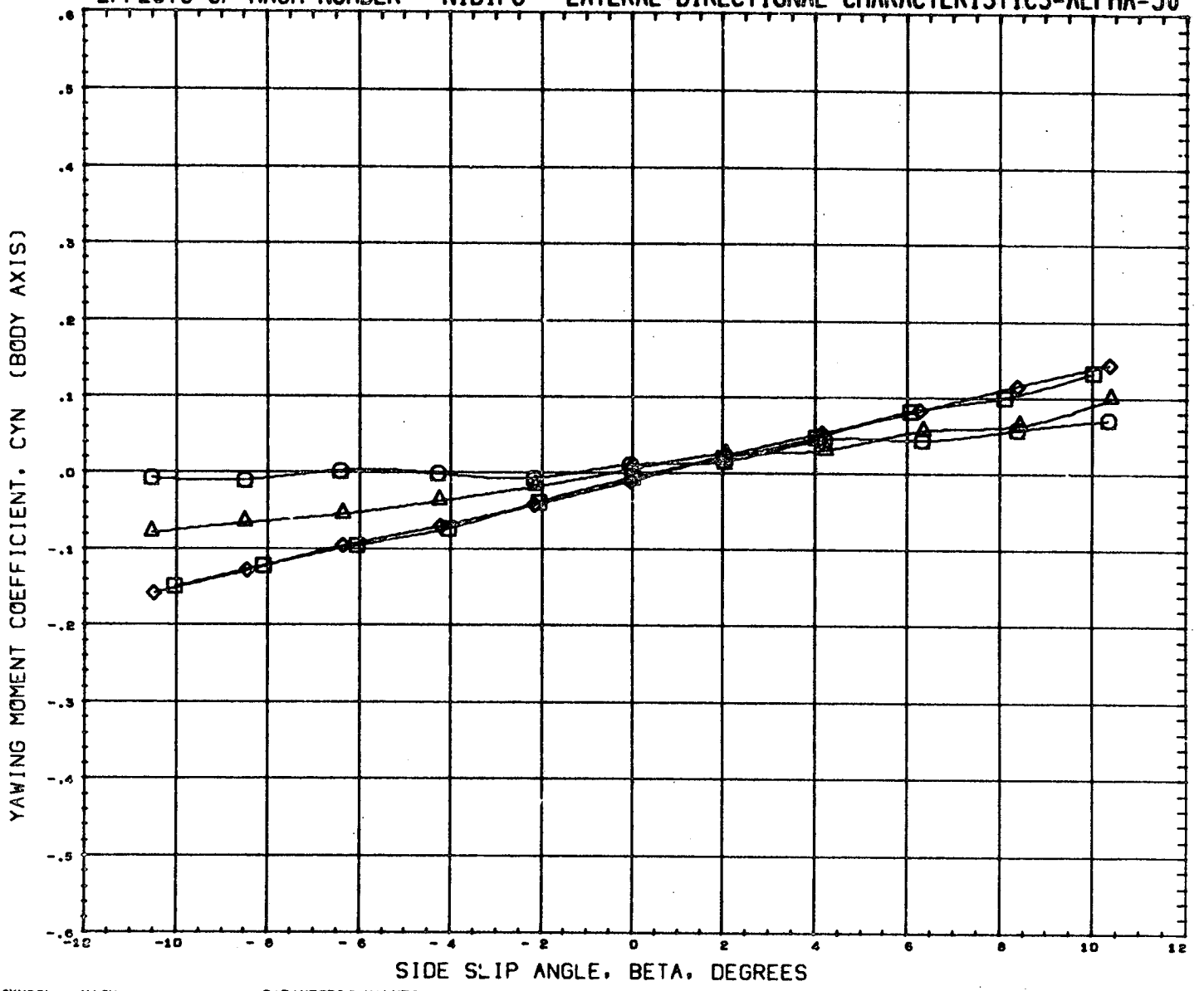


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.902	ALPHA	50.000	DIHDRL	45.000
△	1.199				
◇	1.960				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50



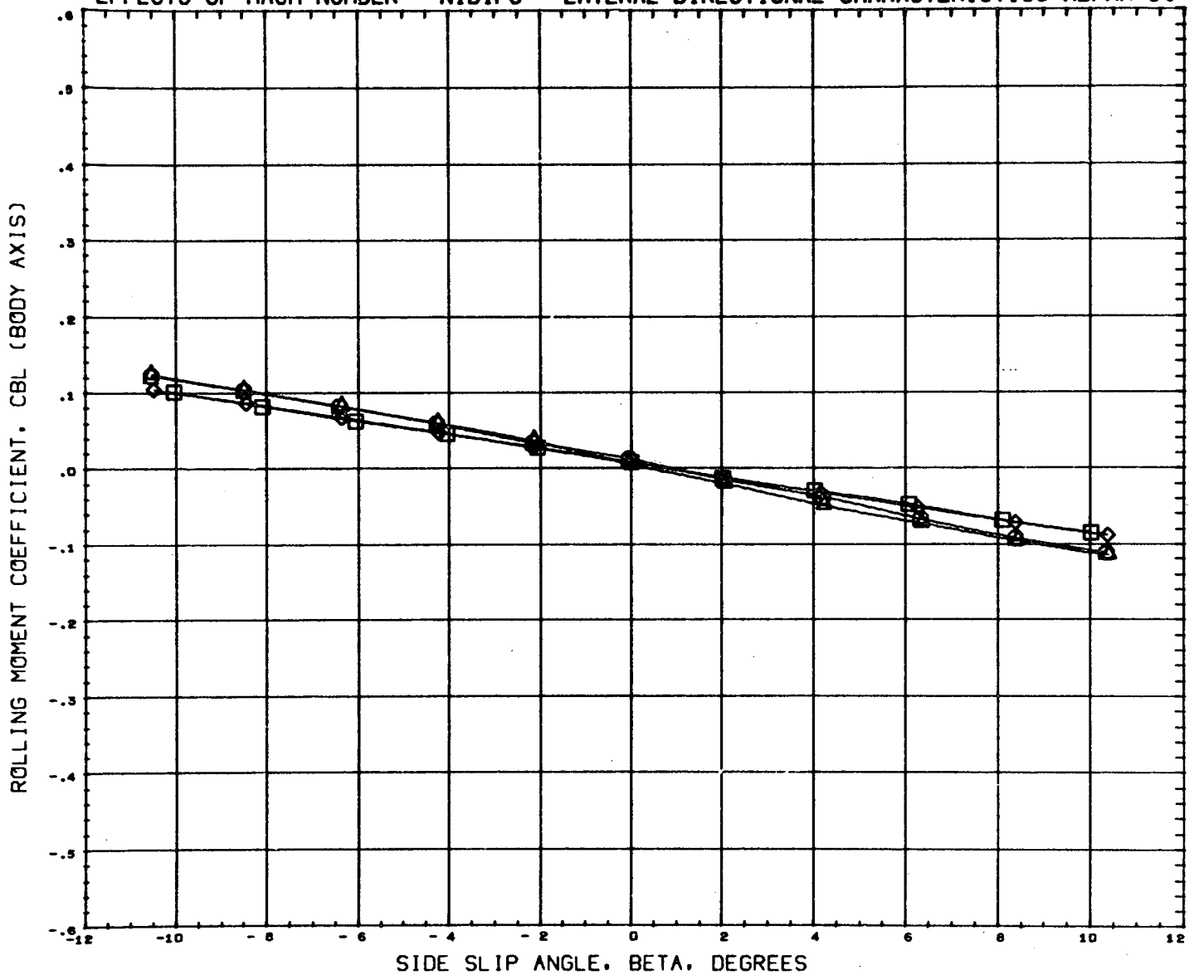
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.902	ALPHA	50.000	DIHDRL	45.000
△	1.199				
◇	1.960				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50

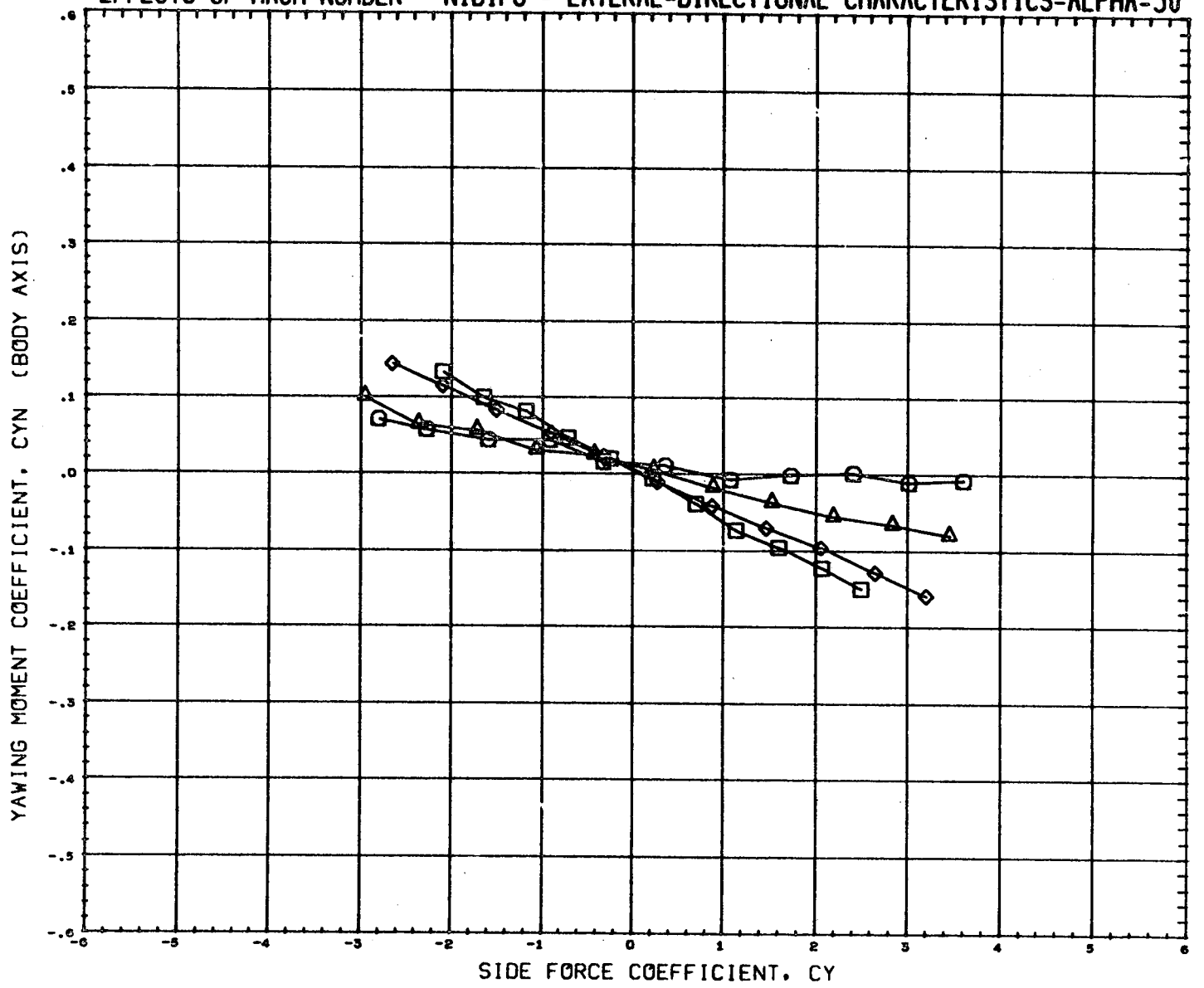


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.902	ALPHA	50.000	DIHDRL	45.000
△	1.199				
◇	1.960				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50



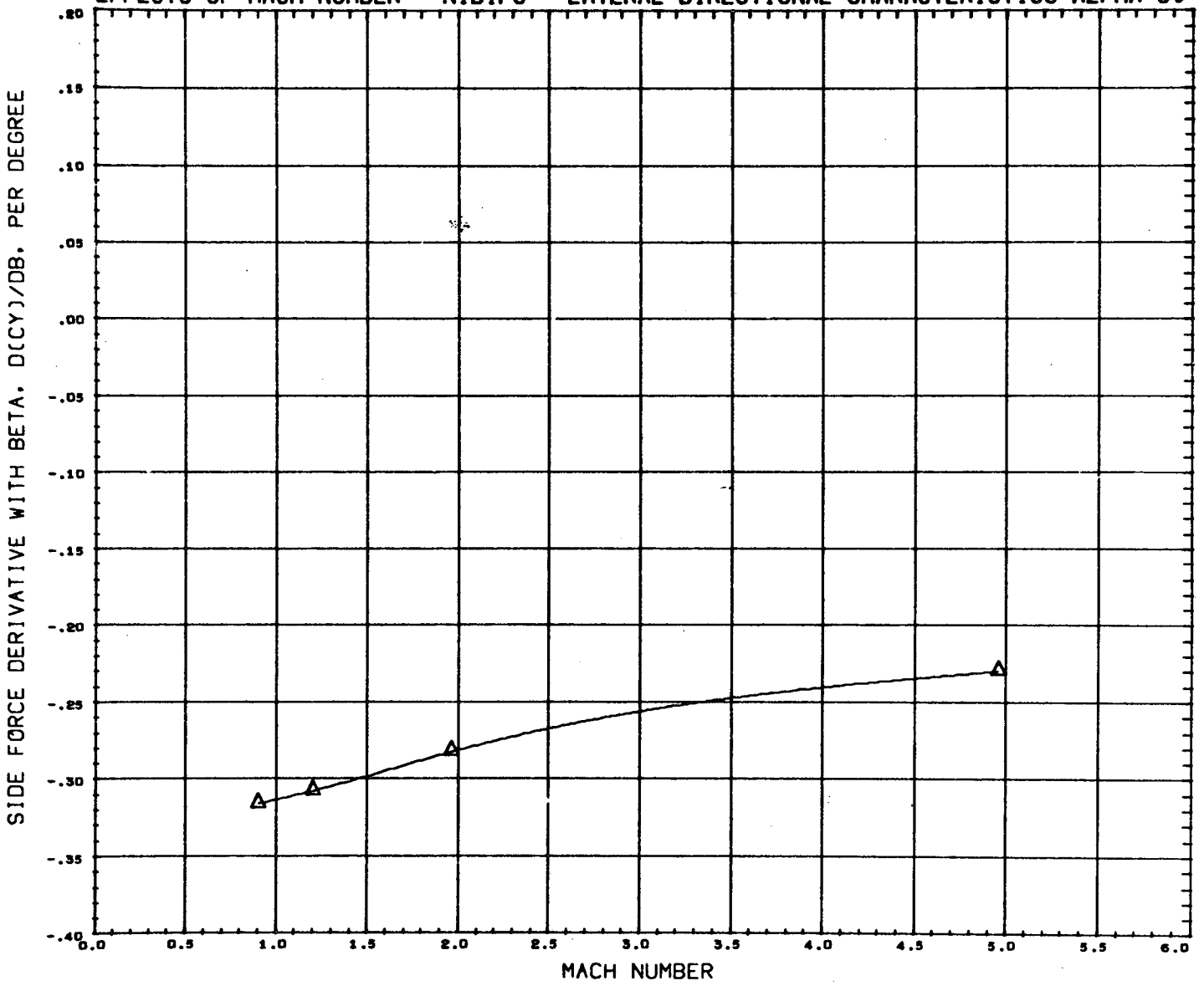
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.902	ALPHA	50.000	DIHDRL	45.000
△	1.199				
◇	1.960				
□	4.959				

DATA HIST. CODE S

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.5340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50



PARAMETRIC VALUES

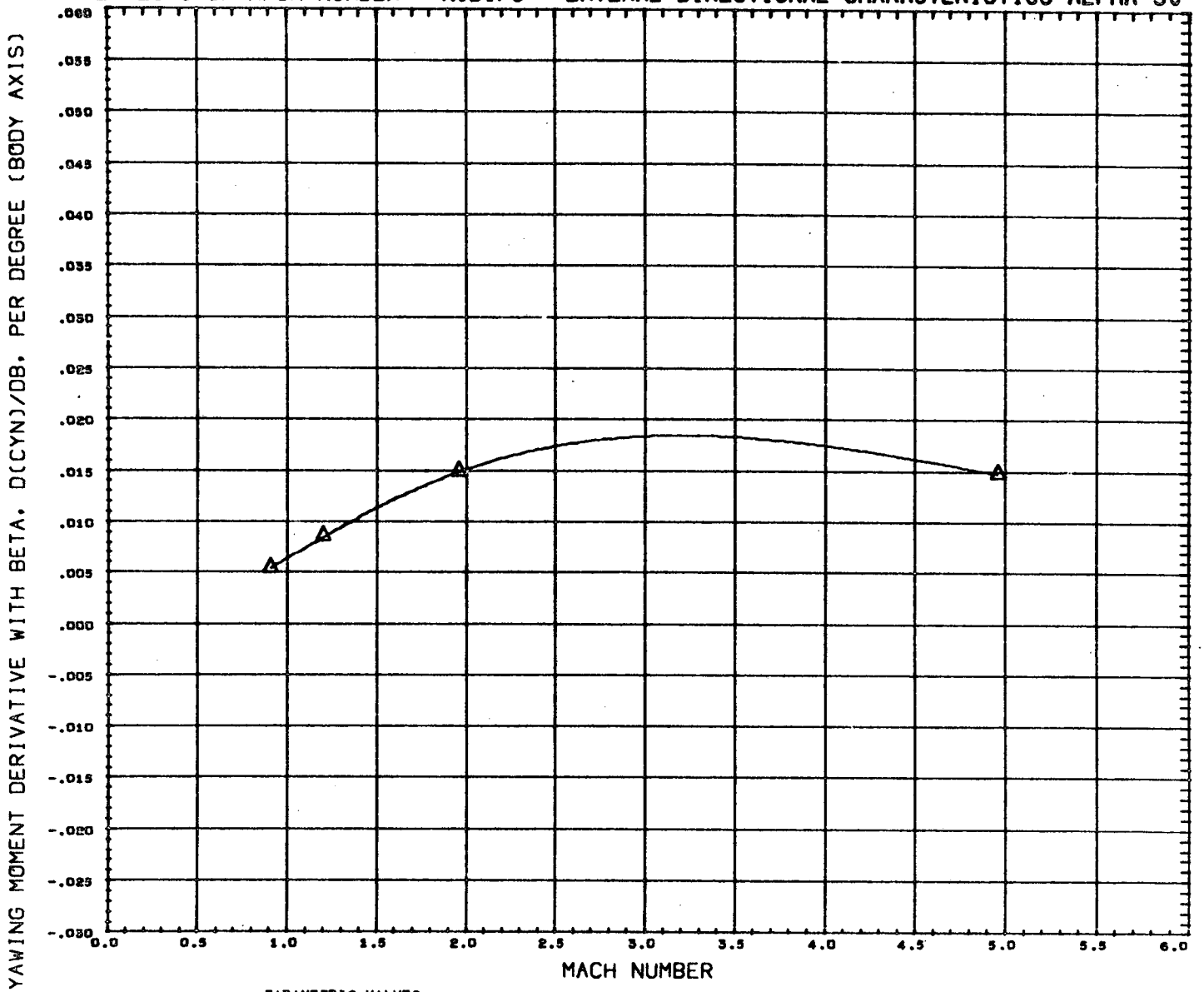
ALPHA 50.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE S

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50



PARAMETRIC VALUES

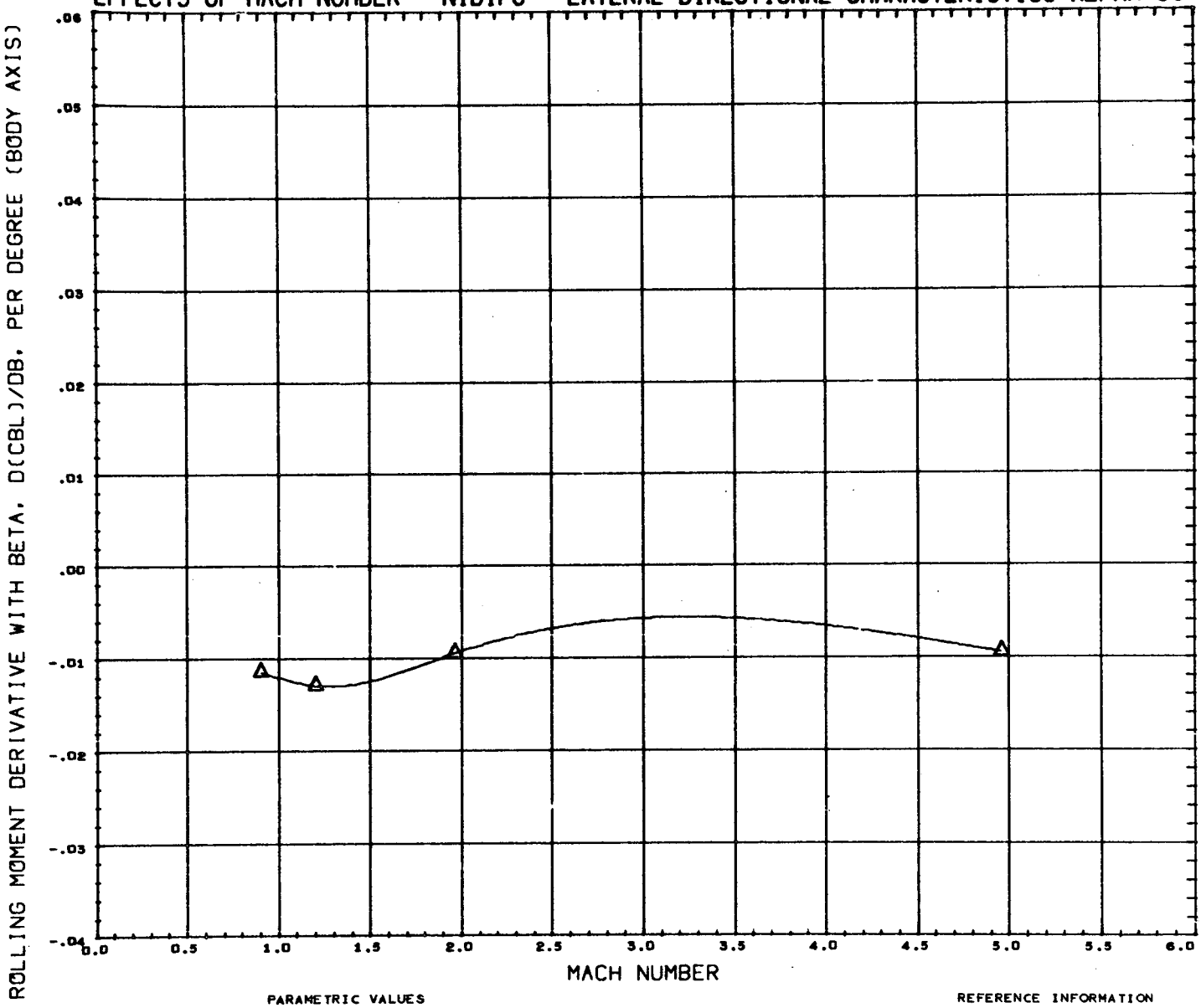
ALPHA	50.000	DIHDRL	45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE 8

EFFECTS OF MACH NUMBER - N1B1F6 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=50



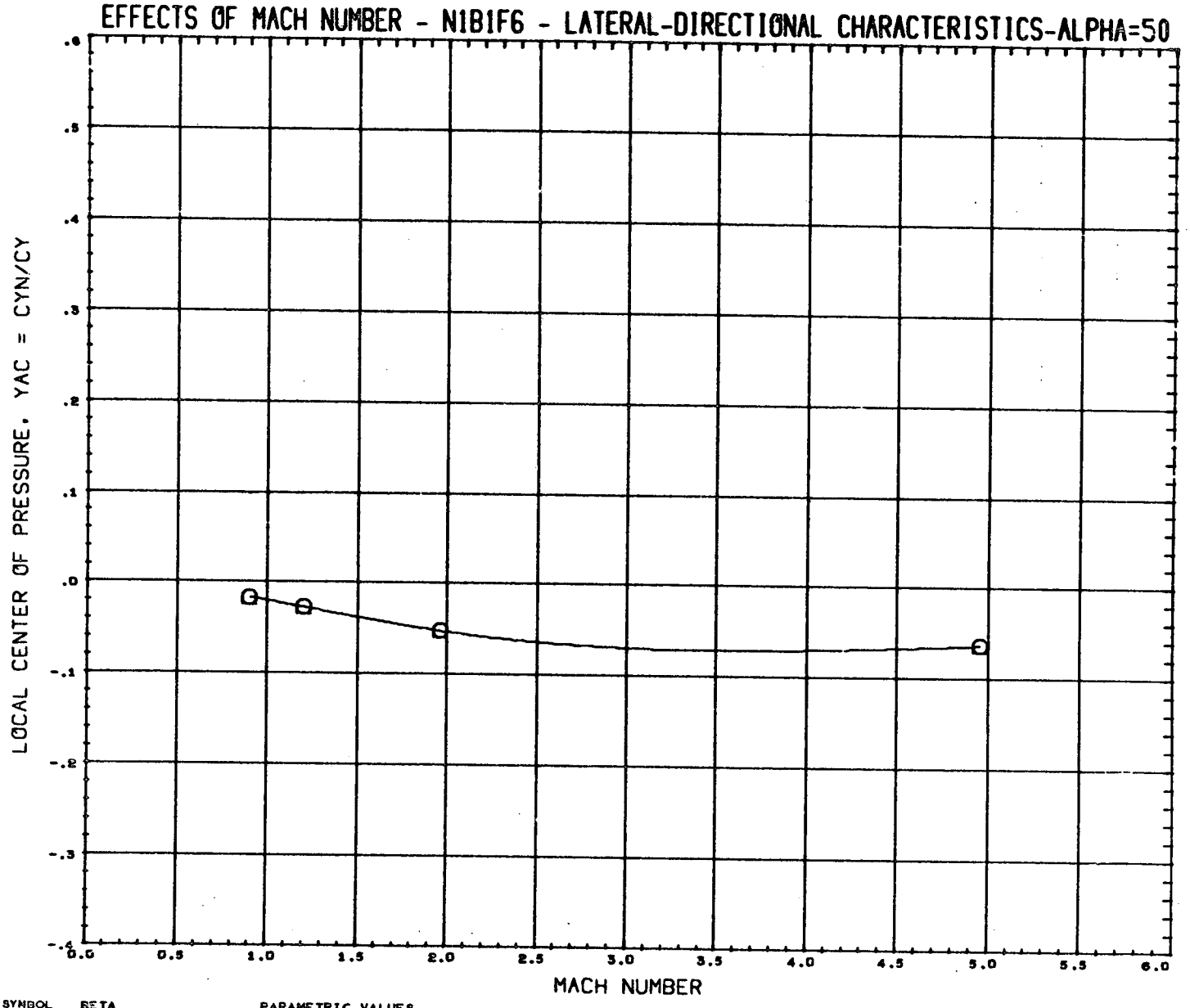
PARAMETRIC VALUES

ALPHA 50.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE S



SYMBOL BETA PARAMETRIC VALUES

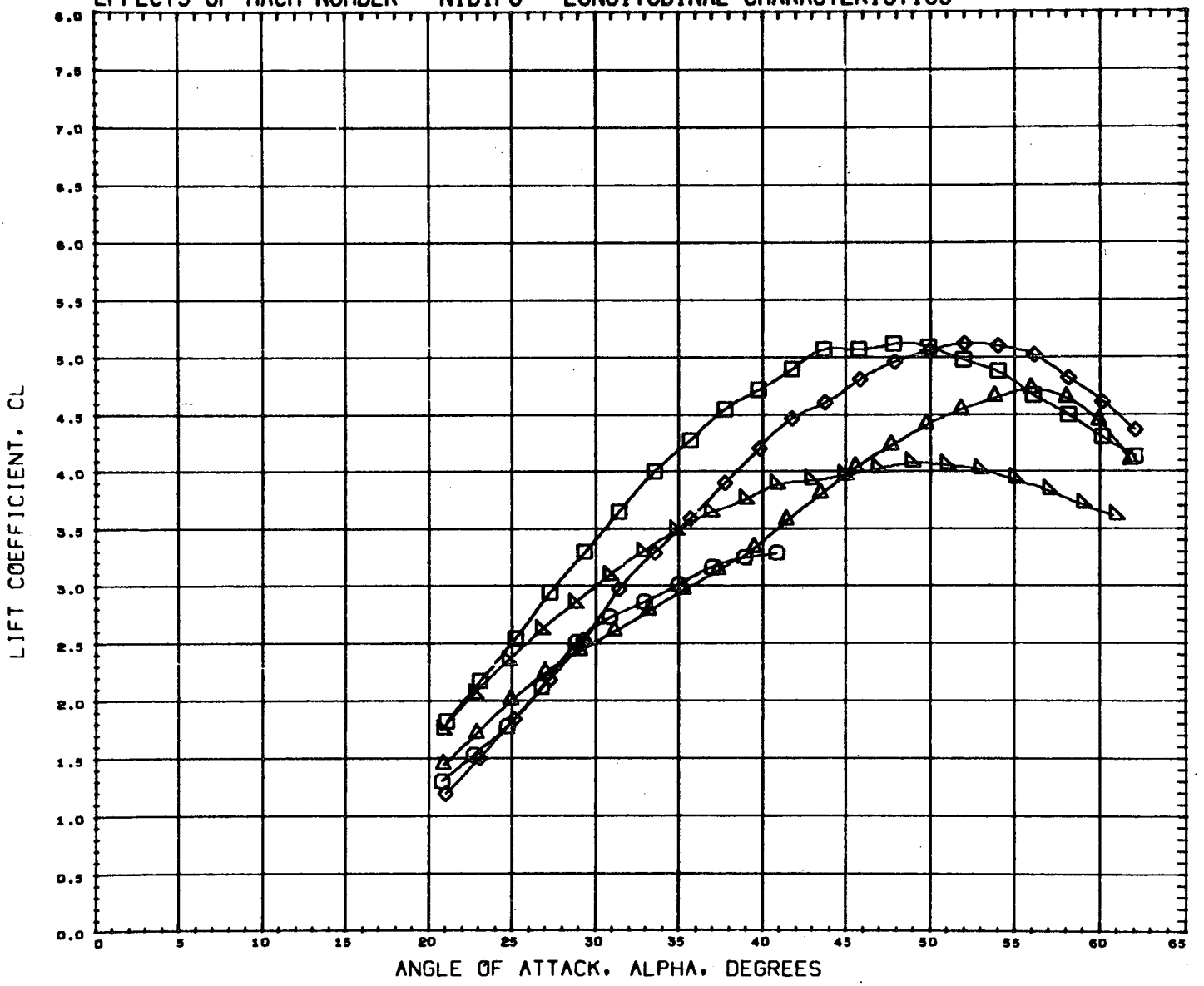
O 0.000 ALPHA 50.000 DIHDRL 45.000

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE SCI

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
◸	4.959

PARAMETRIC VALUES

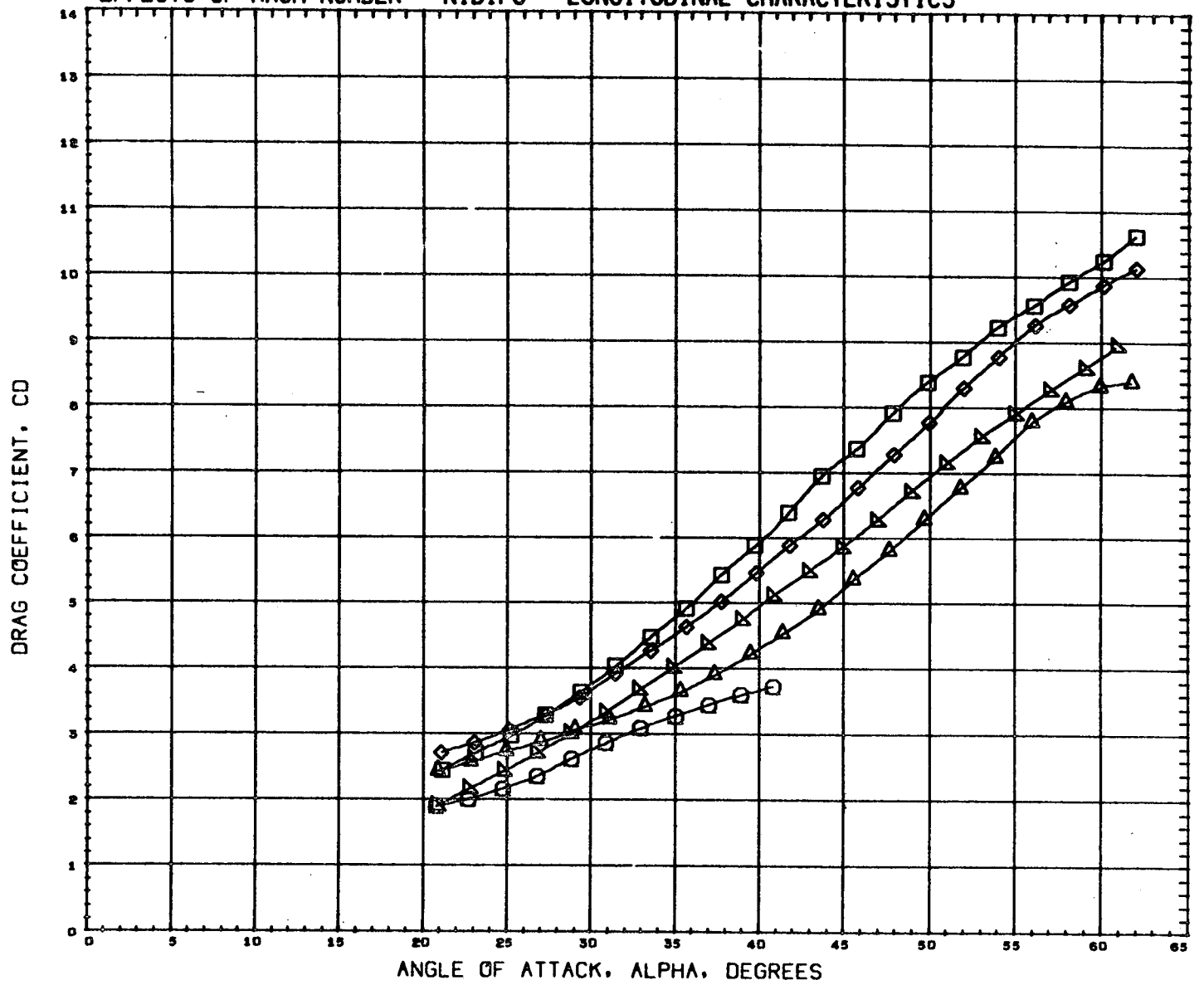
BETA 0.000 DIHDRL 45.000

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
▽	4.959

PARAMETRIC VALUES

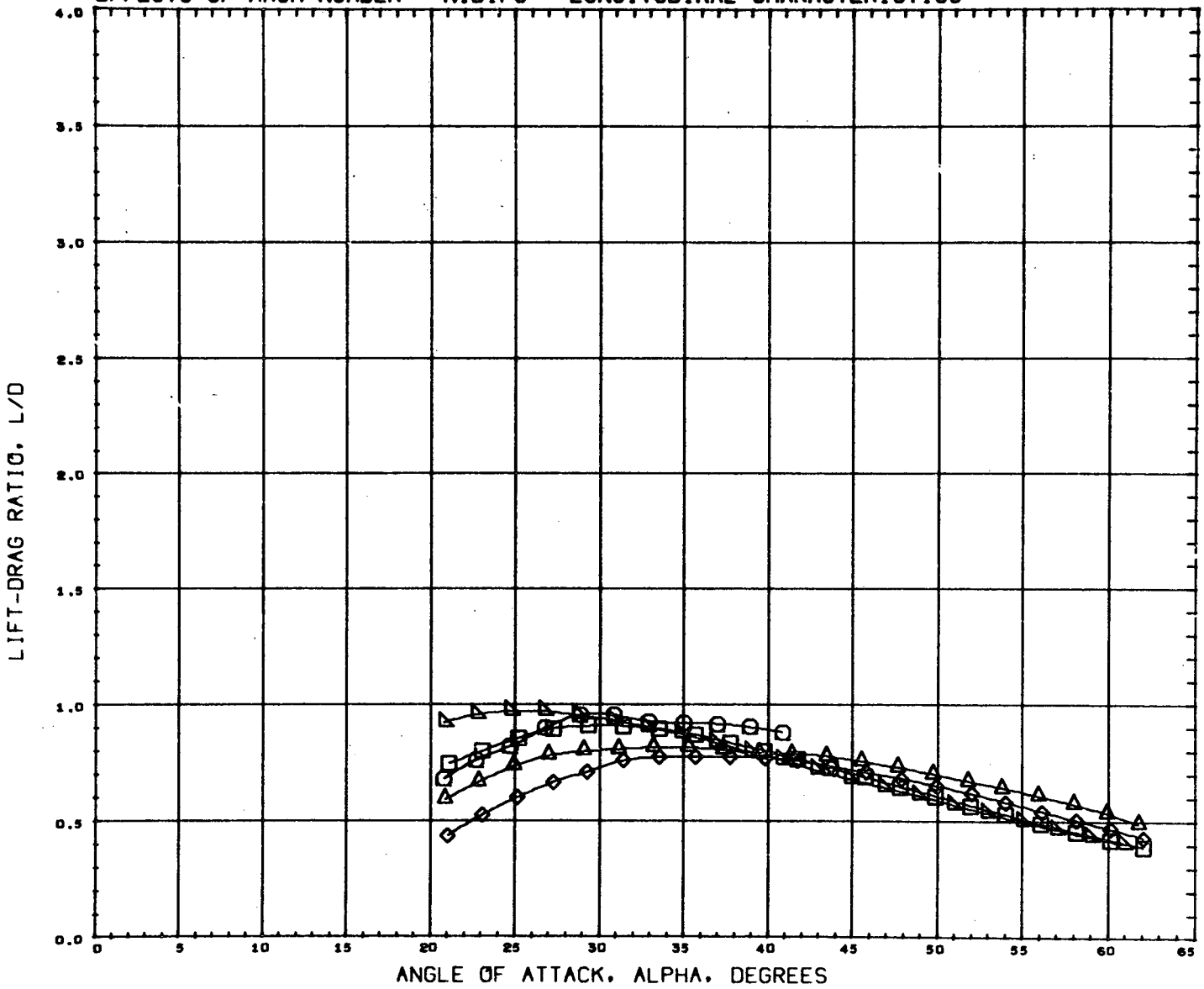
BETA 0.000 DIHDRL 45.000

DATA MIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



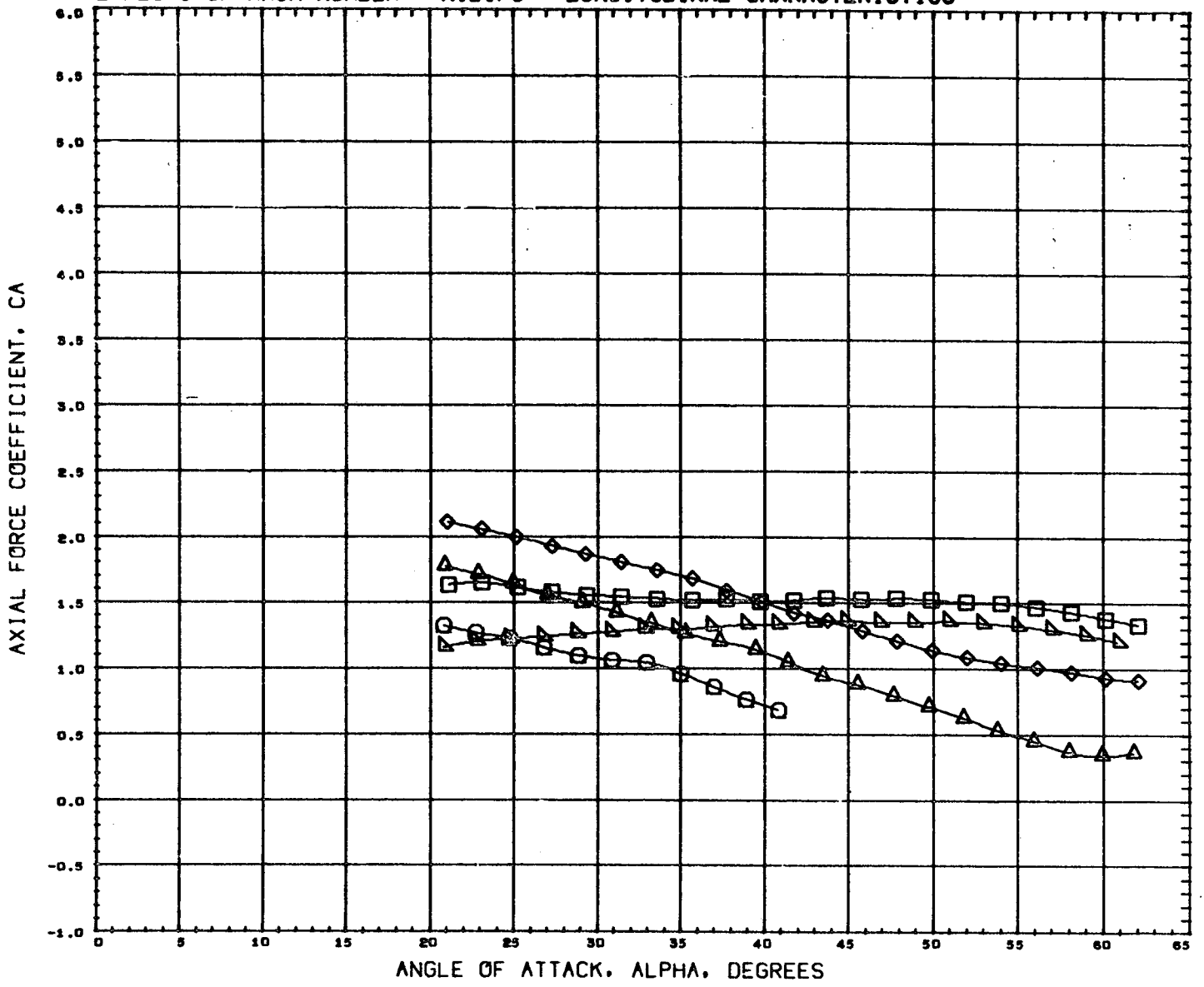
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.599	BETA	0.000	DIHDRL	45.000
△	0.900				
◇	1.197				
□	1.961				
▽	4.959				

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1FC - LONGITUDINAL CHARACTERISTICS

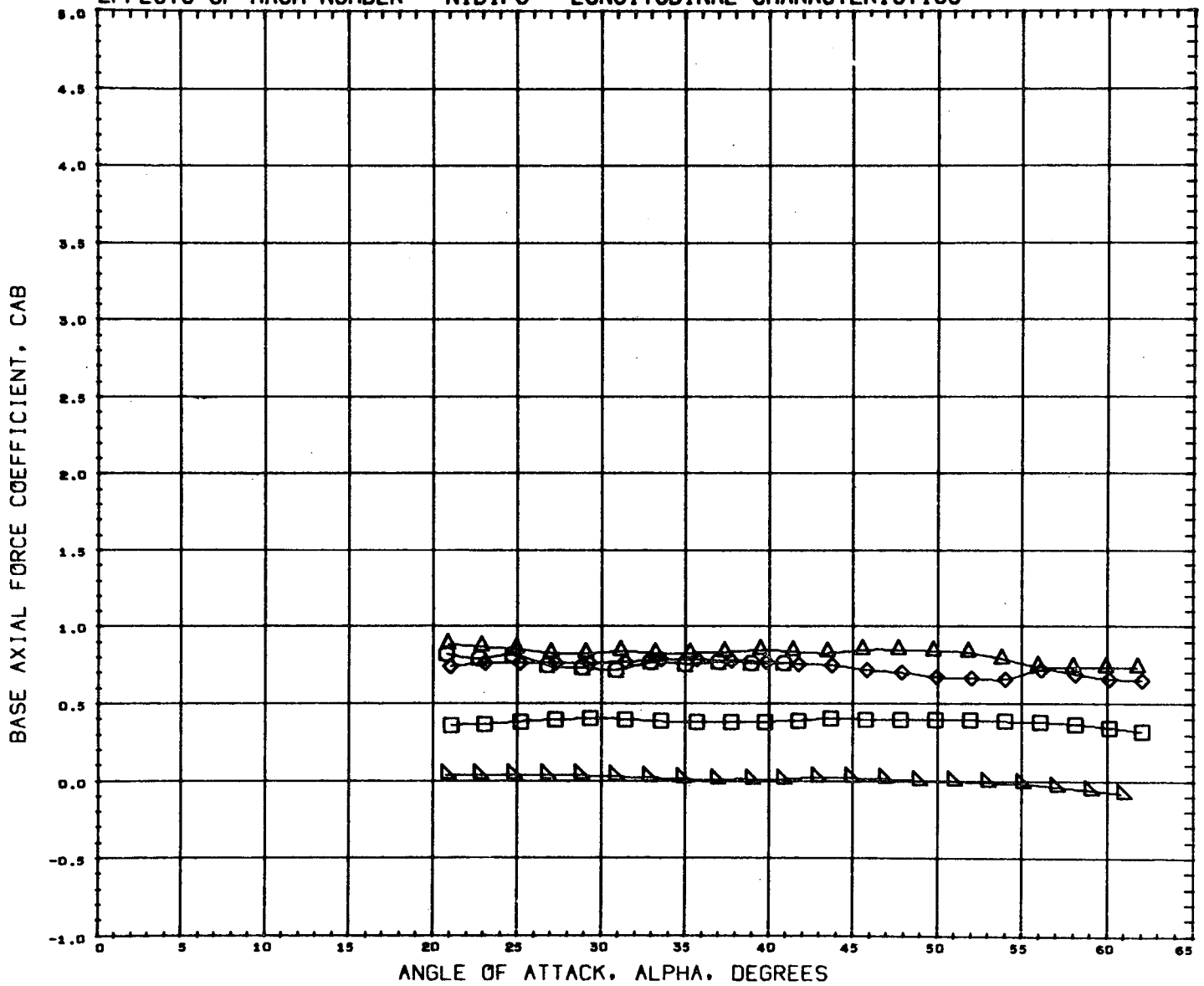


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.599	BETA	0.000	DIHDRL	45.000
△	0.900				
◇	1.197				
□	1.961				
◸	4.959				

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS

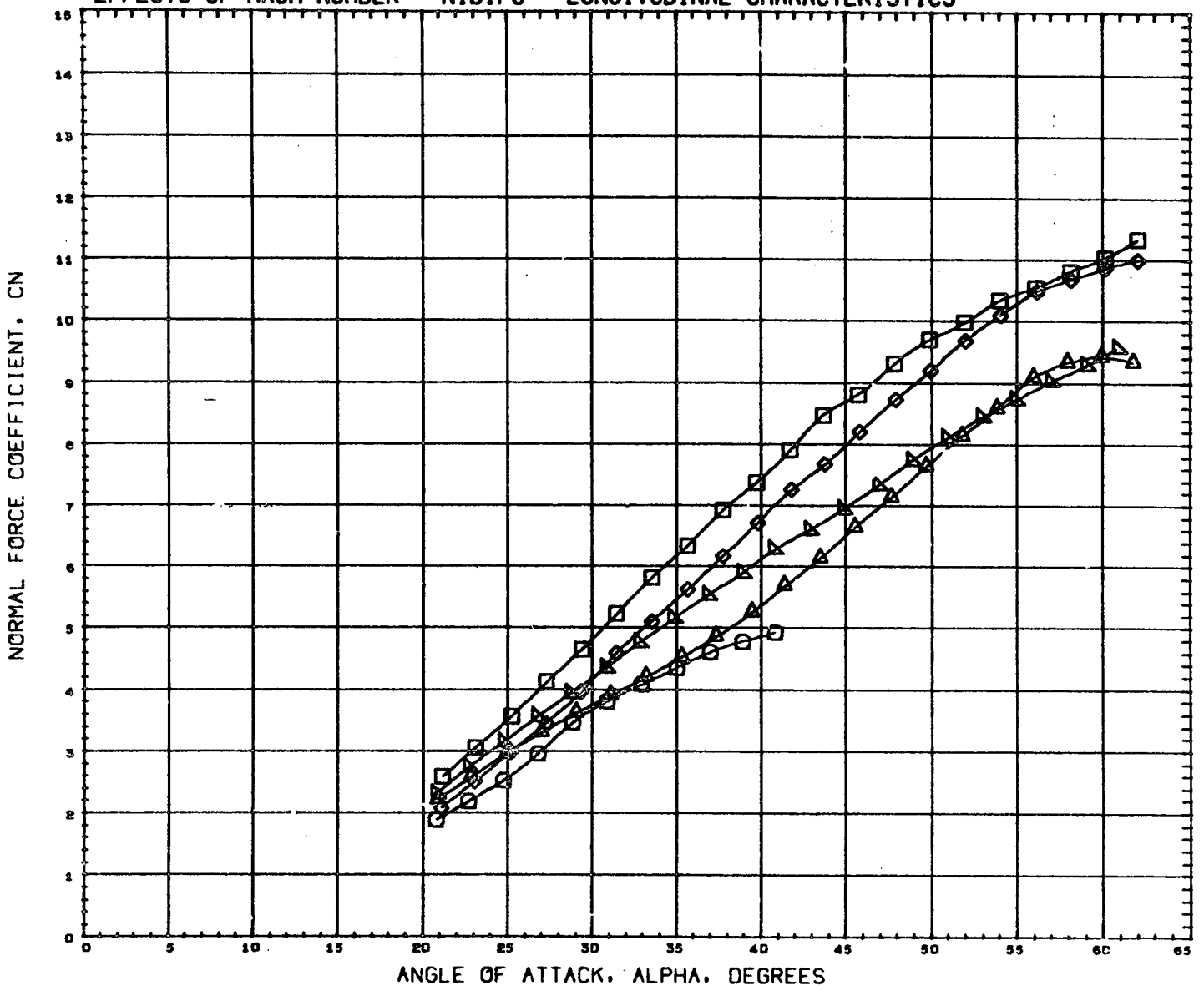


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.599	BETA	0.000	DIHDRL	45.000
△	0.900				
◇	1.197				
□	1.961				
▷	4.959				

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



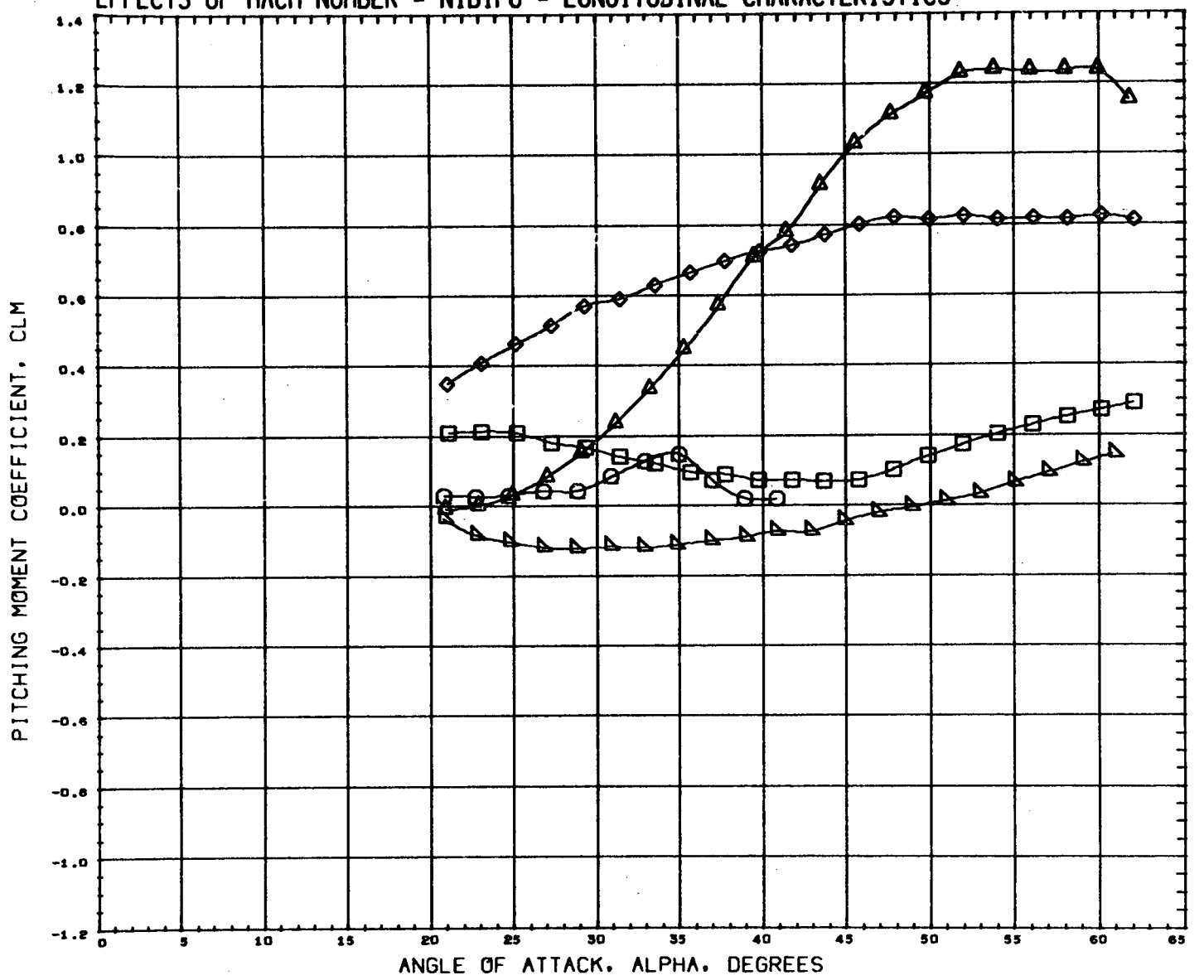
SYMBOL	MACH	PARAMETRIC VALUES			
□	0.599	BETA	0.000	DIHDRL	45.000
△	0.900				
◇	1.197				
▽	1.961				
◁	4.959				

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
▽	4.959

PARAMETRIC VALUES

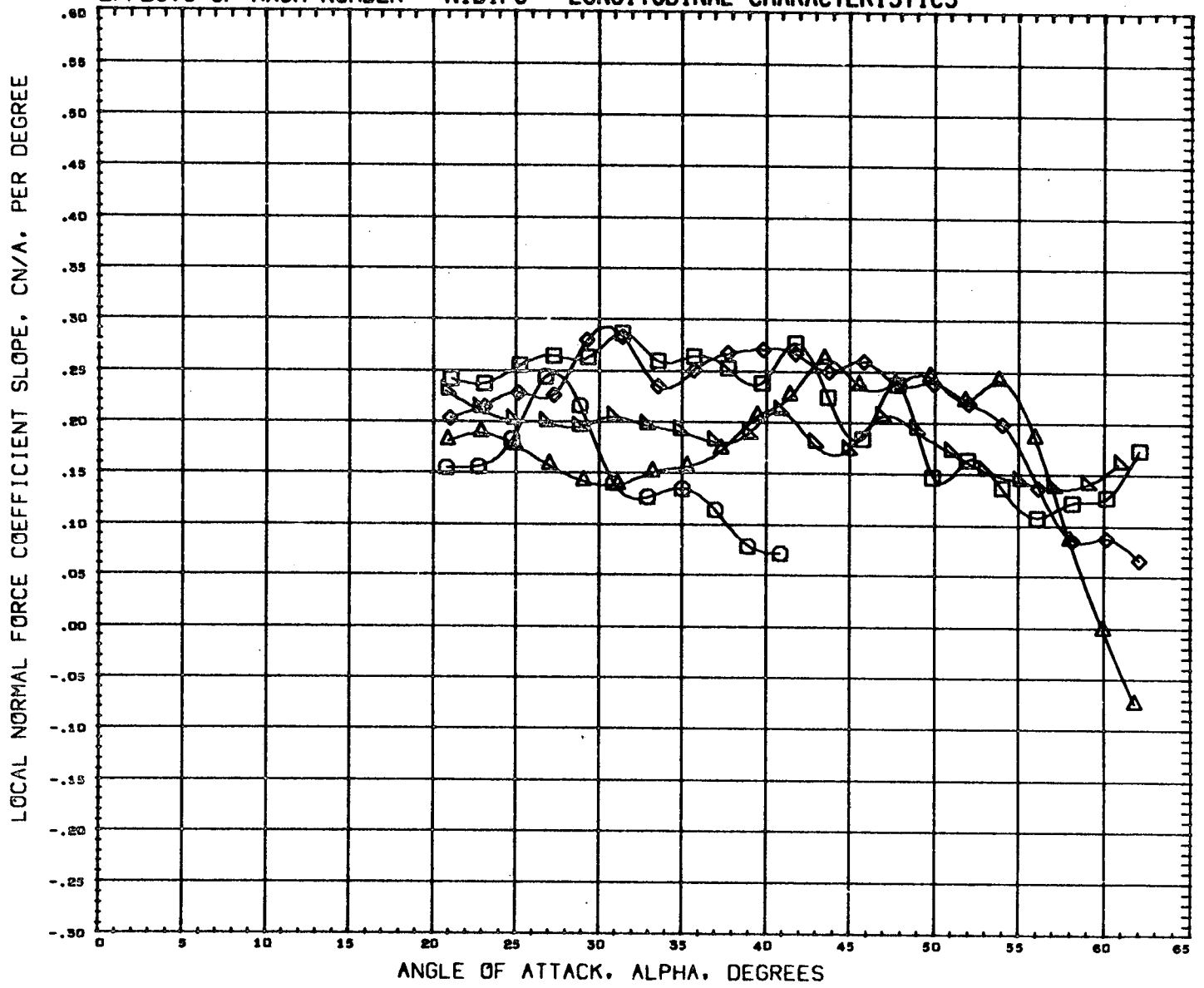
BETA 0.000 DIHDRL 45.000

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
⊠	4.959

PARAMETRIC VALUES

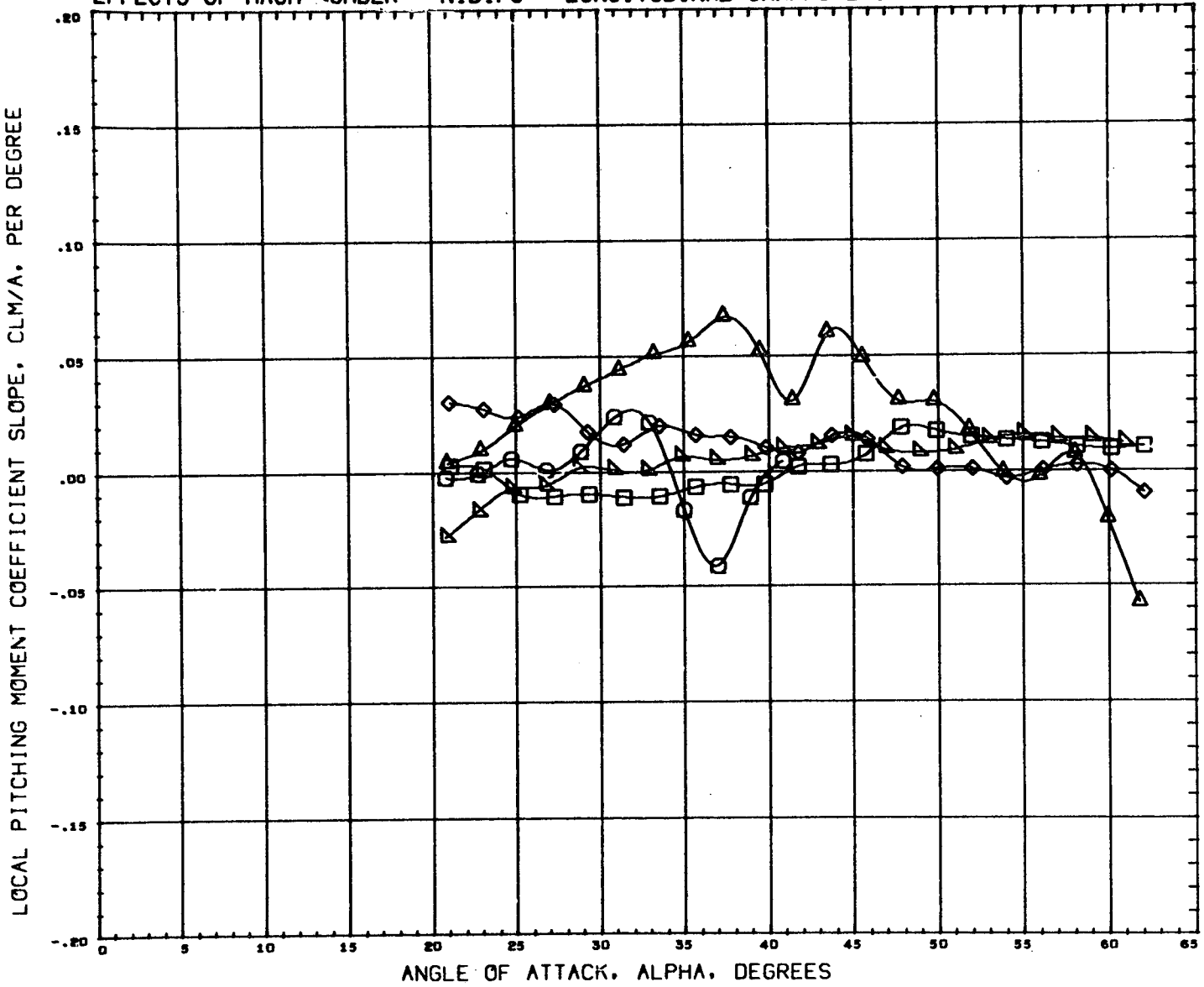
BETA 0.000 DIHDRL 45.000

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
▽	4.959

PARAMETRIC VALUES

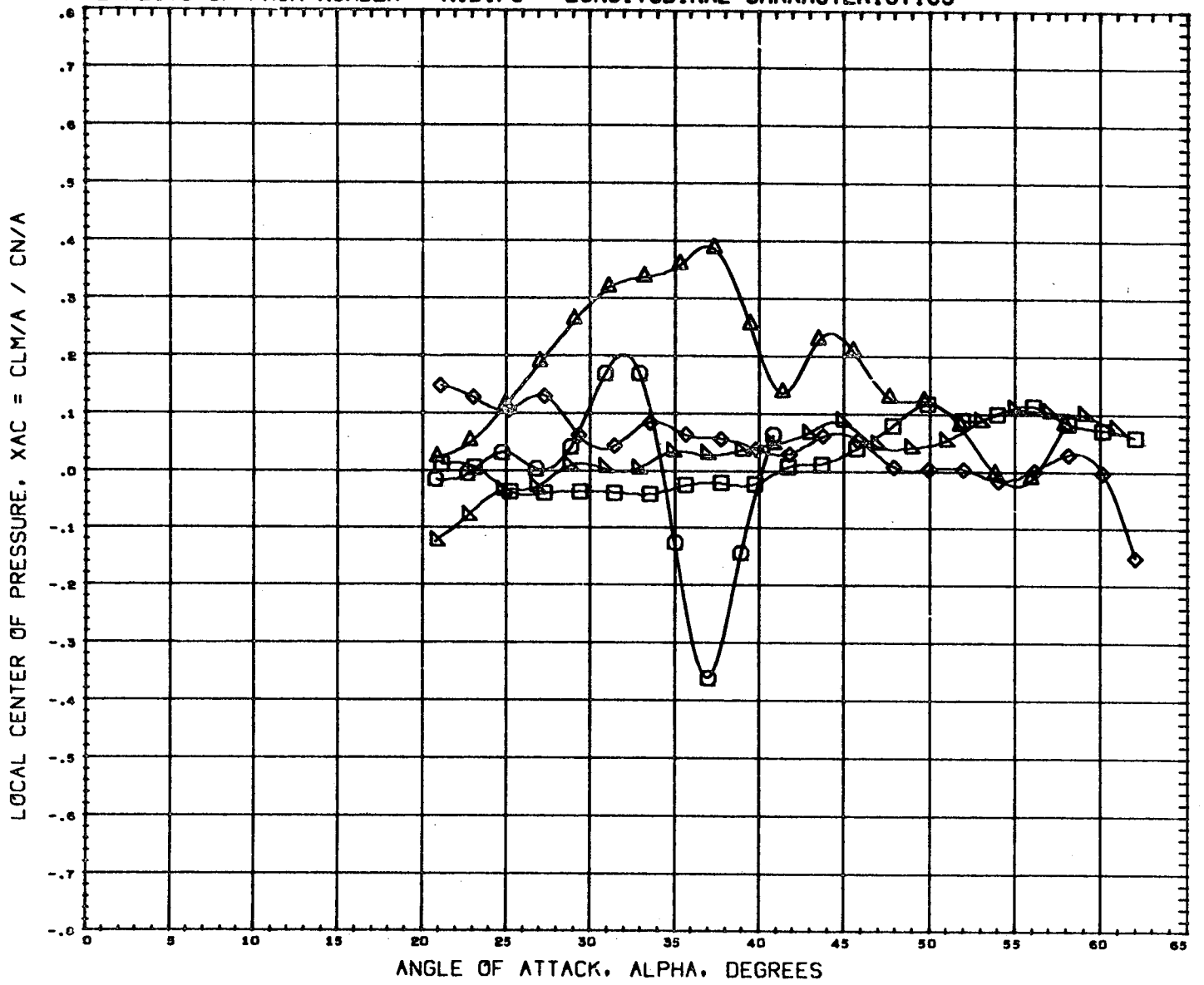
BETA 0.000 DIHDRL 45.000

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



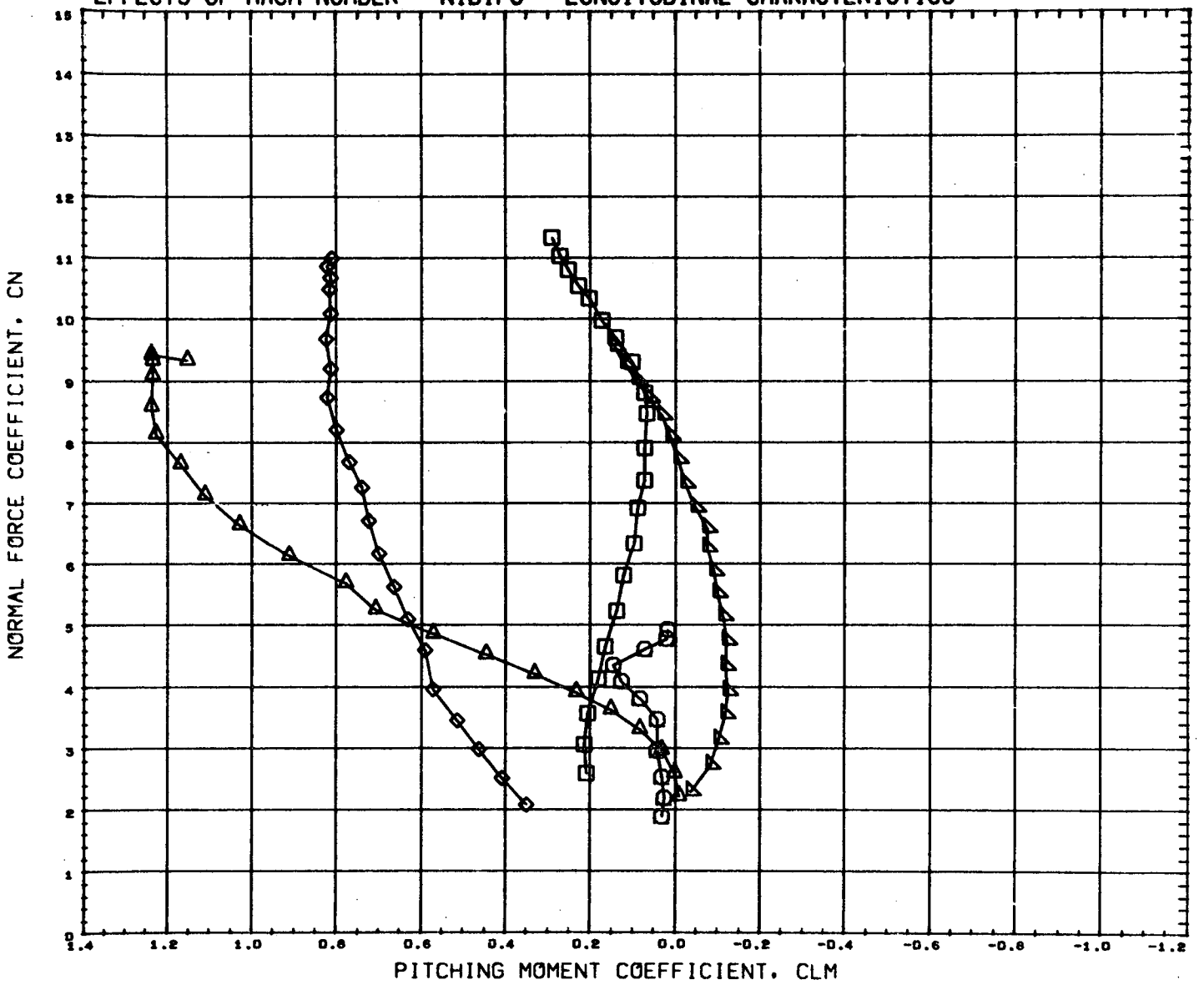
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.599	BETA	0.000	DIHDRL	45.000
△	0.900				
◇	1.197				
□	1.961				
▽	4.959				

DATA HIST. CODE SGC*G*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F6 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.599
△	0.900
◇	1.197
□	1.961
▽	4.959

PARAMETRIC VALUES

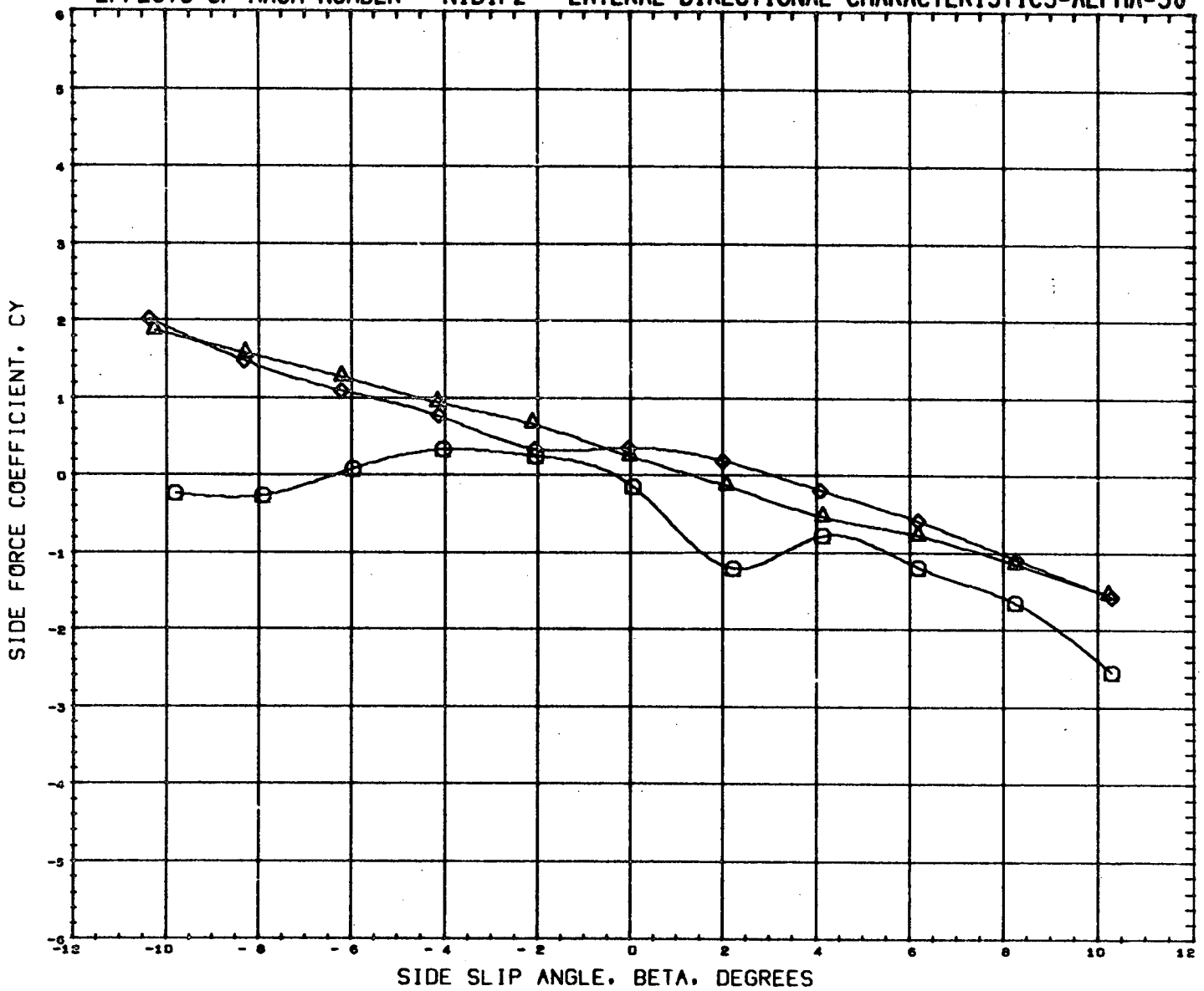
BETA 0.000 DIHDRL 45.000

DATA HIST. CODE STV*E*G

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F2 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



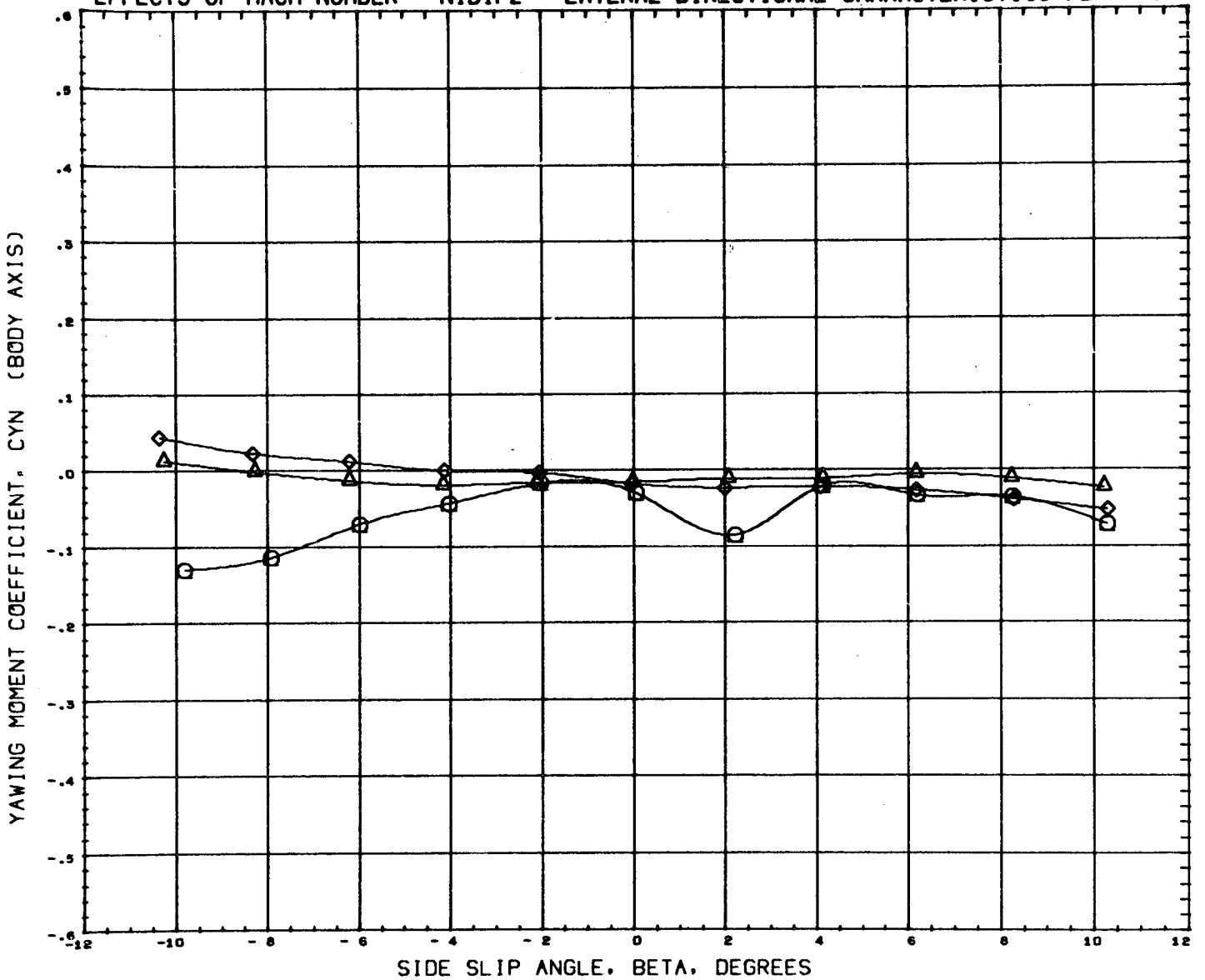
SYMBOL	MACH		PARAMETRIC VALUES		
○	0.603	ALPHA	30.000	DIHDRL	30.000
△	0.902				
◇	1.201				

DATA HIST. CODE 8

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F2 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

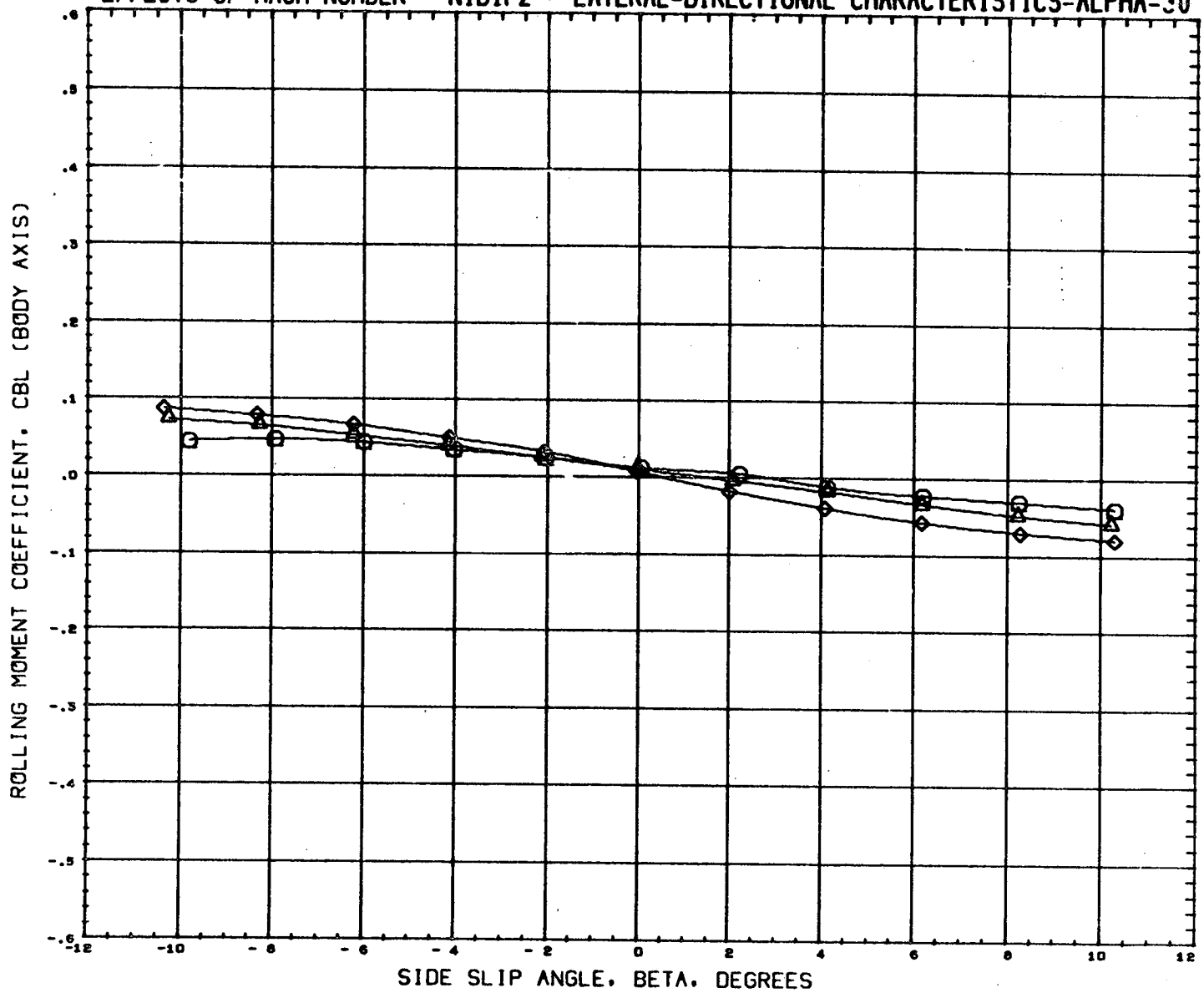


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.603	ALPHA	30.000	DIHDRL	30.000
△	0.902				
◇	1.201				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F2 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30



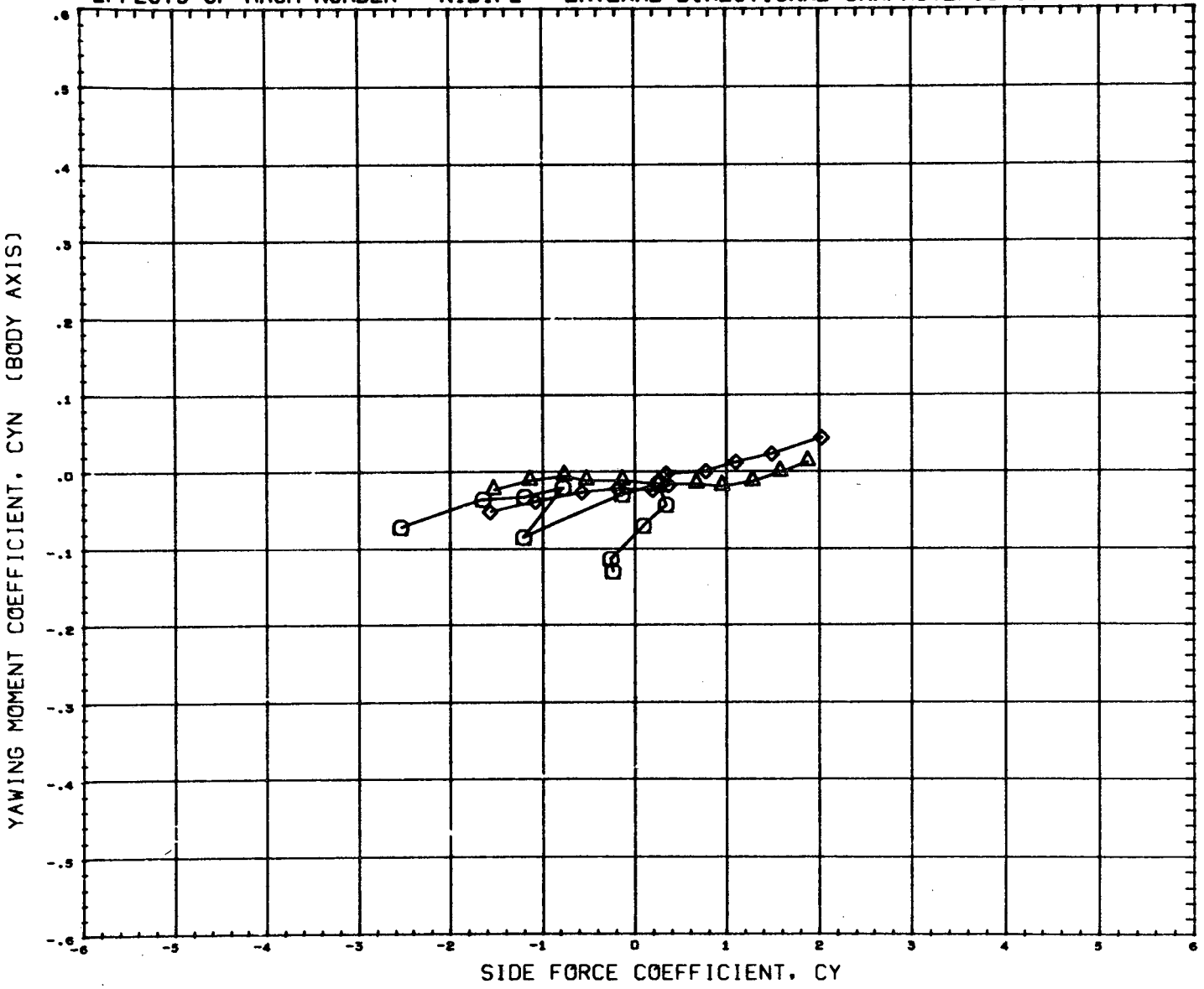
SYMBOL	MACH		PARAMETRIC VALUES		
○	0.603	ALPHA	30.000	DIHDRL	30.000
△	0.902				
◇	1.201				

DATA HIST. CODE 8

REFERENCE INFORMATION

SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N1B1F2 - LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA=30

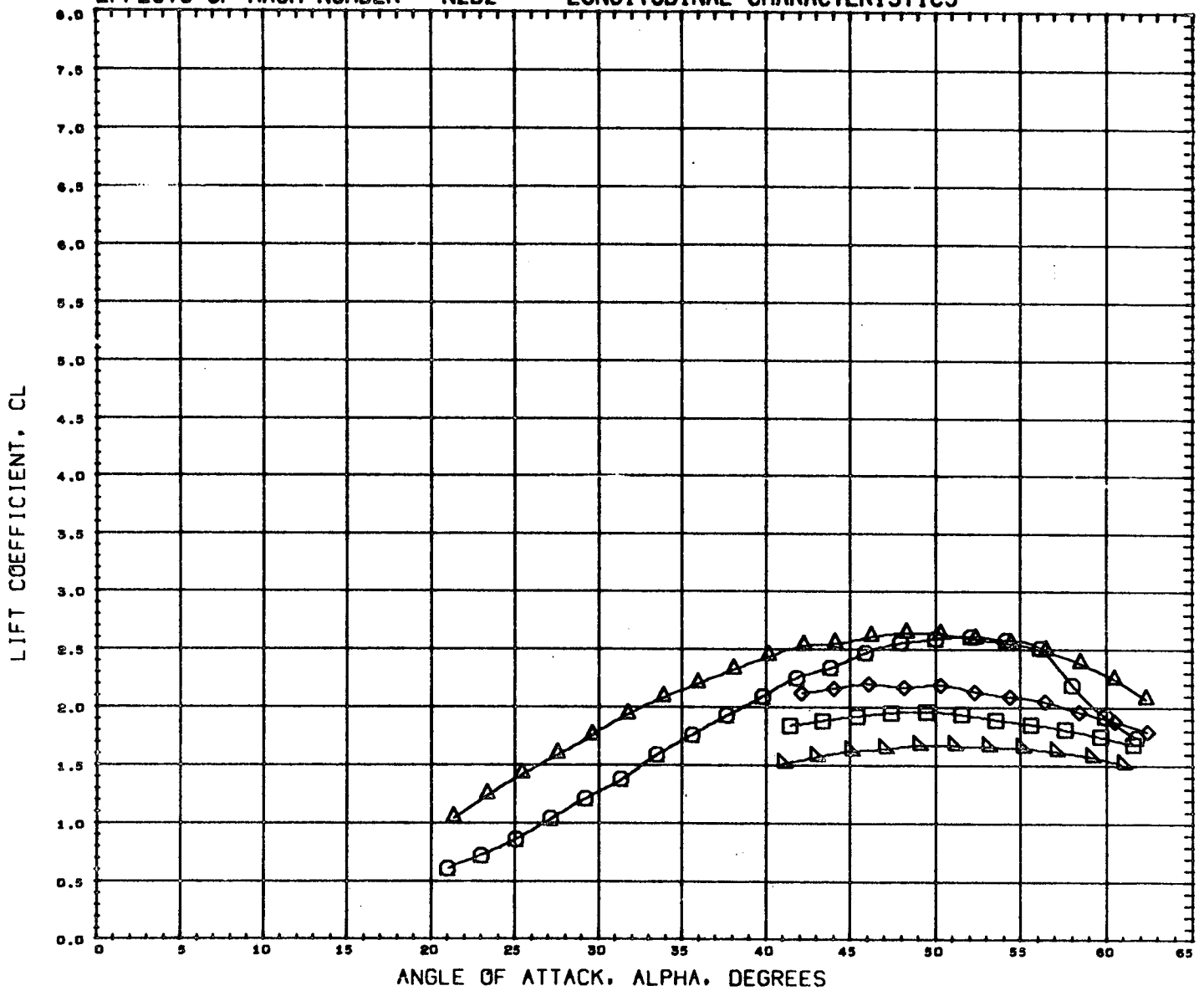


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.603	ALPHA	30.000	DIHDRL	30.000
△	0.902				
◇	1.201				

DATA HIST. CODE S

REFERENCE INFORMATION		
SREF	0.9330	SQ.IN.
LREF	7.2230	IN.
BREF	7.2230	IN.
XMRP	4.3340	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



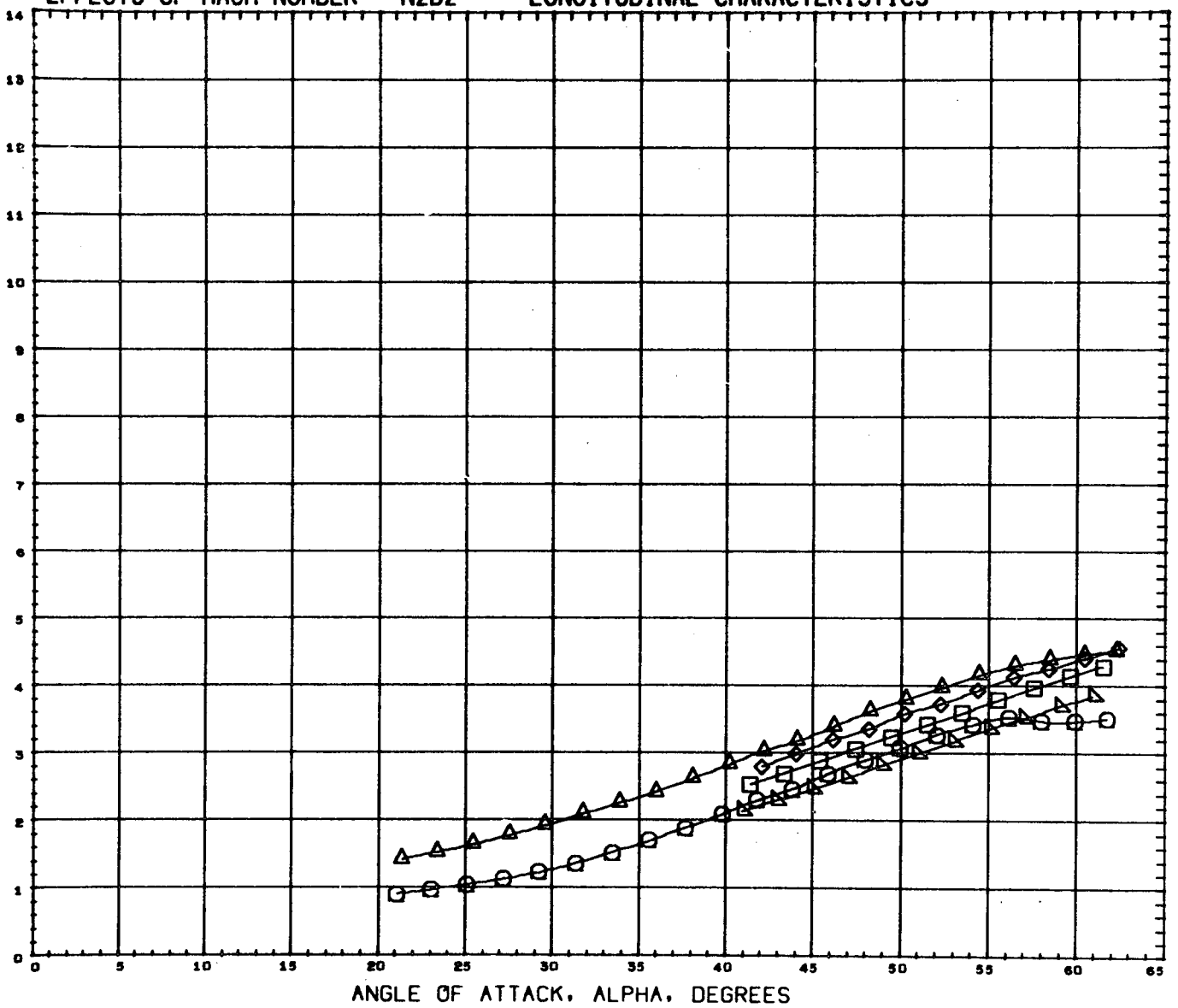
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



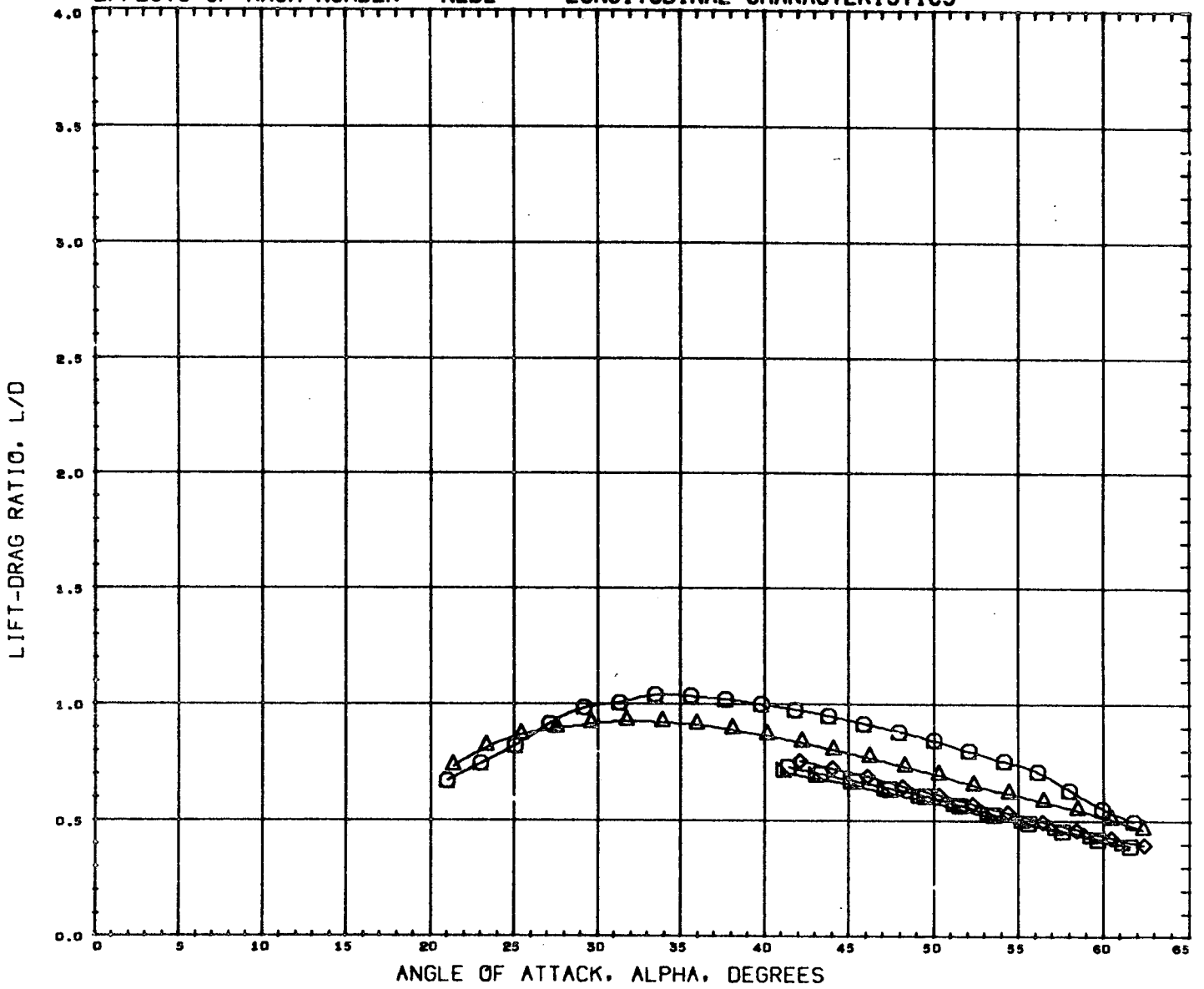
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
⬠	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS

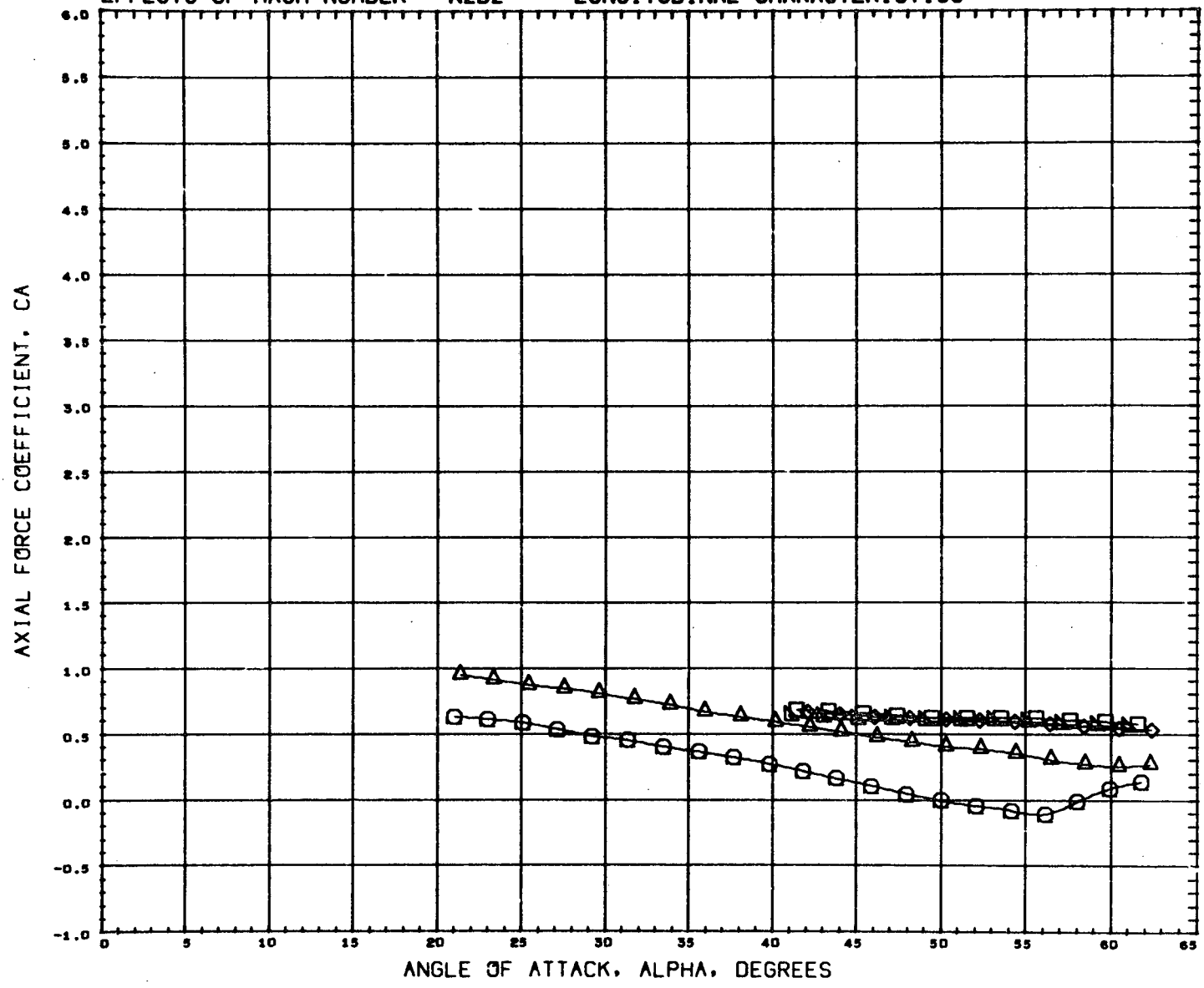


SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



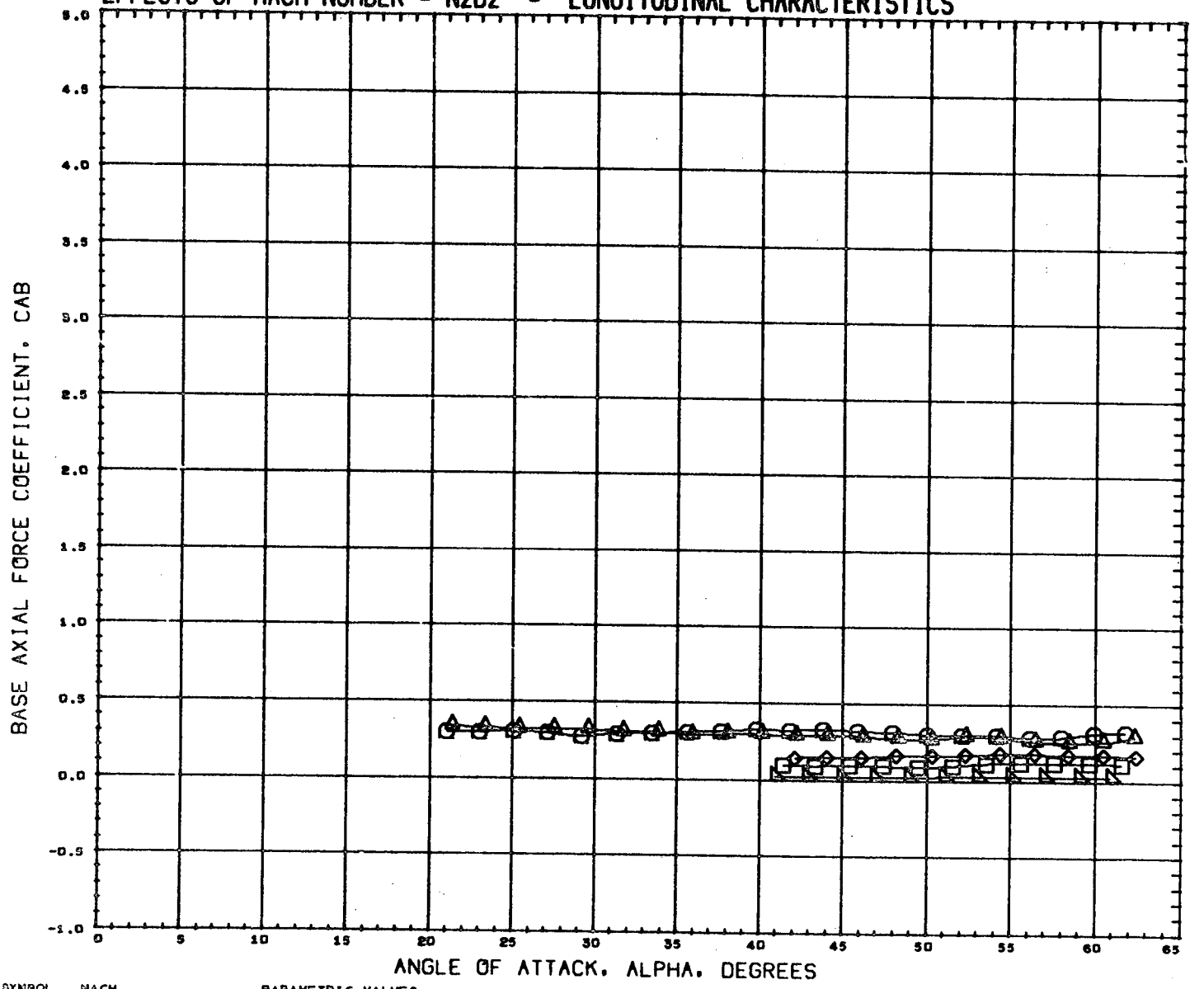
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



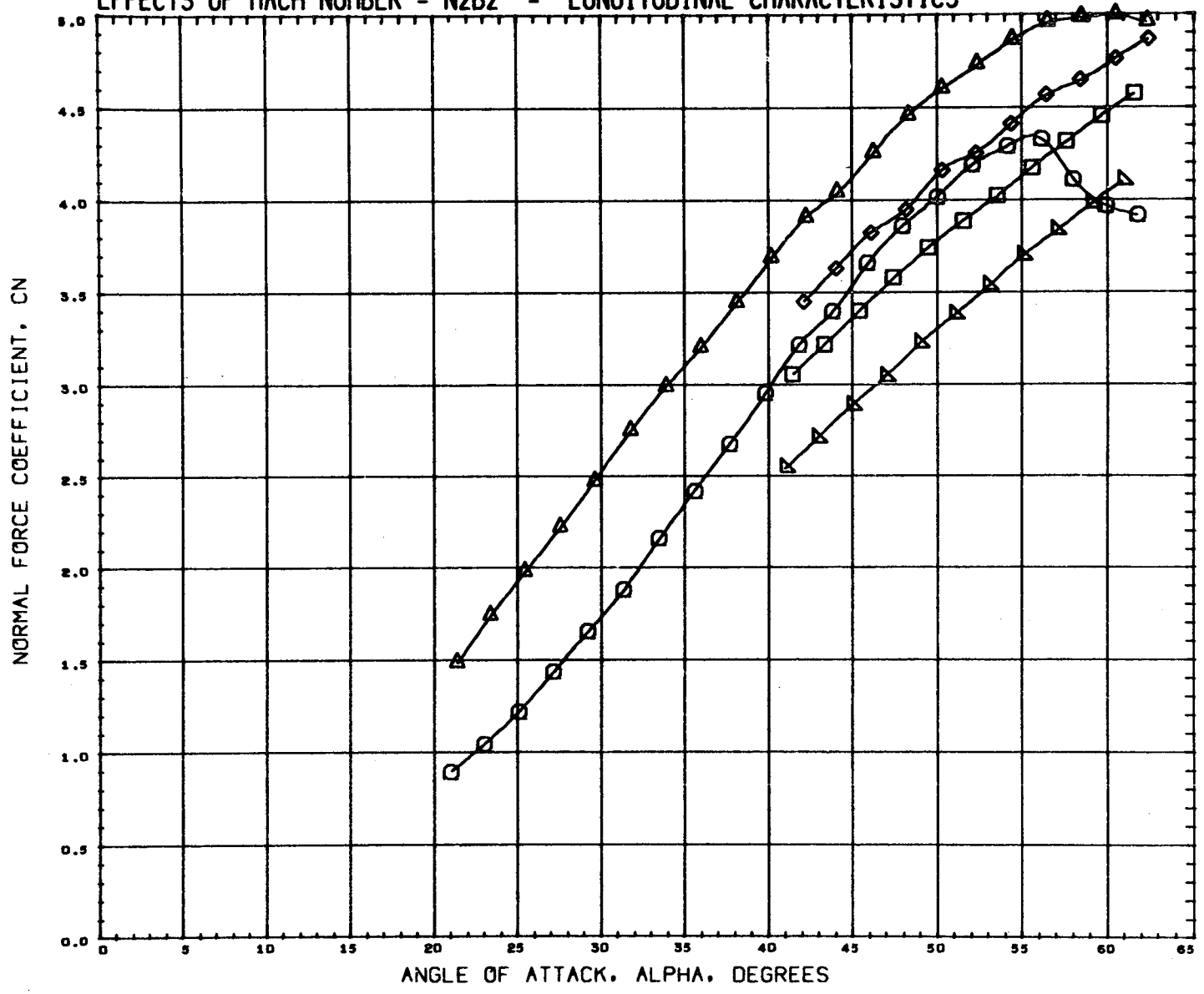
SYMBOL	MACH	PARAMETRIC VALUES	
△	0.901	BETA	0.000
◇	1.199		
□	1.964		
▽	2.760		
	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



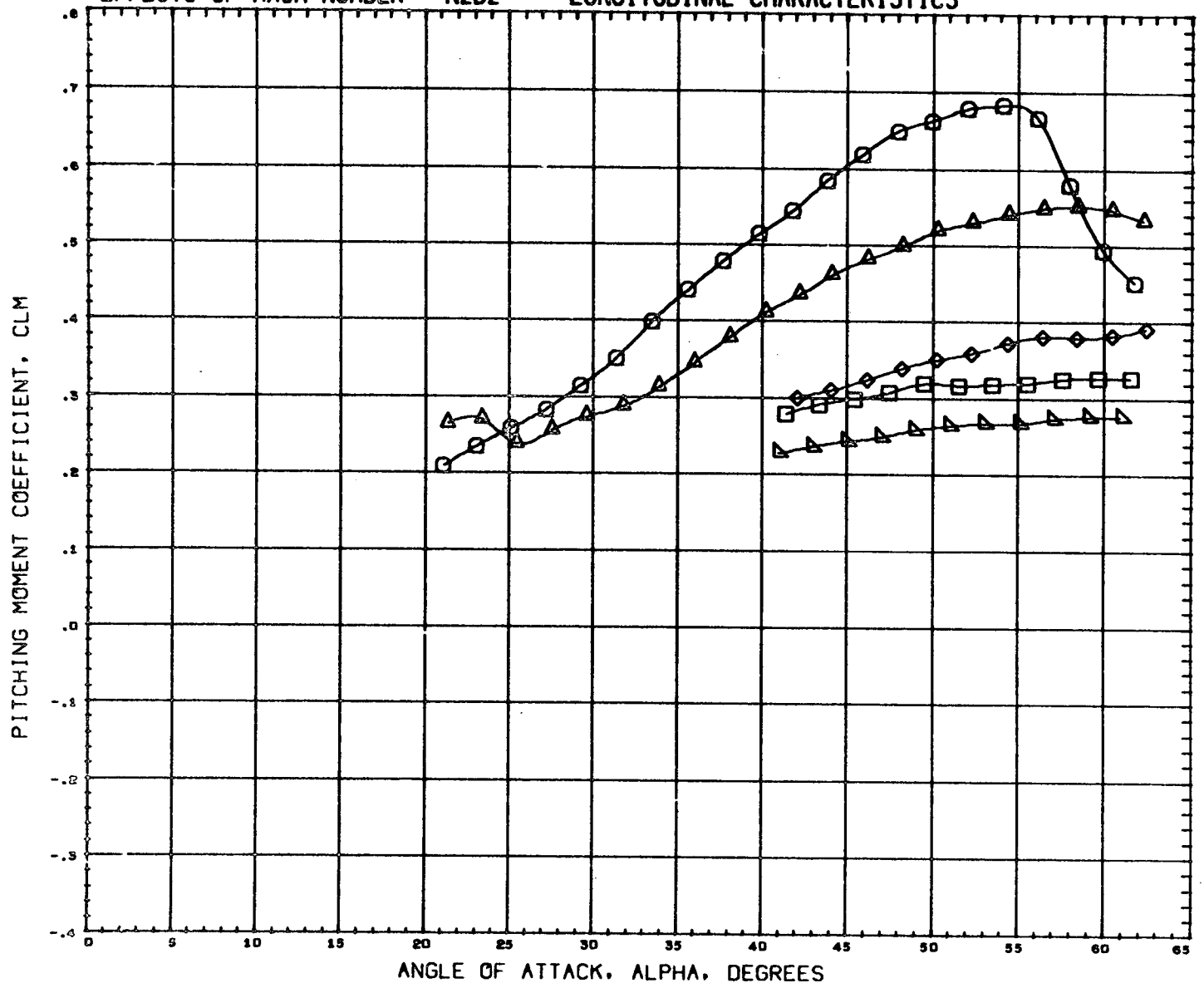
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



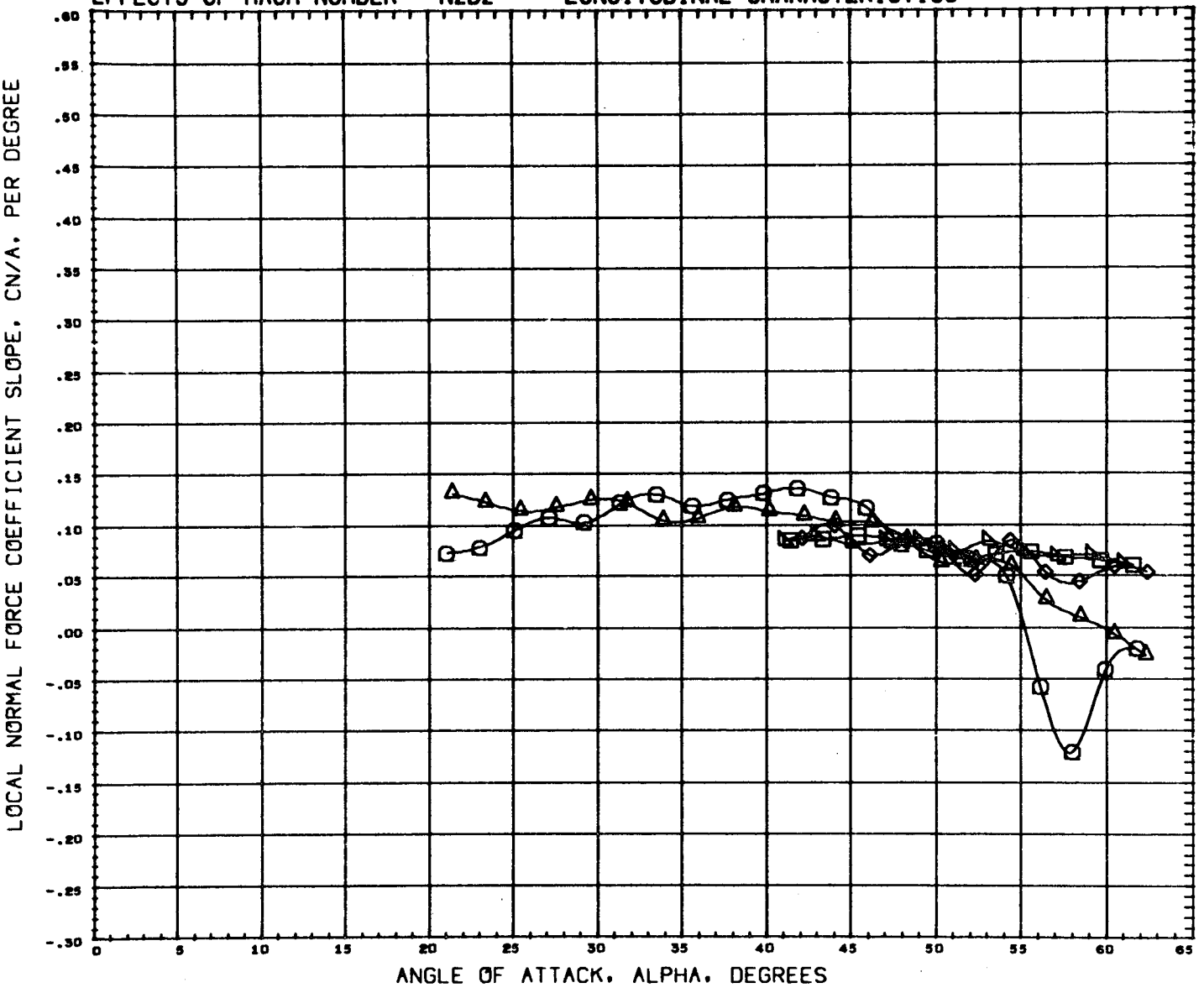
SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.950		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



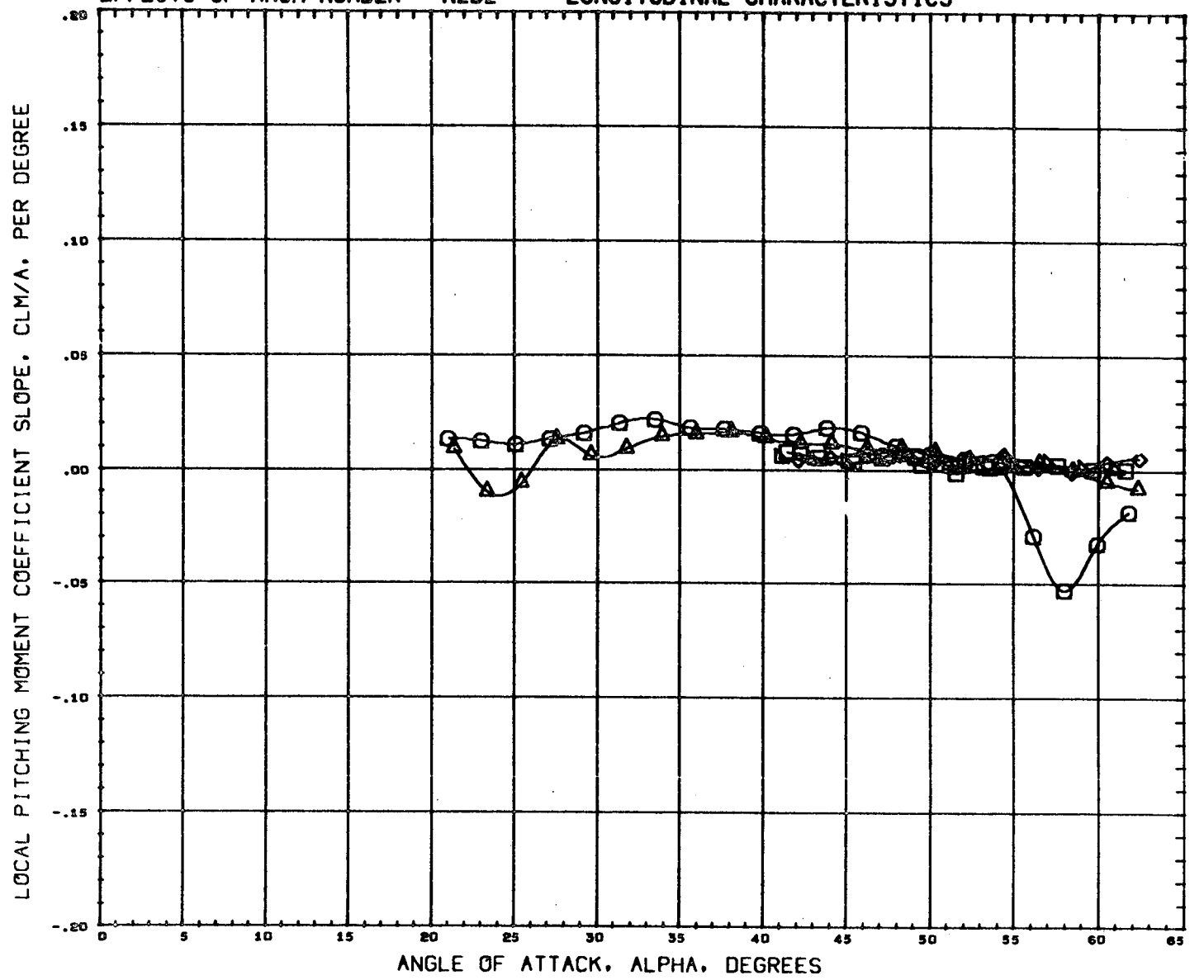
SYMBOL	MACH	PARAMETRIC VALUES	
△	0.901	BETA	0.000
○	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



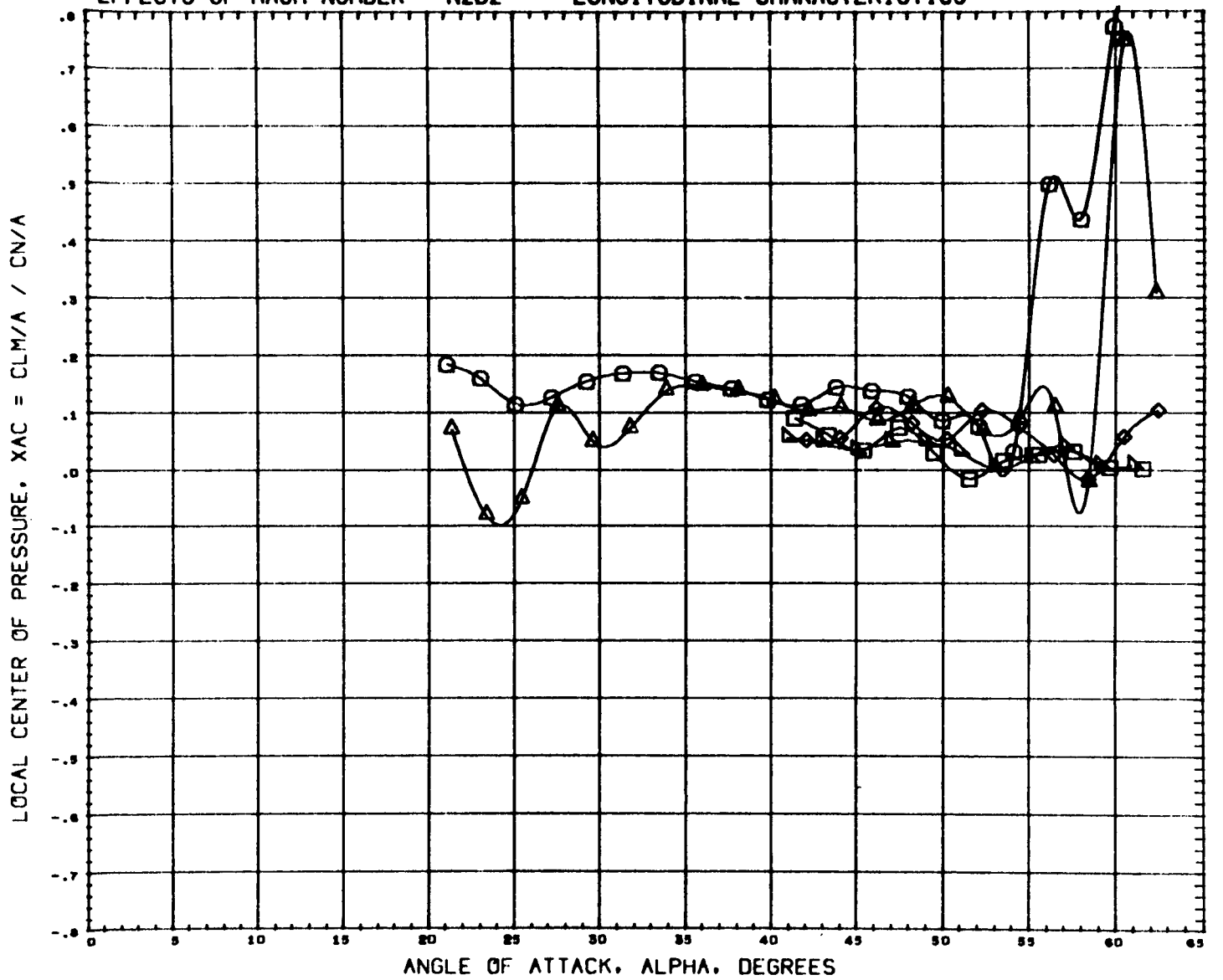
SYMBOL	MACH	PARAMETRIC VALUES	
	0.901	BETA	0.000
	1.199		
	1.964		
	2.740		
	4.959		

DATA HIST. CODE MSTV*E*G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

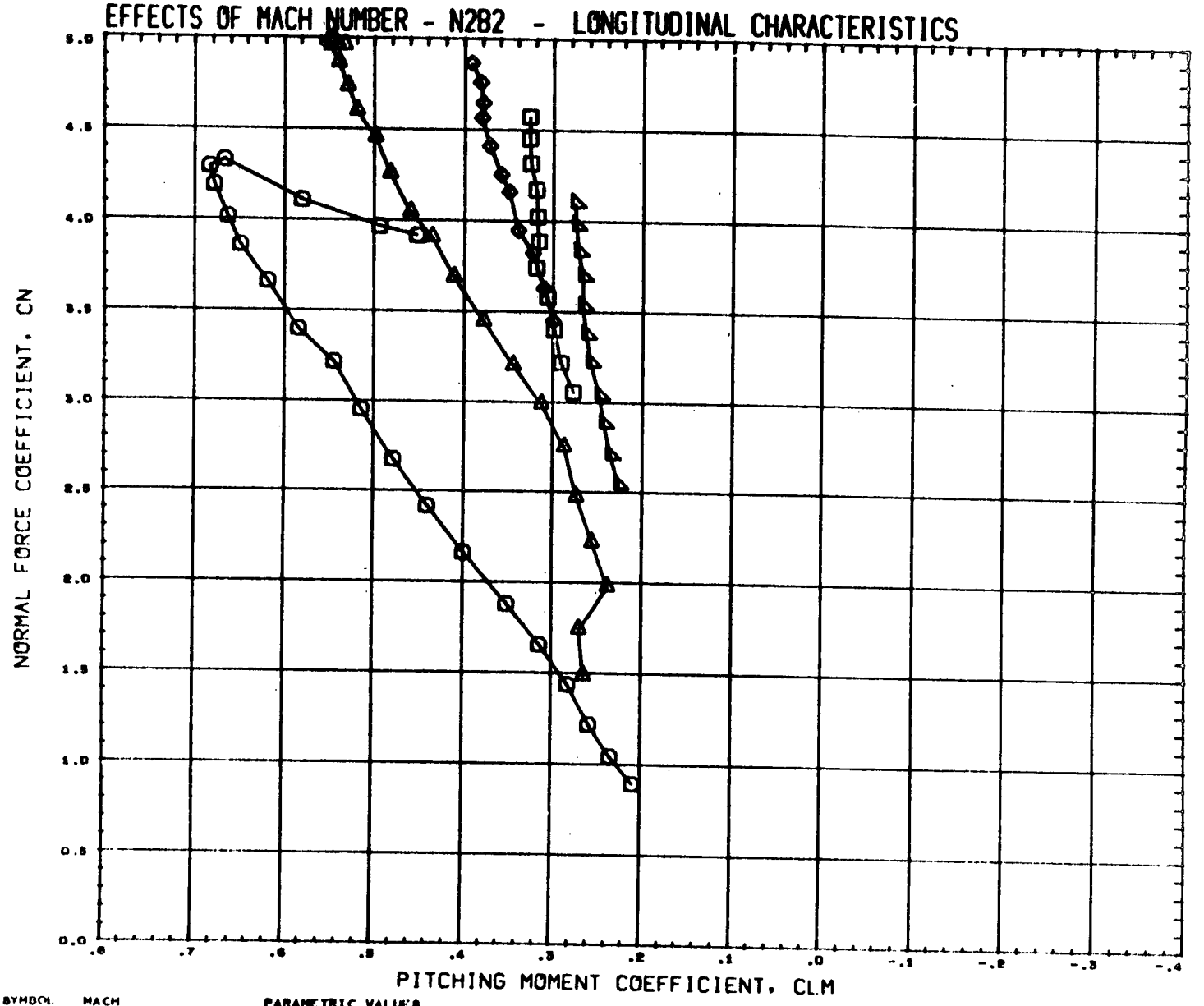
EFFECTS OF MACH NUMBER - N2B2 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES	
○	0.901	BETA	0.000
△	1.199		
◇	1.964		
□	2.740		
▽	4.959		

DATA HIST. CODE M8GC*G

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	



SYMBOL	MACH
○	0.901
△	1.199
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

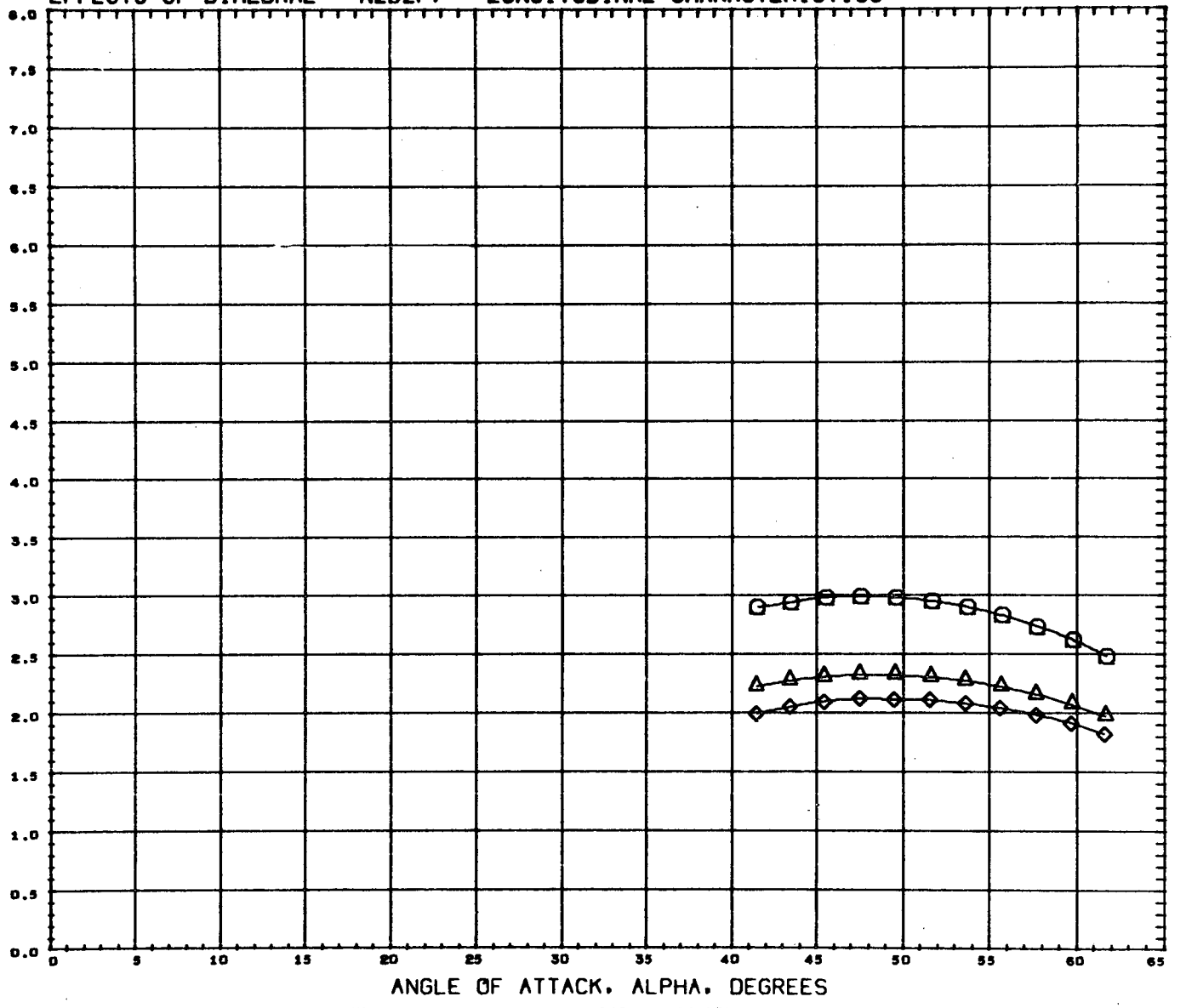
BETA 0.000

DATA HIST. CODE MSTV9E0G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

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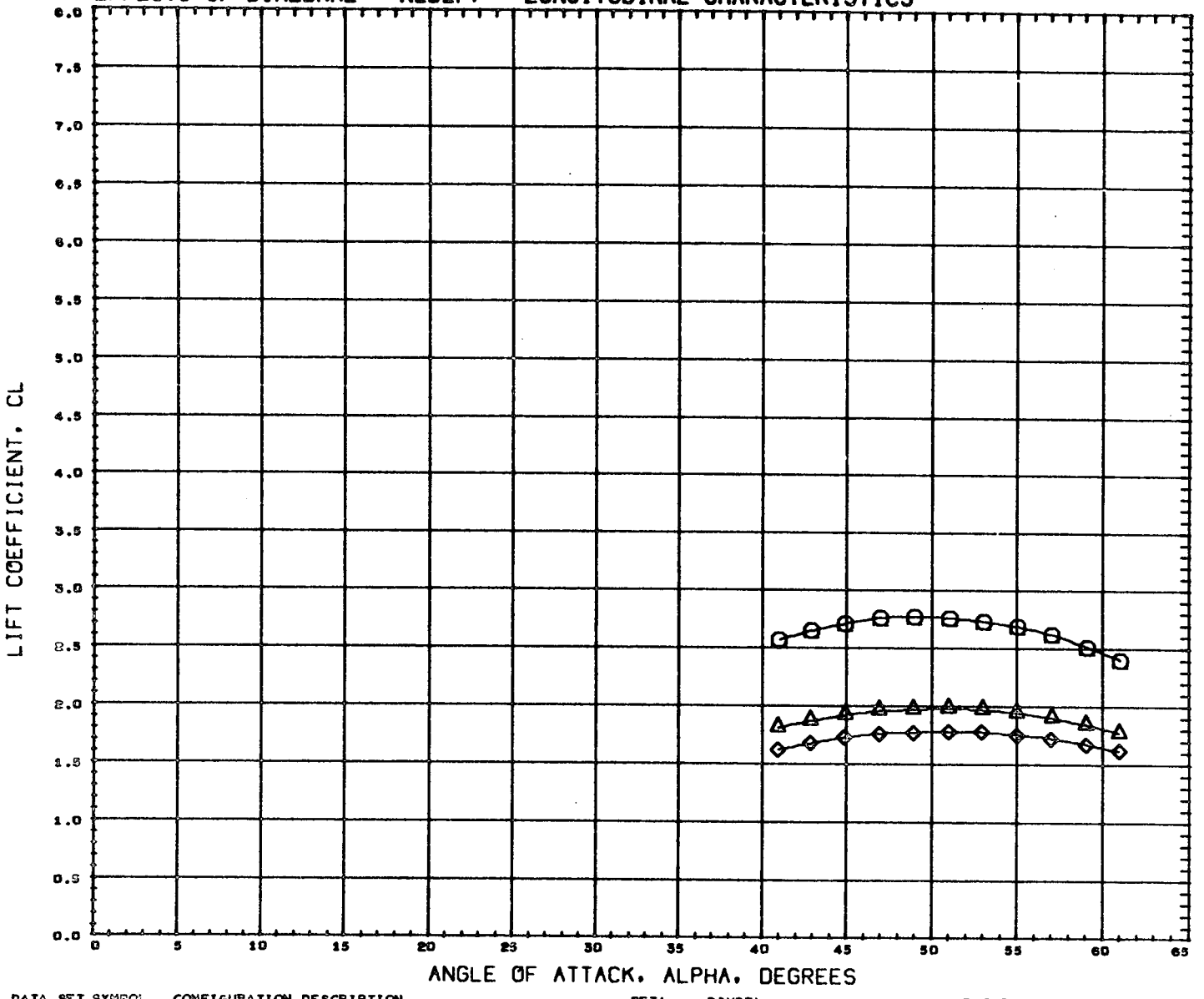
EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



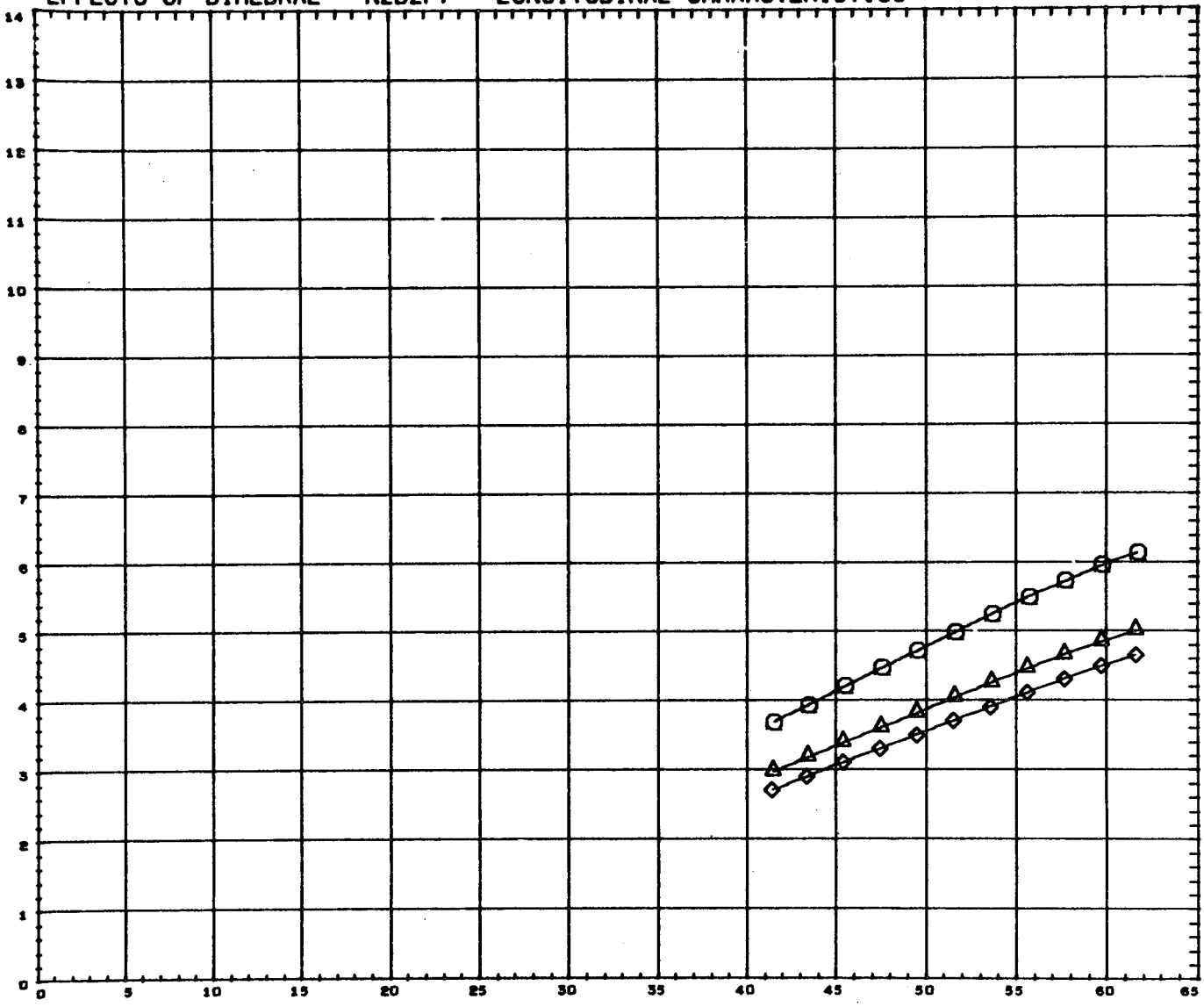
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
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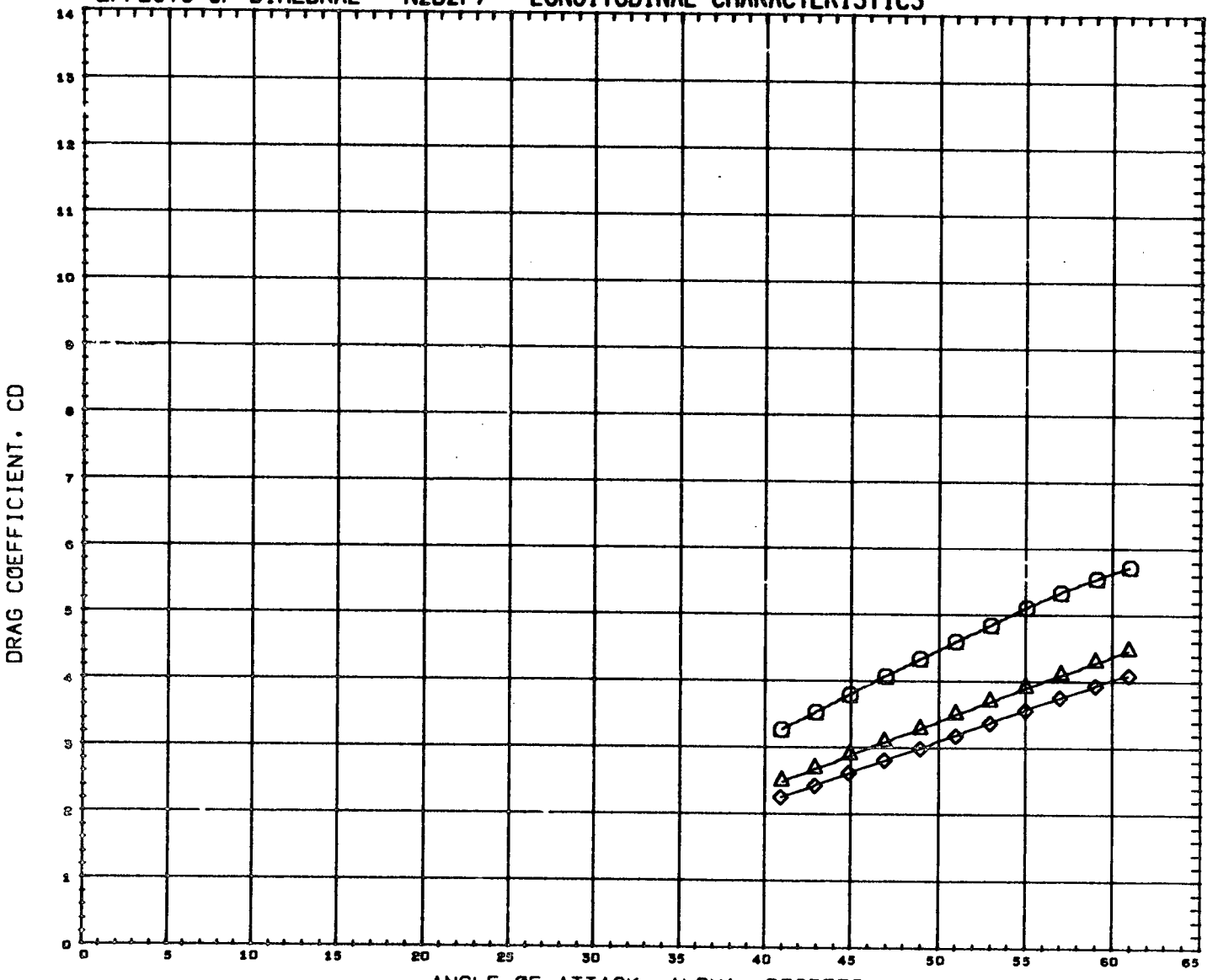
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



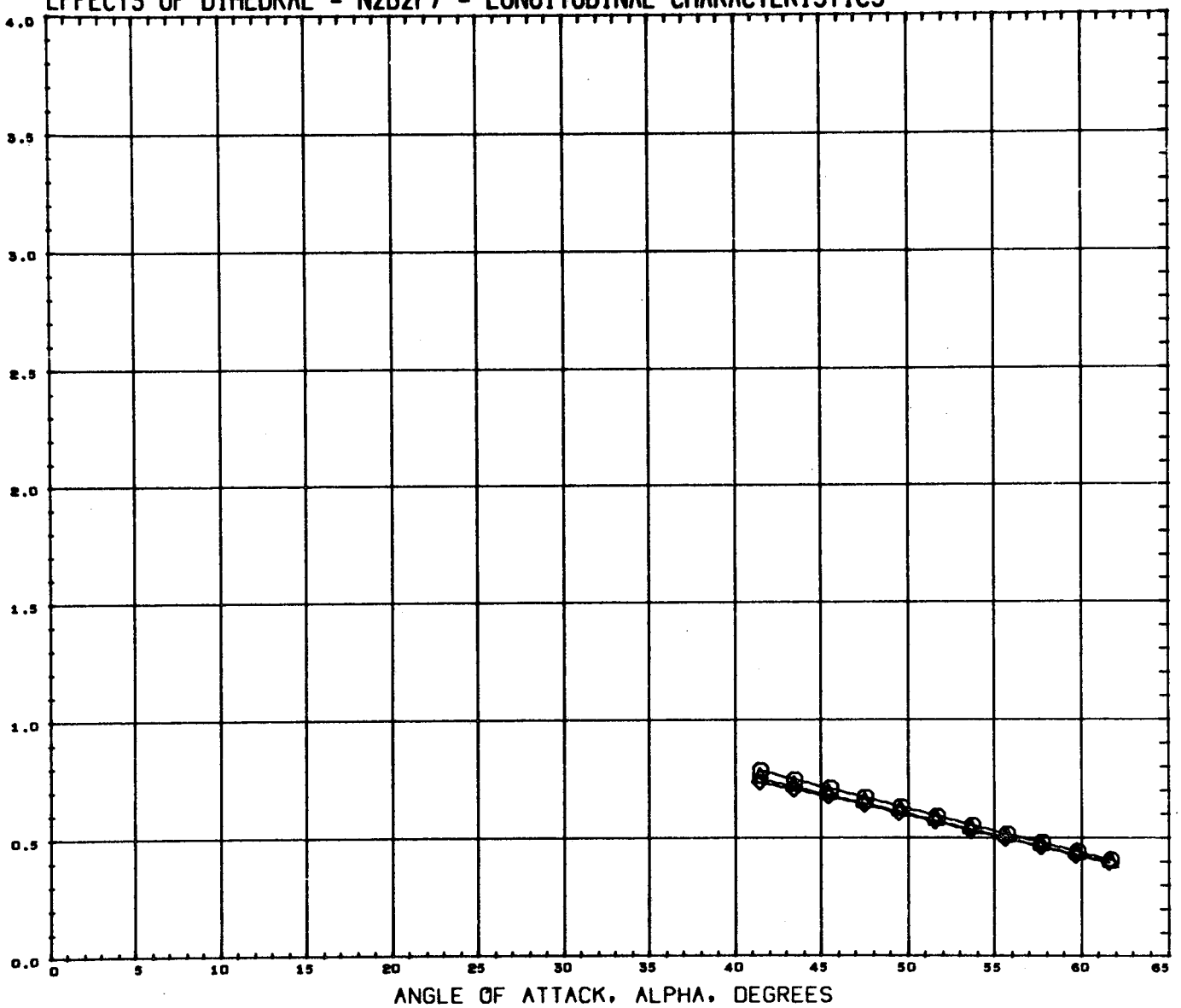
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(N54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(N54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(N54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

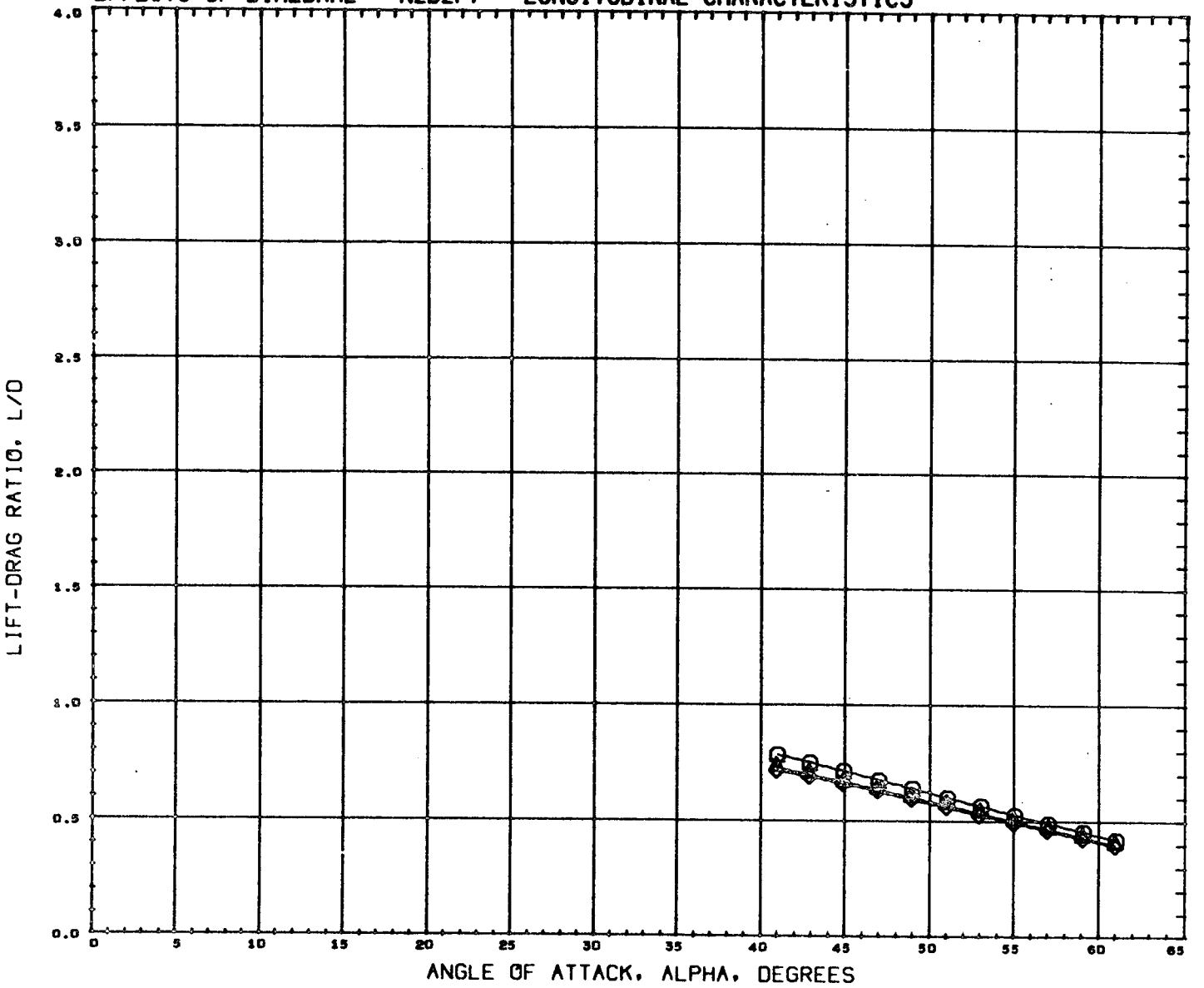


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54D35)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54D33)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54D31)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



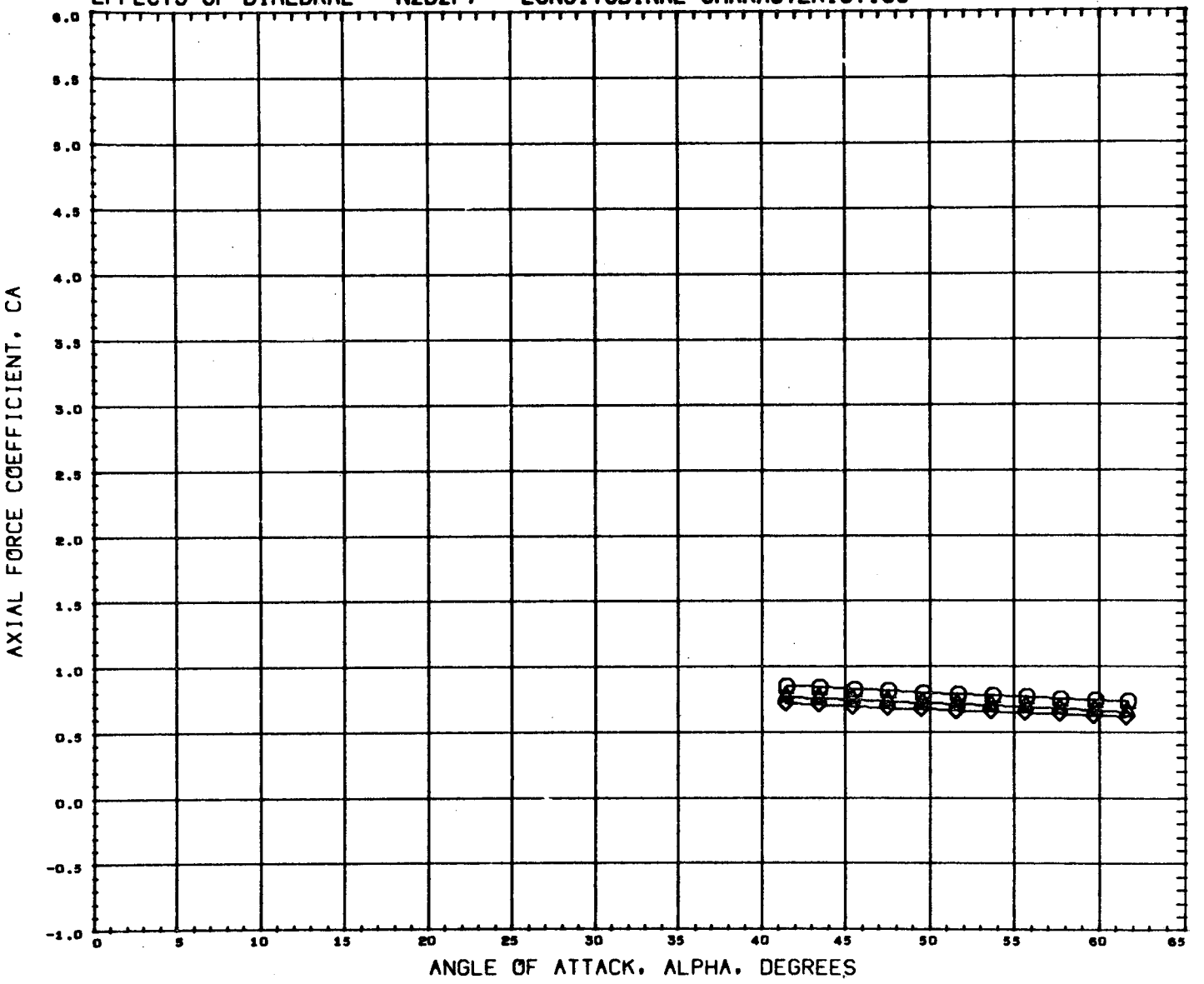
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54038)	◇	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



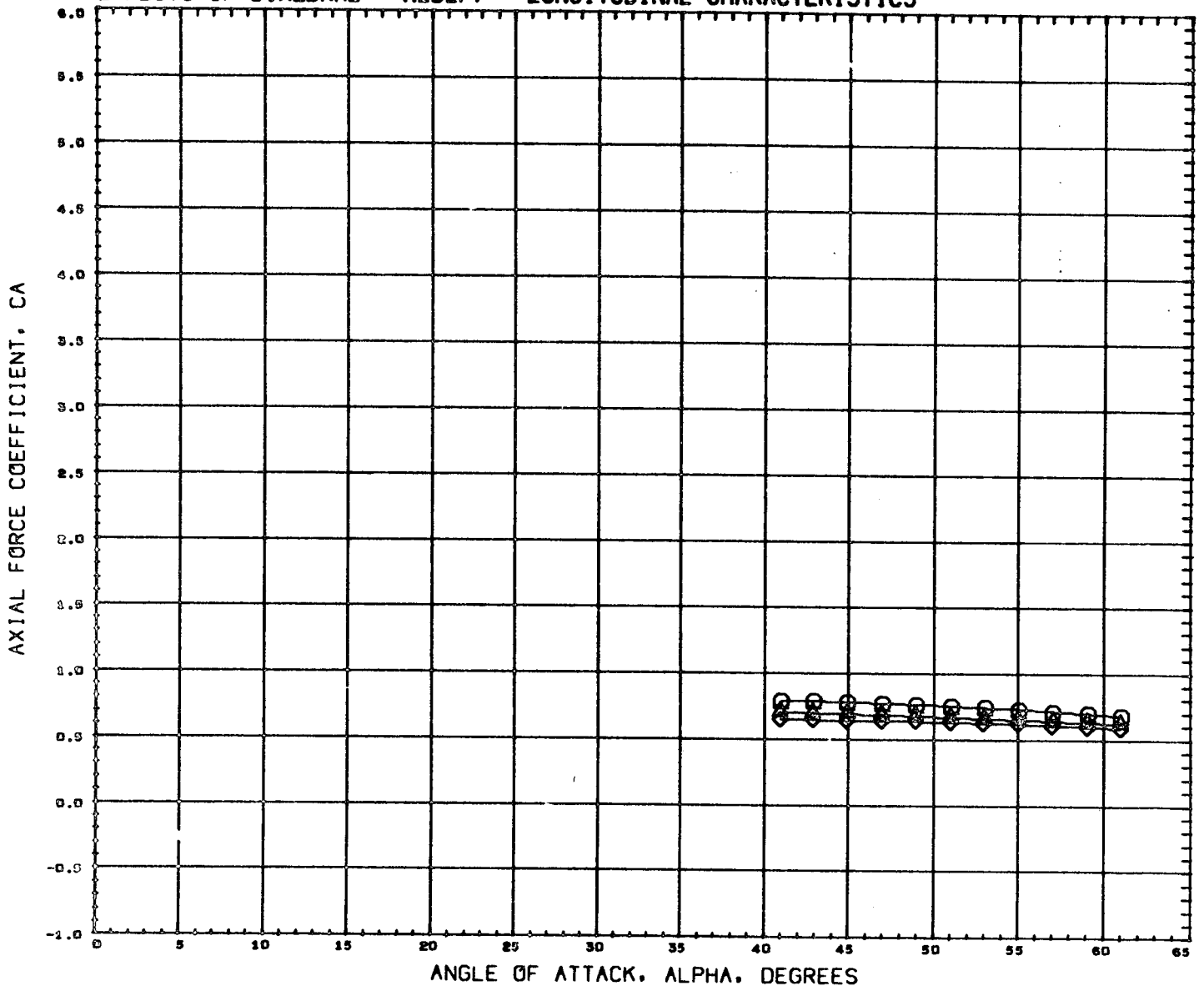
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



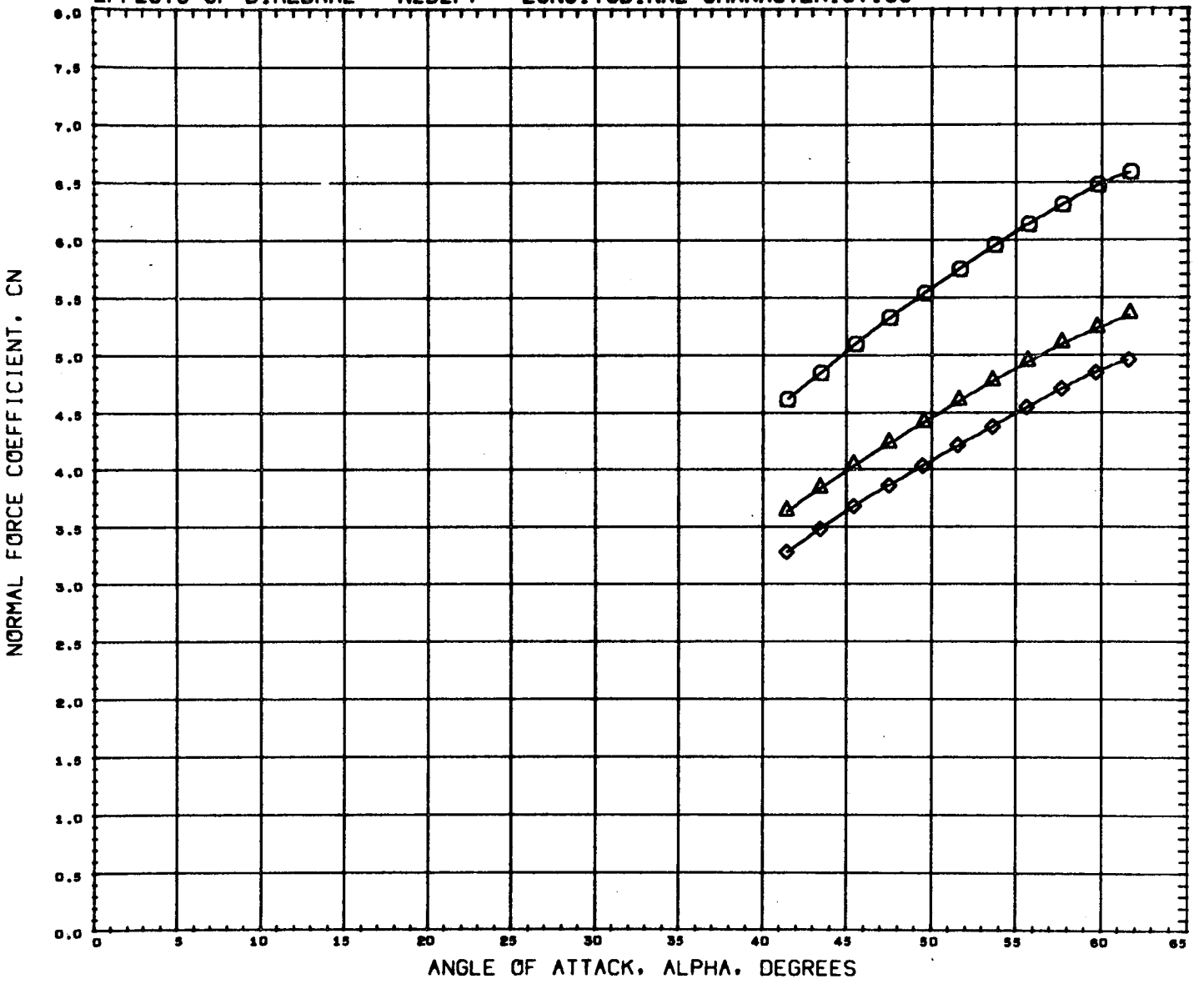
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54D59)	○	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54D58)	△	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54D51)	◇	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
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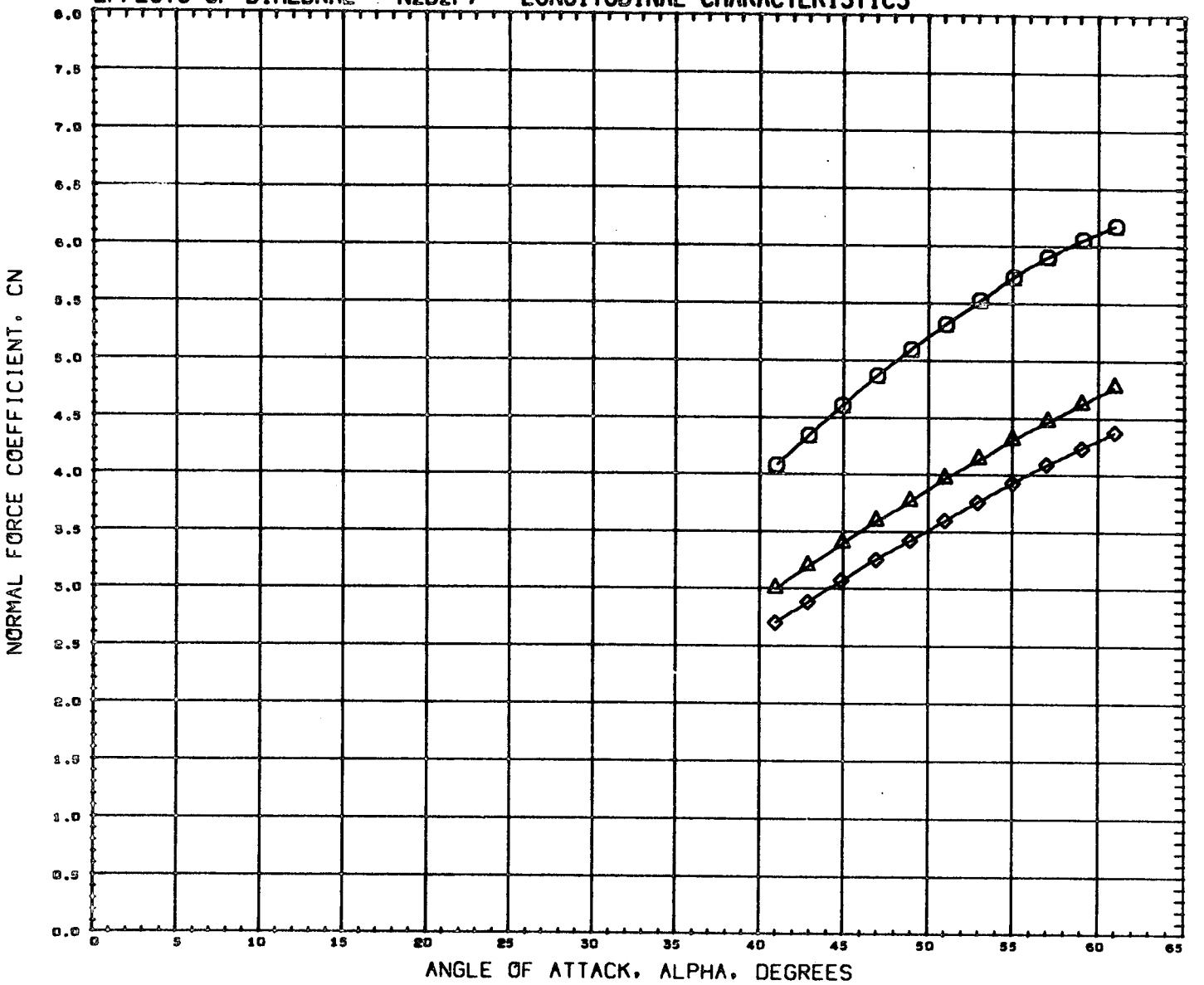
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
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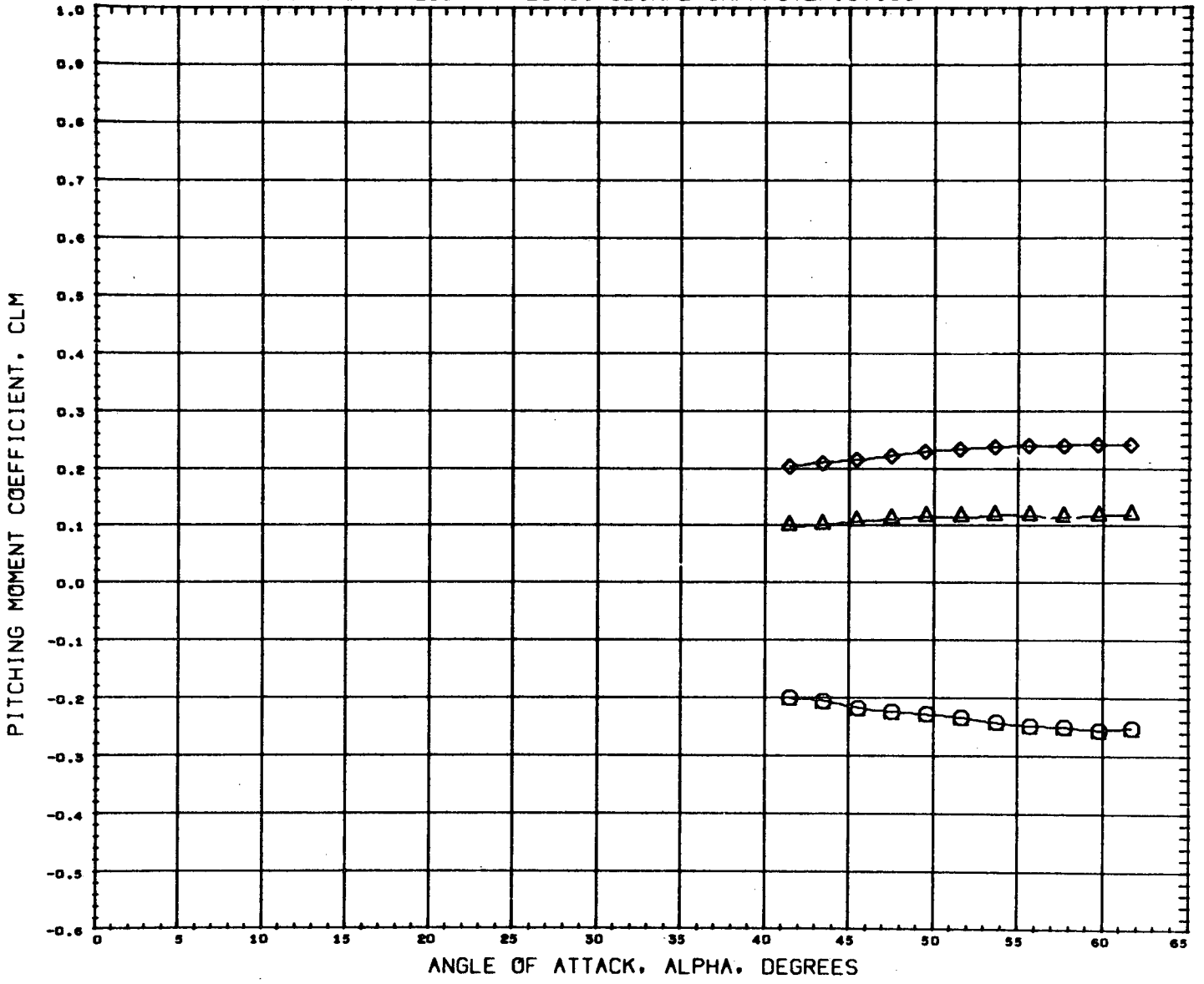
(MS4033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(MS4031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



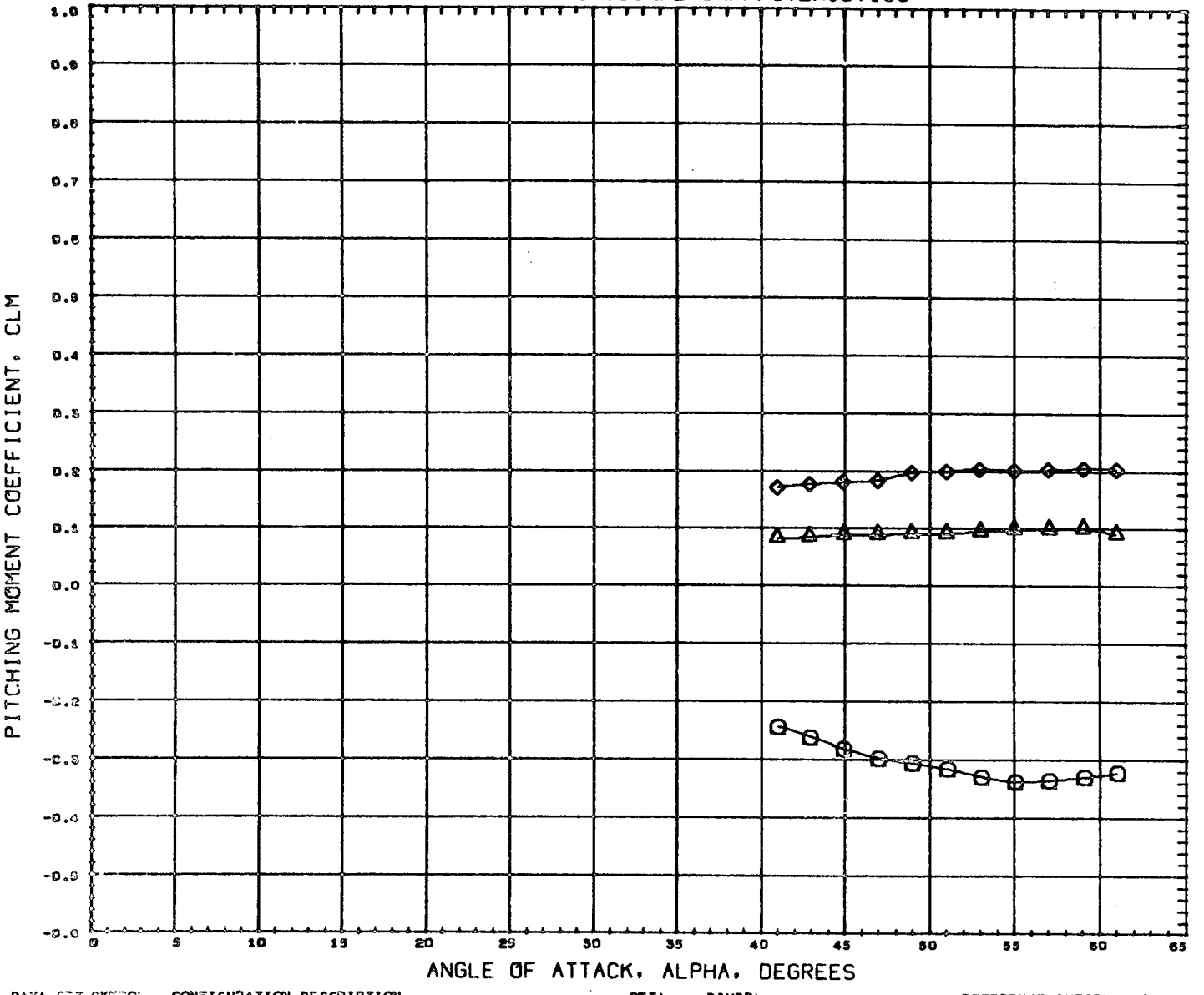
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

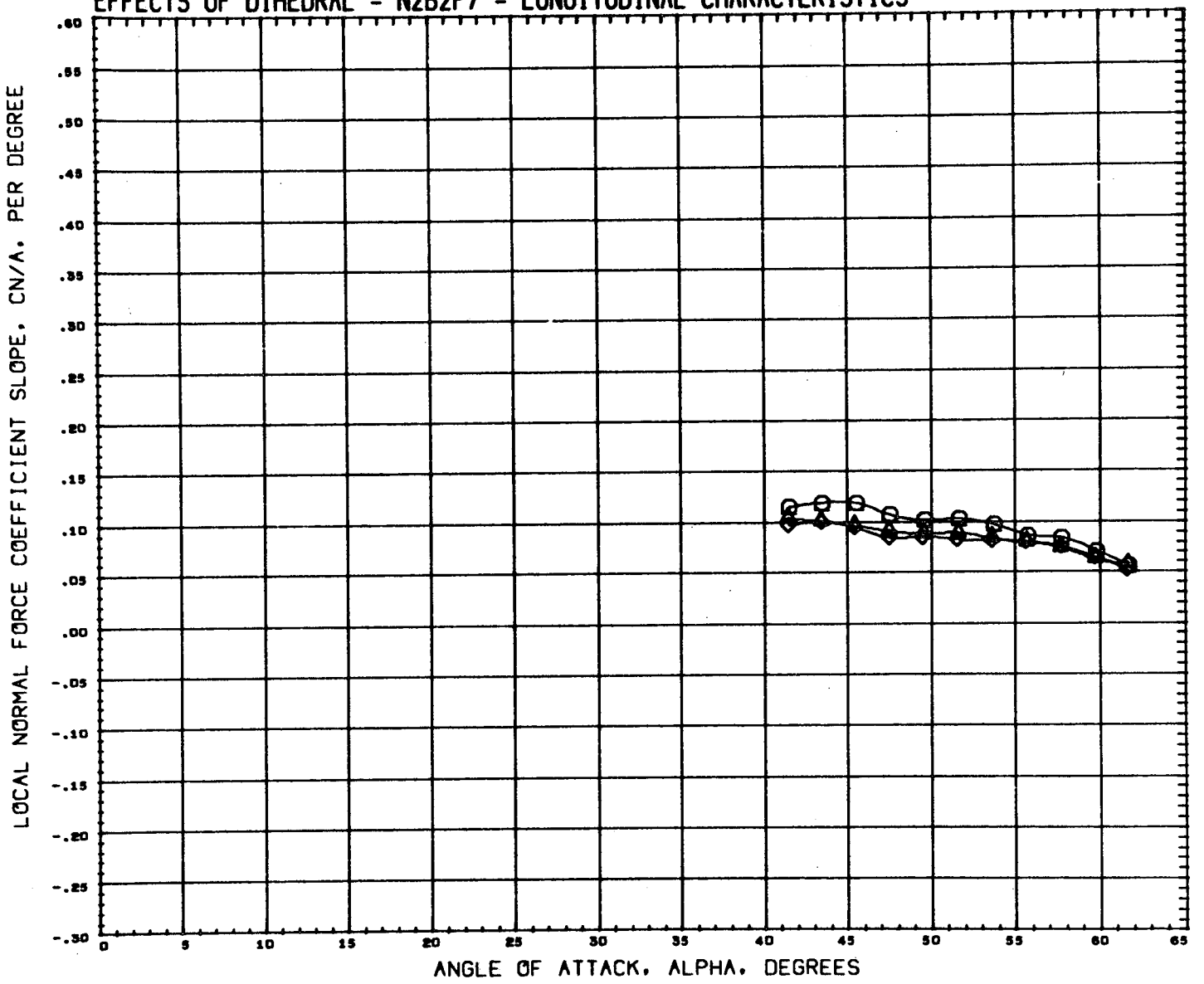


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(N54095)	○	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(N54093)	△	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(N54091)	◇	MSFC 510 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

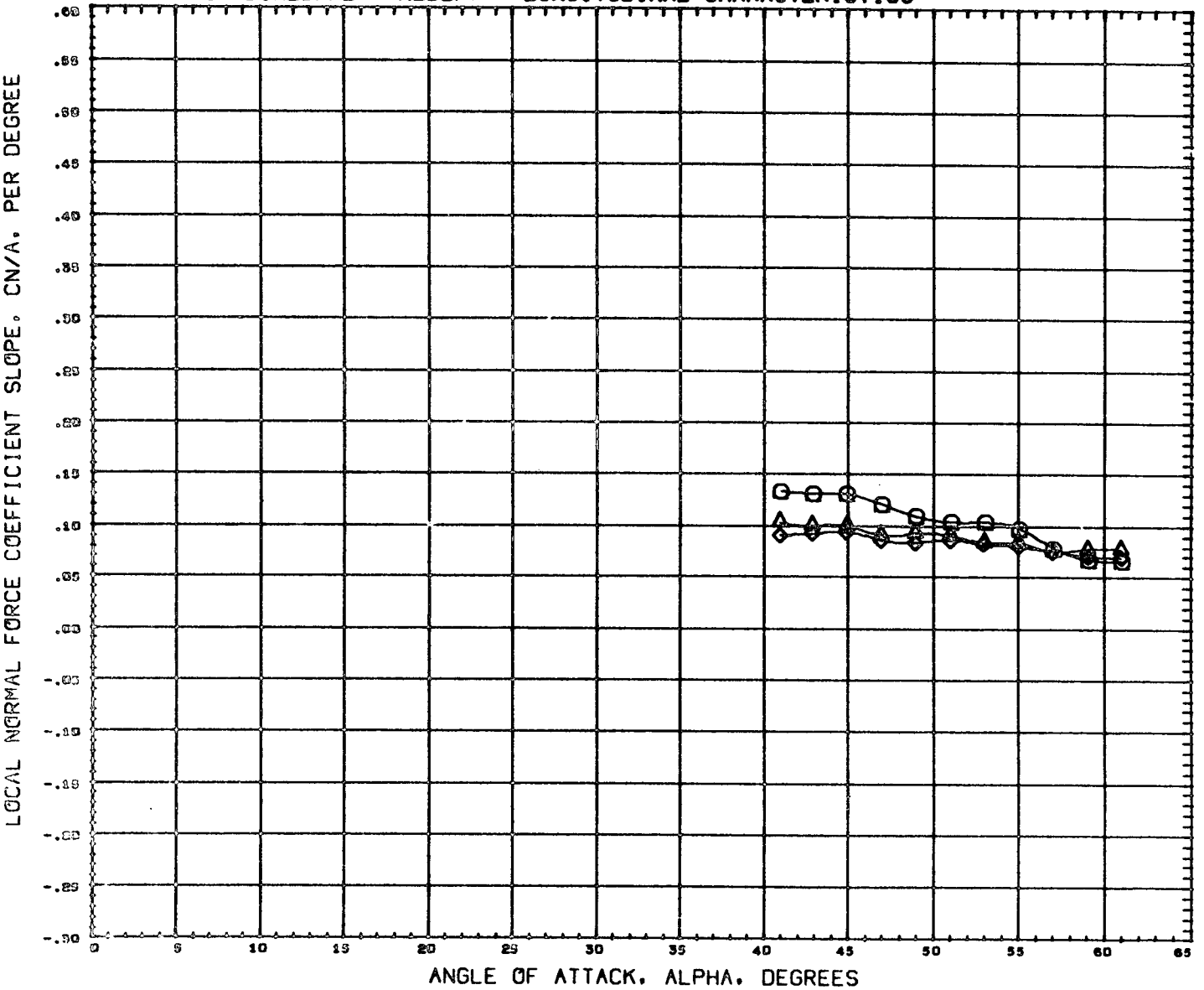


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
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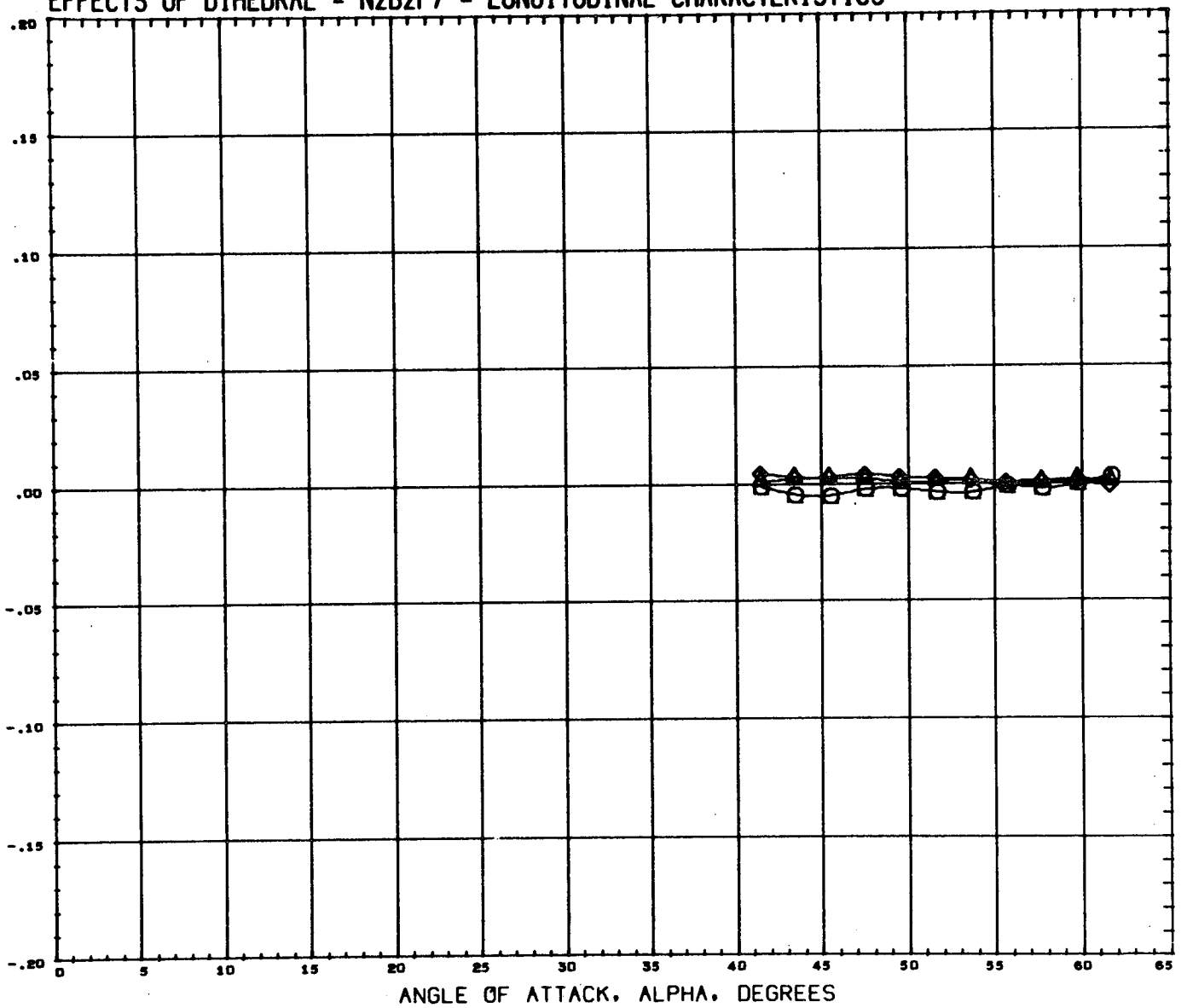
(H54035)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



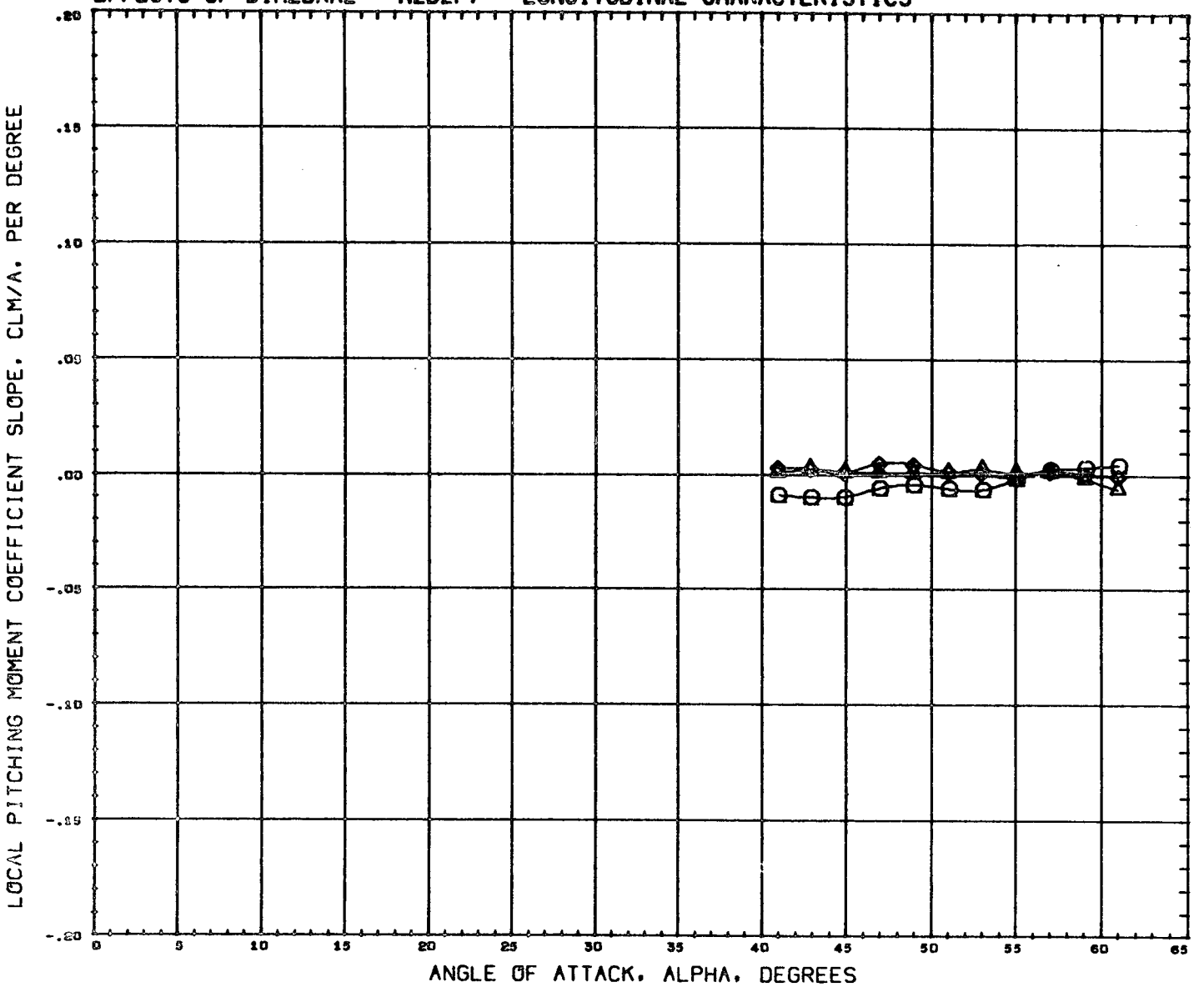
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS



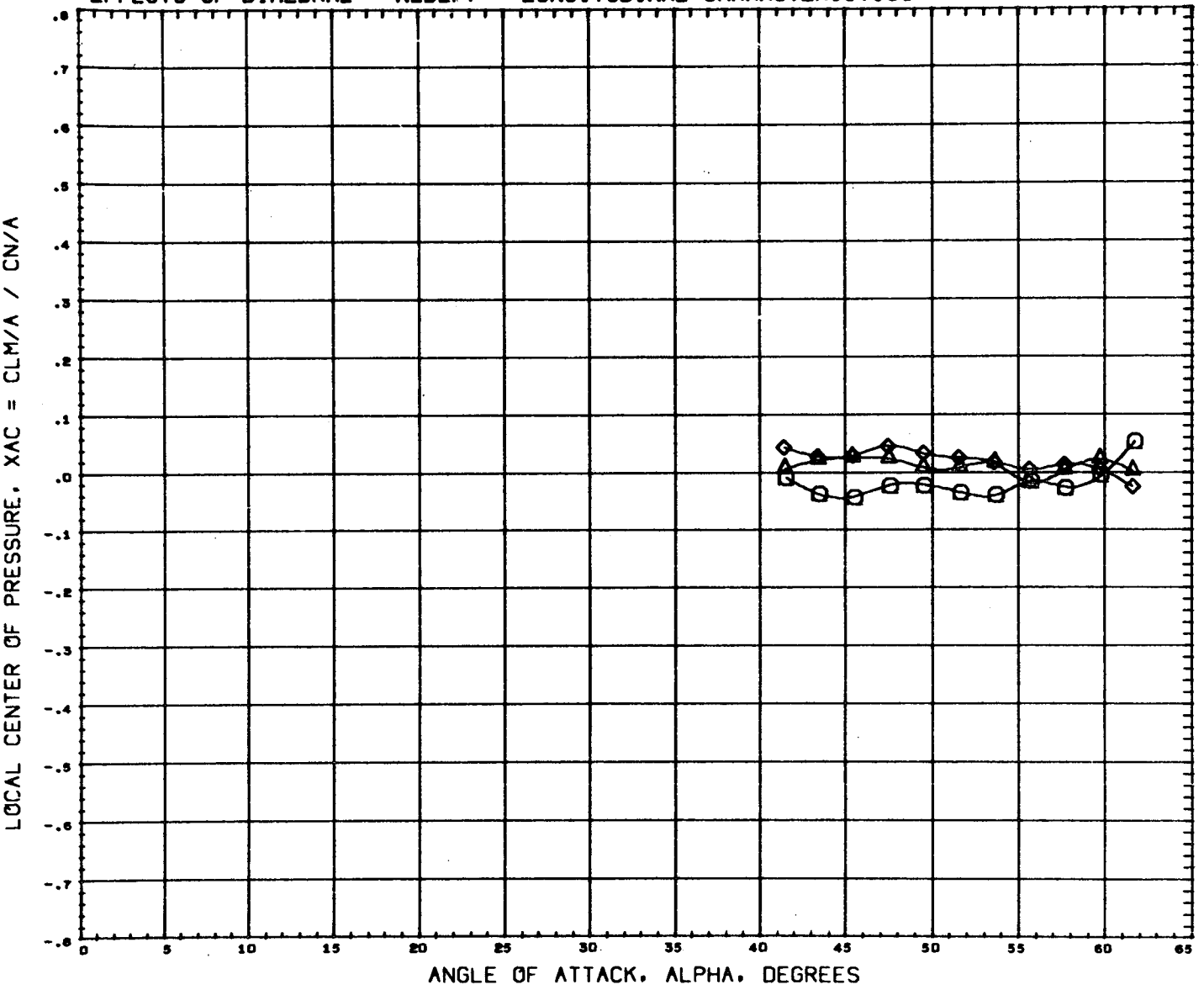
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54059)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(H54060)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54061)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

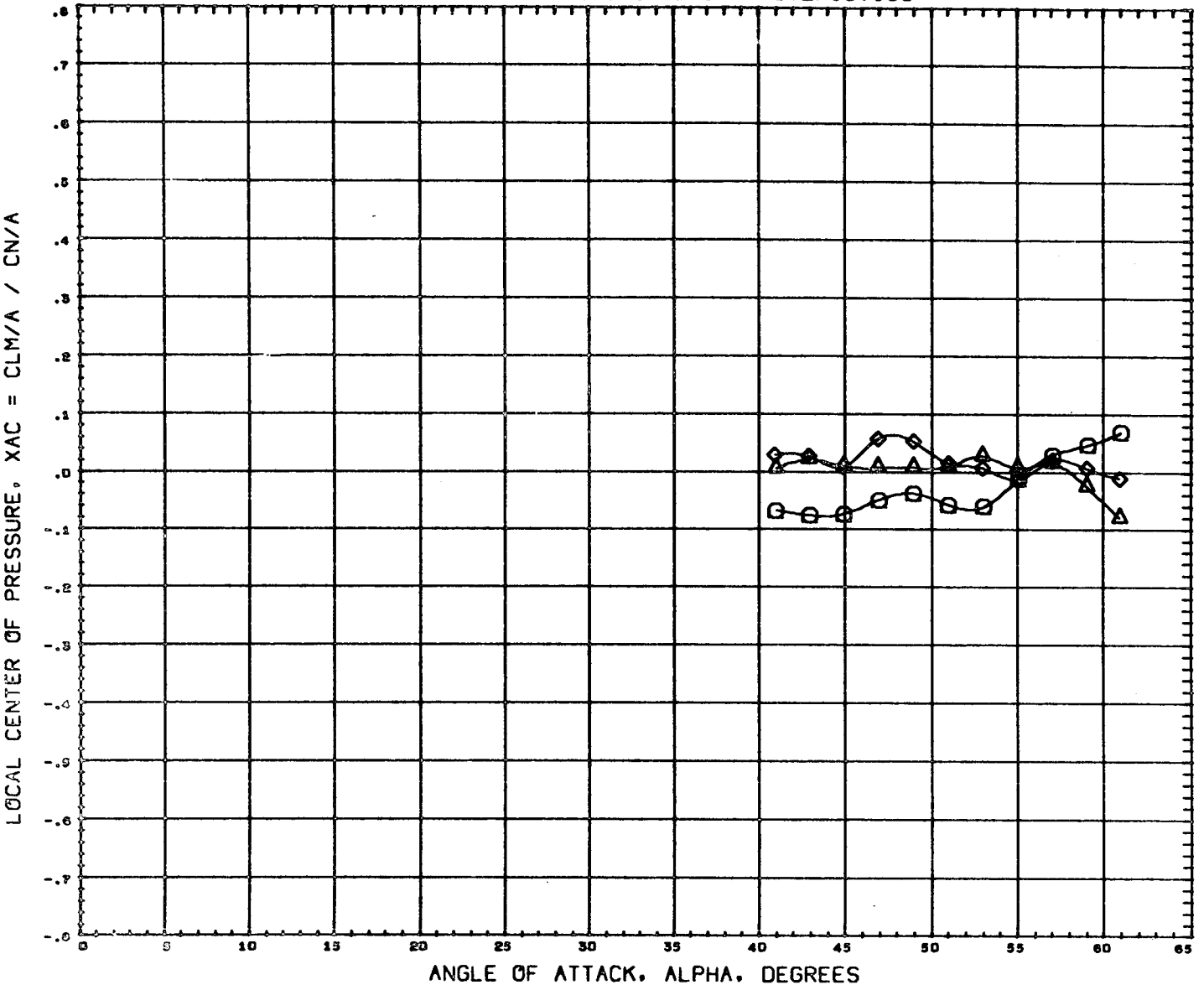


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(F54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(Z54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(F54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

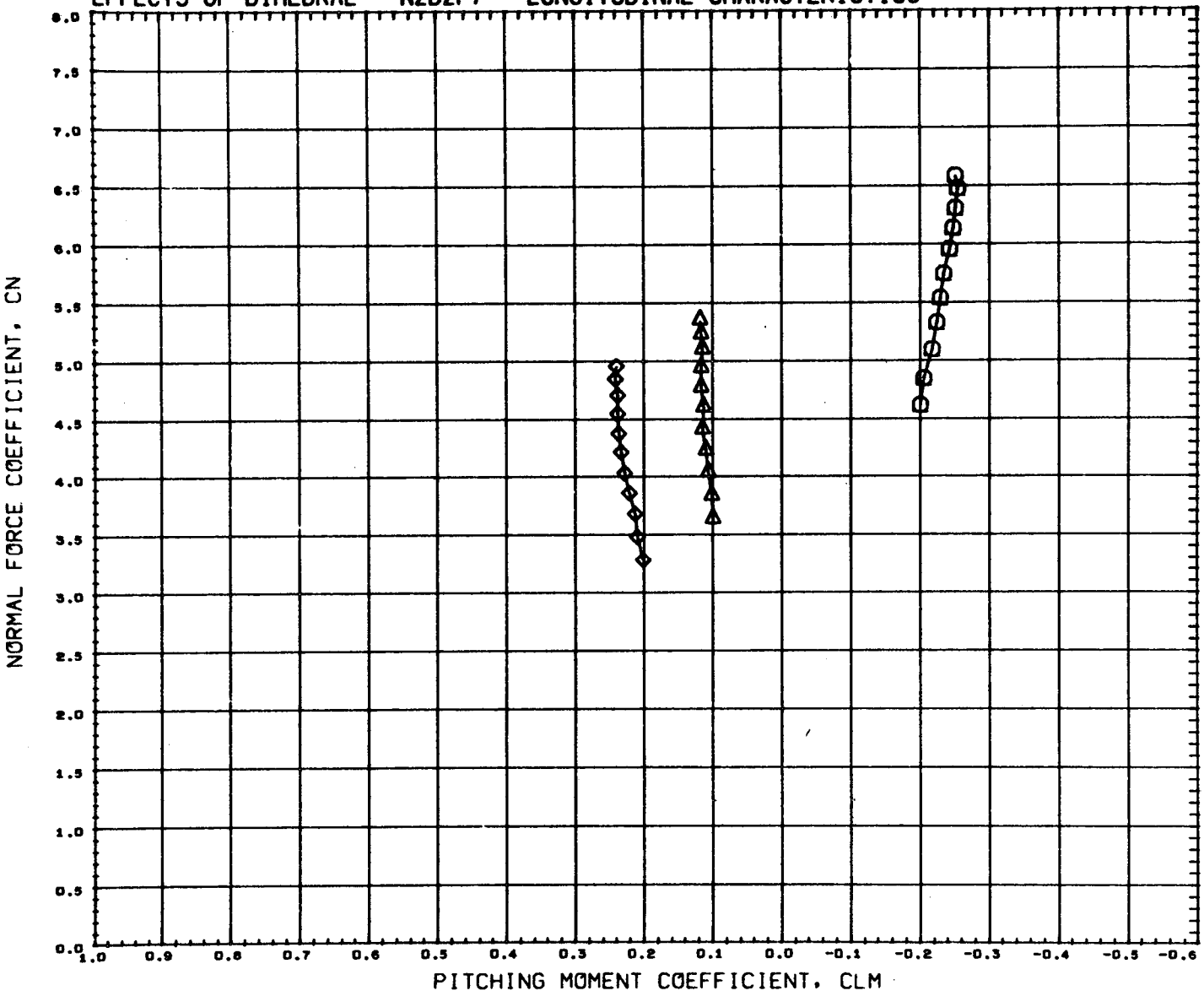


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(F54055)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(Z54053)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(F54053)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

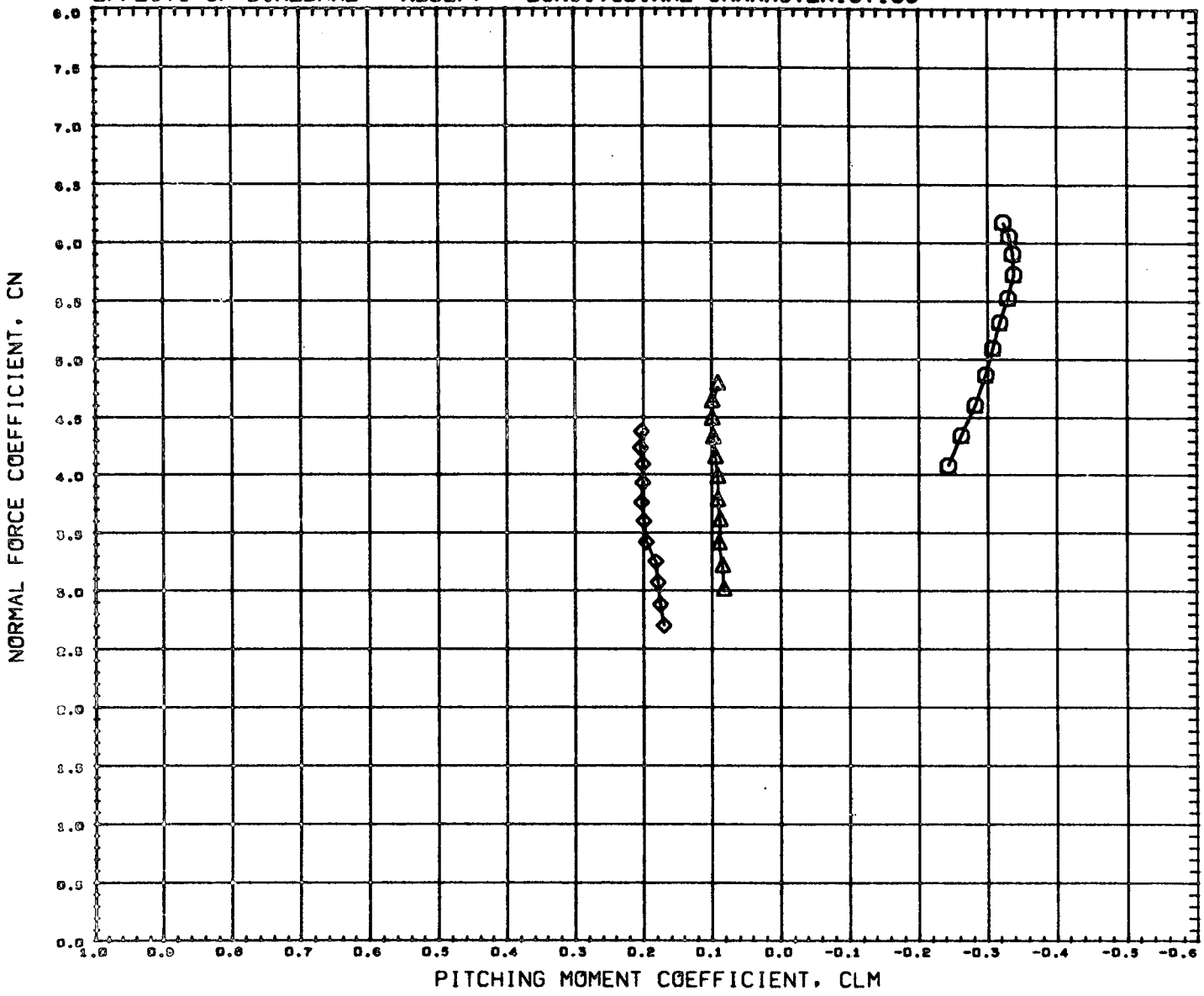


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(K54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LONGITUDINAL CHARACTERISTICS

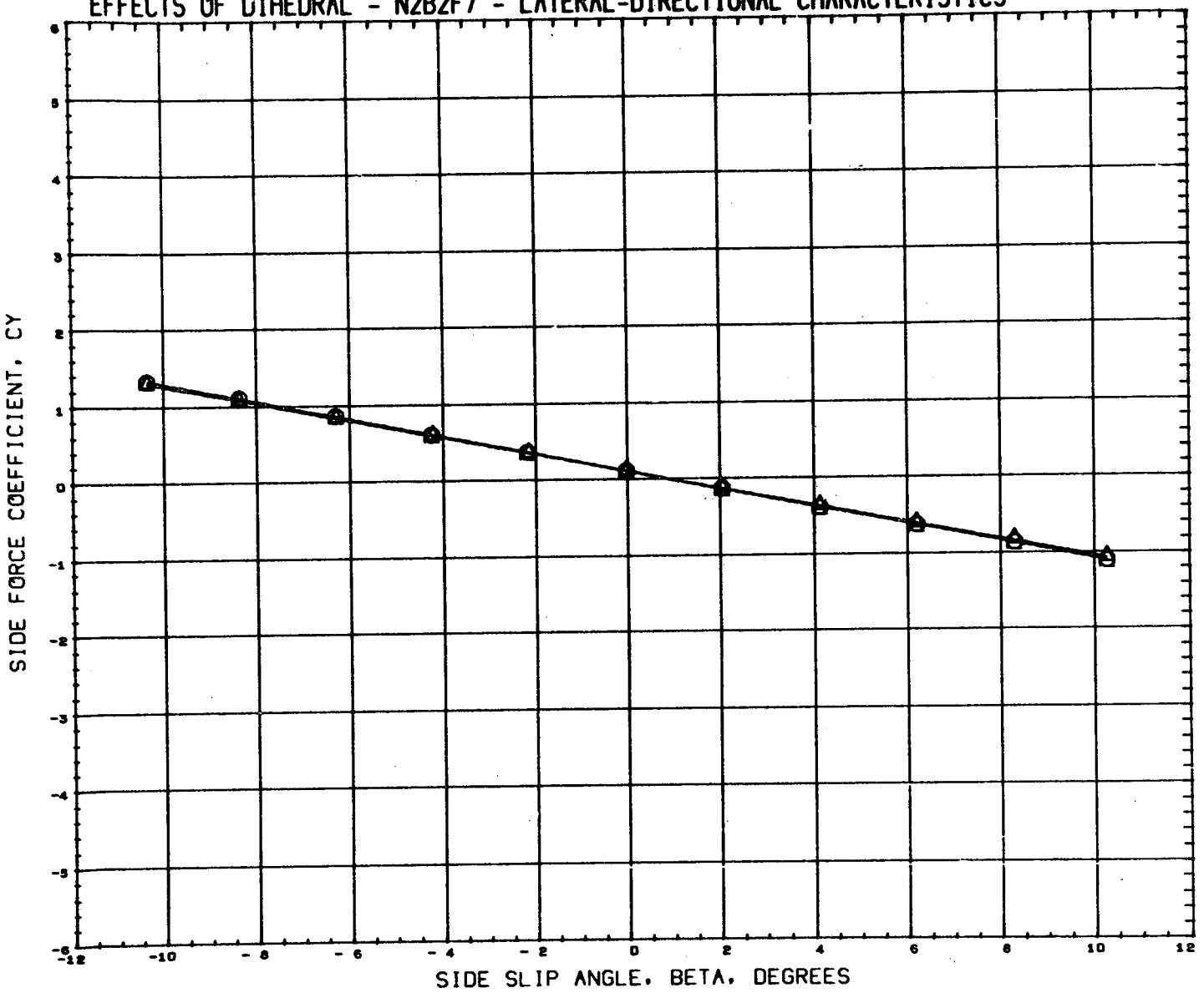


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	DIHDRL
(H54035)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	0.000
(H54033)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	30.000
(H54031)	◇	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	0.000	45.000

MACH 4.959

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	DIHDRL
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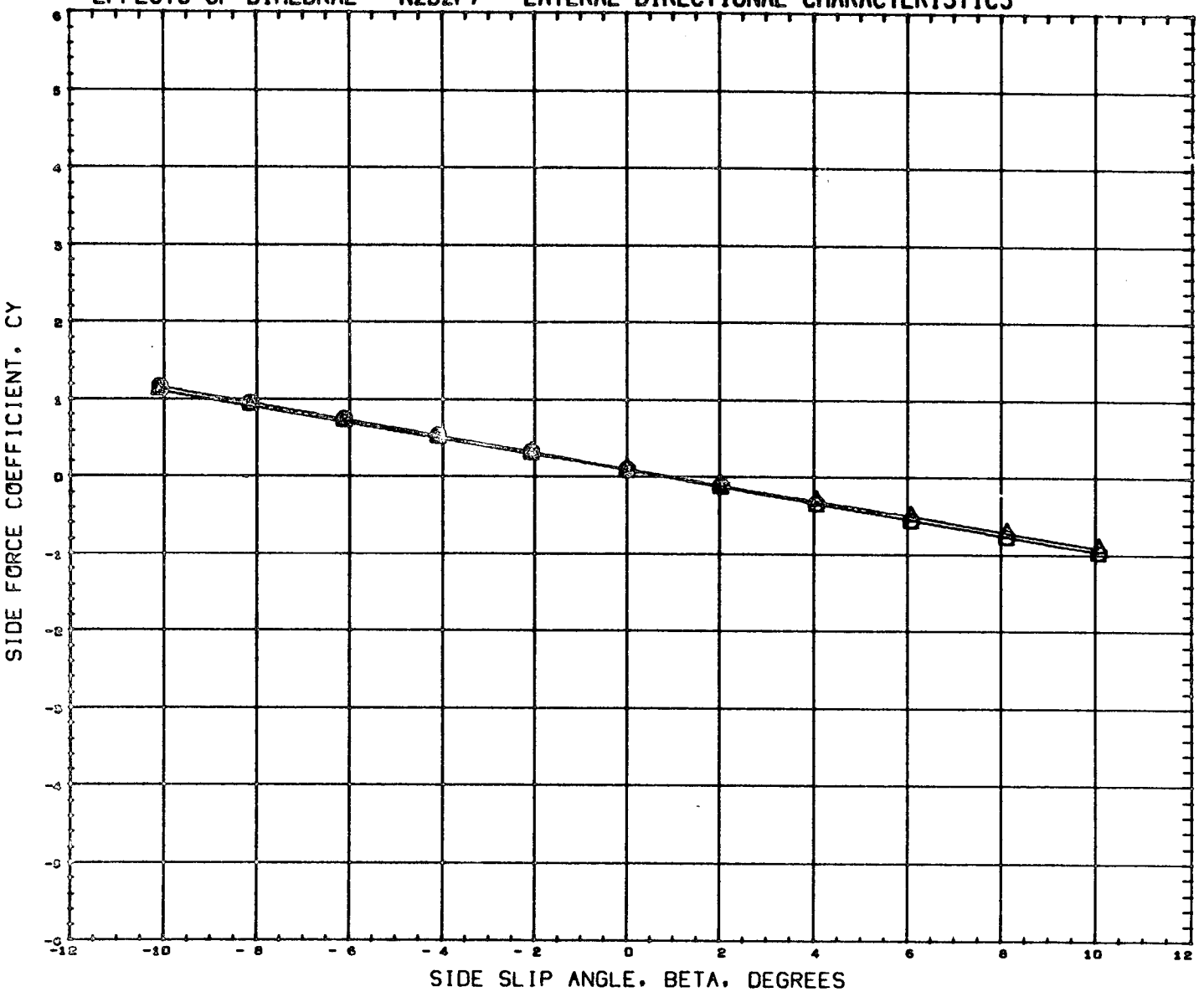
MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

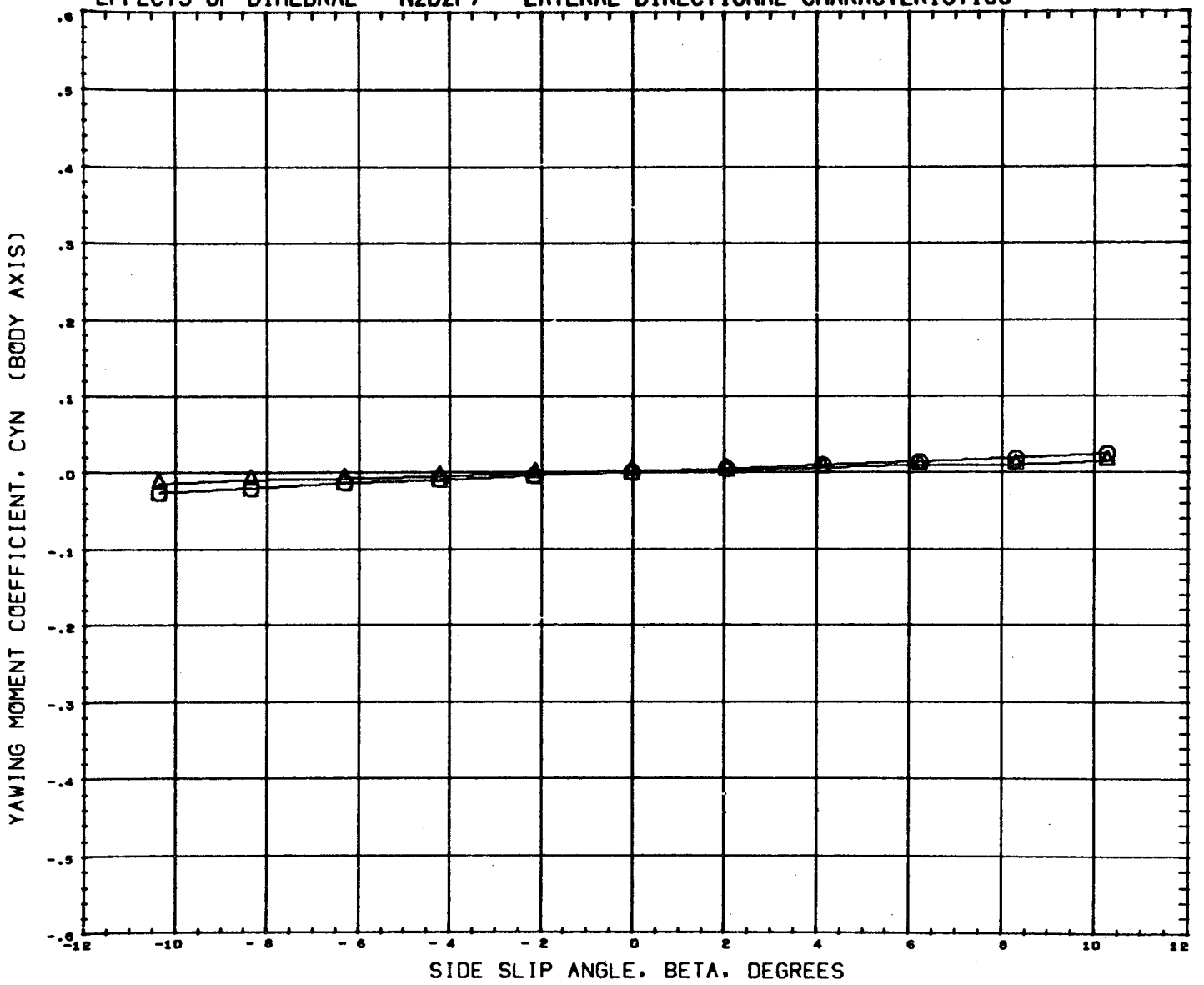


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	DIHDRL
(K54034)		MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	50.000	30.000
(S54032)		MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	50.000	45.000

MACH 4.959

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



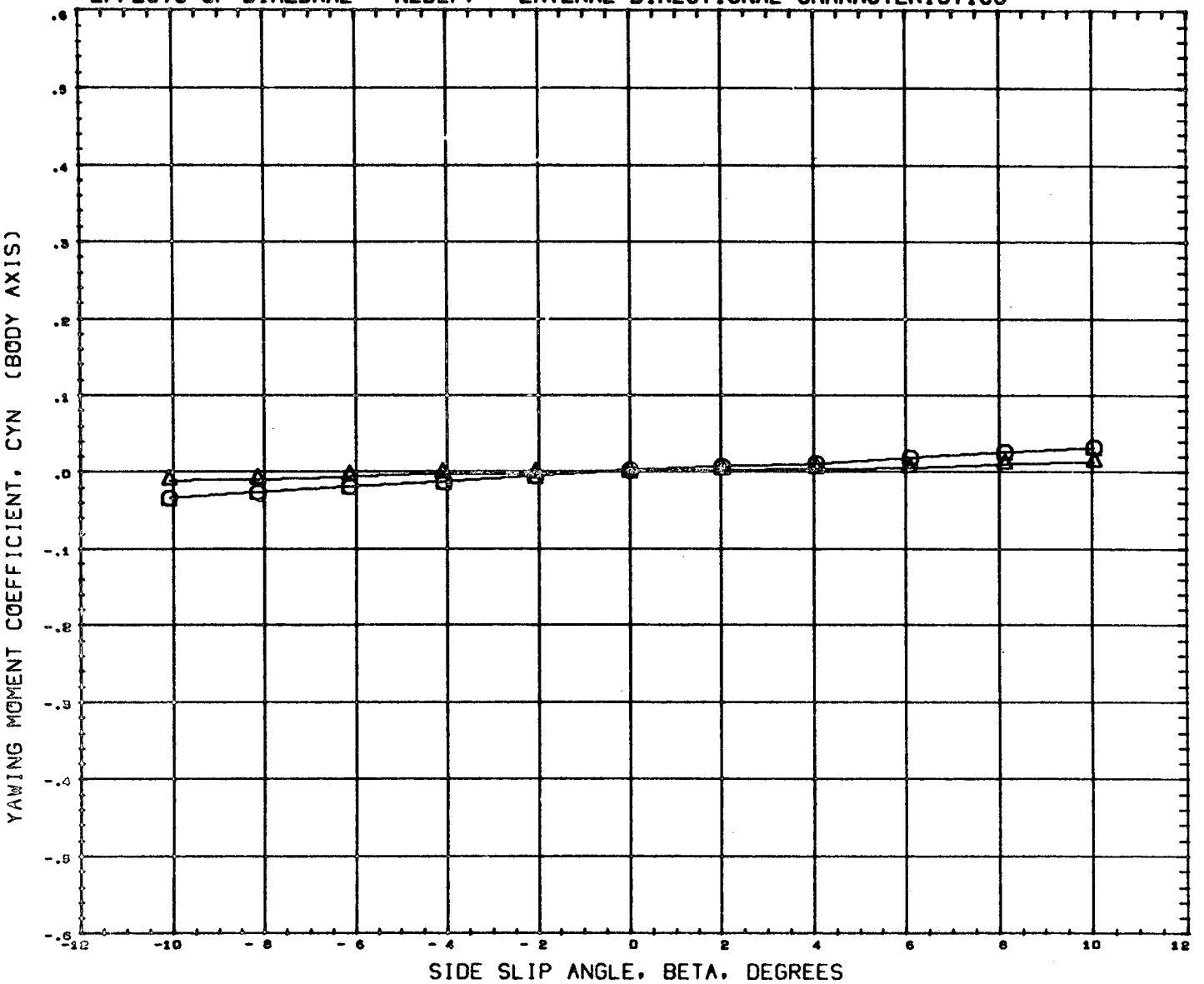
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54034)		MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	30.000
(S54032)		MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	45.000

MACH 2.740

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

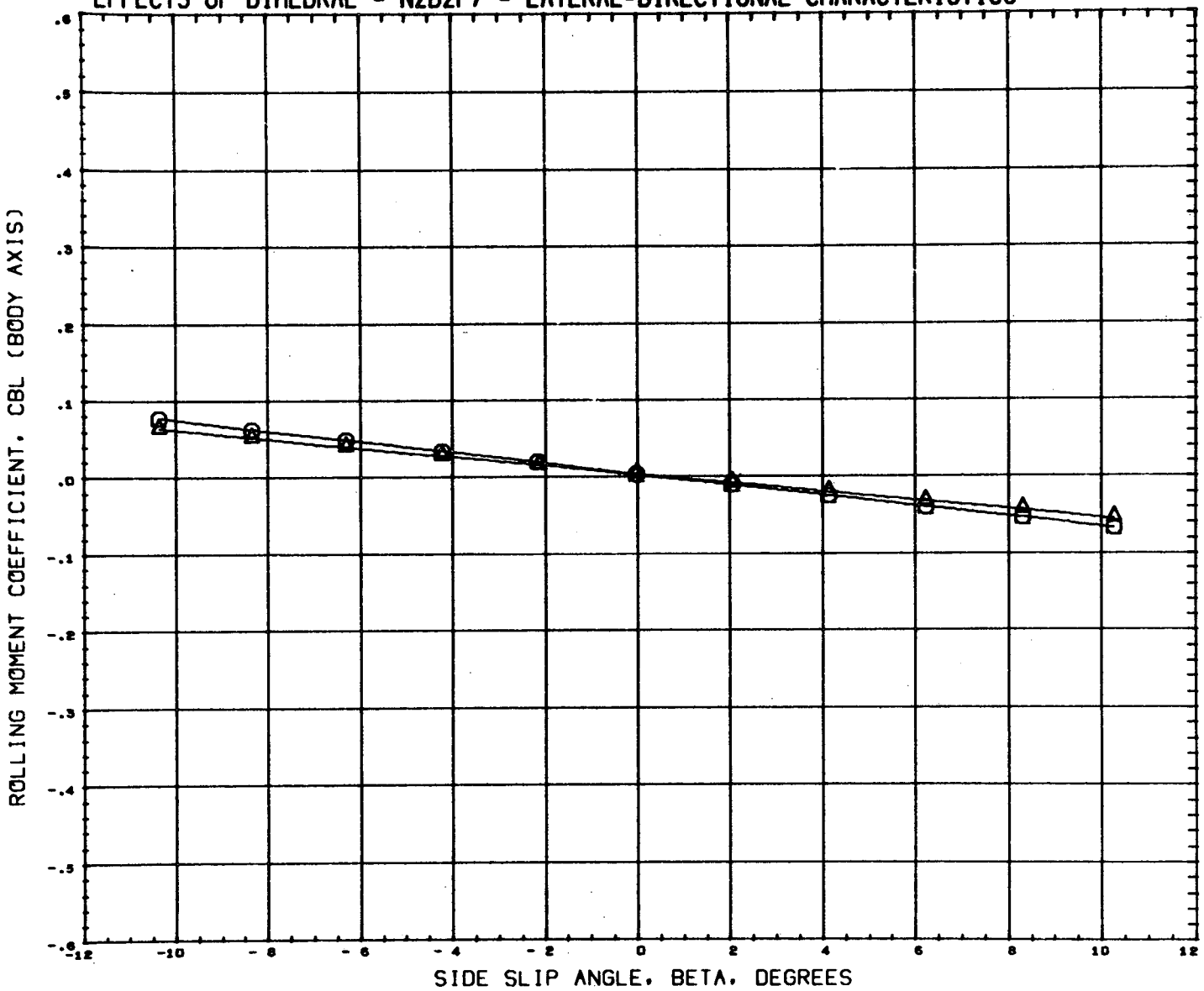


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(R94094)	○	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	30.000
(S54092)	△	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	45.000

MACH 4.959

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

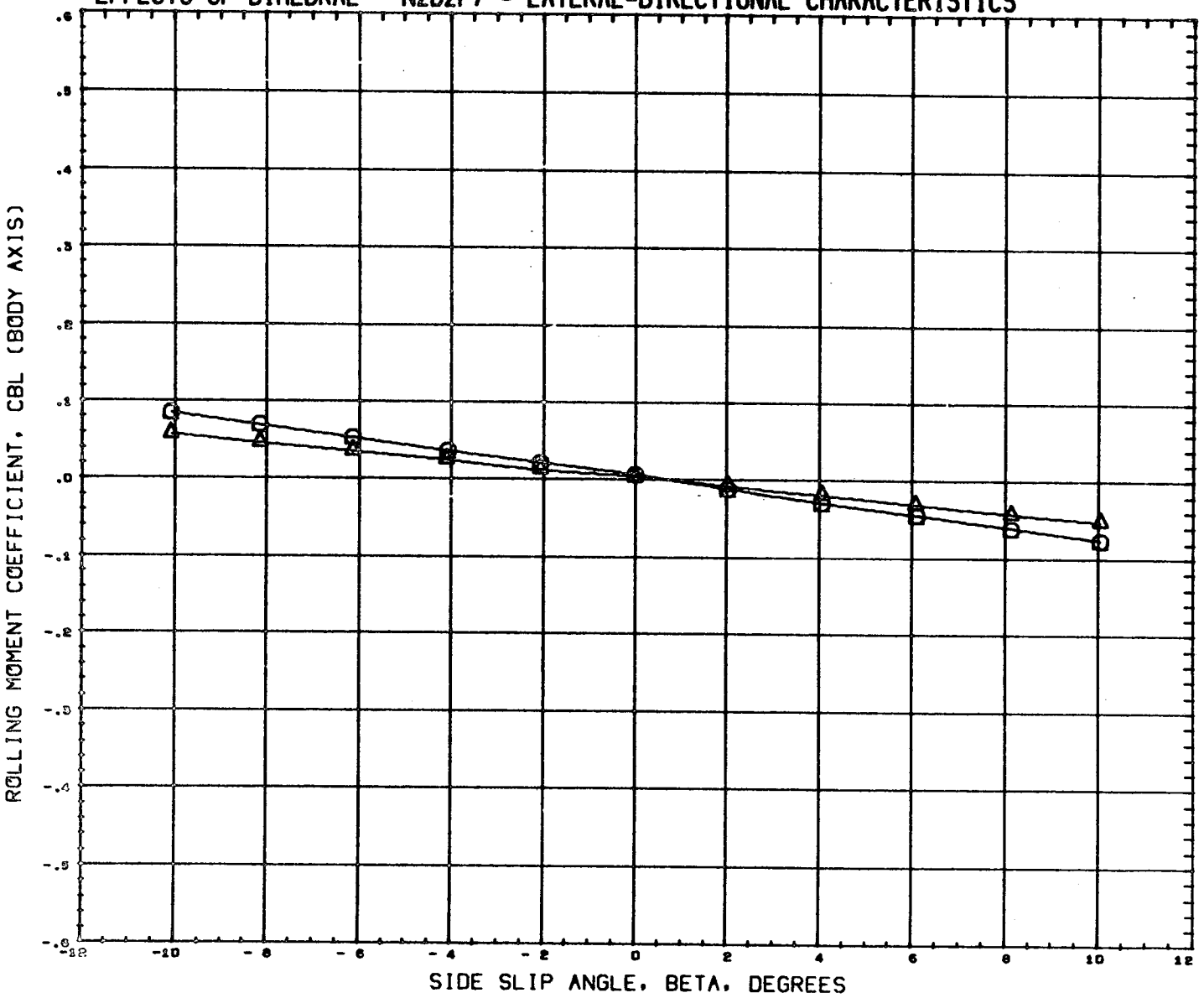


DATA SET SYMBOL		CONFIGURATION DESCRIPTION	ALPHA	DIHDRL
(K54034)	○	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	50.000	30.000
(S54032)	△	MSFC 518 PRESS FED BOOSTER CONFIG X N2B2F7	50.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



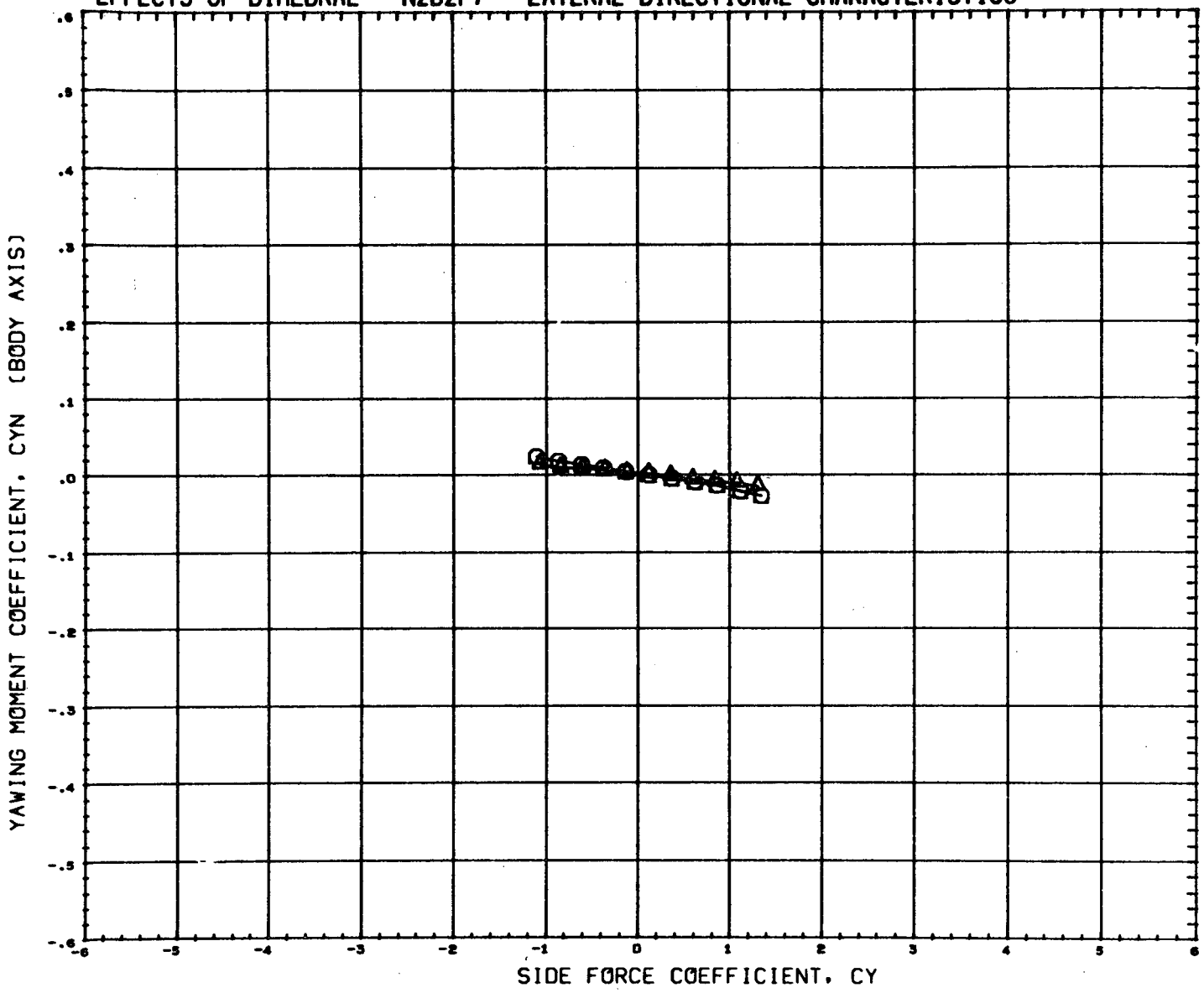
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54094)	○	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	30.000
(S54092)	△	MSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

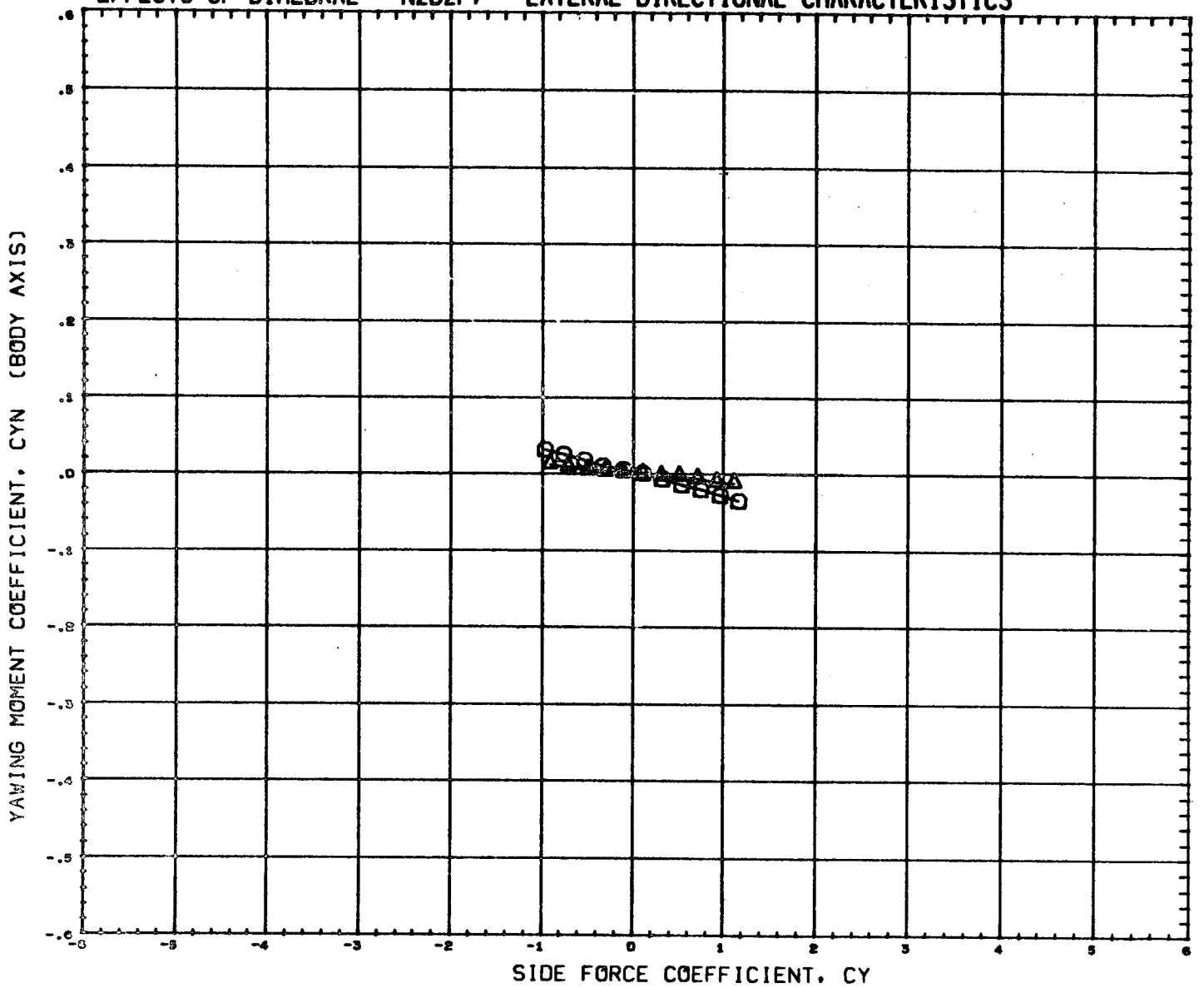


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(K54034)		NSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	30.000
(S54032)		NSFC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	45.000

MACH 2.740

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF DIHEDRAL - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



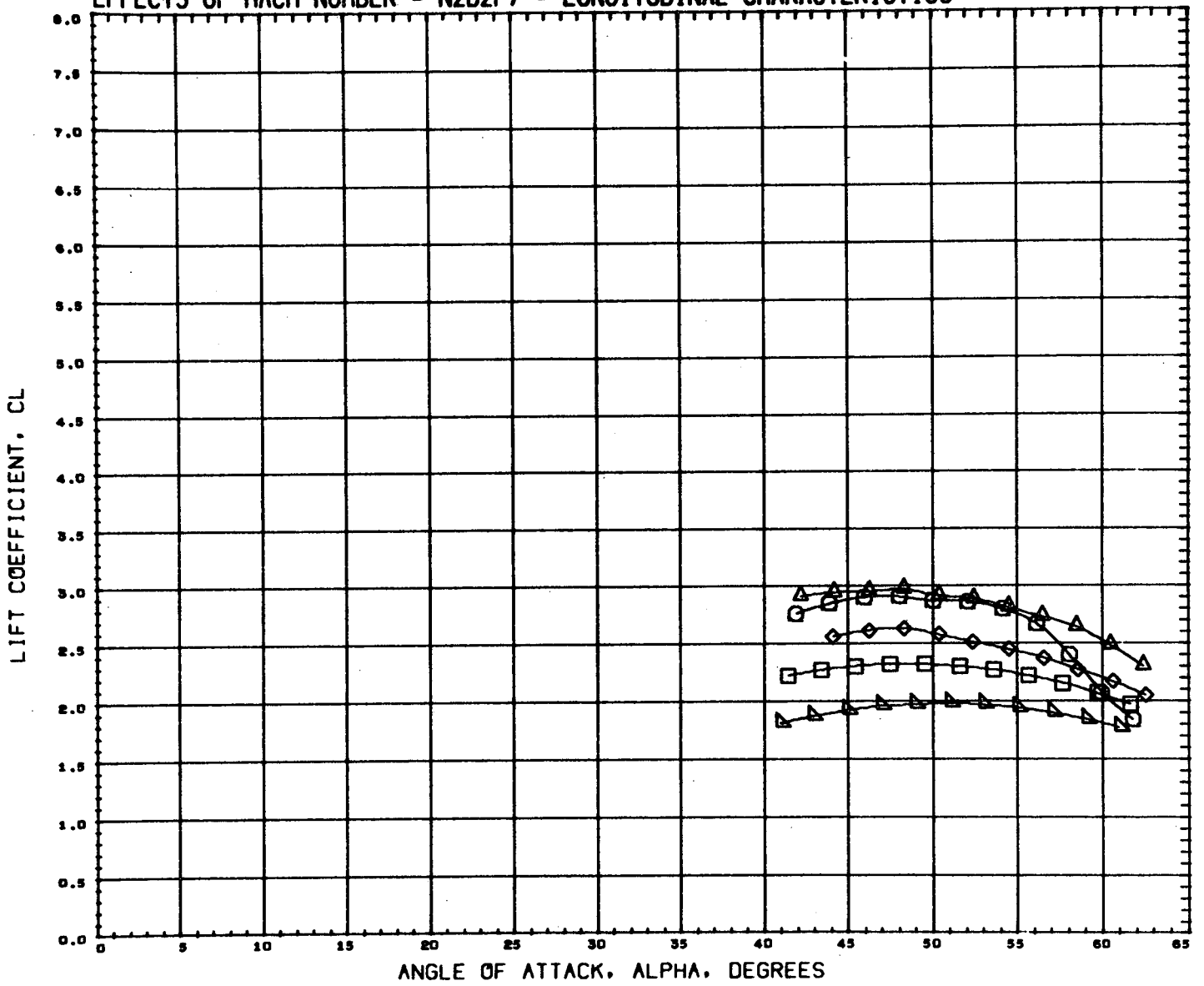
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	DIHDRL
(N94004)		M3FC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	30.000
(004032)		M3FC 518 PRESS FED BOOSTER CONFIG X	N2B2F7	50.000	45.000

MACH 4.959

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.198
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

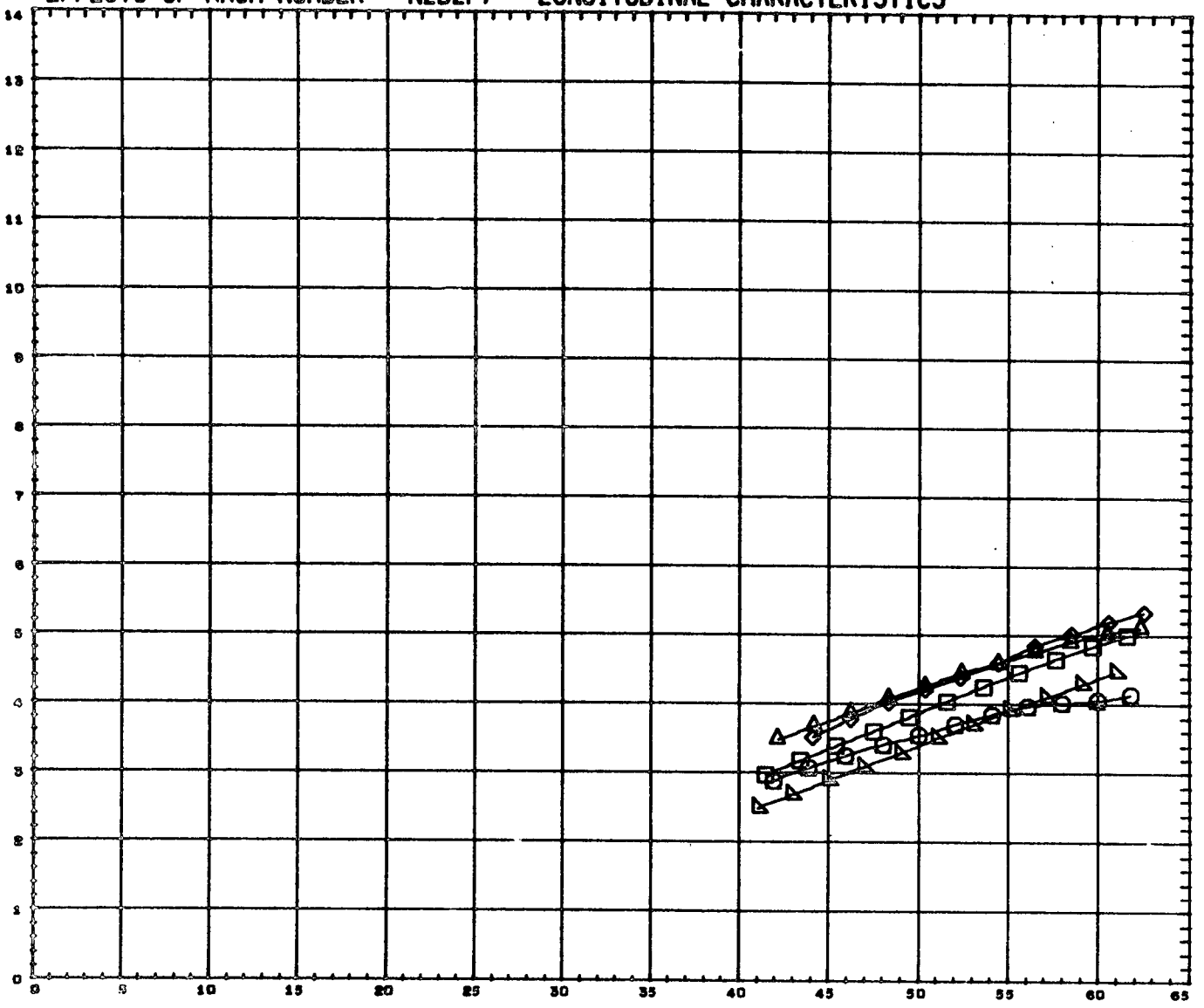
BETA 0.000 DIHDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



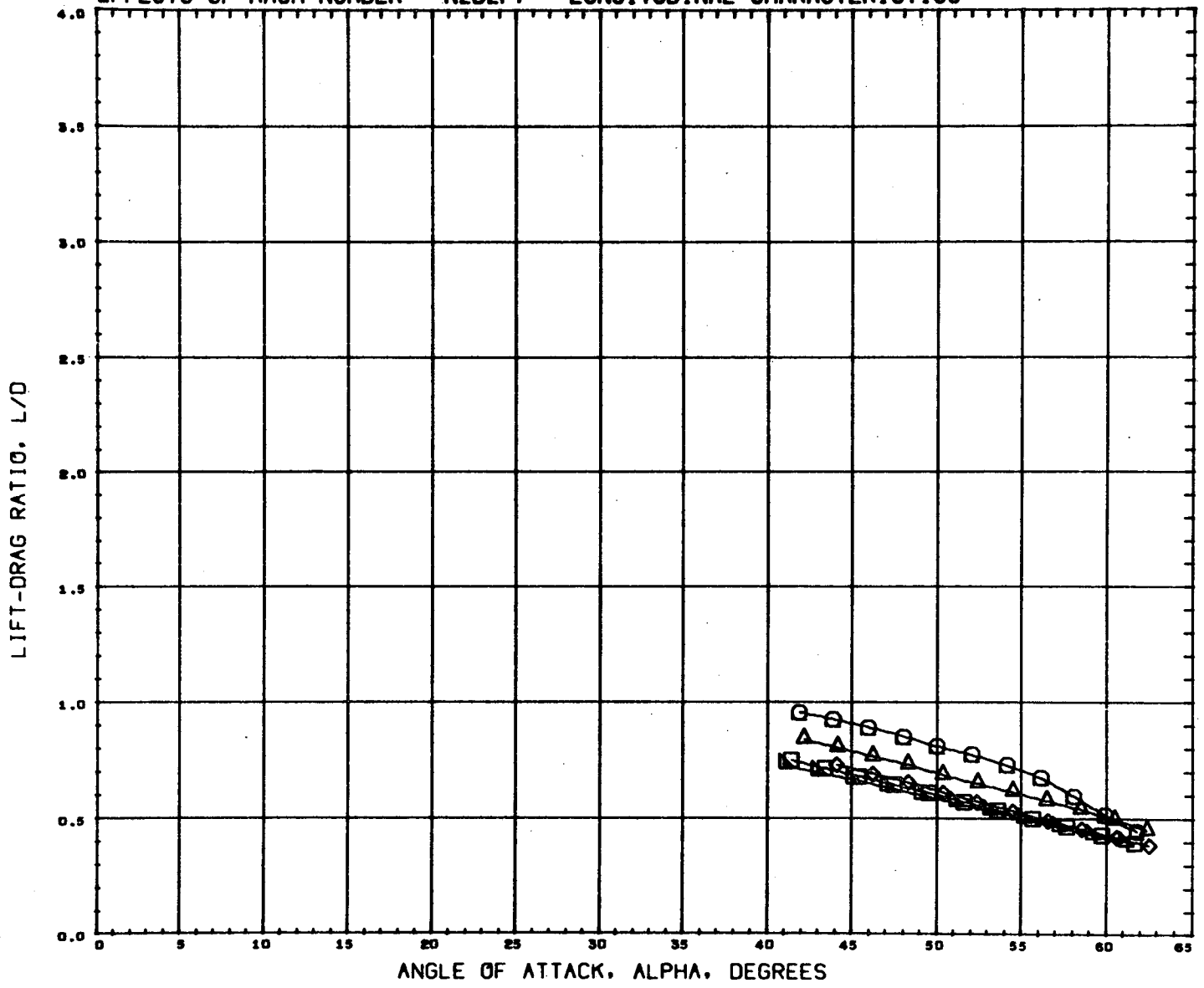
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.900	BETA	0.000	DIHDRL	30.000
△	1.190				
◇	1.964				
□	2.740				
▽	4.950				

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.198
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

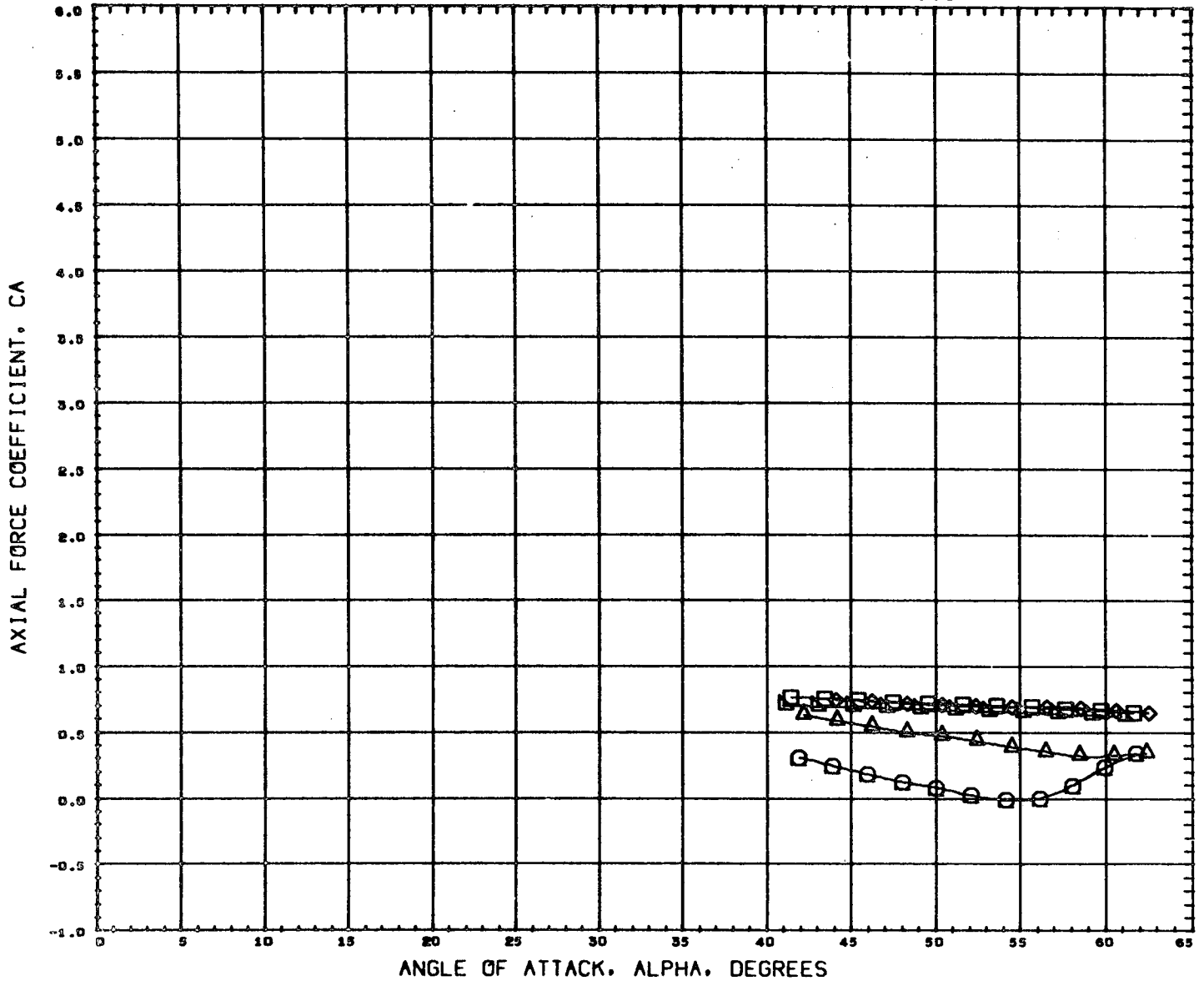
BETA 0.000 DIHDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



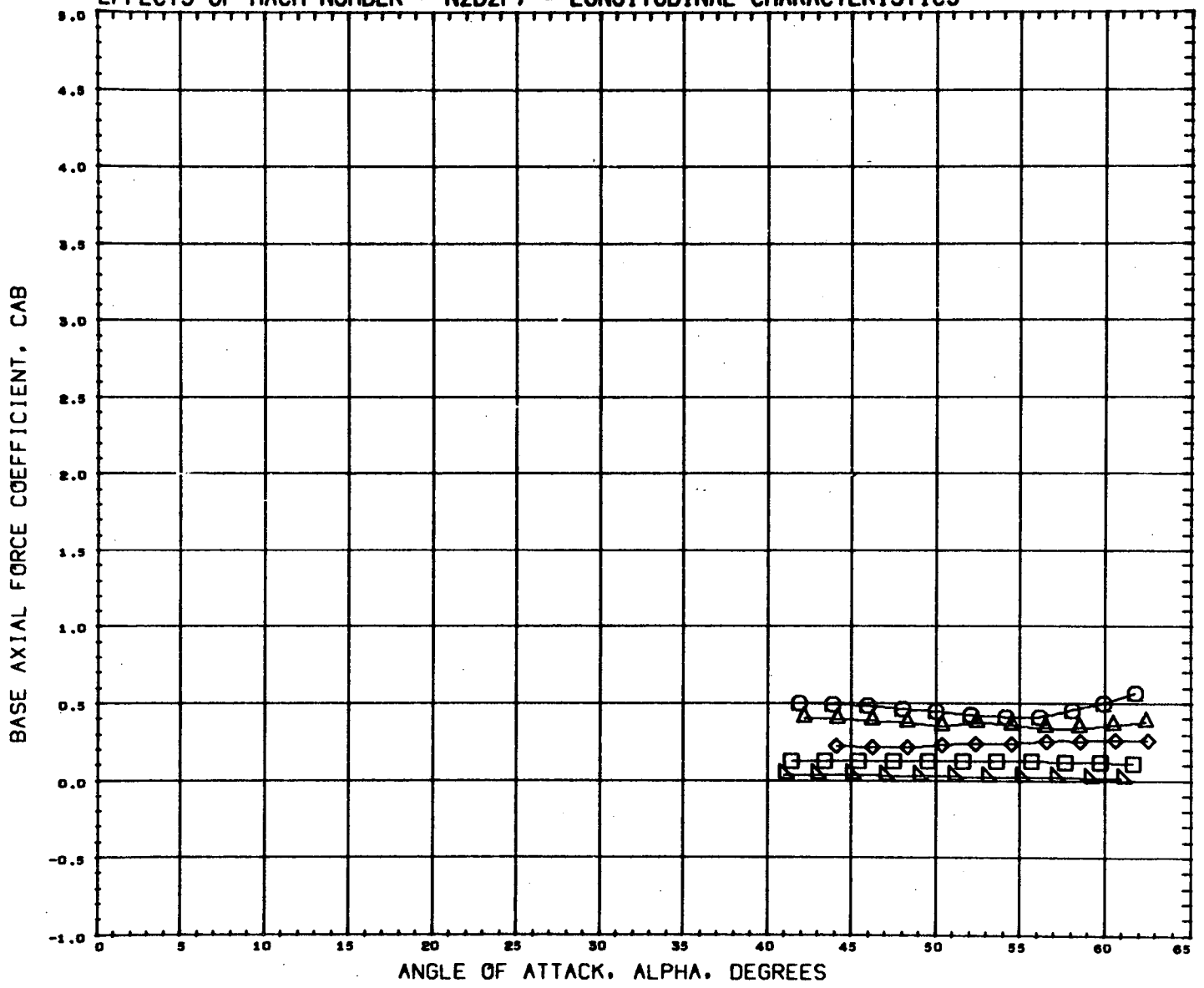
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.000	BETA	0.000	DIHDRL	30.000
△	1.200				
◇	1.904				
□	2.740				
▽	4.050				

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS

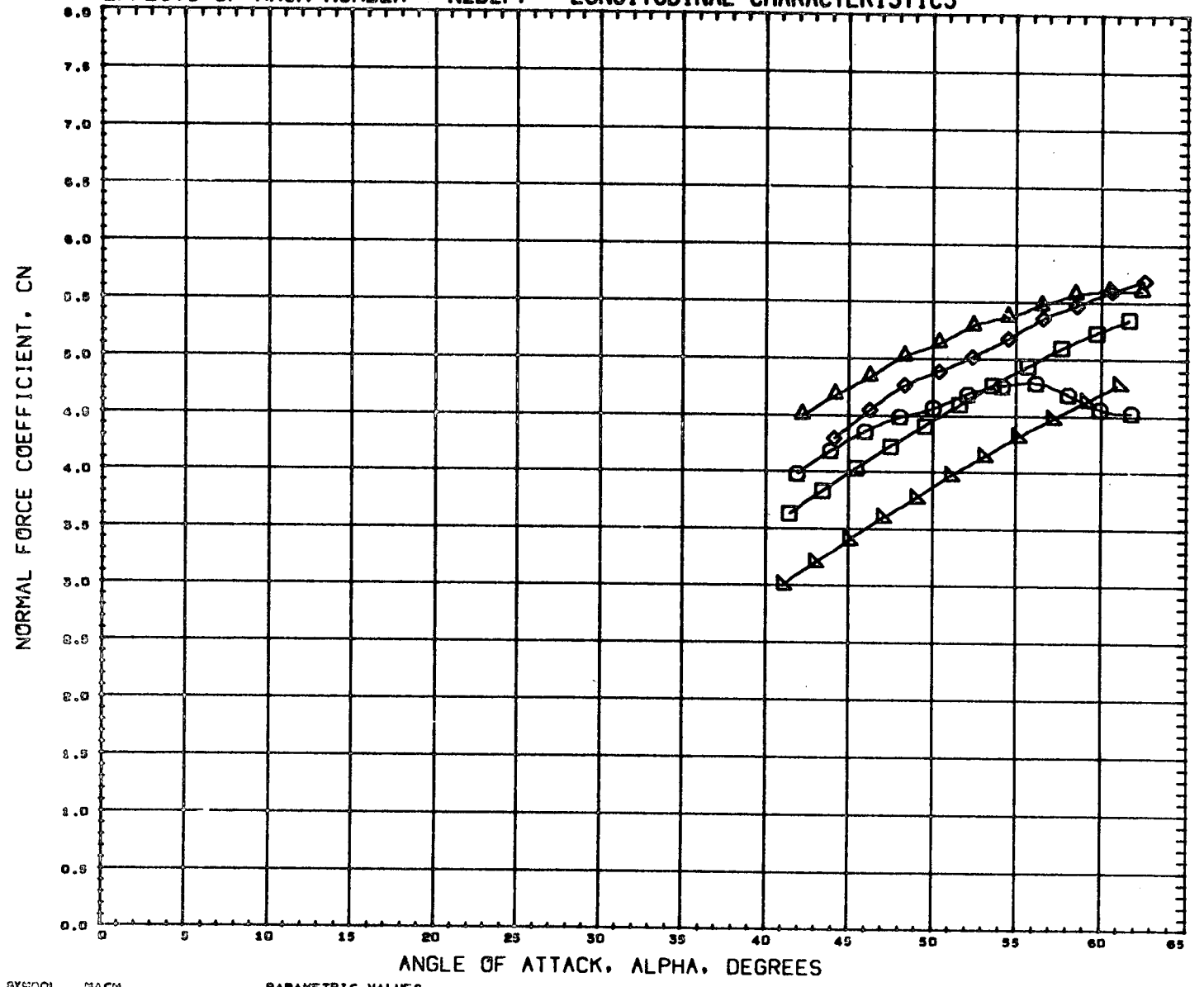


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.900	BETA	0.000	DIHDRL	30.000
△	1.198				
◇	1.964				
□	2.740				
▽	4.959				

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.190
◇	1.964
□	2.740
◸	4.959

PARAMETRIC VALUES

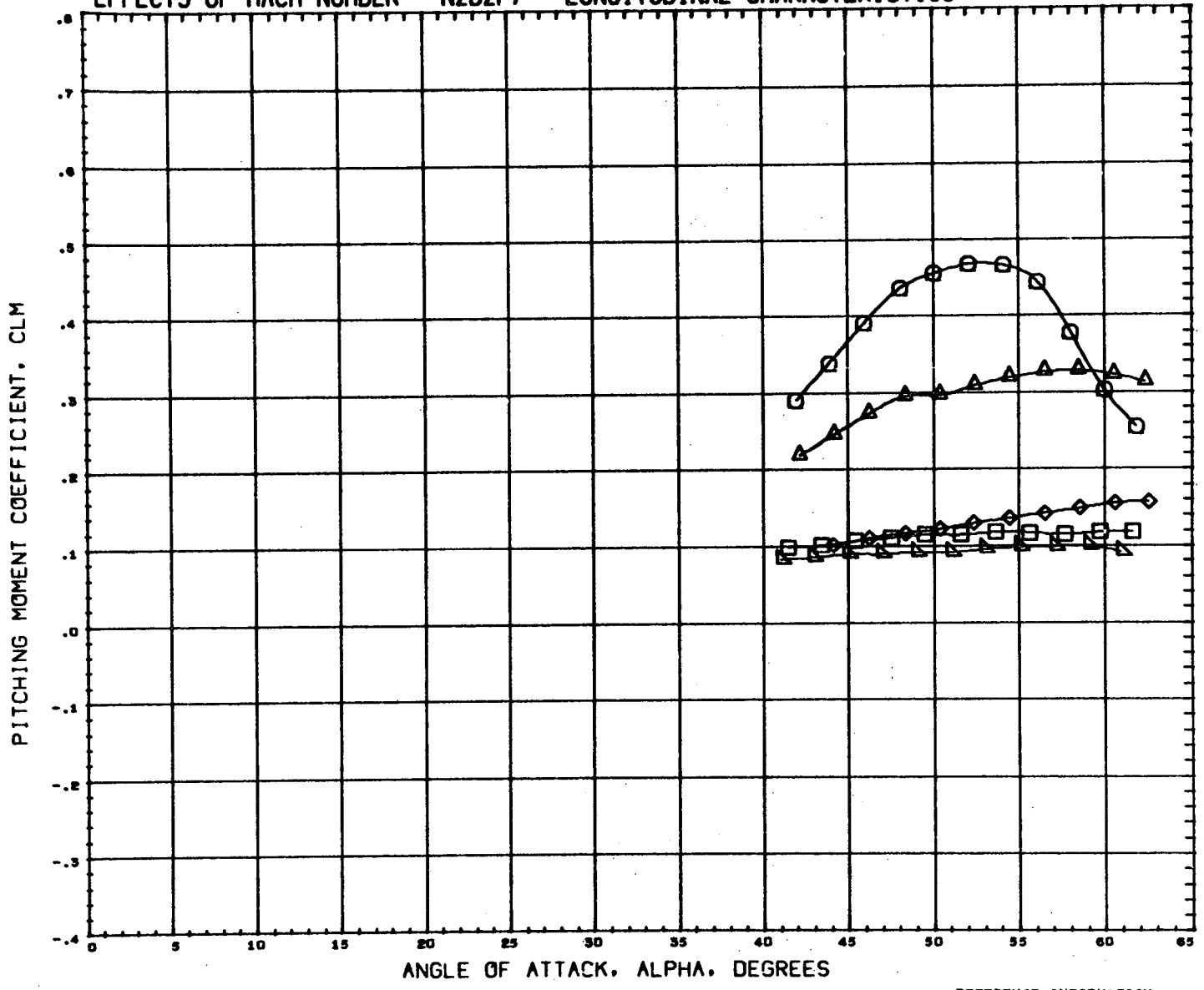
BETA 0.000 DIHDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



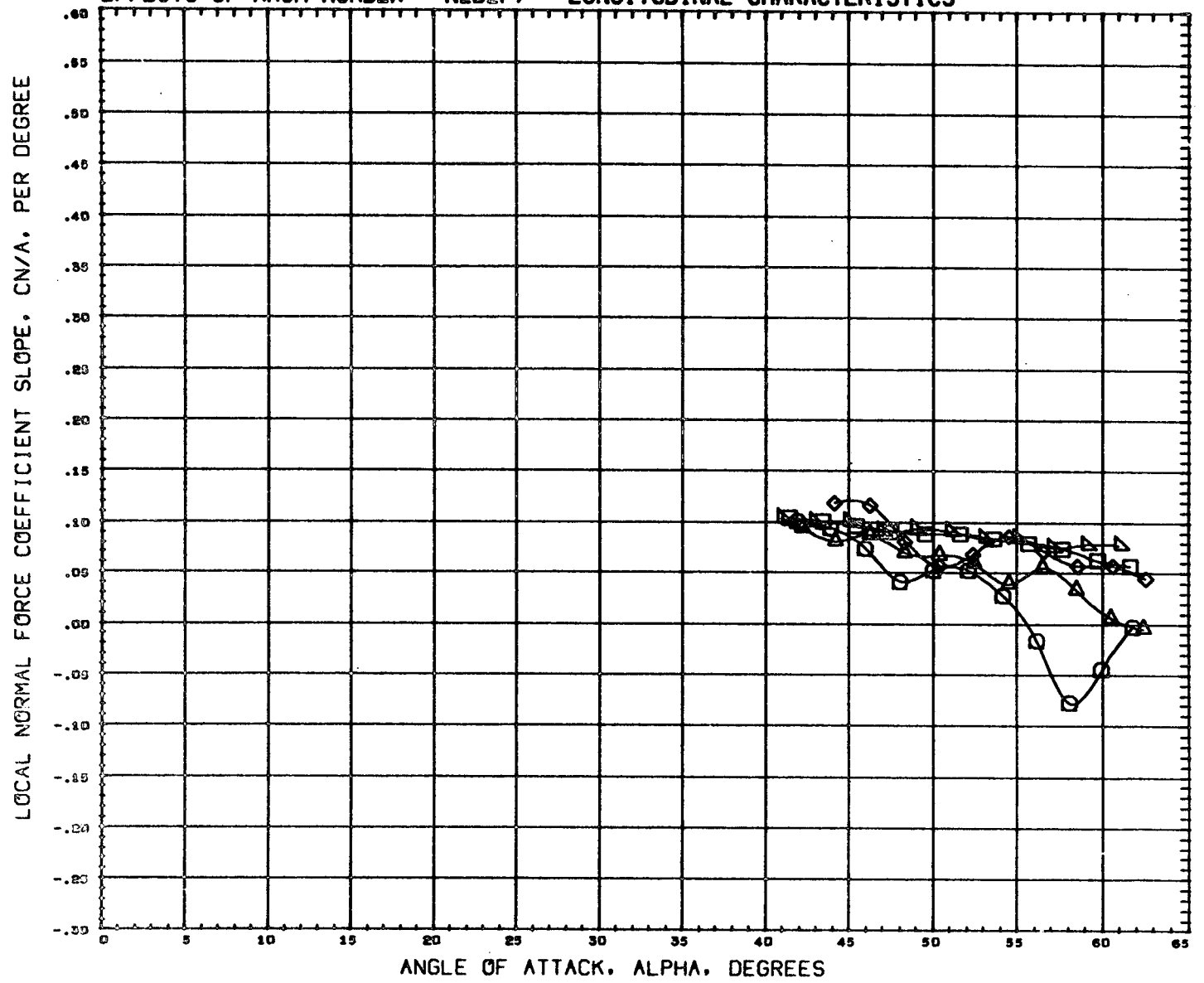
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.900	BETA	0.000	DIHDRL	30.000
△	1.198				
◇	1.964				
□	2.748				
⇗	4.959				

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.196
◇	1.934
□	2.760
▽	4.959

PARAMETRIC VALUES

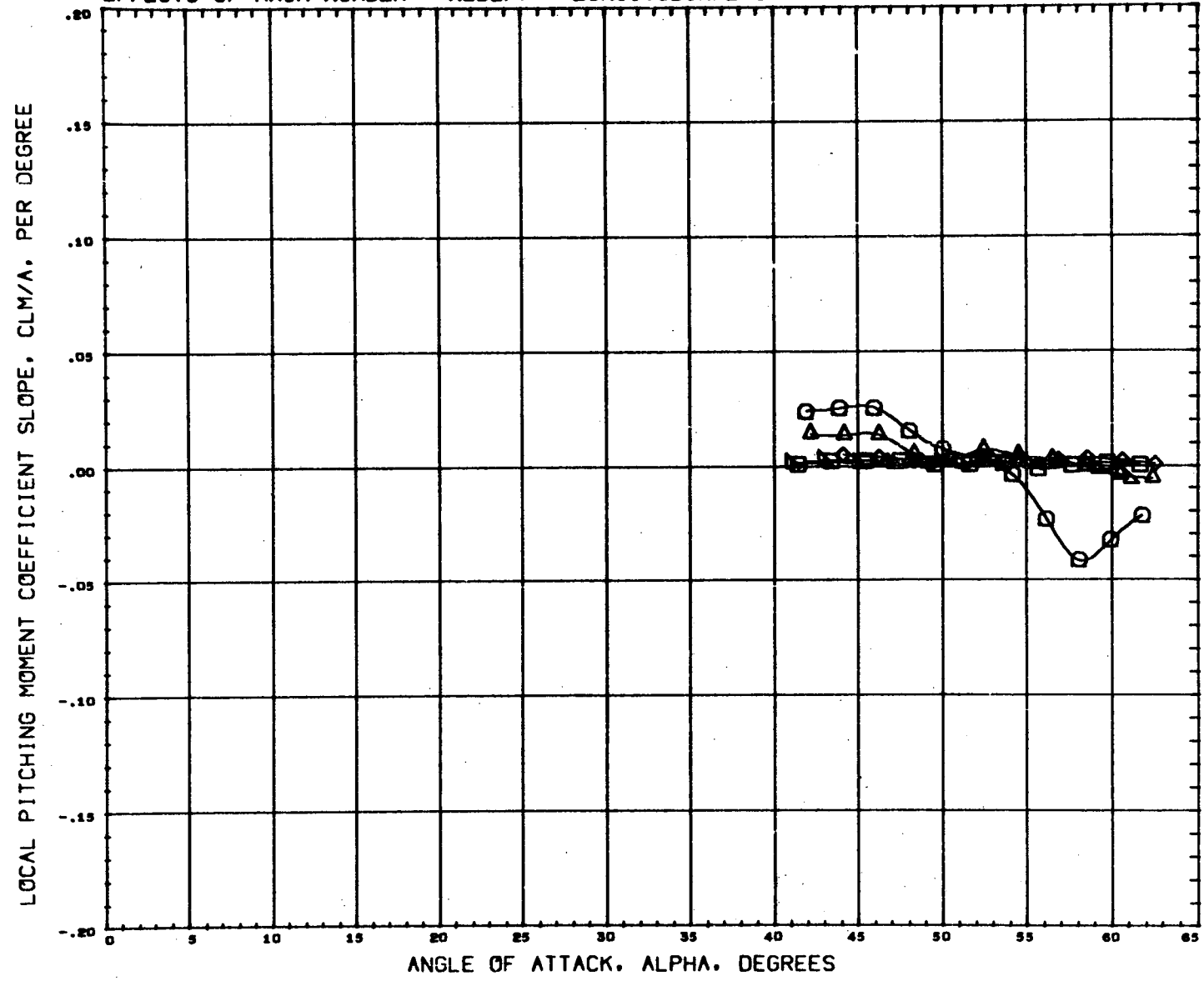
BETA 0.000 DIMDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.198
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

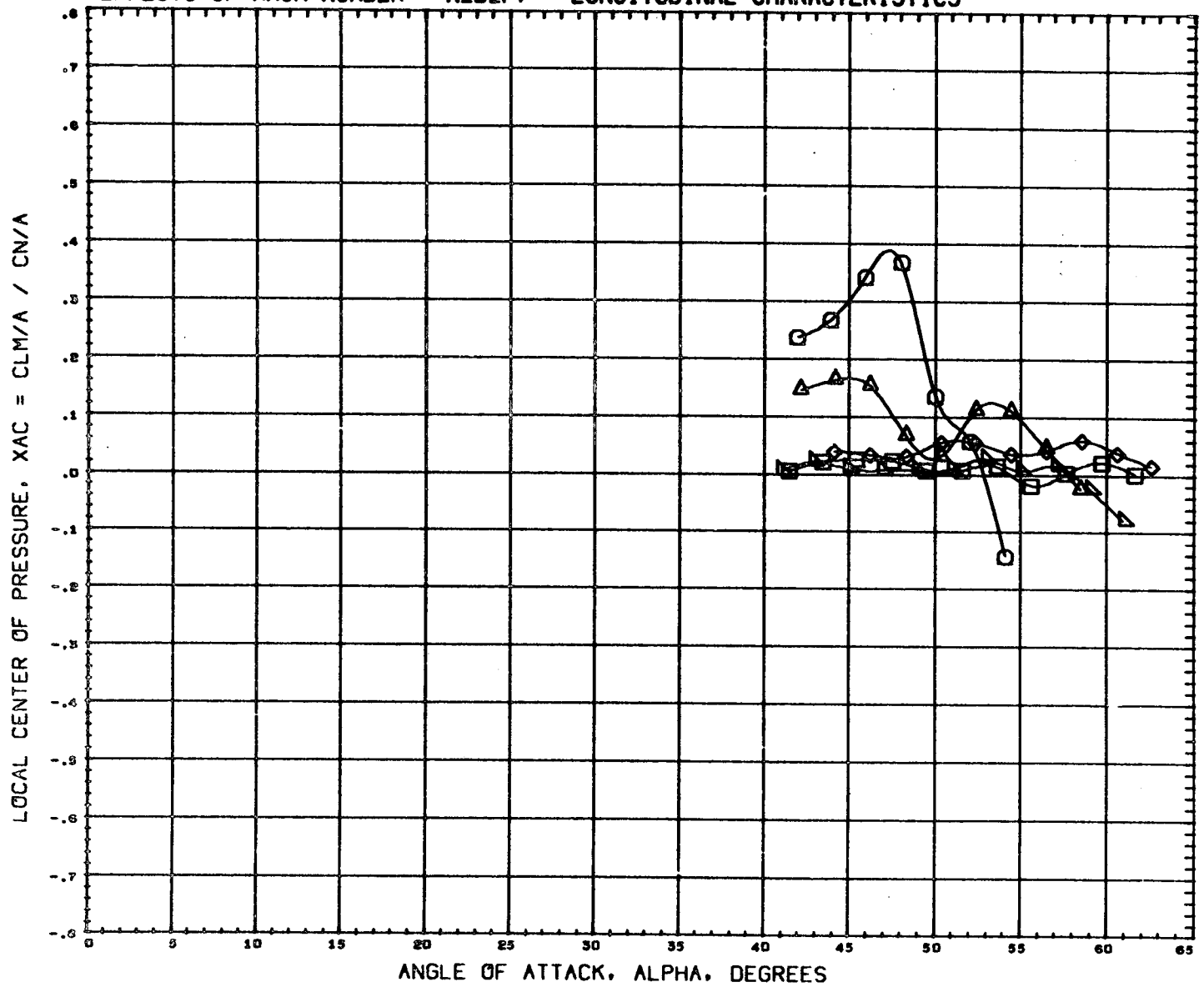
BETA 0.000 DIHDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



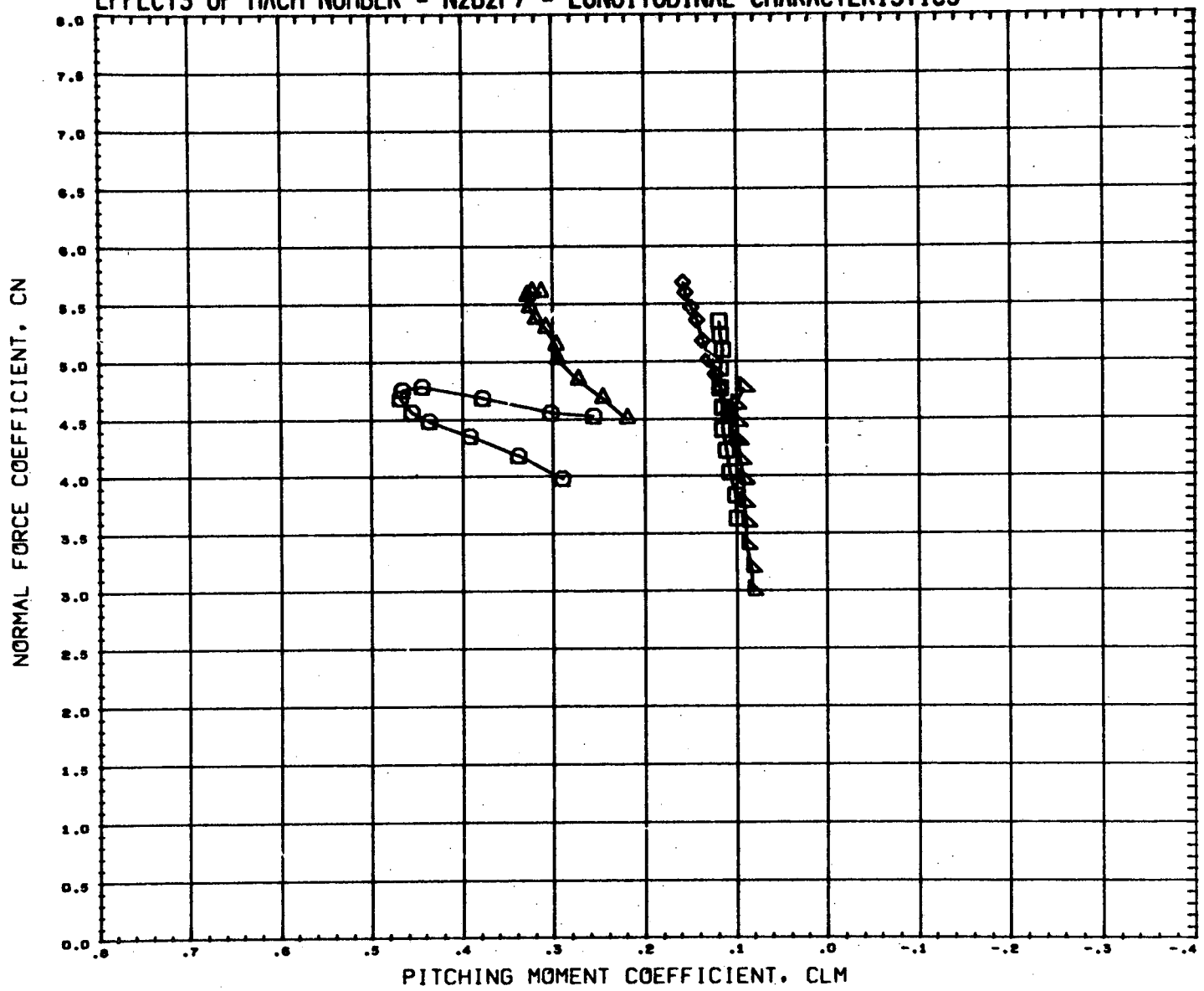
SYMBOL	MACH	PARAMETRIC VALUES			
○	0.900	BETA	0.000	DIHDRL	30.000
△	1.198				
◇	1.964				
□	2.740				
	4.959				

DATA HIST. CODE MSGC@A#G

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LONGITUDINAL CHARACTERISTICS



SYMBOL	MACH
○	0.900
△	1.198
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

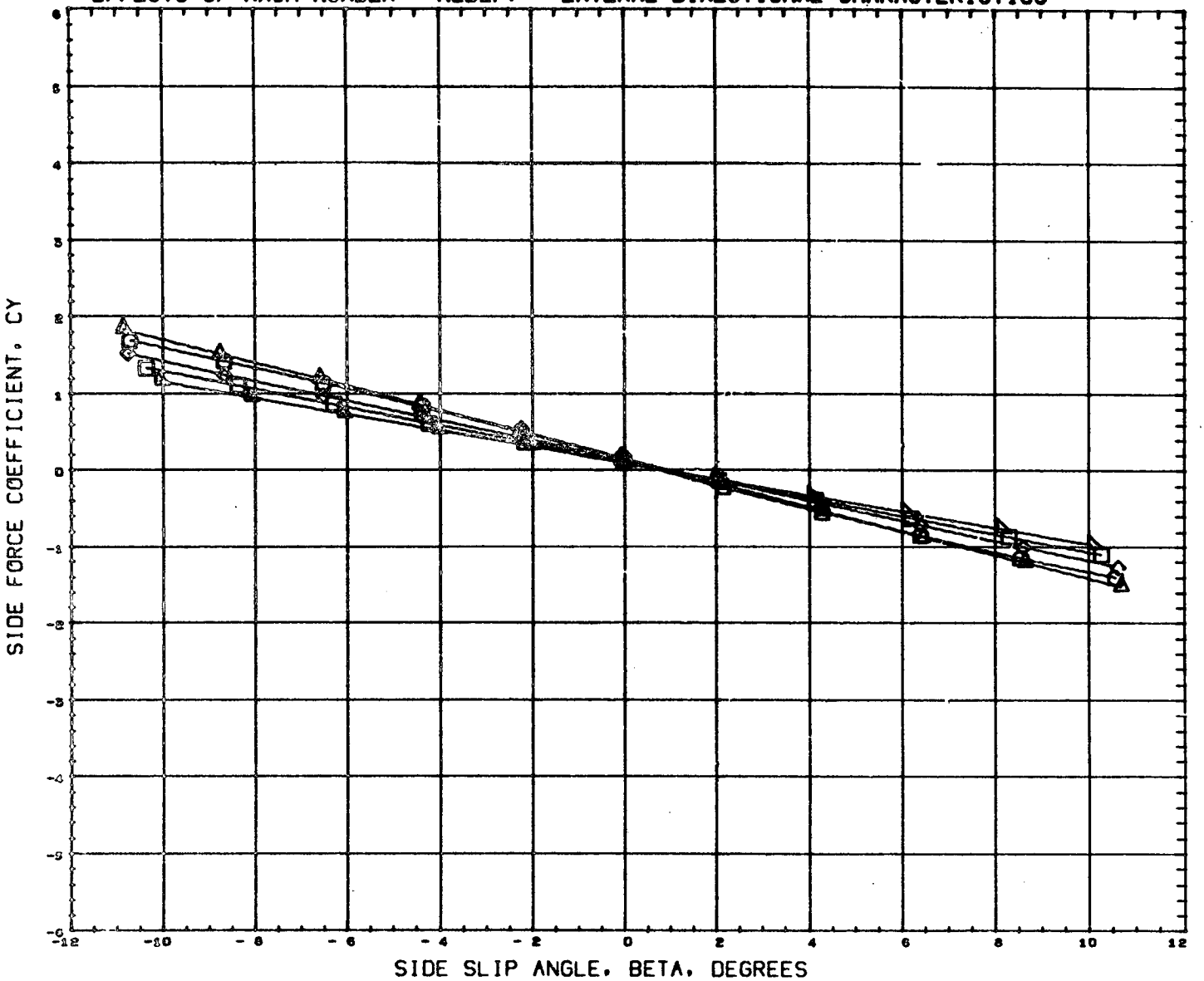
BETA 0.000 DIHDRL 30.000

DATA HIST. CODE MSTV*E*A

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

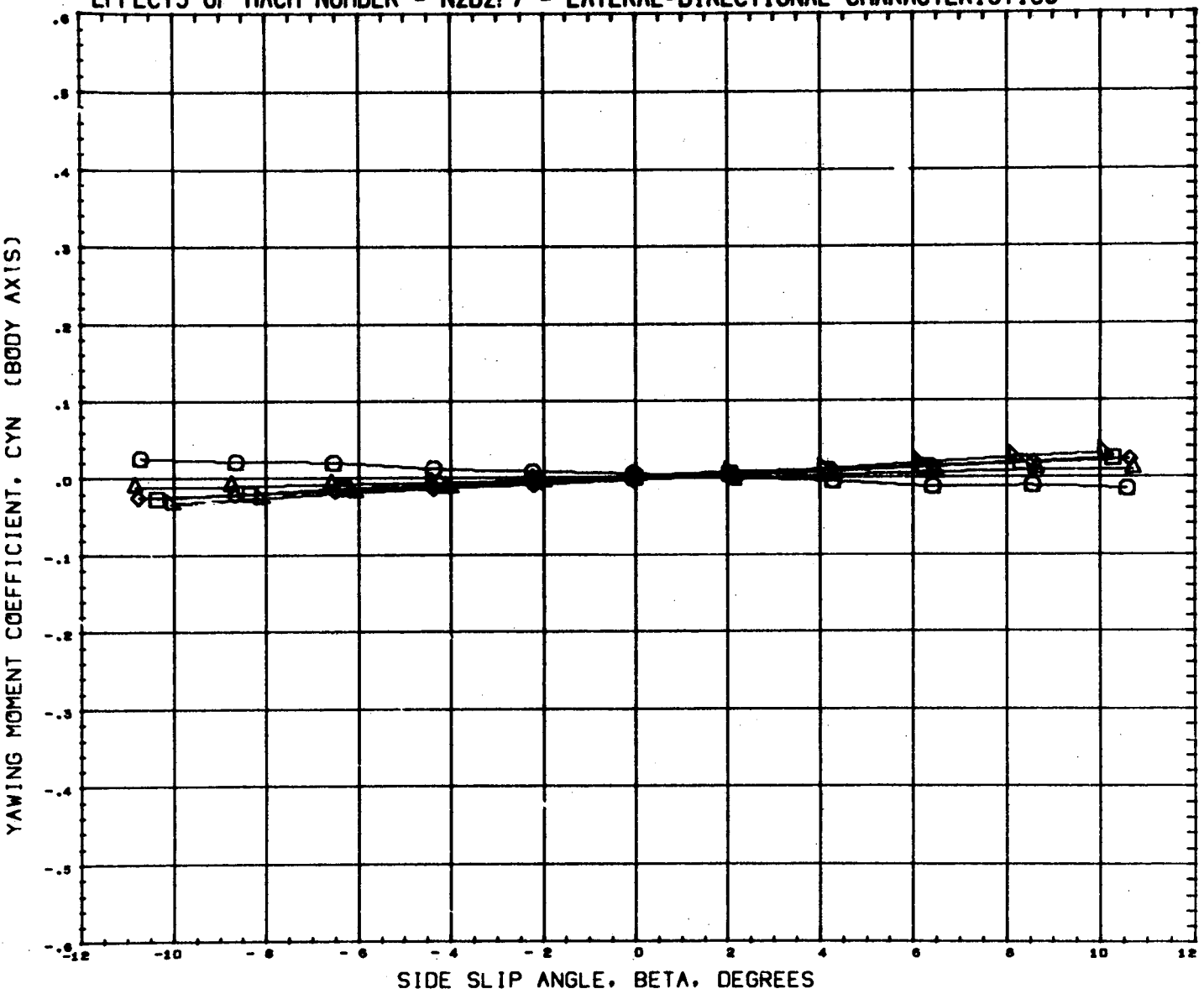


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.001	ALPHA	50.000	DIHDRL	30.000
△	1.200				
◇	1.964				
□	2.740				
▽	4.059				

DATA HIST. CODE MS

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS

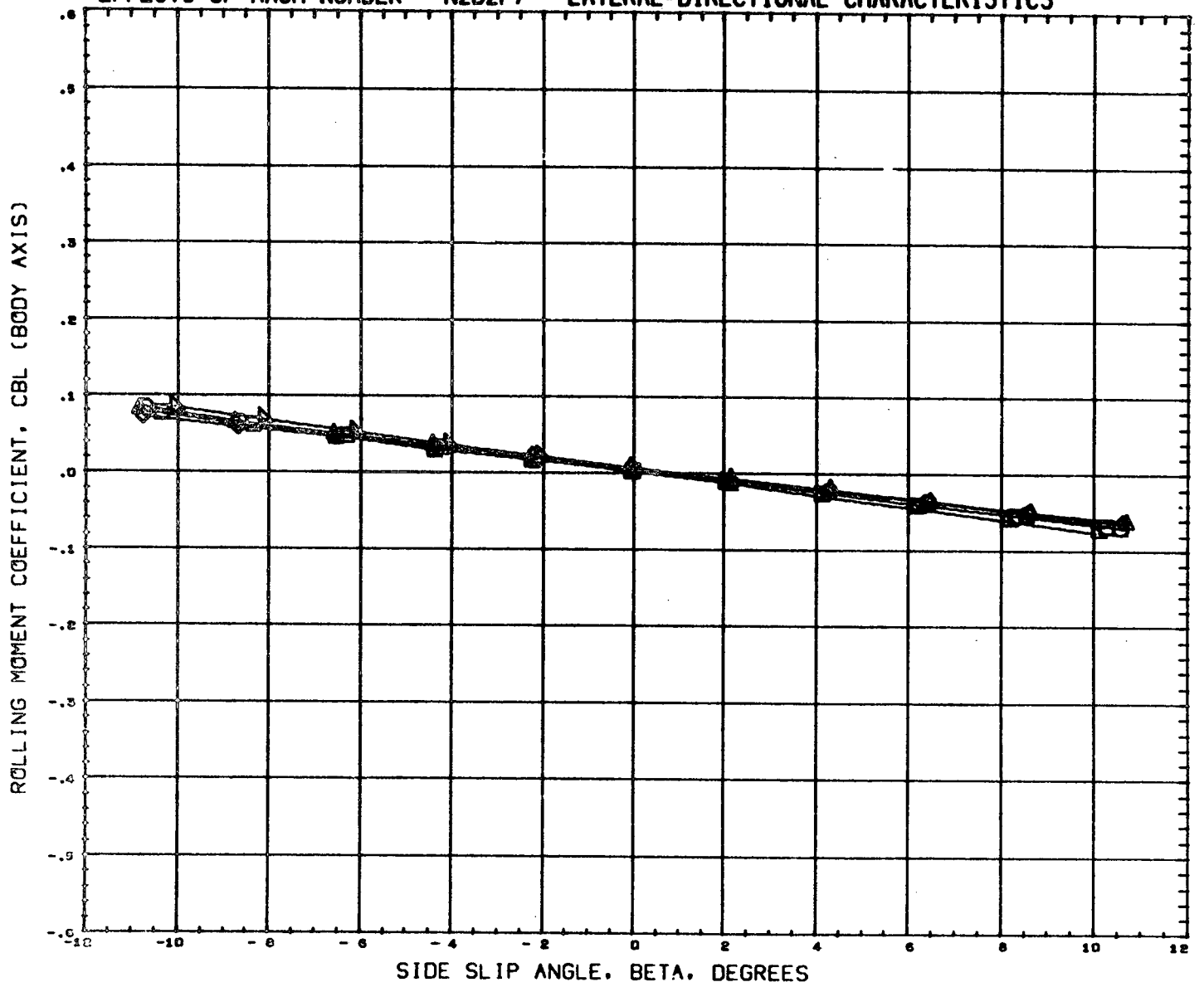


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.901	ALPHA	50.000	DIHDRL	30.000
△	1.200				
◇	1.964				
□	2.740				
▽	4.959				

DATA HIST. CODE MS

REFERENCE INFORMATION		
SREF	2.1590	SQ.IN.
LREF	5.6590	IN.
BREF	5.6590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



SYMBOL	MACH
○	0.001
△	1.200
◇	1.964
□	2.740
▽	4.959

PARAMETRIC VALUES

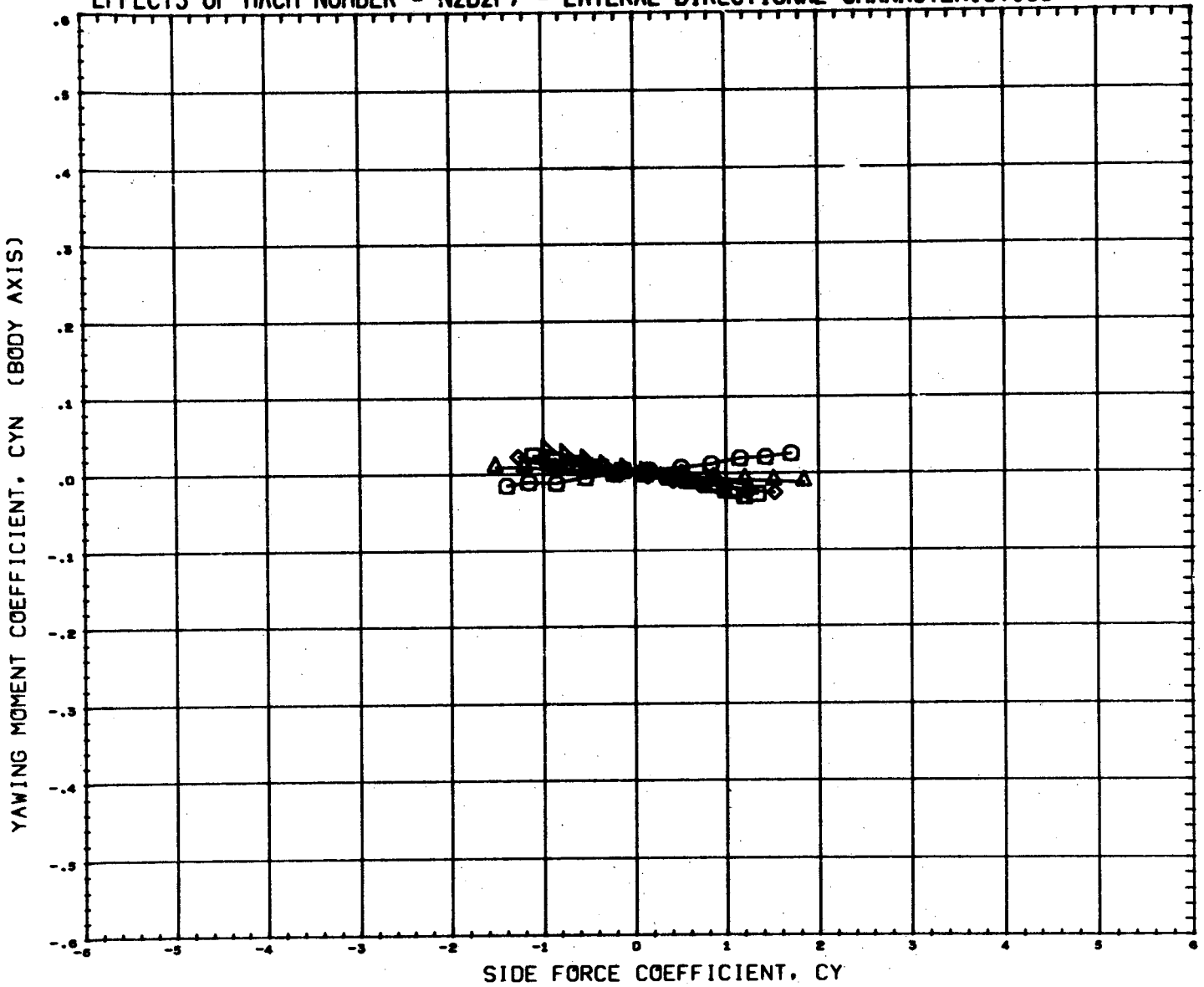
ALPHA 50.000 DIHDRL 30.000

DATA HIST. CODE KS

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



SYMBOL	MACH
	0.901
	1.200
	1.964
	2.740
	4.959

PARAMETRIC VALUES

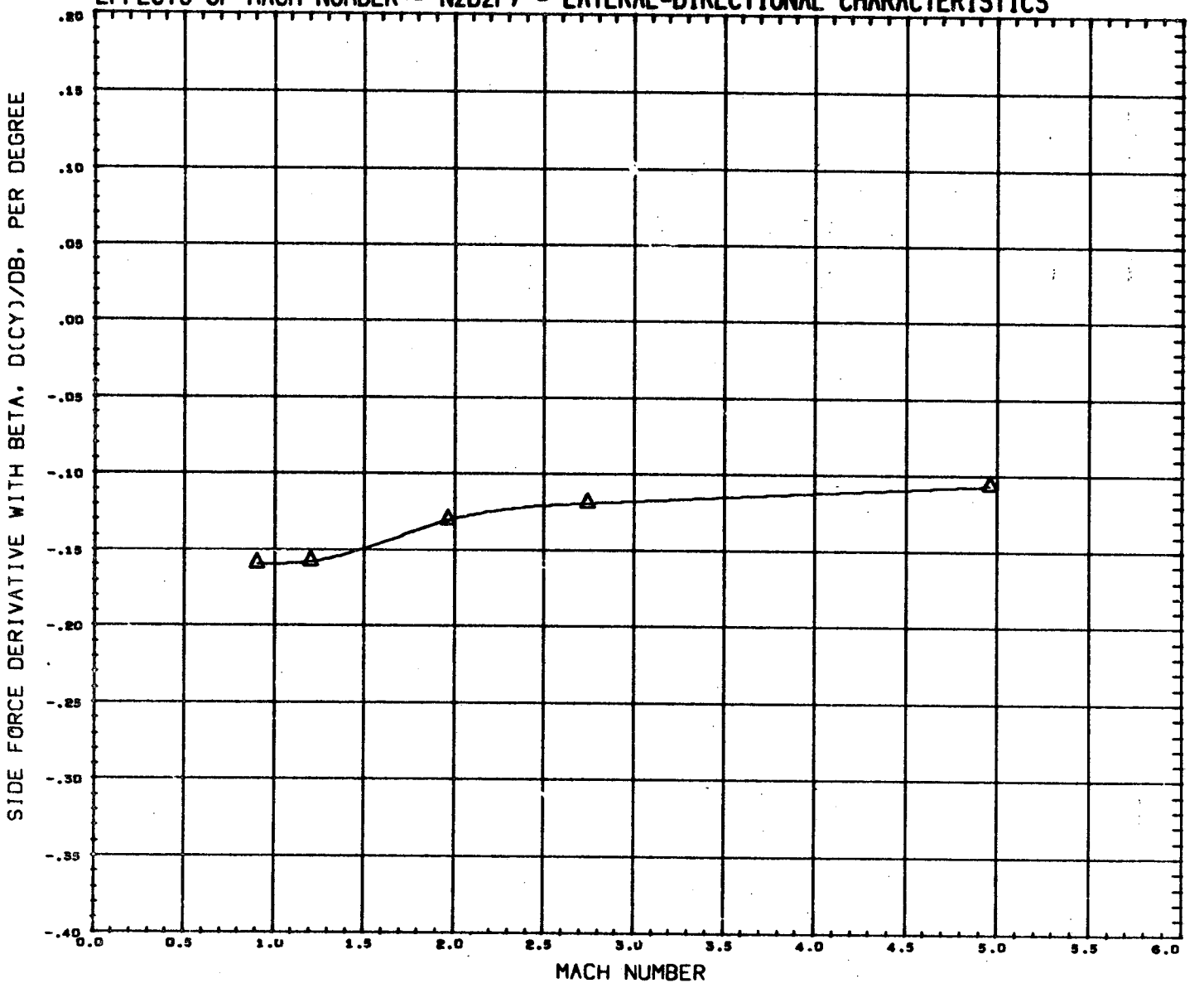
ALPHA 50.000 DIHDRL 30.000

DATA HIST. CODE MS

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



PARAMETRIC VALUES

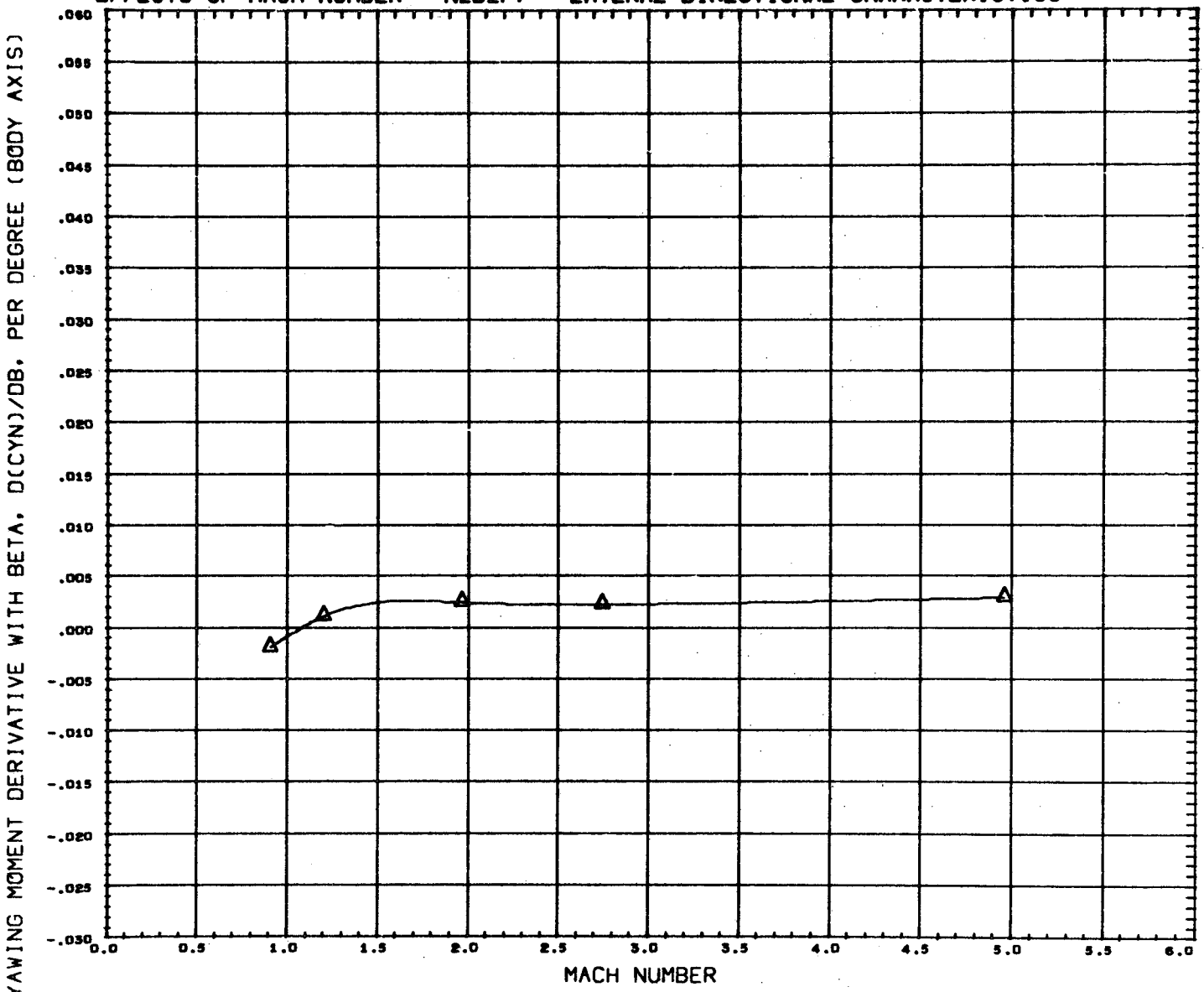
ALPHA 50.000 DIHDRL 30.000

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

DATA HIST. CODE MS

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



PARAMETRIC VALUES

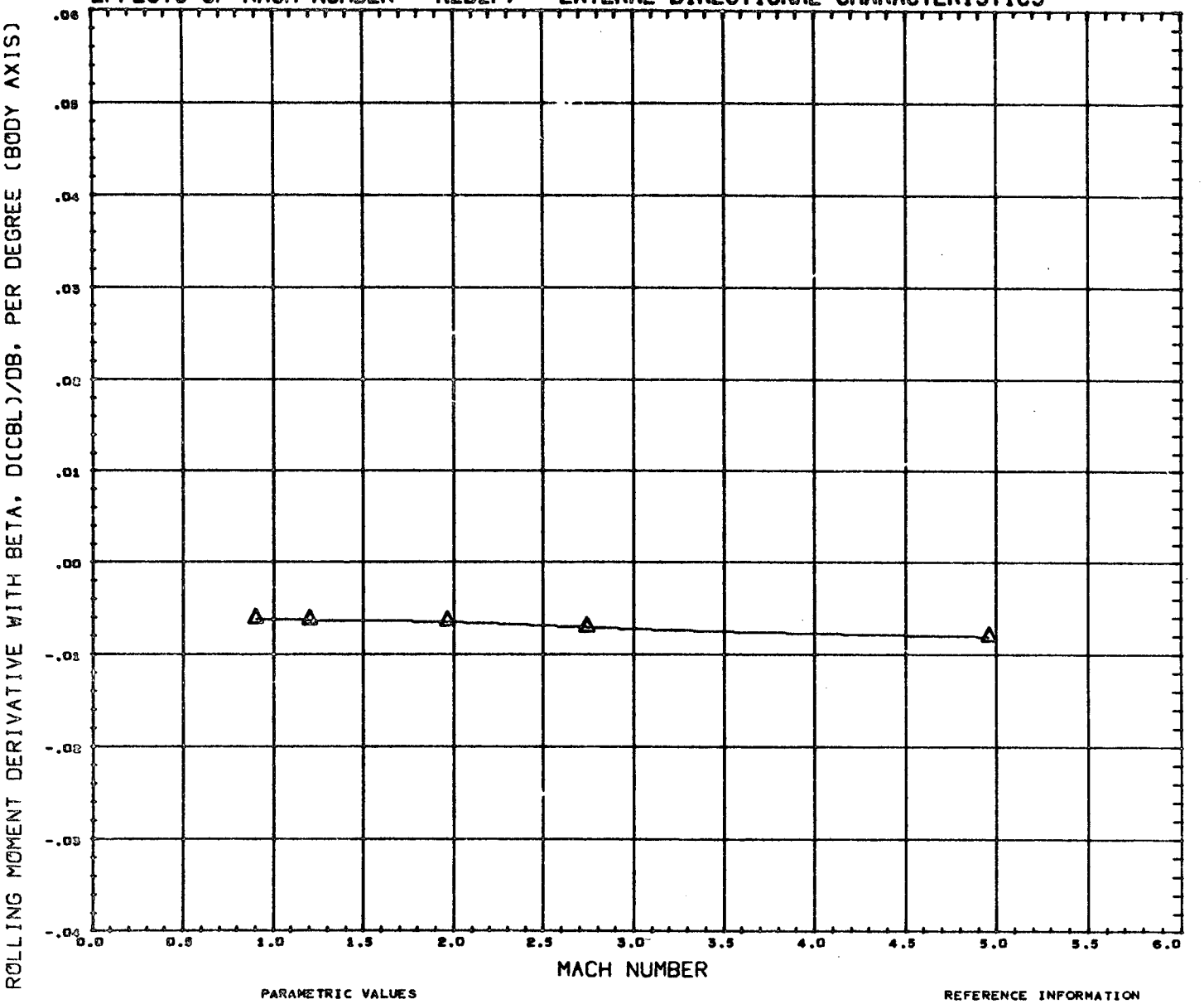
ALPHA 50.000 DIHDRL 30.000

DATA HIST. CODE MS

REFERENCE INFORMATION

SREF	2.1590	SQ.IN.
LREF	5.8590	IN.
BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
SCALE	0.0034	

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



PARAMETRIC VALUES

ALPHA 50.000 DIHDRL 30.000

REFERENCE INFORMATION

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BREF	5.8590	IN.
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YMRP	0.0000	IN.
ZMRP	0.0000	IN.
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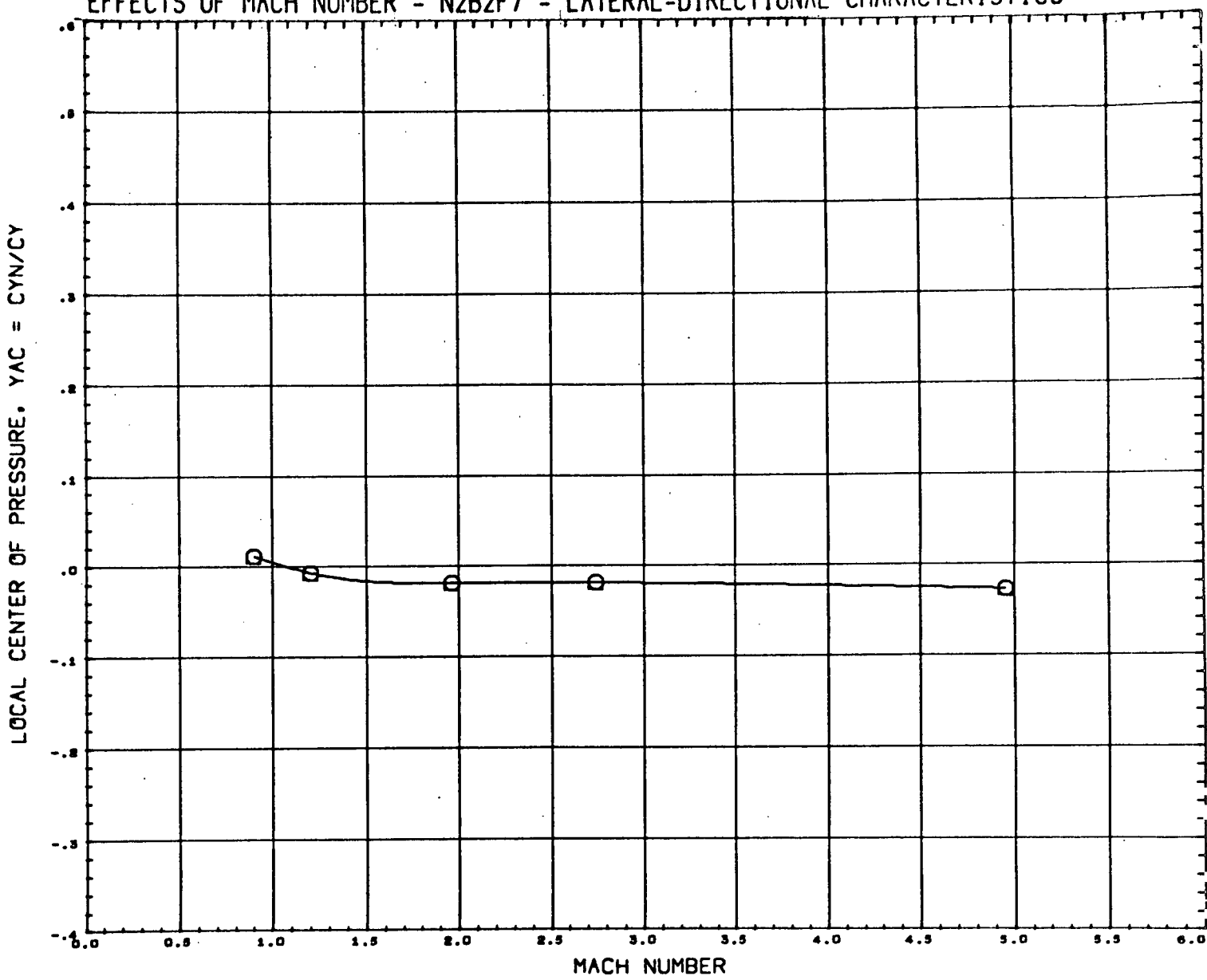
DATA HIST. CODE MS

EFFECTS OF MACH NUMBER - N2B2F7 - LATERAL-DIRECTIONAL CHARACTERISTICS



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PARAMETRIC VALUES

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REFERENCE INFORMATION

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BREF	5.8590	IN.
XMRP	3.5150	IN.
YMRP	0.0000	IN.
ZMRP	0.0000	IN.
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