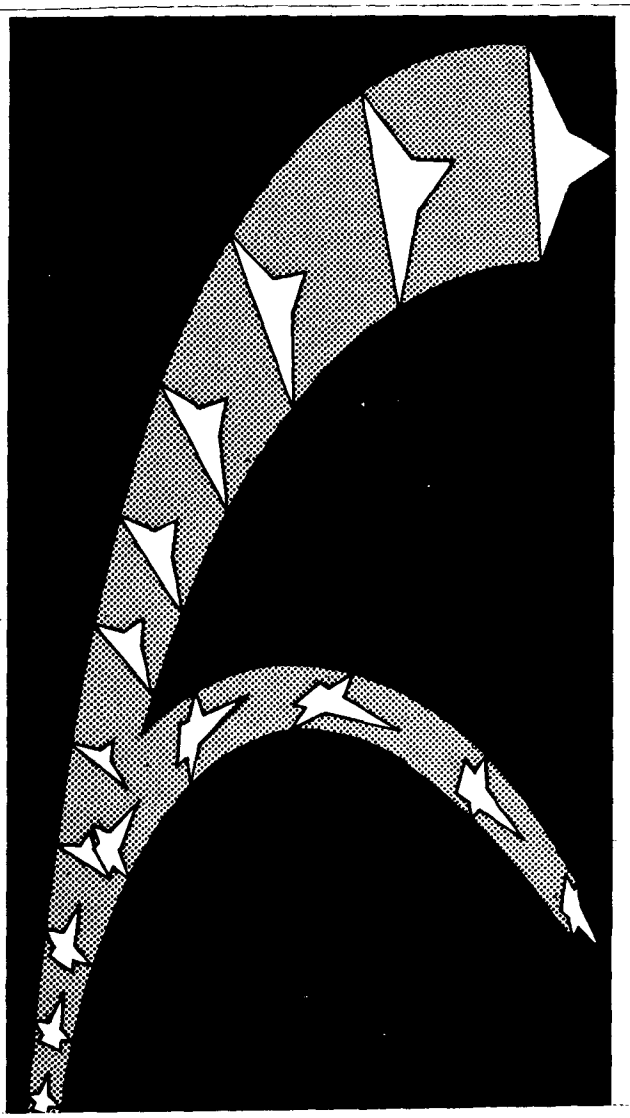
N72-10932 (NASA-CR-120000) SPACE SHUTTLE: STATIC AERODYNAMIC CHARACTERISTICS AND CONTROL EFFECTIVENESS FOR B.R. Ellis (Chrysler Corp.) Sep. 1971 402 p CSCL 22B
Unclas
08054
G3/31

DMS-DR-1153
SEPTEMBER 1971
CR-120000



—SPACE SHUTTLE—

STATIC AERODYNAMIC CHARACTERISTICS AND CONTROL EFFECTIVENESS FOR McDONNELL-DOUGLAS ORBITER CONFIGURATION FOR MACH NUMBER RANGE OF 0.4 TO 5.0

by

R. R. ELLIS - LMSC/HREC

MSFC 14—INCH
TRISONIC WIND TUNNEL

FACILITY FORM 602
(ACCESSION NUMBER) 402
(PAGES) CR-120000
(NASA CR OR TMX OR AD NUMBER)
(THRU) G3
(CODE) 31
(CATEGORY)

MARSHALL
SPACE FLIGHT CENTER

NASA

SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION CHRYSLER CORPORATION

NOV 1971
RECEIVED
NASA STI FACILITY
INPUT BRANCH

NASA Series Number: S-1026

DMS-DR-1153
SEPTEMBER, 1971

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MSFC Parametric Orbiter, 0.00325 Scale Model

TEST PURPOSE: Obtain Force, Static Stability and Control Effectiveness Data for Mach Number Range of 0.4 to 4.96

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

TESTING AGENCY: Lockheed/Huntsville Research & Engineering Center

TEST NO. & DATE: MSFC 494; June, 1971

FACILITY COORDINATOR: J. Weaver - NASA/MSFC

PROJECT ENGINEER(S): Roger R. Ellis - LMSC/HREC

DATA MANAGEMENT SERVICES

LIAISON: John E. Vaughn
J. E. Vaughn

DATA OPERATIONS: J. R. Ziler
J. R. Ziler

RELEASE APPROVAL: J. T. Glynn
FOR N. D. Kemp, Supervisor
Aero Thermo Data Group

CONTRACT NAS 8-4016 AMENDMENT 153 DRL 184 - 58

This report has been prepared by Chrysler Corporation Space Division under a Data Management Contract to the NASA. Chrysler assumes no responsibility for the data presented herein other than its display characteristics.

FACILITY COORDINATOR:

Mr. J. Weaver
Marshall Space Flight Center
Mail Stop S&E-AERO-AAE
Huntsville, Alabama 35801

Phone: (205) 453-2512

PROJECT ENGINEER:

Mr. R. R. Ellis
Lockheed Huntsville
Research and Engineering Center
P. O. Box 1103, West Station
Huntsville, Alabama 35807

Phone: (205) 837-1800-Ext. 452

SADSAC LIAISON:

Mr. John E. Vaughn
Chrysler Corporation Space Division
102 Wynn Drive
Department 4830
Huntsville, Alabama 35805

Phone: (205) 895-1560

SADSAC OPERATIONS:

Mr. J. R. Ziler
Chrysler Corporation Space Division
P. O. Box 29200
Department 2780
New Orleans, Louisiana 70129

Phone: (504) 255-2403

ABSTRACT

An experimental aerodynamic wind tunnel investigation was conducted employing a 0.00325 scale model of the McDonnell-Douglas space shuttle orbiter configuration during June, 1971. This investigation was conducted in the NASA/Marshall Space Flight Center 14- by 14- Inch Trisonic Wind Tunnel. The purpose of the investigation was to determine the aerodynamic characteristics of the orbiter over the Mach number range of 0.4 to 5.0, an angle of attack variation from -4 degrees to 50 degrees, and -6 degrees to 9 degrees angle of sideslip. Control surface effectiveness was investigated for elevator, aileron, and rudder deflections.

Lockheed-Huntsville conducted this investigation for Marshall Space Flight Center.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

	PAGE NUMBER
LIST OF FIGURES AND TABLES	2
SUMMARY	3
SUMMARY OF SADSAC NOMENCLATURE	4
CONFIGURATIONS INVESTIGATED	5
DATASET COLLATION SHEETS	6
TEST FACILITY DESCRIPTION	9
TEST CONDITIONS	10
DATA REDUCTION	12
SUMMARY DATA PLOT INDEX	13
FIGURES	18
MODEL COMPONENT DESCRIPTION SHEETS	23
GENERAL NOMENCLATURE	33
TABULATED DATA LISTING	38
PLOTTED DATA	39

LIST OF FIGURES

FIGURE NUMBER	TITLE	PAGE NUMBER
1	Axis System	19
2	General Arrangement - Orbiter Model 1 (Baseline)	20
3	HCR Orbiter Installed For High Angle Testing in the MSFC 14 x 14 Inch Wind Tunnel	21
4	Typical Transition Grit Installation on Body, Wings and Fins	22

LIST OF TABLES

TABLE NUMBER	TITLE	PAGE NUMBER
I	SADSAC Nomenclature of Aerodynamic Coefficients	4
II	Test Conditions	11

SUMMARY

Lockheed-Huntsville conducted an experimental aerodynamic investigation for Marshall Space Flight Center during June, 1971. The investigation was conducted in the Marshall Space Flight Center 14- by 14- Inch Trisonic Wind Tunnel employing a 0.00325 scale model of the McDonnell-Douglas space shuttle orbiter. The purpose of the investigation was to obtain aerodynamic forces, moments, static stability characteristics, and control effectiveness data. These data were measured from -4 degrees to 50 degrees angle of attack from -6 degrees to 9 degrees angle of sideslip over the Mach number range of 0.4 to 5.0. Control surface effectiveness was investigated by varying the elevator, aileron, and rudder deflection angle. Longitudinal aerodynamic coefficients are presented in both the body and stability axis system, while lateral-directional coefficients are presented in body axis system only.

TABLE I 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	-	-

CONFIGURATIONS INVESTIGATED

The test item was a 0.00325 scaled replica of the McDonnell-Douglas model .00014 orbiter configuration. Refer to Figure 2 for model baseline dimensions. It is basically a one piece model with provisions made to obtain various control surface deflections. The model was composed of the following components:

B_1 - baseline body (model 1)

W_1 - baseline wing

V_1 - wing tip fins for W_1

V_3 - wing tip extension for W_1

E_1 - ELEVON for Wing W_1

E_2 - body elevon (flap)

D_2 - dorsal fin

R_2 - rudder for D_2

R_3 - rudder for tip fin V_1

Dimensional information for the above components are presented in the Model Component Description Section which follows the Figures. The Dataset Collation Sheets illustrate the various component combinations tested, dataset identifiers, parametric data, and run numbers associated with each dataset.

TEST TWT 494 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES δ_{c_1}	δ_{c_2}	δ_{r_3}	δ_{r_2}	NO. of RUNS	PARAMETERS/VALUES δ_α	—	—	—	MACH NUMBERS 0.4	0.6	0.7	0.9	1.1	1.46	2.50	5.00
R3601A	B1W1V1E1	A	0	0	0	0	—	7	0				001/0	002/0	003/0	004/0	005/1	082/0	—	109/0
01B	"	B	0	"	"	"	"	9	"				054/0	052/0	055/0	057/0	056/0	082/0	086/0	104/0
01C	"	C	0	"	"	"	"	8	"				074/0	075/0	076/0	077/2	079/1	081/0	097/0	099/0
01D	"	D	0	"	"	"	"	8	"				022/0	023/0	024/0	025/0	026/0	084/0	035/0	108/0
01G	"	20	G	"	"	"	"	4	"					054/0		051/0			097/0	105/0
R3602A	B1W1V1E1	A	0	+10	"	"	"	2	"					007/0		006/0			—	—
02B	"	B	0	"	"	"	"	4	"					059/0		058/0			087/0	101/0
03A	"	A	0	-10	"	"	"	2	"					008/0		009/0			—	—
03B	"	B	0	"	"	"	"	4	"					060/0		061/0			088/0	100/0
03C	"	C	0	"	"	"	"	4	"					080/0		079/0			095/0	099/0
04A	"	A	0	-20	"	"	"	2	"					011/0		010/0			—	—
04B	"	B	0	"	"	"	"	4	"					063/0		062/0			089/0	102/0
05A	"	A	0	-30	"	"	"	2	"					012/0		013/0			—	—
05B	"	B	0	"	"	"	"	4	"					064/0		065/0			090/0	103/0
R3606A	B1W1V1E1	A	0	0	"	"	"	2	+10					015/0		014/0			—	—
06B	"	B	0	"	"	"	"	3	"					067/0		066/0			091/0	—
07A	"	A	0	"	"	"	"	2	+20					016/0		017/0			—	—
07B	"	B	0	"	"	"	"	3	"					068/0		069/0			092/0	—
R3609A	B1W1V1E1E2	A	0	"	10	"	"	2	0					019/0		018/1			—	—
09B	"	B	0	"	"	"	"	2	"					071/0		070/0			—	—

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

CLM CN CY CBL CYN BETA CAB CPB1 CPB2 CA | 10

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS:

α or β SCHEDULES

α: A = -4 -2 0 2 4 6 8 10

B = 10 12 14 16 18 20 22 24 26 28 30

C = 30 32 34 36 38 40 42 44 46 48 50

β: D = -6, -3, 0, 3, 6, 9 @ α = 0 ; G = -6, -3, 0, 3, 6, 9 @ α = 20

NASA-MSFC-MAF

TEST TWT 494 DATA SET COLLATION SHEET 2 OF 3

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES S_{e1}	S_{e2}	S_{a3}	S_{a2}	NO. of RUNS	PARAMETERS/VALUES S_a	—	—	—	MACH NUMBERS 0.4	0.6	0.7	0.9	1.1	1.46 ≤	1.96 ≥ 0	2.96 ≥ 0
R3609A	BIWIV1E1E2	A	C	0	20	0	—	2	0					020%		021%			—	—
09B	"	B	0	"	"	"	"	2	"					022%		023%			—	—
R3610D	BIWIV1E1R3	0	D	"	0	+10	"	2	"					028%		027%			—	—
10G	"	20	G	"	"	"	"	2	"					049%		050%			—	—
11D	"	0	D	"	"	+20	"	2	"					029%		030%			—	—
11G	"	20	G	"	"	"	"	2	"					048%		047%			—	—
R3612D	BIWIV3D2E1R2	0	D	"	"	—	0	2	"					032%		031%			—	—
12G	"	20	G	"	"	"	"	2	"					045%		046%			—	—
13D	"	0	D	"	"	"	+10	2	"					036%		035%			—	—
13G	"	20	G	"	"	"	"	2	"					041%		042%			—	—
14D	"	0	D	"	"	"	+20	2	"					037%		039%			—	—
14G	"	20	G	"	"	"	"	2	"					040%		039%			—	—
K3615D	BIWIV3E1	0	D	"	"	"	—	4	"					033%		034%			096%	107%
15G	"	20	G	"	"	"	"	4	"					044%		043%			094%	106%
R3616E	BIWIV1E1	E	0	"	"	0	"	6	"					135%	143%	136%	137%		125%	110%
16E	"	0	E	"	"	"	"	6	"					132%	142%	133%	132%		124%	116%
R3617E	BIWIV1E1	E	0	+10	"	"	"	4	"					145%	—	144%	—		126%	111%
18E	"	E	0	-10	"	"	"	4	"					144%	—	148%	—		127%	113%
19E	"	E	0	-20	"	"	"	3	"					150%	—	151%	—		128%	—
19H	"	H	0	"	"	"	"	1	"					—	—	—	—		—	114%

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

CLM CN CY CBL CYN RETA CAB CPB1 CPB2 CA 10

→ IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS:
α or β SCHEDULES

α: E = -4, -2, 0, 2, 4, 6, 8, 10, 12, 14
H = -4, -2, 0, 2, 4, 6, 8, 10, 12
β: F = -4, -2, 0, 2, 4, 6, 9 @ α = 0

NASA-MSFC-MAF

TEST TWT 494 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES $S_{\alpha 1}$	$S_{\alpha 2}$	$S_{\beta 3}$	$S_{\beta 2}$	NO. of RUNS	PARAMETERS/VALUES δ_α	—	—	—	MACH NUMBERS 0.4	0.6	0.7	0.9	1.1	1.46	1.96	2.96
R3620E	B1W1V1E1	E	0	0	0	0	—	4	+10					146/0		147/0			129/0	112/0
21E	"	E	0	"	"	"	"	4	+20					153/0		152/0			131/0	115/0
R3622F	B1W1V3D2E1R2	0	F	"	"	—	0	4	0					154/0		155/0			123/0	117/0
23F	"	0	F	"	"	"	+10	4	"					157/0		156/0			122/0	118/0
R3624E	B1W1V3E1	E	0	"	"	"	—	4	"					139/0		138/0			120/0	130/1
24F	"	0	F	"	"	"	"	4	"					149/0		141/0			121/0	119/0

1	7	13	19	25	31	37	43	49	55	61	67	75	76
CLM	CN	CY	CBL	CYN	BETA	CAB	CPB1	CPB2	CA				10

COEFFICIENTS: → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

α: E = -4, -2, 0, 2, 4, 6, 8, 10, 12, 14

F = 0, 4, 0, 14

β: F = -4, -2, 0, 2, 4, 6, 9 @ α = 0

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°.

TEST CONDITIONS

Table II lists the tunnel conditions which prevailed during these tests and states the balance accuracy. The large angle of attack range was accomplished by three separate runs using the Lockheed designed variable-angle sting. The angle of attack sweeps were from -4° to 10°, 10° to 30° and 30° to 52° in two degree increments. Figure 3 shows a typical tunnel installation for high angle of attack testing.

Model base pressures were recorded and utilized to determine a base axial force coefficient. Location of the pressure orifices is shown in Figure 2.

To assure turbulent flow over the model the boundary layer was artifically tripped by grit transition strips as shown in Figure 4. Transition strip grit size was determined by the Braslow and Knox Method, NACA TN 4363, September, 1958.

TABLE II

TEST CONDITIONS
TEST TWT 494

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.4	3.6×10^6	2.2	100
0.6	5.0	4.3	100
0.7	5.5	5.4	100
0.9	6.3	7.4	100
1.1	6.6	9.7	100
1.46	6.5	9.5	100
1.96	7.0	10.2	100
4.96	4.8	2.7	100

BALANCE UTILIZED: MSFC No. 232

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	300 LB	± 1.5 LB	± 0.0125
SF	143 LB	± 0.72 LB	± 0.0059
AF	50 LB	± 0.25 LB	± 0.0021
PM	400 IN-LB	± 2.0 IN-LB	± 0.0027
YM	192 IN-LB	± 0.96 IN-LB	± 0.0013
RM	100 IN-LB	± 0.50 IN-LB	± 0.0007

COMMENTS:

DATA REDUCTION

Six component aerodynamic force and moment data were reduced to coefficient form using the following reference dimensions:

S_{REF} = wing planform area = 9.025 in^2

ℓ_{REF} = b_{ref} = body length = 6.142 inches

Moments are referenced about the c.g. location 3.006 inches aft of the nose on the model center line (see Figure 2). Base axial force coefficients were calculated as follows:

$$CAB = \left[(p - p_b)/q\right] (A_b/S_{REF})$$

$$p_b = \left(\frac{p_{b_1} + p_{b_2} + p_{b_3}}{3}\right)$$

A_b = base area = 0.551 in^2

A_b/S_{REF} = 0.551 in^2/9.025 in^2 = 0.06105

SUMMARY DATA PLOT INDEX

PLOT TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	NOMINAL MACH NUMBER	NOMINAL α SCHEDULE (DEGREES)	NOMINAL β SCHEDULE (DEGREES)	PAGES
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Mach No. Effects	A	Freestream Mach Number	0.6-5.0	-4 - 52	0	1-7
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Mach No. Effects	B	Mach Number	0.6-5.0	-4 - 52	0	8
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Elevon Effects	A	Elevon Deflection Angle	0.6-5.0	-4 - 30	0	9-36
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Elevon Effects	B	Elevon Deflection Angle	0.6-5.0	-4 - 30	0	37-40
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Aileron Effects	C	Aileron Deflection Angle	0.6-5.0	-4 - 30	0	41-52
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Body Flap Effects	A	Body Flap Deflection Angle	0.6-5.0	-4 - 30	0	53-66
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Body Flap Effects	B	Body Flap Deflection Angle	0.6-5.0	-4 - 30	0	67-68
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Tip Fin Effects	A	Configuration	0.6-5.0	-4 - 15	0	69-96
LMSC/HREC Orbiter Studies, Longitudinal Characteristics, Tip Fin Effects	B	Configuration	0.6-5.0	-4 - 15	0	97-100

SUMMARY DATA PLOT INDEX
(CONTINUED)

PLOT TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	NOMINAL MACH NUMBER	NOMINAL α SCHEDULE (DEGREES)	NOMINAL β SCHEDULE (DEGREES)	PAGES
LMSC/HREC Orbiter Studies, Longitudinal Characteristics Versus Mach No.	D	Angle of Attack & Mach Number	0.6-5.0	0 & 10	0	101-107
LMSC/HREC Orbiter Studies, Longitudinal Characteristics Versus Mach No.	E	Angle of Attack & Mach Number	0.6-5.0	0 & 10	0	108-115
LMSC/HREC Orbiter Studies, Longitudinal Characteristics Versus Mach No.	F	Mach Number	0.6-5.0	20	0	116-123
LMSC/HREC Orbiter Studies, Lat.-Direct. Characteristics, Mach No. Effects	F	Mach Number	0.6-5.0	0	-4 - 9	124-126
LMSC/HREC Orbiter Studies, Lat.-Direct. Characteristics, Tip Fin Rudder Effects	F	Rudder Deflection Angle	0.6-5.0	0 & 20	-6 - 9	127-138
LMSC/HREC Orbiter Studies, Lat.-Direct. Characteristics, Vertical Rudder Effects	F	Rudder Deflection Angle	0.6-5.0	0 & 20	-6 - 9	139-150
LMSC/HREC Orbiter Studies, Lat.-Direct. Characteristics. Tip Fin Effects	F	Configuration	0.6-5.0	0 & 20	-6 - 9	151-162
LMSC/HREC Orbiter Studies, Baseline Longit. Aero. Charact., Sting Effects	A	Angle of Attack	0.6-5.0	-4 - 14	0	163-197
LMSC/HREC Orbiter Studies, Baseline Longit. Aero. Charact., Sting Effects	B	Angle of Attack	0.6-5.0	-4 - 14	0	198-202

SUMMARY DATA PLOT INDEX
(CONTINUED)

PLOT TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITION VARYING	NOMINAL MACH NUMBER	NOMINAL α SCHEDULE (DEGREES)	NOMINAL β SCHEDULE (DEGREES)	PAGES
LMSC/HREC Orbiter Studies, Baseline Lat.-Direct. Charact., Sting Effects	F	NA	0.6-5.0	0	-6 - 9	203-220
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)=-10 Deg.	A	NA	0.6-0.9	-4 - 14	0	221-234
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)=-10 Deg.	B	NA	0.6-0.9	-4 - 14	0	235-236
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)=+10 Deg.	A	NA	0.6-0.9	-4 - 15	0	237-250
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)=+10 Deg.	B	NA	0.6-0.9	-4 - 15	0	251-252
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)= -20 Deg.	A	NA	0.6-0.9	-4 - 14	0	253-266
LMSC/HREC Orbiter Studies, Sting Effects on Elevons, Delta Elevon(1)= -20 Deg.	B	NA	0.6-0.9	-4 - 14	0	267-268
LMSC/HREC Orbiter Studies, Sting Effects on Ailerons, Delta Aileron = 10 Deg.	C	NA	0.6-0.9	-4 - 14	0	269-274
LMSC/HREC Orbiter Studies, Sting Effects on Ailerons, Delta Aileron = 20 Deg.	C	NA	0.6-0.9	-4 - 14	0	275-280

SUMMARY DATA PLOT INDEX
(CONTINUED)

PLOT TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	NOMINAL MACH NUMBER	NOMINAL α SCHEDULE (DEGREES)	NOMINAL β SCHEDULE (DEGREES)	PAGES
LMSC/HREC Orbiter Studies, Sting Effects of Rudders, Delta Rudder(2)=0 Deg.	F	NA	0.6-0.9	0	-6 - 9	281-286
LMSC/HREC Orbiter Studies, Sting Effects of Rudders, Delta Rudder(2)=10 Deg.	F	NA	0.6-0.9	0	-6 - 9	287-292
LMSC/HREC Orbiter Studies, Sting Effects on Upswept Tip	F	NA	0.6-5.0	0	-6 - 9	293-304
LMSC/HREC Orbiter Studies, Baseline Longit. Charact., Bent Sting	A	Mach Number	0.4-5.0	-5 - 52	0	305-318
LMSC/HREC Orbiter Studies, Baseline Longit. Charact., Bent Sting	B	Mach Number	0.4-5.0	-5 - 52	0	319-320
LMSC/HREC Orbiter Studies, Baseline Elevon Effects, Bent Sting	A	Elevon Deflection Angle	0.6-5.0	-5 - 52	0	321-348
LMSC/HREC Orbiter Studies, Baseline Elevon Effects, Bent Sting	B	Elevon Deflection Angle	0.6-5.0	-5 - 52	0	349-352
LMSC/HREC Orbiter Studies, Baseline Aileron Effects, Bent Sting	C	Aileron Deflection Angle	0.6-1.95	-5 - 31	0	353-361

SUMMARY DATA PLOT INDEX

(CONTINUED)

PLOTTED COEFFICIENTS SCHEDULE:

SCHEDULE A

CLM vs. α
CL vs. α
CD vs. α
L/D vs. α
CN vs. α
CA vs. α
CAB vs. α

SCHEDULE B

CL vs. CLM

SCHEDULE C

CYN vs. α
CY vs. α
CBL vs. α

SCHEDULE D

CLM vs. MACH
CL vs. MACH
CD vs. MACH
L/D vs. MACH
CN vs. MACH
CA vs. MACH
CAB vs. MACH

SCHEDULE E

CLM vs. MACH
CL vs. MACH
CD vs. MACH
L/D vs. MACH
CN vs. MACH
CA vs. MACH
CAB vs. MACH
XCP/C vs. MACH

SCHEDULE F

CYN vs. β
CY vs. β
CBL vs. β

F I G U R E S

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.

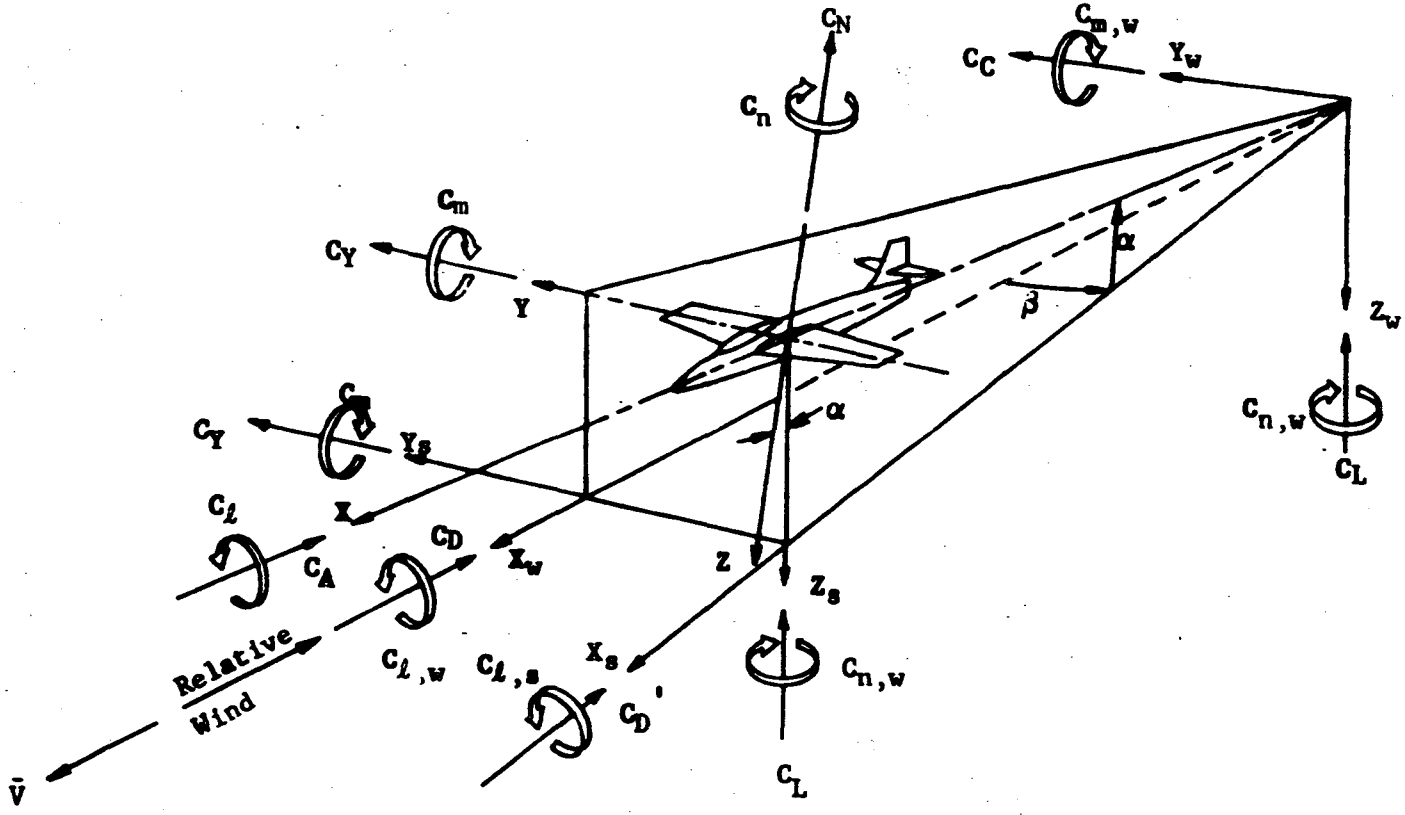


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

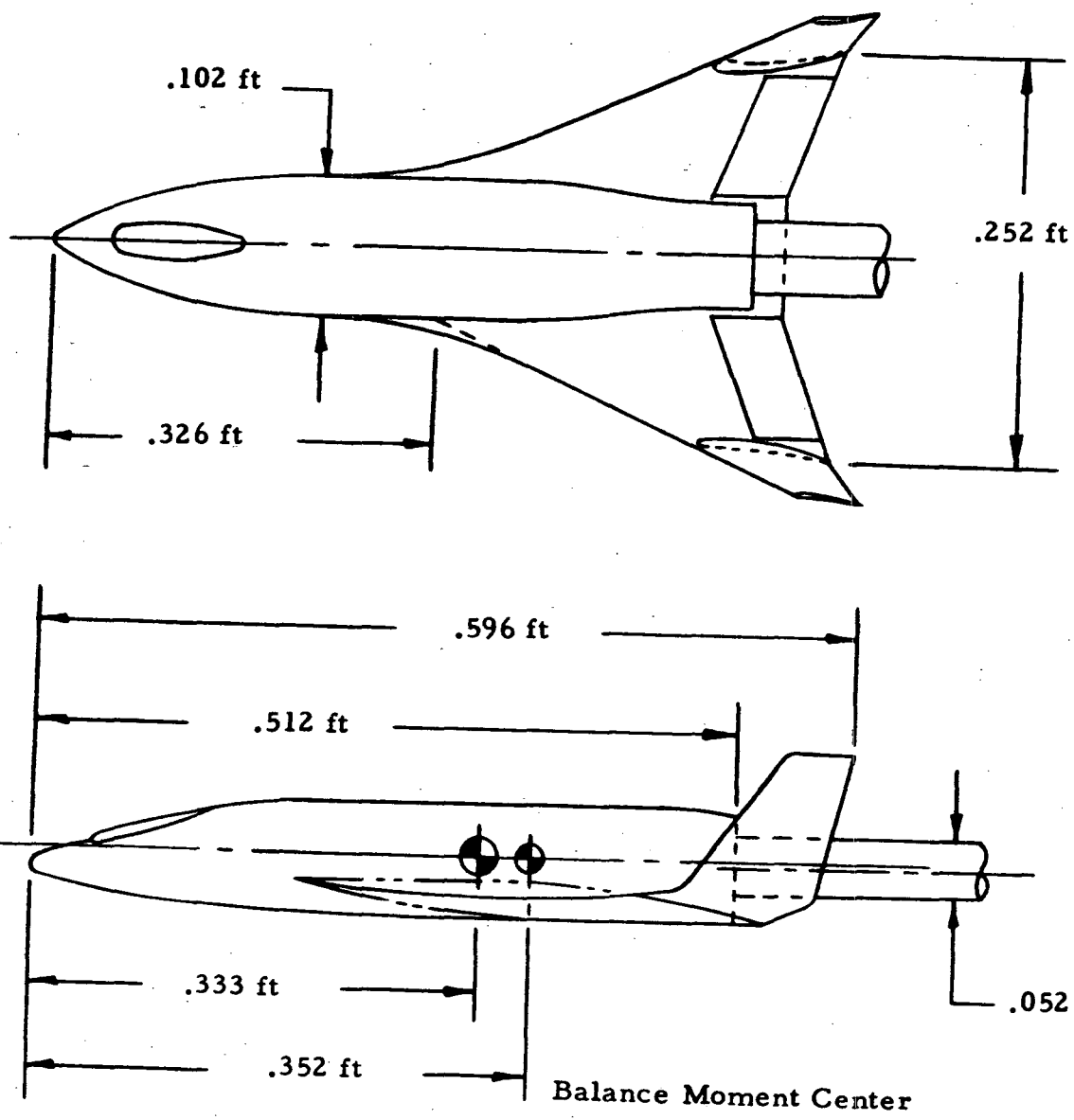


Fig. 2 - General Arrangement – Orbiter Model 1 (Baseline)

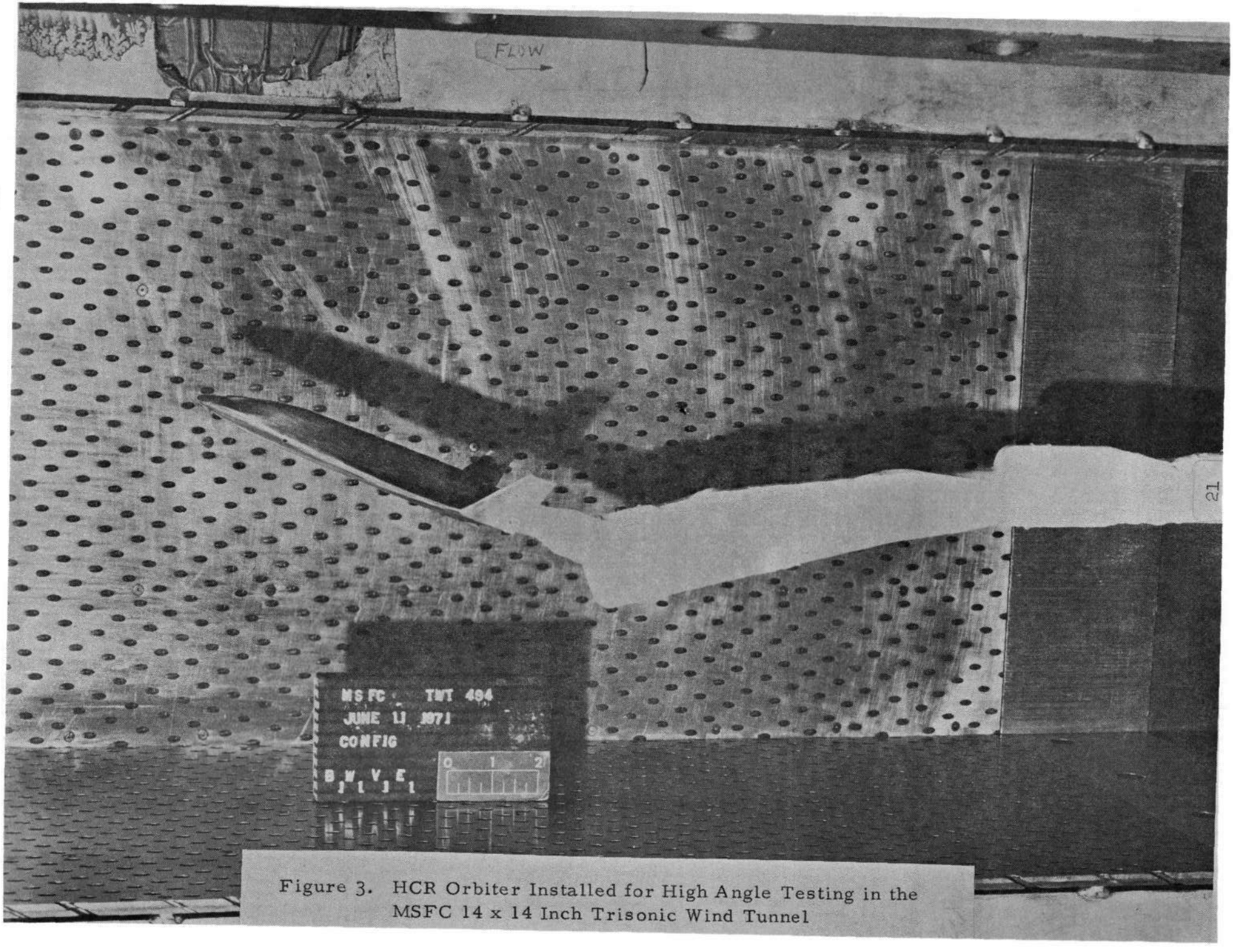


Figure 3. HCR Orbiter Installed for High Angle Testing in the MSFC 14 x 14 Inch Trisonic Wind Tunnel

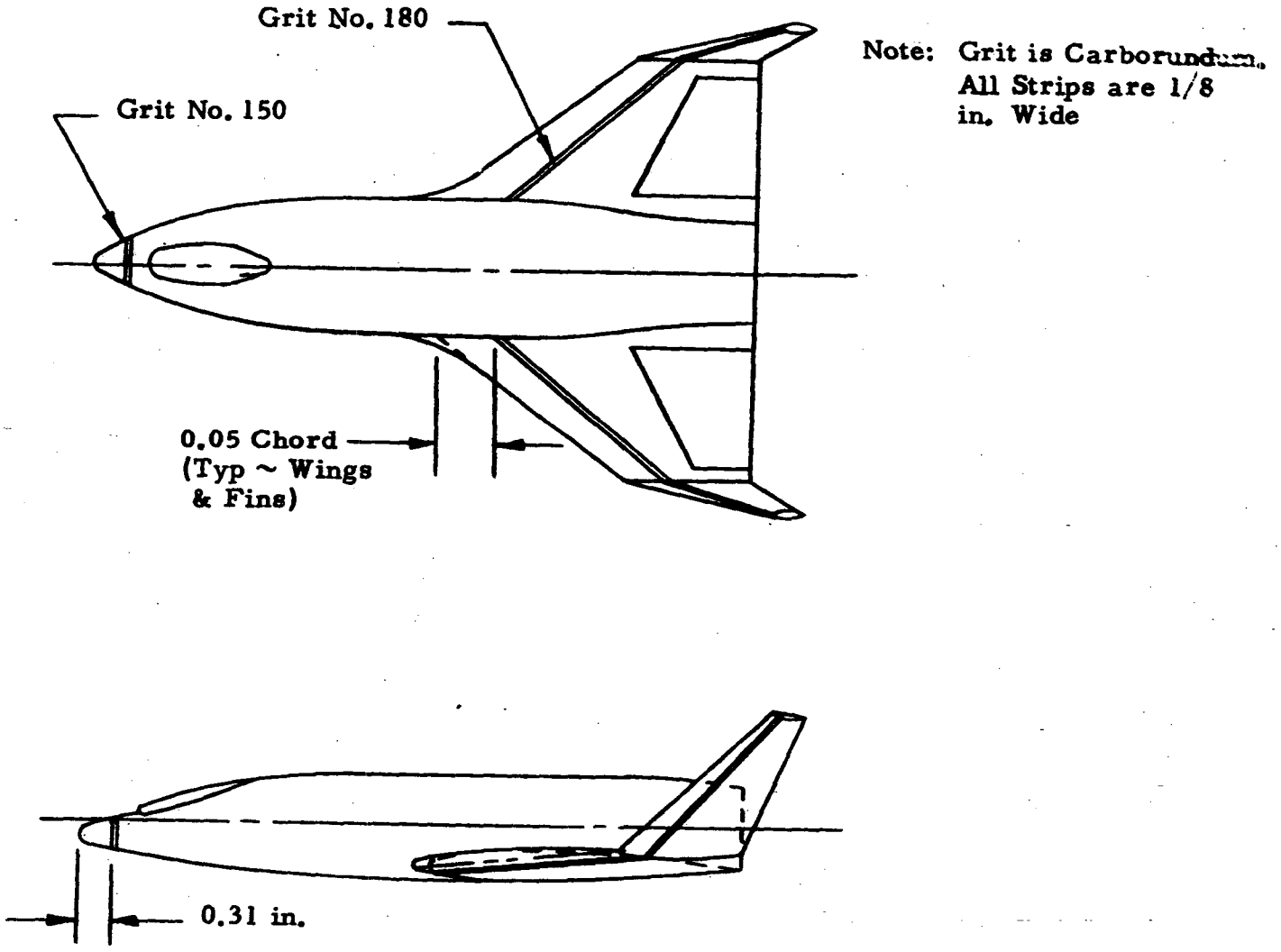


Fig. 4 - Typical Transition Grit Installation on Body, Wings and Fins

MODEL COMPONENT DESCRIPTION SHEETS

MODEL COMPONENT: BODY - B1

GENERAL DESCRIPTION: BASELINE BODY (MODEL 1)

DRAWING NUMBER: A152040

DIMENSIONS:

	FULL-SCALE	MODEL SCALE (0.00325)
Length	1889.8 IN.	6.142 IN.
Max. Width	377.8 IN.	1.228 IN.
Max. Depth	301.2 IN.	0.979 IN.
Fineness Ratio	—	—
Area		
Max. Cross-Sectional	—	—
Planform	4385 FT^2	6.67 IN^2
Wetted	—	—
Base	362.5 FT^2	0.551 IN^2

MODEL COMPONENT: W1

GENERAL DESCRIPTION: BASELINE WING (MODEL 1)

DRAWING NUMBER: A152.055

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00032.5)
TOTAL DATA		
Area		
Planform	5989 FT^2	9.107 IN^2
Wetted	—	—
Span (equivalent)	1061 IN.	3.448 IN.
Aspect Ratio	1.30	1.30
Rate of Taper	—	—
Taper Ratio	0.262	0.262
Diehedral Angle, degrees	10.25	10.25
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees	—	—
Leading Edge	68.0	68.0
Trailing Edge	20.5	20.5
0.25 Element Line	62.5	62.5
Chords:		
Root (Wing Sta. 0.0)	1416 IN.	4.602 IN.
Tip, (equivalent)	369.6 IN.	1.201 IN.
MAC	907.2 IN.	2.948 IN.
Fus. Sta. of .25 MAC	1506.8 IN.	4.897 IN.
W.P. of .25 MAC	—	—
B.L. of .25 MAC	213 IN.	0.692 IN.
Airfoil Section	—	—
Root	—	—
Tip	—	—
EXPOSED DATA		
Area	3253 FT^2	4.947 IN^2
Span, (equivalent)	682.7 IN.	2.219 IN.
Aspect Ratio	0.995	0.995
Taper Ratio	0.369	0.369
Chords		
Root	1002 IN.	3.256 IN.
Tip	369.6 IN.	1.201 IN.
MAC	734.4 IN.	2.387 IN.
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

MODEL COMPONENT: D2

GENERAL DESCRIPTION: DORSAL FIN (RUDDER SURFACE INCLUDED)

DRAWING NUMBER: A152052

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
TOTAL DATA		
Area		
Planform	722.1 FT^2	1.098 IN^2
Wetted	—	—
Span (equivalent)	274.8 IN.	0.893 IN.
Aspect Ratio	0.726	0.726
Rate of Taper	—	—
Taper Ratio	0.67	0.67
Diehedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	45.0°	45.0°
Trailing Edge	25.3°	25.3°
0.25 Element Line	41.0°	41.0°
Chords:		
Root (Wing Sta. 0.0)	439.1 IN.	1.427 IN.
Tip, (equivalent)	294.2 IN.	0.956 IN.
MAC	371.4 IN.	1.207 IN.
Fus. Sta. of .25 MAC	2003.7 IN.	6.512 IN.
W.P. of .25 MAC	—	—
B.L. of .25 MAC	128.3 IN.	0.417 IN.
Airfoil Section		
Root	64A009	64A009
Tip	64A009	64A009
EXPOSED DATA ~ N/A		
Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

MODEL COMPONENT: E1

GENERAL DESCRIPTION: ELEVON FOR WING W1 (DIM. ARE FOR ONE ELEVON ONLY AND ARE FROM THE L.E.)

DRAWING NUMBER: A1520S4

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
Area	335.6 FT^2	0.510 IN^2
Span (equivalent)	315.8 IN.	1.026 IN.
Inb'd equivalent chord	153 IN.	0.497 IN.
Outb'd equivalent chord	153 IN.	0.497 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	—	—
At Outb'd equiv. chord	—	—
Sweep Back Angles, degrees		
Leading Edge	20.5	20.5
Tailing Edge	20.5	20.5
Hingeline	20.5	20.5
Area Moment (Normal to hinge line)	—	—

MODEL COMPONENT: E2

GENERAL DESCRIPTION: BODY ELEVON (FLAP)

DRAWING NUMBER: A152054

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
Area	176.24 FT^2	0.268 IN^2
Span (equivalent)	26.46 FT	1.032 IN.
Inb'd equivalent chord	6.67 FT	0.260 IN.
Outb'd equivalent chord	6.67 FT	0.260 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	—	—
At Outb'd equiv. chord	—	—
Sweep Back Angles, degrees		
Leading Edge	0.0	0.0
Tailing Edge	0.0	0.0
Hingeline	0.0	0.0
Area Moment (Normal to hinge line)	—	—

MODEL COMPONENT: R2

GENERAL DESCRIPTION: RUDDER FOR D2 (DIMENSIONS ARE FROM L.E. OF RUDDER)

DRAWING NUMBER: A152052

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
Area	269.0 FT^2	0.409 IN^2
Span (equivalent)	274.9 IN.	0.893 IN.
Inb'd equivalent chord	159.4 IN.	0.518 IN.
Outb'd equivalent chord	106.8 IN.	0.347 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.36	0.36
At Outb'd equiv. chord	0.36	0.36
Sweep Back Angles, degrees		
Leading Edge	33.6°	33.6°
Tailing Edge	25.3°	25.3°
Hingeline	32.2°	32.2°
Area Moment (Normal to hinge line)	—	—

MODEL COMPONENT: R3

GENERAL DESCRIPTION: RUDDER FOR TIP FIN V1 (DIM. ARE FROM L.E. OF RUDDER & ARE FOR ONE RUDDER ONLY)

DRAWING NUMBER: A152054

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
Area	294.5 FT^2	0.448 IN^2
Span (equivalent)	382.8 IN.	1.244 IN.
Inb'd equivalent chord	150.5 IN.	0.489 IN.
Outb'd equivalent chord	71.5 IN.	0.232 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	—	—
At Outb'd equiv. chord	—	—
Sweep Back Angles, degrees		
Leading Edge	25.0°	25.0°
Tailing Edge	15.0°	15.0°
Hingeline	25.0°	25.0°
Area Moment (Normal to hinge line)	—	—

NASA-MSFC-MAF

MODEL COMPONENT: V1

GENERAL DESCRIPTION: WING TIP FIN FOR W1 (DIMENSIONS SHOWN INCLUDE RUDDER SURFACE & ARE FOR ONE FIN ONLY)

DRAWING NUMBER: A152054

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	710.2 FT^2	1,080 IN.^{2}
Wetted	—	—
Span (equivalent)	382.8 IN.	1,244 IN.
Aspect Ratio	1.43	1.43
Rate of Taper	—	—
Taper Ratio	0.484	0.484
Diehedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	6.75°(ROOT), 8.0° (TIP)	SAME
Cant Angle	17.0°	17.0°
Sweep Back Angles, degrees		
Leading Edge	37.5°	37.5°
Trailing Edge	15.0°	15.0°
0.25 Element Line	32.5°	32.5°
Chords:		
Root (Wing Sta. 0.0)	362.8 IN.	1.179 IN.
Tip, (equivalent)	169.9 IN.	0.552 IN.
MAC	276.7 IN.	0.899 IN.
Fus. Sta. of .25 MAC	2075.5 IN.	6.745 IN.
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section	—	—
Root	—	—
Tip	—	—
EXPOSED DATA ~ N/A		
Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

MODEL COMPONENT: V3

GENERAL DESCRIPTION: WING TIP EXTENSION FOR W1
(DIMENSIONS SHOWN ARE FOR ONE FIN ONLY)

DRAWING NUMBER: A152054

DIMENSIONS:	FULL-SCALE	MODEL SCALE (0.00325)
TOTAL DATA		
Area		
Planform	301.2 FT^2	0.459 IN^2
Wetted	—	—
Span (equivalent)	15.54 FT	0.606 IN.
Aspect Ratio	—	—
Rate of Taper	—	—
Taper Ratio	—	—
Diehedral Angle, degrees	—	—
Incidence Angle, degrees	—	—
Aerodynamic Twist, degrees	—	—
Toe-In Angle	—	—
Cant Angle	—	—
Sweep Back Angles, degrees		
Leading Edge	68.0	68.0
Trailing Edge	20.5	20.5
0.25 Element Line	62.5	62.5
Chords:		
Root ~~(Wing Sta. 0.0)~~ B.L. 1.511	35.13 FT	1.370 IN.
Tip, (equivalent)	3.59 FT	0.140 IN.
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section	—	—
Root	—	—
Tip	—	—
EXPOSED DATA ~ N/A		
Area	—	—
Span, (equivalent)	—	—
Aspect Ratio	—	—
Taper Ratio	—	—
Chords		
Root	—	—
Tip	—	—
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

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	CIM	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}
XCP/C	DCLM/CL	longitudinal static stability derivative

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

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 data sets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

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

NASA AMES	Mr. V. Stevens
NASA MSFC	Mr. J. Weaver
LMSC HREC	Mr. R. R. Ellis

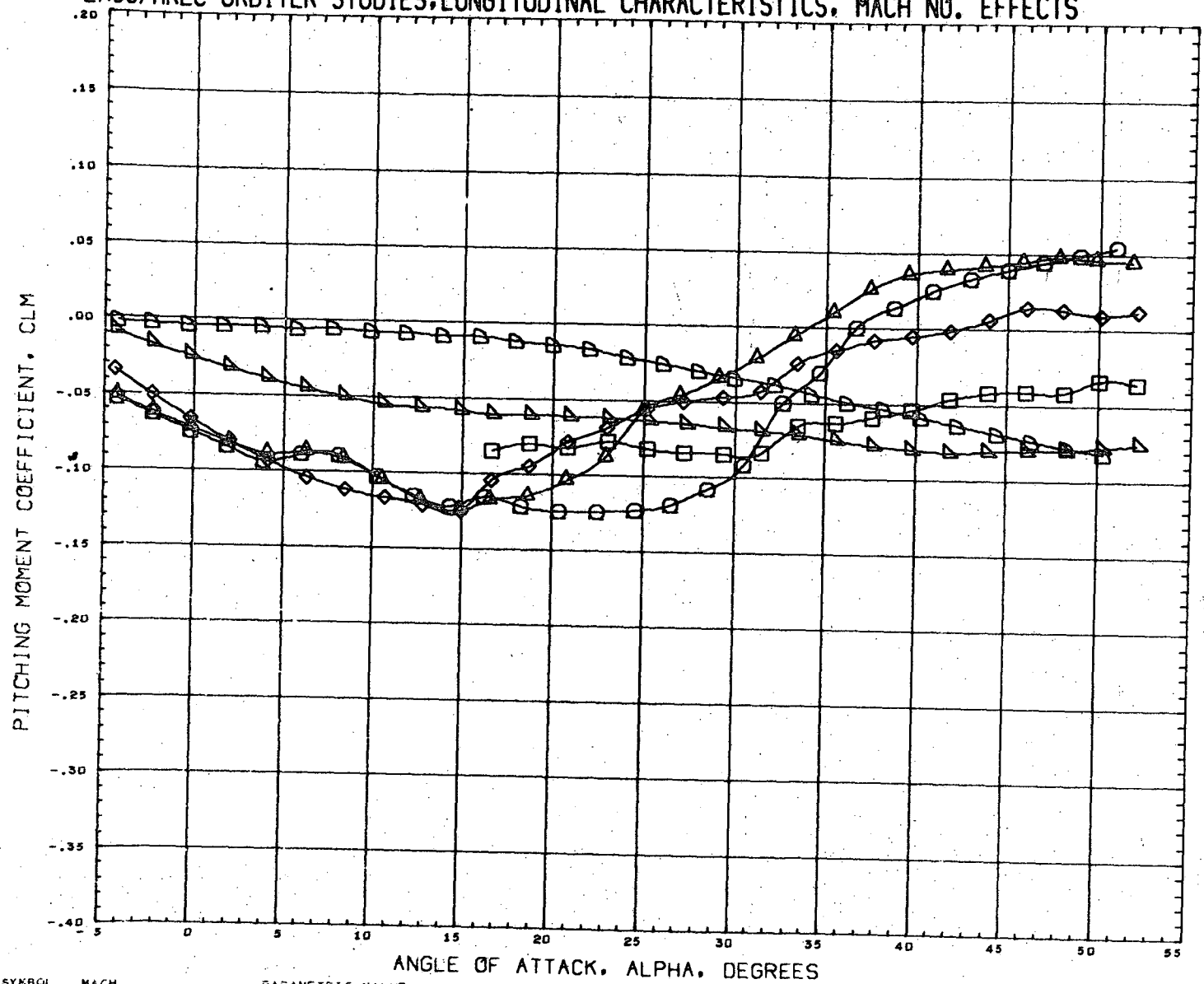
If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

Mr. J. R. Ziler
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

PLOTTED DATA

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

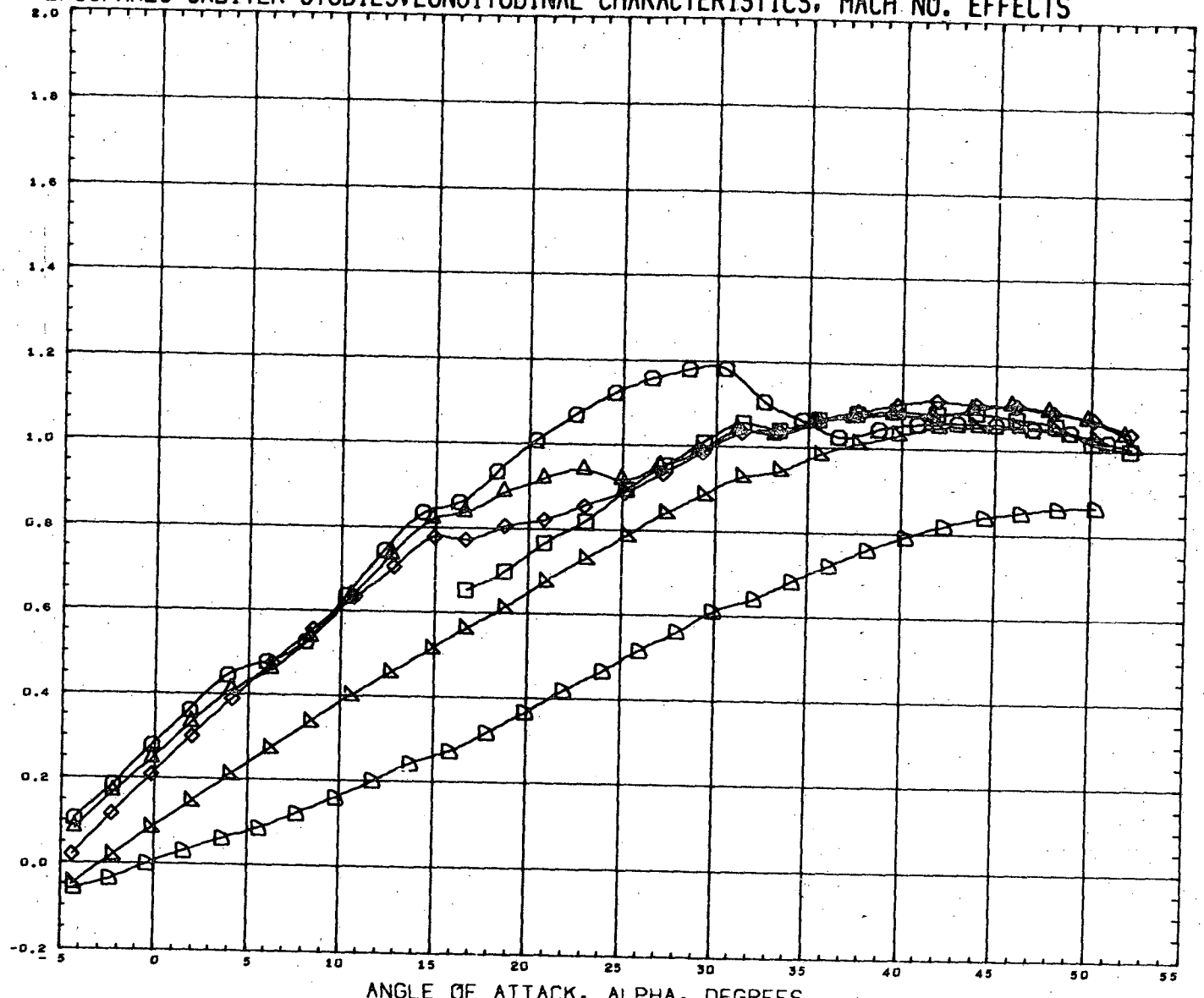


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
◇	1.100				
□	1.473				
◸	1.974				
D	4.959	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

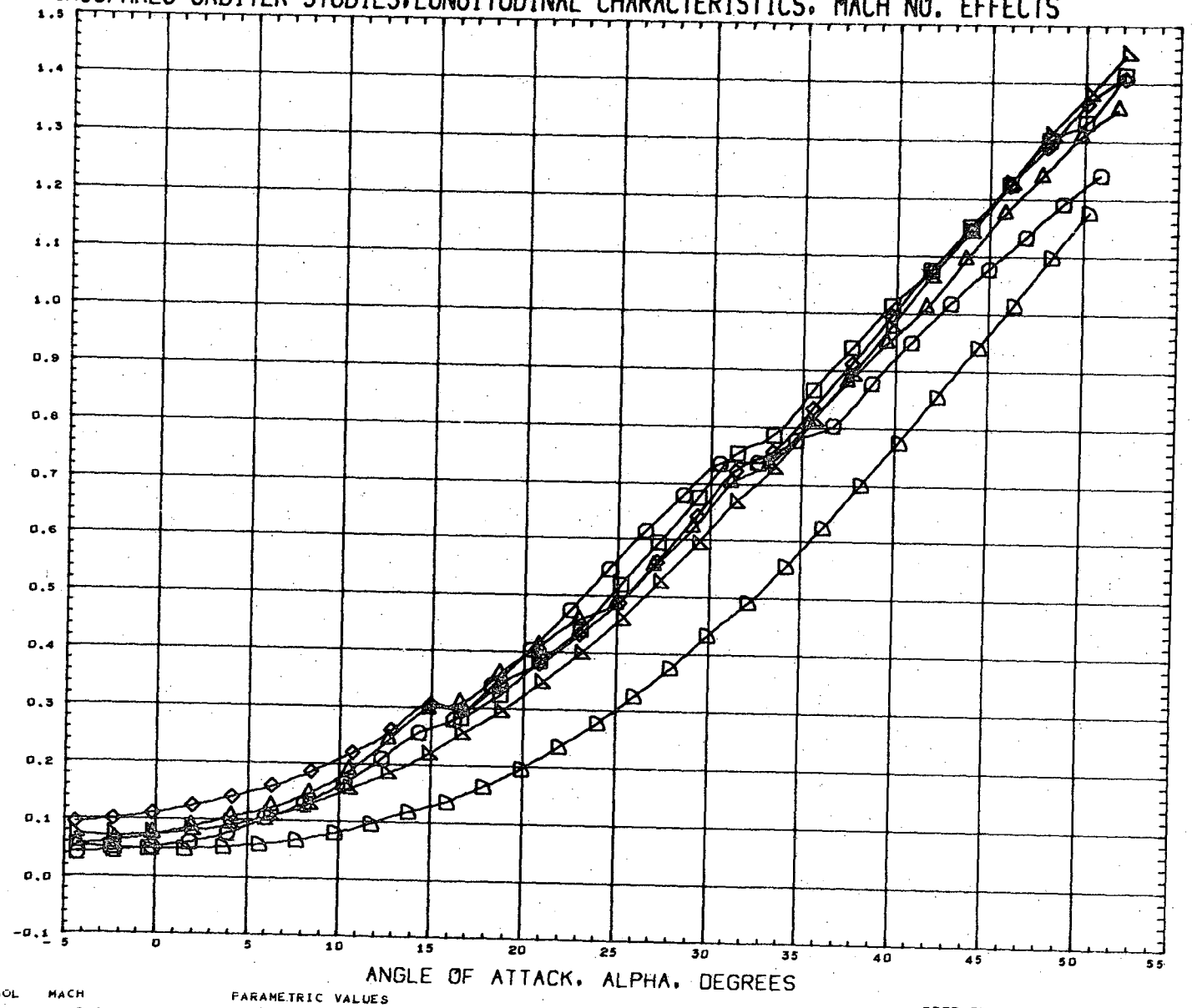


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
◇	1.100				
□	1.473				
▽	1.974				
D	4.959	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

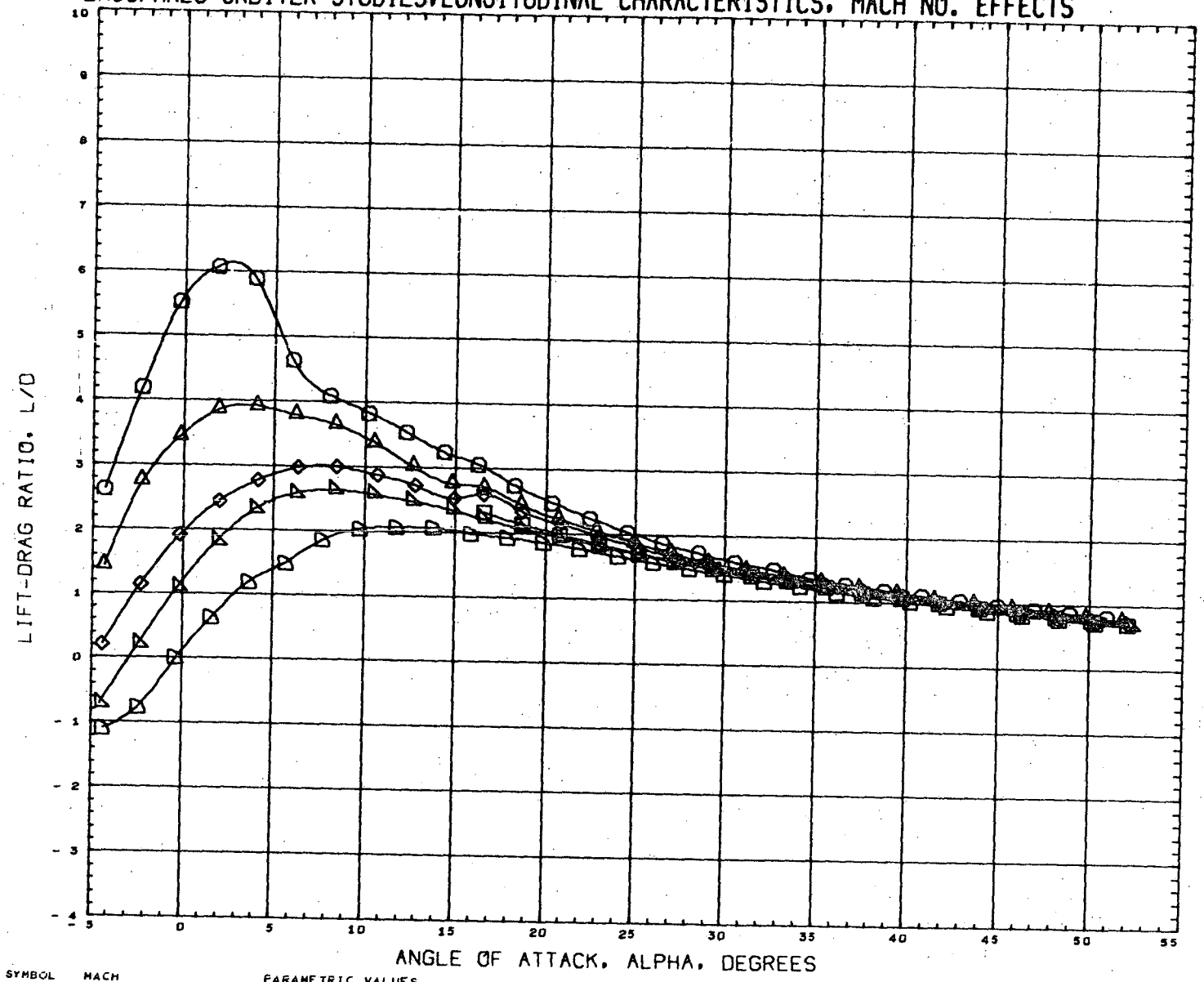


SYMBOL	MACH		PARAMETRIC VALUES		
◇	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
□	1.100				
◸	1.473				
○	1.974				
D	4.959	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

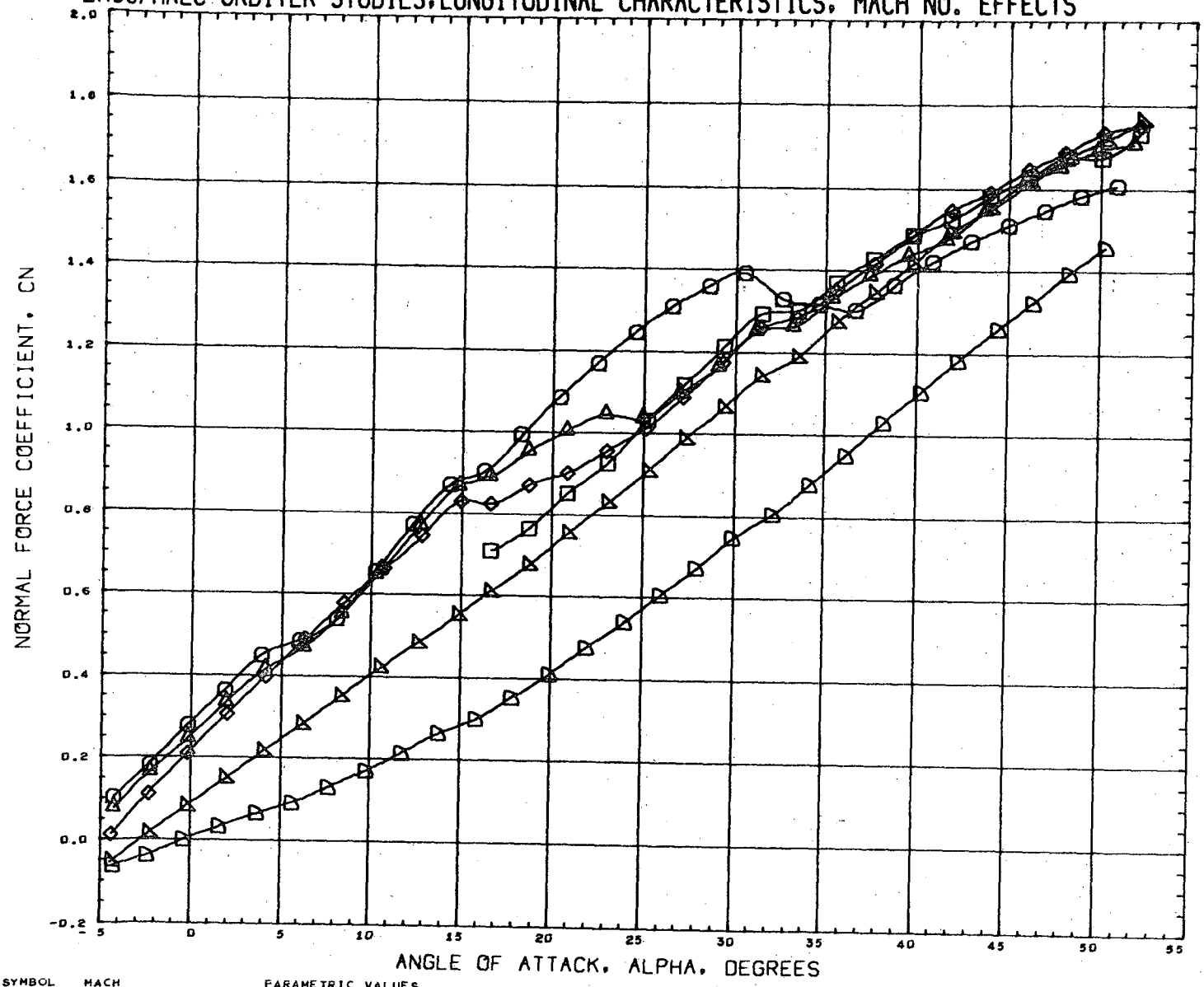


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
◇	1.100				
□	1.473				
▷	1.974				
D	4.959	DATA HIST. CODE	#G#E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

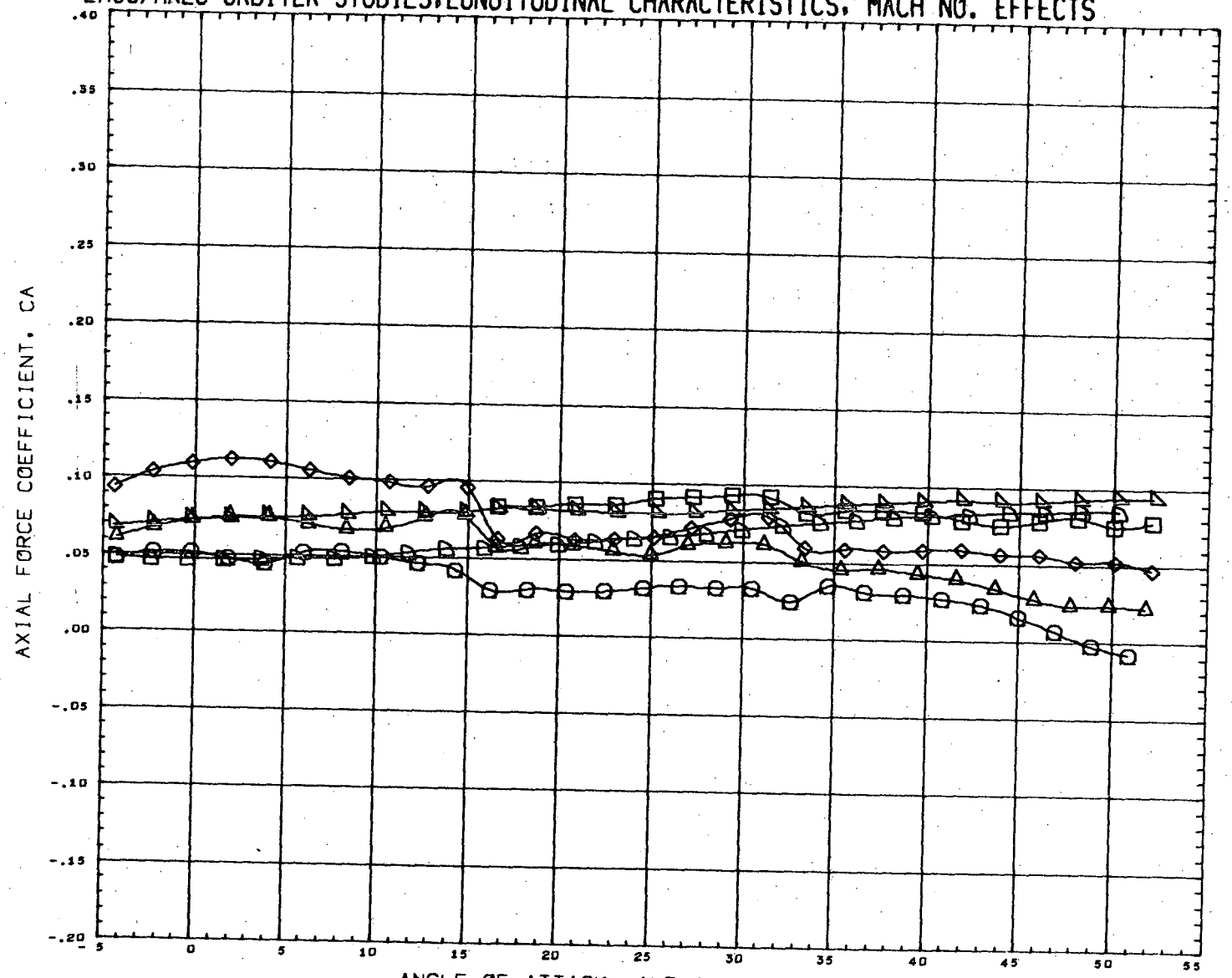


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
◇	1.100				
□	1.473				
▽	1.974				
D	4.959	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS



SYMBOL	MACH
○	0.596
△	0.901
◇	1.100
□	1.473
▱	1.974
▷	4.959

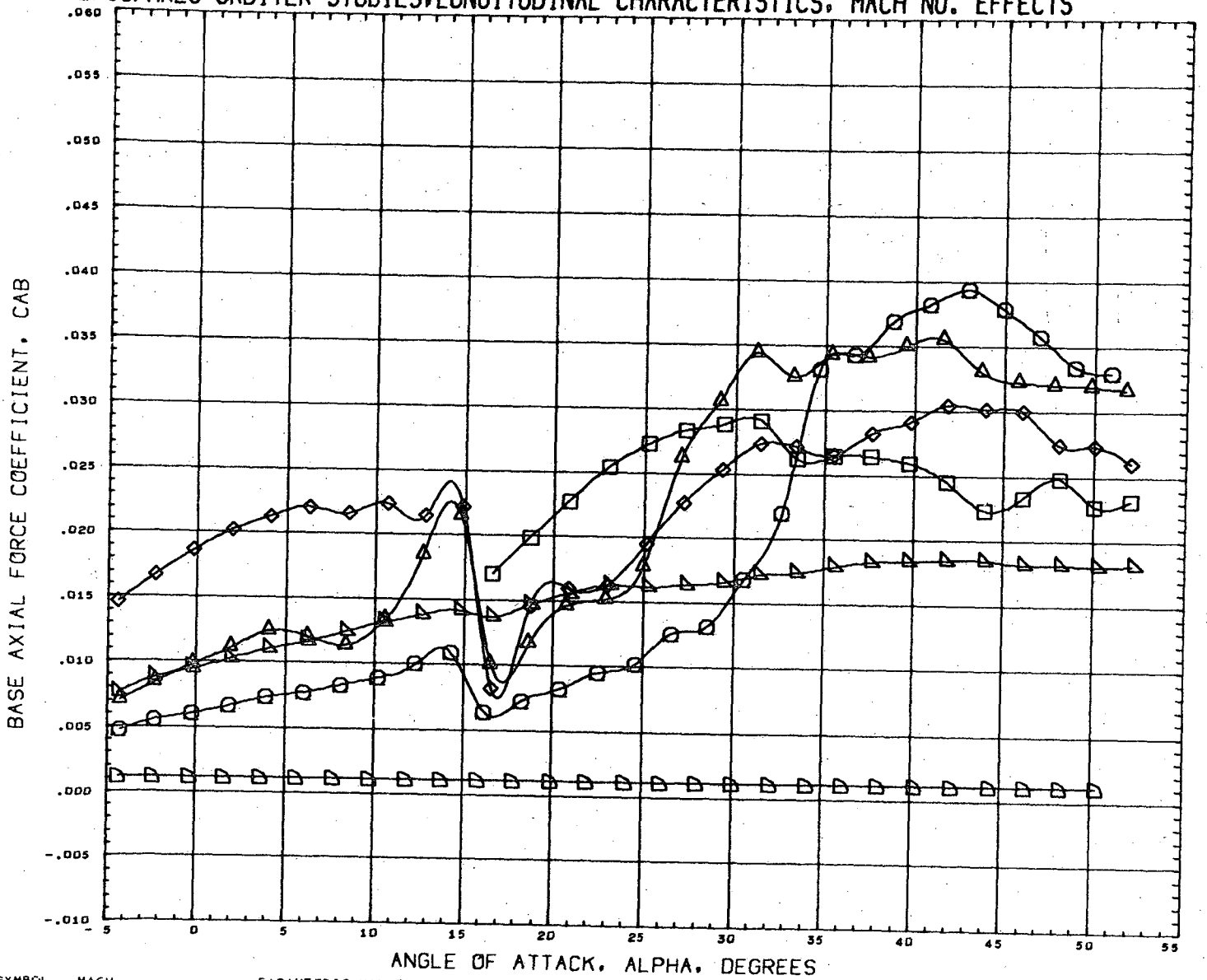
PARAMETRIC VALUES

BETA	0.000	ELEVN1	0.000	
RUDER3	0.000			
DATA HIST. CODE	#G*E			

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS

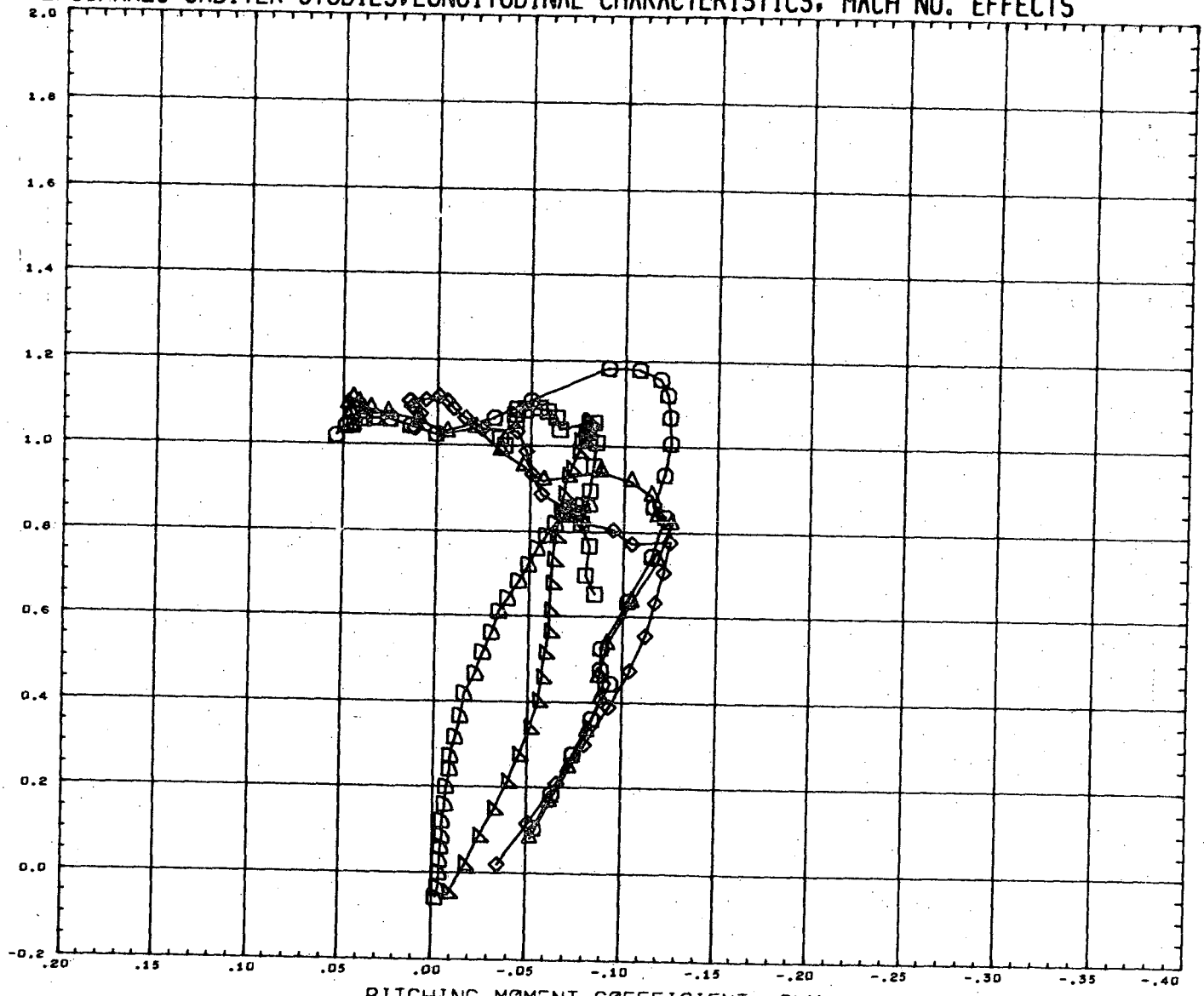


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.596	BETA	0.000	ELEVN1	0.000
△	0.901	RUDER3	0.000		
◇	1.100				
□	1.473				
◸	1.974				
D	4.959	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, MACH NO. EFFECTS



SYMBOL	MACH
○	0.596
△	0.901
◇	1.100
□	1.473
◺	1.974
D	4.959

PARAMETRIC VALUES

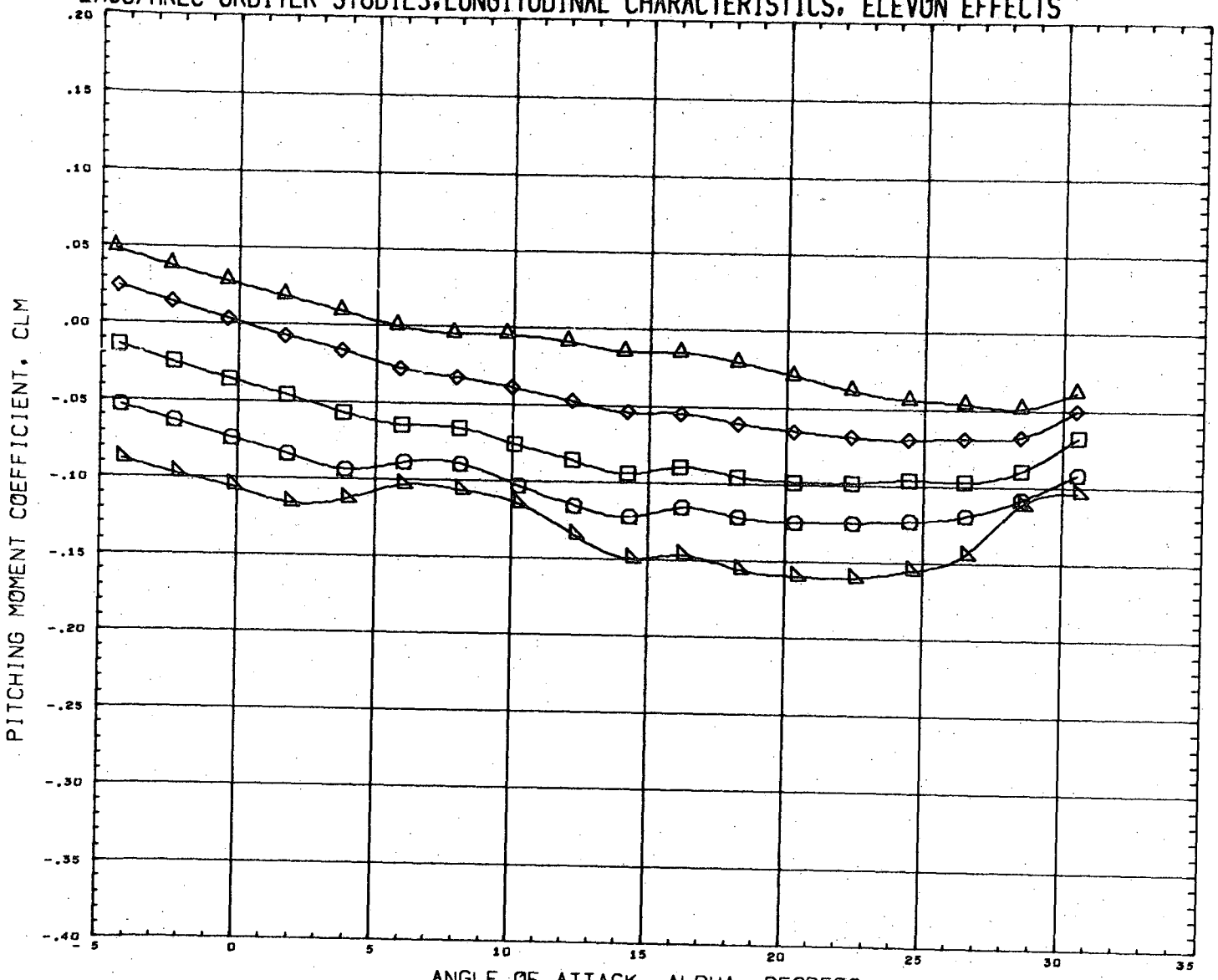
BETA	0.000	ELEVN1	0.000	
RUDER3	0.000			

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



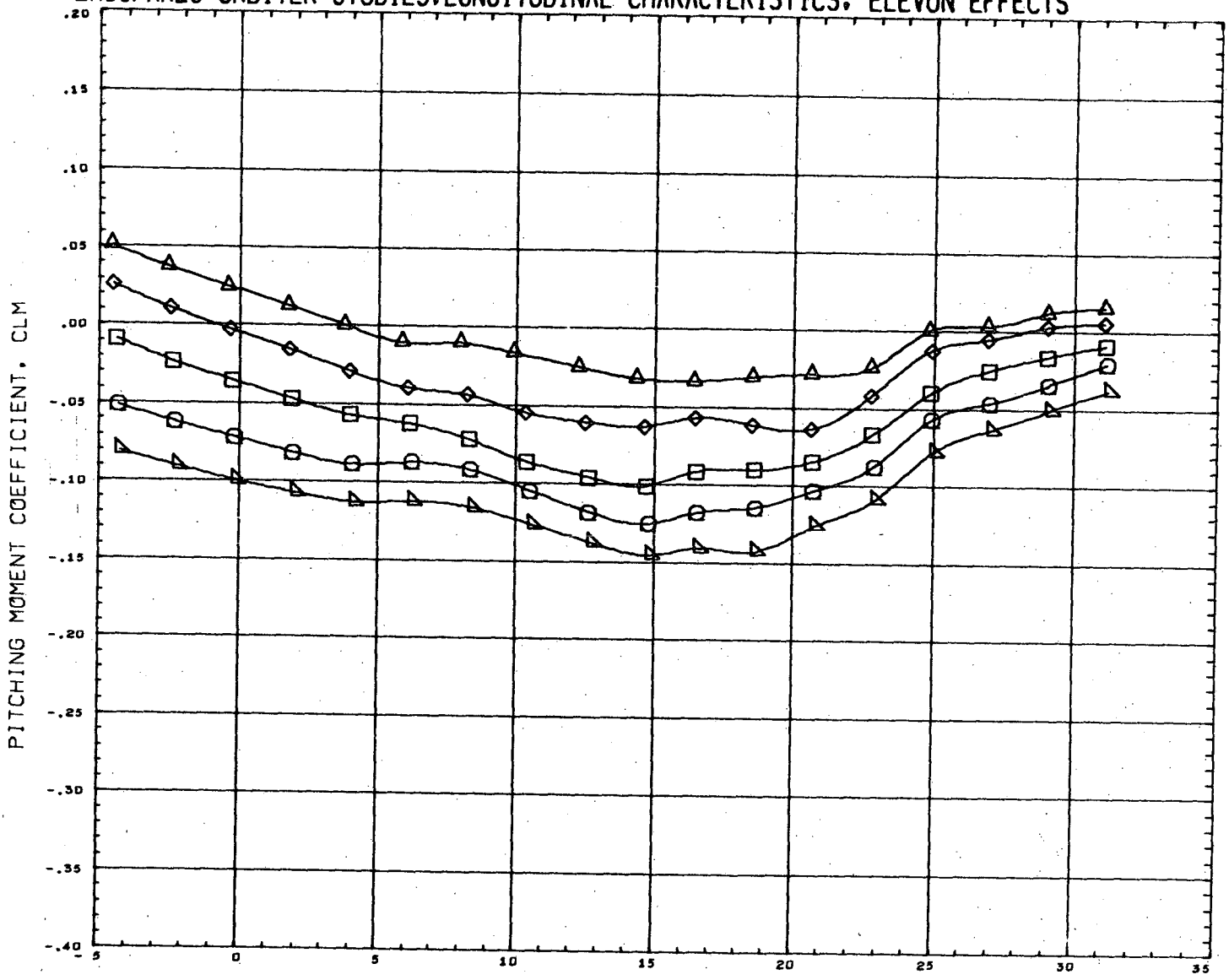
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3616S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. ELEVON EFFECTS



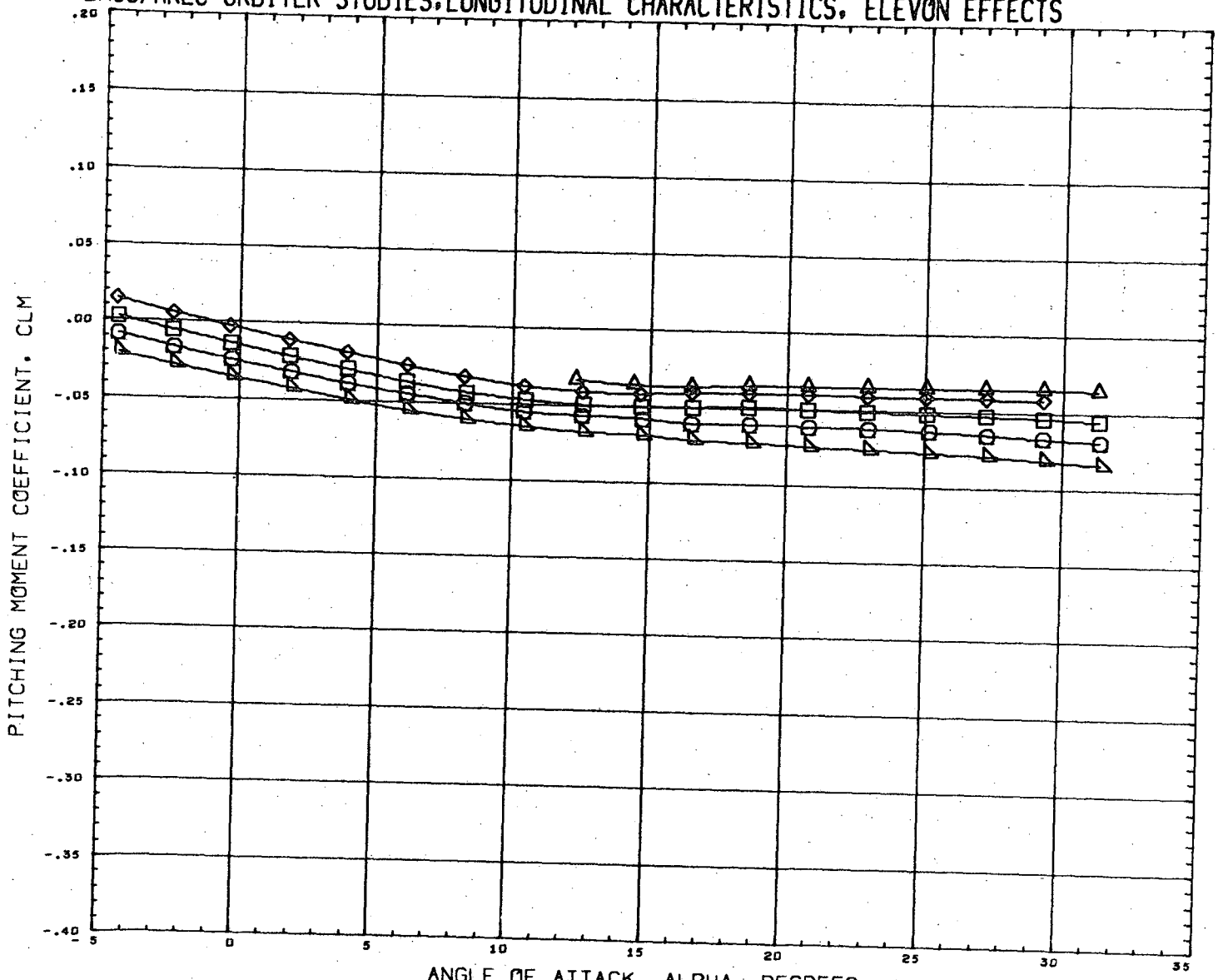
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(D3605S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3619S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3618S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3617S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

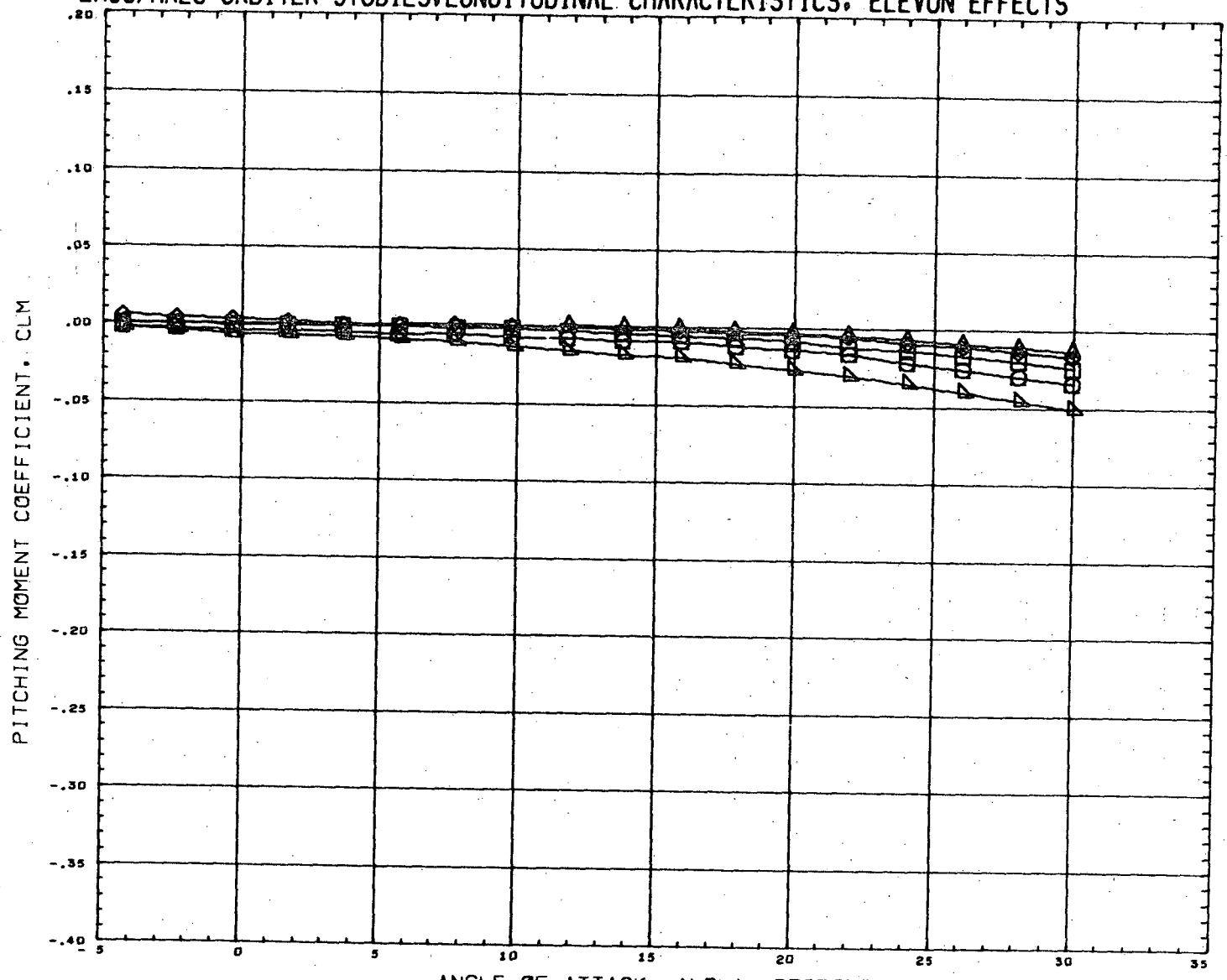
MACH 1.966

BETA	ELEVN1	RUDER3
0.000	-30.000	0.000
0.000	-20.000	0.000
0.000	-10.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

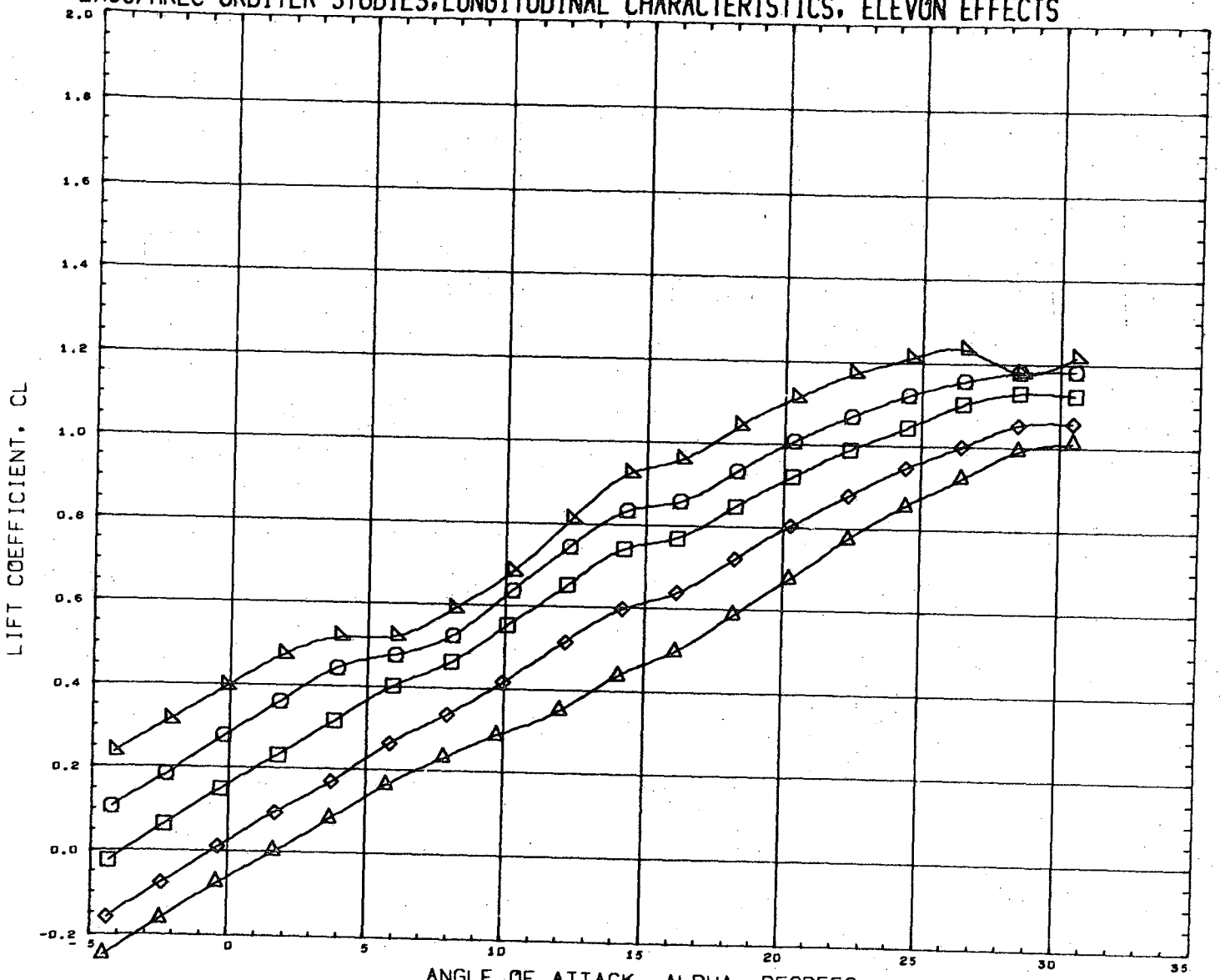


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



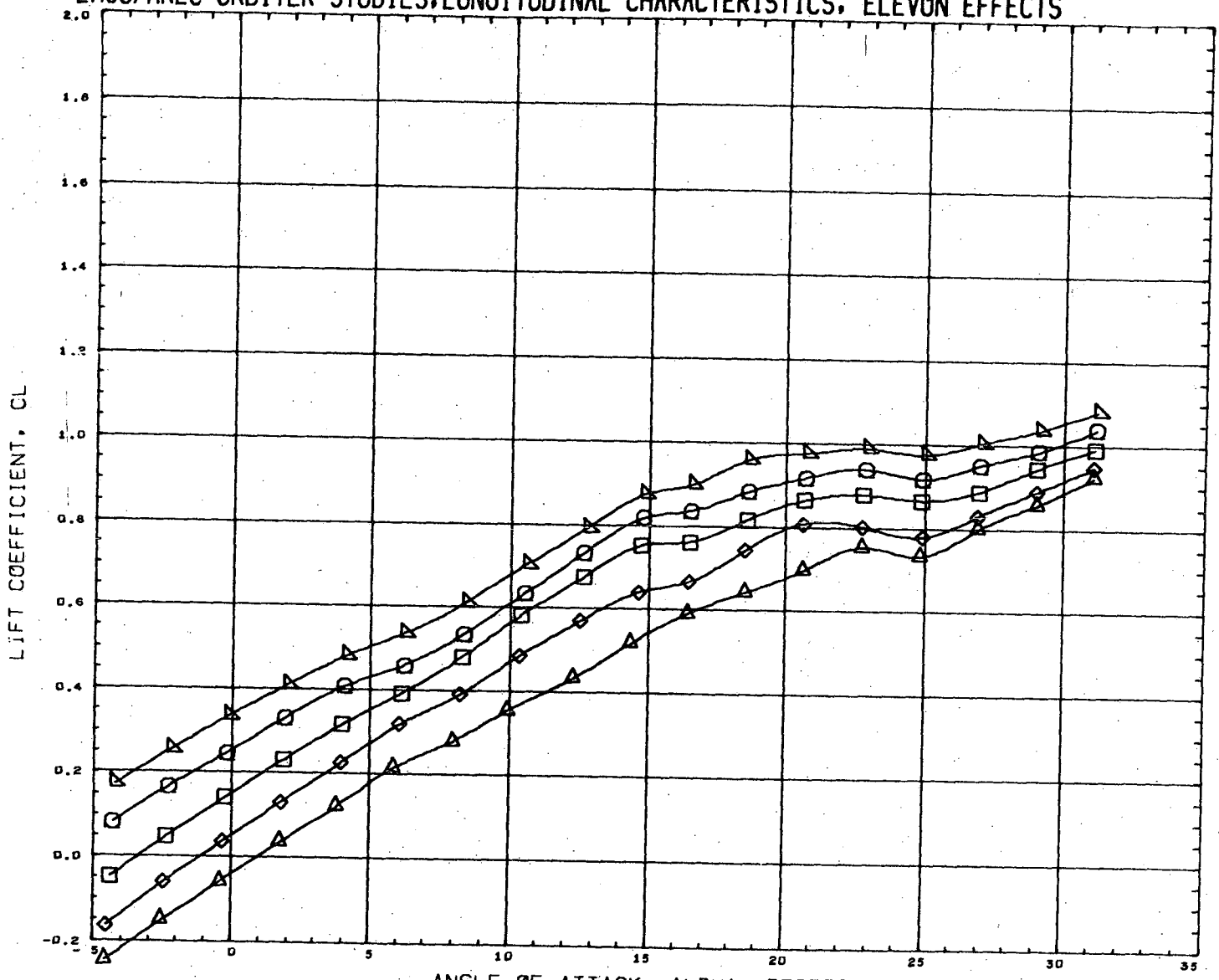
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S) ▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

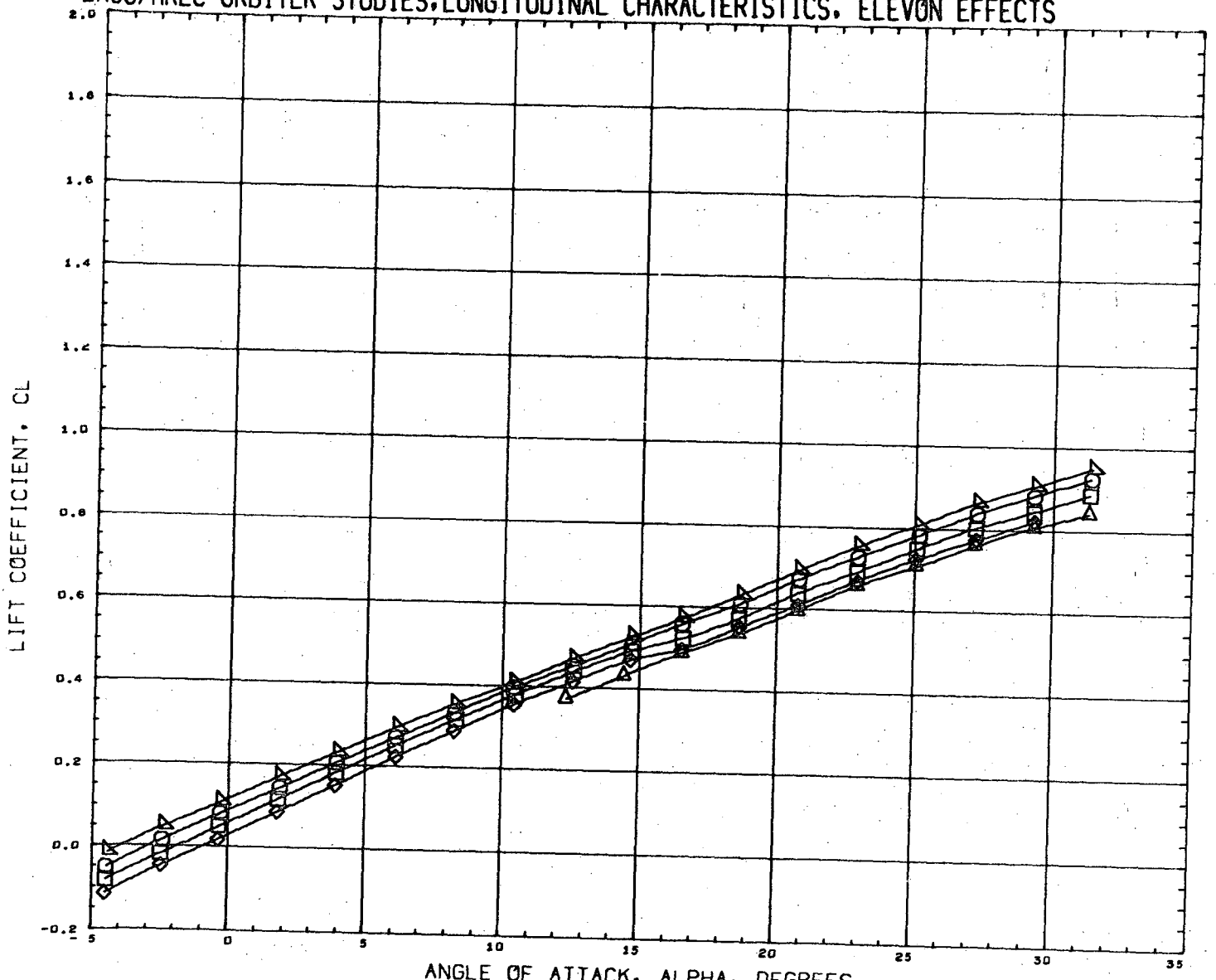


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

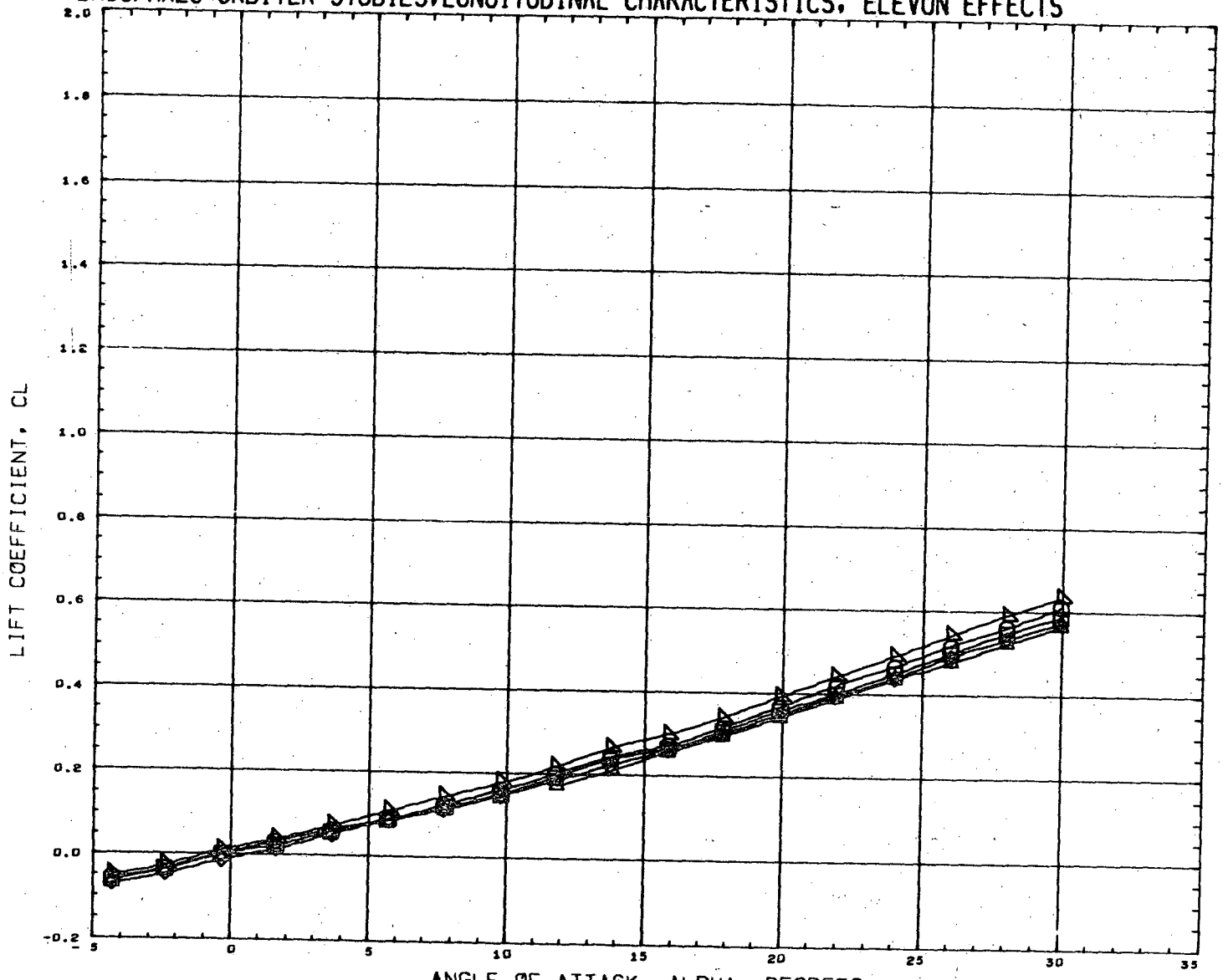
MACH 1.966

BETA	ELEVN1	RUDER3
0.000	-30.000	0.000
0.000	-20.000	0.000
0.000	-10.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



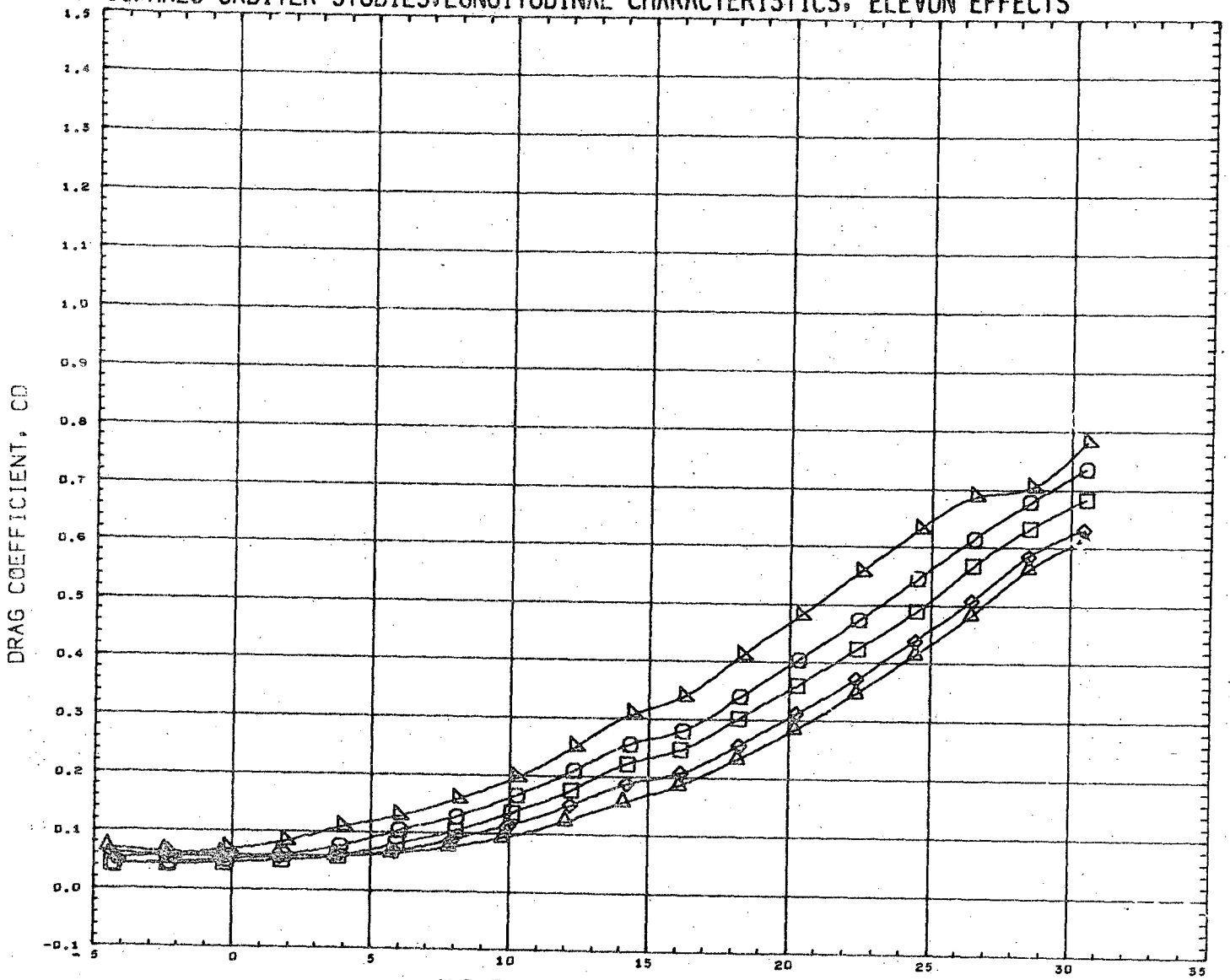
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	⊿	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	⊿	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



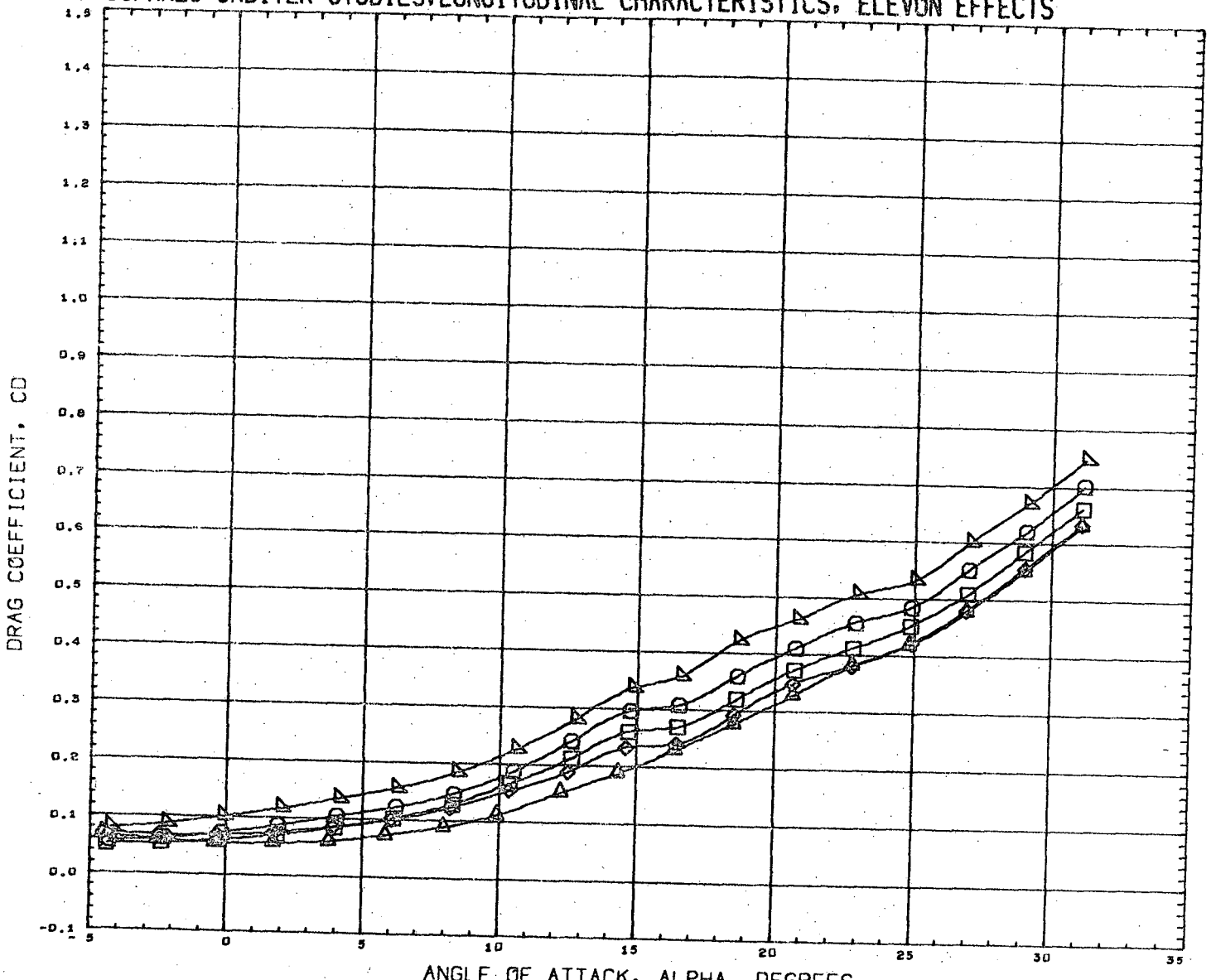
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

18

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

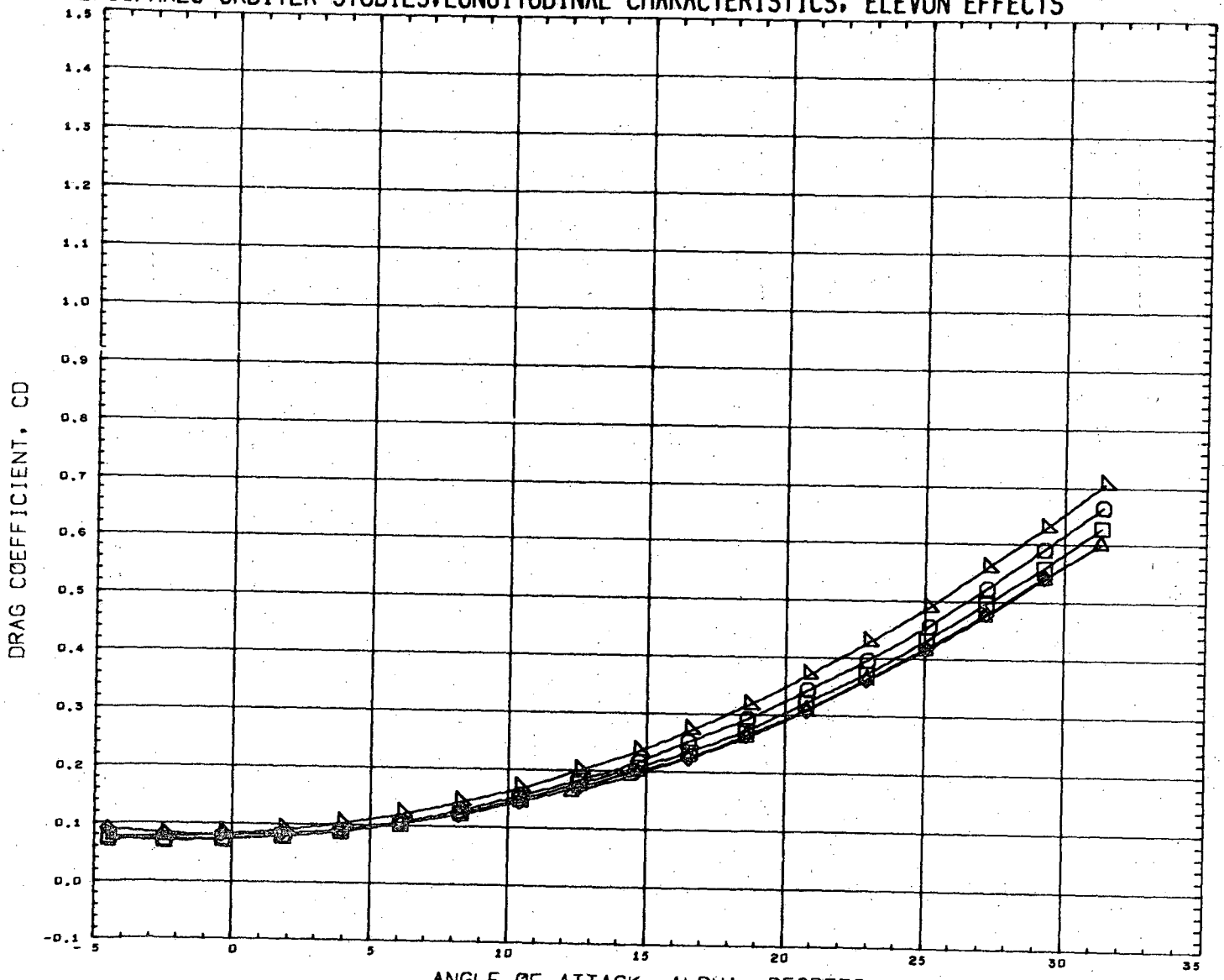


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



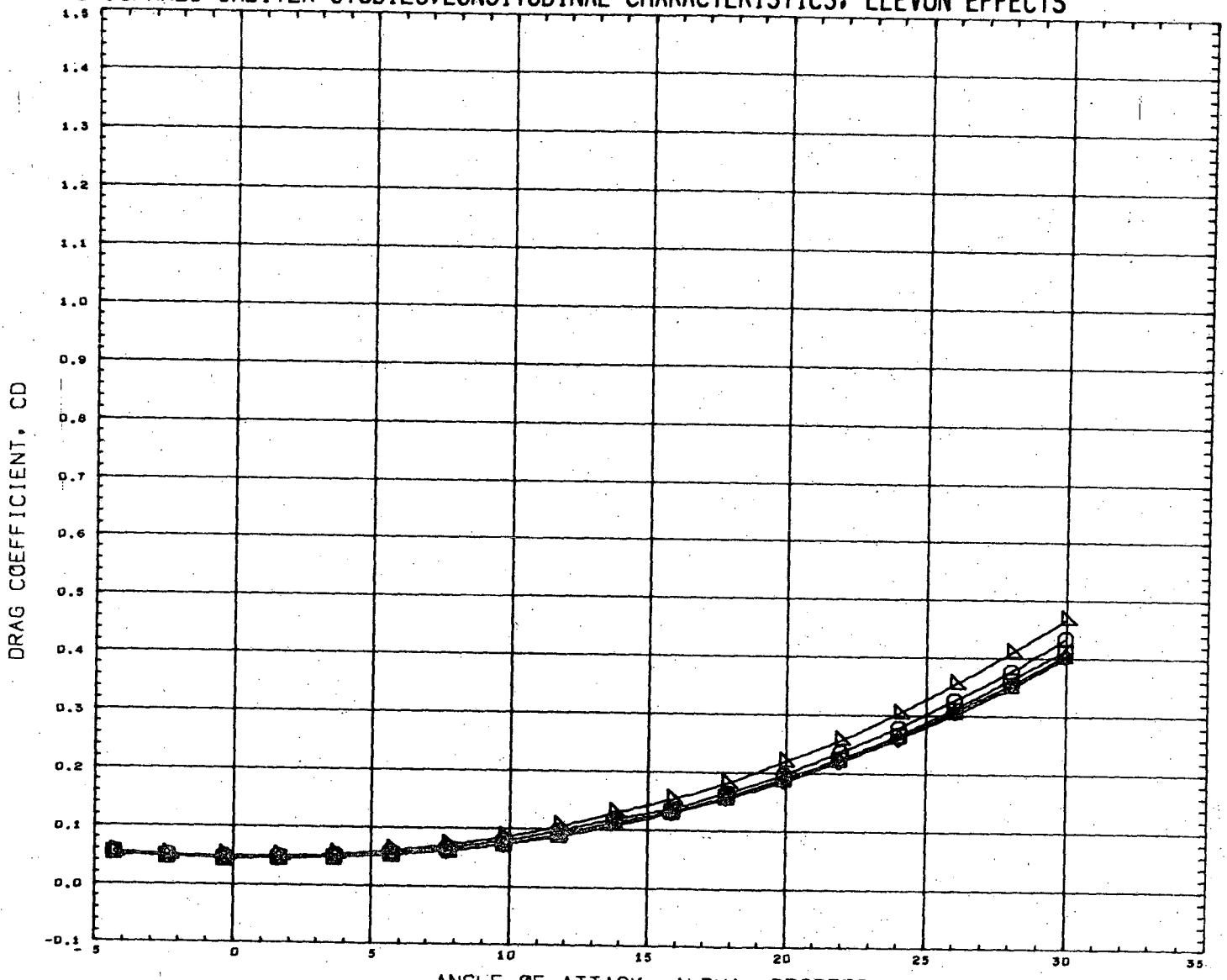
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S) ↗	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

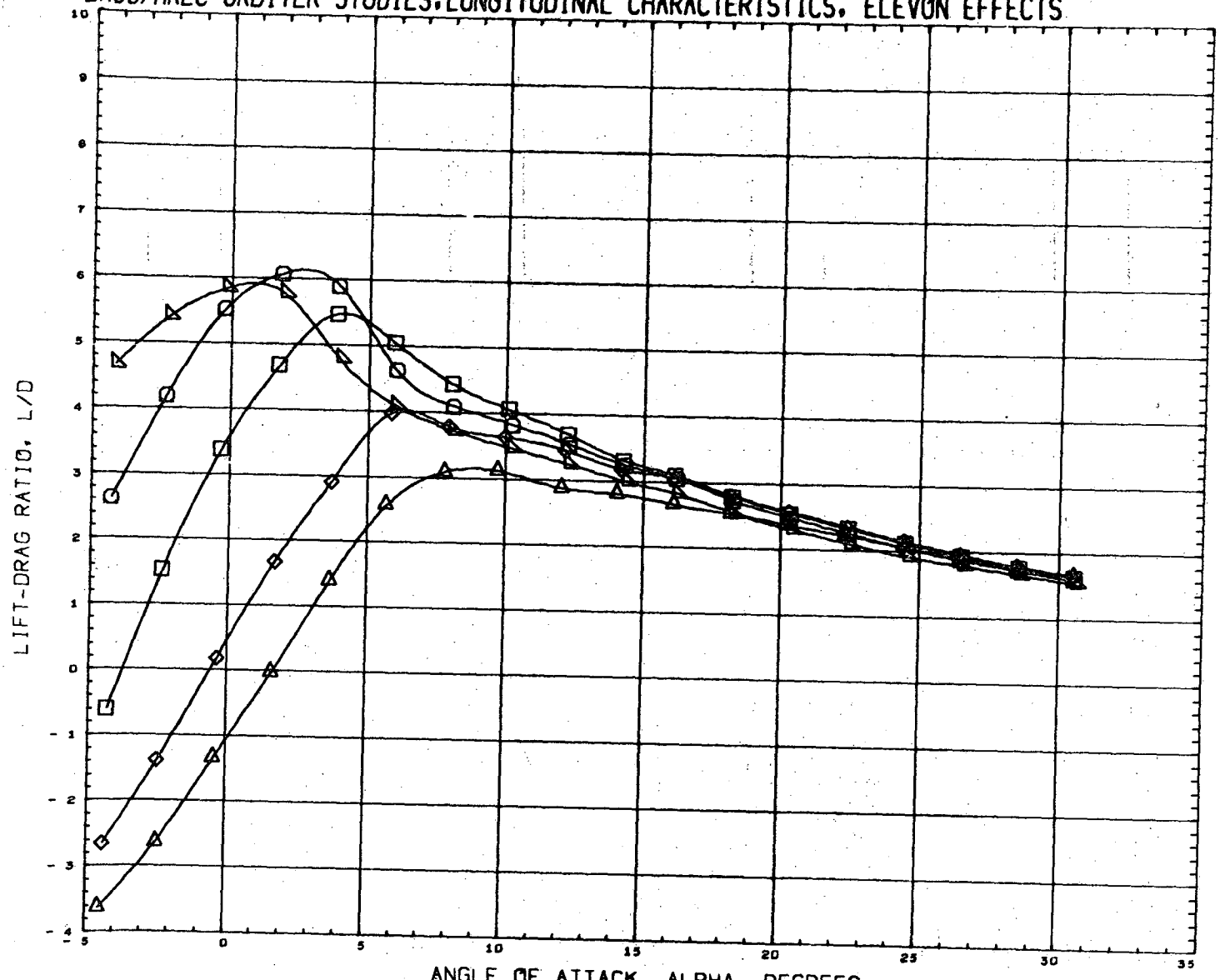


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. ELEVON EFFECTS



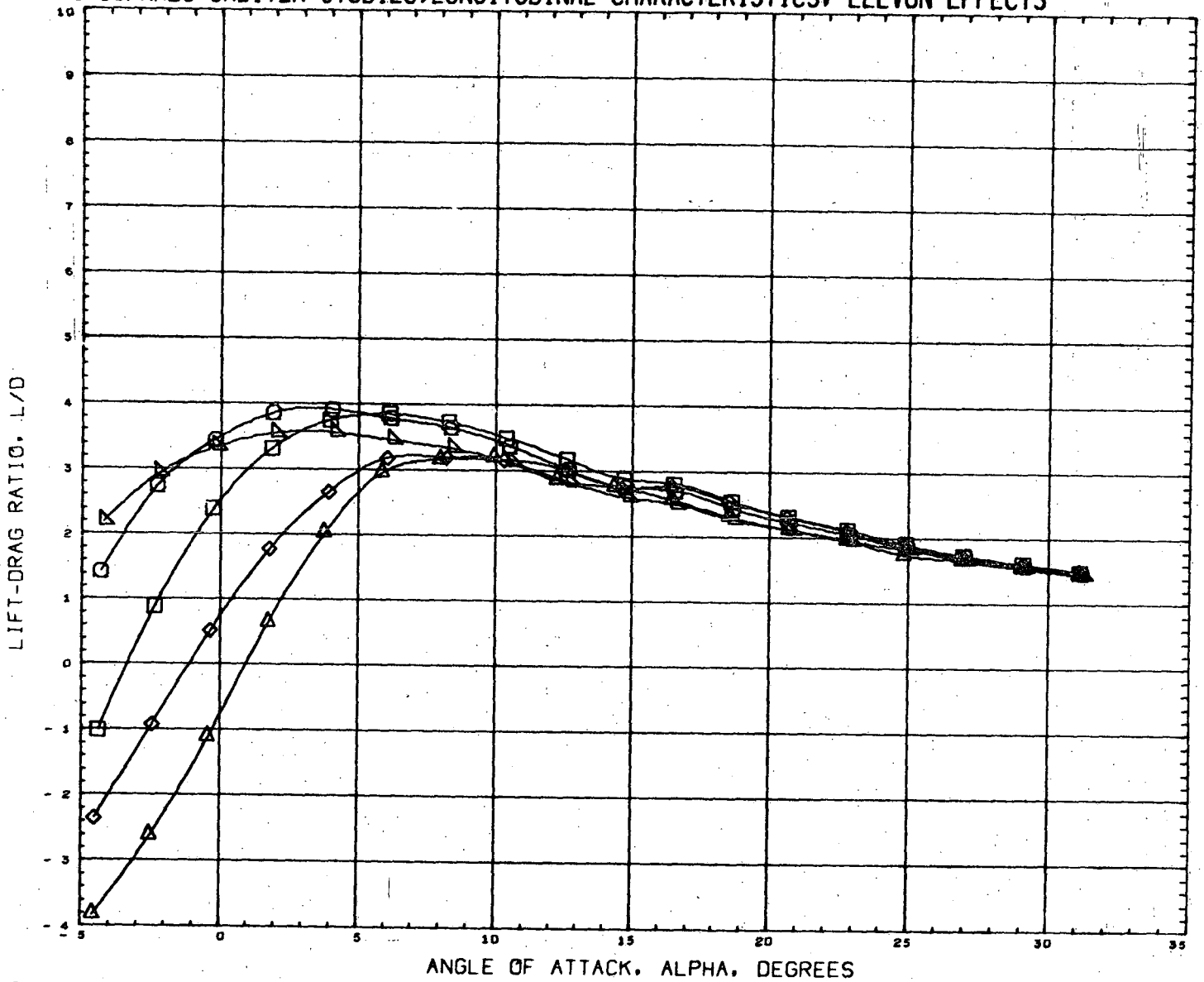
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

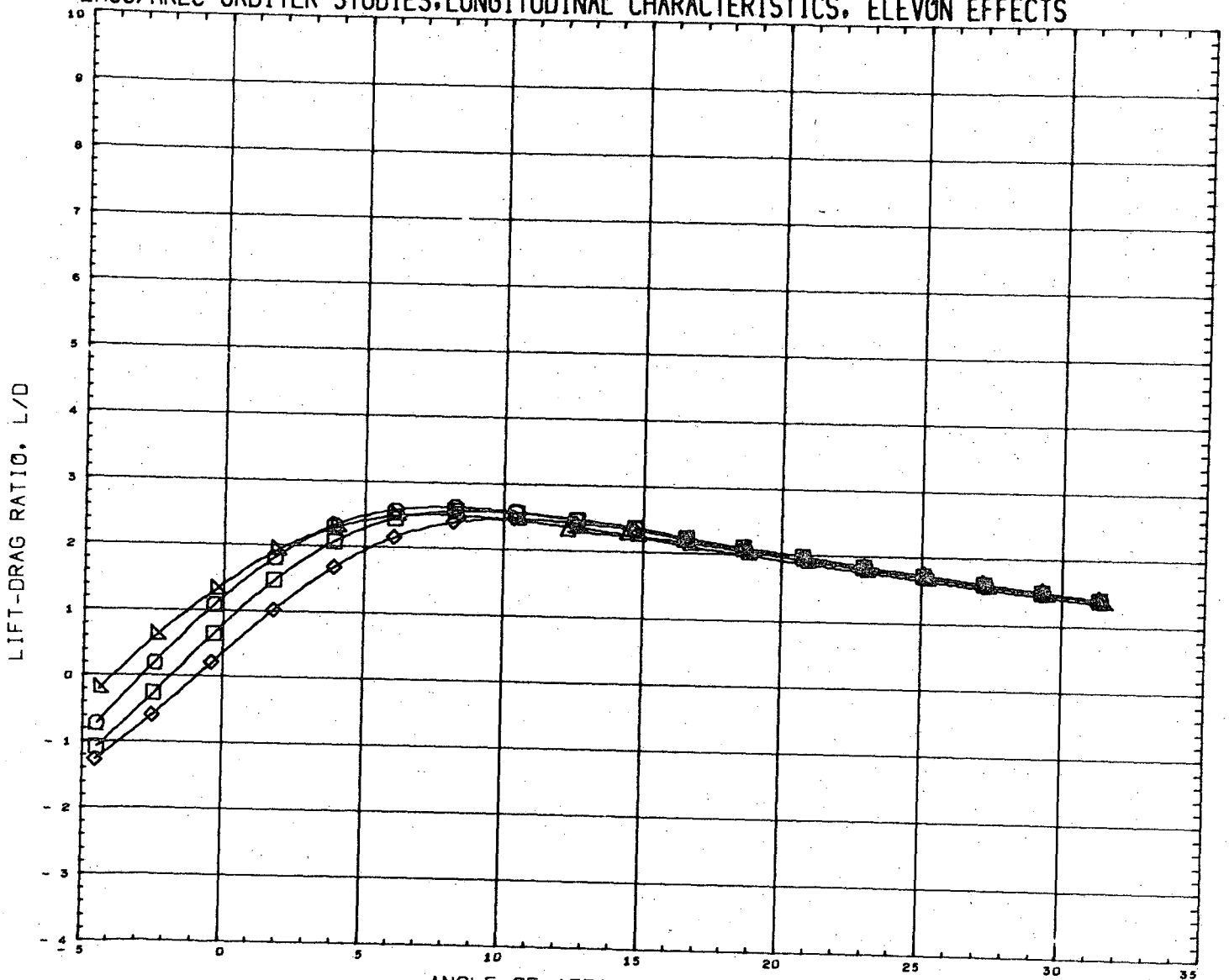


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



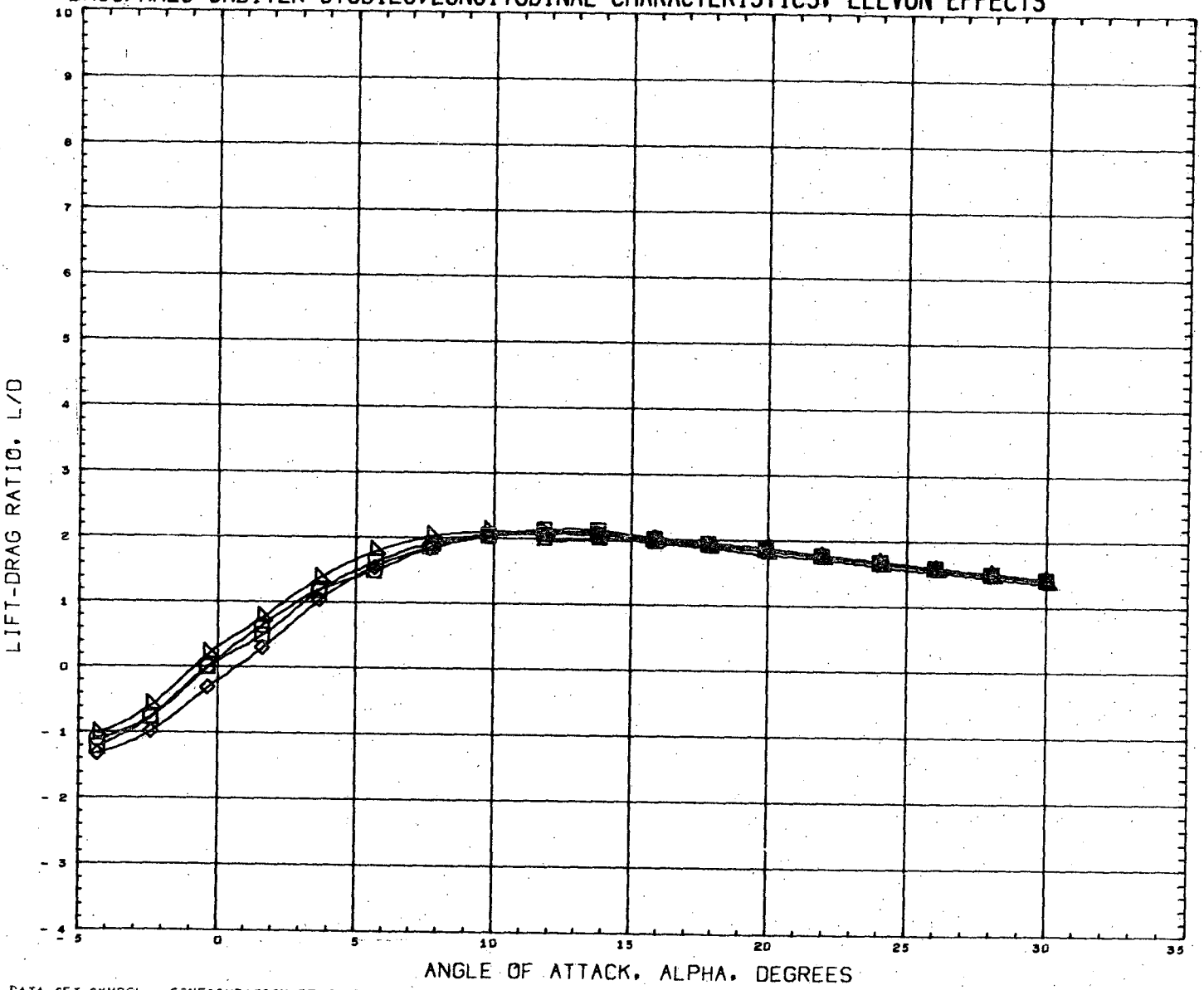
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

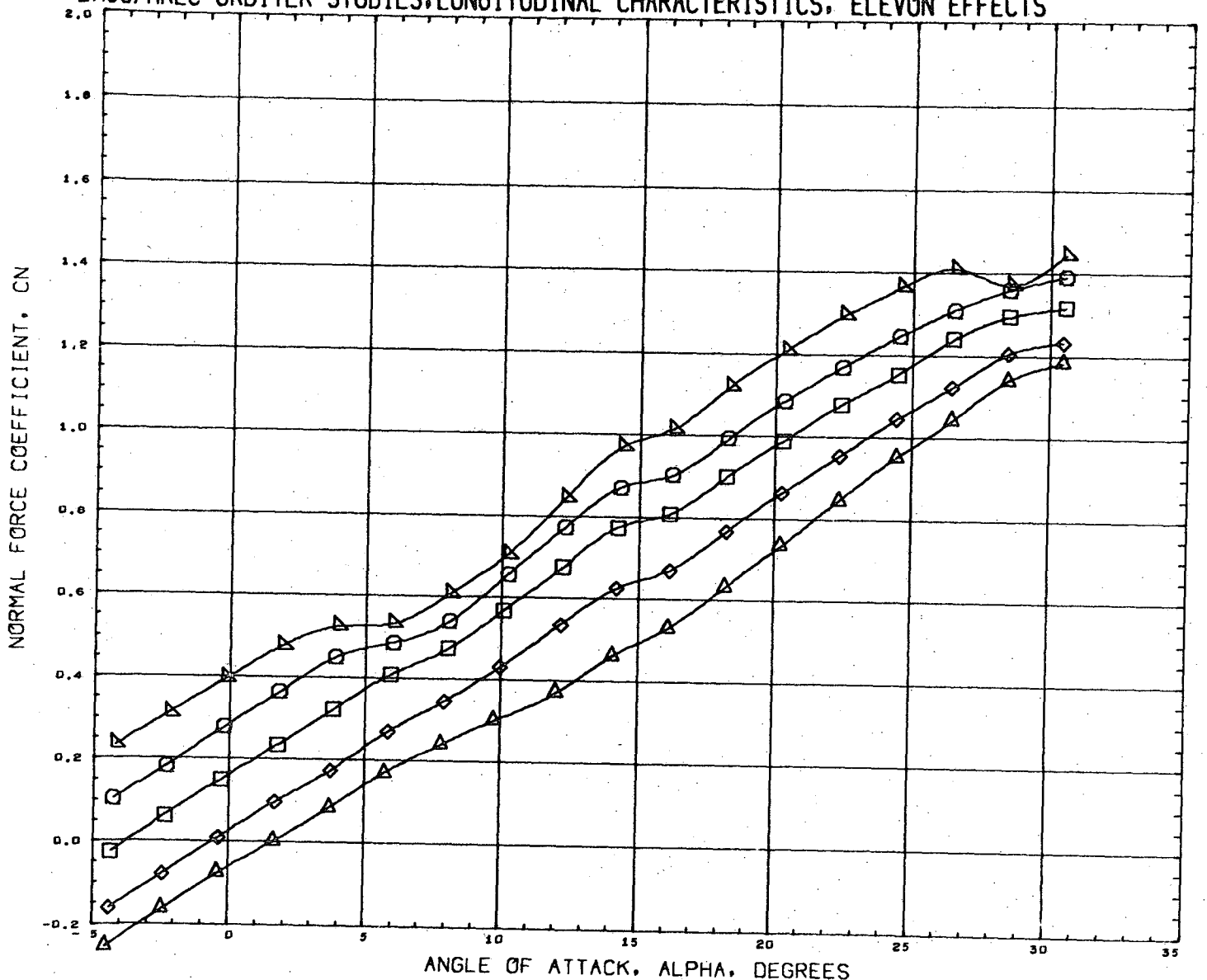


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



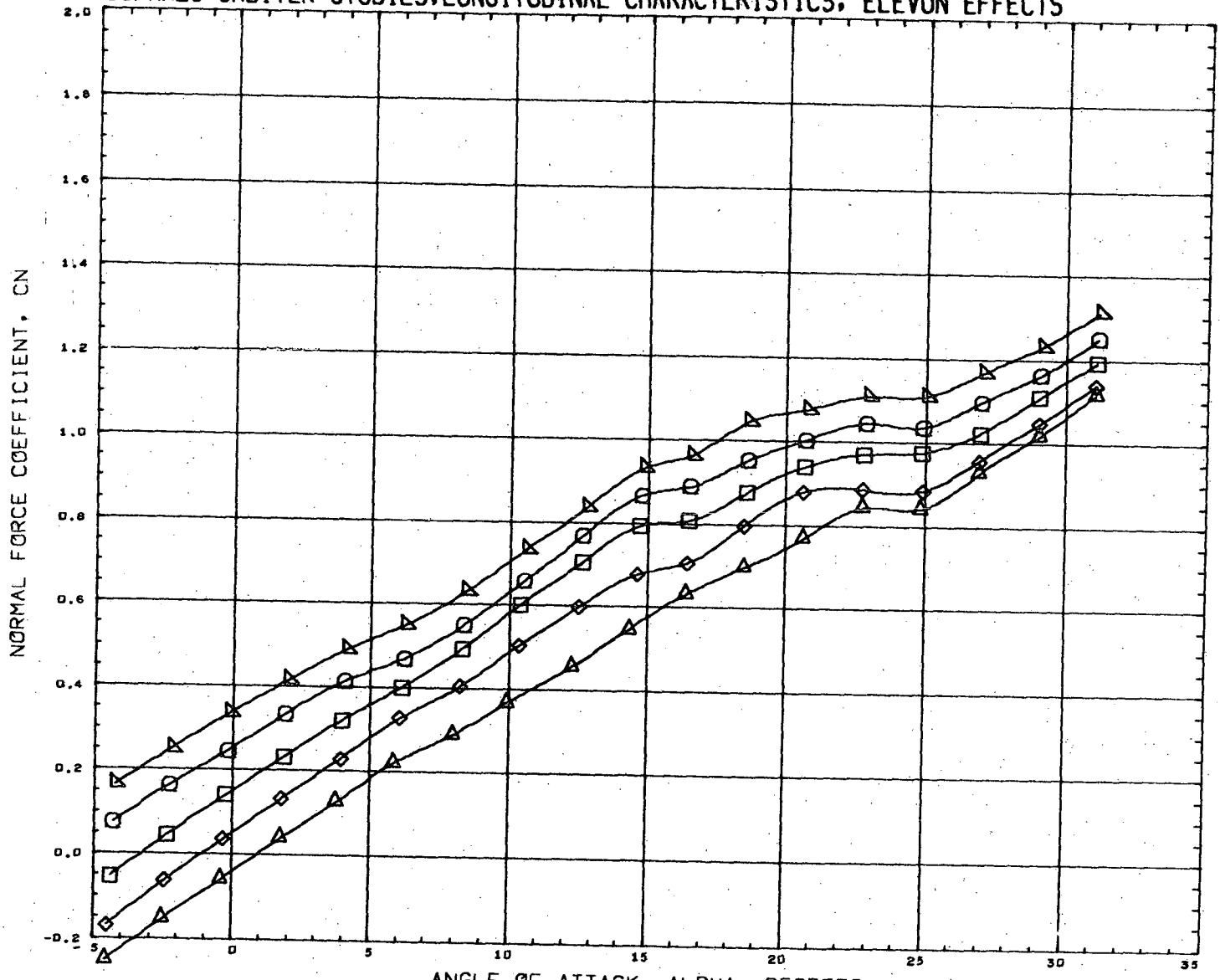
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

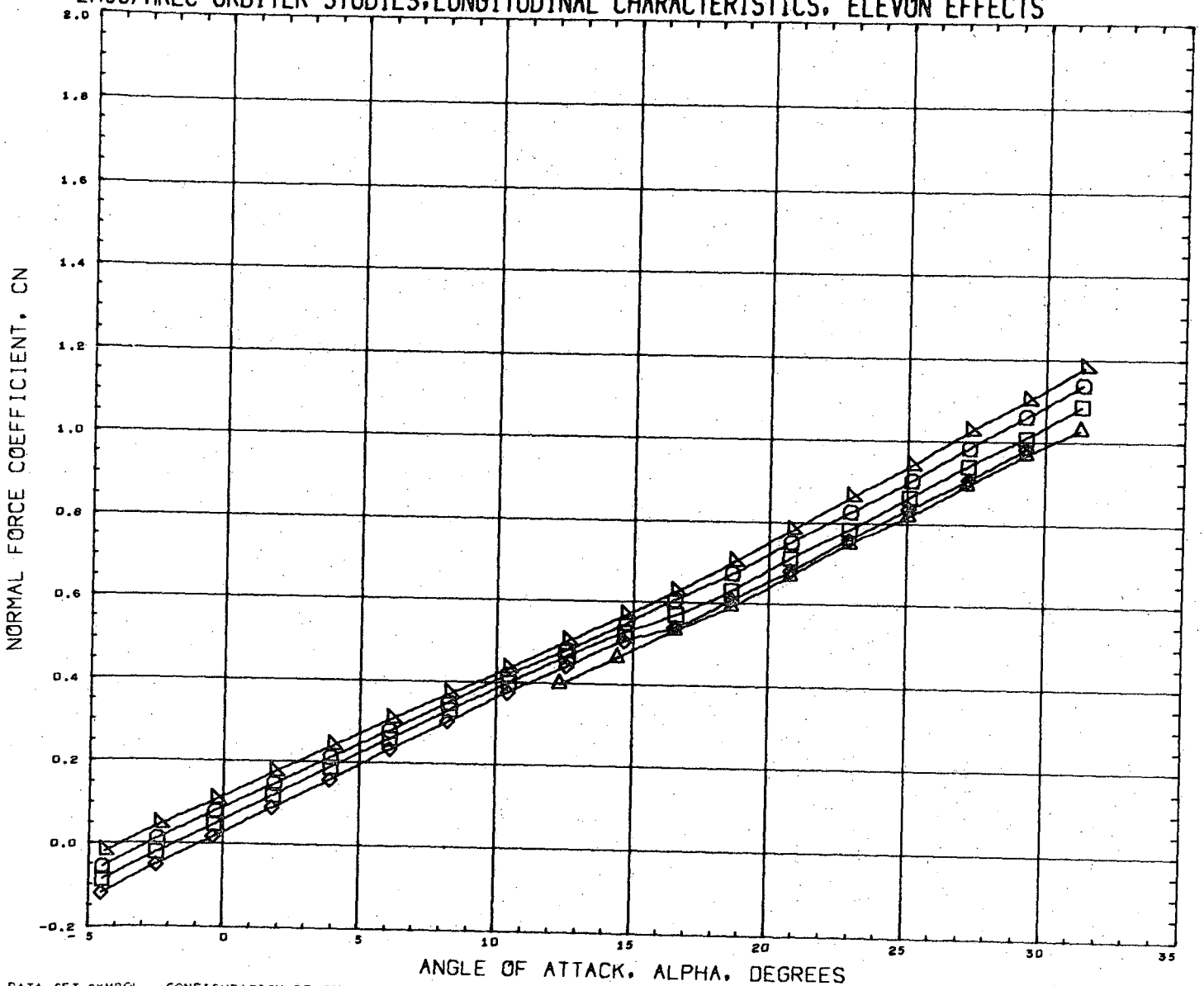


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



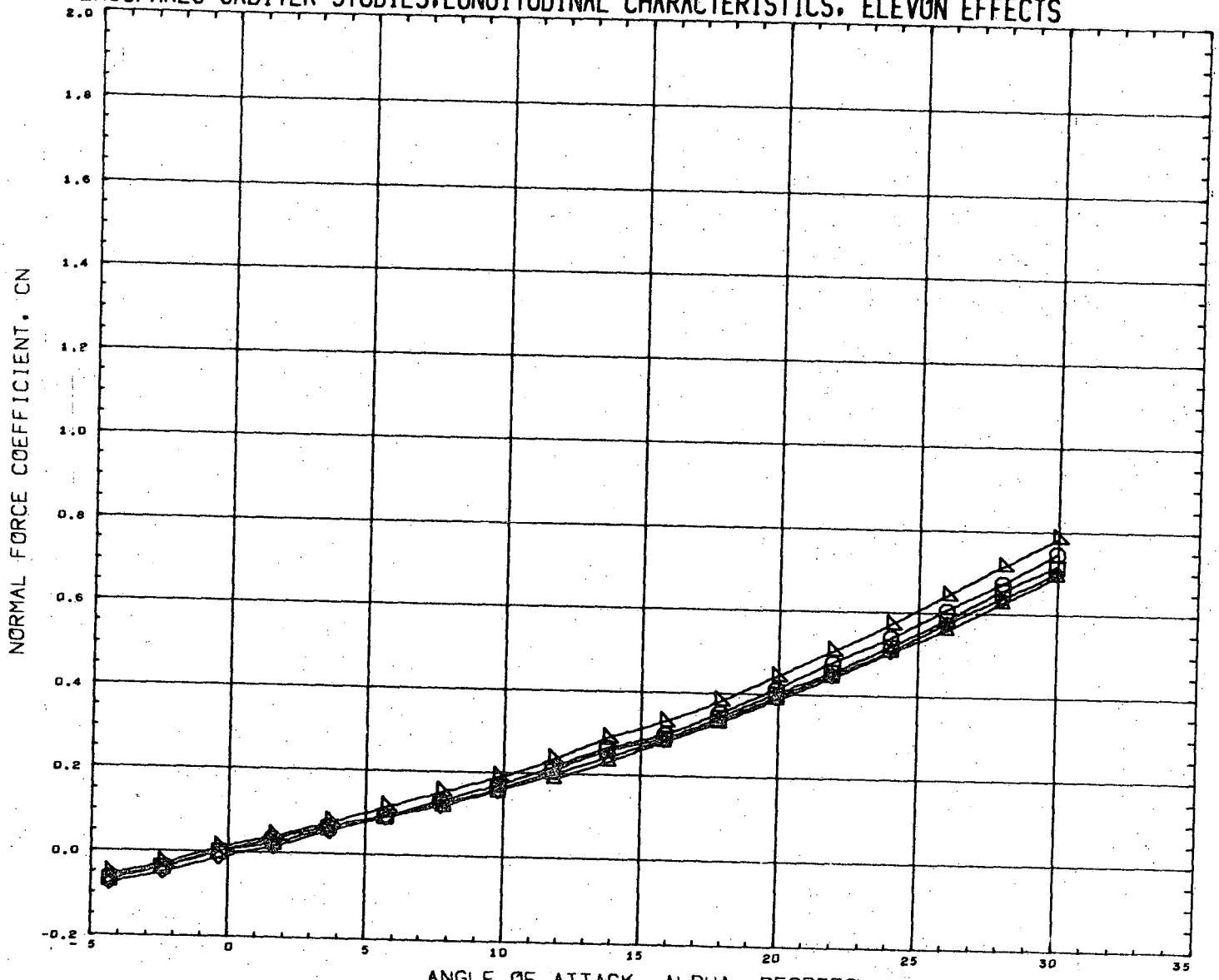
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

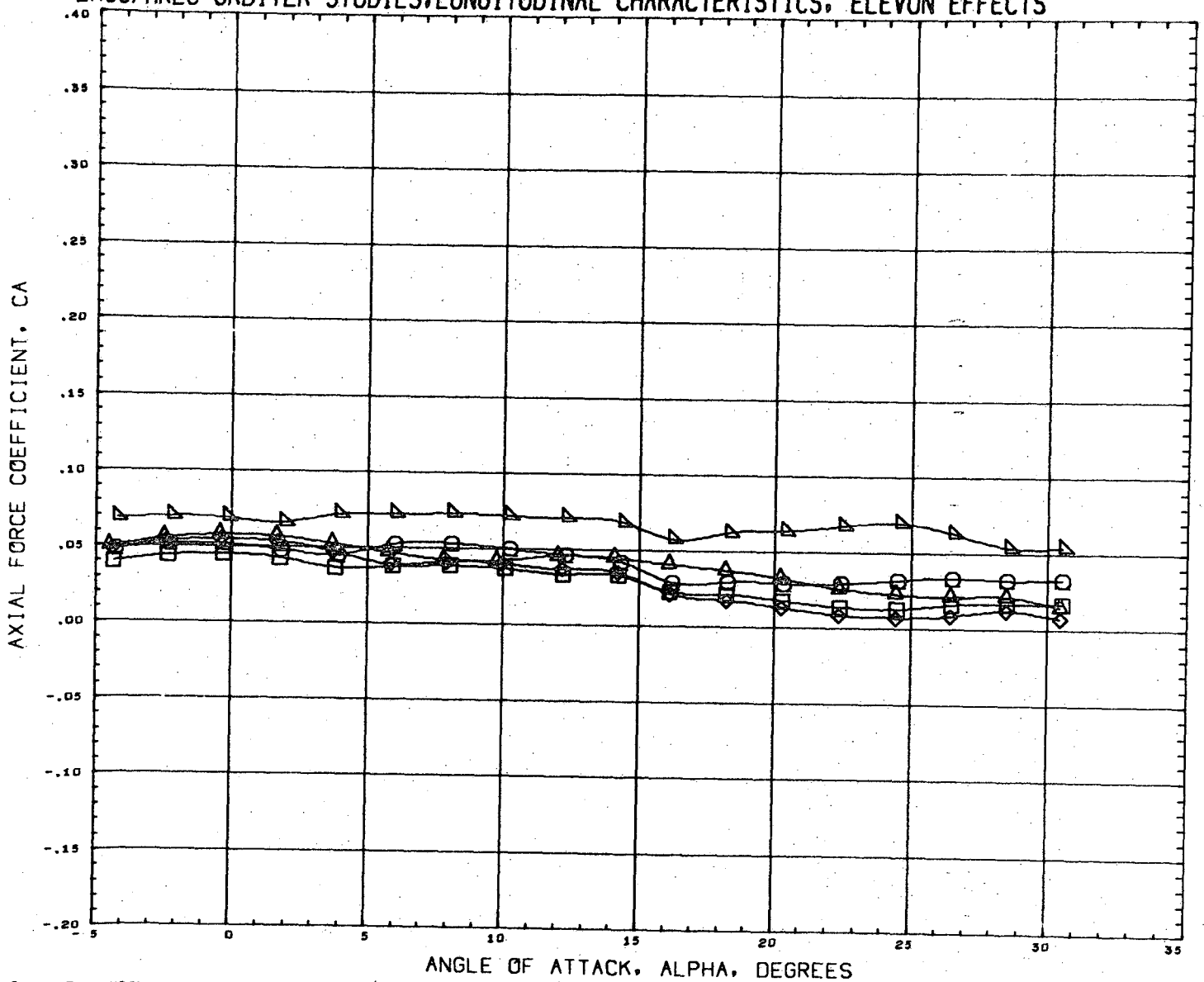


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



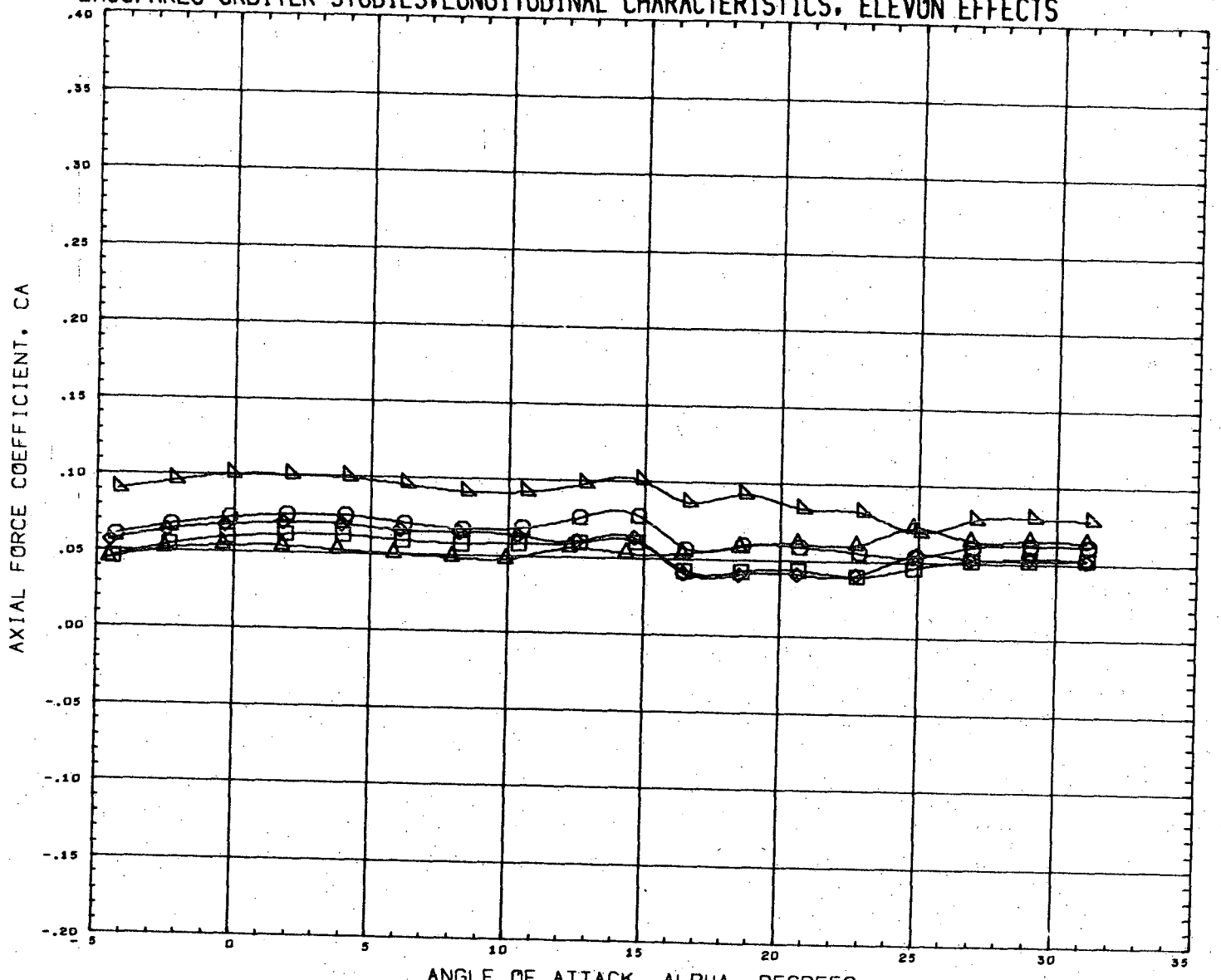
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

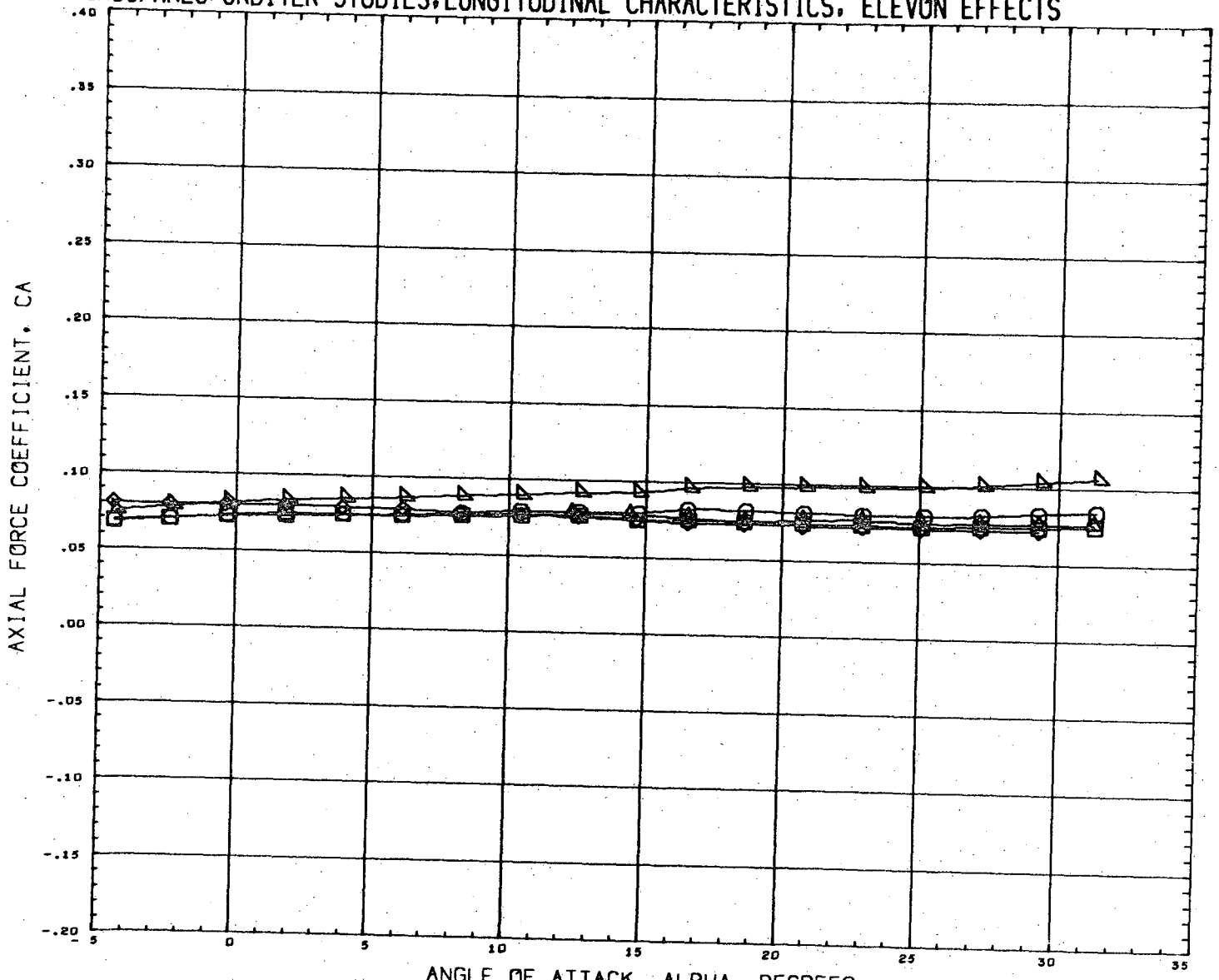


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T) ⬡	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(D3605S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3619S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3618S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3617S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

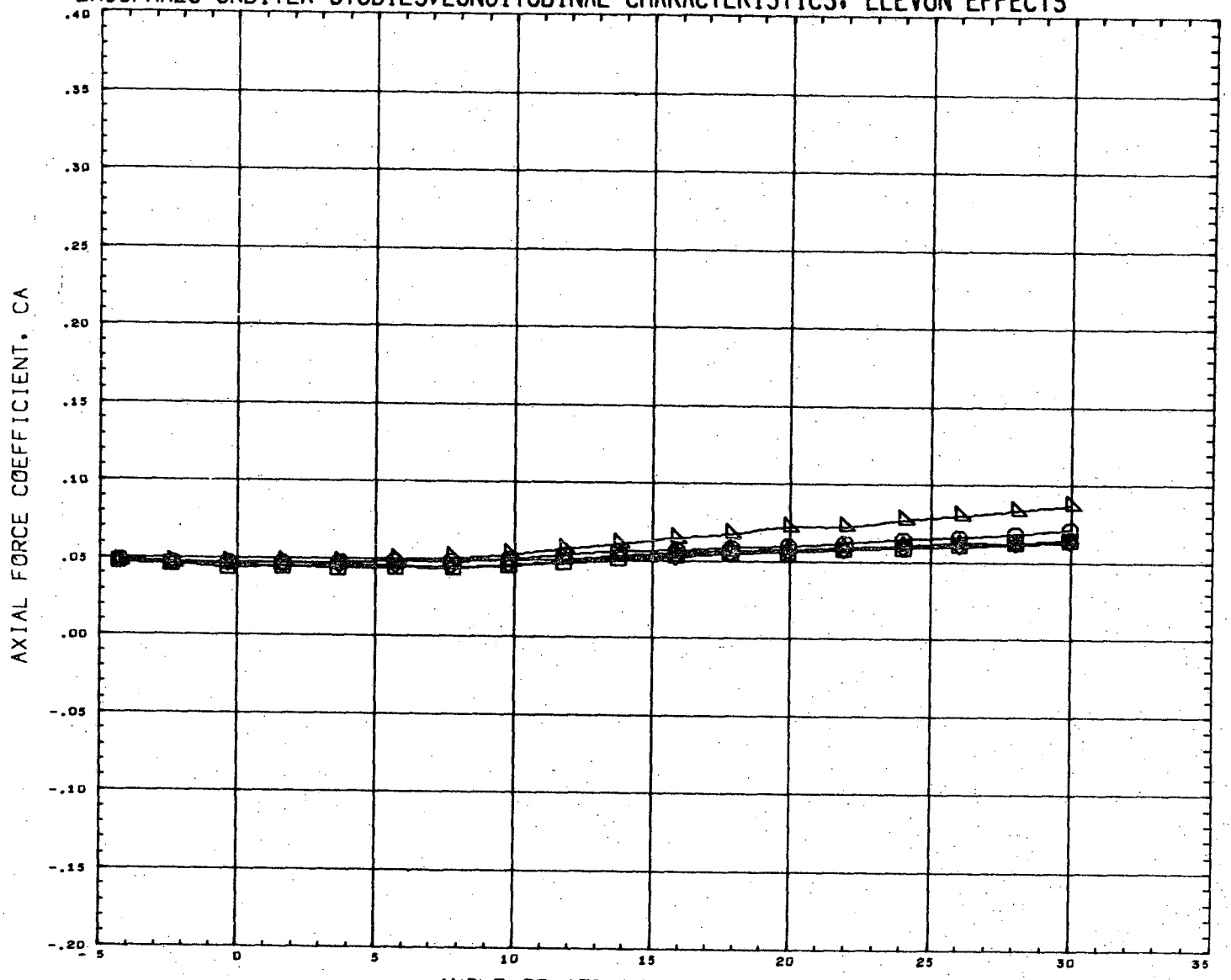
MACH 1.966

BETA	ELEVN1	RUDER3
0.000	-30.000	0.000
0.000	-20.000	0.000
0.000	-10.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

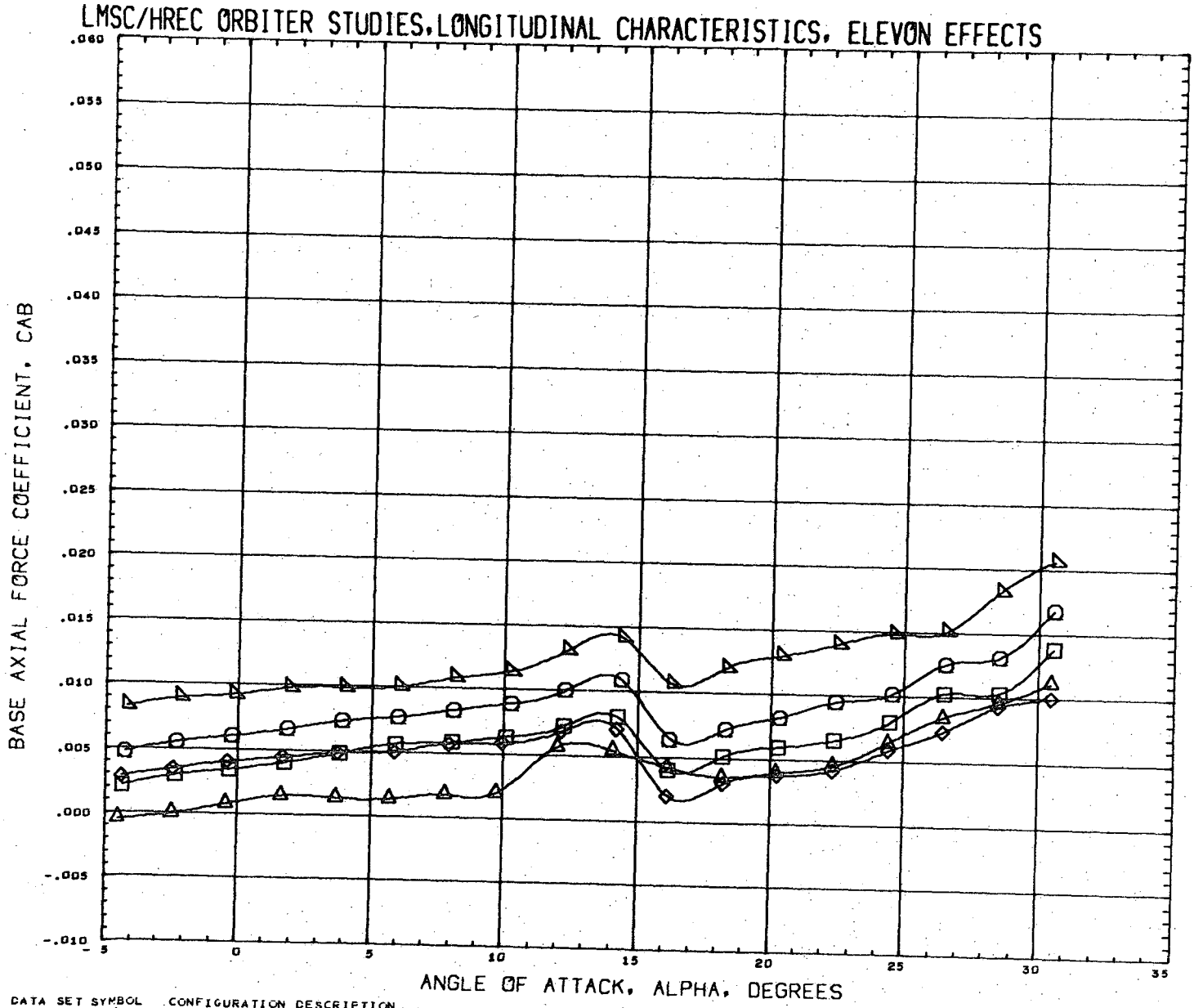


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	
(D3605S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3619S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3618S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3617S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

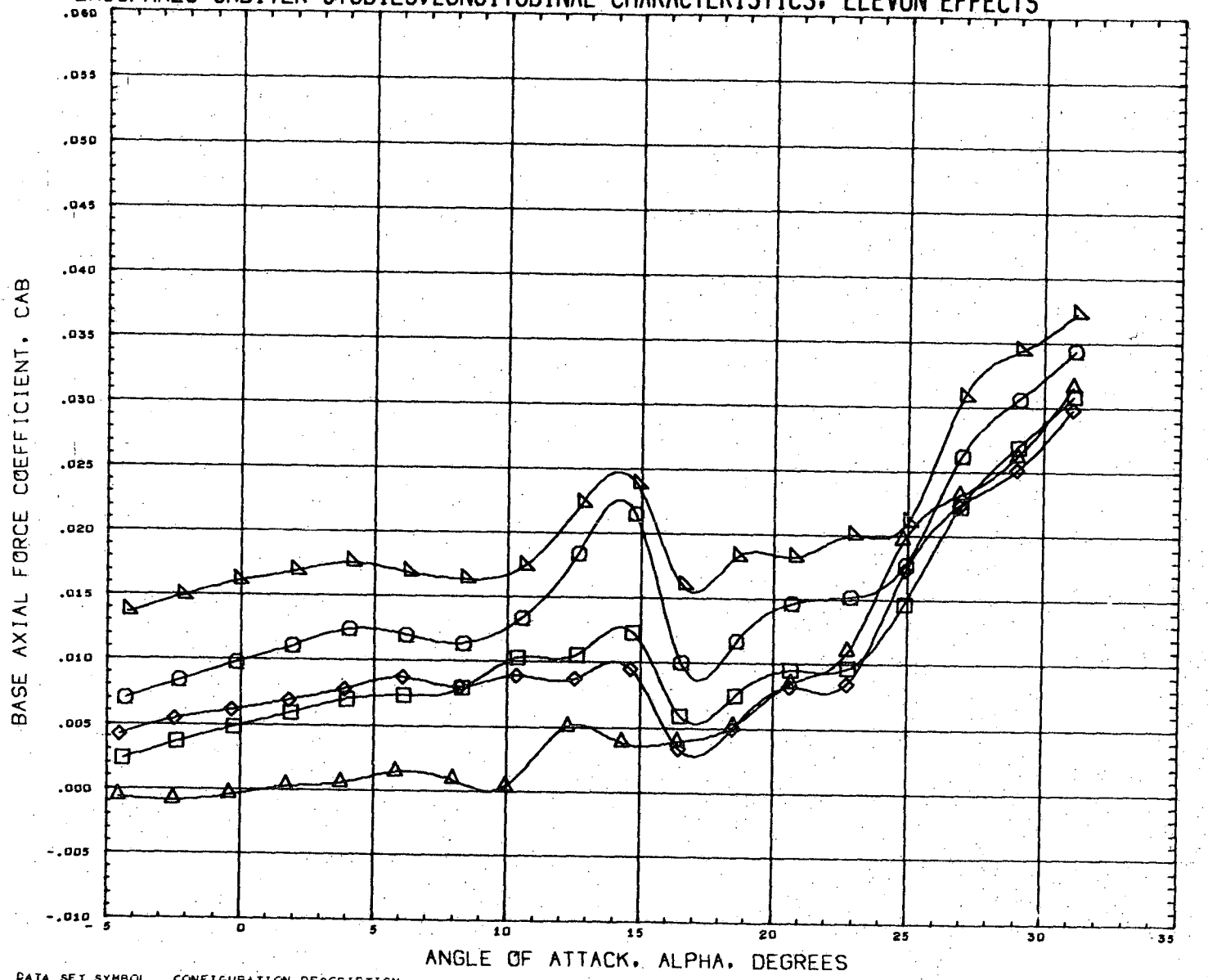
MACH 0.591

BETA	ELEVN1	RUDER3
0.000	-30.000	0.000
0.000	-20.000	0.000
0.000	-10.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

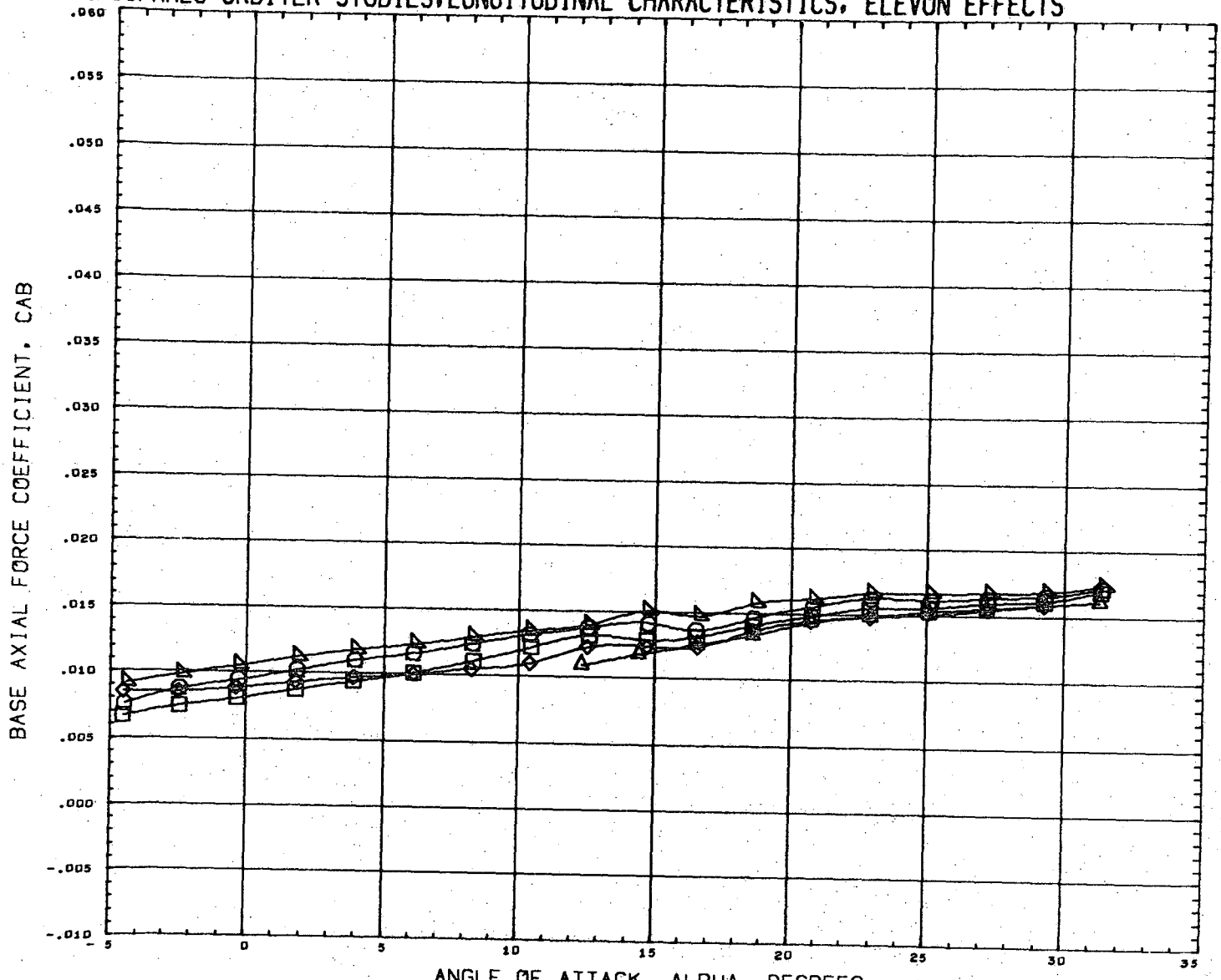


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



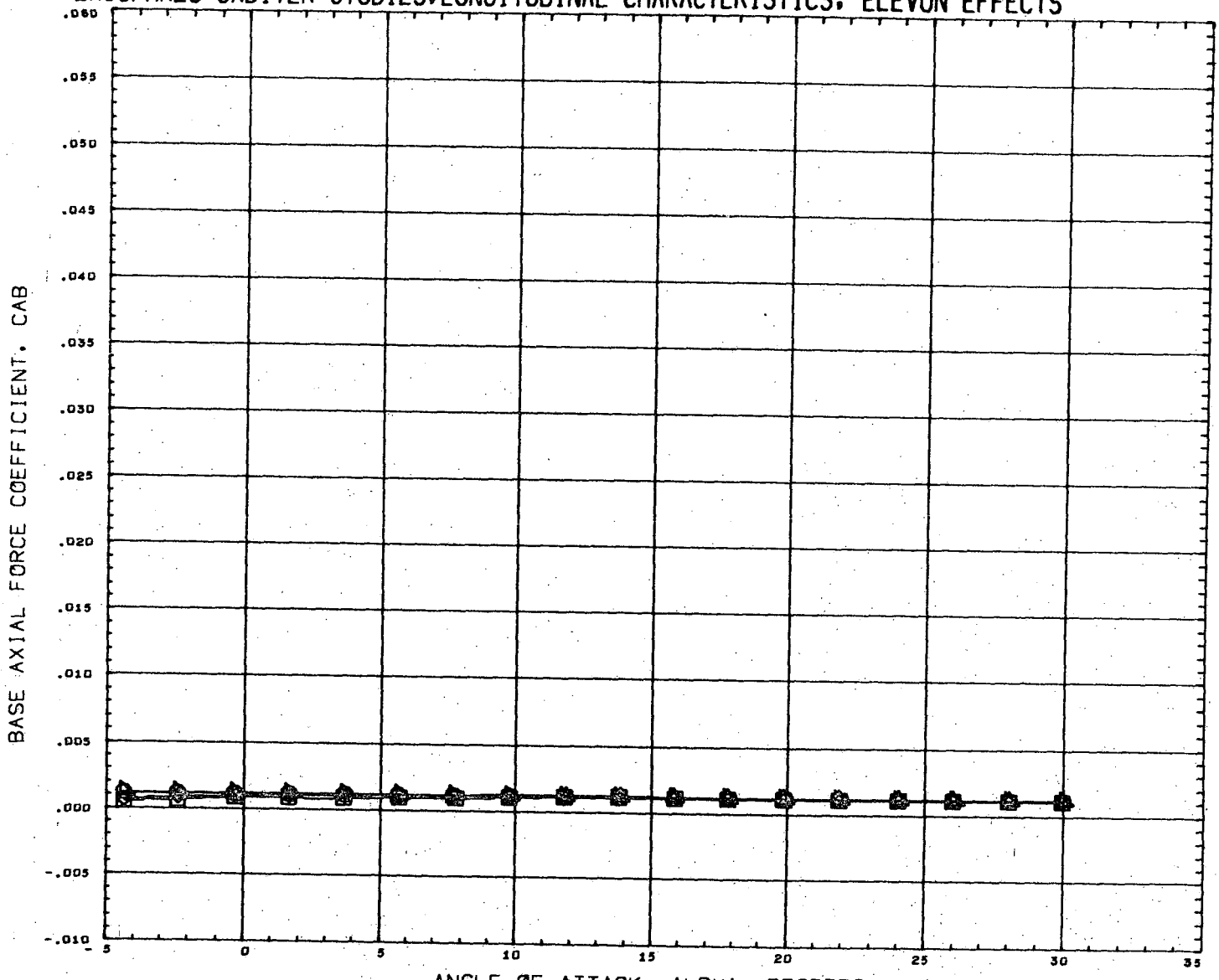
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. ELEVON EFFECTS

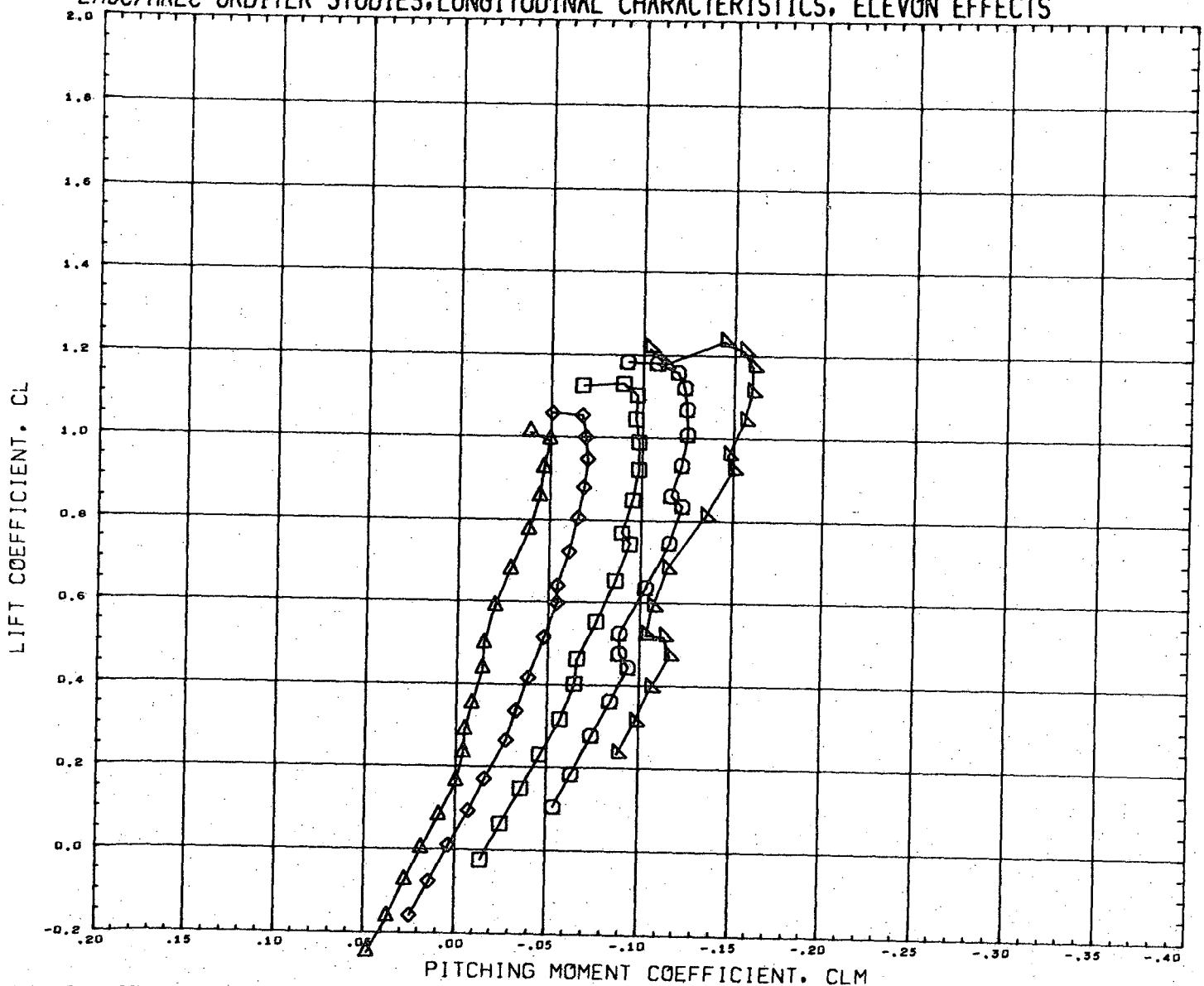


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



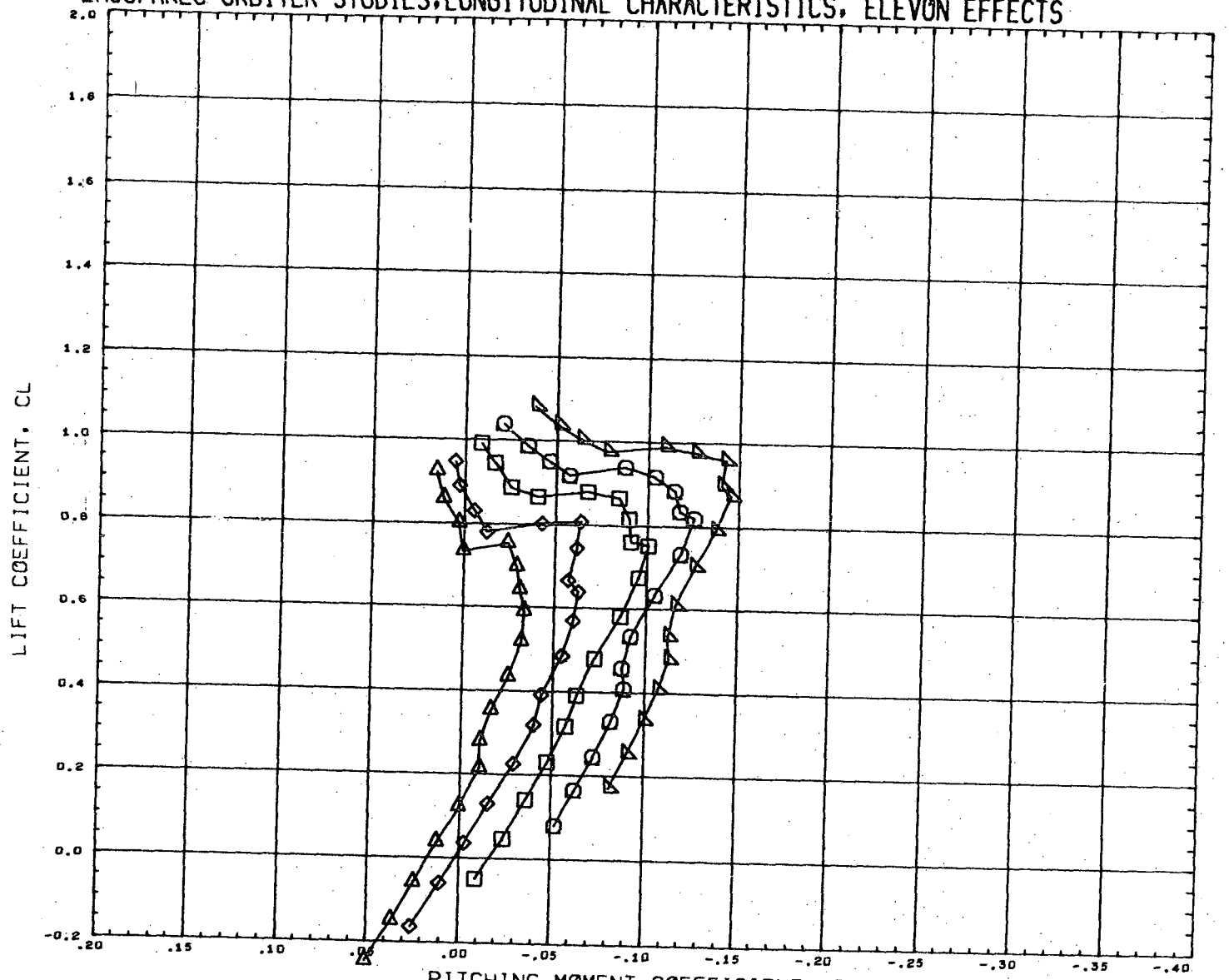
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS

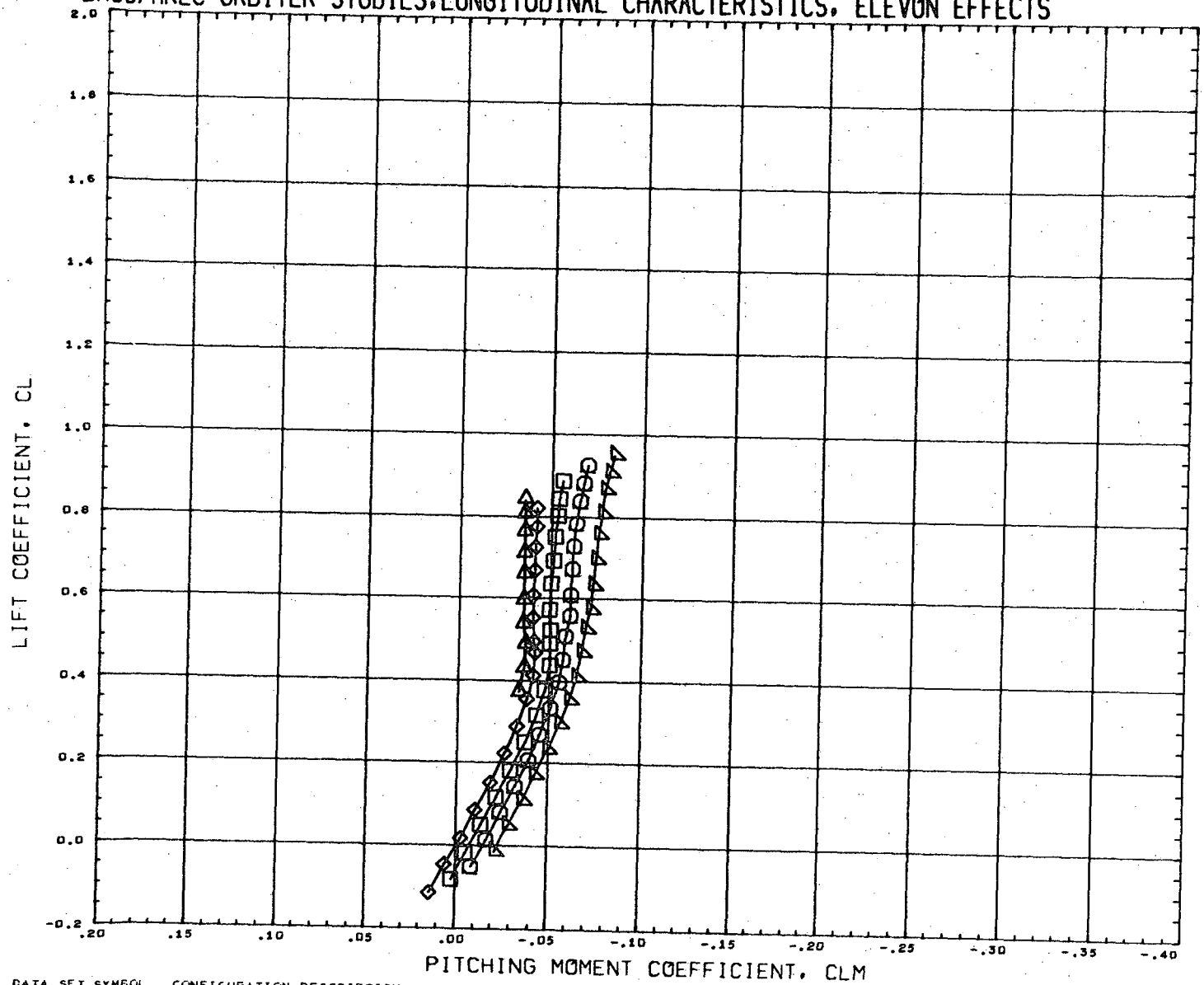


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(D3617S)	▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

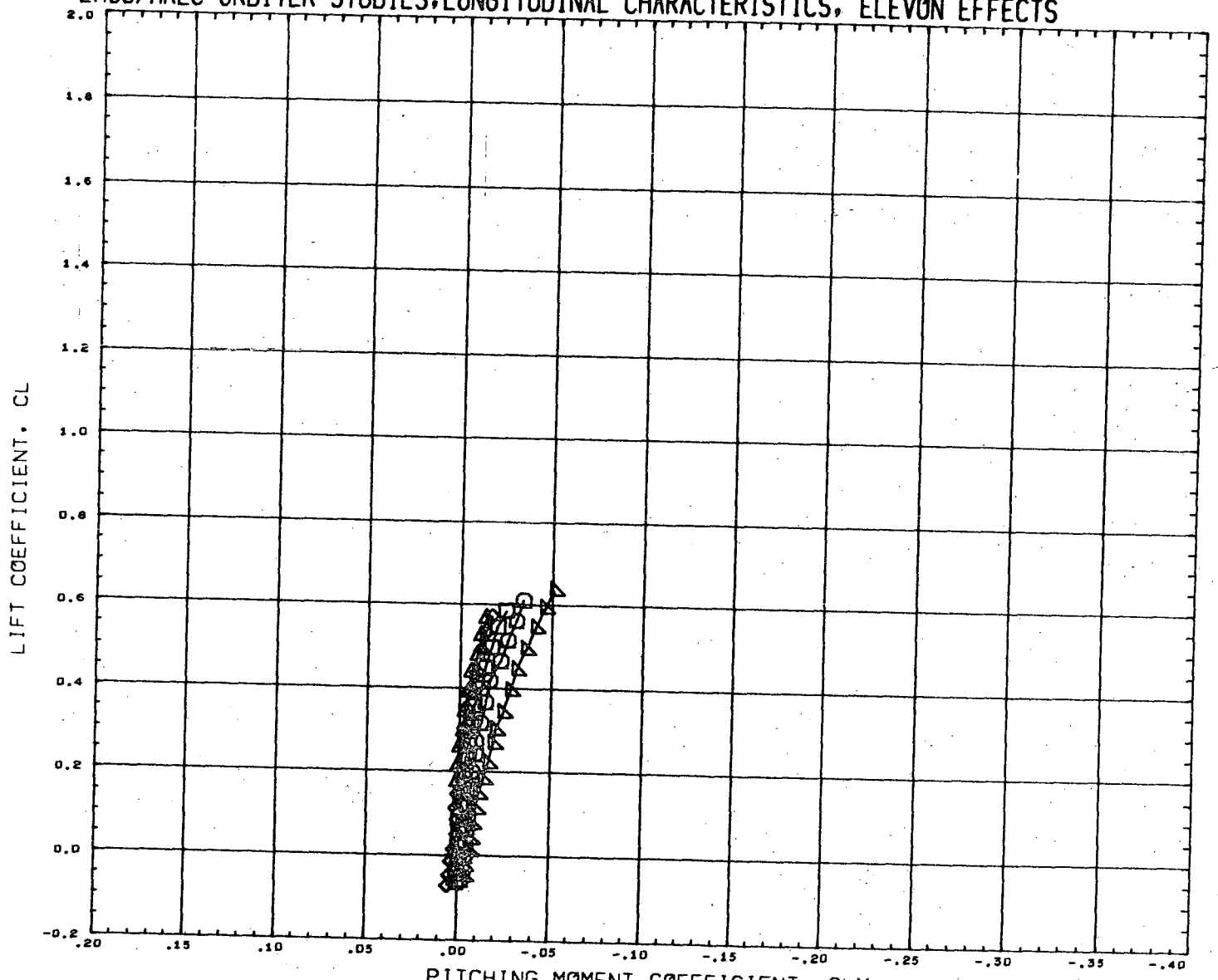
MACH 1.966

BETA	ELEVN1	RUDER3
0.000	-30.000	0.000
0.000	-20.000	0.000
0.000	-10.000	0.000
0.000	0.000	0.000
0.000	10.000	0.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, ELEVON EFFECTS



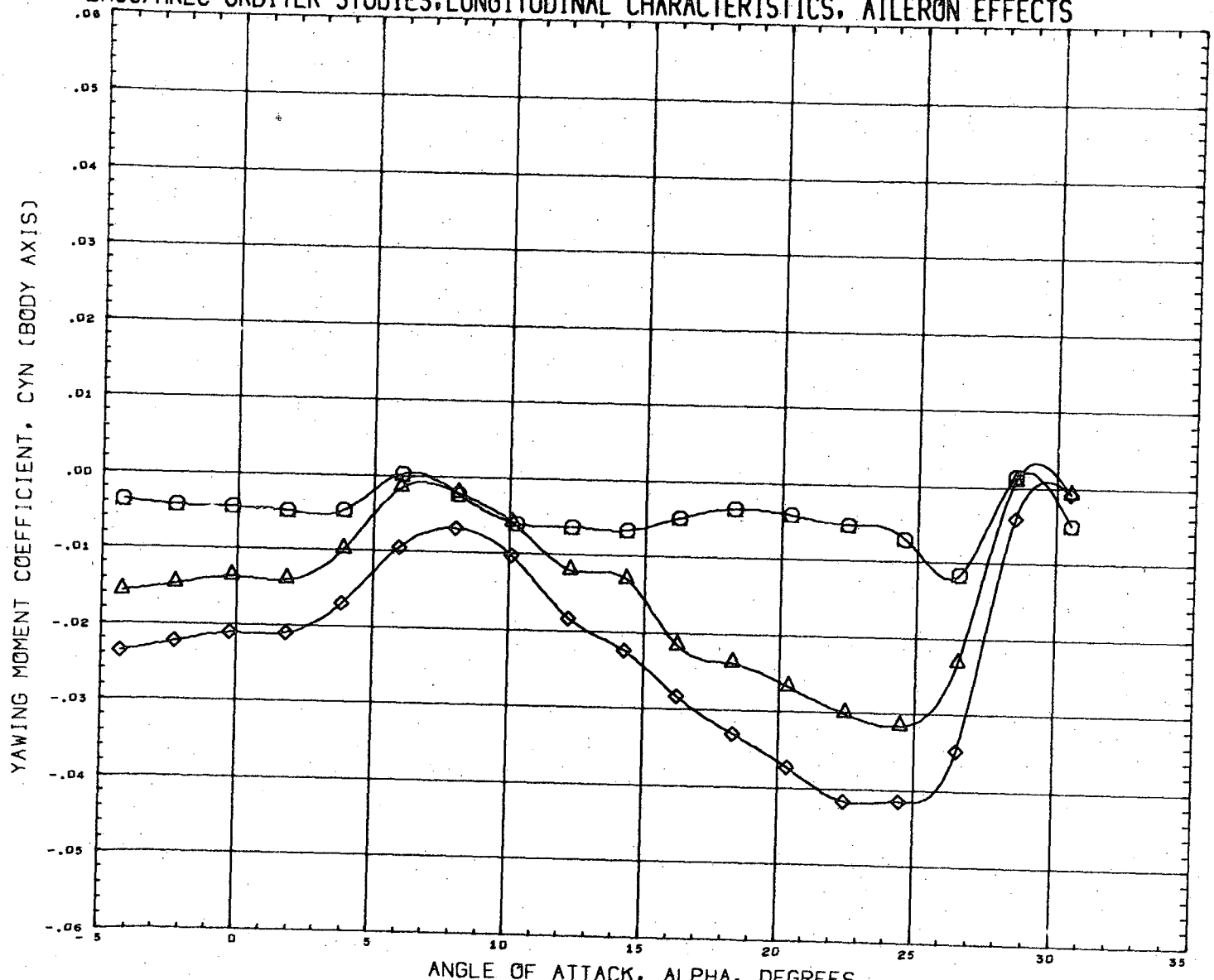
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3619S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3618S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(D3616T)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3617S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION	
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1

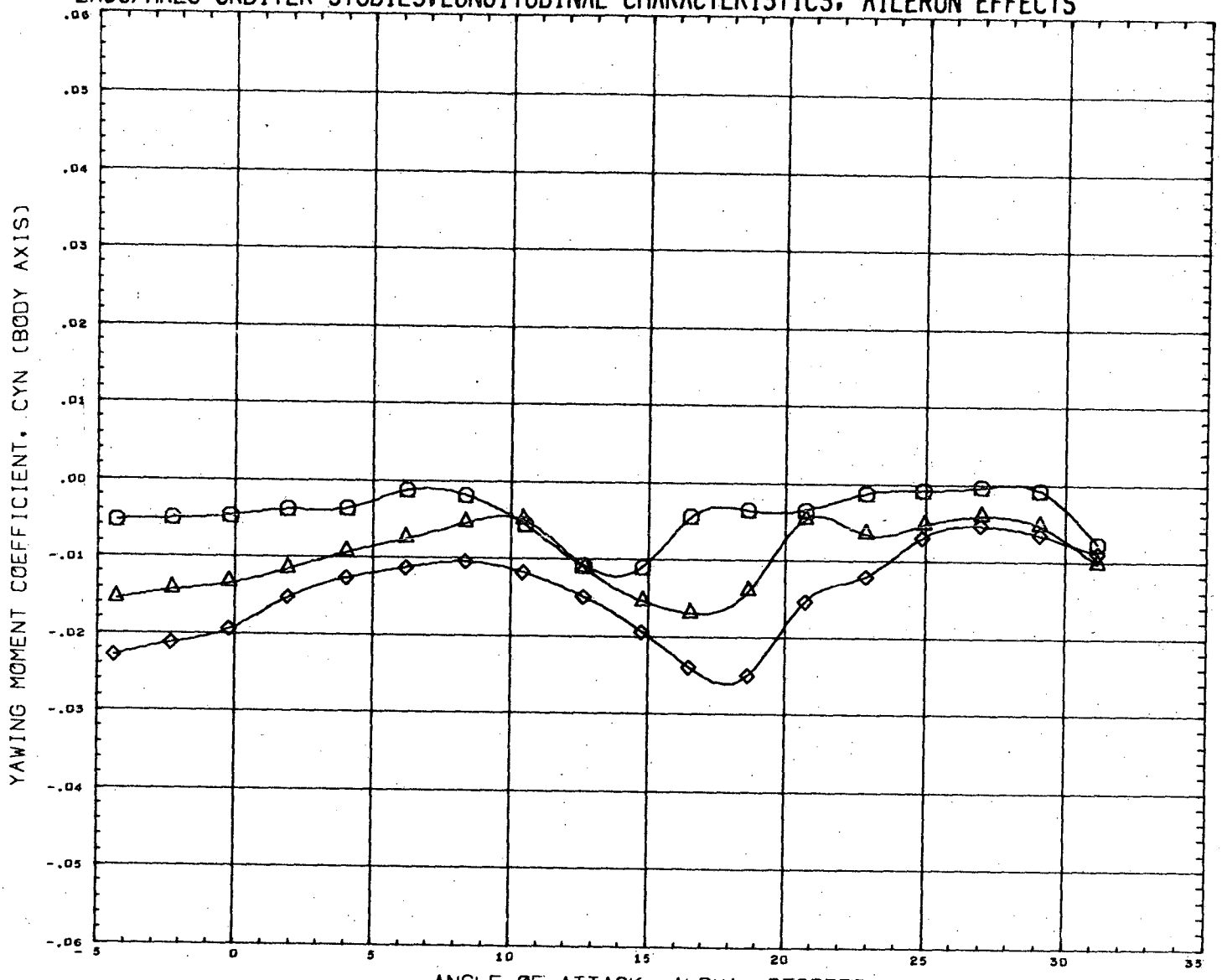
BETA	ELEVN1	RUDER3	AILRON
0.000	0.000	0.000	
0.000	0.000	0.000	10.000
0.000	0.000	0.000	20.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. AILERON EFFECTS

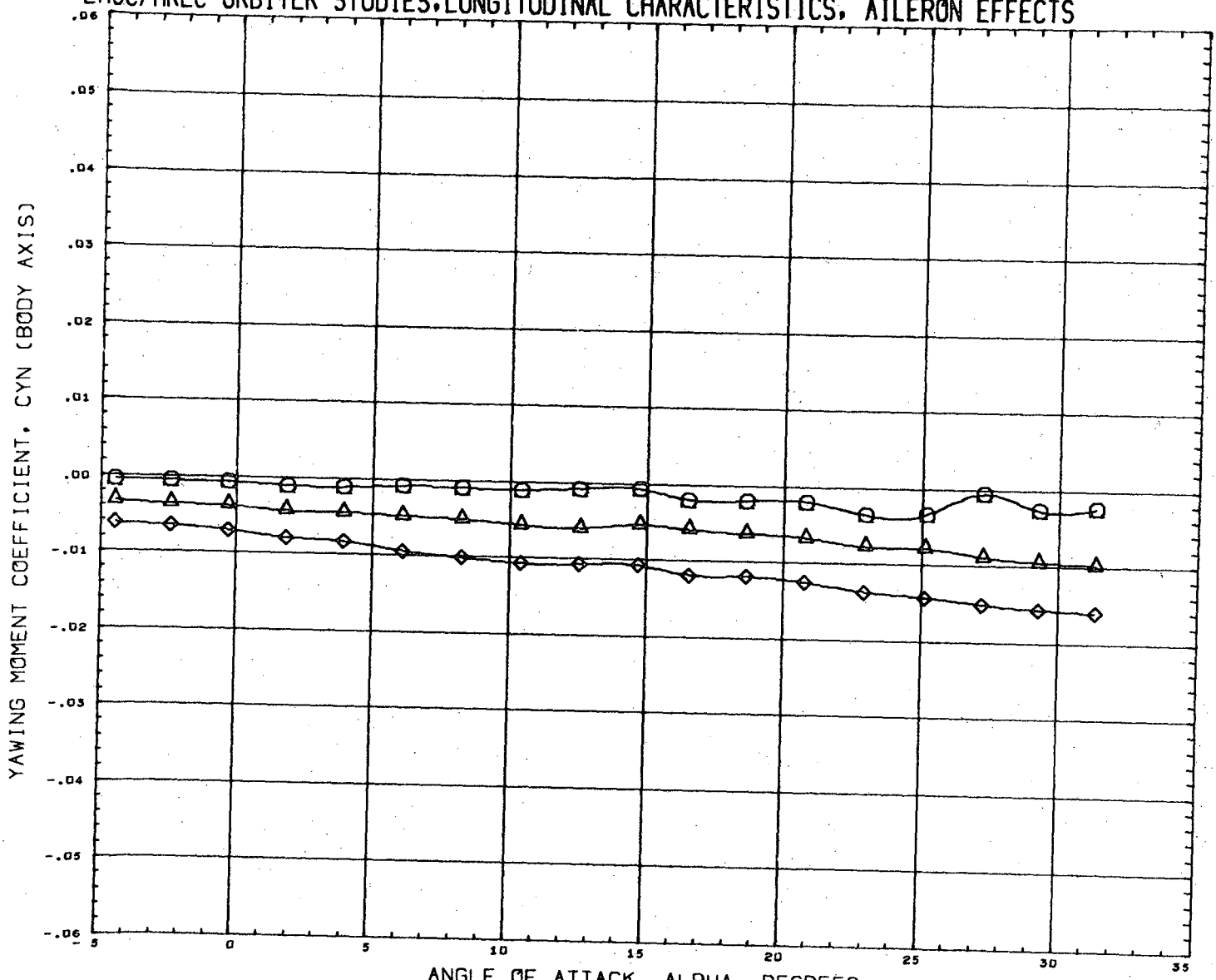


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

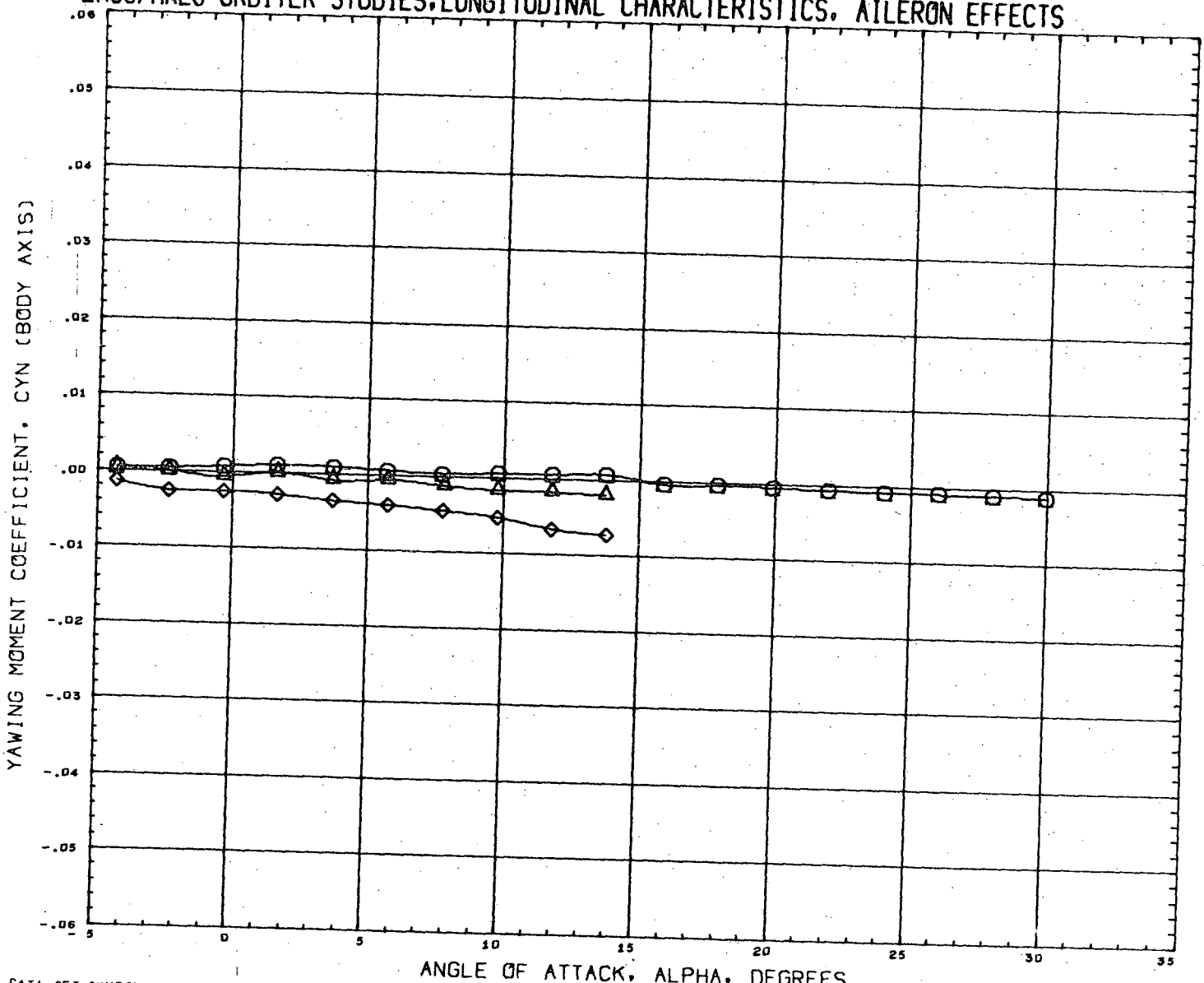


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.974

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

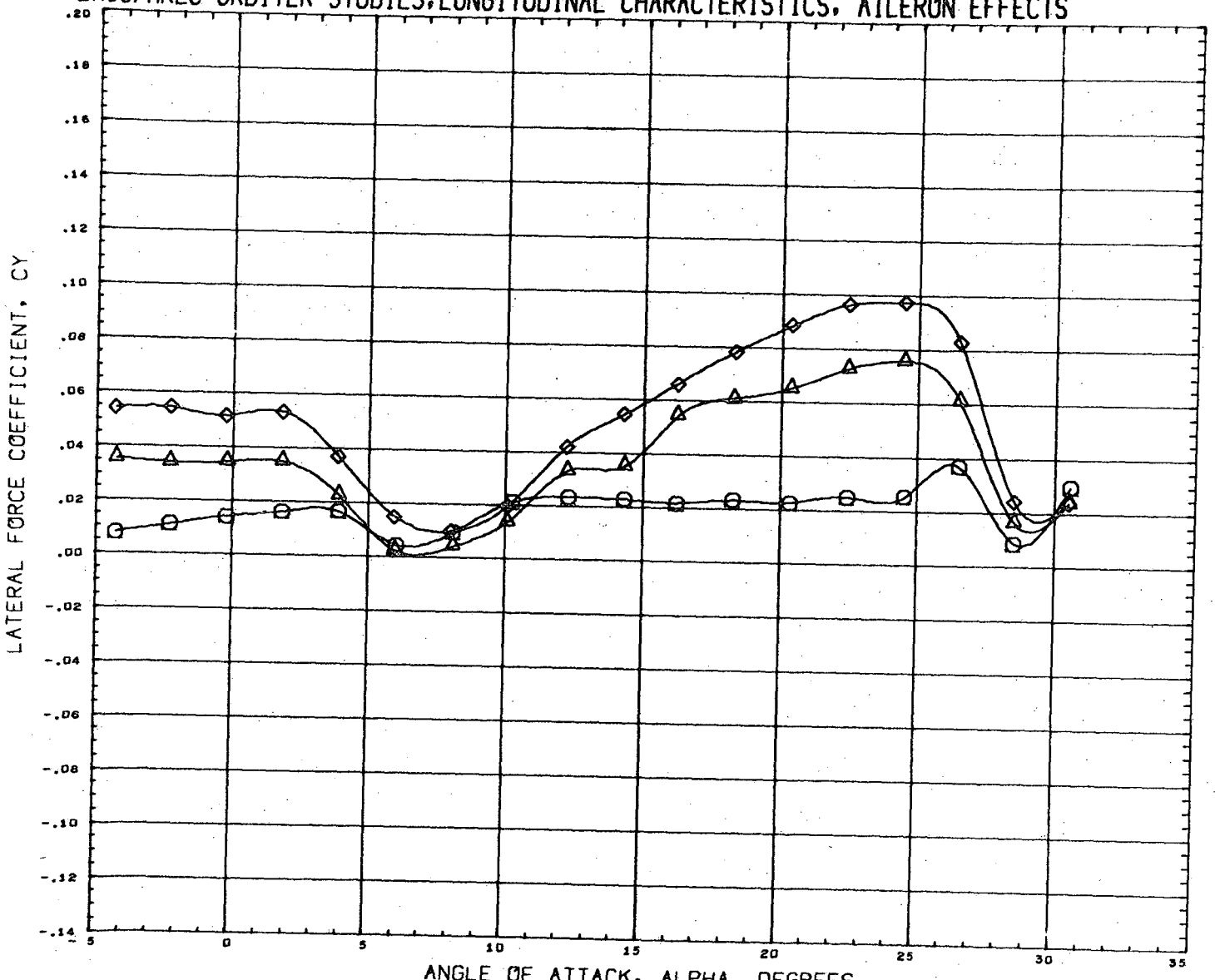


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

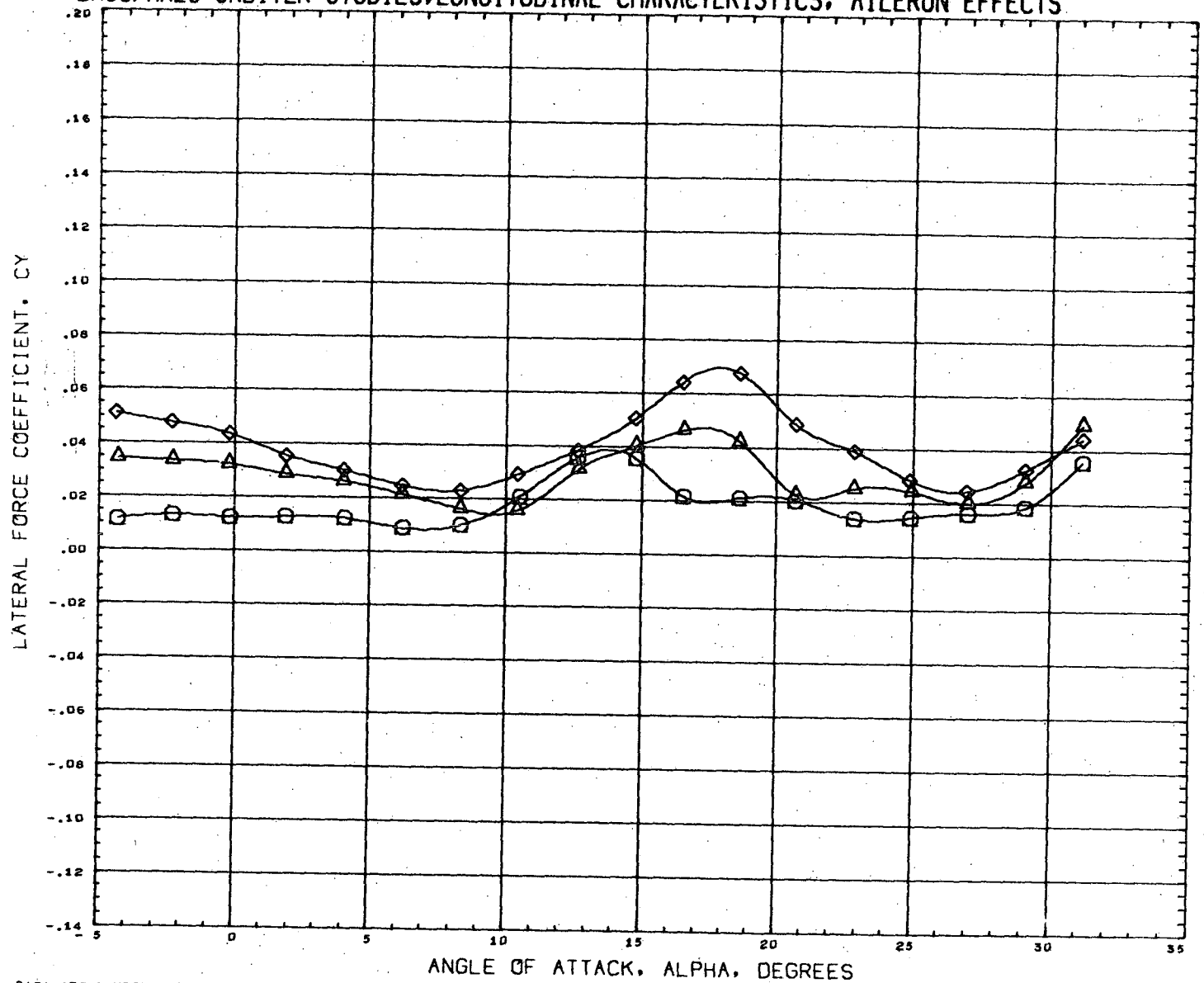


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

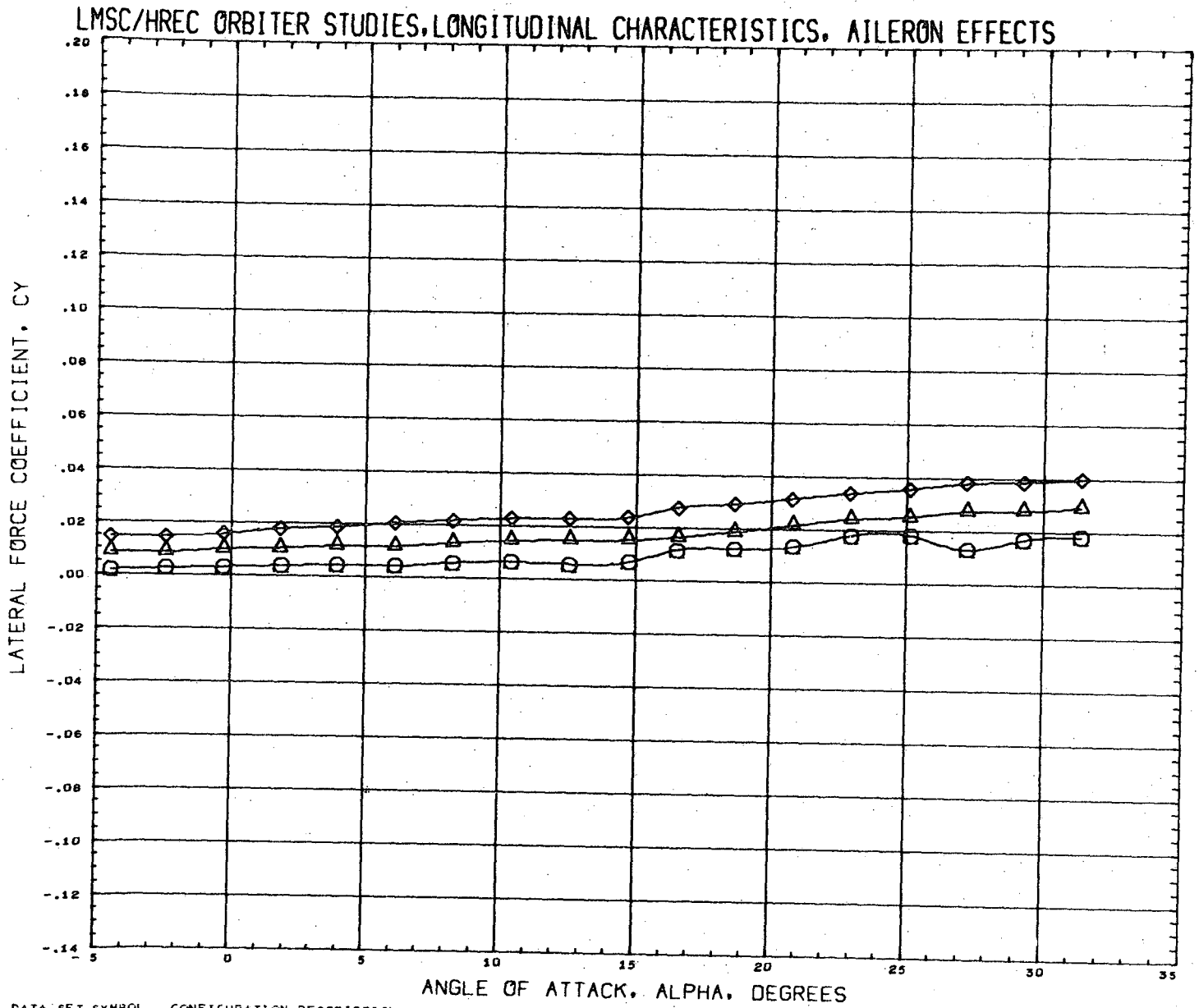
LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

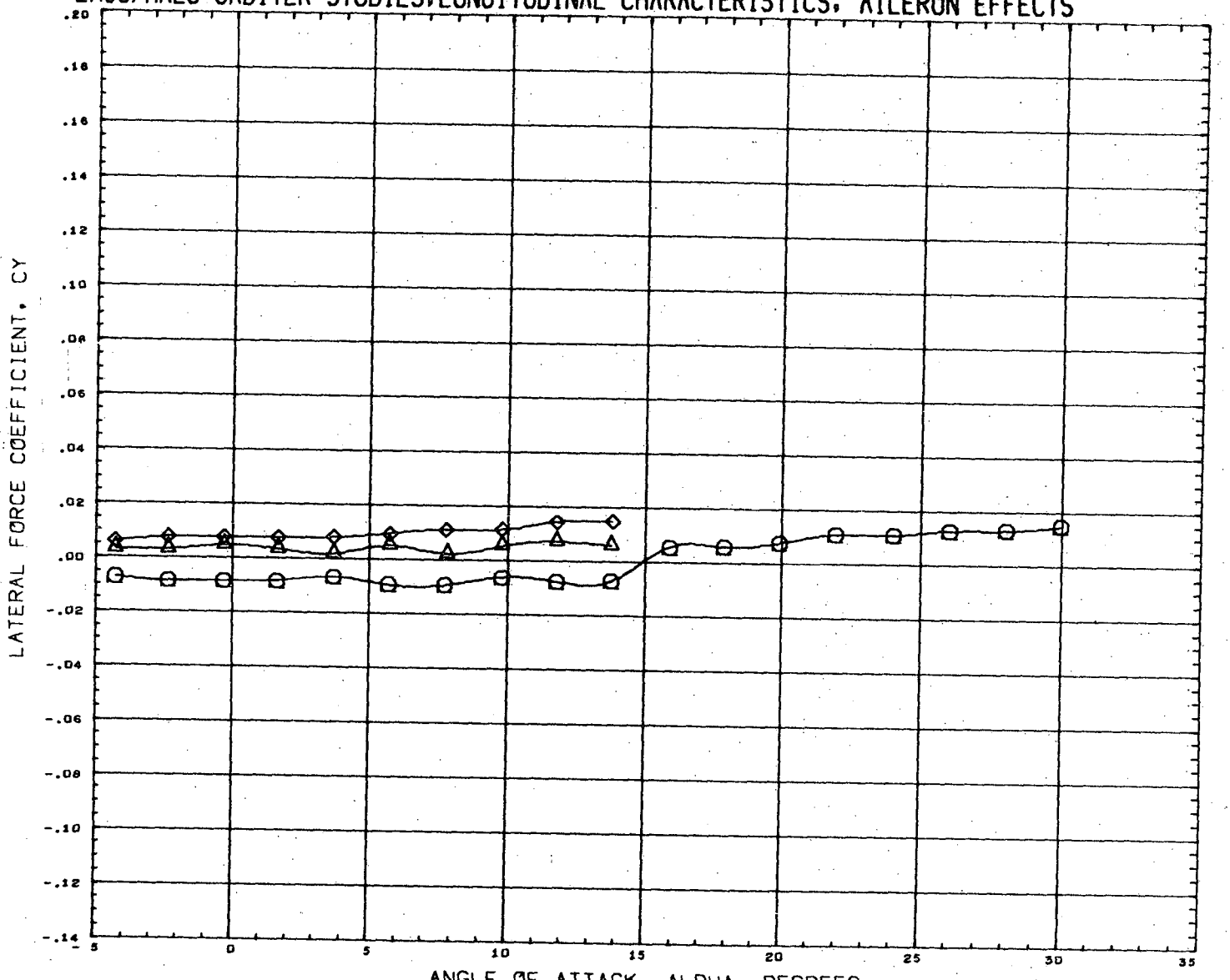


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.974

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

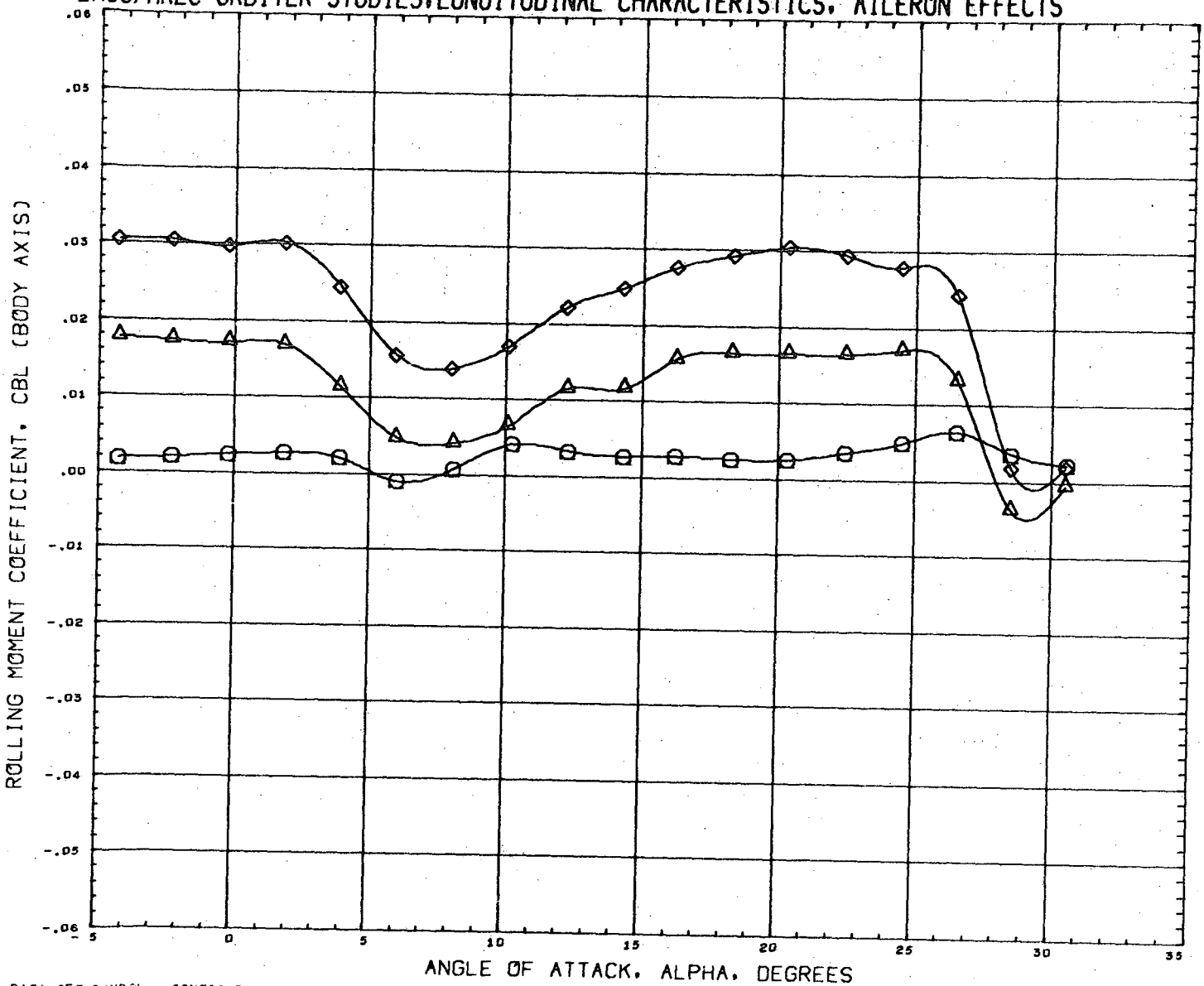


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

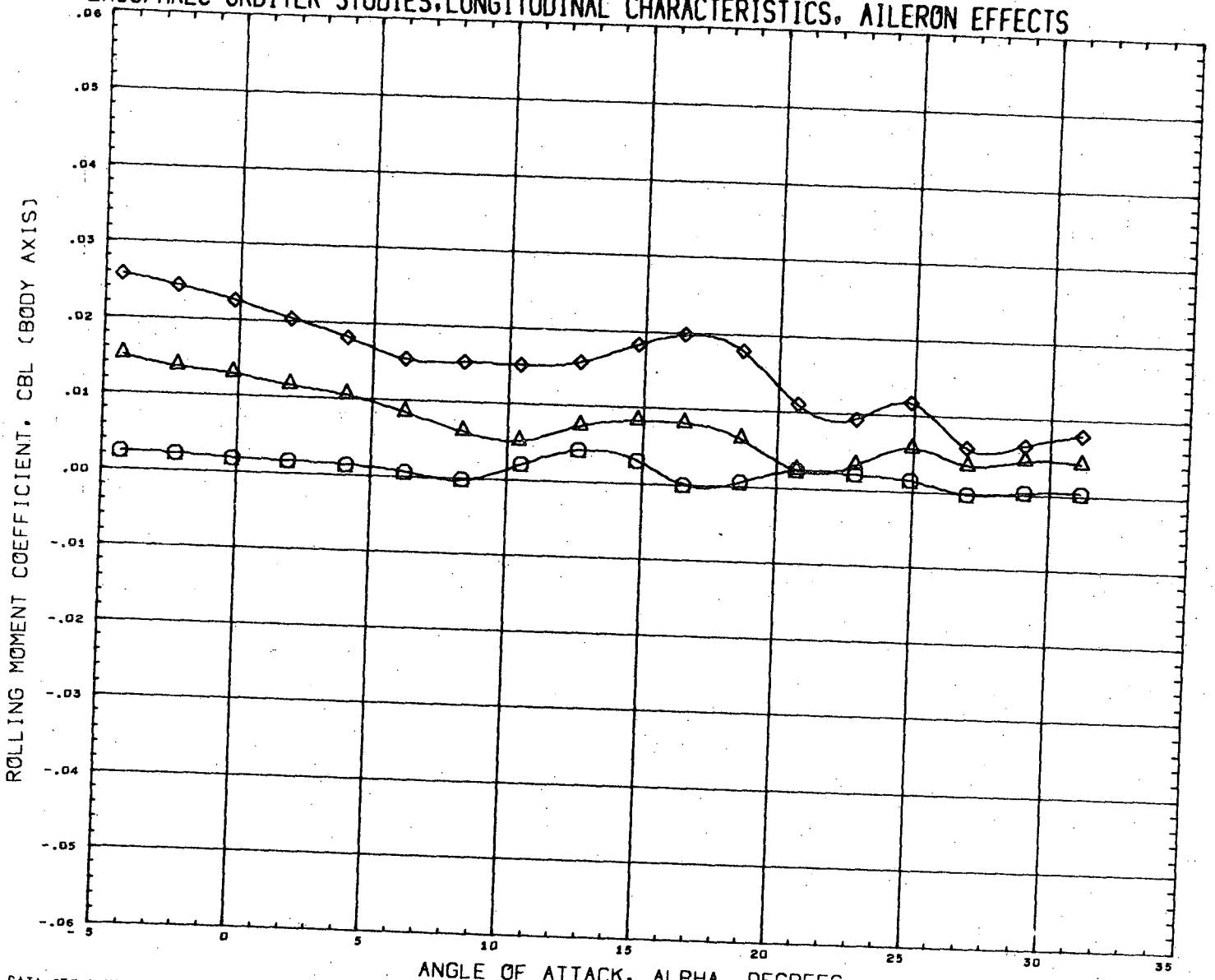


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS



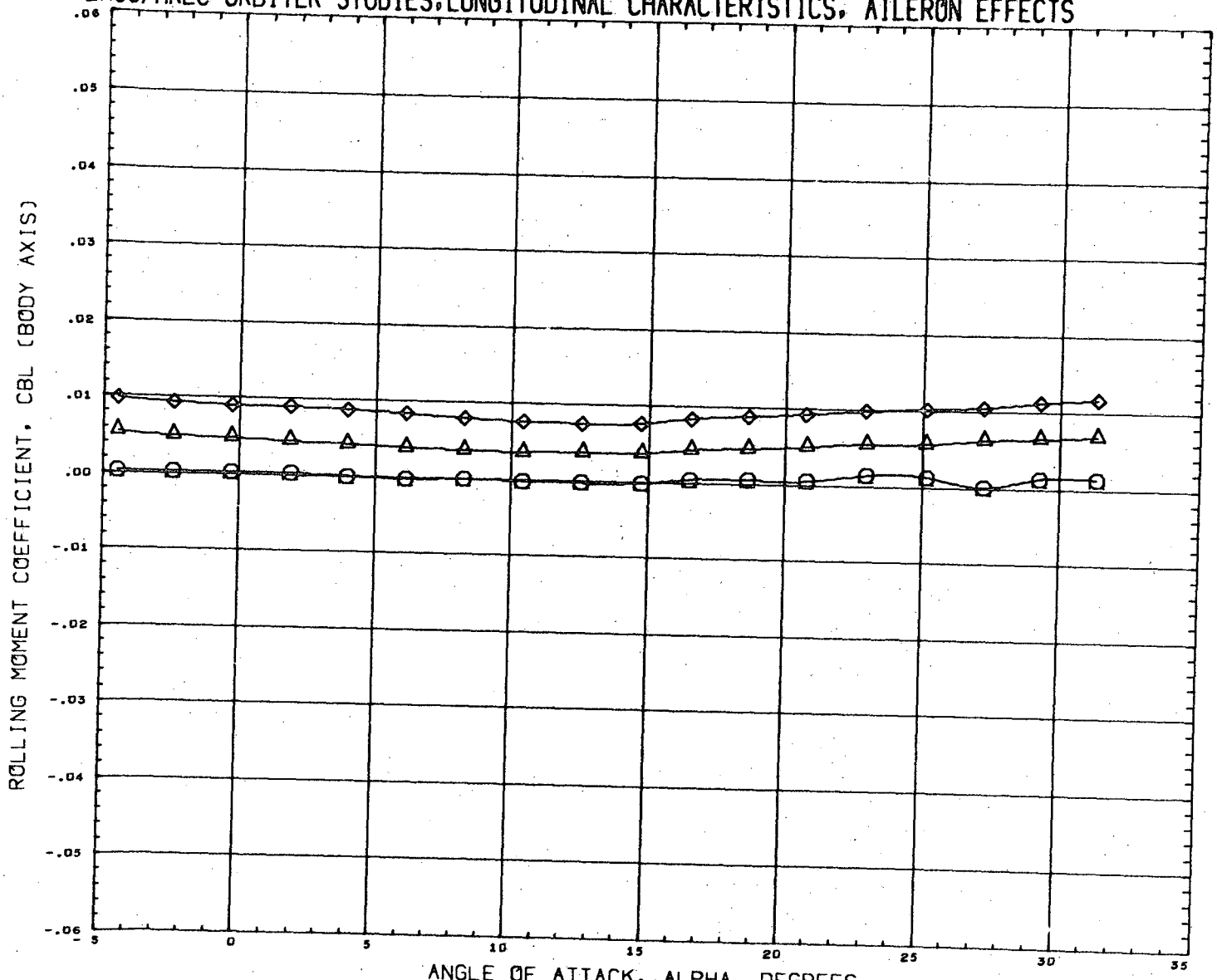
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS

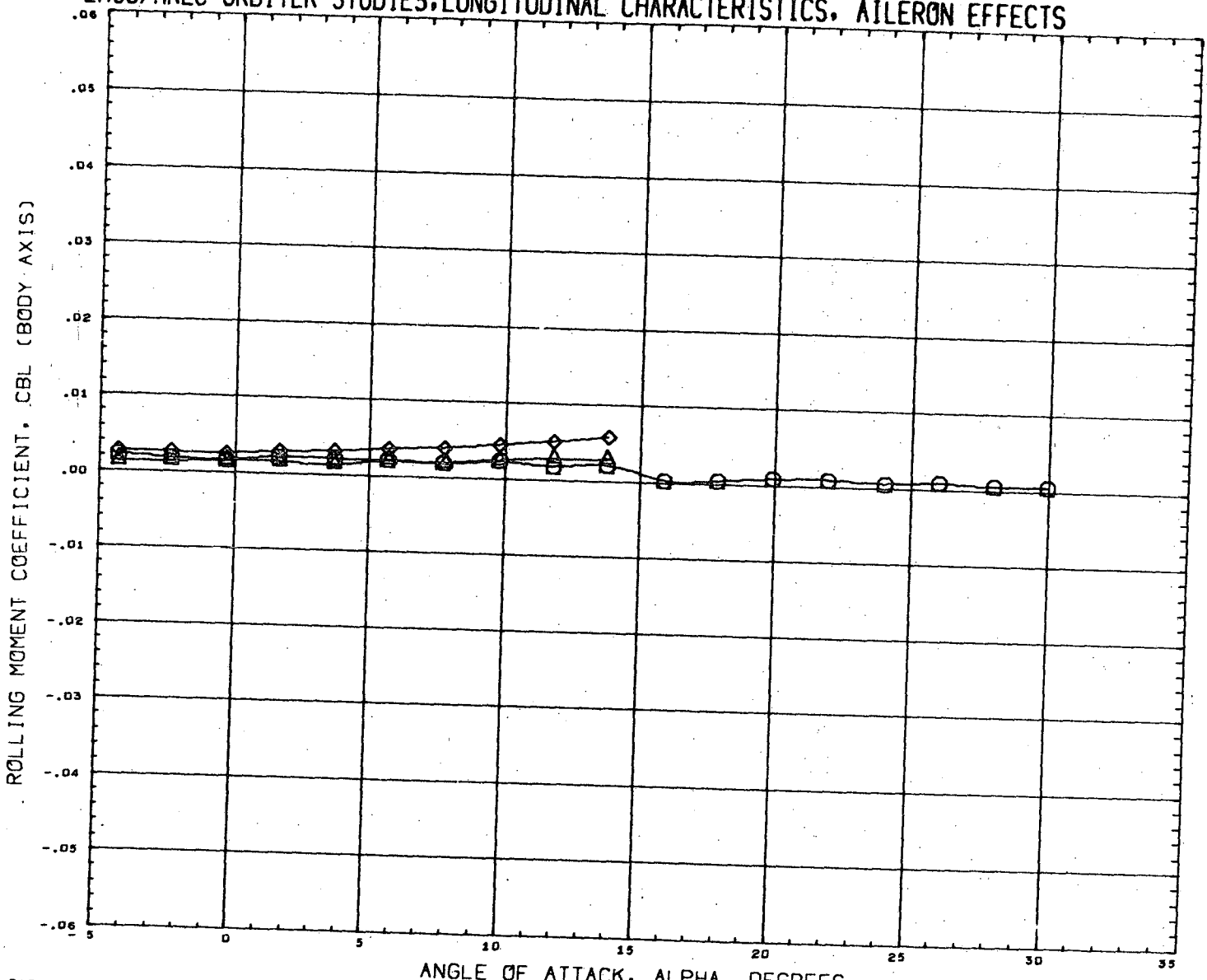


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.974

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

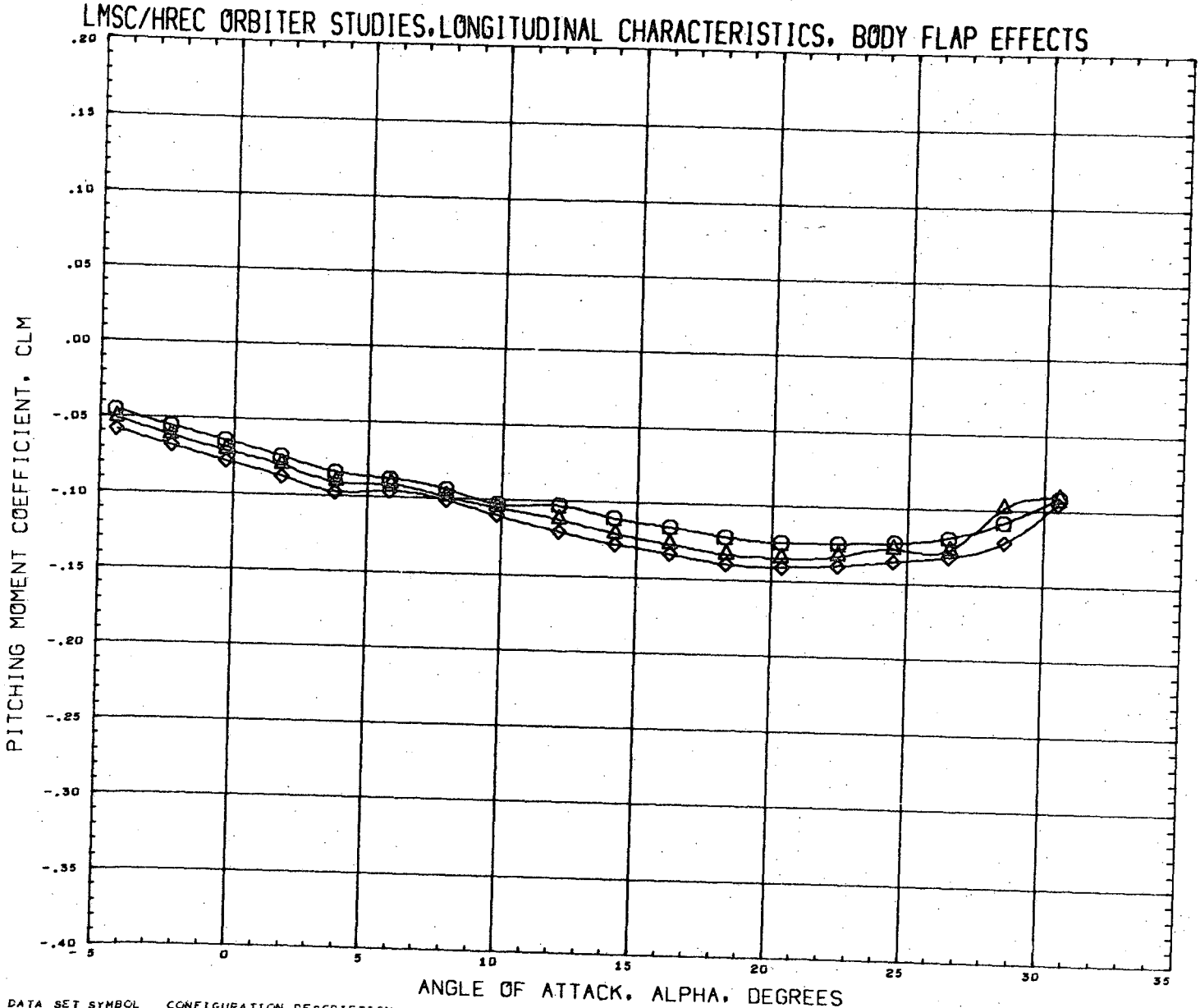
LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, AILERON EFFECTS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3616T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(A3620S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(A3621S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 4.959

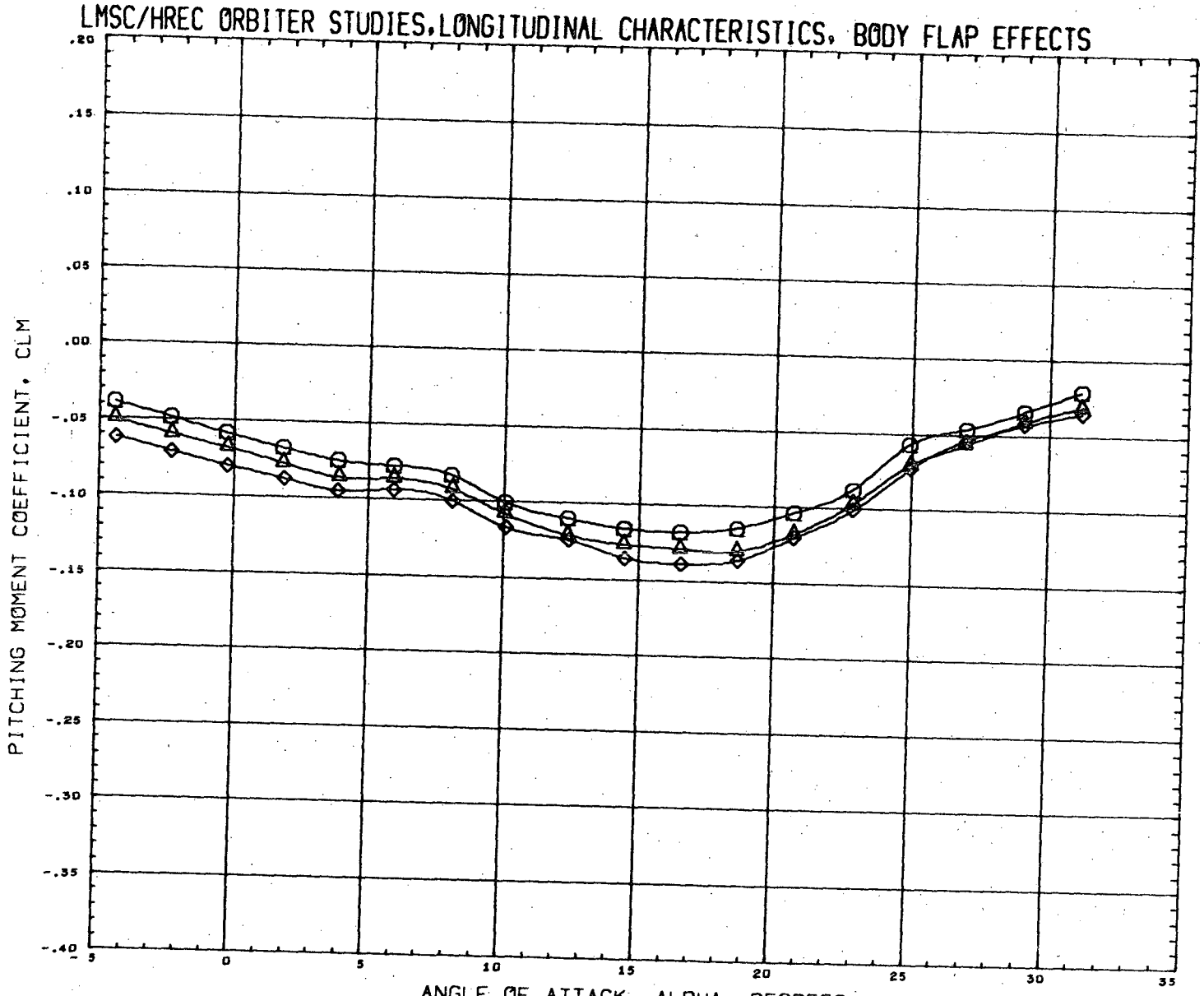
REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

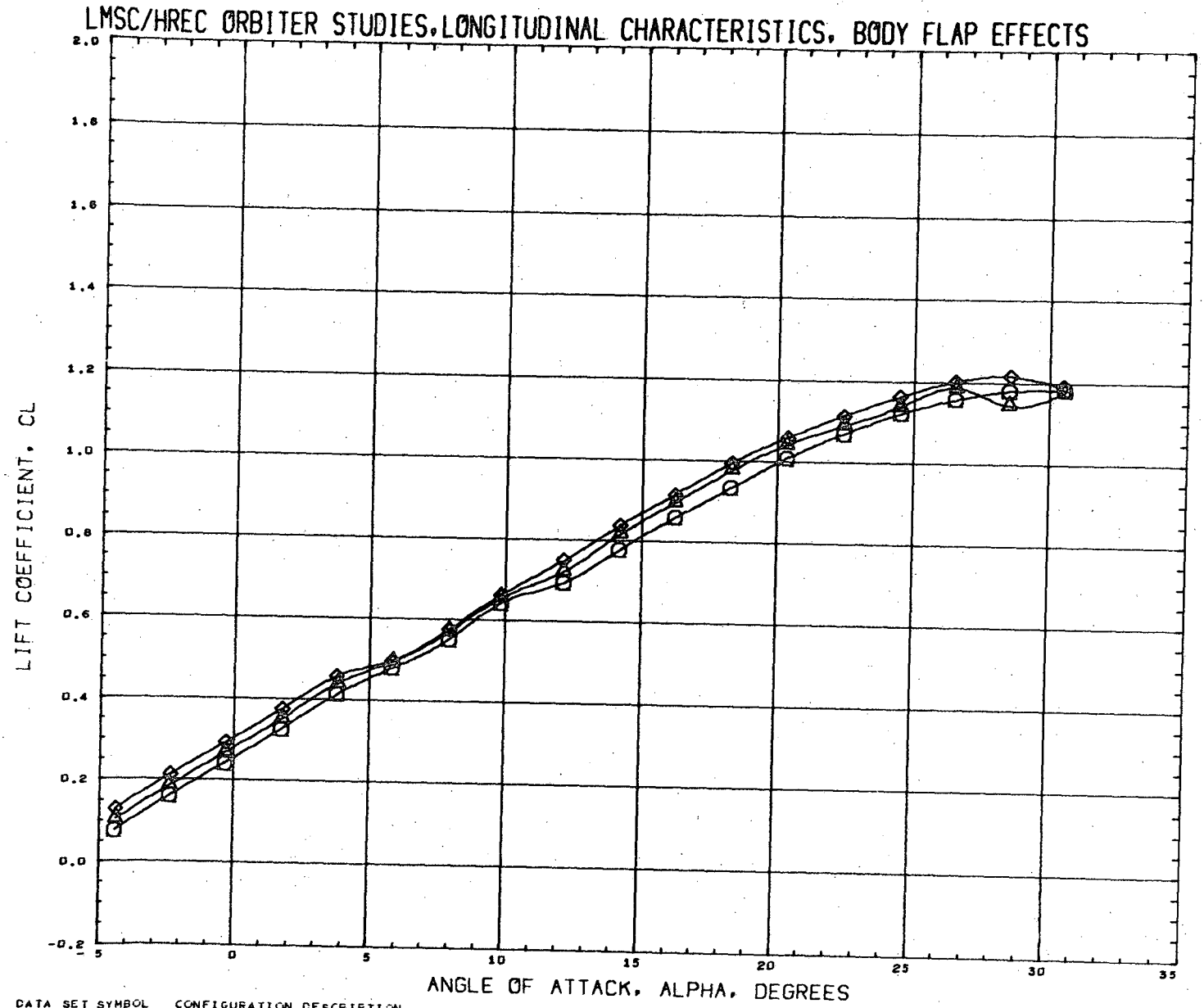
REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

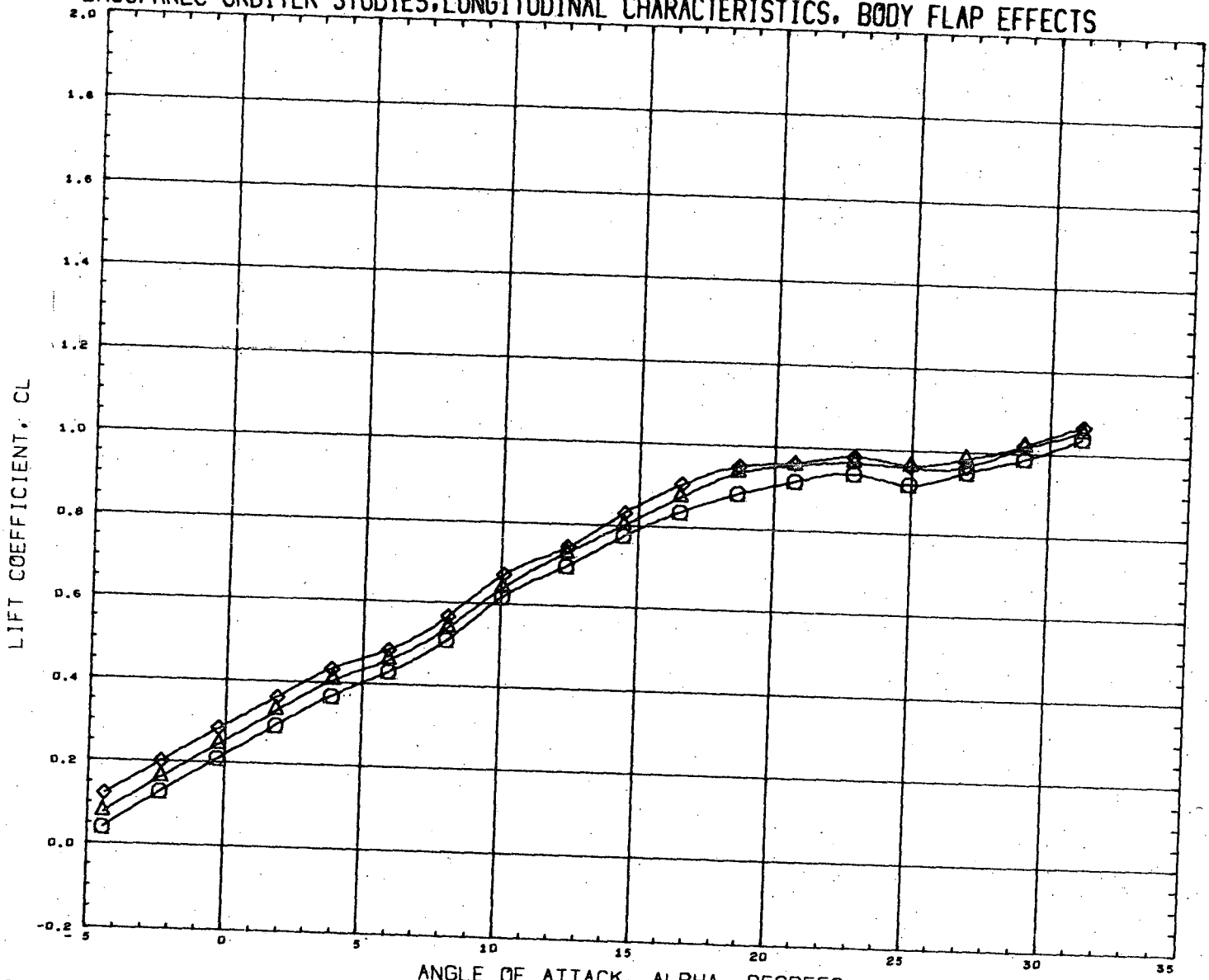


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

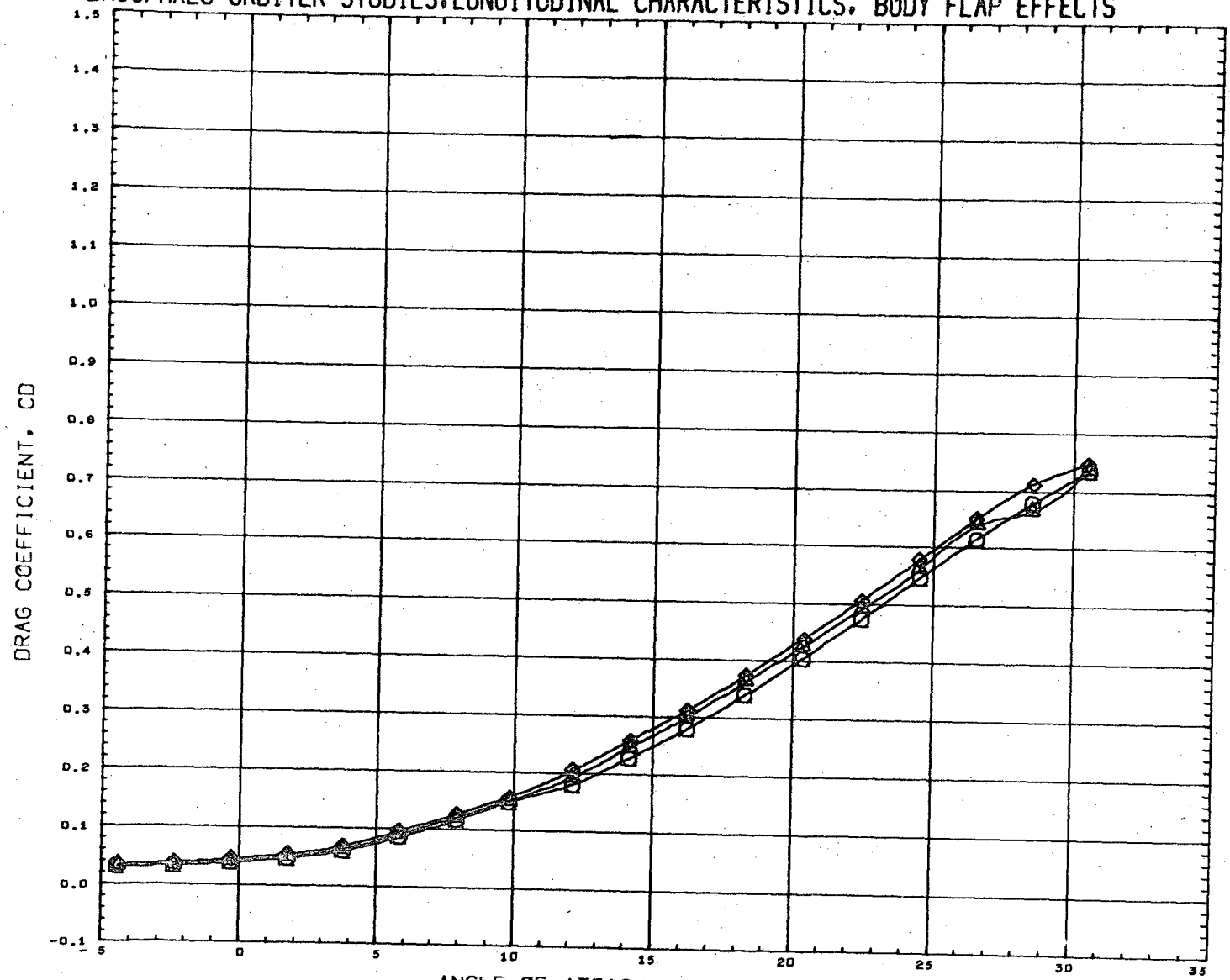


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

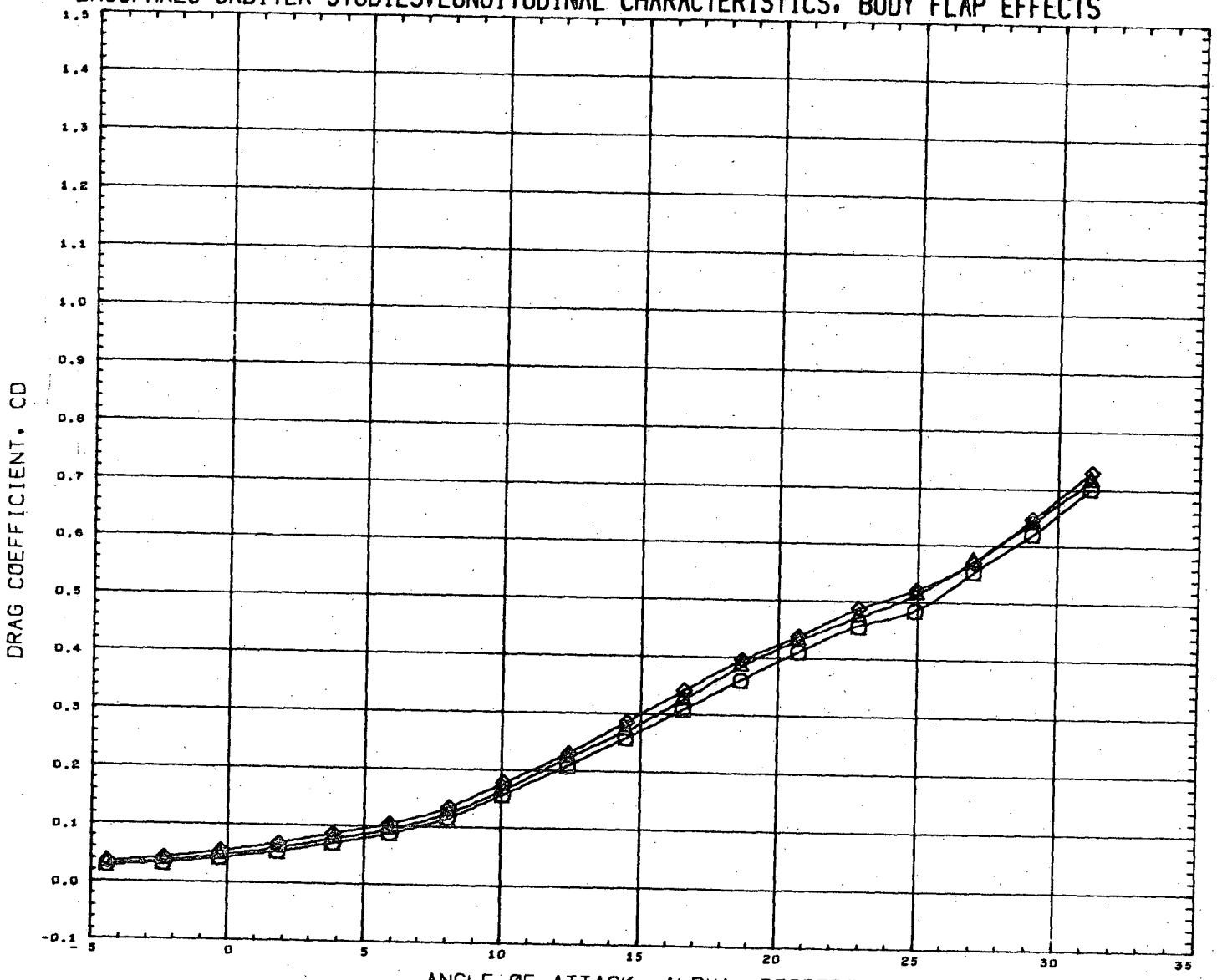


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

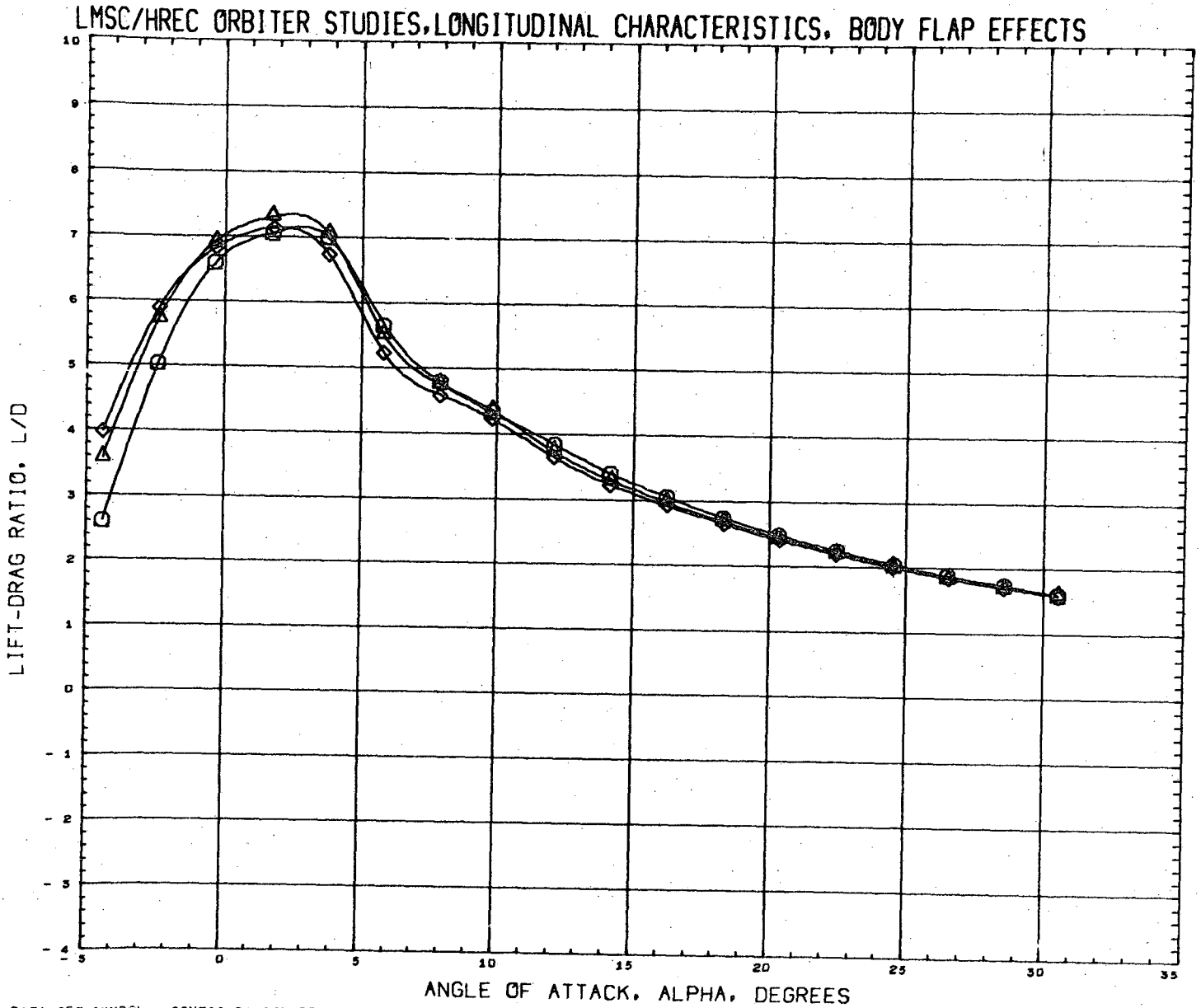
LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

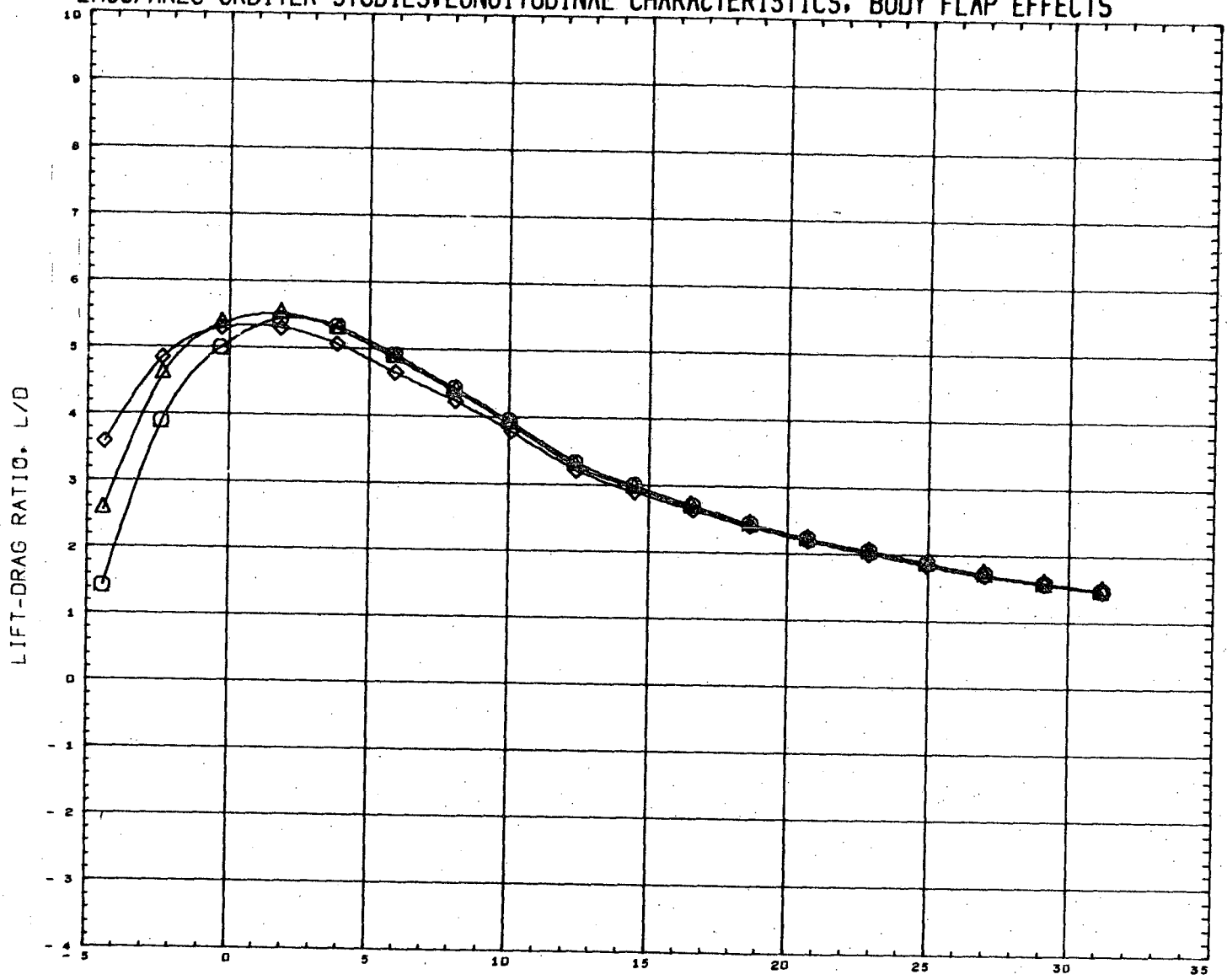


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E36G1T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D36G8S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D36G9S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

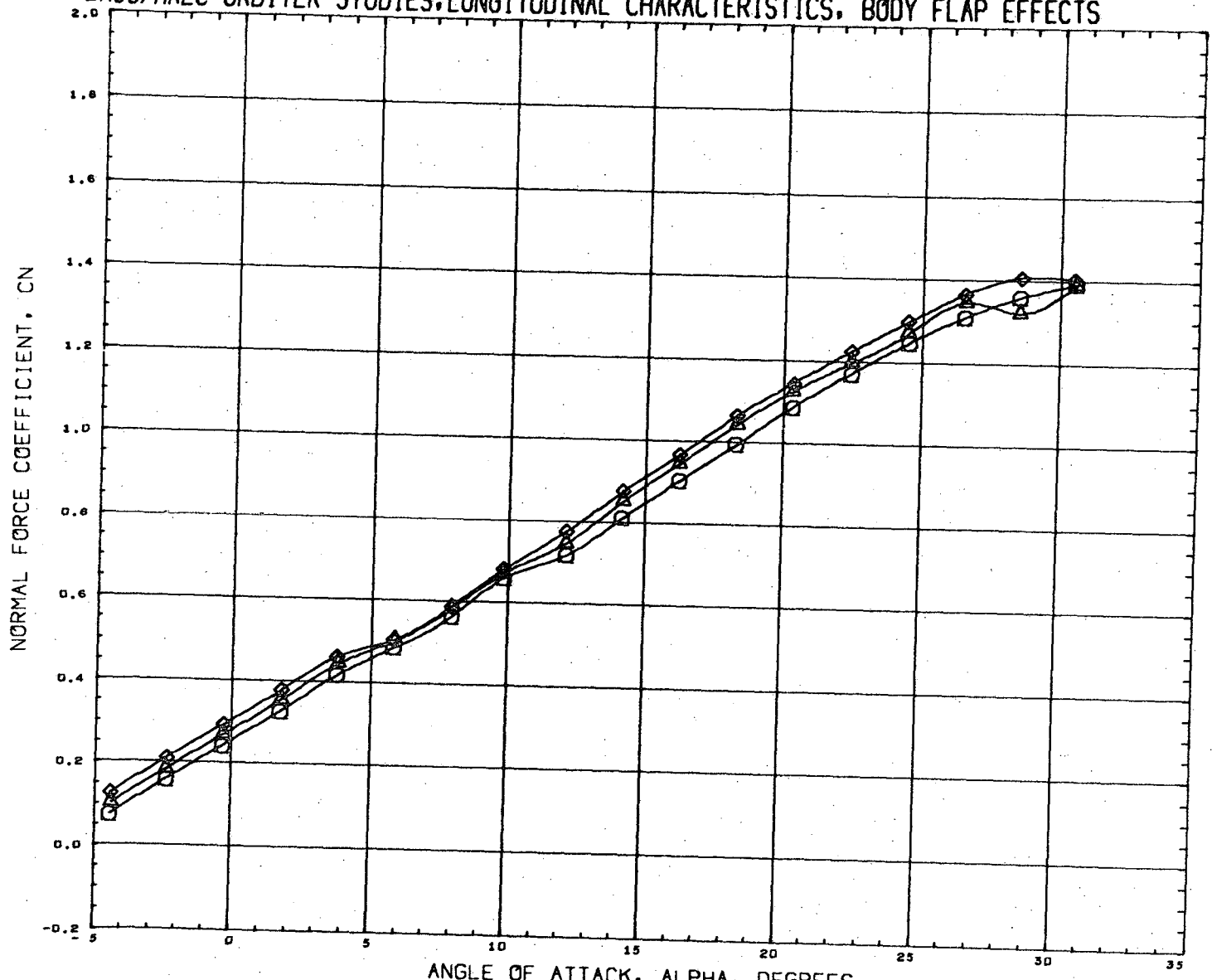


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D36088)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D36098)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

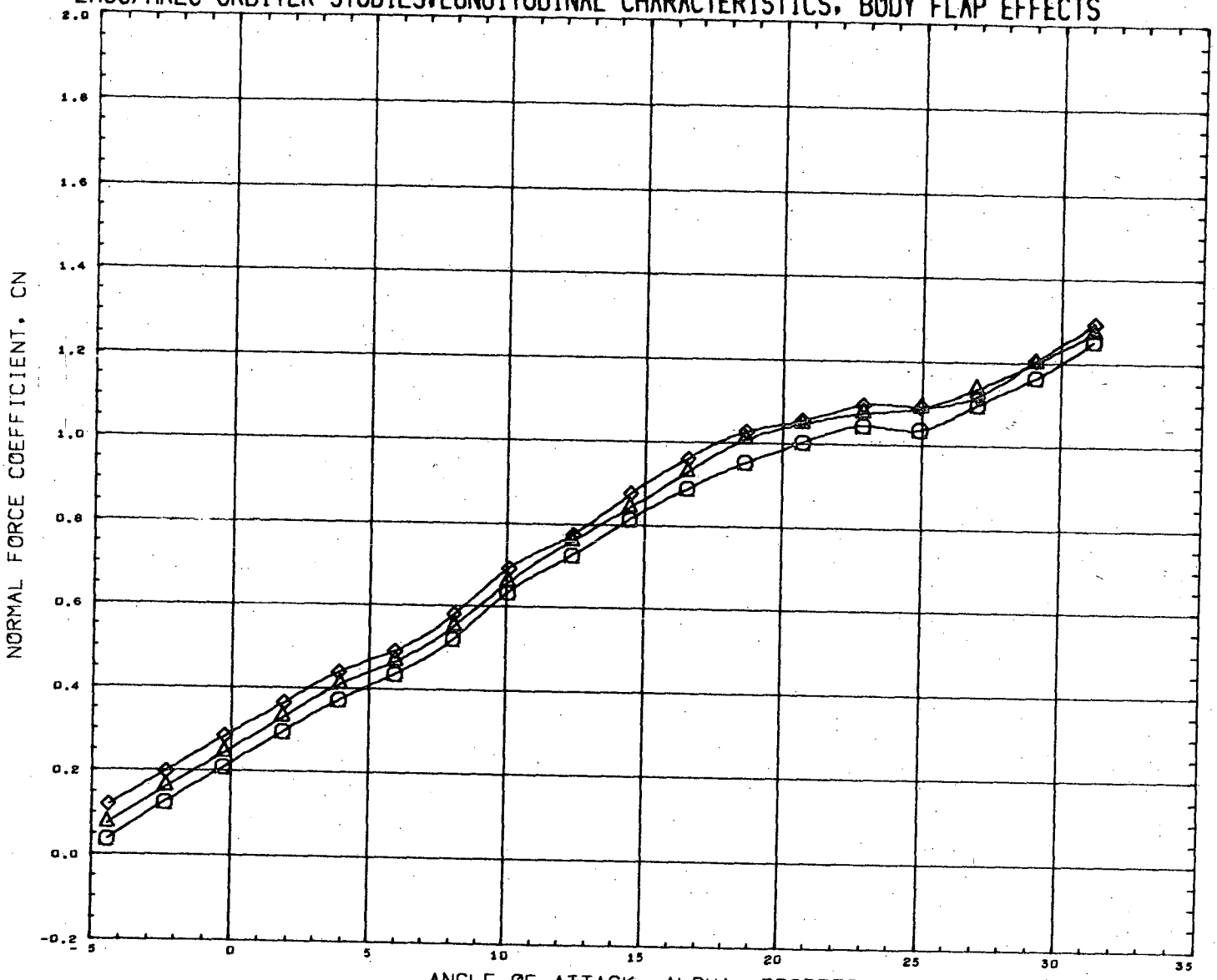


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

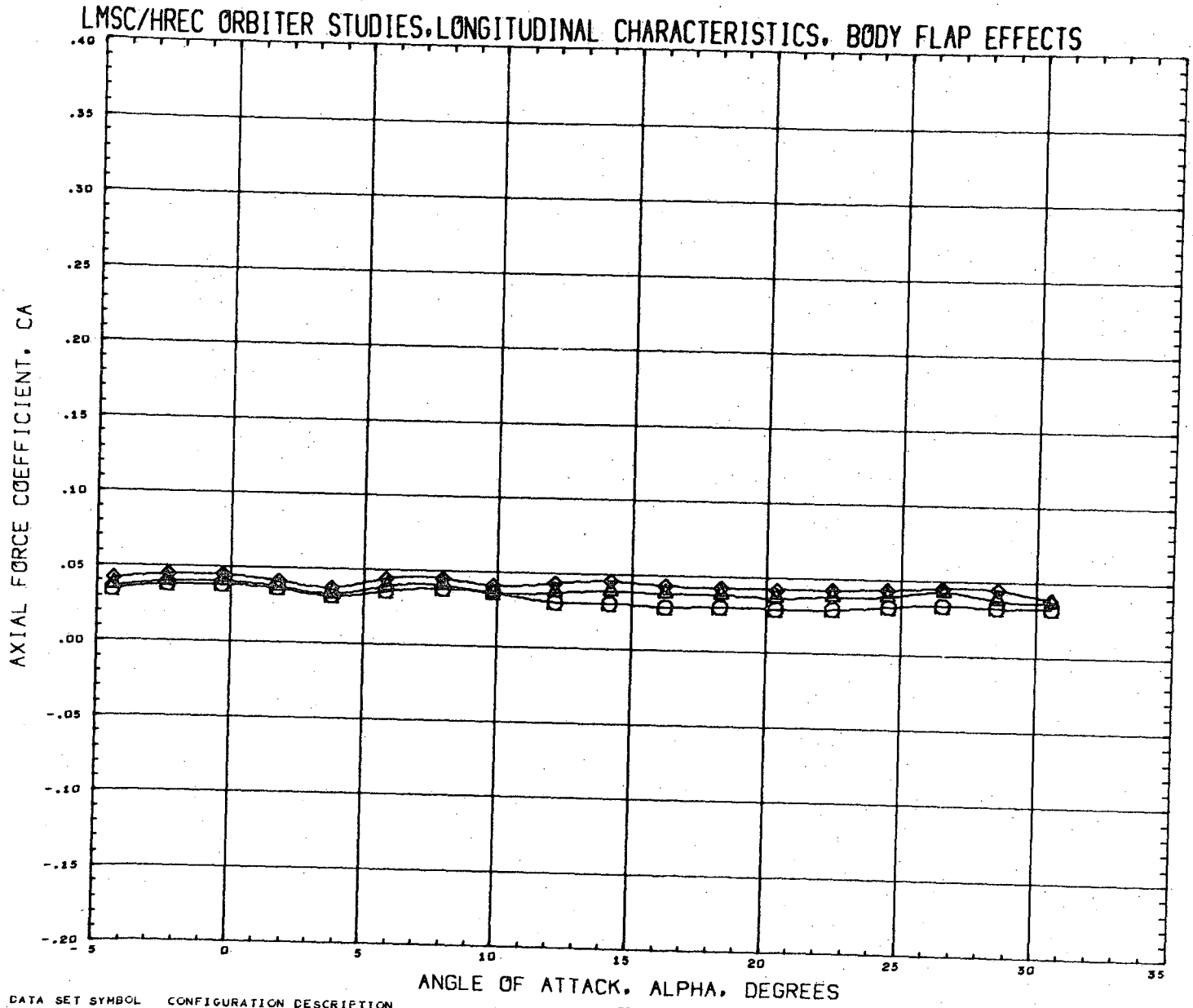
LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. BODY FLAP EFFECTS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE



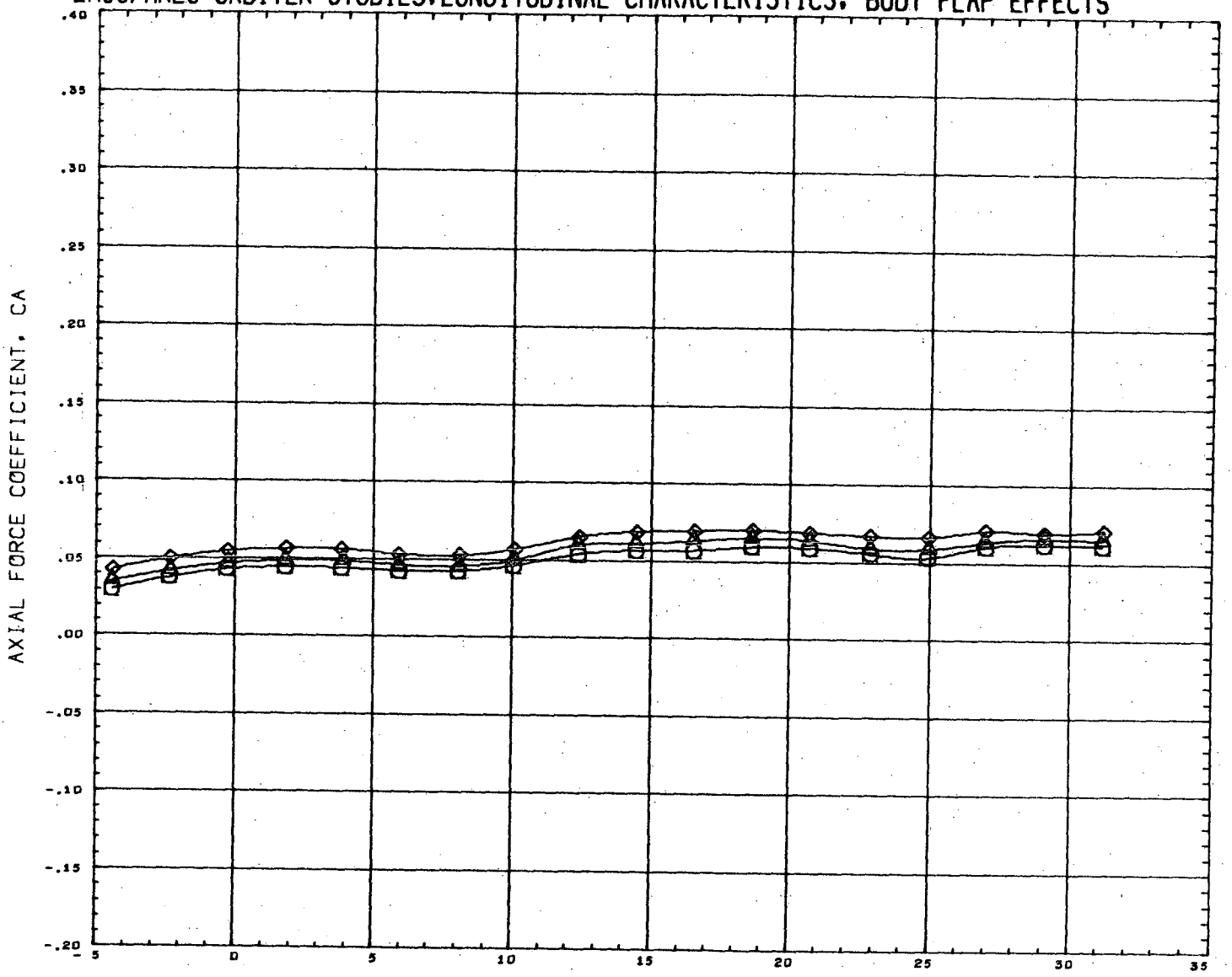
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E36D1T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D36D8S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D36D9S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

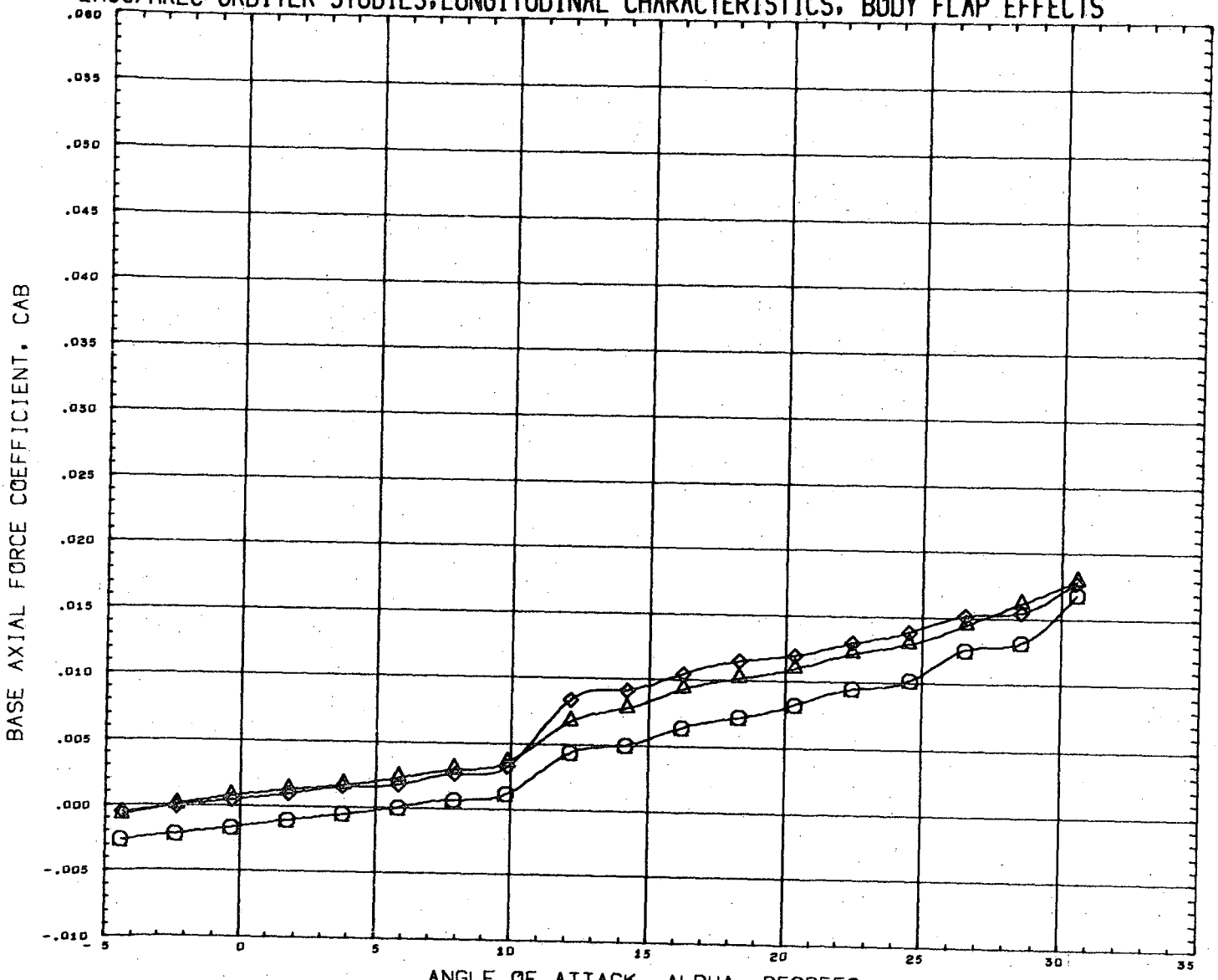


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

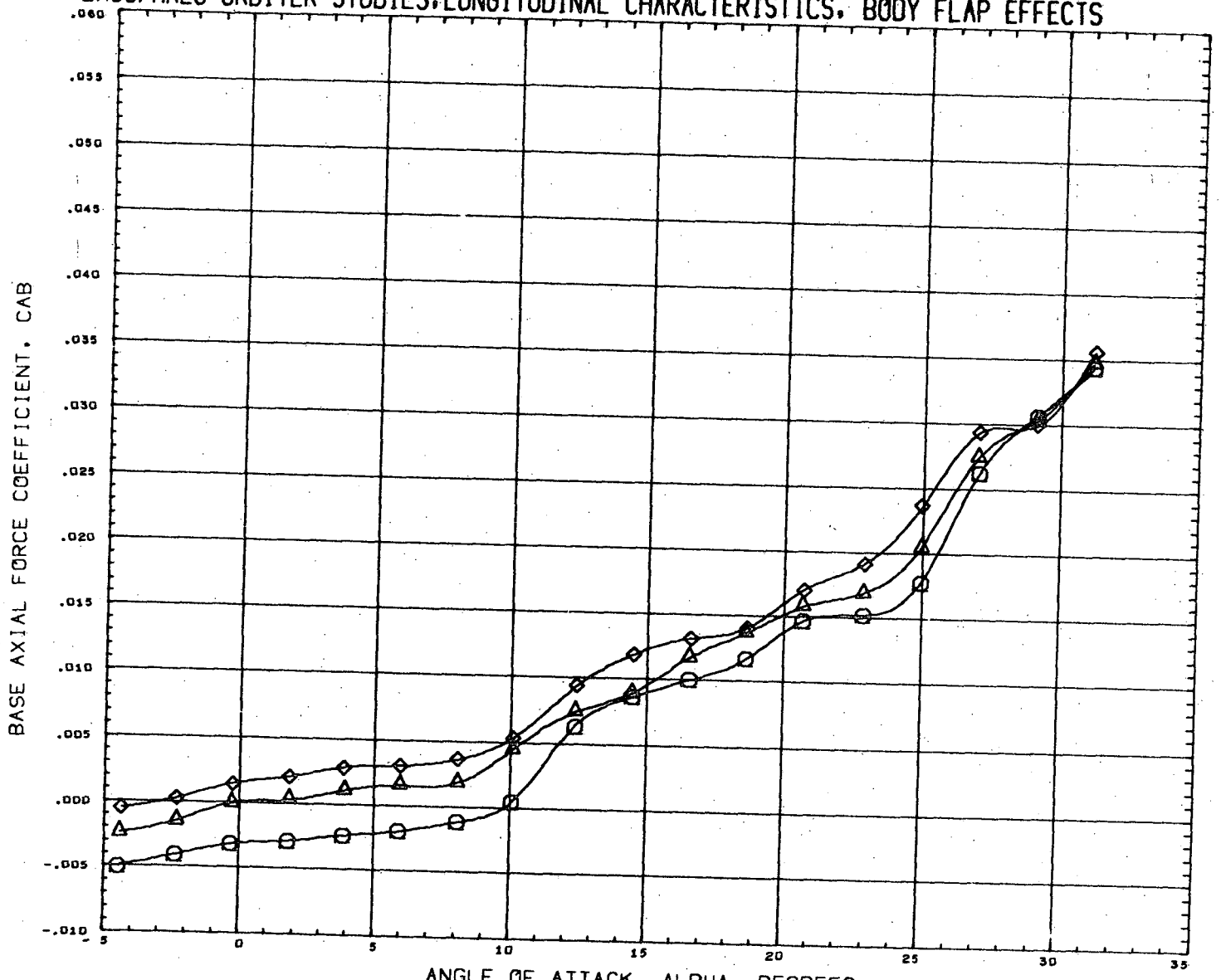


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

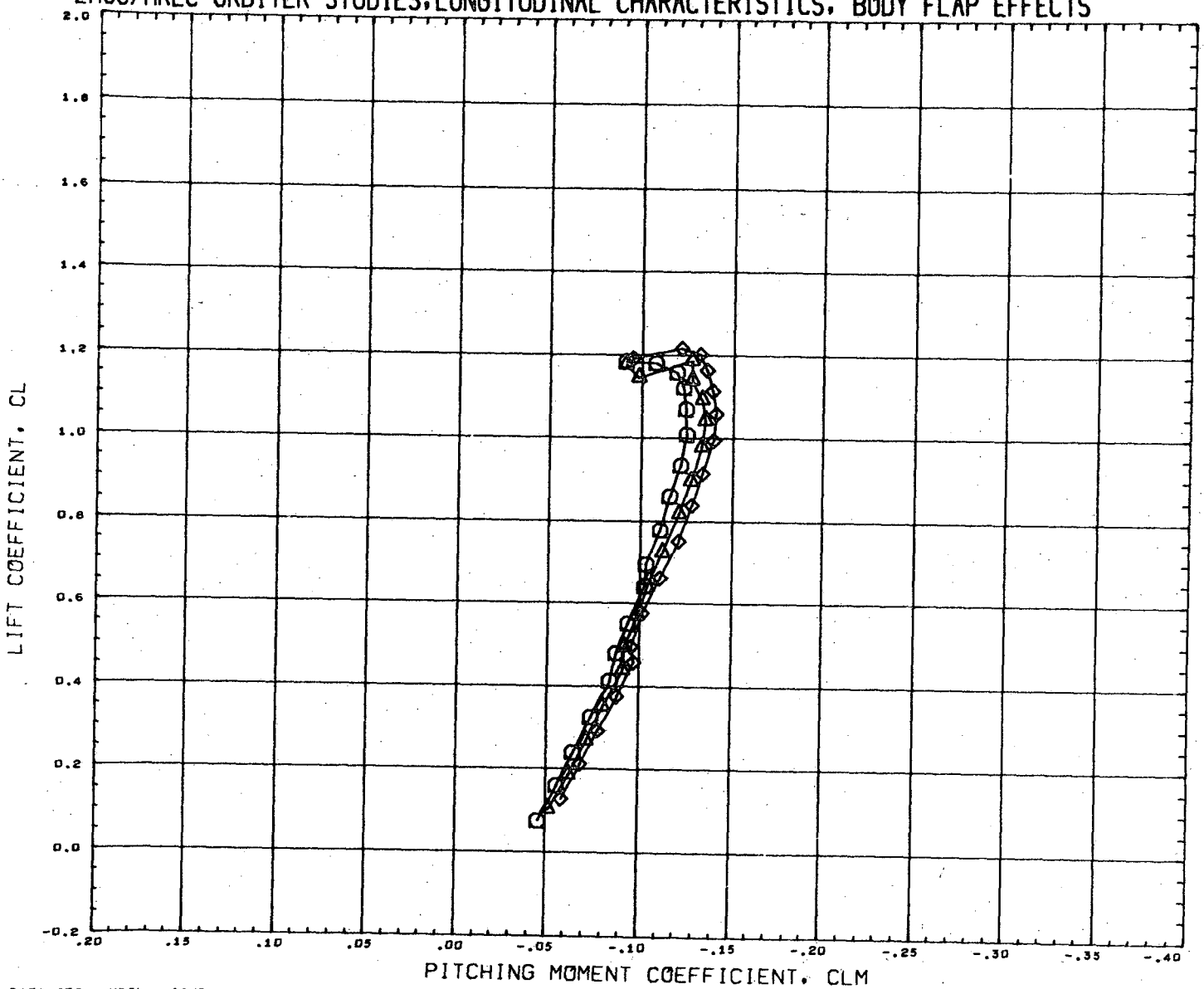


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

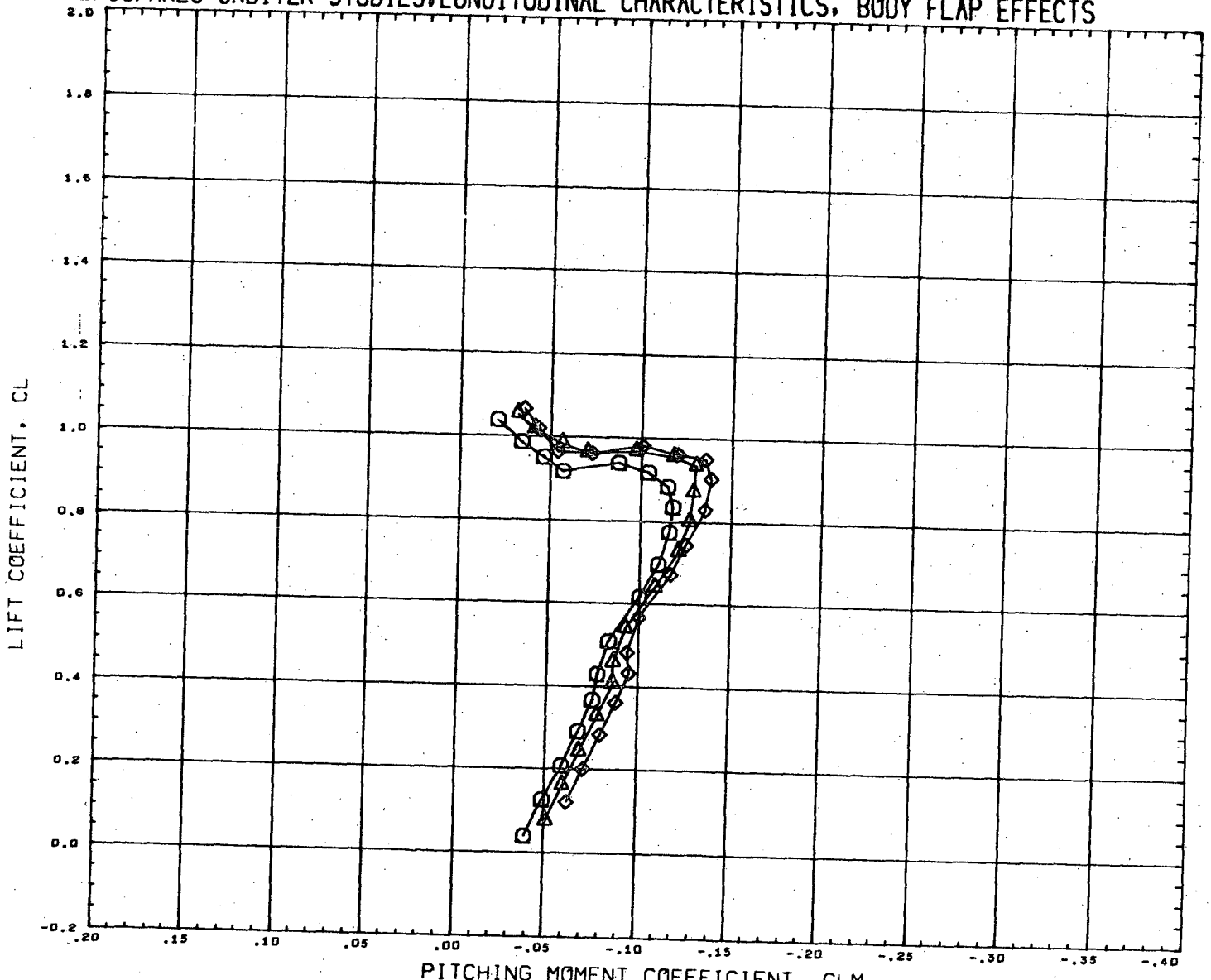


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, BODY FLAP EFFECTS

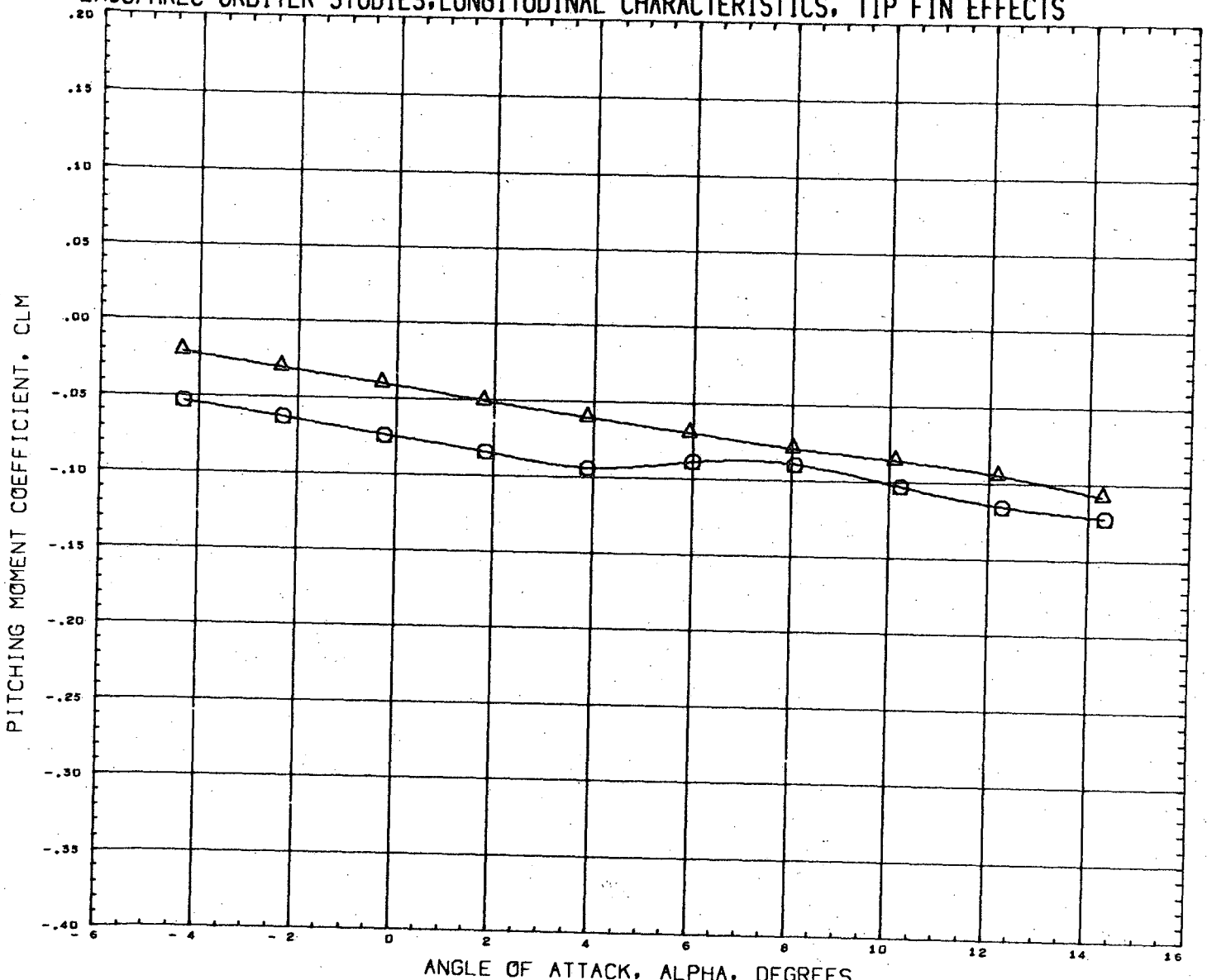


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	ELEVN2	RUDER3
(E3601T) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000		0.000
(D3608S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	10.000	0.000
(D3609S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1E2	0.000	0.000	20.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

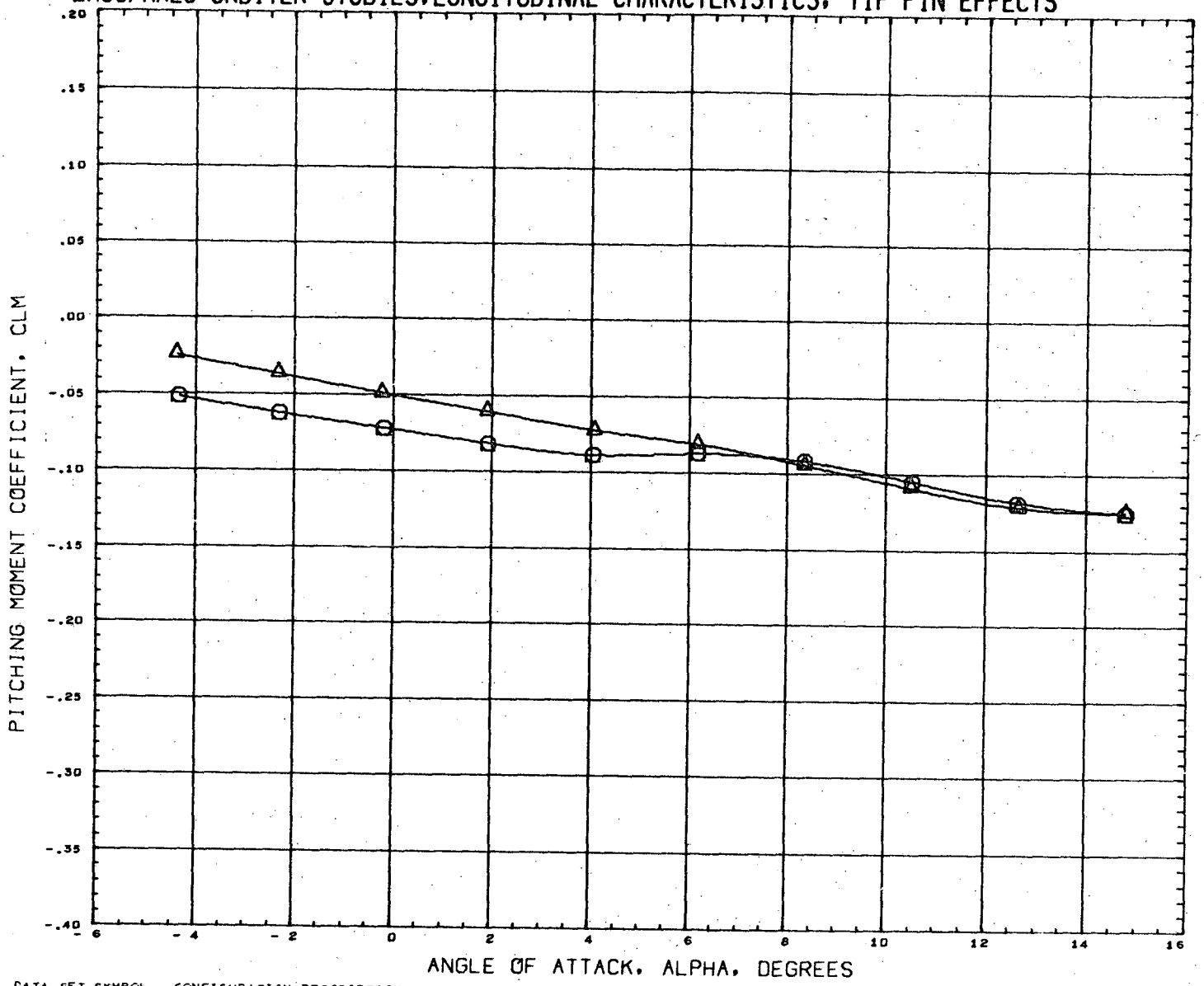


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



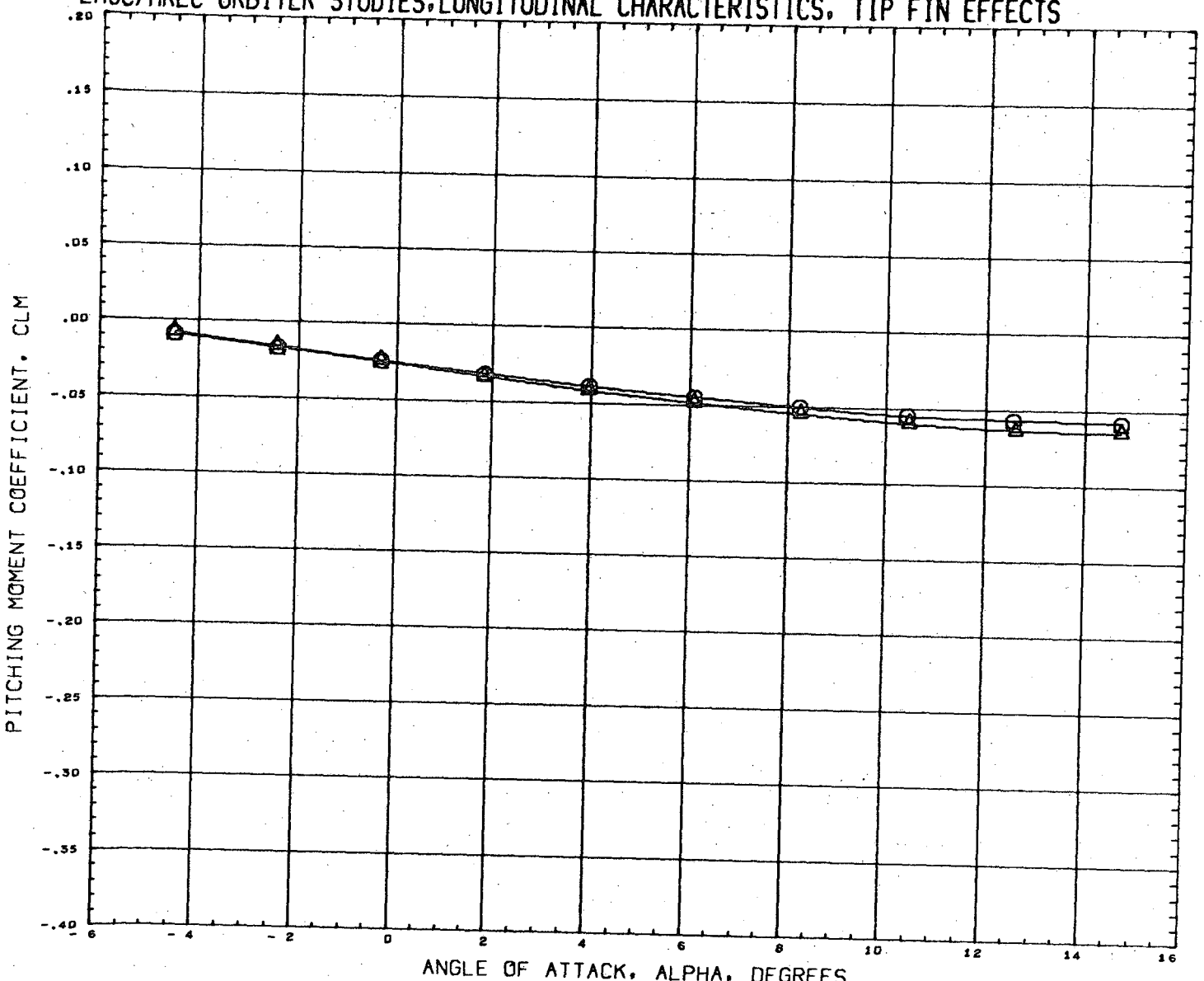
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



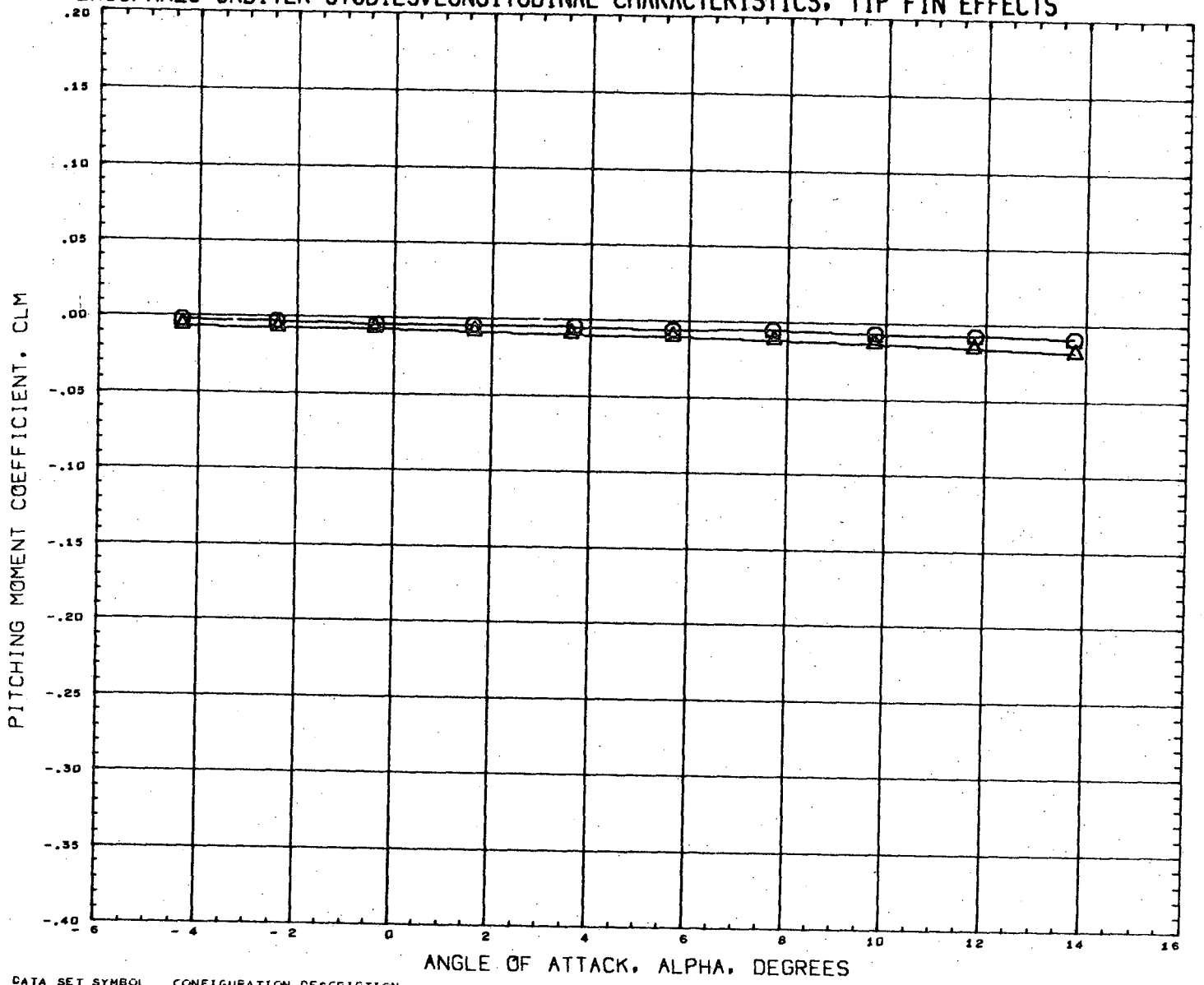
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. TIP FIN EFFECTS



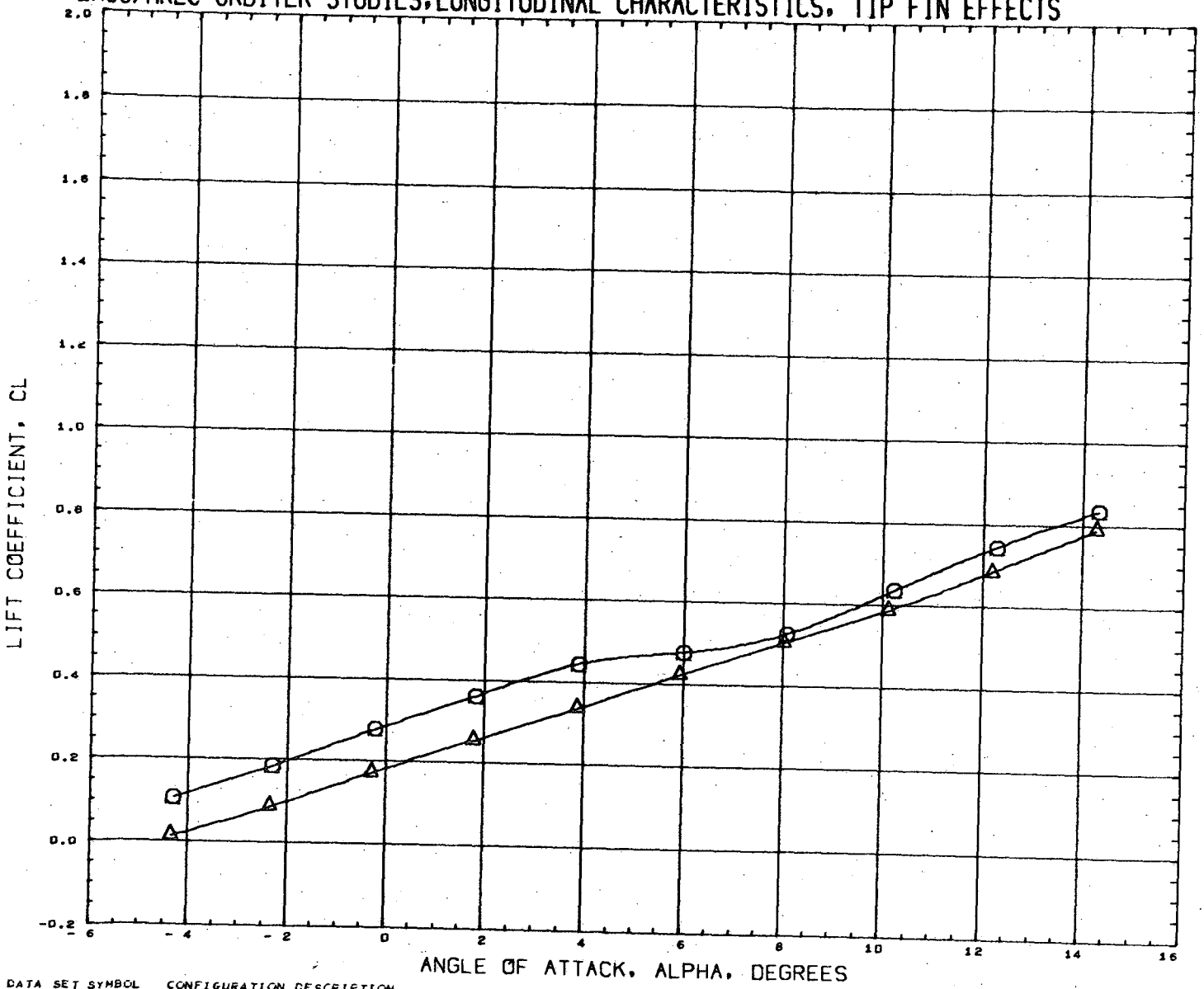
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



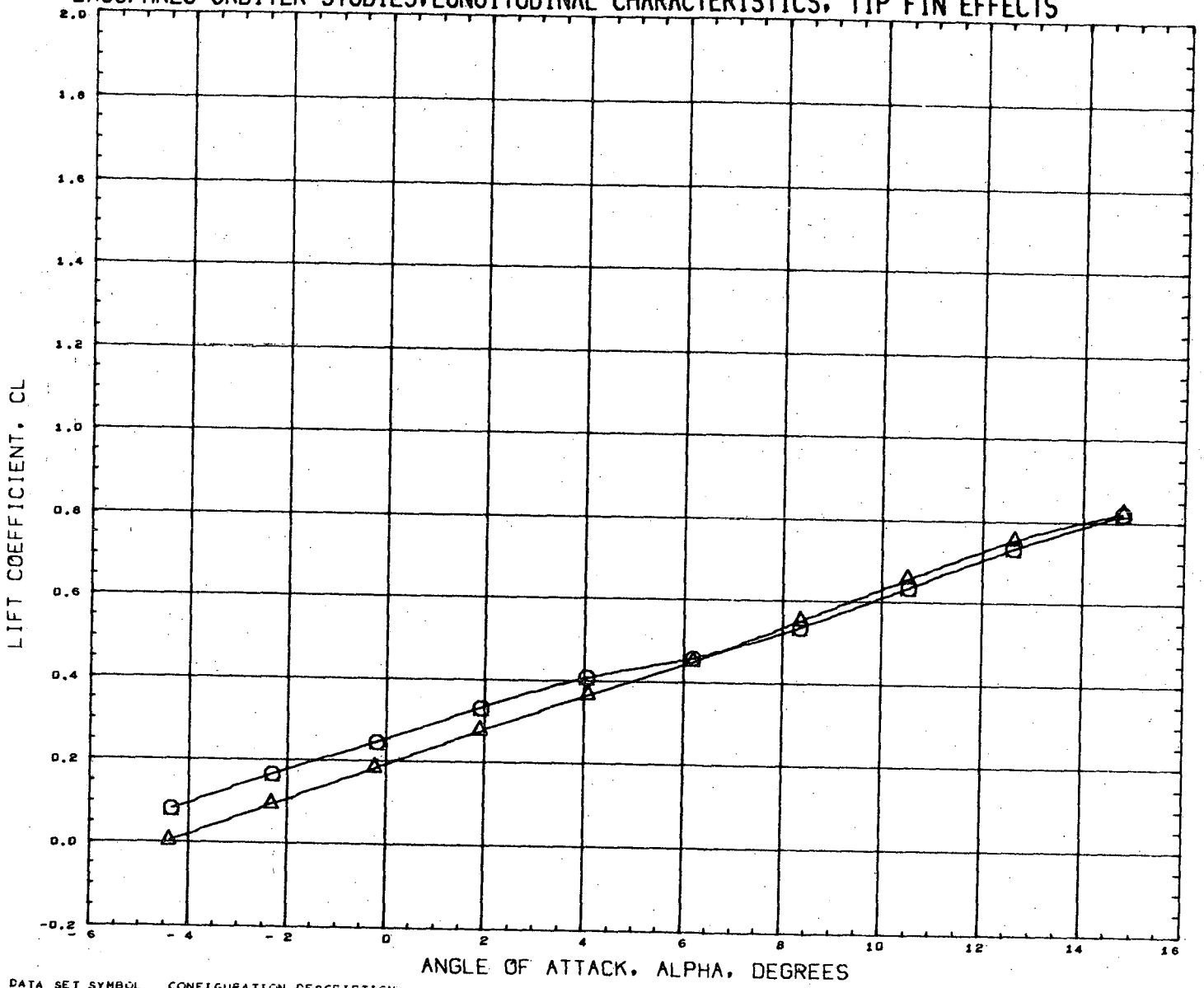
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. TIP FIN EFFECTS

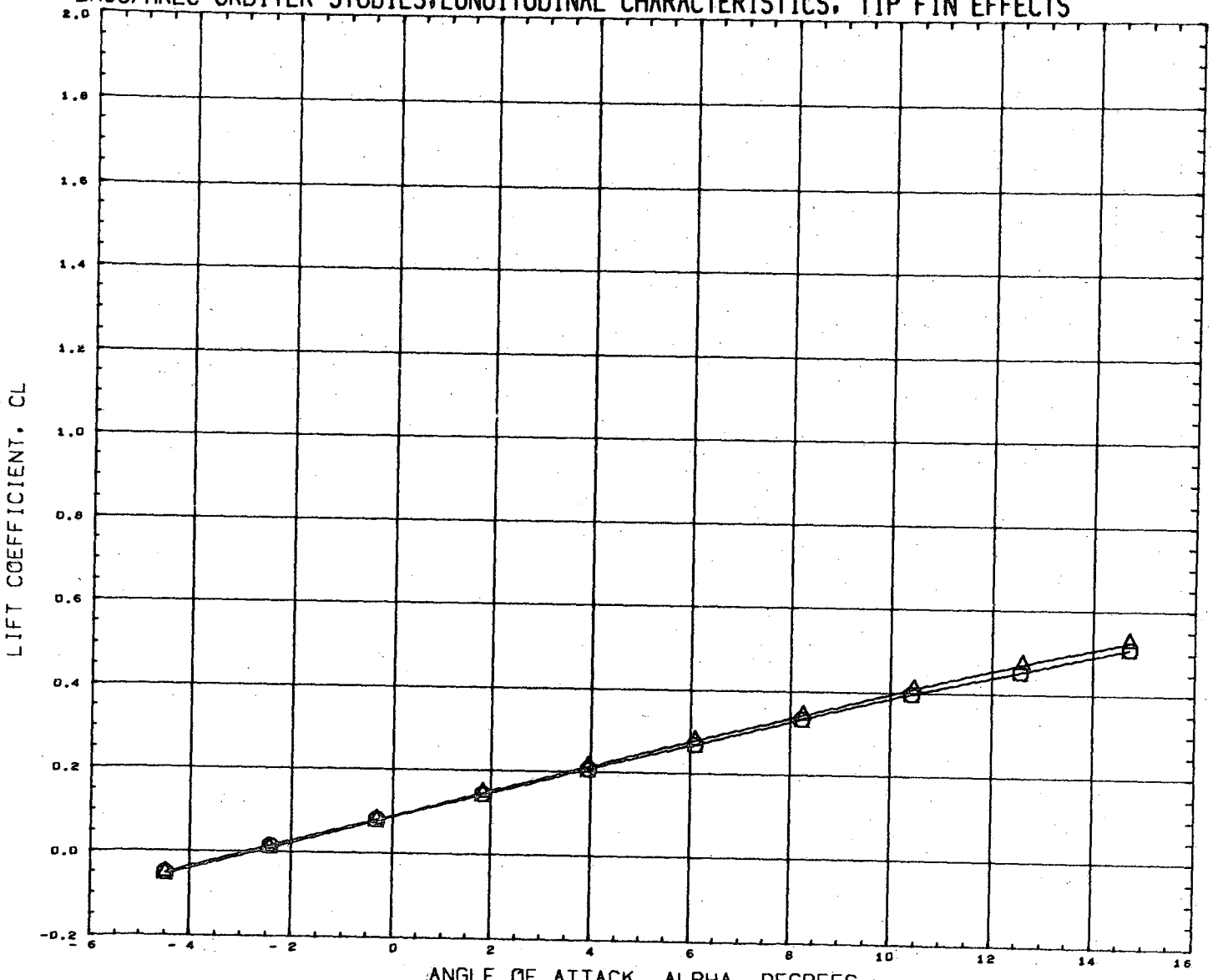


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



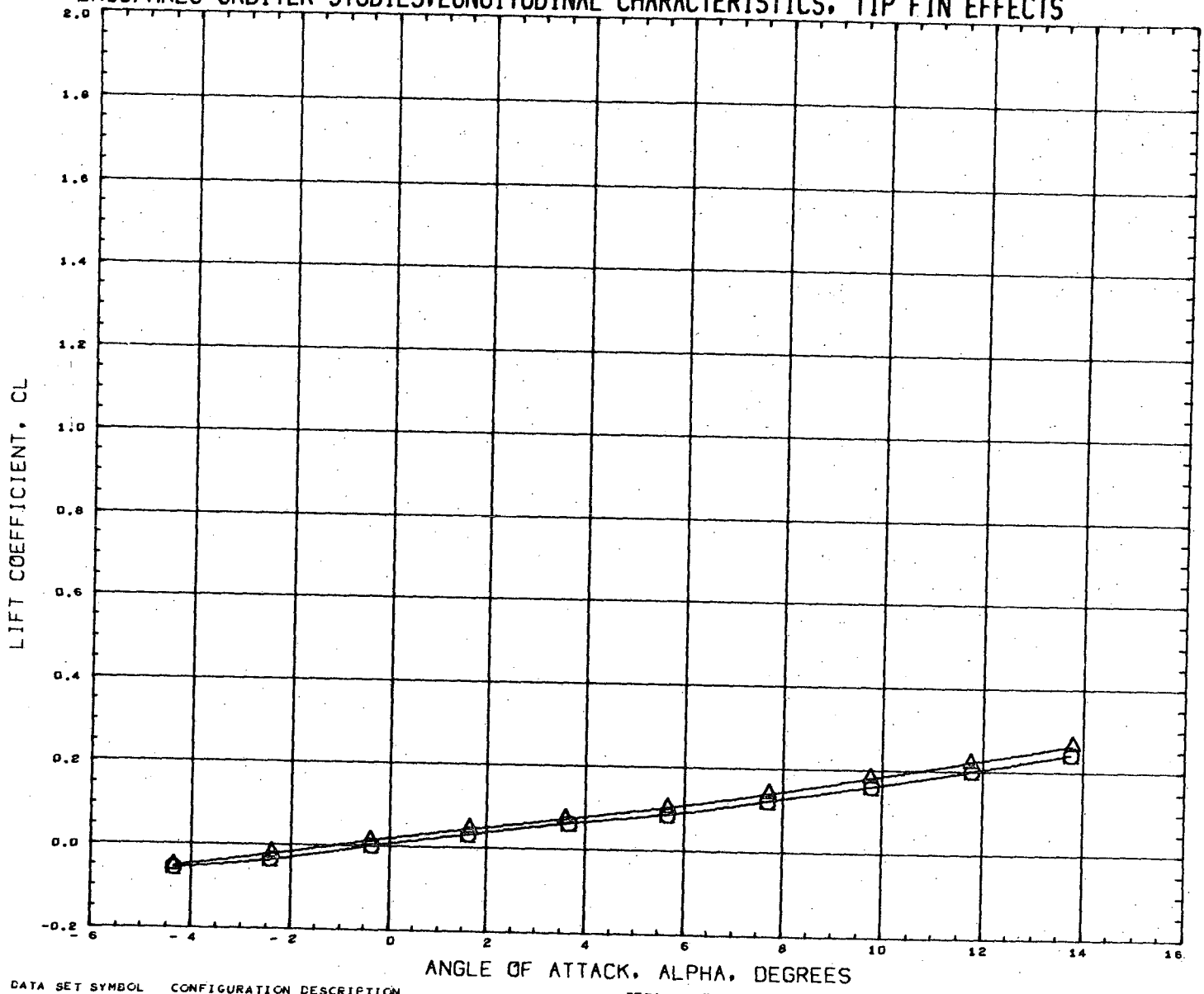
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



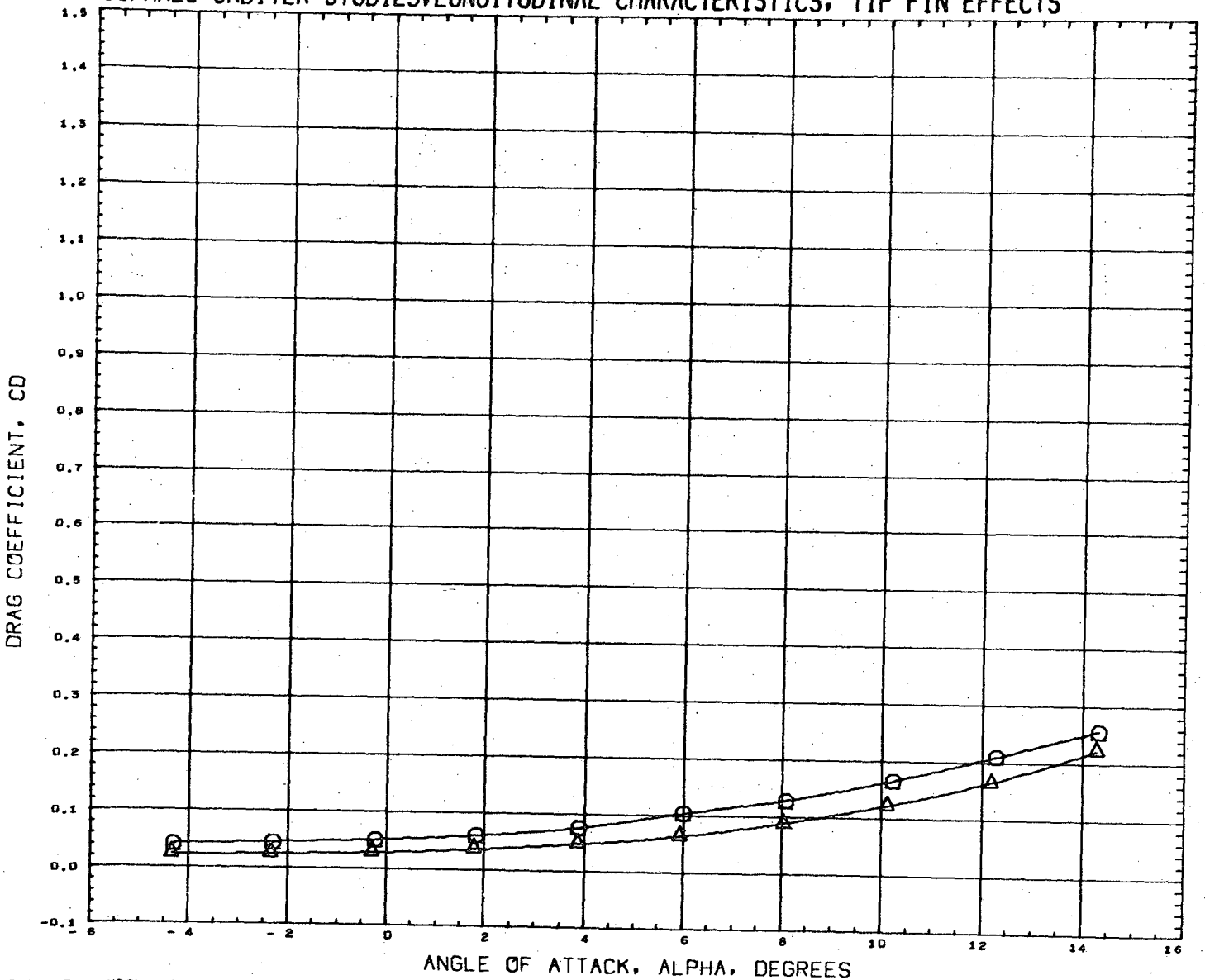
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



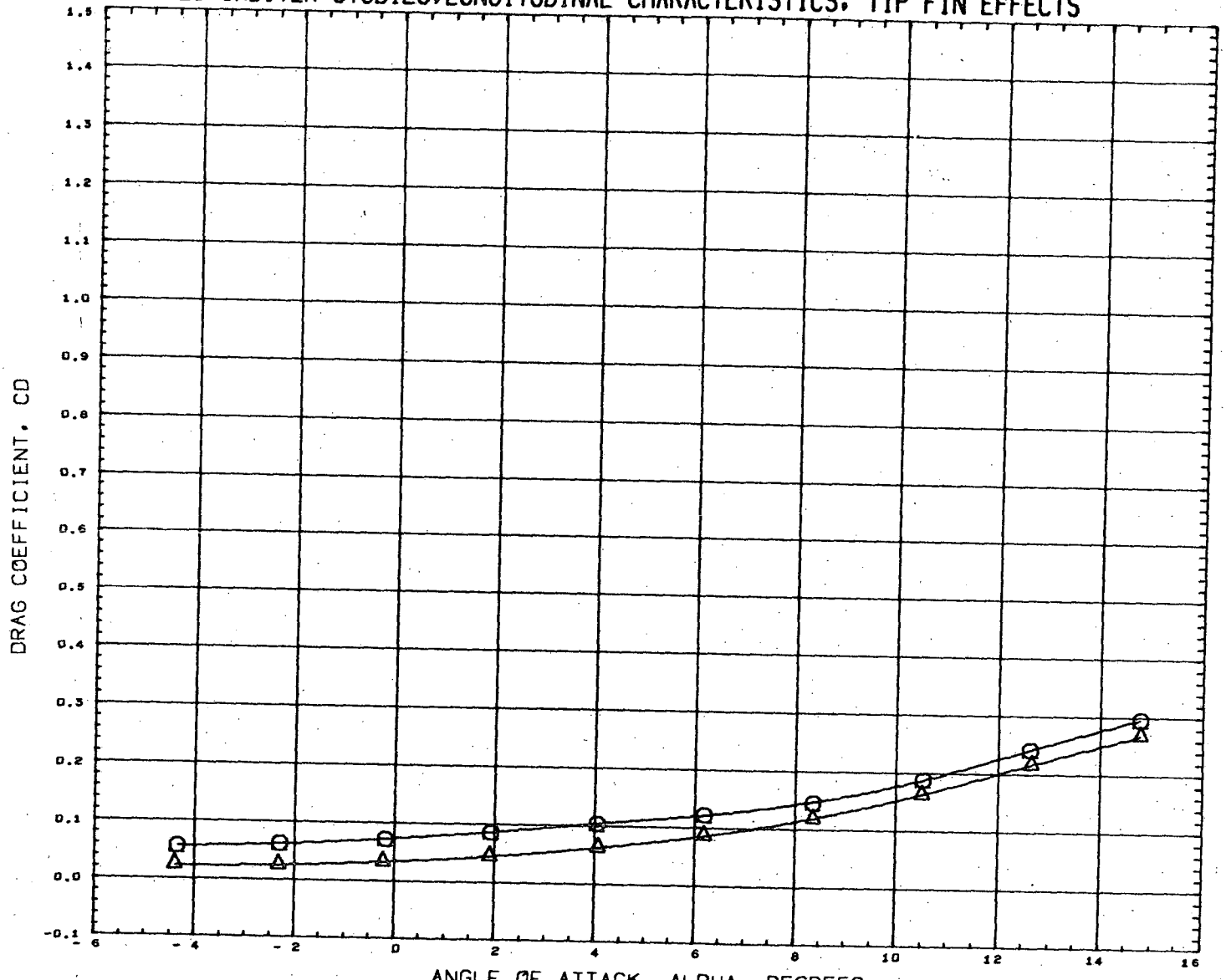
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



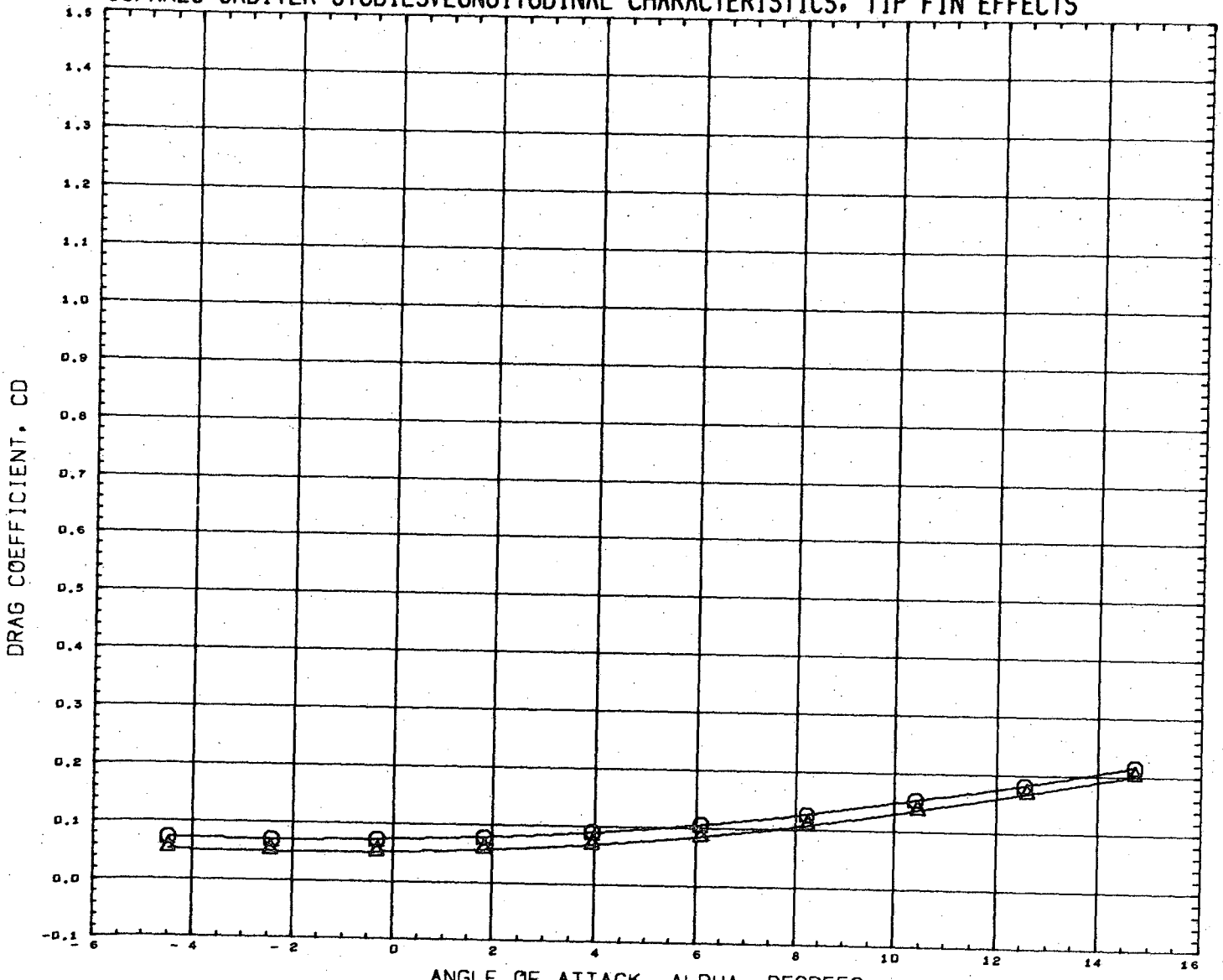
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



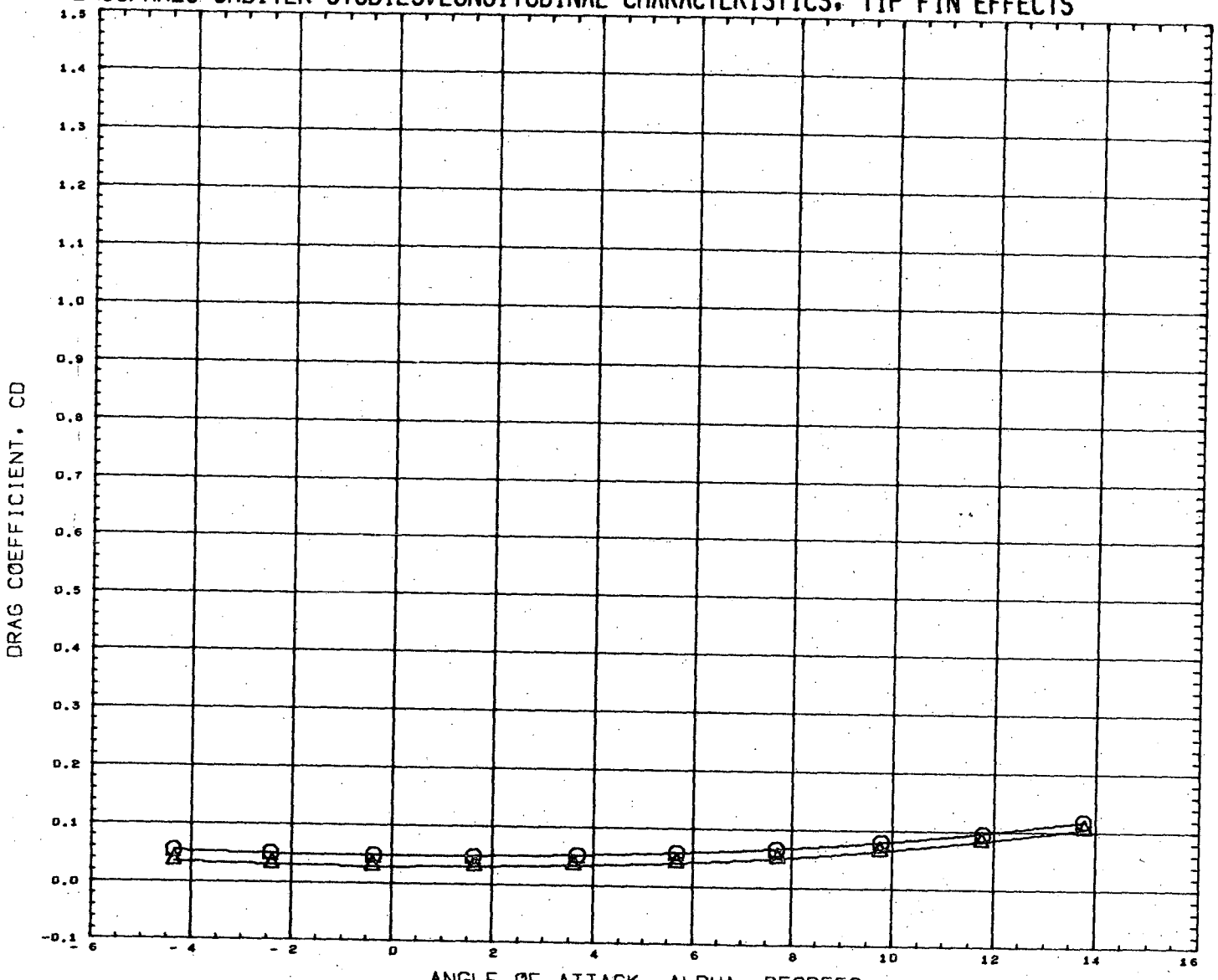
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

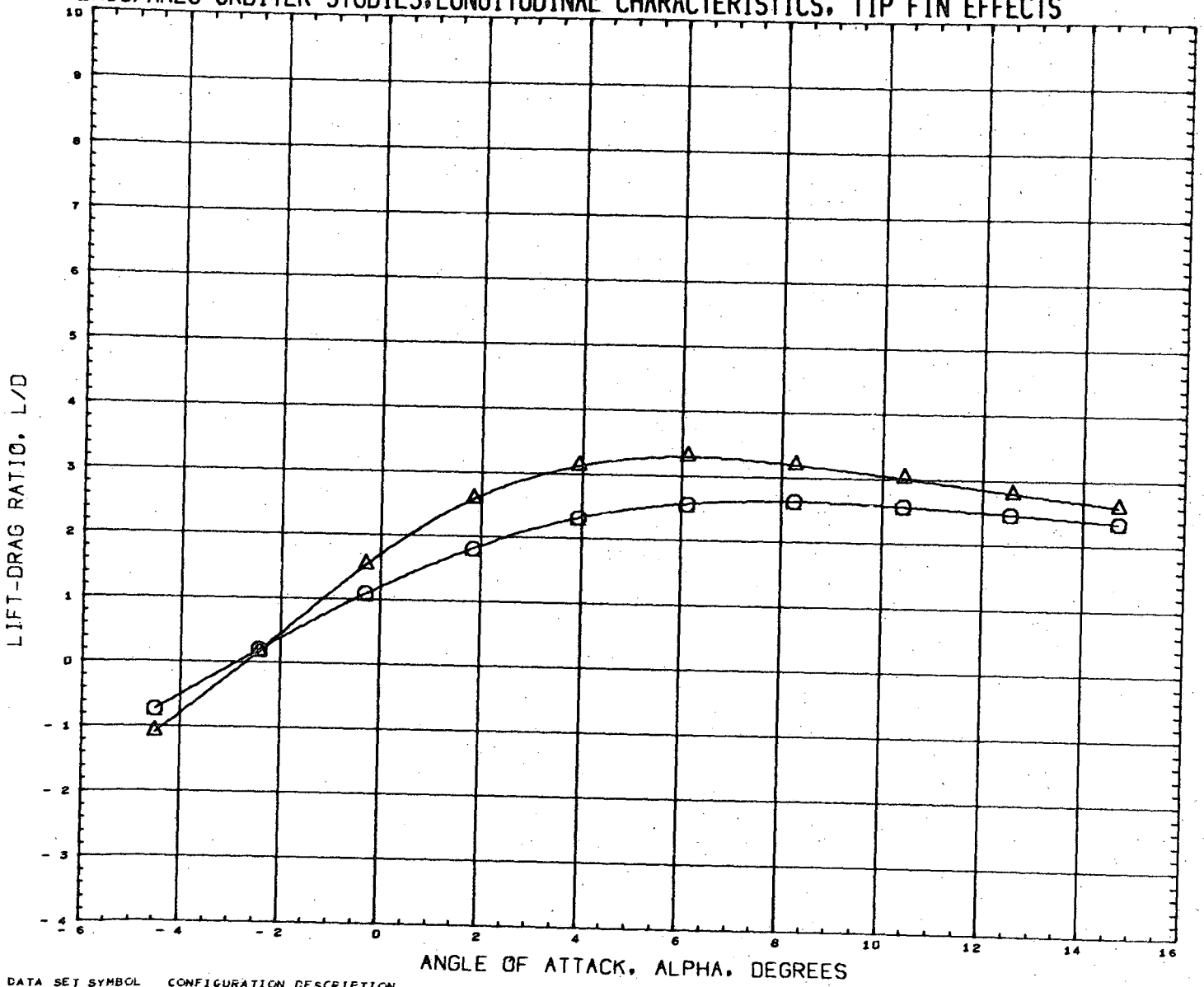


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

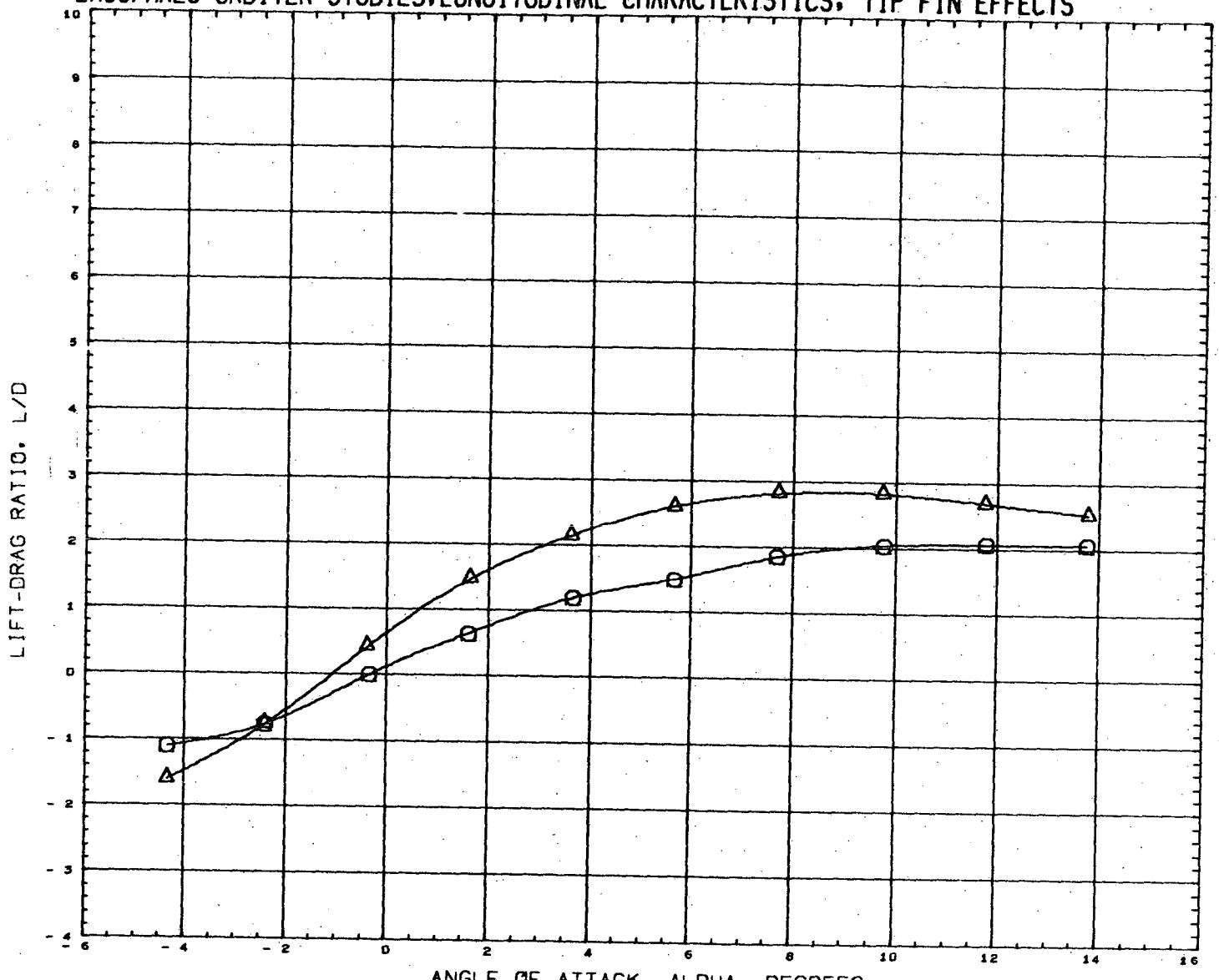


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

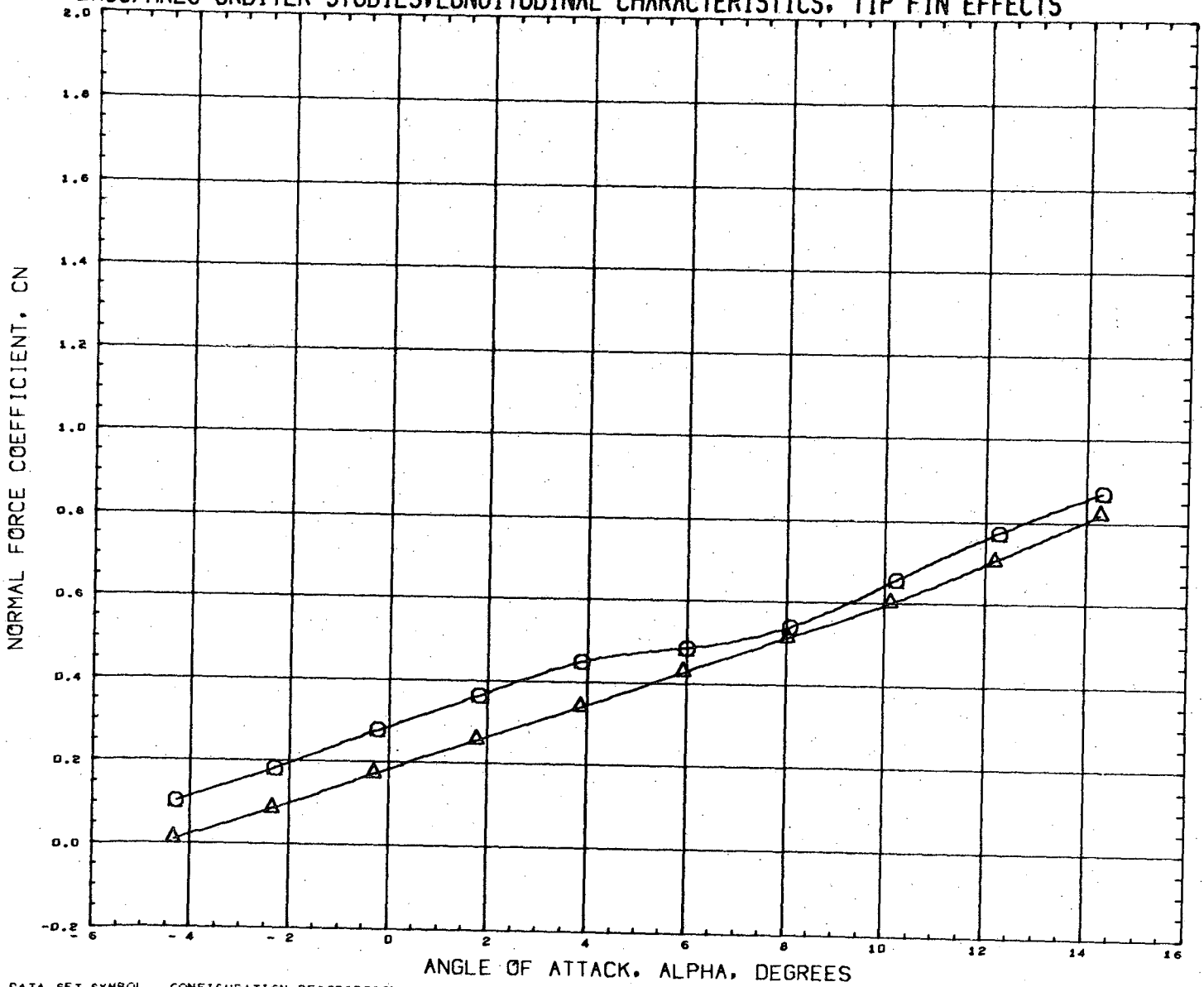


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



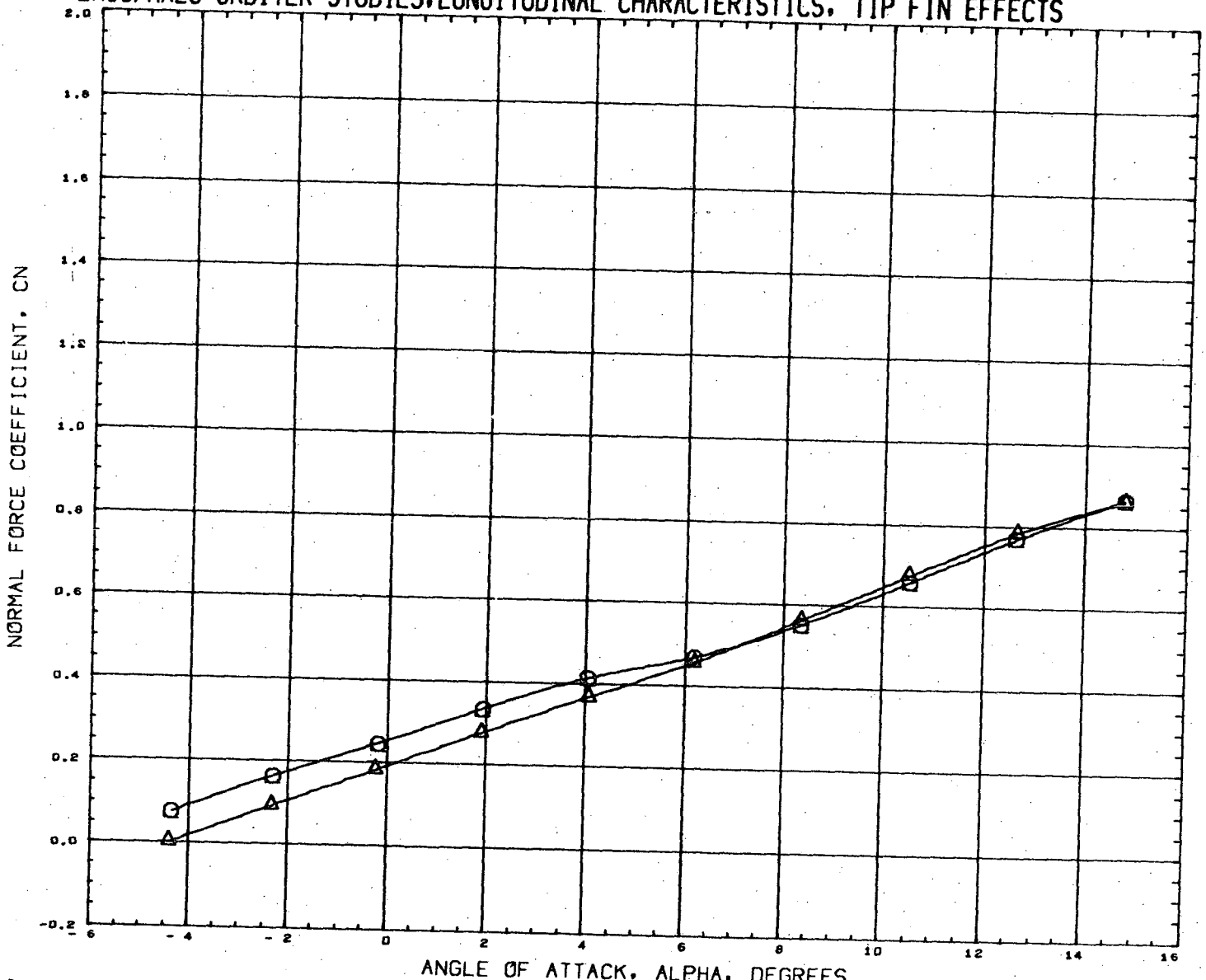
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

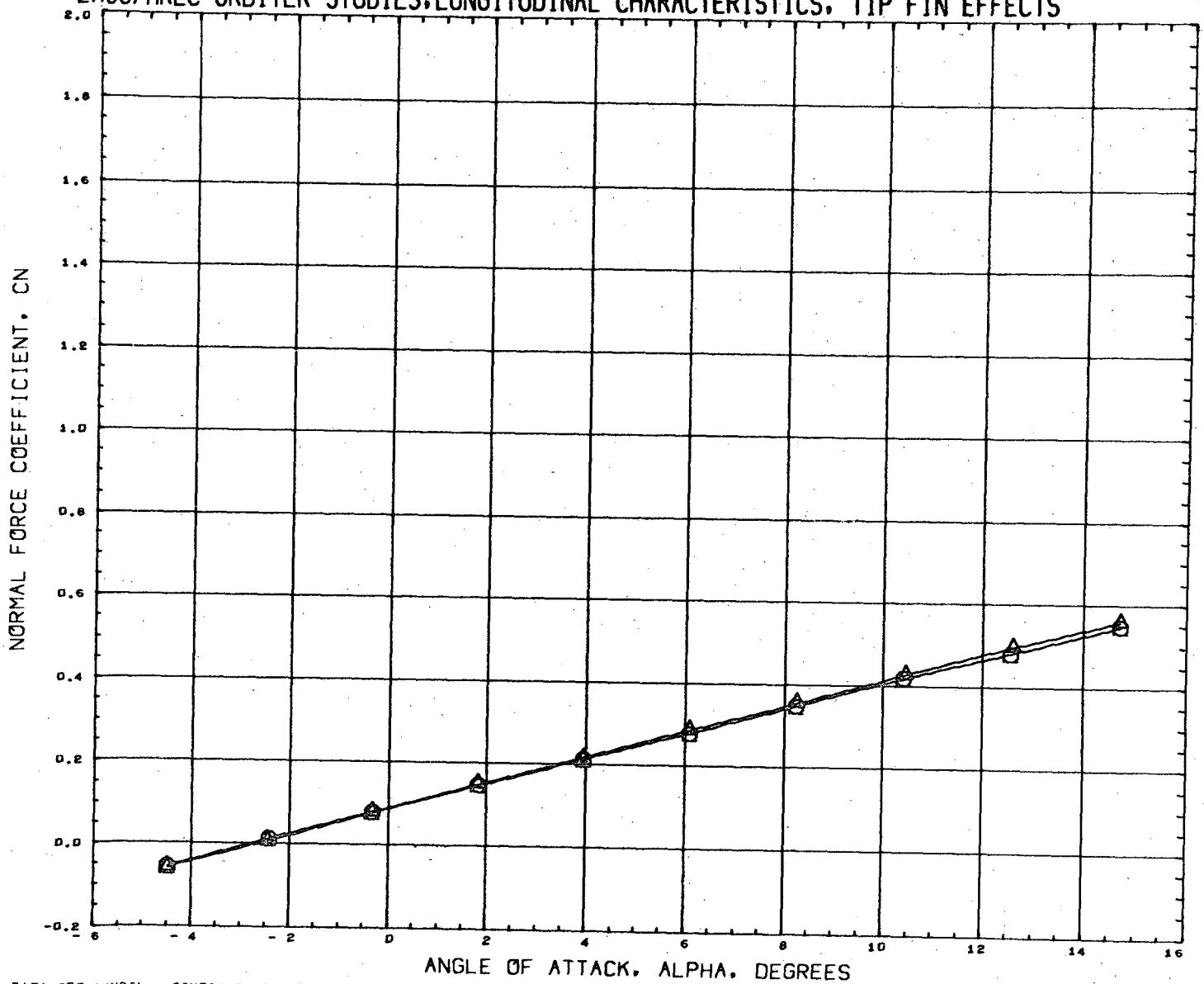


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



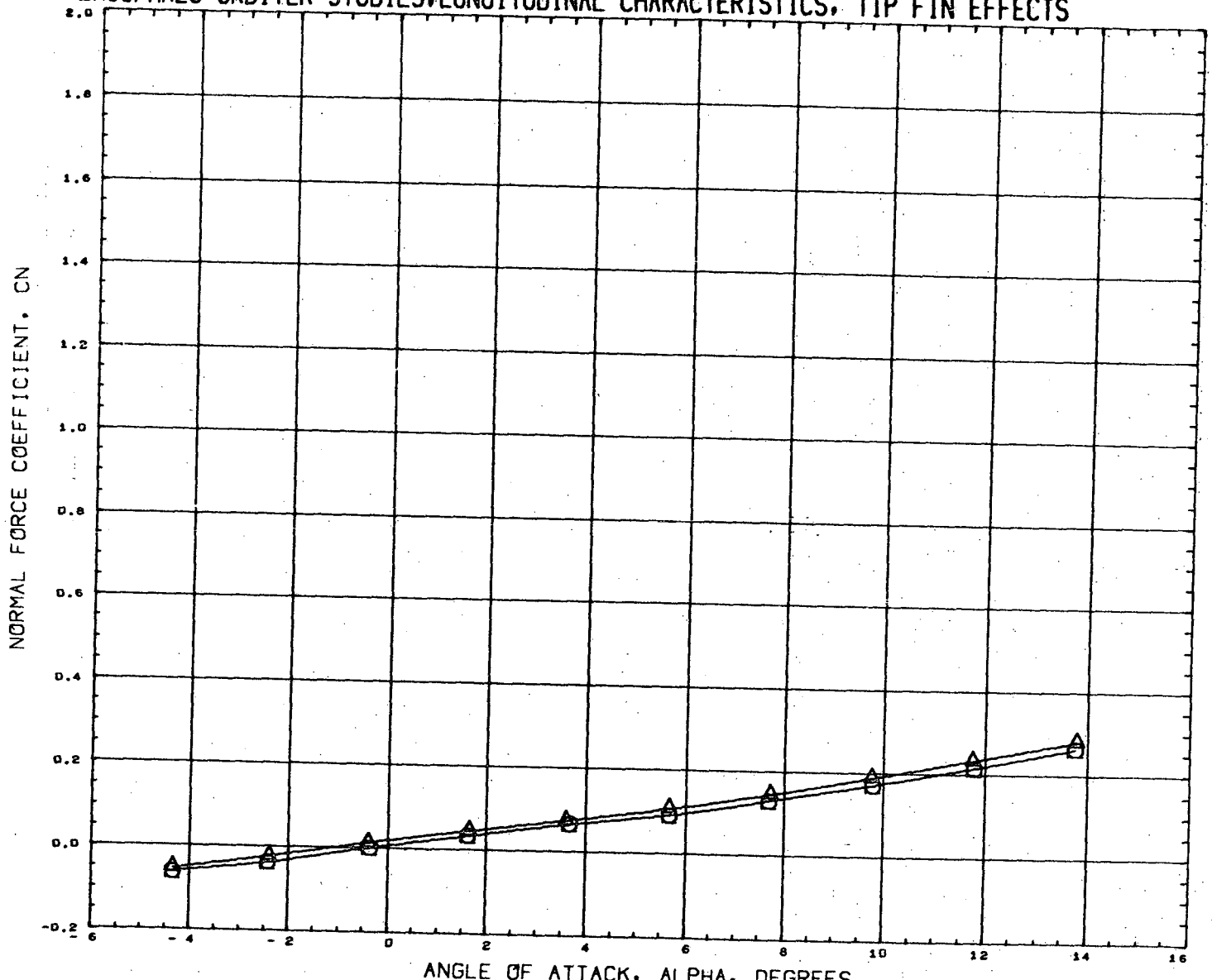
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



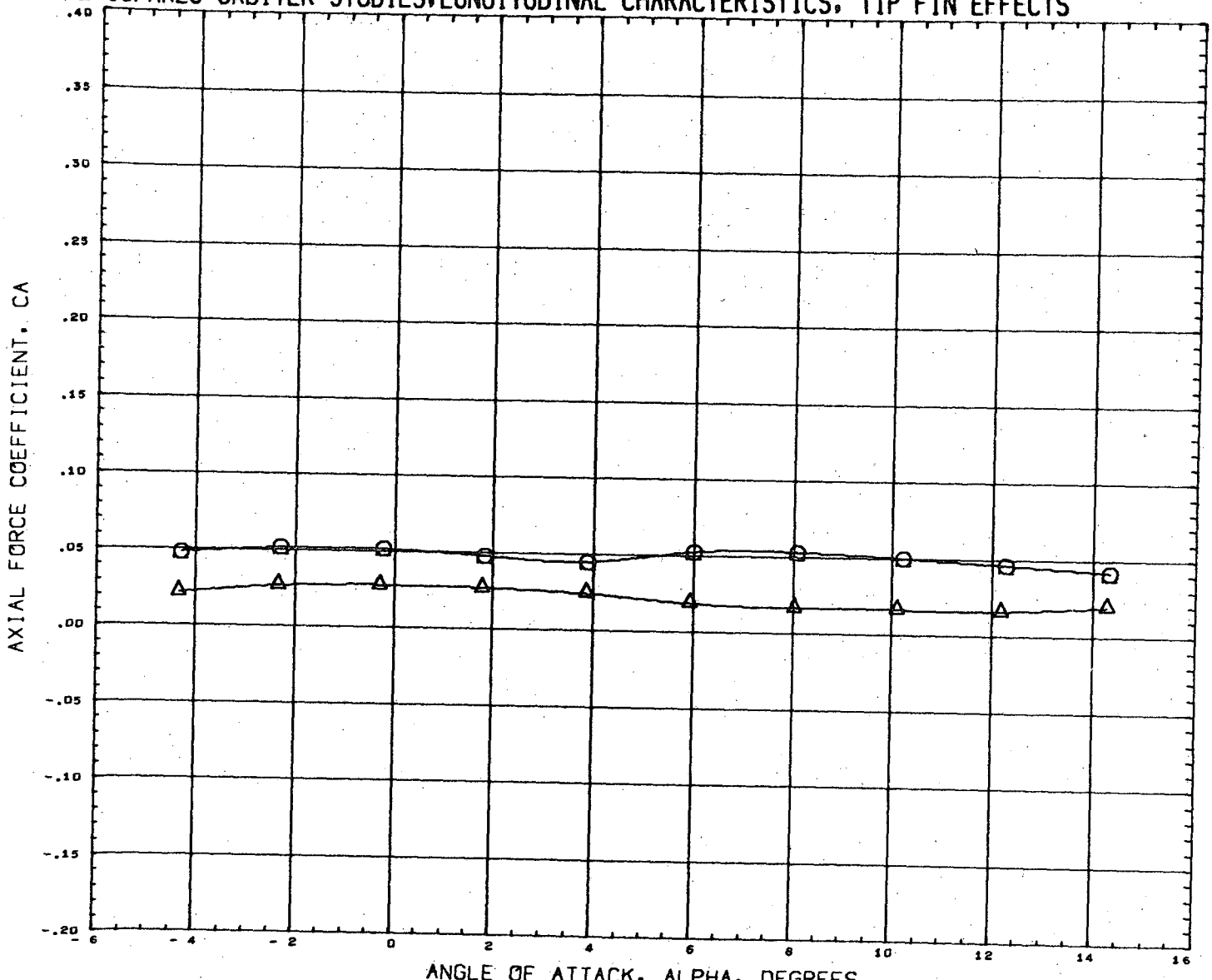
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



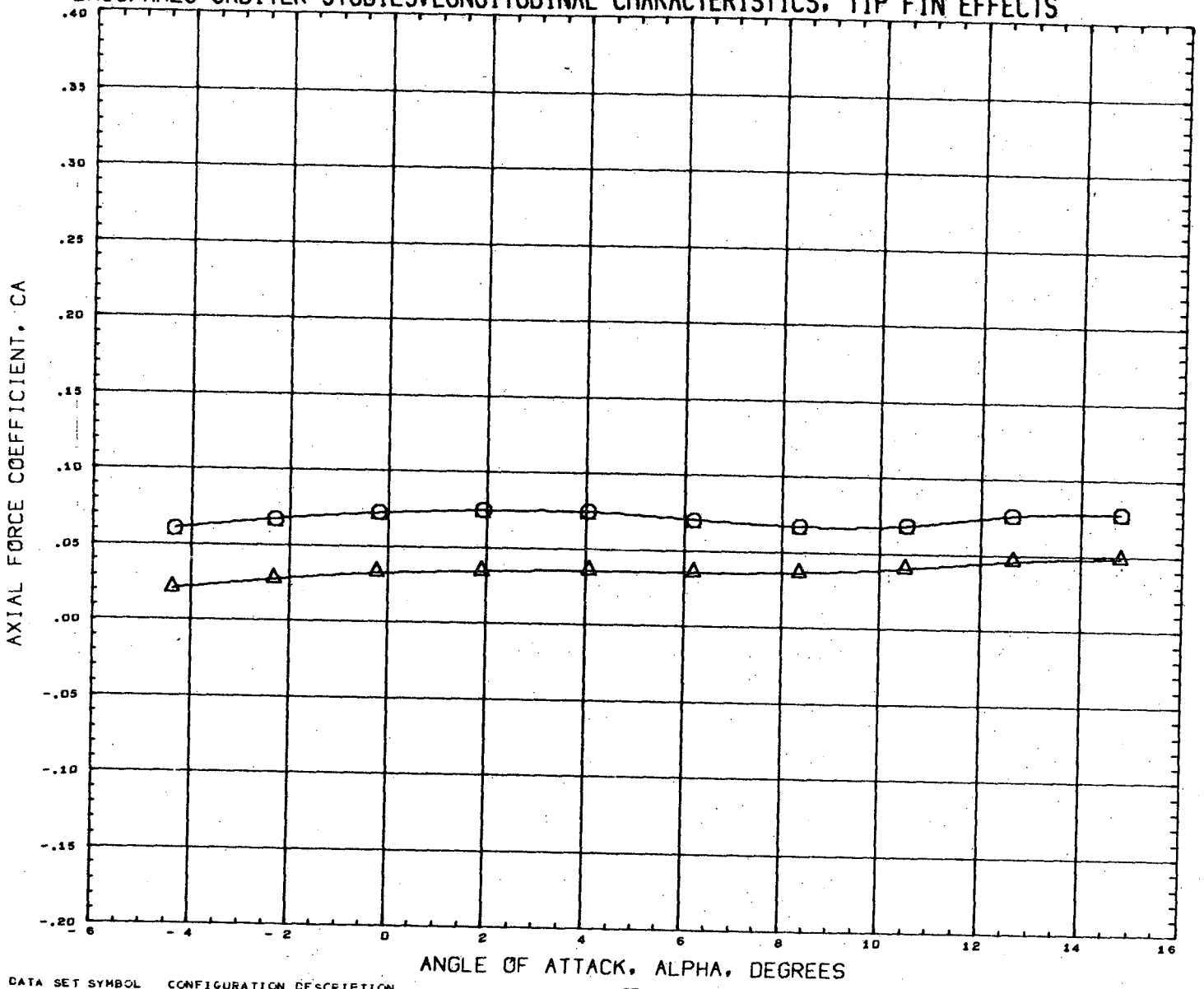
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS. TIP FIN EFFECTS



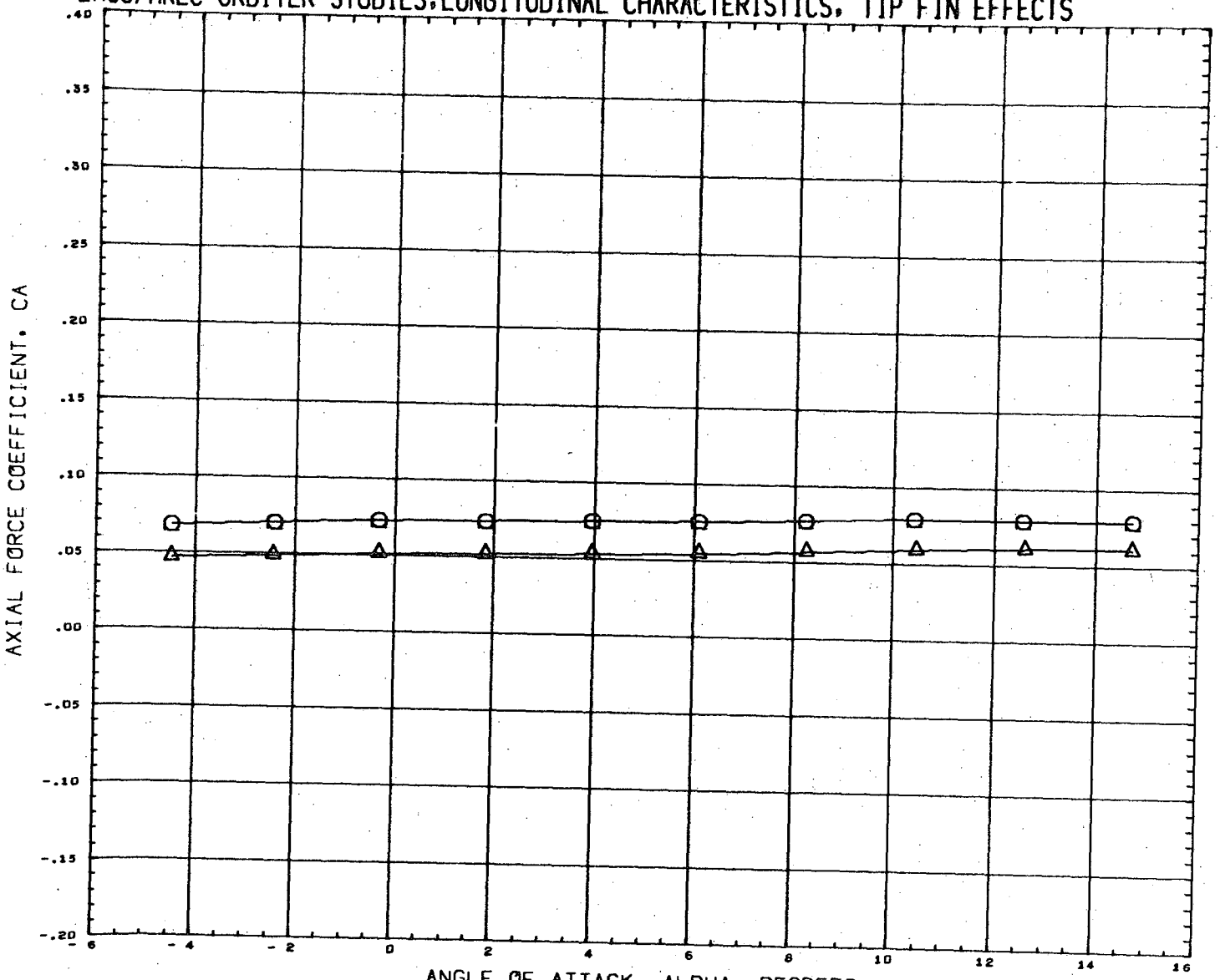
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



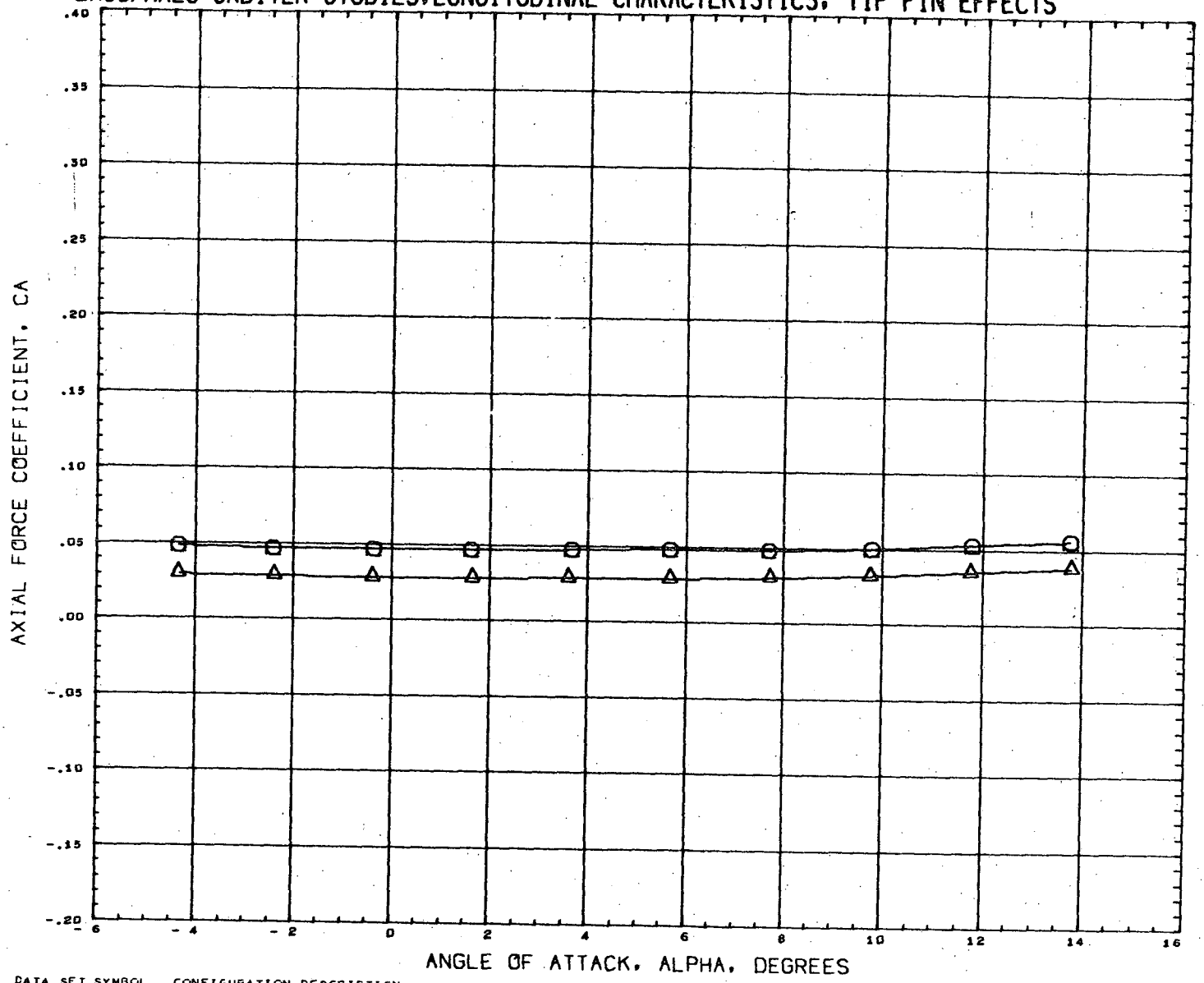
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(03624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



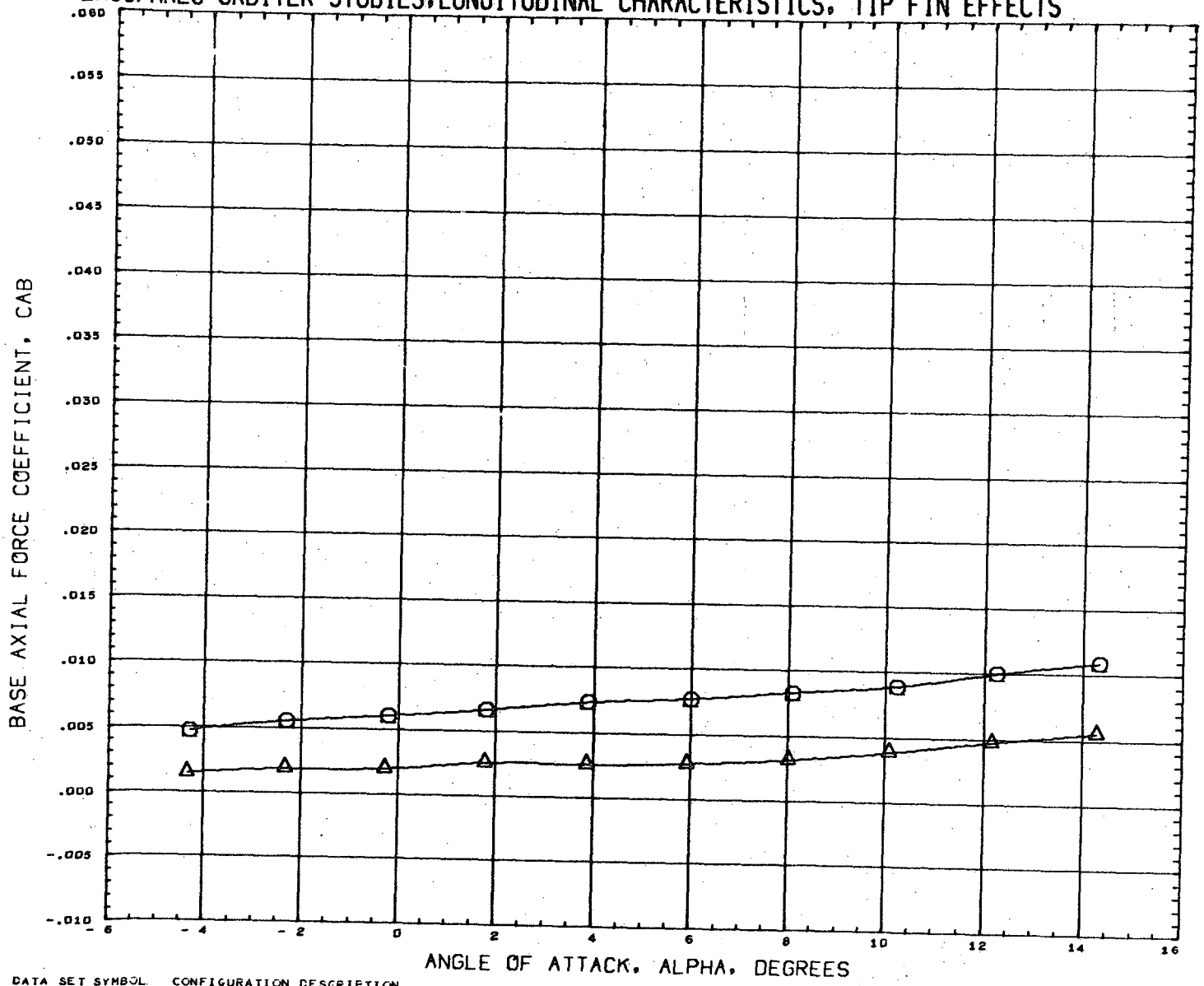
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



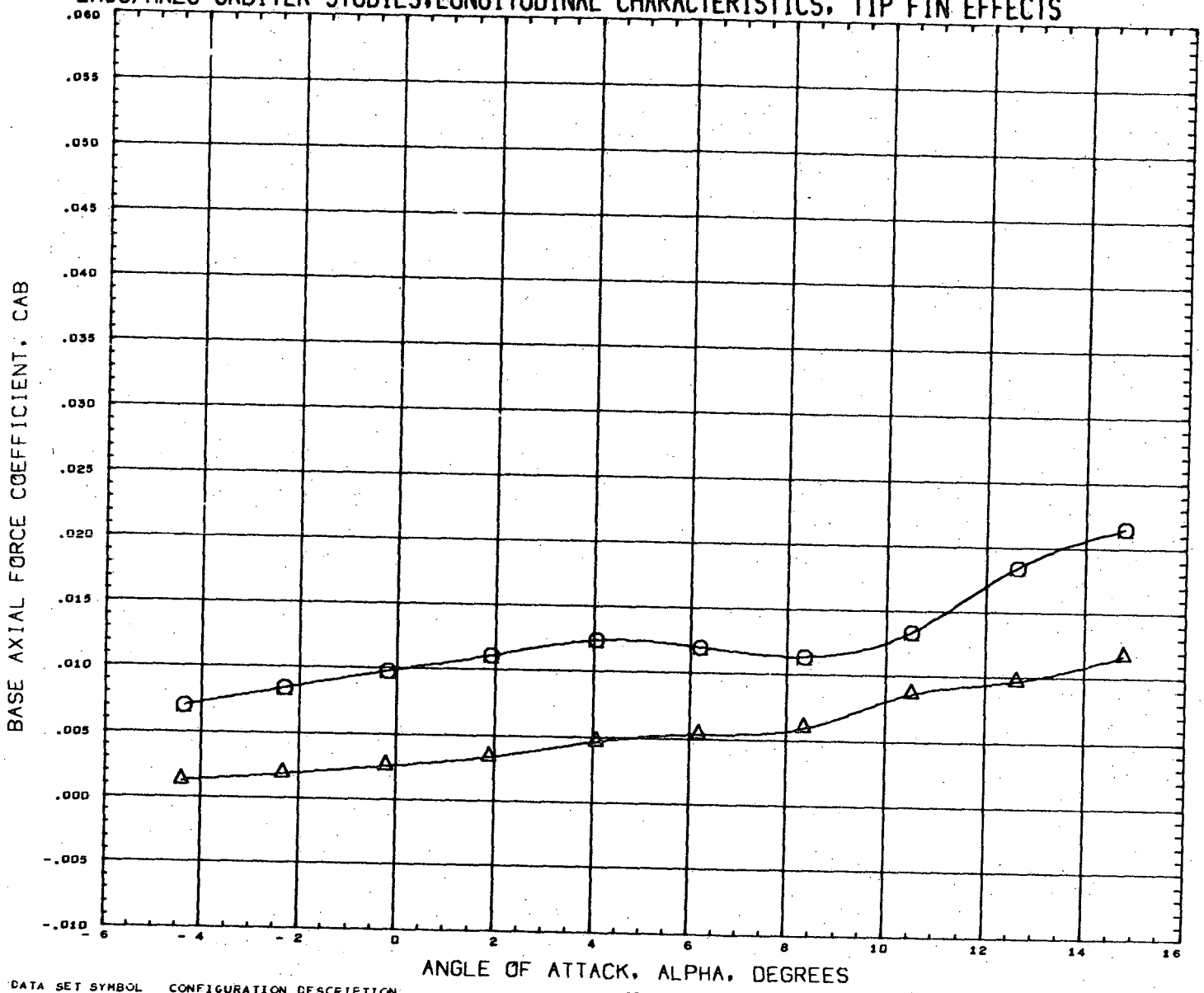
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

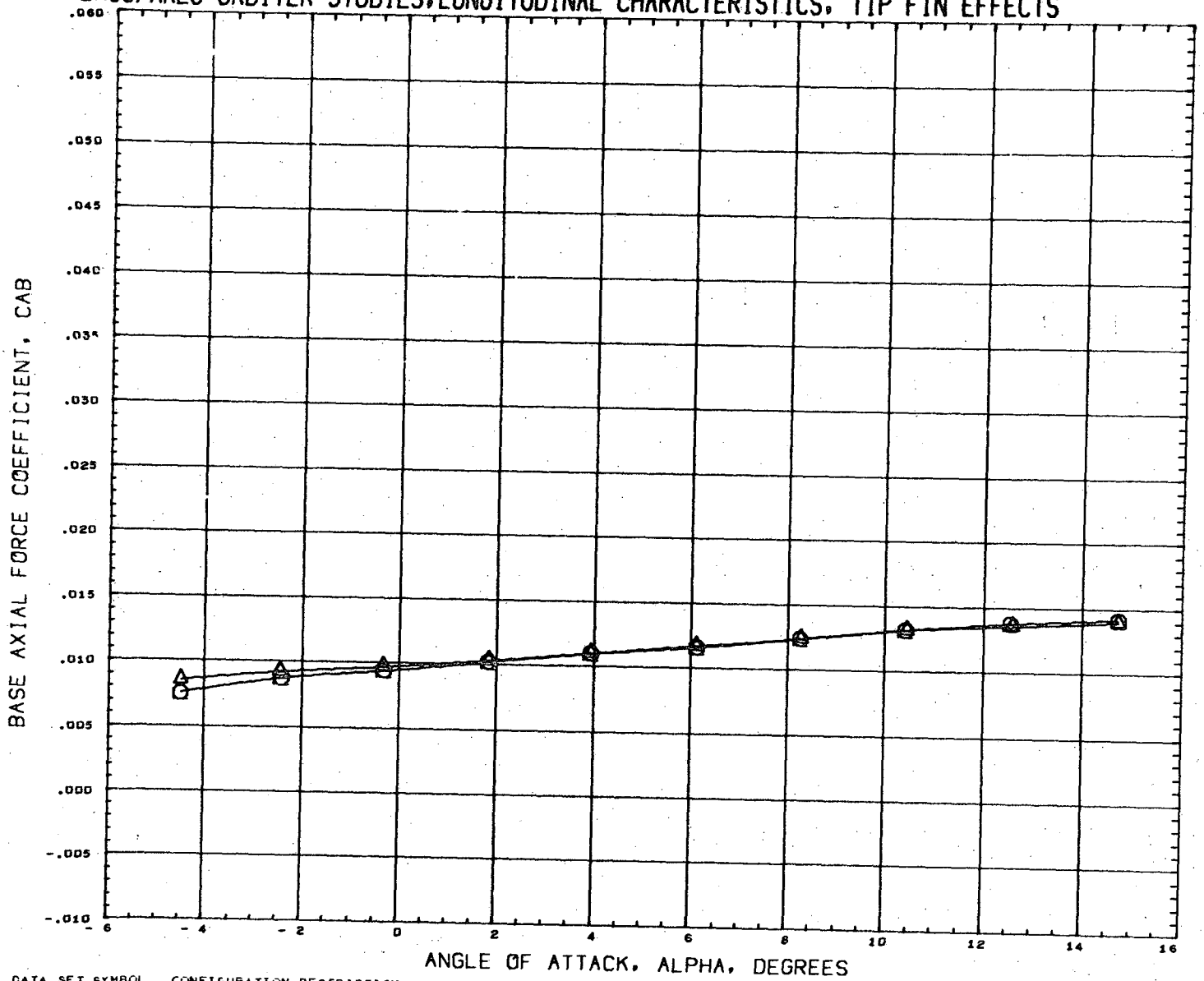


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



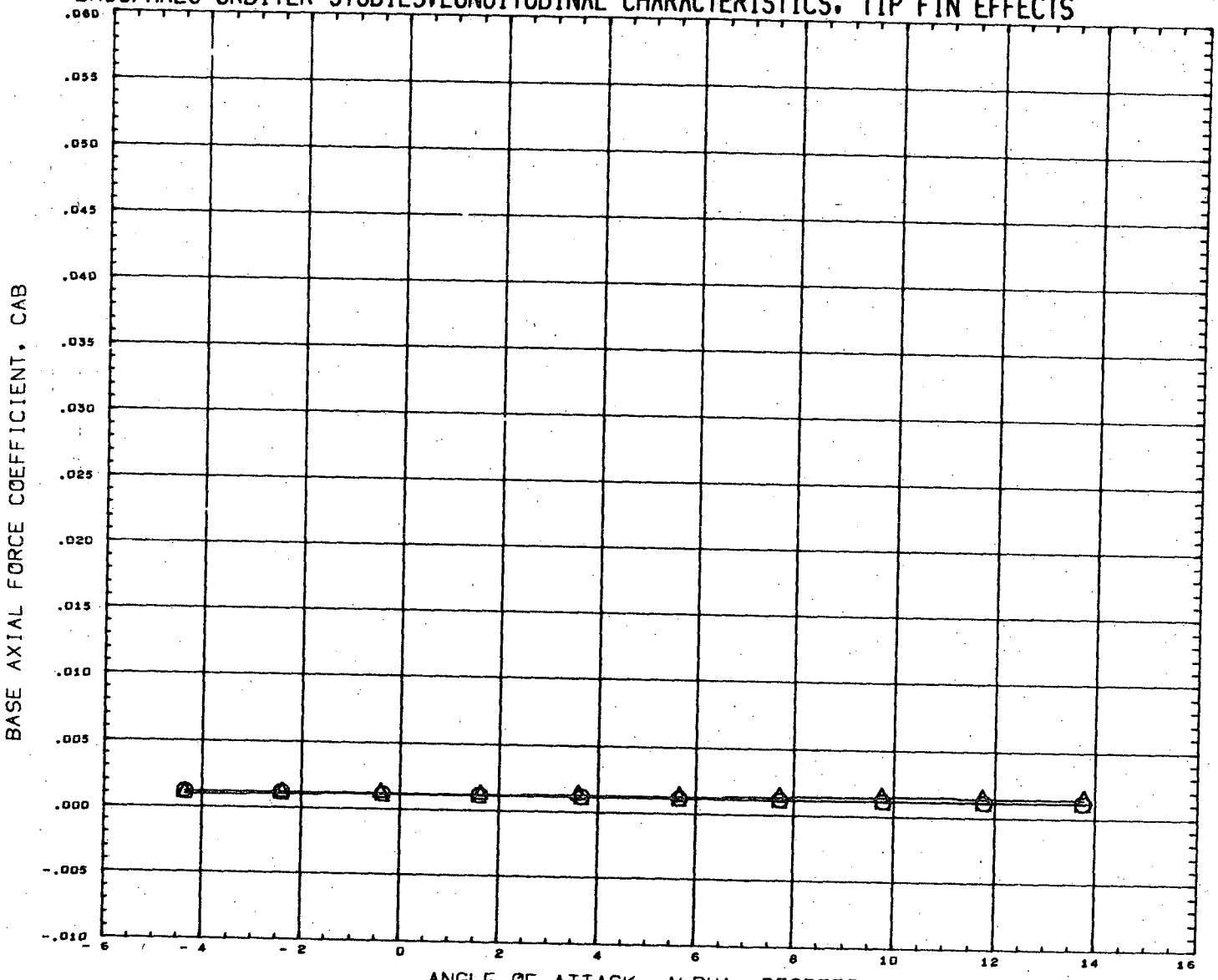
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS. TIP FIN EFFECTS

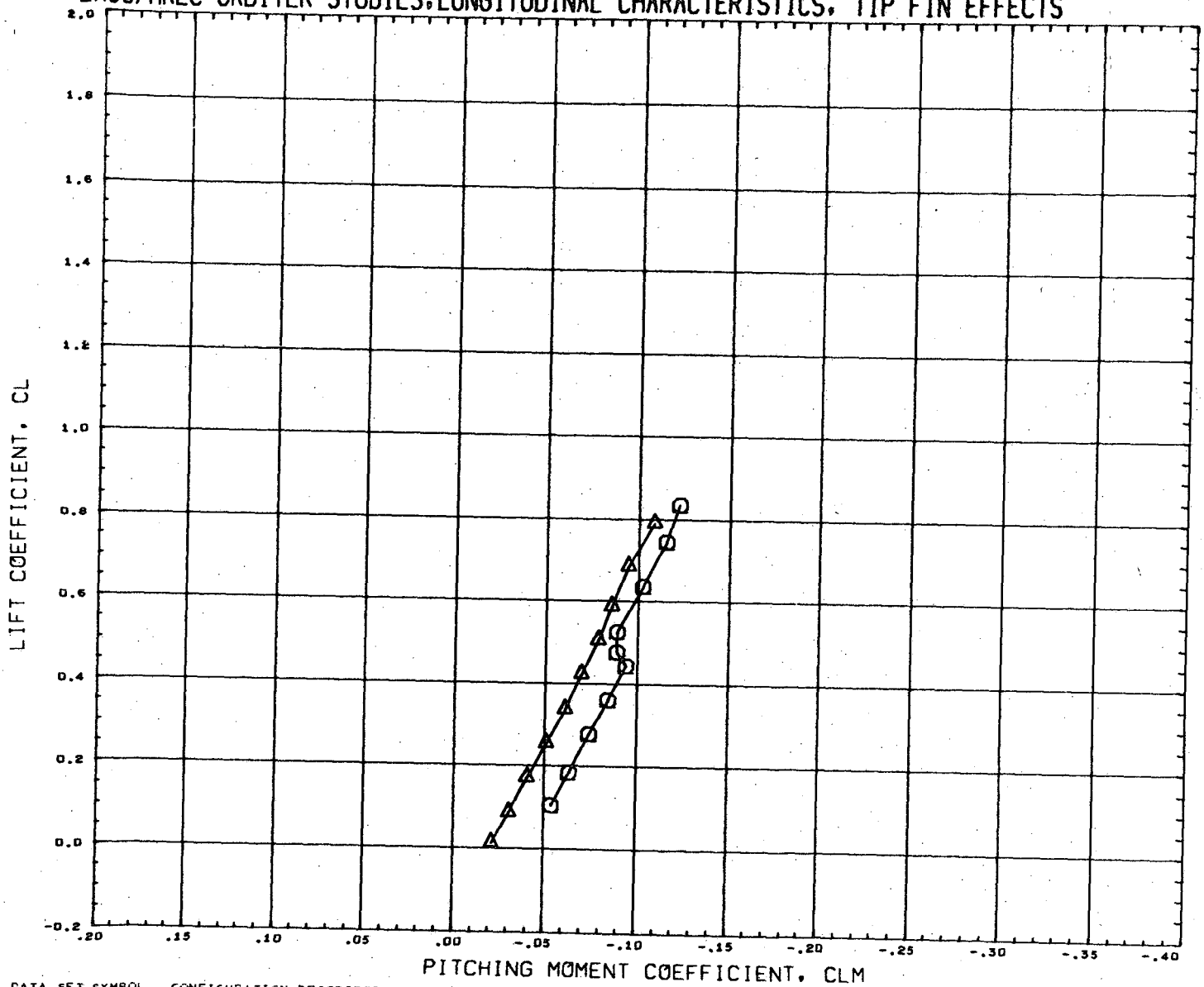


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



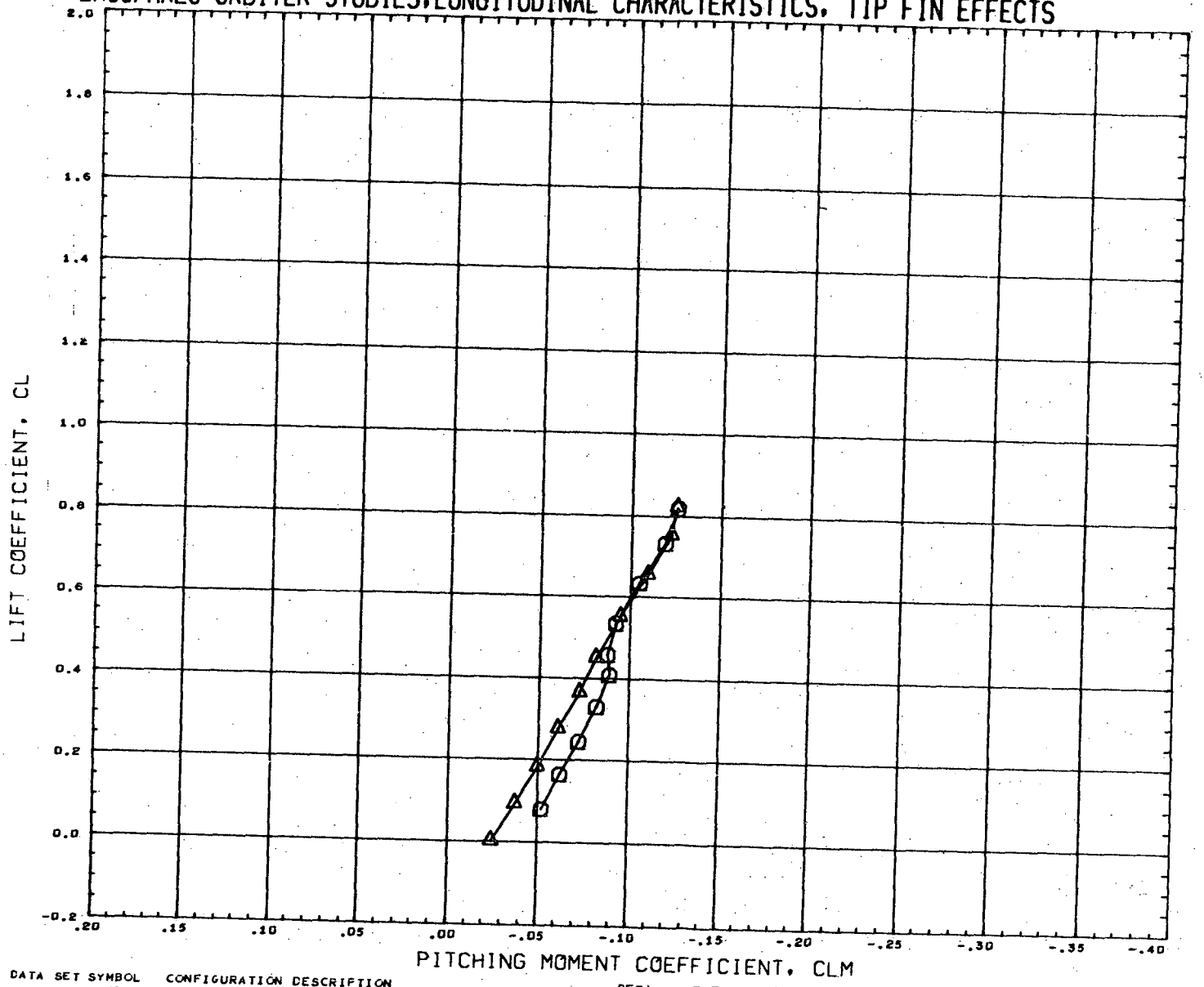
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS



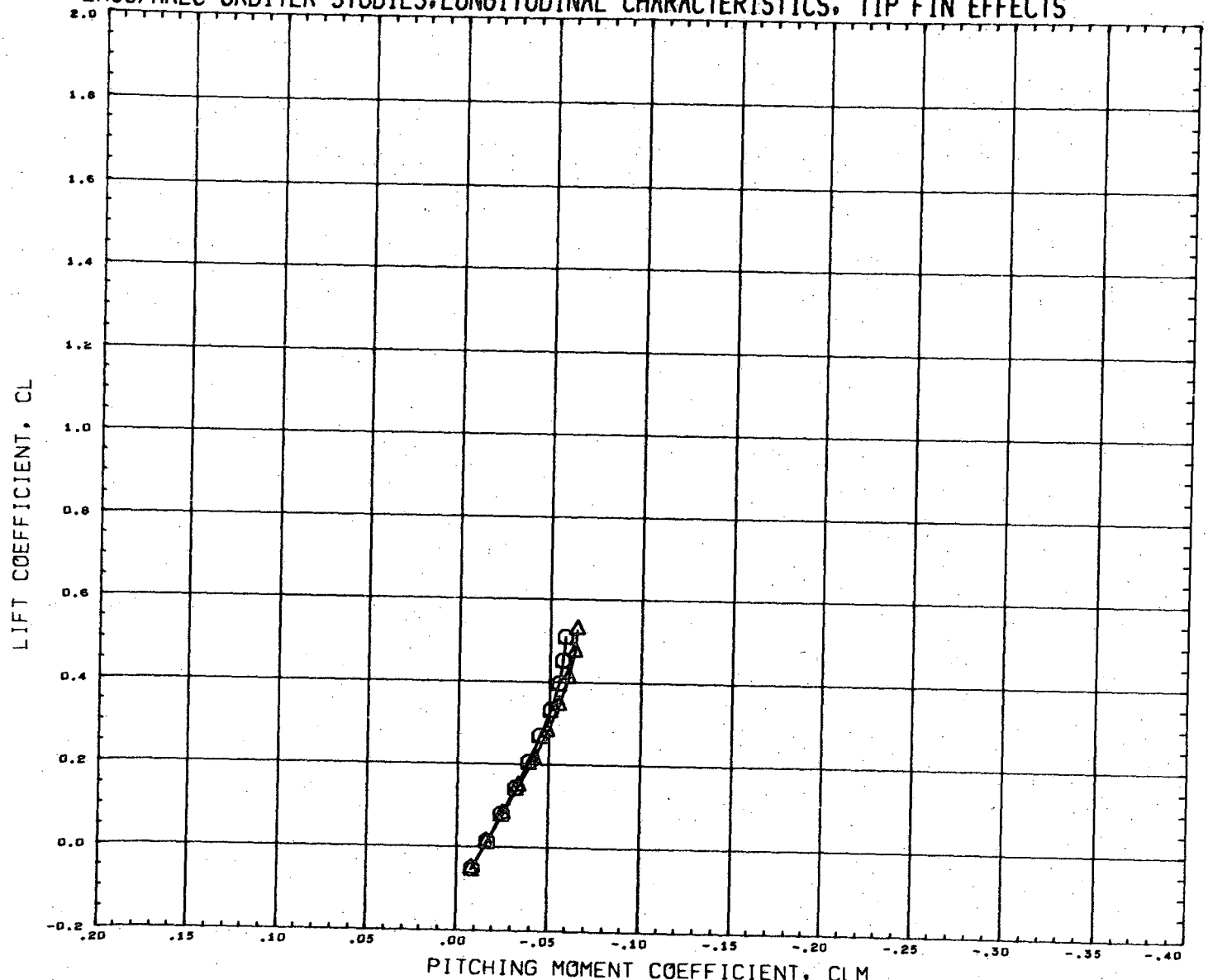
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

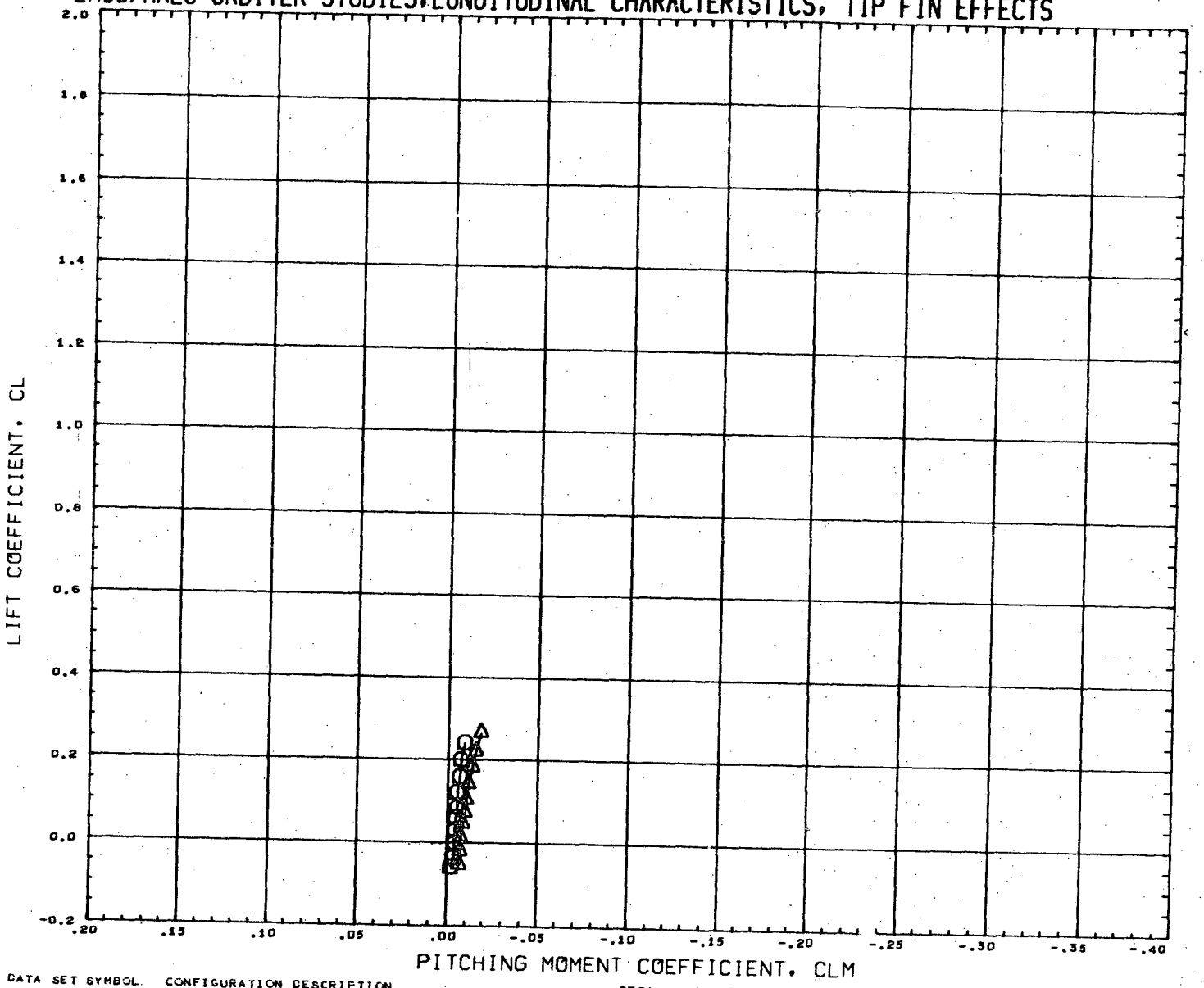


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(03624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 1.974

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS, TIP FIN EFFECTS

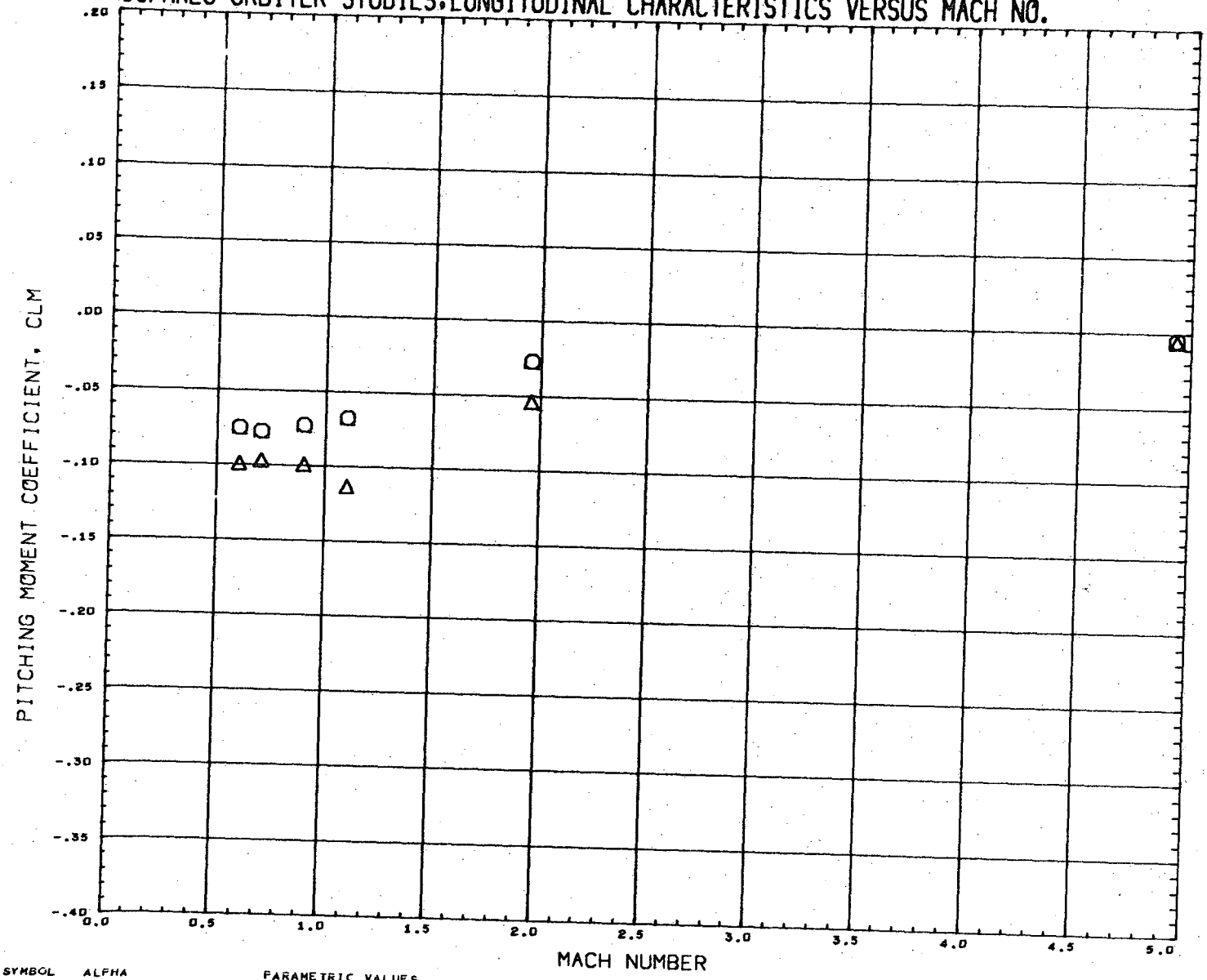


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(E3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3624E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	0.000	0.000	

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



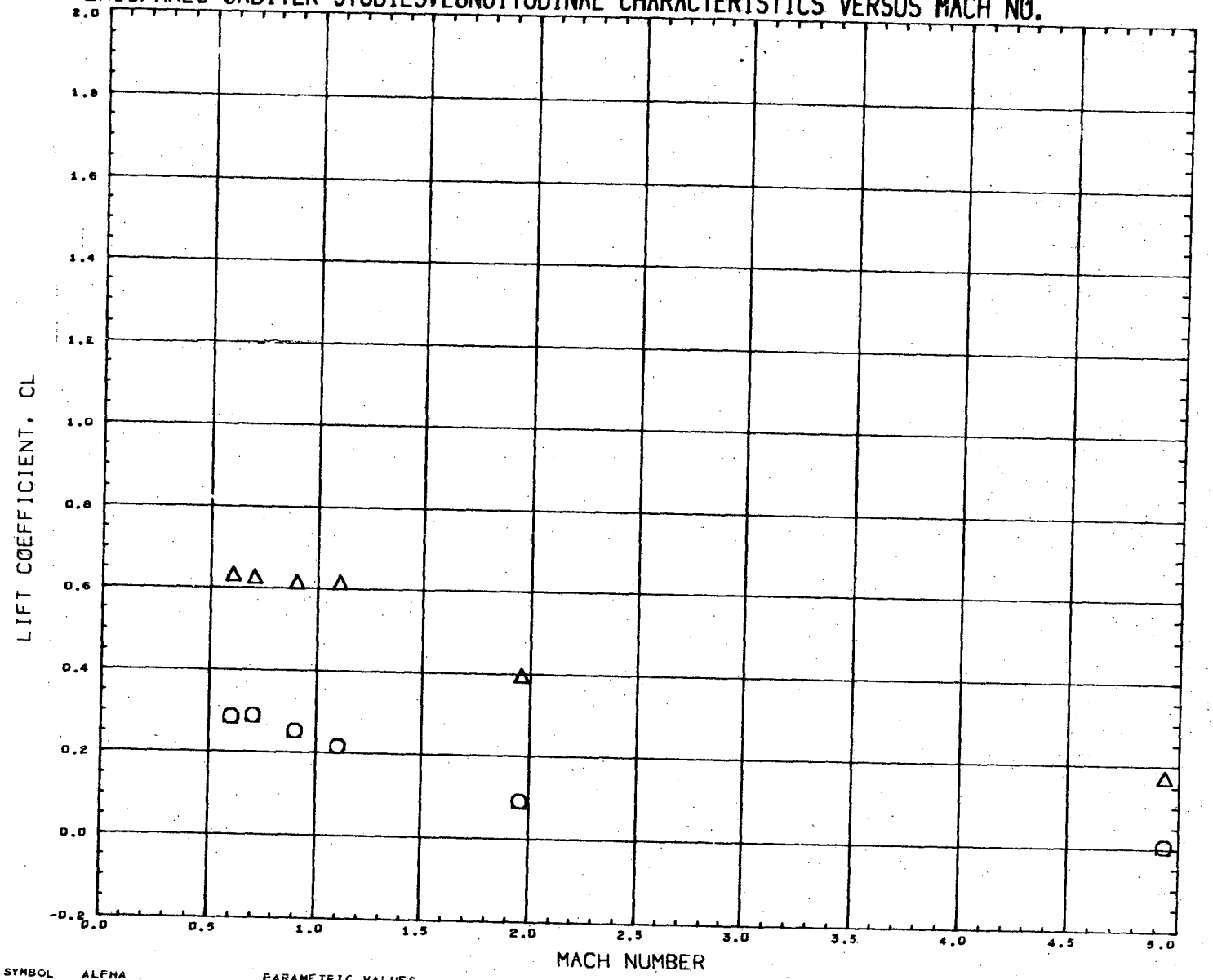
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



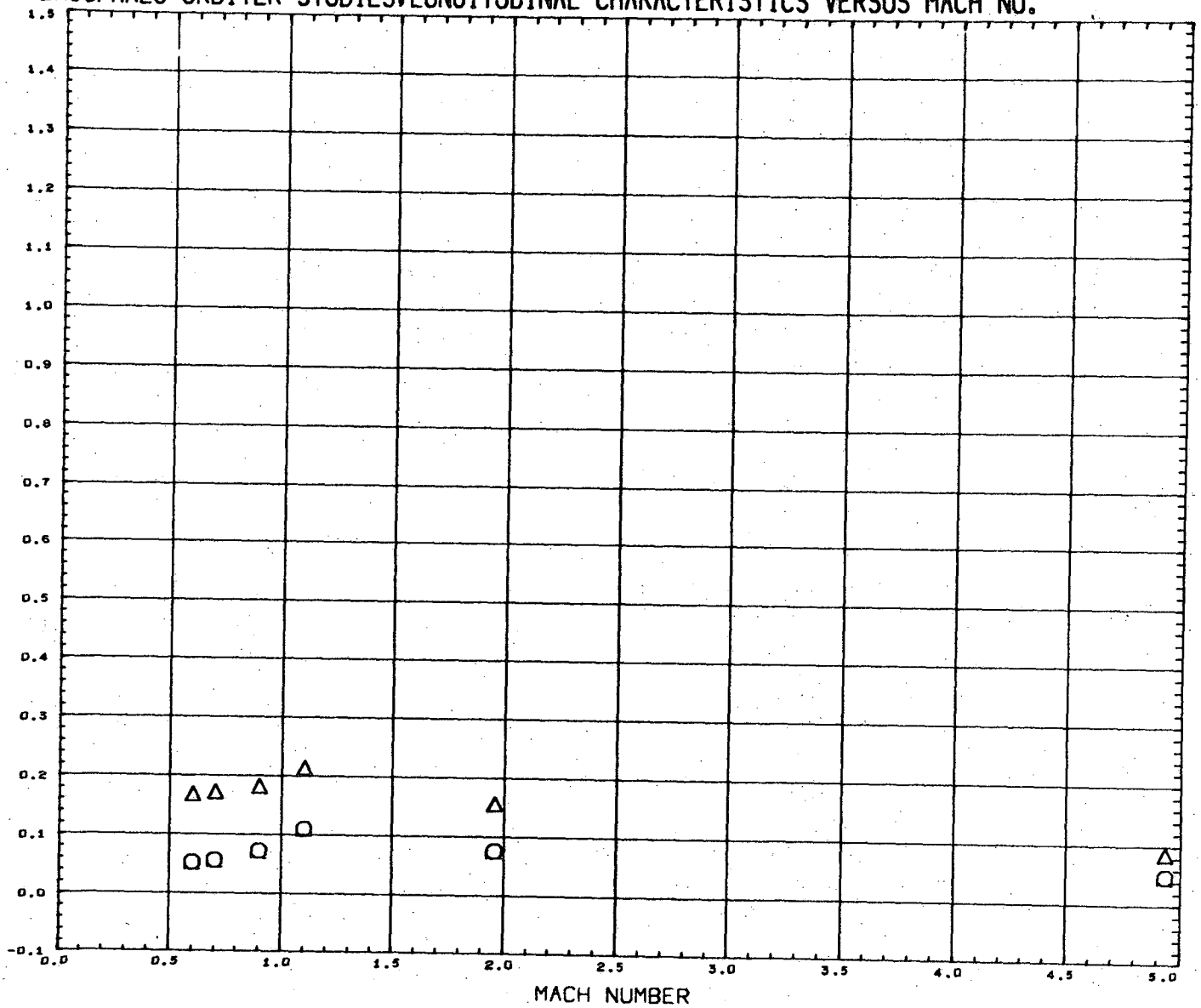
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



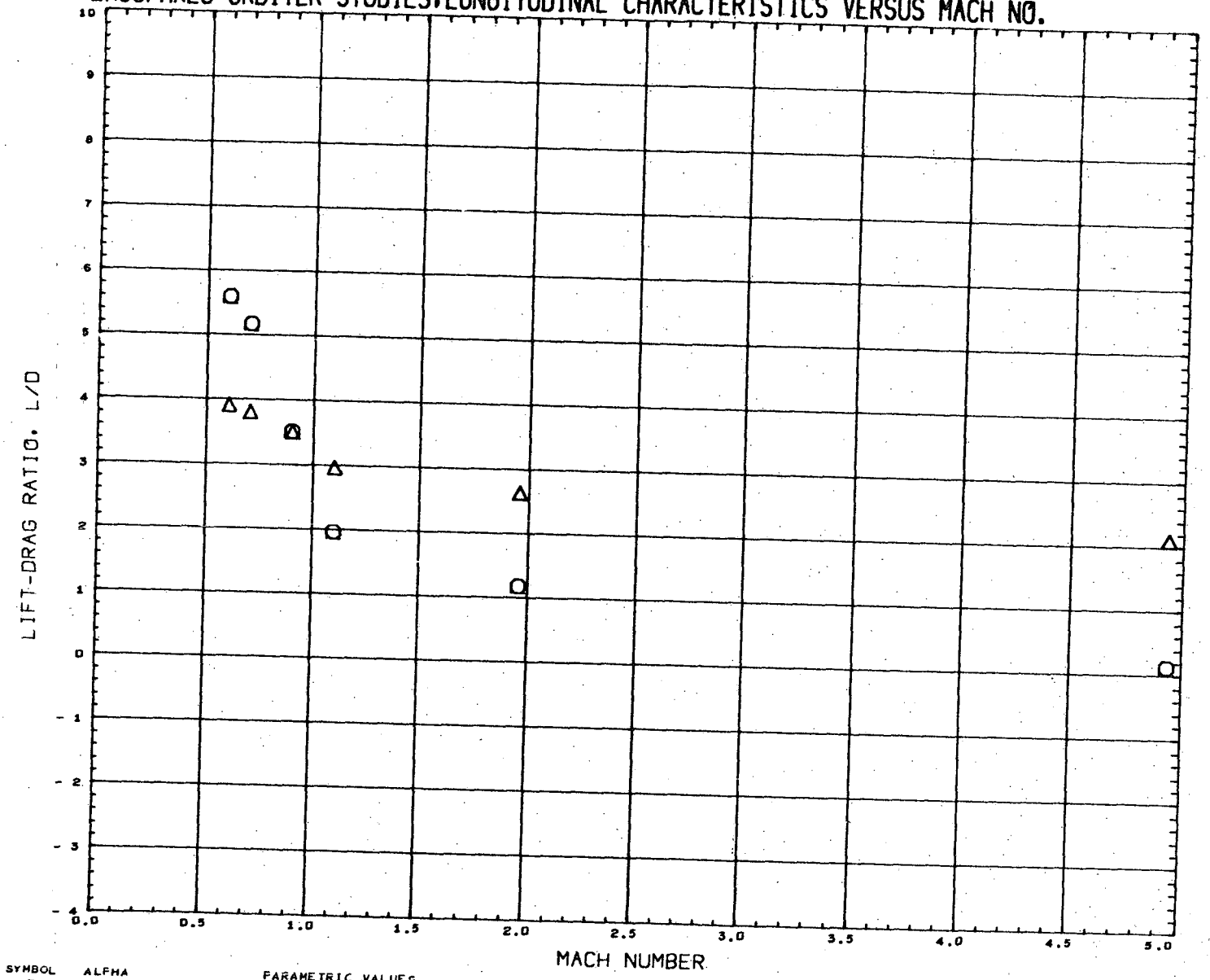
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	0.000	BETA	0.000	ELEVN1	0.000
Δ	10.000	RUDER3	0.000		

DATA HIST. CODE #EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



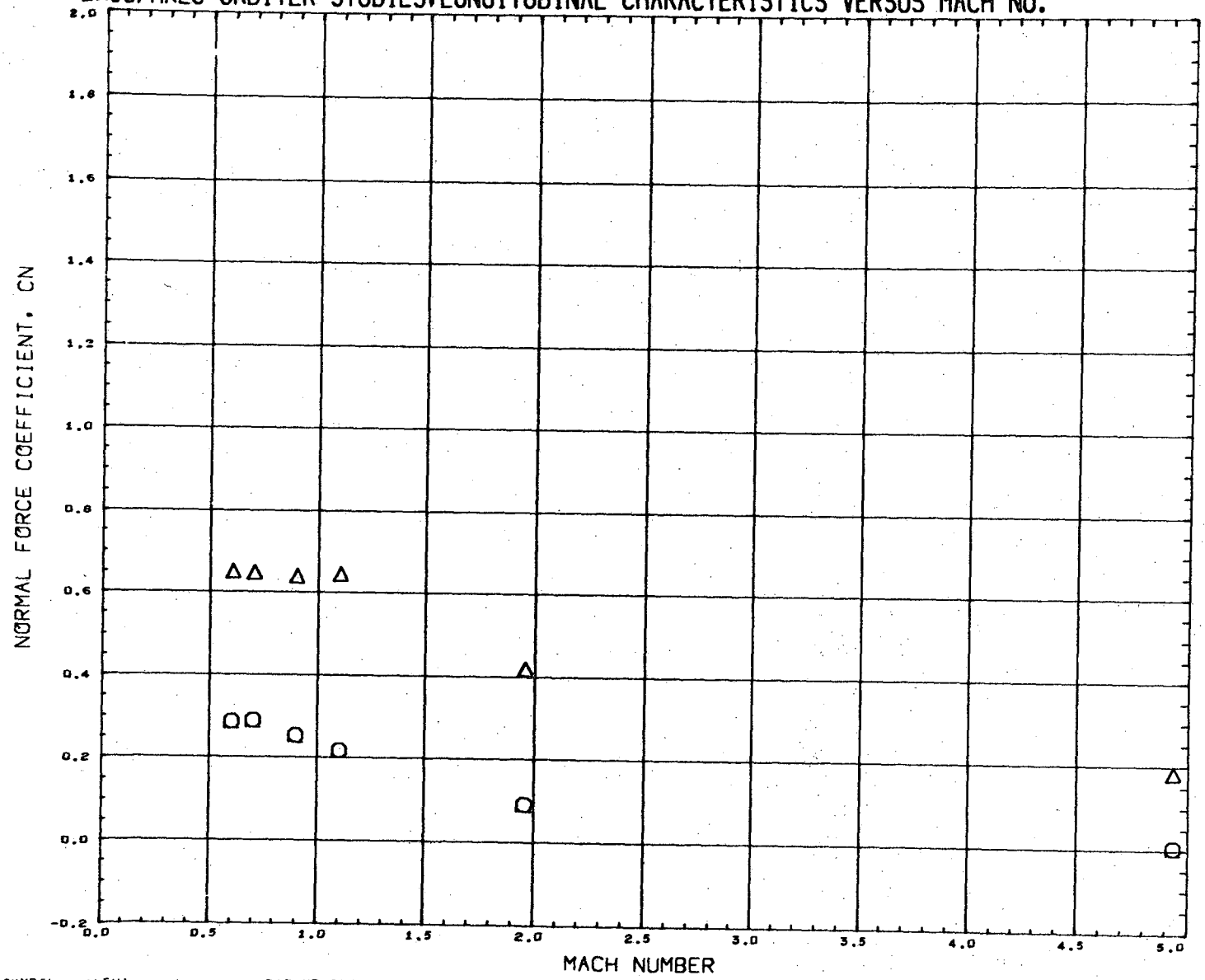
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	0.000	BETA	0.000	ELEVN1	0.000
Δ	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



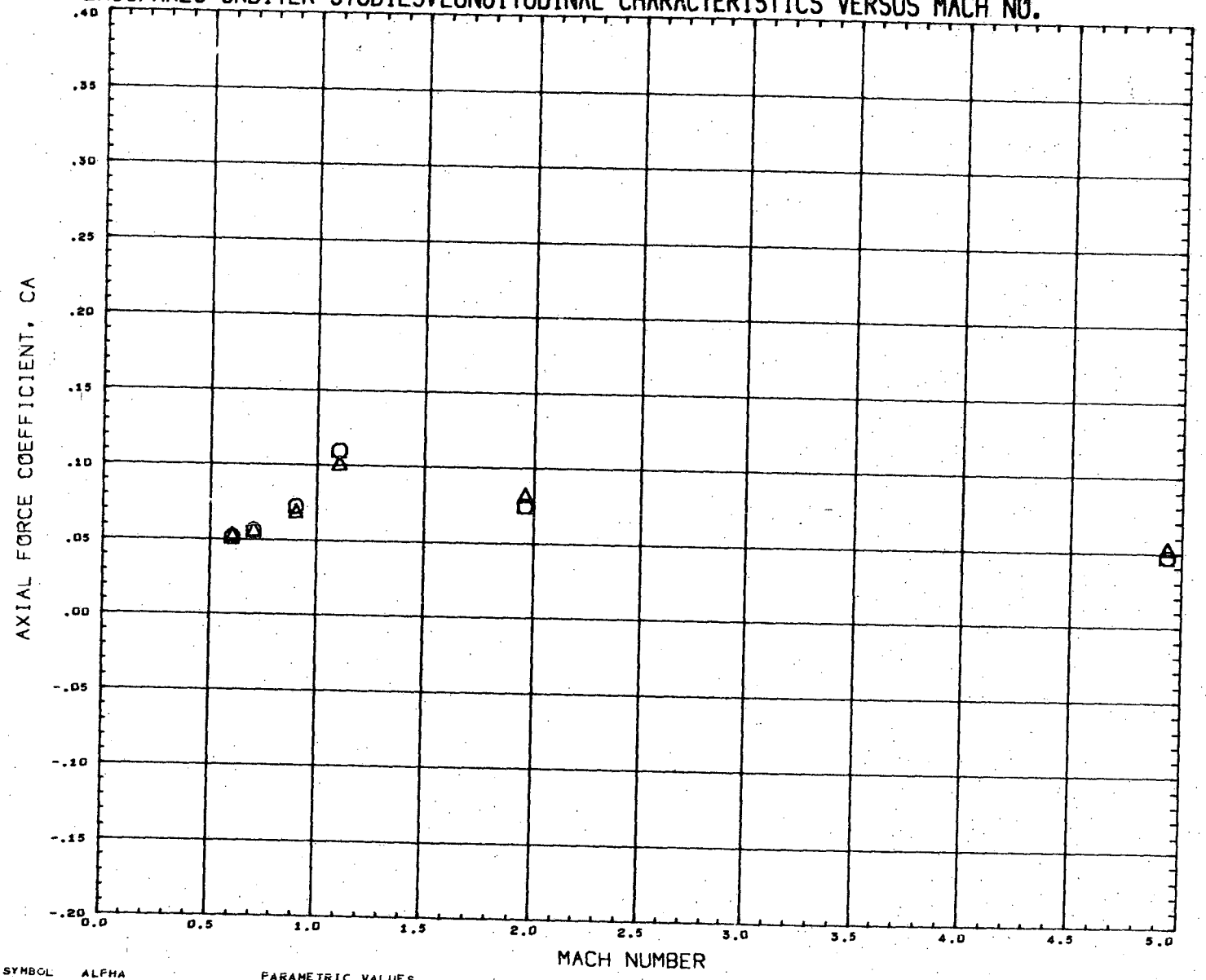
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



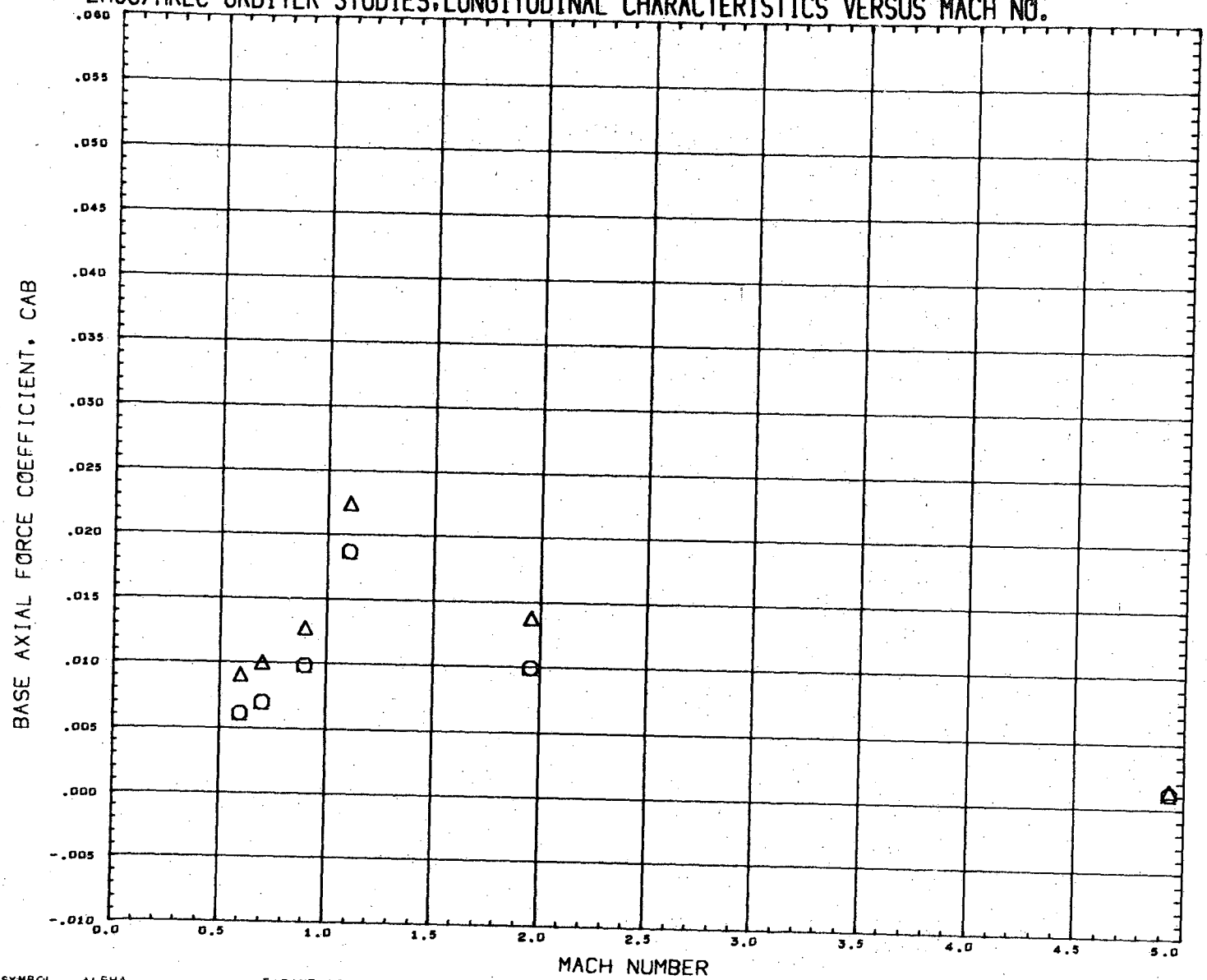
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE #EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



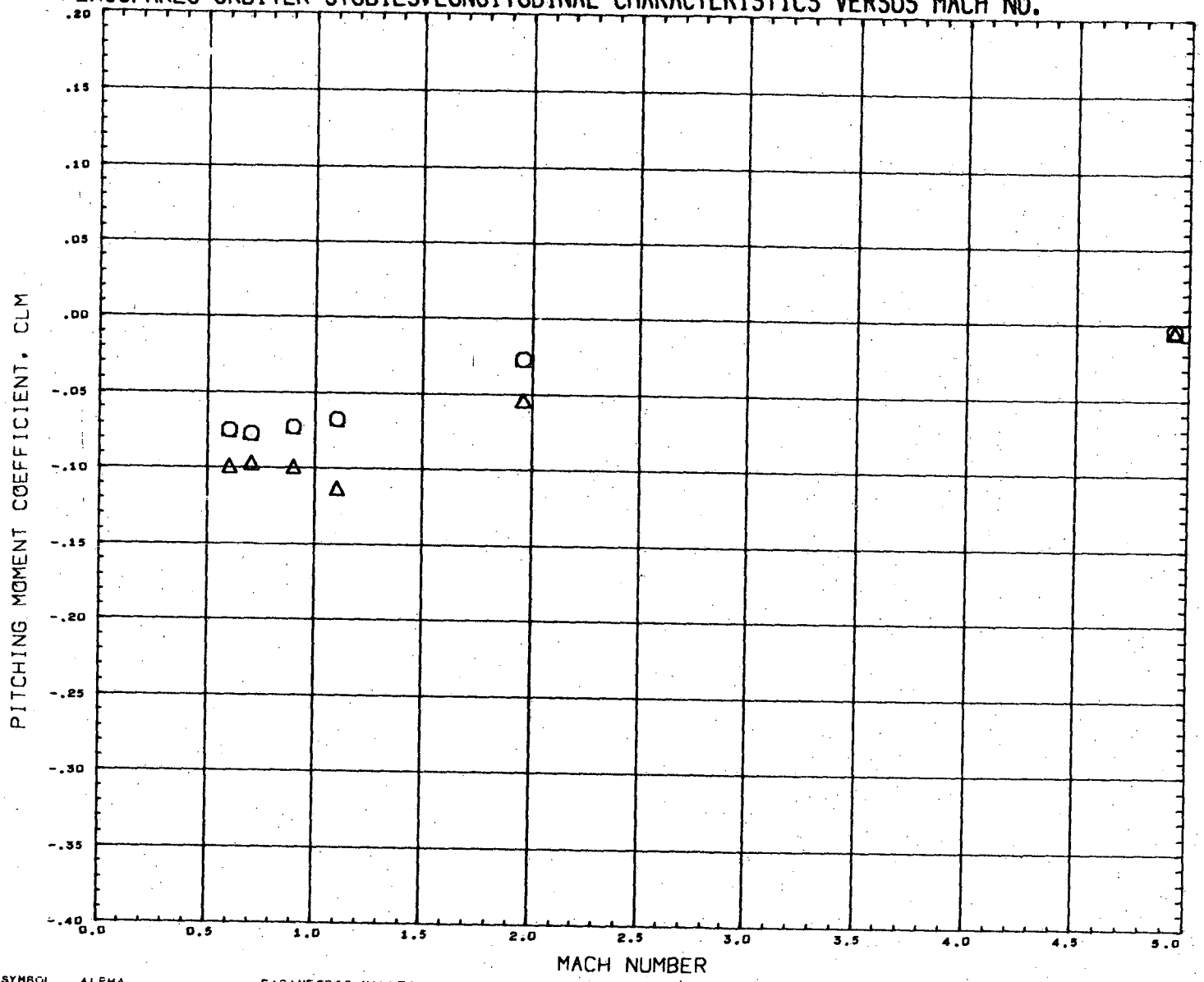
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



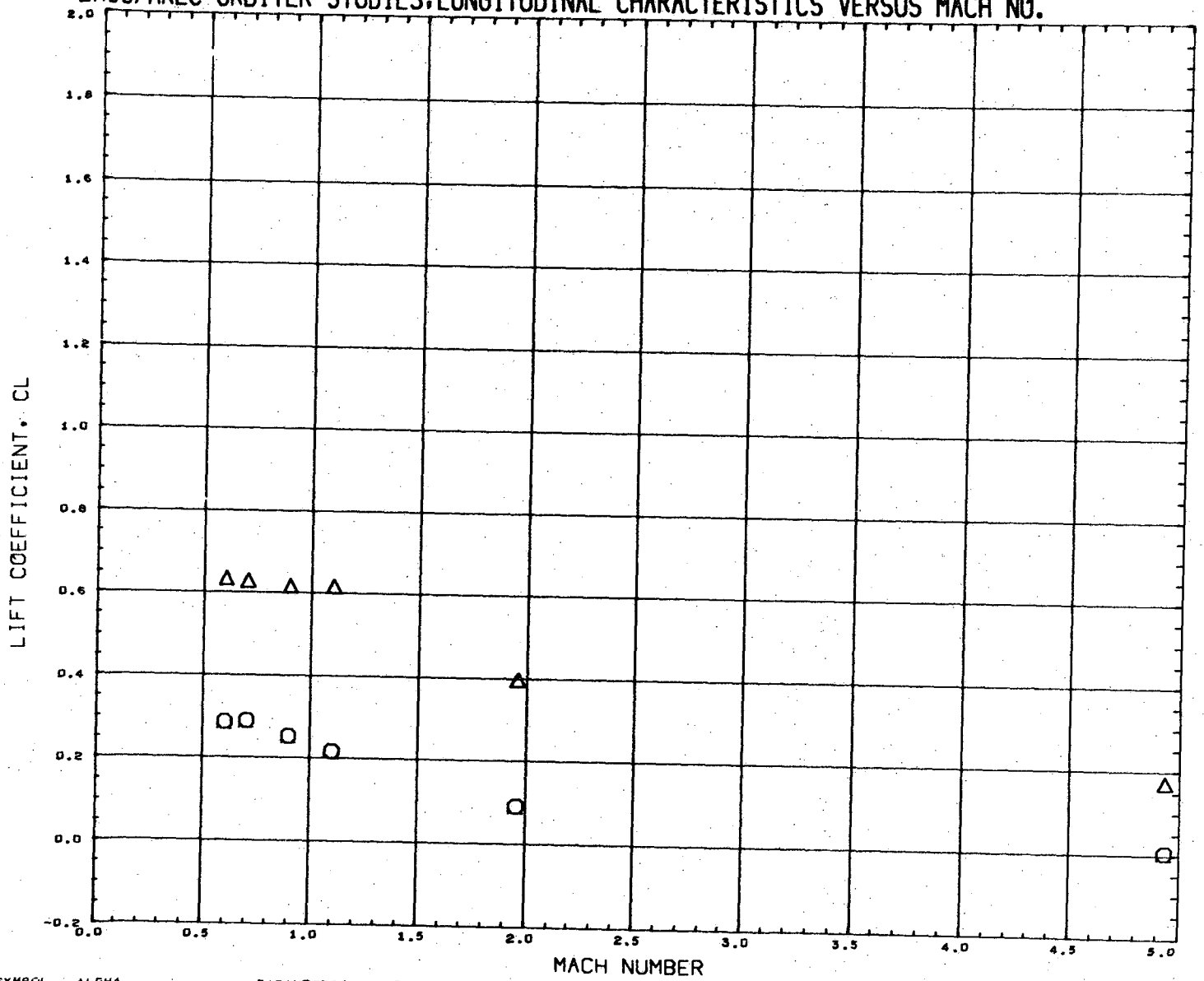
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE #E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



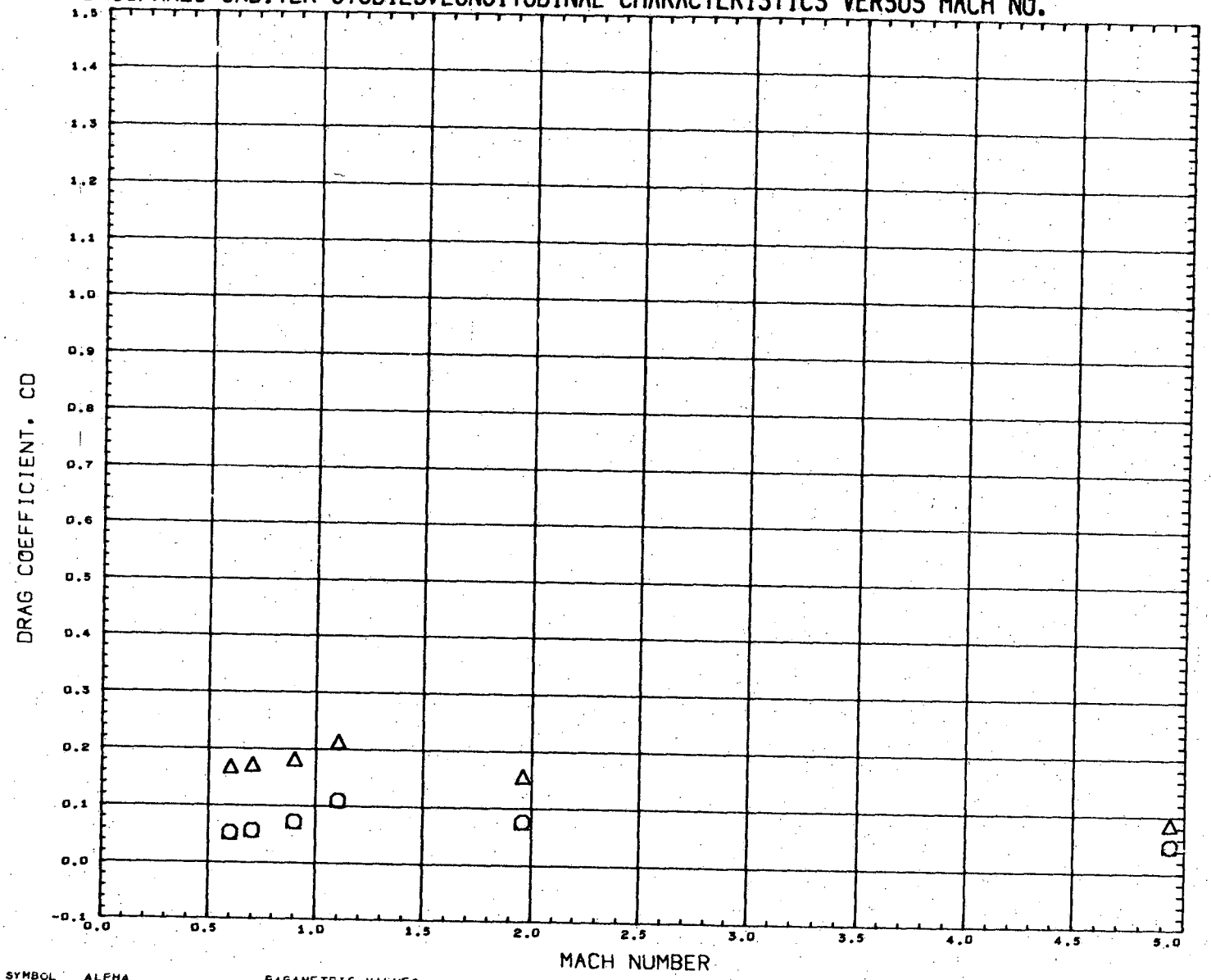
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	0.000	BETA	0.000	ELEVN1	0.000
Δ	10.000	RUDER3	0.000		

DATA HIST. CODE #E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



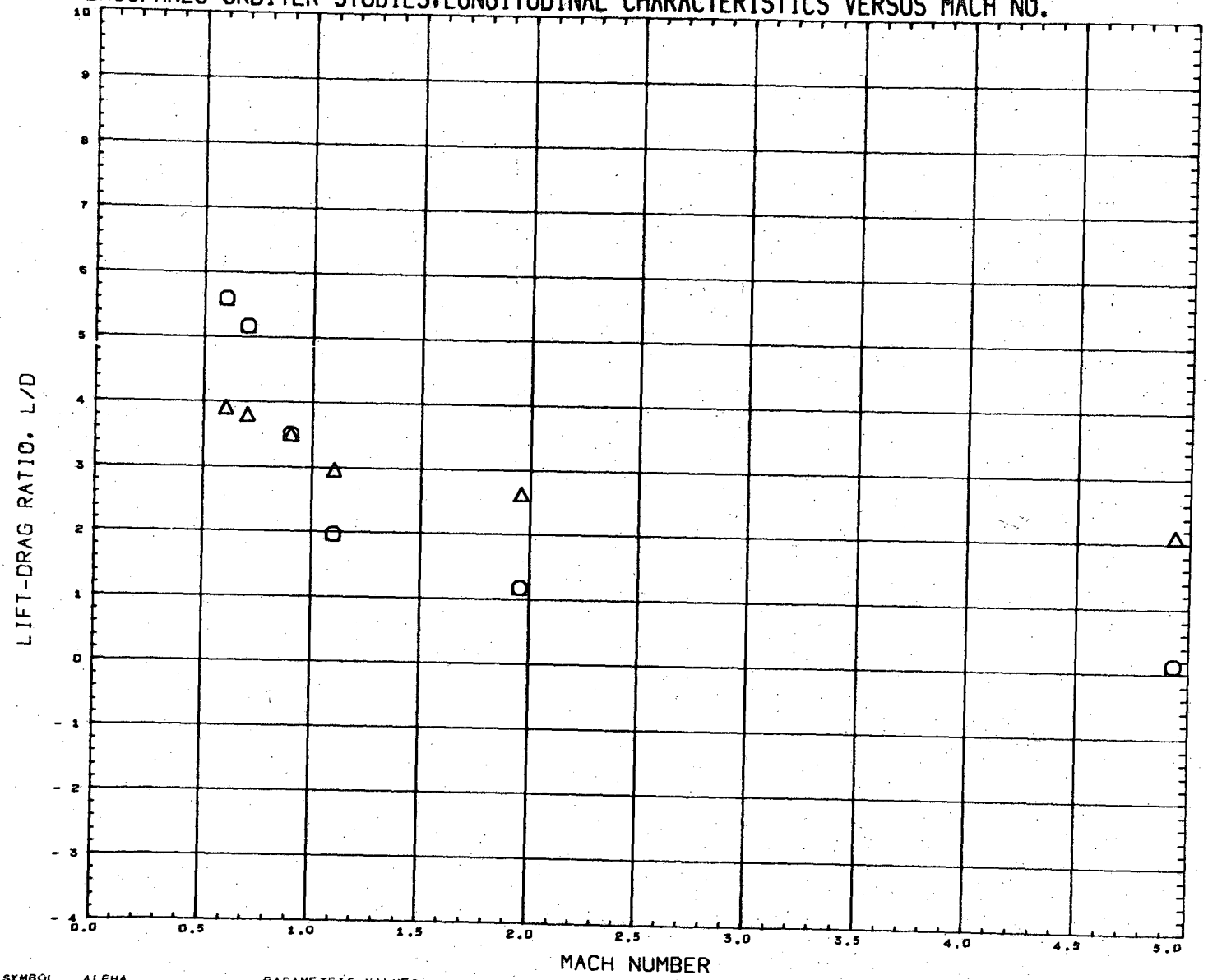
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE #E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



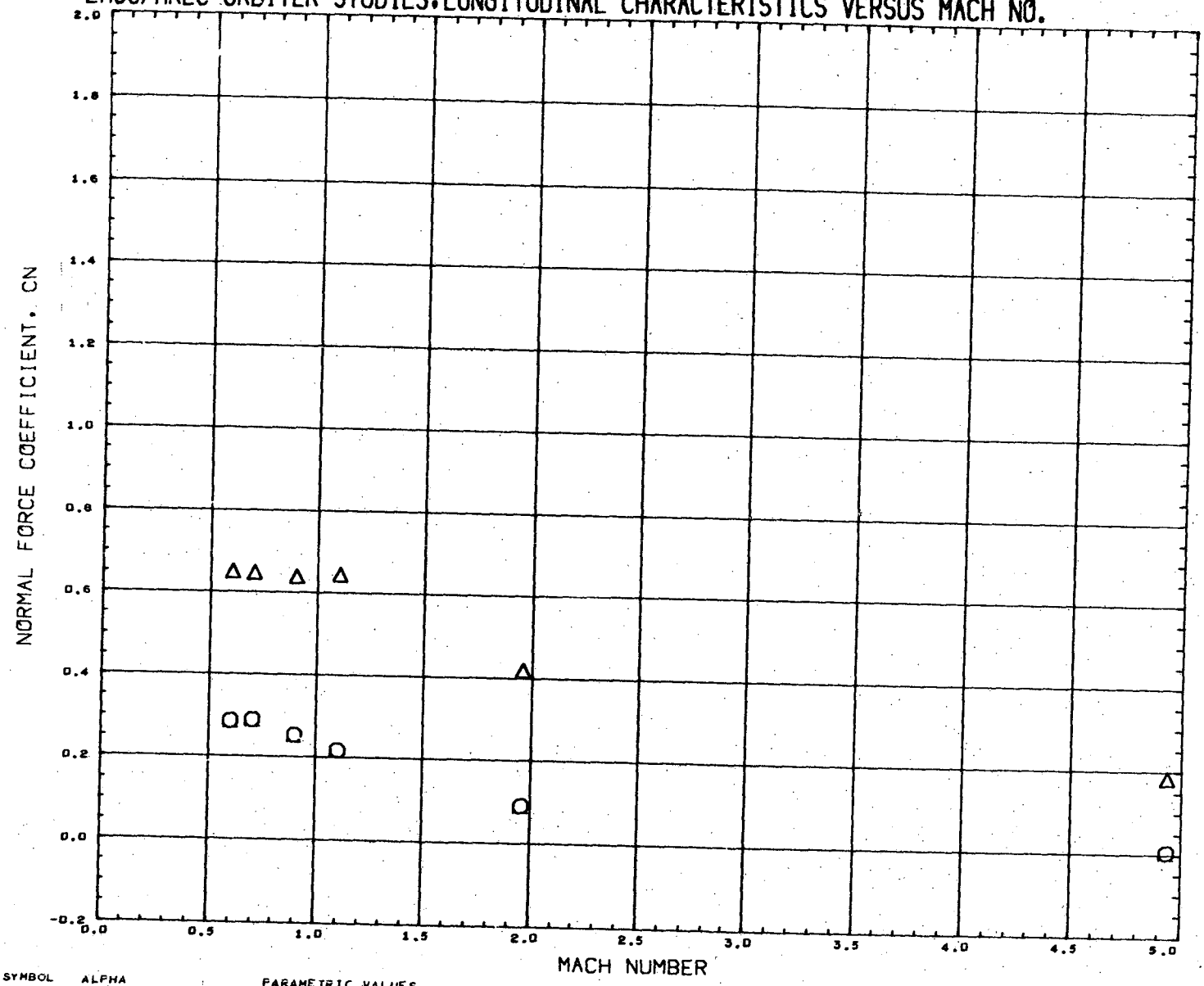
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE #EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



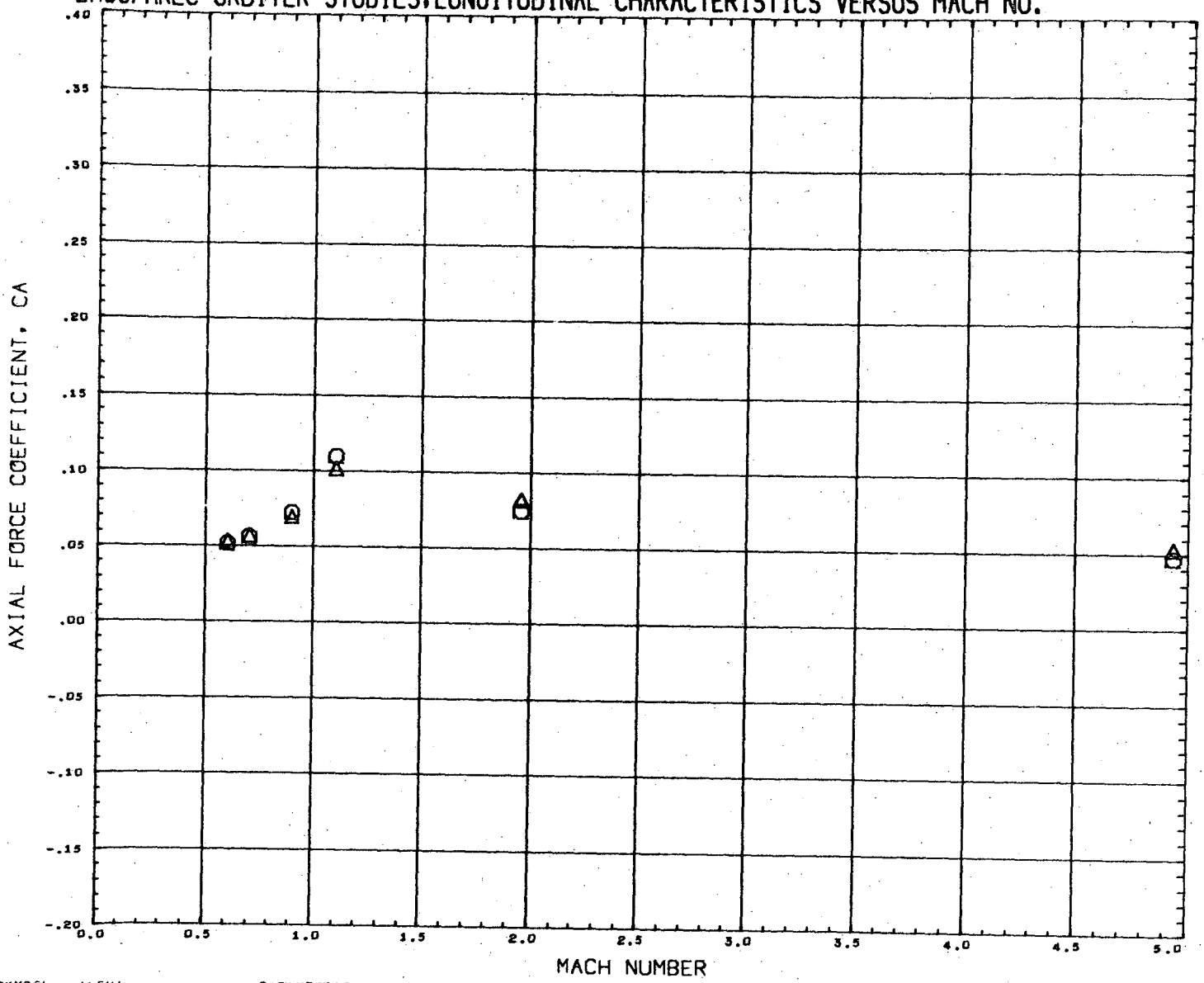
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



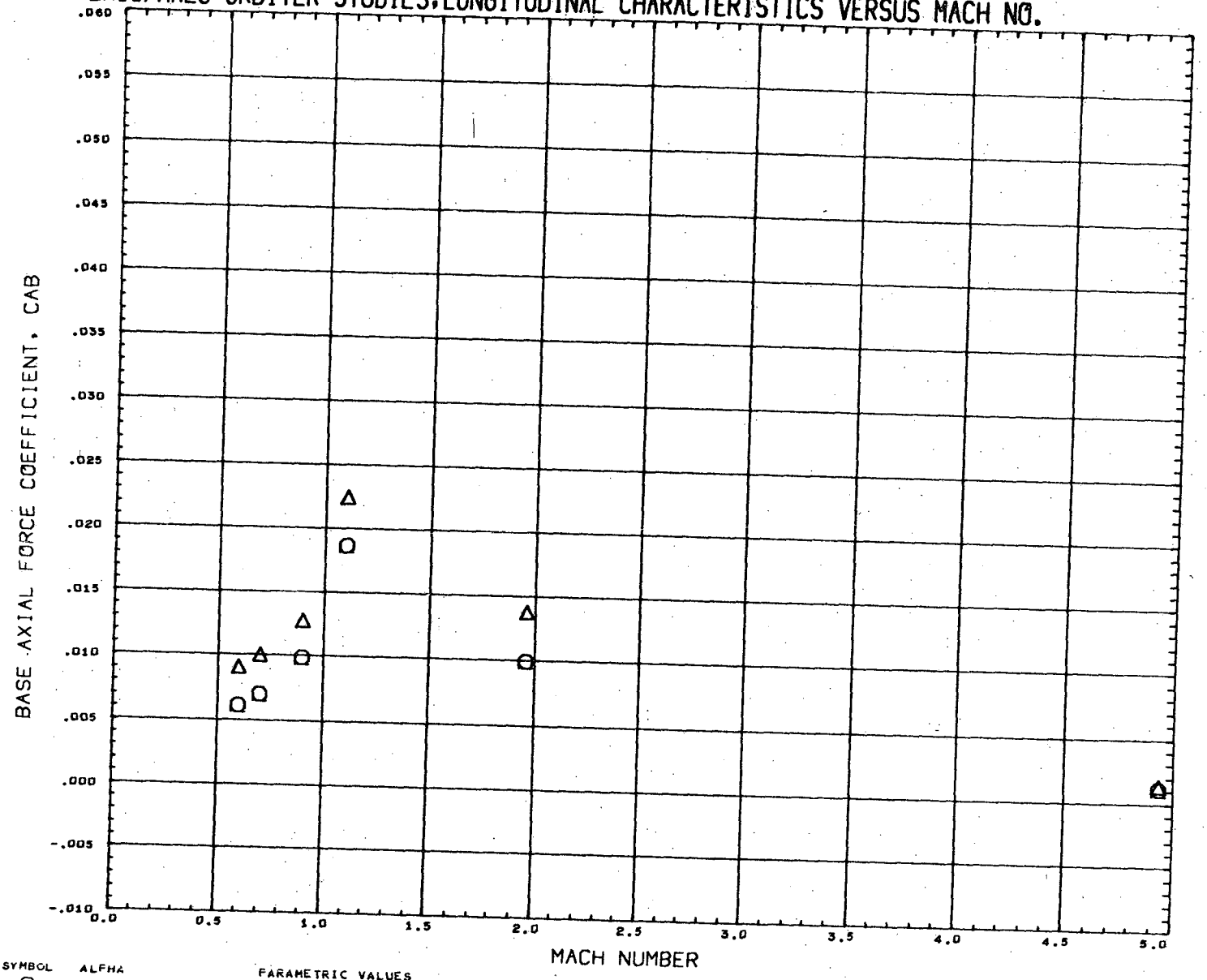
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



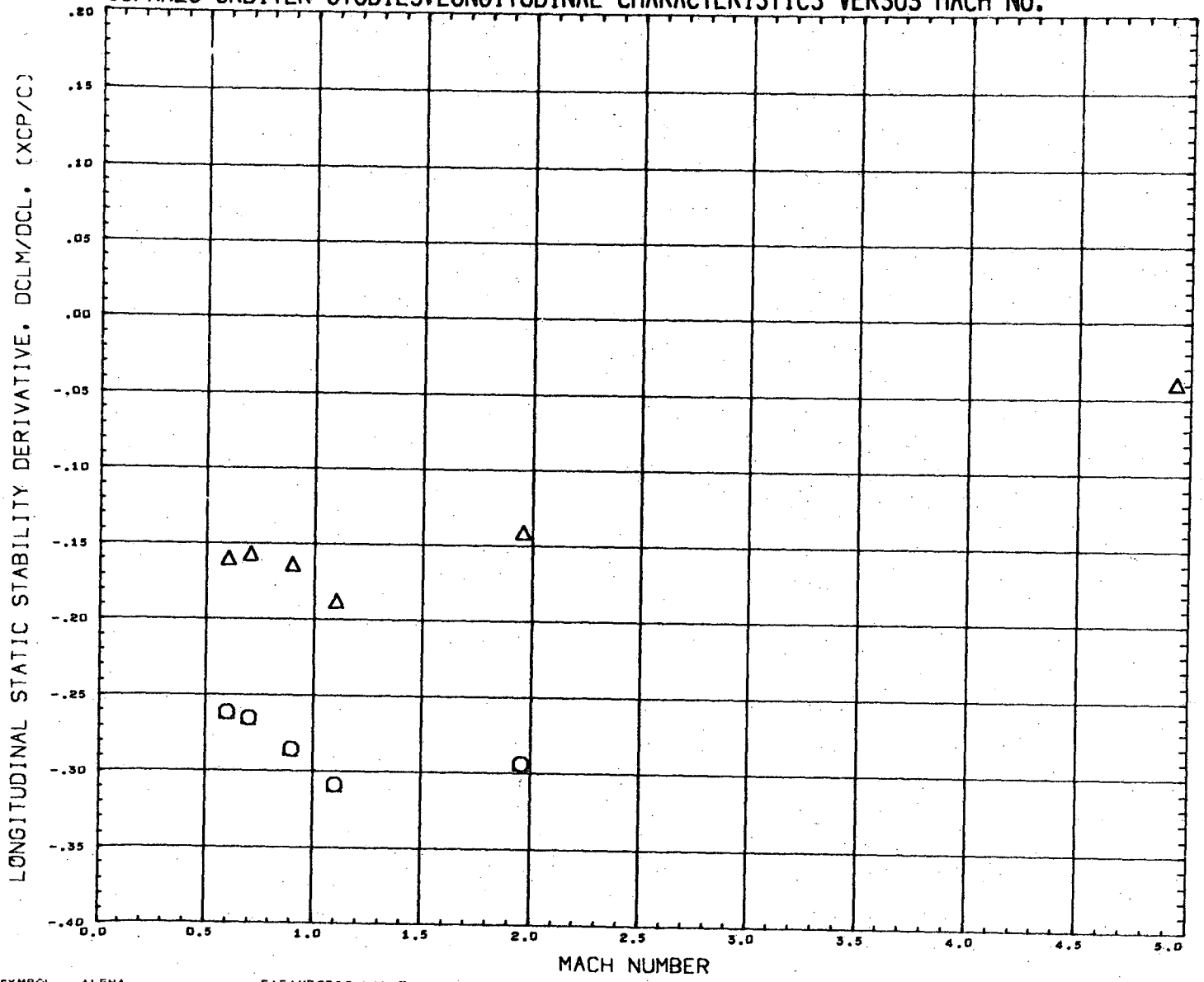
SYMBOL	ALPHA	PARAMETRIC VALUES			
O	0.000	BETA	0.000	ELEVN1	0.000
Δ	10.000	RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



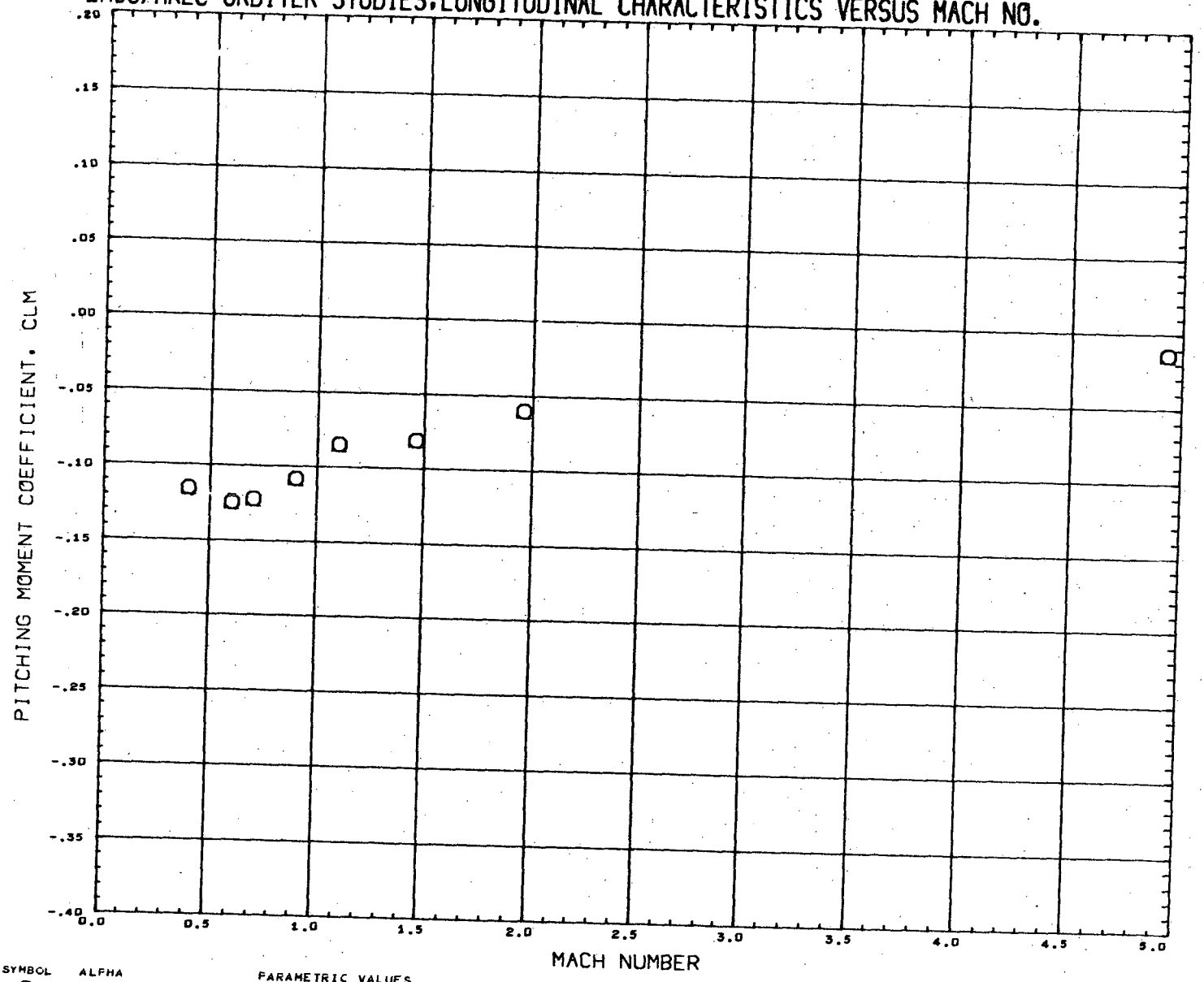
SYMBOL	ALPHA		PARAMETRIC VALUES		
○	0.000	BETA	0.000	ELEVN1	0.000
△	10.000	RUDER3	0.000		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

DATA HIST. CODE #EIC

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



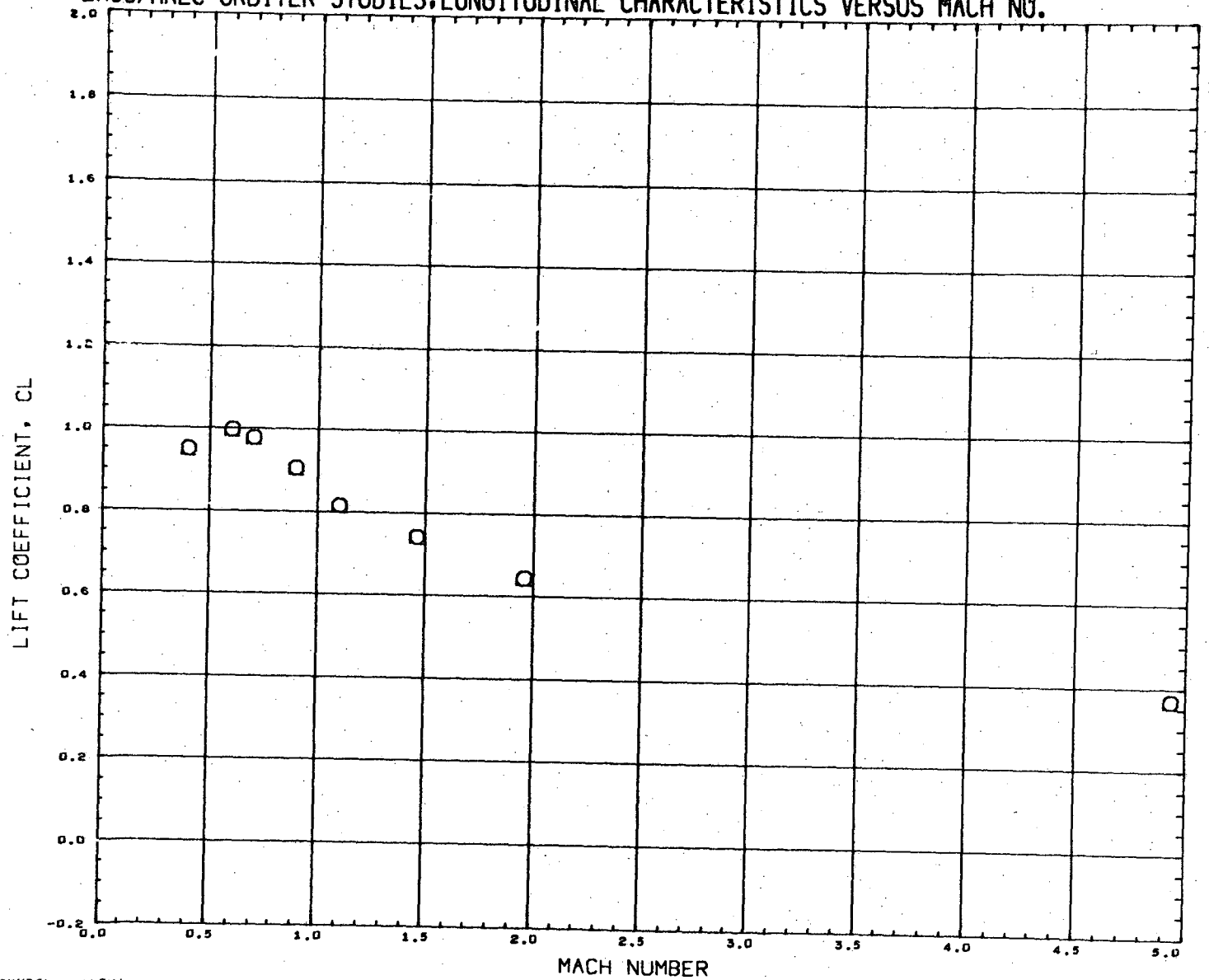
SYMBOL	ALPHA	PARAMETRIC VALUES			
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE #E1

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



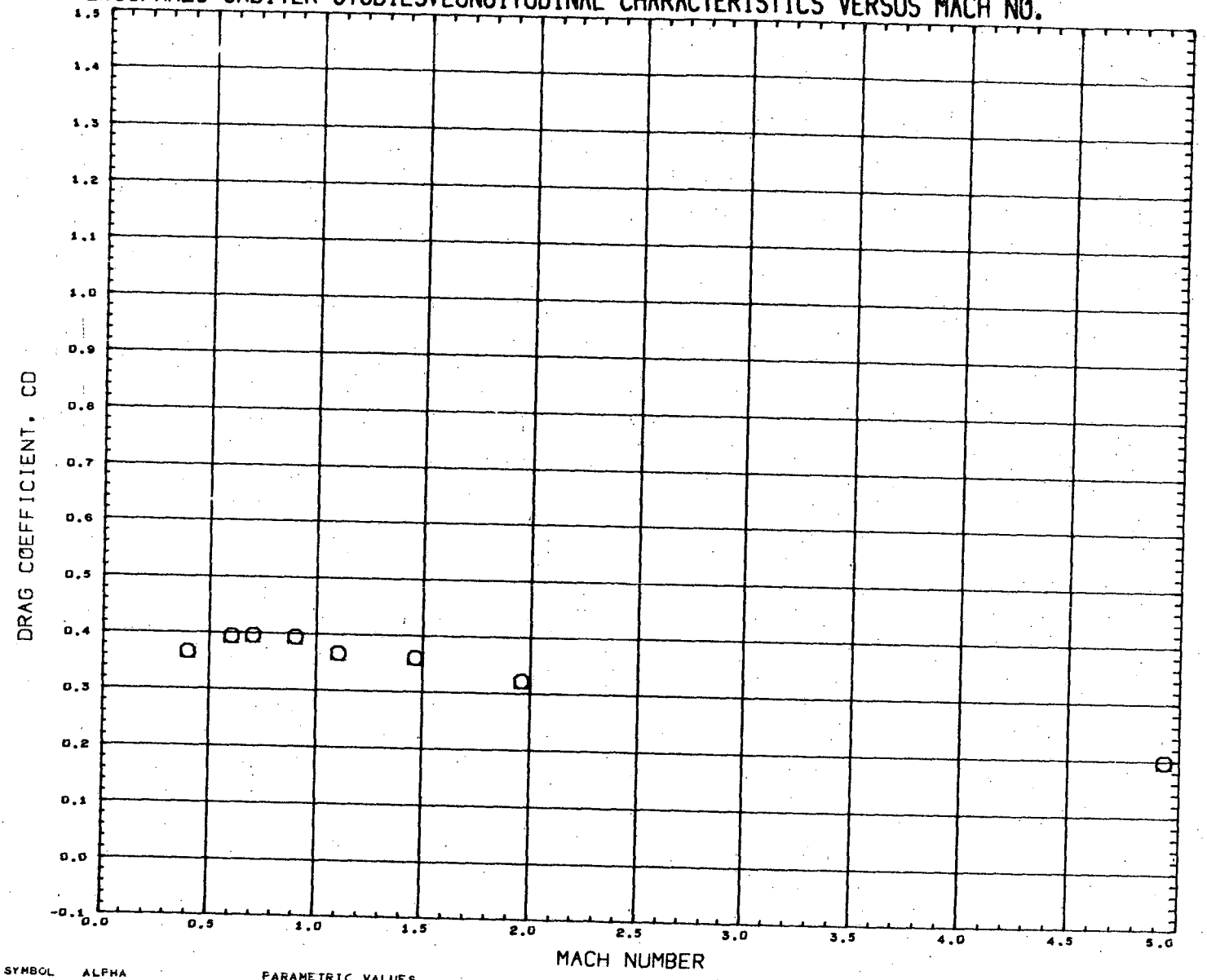
SYMBOL	ALPHA	PARAMETRIC VALUES			
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



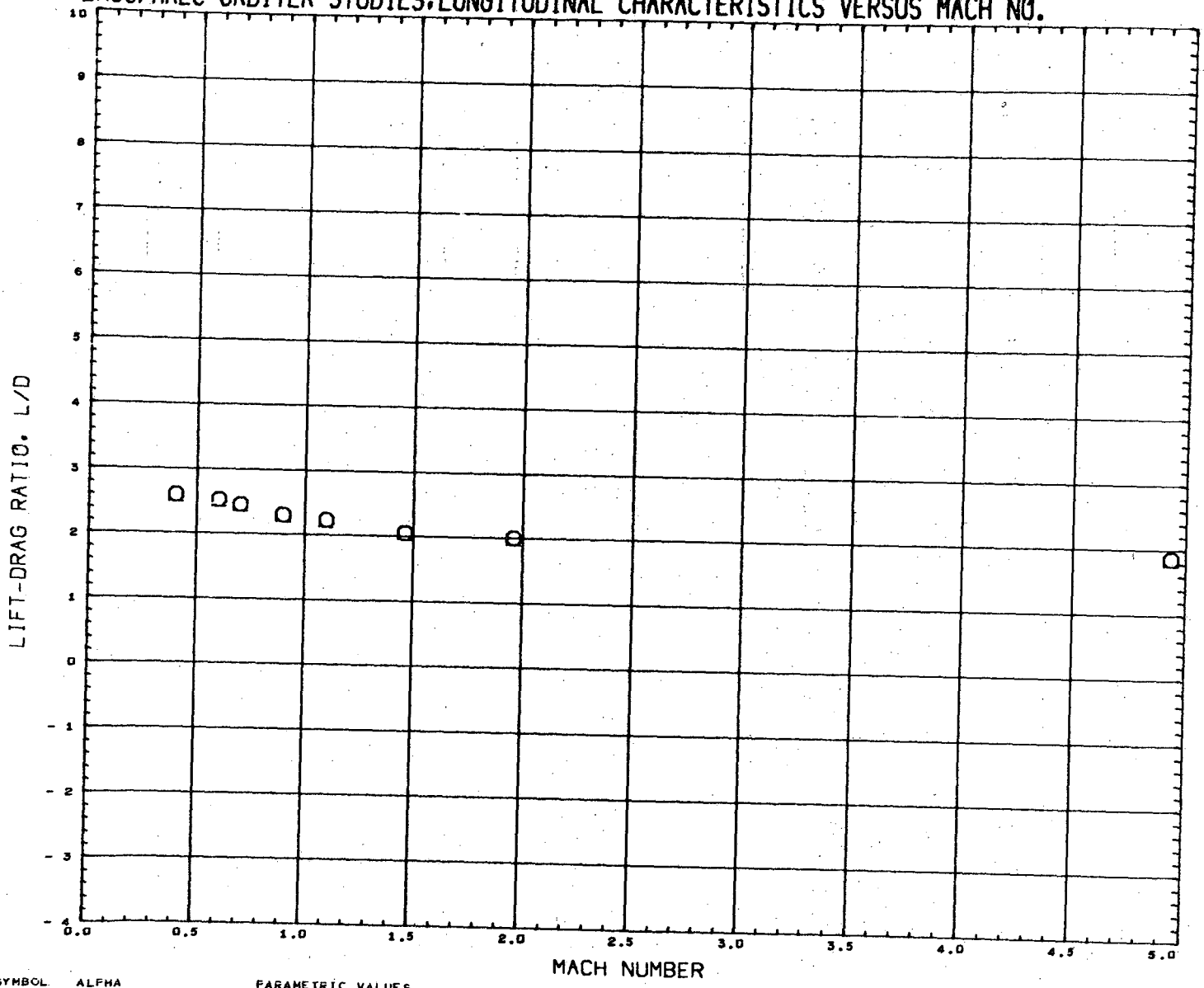
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

DATA HIST. CODE *EI

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



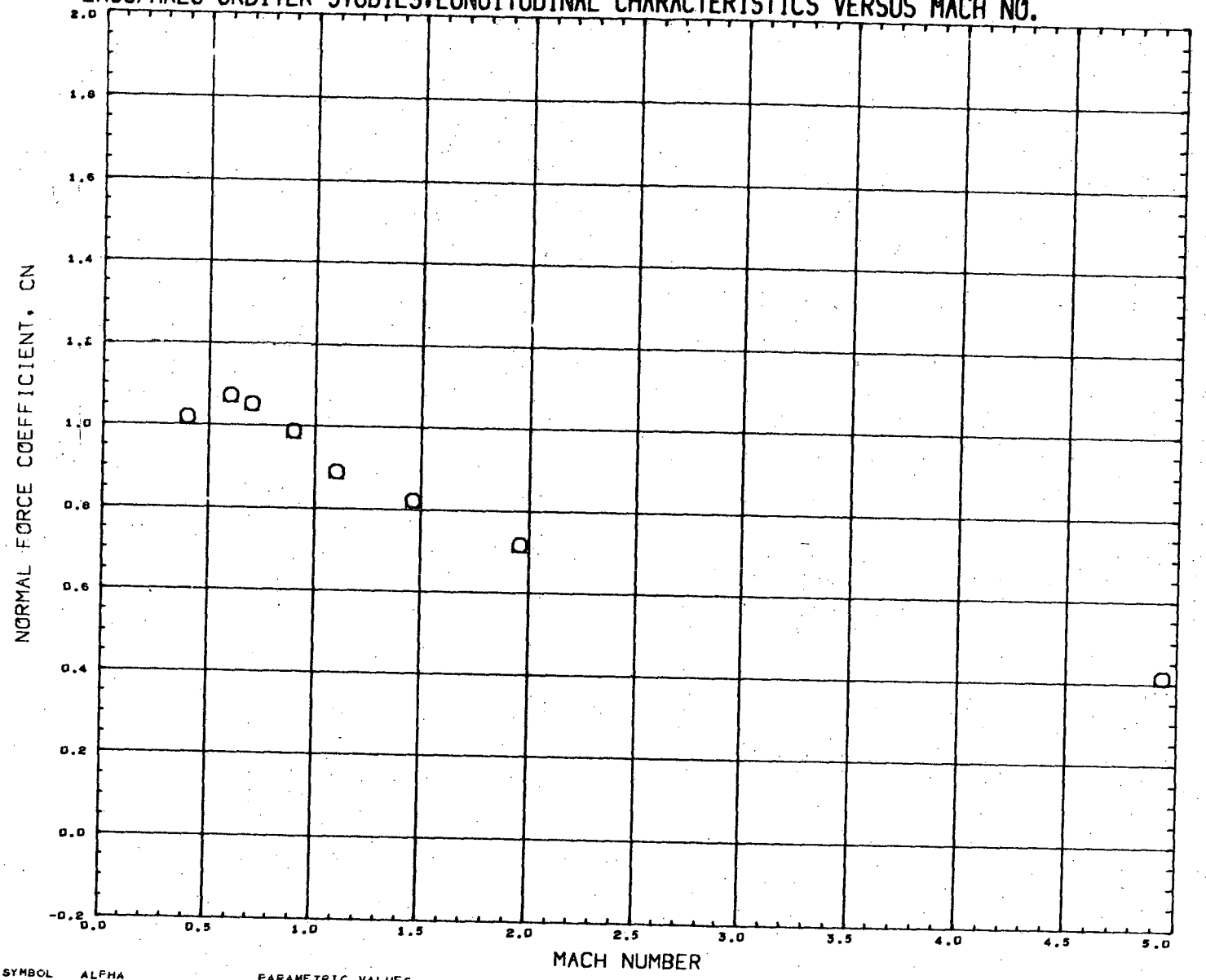
SYMBOL	ALPHA	PARAMETRIC VALUES			
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE #EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



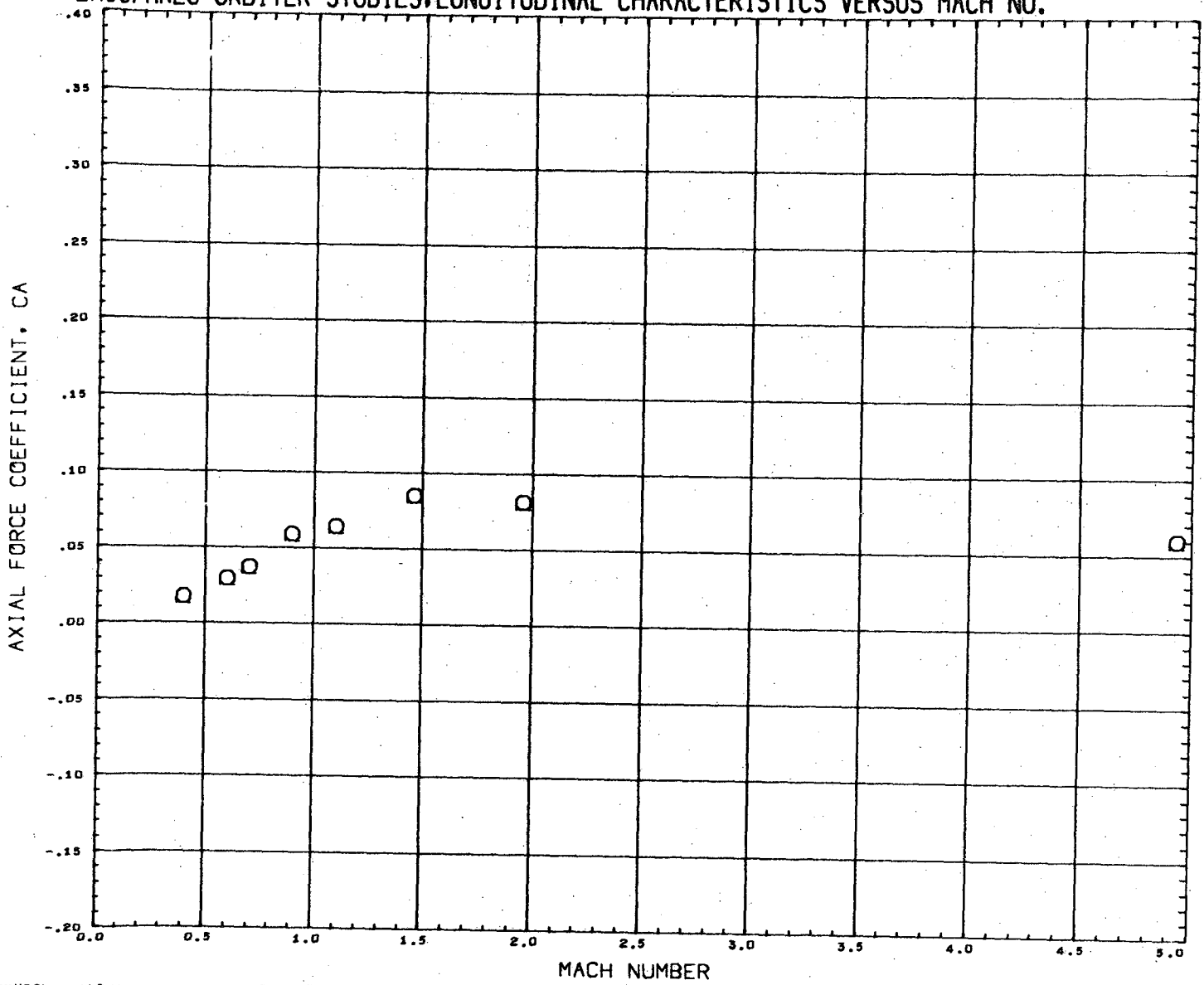
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



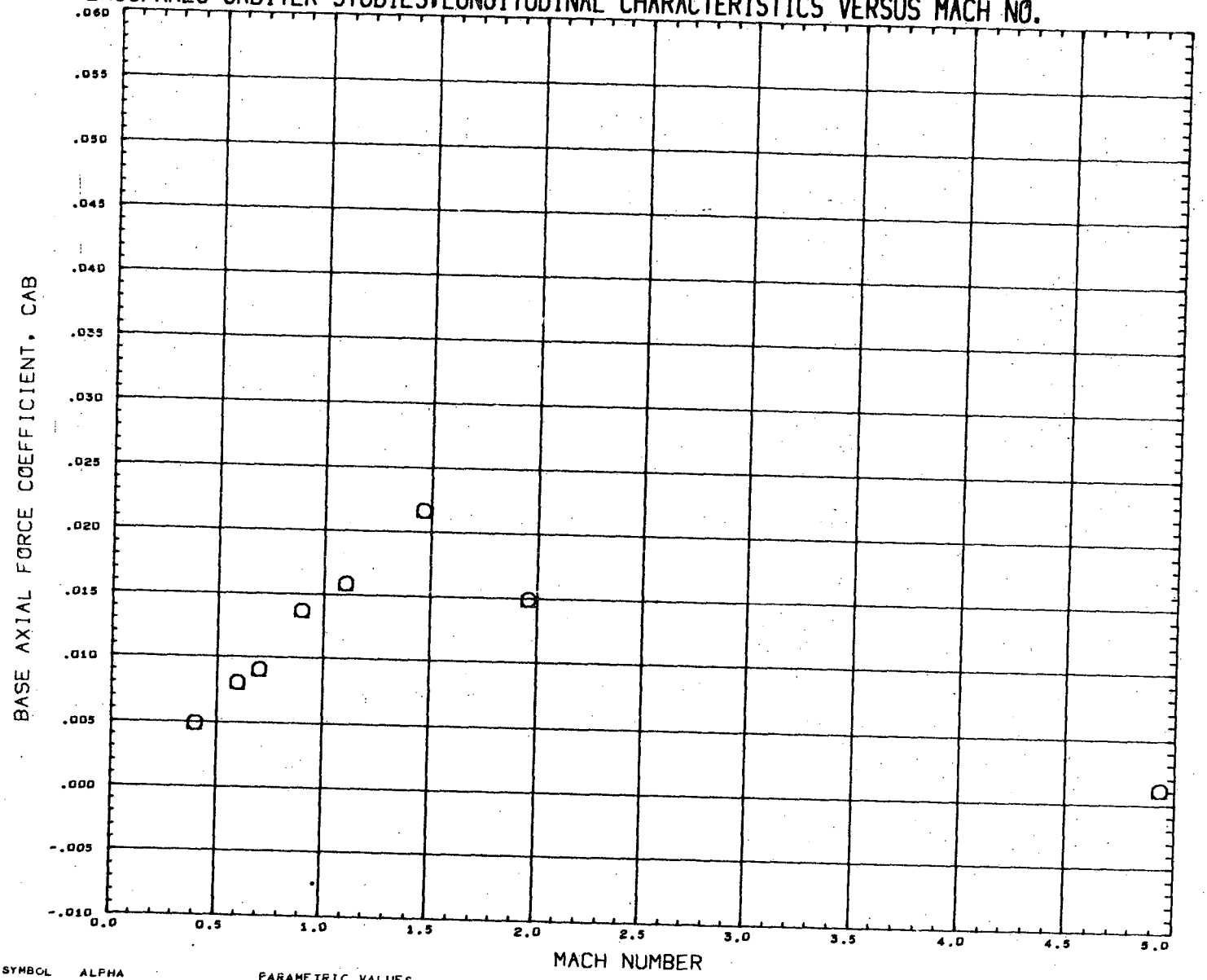
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE *EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



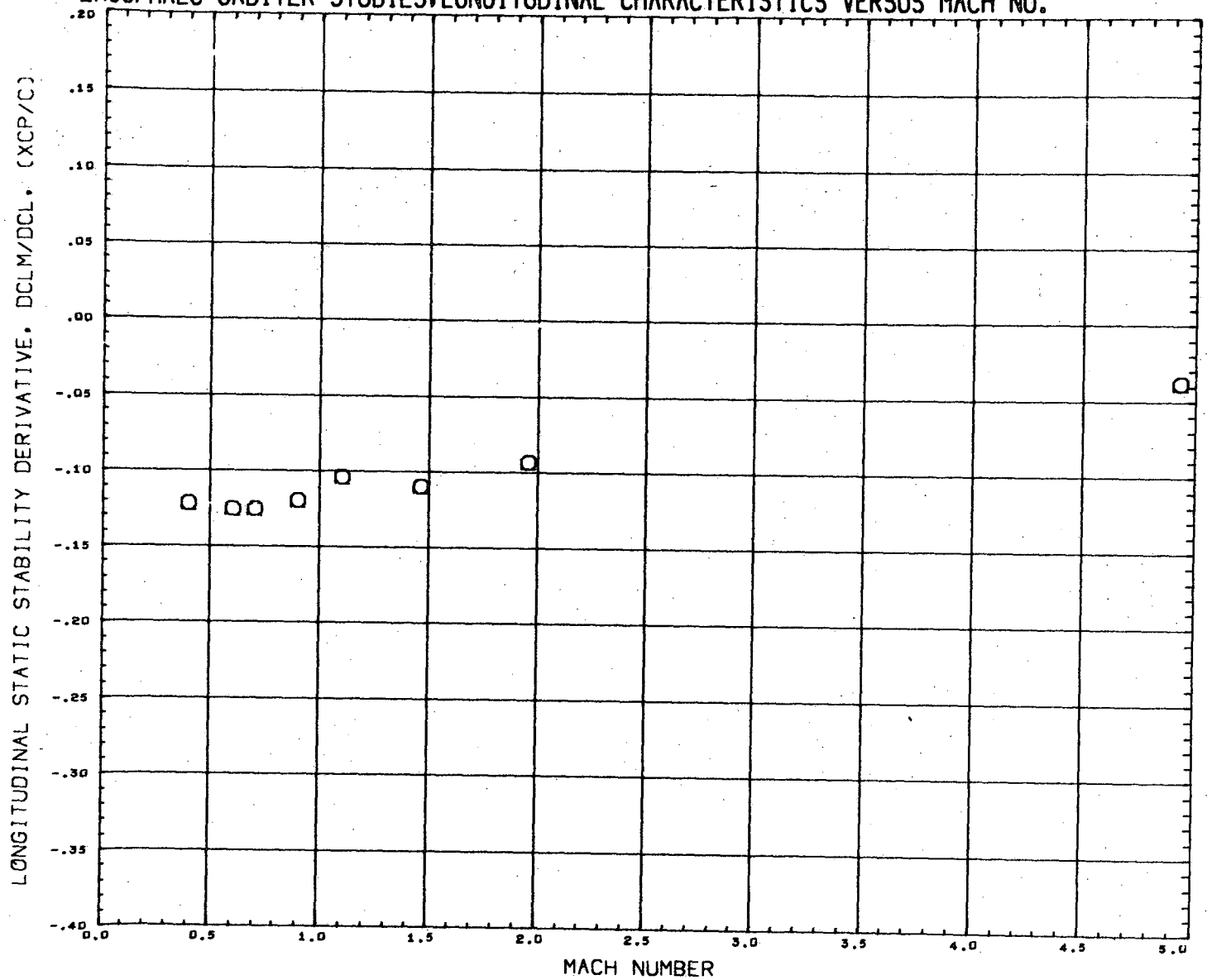
SYMBOL	ALPHA	PARAMETRIC VALUES			
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE #EI

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LONGITUDINAL CHARACTERISTICS VERSUS MACH NO.



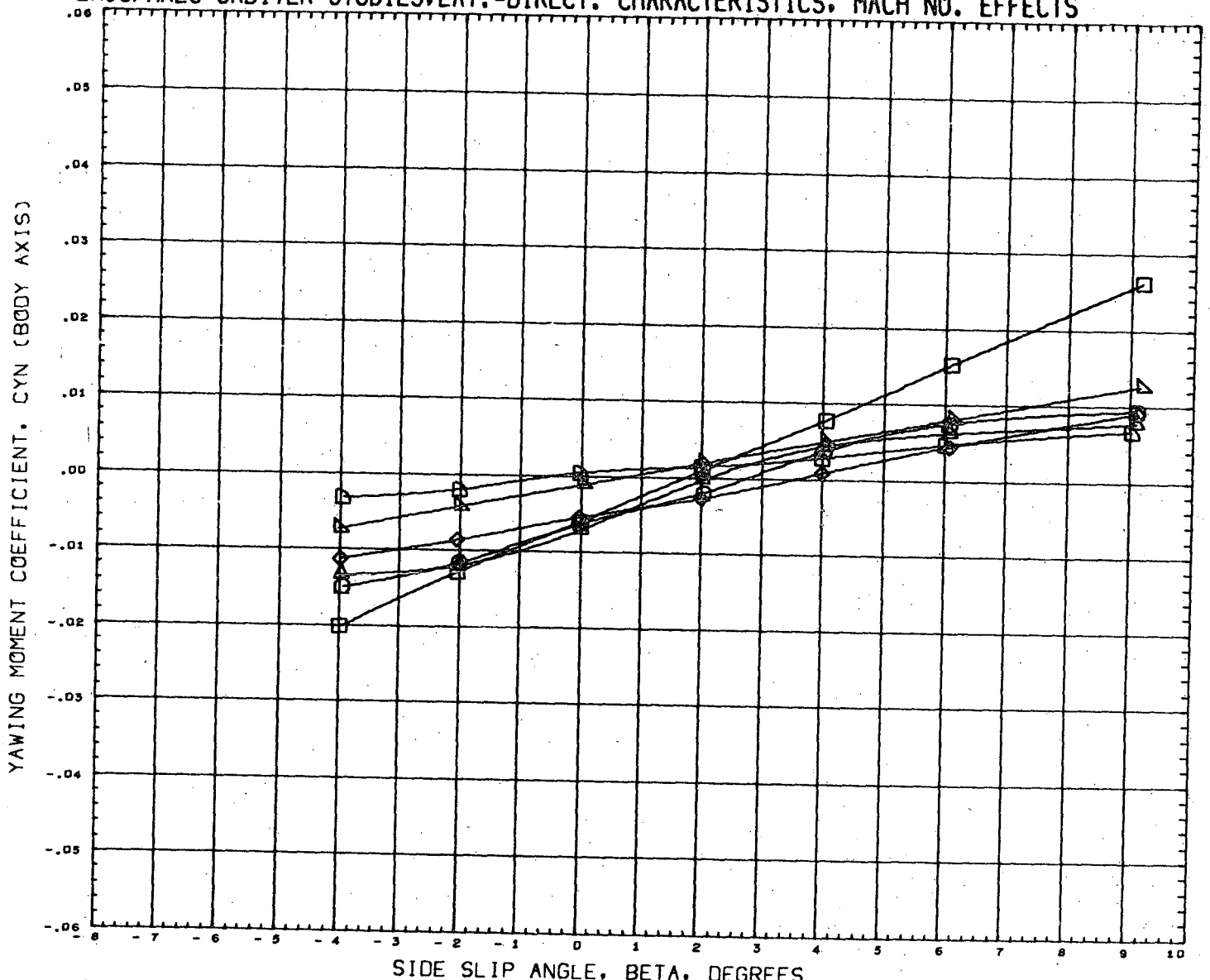
SYMBOL	ALPHA		PARAMETRIC VALUES		
O	20.000	BETA	0.000	ELEVN1	0.000
		RUDER3	0.000		

DATA HIST. CODE #EIC

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, MACH NO. EFFECTS



SYMBOL	MACH
▽	0.601
△	0.703
◇	0.900
□	1.101
◸	1.963
○	4.960

PARAMETRIC VALUES

ALPHA - 0.300 ELEVN1 0.000

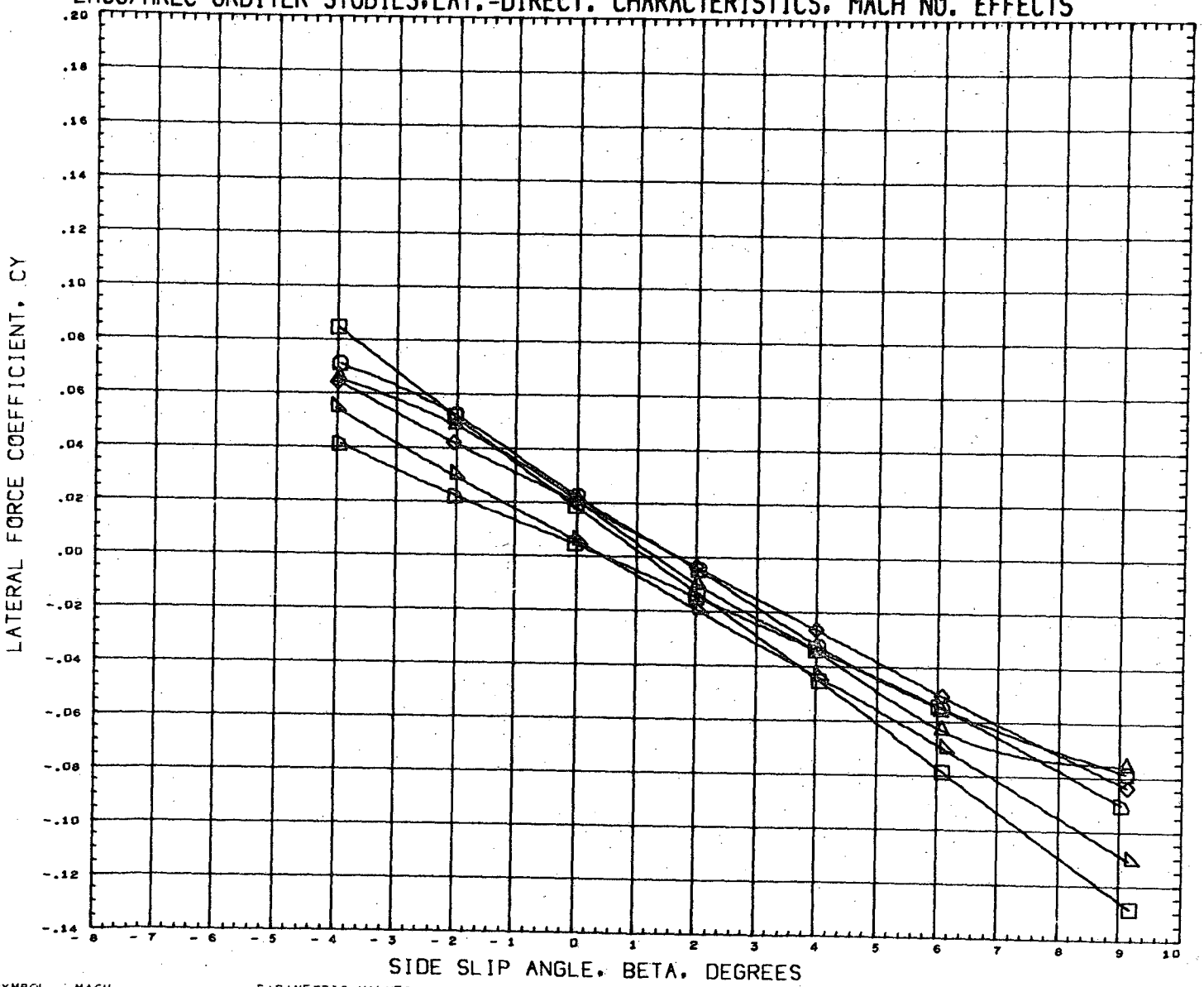
RUDER3 0.000

REFERENCE FILE LMSC/HREC D225042

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, MACH NO. EFFECTS

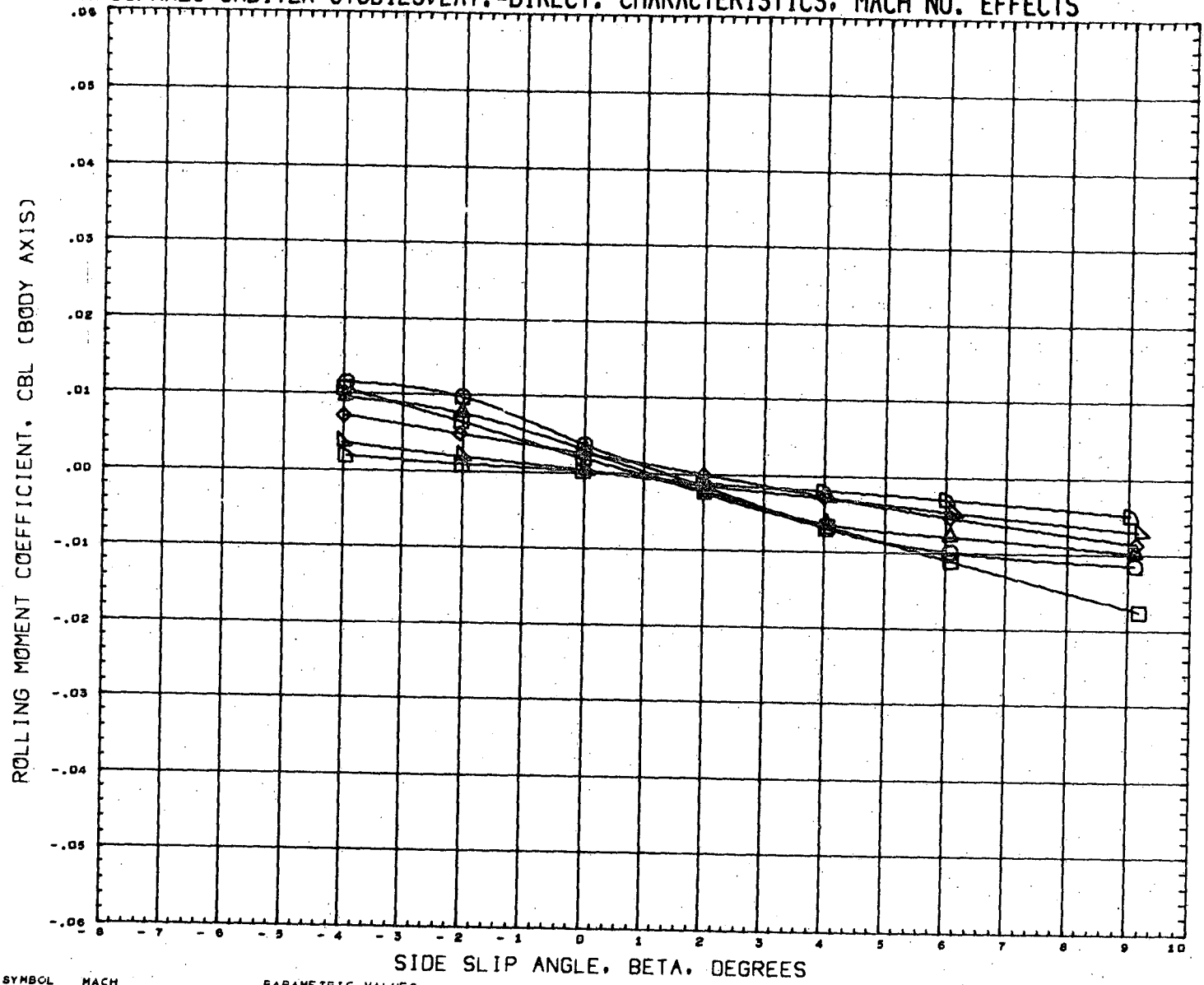


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.601	ALPHA	- 0.300	ELEVN1	0.000
△	0.703	RUDER3	0.000		
◇	0.900				
□	1.101				
▽	1.963				
▷	4.960	REFERENCE FILE	LMSC/HREC D225042		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, MACH NO. EFFECTS



SYMBOL	MACH
○	0.601
△	0.703
◇	0.900
□	1.101
▽	1.963
D	4.960

PARAMETRIC VALUES

ALPHA - 0.300 ELEVN1 0.000

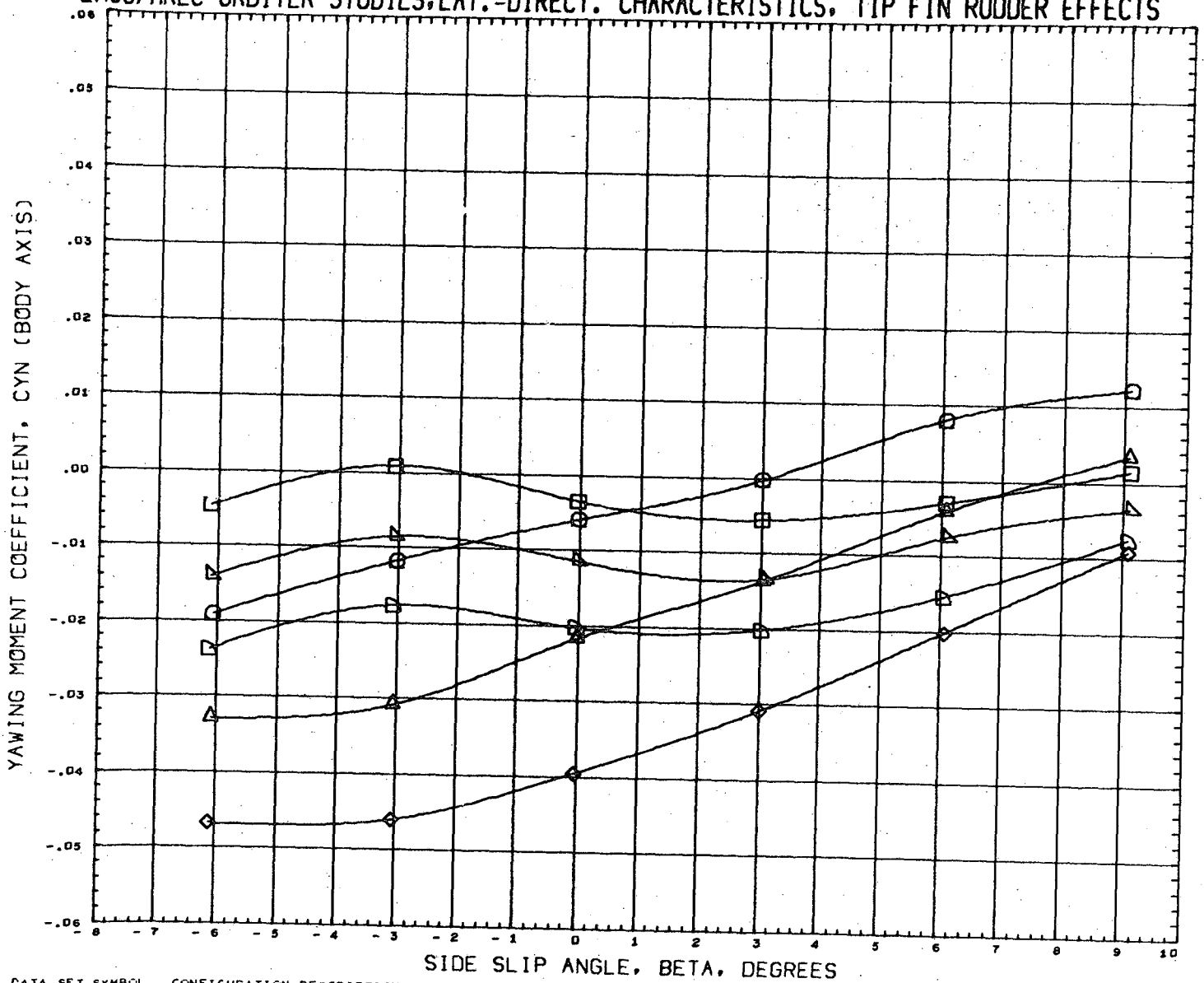
RUDER3 0.000

REFERENCE FILE LMSC/HREC D225042

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

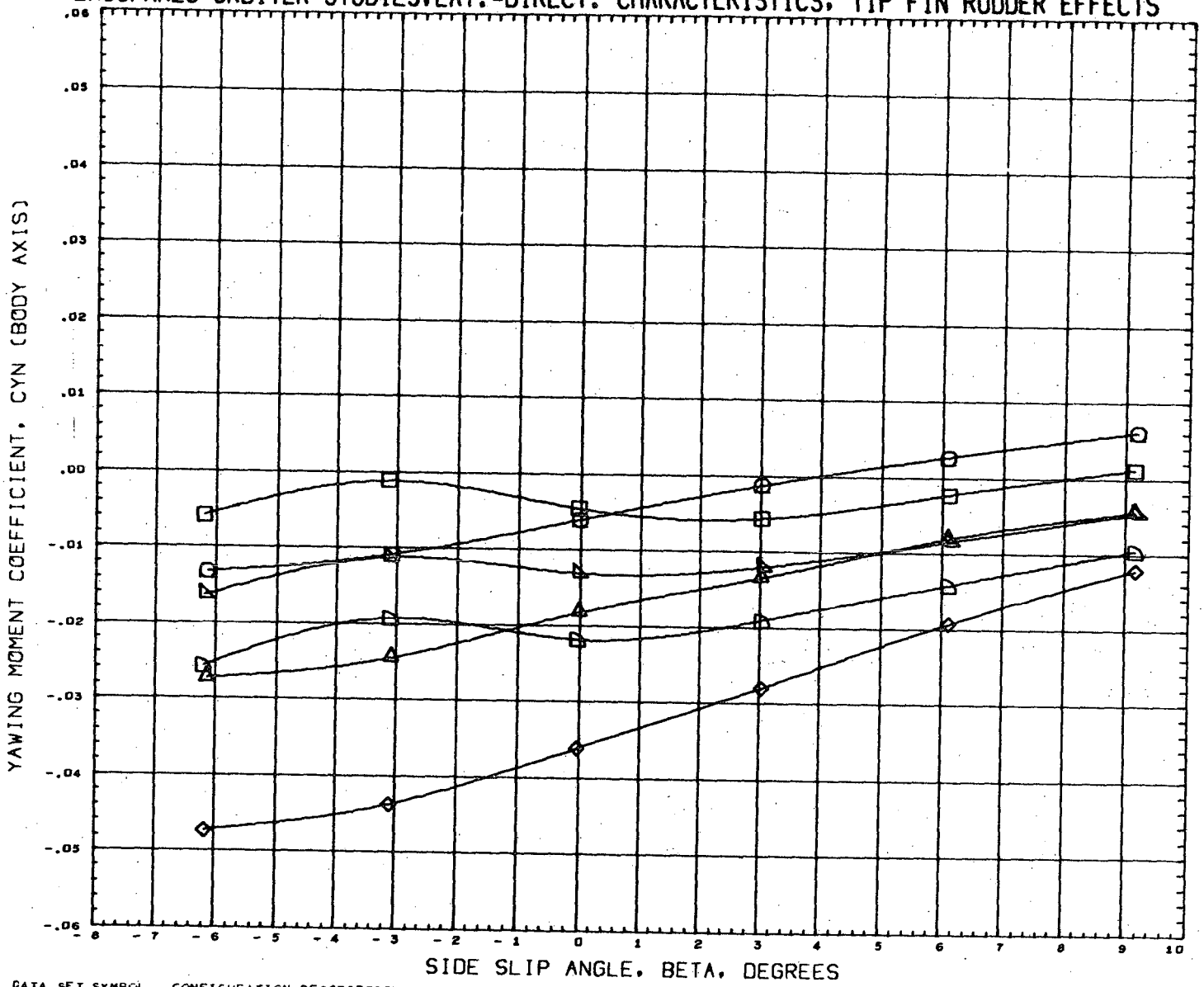


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

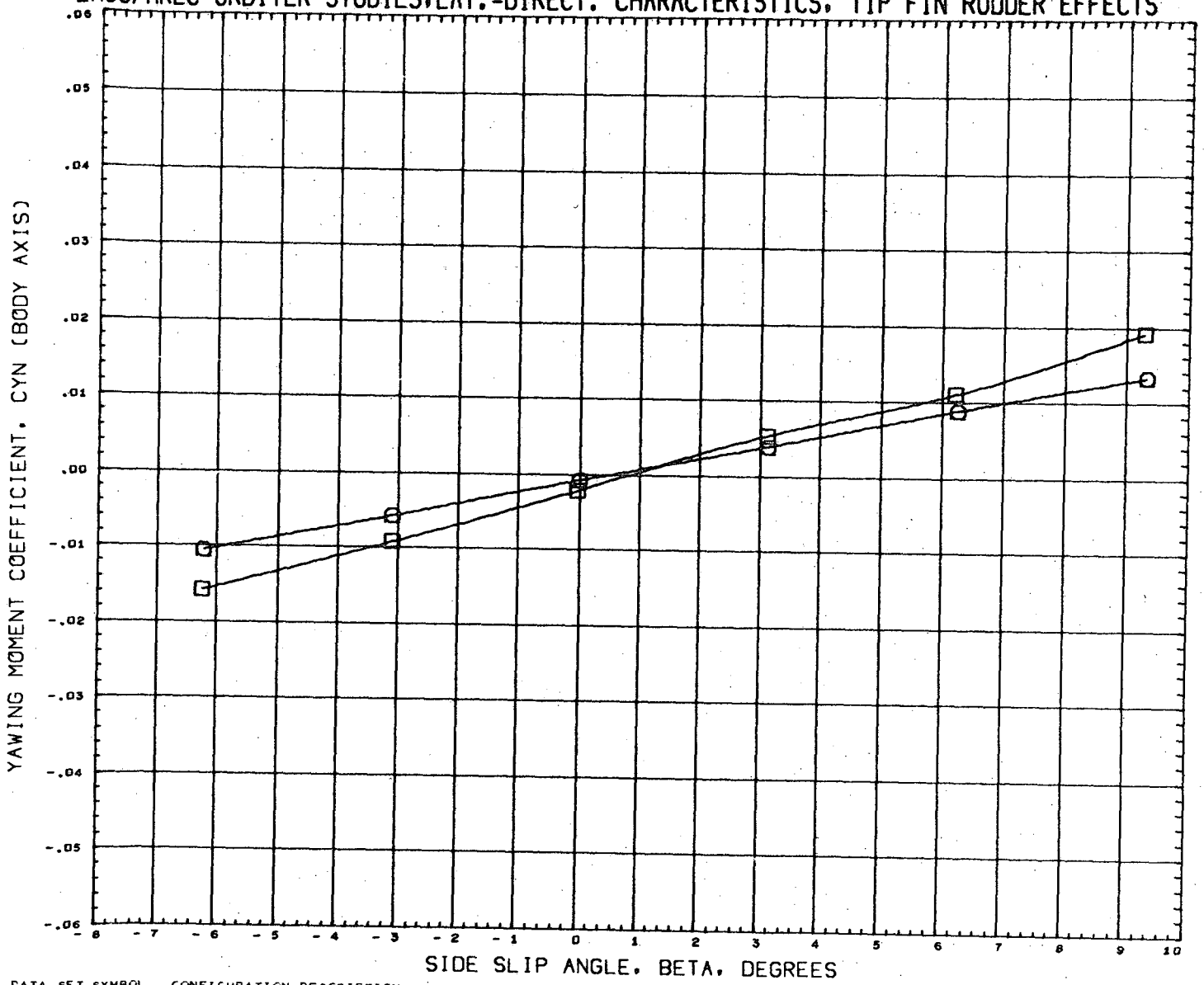


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E36D1D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.900

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS



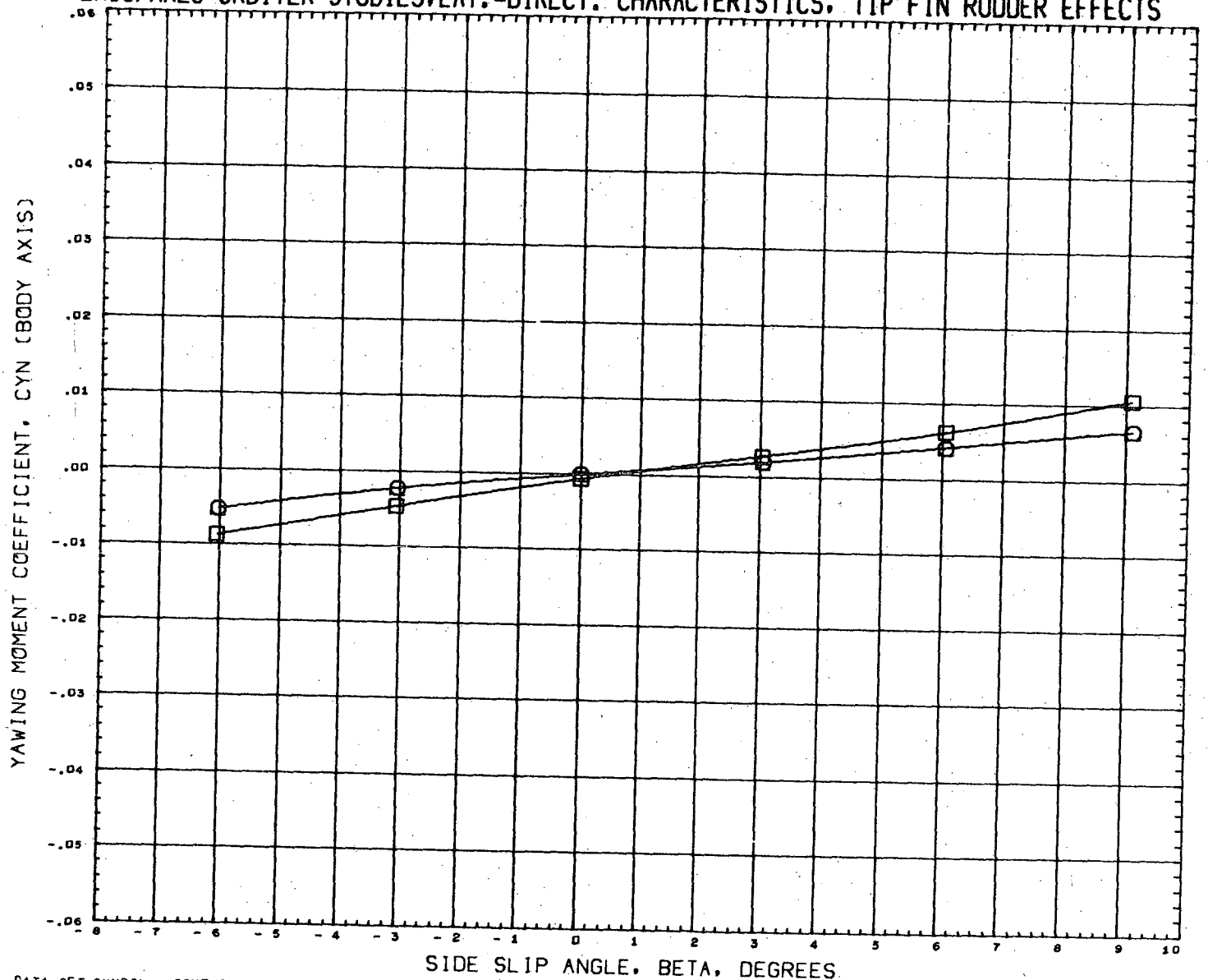
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	10.000
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 1.972

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(E36G1D)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS

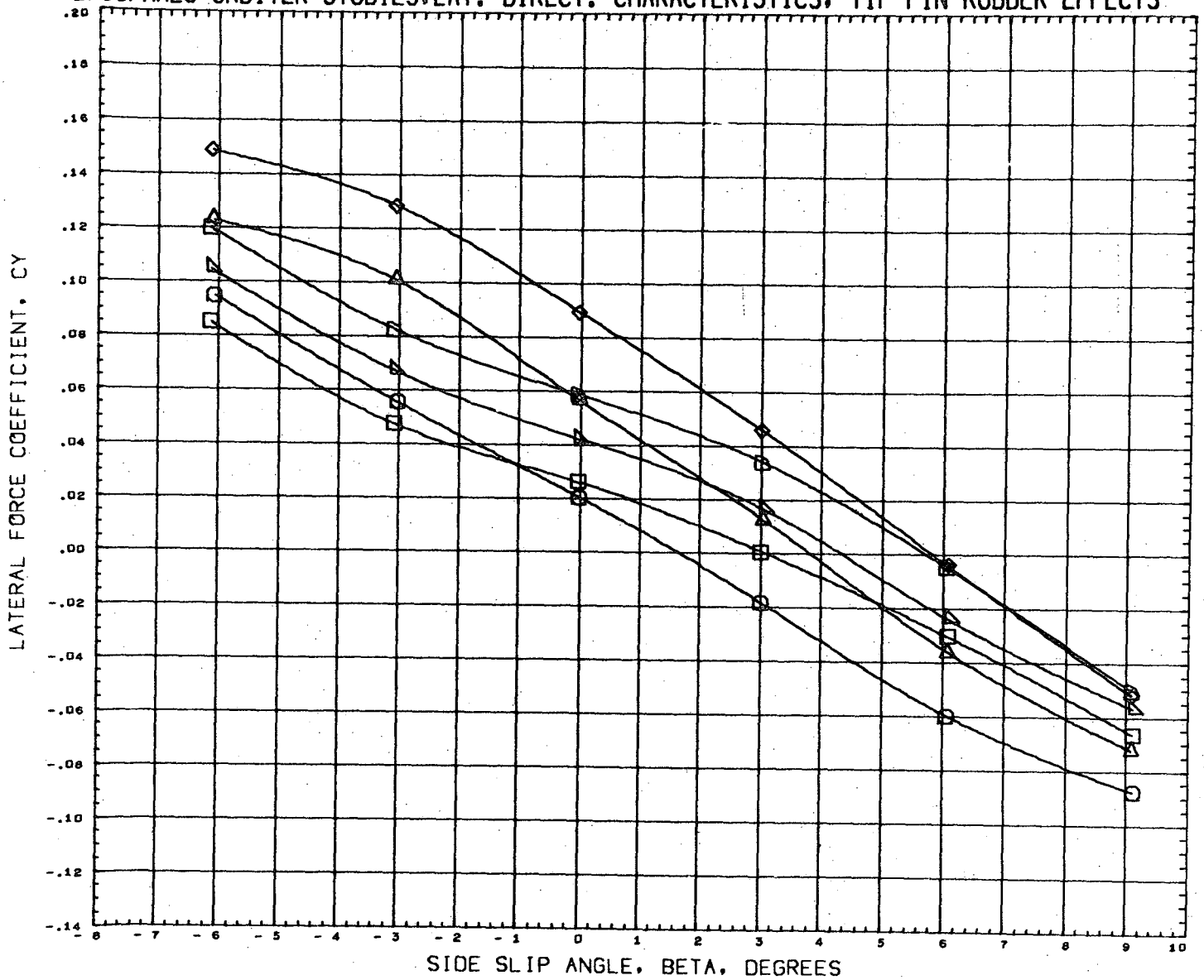
MACH 4.960

ALPHA	ELEVN1	RUDER3
-0.300	0.000	0.000
-0.300	0.000	10.000
-0.300	0.000	20.000
20.450	0.000	0.000
20.450	0.000	10.000
20.450	0.000	20.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

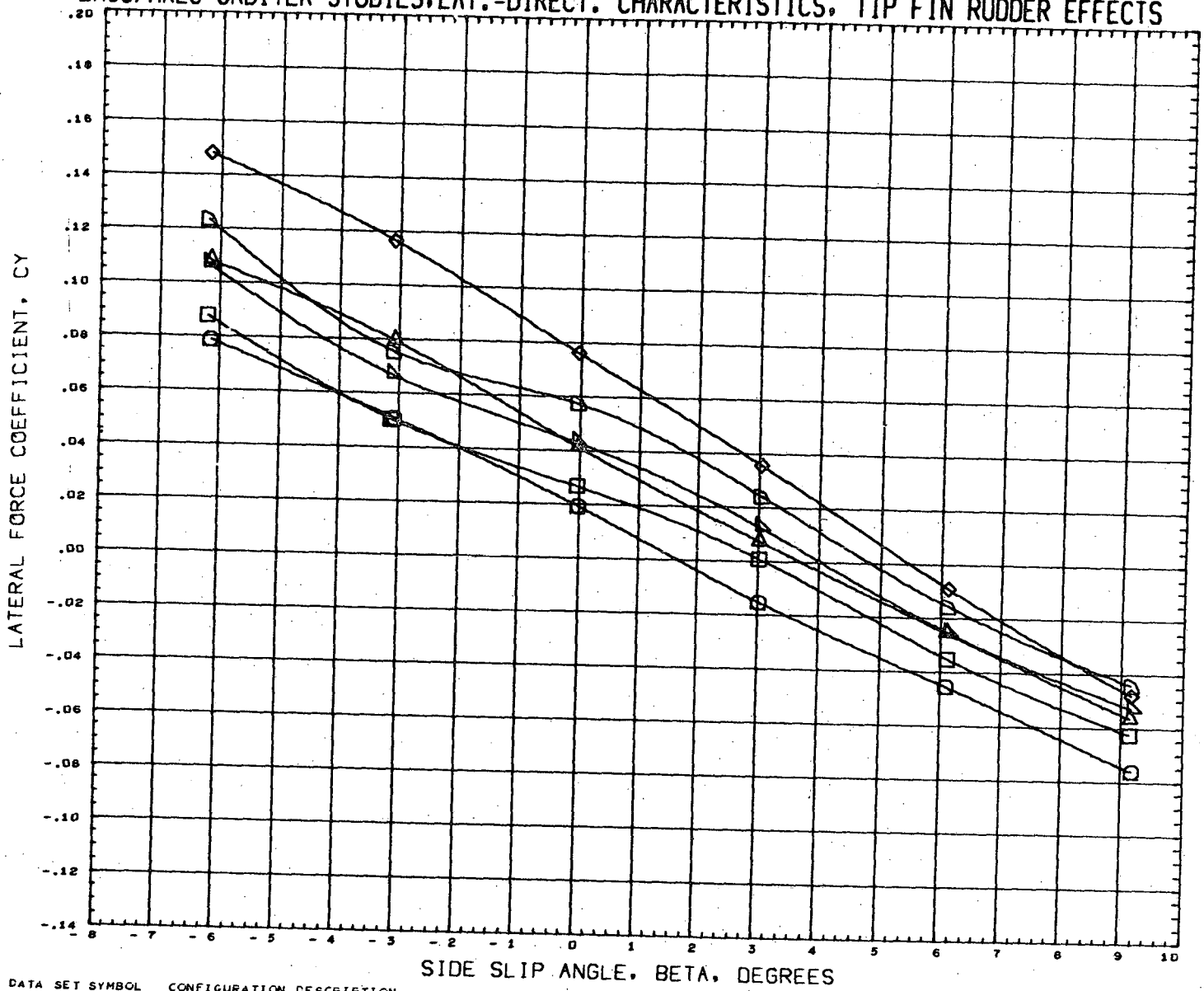


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

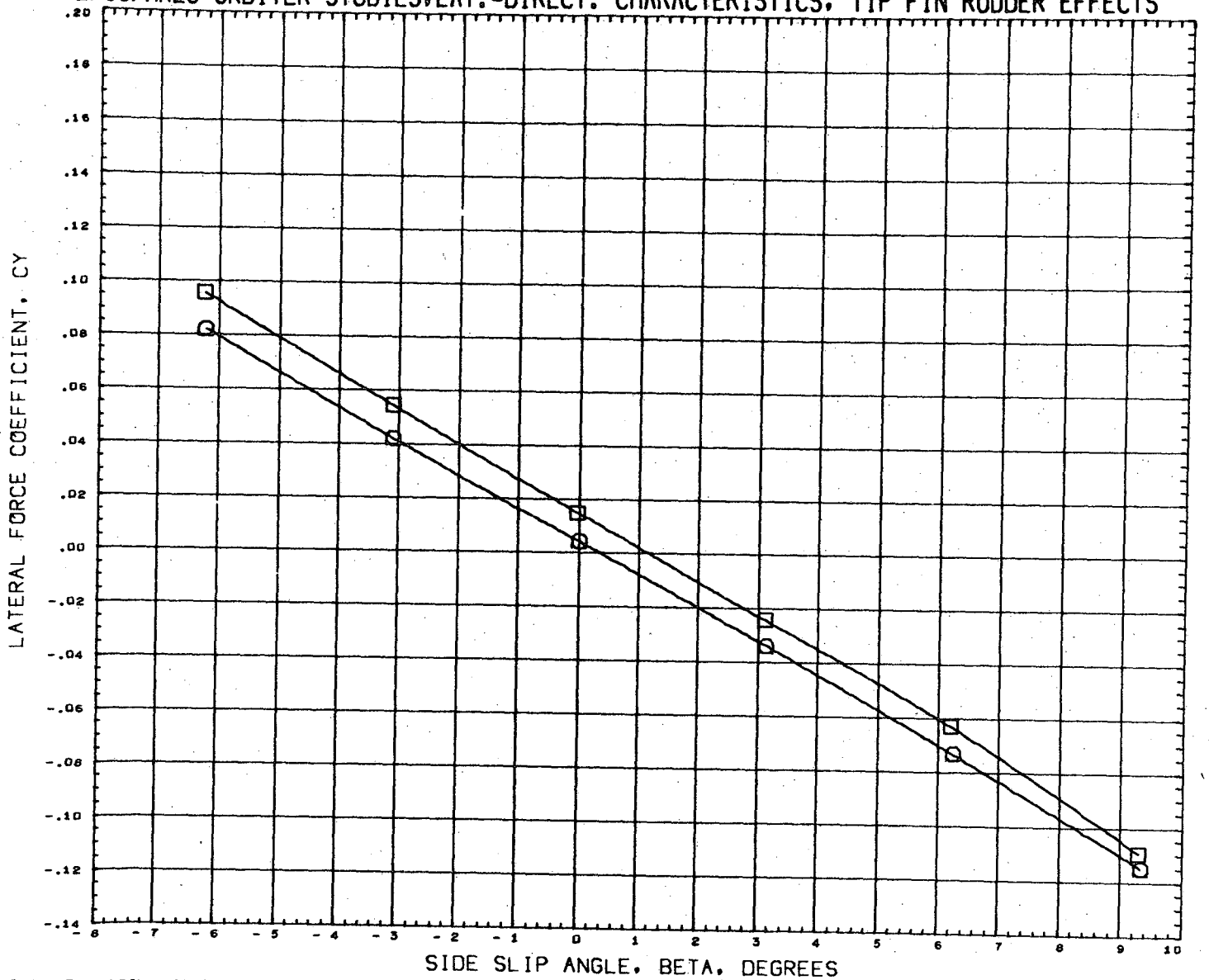


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.900

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS

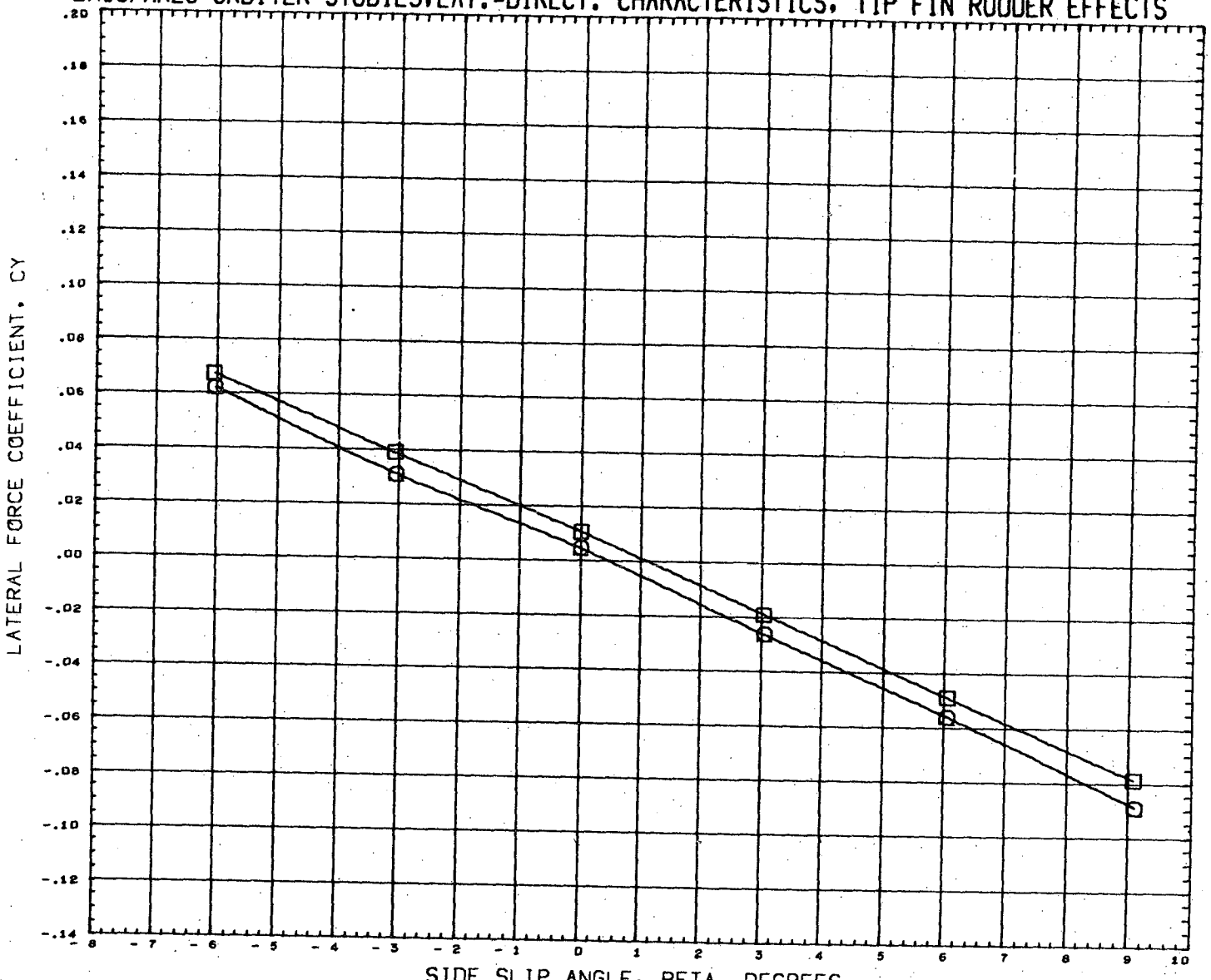
MACH 1.972

ALPHA	ELEVN1	RUDER3
-0.300	0.000	0.000
-0.300	0.000	10.000
-0.300	0.000	20.000
20.450	0.000	0.000
20.450	0.000	10.000
20.450	0.000	20.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

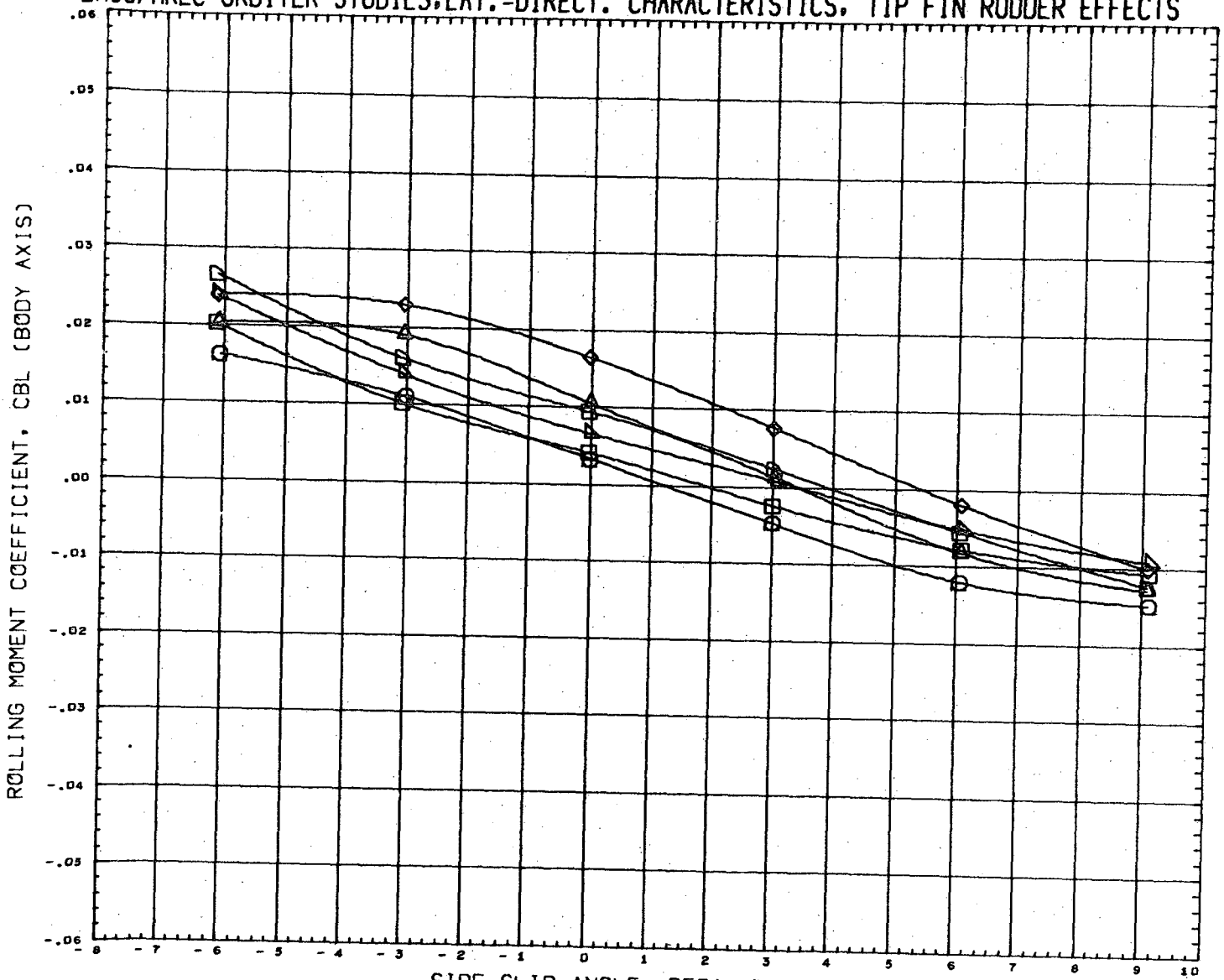


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	10.000
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS



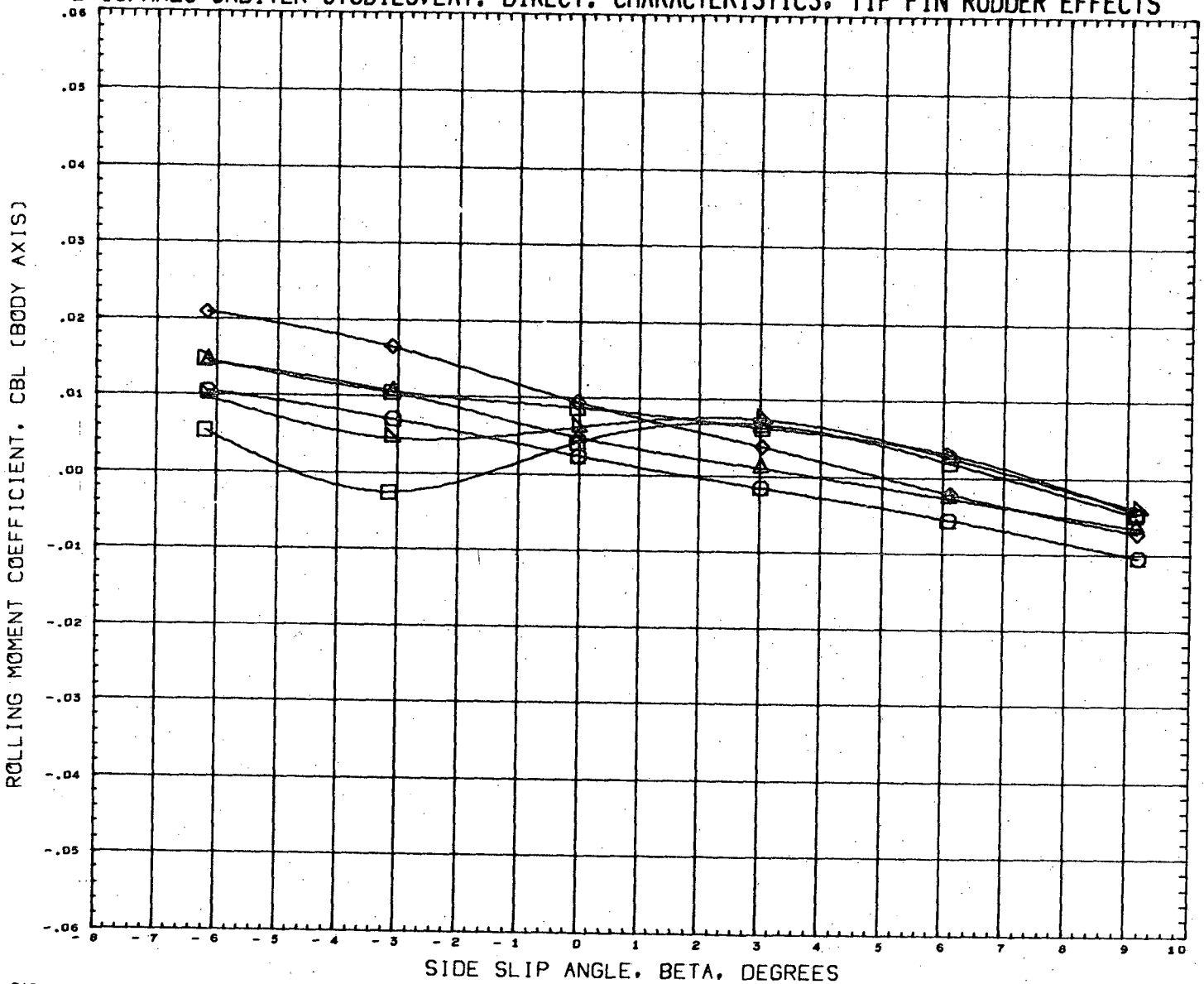
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A361DG)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

40

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

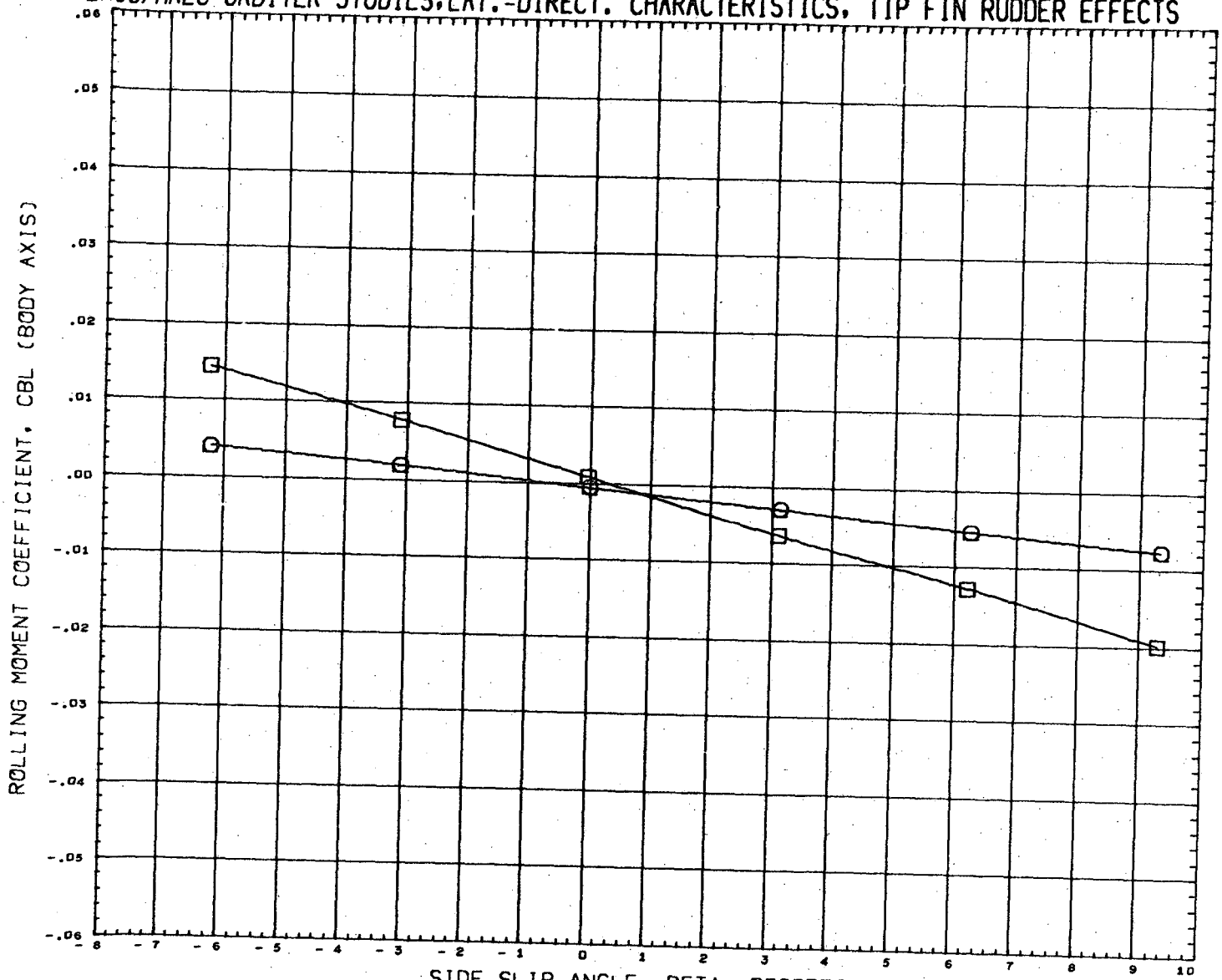


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	10.000
(A3611D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	10.000
(A3611G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1R3	20.450	0.000	20.000

MACH 0.900

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER B1W1V1E1
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS

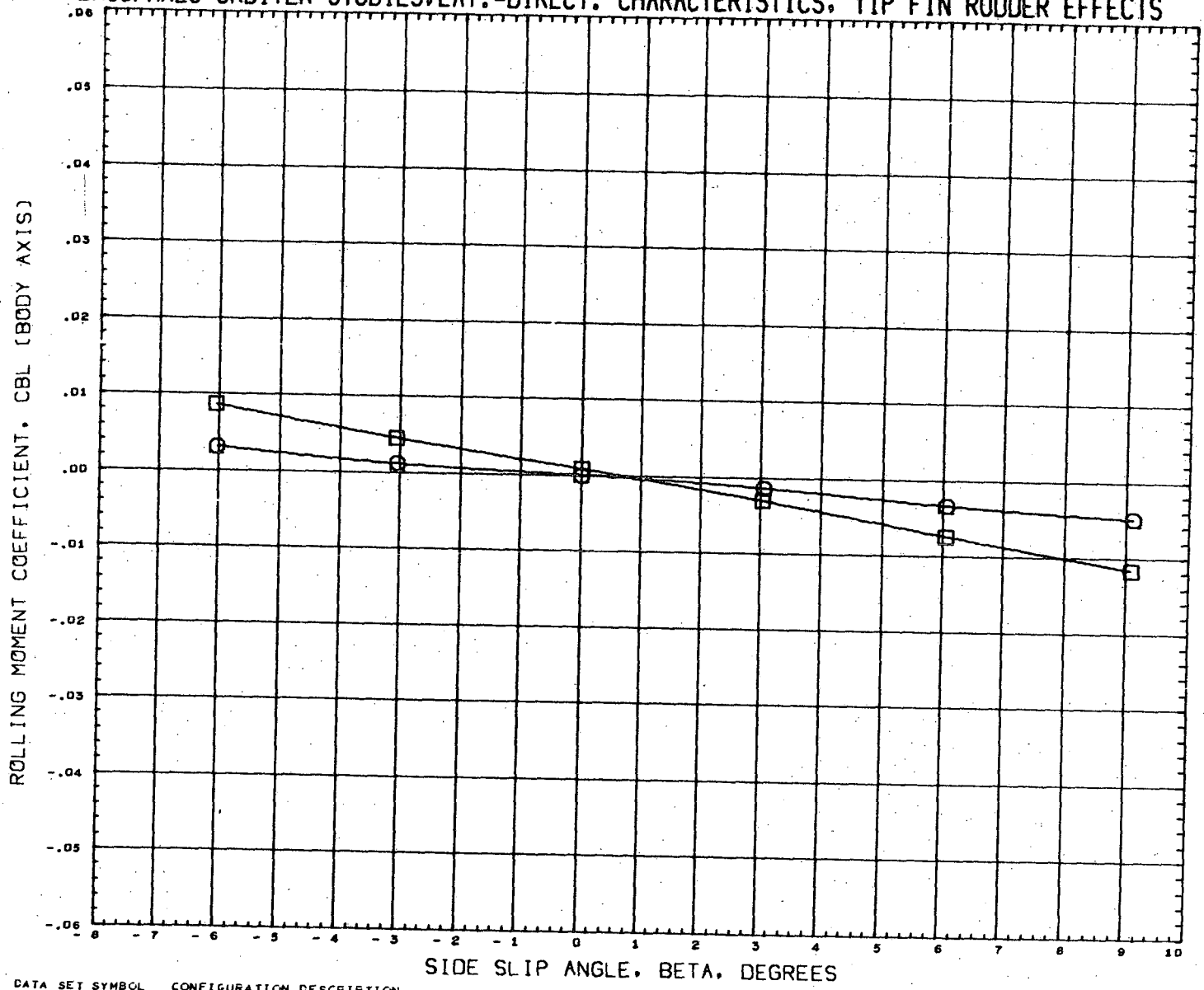
MACH 1.972

ALPHA	ELEVN1	RUDER3
-0.300	0.000	0.000
-0.300	0.000	10.000
-0.300	0.000	20.000
20.450	0.000	0.000
20.450	0.000	10.000
20.450	0.000	20.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN RUDDER EFFECTS

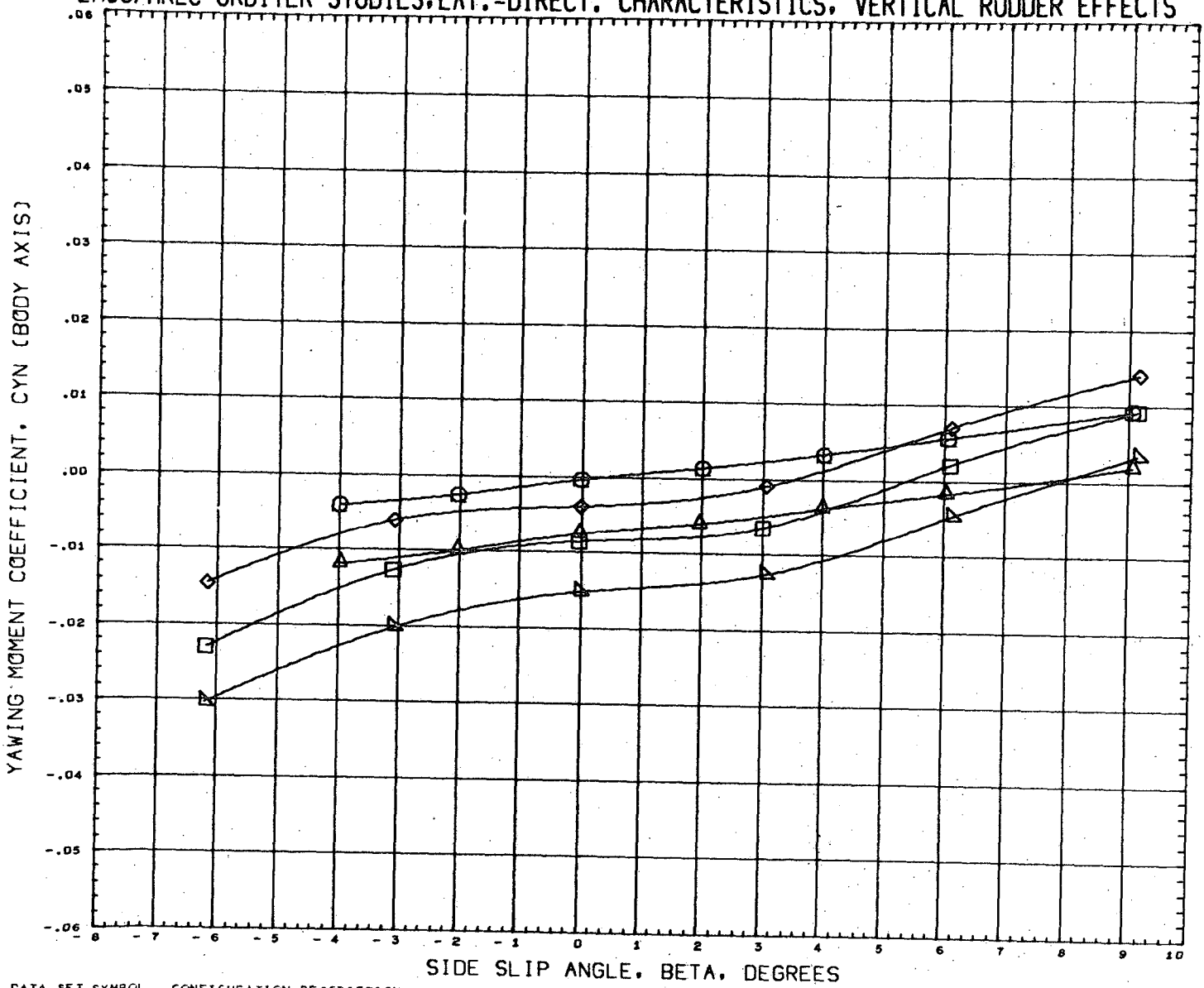


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3610D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	10.000
(A3611D)		DATA NOT AVAILABLE FOR ALL CONDITIONS		-0.300	0.000	20.000
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3610G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3611G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS



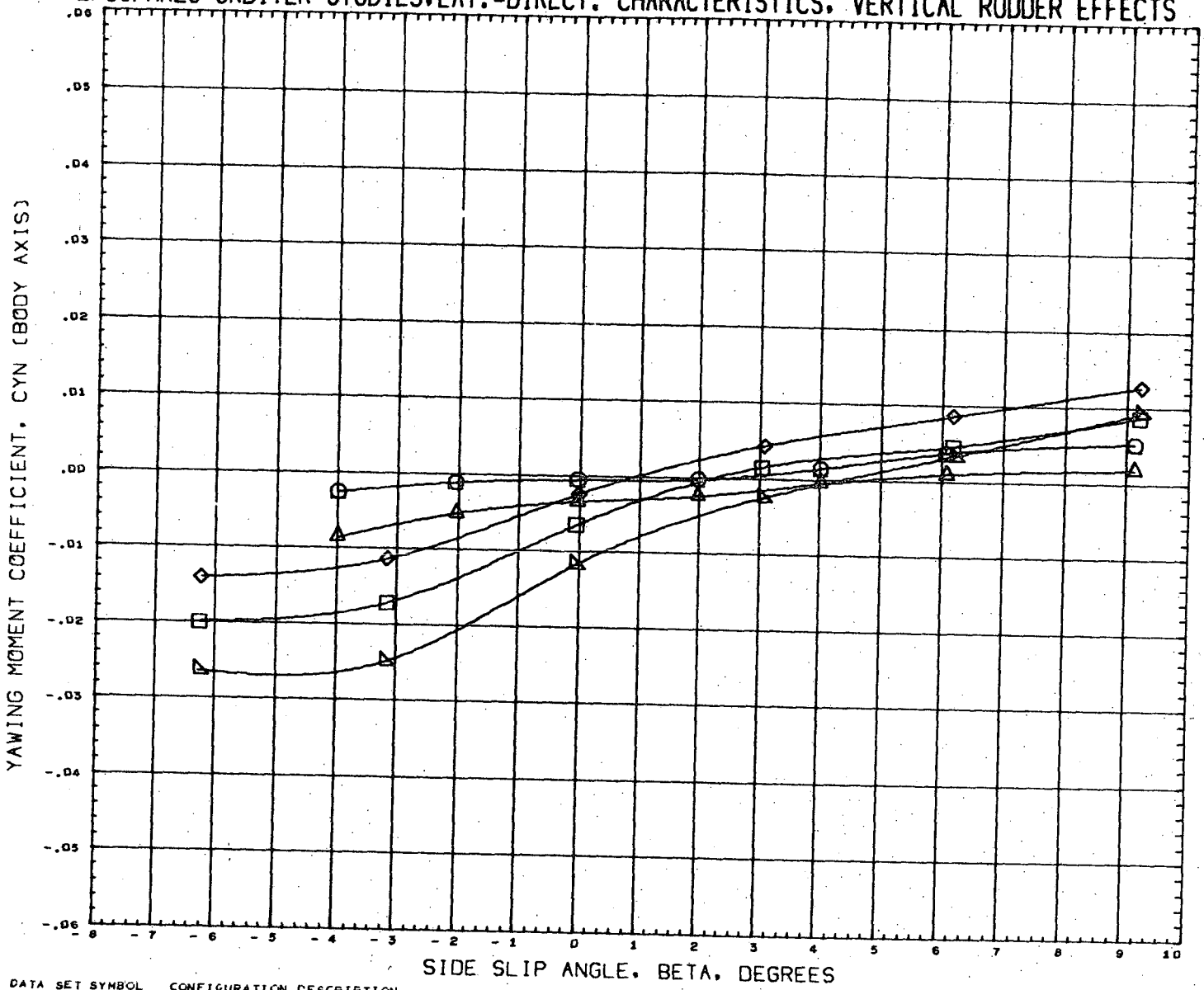
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LAT.-DIRECT. CHARACTERISTICS. VERTICAL RUDDER EFFECTS

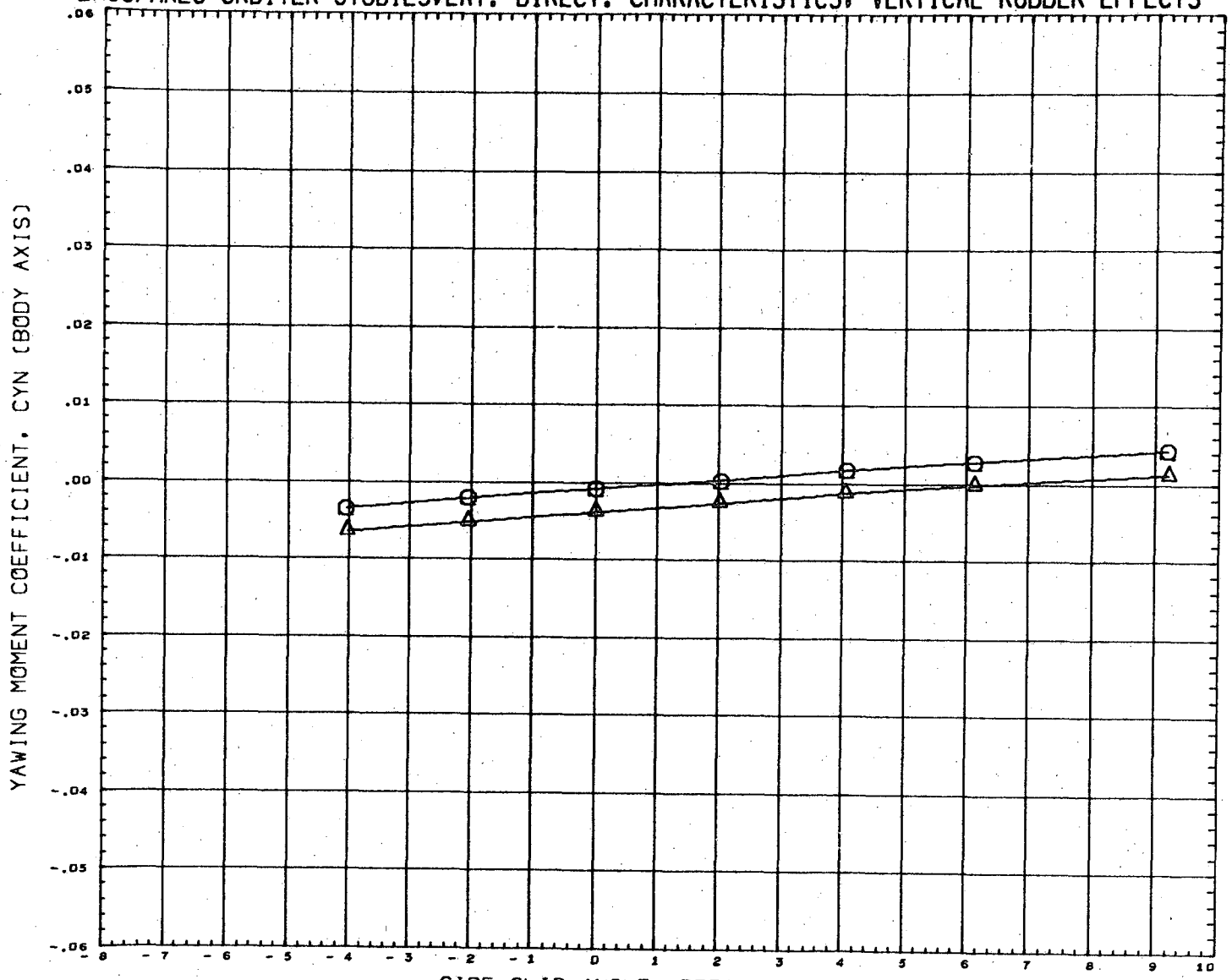


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.904

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS



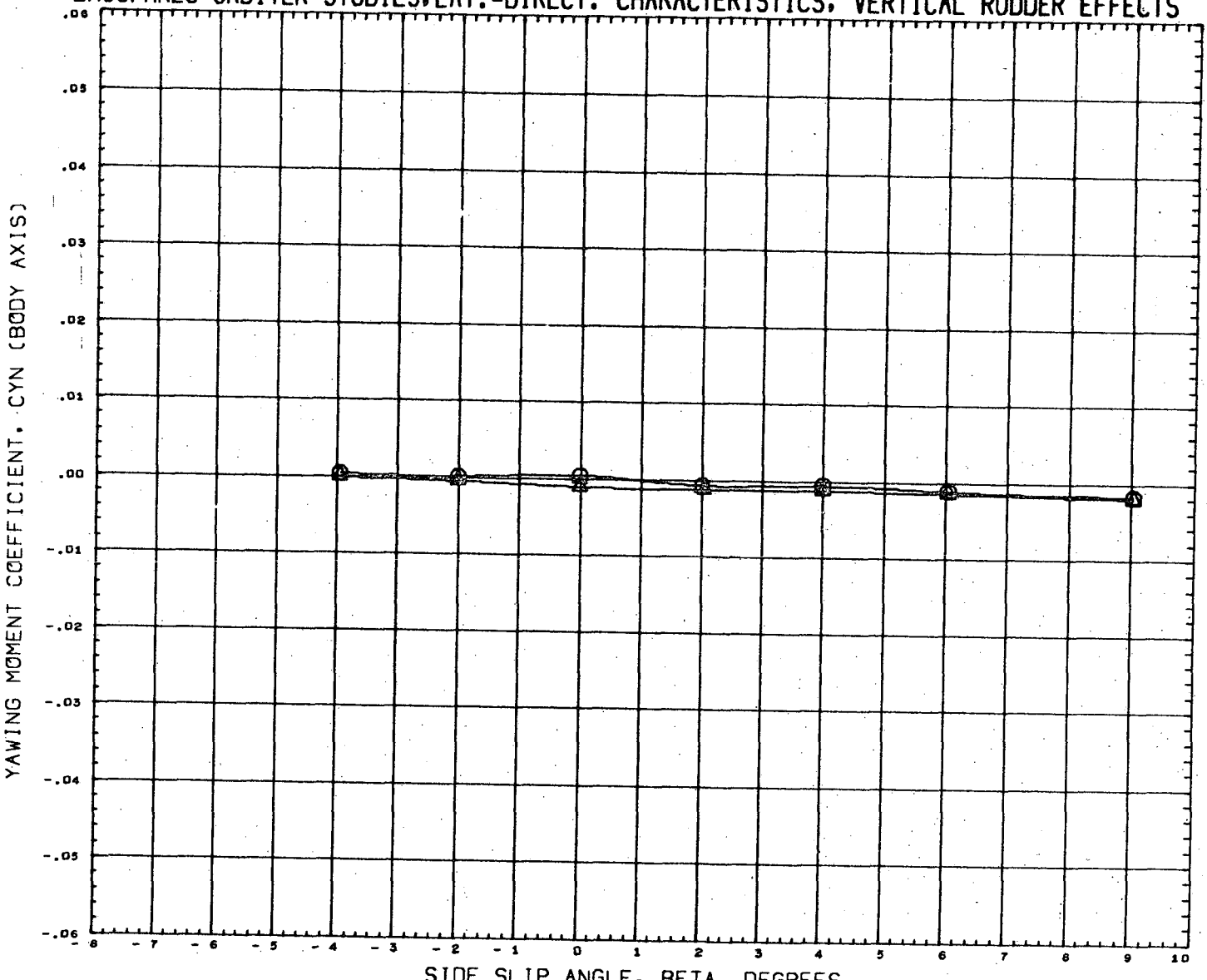
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	0.000
(A3613G)	□	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3614G)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 1.963

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS

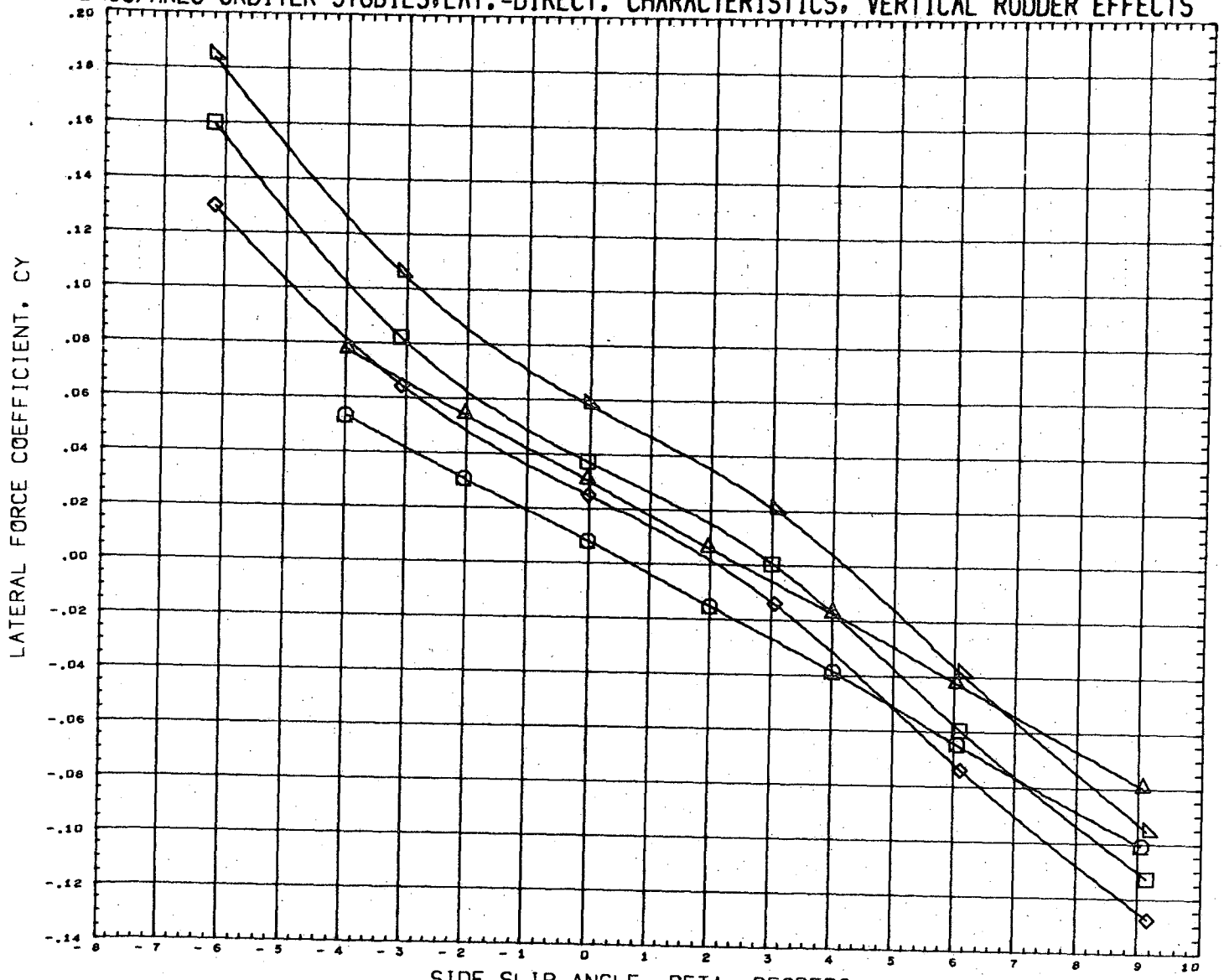


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	0.000
(A3613G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3614G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS



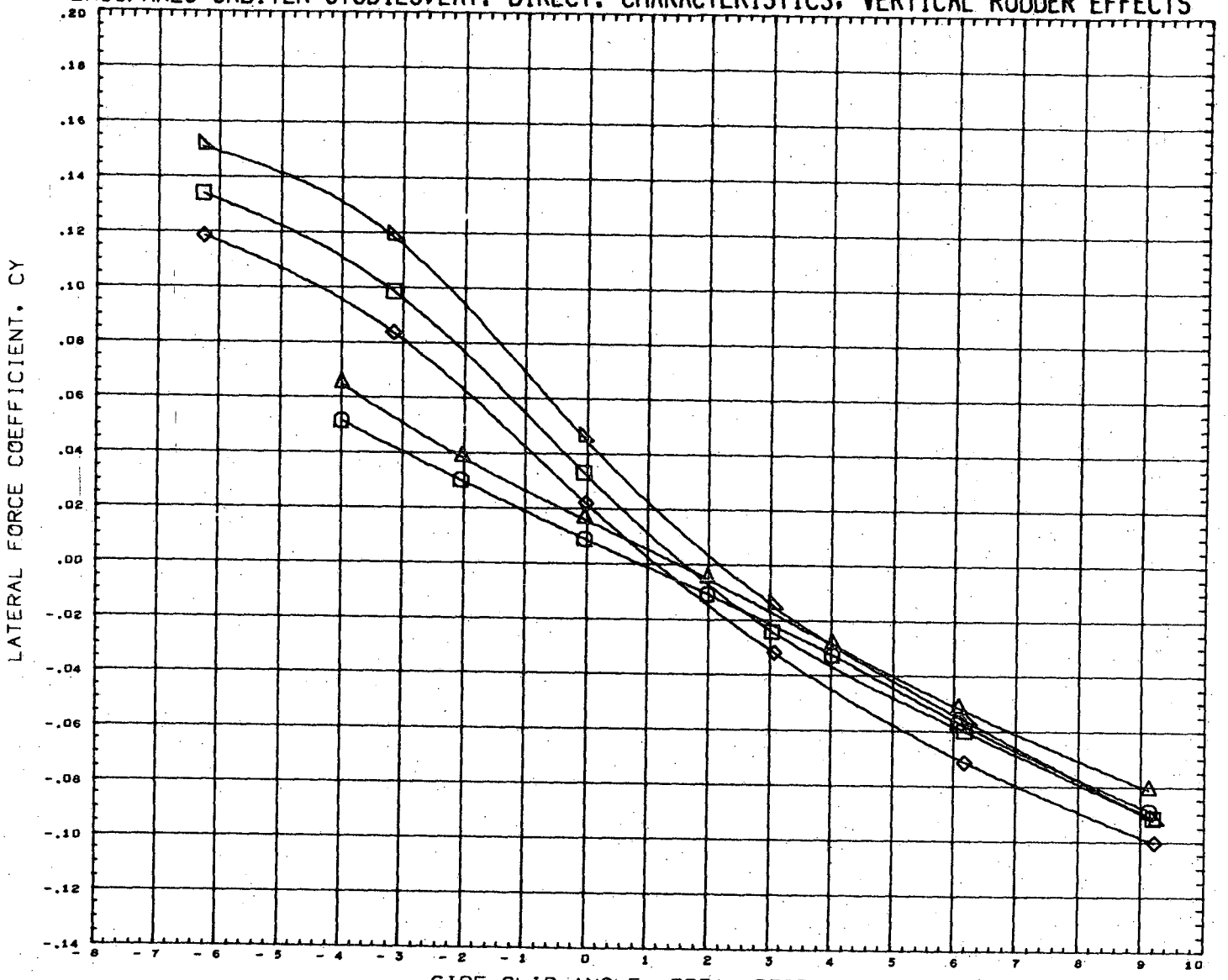
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LAT.-DIRECT. CHARACTERISTICS. VERTICAL RUDDER EFFECTS

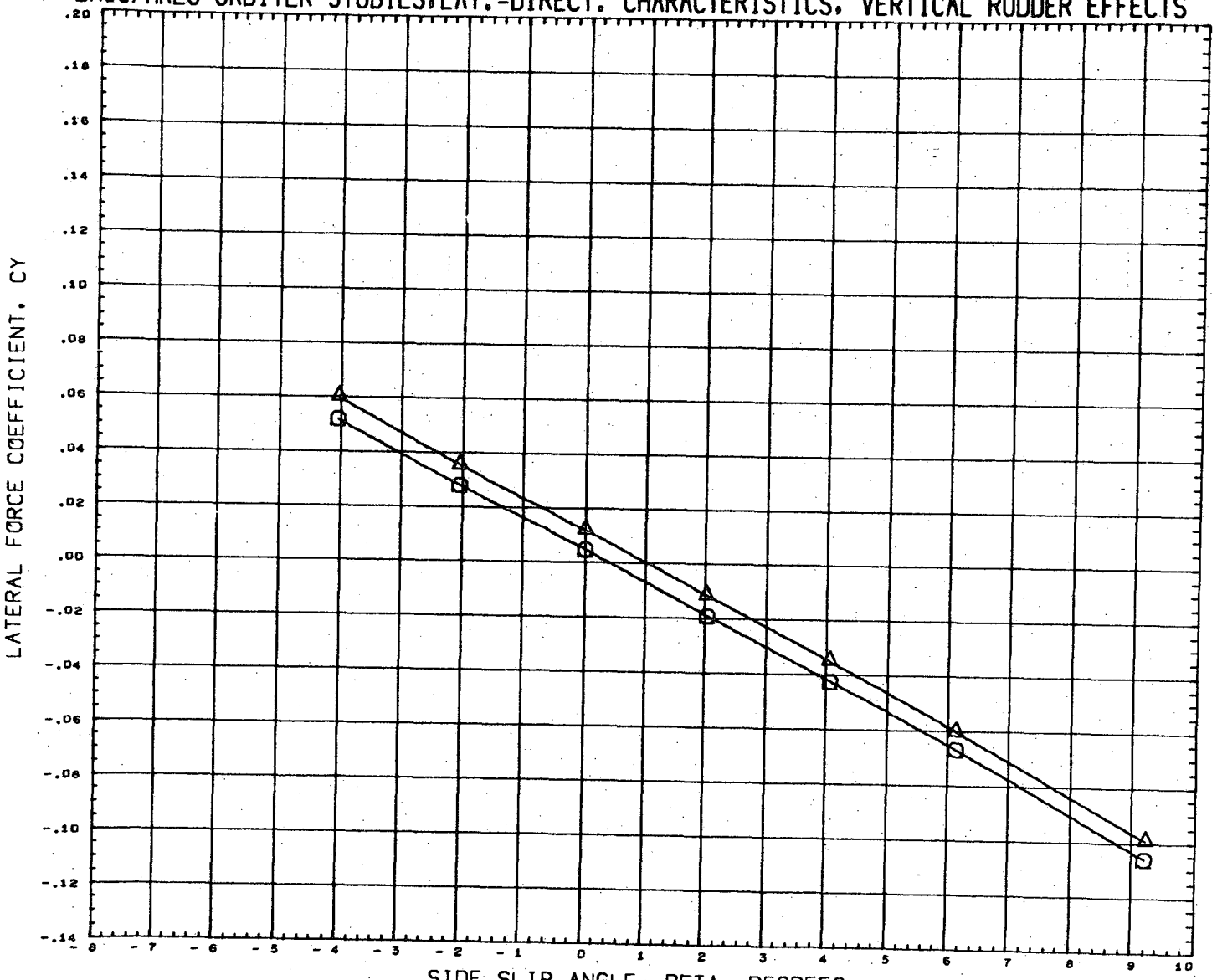


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.904

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2
(A3612G)		DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A3613G)		DATA NOT AVAILABLE FOR ALL CONDITIONS	
(A3614G)		DATA NOT AVAILABLE FOR ALL CONDITIONS	

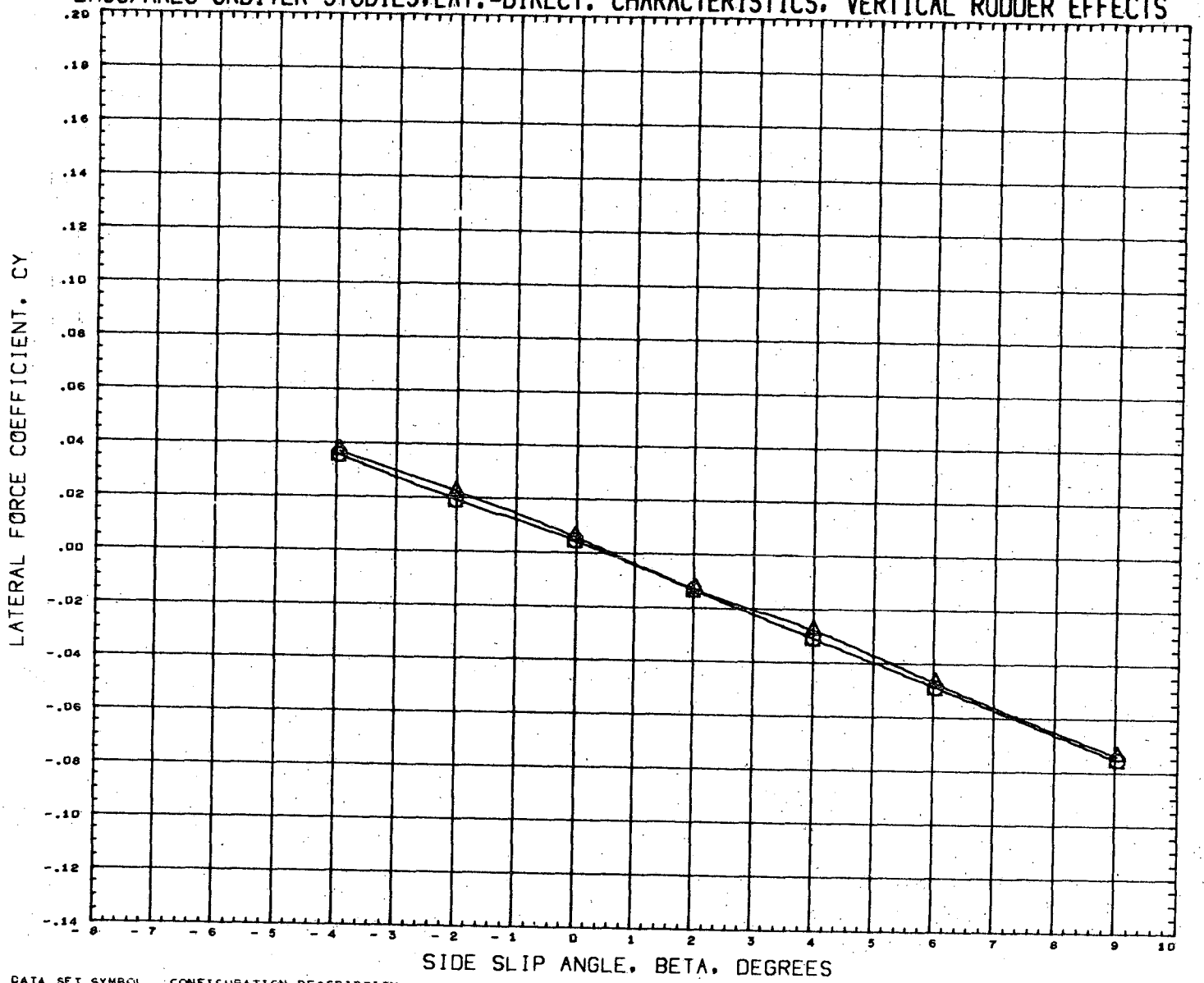
MACH 1.963

ALPHA	ELEVN1	RUDER2
-0.300	0.000	0.000
-0.300	0.000	10.000
20.450	0.000	0.000
20.450	0.000	10.000
20.450	0.000	20.000

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ØRBITER STUDIES.LAT.-DIRECT. CHARACTERISTICS. VERTICAL RUDDER EFFECTS

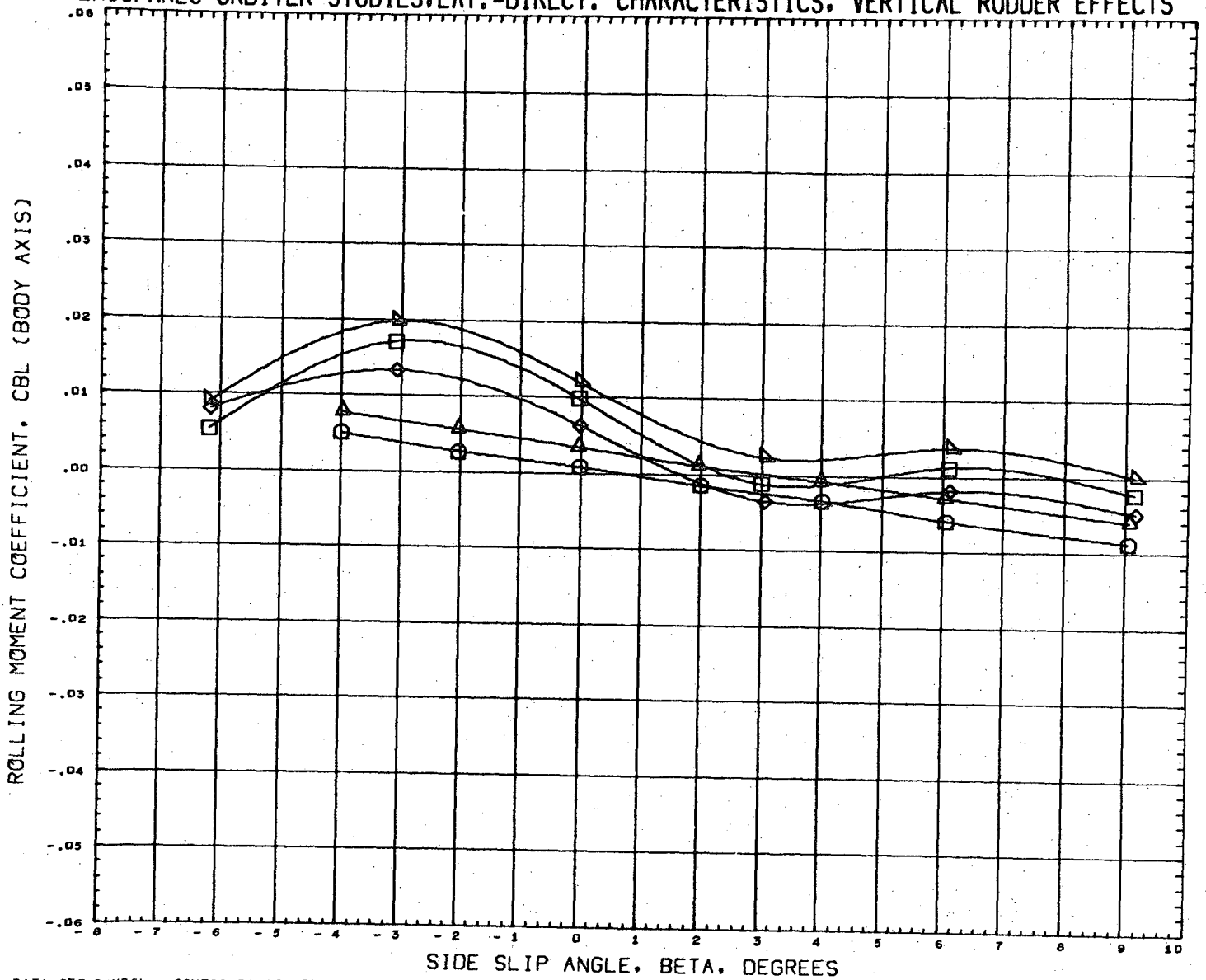


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	0.000
(A3613G)	□	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3614G)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS



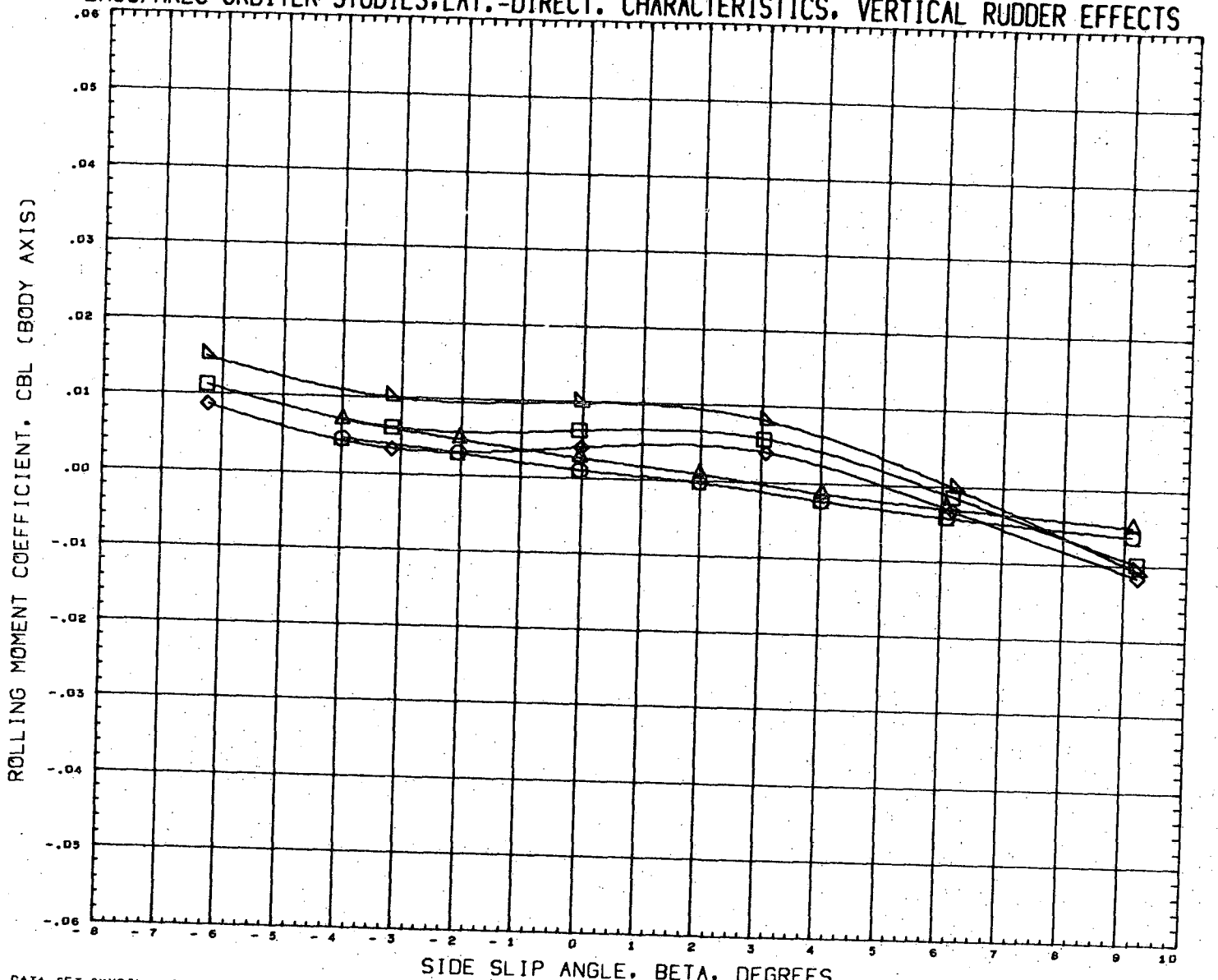
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, VERTICAL RUDDER EFFECTS

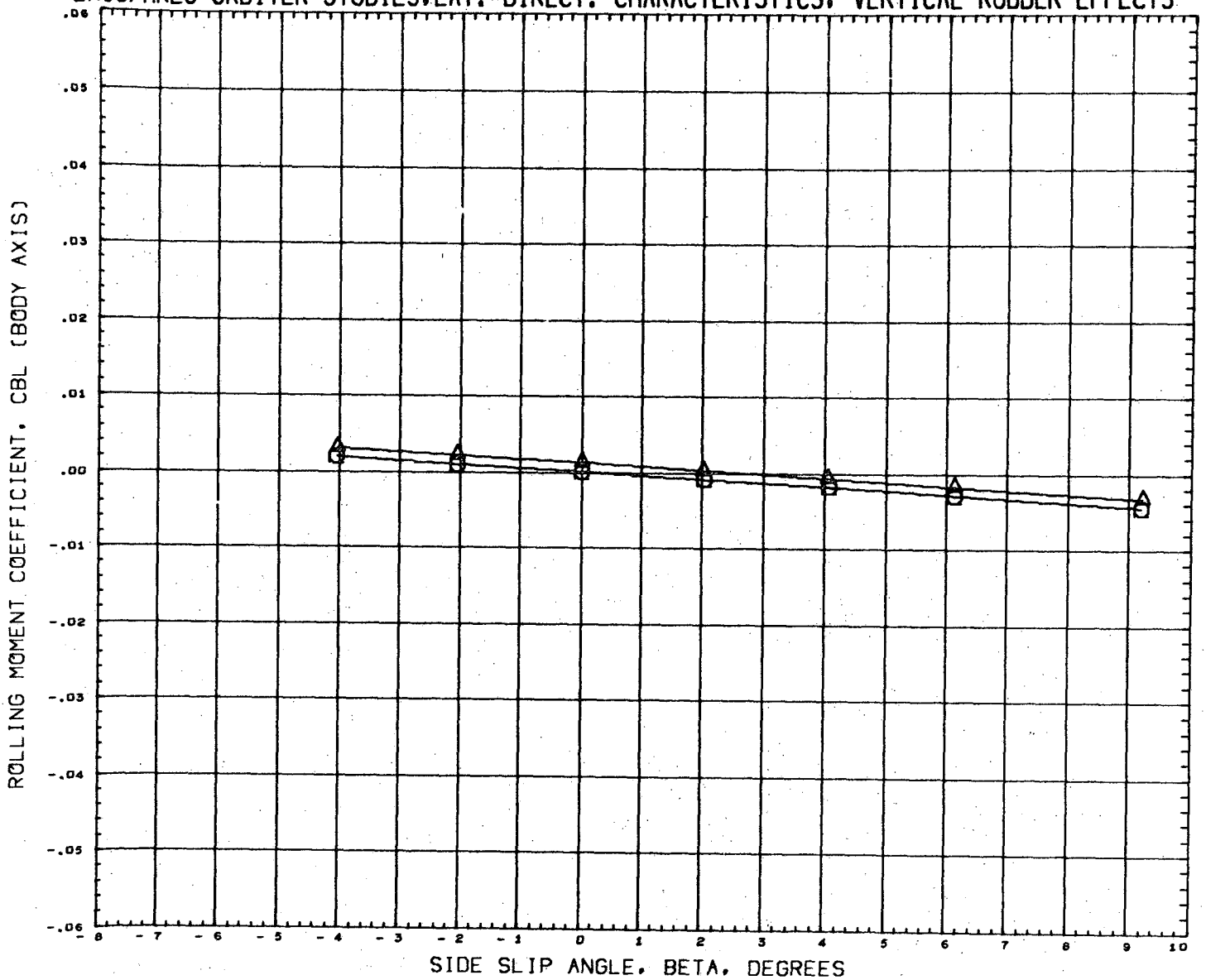


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	0.000
(A3613G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	10.000
(A3614G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	20.450	0.000	20.000

MACH 0.904

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.LAT.-DIRECT. CHARACTERISTICS. VERTICAL RUDDER EFFECTS

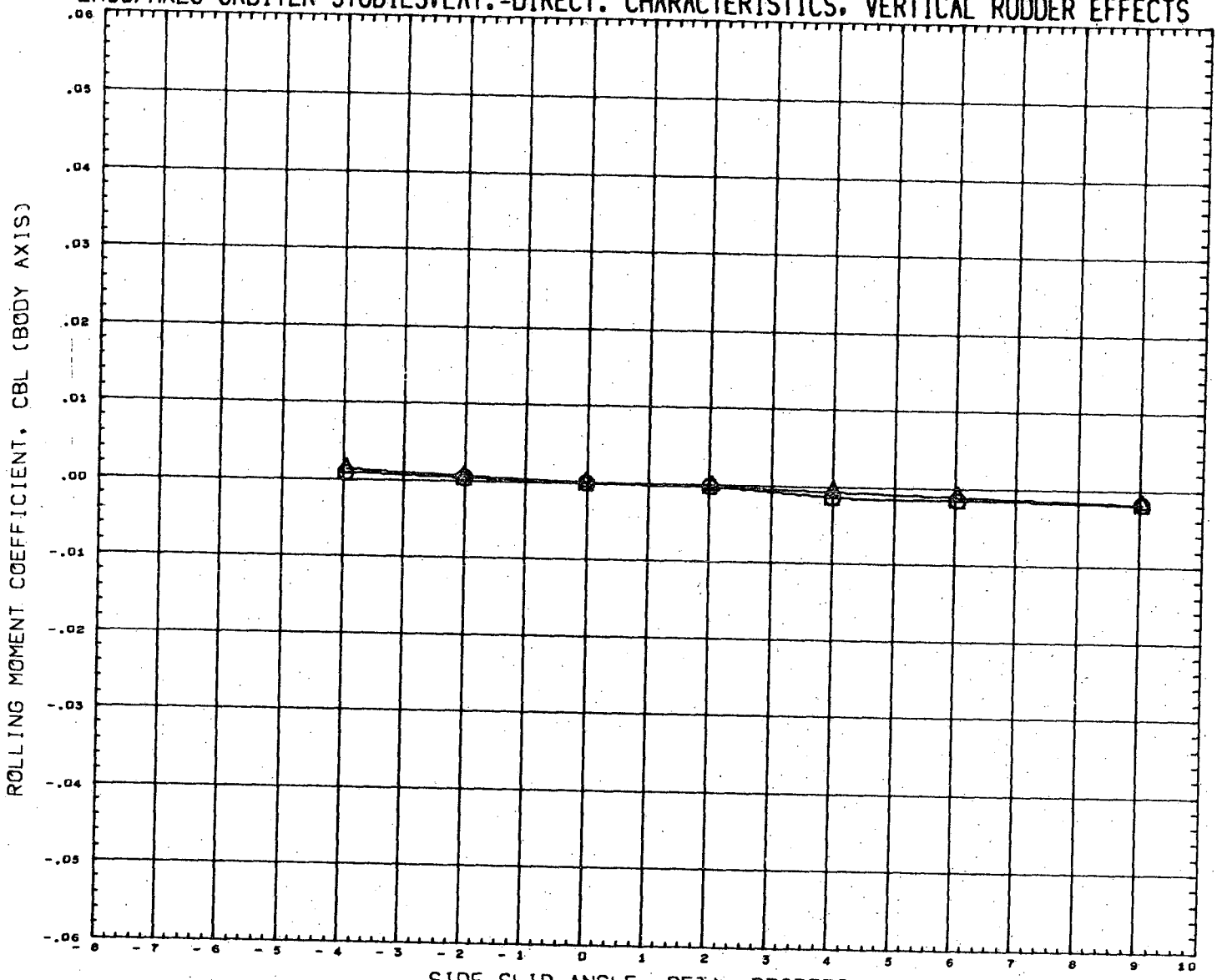


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	0.000
(A3613G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3614G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 1.963

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF.	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. LAT.-DIRECT. CHARACTERISTICS. VERTICAL RUDDER EFFECTS



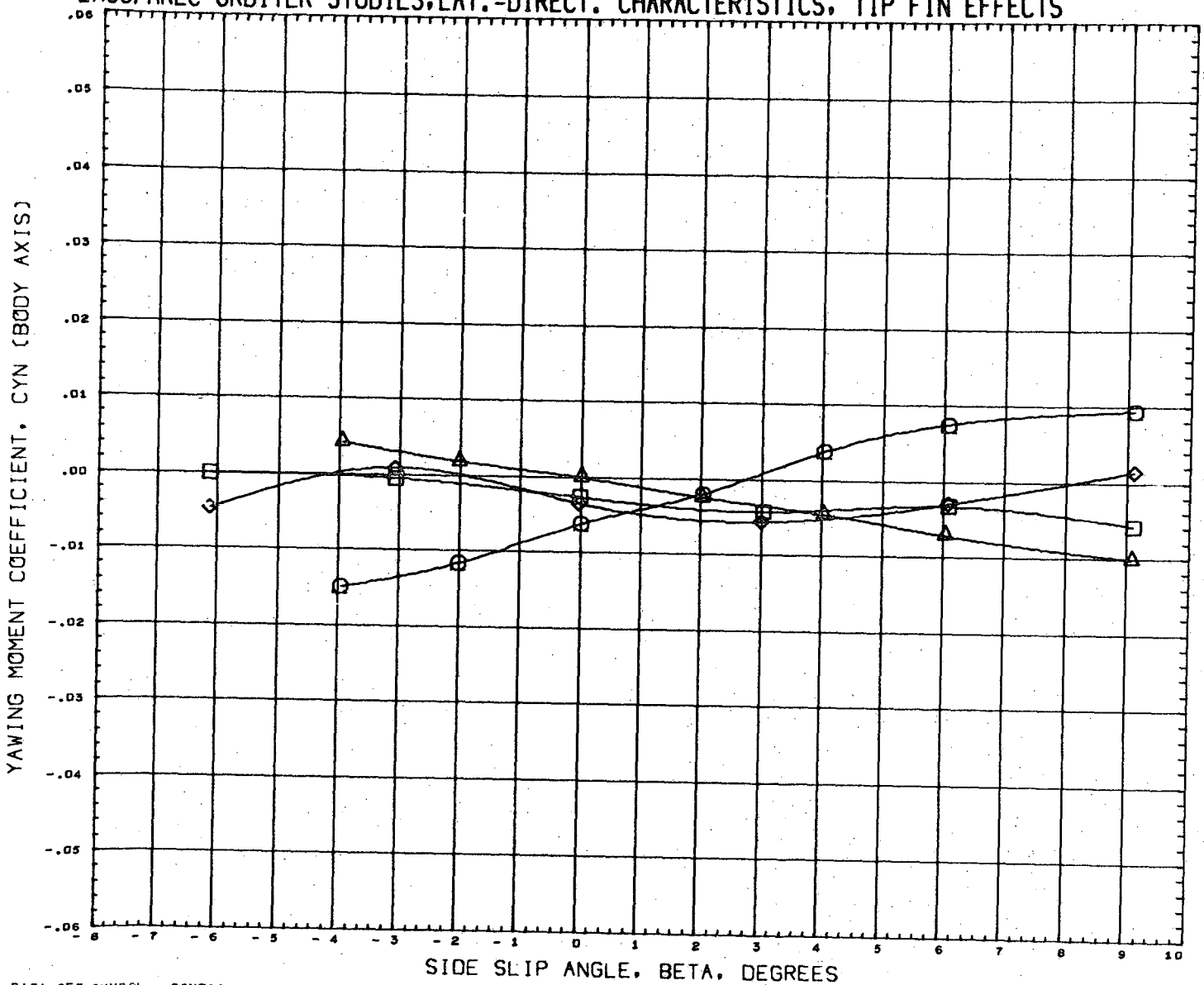
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(A3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(A3612G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	0.000
(A3613G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	10.000
(A3614G)		DATA NOT AVAILABLE FOR ALL CONDITIONS		20.450	0.000	20.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

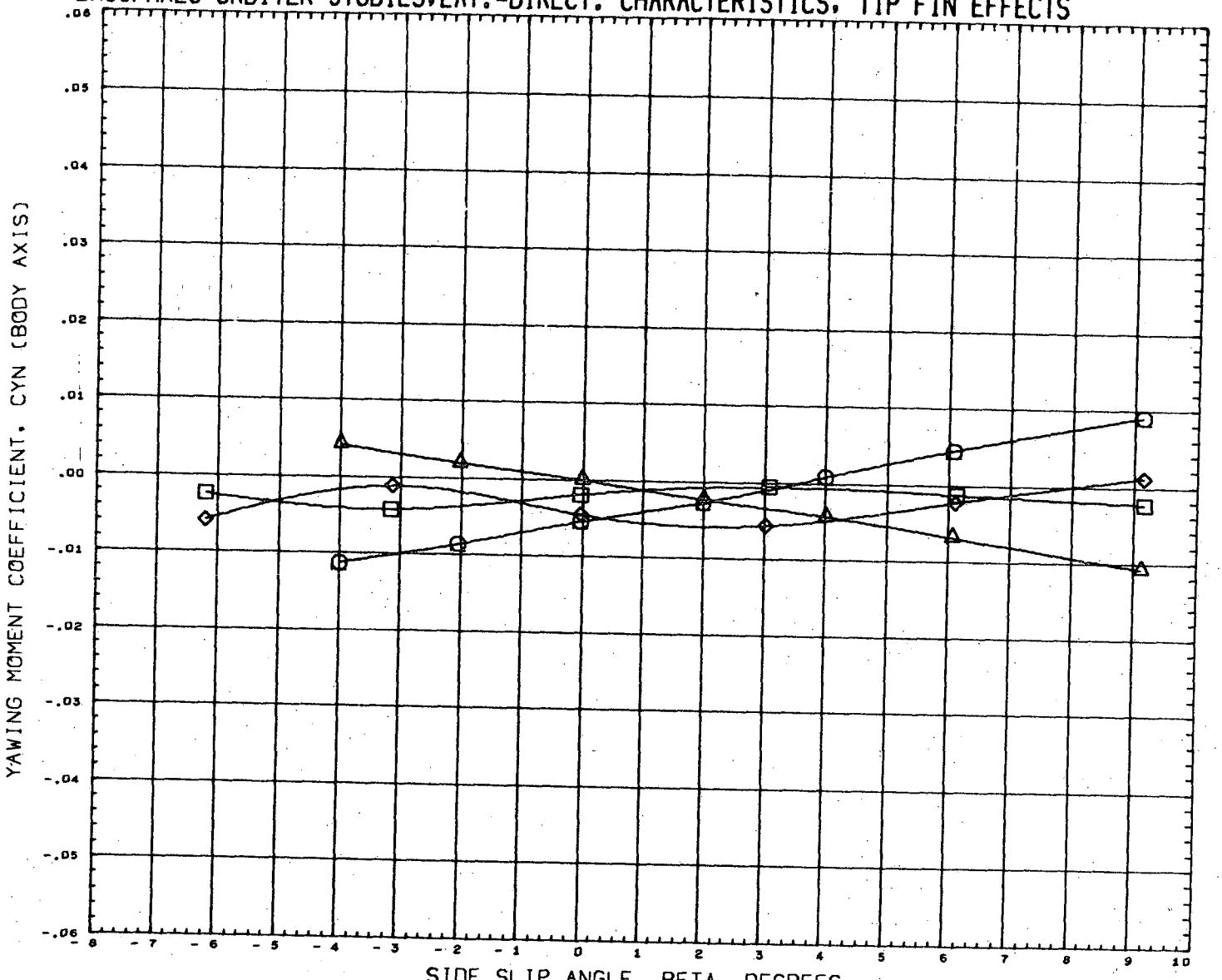


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.601

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



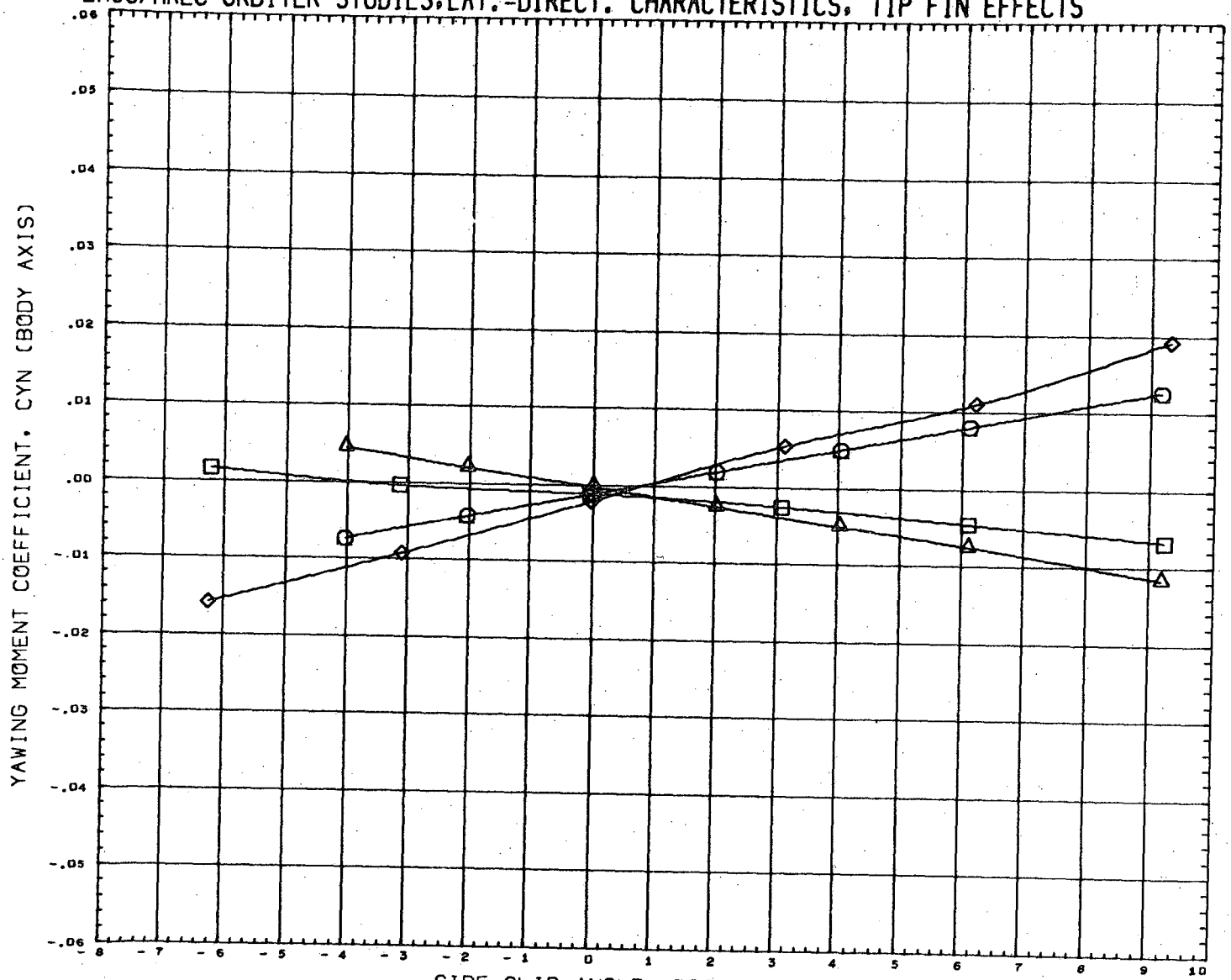
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



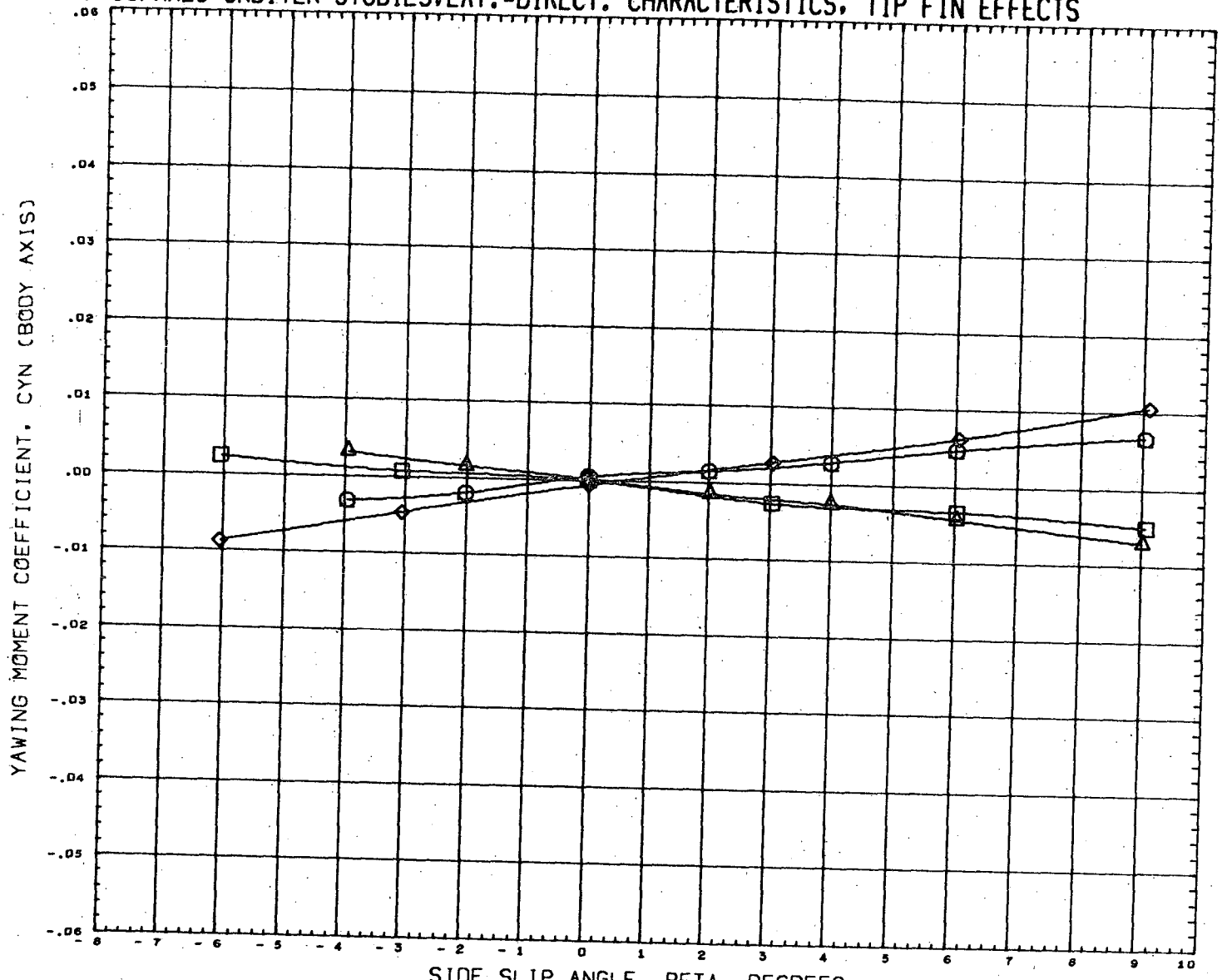
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 1.963

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

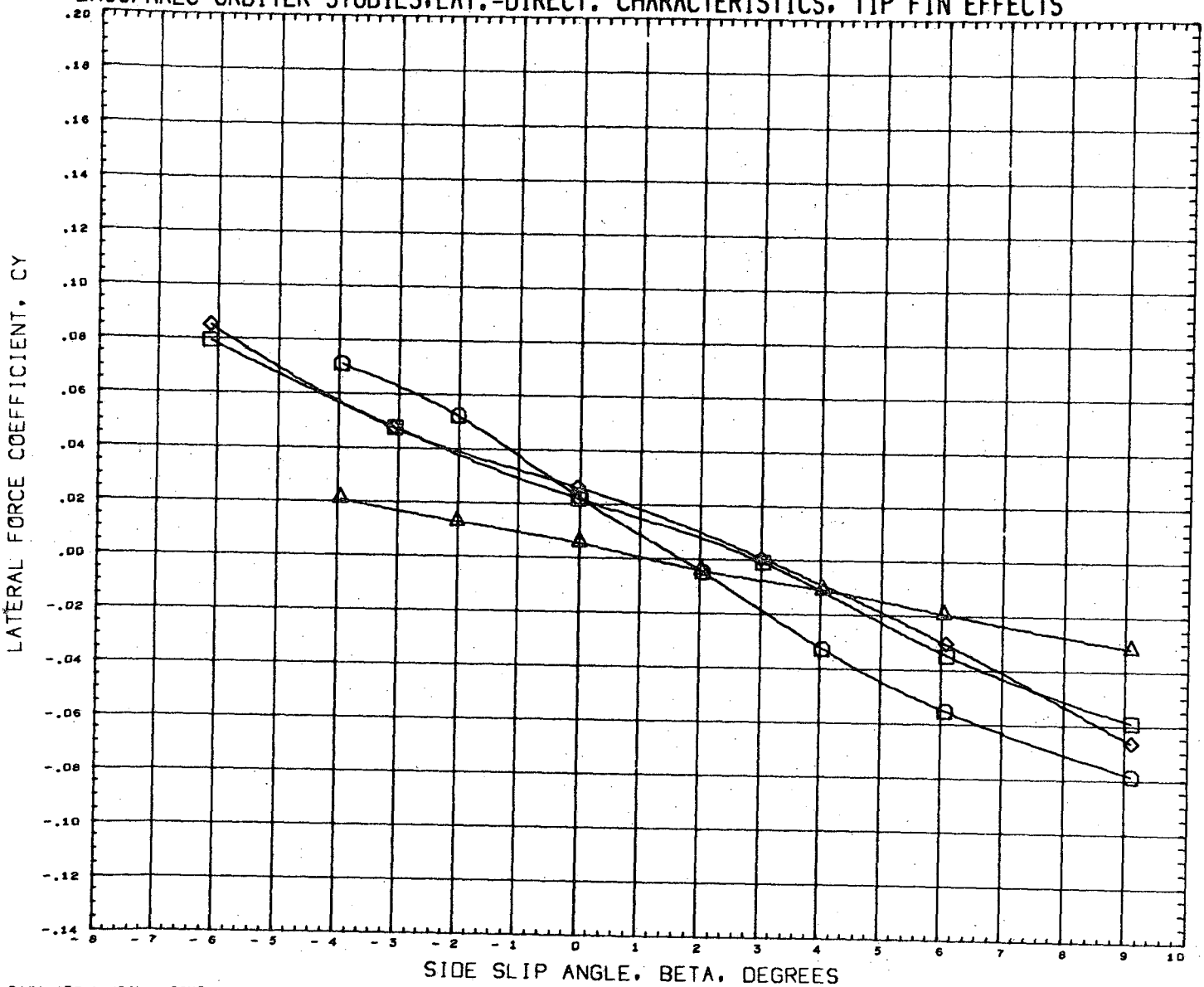


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



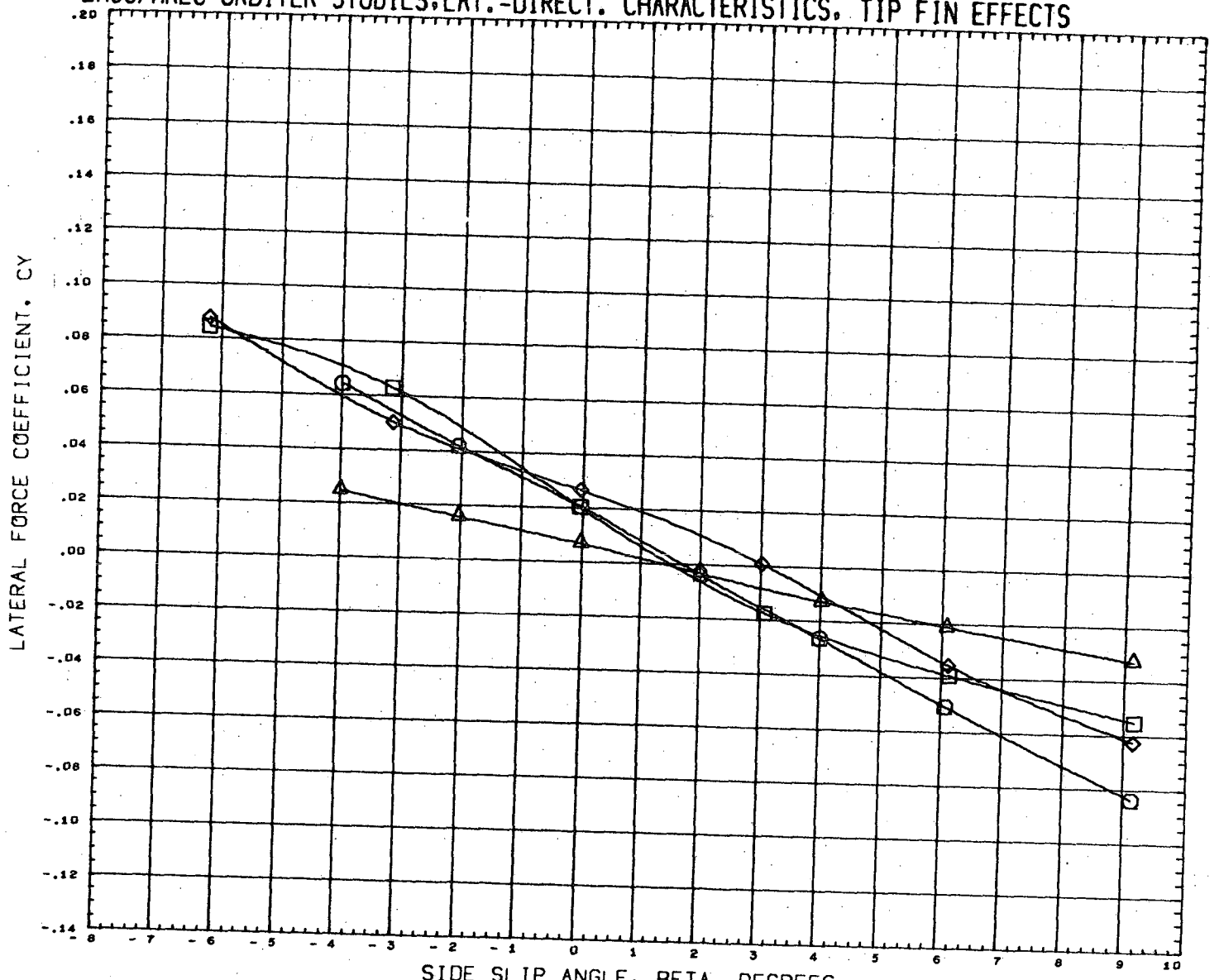
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.601

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



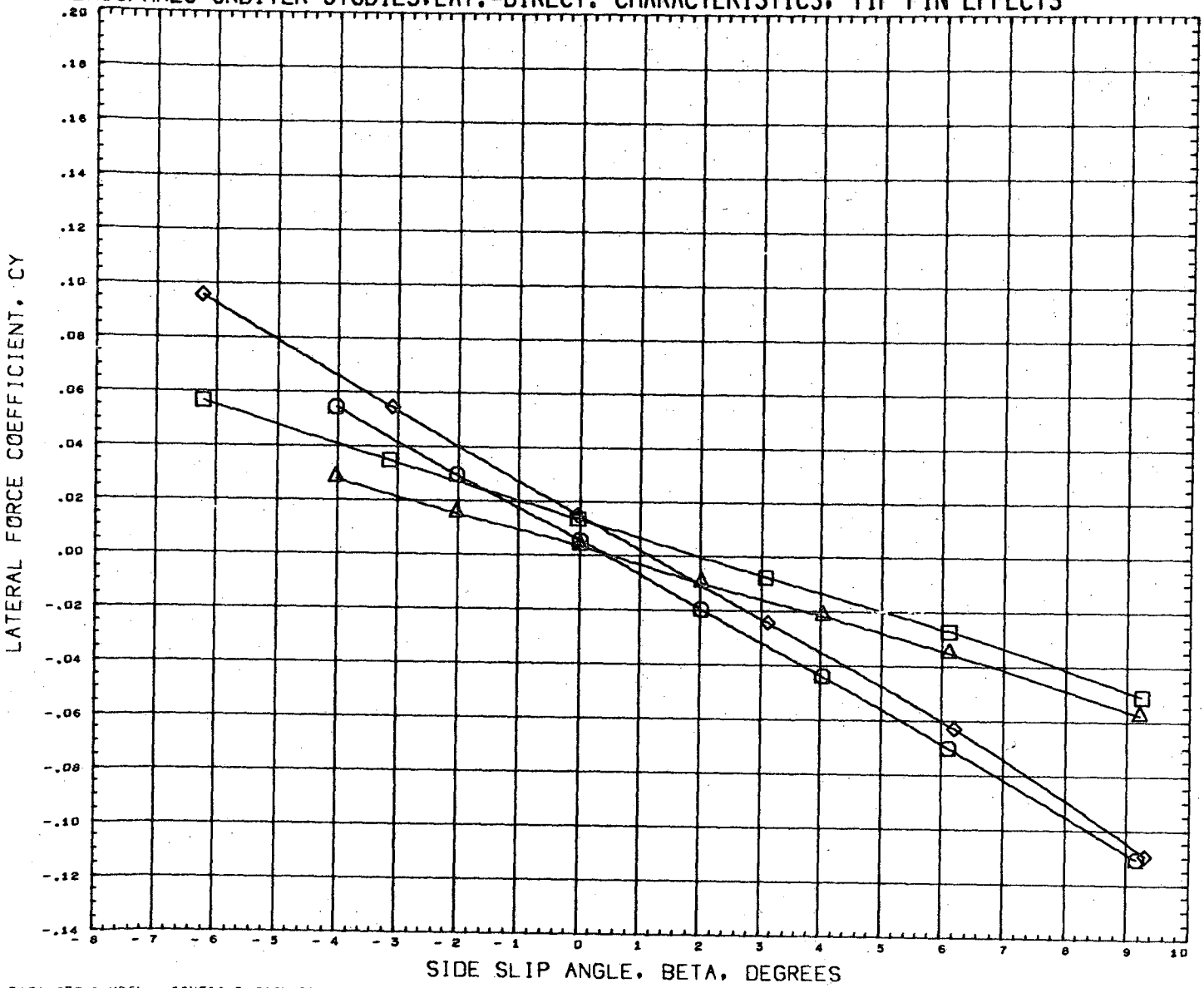
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



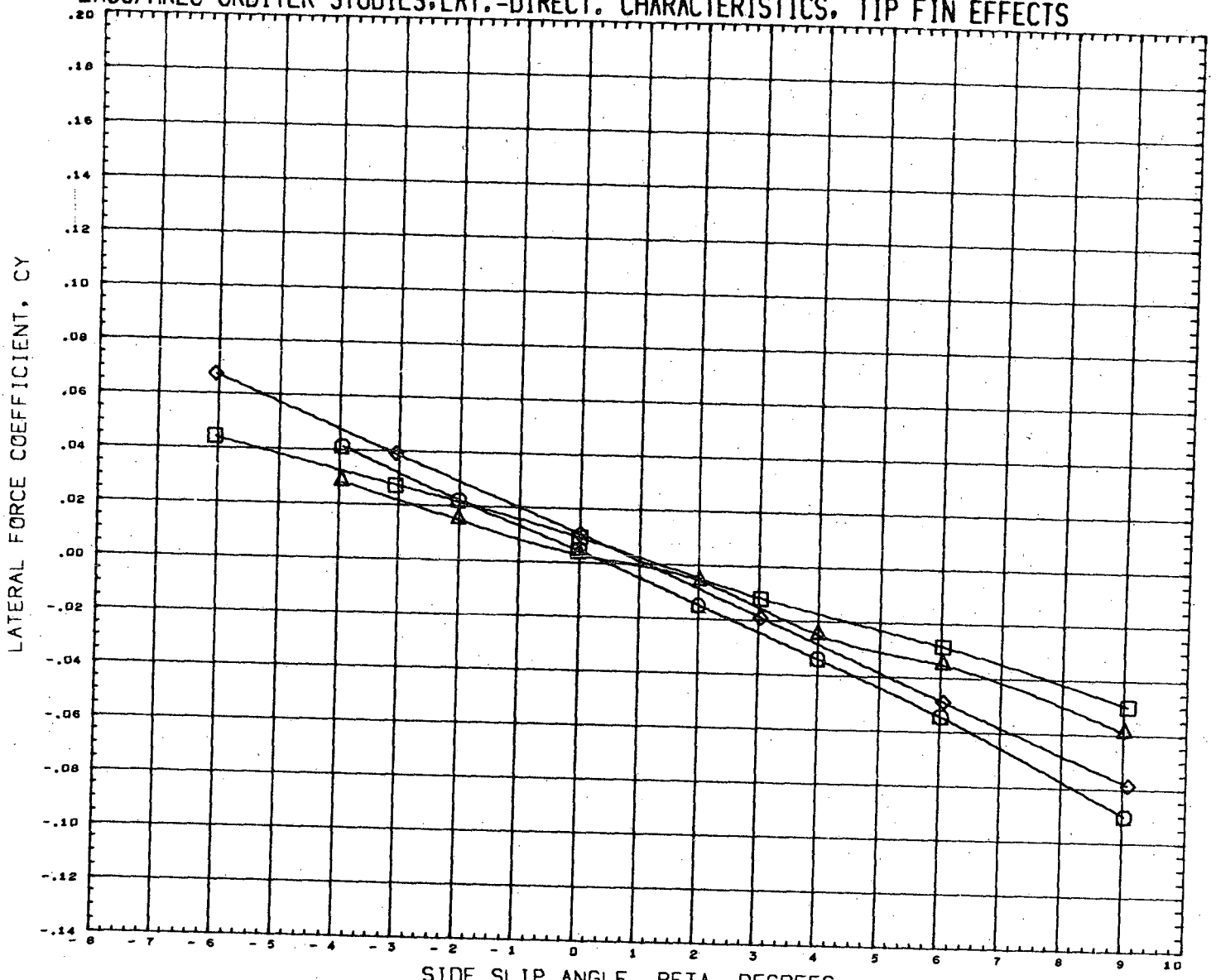
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 1.963

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS



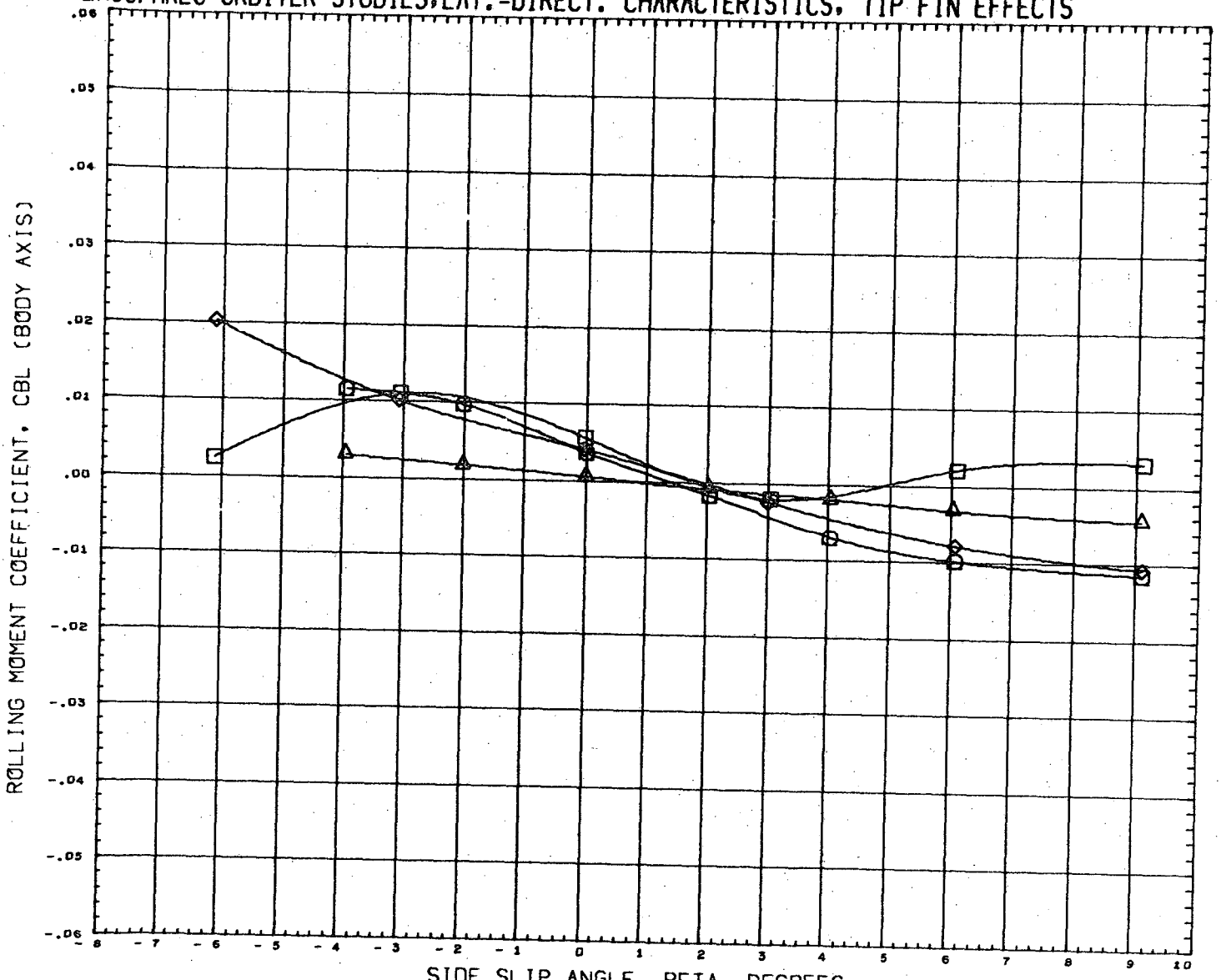
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ØRBITER STUDIES,LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

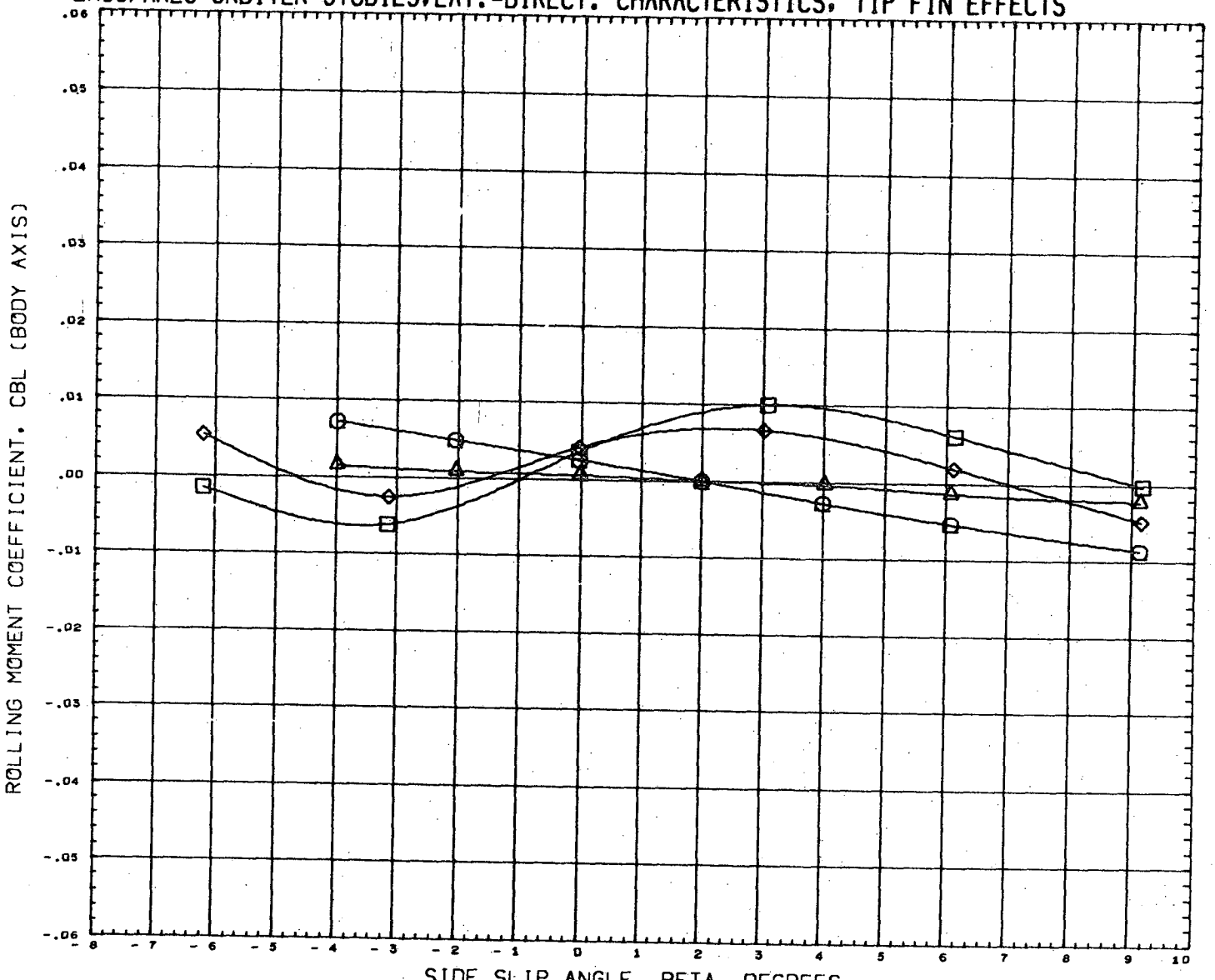


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.601

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

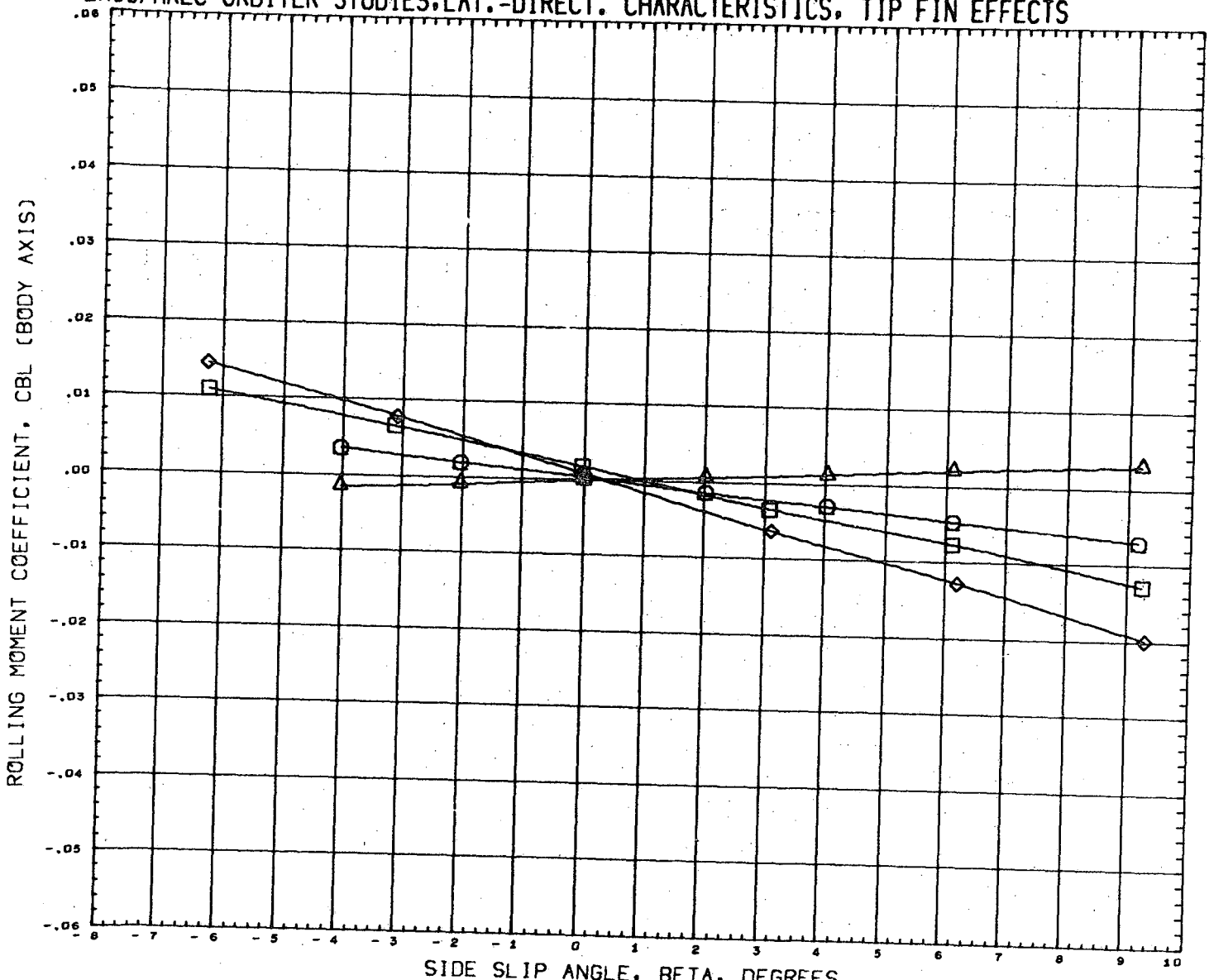


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 0.900

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

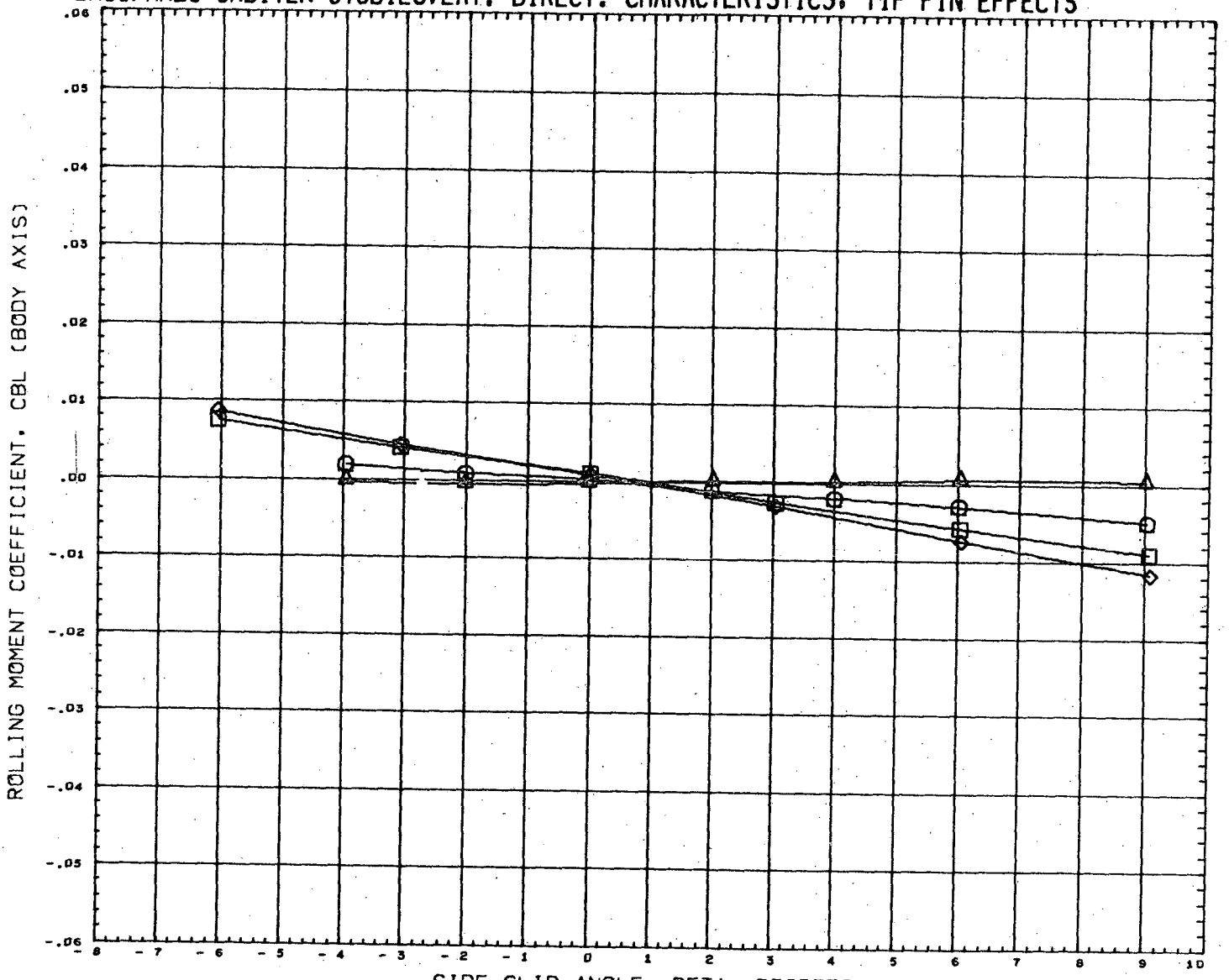


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 1.963

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, LAT.-DIRECT. CHARACTERISTICS, TIP FIN EFFECTS

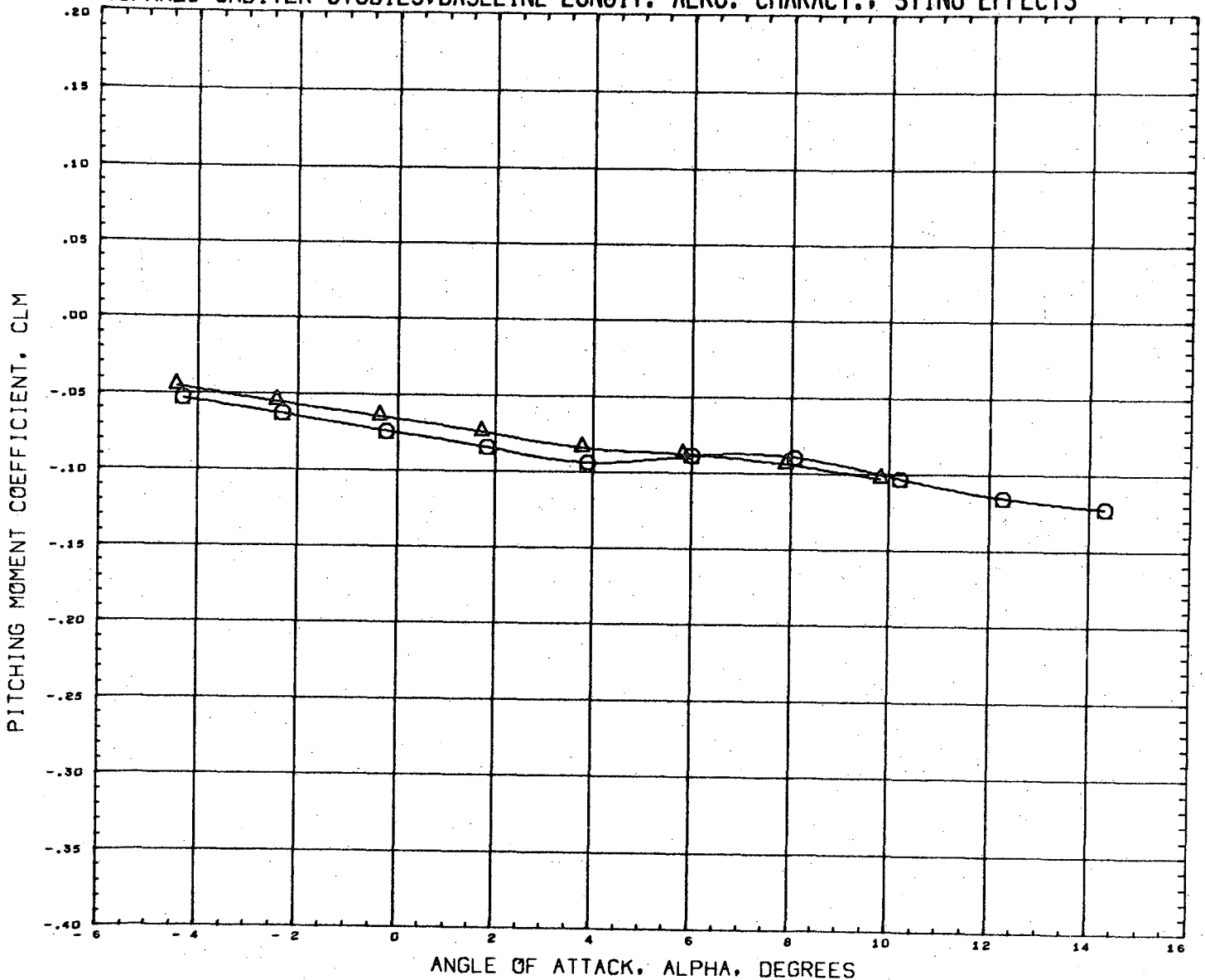


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(E3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000	
(A3601G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	20.450	0.000	0.000
(A3615G)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	20.450	0.000	

MACH 4.960

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



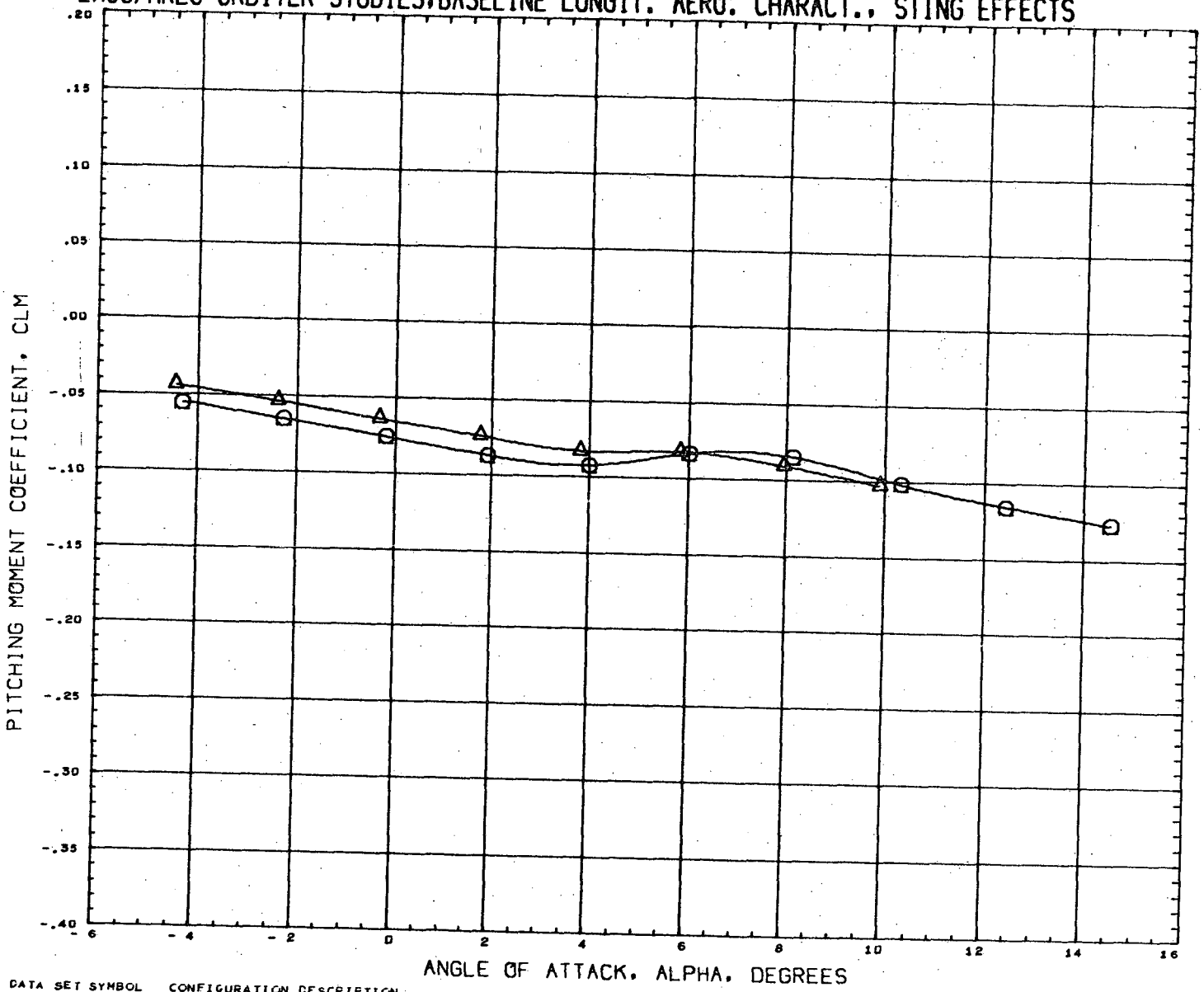
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E36D1A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



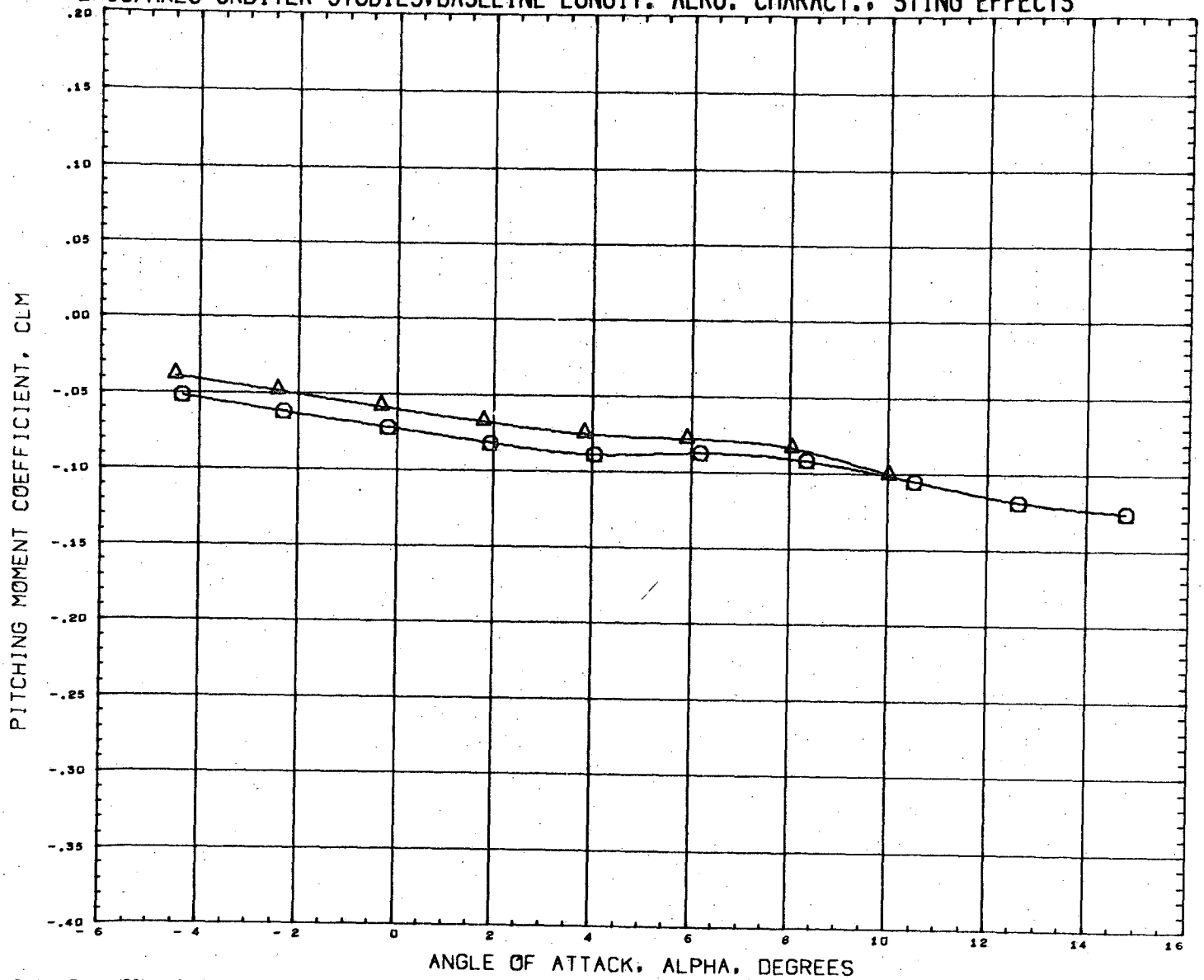
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



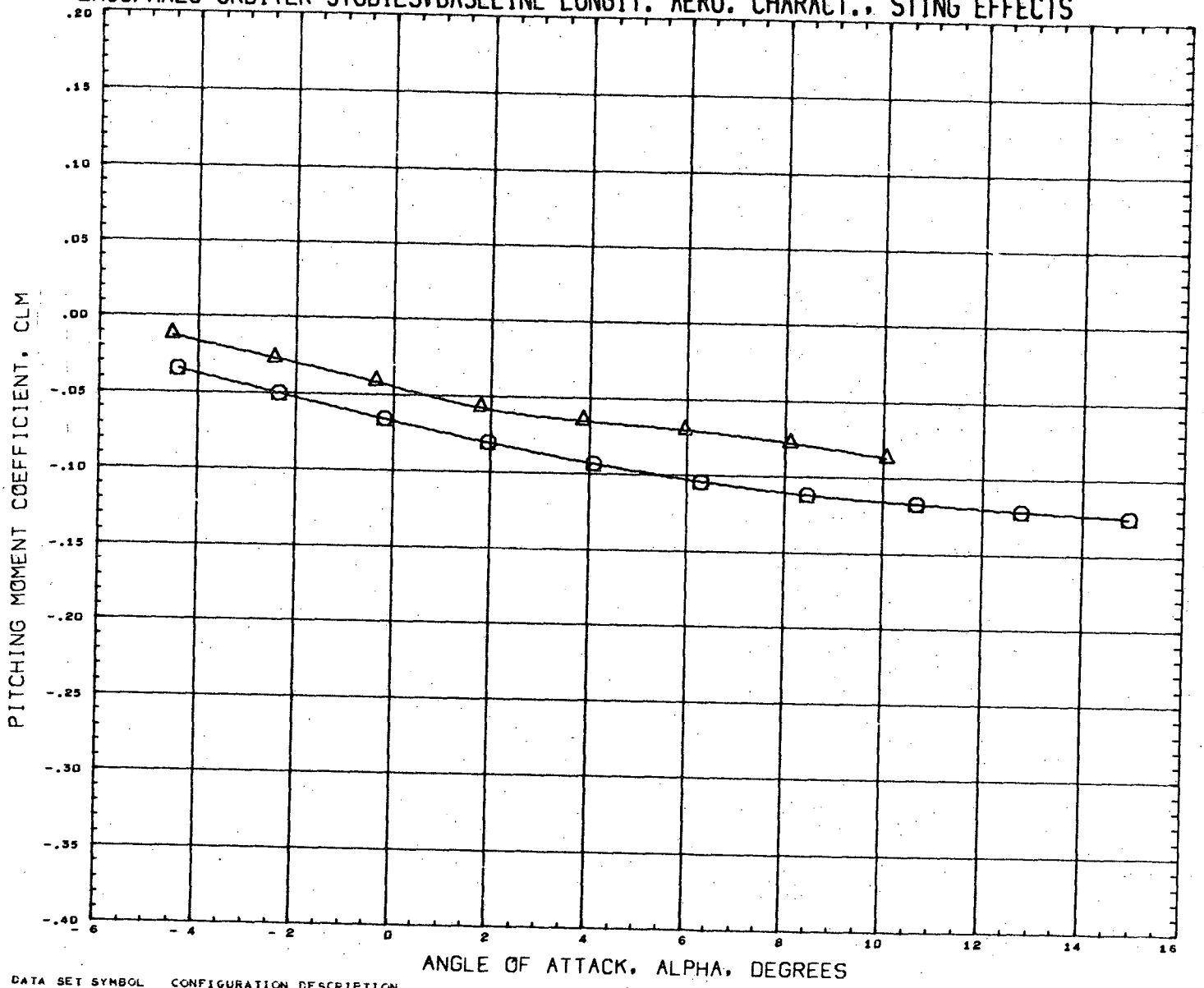
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



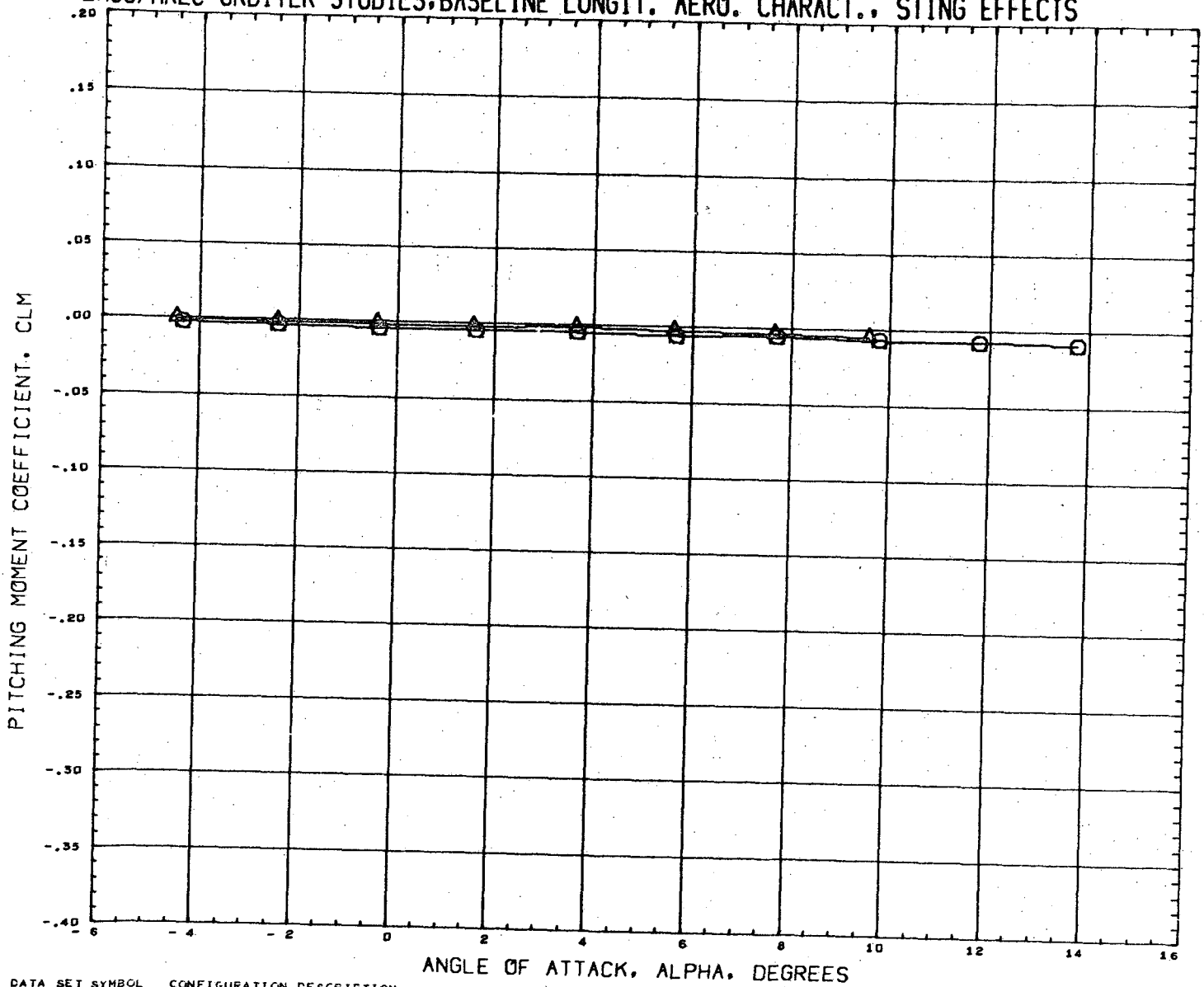
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E36D1A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



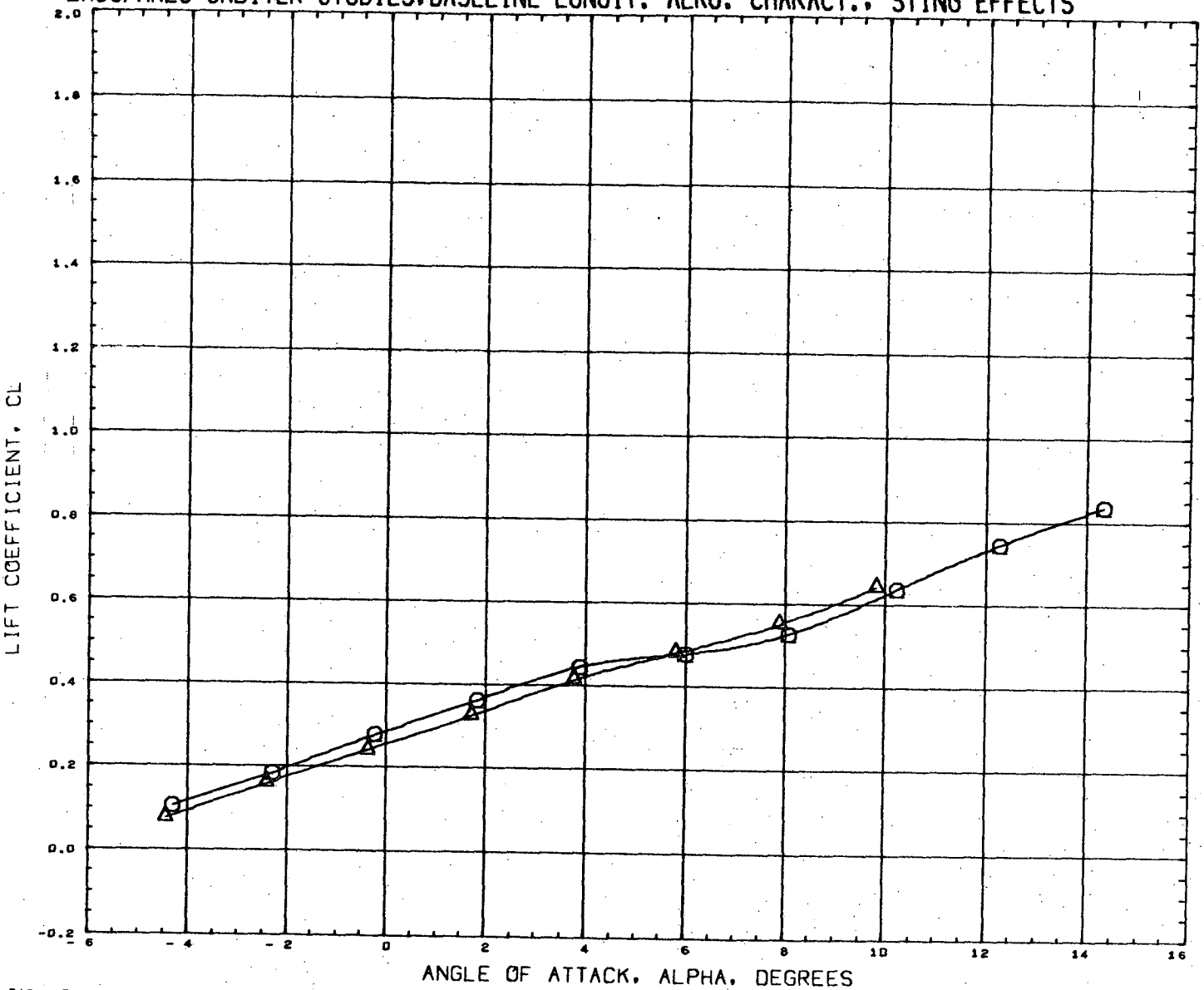
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	Sq.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



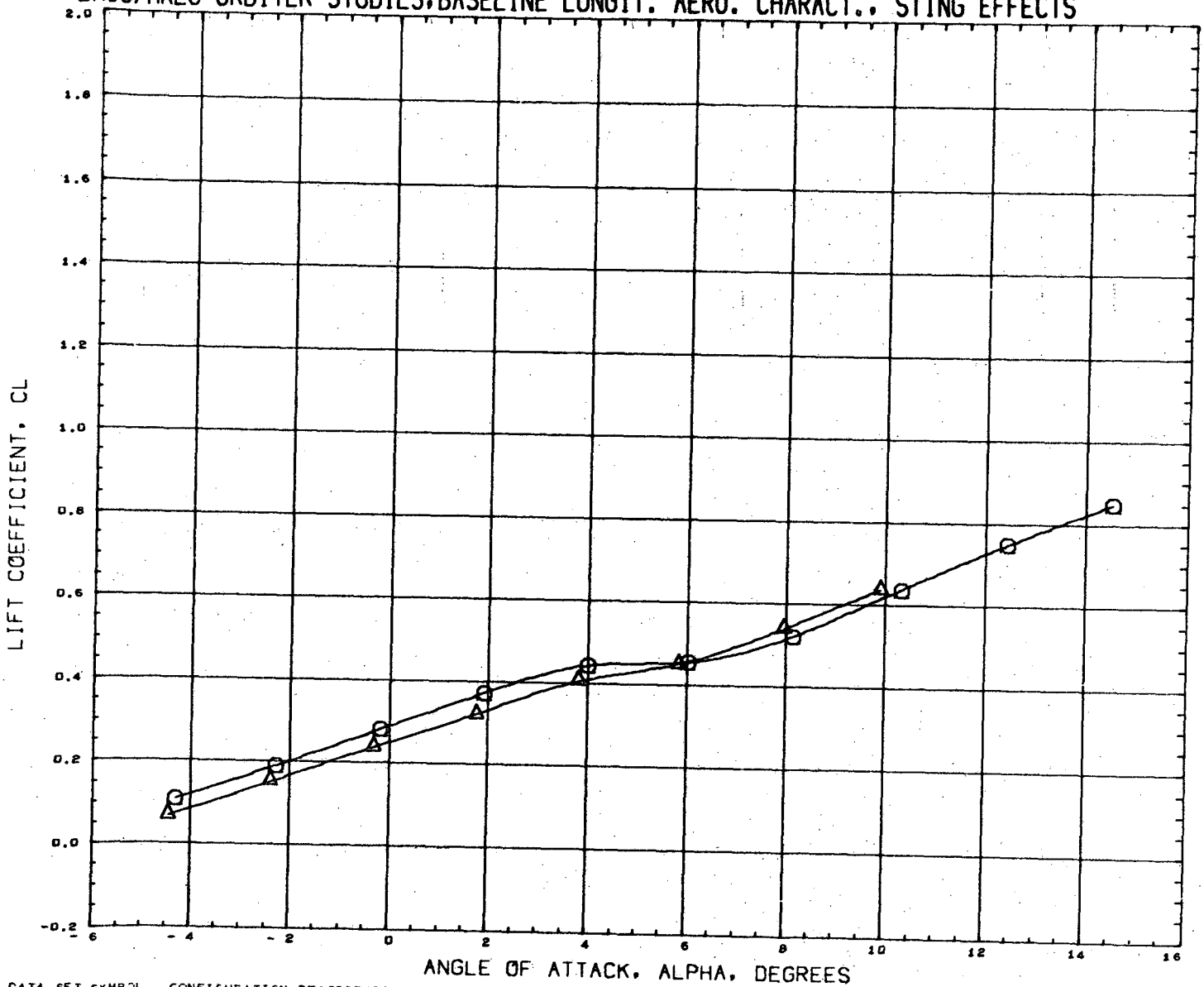
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



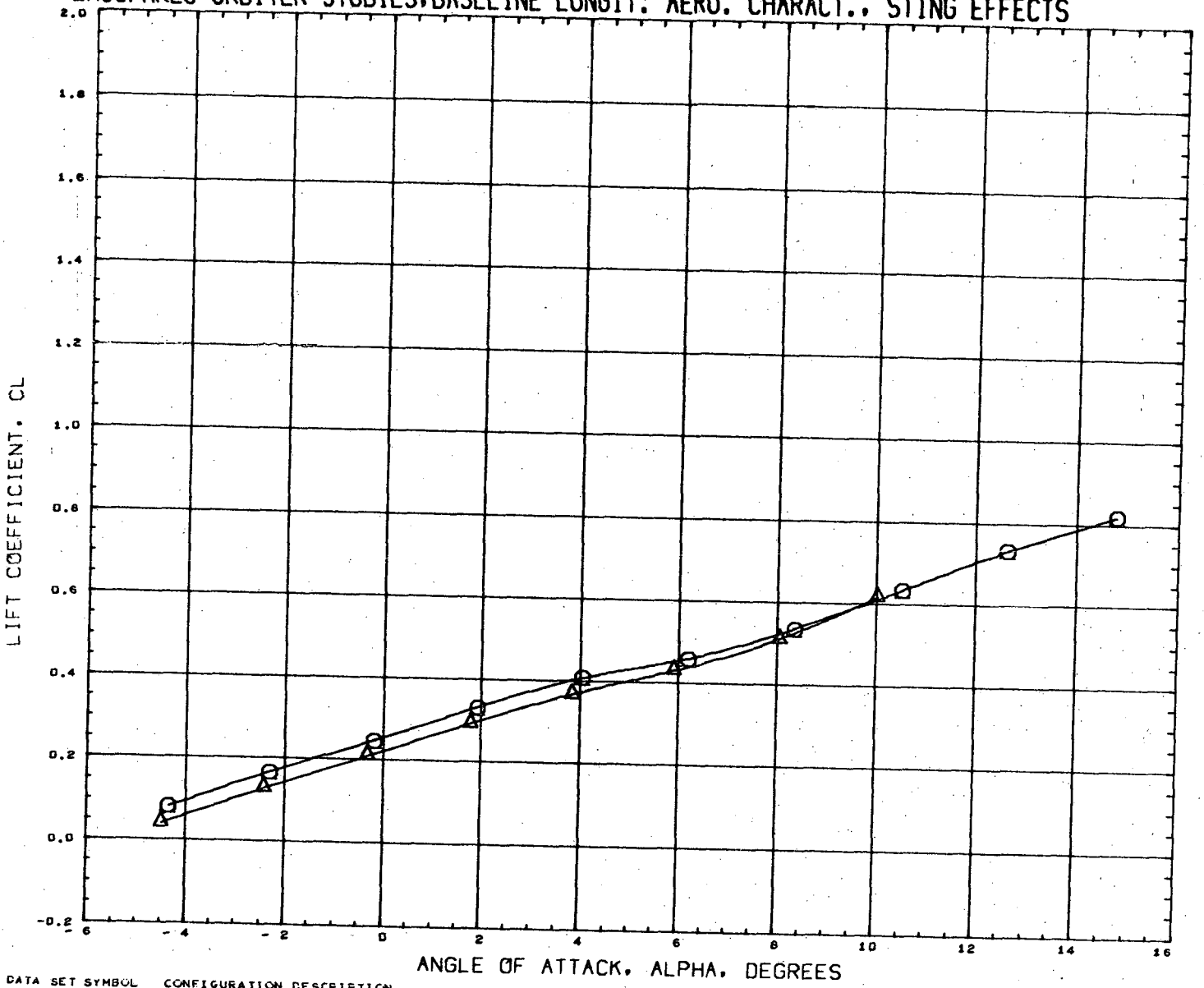
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



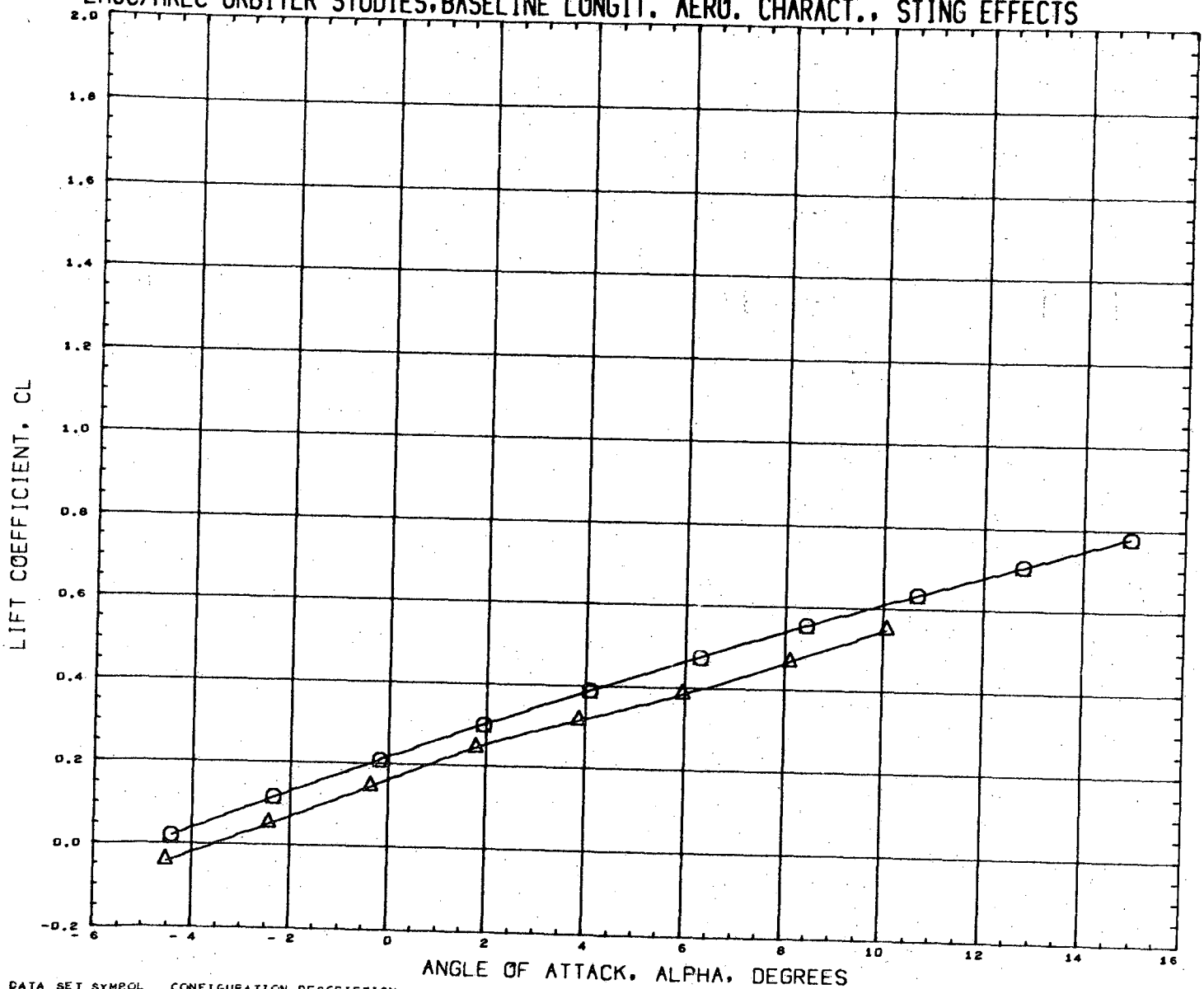
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



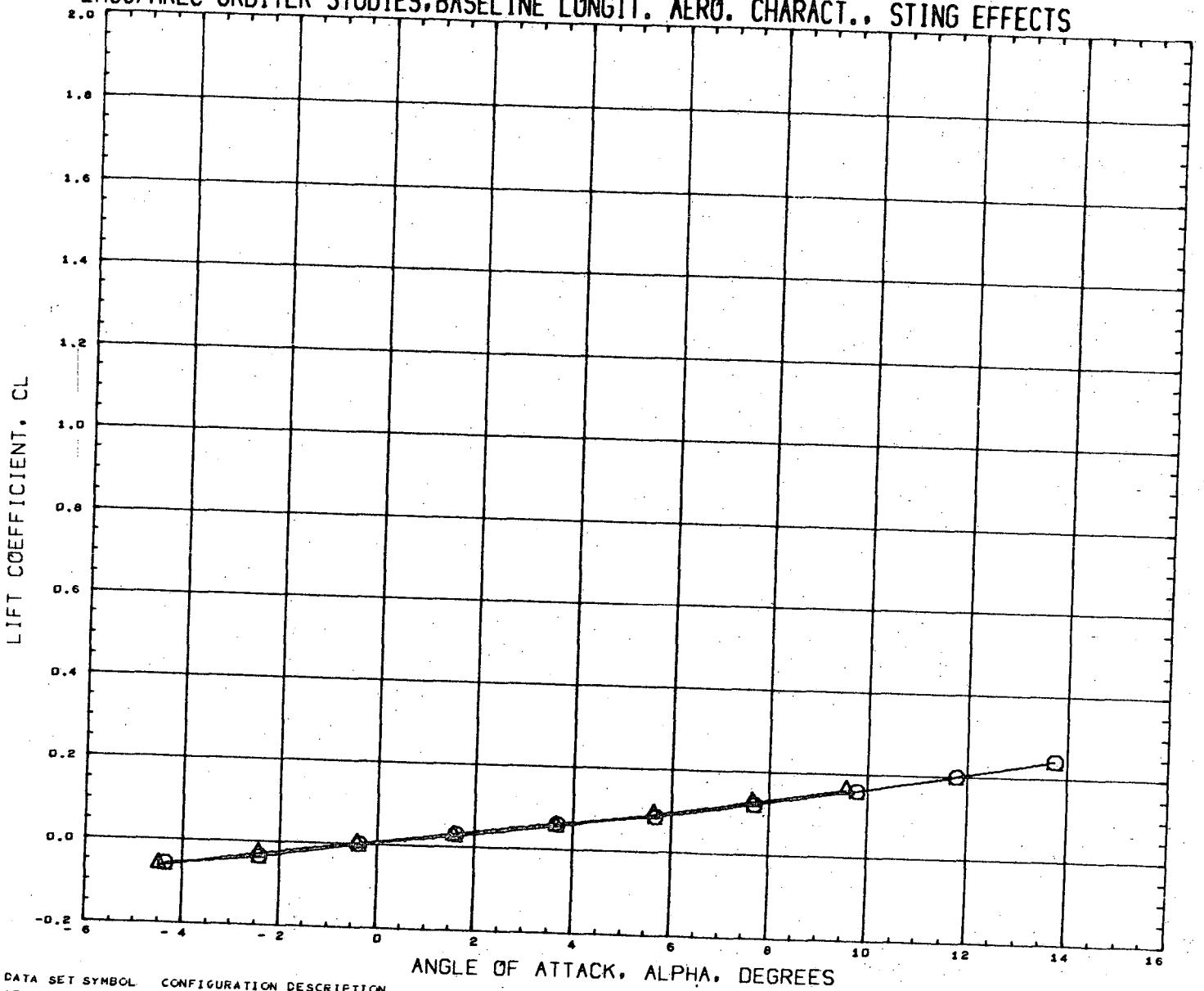
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



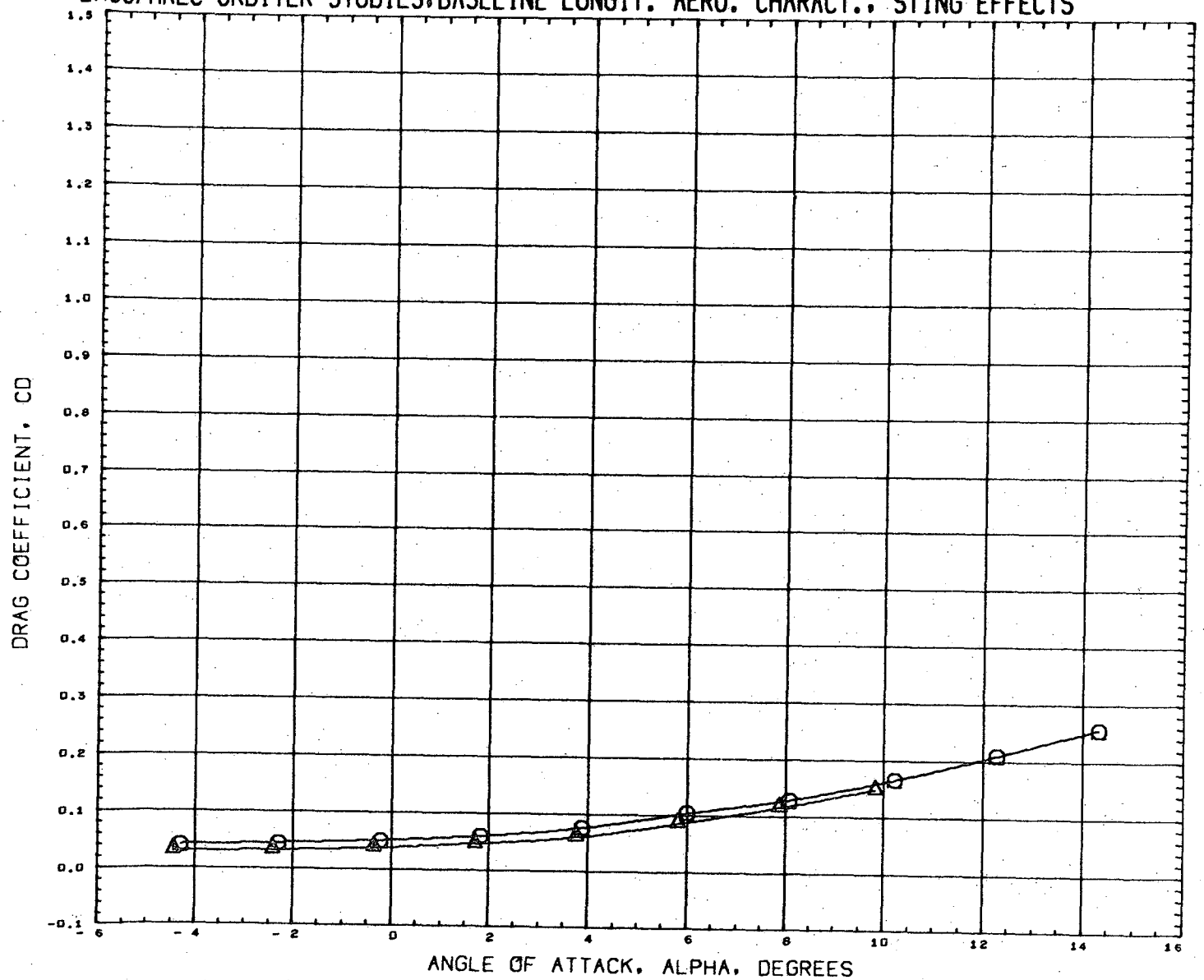
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



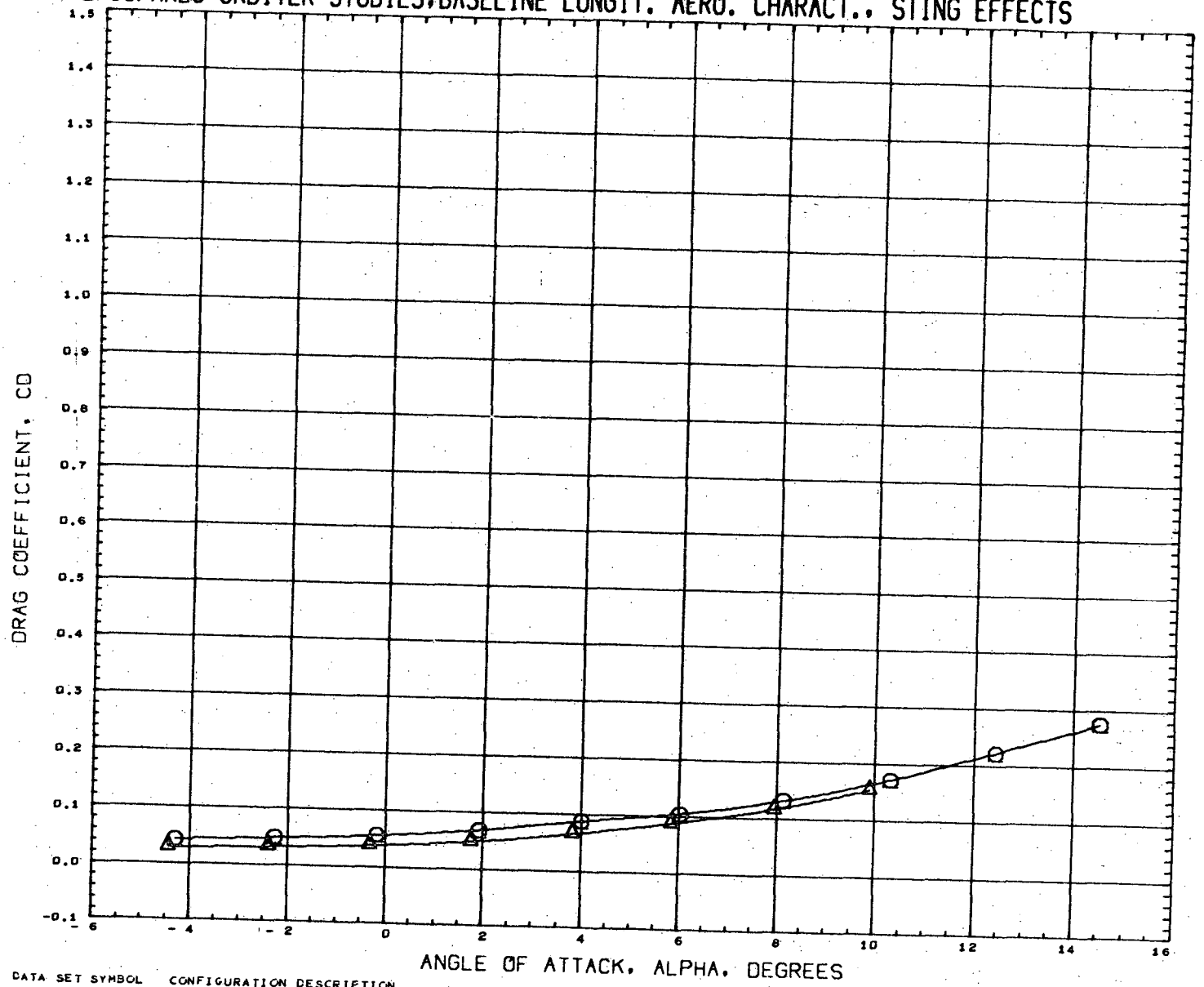
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



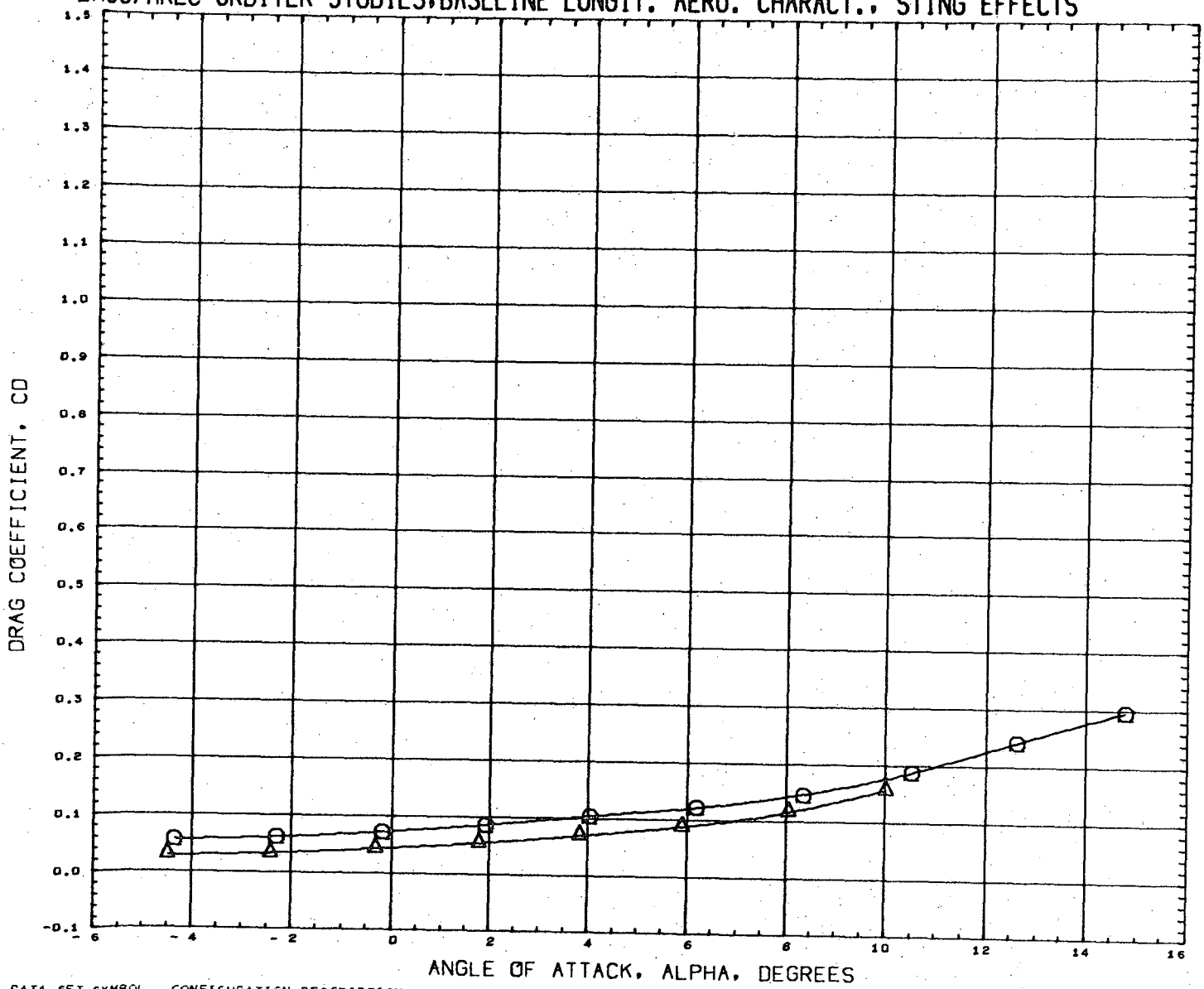
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



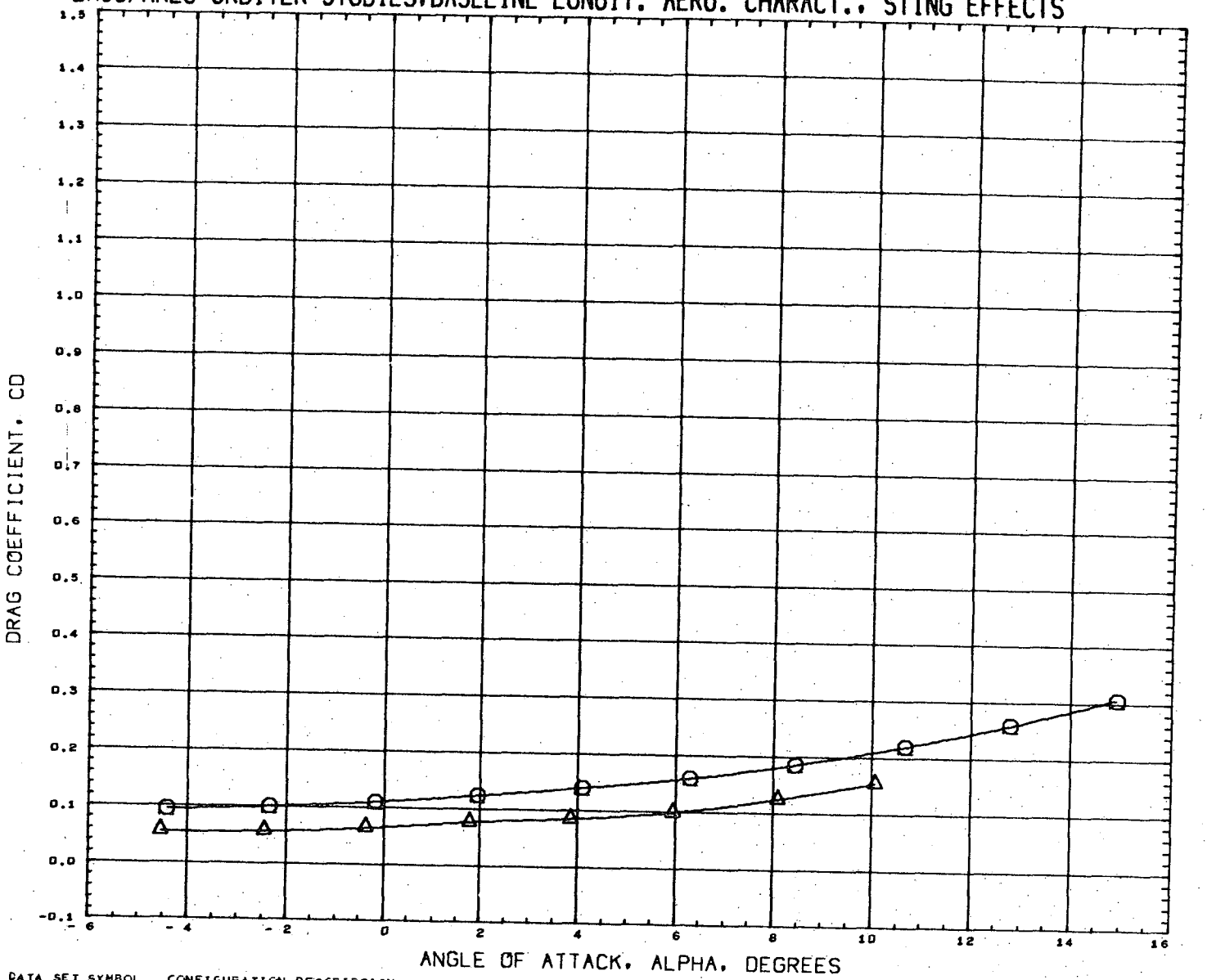
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

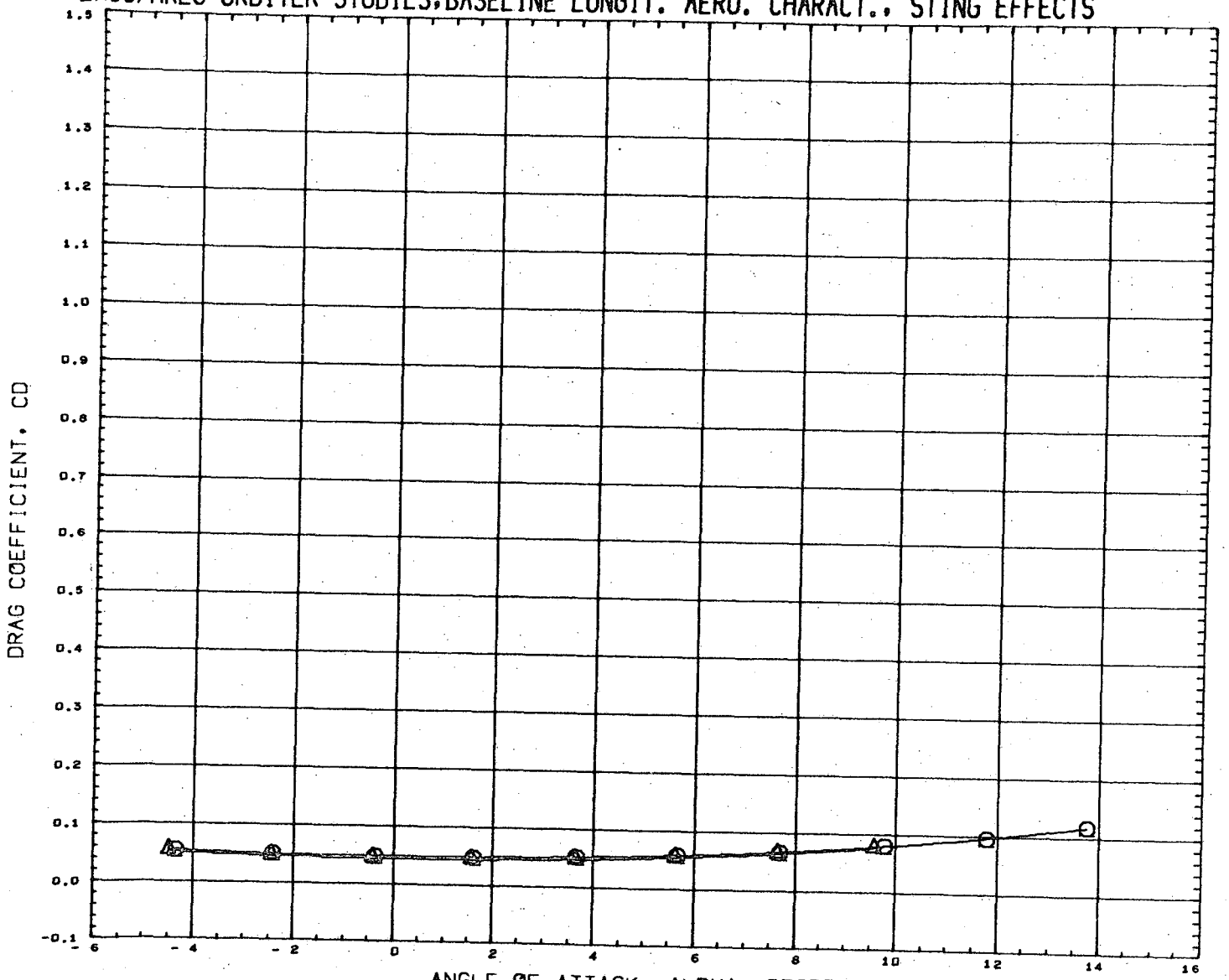


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



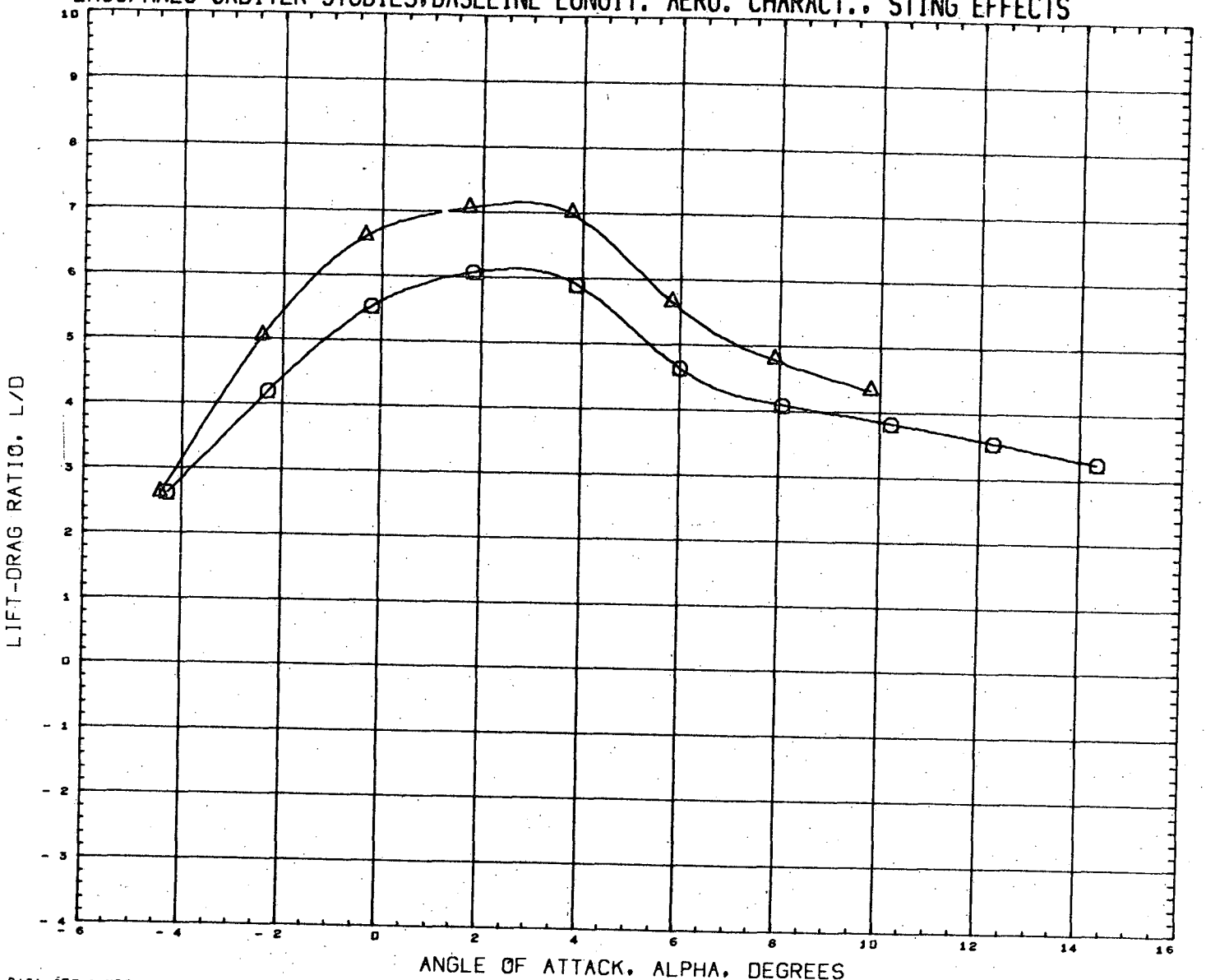
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



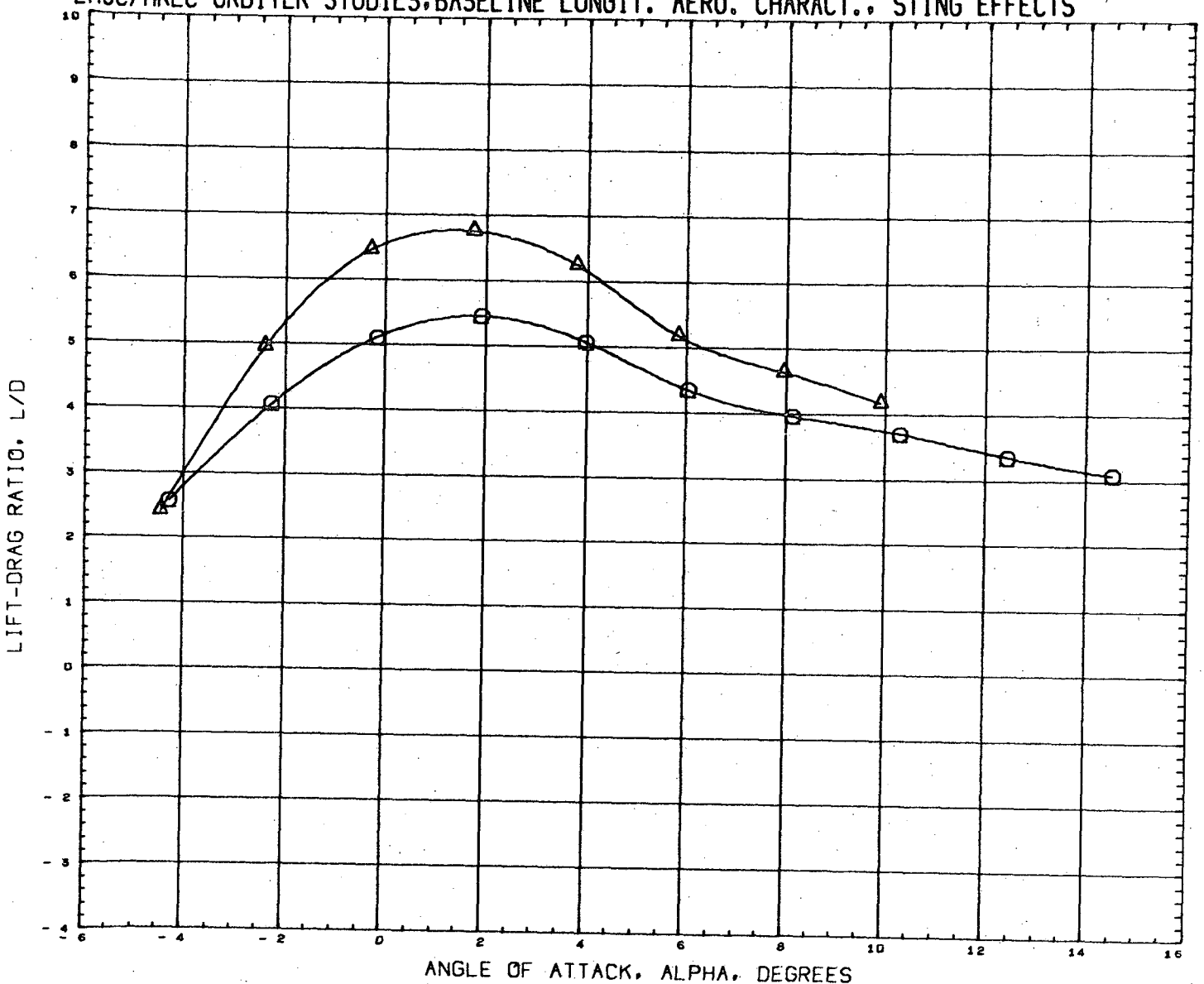
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



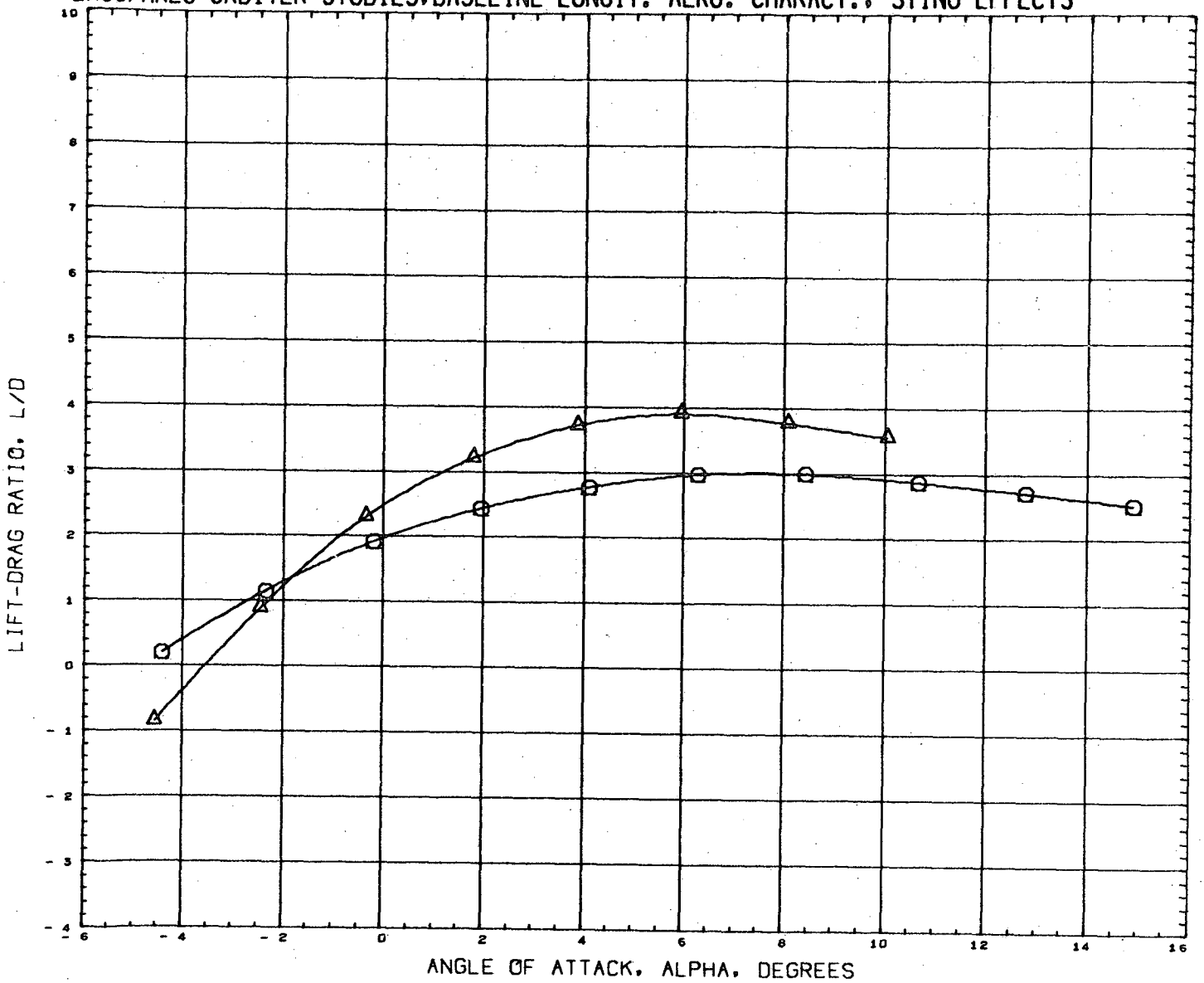
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

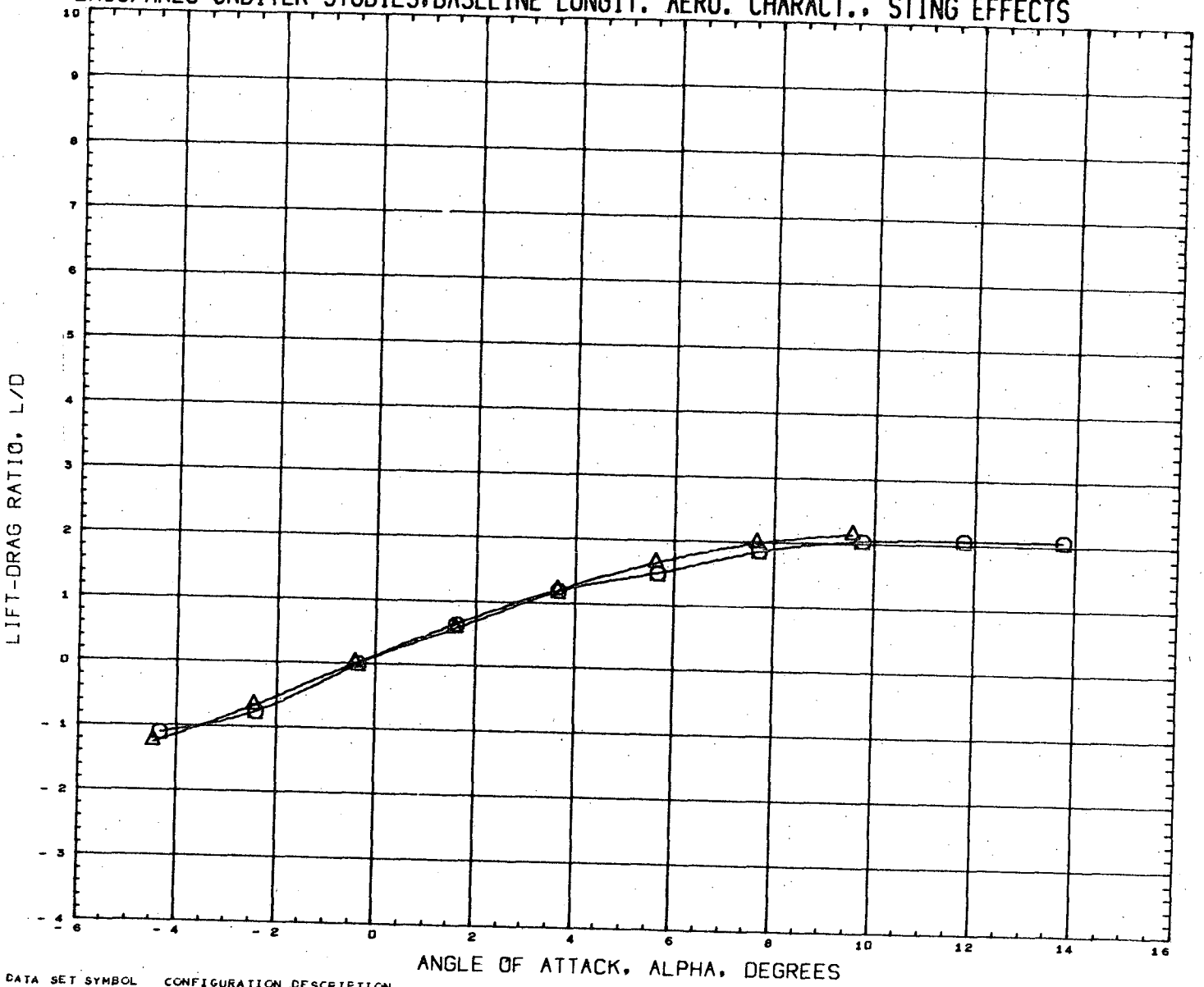


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



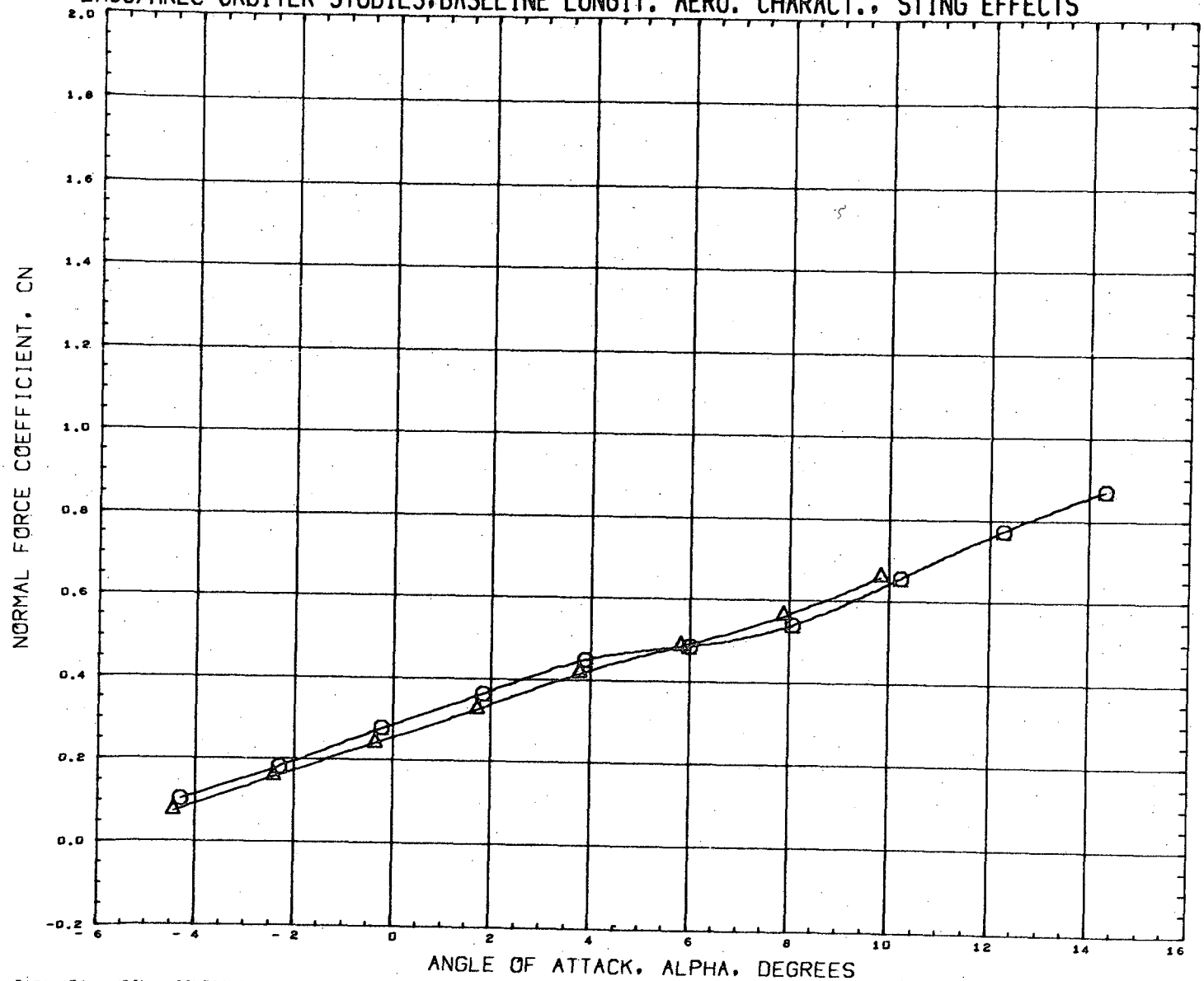
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



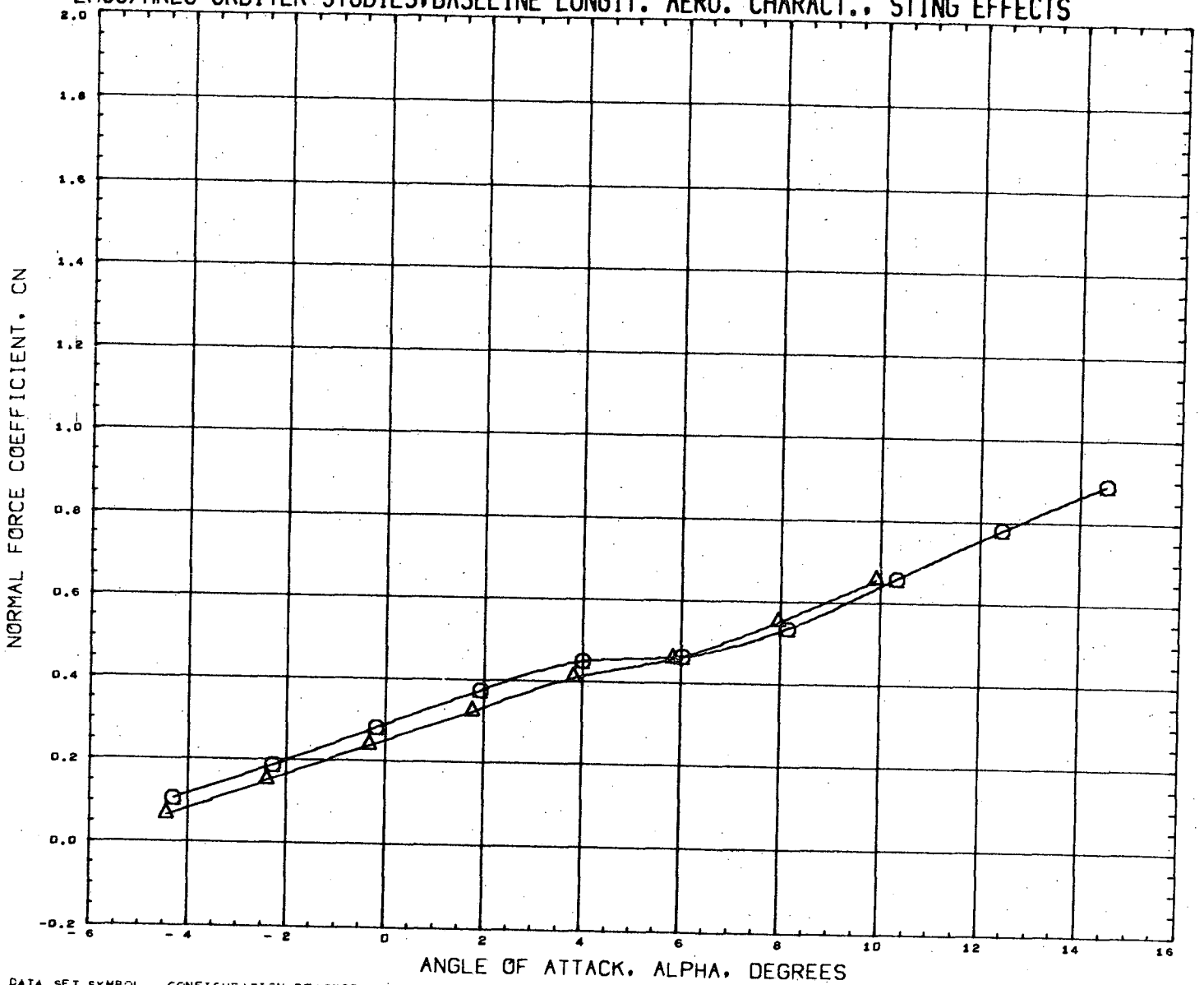
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

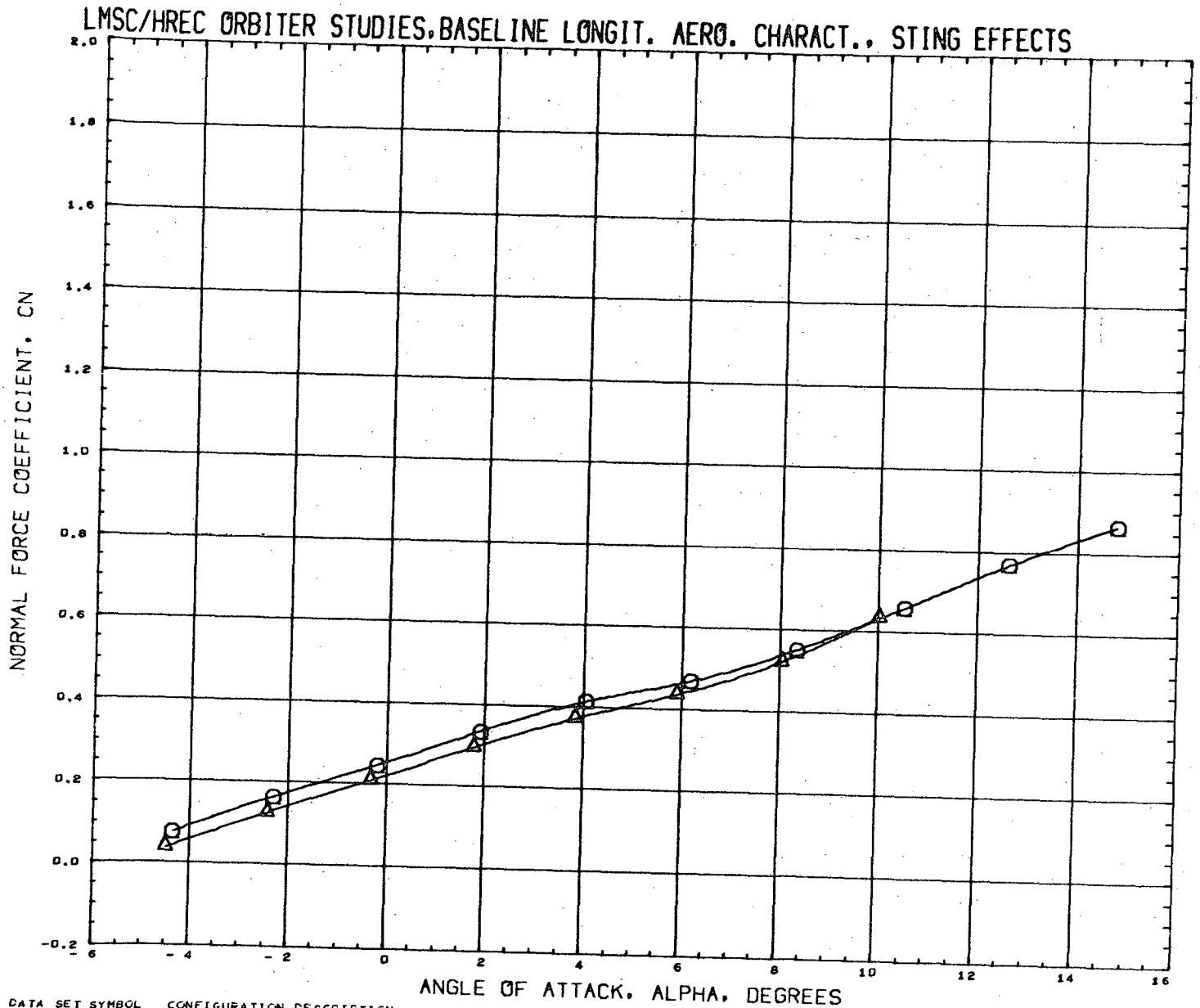


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

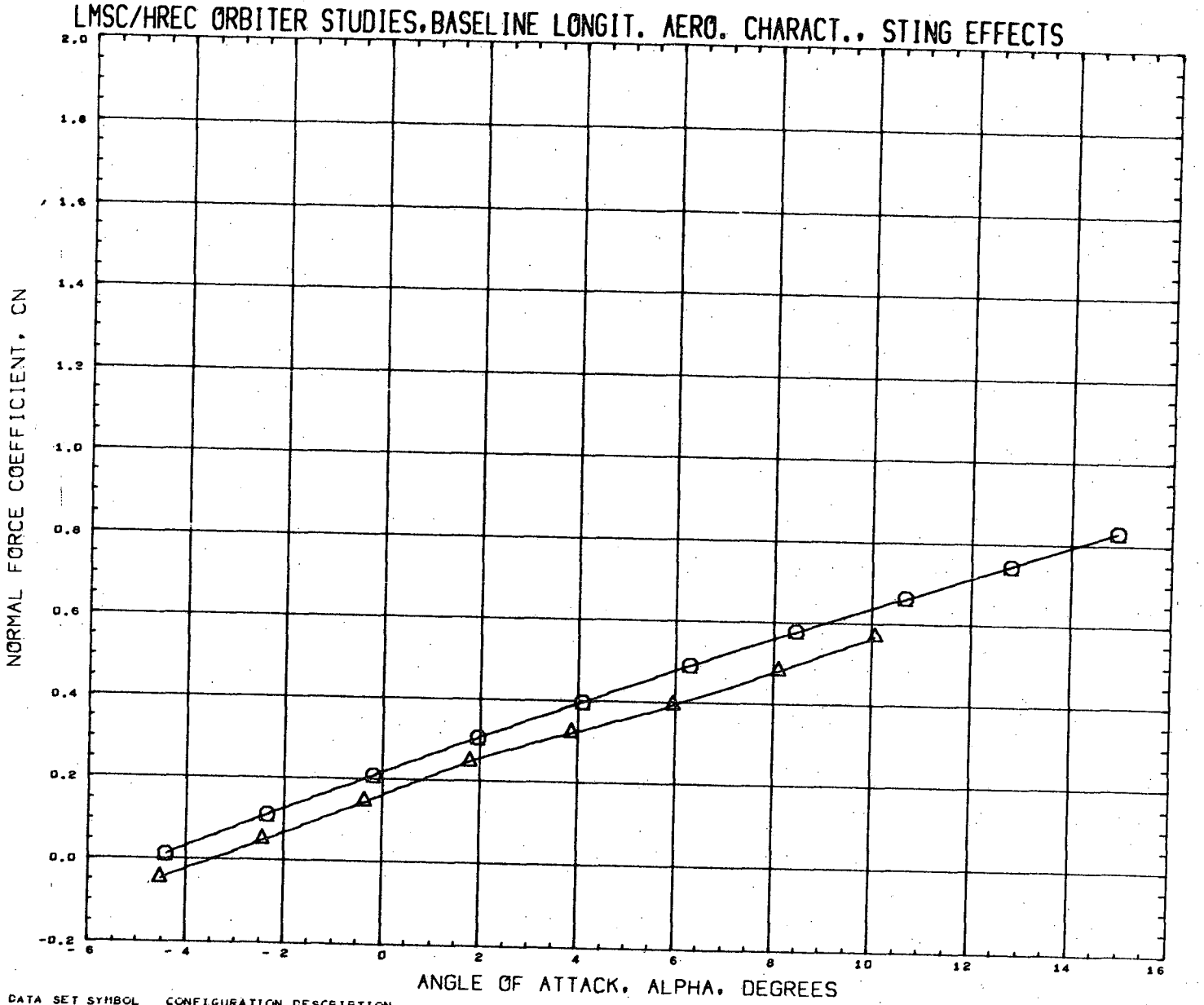


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE



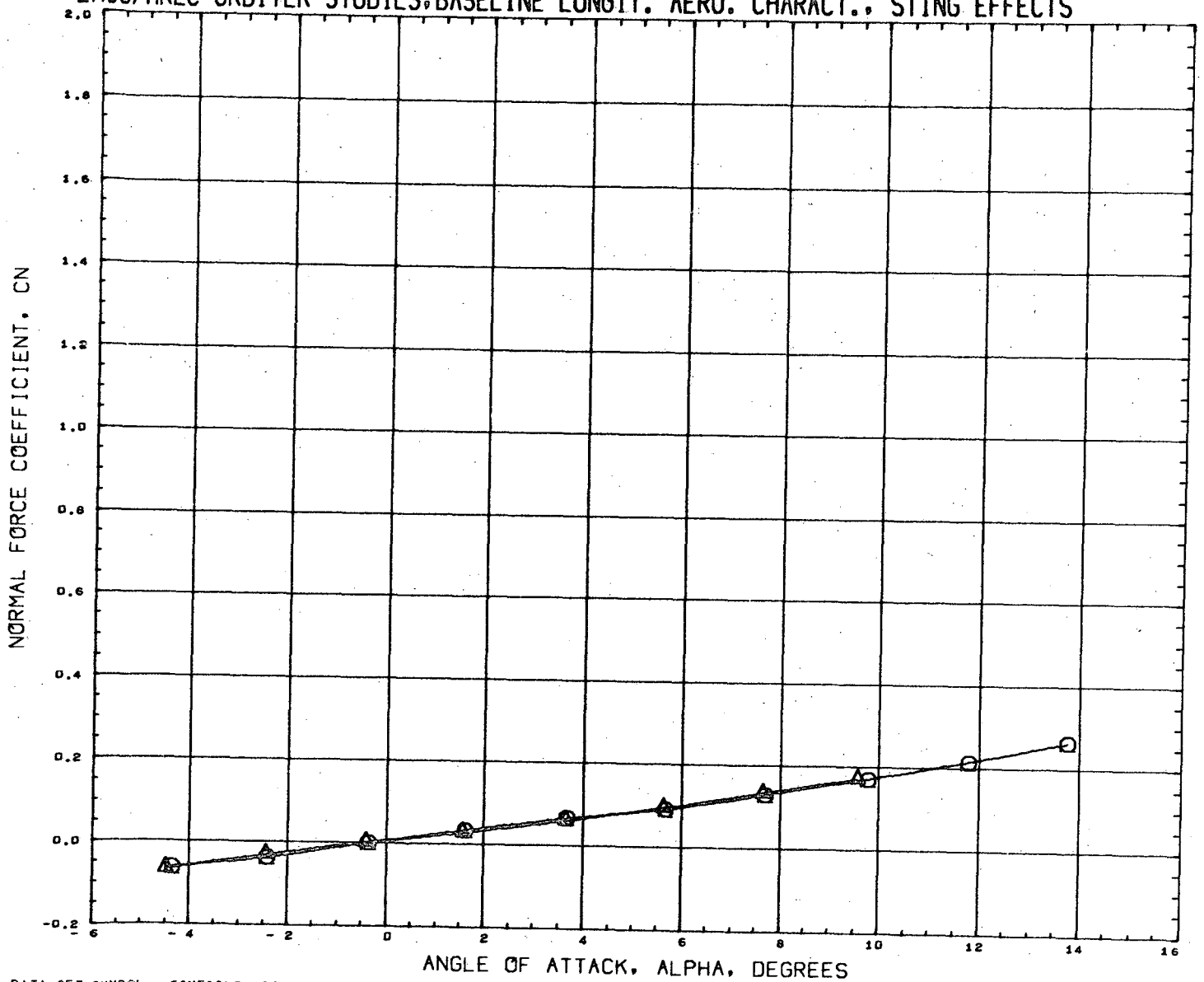
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



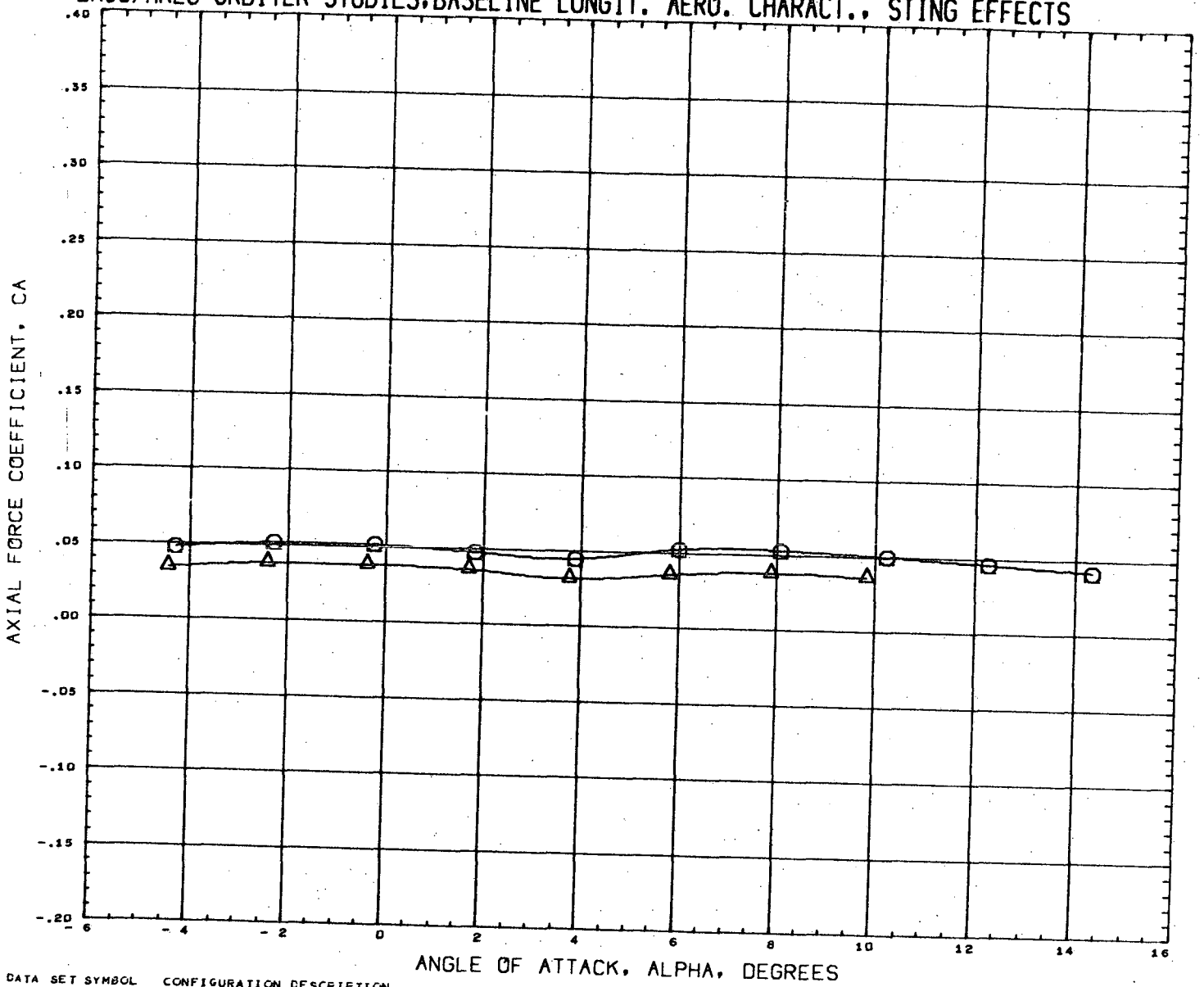
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



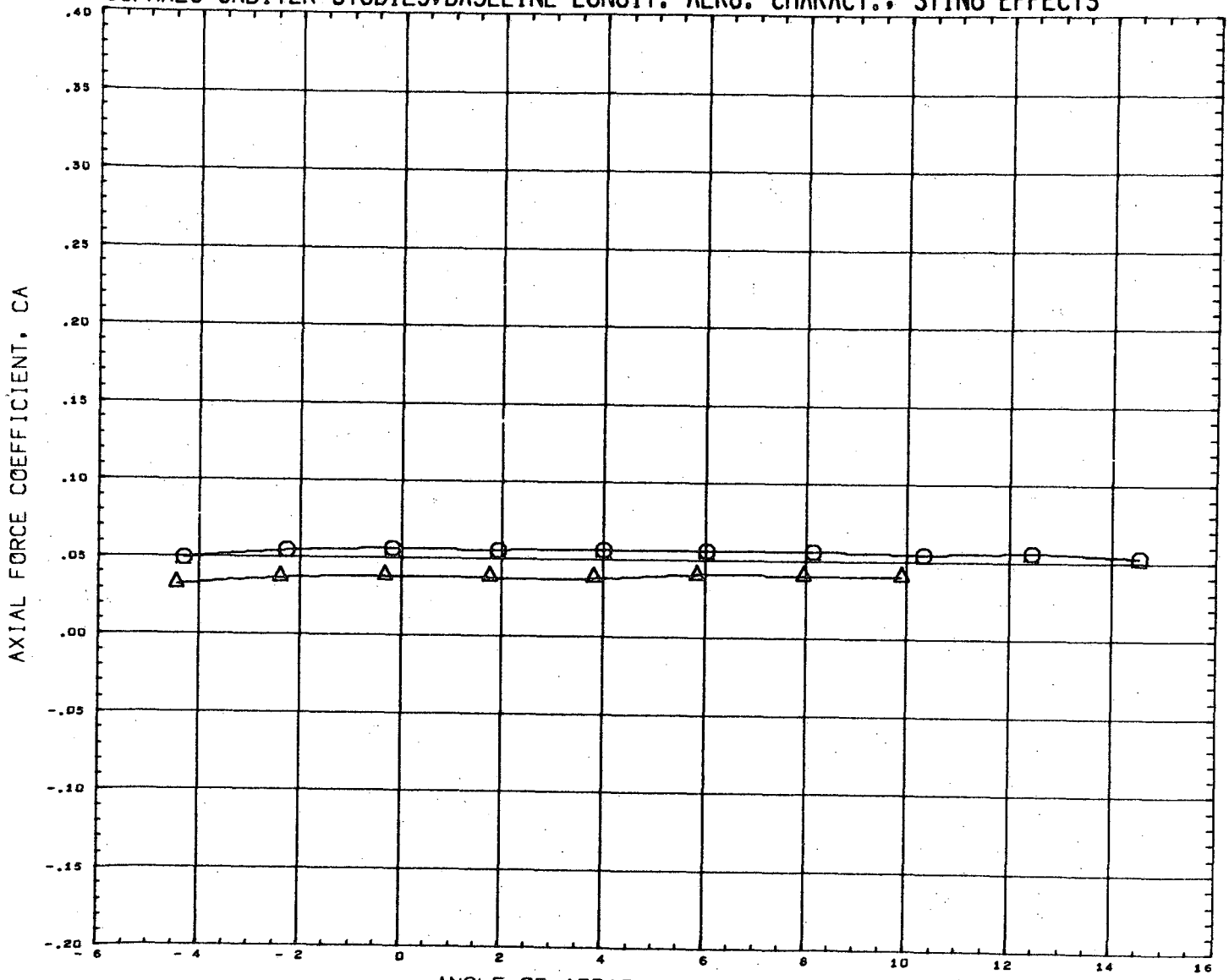
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

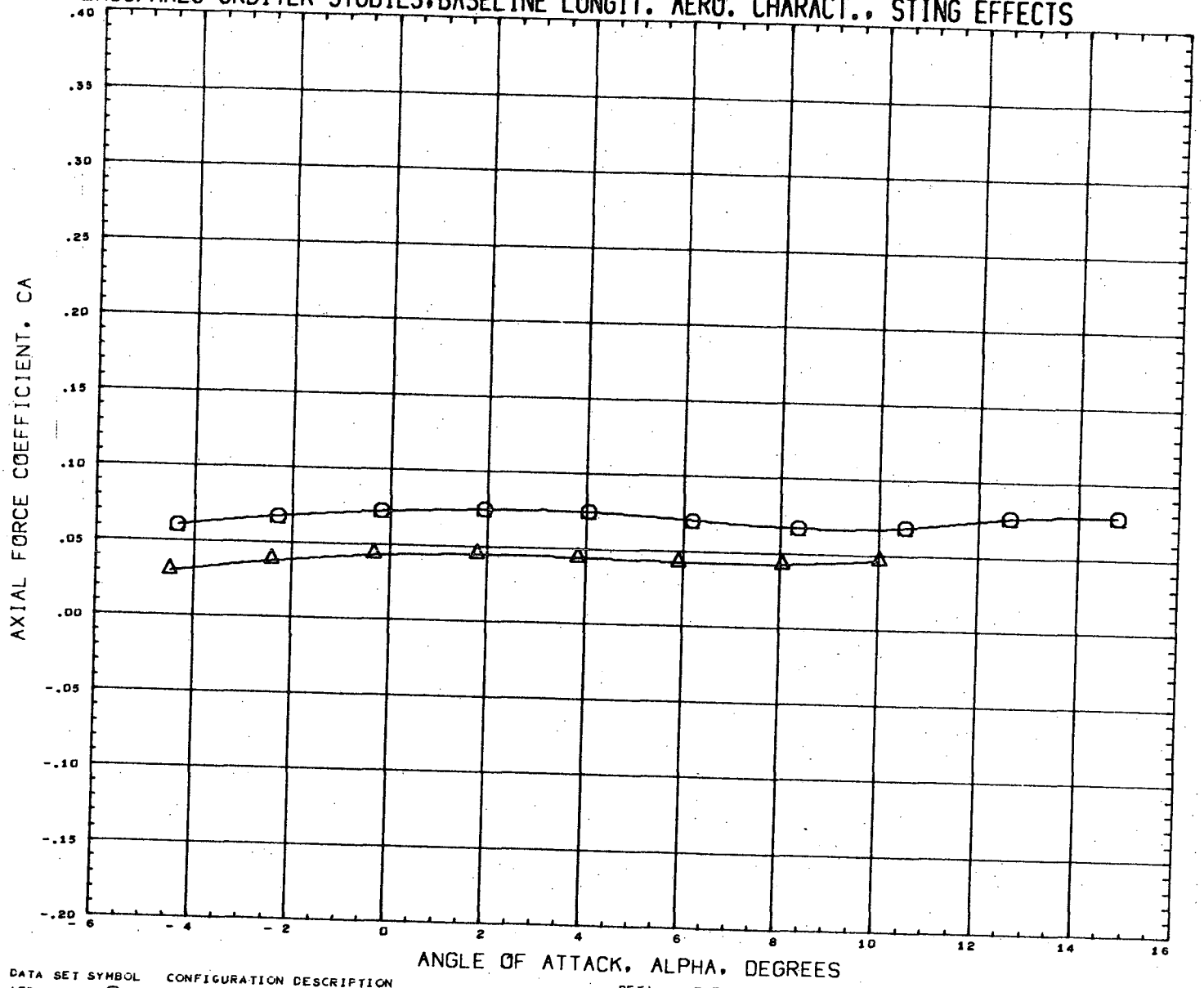


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



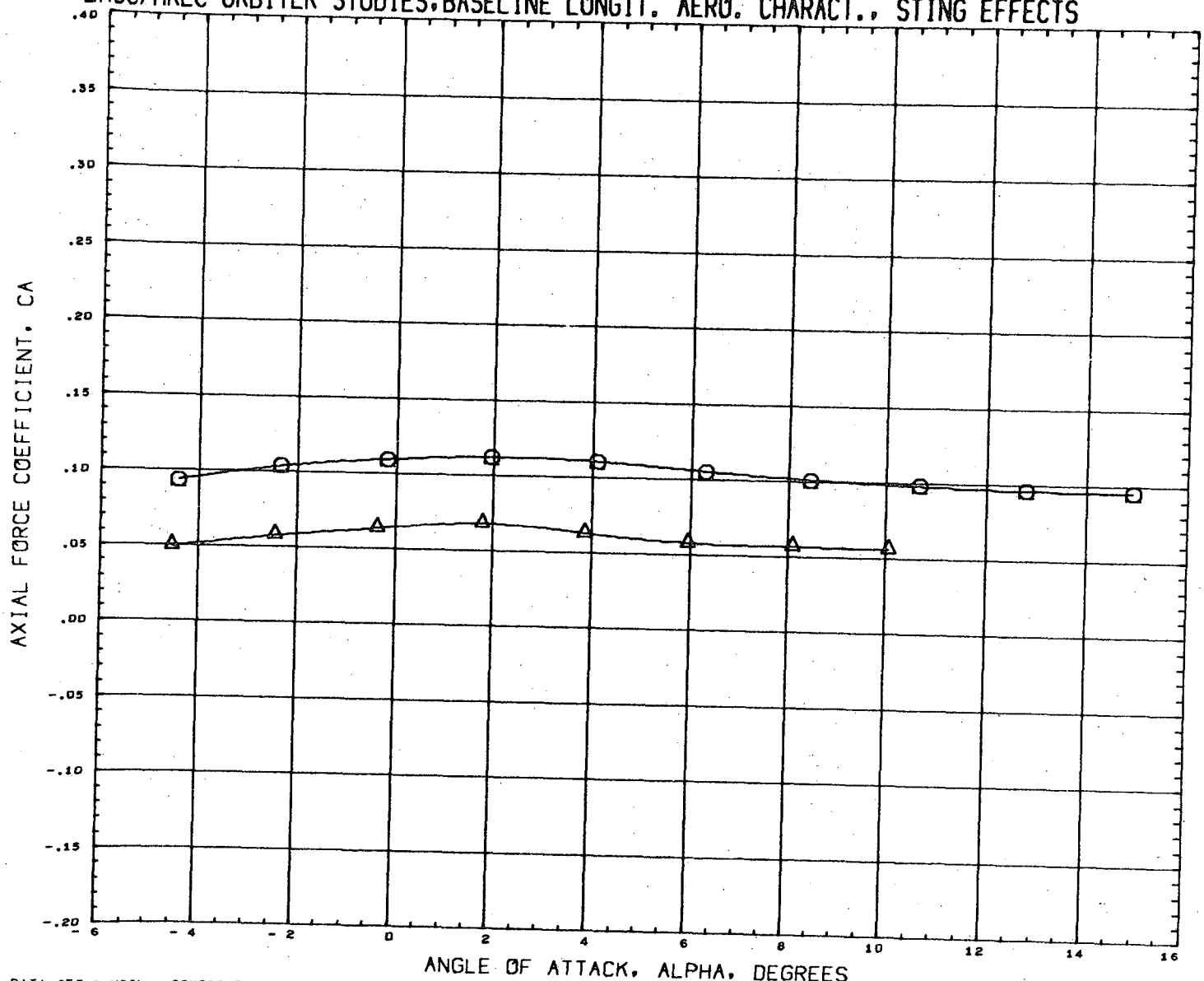
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E36D1A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

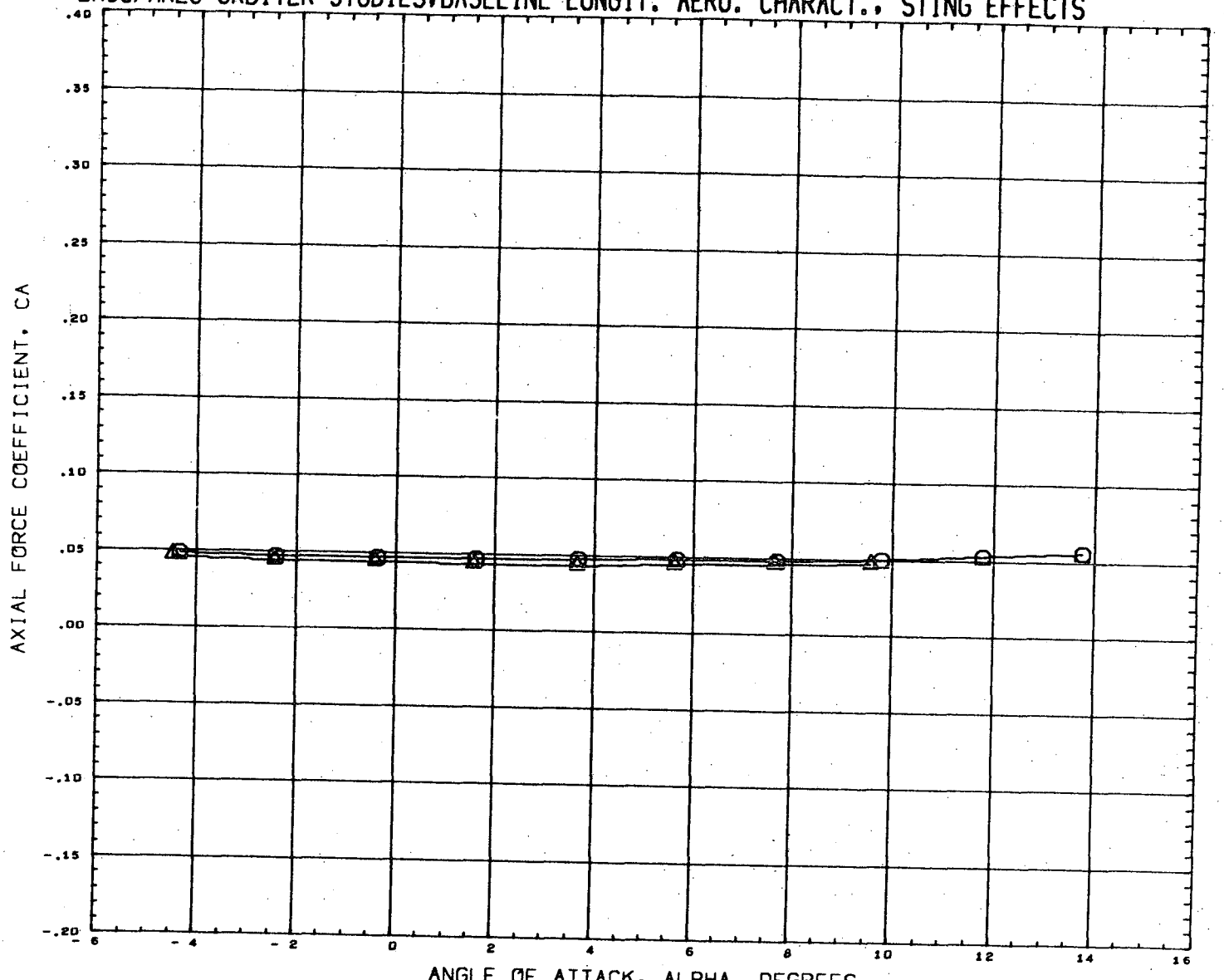


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

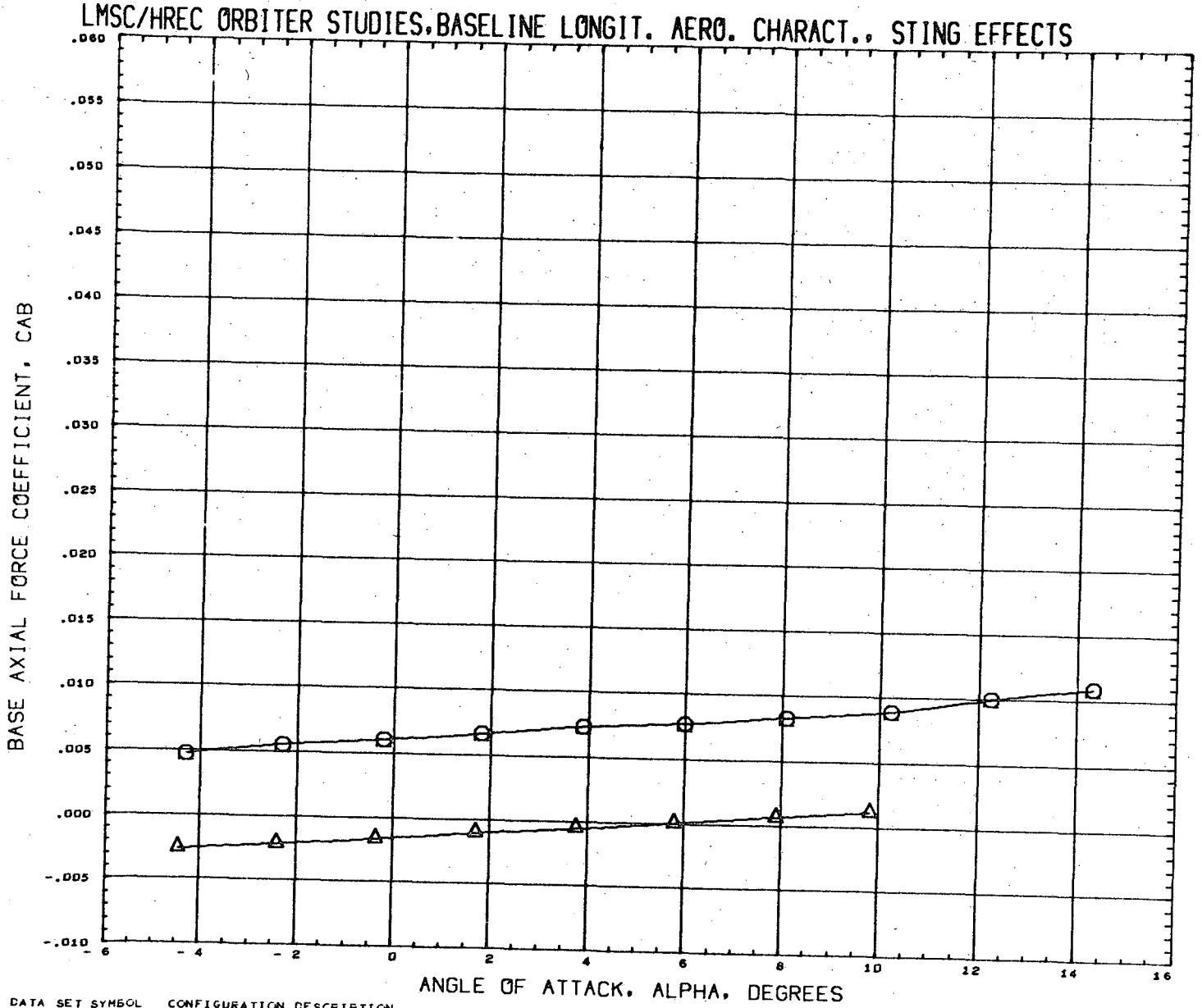
LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE



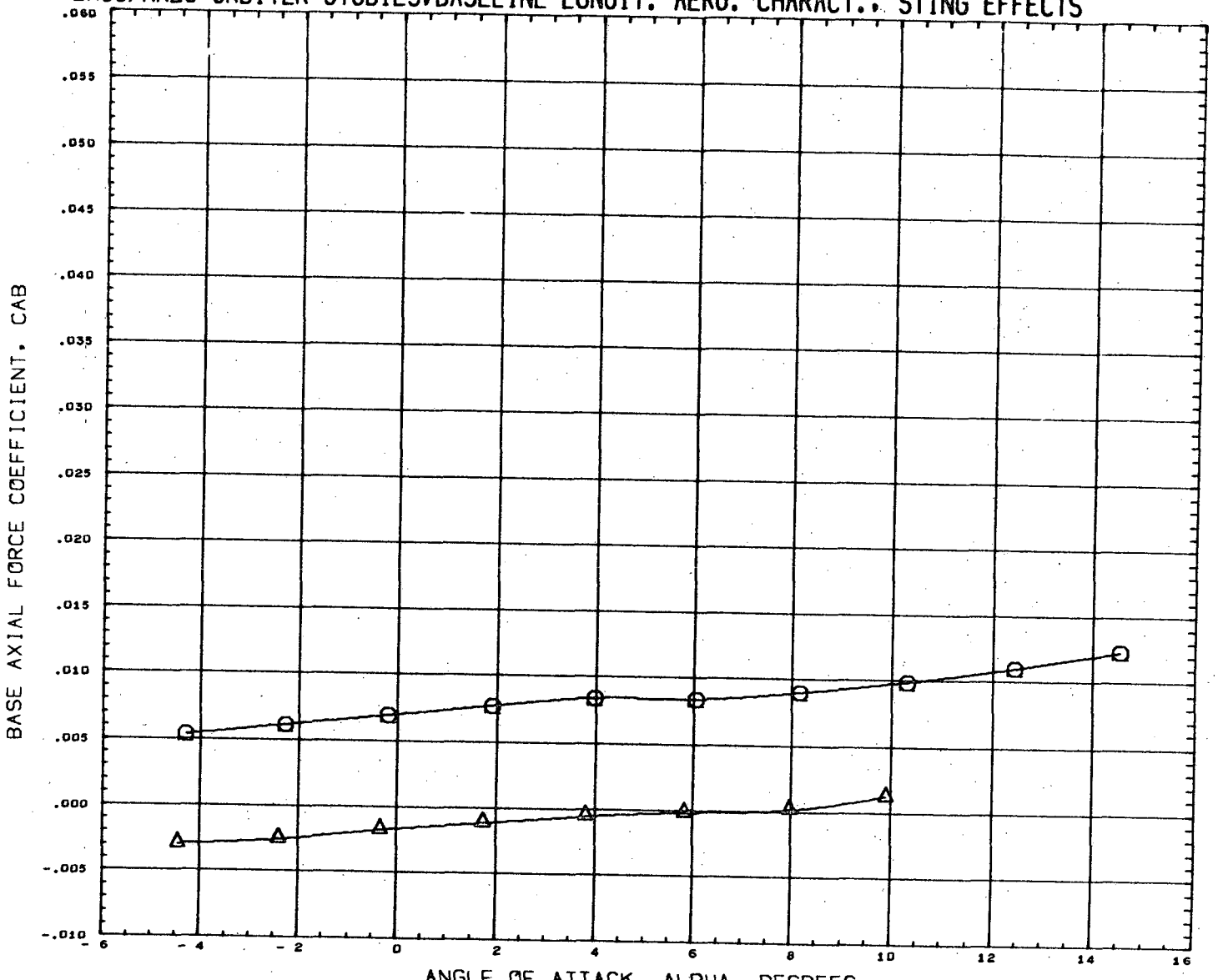
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

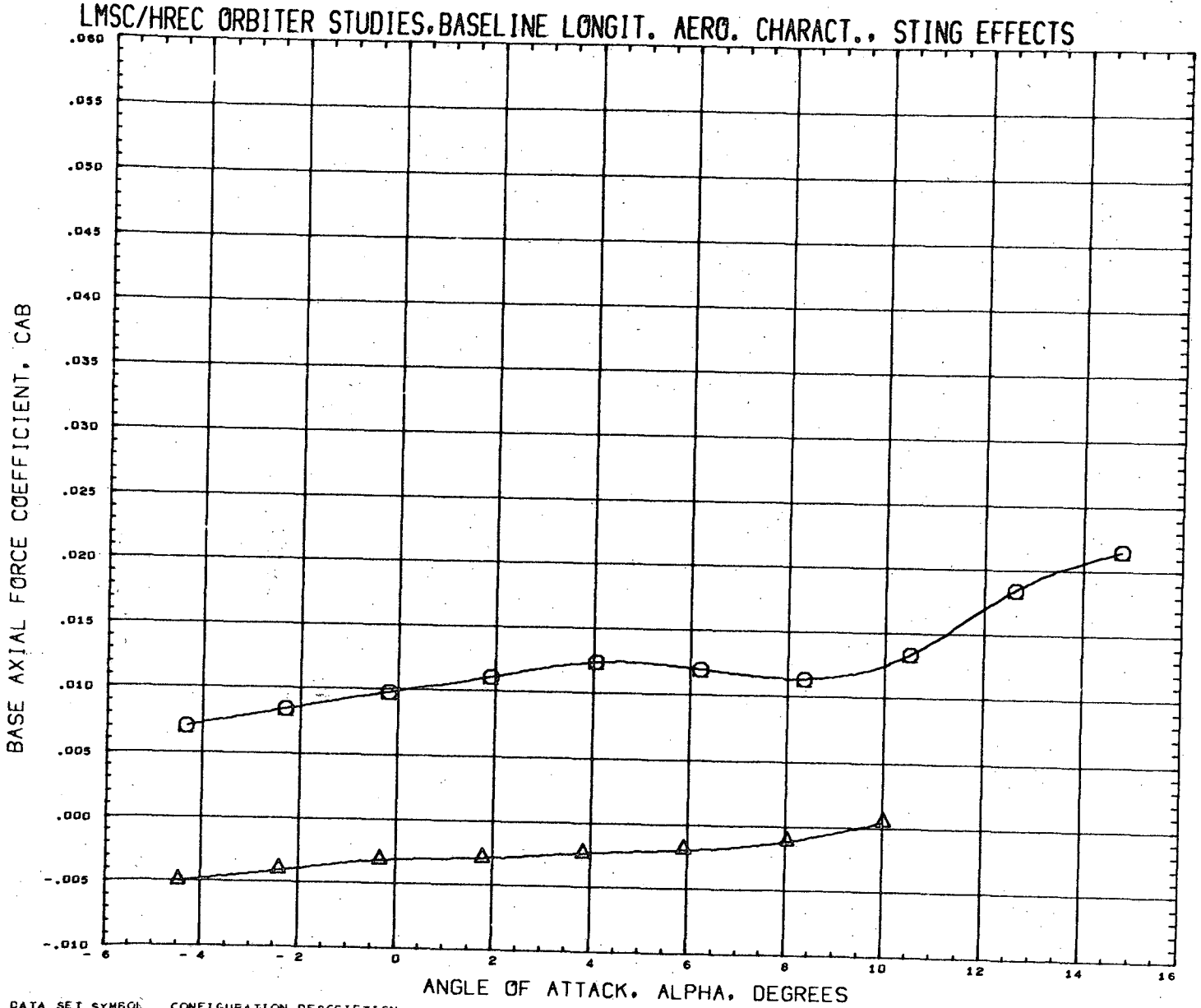


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE



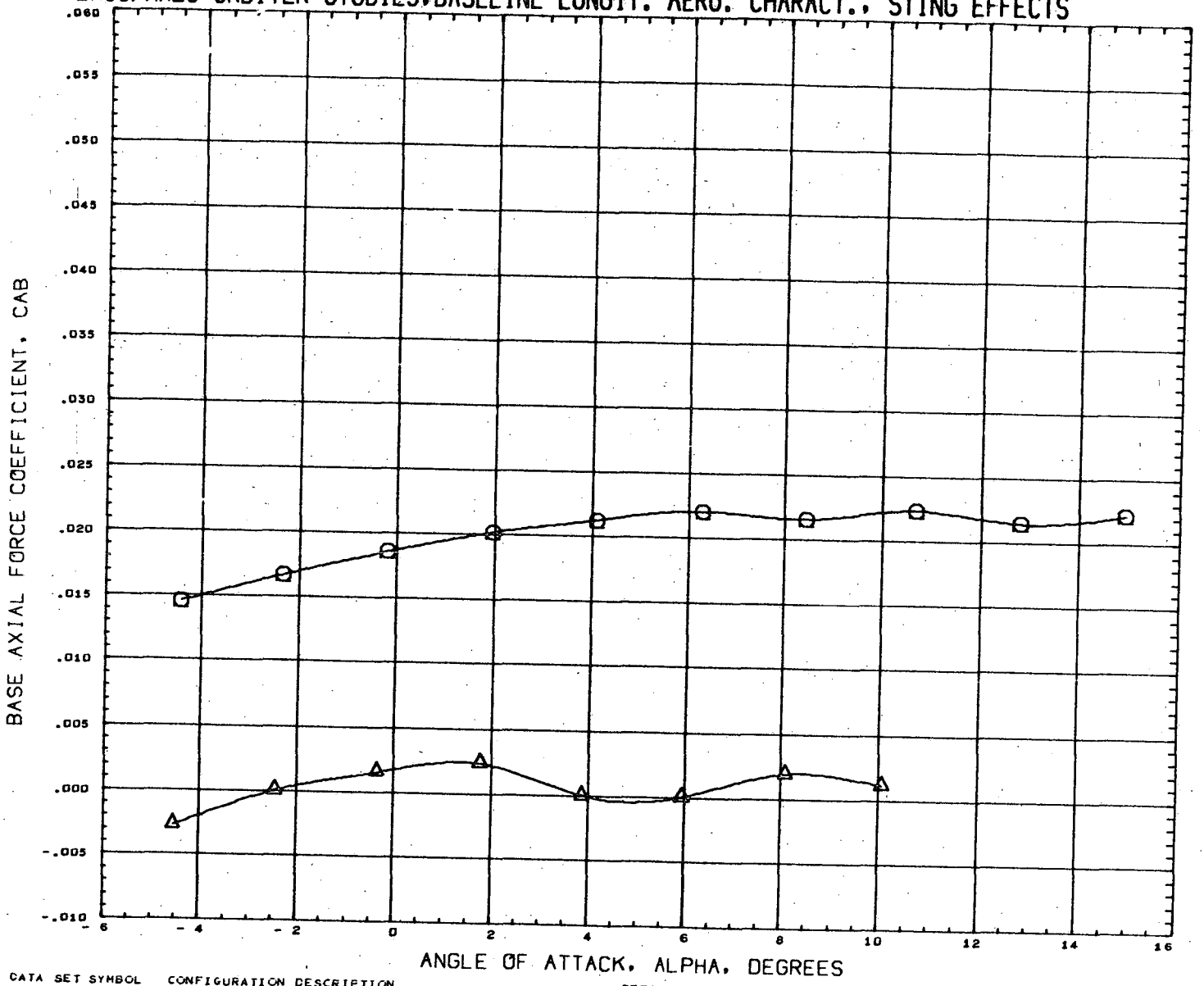
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



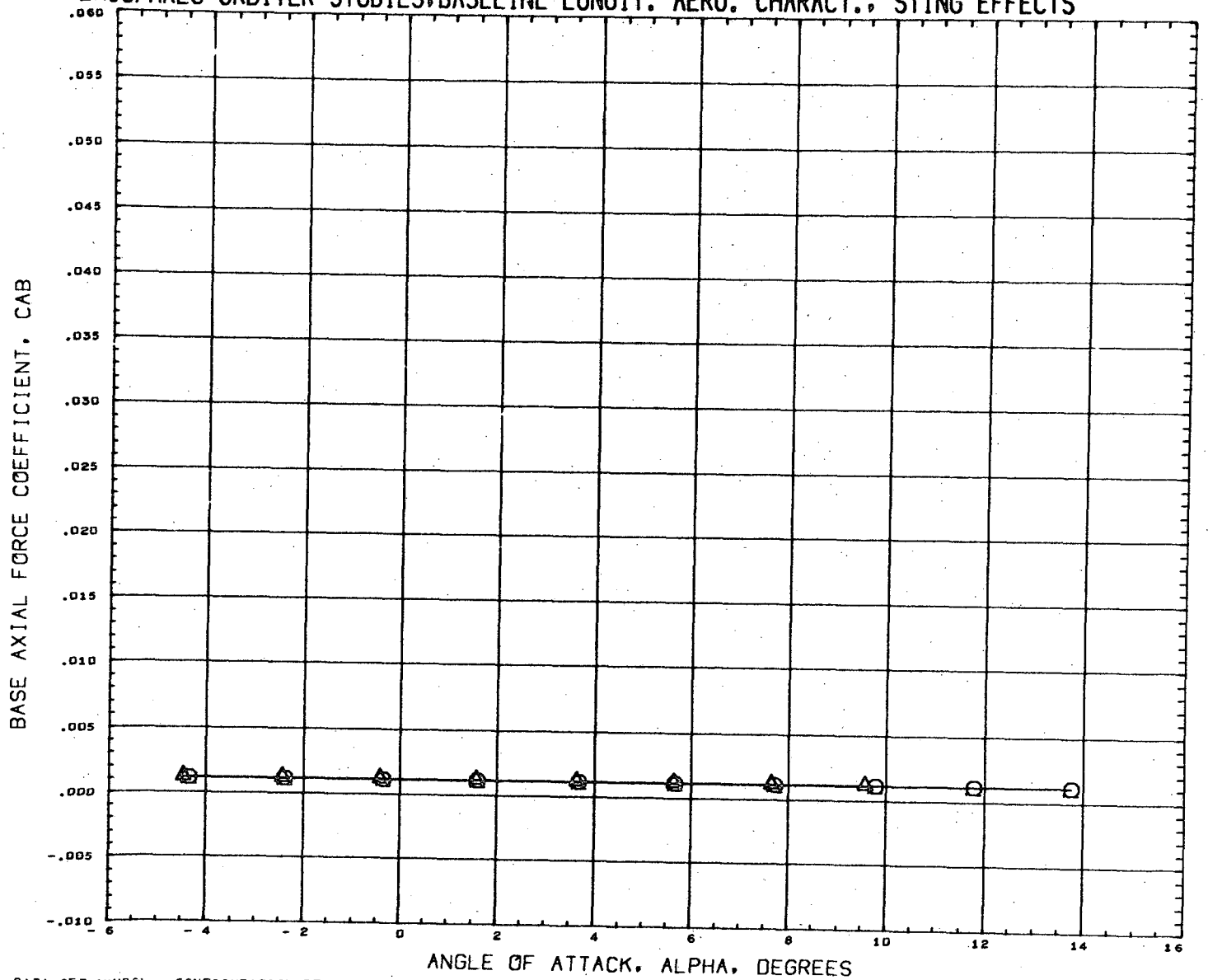
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS

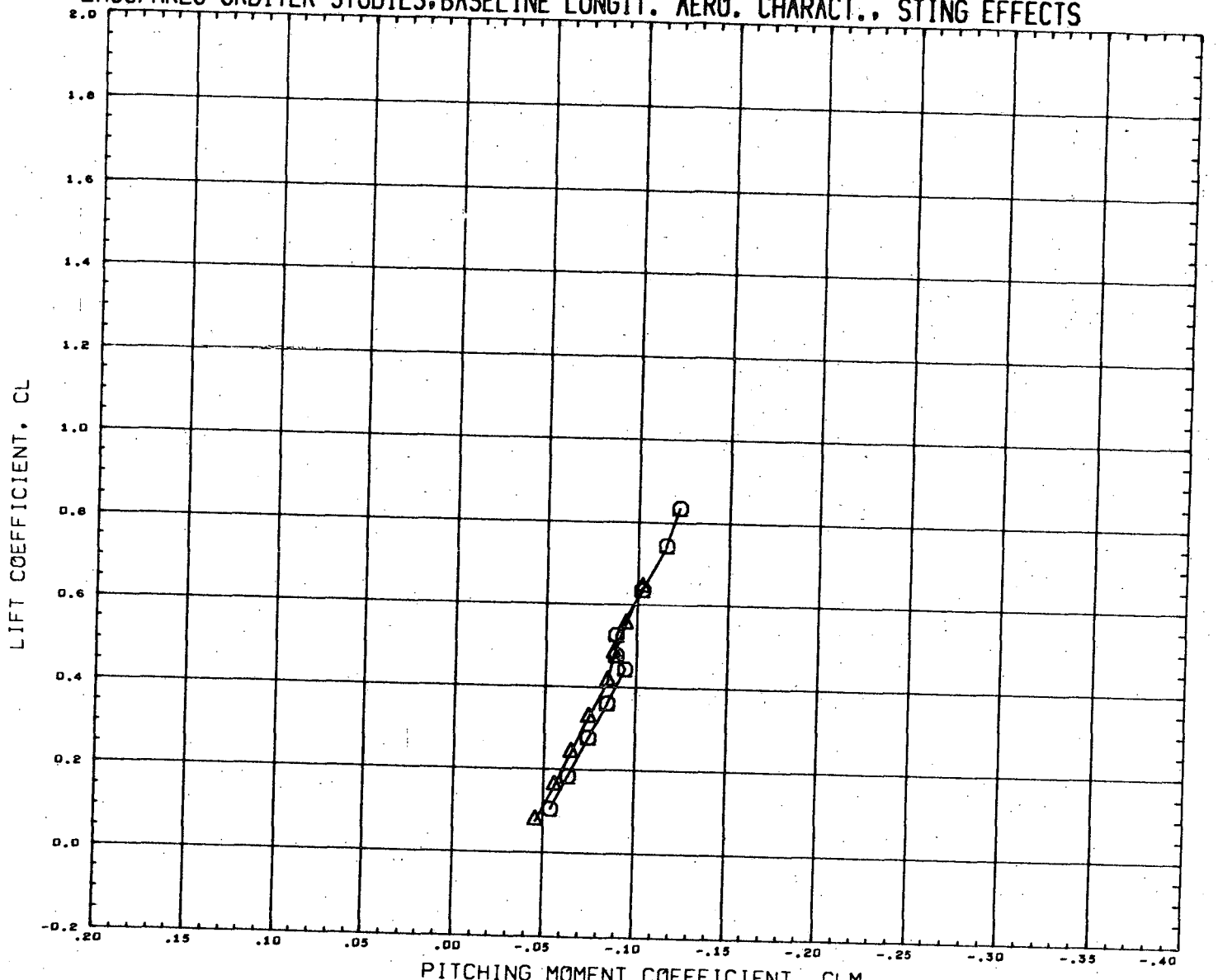


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



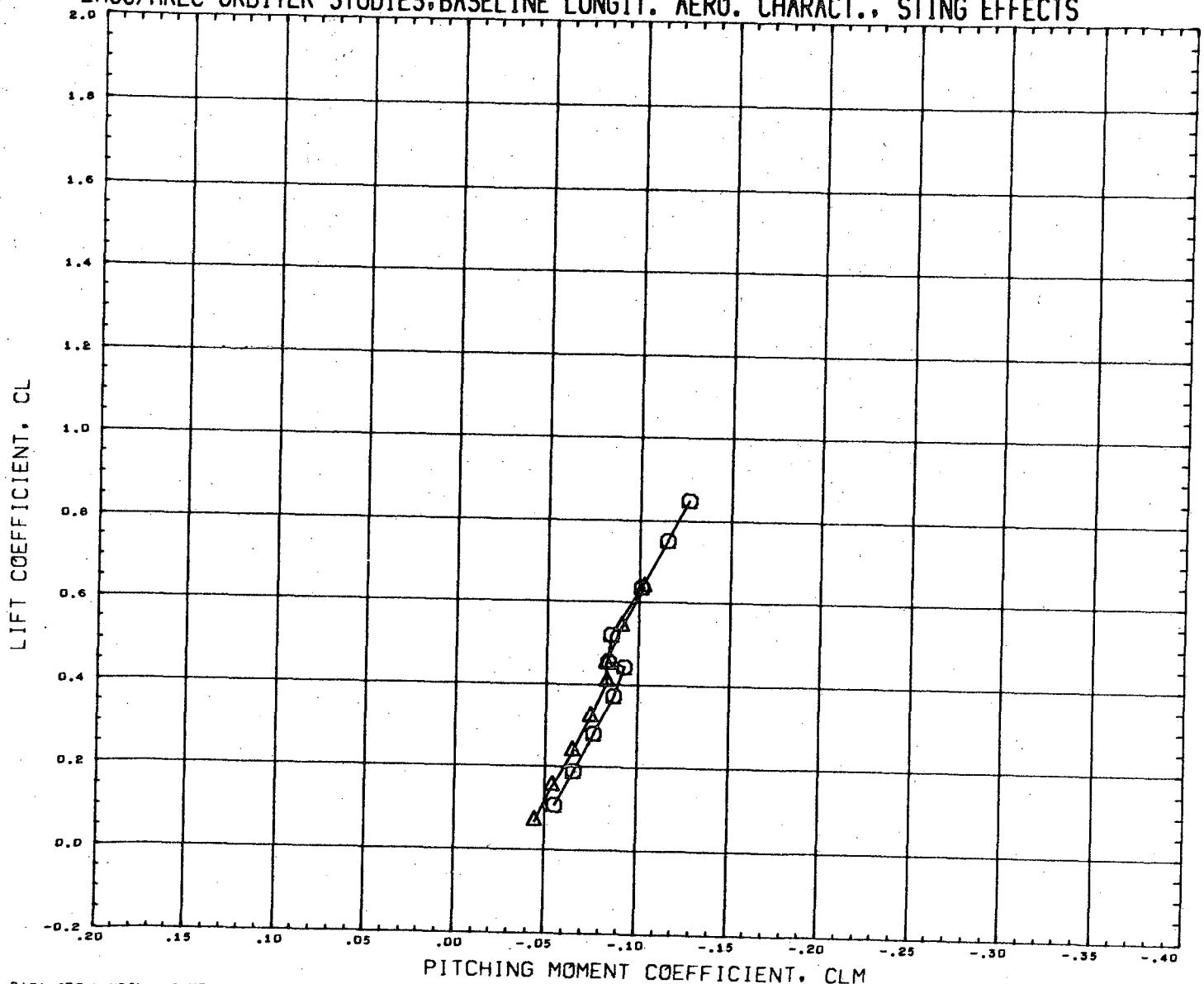
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



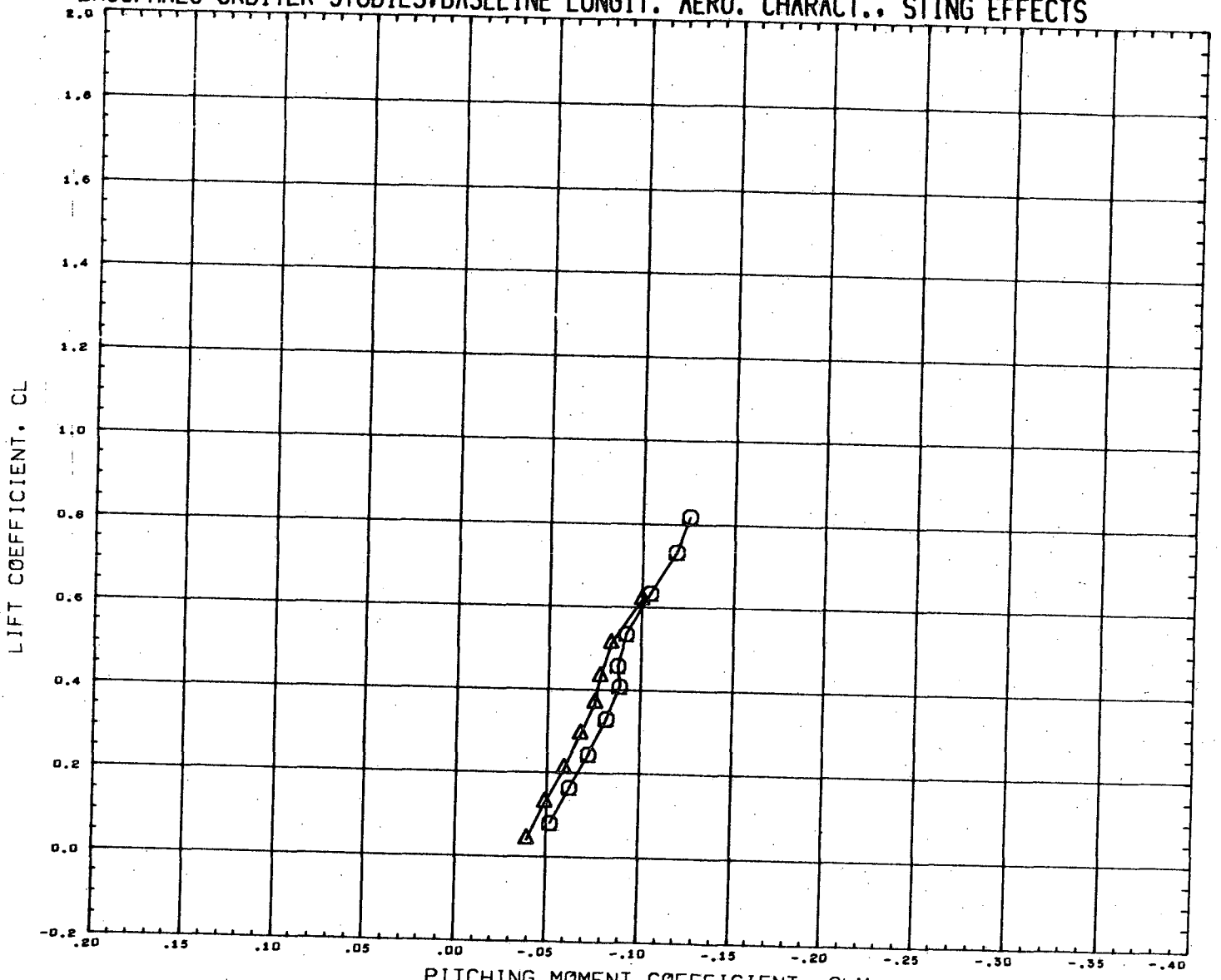
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.702

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



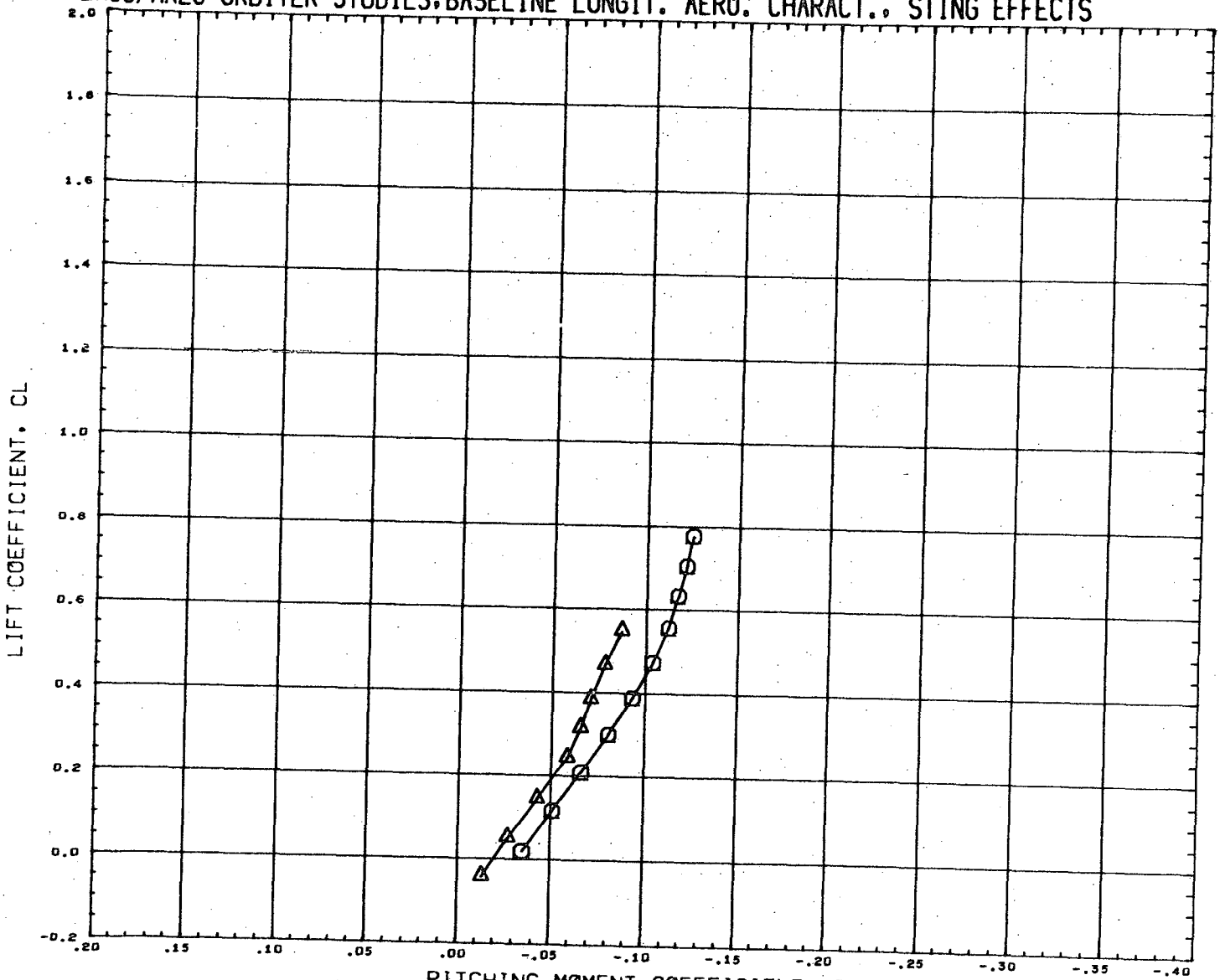
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 0.901

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



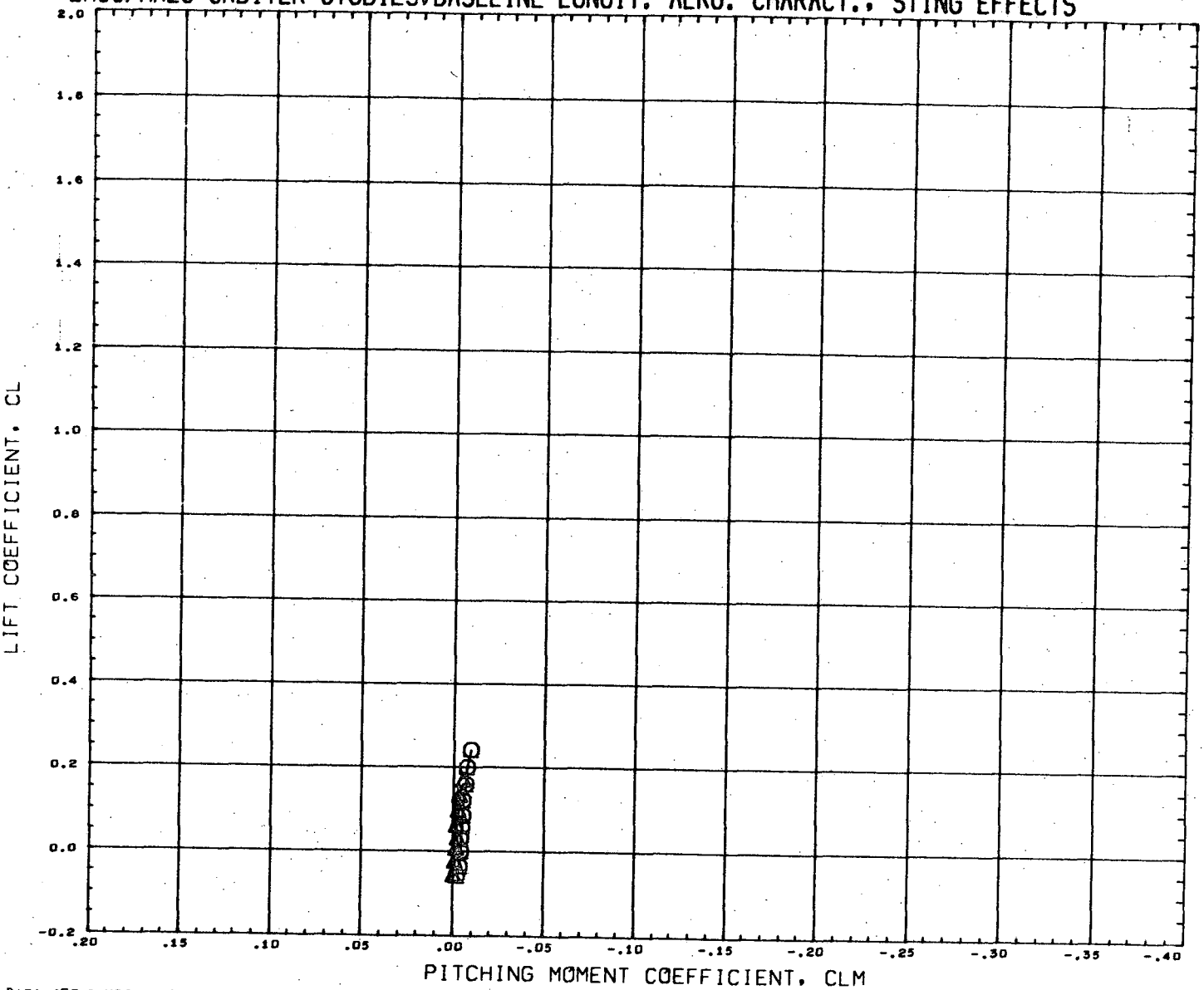
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E36G1A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 1.100

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LONGIT. AERO. CHARACT., STING EFFECTS



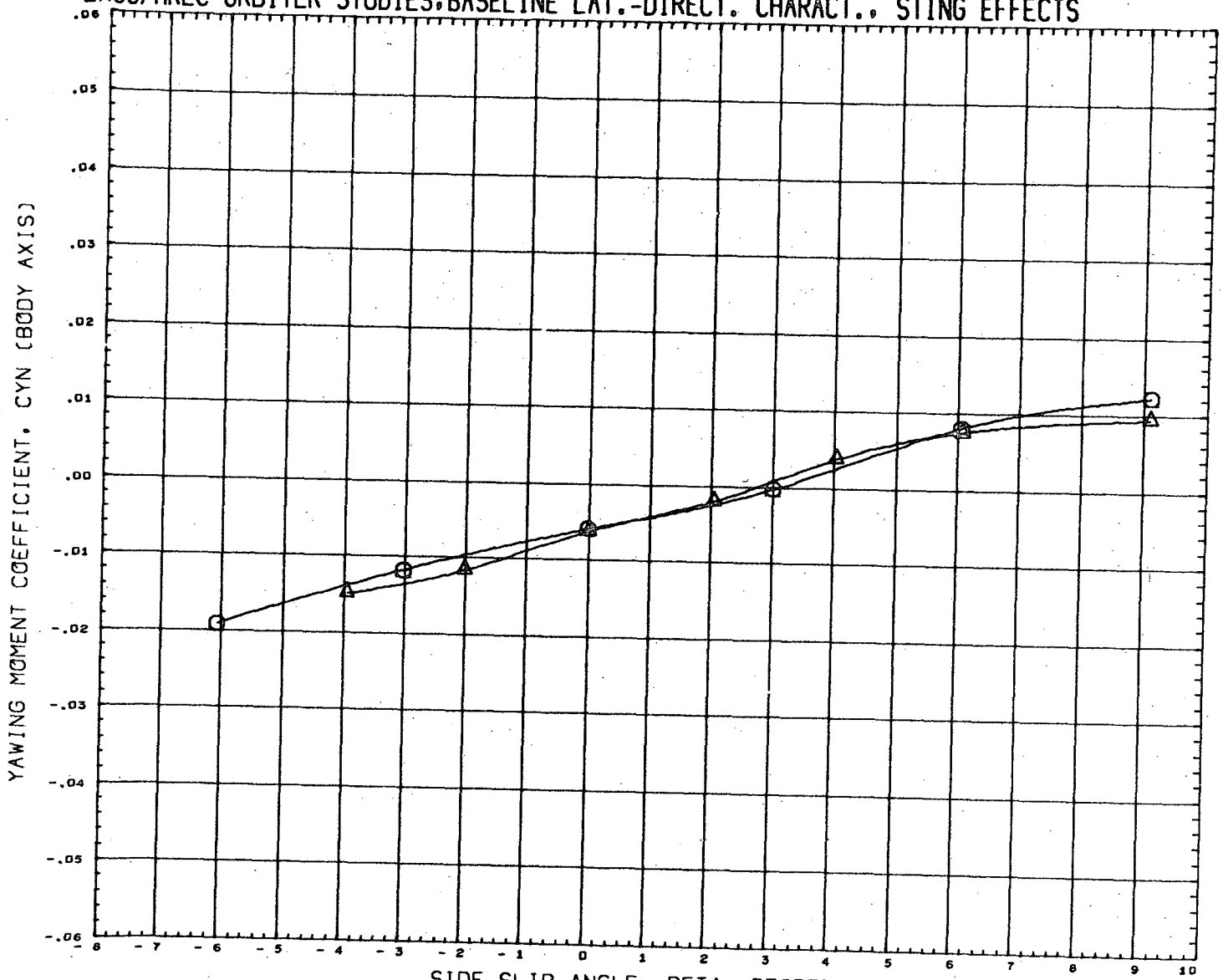
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(F3616E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(E3601A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

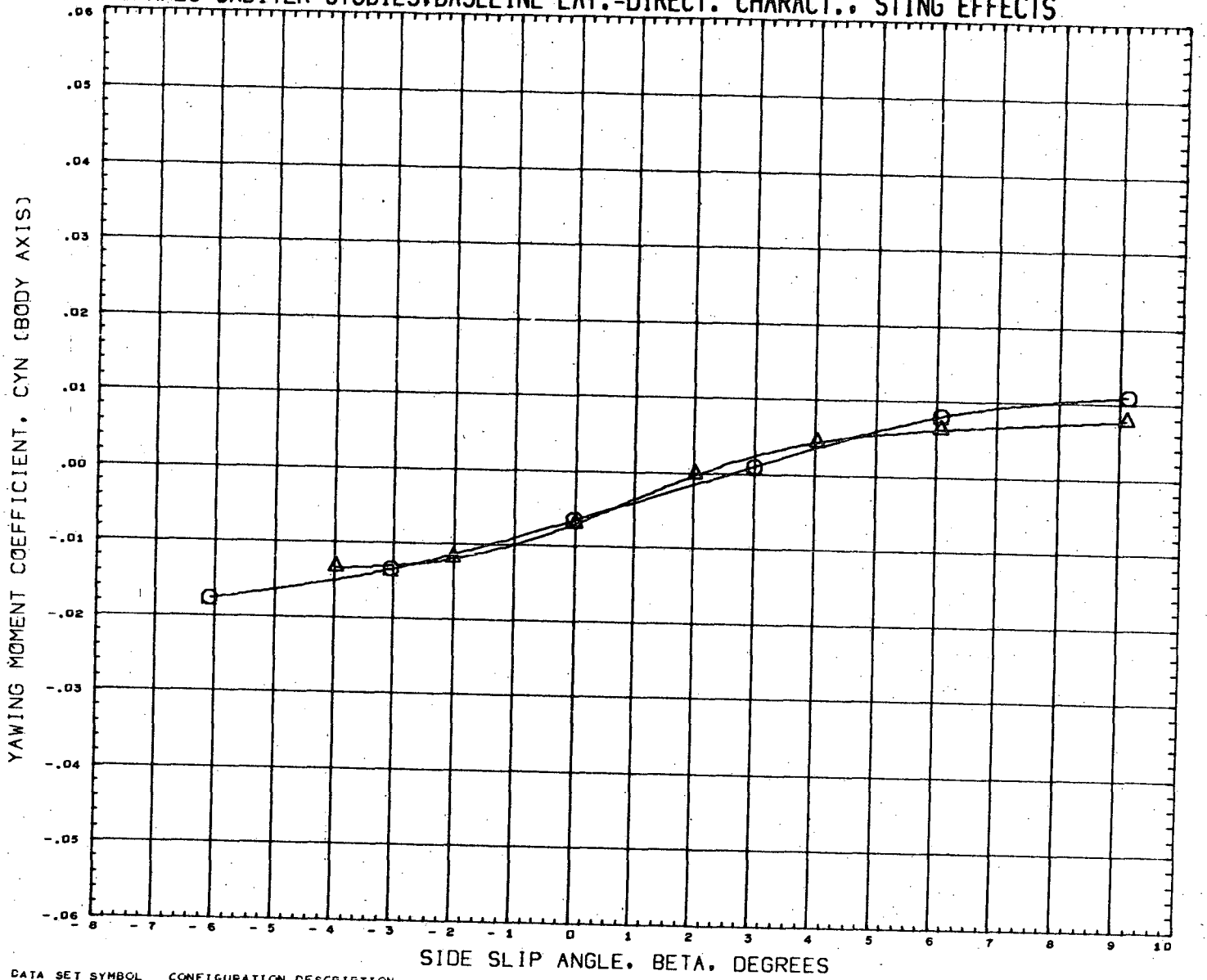


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F36D1D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

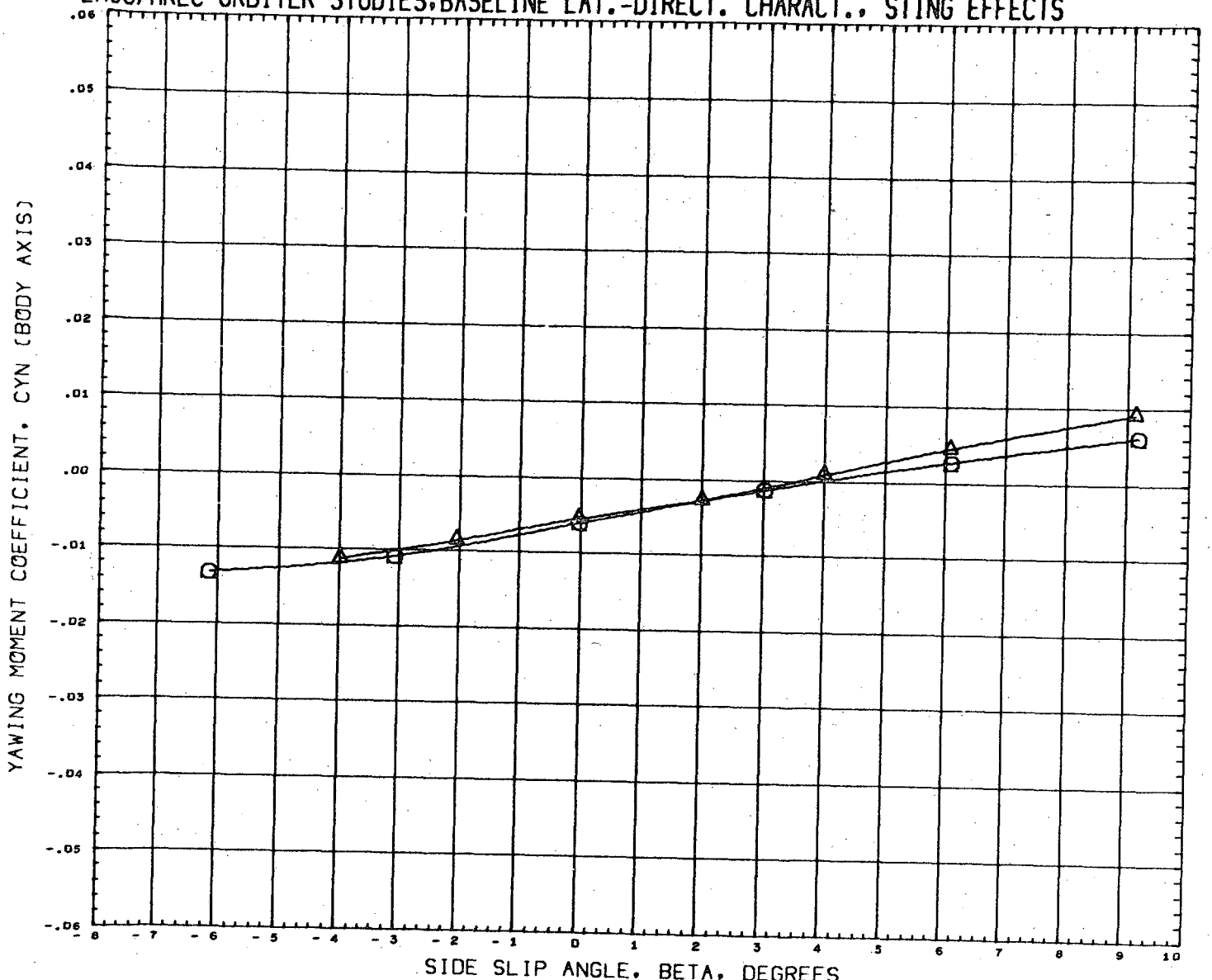


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.699

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



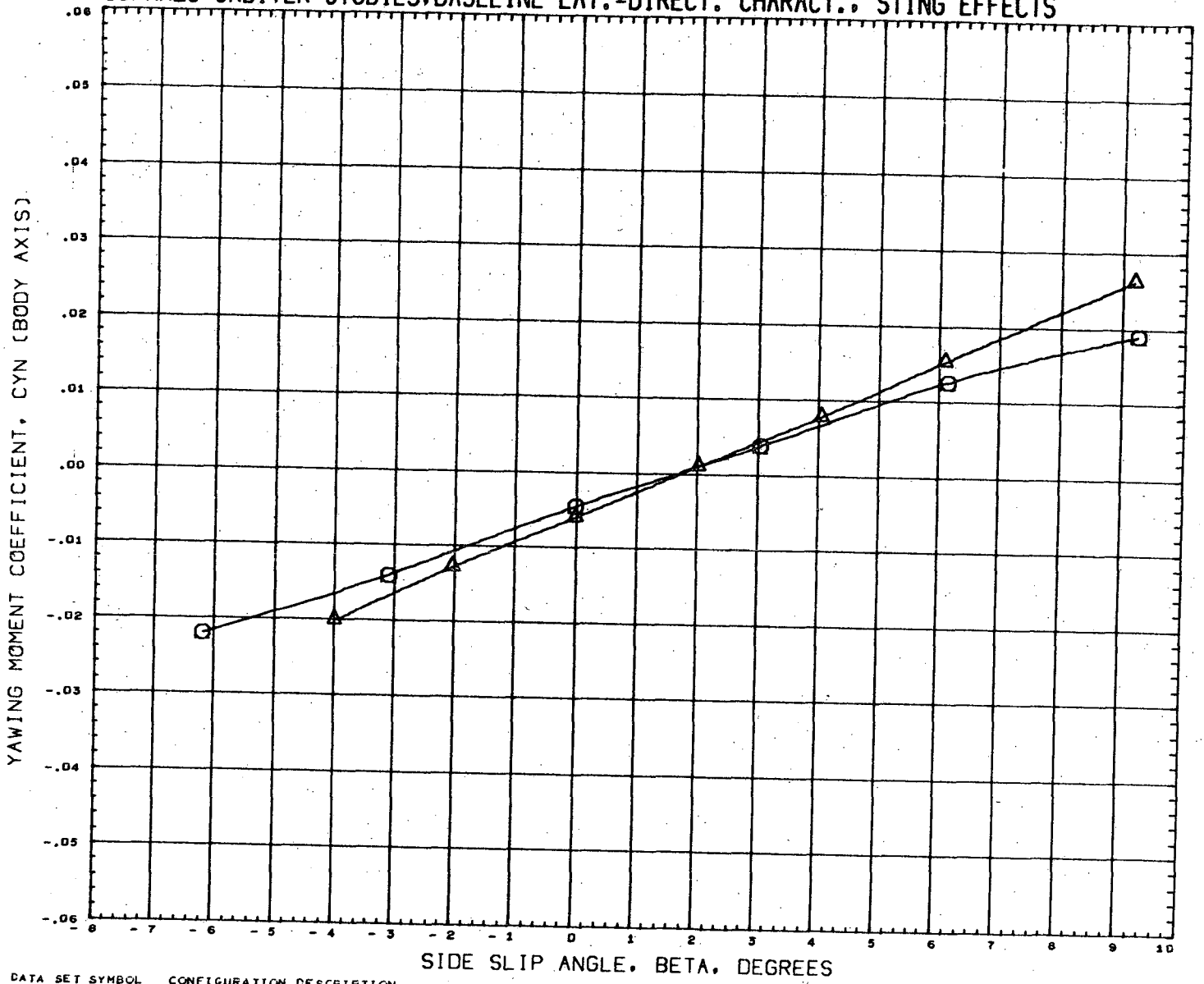
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



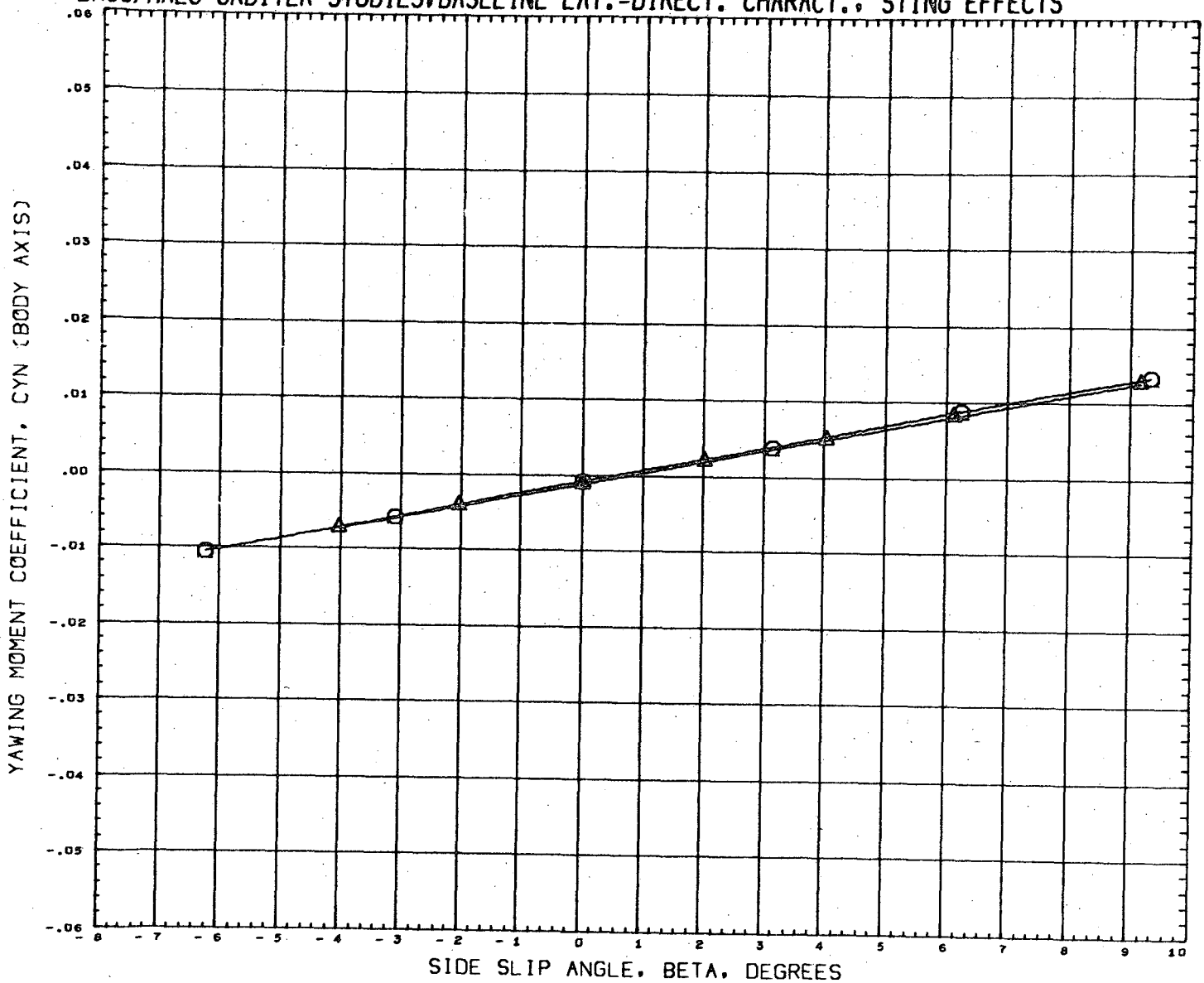
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 1.096

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



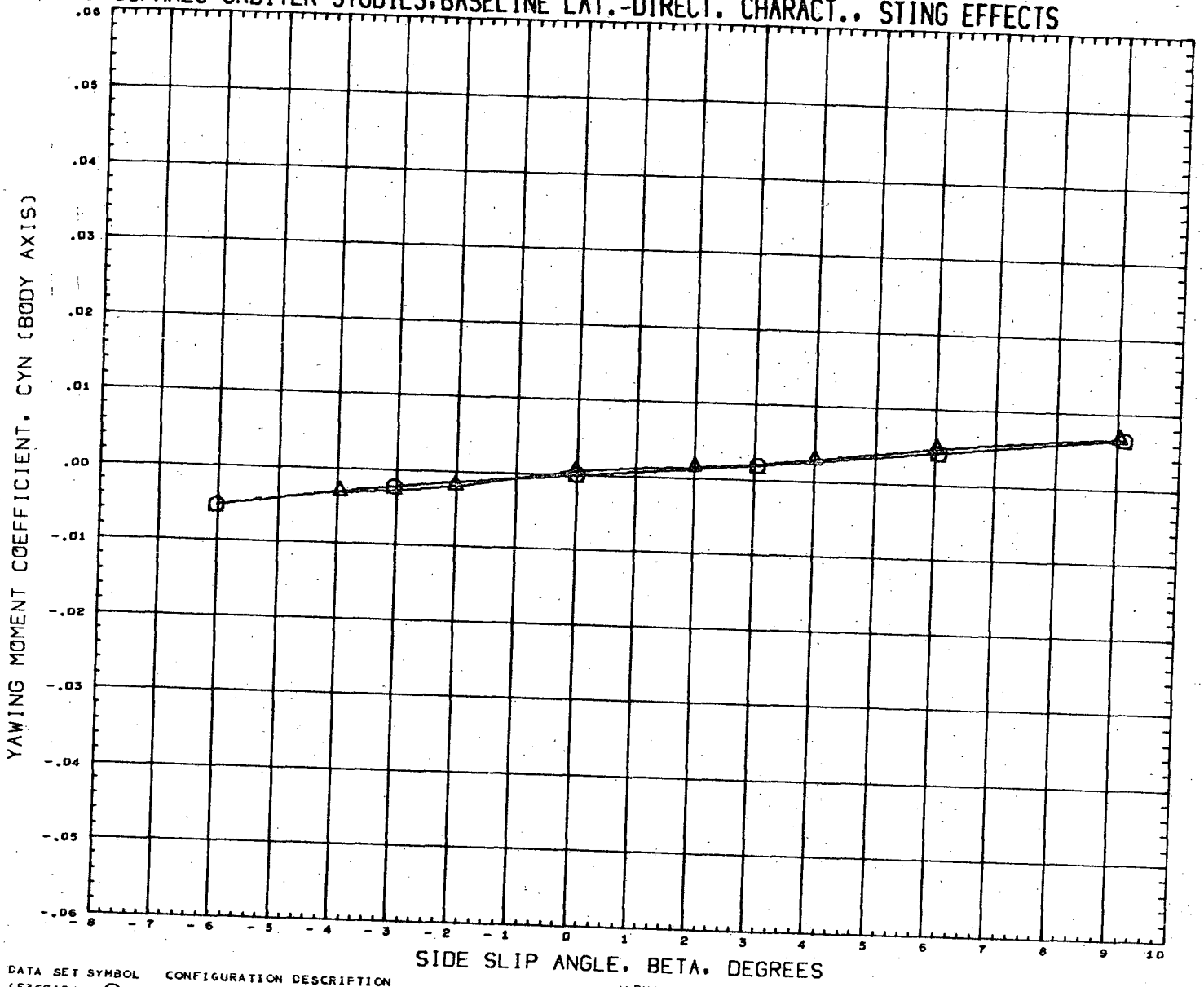
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 1.972

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

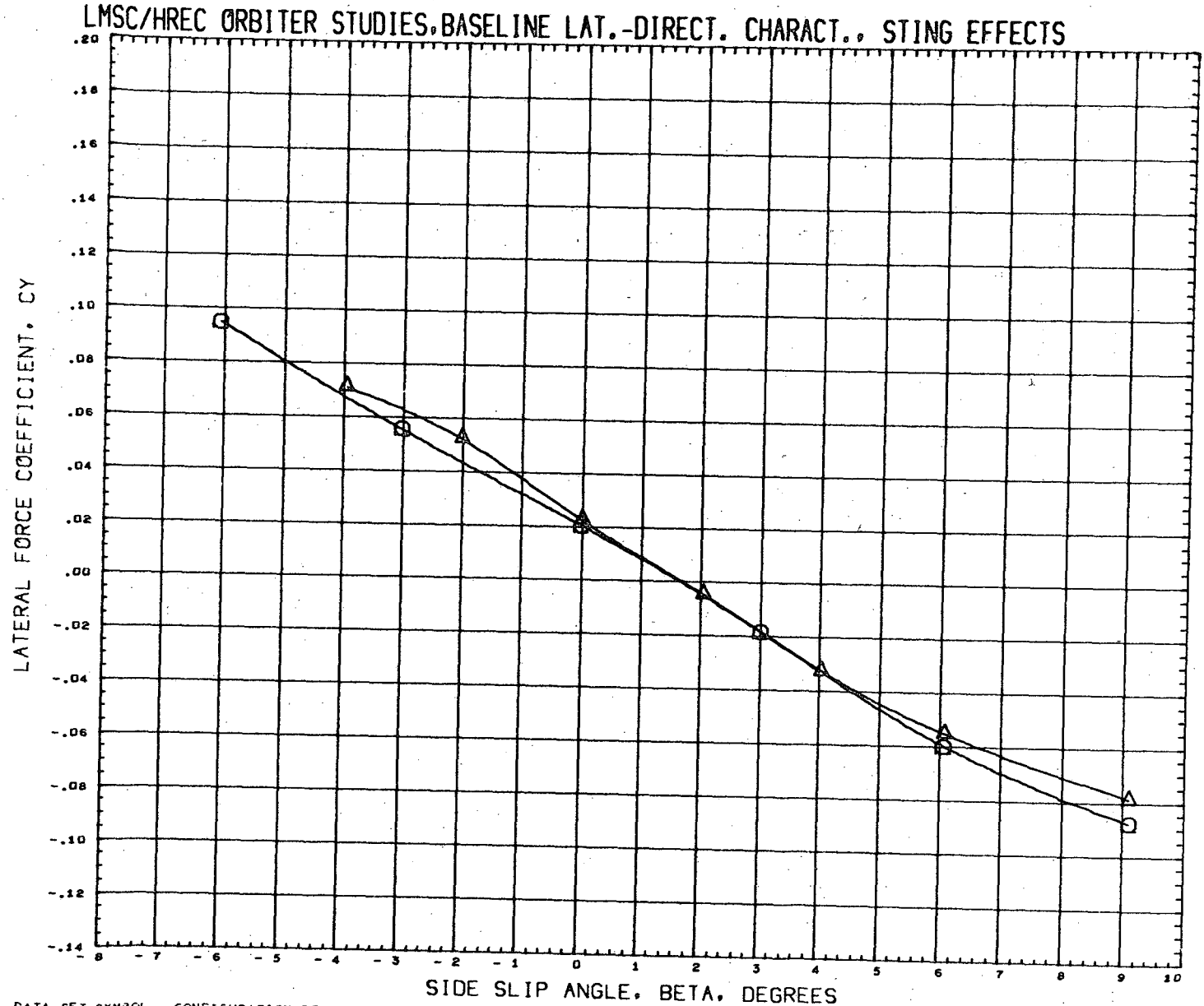


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



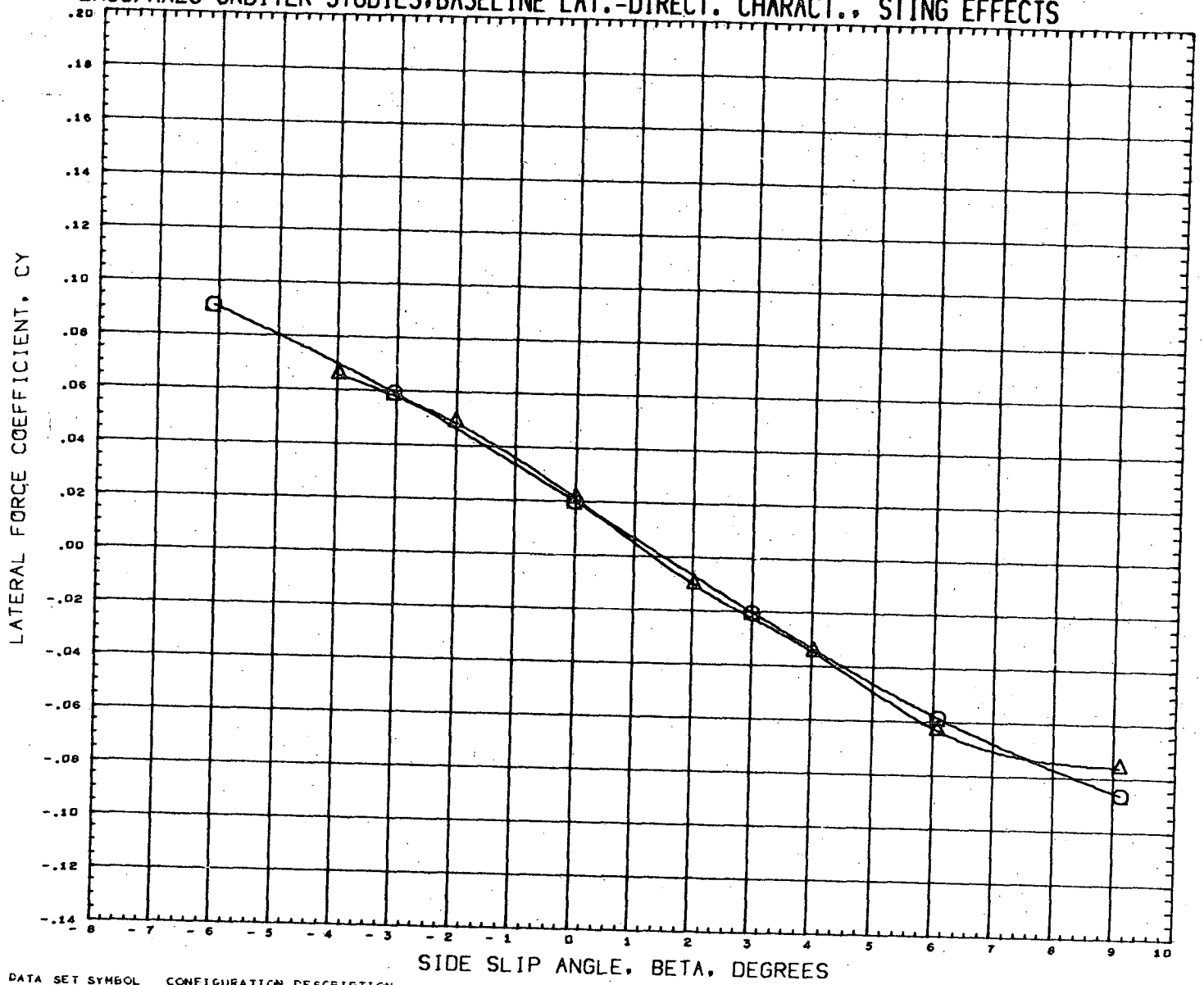
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



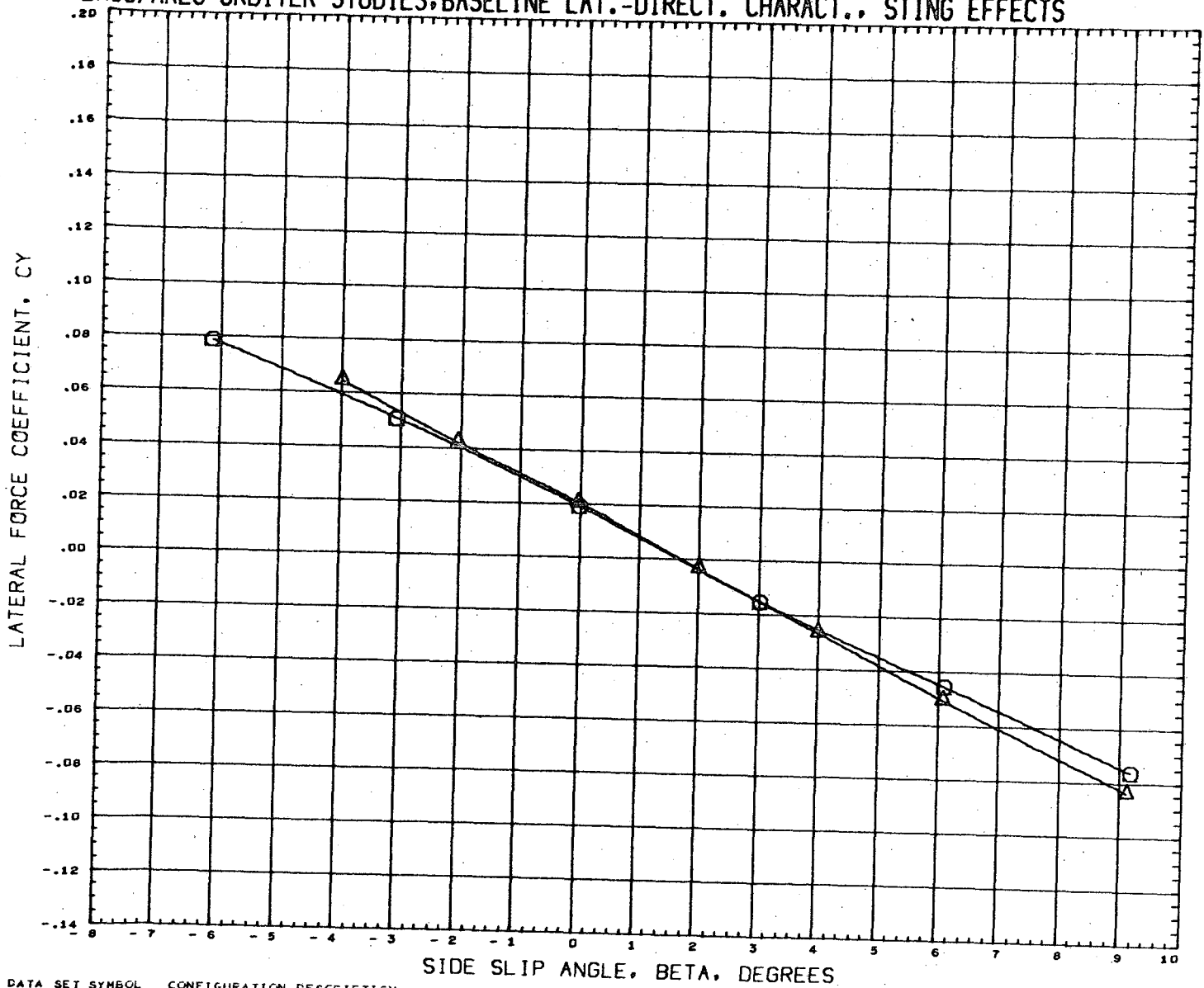
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.699

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



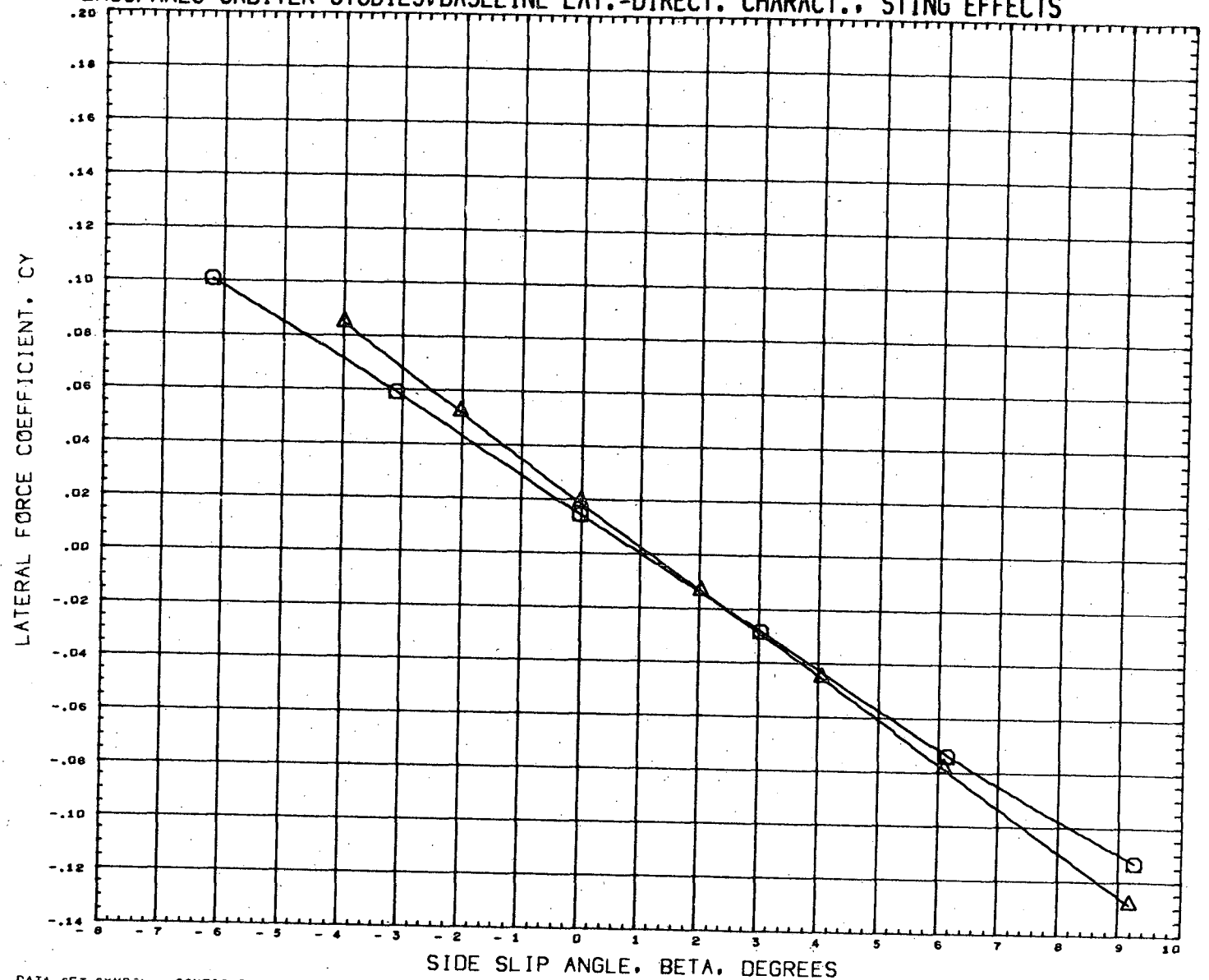
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	-0.300	0.000	0.000

MACH 1.096

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

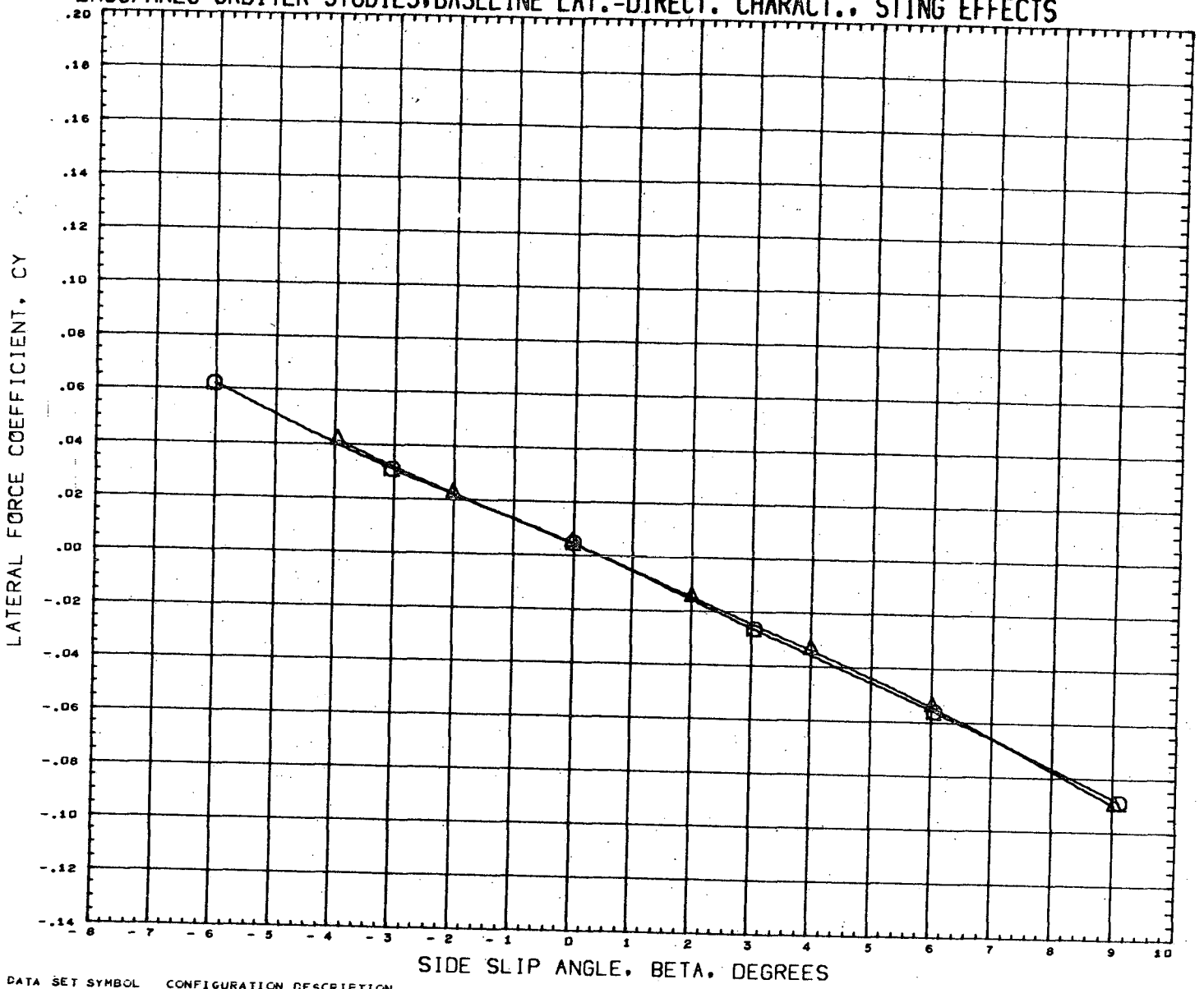


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 1.972

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

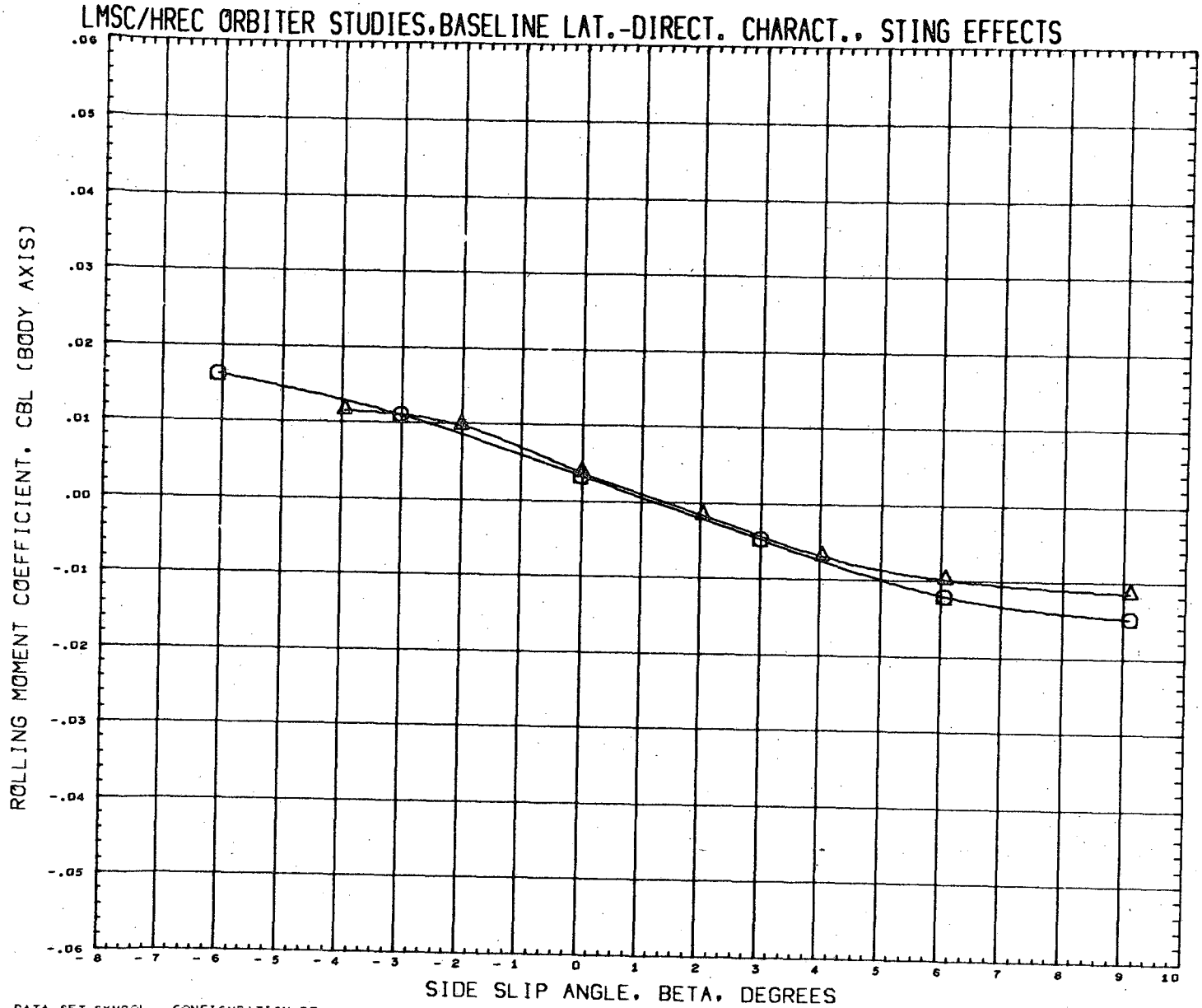


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE



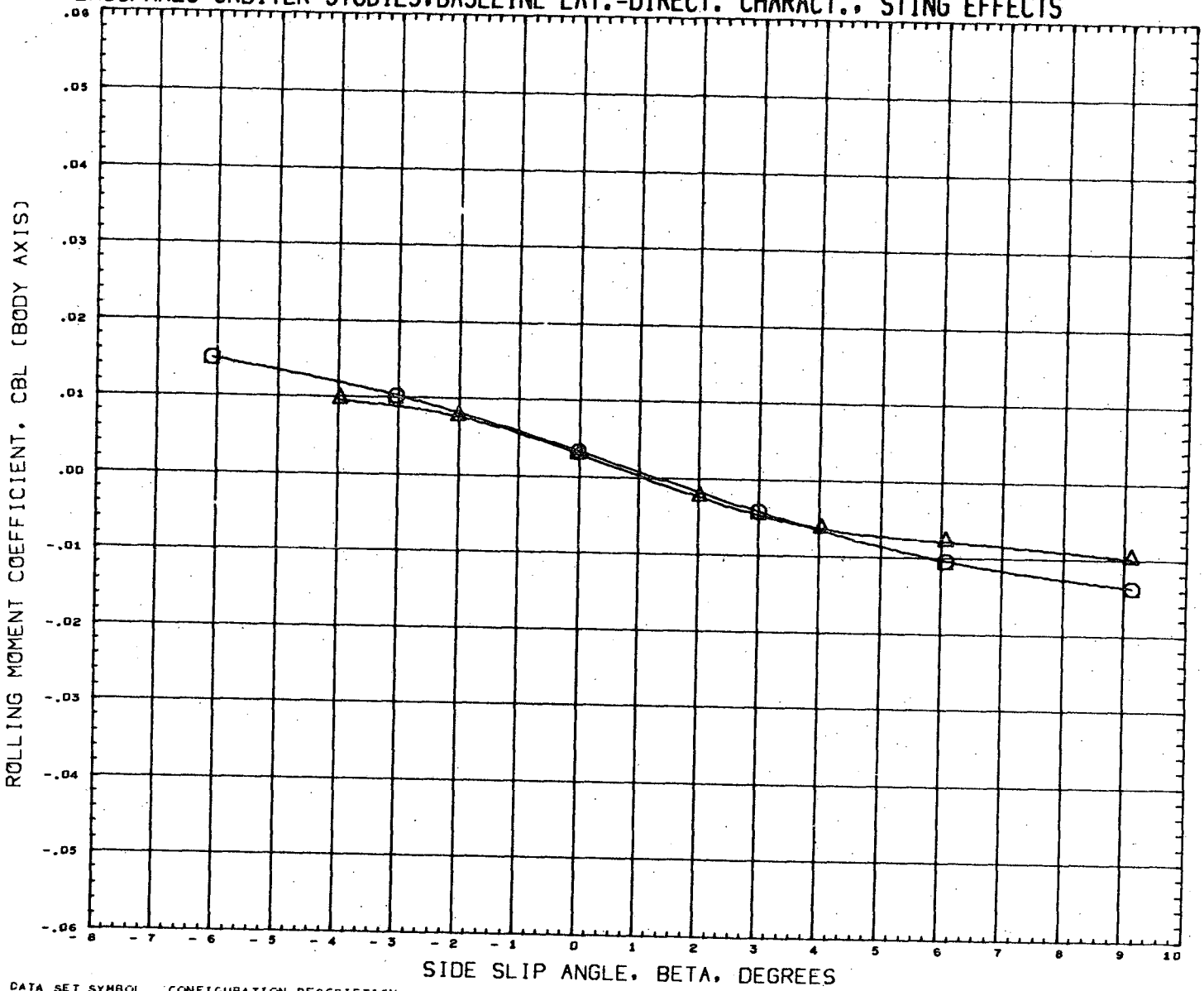
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

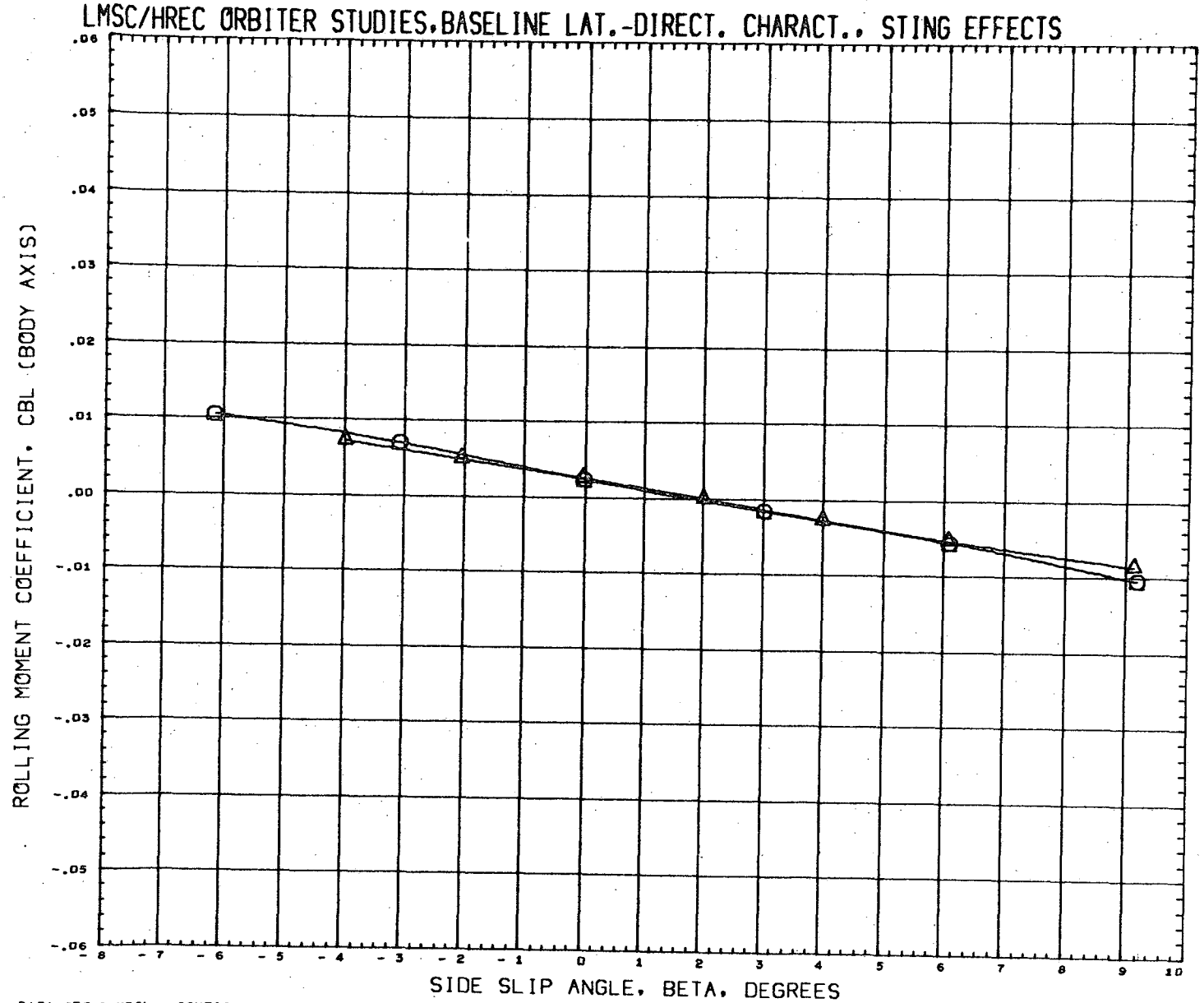
LMSC/HREC ORBITER STUDIES.BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.699

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



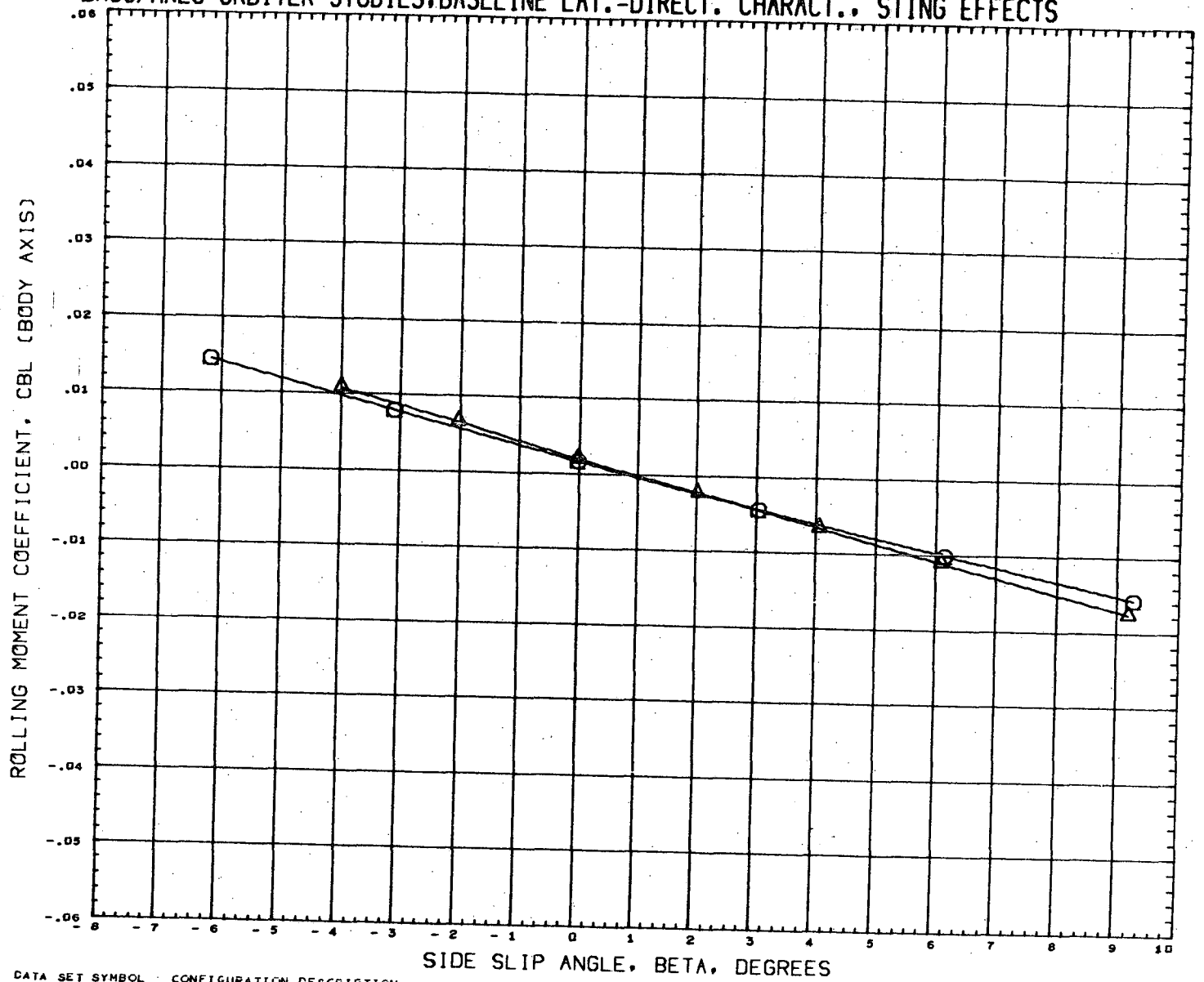
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS

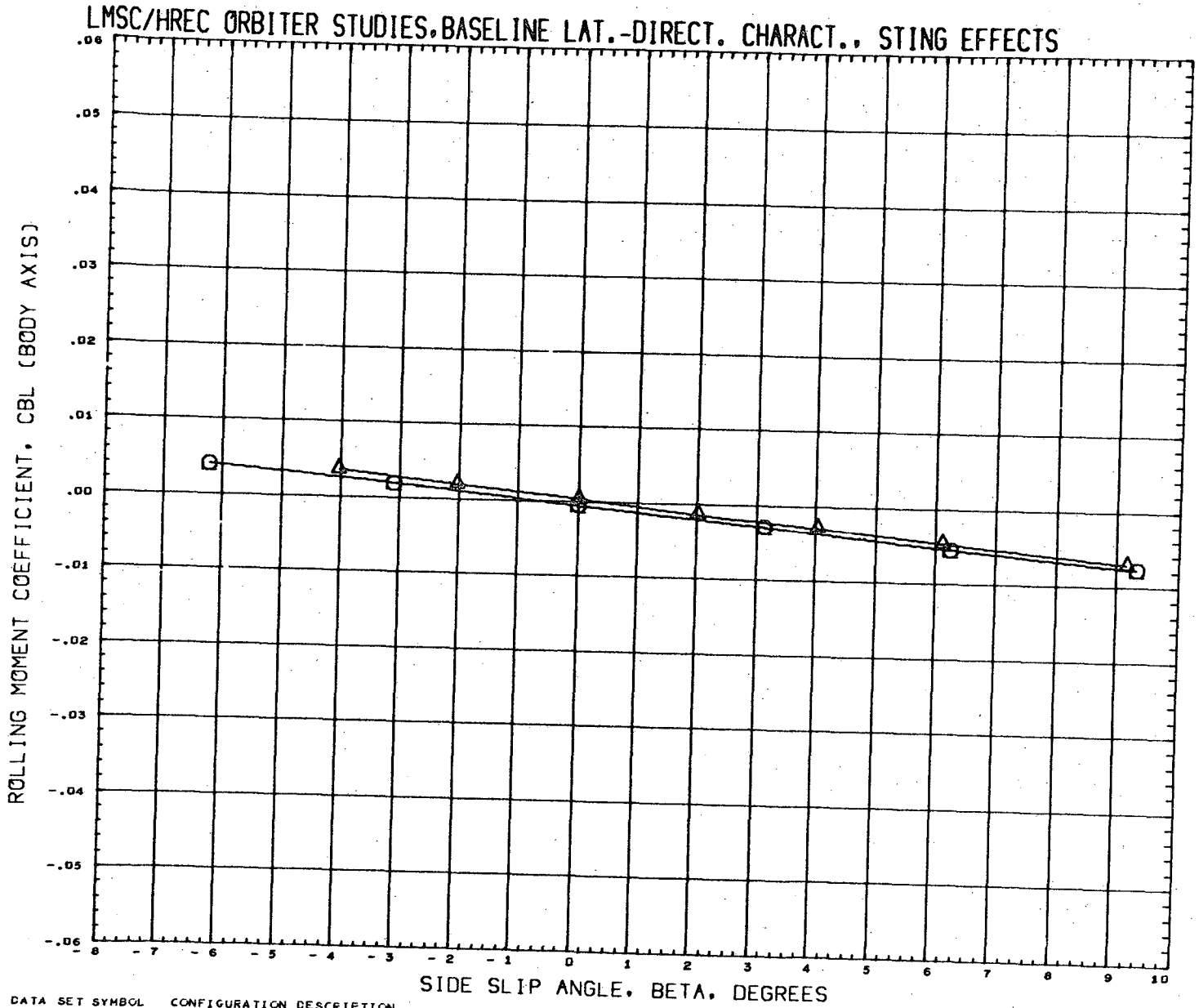


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 1.096

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE



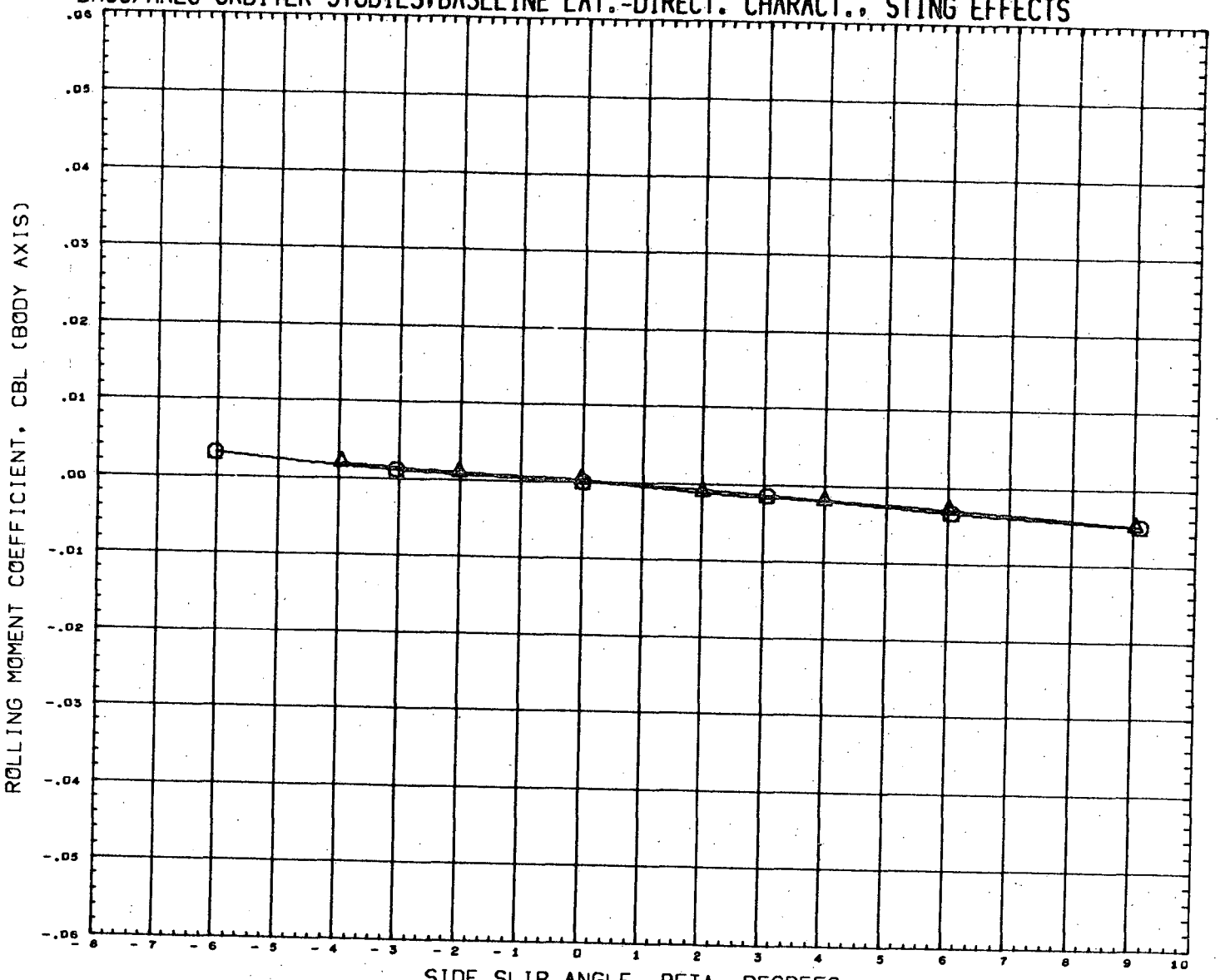
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F3601D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 1.972

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LAT.-DIRECT. CHARACT., STING EFFECTS



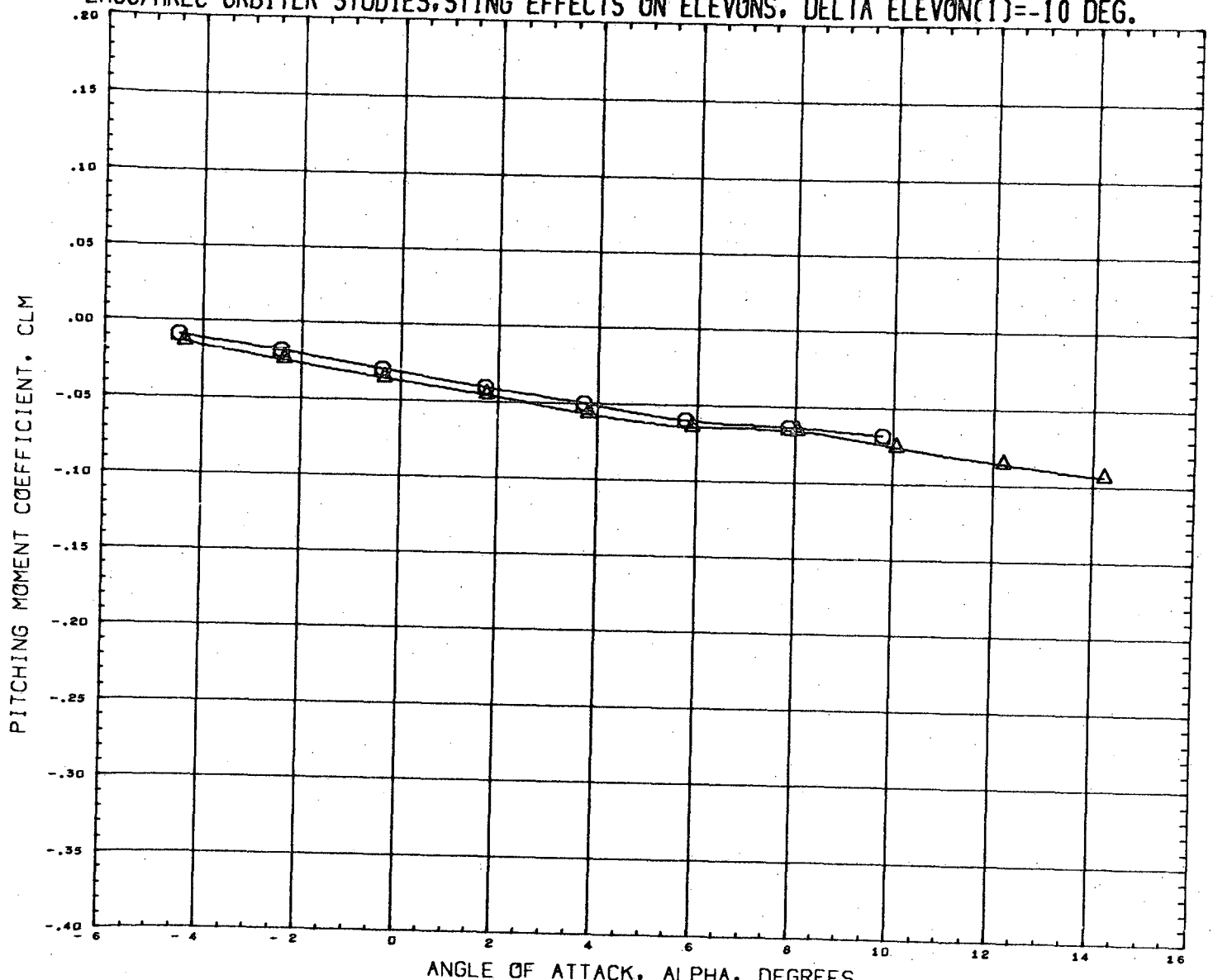
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER3
(F36D1D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000
(A3616F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	-0.300	0.000	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



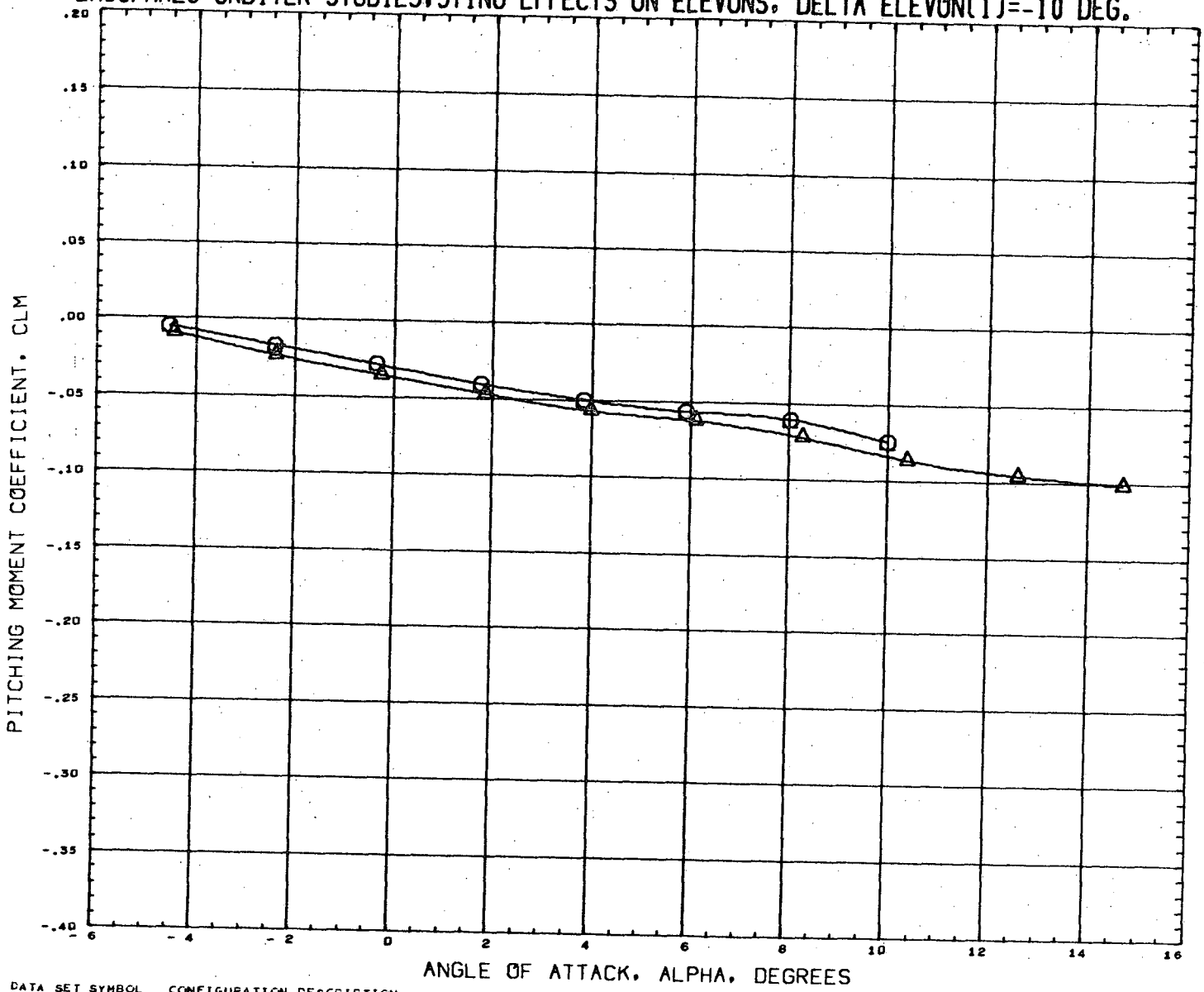
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.

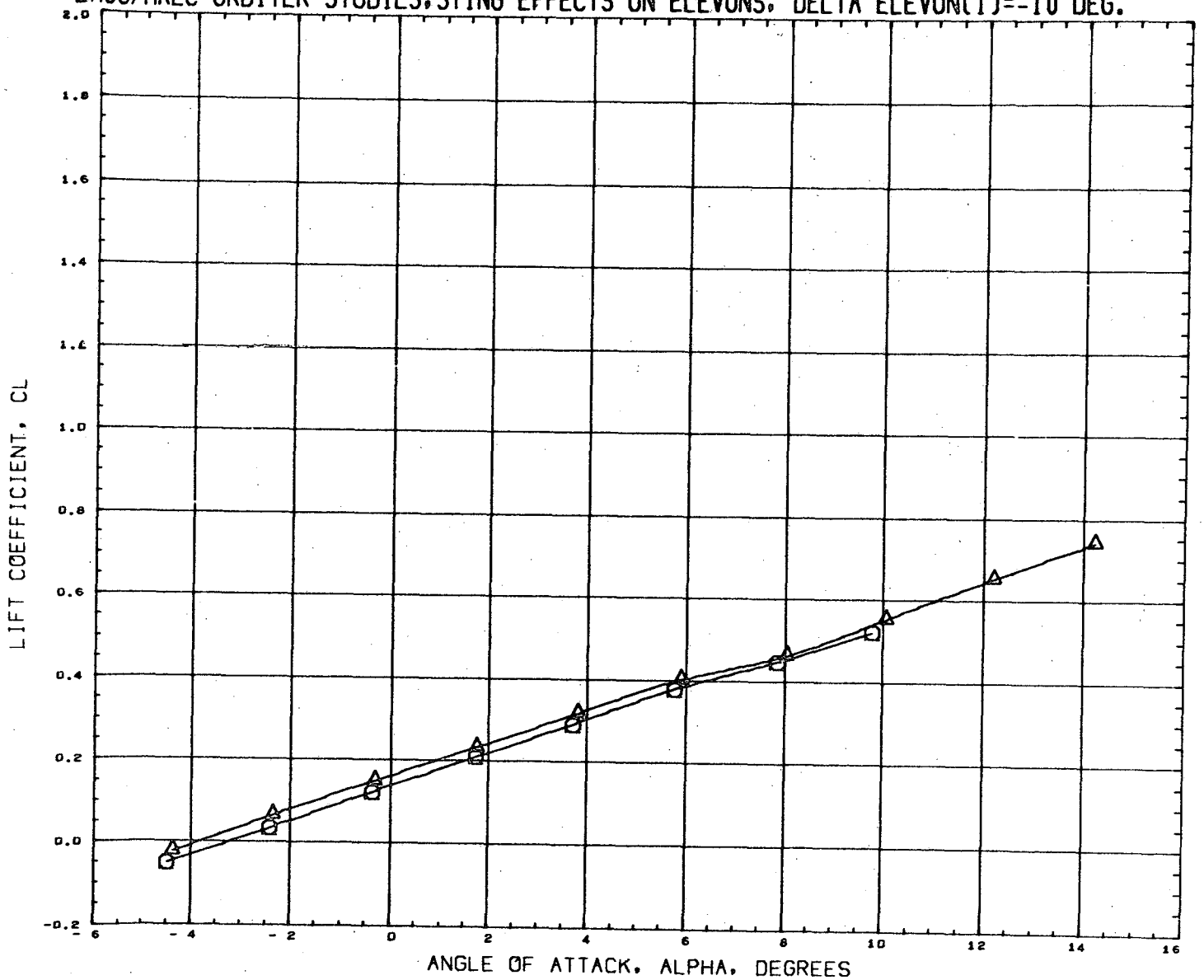


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



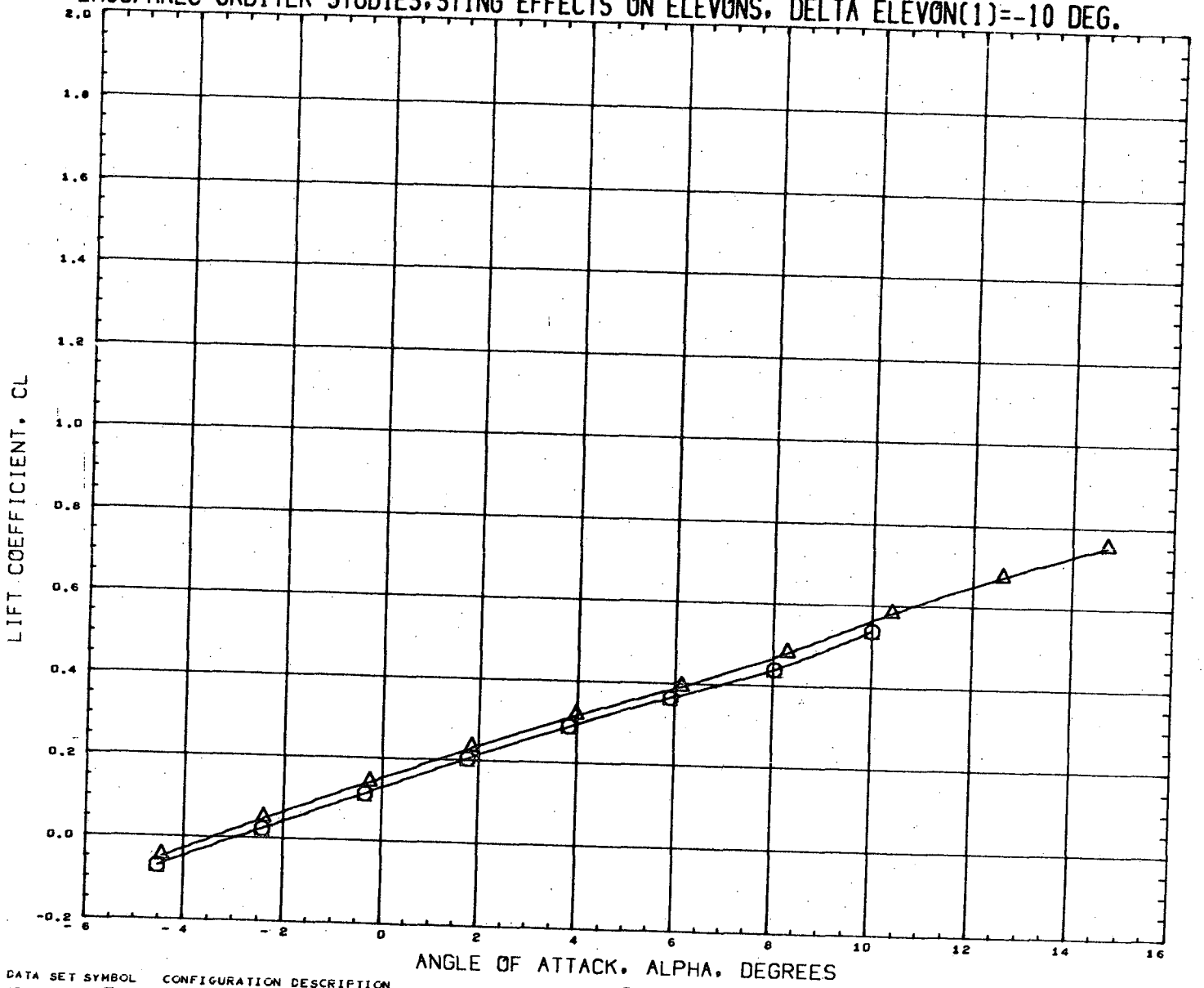
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



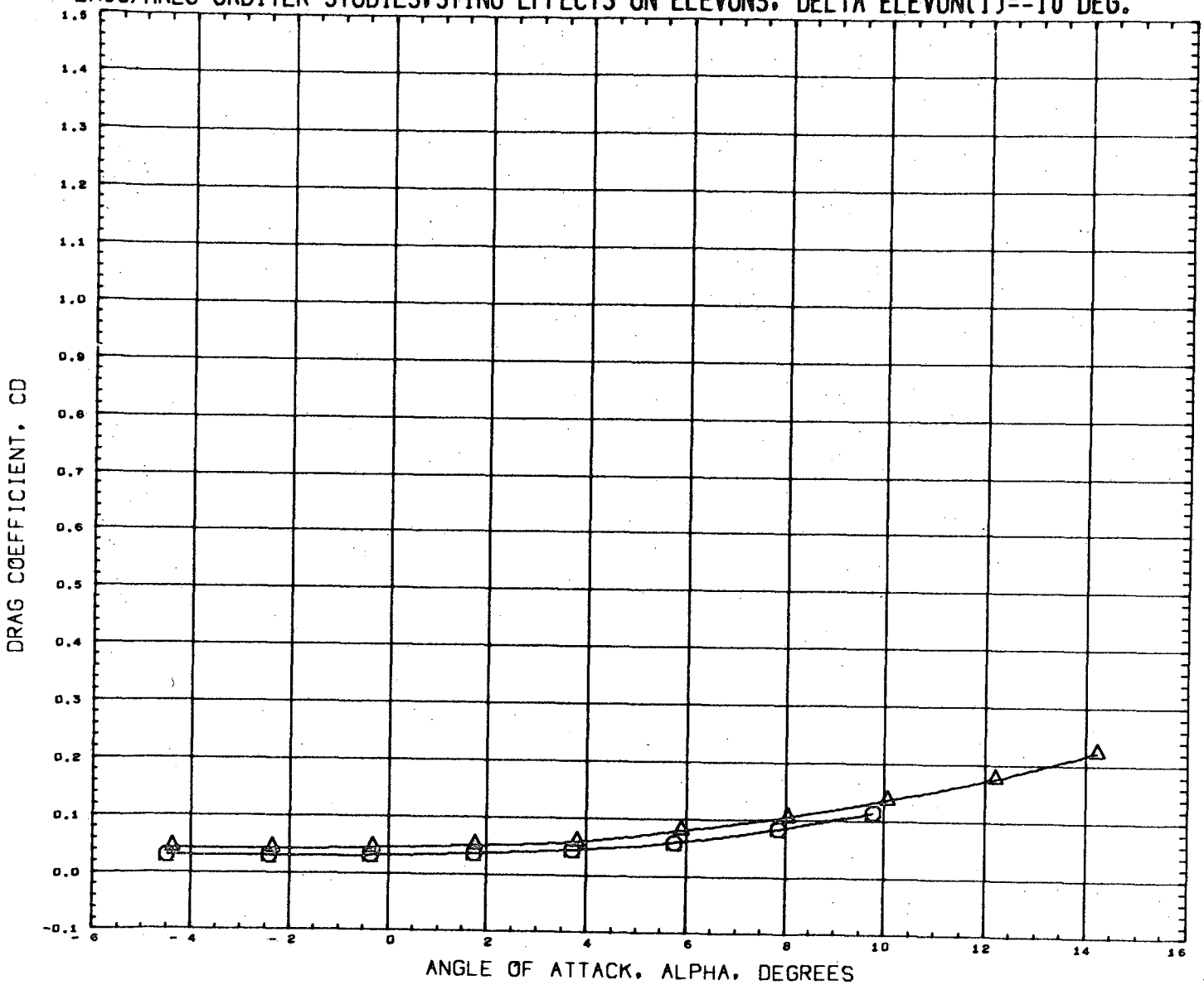
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



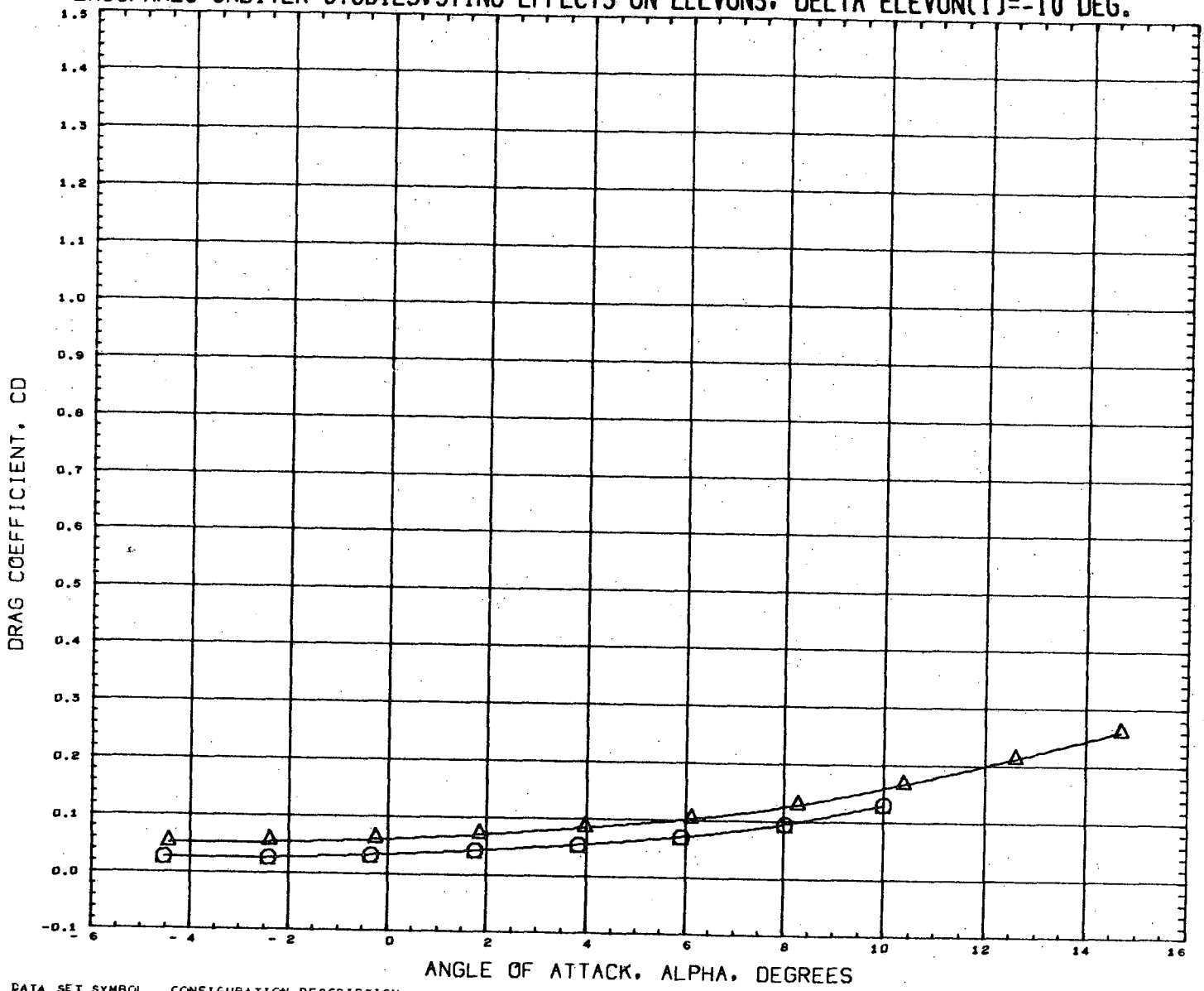
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.

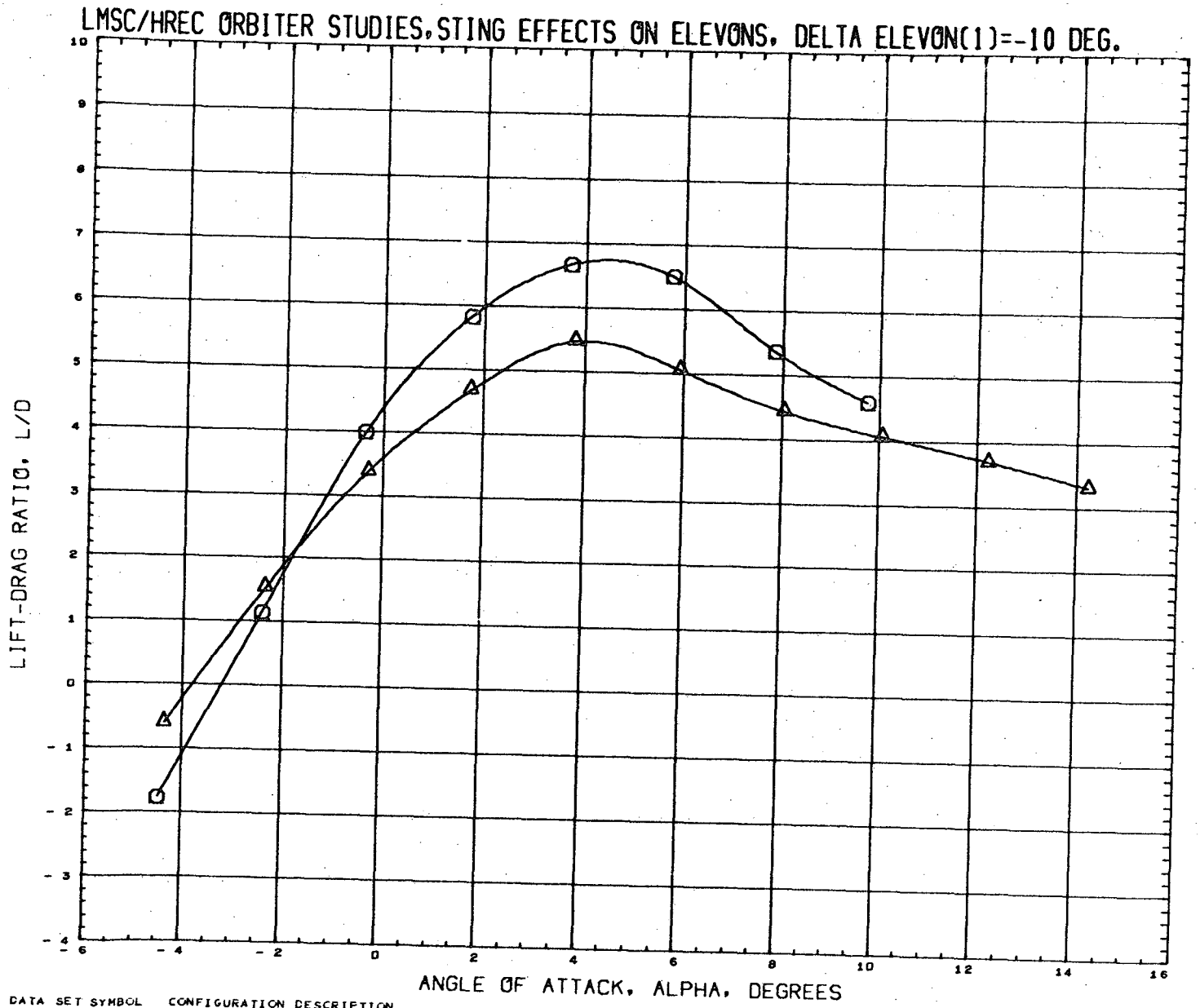


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

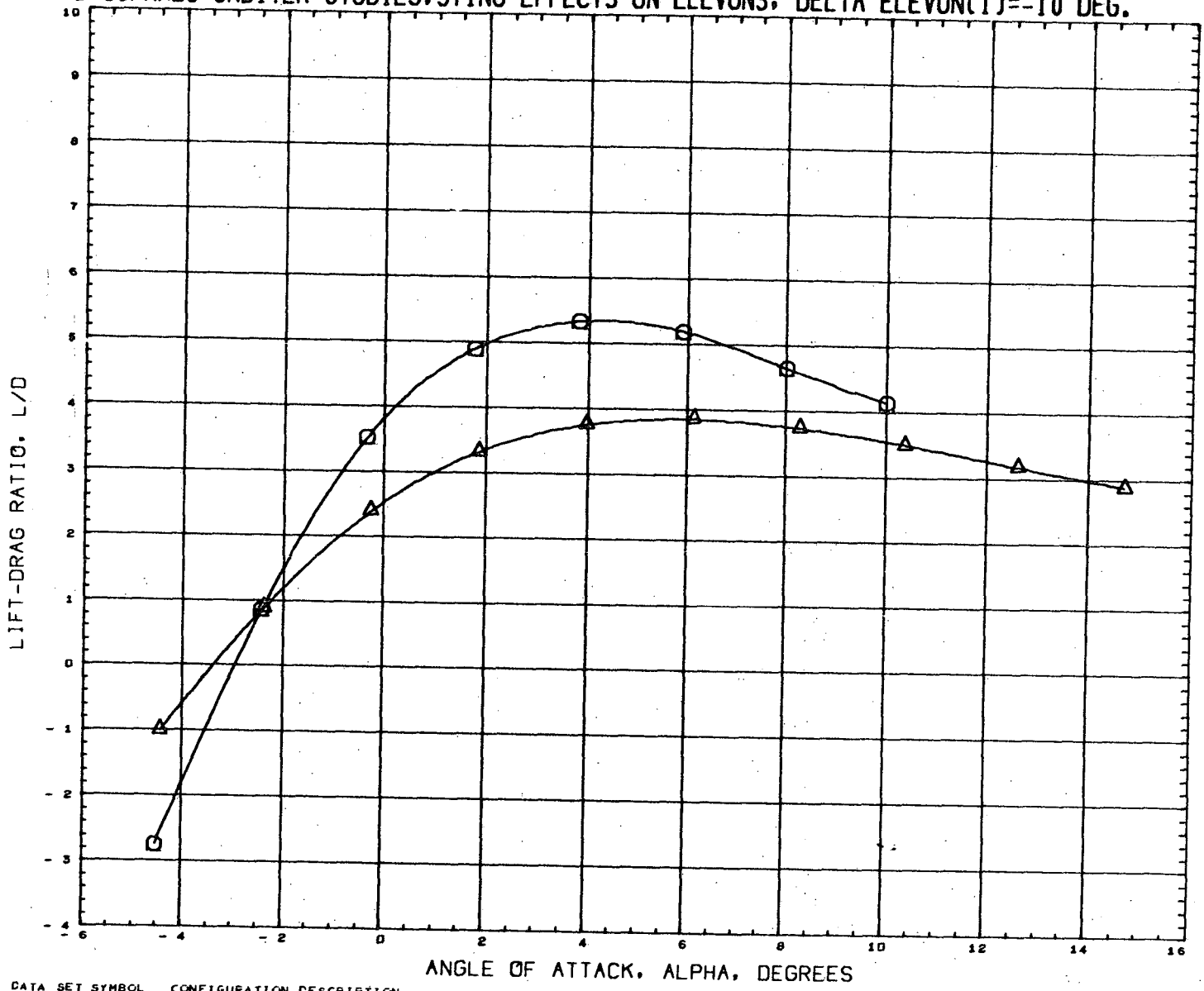


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.

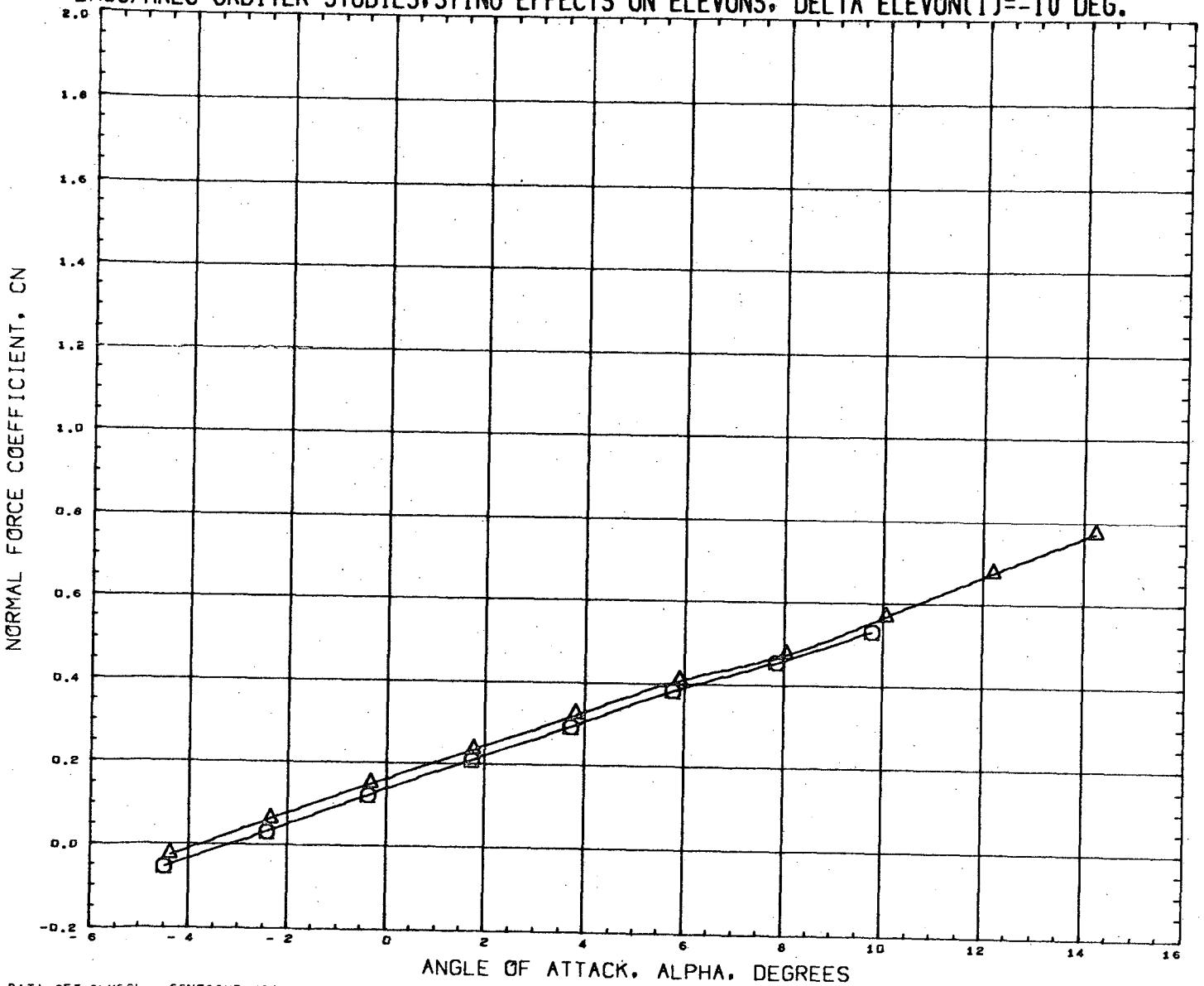


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3610E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



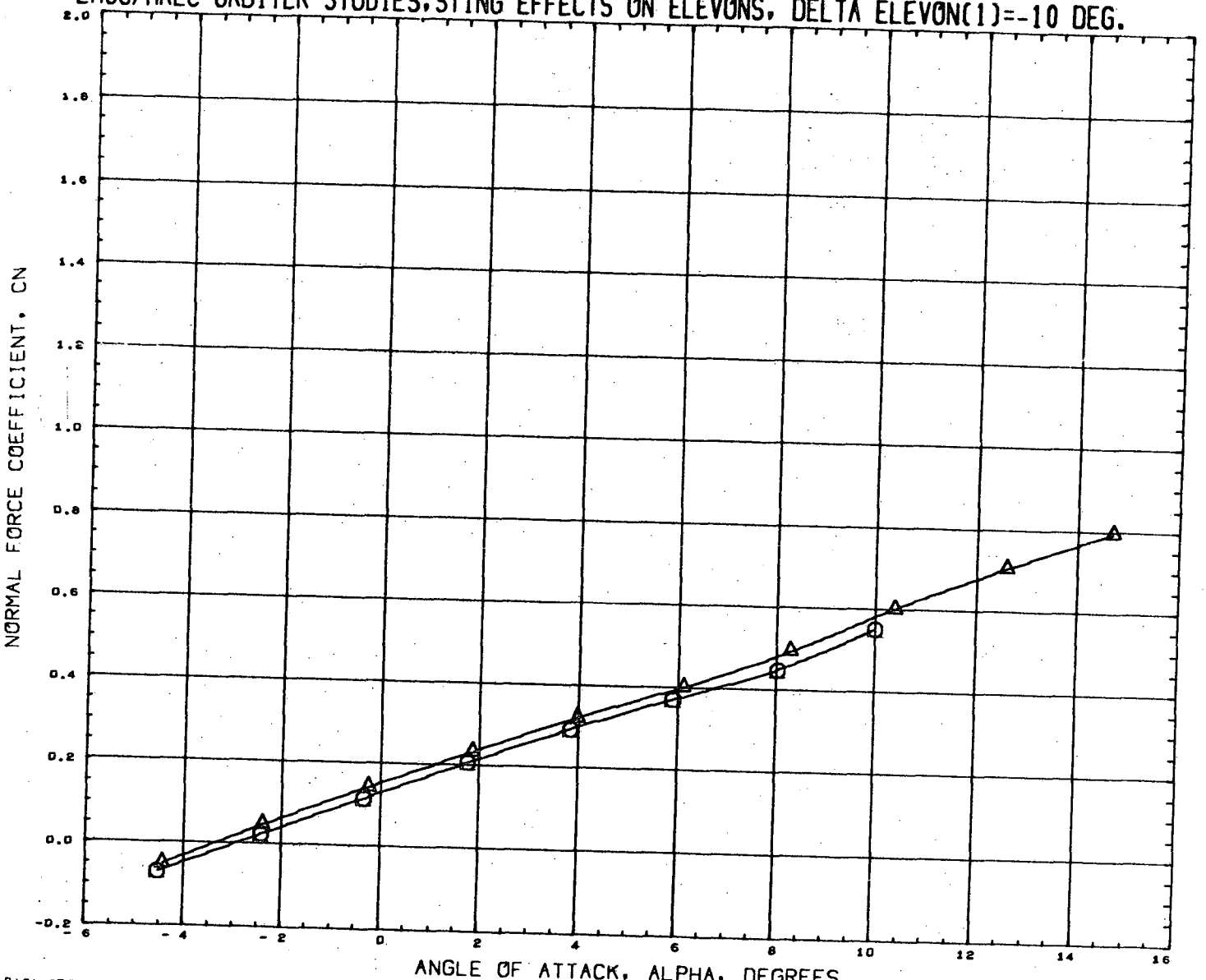
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



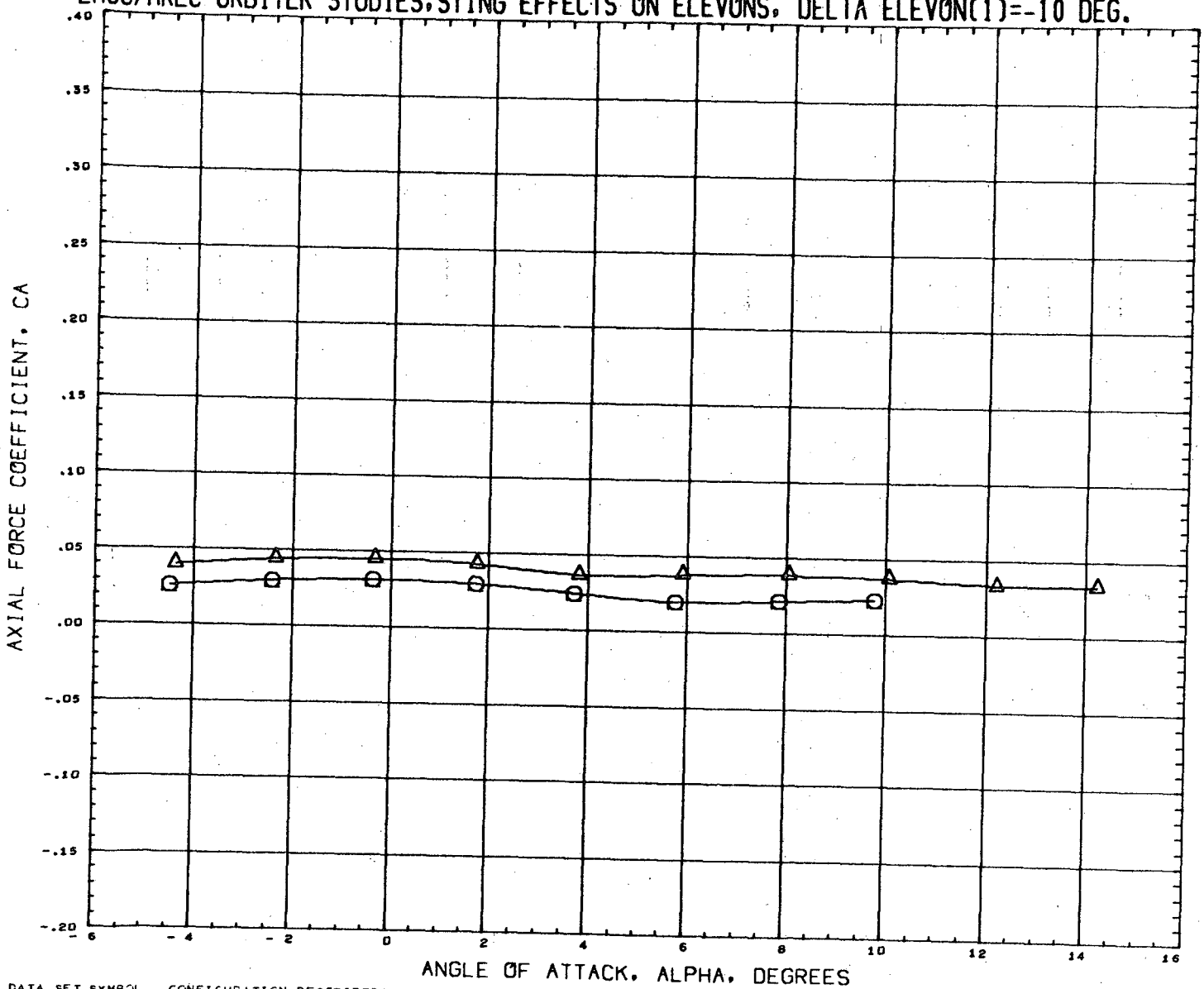
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



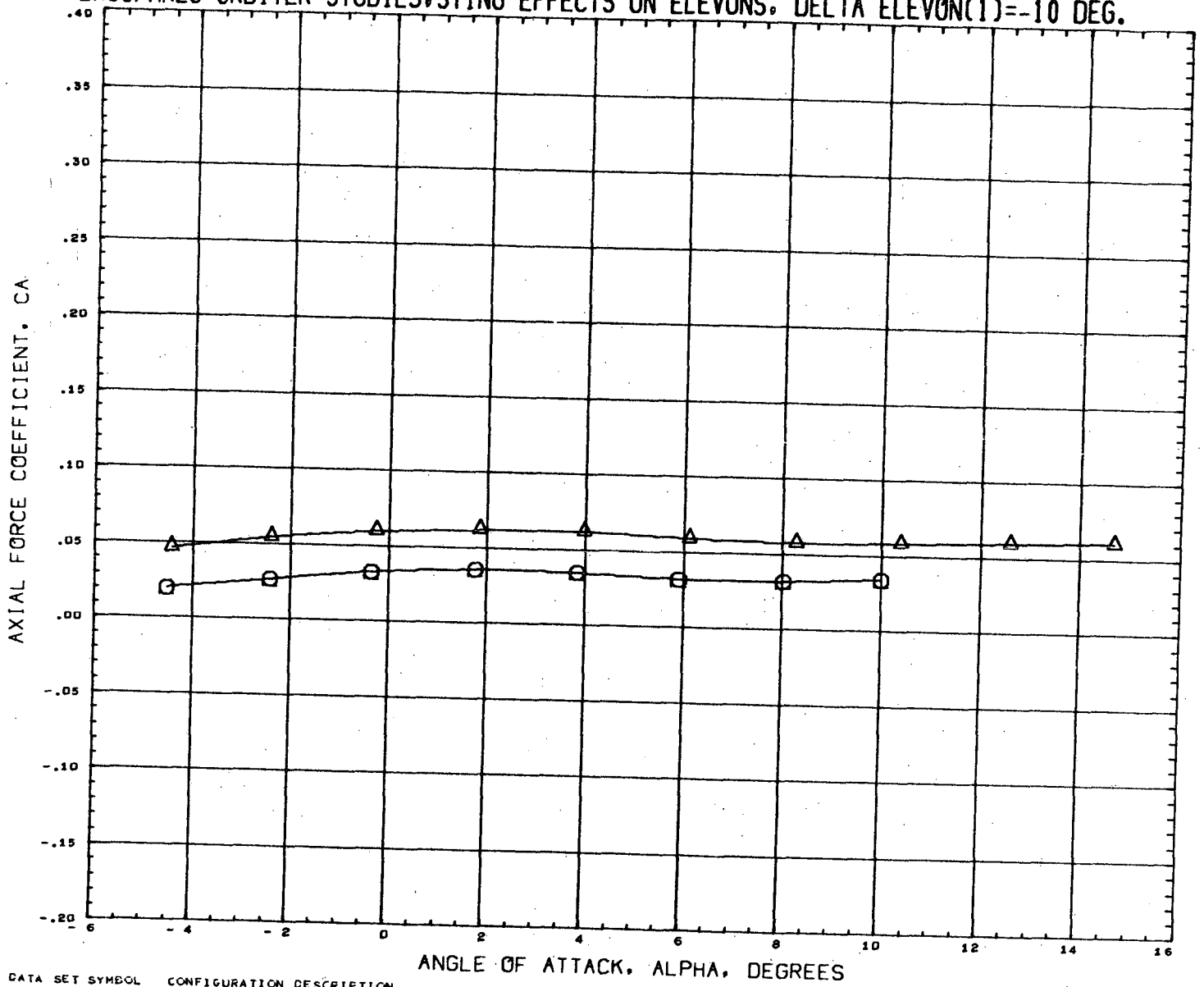
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3616E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



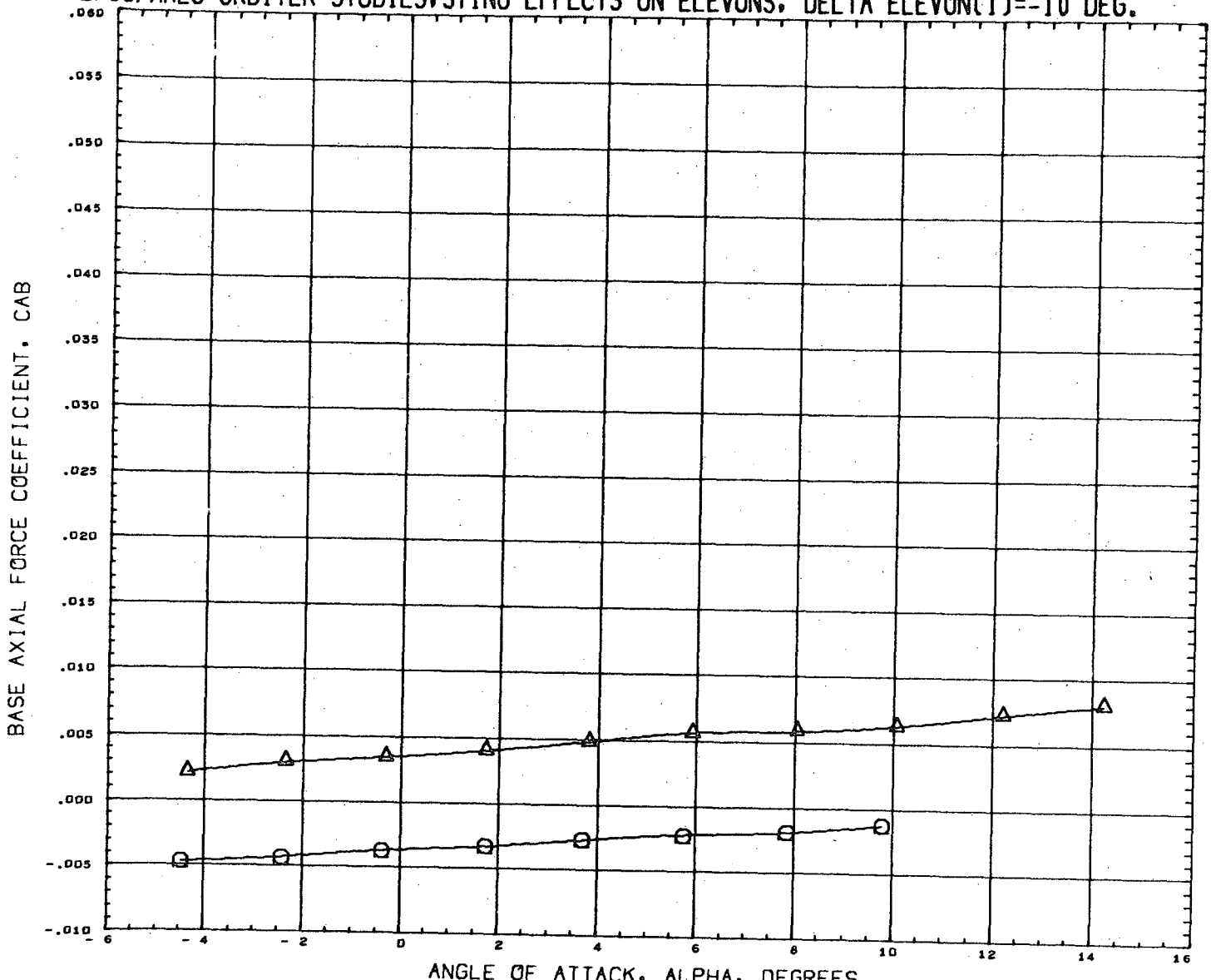
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.696

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



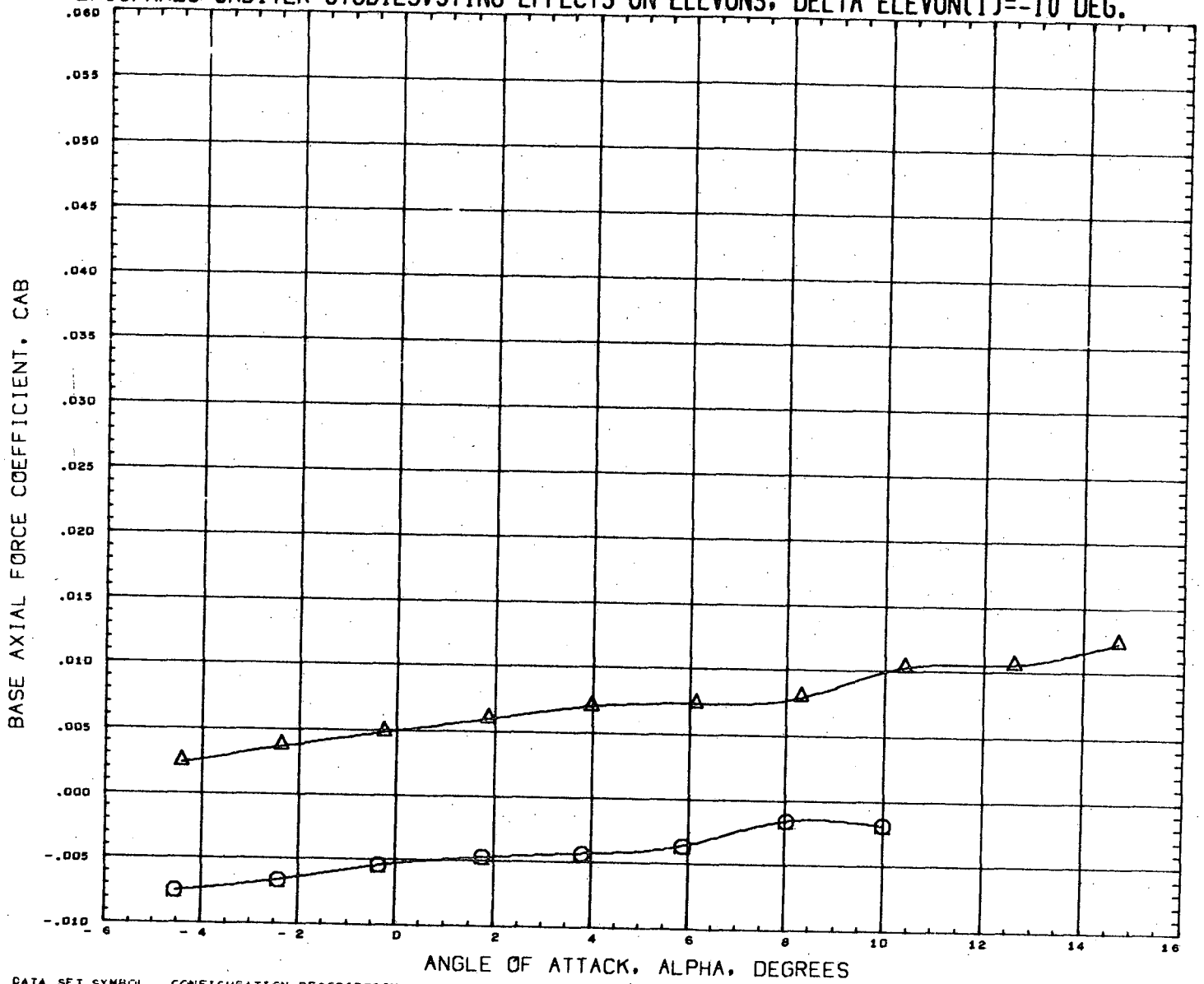
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



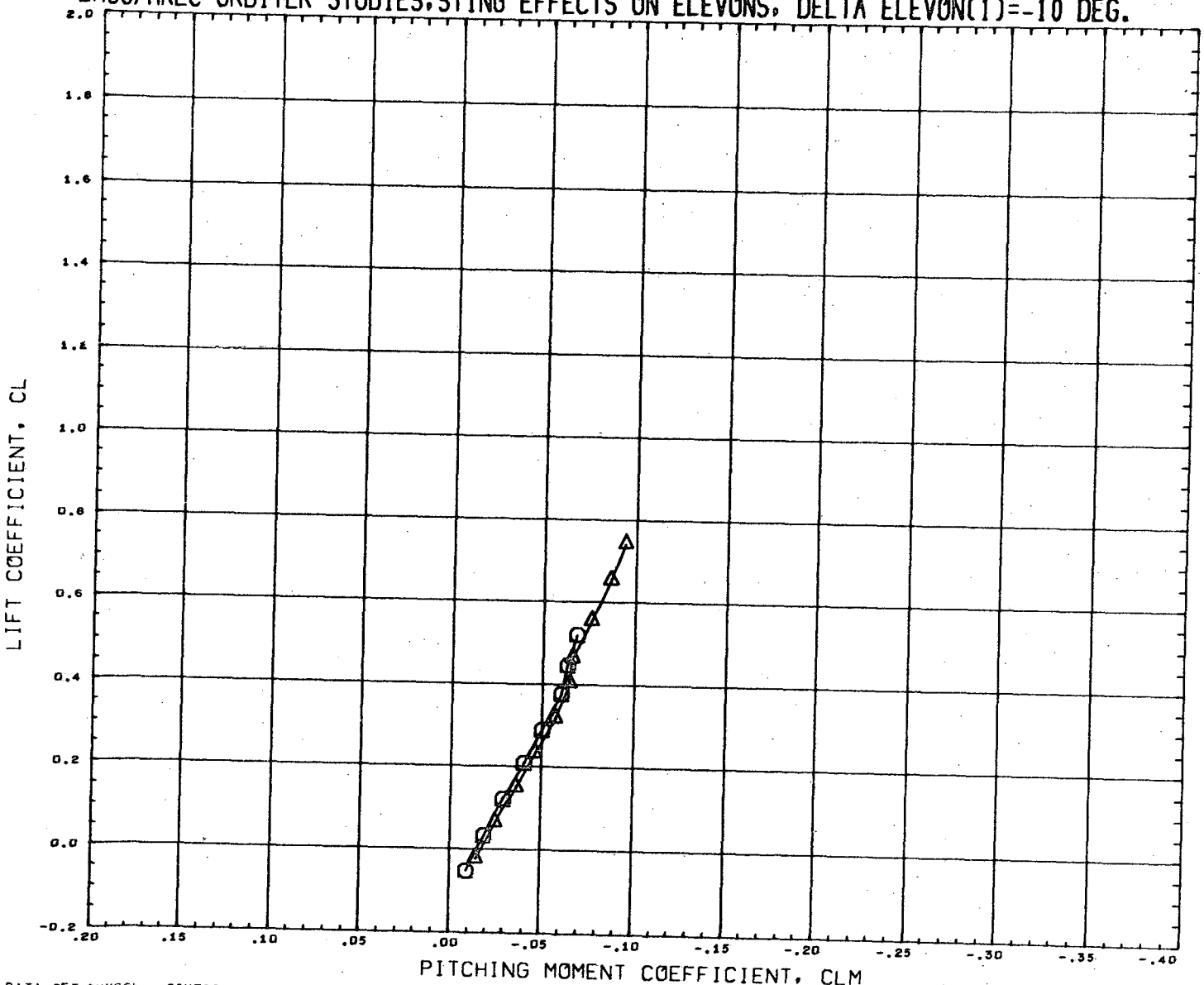
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



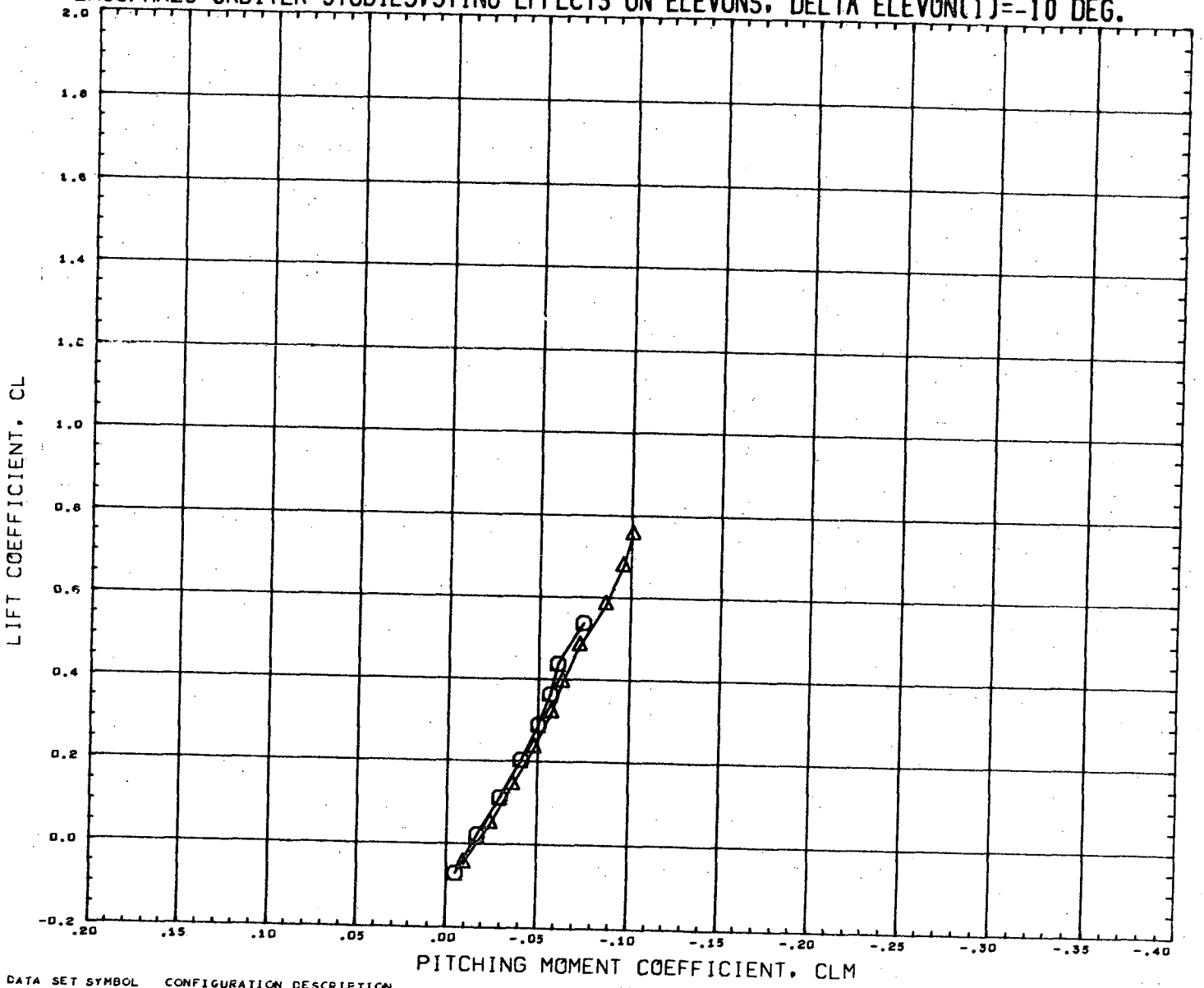
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3603A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.593

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=-10 DEG.



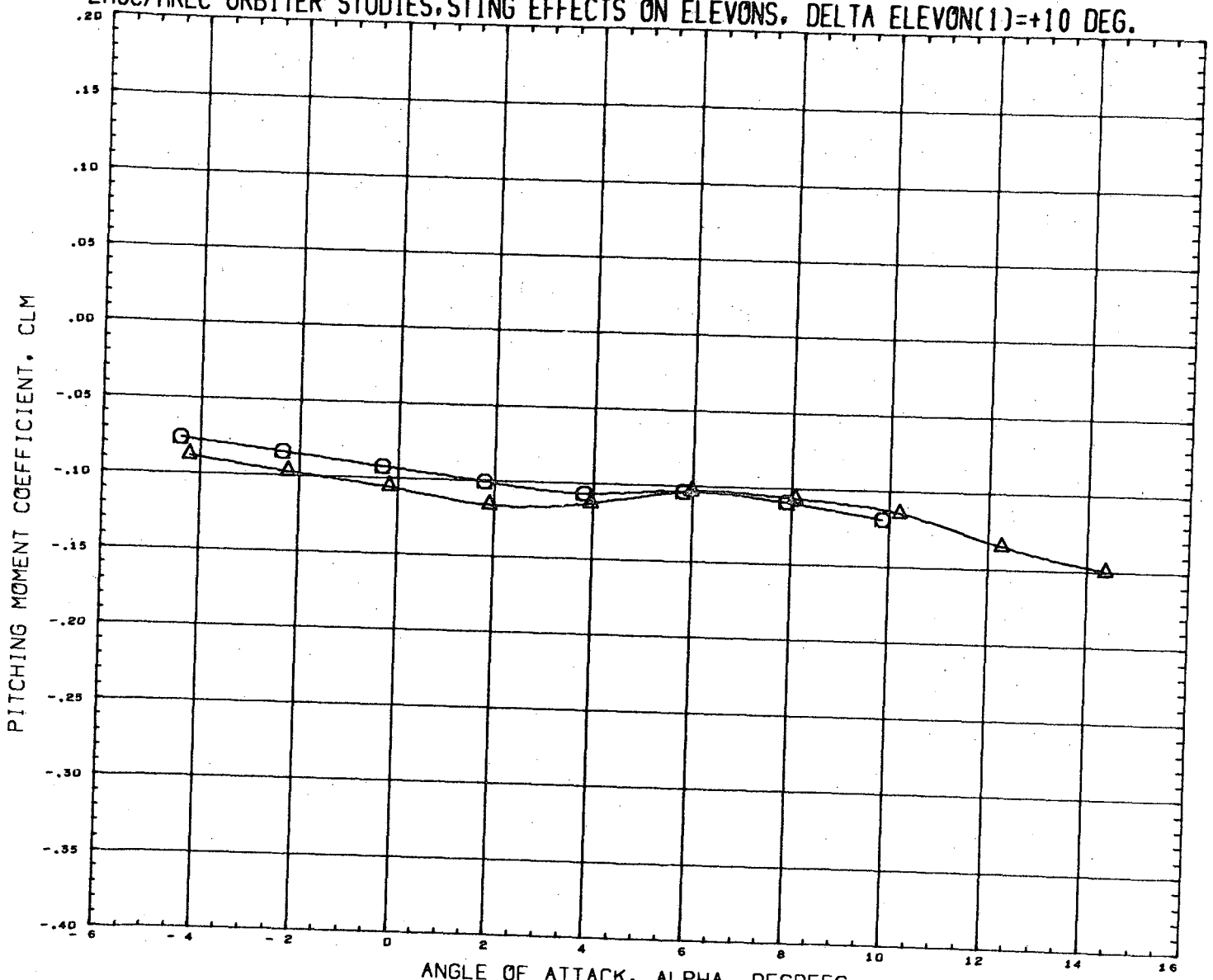
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(03603A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3618E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000

MACH 0.896

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



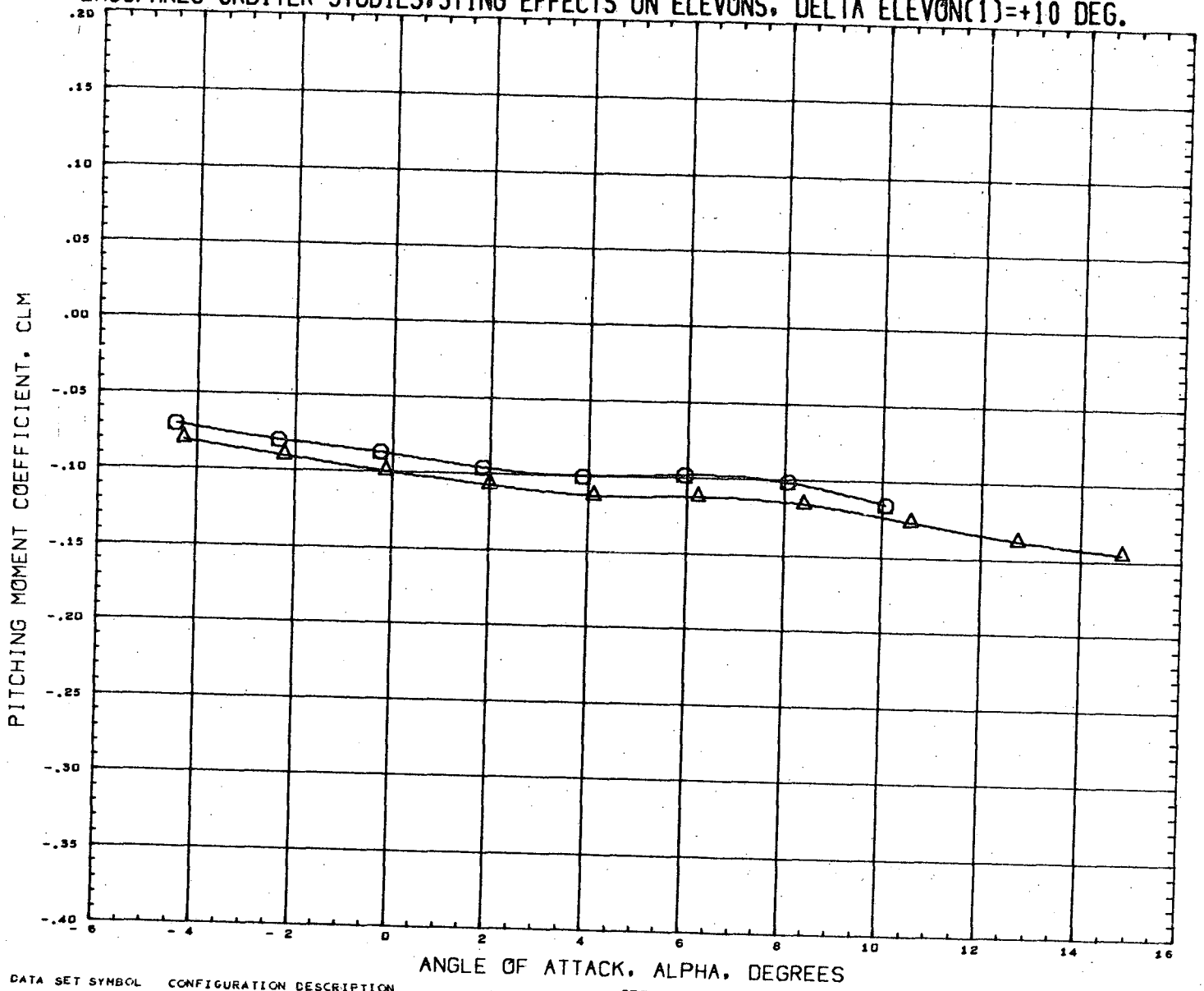
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



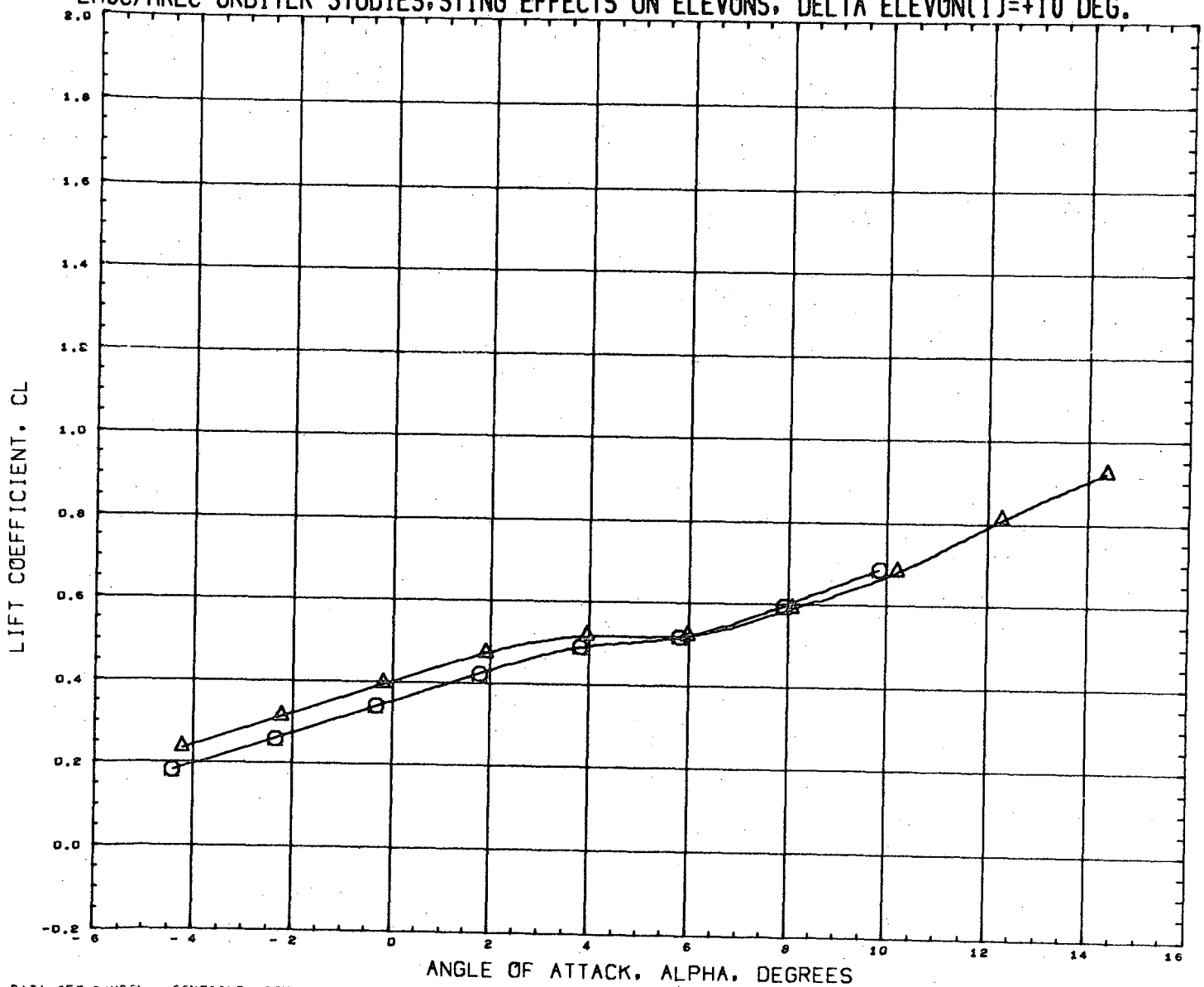
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



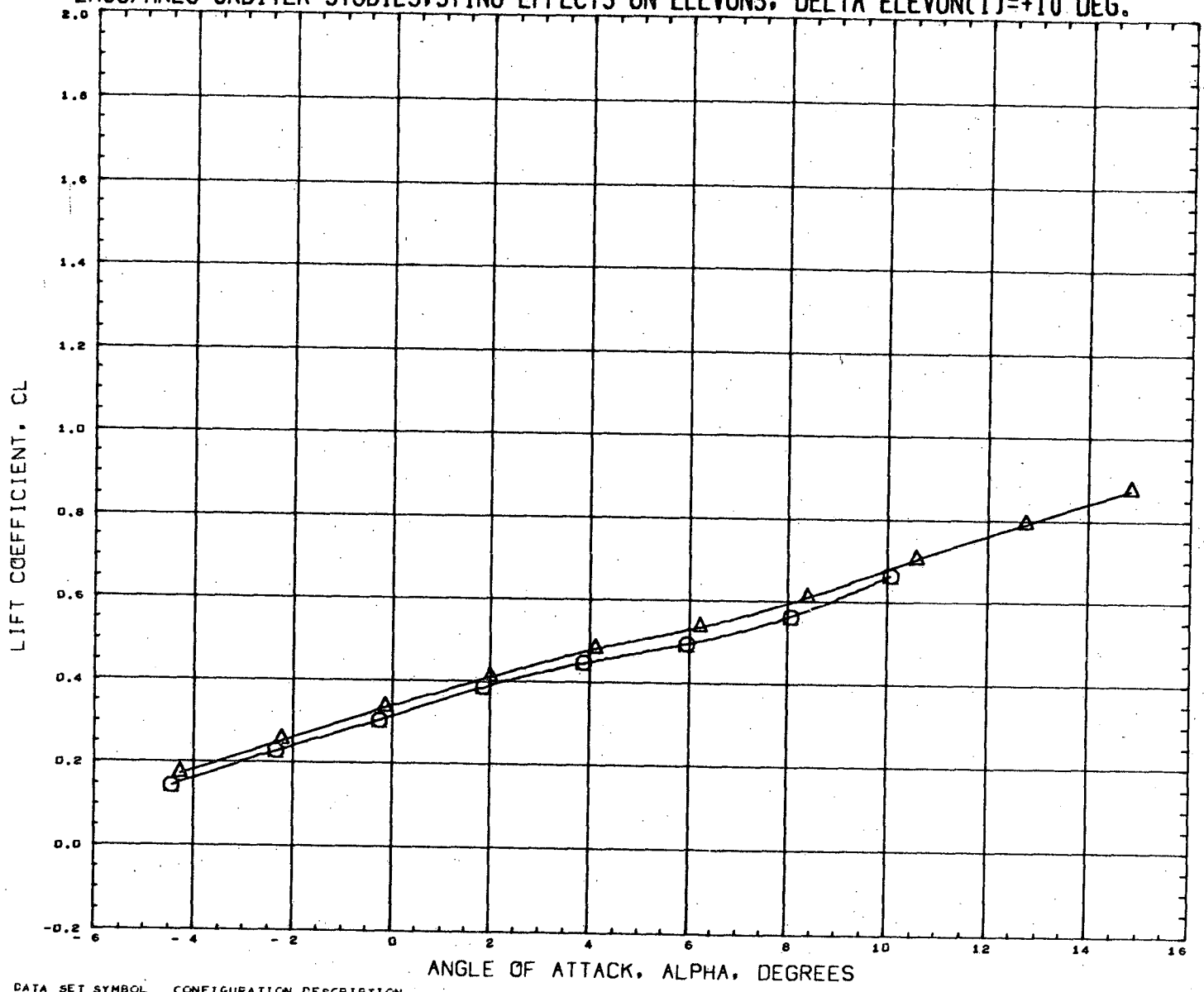
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



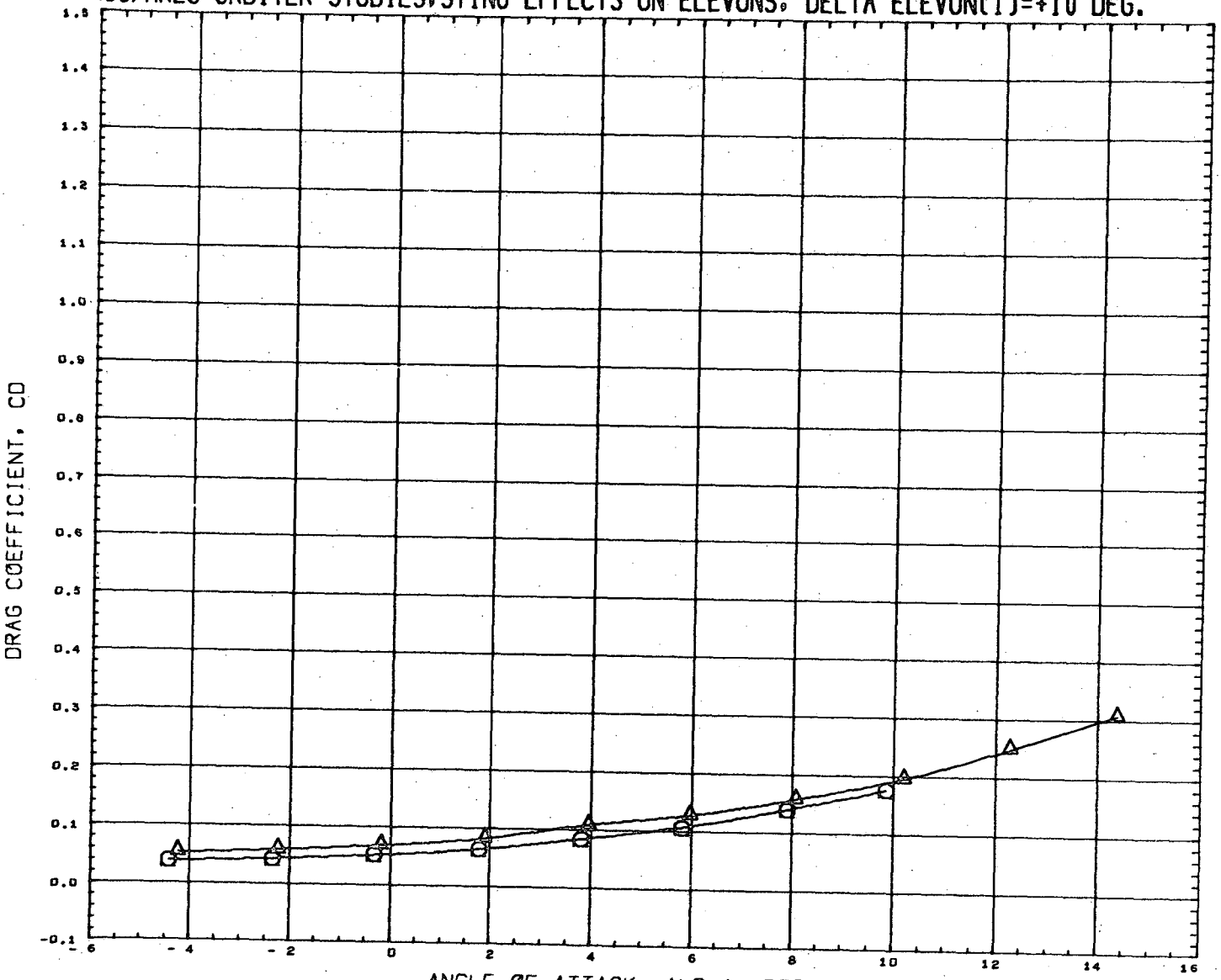
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



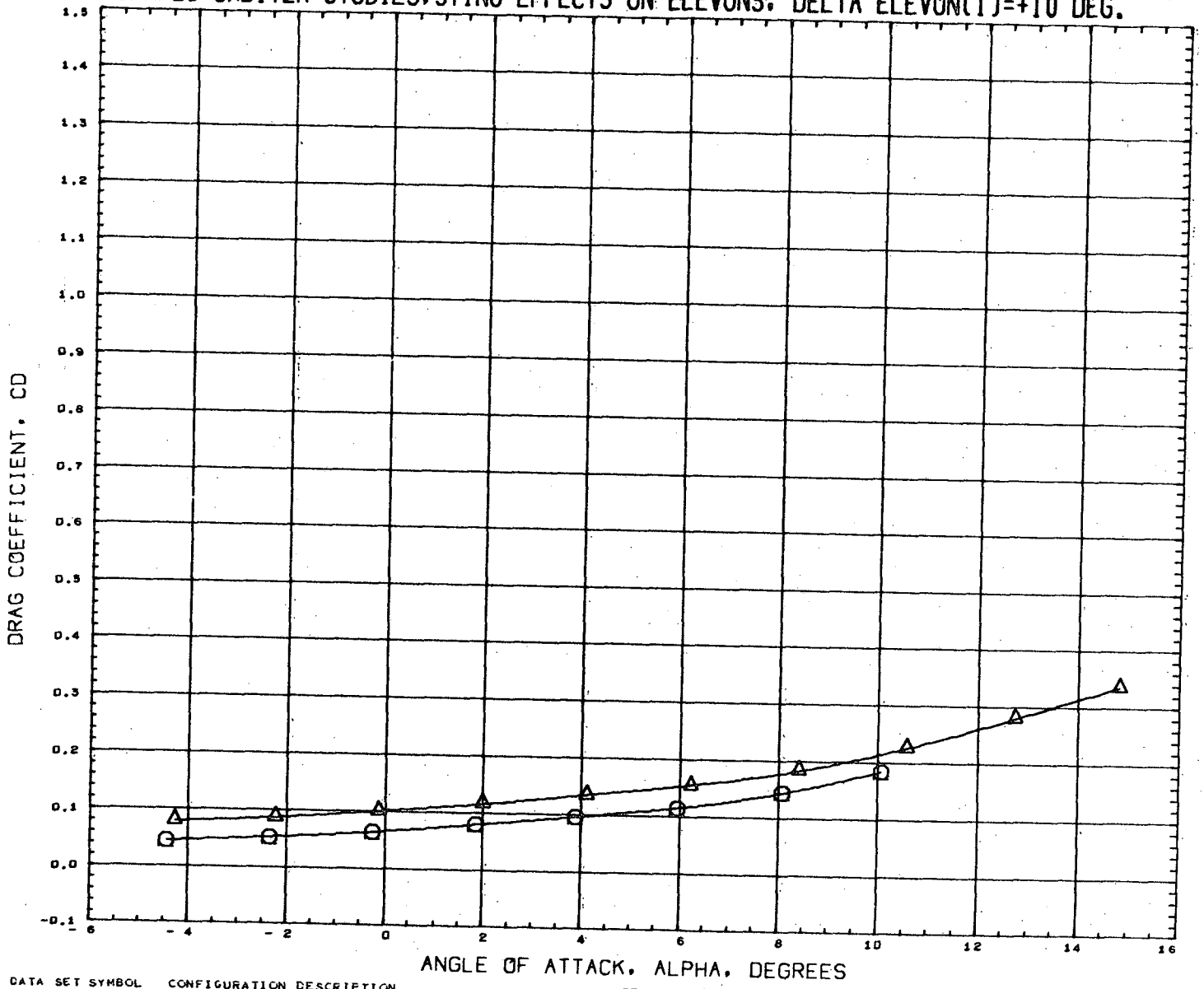
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(C3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



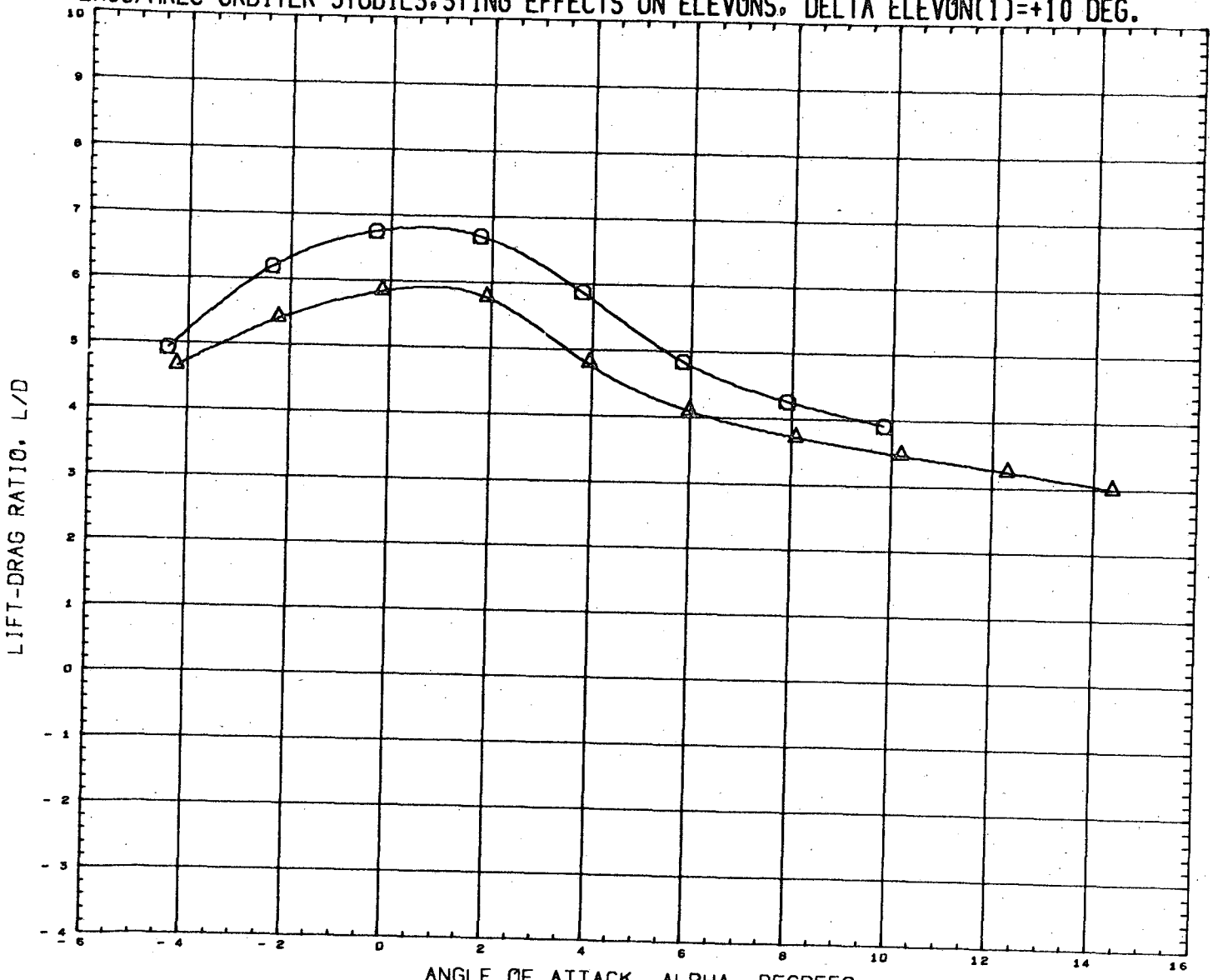
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.

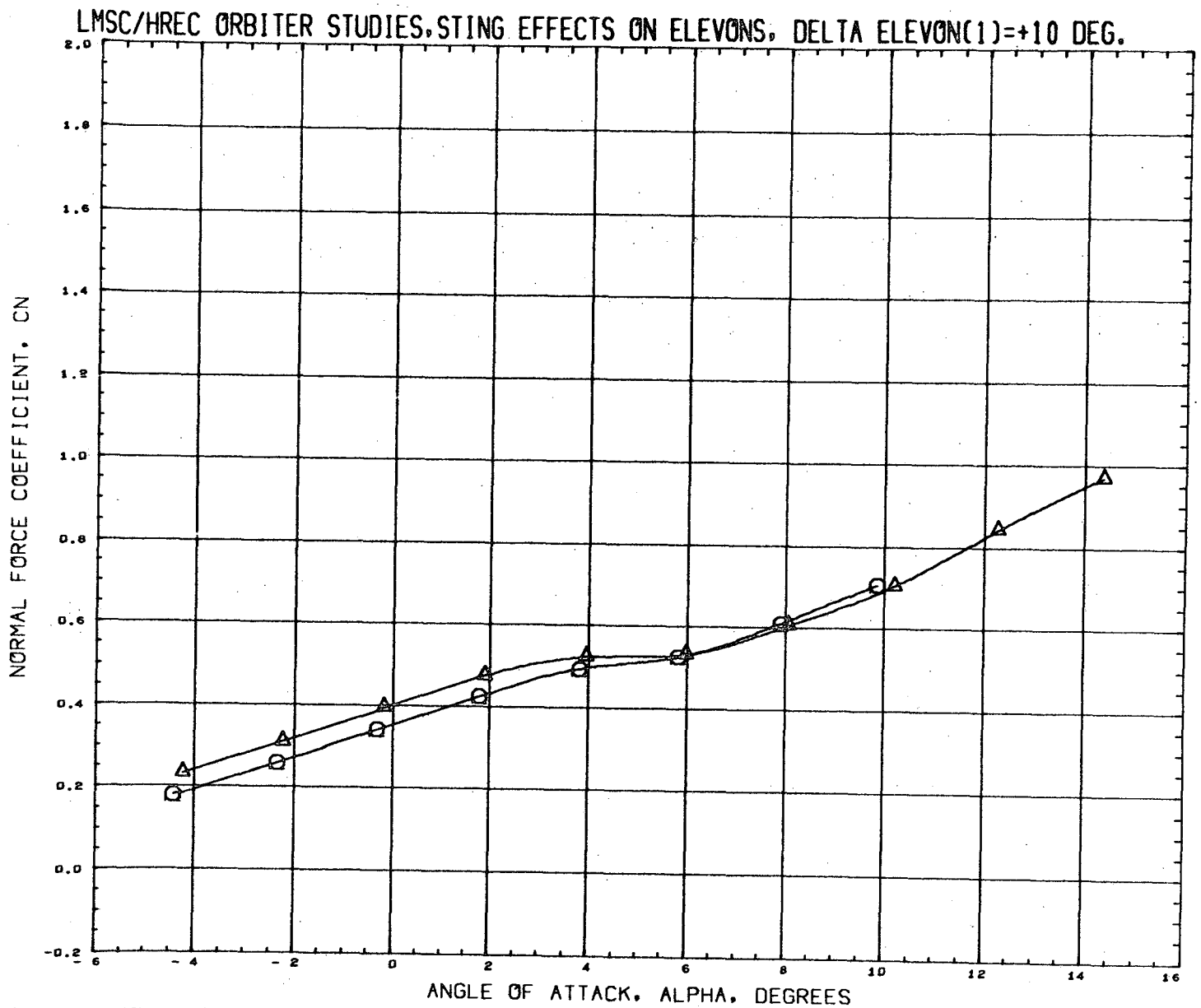


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE



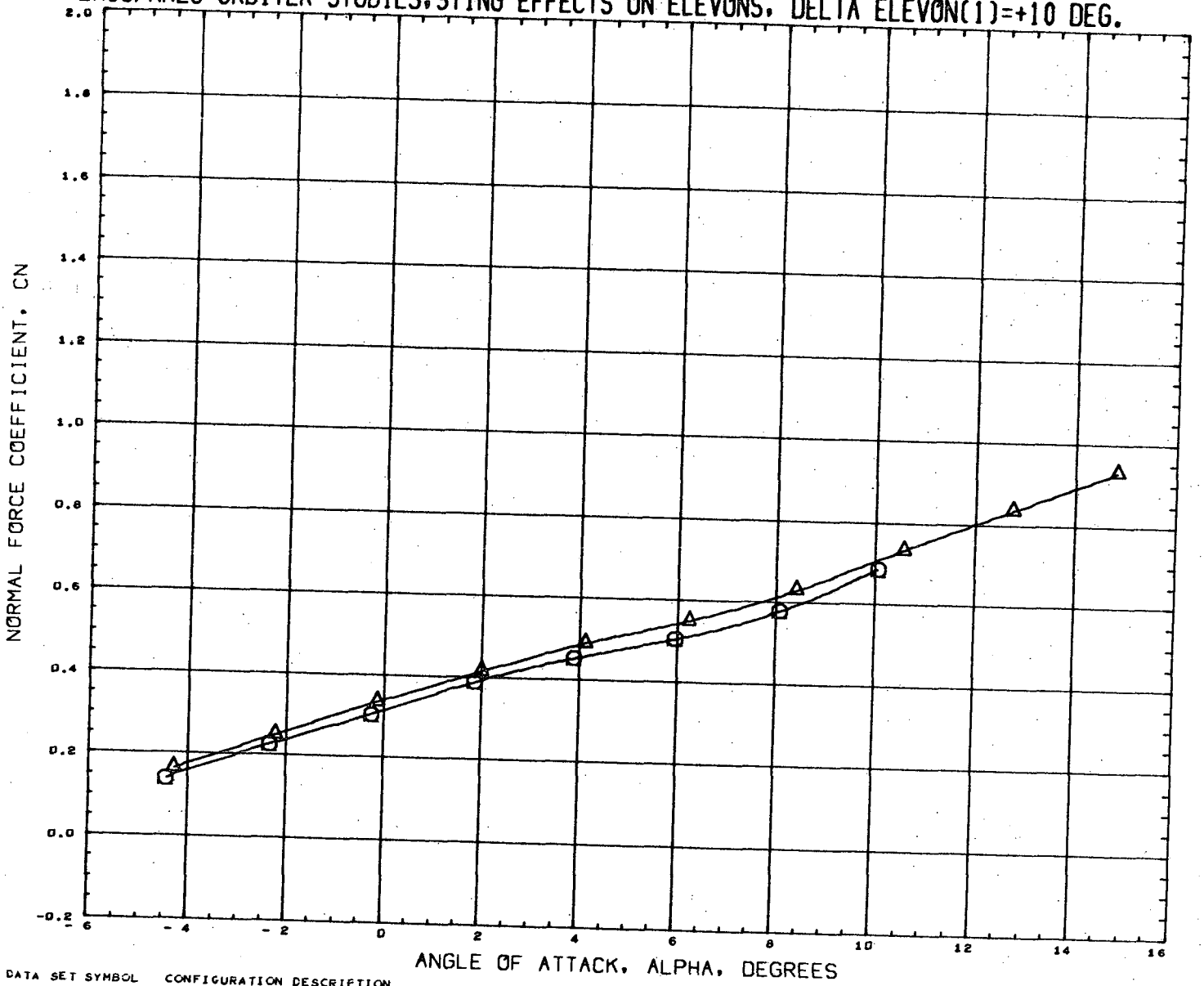
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



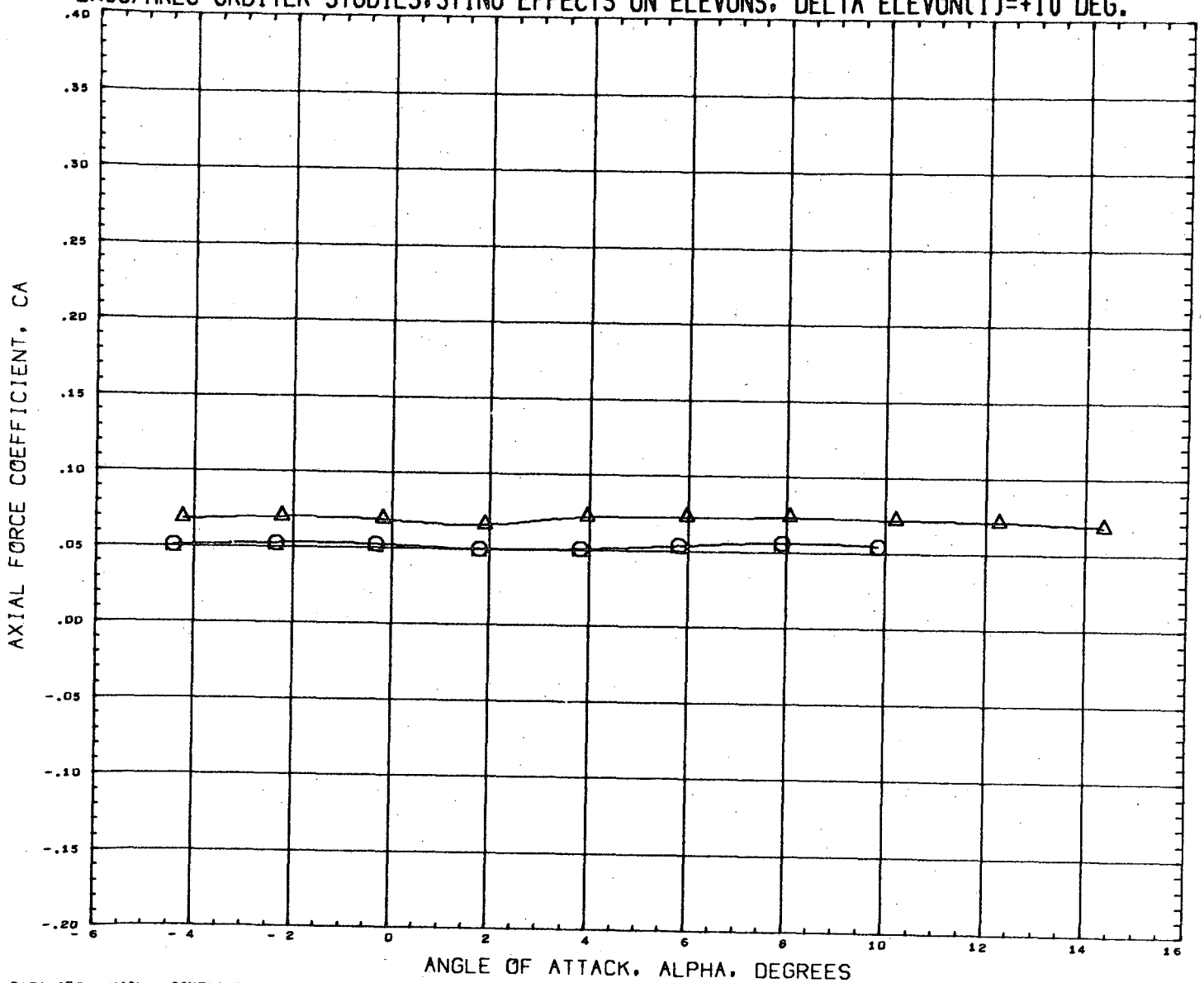
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



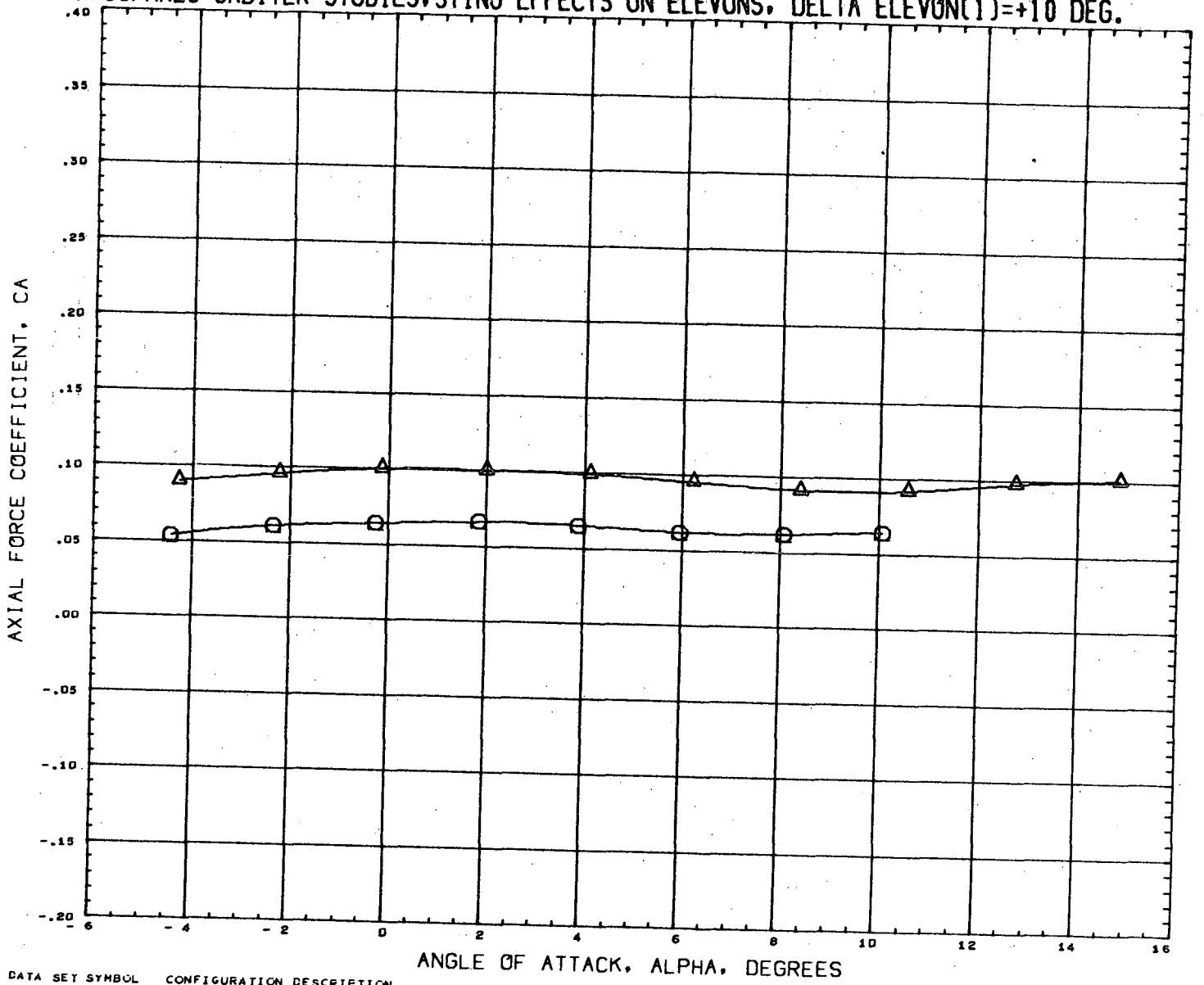
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



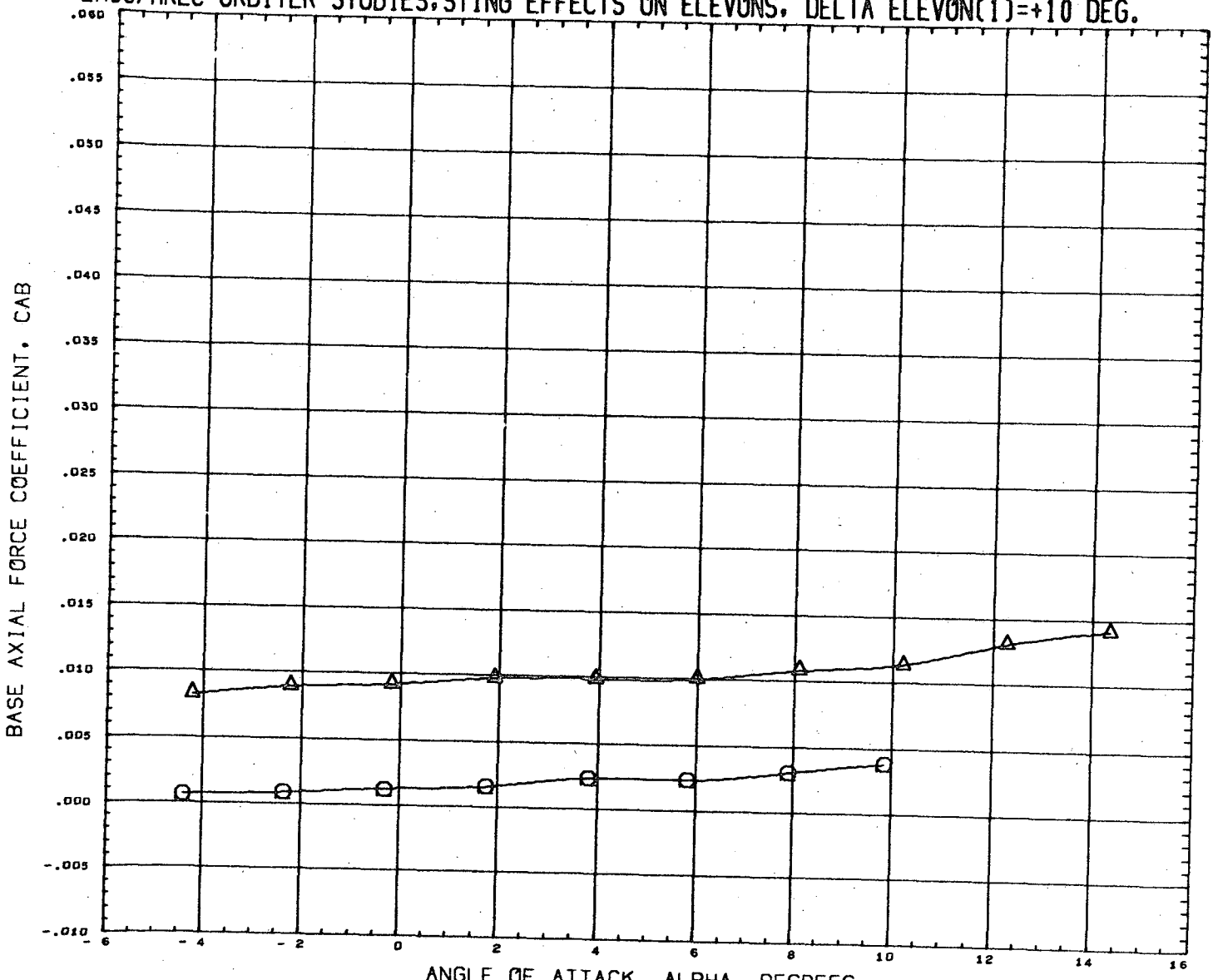
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



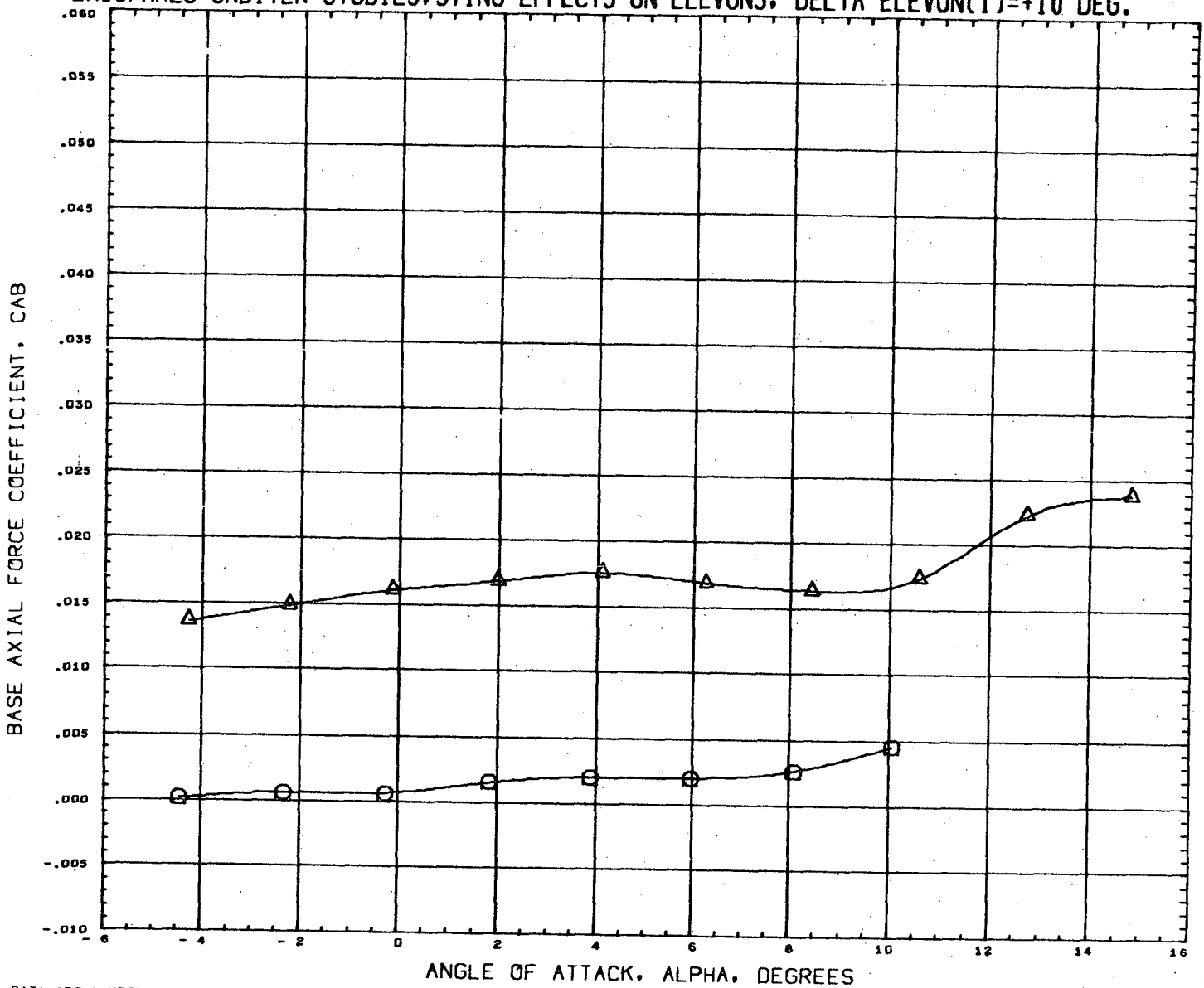
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



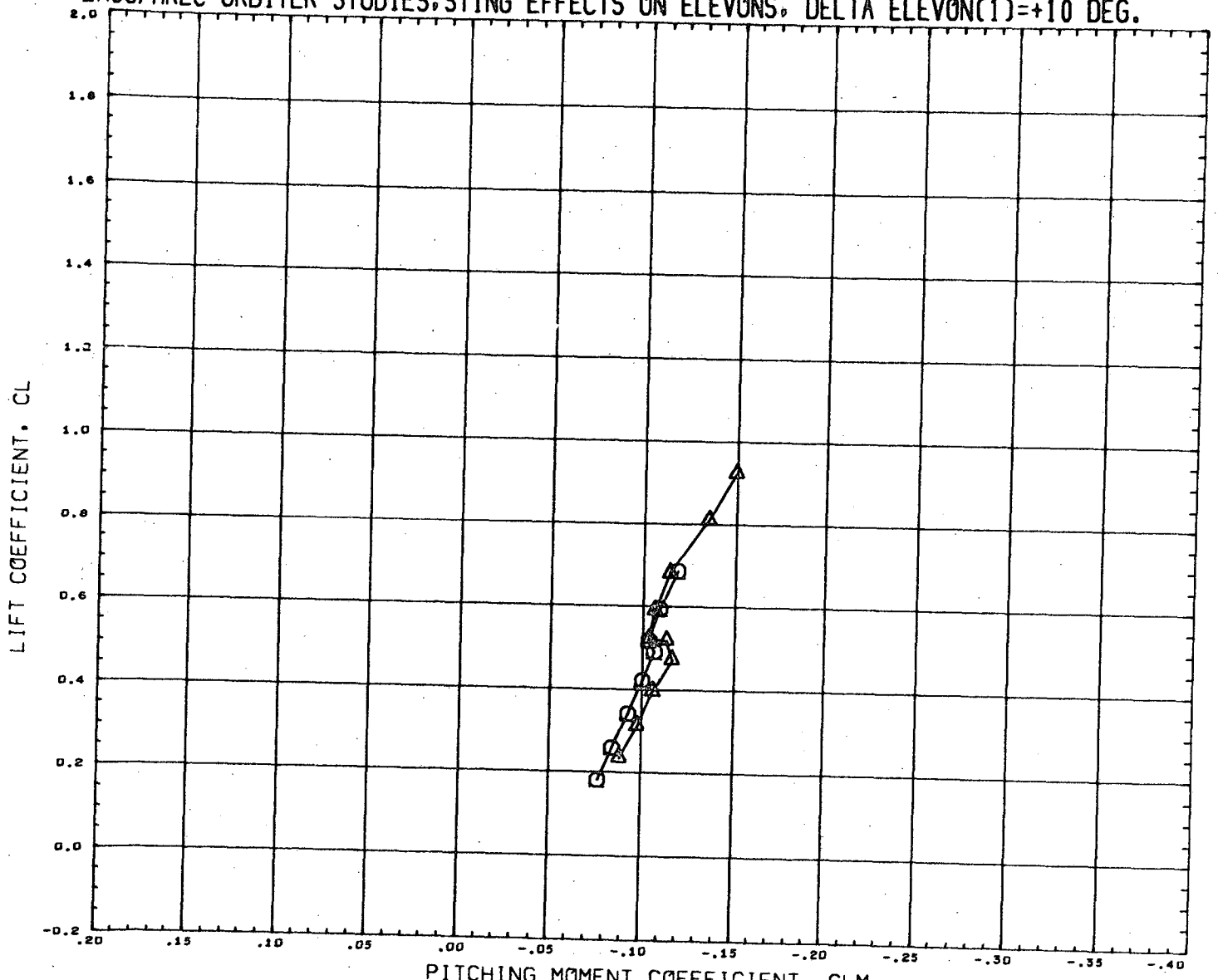
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)=+10 DEG.



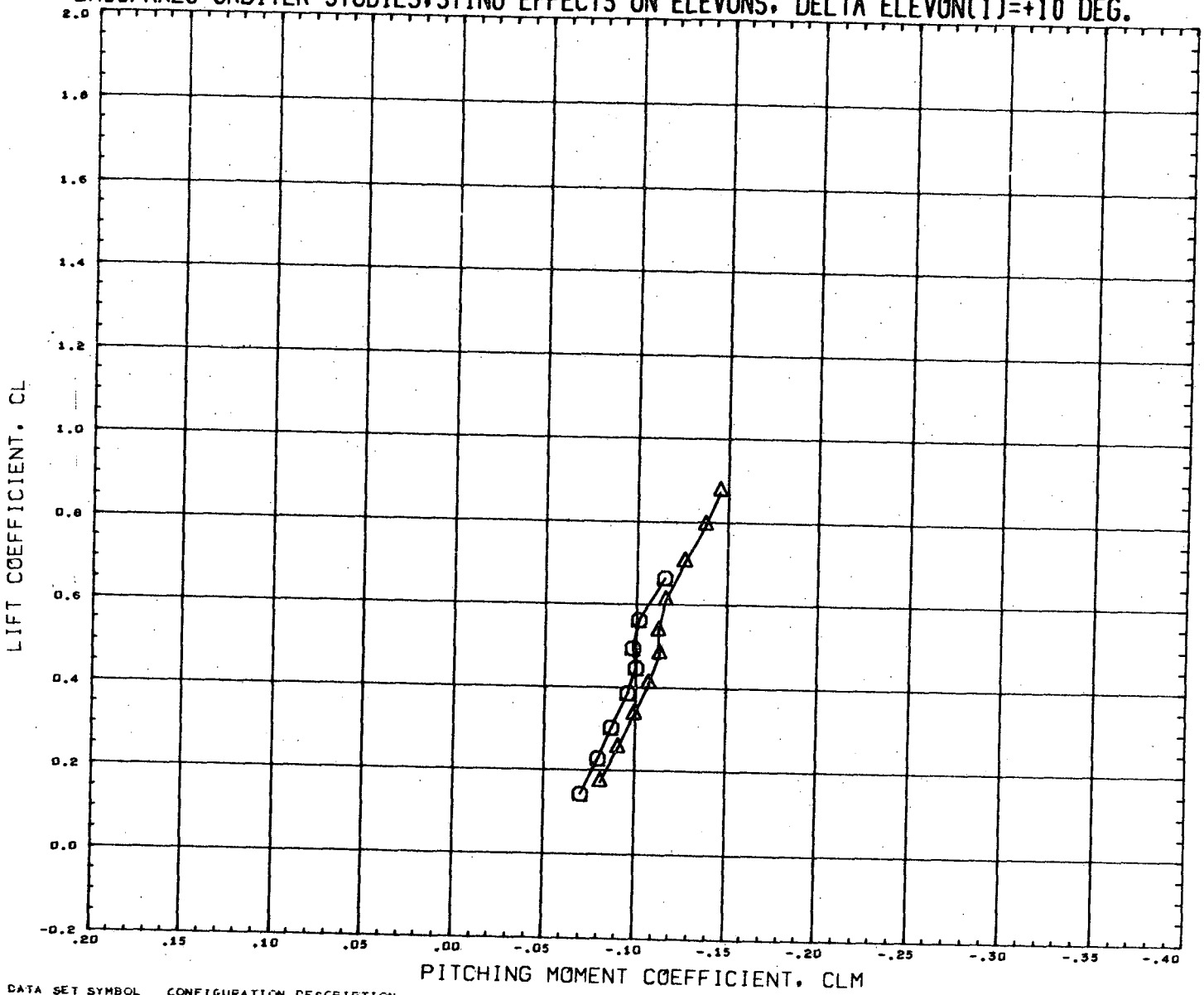
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES.STING EFFECTS ON ELEVONS. DELTA ELEVON(1)=+10 DEG.



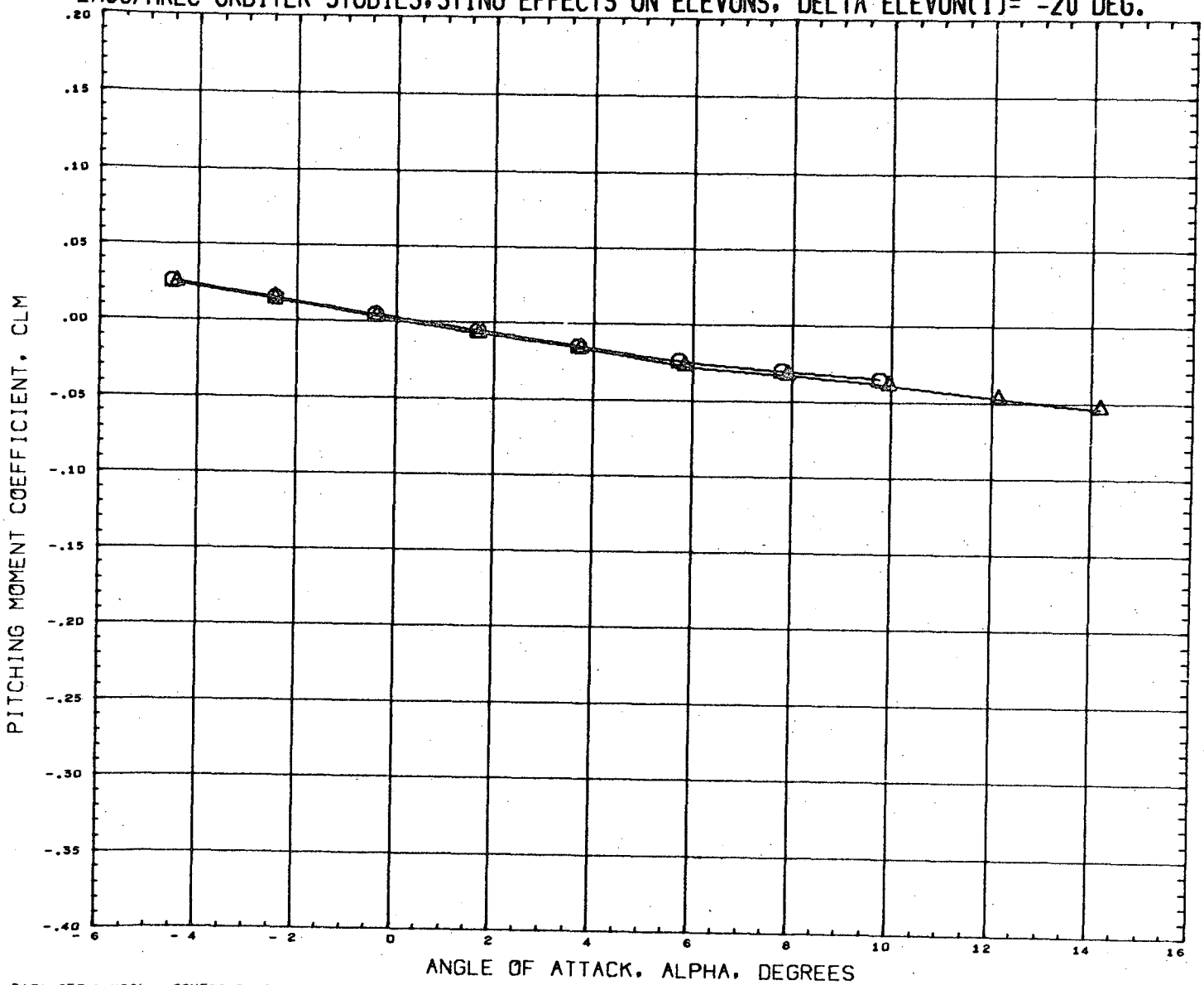
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3602A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000
(E3617E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



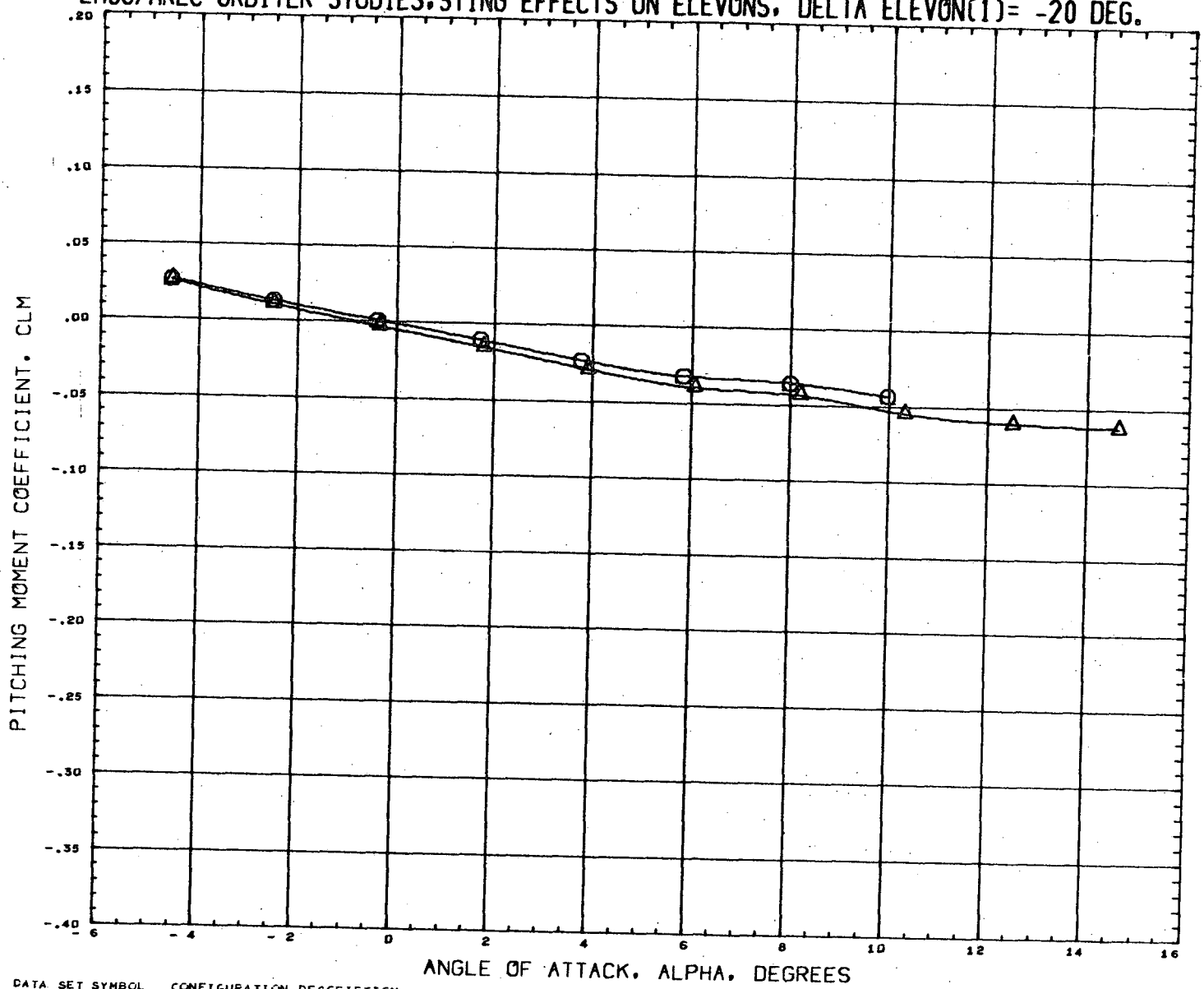
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

60

LMSC/HREC ORBITER STUDIES. STING EFFECTS ON ELEVONS. DELTA ELEVON(1)= -20 DEG.



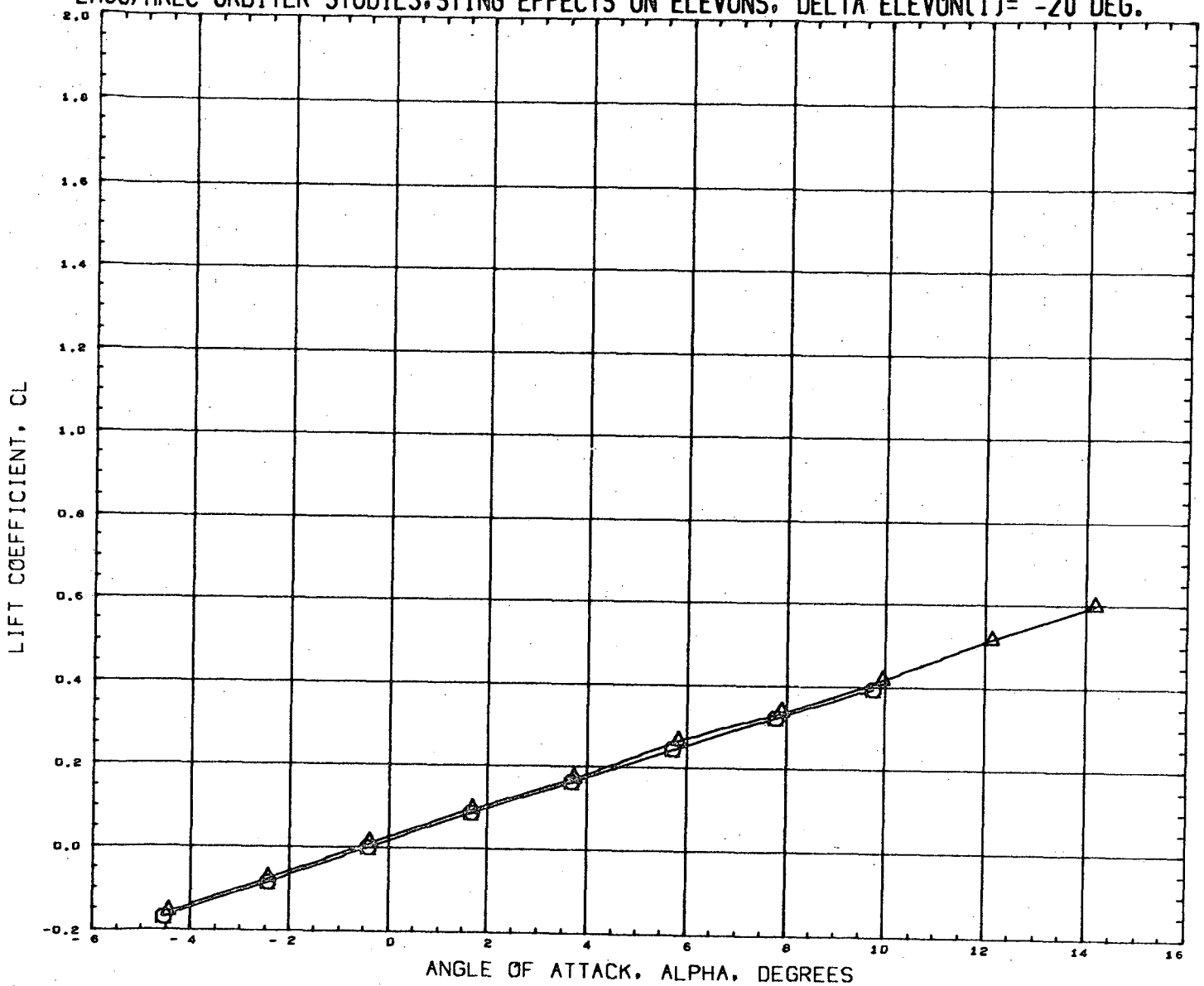
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.

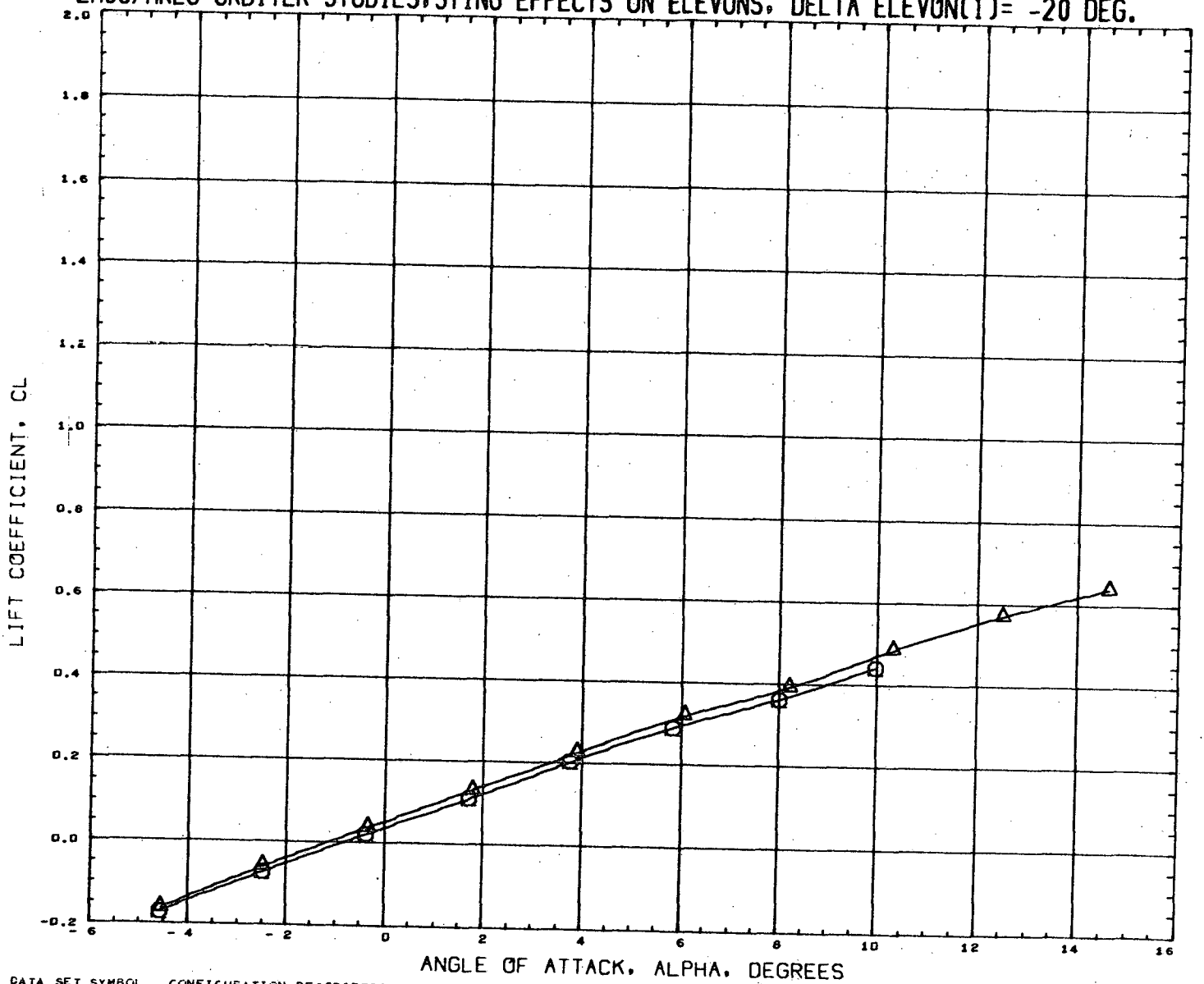


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



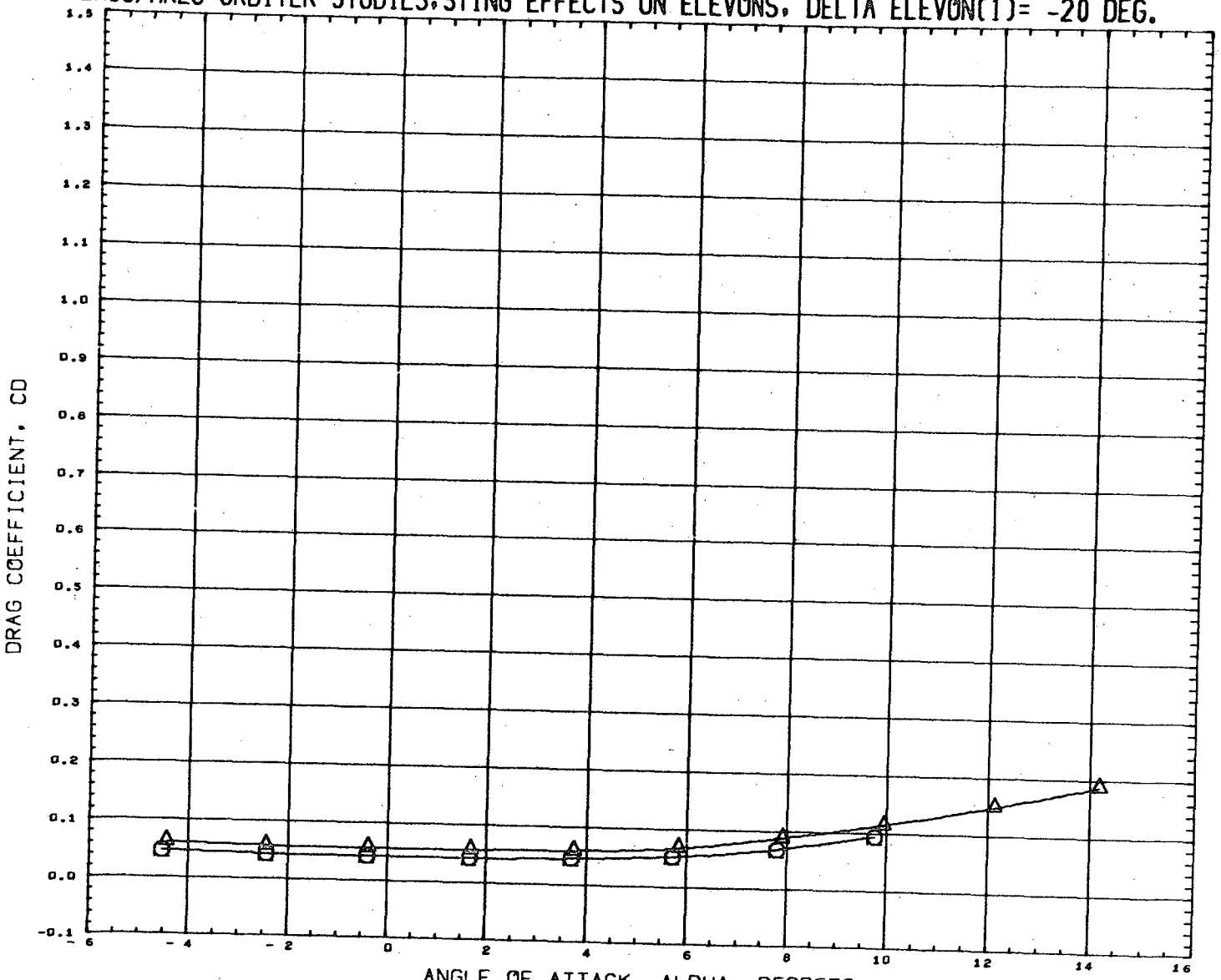
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



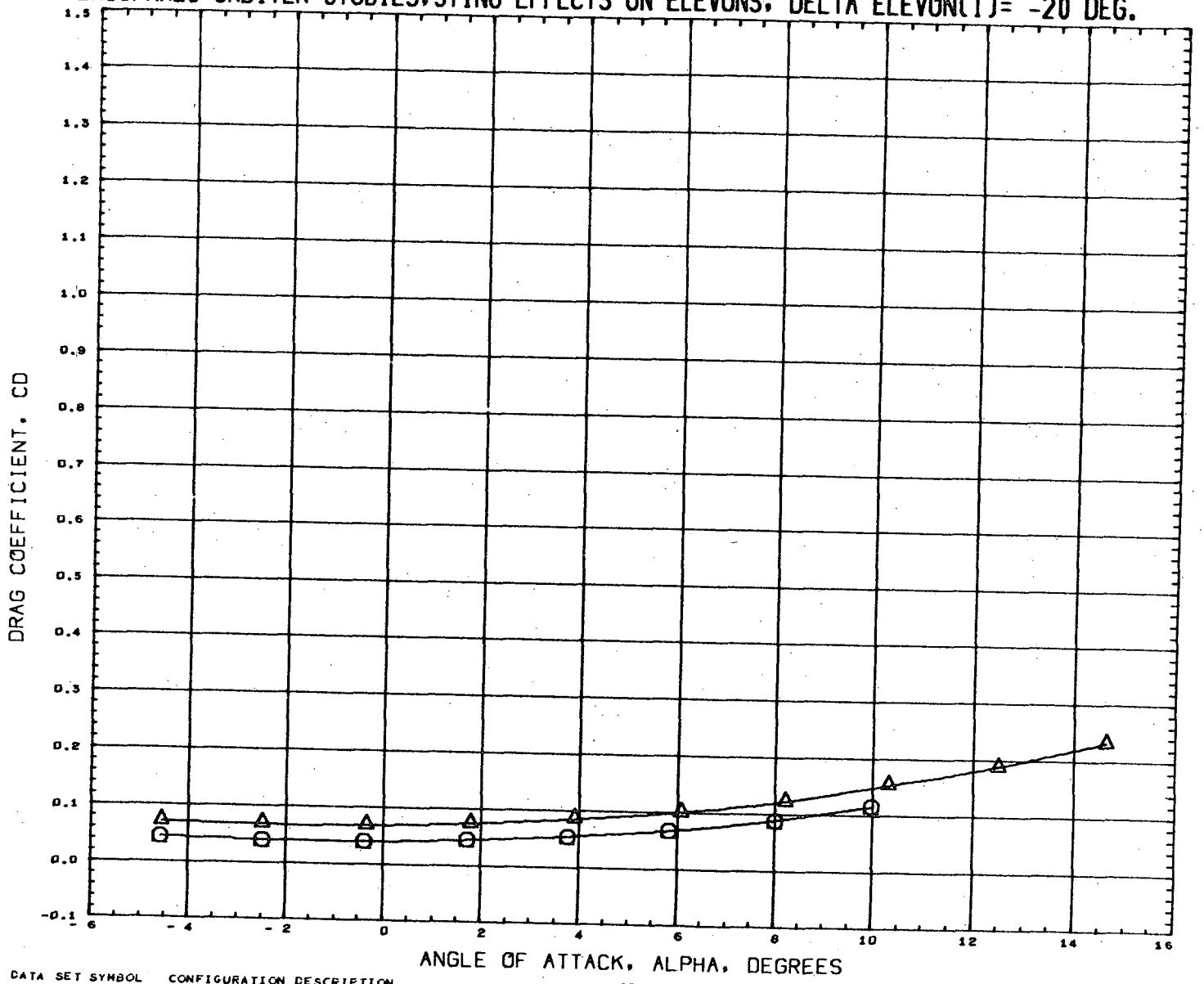
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(C3604A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



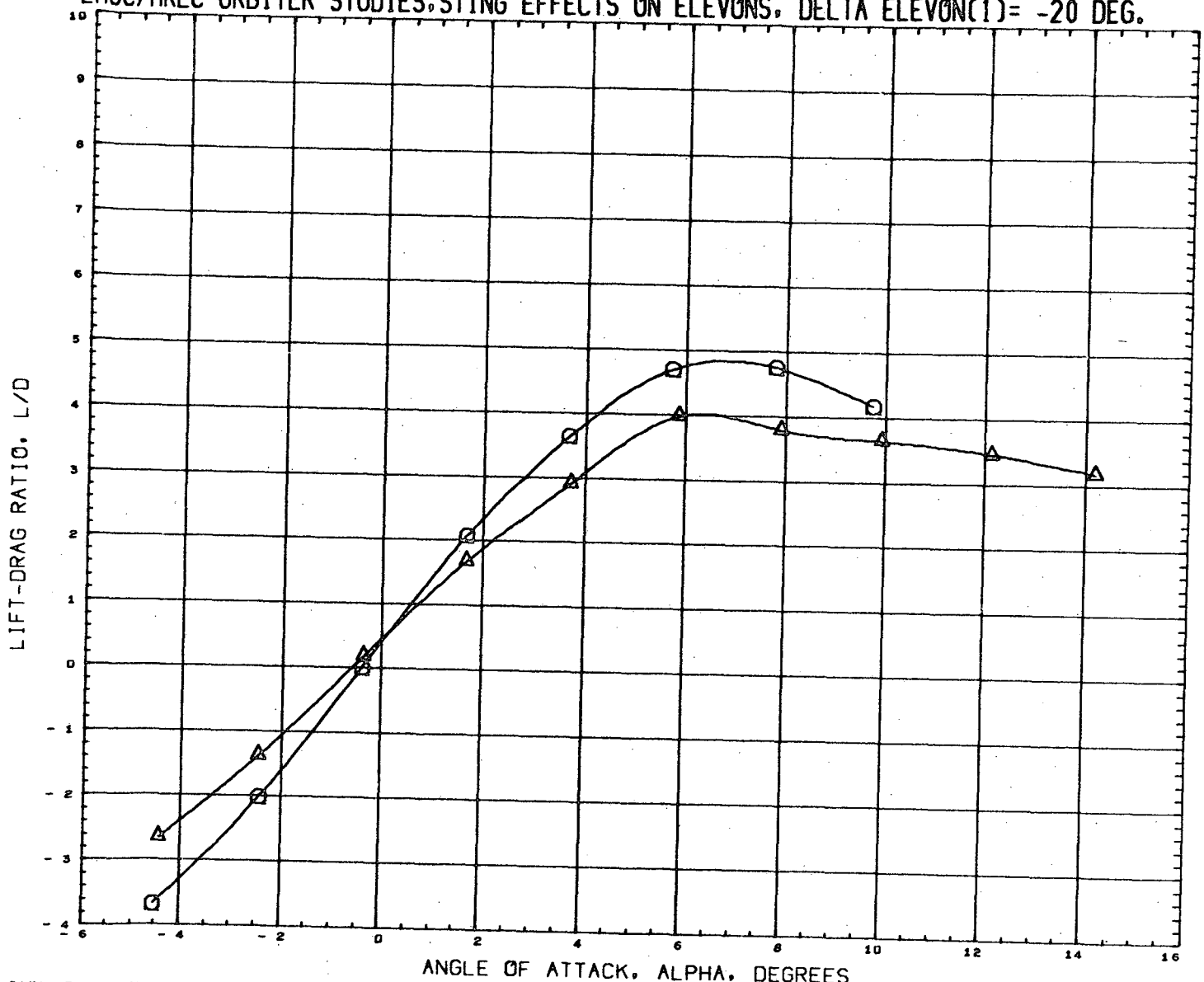
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.

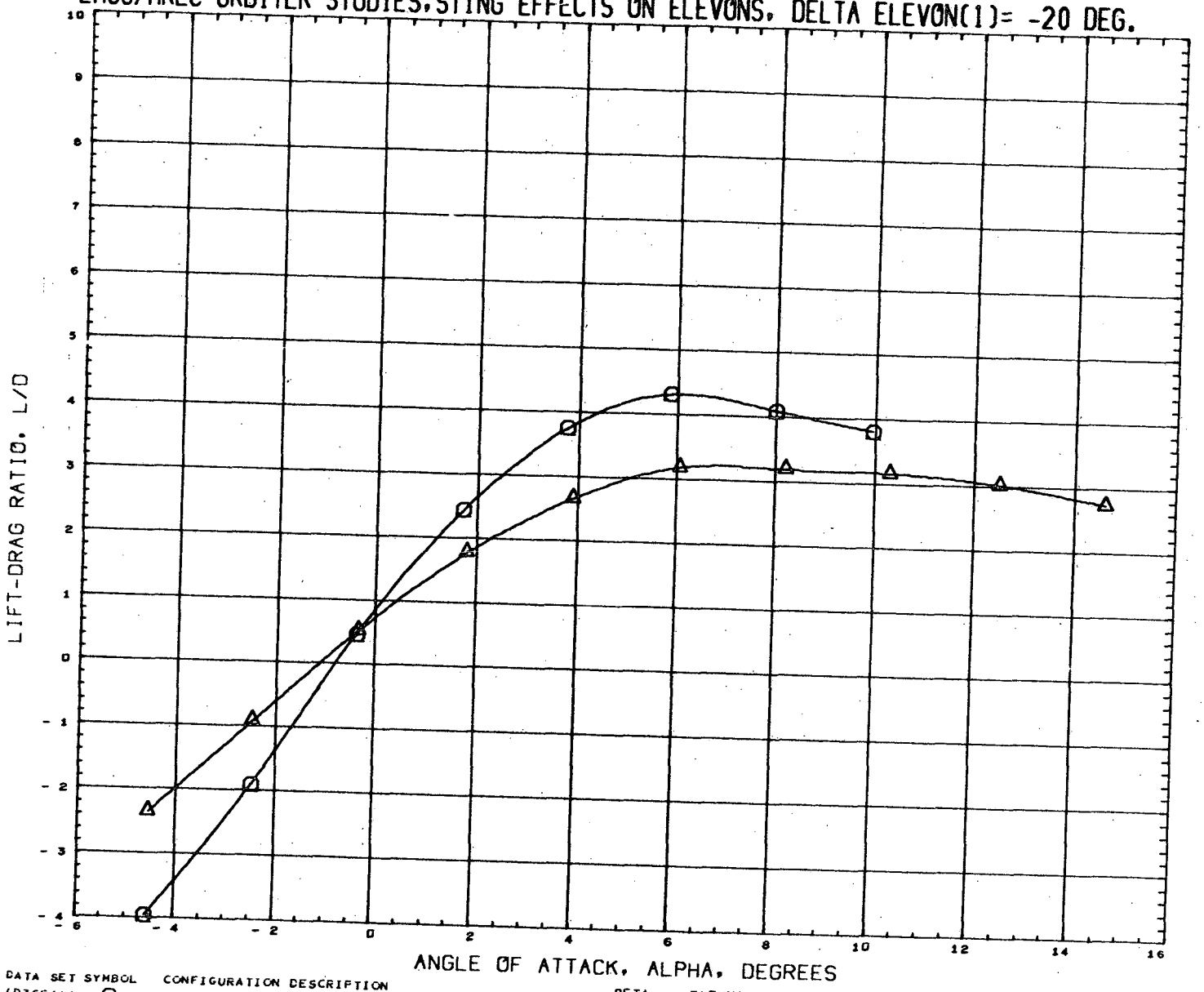


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



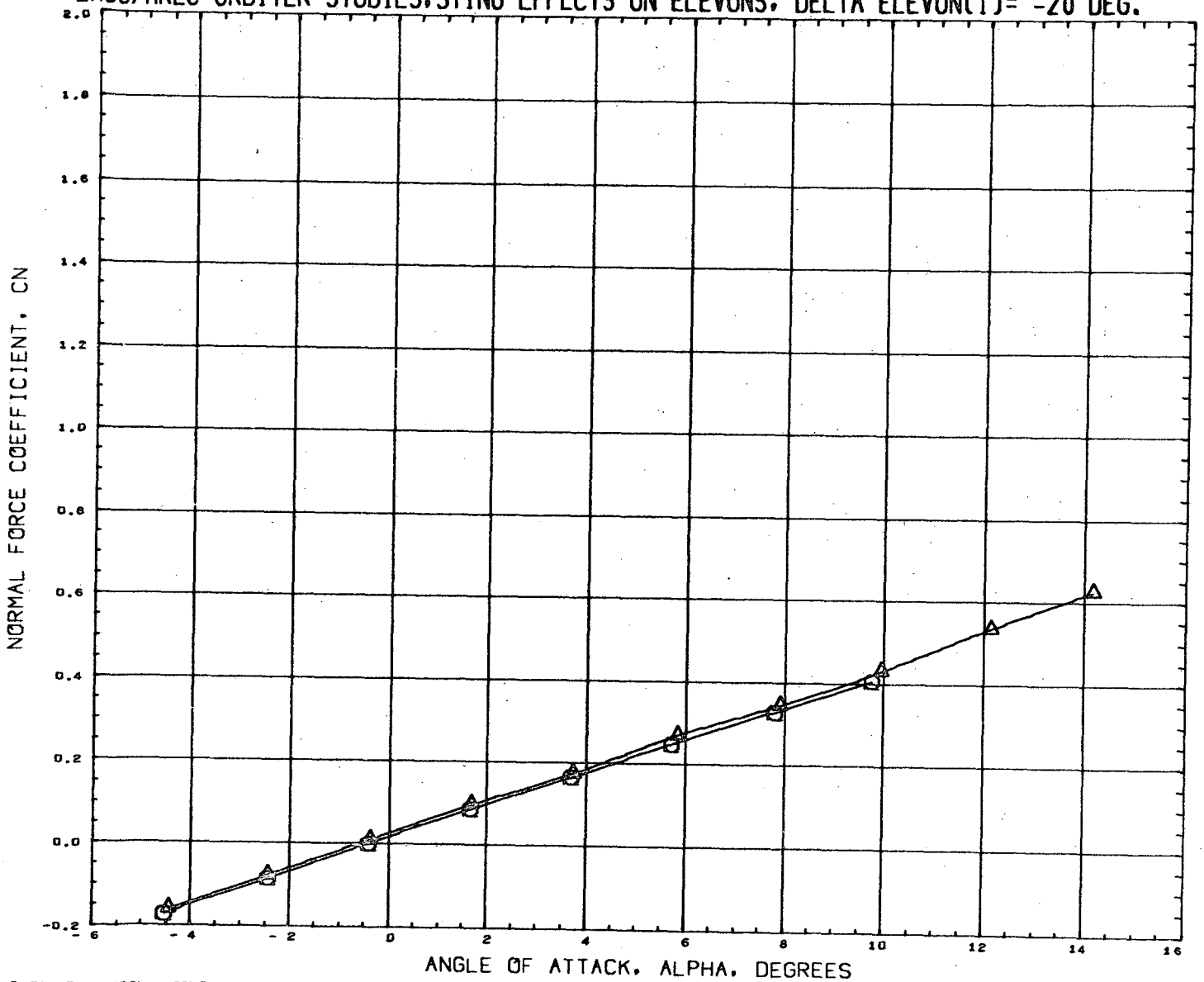
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.

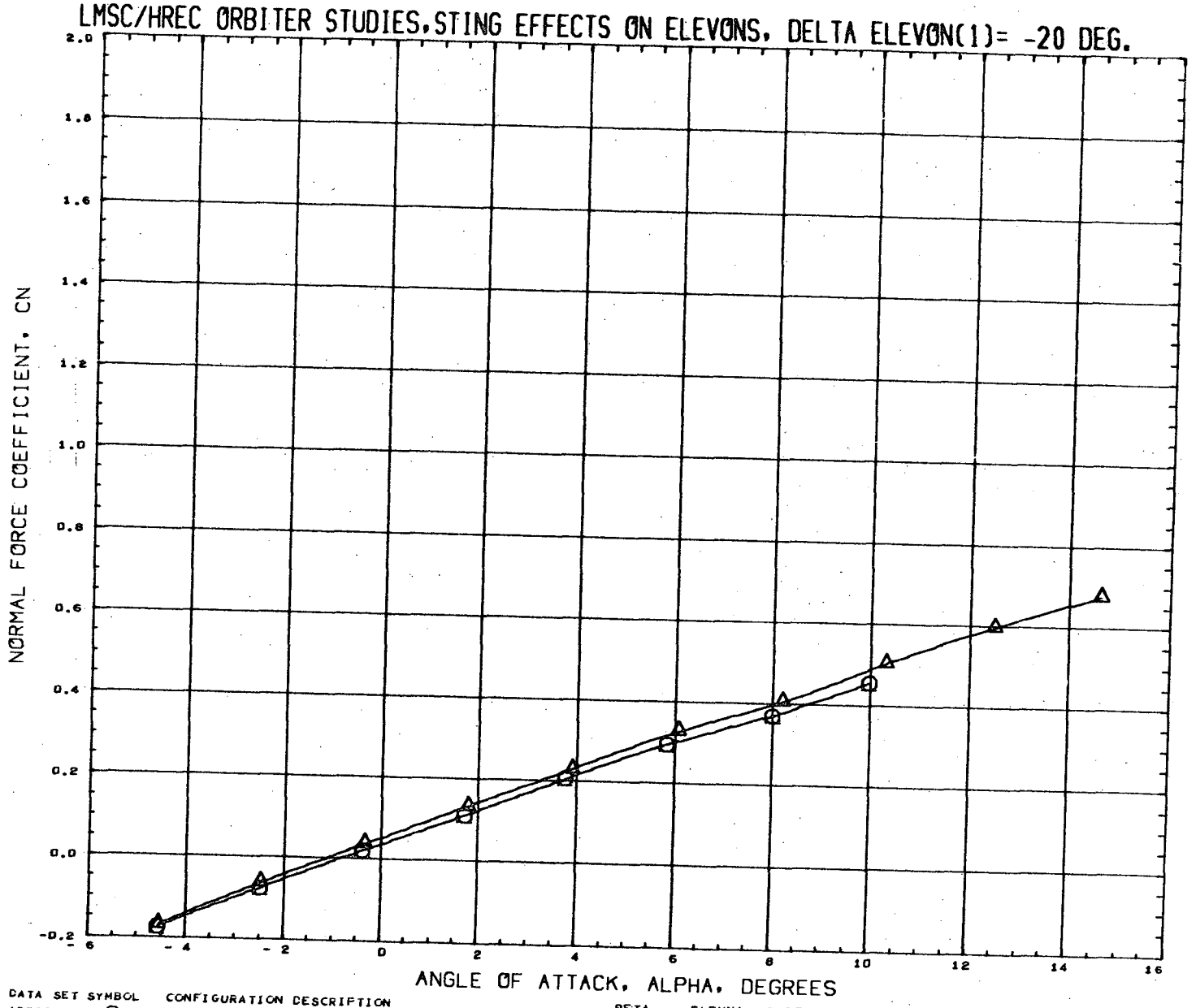


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE



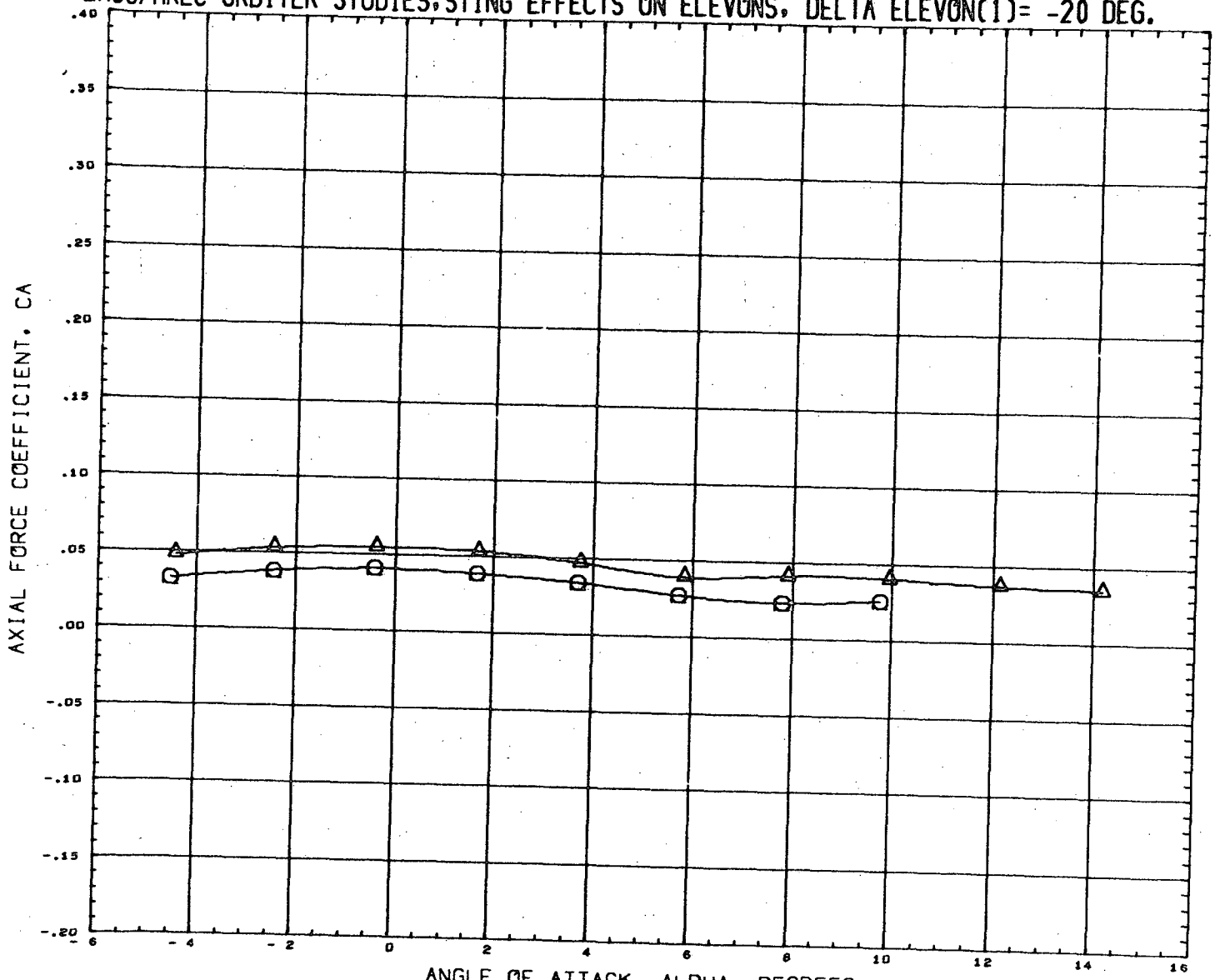
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



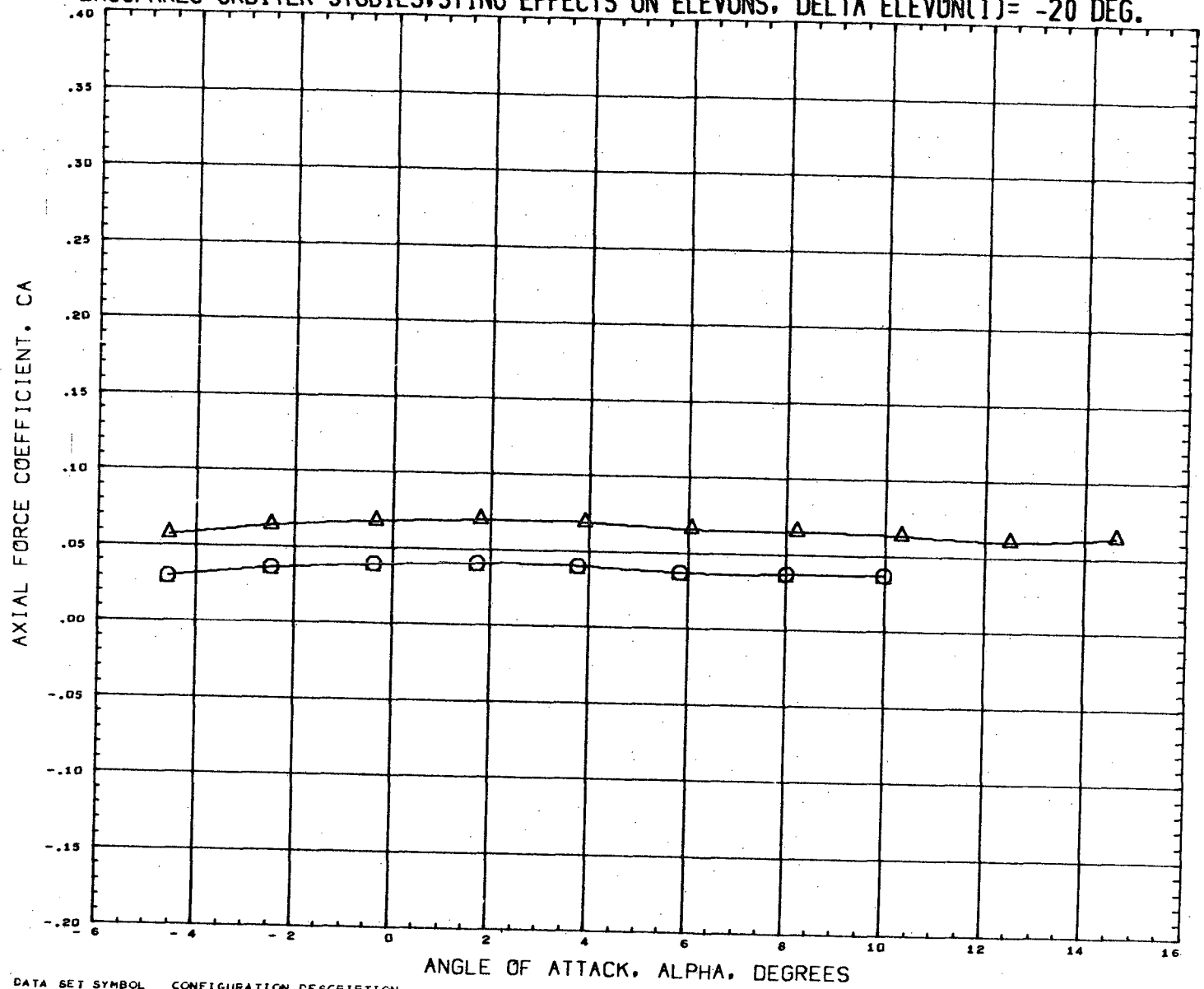
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



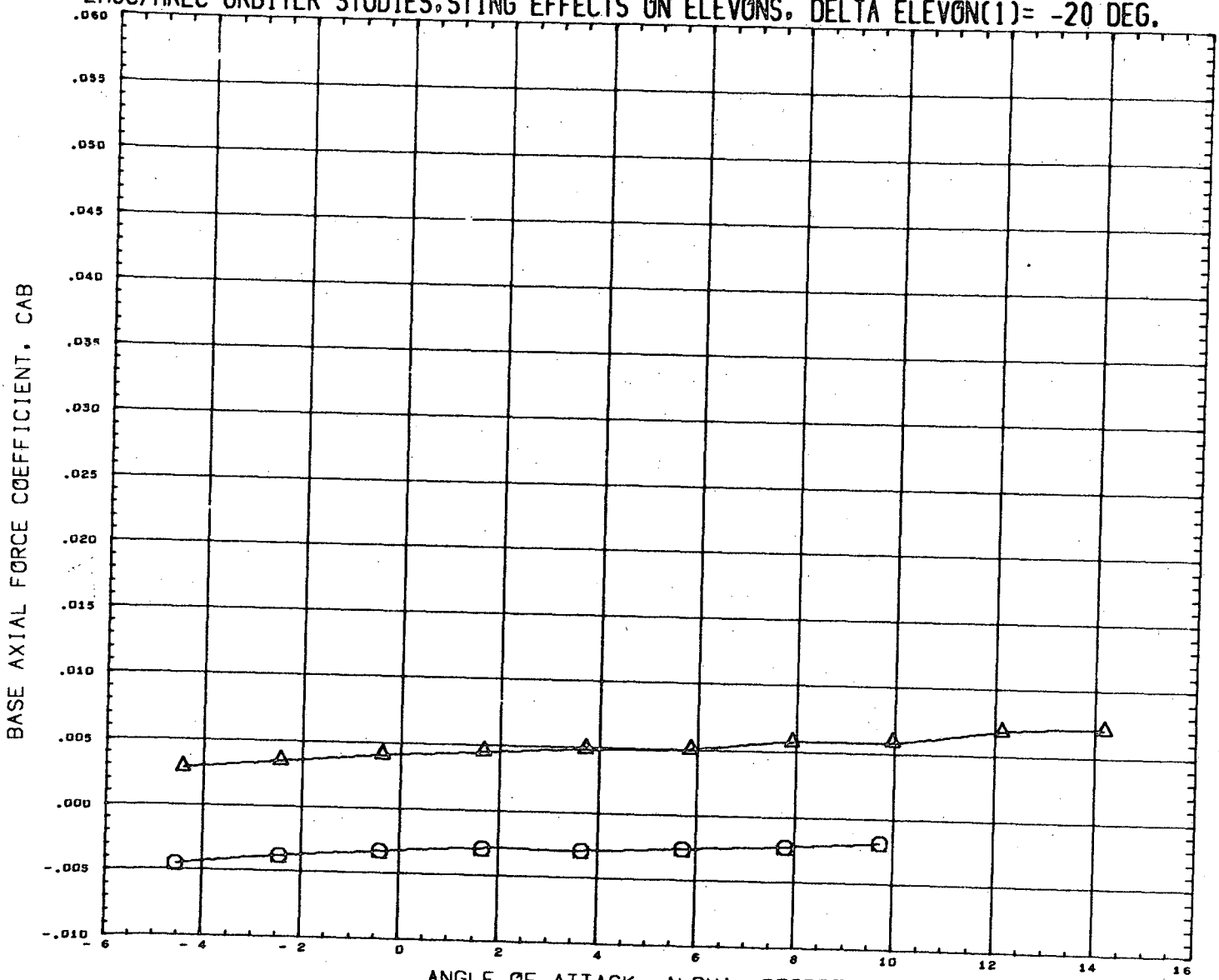
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



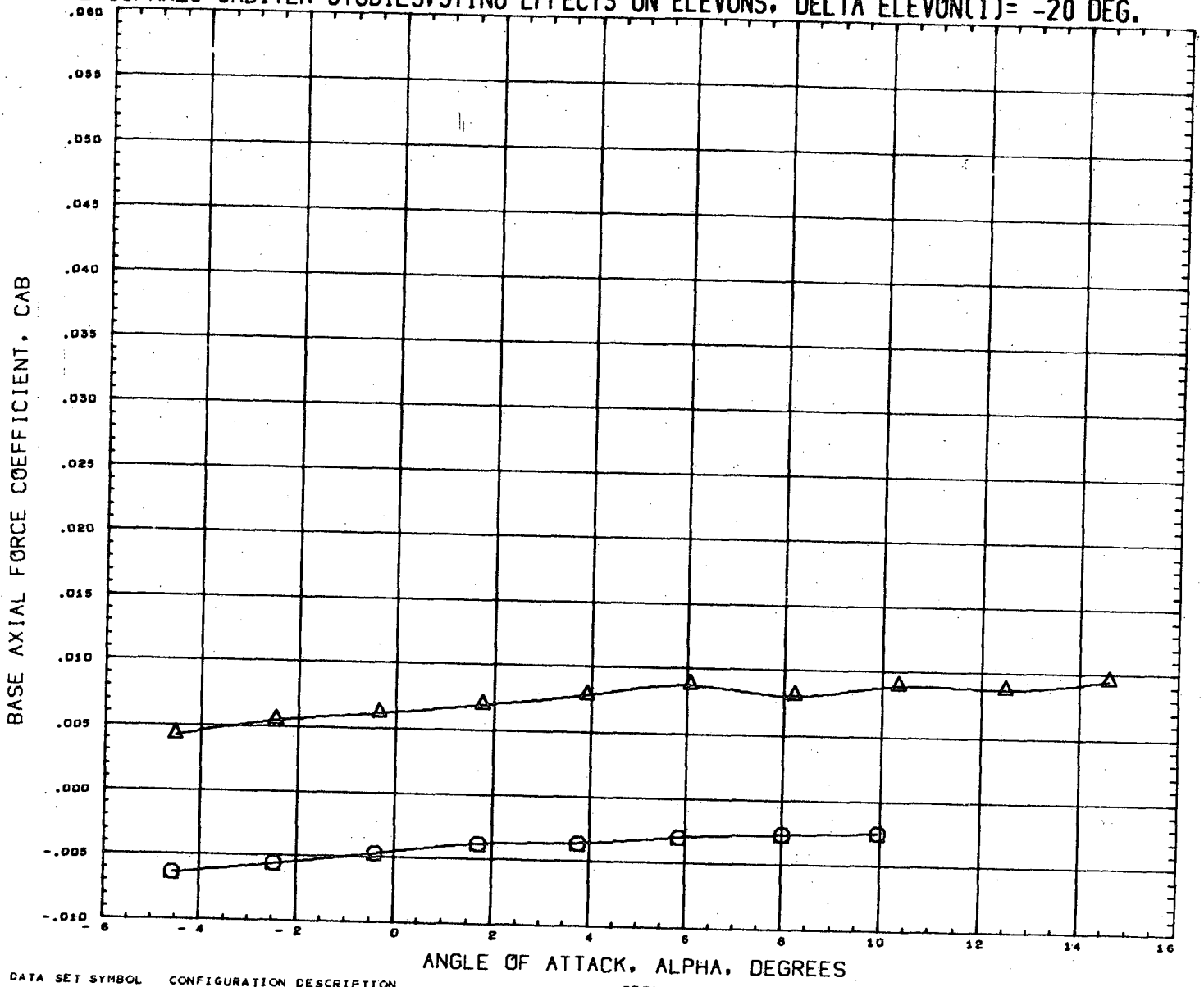
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



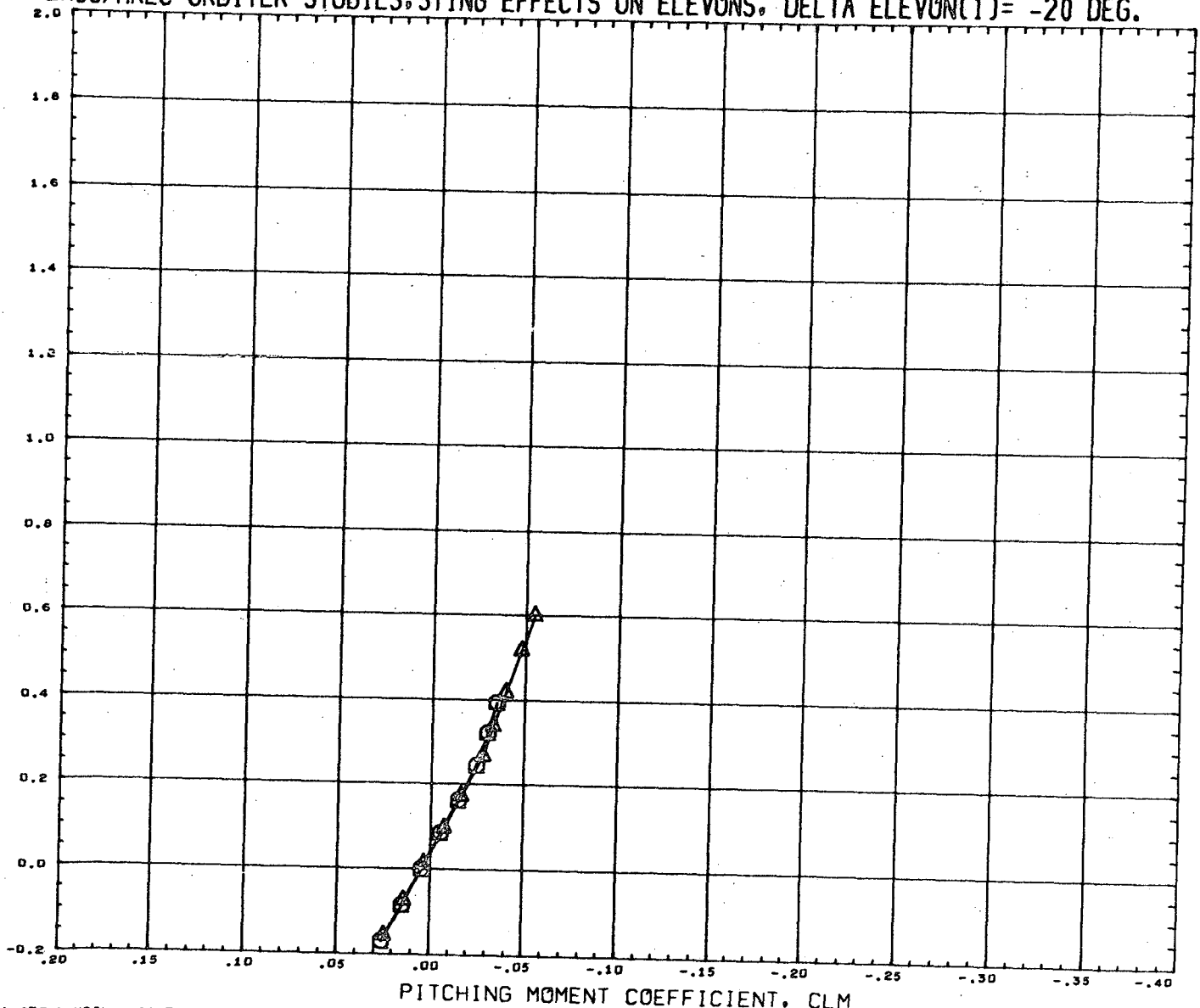
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.



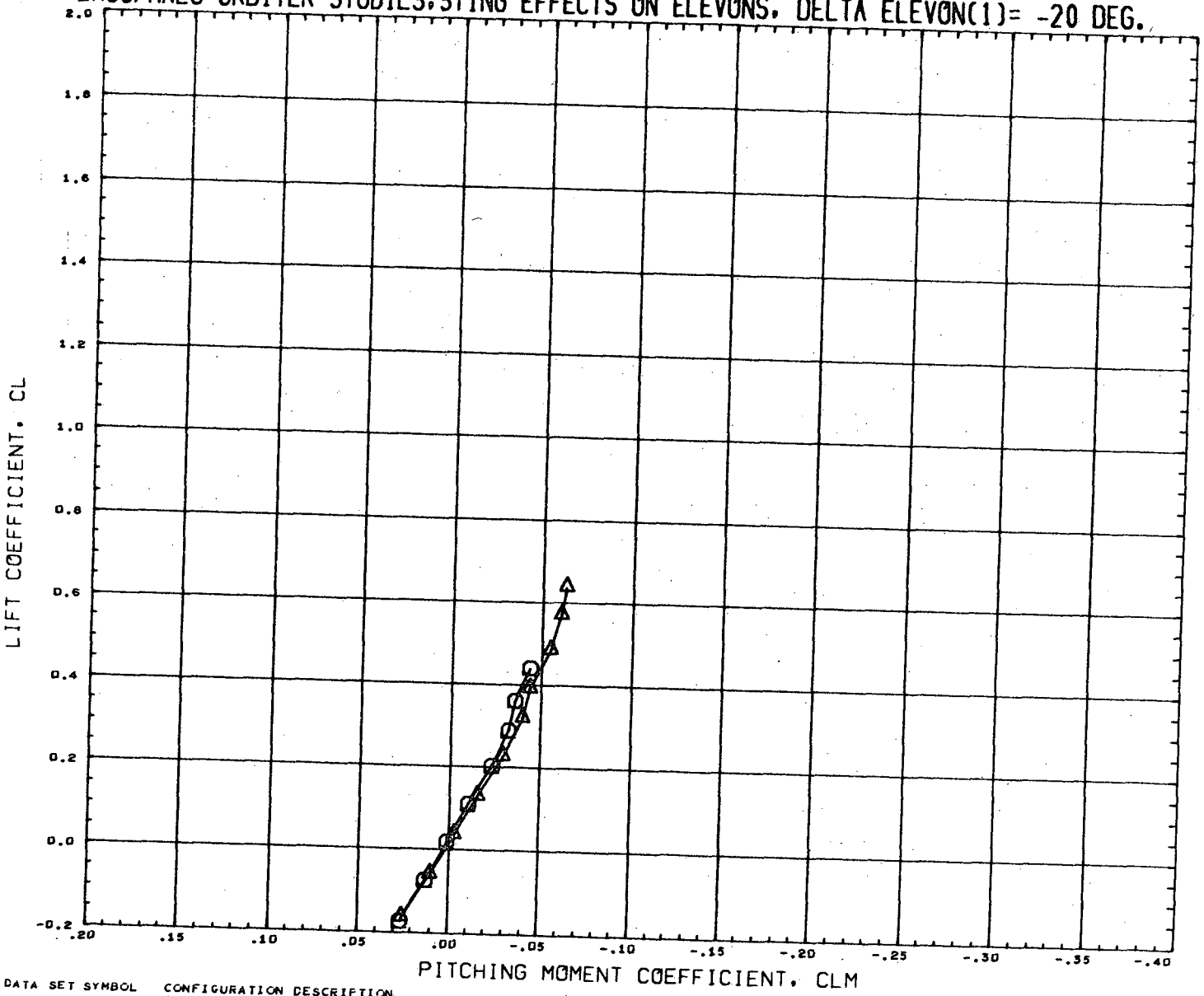
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.594

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON ELEVONS, DELTA ELEVON(1)= -20 DEG.

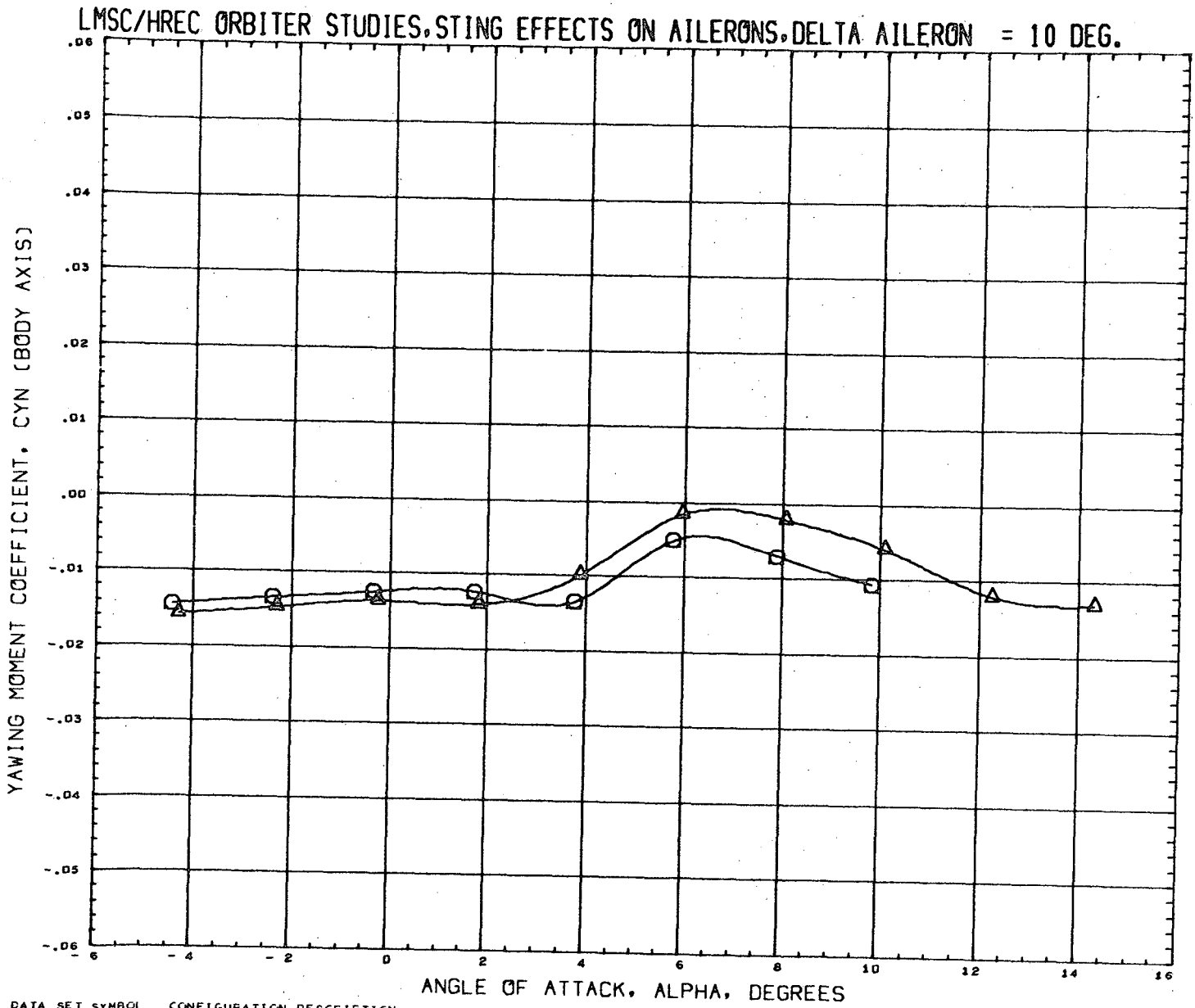


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3604A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(E3619E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

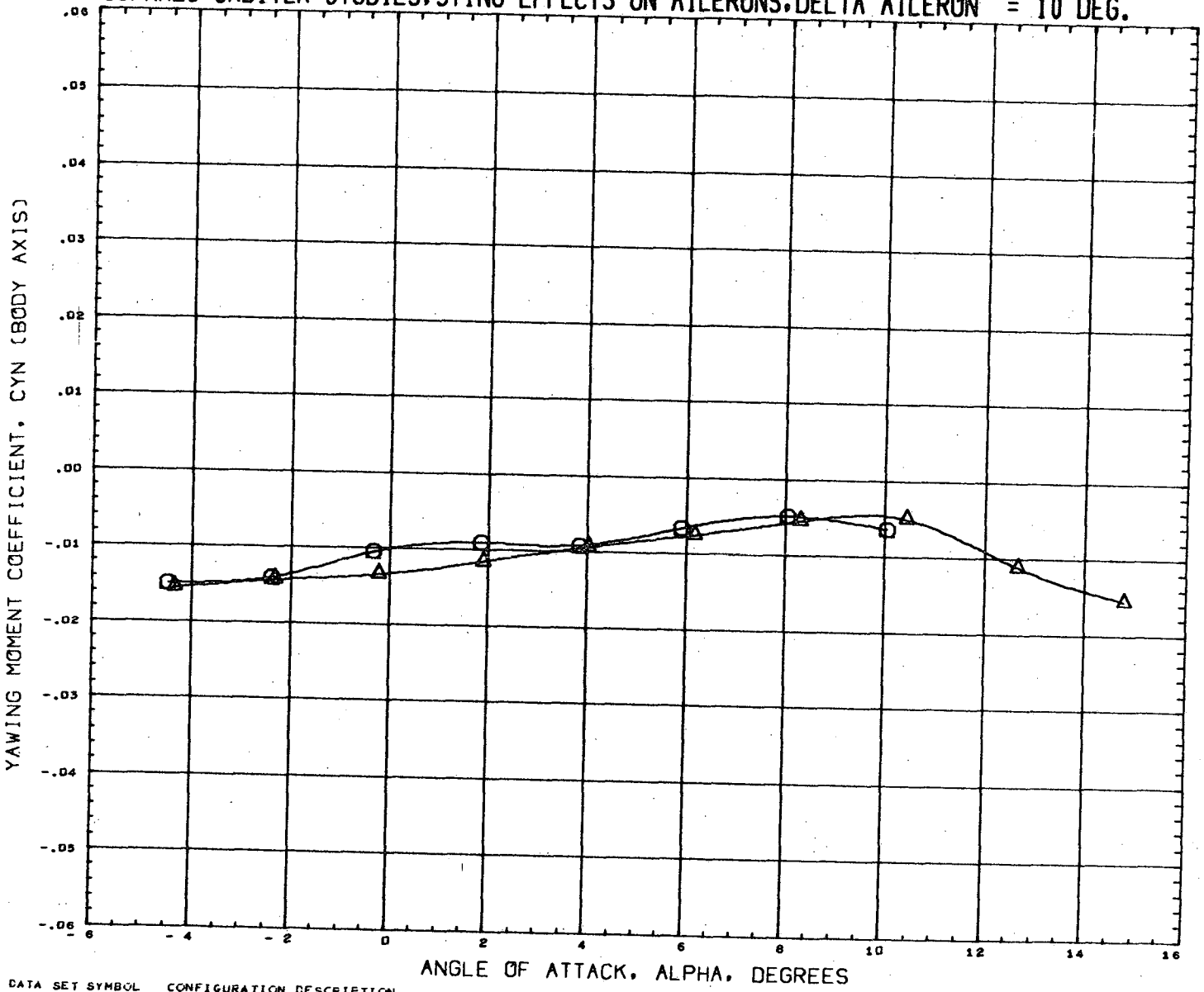


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3606A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 10 DEG.

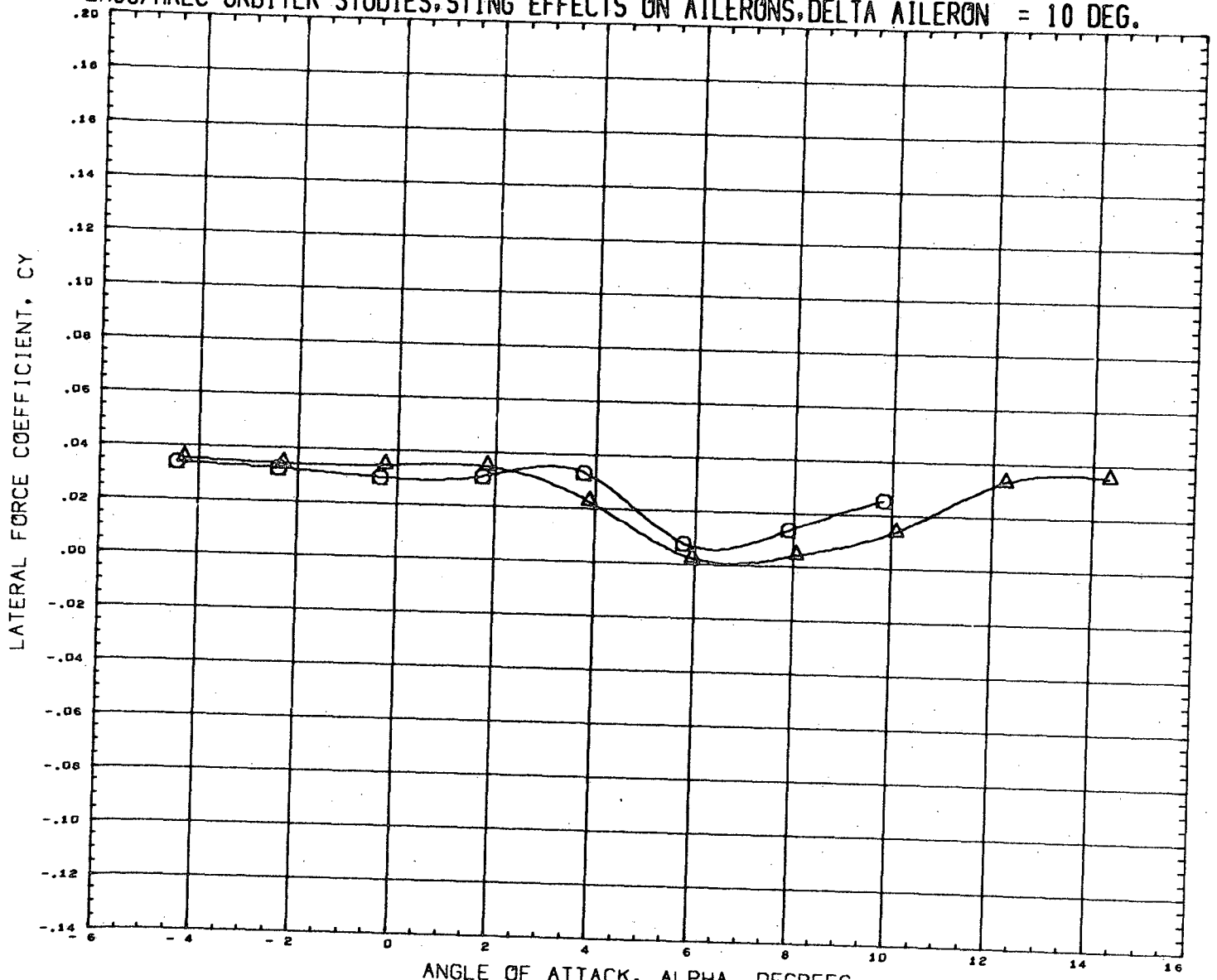


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3606A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.897

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 10 DEG.

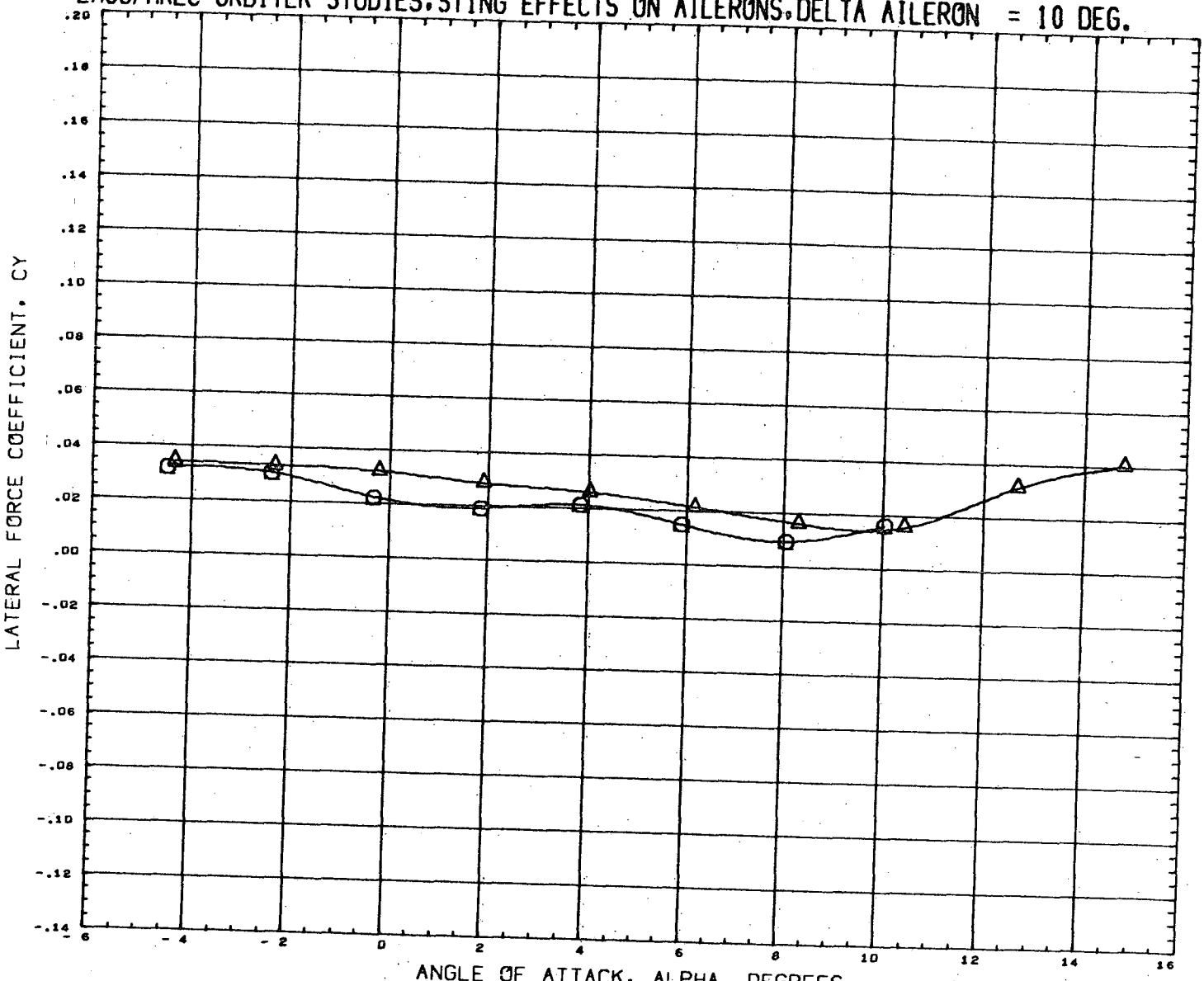


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3606A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

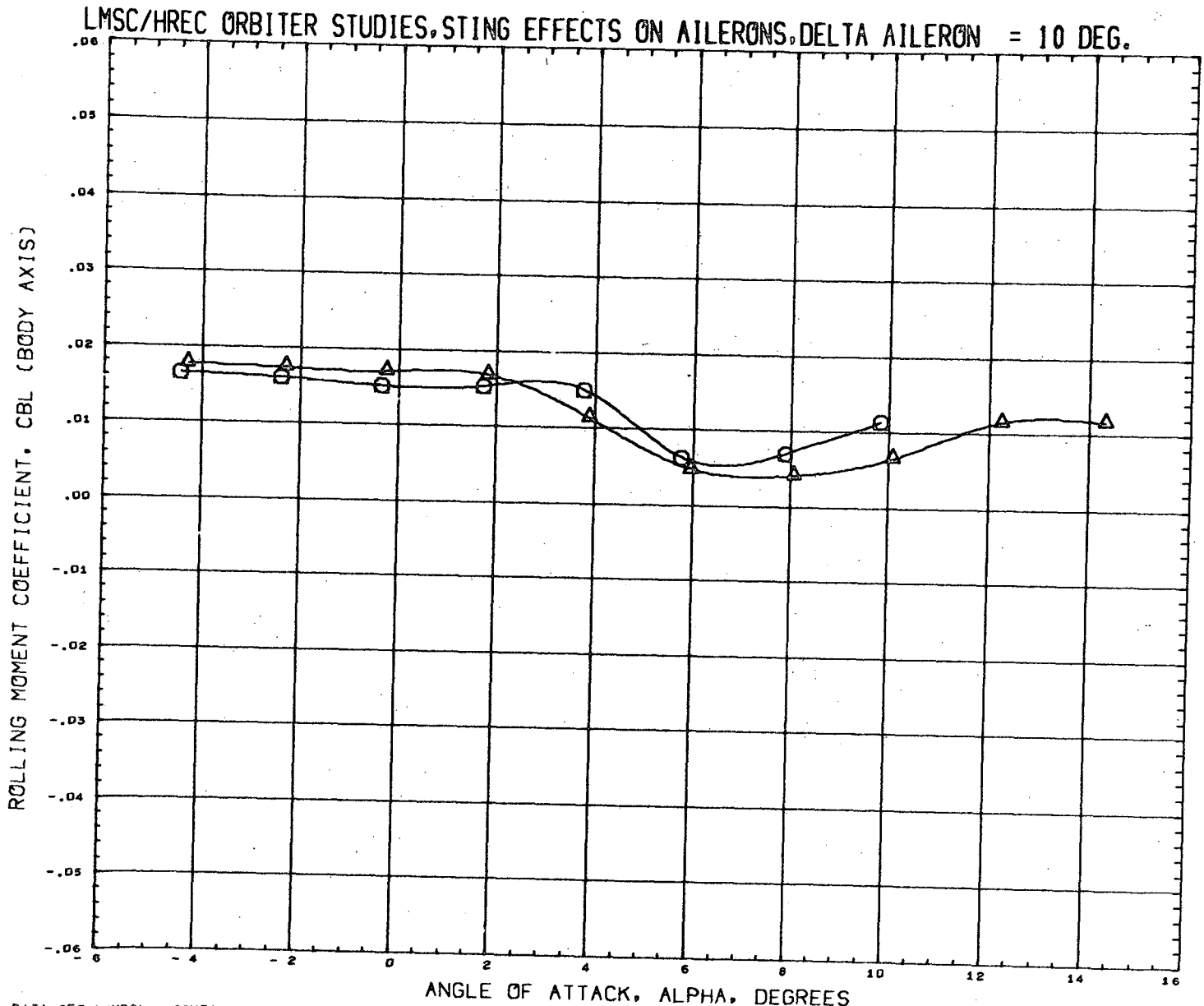
LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 10 DEG.



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3606A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.897

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

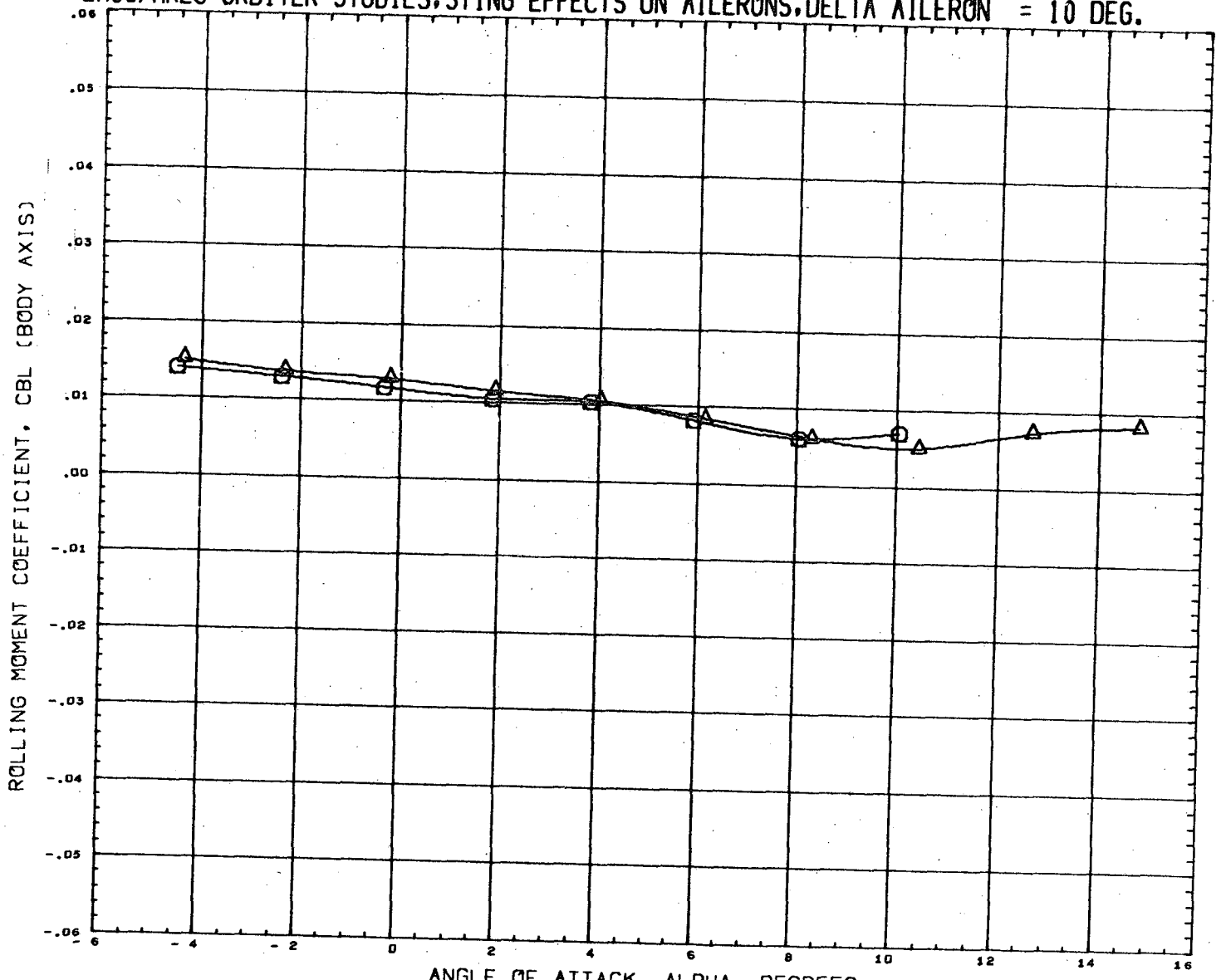


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3606A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.596

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 10 DEG.

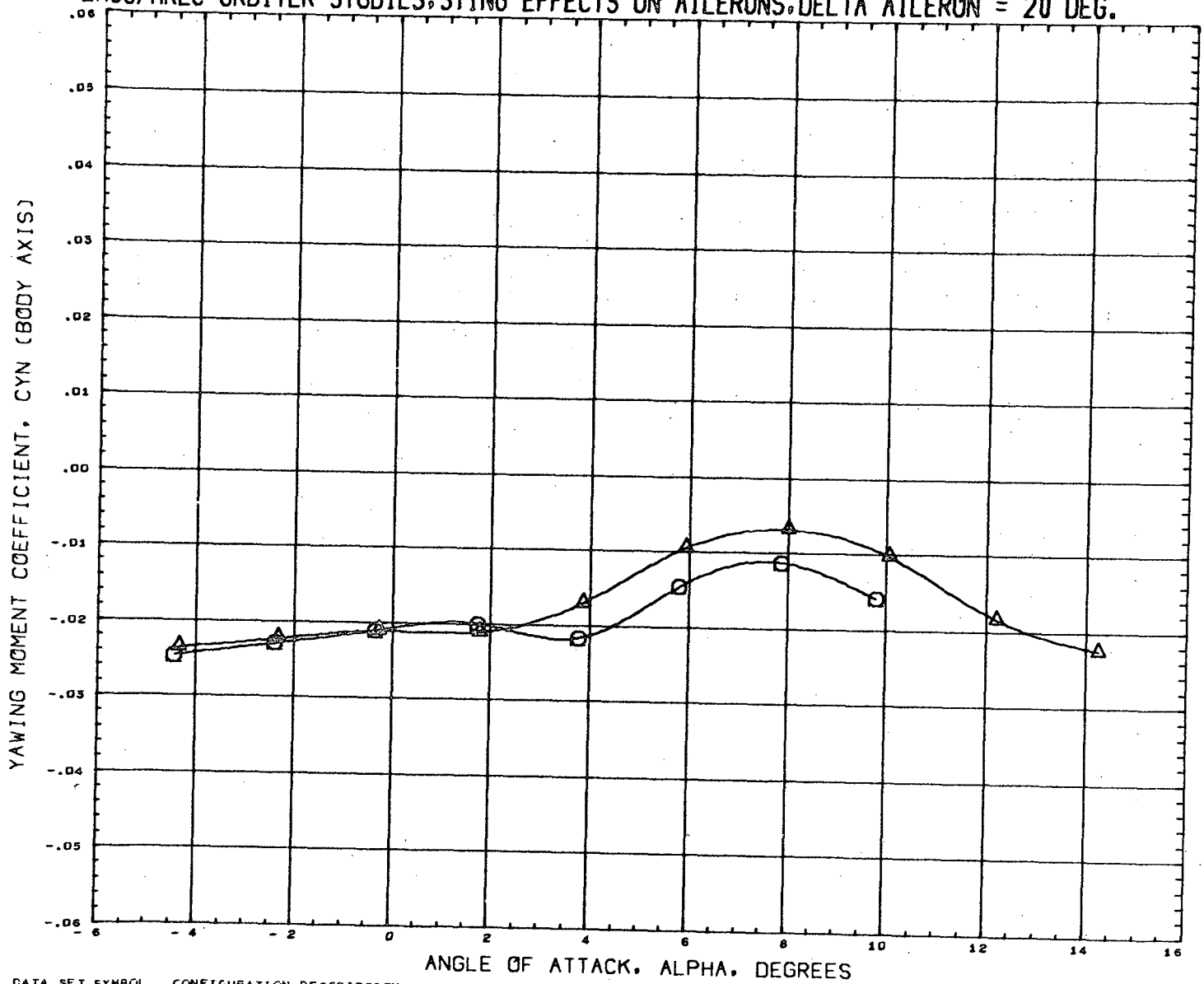


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A36D6A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(E3620E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000

MACH 0.897

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

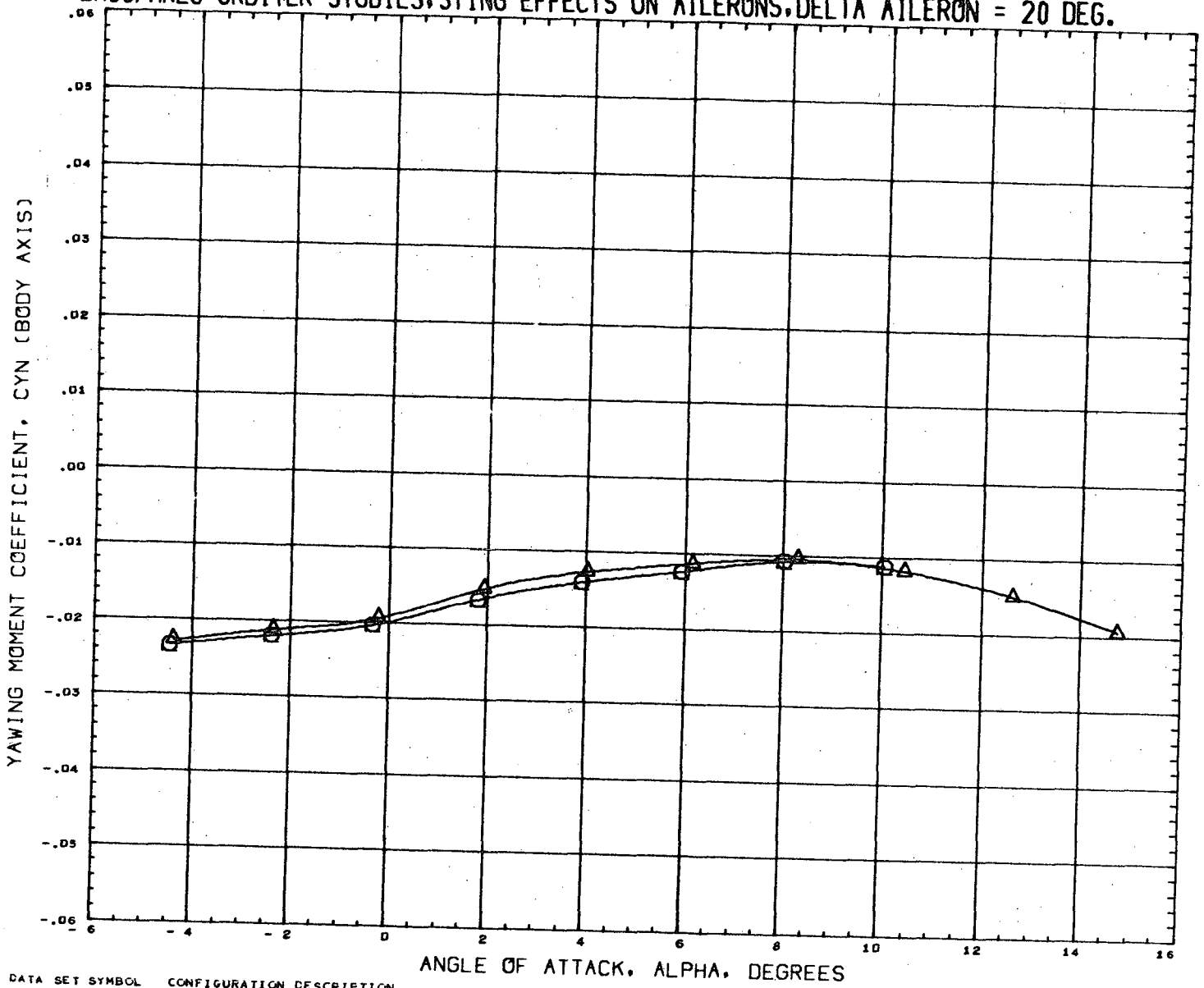


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3607A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.601

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

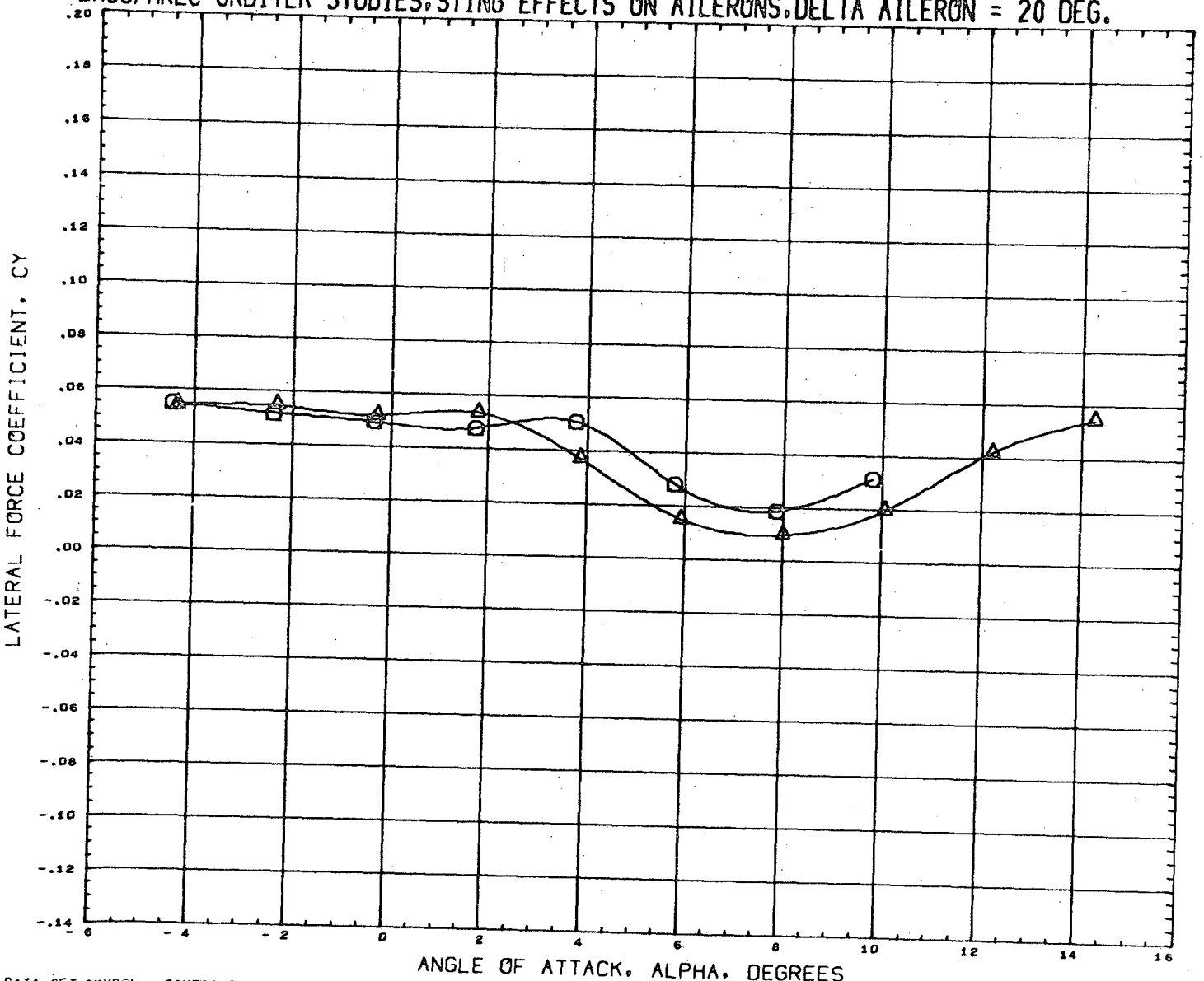


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3607A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.899

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

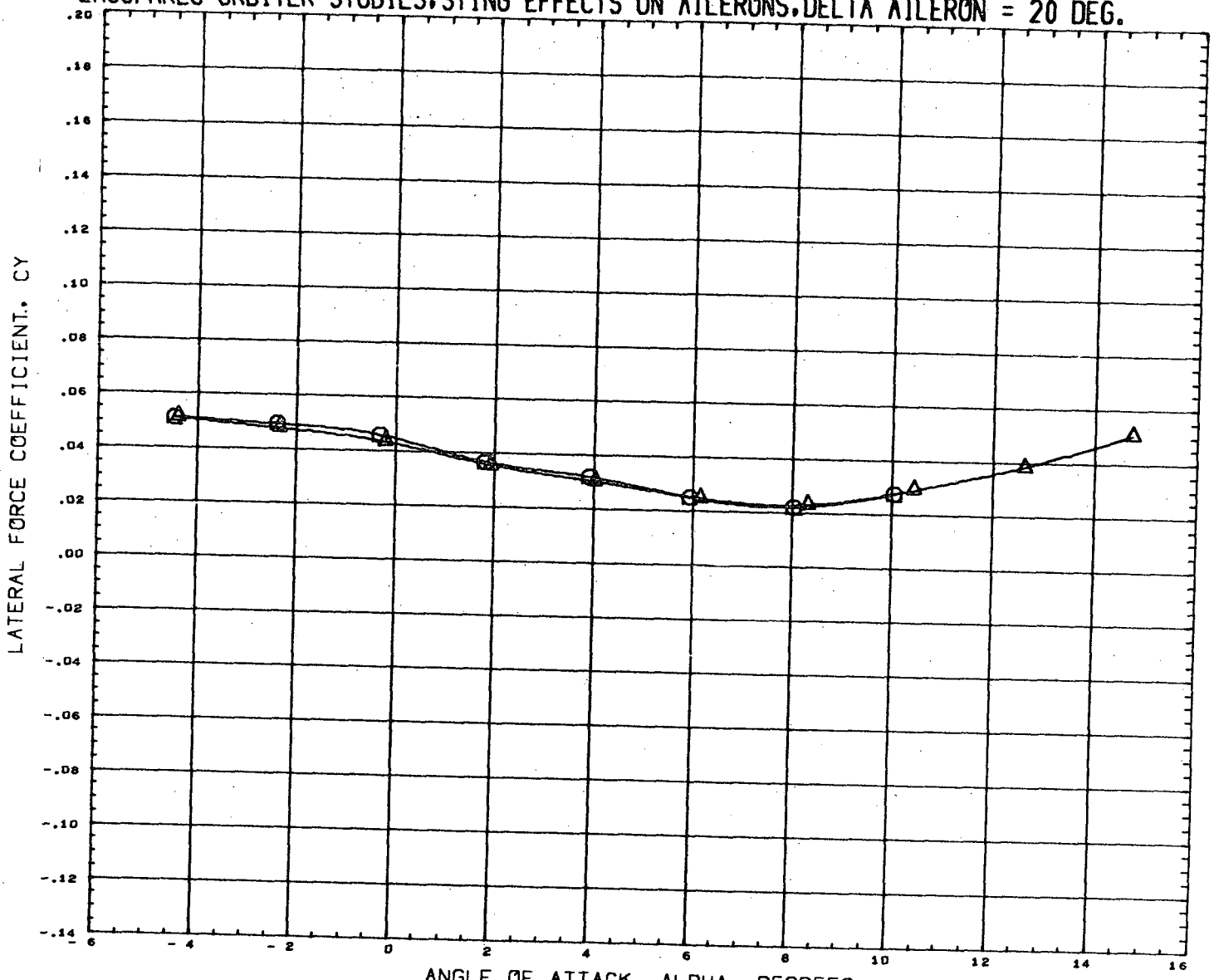


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3607A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.601

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

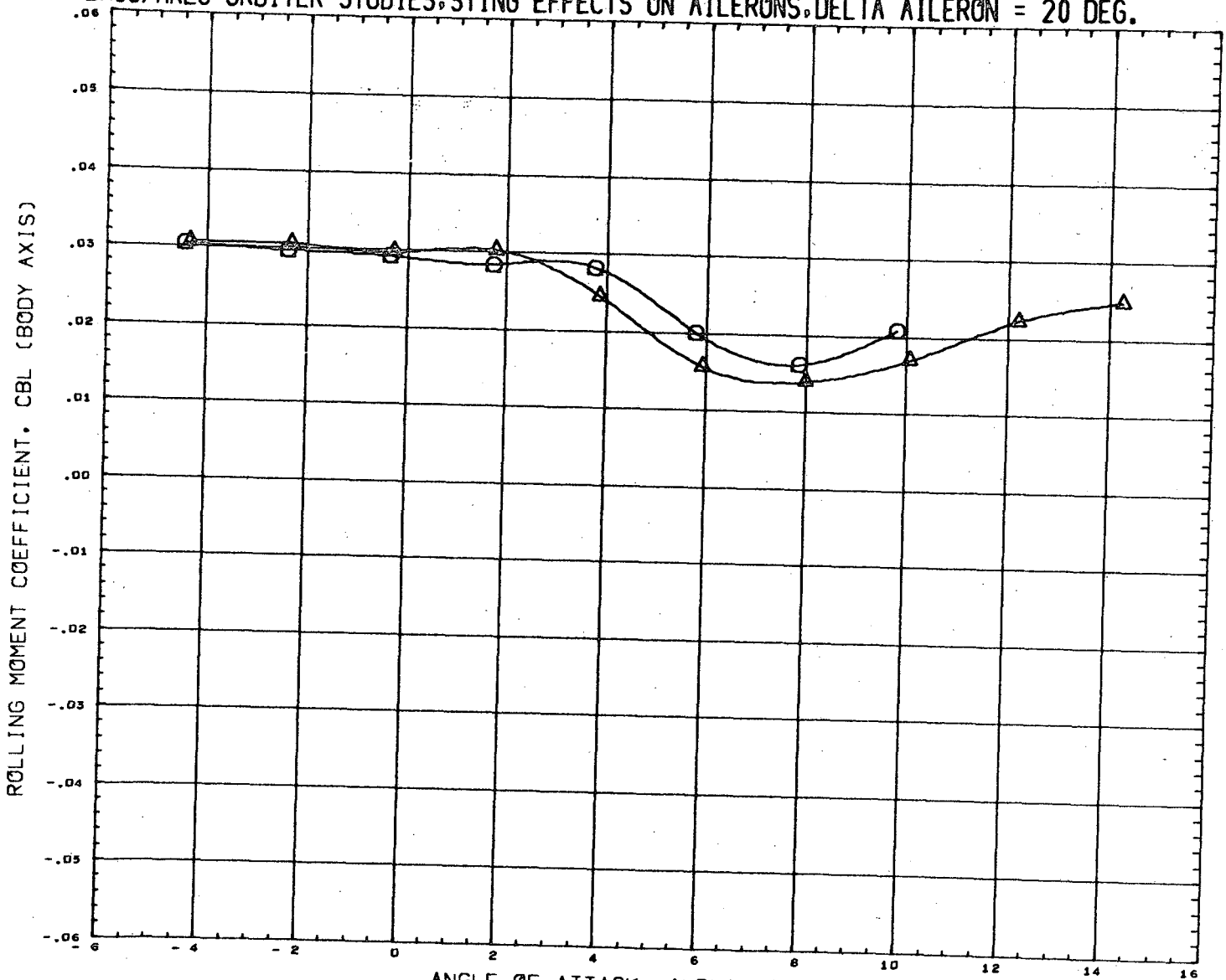


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3607A)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.899

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

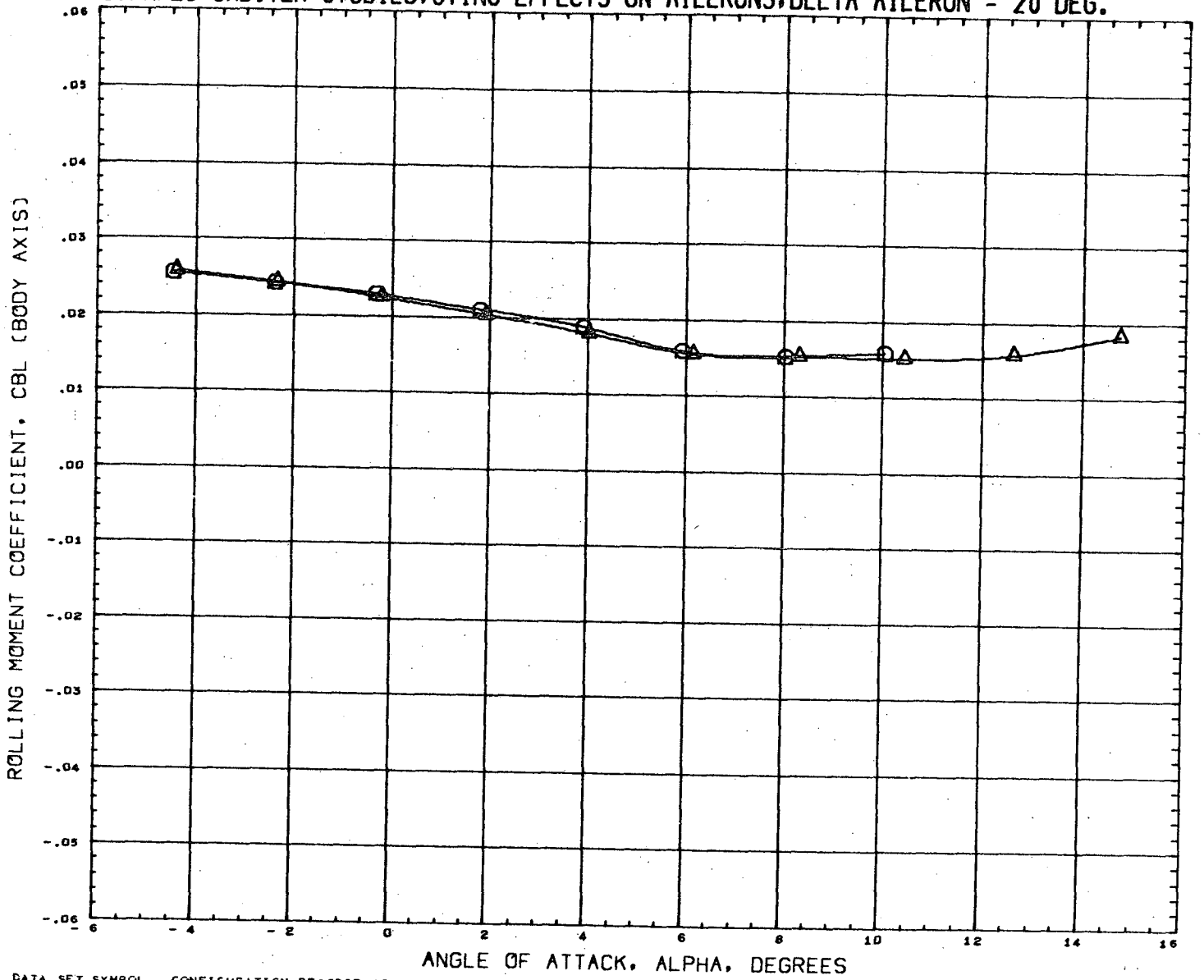


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A3607A)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.601

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON AILERONS, DELTA AILERON = 20 DEG.

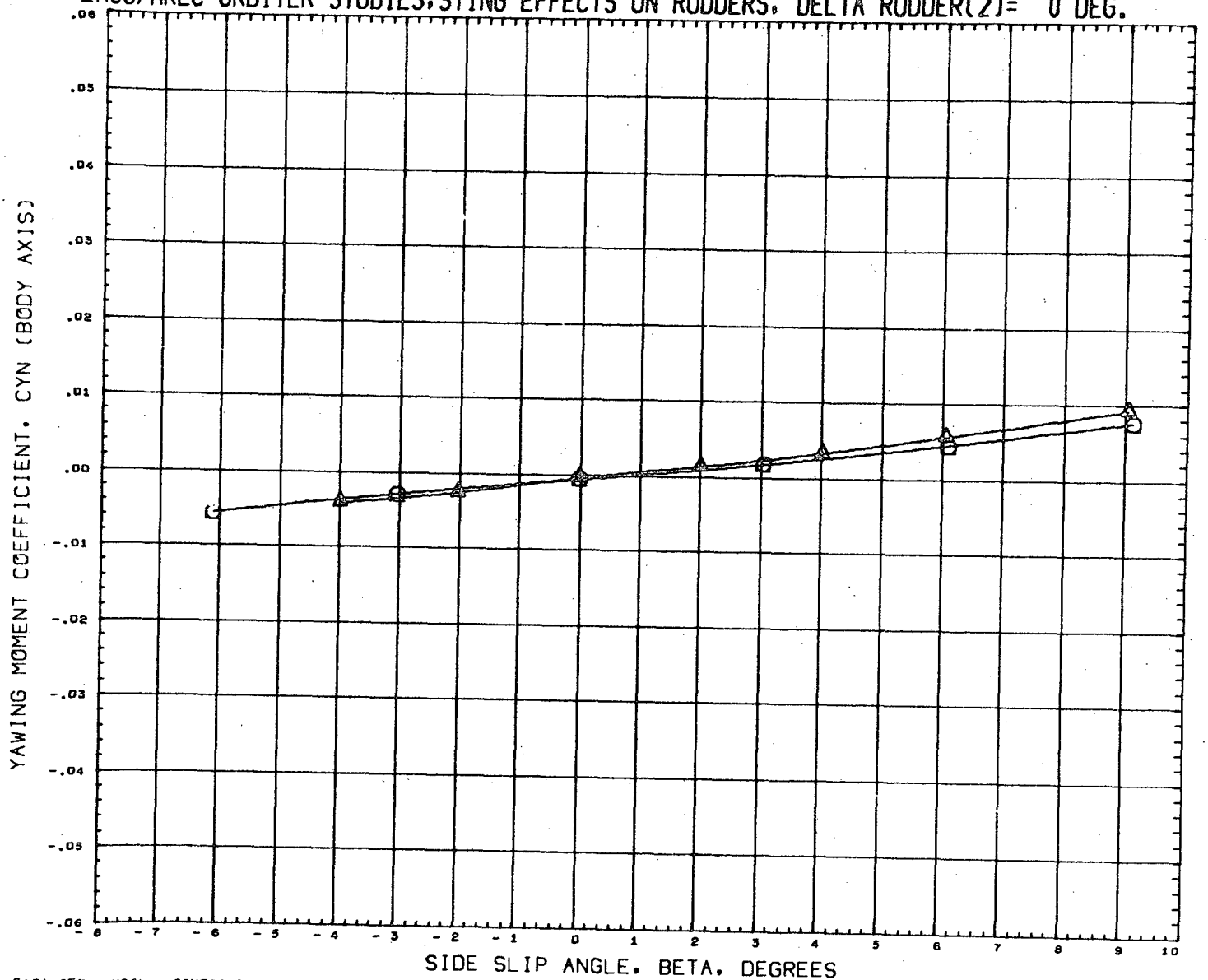


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(A36D7A)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000
(E3621E)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.899

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 0 DEG.



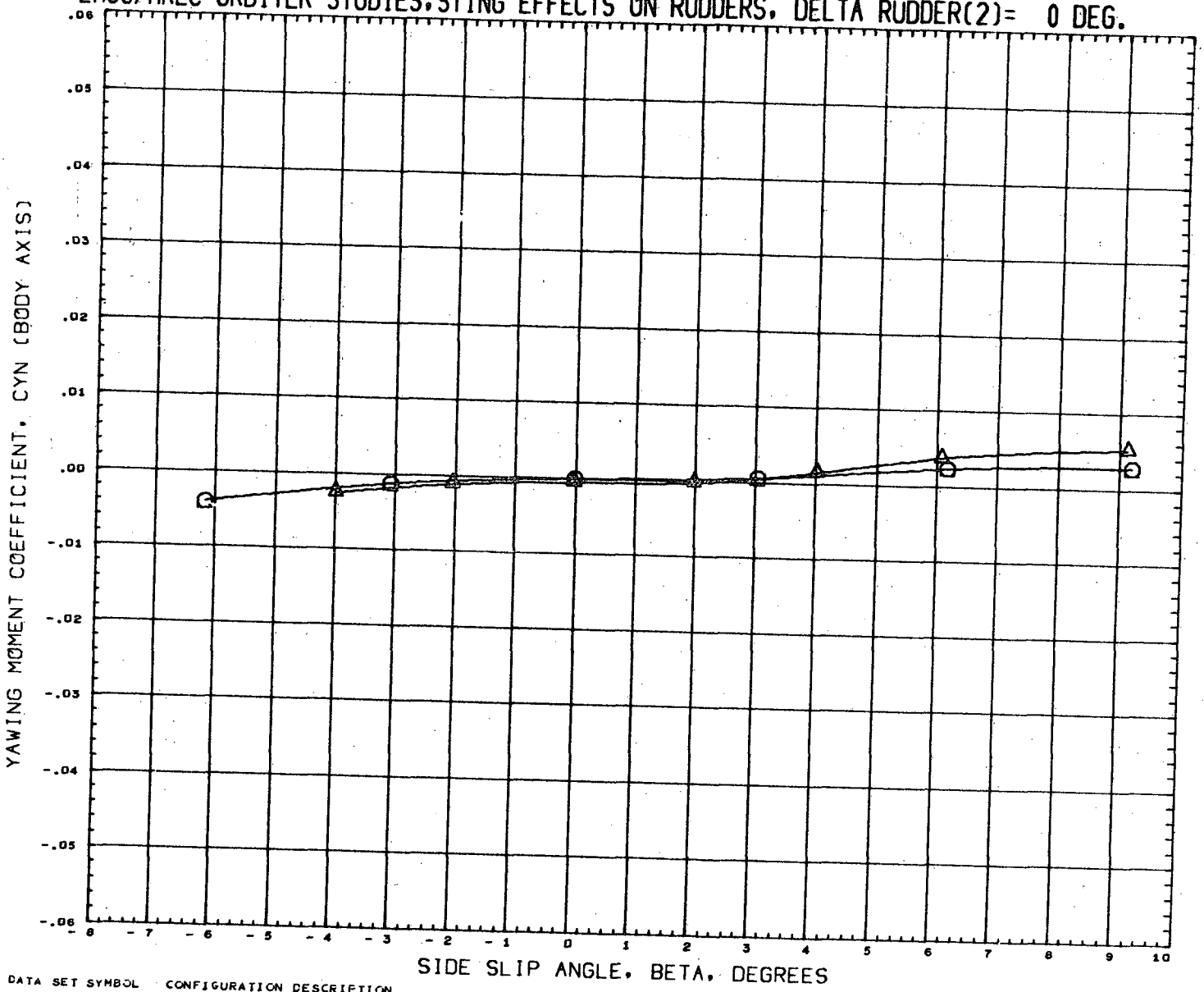
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 0 DEG.



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. STING EFFECTS ON RUDDERS. DELTA RUDDER(2)= 0 DEG.



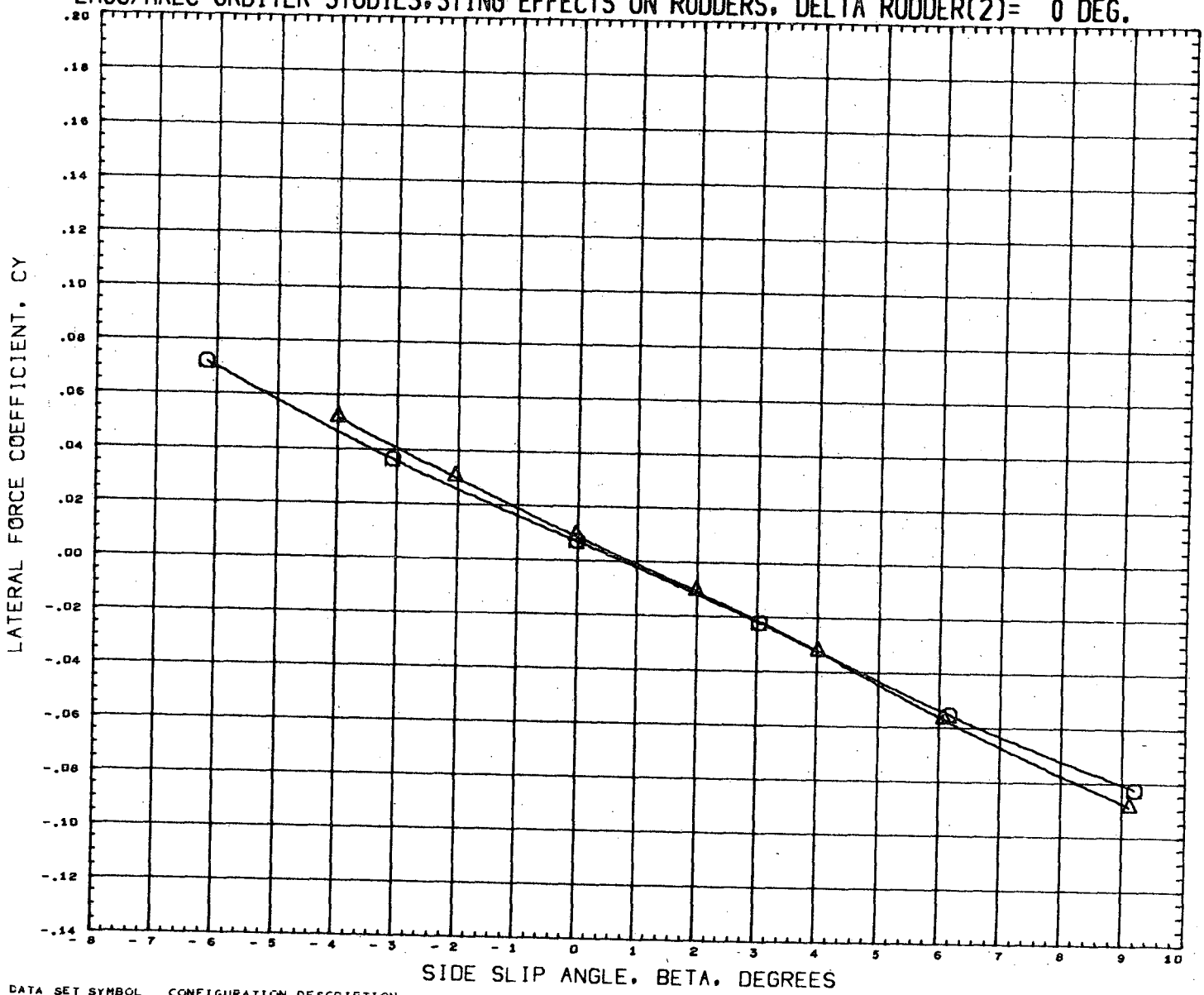
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 0 DEG.

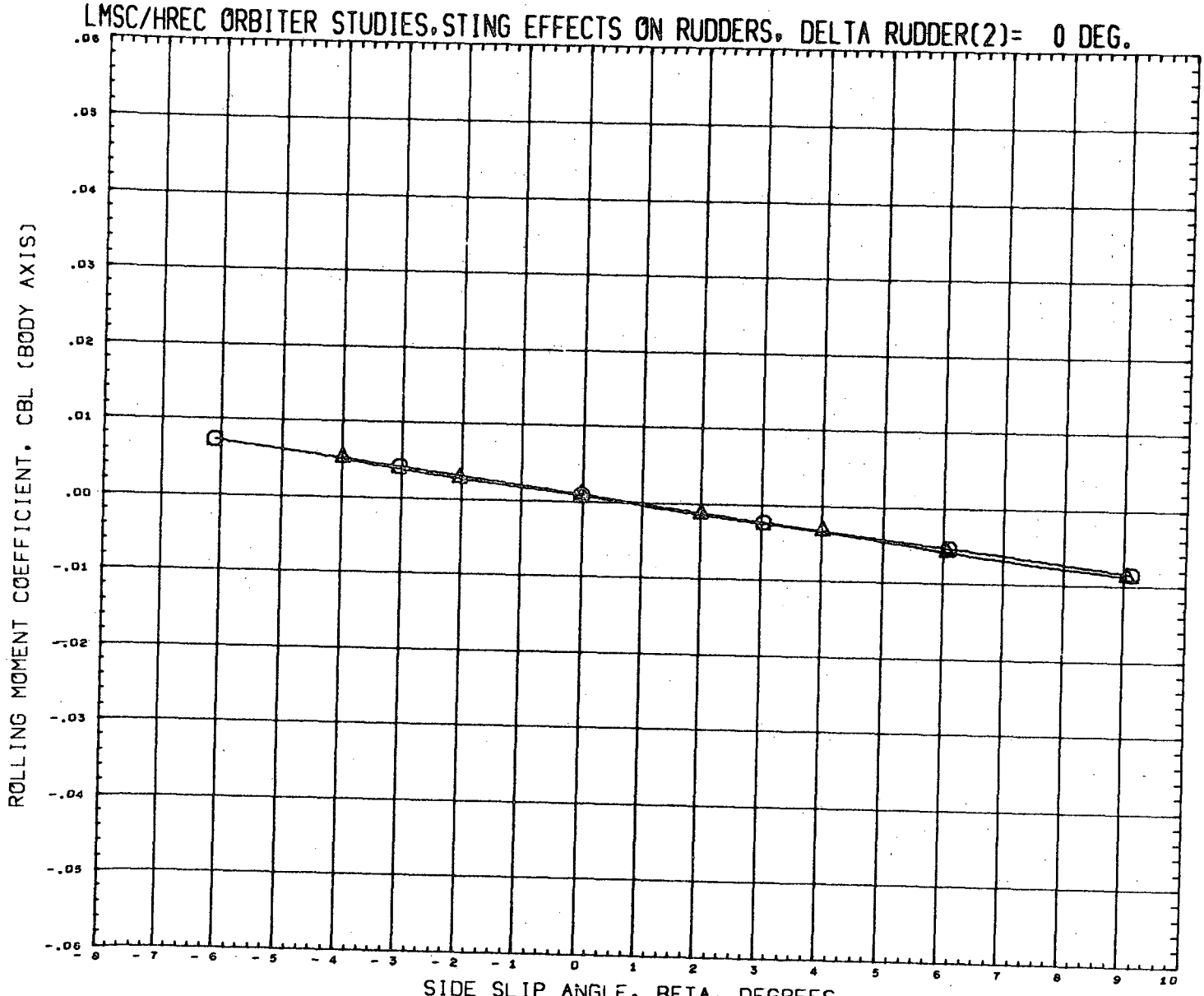


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE



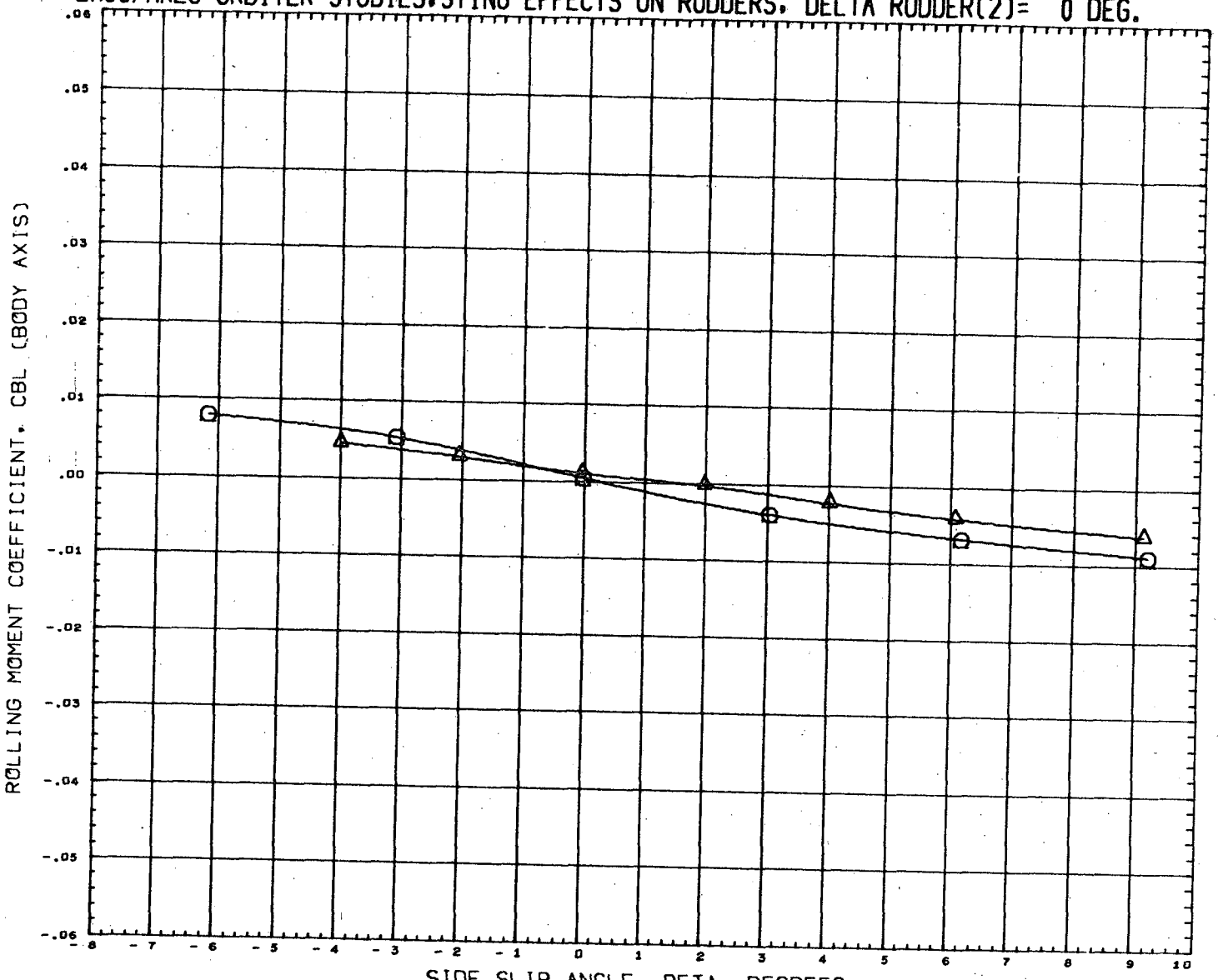
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.597

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. STING EFFECTS ON RUDDERS. DELTA RUDDER(2)= 0 DEG.



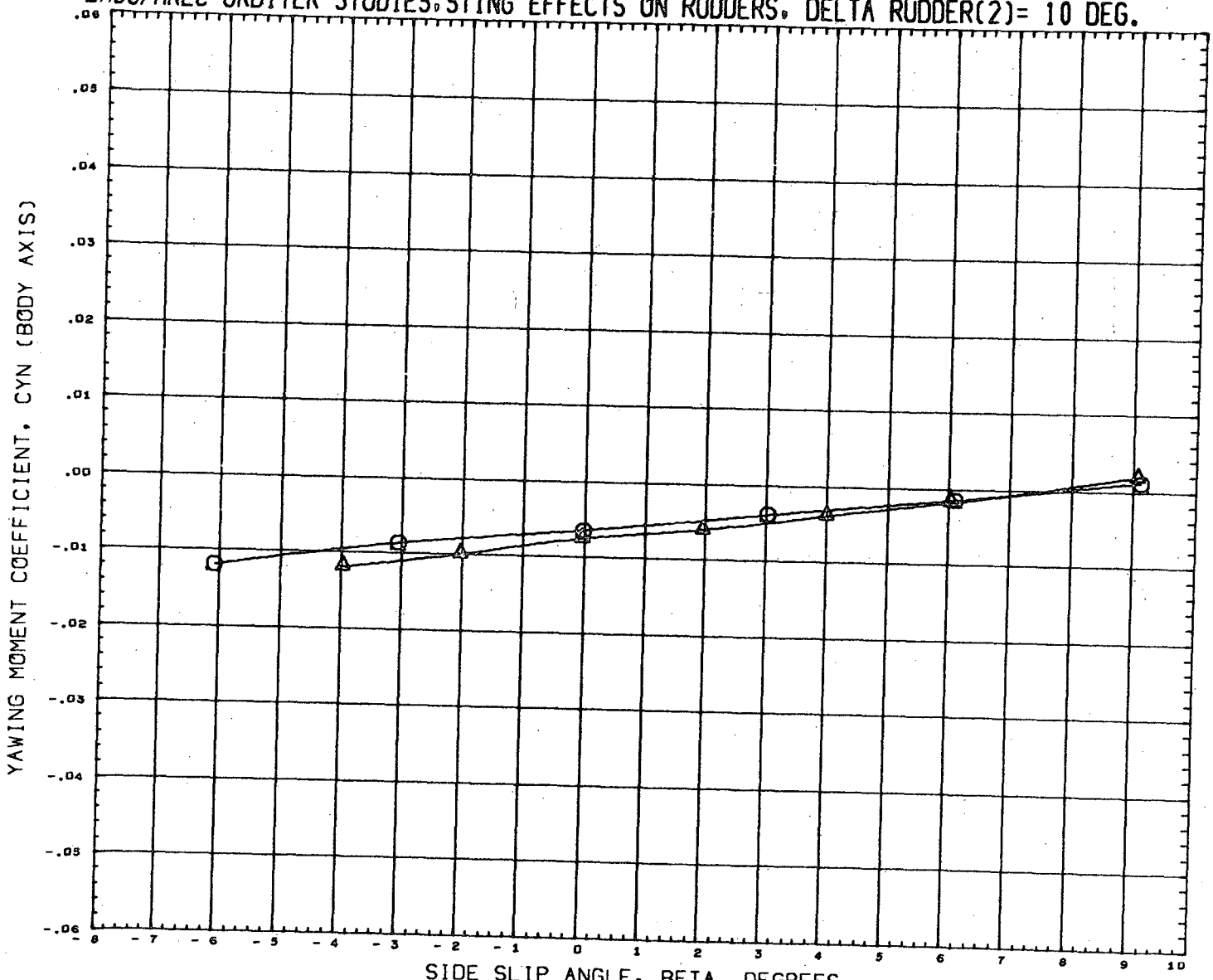
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3612D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000
(E3622F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.



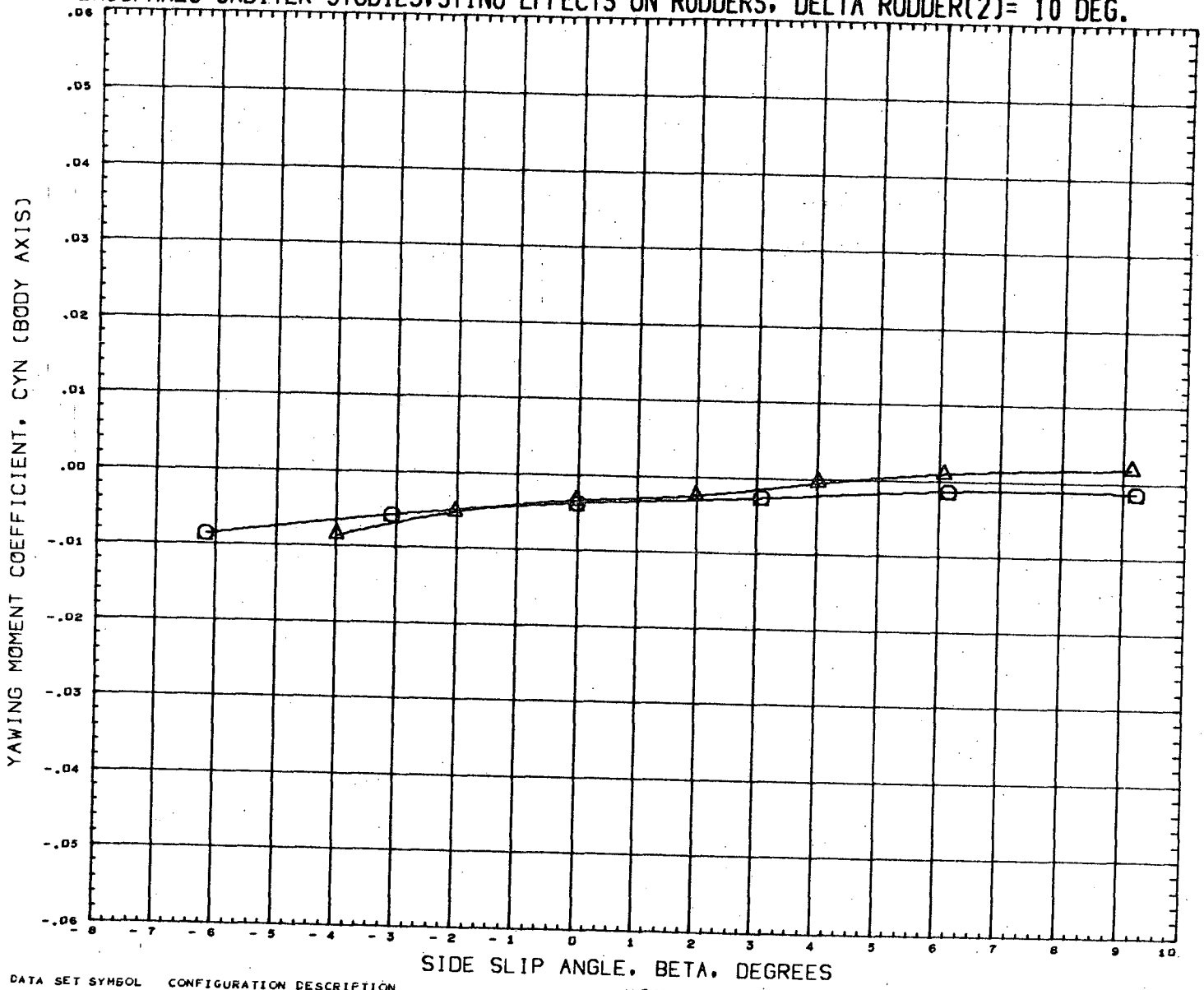
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3613D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.

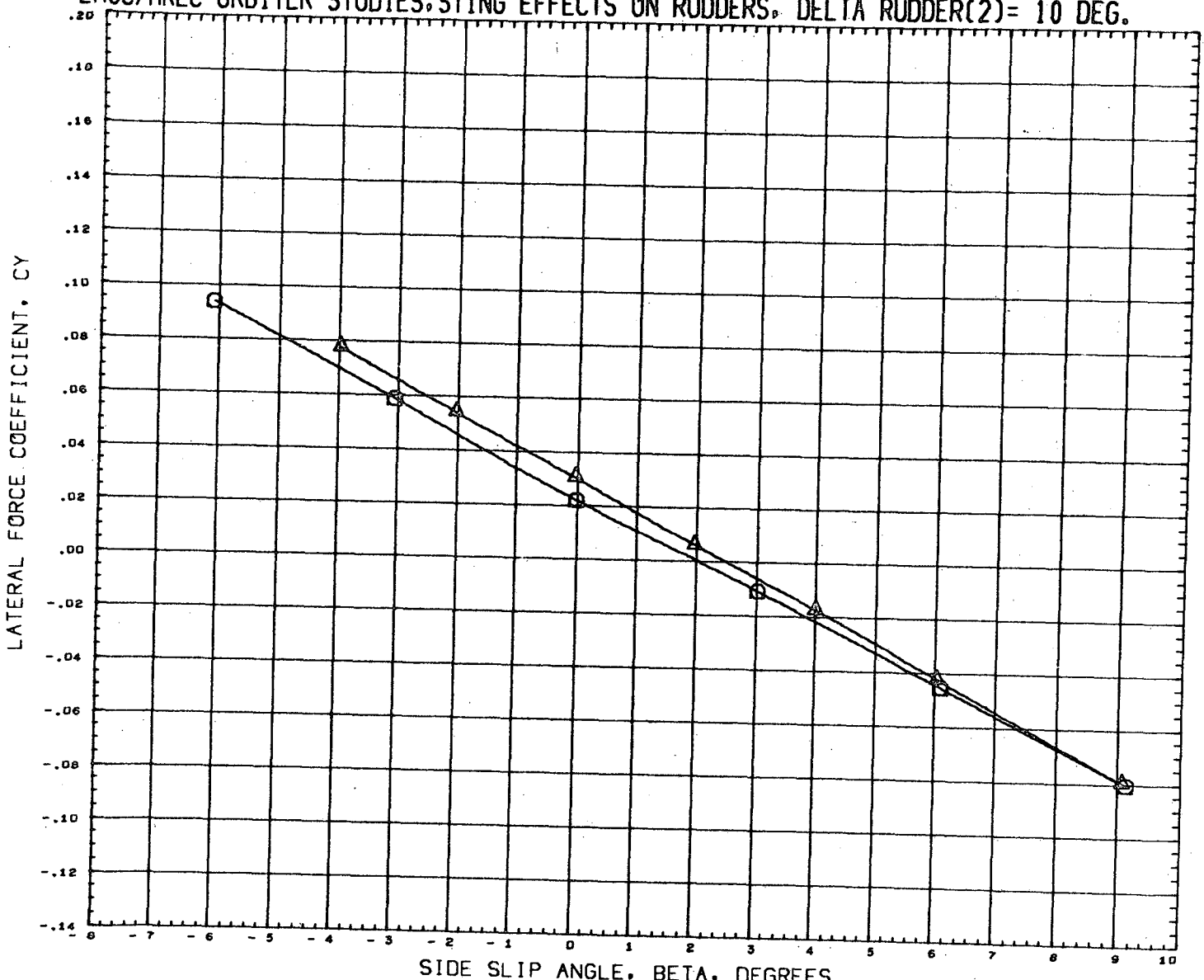


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3613D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.897

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.



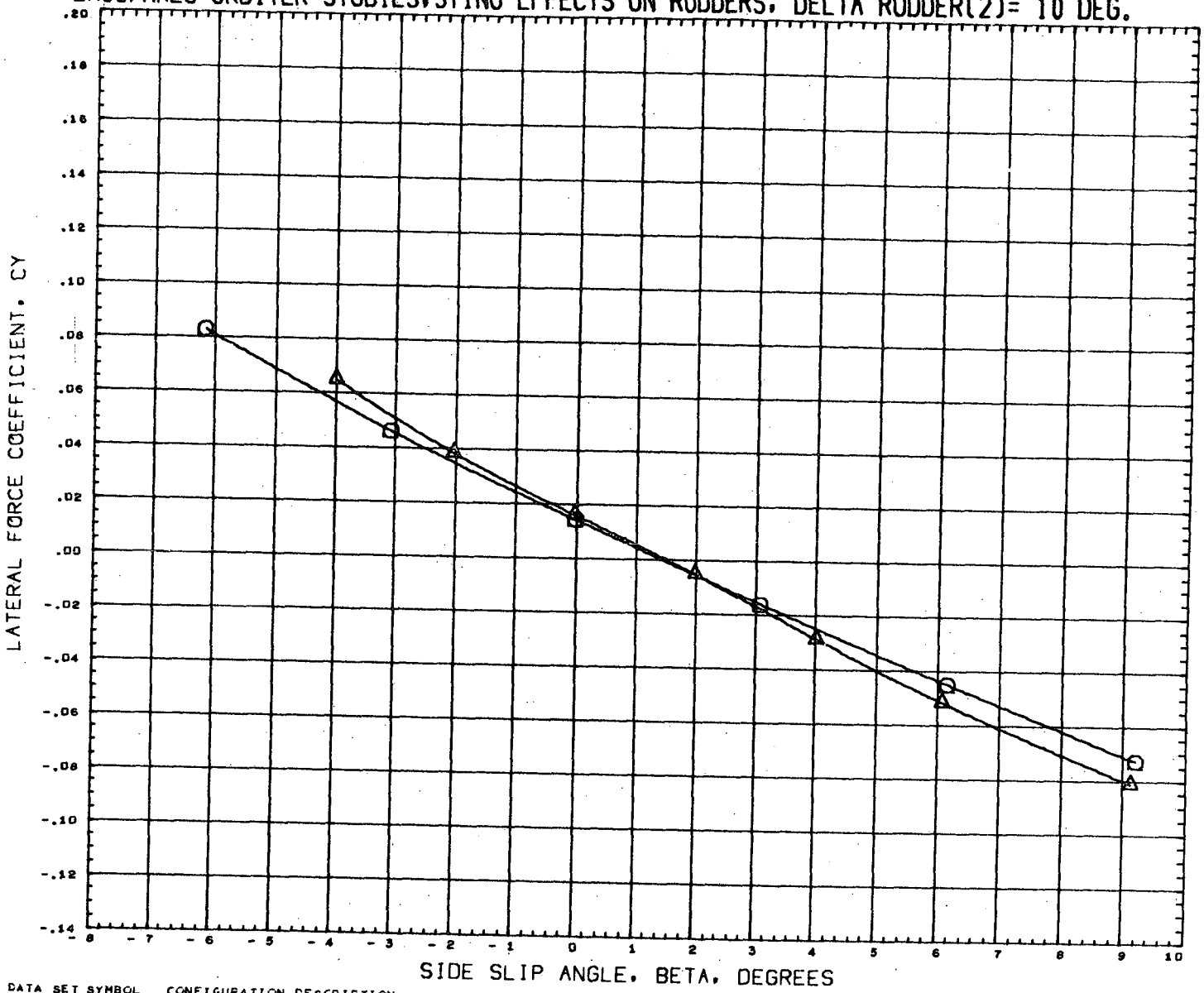
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDDER2
(A3613D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.598

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.



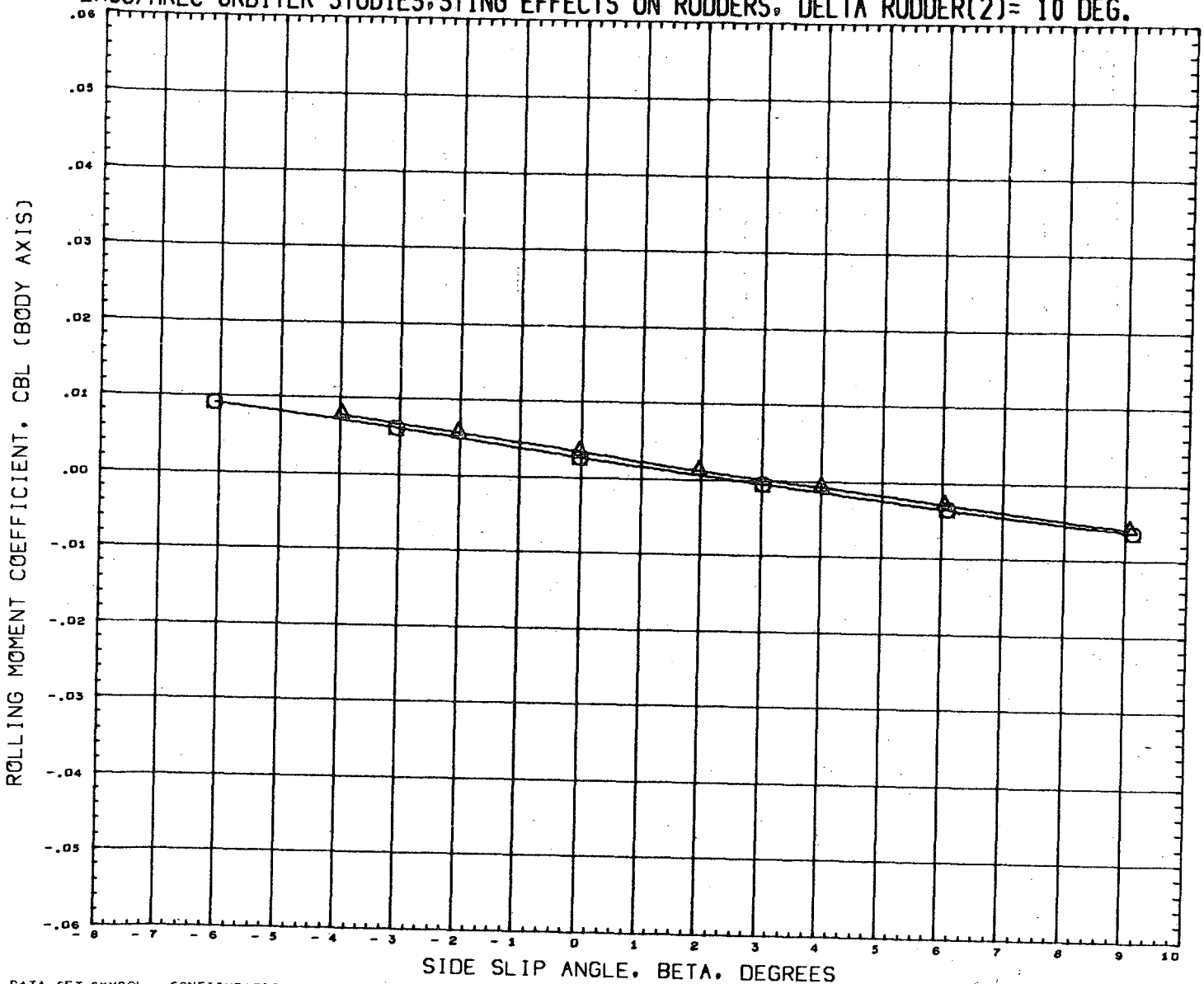
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3613D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.

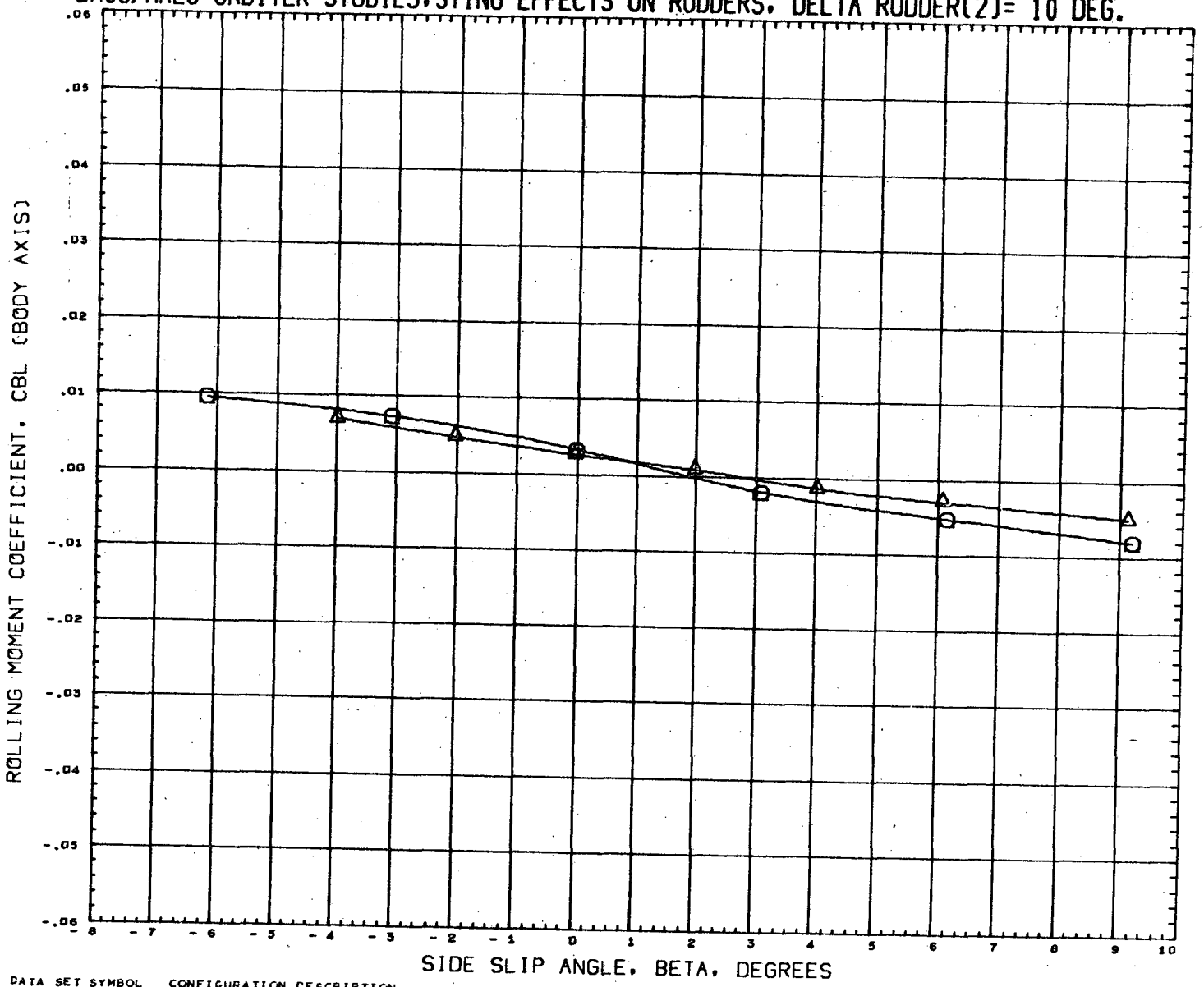


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3613D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.598

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON RUDDERS, DELTA RUDDER(2)= 10 DEG.



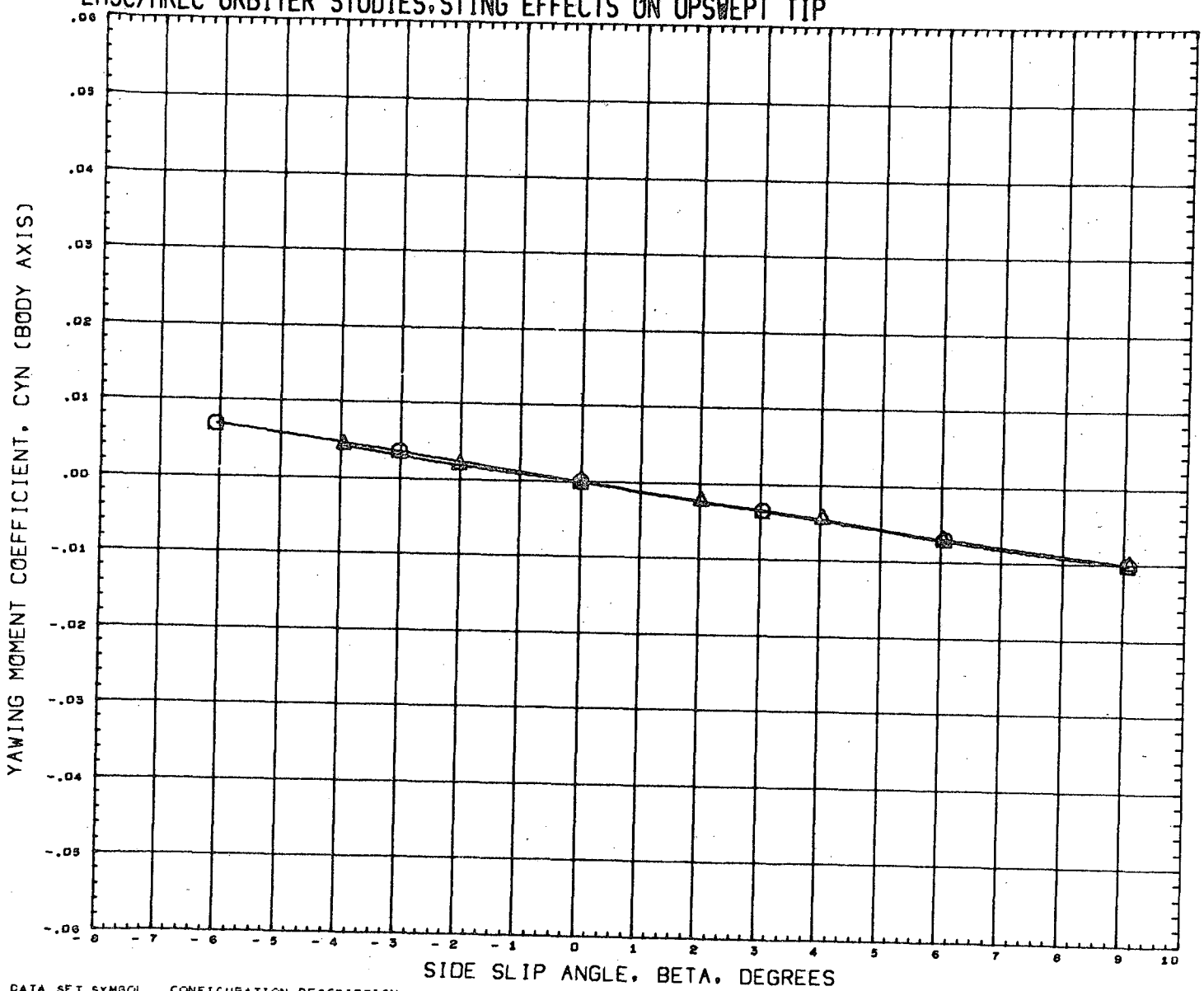
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1	RUDER2
(A3613D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000
(E3623F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3D2E1R2	-0.300	0.000	10.000

MACH 0.897

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



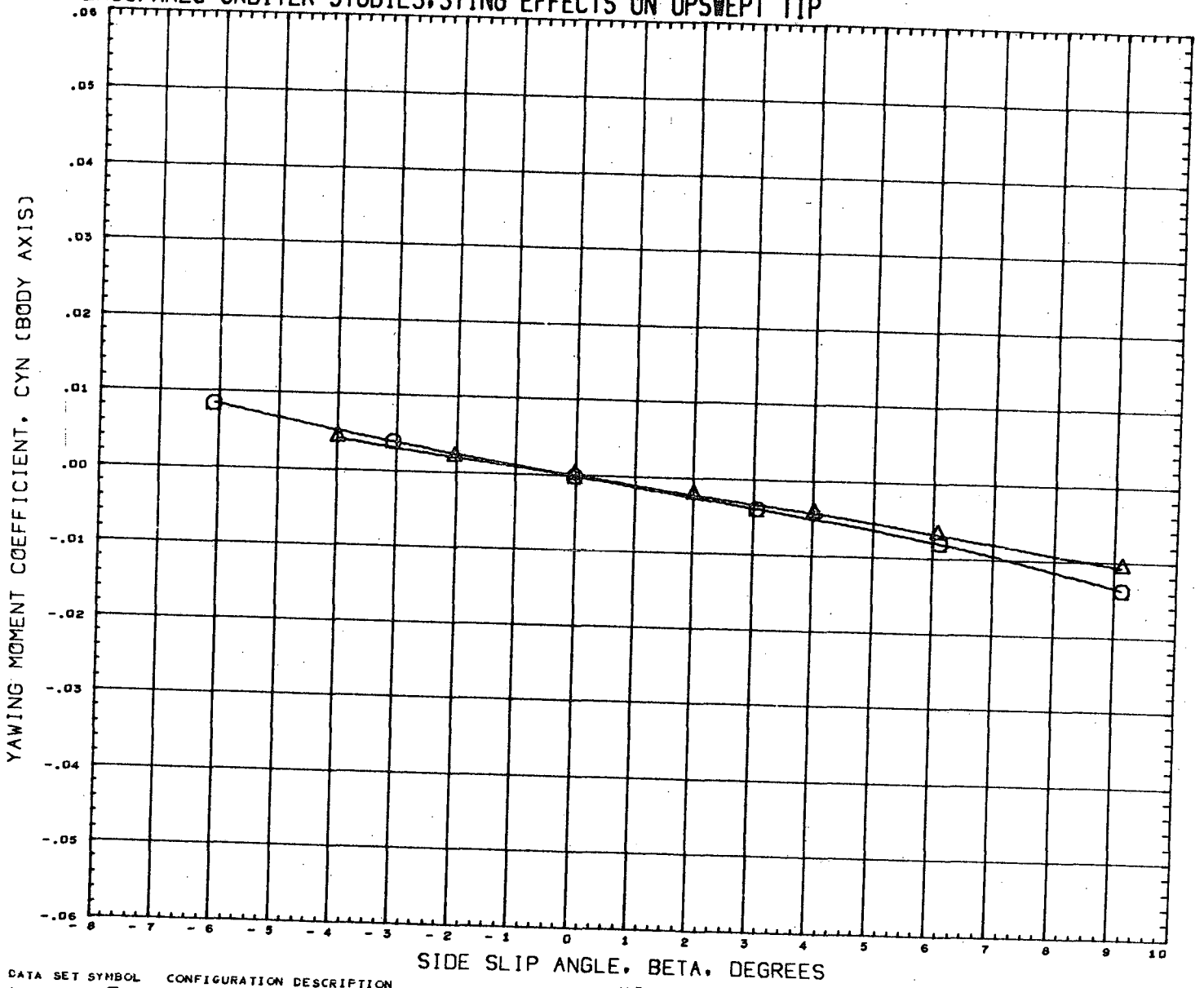
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



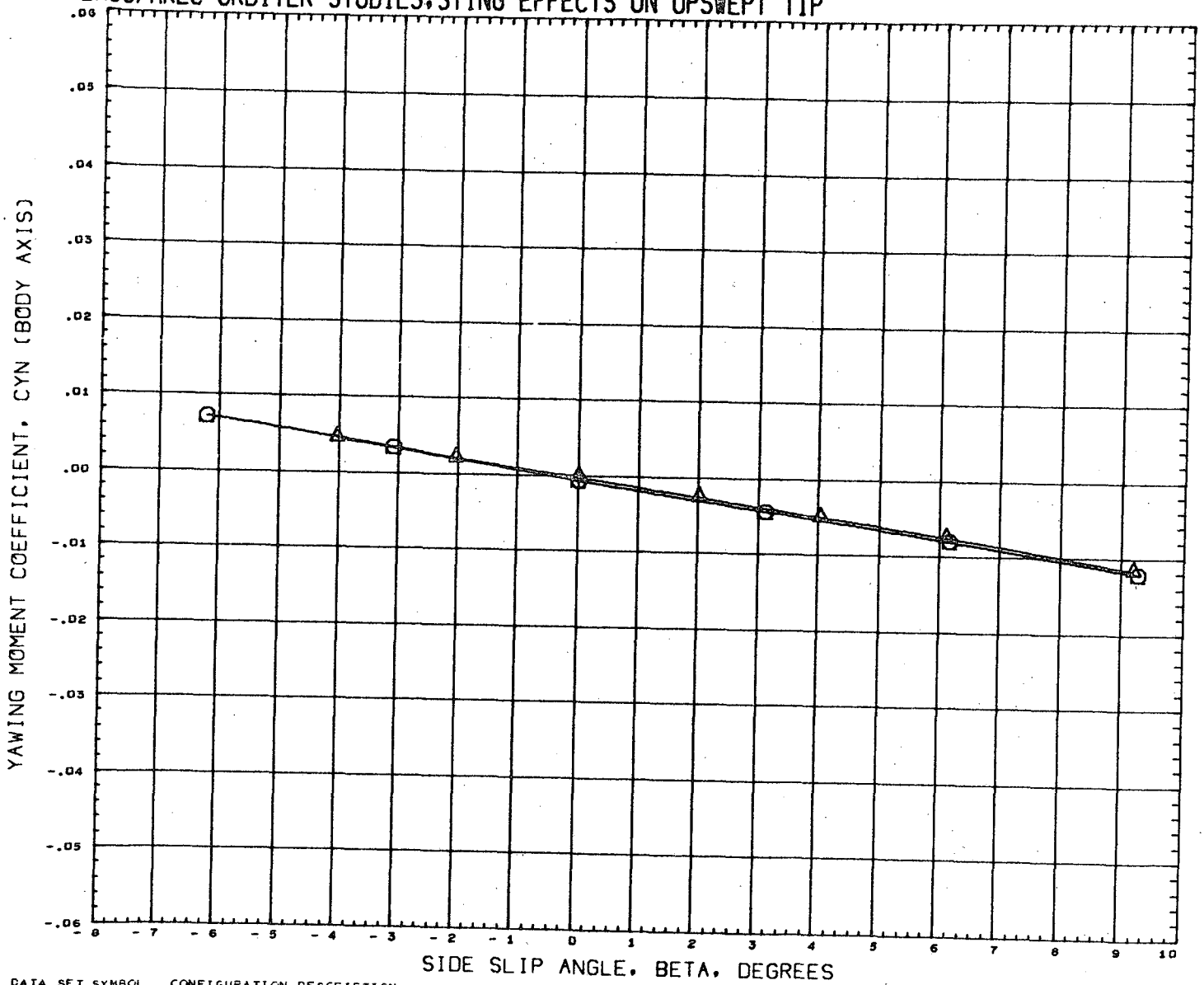
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



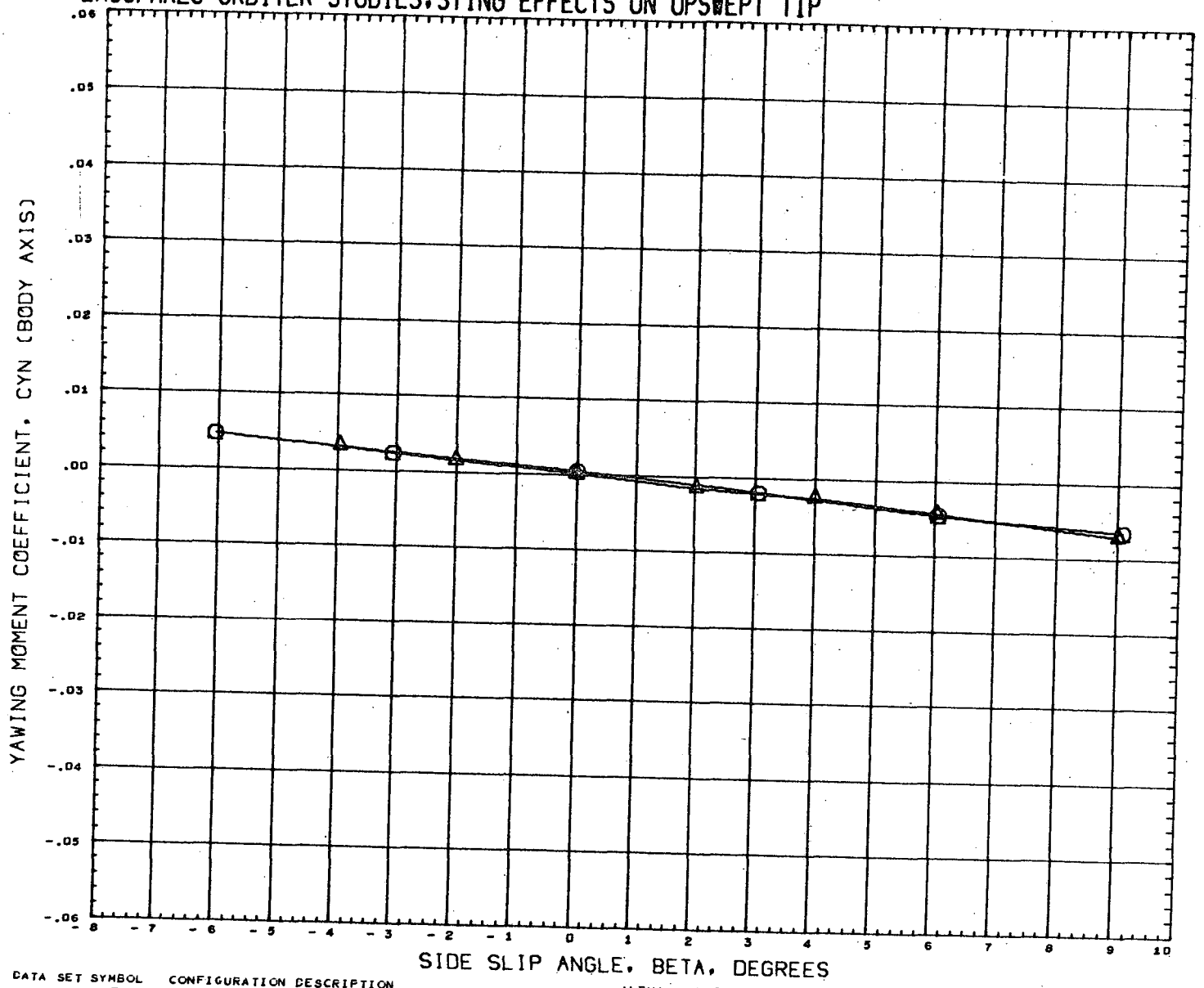
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 1.971

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



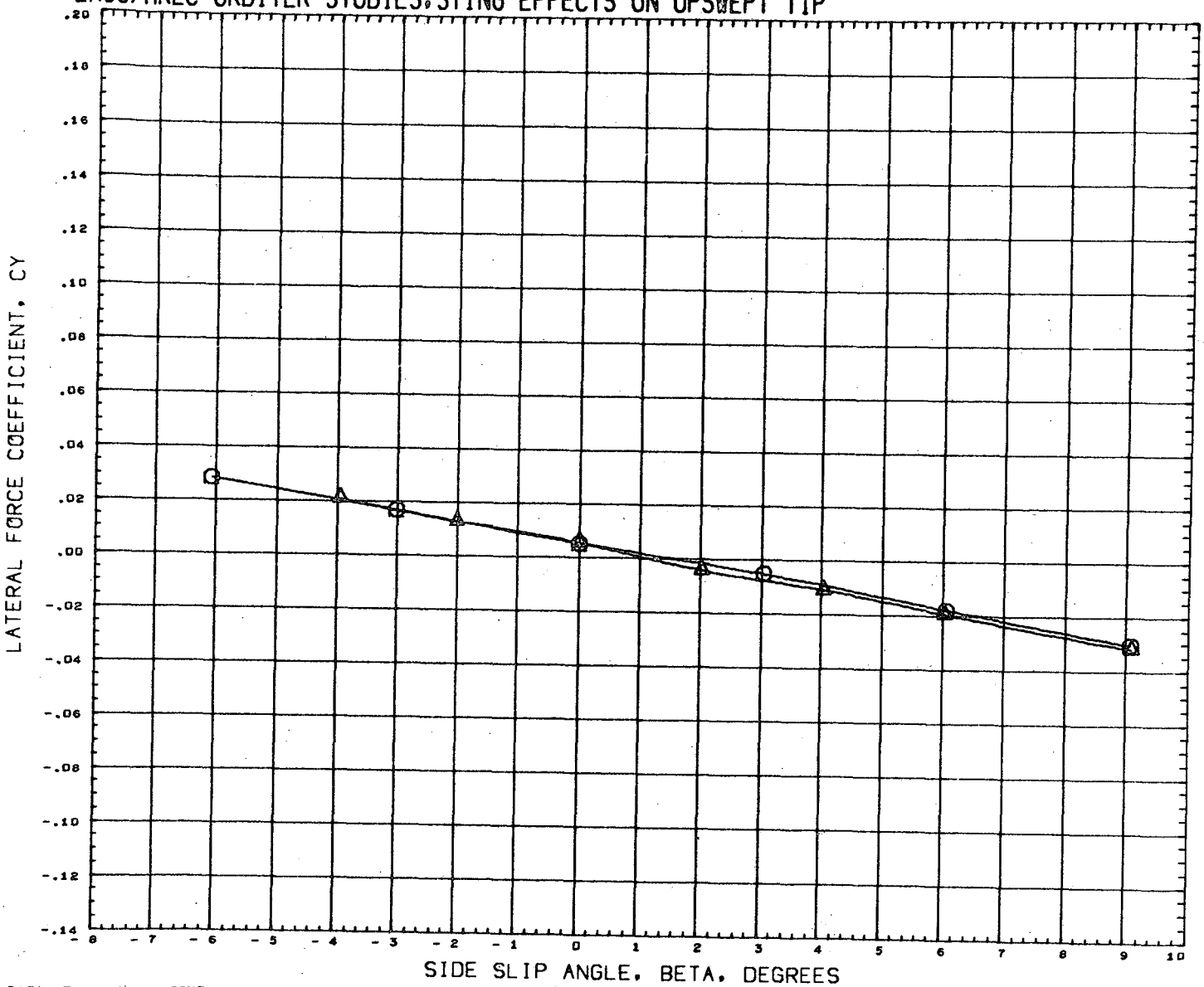
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. STING EFFECTS ON UPSWEPT TIP



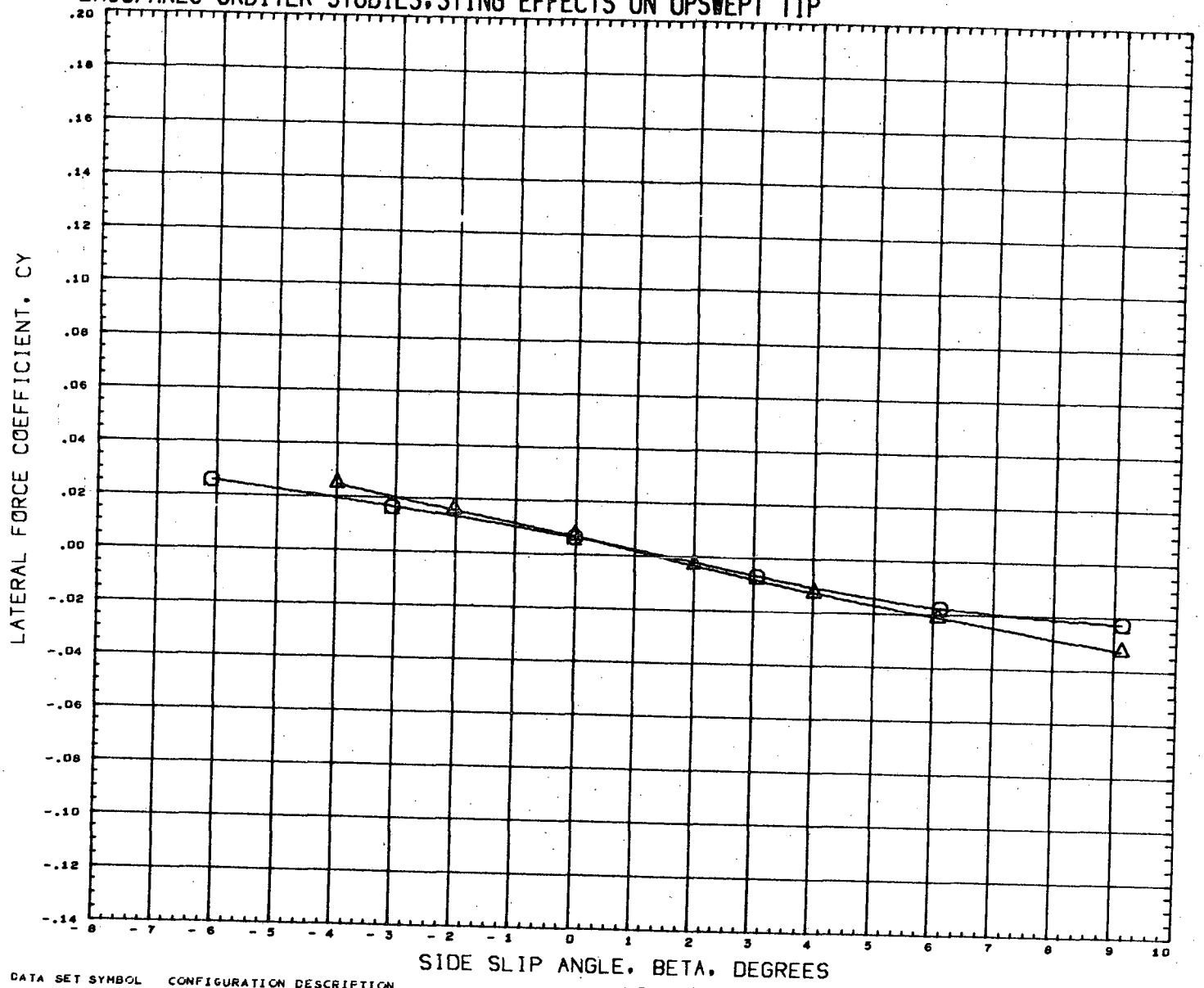
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



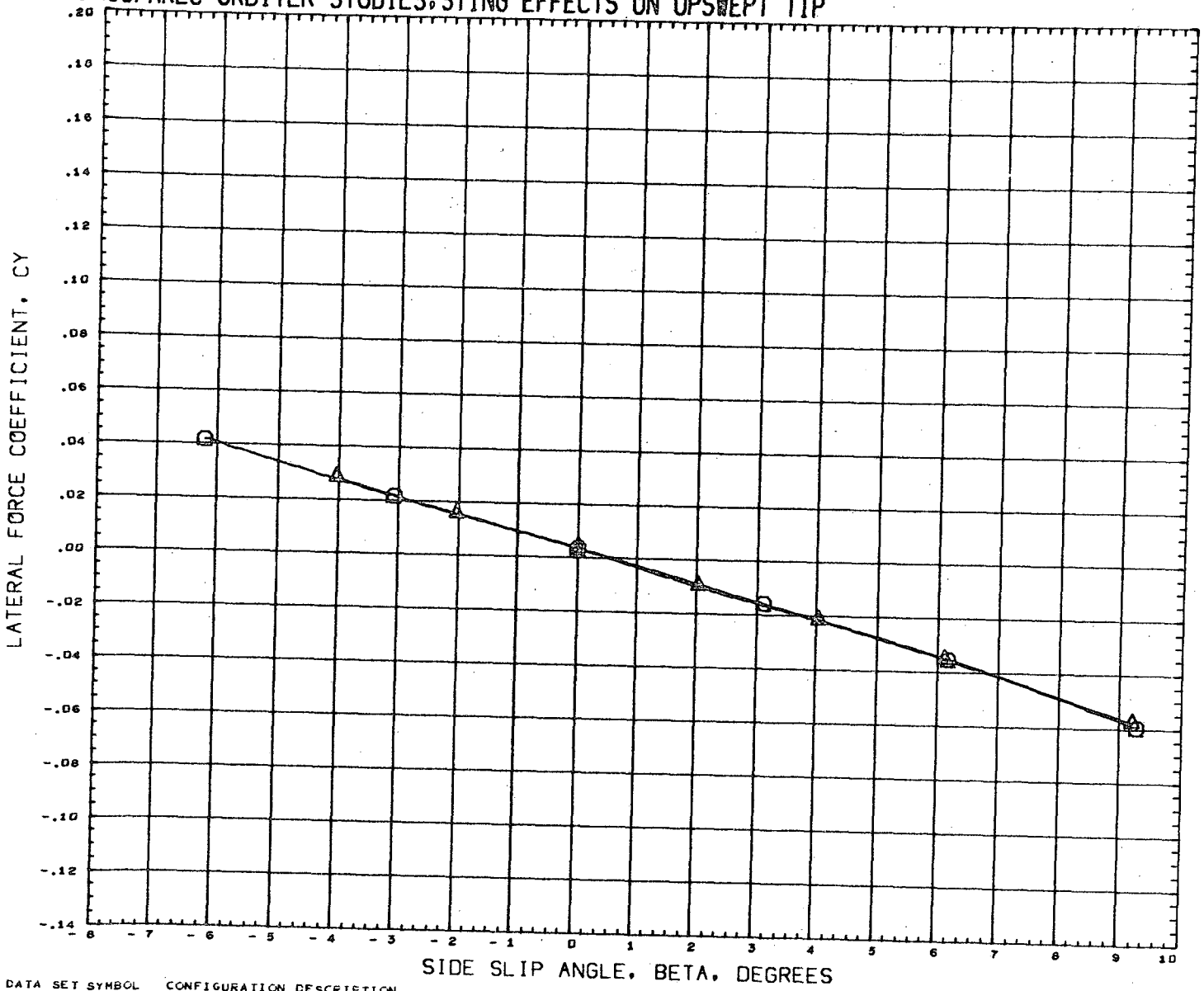
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



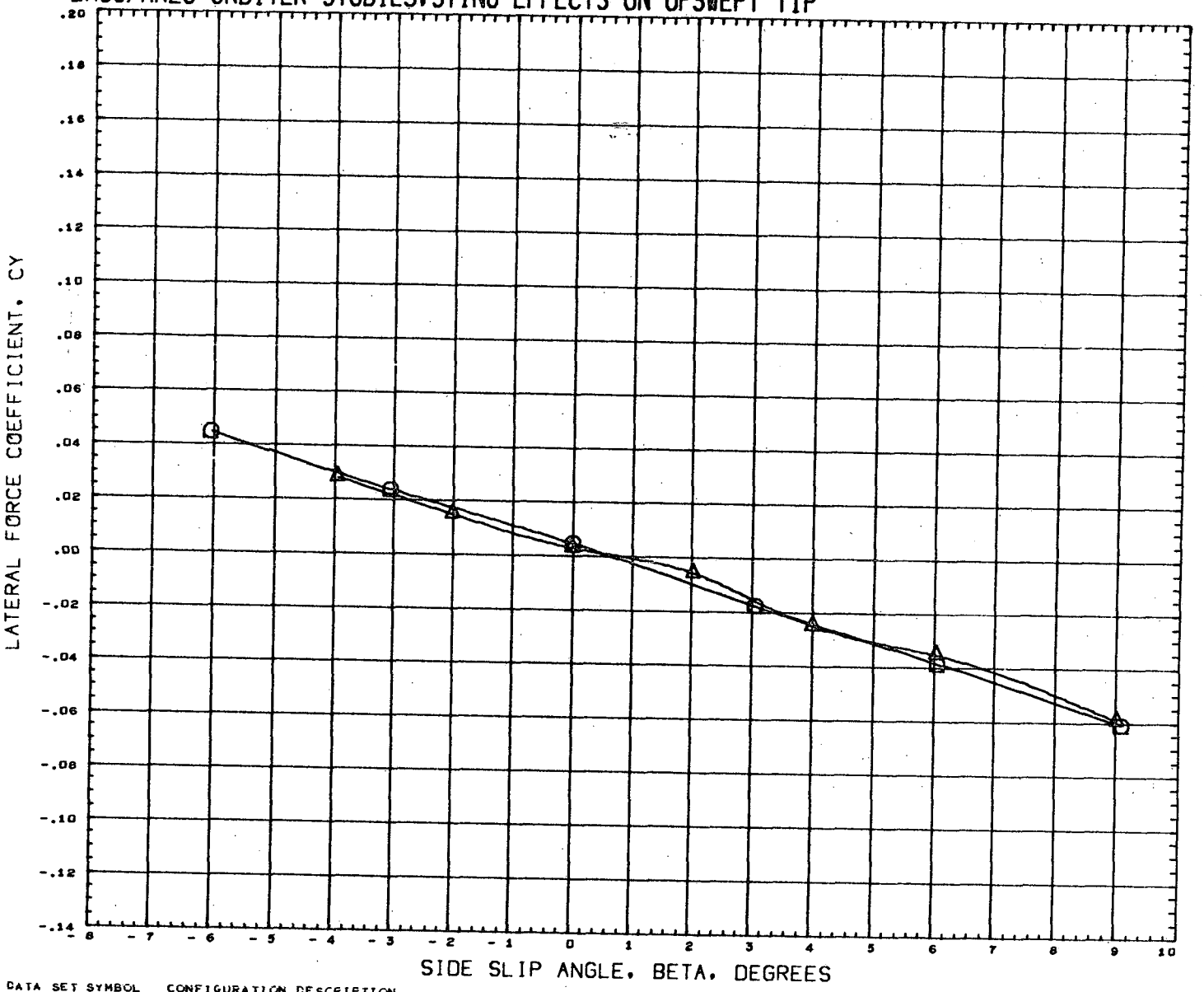
DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 1.971

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



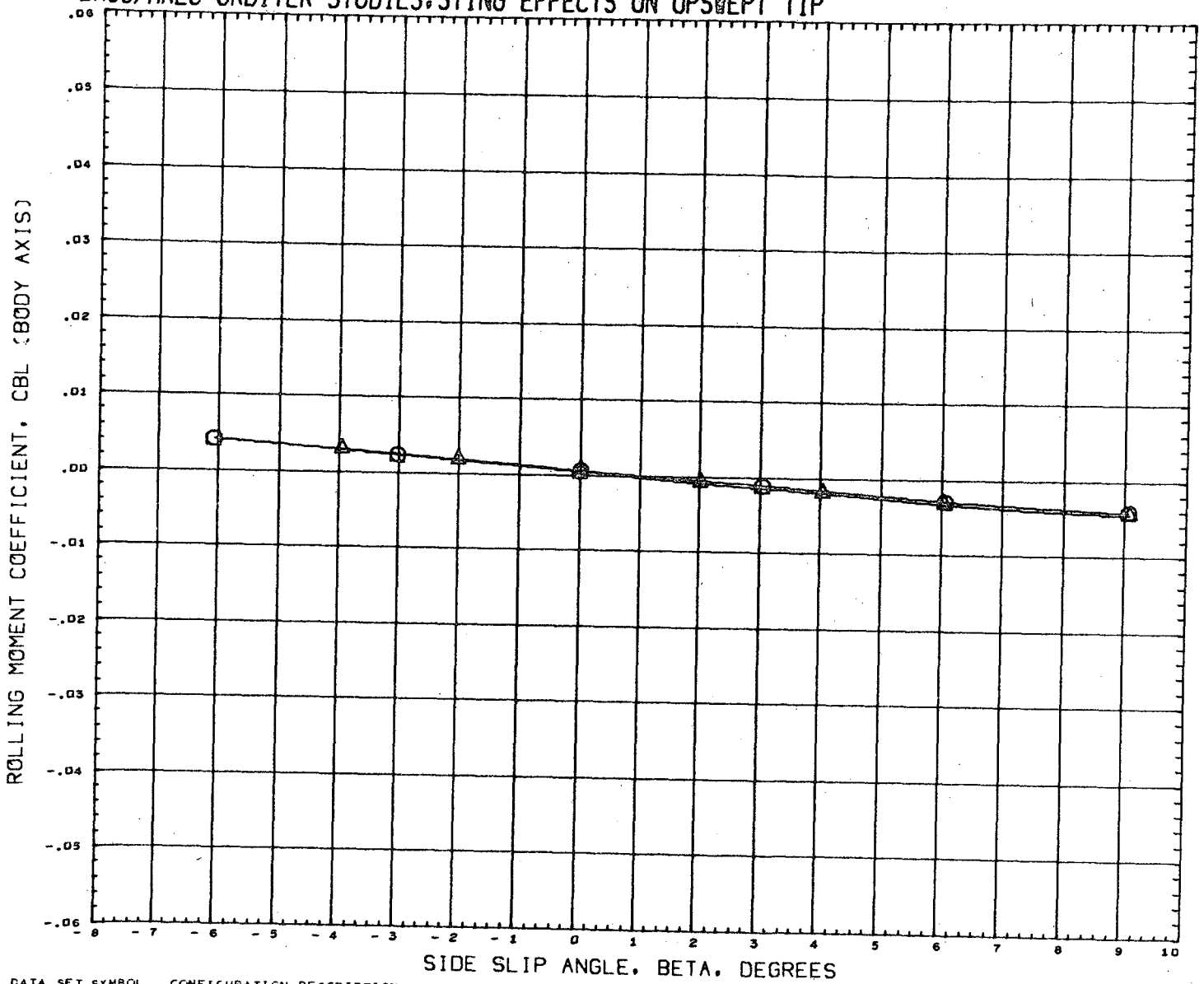
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



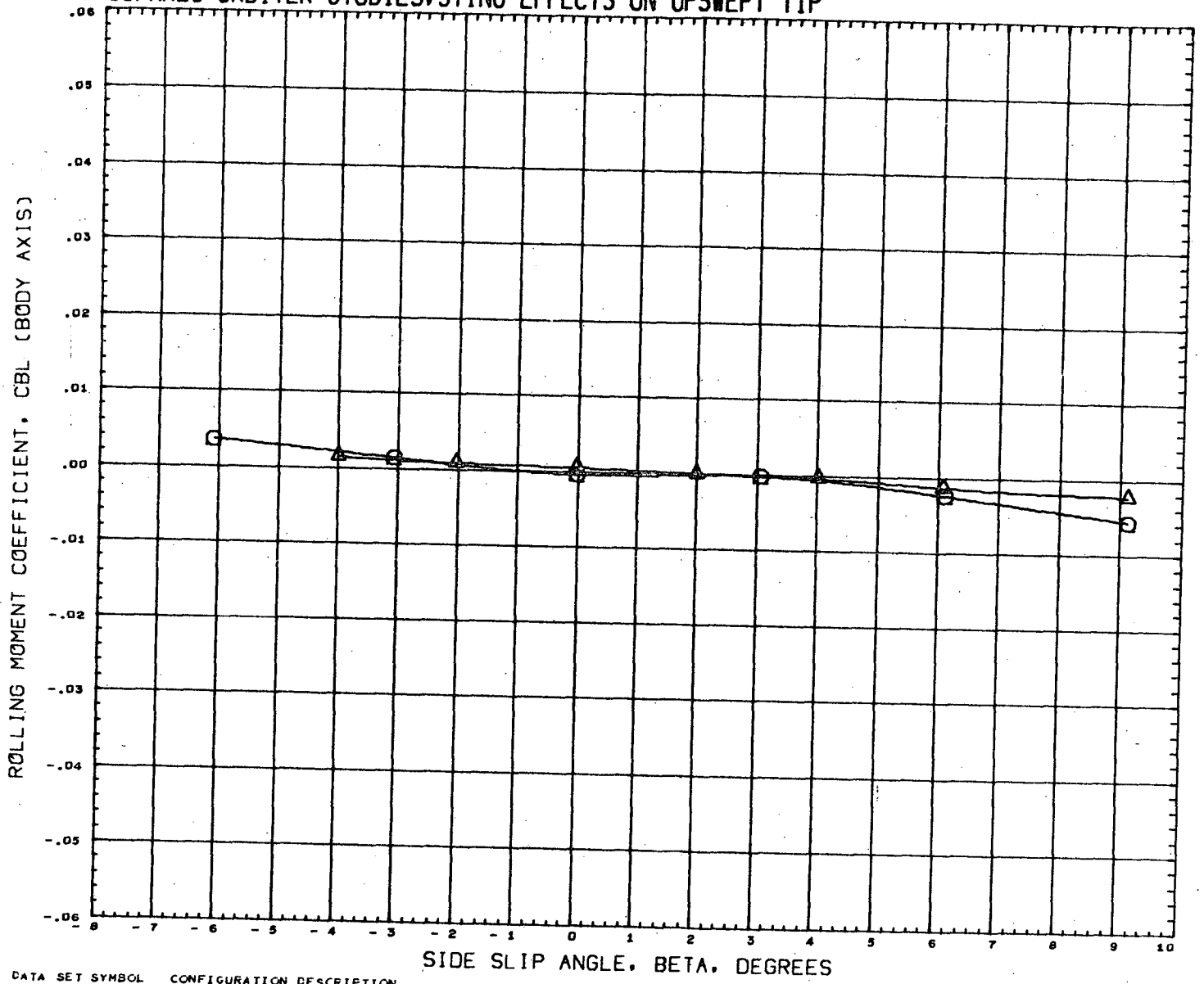
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.596

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



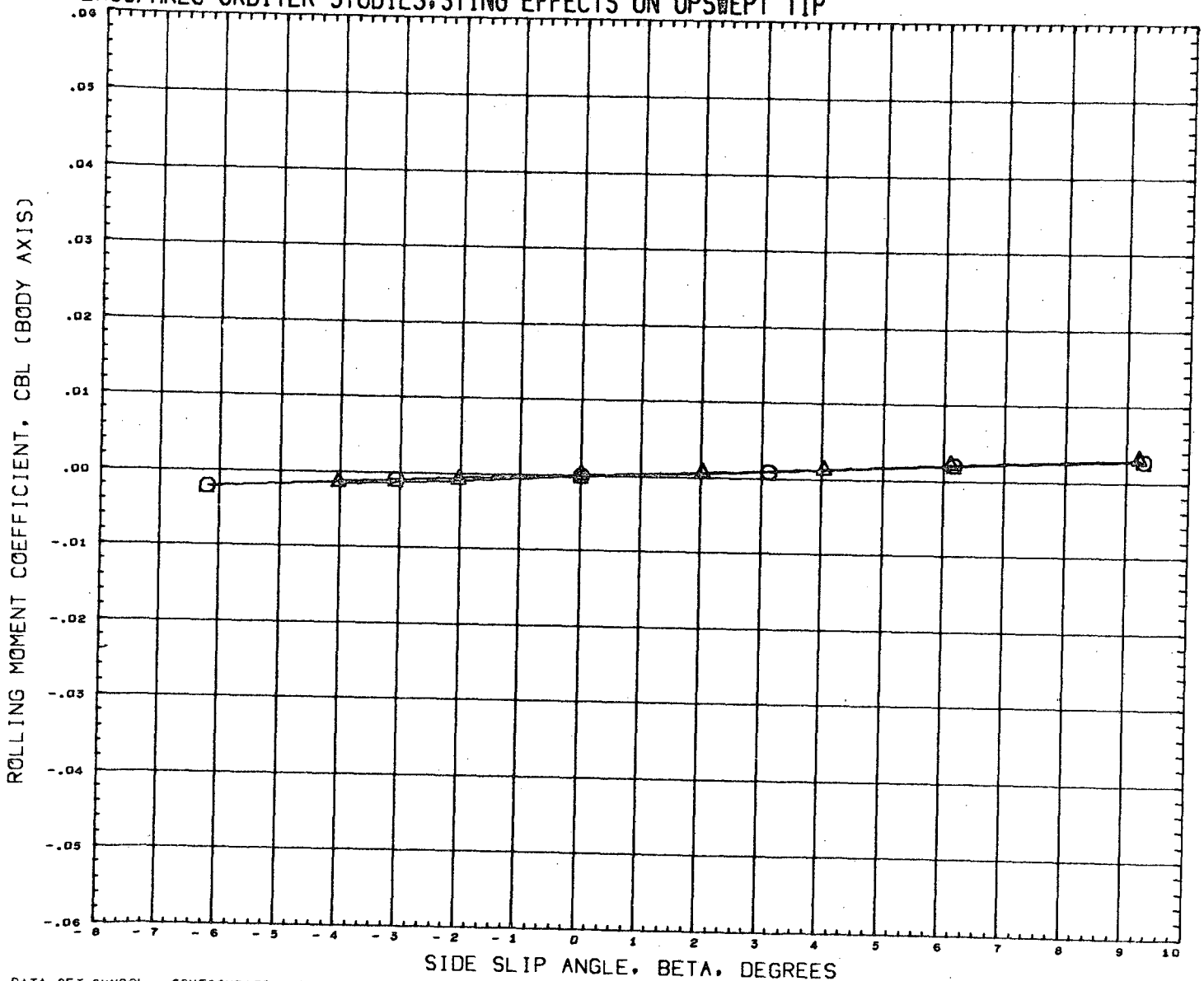
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 0.900

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP



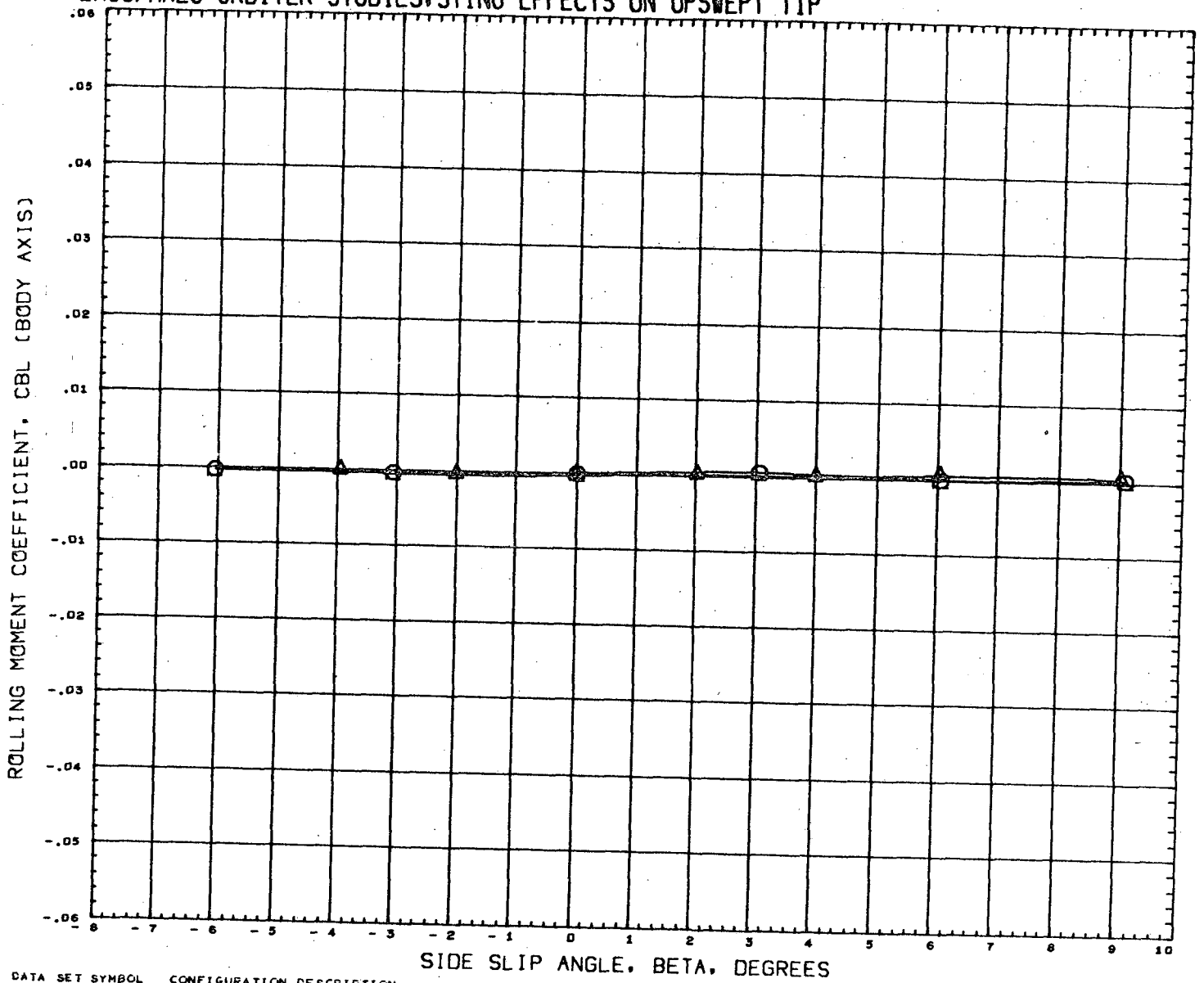
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 1.971

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, STING EFFECTS ON UPSWEPT TIP

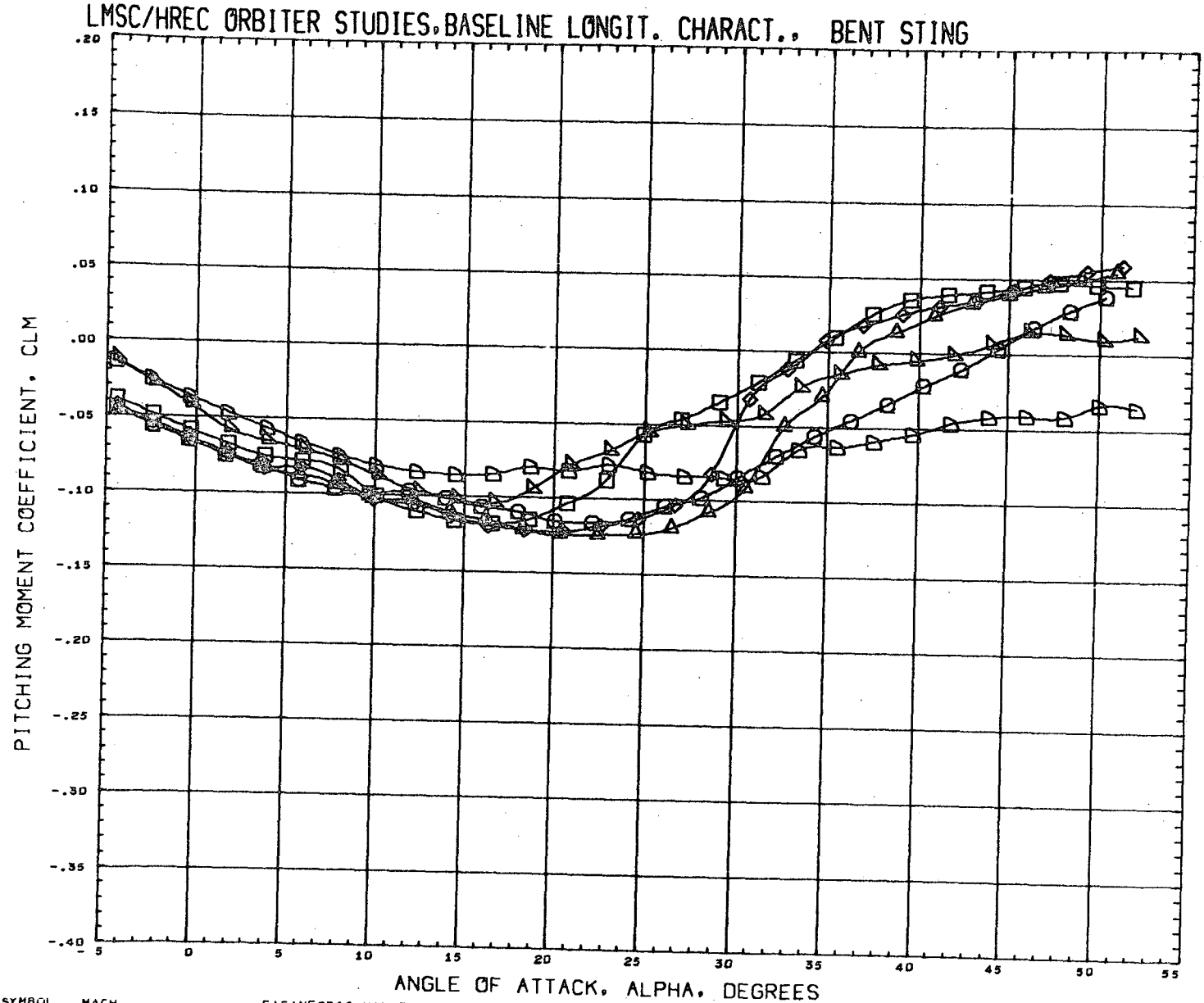


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA	ELEVN1
(A3615D)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000
(A3624F)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V3E1	-0.300	0.000

MACH 4.960

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

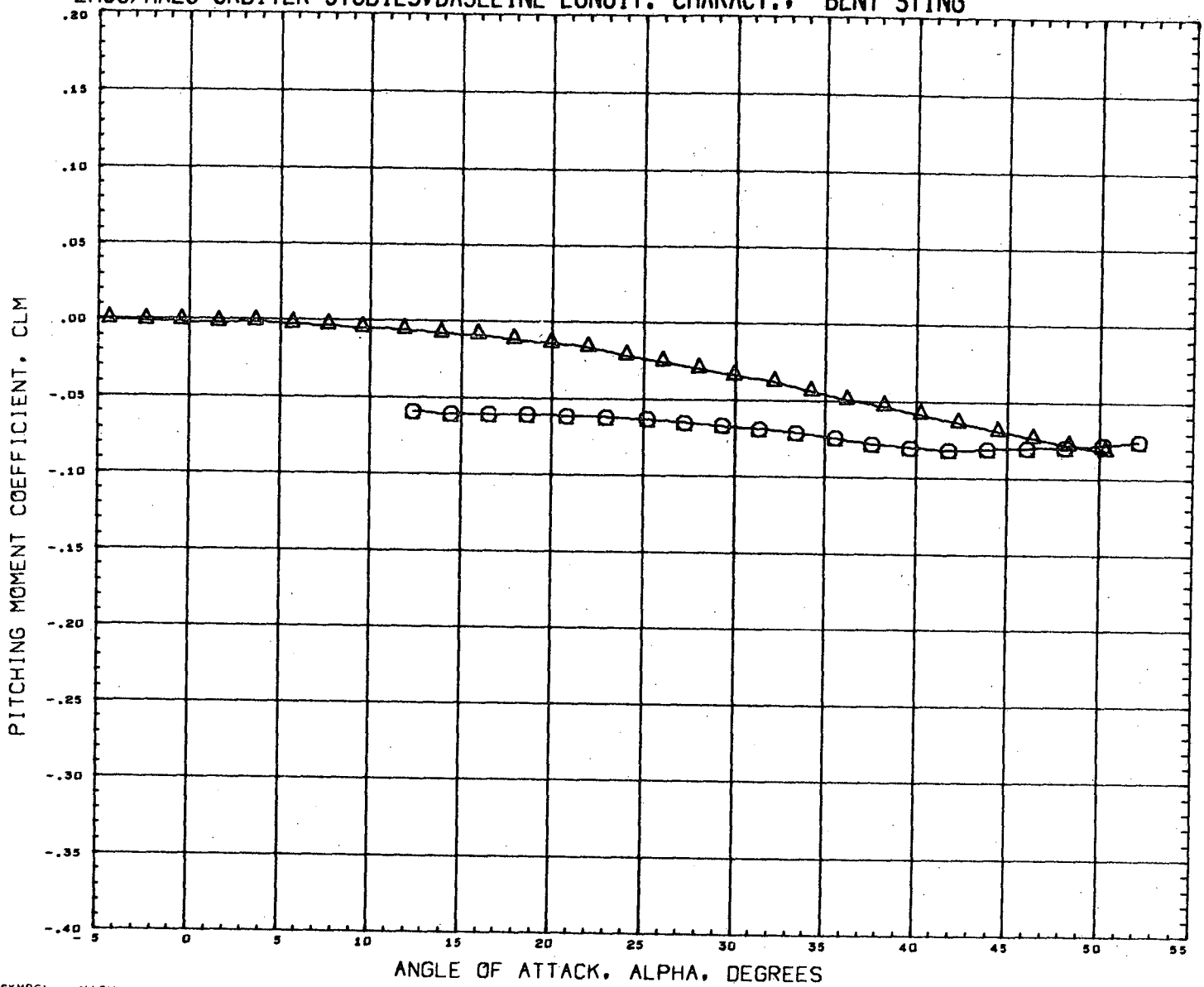


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
▽	1.096				
D	1.472	DATA HIST. CODE	#G#E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LONGIT. CHARACT., BENT STING

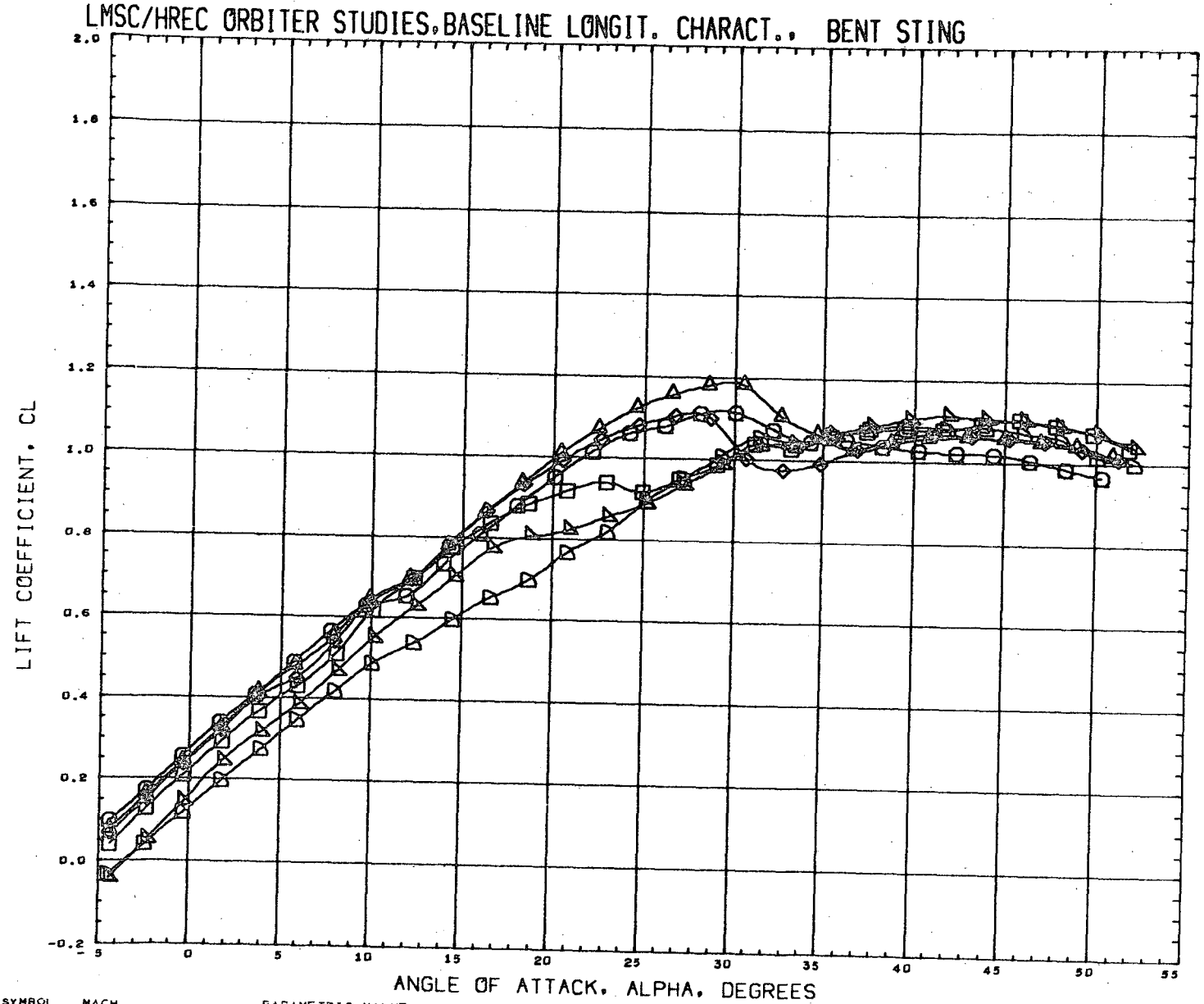


SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

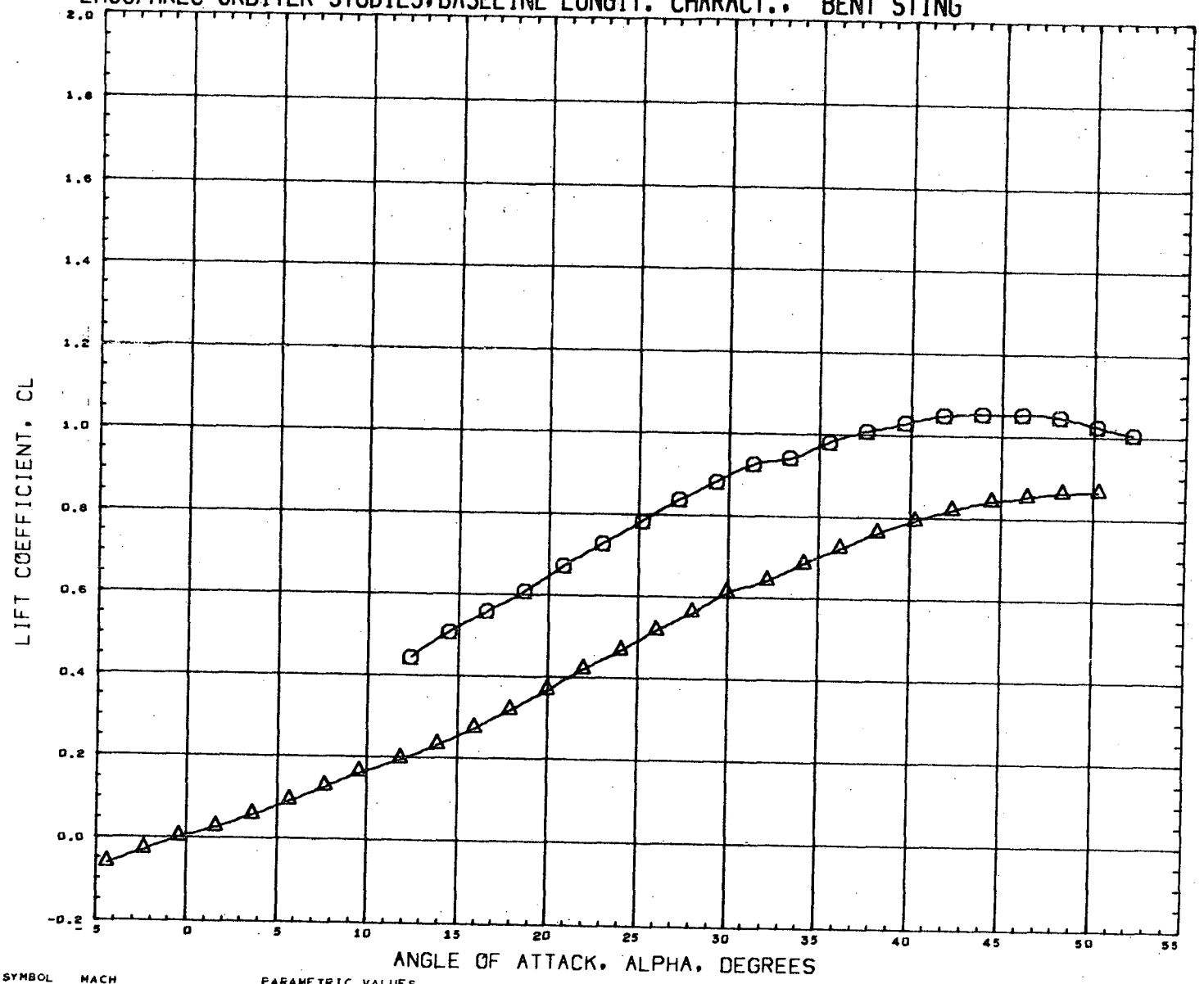


SYMBOL	MACH		PARAMETRIC VALUES		
	0.401	BETA	0.000	ELEVN1	0.000
	0.594	RUDER3	0.000		
	0.698				
	0.903				
	1.096				
	1.472	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING



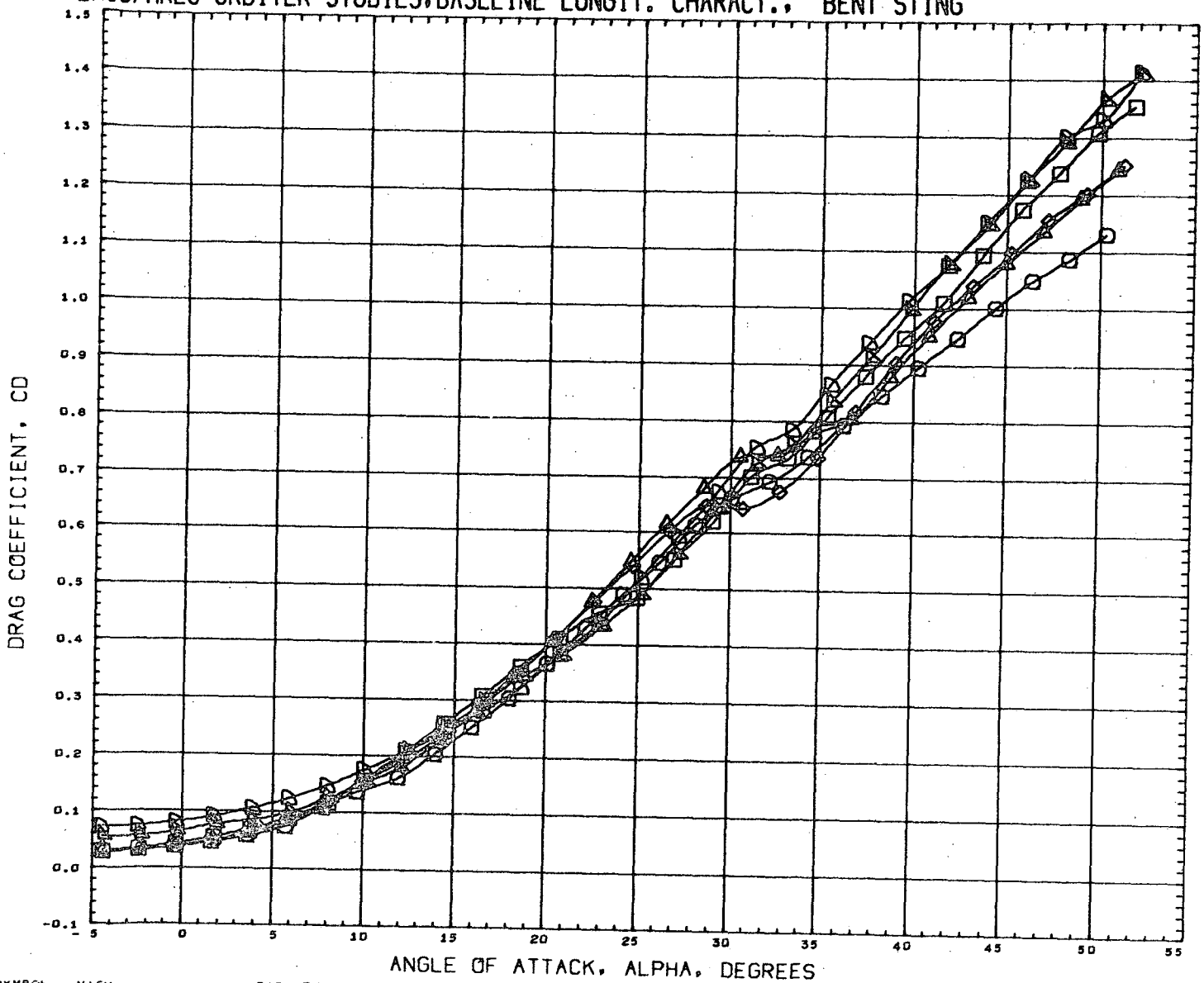
SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING

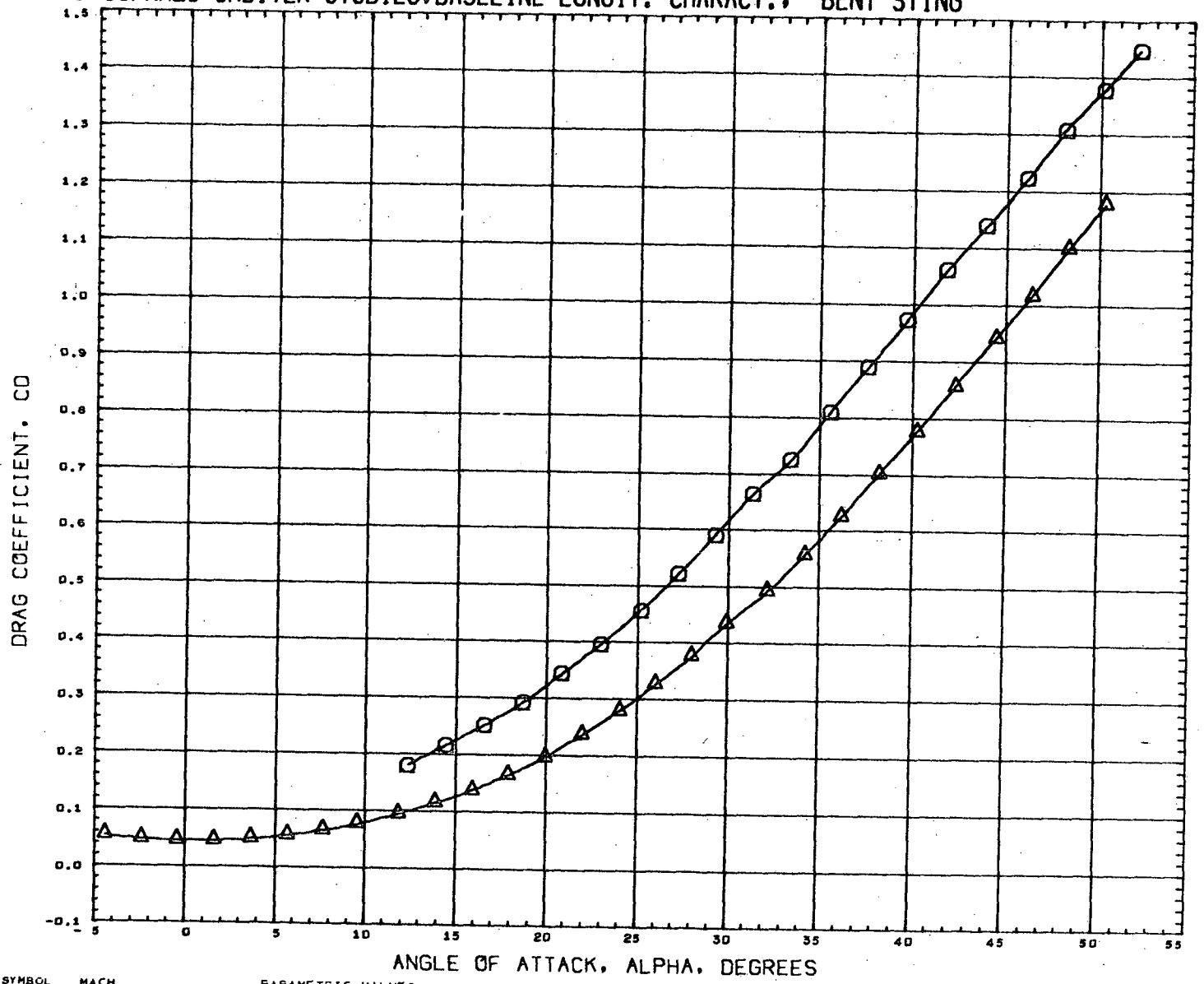


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
▷	1.096				
D	1.472	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING



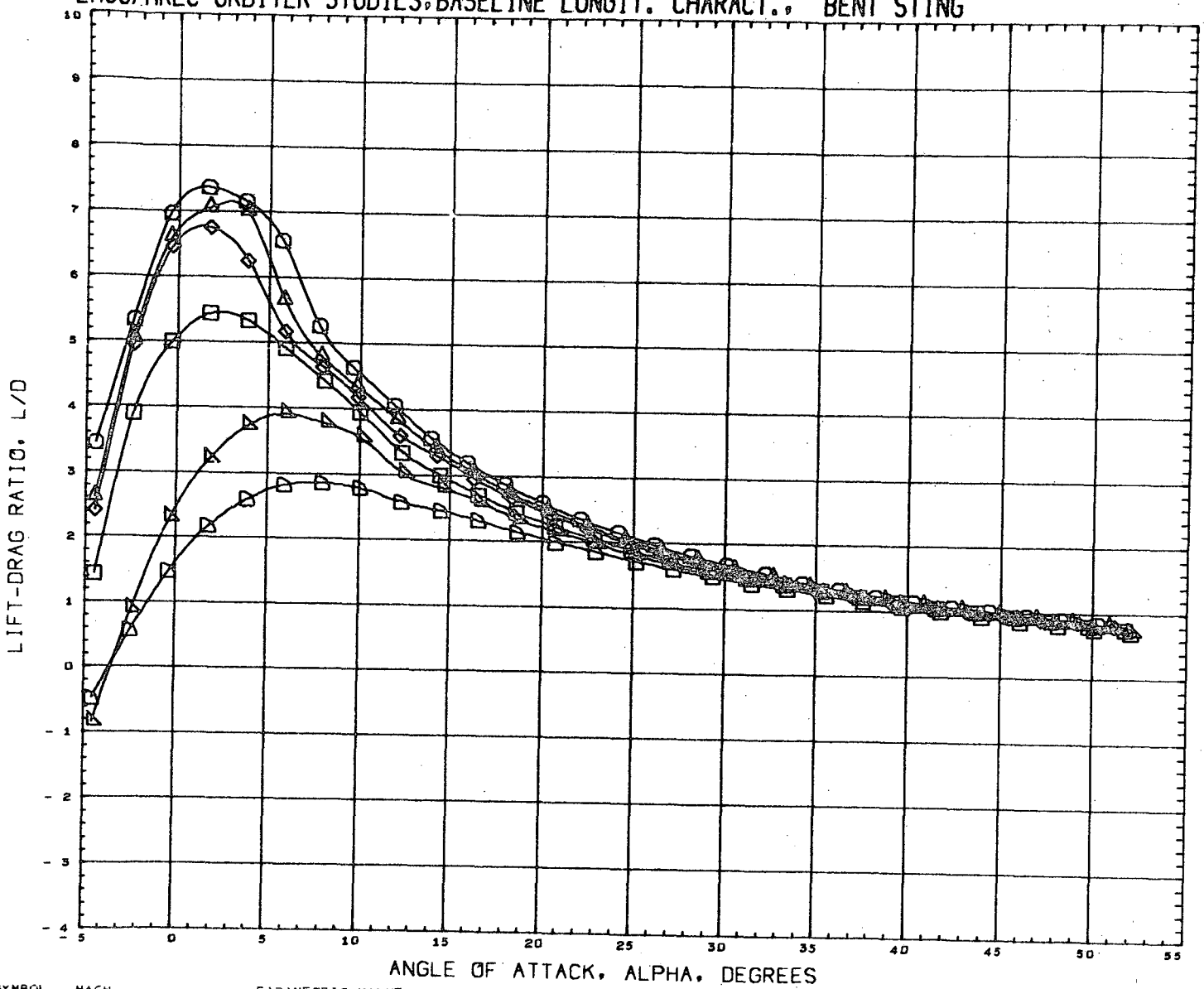
SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE #G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING

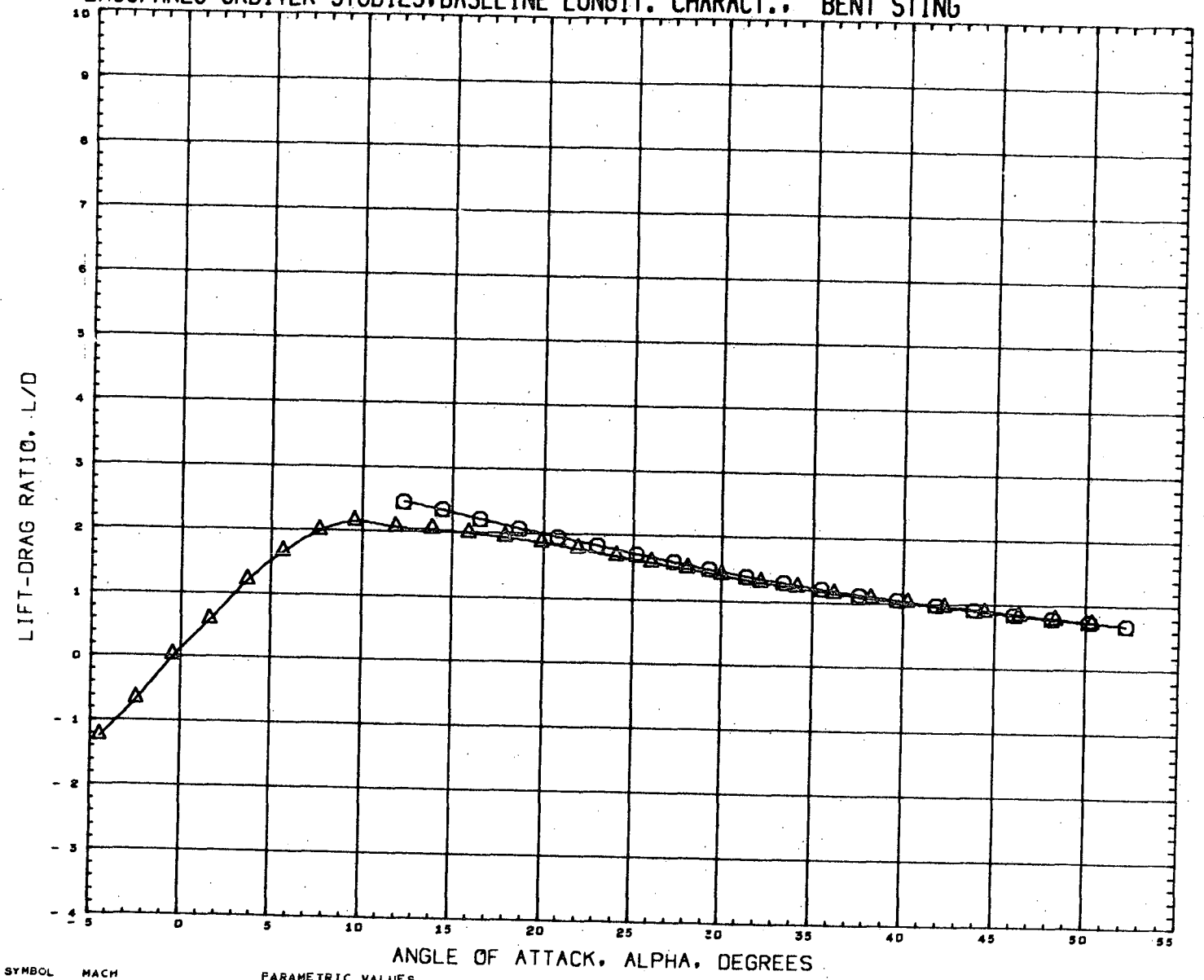


SYMBOL	MACH	PARAMETRIC VALUES			
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
▷	1.096				
D	1.472	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING

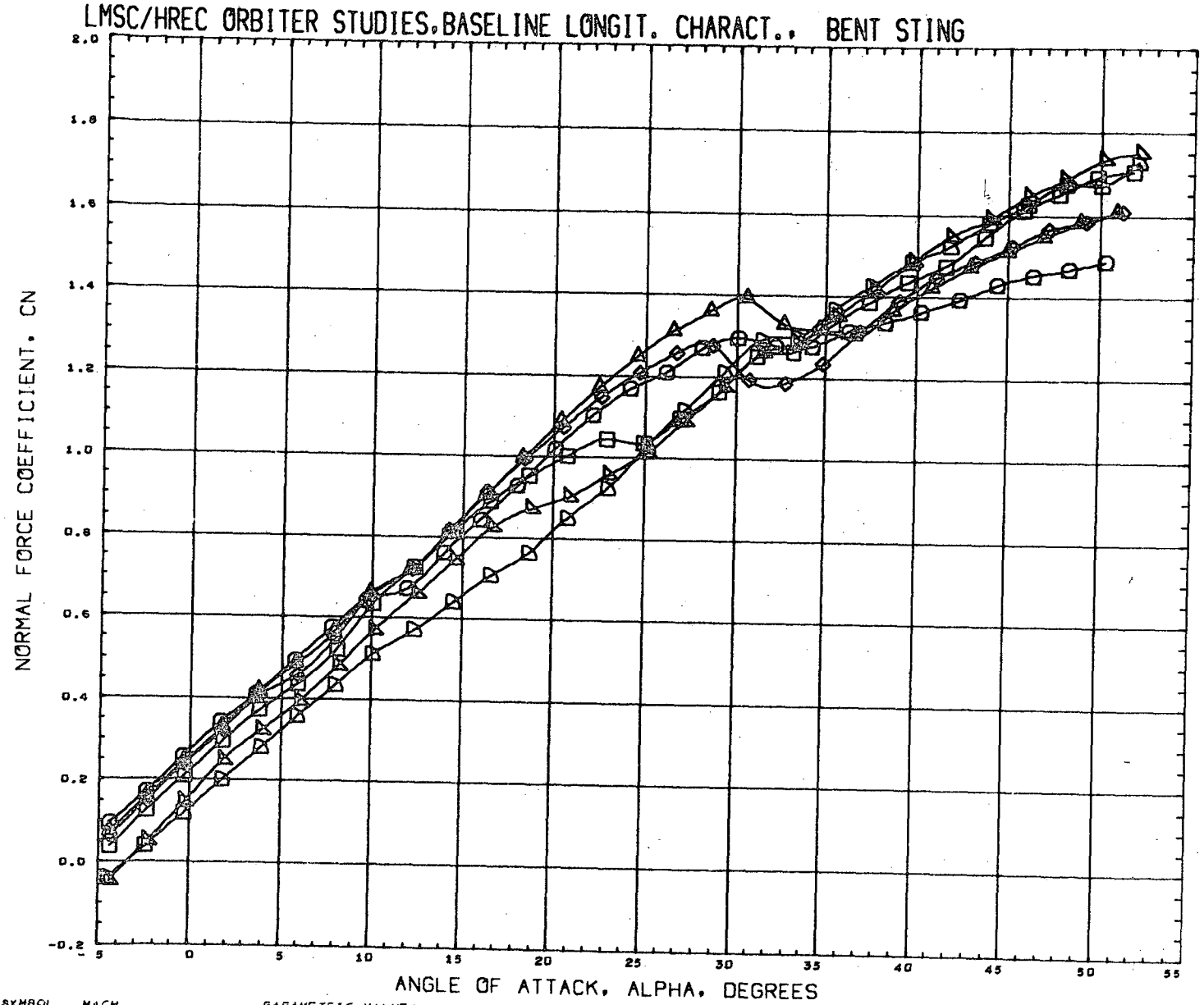


SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA MIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

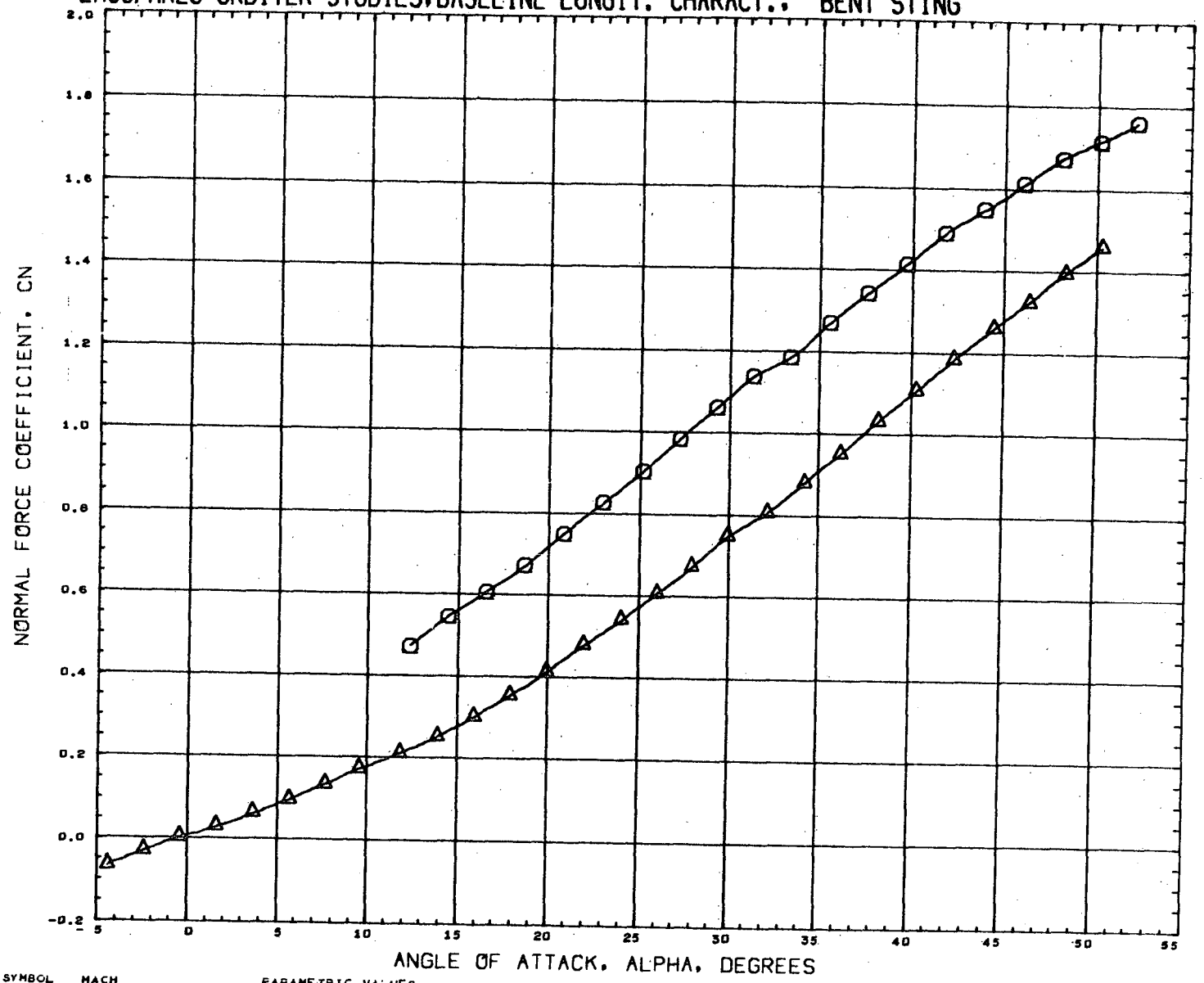


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
▽	1.096				
D	1.472	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT.. BENT STING



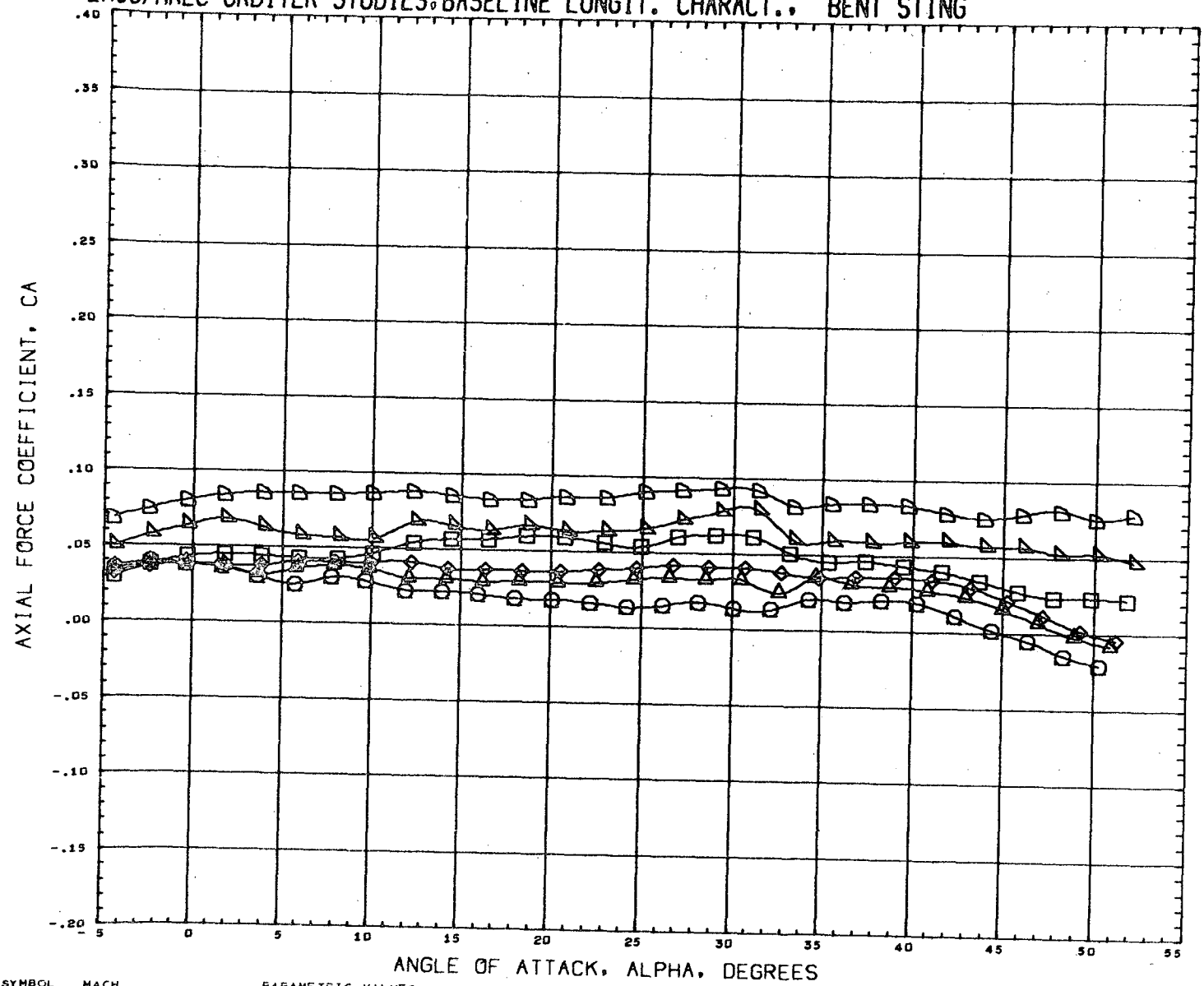
SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE #G#E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING

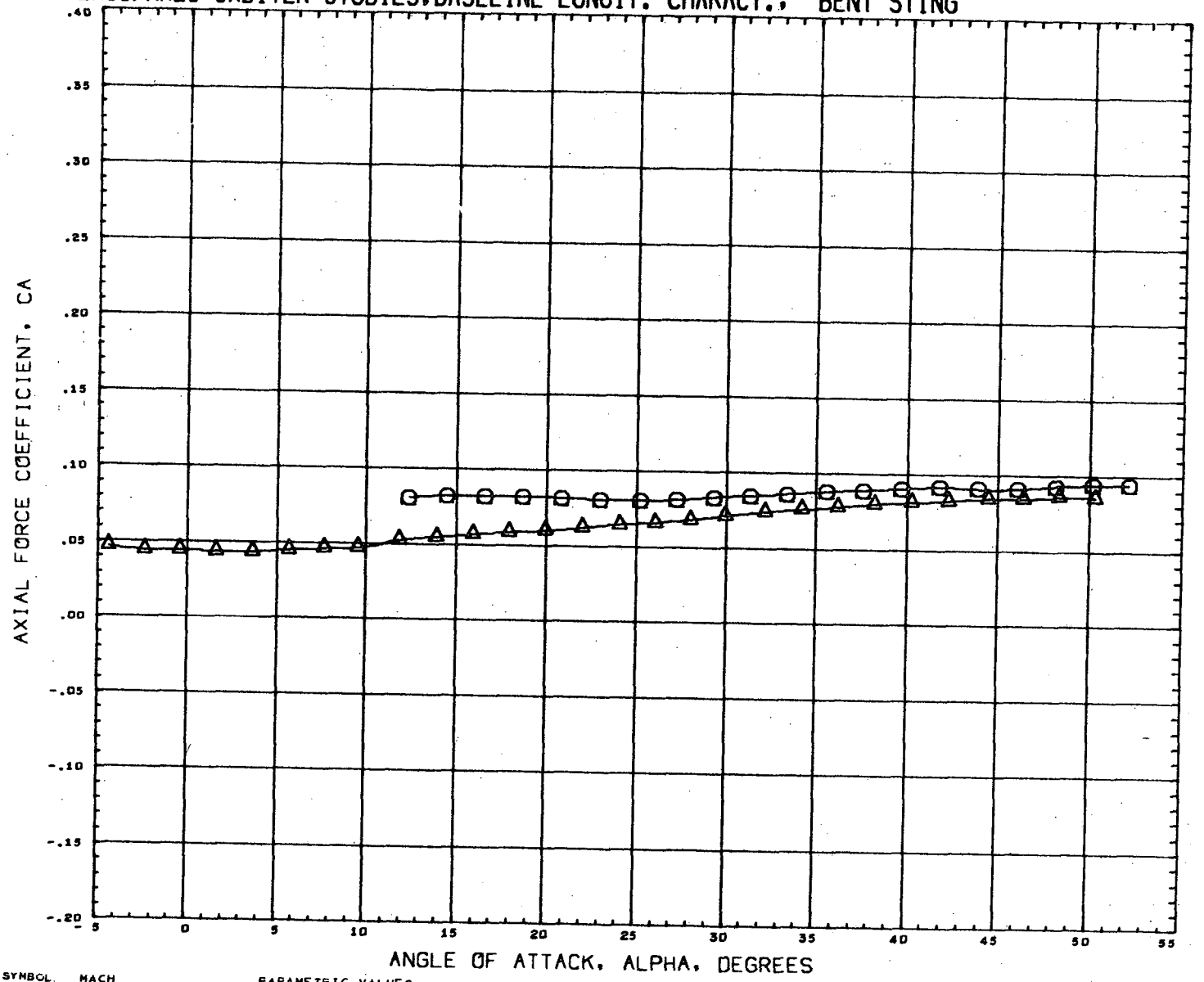


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
▽	1.096				
D	1.472	DATA HIST. CODE	*G*E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LONGIT. CHARACT., BENT STING

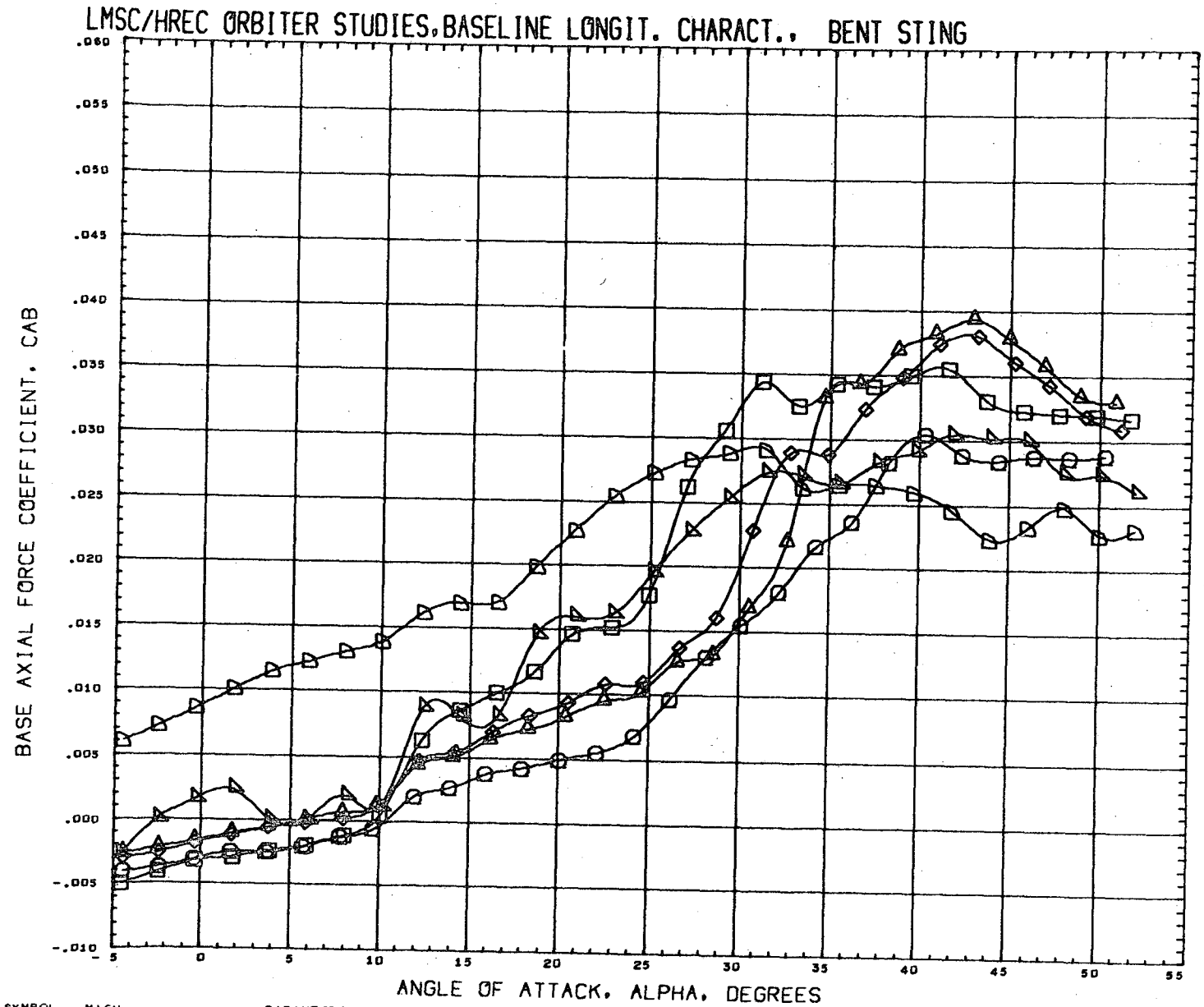


SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRF	3.9950	INCHES
YMRF	0.0000	INCHES
ZMRF -	0.1350	INCHES
SCALE	0.0033	SCALE

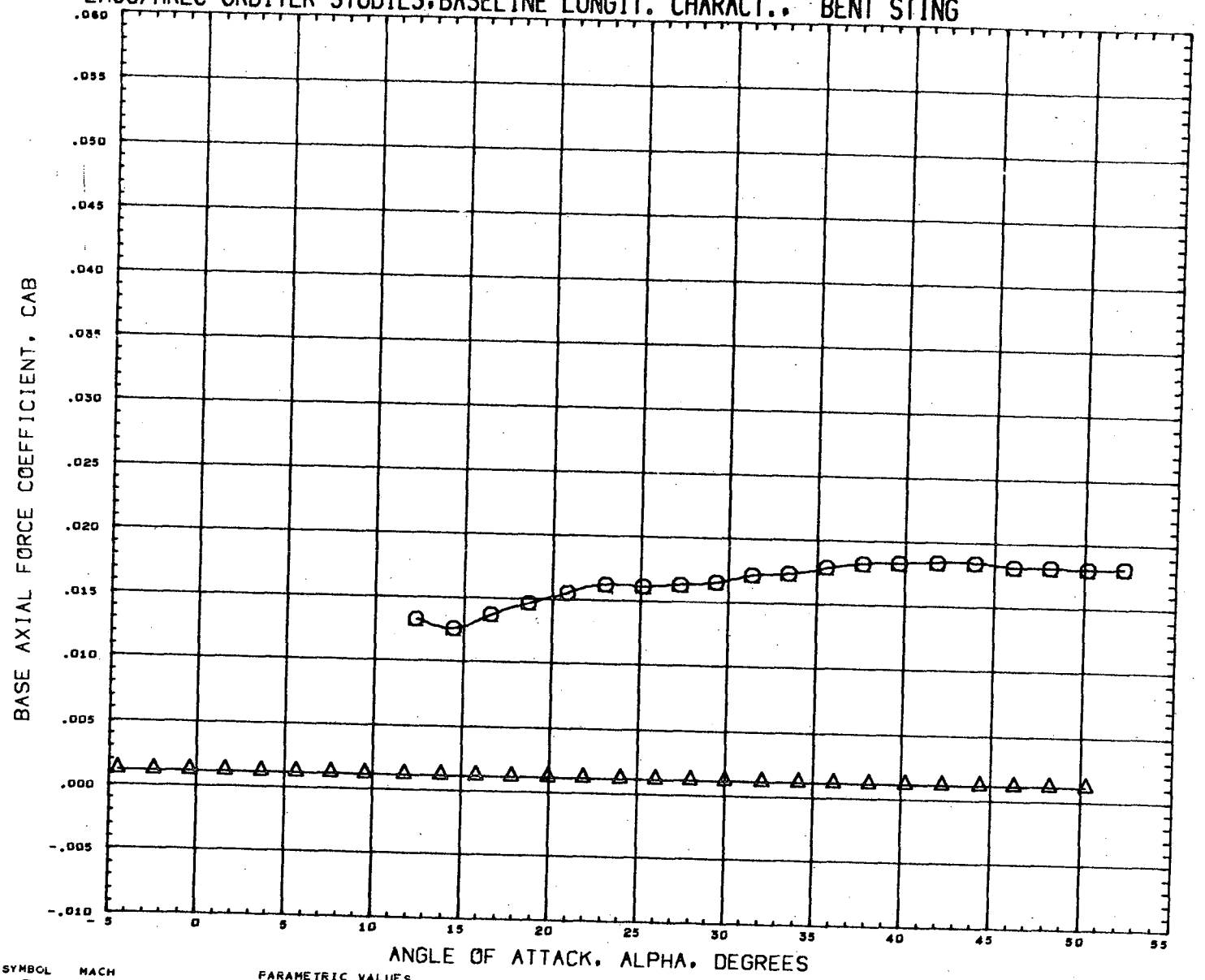


SYMBOL	MACH		PARAMETRIC VALUES		
○	0.401	BETA	0.000	ELEVN1	0.000
△	0.594	RUDER3	0.000		
◇	0.698				
□	0.903				
◸	1.096				
D	1.472	DATA HIST. CODE	#G#E		

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING



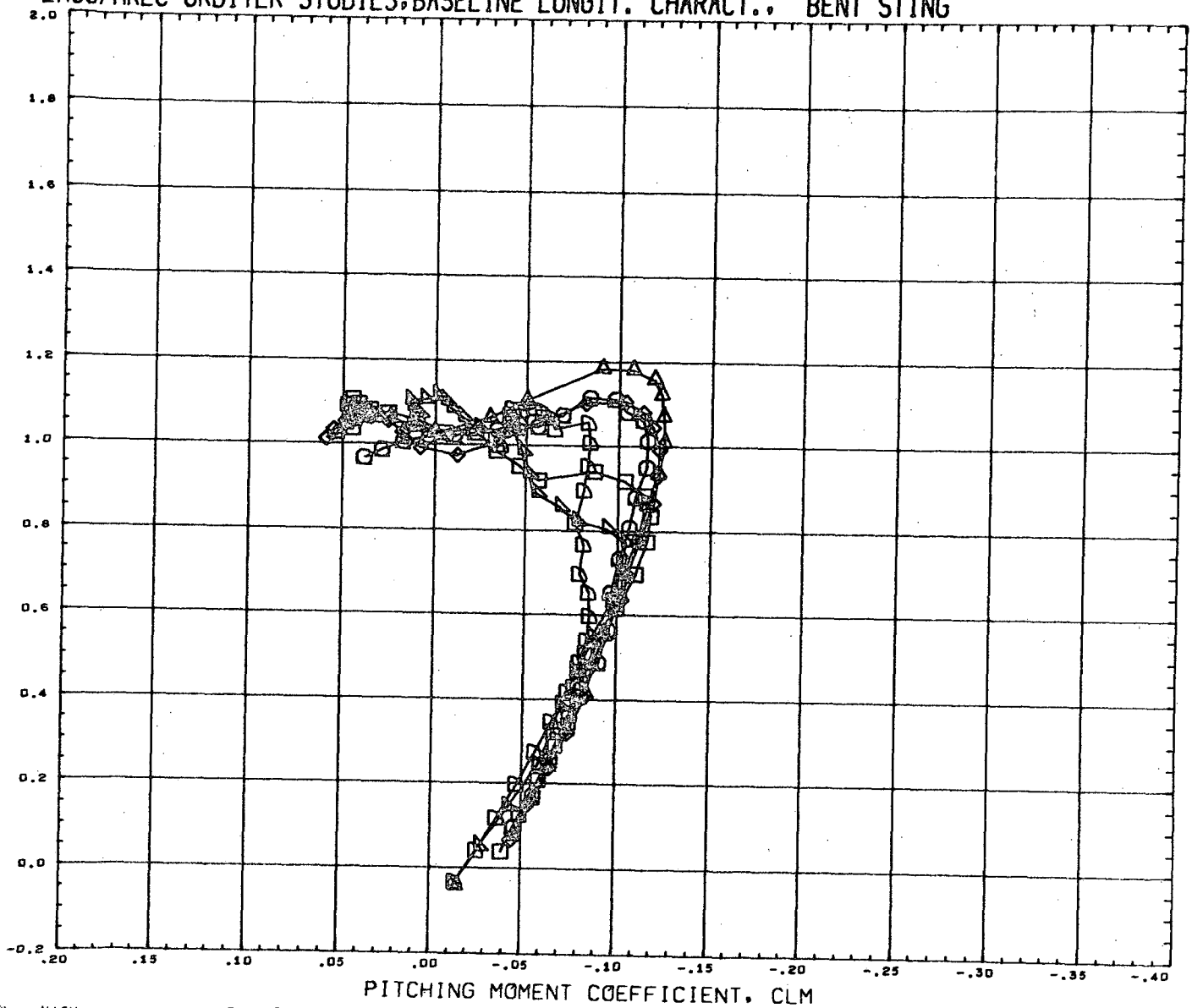
SYMBOL	MACH	PARAMETRIC VALUES			
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE LONGIT. CHARACT., BENT STING



SYMBOL	MACH
○	0.401
△	0.594
◇	0.698
□	0.903
▽	1.096
D	1.472

PARAMETRIC VALUES

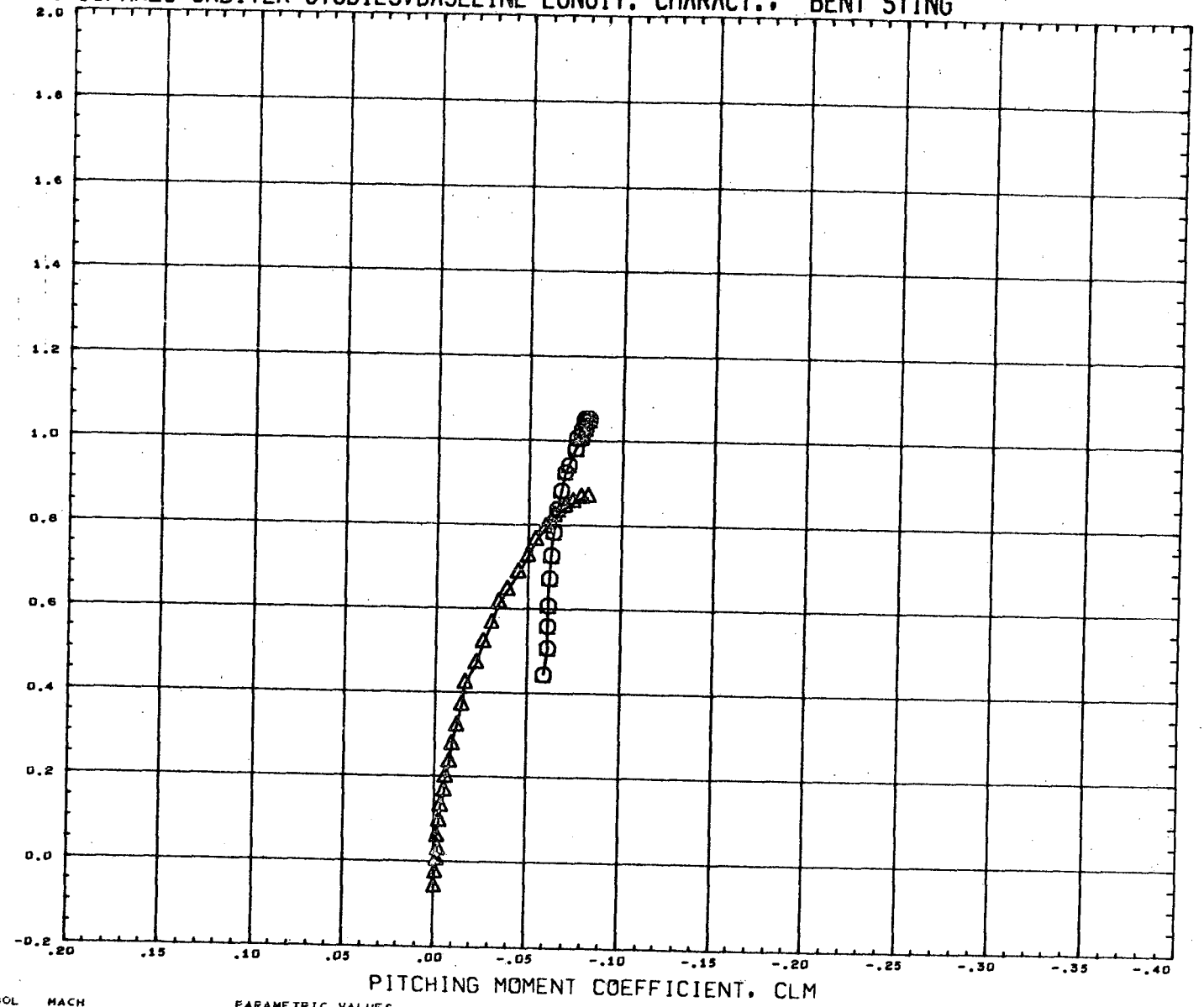
BETA	0.000	ELEVN1	0.000
RUDER3	0.000		

DATA HIST. CODE #G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES,BASELINE LONGIT. CHARACT., BENT STING



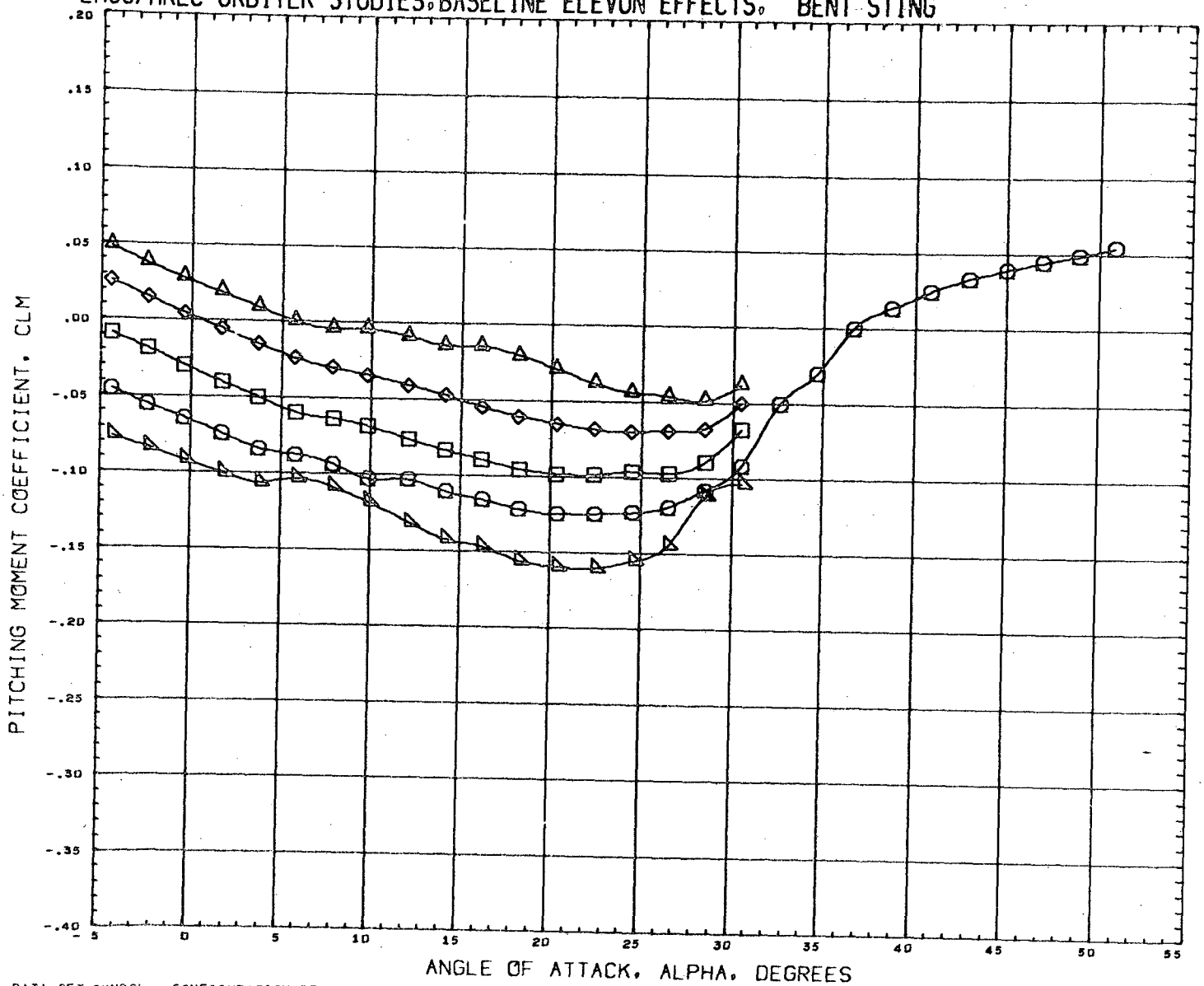
SYMBOL	MACH		PARAMETRIC VALUES		
○	1.947	BETA	0.000	ELEVN1	0.000
△	4.960	RUDER3	0.000		

DATA HIST. CODE *G*E

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



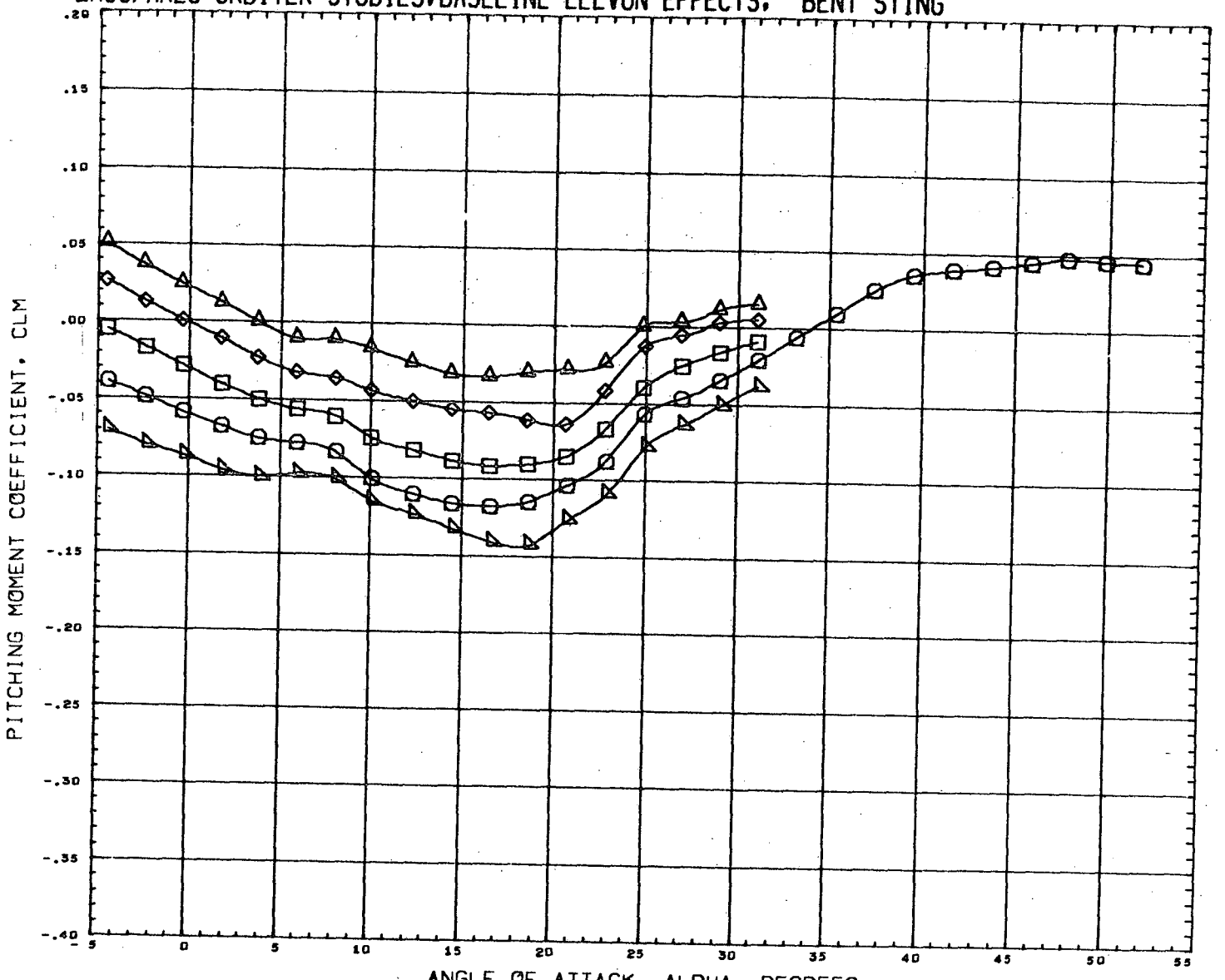
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1WI V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1WI V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1WI V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1WI V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1WI V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. BASELINE ELEVON EFFECTS. BENT STING



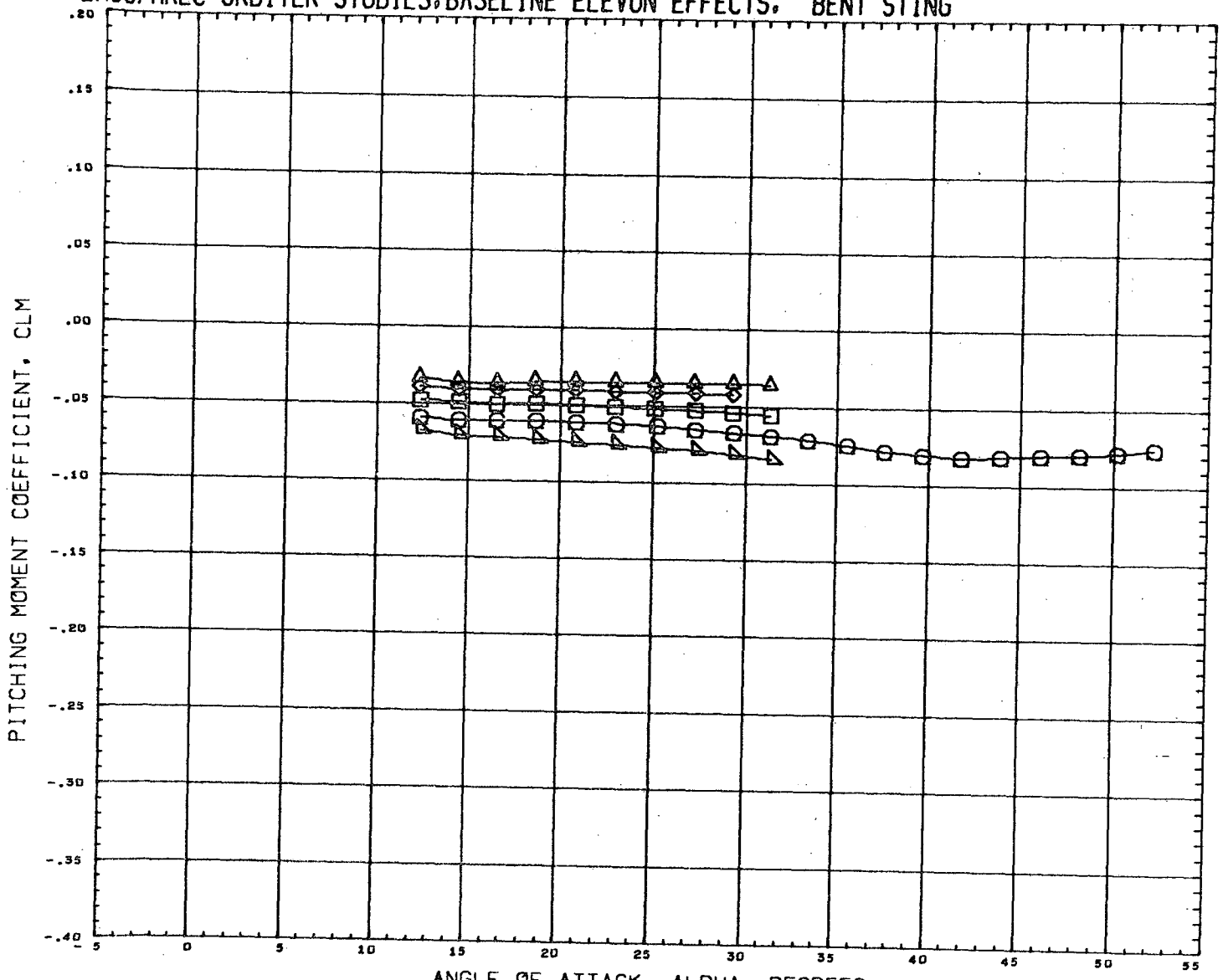
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



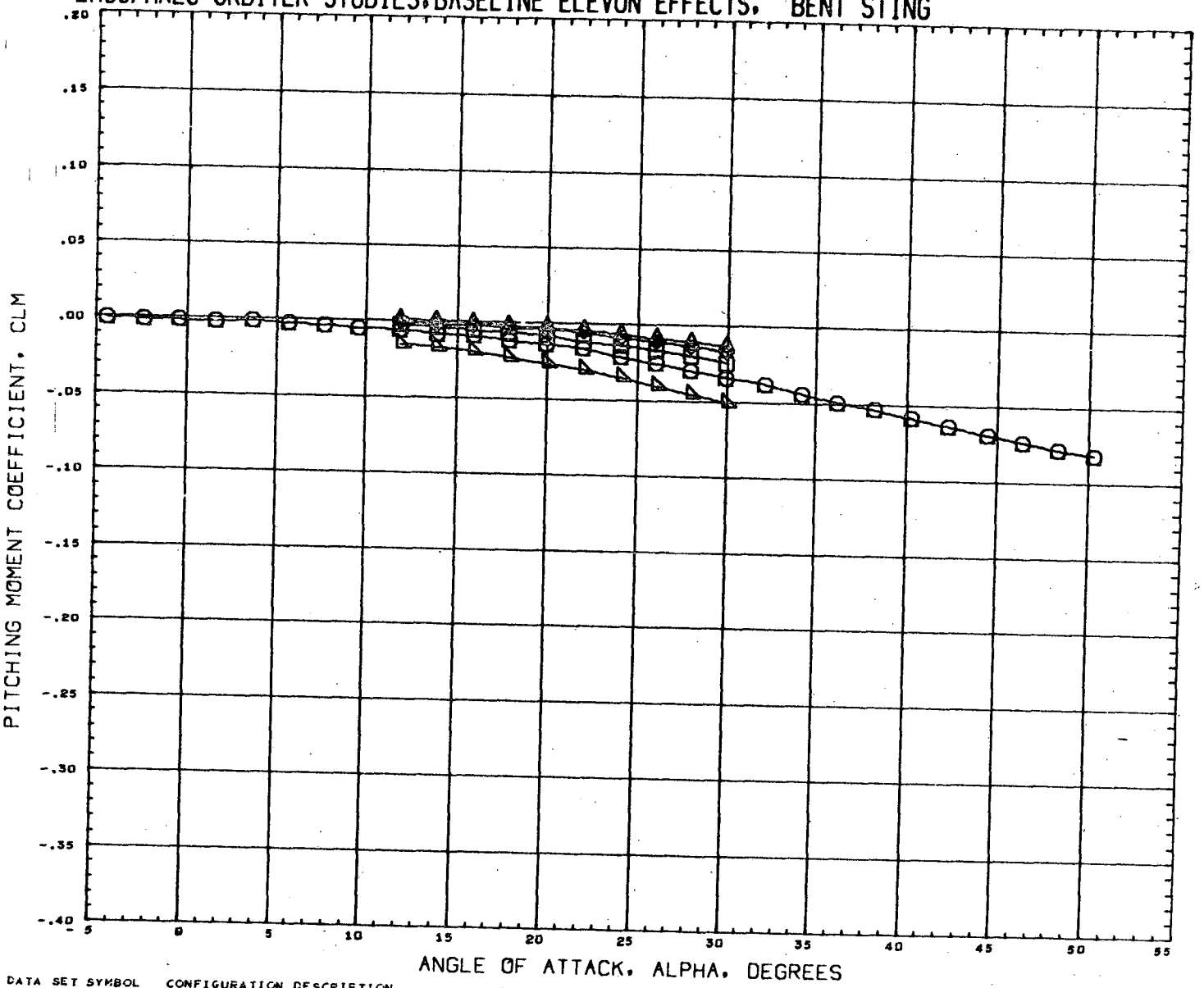
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



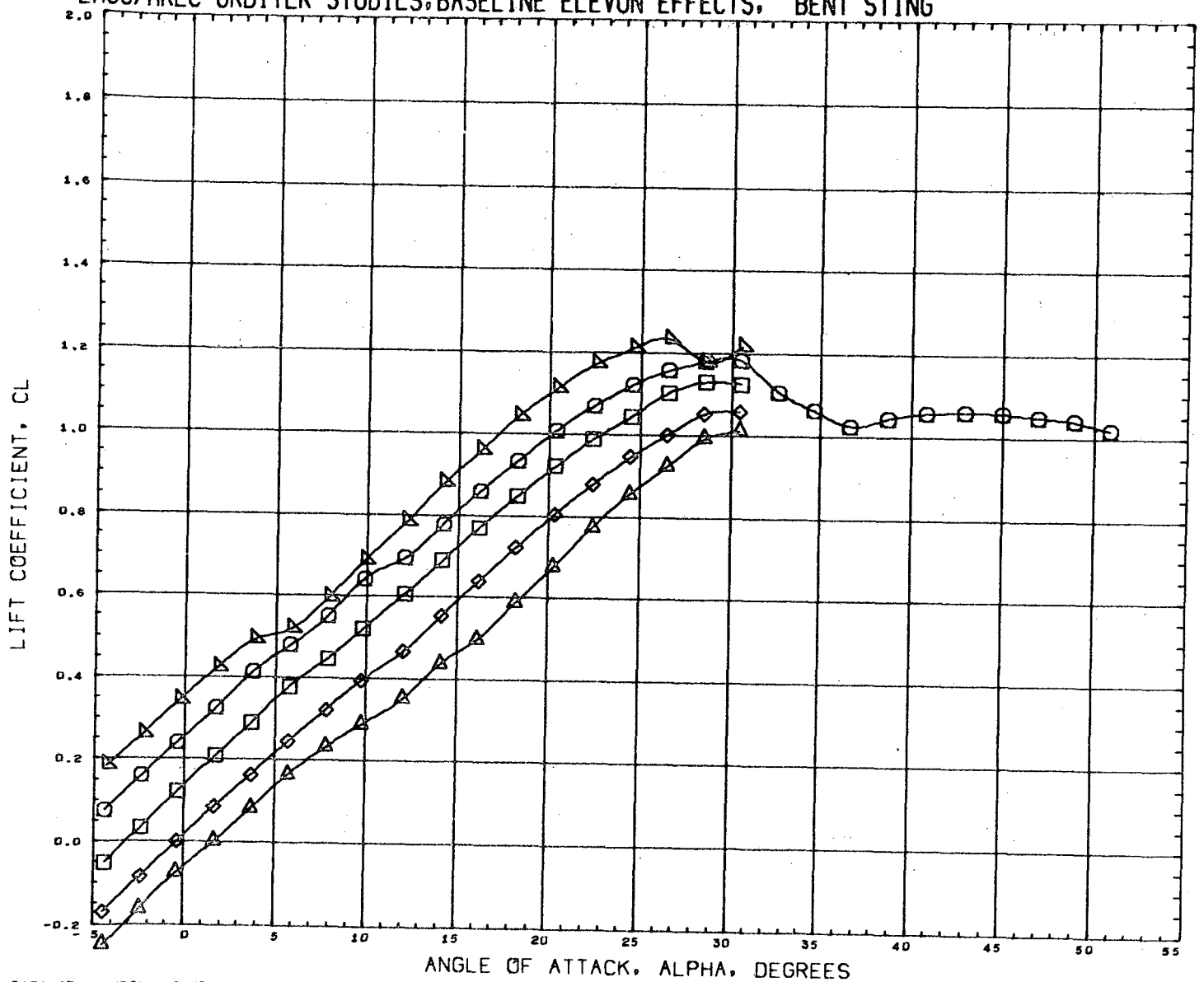
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



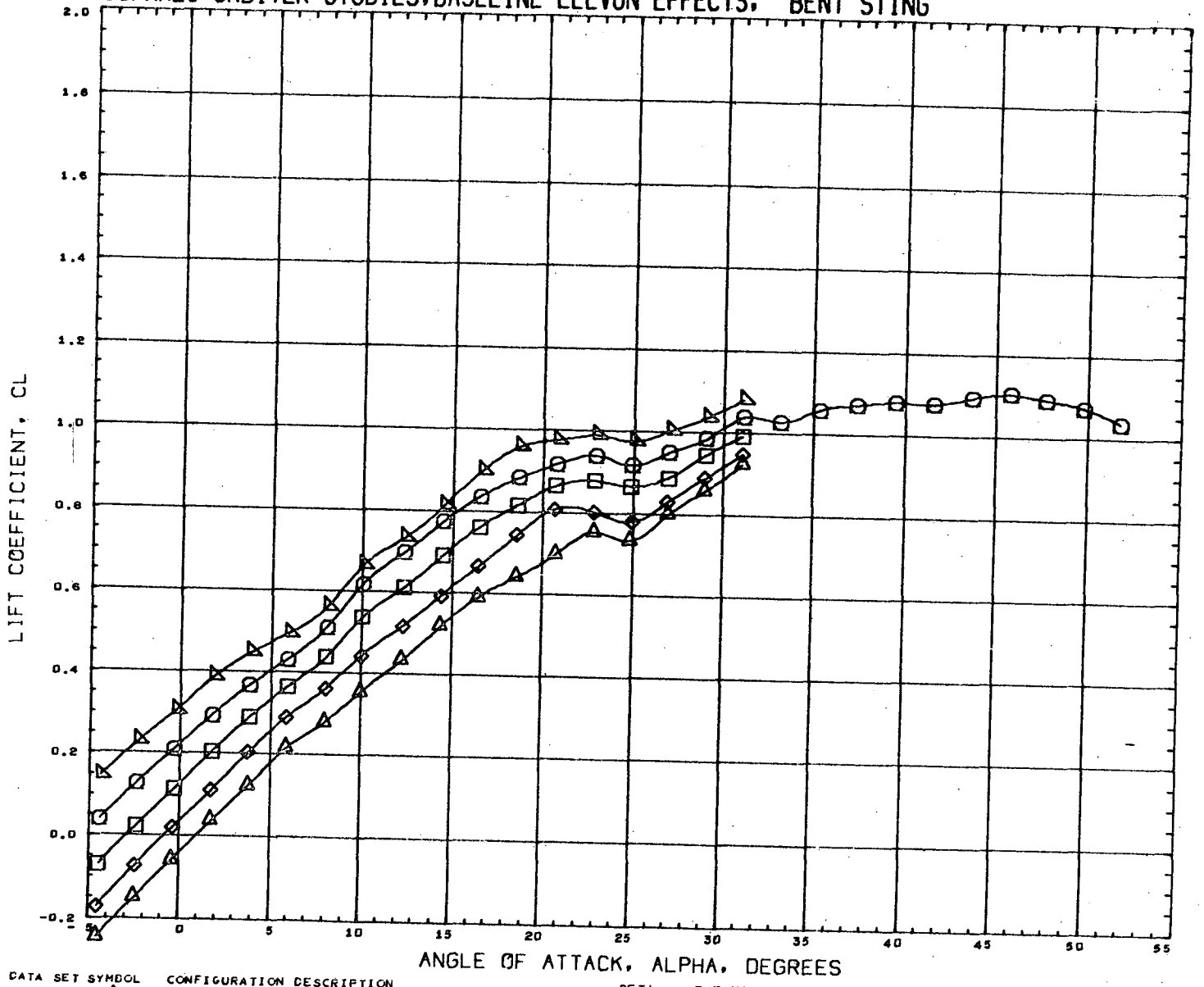
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	-10.000	0.000
(E3601S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	0.000	0.000
(D3602S) ▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1WIV1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



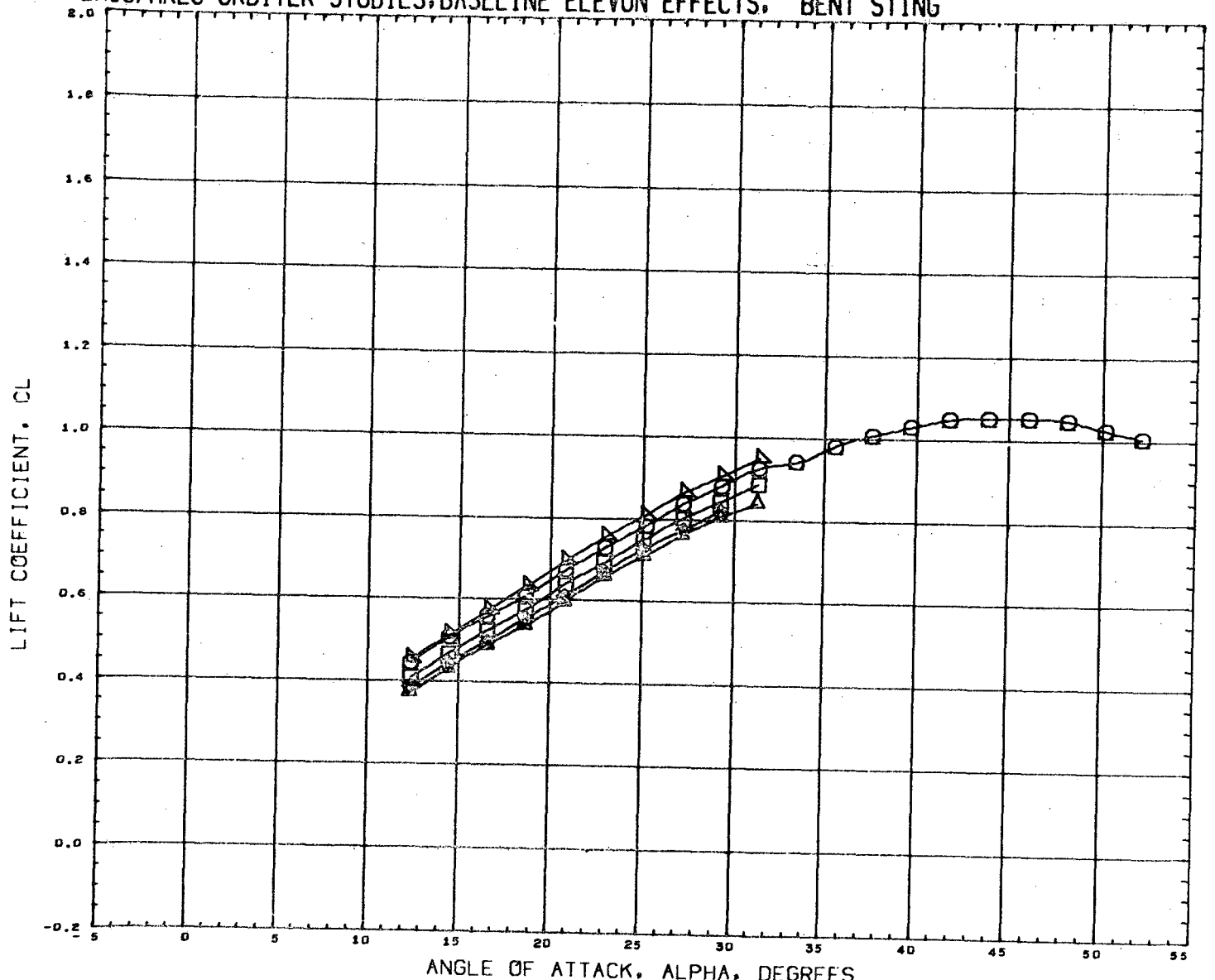
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

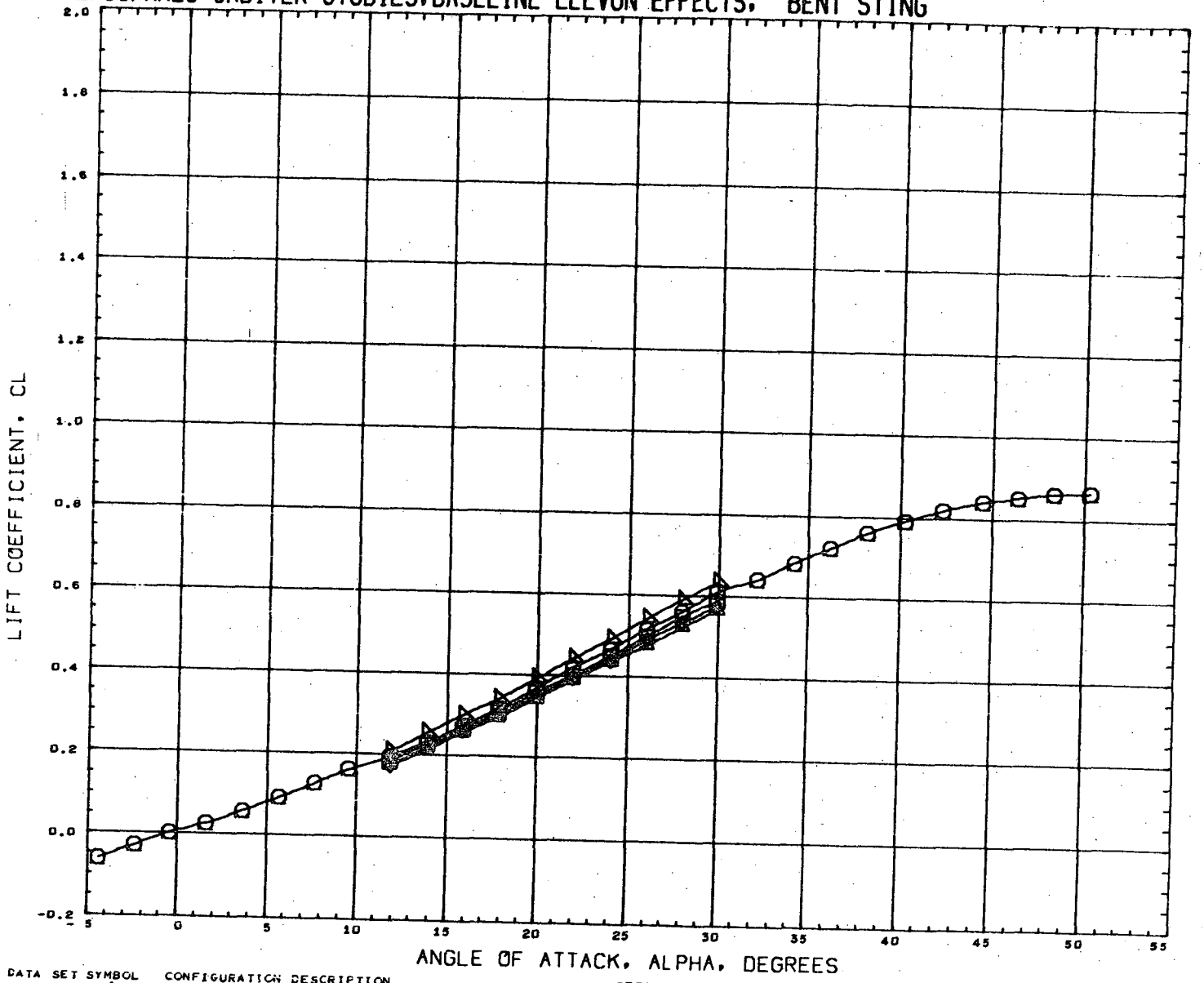


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



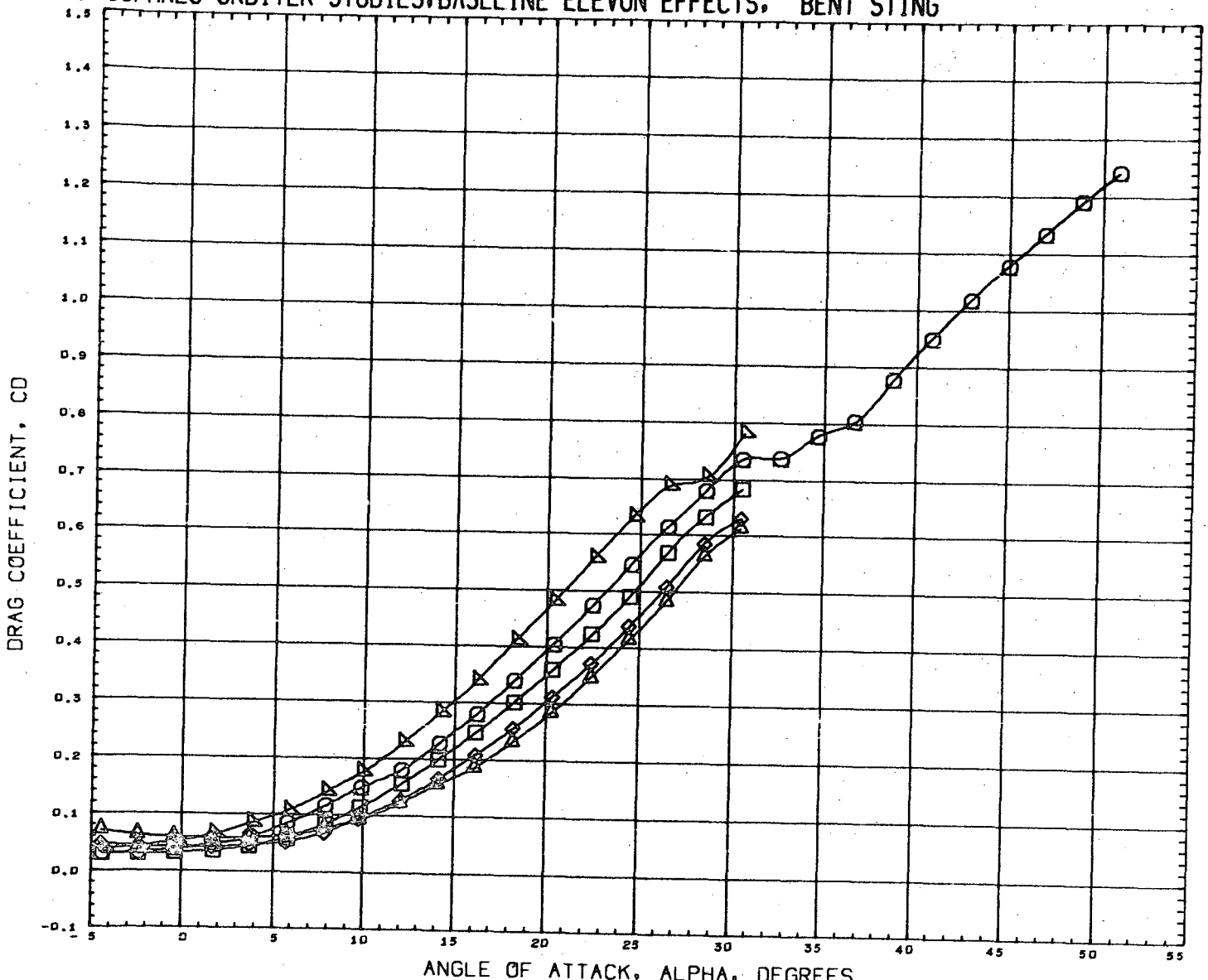
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	⬠	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

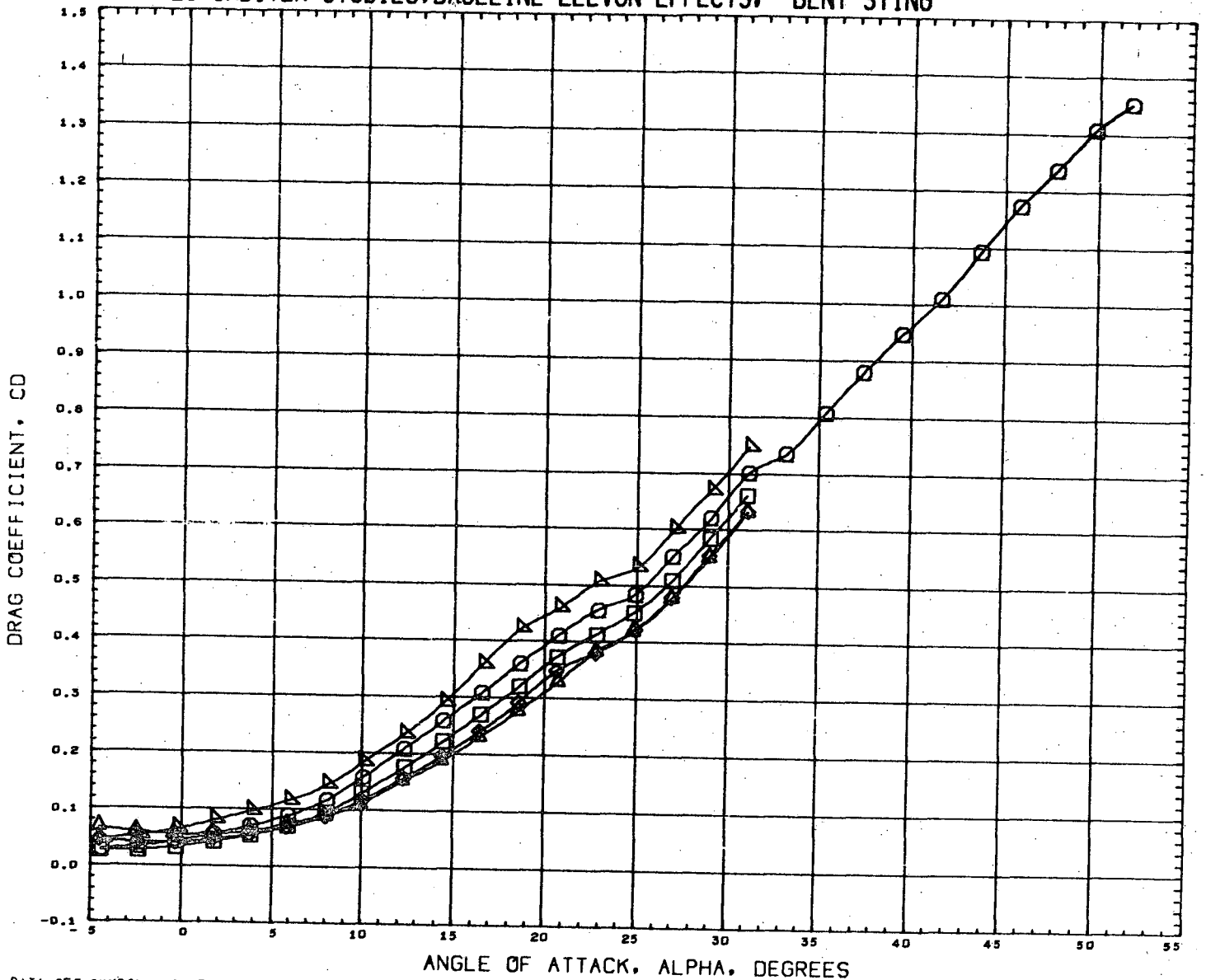


DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

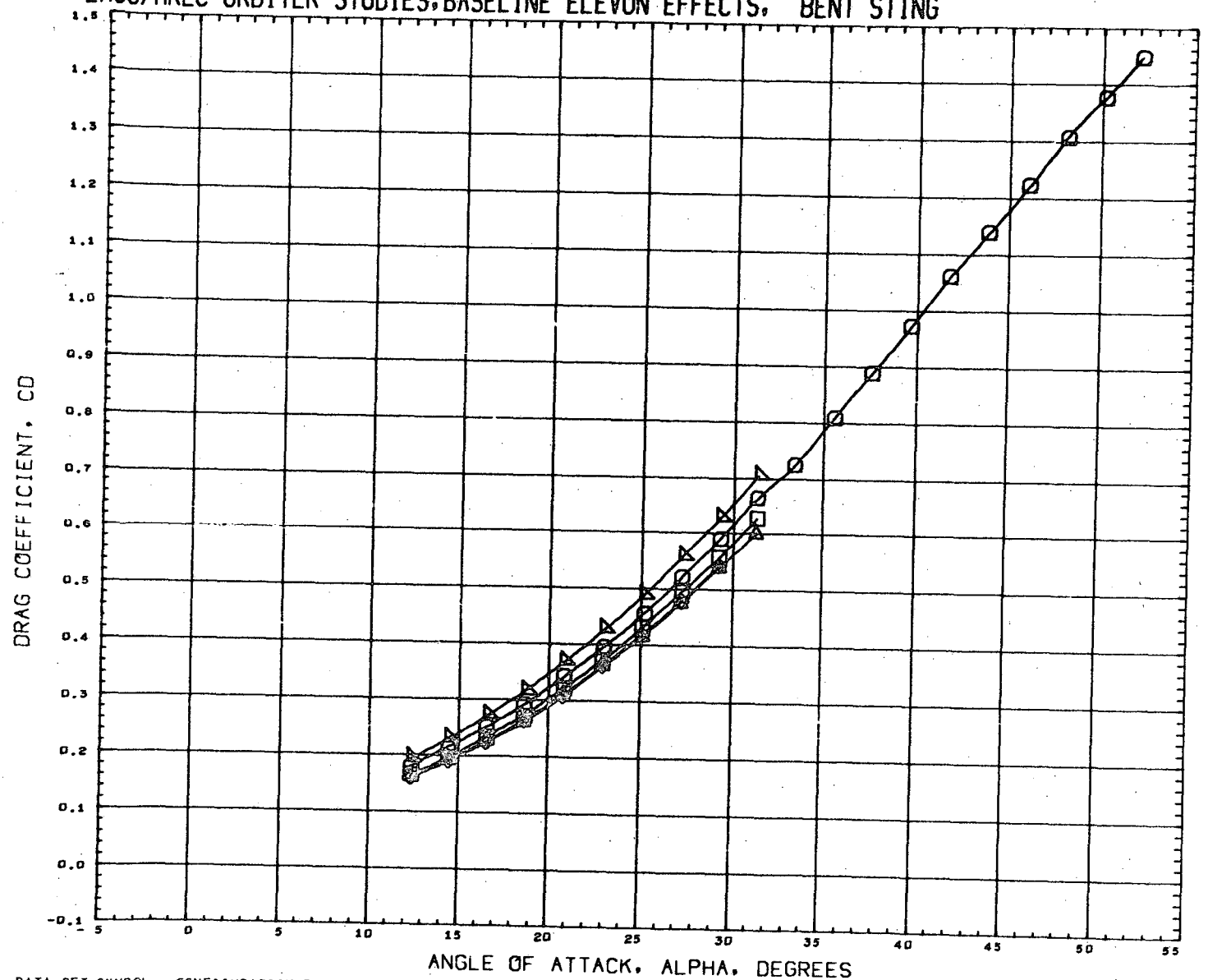


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



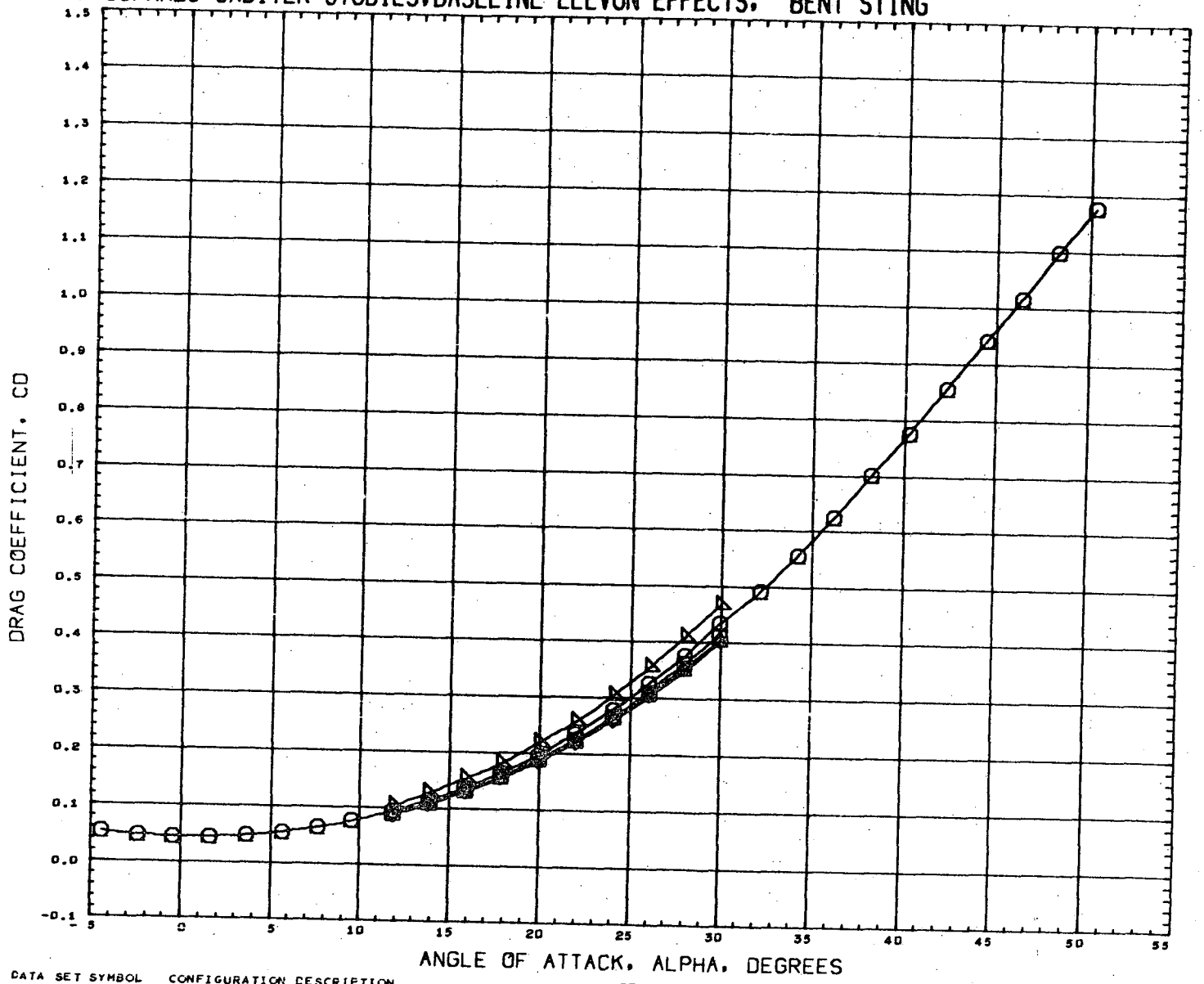
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

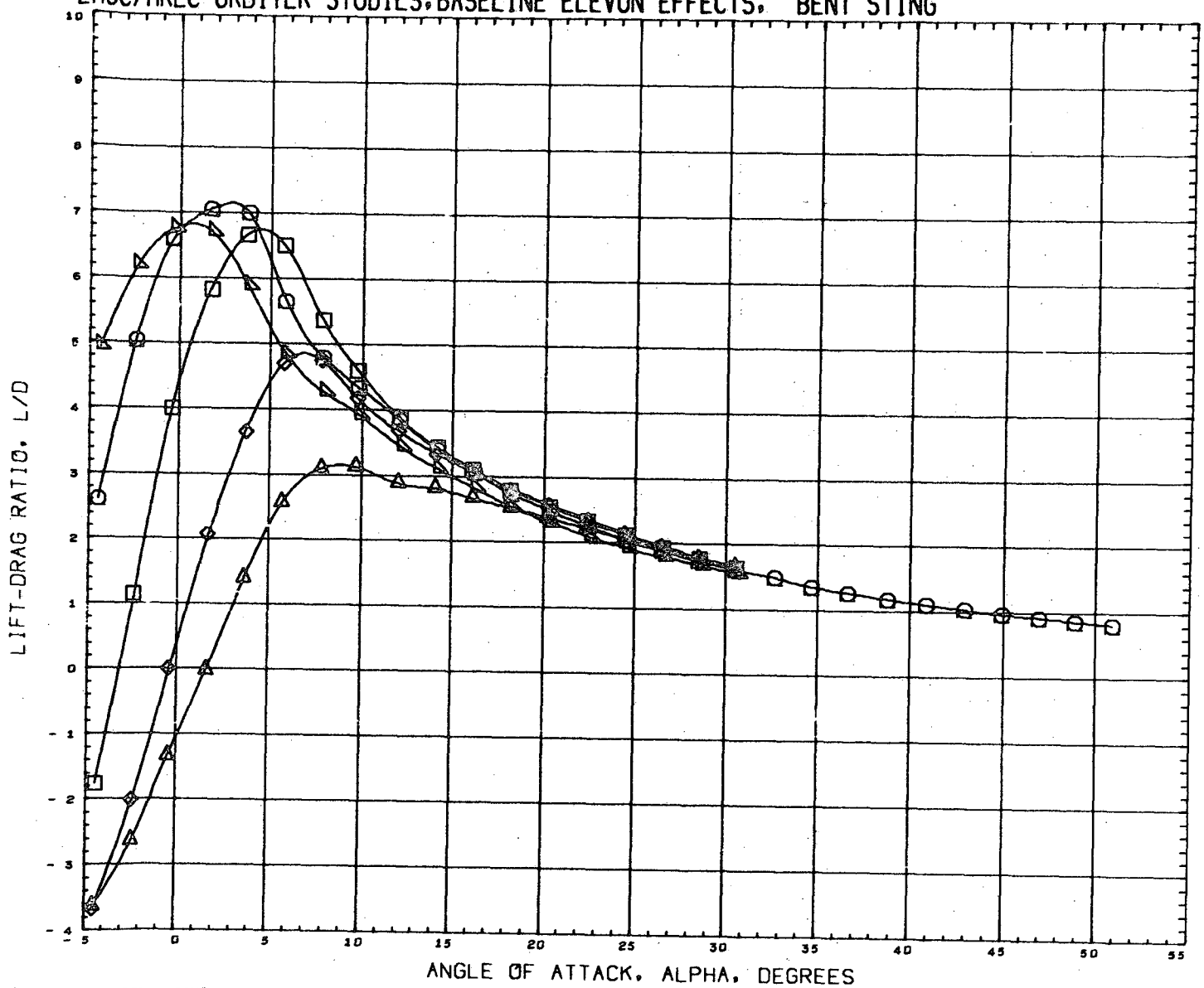


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	↗	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

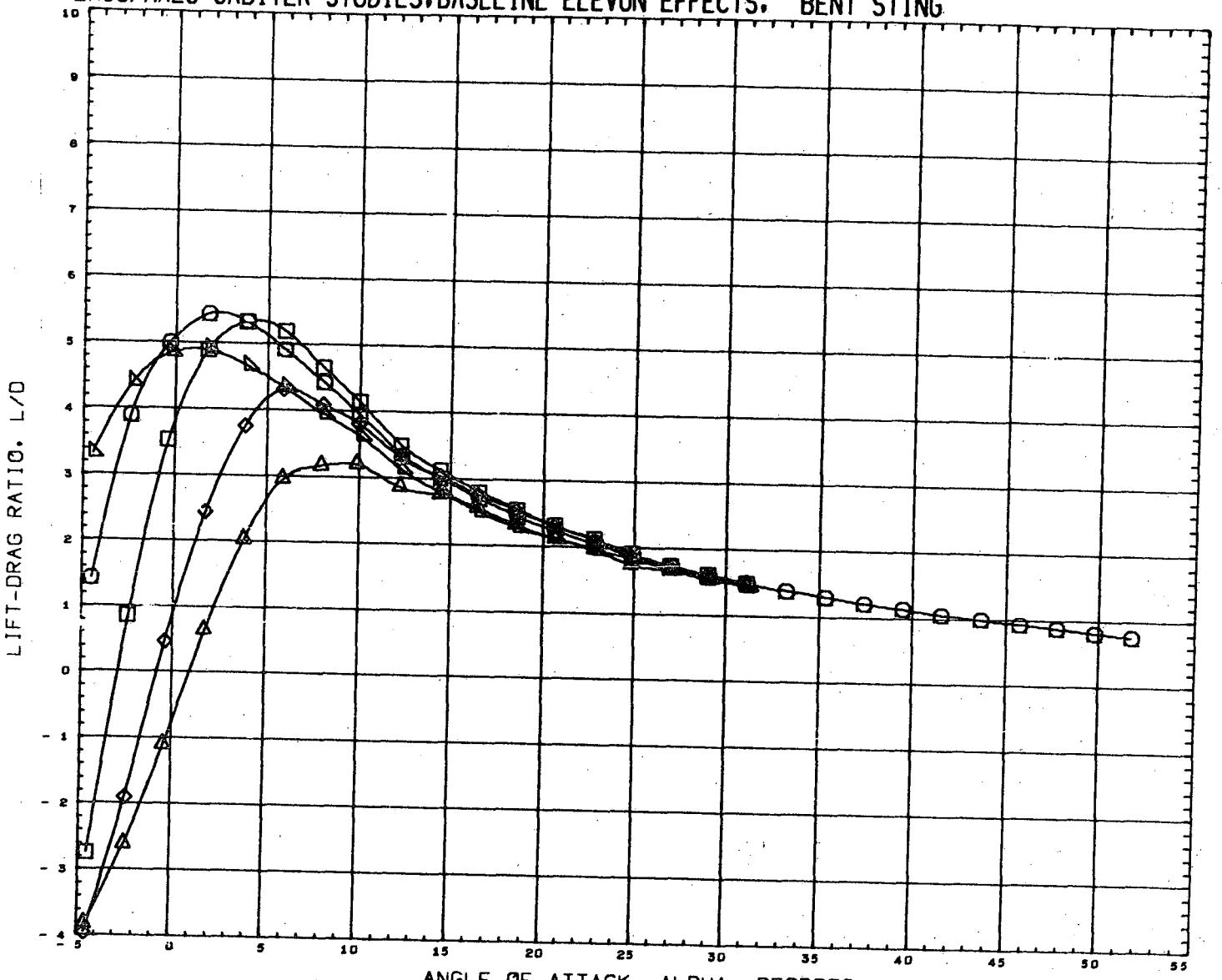


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



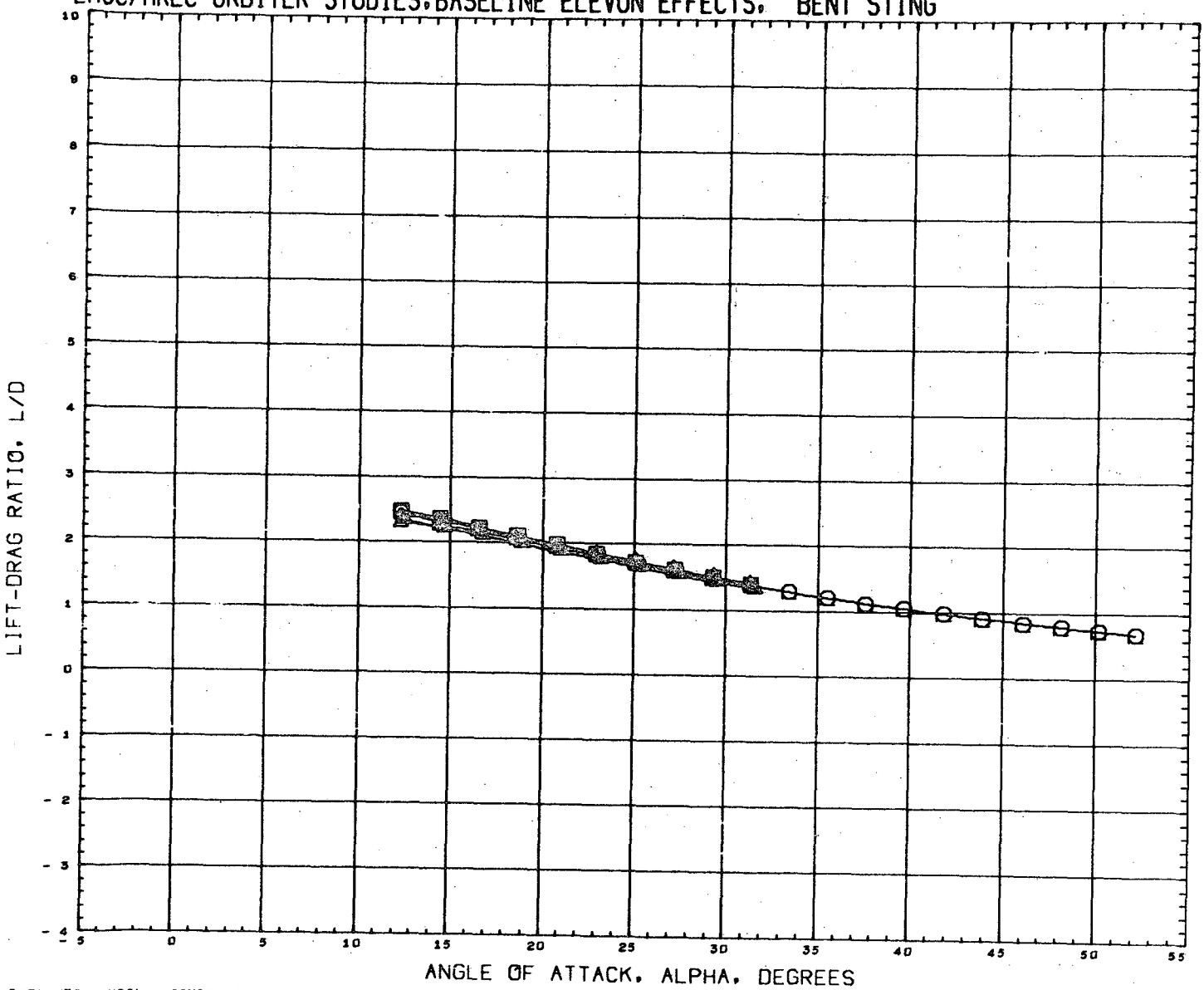
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. BASELINE ELEVON EFFECTS. BENT STING



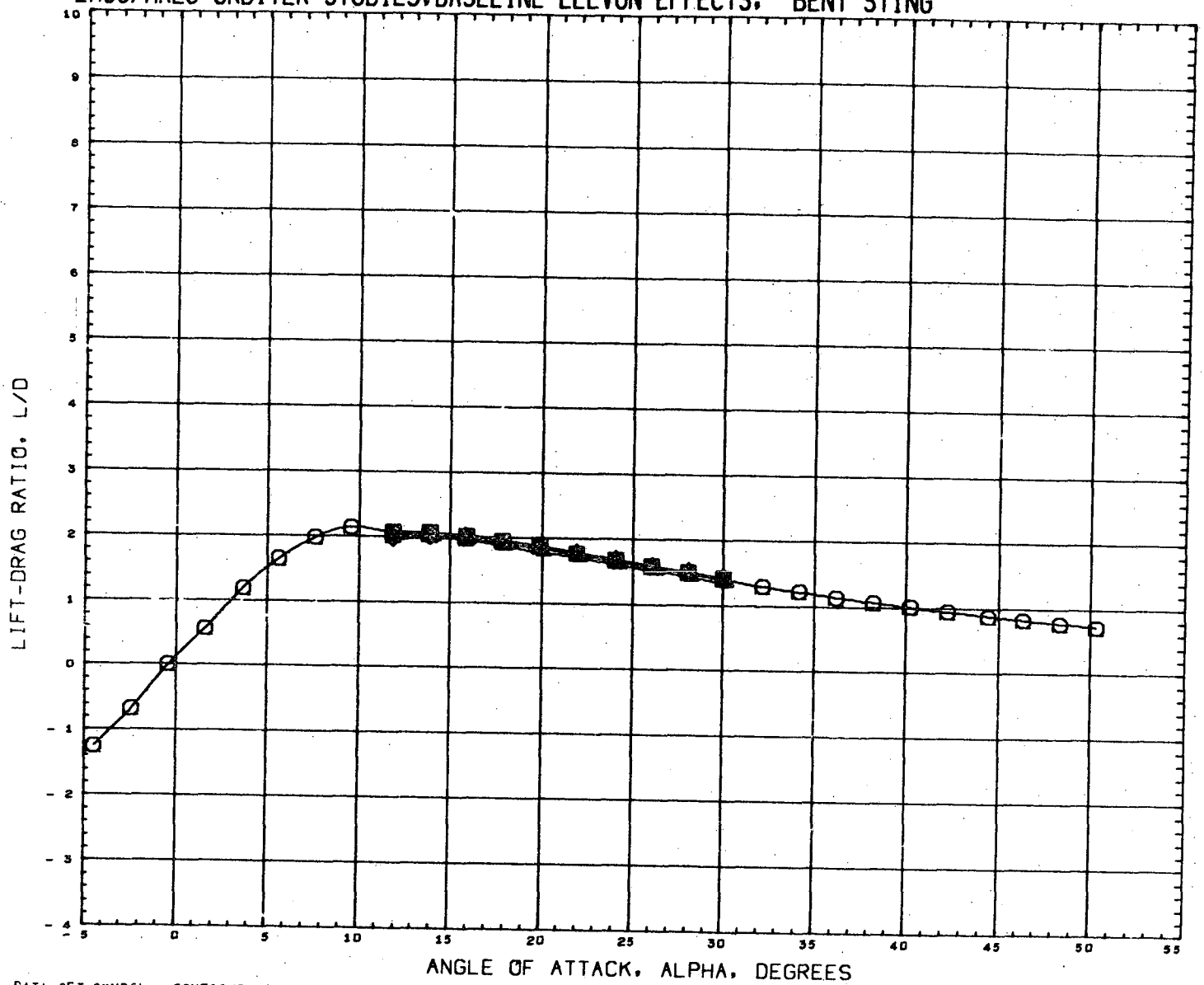
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

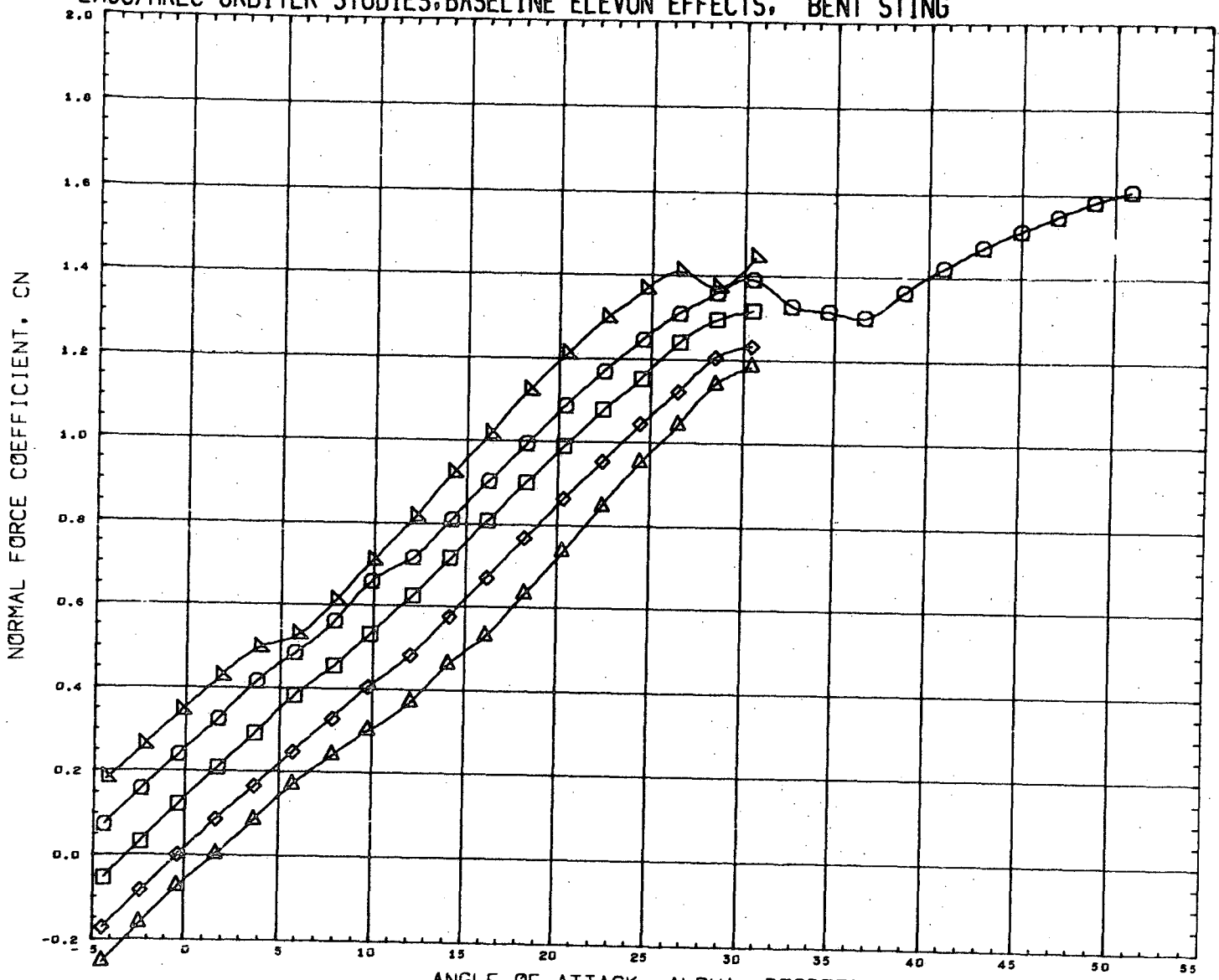


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D36D5S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D36D4S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D36D3S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E36D1S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D36D2S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



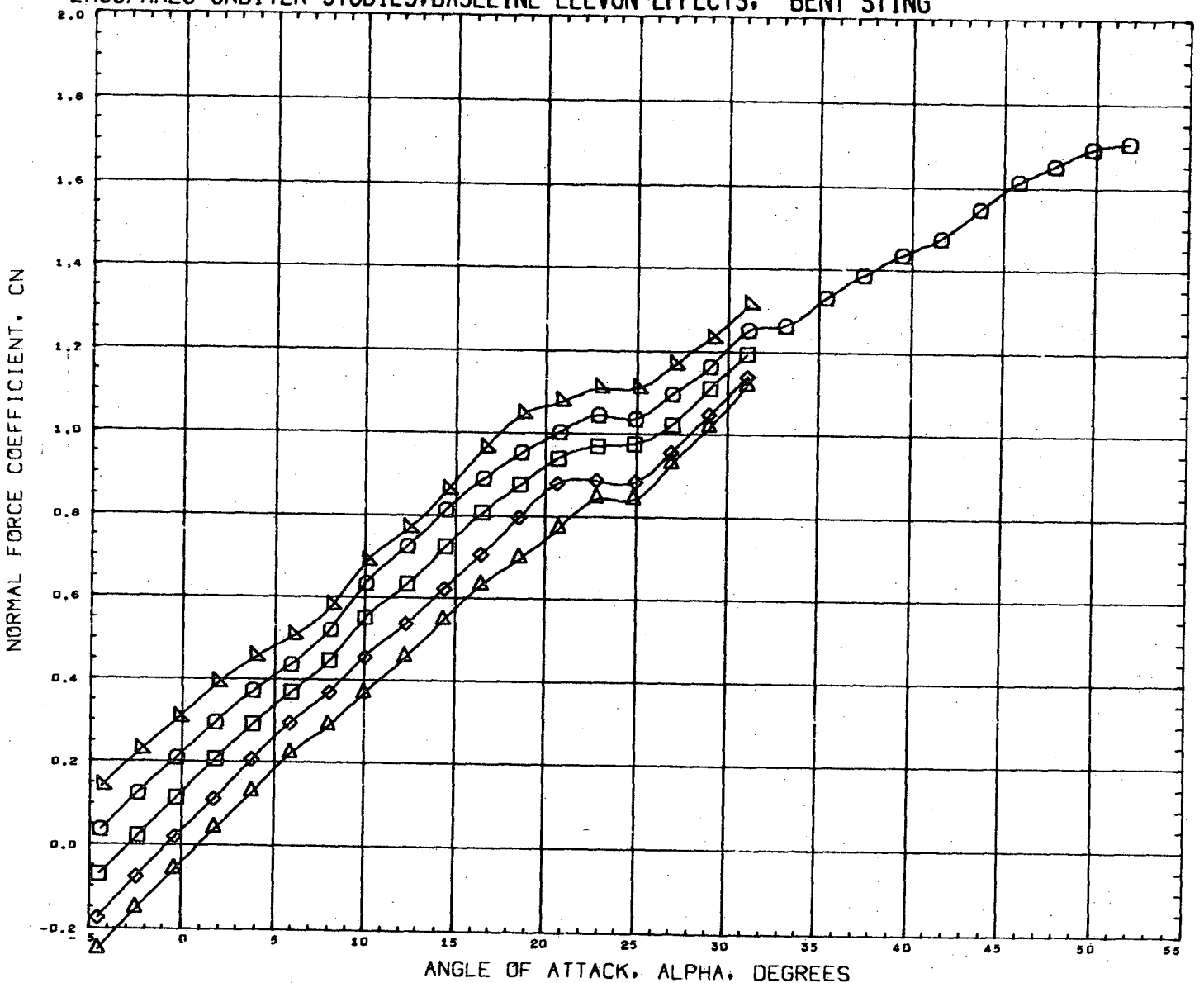
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	⬠	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

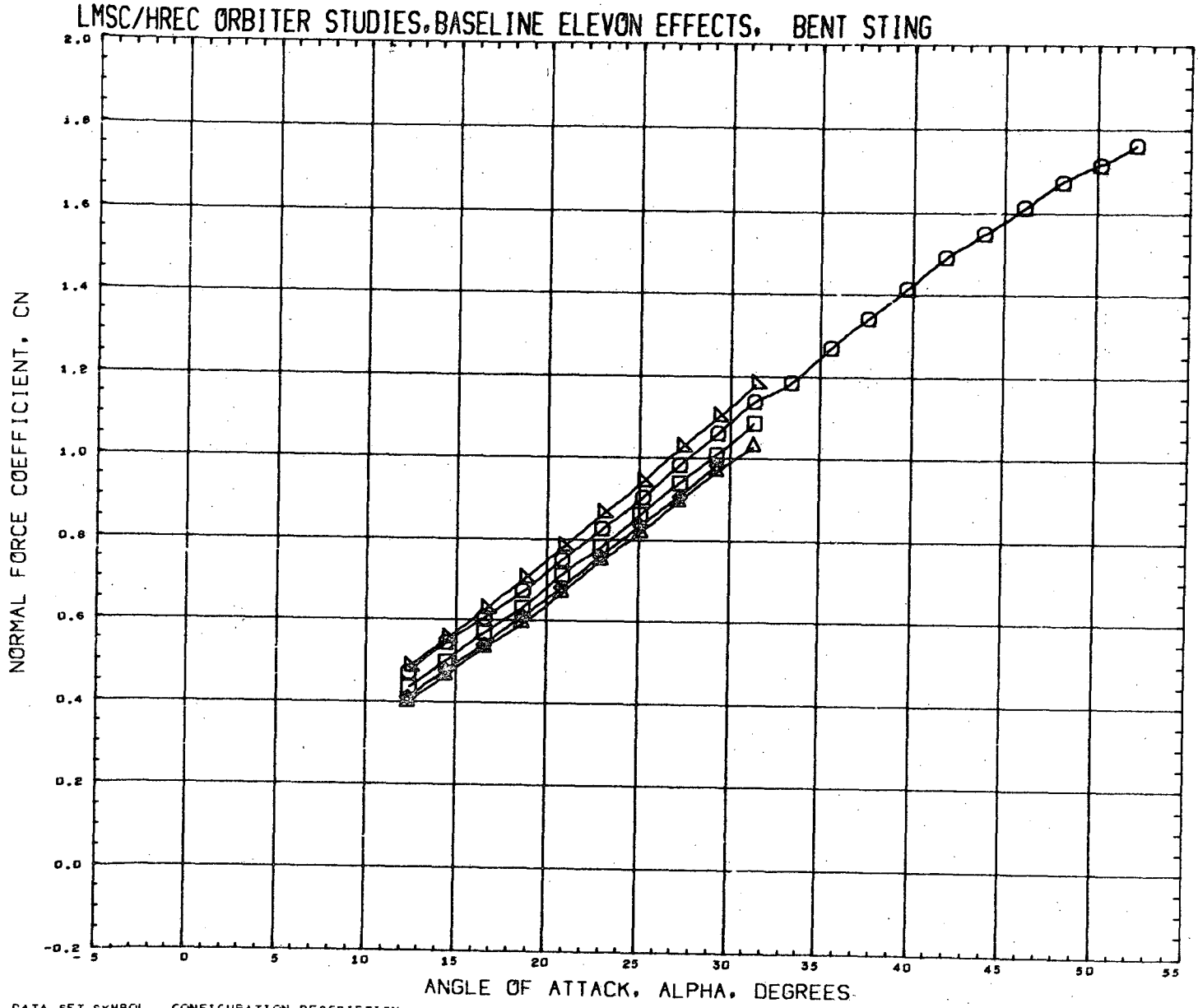
LMSC/HREC ORBITER STUDIES.BASELINE ELEVON EFFECTS. BENT STING



DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE



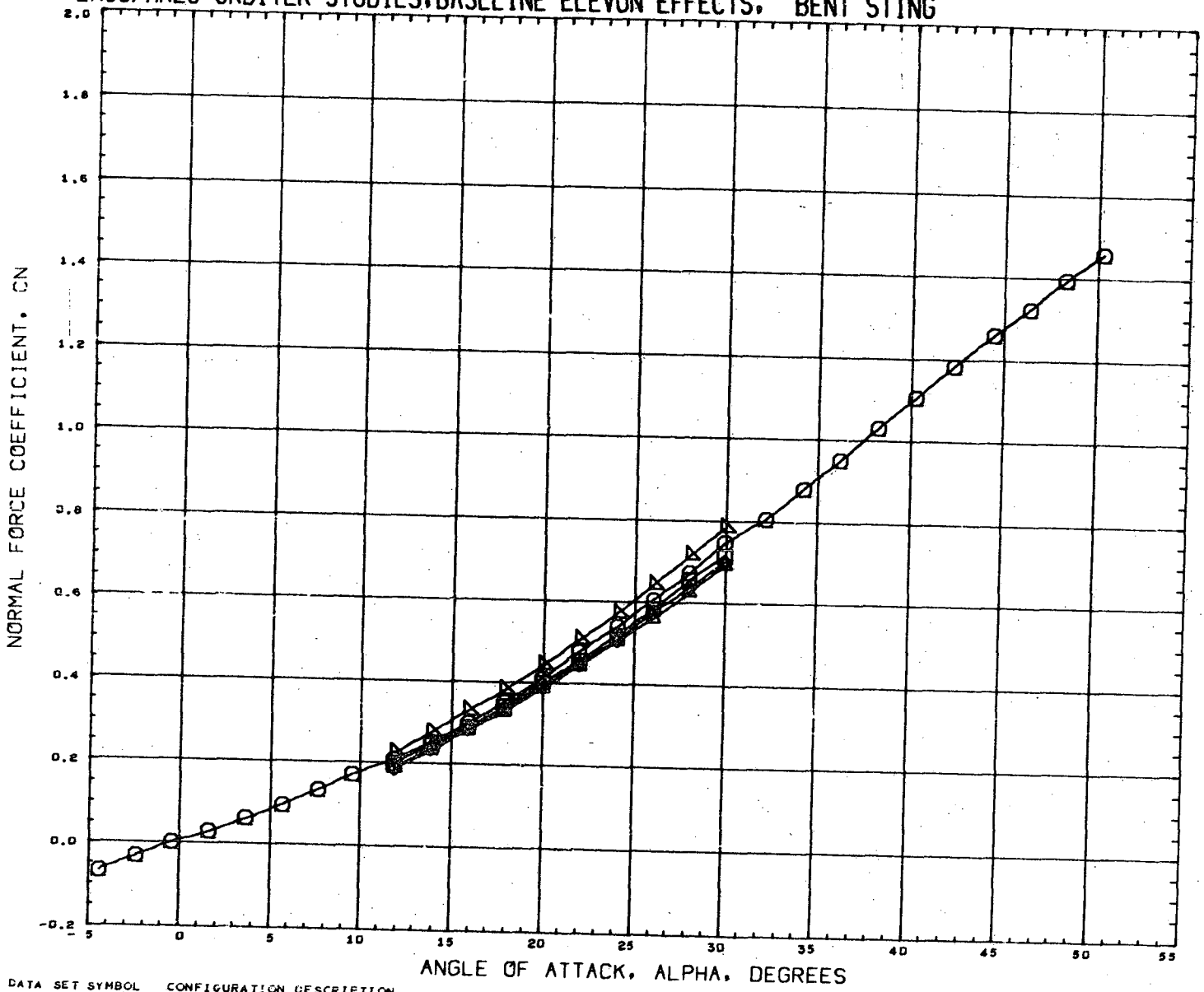
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



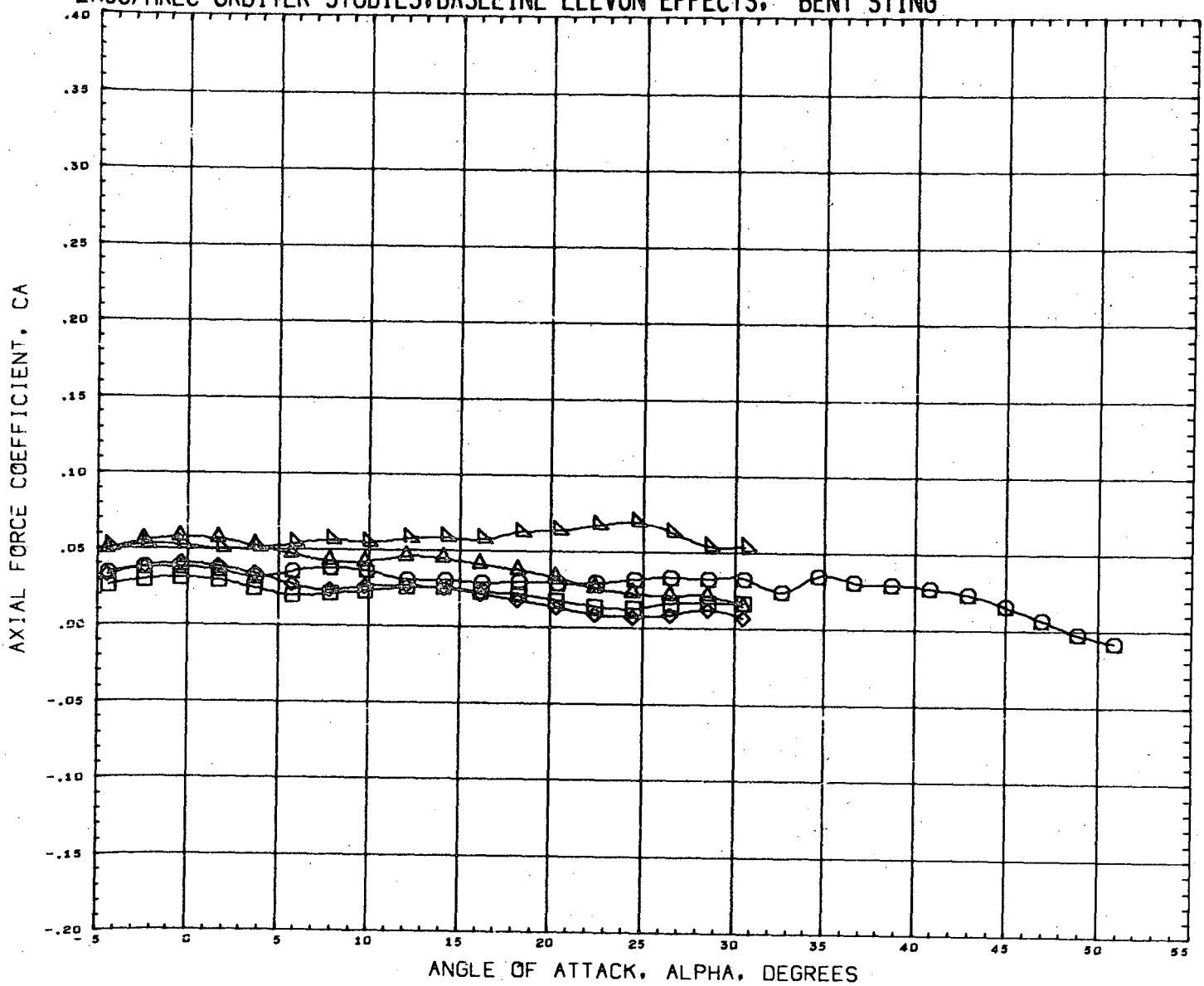
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



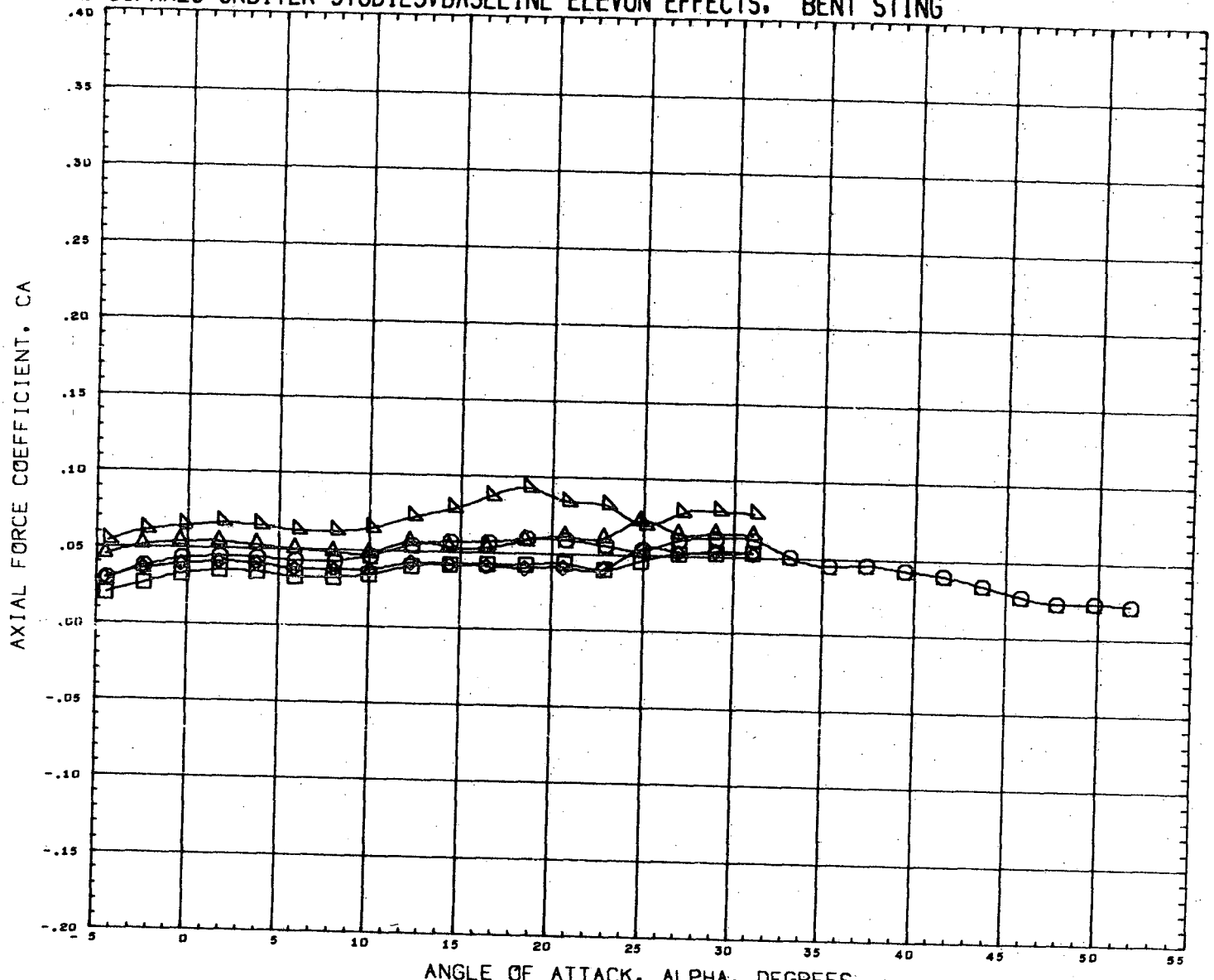
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



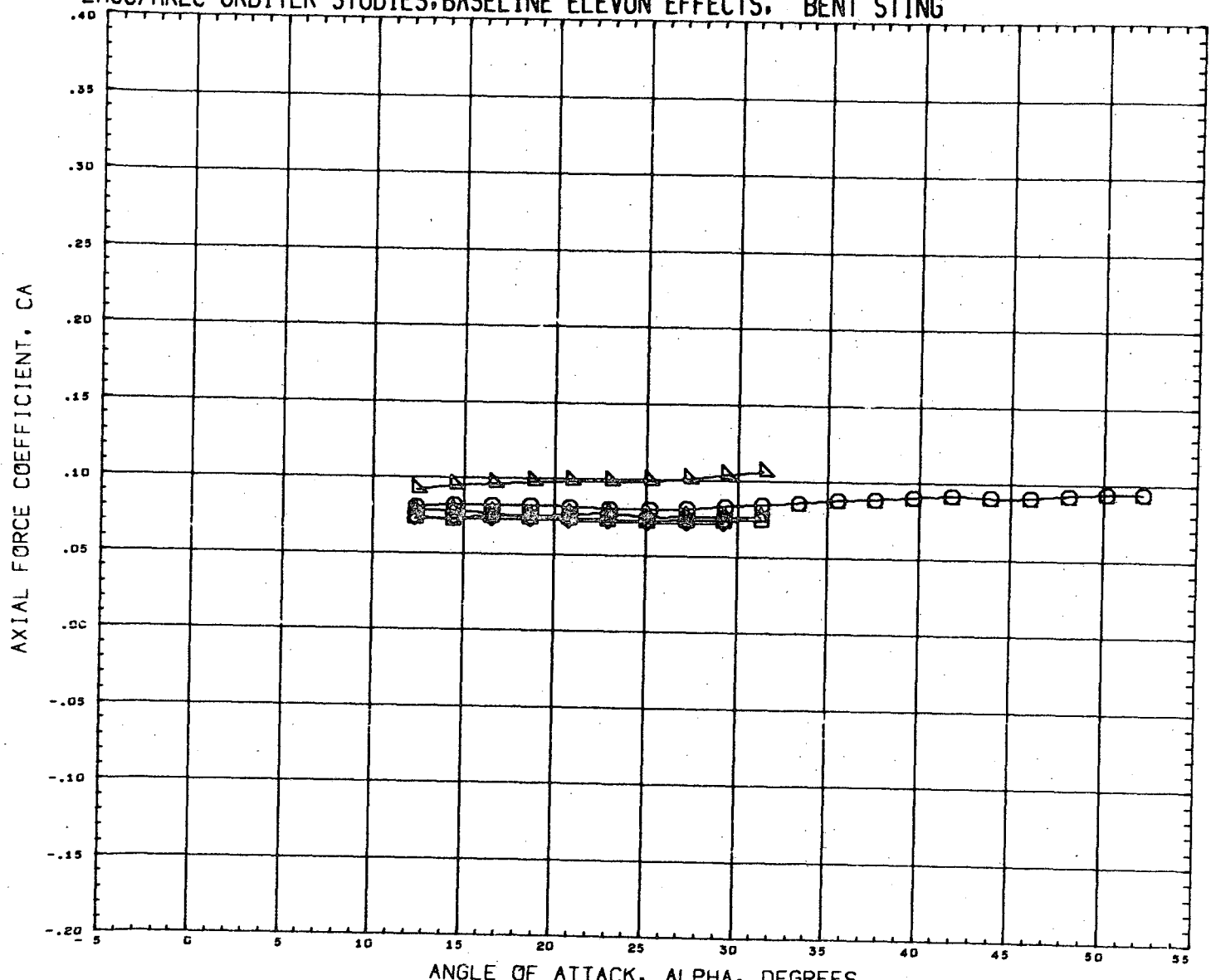
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



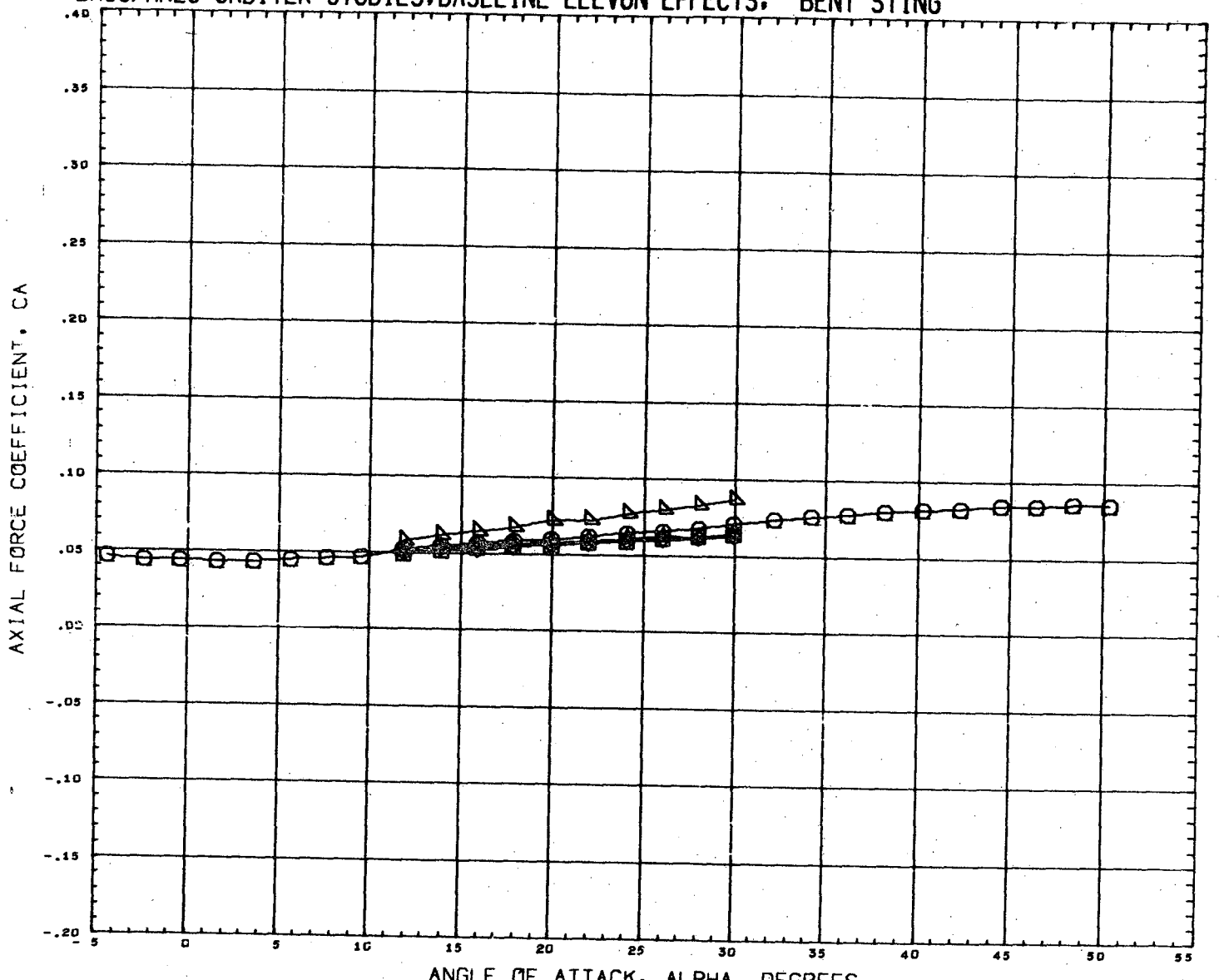
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

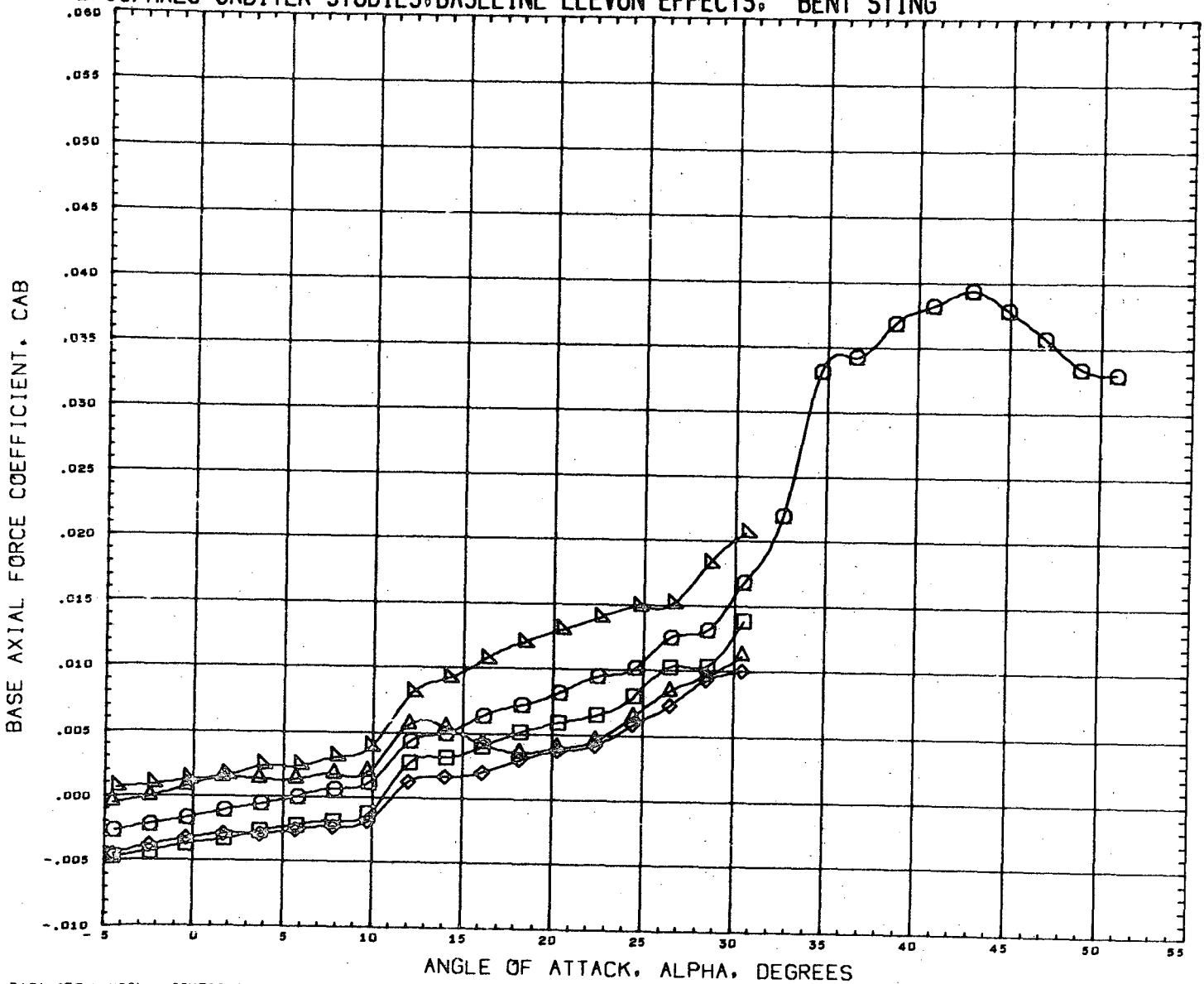


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	⬠	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	⬡	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



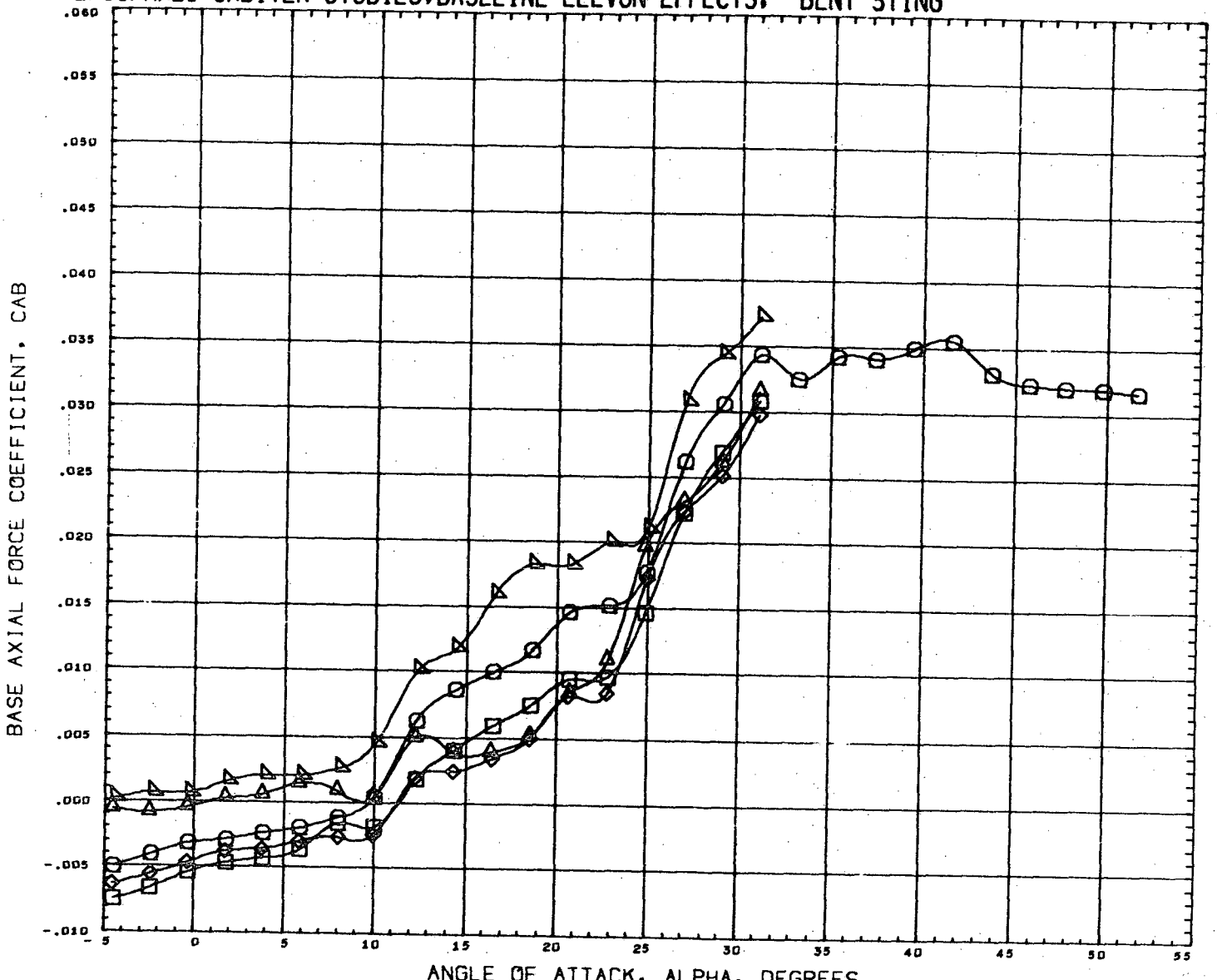
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◸	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



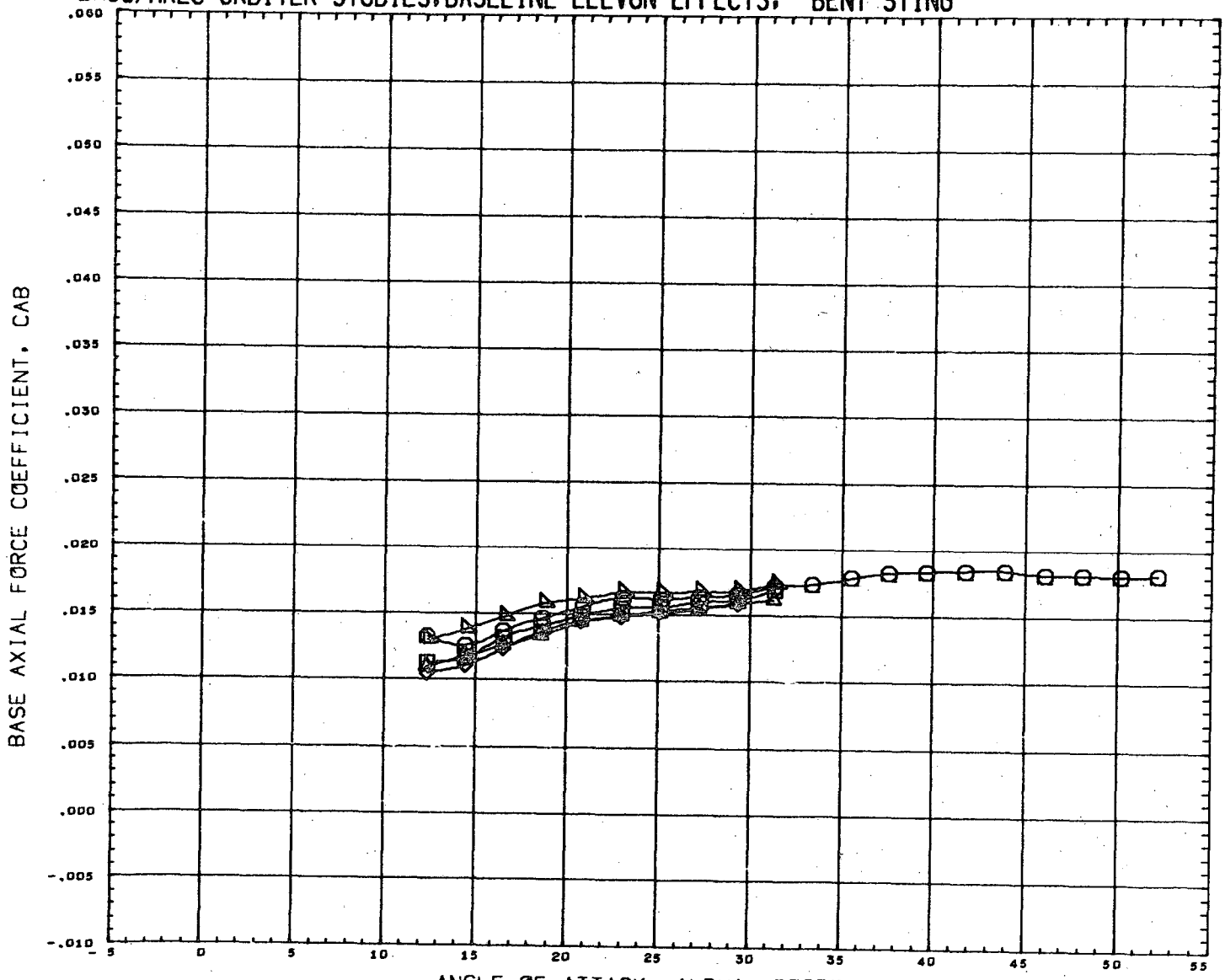
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



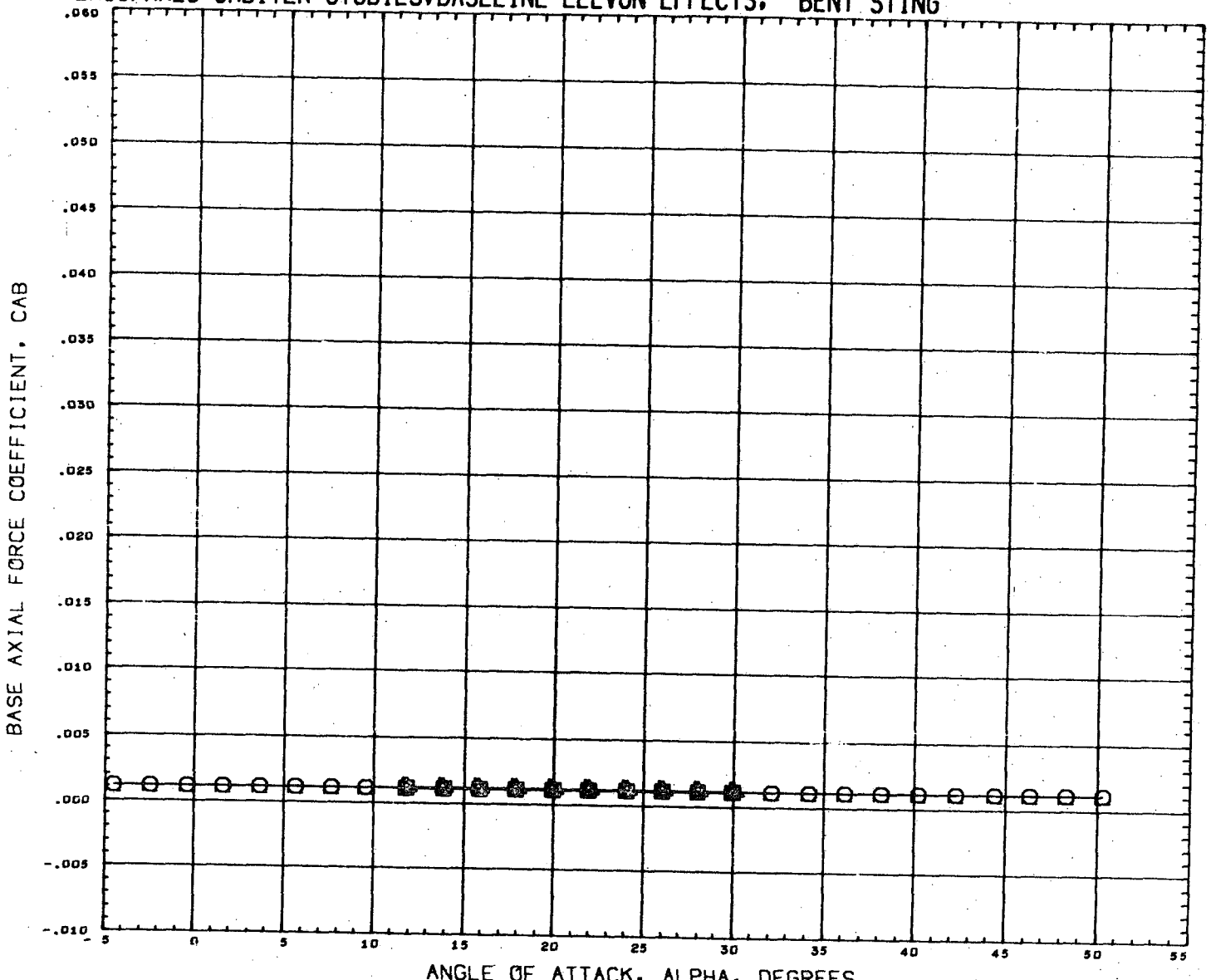
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



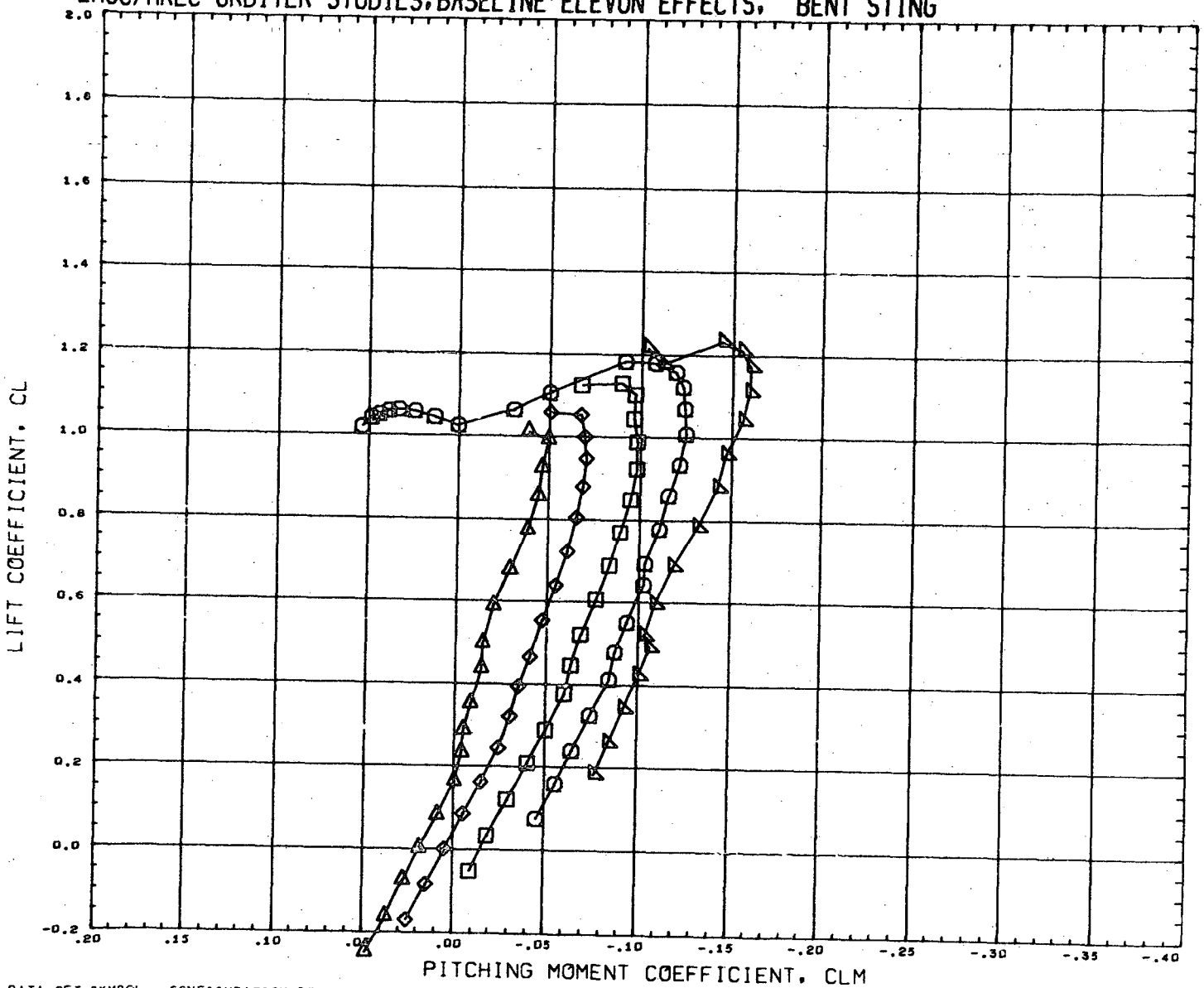
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



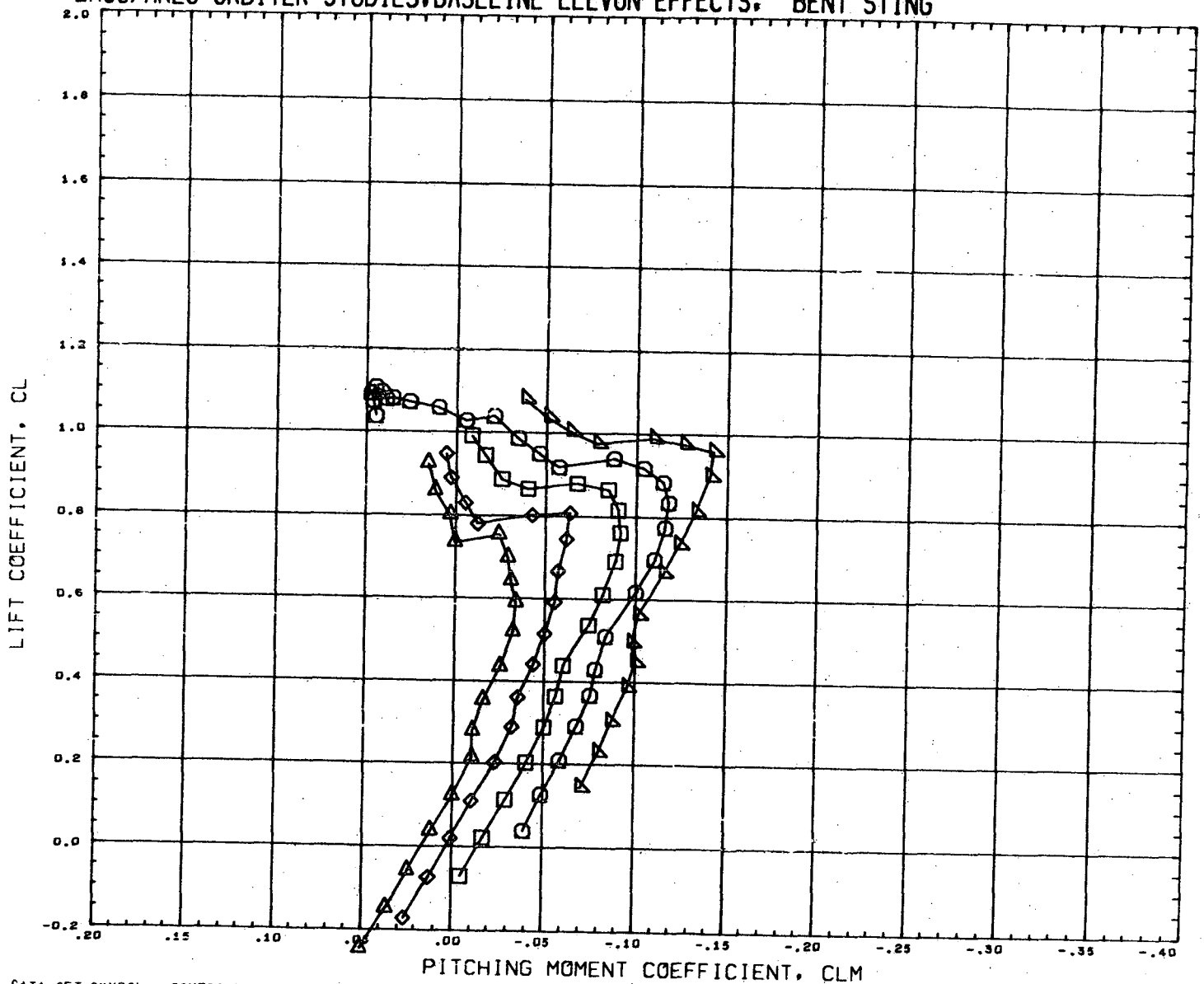
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.591

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



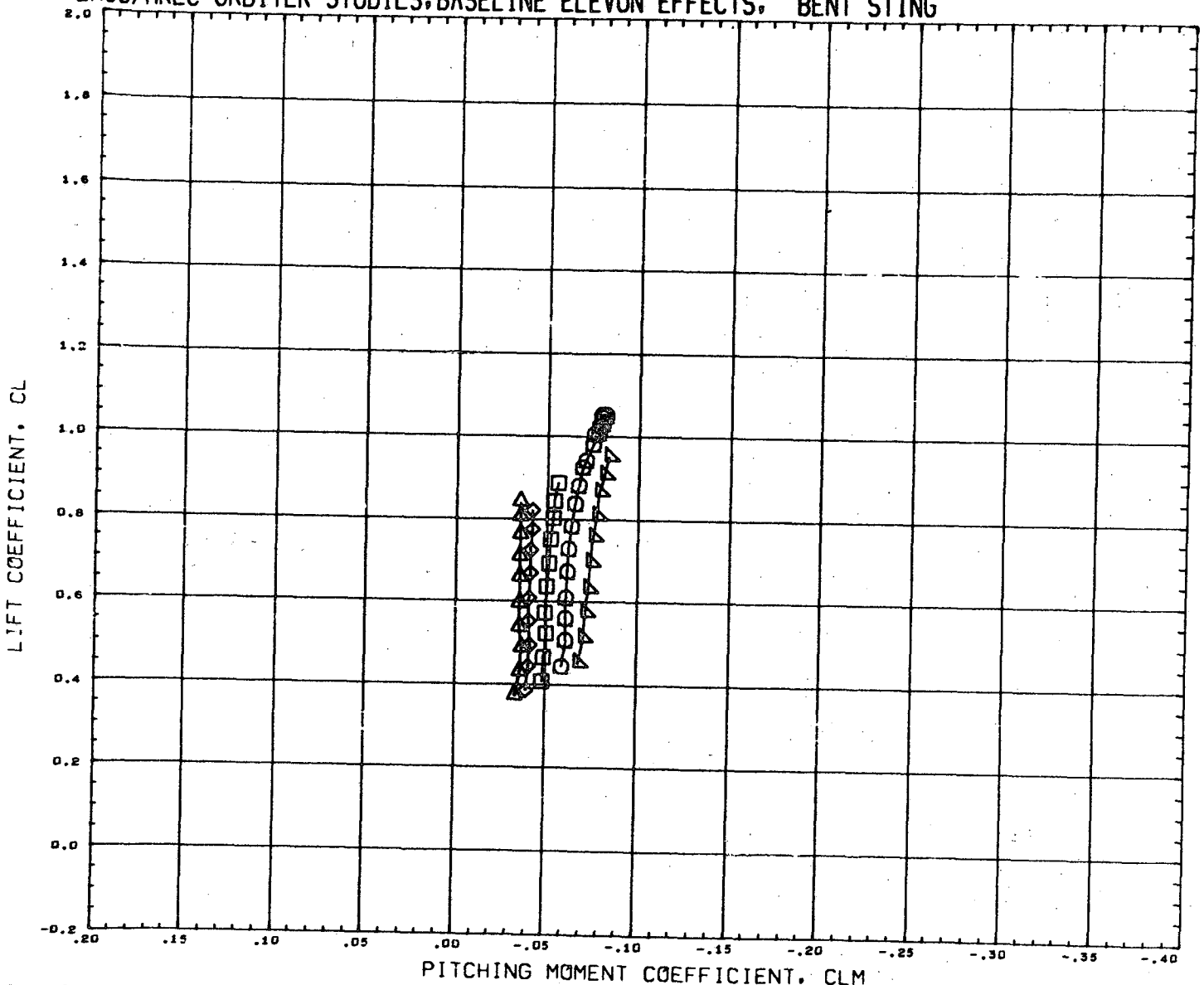
DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S) ▽	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S) ▷	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 0.903

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING



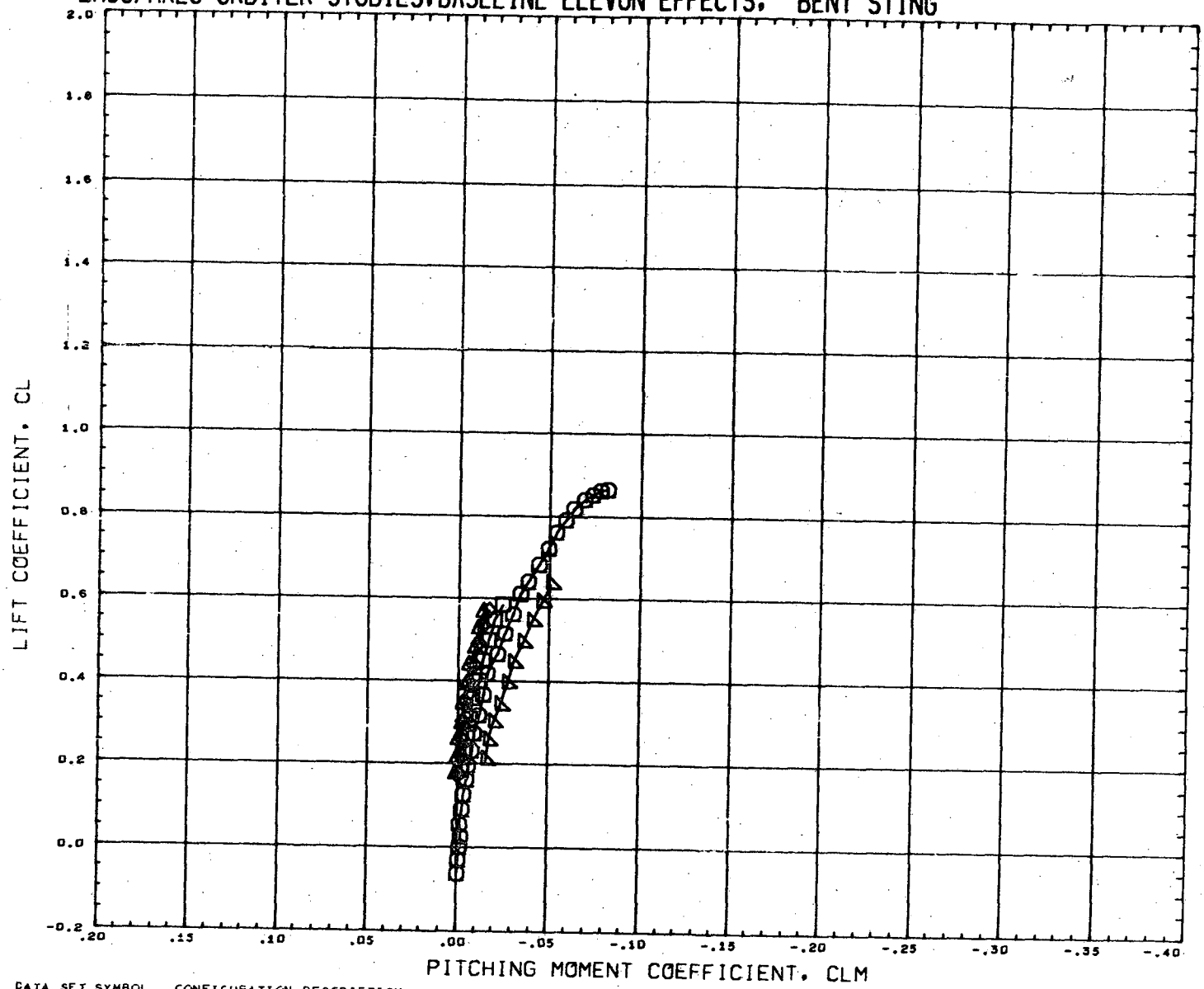
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S)	□	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	◁	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 1.966

REFERENCE INFORMATION

SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE ELEVON EFFECTS, BENT STING

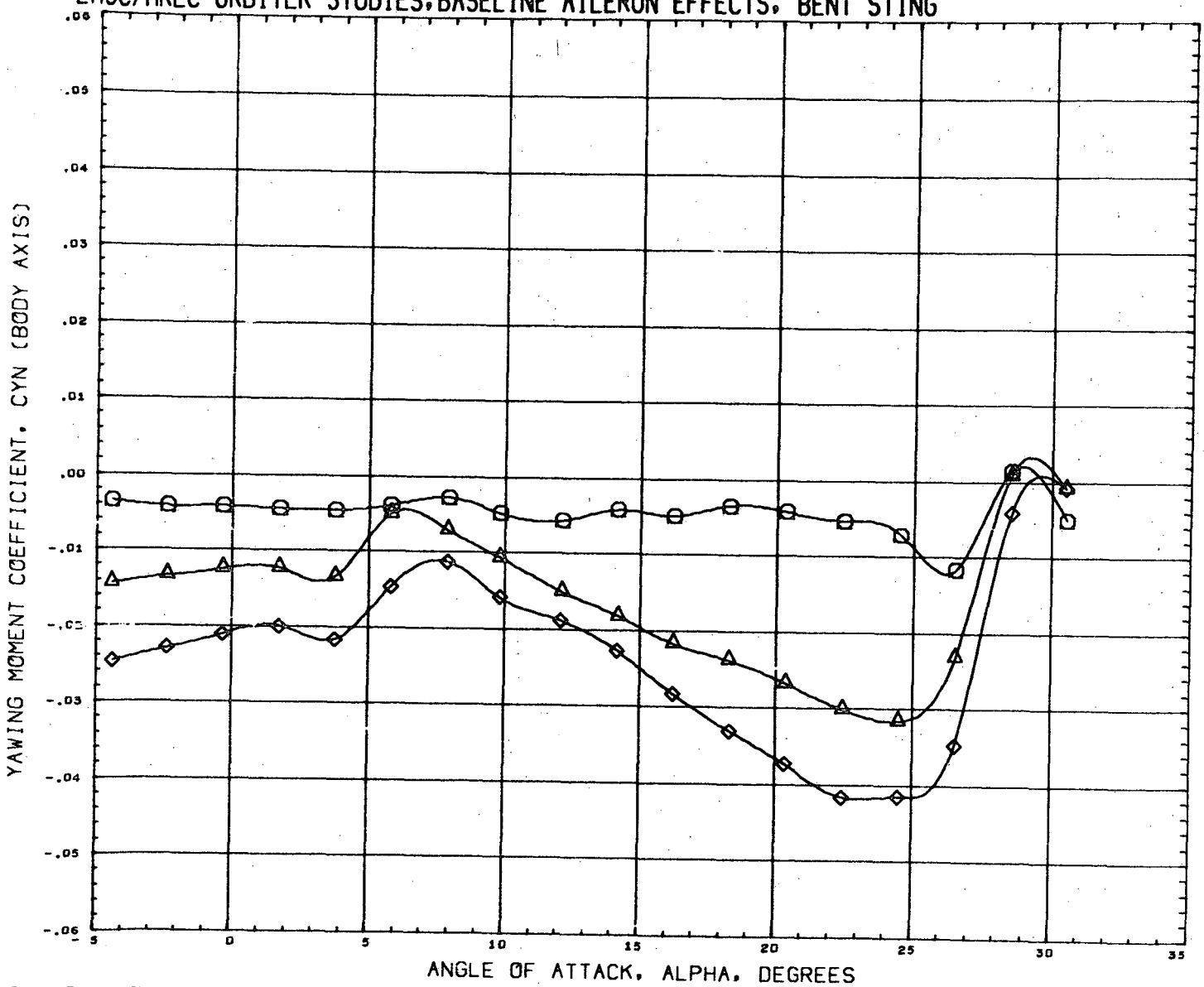


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3
(D3605S) △	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-30.000	0.000
(D3604S) ◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-20.000	0.000
(D3603S) □	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	-10.000	0.000
(E3601S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000
(D3602S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	10.000	0.000

MACH 4.959

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP -	0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING

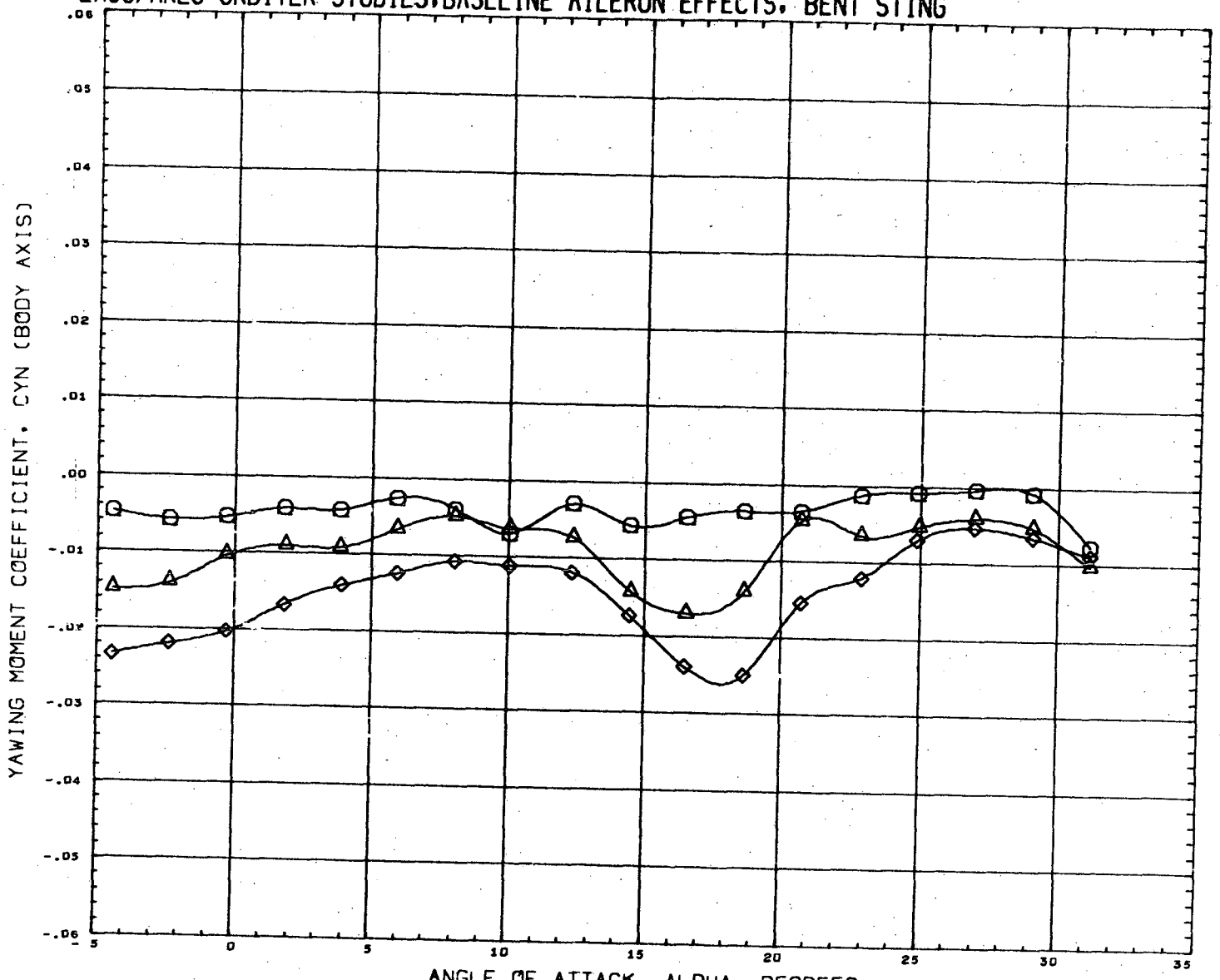


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING

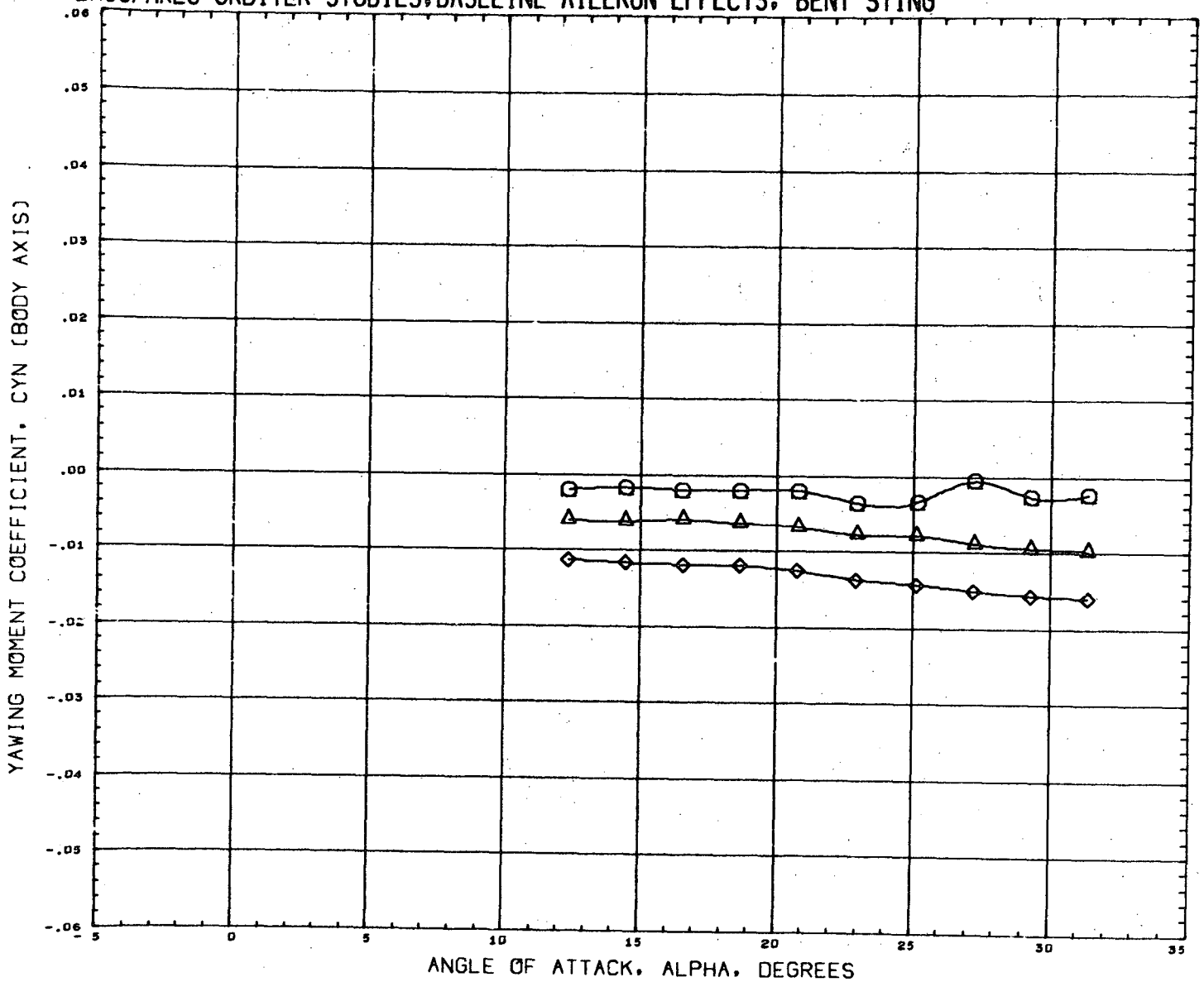


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)		MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING

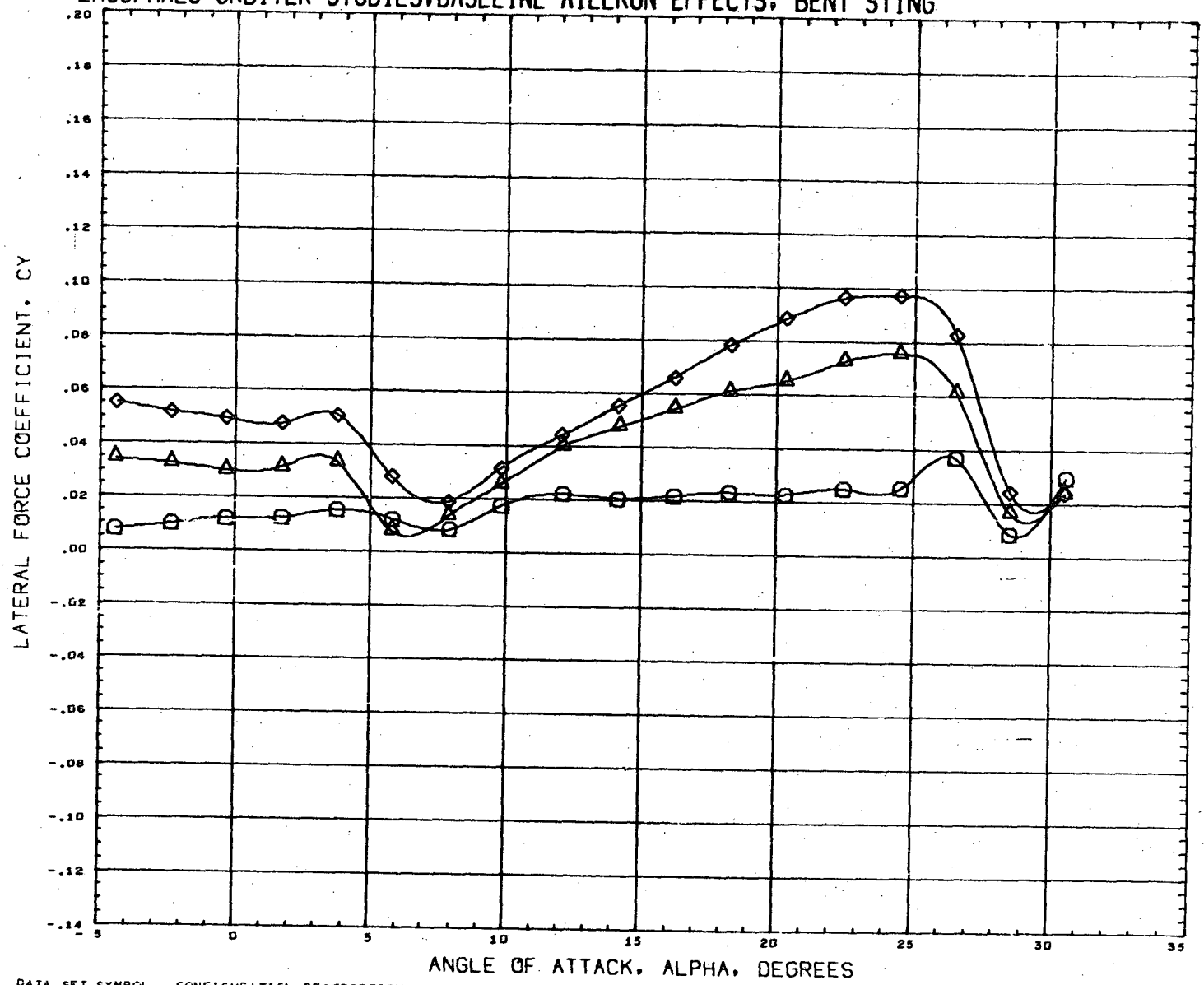


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.947

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

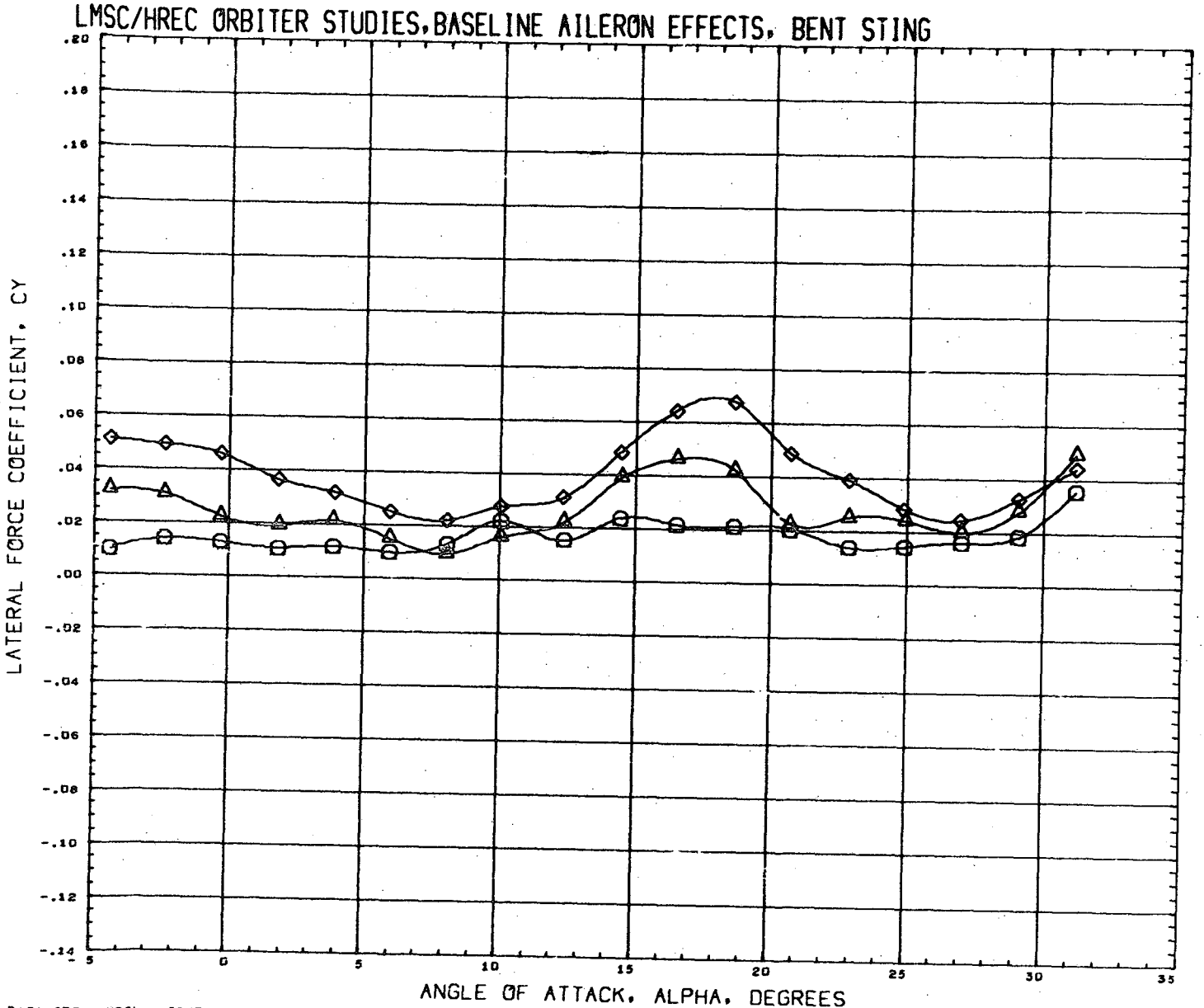
LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	0.1350	INCHES
SCALE	0.0033	SCALE

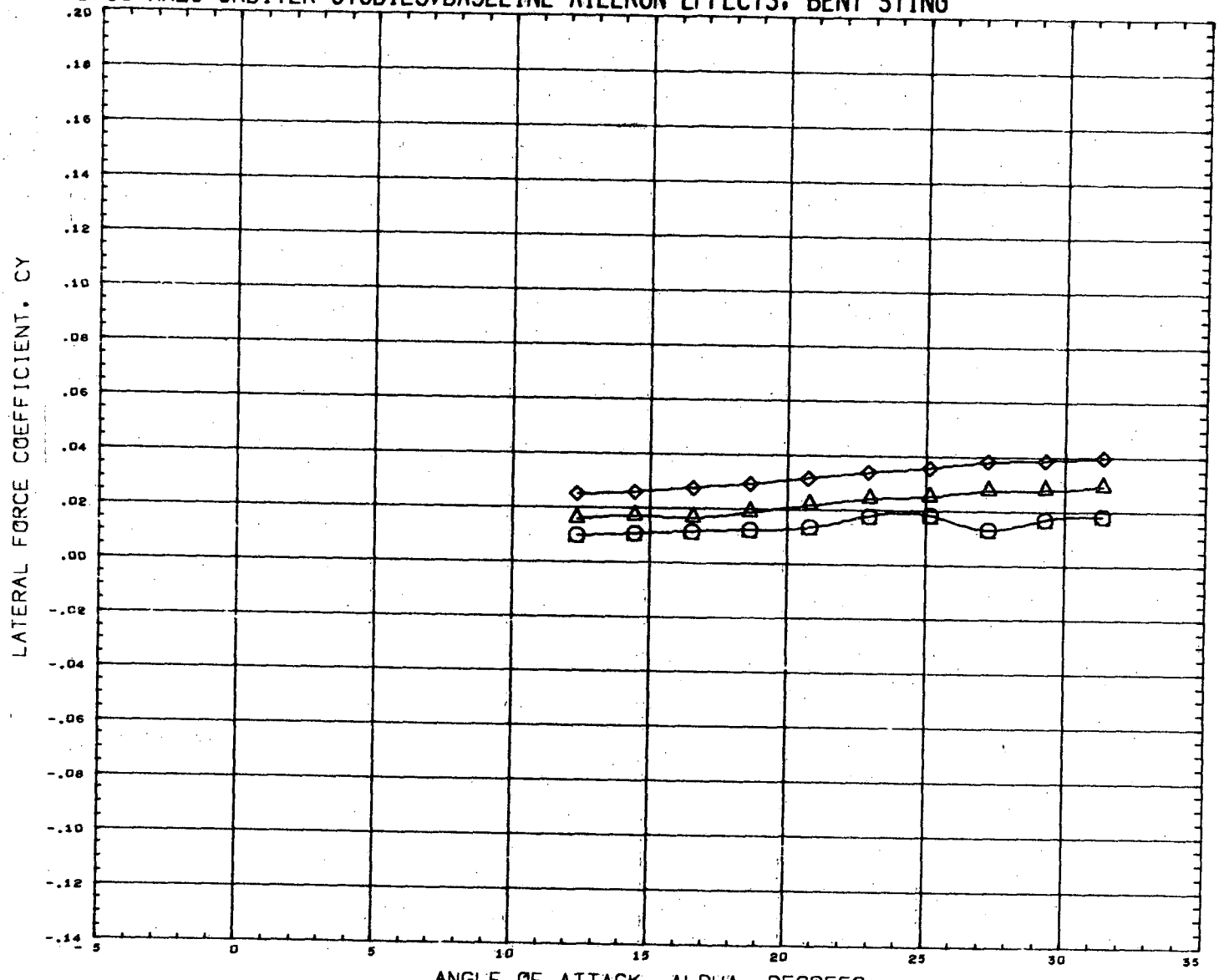


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING

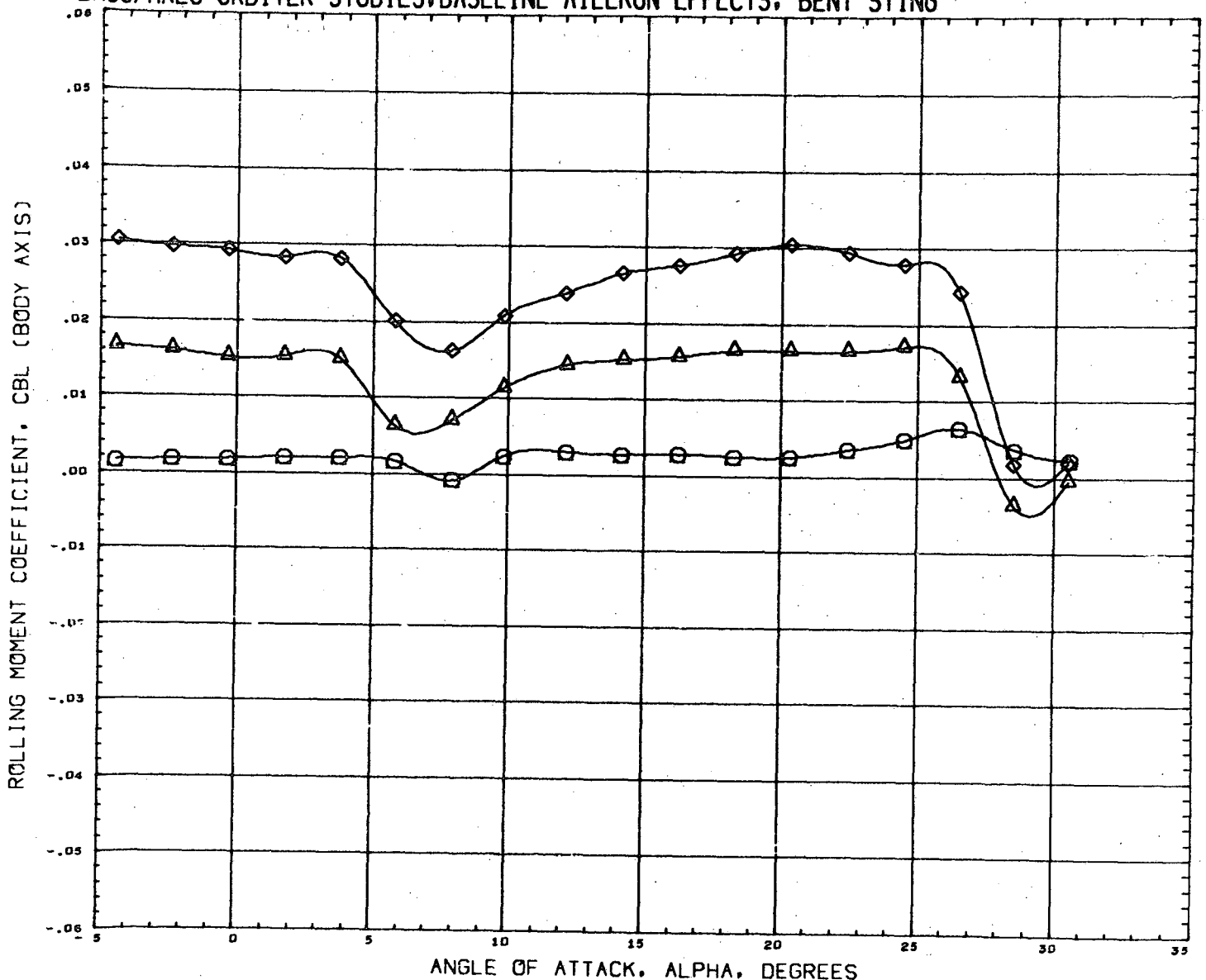


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.947

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	- 0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING

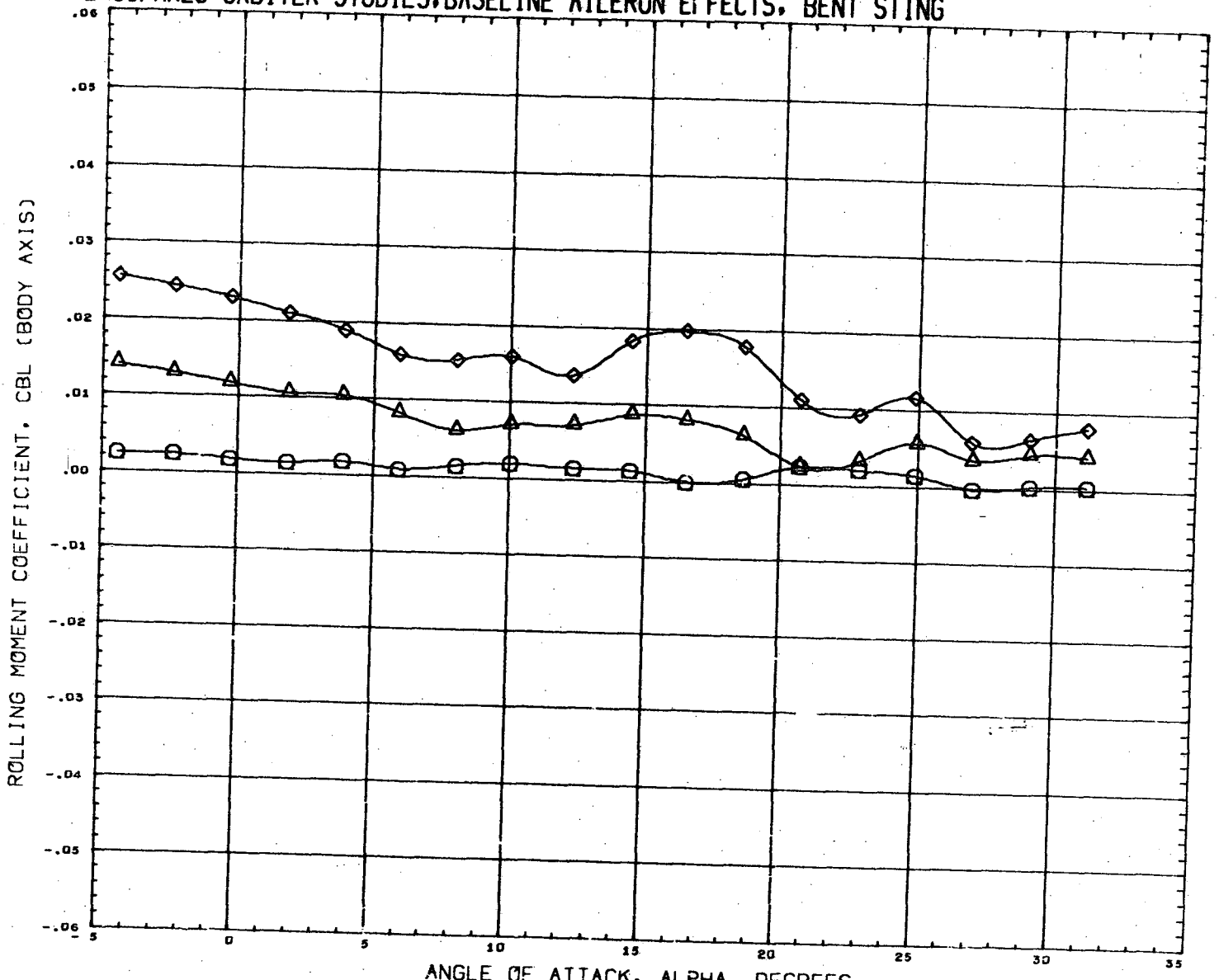


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.594

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES. BASELINE AILERON EFFECTS. BENT STING

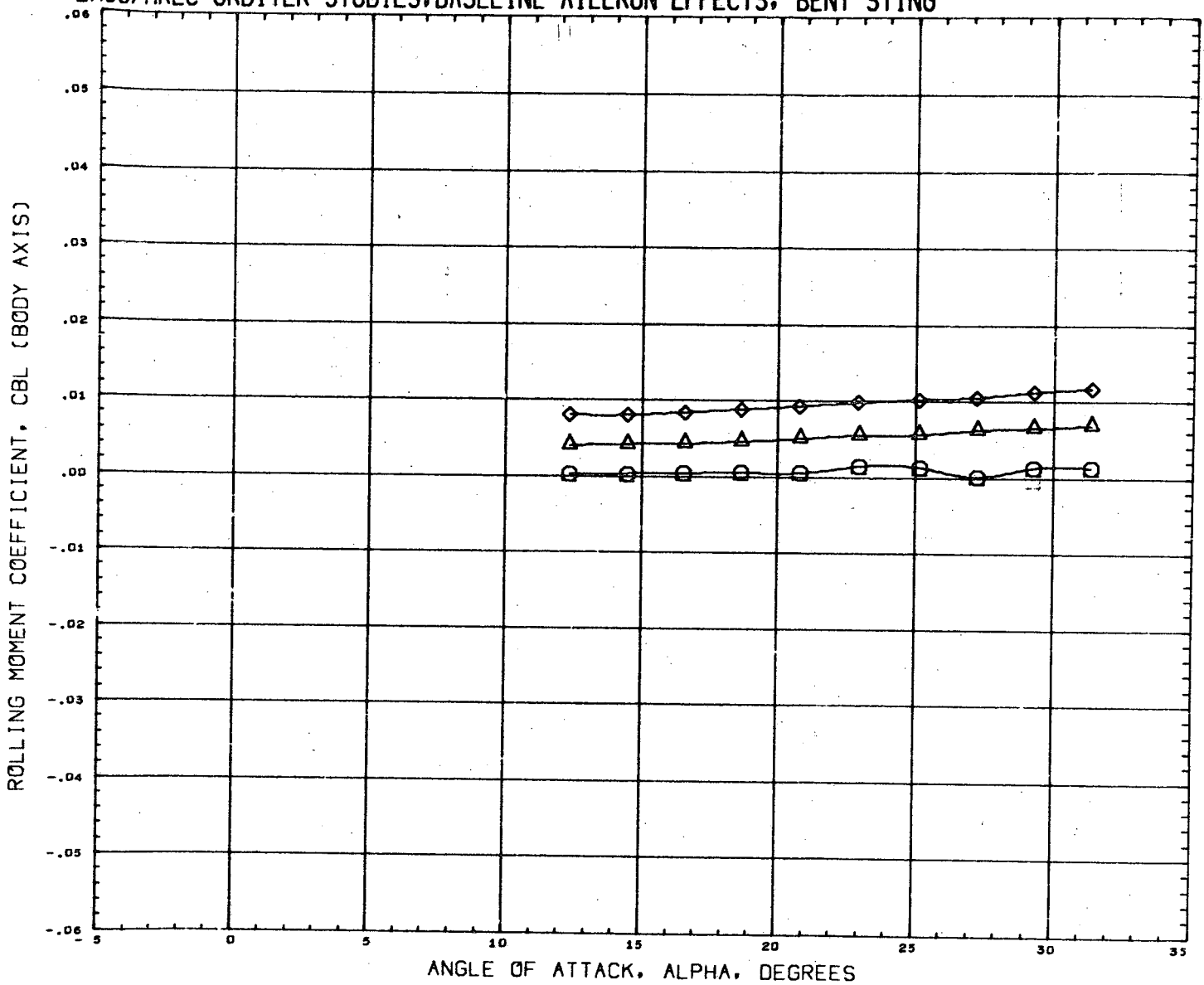


DATA SET SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 0.903

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE

LMSC/HREC ORBITER STUDIES, BASELINE AILERON EFFECTS, BENT STING



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION		BETA	ELEVN1	RUDER3	AILRON
(H3601T)	○	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	
(H3606S)	△	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	10.000
(H3607S)	◇	MSFC TWT 494 MSFC/LMSC ORBITER	B1W1V1E1	0.000	0.000	0.000	20.000

MACH 1.947

REFERENCE INFORMATION		
SREF	9.0250	SQ.IN.
LREF	6.1420	INCHES
BREF	6.1420	INCHES
XMRP	3.9950	INCHES
YMRP	0.0000	INCHES
ZMRP	-0.1350	INCHES
SCALE	0.0033	SCALE